Meridian 1 Options 21 through 81C

Basic Telecom Managemet

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About this guide

Who should use this guide

This guide is intended for the novice Meridian 1 administrator or programmer. Use this guide when you are installing telephones or performing programming changes on existing telephones.

How to use this guide

This guide contains detailed instructions for programming new telephones, moving and removing telephones and making programming changes related to features that can be assigned to telephones.

Please read before you start

The information in the *Before you begin* section provides a novice reader with the background information required to fully understand the material presented in the Task modules.

- *You should know this* covers basic background information on systems and the system-related terms used throughout the guide
- the *Call Detail Records* and *Traffic* modules help the novice reader understand references made to these topics in the Task modules

The module on *Basic programming instructions* should be covered in detail to ensure you have the programming skills required to complete the procedures in the Task modules. It is also recommended that the novice reader attend a programming course offered by Nortel Networks or by the system supplier.

How the sections of this guide work

Task sections

The bulk of this guide is made up of modules which explain how to perform tasks. Each Task module has three parts: an introduction, a flowchart, and a step-action procedure table. You should use these parts of a module in the order in which they appear.

Introduction (narrative)

The introduction provides you with information about a feature or function. It includes information under the following headings:

- Purpose — briefly outlines what the feature or function does
- Basic (feature) configuration — minimum information you need in order to program the basic feature or function, including:
  - setting up the feature
  - using the feature
  - interactions with other features
- Improving (feature) performance — information that will enhance your implementation of the basic feature or function
- Control tips — information related to the feature or function covered in the module that can help you improve control of your systems and users
- Administration tips — information related to the administration of the use of the feature or function covered in the module
- Training tips — information on how you can properly train users and how you can get the most out of training
- What to have ready — a checklist of basic and optional information to have ready and work that needs to be done before you can begin to program the feature or function

Flowchart

The flowchart is a summary of the steps and decisions that are involved with programming an area of functionality. It summarizes the programming procedure and helps ensure you have everything ready before you start programming.

Step-action procedure

This part of the Task module guides you through the programming part of the task.

We assume you are comfortable with the basic skills and competencies described in the *Basic programming instructions* module, and that you have read the narrative and flowchart parts of the module.

This guide assumes you have access to overlay programs 10, 11, 20, 21, and 22. Anything beyond that is outside the scope of the guide. When programming is required in other overlay programs, we advise you to contact your system supplier. We also remind you to check any maintenance agreements you have that specify what programming you can do and what programming must be done by your system supplier.

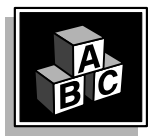
How icons and symbols are used

Task modules

Caution
This symbol alerts you to the risk of a service interruption.

This symbol is used to alert you to information that is of major importance. The text that appears beside the symbol can vary from one situation to another, and it is important that you read it.

About this guide



This icon illustrates basic building blocks. It appears in the Basic configuration part of each Task module. It symbolizes that the information in that part of the module is basic to the implementation of the feature or function being discussed.

This icon illustrates basic building blocks with additional blocks added. It appears in the Improving feature performance part of each Task module. It symbolizes that the information in that part of the module concerns the enhancements or optional capabilities that you can apply to the feature or function being discussed.

This icon illustrates a person who is directing traffic. It appears in the Control tips part of eachTask module. It symbolizes that the information in that part of the module helps you improve control of the system operation, costs, and security because of the feature or function being discussed.

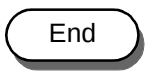
This icon illustrates a graph showing improvement trends in system efficiency. It appears in the Administration tips part of each Task module. It symbolizes that the information in that part of the module is related to the administration of the system with respect to the feature or function being discussed.

This icon illustrates a person doing telephone training. It appears in the Training tips part of each Task module. It symbolizes that the information in that part of the module is related to the use of training with respect to the feature or function being discussed.

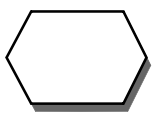
Flowcharts

This guide uses CCITT standard flowchart symbols.

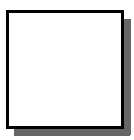
Every flowchart begins with this symbol.



This symbol appears at the end of a pathway within a flowchart.



This symbol contains text explaining what you have to decide.



This symbol contains text explaining an action that you should take or information that you should know.

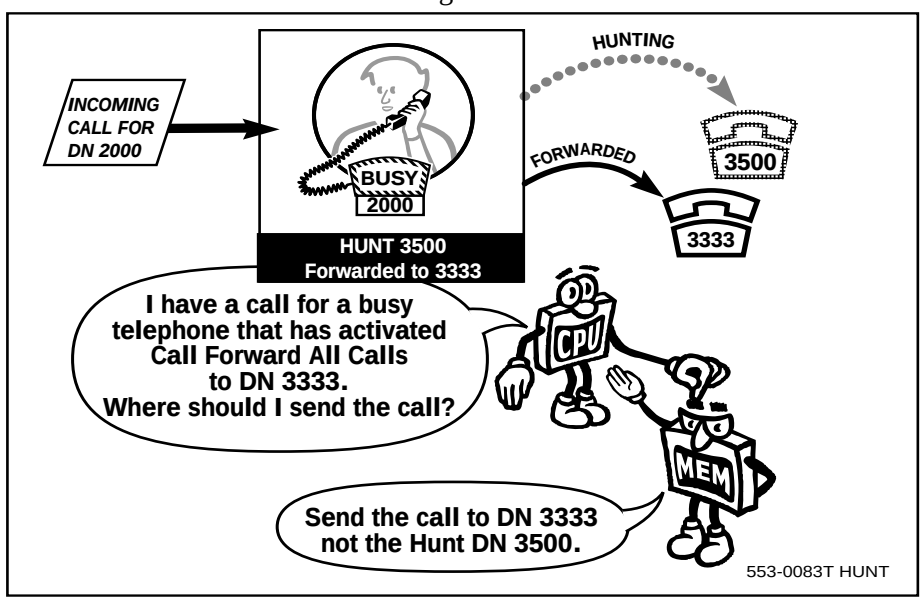
Graphics

Graphic illustrations in this guide use lines with arrows to show calls travelling from one point to another.

Lines indicating call redirection because of the Hunting feature are composed of a series of dots. A solid line is used for call redirections by other features.

The lines can be shown in grey or black.

- a line shown in grey, indicates that there is programming in place for a call-redirection-related feature but the call being illustrated does not follow that redirection pathway, due to a feature interaction
- a line shown in black, indicates the path that a call takes, after the feature interactions being illustrated take effect



In the illustration, the dotted grey line indicates that there is programming for the Hunting feature. Hunting redirects calls to DN 3500 when DN 2000 is busy. The Call Forward All Calls feature overrides the Hunting feature. The solid black line indicates the path the call in the example takes. The call is redirected to DN 3333.

How prompts and responses are represented

In this guide, the following conventions apply:

Prompts

Meridian 1 system prompts and any messages that the system outputs appear in the step-action tables in bold type face. The prompt appears at the far left, as shown underlined here:

CLS	FNA	Call Forward No Answer allowed

Responses

The responses or commands that you can enter at a particular prompt appear in the procedures to the right of the prompt itself, as shown underlined here:

TYPE	FNA	Call Forward No Answer allowed

Variables

Some prompts allow a wide range of responses.

For alphanumeric responses, A..A appears in the procedure and an explanation of the possible valid responses is provided in the description.

For numeric responses, a range of values is shown, as in the example here:

FTR	EHT	X..X	Input the DN to which external calls are to hunt, where X..X represents a DN that can be: 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later

Explanations

Explanations of what a prompt means or what the different responses do are provided to the right of the response as shown underlined here:

FTR	EHT X..X	Input the DN to which external calls are to hunt, where X..X represents a DN that can be: 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later

Software Releases

Prior to Release 20, International software is identified with a letter following the release and issue number. If there is no letter following the issue number, then the software was manufactured for the North American market. For example:

- X11 Release 14.46E software is International
- X11 Release 16.65 software is North American

Features and functions described in this guide often have a software release and issue number listed as a pre-requisite.

There are several factors that govern what releases and issues are offered in each market region.

This guide states the minimum level required, on a global basis, strictly from a technical point of view.

For example, the Multi-Party Operations (MPO) feature was first introduced in Release 14.46E. In some market regions, however, the MPO feature was first available with Release 20.

Contact your system supplier to confirm the availability of software for the features and functions that you want.

Availability of product

Ask your system supplier to verify which Nortel Networks telephones, software features, or hardware are available in your market area.

Language standards and translations

This guide is written to North American English standards.

You can find explanations of terms and equivalent terms in the *Terms and abbreviations* module and *Appendix 5* in this guide. Nortel Networks welcomes suggestions for additions to these modules.

Fax to: Manager,

Dept. 9V51,

Nortel Networks,

506-674-7314

Check with your system supplier or with Nortel Networks for versions of this guide in languages other than North American English.

Additional Meridian 1 documentation

Information about the use of telephones is presented in more detail in User Guides and Quick Reference cards. These guides and cards are available for every type of telephone you can use with the Meridian 1.

Certain features and options are beyond the scope of this guide. You can use the following documents to find information on all features and services related to the Meridian 1:

North America

- *X11 Software Features Guide*
- *X11 Input / Output Guide*
- *X11 System Management Overview, Applications, and Security*

International

- *X11 Software Feature Guide*
- *X11 Software Input / Output Guide*
- *Software System Management*

You should know this

Basic telephone concepts

Types of telephone systems

When telephones are required in a building for a group of users, there are several options from which to choose.

The three main types of systems are:

- Centrex
- Key System
- Private Branch Exchange (PBX)

Nortel Networks manufactures systems of all three types. The focus of this book is the Meridian 1 system which falls into the PBX category. The Nortel Networks system that serves Centrex telephones is called the DMS system. The Key system is called Norstar.

PBXs, trunks, and Central Offices

PBXs provide telephone service to large numbers of users, usually between 30 and 10,000.

When you are connected to a PBX and you lift the handset of your telephone, the dial tone you hear is coming from the PBX.

The PBX receives the digits you dial, interprets them and connects you to the destination you want. Sometimes the destination is an internal telephone, connected to the same PBX. Sometimes it is an external telephone connected to the PBX by a trunk.

Trunks are pairs of wires or optical fibre that connect the PBX to an outside system. One of these systems is called a Central Office. The Central Office (or CO) provides telephone service to businesses and residences in your local area.

You should know this

Central Offices are sometimes called exchange offices. When your call goes out to one of these offices you have accessed the *exchange network*, sometimes called the *public exchange network.*

If you have more than one trunk connected to the same end-system, handling the same kinds of calls, arrange them in trunk groups (also called trunk routes). For example, trunks connected to the Central Office that handle public exchange network calls are called Central Office Trunks (COTs). As of X11 Release 24, you can have up to 510 trunks in one route. Prior to X11 Release 24, the limit was 254 trunks in a trunk group. If you have more than the maximum number of trunks of a particular kind you must program a second trunk group for the additional trunks.

Many systems have people called attendants who answer incoming calls from the public exchange network. The callers dial one main number to reach the attendants. The attendants transfer calls to the internal people who the callers want to reach. Each internal telephone has at least one *Directory Number (DN)*. The attendant and other internal people dial DNs to make calls to each other.

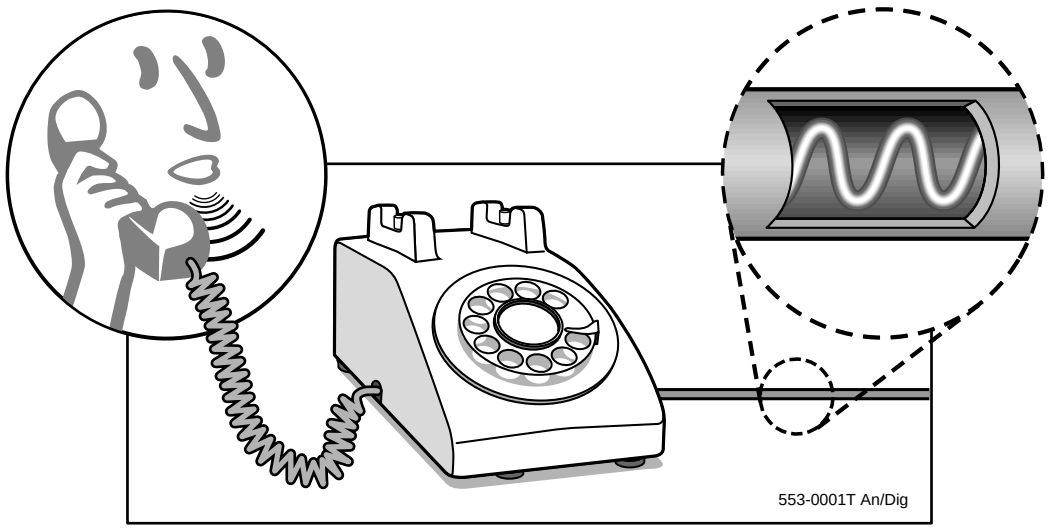
PBXs can be connected to trunks called *Direct-Inward-Dial (DID or DDI, Direct -Dial-In)* trunks. When a call comes in on one of these, it comes directly to the telephone on the PBX that has the DN associated with the last digits in the DID number the caller dialed. The CO sends the last digits in the DID telephone number to the PBX. The PBX receives the digits and deciphers them as digits in a DN. The call gets routed to the proper telephone. No attendant is required to transfer incoming calls from DID trunks to the proper telephone.

If you have pairs of wires connecting your PBX to another PBX they are called TIE trunks. TIE trunks to a particular switch are grouped together in one trunk route. When you call out on a TIE trunk, you have accessed the *private network.*

Analog and digital

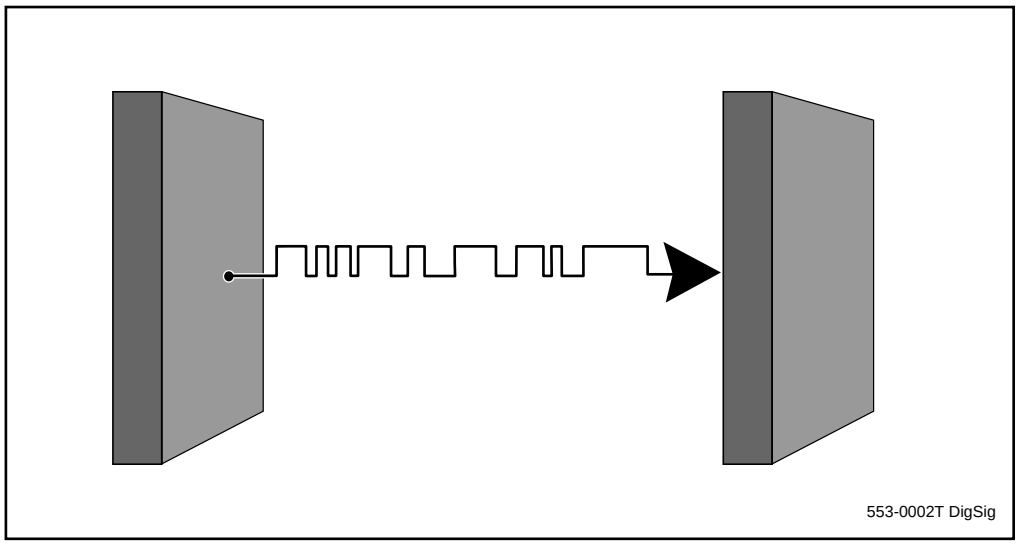
There are trunks that handle analog signals and those that handle digital signals. There are analog and digital PBXs as well as analog and digital telephones.

Analog signals are transmissions that travel along in a wave format. They might travel through a wire (when a signal is travelling along a trunk) or the air (when you are speaking to someone beside you).



You should know this

Digital signals are on and off pulses put together in a particular sequence. The pulses and the sequence are deciphered by equipment at the other end that can either read the message and understand it digitally or change it into an analog format to be heard and understood by a person.



When a telephone or system is called digital it means it is built to send and receive signals in a digital format.

The Meridian 1 is a digital PBX system.

The Meridian 1 can be connected to both analog and digital trunks.

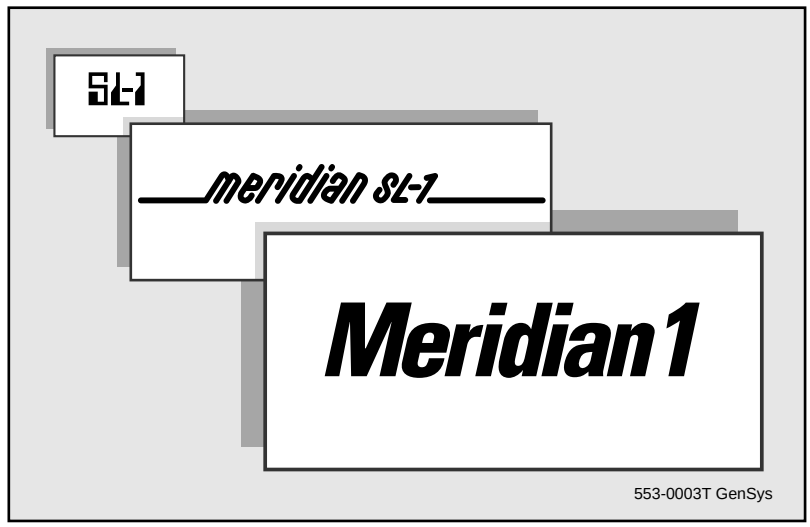
Any Nortel Networks telephones in the M2XXX or M3XXX series are digital. There is more information on telephones later in this module.

Generations of systems

System models

There are three distinct families or generations of PBX systems manufactured by Nortel Networks.

The most recent generation is called the Meridian 1. The earliest generation was called the SL-1, followed by the generation called the Meridian SL-1.



Each generation has at least three models. Each model is designed to handle different quantities of telephones. Generally, you can divide each generation into the categories of small, medium and large systems. In the most recent Meridian 1 generation there is also a system that handles a very small number of telephones.

You should know this

The following charts summarize the different system model names and the size ranges they are designed to handle.

Table 1
SL-1 systems

System name	Size range
A, M, S, MS	small
L, LE	medium
VL, VLE, XL	large

Table 2
Meridian SL-1 systems

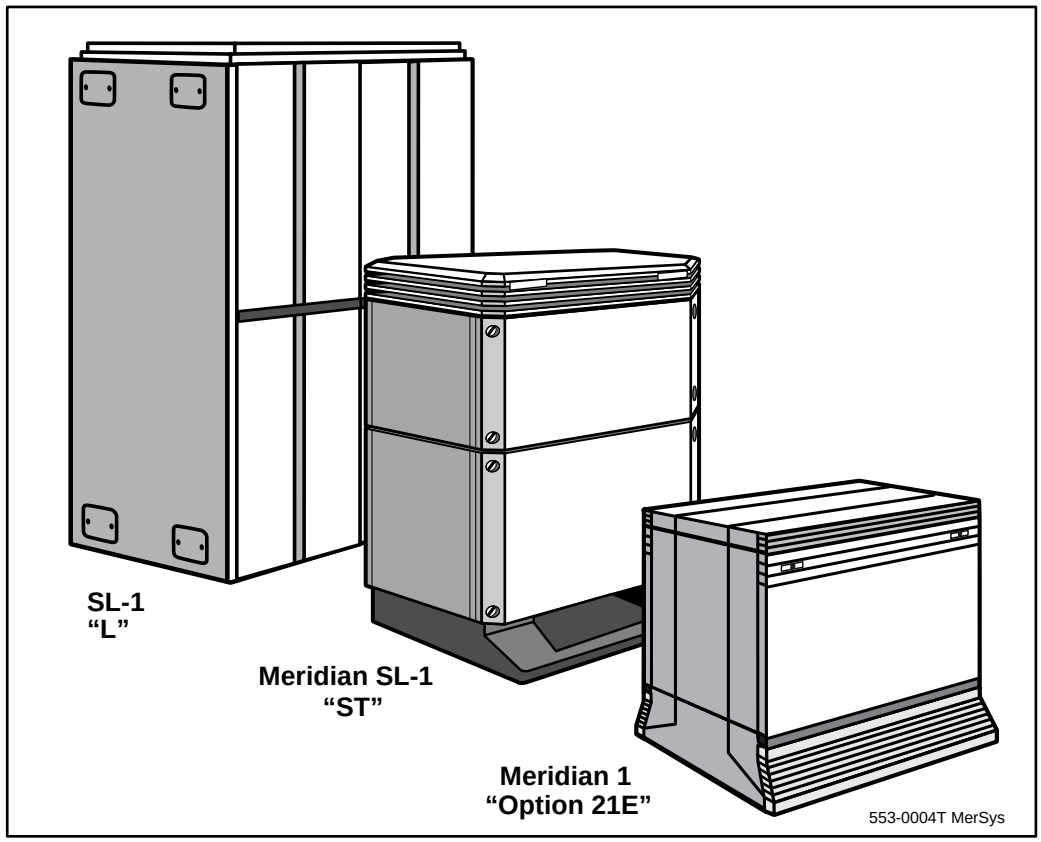
System name	Size range
ST	small
N, NT	medium
XN, XT	large

Table 3
Meridian 1 systems

System name	Size range
Option 11, Option 11E, 11C, 11C Compact	very small
Option 21, Option 21E	small
Option 51, Option 51C, Option 61, Option 61C	medium
Option 71, Option 81, Option 81C	large

Note: Option 21 and Option 21E systems are supported up to and including X11 Release 21. Option 51, Option 61, Option 71 and Option 81 systems are supported up to and including X11 Release 22. Only systems using C-processors are supported as of X11 Release 23.

SL-1, Meridian SL-1, and Meridian 1 systems



Evolution and upgrades

All systems can be upgraded to take advantage of enhanced hardware and software that was introduced after the initial introduction of the system. This is because the three generations of systems have evolved gracefully, with upgrades in mind.

For example, an SL-1 model S system can be upgraded, with new components and software, to operate like a new Meridian 1 Option 21E. The upgraded S system looks physically different from the new Option 21E, but they operate exactly alike.

It is also true that new systems are designed to work compatibly with old components. This is called *backward compatibility.*

You should know this

For example, you might own components or telephones from an older system that you would like to continue to use with a new system. The old components will work in the new system. There might be drawbacks to doing that from a cost or efficiency point of view.You should discuss this fully with your system supplier.

Understand your system

It is a good idea for you to find out what type(s) of system(s) you manage. You might try to arrange one or more visits to your system equipment room with whomever maintains your system.

Look carefully at the system components. Each system has its own unique configuration. Ask questions. If you do this, you will:

- become comfortable with the technology involved with the day-to-day operation of your system
- understand the hardware in your system that is behind the scenes when you need to add, move, and change telephones

System hardware components

The hardware components of the system belong to three main groups of equipment. They are called:

- Common Equipment (CE)
- Network Equipment (NE)
- Peripheral Equipment (PE)

Common Equipment

The components in this area of the machine can be called the computer because they control the operation of the rest of the system.

The Common Equipment is made up of:

- Central Processing Unit (CPU)
- Memory
- Disks
- Input/Output Disk Unit with CD-ROM (IODU/C)
- Input/output ports

The *CPU* performs the functions required by the telephones and trunks connected to the system.

The *memory* has all the instructions stored so the CPU can operate.

The *disks* have a permanent record of the instructions. If the memory is erased because of a power failure, for example, the instructions stored on the disk are automatically loaded into the memory when the power failure ends.

With X11 Release 23 and the ***Input/Output Disk Unit with CD- ROM (IODU/C)***, software is delivered to Meridian 1 systems by CD-ROM. IODU/C applies to Options 51C, 61C, 81, and 81C.

Prior to Release 23, the software was uploaded by a 4 MB disk drive. The SL-1 program was read in from a stack of 4 MB floppies (a stack of 8 in Release 18 and a stack of 16 by Release 23). With IODU/C

software delivery is done using a CD and a single install floppy. This replaces the large stack of floppies required to install software prior to Release 23.

The *input/output ports* are called Serial Data Interface (SDI) ports. They allow your system maintainer to connect a terminal to the system for programming purposes. If you are going to move, add and change telephones, you will be using this terminal as well. Other devices, such as printers for traffic studies and call detail records, are also connected to these ports. There are modules on these topics later in this section.

Typically, when people upgrade the Common Equipment of their older systems, they do so to get faster CPUs or more memory. For instance, with X11 Release 23, the Call Processor 3 (CP3) is introduced. The CP3 improves real time performance over the existing pack, the CP2. With the CP3, the CPU realtime for the Options 51C, 61C, 81, and 81C is increased by 1.5 to 2 times.

Network Equipment

The telephones and trunks interconnected by the PBX are connected using the Network Equipment components of the system.

Time slots

The system uses *timeslots* to connect each party on an active call. If two internal telephone users are speaking, the system uses two timeslots to connect them, one for each telephone. If a telephone user is calling out on a trunk, the system uses two timeslots, one for the telephone and another for the trunk.

Loops and Superloops

These timeslots are present on Network Equipment components called *Loops*. Each Loop has 32 timeslots, if it is an Enhanced or Standard Loop. Meridian SL-1 systems and Meridian 1 systems use Enhanced Loops. SL-1 systems used the Standard Loops.

Meridian 1 systems can also use newer versions of Loops called *Superloops.* Superloops have 128 timeslots.

You should know this

Loops and Superloops are cards that sit in the Network Equipment area of the machine.

Provisioning

The greater the number of Loops or Superloops equipped on your system, the greater the number of timeslots you have.

As you add more telephones and trunks to your system it is important to keep the timeslots in mind.

If you do not provision sufficient timeslots, or manage the system properly, the users on your system might begin to complain of poor service. This usually appears first in the form of dial tone delay problems.

When users lift their handsets to make calls, it is called taking their telephones *off-hook*. The system attempts to provide dial tone to the telephone that is off-hook. Timeslots are needed in order to provide dial tone. An under-provisioned system will not have enough timeslots for the demand, especially during busy times of the day. If there are not enough timeslots available for dial tone, a user must wait until another user on the same Loop (or Superloop) hangs up. Since Superloops have far more timeslots than Loops, dial tone delays usually do not occur when you use Superloops on your system.

This demand for timeslots is called *traffic*. You can predict the expected demand with the help of your system supplier.

The occurrence of service problems is sometimes called *blockage*. There are many things you and your system supplier can do initially, and on an ongoing basis, to eliminate blockage. Refer to the module called *Traffic* for many suggestions.

Conference and Tone and Digit Switch

When you look at your system you will notice there are also *Conference* cards and *Tone and Digit Switch (TDS)* cards sitting near the Loop and Superloop cards. They are also part of the Network Equipment.

- The Conference card supplies extra timeslots to a conversation when additional people are added in a conference.
- The TDS card supplies tones like dial tone and busy tone, when told to do so by the computer in the system.

On some systems, the Conference and TDS functions are combined on dual-function cards.

Peripheral Equipment

Line cards and trunk cards

The telephones and trunks on your sytem are connected to the system with cards that sit on shelves. There are *line cards* for telephones and *trunk cards* for trunks.

On the newer Meridian 1 systems these shelves for cards are housed in modules.

There are unique cards designed for each type of telephone and trunk.

More than one telephone or trunk is connected to a card. The version of the card determines how many can be connected.

When you add more telephones and trunks to your system, you will need to add more cards when the existing ones are fully utilized.

Density

A term, *density*, is used to describe, in general, the vintage and capacity of a card. For example, when line cards were introduced in 1975, they had four units on them to connect up to four telephones. These are called *single-density* cards. Later, line cards were introduced with twice as many units for twice as many telephones and these are called *double-density* cards. The development of new cards continued, with the introduction of *quad-density* cards that connect up

to 16 telephones, and then *octal-density* cards. These have 32 units, 16 of which are for digital telephones and the other 16 are for associated data terminals that you can connect to the telephones.

PE cards vs. IPE cards

There are two versions of cards:

- Intelligent Peripheral Equipment (IPE)
- Peripheral Equipment (PE)

Meridian 1 systems can accommodate IPE cards and PE cards.

Only upgraded SL-1 and Meridian SL-1 systems can handle IPE cards. If not upgraded, they can only have PE cards.

Intelligent line cards and trunk cards can have more telephones and trunks connected to them than the older, non-intelligent kinds of cards. This saves room in your system and keeps your system small.

Intelligent cards are served by Superloops. Non-intelligent cards are served by Loops. Superloops have more timeslots than Loops.

Digitone receiver (DTR)

If you use Digitone-type telephones, your system has digitone receiver (DTR) cards.

Digitone-type telephones are sometimes called 2500 or DTMF telephones. They are analog telephones that outpulse tones when keys on the keypad are pressed.

The CPU of your system requires assistance in interpreting these analog tones. The DTR card was designed to interpret these tones and change each tone into a digital signal, suitable for the CPU.

You need DTR cards if your system has any Digitone-type telephones, or Digitone-type trunks which carry these tones into your system from other systems.

You should know this

The DTRs installed in your system are shared by all the Digitone-type telephones and trunks on the system. Your system supplier can help to provision sufficient DTRs, based on the tone traffic load expected.

If there are not sufficient DTRs, Digitone-type telephone users experience dial tone delays while they wait for DTRs to become available.

> ***Note:*** On some systems, the DTRs are not readily visible cards since they can be small cards called daughter boards that are attached to other cards.

System software

Generics, releases and issues

The term *generic* is used to describe software which is designed with a particular application in mind.

There have been a number of different generics during the evolution of the systems. One generic was designed specifically for hotels world-wide. One was designed for business applications outside North America. This generic is often called the International generic of software.

In the early stages of software development for the earliest SL-1 systems, whenever new software was introduced with new features and capabilities, it was called a new generic. As a result there have been, through the years, Generics X01 through to X11.

With the introduction of Generic X11 software, each new version of software was called a new *release* instead of a new generic.There is at least one new release of software introduced every year.

Each new release introduces new capabilities that were not present on the previous release. That is why upgrading your system to take advantage of new developments in hardware and telephones often requires an upgrade of your software to a newer release.

You should know this

During the development of a software release, trials of the software are conducted at selected sites around the world. If problems are encountered at these sites and software of the same release is re-written to fix the problems, the new software is called a new *issue*. Once the software release is stable, and ready to be sold as a product, as an example, it might be labelled Issue 16.

After introduction, if further software problems are identified, they are registered by the Nortel Networks technical support groups around the world, and prioritized. Scheduling is done to include as many fixes as possible in the next issue of software for that release. Some fixes are scheduled to be included in the next release instead of the next issue.

You should always report any software problems you encounter on your site to your system maintainer. There is a process in place for them to follow to resolve the problem with their own technical support people first, and then with Nortel Networks, if the problem is still unresolved.

Software packages

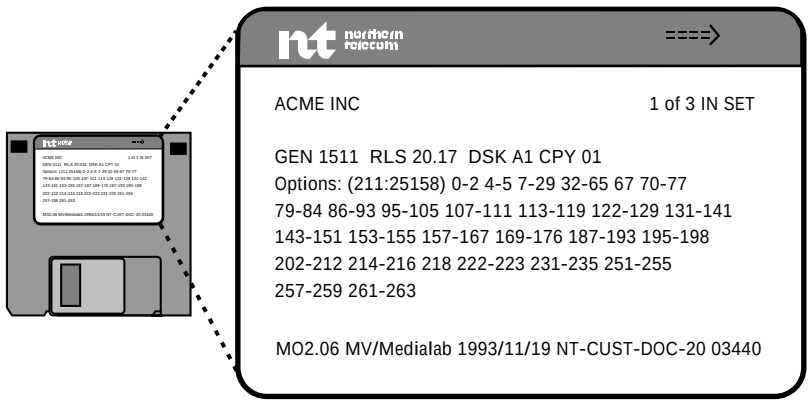
When a system is first installed, disks are used to load the system instructions into the memory. Some features and capabilities are grouped on the disks into what are called *software packages*.

For example, if you want names to be transmitted with calls so that the called person can see the caller's name on the telephone display before answering, you need the feature called Call Party Name Display (CPND). This capability was introduced as software package 95.

You should know this

You can see what software packages you have on your disks in two ways.

- You can have the system print out the complete list using overlay program 22. Check with your system maintainer on how to print this.
- You can look at the labels on the disks themselves. The software packages equipped are listed there by number. Refer to the *Software Input/Output Guide* that was delivered with your system for a complete listing of the software packages that are available to date.



553-0005T DiskLabel

Systems shipped today are shipped with a standard complement of software packages. You do not necessarily have to activate all of them. You might also have ordered certain optional software packages for which there was a cost.

Activation of some packages requires much time and effort in programming, so your system supplier might have an associated charge for activation.

Discuss your equipped packages with them and discuss which packages are actually activated on your system.

Overlay programs

When your system was installed, your system maintainer programmed information related to the telephones and trunks that are connected to your system into the system memory.

That person used programs called *overlay programs* to do this. *These programs are often called "Loads" because the command you use to make a particular program active in the memory is the mnemonic LD followed by a program number. When you type this, you are telling the system to load that particular program into the system memory temporarily, while you need it for programming*.

There is a particular load for each specific aspect of the programming that must be done in order for your system to work. There is a particular sequence for programming the various loads. This is laid out in the *Basic programming instructions* module in a part called *Overlay program hierarchy*.

The focus of this book is programming telephones. Telephones are programmed in LD 10 and LD 11, depending on the kind of telephone. Refer to the module called *Basic programming instructions* for more information on the loads and proper programming procedures.

In documents written by Nortel Networks, the term *Service Changes* is used to mean programming of administration overlay programs. Service Changes are different from the type of programming you might do related to the maintenance of the system.

SCHXXXX messages (Service Change messages or error codes) appear on your terminal if you do not follow one of the rules of programming or if one of your responses is not what the system expects or tolerates for a given step.

The XXXX represents a code that you can look up in the *Software Input/Output Guide* for more information on what the error is.

You should know this

Data Dump

When you make programming changes, these changes are stored in the system memory when you finish working in the overlay program.

To make a permanent copy of the updated information, it is a good idea to do a data dump. By doing this, the information in the memory is copied onto the system disks. That way, if you lose power and you have no battery backup, or if you experience a memory-related problem, the system can use the information on the disks to reload its memory.

SYSLOAD

If the system loads or reloads information from the disks into the system memory, that process is called System Reload, or SYSLOAD for short.

- It loads information from the disks when it is first installed.
- It might reload, automatically, if there was a power failure and the power has returned.
- The system maintainer might force the system to SYSLOAD during a system upgrade when the new disks are inserted into the machine.

During a SYSLOAD there is no telephone service until all the data has been reloaded into memory.

The time it takes varies, depending on the size of the system and the amount of data to be reloaded. The vintage of the machine can also affect the time it takes.

Initialization

Occasionally your system might initialize to clear out transient information in its memory. For example, this might occur if there is a faulty line card sending an extreme number of erroneous messages to the CPU.

You should know this

The users of the system usually do not notice an initialization unless they were in the process of attempting to activate a feature or initiate a call at the time it occurred. The initialization prevents the activation of features or new calls. When the initialization is complete, a few seconds later, the users can activate features and initiate calls with no problems.

Some programming changes do not take effect unless an initialization is done to your system manually. You are probably not responsible for these kinds of programming changes.

If your system initializes, there are messages that print out on the maintenance printer connected to your system. These messages explain why the system initialized.

You should know this

Telephones

There has been a wide variety of telephones used with the systems through the years.

The telephones that people used, in the 1970s were the analog dial and Digitone telephones for single line (single Directory Number) applications.

A Digitone telephone transmits tones when the buttons on the key pad are pressed. Today, there are many different models of telephones that transmit tones. They are called Digitone-type in this book.

People who needed more than one DN used SL-1 telephones, designed specifically for SL-1 systems, the most modern systems in existence at that time. SL-1 telephones do not transmit tones when the buttons on the key pad are pressed. Digital signals are sent to the CPU in the system. Other models of the SL-1 telephone have been developed by Nortel Networks (M1000 series telephones). These telephones are called SL-1-type in this book. The SL-1 telephone is an analog telephone; it does not digitize the user's voice during a conversation.

There are digital telephones that digitize the user's voice. They also multiplex data from a PC that is connected to the system through the telephone wires. There have been five generations of digital telephones to date, Release 7, Release 9, Release 14, Release 18 and Release 24. Each release introduced unique digital telephones.

It is worth noting that the new systems installed today can still provide service to any model of telephone that Nortel Networks has ever produced (backwards compatibility).

You should know this

There are four categories of telephones used today:

- Analog dial or Digitone-type. The terms *regular telephone*, or *analog (500/2500) telephone* are also used for this type.
- Analog SL-1-type. The term *analog proprietary telephone* is also used for this type.
- Digital. The term *digital proprietary telephone* is also used for this type.
- Wireless. There are in-building portable telephones and cellular telephones that work inside or outside, on the cellular network.

Table 4 summarizes the models of Nortel Networks telephones that have been used with SL-1, Meridian SL-1 and Meridian 1 systems to date.

Table 4
Telephone models and category

Analog dial or Digitone-type	Analog SL-1-type	Digital	Wireless
Dial (500) *	SL-1 *	M2009 *	M2616CT
Digitone (2500) *		M2112 *	Wireless (UPCS)**
Unity I *‡	M1009 Þ	M2018 *	Microcellular**
Unity II *‡	M1109 Þ	M3000 *	Meridian Companion**
Unity Plus *‡	M1309 Þ	M2317	Meridian Companion DECT**
Unity 2-line *‡		M2006	
Unity Handsfree *‡		M2008	
M8000 ‡		M2216ACD	
M8009 ‡		M2616	
M8314 ‡		M5317TDX §	
M8417 ‡		M3110	
		M3310	
		M3820	

— continued —

You should know this

Table 4
Telephone models and category (Continued)

Analog dial or Digitone-type	Analog SL-1-type	Digital	Wireless
		M3901	
		M3902	
		M3903	
		M3904	
		M3905	

* means the telephone is not available for new orders from Nortel Networks
‡ means the telephone is called *Digitone-type* in the rest of this book
Þ means the telephone is called *SL-1-type* in the rest of this book
§ means the telephone conforms to the Basic Rate Interface standards
** these are system names - contact your system supplier about telephone model numbers

Regular telephones compared to proprietary telephones

Table 5
Comparison of telephone types

Regular telephones	Proprietary telephones
work on any system	work when connected to an SL-1, Meridian SL-1 or Meridian 1 system
programmed in LD 10	programmed in LD 11
some Digitone-type telephones have buttons that are programmed using the telephone memory	have *keys* that are programmed using the system memory
when you press a button to access a feature on a Digitone-type telephone, digits are outpulsed to the CPU, as if the user dialed them	when you press a key to access a feature on a proprietary telephone, it sends a digital message to the CPU. The CPU scans the memory for what is programmed for that key on that telephone

Differences in names

Naming conventions and types of telephones available, vary from country to country.

You should know this

The telephones in this book

In the Task modules that follow, in the section called *Adding and changing features*, you will find modules about the telephones that are commonly used with Meridian 1 systems, in many different countries.

There is a large illustration of the specific telephone covered in that module, at the beginning of each Task module. There is a small illustration of that telephone at the top of each page that follows.

Some system suppliers offer telephones that do not appear in this book. If you have a telephone that does not have its own module in this book and it fits the description of Digitone-type, as described previously, use the information in Task 2, *New Digitone telephone* when you are programming.

If you are installing an SL-1 or SL-1-type telephone, the programming information in the Task modules for digital telephones will be of assistance to you. An SL-1 or SL-1 type telephone has many of the same attributes as a digital telephone. Since there are also some critical differences, ask for assistance from your system supplier the first time you program one of these kinds of telephones.

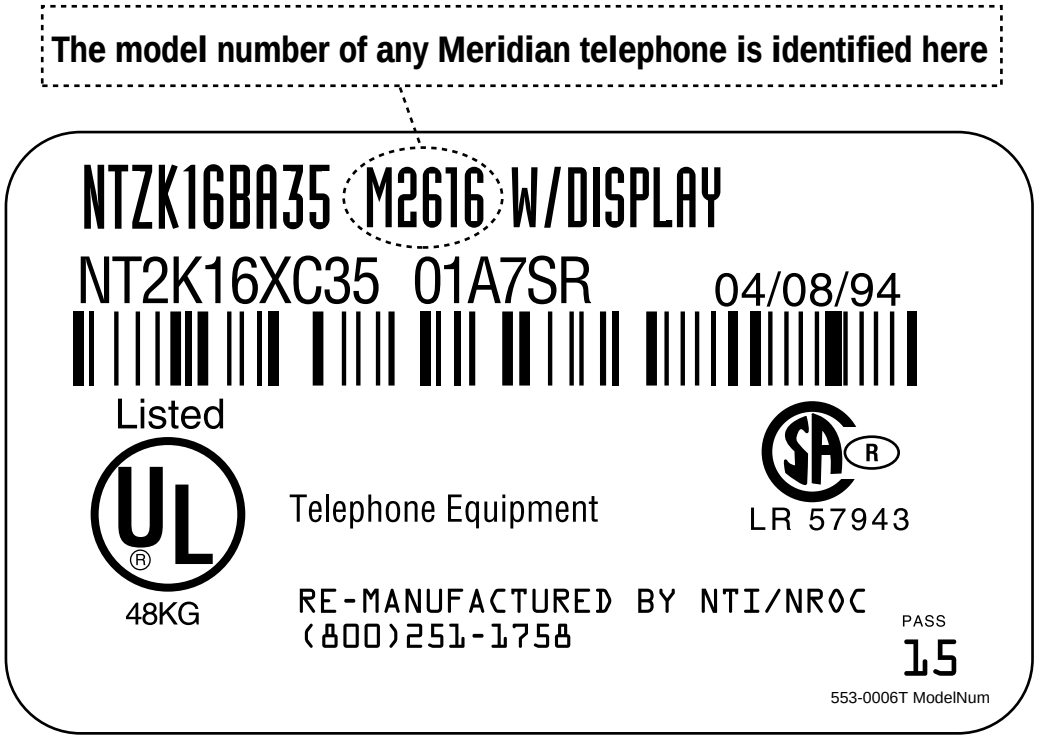
Identifying telephones

If you are not sure what kind of telephone you are to install:

- compare the telephone you want to program with the illustrations you see in the modules
- look at the label on the bottom of the telephone

If it is a Nortel Networks label, it will look like the illustration that follows.

You should know this



Look at the area on the label that is highlighted in the illustration. The code there tells you what kind of telephone it is.

If you are still not sure what kind of telephone you have, ask your system supplier for help. Your supplier can suggest what Task module to use when you want to install it.

Attendant Consoles

Programming Attendant Consoles is beyond the scope of this book. However, the following information will give you a brief overview of Attendant Consoles. For further information on Attendant Consoles, refer to the *Attendant Console User Guide.*

Attendant Consoles help place and extend calls into and out of the Meridian 1 system. The operator of an Attendant Console is known as the attendant. The console provides the attendant with many unique features that increase the speed and use of call processing.

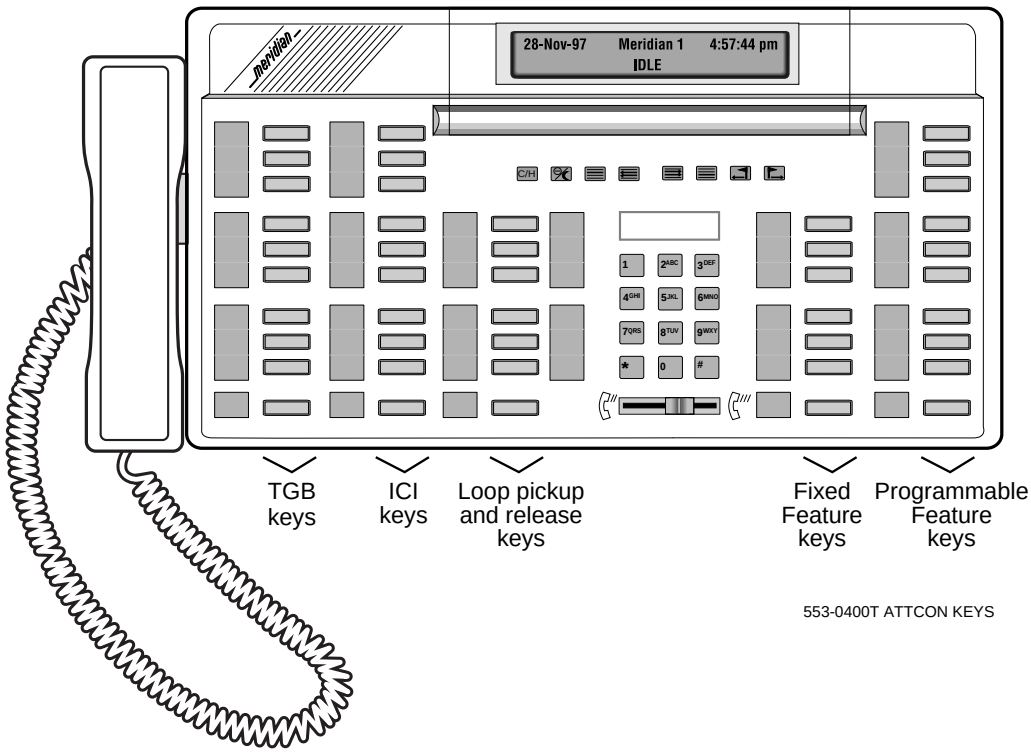
Attendant Consoles have a digit display at the top of the console and a dial pad below the display. Five vertical keystrips on the console provide access to different features. Add-on modules can be added to some of the Attendant Consoles.

Each Attendant Console occupies at least two Terminal Numbers (TNs). External power must also be supplied. Four TNs can be used if the system has battery back-up. The extra TNs ensure that your console is fully functional during a power failure.

Figure 1 is an illustration of an M2250 Attendant Console.

You should know this

Figure 1
M2250 Attendant Console



You should know this

The following Attendant Consoles are available on the Meridian 1 system:

Table 6
Attendant Consoles available with the Meridian 1 system

Console type	Description	X11 Release
* QCW4	▯ Basic console with a 16-character alphanumeric display ▯ Key/lamp add-on modules (optional) ▯ Lamp Field Array ▯ 40 fixed keys ▯ 10 assignable keys	All
*M1250	▯ Console with a four-line, 40-character wide, alphanumeric Liquid Crystal Display ▯ Multilingual display ▯ Menu-driven display set-up ▯ Busy Lamp Field (optional) ▯ Up to 16 Trunk Group Busy keys ▯ Up to 20 Incoming Call Indicator keys ▯ 6 Loop pick-up keys ▯ 8 function keys ▯ 8 display-related keys ▯ 10 assignable keys	12

— continued —

You should know this

Table 6
Attendant Consoles available with the Meridian 1 system (Continued)

Console type	Description	X11 Release
M2250	▯ Digital console with a four-line, 40 character wide, alphanumeric Liquid Crystal Display (LCD) ▯ Multilingual display ▯ Menu-driven display set-up ▯ Busy Lamp Field (optional) ▯ Up to 20Trunk Group Busy keys ▯ Up to 20 Incoming Call Indicator keys ▯ 6 Loop pick-up keys ▯ 8 function keys ▯ 8 display-related keys ▯ 20 assignable keys	15
Meridian 1 Attendant PC	▯ Refer to the description on page 39.	15
***** Manufacturer discontinued.		

Trunk Group Busy (TGB) keys

Trunk Group Busy keys indicate when all trunks in a route are busy. When the Light Emitting Diode (LED) or Liquid Crystal Display (LCD) flashes, the attendant can see that all trunks in the route are in use or out-of-service, due to maintenance conditions.

The attendant can deny users access to a trunk route by pressing the associated Trunk Group Busy key. The LED or LCD indicator lights steadily when the attendant presses the key. Refer toTask 44, Trunk Group Access Restriction, for more information.

Loop keys

Loop keys allow the attendant to answer and originate calls from the console. Calls that are waiting to be answered by the attendant(s) are queued when they cannot be answered immediately. The longest waiting call is presented to the first available attendant on an idle loop key. Recalls always go to the head of the queue.

Incoming Call Indicators (ICIs)

The Incoming Call Indicators identify the type of calls in the attendant queue and the status of each particular call type. Therefore, the attendant knows what type of call is waiting to be answered or whether a restricted user is calling or has been intercepted to the console. For example, calls from an incoming 800 service line could be answered before other calls. The attendant can answer calls using ICI keys, rather than Loop keys. You can program each ICI key for a different call type. One key can represent more than one call type.

Meridian 1 Attendant PC

In North America, the Meridian 1 Attendant PC places the capabilities of the M2250 Attendant Console into an interface unit that fits under your PC monitor. Outside of North America, other similar products are available for use by Meridian 1 attendants. Ask your system supplier what products they offer.

The Meridian 1 Attendant PC interface unit and Attendant PC software combine to provide the following capabilities:

- efficient call processing
- incoming call information
- quick dialing
- access to an on-line Directory with Dial-By-Name capability

It is compatible with Windows 95 and can increase attendant productivity. It provides customized Information Screens. In addition, the attendant can work with other Windows 95/NT applications while answering calls.

The Graphical User Interface (GUI) simplifies call processing with cut and paste, drag and drop functionality. The attendant can multitask between call processing, word processing, spreadsheets, and database information screens, for example. They can access Information Screens for each Directory entry. This can lead to improved customer service.

You should know this

These are the characteristics of the Meridian 1 Attendant PC:

- Windows 95 or NT Graphical User Interface
- Customizable screens emulate the M2250 Attendant Console
- Comprehensive on-line help and a tutorial is included
- Call processing keys with indicators
- 6 Loop Keys
- Up to 20 Incoming Call Indicators (ICI) Keys
- Up to 20 Trunk Group Busy (TGB) Keys
- Up to 20 programmable Feature Keys
- Customized Virtual Feature Keys consolidate multiple keystrokes into one
- Toolbox to access frequently used features and functions quickly
- Directory look-up and dial-by-name
- Up to 14 freeform Information Screens per Directory listing
- Access privileges assigned per attendant
- Drag and drop numbers for speed dialing
- Database utility program to import/export Directory
- Multisite environment support
- Mouse and keyboard control
- Optional LAN Interface Module provides shared database in multi-attendant environments
- Dual headset/handset ports for fast connection to interface unit
- Optional Meridian Digital Telephone connection to interface unit

The following information appears on the main Meridian 1 Attendant PC screen:

- the Call Party Name Display shows the name and extension number of internal callers

- identification of an external call, so attendants can answer appropriately
- the number of calls waiting to be answered

The screen is customizable, so that attendants can show full or partial screens, and create a customized Toolbox that stores their most frequently used features, Incoming Call Indicator keys and Trunk Group Busy keys. This saves space on the display. You can custom-label these keys and features for easy recognition.

The call processing status indicators on the screen indicate the status of each call. When a caller requests a number, the attendant can access the on-line Directory, which can contain both internal and external numbers. The Directory is customized to include special column headings, viewing order and size and it can be searched by multiple categories.

Attendants can access up to 14 screens of information for each Directory entry. For example, you can list alternative names and extensions, emergency numbers, travel itineraries, products and services offered, business hours, holiday schedules, and on-call staff.

Attendants can program the information to meet their needs, changing or updating the freeform text fields when needed.

When call processing requires several keystrokes, attendants can program virtual feature keys to help increase productivity by consolidating multiple keystrokes into one. Virtual feature keys are identified as blue feature keys for fast recognition. They work like macros in word processing programs. For example, to access a pager, several keystrokes are normally required. When they are consolidated into a virtual feature “script”, the attendant can press a single key to access a pager.

The Attendant PC supports Centralized Attendant Service (CAS) for call answering for multiple locations from a single site and Network Attendant Service (NAS), if you are using Meridian 1 ISDN services. The optional Attendant PC LAN Interface software module allows multiple attendants to share Directory and Information Screens.

You should know this

PC Requirements

- Pentium processor, 100 MHz or higher (133 MHz is recommended)
- Minimum of 16 MB RAM available memory (32 MB RAM is recommended)
- Hard disk with at least 10 MB of free disk space
- 17" SVGA color monitor (1024 by 768 resolution, 256 colors)
- 16-bit sound board (recommended)
- Printer (optional)
- Network Interface adapter (for LAN applications)
- Windows 95 or NT operating system
- RS-232C serial port

Meridian 1 System Requirements

A minimum of X11 Release 15 software is required.

Features

There are a number of ways that users have for activating, deactivating and using features from their telephones. There are user guides for each kind of telephone that explain the feature codes and procedures in detail. Ask your system supplier for these guides or discuss features with the people in their company who conduct user training sessions.

SPRE code

Users of regular dial or Digitone-type telephones can use the *Special Prefix (SPRE) Code* for most features. This is a code defined for the entire customer group, that tells the system computer that you are about to use a feature.

The digit or digits that you dial after the SPRE code tell the system computer what feature you want. These digits are not changeable. They are pre-programmed in the system database when the system is delivered to you.

For example, all systems are shipped with a pre-defined Night Service feature access code. It is the digit 4. To use the Night Service feature to answer calls ringing a night bell, a user would lift the telephone handset and dial the SPRE code followed by the digit 4. For this example, assume the customer group to which a user belongs has the digits 11 defined for the SPRE code. Therefore, in this example, the user would dial 114 to answer a ringing night bell.

If there is no key for the feature assigned to the telephone, a user with a digital or SL-1-type telephone can access some of the features by dialing the SPRE code method. This type of information is noted in the appropriate feature-related Task modules.

Switch-hook

Some features, like Call Transfer and Conference, do not require a SPRE code. The user presses the button under the handset of the telephone, when talking on an active call. This button is called the *switch-hook* and pressing it is called performing a *switch-hook flash*.

If the user presses it for the correct amount of time, the system gives the user a *confirmation tone*. This is three short bursts of tone followed by dial tone. Once the user hears the dial tone, they can dial the digits in the number to which the call is to be transferred.

Special Control key

Your system could be set up so that switch-hook flashes are ignored. If your system is like this, you can install telephones that have Special Control keys. These keys perform the equivalent of switch-hook flashes for users who require the use of certain switch-hook-related features.

2500 set features

Every system comes with four pre-programmed feature access codes that users of Digitone-type telephones (2500 sets) can use.

Table 7
Pre-programmed Digitone feature codes

Feature name	Feature code
Call Forward	#1
Speed Call Control	#2
Speed Call Use	#3
Permanent Hold	#4

These codes are easier to use than the SPRE code plus feature access code equivalent. Digitone-type telephone users can access features using either of the two methods.

Some features require a combination of the switch-hook flash and a feature access code. For example, to put a call on hold at a Digitone telephone, switch-hook flash and then press #4 and hang up. The call is on hold.

Link

Some users are not comfortable with the switch-hook flash operation. Telephones with *Link* buttons help these users. The Link button performs a perfect switch-hook flash every time it is pressed. When

you give users this kind of telephone, they are more comfortable with features like Call Transfer that require a switch-hook flash, and are more likely to use the features as a result.

Users and features

Regular telephone users sometimes complain that the SPRE code method for using features is too difficult for them.You can do a number of things to assist them:

- limit the number of feature codes the users are required to remember
- train them frequently and allow them to practice
- supply them with training aids that they keep near the telephones for quick reference
- upgrade the telephones to Digitone-type, with buttons to store the codes
- upgrade the telephones to SL-1-type or digital to allow the use of the programmed *keys* for features
- implement the Flexible Feature Codes (FFCs) that are easier to remember than some of the codes that follow the SPRE code

Flexible Feature Codes

Flexible Feature Codes (FFCs) can be defined for your customer group if you have software package 139 on your system. It allows you to have feature access codes of your choice programmed for the features the users on your system need.

There can be more than one code for each feature, but this is not recommended.

The symbols * (asterisk) and # (octothorpe) can be part of the code. For example, you might choose an access code of *2 for the Call Park feature, instead of the standard code which is SPRE code plus 71.

FFCs are codes that can be used from any type of telephone. This comes in handy if the telephone you are programming does not have enough keys for all the features you want to program on it. The user can access some of the less commonly used features by dialing FFCs.

You should know this

Station Control Password

There are features that are designed to require a password before activation or deactivation takes effect. This is because of security concerns related to the feature.

For example, there is a feature that allows you to change the Access Restrictions level of your telephone. It is called Electronic Lock. This is something you would not want an unauthorized person to do to your telephone. Therefore, activation and deactivation requires the use of a Station Control Password that the programmer entered into the database for your telephone. For more information, refer to Task 43, *Electronic Lock* and Task 42, *Access Restriction*.

The length of the passwords must be consistent for all telephones in one customer group. The range is one to eight digits.

If you do not want to enforce the use of Station Control Passwords, it can be turned off in the customer group programming. Talk to your system supplier about doing this.

You can change your Station Control Password by dialing a Flexible Feature Code set up for this.

If a Station Control Password is required for a particular feature included in this book, it is identified in the appropriate Task module.

Proprietary telephone keys

Key access is usually the easiest way for users to access features.

Each model of proprietary telephone has a specific number of keys that you can program for feature access and DNs. You can add additional keys to some models by attaching modules. Each model has a limit to the maximum number of keys it can have.

You program these keys in LD 11.

The Task modules related to features will help you program the most common ones.

X11 features and services, delivered with your system, has information on all available features.

Dial accessible features from proprietary telephones

There are some features that users of proprietary SL-1-type and digital telephones can use by dialing the SPRE code plus a feature access code, instead of using keys.

Do not confuse this with Flexible Feature Code access. Flexible Feature Codes can be used from any type of telephone.

On systems that do not have Flexible Feature Codes implemented, dial access to a feature might be useful if:

- there are no more feature keys available on a telephone and you do not want to upgrade it to a model with more keys
- a user has been provided with a proprietary telephone and cannot adjust to the key method of feature access

You should know this

The following list summarizes those features that can be accessed from a proprietary telephone using a feature access code.

Table 8
Proprietary telephone dial accessible features

Feature
Call Pickup
Trunk Answer from Any Station (TAFAS) night bells
Authorization Code
Charge Account Code
System Speed Call
Automatic Set Relocation
Directed Call Pickup (Group or DN)
Room Status
Call Park (telephone must have a Call Transfer or Conference key)
Malicious Call Trace (telephone must have a Call Transfer or Conference key)

Feature access summary

There are many different ways to access features within one customer group on one system.You must determine which feature access methods will be easiest for the users on your system. Sometimes the users' preferred method of feature access helps to determine the types of telephones that you will choose for them.

For example, if you have the Flexible Feature Code (FFC) software package programmed on your system, there are at least four ways to access the Call Forward All Calls feature.

Table 9
Feature access alternatives

Type of telephone	Feature access method
Dial	FFC or SPRE code plus 74
Digitone-type	FFC or #1 or SPRE code plus 74
SL-1-type	FFC or key
Digital	FFC or key

Note 1: Call Forward All Calls is not one of the features that can be accessed with a SPRE code from an SL-1-type or digital telephone.

Note 2: You can assign more than one FFC to a feature, but for the purposes of the chart, it is assumed that only one code was assigned. This complies with the recommendations made earlier.

If you have many different kinds of telephones, you might decide to tell all users to use the FFC method. This provides uniformity for training purposes and simplicity when you prepare training aids.

If all the telephones are digital, the feature key method is probably the easiest.

If you have both Digitone and digital telephones, decide whether two methods of access are tolerable when you are training the different users or whether you prefer uniformity.

You should know this

If the users on your system are not comfortable with access codes:

- consider installing SL-1-type or digital telephones, so they can use the key access method
- consider installing Digitone-type telephones with memory buttons that store codes

If you do not make feature access easy, users will not take advantage of the benefits of the feature. It is to your advantage to find ways to ensure that users will feel comfortable using the features available to them. Features are designed to accomplish many things, but they will only do so if the users use them.

Terminal Number (TN)

Every terminal connected to your system has a unique location in the hardware of the system. You can use this location address to identify each terminal. This is the way the computer in your system identifies each terminal.

Terminals can be:

- telephones
- trunks
- data devices
- attendant consoles

The location or address of a terminal is called the Terminal Number or TN. It is comprised of four parts:

- a network loop or Superloop number
- PE shelf number
- PE card number
- PE card unit number

For example, the Terminal Number or TN of a telephone connected to unit 1 on card 5 on shelf 0 of Loop 8 would be:

TN 8 0 5 1

Table 10
Possible range of numbers in each field of TN

TN component	Range
Loop	0–159
Shelf	0–3
Card	0–15
Unit	0–31

You should know this

Phantom TN

This type of TN has no associated hardware. There is no telephone or line card for a phantom TN. It is connected to a loop that is programmed as a phantom loop or a phantom Superloop. Once the phantom loop or Superloop has been programmed, you program the Phantom TN in LD 10.

The phantom TN has a Directory Number (DN) associated with it. Internal users call this DN to reach the user who is using the phantom TN for telephone service. This number can be used by outside callers as a DID number, if you have DID trunks and the DN falls within the range of DID telephone numbers.

This DN must be a unique number that is not assigned to anything else on your system.

The phantom TN works by forwarding calls to one of the following:

- to a default Call Forward DN that you program when you program the TN
- to a Call Forward DN that a user programs by using the Remote Call Forward feature from a working telephone or attendant console on the system

Calls go to the default Call Forward DN when the Remote Call Forward feature is not active.

Examples of how you can use this capability are:

- when office space in buildings must be time-shared by many visiting or temporary employees

  You can assign a phantom TN to each employee who is not in the office full time. Tell the users what DN is assigned to each phantom TN. If you are using DID numbers, each user has a personal DID number for business cards.

  When the employee arrives at one of the time-shared offices, the Remote Call Forward feature can be used to redirect incoming calls from the individual's phantom TN to the DN of the telephone at the desk. When the employee leaves, Call Forwarding is

cancelled using the Remote Call Forwarding feature again. Incoming calls will redirect to the default Call Forward DN until the user returns and uses Remote Call Forwarding to redirect calls to a time-shared office.

- when employees move frequently, assign them each a phantom TN with a DN that is published

  During the move, the user must deactivate Call Forwarding by using the Remote Call Forward feature from the telephone in the old office. After the move, the user activates Call Forwarding to a new DN using the Remote Call Forward feature again. During the move, calls redirect to the default Call Forward DN.

The default Call Forward DN must be a DN that is assigned to only one terminal. It can be a voice mail DN or the DN on a telephone. It can also be an external number.

The DN the user programs using the Remote Call Forward feature can be an internal or external number. If the calls are forwarded to an external number, the Call Detail Records are the same as for telephones that are forwarded to external numbers. Refer to the *Call Detail Records* module. The information you need is in the part called *Redirected incoming calls.*

Table 11
Software requirements

Release required	Software package(s) required
20	254 – Phantom Terminal Numbers (PHTN)
	139 – Flexible Feature Codes (FFC) (for the Remote Call Forward capability)

You should know this

Traffic

Purpose

Your system supplier assessed your needs and installed your system with the necessary components to provide your end users with an excellent level of service.

You can use traffic study data to monitor a number of things after the system is installed. Use the data to:

- monitor the performance of the system shortly after it is installed to see what level of service the system is providing during your actual workday situations
- monitor ongoing system performance after installation, when telephones and trunks have been moved, added or removed
- assess training needs of the users and attendant(s)
- provision for forecasted growth or downsizing of the system and other major predictable changes

Setting up

Every system can print Traffic studies, once the following tasks are done:

- the studies must be scheduled
- the particular study options that you want to run must be selected
- the system must be programmed with instructions as to where to print out the traffic study data

The overlay program for scheduling and selecting the study options is overlay program (LD) 2. Talk to your system supplier about how to schedule your Traffic studies. There is more information on setting up Traffic studies later in this module.

Your system supplier can configure a Serial Data Interface (SDI) port on your system to output the traffic study data to a printer or PC set up for this purpose. This is done in the Configuration Record, LD 17, the content of which is beyond the scope of this book.

Using the data

Traffic studies monitor the performance of your system under typical working conditions. To fully appreciate the data offered by a traffic study you must be aware of the way the system works. If you require information on your system, your system supplier can explain what you need to know or you can read the section called *You should know this*.

The information on Traffic studies provided here offers an overview so that you can understand:

- what types of data are presented by the most common traffic study options
- how the data can be used to improve system performance
- how the data can impact your day-to-day operations when managing the system

When you discuss a traffic study analysis with your system supplier, the information presented here can be used as a starting point in your discussion of the data.

Grade of service objectives

You must decide what service level (also called grade of service) objectives you have for your own system before you analyze any traffic study data.

System suppliers provision systems to meet the grade of service objectives shown in the following chart.

You can use more stringent objectives than these if you wish. If you do so, you might need additional equipment to meet your objectives.

You can use less stringent objectives, if you wish, but you sacrifice service if you do so. For example, poor service can result in a blocked incoming call, delayed dial tone for your users, or a feature which did not operate when needed. Assess the impact of poorer service on your business before you choose reduced service levels.

Table 12
Nortel Networks grade of service Guidelines

Type of service	Maximum blockage objective (%)
incoming calls	1
outgoing calls	1
intracustomer calls	4
tandem (trunk to trunk) calls	1
less than 3 sec. wait for dial tone	1.5

The guidelines are objectives against which you can measure your system performance.

A traffic study is usually conducted over a period of a week and the data is usually collected every hour of each business day during that week. You and your system supplier can use the data from the busiest hours of the study period to evaluate your system performance against the grade of service objectives.

Systems provisioned with tools or charts which are based on the guidelines shown above perform well within these service level objectives during normal working hours. The provisioning methods used by system suppliers usually provide sufficient capacity to allow your system to operate with an excellent grade of service, even during sporadic peaks in traffic during the busy hour.

Discuss with your system supplier what projected traffic load was used when they configured your system components. If your system was configured based on your projected busy hour traffic load, the traffic study data should be analyzed based on your busy hour statistics.

If you find your actual busy hour traffic is consistently different from what was projected, this can lead you to reprovision components in your system in order for you to operate within the grade of service guidelines.

When to run a study

- Determine what weeks of the year are slow times for your organization and what weeks are the busiest (Busy Season).

  During the busiest times, your system is handling its greatest call volumes.

  If you do not understand the traffic patterns on your system well enough to determine your Busy Season, ask people who might know. Some people you might ask are the attendant(s), executives, sales people, and secretarial staff.

- Decide what call volume your system is expected to handle and still meet the grade of service objectives. Choose one of the following types of *Busy Hours*:

  – the busiest hour during the busiest week (also called the Peak Busy Season Busy Hour)

  – the average of your five busiest hours, one busiest hour from each day during a busy week (also called the Busy Season Average Busy Hour)

  – the busiest hour during an average busy week (also called an Average Season Busy Hour)

  If you provision your system to handle the traffic load during your absolute busiest times, this guarantees excellent service for incoming and outgoing calls. Internal users and external callers will not encounter blocking even during peak traffic periods.

  If you provision based on a study which is run during an *average* busy time, there might be peak busy times when the recommended grade of service objectives will not be met. Evaluate the potential costs to your organization which would result from blocked calls and features before you decide to do this.

- Prepare your system supplier with sufficient time and information to set up a traffic study, and analyze the data if they are conducting the traffic study for you.

  If you have deadlines you are trying to meet, they need to know what they are. If you are preparing a budget for possible new equipment purchases based on the study results, or if you are expecting immediate increases in call volumes due to increased business, give them that information. It affects the recommendations they will make about your equipment.

- Decide how often you want to run a study.

  It is a good policy to run a minimum of one study annually.

  If your organization is changing rapidly and this is impacting your calling patterns, your system should be monitored more frequently. Your system can be configured in advance to handle predictable changes to your volume of calls and use of features.

  If your system supplier is running the studies for you, there may be a charge associated with more than one annual study.

  If you intend to do your own traffic study analysis, after receiving some training, assess the time it will take to do the study against the benefits you will achieve.

- Discuss setting up traffic threshold levels with your system supplier. Instead of running complete studies, the system can be programmed to print out messages any time these traffic-related thresholds are violated. Along with the threshold violation message, it prints out enough traffic-related data to help you analyze the source of the problem. You and your supplier can coordinate a procedure for using this method to monitor the traffic on your system.

There is more information on these threshold settings and traffic studies in general in *Traffic measurement formats and output*.

Terms you should know

Peg count

Many of the traffic study options are designed to keep a tally of how often certain events occur. *Peg count* is another word for tally.

Usage

Many of the traffic study options are designed to keep a record of the duration of certain events. *Usage* is the term used for a measurement of the length of time which a certain type of event lasted. The traffic program itself measures usage in two second increments.

Some study options are designed to print out the usage data in units of seconds and others print out in units of CCS (see the definition of CCS to follow).

It is very important that you pay close attention to the usage units used in each study option if you are analyzing the data yourself.

CCS ("Centa" Call Seconds)

Centa is a Latin word for one hundred. CCS is a unit of time measurement equalling 100 seconds.

As call volumes increase, and usage times increase, the usage data numbers get very large. Therefore, the CCS unit is used to shorten the number of digits in the data being presented.

For example, if usage on a certain trunk group during a study hour is 66,000 seconds, the usage data in the traffic study for trunk group usage prints out as 660 CCS.

FTM (Failure to match)

The first SL-1 family of *Standard Network* systems used a system of pairing when it assigned two timeslots to a conversation. The timeslots in a pair had to have consecutive numbers and the odd number in the pair had to be the higher number of the two. The timeslots were said to *match*.

Traffic

When the system attempted to connect two telephones for a conversation, and was not able to find two available *matching* timeslots, it would register a *Failure to Match* in the Traffic data to indicate a call had been blocked. More information on timeslots is in the *You should know this* section.

Systems in the later Meridian SL-1 and Meridian 1 families are equipped with *Enhanced Network loops* and *Superloops*. They do not require matching timeslots to establish a call. However, if the system cannot find *any* timeslots available in order to set up a connection because they are all in use, it still registers this problem in the traffic study data as a Failure to Match.

Many of the traffic study options explained in the following pages are designed to monitor system performance by indicating the number of Failures to Match during a study period.

Consistently high numbers of FTMs can indicate one or more of the following things:

- the need for more components, to get more timeslots for certain functions
- the need to reposition components in the system to prevent timeslot problems
- the existing component(s) are defective

Traffic study options

The study options included here are discussed from the following points of view:

- what a study can quickly tell you about system performance
- what you can do with the data to improve the system performance
- how you can interpret the data in different ways
- what questions you can ask when analyzing a study
- how you can relate some study results with problems that have been reported
- how you can use the results to improve training programs that you are running
- how you can use the traffic study data to do day-to-day moves, adds and changes more efficiently
- how you can use the traffic study data from your system to provision other systems in your network properly before they are installed

System, Customer, Network traffic studies

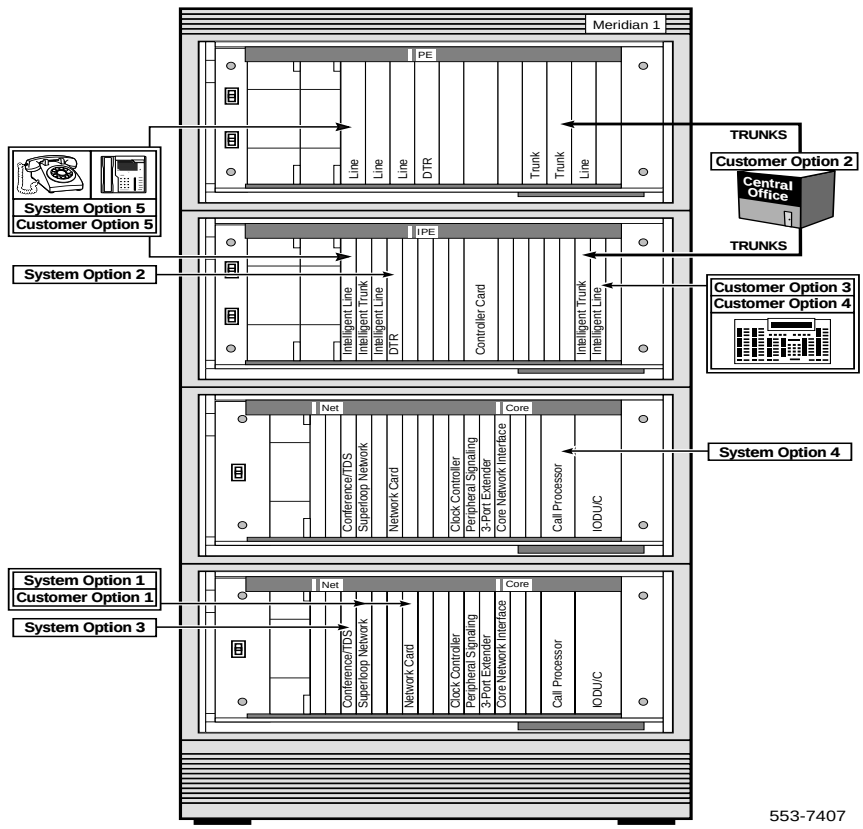
System and *Customer* traffic study options come with every system. There are some options that print out data only if you have certain software packages present on your system disk. The optional studies are specifically identified when they are presented here.

Network Traffic (NTRF) is an optional software package that you would probably order if you have some of the Electronic Switched Network software packages such as Basic Automatic Route Selection (BARS), Network Alternate Route Selection (NARS), or Coordinated Dialing Plan (CDP). Network traffic studies monitor the performance of network features such as least cost routing and queuing. Further information on these options is provided in the *Software System Management Guide*.

Understanding what these traffic study options deliver can have a bearing on how you perform the moves, adds, and changes of telephones on your system.

All of the traffic study options are described in *Traffic measurement Formats and output*.

Relationships between System and Customer traffic studies and system components



Upgraded Option 61C system

System traffic study options

The following table provides a complete list of the traffic study options available for studying the *System*. A similar table for the *Customer* traffic study options is presented later in this module.

Table 13
System traffic study option s

Option number	Option name	Major focus of study
TFS001	Networks	Loops, (including TDS, CONF and MFS loops) and Superloops
TFS002	Service loops	CONF, DTR, TDS, MFS and tone detectors
TFS003	Dial tone delay	Dial tone delays
TFS004	Processor load	CPU, buffers and call registers
TFS005	Selected terminals	Individual telephones, trunks, and data terminals
TFS007	Junctors	Multi-group system junctors
TFS008	Command status link & Application module link	CSL link used for Application modules like Meridian Mail and Meridian Link
TFS009	D-channel	ISDN D-channel used in Primary Rate Interface or ISDN Signaling Link
TFS011	Multi-Purpose ISDN Signaling Processor traffic	Basic Rate Interface voice, data, or packet data traffic
TFS012	Multi-Purpose ISDN Signaling Processor D-channel	Basic Rate Interface D-channel management messages
TFS013	Multi-Purpose ISDN Signaling Processor messages	Basic Rate Interface messages by size
TFS015	Meridian Packet Handler	Incoming and outgoing calls handled by the packet handler and the data packets

Traffic

The information in this book focuses on the five System options which are the most useful for system administrators of all systems. They are:

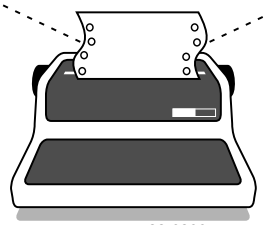
- TFS001
- TFS002
- TFS003
- TFS004
- TFS005

TFS001 – Networks

Sample data

System ID	TFS001						
Loop number	Loop type	Intraloop FTM	Intraloop CCS	Intraloop peg count	Total loop FTM	Total loop CCS	Total loop peg count
200	TFS001						
004	TERM	00000	0000142	00161	00001	0002056	01652 S
008	TERM	00000	0000184	00180	00001	0002500	01725 S
012	TDMS	00000	0000000	00000	00013	0000031	01496
013	CONF	00000	0000000	00000	00000	0000010	00006
014	TERM	00000	0000085	00060	00006	0000544	00287
015	TERM	00003	0000064	00039	00014	0000372	00284

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of CCS.

Purposes of TFS001 study

TFS001 is one of the most useful study options you can run. It monitors the performance of the loops and Superloops on your system. The types of loops it monitors include:

- Terminal (Network Controller loops and Superloops)
- Tone and Digit Switch loops
- Multi-Frequency Sender loops
- Conference loops

The data for Superloops is identified with an "S" in the Total loop peg count column to differentiate it from the data for loops.

For each type of loop or Superloop there is one line of data output. Each line of data includes:

- a peg count of the number of times that timeslots were used
- a measurement of the total usage time of those timeslots
- a peg count of the Failures to Match (FTMs), times when there were no suitable or available timelots

One line of data is highlighted in the previous example printout.

Explanation of terms used

Timeslots

When a user attempts to call another user, the system Central Processing Unit (CPU) connects the telephones for the conversation by assigning one timeslot for each of the two telephones.

The loops which serve the telephones each have 30 timeslots to use for voice and data connections for all of the terminals that share that loop. The terminals can be telephones, trunks, attendant consoles, data devices and digitone receivers.

Traffic

Superloops have 120 timeslots to provide for voice and data connections for the terminals connected to them. It is important to note that with four times more timeslots than a loop, a Superloop can carry *five* times the amount of traffic.You will see more about that in the recommended traffic levels shown inTabl e14 which follows.

When establishing a connection, the CPU must find one timeslot on the originator's loop or Superloop and one timeslot on the destination terminal's loop or Superloop. If either loop has no available or suitable timeslot, this traffic study, TFS001, shows FTM peg counts for the loops for *both* telephones attempting the connection. If one loop is too busy and is causing problems for many other loops when they try to connect with it, the FTMs will be the highest number for the loop causing the problems.

This study identifies peg counts, usage and FTMs for two basic kinds of connections, *Intraloop and Loop.*

TFS001

Intraloop connections

Intraloop statistics only include the activity of terminals attempting to connect to other terminals on the same loop or Superloop.

Loop connections

Loop statistics include the activity of any terminal on that loop or Superloop. The statistics print out when terminals connect to a terminal on the same loop or on another loop. The data includes twice the value of the associated intraloop numbers for the same loop or Superloop as well as any interloop traffic which occurred involving terminals on that loop.

If you are using loops on your system, the frequently connected terminals should be configured on different loops whenever possible and in this way intraloop connections are prevented. This helps to keep blockage (if any) within the grade of service guidelines.

If both telephones for two users who call each other frequently are connected to one loop, the probability that there will *not* be a timeslot occasionally when needed is greater than if the two telephones are connected to two different loops. There is even less chance of blockage if one or both of the terminals are connected to Superloops.

When users make calls they do not know what loop(s) or Superloops their telephones are on, nor should they concern themselves with that. It is the responsibility of the person who sets up and maintains the system to understand the calling patterns of the users of the system. Telephones and trunks and attendant consoles which interconnect frequently must be considered. The cards for these terminals should be located on different loops, or on Superloops, if the grade of service is to stay within the guidelines.

Although Superloops are able to handle very high levels of traffic, it is a good idea to monitor the load and the amount of intraloop traffic on these as well in order to achieve maximum efficiency from your system.

Avoid these potential intraloop blockage scenarios:

Scenario 1

Incoming trunks should not be connected to trunk cards which share a loop with a line card connected to an attendant console.

Every time a call comes into the console from one of the trunks, the system must find two timeslots on one loop for the call to be answered (one for the trunk side of the call and the other for the attendant to use).

Symptom of blockage: If blockage occurs, the caller experiences many rings before the call gets answered. The attendant does not show any call waiting.

Solution: Reduce potential intraloop traffic congestion by moving a trunk card or the attendant console line card to a different loop with low traffic.

Scenario 2

A manager's telephone should not be connected to a line card which shares a loop with the line card connected to that manager's secretary's telephone.

Symptom of blockage: These users, or others on the same loop, experience delayed dial tone or call blockage when they attempt to make calls.

Solution: Move one of the two telephones which frequently connect to each other to a different loop with low traffic.

Scenario 3

Digitone receiver cards should not be connected to a loop with a high number of Digitone-type telephones. Every time a Digitone-type telephone goes off-hook, it requires a connection with a digitone receiver. If the two are on the same loop, this ties up timeslots and deprives other users on that loop for the duration of the dialing period.

Symptom of blockage: All users on the loop with the Digitone-type telephones and the digitone receiver card could experience dial tone delays, most often in the busy hour(s).

Solution: Move the digitone receiver card to a different loop with low traffic and few Digitone-type telephones.

TFS001

How can you ensure there will be timeslots available for the terminals when they need them?

- Configure your system so that there is very low *intraloop* calling. When users call each other and use the trunks, they should be making *interloop* connections the majority of the time.
- Distribute the total system traffic across all loops or Superloops as much as possible (±10%). If any loop or Superloop carries a disproportionate amount of the total traffic of the system, maximum system performance will not be achieved.
- Keep your traffic levels below the recommended levels of maximum traffic for loops and Superloops.
- Set a Loop traffic threshold at less than the recommended capacity so that if any loop or Superloop reaches the threshold level, you will see warning messages on the traffic study printer. In this way, you can prevent any loop or Superloop from getting overloaded and you maintain excellent service to your users at all times.

TFS001

Table 14
Recommended traffic levels

Type of loop	Maximum traffic (ccs per hour)	Recommended traffic (ccs per hour)
Standard	1080	600
Enhanced	1080	660
Superloop	4320	3500

Traffic

Note 1: Standard Network SL-1 System Types: L, LE, VL,VLE, XL, M, MS, S)

Note 2: Enhanced Network Meridian SL-1 System Types: N, XN, ST, RT, NT, XT

Note 3: Enhanced Network /Superloop Network Meridian SL-1 System Types: ST, RT, NT, XT,

Note 4: Enhanced Network /Superloop Network Meridian 1 Option 11, Option 11E, Option 11C, Option 21, Option 21E, Option 51, Option 51C, Option 61, Option 61C, Option 71, Option 81, Option 81C.

See the section called *You should know this* for more information on these system types.

TFS001

Use the recommended traffic levels in the preceding chart to analyze the traffic study data from your system. If your loops and Superloops consistently carry more traffic than the recommended levels, this may result in Failures to Match (FTMs).

If you see traffic reports which show peg counts for Failures to Match, calculate whether your system is meeting the grade of service objectives first, before you plan any changes to your system. Use the data from Customer traffic study TFC001 to do that. See the section on TFC001 which follows.

Find out if Failures to Match are showing up consistently before you react by making system changes.

Situations you might encounter

Situation:

All loops and Superloops are carrying the maximum recommended traffic and there are too many FTMs; you are not meeting your grade of service objectives.

Solution:

You need more timeslots. Order at least one additional loop or Superloop card and have your system maintainer redistribute the sytem traffic once the additional card is installed.

Situation:

You are adding several new telephones, or trunks, or data terminals, or a console, (in other words you are about to add more traffic to your system). You must connect them to available TNs.

Solution:

Use recent traffic study data to help you select the best TNs to use. Terminals should *not* be added to loops which are already experiencing FTMs.

It helps your system maintainer(s) with day-to-day moves, adds, and changes if you discuss study results with them. They need to know the statistics on the loops which are very busy and those which have low traffic.

When they have an opportunity, cards from very busy loops can be moved to loops which have low traffic to keep the traffic spread evenly over the entire system.

Arrange with your system maintainer to set up Traffic threshold settings. There are thresholds for incoming or outgoing call blockage, percentage of all trunks busy, attendant speed of answer, and loop or Superloop traffic, to name a few. For example, if loop traffic exceeds a threshold level, warning messages print out along with traffic study data. With thresholds set up, complete studies are not required as often since the system monitors itself and prints out warnings whenever violations occur.

Estimating traffic

If you do not have recent traffic study data and you have not been monitoring for threshold violations, you can do an estimate of the traffic on each loop by assigning average usage values to the various types of terminals on your system.

- Estimate or have different users estimate, how busy (in seconds) each type of telephone is in its busiest hour. You can also use Internal Call Detail Recording, if you have the software package, to record the call activity of various typical telephones.
- Remember to include trunk traffic and the traffic on your digitone receivers (DTRs) when you are estimating. Use Call Detail Recording information for the trunk estimates. Ask your system supplier for help estimating the DTR traffic.
- Calculate how many terminals of each type are on each loop. Do a TN Block print out to verify all the terminals connected to each loop or Superloop.
- Multiply the usage per terminal, times the number of terminals per loop, to calculate the average estimated traffic per loop or Superloop in its busiest hour.

The following example illustrates this exercise. The averages used in the example are not to be taken as suggestions. Use your own traffic values in your calculations.

Table 1 5
Example of traffic estimate

Type of terminal	Type of connection	Busy hour estimate
Digital telephone	voice	800 seconds (8 ccs)
	data	1800 seconds (18 ccs)
Analog telephone	voice	600 seconds (6 ccs)

— continued —

Table 15
Example of traffic estimate (Continued)

Type of terminal	Type of connection	Busy hour estimate
Data terminal	data	1800 seconds (18 ccs)
Central Office trunk	voice	3000 seconds (30 ccs)
TIE trunk	voice	3400 seconds (34 ccs)
Digitone receiver (DTR)	Digitone	3400 seconds (34 ccs)

Table 16
Example of one loop traffic estimate

Card type & Quantity	Terminals working	Traffic volume
digital line cards (2)	12 telephones	96 ccs
	3 data terminals	54 ccs
analog line cards (4)	30 telephones	180 ccs
data line card (0)	–	–
COT trunk cards (2)	6 trunks	180 ccs
TIE trunk card (1)	2 trunks	68 ccs
DTR card (0)	–	–
Total traffic:		578 ccs

Compare this amount of estimated traffic with the recommended levels shown earlier in this section.

- Decide whether more terminals can be added to this loop or Superloop.
- Decide what types of terminals can be added, based on their estimated traffic load in the busy hour.

TFS001

Service loops

The Tone and Digit Switch, Conference, and Multi-frequency Sender loops are called Service loops collectively. If there are times when timeslots were not available for one of the services provided by these cards, there will be FTMs pegged under the service type that was blocked.

Users of the system who experienced the blockage may also mention this to you. For example, they may have had problems with the Conference feature during a busy hour if the CONF loop showed FTMs in the traffic study print out. Look for more detail concerning the problem by analyzing studies TFS002 and TFS003, to be discussed later in this section.

It is important to note that if the telephone on a very busy loop with no available timeslots requests a service such as dial tone, two FTM peg counts will print out, one for the telephone's loop and one for the TDS loop.

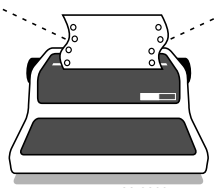
Since the interpretation of this data related to Service loops is rather advanced, it is best to discuss the data with your system supplier.

TFS002 – Service loops

Sample data

System ID	TFS002		
Service number	**Service FTM**	**Service usage**	**Service request peg count**
200	TFS002		
000	00002	0000023	01650
001	00000	0000003	00099
002	00002	0000008	00321
003	00002	0000057	00951
004	00000	0000010	00168
005	00000	0000005	00068
006	00003	0000044	00376
007	00000	0000000	00000
008	00013	0000076	01471
009	00000	0000013	00069
010	00000	0000002	00012
011	00000	0000000	00000
012	00000	0000002	00022
013	00000	0000001	00003
014	00000	0000000	00000

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of CCS.

Purposes of TFS002 study

Tone-related hardware

The cards looked at by this study are:

- Conference
- Digitone receiver (DTR)
- Tone and digit switch (TDS)
- Multi-frequency sender (MFS)
- Tone detector

Study option TFS002 monitors the performance of the Service loops in detail and also related cards which are involved in providing services.

The major uses of this study are:

- finding out the number of requests for dial tone there were in order to calculate the percentage of users who waited for dial tone

  In order to calculate the percentage wait for dial tone, you need data from study TFS003.This calculation is included in the discussion of theTFS003 study which follows.

- finding out the usage of the DTRs in order to assess whether they are properly provisioned for your requirements
- finding out if there are FTMs on these cards which could mean improper provisioning, defective cards or poor traffic balance on your system. This data can also help explain repair calls related to these services during the same time period

Services by number

Each service provided by these cards, has been assigned a number:

- 000 Dial tone
- 001 Busy tone
- 002 Overflow tone
- 003 Ringback tone
- 004 Tone ringing Meridian 1 telephones
- 005 Miscellaneous tone
- 006 Outpulsers
- 007 Spare
- 008 Digitone receiver
- 009 Conference
- 010 MF tone for Automatic Number Identification (ANI)
- 011 Meridian 1 Tone Detector
- 012 Multi-frequency Sender
- 013 End-to-End Signaling TDS usage (Release 19 and later)
- 014 End-to-End Signaling conference usage (Release 19 and later)

DTR usage

Your system supplier can help you calculate the number of DTRs your system requires during the time period you have chosen. To do this they use the usage and peg count data shown in the study for service number 008.

A Digitone telephone requires a DTR anytime it is used to make a call. If none is available, the user is not given dial tone until there is one. Insufficient DTRs impact users of Digitone telephones and incoming trunks only.

Traffic

Using provisioning tables, which your supplier has, they can calculate how many DTRs are required to provide a good grade of service for dial tone for the Digitone users of your system.

FTMs

If there are Failures to Match for any of the services in this study use the data from TFS001 if you have it to help analyze the numbers.

FTMs are often explained by overloaded loops. Redistributing traffic load can remove the FTMs from your system.

There may be a requirement for more Service loops. This would also show up in the data for TFS001.

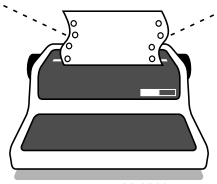
A defective card is the least likely solution. Replace the type of card with the FTMs if all the other alternatives have been tried and FTMs continue to appear in TFS002.

TFS003 – Dial tone delay

Sample data

System ID	TFS003	
Delay longer than 3 seconds	**Delay longer than 10 seconds**	**Total delays of 1 second or longer**
200	TFS003	
00003	00001	0040

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of seconds.

Purposes of TFS003 study

The data provided by study option TFS003 can be used to calculate whether your system is meeting the grade of service objective for dial tone delay.

The standard objective is: *no more than 1.5% of users should experience a 3 second wait for dial tone during the busy hour.*

Calculate the percentage dial tone delay

Use the number of dial tone requests shown in the TFS002 study data for the same period. That number is the peg count shown for service 000. The line of data is highlighted in the example printout.

Calculate your percentage as follows:

TFS003 peg count for delays longer than 3 seconds divided by the TFS002 peg count for service 000 dial tone requests.

Multiply this number by 100% to get your percentage. Compare this to the objective of 1.5%.

If you are not meeting your objective you may need

- more TDS loops
- more DTRs for Digitone telephones and incoming trunks
- more units on your existing DTR cards activated in software
- more loops or Superloops
- repairs
- a faster CPU to keep up with all the dial tone requests

Your system supplier can help you investigate the cause of these delays.

Traffic

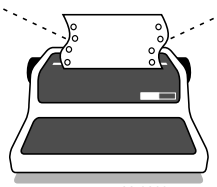
On an ongoing basis, you can monitor the delayed dial tone percentage without doing the manual calculation. Set a *dial tone delay threshold* and if this is ever violated, the system prints out a warning message to the traffic printer along with the traffic study data which you can use to analyze the situation.

TFS004 – Processor load

Sample data

System ID	**TFS004**	
Idle cycle count	**CPU attempts**	**Load peak peg count**
HPIB overflow peg count	**LPIB overflow peg count**	
500/2500 Output buffer overflow peg count	**SL-1 Output buffer overflow peg count**	
Call register overflow peg count		
Rated call capacity	**Maximum call capacity used**	**Percentage of call capacity used**
Number of eliminated observations	**Day, hour of maximum call capacity used**	
LLC1 blocked calls	**LLC2 blocked calls**	**LLC3 blocked calls**
200	TFS004	
1474233	21786	00141
00000	00000	
00000	00000	
00000		
00000	00000	00000
00000	0000	
00000	00000	00000

The headings shown in this example do not appear in the printout.



533-0300T TTY

Purposes of TFS004 study

The focus of study option TFS004 is the Central Processing Unit (CPU) and memory of your system.

- You can use it to see how well your CPU is keeping up with call processing demands, especially during the busy hour.

  Call capacity is the term used to describe the amount of processing power your CPU has. As of Release 18, one of the fields of data in TFS004 shows the percentage of call capacity used during the study period. The nearer this number is to 100% the more likely it is that users are experiencing delays in getting dial tone, feature related problems, and you are seeing such things as missing Call Detail Records. Since the CPU controls the system, if it is running at maximum capacity, symptoms appear in all areas of call processing. Systems running at a maximum call capacity of approximately 70% are able to handle peaks in call traffic efficiently, during the busy hour.

  In Release 24, the *Rated call capacity* and the *Maximum call capacity* used is based on data collected for the last seven days, 24 hours a day (168 hours), rather than the previous 24 hours only. If the system initializes or SYSLOADS, there will not be data in these fields for the first 24 hours. The *Day and hour of maximum call capacity used* is the date and hour with the highest Call capacity used over the past 168 hours. For example, DDHH = 1613 means the maximum call capacity used occurred on the 16th of the month at the 13th hour.

Note: If your system is running on software of an earlier release than Release 18, ask your system supplier to manually calculate the percentage of real time used from the data in the busy hour study and another study which runs when there is no activity on the system.

- You can look at the data for buffer and call register overflows to evaluate the provisioning of memory for these functions.

  After installation of your system, your system supplier can use the data from the first study with the system running under a normal load to adjust the provisioning slightly if required. Ideally, there should never be buffer or call register overflows since they indicate a lost call, feature, or Call Detail Record.

- If you are using the Line Load Control feature, you can monitor the blocked call attempts when you have turned the feature on during a study period. For more information on Line Load Control see *X11 software features and services*.

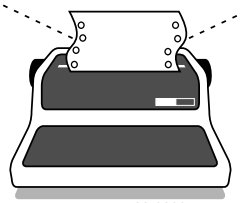
TFS005

TFS005 – Selected terminals

Sample data

System ID	TFS005	
Loop number	**Line usage**	**Line peg count**
200	TFS005	
00	00000144	00066
01	00000213	00179
02	00000232	00144
03	00000244	00130
05	00000289	00124
08	00000218	00158
10	00000229	00154

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of CCS.

Purposes of TFS005 study

The data in study option TFS005 allows you to monitor selected terminals for the number of calls they make and the traffic load they offer to the system.

The terminals can be individual trunks or telephones. *They cannot be attendant consoles*. Refer to the sections on Customer Options TFC003 and TFC004 for the study options designed to monitor consoles.

The data you collect in this study can be very useful when you move, add, and remove terminals from your system.

- When you do any of these things, the traffic load of the system and each loop or Superloop is changed.
- You need to know, before you add terminals, how much traffic each one will add to the system if you are going to distribute the traffic as evenly as possible over the entire system.
- If several TNs are available for a new trunk or telephone, you can choose the best one to use, from a traffic point of view, if you understand the traffic on your existing loops or Superloops and how much the new terminal will add.

You can use this study to find out how much traffic, on average, each different kind of trunk or telephone user adds to the system. For example, a sales person might use the telephone far more than other kinds of users. You need to know the calling patterns of the various kinds of users you have on your system. Use this study to get that data.

The same thing applies to the different types of trunks you might be using. TIE trunks to other systems on your private network might be used frequently, whereas Foreign Exchange trunks might not be so busy.

Some individual trunks are used more often than others. For example, the trunk with the highest member number in a trunk route is used more often than the trunk with the lowest member number, if your system is programmed to scan trunks in a linear fashion.

If you can get this level of detail about the traffic on each type of trunk and telephone, you can use it along with data from a recent TFS001 (Networks) study to plan a major change to your system. Also, you can use it to estimate the traffic on each loop or Superloop if you have no recent TFS001 data when you make day-to-day changes to your system. You will be able to provide your users with the level of service they need, managing the traffic on the system, while you perform moves, adds and changes.

If you have other systems on your network with users who are similar to the ones on the system you are managing, you can use the data collected for this study to help the other manager with provisioning and management decisions.

If a new system is being installed, knowing the number of terminals and the traffic expected from them in detail allows you and your system supplier to configure loops and Superloops extremely well for the needs of the terminals to be connected.

Set up

- Select typical users in each functional group on your system.
- Ask your system supplier to monitor the traffic for them long enough to get busy hour data which represents typical calling patterns for each one.
- Do the same for average busy trunks or busy/not busy trunks in each trunk group on your system.
- Your system supplier knows that if you simultaneously monitor two terminals on the same loop or Superloop, this study combines the data for both terminals. You would do this to calculate an average traffic value. If you do not want the data combined, you must ensure that you are monitoring only one terminal from each loop or Superloop individually to get pure data.

Other System traffic study options

TFS007, TFS008, TFS009, TFS 011, TFS012, TFS013 and TFS015 are the remaining System traffic study options. The content of these studies relates to optional system components and some of them also require optional software packages. They are beyond the scope of this book.

For further information on them, ask your system supplier or refer to the *Traffic measurement formats and output*.

Customer traffic study options

Table 17
Customer traffic study option s

Option number	Option name	Major focus of study
TFC001	Networks	Calls by type (incoming, outgoing, tandem and intracustomer)
TFC002	Trunks	Trunk group activity
TFC003	Console queue	Calls in attendant queue
TFC004	Individual consoles	Individual attendant activity
TFC005	Feature key	Use of feature keys
TFC006	Radio paging	Radio paging system
TFC007	Call Park	Call Park feature usage
TFC008	Messaging and Auxiliary Processor links	Messaging and Auxiliary Processor links (IMS and IVMS links)
TFC009	Network Attendant Service	Calls attempting routing with Network Attendant Service

The information in this book focuses on the five Customer options which are the most useful for system administrators of all systems. They are:

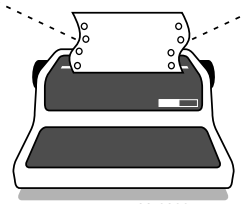
- TFC001
- TFC002
- TFC003
- TFC004
- TFC005

TFC001 – Networks

Sample data

System ID	TFC001	
Customer number		
Incoming FTM	Incoming CCS	Incoming peg count
Outgoing FTM	Outgoing CCS	Outgoing peg count
Intracustomer FTM	Intracustomer CCS	Intracustomer peg count
Tandem FTM	Tandem CCS	Tandem peg count
Permanent signal	Abandon	Partial dial
200	TFC001	
000		
00001	0001985	01143
00002	0002909	01732
00003	0000339	00047
00000	0000046	00062
00001	00004	00002

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of CCS.

Purposes of TFC001 study

- The data in study option TFC001 allows you to monitor call activity in the customer group from the point of view of the type of call. There is a line of data for the following types of calls:
  - incoming
  - outgoing
  - intra-customer
  - tandem

  For each call type, the system tracks FTMs, usage in CCS, and the peg count of the number of calls during the study period. Studies are usually run on an hourly basis.

  Before running the study, you decided what grade of service objectives you wanted to use for the four call types which this study monitors. It is very common to use the recommended objectives shown in Table 12 near the beginning of this module.

  You can use the data in TFC001 to calculate the percentage of FTMs relative to the peg count of the number of calls of a particular type. You can determine whether your system is meeting your grade of service objectives.

For example, if you look at the sample print out shown earlier for this study, you can see the line of data for incoming calls that is highlighted. There was 1 FTM and there were 1143 incoming calls during the sample hour. As a percentage this is:

1÷1143 x 100% = 0.08%

Once you compare this percentage to your objectives, you can decide whether some system changes are required to bring your system performance in line with your objectives.

- This study also shows peg counts for such things as Permanent signals, Abandoned calls, and Partially dialed calls. The data shows the number of times telephones were left off-hook, or users did not complete dialing once they had started.

  If users leave their telephones off-hook, incoming calls will not get through. This also puts an extra load on your CPU.

  If the telephones are Digitone, it adds extra load onto your system DTRs as well.

  Immediately after cutover these numbers might be high due to a change in dialing plans. Users need time to adjust to new ways of dialing calls and accessing features.

  If these numbers remain high, user re-training might be needed, or you can walk around to see if users are leaving their telephones off-hook.

What can you learn from the data?

- The data can help to support or refute user reports of problems.

  Users who experience blockage may assume there is a larger system problem than there in fact is. The FTM they experienced may have been due to unusually high levels of traffic which might not reoccur. You might also find that your system shows small numbers of FTMs consistently during busy hours, but if you are running within your grade of service objectives, it is important to be able to tell the user that.

  If the user requires better service, you can have that user's telephone moved to a loop with lower traffic and, hopefully, fewer FTMs than the one they are connected to at present.

- It can help you pinpoint traffic bottlenecks in your system.

  For example, if incoming calls are experiencing FTMs, your system maintainer can identify cards connected to incoming trunks or attendant consoles and focus rearrangement work on those cards and loops or Superloops. Traffic bottlenecks are not likely to occur on Superloops.

Thresholds

There are two thresholds which your system maintainer can set up to configure the system to print out a threshold violation message, when the percentage of FTMs rises above your grade of service objective.

The threshold settings are for *incoming and outgoing* calls. Decide what percentage your settings will be. If you set it slightly lower than your desired grade of service, you will be alerted before there is serious need for concern. This helps you mange the system proactively and provide excellent service to your users at all times.

TFC002 – Trunks

Sample data

System ID	**TFC002**
Customer number	
Route number	**Trunk type**
Trunks equipped	**Trunks working**
Incoming usage	**Incoming peg count**
Outgoing usage	**Outgoing peg count**
Outgoing overflow	**All trunks busy**
Toll peg count	
Incoming ISA peg count	**Outgoing ISA peg count**
200	TFC002
007	
004	COT
00008	00007
0000088	00046
0000114	00052
00001	00002
00006	
00000	00000

The headings shown in this example do not appear in the printout.

533-0300T TTY

This study prints out the usage data in units of CCS

Purposes of TFC002 study

The data in study option TFC002 is mainly used for provisioning the correct number of trunks in each trunk group. Based on the usage you actually have on each group of trunks during your busy hour(s), you and your supplier can use trunk provisioning tables or computerized tools to calculate how many trunks should be in each trunk group to provide the level of service you are expecting.

Grade of service

You must decide what grade of service, or in other words what maximum level of blockage, you can tolerate. Each trunk group can be configured individually for a separate grade of service.

For example, you might want to provision public network Central Office trunks at a 2% blockage maximum since your customers use them to call in to you. You might provision your private network TIE trunks with 5% blockage as a maximum since these trunks might have a higher monthly cost than Central Office trunks.

Also, since the TIE trunks handle calls only from your own private network users, you can train them to use the Ring Again feature to queue for the trunks when these are busy, or they can try the call at a later time after the blockage has cleared.

The higher the acceptable blockage, the fewer trunks you need for the given amount of traffic.

You must assess what impact an *all trunks busy* condition might have on the type of caller who uses the trunks, and the resulting impact on your business before choosing the grade of service.

Provisioning tables

You and your system supplier must discuss the kind of provisioning tables to use. Three of the most common ones are called:

- Poisson
- Erlang B
- Erlang C

Traffic

Poisson and Erlang B statistical tables provision almost the same number of trunks when there are low levels of traffic on a trunk group. However, as the traffic levels increase, the Poisson tables provision more trunks than the Erlang B tables.

If you want to provision a buffer for periods of peak traffic or if the trunk group you are provisioning is a last choice trunk group on a system which uses automatic route selection, use the Poisson table.

If you are provisioning one of the first choice trunk groups, the Erlang B tables provision exactly enough trunks for the grade of service you requested with no buffer for peaks. You can expect that overflowed calls during short-term peaks in traffic will go to the last choice trunk group if the first choices are busy.

Use Erlang C tables only if you expect your users to queue during busy times when all trunks in that group are busy. *Do not provision using these tables if your users will not queue or if your business cannot tolerate queuing.* These tables provision low numbers of trunks since these tables assume that queuing will occur.

Other information

Other fields of data in this study show you the following additional information:

- the number of trunks equipped and the number of trunks working

  This data is one way to monitor each trunk group to ensure there are no disabled trunks. If there are any, be sure to enable them and run a new study before you assess the traffic data.

  Your system maintainer is probably running maintenance diagnostics on your trunks periodically in order to maintain your trunks in good working order.

  There are also maintenance messages which print out on maintenance printers when there are trunk problems.

  Your attendant can also check each trunk in each trunk group on a regular basis from the console. Instructions on how to do that are in the Console User Guide.

- how many times during the study period there were no available trunks in that trunk group and a call intended for that group of trunks was blocked or sent to a second trunk choice, if one exists. These are referred to as overflowed calls.

  Overflows are not necessarily bad, especially if the overflowed calls do go out on a second choice trunk group and the cost for these overflowed calls is lower than the cost of installing additional trunks in the trunk group which overflowed them.

- how many times during the study period the last available trunk in that trunk group was used by a call

  A high number is not necessarily bad unless it is accompanied by a high number of overflows as well. Then the same argument stated in the previous item applies.

  There is a row (or optionally two rows) of keys on the attendant console for Trunk Group Busy indicators. Your attendant can monitor trunk groups by noticing how often these key lamps flash. A flashing lamp means all the trunks in that group are busy.

You might want to tell the attendant to inform you whenever certain trunk groups seem to be busy frequently, and to tell you the times of day when that is happening.

- the number of calls which were dialed with a 0 or 1 following the trunk group access code

  This pegs only for Central Office and foreign exchange trunk groups. If users are supposed to be restricted, you might use this as a quick way of checking if the necessary restrictions are in place. Check your Call Detail Records for more detailed information on what calls are being made and what telephones are being used to make them.

- the last two fields of data apply to ISDN trunks. A discussion of this is beyond the scope of this book. If you are using ISDN, discuss your study results with your system supplier.

Threshold

There is an All Trunks Busy threshold which you can program to automatically monitor the trunk groups on your system. The threshold violation message indicates that the last trunk in an identified group was seized more than the allowed percentage of the time. Whenever, a trunk group exceeds the percentage you program, the threshold violation message prints out on the Traffic printer along with TFC002 traffic study data, to help you analyze the situation.

A suggested threshold is 5% initially.

Trunk Traffic Reporting Enhancement (RLS 21)

There are two options that are part of the enhancements.

- Traffic Period Option (TPO)
- Trunk Seizure Option (TSO)

Traffic Period Option (TPO)

Normally, when a call is in progress at the time a TFC002 study is scheduled to print out, the duration and peg count for that call will not be included in that printout. The data for that call only prints out at the next scheduled print out time, after the call ends.

When the TPO option is activated in the Configuration Record (LD 17), TFC002 trunk usage data in each printout will include all duration data even though some calls are still in progress. When calls are disconnected, the next scheduled printout after the disconnect shows the duration data of the calls for that reporting period and a peg count for the calls.

Trunk Seizure Option (TSO)

Normally, trunk usage data begins to accumulate for the TFC002 study option only after a call is considered to be established.

A call is considered to be established when:

- the End-of-Dialing timer expires after the last digit is dialed
- octothorpe (#) is dialed
- answer supervision is received from the other end

The TSO option allows the data to be accumulated beginning with trunk seizure, and not only after the call is established. You can have this option activated in the Configuration Record (LD 17).

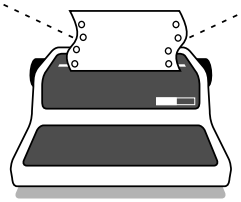
Some calls that users make are not answered. Data will still accumulate if this option has been activated on your system. However, if the time between trunk seizure and call disconnect is too small (less than 4 seconds), the usage and peg count will not be accumulated.

TFC003 – Attendant queue

Sample data

System ID	**TFC003**
Customer number	
Average speed of answer	**Average attendant response**
Calls delayed peg count	**Average time in queue**
Abandoned calls peg count	**Average wait time of abandoned calls**
200	TFC003
003	
00107	00048
00289	00079
00015	00192

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of seconds.

Purposes of TFC003 study

Each customer group has one attendant queue, if there are attendant consoles programmed. All consoles for one customer group receive calls from the same queue. The traffic study option, TFC003, *Attendant queues*, monitors the entire queue, not each individual console. Traffic study option TFC004, *Attendant consoles*, monitors each console. Usually a traffic study analyst looks at these two console-related studies together to get a complete look at the console statistics.

Never make recommendations about the attendants before you:

- *sit with them for extended periods of time. You need to understand their daily routine, busy hour routine and the reasons for their behavior before you can make sense out of the data in these two studies.*
- *familiarize yourself with proper console operation by referring to a User Guide*
- *discuss efficient call answering techniques with your system supplier*

It is important to note that systems using Direct-in-Dial (DID) trunks do not have as many calls coming into the console as systems of similar size without DID trunks. The calls which do go to the console are usually more time-consuming. The caller probably needs information since they did not use a DID number to make the call. You should bear this in mind when you analyze your data.

Average speed of answer

This study monitors calls intended for the attendant and measures how long they spend waiting to be answered.

Some calls are immediately presented to an available attendant while others wait in queue before being answered. All calls for the attendant are averaged together for each hour. The calls could be external or Dial 0, or recalls of unanswered calls which were previously extended to telephones by the attendant.

Look for an average of ten seconds if your attendants are not overloaded.

Average Attendant Response

This is the average time elapsed between the time a call is presented to an available console and the time the attendant answers it.

The attendant has two ways of answering the call. Either by pressing the Incoming Call Indicator key or the Loop key. It doesn't matter which way the attendant answers. The averages are not affected.

TFC003

Two seconds is considered the maximum acceptable time, if the attendant is not expected to perform other duties along with answering calls on the console.

Peg count of calls delayed

The system counts all calls which spend time in the attendant queue before being answered by the attendant, except the calls which abandon.

Abandoned calls are those where the caller hangs up while in the attendant queue or after being presented to the attendant. Abandoned calls are counted in a separate field of data.

Calculate a percentage of calls delayed. Divide the peg count of delayed calls by the total number of calls processed (add internal and external call peg counts). Multiply by 100 to arrive at the percentage. If the percentage is higher than 25−35% you might have an overloaded attendant.

Average time in queue

This is the time that calls spend in the attendant queue averaged over all calls that spend time in the queue. Some typical delay times are listed here.

Table 18
Call delay times related to the number of consoles

Number of consoles	Typical delay time (seconds)
1	12
2	10
3	8
4	6
5	4

Peg count of abandoned calls

This is a count of internally-originated and externally-originated calls which abandon before being answered by the attendant.

Calculate a percentage of calls abandoned. Divide the peg count of abandoned calls by the total number of calls processed (add internal and external call peg counts). Multiply by 100 to arrive at the percentage. If the percentage is higher than 1–2% you might have an overloaded attendant or you might have overloaded loops. You might also have very impatient callers! (The more you get to know the expectations of your callers, the better service you can provide).

Average wait time of abandoned calls

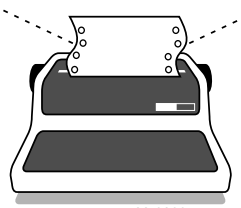
The average time that a call waited before abandoning.

TFC004 – Attendant consoles

Sample data

System ID	**TFC004**
Customer number	
Attendant number	
Peg count of internal calls processed by attendant	**Total time spent processing internal call requests**
Peg count of external calls processed by attendant	**Total time spent processing external call requests**
Total time console is attended	**Total time spent processing calls**
Peg count of the number of times all Loop Keys were busy	
Peg count of Attendant Alternative Answering call attempts	**Peg count of answered Attendant Alternative Answering calls**
200	TFC004
000	
001	
00076	0000011
00167	0000017
000036	0000029
00000	
00005	0000003

The headings shown in this example do not appear in the printout.



533-0300T TTY

This study prints out the usage data in units of CCS.

Purposes of TFC004 study

Study option TFC004 monitors each individual console. It monitors all calls being handled by each attendant, so an external call which is extended to a telephone by an attendant gathers external call statistics. If the call recalls to the attendant queue because it is not answered, it gathers new external call statistics at this point.

Peg count of internal calls processed by the attendant

When an attendant removes a call from the console, the peg count increments. Internal calls are those originated by users on the system, attendants, and even calls made on the paging system.

Total time spent processing internal call requests

A call that is pegged as internal, is timed in units of CCS. If such a call is put on hold, the timer stops and is started again once the call is removed from hold.

You can calculate an average *work time* per internal call. This gives you an idea of how efficient each attendant is. Do not jump to conclusions. Attendants who spend longer with callers than other attendants may be providing very good service to your callers.

Divide the Total time spent processing internal calls by the peg count of the number of internal calls. Multiply this number by 100 to change the units to seconds per call.

Peg count of external calls processed by the attendant

This is a count of all external incoming calls answered by the attendant. This includes calls coming in from DID trunks which were routed to busy telephones and were sent to the console by the Call Forward Busy feature. Recalls from camped-on calls and ring-no-answer calls are also pegged as external calls.

Total time spent processing external call requests

A call that is pegged as external, is timed in units of CCS. If such a call is put on hold, the timer stops and is started again once the call is removed from hold.

You can calculate an average work time per external call.

Divide the Total time spent processing external calls by the peg count of the number of external calls. Multiply this number by 100 to change the units to seconds per call.

If you calculated the average work time for internal calls, compare this external call average work time to that number. If you find the internal and external work times differ significantly, sit with the attendants to find out why. The longer an attendant speaks to an internal caller, the longer an external caller must wait.

Total time console is attended

This field of data shows the total amount of time during the study period, usually one hour, that the console was not in Night Service mode nor Position Busy mode.

When the console is put into Night Service or Position Busy, calls in progress, or calls made by the attendant, continue to accumulate time. It is possible, therefore, to have a Total Time Spent Processing Calls measurement which is greater than the measurement of Time the Console is Attended.

TFC004

You can use this data to monitor the break-times which the attendants are taking. A 15 minute break equates to 9 CCS. A full hour is 36 CCS.

Total time spent processing calls

The system combines the time spent answering internal and external calls. This way the number is rounded to the nearest CCS only once, whereas if you manually add the internal and external times, this includes two roundings. The number the system calculates is the more accurate.

For example, if the actual time spent answering internal calls was 13.3 CCS, the study prints 13 CCS.

If the actual time spent answering external calls was 14.4 CCS, the study prints 14 CCS.

If you add the numbers yourself, you get 27 CCS.

The system calculates 27.7 CCS and rounds it to 28 which is actually closer to the real number than 27 CCS is.

You can calculate an average work time per call (internal + external calls).

Divide the Total time spent processing calls by the peg count of the number of internal + external calls. Multiply this number by 100 to change the units to seconds per call.

A good average work time is 10–12 seconds per call. A good average number of calls per hour is 150–170. As the number of calls approaches 200, the attendant might be sacrificing good service for faster speed. Attendants tend to feel stress beyond 170 calls per hour. Do not overload them. Consider these options:

- hire more attendants
- install DID trunks to take some of the load from the attendants
- install Meridian Mail Automated Attendant Service as a front end to process calls for callers who know the DN they want, or to give information to callers and take the load from the attendants

If calls are waiting in queue for longer than average times, consider installing a recorded announcement device or setting up Meridian Mail voice mail to take some of the load.

Peg count of the number of times all Loop keys were busy

There are six Loop keys on each console for answering and making calls. Anytime the last Loop key on the console is used, this peg count increments.

Attendants use more than one Loop key at a time if they put one call on hold and answer another call using a second Loop key. If they do this repeatedly, they can tie up all six Loop keys and therefore cannot answer any more calls.

If the data indicates that attendants are tying up Loop keys, sit with them to understand why this is happening, before you make an assessment.

Peg count of Attendant Alternative Answering calls

As of Release 15, if a call is presented to a console and the attendant does not answer, the call can be sent to a designated Directory Number (DN) which can appear on one or more telephones. This feature is called Attendant Alternative Answering. Each console can have a different DN designated for this.

This data is a count of the number of times calls were not answered and were routed to the designated DN.

You need to find out why this is occurring if you see peg counts here. As the numbers rise, the load on the user of the designated DN increases.

You might need to remind the attendants to use the Position Busy feature when they leave the consoles so calls do not get presented to unattended consoles. You can set it up so that more than one person can answer the re-routed calls if the load is high.

Threshold

You can have the system print a warning message whenever the Average Speed of Answer for your attendants exceeds the value you set.

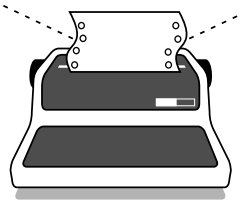
Along with the threshold violation message, data from traffic study options TFC003 and TFC004 prints as well. This helps you analyze the overall attendant situation.

TFC005 – Features

Sample data

System ID	TFC005
Customer number	
Feature number	Peg count
200	TFC005
000	
000	00012
001	00002
002	00003
003	00015

The headings shown in this example do not appear in the printout.



533-0300T TTY

Purposes of TFC005 study

The data in traffic study option TFC005 shows you how often features are used during a study period in the customer group specified.

The features must be activated from a key which means only digital telephones, SL-1-type telephones and attendant consoles are monitored.

Features by number

There is a peg count associated with each feature. Each feature is listed by number.

Table 1 9
Feature numbers and name s

Feature number	Feature name
000	Auto Dial
001	Call Forward All Calls
002	Call Pickup
003	Call Transfer
004	Call Waiting
005	3-Party Conference
006	6-Party Conference
007	Manual Signaling
008	Override
009	Privacy Release
010	Private Line Service
011	Ring Again
012	Speed Call
013	Voice Call
014	Volume control
015	Busy Verify
016	Barge-in

— continued —

Table 19
Feature numbers and names (Continued)

Feature number	Feature name
017	Call Selection
018	Attendant Recall
019	Dial Intercom
020	Message Waiting Indicator
021	Message Indication
022	Message Cancellation
023	Message Center INCALLS
024	Attendant Overflow
025	Group Call
026	Auto Answerback
027	reserved for future use
028	reserved for future use
029	Call Park
030	Stored Number Redial
031	Last Number Redial
032	Malicious Call Trace
033	Enhanced Hot Line
034	Group Pickup
035	DN Pickup
036	Attendant End-to-End Signaling
037	Internal Call Forward
038	EES Digit Count
039-045	reserved for future use

The count increments when features are used, but not when they are reprogrammed from the telephone. For example, when the Call Forward All Calls DN is changed by the user at the telephone, the count for the Call Forward All Calls feature does not increment. It increments when the user activates the Call Forward All Calls feature and redirects calls for the telephone to another DN.

Every time an additional party is added on to a conference, the counter for the Conference feature increments.

What can you learn from the data?

What usually emerges from this study is data to support your suspicions that users need more training in the use of features.

This data will support you when you want to justify the need for ongoing formal or informal training sessions.

You know what features your system was designed around. You know what features the users are expected to use and why. You also know your organization. Use this information to evaluate the data in the study for your needs.

- excessively high usage of features can be as alarming as low usage. For example, high usage of the Call Forward All Calls feature (# 001) might mean people are not making themselves available for calls.

  Walking around can help you find out how people use the telephone during the average work day.

- low usage of features like Call Pickup (# 002) might mean calls are not being answered. This may lead to more training, or redesigning the system with different kinds of telephones to accommodate more shared DNs so that calls are answered. It would be unfortunate if you added additional attendants to handle large numbers of recalls when there are other ways to improve the situation.

TFC005

- high usage of Ring Again (# 011) during the busy hours usually means you do not have sufficient trunks for the traffic load your users put on them. It can also mean there are disabled trunks, especially if there is high usage of the feature during slow or average hours.
- low usage of the Speed Call feature (# 012) might mean people need training on the use and programming of the Speed Call lists. If users continue with low usage of the feature you might consider removing the empty lists in order to save memory. Ask your system supplier to help you print out the lists on your system periodically to see which lists are empty or improperly programmed.
- no usage of the Barge-in feature (# 016) indicates the attendants are not taking advantage of the ability to test trunks from the console. This is a maintenance routine which can be useful in early detection of disabled trunks.

Other Customer traffic study options

TFC006, TFC007, TFC008, TFC009 are the remaining Customer traffic study options. The content of these studies relates to optional system components and some of them also require optional software packages. They are beyond the scope of this book. See the *Traffic measurement formats and output* for more information.

Setting up the study

Procedures

- Check your maintenance agreement with your system supplier before you attempt to set up a traffic study.
- If your system supplier agrees that you may run studies, they can train you to schedule the studies properly and choose the appropriate study options.
- You will use overlay program 2 to set up traffic studies.

  Refer to the *Traffic measurement formats and output* for more information on overlay program 2.

- *Print the existing traffic study schedules and the options which are already selected before you make changes. If you do not do this, you might accidently change a schedule that someone else has set up. This can affect a study already in progress or one planned for the near future.*

  Tell other people who set up studies to print any existing traffic study schedules before they set a new schedule.
- *Notify other people who are involved with your system when you are running a study. The technician needs to know, for example, so that when study data prints out it will not be discarded accidentally.*
- Print the schedules and options after you have finished inputting to verify that you entered the settings correctly.
- Check the printer during the first scheduled output time to be sure data prints out with no problems.
- Check your printer often during the study to ensure that you are getting all the data you should be getting and that the printer is in good working order.

Printout formats

The beginning of a study is labelled with the header message **TFS000** followed by the date and time of the printout.

The end of the study is labelled with a footer message **TFS999**.

Be careful to tear off the printer paper so you can see both the header message and the footer message. If you don't, you will not see the *important warning messages and threshold violations which print at the beginning of the study* or you will miss parts of the last study option printout.

Some of these warnings might be telling you to ignore the data for various reasons. For example, if the system initializes, the traffic registers are cleared out. If this occurs at some point during the study period, there is no point in using the data since it is not complete.

Invoking data

If you check the printer and you find that a problem of some kind prevented the data from printing out, you can still retrieve the data.

However, you can only retrieve the data from the most recent scheduled study period. Retrieving this data is called *invoking* the data.

The data from the most recent study period is held in memory while the data from the next study period is being collected. When the system is scheduled to print the new data, the old data is removed from memory and replaced with the new data. If you do not invoke and print the old data quickly enough, it is replaced with new data and no longer available to you.

You must retrieve old data before the next printout is scheduled or it will be erased.

Be sure your system supplier trains you on this procedure. You can read about the commands for this in the *Traffic measurement formats and output*.

Control tips

- If you tell users you are running a traffic study, they might alter their habits when using the telephone. This is especially true of attendants who may think you are doing an analysis of them for job performance purposes. If you want to capture the normal activity levels, do not tell users about the study.
- Tell the system maintainer that you are running a study so they can avoid doing work and maintenance routines which have an impact on the data. For example, doing a manual initialization clears out the traffic data in memory; avoid doing this while a study is running.
- If cards are moved to different loops or new cards are installed ask the system maintainer to let you know the date and time of this work, so you can include that information in your analysis.
- Ask the system maintainer to keep track of warning messages which might print out concerning, for example, the loops, Superloops, timeslots, and trunks. If there are problems which the system identifies, these warnings should be included in the traffic analysis too.

Administration tips

- If the TTY device which your system maintainer uses to program and maintain your system is also configured to receive traffic study data, at times, your system maintainer might find this annoying.

  When the traffic study data is printing, it interrupts the programmer until all the data from the study has printed out. Once it has printed, the programmer can resume where he or she left off, but it may take some time for the data to print.

  Try to configure a separate printer for Traffic studies if you can.

- One thing to note is the speed at which the study prints out. If the traffic study data prints and then stops and then prints again, and this continues, it is one indication that your system CPU is working hard at that time.

  Traffic study printing is a low priority task for the CPU and if there are many other tasks to do, the study printouts slow down. If you are running TFS004, pay attention to the CPU real-time analysis, to see if your CPU is overloaded.

Training tips

- The data from study option TFC005 can have a major impact on your training programs. Once you see the patterns of feature use and non-use, you can use the data to focus your training effectively.
- The data in study options TFC003 and TFC004 can have a major effect on the training you do with the attendants. Use the data in conjunction with your observations about their performance and the goals of your organization for efficient call answering.

Traffic

Call Detail Records

Purpose

With the Call Detail Recording option (CDR) implemented on a Meridian 1 system, you can track users' calls for billing purposes or restriction purposes.

Setting up

The system generates raw data in Call Detail Records. You can have these printed on a TTY or a tape, or have them sent to a polling device or computer for processing.

The minimum information provided on the call records is:

- customer group number
- calling-trunk identification (trunk group number and member number of trunk) or internal-party DN
- terminating-trunk identification or internal DN
- date and time of call
- call duration
- digits dialed

As an option, the Terminal Number (TN) of the originating terminal can be included.

The call duration is measured in two-second increments.

CDR activation involves several steps in programming:

- activate it in the Customer Data Block (LD 15)
- activate CDR for each trunk group for which you want to print call records

Each trunk group can be programmed independently to show CDR records for:

- all outgoing calls, or
- all outgoing toll calls and/or
- all incoming calls

If Answer Supervision is allowed in the programming of TIE trunks, CDR measures call duration for calls placed over the TIE trunks from the moment a call is answered.

For outgoing calls on other kinds or trunks, all calls seizing a trunk in the trunk group are recorded from the time a trunk is seized. If you want records for answered calls only, this can be changed. Refer to the section on Answer Supervision, later in this module.

Types of basic call records

The call records discussed here are the most common ones and are those mentioned in other modules in this book. If you want information on all the types of call records that are available, refer to *Call Detail Recording Description and formats*.

Normal, N-records

These print out as each two-party basic call is completed. The record is identified with the letter N as the first field in the record.

Table 20
N-record

N	001	00	DN4999	A00000907.1.02.1	06/28	10:15	00:00:20	98289124 0

All telephone key-pad input can be included in the record. It can include such things as those listed below.

- If the Asterisk (*) is stored as a pause-for-dial-tone symbol in a Speed Call number, it appears in the call record.
- Digits dialed after the call is established also print out, if they are outpulsed because you have the End-to-End signaling software package on your system. For example, if a user on your system calls an outside service that requires the user to press digits for certain options, you can choose to have these digits appear on CDR records.

  Beginning with Release 14.46E (International software) and then in Release 19 (North America), the printing of these digits is suppressed by default in the Customer Data Block. The option can be activated, if you want to see the digits in the CDR records.

- If the user presses octothorpe (#), the digits, up to and including the #, print out. The remaining digits dialed after # do not show up on the CDR record. Users can dial calls which the CDR does not track, if they know about dialing the # key.

  For example, a user who knows about this might dial a trunk access code and then # and then the digits in a toll call. The CDR record shows the trunk access code and the # only. When you receive the bill for the call, there will be no CDR record to match with the bill.

  There is a software patch available to prevent users from dialing # for outgoing calls.

N-records and redirected incoming calls

When an external incoming call is answered by an internal telephone, an N-record shows the originating trunk route and member number as the originating terminal (ORIGID). The Directory Number (DN) of the terminating telephone is shown as the terminating terminal (TERID). No indication of the attendant's involvement is printed in the record, if the attendant extended the incoming call to the answering telephone.

Call Detail Records

If the originally intended telephone redirects the call to another telephone or to a trunk, there is some flexibility in what you can choose to print in the call record.

The redirection can be due to the following features:

- Call Forward All Calls
- Call Forward No Answer
- Call Forward Busy
- Hunting

If you have Release 21 software, there is an option called LAST, in the Route Data Block (LD 16), that can be activated. Some examples follow in the next few paragraphs that show the effect of this option on CDR records.

In the case where a call is forwarded to an external trunk, there will be two N-records.

- The first N-record indicates the incoming trunk as the ORIGID and the TERID is the telephone that was forwarded.
- The second N-record shows the ORIGID as the forwarded telephone and the TERID as the outgoing trunk.

In the case where a call is forwarded to another telephone before it is forwarded to an external trunk, the first N-record stays the same as the above.You can choose between two options that affect the second N-record.

- If LAST is YES — the second N-record shows the telephone to which the call was forwarded as the ORIGID and the TERID as the outgoing trunk.
- If LAST is NO — the second N-record prints the forwarding telephone as the ORIGID and the outgoing trunk as the TERID.

In the case where a call is forwarded from the originally dialed telephone to another telephone and then to another telephone and then to a trunk, the first N-record stays the same as the above.

You can choose between two options that affect the second N-record.

- If LAST is YES — the second N-record shows the final (last) telephone to which the call was forwarded as the ORIGID and the TERID as the outgoing trunk.
- If LAST is NO — the second N-record prints the second to last forwarding telephone as the ORIGID and the outgoing trunk as the TERID.

If your system has an earlier software release than Release 21, your call records will appear in the same format that has been described for the LAST is NO options in the previous examples.

Start, S-records and End, E-records

- When a user activates Call Transfer on an established call, a Start record is generated instead of a Normal record. The record is identified with the letter S as the first field in the record.

  The Start record prints out when the transfer is completed and shows the two parties involved immediately before the transfer feature was activated. One of the parties can be a trunk.

  When the call is disconnected, an End record is generated showing the final two parties in the call. The record is identified with the letter E as the first field in the record. The End record shows the trunk as the originating terminal and the Directory Number (DN) of the telephone user as the terminating terminal.

  Start records are not generated for intermediate stations when a call is transferred more than once. If you want a print out of the intermediate parties, there is an enhancement available in Release 20 to do this. See the information on CDR Transfer Enhancement later in this module.

- When a user activates the Call Forward All Calls feature and this results in a call for that telephone that originated from a trunk going back out of the system on a trunk, a consecutive pair of Start records is generated as well as an End record.

The first S-record indicates the incoming trunk as the originating terminal and the forwarded DN as the terminating terminal.

The second S-record indicates the forwarded DN as the originating terminal and the outgoing trunk as the terminating terminal. Both records indicate the same timestamps and duration data. An E-record is generated at the end of the call.

When a user activates the Call Forward All Calls feature at a telephone and this results in a call from an incoming TIE trunk going out on an outgoing TIE trunk, two Normal records are generated, one for the incoming TIE trunk to the telephone and the other for the telephone to the outgoing TIE trunk.

Table 21
S-record

S	003	00	T000004	DN5064	06/28	10:15		

Table 22
E-record

E	005	00	T000004	DN5055	06/28	10:16		

Interactions with other features

Multi-Tenant software interacts with CDR

With Multi-Tenant software package 86, the telephones are assigned to a Tenant group within the customer group. The tenant numbers of the telephones are included in the call records when users make calls.

ESN software packages interact with CDR

The field of data showing the digits dialed or outpulsed on the CDR record may be preceded by an “A” or an “E.” These letters indicate that route-selection software chose the route for the user. The route selection software can be either Basic Automatic Route Selection (BARS), Network Alternate Route Selection (NARS), Coordinated Dialing Plan (CDP), or Route Selection Automatic Number Identification (RS/ANI).

In addition to that, the “E” indicates that Expensive RouteWarning Tone was given to the caller and the call was routed on a trunk route progammed as expensive.

Refer to the *Control tips* section of this module if you have a route selection software in place, but you see call records without an “A” or an “E” preceding the digits in the call.

BARS CDR format is different from NARS CDR format. Where BARS and NARS software packages are both present on a system, the CDR prints out in the BARS format.

Improving performance

Timing

Table 23
Software requirements

Release required	Software package(s) required
9.30A	97 – Japan Central Office Trunk (JPN)

Normally, call duration for CDR records is measured in two second increments, but with this package the CDR timing can be configured for half-second increments for greater accuracy.

CDR Expansion

Table 24
Software requirements

Release required	Software package(s) required
9.30A	151 – CDR Expansion (CDRE)

If you have the DN Expansion software package equipped, the DNs at your switch can be longer than four digits and less than, or equal to, seven digits.

If you want complete call records, the CDR Expansion package is required in order to capture the full DN in the call records. If DN Expansion is used without CDR Expansion, only the last four digits of the DNs print in the CDR.

Internal, L-records

Table 25
Software requirements

Release required	Software package(s) required
9.30A	108 – Internal CDR (ICDR)

As of Release 10, an internal call between two telephones on your system can activate a CDR record. To enable this, at least one telephone involved in the call must have an Internal-CDR-allowed (ICDA) Class of Service. The record is identified with the letter L as the first field in the record.

You can use this kind of data to help you learn more about the total traffic load for a certain telephone that is representative of several similar telephones in a group or department. This helps you get the information you need in order to maintain acceptable traffic levels on your system when you add and move telephones.

Outpulsed digits

When ESN packages like Basic Automatic Route Selection (BARS) or Network Alternate Route Selection (NARS) software are programmed on a system, the outpulsed-digits option can be very useful. The typical ESN dialing plan has users dialing digits which do not necessarily correspond to what is actually outpulsed on each trunk route.

As of Release 12, the outpulsed digits, rather than the dialed digits, can appear in the CDR records. This helps you to match up your bills with the CDR records.

This option is activated on a per-route basis. The system must be initialized for this to take effect.

The outpulsed-digits option is not available with the ESN package called Coordinated Dialing Plan.

Example: A typical Private network call using the ESN Dialing Plan on a system equipped with BARS and NARS:

6 + Location code (343) + Directory Number (2214)

Outpulsed digits:

16139672214

Table 26
Outpulsed digits option activated on BARS-type CDR

N	001	00	DN4999	T006001	06/28	10:15	00:10:20	A916139672214

Toll Calls Only Option (OTL)

Previous to Release 8, the CDR could only recognize toll calls if the users actually dialed the digit “1” or “0” as the first or second digit following a trunk access code. If users did not dial a “0” or “1” to place a toll call, in order to have records of the toll calls, *all calls* had to be printed on the CDR records. This was a problem on systems where the dialing plan did not include 1+ dialing or where toll calls were not dialed with the digits 1 or 0. A lot of paper was wasted, or processing time and expense was involved, with extracting the records of the toll calls from the printouts of all calls.

As of Release 5.31 and Release 8 software (not Release 7), selection of the Toll Calls Only option on a trunk route is sufficient to print toll calls only, even if the digits “1” or “0” are not dialed by the user. *If these digits are inserted by digit manipulation tables and are outpulsed on the trunk, then these calls appear as toll calls on the CDR output.*

Flexible Definition of Toll

In Release 13, Flexible Definition of Toll provided an option on a trunk-route basis, to define single digits following the trunk access code which indicate a toll call for CDR purposes. However, the digits defined are not used for restriction purposes.

ISDN and CDR

Table 27
Software requirements

Release required	Software package(s) required
12	118 – Calling Line ID in CDR (CCDR)

Calling Line Identification (CLID) is a feature of an Integrated Services Digital Network (ISDN). When a user makes a call on an ISDN network, the caller's DN (the CLID) is transmitted throughout the network, with the call, to the destination switch. The CDR printout, including the CLID, prints out after the call is ended.

This is especially useful when users make calls from remote switches which use the trunks at a node switch. The CDR printout at the node identifies the caller by the CLID sent by the originator's system, to bill them for the call.

Answer Supervision

On North American based ground-start and loop-start and loop-start XFCOT-type trunks, CDR Answer Supervision detects an answer condition when the polarity on the trunk is reversed by the Central Office (CO).

The Answer Supervision option can be enabled in the Route Data Block (LD 16) for each trunk group. When enabled, and for an answered call with supervision, the record shows an "A" in the terminating ID field for the trunk.

With this enabled, the timing for a CDR record does not start when a trunk is seized, but only after the call is answered.

Before the Answer Supervision option was introduced, the terminating ID field was always preceded by the letter “T”. After Answer supervision was introduced, if the Answer Supervision option is enabled for a trunk route, but no supervision is returned on a call, the terminating ID field is still preceded by a T.

- Release 14 - loop-start Answer Supervision was introduced.
- Release 18 - with double-density or quad-density trunk cards, ground-start Answer Supervision can be detected.
- Release 19 - loop-start Answer Supervision capability for trunks connected to Intelligent Peripheral Equipment trunk cards was introduced. Refer to the *You should know this* section for more information on Intelligent Peripheral Equipment (IPE).

The CO must provide Answer Supervision for this feature to work and the trunk group must be programmed for Answer Supervision.

Format CDR

Table 28
Software requirements

Release required	Software package(s) required
18.20H	234 – New Format CDR (FCDR)

On systems without this software package, or if this feature is not enabled, the fields of data in CDR printouts are output in variable locations, depending on which software packages are equipped. This makes CDR processing difficult, especially if the call records in a network are in different formats at each site.

This software package allows you to have the individual fields of data in CDR records print in fixed locations in every call record, no matter which optional features affect each call.

With the FCDR package equipped, additional CDR information can be printed which was previously unavailable on CDR.

Time to Answer

Three fields of information print out:

- time during which the call was in a ringing state on the originally dialed DN and/or the DN to which the call was redirected
- the type of redirection, if redirection occurred. If the call is redirected with a feature like Call Forward All Calls and does not ring at the originally dialed DN, an N appears following the time-to-answer field. If ringing occurred before the call was redirected with a feature like Call Forward No Answer, an R appears following the time-to-answer field.
- the total waiting-time-before-answer for incoming calls in the attendant queue or Group Hunt queue. This applies to calls answered by the attendant, night number, or attendant-overflow position.

Abandoned Call record

An Abandoned call, B-record prints out if a call disconnects while in the ringing state or in queue.

CDR on Busy Tone

Table 29
Software requirements

Release required	Software package(s) required
23	234 – New Format CDR (FCDR)

With the CDR on Busy Tone feature, a B record prints out when an incoming or internal call is abandoned after encountering a busy tone.

You can enable this feature for incoming trunk routes and also for telephones that you want to monitor for incoming internal calls encountering a busy tone.

The letter B appears in the Redirection Identifier subfield of the record.

Attendant CDR Enhancement

Prior to Release 20, trunk calls answered by the attendant and transferred to an internal telephone produced an N-record identifying the trunk and internal telephone only. The attendant was never identified in the call record and this presented problems for system administrators. The internal telephone was identified, whether it answered the call or not.

With Release 20, a trunk call extended by the attendant to an internal telephone produces an S-record when the attendant releases from the call. The attendant is shown as the originating party, the trunk as the terminating party. The time the attendant spends on the call is measured, and the time measurement ends when the release key on the console is pressed. When either the internal or external telephone disconnects, an E-record is generated. The duration shown in this record is calculated from the time the attendant presses the release key until the call is disconnected.

CDR Transfer Enhancement

Table 30
Software requirements

Release required	Software package(s) required
20	259 – Enhanced Call Detail Recording (CDRX) 234 – Format CDR (FCDR)

On systems without this software, there is only an S-record for the initial phase of the call and an E-record showing the final two parties in the call. Intermediate parties are not shown in the CDR records.

With this software equipped, if a call is transferred, an X-record is printed which identifies the new DN involved with the call. If there are multiple transfers for one call, many X-records print out in sequence as the call is transferred.

Station Activity Call Detail Recording

Table 31
Software requirements

Release required	Software package(s) required
20	251 – Station Activity Records (SCDR)

This capability is an extension of the Internal CDR functionality.

Internal CDR only prints a record when the call occurs between two telephones. The SCDR package prints a record when an incoming trunk call terminates on a telephone, or if the telephone being monitored calls out on a trunk.

If Call Detail Monitoring is allowed in the Class of Service of the telephone, D-records print out, regardless of the CDR programming associated with the trunk route to which the trunk belongs.

CDR 100 Hour Call

Table 32
Software requirements

Release required	Software package(s) required
22	234 – New Format CDR (FCDR)

With the CDR 100 Hour Call feature, a field appears on the third line of Fixed Format CDR records to indicate when a call has a duration of 100 hours or longer. This three digit field indicates call duration in hundreds and thousands of hours as follows:

A call lasting more than 100 hours but less than 200 hours is represented by a field showing 001. A call lasting more than 1800 hours but less than 1900 hours is represented by a field showing 018.

Control tips

- Look for Call Records that indicate features like Call Forward All Calls and Call Transfer are being abused to set up trunk to trunk connections. This type of activity on your system can be responsible for high telecommunications bills. If you want that activity prevented, implement the Call Forward External Deny feature on the telephones of the offending users. Stop trunk to trunk transfers by removing supervision programming from your trunk groups. Discuss this with your system maintainer first.

- On systems with ESN software programmed, the absence of the letter A or E preceding the dialed or outpulsed digits field in the CDR means the user dialed a direct trunk access code to place the call, instead of a BARS or NARS access code.

  This indicates users are bypassing BARS or NARS and not taking advantage of the cost savings and features these software packages can provide. If you find this is happening on your system, implement TGAR codes to prevent direct trunk access.

- If you use Direct Inward Sytem Access (DISA) ports, it is imperative that you monitor CDR frequently. Unauthorized callers who use your DISA ports can be caught if you pay attention to the call records that print out. Talk to your system supplier about ways to implement a security routine that includes regular inspection of raw CDR records to prevent security breaches on your system.
- If you are using Authorization Codes on your system, be careful about who you permit to see the CDR records. The Authorization codes print out as part of the records.

Administration tips

- Decide how often you wish to check for unusual and unauthorized calls using the CDR printouts. Check for such things as:
  - long-duration calls
  - calls in and out after normal working hours

- calls from publicly accessible telephones
- calls from meeting rooms or empty office telephones
- personal calls
- incoming trunk calls forwarded out on a trunk
- incoming trunk calls from other network locations calling out on trunks at your location
- calls made with direct trunk-access codes, if BARS or NARS is supposed to route calls
- S- and E-records on systems that cannot print X-records for transferred calls. Identify these and, where appropriate, bill the originator of the call, instead of the final DN to which the call was transferred.

- If you are interested in finding out about your attendant work time statistics, you can use the Attendant CDR Enhancement instead of (or in addition to) running traffic studies.
- Internal CDR data can be useful in providing you with information about the traffic load to and from certain terminals. Also, it can be useful for you to know the traffic patterns of certain users so that you can avoid connecting terminals that call each other frequently to the same loop.

  You should choose days and times that are busiest to get representative data. There is a lot of data that prints out so you might not want to leave Internal CDR on for very long.
- It is often true that unless users and managers receive the bills and an itemized accounting of calls they made, they have very little interest in reducing the expenses associated with their calls. For example, if users see how much their calls cost when they go out on expensive routes compared to less expensive choices, they appreciate the cost factors involved. Once users know what expense is associated with their calls they are usually more willing to cooperate with your plans to reduce expenses.
- It is wise to provide a secondary device for CDR printing, in case your primary CDR device experiences a problem.

Training tips

- Include information in training sessions for your system users regarding the monitoring you will be doing using CDR. If users know that calls are being monitored, your telecommunications expenses stay close to the minimum.

Call Detail Records

Basic programming instructions

Introduction

You will program new telephones, and change, move or remove existing ones.

The programming procedures in each Task module in this book show the steps required for the particular task at hand.

The information in each module is presented with the assumption that you have already learned the basics of proper programming procedures. To achieve this basic level of knowledge you can:

- take a course or get instruction from your system supplier
- read the *X11 input/output guide*
- read this module to understand the rules of programming

It is recommended that you get assistance from an experienced person the first few times that you attempt to do programming.

Maintenance agreement

It is also necessary that you clearly understand any *maintenance agreements* that you have with your system supplier or system maintainer regarding what programming you are permitted to do under the terms of the agreement.

Agreements of this nature clearly define the overlay programs that you may access and might even define the procedures in each program that you may perform. The agreement might specify what will happen if you make errors that require your system maintainer to do work to correct them.

If there is no such agreement between you and your system maintainer, it might be wise to write one and have all parties concerned approve the document.

Types of programming terminals

There are many different types of devices you can use to program changes on a system. You might have access to one or more of these devices. Discuss the method that will work best for you with your system supplier. The choices are:

- On-site Teletype Terminal (TTY)
- Remote TTY access with a modem
- Maintenance telephone
- Console (using Attendant Administration)
- Telephones (using Automatic Set Relocation and/or Set Based Administration)
- Meridian Administration Tool (MAT)

On-site TTY

The system maintainer uses this terminal to do the initial programming required to install your system. After that, Administration and Maintenance programming can be done using this TTY.

When you program telephones, you might use this terminal. The instructions in this book are written for someone who is using the TTY for programming purposes.

The terminal can be a TTY or VDT if it is an input/output device. If it is an output only device, it must be RS-232-C compatible.

Basic programming instructions

The requirements for an input/output terminal are as follows:

- interface: RS-232-C
- code: ASCII
- speed: 110, 300, 1200, 2400, 4800, or 9600 baud
- loop current: 20 mA

If this is the only TTY you have, be aware that maintenance messages will print on this terminal along with

- traffic study data, if you schedule a study
- Call Detail Records (CDR), if you enable this feature

It can be very disruptive to have other messages printing out while you are programming.

If you have traffic studies and CDR running, you might need other TTYs installed. You can arrange to configure each one with a particular function of its own. That way the data from two different functions do not get merged, which makes it much easier to interpret.

Do regular inspections of these TTYs to make sure they are operating and each has a sufficient supply of paper.

Show any maintenance messages to your system maintainer. Set these printouts aside for the proper people to look at on a regular basis. Only if these messages are analyzed, can your system can be maintained to its highest level of efficiency.

Basic programming instructions

Remote TTY

Data modems are required for TTYs located more than 50 feet (15 meters) from the system.

- It is common for system maintainers to connect a remote TTY to each system they maintain.

  This helps them to monitor for maintenance messages that the systems might print out. If problems are indicated they can send people to the sites in a timely fashion.

  They can also use this device to make programming changes to a system without sending someone out to the site. This saves time and money.

- You might want a remote TTY at, or near, your desk. You can use it for the following functions:

  – to make programming the system more convenient. You do not need to go to the TTY in the room where the system is.

  – to monitor the system, if other people make programming changes. You can see the changes they are making.

  – to get traffic study data at this TTY, if it is configured for that.

  – to use it as a CDR printer. This helps you monitor the system for unusual call activity during working hours. Also, when you come to your desk in the morning, you can see if there were calls made during off-hours the night before.

Maintenance telephone

When a telephone is programmed for this capability, the person who maintains your system can use it for doing some maintenance routines instead of going to the TTY in the room where the system is located. If there are telephones like this spread throughout a large building, it can save the maintainers substantial amounts of time and allow them to perform maintenance routines more quickly.

Discuss setting up some maintenance telephones with your system maintainer.

Basic programming instructions

Console with Attendant Administration (AA)

When Attendant Administration, software package 54, is equipped on a system, an attendant console becomes a programming device when it is put into a programming mode.

There is a plastic template that fits over the keys of the console and a user guide to explain the modified functions of the keys. The programmer uses the keys to enter commands. The system communicates with the programmer by sending information to the console display.

You can have messages print out on TTYs, to indicate to other people that the Attendant Administration feature is being used to make programming changes.

The programming you can do from the console is not as extensive as programming from a TTY. However, the features and services that you can program from the console are often the ones that are most commonly changed on a system. It can be convenient to do the programming like this as well as time saving. It is an appropriate function for a senior attendant to perform.

Telephone with Automatic Set Relocation (SR)

If you have Automatic Set Relocation (SR), software package 53, equipped, you do not need to use a TTY to program the system when a telephone moves to a new jack.

Users can move their telephones to jacks that are enabled and connected to the proper kind of line card for that telephone.

This might be difficult for the average user to understand and control, so you might want to organize the moves and do the set relocation yourself. By dialing a few simple codes before you remove the telephone from the existing jack and some codes once you move it to the new position, the system transfers the information about that telephone in the system database from the old position on the old line card, to the new position on the new line card.

If the move to the new jack is successful, after you have entered the relocation codes from the telephone you hear dial tone.

If you are moving a modular digital telephone (M2006, M2008, M2216, or M2616) that has a data terminal associated with it, the Automatic Set Relocation feature moves it automatically when it moves the telephone. With these types of telephones, you hear a buzz if the move has been successful.

Because of built-in security, moving a telephone in this way requires a password.

You can have messages print out on TTYs to indicate to other people that the Automatic Set Relocation feature is being used to move telephones.

Meridian Administration Tool (MAT)

With MAT, you can configure, control, and manage single or multiple Meridian 1 systems using point-and-click commands on your PC. This method of programming, through a graphic interface, can be much simpler than using the TTY, as the language used at the MAT terminal is easier to understand than machine programming language.

Refer to the *MAT User Guides* for further information on MAT. If you decide to install MAT, your system supplier will train you on this interface. Also, ask your system supplier if MAT is available in your area, as it is not available in every market region.

Set Based Administration

Option 11, Option 11E and Option 11C systems were always equipped with software that allows some system programming to be done from telephones.

As of Release 21, the larger systems, Option 21E – Option 81C can have the Set Based Administration Enhancement capability.

The programming is menu-driven, using the displays of digital telephones.

There are three levels of programming access:

- Administrator
- Installer
- User

Using this feature, Administrator telephones can do the following things:

- modify data associated with some telephone-related features, if the feature has already been assigned to a telephone. Features cannot be added or deleted however.
- add or change names programmed for Call Party Name Display
- change the system time and date
- change toll restrictions for any telephone
- find DN–TN correspondence

Installer access is very similar to the Administrator access except for the DN–TN correspondence capability. It is assumed that the installer has access to the TTY for that.

User access allows a user with a telephone display to add or change a Call Party Name Display name when logged in through a telephone.

Overlay programs

The system has a particular program for each type of programming you need to do. For example, telephones and trunks are programmed in different overlay programs.

It is important that you understand the overall structure of the overlay programs and what each one does. However, you might not have access to some of the programs. Check your maintenance agreement.

LDs

Another word for overlay program is “Load,” which is generally written in the short form LD. It comes from the command you use to tell the system to *load* an overlay program from the system disk into the system memory so you can use it.

Once you are finished programming, the overlay program is removed from the overlay area of the system memory and can be replaced with another overlay program.

On systems using software Release 18 or later, spare system memory can be used to load several overlay programs. This is called *overlay cache memory.* It can be configured to load up to 32 programs. This reduces your programming time since the programs already loaded in cache memory are readily available, while those that must be loaded from the disk will take longer to access.

Overlay programs in this book

The focus of this book is the overlay programs (LDs) you use for:

- programming analog dial and Digitone-type telephones
- programming SL-1-type and digital telephones
- printing data about telephones
- doing a data dump
- programming the system time and date

Basic programming instructions

When the programming for a particular feature requires any overlay programs not listed above, the Task modules give you information on what is required, for your information only. You should contact your system supplier to get the actual programming done.

If you have the *X11 input/out guide* and *X11 features and services* that were shipped with your system, you can refer to them. They are excellent sources of information.

Before you do any programming, ensure you have access to the overlay program or procedure you want to perform by checking your maintenance agreement first.

Overlay program hierarchy

You must input programmable data through the overlay programs in the order that you see them listed here, whether you are programming a new system or making changes.

If you do not follow the proper sequence, you will get error messages telling you that the sequence of your data input is incorrect or the necessary prerequisite data does not exist.

The overlay programs listed here are the most common ones. They are the ones mentioned in the Task modules in this book. There are many other overlay programs that go beyond the scope of the book. Information on these programs is in the *X11 input/output guide* and *X11 features and services*.

Basic programming instructions

Programming sequence

1. Configuration Record (LD 17), one per system
2. Customer Data Blocks (LD 15) for all customer groups
3. Route Data Blocks (LD 16) for all trunk routes
4. Trunk Data Blocks (LD 14) for all trunks in all trunk routes
5. Digitone receiver (DTR) Data Blocks (LD 13) for all DTRs equipped
6. Speed Call Data Block (LD 18) for all Speed Call lists
7. The three LDs listed below can be programmed in any order following the overlay programs listed above.
   - **a** Attendant console Data Block (LD 12)
   - **b** SL-1-type and digital telephone Data Block (LD 11)
   - **c** Dial and Digitone-type telephone Data Block (LD 10)

The hierarchy will affect you most often when there is something that must be programmed in LD 15 before you can program the telephone.

For example, you will see this in the Task module on the Call Forward No Answer feature. There are customer-wide options to be programmed, or checked, before you assign the feature to a telephone.

Also, you will have to follow these rules when you want to assign a feature like Speed Call to a telephone. You must arrange to have the Speed Call list programmed in LD 18 before you can program a telephone to have access to the Speed Call list.

The proper sequence of programming the LDs is presented in each Task module.

Passwords

Every system has a Level 1 password and a Level 2 password.

Level 1

This password is used to log into the system and make administration and maintenance programming changes. If your maintenance agreement permits you to make these changes, your system supplier can tell you what the Level 1 password is.

Level 2

This password is only known by your system supplier and Nortel Networks. It is used to change the Level 1 password and other passwords.

Limited Access to Overlays Passwords (LAPW)

Table 33
Software requirements

Release required	Software package(s) required
16	164 – Limited Access to Overlays (LAPW)

If this software package is equipped on your system, there can be up to 100 additional passwords defined. The passwords can contain 4– 16 alphanumeric characters in a mixture of upper and lower case characters.

Each LAPW password can be configured for the following attributes:

- specific LDs
- one customer group or all customer groups
- name (Release 19 and later)
- one tenant group (optional) or all tenant groups
- HOST mode, to speed up the TTY port to its maximum speed, when this password is used to log in, regardless of the speed of other similarly configured ports
- ability to change the password
- printing only, in the overlay programs the password can access
- printing of Speed Call lists only

There are other attributes that are configurable for each LAPW, but they are beyond the scope of this book.

Invalid logins

The LAPW software package allows you to set a threshold for the number of unsuccessful login attempts before the input/output port locks up. It stays locked up for a programmable amount of time. This is a security measure to prevent unauthorized people from attempting to program changes to your system.

When an invalid login lock-up occurs, messages print immediately to all maintenance TTYs. The first user of a Level 1 or Level 2 password to log in sees a message as well.

Audit trail

Users with Level 1 or 2 authorization can monitor the work of LAPW users.

When Audit trail is enabled, records of the date, login password, login time, and the overlay programs used are kept in memory.You can print this information at any time.

On systems with Release 19 or later software, the audit trail shows the input/output port number, login time, user name, password, LDs used, and logout time.

Your system supplier might assign you one of these LAPW passwords to comply with your maintenance agreement regarding your programming duties

You might want to assign this type of password to other people who work with you doing programming.

Logging in

Pre-Release 19

With these releases of software, only one active programmer is allowed to use the overlay program area of memory at any one time.

Before you log in

On these systems, it is recommended that you press the carriage return on the TTY before you begin a programming session.

When you do this, you will see messages that indicate if there is another programmer currently in an active session.

- If there is not, it is safe to login.
- If there is someone programming, consult your policies to decide whether you can proceed or not.

If you proceed, you take control of the overlay program area and the other person's session is halted.

There might be occasions when it is necessary for you, or someone else, to do this.

Decide, in advance, who has priority in this type of situation, and what types of programming requirements warrant one user overriding another user.

Basic programming instructions

It is safe to log in if the TTY message looks like either of these:

```
OVL111 nn IDLE
```

```
OVL111 nn BKGD
```

nn represents the number (0–15) assigned to the input/output port for that TTY

If the response is a period (**.**), you can log in.

Someone else is logged in if the TTY message looks like either of these:

```
OVL111 nn TTY x
```

```
OVL111 nn SL1
```

CAUTION
Proceed with caution based on the policies you have in place concerning programmer's priority.

You are already logged in if the TTY message looks like this:

```
OVL000>
```

Release 19 - Multi-User Login

The Multi-User Login capability allows the following to access overlays simultaneously:

- up to three users on TTY ports
- an attendant console and maintenance terminal
- a background or midnight routine

The software prevents conflicting overlays from executing concurrently. Multiple copies of overlay programs 10, 11, 20, 21, and 22 can execute at the same time.

Table 34
Software requirements

Release required	Software package(s) required
19	242 – Multi-User Login (MULTI_USER)

There are several commands that you can enter when you are using Multi-User Login.

Table 35
Multi-User Login commands

Command	Purpose
WHO	display what sessions are running and the names of the programmers
SEND	send messages to another logged-in TTY
FORC	force a specified TTY to log off
HALT	halt the system from doing background and midnight routines during current login session
MON	monitor another logged-in port locally or remotely

Ask your system supplier for training on the use of these commands.

Set Based Administration Enhancements

The Enhancements offered in RLS 21, allow telephones on Options 21E – 81C to be used as programming terminals.

The maximum simultaneous logins are configurable and they belong in two categories. There is a maximum for Administrator and Installer logins and another maximum for User logins. These login limits are in addition to the limits for the Multi-User Login capability.

This type of programming is password protected. There is a programmable Flexible Feature Code for Administrator access and another one for Installer access.

Several passwords may be configured for each type of access, each with a different degree of access to the main menu options that are presented on the telephone display.

Security Banner at System Login

As of X11 Release 22, you can configure your system to print a security banner that advises unauthorized users not to attempt login. This banner prints out after successful and unsuccessful login attempts.

Figure 2
Security Banner

Warning: The programs and data stored on this system are licensed to or are the property of NT/BNR and are lawfully available only to authorized users for approved purposes. Unauthorized access to any program or data on this system is not permitted. This system may be monitored at any time for operational reasons. Therefore, if you are not an authorized user, DO NOT ATTEMPT TO LOG IN.

Basic programming instructions

Login

Before you begin your programming session, ensure you have all the information you need to complete the programming you want to do.

If you are not prepared, and you get to a point in the program where you have to stop and look something up, or ask someone a question, the system will abort your programming session if your TTY is inactive for longer than 20 minutes.

Worksheets

To help you get your responses ready before you begin a programming session, there are *worksheets* for you to use in *Appendix 4* at the end of this book.

There is a worksheet for dial and Digitone-type telephones (LD 10) and a different one for SL-1-type and digital telephones (LD11).

Make copies, so you have plenty of blank ones on hand.

The prompts you see in those worksheets are those that are related to the Task modules in this book. These tasks are the ones you will perform most often when you install, move or change telephones. They have been selected for that reason. Other prompts that you might see when you are programming are explained in the *X11 input/output guide*.

Basic programming instructions

Login instructions

Use the instructions in the following table to log in.

Table 36
Login procedur e

Log in by typing LOGI and then press the carriage return key.	
`LOGI <cr>`	<cr> represents carriage return, press the return key or enter key
If you can log in, the following message appears.	
PASS?	For information on other messages you might see, refer to *Logging in,* in this module.
Type your password and then carriage return.	
Your password does not display.	
The following symbol prints out.	
>	
Input the following command, after the >, to tell the system what overlay program you want to load into the memory.	
`LD XX <cr>`	where XX represents the overlay program number carriage return after the overlay program number
The system finds the overlay program you requested.	
As a first choice, the system looks for the overlay program in cache memory. If it is not there, it finds it on the disk and the program is then loaded into the overlay program area of the memory.	
When the overlay program is loaded and ready for use, the first prompt in that overlay program appears.	
End of login procedure	

Prompts and responses

The TTY language for programming is based on a series of prompts being presented to you in the form of mnemonics.

For each prompt, the system expects you to type a response, followed by a carriage return.

You must type your responses in UPPER CASE type.

In the Task modules in this book, the system prompts are printed in **bold type**. The proper responses are printed in plain type.

For example:

Table 37
Sample of prompts and responses

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
continued.....	

SCH codes

There are certain acceptable responses to each prompt. If you type a valid response, the system presents you with the next prompt. If you type an invalid response followed by a carriage return, the system prints out a Service Change error message in the format:

SCHXXXX where XXXX represents a four-digit number that you can look up in the *X11 input/output guide* for interpretation.

The system presents you with the same prompt again, waiting for you to type a valid response.

If you do not type in UPPER CASE, you will see an SCH code.

Basic programming instructions

Using * and ** and ****

Type one asterisk (*) in your response if you enter invalid characters in your response, but you have not pressed carriage return. The system re-prompts you with the same prompt and does not output an SCH code. You can type a valid response, after you are re-prompted.

Type two asterisks (**) in your response if you want the system to ignore the data that you have input since the beginning of the overlay program. The system presents you with the first prompt in the overlay program and you can start again.

Typing four asterisks (****) means you have finished your programming and you do not want to work in another overlay program. You can log off at this point.

You can also type **** when you want to request a different overlay program.

Type END instead of **** if the REQ prompt is showing. It is recommended that you do this because it means you want to end the overlay program you are using and request a new one.

Abbreviated responses (getting help)

Systems using Release 19 and later software, show a colon (:) following the prompt for certain prompts. This means you can enter either one of the following:

- a question mark (?) followed by a carriage return to get a list of valid responses to that prompt
- an abbreviated response. The system then responds with the nearest match. If there is more than one possible match, the systems prints SCH0099 and the input followed by a question mark and a list of possible responses for you to choose from. You can then enter the valid response.

Basic programming instructions

Default responses

Many prompts have a pre-programmed response that you accept if you enter a carriage return as your only response when you are entering data for the first time. This pre-programmed response is called a default response.

For information on the valid responses to every prompt and what the default responses are for every administration overlay program, refer to the *X11 input/output guide*. This *Basic Telecom Management Guide* includes information about the prompts and responses for the features and services included in the Task modules.

Using spaces

The response to the TN prompt in Table 38 illustrates another point. There are times when your response must include spaces in certain positions. If you see numbers or letters with spaces between them in the example of a response, type a space in the same place(s) when you are programming.

In the example shown, there is a space after the digit 4, one after the digit 0, one after the digit 2, and you must press carriage return after the digit 1, since that is the end of the response.

Another situation when you use the spacebar is when you are entering multiple responses to one prompt. For example, there are codes you can enter in the Class of Service programming of a telephone that represent different features and services you want to activate or deactivate.

To do this, you could type the following responses to the CLS prompt:

Table 38
Using spaces for multiple responses to a prompt

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
more prompts and responses	
CLS	FNA HTA TLD
continued.....	

These three responses are separated by a space and the last one, TLD, is followed by a carriage return.

Refer to Task 36, *Call Forward No Answer*, Task 37, *Hunting*, and Task 42, *Access Restriction* for more information on these three features.

Typing zeroes

If you were to make a printout of the TN shown in the example above, it would print out in this format:

```
004  0  02  01
```

When you are programming that TN you do not need to type the leading zeroes. You can input it as:

```
4  0  2  1
```

You would only type leading zeroes if they are part of a string of digits that must be outpulsed for an outgoing call (when you are programming telephone numbers on a Speed Call list, for example).

Changing a telephone

Before you make a programming change you should get a printout of what is already programmed. That way, if you run into problems making your change, you will have a copy of the old data, in case you must re-enter it for some reason. Before you program a change:

PRINT PRINT PRINT

The OUT response means you are deleting *all* of the data associated with a particular telephone or TN. Use caution.

It is a very common, and dangerous, misconception that typing OUT in response to the REQ prompt allows you to take parts of the programming of a telephone out. THIS IS NOT THE CASE.

Warn the user not to use the telephone for outgoing calls during the time you are programming, if you are going to make changes to the programming of a telephone during work hours.

- If there is an active call on that telephone at the time you are doing the programming change, it is disconnected when you make the change.
- If you do this, you will see a warning message (ERR3056) print out, along with the TN of the telephone, telling you that the telephone conversation was disconnected because of your service change.
- Before you begin to program, you can disable the telephone you want to program so that incoming calls cannot be presented to it.

You can type over the old data for a given prompt by simply typing in the new response when the prompt is presented to you, if you are changing an existing telephone.

Carriage return if you are not changing the responses to certain prompts. This leaves the data that is already programmed for them unchanged. It does not mean that the old response is replaced with the default response.

Easy Change

This capability was introduced in Release 12 to make changing telephones faster.

Instead of scrolling through the prompts in the LD until you see the prompt you want to change, you can select an item or items you want to change.

When you say YES to the ECHG (Easy Change) prompt, the next prompt that appears is ITEM. You type the mnemonic for the prompt that you want to change, followed by a space and the new response that you want to enter. The ITEM prompt reappears until you respond with a carriage return to indicate that you have no further changes to make.

You can program the ITEMs in any sequence you choose.

The Task modules include the programming steps for Easy Change capability, and also the steps when you do not have this capability, (on systems that have pre-Release12 software).

Removing data

The responses to some prompts can be blank. If you want to remove an entry to one of these prompts completely, you can type X before the response you want to remove.

For example, if you want to remove a user's Station Control Password for such features as User Selectable Call Redirection, you program it the following way.

Assume the password is 2345:

Table 39
Removing a Station Control Password using X

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
more prompts and responses	
SCPW	X2345
continued.....	

Not all responses can be removed with an X.

Some features are deactivated by typing 0 as the response.

Refer to the prompt by prompt instructions in the *X11 input/output guide.*

To remove a feature from a key and leave it blank you type XX NUL in response to the prompt KEY. XX represents the key number.

Table 40
Removing a feature from a key to leave it blan k

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
more prompts and responses	
KEY	XX NUL
continued.....	

Usually users do not want blank keys, they want all the keys to be programmed with features, so to change the feature on a key to a new feature, you type XX followed by the new feature mnemonic in response the KEY prompt. (XX represents the key number.)

Table 41
Changing a feature key to a new feature (AutoDial)

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
more prompts and responses	
KEY	XX ADL
continued.....	

Finishing the overlay program

It is a common error for novice programmers to make a programming change in an overlay program and then to go to another overlay program or to Log off, without finishing the overlay program first.

If you do not finish an overlay program before you Log off, the change you made is not entered into the memory.

In this book, each Task module includes instructions for you to finish the overlay program by entering carriage return until you see messages stating how much memory is available on the system. These messages indicate that your change has been entered.

Basic programming instructions

The messages look like this:

Table 42
Memory message when a Service Change is entered

Prompt	Response
REQ	CHG
TYPE	M2008
TN	4 0 2 1
more prompts and responses.....	
At the end of the overlay program, you will see one of the following two types of messages: Small systems **U.data aaaaaa P.data bbbbbb** where: aaaaaa - represents the amount of unprotected memory available for use (in words) bbbbbb - represents the amount of protected memory available for use (in words)	
or	
Large systems **MEM AVAIL: (U/P):cccccc USED:dddddd TOT:eeeeee** where: cccccc – represents the total memory available for use (in words) – depending on the total amount of memory, cccccc might be split into two fields, one for unprotected data and the other for protected data dddddd – represents the total memory used (in words) eeeeee – represents the total memory (in words)	

If you know what kind of system you have, you will know what memory message you will see.

Once you have finished with the change(s) in one overlay program, you can continue to make more changes:

- in the same program. Respond to the initial prompt in the program that reappears on your TTY.
- in another program. Type END or **** in response to the initial prompt that reappears.

Data Dump

When you have finished all the programming you want to do, you should do a Data Dump.

Refer to the *You should know this* section for more information on what a Data Dump is.

If your training did not include information on how to do a Data Dump, or your maintenance agreement does not permit you to perform one, ask your system supplier for help.

Even though most systems are programmed to automatically do a Data Dump at a certain time every day, it is best not to rely on this to permanently store information on your disks. Many people have learned the hard way that it is better to do the manual Data Dump than to rely on the automatic one.

The reason is, that if your system experiences a memory-related problem before the automatic Data Dump occurs, the memory, with all of your service changes, is cleared and you have to re-do your service changes.

Logging off

When you have no further programming to do, and your Data Dump has been successful, you can Log off.

Type END or **** to finish the overlay program you are in.

The **>** prompt appears.

Type:

LOGO

Always log off if you are going to leave the TTY unattended. If you do not log off and you leave the TTY active, someone else can program or attempt to program, without having to log in with a password.

Finding out the TN assigned to a telephone

Before you can make programming changes to an existing telephone, you must know the TN assigned to it.

It is more likely that you will know the Directory Number (DN) assigned to a certain telephone than the TN.

If you know the DN that appears on a telephone, you can request a printout of the DN Block.

The DN Block shows you the Terminal Number (TN) for the telephone.

If the DN appears on more than one telephone, the TNs print out for all the telephones where the DN appears.

You might choose to do routine DN-Block printouts of all the DNs on your system. This is useful when you update your Numbering Plan records to find out what numbers are used or unused on your system.

If you want to print the entire system DN Block, carriage return in response to the DN prompt when you request a printout.

What overlay programs to use?

The overlay programs that you can use to print out a DN Block have changed through the releases of software. The sample that follows shows you the choices of LDs available, based on the software release on your system.

Printing several DN Blocks at once

You can request DN-Block printouts for multiple DNs (up to six, at one time), by entering the first DN followed by a space, the next DN followed by a space and so on until you have entered the sixth DN. Follow the last DN with a carriage return.

Display DN – TN correspondence

You can find out the DN – TN correspondence using a telephone if the telephone has a display and you use the Set Based Administration Enhancements capability that was introduced in Release 21.

With the proper Flexible Feature Code and password you can find out what TNs correspond to a particular DN. You do not get a printout with this method, however you get the information displayed quickly and easily at a user's desk.

How to print a DN Block

Table 43
Programming procedure for printing a DN Block.

Prompts and responses		Explanations
> LD 22		(Any Release)
> LD 20		(Release 17 or later)
> LD 10 or LD 11 or LD 32		(Release 19 or later)
REQ	PRT	Request a Printout
TYPE	DNB	DN Block
DN	X..X	Input the DN of one telephone.
	X..X X..X X..X	Input a DN followed by a space, another DN followed by a space and so on up to six DNs. Finish with a carriage return
	<cr>	Carriage return for all DNs.
You get a printout of the TN(s) of the telephone(s).		

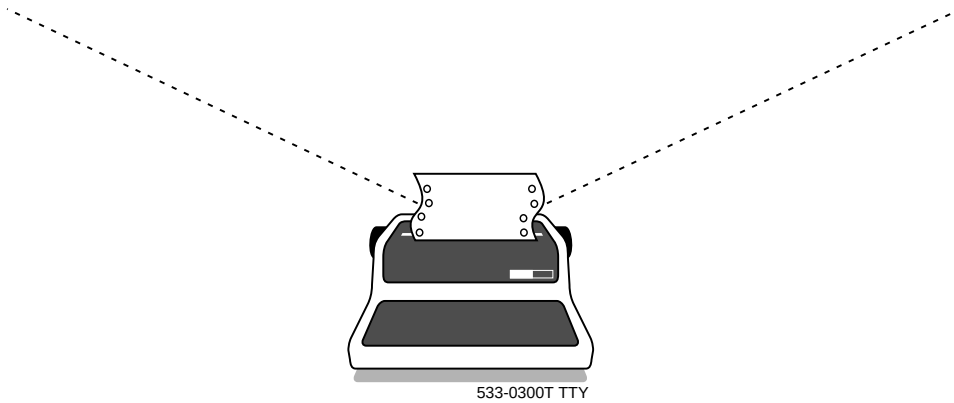
Sample of a DN-Block printout

```
>LD 22
PT2000
MARP NOT ACTIVATED



REQ       PRT
TYPE      DNB
CUST      0
DN        2000
DATE
PAGE
DES

DN        2000
TYPE      SL1
TN        003 0 00 13 KEY 01 H MARP      DES FLR1 16 JUN 1995
          (2616)
```



533-0300T TTY

Printing the data programmed for a telephone

Request a TN Block (TNB) printout when you need information about all the features and services that are programmed for one or more telephones.

The data on the TNB printout will help you know what you need to change and what you can leave unchanged when you are doing Service Change programming.

The TNB information can help you to answer users' questions about their features or to troubleshoot with your system supplier.

Ask your system supplier or programming course instructor to help you understand all the prompts and responses that you see in a TNB printout. If you do not fully understand what the printout shows you, your programming changes can have unexpected results.

How to print a TN Block

Table 44
Programming procedure for printing a TN Block.

Prompts and responses		Explanations
> LD 20		(Any Release)
> LD 10 or LD 11 or LD 22 or LD 32		(Release 19 or later)
REQ	PRT	Request a printout.
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop **S**helf **C**ard and **U**nit number of the telephone. Enter a space between the Loop number and the Shelf number. Enter a space between the Shelf number and the Card number. Enter a space between the Card number and the Unit number. Finish the line of input with a carriage return.
	L S C	Input the **L**oop **S**helf **C**ard number to print data for all of the TNs on one card.
	L S	Input the **L**oop **S**helf number to print data for all of the TNs on one shelf.
	L	Input the **L**oop number to print data for all of the TNs on one loop.
	<cr>	Carriage return to print data for all of the TNs on your system.
You get a printout of the database for the TN(s) you specified.		

Printing Hunt chains

When you want to find out what telephones hunt to a particular DN, you can use LD 20. Refer to Task 37, *Hunting*, for more information. The programming for this is as follows:

Table 4 5
Programming procedure for printing a Hunt chain .

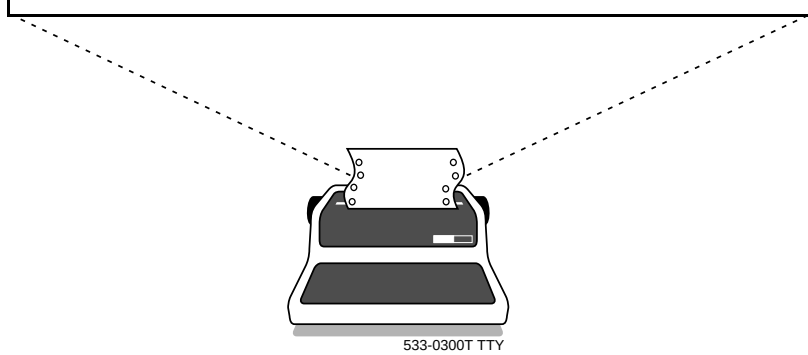
Prompts and responses		Explanations
> LD 20		
REQ	PRT	Request a printout.
TYPE	HNT	Hunt chain
CUST		Enter customer group number.
HTNO	3001	Input the DN you are interested in.

The following type of information prints out.

```
DN   3001          HUNTED FROM

TN   028 0 00 01

TN   028 0 09 00
```



In the example shown above, the two telephones listed by TN number are programmed to Hunt to DN 3001, when they are busy.

If the Call Forward by Call Type feature is allowed, external calls can hunt differently than internal calls. For more information on this feature, refer to Task 35, *Call Forward by Call Type (Hunting Option)*.

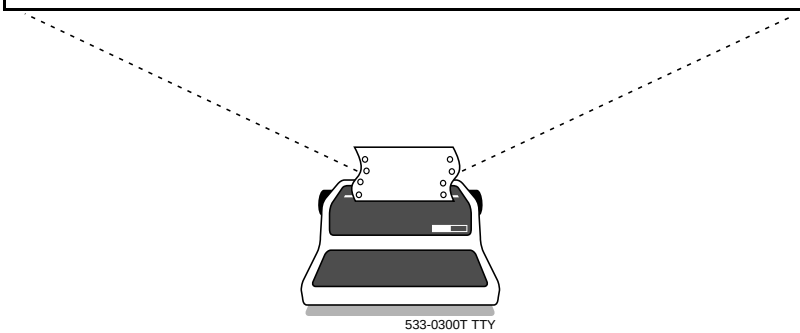
You can print out the TNs that are programmed to send external calls to a particular DN when they are busy.

Table 46
Programming procedure for printing an external call Hunt chain

Prompts and responses	Explanations
> LD 20	
REQ PRT	Request a printout.
TYPE EHT	External call Hunt chain
CUST	Enter the customer group number.
EHNO 3001	Input the DN you are interested in.

The following type of information prints out.

```
DN    3001          HUNTED FROM
TN    028 0 00 01
TN    028 0 09 00
```



Printing other data blocks

There are three overlay programs designed for printing the various data blocks programmed on your system. The most frequently used print routines are listed in the following table. The complete list of data blocks that you can print is in the *X11 input/output guide*.

Table 47
Frequently used print routines

Overlay program	Data block
20	DN Block
	External Hunting
	Hunting
	Speed Call lists
	TN Block
	Unused card slots
	Unused Directory Numbers
	Unused units
	Unused voice units
	Unused data units
21	Customer group
	Route
	Trunks within a route
22	Configuration record
	DN to TN matrix
	Software version
	Software issue number
	Software packages equipped

Check your maintenance agreement, to find out what other data blocks you can print. Spend time with an experienced programmer for help in understanding the printouts in these other overlay programs.

Basic programming instructions

If you have software package 20, Office Data Administration System (ODAS), you can print using overlay programs 81, 82 and 83. You can print information about the following things in each of these LDs.

Table 48
ODAS Print Routines

LD	Print
81	a count or list of the telephones: – that have a particular feature – that are members of certain pickup groups – of a certain NCOS – of a certain SAR group – that use a particular Speed Call list
82	Hunt chains Multiple Appearance DN groups
83	lists of TNs in order of Designators TN Blocks in order of Designators

Check with your system supplier on the use of these ODAS print routines.

You can refer to the *X11 input/output guide* for more information.

Overlay linking

You can print information using LD 10 and LD 11, if you have Release 19 or later software on your system. This is because the overlay programs designed for printing are linked with LD 10 and LD 11 as of Release 19. (Overlay programs 10, 11, 20, 22 and 32 are linked.)

While you are making programming changes to a telephone you can request printouts of TN Blocks, DN Blocks, unused units, unused voice units, unused data units, and unused DNs without having to end LD 10 or LD 11 and request a print overlay program.

Setting the system time and date

When you adjust the system time, you affect:

- telephone displays
- Call Detail Records

You might need to adjust the system time clock if:

- there has been a power failure on your system and you do not have battery backup
- it is day-light-saving time
- your system clock has gained or lost a few seconds over a period of months

Basic programming instructions

How to set time and date

- You can use a key on the attendant console. Check to see if this is something your system supplier provides.
- You can use a telephone if you have Set Based Administration Enhancements equipped on your system. You can do this from an Administrator telephone, if you use:
  - the correct Flexible Feature Code and password
  - the correct Installer Access Flexible Feature Code and password from any telephone
- You can use LD 2 to make the adjustment.

A programmer needs a password to access LD 2 or to use an Administrator telephone. No password is required when you use the attendant console key.

Some system suppliers do not assign a key for this capability on the attendant console for security reasons.

Basic programming instructions

If your maintenance agreement allows you to access LD 2 to change the system time and date, here is the procedure.

Table 49
Setting time and dat e

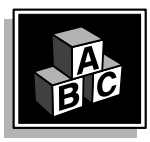
Log in using correct procedures.
Refer to *Logging in*.
Request overlay program 2.
> LD 2 **.** (a period) appears when the program is loaded
To print the existing time and date, type the following command after the period:
TTAD Test Time and Date
The time and date prints out.
For example: **.**TTAD **WED 24 11 1994 08 41 49** In this example, the time and date was: Wednesday, the 24th of November, 1994 at 8 hours, 41 minutes and 49 seconds, a.m. The time is shown based on a 24 hour clock. **.** (a period) reappears
To set a new time and date, type the following command after the period:
STAD Set Time and Date The existing time and date prints out. Input the date, (not the day of the week), month, year, hour, minute and second using two digit codes and spaces between the numbers. Press carriage return when the data you input is the accurate time. **.** (a period) reappears
To test the time and date, type the following command after the period:
TTAD
The time and date prints out.
Verify it is correct.

Introduction to telephones

Purpose

The Task modules in this section of the book focus on the programming required to add a new telephone to a system. The programming steps covered are the *minimum* required to make that particular type of telephone operate.

Basic configuration



Read this general information for help in deciding which Task module to use when you are installing a particular type of telephone.

This part also includes some basic background information you should know before you program a new telephone.

Hardware

The Task modules in this section do not include information on how to install the cabling or the telephone and system hardware when a new telephone is installed. These topics are covered in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide* which are two of the books shipped with every system.

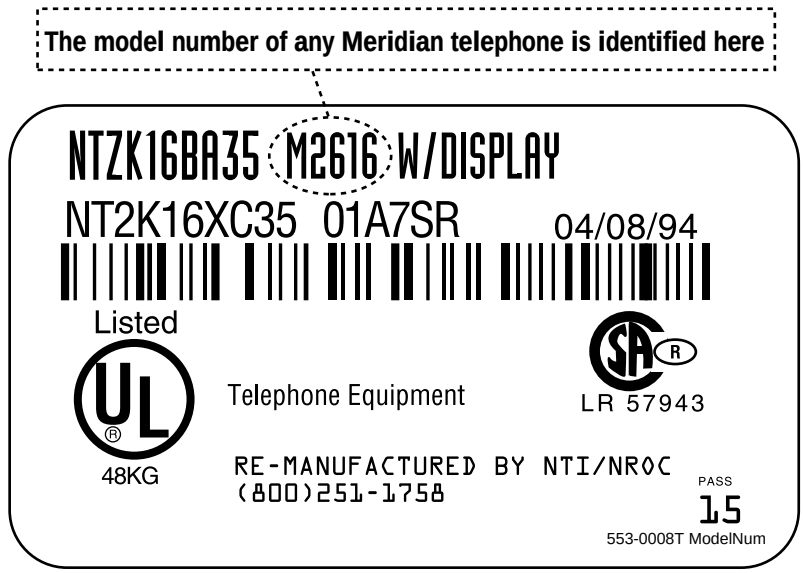
Ask your system maintainer to do the physical installation work.

Types of telephones

For information on the names and functions of the different types of telephones which are available, read the *You should know this* module in the *Before you begin* section.

If you are not sure which type of telephone you are installing, look at the label on the underside. Each telephone is labelled with a sticker on its base.

Introduction to telephones



If the sticker is no longer in place, scan the Task modules in the *Making a telephone work* section until you find an illustration that matches the type of telephone you have. There is a small picture at the top of each page which shows the appearance of the telephone which that Task module explains. The first page of each module has a larger, more detailed picture. If the telephone you are installing is not included in a Task module, ask your system supplier what Task module you should use.

Terminal Number (TN)

Every telephone must be identified by a physical location (address) in the system in order for the telephone to function. You must use programming to identify the Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone. You will have to find out what Terminal Number (TN) is assigned to the new telephone you are installing before you can program it. If your system maintainer installs the cabling for a new jack and connects it to the system, ask what Terminal Number they plan to assign to the new telephone. Terminal Numbers are explained in the *Terms and abbreviations* module.

Directory Number (DN)

Every telephone must have a Directory Number (DN) assigned to it if it is to receive calls. According to the Numbering Plan on your system and the needs of the user, decide on the DN or DNs to be assigned to the telephone. For more information on the Numbering Plan see the *Terms and abbreviations* module.

DNs can be configured as one of the following types: Single Call or Multiple Call. There is more information on this in each module in the *Making a telephone work* section.

Programming

Minimum programming

The information presented in this section explains the *minimum* programming required to make each type of telephone function. You should look at the tasks in the section titled *Adding and changing features* for further information on additional services and features that can be allowed or denied on the telephone, once it is installed with minimum programming.

Overlay programs

There are three main families of telephone types:

- dial and Digitone-type
- digital and SL-1-type
- Basic Rate Interface

Refer to the *You should know this* module for more information on telephones. This book does not include information about programming Basic Rate Interface telephones.

The programming required for each type of telephone is unique. There are three programs, one for each family of telephones. A program is called an overlay program or LD, pronounced “load,” as in “load the overlay program.”

Introduction to telephones

The overlay programs, or LDs, for the three families of telephones are:

- LD 10 for dial, Digitone-type and Wireless telephones
- LD 11 for digital and SL-1-type telephones
- LD 27 for Basic Rate Interface telephones

Within each family there can be different models of telephones. Table 50 that follows shows the individual model names of telephones, the overlay program (or LD) which you use to program it, and the Task module to read for more information.

Table 5 0
Telephone type, LD, Task module

Telephone type	LD	Task module
dial	10	1
Digitone	10	2
M8000 M8009 M8314 M8417	10	3 ** 4 ** 5 ** 6 **
SL-1	11	*
M1009 M1109 M1309	11	* * *
M2009 M2112 M2018	11	* * *
M2317	11	10

— continued —

Table 50 (Continued)
Telephone type, LD, Task module

Telephone type	LD	Task module
M3000	11	*
M2006 M2008 M2216ACD M2616 M2616CT	11	7 ** 8 ** 9 11 ** 11 **
M3110 M3310 M3820	11	12 13 14
M3901 M3902 M3903 M3904 M3905	11	15 16 ** 17 ** 18 ** 19
M5317TDX	27	*
C3050 C3060	10	* * Note 1
C4000 C4010 C4040	10	* * * Note 2

Note: * indicates that this telephone is not included in this book.

Note: ** indicates that this telephone is not available in all countries. Check with your system supplier.

Note 1: Meridian Companion telephones, available in Europe and North America (based on CT2 technology). The M3060 replaces the M3050. Your system supplier must register these on the Meridian Companion system and program WRLS YES in LD 10 on the Meridian 1.

Note 2: Meridian Companion DECT telephones, available in Europe and North America. The C4010 replaces the C4000. Your system supplier must register these on the Meridian Companion DECT system and program WRLS YES in LD 10 on the Meridian 1.

Default values

The overlay programs you use for these tasks present a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is also considered a response, as it programs the default value.

Investigate the default responses to the prompts since the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendixes 1 and 2 at the end of this guide list the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system, provides detailed information on all prompts and responses in all of the administration overlay programs.

Familiarize yourself with the default values if you do not intend to program additional features and services when you install a new basic telephone.

Worksheets

Appendix 4 at the end of this book includes sample overlay program worksheets. If you are an inexperienced programmer, you will probably find it useful to complete one of these worksheets before you sit down at the terminal to program.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Maintenance agreement

The information in this book concentrates on LDs 10, 11, 20, 21, 22, and 43. Sometimes a particular task requires work to be done in overlay programs other than these. What you need to know about this other programming is covered in the Task modules, but your system supplier or maintainer is probably responsible for doing the actual programming. You should read the maintenance agreement you have with your system maintainer before doing any programming, including the programming of overlay programs 10, 11, 21, 22, and 43.

Training

You will probably need training before you program for the first time. Arrange to attend some form of training to gain a good understanding of proper programming procedures and the information you need to know about the overlay programs.

Ask your system maintainer about training programs they offer or courses offered by Nortel Networks.

Control tips

- Information that helps you to improve the control you have over your system operation, costs, and security is included in this part of each Task module.

Administration tips

- Common system administration practices, efficient policies and procedures, record keeping advice, and suggestions to improve your system efficiency through better management appear in this part of each module.

Training tips

- Proper end-user training can greatly improve the operation and effectiveness of any system. The tips in this part of each Task module cover suggested ways to improve system operation through better training.

What to have ready

A checklist like the one shown below summarizes the steps you should take before doing the programming in each Task module.

Table 51
Checklist

Basic	Optional	Preparation
✔		Find out what DN to assign to the new telephone.
✔		Find out what TN to assign to the new telephone.
	✔	Find out how the new telephone is to be billed for long distance calls.
	✔	Find out how the new telephone fits into your inventory management policies.

Introduction to telephones

New dial telephone

Purpose

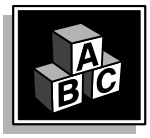
The information in this Task module will help you if a user at your site needs a new dial telephone.

If the user needs a new telephone, install a dial telephone if:

- the user needs only one Directory Number (DN)
- the user does not require the use of a telephone which transmits tones
- the user does not require easy access to features using buttons (or keys) but is instead able to use one or two digit codes for features

New dial telephone

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Hardware

The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

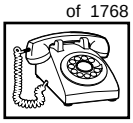
When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic dial telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the



user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming in the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

New dial telephone

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

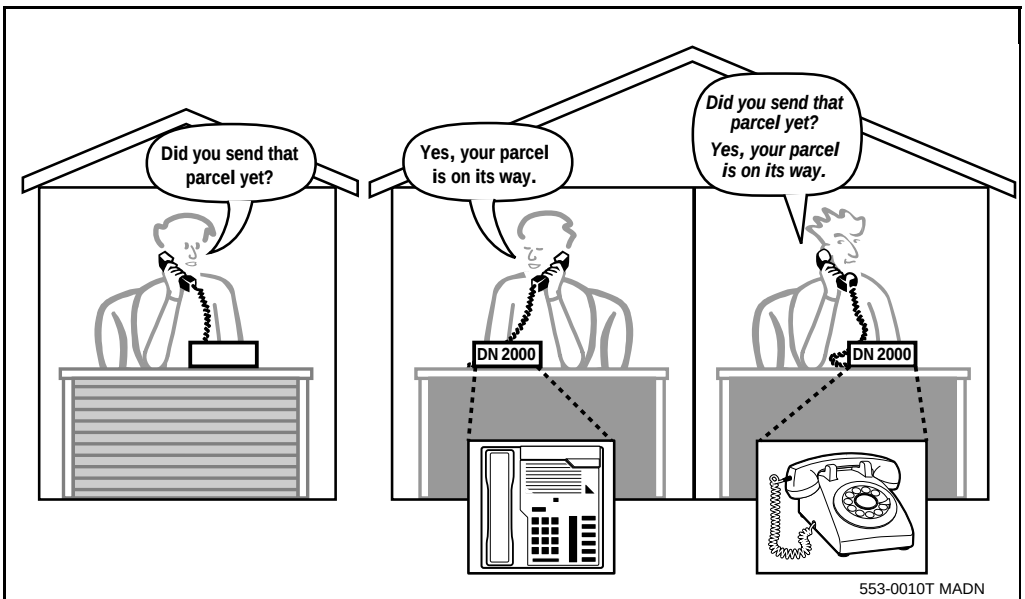
Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on a dial telephone.

If the same Single Call DN is shared between a dial telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

New dial telephone

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to a dial telephone and an SL-1-type or digital telephone
- replace the dial telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones



No privacy when a Multiple Appearance Single Call DN appears on a dial telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

New dial telephone

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Multiple Call Class of Service

When you want to make a DN on a dial telephone a Multiple Call DN, you activate this in the Class of Service.

With Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

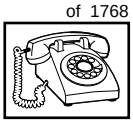
Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new dial telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use.

New dial telephone



If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

You should keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

You must use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

New dial telephone

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

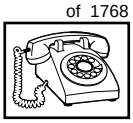
When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

New dial telephone



Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for dial telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

On-site dial telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

New dial telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

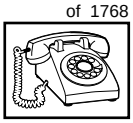
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned. For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If no policy is in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

New dial telephone



Class of Service (CLS)

When you are programming telephones using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 52
Software release and default setting

Release	Default
19 or 20	DTN
18 or earlier	DIP

For a dial telephone, program the TN for DIP service. Once you find out what release of software your system has, you might find that DIP is the default.

When you install a dial telephone, the impact of programming incorrectly is as follows.

When a telephone with a DTN class of service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone. It is reserved for that telephone while the call is dialed. A digitone receiver is not required when a dial telephone is used. When a dial telephone is programmed incorrectly with a DTN class of service, the system reserves a DTR needlessly every time the dial telephone user initiates and dials a call. As a result, users of Digitone telephones who do need the DTR unit are not able to use it while it is held for the dial telephone. Digitone telephone users can experience delayed dial tone when this happens. Your system supplier does not provision your system with sufficient DTRs for dial telephones which are programmed incorrectly. Provisioning extra DTRs would not be a solution either, since that would be an added expense for you.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this guide.

New dial telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

You may wish to consider installing a more up-to-date telephone for the user instead of a dial telephone. You may wish to look at the list which follows as a quick way to determine if a dial telephone is appropriate for the user.

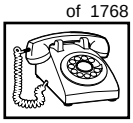
Do not install a dial telephone if:

- the user requires more than one Directory Number (DN). Decide whether to install a two-line Digitone-type telephone or a multi-line SL-1 or digital telephone.
- the user must share a DN with another user and privacy is important. Only SL-1-type or digital telephones can be programmed to prevent other users from listening to live conversations if they share DNs.
- the telephone must outpulse tones to external systems using voice mail or automated attendant services
- the user does not wish to dial feature codes or will be difficult to train to dial codes in order to activate features
- the user requires a telephone and a data terminal like a Personal Computer at the same desk. Investigate the benefits and costs associated with digital telephones instead.

Real time

If you are using many dial telephones and you are planning to continue to use them, you should consider connecting them to intelligent line cards which have been available since Release 15. These line cards share some of the processing load with the main computer in your system. As a result, the main computer is able to handle more calls and applications.

New dial telephone



Control tips

- Dial telephone users who share DNs with other users must be careful not to break in on active calls. Consider installing a system of lights which shows when the DN is in use. If lack of privacy continues to be a problem, they may need to change to SL-1-type or digital telephones.

Administration tips

If users experience problems such as delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem. If the telephones are dial type, the maintainer does not need to investigate anything to do with DTRs. You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.

Training tips

- Avoid problems by doing refresher training on an ongoing basis. Dial telephone users must remember a number of different feature access codes. They may need reminders after the initial training in order to effectively use all the features they need. This helps them get the most out of the system and in turn the system provides them with the expected benefits.
- Short customized lists of feature instructions and access codes for each user are worthwhile. Make them small enough to be placed underneath the telephone where they are readily accessible.
- If Flexible Feature codes are in use on your system, keep the codes as simple as possible. Users will be confused and aggravated if you implement codes that are difficult to use.

New dial telephone

It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and it would be difficult for them to learn new codes.

For more information on Flexible Feature codes refer to the *You should know this* module in this book.

What to have ready

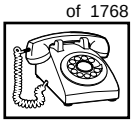
The following checklist summarizes the steps you should take before implementing a basic new dial telephone.

Table 5 3
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other



telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

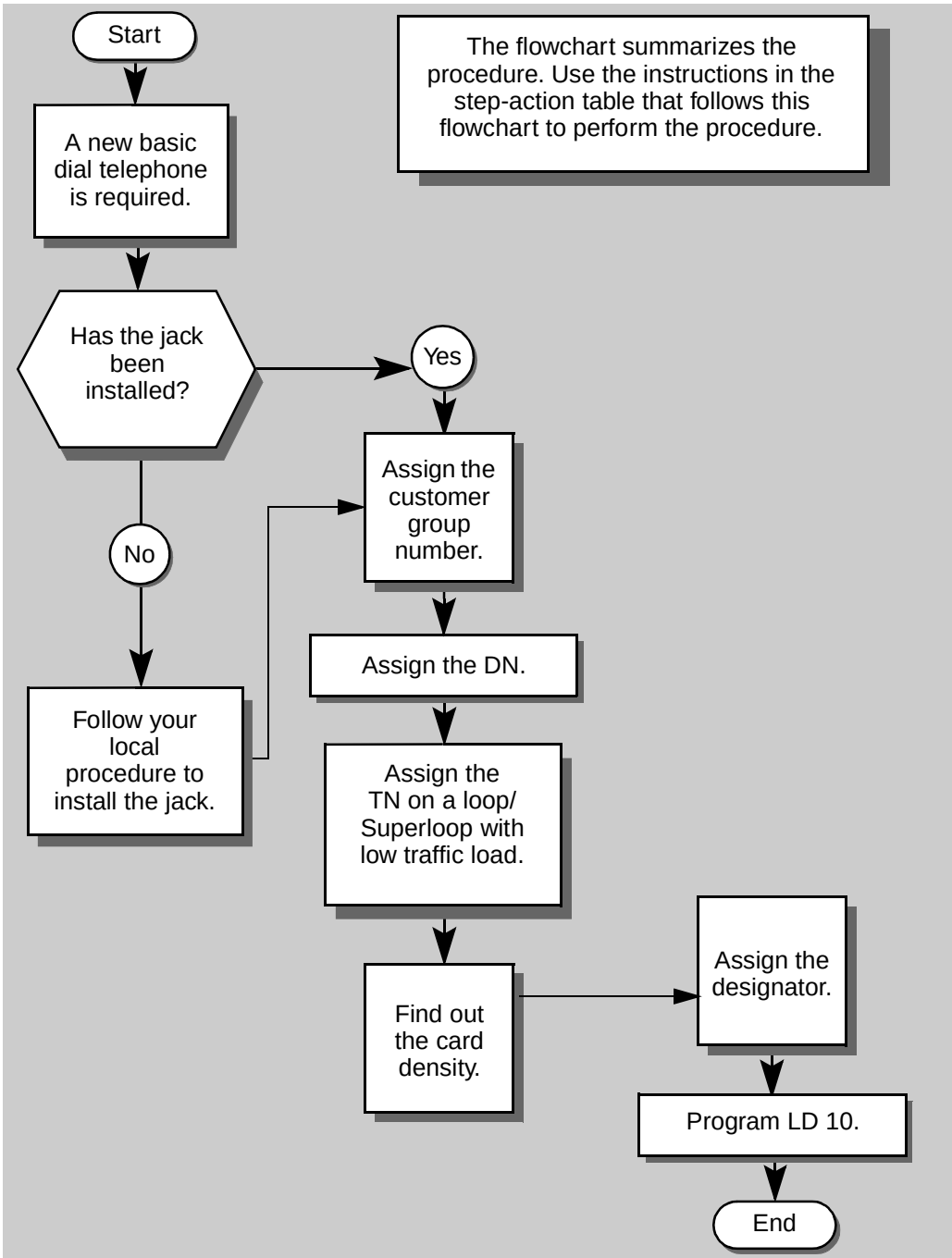
Appendix 1 (for LD 10) at the back of the book lists the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

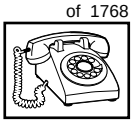
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of a dial telephone.

New dial telephone



New dial telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic dial telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Arrange to have a new jack installed, if required**
	Talk to your system supplier to get this done.
2	**Assign a customer group number to the new telephone.**

If	Do
the telephone is being added to an existing customer group	step 3
the telephone is the first one in a new customer group	step 8

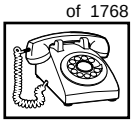
— continued —

New dial telephone

STEP	ACTION	
3	**Find out your customer group number.**	
	If	**Do**
	You do not know your customer group number and you have access to the print overlay programs.	step 4
	You do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**	
	If	**Do**
	you know the DN and not the TN of the other telephone	step 5
	you know the TN of the other telephone	step 6

— continued —

New dial telephone



STEP	ACTION
5	**Print the DN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop **S**helf **C**ard and **U**nit number of the other telephone

You get a printout of the customer group number of the other telephone.

— continued —

New dial telephone

STEP	ACTION
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DN to assign.**

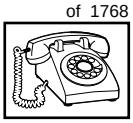
If	Do
the DN is shared with another telephone	step 11
the DN is unique	step 12

11	**Find out how the DN is to be shared.**

If	Do
the telephone can be an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone — no programming is required.
the telephone is to have its own TN	step 15

— continued —

New dial telephone



STEP	ACTION
12	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 15
your system software is Release 19 or later	step 13
your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.

13 Print unused DNs in your customer group.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 20
```

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 - 99	Input customer group number

You get a printout of the unused DNs in your customer group.

14 Choose an available DN which fits your Numbering Plan and the needs of the user.

15 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

— continued —

New dial telephone

STEP	ACTION
16	**Print out the available TNs on your system.**

For information on proper login procedures, refer to *Basic programming instructions* in this book.

> `LD 20` or

> `LD 10` or `LD 11` or `LD 20` or `LD 32` (Release 19 or later)

REQ	`LUU`	List all unused units
	`LUVU`	List unused voice units (Release 19 or later)
TYPE	`500`	Dial or Digitone telephone

You get a printout of the available dial and Digitone telephone TNs.

17 Consider traffic when choosing a TN to use for the new telephone. For more information, refer to the section called *Traffic* in this book.

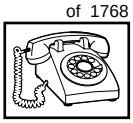
If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in theTFS001section of the *Traffic* module for help.

18 Choose the TN for the new telephone.

19 Verify with your system maintainer that the new jack is cross-connected to the TN you chose.

— continued —

New dial telephone



STEP	ACTION
20	**Find out the density of the line card which has the TN you are using.**

If	Do
it is a new line card	Ask your system supplier about card density.
it is an existing line card	Use the default density setting.

21 Assign a Designator.

Choose up to six alphanumeric characters to identify the telephone for your records, according to your local procedures.

22 Program the new telephone.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 10
```

REQ	NEW	New telephone
TYPE	500	Dial or Digitone telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN		Input the card density if on a new line card
	SD	single-density
	DD	double-density
	4D	quad-density
	<cr>	Carriage return if line card already programmed

— continued —

New dial telephone

STEP	ACTION

22 continued ...

DES	A..A	Designator maximum six characters long
CUST	0-99	customer group number
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP

Carriage return until you see the prompt CLS

CLS		Input the Outpulsing type
	DIP	DIP (dial pulse), default prior to Release 19 Input DIP, or <cr> if it is default on your system

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

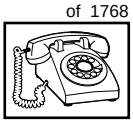
23 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

— continued —

New dial telephone



STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

25	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43
. EDD <cr>
```

26	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

— continued —

New dial telephone

STEP	ACTION
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off.
	> LOGO
29	**You have now completed the minimum programming required to implement a basic new dial telephone.**

END

New Digitone telephone

Purpose

The information in this Task module will help you if a user at your site needs a new Digitone telephone.

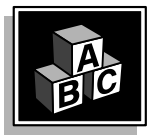
If the user needs a new telephone, install a Digitone telephone if:

- the user needs only one Directory Number (DN)
- the user requires the use of a telephone that transmits tones
- the user does not require easy access to features using buttons (or keys) but is instead able to use one or two digit codes for features

553-0011T Digitone

New Digitone telephone

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, see the section called *Adding and changing features*.

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Check with your system maintainer to ensure that the necessary digitone receiver cards are installed and programmed.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic Digitone telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

New Digitone telephone

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system, provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming in the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number,

New Digitone telephone

or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

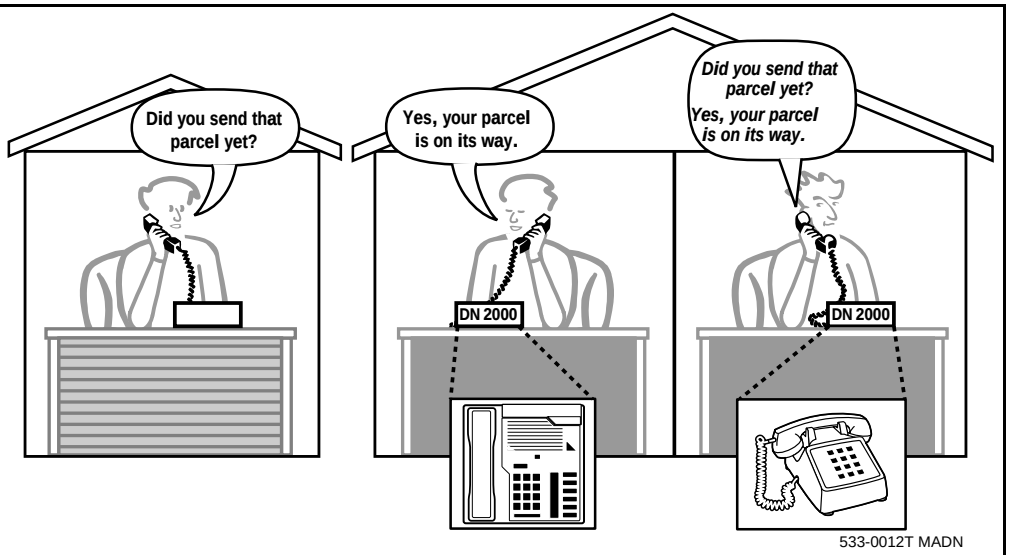
Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on a Digitone telephone.

New Digitone telephone

If the same Single Call DN is shared between a Digitone telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to a Digitone telephone and an SL-1-type or digital telephone
- replace the Digitone telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones



No privacy when a Multiple Appearance Single Call DN appears on a Digitone telephone.

New Digitone telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Multiple Call Class of Service

When you want to make a DN on a Digitone telephone a Multiple Call DN, you activate this in the Class of Service.

With Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

New Digitone telephone

The step-action table at the end of this module explains how to assign a DN on a new Digitone telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

You should keep a summary of the Numbering Plan on site. For more information on the Numbering Plan see the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

New Digitone telephone

Terminal Number (TN)

You must use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

New Digitone telephone

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

See the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for Digitone telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

New Digitone telephone

On-site Digitone telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

New Digitone telephone

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If no policy is in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Class of Service (CLS)

When you are programming telephones using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 54
Software release and default setting

Release	Default
19 or 20	DTN
18 or earlier	DIP

New Digitone telephone

For a Digitone-type telephone, program the TN for DTN service. Once you find out what release of software your system has, you might find that DTN is the default.

When you install a Digitone telephone, the impact of programming incorrectly is as follows.

When a Digitone telephone with a DTN Class of Service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone. It is reserved for that telephone while the call is dialed. Because of this, the outpulsed tones are translated by the DTR into digital messages suitable for the CPU. The CPU can then translate what the user is dialing.

When a Digitone telephone is programmed incorrectly with a DIP Class of Service, the system does not reserve a DTR when the telephone user tries to initiate a call. (A digitone receiver is not required when a dial telephone is used.) As a result, the telephone user receives dial tone but cannot make calls.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this guide.

New Digitone telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

You may wish to consider installing a more up-to-date telephone for this user instead of a Digitone telephone.

Provisioning digitone receivers (DTRs)

Your system supplier must configure your system with a sufficient quantity of DTRs to provide a good grade of service to the Digitone telephone users. If that is not done, dial tone could be delayed for users of Digitone telephones, and the level of service could be poor. As you add more and more Digitone telephones after the initial installation of the system, your system supplier might need to re-provision your system periodically for additional DTRs.

You know it is time to look at the provisioning issue if you start to get complaints about delayed dial tone exclusively from users of Digitone telephones and incoming Digitone trunks.

Traffic studies can help you to calculate the proper quantity of DTRs you require based on the actual digitone traffic load offered to the system. For more information on what a traffic study can show you, see the *Traffic* module in this book. (Refer to the information on studies TFS002 and TFS003).

Control tips

- Digitone telephone users who share DNs with other users must be careful not to break in on active calls. Consider installing a system of lights which shows when the DN is in use. If lack of privacy continues to be a problem, consider a change to SL-1-type or digital telephones.

New Digitone telephone

Administration tips

- If users report problems such as delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem.

  If the telephones are Digitone, the maintainer will need to investigate whether there are:

  – faulty DTRs
  – unprogrammed DTRs
  – DTRs on busy loops
  – loops with high numbers of Digitone telephones and DTRs
  – insufficient DTRs

- You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.

New Digitone telephone

Training tips

- Avoid problems by doing refresher training on an ongoing basis.

  Digitone telephone users must remember a number of different feature access codes.

  They might need reminders after the initial training in order to effectively use all the features they need. This helps them get the most out of the system and in turn the system provides them with the expected benefits.

- Short customized lists of feature instructions and access codes for your users are worthwhile. Make the lists small enough to be placed underneath the telephone where they are readily accessible.

- If Flexible Feature codes are in use on your system, keep the codes as simple as possible. Users will be confused and aggravated if you implement codes which are difficult to use.

  It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and they are difficult to retrain.

  For more information on Flexible Feature codes see the *You should know this* module in this book.

New Digitone telephone

What to have ready

The following checklist summarizes the steps you should take before implementing a basic new Digitone telephone.

Table 5 5
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

New Digitone telephone

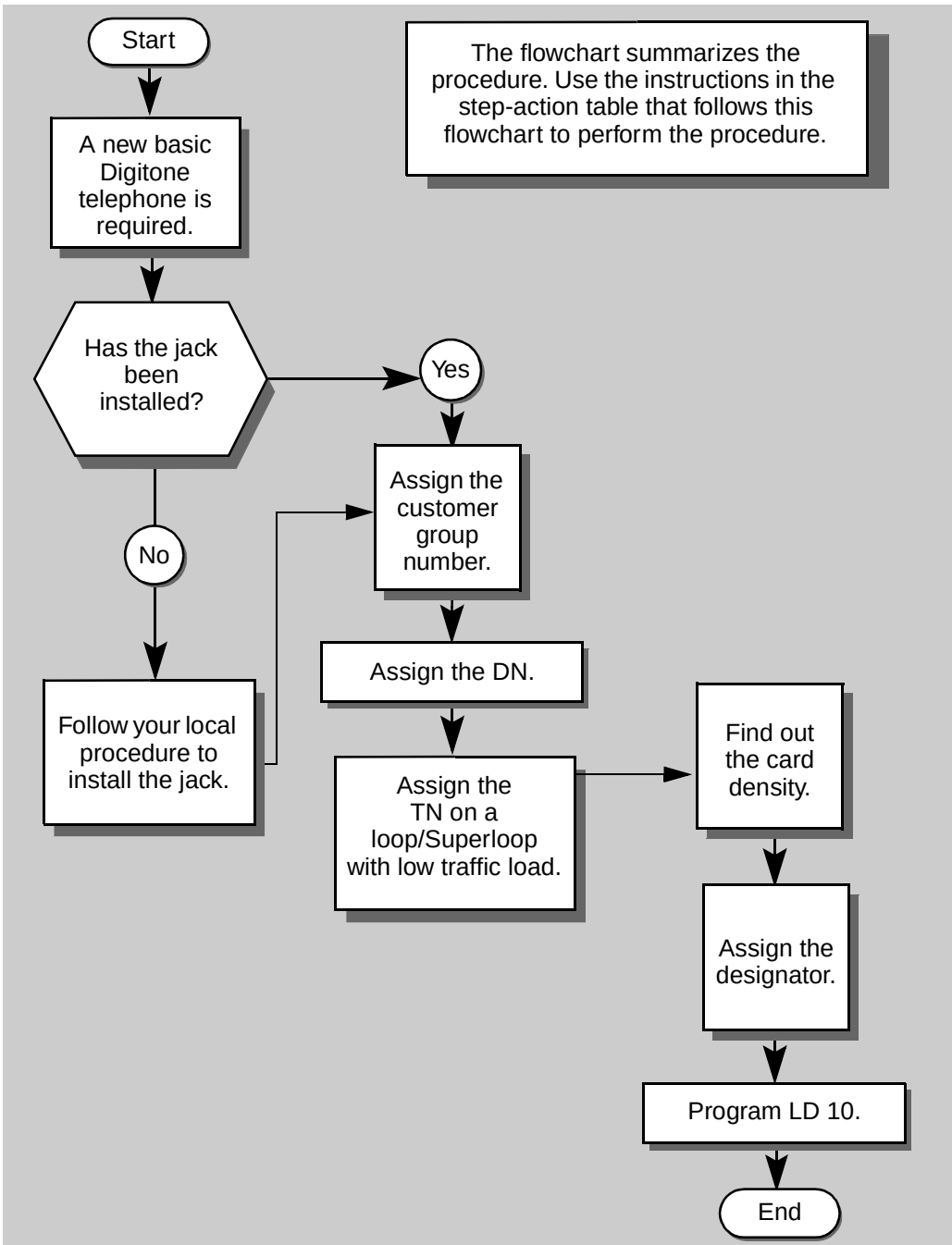
Appendix 1 (for LD 10) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of a Digitone telephone.

New Digitone telephone



New Digitone telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic Digitone telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs.	step 4
	you do not know your customer group number and you do not have access to the print programs.	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New Digitone telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New Digitone telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, see *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD3 2 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**

9	**Assign the new customer group number to the new telephone.**

10	**Find out what DN to assign.**

If	Do
the DN is shared with another telephone	step 11
the DN is unique	step 12

— continued —

New Digitone telephone

STEP	ACTION

11 Find out how the DN is to be shared.

If	Do
the telephone can be an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone – no programming is required.
the telephone is to have its own TN	step 15

12 Find out what DNs are available.

If	Do
you know what DN you want to assign	step 15
your system software is Release 19 or later	step 13
your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.

13 Print unused DNs in your customer group.

Log in, if you do not already have an active programming session. For information on proper login procedures, see *Basic programming instructions* in this book.

```
> LD 20
```

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0-99	Input customer group number

You get a printout of the unused DNs in your customer group.

— continued —

New Digitone telephone

STEP	ACTION
14	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
15	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

16 Print out the available TNs on your system.

Log in. For information on proper login procedures, see *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	500	Dial or Digitone telephone

You get a printout of the available dial and Digitone telephone TNs.

17 Consider traffic when choosing a TN to use for the new telephone.

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

18 Choose the TN for the new telephone.

— continued —

New Digitone telephone

STEP	ACTION
19	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**
20	**Find out the density of the line card which has the TN you are using.**

If	Do
it is a new line card	Ask your system supplier about the card density.
it is an existing line card	Use the default density setting.

21 Assign a Designator.

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

22 Program the new telephone.

Log in, if you do not already have an active programming session. For information on proper login procedures, see *Basic programming instructions* in this book.

```
> LD 10
REQ   NEW          New telephone
TYPE  500          Dial or Digitone telephone
TN    L S C U      Input the TN (Loop Shelf Card Unit number)
CDEN
      SD           Input the card density if on a new line card
      DD           single-density
      4D           double-density
      <cr>         quad-density
                   Carriage return if line card already programmed
```

— continued —

New Digitone telephone

STEP	ACTION

22 continued ...

DES	A..A	Designator maximum six characters long
CUST	0-99	customer group number
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP

Carriage return until you see the prompt CLS

CLS		Input the Outpulsing type
	DTN	DTN (Digitone), default Release 19 and later Input DTN, or <cr> if it is default on your system

Carriage return until you see either of the following messages:

U.data P.data Small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

23 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

— continued —

New Digitone telephone

STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

25 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43
. EDD<cr>
```

26 Verify that the data dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

— continued —

New Digitone telephone

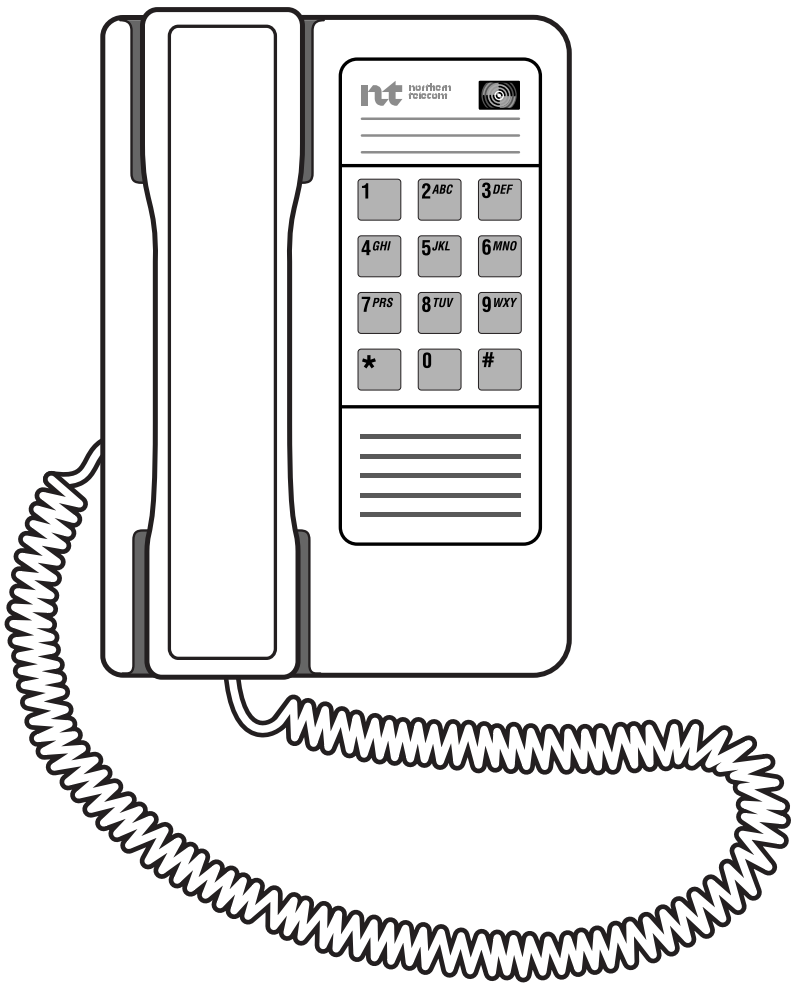
STEP	ACTION
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off.
	> LOGO
29	**You have now completed the minimum programming required to implement a basic new Digitone telephone.**
	END

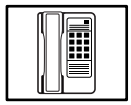
New Digitone telephone

New M8000 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M8000 telephone.



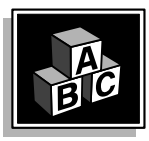


New M8000 telephone

If the user needs a new telephone, install an M8000 telephone if:

- the user needs only one Directory Number (DN)
- the user requires the use of a telephone that transmits tones
- the user does not require easy access to features using buttons (or keys) but is instead satisfied to use one or two digit codes for features

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Built-in functions

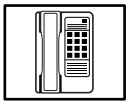
This telephone has an adjustable ringer, and a message waiting/ incoming call indicator light which are part of the telephone. If you want to activate the message waiting light, refer to Task 24, *Message Center*.

Hardware

The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Check with your system maintainer to ensure that the necessary digitone receiver cards are installed and programmed.



Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a particular sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M8000 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

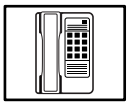
Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on the prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.



New M8000 telephone

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory number

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software, package 150, is equipped on the system. Without DN Expansion, the range is one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

New M8000 telephone

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

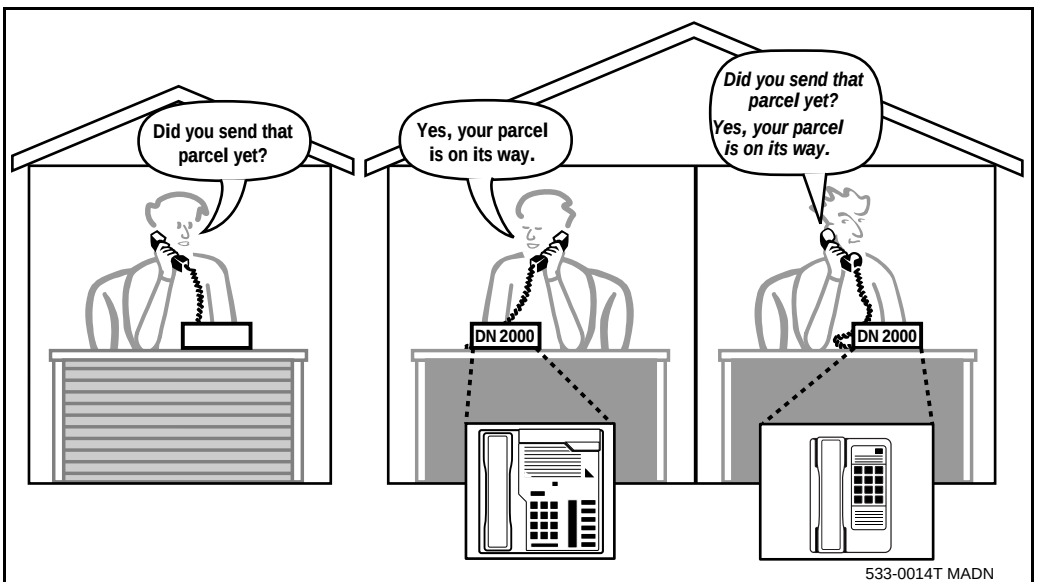
Single Call DN

The DN can handle one call at a time.

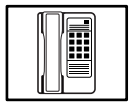
This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on a dial telephone.

If the same Single Call DN is shared between an M8000 telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.



No privacy when a Multiple Appearance Single Call DN appears on an M8000 telephone.



New M8000 telephone

If privacy is important, choose one of the following two options:

- do not program the same Single Call DN on an M8000 telephone and an SL-1-type or digital telephone
- replace the M8000 telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

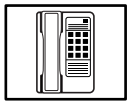
Multiple Call Class of Service

When you want to make a DN on an M8000 telephone a Multiple Call DN, you activate this in the Class of Service.

With X11 Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With X11 Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

New M8000 telephone



Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M8000 telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and may also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

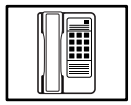
Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout



New M8000 telephone

also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure of what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

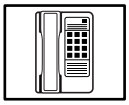
Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

New M8000 telephone



There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

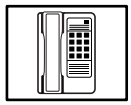
Telephones are connected to interface cards in the system called line cards. There are three types of line cards for M8000 telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

On-site M8000 telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.



New M8000 telephone

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

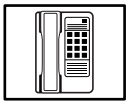
With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user's name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.



For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

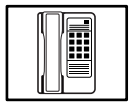
Class of Service (CLS)

When you are programming telephones using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 56
Software release and default setting

Release	Default
19 or 20	DTN
18 or earlier	DIP



New M8000 telephone

For an M8000 telephone, program the TN for DTN service. Once you find out what release of software your system has, you might find that DTN is the default.

When you install an M8000 telephone, the impact of programming incorrectly is as follows.

When any Digitone-type telephone such as the M8000 with a DTN class of service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone. It is reserved for that telephone while the call is dialed. Because of this, the outpulsed tones are translated by the DTR into digital messages suitable for the CPU. The CPU can then translate what the user is dialing.

When an M8000 telephone is programmed incorrectly with a DIP Class of Service, the system does not reserve a DTR when the telephone user tries to initiate a call. (A digitone receiver is not required when a dial telephone is used.) As a result, the telephone user receives dial tone but cannot make calls.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this guide.

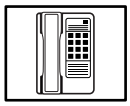
Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

This telephone has very basic capabilities. It is designed for economy. The advantages and capabilities of the other M8000-series telephones might be appropriate for certain users.

Provisioning digitone receivers (DTRs)

Your system supplier must configure your system with a sufficient quantity of DTRs to provide a good grade of service to the Digitone-type telephone users, including the M8000 telephones. If that is not



done, dial tone could be delayed for users of any Digitone-type telephones, and therefore the level of service is poor. As you add more and more Digitone-type telephones after the initial installation of the system, your system supplier might need to reprovision your system for additional DTRs.

You know it is time to look at the provisioning issue if you start to get complaints about delayed dial tone exclusively from users of Digitone-type telephones and incoming Digitone trunks.

Traffic studies can help you to calculate the proper quantity of DTRs you require based on the actual digitone traffic load offered to the system. For more information on what a traffic study can show you, refer to the *Traffic* module in this book. (Refer to the information on studies TFS002 and TFS003).

Control tips

- M8000 telephone users who share DNs with other users must be careful not to break in on active calls. Consider installing a system of lights which shows when the DN is in use. If lack of privacy continues to be a problem, consider a change to SL-1-type or digital telephones.

Administration tips

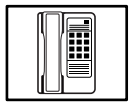
- If users report problems such as delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem.

  If the telephones are M8000, the maintainer will need to investigate whether there are:

  – faulty DTRs

  – unprogrammed DTRs

  – DTRs on busy loops



New M8000 telephone

– loops with high numbers of Digitone-type telephones and DTRs

– insufficient DTRs

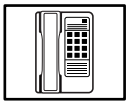
You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.

Training tips

- Avoid problems by doing refresher training on an ongoing basis. M8000 telephone users must remember a number of different feature access codes. They might need reminders after the initial training in order to effectively use all of the features they need. This helps them get the most out of the system, and in turn the system provides them with the expected benefits.
- Short customized lists of feature instructions and access codes for each user are worthwhile. Make them small enough to be placed underneath the telephone where they are readily accessible.
- If Flexible Feature codes are in use on your system, keep the codes as simple as possible. Users will be confused and aggravated if you implement codes which are difficult to use.

  It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and they are difficult to retrain.

  For more information on Flexible Feature codes refer to the *You should know this* module in this book.



What to have ready

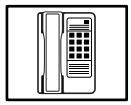
Make the following preparations before you do the basic programming of a new M8000 telephone.

Table 57
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.



New M8000 telephone

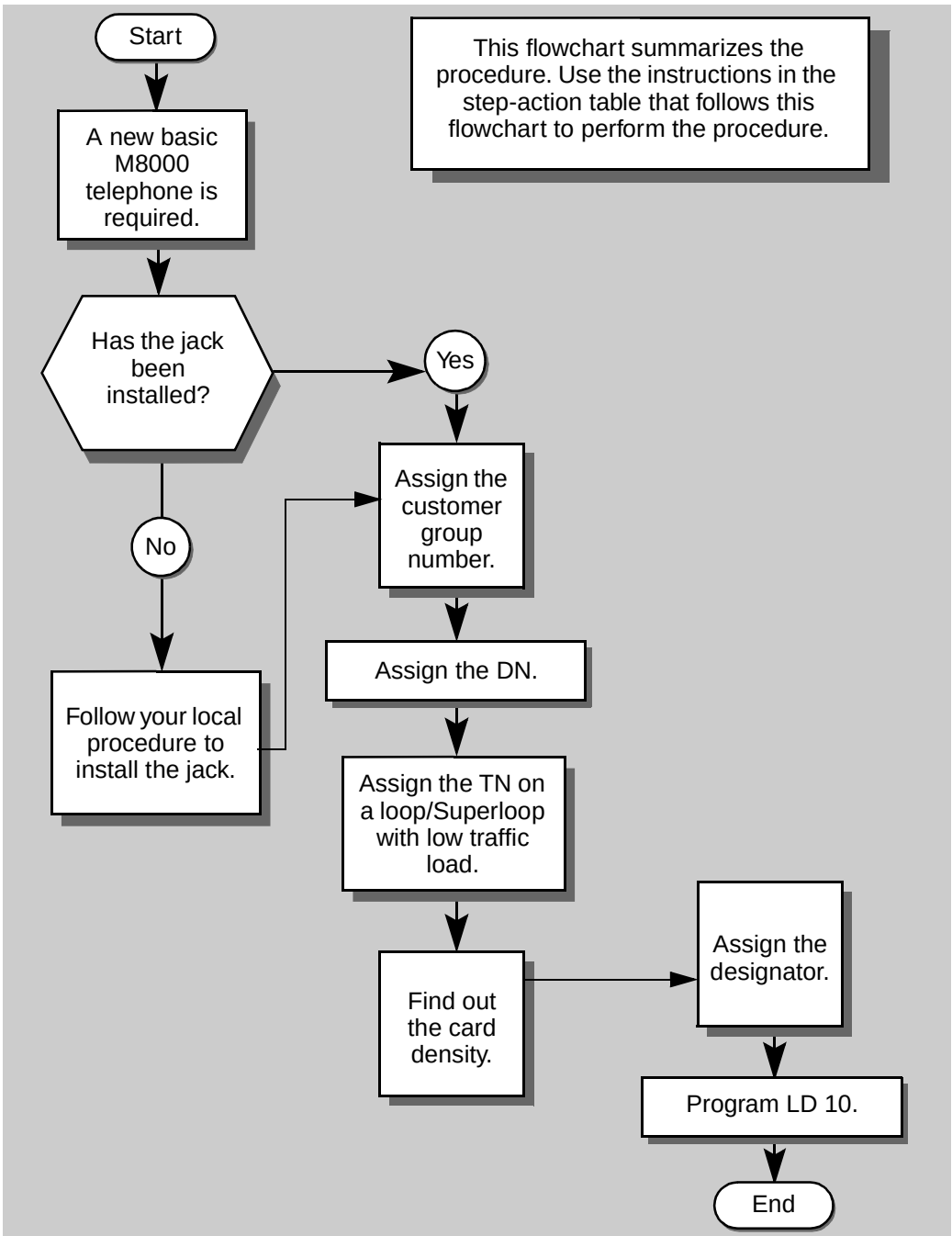
Appendix 1 (for LD 10) at the back of the book lists the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

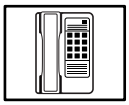
What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M8000 telephone.

New M8000 telephone





New M8000 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

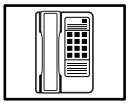
This step-action table covers the prompts related to the implementation of a basic M8000 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M8000 telephone



STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

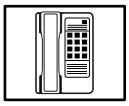
or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —



New M8000 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

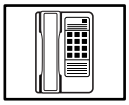
7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DN to assign.**

If	**Do**
the DN is shared with another telephone	step 11
the DN is unique	step 12

— continued —



STEP	ACTION	
11	**Find out how the DN is to be shared.**	
	If	**Do**
	the telephone can be an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone — no programming is required.
	the telephone is to have its own TN	step 15
12	**Find out what DNs are available.**	
	If	**Do**
	you know what DN you want to assign	step 15
	your system software is Release 19 or later	step 13
	your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.
13	**Print unused DNs in your customer group.**	

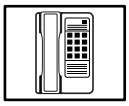
Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 20
```

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

— continued —



New M8000 telephone

STEP	ACTION

14 Choose an available DN which fits your Numbering Plan and the needs of the user.

15 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

16 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	500	Dial or Digitone-type telephone

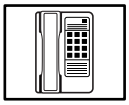
You get a printout of the available dial and Digitone-type telephone TNs.

17 Consider traffic when choosing a TN to use for the new telephone.

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

— continued —

New M8000 telephone



STEP	ACTION
18	**Choose the TN for the new telephone.**
19	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**
20	**Find out the density of the line card which has the TN you are using.**

If	Do
it is a new line card	Ask your system supplier about the card density.
it is an existing line card	Use the default density setting.

21 Assign a Designator.

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

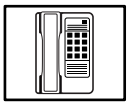
22 Program the new telephone.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 10
```

REQ	NEW	New telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN		Input the card density if on a new line card
	SD	single-density
	DD	double-density
	4D	quad-density
	<cr>	Carriage return if line card already programmed

— continued —



New M8000 telephone

STEP	ACTION

22 continued ...

DES	A..A	Designator maximum six characters long
CUST	0–99	customer group number
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP

Carriage return until you see the prompt CLS

CLS	DTN	Input the Outpulsing type DTN (Digitone), default Release 19 and later Input DTN, or <cr> if it is default on your system

Carriage return until you see either of the following messages:

U.data P.data small systems

or

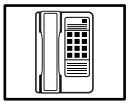
MEM AVAIL: (U/P) USED:TOT: large systems

23 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

— continued —



STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

25 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

.EDD  <cr>
```

26 Verify that the data dump was successful.

TTY response:

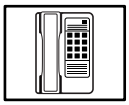
NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

— continued —



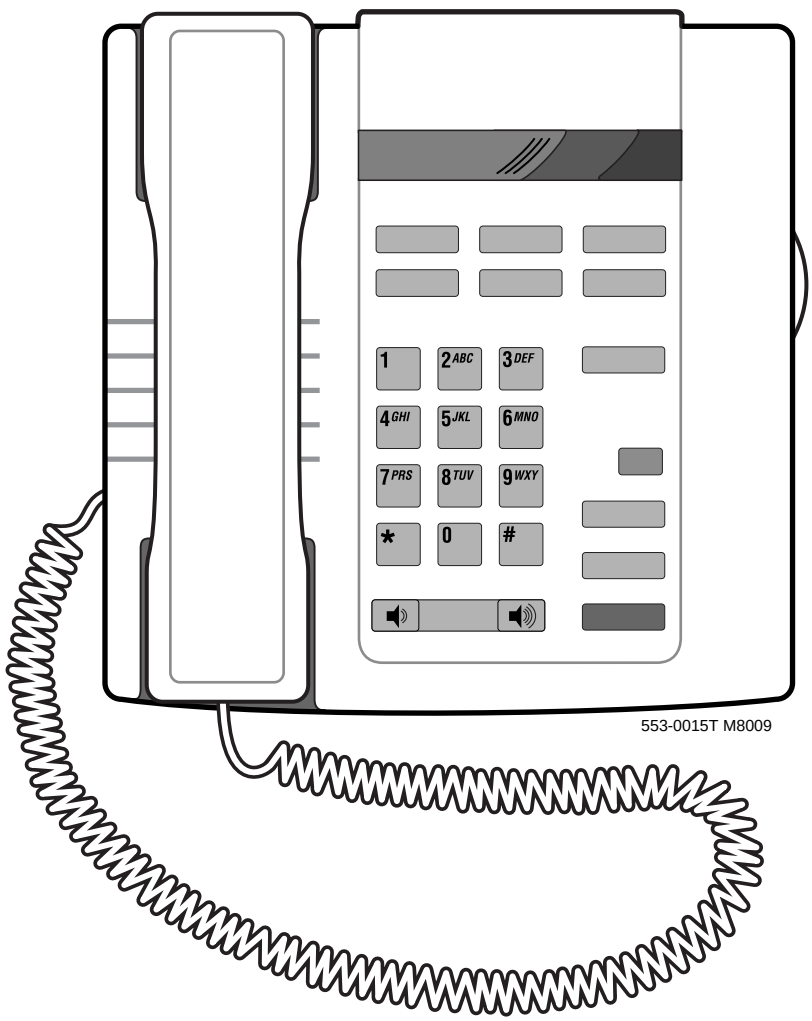
New M8000 telephone

STEP	ACTION
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off.
	> LOGO
29	**You have now completed the minimum programming required to implement a basic new M8000 telephone.**
	END

New M8009 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M8009 telephone.

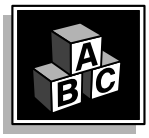


New M8009 telephone

If the user needs a new telephone, install an M8009 telephone if:

- the user needs only one Directory Number (DN)
- the user requires the use of a telephone that transmits tones
- the user wants to adjust the volume of the sound coming through the receiver
- the user needs to put calls on hold and does not want to dial a feature code to do it
- the Directory Number (DN) assigned to this telephone will have extensions assigned to other phones and the user needs to know when the DN is in use by one of the extensions
- the user wants buttons for easy access to features or commonly dialed telephone numbers

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

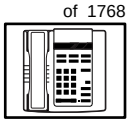
Built-in functions

This telephone has an adjustable ringer, and a message waiting/ incoming call indicator light which are part of the telephone. If you want to activate the message waiting light, refer to Task 24, *Message Center*.

Hardware

The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

New M8009 telephone



When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Check with your system maintainer to ensure that the necessary digitone receiver cards are installed and programmed.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M8009 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

New M8009 telephone

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

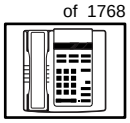
DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means a DN has been assigned to a telephone or a key on a telephone.

New M8009 telephone



Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

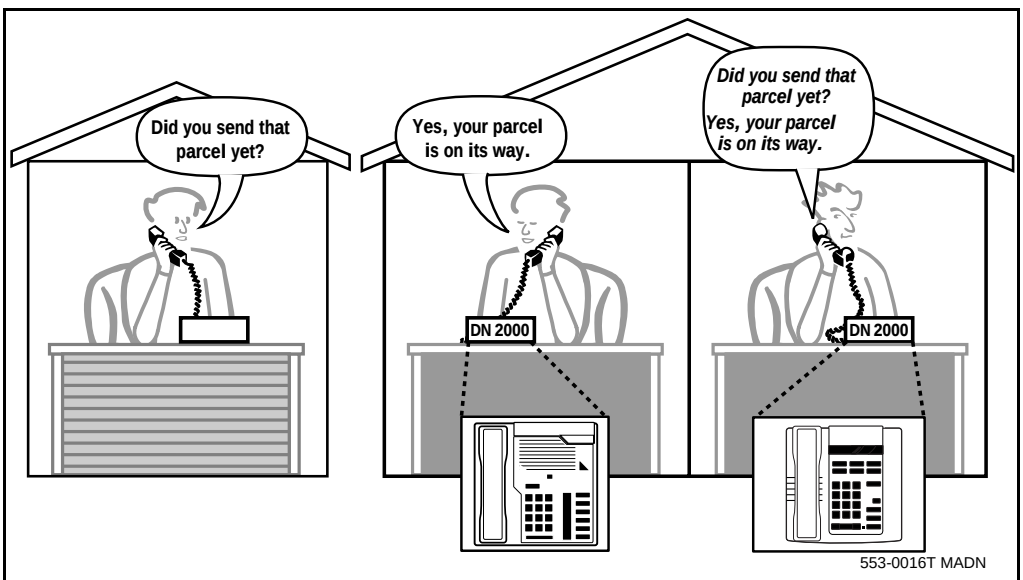
There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

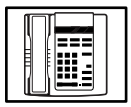
The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on an M8009 telephone.



No privacy when a Multiple Appearance Single Call DN appears on an M8009 telephone.



New M8009 telephone

If the same Single Call DN is shared between an M8009 telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to an M8009 telephone and an SL-1-type or digital telephone
- replace the M8009 telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

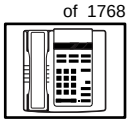
Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Multiple Call Class of Service

When you want to make a DN on an M8009 telephone a Multiple Call DN, you activate this in the Class of Service.

With Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

New M8009 telephone



With Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration.You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M8009 telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

New M8009 telephone

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure of what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

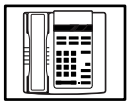
Refer to the *You should know this* module for more information on the hardware of the system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

New M8009 telephone



Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for M8009 telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double-density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

New M8009 telephone

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

On-site M8009 telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

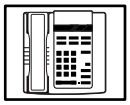
The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

New M8009 telephone



For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

New M8009 telephone

Class of Service (CLS)

When you are programming telephones using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 5 8
Software release and default setting

Release	Default
19 or 20	DTN
18 or earlier	DIP

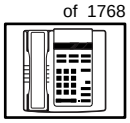
For the M8009 telephone, program the TN for DTN service. Once you find out what release of software your system has, you might find that DTN is the default.

When you install an M8009 telephone, the impact of programming incorrectly is as follows.

When any Digitone-type telephone such as the M8009 with a DTN Class of Service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone. It is reserved for that telephone while the call is dialed. Because of this, the outpulsed tones are translated by the DTR into digital messages suitable for the CPU. The CPU can then translate what the user is dialing.

When an M8009 telephone is programmed incorrectly with a DIP Class of Service, the system does not reserve a DTR when the telephone user tries to initiate a call. (A digitone receiver is not required when a dial telephone is used.) As a result, the telephone user receives dial tone but cannot make calls.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this guide.



Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Parallel-line jacks

A parallel-line jack is provided in the telephone, for connection to an extension telephone, or a fax or a modem. Your system supplier can help you install these devices if you require them.

Provisioning digitone receivers (DTRs)

Your system supplier must configure your system with a sufficient quantity of DTRs to provide a good grade of service to the Digitone-type telephone users, including the M8009 telephones. If that is not done, dial tone could be delayed for users of any Digitone-type telephones, and therefore the level of service could be poor. As you add more and more Digitone-type telephones after the initial installation of the system, your system supplier might need to reprovision your system periodically for additional DTRs.

You know it is time to look at the provisioning issue if you start to get complaints about delayed dial tone exclusively from users of Digitone-type telephones and incoming Digitone trunks.

Traffic studies can help you to calculate the proper quantity of DTRs you require based on the actual digitone traffic load offered to the system. For more information on what a traffic study can show you, refer to the *Traffic* module in this book. (Refer to the information on studies TFS002 and TFS003).

New M8009 telephone

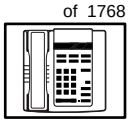
Control tips

- M8009 telephone users who share DNs with other users must be careful not to break in on active calls. The indicator light on the telephone lights up when the DN is in use at an extension of that telephone. Users must learn not to initiate a call when the indicator light is on. When a telephone with a separate TN and the same DN as this telephone is in use, the indicator light on this telephone is not on. If lack of privacy continues to be a problem, consider a change to SL-1-type or digital telephones.

Administration tips

- If users report problems like delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem. If the telephones are M8009, the maintainer will need to investigate whether there are:
  - faulty DTRs
  - unprogrammed DTRs
  - DTRs on busy loops
  - loops with high numbers of Digitone-type telephones and DTRs
  - insufficient DTRs

  You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.



Training tips

- Train users on how to use the LINK key. This helps them when they are transferring and conferencing calls.
- There are six programmable keys on this telephone. If you want uniformity, decide which feature access codes or telephone numbers are to be programmed on all M8009 telephones.
- Decide who is going to program the keys; you, the user, or the system supplier.

  Select responsible users to do this function to ensure the programming is done correctly. This will reduce repair reports and costs that result form incorrect programming.
- Even though the most common feature access codes can be programmed on the six keys, users might, from time to time, need access to other features. To do this, they must dial feature access codes. Refresher training helps to keep users' knowledge levels current. This helps them get the most out of the system and in turn the system provides them with the expected benefits.
- Short, customized lists of feature instructions and access codes for your users are worthwhile. Make the lists small enough to be placed underneath the telephone where they are readily accessible.
- If Flexible Feature codes are in use on your system and if users are supposed to dial these codes, keep the codes as simple as possible. Users will be confused and aggravated if you implement codes that are difficult to use.

  If the codes are going to be accessed solely from keys, use longer codes. Save the shorter, easier to remember codes for features that users must dial.

  It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and they are difficult to retrain.

  For more information on Flexible Feature codes refer to the *You should know this* module in this book.

New M8009 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M8009 telephone.

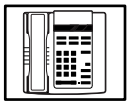
Table 5 9
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* module for further information on many of these additional features and services.

New M8009 telephone



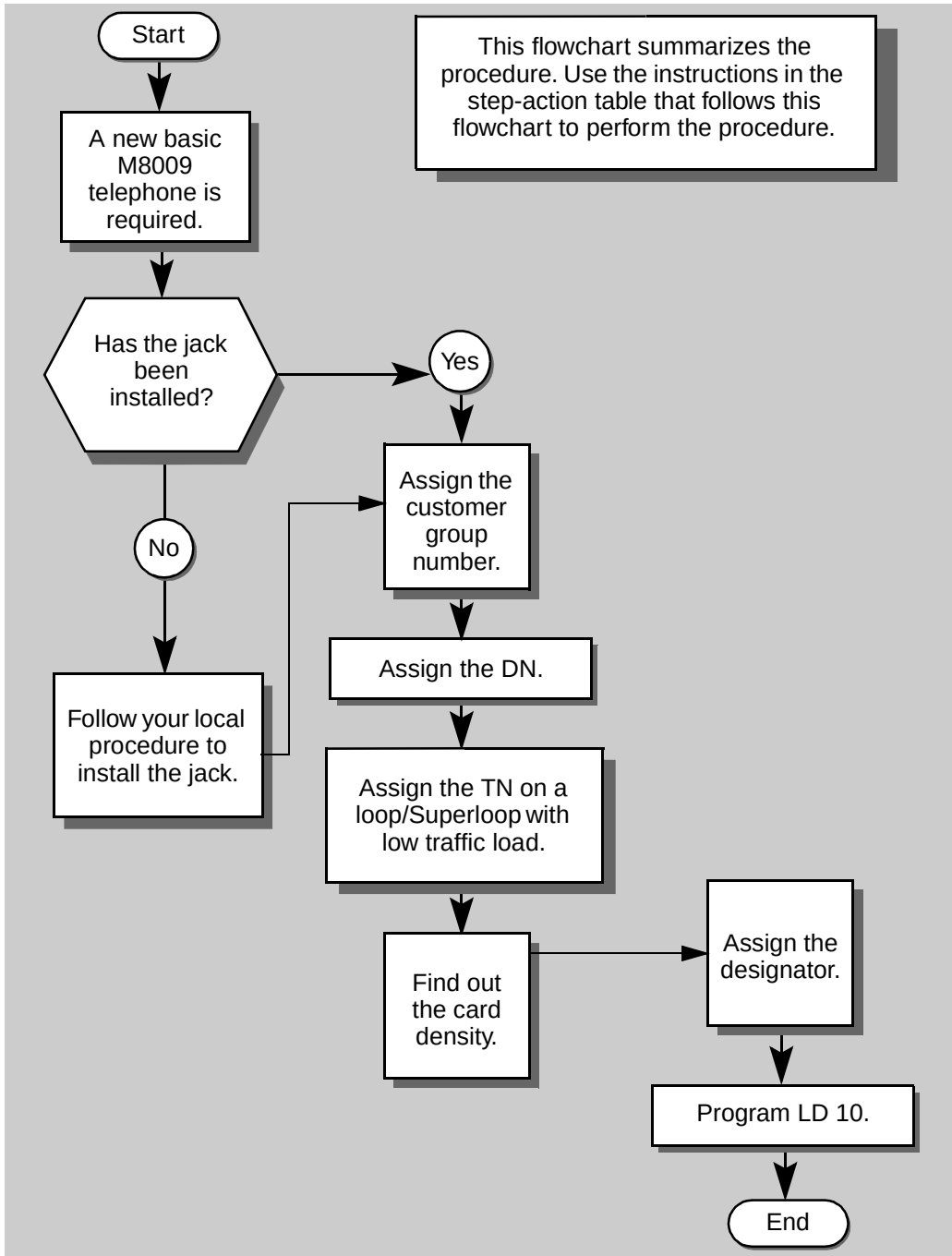
Appendix 1 (for LD 10) at the back of the book list all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

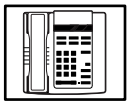
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M8009 telephone.

New M8009 telephone



New M8009 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M8009 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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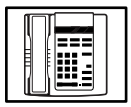


New M8009 telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

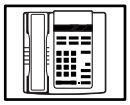
MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M8009 telephone



STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7 **Assign the same customer group number to the new telephone.**

Go to step 10.

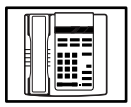
8 **Arrange with your system supplier to have the new customer group data block programmed.**

9 **Assign the new customer group number to the new telephone.**

10 **Find out what DN to assign.**

If	Do
the DN is shared with another telephone	step 11
the DN is unique	step 12

— continued —



New M8009 telephone

STEP	ACTION
11	**Find out how the DN is to be shared.**

If	Do
the telephone can be an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone — no programming is required.
the telephone is to have its own TN	step 15

12	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 15
your system software is Release 19 or later	step 13
your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.

13	**Print unused DNs in your Customer Group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

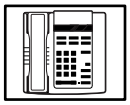
```
> LD 20
```

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

— continued —

New M8009 telephone



STEP	ACTION
14	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
15	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

16 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	500	Dial or Digitone-type telephone

You get a printout of the available dial and Digitone-type telephone TNs.

17 Consider traffic when choosing a TN to use for the new telephone.

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

— continued —

New M8009 telephone

STEP	ACTION
18	**Choose the TN for the new telephone.**
19	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**
20	**Find out the density of the line card which has the TN you are using.**

If	Do
it is a new line card	Ask your system supplier about the card density.
it is an existing line card	Use the default density setting.

21 Assign a Designator.

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

22 Program the new telephone.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 10
```

REQ	NEW	New telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the TN (Loop Shelf Card Unit number)
CDEN		Input the card density if on a new line card
	SD	single-density
	DD	double-density
	4D	quad-density
	<cr>	Carriage return if line card already programmed

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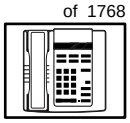


STEP ACTION

22 continued ...

DES	A..A	Designator maximum six characters long
CUST	0–99	customer group number 0 is default
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP

Carriage return until you see the prompt CLS

CLS	DTN	Input the Outpulsing type DTN (Digitone), default Release 19 and later Input DTN, or <cr> if it is default on your system

Carriage return until you see either of the following messages:

U.data P.data small systems

or

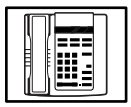
MEM AVAIL: (U/P) USED:TOT: large systems

23 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

— continued —



New M8009 telephone

STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

STEP	ACTION
25	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

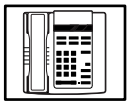
Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

New M8009 telephone



STEP	ACTION
26	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

27	**Terminate this overlay program.**

. ****

28	**Terminate this programming session.**

Log off.

> LOGO

29	**You have now completed the minimum programming required to implement a basic new M8009 telephone.**

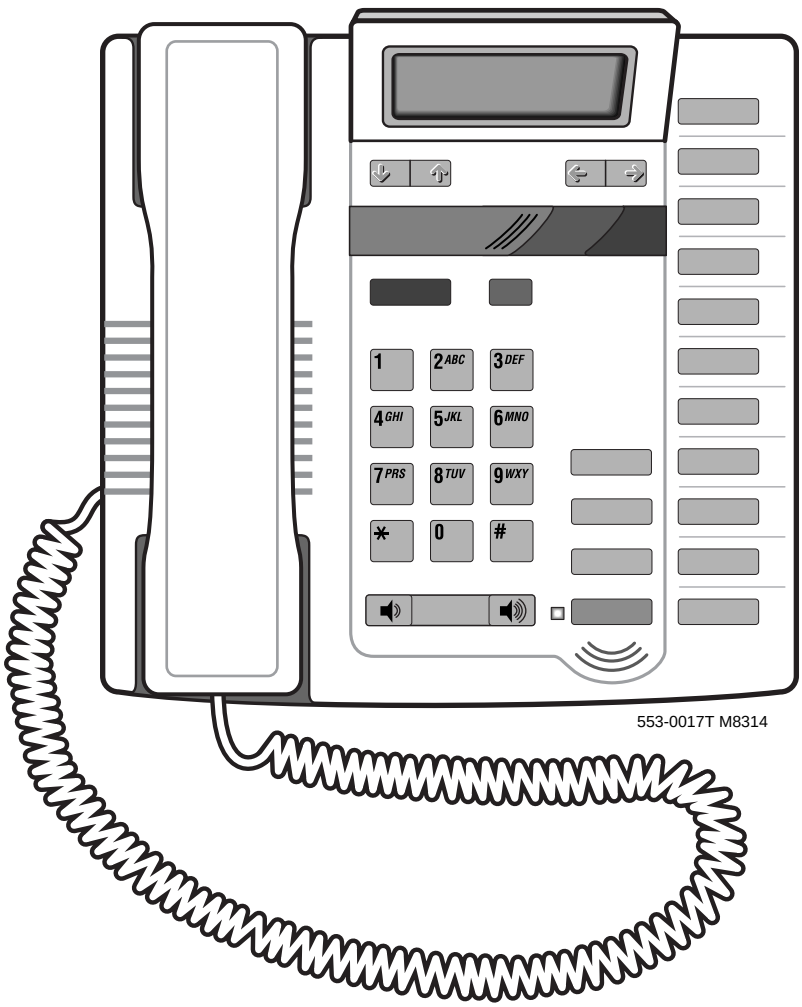
END

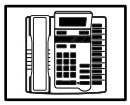
New M8009 telephone

New M8314 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M8314 telephone.

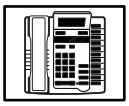




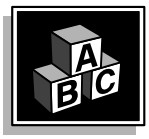
New M8314 telephone

If the user needs a new telephone, install an M8314 telephone if:

- the user needs only one Directory Number (DN)
- the user requires the use of a telephone that transmits tones
- the user wants buttons for easy access to features or commonly dialed telephone numbers
- the user wants to be able to hear a conversation and speak to a caller without using the handset of the telephone (speakerphone capability)
- the user wants a display to make feature use very easy, to display a directory of names and telephone numbers and to show a call timer
- the user wants to adjust the volume of the sound coming through the receiver
- the user needs to put calls on hold and does not want to dial a feature code to do it
- the user needs to know when extensions of the DN are in use
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the users need the choice of English and French or English and Spanish words on the display when using features
- you want the users' telephones to have your company logo



Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Built-in functions

The M8314 telephone has a message waiting/incoming call indicator light that is part of the telephone. If you want to activate the message waiting light, refer to Task 24, *Message Center*.

The display on this telephone does not show you the Directory Number (DN) of the caller whether they are internal to your system or external. That functionality is provided by the digital telephones and the SL-1-type telephones.

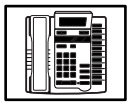
This telephone has a built-in handsfree unit. There is a Handsfree/ Mute button to activate and deactivate it.

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Check with your system maintainer to ensure that the necessary digitone receiver cards are installed and programmed.



New M8314 telephone

Power

This telephone requires external power in order for the display, the autodial buttons and the handsfree unit to function. Arrange with your system supplier to get the necessary power equipment ordered and installed.

Default values

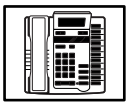
The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this moduleare the ones to which you must respond to make a basic M8314 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.



Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

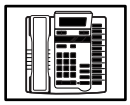
Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.



New M8314 telephone

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

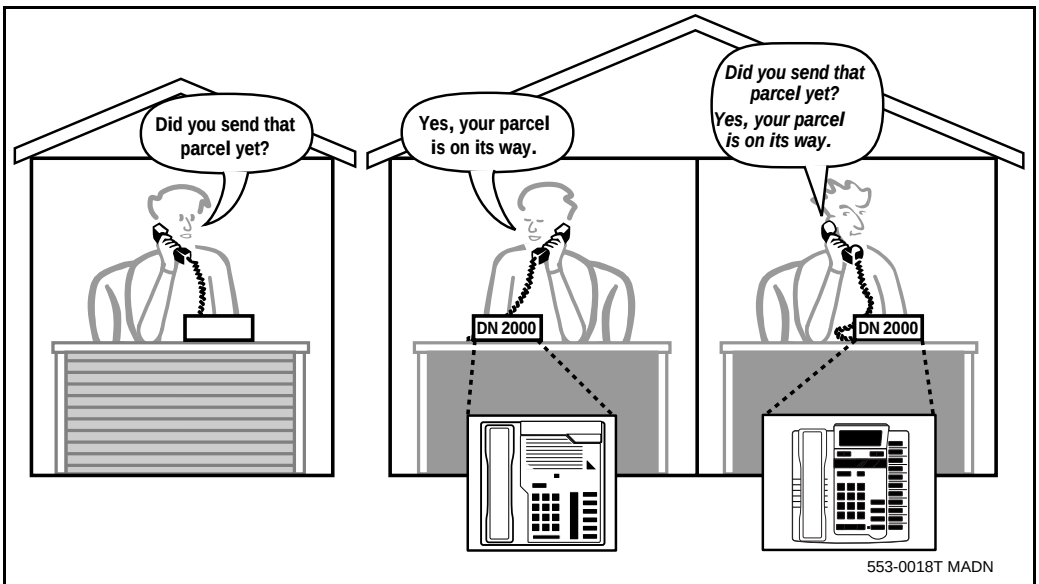
The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on an M8314 telephone.

If the same Single Call DN is shared between an M8314 telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

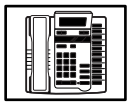
New M8314 telephone



No privacy when a Multiple Appearance Single Call DN appears on an M8314 telephone.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to an M8314 telephone and an SL-1-type or digital telephone
- replace the M8314 telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones



New M8314 telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Multiple Call Class of Service

When you want to make a DN on an M8314 telephone a Multiple Call DN, you activate this in the Class of Service.

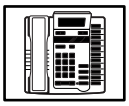
With Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M8314 telephone.



Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

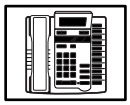
Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.



New M8314 telephone

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure of what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of the system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

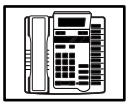
When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

New M8314 telephone



Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for M8314 telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

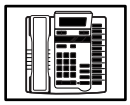
On-site M8314 telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.



New M8314 telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

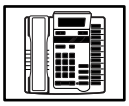
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.



Class of Service (CLS)

When you are programming telephones using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 60
Software release and default setting

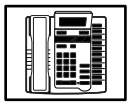
Release	Default
19 or 20	DTN
18 or earlier	DIP

For the M8314 telephone, program the TN for DTN service. Find out what release of software your system has. Determine if DTN is the default setting in the Class of Service.

When you install an M8314 telephone, the impact of programming incorrectly is as follows:

- When any Digitone-type telephone such as the M8314 with a DTN Class of Service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone. It is reserved for that telephone while the call is dialed. Because of this, the outpulsed tones are translated by the DTR into digital messages suitable for the CPU. The CPU can then translate what the user is dialing.
- When an M8314 telephone is programmed incorrectly with a DIP Class of Service, the system does not reserve a DTR when the telephone user tries to initiate a call. (A digitone receiver is not required when a dial telephone is used.) As a result, the telephone user receives dial tone but cannot make calls.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this book.



New M8314 telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Parallel-line jack

A parallel-line jack is provided in the telephone, for connection to an extension telephone, or a fax or a modem.Your system supplier can help you install these devices if you require them.

Ringing options

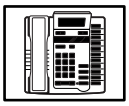
There are four different ring tone choices. The telephones can be made to ring in different ways so that when a telephone rings and the users have left their desks, they can tell which telephone is ringing.

This telephone feature can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell which telephone is ringing and whether they are to answer. If a user does answer, the caller can be greeted appropriately.

Provisioning digitone receivers (DTRs)

Your system supplier must configure your system with a sufficient quantity of DTRs to provide a good grade of service to the Digitone-type telephone users, including the M8314 telephones. If that is not done, dial tone could be delayed for users of any Digitone-type telephones, and therefore the level of service could be poor. As you add more and more Digitone-type telephones after the initial installation of the system, your system supplier might need to reprovision your system periodically for additional DTRs.

You know it is time to look at the provisioning issue if you start to get complaints about delayed dial tone exclusively from users of Digitone-type telephones and incoming Digitone trunks.



Traffic studies can help you to calculate the proper quantity of DTRs you require based on the actual digitone traffic load offered to the system. For more information on what a traffic study can show you, refer to the *Traffic* module in this book. (Refer to the information on studies TFS002 and TFS003).

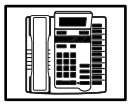
Control tips

- M8314 telephone users who share DNs with other users must be careful not to break in on active calls. The indicator light on the telephone lights up when the DN is in use at an extension telephone. Users must learn not to initiate a call when the indicator light is on. When a telephone with a separate TN and the same DN as this telephone is in use, the indicator light on this telephone is not on. If lack of privacy continues to be a problem, consider a change to SL-1-type or digital telephones.

Administration tips

- If users experience problems such as delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem. If the telephones are M8314, the maintainer will need to investigate whether there are:
  - faulty DTRs
  - unprogrammed DTRs
  - DTRs on busy loops
  - loops with high numbers of Digitone-type telephones and DTRs
  - insufficient DTRs

  You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.



New M8314 telephone

Training tips

- Train users on how to use the LINK key. This helps them when they are transferring and conferencing calls.
- There are eight programmable keys on this telephone. If you want uniformity, decide which feature access codes or telephone numbers are to be programmed on all M8314 telephones.
- Decide who is going to program the keys; you, the user, or the system supplier.

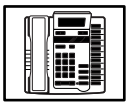
  Select responsible users to do this function to ensure the programming is done correctly. This will reduce repair reports and costs that result form incorrect programming.
- Even though the most common feature access codes can be programmed on the eight keys, users might, from time to time, need access to other features.To do this, they must dial feature access codes. Refresher training helps to keep users' knowledge levels current. This helps them get the most out of the system and in turn the system provides them with the expected benefits.
- Short, customized lists of feature instructions and access codes for your users are worthwhile. Make the lists small enough to be placed underneath the telephone where they are readily accessible.
- If Flexible Feature codes are in use on your system and if users are supposed to dial these codes, keep the codes as simple as possible. Users will be confused and aggravated if you implement codes that are difficult to use.

  If the codes are going to be accessed solely from keys, use longer codes. Save the shorter, easier to remember codes for features that users must dial.

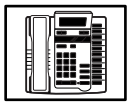
  It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and they would have difficulty learning new codes.

  For more information on Flexible Feature codes refer to the *You should know this* module in this book.

New M8314 telephone



- This telephone has a Handsfree/Mute button to activate and deactivate the handsfree unit built into the telephone. Put guidelines in place to govern the use of these units. When users misuse and overuse this feature it can be very irritating to users around them. It can have a negative impact on productivity if handsfree conversations are disruptive.
- Spending time training each M8314 user can reap rewards.Users need training on the use of:
  - the directory
  - scrolling
  - adjusting the receiver volume
  - choosing a ring option
  - choosing a language option
  - redialing one of the last five telephone numbers called



New M8314 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M8314 telephone.

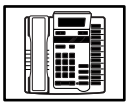
Table 6 1
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Arrange for the necessary power equipment to be ordered and installed.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

New M8314 telephone



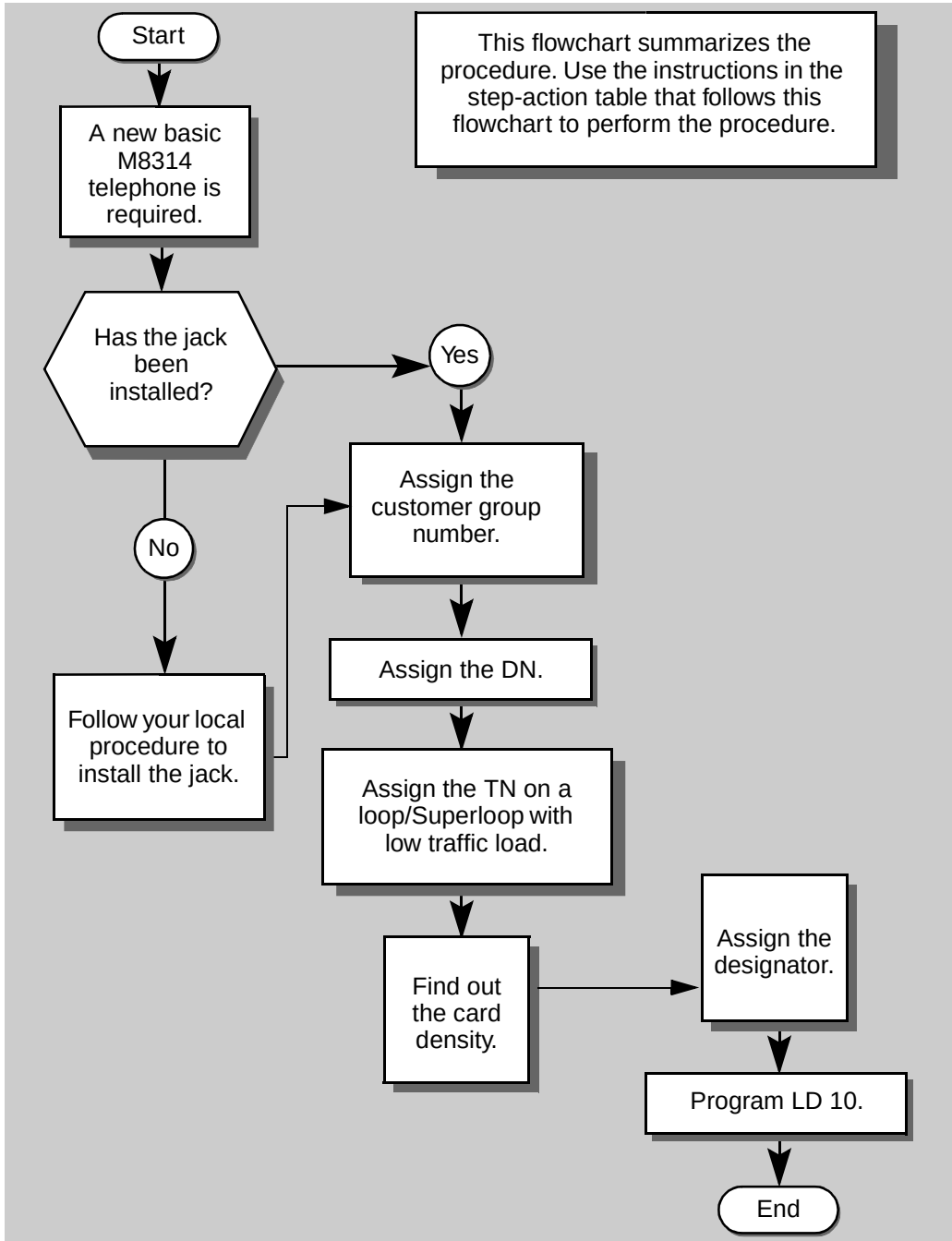
Appendix 1 (for LD 10) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

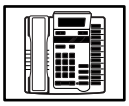
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M8314 telephone.

New M8314 telephone



New M8314 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M8314 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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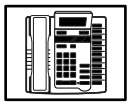


New M8314 telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

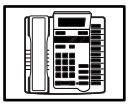
MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M8314 telephone



STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

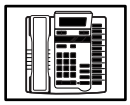
7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DN to assign.**

If	Do
the DN is shared with another telephone	step 11
the DN is unique	step 12

— continued —



New M8314 telephone

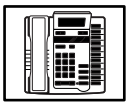
STEP	ACTION
11	**Find out how the DN is to be shared.**

If	Do
the telephone can be an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone — no programming is required.
the telephone is to have its own TN	step 15

STEP	ACTION
12	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 15
your system software is Release 19 or later	step 13
your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.

— continued —



STEP	ACTION

13 Print unused DNs in your customer group.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

14 Choose an available DN which fits your Numbering Plan and the needs of the user.

15 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

16 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

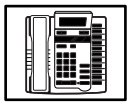
> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	500	Dial or Digitone-type telephone

You get a printout of the available dial and Digitone-type telephone TNs.

— continued —

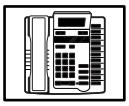


New M8314 telephone

STEP	ACTION	
17	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
18	**Choose the TN for the new telephone.**	
19	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
20	**Find out the density of the line card which has the TN you are using.**	
	If	**Do**
	it is a new line card	Ask your system supplier about the card density.
	it is an existing line card	Use the default density setting.
21	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
22	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	

— continued —

New M8314 telephone

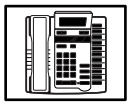


STEP ACTION

22 continued ...

> LD 10		
REQ	NEW	New telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the TN (Loop Shelf Card Unit number
CDEN		If on a new line card, input the card density
	SD	single-density
	DD	double-density
	4D	quad-density
	<cr>	Carriage return if line card already programmed
DES	A..A	Designator maximum six characters long
CUST	0–99	customer group number
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
Carriage return until you see the prompt CLS		
CLS	DTN	Input the Outpulsing type DTN (Digitone), default Release 19 and later Input DTN, or <cr> if it is default on your system

— continued —



New M8314 telephone

STEP	ACTION

22 continued ...

Carriage return until you see either of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

23 Check that the telephone works.

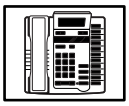
Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

24 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

— continued —



STEP	ACTION

25 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *Software Input /Output Guide Book 1 of 2* for more information on LD43.

> LD 43

. EDD <cr>

26 Verify that the data dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

27 Terminate this overlay program.

. ****

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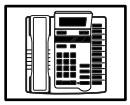


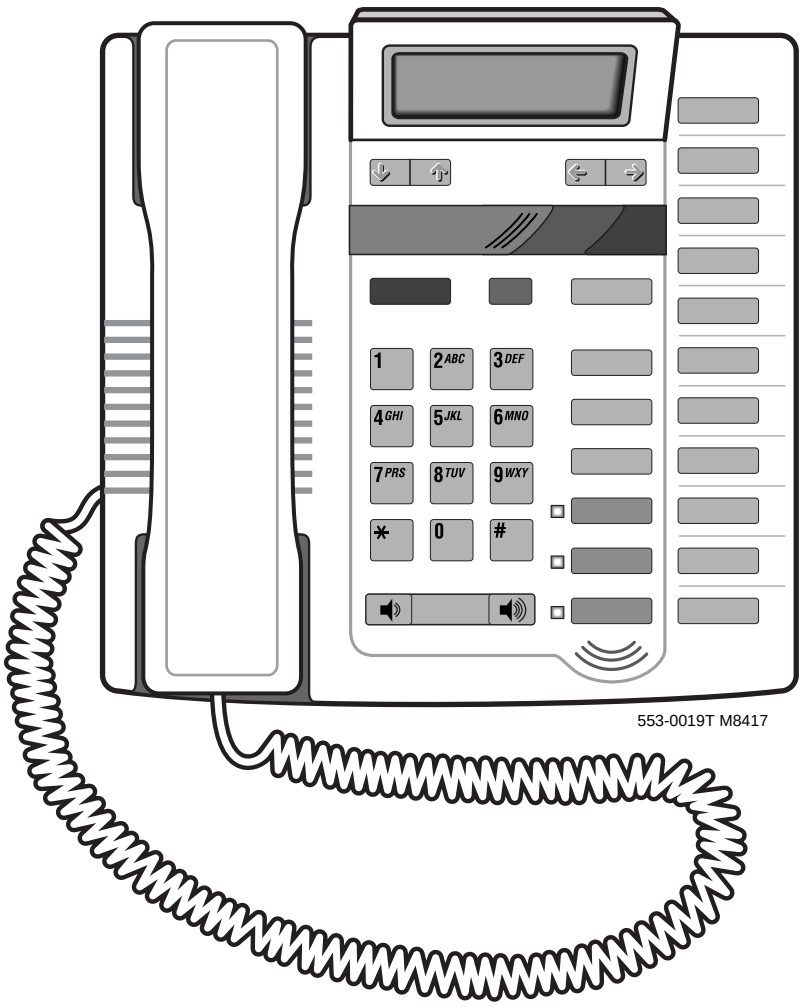
New M8314 telephone

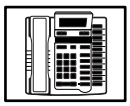
STEP	ACTION
28	**Terminate this programming session.**
	Log off. **>** LOGO
29	**You have now completed the minimum programming required to implement a basic new M8314 telephone.**
	END

New M8417 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M8417 telephone.



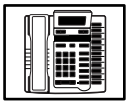


New M8417 telephone

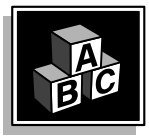
If the user needs a new telephone, install an M8417 telephone if:

- the user needs one or two Directory Numbers (DNs)
- the user wants the ability to conference a conversation on Li ne1 with a conversation on Line 2
- the user requires the use of a telephone that transmits tones
- the user wants buttons for easy access to features or commonly dialed telephone numbers
- the user wants to be able to hear a conversation and speak to a caller without using the handset of the telephone (speakerphone capability)
- the user wants a display to make feature use very easy, to display a directory of names and telephone numbers and to show a call timer
- the user wants to adjust the volume of the sound coming through the receiver
- the user needs to put calls on hold and does not want to dial a feature code to do it
- the user needs to know when extensions of the DN(s) are in use
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the users need the choice of English and French or English and Spanish words on the display when using features
- you want the users' telephones to have your company logo

New M8417 telephone



Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Built-in functions

The M8417 telephone has a message waiting/incoming call indicator light that is part of the telephone. If you want to activate the message waiting light, refer to Task 24, *Message Center*.

The telephone also has a display. *The display on this telephone does not show you the Directory Number (DN) of the caller, whether they are internal to your system or external.* That functionality is provided by the digital telephones and the SL-1-type telephones.

Hardware

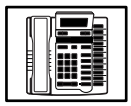
The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Check with your system maintainer to ensure that the necessary digitone receiver cards are installed and programmed.

Power

This telephone requires external power in order for the display, the auto-dial buttons and the handsfree unit to function. Arrange with your system supplier to get the necessary power equipment ordered and installed.



New M8417 telephone

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a particular sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M8417 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Appendix 1 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number that are covered in this book.

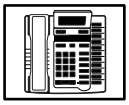
The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the Administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

New M8417 telephone



Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the range is one to four digits.

This telephone can be configured to have one or two lines. Each of these lines can have a different DN assigned.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN.

The term *appearance* means a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

New M8417 telephone

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

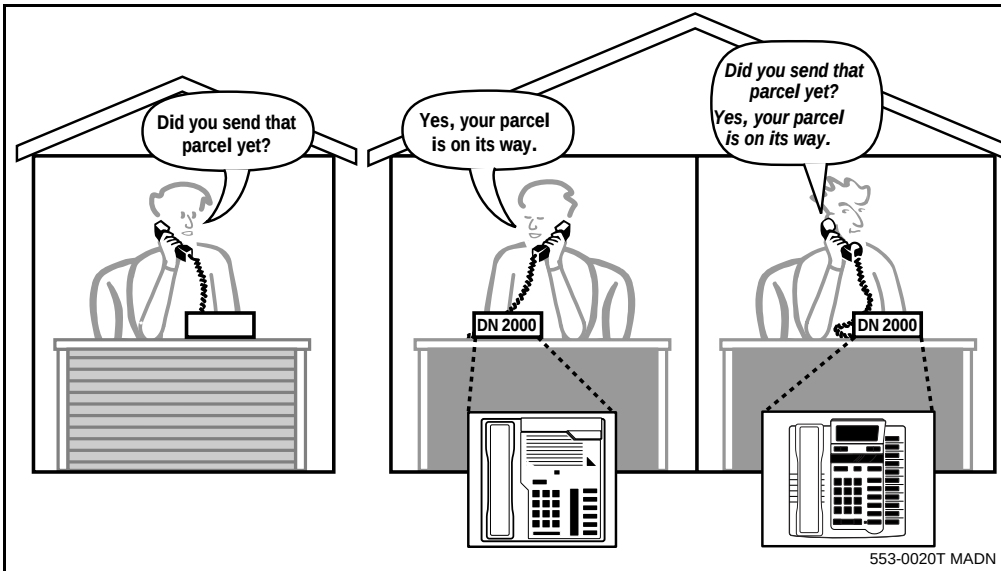
Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

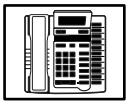
Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on an M8417 telephone.

If the same Single Call DN is shared between an M8417 telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.



No privacy when a Multiple Appearance Single Call DN appears on an M8417 telephone.

New M8417 telephone



If privacy is important, choose one of the following two options:

- do not program the same Single Call DN on an M8417 telephone and an SL-1-type or digital telephone
- replace the M8417 telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

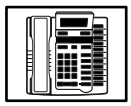
Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Multiple Call Class of Service

When you want to make a DN on an M8417 telephone a Multiple Call DN, you activate this in the Class of Service.

With Release 15.58F software, this Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, this Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.



New M8417 telephone

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M8417 telephone.

Numbering Plan

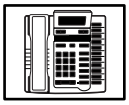
Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and may also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *You should know this* module in this book.

New M8417 telephone



DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

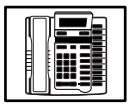
If the telephone you are programming is using two lines, there must be two TNs assigned to that telephone. The system is programmed as if there are two separate telephones when in fact the two lines appear on one M8417 telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure of what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.



New M8417 telephone

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone.

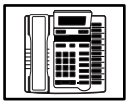
Loops and Superloops perform best when they share equally the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

New M8417 telephone



Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for M8417 telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20 double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

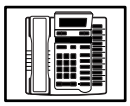
On-site M8417 telephones can be connected to quadruple-density intelligent line cards which connect to a maximum of 16 telephones.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.



New M8417 telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

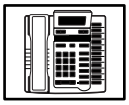
For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

New M8417 telephone



Class of Service (CLS)

When you are programming TNs using LD 10, you must enter a Class of Service for each one which prepares the system for the type of outpulsing to be transmitted from the telephone.

The choices are either dial pulse (DIP), Digitone (DTN), or none (manual line service MNL).

Table 62
Software release and default setting

Release	Default
19 or 20	DTN
18 or earlier	DIP

For the M8417 telephone, program the TN for DTN service. Find out what release of software your system has. Determine if DTN is the default setting in the Class of Service.

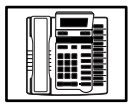
When you install an M8417 telephone, the impact of programming incorrectly is as follows:

- When any Digitone-type telephone such as the M8417 with a DTN Class of Service initiates a call, the system finds and reserves a digitone receiver (DTR) unit on a DTR card for that telephone.

  It is reserved for that telephone while the call is dialed. Because of this, the outpulsed tones are translated by the DTR into digital messages suitable for the CPU. The CPU can then translate what the user is dialing.

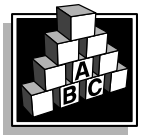
- When an M8417 telephone is programmed incorrectly with a DIP Class of Service, the system does not reserve a DTR when the telephone user tries to initiate a call. (A digitone receiver is not required when a dial telephone is used.) As a result, the telephone user receives dial tone but cannot make calls.

You can read about digitone receivers in the Peripheral Equipment section of the *You should know this* module in this guide.



New M8417 telephone

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Parallel-line jack

A parallel-line jack is provided in the telephone, for connection to an extension telephone, or a fax or a modem.Your system supplier can help you install these devices if you require them.

Ringing options

There are four different ring tone choices. The telephones can be made to ring in different ways so that when a telephone rings and the users have left their desks, they can tell which telephone is ringing.

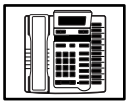
This telephone feature can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell which telephone is ringing and whether they are to answer. If a user does answer, the caller can be greeted appropriately.

Provisioning digitone receivers (DTRs)

Your system supplier must configure your system with a sufficient quantity of DTRs to provide a good grade of service to the Digitone-type telephone users, including the M8417 telephones. If that is not done, dial tone could be delayed for users of any Digitone-type telephones, and therefore the level of service is poor. As you add more and more Digitone-type telephones after the initial installation of the system, your system supplier might need to reprovision your system for additional DTRs.

You know it is time to look at the provisioning issue if you start to get complaints about delayed dial tone exclusively from users of Digitone-type telephones and incoming Digitone trunks.

New M8417 telephone



Traffic studies can help you to calculate the proper quantity of DTRs you require based on the actual digitone traffic load offered to the system. For more information on what a traffic study can show you, refer to the *Traffic* module in this book. (Refer to the information on studies TFS002 and TFS003).

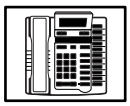
Control tips

- M8417 telephone users who share DNs with other users must be careful not to break in on active calls. The indicator light on the telephone lights up when the DN is in use at an extension telephone. Users must learn not to initiate a call when the indicator light is on. When a telephone with a separate TN and the same DN as this telephone is in use, the indicator light on this telephone is not on. If lack of privacy continues to be a problem, consider a change to SL-1 or digital telephones.

Administration tips

- If users experience problems such as delayed dial tone, report the user's telephone type to your system maintainer along with the report of the problem. If the telephones are M8417, the maintainer might need to investigate whether there are:
  - faulty DTRs
  - unprogrammed DTRs
  - DTRs on busy loops
  - loops with high numbers of Digitone-type telephones and DTRs
  - insufficient DTRs

  You can reduce your trouble-shooting time, if you identify as much pertinent information as possible. For example, the user's DN, and the time when the problem occurred are two pieces of important information.



New M8417 telephone

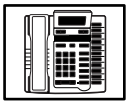
Training tips

- Train users on how to use the LINK key. This helps them when they are transferring and conferencing calls.
- Users need to know how to join a conversation on Line 1 with a conversation on Line 2.
- There are eight programmable keys on this telephone. If you want uniformity, decide which feature access codes or telephone numbers are to be programmed on all M8417 telephones.
- Decide who is going to program the keys; you, the user, or the system supplier.

  Select responsible users to do this function to ensure the programming is done correctly. This will reduce repair reports and costs that result form incorrect programming.
- Even though the most common feature access codes can be programmed on the eight keys, users might, from time to time, need access to other features. Refresher training helps to keep users' knowledge levels current. This helps them get the most out of the system and in turn the system provides them with the expected benefits.
- Short, customized lists of feature instructions and access codes for each user are worthwhile. Make them small enough to be placed underneath the telephone where they are readily accessible.
- If Flexible Feature codes are in use on your system and if users are supposed to dial these codes, keep them as simple as possible. Users will be confused and aggravated if you implement codes that are difficult to use.

  If the codes are going to be accessed solely from keys, use longer codes. Save the shorter, easier to remember codes for features that users must dial.

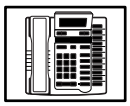
New M8417 telephone



It is not a good idea to implement several codes for each feature unless you have users who are each accustomed to a different code and they would have difficulty learning new codes.

For more information on Flexible Feature codes refer to the *You should know this* module in this book.

- This telephone has a Handsfree/Mute key to activate and deactivate the handsfree unit built into the telephone. Put guidelines in place governing the use of these units. When users misuse and overuse this feature it can be very irritating to users around them. It can have a negative impact on productivity if handsfree conversations are disruptive.
- Spending time training each M8417 user can reap rewards. Users need training on the use of:
  - the directory
  - scrolling
  - adjusting the receiver volume
  - choosing a ring option
  - choosing a language option
  - redialing one of the last five telephone numbers called



New M8417 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M8417 telephone.

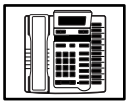
Table 6 3
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s).
✔		Determine the TN(s) to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out the density of the line card for the telephone. In other words, find out how many units are present on the card.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code for each TN.
✔		Arrange for the necessary power equipment to be ordered and installed.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

New M8417 telephone

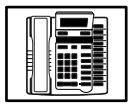


Appendix 1 (for LD 10) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

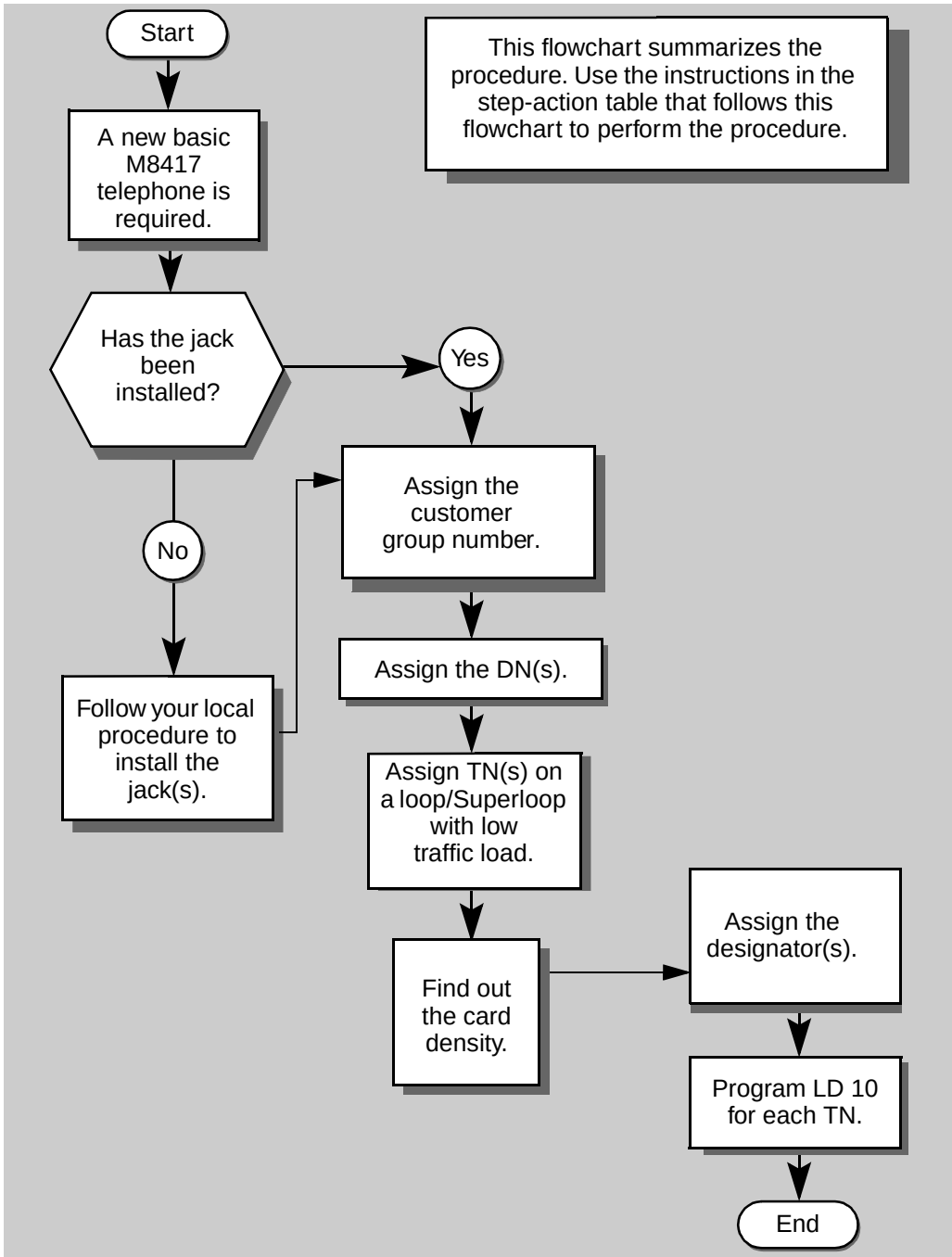
What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

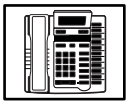
A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M8417 telephone.



New M8417 telephone



New M8417 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M8417 telephone only. Do the procedure twice, if you are activating two lines on the telephone.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done. Each line requires a jack.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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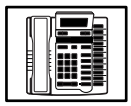

New M8417 telephone

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 **Print the DN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

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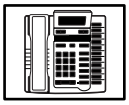

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DN to assign, one DN for each line.**

If	**Do**
the DN is shared with another telephone	step 11
the DN is unique	step 12

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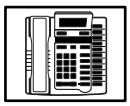


New M8417 telephone

STEP	ACTION	
11	**Find out how the DN is to be shared.**	
	If	**Do**
	the telephone is an extension of an existing telephone	Ask your system supplier to install the jack accordingly and connect the telephone — no programming is required.
	the telephone is not identical to an existing telephone and has its own TN	step 15
12	**Find out what DNs are available.**	
	If	**Do**
	you know what DN you want to assign	step 15
	your system software is Release 19 or later	step 13
	your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 14.
13	**Print unused DNs in your customer group.**	

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

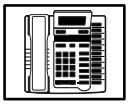
```
> LD 20
```

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

— continued —

New M8417 telephone



STEP	ACTION
14	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
15	**Find out what Terminal Numbers are available for the new telephone**

If	Do
you have access to the print overlay programs	step 16
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 17.

16 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	500	Dial or Digitone-type telephone

You get a printout of the available dial and Digitone-type telephone TNs.

17 Consider traffic when choosing a TN to use for the new telephone.

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

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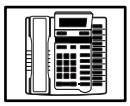

New M8417 telephone

STEP	ACTION
18	**Choose a TN for each new line.**
19	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**
20	**Find out the density of the line card which has the TN you are using.**

If	Do
it is a new line card	Ask your system supplier about the card density.
it is an existing line card	Use the default density setting.

21 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

22 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 10
```

REQ	NEW	New telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN		If on a new line card, input the card density
	SD	single-density
	DD	double-density
	4D	quad-density
	<cr>	Carriage return if line card already programmed

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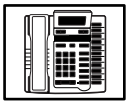

STEP ACTION

22 continued ...

DES	A..A	Designator maximum six characters long
CUST	0–99	customer group number
DN	X..X	Directory Number 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP

Carriage return until you see the prompt CLS

CLS	DTN	Input the Outpulsing type DTN (Digitone), default Release 19 and later Input DTN, or <cr> if it is default on your system

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

Repeat step 22, if you have two lines.

23 Check that the line works.

Try to make a call. Try to receive a call.

If	Do
line works	Step 24, if there are no more lines to program or step 1, if you are activating another line.
line does not work	step 1

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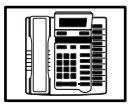


New M8417 telephone

STEP	ACTION

24 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to L D43	step 25

25 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

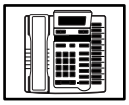
Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on L D43.

```
> LD 43

.EDD <cr>
```

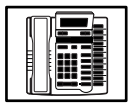
— continued —

New M8417 telephone



STEP	ACTION
26	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 27
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off. **>** LOGO
29	**You have now completed the minimum programming required to implement a basic new M8417 telephone.**

END

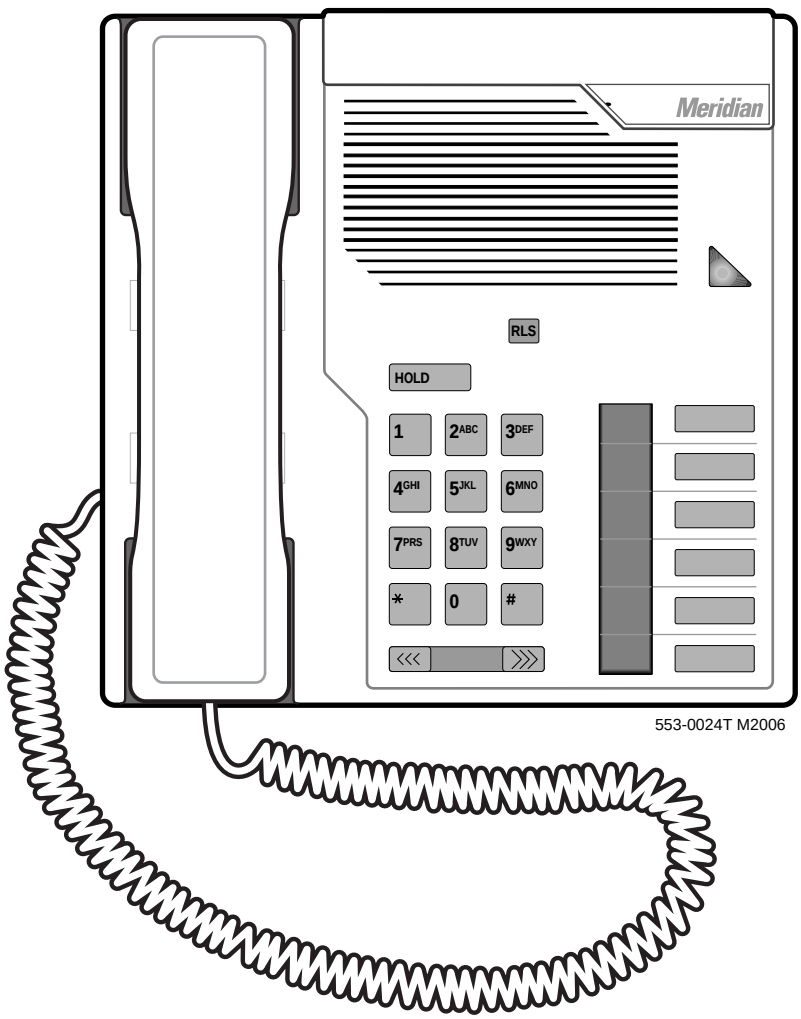


New M8417 telephone

New M2006 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M2006 telephone.



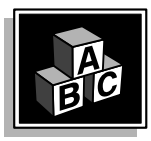
New M2006 telephone

The M2006 telephone is not available in Europe.

If the user needs a new telephone, install an M2006 telephone if:

- the user needs only one Directory Number (DN)
- the user has a Personal Computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user requires easy access to features or commonly dialed telephone numbers using buttons (or keys)
- the user wants to adjust the volume of the sound coming through the receiver
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user wants a highly visible indication on the telephone when there are messages waiting

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

New M2006 telephone

Software

Table 64
Software requirements

Release required	Software package(s) required
14	88 (DSET) M2000 Digital Sets
	89 (TSET) M3000 Digital Sets
	170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

It is important to note that if you are using digital line cards on an older system, the card type is Integrated Services Digital Line Card (ISDLC), and the card vintage must be "C" or later for these telephones to work. Discuss the line cards on your system with your system maintainer.

Power

This telephone requires external power if any of the following external equipment is installed:

- an external alerter interface kit
- a Meridian Programmable Data Adapter (MPDA)
- a Meridian Communications Adapter (MCA)

When external power is needed, there is a power supply board which must be installed inside of the telephone. Arrange with your system supplier to get the necessary power equipment ordered and installed.

New M2006 telephone

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M2006 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M2006 is a digital telephone, it is programmed in overlay program (LD) 11.

Data default values

If the telephone has a data option installed, key 5 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the data parameters from the telephone keypad.

When you do a TN-Block printout of the information programmed for the telephone, key 5 appears to have nothing assigned to it. It is blank in the printout.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

New M2006 telephone

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, DNs can be one to four digits.

New M2006 telephone

This telephone is limited to having one DN. It must be programmed on key 0 at the bottom of the row of keys.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to that telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If the telephone rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to key 0 on an M2006 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M2006 telephone

When you want to assign a *Single Call Non-ringing DN* to key 0 on an M2006 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

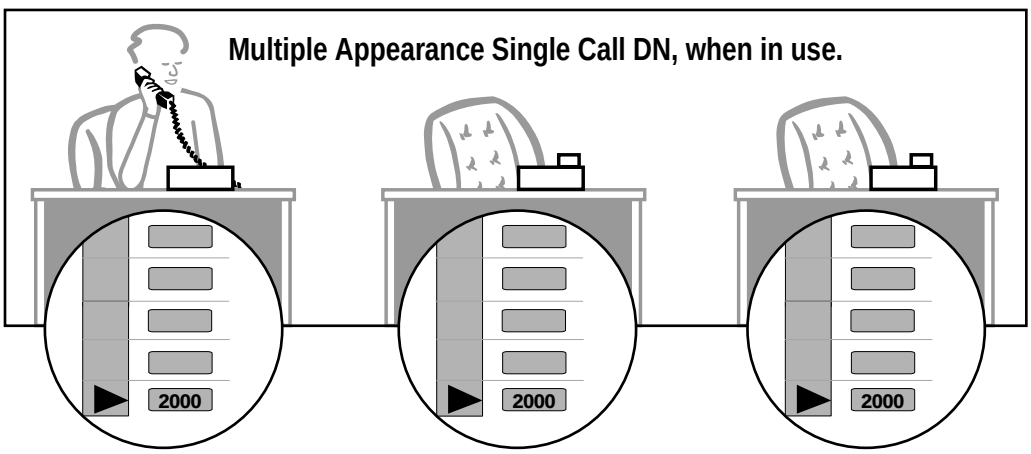
Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



New M2006 telephone

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to key 0 on an M2006 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to key 0 on an M2006 telephone, you assign the following programming code to the key:

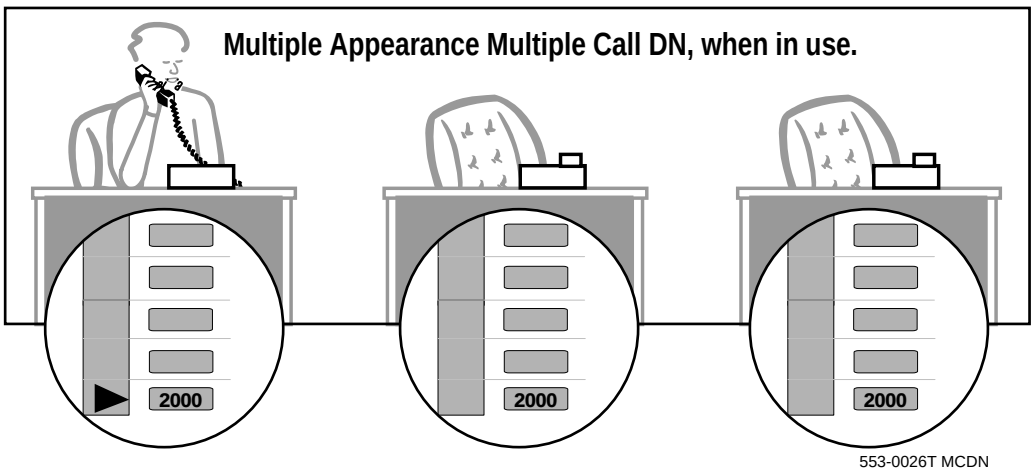
`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

New M2006 telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



A multiple call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13, after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

New M2006 telephone

When you want to assign a *Multiple Call Ringing DN* to key 0 on an M2006 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M2006 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

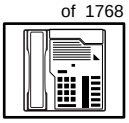
Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M2006 telephone.

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip, *must be* programmed with a DN. This DN is called the prime DN.



Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

New M2006 telephone

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with loops only. Loops and Superloops reside in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user.

You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

New M2006 telephone

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are two types of line cards for M2006 telephones: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

New M2006 telephone

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

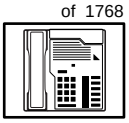
You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.



- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

New M2006 telephone

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 6 5
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 6 6
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user’s telephone.

New M2006 telephone

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Distinctive Ringing by DN

You can apply distinctive ringing to each DN or Hotline key on a Meridian Modular telephone in the following ways:

- DRDN by call source: terminating telephones ring distinctively when the user initiates a call from the key. Each key on the originating telephone can have one of five distinctive ringing patterns.
- DRDN by call destination: each key has a distinctive ringing pattern when incoming calls are presented to the telephone. Each key can have one of five distinctive ringing patterns.

DRDN by call source overrides DRDN by call destination. The ringing pattern associated with the calling DN is used at the terminating telephone, in cases where the terminating key also has the feature allowed.

New M2006 telephone

Table 6 7
Software requirements

Release required	Software package(s) required
24	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features(ISDNS) 185 – Executive Distinctive Ringing (EDRG)

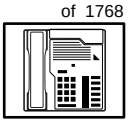
Data option

When the Meridian Programmable Data Adapter (MPDA) or Meridian Communications Adapter (MCA) is installed inside the telephone and an RS-232C cable is used, you can set up a computer on the user's desk using the same pair of wires that the telephone uses. If you do this, then key 5 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MPDA or MCA that explains these settings and how to use the Program key.

Control tips

- A user might attempt to move a telephone by unplugging it from the jack and reconnecting it at a new jack. This does not work. When a telephone is removed from a jack long enough for the computer in the system to do a maintenance routine, a message prints out on the maintenance printer that identifies the jack that has a missing telephone. Tell users not to attempt to move telephones without your assistance. The proper way to move telephones is discussed in Task .

New M2006 telephone



Administration tips

- The M2006 has a red indicator which lights steadily when there are messages waiting. You might want to program a Message Waiting key on one of the keys numbered 1–5, however, so that the user has an easy way of dialing the message center or voice mail when there are messages.

  For more information, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M2006 telephones. This can save significant amounts of memory.

- Keys 1–5 can be programmed for any features with the exception of Voice Call, Dial Intercom, Private Line or Two-Way Hotline. If the user needs those features in addition to a DN, select another kind of digital telephone.
- The user can access certain features by dialing codes if there are not enough keys for the features needed. Refer to the *You should know this* module for more information on dial accessible features.
- The M2006 cannot have a modular display added.
- The M2006 cannot have a Key Expansion module added.

Training tips

- If you have a standard key layout on all M2006 telephones, this is an advantage in training users since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though features can be programmed on the keys for easy use, users might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.

New M2006 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M2006 telephone.

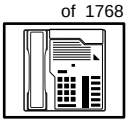
Table 6 8
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN. Decide whether it is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed if the external alerter kit, or the MPDA or MCA is required.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

New M2006 telephone



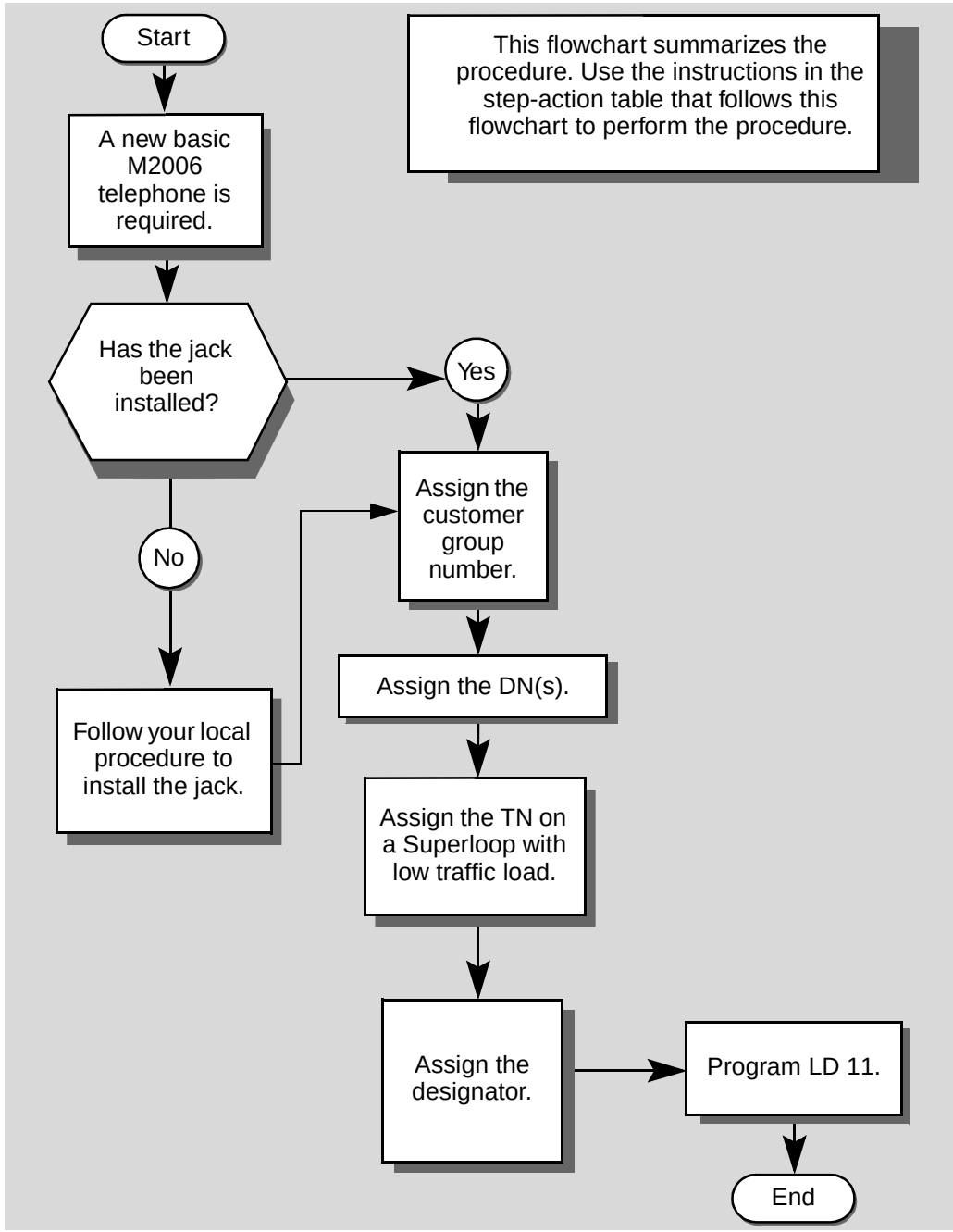
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M2006 telephone.

New M2006 telephone



New M2006 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M2006 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M2006 telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M2006 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12 Choose an available DN which fits your Numbering Plan and the needs of the user.

13 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2006	M2006 telephone. If there are no M2006 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M2006 telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	`> LD 11`	
	REQ NEW	New telephone
	TYPE 2006	M2006 telephone
	TN L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN <cr>	Carriage return — use the default
	DES A..A	Designator maximum six characters
	CUST 0–99	customer group number
	carriage return until you see the prompt KEY	

— continued —

New M2006 telephone

STEP ACTION

19 continued ...

Program the key one of the following ways:

key 0 must be programmed with a DN -only key 0 can be assigned a DN on an M2006 telephone

KEY 0 SCR X..X	SCR — single call ringing DN
KEY 0 SCN X..X	SCN — single call non-ringing DN
KEY 0 MCR X..X	MCR — multiple call ringing DN
KEY 0 MCN X..X	MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN — type the actual digits

the DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

20 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 21
telephone does not work	step 1

— continued —

STEP	ACTION

21 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 22

22 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

New M2006 telephone

STEP	ACTION
23	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 24

24	**Terminate this overlay program.**

. ****

25	**Terminate this programming session.**

Log off.

> LOGO

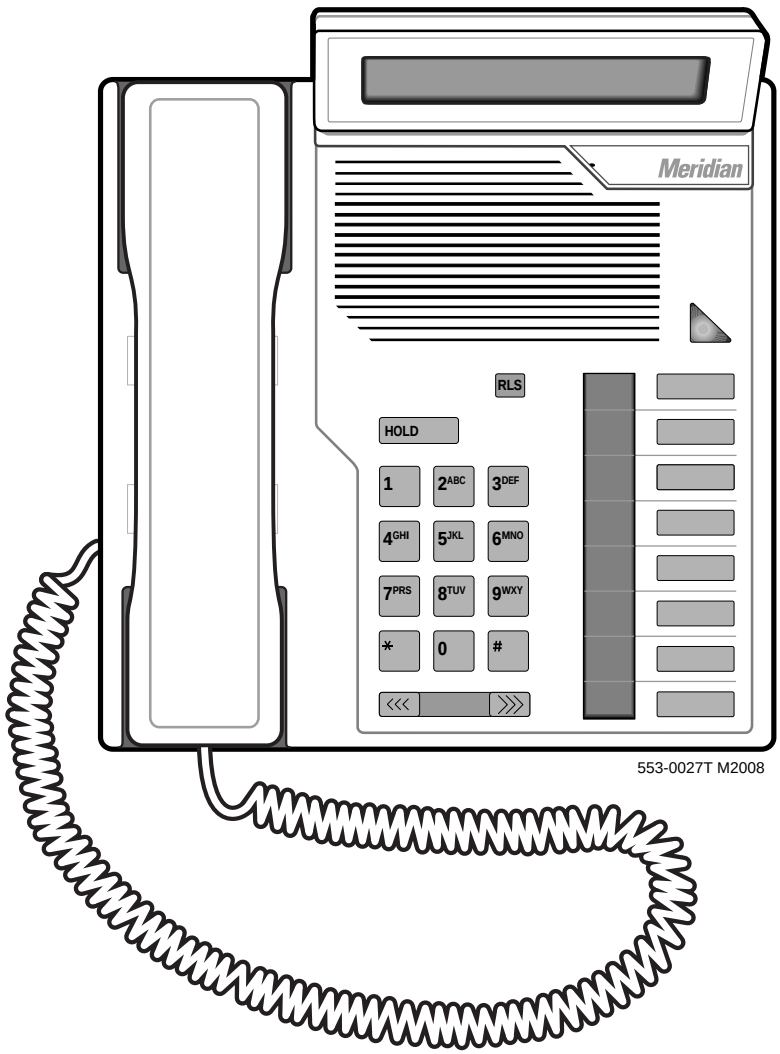
26	**You have now completed the minimum programming required to implement a basic new M2006 telephone.**

END

New M2008/M2008HF telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M2008 or M2008HF telephone.



New M2008/M2008HF telephone

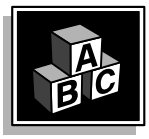
The M2008 telephone is not available in Europe.

If the user requires a new telephone, install an M2008 telephone if:

- the user needs one or several Directory Numbers (DNs)
- the user has a Personal Computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user requires easy access to features or commonly dialed telephone numbers using buttons (or keys)
- the user can benefit from seeing easy-to-understand prompts on the optional display when accessing features
- the user can benefit, when answering redirected calls, from seeing a display of the type of feature which redirected the call to the telephone
- the user wants a display to show a call timer
- the user wants to adjust the volume of the sound coming through the receiver
- the users in a group want telephones to ring with different tones so they can tell which telephone is ringing
- the users want a choice of languages on the optional display when using features
- the user can benefit from seeing the internal or external telephone number and, optionally, the name of the caller on the optional display before calls are answered
- the user wants a highly visible indication on the telephone when there are messages waiting

If the user requires handsfree capability in addition to the above, install an M2008HF telephone.

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 69
Software requirements

Release required	Software package(s) required
M2008: Release 14	88 (DSET) M2000 Digital Sets
M2008HF: Release 21.41	89 (TSET) M3000 Digital Sets
	170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system supplier to do the physical installation work.

It is important to note that if you are using digital line cards on an older system, the card type is Integrated Services Digital Line Card (ISDLC), and the card vintage must be "C" or later for these telephones to work.

New M2008/M2008HF telephone

Power

This telephone requires external power if one of the following items is equipped:

- the external alerter interface kit
- the Meridian Programmable Data Adapter (MPDA) or the Meridian Communications Adapter (MCA)
- the optional display module

Also, there is a power supply board that must be installed inside the telephone. M2008 and M2008HF telephones are shipped with the power supply board, if the display module is ordered. Arrange with your system supplier to get the necessary power equipment ordered and installed. The M2008HF telephone does not require an external power supply for the handsfree capability.´

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M2008 telephone function. The other prompts in the overlay program, not shown in this task, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user’s manager or the telephone system administrator.

For example, the users may need access to certain basic features, such as Call Transfer and Conference. These are denied by default. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

New M2008/M2008HF telephone

Because the M2008 and M2008HF are digital telephones, they are programmed in overlay program (LD) 11.

Data, Display, and Handsfree default values

The display screen of a Meridian Modular telephone contains two lines with 24 character spaces on each line. If the telephone has a display module or a data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the display or data parameters from the telephone keypad.

When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

With the M2008HF telephone, when the handsfree capability is enabled, Key 6 is automatically assigned as a handsfree/mute key. Key 7 can only be a program key or NUL.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

New M2008/M2008HF telephone

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the range is one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–7 on the M2008 telephone can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M2008 or M2008HF telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

New M2008/M2008HF telephone

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`SCR X..X` where `X..X` represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`SCN X..X` where `X..X` represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

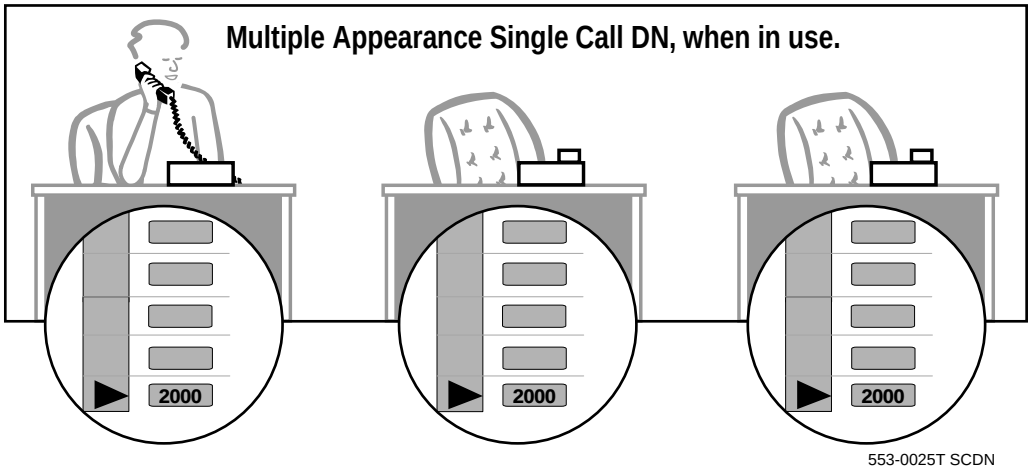
There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

New M2008/M2008HF telephone

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1 type telephones.



If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M2008/M2008HF telephone

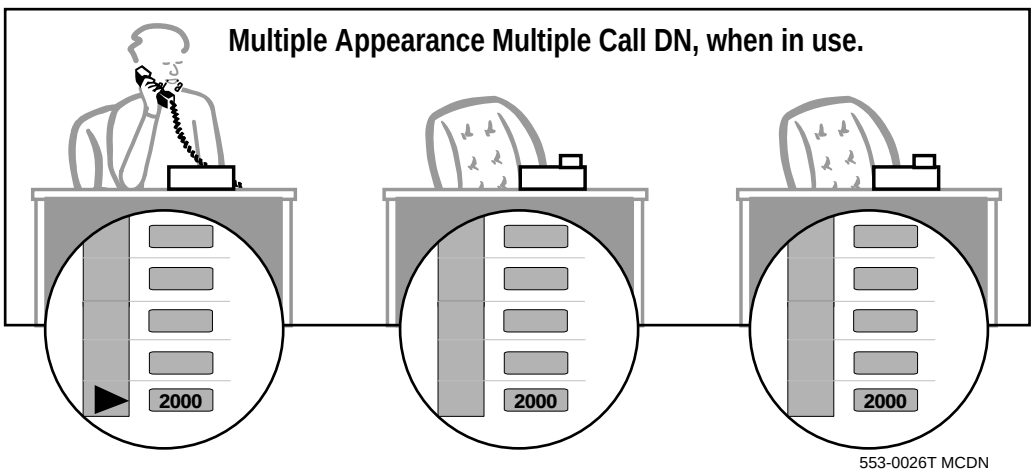
When you want to assign a *Single Call Non-ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



New M2008/M2008HF telephone

A multiple call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13, after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M2008 or M2008HF telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal

The step-action table at the end of this module explains how to assign a DN on a new M2008 or M2008HF telephone.

New M2008/M2008HF telephone

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and may also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

New M2008/M2008HF telephone

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M2008 and M2008HF are digital telephones, they are programmed in overlay program (LD) 11. In this overlay program, even though a telephone may have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to th*e You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

New M2008/M2008HF telephone

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are two types of line cards for M2008 and M2008HF telephones: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

New M2008/M2008HF telephone

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal-density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal-density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephone line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

New M2008/M2008HF telephone

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

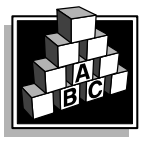
- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

New M2008/M2008HF telephone

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 70
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 71
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

New M2008/M2008HF telephone

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Distinctive Ringing by DN

You can apply distinctive ringing to each DN or Hotline key on a Meridian Modular telephone in the following ways:

- DRDN by call source: terminating telephones ring distinctively when the user initiates a call from the key. Each key on the originating telephone can have one of five distinctive ringing patterns.
- DRDN by call destination: each key has a distinctive ringing pattern when incoming calls are presented to the telephone. Each key can have one of five distinctive ringing patterns.

DRDN by call source overrides DRDN by call destination. The ringing pattern associated with the calling DN is used at the terminating telephone, in cases where the terminating key also has the feature allowed.

Table 72
Software requirements

Release required	Software package(s) required
24	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Display options

There is a Quick Reference Card describing the use of the display. It explains how to use the Program key to set such things as:

- the contrast
- the language used for feature prompts
- the format of the call timer
- the volume of ringing, buzzing, the speaker, the handset and the handsfree (if present)
- the key clicks
- the idle screen format
- the predialed number for recall

Three Language Display

All Meridian Modular telephones in North America can be equipped with a Three Language Display. The Three Language Display firmware supports the English, French, and Spanish languages.

New M2008/M2008HF telephone

Electronic Brandlining

With X11 Release 23, the Electronic Brandlining feature enhances the display functionality of Meridian Modular telephones (M2008, M2008HF, M2016, M2216ACD, and M2616) when they are equipped with a display.

This feature allows the second line on the idle display screen of Meridian Modular telephones to show a custom display. The display contains either a customized brandline or the brandline default. The customized brandline could be the name of a distributor (for example, Alexander G. Bell Telecom) or a customized text string (for example, Employee meeting at 10 AM). The brandline default is “NORTEL”.

The Three Language Display is required for the Electronic Brandlining feature. For information on the Three Language Display, refer to its description on the previous page.

Automatic Set Display

With X11 Release 23, when an incoming call is presented to a busy telephone, the Calling Line Identification (CLID) and Calling Party Name Display (CPND) for the incoming call is automatically displayed on the busy telephone. This capability is enabled by programming the Tandem Digit Display (TDD) Class of Service on the telephone.

Previously, this functionality was only available on the M3000 Touchphone. However, the user of the busy telephone had to press the display key for the Calling Line Identification information to be presented.

Data option

When the Meridian Programmable Data Adapter (MPDA) or the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user’s desk using the same pair of wires that the telephone uses to connect to the system. If you do this, then key 7 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MPDA and the MCA which explains these settings and how to use the Program key.

New M2008/M2008HF telephone

Control tips

- If the telephone is equipped with a display, the user can see the trunk group access codes. If you do not want the user accessing certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer to Task 44, *Trunk Group Access Restriction* for more information.
- If the user unplugs an M2008 or M2008HF telephone:
  - the chosen display settings return to the default settings. This is a quick way for you to know if users are unplugging their telephones in an attempt to move them themselves
  - messages print out on the maintenance printer, identifying the TN with the missing telephone
- If the system initializes:
  - the display settings are not affected
  - messages print out on the maintenance printer to identify the cause(s) of the initialization

Administration tips

- The M2008 and M2008HF have a red indicator that lights steadily when there are messages waiting. You might want to program a Message Waiting key on one of the keys numbered 1–7 on M2008 and 1-6 on M2008HF, so that the user has an easy way of dialing the message center or voice mail when there are messages.

  Refer to Task 24, *Message Center*.
- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M2008 and M2008HF telephones. This can save significant amounts of memory.
- It is not possible to add Key Expansion modules to the M2008 or M2008HF telephone.

New M2008/M2008HF telephone

- If there are not enough keys for the features needed, the user can access features by dialing codes. Refer to the *You should know this* module for more information on dial accessible features.

Training tips

- If you have a standard key layout on all M2008 and M2008HF telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, they can also explain features to each other.
- Even though users do not have to remember feature access codes, they might need refresher training from time to time. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- If display modules are installed, users need training on the feature prompts which are presented when features are used.

New M2008/M2008HF telephone

What to have ready

Make the following preparations before you do the basic programming of a new M2008 or M2008HF telephone.

Table 73
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s) assigned to the telephone you are about to program. Decide whether it is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to enter as a designator code.
✔		Determine if any of the terminal options, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed if the display module or the external alerter kit, or the MPDA is required.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M2008/M2008HF telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

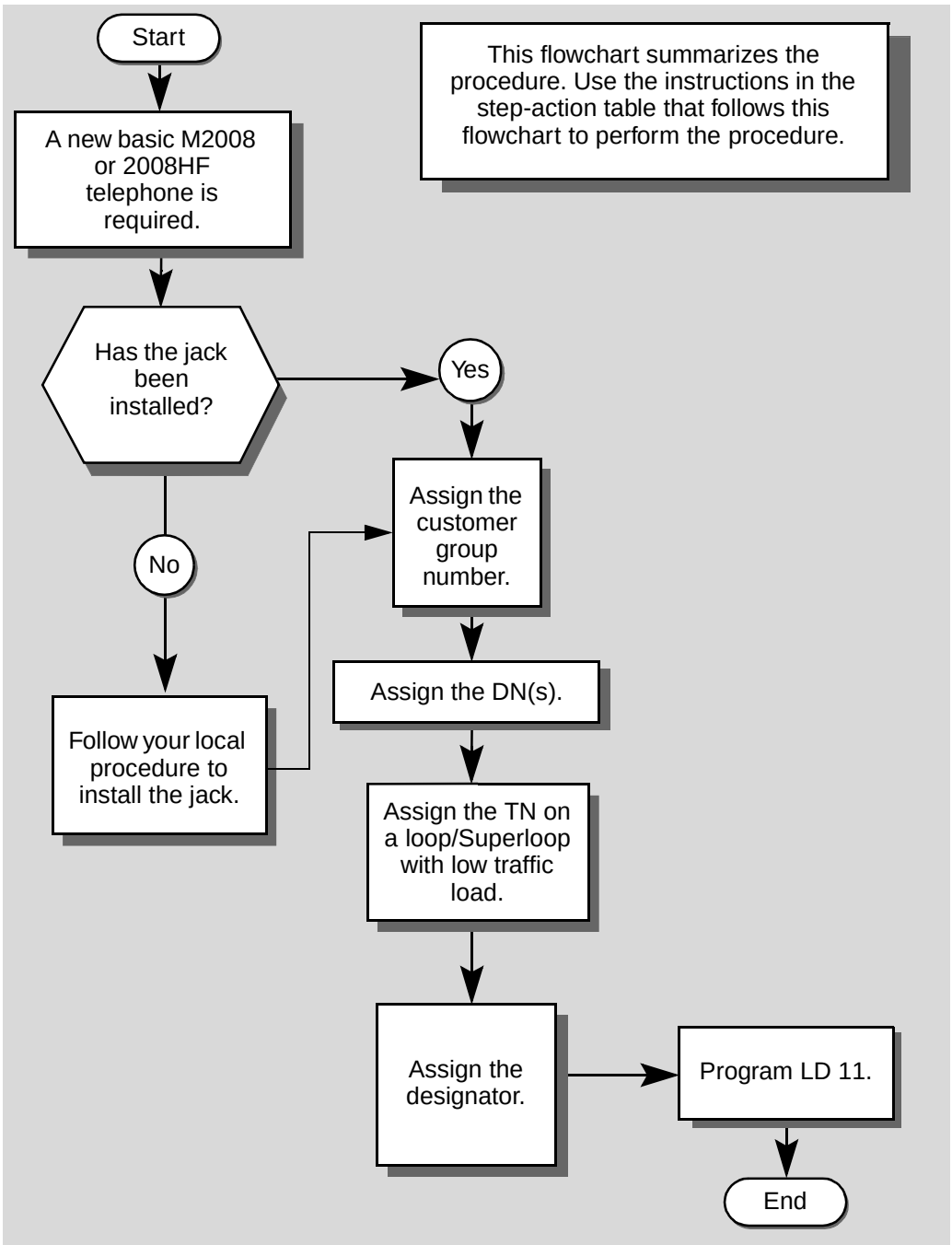
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M2008 or M2008HF telephone.

New M2008/M2008HF telephone



New M2008/M2008HF telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M2008 or M2008HF telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M2008/M2008HF telephone

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M2008/M2008HF telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M2008/M2008HF telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2008	M2008 telephone. If there are no M2008 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M2008/M2008HF telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program a new telephone.**	
	If	**Do**
	you are programming a new M2008 telephone	step 20
	you are programming a new M2008HF telephone	step 21
20	**Program a new M2008 telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	

— continued —

STEP	ACTION

20 continued ...

> LD 11		
REQ	NEW	New telephone
TYPE	2008	M2008 telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return — use the default
DES	A..A	Designator maximum six characters
CUST	0–99	customer group number

carriage return until you see the KEY prompt.

Go to step 24.

21 Program a new M2008HF telephone.

If	Do
you are allowing handsfree capability	step 22
you are denying handsfree capability	step 23

22 Program a new M2008HF telephone with handsfree capability allowed.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

— continued —

New M2008/M2008HF telephone

STEP	ACTION

22 continued ...

> LD 11		
REQ	NEW	New telephone
TYPE	2008	M2008 telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return — use the default
DES	A..A	Designator maximum six characters
CUST	0–99	customer group number

Carriage return until you see the CLS prompt.

CLS	HFA	Handsfree Allowed.

Note: When CLS is set to Handsfree Allowed (HFA), Key 6 is automatically programmed as the Handsfree key. Key 7 is the Program key.

Carriage return until you see the KEY prompt.

Go to step 24.

23 Program a new M2008HF telephone with handsfree capability denied.

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

— continued —

New M2008/M2008HF telephone

STEP	ACTION	
23 continued ...		
	> LD 11	
	REQ NEW	New telephone
	TYPE 2008	M2008 telephone
	TN L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN <cr>	Carriage return — use the default
	DES A..A	Designator maximum six characters
	CUST 0–99	customer group number
	Carriage return until you see the CLS prompt.	
	CLS HFD	Handsfree Denied.
	Carriage return until you see the KEY prompt.	
24	**Program DNs on as many keys as you require.**	
	Program the key(s) one of the following ways:	XX represents the key number (0–7) key 0 must be programmed with a DN
	KEY XX SCR X..X	SCR — single call ringing DN
	KEY XX SCN X..X	SCN — single call non-ringing DN
	KEY XX MCR X..X	MCR — multiple call ringing DN
	KEY XX MCN X..X	MCN — multiple call non-ringing DN
		X..X represents the actual digits in the DN — type the actual digits
		the DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP
	Carriage return until you see either of the following messages:	
	U.data P.data	small systems
	or	
	MEM AVAIL: (U/P) USED:TOT:	large systems

— continued —

New M2008/M2008HF telephone

STEP	ACTION
25	**Check that the telephone works.**
	Try to make a call. Try to receive a call.
	If — **Do**
	telephone works — step 26
	telephone does not work — step 1
26	**Arrange for data dump to be performed.**
	If — **Do**
	you do not have access to LD43 — Contact your system supplier.
	you have access to L D43 — step 27
27	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on L D43.

```
> LD 43

.EDD <cr>
```

— continued —

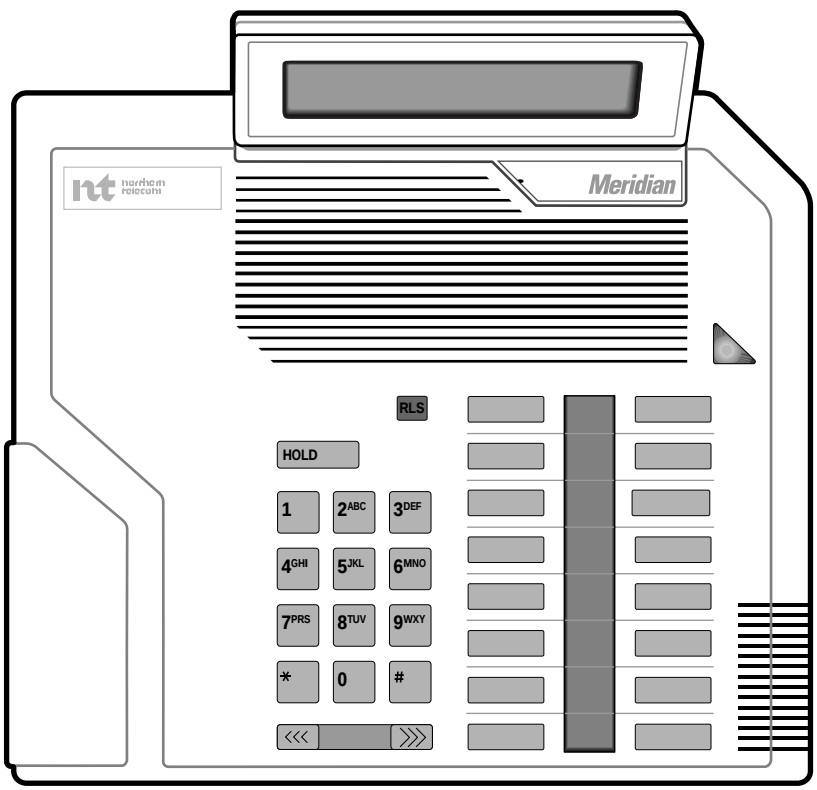
STEP	ACTION
28	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If / **Do** data dump fails — Contact your system supplier. data dump succeeds — step 29
29	**Terminate this overlay program.**
	. ****
30	**Terminate this programming session.**
	Log off. **>** LOGO
31	**You have now completed the minimum programming required to implement a basic new M2008 or M2008HF telephone.**
	END

New M2008/M2008HF telephone

New M2216ACD telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M2216ACD telephone. Automatic Call Distribution (ACD), or a Call Center, for which this telephone was primarily designed, is beyond the scope of this book. However, this telephone can be used in a regular business environment and that application is discussed in this module.



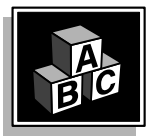
553-0028T M2216ACD

New M2216ACD telephone

If the user needs a new telephone, install an M2216ACD telephone if:

- the user wants to be able to use a headset in addition to, or in place of, a handset
- the user or the supervisor needs to be able to plug in an extra handset or headset while conversations are active and listen in for training or job performance review purposes
- the user needs one or several Directory Numbers (DNs)
- the user has a Personal Computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user requires easy access to features or commonly dialed telephone numbers using buttons (or keys)
- the user can benefit from seeing easy-to-understand prompts on the display when accessing features. (There are special displays you can order for Call Center environments)
- the user can benefit, when answering redirected calls, from knowing the type of feature that redirected the call to the telephone
- the user wants a display to show a call timer
- the user wants to adjust the volume of sound coming through the handset or headset
- the users want a choice of languages on the optional display when using features
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user can benefit from knowing the internal or external telephone number and, optionally, the name of the caller before calls are answered
- the user wants a highly visible indication on the telephone when there are messages waiting

Basic configuration



This part tells you how the telephone has to be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny for the user, refer to the section called *Adding and changing features.*

Software

Table 74
Software requirements

Release required	Software package(s) required
14	88 (DSET) M2000 Digital Sets
	89 (TSET) M3000 Digital Sets
	170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling, and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

It is important to note that if you are using digital line cards on an older system, the card type is Integrated Services Digital Line Card (ISDLC), and the card vintage must be “C” or later for these telephones to work.

New M2216ACD telephone

Power

This telephone requires external power if any of the following equipment is installed:

- an external alerter interface kit
- a Key Expansion module
- a Meridian Programmable Data Adapter or a Meridian Communications Adapter

Also, there is a power supply board which must be installed inside the telephone. Arrange with your system supplier to get the necessary power equipment ordered and installed.

The display module is always shipped with the M2216ACD telephone. No extra power equipment is required to make it work.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is also a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M2216ACD telephone operate. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

New M2216ACD telephone

Because the M2216ACD is a digital telephone, it is programmed in overlay program (LD) 11.

Data and Display default values

The display screen of a Meridian Modular telephone contains two lines with 24 character spaces on each line.

If the telephone has a display module or a data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the display or data parameters from the telephone keypad.

When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

New M2216ACD telephone

The maintenance agreement you have with your system supplier probably specifies what programming they must do and what you may do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software, package 150, is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–15 on the telephone can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M2216ACD telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

New M2216ACD telephone

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`SCR X..X` where `X..X` represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`SCN X..X` where `X..X` represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

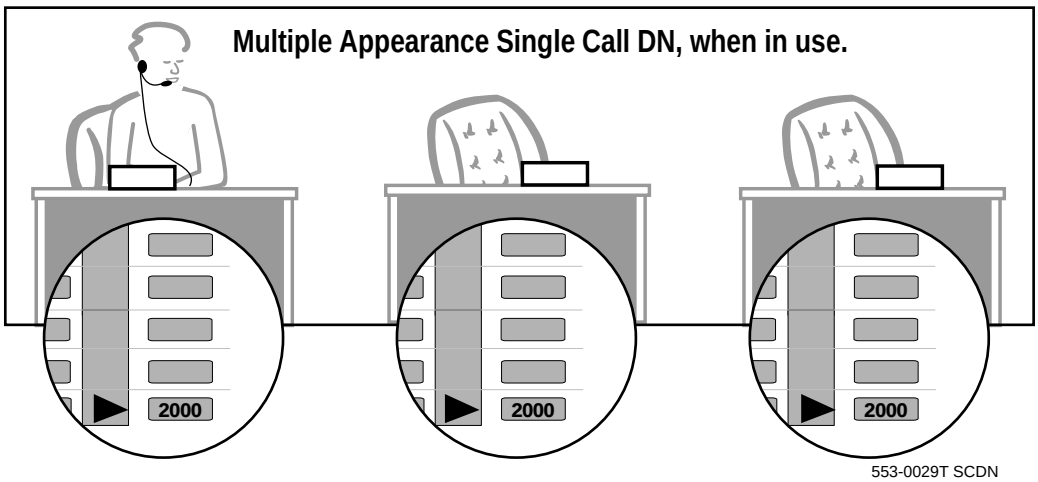
There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

New M2216ACD telephone

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M2216ACD telephone

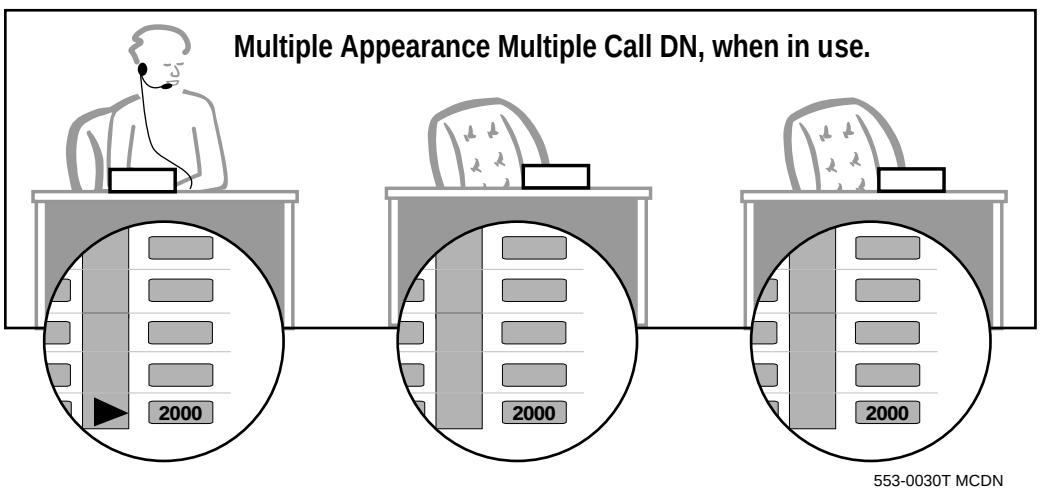
When you want to assign a *Single Call Non-ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13, after that release there can be a maximum of 30 appearances of the same DN.

New M2216ACD telephone

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M2216ACD telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M2216ACD telephone.

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

New M2216ACD telephone

Key 0 is configured with an Automatic Call Distribution (ACD) DN, when used in a Call Center environment. It is called the In-calls key. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution*.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are presently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

New M2216ACD telephone

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M2216ACD is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, when a telephone has more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to th*e You should know this* module for more information on the hardware of your system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table in this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

New M2216ACD telephone

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.There are two kinds of line cards for M2216ACD telephones: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

New M2216ACD telephone

Systems using Superloops can use *intelligent* line cards. They are called *intelligent* because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephone line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user's name, although the name does not display when the user makes calls

New M2216ACD telephone

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

New M2216ACD telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 75
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 76
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

New M2216ACD telephone

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Distinctive Ringing by DN

You can apply distinctive ringing to each DN or Hotline key on a Meridian Modular telephone in the following ways:

- DRDN by call source: terminating telephones ring distinctively when the user initiates a call from the key. Each key on the originating telephone can have one of five distinctive ringing patterns.
- DRDN by call destination: each key has a distinctive ringing pattern when incoming calls are presented to the telephone. Each key can have one of five distinctive ringing patterns.

DRDN by call source overrides DRDN by call destination. The ringing pattern associated with the calling DN is used at the terminating telephone, in cases where the terminating key also has the feature allowed.

Table 77
Software requirements

Release required	Software package(s) required
24	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network International (ISDN_INTL_SUP) 185 – Executive Distinctive Ringing (EDRG)

Display options

There is a Quick Reference Card on the use of the display. It explains how to use the Program key to set such things as

- the contrast
- the language used for feature prompts
- the format of the call timer
- the volume of ringing, buzzing, the speaker, the handset and the handsfree, if there is one
- the key clicks
- the idle screen format
- the predialed number for recall

Three Language Display

All Meridian Modular telephones in North America can be equipped with a Three Language Display. The Three Language Display firmware supports the English, French, and Spanish languages.

New M2216ACD telephone

Electronic Brandlining

With X11 Release 23, the Electronic Brandlining feature enhances the display functionality of Meridian Modular telephones (M2008/ M2008HF, M2016, M2216ACD, and M2616) when they are equipped with a display.

This feature allows the second line on the idle display screen of Meridian Modular telephones to show a custom display. The display contains either a customized brandline or the brandline default. The customized brandline could be the name of a distributor (for example, Alexander G. Bell Telecom) or a customized text string (for example, Employee meeting at 10 AM). The brandline default is “NORTEL”.

The Three Language Display is required for the Electronic Brandlining feature. For information on the Three Language Display, refer to its description on the previous page.

Automatic Set Display

With X11 Release 23, when an incoming call is presented to a busy telephone, the Calling Line Identification (CLID) and Calling Party Name Display (CPND) for the incoming call is automatically displayed on the busy telephone. This capability is enabled by programming the Tandem Digit Display (TDD) Class of Service on the telephone.

Previously, this functionality was only available on the M3000 Touchphone. However, the user of the busy telephone had to press the display key for the Calling Line Identification information to be presented.

Data option

When the Meridian Programmable Data Adapter (MPDA) or the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user’s desk using the same pair of wires that the telephone uses to connect to the system.

If you do this, then key 7 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MPDA or the MCA which explains these settings and how to use the Program key.

Headset

The jack on the telephone for the headset can be used for a handset.

Key Expansion module

There can be up to two of these 22-key modules added to one M2216ACD telephone. You can assign features or DNs to these keys.

M2216ACD Telephone Enhancement

With X11 Release 22, there is an option your system supplier can set, to improve the quality of reception on M2216ACD telephones equipped with headsets. This allows the users to hear better through their headsets.

This enhancement is configured by setting a parameter for the system in overlay program (LD) 17. When this parameter is set, all M2216ACD telephones are affected, not just those telephones that are equipped with a headset.

Control tips

- If the telephone is equipped with a display, the user can see the trunk group access codes when external incoming calls arrive at the telephone. If you do not want a user to access certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer toTas k4 4 ,*Trunk Group Access Restriction* for more information.
- If the user unplugs an M2216ACD telephone:
  - the chosen display settings return to the default settings. This is a quick way for you to know if users are unplugging their telephones in an attempt to move them themselves

New M2216ACD telephone

- messages print out on the maintenance printer, identifying the TN with the missing telephone

- If the system initializes:
  - the display settings are not affected
  - messages print out on the maintenance printer to identify the cause(s) of the initialization

Administration tips

- The M2216ACD telephone has a red indicator which lights steadily when there are messages waiting. You might want to program a Message Waiting key on one of the keys however, so that the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on Message Waiting, refer to Task 24, *Message Center*

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M2216ACD telephones. This can save significant amounts of memory.

- *A handsfree unit is not a part of this telephone and it cannot be added as an option.*

Training tips

- If you have a standard key layout on all M2216ACD telephones, this is an advantage in training users, since users can go to any telephone and feel comfortable using it. The users can also explain features to each other if all telephones are the same.

- Even though features can be programmed on the keys for easy use, users might need refresher training from time to time. This helps to keep users' knowledge levels current about telephone concerns

and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.

- If display modules are installed, users need training on the feature prompts which are presented when features are used.

What to have ready

Make the following preparations before you do the basic programming of a new M2216ACD telephone.

Table 78
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether it is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Arrange for the necessary power equipment to be ordered and installed.
✔		Determine if any optional equipment, such as Key Expansion modules, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M2216ACD telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Modifying a basic telephone* section for further information on many of these additional features and services.

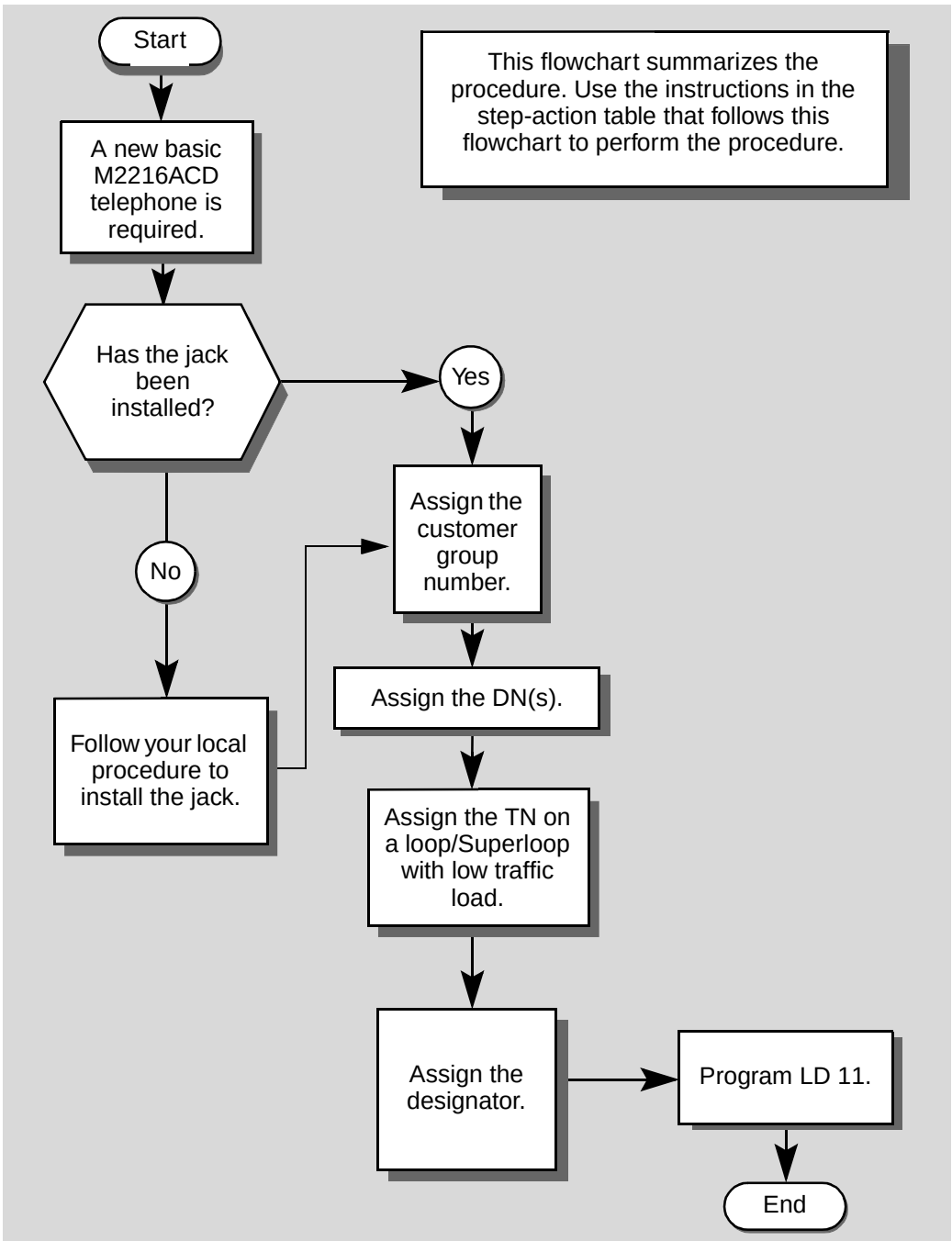
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M2216ACD telephone.

New M2216ACD telephone



New M2216ACD telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M2216ACD telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.

More choices on next page...

— continued —

New M2216ACD telephone

STEP	ACTION
	3 continued ...
	you know your customer group number — step 10
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**
	If — **Do**
	you know the DN, not the TN of the other telephone — step 5
	you know the TN of the other telephone — step 6
5	**Print the DN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.
	> LD 22 or
	> LD 20 or (Release 17 or later)
	> LD 10 or LD 11 or LD 32 (Release 19 or later)
	REQ PRT — Request a printout
	TYPE DNB — DN Block
	CUST <cr> — All Customer groups
	DN X..X — Input the DN of the other telephone
	Carriage return until you see either of the following messages:
	U.data P.data small systems
	or
	MEM AVAIL: (U/P) USED:TOT: large systems
	You get a printout of the TN of the other telephone.
	Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M2216ACD telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M2216ACD telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2216	M2216ACD telephone. If there are no M2216ACD telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M2216ACD telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	> LD 11	
	REQ NEW	New telephone
	TYPE 2216	M2216ACD telephone
	TN L S C U	Input the TN (Loop Shelf Card Unit number)
	CDEN <cr>	Carriage return — use the default
	DES A..A	Designator maximum six characters
	CUST 0–99	customer group number
	carriage return until you see the prompt KEY	

— continued —

STEP	ACTION
20	**Program DNs on as many keys as you require.**

Program the key(s) one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

where XX represents the key number (0 – 59)

key 0 must be programmed with a DN, or in a Call Center environment, key 0 is an IN CALLS key

SCR — single call ringing DN
SCN — single call non-ringing DN
MCR — multiple call ringing DN
MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

the DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 22
telephone does not work	step 1

— continued —

New M2216ACD telephone

STEP	ACTION
22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 23

23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

24	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 25

— continued —

New M2216ACD telephone

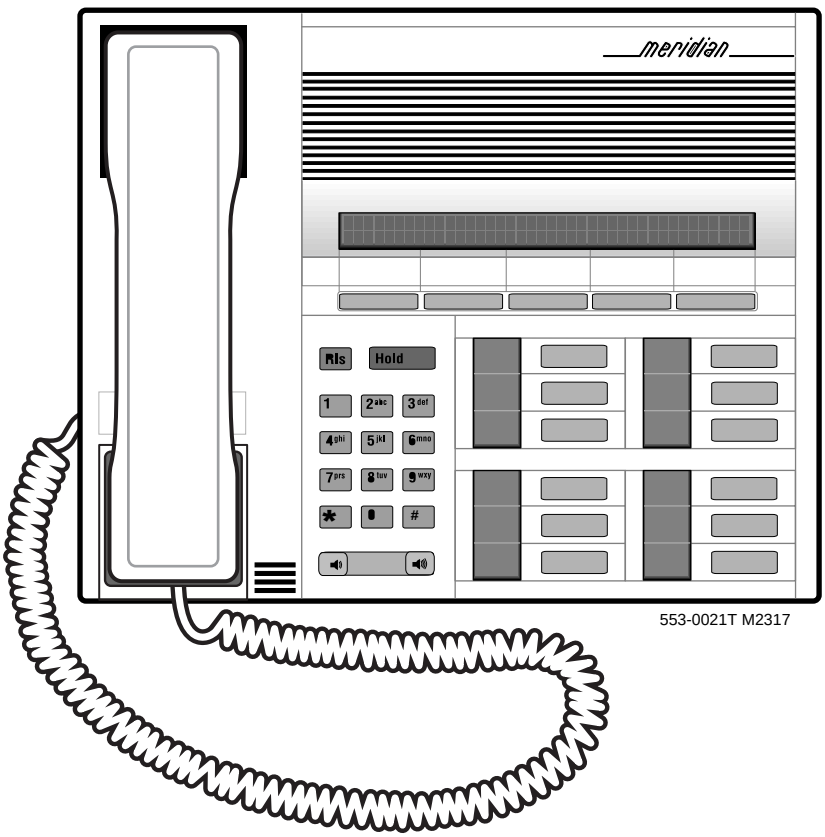
STEP	ACTION
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off.
	> LOGO
27	**You have now completed the minimum programming required to implement a basic new M2216ACD telephone.**
	END

New M2216ACD telephone

New M2317 telephone

Purpose

The information in this Task module will help you if a user at your site needs a new M2317 telephone.



553-0021T M2317

New M2317 telephone

If the user needs a new telephone, install an M2317 telephone if:

- the user needs one or several Directory Numbers (DNs)
- the user has a Personal Computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user can benefit from seeing easy-to-understand prompts on the display when accessing Meridian Mail messages
- when answering redirected calls, the user can benefit from knowing the type of feature which redirected the call to the telephone
- the user wants to be able to hear a conversation and speak to a caller without using the handset of the telephone (speakerphone capability)
- the user wants a display to make feature use very easy and to show a call timer
- the user wants to adjust the volume of the sound coming through the receiver
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the users want the choice of English or French words on the display when using features
- the user can benefit from knowing the internal or external telephone number and name of the caller before calls are answered

Basic configuration

This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

New M2317 telephone

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 79
Software requirements

Release required	Software package(s) required
9	88 — M2000 Digital Sets (DSET) 91 — M2317 Digital Sets (DLT2)

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Power

This telephone requires external power in order for the display and the handsfree unit to function. Arrange with your system supplier to get the necessary power equipment ordered and installed.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence.

These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

New M2317 telephone

The prompts discussed in this module are the ones to which you must respond to make a basic M2317 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator. For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator may want to implement corporate-wide policies for telephones which are not met through the default choices.

The Handsfree/Mute key functionality does not have to be activated in programming. Its functionality is part of the default hardware configuration of the telephone itself. Key 11 is used to activate and deactivate the Handsfree unit in this telephone.

There are features which are assigned to certain keys by default. They are given in Table 80 that follows.

Table 8 0
M2317 default key assignments

Key number	Feature name	Mnemonic
17	Call Park	PRK
23	Conference 6	AO6
24	Calling Party Number	CPN
25	Charge Account	CHG
26	Call Transfer	TRN
27	Ring Again	RGA
28	Privacy Release	PRS

New M2317 telephone

If you do not have the necessary software packages for CallPark, Calling Party Name Display or Charge Account and the option is not enabled in the Customer Data Block, then the default key is not programmed by default.

There are recommended keys for additional features you might want to program for this telephone. They are shown in Table 81 that follows.

Table 81
Additional features and recommended keys

Key number	Feature name	Mnemonic
17, 19–28	Call Forward All Calls	CFW
17, 19–28	Directed Call Pickup	DPU
17, 19–28	Call Party Name Display	CPND
17, 19–28	Message Waiting	MWK
17, 19–28	Speed Call User	SCU
17, 19–28	Speed Call Controller	SCC
17, 19–28	System Speed Call User	SSU
17, 19–28	System Speed Call Controller	SSC

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for the prompts covered by this book.

The *X11 input/output guide(Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

New M2317 telephone

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–10 on the telephone can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

New M2317 telephone

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M2317 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

New M2317 telephone

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

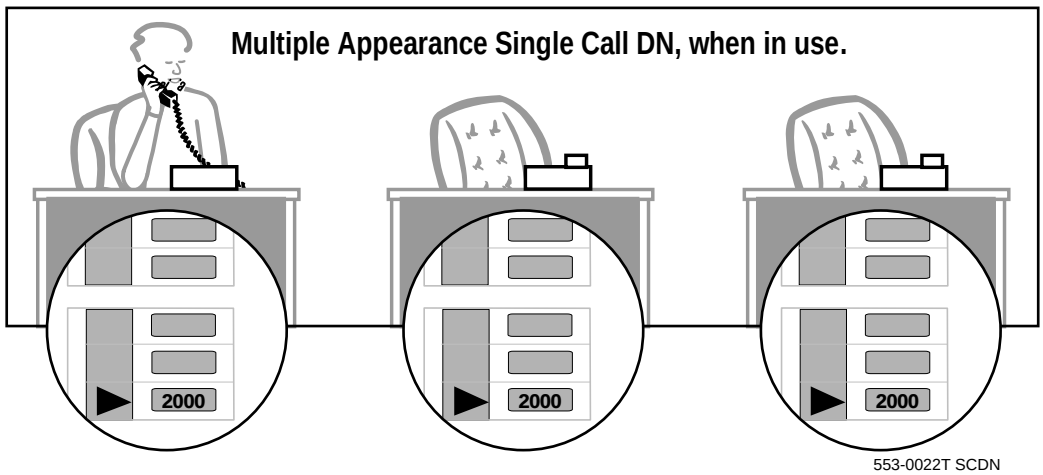
Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

New M2317 telephone

When you want to assign a *Single Call Ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

SCR X..X where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

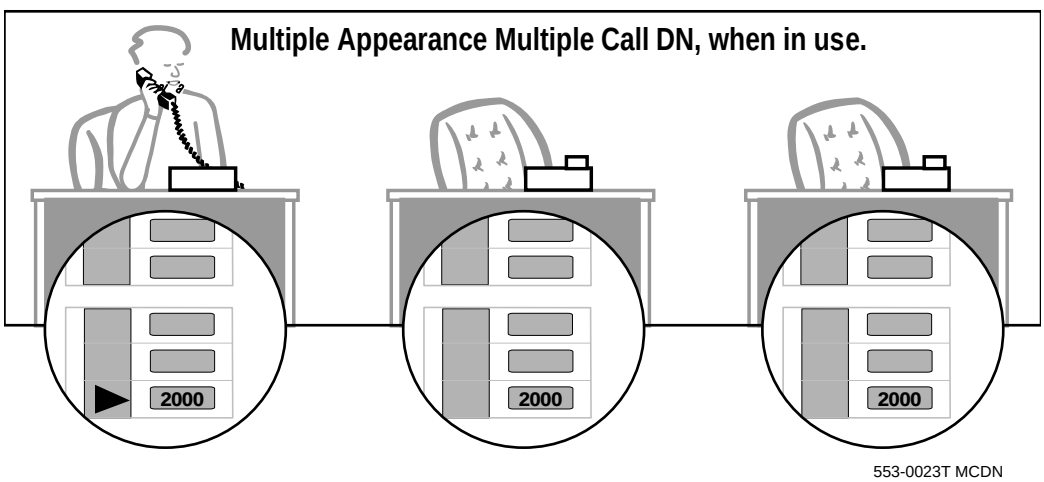
When you want to assign a *Single Call Non-ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

SCN X..X where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



New M2317 telephone

A multiple call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13, after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M2317 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M2317 telephone.

New M2317 telephone

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

New M2317 telephone

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M2317 is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, when a telephone has more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with loops only. Loops and Superloops reside in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of the system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

New M2317 telephone

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines.If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are two types of line cards for M2317 telephones: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

New M2317 telephone

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephone line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

New M2317 telephone

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

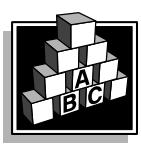
For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

New M2317 telephone

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 8 2
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 83
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Language options

There are two language options for the presentation of words on the display. The default language option in the Class of Service programming is French. You can choose English if you prefer.

You can also program key 29 to allow the user to toggle between the two languages. Key 29 coincides with the key under the display which is farthest to the right.

New M2317 telephone

Control tips

- As with any telephone that has a display, the user can see the trunk group access codes when incoming external calls arrive at the telephone. If you do not want a user to access certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer to Task 44, *Trunk Group Access Restriction* for more information.
- A user might attempt to move a telephone by unplugging it from the jack and reconnecting it at a new jack. This does not work. When a telephone is removed from a jack long enough for the computer in the system to do a maintenance routine, a message prints out on the maintenance printer that identifies the jack that has a missing telephone. Tell users not to attempt to move telephones without your assistance. The proper way to move telephones is discussed in Task .

Administration tips

- You might want to test whether users prefer to see a flashing indicator beside a key when they have a message waiting or whether the icon showing an envelope on the display suits them better.

  If they prefer the flashing indicator, remember to program one of the keys numbered 1–10 for Message Waiting. Refer to Task 24, *Message Center*.

  If they prefer the icon, program one of the keys numbered 17 or 19–28.
- You might want to consider using one or two standard key layouts for all digital telephones, or at least for all M2317 telephones. This can save significant amounts of memory.

New M2317 telephone

Training tips

- Users of this type of telephone can use friendly prompts which appear on the display when they access Meridian Mail voice mail. Before they use the telephones for the first time, they may need training in order to become familiar with what to expect.
- If you have a standard key layout on all M2317 telephones, this has a big advantage in training users since users can go to any telephone and feel comfortable using it. If all telephones are the same, they can also explain features to each other.
- Even though features can be programmed on the keys for easy use, users might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- This telephone has a Handsfree/Mute key to activate and deactivate the handsfree unit built into the telephone. Guidelines should be in place governing the use of these units.
  When users misuse and overuse this feature it can irritate users around them. It can have a negative impact on productivity if handsfree conversations are disruptive. You might want to ensure that only people in offices with doors that can be closed can order this type of telephone.
- Users need training on the use of the display feature prompts, the scrolling capability, adjusting the receiver volume, and choosing a language option. Spending time training each M2317 user can reap rewards.

New M2317 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M2317 telephone.

Table 8 4
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Arrange for the necessary power equipment to be ordered and installed.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

New M2317 telephone

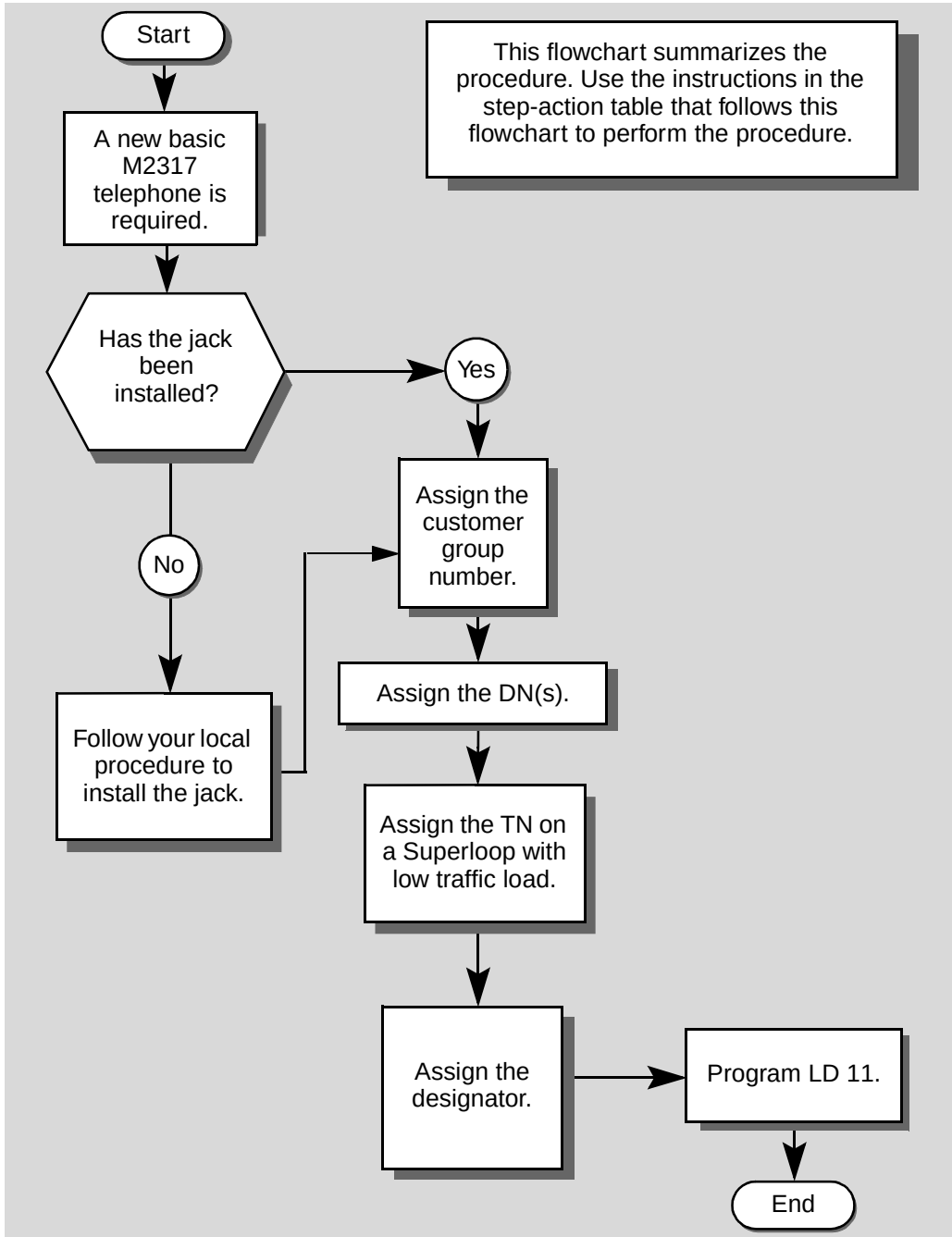
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M2317 telephone.

New M2317 telephone



New M2317 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M2317 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M2317 telephone

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 **Print the DN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M2317 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M2317 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12 **Choose an available DN which fits your Numbering Plan and the needs of the user.**

13 **Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14 **Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2317	M2317 telephone. If there are no M2317 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M2317 telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	`> LD 11`	
	REQ NEW	New telephone
	TYPE 2317	M2317 telephone
	TN L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN <cr>	Carriage return - use the default
	DES A..A	Designator maximum six characters
	CUST 0–99	customer group number
	carriage return until you see the prompt KEY	

— continued —

New M2317 telephone

STEP	ACTION
20	Program DNs on as many keys as you require.

Program the key(s) one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

where XX represents the key number (0–10)
Key 0 must be programmed with a DN

SCR — single call ringing DN
SCN — single call non-ringing DN
MCR — multiple call ringing DN
MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

the DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	**Do**
telephone works	step 22
telephone does not work	step 1

— continued —

STEP	ACTION
22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 23

23 **Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43
. EDD <cr>
```

24 **Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 25

— continued —

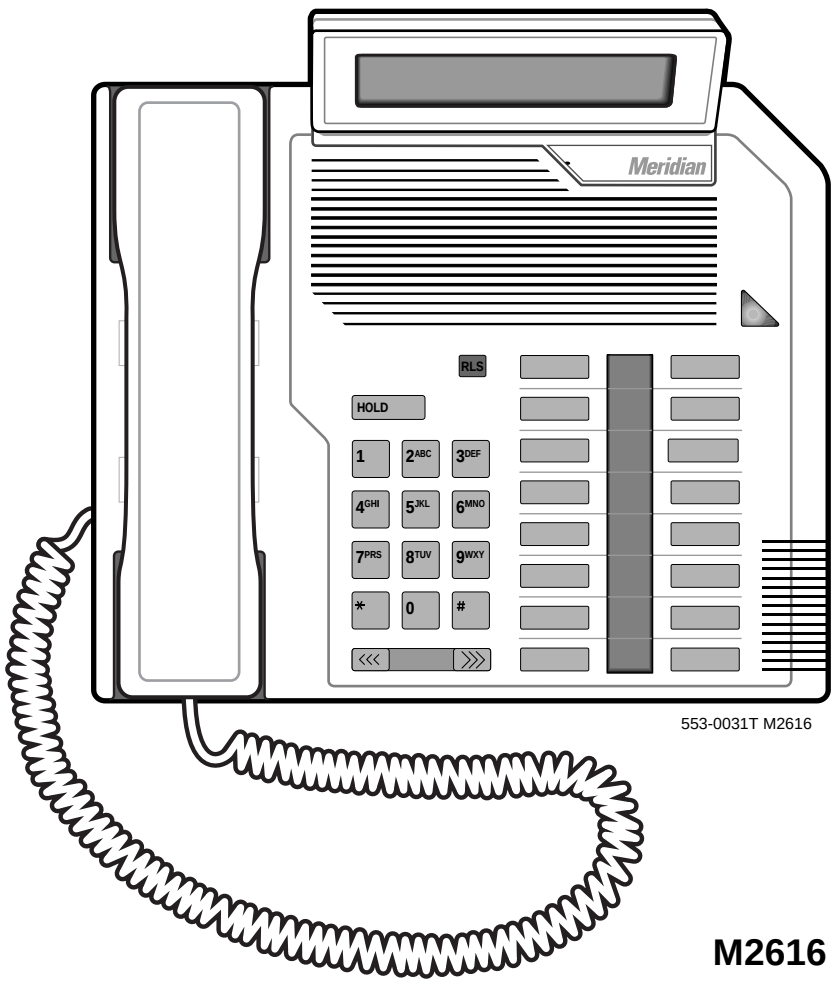
New M2317 telephone

STEP	ACTION
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off.
	> LOGO
27	**You have now completed the minimum programming required to implement a basic new M2317 telephone.**
	END

New M2616 and M2616CT telephone

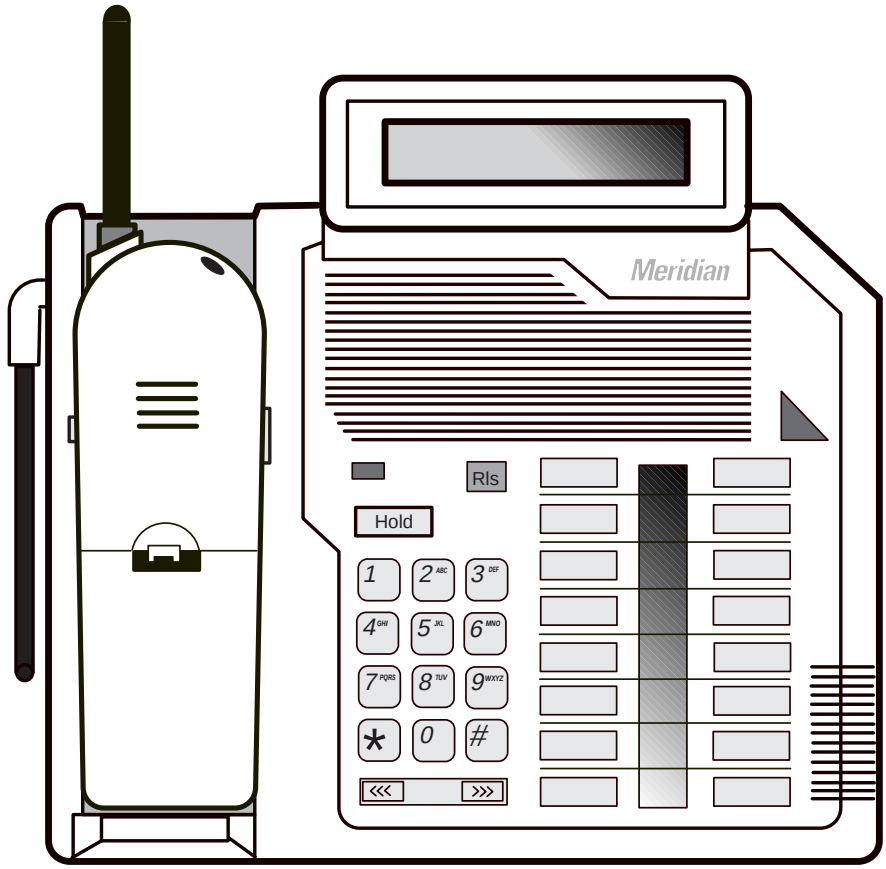
Purpose

The information in this Task module will help you if a user at your site requires a new M2616 or M2616CT telephone.

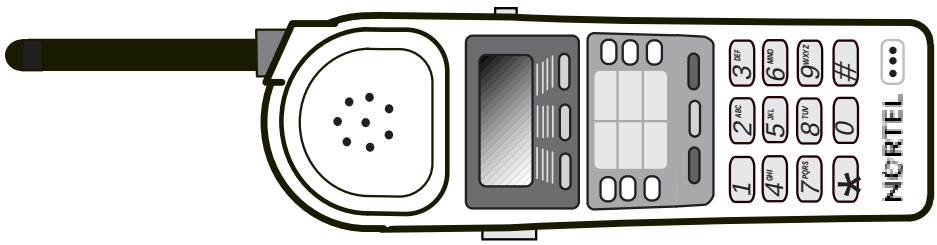


M2616

New M2616 and M2616CT telephone

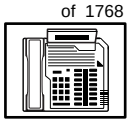


M2616CT



M2616CT handset

New M2616 and M2616CT telephone



The M2616 and M2616CT telephones are not available in Europe.

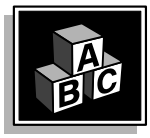
If the user needs a new telephone, install an M2616 telephone if:

- the user needs one or several Directory Numbers (DNs)
- the user has a Personal Computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user wants to be able to hear a conversation and speak to a caller without using the handset of the telephone (speakerphone capability)
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user can benefit from using easy-to-understand prompts on the display when accessing features
- when answering redirected calls, the user can benefit from knowing the type of feature which redirected the call to the telephone
- the user wants the display to show a call timer
- the user wants to adjust the volume of the sound coming through the handset
- the users need the choice of English, or French on the optional display when using features
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user can benefit from knowing the internal or external telephone number and, optionally, the name of the caller before calls are answered
- the user wants a highly visible indication on the telephone when there are messages waiting

New M2616 and M2616CT telephone

Install an M2616CT telephone if the user needs to walk up to 100 feet away from the telephone while speaking.

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 85
Software requirements

Release required	Software package(s) required
14	88 (DSET) M2000 Digital Sets
	89 (TSET) M3000 Digital Sets
	170 (ARIE) Aries Digital Sets

Hardware

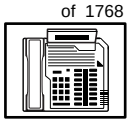
The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

It is important to note that if you are using digital line cards on an older system, the card type is Integrated Services Digital Line Card (ISDLC), and the card vintage must be “C” or later for these telephones to work.

The same line cards are used for M2616 and M2616CT telephones.

New M2616 and M2616CT telephone



Power

This telephone requires external power if any of the following equipment is installed:

- an external alerter interface kit
- a Key Expansion module
- a Meridian Programmable Data Adapter or a Meridian Communications Adapter

The display module is optional with the M2616 telephone. No extra power equipment is required to make it work.

The handsfree unit, built into the telephone, can be activated or deactivated when the telephone is programmed. No external power supply is required to make it function.

When external power is needed, there is a power supply board which must be installed inside of the telephone.

Arrange with your system supplier to get the necessary power equipment ordered and installed.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M2616 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

New M2616 and M2616CT telephone

For example, the user's manager often wants controls placed on the user's calling capabilities. The default responses do not place these controls on the user. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M2616 is a digital telephone, it is programmed in overlay program (LD) 11.

Data, Display, and Handsfree default values

The display screen of a Meridian Modular telephone contains two lines with 24 character spaces on each line.

- If the telephone has a display module or a data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the display or data parameters from the telephone keypad.

  When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

- If the handsfree unit is enabled in the programming of the telephone, key 15 is automatically set by the system as a Handsfree/Mute key. If you disable the handsfree unit, you can program something else for key 15.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

New M2616 and M2616CT telephone

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–15 on the telephone can have a DN assigned.

New M2616 and M2616CT telephone

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M2616 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN.*

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M2616 and M2616CT telephone

When you want to assign a *Single Call Non-ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

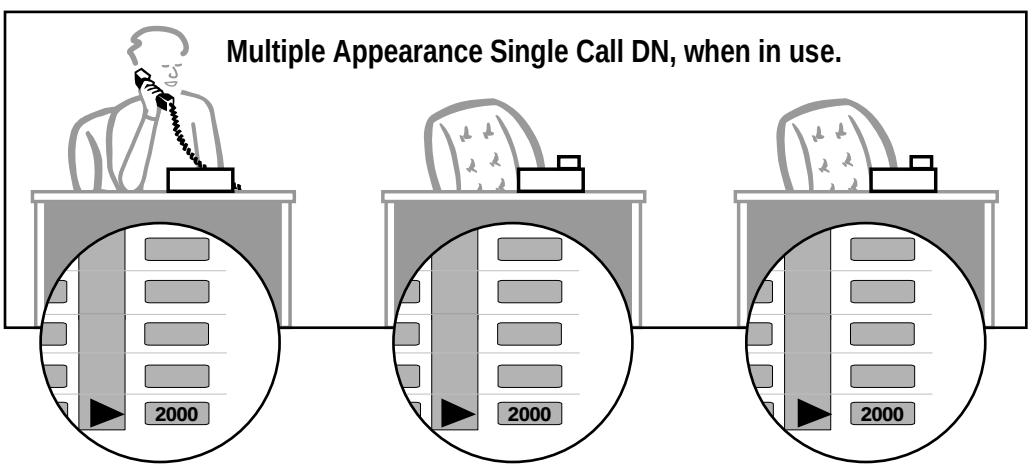
Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



553-0284T SCDN

New M2616 and M2616CT telephone

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

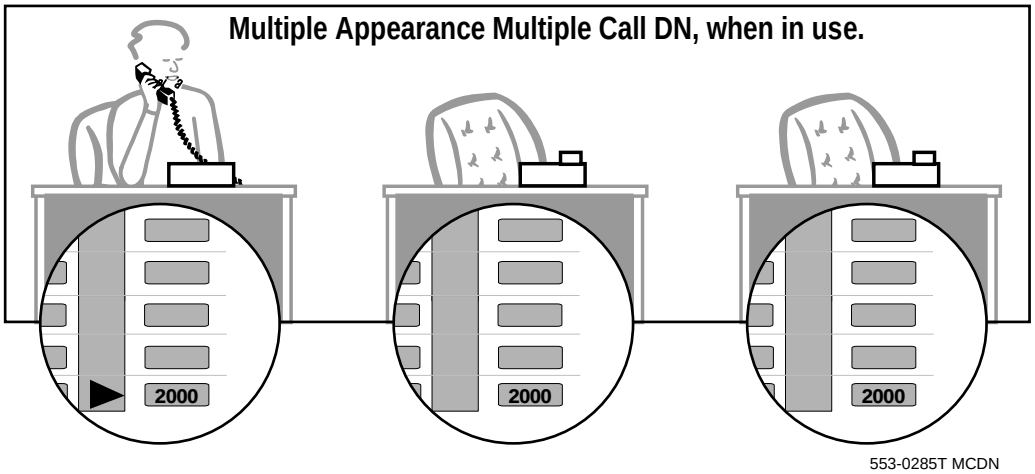
`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

New M2616 and M2616CT telephone



A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13, after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

New M2616 and M2616CT telephone

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M2616 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M2616 telephone.

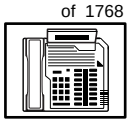
Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

New M2616 and M2616CT telephone



Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M2616 is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, when a telephone has more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with loops only. Loops and Superloops reside in the Network Equipment part of the system.

New M2616 and M2616CT telephone

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of the system.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the loop, or Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Loops and Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each loop or Superloop is kept within the recommended guidelines. If all of your existing loops and/or Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

New M2616 and M2616CT telephone

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards. There are two types of line cards for M2616 telephones: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

New M2616 and M2616CT telephone

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

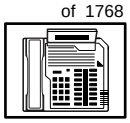
With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.



For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

New M2616 and M2616CT telephone

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 8 6
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 8 7
Software requirements

Release required	Software package(s) required
21	none

New M2616 and M2616CT telephone

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Distinctive Ringing by DN (DRDN)

You can apply distinctive ringing to each DN or Hotline key on a Meridian Modular telephone in the following ways:

- DRDN by call source: terminating telephones ring distinctively when the user initiates a call from the key. Each key on the originating telephone can have one of five distinctive ringing patterns.
- DRDN by call destination: each key has a distinctive ringing pattern when incoming calls are presented to the telephone. Each key can have one of five distinctive ringing patterns.

DRDN by call source overrides DRDN by call destination. The ringing pattern associated with the calling DN is used at the terminating telephone, in cases where the terminating key also has the feature allowed.

New M2616 and M2616CT telephone

Table 8 8
Software requirements

Release required	Software package(s) required
24	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Display options

There is a Quick Reference Card describing the use of the display. It explains how to use the Program key to set such things as:

- the contrast
- the language used for feature prompts
- the format of the call timer
- the volume of ringing, buzzing, the speaker, the handset and the handsfree unit (if activated)
- the key clicks
- the idle screen format
- the predialed number for recall

Three Language Display

All Meridian Modular telephones in North America can be equipped with a Three Language Display. The Three Language Display firmware supports the English, French, and Spanish languages.

New M2616 and M2616CT telephone

Electronic Brandlining

With X11 Release 23, the Electronic Brandlining feature enhances the display functionality of Meridian Modular telephones (M2008, M2008HF, M2016, M2216ACD, and M2616) when they are equipped with a display.

This feature allows the second line on the idle display screen of Meridian Modular telephones to show a custom display. The display contains either a customized brandline or the brandline default. The customized brandline could be the name of a distributor (for example, Alexander G. Bell Telecom) or a customized text string (for example, Employee meeting at 10 AM). The brandline default is “NORTEL”.

The Three Language Display is required for the Electronic Brandlining feature. For information on the Three Language Display, refer to its description on the previous page.

Automatic Set Display

With X11 Release 23, when an incoming call is presented to a busy telephone, the Calling Line Identification (CLID) and Calling Party Name Display (CPND) for the incoming call is automatically displayed on the busy telephone. This capability is enabled by programming the Tandem Digit Display (TDD) Class of Service on the telephone.

Previously, this functionality was only available on the M3000 Touchphone. However, the user of the busy telephone had to press the display key for the Calling Line Identification information to be presented.

Handsfree unit

There is a built-in unit which can be enabled or disabled in the Class of Service programming of the telephone. It is disabled by default. If enabled, key 15 on the telephone is automatically configured as the handsfree/mute key. If handsfree operation is disabled, key 15 can be programmed as a feature key or a DN key.

Headset

The jack on the telephone for the handset can be used for a headset.

New M2616 and M2616CT telephone

Key Expansion module

There can be up to two of these 22-key modules added to one M2616 telephone. You can assign features or DNs to these keys.

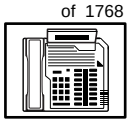
Data option

When the Meridian Programmable Data Adapter (MPDA) or the Meridian Communications Adapter (MCA) is installed inside the telephone and an RS-232C cable is used, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system. Key 7 on the telephone acts as a Program key to control various data parameter settings. There is a Quick Reference Card for the MPDA or MCA that explains these settings and how to use the Program key.

Control tips

- If the telephone is equipped with a display, the user can see the trunk group access codes when external incoming calls arrive at the telephone. If you do not want a user to access certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer to Task 44, *Trunk Group Access Restriction* for more information.
- If the user unplugs an M2616 telephone:
  - the chosen display settings return to the default settings. This is a quick way for you to know if users are unplugging their telephones in an attempt to move them themselves
  - messages print out on the maintenance printer, identifying the TN with the missing telephone
- If the system initializes:
  - the display settings are not affected
  - messages print out on the maintenance printer to identify the cause(s) of the initialization

New M2616 and M2616CT telephone



Administration tips

- The M2616 telephone has a red indicator that lights steadily when there are messages waiting.You can program a Message Waiting key on one of the keys so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on MessageWaiting, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M2616 telephones. This can save significant amounts of memory.

- If users are allowed to have the handsfree functionality you might want to set some guidelines as to who can use that kind of telephone and under what circumstances.

  For example, you might make it policy to allow people with enclosed offices to use them providing the office door is closed so people around them are not disturbed during active handsfree calls.

Training tips

- If you have a standard key layout on all M2616 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.

- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.

- If display modules are installed, users need training on the feature prompts that are presented when features are used.

New M2616 and M2616CT telephone

What to have ready

Make the following preparations before you do the basic programming of a new M2616 telephone.

Table 8 9
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want t use as a designator code.
✔		Determine if any optional equipment, such as Key Expansion modules, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M2616 and M2616CT telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

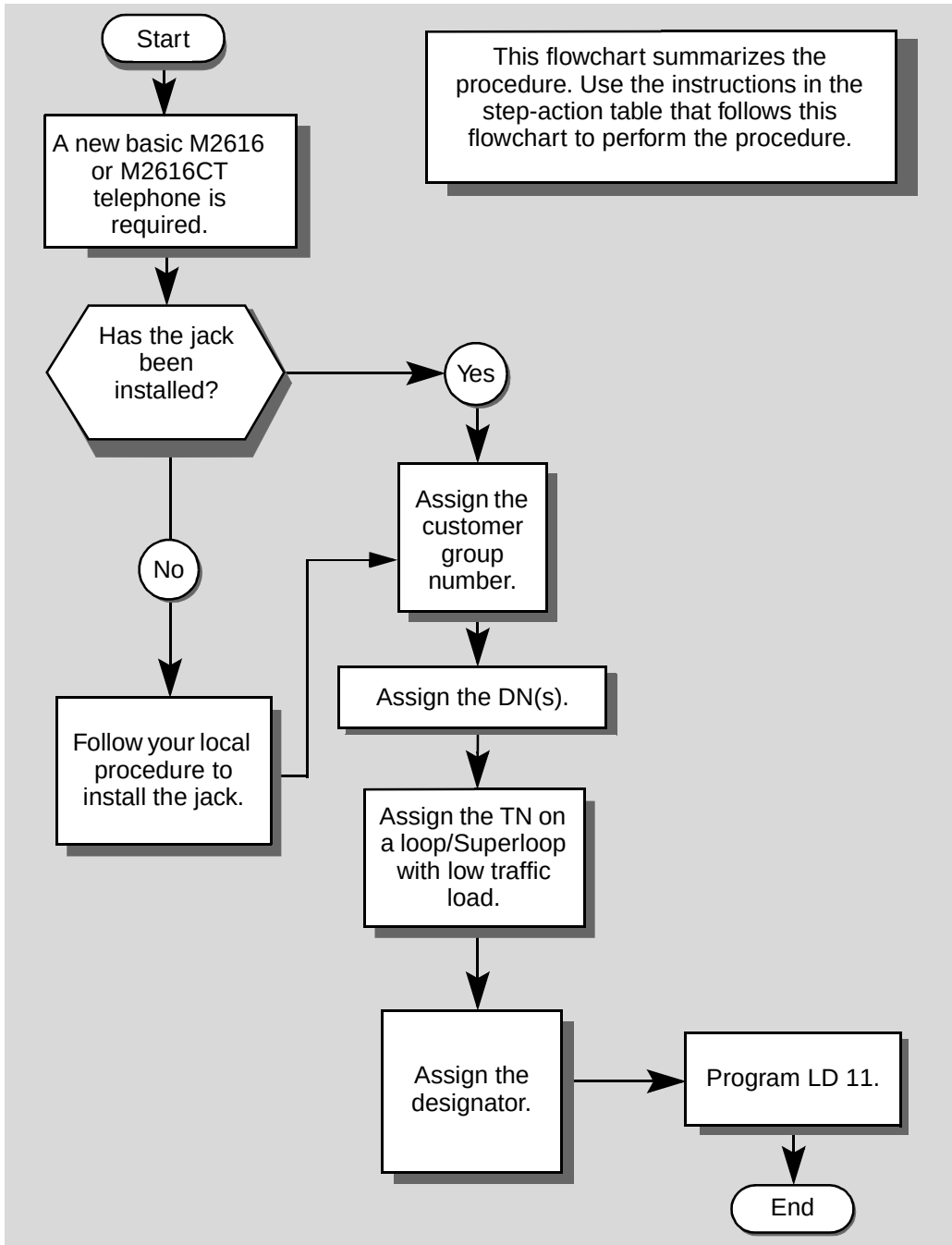
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M2616 telephone.

New M2616 and M2616CT telephone



New M2616 and M2616CT telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M2616 or M2616CT telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M2616 and M2616CT telephone

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M2616 and M2616CT telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M2616 and M2616CT telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12 Choose an available DN which fits your Numbering Plan and the needs of the user.

13 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2616	M2616 telephone. If there are no M2616 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M2616 and M2616CT telephone

STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

16 **Choose the TN for the new telephone.**

17 **Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**

18 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

19 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 11
```

REQ	NEW	New telephone
TYPE	2616	M2616 telephone
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	A..A	Designator maximum six characters
CUST	0-99	customer group number

carriage return until you see the prompt KEY

— continued —

New M2616 and M2616CT telephone

STEP	ACTION
20	**Program DNs on as many keys as you require.**

Program the key(s) one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

XX represents the key number (0–59)
Key 0 must be programmed with a DN

SCR — single call ringing DN

SCN — single call non-ringing DN

MCR — multiple call ringing DN

MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

the DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

21 Check that the telephone works.

Try to make a call. Try to receive a call.

If	Do
telephone works	step 22
telephone does not work	step 1

— continued —

STEP	ACTION
22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 23

STEP	ACTION
23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

.EDD <cr>
```

STEP	ACTION
24	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 25

— continued —

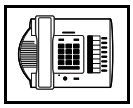
New M2616 and M2616CT telephone

STEP	ACTION
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off. **>** LOGO
27	**You have now completed the minimum programming required to implement a basic new M2616 or M2616CT telephone.**
	END

New M3110 telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M3110 Meridian Digital Telephone.



New M3110 telephone

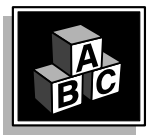
The M3110 telephone is only available in Europe.

Note: On the M3110 telephone, the Meridian label can be replaced with a system supplier name or logo.

If the user needs a new telephone, install an M3110 telephone if:

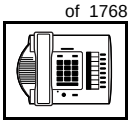
- the user needs one or several Directory Numbers (DNs)
- the user has a personal computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user wants to be able to listen to a call through the speaker, while talking through the handset, so that third parties can listen to both sides of the conversation
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user wants to adjust the volume for the handset, ringing tone, buzz tone, on-hook dialing and group listening
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user wants the telephone to put calls on hold, automatically, when they go from one call to another on different keys
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants to be able to position the telephone in three different ways (two desktop positions and a wall mount position)

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

New M3110 telephone



For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 90
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) M2000 Digital Sets
	89 (TSET) M3000 Digital Sets
	170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Terminal Options

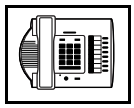
The M3110 telephone supports the following terminal options:

- MCA data option to provide integrated voice and data
- external alerter for noisy environments
- wall mount ability

Power

This telephone requires external power for the MCA data option and the external alerter.

The built in handsfree unit, used for Group Listening, can be activated or deactivated when the telephone is programmed. No external power supply is required to make the handsfree unit function.



New M3110 telephone

When external power is needed, there is a power supply board which must be installed inside of the telephone.

Arrange with your system supplier to get the necessary power equipment ordered and installed.

Default values

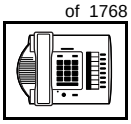
The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3110 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3110 is a digital telephone, it is programmed in overlay program (LD) 11.



Data and Handsfree default values

- If the telephone has a data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the data parameters from the telephone keypad.

  When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

- In the programming of the telephone, if the handsfree unit is enabled for Group Listening, key 15 is automatically set by the system as a Handsfree key. If you disable the handsfree unit, you must program key 15 as NUL.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

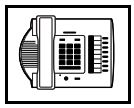
The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.



New M3110 telephone

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–7 on the telephone can have a DN assigned.

Ringing or Non-ringing DNs

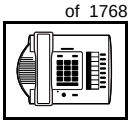
On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M3110 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

New M3110 telephone



Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

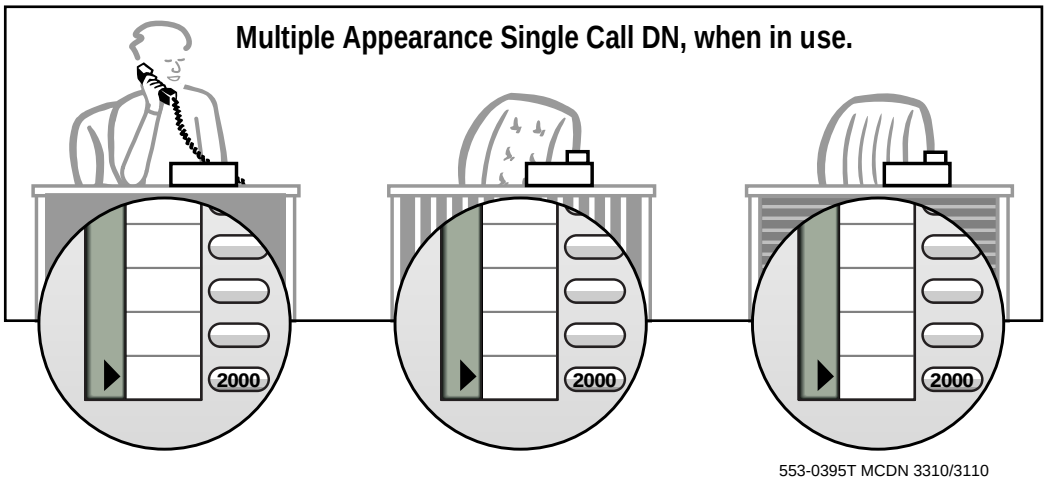
There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

New M3110 telephone

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M3110 telephone

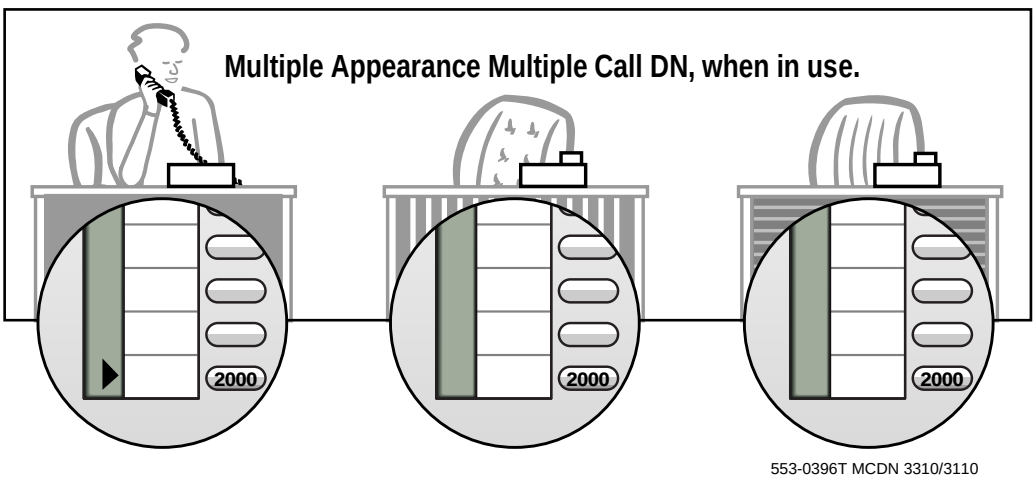
When you want to assign a *Single Call Non-ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

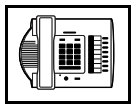
The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.



New M3110 telephone

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3110 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

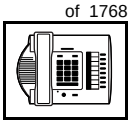
The step-action table at the end of this module explains how to assign a DN on a new M3110 telephone.

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to



record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

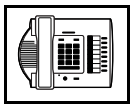
DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3110 is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, even though a telephone may have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.



New M3110 telephone

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

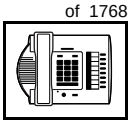
Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

New M3110 telephone



Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

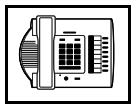
When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.



New M3110 telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

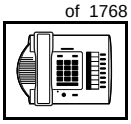
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

The M3110 telephone is programmed as though it is an M2616 telephone (the TYPE prompt is set to 2616 in Overlay 11). Therefore, it is a good idea to use a DES code as a means of identifying the



telephone type as M3110. Before doing this, however, you should first make certain that you are not using DES codes for some other purpose.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

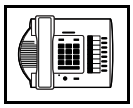
There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.



New M3110 telephone

Table 9 1
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

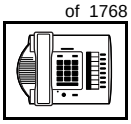
Table 9 2
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

New M3110 telephone



When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Handsfree unit

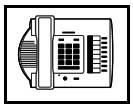
There is a built-in unit which can be enabled or disabled in the Class of Service programming of the telephone. It is disabled by default. If enabled, key 15 on the telephone is automatically configured as the Handsfree key. If handsfree operation is disabled, key 15 must be programmed as NUL.

> ***Note:*** Handsfree capability must be allowed/denied in overlay (LD) 11; however, there is no handsfree transmission with the M3110 telephone. The Handsfree Allowed Class of Service must be set in order to allow Group Listening.

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.

To allow Group Listening, program the Class of Service as Handsfree Allowed in overlay program (LD) 11. On the telephone, you select Option 1 when you press the Program key to enable and disable Group Listening. When there is a headset connected, the feature is automatically enabled.



New M3110 telephone

Key Expansion module

No Key Expansion modules can be added to the M3110 telephone.

Data option

When the Meridian Communications Adapter (MCA) is installed inside the telephone and an RS-232C cable is used, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system. If you do this, then key 7 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MCA that explains these settings and how to use the Program key.

Control tips

- If the user unplugs an M3110 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone

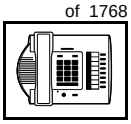
Administration tips

- The M3110 telephone has a red indicator that lights steadily when there are messages waiting. You can program a Message Waiting key on one of the keys so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on Message Waiting, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M3110 telephones. This can save significant amounts of memory.

New M3110 telephone

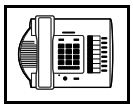


- If users are allowed to have the Group Listening functionality, you might want to set some guidelines as to who can use that kind of telephone and under what circumstances.

  For example, you might make a policy that allows people with enclosed offices to use Group Listening, provided their office door is closed. Therefore, people around them are not disturbed during Group Listening conversations.

Training tips

- If you have a standard key layout on all M3110 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- Make certain that the user understands the information in the *Meridian Digital Telephones User Guide.*



New M3110 telephone

What to have ready

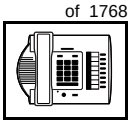
Make the following preparations before you do the basic programming of a new M3110 telephone.

Table 9 3
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the terminal options, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3110 telephone



Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

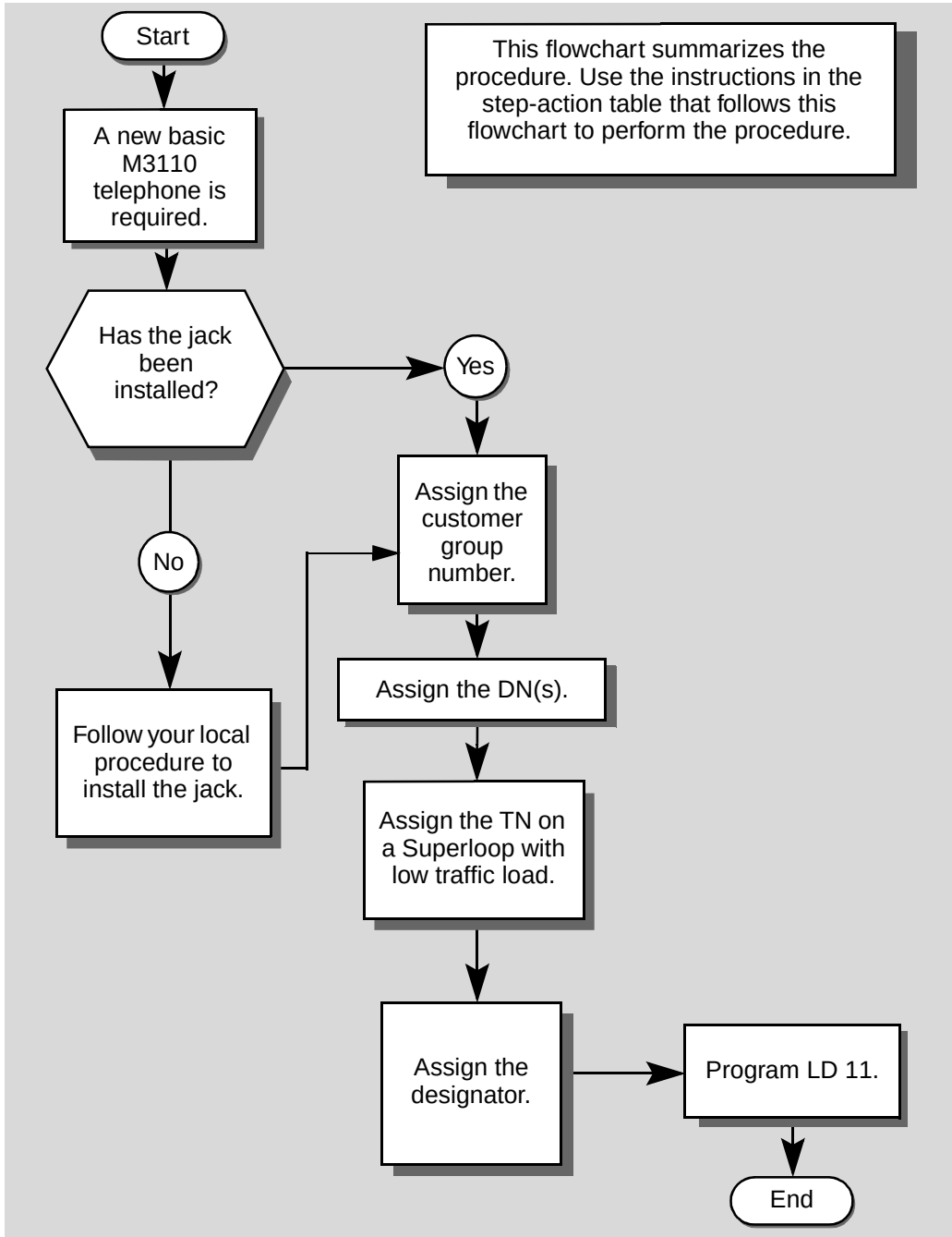
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

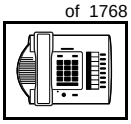
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3110 telephone.

New M3110 telephone



New M3110 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3110 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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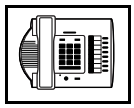

New M3110 telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

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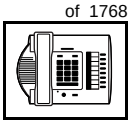

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

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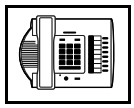

New M3110 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2616	M2616 telephone. The M3110 is programmed as an M2616 telephone. If there are no M2616 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

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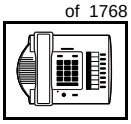
New M3110 telephone



STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**
	If — **Do**
	there is recent traffic study data — Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data — Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**
18	**Assign a Designator.**
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.
19	**Program the new telephone.**
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.
	If — **Do**
	the telephone is to have Group Listening capability allowed — step 20
	the telephone is to have Group Listening capability denied — step 21

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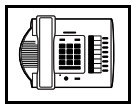
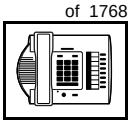


New M3110 telephone

STEP	ACTION	
20	**Program the new telephone with Group Listening capability allowed.**	
	> LD 11	
	REQ NEW	New telephone
	TYPE 2616	M2616 telephone. The M3110 is programmed as an M2616 telephone.
	TN L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN <cr>	Carriage return - use the default
	DES M3110	Designator (maximum six characters)
	CUST 0-99	customer group number
	Carriage return until you see the CLS prompt.	
	CLS	Class of Service
	HFA	Handsfree Allowed (Group Listening Allowed)
	NDD	No Digit Display - default
	Carriage return until you see the KEY prompt. Because Group Listening capability is allowed, Key 15 automatically becomes the Handsfree (Group Listening) key.	
	Go to step 22.	

— continued —

New M3110 telephone



STEP	ACTION
21	**Program the new telephone with Group Listening capability denied.**

```
>LD 11
```

REQ	NEW	New telephone
TYPE	2616	M2616 telephone. The M3110 is programmed as an M2616 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	M3110	Designator (maximum six characters)
CUST	0-99	customer group number

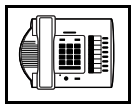
Carriage return until you see the CLS prompt.

CLS	Class of Service
HFD	Handsfree Denied (Group Listening Denied) - default
NDD	No Digit Display - default

Carriage return until you see the KEY prompt. Because Group Listening capability is denied, Key 15 must be programmed as NUL.

Go to step 22.

— continued —



New M3110 telephone

STEP	ACTION
22	**Program DNs on as many keys as you require.**

Program the key(s) one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

Note: Keys 8-14 are programmed as NUL.

XX represents the key number (0–57)
Key 0 must be programmed with a DN

SCR — single call ringing DN

SCN — single call non-ringing DN

MCR — multiple call ringing DN

MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

STEP	ACTION
23	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

STEP	ACTION
25	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

.EDD <cr>
```

— continued —

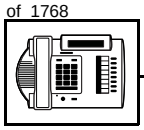
New M3110 telephone

STEP	ACTION
26	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 27
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off. **>** LOGO
29	**You have now completed the minimum programming required to implement a basic new M3110 telephone.**
	END

New M3310 telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M3310 Meridian Digital Telephone.



New M3310 telephone

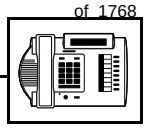
The M3310 telephone is only available in Europe.

Note: On the M3310 telephone, the Meridian label can be replaced with a system supplier name or logo.

If the user requires a new telephone, install an M3310 telephone if:

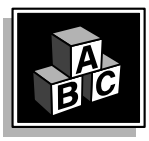
- the user needs one or several Directory Numbers (DNs)
- the user has a personal computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user wants to be able to hear a conversation and speak to a caller with or without using the handset of the telephone (handsfree capability)
- the user wants to be able to use a headset
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user can benefit from easy-to-understand prompts on the display when accessing features
- when answering redirected calls, the user can benefit from knowing the type of feature which redirected the call to the telephone
- the user wants the display to show a call timer
- the user wants the telephone to put calls on hold, automatically, when they go from one call to another on different keys
- the user wants to adjust the volume for the handset/headset, ringing tone, buzz tone, on-hook dialing and group listening, and handsfree
- the user needs the choice of different languages on the display when using features
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing

New M3310 telephone



- the user can benefit from knowing the internal or external telephone number and, optionally, the name of the caller before the calls are answered
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants to be able to position the telephone in three different ways (two desktop positions and a wall mount position)

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

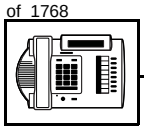
Table 94
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) M2000 Digital Sets 89 (TSET) M3000 Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.



New M3310 telephone

Terminal Options

The M3310 telephone supports the following terminal options:

- MCA data option to provide integrated voice and data
- external alerter for noisy environments
- wall mount ability

Power

This telephone requires external power for the MCA data option and the external alerter.

The handsfree unit, built into the telephone, can be activated or deactivated when the telephone is programmed. No external power supply is required to make it function.

When external power is needed, there is a power supply board which must be installed inside of the telephone.

Arrange with your system supplier to get the necessary power equipment ordered and installed.

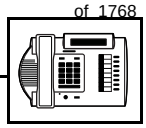
Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3310 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

New M3310 telephone



For example, the users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3310 is a digital telephone, it is programmed in overlay program (LD) 11.

Data, Display, and Handsfree default values

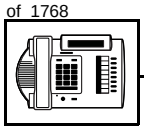
- If the telephone has a display module or a data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the display or data parameters from the telephone keypad.

  When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

- If the handsfree unit is enabled in the programming of the telephone, key 15 is automatically set by the system as a Handsfree key. If you disable the handsfree unit, you must program Key 15 as NUL.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.



New M3310 telephone

Display options

The display screen is a basic component of the M3310 telephone. There is a Quick Reference Card describing the use of the display. It explains how to use the Program key to set such things as:

- the contrast
- the language used for feature prompts
- the call timer
- the volume of ringing, buzzing, the speaker, the handset and the handsfree unit (if activated)
- the key clicks
- the idle screen format

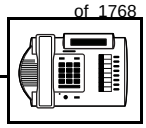
Language Option

The information on your display screen can be displayed in one of several languages. You choose the language you want by selecting Option 5 under the Program key. There are two different displays available, each of which supports ten languages.

One display has the following language options:

- English
- Canadian French
- French
- Spanish
- German
- Dutch
- Portuguese
- Italian
- Swiss French
- Swiss Italian

New M3310 telephone



The other display has the following language options:

- English
- French
- German
- Norwegian
- Swedish
- Danish
- Finnish
- Polish
- Czech
- Hungarian

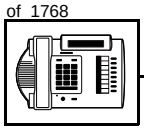
Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.



New M3310 telephone

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–7 on the telephone can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

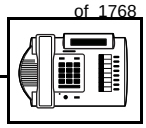
If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M3310 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

New M3310 telephone



The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

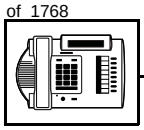
`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

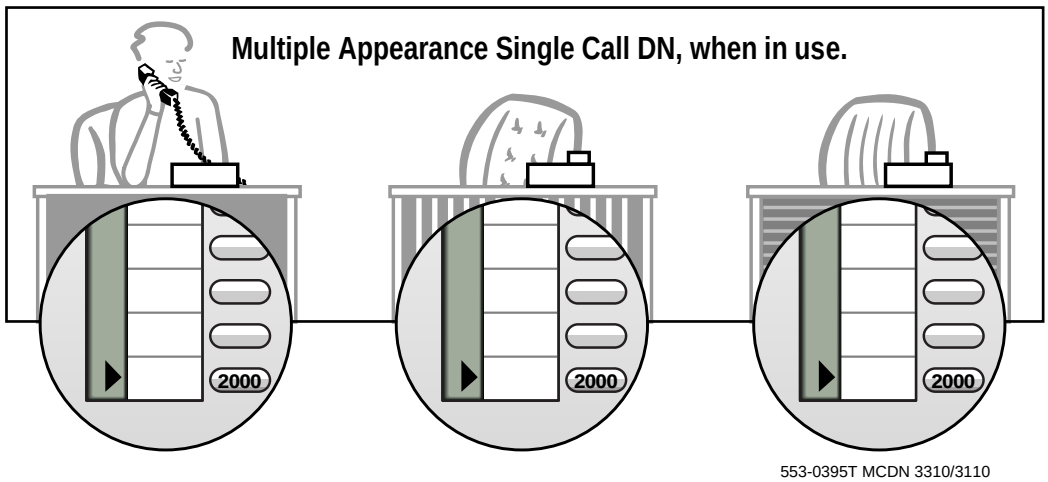
Single Call DN

The DN can handle one call at a time.



New M3310 telephone

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.



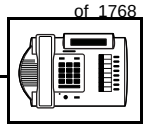
If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

New M3310 telephone



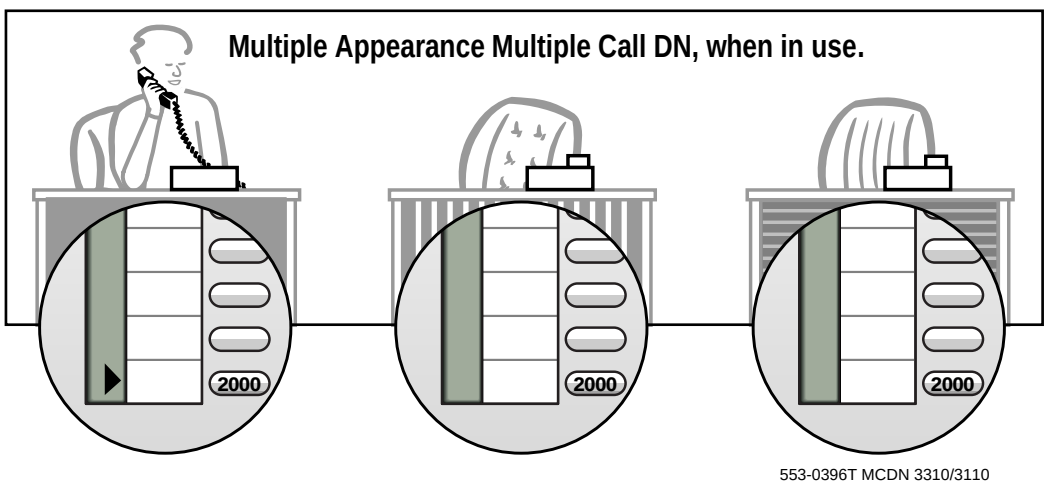
When you want to assign a *Single Call Non-ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

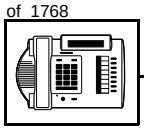
This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.



553-0396T MCDN 3310/3110

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.



New M3310 telephone

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3310 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

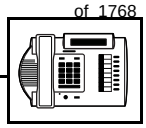
The step-action table at the end of this module explains how to assign a DN on a new M3310 telephone.

Prime DN, Key 0

Key 0, which is the key at the bottom of the key strip on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to



record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

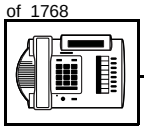
DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3310 is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, even though a telephone may have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.



New M3310 telephone

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

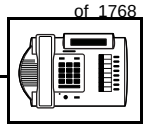
Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

New M3310 telephone



Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

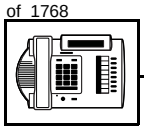
Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

of 1768



New M3310 telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

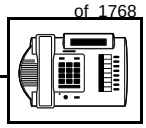
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

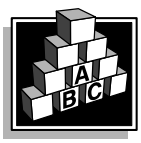
The M3310 telephone is programmed as though it is an M2616 telephone (the TYPE prompt is set to 2616 in Overlay 11). Therefore, it is a good idea to use a DES code as a means of identifying the



telephone type as M3310. Before doing this, however, you should first make certain that you are not using DES codes for some other purpose.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

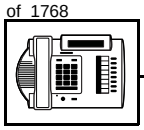
There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.



New M3310 telephone

Table 9 5
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

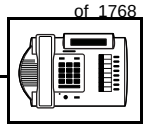
Table 9 6
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

New M3310 telephone



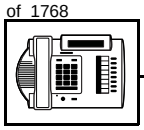
When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Automatic Set Display

With X11 Release 23, when an incoming call is presented to a busy telephone, the Calling Line Identification (CLID) and Calling Party Name Display (CPND) for the incoming call is automatically displayed on the busy telephone. This capability is enabled by programming the Tandem Digit Display (TDD) Class of Service on the telephone.

Previously, this functionality was only available on the M3000 Touchphone. The user of the busy telephone had to press the display key for the Calling Line Identification information to be presented.



New M3310 telephone

Handsfree unit

There is a built-in unit which can be enabled or disabled in the Class of Service programming of the telephone. It is disabled by default. If enabled, key 15 on the telephone is automatically configured as the handsfree key. If handsfree operation is disabled, key 15 must be programmed as NUL.

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.

To allow Group Listening, program the Class of Service as Handsfree Allowed in overlay program (LD) 11. On the telephone, you select Option 1 when you press the Program key to enable and disable Group Listening. When there is a headset connected, the feature is automatically enabled.

Headset

A headset can be plugged into the socket on the base of the telephone that is marked with a headset icon.

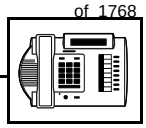
Key Expansion module

Key Expansion modules cannot be added to the M3310 telephone.

Data option

When the Meridian Communications Adapter (MCA) is installed inside the telephone and an RS-232C cable is used, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system. If you do this, then key 7 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MCA that explains these settings and how to use the Program key.

New M3310 telephone



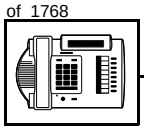
Control tips

- Because the telephone is equipped with a display, the user can see the trunk group access codes when external incoming calls arrive at the telephone. If you do not want a user to access certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer to Task 44, *Trunk Group Access Restriction* for more information.
- If the user unplugs an M3310 telephone:
  - the chosen display settings, except for the choice of language, return to the default settings. This is a quick way for you to know if users are unplugging their telephones in an attempt to move them themselves
  - messages print out on the maintenance printer, identifying the TN with the missing telephone
- If the system initializes:
  - the display settings are not affected
  - messages print out on the maintenance printer to identify the cause(s) of the initialization

Administration tips

- The M3310 telephone has a red indicator that lights steadily when there are messages waiting.You can program a Message Waiting key on one of the keys so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on MessageWaiting, refer to Task 24, *Message Center*.
- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M3310 telephones. This can save significant amounts of memory.



New M3310 telephone

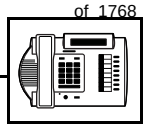
- If users are allowed to have the handsfree functionality, you might want to set some guidelines as to who can use that kind of telephone and under what circumstances.

  For example, you might make a policy that allows people with enclosed offices to use handsfree functionality, provided their office door is closed. Therefore, people around them are not disturbed during active handsfree conversations.

Training tips

- If you have a standard key layout on all M3310 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- Users need training on the feature prompts that are presented on the display when features are used.
- Ensure that users understand the information in the *Meridian Digital Telephones User Guide*.

New M3310 telephone



What to have ready

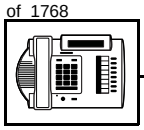
Make the following preparations before you do the basic programming of a new M3310 telephone.

Table 97
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the options, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other



New M3310 telephone

telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

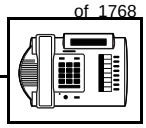
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

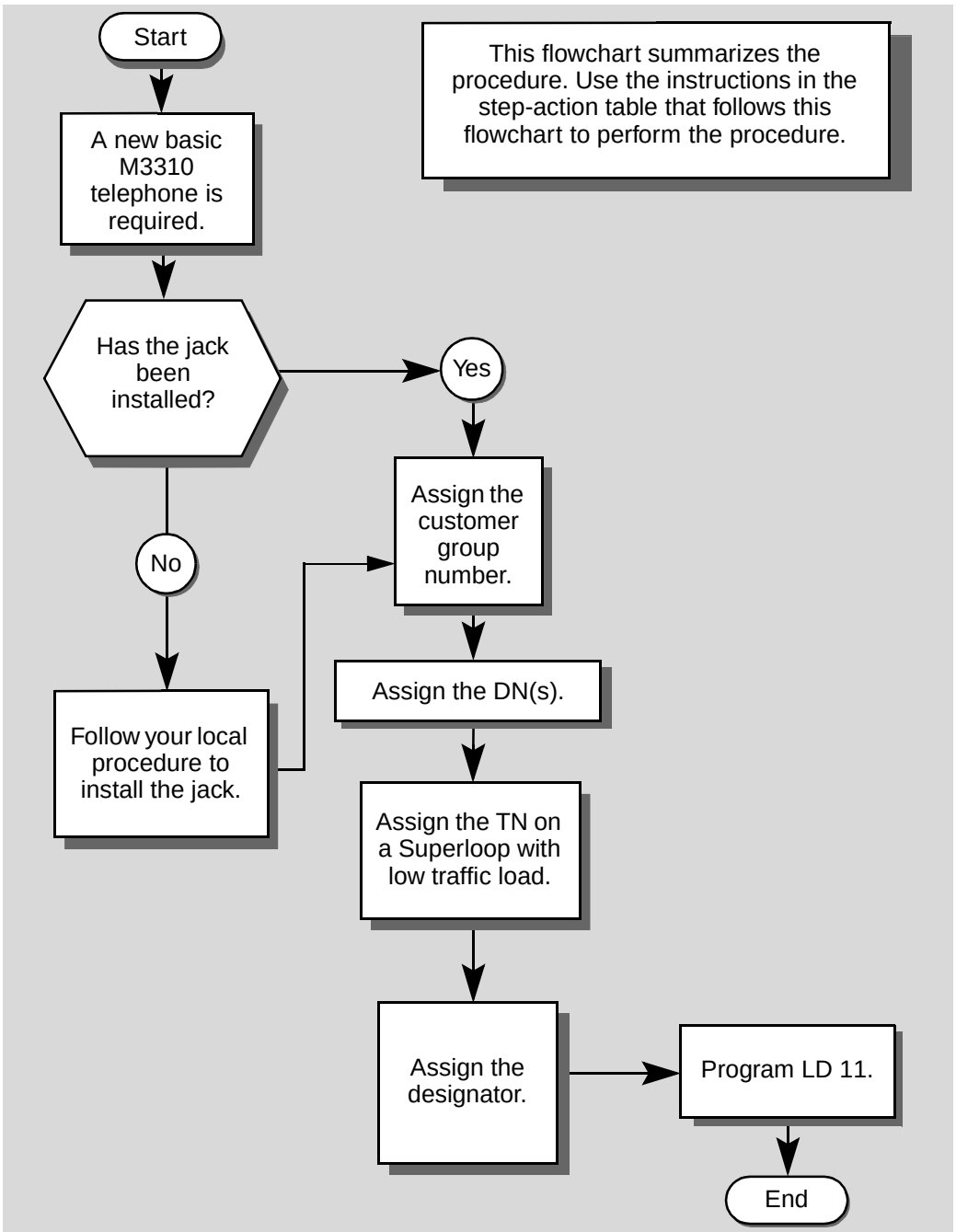
What's next?

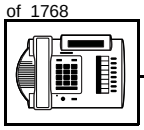
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3310 telephone.

New M3310 telephone







New M3310 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3310 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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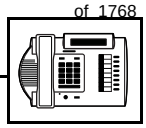


STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

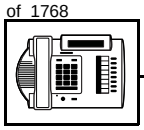
or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —



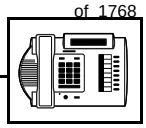
New M3310 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M3310 telephone



STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

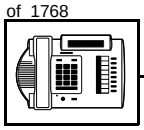
> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2616	M2616 telephone. The M3310 is programmed as an M2616 telephone. If there are no M2616 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —



New M3310 telephone

STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**

If	Do
there is recent traffic study data	Analyze the data for the loops/Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the loops/Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

16 **Choose the TN for the new telephone.**

17 **Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**

18 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

19 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
the telephone is to have handsfree capability allowed	step 20
the telephone is to have handsfree capability denied	step 21 or leave CLS programmed with default (HFD) and go to step 22.

— continued —

New M3310 telephone

STEP	ACTION
20	**Program the new telephone with handsfree capability allowed.**

```
> LD 11
```

REQ	NEW	New telephone
TYPE	2616	M2616 telephone. The M3310 is programmed as an M2616 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number
CDEN	<cr>	Carriage return - use the default
DES	M3310	Designator maximum six characters
CUST	0-99	customer group number

Carriage return until you see the CLS prompt.

CLS	HFA	Class of Service Handsfree Allowed

Carriage return until you see the KEY prompt. Because handsfree capability is allowed, Key 15 automatically becomes the handsfree key.

Go to step 22.

— continued —

New M3310 telephone

STEP	ACTION
21	**Program the new telephone with handsfree capability denied.**

```
>LD 11
```

REQ	NEW	New telephone
TYPE	2616	M2616 telephone. The M3310 is programmed as an M2616 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	M3310	Designator maximum six characters
CUST	0-99	customer group number

Carriage return until you see the CLS prompt.

CLS	HFD	Class of Service Handsfree Denied

Carriage return until you see the KEY prompt. Because handsfree capability is denied, Key 15 must be programmed as NUL.

Go to step 22.

— continued —

STEP	ACTION
22	**Program DNs on as many keys as you require.**
	Program the key(s) one of the following ways: **KEY** XX SCR X..X **KEY** XX SCN X..X **KEY** XX MCR X..X **KEY** XX MCN X..X ***Note:*** Keys 8-14 are programmed as NUL. XX represents the key number (0–57) Key 0 must be programmed with a DN SCR — single call ringing DN SCN — single call non-ringing DN MCR — multiple call ringing DN MCN — multiple call non-ringing DN X..X represents the actual digits in the DN; type the actual digits The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP Carriage return until you see either of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems
23	**Check that the telephone works.**
	Try to make a call. Try to receive a call. **If** **Do** telephone works step 24 telephone does not work step 1

— continued —

New M3310 telephone

STEP	ACTION
24	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to L D43	step 25

STEP	ACTION
25	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD43.

```
> LD 43
.EDD <cr>
```

STEP	ACTION
26	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

— continued —

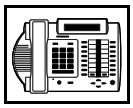
STEP	ACTION
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off.
	> LOGO
29	**You have now completed the minimum programming required to implement a basic new M3310 telephone.**
	END

New M3310 telephone

New M3820 telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M3820 Meridian Digital Telephone.



New M3820 telephone

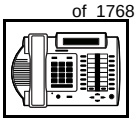
The M3820 telephone is only available in Europe.

Note: On the M3820 telephone, the Meridian label can be replaced with a system supplier name or logo.

If the user needs a new telephone, install an M3820 telephone if:

- the user needs one or several Directory Numbers (DNs)
- the user has a personal computer or will need one at the desk and you want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires
- the user wants to be able to hear a conversation and speak to a caller with or without using the handset of the telephone (speakerphone capability)
- the user wants to be able to use a headset
- the user wants to be able to dial stored numbers from a directory
- the user wants to log calls made or received
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user can benefit from easy-to-understand prompts on the display when accessing features
- when answering redirected calls, the user can benefit from knowing the type of feature which redirected the call to the telephone
- the user wants the display to show a call timer
- the user wants the telephone to put calls on hold, automatically, when they go from one call to another on different keys
- the user wants to be able to adjust the volume for the handset/ headset, ringing tone, buzz tone, on-hook dialing and group listening, and handsfree

New M3820 telephone

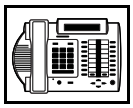


- the user needs the choice of different languages on the display when using features
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user can benefit from knowing the internal or external telephone number and, optionally, the name of the caller before the calls are answered
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants to be able to position the telephone in three different ways (two desktop positions and a wall mount position)
- the user wants to add up to two Key Expansion modules

Basic configuration

This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.



New M3820 telephone

Software

Table 98
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) M2000 Digital Sets 89 (TSET) M3000 Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Terminal Options

The M3820 telephone supports the following terminal options:

- MCA data option to provide integrated voice and data
- external alerter for noisy environments
- wall mount ability
- add-on 22 Key Expansion Modules (maximum of two)

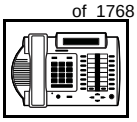
Power

This telephone requires external power for the MCA data option and the external alerter.

The handsfree unit, built into the telephone, can be activated or deactivated when the telephone is programmed. No external power supply is required to make it function.

When external power is needed, there is a power supply board which must be installed inside the telephone.

New M3820 telephone



Arrange with your system supplier to get the necessary power equipment ordered and installed.

Default values

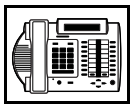
The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3820 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, the users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3820 is a digital telephone, it is programmed in overlay program (LD) 11.



New M3820 telephone

Data, Display, and Handsfree default values

- With the display module and data option installed, key 7 is automatically set by the system as a PROGRAM key. This key is needed for the user to make adjustments to the display or data parameters from the telephone keypad.

  When you do a TN-Block printout of the information programmed for the telephone, key 7 appears to have nothing assigned to it. It is blank in the printout.

- If the handsfree unit is enabled in the programming of the telephone, key 15 is automatically set by the system as a Handsfree key. If you disable the handsfree unit, you must program key 15 as NUL. Please refer to *Appendix 3*, at the end of this guide, for a Meridian Digital Telephone Worksheet (M3820). This work sheet shows you the key layout for the M3820 telephone.

Appendix 2, at the end of this guide, lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

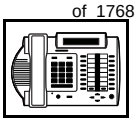
The *X11 input/output guide (Administration)*, which was shipped with your system, provides detailed information on all prompts and responses in all of the administration overlay programs.

Display options

The display screen is a basic component of the M3820 telephone. There is a Quick Reference Card describing the use of the display. It explains how to use the Program key to set such things as:

- the contrast
- the language used for feature prompts
- the call timer
- the volume of ringing, buzzing, the speaker, the handset and the handsfree unit (if activated)
- the key clicks
- the idle screen format

New M3820 telephone



Language Option

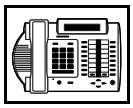
The information on your display can be displayed in one of several languages. You choose the language you want by selecting Option 5 under the Program key. There are two different displays available, each of which supports ten languages.

One display has the following language options:

- English
- Canadian French
- French
- Spanish
- German
- Dutch
- Portuguese
- Italian
- Swiss French
- Swiss Italian

The other display has the following language options:

- English
- French
- German
- Norwegian
- Swedish
- Danish
- Finnish
- Polish
- Czech
- Hungarian



New M3820 telephone

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

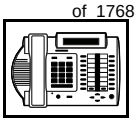
Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

The M3820 telephone has 13 fully programmable feature keys that can be assigned to any combination of DNs and features.

New M3820 telephone



If Short Hunting to other DNs on the telephone is to operate, then Key 1 must be configured as a Single Call Ringing (SCR) key with the same DN as Key 0. For Multiple Appearance Redirection Prime (MARP) to operate with Short Hunting configured, Key 1 must configured as the MARP key.

For information on Short Hunting, refer to Task 37, *Hunting*. For information on Single Call Ringing, see the *Single Appearance DNs* section in this module. For information on MARP, see Task 39, *Multiple Appearance DN Redirection Prime.*

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

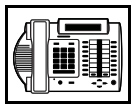
If an M3820 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN.*



New M3820 telephone

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

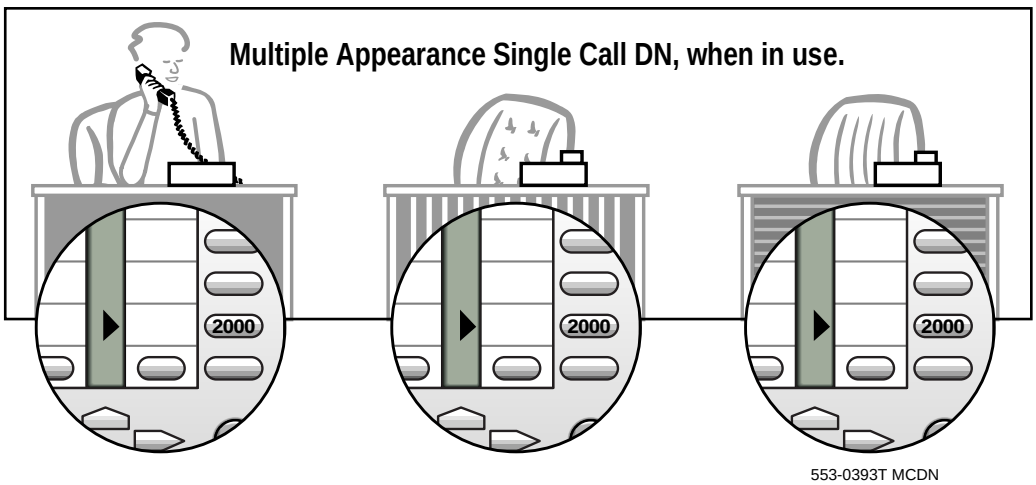
Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

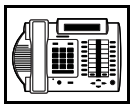


If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

When you want to assign a *Single Call Ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.



New M3820 telephone

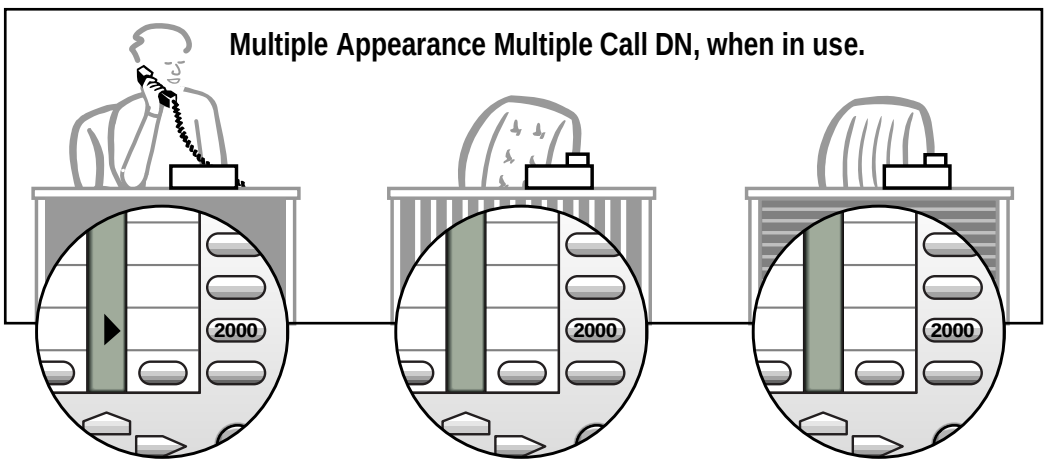
When you want to assign a *Single Call Non-ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

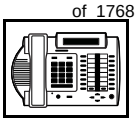


553-0394T MCDN

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of one DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

New M3820 telephone



If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3820 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

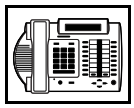
The step-action table at the end of this module explains how to assign a DN on a new M3820 telephone.

Prime DN, Key 0

Key 0, the second key from the bottom on the right hand side of the telephone, *must be* programmed with a DN. This DN is called the prime DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to



New M3820 telephone

record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

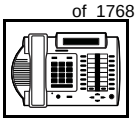
If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3820 is a digital telephone, it is programmed in overlay program (LD) 11. In this overlay program, even though a telephone may have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

New M3820 telephone



If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

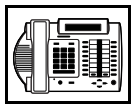
There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system when there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.



New M3820 telephone

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

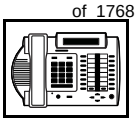
Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

New M3820 telephone



You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

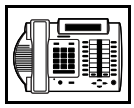
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

The M3820 telephone is programmed as though it is an M2616 telephone (the TYPE prompt is set to 2616 in Overlay 11). Therefore, it is a good idea to use a DES code as a means of identifying the

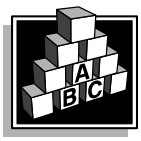


New M3820 telephone

telephone type as M3820. Before doing this, however, you should first make certain that you are not using DES codes for some other purpose.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

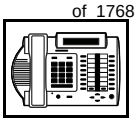


Table 99
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

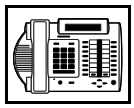
Directory Number Delayed Ringing (DNDR)

Table 100
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.



New M3820 telephone

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Automatic Set Display

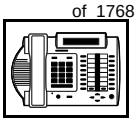
With X11 Release 23, when an incoming call is presented to a busy telephone, the Calling Line Identification (CLID) and Calling Party Name Display (CPND) for the incoming call is automatically displayed on the busy telephone. This capability is enabled by programming the Tandem Digit Display (TDD) Class of Service on the telephone.

Previously, this functionality was only available on the M3000 Touchphone. However, the user of the busy telephone had to press the display key for the Calling Line Identification information to be presented.

Callers List

The Callers List shows up to the last 20 calls that have been made to your M3820 telephone. You can decide what types of incoming calls you want to be saved to the Callers List. For instance, you may only want unanswered calls stored in the list, rather than all calls that arrive at your telephone. In order to make this specification, as well as other changes to the Callers List, use Option 2 under the Program key.

New M3820 telephone



You can also make a call directly from the Callers List. To access the Callers List, use the Callers List key. The Callers List and the Redial List are both accessed using the Callers List key. To access the Callers List, after you press the Callers List key, press the Down-arrow cursor.

Redial List

The Redial List shows the last five calls that you have made from your M3820 telephone. The Callers List and the Redial List are both accessed using the Callers List key. To access the Redial List, after you press the Callers List key, press the Up -arrow cursor.

Be aware that when you place a call, all of the dialed digits are stored in the Redial List, including Authorization Codes and Passwords.

Directory

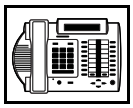
The Directory allows up to 75 names and numbers to be stored and displayed in alphabetical order on your M3820 telephone. It is convenient for you to store frequently called numbers in this directory. To access the Directory, press the Directory key. You can dial directly from the Directory by pressing the Dial key after you have selected the number that you wish to call. Entries from the Callers List and the Redial List can be stored in the Directory.

Handsfree unit

There is a built-in unit which can be enabled or disabled in the Class of Service programming of the telephone. It is disabled by default. If enabled, key 15 on the telephone is automatically configured as the handsfree key. If handsfree operation is disabled, key 15 must be programmed as NUL.

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.



New M3820 telephone

To allow Group Listening, program the Class of Service as Handsfree Allowed in overlay program (LD) 11. On the telephone, you select Option 1 when you press the Program key to enable and disable Group Listening. When there is a headset connected, the feature is automatically enabled.

Headset

A headset can be plugged into the socket marked with a headset icon on the base of the telephone.

Key Expansion module

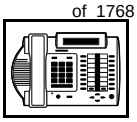
Up to two 22-key expansion modules can be added to the M3820 telephone for a total of 58 feature keys.

Data option

When the Meridian Communications Adapter (MCA) is installed inside the telephone and an RS-232C cable is used, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system. If you do this, then key 7 on the telephone must be used as a Program key to control various data parameter settings. There is a Quick Reference Card for the MCA that explains these settings and how to use the Program key.

Control tips

- Because the telephone is equipped with a display, the user can see the trunk group access codes when external incoming calls arrive at the telephone. If you do not want a user to access certain trunk groups using the direct trunk access code, implement the TGAR feature to prevent it. Refer toTas k44 ,*Trunk Group Access Restriction* for more information.
- If the user unplugs an M3820 telephone:
  - the chosen display settings, except for the choice of language, return to the default settings. This is a quick way for you to know if users are unplugging their telephones in an attempt to move them themselves



– messages print out on the maintenance printer, identifying the TN with the missing telephone

- If the system initializes:
  – the display settings are not affected
  – messages print out on the maintenance printer to identify the cause(s) of the initialization

Administration tips

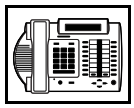
- The M3820 telephone has a red indicator that lights steadily when there are messages waiting.You can program a Message Waiting key on one of the keys so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on MessageWaiting, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M3820 telephones. This can save significant amounts of memory.

- If users are allowed to have the handsfree functionality, think about setting some guidelines regarding who can use that kind of telephone and under what circumstances.

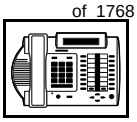
  For example, you might make a policy that allows people with enclosed offices to use handsfree functionality, provided their office door is closed. Therefore, people around them are not disturbed during active handsfree conversations.



New M3820 telephone

Training tips

- If you have a standard key layout on all M3820 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- Users need training on the feature prompts that are presented on the display when features are used.
- Users benefit from individual instruction on programming and using features, such as Callers List and Directory. Make certain that the user understands the information in the *Meridian Digital Telephones User Guide.*



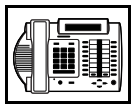
What to have ready

Make the following preparations before you do the basic programming of a new M3820 telephone.

Table 101
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the terminal options, such as Key Expansion modules, are required.
✔		Determine if any of the terminal options, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.



New M3820 telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

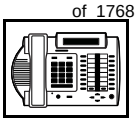
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

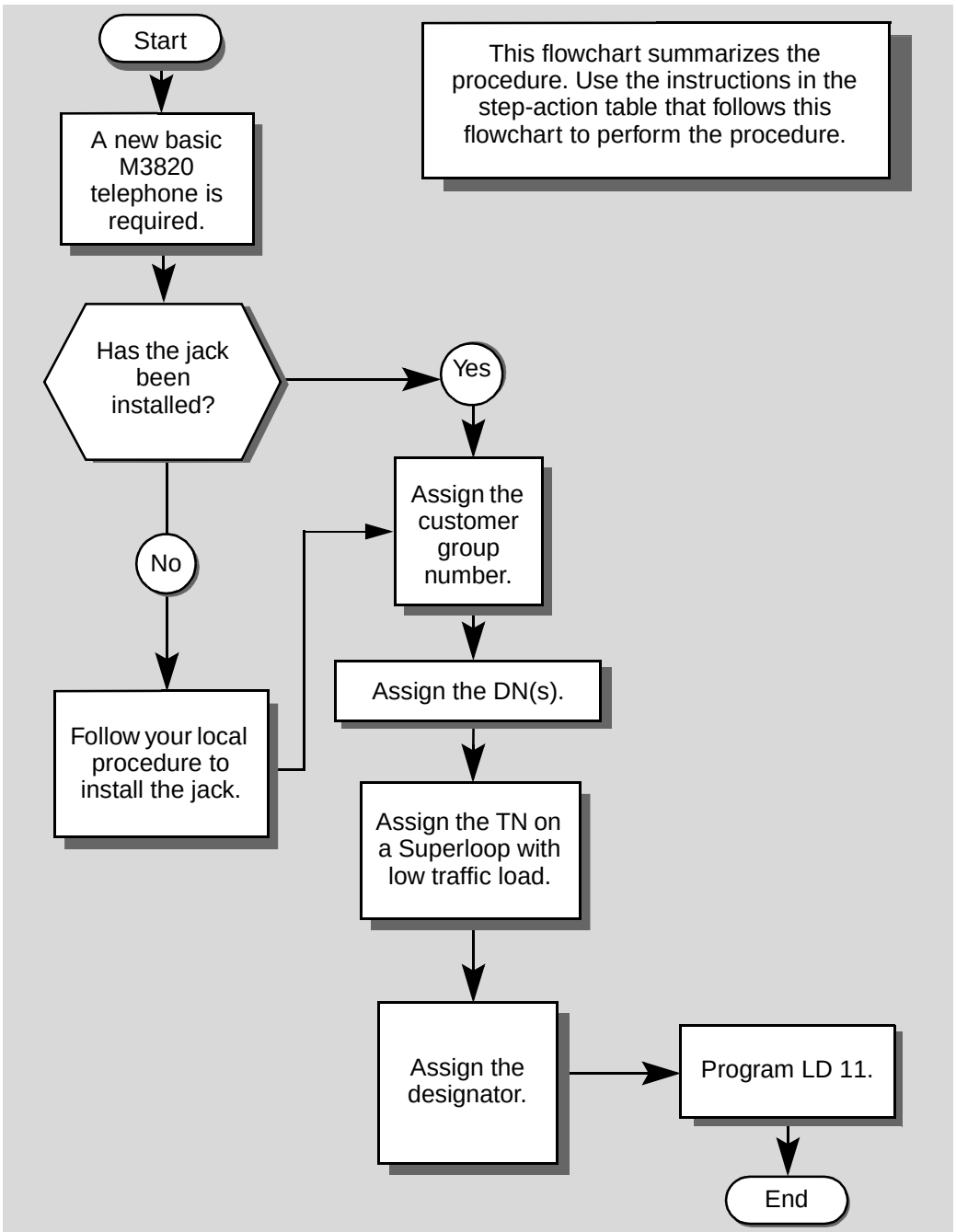
What's next?

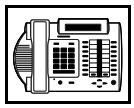
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3820 telephone.

New M3820 telephone







New M3820 telephone

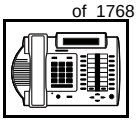
The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3820 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —



STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

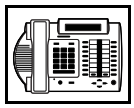
or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —



New M3820 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose an available DN which fits your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	2616	M2616 telephone. The M3820 is programmed as an M2616 telephone. If there are no M2616 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M3820 telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	If	**Do**
	the telephone is to have handsfree capability allowed	step 20
	the telephone is to have handsfree capability denied	step 21

— continued —

STEP	ACTION

20 Program the telephone with handsfree capability allowed.

```
>LD 11
```

REQ	NEW	New telephone
TYPE	2616	M2616 telephone. The M3820 telephone is programmed as an M2616 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	M3820	Designator (maximum six characters)
CUST	0-99	customer group number

Carriage return until you see the CLS prompt. You enter each mnemonic, a space and then the next mnemonic. When you reach the last mnemonic, finish with a <cr>.

CLS	Class of Service
HFA	Handsfree Allowed
AHA	Automatic Hold Allowed
DNDD	Dialed Name Display Denied
CNDA	Call Party Name Display Allowed
CNIA	Call Number Information Allowed
LNA	Last Number Redial Allowed

The Class of Service settings shown above are required for the proper operation of the Callers List capability.

Carriage return until you see the KEY prompt. Because handsfree capability is allowed, Key 15 automatically becomes the handsfree key.

Go to step 22.

— continued —

New M3820 telephone

STEP	ACTION

21 Program the telephone with handsfree capability denied.

> LD 11		
REQ	NEW	New telephone
TYPE	2616	M2616 telephone. The M3820 telephone is programmed as an M2616 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	M3820	Designator (maximum six characters)
CUST	0-99	customer group number

Carriage return until you see the CLS prompt. You enter each mnemonic, a space and then the next mnemonic. When you reach the last mnemonic, finish with a <cr>.

CLS	
HFD	Handsfree Denied
AHA	Automatic Hold Allowed
DNDD	Dialed Name Display Denied
CNDA	Call Party Name Display Allowed
CNIA	Call Number Information Allowed
LNA	Last Number Redial Allowed

The Class of Service settings shown above are required for the proper operation of the Callers List capability.

Carriage return until you see the KEY prompt. Because handsfree capability is denied, Key 15 must be programmed as NUL.

Go to step 22.

— continued —

STEP	ACTION
22	**Program DNs on as many keys as you require, except Key 1.**

Program the key(s) one of the following ways:

KEY XX SCR X..X
KEY XX SCN X..X
KEY XX MCR X..X
KEY XX MCN X..X

Note 1: Key 01 must be programmed as NUL (01 NUL), unless Short Hunt is required.

Note 2: If Short Hunt is configured, then Key 1 must be configured as an SCR key with the same DN as key 0. For MARP to operate with Short Hunt configured, Key 1 must be configured as the MARP key.

XX represents the key number (0–57)
Key 0 must be programmed with a DN

SCR — single call ringing DN

SCN — single call non-ringing DN

MCR — multiple call ringing DN

MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

Carriage return until you see either of the following messages:

U.data P.data small systems
or
MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

New M3820 telephone

STEP	ACTION
23	**Check that the telephone works.**
	Try to make a call. Try to receive a call.
	If — **Do**
	telephone works — step 24
	telephone does not work — step 1
24	**Arrange for a data dump to be performed.**
	If — **Do**
	you do not have access to LD 43 — Contact your system supplier.
	you have access to L D43 — step 25
25	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11* input/output guide for more information on LD43.

```
> LD 43
.EDD <cr>
```

— continued —

STEP	ACTION
26	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 27
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off. **>** LOGO
29	**You have now completed the minimum programming required to implement a basic new M3820 telephone.**
	END

New M3820 telephone

New M3901 telephone

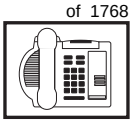
Purpose

The information in this Task module will help you if a user at your site requires a new M3901 Meridian Digital Telephone.

New M3901 telephone

Icons on key caps

New M3901 telephone



If the user needs a new telephone, install an M3901telephone if:

- the user needs one Directory Number (DN)
- the user wants a button for easy access to five features along with a feature activation LED and a feature card on the telephone
- the user wants to adjust the volume for the handset and ringing tone
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants to have a desktop or a wall mount telephone

Basic configuration

This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

New M3901 telephone

Software

Table 102
Software requirements

Release required	Software package(s) required
24	88 (DSET) Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Accessories

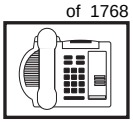
The M3901 telephone supports the following accessory:

- Headset, connected using the handset jack and an MPA (amplifier)

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3901 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.



Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3901 is a digital telephone, it is programmed in overlay program (LD) 11.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

New M3901 telephone

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one DN.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle. The call status indicator flashes. It is beside the message waiting indicator at the top of the telephone faceplate.
- When a call comes into a non-ringing appearance of a DN, the call status indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

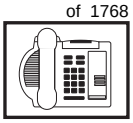
Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN.*

New M3901 telephone



If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

Single Call DN

The DN can handle only one call at a time.

This means that if there are other appearances of that DN on digital telephones or SL 1-type telephones, the indicator is lit steadily at all telephones, when one person is using the DN.

When you want to assign a *Single Call Ringing DN* to a key on an M3901 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3901 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Refer to the information in this module on Single call DNs.

New M3901 telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

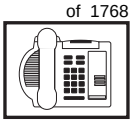
When you want to assign a *Multiple Call Ringing DN* to a key on an M3901 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3901 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

New M3901 telephone



Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M3901 telephone.

Prime DN, Key 0

The button labelled *Line* is programmed as Key 0. It *must be* programmed with a DN. This DN is called the prime DN. The DN can be a Multiple Call ringing or non-ringing DN, a Single Call ringing or non-ringing DN or a Private Line ringing or non-ringing DN. It can also be configured with an ACD DN when used in a Call Center environment. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution.*

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

New M3901 telephone

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 to do this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

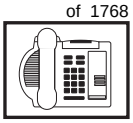
Because the M3901 is a digital telephone, it is programmed in overlay program (LD) 11. Even though some models of telephone have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Features key

The user has access to five features that do not require a display when they use the Features key. You must program the five features in LD 11. Each one has a number from 1-5 associated with it. The user



must press the Features key and then a number (1-5) to activate the feature they want. The feature card attached to the telephone reminds the user which code is associated with each of the five features.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone.

Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

New M3901 telephone

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

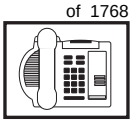
With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.



For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. The choices are: DRG1, DRG2, DRG3, or DRG4. (DRG stands for Distinctive Ringing Group.) When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence.

New M3901 telephone

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 10 3
Software requirements

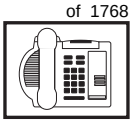
Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 10 4
Software requirements

Release required	Software package(s) required
21	none

New M3901 telephone



If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Key Expansion module

You cannot use Key Expansion modules with the M3901 telephone.

Control tips

- If the user unplugs an M3901 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone

New M3901 telephone

Administration tips

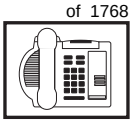
- The M3901 telephone has a red indicator that lights when there are messages waiting. You can program one of the five features keys as an Autodial key. This gives the user an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on Message Waiting, refer to Task 24, *Message Center*.

- Consider using one or two standard key layouts for all digital telephones, or at least all M3901 telephones. This can save significant amounts of memory.

Training tips

- It is an advantage if you have a standard feature layout on all M3901 telephones, since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps everyone get the most out of the system. In turn, the system provides the expected benefits.
- Make certain that the users know where to get more information about how to use their telephones and features.



What to have ready

Make the following preparations before you do the basic programming of a new M3901 telephone.

Table 105
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN. Decide whether the DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3901 telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

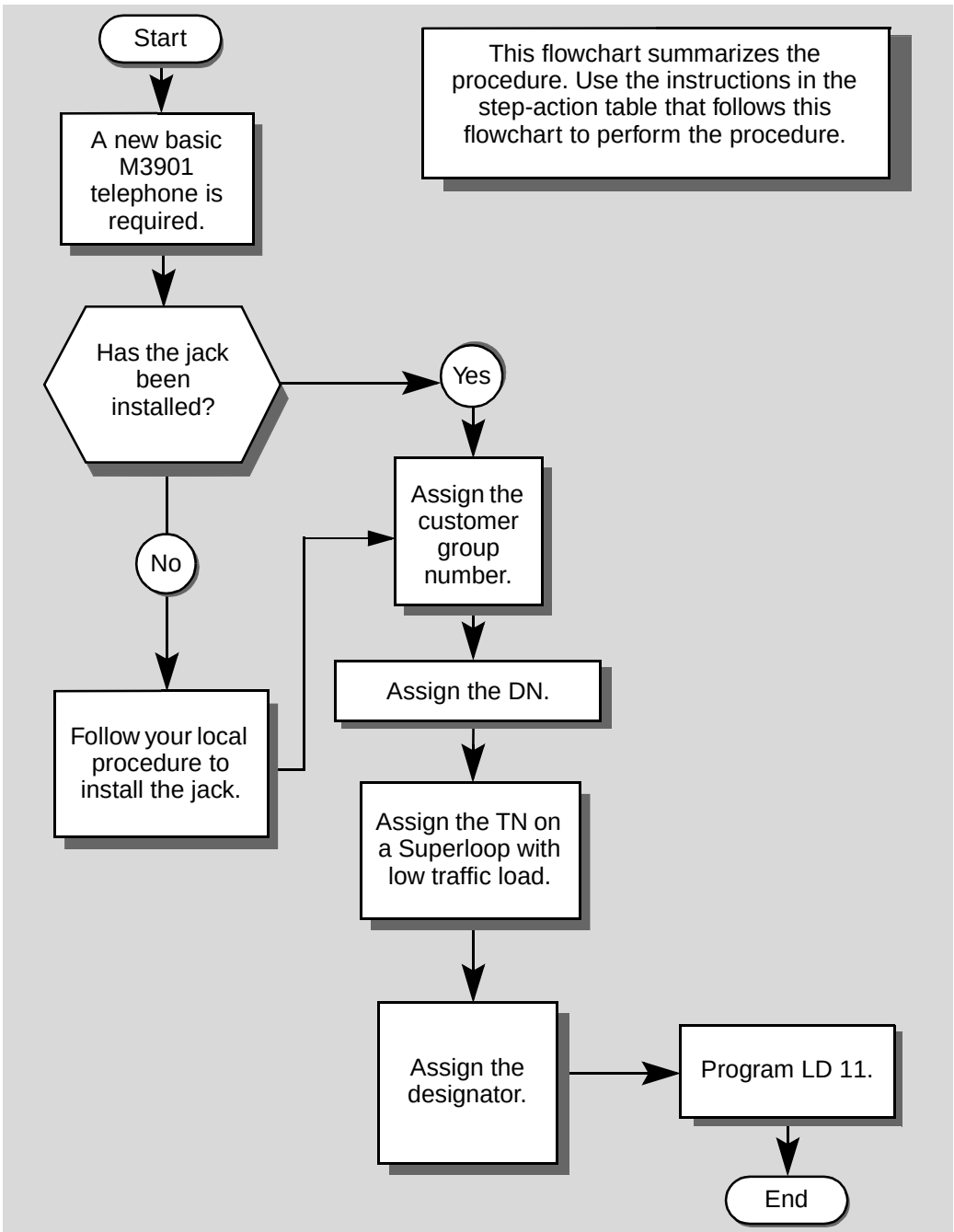
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3901 telephone.

New M3901 telephone



New M3901 telephone

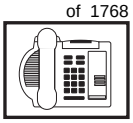
The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3901 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —



STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M3901 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop **S**helf **C**ard **U**nit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

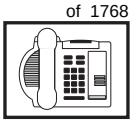
Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M3901 telephone



STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12 Choose an available DN which fits your Numbering Plan and the needs of the user.

13 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	3901	M3901 telephone. If there are no M3901 telephones installed yet, choose a type of digital telephone that has been installed.

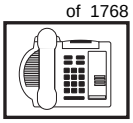
You get a printout of the available digital telephone TNs.

— continued —

New M3901 telephone

STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	`> LD 11`	
	REQ `NEW`	New telephone
	TYPE `3901`	M3901 telephone
	TN `L S C U`	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN `<cr>`	Carriage return — use the default
	DES `A..A`	Designator maximum six characters
	CUST `0–99`	customer group number
	carriage return until you see the prompt KEY	

— continued —



STEP	ACTION

19 continued ...

Program key 0 in one of the following ways:

KEY 0 SCR X..X	SCR — single call ringing DN
KEY 0 SCN X..X	SCN — single call non-ringing DN
KEY 0 MCR X..X	MCR — multiple call ringing DN
KEY 0 MCN X..X	MCN — multiple call non-ringing DN
KEY 0 PVR X..X	PVR — private line ringing DN
KEY 0 PVN X..X	PVN — private line non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

20 Program up to five features to be accessed using the Features key.

KEY 1 aaayyy zzz Refer to *Adding and changing features.*
KEY 2 aaayyy zzz
KEY 3 aaayyy zzz
KEY 4 aaayyy zzz
KEY 5 aaayyy zzz

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

New M3901 telephone

STEP	ACTION
21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to L D43	step 25

23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD43.

```
> LD 43

.EDD <cr>
```

— continued —

STEP	ACTION
24	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If / **Do** data dump fails / Contact your system supplier. data dump succeeds / step 27
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off. **>** LOGO
27	**You have now completed the minimum programming required to implement a basic new M3901 telephone.**
	END

New M3901 telephone

New M3902 telephone

Purpose

The information in this Task module will help you if a user at your site requires a new M3902 Meridian Digital Telephone.

New M3902 telephone

Icons on key caps

New M3902 telephone

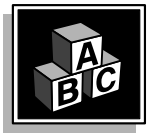
The M3902 telephone is not available in Europe.

If the user needs a new telephone, install an M3902 telephone if:

- the user needs one Directory Number (DN)
- the user has a personal computer or the user wants to use first party CTI applications. You want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires. You want the user to be able to control the telephone from the PC using applications such as Call Manager.
- the user wants handsfree conversation capability with the ability to mute the speech path
- the user wants three buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user wants to adjust the volume for handset listen, headset listen, headset talk, headset side tone, handsfree volume, ringing tone, and buzz tone
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants a display
- the user needs the choice of different languages on the display when using features
- the user wants to connect an analogue device such as a FAX machine or modem to the telephone
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user wants to be able to position the telephone in two different ways (desktop position and a wall mount position)

New M3902 telephone

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 106
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

New M3902 telephone

Accessories

The M3902 telephone supports the following accessories:

- MCA data option to provide integrated voice and data at a baud rate of 28.8 Kbps (baud rate option 9, when you program the telephone in LD 11)
- External Alerter Interface/Recorder Interface to connect a remote ringer or light to indicate when the telephone rings and when it is off-hook
- Headset, connected using the handset jack and an MPA (amplifier)
- Analogue Terminal Adapter (ATA) to connect an analogue device such as a FAX machine or modem to the telephone

There is an Accessory Connection Module (ACM) to be installed inside the terminal stand.

Power

Talk to your system supplier about the power requirements for accessories you are adding to the telephone.

Language Display Options

The information on your display screen can be displayed in one of fifteen languages.

You can choose from the following language options:

- English
- French (neutral)
- Spanish (neutral)
- German
- Dutch
- Portuguese (neutral)
- Italian
- Danish

New M3902 telephone

- Norwegian
- Swedish
- Finnish
- Polish
- Czech
- Hungarian
- Japanese

Note: The term neutral means that the language is presented in a way that is understood globally.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3902 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

New M3902 telephone

Because the M3902 is a digital telephone, it is programmed in overlay program (LD) 11.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

New M3902 telephone

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one DN. Only key 0 can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle. The call status indicator flashes. It is at the top of the telephone faceplate.
- When a call comes into a non-ringing appearance of a DN, the call status indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN.*

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

New M3902 telephone

Single Call DN

The DN can handle only one call at a time.

This means that if there are other appearances of that DN on digital telephones or SL 1-type telephones, the indicator is lit steadily at all telephones, when one person is using the DN.

When you want to assign a *Single Call Ringing DN* to a key on an M3902 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3902 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Refer to the information in this module on Single call DNs.

New M3902 telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3902 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3902 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

New M3902 telephone

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M3902 telephone.

Prime DN, Key 0

Key 0 *must be* programmed with a DN. This DN is called the prime DN. The DN can be a Multiple Call ringing or non-ringing DN, a Single Call ringing or non-ringing DN, or a Private Line ringing or non-ringing DN. It can also be configured with an ACD DN when used in a Call Center environment. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution*.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

New M3902 telephone

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3902 is a digital telephone, it is programmed in overlay program (LD) 11. Even though some models of telephone have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

New M3902 telephone

Soft-labelled programmable feature keys

There are three keys under the display that you can program with features the user needs. The name of the feature appears above the key, once you have programmed it.

The Class of Service of this telephone defaults to Automatic Digit Display allowed.

Fixed feature keys

Key 4 is automatically configured as a Call Transfer key. The key is labelled *Transfer.* You can program the Conference feature (three- or six-party) on the key, if you prefer.

Key 5 is fixed as a MessageWaiting key. The indicator at the top of the faceplate lights up when there is a message waiting at a Message Center.

There is also a fixed key labelled *Options*. It is part of the telephone; you do not have to activate it in programming. You use the navigation keys that are in a cluster to move left, right, up and down to access and select options that appear on the display.

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Superloops perform best when they share equally in the total traffic load carried by the system.

New M3902 telephone

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically,

New M3902 telephone

especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

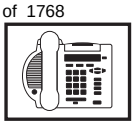
You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

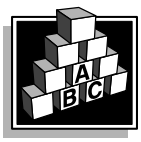


New M3902 telephone

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. The choices are: DRG1, DRG2, DRG3, or DRG4. (DRG stands for Distinctive Ringing Group.) When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The user can change the ringing group using the Options key.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 107
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 108
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

New M3902 telephone

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Handsfree unit

The handsfree unit must be enabled or disabled in the Class of Service programming of the telephone. You can allow or deny it in overlay (LD) 11, using the mnemonic HFA (handsfree allowed) or HFD, (handsfree denied).

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.

You program Group Listening in the Class of Service of the telephone in overlay (LD) 11. Use the mnemonic GRLA for Group Listening allowed or GRLD for Group Listening denied. On the telephone, use the Options key to select Group Listening Control and turn it on or off.

New M3902 telephone

Key Expansion module

You cannot use Key Expansion modules with the M3902 telephone.

Data option

When the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system.

The baud rate of 28.8 Kbps has been introduced for the M3900 series telephones. You select the baud rate when you program the telephone in overlay (LD) 11.

Analogue Terminal Adapter (ATA)

This device allows you to connect an analogue device such as a FAX machine or modem to the telephone. You must allow this capability in the Class of Service of the telephone.

Brandlining

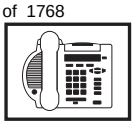
There is a removable insert that you can replace with an insert showing the system supplier's logo.

Control tips

- If the user unplugs an M3902 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone

Administration tips

- The M3902 telephone has a red indicator that lights when there are messages waiting. You can program one of the three soft-labelled programmable features keys as an Autodial key. This gives the user an easy way of dialing the message center or voice mail when there are messages waiting.



New M3902 telephone

For more information on Message Waiting, refer to Task 24, *Message Center*.

- Consider using one or two standard key layouts for all digital telephones, or at least all M3902 telephones. This can save significant amounts of memory.

- If users are allowed to have the Handsfree or Group Listening functionalities, set some guidelines as to who can use that kind of feature and under what circumstances.

  For example, you might make a policy that allows people with enclosed offices to use Group Listening, provided their office door is closed. Therefore, people around them are not disturbed during Group Listening conversations.

Training tips

- If you have a standard key layout on all M3902 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps everyone get the most out of the system. In turn, the system provides the expected benefits.
- Make certain that the users know where to get more information about how to use their telephones and features.

New M3902 telephone

What to have ready

Make the following preparations before you do the basic programming of a new M3902 telephone.

Table 109
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN. Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the accessories, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3902 telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

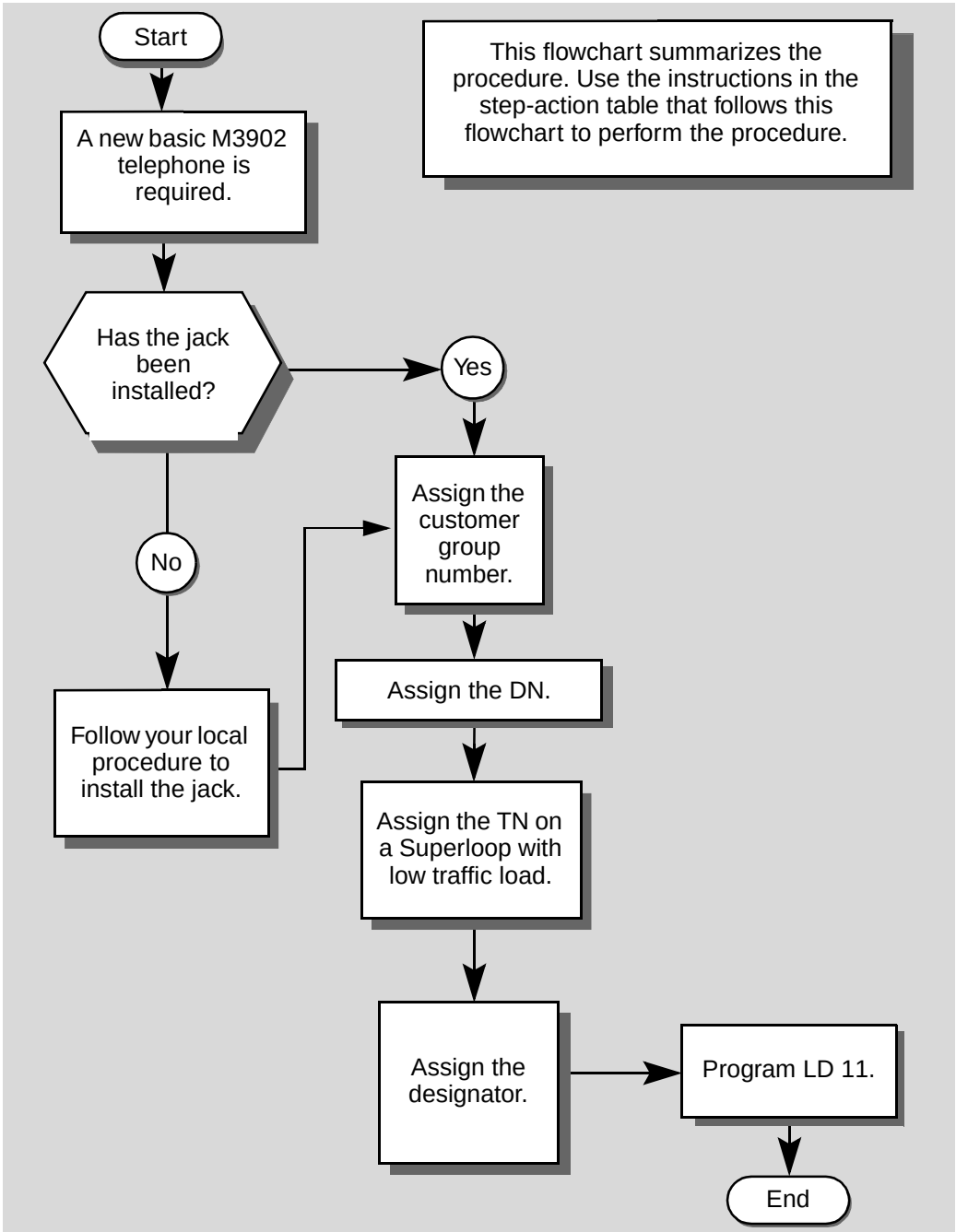
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3902 telephone.

New M3902 telephone



New M3902 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3902 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

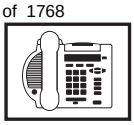
or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —



New M3902 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M3902 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12 Choose an available DN which fits your Numbering Plan and the needs of the user.

13 Find out what Terminal Numbers are available for the new telephone.

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14 Print out the available TNs on your system.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	3902	M3902 telephone. If there are no M3902 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M3902 telephone

STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**

If	Do
there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

16 **Choose the TN for the new telephone.**

17 **Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**

18 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

19 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
>LD 11
```

REQ	NEW	New telephone
TYPE	3902	M3902 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	A..A	Designator maximum six characters
CUST	0-99	customer group number

Carriage return until you see the KEY prompt.

— continued —

STEP	ACTION

19 continued ...

Program key 0 in one of the following ways:

KEY 0 SCR X..X	SCR — single call ringing DN
KEY 0 SCN X..X	SCN — single call non-ringing DN
KEY 0 MCR X..X	MCR — multiple call ringing DN
KEY 0 MCN X..X	MCN — multiple call non-ringing DN
KEY 0 PVR X..X	PVR — private line ringing DN
KEY 0 PVN X..X	PVN — private line non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

20 Program up to three features on the soft-labelled keys.

KEY 1 aaayyy zzz Refer to *Adding and changing features.*

KEY 2 aaayyy zzz

KEY 3 aaayyy zzz

Note 1: Key 4 is pre-configured as TRN (Call Transfer) by default. You can change it to AO3 or AO6, if you prefer. Refer to the *Conference* module.

Note 2: Key 5 is pre-configured as a Message Waiting key. Refer to the *Message Center* module.

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

New M3902 telephone

STEP	ACTION
21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to L D43	step 25

23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD43.

```
> LD 43

.EDD <cr>
```

— continued —

STEP	ACTION
24	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

25	**Terminate this overlay program.**

. ****

26	**Terminate this programming session.**

Log off.

> LOGO

27	**You have now completed the minimum programming required to implement a basic new M3902 telephone.**

END

New M3902 telephone

New M3903 telephone

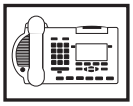
Purpose

The information in this Task module will help you if a user at your site requires a new M3903 Meridian Digital Telephone.

New M3903 telephone

Icons on key caps

New M3903 telephone



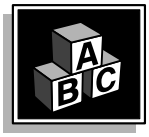
The M3903 telephone is not available in Europe.

If the user needs a new telephone, install an M3903 telephone if:

- the user needs up to two Directory Numbers (DNs)
- the user has a personal computer or the user wants to use first party CTI applications. You want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires. You want the user to be able to control the telephone from the PC using applications such as Call Manager.
- the user wants handsfree conversation capability with the ability to mute the speech path
- the user wants to use a headset
- the user wants buttons (or keys) for easy access to features or commonly dialed telephone numbers
- the user wants to adjust the volume for handset listen, headset listen, headset talk, headset side tone, handsfree volume, ringing tone, and buzz tone
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants a display
- the user needs the choice of different languages on the display when using features
- the user wants a telephone that logs calls
- the user wants to connect an analogue device such as a FAX machine or modem to the telephone
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing
- the user wants to be able to position the telephone in two different ways (desktop position and a wall mount position)

New M3903 telephone

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 110
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

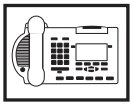
The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Accessories

The M3903 telephone supports the following accessories:

- MCA data option to provide integrated voice and data at a baud rate of 28.8 Kbps (baud rate option 9, when you program the telephone in LD 11)
- External Alerter Interface/Recorder Interface to connect a remote ringer or light to indicate when the telephone rings and when it is off-hook



- Direct Connect Headset which allows the headset to operate while the handset is on hook
- Analogue Terminal Adapter (ATA) to connect an analogue device such as a FAX machine or modem to the telephone

There is an Accessory Connection Module (ACM) to be installed inside the terminal stand.

Power

Talk to your system supplier about the power requirements for accessories you are adding to the telephone.

Language Display Options

The information on your display screen can be displayed in one of fifteen languages. You can choose from the following language options:

- English
- French (neutral)
- Spanish (neutral)
- German
- Dutch
- Portuguese (neutral)
- Italian
- Danish
- Norwegian
- Swedish
- Finnish
- Polish
- Czech

New M3903 telephone

- Hungarian
- Japanese

Note: The term neutral means that the language is presented in a way that is understood globally.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3903 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

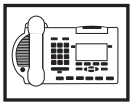
Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3903 is a digital telephone, it is programmed in overlay program (LD) 11.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

New M3903 telephone



The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

New M3903 telephone

This telephone can be configured to have one or two DNs. Keys numbered 0 and 1 can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle. The call status indicator flashes. It is at the top of the telephone faceplate.
- When a call comes into a non-ringing appearance of a DN, the call status indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M3903 telephone has two DN keys programmed, you can program each DN key to ring or not to ring, according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

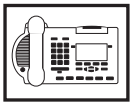
Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

Single Call DN

The DN can handle only one call at a time.

New M3903 telephone



This means that if there are other appearances of that DN on digital telephones or SL 1-type telephones, the indicator is lit steadily at all telephones, when one person is using the DN.

When you want to assign a *Single Call Ringing DN* to a key on an M3903 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3903 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

New M3903 telephone

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3903 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3903 telephone, you assign the following programming code to the key:

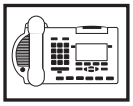
`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M3903 telephone.

New M3903 telephone



Prime DN, Key 0

Key 0 *must be* programmed with a DN. This DN is called the prime DN. The DN can be a Multiple Call ringing or non-ringing DN, a Single Call ringing or non-ringing DN or a Private Line ringing or non-ringing DN. It can also be configured with an ACD DN when used in a Call Center environment. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution*. You can configure Key 1 as a Multiple Call ringing or non-ringing DN, a Single Call ringing or non-ringing DN, or a Private Line ringing or non-ringing DN.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout

New M3903 telephone

also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3903 is a digital telephone, it is programmed in overlay program (LD) 11. Even though some models of telephone have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

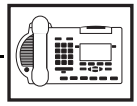
Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Soft-labelled programmable feature keys

There are four keys under the display that you can program with features the user needs. The user presses the *More* key to access more features. The name of the feature appears above the key, once you have programmed it.

The Class of Service of this telephone defaults to Automatic Digit Display allowed.



Fixed feature keys

Recommended key assignments

Table 111

Key number	Feature
16	MWK – Message Waiting
17	TRN – Call Transfer
18	AO3 – Three-party Conference AO6 – Six-party Conference
19	CFW – Call Forward All Calls
20	RGA – Ring Again
21	PRK – Call Park
22	RNP – Ringing Number Pickup
23	SCU – Speed Call User SCC – Speed Call Controller SSU – System Speed Call User SSC – System Speed Call Controller
24	PRS – Privacy Release
25	CHG – Charge Account
26	CPN – Calling Party Number

Options key

The Options key is part of the telephone; you do not have to activate it in programming. You use the navigation keys that are in a cluster to move left, right, up and down to access and select options that appear on the display.

Call Log

The Call Log key allows the user to access these lists:

- Callers List
- Redial List

New M3903 telephone

These lists can be password protected. A default password (12345678) is downloaded to the telephone if the administrator resets the password using overlay program 32.

The Call Log is a list of the names and numbers associated with incoming calls. At this time, it holds up to 10 entries (it will hold 20 entries in the future). You can set up the Call Log to record all incoming calls or only unanswered incoming calls.

Shift key

Pressing the shift key gives you another layer of lines or features programmed against the soft keys on the sides of the display.

Traffic

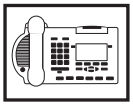
When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.



The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

New M3903 telephone

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

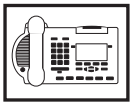
Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.



Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. The choices are: DRG1, DRG2, DRG3, or DRG4. (DRG stands for Distinctive Ringing Group.) When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The user can change the ringing group using the Options key.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the “Executive” telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

New M3903 telephone

Table 11 2
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

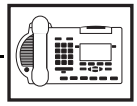
Directory Number Delayed Ringing (DNDR)

Table 11 3
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.



When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Handsfree unit

The handsfree unit must be enabled or disabled in the Class of Service programming of the telephone.You can allow or deny it in overlay (LD) 11, using the mnemonic HFA (handsfree allowed) or HFD, (handsfree denied).

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.

You program Group Listening in the Class of Service of the telephone in overlay (LD) 11. Use the mnemonic GRLA for Group Listening allowed or GRLD for Group Listening denied. On the telephone, use the Options key to select Group Listening Control and turn it on or off.

New M3903 telephone

Key Expansion module

You cannot use Key Expansion modules with the M3903 telephone.

Data option

When the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system.

The baud rate of 28.8 Kbps has been introduced for the M3900 series telephones. You select the baud rate when you program the telephone in overlay (LD) 11.

Analogue Terminal Adapter (ATA)

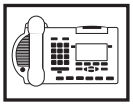
This device allows you to connect an analogue device such as a FAX machine or modem to the telephone. You must allow this capability in the Class of Service of the telephone.

Brandlining

There is a removable insert that you can replace with an insert showing the system supplier's logo. The M3903 supports electronic brandlining.

Control tips

- If the user unplugs an M3903 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone



Administration tips

- The M3903 telephone has a red indicator that lights steadily when there are messages waiting. The telephone has a Message Waiting key so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on MessageWaiting, refer to Task 24, *Message Center*.

- Consider using one or two standard key layouts for all digital telephones, or at least all M3903 telephones. This can save significant amounts of memory.

- If users are allowed to have the Handsfree or Group Listening functionalities, set some guidelines as to who can use that kind of feature and under what circumstances.

  For example, you might make a policy that allows people with enclosed offices to use Group Listening, provided their office door is closed. Therefore, people around them are not disturbed during Group Listening conversations.

Training tips

- If you have a standard key layout on all M3903 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.

- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.

- Make certain that the users know where to get more information about how to use their telephones and features.

New M3903 telephone

What to have ready

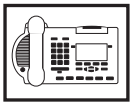
Make the following preparations before you do the basic programming of a new M3903 telephone.

Table 11 4
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the accessories, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3903 telephone



Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

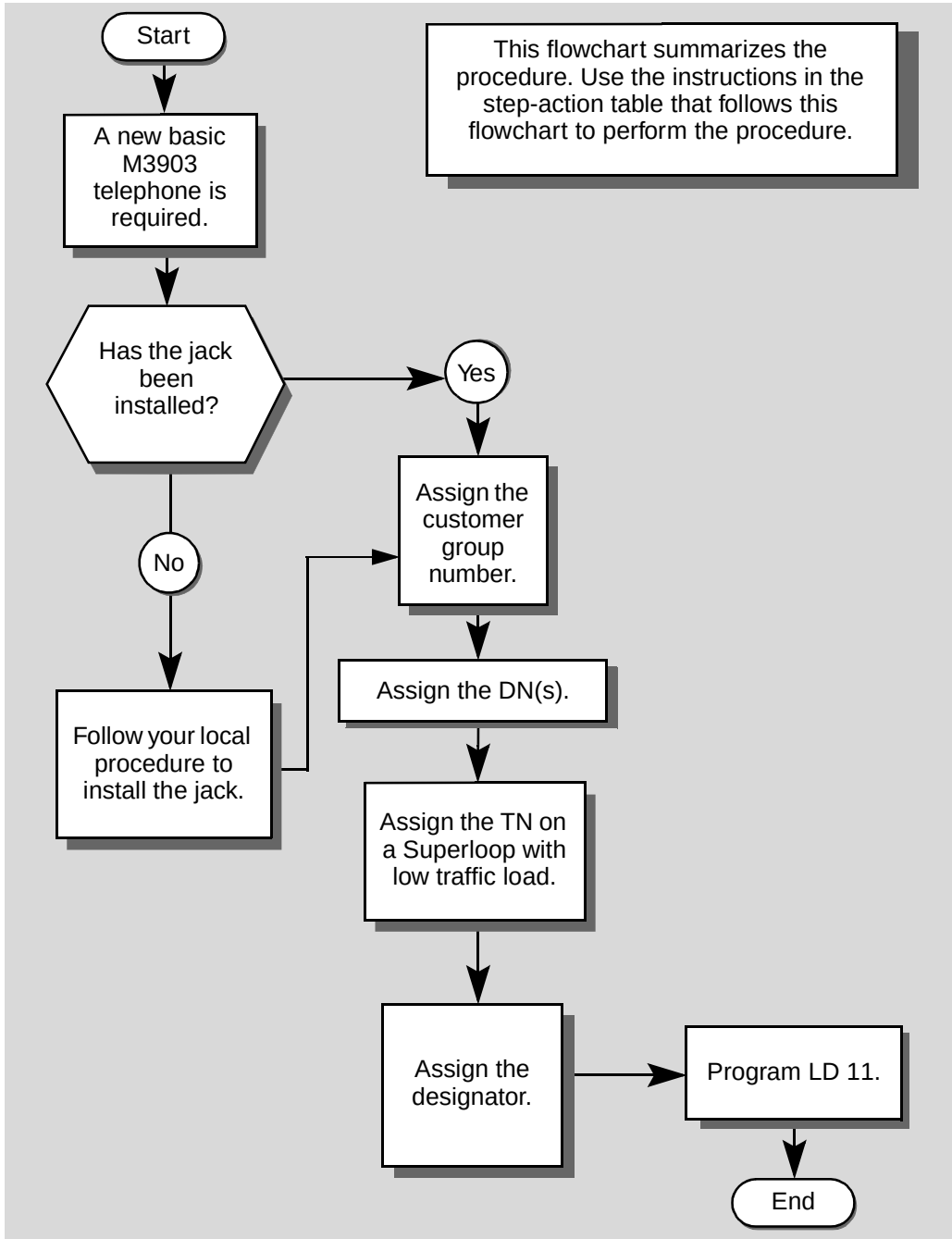
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

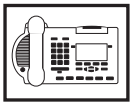
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3903 telephone.

New M3903 telephone



New M3903 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3903 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

— continued —

New M3903 telephone

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

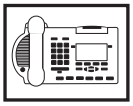
or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —



STEP	ACTION
6	**Print the TN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	PRT	Request a Printout
TYPE	TNB	TN Block
TN	L S C U	Input the Loop Shelf Card and Unit number of the other telephone

You get a printout of the customer group number of the other telephone.

7	**Assign the same customer group number to the new telephone.**

Go to step 10.

8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M3903 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose one or two available DN(s) from your Numbering Plan, according to the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

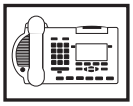
> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	3903	M3903 telephone. If there are no M3903 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M3903 telephone



STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**

If	Do
there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

16 **Choose the TN for the new telephone.**

17 **Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**

18 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

19 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 11
```

REQ	NEW	New telephone
TYPE	3903	M3903 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	A..A	Designator maximum six characters
CUST	0-99	customer group number

Carriage return until you see the KEY prompt.

— continued —

New M3903 telephone

STEP	ACTION

19 continued ...

Program keys 0 (and 1, if required) in one of the following ways:

KEY X SCR X..X SCR — single call ringing DN

KEY X SCN X..X SCN — single call non-ringing DN

KEY X MCR X..X MCR — multiple call ringing DN

KEY X MCN X..X MCN — multiple call non-ringing DN

KEY X PVR X..X PVR — private line ringing DN

KEY X PVN X..X PVN — private line non-ringing DN

X = 0 or 1

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

20 Program the features on the soft-labelled keys.

KEY XX aaayyy zzz Refer to the table on pag e701 for the key assignments. Refer to *Adding and changing features* for more information about each feature.

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

STEP	ACTION
21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

.EDD <cr>
```

— continued —

New M3903 telephone

STEP	ACTION
24	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

STEP	ACTION
25	**Terminate this overlay program.**

. ****

STEP	ACTION
26	**Terminate this programming session.**

Log off.

> LOGO

STEP	ACTION
27	**You have now completed the minimum programming required to implement a basic new M3903 telephone.**

END

New M3904 telephone

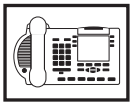
Purpose

The information in this Task module will help you if a user at your site requires a new M3904 Meridian Digital Telephone.

New M3904 telephone

Icons on key caps

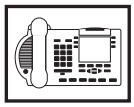
New M3904 telephone



The M3904 telephone is not available in Europe.

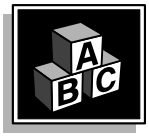
If the user needs a new telephone, install an M3904 telephone if:

- the user needs up to six Directory Numbers (DNs)
- the user has a personal computer or the user wants to use first party CTI applications. You want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires. You want the user to be able to control the telephone from the PC using applications such as Call Manager.
- the user wants handsfree conversation capability with the ability to mute the speech path
- the user wants to use a headset
- the user wants up to 32 keys for easy access to features/lines or commonly dialed telephone numbers - the Key-based Accessory (KBA) allows you to configure up to 54 keys; a second KBA allows up to 76 keys
- the user wants to adjust the volume for handset listen, headset listen, headset talk, headset side tone, handsfree volume, ringing tone, and buzz tone
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants a display
- the user needs the choice of different languages on the display when using features
- the user wants a telephone that logs calls
- the user wants a telephone that has a personal directory
- the user wants to connect an analogue device such as a FAX machine or modem to the telephone
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing



New M3904 telephone

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 115
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

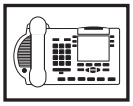
The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Accessories

The M3904 telephone supports the following accessories:

- MCA data option to provide integrated voice and data at a baud rate of 28.8 Kbps (baud rate option 9, when you program the telephone in LD 11)
- External Alerter Interface/Recorder Interface to connect a remote ringer or light to indicate when the telephone rings and when it is off-hook



- Personal Directory PC Utility which allows the user to transfer information from and to a PC
- Key-based Add-on Module allows you to configure ranges of keys as follows: up to 32 keys with no KBA activated, 54 keys with one KBA activated, and 76 keys with two KBAs activated.
- Direct Connect Headset which allows the headset to operate while the handset is on hook
- Analogue Terminal Adapter (ATA) to connect an analogue device such as a FAX machine or modem to the telephone

There is an Accessory Connection Module (ACM) to be installed inside the terminal stand.

The M3904 telephone can sit on a desk or be mounted on a wall.

Key-based Add-on Module

The Key-based Add-on Module allows you to program up to 76 feature and line keys by programming two modules when you program the telephone. When you program one module in the programming of the telephone, you can program up to 54 keys. The functions for the keys are accessed using the soft-labelled feature names on the display.

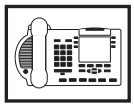
Power

Talk to your system supplier about the power requirements for accessories you are adding to the telephone.

Language Display Options

The information on your display screen can be displayed in one of fifteen languages. You can choose from the following language options:

- English
- French (neutral)
- Spanish (neutral)
- German



New M3904 telephone

- Dutch
- Portuguese (neutral)
- Italian
- Danish
- Norwegian
- Swedish
- Finnish
- Polish
- Czech
- Hungarian
- Japanese

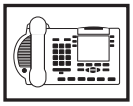
Note: The term neutral means that the language is presented in a way that is understood globally.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3904 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.



For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

Because the M3904 is a digital telephone, it is programmed in overlay program (LD) 11.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

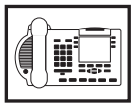
Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number,



New M3904 telephone

or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 0–11 on the telephone can have a DN assigned. The DNs on keys numbered 0-5 are on the first screen of the display. It is not recommended to use keys 6-11 for DNs; use them for features instead.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle. The call status indicator flashes. It is at the top of the telephone faceplate.
- When a call comes into a non-ringing appearance of a DN, the call status indicator flashes but the telephone does not ring.

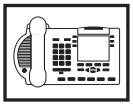
If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M3904 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

New M3904 telephone



The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

Single Call DN

The DN can handle only one call at a time.

This means that if there are other appearances of that DN on digital telephones or SL 1-type telephones, the indicator is lit steadily at all telephones, when one person is using the DN.

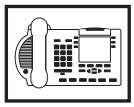
When you want to assign a *Single Call Ringing DN* to a key on an M3904 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3904 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.



New M3904 telephone

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

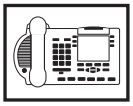
Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3904 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

New M3904 telephone



When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3904 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

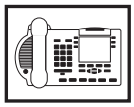
The step-action table at the end of this module explains how to assign a DN on a new M3904 telephone.

Prime DN, Key 0

Key 0 *must be* programmed with a DN. This DN is called the prime DN. The DN can be a Multiple Call ringing or non-ringing DN, a Single Call ringing or non-ringing DN or a Private Line ringing or non-ringing DN. It can also be configured with an ACD DN when used in a Call Center environment. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution.* You can configure Keys 1–11 as Multiple Call ringing or non-ringing DNs, Single Call ringing or non-ringing DNs, or Private Line ringing or non-ringing DNs. It is recommended that you only configure DNs on keys 0-5.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example,



New M3904 telephone

you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

DN-Block printout

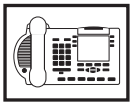
If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3904 is a digital telephone, it is programmed in overlay program (LD) 11. Even though some models of telephone have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

New M3904 telephone



If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Soft-labelled programmable feature keys

There are four keys under the display that you can program with features the user needs. The user presses the *More* key to access more features. The name of the feature appears above the key, once you have programmed it.

The Class of Service of this telephone defaults to Automatic Digit Display allowed.

Fixed feature keys

Shift key

Pressing the shift key gives you another layer of lines or features programmed against the soft keys on the sides of the display.

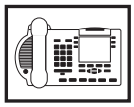
Options key

The Options key is part of the telephone; you do not have to activate it in programming. You use the navigation keys that are in a cluster to move left, right, up and down to access and select options that appear on the display.

Directory/Log

The Directory/Log key allows the user to access three lists:

- Personal Directory
- Callers List
- Redial List



New M3904 telephone

These lists can be password protected. A default password (12345678) is downloaded to the telephone if the administrator resets the password using overlay program 32.

The Call Log is a list of the names and numbers associated with incoming calls. It holds up to 100 entries. The user can copy from this list to the Personal Directory. You can set up the Call Log to record all incoming calls or only unanswered incoming calls.

Personal Directory PC Utility

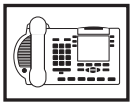
This accessory allows the user to transfer directory information from and to a PC. The user can store up to three numbers for one entry in the Directory. This is useful when you want to enter a secondary telephone number and a FAX number for a person listed in the directory.

Recommended key assignments

Table 116

Key number	Feature
16	MWK – Message Waiting
17	TRN – Call Transfer
18	AO3 – Three-party Conference AO6 – Six-party Conference
19	CFW – Call Forward All Calls
20	RGA – Ring Again
21	PRK – Call Park
22	RNP – Ringing Number Pickup
23	SCU – Speed Call User SCC – Speed Call Controller SSU – System Speed Call User SSC – System Speed Call Controller
24	PRS – Privacy Release
25	CHG – Charge Account
26	CPN – Calling Party Number

New M3904 telephone



Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

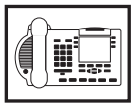
Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.



New M3904 telephone

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

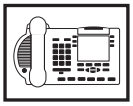
With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.



For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

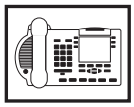
Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. The choices are: DRG1, DRG2, DRG3, or DRG4. (DRG stands for Distinctive Ringing Group.) When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The user can change the ringing group using the Options key.



New M3904 telephone

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 11 7
Software requirements

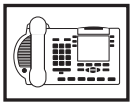
Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 11 8
Software requirements

Release required	Software package(s) required
21	none

New M3904 telephone



If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

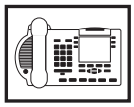
- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Handsfree unit

The handsfree unit must be enabled or disabled in the Class of Service programming of the telephone.You can allow or deny it in overlay (LD) 11, using the mnemonic HFA (handsfree allowed) or HFD, (handsfree denied).

Group Listening

When you enable Group Listening, both sides of a conversation are transmitted through the speaker of the telephone. The person on the other end cannot hear what you are saying unless you speak into the handset or headset. Verify that it is legal to use this feature in your area.



New M3904 telephone

You program Group Listening in the Class of Service of the telephone in overlay (LD) 11. Use the mnemonic GRLA for Group Listening allowed or GRLD for Group Listening denied. On the telephone, use the Options key to select Group Listening Control and turn it on or off.

Data option

When the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system.

The baud rate of 28.8 Kbps has been introduced for the M3900 series telephones. You select the baud rate when you program the telephone in overlay (LD) 11.

Analogue Terminal Adapter (ATA)

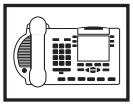
This device allows you to connect an analogue device such as a FAX machine or modem to the telephone. You must allow this capability in the Class of Service of the telephone.

Brandlining

There is a removable insert that you can replace with an insert showing the system supplier's logo. The M3904 supports electronic brandlining.

Control tips

- If the user unplugs an M3904 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone



Administration tips

- The M3904 telephone has a red indicator that lights steadily when there are messages waiting. The telephone has a Message Waiting key so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on MessageWaiting, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M3904 telephones. This can save significant amounts of memory.

- If users are allowed to have the Handsfree or Group Listening functionalities, set some guidelines as to who can use that kind of feature and under what circumstances.

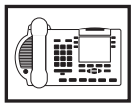
  For example, you might make a policy that allows people with enclosed offices to use Group Listening, provided their office door is closed. Therefore, people around them are not disturbed during Group Listening conversations.

Training tips

- If you have a standard key layout on all M3904 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.

- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.

- Make certain that the users know where to get more information about how to use their telephones and features.



New M3904 telephone

What to have ready

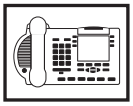
Make the following preparations before you do the basic programming of a new M3904 telephone.

Table 11 9
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the accessories, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3904 telephone



Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

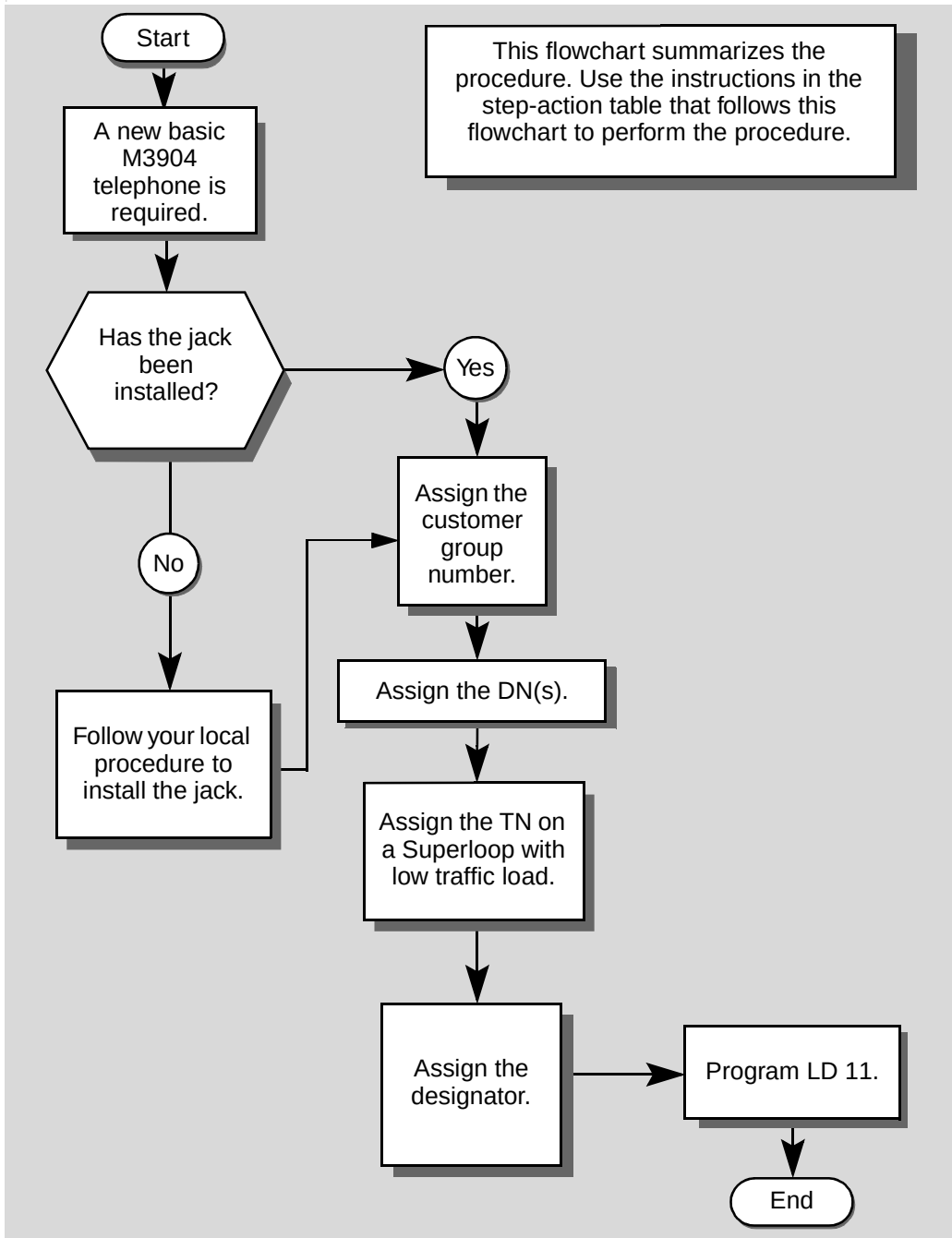
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

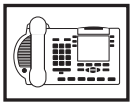
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3904 telephone.

New M3904 telephone



New M3904 telephone



The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3904 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then do step 10.
	you know your customer group number	step 10

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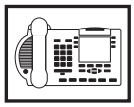


New M3904 telephone

STEP	ACTION
4	**Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.**

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 **Print the DN Block of the other telephone.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

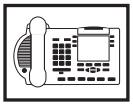
MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

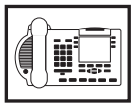
New M3904 telephone



STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —



New M3904 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0 – 99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose available DNs which fit your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

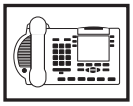
> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	3904	M3904 telephone. If there are no M3904 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

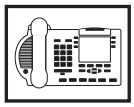
— continued —

New M3904 telephone



STEP	ACTION	
15	**Consider traffic when choosing a TN to use for the new telephone.**	
	If	**Do**
	there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
	there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.
16	**Choose the TN for the new telephone.**	
17	**Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**	
18	**Assign a Designator.**	
	According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.	
19	**Program the new telephone.**	
	Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.	
	> LD 11	
	REQ NEW	New telephone
	TYPE 3904	M3904 telephone.
	TN L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
	CDEN <cr>	Carriage return - use the default
	DES A..A	Designator maximum six characters
	CUST 0-99	customer group number
	Carriage return until you see the KEY prompt.	

— continued —



New M3904 telephone

STEP	ACTION
19 continued ...	

Program the DNs the user needs on keys 0-11 in one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

XX represents the key number (0–11). It is recommneded that you assign DNs to keys 0–5 only.

Key 0 must be programmed with a DN

SCR — single call ringing DN

SCN — single call non-ringing DN

MCR — multiple call ringing DN

MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

20 **Program the features on the soft-labelled keys.**

KEY XX aaayyy zzz Refer to the table on pag e734 for the key assignments. Refer to *Adding and changing features* for more information about each feature.

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT large systems

— continued —

STEP	ACTION
21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD43	step 25

23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

.EDD <cr>
```

— continued —

New M3904 telephone

STEP	ACTION
24	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE** **If** — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 27
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off. **>** LOGO
27	**You have now completed the minimum programming required to implement a basic new M3904 telephone.**
	END

New M3905 telephone

Purpose

The M3905 telephone is designed specifically for a Call Center environment. The features related to Call Centers are beyond the scope of this book. Ask your system supplier for more information.

New M3905 telephone

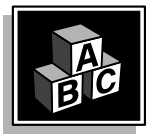
Icons on key caps

New M3905 telephone

If the user needs a new telephone, install an M3905 telephone if:

- the user needs up to eight Directory Numbers (DNs)
- the user wants a telephone designed for headset use but one where a handset can be used, if required
- the user requires easy-to-use keys for Call Center features (such as Supervisor, Emergency, Not Ready, Make Busy, and In-Calls)
- the user has a PC or the user wants to use first party CTI applications. You want to take advantage of the digital telephone's ability to provide simultaneous voice and data paths over a single pair of wires. You want the user to be able to control the telephone from the PC using applications such as Call Manager.
- the user wants handsfree conversation capability with the ability to mute the speech path
- the user wants up to 32 keys for easy access to features/lines or commonly dialed telephone numbers - the Key-based Accessory (KBA) allows you to configure up to 54 keys; a second KBA allows up to 76 keys
- the user wants to adjust the volume for handset listen, headset listen, headset talk, headset side tone, handsfree volume, ringing tone, and buzz tone
- the user wants a highly visible indication on the telephone when there are messages waiting
- the user wants a display
- the user wants a telephone that logs calls
- the user needs the choice of different languages on the display when using features
- the user wants to connect an analogue device such as a FAX machine or modem to the telephone
- the users in a group want telephones to ring with different sounds so they can tell which telephone is ringing

Basic configuration



This part tells you how the telephone must be programmed to make basic operation possible. It addresses the *minimum* amount of programming required to allow the user to make and receive calls.

For information on the additional features and capabilities you can allow or deny the user, refer to the section called *Adding and changing features*.

Software

Table 120
Software requirements

Release required	Software package(s) required
16 and later	88 (DSET) Digital Sets 170 (ARIE) Aries Digital Sets

Hardware

The installation of cabling and telephone and system hardware is not explained in detail in this book. There is information on these topics in the *Installation and Maintenance Guide* and the *Planning and Engineering Guide*. These books are shipped with every system.

When you are installing a new telephone, ask your system maintainer to do the physical installation work.

Accessories

The M3905 telephone supports the following accessories:

- MCA data option to provide integrated voice and data at a baud rate of 28.8 Kbps (baud rate option 9, when you program the telephone in LD 11)
- External Alerter Interface/Recorder Interface to connect a remote ringer or light to indicate when the telephone rings and when it is off-hook

- Direct Connect Headset which allows the headset to operate while the handset is on hook
- Key-based Add-on Module allows you to configure ranges of keys as follows: up to 32 keys with no KBA activated, 54 keys with one KBA activated, and 76 keys with two KBAs activated.
- Analogue Terminal Adapter (ATA) to connect an analogue device such as a FAX machine or modem to the telephone

There is an Accessory Connection Module (ACM) to be installed inside the terminal stand.

The M3905 telephone can sit on a desk or be mounted on a wall.

Key-based Add-on Module

The Key-based Add-on Module allows you to program up to 76 feature and line keys by programming two modules when you program the telephone. When you program one module in the programming of the telephone, you can program up to 54 keys. The functions for the keys are accessed using the soft-labelled feature names on the display.

Power

Talk to your system supplier about the power requirements for accessories you are adding to the telephone.

Language Display Options

The information on your display screen can be displayed in one of fifteen languages.

You can choose from the following language options:

- English
- French (neutral)
- Spanish (neutral)
- German
- Dutch
- Portuguese (neutral)

- Italian
- Danish
- Norwegian
- Swedish
- Finnish
- Polish
- Czech
- Hungarian
- Japanese

Note: The term neutral means that the language is presented in a way that is understood globally.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a specific sequence. These prompts require a response from the programmer in order to make the telephone function. A carriage return is considered a response, as it programs the default value.

The prompts discussed in this module are the ones to which you must respond to make a basic M3905 telephone function. The other prompts in the overlay program, not shown in this module, pertain to additional functions and features that you can allow or deny for each telephone.

Investigate the default responses to the other prompts because the default programming rarely suits the overall needs of any user, the user's manager or the telephone system administrator.

For example, users may need access to certain basic features, such as Call Transfer and Conference. These features are denied by default. Also, the telephone system administrator might want to implement corporate-wide policies for telephones which are not met through the default choices.

New M3905 telephone

Because the M3905 is a digital telephone, it is programmed in overlay program (LD) 11.

Appendix 2 at the end of this guide lists the prompts, responses (including the defaults) and the Task modules by number for prompts covered by this book.

The *X11 input/output guide (Administration)* which was shipped with your system provides detailed information on all prompts and responses in all of the administration overlay programs.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed, they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or, you can ask your system supplier what it is. On a single-customer site the customer group number most often used is 0. You must input a customer group number when you program telephones.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

This telephone can be configured to have one or more than one DN. Each of the keys numbered 1–7 on the telephone can have a DN assigned.

Ringing or Non-ringing DNs

On digital telephones, a DN can be programmed to be a ringing or a non-ringing appearance.

- When a call comes into a ringing appearance, the telephone rings, if it is idle. The call status indicator flashes. It is at the top of the telephone faceplate.
- When a call comes into a non-ringing appearance of a DN, the call status indicator flashes but the telephone does not ring.

If a DN appears on more than one digital telephone, you can program it to ring or not ring at each telephone, as required.

If an M3905 telephone has several DN keys programmed, you can program each DN key to ring or not to ring according to the needs of the user.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to program a DN on a key.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN.*

If a DN rings when a call comes in, it is called a *Single Call Ringing DN*. If it does not ring but flashes only, it is called a *Single Call Non-ringing DN*.

Single Call DN

The DN can handle only one call at a time.

This means that if there are other appearances of that DN on digital telephones or SL 1-type telephones, the indicator is lit steadily at all telephones, when one person is using the DN.

When you want to assign a *Single Call Ringing DN* to a key on an M3905 telephone, you assign the following programming code to the key:

`SCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCR code and the digits in the DN.

When you want to assign a *Single Call Non-ringing DN* to a key on an M3905 telephone, you assign the following programming code to the key:

`SCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the SCN code and the digits in the DN.

If you share a Single Call DN with an analog dial or Digitone telephone, there is no privacy. People can break in on calls in progress on that DN.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone. There is information on an important Multiple Appearance DN feature in Task 39, *Multiple Appearance DN Redirection Prime.*

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

New M3905 telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all of the programmed appearances of the DN. There can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching those maximums. Consult with your system supplier before you implement Multiple Appearance DNs.

If a DN rings when a call comes in, it is called a *Multiple Call Ringing DN*. If it does not ring but flashes only, it is called a *Multiple Call Non-ringing DN*.

When you want to assign a *Multiple Call Ringing DN* to a key on an M3905 telephone, you assign the following programming code to the key:

`MCR X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCR code and the digits in the DN.

When you want to assign a *Multiple Call Non-ringing DN* to a key on an M3905 telephone, you assign the following programming code to the key:

`MCN X..X` where X..X represents a DN which can range from 1–7 digits in length. There must be a space between the MCN code and the digits in the DN.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must have the same configuration. You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to assign a DN on a new M3905 telephone.

Prime DN, Key 0

Key 0 is configured with an Automatic Call Distribution (ACD) DN, when used in a Call Center environment. It is called the In-calls key. A discussion of Call Centers is beyond the scope of this book. You can find out more about them in the NTP called *Automatic Call Distribution*.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. For more information on the Numbering Plan refer to the *Terms and abbreviations* module.

New M3905 telephone

DN-Block printout

If you need to know exactly what numbers are currently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

Because the M3905 is a digital telephone, it is programmed in overlay program (LD) 11. Even though some models of telephone have more than one DN, the telephone is only assigned one TN. The DNs assigned are configured in software only.

If you are installing a new telephone, ask the person installing the jack and connecting it to the system what Terminal Number (TN) that person plans to assign to the new telephone.

Sometimes TNs are pre-configured. Follow the print procedure in the step-action table at the end of this module if you want to find out for yourself what Terminal Numbers are available.

Data terminals also require TNs, and if the user needs a data terminal, a separate Terminal Number must be assigned before you can program it. Talk to your system supplier about this.

Soft-labelled programmable feature keys

There are four keys under the display that you can program with features the user needs. The user presses the *More* key to access more features. The name of the feature appears above the key, once you have programmed it.

The Class of Service of this telephone defaults to Automatic Digit Display allowed.

Options/Program

One of the soft-labelled programmable feature keys (key 7) is pre-assigned as Options/Program.

Call log

Key 6 is used for Call Log/Redial List, if it is not configured as a line or other feature.

Recommended key assignments

Table 121

Key number	Feature
16	MWK – Message Waiting
17	TRN – Call Transfer
18	AO3 – Three-party Conference AO6 – Six-party Conference
19	CFW – Call Forward All Calls
20	RGA – Ring Again
21	PRK – Call Park
22	RNP – Ringing Number Pickup
23	SCU – Speed Call User SCC – Speed Call Controller SSU – System Speed Call User SSC – System Speed Call Controller
24	PRS – Privacy Release
25	CHG – Charge Account
26	CPN – Calling Party Number

Traffic

When you install telephones (or trunks and digitone receivers), you should consider the extra traffic load.

New M3905 telephone

There will be additional traffic because of the calls that will be made and received by the telephone user. You should consider the impact of this extra traffic load on the Superloop, to which you are adding this telephone. If there is an associated data terminal, it must be connected to the same card as the telephone. The expected traffic going to and coming from that terminal must also be calculated.

Superloops perform best when they share equally in the total traffic load carried by the system.

Blockage within the system will be negligible or non-existent when the traffic load for each Superloop is kept within the recommended guidelines. If all of your existing Superloops are at their recommended capacity, consider adding more to your system, to allow for extra terminals in the future.

Refer to the *You should know this* module and the *Traffic* module for more information on traffic concerns. Use the information on how to estimate the traffic on your system if there is no traffic study data available. This information is in the section on TFS001, in the *Traffic* module.

The step-action table contains information on how to relate traffic concerns to the selection of the TN for the new telephone.

Card density

Telephones are connected to interface cards in the system called line cards.

Meridian 1 systems using Superloops use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephones line card is, since it defaults to the density allowed for the Superloop on which the telephone resides.

Designator (DES)

When you want printouts of the data associated with telephones, you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned.

For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.

- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

Distinctive Ringing Groups

There are four different ringing options for the digital telephones. The choices are: DRG1, DRG2, DRG3, or DRG4. (DRG stands for Distinctive Ringing Group.) When you program the Class of Service of each telephone, you choose one of the four options to set the ringing tone and ringing cadence. The user can change the ringing group using the Options key.

You can make each telephone in one department ring a different way. When a telephone rings and a user has stepped away from the area, the way the telephone rings helps the user identify which telephone is ringing.

Distinctive Ringing can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, the users can tell what telephone is ringing and answer calls appropriately.

Network and Executive Distinctive Ringing

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Table 122
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS) 185 – Executive Distinctive Ringing (EDRG)

Directory Number Delayed Ringing (DNDR)

Table 123
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to begin to ring if it has not been answered after a specified amount of time, you can activate a DNDR timer.

New M3905 telephone

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement it. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Data option

When the Meridian Communications Adapter (MCA) is installed, you can set up a computer on the user's desk to use the same pair of wires that the telephone uses to connect to the system.

The baud rate of 28.8 Kbps has been introduced for the M3900 series telephones. You select the baud rate when you program the telephone in overlay (LD) 11.

Analogue Terminal Adapter (ATA)

This device allows you to connect an analogue device such as a FAX machine or modem to the telephone. You must allow this capability in the Class of Service of the telephone.

Brandlining

There is a removable insert that you can replace with an insert showing the system supplier's logo. The M3905 supports electronic brandlining.

Control tips

- If the user unplugs an M3905 telephone messages print out on the maintenance printer, identifying the TN with the missing telephone

Administration tips

- The M3905 telephone has a red indicator that lights steadily when there are messages waiting. The telephone has a Message Waiting key so the user has an easy way of dialing the message center or voice mail when there are messages waiting.

  For more information on Message Waiting, refer to Task 24, *Message Center*.

- You might want to consider using one or two standard key layouts for all digital telephones, or at least all M3905 telephones. This can save significant amounts of memory.

- If users are allowed to have the Handsfree or Group Listening functionalities, set some guidelines as to who can use that kind of feature and under what circumstances.

  For example, you might make a policy that allows people with enclosed offices to use Group Listening, provided their office door is closed. Therefore, people around them are not disturbed during Group Listening conversations.

New M3905 telephone

Training tips

- If you have a standard key layout on all M3905 telephones, this is an advantage since users can go to any telephone and feel comfortable using it. If all telephones are the same, the users can also explain features to each other.
- Even though users do not need to remember feature access codes, they might, from time to time, need refresher training. This helps to keep users' knowledge levels current about telephone concerns and it helps to keep you informed about their changing needs. This helps you both get the most out of the system and in turn the system provides the expected benefits.
- Make certain that the users know where to get more information about how to use their telephones and features.

What to have ready

Make the following preparations before you do the basic programming of a new M3905 telephone.

Table 124
Checklist

Basic	Optional	Preparation
✔		Determine the customer group number for the telephone.
✔		According to the Numbering Plan on your site and the needs of the user, decide on the DN(s). Decide whether each DN is a Single Call or Multiple Call, ringing or non-ringing DN.
✔		Determine the TN to assign to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide what alphanumeric characters (up to six) you want to use as a designator code.
✔		Determine if any of the accessories, such as the data option, are required.
	✔	Find a recent traffic study showing traffic load on the loops and/or Superloops of your system. If no study data is available, estimate the traffic.
	✔	Arrange for the necessary power equipment to be ordered and installed.

There are sample overlay worksheets in *Appendix 4* at the end of this book. If you are a novice programmer, it is a good idea to prepare an overlay worksheet before you start your programming session.

New M3905 telephone

Follow the procedures in this Task module for the basic programming instructions to get the telephone to function. At the same time, or at a later date, you can do the additional programming for the other telephone features and services you want to apply to the telephone. Use the Task modules in the *Adding and changing features* section for further information on many of these additional features and services.

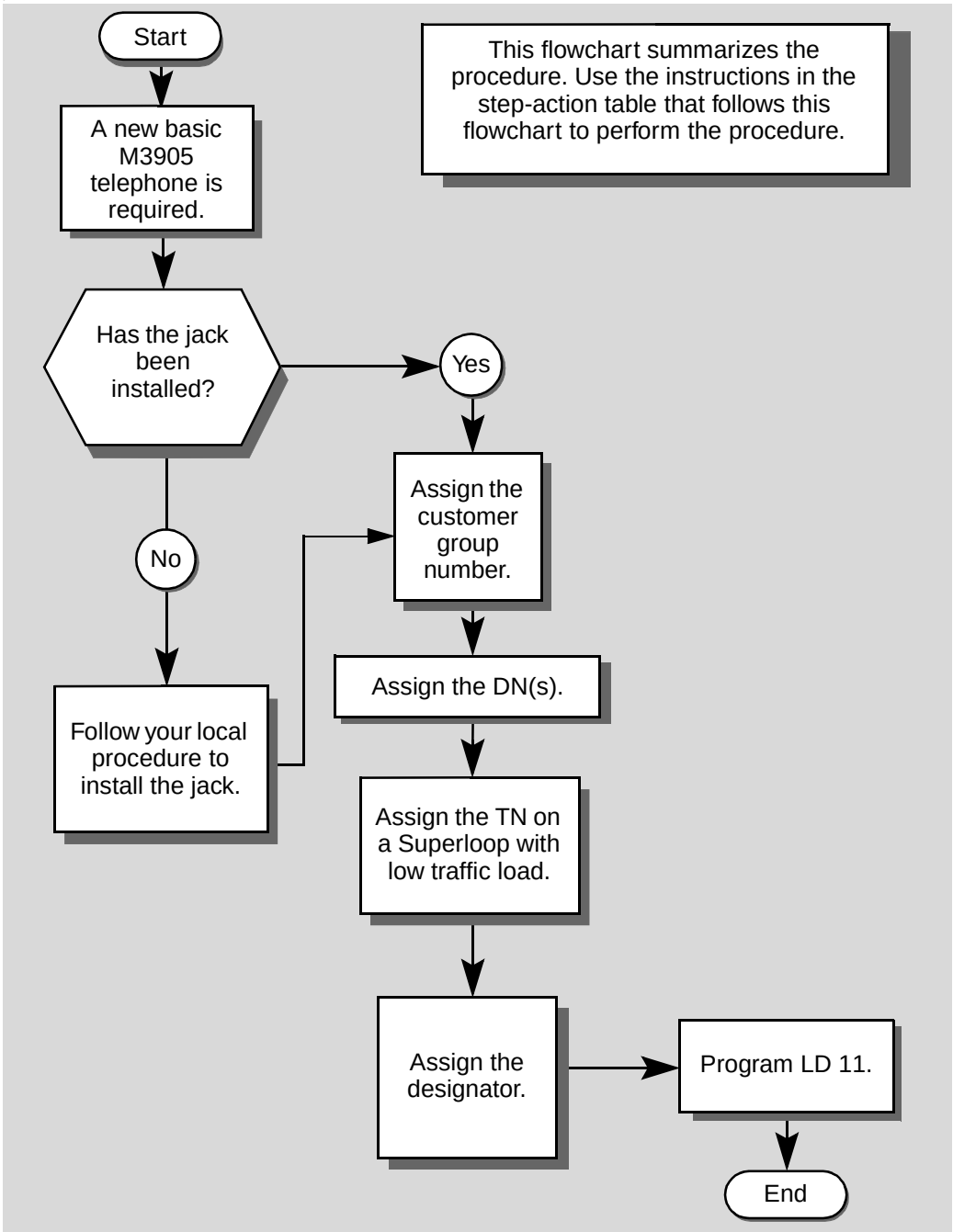
Appendix 2 (for LD 11) at the back of the book lists all the prompts and responses covered in this book. Beside each one there is a reference to a Task module where you can get further information.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming of an M3905 telephone.

New M3905 telephone



New M3905 telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a basic M3905 telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Arrange to have a new jack installed, if required.**	
	Talk to your system supplier to get this done.	
2	**Assign a customer group number to the new telephone.**	
	If	**Do**
	the telephone is being added to an existing customer group	step 3
	the telephone is the first one in a new customer group	step 8
3	**Find out your customer group number.**	
	If	**Do**
	you do not know your customer group number and you have access to the print overlay programs	step 4
	you do not know your customer group number and you do not have access to the print programs	Ask your system maintainer what your customer group number is, then go to step 10.
	you know your customer group number	step 10

— continued —

STEP	ACTION

4 Print the customer group number of another telephone used by someone in the same organization as the user of the new telephone.

If	Do
you know the DN and not the TN of the other telephone	step 5
you know the TN of the other telephone	step 6

5 Print the DN Block of the other telephone.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22 or

> LD 20 or (Release 17 or later)

> LD 10 or LD 11 or LD 32 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
CUST	<cr>	All Customer groups
DN	X..X	Input the DN of the other telephone

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

You get a printout of the TN of the other telephone.

Note: If you have two or more telephones with the same DN, in different customer groups, get help from your system supplier to identify the TN with the correct customer group number.

— continued —

New M3905 telephone

STEP	ACTION
6	**Print the TN Block of the other telephone.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. **>** LD 20 or **>** LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later) **REQ** PRT Request a Printout **TYPE** TNB TN Block **TN** L S C U Input the Loop Shelf Card and Unit number of the other telephone You get a printout of the customer group number of the other telephone.
7	**Assign the same customer group number to the new telephone.**
	Go to step 10.
8	**Arrange with your system supplier to have the new customer group data block programmed.**
9	**Assign the new customer group number to the new telephone.**
10	**Find out what DNs are available.**

If	Do
you know what DN you want to assign	step 13
you do not know what DN you want to assign and your system software is Release 19 or later	step 11
you do not know what DN you want to assign and your system software is pre-Release 19	Print a DN Block. Refer to step 5 for information on printing a DN Block. Carriage return at the DN prompt to printout all DNs. Then go to step 12.

— continued —

New M3905 telephone

STEP	ACTION
11	**Print unused DNs in your customer group.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20

REQ	PRT	Print
TYPE	LUDN	List unused DNs
CUST	0–99	Input customer group number

You get a printout of the unused DNs in your customer group.

12	**Choose available DNs which fit your Numbering Plan and the needs of the user.**
13	**Find out what Terminal Numbers are available for the new telephone.**

If	Do
you have access to the print overlay programs	step 14
you do not have access to the print programs	Ask your system supplier what TNs are available, then go to step 15.

14	**Print out the available TNs on your system.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 20 or

> LD 10 or LD 11 or LD 20 or LD 32 (Release 19 or later)

REQ	LUU	List all unused units
	LUVU	List unused voice units (Release 19 or later)
TYPE	3905	M3905 telephone. If there are no M3905 telephones installed yet, choose a type of digital telephone that has been installed.

You get a printout of the available digital telephone TNs.

— continued —

New M3905 telephone

STEP	ACTION
15	**Consider traffic when choosing a TN to use for the new telephone.**

If	Do
there is recent traffic study data	Analyze the data for the Superloops with available TNs. For more information, refer to the *Traffic* module in this book.
there is no recent traffic study data	Estimate traffic on the Superloops with available TNs — use the examples in the TFS001 section of the *Traffic* module for help.

16 **Choose the TN for the new telephone.**

17 **Verify with your system maintainer that the new jack is cross-connected to the TN you chose.**

18 **Assign a Designator.**

According to your local procedures, choose up to six alphanumeric characters to identify the telephone for your records.

19 **Program the new telephone.**

Log in, if you do not already have an active programming session. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 11
```

REQ	NEW	New telephone
TYPE	3905	M3905 telephone.
TN	L S C U	Input the TN (**L**oop **S**helf **C**ard **U**nit number)
CDEN	<cr>	Carriage return - use the default
DES	A..A	Designator maximum six characters
CUST	0-99	customer group number

Carriage return until you see the KEY prompt.

— continued —

STEP	ACTION

19 continued ...

Program the DNs the user needs on keys 1 -7 in one of the following ways:

KEY XX SCR X..X

KEY XX SCN X..X

KEY XX MCR X..X

KEY XX MCN X..X

XX represents the key number (1 -7)

Key 0 must be programmed with an ACD DN. It is a Call Center in-calls key. Ask for help from your system supplier.

SCR — single call ringing DN

SCN — single call non-ringing DN

MCR — multiple call ringing DN

MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP

20 Program the features on the soft-labelled keys.

KEY XX aaayyy zzz Refer to the table on page 765 for the key assignments. Refer to *Adding and changing features* for more information about each feature.

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

— continued —

New M3905 telephone

STEP	ACTION
21	**Check that the telephone works.**

Try to make a call. Try to receive a call.

If	Do
telephone works	step 24
telephone does not work	step 1

STEP	ACTION
22	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to L D43	step 25

STEP	ACTION
23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD43.

```
> LD 43

.EDD <cr>
```

— continued —

STEP	ACTION
24	**Verify that the data dump was successful.**

TTY response:

```
NO GO BAD DATA
```

or

```
DATA DUMP COMPLETE
```

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

STEP	ACTION
25	**Terminate this overlay program.**

```
. ****
```

STEP	ACTION
26	**Terminate this programming session.**

Log off.

```
> LOGO
```

STEP	ACTION
27	**You have now completed the minimum programming required to implement a basic new M3905 telephone.**

END

New M3905 telephone

Changing a basic dial telephone

Purpose

The information in this Task module will help you if a user at your site needs a change made to one of the basic parameters associated with an existing dial telephone. The basic parameters that are covered in this module are listed below under *Basic configuration*.

Basic configuration

This Task module covers the following types of changes:

- line card density
- designator
- customer group
- Directory Number (DN)
- changing from a dial telephone to a Digitone-type telephone

If you are moving the telephone to a different TN in the system, refer to the *Moving a telephone* section in this book.

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a particular sequence. When you are making a change to an existing telephone, you enter a response only to the prompt which applies to your change requirements.

Changing a basic dial telephone

A carriage return is also considered a response.

- When programming a new telephone, a carriage return after a prompt enters the default value as a response.
- When programming a change to an existing telephone, a carriage return after a certain prompt leaves, unchanged, the response that was already entered in the database.

Get a printout of the existing programming of the telephone before you begin your changes.

You can see from the printout what responses are already programmed for each prompt.

Look at the printout to decide what programming you need to do to implement the change.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

When you change a telephone from one customer group to another, you might need to update other records you have.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming in the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

Changing a basic dial telephone

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer system the default customer group number i s0.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to change a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature. It is important that you understand this feature if you are changing the DN assigned to a telephone that has been designated as the prime appearance (or MARP) of a Multiple Appearance DN.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

Changing a basic dial telephone

Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on a dial telephone.

If the same Single Call DN is shared between a dial telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to a dial telephone and an SL-1-type or digital telephone
- replace the dial telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Changing a basic dial telephone

Multiple Call Class of Service

If you want to make a DN on a dial telephone a Multiple Call DN, this is activated in the Class of Service.

With Release 15.58F software, the Multiple Call Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, the Multiple Call Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration.You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to change a DN on a dial telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Changing a basic dial telephone

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. Before you make a change to the DN assigned to a telephone, familiarize yourself with the existing Numbering Plan. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are presently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

When you change the DN assigned to a dial telephone, look at your DN-Block printout or your Numbering Plan before you decide what new DN to assign. Update your records to indicate the DN which you are removing and the new DN you are assigning.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

Changing a basic dial telephone

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

Before you can make a programming change to a telephone, you must know the TN assigned to it. There are a number of ways you can find out what TN has been assigned:

- ask your system maintainer what Terminal Number (TN) is assigned to the telephone
- ask if the telephone is labelled or the jack is labelled with the TN
- if you have access to the print programs, follow the print procedure in the step-action table in this module to find out what Terminal Number has been assigned to the telephone

If you are changing the TN associated with an existing telephone you can do one of the following things:

- follow the instructions in , *Moving a telephone*
- remove the telephone from the existing TN by taking it out in programming and installing it as a new telephone at the other TN. Refer to the module called *Removing a telephone* and also the Task modules related to *Making a telephone work* and *Adding and changing features*.

  The disadvantages of using this method are:

  – it is more time consuming than programming a move

  – you risk making errors, since there is more programming involved

- ask your system maintainer if they prefer to interchange or move telephones by working on the cross-connect panel instead of using programming to do the change

Decide on the approach which best suits the situation.

Changing a basic dial telephone

Card density

Telephones are connected to interface cards in the system called line cards. There are three kinds of line cards for dial telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

Quadruple-density intelligent line cards, connect to a maximum of 16 on-site dial telephones.

If the line card for an existing telephone is changing, the type of card may change to:

- a decreased density
- an increased density
- or the new card may have the same density as the old one

If the line card density is increasing and the Loop is not yet configured for the increase, your system maintainer has some programming changes to make to the Configuration Record prior to your programming. Coordinate the necessary programming with your system maintainer.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

Changing a basic dial telephone

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned. For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

Changing a basic dial telephone

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Class of Service (CLS)

When you replace a dial telephone with one that is Digitone, you must make a Class of Service change. If you do not, the user of the Digitone telephone cannot make calls, they can only receive them.

Dial telephones transmit pulses when calls are dialed. The Class of Service is dial pulse (DIP).

Digitone telephones transmit tones when keys on the keypad are pressed. The Class of Service is Digitone (DTN). The tones transmitted must be translated by digitone receiver (DTR) cards in the system for the call to be processed.

When a Digitone telephone is programmed with a DIP Class of Service in error, the system does not reserve the necessary digitone receiver when the user initiates a call. As a result, the user cannot make calls. When the Class of Service is changed to DTN, the system operates properly.

You can read about digitone receivers in the Peripheral Equipment part of the *You should know this* module in this guide.

Table 12 5
Default settings for outpulsing-type Class of Service

Release	Default
19 or 20	DTN
18 or earlier	DIP

Find out what release of software your system has and what your default setting is.

Get a printout of the programming associated with the telephone you are changing before you begin to make changes.

Changing a basic dial telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Before changing dial telephones to Digitone, your system supplier must do some provisioning calculations to equip your system with the proper number of digitone receiver cards for the number of Digitone telephones you expect to install. Discuss this issue with them.

Control tips

- If you are using a Call Detail Recording system to track and bill calls made by users, any new DNs must be entered into the database for that system. DNs which are no longer used must be removed.

Administration tips

- If you are changing the DN of a telephone:
  - prepare changes to directories in advance
  - notify people (both internal and external) of the change
  - alter business cards and other forms of advertising, such as FAX cover sheets, coincident with the change to the DN
  - prepare the attendant(s) when a user's DN changes
- If you are changing the customer group or DES code assigned to a telephone, assess the impact this will have on your billing system. Prepare the change to that system or to your records, in advance.

Changing a basic dial telephone

Training tips

- A user who is changing from a dial telephone to a Digitone-type benefits from easier to use feature codes with the new telephone. Training helps the user learn the new codes. The user who does not want to learn the new codes can continue to dial the same codes for features as dial telephone users.
- If a telephone changes from one customer group to another, the user might need training on a different dialing plan and different telephony-related procedures.

What to have ready

The following checklist summarizes the steps you should take before making basic changes to an existing dial telephone.

Table 12 6
Checklist

Basic	Optional	Preparation
✔		Find out the TN which is assigned to this telephone.
✔		If the customer group is changing, determine the new customer group number.
✔		If the line card density is changing, find out the density of the new line card for the telephone.
✔		If the line card density is increasing, arrange with your system supplier to make Configuration Record changes, if required.
✔		If the DES code is changing, decide what new alphanumeric characters (up to six) you want to use as a designator code.
✔		If the DN is changing, according to the Numbering Plan on your site and the needs of the user, decide on the new DN.

— continued —

Table 126
Checklist (Continued)

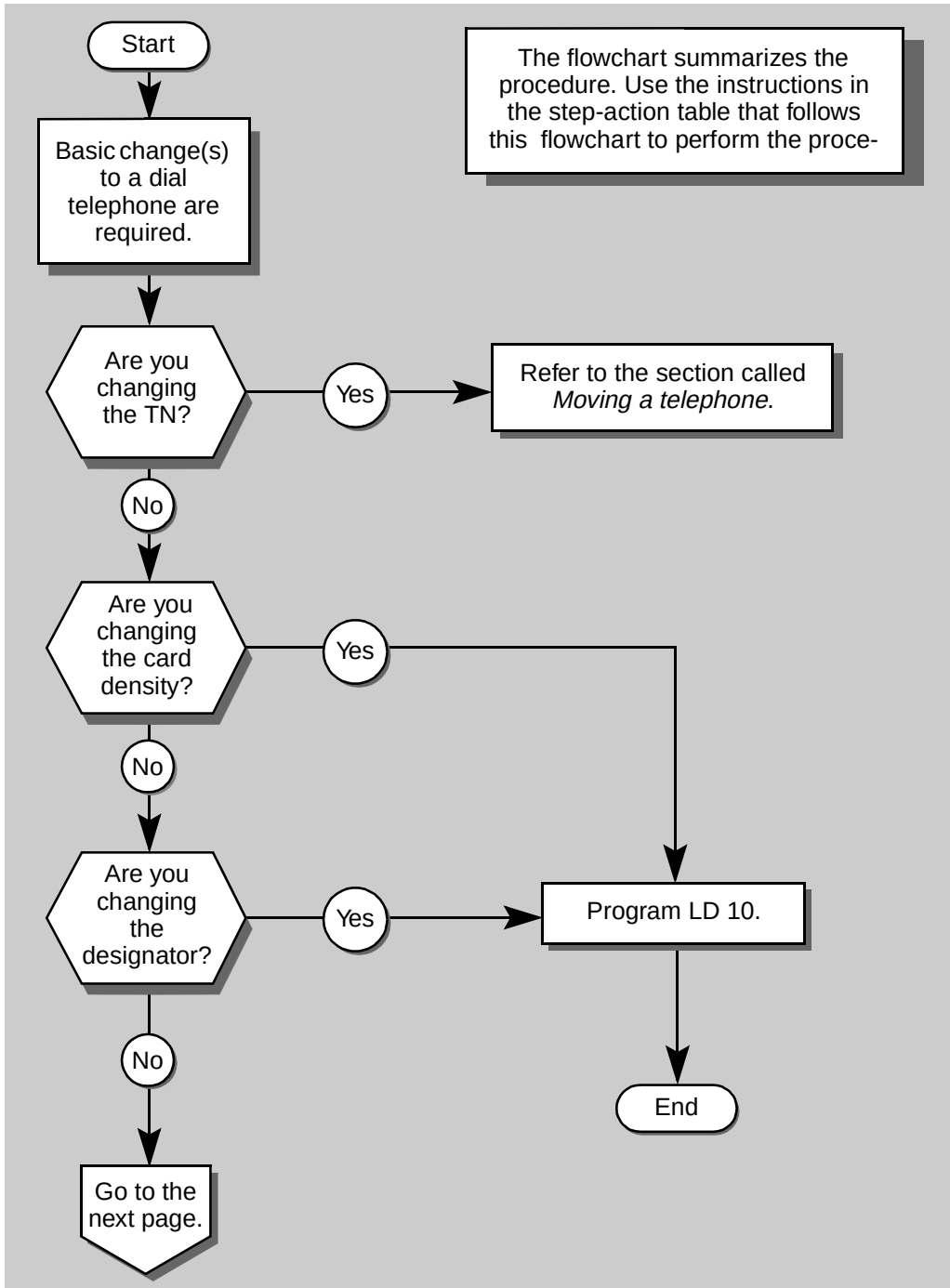
Basic	Optional	Preparation
✔		If the DN is changing, order changes to business cards, FAX cover sheets, directories.
✔		If the DN is changing, make changes to CDR systems, or billing systems.
✔		If you are changing from a dial to a Digitone telephone for the first time or there are many telephones changing to Digitone, discuss the new DTR requirements with your system supplier.
✔		If the telephone is changing to Digitone, prepare training aids and do training about the new feature codes.

What's next?

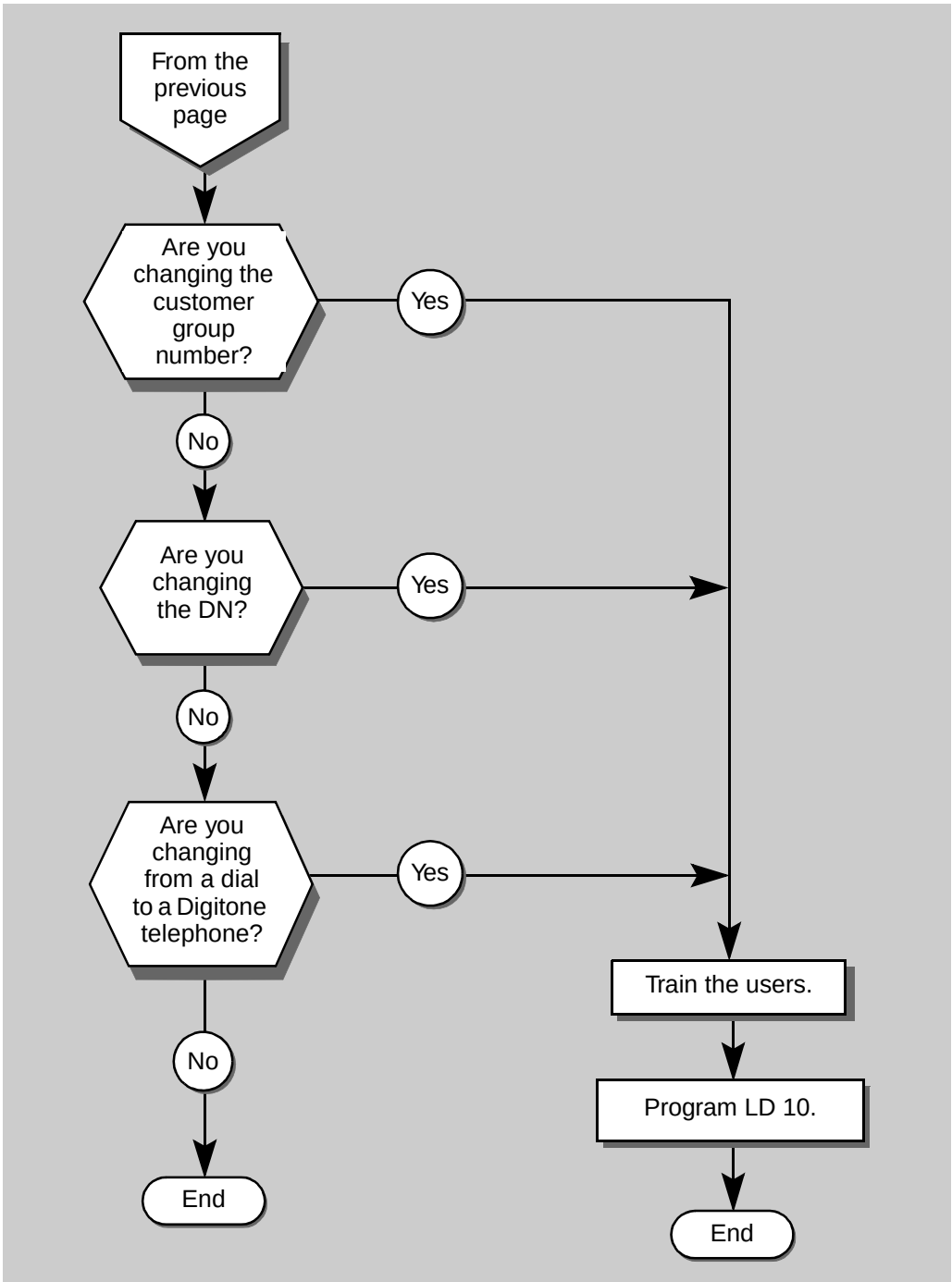
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming changes to a dial telephone.

Changing a basic dial telephone



Changing a basic dial telephone



Changing a basic dial telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of a dial telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose the starting point in this procedure that applies to the change you want to make to the telephone.**

If	Do
changing TN	See the *Moving a telephone* section of this book.
changing card density using Easy change	step 3
changing card density not using Easy change	step 4
changing designator using Easy change	step 5
changing designator not using Easy change	step 6
changing customer group number using Easy change	step 7

— continued —

Changing a basic dial telephone

STEP ACTION

2 continued ...

changing customer group number not using Easy change	step 8
changing DN using Easy change	step 9
changing DN not using Easy change	step 10
changing from dial to Digitone telephone using Easy change	step 11
changing from dial to Digitone telephone not using Easy change	step 12

3 Change the card density using Easy change

CAUTION
If the card density is changing to a higher density type, the loop must be properly configured beforehand. Ask your system supplier to program LD 17 if required.

```
> LD 10
```

REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.

— continued —

Changing a basic dial telephone

STEP	ACTION

3 continued ...

ECHG YES	Input YES for Easy change
ITEM CDEN SD or	The item is card density — changing to single-density
ITEM CDEN DD or	The item is card density — changing to double-density
ITEM CDEN 4D	The item is card density — changing to quad-density

If	**Do**
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

4 Change the card density not using Easy change

> LD 10	
REQ CHG	Requesting a change to an existing telephone
TYPE 500	Dial or Digitone-type telephone
TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG NO	Input NO or
<cr>	Carriage return since NO is default
CDEN SD	Input the new card density: single-density
DD	double-density
4D	quad-density

— continued —

Changing a basic dial telephone

STEP ACTION

4 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

5 Change the designator using Easy change

> LD 10		
REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG	YES	Input YES for Easy change
ITEM	DES A..A	Input DES followed by a space followed by the new designator code, represented by A..A — maximum of six alphanumeric characters

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

— continued —

Changing a basic dial telephone

STEP	ACTION	
6	**Change the designator not using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG NO	Input NO or
	<cr>	Carriage return since NO is default
	CDEN <cr>	Carriage return until you see the DES prompt
	DES	Input the new designator code up to a maximum of six alphanumeric characters
	If	**Do**
	you do not want to make any more changes to this telephone	step 14
	you want to make further changes to this telephone	step 2
7	**Change the Customer Group number using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG YES	Input YES for Easy change
	ITEM CUST XX	Input CUST followed by a space followed by the new Customer Group number, XX is 0–99

— continued —

Changing a basic dial telephone

STEP	ACTION

7 continued ...

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

8 Change the Customer Group number not using Easy change

> LD 10		
REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG	NO	Input NO or
	<cr>	Carriage return since NO is default
CDEN	<cr>	Carriage return until you see the CUST prompt
CUST	XX	Input the new customer group number, XX is 0–99

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

— continued —

Changing a basic dial telephone

STEP	ACTION	
9	**Change the DN using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone - enter spaces between each number and the next
		Input YES for Easy change
	ECHG YES	
	ITEM DN X..X	X..X represents the digits in the DN with DNXP software, 7 digit maximum
		without DNXP software, 4 digit maximum
	If	**Do**
	you do not want to make any more changes to this telephone	step 13
	you want to make further changes to this telephone	step 2
10	**Change the DN not using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone - enter spaces between each number and the next
		Input NO or
	ECHG NO	Carriage return since NO is default
	<cr>	Carriage return until you see the DN prompt
	CDEN <cr>	X..X represents the digits in the DN
	DN X..X	

— continued —

Changing a basic dial telephone

STEP ACTION

10 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

11 Change from a dial to Digitone-type telephone using Easy change

> LD 10		
REQ CHG		Requesting a change to an existing telephone
TYPE 500		Dial or Digitone-type telephone
TN L S C U		Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone - enter spaces between each number and the next
ECHG YES		Input YES for Easy change
ITEM CLS DTN		Input CLS followed by a space followed by DTN — Class of Service changed to Digitone

CAUTION
Talk to your system supplier about programming the digitone receiver units required for Digitone-type telephones.

— continued —

Changing a basic dial telephone

STEP ACTION

11 continued ...

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

12 Change from a dial to Digitone-type telephone not using Easy change

> LD 10		
REQ CHG		Requesting a change to an existing telephone
TYPE 500		Dial or Digitone-type telephone
TN L S C U		Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone - enter spaces between each number and the next
ECHG NO		Input NO or
	<cr>	Carriage return since NO is default
CDEN <cr>		Carriage return until you see the CLS prompt
CLS DTN		Input DTN — Digitone outpulsing

CAUTION
Talk to your system supplier about programming the digitone receiver units required for Digitone-type telephones.

— continued —

Changing a basic dial telephone

STEP	ACTION

12 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

13 Finish the overlay program.

ITEM <cr> Carriage return when you see the ITEM prompt again

You see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 15.

14 Finish the overlay program.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

— continued —

Changing a basic dial telephone

STEP	ACTION
15	**Check the programming on the telephone which you have just programmed.**

Printout the TN Block for the telephone. For more information, refer to *Basic programming instructions* in this book.

End LD 10 and go to LD 20 (pre-Release 19)

or stay in LD 10 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop number, **S**helf number, **C**ard number, **U**nit number for the telephone you just programmed

Carriage return for the remaining prompts

You get a printout of the data associated with the telephone.

If	Do
programming correct	step 16
programming not correct	step 2

16 **Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 17

— continued —

Changing a basic dial telephone

STEP	ACTION

17 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

18 Verify that the data dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 19

— continued —

Changing a basic dial telephone

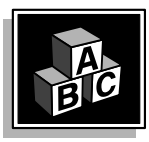
STEP	ACTION
19	**Terminate this overlay program**
	. ****
20	**Terminate this programming session.**
	Log off. **>** LOGO
21	**You have completed the programming required to change a basic dial telephone.**
	END

Changing a basic Digitone-type telephone

Purpose

The information in this Task module will help you if a user on your site needs a change made to one of the basic parameters associated with an existing Digitone or Digitone-type telephone. The basic parameters that are covered in this module are listed below under *Basic configuration*.

Basic configuration



This Task module covers the following types of changes:

- line card density
- designator
- customer group
- Directory Number (DN)
- changing from a Digitone-type telephone to a dial telephone

If you are moving the telephone to a different TN in the system, refer to the *Moving a telephone* section in this book.

If you are replacing a Digitone-type telephone with a digital telephone, remove the Digitone-type telephone from the database first and then install the new digital telephone. Refer to the information in the *Removing a telephone* section and the information in the appropriate module in the *Making a telephone work* section for the digital telephone that you are installing. You will need the assistance of your system maintainer in order to change the line card for the telephone.

Changing a basic Digitone-type telephone

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a particular sequence. When you are making a change to an existing telephone, you enter a response only to the prompt which applies to your change requirements.

A carriage return is also considered a response.

- When programming a new telephone, a carriage return after a prompt enters the default value as a response.
- When programming a change to an existing telephone, a carriage return after a certain prompt leaves, unchanged, the response that was already entered in the database.

Get a printout of the existing programming of the telephone before you begin your changes.

You can see from the printout what responses are already programmed for each prompt.

Look at the printout to decide what programming you need to do to implement the change.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

When you change a telephone from one customer group to another, you might need to update other records you have.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

Changing a basic Digitone-type telephone

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming in the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer system the default customer group number i s0.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to change a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature. It is important that you understand this feature if you are changing the DN assigned to a telephone that has been designated as the prime appearance (or MARP) of a Multiple Appearance DN.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Changing a basic Digitone-type telephone

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

Unless programmed otherwise, a Single Call configuration is the default configuration of a DN when it is programmed on a Digitone-type telephone.

If the same Single Call DN is shared between a Digitone-type telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call in progress on the shared DN.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to a Digitone-type telephone and an SL-1-type or digital telephone
- replace the Digitone-type telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones.

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN. There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Changing a basic Digitone-type telephone

Multiple Call Class of Service

When you want to make a DN on a Digitone-type telephone a Multiple Call DN, this is activated in the Class of Service.

With Release 15.58F software, the Multiple Call Class of Service is used along with the Centralized Multiple Line Emulation feature. Discuss the application of this feature with your supplier. It is beyond the scope of this book.

With Release 20 software, the Multiple Call Class of Service is used in conjunction with the use of Meridian COMPANION™ wireless telephones on your system.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration.You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

The step-action table at the end of this module explains how to change a DN on a Digitone-type telephone.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Changing a basic Digitone-type telephone

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. Before you make a change to the DN assigned to a telephone, familiarize yourself with the existing Numbering Plan. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

DN-Block printout

If you need to know exactly what numbers are presently in use on your system, you can get a printout. You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32. To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

When you change the DN assigned to a Digitone-type telephone, look at your DN-Block printout or your Numbering Plan before you decide what new DN to assign. Update your records to indicate the DN which you are removing and the new DN you are assigning.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

Changing a basic Digitone-type telephone

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

Before you can make a programming change to a telephone, you must know the TN assigned to it. There are a number of ways you can find out what TN has been assigned:

- ask your system maintainer what Terminal Number (TN) is assigned to the telephone
- ask if the telephone is labelled or the jack is labelled with the TN
- if you have access to the print programs, follow the print procedure in the step-action table in this module to find out what Terminal Number has been assigned to the telephone

If you are changing the TN associated with an existing telephone you can do one of the following:

- follow the instructions in Task 46, *Moving a telephone*
- remove the telephone from the existing TN by removing it from the programming and installing it as a new telephone at the other TN. Refer to the section called *Removing a telephone* and also the Task modules related to making a telephone work and adding and changing features

  The disadvantages of using this method are:

  – it is more time consuming than programming a move

  – you risk making errors, since there is more programming involved
- ask your system maintainer if they prefer to interchange or move telephones by working on the cross-connect panel instead of using programming to do the change

Decide on the approach which best suits the situation.

Changing a basic Digitone-type telephone

Card density

Telephones are connected to interface cards in the system called line cards. There are three types of line cards for Digitone telephones: single-, double-, or quadruple-density.

Single-density line cards connect to a maximum of four telephones. Double- density line cards connect to a maximum of eight telephones. Quadruple (quad) density line cards connect to a maximum of sixteen telephones.

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors.

As of Release 20, double-density intelligent line cards are available for off-premises extensions. They connect to a maximum of eight telephones.

Quadruple-density intelligent line cards, connect to a maximum of 16 on-site Digitone-type telephones.

If the line card for an existing telephone is changing, the type of card may change to:

- a decreased density
- an increased density
- or the new card may have the same density as the old one

If the line card density is increasing and the Loop is not yet configured for the increase, your system maintainer has some programming changes to make to the Configuration Record prior to your programming. Coordinate the necessary programming with your system maintainer.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

Changing a basic Digitone-type telephone

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair
- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned. For example:

- you might want to know what telephones are in a specific department so you can bill the department manager.You would request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

Changing a basic Digitone-type telephone

You can use the step-action table at the end of this module for help in assigning a DES code to a new telephone.

Class of Service (CLS)

When you replace a Digitone-type telephone with one that is a dial telephone, you should make a Class of Service change.

Dial telephones transmit pulses when calls are dialed. The Class of Service is dial pulse (DIP).

Digitone-type telephones transmit tones when keys on the keypad are pressed. The Class of Service is Digitone (DTN). The tones transmitted must be translated by digitone receiver (DTR) cards in the system for the call to be processed.

When a dial telephone is programmed with a DTN Class of Service in error, the system reserves a digitone receiver when the user initiates a call.

This adds a needless extra load to the digitone receivers and can impact the speed of obtaining dial tone at Digitone-type telephones. If many dial telephones have DTN programmed in the Class of Service this can result in extra digitone receivers being installed in your system. These extra cards have a cost associated with them. On certain systems the cards occupy card slot space and take up room on the shelves.

You can read about digitone receivers in the Peripheral Equipment part of the *You should know this* module in this guide.

Table 12 7
Default settings for outpulsing-type Class of Service

Release	Default
19 or 20	DTN
18 or earlier	DIP

Find out what release of software your system has and what your default setting is.

Get a printout of the programming associated with the telephone you are changing before you begin to make changes.

Changing a basic Digitone-type telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

If you are changing many Digitone-type telephones to dial telephones, your system supplier should calculate the proper number of digitone receiver cards required for the number of Digitone-type telephones that will remain. Discuss this issue with them.

Control tips

- If you are using a Call Detail Recording system to track and bill calls made by users, any new DNs must be entered into the database for that system. DNs which are no longer used should be removed.

Administration tips

- If you are changing the DN of a telephone:
  - prepare changes to directories in advance
  - notify people (both internal and external) of the change
  - alter business cards and other forms of advertising, such as FAX cover sheets, coincident with the change to the DN
  - prepare the attendant(s) when a user's DN changes
- If you are changing the customer group or DES code assigned to a telephone, assess the impact this will have on your billing system. Prepare the change to that system or to your records, in advance.

Changing a basic Digitone-type telephone

Training tips

- A user who is changing from a Digitone-type telephone to a dial telephone will have to learn new feature access codes if they were trained to use the easy Digitone-type feature codes. Training helps the user learn the new codes. You might not want to change a telephone from Digitone-type to dial if the user could have difficulty with the more difficult dial access feature codes.
- If a telephone changes from one customer group to another, the user might need training on a different dialing plan and different telephony-related procedures.

What to have ready

The following checklist summarizes the steps you should take before making basic changes to an existing Digitone-type telephone.

Table 12 8
Checklist

Basic	Optional	Preparation
✔		Find out the TN which is assigned to this telephone.
✔		If the customer group is changing, determine the new customer group number.
✔		If the line card density is changing, find out the density of the new line card for the telephone.
✔		If the line card density is increasing, arrange with your system supplier to make Configuration Record changes, if required.
✔		If the DES code is changing, decide what new alphanumeric characters (up to six) you want to use as a designator code.
✔		If the DN is changing, according to the Numbering Plan on your site and the needs of the user, decide on the new DN.

— continued —

Changing a basic Digitone-type telephone

Table 128
Checklist (Continued)

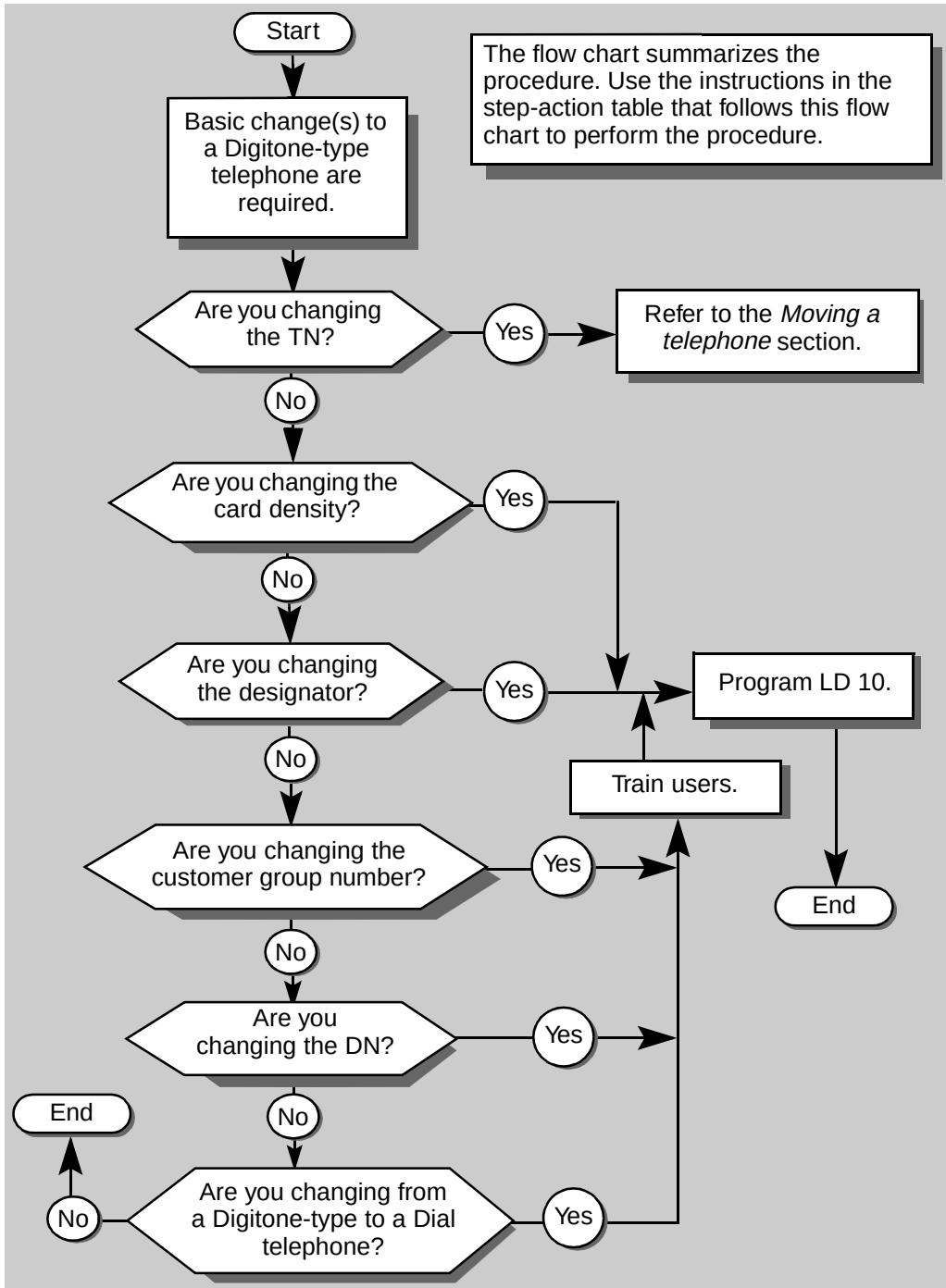
Basic	Optional	Preparation
✔		If the DN is changing, order changes to business cards, FAX cover sheets, directories.
✔		If the DN is changing, make changes to CDR systems, or billing systems.
✔		If you are changing many telephones from a Digitone-type to dial, discuss the new DTR requirements with your system supplier.
✔		If the telephone is changing to dial, prepare training aids and do training about the new feature codes.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming changes to a Digitone-type telephone.

Changing a basic Digitone-type telephone



Changing a basic Digitone-type telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to making changes to the basic programming of a Digitone-type telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose the starting point in this procedure that applies to the change you want to make to the telephone.**

If	Do
changing TN	See the *Moving a telephone* section in this book.
changing card density using Easy change	step 3
changing card density not using Easy change	step 4
changing designator using Easy change	step 5
changing designator not using Easy change	step 6
changing customer group number using Easy change	step 7

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION

2 continued ...

changing customer group number not using Easy change	step 8
changing DN using Easy change	step 9
changing DN not using Easy change	step 10
changing from Digitone-type to dial telephone using Easy change	step 11
changing from Digitone-type to dial telephone not using Easy change	step 12

3 Change the card density using Easy change

CAUTION
If the card density is changing to a higher density type, the loop must be properly configured beforehand. Ask your system supplier to program LD 17 if required.

```
> LD 10
```

REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.

— continued —

Changing a basic Digitone-type telephone

STEP ACTION

3 continued ...

ECHG YES	Input YES for Easy change
ITEM CDEN SD or	The item is card density — changing to single-density
ITEM CDEN DD or	The item is card density — changing to double-density
ITEM CDEN 4D	The item is card density — changing to quad-density

If	**Do**
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

4 Change the card density not using Easy change

> LD 10	
REQ CHG	Requesting a change to an existing telephone
TYPE 500	Dial or Digitone-type telephone
TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG NO	Input NO or
<cr>	Carriage return since NO is default
CDEN SD	Input the new card density: single-density
DD	double-density
4D	quad-density

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION

4 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

5 Change the designator using Easy change

> LD 10		
REQ CHG		Requesting a change to an existing telephone
TYPE 500		Dial or Digitone-type telephone
TN L S C U		Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG YES		Input YES for Easy change
ITEM DES A..A		Input DES followed by a space followed by the new designator code, represented by A..A — maximum of six alphanumeric characters

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION		
6	**Change the designator not using Easy change**		
	> LD 10		
	REQ CHG		Requesting a change to an existing telephone
	TYPE 500		Dial or Digitone-type telephone
	TN L S C U		Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG NO		Input NO or
	<cr>		Carriage return since NO is default
	CDEN <cr>		Carriage return until you see the DES prompt
	DES A..A		Input the new designator code, represented by A..A - up to a maximum of six alphanumeric characters
	If	**Do**	
	you do not want to make any more changes to this telephone	step 14	
	you want to make further changes to this telephone	step 2	
7	**Change the customer group number using Easy change**		
	> LD 10		
	REQ CHG		Requesting a change to an existing telephone
	TYPE 500		Dial or Digitone-type telephone
	TN L S C U		Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG YES		Input YES for Easy change
	ITEM CUST XX		Input CUST followed by a space followed by the new Customer Group number, XX is 0–99

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION

7 continued ...

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

8 Change the customer group number not using Easy change

> LD 10		
REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG	NO	Input NO or
	<cr>	Carriage return since NO is default
CDEN	<cr>	Carriage return until you see the CUST prompt
CUST	XX	Input the new customer group number, XX is 0–99

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION	
9	**Change the DN using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone - enter spaces between each number and the next
	ECHG YES	Input YES for Easy change
	ITEM DN X..X	X..X represents the digits in the DN with DNXP software, 7 digit maximum without DNXP software, 4 digit maximum
	If	**Do**
	you do not want to make any more changes to this telephone	step 13
	you want to make further changes to this telephone	step 2
10	**Change the DN not using Easy change**	
	> LD 10	
	REQ CHG	Requesting a change to an existing telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone — enter spaces between each number and the next
	ECHG NO	Input NO or
	<cr>	Carriage return since NO is default
	CDEN <cr>	Carriage return until you see the DN prompt
	DN X..X	X..X represents the digits in the DN

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION

10 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

11 Change from a Digitone-type to a dial telephone using Easy change

> LD 10		
REQ CHG		
TYPE 500		Requesting a change to an existing telephone
TN L S C U		Dial or Digitone-type telephone Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone
ECHG YES		Input YES for Easy change
ITEM CLS DIP		Input CLS followed by a space followed by DIP—Class of Service changed to dial pulse

CAUTION
Talk to your system supplier about whether you can reduce the number of digitone receiver units required for the remaining Digitone-type telephones.

— continued —

Changing a basic Digitone-type telephone

STEP ACTION

11 continued ...

If	Do
you do not want to make any more changes to this telephone	step 13
you want to make further changes to this telephone	step 2

12 Change from a Digitone-type to a dial telephone not using Easy change

```
> LD 10
```

REQ	CHG	Requesting a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone
ECHG	NO	Input NO or
	<cr>	Carriage return since NO is default
CDEN	<cr>	Carriage return until you see the CLS prompt
CLS	DIP	Input DIP — dial pulse

CAUTION
Talk to your system supplier about whether you can reduce the number of digitone receiver units required for the remaining Digitone-type telephones.

— continued —

Changing a basic Digitone-type telephone

STEP ACTION

12 continued ...

If	Do
you do not want to make any more changes to this telephone	step 14
you want to make further changes to this telephone	step 2

13 Finish the overlay program.

ITEM <cr> Carriage return when you see the ITEM prompt again

You see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 15.

14 Finish the overlay program.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION

15 Check the programming on the telephone which you have just programmed.

Printout the TN Block for the telephone. For more information, refer to *Basic programming instructions* in this book.

End LD 10 and go to LD 20 (pre-Release 19)

or stay in LD 10 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop number, **S**helf number, **C**ard number, **U**nit number for the telephone you just programmed

Carriage return for the remaining prompts

You get a printout of the data associated with the telephone.

If	Do
Programming correct	step 16
Programming not correct	step 2

16 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 17

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION
17	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *Software Input /Output Guide Book 1 of 2* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

18	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 19

— continued —

Changing a basic Digitone-type telephone

STEP	ACTION
19	**Terminate this overlay program**
	. ****
20	**Terminate this programming session.**
	Log off. **>** LOGO
21	**You have completed the programming required to change a basic Digitone-type telephone.**
	END

Changing a basic Digitone-type telephone

Changing a basic digital telephone

Purpose

The information in this Task module will help you if a user on your site needs a change made to one of the basic parameters associated with an existing digital telephone. The basic parameters that are covered in this module are listed below under *Basic configuration*.

Basic configuration

This Task module covers the following types of changes:

- line card density
- designator
- customer group
- Directory Number (DN)
- Multiple Call or Single Call status
- ringing or non-ringing status
- telephone model

If you are moving the telephone to a different TN in the system, refer to the *Moving a telephone* section in this book.

If you are replacing a digital telephone with a Digitone-type telephone, remove the digital telephone from the database first and then install the new Digitone-type telephone. Refer to the information in the *Removing a telephone* section and the information in the appropriate module in the *Programming a new basic telephone* section for the Digitone-type telephone that you are installing. You will need the assistance of your system maintainer in order to change the line card for the telephone.

Changing a basic digital telephone

Default values

The overlay program you use for this task presents a series of programming mnemonics called prompts. The system presents these to the programmer in a particular sequence. When you are making a change to an existing telephone, you enter a response only to the prompt which applies to your change requirements.

A carriage return is also considered a response.

- When programming a new telephone, a carriage return after a prompt enters the default value as a response.
- When programming a change to an existing telephone, a carriage return after a certain prompt leaves, unchanged, the response that was already entered in the database.

Get a printout of the existing programming of the telephone before you begin your changes.

You can see from the printout what responses are already programmed for each prompt.

Look at the printout to decide what programming you need to do to implement the change.

Customer group

Most systems provide service to one group of users who belong to one company, organization or customer group. The telephones are assigned a customer group number for programming purposes.

If there is more than one customer group on your system, you must have a good understanding of what equipment belongs to each group.

When you change a telephone from one customer group to another, you might need to update other records you have.

Overlay program (LD) 15, the Customer Data Block, defines many customer-wide parameters. It is beyond the scope of this book to discuss this entire overlay program in detail. However, this book does describe programming which must be done in LD 15, if it is relevant to a telephone-related programming task.

Changing a basic digital telephone

The maintenance agreement you have with your system supplier probably specifies what programming you may do and what they must do. Check agreements of that nature before programming in the Customer Data Block yourself. It is assumed, in this book, that your system supplier carries out the programming in LD 15.

When telephones are installed they must be assigned to the correct customer group to operate properly. The step-action table at the end of this module tells you how to find out your customer group number, or you can ask your system supplier what it is. On a single-customer system the default customer group number i s0.

Directory Number (DN)

Directory Numbers (DNs) are the numbers assigned to the individual telephones. These are the numbers users dial to call each other.

DNs can be one to seven digits in length when the DN Expansion (DNXP) software package 150 is equipped on the system. Without DN Expansion, the DNs can be one to four digits.

Ringing or Non-ringing DNs

A DN can be programmed to be a ringing or a non-ringing appearance, on digital telephones.

- When a call comes into a ringing appearance, the telephone rings, if it is idle, and the indicator beside the DN key flashes.
- When a call comes into a non-ringing appearance of a DN, the DN-key indicator flashes but the telephone does not ring.

You can program a change to the ringing state of a DN key. There are instructions in the step-action table at the end of this Task module.

Single Appearance or Multiple Appearance DNs

You must understand the following terms in order to change a DN.

The term *appearance* means that a DN has been assigned to a telephone or a key on a telephone.

Changing a basic digital telephone

Single Appearance DNs appear on only one telephone. A Single Appearance DN can only be configured to handle one call at a time. This is referred to as a *Single Call DN*.

Multiple Appearance DNs appear on more than one telephone, or more than one key on a telephone such as a digital telephone.

Refer to Task 39, *Multiple Appearance DN Redirection Prime* for important information on a Multiple Appearance DN feature. It is important that you understand this feature if you are changing the DN assigned to a telephone that has been designated as the prime appearance (or MARP) of a Multiple Appearance DN.

There are two configurations to choose from when dealing with Multiple Appearance DNs, Single Call and Multiple Call.

Single Call DN

The DN can handle one call at a time.

This means that when one person is using the DN, the indicator is lit steadily at other appearances of that DN on digital telephones or SL-1-type telephones.

If the same Single Call DN is shared between a Digitone-type or dial telephone and an SL-1-type or digital telephone, there is no way to prevent a user from breaking in on an active call on the shared DN.

If privacy is important, choose one of the following two options:

- do not assign the same Single Call DN to a Digitone-type or dial telephone and an SL-1-type or digital telephone
- replace the Digitone-type or dial telephone with an SL-1-type or digital telephone. There is privacy on shared Single Call DNs on these types of telephones.

Changing a basic digital telephone

Multiple Call DN

The DN can handle more than one call at a time.

This means that when one person is using the DN, the indicator is not lit at other appearances of that DN on digital telephones or SL-1-type telephones. These other appearances are available to receive additional calls, or can be used to make calls.

A Multiple Call DN is not treated as busy until there are calls on all the programmed appearances of the DN.

There can be a maximum of 16 appearances of one DN on systems using software prior to Release 13; after that release there can be a maximum of 30 appearances of the same DN.

Your system might have memory constraints which prevent you from reaching the maximum numbers. Consult with your system supplier before you implement Multiple Appearance DNs.

Consistent configuration

Whether you choose Single Call or Multiple Call, all appearances of one DN must be the same configuration.You cannot have one appearance of a DN programmed as Single Call and another appearance of the same DN as Multiple Call. If you attempt to do that, you will see a Service Change Error message on your programming terminal.

If there are two telephones that have appearances of the same DN, and you want to change the DN from a Single Call arrangement to a Multiple Call arrangement, you will have to do one of the following things to avoid getting a Service Change Error message:

- remove the second telephone from the database temporarily so that the first telephone can be changed to a Multiple Call arrangement with no conflict. Program the change to the DN key of the first telephone. Add the second telephone to the database again, this time programming the DN as a Multiple Call DN.

Changing a basic digital telephone

- change the DN on the key of the second telephone to some fictitious DN temporarily. Change the DN on the key of the first telephone to a Multiple Call arrangement. Change the DN on the key of the second telephone to the old DN again, but this time make it a Multiple Call arrangement.

Follow the preceding procedure if the two telephones share the same Multiple Call DN and they are changing to a shared Single Call DN. The exception is wherever it says Multiple Call arrangement, substitute Single Call arrangement.

Try to do these changes after normal working hours to cause minimal disruption to callers.

The step-action table at the end of this module explains how to change a DN on a key of a digital telephone. It also explains how to change a Single Call DN to a Multiple Call DN and vice versa.

Numbering Plan

Many systems have a carefully planned scheme for the use of numbers such as Directory Numbers (DNs), trunk-group access codes, and feature-access codes. This is called the Numbering Plan. It is used to record the numbers which are currently in use on a site and might also include numbers that are reserved for some future use. If, for example, you have reserved Direct-Inward-Dial (DID) telephone numbers with your telephone company for future use, it is important to record that in the Numbering Plan.

Careful planning is required in order to:

- prevent conflicts between numbers used for different purposes
- organize the use of numbers to help simplify the administration of the system
- ensure there will be enough available numbers to accommodate the foreseeable growth of the system

Keep a summary of the Numbering Plan on site. Before you make a change to the DN assigned to a telephone, familiarize yourself with the existing Numbering Plan. For more information on the Numbering Plan refer to the *Terms and abbreviations* module in this book.

Changing a basic digital telephone

DN-Block printout

If you need to know exactly what numbers are presently in use on your system, you can get a printout.You can use L D22 for this on any system or, if you have Release 19 or later running on your system, you can use any one of LDs 10, 11, 20, 22, or 32.To get a printout of all the assigned DNs, you can request a DN-Block printout. This printout also includes trunk-group access codes which are currently in use. The step-action table at the end of this module shows you how to do this.

When you change the DN assigned to a digital telephone, look at your DN-Block printout or your Numbering Plan before you decide what new DN to assign. Update your records to indicate the DN which you are removing and the new DN you are assigning.

Terminal Number (TN)

Use programming to identify the physical location of every telephone in the hardware of the system. The physical location or address is composed of a Loop number, Shelf number, Card number, and Unit number. These numbers make up the Terminal Number (TN) of the telephone.

If you are using a system running with Release 15 or later software, it can be equipped with either loops or Superloops. If you are using a system with software prior to Release 15, the system can be equipped with only loops. Loops and Superloops belong in the Network Equipment part of the system.

If you are not sure what type(s) of Network Equipment you are using, ask your system supplier. They can also tell you about your shelf and card equipment.

Refer to the *You should know this* module for more information on the hardware of your system.

Changing a basic digital telephone

Before you can make a programming change to a telephone, you must know the TN assigned to it. There are a number of ways you can find out what TN has been assigned:

- ask your system maintainer what Terminal Number (TN) is assigned to the telephone
- ask if the telephone is labelled or the jack is labelled with the TN
- if you have access to the print programs, follow the print procedure in the step-action table in this module to find out what Terminal Number has been assigned to the telephone

If you are changing the TN associated with an existing telephone you can do one of the following things:

- follow the instructions in , *Moving a telephone*
- remove the telephone from the existing TN by taking it out in programming and installing it as a new telephone at the other TN. Refer to the module called *Removing a telephone* and also the Task modules related to *Making a telephone work* and *Adding and changing features*. The disadvantages of using this method are:
  - it is more time consuming than programming a move
  - there is more programming involved, therefore you risk making errors
- ask your system maintainer if the wiring in the cross-connect panel can be changed instead of using programming to do the TN change

Decide on the approach which best suits the situation.

Card density

Telephones are connected to interface cards in the system called line cards. Line cards for digital telephones come in two varieties: quadruple-density and octal-density.

Quadruple (quad) density digital line cards have 16 TNs. Eight of the TNs on the card are for digital telephones and the other eight are for the associated data terminals (if any). Therefore, quad density digital line cards connect to a maximum of eight digital telephones.

Changing a basic digital telephone

Systems using Superloops can use *intelligent* line cards. They are called intelligent because they possess microprocessors. These are octal-density.

Octal-density digital line cards have 32 TNs. Sixteen of the TNs on the card are for digital telephones and the other sixteen are for the associated data terminals (if any). Therefore, octal-density digital line cards connect to a maximum of sixteen digital telephones.

When you program digital telephones, you do not need to tell the system what density the digital telephone line card is, since it defaults to the density allowed for the network loop or Superloop on which the telephone resides.

If you want to change the density of the card to which the digital telephone is connected, physical work must be done to change the Network Equipment (loop or Superloop) card as well as programming. All of this is beyond the scope of this book. Your system supplier will perform these tasks.

Designator (DES)

When you want printouts of the data associated with telephones you can request DN-Block and TN-Block printouts. Using only those printouts it might be difficult to identify each telephone specifically, especially if several telephones share the same DN. For example, you might find it easier if a department name prints out along with the other data.

With Office Data Administration System (ODAS) software equipped on a system, you can program each telephone in the database with a designator (DES) code.

The DES code can be a maximum of six alphanumeric characters.

You can use the designator to identify telephones in many different ways for your own purposes. Here are some suggestions:

- location in the building, for instance the floor number or room number
- cable pair

Changing a basic digital telephone

- telephone user's department, to be used for billing or inventory purposes
- user’s name, although the name does not display when the user makes calls

Once the designators have been assigned, you can request printouts of telephones according to the DES codes you have assigned. For example:

- you might want to know what telephones are in a specific department so you can bill the department manager. Request a printout of the telephones that share the same department identifier you assigned as the DES code for that department.
- you might have a group of telephones that share the same DN. If you want to move, change or remove one of them, you can print the telephone with the DES code that is specific to that telephone and find what TN is assigned to it.
- you can print the data for all the telephones that share a DN and use the DES codes to help you identify quickly which telephone is to be moved, changed, or removed.

Check to see if you have a policy on assigning DES codes to telephones. If there is no policy in place, decide if DES codes can be of use to you. If not, you can enter any code you like when the prompt appears. On most systems you *must* enter a code in order for the next prompt to appear.

You can use the step-action table at the end of this module for help in changing a DES code.

Telephone type

If a user is changing from one type of digital telephone to another type of digital or analog telephone you should remove the original telephone from the database and install the replacement telephone as a new telephone. This type of change cannot be done by using the change command in programming. Refer to the instructions in the *Removing a telephone* section and the *Making a telephone work* section for assistance.

Changing a basic digital telephone

- If the user is changing from a digital telephone to an analog dial or Digitone-type telephone, you will need the assistance of your system supplier. The telephone must be connected to a different line card in the system and re-programmed in software.
- If the user is changing from one type of digital telephone to another you will have to check whether the existing line card is appropriate. This can be an issue if the user is changing from an M2317 to an M2006, M2008, M2216ACD, or M2616.

  You will also have to take into consideration the number of keys on the telephone that you are removing and the number of keys on the telephone you are installing. If there is a reduced number of keys on the new telephone, you will have to find out what features and/or DNs you can program on the new telephone. (Consider that there are some features that the user can dial access if you run out of keys. One of the most common features to dial access is Call Pickup). If you need help, discuss this further with your system supplier.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Ringing options

There are four different ringing options for the digital telephones. When you program the Class of Service of each telephone, choose one of the four options to set the ringing tone and ringing cadence. The choices are: DRG1, DRG2, DRG3, or DRG4. DRG stands for Distinctive Ringing Group. Ask your system supplier to help you if you want to change the ringing option for a telephone.

Language options

There are two language options for the presentation of words on the display. The default language option in the Class of Service programming is French. You can choose English if you prefer.

Changing a basic digital telephone

You can also program key 29 to allow the user to toggle between the two languages. Key 29 coincides with the key under the display which is farthest to the right.

Ask your system supplier to help you if you want to change the language option for a telephone.

Digitone receivers (DTRs)

If you are changing many digital telephones to Digitone-type, your system supplier should calculate the proper number of digitone receiver cards required for the number of Digitone-type telephones that you will need. Discuss this issue with them.

Control tips

- If you are using a Call Detail Recording system to track and bill calls made by users, any new DNs must be entered into the database for that system. DNs which are no longer used should be removed.

Administration tips

- If you are changing the DN of a telephone:
  - prepare changes to directories in advance
  - notify people (both internal and external) of the change
  - alter business cards and other forms of advertising, such as FAX cover sheets, coincident with the change to the DN
  - prepare the attendant(s) when a user's DN changes
- If you are changing the customer group or DES code assigned to a telephone, assess the impact this will have on your billing system. Prepare the change to that system or to your records, in advance.

Changing a basic digital telephone

Training tips

- A user who is changing from a digital telephone to a dial or Digitone-type telephone will have to learn to use feature access codes. Training helps the user learn the new codes. You might not want to change a telephone from digital to dial or Digitone-type if the user will have difficulty with the feature access codes.
- If a telephone changes from one customer group to another, the user might need training on a different dialing plan and different telephony-related procedures.

What to have ready

The following checklist summarizes the steps you should take before making basic changes to an existing digital telephone.

Table 129
Checklist

Basic	Optional	Preparation
✔		Find out the TN which is assigned to this telephone.
✔		If the customer group is changing, determine the new customer group number. Prepare information for the user about the new Numbering Plan or feature access codes associated with the new customer group.
✔		If the DES code is changing, decide what new code you will assign.
✔		If the DN is changing, decide on the new DN according to the Numbering Plan on your site.
✔		If the DN is changing from Multiple Call to Single Call, (or vice versa), get DNB and TNB printouts of any other telephones with appearances of the same DN. Prepare to reprogram them as well.

— continued —

Changing a basic digital telephone

Table 12 9
Checklist (Continued)

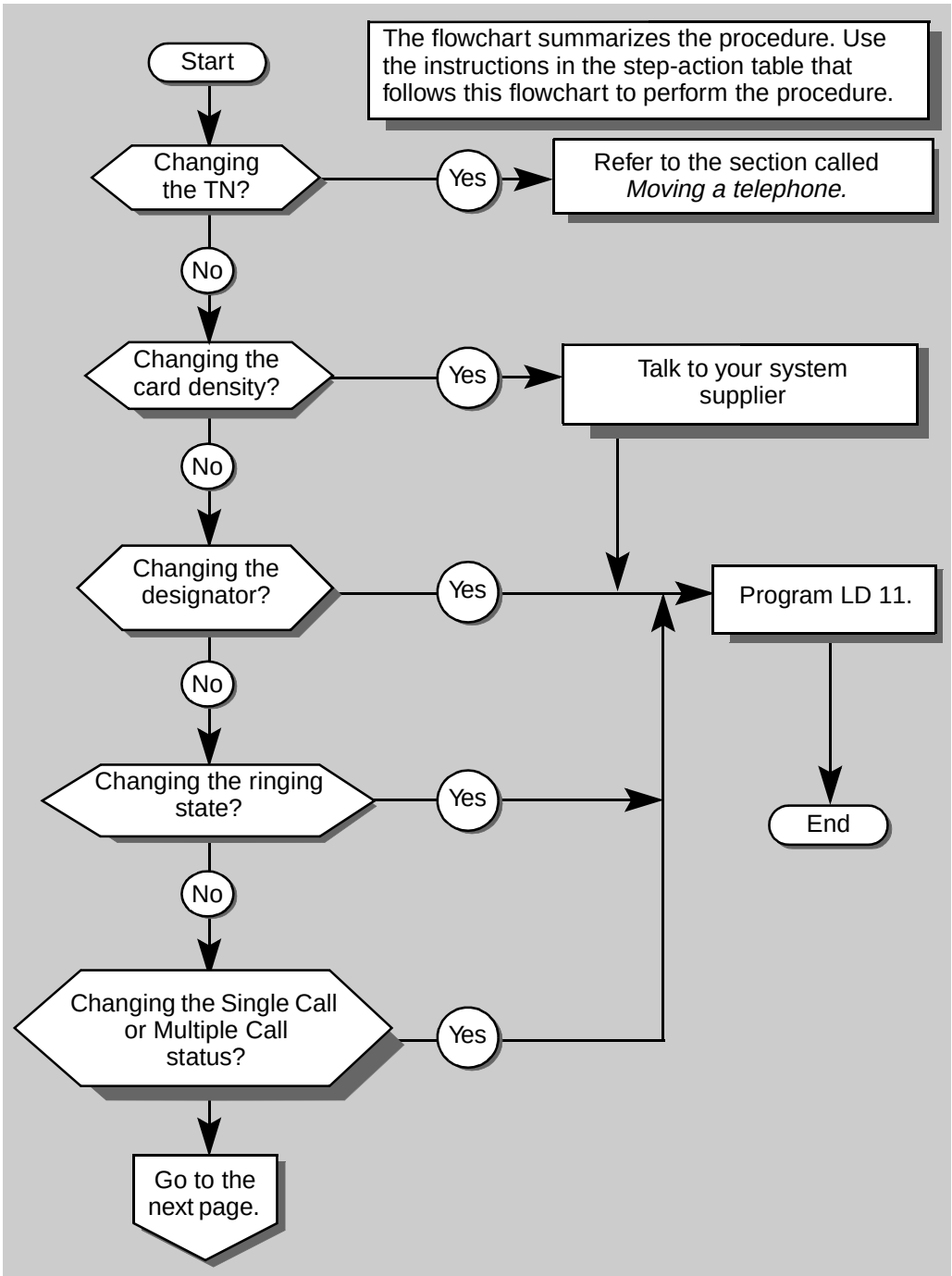
Basic	Optional	Preparation
✔		If you are changing many telephones from digital to Digitone-type, discuss the new DTR requirements with your system supplier.
✔		If the telephone is changing to dial or Digitone-type, prepare training aids and do training about the new feature access codes.
	✔	If the DN is changing, make changes to business cards, FAX cover sheets, and directories as required.
	✔	If the DN or customer group is changing, make changes to your records for CDR systems, or billing systems.

What's next?

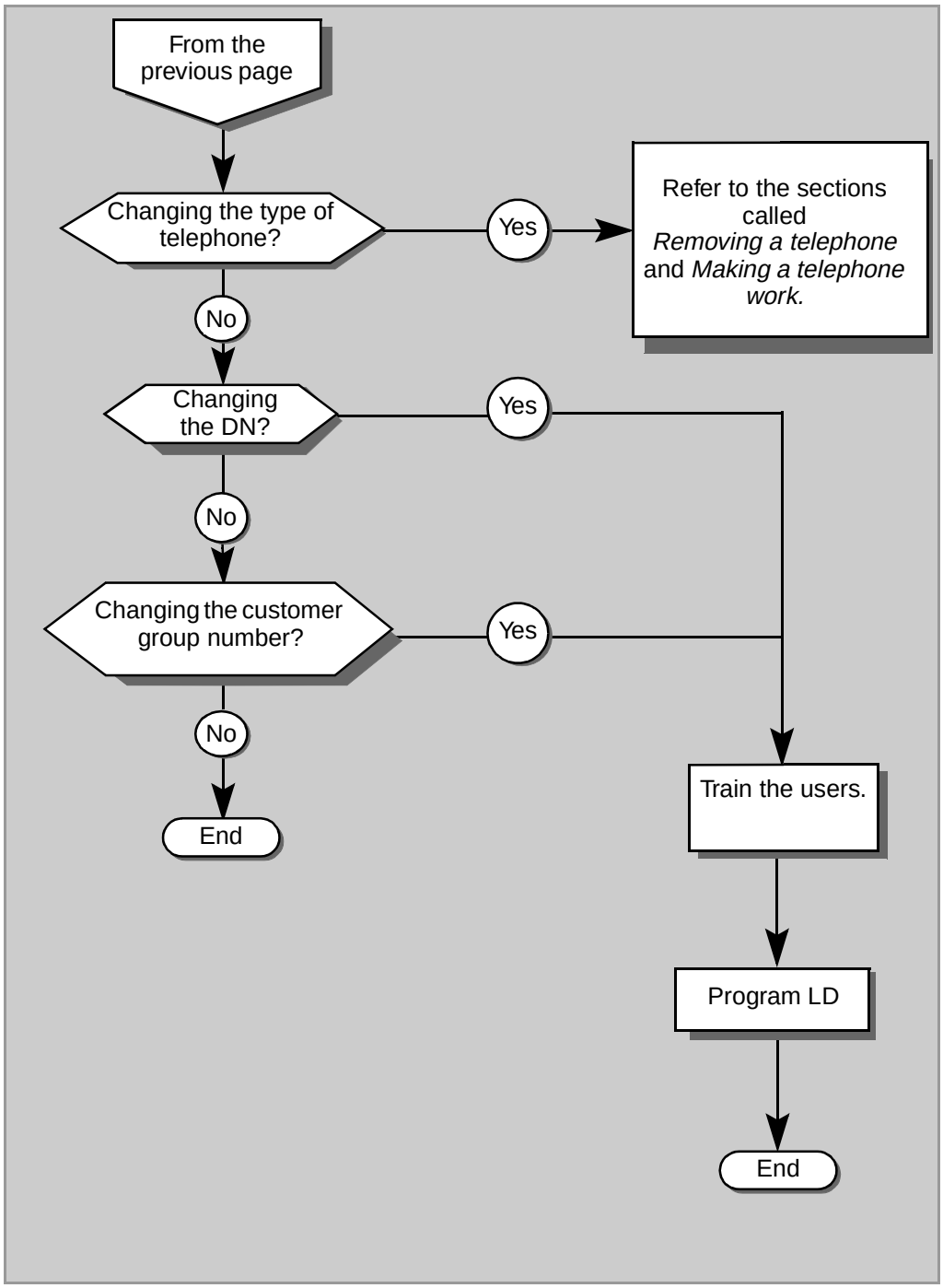
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary for basic programming changes to a digital telephone.

Changing a basic digital telephone



Changing a basic digital telephone



Changing a basic digital telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to making changes to the basic programming of a digital telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose the starting point in this procedure that applies to the change you want to make to the telephone.**

If	Do
changing TN	Refer to the section called *Moving a telephone*.
changing card density	Ask your system supplier to do this. It is beyond the scope of this book.
changing designator using Easy change	step 3
changing designator not using Easy change	step 4
changing customer group number using Easy Change	step 5
changing customer group number not using Easy change	step 6

— continued —

Changing a basic digital telephone

STEP	ACTION	
2 continued ...		
	changing Multiple Call / Single Call DN key status using Easy Change	step 7
	changing Multiple Call / Single Call DN key status not using Easy Change	step 7
	changing ringing or non-ringing DN key status using Easy Change	step 7
	changing ringing or non-ringing DN key status not using Easy Change	step 7
	changing DN using Easy change	step 7
	changing DN not using Easy change	step 7
	changing model of digital telephone	Refer to the sections called *Removing a telephone* and *Making a telephone work.*
	changing from digital to dial or Digitone-type	Refer to the sections called *Removing a telephone* and *Making a telephone work.*
3	**Change the designator using Easy Change.**	
	> LD 11	
	REQ CHG	Requesting a change to an existing telephone
	TYPE	Enter the correct type of digital telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG YES	Input YES for Easy change
	ITEM DES A..A	Input the new designator code, represented by A..A — maximum of six alphanumeric characters

— continued —

Changing a basic digital telephone

STEP	ACTION	
3 continued ...		
	If	**Do**
	you do not want to make any more changes to this telephone	step 9
	you want to make further changes to this telephone	step 2
4	**Change the designator not using Easy Change.**	
	> LD 11	
	REQ CHG	Requesting a change to an existing telephone
	TYPE	Input the correct type of digital telephone
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next
	ECHG NO	Input NO or
	<cr>	Carriage return since NO is default
	CDEN <cr>	Carriage return until you see the DES prompt
	DES A..A	Input the new designator code, represented by A..A – maximum of six alphanumeric characters
	If	**Do**
	you do not want to make any more changes to this telephone	step 10
	you want to make further changes to this telephone	step 2

— continued —

Changing a basic digital telephone

STEP	ACTION	
5	**Change the customer group number using Easy change.**	
	> LD 11	
	REQ CHG	Requesting a change to an existing telephone
	TYPE	Input the correct type of digital telephone.
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG YES	Input YES for Easy change
	ITEM CUST XX	Input CUST followed by a space followed by the new customer group number, represented by XX XX is 0–99
	If	**Do**
	you do not want to make any more changes to this telephone	step 9
	you want to make further changes to this telephone	step 2

— continued —

Changing a basic digital telephone

STEP	ACTION	
6	**Change the customer group number not using Easy Change**	
	> LD 11	
	REQ CHG	Requesting a change to an existing telephone
	TYPE	Input the correct type of digital telephone.
	TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
	ECHG NO	Input NO or
	<cr>	Carriage return since NO is default
	CDEN <cr>	Carriage return until you see the CUST prompt
	CUST XX	Input the new customer group number, XX is 0–99
	If	**Do**
	you do not want to make any more changes to this telephone	step 10
	you want to make further changes to this telephone	step 2

— continued —

Changing a basic digital telephone

STEP	ACTION
7	**Change the DN or the Single Call/Multiple Call and ringing/non-ringing status of a DN using Easy Change.**

If there are other appearances of the DN you are changing, you must have a consistent Single Call/ Multiple Call status for all appearances. Refer to the earlier part in this module called *Consistent configuration* for information you will need before you make the change.

If this telephone is the Multiple Appearance DN Redirection Prime (MARP) for the DN you are changing, refer to Task 39, *Multiple Appearance DN Redirection Prime* for assistance in understanding the messages that you will see when you change the DN. Decide what telephone you want to program as the MARP before you make the change to this telephone. Use the instructions in the step-action table in Task 39, *Multiple Appearance DN Redirection Prime* if you need help.

> LD 11	
REQ CHG	Requesting a change to an existing telephone
TYPE	Input the correct type of digital telephone.
TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG YES	Input YES for Easy change
ITEM	Input KEY followed by a space followed by the key number where XX is 0–69 followed by a space followed by one of:
KEY XX SCN X..X	SCN — Single Call non-ringing
KEY XX SCR X..X	SCR — Single Call ringing
KEY XX MCN X..X	MCN — Multiple Call non-ringing
KEY XX MCR X..X	MCR — Multiple Call ringing
	followed by a space, followed by the DN you are assigning to the key you are changing – the DN is represented by X..X

— continued —

Changing a basic digital telephone

STEP	ACTION

7 continued ...

If	Do
you do not want to make any more changes to this telephone	step 9
you want to make further changes to this telephone	step 2

8 Change the DN or the Single Call/Multiple Call and ringing/non-ringing status of a DN not using Easy Change.

If there are other appearances of the DN you are changing, you must have a consistent Single Call/ Multiple Call status for all appearances. Refer to the earlier part in this module called *Consistent configuration* for information you will need before you make the change.

If this telephone is the Multiple Appearance DN Redirection Prime (MARP) for the DN you are changing, refer to Task 39, *Multiple Appearance DN Redirection Prime* for assistance in understanding the messages that you will see when you change the DN. Decide what telephone you want to program as the MARP before you make the change to this telephone. Use the instructions in the step-action table in Task 39, *Multiple Appearance DN Redirection Prime* if you need help.

— continued —

Changing a basic digital telephone

STEP	ACTION

8 continued ...

> LD 11	
REQ CHG	Requesting a change to an existing telephone
TYPE	Input the correct type of digital telephone.
TN L S C U	Input the **L**oop/Superloop number, **S**helf number, **C**ard number, **U**nit number of the telephone. Use the space bar between each number and the next.
ECHG NO	Input NO or Carriage return since NO is default
CDEN <cr>	Carriage return until you see the KEY prompt
KEY XX SCN X..X **KEY** XX SCR X..X **KEY** XX MCN X..X **KEY** XX MCR X..X	Input the key number where XX is 0–69 followed by a space followed by one of: SCN — Single Call non-ringing SCR — Single Call ringing MCN — Multiple Call non-ringing MCR — Multiple Call ringing followed by a space followed by the DN you are assigning to the key you are changing – the DN is represented by X..X

If	**Do**
you do not want to make any more changes to this telephone	step 10
you want to make further changes to this telephone	step 2

— continued —

Changing a basic digital telephone

STEP	ACTION
9	**Finish the overlay program.**

ITEM <cr> Carriage return when you see the ITEM prompt again

You see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

10	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

— continued —

Changing a basic digital telephone

STEP	ACTION
11	**Check the programming on the telephone which you have just programmed.**

Printout the TN Block for the telephone. For more information, refer to *Basic programming instructions* in this book.

End LD 11 and go to LD 20 (pre-Release 19)

or stay in LD 11 (Release 19 or later)

REQ	PRT	Request a printout
TYPE	TNB	TN Block
TN	L S C U	Input the **L**oop number, **S**helf number, **C**ard number, **U**nit number for the telephone you just programmed

Carriage return for the remaining prompts.

You get a printout of the data associated with the telephone.

If	Do
Programming is correct	step 12
Programming is not correct	step 2

12 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 13

— continued —

Changing a basic digital telephone

STEP	ACTION
13	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

14	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 15

— continued —

Changing a basic digital telephone

STEP	ACTION
15	**Terminate this overlay program**
	. ****
16	**Terminate this programming session.**
	Log off. **>** LOGO
17	**You have completed the programming required to change a basic digital telephone.**
	END

Make Set Busy Improvement

Purpose

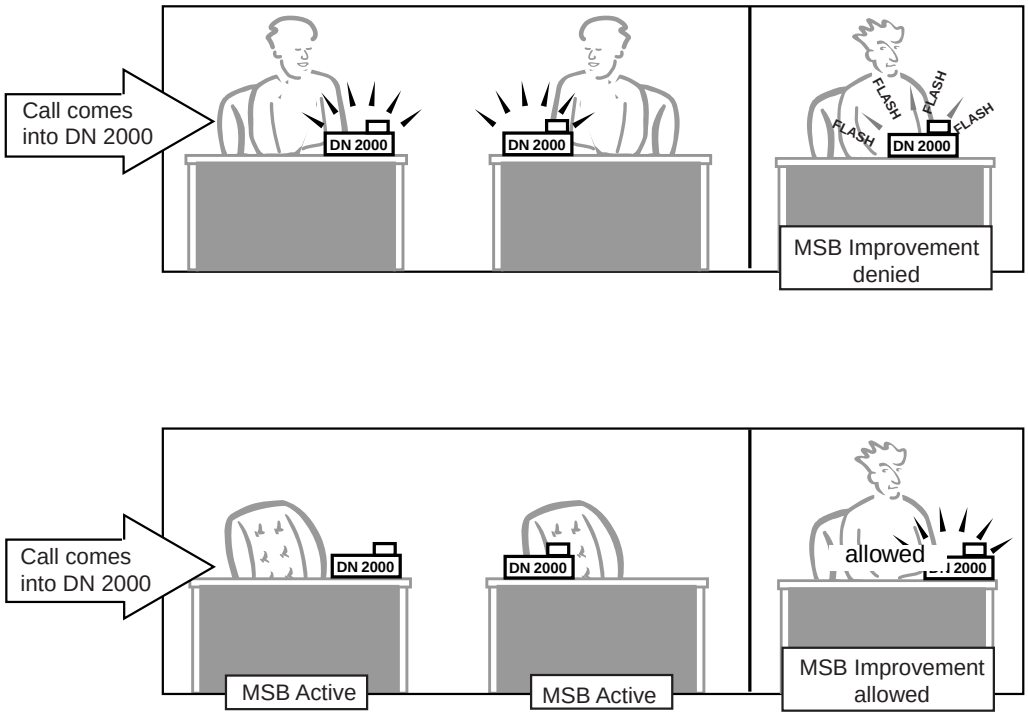
The Make Set Busy Improvement (MSBI) feature works with the Make Set Busy feature.

The Make Set Busy (MSB) feature allows a telephone to appear busy to all incoming calls. The user presses an MSB key (or dials a Flexible Feature Code) to activate this busy condition.

Sometimes one DN appears on several telephones. Some of the appearances of the DN are programmed to ring and the others are programmed not to ring; (the indicator for the non-ringing DN only flashes when there is an incoming call). When the telephone(s) with the ringing appearances of the DN have MSB active, the users of the telephones with the non-ringing appearances only have a visual indication of incoming calls to the shared DN.

In X11 Release 24, the Make Set Busy Improvement (MSBI) feature was introduced to allow the non-ringing appearances of a shared DN to ring during times when all telephones with the ringing appearances of the DN have MSB active.

Make Set Busy Improvement



Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Make Set Busy Improvement feature
- what you need to know to manage interactions with other features

Setting up the feature

Table 130
Software requirements

Release required	Software package(s) required
24	17 – Make Set Busy (MSB) If you use dial and Digitone-type telephones: 99 – Background Terminal (BGD) 139 – Flexible Feature Codes (FFC)

Types of telephones

For this feature, the telephones that share the same DN can be dial, Digitone-type and proprietary (not including Basic Rate Interface telephones). Non-proprietary telephones always have ringing appearances of the DN.

Programming the feature

Program the telephones as follows:

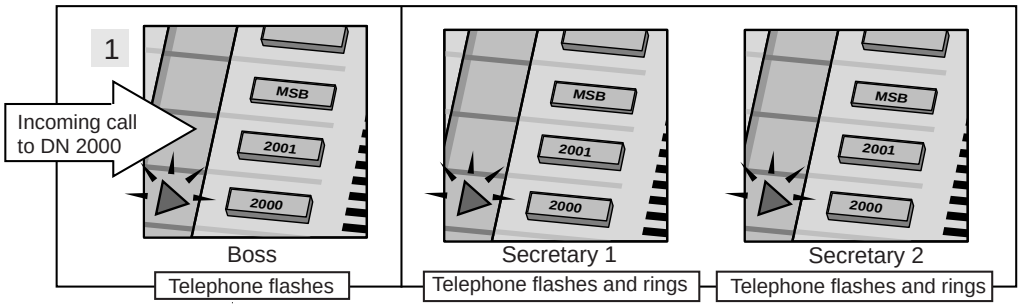
- There must be a Multiple Appearance DN on at least two telephones. The DN can be programmed as a Single Call or Multiple Call DN.
- The proprietary telephones with ringing appearances of the DN must have one MSB key each.
- The dial or Digitone-type telephone users must dial a Flexible Feature Code (FFC) for MSB, so you must program an FFC.
- The telephones with non-ringing appearances of the DN must have Make Set Busy Improvement allowed in the Class of Service.

If there are two telephones with non-ringing appearances of the DN, the MSBI feature can affect both of the non-ringing telephones. Both of the non-ringing telephones must have Make Set Busy Improvement allowed in the Class of Service. When all telephones with ringing appearances of the DN have MSB active, incoming calls to the shared DN will ring at the two telephones that usually do not ring.

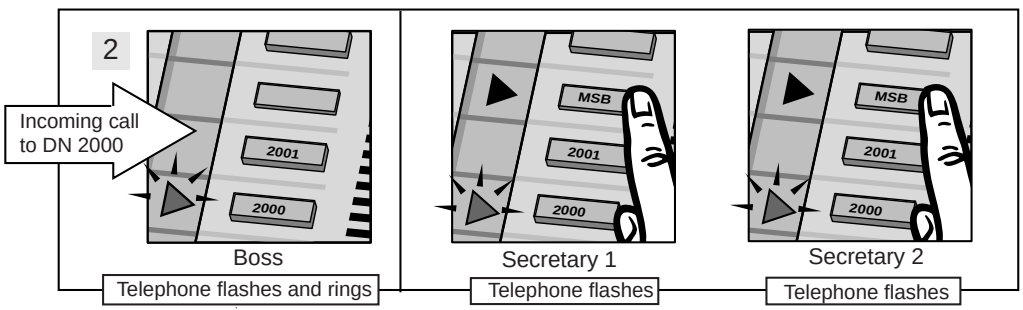
Make Set Busy Improvement

Using the feature

Operation when secretaries are able to answer calls:



Operation when secretaries activate MSB:



The boss's telephone rings when a call comes in.

Interactions with other features

Make Set Busy Improvement (MSBI) works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services* guide.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Directory Number Delayed Ringing (DNDR) interacts with MSBI

The DNDR timer gives a user time to answer a call at one telephone before it starts to ring at a second telephone.

If Make Set Busy Improvement is allowed, and MSB is active for all ringing appearances of a DN, any non-ringing appearance of the DN rings immediately, overriding the DNDR timer. This makes sense since the users with the ringing DNs have Make Set Busy active, so they are not going to answer the call. Therefore, the incoming call rings immediately on the telephone with the non-ringing appearance.

Distinctive Ringing by DN interacts with MSBI

If a non-ringing DN key becomes a ringing key due to the Make Set Busy Improvement feature, the telephone rings based on the Distinctive Ringing by DN programmed for the caller's DN key.

Private Lines interact with MSBI

The Make Set Busy feature does not affect Private Lines. Ringing Private Line DN appearances continue to ring on telephones even though MSB is active. However, the Make Set Busy Improvement feature affects the non-ringing appearances of these DNs. If MSB is active at all telephones with ringing appearances of the Private Line, the telephones with non-ringing appearances (with MSBI allowed) ring when there is an incoming call.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist which follows under *What to have ready* to confirm that you have what you need.

Make Set Busy Improvement

Ringing Change Key (RCK)

Table 131
Software requirements

Release required	Software package(s) required
15.58F	131 – International Supplementary Features (SUPP) 193 – Ringing Change Key

Some telephone users want to press a key to control the ringing of the DNs on their telephones. A Ringing Change Key allows a user to turn off the ringing of DNs on the telephone. To re-activate the ringing, the user presses the RCK key again.

Many people with Multiple Appearance DNs use the feature. Users can turn off the ringing of their telephones when a user of a ringing telephone is there to answer at another telephone.

If the following conditions exist: a telephone has Make Set Busy Improvement allowed, the user has turned off ringing with the Ringing Change Key, and all other ringing appearances of the shared DN have MSB active, then, when an incoming call is presented, the "turned off" DN rings, even though ringing was turned off using the Ringing Change Key.

Control tips

- Make Set Busy keys can be used too frequently by some users. Monitor users by asking questions about telephone use or conducting Traffic Studies to find out how often features are used.
- People with shared DNs operate MSB best if they communicate with each other before they use the feature. If the users who are supposed to answer calls, frequently activate MSB simultaneously, the users with non-ringing appearances end up answering calls more often than necessary.

Administration tips

- Find out which users of shared DNs would not mind answering calls occasionally when the other users with the same DN are not available.
- Consider the following situations before you assign Ringing Change Keys and Make Set Busy keys:
  - User “A” who cannot answer calls usually tells User “B” with an RCK key to turn on the ringing of telephone “B” to answer calls. Even if User “A” forgets to do this, telephone “A” still rings for every incoming call. If User “B” sits nearby, they can still hear that calls are coming in and answer them. If User “B” does not sit nearby, they cannot hear that calls are coming in. Calls can go unanswered.

    However, if User “A” activates MSB, telephone “A” no longer rings. If User “B” does not press the RCK key on telephone “B” to activate ringing, then calls can go unanswered.
  - with Make Set Busy Improvement, User “B” does not have to be notified that User “A” is gone. When User “A” presses the Make Set Busy key, the system turns on the ringing of non-ringing appearances of the DNs. If User “A” forgets to activate MSB, telephone “A” still rings. If User “B” is nearby, he or she can hear the ringing and answer the calls. If User “B” is not nearby, he or she cannot hear the ringing. Calls can go answered.

Training tips

- Make sure users understand what it means if the non-ringing appearances of DNs begin to ring. They must understand that the other users who share the DN are not available to answer the calls.
- Re-evaluate the usefulness of the MSBI feature with each new employee who will use a telephone where it is active. Make sure new users understand how it works and follow up with them.

Make Set Busy Improvement

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 13 2
Checklist

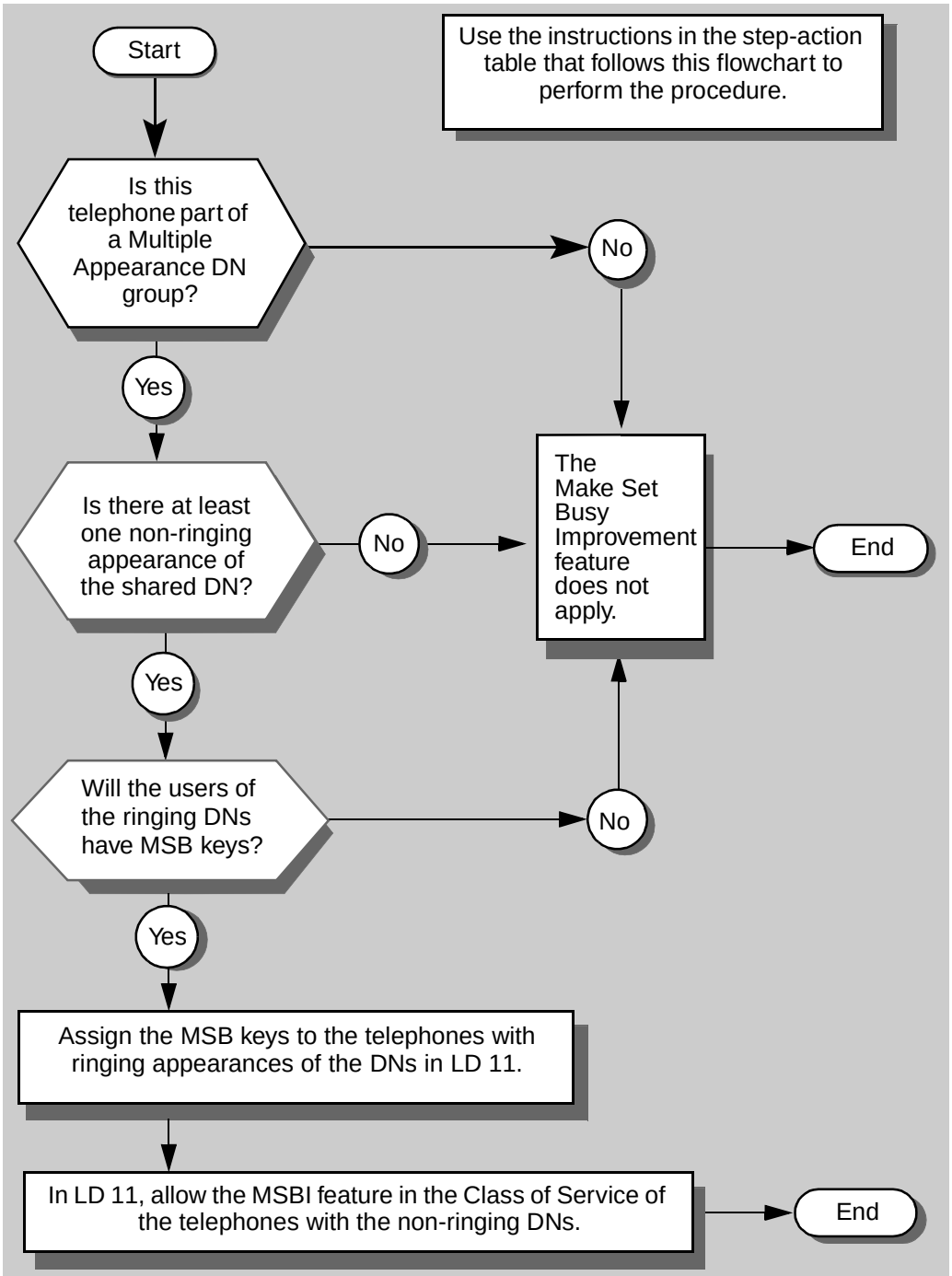
Basic	Optional	Preparation
✔		Decide which users will share DNs.
✔		Decide which proprietary telephones are to have ringing appearances or non-ringing appearances of the DNs.
✔		Assign MSB keys to users of ringing DNs who will operate the feature properly.
✔		Find out if any users of dial or Digitone-type telephones need to activate MSB. Decide what FFC to assign to MSB. Train these users.
✔		Decide which users of non-ringing shared DNs will answer calls occasionally for other users when they are not available. Allow the Make Set Busy Improvement feature on their telephones.
✔		Train users of MSB keys and ringing shared DNs and users of non-ringing shared DNs about the Make Set Busy Improvement feature.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Make Set Busy Improvement



Make Set Busy Improvement

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Make Set Busy Improvement feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
you are programming a new proprietary telephone with a ringing DN and a Make Set Busy key	step 3.
you are programming a new dial or Digitone-type telephone with a shared DN	one of Tasks 1-6, depending on the type of telephone. Program a Flexible Feature Code for MSB in LD 57.
you are programming a new proprietary telephone with a non-ringing DN and the Make Set Busy Improvement feature	step 4.
you are making a change to deny the Make Set Busy Improvement feature	step 5.

— continued —

Make Set Busy Improvement

STEP	ACTION
3	**Program a new digital or SL-1-type telephone with a ringing DN and a MSB key.**

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

Program the basics... Refer to Tasks 7-19 for information.

Carriage return until you see the prompt KEY

Program the DN(s) on the key(s) in one of the following ways:

KEY XX SCR X..X

KEY XX MCR X..X

XX represents the key number (0–59)
Key 0 must be programmed with a DN

SCR — single call ringing DN
MCR — multiple call ringing DN

X..X represents the actual digits in the DN; type the actual digits (1–7 digits with DNXP software package or 1–4 digits without DNXP)

For the Make Set Busy Improvement feature, the DN(s) you assign to this telephone must appear as non-ringing DN(s) on another proprietary telephone. Refer to step 4.

Program the Make Set Busy feature key:

KEY XX MSB

Go to step 8.

— continued —

Make Set Busy Improvement

STEP	ACTION
4	**Program a new digital or SL-1-type telephone with a non-ringing DN and the MSBI feature allowed.**

> LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

Program the basics... Refer to Tasks 7-19 for information.

Carriage return until you see the prompt CLS

CLS MSIA Make Set Busy Improvement feature allowed

Carriage return until you see the prompt KEY

Program the DN(s) on the key(s) in one of the following ways:

KEY XX SCN X..X

KEY XX MCN X..X

XX represents the key number (0–59)
Key 0 must be programmed with a DN

SCN — single call non-ringing DN
MCN — multiple call non-ringing DN

X..X represents the actual digits in the DN; type the actual digits (1–7 digits with DNXP software package or 1–4 digits without DNXP)

For the Make Set Busy Improvement feature, the DN(s) you assign to this telephone must appear as ringing DN(s) on another telephone that has MSB. Refer to step 2.

Go to step 8.

— continued —

Make Set Busy Improvement

STEP	ACTION
5	**Change an existing telephone to deny the Make Set Busy Improvement feature.**

REQ CHG — Program a change to an existing telephone

TYPE — Input correct type of SL-1 or digital telephone

TN L S C U — Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)

ECHG

If	Do
using “Easy Change”	Input YES and go to step 6.
not using “Easy Change”	Input NO or <cr> and go to step 7.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

6	**Program an “Easy Change” to an existing telephone.**

ITEM CLS MSID — Make Set Busy Improvement feature denied.

Go to step 8.

7	**Program a change (not an “Easy Change”) to an existing telephone.**

carriage return until you see the prompt CLS

CLS MSID — Make Set Busy Improvement feature denied

Go to step 8.

— continued —

Make Set Busy Improvement

STEP	ACTION
8	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your Service Change has been entered into the memory.

9	**Check that the programming which you have just done is correct.**

Verify that the new telephone or the changed telephone behaves as expected when you activate MSB at all telephones with ringing appearances of the shared DN.

If	Do
feature works properly	step 10.
feature does not work properly	step 1.

10	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 11.

— continued —

Make Set Busy Improvement

STEP	ACTION
11	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

12 Verify that the dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 13.

13 Terminate this overlay program.

```
. ****
```

— continued —

Make Set Busy Improvement

STEP	ACTION
14	**Terminate this programming session.**
	Log off. **>** LOGO
15	**You have completed the programming required to add or change the Make Set Busy Improvement feature on telephones.**
	END

Message Center

Purpose

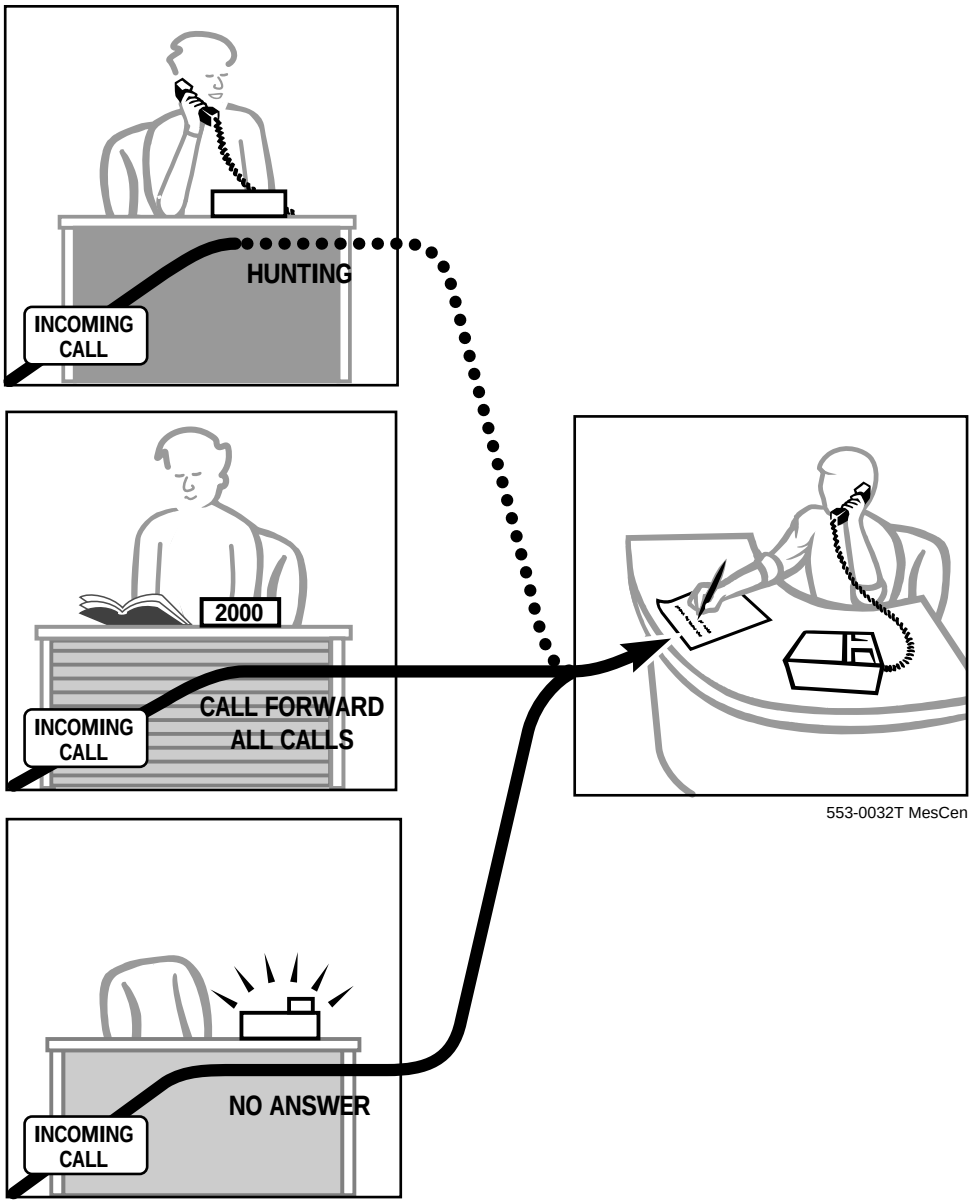
When telephones are busy, unanswered or forwarded, calls can be redirected to backup answering telephones or voice mail systems. This method of answering calls is referred to as a Message Center. Sometimes people refer to Message Centers as *back-up answering positions*.

The main functions of the Message Center are to:

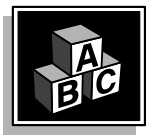
- take calls for users who cannot take the calls themselves
- indicate to the users that there are messages for them
- give the messages to the users
- deactivate message waiting indication at users' telephones

Message Center

Telephone-Type Message Center



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Message Center features
- what you need to know to manage interactions with other features

Setting up the feature

Message Center operation requires a software package called Message Waiting Center to be equipped on your system. You select the telephones that are to have Message Waiting or the Message Center capabilities, then you use the procedure in this module to program each one.

Table 133
Software requirements

Release required	Software package(s) required
1	46 – Message Waiting Center (MWC)

Types of Message Centers

You can choose from three different types of Message Centers:

- digital or SL-1 telephone
- Attendant Console
- Automatic Call Distribution (ACD), also called Call Center

It is beyond the scope of this book to discuss the ACD Message Center alternative in detail. ACD-type Message Centers can be made up of users at telephones programmed as ACD agents or Meridian Mail, since Meridian Mail is served by ACD queues.

Its main advantage over digital or SL-1 telephone-type Message Centers is the fact that calls are queued with ACD. Message Centers typically receive a large number of calls, so the queuing capability is a benefit.

Message Center

There are many ACD features which you can also use to enhance the operation of the Message Center. Refer to the *Special Features Guide* for more information on ACD and ACD Message Center.

Calls also queue when they are presented to the attendant(s). This is an advantage when the attendant(s) act as a Message Center.

You can program telephones with Short Hunting capability if they are to be configured as Message Centers. In this way, many calls can be taken at once when the Message Center has a high volume of calls. For more information on Short Hunting, refer to Task 37, *Hunting*.

Programming the Customer Data Block (LD 15)

- The Message Center function is activated as an option in the Customer Data Block (LD 15).
- Along with that, four Message Center specific call treatments can be programmed in LD 15. The response to these four Message Center prompts is either YES or NO.

  The four scenarios are summarized in the following table:

Table 134
LD 15 programming for Message Centers

Prompt	Call treatment	Yes	No
No answer DID calls	Go to ACD type Message Center?		
No answer non-DID calls	Go to ACD type Message Center?		
DID calls to busy telephones	Go to ACD type Message Center?		
Consoles used as Message Center	N/A		

The first three call treatment choices in the preceding table control calls only if there is an ACD queue programmed as a Message Center. If the response to these three prompts is YES, all calls to all telephones in the situations described will go to the ACD queue programmed as the Message Center.

The fourth prompt in the table applies to systems where the attendant queue is the only Message Center.

On systems where digital or SL-1-type telephones act as Message Centers for various groups of users, these prompts do not apply. Each telephone on a system configured with telephone-type Message Centers is programmed to redirect calls to a particular DN on the Message Center telephone.

Call Forward No Answer and the Customer Data Block

There are three prompts in the Customer Data Block that affect telephone-type Message Centers. The response to each of these three prompts controls what happens to *unanswered calls* on a Customer-wide basis. The choices affect what programming you must do at the individual telephone level. The three call-types the system defines are:

- DID calls
- external non-DID trunk calls
- internal calls or calls from trunks that are programmed as internal-type

The possible responses to each of these three call types are: NO, ATT, HNT or FDN.

- If NO is the choice, then there is no treatment for unanswered calls. Telephones ring until answered at the telephone or the caller hangs up.
- If ATT is the choice, then unanswered calls go to the attendant(s).
- If HNT is the choice, then unanswered calls go to the programmed HUNT DN for the individual telephone.
- If FDN is the choice, then each individual telephone is programmed with a HUNT DN which receives calls when the telephone is busy and an FDN which receives calls when the telephone goes unanswered.

Message Center

Refer to Task 36, *Call Forward No Answer* for more information on these treatments for unanswered calls.

Programming the telephones

The telephones that are backed up by these Message Center telephones, or voice mail services, must have Message Waiting allowed in the Class of Service programming. Telephones that have Message Centers are usually programmed to Hunt calls to the Message Center DN when they are busy, and to forward calls to the Message Center DN when they are not answered. When users want to forward their calls, they input the DN of the Message Center when they use the Call Forward All Calls feature.

The programming involved with attendant-type Message Centers is beyond the scope of this book. There are a few different approaches you can take. The issues involved and some suggestions are briefly summarized here to get you started.

- If calls are to Hunt to the attendant when telephones are busy, and the attendant DN is 0, you must use a work-around to program the telephones.
  - You cannot program 0 as the HUNT DN of a telephone.
  - You can, instead, program a DN that is assigned to a TN which is in constant Call Forward mode to the attendant.
  - This TN is either a physical TN or, with Release 20 software, it can be a Phantom TN.
- Another alternative is to assign a DN to one of the Incoming Call Indicator keys on the console.

Discuss with your system supplier ways of programming your system so that calls Hunt and forward to the attendant, if this is the kind of Message Center you want.

Message Waiting indication

You can program telephones in one of two ways to indicate to the user that there is a message waiting.

- a lamp can flash on the telephone
- interrupted dial tone (dial tone that goes on and off) can be heard when the handset is lifted. The user can still make calls when there is interrupted dial tone. Interrupted dial tone is also called *Audible Message Waiting*.

Dial or Digitone-type telephones

There are models of dial or Digitone-type telephones that have message waiting lamps. You activate the lamps in programming the Class of Service of the telephone.

Older systems require unique line cards and special power equipment for these telephones if they are to support message waiting lamps. Discuss this requirement with your system supplier.

Digital or SL-1-type telephones

You can program these telephones with MessageWaiting keys that flash when there is a message waiting. When you program a Message Waiting key, you program it to automatically dial the DN that acts as the Message Center for that telephone when the user wants to hear messages.

There is no special line card required for these telephones when they are configured with Message Waiting keys.

Message Center operation

Message Center telephone users have two keys that assist them in turning on and turning off the Message Waiting indication at another telephone. The indication that they can activate or deactivate is a lamp or interrupted dial tone. The two keys are:

- Message Indication **(MIK)** — activates the message waiting lamp or interrupted dial tone at the other telephone
- Message Cancellation **(MCK)** — deactivates the message waiting lamp or interrupted dial tone at the other telephone

Message Center

For further information on the use of these two keys, refer to the *Using the feature* section of this module.

Using the feature

If the Message Center receives a call for a telephone that does not have a message indication active at that time, the Message Indication (MIK) lamp is steadily lit at the Message Center telephone while the message is being taken.

To activate the Message Waiting indication at another telephone

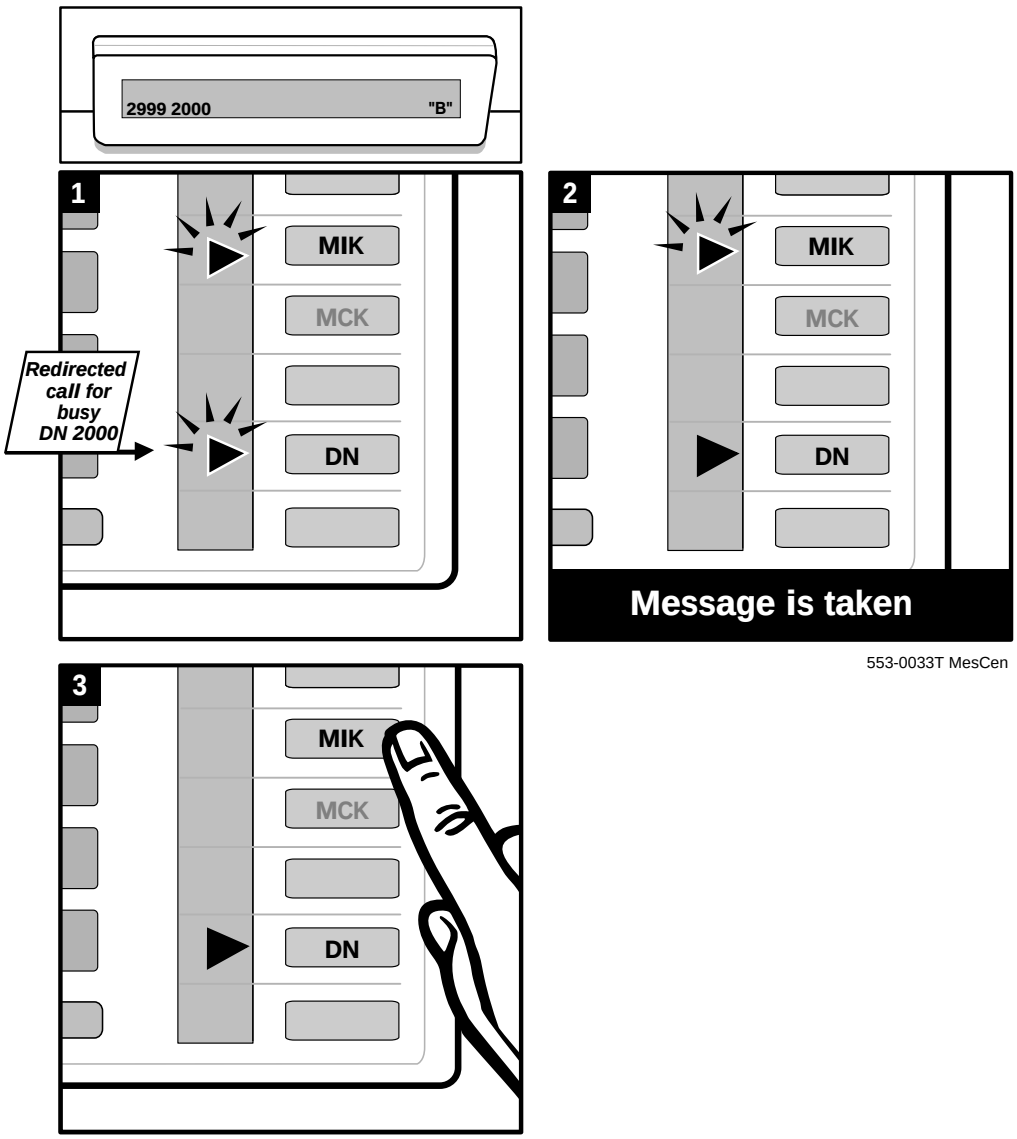
The Message Center operator can press the MIK key.

- If the call is still in progress when the MIK key is pressed, the system turns on the indication without the Message Center operator having to dial any DN.
- If the call is not still active, the Message Center operator presses the MIK key, dials the DN of the other telephone, and presses the MIK key once more. This activates the message waiting indication.

If the Message Center operator has already taken a message for the other telephone and a second call comes in for that same telephone, the MIK lamp flashes quickly for the second call. This indicates the message indication has already been activated at the other telephone. The Message Center operator does not have to press the MIK key for the second call. Pressing it has no effect on the other telephone.

If the MIK key at the Message Center telephone flashes slowly, this means that the message waiting lamp at the other telephone is disabled or not equipped. This state does not occur if audible message waiting is in place.

Activating Message Waiting indication

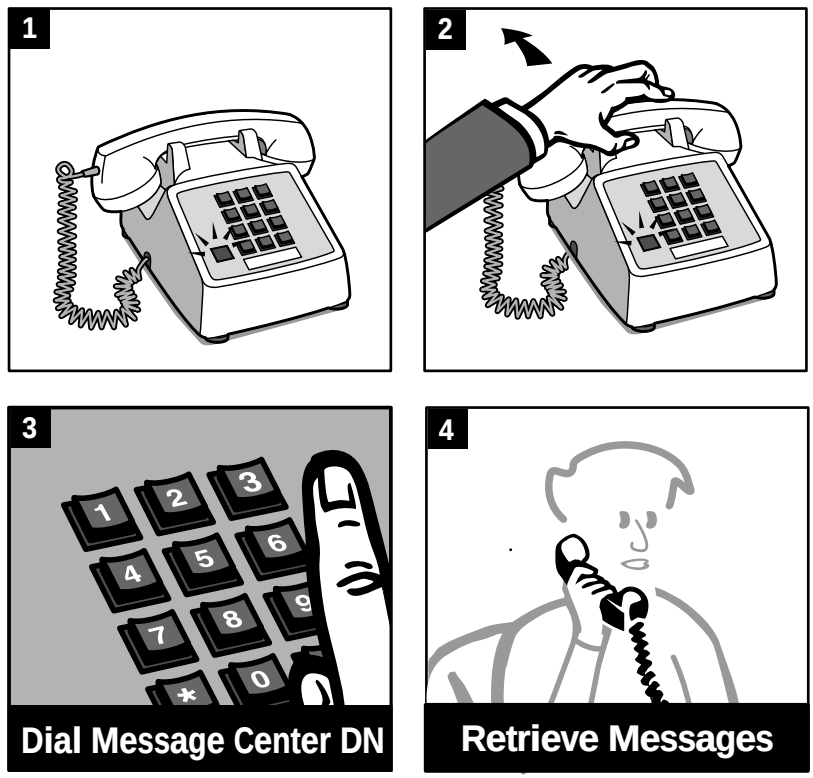


553-0033T MesCen

Message Center

To hear the message

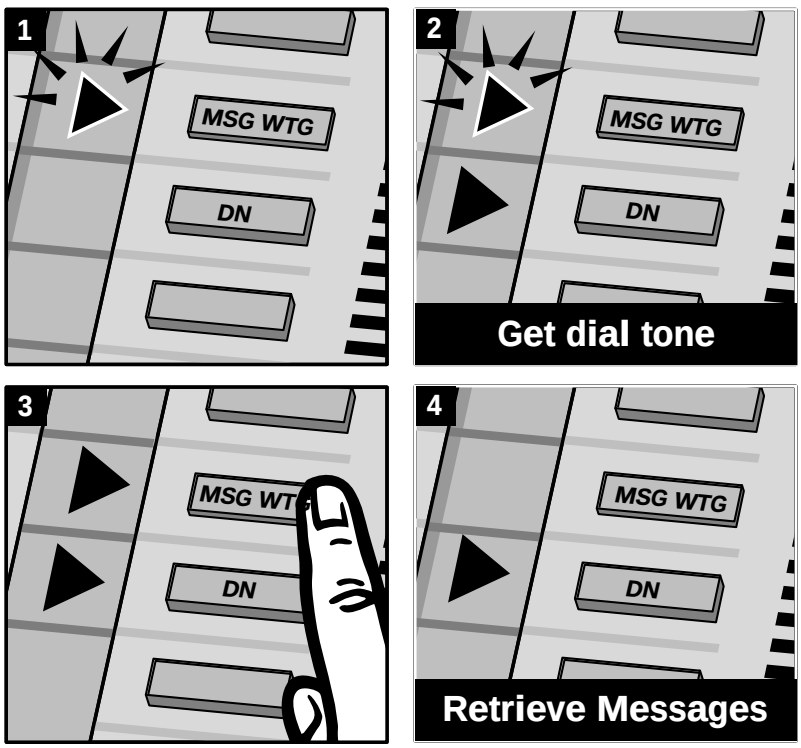
If the other telephone is a dial or Digitone-type telephone, then the user must dial the DN of the Message Center. (Some models may have a button that can be programmed at the telephone to automatically dial these digits.)



553-0034T MesCen

To hear the message (continued)

If it is a digital or SL-1 telephone, the person at the other telephone lifts the handset and presses the Message Waiting key. This key is pre-programmed to dial the Message Center DN.



553-0035T MesCen

Message Center

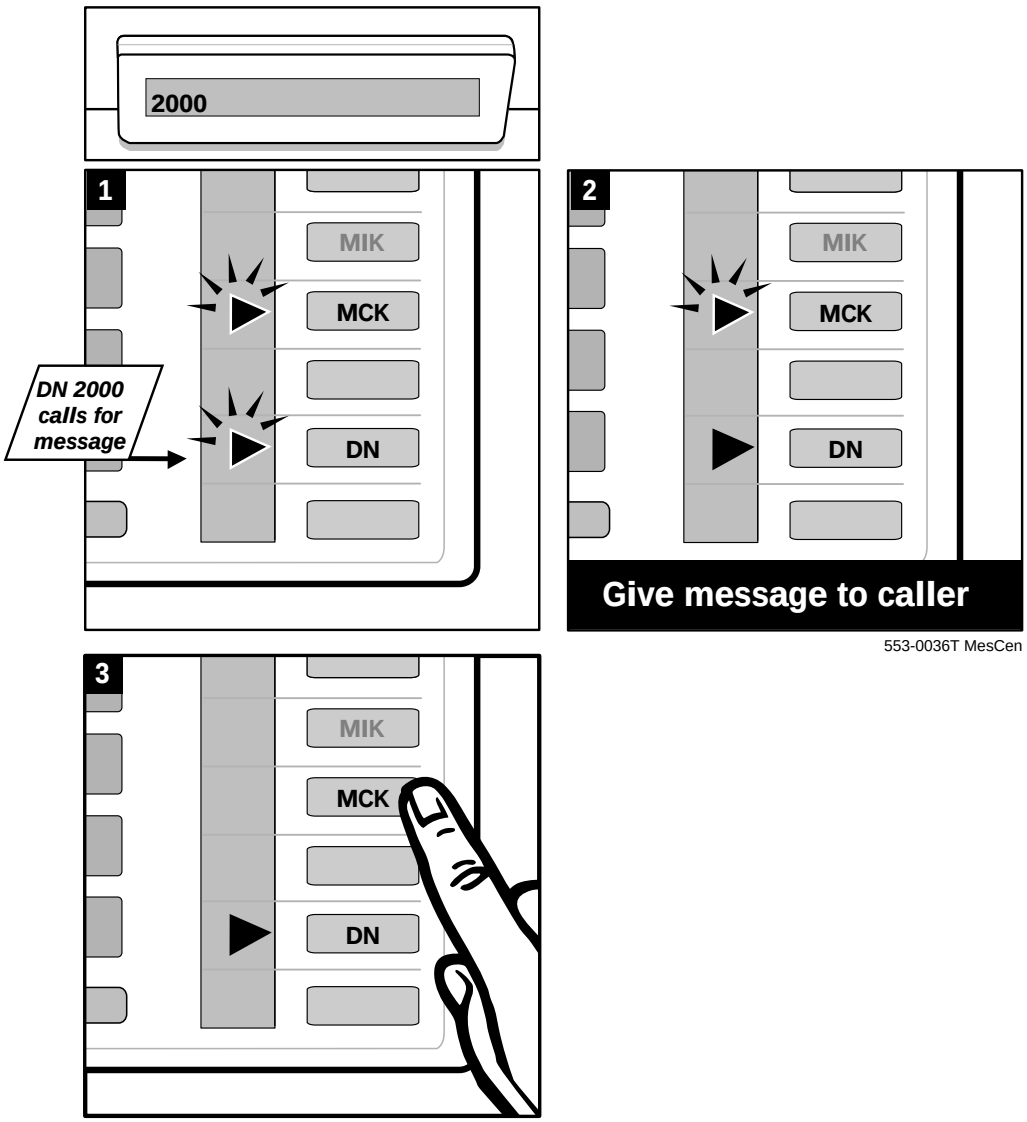
To deactivate a Message Waiting indication at another telephone

Without a call in progress the Message Center operator can press the MCK key, dial the DN of the other telephone, and press the MCK key again. There is no dial tone required at the Message Center telephone in order for this to work. When this is finished, the Message Waiting indication at the other telephone is deactivated.

With a call in progress when the Message Center operator answers a redirected call, the MCK key on the Message Center telephone flashes. This acts as a reminder to press the MCK key to deactivate the message indication at the other telephone. The operator does not need to dial the DN, the system has stored the DN and TN that redirected the call to the Message Center. The message waiting indication is deactivated for that telephone.

If a user without an active message indication calls a Message Center telephone, when the Message Center operator answers, the MCK lamp turns on steadily. This indicates that there is no message indication active at the other telephone at this time. Pressing the MCK key has no effect on the other telephone.

Deactivating Message Waiting indication



553-0036T MesCen

Interactions with other features

Message Center works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Second Level Call Forward No Answer interacts with Message Center

On systems with software Release 15 and later, if Second Level Call Forward No Answer has forwarded a call twice, the Message Center is able to activate message waiting indication on the telephone with the originally dialed DN.

Before Release 15, the Message Center can only activate a message waiting indication on the telephone which directly forwarded the call to the Message Center, not the originally dialed telephone, when Second Level Call Forward No Answer has redirected the call twice.

For more information, refer to Task 40, *Second Level Call Forward No Answer*.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist which follows under *What to have ready* to confirm that you have what you need.

Message Intercept

Table 135
Software requirements

Release required	Software package(s) required
15.58F	163 – Message Intercept (MINT) 125 – Flexible Tones and Cadences (FTC)

This software can be configured to give the user a recorded announcement instead of interrupted dial tone for Audible Message Waiting. This can significantly reduce the need for training because interrupted dial tone might confuse an untrained user, whereas a recorded announcement explains that there is a message waiting.

Call Party Name Display (CPND)

Table 136
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display (CPND)

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

Message Center

The redirection codes can be up to four letters long. The default codes for the various redirection-related features are:

Table 137
Redirection reason default codes

Feature name	Default code
Call Forward All Calls	F
Call Forward No Answer	N
Hunting /Call Forward Busy	B
Call Pickup	P
Transfer	T
Attendant Alternative Answering	A

These codes are presented on telephones with displays when calls are redirected to them by features such as Hunting.

For example, you might want people to see the code BUSY on their displays when they answer calls for other telephones because those people are busy and the calls Hunted.

People can greet callers more appropriately if they know why the calls are being presented to their telephones in the first place.

Talk to your system supplier about implementing CPND, or you can refer to *X11 software features and services* for more information. The programming involved is beyond the scope of this book.

Displays

Message Center telephones have a requirement for displays to answer calls in an effective way.

When the operator answers the call, the minimum information that the display shows is:

- the caller's DN, if the caller is internal to the system
- the trunk route access code of the trunk being used for the call, if the call is coming from an external location
- the originally dialed DN

Message Center

Since the originally dialed DN is displayed, the Message Center operator knows who the caller wants to reach and can answer the call effectively.

Display options are programmable on a per telephone basis. You can control what name will appear on a display if you have implemented CPND software. You can choose either one of two options for each Message Center, according to the needs of the operator.

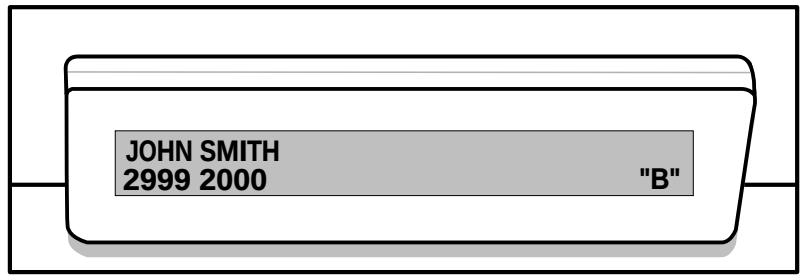
- The caller's name can be displayed on the Message Center telephone display if:
  - Caller's Name Display is allowed (CNDA) in the Class of Service of the Message Center telephone
  - the caller's DN has a name associated with it in the Call Party Name Display overlay program (LD 95)
- The name of the person who was called can be displayed on the Message Center telephone display if:
  - Dialed Name Display is allowed (CNDA and DNDA) in the Class of Service of the Message Center telephone
  - the called party's DN has a name associated with it in the Call Party Name Display overlay program (LD 95)

Message Center operators usually find it more useful for their needs if they see the called party's name when answering calls rather than the caller's name.

In addition to the name (of the caller or called party), the caller's DN and the called DN are always displayed, along with the reason code, if that has been activated.

Message Center

Display appearance



553-0037T MesCen

In this example, the name of the caller, John Smith, is displayed. John Smith's DN is 2999. John called DN 2000. The reason the call was redirected to this Message Center telephone was because DN 2000 was busy, indicated by the reason for redirection code "B".

Message Waiting Indicator by DN

Table 138
Software requirements

Release required	Software package(s) required
24	19 – Digit Display (DDSP)
	46 – Message Waiting (MWC)
	246 – Voice Mailbox Administration (VMBA)

The functionalities provided by this feature are:

- **Multiple Message Waiting Indications:** You can assign a new key called an Extended Message Waiting Key to Meridian Modular telephones. You can use these keys as follows:
  - users who share a mailbox can all have a message waiting indication on their telephones when there are messages in the shared mailbox. When one of the users clears all the messages, the indicator is turned off at all telephones that share the mailbox. The DN associated with this key must be a secondary DN on all telephones.

– one telephone can have several Message Waiting Indicators. This allows one person to monitor the mailboxes of other users.

- **Remote Propogation of Message Waiting Indication:** You can assign a new key called a Remote Message Waiting Key to Meridian Modular telephones. When the user presses this key, the display prompts the user to dial a mailbox DN. Once the mailbox DN is entered, the key indicates when there are voice messages in that remotely monitored mailbox.
- **Enhanced indication where one mailbox supports multiple DNs:** You can associate three DNs with one mailbox, and all three DNs will have a Message Waiting Indication when there are messages waiting in the mailbox. This capability is allowed on all proprietary telephones.

Classes of Service

- There is a Class of Service that affects the operation of the red LED on the Meridian Modular telephones. You can program it to allow the LED to stay on until messages are cleared for the prime DN mailbox and for the mailbox(es) associated with the Extended Message Waiting Keys.
- There are Classes of Service for remote monitoring of a mailbox. One allows the remote monitoring of a mailbox from a telephone with a Remote Monitoring Key. The other allows remote monitoring and allows a user to override a previous request for remote monitoring.
- There is a Class of Service that extends Message Waiting Indication to all telephones with the DNs that share the same mailbox.

Message Center

Control tips

- System administrators often find that users rely on Message Centers too much. Callers start to complain that they can rarely reach the person they want to speak to.
- You can monitor overuse of the Call Forward All Calls feature by using a maintenance program called Call Trace (LD 80). Discuss using this with your system supplier. You might need to walk around the different areas of the building to monitor how often people are letting telephones ring unanswered to be answered by the Message Center operators.
- Tell users you plan to monitor how often they forward their telephones and how often unanswered calls redirect to the Message Centers. You might let the Message Center operators know that they can keep you informed when some users overuse them as back-up answering positions.
- Tell users about your policies regarding use of the Message Centers.

Administration tips

- An attendant-type Message Center cannot be configured along with the other two types of Message Centers *within one customer group*. If both telephone-type and attendant-type Message Centers are required, you can work around the restriction. Assign a Directory Number (DN) to an Incoming Call Indicator key on the console. Have the system programmed to send calls to that DN, as if the DN resides on a telephone.
- Interrupted dial tone (Audible Message Waiting) might increase the number of repair calls users report. New users often think that they cannot make calls when they hear the strange dial tone. They also do not know, without training, that this type of dial tone means they have a message waiting.

Although this is an inexpensive way to provide message waiting services to dial and Digitone-type telephone users, people can miss messages if they do not lift the handsets of their telephones frequently to check for interrupted dial tone.

- You might need to experiment with the number of DNs that you program on each Message Center telephone. This affects the Short Hunting you program on their telephones. Monitor each operator at first to see how well each is able to answer calls with the number of DNs you initially program on their telephones.

  You need to monitor the number of people who use each Message Center for back-up answering. Excessive call volumes results in high stress levels for the operators, which in turn affects the way they answer calls.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Message Center operators need clear instructions on your policies regarding how calls should be answered.
- You will benefit greatly from training time spent with Message Center operators if you allow them to practice until they are comfortable with the keys before they answer calls in a live situation at their desks.
- If you are implementing Call Party Name Display and programming these codes, tell users about the redirection codes they will see on their displays.

Message Center

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 13 9
Checklist

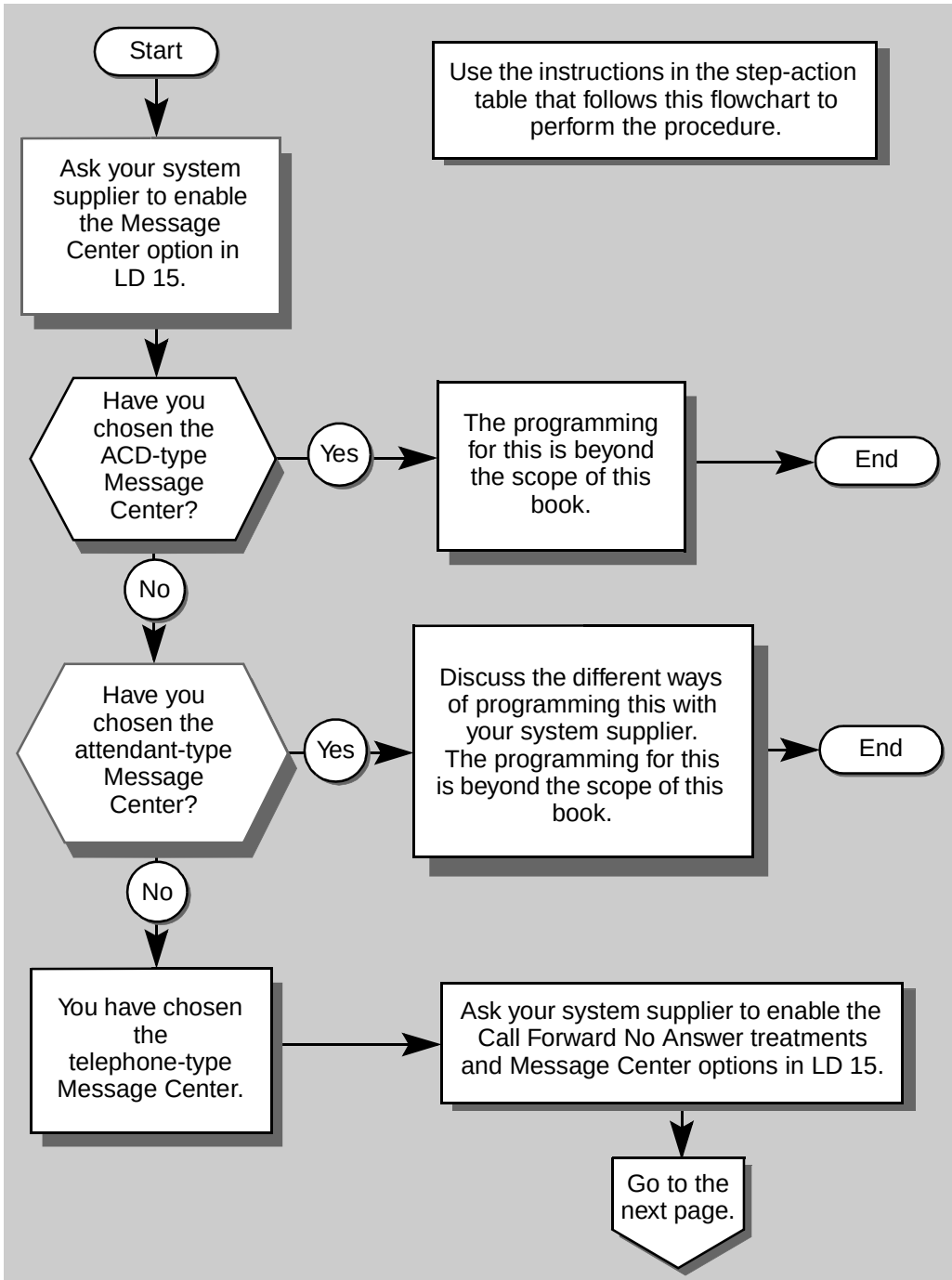
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide whether ACD-type or attendant- type or telephone-type Message Center best suits your needs.
✔		If telephone-type is your choice, decide, on a Customer-wide basis whether unanswered calls should go to the Hunt DN or a flexible DN of every telephone.
✔		Decide between Audible Message Waiting and lamps or keys for Message Waiting.
✔		Determine which telephones are to be Message Centers.
✔		Determine which telephones use each Message Center. Program them accordingly for Hunting and Call Forward No Answer.
✔		Decide which users of digital or SL-1-type telephones can have Message Waiting keys.
	✔	Prepare training for the Message Center operators. Prepare training for the users of Message Center services.
	✔	If you are using Audible Message Waiting, decide if you want to use Message Intercept recorded announcements.
	✔	If you are using CPND, decide what call redirection reason codes you want. Decide which users and trunk groups you want to name. Decide, for each Message Center telephone whether to display the caller's name or the called party's name.

What's next?

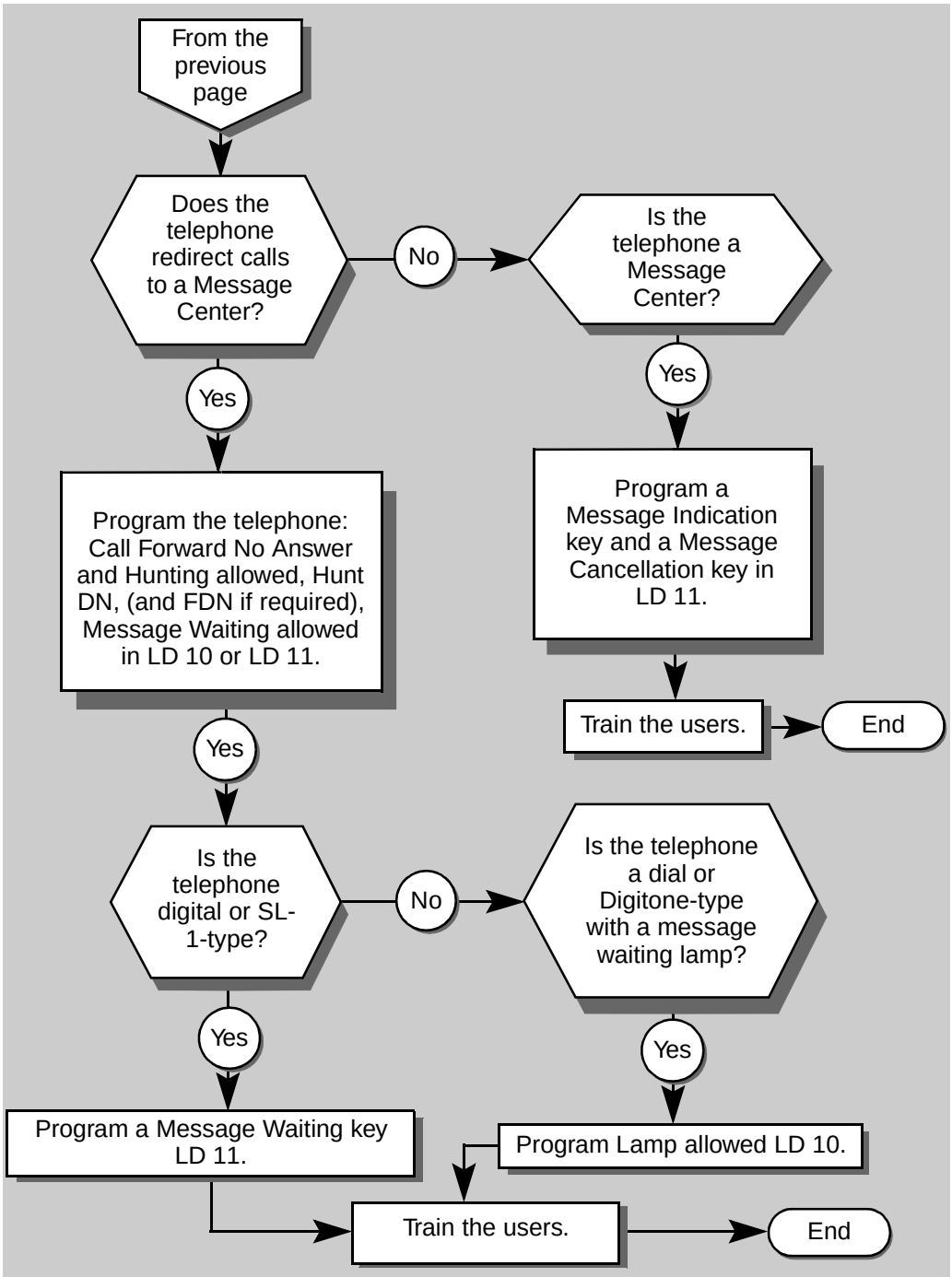
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Message Center



Message Center



Message Center

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the telephone-type Message Centers features only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Verify that the Customer Data Block (CDB) programming has been done.**

The Message Center option must be enabled and the Call Forward No Answer treatments must be programmed as HNT or FDN.

If	Do
you have access to LD 21	Print the CDB. Look for MCI (Message Center Included) under the OPT prompt. If MCX (Message Center Excluded) is there, ask your system supplier to change it. Refer to Task 36, *Call Forward No Answer*, for more information on the treatments. .

CAUTION
Check your maintenance agreement before working in LD 21.

you do not have access to LD 21	Ask your system supplier to print out the Customer Data Block.

2	**Ensure the telephones that are to redirect calls to a telephone-type Message Center when they are busy are programmed for Hunting.**

Refer to Task 37, *Hunting* if you need help.

— continued —

STEP	ACTION
3	**Ensure the telephones that are to redirect calls to a telephone-type Message Center when they are not answered are programmed for Call Forward No Answer.**
	Refer to Task 36, *Call Forward No Answer*, if you need help.
4	**Ensure the telephones that are to have the Call Forward All Calls feature are programmed for it.**
	Refer to Task 32, *Call Forward All Calls*, if you need help.
5	**Choose your next step from the choices below.**

If	Do
you are programming a telephone as a Message Center telephone	step 6
you are programming a telephone to have Message Center back-up	step 11

6	**Program the keys on the Message Center telephone.**

The telephone must be digital or SL-1-type.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

```
> LD 11
```

— continued —

Message Center

STEP	ACTION

6 continued ...

If	Do
you are programming a new telephone	step 7
you are changing an existing telephone	step 8

7 Program Message Indication and Message Cancellation keys on a new Message Center telephone.

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)
program the basics...		Refer to Tasks 7-19 for information.
carriage return until you see the prompt KEY		
KEY	XX MIK	XX represents a key number MIK (Message Indication) feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1
KEY	XX MCK	XX represents a key number MCK (Message Cancellation) feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1

Go to step 18.

— continued —

STEP	ACTION
8	**Change an existing telephone to add Message Indication and Message Cancellation keys.**

REQ CHG — Program a change to an existing telephone

TYPE — Input correct type of SL-1 or digital telephone

TN L S C U — Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)

ECHG

If	Do
using “Easy Change”	Input YES and go to step 9.
not using “Easy Change”	Input NO or <cr> and go to step 10.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

9	**Program an “Easy Change” to an existing telephone.**

ITEM KEY XX MIK — XX represents a key number

MIK (Message Indication) feature can be assigned to the following key numbers, depending on the kind of telephone:

1–5 M2006
1–7 M2008
1–59 M2216, M2616
1–69 SL-1

— continued —

Message Center

STEP	ACTION
9 continued ...	
	ITEM KEY XX MCK — XX represents a key number MCK (Message Cancellation) feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1
	Go to step 18.
10	**Program a change (not an "Easy Change") to an existing telephone.**
	carriage return until you see the prompt KEY
	KEY XX MIK — XX represents a key number MIK (Message Indication) feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1
	KEY XX MCK — XX represents a key number MCK (Message Cancellation) feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1
	Go to step 18.

— continued —

STEP	ACTION

11 Program a telephone for Message Waiting.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
new dial or Digitone-type telephone	Use LD 10. Go to step 12.
new digital or SL-1-type telephone	Use LD 11. Go to step 12.
changing a dial or Digitone-type telephone	Use LD 10. Go to step 14.
changing a digital or SL-1-type telephone	Use LD 11. Go to step 14.

12 Program a new telephone with a Message Waiting allowed Class of Service.

REQ	NEW	Program a new telephone
TYPE		Input correct type of 500 (dial or Digitone-type), SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)
program the basics...		Refer to Tasks 1–19 for information.

carriage return until you see the prompt CLS

CLS	MWA	Message Waiting allowed

— continued —

Message Center

STEP	ACTION

12 continued ...

If	Do
dial or Digitone-type telephone with audible message waiting indication only	Go to step 18.
dial or Digitone-type telephone with a lamp	Enter a space after MWA and input LPA (Message Waiting lamp allowed).You must have the proper hardware in the system for this to work on some systems. Check with your system supplier, if the lamp does not flash when you test it. Go to step 18.
digital or SL-1-type telephone with audible message waiting indication only	Go to step 18.
digital or SL-1-type telephone with a message waiting key	Carriage return until you see the prompt KEY. Go to step 13.

13 Program a Message Waiting key on a new digital or SL-1-type telephone.

KEY XX MWK Y..Y

XX represents a key number

MWK (Message Waiting Key) feature can be assigned to the following key numbers, depending on the kind of telephone:

1–5 M2006
1–7 M2008
1–59 M2216, M2616
1–69 SL-1

Y..Y represents the DN of the Message Center for this telephone

1–4 digits pre-Release 13
1–7 digits Release 13 and later (with DNXP)

Go to step 18.

— continued —

STEP	ACTION
14	**Change a telephone to Message Waiting allowed.**

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of 500 (dial or Digitone-type), SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Message Center

STEP	ACTION
15	**Program an "Easy Change" to an existing telephone.**

ITEM CLS MWA — Change Class of Service to Message Waiting allowed

If	Do
dial or Digitone-type telephone with audible message waiting indication only	Go to step 18.
dial or Digitone-type telephone with a lamp	Enter a space after MWA and input LPA (Message Waiting lamp allowed). Go to step 18.
digital or SL-1-type telephone with audible message waiting indication only	Go to step 18.
digital or SL-1-type telephone with a message waiting key	Carriage return. You see the prompt ITEM again. Go to step 17

— continued —

STEP	ACTION
16	**Program a change (not an "Easy Change") to an existing telephone.**

CLS MWA — Change Class of Service to Message Waiting allowed

If	Do
dial or Digitone-type telephone with audible message waiting indication only	Go to step 18.
dial or Digitone-type telephone with a lamp	Enter a space after MWA and input LPA (Message Waiting lamp allowed). Go to step 18.
digital or SL-1-type telephone with audible message waiting indication only	Go to step 18.
digital or SL-1-type telephone with a message waiting key	Carriage return until you see the prompt KEY. Go to step 13.

— continued —

Message Center

STEP	ACTION
17	**Add a Message Waiting Key to an existing telephone.**

ITEM KEY XX MWK Y..Y

XX represents a key number

MWK (Message Waiting Key) feature can be assigned to the following key numbers, depending on the kind of telephone:

Key #	Telephone type
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

Y..Y represents the DN of the Message Center for this telephone

1–4 digits pre-Release 13
1–7 digits Release 13 and later (with DNXP)

Go to step 18.

18	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your Service Change has been entered into the memory.

Go to step 19.

— continued —

STEP	ACTION

19 Check that the programming which you have just done is correct.

Verify that the new telephone or the changed telephone behaves as expected when you leave a message and after the user hears the message.

If	Do
feature works properly	step 20
feature does not work properly	step 1

20 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 21

21 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

Message Center

STEP	ACTION
22	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 23

23	**Terminate this overlay program.**

. ****

24	**Terminate this programming session.**

Log off.

> LOGO

25	**You have completed the programming required to add or change the Message Center features on a telephone.**

END

Ringing features

There are many different features that affect the way telephones ring. These features are discussed in this section.

Ringing frequency and cadence

There are two ways in which ringing can vary. They are:

- frequency (pitch)
- cadence

Frequency

Digital telephones can ring with high or low pitched tones. Refer to *Distinctive Ringing Groups* in this module for information about the four different ringing styles you can choose.

For dial and Digitone-type telephones the pitch of the ringing is not programmable; it is determined by the model of the telephone.

Cadence

Cadence is a term that describes the amount of time the ringing is on and off in each repeating ring cycle. In North America, the basic ringing cadence in one ring cycle is two seconds on and four seconds off.

Hardware

The Tone and Digit Switch is responsible for ringing proprietary telephones. The Ring Generator is responsible for ringing Dial and Digitone-type telephones.

Distinctive Ringing Groups

You can assign digital telephones to one of four Distinctive Ringing Groups (DRG1 – DRG4).You do this in the Class of Service. The default Class of Service setting is DRG1.

Table 140
Distinctive Ringing Group descriptions

Distinctive Ringing Group	Description
DRG1	(high fast tone) – default Frequency: 667 Hz/500 Hz Warble rate: 10.4 Hz
DRG2	(high slow tone) Frequency: 667 Hz/500 Hz Warble rate: 2.6 Hz
DRG3	(low fast tone) Frequency: 333Hz/250 Hz Warble rate: 10.4 Hz M2006/2008 telephones: Frequency: 1600/2000 Hz Warble rate: 10.0 Hz
DRG4	(low slow tone) Frequency: 333 Hz/250 Hz Warble rate: 2.6 Hz M2006/2008 telephones: Frequency: 1600/2000 Hz Warble rate: 2.5 Hz

Distinctive Ringing Groups can be very useful with the Call Pickup feature. When telephones are ringing in the Pickup group, users can identify which telephone is ringing and answer calls appropriately.

Flexible Tones and Cadences

Table 141
Software requirements

Release required	Software package(s) required
16	125 – Flexible Tones and Cadences (FTC)

In some countries flexible tones and cadences are required. Instead of TDS cards, Flexible Tone and Digit Switch (FTDS) cards are required.

Ringing Change Key

Table 142
Software requirements

Release required	Software package(s) required
15.58F	131 – International Supplementary Features (SUPP) 193 – Ringing Change Key

A Ringing Change Key (RCK) allows a user to turn off the ringing of DNs programmed to ring on the telephone.

Many people use the feature with Multiple Appearance DNs. A user presses the RCK key to turn off the ringing of the telephone when a user at another telephone can answer the DN. To re-activate the ringing, the user presses the RCK key again.

Network and Executive Distinctive Ringing

Table 14 3
Software requirements

Release required	Software package(s) required
16.67G	74 – Distinctive Ringing Package (DRNG) 125 – FlexibleTones and Cadences (FTC) 185 – Executive Distinctive Ringing (EDRG) In a network application: 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS)

When you assign Executive Distinctive Ringing to a telephone, terminating telephones ring distinctively when they receive calls from the "Executive" telephone. Network Distinctive Ringing extends this functionality across an ISDN network.

Distinctive Ringing by DN

Table 144
Software requirements

Release required	Software package(s) required
24	74 – Distinctive Ringing Package (DRNG) 125 – Flexible Tones and Cadences (FTC) 185 – Executive Distinctive Ringing (EDRG) In a network application: 145 – Integrated Services Digital Network (ISDN) 161 – Integrated Services Digital Network Supplementary Features (ISDNS)

Here are two examples of ways in which Distinctive Ringing by DN (DRDN) is used:

- In some businesses it is important for users to be able to identify who is calling them (internally), by the way their telephones ring.
- Some users want each DN on the telephone to have a unique way of ringing so they know which DN has an incoming call.

You can apply distinctive ringing to each DN or Hotline key on a Meridian Modular digital telephone in the following ways:

- DRDN by call source: terminating telephones ring distinctively when the user initiates a call from the key. Each key on the originating telephone can have one of five distinctive ringing patterns.
- DRDN by call destination: each key has a distinctive ringing pattern when incoming calls are presented to the telephone. Each key can have one of five distinctive ringing patterns.

DRDN by call source overrides DRDN by call destination. The ringing pattern associated with the calling DN is used at the terminating telephone, in cases where the terminating key also has the feature allowed.

Distinctive Ringing for Dial Intercom

Table 14 5
Software requirements

Release required	Software package(s) required
13	21 – Dial Intercom (DI)

Calls on Dial Intercom keys are internal calls from other users in the same Dial Intercom group. You can set up the Customer Group so that incoming calls on Dial Intercom keys ring differently from calls coming in on DN keys. Therefore, users can differentiate Dial Intercom calls without looking at their telephones and give them priority with this feature.

The Distinctive Ringing for Dial Intercom cadence is 0.5 seconds on and 0.5 seconds off.

Buzzing

A single buzz tone is given on a proprietary telephone when a user is already active with a call on one key and a second call comes in.

The duration of the buzz tone became shorter after X11 Release 12, due to the Short Buzz for Digital Telephones feature. This feature was introduced for digital telephones only. The buzz tone lasts for 0.5 seconds (minimum) and 1.0 seconds (maximum). Previously for digital telephones, and presently for SL-1-type telephones, the buzz tone is two seconds long.

There is also a feature called Manual Signaling which allows a user to buzz another telephone. The other telephone buzzes when the user presses the key, for as long as the key is pressed.

Ringing instead of Buzzing on Digital Telephones

Table 146
Software requirements

Release required	Software package(s) required
24	none

This feature allows a digital telephone to ring, instead of buzz, when a call is presented in the following situations:

- when the handset is off hook but the telephone is idle
- when the handset is off hook but the telephone is idle and when the user is busy on another line

You decide which of the above situations apply to each user and program the correct Class of Service on the telephone.

The telephone rings in the style determined by the Distinctive Ringing Group number (1-4) programmed in the Class of Service.

Tones, Flexible Incoming

Table 14 7
Software requirements

Release required	Software package(s) required
14	none

The Flexible Incoming Tones feature replaces the standard buzz tone on a proprietary telephone with a buzz tone that has an on/off cadence. You activate this for SL-1-type and digital telephones, separately in the Customer Data Block. You also activate it for each proprietary telephone that requires the feature.

This feature applies to the following situations:

- an incoming call to a DN key while the user is busy on another DN
- an incoming call to a telephone that is off hook
- an incoming Call Park Recall when the user is busy on another DN
- an incoming Group Call while the user is busy on another DN
- a Call Waiting call
- an incoming call on a Dial Intercom key while the user is busy on another DN

Users find this feature useful when they are already busy with a call and they are not able to answer an incoming call. Users who sit nearby hear the repeated tones for the unanswered call and they can answer the call.

Also, the user can tell what kind of call is waiting to be answered by the cadence of the buzz tone. The cadence signifies the feature that is operating for the incoming call.

Distinctive Ringing on trunk routes

If you activate Distinctive Ringing on a trunk group, incoming calls from that trunk group have a unique ringing cadence. You can activate this feature on one or more trunk groups. On systems where the feature is applied to all trunk groups, the users know by the way their telephones ring whether an incoming call is externally or internally originated.

Table 148
Cadences

Type of telephone	Cadence
Proprietary	.64 seconds on, 0.36 seconds off
Dial and Digitone-type	1.54 seconds on, 0.38 seconds off

Enhanced Flexible Tones and Cadences allows a tone table, programmed on the trunk route, to determine the cadence and ringing frequency for incoming calls.

New Distinctive Ringing on trunk routes

Table 149
Software requirements

Release required	Software package(s) required
9.32	74 - Distinctive/ New Distinctive Ringing (DRNG)

You can activate a unique incoming call ringing cadence (0.512 seconds on, and .512 seconds off; 1.024 seconds on, 4.096 seconds off), system-wide, for all telephone types. Turn this feature on for the trunk groups that are to have this ringing cadence.

There is an interaction between Distinctive Ringing on trunk routes and Distinctive Ringing Groups. If a call comes in on a trunk route that has Distinctive Ringing enabled, and the telephone has DRG2 in

the Class of Service, the telephone rings with the DRG2 frequency and warble tone but with the cadence of the Distinctive Ringing on trunk route feature.

FTDS cards (Vintage D) are required in the system in order for this feature to work.

Directory Number Delayed Ringing (DNDR)

Table 15 0
Software requirements

Release required	Software package(s) required
21	none

If you want a non-ringing appearance of a Single Call DN or Multiple Call DN to ring, if it has not been answered after a specified amount of time, you can activate a DNDR timer.

You can program a different DNDR timer for each telephone. The DNDR timer applies to any unanswered non-ringing DN at that user's telephone.

When you have Multiple Appearance non-ringing DNs, there are many different ways you can choose to implement this feature. Two examples follow:

- if a non-ringing DN appears at three telephones and you want one of those users to know when the DN is not answered, program that user's telephone to begin to ring after a programmable number of seconds. Leave the DNDR timer deactivated at the other two telephones.
- if a non-ringing DN appears at three telephones and you want one of those telephones to begin to ring after 12 seconds and the second one to ring after 18 seconds, you can program the telephones with different DNDR timers. The third telephone can have a third setting or the default setting which is 0 (off).

Make Set Busy Improvement

The Make Set Busy Improvement (MSBI) feature works with the Make Set Busy feature.

The Make Set Busy (MSB) feature allows a telephone to appear busy to all incoming calls. The user presses an MSB key (or dials a Flexible Feature Code) to activate this busy condition.

Sometimes one DN appears on several telephones. Some of the appearances of the DN are programmed to ring and the others are programmed not to ring; (the indicator for the non-ringing DN only flashes when there is an incoming call). When the telephone(s) with the ringing appearances of the DN have MSB active, the user(s) of the telephones with the non-ringing appearances only have a visual indication of incoming calls to the shared DN.

In X11 Release 24, the Make Set Busy Improvement (MSBI) feature was introduced to allow the non-ringing appearances of a shared DN to ring for an incoming call when all telephones with the ringing appearances of the DN have the MSB feature active. Users of telephones with the feature allowed know that when one of their non-ringing DN keys does ring, it means that the other users of the DN are not available.

Refer to the Task module on Make Set Busy Improvement in this book. Talk to your system supplier about implementing other features related to ringing that are not included in this book.

Ringing features

Automatic Hold

Purpose

The Automatic Hold feature allows a telephone user who is on a call to originate or answer another call without using the Hold button to put the existing call on hold.

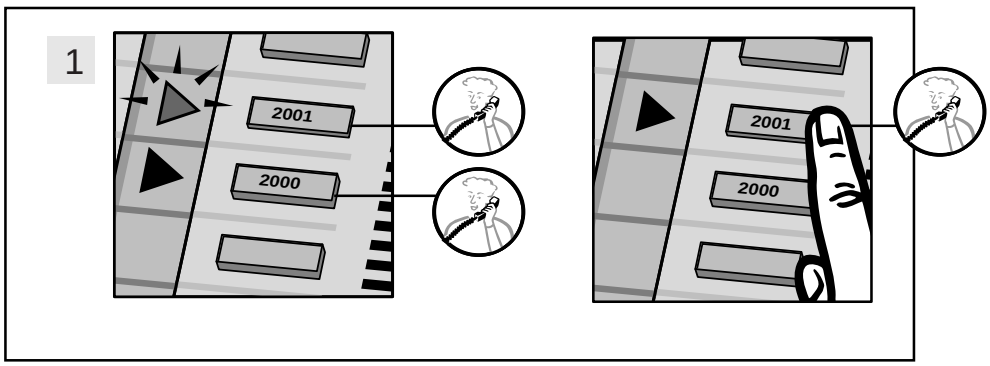
The user can automatically place a call on hold in one of the following ways:

- by pressing the DN key on which the call is active
- by pressing an idle DN key while a call is active on another DN key
- by pressing the key that has a new incoming call while a call is active on another DN key

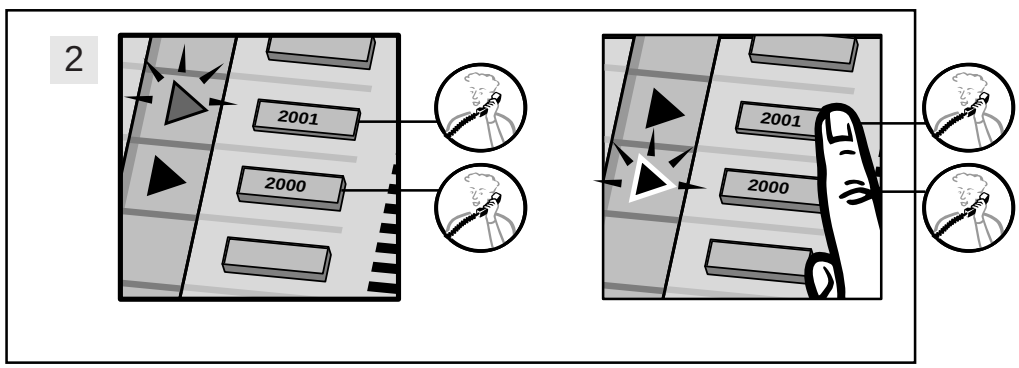
This feature prevents accidental disconnection of calls when a user forgets to put an existing call on hold before they answer a second call or make another call on a different DN key.

Automatic Hold

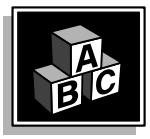
Automatic Hold denied



Automatic Hold allowed



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Automatic Hold feature
- what you need to know to manage interactions with other features

Setting up the feature

Automatic Hold comes with the communication system but the telephones do not come programmed to use the capability. You select the telephones that are to have the feature, then you use the procedure in this module to program each one .

Table 151
Software requirements

Release required	Software package(s) required
10.10B (International)	131 – International Supplementary Features (SUPP)
24 (Global)	none

You can program this feature on digital and SL-1-type telephones only. Allow Automatic Hold in the Class of Service. The feature is denied by default.

Attendant consoles already have this capability so it does not apply to them.

When you upgrade a system using International software to X11 Release 24, the telephones that have Automatic Hold allowed in their Class of Service will still have the feature, after the upgrade.

Automatic Hold

Using the feature

You can use the feature when you want to answer an incoming call when you are already on a call, as shown in the *Purpose* section. You can also use Automatic Hold when you are on a call and you want to make another call. Simply press an idle DN key. Your first call is automatically put on hold.

> ***Note:*** The LED/LCD indication for a call put on hold using the Hold button is the same as for a call put on hold by the Automatic Hold feature.

Interactions with other features

Automatic Hold works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services* guide.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems, if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Automatic Call Distribution (ACD) In-Calls key interacts with Automatic Hold

If a user of an ACD agent telephone has an active ACD call on the In-Calls key and an incoming call is presented to an idle DN key, the user can press the DN key to answer the new call. The call on the In-Calls key is automatically put on hold.

If the user presses the In-Calls key again, the call on the In-Calls key is automatically re-established and the call on the DN key is put on hold.

If the user presses the In-Calls key while active on an ACD call, the ACD call disconnects (existing feature operation). The user can use the Release key to disconnect all calls.

Call Transfer interacts with Automatic Hold

If a telephone has Automatic Hold allowed in its Class of Service, the user can initiate or answer a call on another DN, while a call that the user was transferring is in the ringing or established state. The call on the Transfer key is automatically put on hold. To complete the Call Transfer, the user must press the Transfer key once to re-establish the call and press it a second time to complete the transfer.

Call Waiting interacts with Automatic Hold

If the user presses the Call Waiting key when a call is waiting there, the waiting call becomes the active call and the call on the other DN is automatically put on hold.

If the user is active on a call on the Call Waiting key, and a call comes into another DN key, the user can put the call on the Call Waiting key on hold, automatically, in one of the following two ways:

- press the Call Waiting key again
- select the incoming call on the DN key

Conference interacts with Automatic Hold

If a telephone has Automatic Hold allowed in its Class of Service, the user can initiate or answer a call on another DN, while a call that the user was conferencing is in the ringing or established state. The call on the Conference key is automatically put on hold.To complete the Conference, the user must press the Conference key once to re-establish the call to the second party in the conference call and press it a second time to set up the conference.

Digit Display interacts with Automatic Hold

When the user of a proprietary telephone answers a new call with a previous call on hold, the display becomes blank at first. Information about the previous call (Calling Line ID, for example) is replaced with information about the new call.

Hold interacts with Automatic Hold

A user whose telephone has Automatic Hold allowed can still put calls on hold using the Hold button.

Automatic Hold

Music on Hold interacts with Automatic Hold

When a call is put on hold using the Hold button or Automatic Hold, music can be sent to the party on hold. Refer to the information on Music, in the *X11 features and services* guide.

No Hold Conference interacts with Automatic Hold

The Automatic Hold feature does not apply when the No Hold Conference feature is used.

Voice Call and Enhanced Hotline interact with Automatic Hold

Calls on Enhanced Hotline or Voice Call keys can be put on hold automatically using the Automatic Hold feature.

Discussion of these features is beyond the scope of this book. For more information on these features, refer to the *X11 features and services* guide.

No Hold Conference interacts with Automatic Hold

When a call is active on a DN key and the user presses the No Hold Conference key, the call on the DN key is not put on hold. No Hold Conference has priority over Automatic Hold. Refer to “No Hold Conference” on page 988.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Control tips

- If your system has the kind of trunks, that do not release unless the internal user releases the call, ensure that users understand how to release calls. Tell them that pressing a DN key with a call already active on another key does not disconnect the first call; it puts the first call on hold. Tell the users to press their Release keys (or hang up) when they want to disconnect calls.

Administration tips

- Assign this feature to the following kinds of users:
  - users who are expected to answer incoming calls while they are active on a call already
  - users who make calls to other people while they are on a call. (This can be done using a Conference key but some users feel more comfortable with the operation of Automatic Hold.)
  - users who used telephones that automatically put active calls on hold when different lines were selected

Training tips

- Train users about the Hold button and the Automatic Hold capability. Allow them to try different ways of putting calls on hold in the training session. If a user has difficulty with one of the hold methods, adjust their Class of Service accordingly.

Automatic Hold

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 15 2
Checklist

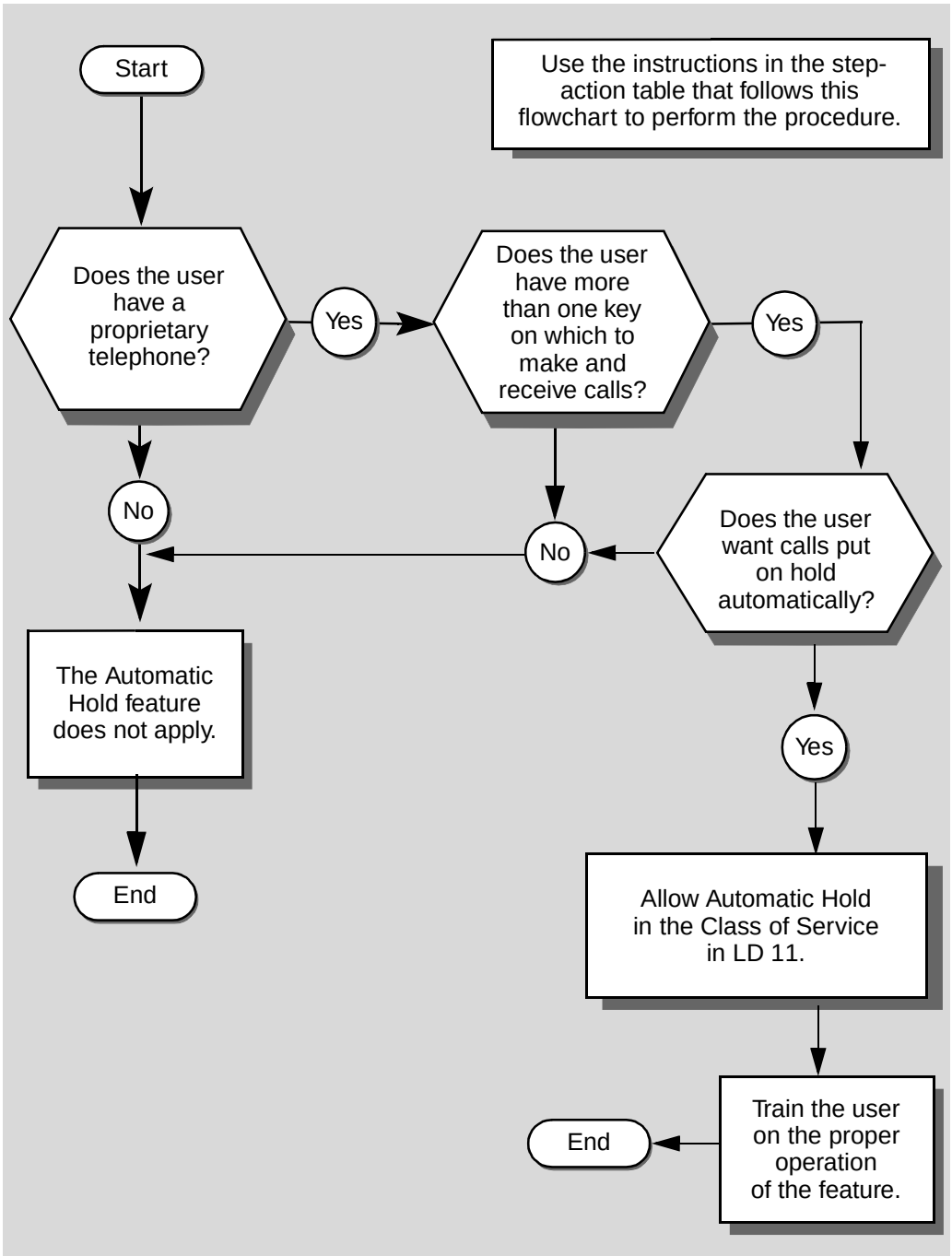
Basic	Optional	Preparation
✔		Decide how you will implement the Automatic Hold capability on proprietary telephones: ▯ for users who need it for their job functions ▯ for users with more than one key for making or receiving calls ▯ for users who are not familiar with the Hold button ▯ for all users
✔		Determine the TN assigned to each telephone that requires the feature. If you do not know the TNs, ask your system supplier.
✔		Train the users.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures for Automatic Hold.

A step-action table follows the flowcharts. The table explains the programming steps necessary to implement this feature.

Automatic Hold



Automatic Hold

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Automatic Hold feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
new digital or SL-1-type telephone	step 3 to allow the feature. Automatic Hold is denied by default (no programming is required).
change to a digital or SL-1-type telephone	step 4

3 Program Automatic Hold allowed on a new digital or SL-1-type telephone.

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 1–19 for information.

Carriage return until you see the prompt CLS

CLS	AHA	Automatic Hold allowed

Go to step 11.

— continued —

STEP	ACTION		
4	**Program a change to the Automatic Hold feature on a digital or SL-1-type telephone.**		
	> LD 11		
	REQ	CHG	Program a change to an existing telephone
	TYPE		Input correct type of SL-1 or digital telephone
	TN	L S C U	Input the Terminal Number of the telephone
	ECHG		
	If		**Do**
	using “Easy Change”		Input YES and go to step 5.
	not using “Easy Change”		Input NO or <cr> and go to step 8.
	For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.		
5	**Program an “Easy Change” to an existing digital or SL-1-type telephone.**		
	If		**Do**
	telephone is changing to Automatic Hold allowed		step 6
	you are removing Automatic Hold from telephone		step 7
6	**Program an “Easy Change” to allow Automatic Hold on an existing SL-1 or digital telephone.**		
	ITEM	CLS AHA	Go to step 11.
7	**Program an “Easy Change” to deny Automatic Hold on an existing SL-1 or digital telephone.**		
	ITEM	CLS AHD	Go to step 11.

— continued —

Automatic Hold

STEP	ACTION
8	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**

If	Do
telephone is changing to Automatic Hold allowed	step 9
you are removing Automatic Hold from telephone	step 10

9 Allow Automatic Hold.

Carriage return until you see the prompt CLS

CLS AHA Go to step 11.

10 Deny Automatic Hold.

Carriage return until you see the prompt CLS.

CLS AHD Go to step 11.

11 Finish the overlay program.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 12.

— continued —

STEP	ACTION

12 Check that the programming which you have just done is correct.

Verify that the new telephone or the changed telephone behaves as expected when you attempt to use the Automatic Hold feature.

If	Do
feature works properly	step 13
feature does not work properly	step 1

13 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 14

14 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43
. EDD <cr>
```

— continued —

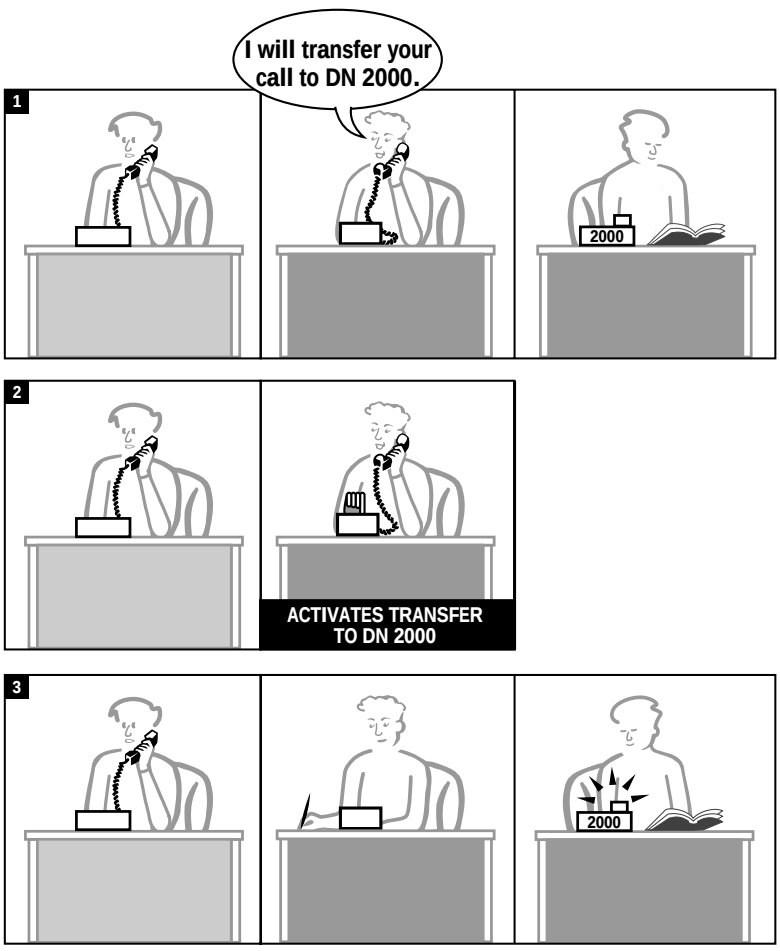
Automatic Hold

STEP	ACTION
15	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE** **If** — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 16
16	**Terminate this overlay program.**
	. ****
17	**Terminate this programming session.**
	Log off. **>** LOGO
18	**You have completed the programming required to add or change the Automatic Hold feature on a telephone.**
	END

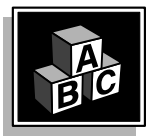
Call Transfer

Purpose

The Call Transfer feature allows a telephone user on any two-party call to hold the existing call and originate another call to a third party. The user can consult privately with the third party or transfer the original call to the third party.



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Call Transfer feature
- what you need to know to manage interactions with other features

Setting up the feature

Call Transfer comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to have the feature, then you use the procedure in this module to program each one.

Dial and Digitone-type telephones

You enable the Call Transfer feature in the Class of Service of these telephones.

If you do not allow the Call Transfer feature in the Class of Service, the telephone user cannot use the switch-hook flash for any features that require it, not only for Call Transfer. Refer to the *You should know this* module for more information on the switch-hook flash.

When you allow Call Transfer and the switch-hook flash functionality, this also enables the Three-party Conference feature. The Conference feature also operates using the switch-hook flash. There is more information on the Conference feature in Task 28, *Conference*.

To transfer a call, some users put the first party on hold by pressing the switch-hook, then dial the third party and hang up while that telephone is ringing. This is called a *blind transfer.*

If that telephone is not answered, the call rings until the Call Forward No Answer feature redirects the call, if that feature has been programmed for the ringing telephone. If it is not programmed, the ringing telephone continues to ring until it is answered or the caller hangs up. This might be a problem for the caller.

As a result, many users prefer to transfer calls by putting the first party on hold using the switch-hook flash, then dialing the third party and waiting for an answer.

- If the call is answered, the transferring party tells the third party user something about the call.
  - If the third party wants to receive the call, the transferring party either hangs up to transfer the call or presses the switch-hook to set up a conference. All three parties are connected. After ensuring the connection is made, the transferring party can hang up and the transfer takes effect.
  - If the third party does not want to receive the call, the third party hangs up. The transferring party reconnects to the party on hold by pressing the switch-hook again.
- If the call does not get answered, the transferring party presses the switch-hook flash again and the ringing telephone is dropped, since you cannot conference a ringing internal telephone with an active two-party call.

As you can see, the Call Transfer and Conference features are very similar, but there are also critical differences between them.

- The Conference feature requires the third party to answer before the conference can take place, whereas Call Transfer does not require the third party to answer before the Call Transfer can take place. Calls can be transferred to a third party telephone that has not answered and is in the ringing state.
- Transferring while the telephone is ringing does not involve the Conference card equipped on the system. If the third party telephone answers before the transfer is completed, and the three parties are connected before the transferring party drops out, then the Conference card is involved.

Transfer denied

You can assign a Transfer denied Class of Service to a telephone. On this type of telephone, when the user presses the switch-hook, the call does not go on hold, it routes to the attendant.

The default Class of Service for this feature is Call Transfer denied.

Call Transfer

Transfer Restricted

If your system is using software Release 14 or later, you can restrict a user from using the Call Transfer feature by assigning a Transfer Restricted Class of Service to the telephone. A switch-hook flash is ignored by the system on this type of telephone.

This prevents the user from transferring calls and does not route calls to the attendant. This can be useful in hotels where many users make calls in sequence and do not press the switch-hook very long when disconnecting one call and making the next one. The system treats the brief disconnect as a switch-hook flash. If you program the telephones as Transfer denied, the attendant is involved each time the user does this, but if you program them as Transfer Restricted, the attendant is not involved.

Digital and SL-1-type telephones

You program a key for the Call Transfer feature on these telephones.

The switch-hook flash does not operate for the Call Transfer feature on these telephones. If you do not have a Call Park key, you can use the Call Transfer key as a switch-hook flash when you use the Call Park feature.

To program fewer keys on the telephone, you can program a Conference key and it can be used for both Call Transfer and Conference.

You can assign both Call Transfer and Conference keys on one telephone. This allows the user to do transfers two different ways:

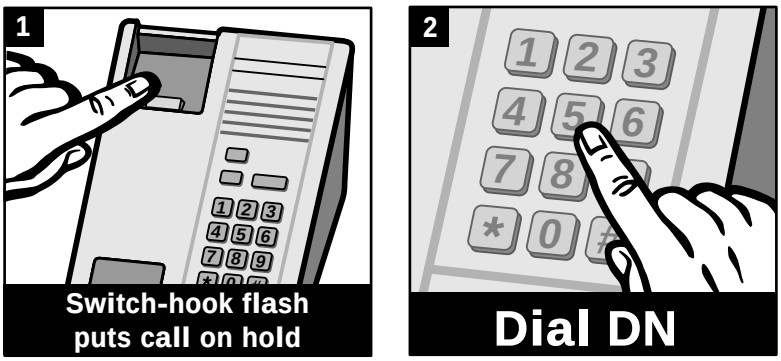
- quick blind transfers, using the Call Transfer key
- Conference key transfers, when they want to get an answer before transferring the call

The user can set up Conferences as well, using the Conference key. Refer to Task 28, *Conference* for more information on the Conference feature.

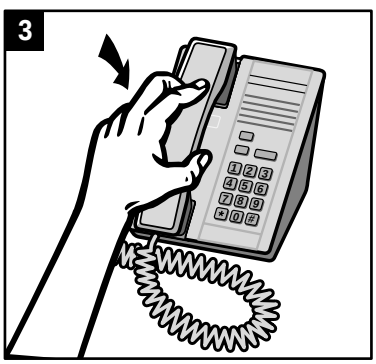
Using the feature

Dial and Digitone-type telephones

Call Transfer without waiting for an answer



553-0039T CTrans



The length of time the switch-hook can be pressed and held down and still recognized by the system as a flash is a programmable amount of time.

- If a user keeps the switch-hook pressed longer than this timer, the system interprets it as a disconnect signal.
- If a user does not keep it pressed long enough, the system ignores the signal and the user must perform the switch-hook flash once more for a longer time.

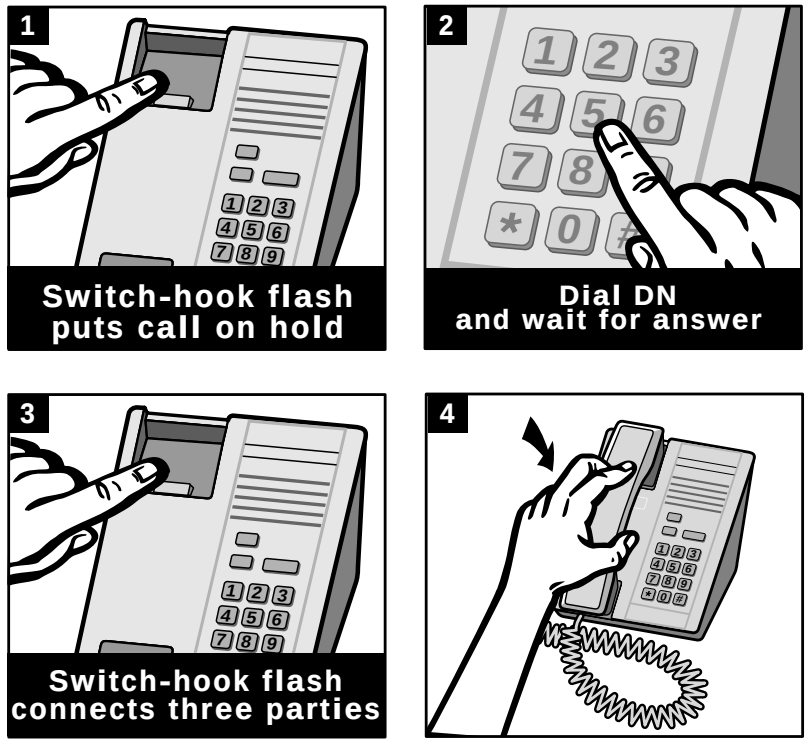
If the switch-hook has been pressed for the right amount of time, the user hears a confirmation tone. This sounds like three quick bursts of tone followed by steady dial tone.

Call Transfer

Using the feature (continued)

Dial and Digitone-type telephones

Call Transfer after getting an answer.

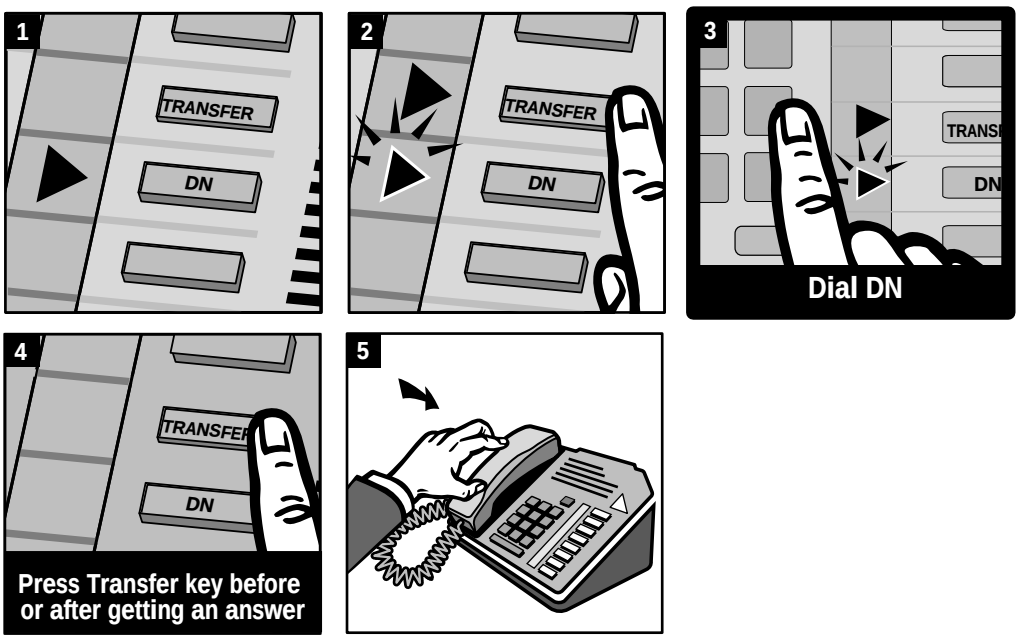


553-0040T CTrans

Using the feature (continued)

SL-1-type and digital telephones

When the user presses the Call Transfer key, the user hears a confirmation tone. This sounds like three quick bursts of tone followed by a steady dial tone.



553-0041T CTrans

Interactions with other features

Call Transfer works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services.*

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems, if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Call Forward by Call Type interacts with Call Transfer

When an external call is transferred to a ringing telephone that is not answered, if Call Forward by Call Type is allowed it is forwarded to the internal Call Forward No Answer DN programmed for the ringing telephone. This is because the call was transferred by an internal telephone.

Distinctive Ringing interacts with Call Transfer

Some systems have Distinctive Ringing allowed on one or more external trunk groups. Telephones have a distinctive ring when external calls come in from one of these trunk groups.

If an external call from one of these trunk groups is transferred to a telephone by an internal telephone, the telephone does not ring distinctively. Make users aware of this so they do not answer calls differently when they think they are internal.

Multi-Party Operations interacts with Call Transfer

Table 153
Software requirements

Release required	Software package(s) required
14.46E	141 – Multi-Party Operations (MPO)

There are several components to this software package. The feature components are mentioned in the tasks they affect. For example, the MPO feature called Call Join is mentioned in Task 28, *Conference*.

Three-Party Service

This feature is similar to the Call Transfer feature. If the MPO software package is equipped, users have enhanced functionality compared to the normal Call Transfer feature.

To access these features the Class of Service of the dial or Digitone-type telephone must have Three-Party Service allowed.

Call Transfer

Three-Party Service allows users to do the following:

- form a conference
- form a conference and then transfer the call to the third party
- exchange the active call for the held call
- release the active party and reconnect the held party

Users must dial Control Digits after they use the switch-hook for these features. The Control Digits are programmed on a customer-wide basis.

There is an optional time-out treatment that releases the active party and connects the user to the Held Party if the user, after consulting with a third party, uses the switch-hook and does not follow it with a Control Digit.

If the Class of Service of a telephone has Three-Party Service allowed, it cannot have a Transfer Restricted Class of Service as well.

With MPO, there is the ability to have the customer group programmed so that a switch-hook flash is ignored. This eliminates confusion between a flash signal and the digit 1 outpulsed from dial telephones. If a flash is to be ignored, dial and Digitone-type telephones must have a ground (earth) button in order to use features which require a switch-hook flash.

Recovery of Mis-operation during Call Transfer

- This MPO feature protects users of dial and Digitone-type telephones from having calls lost due to mis-operation of the Call Transfer feature.

  For example, if a user tries to transfer a call to a Directory Number (DN) that does not exist, or a busy telephone, the mis-operation treatment specified in the programming occurs.

  - If an illegal Call Transfer is attempted and the transferring party has already hung up, the transferring telephone rings for a programmable number of rings and it can ring with a programmable cadence. This cadence alerts the user to the fact that the Call Transfer did not work.
  - If the transferring telephone goes unanswered, the call can either be routed to the attendant or disconnected. You can decide which treatment you want and arrange to have it programmed.

- The external party hears ringback tone while the transferring telephone is being rerung after mis-operation, on systems with the Supplementary Features software package 131 (SUPP) equipped.
- Digital or SL-1-type telephones that attempt to transfer can only succeed if the third party telephone is ringing or answered. If the telephone is busy or disabled, or the number dialed is invalid, the transfer feature doesn't work. The call on hold at their telephone remains on hold. The user can try the Call Transfer feature later, if so desired.
- External calls that are transferred to ringing telephones that go unanswered for a programmable period of time are routed to the attendant.

Call Detail Recording (CDR) interacts with Call Transfer

Before Release 20, if a call is transferred more than once, the CDR records do not indicate the intermediate telephones in the call. There is an S-record that prints out when the first transfer occurs, showing the original two parties in the call (one of them is a trunk identifier and the other is the DN of the transferring telephone). When the call ends, an E-record prints out showing the final two parties in the call.

With Release 20 and with software package 259 (CDRX) equipped and Format CDR Package 234 equipped, every transfer generates an X-record identifying the intermediate telephone and the trunk that is still involved with the call. The S-record and E-record print out as usual.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Enhanced Music

If the Enhanced Music software package 119 (EMUS) is equipped, users on hold during a transfer hear recorded music or announcements.

Patience tone

If the International Supplementary Features software package 131 (SUPP) is equipped, a patience tone can be given to the party on hold. This tells the party on hold that the call has not been disconnected. The transferring party dials a control digit to allow this to be heard by the party on hold.

Trunk to Trunk Connection

With Release 22 and later software, the Call Transfer feature has been enhanced for calls involving trunks. The capabilities are:

- An established trunk call can be transferred to an analog TIE trunk that has answer and disconnect supervision programmed. If the called party does not answer within a specified time, the call will recall to the attendant of the transferring party's system.
- An outgoing trunk can be transferred to another trunk, provided both calls are answered and both trunks have answer and disconnect supervision.
- Calls involving trunks can remain established in a conference call, even after the internal telephone, that is doing the original transferring, disconnects. The trunks must have disconnect supervision.
- If there is call charging equipment involved with the outgoing calls, the information is presented to the CDR.

Talk to your system maintainer about the supervision on your trunks.

Call Transfer

Control tips

- If trunks are involved in a call, successful completion of a Call Transfer depends on the access restrictions assigned to the stations and trunks.

  The system does not allow a trunk with no disconnect supervision programmed to be connected with another trunk, using the Call Transfer feature.

  For example, an incoming external call on a trunk with Supervision programmed with a NO response cannot be transferred by an internal user to an external party, by using another trunk. The user has to set up a Conference connection to join the two external parties and release only when the conversation is finished.

- If a user abuses the Call Transfer feature and transfers calls from friends to outside numbers, especially toll calls, you can deny Call Transfer on that telephone to prevent that. You do not need to program the supervision on the trunks to prevent every user from doing it. Since you get the bill for the call that the user placed for the friend, preventing this saves your company money.

- The Call Transfer feature is denied as the default setting in the Class of Service for dial and Digitone-type telephones. If it is left as denied, the telephone cannot be used for any features that require a switch-hook flash or Call Transfer and Conference.

- Unless you have the Release 20 CDR Transfer enhancements in place, CDR records for incoming calls extended to telephones that in turn transfer the calls to other telephones do not track the intermediate telephones involved.

  If users complain that they are being billed for entire calls when in fact they were only part of the call after a transfer, you might want to investigate who transferred the call or investigate getting the enhancement.

Some users realize that if they transfer calls, the CDR records do not show their DNs and they do not get billed. Once they are finished with a call, especially a toll call, they transfer it to a telephone that will certainly get an answer. The CDR record prints the DN of the other telephone and you bill the wrong user.

Administration tips

- If proper training cannot correct problems users are having with the use of the switch-hook flash:
  - telephones with Link buttons can assist the users in making switch-hook flashes effectively
  - as a last resort, the flash timer itself can be adjusted. Discuss this with your system supplier
- If you assign Call Transfer keys to telephones, users do not have to wait for an answer before transferring calls. This is not good service to your callers. Decide on your policy regarding the transfer of calls.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Training users to transfer calls properly requires practice sessions. Make sure they know what the confirmation tone sounds like. Users must feel comfortable with this feature before leaving the training session or they will not transfer calls using their telephones. This leaves a poor impression with callers.

  It might also lead to more incoming calls to the attendant when people have to call back to speak to another person because the first person could not transfer the call for them.
- Give users an idea of what your policies are regarding Call Transfer. Tell them it is best to wait for an answer and introduce the caller before transferring.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 15 4
Checklist

Basic	Optional	Preparation
✔		Find out if user needs Call Transfer, or Three-party Conference or switch-hook flash features.
✔		Decide if user is to be Transfer Restricted.
✔		Decide if you want to assign a Conference key to do both Conference and Call Transfer or if you want to assign a separate Call Transfer key.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
	✔	Decide if you want trunk to trunk transfers permitted on your system. Discuss with your system supplier.
	✔	Train users on confirmation tone, proper switch-hook flash timing and your policies regarding Call Transfer.
	✔	If MPO is equipped, ▯ decide which users require Three Party Service ▯ decide on the control digits you want ▯ decide on the Three-Party Service timer ▯ decide if you want the optional time-out treatment for users who forget to dial the Control digit ▯ decide on the number of rings and the treatment of calls if transfer is not done properly ▯ train these users on the use of the Control digits

— continued —

Table 154
Checklist (Continued)

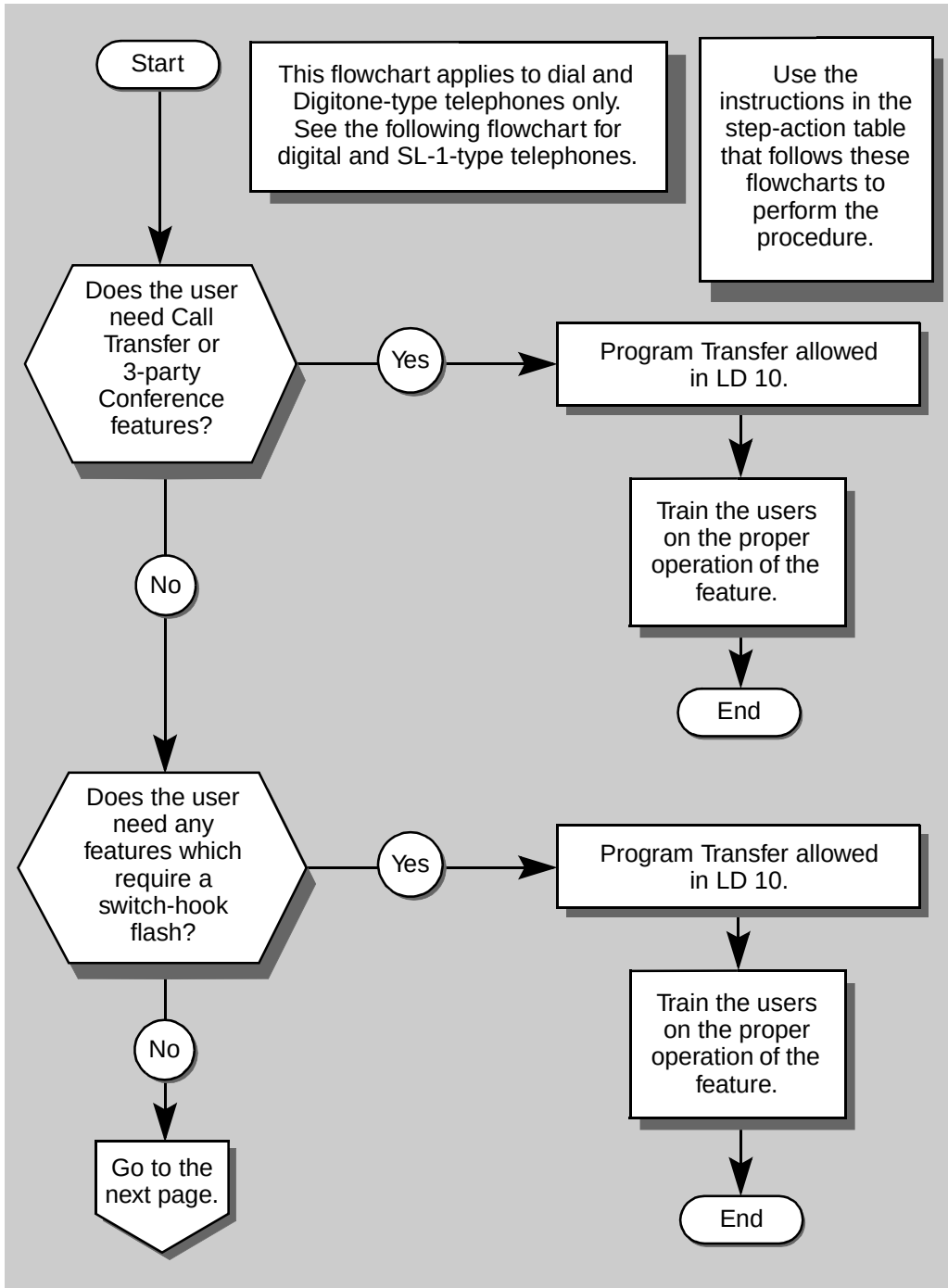
Basic	Optional	Preparation
	✔	Decide if you want patience tone to be implemented.
	✔	Decide if you want Enhanced Music. Decide what announcement or music callers will hear when connected to this announcement source.

What's next?

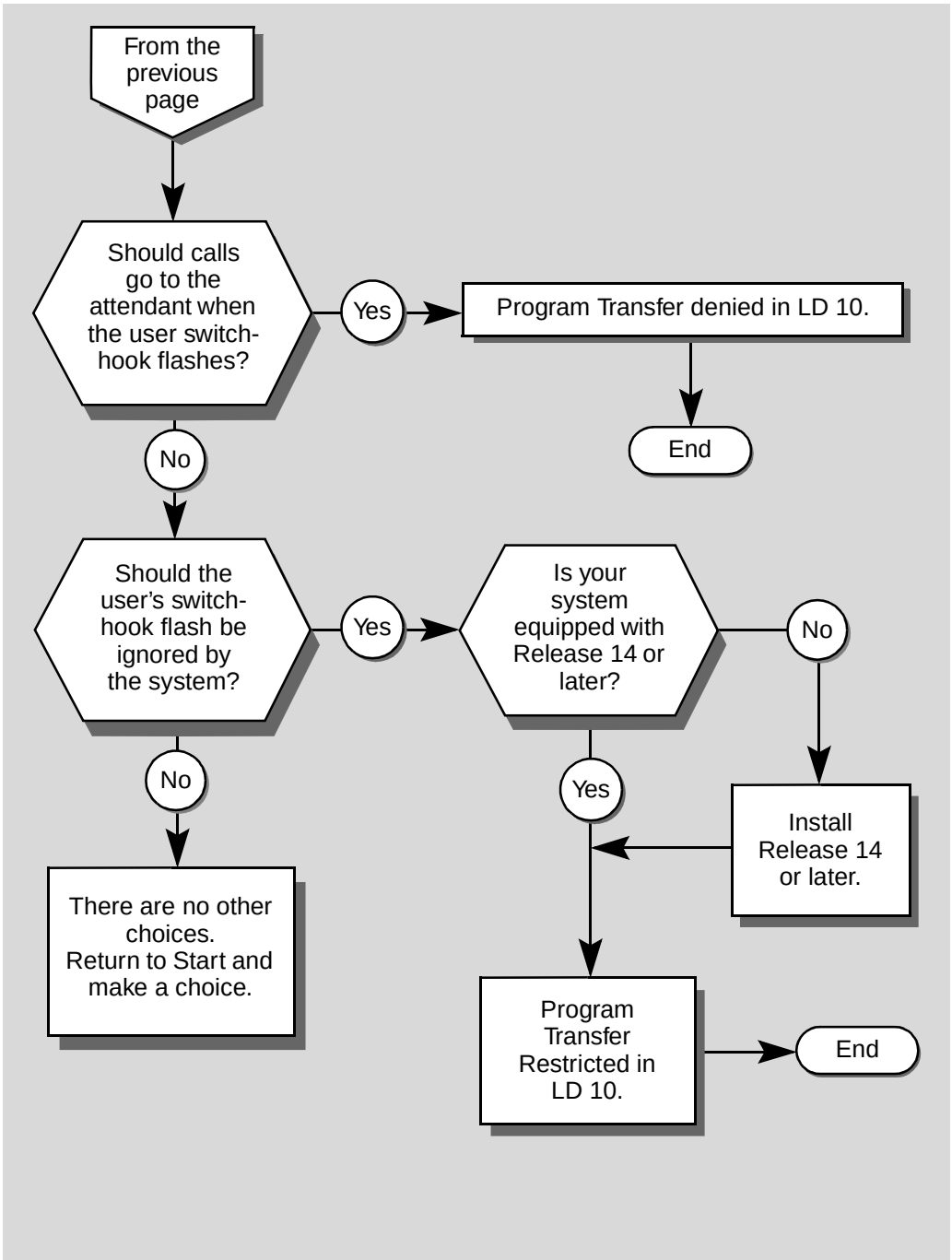
Two flowcharts follow which summarize the implementation decisions and procedures for Call Transfer.

A step-action table follows the flowcharts. The table explains the programming steps necessary to implement this feature.

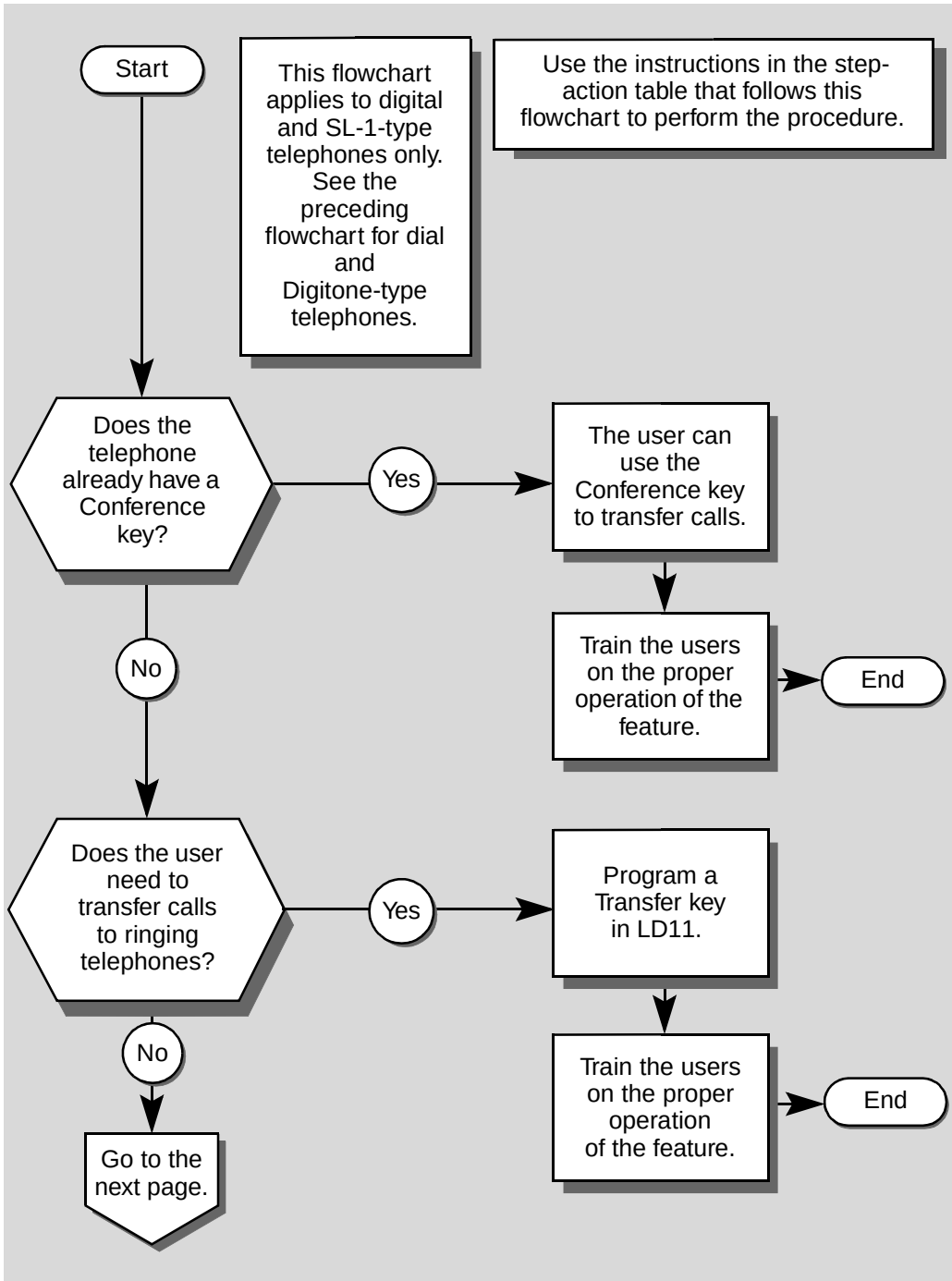
Call Transfer



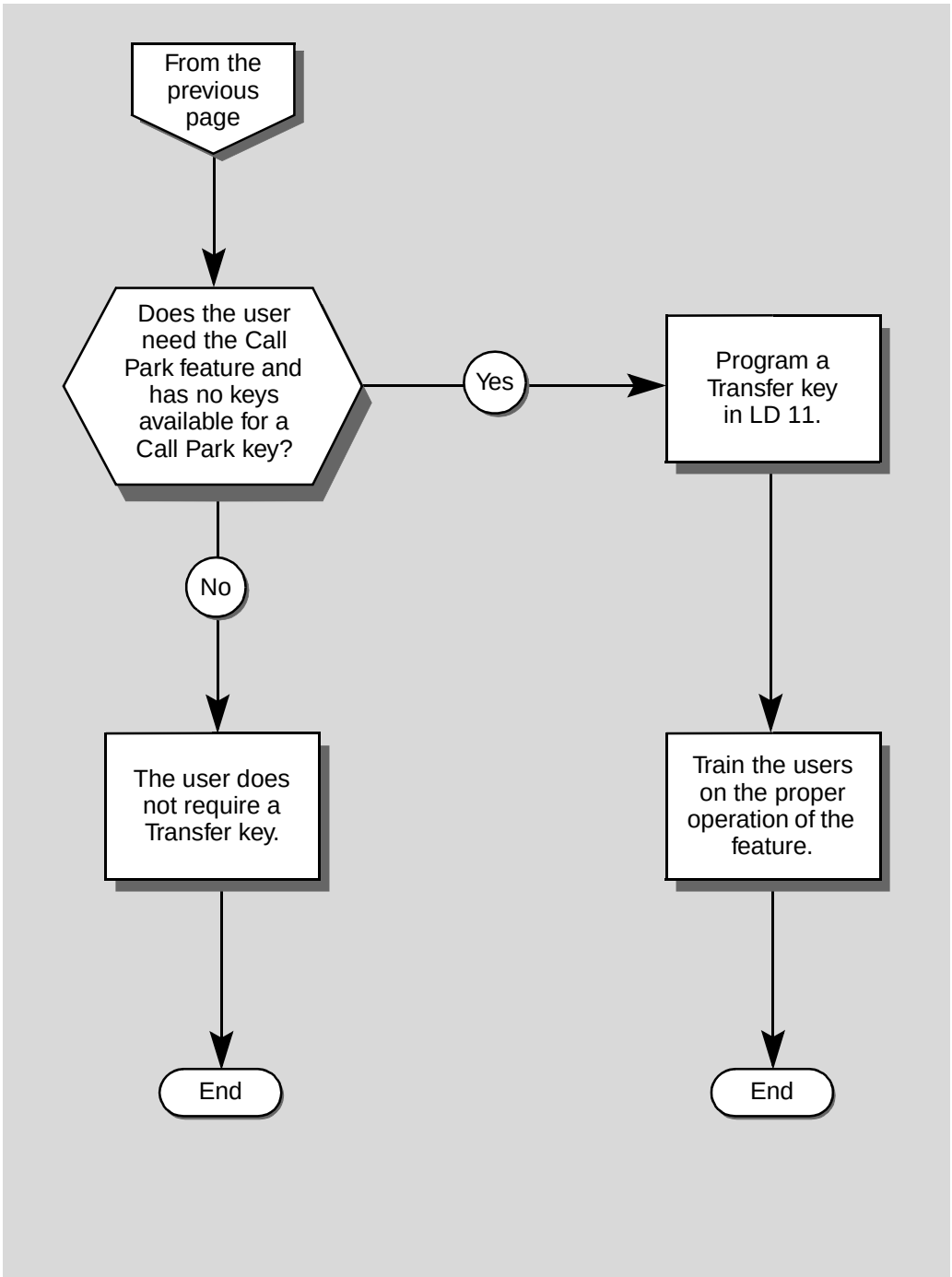
Call Transfer



Call Transfer



Call Transfer



Call Transfer

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Transfer feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
new dial or Digitone-type telephone	step 3
change to a dial or Digitone-type telephone	step 4
new digital or SL-1-type telephone	step 13
change to a digital or SL-1-type telephone	step 14

— continued —

STEP	ACTION
3	**Program a new dial or Digitone-type telephone.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt CLS

CLS	XFD or <cr>	Call Transfer denied — default
	XFA	Call Transfer allowed
	XFR	Call Transfer restricted (Release 14 or later)

Go to step 21.

4	**Program a change to the Call Transfer feature on a dial or Digitone-type telephone.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone

ECHG

If	**Do**
using “Easy Change”	Input YES and go to step 5.
not using “Easy Change”	Input NO or <cr> and go to step 9.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Transfer

STEP	ACTION
5	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**

If	Do
telephone is changing to Call Transfer allowed	step 6
telephone is changing to Call Transfer denied	step 7
telephone is changing to Call Transfer Restricted	step 8

6 Allow Call Transfer.

ITEM CLS XFA — Change the Class of Service to Call Transfer allowed

Go to step 21.

7 Deny Call Transfer.

ITEM CLS XFD — Change the Class of Service to Call Transfer denied

Go to step 21.

8 Restrict Call Transfer.

ITEM CLS XFR — Change the Class of Service to Call Transfer Restricted (Release 14 or later)

Go to step 21.

— continued —

STEP	ACTION
9	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**
	Carriage return until you see the prompt CLS
	If — **Do**
	telephone is changing to Call Transfer allowed — step 10
	telephone is changing to Call Transfer denied — step 11
	telephone is changing to Call Transfer Restricted — step 12
10	**Allow Call Transfer.**
	CLS XFA — Change the Class of Service to Call Transfer allowed
	Go to step 21.
11	**Deny Call Transfer.**
	CLS XFD — Change the Class of Service to Call Transfer denied
	Go to step 21.
12	**Restrict Call Transfer.**
	CLS XFR — Change the Class of Service to Call Transfer restricted
	Go to step 21.

— continued —

Call Transfer

STEP	ACTION
13	**Program a new digital or SL-1-type telephone.**

> LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 7-19 for information.

carriage return until you see the prompt KEY

KEY	XX TRN	XX represents a key number TRN feature can be assigned to the following key numbers, depending on the kind of telephone: 1–5 M2006 1–7 M2008 1–59 M2216, M2616 1–69 SL-1

STEP	ACTION
14	**Program a change to the Call Transfer feature on a digital or SL-1-type telephone.**

> LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

— continued —

STEP	ACTION
14 continued ...	

If	Do
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 18.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

15 Program an “Easy Change” to an existing digital or SL-1-type telephone.

If	Do
telephone is changing to Call Transfer allowed	step 16
you are removing Call Transfer from telephone	step 17

16 Allow Call Transfer

ITEM KEY XX TRN — XX represents a key number

TRN feature can be assigned to the following key numbers, depending on the kind of telephone:

Key #	Telephone type
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

Go to step 21.

— continued —

Call Transfer

STEP	ACTION
17	**Remove Call Transfer**

ITEM KEY XX NUL — XX represents a key number

NUL leaves the key blank

Input another feature mnemonic if you are replacing the TRN key with another feature. Refer to the *Software Input/Output Guide*.

Go to step 21.

18	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**

If	Do
telephone is changing to Call Transfer allowed	step 19
you are removing Call Transfer from telephone	step 20

19	**Allow Call Transfer**

Carriage return until you see the prompt KEY

KEY XX TRN — XX represents a key number

TRN feature can be assigned to the following key numbers, depending on the kind of telephone:

Key #	Telephone type
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

Go to step 21.

— continued —

STEP	ACTION
20	**Remove Call Transfer**

Carriage return until you see the prompt KEY

KEY XX NUL

XX represents a key number

NUL leaves the key blank

Input another feature mnemonic if you are replacing the TRN key with another feature. Refer to the *Software Input/Output Guide*.

Go to step 21.

21 Finish the overlay program.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 22.

22 Check that the programming which you have just done is correct.

Verify that the new telephone or the changed telephone behaves as expected when you attempt to use the Call Transfer feature.

If	Do
feature works properly	step 23
feature does not work properly	step 1

— continued —

Call Transfer

STEP	ACTION
23	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD43	Contact your system supplier.
you have access to LD 43	step 24

STEP	ACTION
24	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

STEP	ACTION
25	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 26

26	**Terminate this overlay program.**

. ****

27	**Terminate this programming session.**

Log off.

> LOGO

28	**You have completed the programming required to add or change the Call Transfer feature on a telephone.**

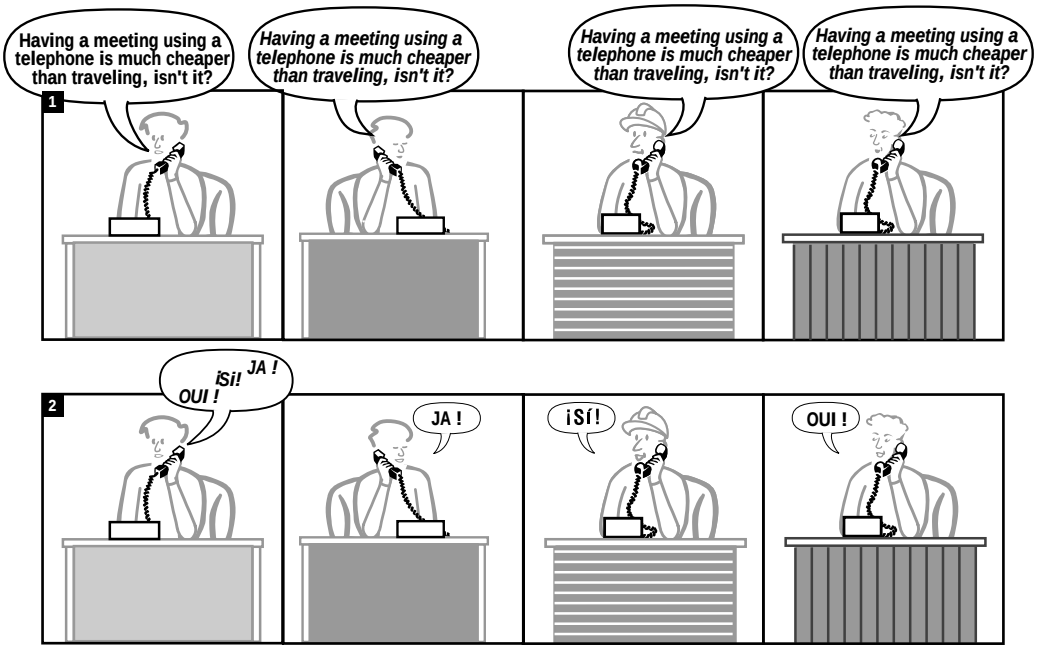
END

Call Transfer

Conference

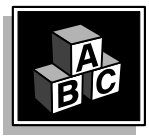
Purpose

The Conference feature allows users to add additional people to an existing call.



553-0042T Conf

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Conference feature
- what you need to know to manage interactions with other features

Setting up the feature

Conference comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to have the Conference feature, then you use the procedure in this module to program each one.

Dial and Digitone-type telephones

You enable the basic three-party Conference feature in the Class of Service of these telephones by allowing the Call Transfer feature.

If you do not allow the Call Transfer feature in the Class of Service, the telephone user cannot use the switch-hook flash for any features that require it, not just Call Transfer. Refer to the *You should know this* module for more information on the switch-hook flash.

There is more information. Refer to Task 27, *Call Transfer*.

The Call Transfer and Conference features are very similar, but there are also critical differences between them.

- The Conference feature requires the third party to answer before the conference can take place, whereas Call Transfer does not require the third party to answer before the Call Transfer can take place. Calls can be transferred to a third party telephone which has not answered and is in the ringing state.
- Transferring while the telephone is ringing does not involve the Conference card equipped on the system. If the third party telephone answers before the transfer is completed, and the three parties are connected before the transferring party drops out, then the Conference card is involved.

Conference

Since Call Transfer and Conference are so closely linked, it is useful to show the operation of both.

Many users prefer to transfer calls by putting the first party on hold using the switch-hook flash, dialing the third party and waiting for an answer.

- If the call is answered, the transferring party tells the third party user something about the nature of the call.
  - If the third party wants to receive the call, the transferring party either hangs up to transfer the call, or presses the switch-hook to set up a conference. All three parties are connected. After ensuring the connection is made, the transferring party can hang up and the transfer takes effect.
  - If the third party does not want to receive the call, the third party hangs up. The transferring party reconnects to the party on hold by pressing the switch-hook again.
- If the call does not get answered, the transferring party presses the switch-hook flash again and the ringing telephone is dropped since you cannot conference a ringing internal telephone with an active two-party call.

Three-party and six-party conference are the two choices for maximum number of parties in a conference. This is programmable on a per telephone basis.

Six-party Conference capability was introduced for dial and Digitone-type telephones with Release 10 software. There is a Class of Service to allow this. It will not work unless Call Transfer (for basic three-party Conference) is allowed as well.

You can add external parties to existing calls. However, with each analog trunk added, the volume levels sometimes drop. When more than two analog trunks are added to a conference, the audio volume levels are quite often too low to be acceptable. Test this on your site for yourself.

Conference

Digital and SL-1-type telephones

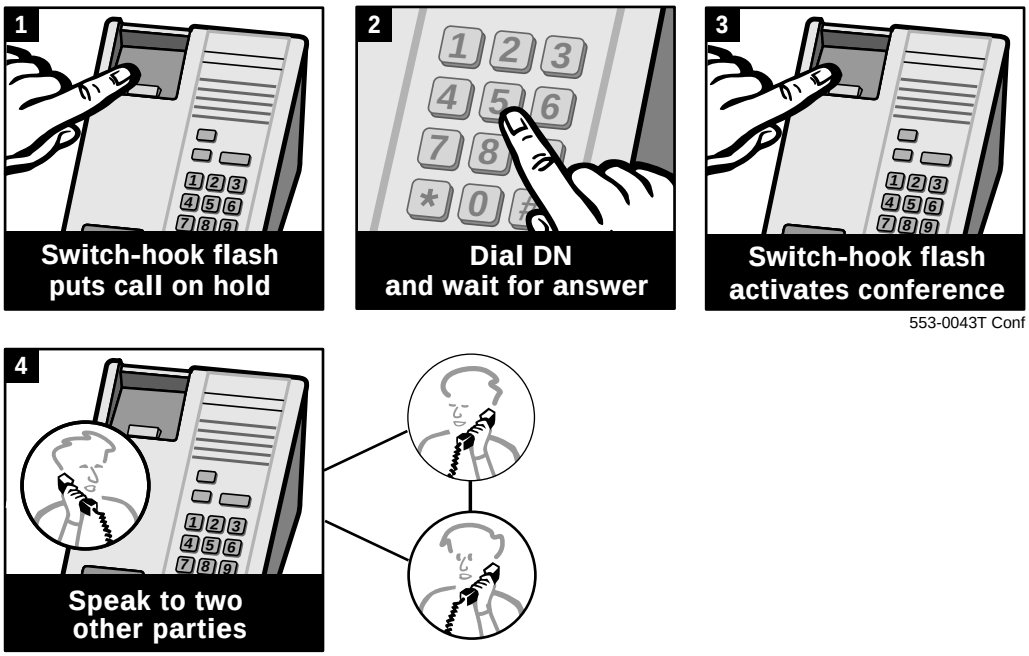
You program a key for the Conference feature on these telephones. Since the earliest software release, there have always been two choices of keys for these telephones, three-party Conference and six-party Conference.

The Conference feature key can also be used for transferring calls. For further information refer to Task 27, *Call Transfer*.

When the Conference key is used, the third party telephone must be answered before the Transfer/Conference can be completed.

Using the feature

Dial and Digitone-type telephone



The length of time the switch-hook can be pressed and recognized by the system as a flash is a programmable amount of time.

- If a user presses the switch-hook longer than this timer, the system interprets it as a disconnect signal.
- If a user does not press it long enough, the system ignores the signal and the user must perform the switch-hook flash once more for the proper amount of time.

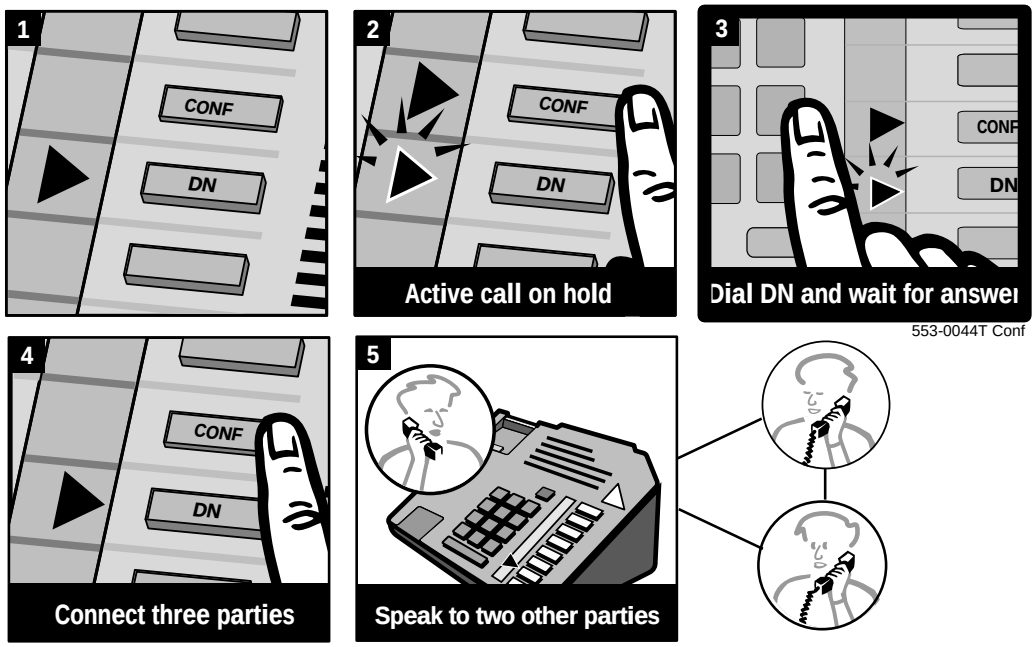
If the switch-hook has been pressed for the right amount of time, the user hears a confirmation tone. This sounds like three quick bursts of tone followed by steady dial tone.

Conference

Using the feature (continued)

SL-1-type and digital telephones

When the user presses the Conference key, the user hears a confirmation tone. This sounds like three quick bursts of tone followed by steady dial tone.



Interactions with other features

Conference works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems, if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Conference Control interacts with Conference

Sometimes, a user tries to conference a third party at an external number with an active call already in progress. Problems can arise for dial and Digitone-type telephone users when the external telephone does not get answered or when the call gets redirected to an answering machine or voice mail services.

When the user tries to return to the party on hold by performing a switch-hook flash, a conference is set up. The Conference user's system treats the seizure of the trunk for the outgoing external call as an answer at the third party and it allows the Conference feature to work. The conference includes the party who was on hold, the user on the system and a third party that might be a telephone that is still ringing or an answering device.

Hence the need for a feature that would allow the user to disconnect the connection to the last party before attempting to return to the party on hold.

Dial or Digitone-type telephone users press the switch-hook, and dial the Conference Control Digits (SPRE + 87 or the Flexible Feature Code for Conference Control). The party on hold is automatically re-connected to the user and the third party drops off.

This works to disconnect third party external calls only.

The user's telephone must have six-party Conference programmed in its Class of Service for this to work. Six-party Conference was introduced for dial and Digitone-type telephones in Release 10.

Digital or SL-1-type telephones do not put users in this situation. If the third party does not answer, the user can return to the party on hold by pressing the key that has the call on hold. The trunk for the outgoing call is automatically dropped.

Conference

Multi-Party Operations interacts with Conference

Table 155
Software requirements

Release required	Software package(s) required
14.46E	141 – Multi-Party Operations (MPO)

There are several functionalities offered by the MPO feature. Only the parts that affect the Conference feature are mentioned here.

Three-Party Service is similar to the Call Transfer feature. Users with Three-Party Service have enhanced functionality compared to the normal Call Transfer feature.

To access these features the Class of Service of the dial or Digitone-type telephone must have Three-Party Service allowed.

Three-Party Service allows these telephone users to do the following:

- form a conference
- form a conference and then transfer the call to the third party
- exchange the active call for the held call
- release the active party and reconnect the held party

Users must dial Control Digits after they use the switch-hook for these features. The Control Digits are programmed on a customer-wide basis.

There is an optional time-out treatment that releases the active party and connects the user to the held party if the user, after consulting with a third party, uses the switch-hook and does not follow it with any Control Digit.

If the Class of Service of a telephone has Three-party Service allowed, it cannot have a Transfer Restricted Class of Service as well.

With MPO, there is the ability to have the customer group programmed so that a switch-hook flash is ignored. This eliminates confusion between a flash signal and the digit 1 outpulsed from dial

telephones. If a flash is to be ignored, dial and Digitone-type telephones must have a ground (earth) button in order to use features which require a switch-hook flash.

Call Join is available on any digital or SL-1-type telephone with a three-party Conference or six-party Conference key. The telephone must be able to handle more than one call at a time using more than one DN key or a Call Waiting key.

The operation of Call Join is as follows:

- during an active call the user presses the Conference key
- the caller (party A) is placed on hold
- the user hears a confirmation tone
- the user presses a second DN key where there is a party on hold (party B)
- party B is moved to the Conference key
- the DN key that party B was on becomes idle
- the user can talk to party B
- the user presses the Conference key a second time
- party A, party B and the user form a conference and the Conference key is idled
- if the user disconnects during the conference, party A is transferred to party B, if there are no restrictions to prevent it

Six-Party Conference can be allowed in the Class of Service of a dial or Digitone-type telephone. With Three-Party Service allowed and six-party Conference allowed the user can add more than two other parties to a Conference to a maximum of six parties, including the user who is setting up the conference.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Conference tone

A warning tone is available for conference calls. When the option is enabled, the tone lets callers know that they are entering a conference call.

The NT8D17 Conference/TDS card in the Network Equipment of your system has a switch on it to enable this option. This type of card is required for this option to work.

The Conference/TDS card is not supported for systems using the International Supplementary Features (SUPP) software package 131.

Enhanced Music

If the Enhanced Music software package 119 (EMUS) is equipped, users on hold while a conference is being set up, hear recorded music or announcements.

No Hold Conference

When you have an established call on one key, you can place an outgoing call on a No Hold Conference key without putting the active call on hold. The caller and the called party are automatically conferenced with your telephone. There are different ways you can configure the NHC key, depending on the needs of the user and your needs for security and reliability.

Table 156
Types of No Hold Conference and descriptions

Type of NHC	Description
NHC + Autodial	A user-changeable stored number is dialed.
NHC + Direct Hot Line	A pre-programmed stored number is dialed.
NHC + Hot Line list	An entry on a pre-programmed Hot Line list is dialed. If many users have access to this entry, a change to the entry affects all users.
NHC + Speed Call list	A Speed Call list is accessed. The user dials the entry number for the number desired.
NHC	The user manually dials the number desired.

Patience tone

If the International Supplementary Features software package 131 (SUPP) is equipped, a patience tone can be given to the party on hold. This tells the party on hold that the call has not been disconnected. The party setting up the conference dials a Control Digit to allow this to be heard by the party on hold.

Selectable Conferee Display and Disconnect

With X11 Release 23, the Selectable Conferee Display and Disconnect feature introduces the following two enhancements to the display screen of Meridian Modular telephones (M2008, M2016, M2616, and M2216ACD):

- Conference Count Display
- Selectable Conferee Disconnect

Using these two enhancements, the number of parties involved in a conference is displayed on the second line of the display screen. (Previously, only the elapsed time was shown on the second line.) Also, a list of the parties involved in the conference is provided on the display screen. The user can scroll through this list, select a party, and disconnect that party.

Conference

Control tips

- Decide whether you want to program Conference keys on telephones instead of Transfer keys so that users have to wait for an answer before they can transfer calls.

Administration tips

- Call Detail Recording printouts show several S-records for each new conferee added to a conference and an E-record when the call is finished.
- If users complain that they hear Overflow tone when they try to conference, it might mean your system maintainer needs to look at the Conference card for possible maintenance problems. Or you might need more Conference cards in your system for the amount of conferencing your users are doing. Traffic study data can help you decide what is required.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Inform users of the maximum number of external trunks you recommend in a conference.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 157
Checklist

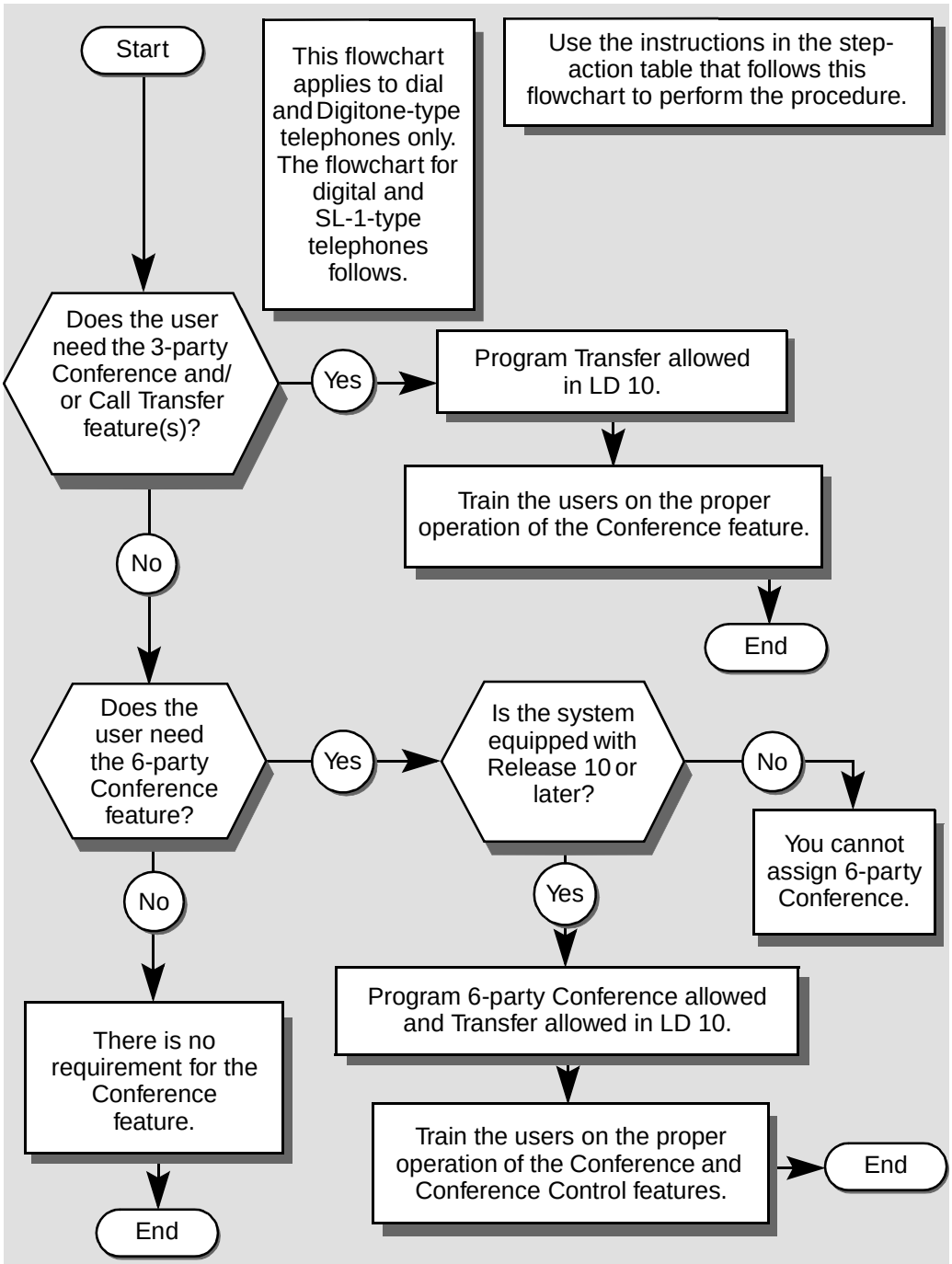
Basic	Optional	Preparation
✔		Decide if the user needs three-party or six-party Conference.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
	✔	Train users on confirmation tone, and proper switch-hook flash timing. Train users on how to use Conference Control.
	✔	Decide if you want patience tone to be implemented.
	✔	Decide if you want Enhanced Music. Decide what announcement or music callers will hear when connected to this announcement source.
	✔	Decide if you want the conference tone. Verify you have the proper card for this.
	✔	With Multi-Party Operations: ▯ train users on the Call Join feature. ▯ define the Control Digits ▯ train users on the use of Control Digits

What's next?

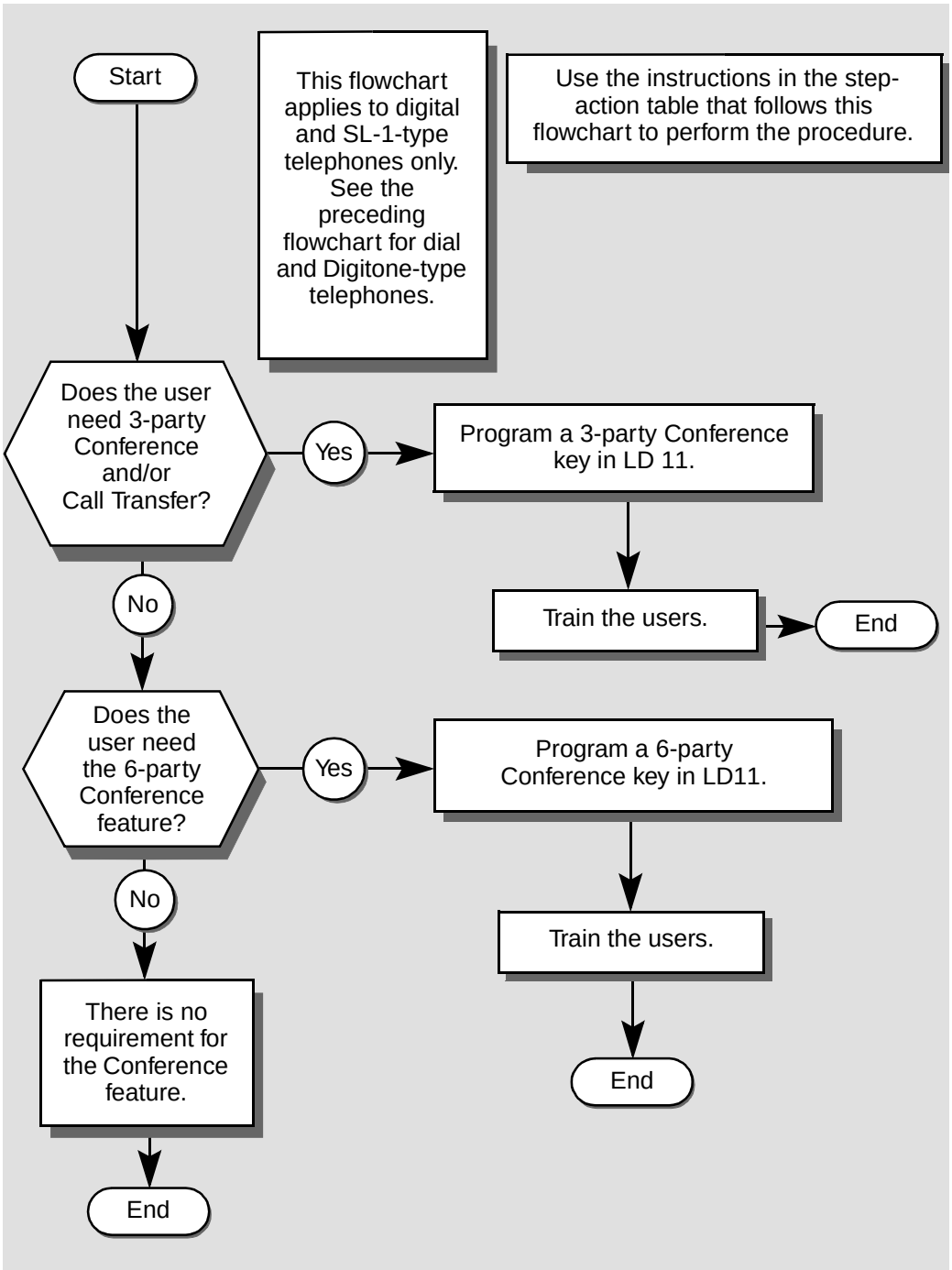
Two flowcharts follow which summarize the implementation decisions and procedures.

A step-action table follows the flowcharts. The table explains the programming steps necessary to implement this feature.

Conference


Start
This flowchart applies to dial and Digitone-type telephones only. The flowchart for digital and SL-1-type telephones follows.
Use the instructions in the step-action table that follows this flowchart to perform the procedure.
Does the user need the 3-party Conference and/or Call Transfer feature(s)?
Yes
Program Transfer allowed in LD 10.
Train the users on the proper operation of the Conference feature.
End
No
Does the user need the 6-party Conference feature?
Yes
Is the system equipped with Release 10 or later?
No
You cannot assign 6-party Conference.
Yes
No
Program 6-party Conference allowed and Transfer allowed in LD 10.
There is no requirement for the Conference feature.
Train the users on the proper operation of the Conference and Conference Control features.
End
End

Conference


Start
This flowchart applies to digital and SL-1-type telephones only. See the preceding flowchart for dial and Digitone-type telephones.
Use the instructions in the step-action table that follows this flowchart to perform the procedure.
Does the user need 3-party Conference and/or Call Transfer?
Yes
Program a 3-party Conference key in LD 11.
Train the users.
End
No
Does the user need the 6-party Conference feature?
Yes
Program a 6-party Conference key in LD11.
Train the users.
End
No
There is no requirement for the Conference feature.
End

Conference

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Conference feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
new dial or Digitone-type telephone	step 3
change to a dial or Digitone-type telephone	step 4
new digital or SL-1-type telephone	step 11
change to a digital or SL-1-type telephone	step 12

— continued —

STEP	ACTION
3	**Program a new dial or Digitone-type telephone.**

> LD 10

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt CLS

CLS	XFA	Call Transfer allowed, 3-party Conference allowed
	XFA C6A	6-party Conference allowed

Go to step 19.

— continued —

Conference

STEP	ACTION
4	**Program a change to the Conference feature on a dial or Digitone-type telephone.**

```
> LD 10
REQ     CHG       Program a change to an existing telephone
TYPE    500       Dial or Digitone-type telephone
TN      L S C U   Input the Terminal Number of the telephone
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 5.
not using “Easy Change”	Input NO or <cr> and go to step 8.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

5	**Program an “Easy Change” to an existing dial or Digitone-type telephone.**

If	Do
telephone is changing to Conference allowed	step 6
telephone is changing to Conference denied	step 7

— continued —

STEP	ACTION
6	**Allow Conference**

ITEM CLS XFA Change the Class of Service to 3-party Conference allowed

ITEM CLS C6A Change the Class of Service to 6-party Conference allowed — requires XFA

Go to step 19.

7	**Deny Conference**

ITEM CLS XFD Change the Class of Service to Conference denied

Go to step 19.

8	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**

Carriage return until you see the prompt CLS

If	Do
telephone is changing to Conference allowed	step 9
telephone is changing to Conference denied	step 10

— continued —

Conference

STEP	ACTION		
9	**Allow Conference**		
	CLS	XFA	Change the Class of Service to 3-party Conference allowed
	CLS	XFA C6A	Change the Class of Service to 6-party Conference allowed
	Go to step 19.		
10	**Deny Conference**		
	CLS	XFD	Change the Class of Service to Conference denied
	Go to step 19.		
11	**Program a new digital or SL-1-type telephone.**		
	> LD 11		
	REQ	NEW	Program a new telephone
	TYPE		Input correct type of SL-1 or digital telephone
	TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics...		Refer to Tasks 7-19 for information.
	carriage return until you see the prompt KEY		

— continued —

STEP ACTION

11 continued ...

Input one of the following two choices:

KEY	XX A03	XX represents a key number AO3 (not A03) is 3-party Conference
KEY	XX A06	AO6 (not A06) is 6-party Conference

AO3 or AO6 features can be assigned to the following key numbers, depending on the kind of telephone:

Key #	**Telephone type**
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

Go to step 19.

12 Program a change to the Conference feature on a digital or SL-1-type telephone.

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 13.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Conference

STEP	ACTION
13	**Program an "Easy Change" to an existing digital or SL-1-type telephone.**

If	Do
you are changing the telephone to Conference allowed	step 14
you are removing Conference from the telephone	step 15

14 Allow Conference.

Input one of the following two choices:

ITEM KEY XX A03 — XX represents a key number

AO3 is 3-party Conference

ITEM KEY XX A06 — AO6 is 6-party Conference

AO3 or AO6 features can be assigned to the following key numbers, depending on the kind of telephone:

Key #	Telephone type
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

Go to step 19.

— continued —

STEP	ACTION	
15	**Remove Conference.**	
	ITEM KEY XX NUL	XX represents a key number NUL leaves the key blank Input another feature mnemonic if you are replacing the Conference key with another feature. Refer to the *X11 input/output guide.*
	Go to step 19.	
16	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**	
	If	**Do**
	you are changing telephone to Conference allowed	step 17
	you are removing Conference from telephone	step 18

— continued —

Conference

STEP	ACTION
17	**Allow Conference.**

Carriage return until you see the prompt KEY

Input one of the following two choices:

KEY XX A03 — XX represents a key number

AO3 is 3-party Conference

KEY XX A06 — AO6 is 6-party Conference

AO3 or AO6 features can be assigned to the following key numbers, depending on the kind of telephone:

1–5 M2006
1–7 M2008
1–59 M2216, M2616
1–69 SL-1

Go to step 19.

18	**Remove Call Transfer.**

Carriage return until you see the prompt KEY

KEY XX NUL — XX represents a key number

NUL leaves the key blank

Input another feature mnemonic if you are replacing the Conference key with another feature. Refer to the *X11 input/output guide.*

Go to step 19.

— continued —

STEP	ACTION
19	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 20.

20	**Check that the programming which you have just done is correct.**

Verify that the new telephone or the changed telephone behaves as expected when you attempt to use the Conference feature.

If	Do
feature works properly	step 21
feature does not work properly	step 1

21	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 22

— continued —

Conference

STEP	ACTION
22	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

STEP	ACTION
23	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 24

— continued —

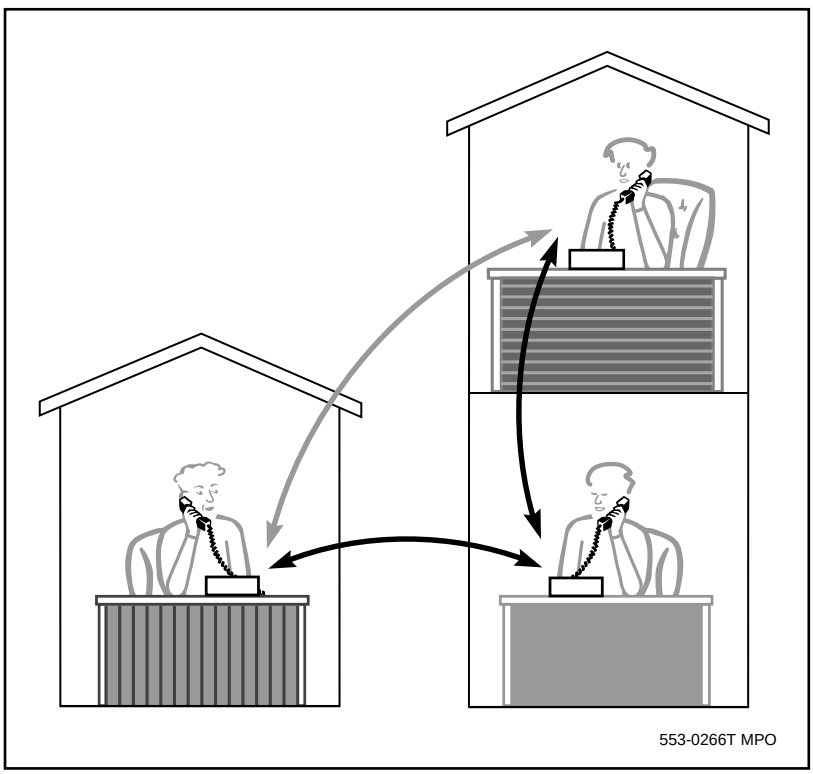
STEP	ACTION
24	**Terminate this overlay program.**
	. ****
25	**Terminate this programming session.**
	Log off. **>** LOGO
26	**You have completed the programming required to add or change the Conference feature on a telephone.**
	END

Conference

Multi-Party Operations

Purpose

Multi-Party Operations (MPO) is a software package that provides a number of features related to transferring and conferencing calls.

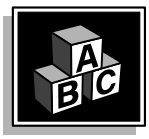


Multi-Party Operations

The main feature components of Multi-Party Operations are listed below.

- Users of dial or Digitone-type telephones can use Three Party Service. They dial digits called Control Digits when they are active on calls to tell the system when they want to:
  - transfer a call
  - add additional telephone users in a conference
  - disconnect an unwanted telephone user from an active call
  - toggle back and forth between two telephone users
- A user of an SL-1-type or digital telephone can form a conference call from two active calls on two different keys of a telephone.
- If a user does not operate the Call Transfer feature correctly, MPO software can be programmed to handle the call a number of different ways.

Basic feature configuration



This part tells you:

- how the features that are part of Multi-Party Operation are set up to make basic feature operation possible
- how a person uses the features and options that are part of Multi-Party Operations
- what you need to know to manage interactions with other features

Call Transfer, Conference and Multi-Party Operations

Refer to Task 27, *Call Transfer* and Task 28, *Conference* for further information on these two related features. There are many similarities and there are significant differences between these two features and Multi-Party Operations.

Terms used in this module

The descriptions of the MPO features include unique terms that are not used in the rest of the book. It is necessary for you to read the definitions that follow in order for you to understand the feature descriptions in the rest of this module.

Active Party

The Active Party is the telephone user with whom the Controlling Party has a live connection.

Bridged sets

When more than one dial or Digitone-type telephone share a TN, the telephones are said to be *bridged sets*. These telephones have the same DN and since the TN is programmed only once for all of them, they share the same Class of Service and features. There is no privacy. It is recommended that no more than eight telephones share a TN.

Control Connection Active

A state that is reached when there is a consultation connection.

Multi-Party Operations

Control Dial Tone

This tone is provided to a dial or Digitone-type telephone user who performs a Register Recall during a consultation connection. During this period the user is expected to dial a Control Digit. If no Control Digit is dialed, and the Control Digit timer (CDTO in LD 15) expires, Overflow Tone will be given to the user. The level and cadence of the tone can be programmed in LD 56.

Controlling Party

The Controlling Party is the telephone user who has another telephone user on hold (the Held Party) and the Active Party in a Consultation Connection. A dial or Digitone-type telephone is considered to be a Controlling Party as soon as a Register Recall signal is generated by the user.

Consultation Connection

When the Controlling Party and the Active Party are in conversation, they are said to be in Consultation Connection.

Dial "1"

A pulse from a dial telephone that is recognized as the digit 1.

Enquiry Call

A simple connection where one telephone is offering a Call Transfer to another telephone.

External Party

Any CO, DID, or TIE trunk (incoming or outgoing) that is connected to the system, and has an active call, is considered to be an external party for the purposes of the MPO feature.

Flash Timer

The timer that defines how long the switch-hook must be pressed so that it is treated as a switch-hook flash for the purposes of feature operation.

Held Party

The telephone user who has been put on hold by the Controlling Party.

Normal Call

A simple two-party connection between two telephones.

Overflow Tone

This tone is given to a user for 14 seconds after Special Dial Tone times out and after Control Dial Tone times out.

Programmable Control Digit

A digit that is dialed by a dial or Digitone-type telephone user who is the Controlling Party, after a consultation connection is established, to operate certain aspects of Three Party Service. The Control Digits are programmed in the system memory on a customer-wide basis.

Recall Ringing Cadence

There are two optional ringing cadences that can be implemented, one for dial and Digitone-type telephones and the other for SL-1-type and digital telephones. This type of ringing is used by the system if a telephone is being re-rung after a user has mis-operated the Call Transfer feature.

Register Recall

A user request for service produced either by a switch-hook flash or the Link button. If the system has the Ignore Switch-hook Flash option enabled, a user can produce a Register Recall by pressing a Ground (Earth) button, if it is part of the telephone.

Special Dial Tone

This tone is provided to a dial or Digitone-type user who performs a Register Recall during a normal two-party connection. The level, cadence, and frequency of the tone can be programmed in LD 56.

Special Dial Tone is provided to a dial telephone user for 30 seconds, and to a Digitone-type user for 14 seconds. If the user performs a second Register Recall right away, the Held Party will be re-connected.

If the Special Dial Tone times out, the system provides Overflow Tone to the user.

Switch-hook flash

An on-hook off-hook pulse that is either a Register Recall signal or a digit 1 depending on the conditions during which it occurs, and on the flash timing.

Transferring party

A telephone user who initiates a Call Transfer.

Transferred party

A telephone to which a call is being transferred by the transferring party.

Setting up the feature

Multi-Party Operations (MPO) functionality is provided by software package 141. The telephones do not come programmed to use the Multi-Party Operations features. You select the telephones that are to have the features, then you use the procedures in this module to program each one.

Table 158
Software requirements

Release required	Software package(s) required
14.46E	141 – Multi-Party Operations (MPO)

Multi-Party Operations deal with situations where a Controlling Party, with a Held Party on hold, attempts to establish, or has already established, a consultation connection with another telephone user.

The Held Party can be either internal or external to the system.

Multi-Party Operations

Sometimes the Controlling Party wants to:

- transfer the Held Party to the other party
- set up a conference
- toggle back and forth between the two parties
- consult with the other party, disconnect that party, and then return to the Held Party
- disconnect the other party if a service like voice mail answered, before returning to the Held Party.

Some of the functions offered by MPO are for the benefit of the system administrator or the managers who want to ensure that if callers are not handled properly, the calls will not be lost. For example, sometimes the Controlling Party does not use the Call Transfer feature properly while the Held Party is still on hold. This is called mis-operation. The MPO software attempts to recover when this happens based on the parameters that have been programmed and the circumstances of the mis-operation.

Multi-Party Operations offers the following features and functions to deal with the kinds of scenarios that have just been discussed:

- Call Join
- Three Party Service
- Conference 6
- Recovery on Mis-operation of Call Transfer
- Miscellaneous options that include:
  - a Three Party Service Timer that affects how quickly users must dial Control Digits to use the Multi-Party Operations features
  - a capability to ignore switch-hook flashes from dial or Digitone-type telephones
  - an option to force dial telephone users to use a Register Recall signal before dialing a Control Digit.

- an option that forces users to do a Manual Return to speak to a Held Party after consulting with a second telephone user
- a capability to program Control Digits of your choice
- an option that handles a call in the way you choose when a Controlling Party hangs up after a consultation connection instead of returning to the Held Party
- an option to provide a unique form of ringing to let a user know when a telephone is being re-rung due to mis-operation of the Call Transfer feature
- a timer to deal with the phenomenon called *switch-hook contact bounce*

The detailed information presented in this module will help you with the following:

- you can use the information to talk to your system supplier about the parameters that you want to implement
- it is beneficial for you to have this background information, if users ask detailed questions in user training sessions
- you will be able to help with day-to-day troubleshooting related to the MPO feature

Customer Data Block

Several of the MPO-related parameters are enabled or disabled on a customer-group basis. These parameters are described in this module in the parts where they apply. The programming required is done in the Customer Data Block and therefore it is beyond the scope of this book. Contact your system supplier for assistance in programming any of these parameters.

Call Join

Call Join applies to all SL-1-type and digital telephones that have Conference 3 or Conference 6 keys and at least one secondary DN or a Call Waiting key. Because of the Call Join capability, the Controlling Party can add a held call on one key to a held call on another key in a type of conference. The user can disconnect and leave the other two parties connected, if required.

Three Party Service

Three Party Service applies only to dial and Digitone-type telephones. You allow Three Party Service in the Class of Service when you program a telephone in LD 10.

TSA programmed in the Class of Service stands for Three Party Service allowed.

Three Party Service allowed (TSA) and Call Transfer allowed (XFA) cannot be programmed in the Class of Service of one telephone, at the same time.

- If a telephone is programmed to have XFA, and TSD (Three Party Service denied) and you change it to TSA, the system will automatically change the XFA to XFD (Call Transfer denied).
- If the telephone has XFA and TSD programmed, and you change it to XFD, the system leaves TSD programmed.

Once a telephone user has a consultation connection set up with an Active Party, the user can dial Control Digits to do the following:

Table 159
Three Party Service activity and Control Digits

Activity	Control Digit
form a three-party conference between the Active Party, the Held Party and the Controlling Party	Conference Digit (CNFD in LD 15) default is 1
transfer the Active Party to the Held Party by hanging up after establishing the conference	Conference Digit (CNFD in LD 15) default is 1
toggle between the Active Party and the Held Party	Toggle Digit (TGLD in LD 15) default is 2
disconnect the Active Party and return to the Held Party	Disconnect Digit (DISD in LD 15) default is 3

Three Party Service Timer Option

A timer can be programmed on a customer-wide basis to determine the amount of time a user has to dial a Control Digit.

In LD 15, the prompt is CDTO. This timer also affects the way calls will be handled when a user does not dial a Control Digit, and the Control Dial Tone times out and the subsequent Overflow Tone times out. The differences occur when the timer is either the default or one of the non-default settings.

If the Controlling Party performs a Register Recall and none of the parties disconnects, then no matter what the setting for the timer is, the Active Party is re-connected to the Controlling Party and the Held Party remains on hold.

CDTO default 14 seconds If a user does not dial a Control Digit within 14 seconds, Overflow Tone is given to the Controlling Party.

If Overflow Tone times out, then the treatment of the call is determined by the setting for another option in LD 15, called the Manual Return after Enquiry Option (MHLD). Refer to the part on this option later in this module.

- if MHLD is set for NO (default), the Active Party is re-connected to the Controlling Party immediately. The Held Party remains on hold.
- if MHLD is set for YES, silence is given to the Controlling Party and when the Controlling Party performs the Register Recall, the Active Party is re-connected to the Controlling Party. The Held Party remains on hold.

CDTO other settings can be between 2 to 12 seconds. If the Controlling Party does not enter the Control Digit within the programmed amount of time, and continues to do nothing after hearing Overflow Tone, the treatment of the call depends on the MHLD setting in LD 15.

- when MHLD is set for NO (default), the Active Party is disconnected immediately. The Held Party is re-connected with the Controlling Party.
- when MHLD is set for YES, silence is given to the Controlling Party. When the user performs a Register Recall, the Active Party is disconnected and the Held Party is re-connected to the Controlling Party.

Refer to the Administration tips and Training tips in this module for further information.

Conference 6

If a dial or Digitone-type telephone has a TSA (Three Party Service allowed) Class of Service, a maximum of three parties is allowed on a conference set up by that telephone.

You can give a Conference 6 capability to a dial or Digitone-type telephone user by programming both a TSA Class of Service and a C6A Class of Service.

The Conference 6 feature extends the TSA feature. It allows the Controlling Party to use Control Digits to set up successive consultation connections to add on more than two other parties.

The user dials the CNFD Control Digit defined in LD 15 to add the Active Party to the existing conference.

The user can put the Active Party on hold and then reconnect to the conference by dialing the TGLD Control Digit defined in LD 15. Dialing the TGLD digit a second time reconnects the user to the Held Party and puts the conference on hold again.

If the user dials the DISD Control Digit defined in LD 15, the consulted party is disconnected and the conference connection is restored.

If the Controlling Party goes on-hook when the Held Party is a conference call, then the consulted party is released and the parties involved in the conference (the Held Parties) are connected in a conference that no longer includes the Controlling Party. This assumes that there are no restrictions that prevent the connection (for example, trunk-to-trunk connections that are not allowed).

If the Controlling Party goes on-hook when the Active Party is a conference, then the Controlling Party is released from the conference and the conference (which includes the Held Party) stays connected, if no restrictions prevent it.

Group Calls cannot be conferenced with other parties.

Recovery of Mis-operation of Call Transfer

This part of the MPO feature provides improved call handling compared to the regular Call Transfer feature when users on your system do not transfer calls properly.

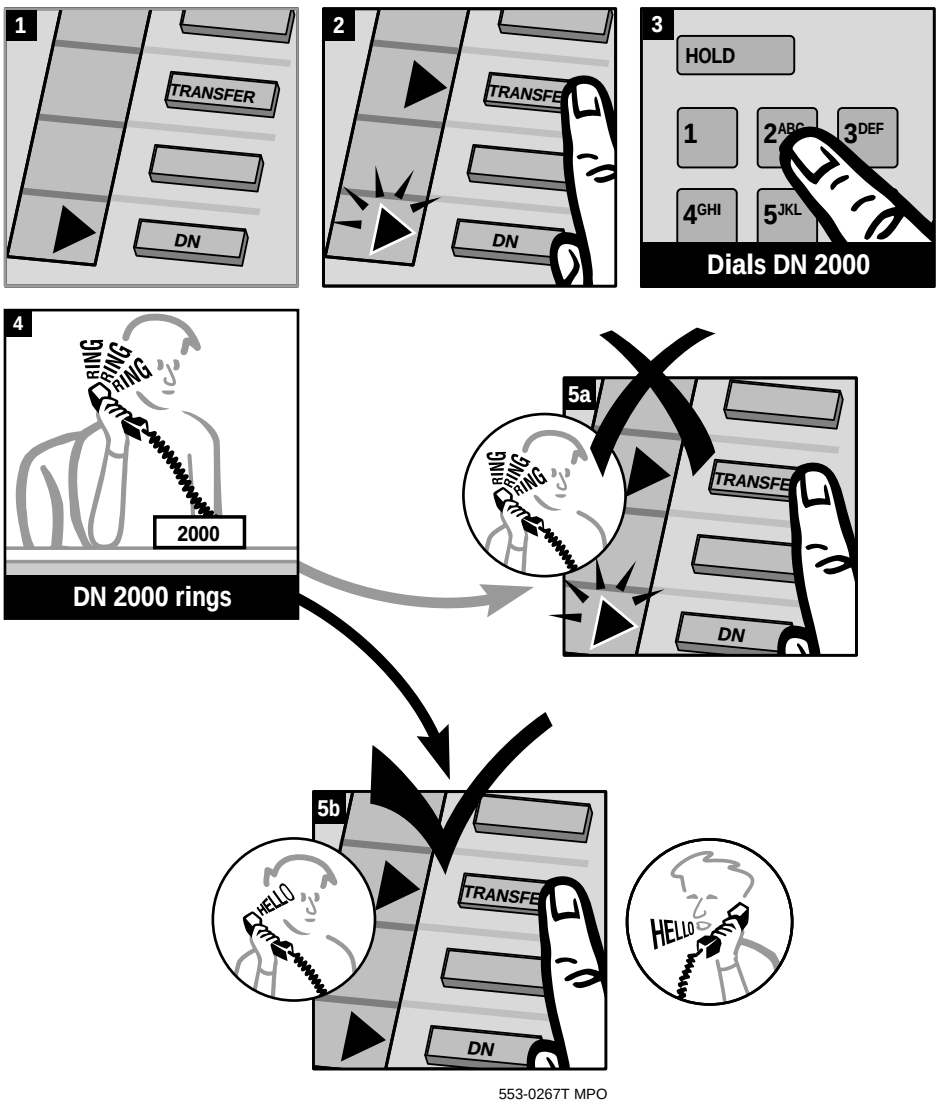
A mis-operation is seen by the system whenever a Controlling Party attempts to complete a transfer before the called party answers.

This feature applies if the Held Party in a consultation connection is an external one but it does not apply if the transferred telephone is external (refer to the definitions earlier in the module). External telephones are connected to separate systems. To affect mis-operation to these external telephones would require that your system would be able to control the operation of the system to which the transferred telephone is connected. This capability has not been developed for this feature at this time.

There are two kinds of mis-operations, as far as the system is concerned. They are:

- Mis-operation of Call Transfer on Ringing with No Answer
- Mis-operation of Call Transfer for All Other Cases

Mis-operation of Call Transfer on Ringing with No Answer occurs when the transferring party attempts to complete a transfer while receiving Ringback Tone or Call Waiting Tone (if the telephone called is busy and has the Call Waiting feature). The transferring party can use any kind of telephone and be affected by this feature.



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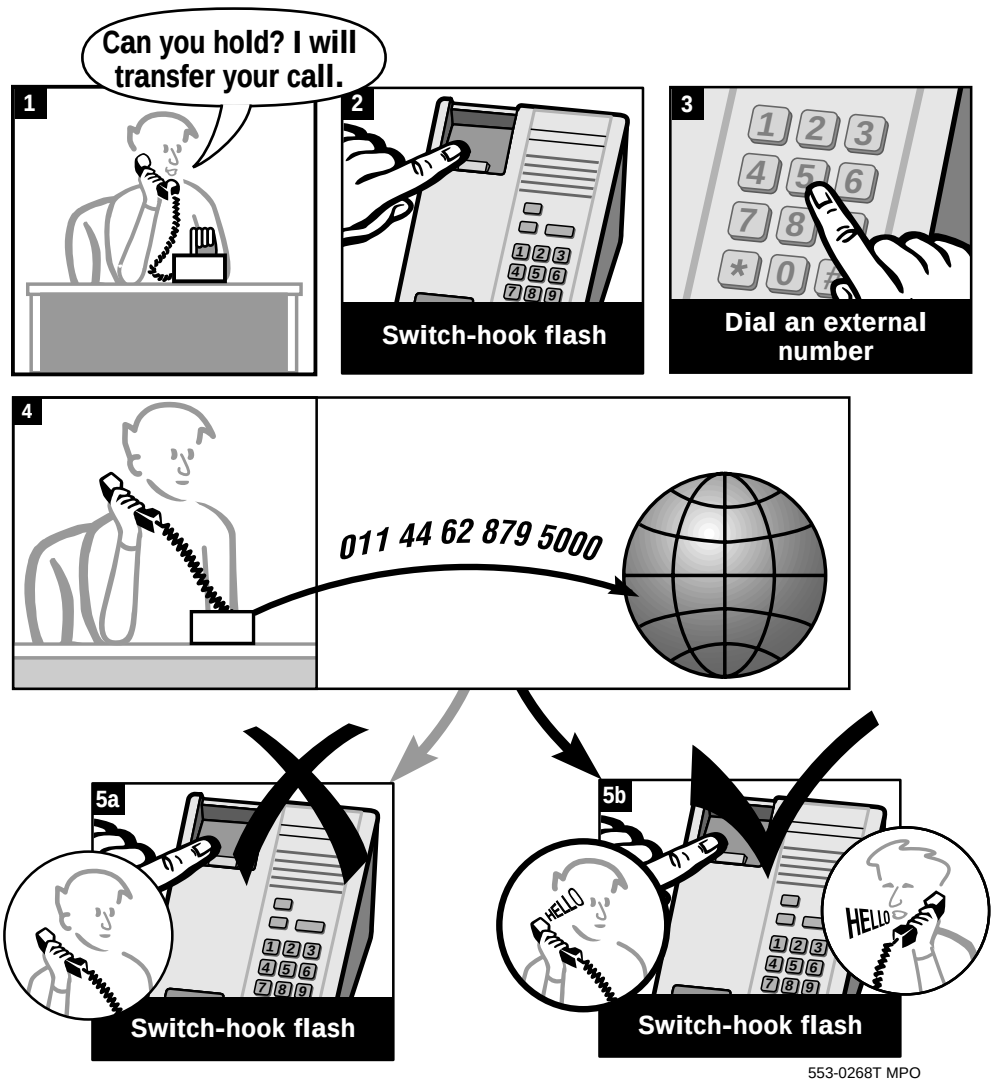
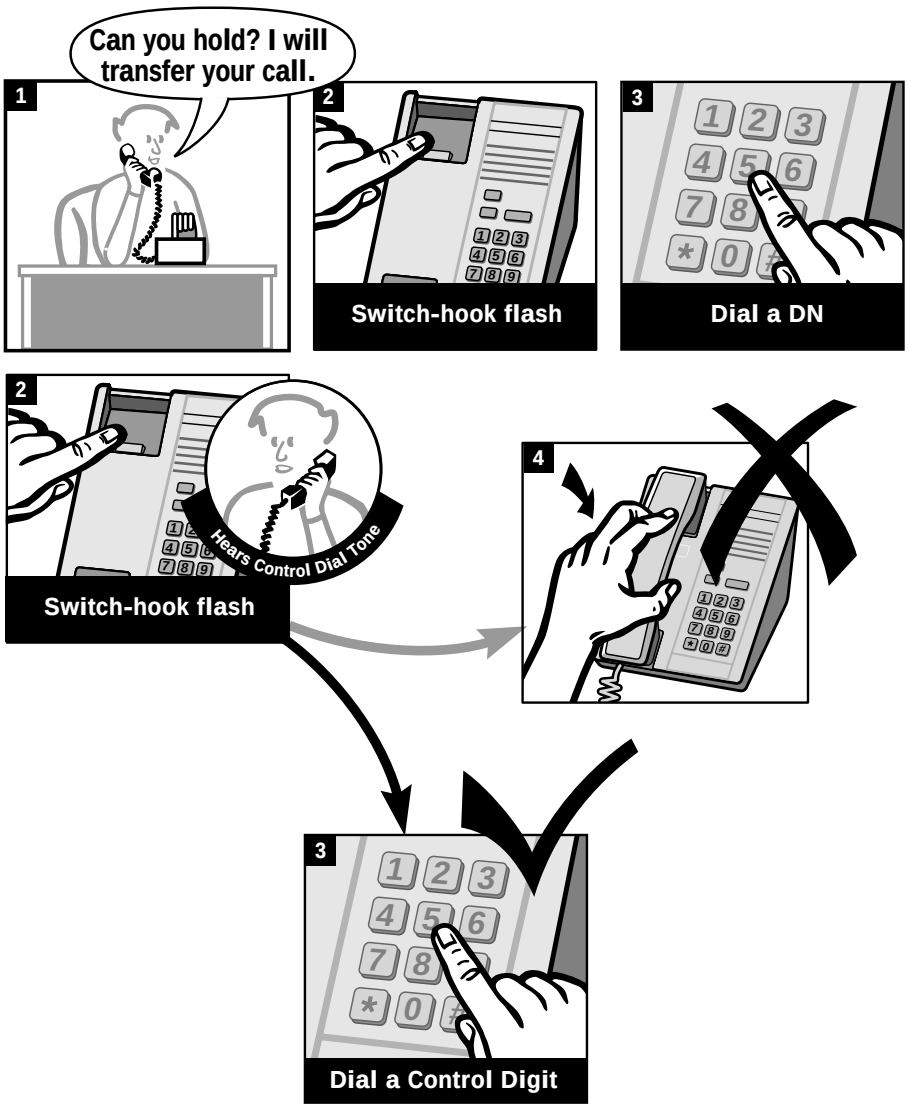
Multi-Party Operations

Mis-operation of Call Transfer for All Other Cases (AOCS) occurs when a dial or Digitone-type telephone user attempts to complete a transfer and one of the following things happens:

- a transfer is attempted while Dial Tone is being heard
- a transfer is attempted before dialing is complete
- a transfer is attempted during outpulsing of digits on a trunk when calling an external party



- the Controlling Party goes on-hook during a consultation connection and the Control Connection Disconnect Option (CCDO) is programmed with a NO response in LD 15
- the Controlling Party goes on-hook during Control Dial Tone



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- a transfer is attempted and the call intercepts because:
  - the called party is a busy telephone with Call Waiting denied or no Call Waiting key
  - the called number does not exist
  - the called telephone is in maintenance busy mode
  - the called telephone is served by Remote Peripheral Equipment (RPE) and the RPE has failed
  - the called telephone is external and trunk access is denied for the Controlling Party
  - the called number is a number from which the Controlling Party is toll restricted or code restricted
  - there is network (timeslot) blocking in the system
  - the called number cannot be translated, or is restricted or blocked due to NARS or BARS programming
  - the called number was only partially dialed
  - the transfer would result in a trunk-to-trunk connection that is restricted
  - the called number belongs to a tenant group that is restricted for the Controlling Party
  - a transfer is attempted during the reception of an announcement
  - a transfer is attempted during tones such as Special Dial Tone

Customer Data Block

The recovery options are programmed in the Customer Data Block (LD 15).

Separate treatments can be specified for external and internal calls.

Discuss the alternatives with your system supplier and use the options that suit your needs for the types of internal calls your users make, and external calls that come into your system.

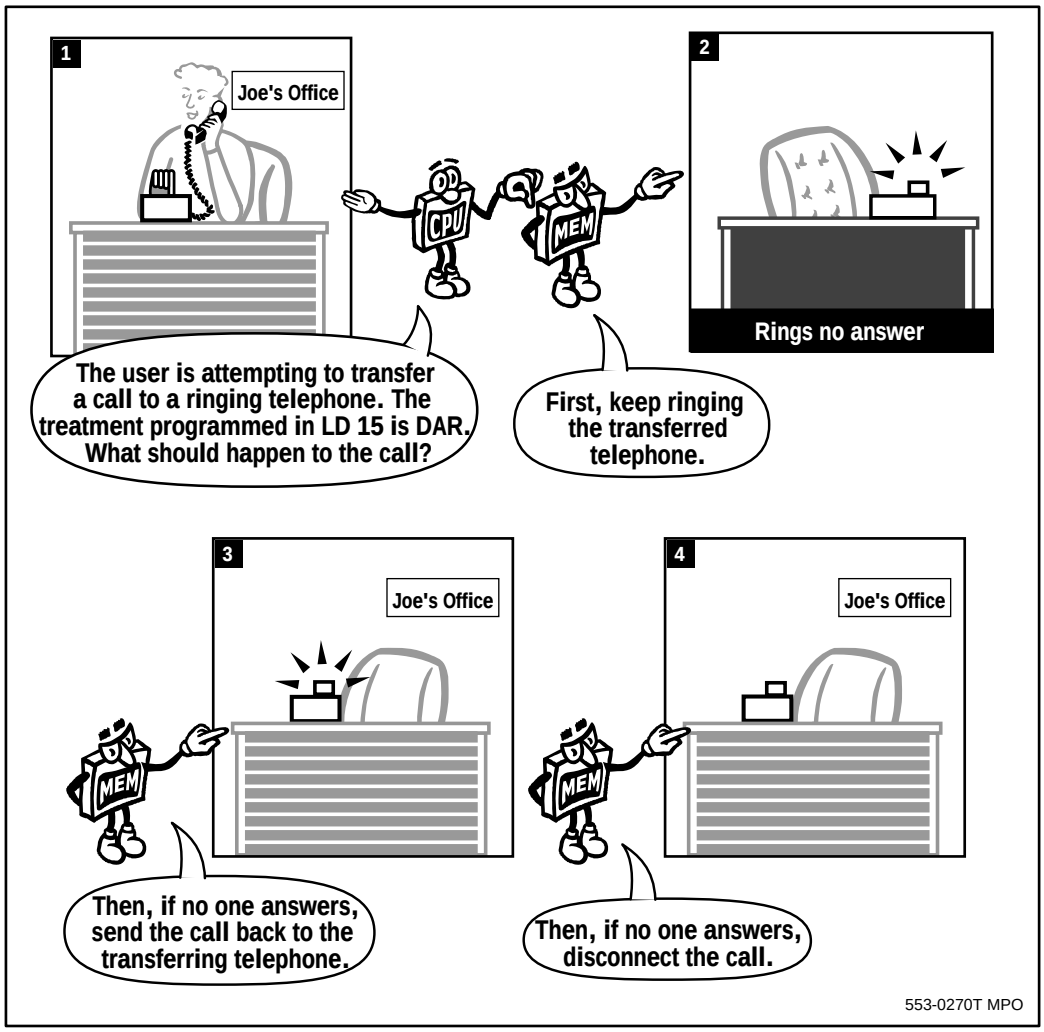
When the transferred party is ringing no answer, the choices for call treatments are as follows:

- the telephone rings until someone answers it or the Call Forward No Answer feature redirects the call. This is called standard operation (STD).
- the call is redirected to the attendant after an optional number of ringing cycles. This choice is ATN. The ringing cycles option prompt is RCY2.
- the transferred party rings for the optional number of ringing cycles (RCY2). If the call is not answered, the call is directed back to the transferring party. It rings there for another programmable number of ringing cycles (RCY1).

  The ringing cadence for this recall can be programmed to sound different from a normal ringing cadence. Refer to the part called Recall Ringing Cadence in this module, for more information.

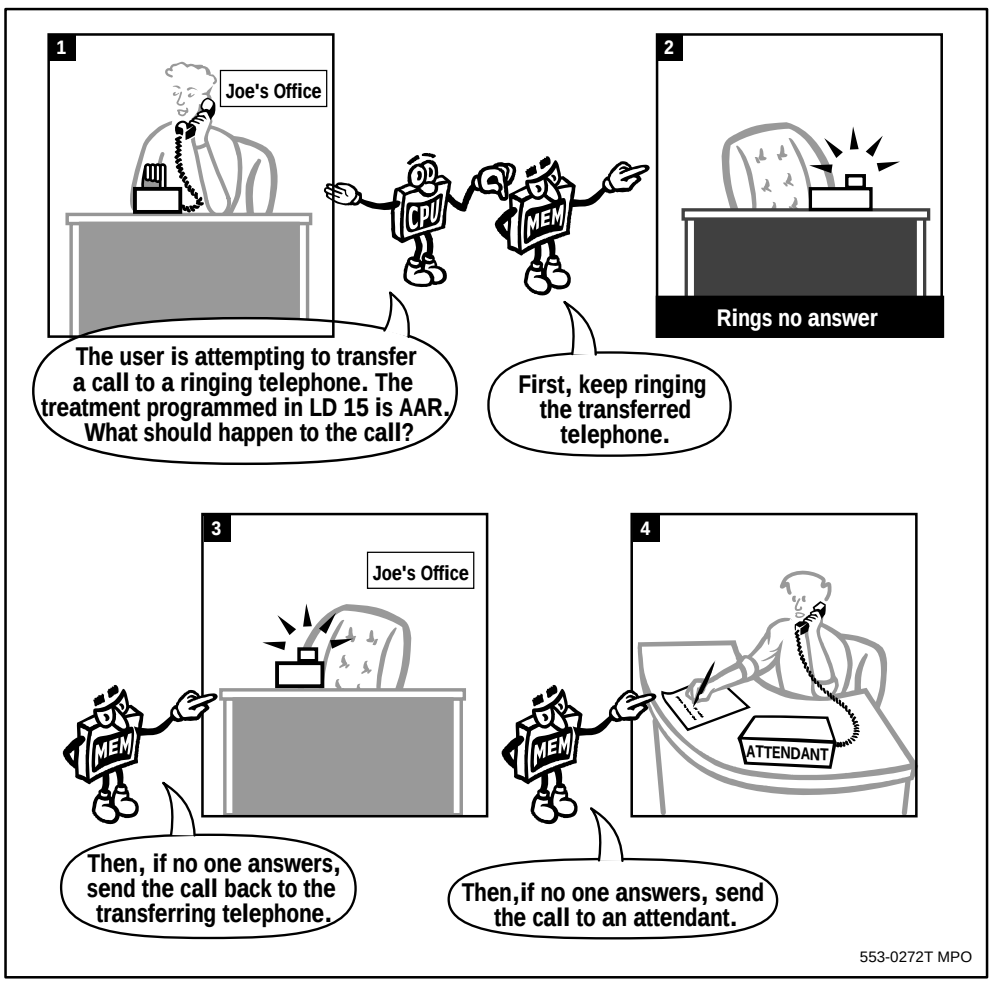
  If the call is still not answered, the call is disconnected after the programmable number of ringing cycles. The mnemonic for this choice is DAR.

Call treatment DAR



If the transferring party becomes busy while the transferred party is ringing, then the call cannot be forwarded back and the call is disconnected after ringing the number of cycles programmed for RCY2.

- ring the transferred party for the optional number of ringing cycles (RCY2). If the call is not answered, direct forward the call back to the transferring party and ring it for another programmable number of ringing cycles (RCY1). The ringing cadence for this recall can be programmed to sound different from a normal ringing cadence. If the call is still not answered, redirect it to the attendant. The mnemonic for this choice is AAR.



If the transferring party becomes busy while the transferred party is ringing, the call cannot be forwarded back and the call is redirected to the attendant after ringing the number of cycles programmed for RCY2.

- ring the transferred party for the optional number of ringing cycles (RCY2). If the call is not answered, the Held Party hears Overflow Tone. The mnemonic for this choice is OVF.
- ring the transferred party for the optional number of ringing cycles (RCY2). If the call is not answered, disconnect it. The mnemonic for this choice is DIS.

The ringing cycles are counted from the time the transfer has been completed. This is either from the time the dial or Digitone-type telephone goes on-hook or the SL-1-type or digital telephone user presses the TRN key for the second time.

The default setting for internal calls that are transferred and ring no answer is STD. The default setting for external calls that are transferred and ring no answer is STD.

The choices for call treatments when mis-operation occurs for all other cases are:

- the telephone rings until someone answers it or the Call Forward No Answer feature redirects the call. This is called standard operation (STD).
- the call is redirected to the attendant. This choice is ATN.
- the call is directed back to the transferring party and it rings for an optional number of ringing cycles (RCY1). The ringing cadence for this recall can be programmed to sound different from a normal ringing cadence. Refer to the part called Recall Ringing Cadence, in this module, for more information. If the call is still not answered, disconnect the call after the programmable number of ringing cycles. The mnemonic for this choice is DAR.

  If the transferring party becomes busy, then the call cannot be forwarded back and the call is disconnected.

- the call is directed back to the transferring party and it rings for an optional number of ringing cycles (RCY1).

  The ringing cadence for this recall can be programmed to sound different from a normal ringing cadence. If the call is still not answered, redirect it to the attendant. The mnemonic for this choice is AAR.

  If the transferring party becomes busy, then the call cannot be forwarded back and the call is redirected to the attendant.

- Overflow Tone is heard by the Held Party. The mnemonic for this choice is OVF.

- the call is disconnected. The mnemonic for this choice is DIS.

The default settings for internal calls and external calls that are transferred and mis-operate for other reasons are DIS and ATN respectively.

An unusual type of situation that is treated as a mis-operation as well, is one where the Controlling Party goes on-hook when an external Held Party has disconnected but no disconnect signal was received. The system rings back the Controlling Party and presents the user with the Held Call even though there is no caller there. The system expects the Controlling Party to disconnect to release the Held Party.

Ignore Switch-hook Flash from 500/2500 Set option

A 500 set is a dial telephone. A 2500 set is a Digitone-type telephone.

The Ignore Switch-hook Flash option can be activated on a customer-wide basis. Your system supplier can help you to decide whether you need this or not.

It is of most use when dial telephones have been programmed with a DTN Class of Service. Giving dial telephones this Class of Service is not recommended. Refer to Task 1, *New dial telephone*, the Class of Service part, for a discussion on this.

If a dial telephone user dials the digit 1, while on an active call, the system interprets that as a switch-hook flash since it is a brief on-hook off-hook sequence.

Enabling the Ignore Switch-hook Flash option eliminates that confusion. If the flash is to be ignored, you must install Ground (Earth) buttons on the dial and Digitone-type telephones of the users who require the use of a Register Recall signal.

Forced Register Recall

This option specifies whether a Register Recall is required on dial telephones before the users can dial Control Digits. If the system is programmed so that a Register Recall is not required, and if the user performs a switch-hook flash, it is interpreted as if the user dialed the digit 1. If the digit 1 is programmed as a Control Digit, then the system responds accordingly. The Forced Register Recall option can be programmed on a customer-wide basis in LD 15.

On systems where all single line telephones are dial-type, users will find it convenient if they do not have to use a switch-hook flash when they want to transfer, conference or toggle between calls since they would only have to dial Control digits.

On systems where all single line telephones are Digitone-type the Forced Register Recall option must be set as YES. In other words, users of Digitone-type telephones will always have to perform a switch-hook flash before entering a Control Digit.

Manual Return after Enquiry option

This option controls the way the Held Party can be reconnected to a Controlling Party when the Controlling Party has used a Register Recall to place the call on hold and has done nothing further. The Controlling Party hears Special Dial Tone, followed by Overflow Tone when no number is dialed. The Held Party is given silence or a recorded announcement, if the software to do that is equipped.

The prompt for the Manual Return after Enquiry option is MHLD in LD 15, the Customer Data Block.

- A NO response means that the Controlling Party is automatically reconnected to the Held Party after the Overflow Tone times out.
- A YES response means that the Controlling Party will receive silence indefinitely after the Overflow Tone times out.

  The user must perform a Register Recall in order to be reconnected to the Held Party. The Controlling Party can use the Register Recall to reconnect to the Held Party during the Special Dial Tone and Overflow Tone as well.

There is a connection between the MHLD prompt and the Three Party Service timer (the time during which time the user is supposed to dial a Control Digit). For more information, refer to the Three Party Service Timer Option.

Control Connection Disconnect Option (CCDO)

During a consultation connection, any of the three parties involved could hang up.

There is an option (CCDO) that can be set in the Customer Data Block (LD 15) to control the operation of MPO when any of the parties in a consultation call disconnect on purpose or in error.

When the default NO response is programmed, it means that an alternative treatment is not required. When CCDO is programmed with a YES response, it means an alternative treatment is required for the disconnect option.

The following paragraphs describe what happens when each of the three parties disconnects during a consultation connection and the CCDO option is set for NO or YES.

CCDO NO

If the Active Party disconnects and the Active Party is using an internal telephone, and the system receives a disconnect signal when the disconnect occurs, then the Held Party is reconnected with the Controlling Party for a normal two-party call.

Multi-Party Operations

If the Active Party is an external one, and the system does not receive a disconnect signal, the Controlling Party can release the disconnected trunk by dialing the Control Digit for disconnect. The Controlling Party is then connected to the Held Party for a normal two-party call.

If the Held Party disconnects and the Active Party is an internal or external telephone, and the system receives a disconnect signal when the disconnect occurs, then the connection between the Active Party and the Controlling Party becomes a normal two-party call.

The Controlling Party can test the connection by dialing a Control Digit. If the user hears Special Dial Tone, this means that the Held Party has disconnected. If LD 15 has been programmed with RALL YES, (refer to Forced Register Recall) or if the telephone is Digitone-type, the user can perform a switch-hook flash to do the test. If Special Dial Tone is given, then this means that the Held Party has disconnected.

If the Controlling Party disconnects and the Held Party is not a Group Call, the system considers this to be a mis-operation of the Call Transfer feature of the "All Other Cases" type. The system then releases the Active Party. The Held Party will be handled based on the parameters programmed for the "All Other Cases" (AOCS) option in LD 15. (Refer to the part of this module that discusses the mis-operation of the Call Transfer feature).

If the Held Party is a conference call, the consulted party is released and the conference stays connected However, restrictions such as trunk-to-trunk restrictions can prevent the connection.

If the Held Party is a Group Call, and the Controlling Party has Group Call control, all the parties in the Group Call will be disconnected.

CCDO YES

If the Active Party disconnects and it is an internal or external telephone, and the system receives a disconnect signal when the disconnect occurs, the Controlling Party is given Overflow Tone. If the Controlling Party performs a Register Recall or if the Overflow Tone times out, the Held Party is reconnected to the Controlling Party.

If the Active Party is external to the system and a disconnect signal is not received when the external user hangs up, the Controlling Party can disconnect the trunk by dialing the Disconnect Control Digit. The Controlling Party is then connected to the Held Party in a normal two-party call.

If the Held Party disconnects and the Held Party is external and the system did not receive a disconnect signal, the Controlling Party can use the Disconnect Control Digit to release the trunk. The trunk can be released after the user toggles to it and realizes that the party has hung up.

If the Forced Register Recall option (RALL) is programmed as NO in LD 15, and the system receives a disconnect signal when the disconnect occurs, the Controlling Party can choose to:

- disconnect the Active Party by dialing the Disconnect Control Digit. The Controlling Party is given Overflow Tone to indicate that there is no longer a Held Party.
- toggle or conference but the user will hear Overflow Tone to indicate that the Held Party has disconnected. If the user performs a Register Recall or the Overflow Tone times out, the Controlling Party will be reconnected to the previous Active Party.

If the Forced Register Recall option (RALL) is programmed as YES in LD 15, the Controlling Party who performs the required Register Recall will hear Special Dial Tone instead of Control Dial Tone. The Special Dial Tone indicates that the Held Party has disconnected.

If the Held Party disconnects while the Controlling Party is hearing Control Dial Tone, the Controlling Party hears Overflow Tone right away.

If the Controlling Party disconnects and the Held Party is not a Group Call, then the call is transferred. However, if the new connection cannot be established because of trunk-to-trunk restrictions, the Held Party is routed to the attendant as an intercepted external call.

If the Held Party is a Group Call, and if the Controlling Party is the controller of the Group Call, then all the parties in the Group Call will be disconnected if the Controlling Party hangs up during a consultation connection.

CCDO YES or NO

When the Controlling Party has put a call on hold, and is receiving Special Dial Tone, or possibly Overflow Tone or silence, the Held Party might hang up.

If the Held Party Disconnects

During Special Dial Tone then Overflow Tone is given to the Controlling Party to indicate this. The Controlling Party can hang up and proceed with the call they were going to make at a later time.

During Overflow Tone if the Controlling Party waited too long to dial a Control Digit for example, then when the Overflow Tone times out, the Controlling Party is put into a line-lock out mode.

During silence if the user waited too long to dial a Control Digit for example, and the Overflow Tone timed out, then the Controlling Party is put into a line-lockout mode immediately.

Control Digits

A user dials Control Digits after hearing Control Dial Tone to tell the system what Three Party Service function the user wants to perform. These digits are programmable on a customer-wide basis. The default values are shown in Table 159 in this module.

If no digitone receivers are available when a Digitone-type telephone user performs a Register Recall and as a result Control Dial Tone cannot be given, the Controlling Party is automatically reconnected to the Active Party.

If the Controlling Party dials an invalid Control Digit or switch-hook flashes during Control Dial Tone, then the connection to the Active Party is restored and the Held Party remains on hold.

If the Controlling Party disconnects during Control Dial Tone, and the CCDO option in LD 15 is programmed as YES, then the recovery action will depend on the option chosen for the AOCS mis-operation option in LD 15.

Table 160
Recovery action when Controlling Party goes on-hook during Control Dial Tone related to mis-operation options programmed in LD 15

AOCS option	Recovery action
DIS	Held Party and Active Party are disconnected
ATN	Held Party and Active Party redirect to attendant
DAR	Controlling Party is re-rung with Active Party – if Controlling Party does not answer within RCY1 ring cycles, then both the Held Party and the Active Party are disconnected
AAR	Controlling Party is re-rung with Active Party – if Controlling Party does not answer within RCY1 ring cycles, then both the Held Party and the Active Party are routed to attendant
OVF	Held Party and Active Party receive Overflow Tone – after Overflow Tone times out, both disconnect
STD	DIS – for internal Held Party and Active Party ATN – for external Held Party and Active Party

If the Controlling Party disconnects during Control Dial Tone, and the CCDO option in LD 15 is programmed as NO, then the Active Party is disconnected and the Held Party will be handled by following the mis-operation treatment programmed in LD 15.

Recall Ringing cadence

If there has been a mis-operation of the Call Transfer feature, the system can be programmed to recall the transferring telephone.

Table 161
Software requirements

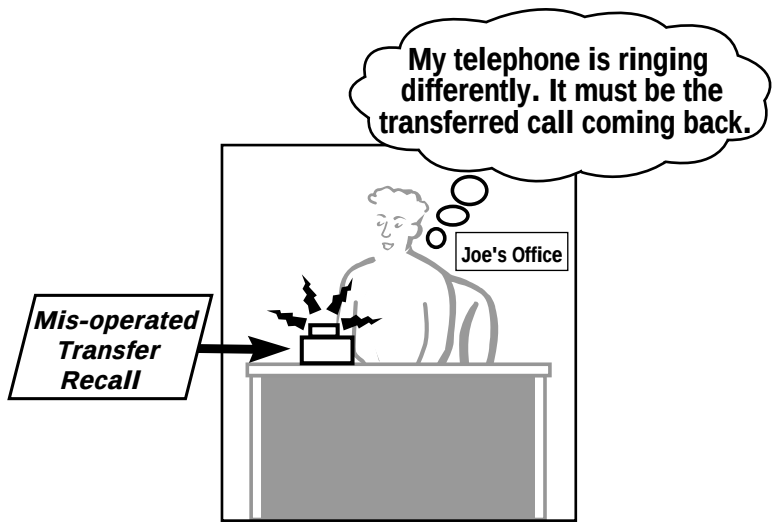
Release required	Software package(s) required
14.46E	125 – Flexible Tones and Cadences (FTC)

Multi-Party Operations

The ring for the recall can be programmed to be different than normal ringing. There is an optional form of ringing that can be chosen for dial and Digitone-type telephones. There is another form of ringing for SL-1-type and digital telephones.

Ask your system supplier to tell you what tones and cadences are available to you, based on the equipped Tone and Digit Switch cards or Extended Conference and Tone and Digit Switch cards on your system.

The system supplier is able to program the Recall Ringing cadences for you in LD 56, if you think it would be beneficial for your users.



Switch-hook contact bounce

Sometimes users disconnect calls by pressing the switch-hook in a way that results in multiple, short switch-hook flashes. Prior to the introduction of the MPO feature, the systems handled the disconnected party as if it were a Held Party. The Controlling Party was treated as if the user had mis-operated the Call Transfer feature by hanging up. This caused unintended transfers to the attendant.

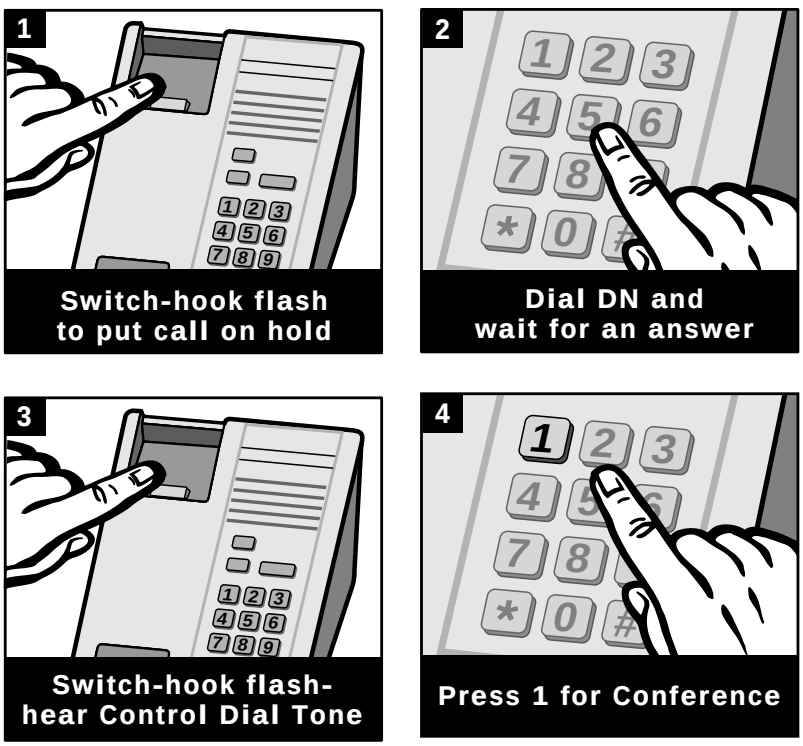
A timer set at 256 ms is activated automatically after a switch-hook flash on systems that have MPO equipped. For a period of 256 ms after a switch-hook flash, any signaling from a telephone is ignored. This eliminates signaling not intended by the user.

Using the features

Dial or Digitone-type telephones

Forced Register Recall is programmed as YES in these examples.

Conference



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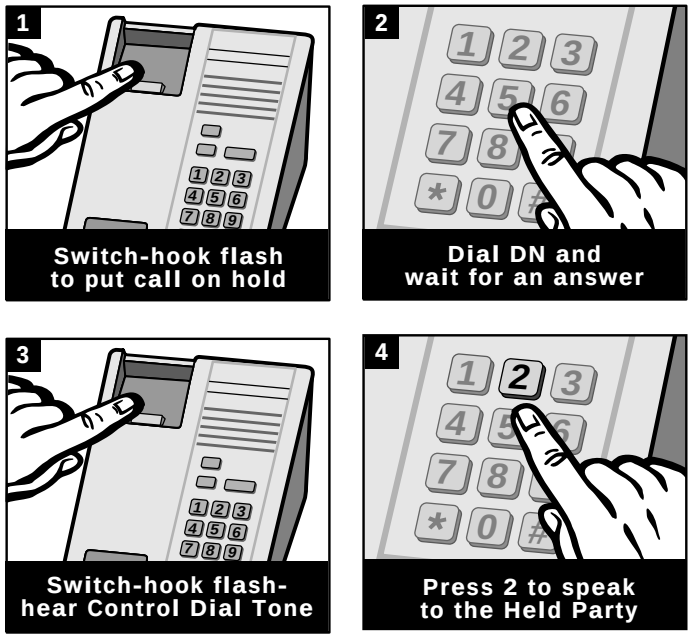
Multi-Party Operations

Toggle



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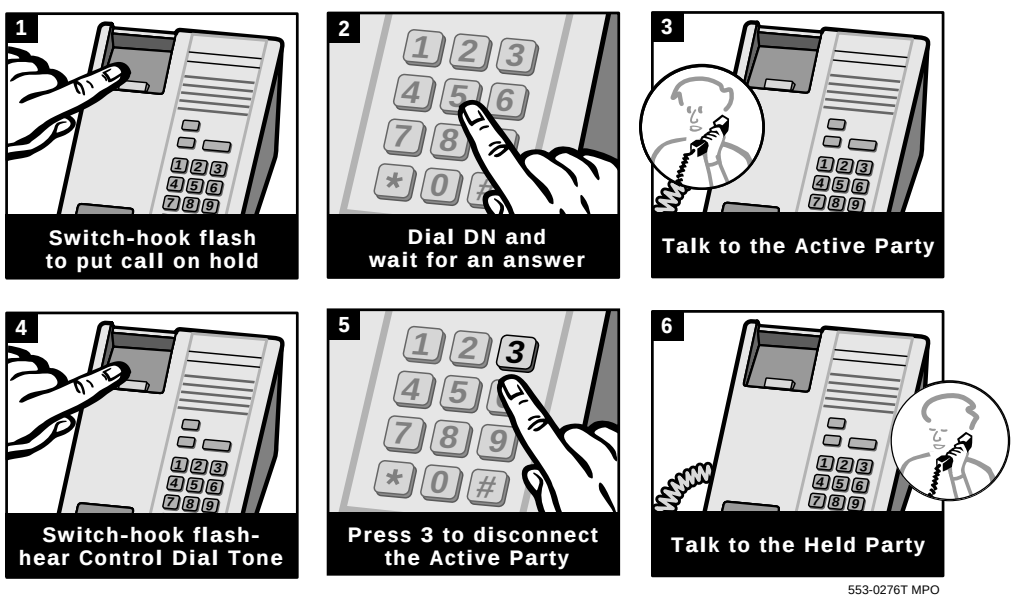
Disconnect Active Party



553-0276T MPO

What to do when the Controlling Party hears Overflow Tone

The Controlling Party hears Overflow Tone if any of the following occur:

- Special Dial Tone times out
- Control Dial Tone times out
- the Active Party disconnects and the Control Connection Disconnect (CCDO) option is enabled in LD 15
- the Held Party disconnects during Special Dial Tone

In the chart that follows, you can see that there is only one case where the parties do not remain connected if the user performs a switch-hook flash when hearing Overflow Tone. That case is where both the Held Party and the Active Party have disconnected.

Tell your users that if they hear Overflow Tone when using Three Party Service they should use the switch-hook flash.

If the users hang up instead of using the switch-hook flash, the call is handled according to mis-operation parameters. The result will not be convenient for the Controlling Party or the callers.

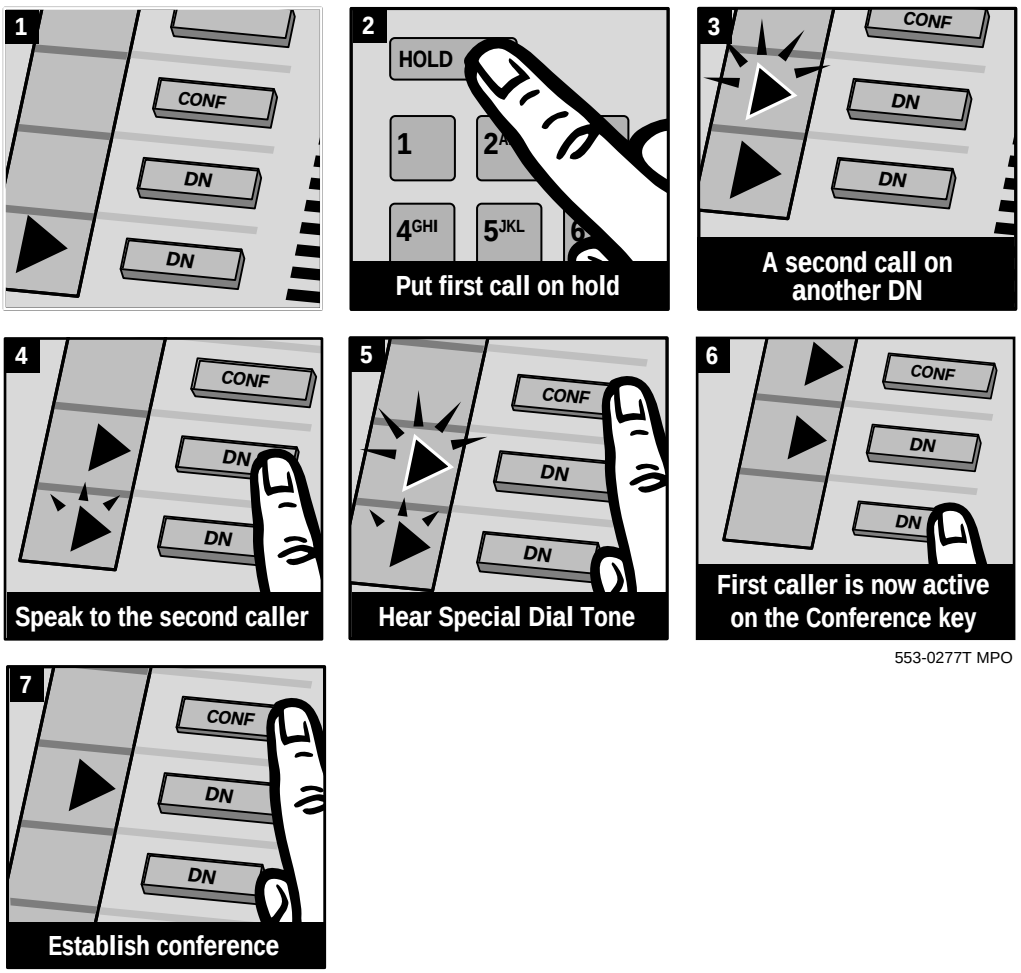
Table 162
What happens when a user performs a switch-hook flash while hearing Overflow Tone

	Held Party remains on hold	External Held Party disconnects– no disconnect signal	Held Party disconnects
Active Party active	Consultation connection resumes	Consultation connection resumes Controlling Party can release external Held Party using TGLD digit followed by DISD digit	Normal call between Controlling Party and Active Party
External Active Party disconnects – no disconnect signal	Consultation connection resumes Controlling Party can release external Active Party using DISD digit	Consultation connection resumes Controlling Party can release external Held Party and Active Party using TGLD digit and DISD digit	Normal call between Controlling Party and Active Party Controlling Party can release external Active Party by going on-hook
Active Party disconnects	Normal call between Controlling Party and Held Party	Normal call between Controlling Party and Held Party Controlling Party can release external Held Party by going on-hook	Controlling Party enters line lockout state

Using the features

SL-1-type and digital telephones

Call Join



553-0277T MPO

If the user disconnects, the other two parties remain connected.

If the two parties are external and there are trunk-to-trunk restrictions that prevent the connection, the two parties will not remain connected.

Interactions with other features

Multi-Party Operations works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services.*

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems. Proper training can reduce the number of repair calls of this nature.

FFC and SPRE interact with MPO

If the user dials an FFC code or SPRE code during a consultation connection, it will be treated as a Control Digit. Therefore there cannot be a conflict between the Control Digits and the FFCs and SPRE code.

Dictation trunks and paging trunks interact with Three Party Service

A user cannot set up a consultation connection when the Held Party is a paging trunk or a dictation trunk.

Attendants interact with Three Party Service

A user cannot set up a consultation connection when the Held Party is an attendant.

Call Detail Recording (CDR) interacts with Three Party Service

For more information on CDR, refer to the module in the *Call Detail Records* module.

- when a Controlling Party adds a new party to an existing call to form a conference, if the new party is an external one, then an “S” record is generated. If the new party is internal and the Controlling Party or the new party has Internal CDR allowed in the Class of Service, then an “L” record is generated.
- when a telephone is released from a conference, an “E” record is generated if the released party is an external one. If the disconnected party is an internal one, and the Controlling Party or the disconnected party has Internal CDR allowed in the Class of Service, then an “L” record is generated.
- when a Controlling Party dials the DISD Control Digit to disconnect an Active Party, an “N” record is generated if the released party is an external one. An “L” record is generated if the disconnected party is an internal one, and the Controlling Party or the disconnected party has Internal CDR allowed in the Class of Service.

Call Detail Recording (CDR) interacts with mis-operation

A CDR record is generated when a Controlling Party goes on-hook to complete a transfer while the called party is still ringing. This happens no matter what recovery option is programmed in LD 15 for ring no answer mis-operation situations.

The record is generated with information about the initial portion of the call before the mis-operation occurred.

In cases where there is recovery on mis-operation due to the transferred telephone ringing no answer, if the Held Party is external, then an “S” record is generated. An “L” record is generated if the Held Party is internal and the Controlling Party or the Held Party has Internal CDR allowed in the Class of Service.

Multi-Party Operations

In cases where there is recovery on mis-operation due to all other cases, if the Held Party is external, and the options selected are AAR, DAR, ATN or STD, then an “S” record is generated. If the option selected is DIS or OVF then an “N” record is generated.

An “L” record is generated if the Held Party is internal and the Controlling Party or the Held Party has Internal CDR allowed in the Class of Service.

Call Pickup interacts with MPO

The Call Pickup feature allows users to answer ringing telephones from their own telephones as long as the ringing telephone is in the same Call Pickup group as the user’s telephone.

A dial or Digitone-type telephone user can only use the Call Pickup feature if there is no other call active on the telephone at the time. A user with an active call and Three Party Service allowed, who hears a telephone ring in the same Call Pickup group, cannot perform a Register Recall and try to use the Call Pickup feature to answer the ringing telephone.

Ring Again interacts with MPO

The Ring Again feature can be used when a user has dialed a busy telephone. Once activated, the system will ring the originator’s telephone when the called telephone becomes idle.

This feature cannot be used if a Controlling Party calls a busy telephone while attempting to set up a consultation connection.

Call Transfer, Conference and Three Party Service interact with MPO

During a consultation connection by the Controlling Party, the Held Party or Active Party cannot use the Call Transfer, Conference, or Three Party Service features.

Call Forward All Calls interacts with Mis-operation of Call Transfer

A telephone user can make calls while a telephone is in an active call-forward mode. The user can also use the Three Party Service feature. If the user mis-operates, a recall will ring the Controlling Party telephone (if it is programmed to do so), even though it is in a call-forward mode.

Call Forward No Answer interacts with MPO

During a mis-operated Call Transfer when the transferred party is ringing with no answer, if the option for mis-operation in the Customer Data Block is STD, then the mis-operated call will be handled by the Call Forward No Answer feature. However, the treatments for mis-operation (other than STD), have priority over Call Forward No Answer treatments.

Multiple Appearance DNs interact with MPO

When a call has been transferred improperly and it is recalling, if the transferring telephone used a DN that appears on other telephones as well, the recall will only ring at the telephone that was the transferring telephone.

The Break-In to Enquiry Calls feature interacts with MPO

If either the Controlling Party or the Active Party has a Warning Tone denied Class of Service, or if an enquiry call is in the dialing or ringing state, then Break-In by the attendant is ignored.

A switch-hook flash, use of the Ground button, or Register Recall will be ignored for dial or Digitone-type telephones during a Break-In conference. Use of the Conference key on an SL-1 or digital telephone will be ignored during Break-In as well.

Call Waiting interacts with MPO

When a dial or Digitone-type telephone is assigned a Class of Service with both Call Waiting allowed (CWA) and Three Party Service allowed (TSA), a consultation connection is set up when the user answers a waiting call during an established call. To toggle back and forth between calls, the TGLD Control Digit is used, instead of the switch-hook flash.

Whether or not the MPO software is equipped on a system, if a dial or Digitone-type telephone user answers a waiting call and hangs up, the system treats this as a mis-operation The Controlling Party telephone will be re-rung with a call from the Held Party who was accidentally mishandled.

If a dial or Digitone-type telephone user attempts to set up a connection to a telephone that is busy which has Call Waiting allowed, the Controlling Party hears ringback tone and the Active Party hears Call Waiting Tone. If the controlling Party hangs up before the Active Party answers the Call Waiting call, then the Held Party is disconnected regardless of the MPO options. The Active Party will no longer hear Call Waiting Tone after this happens.

Call Waiting Redirection interacts with Recovery on Mis-operation of Call Transfer with Ring No Answer

If a transferring party tries to set up a consultation connection with a busy telephone that has Call Waiting allowed, the call will be put into a Call Waiting mode. The transferring party hears Ringback Tone. If the transferring party goes on-hook to complete a transfer before the transferred party answers the Call Waiting call, a mis-operation is detected by the MPO software.

If the transfer is completed after the Call Waiting Redirection Call Forward No Answer timer has expired, the call is removed from a Call Waiting mode at the transferred party. The call is redirected to the Call Forward No Answer DN programmed for the transferred party telephone.

If the transfer is completed before the Call Waiting Redirection Call Forward No Answer timer expires, the treatments vary depending on the Ring No Answer options selected in LD 15.

- STD – Call Waiting Redirection redirects the unanswered Call Waiting call when the Call Forward No Answer timer expires
- ATN, DIS, OVF, AAR, DAR – the Ring No Answer recovery option in LD 15 operates instead of the Call Forward No Answer feature. Therefore, the recovery option operates instead of the Call Waiting Redirection feature.

Night Service interacts with MPO

During Night Service, mis-operated calls which are routed to the attendant are re-routed to a defined night DN, if there is one. Once the call is re-routed to a night DN, Night Service/Enhanced Night Service options override the MPO mis-operation treatment options.

- External calls, other than DID calls, are queued until answered.
- if Enhanced Night Service is configured on a system, DID calls that are routed to the night DN are queued up if it is busy.
- TIE calls are disconnected if the night DN is busy.

The night DN rings continuously.

However, if NFNA (Night Forward No Answer ringing cycles) is programmed in LD 15 (on systems with Attendant Forward No Answer software package 134), the call will be disconnected after it has rung the programmed number of times. If the telephone has Call Forward No Answer allowed, the call will forward.

If the call came in on a DID trunk, the ring cycles are determined by the DFNR setting in the Customer Data Block.

Priority Override/Forced Camp-On interacts with MPO

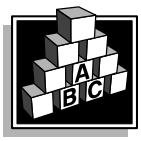
If the Priority Override/ Forced Camp-On (POVR software package 186) is equipped, and a consultation call is made to a busy telephone, the Controlling Party must perform a Register Recall and dial any Control Digit to return to the Held Party. Without that software, the user can perform a simple Register Recall in that situation and return to the Held Party.

If you have this software package on your system be sure to tell your users how to return to a Held Party if they call a busy telephone during a consultation attempt.

Group Call and Call Join interacts with MPO

If there is a Group Call on a key on a digital or SL-1-type telephone, it cannot be joined with a call on another key.

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Enhanced Music on Hold

Music can be given to a Held Party if the Enhanced Music software package is equipped.

Table 163
Software requirements

Release required	Software package(s) required
14.46E (when used with MPO) 12 (without MPO)	119 – Enhanced Music (EMUS) 7 – Recorded Announcement (RAN)

Multi-Party Operations Enhancements

The enhancements offered by this software package pertain to the Three Party Service feature of Multi-Party Operations.

Table 164
Software requirements

Release required	Software package(s) required
16.67G	141 – Multi-Party Operations (MPO) 131 – Supplementary Features (SUPP) 197 – French Type Approval (FRTA)

Patience Tone

A Controlling Party can set up a consultation connection and then put the Active Party on hold by using the Register Recall and dialing a Control Digit. This enhancement allows the party on hold to hear a tone instead of silence.

Ringback to external parties after mis-operation

If the Controlling Party goes on-hook and it is treated as a mis-operation by the system, the Controlling Party telephone can be re-rung immediately. The MPO Enhancement allows the external Held Party to hear Ringback Tone while the Controlling Party telephone is being re-rung. This is the feature that requires the FRTA software package listed in the chart above.

Control tips

- Monitor your CDR printouts for evidence of mis-operated transfers. Look for “S” records and “N” records (many of them will be of a short duration).These records can indicate that external callers are not being handled properly by your internal users when they attempt to transfer.

  Some treatments can have a negative impact on your callers and your business.

  Find out the DN(s) of the user(s) from the CDR records and train these users again on the use of the Three Party Service options. You could also reassess the treatments you have chosen so that mis-operated calls are handled appropriately.

Administration tips

- FFC codes and the SPRE code cannot begin with a digit that is the same as one of the MPO Control Digits. If an FFC or a SPRE code begins with the MPO Control Digit, it will be processed as a Control Digit when an MPO situation arises.
- Discuss the call treatment options available with your system supplier. Take your users into consideration along with the types of callers that your users handle. Monitor what is happening after you implement your selections. You might have to make changes until you find the optimum configuration for all concerned.
- Determine if the users on your system will probably delay too long before entering Control Digits. If this will probably happen, you should also determine if the users will feel comfortable performing

a Register Recall to reconnect to a caller or whether they would prefer to have an automatic call treatment occur. You must also determine the call treatments that best suit your callers in this situation.

The safest setting for the Three Party Service Timer is the default (14 seconds). If the Controlling Party waits too long to dial a Control Digit, the user can perform a Register Recall during Overflow Tone and reconnect to the Active Party. The user can try to dial the Control Digit again without disconnecting either of the other two parties.

If Overflow Tone times out, you can configure the system so the user is automatically connected to the Active Party or is connected when they perform a Register Recall. Refer to the part in this module where the Three Party Service Timer is discussed.

Once you know the behavior of your users and the types of callers they handle, you can choose the setting for the CDTO timer. You can decide whether the MHLD setting should be YES or NO in LD 15. Discuss the settings with your system supplier. Follow-up with the users after you have implemented the features and timers to find out if modifications or further training is required.

Training tips

- It is not recommended that you mention all of the details related to the MPO features during training unless the users ask about them. Focus on how to operate the features, what to avoid, and what to do if in doubt.
- Tell your users that if they hear Overflow Tone when using Three Party Service they should use the switch-hook flash.
- Recovery of Mis-operation of Call Transfer will not work if the transferred party is external to the system. It works if the Held Party is external. Train users until they are comfortable transferring calls so they will not rely on the Recovery feature.
- If you have chosen to implement the Recall Ringing Cadence, tell users to make a point of answering when their telephones ring with this special cadence. The callers need their help since an earlier

transfer did not work. This is especially important if the caller is about to be disconnected as the next part of the treatment of the mis-operated Call Transfer, if the recall is not answered. Let the users know what the Recall Ringing Cadence sounds like during training.

- Stress during training that users must be careful to wait for an answer before transferring calls and advise them of the consequence of not waiting. For example, if the transferred party is busy with Call Waiting allowed, the Controlling Party hears ringback but if the call is transferred, the Held Party will be disconnected. Mis-operations will be greatly reduced if users transfer calls only after getting an answer from the consulted party.
- Users who have more than one DN or a Call Waiting key on a digital or SL-1-type telephone should practice the Call Join feature in the training sessions until they are comfortable with the feature.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic Multi-Party Operations features and/or the optional related features associated with the basic feature.

Table 165
Checklist

Basic	Optional	Preparation
✔		Decide which users are to have Call Transfer allowed and which users are to have Three Party Service allowed instead.
✔		Decide which telephones need Conference 6 capability.
✔		Decide which recovery options you want for mis-operation of Call Transfer on Ringing No Answer (internal calls, external calls). Decide which recovery options you want for the “all other cases” scenarios (internal calls, external calls).
✔		Decide what Control Digits should be defined.

— continued —

Multi-Party Operations

Table 165
Checklist (Continued)

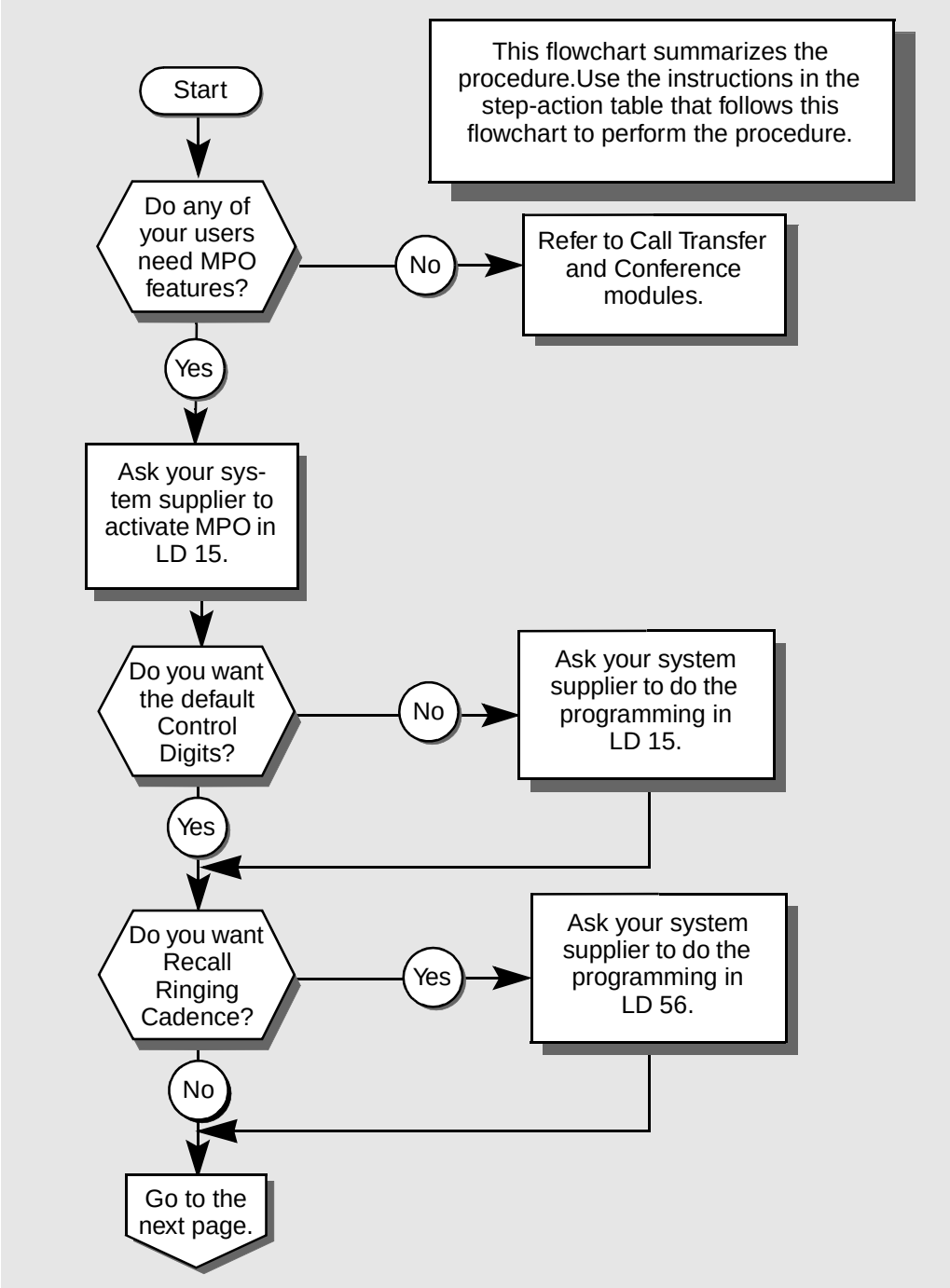
Basic	Optional	Preparation
✔		Decide what setting you want for the Three Party Service timer (CDTO).
✔		If you have dial telephones that have a DTN Class of Service, consider changing them to DIP or consider implementing the Ignore Switch-hook Flash feature. Arrange for installation of Ground buttons on the telephones for users who need features that require a Register Recall.
✔		If your analog single line telephones are dial telephones, decide whether you want to implement Forced Register Recall.
✔		Decide if users should be forced to perform a Register Recall to return to a held call after Special Dial Tone times out.
✔		Decide if alternative treatments are/are not required for the Control Connection Disconnect option.
	✔	Set up training on: ◆ the use of Control Digits ◆ how to transfer calls ◆ the use of switch-hook flash during Overflow Tone ◆ the use of Call Join ◆ the sound of Recall Ringing cadence
	✔	Decide whether you want a Recall Ringing Cadence programmed. Investigate what type(s) of ringing you can have based on the tone generating cards in your system.
	✔	Decide whether you want Enhanced Music.
	✔	Decide whether you want Patience Tone.
	✔	Decide whether you want Ringback to External Parties.

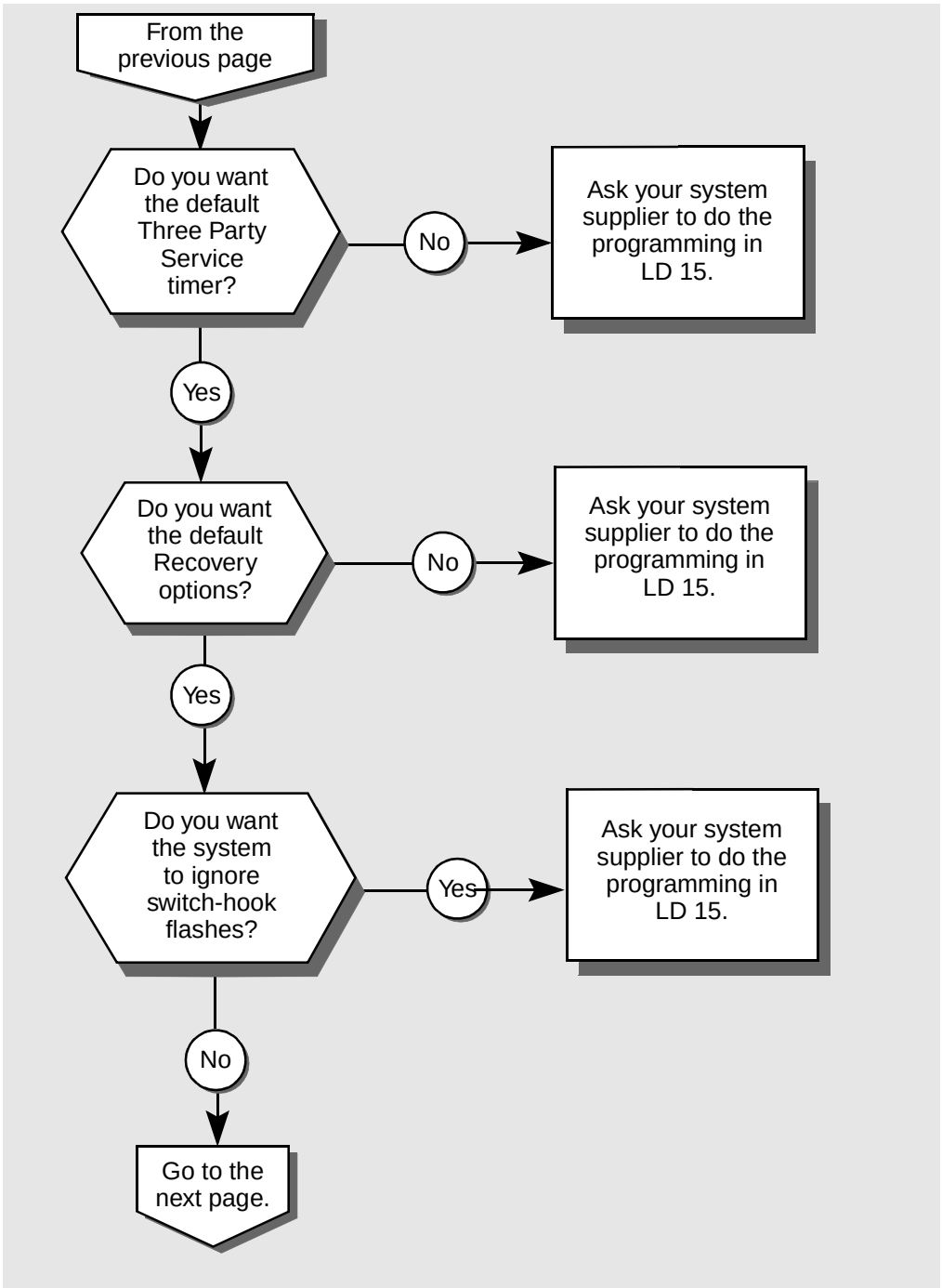
What's next?

A flowchart follows which summarizes the implementation decisions and procedures for Multi-Party Operations.

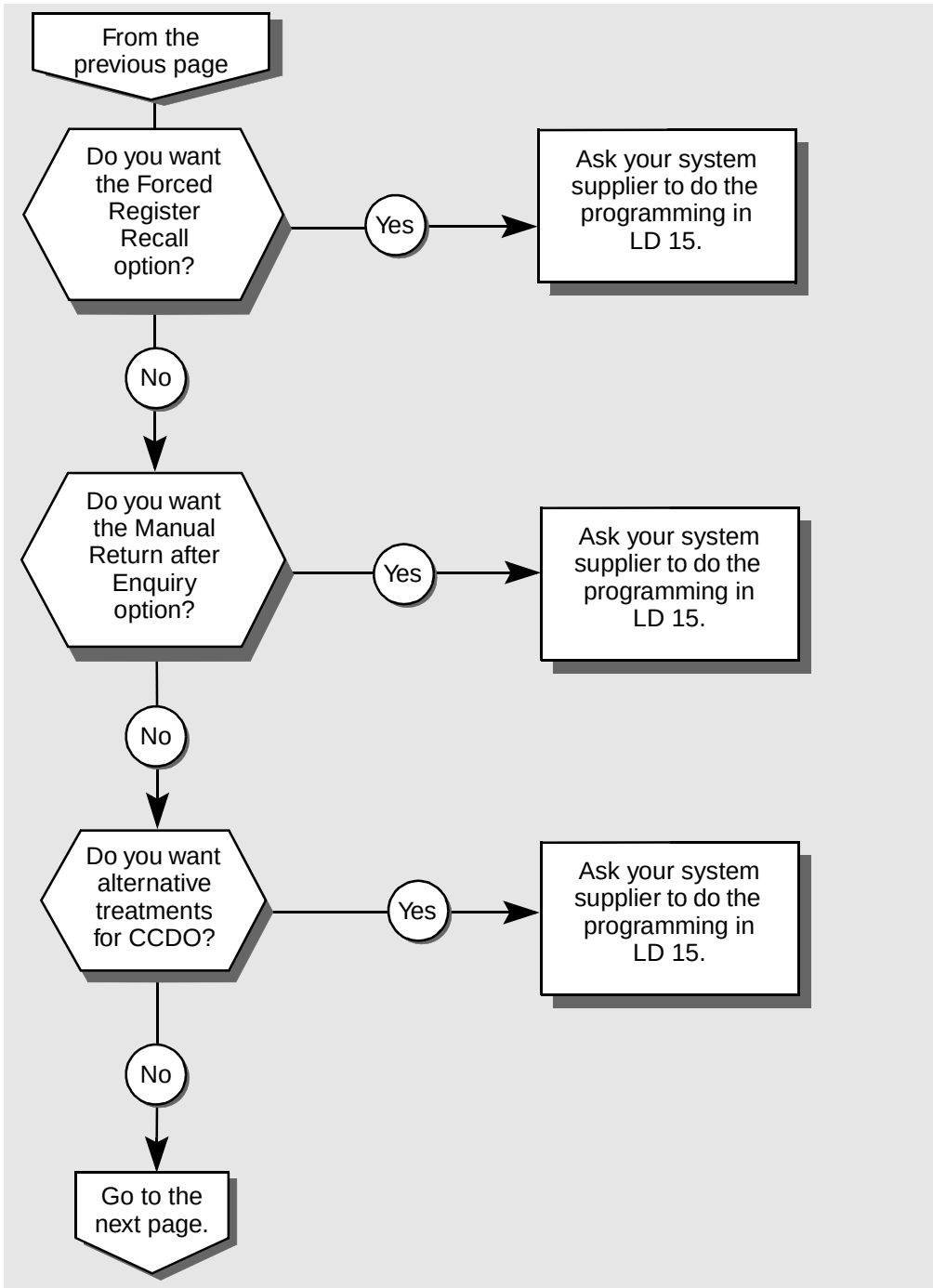
A step-action table follows the flowchart. Use it to do the programming steps necessary to implement this feature.

Multi-Party Operations

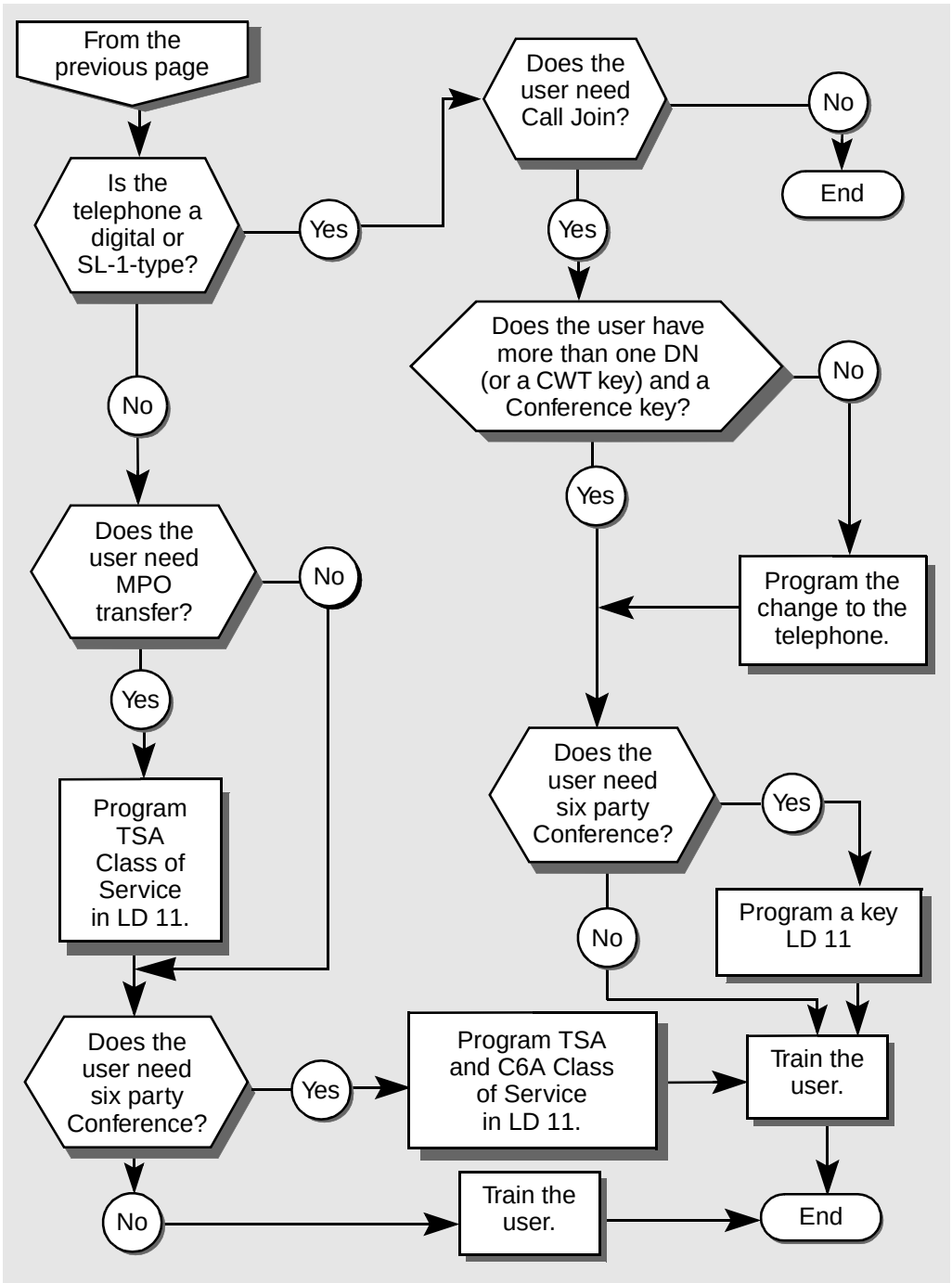



From the previous page
Do you want the default Three Party Service timer?
No
Ask your system supplier to do the programming in LD 15.
Yes
Do you want the default Recovery options?
No
Ask your system supplier to do the programming in LD 15.
Yes
Do you want the system to ignore switch-hook flashes?
Yes
Ask your system supplier to do the programming in LD 15.
No
Go to the next page.

Multi-Party Operations



Multi-Party Operations



Multi-Party Operations

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Multi-Party Operations features only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION	
1	**Log in.**	
	For information on proper login procedures, see *Basic programming instructions* in this book.	
2	**Choose the feature you want to program.**	
	If	**Do**
	Three Party Service	step 3
	Conference 6	step 3
	Call Join	step 3
3	**Choose your starting point from the choices below.**	
	If	**Do**
	new dial or Digitone-type telephone	step 6
	change to a dial or Digitone-type telephone	step 7
4	**Choose your starting point from the choices below.**	
	If	**Do**
	new dial or Digitone-type telephone	step 14
	change to a dial or Digitone-type telephone	step 7

— continued —

STEP	ACTION
5	**Choose your starting point from the choices below.**

If	Do
new digital or SL-1-type telephone	step 22
change to a digital or SL-1-type telephone	step 23

6 Program Three Party Service on a new dial or Digitone-type telephone.

```
> LD 10
REQ     NEW     Program a new telephone
TYPE    500     Dial or Digitone-type telephone
TN      L S C U Input the Terminal Number of the telephone
```

program the basics... Refer to Tasks 1– 6 for information.

carriage return until you see the prompt CLS

```
CLS     TSA     Three Party Service allowed
```

Go to step 24.

7 Program a change to the Three Party Service feature on a dial or Digitone-type telephone.

```
> LD 10
REQ     CHG     Program a change to an existing telephone
TYPE    500     Dial or Digitone-type telephone
TN      L S C U Input the Terminal Number of the telephone
ECHG
```

— continued —

Multi-Party Operations

STEP	ACTION
7 continued ...	
	If — **Do**
	using “Easy Change” — Input YES and go to step 8.
	not using “Easy Change” — Input NO or <cr> and go to step 11.
	For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.
8	**Program an “Easy Change” to an existing dial or Digitone-type telephone.**
	If — **Do**
	telephone is changing to Three Party Service allowed — step 9
	telephone is changing to Three Party Service denied — step 10
9	**Allow Three Party Service.**
	ITEM CLS TSA — Change the Class of Service to Three Party Service allowed If the telephone has XFA (Call Transfer allowed), it automatically changes to XFD (Call Transfer denied) when you allow Three Party Service. If you type XFA followed by TSA, the last one typed is the one that will be allowed. The other will be denied, automatically.
	Go to step 24.

— continued —

STEP	ACTION
10	**Deny Three Party Service.**
	ITEM CLS TSD — Change the Class of Service to Three Party Service denied Go to step 24.
11	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**
	Carriage return until you see the prompt CLS **If** — **Do** telephone is changing to Three Party Service allowed — step 12 telephone is changing to Three Party Service denied — step 13
12	**Allow Three Party Service**
	CLS TSA — Change the Class of Service to Three Party Service allowed Go to step 24.
13	**Deny Three Party Service.**
	CLS TSD — Change the Class of Service to Three Party Service denied Go to step 24.

— continued —

Multi-Party Operations

STEP	ACTION
14	**Program Conference 6 on a new dial or Digitone-type telephone.**

```
> LD 10
REQ     NEW       Program a new telephone
TYPE    500       Dial or Digitone-type telephone
TN      L S C U   Input the Terminal Number of the telephone
```

program the basics... Refer to Tasks 1– 6 for information.

carriage return until you see the prompt CLS

```
CLS     TSA C6A   Three Party Service allowed and Conference 6 allowed
```

Go to step 24.

15	**Program a change to the Conference 6 feature on a dial or Digitone-type telephone.**

```
> LD 10
REQ     CHG       Program a change to an existing telephone
TYPE    500       Dial or Digitone-type telephone
TN      L S C U   Input the Terminal Number of the telephone
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 8.
not using “Easy Change”	Input NO or <cr> and go to step 11.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

STEP	ACTION	
16	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**	
	If	**Do**
	telephone is changing to Conference 6 allowed	step 9
	telephone is changing to Conference 6 denied	step 10
17	**Allow Conference 6.**	
	ITEM CLS TSA C6A	Change the Class of Service to Three Party Service allowed and Conference 6 allowed
	Go to step 24.	
18	**Deny Conference 6.**	
	ITEM CLS C6D	Change the Class of Service to Conference 6 denied
	Go to step 24.	
19	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**	
	Carriage return until you see the prompt CLS	

— continued —

Multi-Party Operations

STEP	ACTION	
19 continued ...		
	If	**Do**
	telephone is changing to Conference 6 allowed	step 12
	telephone is changing to Conference 6 denied	step 13
20	**Allow Conference 6.**	
	CLS TSA C6A	Change the Class of Service to Conference 6 allowed
	Go to step 24.	
21	**Deny Conference 6.**	
	CLS C6D	Change the Class of Service to Conference 6 denied
	Go to step 24.	
22	**Install a new digital or SL-1-type telephone with Call Join capability.**	
	Ensure the telephone has at least two DNs assigned. Refer to Tasks 7-19 for information on how to assign a DN to a key. If the telephone has a Call Waiting key, it can be used instead of a second DN for Call Join. Refer to the Software Features Guide for information on the Call Waiting feature.	
23	**Program a change to a telephone to allow the Call Join feature.**	
	Assign a second DN to the telephone using an available key or remove a feature from a key and replace it with a DN. Refer to Task 22 for information on how to change key assignments on digital telephones. (Use the same information for SL-1-type telephones). Or if you prefer, If the telephone only has one DN, you can change a key to a Call Waiting key. Refer to the Software Features Guide for more information.	

— continued —

STEP	ACTION
24	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 25.

STEP	ACTION
25	**Check that the programming which you have just done is correct.**

Verify that the new telephone or the changed telephone behaves as expected when you attempt to use the MPO features.

If	Do
feature works properly	step 26
feature does not work properly	step 1

STEP	ACTION
26	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 27

— continued —

Multi-Party Operations

STEP	ACTION
27	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

28 Verify that the data dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 29

— continued —

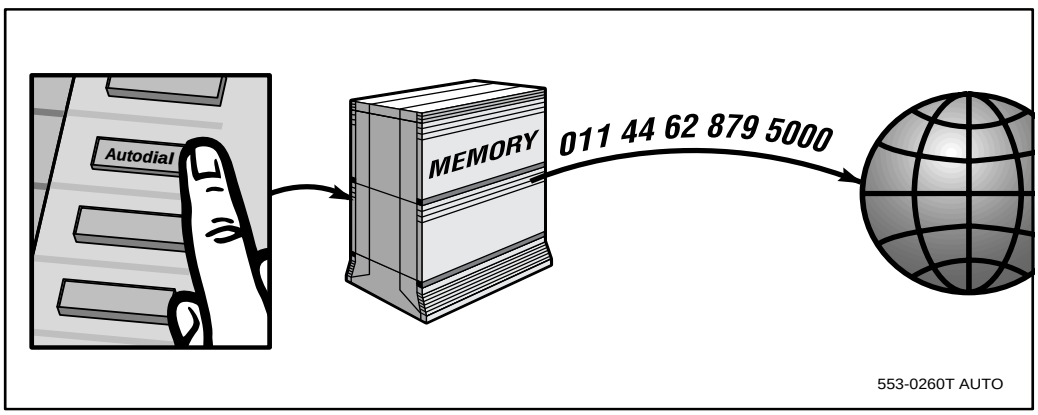
STEP	ACTION
29	**Terminate this overlay program.**
	. ****
30	**Terminate this programming session.**
	Log off.
	> LOGO
31	**You have completed the programming required to add or change an MPO feature on a telephone.**
	END

Multi-Party Operations

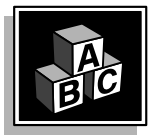
Autodial

Purpose

The Autodial feature allows a user who is initiating a call to press one key to make a call. A telephone number has been associated with that key in the memory of the system. The number is automatically outpulsed for the user.



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Autodial feature
- what you need to know to manage interactions with other features

Setting up the feature

Autodial comes with the communication system, but the telephones are not programmed to use the Autodial capability. You select the telephones that are to have Autodial, then you use the procedure in this module to program each one.

Digital telephones, SL-1-type telephones and attendant consoles

The feature is assigned to a key on a proprietary telephone. It can be assigned to attendant consoles as well.

Autodial keys cannot be assigned to M3000 digital telephones. The M3000 has a built-in directory that can be programmed to display hundreds of stored numbers on the large display of the telephone. Therefore, the Autodial feature is not required.

You can assign more than one Autodial key on a telephone or console.

Autodial keys can be used to store frequently called numbers. Some people use several Autodial keys to store different numbers.

The alternative is to use one Speed Call key to store several numbers on a Speed Call list. With Speed Call, the user must dial one, two, or three digits after pressing the Speed Call key in order for a number to be outpulsed. Therefore, some users find the Autodial feature quicker, and easier to use than the Speed Call feature. Refer to Task 31, *Speed Call and System Speed Call* for further information.

It is not uncommon to see modules added to telephones so that the users can have rows of Autodial keys.

Autodial

Some people like the Autodial feature because it gives them quick access to a telephone number. They have no need to remember the number or look it up.

- This is beneficial in a help desk or an emergency desk environment. The user can press an Autodial key to call the police and another key to call the fire department.
- People who make many calls every day find it useful to have Autodial keys for the numbers they dial frequently.

Dial and Digitone-type telephones

There are models of Digitone-type telephones that have buttons that allow you to store numbers in the memory of the telephone. This is different from the way the Autodial feature stores numbers. Numbers stored on Autodial keys of digital and SL-1-type telephones are stored in the system memory.

If a user of a dial or Digitone-type telephone is interested in using Autodial, you can program Autodial as a feature on the telephone, if you have the Flexible Feature Code software package and release 20 equipped on your system. For further information, refer to the *Improving feature performance* part of this module.

Programming the telephone

When you assign the Autodial (ADL) feature to a key, you can determine the maximum number of digits the user will be able to store. The choices are 4, 8, 12, 16, 20, and 23 digits. The default is 16 digits, if you do not enter any number when you are programming.

You can also program the actual digits to be stored. It is not necessary for you to do this, since the user can program and re-program the stored number using the telephone.

When you print a TN Block printout of a telephone with an Autodial key, it shows you the number that the user has stored on the key.

Autodial

The types of numbers that can be stored

- internal DNs
- external telephone numbers including the trunk group access codes
- ESN numbers including BARS and NARS access codes
- trunk group access codes such as paging trunk access codes
- Authorization Codes (Release 13 and later)

Some users store part of a number that is frequently dialed and finish the remaining part of the call manually.

Examples:

- If a user calls a certain city or area code in North America frequently, an Autodial key could have the trunk group access code and the area code stored. The user would dial the remaining digits each time they made a call.
- If there is zone paging equipment, the user could store the paging access code on the Autodial key and manually dial the desired zone before paging.

Pauses can be stored if you require the system to pause after outpulsing one digit, before outpulsing the next.

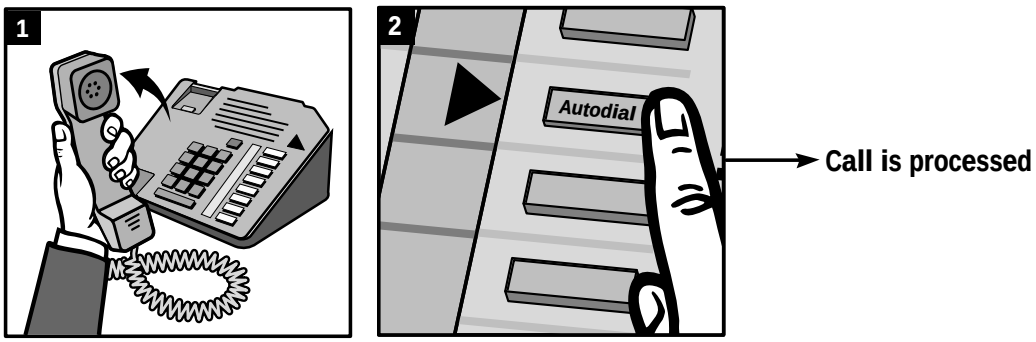
You enter the asterisk (*) from the key pad when you are storing the number. This * indicates to the system that it should pause for three seconds before outpulsing the next digit that follows the *.

Using the feature

SL-1-type and digital telephones

Making a call

The user presses the Autodial key after getting dial tone. The call will be processed and outpulsed automatically.



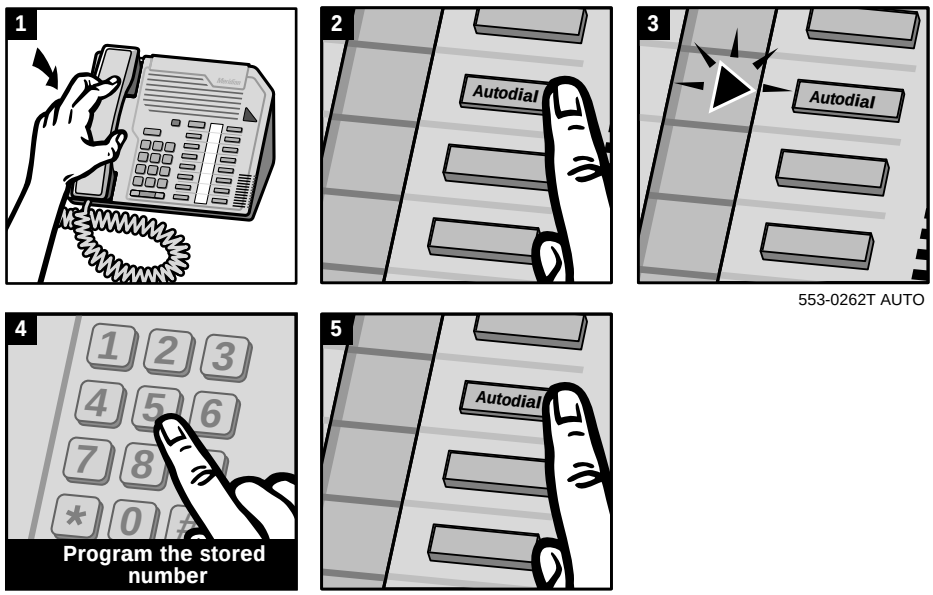
553-0261T AUTO

Autodial

Storing a number

If a user wants to change the number that is stored on the key, it must be done when the telephone is in an idle state. If the telephone is receiving dial tone or has an active call, the Autodial number cannot be changed.

If the telephone is idle, and the user presses the Autodial key, the indicator beside it begins to flash. The user presses the keys on the key pad to enter the digits in the number to be stored. When all the digits have been entered, the user presses the Autodial key again and the indicator is turned off.



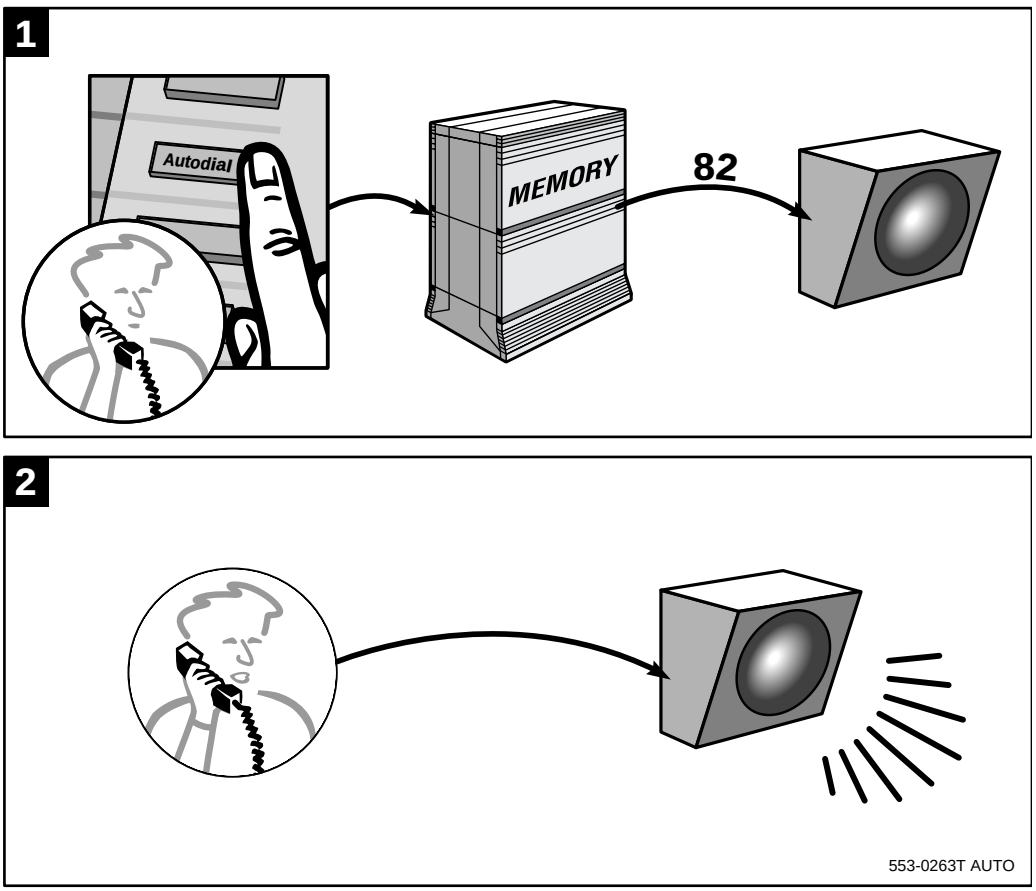
Interactions with other features

Autodial works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems. Proper training can reduce the number of repair calls of this nature.

Paging trunks interact with Autodial

Trunk group access codes can be stored on Autodial keys. Paging trunks have trunk group access codes. Users dial the access code in order to speak on the paging system. If a user pages frequently, assign an Autodial key to the telephone and have the user store the paging trunk access code on the key. This simplifies access to the system.



The attendant console is the only terminal that can be assigned a direct access paging key (PAG). Use of the PAG key overrides anyone else on the paging system.

Autodial

Authorization Codes interact with Autodial

If a user wants to store an Authorization code on an Autodial key, it must be stored in the following format:

- the SPRE code
- plus the digit 6
- plus the Authorization code
- (optionally followed by the telephone number)

If the telephone number is being stored, the user must store an octothorpe (#) after the Authorization Code. The # indicates to the system where the Authorization Code ends and where the digits in the telephone number begin. The # is counted as a digit when the system compares the number of digits stored with the maximum number of digits programmed for the Autodial key.

The telephone number cannot be stored using the Authorization Code Conditionally Last capability. In other words, the telephone number cannot be stored with pauses following it, awaiting an Authorization code prompt tone, at which time the Authorization code would be outpulsed.

A user can store an invalid Authorization Code on an Autodial key. The Authorization Code is only validated when the call is made and the Authorization Code is outpulsed.

Last Number Redial interacts with Autodial

If a user makes a call using the Autodial feature, it is stored by the system as the last number dialed. If the user activates the Last Number Redial feature for the next call, the Autodial telephone number will be outpulsed.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Dial and Digitone-type telephones

Table 166
Software requirements

Release required	Software package(s) required
20	139 – Flexible Feature Codes (FFC)

When a dial or Digitone-type telephone handset is off-hook for a pre-programmed number of seconds and no number is dialed, an Autodial number can be outpulsed, automatically.

Flexible Feature Code Enhancements and Release 20 software are required.

Your system supplier can program an Autodial feature activation code that the users will dial in order to activate the Autodial feature and store an Autodial number. The users must dial a separate code to deactivate Autodial.

There is a delay timer that must be programmed on a customer-wide basis in LD 15. This delay is the amount of time the dial or Digitone-type telephones in that customer group will have to be off-hook before the Autodial number will be outpulsed. The range for this timer is two to 20 seconds. It must be set in increments of two seconds. A setting of zero means the feature is disabled for the customer group. Zero is the default setting.

Each telephone that is to have the Autodial capability must have it activated as a feature (FTR) in LD 10. You program the FTR prompt with an ADL response followed by a space. After the space, you type the maximum number of digits that the user can store. The range is 0 – 31 digits. If you type 0, the feature is disabled for that telephone.

Following that:

- you can enter the number to be stored. Type a space after the maximum digits entry if you want to type the stored number. After the space type the digits in the stored number followed by a carriage return.
- you can allow the user to store the number. Carriage return after the maximum digits entry.

Control tips

- If you do not want users to change the stored numbers on Autodial keys, do not show them how to do it when you train them to use the feature.

  Alternately, you can assign a different feature key called Enhanced Hot Line if you want guaranteed control. A user cannot change the number stored on an Enhanced Hot Line key from the telephone.

- Users sometimes store numbers that they are restricted from calling. The system evaluates the restrictions programmed on the telephone before the call is processed. When the users attempt to make these calls using Autodial keys they continue to be blocked.

  It is important to program TGAR restrictions on telephones of unauthorized users who might attempt to use the paging trunks by dialing paging trunk group access codes or by using Autodial keys.

- As a security measure, for dial and Digitone-type telephone users, you can use this feature to outpulse an emergency number, if users leave their handsets off-hook.

- Users sometimes leave their handsets off-hook when they do not want to be disturbed. When Digitone-type telephone users leave their handsets off-hook, it ties up digitone receiver cards. This can cause other users to experience delayed dial tone. To prevent this, you can program an internal number as the outpulsed number when users leave their handsets off-hook. The person at the Autodial number can tell the users, to use other features, such as Call Forward All Calls, when they do not want to be disturbed. Doing this can reduce the usage of the digitone receivers on your system and improve your grade of service for dial tone.

Administrative tips

- When you look at TN Block printouts of the telephones on your system, pay attention to the Autodial keys and the numbers that are stored. You can discover long distance numbers that are appearing on your CDR records that users deny calling.
- When a call is made using an Authorization Code, and it is dialed manually, the Authorization Code does not appear on the telephone display.
  However, if a user stores an Authorization Code on an Autodial key of a telephone with a display, the Authorization Code will display when a call is made using the key. Unauthorized users may see the Authorization Code on the display and make calls using the code at a later time. Tell users to store Authorization Codes on Autodial keys at their own risk.
- The Stored Number Redial feature is similar to Autodial. Using Stored Number Redial, the user can store one number and redial it when desired, using feature access codes, or keys. A unique aspect of Stored Number Redial is that it allows the user to store a number while a call is active.

  Other features that make placing calls easy are:

  – Last Number Redial

  – Hotline

  Refer to the Software Feature Guide for further information on these features before you choose to implement Autodial.

Autodial

Training tips

- When you look at TN Block printouts of the telephones on your system, pay attention to the Autodial keys and the numbers that are stored. Look for numbers that do not make sense, such as partial access codes or partial telephone numbers. This can indicate that the user needs further training on how to store a number on the key.
- Tell users of dial and Digitone-type telephones about the Autodial delay timer. They must dial a number within the number of seconds you programmed for this timer. Tell them what number will be dialed, automatically, if they delay too long and you have pre-programmed the Autodial number.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic Autodial feature and/or the optional related features associated with the basic feature.

Table 167
Checklist

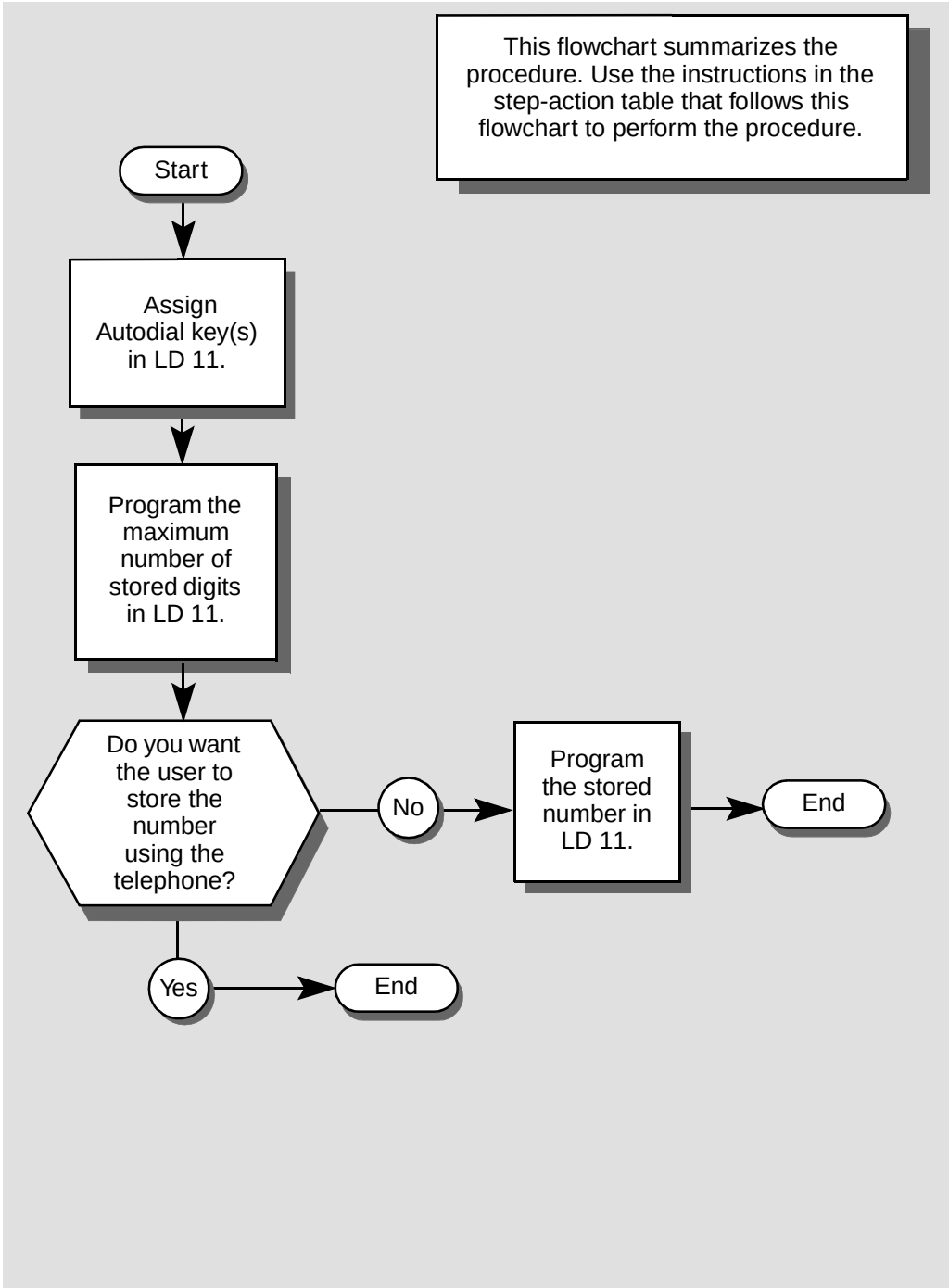
Basic	Optional	Preparation
✔		Decide how many Autodial keys the user needs.
✔		Determine if there are available key(s). If not, consider upgrading the telephone to one with more keys or adding a module with extra keys.
✔		Decide for each key, what the maximum number of digits to store will be.
✔		Decide if you are going to be the one to program the stored number or if you will train the user to store and change a number using the telephone.
✔		Plan to train users on making calls using Autodial.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures for Autodial.

A step-action table follows the flowchart. Use it to do the programming steps necessary to implement this feature.

Autodial


This flowchart summarizes the procedure. Use the instructions in the step-action table that follows this flowchart to perform the procedure.
Start
Assign Autodial key(s) in LD 11.
Program the maximum number of stored digits in LD 11.
Do you want the user to store the number using the telephone?
No
Program the stored number in LD 11.
End
Yes
End

Autodial

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Autodial feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, see *Basic programming instructions* in this book.
2	**Choose the proper starting point from the choices below**

If	Do
you are programming an Autodial key on a new telephone	step 3
you are changing a key to assign Autodial on an existing telephone	step 4
you are changing existing Autodial key parameters	step 4

3	**Program the Autodial feature on a new SL-1-type or digital telephone.**	
	> LD 11	
	REQ NEW	Program a new telephone
	TYPE	Input correct type of SL-1 or digital telephone
	TN L S C U	Input the Terminal Number of the telephone
	program the basics...	Refer to Tasks 7-19 for information.
	carriage return until you see the prompt KEY	
	KEY	

— continued —

Autodial

STEP	ACTION

3 continued ...

If	Do
you want to program the default stored number maximum length and no stored number	XX ADL <cr> where XX represents the key number ADL stands for Autodial
you want to program a stored number maximum length and no stored number	XX ADL YY <cr> where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) <cr> leaves the stored number field blank. The user can store a number using the telephone.
you want to program a stored number maximum length and a stored number	XX ADL YY Z....Z where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) Z....Z represents the stored number
Go to step 10.	

— continued —

STEP	ACTION
4	**Print the information associated with the telephone.**

If	Do
you know the TN of the telephone	step 6
you do not know the TN of the telephone, you know only the prime DN of the telephone	step 5

5 Print the DN Block of the telephone.

> LD 22		(Release 17 or later)
> LD 20		(Release 17 or later)
> LD 10	or LD 11	(Release 19 or later)
> LD 32		(Release 19 or later)

REQ	PRT	Request a printout
TYPE	DNB	DN Block
DN	X..X	Input the prime DN of the telephone

You get a printout of the TN of the telephone.

Go to step 6.

— continued —

Autodial

STEP	ACTION
6	**Print the TN block of the telephone.**

> LD 20 (pre-Release 19 software)

> LD 10 or LD 11 or LD 20 (Release 19 or later software)

REQ	PRT	Request a printout
TYPE	TNB	Terminal Number Block
TN	L S C U	Input the Terminal Number assigned to the other telephone (Loop number, Shelf number, Card number, Unit number)

Choose the key number(s) you want to change.

7	**Program a change to a key on an SL-1-type or digital telephone.**

> LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone

ECHG

If	**Do**
using “Easy Change”	Input YES and go to step 8.
not using “Easy Change”	Input NO or <cr> and go to step 9.

For more information on *“Easy Change,”* refer to the *Basic programming instructions* module of this book.

— continued —

STEP	ACTION	
8	**Program an "Easy Change" to an existing SL-1-type or digital telephone.**	
	If	**Do**
	you want to program the default stored number maximum length and no stored number	**ITEM** KEY XX ADL <cr> where XX represents the key number ADL stands for Autodial
	you want to program a stored number maximum length and no stored number	**ITEM** KEY XX ADL YY <cr> where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) <cr> leaves the stored number field blank. The user can store a number using the telephone.
	you want to program a stored number maximum length and a stored number	**ITEM** KEY XX ADL YY Z...Z where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) Z....Z represents the stored number
	Go to step 10.	
9	**Program a change (not an "Easy Change") to an existing SL-1 -type or digital telephone.**	
	Carriage return until you see the prompt KEY	

— continued —

Autodial

STEP	ACTION

9 continued ...

If	Do
you want to program the default stored number maximum length and no stored number	XX ADL <cr> where XX represents the key number ADL stands for Autodial
you want to program a stored number maximum length and no stored number	XX ADL YY <cr> where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) <cr> leaves the stored number field blank. The user can store a number using the telephone.
you want to program a stored number maximum length and a stored number	XX ADL YY Z....Z where XX represents the key number ADL stands for Autodial YY represents the maximum number of digits in the stored number (YY = 4, 8, 12, 16, 20, 23) Z....Z represents the stored number
Go to step 10.	

— continued —

STEP	ACTION
10	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

STEP	ACTION
11	**Check that the feature works on the telephone which you have just programmed.**

Refer to the *Using the feature* part of this module for instructions on the proper use of the feature.

If	Do
the feature works	step 12
the feature does not work	step 1

STEP	ACTION
12	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 13

— continued —

Autodial

STEP	ACTION
13	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

See the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

STEP	ACTION
14	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 15

— continued —

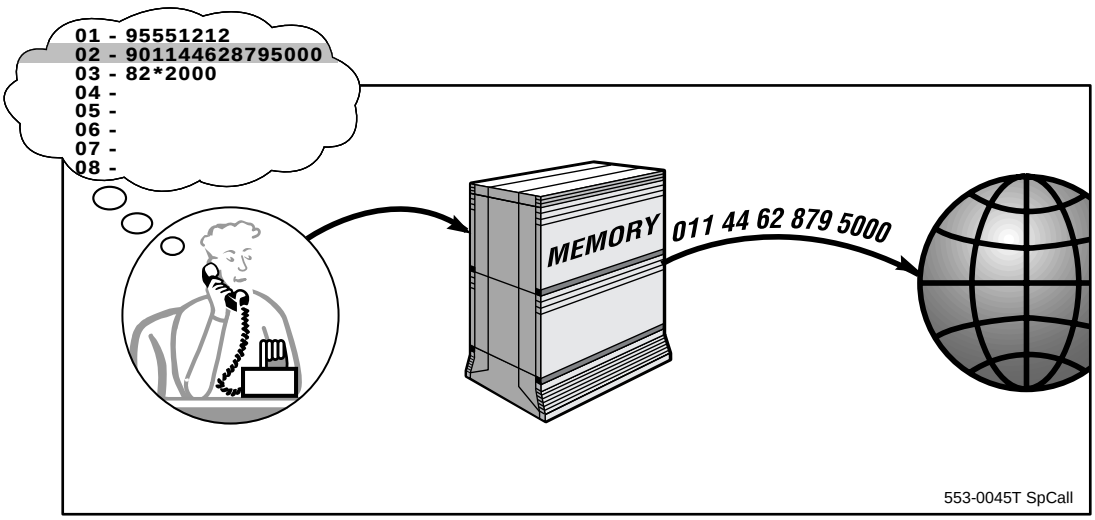
STEP	ACTION
15	**Terminate this overlay program.**
	. ****
16	**Terminate this programming session.**
	Log off.
	> LOGO
17	**You have completed the programming required to add or change the Autodial feature on a telephone.**
	END

Autodial

Speed Call and System Speed Call

Purpose

Speed Call allows you to place calls by dialing very few digits.



Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Speed Call feature
- what you need to know to manage interactions with other features

Speed Call and System Speed Call

Setting up the feature

Speed Call comes with the communication system, but the telephones do not come programmed to use the capability. System Speed Call is a separate software package that is included with most systems today.

You select the telephones that are to have Speed Call and/or System Speed Call, then you use the procedure in this module to program each one.

Numbers to be dialed using the two Speed Call features are stored in lists in the system Memory. The capacity a system has for lists is shared by both kinds of Speed Call (as well as Hot Line lists which are not covered in this book).

Speed Call lists and System Speed Call lists are programmed in overlay program (LD) 18, along with Hot Lines. Overlay program (LD) 18 is beyond the scope of this book. Have your system supplier program the parameters related to the list(s) for you, or, if your maintenance agreement permits, refer to the *X11 input/output guide* and program the list(s) yourself.

If your system has software prior to Release 19, each list must be configured in overlay program18 individually. Release 19 allows up to 100 Speed Call lists to be added or copied at one time.

Before you can program the telephones to have access to either Speed Call feature, each Speed Call list in the system Memory must be configured for the parameters in the table below.

Table 168
Speed Call capacities

Parameter	Description
maximum number of Speed Call lists per system	Release 13 and later– 8191 Prior to Release 13– 255
maximum number of System Speed Call lists per system	Release 13 and later– 4096 Prior to Release 13– 255
maximum number of entries in each list	1000 (prior to Release 13 Speed Call entry limit – 100)
maximum number of digits per entry	31

Speed Call and System Speed Call

System Speed Call

In addition to abbreviated dialing, System Speed call also allows a user to temporarily override their telephone's Class of Service, Trunk Group Access Restrictions, and code restrictions. This provides them temporarily with an Unrestricted Access Restriction level. Users can then have access to toll numbers, as long as the numbers they need to call are stored on a System Speed Call list that they can access. In this way, you can allow users to dial approved long distance numbers only.

Storing numbers

Numbers can be stored on an existing list using the TTY or using a telephone.

When storing an external number on a Speed Call list, enter the appropriate trunk group access code in front of the digits in the call. For example, an external number in North America, such as 555-1212 would be stored as 95551212.

If a pause for dial tone is required between digits, use the asterisk (*). The * gives you a 3 second pause between digits.

If the call is to be routed to another type of system first, and outpulsed from there, find out if that system requires a pause after the trunk access code, before the other digits in the number are outpulsed.

SL-1, Meridian SL-1 and Meridian 1 systems do not require a pause for dial tone after a COT (Central Office Trunk) access code such as 9.

Example: if you want to send calls over a TIE trunk and then outpulse 5551212 from the system at the other end, store the number as follows.

If 82 is the TIE trunk access code and the other system requires a pause for dial tone, store the number as 82*9*5551212. Experiment with the number of pauses until you find a sequence of digits and pauses that works every time.

You can store an octothorpe (use the # key) at the end of the digits to indicate end of dialing. This speeds up outpulsing of the call.

Speed Call and System Speed Call

Users and Controllers

When you program a telephone as a *Speed Call Controller*, a user can program new entries on the Speed Call list, change entries and remove entries using that telephone. The person can also make calls using Speed Call from that telephone.

When you program a telephone as a *Speed Call User*, a person can only dial calls using the Speed Call list(s) assigned. A Speed Call User cannot modify the programming of the entries on the list.

There is no limit to the number of Users who can share one list. You can also designate more than one Controller for one list. However, this is not recommended. One Controller could accidently reprogram entries that other Controllers of the same list have programmed. This results in frustration for the users of the list.

Dial and Digitone-type telephones

Assign Speed Call to a dial or Digitone-type telephone as a feature that the user accesses by dialing a feature code.

Dial or Digitone-type telephones can have access to one Speed Call list only, either as a User or a Controller. These types of telephones can access one System Speed Call list as well, as a User only.

SL-1 and digital telephones

Assign Speed Call to an SL-1 or digital telephone as a feature that the user accesses by pressing a dedicated key. The feature key accesses one list. These telephones can access more than one list. If a user needs access to more than one list, configure more than one key for Speed Call or System Speed Call.

You can program each key to have access to a Speed Call list as a Controller or a User, depending on the needs of the user.

These types of telephones can also use a feature access code to access one System Speed Call list, as a User. You enable that capability in the programming of the telephone.

Using the feature

Dial and Digitone-type telephones

There is a feature access code for Speed Call Control and a different one for Speed Call Use. System Speed Call Use has a separate access code.

Dial telephone users dial the SPRE code plus 76 to use the Speed Call feature and SPRE code plus 75 to control the list.

Refer to the illustrations that follow for Digitone-type telephone instructions.

System Speed Call Use is done with the SPRE code plus 73.

Also, you can set up Flexible Feature Codes of your choice, if you have the FFC software package (139).

SL-1 and digital telephones

Users must press the Speed Call key, after getting dial tone, to make a call using Speed Call. To progam a number, the Speed Call key is pressed when there is no active DN.

The SPRE code plus 73 is used for System Speed Call Use or there can be a key. System Speed Call Control is always assigned to a key.

Entry numbers

Users must dial an entry number after the feature access code or after pressing the feature key. The table which follows shows you what the entry numbers might be.

Table 169
Entry number ranges

Maximum number of entries on list	Entry numbers
10	0–9
100	00–99
1000	000–999

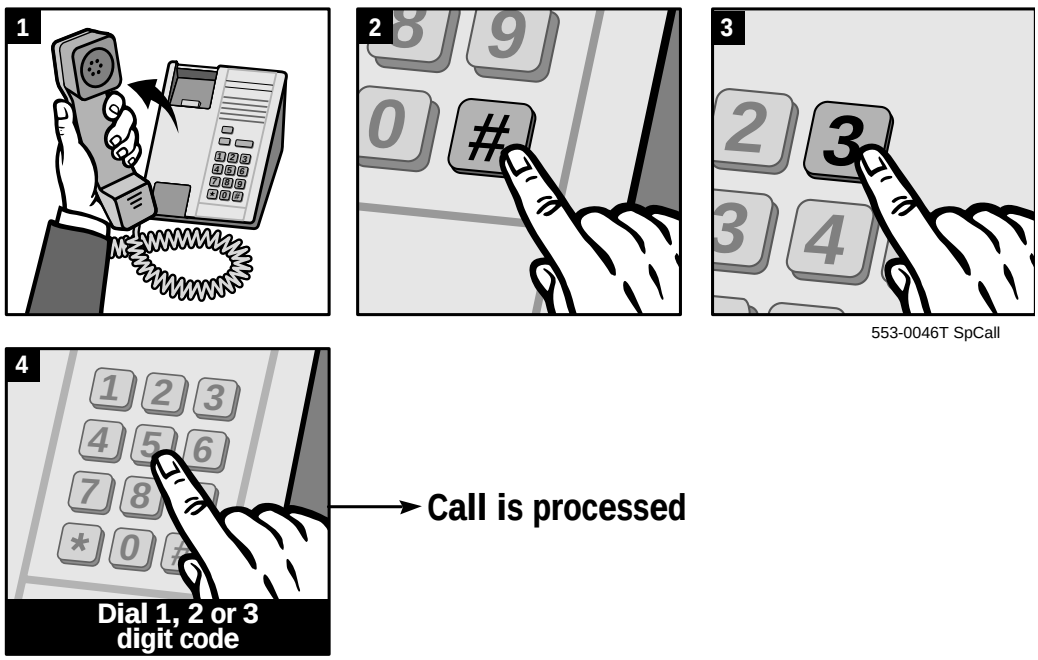
Speed Call and System Speed Call

Example: on a digital telephone, if key number 5 is programmed as a Speed Call User key, and there are 80 numbers on the Speed Call list, lift the handset, press key 5 and dial an entry number such as 42. The digits stored as entry 42 are automatically outpulsed for you.

Using the feature (continued)

Digitone-type telephones

Using Speed Call



Storing a number

Digitone telephone users programmed as Controllers can store numbers on the Speed Call list by pressing #2 followed by the entry number of the item to be stored. The entry number is a one, two or three digit code. The number to be stored follows the entry number.

Speed Call Delimiter

In China, a delimiter signal must be entered between the entry code (1, 2, or 3 digit) and the number that is to be stored. The asterisk (*) character acts as this delimiter. The delimiter capability is activated on a customer basis.

Also, for digitone telephones, when programming Speed Call numbers, an end-of-dialing signal must be entered before hanging up. In China, the octothorpe (#) character acts as this signal. You can program the end-of-dialing signal as something other than an octothorpe, if you wish. After the signal is entered, signifying that dialing is finished, a confirmation tone is heard, if enabled. The end-of-dialing delimiter can be programmed, customer-wide, as mandatory or optional.

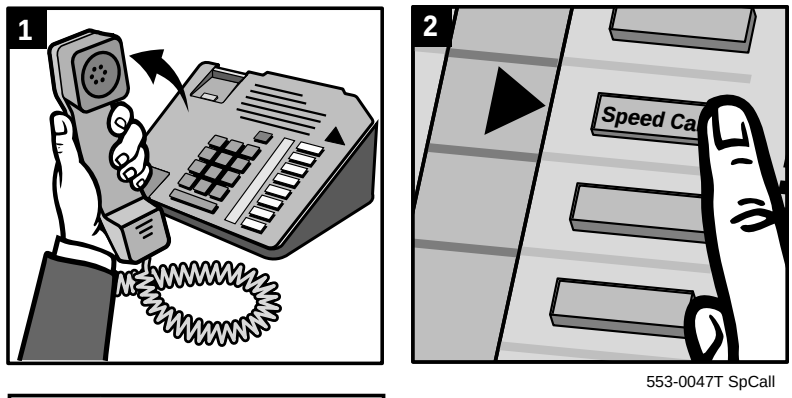
There is also a requirement for the user to enter an end-of-dialing signal before hanging up, when programming Speed Call numbers. In China, the # character acts as the signal. You can program another digit string for a signal, if you want. The user hears a confirmation tone after the signal, if this tone is enabled. The end-of-dialing capability is activated as mandatory or optional, customer-wide.

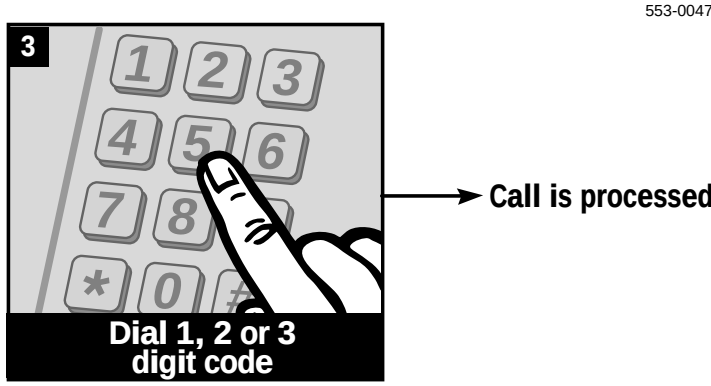
This feature is available for global use as of Release 22.

Speed Call and System Speed Call

SL-1-type and digital telephones

Using Speed Call





Storing a number

Controllers store numbers on the Speed Call list by pressing the Speed Call key. Storing a number will not be possible if the user is hearing dial tone at the moment.

If the lamp associated with the key begins to flash, this indicates that the key has been programmed as a Speed Call Controller key and the user may proceed with programming.

The user must dial the entry number of the item to be stored. The entry number is a one, two or three digit code. The number to be stored on the list follows the entry number. The user presses the key a second time, when the complete number has been stored.

Refer to the Digitone-type telephone instructions for information on Speed Call Delimiters introduced in Release 22.

Interactions with other features

Speed Call works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of the sub-section tells you what you need. For further information you can use the *X11 features and services*.

Hot Line and System Speed Call interact with Speed Call

These two features use lists stored in the system Memory just like Speed Call does. The maximum number of lists shown earlier in this module is a maximum shared by Speed Call, System Speed Call and Hot Line lists.

A user of a dial or Digitone-type telephone can access one Speed Call list and one System Speed Call list.

Users of SL-1 or digital telephones can have different keys assigned to Speed Call lists and System Speed Call lists. These users can also dial a feature code for System Speed Call if they do not have a key available for it.

Refer to the *X11 features and services* for more information.

Authorization Codes interact with Speed Call

Authorization Codes are provided by an optional software package. Users dial Authorization Codes to identify themselves on CDR records for billing purposes, especially when making calls from telephones other than their own. The code has a Class of Service (CLS), Trunk Group Access Restriction (TGAR) and Network Class of Service (NCOS) assigned. During a call made with an Authorization Code, these restrictions take effect, overriding the restrictions programmed for the telephone.

Authorization Codes can be stored on Speed Call lists as of Release 13 software. However, for security reasons this is not recommended. Anyone using a Speed Call list entry that has a stored Authorization Code can dial a call which will be billed to the stored Authorization Code and not the user making the call.

Speed Call and System Speed Call

If you are going to allow this, store the Authorization Code digits preceding the rest of the digits to be outpulsed in the call. Store the octothorpe (#) after the Authorization code and before the remaining digits.

Private Lines interact with Speed Call

Private lines are business lines that terminate directly on telephones. They are used for incoming calls that bypass the attendant. They are also used for outgoing calls. When you dial a call on a Private Line, a trunk group access code is not required. The user hears dial tone directly from the Central Office when a call is initiated.

As of Release 15, a user can make a call using Speed Call on a Private Line even though there might be trunk group access codes stored. The access code digits are absorbed and are not outpulsed when the Private Line is used. No special software package is required for the Speed Call on Private Lines feature.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Memory

Speed Call lists use significant amounts of Memory. The greater the number of entries you set as a maximum on a list, the more Memory it uses. Memory is set aside for lists, *even those which have no actual numbers stored*. Refer to the Control tips, Administration tips and Training tips in this module for suggested ways of managing the use of Memory in the most efficient ways possible.

Message Intercept

With Release 15.58 F and later software, Message Intercept can give a recorded announcement when Speed Call numbers have been stored or erased properly by Speed Call Controllers. The message plays if the Flexible Feature Code method was used.

The telephone must have intercept allowed in its Class of Service and the confirmation announcement must be activated as well. Talk to your system supplier, if you want this functionality.

Table 170
Software requirements

Release required	Software package(s) required
15.58F	163 – Message Intercept (MINT)
	125 – Flexible Tones and Cadences (FTC)

Speed Call and System Speed Call

Pretranslation and System Speed Call Enhancement

The Pretranslation feature can modify what you dial so that other (usually more) digits are outpulsed. When you use System Speed Call with Pretranslation, the feature access code is analyzed by the Pretranslation feature and the stored number on the list is also analyzed. The Pretranslation and System Speed Call Enhancement allows you to activate or deactivate Pretranslation on a System Speed Call list entry. This is done on a customer group basis.

Table 171
Software requirements

Release required	Software package(s) required
23	34 – System Speed Call (SSC)
	92 – Pretranslation (PXLT)

Speed Call Directory Number Access

As of Release 15, in Flexible Feature Code programming, you can set up a code which allows people to use a particular Speed Call list or to control the list when a Flexible Feature Code is dialed. The code is called a Pilot DN. Each list to be accessed in this way has a unique code defined.

The user must dial the code followed by the entry number they wish to reach. There are network-wide applications of this feature. Discuss this feature with your system supplier, if you are interested in it.

Table 172
Software requirements

Release required	Software package(s) required
15 and later	120 – Group Hunt/DN Access to SCL (PLDN)
	131 – Supplementary Features (SUPP)
	139 – Flexible Feature codes (FFC)
	34 – System Speed Call (SSC)
	1 – Optional Features (OPTF)

Set Based Administration Enhancements

If your system is equipped with this capability and you know the proper Flexible Feature Code and password, you can go to a telephone programmed for Administrator Access and change the Speed Call list number or System Speed Call list number(s) for any telephone in the customer group.

This method might be quicker and easier than using a TTY to make the change(s).

You can control the use of this capability by limiting the number of people who know the Flexible Feature Code and password.

Control tips

- You might choose not to designate any telephones as Speed Call Controllers, but instead to program the Speed Call lists from the TTY only. In this way, you can control the lists, checking them for duplicate numbers, incorrect entries and misprogrammed numbers.
- If programming of Speed Call is to be done using the TTY, allow the programmer to have enough time for this on a regular basis. Decide how much advance notice users must give when requesting a change.

- If there are many numbers which are stored on many users' lists, you might want to move these shared numbers to System Speed Call lists instead. This is a great way to use Memory on your system more efficiently.
- Ensure Controllers of System Speed Call lists are programming business-related numbers or approved numbers only. Restricted users with access to the System Speed Call lists override their restricted status when dialing numbers using System Speed Call.
- Tell users to be very careful if they store Authorization Codes on Speed Call lists. You should monitor Call Records and bills carefully to detect any abuse as quickly as possible.

Administration tips

- To conserve memory, it is strongly recommended that you configure each list with the maximum number of entries and the maximum number of digits of each entry, for the user's actual needs.
- You might consider setting a policy where all lists are limited to the same number of entries. On an exception basis only, certain users might be able to exceed that limit with special permission from you.
- Print the lists on a regular basis to see if the following are stored:

  –sequences of digits which do not make sense

  –external numbers without trunk access codes

  –duplicate numbers

  –out-of-date numbers

  –no numbers or very few numbers

- You might consider taking out Speed Call lists which have no entries or which have entries that are not programmed correctly. Remove the Speed Call feature from the programming of the telephone as well. Give the user several warnings before doing this.
- If you warn people that you are going to reduce the Speed Call list size or remove the list completely when they do not use the feature properly, they are more likely to use the full capacity of the list and, as a result, use the feature to its fullest advantage.

  They might also realize they do not need the capacity you gave them. You can then reduce the list capacity and save memory.
- You can have more than one Controller per Speed Call list but this is usually not a good idea. It is normal to have only one Controller for each list and several Users who share the same list. The Users can ask the Controller to make changes to the list, when required.

  There is no limit to the number of users who can share one list.

- *Users should be encouraged to share lists wherever possible as another method of saving memory.*
- While internal and external calls can be dialed using Speed Call, it is usually a waste of Speed Call memory when it is used for storing the digits for internal calls.
- Run Traffic Studies on the use of features to see how often the Speed Call feature is being used. If it is not, train users on Speed Call again. Lack of use is a good indicator that there may be unused lists to remove from the memory.

  Refer to the module on *Traffic* in this book for further information. Refer to the TFC005 topic.

Training tips

- Train Speed Call Controllers on the proper programming of numbers on the Speed Call lists.
- Tell the Speed Call Users who their Controllers are and how to request Speed Call changes.
- Let users know your policies on what types of numbers are to be stored.
- Let users know if you are going to print out the lists regularly.
- Tell users what you plan to do when you find empty lists or lists with mostly incorrect numbers stored.

Speed Call and System Speed Call

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 173
Checklist

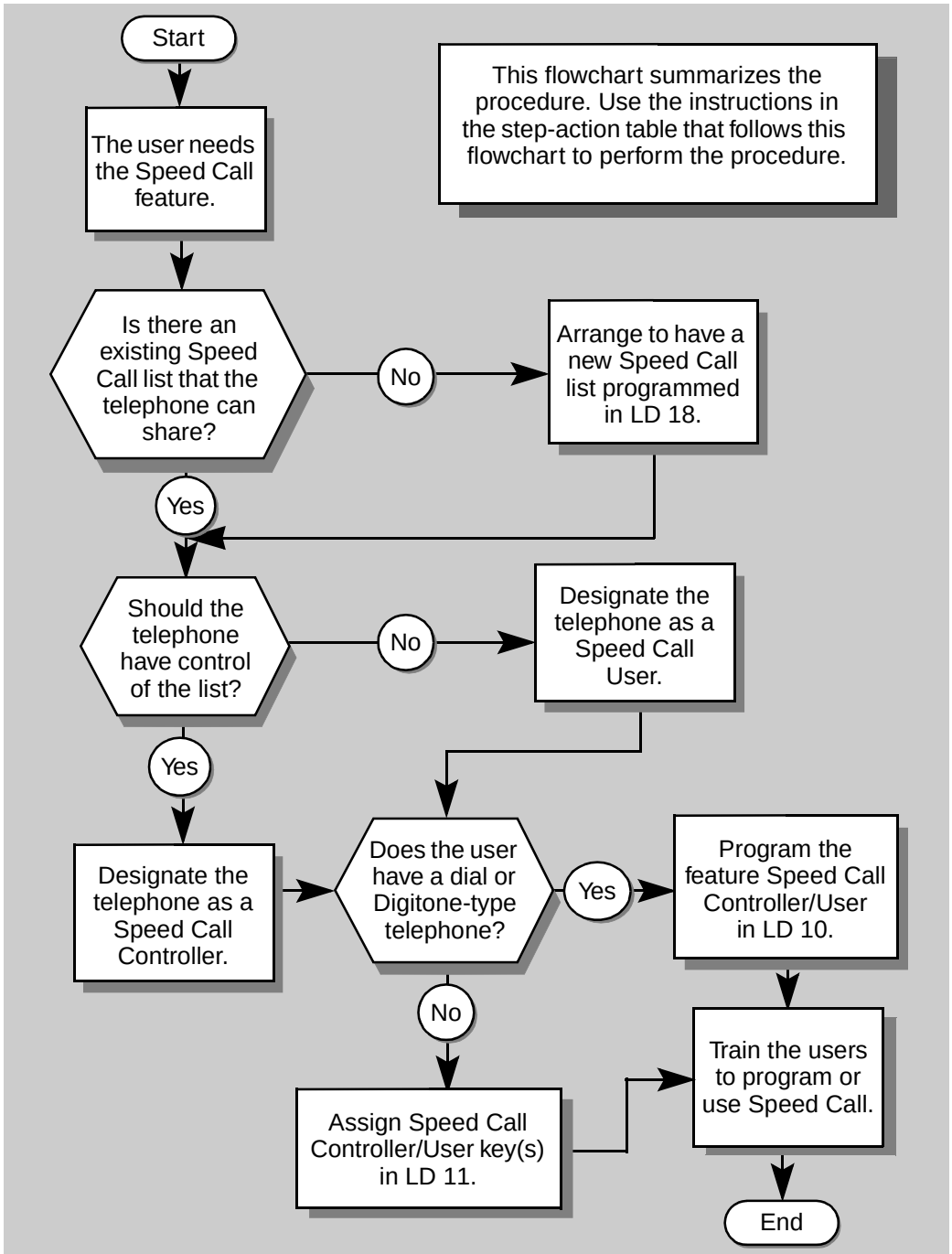
Basic	Optional	Preparation
✔		Decide if this user could share an existing list.
✔		If the user needs access to a new list, make sure the Speed Call list or System Speed Call list is already established. Find out the list number.
✔		Decide if this user will control the list or merely use it.
✔		Train the user.
✔		Determine the TN which is assigned to this telephone.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures for Speed Call.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Speed Call and System Speed Call



Speed Call and System Speed Call

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Speed Call feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Choose the proper starting point from the choices below**

If	Do
adding Speed Call to a new telephone	step 3
changing Speed Call on an existing telephone	step 2
removing Speed Call from an existing dial or Digitone- type telephone	step 18
removing Speed Call from an existing SL-1-type or digital telephone	step 23

— continued —

Speed Call and System Speed Call

STEP	ACTION	
2	**Choose the step for the type of change you are making.**	
	If	**Do**
	changing the list number	step 3
	changing from a Controller to a User of the same list	step 18 for dial or Digitone-type step 23 for SL-1-type or digital **WARNING:** if this telephone is the only Controller for the list, and you change it to a User, you will have to use the TTY to make future changes to the Speed Call list – refer to step 12 for help.
	changing from a User to a Controller of the same list	step 18 for dial or Digitone-type step 23 for SL-1-type or digital
3	**Choose the proper starting point from the choices below.**	
	If	**Do**
	user can share an existing list	step 4
	user needs own list	step 9
4	**Find out what list number the user will share.**	
	If	**Do**
	you know the list number	step 11
	you know another telephone which uses the correct list	step 5

— continued —

Speed Call and System Speed Call

STEP	ACTION
5	**Print the information associated with the other telephone.**

If	Do
you know the TN of the other telephone	step 8
you do not know the TN of the other telephone, you know only the prime DN of the other telephone	step 7

STEP	ACTION
6	**Print the DN Block of the other telephone**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

> LD 22		
> LD 20 or		(Release 17 or later)
> LD 10 or **>** LD 11 or		
> LD 32		(Release 19 or later)
REQ	PRT	Request a printout
TYPE	DNB	DN Block
DN	X..X	Input the DN of the other telephone

You get a printout of the TN of the other telephone.

Do step 7.

— continued —

STEP	ACTION

7 Print the TN block of the other telephone

Log in. For information on proper log in procedures, refer to *Basic programming instructions* in this book.

> LD 20 (pre-Release 19 software)

> LD 10 or **>** LD 11 or **>** LD 20 (Release 19 or later software)

REQ	PRT	Request a printout
TYPE	TNB	Terminal Number Block
TN	L S C U	Input the Terminal Number assigned to the other telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

Do step 8.

8 Find the list number in the print out of the other telephone.

If	Do
the other telephone is dial or Digitone-type	Look for FTR SCC, FTR SCU or FTR SSU — the number which follows these mnemonics is the list number you want.
the other telephone is digital or SL-1-type	Look for a KEY number followed by SCC, SCU, SSC or SSU — the number which follows these mnemonics is the list number you want.

Go to step 10.

— continued —

Speed Call and System Speed Call

STEP	ACTION	
9	**Arrange to program a new Speed Call list.**	
	If	**Do**
	you have access to LD 18	Program a new list. If you do not know the list number to assign, print the existing lists (LD 20). Refer to the *Software Input/Output Guide Book 1 of 2*, if you need help.
	you do not have access to LD 18	Ask your system maintainer to program a new list and tell you what number they assigned to the new list. Update your records.
10	**Find out if the user is to be a Controller or a User of the list.**	
	If	**Do**
	Controller	step 11
	User	step 14 **WARNING:** if this user has a unique list, do you intend to program Speed Call numbers for the user using the TTY or do you want to make the telephone a Controller instead?
11	**Find out if there is already a Controller of the same list**	
	If	**Do**
	you have ODAS (software package 20) and access to LD 81	step 12
	you do not have ODAS or access to LD 81	step 13

— continued —

STEP	ACTION

12 Print all Controllers of Speed Call.

Log in, if you do not already have an active programming session.

```
> LD 81
```

REQ	LST	Request a list of telephones with the feature specified below
CUST	XX	Input your customer number
DATE	<cr>	carriage return
PAGE	<cr>	carriage return
DES	<cr>	carriage return
FEAT	SCC	feature specified is Speed Call Controller
	SSC	feature specified is System Speed Call Controller

You see a print out of the telephones which are Controllers of Speed Call or System Speed Call lists.

Look for any other telephone which already controls the same list.

If there is, decide if you want more than one Controller or decide which one should be the only Controller.

Go to step 14.

— continued —

Speed Call and System Speed Call

STEP	ACTION	
13	**Print TN Blocks of all telephones.**	
	> LD 20	(pre-Release 19 software)
	> LD 10 or **>** LD 11 or **>** LD 20	(Release 19 or later software)
	REQ PRT	Request a printout
	TYPE TNB	Terminal Number Block
	TN <cr>	carriage return
	You see a print out of the data associated with all telephones.	
	Look for any other telephone with FTR SCC or KEY SCC or SSC with the same list number as the one for the telephone you are programming.	If there is, decide if you want more than one Controller or which one should be the only Controller.
	Return to step 1 for help in making a change to the other telephone.	
14	**Program the telephone.**	
	If	**Do**
	new dial or Digitone-type telephone	step 15 for Controller step 16 for User
	changing a dial or Digitone-type telephone	A TNB printout of the telephone to find out the existing configuration, (refer to step 7 for help). Then go to step 17.
	new SL-1 or digital telephone	step 20 for Controller step 21 for User
	changing an SL-1 or digital telephone	A TNB printout of the telephone to find out the existing configuration, (refer to step 7 for help). Then go to step 22.

— continued —

STEP	ACTION

15 Program the Speed Call Controller feature on a new dial or Digitone-type telephone.

Log in, if you do not already have an active programming session.

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt FTR

FTR	SCC YYYY	Speed Call Controller of list number YYYY YYYY = (0–8190) Release 13 or later YYYY = (0–254) prior to Release 13

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 25.

— continued —

Speed Call and System Speed Call

STEP	ACTION
16	**Program the Speed Call User feature on a new dial or Digitone-type telephone.**

Log in, if you do not already have an active programming session.

> LD 10

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt FTR

FTR	SCU YYYY	Speed Call User of list number YYYY
	SSU BBBB	System Speed Call User of list number BBBB
		YYYY = (0–8190) Release 13 or later
		YYYY = (0–254) prior to Release 13
		BBBB = (0 – 4095) Release 13 or later

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 25.

— continued —

STEP	ACTION
17	**Program a change to the Speed Call feature on a dial or Digitone-type telephone.**

Log in, if you do not already have an active programming session.

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 18.
not using “Easy Change”	Input NO or <cr> and go to step 19.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Speed Call and System Speed Call

STEP	ACTION	
18	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**	
	ITEM FTR	
	If	**Do**
	telephone is changing to a Controller	Following FTR and a space, type SCC YYYY where: YYYY is the list number you saw in the TNB printout of this telephone. 0–8190 (Release 13 and later) 0–254 prior to Release 13.
	telephone is changing to a User	Following FTR and a space, type SCU YYYY for Speed Call User or SSU BBBB for System Speed Call User where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 prior to Release 13. BBBB = 0 – 4095 (Release 13 and later); 0–254 prior to Release 13.
	you are removing Speed Call from the telephone	Following FTR and a space, type XSCU YYYY (Speed Call User) or XSSU BBBB (System Speed Call User), or XSCC YYYY (Speed Call Controller) where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 prior to Release 13. BBBB = 0 – 4095 (Release 13 and later); 0–254 prior to Release 13.

— continued —

STEP	ACTION
18 continued ...	
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 25.
19	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**
	Carriage return until you see the prompt FTR

If	Do
telephone is changing to a Controller	Type SCC YYYY where: YYYY is the list number you saw in the TNB printout of this telephone. 0–8190 (Release 13 and later) 0–254 prior to Release 13.
telephone is changing to a User	Type SCU YYYY for Speed Call User or SSU BBBB for System Speed Call User where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 prior to Release 13. BBBB = 0 – 4095 (Release 13 and later); 0–254 prior to Release 13.
you are removing Speed Call from the telephone	Type XSCU YYYY (Speed Call User) or XSSU BBBB (System Speed Call User), or XSCC YYYY (Speed Call Controller) where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 prior to Release 13. BBBB = 0 – 4095 (Release 13 and later); 0–254 prior to Release 13.

— continued —

Speed Call and System Speed Call

STEP	ACTION
19 continued ...	
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 25.
20	**Program the Speed Call Controller feature on a new SL-1-type or digital telephone.**
	Log in, if you do not already have an active programming session. **>** LD 11 **REQ** NEW Program a new telephone **TYPE** Input correct type of SL-1 or digital telephone **TN** L S C U Input the Terminal Number of the telephone program the basics... Refer to Tasks 7–19 for information. carriage return until you see the prompt KEY **KEY** ZZ SCC YYYY Speed Call Controller ZZ SSC BBBB System Speed Call Controller ZZ = KEY number YYYY and BBBB represent the list number YYYY = (0–8190) Release 13 or later; (0–254) prior to Release 13 BBBB = (0 – 4095) Release 13 or later; (0–254) prior to Release 13 Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 25.

— continued —

STEP	ACTION
21	**Program the Speed Call User feature on a new SL-1-type or digital telephone.**

Log in, if you do not already have an active programming session.

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 7–19 for information.
carriage return until you see the prompt SSU		
SSU	BBBB	System Speed Call User (dial access) to list BBBB
carriage return until you see the prompt KEY		
KEY ZZ	SCU YYYY	Speed Call User
ZZ	SSU BBBB	System Speed Call User
		ZZ = KEY number YYYY represents list number (0–8190)Release 13 or later; (0–254) prior to Release 13
		BBBB represents list number (0–4095)Release 13 or later; (0–254) prior to Release 13

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 25.

— continued —

Speed Call and System Speed Call

STEP	ACTION
22	**Program a change to the Speed Call feature on an SL-1-type or digital telephone.**

Log in, if you do not already have an active programming session.

```
> LD 11
REQ     CHG          Program a change to an existing telephone
TYPE                 Input correct type of SL-1 or digital telephone
TN      L S C U      Input the Terminal Number of the telephone
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 23.
not using “Easy Change”	Input NO or <cr> and go to step 24.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

STEP	ACTION
23	**Program an "Easy Change" to an existing SL-1 -type or digital telephone.**

ITEM KEY

If	Do
telephone is changing to a Speed Call Controller or a System Speed Call Controller	Enter a space, and the KEY number. Type SCC YYYY or SSC BBBB where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0-4095 (Release 13 and later); 0–254 (prior to Release 13)
telephone is changing to a Speed Call User or a System Speed Call User	Enter a space, and the KEY number. Type SCU YYYY or SSU BBBB where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0-4095 (Release 13 and later); 0–254 (prior to Release 13)
you are removing Speed Call or System Speed Call from the telephone	Enter a space, and the Key number. Type XSCU YYYY or XSSU BBBB, if the telephone was programmed as a User or XSCC YYYY or XSSC BBBB, if the telephone was programmed as a Controller YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0-4095 (Release 13 and later); 0–254 (prior to Release 13)

Note: If the telephone is changing to become a System Speed Call User, (dial access): after the ITEM prompt type SSU followed by the list number. If dial access is being removed, type XSSU BBBB, after the ITEM prompt. BBBB represents the list number.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.
Go to step 25.

— continued —

Speed Call and System Speed Call

STEP	ACTION
24	**Program a change (not an "Easy Change") to an existing SL-1 -type or digital telephone.**

Carriage return until you see the prompt KEY

If	Do
telephone is changing to a Speed Call Controller or a System Speed Call Controller	Type the KEY number, followed by a space and SCC YYYY or SSC BBBB where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0–4095 (Release 13 and later); 0–254 (prior to Release 13).
telephone is changing to a Speed Call User or a System Speed Call User	Type the KEY number, followed by a space and SCU YYYY or SSU BBBB where: YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0–4095 (Release 13 and later); 0–254 (prior to Release 13).
you are removing Speed Call or System Speed Call from the telephone	Type the KEY number, followed by a space and XSCU YYYY or XSSU BBBB, if the telephone was programmed as a User. Type XSCC YYYY or XSSC BBBB, if the telephone was programmed as a Controller YYYY or BBBB is the list number you saw in the TNB printout of this telephone. YYYY = 0–8190 (Release 13 and later); 0–254 (prior to Release 13). BBBB = 0–4095 (Release 13 and later); 0–254 (prior to Release 13).

Note: If the telephone is changing to become a System Speed Call User, (dial access): after the SSU prompt type the list number. If dial access is being removed, type XBBBB, after the SSU prompt. BBBB represents the list number.

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 25.

— continued —

STEP	ACTION
25	**Check that the programming which you have just done is correct.**

Refer to the *Using the feature* part of this module for instructions on the proper use of the feature.

If	Do
feature was added or changed and it works	step 26
feature has been removed correctly	step 26
feature was added or changed but it does not work properly	step 14

26 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 27

27 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 features and services* for more information on LD 43.

```
> LD 43
. EDD <cr>
```

— continued —

Speed Call and System Speed Call

STEP	ACTION
28	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 29

29	**Terminate this overlay program.**

```
. ****
```

30	**Terminate this programming session.**

Log off.

```
> LOGO
```

31	**You have completed the programming required to add or change the Speed Call feature on a telephone.**

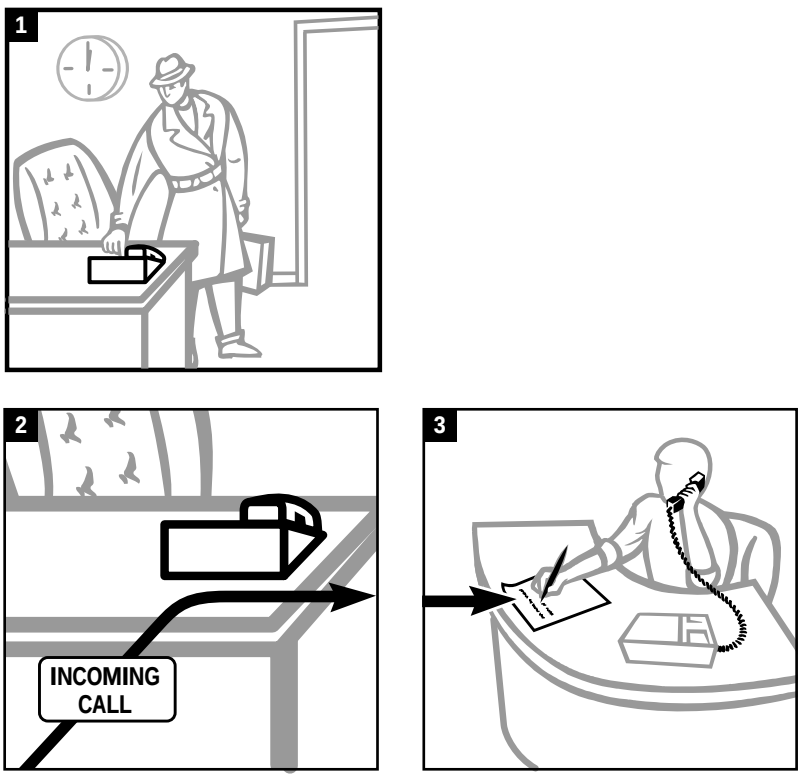
END

Call Forward All Calls

Purpose

The Call Forward All Calls feature allows users to divert incoming calls for a certain telephone number to another destination. The telephone does not ring because incoming calls are diverted. Here are some examples of situations when the feature is useful:

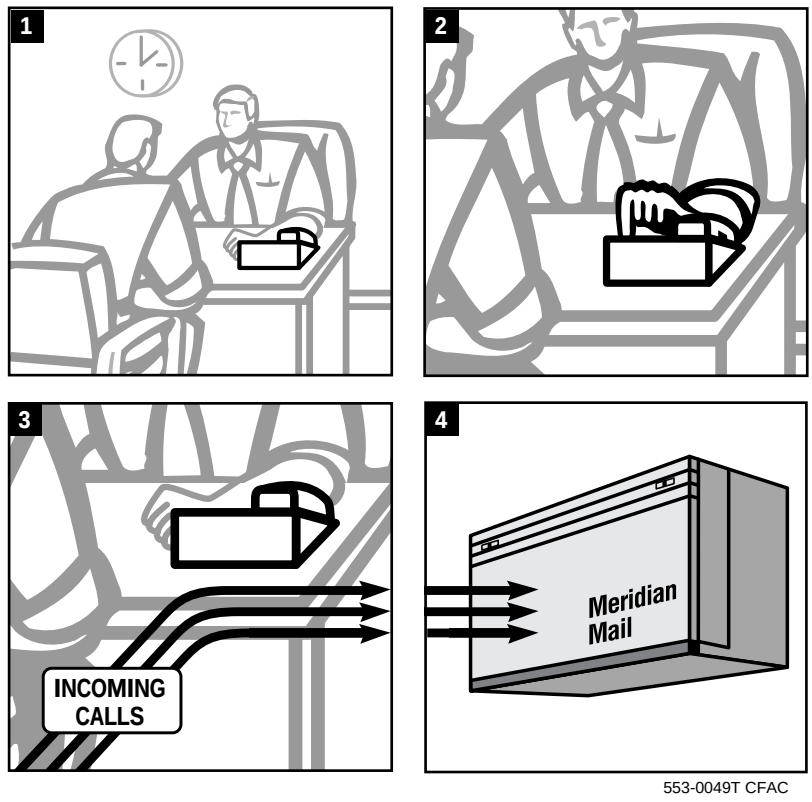
- When users leave their desks, they may wish to send incoming calls intended for their telephones to another person's telephone or to Voice Mail.



553-0048T CFAC

Call Forward All Calls

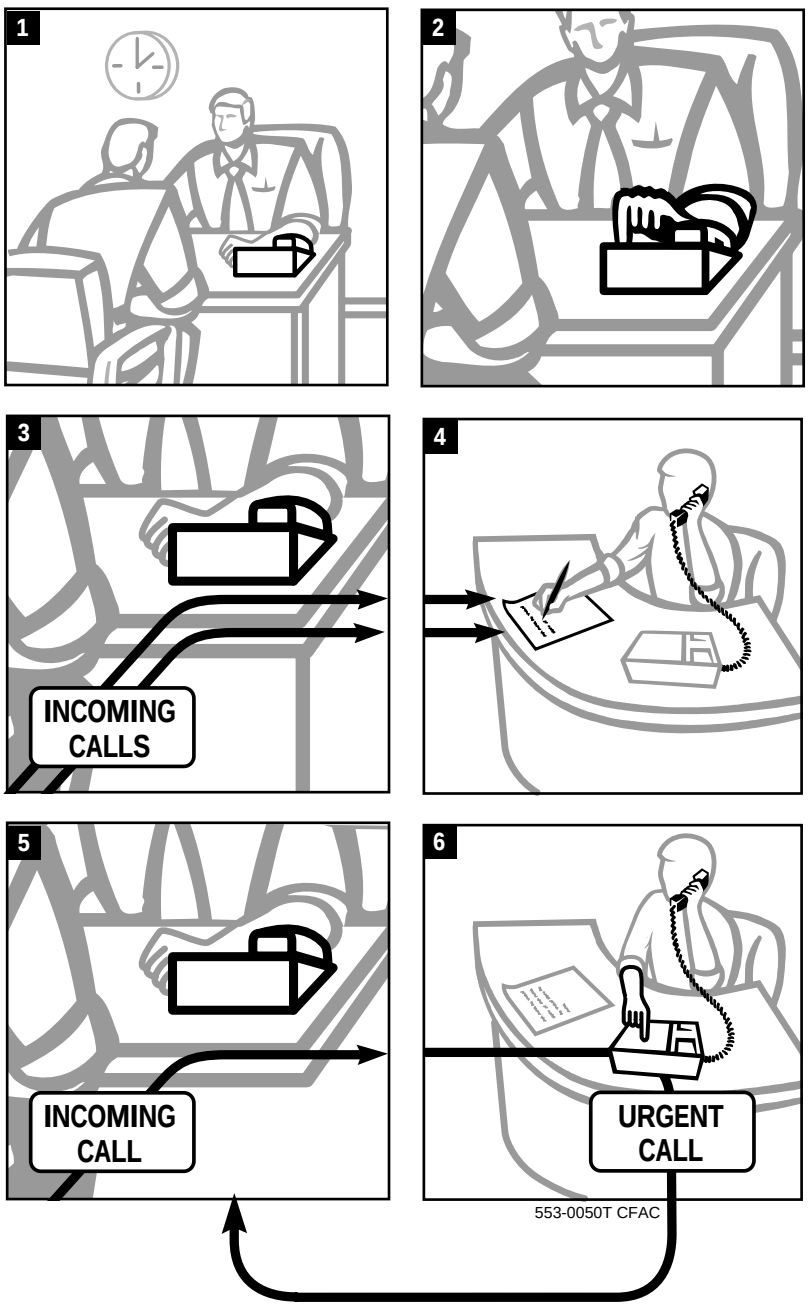
- When users do not wish to be disturbed while they are at their desks they can divert their calls to another person's telephone or to Voice Mail for a while.



553-0049T CFAC

Call Forward All Calls

- When users prefer to have someone else screen their calls and pass on only certain calls to them, they can activate the feature and keep it active all the time.



Call Forward All Calls

Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses Call Forward All Calls
- what you need to know to manage interactions with other features

The Call Forward No Answer feature is often confused with the Call Forward All Calls feature. For further information, refer to Task 36, *Call Forward No Answer*.

Setting up the feature

Call Forward All Calls comes with the communication system, but the telephones are not programmed to use the call-forward capability. You select the telephones that are to have Call Forward All Calls, then you use the procedure in this module to program each one.

Assign Call Forward All Calls to a regular telephone as a feature that the user accesses by dialing a feature code.

Assign Call Forward All Calls to an SL-1 or digital telephone as a feature that the user accesses by pressing a dedicated key.

The user enters the destination number to which calls are to be sent.

Call Forward All Calls must be carefully controlled. Refer to *Control tips* in this Task module.

Length of destination number

You program, for each telephone, the maximum number of digits there can be in a call-forward destination number. You can change the maximum later, if the user's needs change.

With software prior to Release 22, the entries you can program for the maximum length of a destination number are four, eight, twelve, sixteen, twenty, or twenty-three digits. With Release 22 software, you can program any number between 4 and 23. This is an especially useful enhancement for networks or systems with 5, 6 and 7 digit DNs. The programmer does not have to enter 8 as a maximum number of digits and thereby allow the user to forward calls to external numbers as well.

External or internal destination

The telephone number to which calls are being diverted can be an external one or an internal one. To divert calls to an external number, the trunk access code must be entered before the rest of the digits in the number. For example, if the trunk access code is 9, to forward calls to external number 81 33 985 7918 you enter 9 81 33 985 7918.

Use of Call Forward All Calls to external numbers must be carefully monitored and controlled if it is permitted at all. Refer to the *Control tips* in this Task module.

How many redirections?

Within one system there is no limit to the number of times a call can be redirected by Call Forward All Calls.

If the call is being redirected across an ISDN network, there is a counter which can be programmed to limit the number of redirections. For further information refer to the *Network Call Redirection* feature module in the *Networking* binder.

Can anyone ring the forwarded telephone?

You can ring a forwarded telephone only from the destination telephone; this is the only telephone that can override the call forwarding. It allows the forwarded telephone to be reached in an emergency, and it can be used as a way to have someone screen your calls (refer to the third example in the *Purpose* part of this module).

Call Forward All Calls

This capability is called *Secretarial Filtering*. This is a standard part of the Call Forward All Calls feature, and no specific programming steps are required to make it work.

There is a similar feature called Boss Secretary Filtering (FFCSF) provided by software package 198. For further information refer to the *X11 features and services.*

Using the feature

If you have been given the feature on your telephone, you can activate it and deactivate it when you choose. You must enter the call-forward destination telephone number.

When your telephone is forwarded, you can still make calls.

Turning the feature on and off

Turning the feature on involves two basic steps:

- putting the telephone in a Call Forward All Calls mode
- telling the system where to send calls (destination number)

If it is a dial or Digitone-type telephone, you dial a feature code. If it is an SL-1-type or a digital telephone, you press a feature key.

To tell the system where to forward calls, you enter the destination telephone number.

A dial or Digitone-type telephone user hangs up after this. A digital or SL-1-type telephone user presses the Call Forward key a second time. The indicator beside the key lights up.

Turning the feature off depends on the type of telephone:

- a dial or Digitone-type telephone user lifts the handset, dials the feature code and hangs up
- a digital or SL-1-type telephone user presses the Call Forward feature key when the indicator is steadily lit and the indicator is turned off

Refer to the telephone user guides or the *Software Feature Guide* for more information.

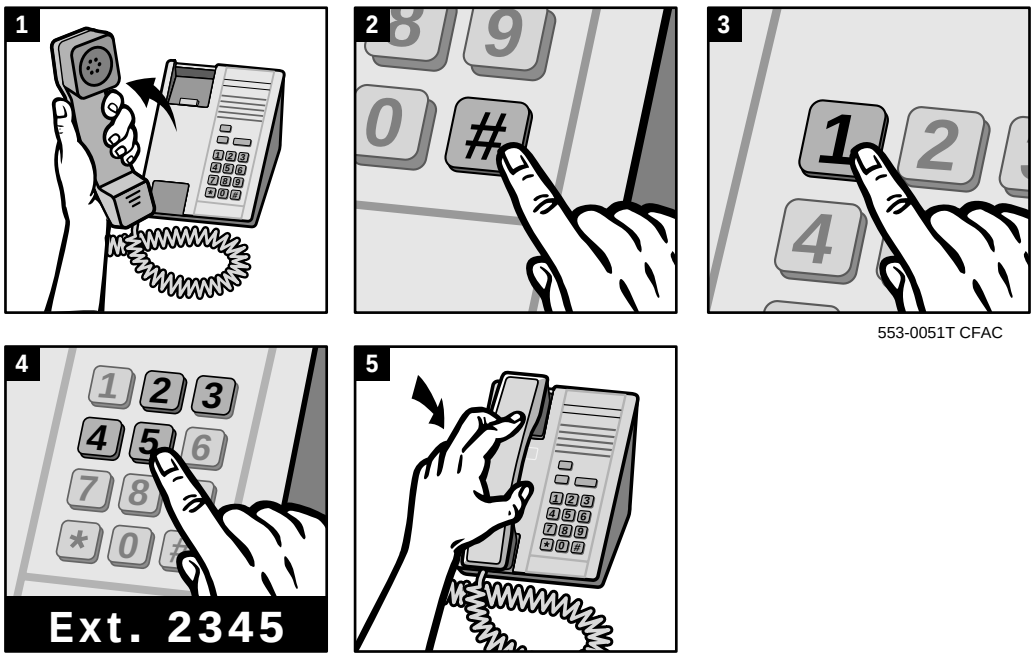
Call Forward All Calls

Using the feature (continued)

Digitone-type telephones

Activating Call Forward All Calls

The illustration below shows you how to call forward a Digitone-type telephone to DN 2345



553-0051T CFAC

Dial telephone users use the SPRE code plus 74 to activate and deactivate the feature.

FFC software package affects regular telephones

Systems with Flexible Feature Code software equipped automatically store the last call-forward destination number for all regular telephones. If you want to forward calls to the last destination again, dial the Call Forward feature code and hang up. Calls are automatically routed to that destination without you having to key in the destination number. If you do not have Flexible Feature Code software, you have to key in a destination number each time you turn on call forwarding.

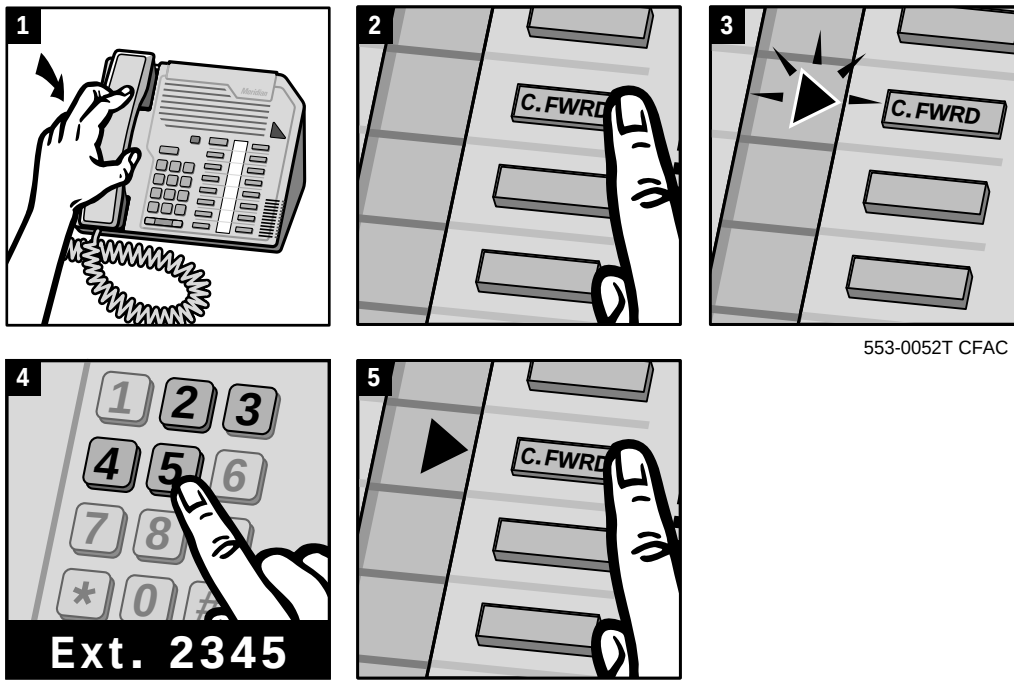
Call Forward All Calls

Using the feature (continued)

SL-1-type and digital telephones

Activating Call Forward All Calls

The illustration below shows you how to call forward a Digital telephone to DN 2345



553-0052T CFAC

An easy way to activate Call Forward All Calls

If you are using an SL-1-type or digital telephone, to forward calls to the last destination again, press the call-forward key twice. The last call forward destination number is automatically used. If the telephone has a display, the destination number appears on the display for you to verify it.

Interactions with other features

Call Forward All Calls works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services.*

Private Line interacts with Call Forward All Calls

You can program an individual trunk as a Private Line. Incoming external calls can come into the system on a Private Line to a telephone without being handled by the attendant first. A Private Line terminates directly at a Directory Number (DN) which appears on one or more telephones. When the Private Line is used for an outgoing external call, no trunk-access code is required. Dial tone is supplied not from the Meridian 1 or SL-1, but from the Central Office (local exchange).

When making or receiving calls on a Private Line, the user can have access to other basic features, if access is set up when the system supplier programs the Private Line. The other features are:

- Call Transfer
- Conference
- Call Forward All Calls

This usage may be a matter of policy regarding tariff or feature-access privileges — check with the appropriate authority if you want information.

In the programming of the Private Line, if Call Modification Restriction is off, then calls on the Private Line can be modified (transferred, conferenced or forwarded). If Call Modification Restriction is on, calls cannot be modified.

Call Forward All Calls

Shared (Multiple Appearance) DNs interact with Call Forward All Calls

Call Forward All Calls diverts incoming calls to any DNs which are unique to that telephone, in other words DNs which are not shared.

If the same DN appears on more than one telephone, and more than one of the telephone users who share it activates Call Forward All Calls, the system must use a rule to determine where to divert calls:

Prior to Release 18:

If a DN is shared on more than one telephone, the system memory stores the Terminal Numbers (TNs) of these telephones in a list called the DN Block.

You can print the DN Block anytime you want. For instructions on how to do this, refer to the *Basic programming instructions* section in this book or the step-action table in this Task module.

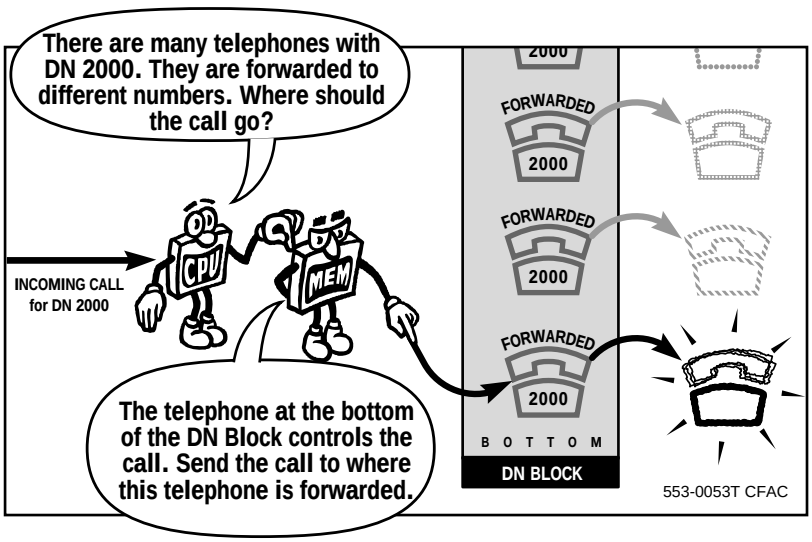
The sequence of the TNs in the list is re-arranged every time a programming change is made to one of the telephones.

Call Forward All Calls

To determine which telephone sharing the DN controls the Call Forward All Calls feature for all the other telephones, the system uses the following rules:

- When choosing the controlling TN, the system scans the DN Block from the bottom up.
- Call Forward All Calls is controlled by the telephone which:
  - has Call Forward All Calls active
  - has the shared DN appearing on key 0 (called a prime DN appearance)
  - is closest to the bottom of the DN Block

Calls to the other appearances of the same DN (prime or not) are diverted to the Call Forward destination entered by the controlling telephone user.



Call Forward All Calls

Multiple Appearance DNs and MARP interact with Call Forward All Calls

Release 18 and later

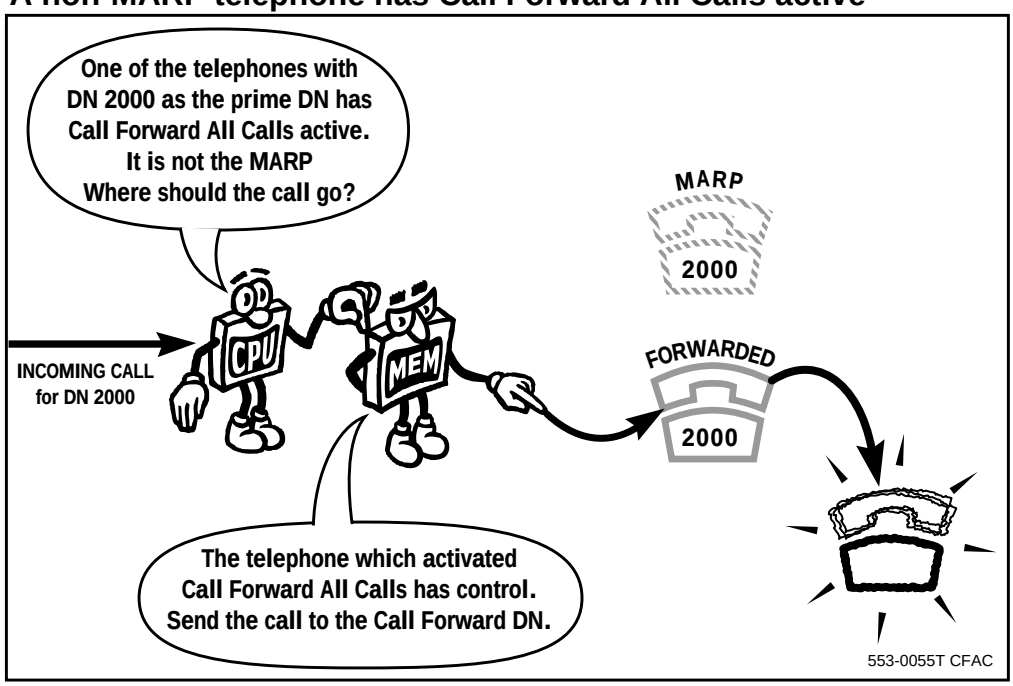
If a DN is shared on more than one telephone, you can designate one of the telephones as the *Multiple Appearance DN Redirection Prime Terminal Number (MARP TN).* This MARP TN controls the redirection features Hunt, Call Forward No Answer, and Call Forward All Calls. Information on its effect on the Call Forward All Calls feature follows. For more in-depth information, refer to Task 39, *Multiple Appearance DN Redirection Prime.*

The examples below illustrate common effects the MARP capability has on the Call Forward All Calls feature.

If the shared DN (2000 in this example) is on key 0 on two telephones, and either telephone user activates the Call Forward All Calls feature, then calls are automatically forwarded for both telephones.

It is important to note that calls are forwarded, whether or not the telephone designated as the MARP TN is the one with the active Call Forward All Calls feature.

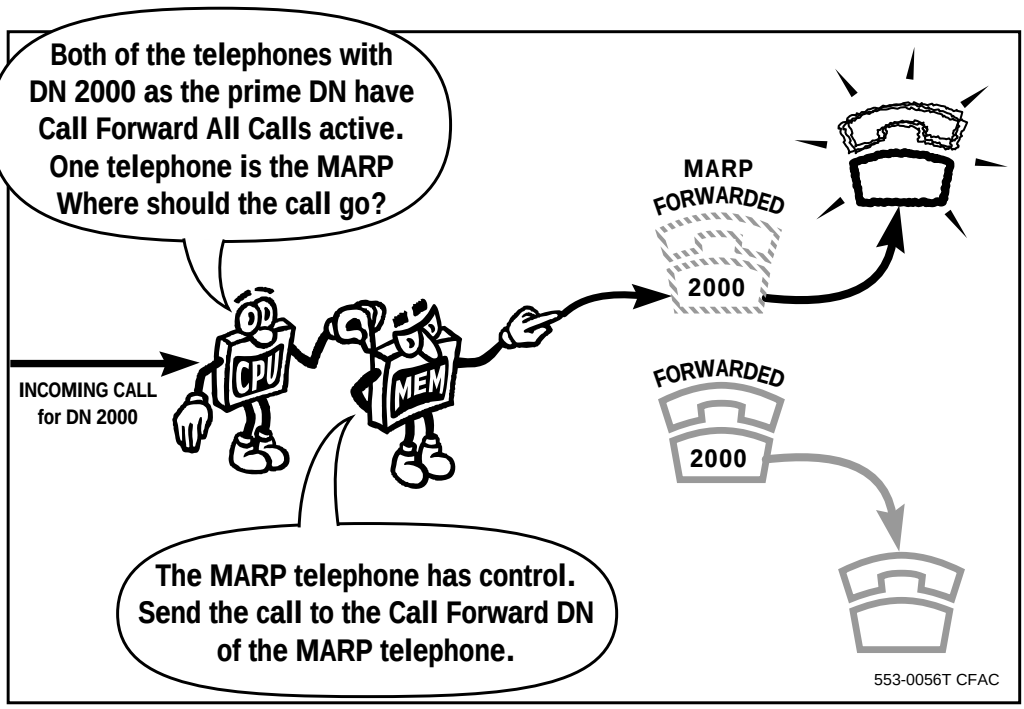
A non-MARP telephone has Call Forward All Calls active



A non-MARP telephone and a MARP telephone have Call Forward All Calls active

If the same DN is prime on two telephones, and both users simultaneously activate Call Forward All Calls, incoming calls redirect to the Call Forward DN entered at the telephone designated as the MARP TN.

This illustrates how the MARP designation changes the way the Call Forward All Calls feature works with shared DNs after Release 18.



Call Forward All Calls

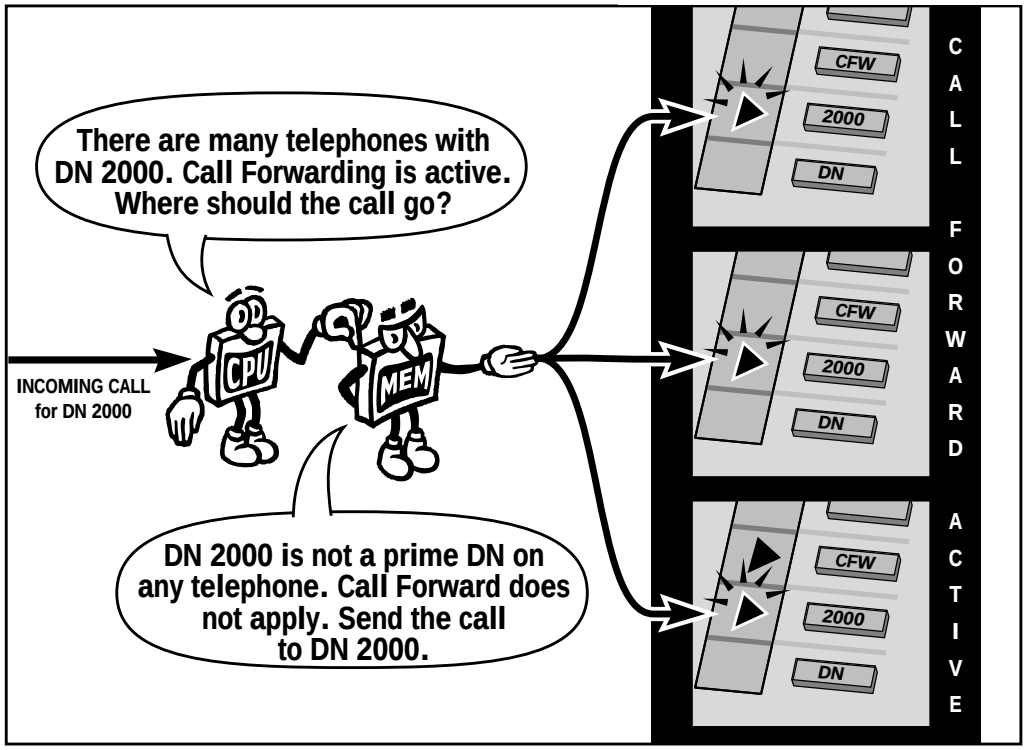
Secondary DNs interact with Call Forward All Calls Prior to Release 18

If the shared DN is assigned to keys other than key 0, everywhere it appears, users *cannot forward calls* for this DN.

If calls to the DN go unanswered, the feature Call Forward No Answer can operate (if programmed).

Release 18 and later

If a shared DN is on a key higher than key 0 everywhere it appears, users cannot use Call Forward All Calls to divert incoming calls to that DN, whether or not they use the MARP TN.



553-0054T CFAC

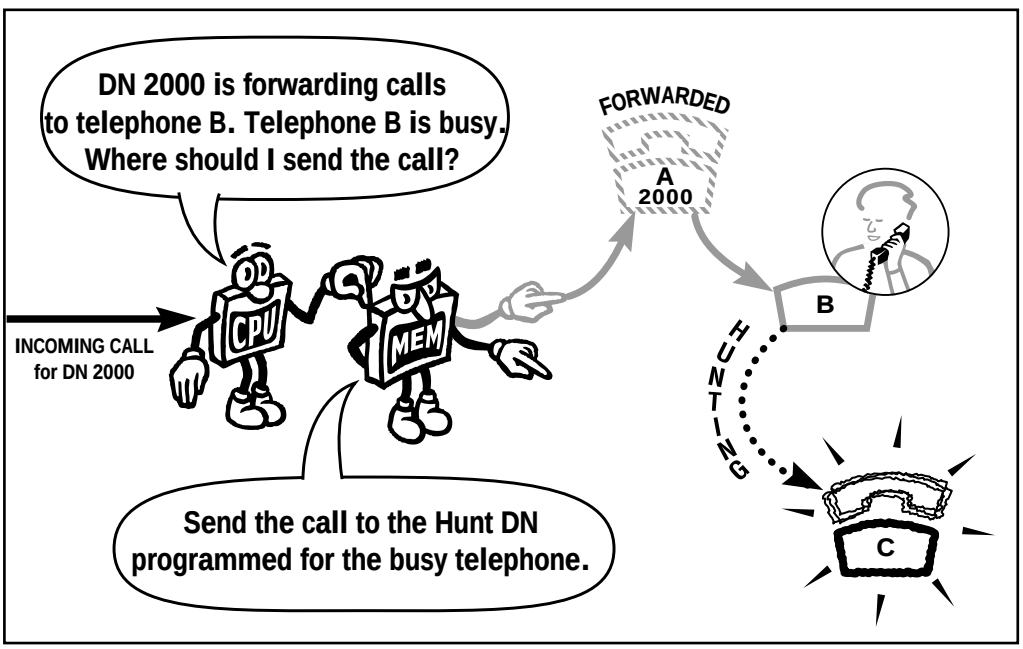
Hunt interacts with Call Forward All Calls

Hunt is the name for the feature which redirects calls to other destinations when DNs are busy and cannot receive calls. At times this feature can interact with Call Forward All Calls.

In the illustration which follows, telephone user “A” has forwarded calls to telephone user “B.” However, when telephone “B” is busy, it cannot receive forwarded calls. If telephone ”B” is programmed to Hunt calls to another destination when it is busy, forwarded calls directed to it will Hunt as well.

Telephone user “C” usually only receives calls for telephone “B” when it is busy. In this case user “C” also receives calls for telephone user “A,” since “A” is forwarded to telephone B, which is busy.

What happens when the Call Forward DN is busy?



553-0057T CFAC

If you mention this interaction during training sessions with people who use these features, it improves their understanding of how the system routes calls to their telephone. This results in improved call answering.

Call Forward All Calls

Call Forward No Answer interacts with Call Forward All Calls

Call Forward No Answer is the name for the feature that redirects calls to other destinations when DNs are not answered. This feature can interact with Call Forward All Calls.

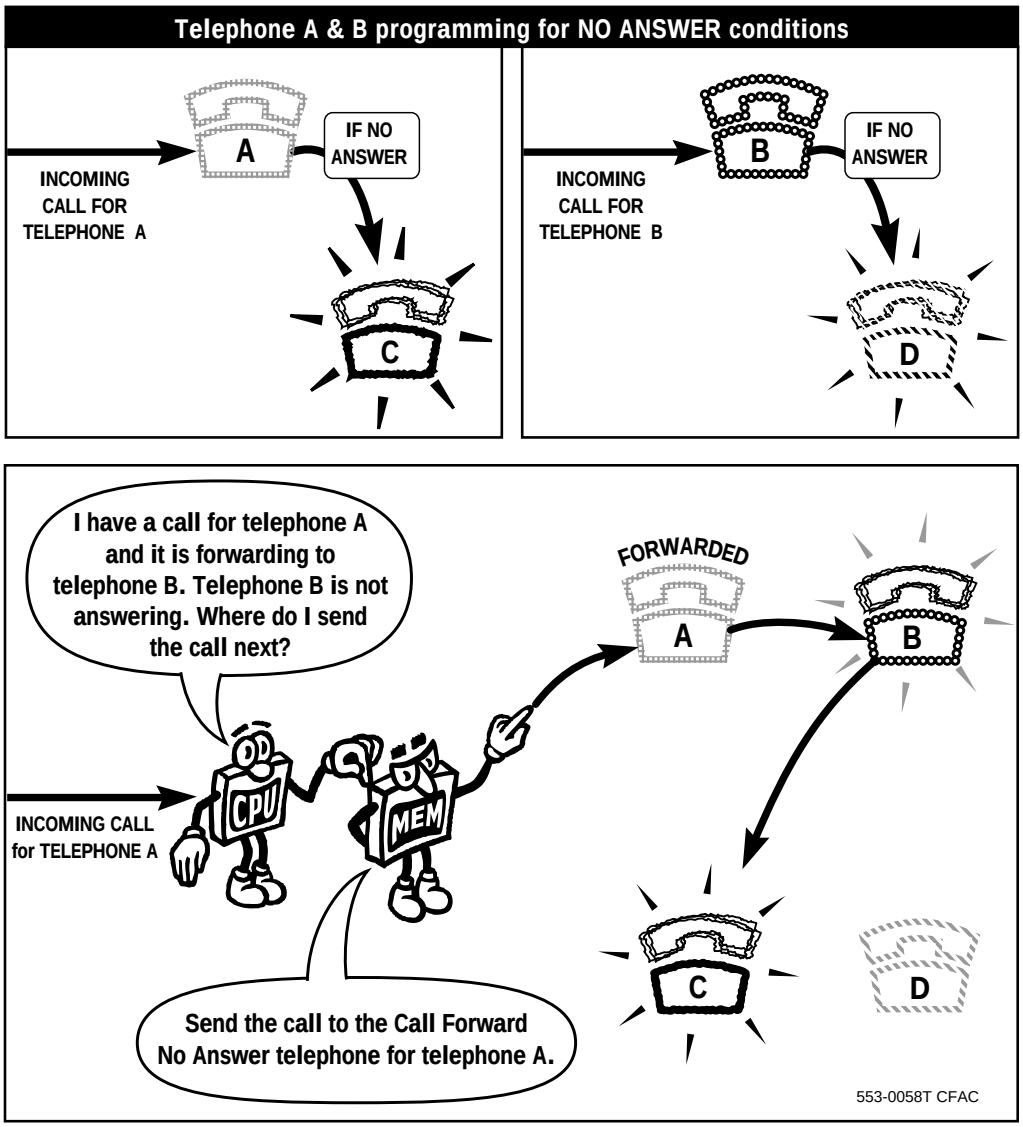
In the illustration which follows, telephone user “A” has forwarded calls to telephone user “B.” However, when telephone “B” is not answered, the system can redirect the call. Since the call was intended for telephone user “A,” the system redirects the call using the Call Forward No Answer instructions programmed for telephone “A,” even though it is telephone “B” which is going unanswered.

However, if telephone “B” is the Forward No Answer DN programmed for telephone “A,” then telephone “B” must continue to ring until one of the following things occurs:

- a timer called the *attendant recall timer* expires. This only applies if the call was originally extended to telephone “A” by the attendant.
- someone answers ringing telephone “B”
- the caller hangs up

Call Forward All Calls

What happens when the Call Forward DN is not answered?



Call Forward All Calls

In the previous illustration, users sitting near telephone “B” might be surprised when the unanswered call redirects differently from what they would expect for telephone “B.” The call goes instead to the destination DN programmed for telephone “A.” They do not realize when they hear telephone “B” ringing that the call was originally for telephone “A” which has forwarded the call to telephone “B.”

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems. Proper training can reduce the number of repair calls of this nature.

SYSLOAD interacts with Call Forward All Calls

For further information on SYSLOAD refer to the *You should know this* module in this book.

Table 174
Software requirements

Release required	Software package(s) required
15.58F to 20	131 – Supplementary Features (SUPP)
20	none

When the *Call Forward Save on SYSLOAD* capability is enabled, the Call Forward All Calls feature is automatically re-activated following a System Reload (SYSLOAD) for telephones which had the Call Forward All Calls feature activated at the time of the SYSLOAD.

Calls are forwarded to the Destination Number which was stored in memory for Call Forward All Calls for each telephone when the last data dump was performed. Your system supplier can program this option in the Configuration Record overlay program (LD 17).

If the technician is preparing to do a manual SYSLOAD of the system, it is a good idea for them to perform a data dump before the SYSLOAD to ensure the most recent Call Forward DNs for all telephones are stored on the disk. In this way, when Call Forward All Calls is re-activated for those telephones which were in the forward mode before the SYSLOAD, the correct destination number is used.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Treat internal calls differently from external calls when users activate Call Forward All Calls

Without affecting external calls, you can specifically forward calls from internal users. This is possible if a telephone is assigned the Internal Call Forward feature.

Internal Call Forward

Table 175
Software requirements

Release required	Software package(s) required
19 and later	none

Operation of Internal Call Forward is by feature code on a regular telephone, or by dedicated key on a proprietary telephone (except Basic Rate Interface (BRI) telephones which cannot have the feature at this time).

On a telephone with both Internal Call Forward and Call Forward All Calls features, the user can:

- choose one call-forward destination number for Call Forward All Calls which handles calls coming in from an external source
- choose a different destination number for Internal Call Forward, which handles internal calls
- activate either feature, or both

Call Forward All Calls

If both features are active at the same time on one telephone, Call Forward All Calls is the one that operates. All calls (internal and external) are forwarded to the Call Forward All Calls destination number. For further information on Internal Call Forward refer to the *X11 features and services*.

Remind users that Call Forward All Calls is active

You can allow users to hear a tone or an announcement to remind them that Call Forward is active.

Message Intercept

Table 176
Software requirements

Release required	Software package(s) required
15.58F and later	163 – Message Intercept (MINT)
	125 – Flexible Tones and Cadences (FTC)

If the telephone has Message Intercept allowed in the Class of Service programming, a recorded announcement plays when the telephone has Call Forward active and the handset is lifted. The announcement plays until it times out or the user hangs up.

Call Forward Reminder Tone

Table 177
Software requirements

Release required	Software package(s) required
19 and later	none

Activating the tone on a customer-wide basis causes regular telephone users to hear special dial tone as a reminder when Call Forward All Calls is active. If audible message-waiting is also active, there is a different special dial tone to indicate there is a message waiting, in addition to the active Call Forward All Calls feature.

SL-1 and digital telephone users are reminded that Call Forward All Calls is active; the feature key lamp is lit while the feature is active.

Ask your system supplier to program LD 15 to enable this feature.

Users can be reached when they have Call Forward active

Certain users may require the capability to call a telephone even when it has Call Forward All Calls active. The Call Forward/Hunt Override feature provides this capability.

Call Forward/Hunt Override Via Flexible Feature Code (FFC)

Table 178
Software requirements

Release required	Software package(s) required
20 and later	139 – Flexible Feature Code (FFC)

By dialing the Flexible Feature Code (FFC) assigned for Call Forward/Hunt Override before calling the telephone, Call Forward is overridden. The caller hears ringing if the telephone is idle; busy tone if the telephone is busy.

The same feature can be used to override Hunt, Call Forward No Answer, ICP-Call Forward and Make Set Busy conditions on the called telephone.

A user can monitor the Call Forward status of other telephones

People who answer calls for other people and take messages often need to know if the person for whom they are answering is in a call-forward mode.

Call Forward All Calls

Call Forward and Busy Status Lamps (BFS)

Table 179
Software requirements

Release required	Software package(s) required
15.58F and later	131 – Supplementary Features (SUPP)

BFS keys can be configured on the telephone of a person who answers calls for other people. The lamps associated with these keys can perform the following functions:

- monitor, activate, or deactivate Call Forward All Calls for another telephone
- override Call Forward All Calls of another telephone in order to call it
- monitor the busy or idle status of another telephone
- call the other telephone when the key is pressed

The number of BFS keys configured on a telephone is determined by the number of other telephones which are answered by that person.

The functionality of the keys is controlled by a setting in the Customer Data Block. Refer to the *X11 features and services* for further information.

Boss/Secretary Filtering Enhancement

Table 180
Software requirements

Release required	Software package(s) required
24	none

In X11 Release 24, more functionality is added to the BFS keys and the operation of the call screening capabilities.

The additions and changes are:

- the users activate screening by pressing the BFS key, not the Call Forward key
- the secretary does not have to use the Call Transfer key to transfer a call to the boss; the secretary can press the BFS key. The boss can also take the call by pressing the BFS key.
- the boss's telephone has information on the display about an incoming call when screening is active
- any secretary with a BFS key for the boss can alter the screening of calls for the boss, once screening is active. The secretary who has most recently pressed the boss's BFS key becomes the screener of the calls or the secretary who was screening the boss's calls can forward calls to another secretary. Displays of all parties involved indicate the origination of the call, whose call it is and who is screening the call.
- you can program the secretary's telephone to allow recall to the boss's telephone for times when calls are not answered at the secretary's telephone
- BFS key lamp states are programmable. There are four default conditions, however, you can change these states on a Customer Group basis.

Users can activate Call Forward from a remote location

You can allow users to activate, or deactivate, Call Forward All Calls for a telephone from a different telephone.

Remote Call Forward

Table 181
Software requirements

Release required	Software package(s) required
15 and later	none

For further information on the Station Control Password required for this feature, refer to the *X11 features and services*.

Call Forward All Calls

Call Forward, Remote (Attendant and Network Wide)

Table 182
Software requirements

Release required	Software package(s) required
20 and later	none

This feature allows the use of Remote Call Forward across an ISDN network and also from an attendant console. The implementation of this capability is beyond the scope of this book. Refer to the *X11 features and services* for more information.

Users can deactivate Call Forward from the destination telephone

Call Forward Destination Deactivation

Table 183
Software requirements

Release required	Software package(s) required
22 and later	139 – Flexible Feature Codes

With the Call Forward Destination Deactivation feature, you can configure a Flexible Feature Code that allows users to deactivate the Call Forward All Calls feature from the call forward telephone.

The forwarded party or the call forwarded destination can deactivate the Call Forward All Calls.

The DN being used to deactivate must be the same as the Call Forward DN of the other telephone. The two telephones must be a part of the same Customer Group. No Station Control Password is required (as it is with Remote Call Forward). Internal Call Forward is not affected.

You can change the Call Forward number remotely

Set Based Administration Enhancements

If your system is equipped with this capability and you know the proper Flexible Feature Code and password, you can go to a telephone programmed for Administrator Access and program the Call Forward All Calls DN for any telephone in the customer group.

If users do not know the number of the voice mail DN and yet they forward to it by simply accepting the number that is stored in memory each time, you could program the voice mail DN into memory for them using Set Based Administration.

You can control the use of this capability by limiting the number of people who know the Flexible Feature Code and password.

Control tips

Preventing Reciprocal Call Forwarding

Two users can unwittingly forward their telephones to each other. To prevent this, you can enable, customer-wide, an option that alerts the user that the one telephone is already forwarded to the other. The reciprocal situation is not allowed to occur.

The option alerts the user as follows:

- users of regular telephones hear an overflow tone
- users of SL-1 and digital telephones see that the Call Forward lamp continues to flash instead of becoming steadily lit when the Call Forward key is pressed a second time. This indicates that the Call Forward All Calls feature did not become active.

Table 184
Software requirements

Release required	Software package(s) required
18.20H and later	131 – Supplementary Features (SUPP)

With Release 16, Reciprocal Call Forward was prevented by default. With Release 20, software package 131 is not a requirement.

Call Forward All Calls

Ask your system supplier to program LD15 to enable this option.

Call Forward All Calls Originating/Forwarding

In a call-forwarding situation, the forwarded telephone and the calling telephone could have different Access Restrictions. You can control, on a customer-wide basis, which of the two sets of restrictions applies to forwarded calls.

If the Call Forward feature attempts to connect a call which is not allowed because of the operating Access Restrictions, the incoming call is not forwarded.

Table 185
Software requirements

Release required	Software package(s) required
any	none

Ask your system supplier to program LD 15 to enable this option.

Call Forward All Calls to external numbers

You might find that a certain user is forwarding a telephone to a trunk-access code before going home at the end of the day. From home, the user is calling into that telephone (usually by dialing a Direct Inward Dialing (DID) number). Because Call Forward is active, the telephone redirects the call to the outgoing trunk group with the access code which was preprogrammed as the Call Forward Destination Number. From the home telephone, the user then continues to dial the rest of the call. At that point, they are using a trunk at the office for the call. If the call is a toll call, the business pays for the call, not the user at home.

The use of the Call Forward All Calls feature in this way is not permitted in some countries. You can control this capability using trunk supervision programming. Discuss this programming with your system supplier.

Table 186
Software requirements

Release required	Software package(s) required
13 and later	none

You can use Call Detail Records (CDR) to investigate whether people are call-forwarding telephones to external numbers, especially during off-hours.

When an incoming trunk call is call-forwarded to an outgoing trunk, three call records print out:

- two S-records with the same time-stamp print out when the call is forwarded
- one E-record prints out at the end of the call

The first “S” record shows the incoming trunk as the Originating TN and the forwarded telephone shows as the Destination TN. The second S-record shows the forwarded telephone as the Originating TN and the outgoing trunk shows as the Destination TN.

For more information on CDR, refer to the *Call Detail Records* module in this book.

Call Forward All Calls

Refer to the *Control tips* section of this module for information on features that prevent users from doing this.

Call Forward to Trunk Access Code Deny

On a customer-wide basis, you can prevent users from forwarding their telephones to trunk-access codes not followed by any other digits.

Table 187
Software requirements

Release required	Software package(s) required
Releases 9 and 11, and Release 12 and later	none

This feature does not prevent users from forwarding their telephones to trunk-access codes which are followed by other digits. If you want to prevent that, refer to the description of *Call Forward External* which follows.

Ask your system supplier to program LD 15 if you want to enable the denial of Call Forward to a Trunk access code.

Call Forward to Trunk Restriction

You can restrict users from activating Call Forward All Calls to particular trunk groups.

Table 188
Software requirements

Release required	Software package(s) required
10.10C and later	131 – Supplementary Features (SUPP)

Ask your supplier to enable this option. It is programmed in Route Data Block overlay programs (LD 16).

If Call Forward is allowed on a trunk group, you can configure CDR, in the same overlay, to show, in the printed call record, either the original internal calling DN or the forwarding DN.

Call Forward External

You can control whether a user can call-forward a telephone to:

- trunk access codes
- trunk access codes with other digits following
- BARS or NARS or CDP access codes (refer to the *Networking binder* for further information)
- non-message centre Automatic Call Distribution numbers (refer to the *Automatic Call Distribution Feature description* for further information)
- Call Park numbers (refer to *X11 features and services* for further information)
- Direct Inward System Access (DISA) numbers

Table 189
Software requirements

Release required	Software package(s) required
13 and later	none

You deny or allow this restriction in the Class of Service of each telephone.

Regular telephone users hear overflow tone when they try to forward to an external number and the attempt is denied. On SL-1 or digital telephones, the key lamp continues to flash when it is pressed a second time, indicating that the external number was not accepted.

Administration tips

- Train users to use the Call Forward All Calls feature properly. If they do, there will be far fewer of the complications which arise when the feature is misused.

Call Forward All Calls

Common problems associated with Call Forward All Calls:

1. User call-forwards to someone who is not available or willing to take calls.
2. User call-forwards to someone who has already call-forwarded to a third party.
3. User call-forwards to an incorrect or invalid destination due to a dialing error.
4. User forgets to cancel the Call Forward All Calls feature.
5. Two users call-forward their telephones to each other.
6. User activates Call Forward All Calls too often.

Suggested solutions

Problems one to four can be addressed in training sessions. Problem five can be prevented from happening with the implementation of software on your system, and problem six can be monitored using a maintenance routine.

Training

Promoting efficient use of the Call Forward All Calls feature can be done in training sessions. Your business benefits greatly and you will spend less time managing problems if you stress good user habits in training sessions.

- If users call-forward to a backup person, they should warn that person before forwarding the telephone.
- Users should test the call-forwarding by calling their own DN, especially on regular telephones, to verify that the feature has been activated properly and that calls are being forwarded to the expected destination number.
- When the feature is deactivated, the user should test this also.

The Call Forward Reminder Tone can be useful in preventing problem four.

Displays

People who answer calls for other people are greatly assisted by telephones that have alphanumeric displays. Telephones equipped with displays show the originally dialed DN for the call (and possibly the name of the caller or called party if Call Party Name Display software has been programmed). This helps the user to answer calls appropriately.

You can program the system so that the reason a call has been redirected is shown on the display of the answering telephone. These reason for redirection codes are defined on a customer-wide basis and can be a maximum of four characters. The default code for Call Forward All Calls is "F."

You can configure the display to present the name of either the calling party or the called party. For further information on Call Party Name Display refer to the *X11 features and services*.

Preventing Reciprocal Call Forwarding

Problem five can be prevented with this software. If the destination DN is already forwarded to that user's DN, the user receives an indication when attempting to call-forward.

Monitoring feature usage on your system

- When you print a telephone TN Block using overlay program 20 or 22, the print-out indicates that the feature is, or is not, configured for that telephone. This data also shows the last Call Forward destination programmed for that telephone.

  This data does not indicate whether the telephone currently has the Call Forward All Calls feature activated.

- You can use overlay program (LD) 80 to monitor whether a user has activated the Call Forward feature. Talk to your system supplier about using the TRAC command in LD 80 if you want to monitor the use of Call Forward All Calls by certain users.

- You can use traffic-study data to show on an hourly or half-hourly basis how many times different feature keys on SL-1 and digital telephones were used. Refer to the *Traffic* section of this book for further information on traffic studies.

Call Forward All Calls

Training tips

- Avoid the problems often associated with Call Forward All Calls by doing proper training on an ongoing basis.
- Tell users with displays about the call-redirection information which is shown when they answer forwarded calls.
- Tell users about the monitoring you are planning to do with the CDR, traffic and maintenance routines.
- Tell users that the status of the telephones will be checked for overuse of the Call Forward All Calls feature, especially where Voice Mail takes messages, or if you are receiving complaints from external callers that certain people use this feature excessively.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic Call Forward All Calls feature and/or the optional related features associated with the basic feature.

Table 190
Checklist

Basic	Optional	Preparation
✔		Determine the maximum number of digits in the Call Forward number for this user.
✔		If the telephone shares a DN with another user, decide which telephone is the MARP.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.

— continued —

Table 190 (Continued)
Checklist

Basic	Optional	Preparation
	✔	Decide if forwarding to a trunk access code is to be denied for your customer group. [Call Forward to Trunk Access Code Deny]. Contact your system supplier.
	✔	Decide if forwarding to certain trunk groups should be prevented. [Call Forward to Trunk Restriction]. Contact your system supplier.
	✔	Decide which telephones should be prevented from forwarding calls to any external number. [Call Forward External].
	✔	If this user has a regular telephone, decide on the reminder tone capability. [Call Forward Reminder Tone]. Contact your system supplier.
	✔	Decide if it would be of benefit to implement a recorded announcement as a reminder when Call Forward All Calls is active. Contact your system supplier.
	✔	Decide if the user needs call forward override capability. [Call Forward /Hunt Override via Flexible Feature Code].
	✔	Decide if you wish to keep Call Forward All Calls active after a SYSLOAD. [*Call Forward Save on SYSLOAD*]. Contact your system supplier.
	✔	Decide if the call forward status of this telephone must be indicated on another telephone. [*Call Forward and Busy Status Lamps*].
	✔	Decide if this user may activate Call Forward All Calls remotely. [*Remote Call Forward*].

— continued —

Call Forward All Calls

Table 190 (Continued)
Checklist

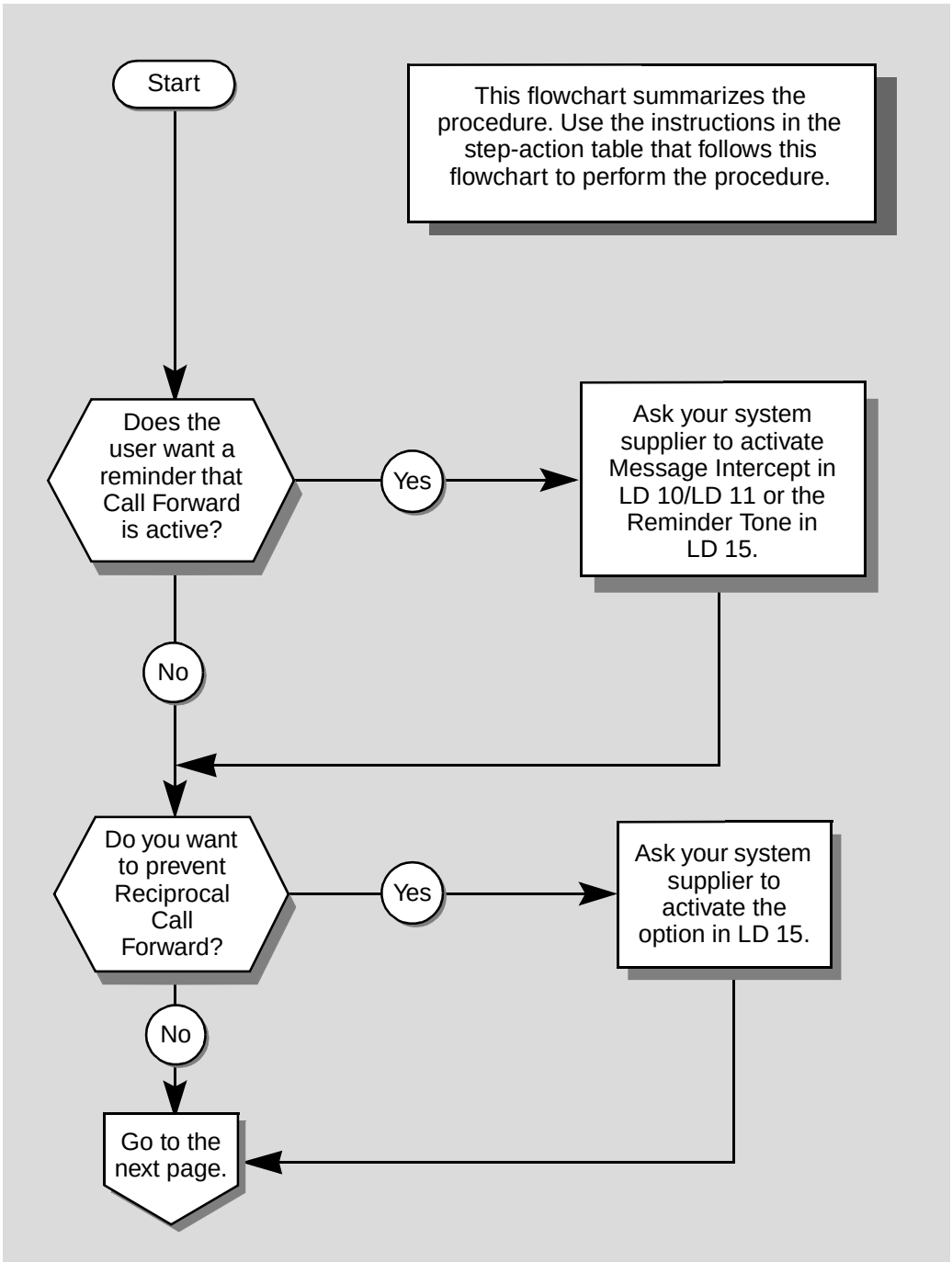
Basic	Optional	Preparation
	✔	Decide if you wish to prevent this user from call forwarding to a telephone which is forwarded to this telephone already. [*Preventing Reciprocal Call Forwarding*]. Contact your system supplier.
	✔	Decide whether the Class of Service of the originating party or that of the forwarding party should be in effect for a forwarded call. [*Call Forward All Calls Originating/ Forwarding*]. Contact your system supplier.
	✔	Decide if you want this user to be able to deactivate the Call Forward All Calls feature from the call forward telephone. If you do want them to be able to do this, set up a Flexible Feature Code for this purpose. *[Call Forward Destination Deactivation]*.

What's next?

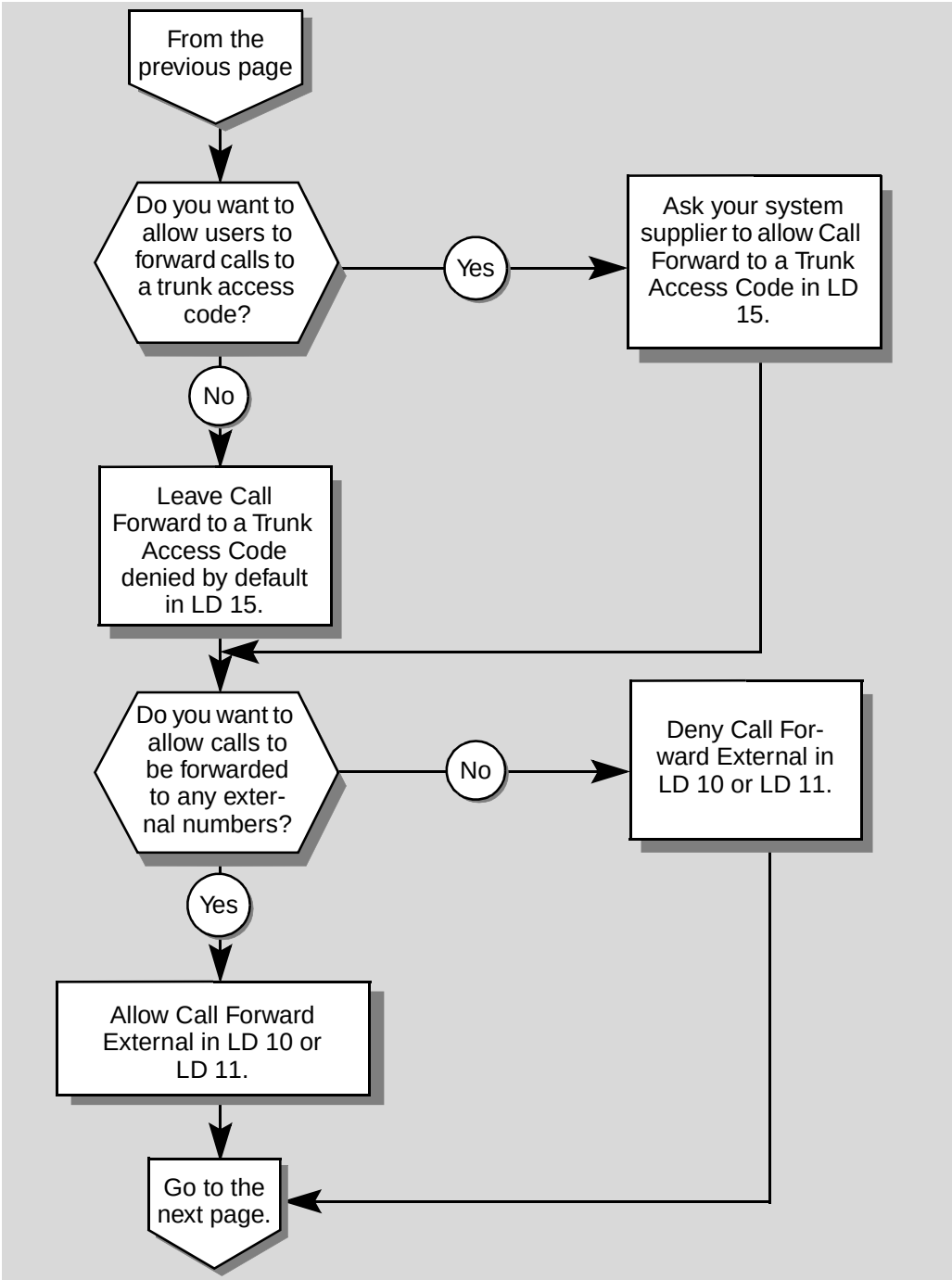
A flowchart follows which summarizes the implementation decisions and procedures for Call Forward All Calls.

A step-action table follows the flowchart. Use it to do the programming steps necessary to implement this feature.

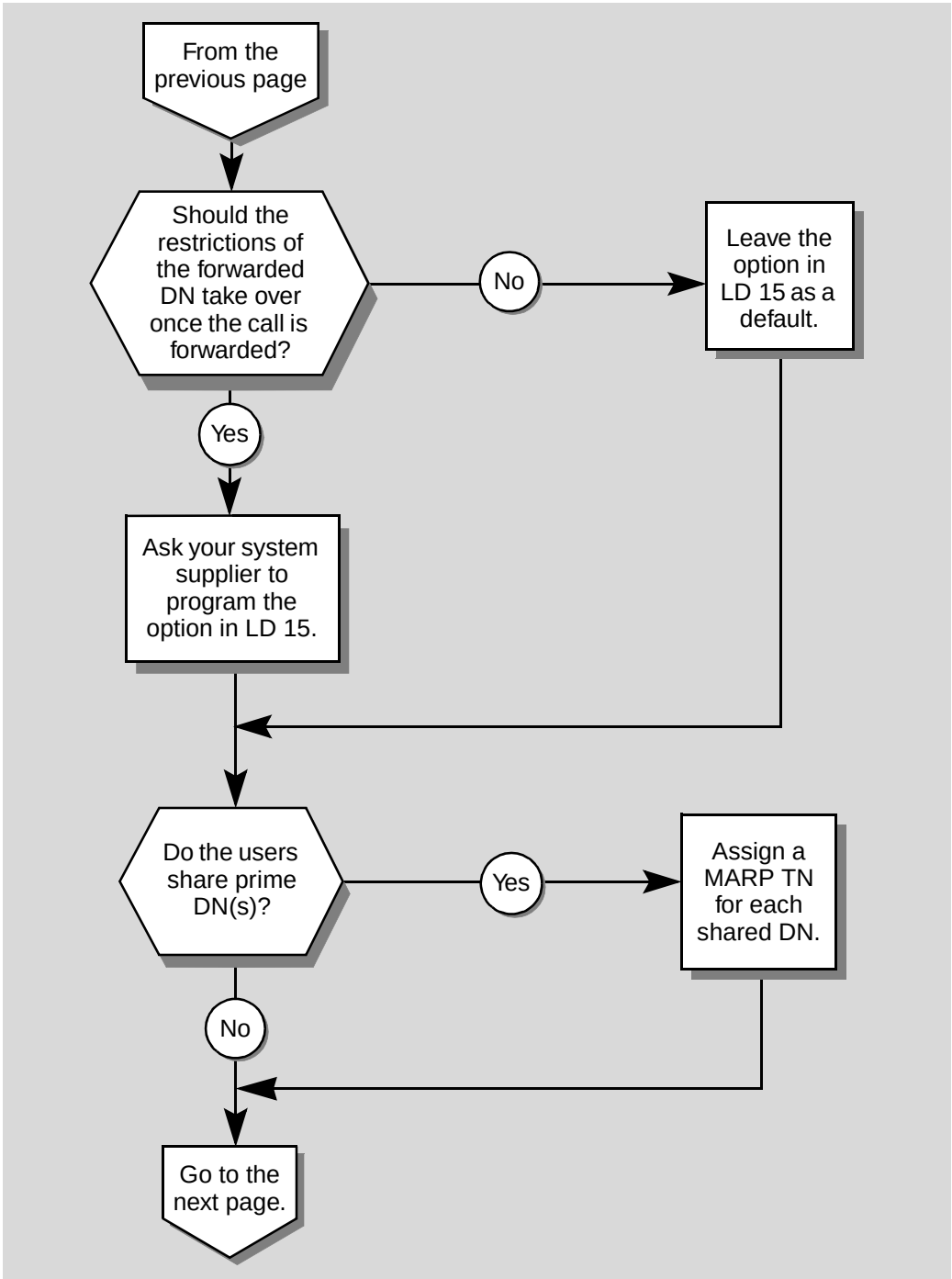
Call Forward All Calls



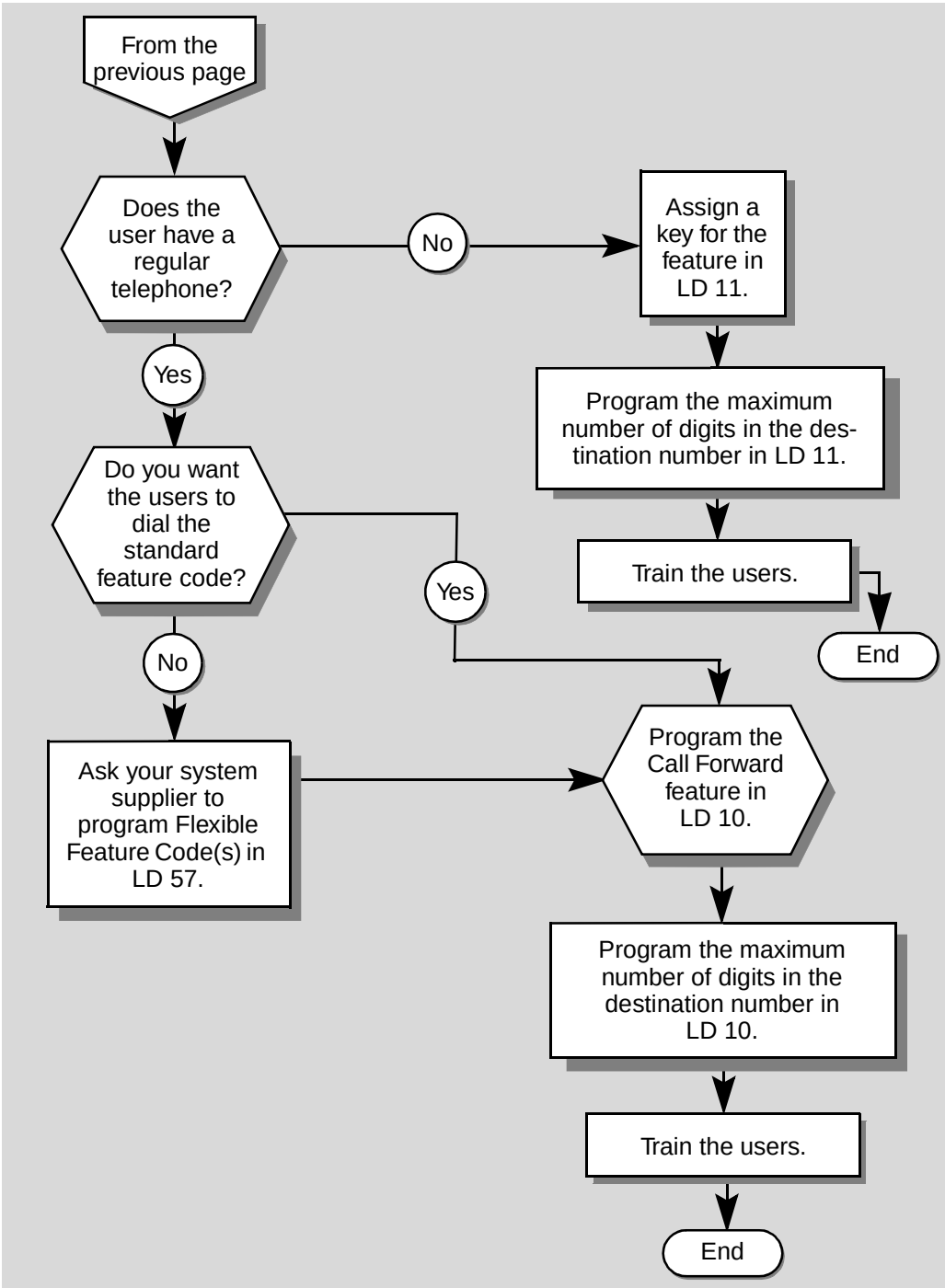
Call Forward All Calls



Call Forward All Calls



Call Forward All Calls



Call Forward All Calls

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Forward All Calls feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose the starting point in this procedure that applies to the type of telephone you wish to program.**

If	Do
new regular telephone	step 3
change existing regular telephone	step 4
new SL-1-type or digital telephone	step 7
change existing SL-1-type or digital telephone	step 8

— continued —

Call Forward All Calls

STEP	ACTION
3	**Program a new regular telephone.**

> LD 10

REQ	NEW	
TYPE	500	regular telephone (such as Unity series)
TN	L S C U	Input the Terminal Number to be assigned to the new telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number).

program the basics... Refer to Tasks 1–14 for information.

Carriage return until you see the prompt FTR

FTR	CFW XX	Assign the Call Forward All Calls feature. Set the maximum number of digits the user can enter for the Call Forward destination number. XX is the maximum number of digits the user can enter for the Call Forward destination number. Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16. As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see either of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
4	**Program a change to an existing regular telephone.**

> LD 10

REQ	CHG	
TYPE	500	regular telephone (such as Unity series)
TN	L S C U	Input the Terminal Number (TN) assigned to this telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number).

ECHG

If	**Do**
you want to use "Easy change"	Input YES and go to step 5.
you do not want to use "Easy change"	Input NO and go to step 6.

For more information on "Easy change," go to the *Basic programming instructions* section of this book.

— continued —

Call Forward All Calls

STEP	ACTION
5	**Program an "Easy Change" to an existing regular telephone.**

ITEM

If	Do
assigning the feature and/ or setting the maximum number of digits in the destination	FTR CFW XX
changing the maximum number of digits in the destination	FTR CFW XX
removing the feature	FTR XCFW

Where:

XX is the maximum number of digits the user can enter for the Call Forward destination number. Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16. As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
6	**Program a change (not Easy Change) to an existing regular telephone.**

Carriage return until you see the prompt FTR

If	Do
assigning the feature and/ or setting the maximum number of digits in the destination	CFW XX
changing the maximum number of digits in the destination	CFW XX
removing the feature	XCFW

Where:

XX is the maximum number of digits the user can enter for the Call Forward destination number. Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16. As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
7	**Program a new SL-1 or digital telephone.**

> LD 11

REQ NEW

TYPE Input the proper type of telephone.

TN L S C U Input the Terminal Number (TN) to be assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number).

program the basics... Refer to Tasks 7–19 for information.

Carriage return until you see the prompt KEY

KEY Z CFW YY Input the key number on which you are assigning the Call Forward All Calls feature. Z refers to a key number between 0–69.

Assign the Call Forward All Calls feature.

YY represents the maximum number of digits the user can enter for Call Forward destination number.
Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16.
As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
8	**Program a change to an existing SL-1 or digital telephone.**

> LD 11

REQ CHG

TYPE Input the proper type of telephone.

TN L S C U Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number).

ECHG

If	**Do**
you want to use "Easy change"	Input YES and go to step 9.
you do not want to use "Easy change"	Input NO and go to step 10.

For more information on "Easy change", go to the *Basic programming instructions* section of this book.

— continued —

Call Forward All Calls

STEP	ACTION
9	**Program an "Easy Change" to an existing SL-1 or digital telephone.**

ITEM

If	Do
assigning the feature and/ or setting the maximum number of digits in the destination	KEY Z CFW YY
changing the maximum number of digits in the destination	KEY Z CFW YY
removing the feature	KEY Z XCFW

Where:

Z is the key number on which you are assigning the feature

YY is the maximum number of digits the user can enter for the Call Forward destination number. Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16. As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
10	**Program a change (not Easy Change) to an existing SL-1 or digital telephone.**

Carriage return until you see the prompt KEY

If	Do
assigning the feature and/ or setting the maximum number of digits in the destination	KEY Z CFW YY
changing the maximum number of digits in the destination	KEY Z CFW YY
removing the feature	KEY Z XCFW

Where:

Z is the key number on which you are assigning the feature

YY is the maximum number of digits the user can enter for the Call Forward destination number. Prior to Release 22, choose one of the following: 4, 8, 12,16, 20, 23. The default is 16. As of Release 22, choose any number between 4 and 23. The default is 4.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 11.

— continued —

Call Forward All Calls

STEP	ACTION
11	**Check that the feature works on the telephone which you have just programmed.**

Refer to the *Using the feature* part of this module for instructions on the proper use of the feature.

If	Do
feature works	step 12
feature does not work	step 1

12	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 13

13	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

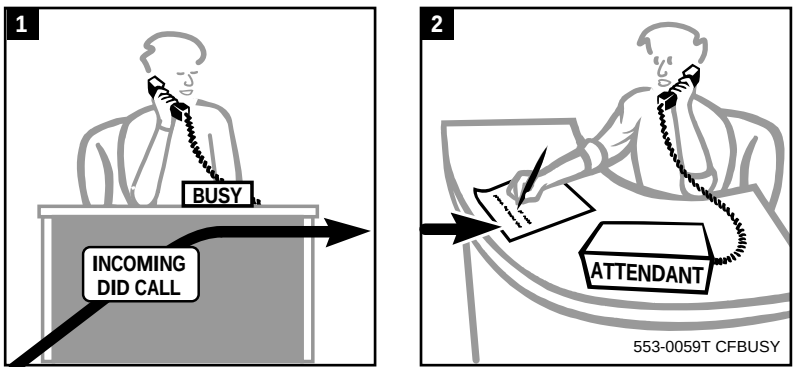
STEP	ACTION
14	**Verify that the data dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE** **If** — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 15
15	**Terminate this overlay program.**
	. **** **>** LOGO
16	**Terminate this programming session.**
	Log off. **>** LOGO
17	**You have completed the programming required to add or change the Call Forward All Calls feature on a telephone.**
	END

Call Forward All Calls

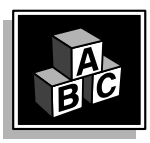
Call Forward Busy

Purpose

Some systems are configured to have external calls come in directly to telephones and not to the attendant first. To do this they use Direct-Inward-Dialing (DID) trunks. If the Call Forward Busy feature is enabled in programming and the telephones which receive calls from the DID trunks are busy, this feature routes additional incoming calls to the attendant console(s).



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Call Forward Busy

Setting up the feature

Call Forward Busy comes with the communication system, but the telephones do not come programmed to use the capability. You select the DID telephones that are to have Call Forward Busy, then you use the procedure in this module to program each one.

In the Class of Service programming of each telephone, there are two choices when setting up this feature: Call Forward Busy denied or allowed. Call Forward Busy is denied by default. If no other feature is enabled that affects calls when the DID telephone is busy, then if you deny the Call Forward Busy feature, callers hear a busy tone when they try to reach the busy DID telephone. If you allow the Call Forward Busy feature in the Class of Service programming, calls from DID trunks are routed to the attendant when the DID telephone is busy.

The attendant is the only destination to which this feature sends calls. If some other destination is preferable, use the Hunting feature instead.

This feature has no effect on telephones which do not receive incoming calls from DID trunks.

Using the feature

Any type of telephone

The information you need is in the preceding parts of this module.

Interactions with other features

Call Forward Busy works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems. Proper training can reduce the number of repair calls of this nature.

Call Forward All Calls interacts with Call Forward Busy

If the DID telephone user activates the Call Forward All Calls feature, then all calls which are intended for that telephone are routed to the Call Forward destination programmed by the user. This is true whether the telephone is busy or not.

Hunting interacts with Call Forward Busy

The Hunting feature affects telephones when they are busy. Hunting routes calls that are intended for a busy telephone to a Directory Number (DN). There is further information in Task 37, *Hunting*.

If both Hunting and Call Forward Busy are allowed in the Class of Service of one telephone, then the Hunting feature takes priority. Calls are routed to the Hunt destination when the telephone is busy, not to the attendant.

Sometimes it is a good idea to allow both Hunting and Call Forward Busy for one telephone, so that if a call Hunts to another DN and that DN is also busy, but not programmed to Hunt, then the call does get routed somewhere — to the attendant.

Call Waiting interacts with Call Forward Busy

If a DID telephone has both Call Waiting and Call Forward Busy allowed in the Class of Service, when the telephone is busy the first additional incoming call goes into a Call Waiting mode. The DID telephone user hears two bursts of tone indicating that there is a call waiting to be answered. If the user continues to talk, and a second additional call comes in, it is routed to the attendant. These additional calls, which come in when there is already a waiting call, might get better service than the waiting call if the users are not trained well on the use of Call Waiting.

If the same telephone also has Hunting allowed, then the additional calls Hunt to the Hunt DN and do not go into a Call Waiting mode.

Call Forward Busy

Make Set Busy interacts with Call Forward Busy

If a DID telephone user activates the Make Set Busy feature, and an incoming call comes in for that telephone while the feature is active, it is routed to the attendant, if Call Forward Busy is allowed. If Hunting is also allowed, calls Hunt to the Hunt DN instead.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Console Incoming Call Indicator key

You can set up the attendant console(s) to have an Incoming Call Indicator (ICI) key which lights up when calls are routed to the console(s) from busy DID telephones by the Call Forward Busy feature.

This helps the attendant to greet the caller more appropriately by explaining to the caller that the DID telephone is busy.

Control tips

- You might want to monitor and control the use or over-use of the Make Set Busy feature if Call Forward Busy is also allowed. The attendant(s) can become very busy with redirected calls for users who are not really busy but merely using Make Set Busy frequently.

  You might want to restrict DID telephones which have Call Forward Busy allowed from having the Make Set Busy feature.

- If you are using DID trunks to take some of the load from the attendant(s), a feature like Call Forward Busy can be counterproductive, if DID users are frequently busy or you do not have many attendants. You might want to monitor the increased traffic load on the attendant(s) if you implement the Call Forward Busy feature at several DID telephones.

Administration tips

- Before you implement Call Forward Busy and route callers to the attendant(s), consider the impact of this on the callers who use the DID telephone numbers of your employees. Callers may have to wait in the attendant queue before being answered, or the attendant may not have information to help the caller that another employee might have.

  Consider whether callers can be better served by being routed to other DNs rather than to the attendant(s). If so, implement the Hunting feature instead of Call Forward Busy. Refer to Task 37, *Hunting*.

Training tips

- Tell DID users that occasionally they might receive calls extended from the attendant after they have been busy on calls. It helps if they understand that some of their callers will be handled by an attendant during busy periods.
- Do what you can to improve communication between the attendant(s) and the DID users.
- Tell users who have both Call Waiting allowed and Call Forward Busy allowed that if they are busy and they hear two bursts of tone, this means there is a call waiting to be answered. Make users very comfortable with the procedure for answering waiting calls. These calls do not route to an attendant. The caller hears ringing and does not know that the user is busy.

Call Forward Busy

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 191
Checklist

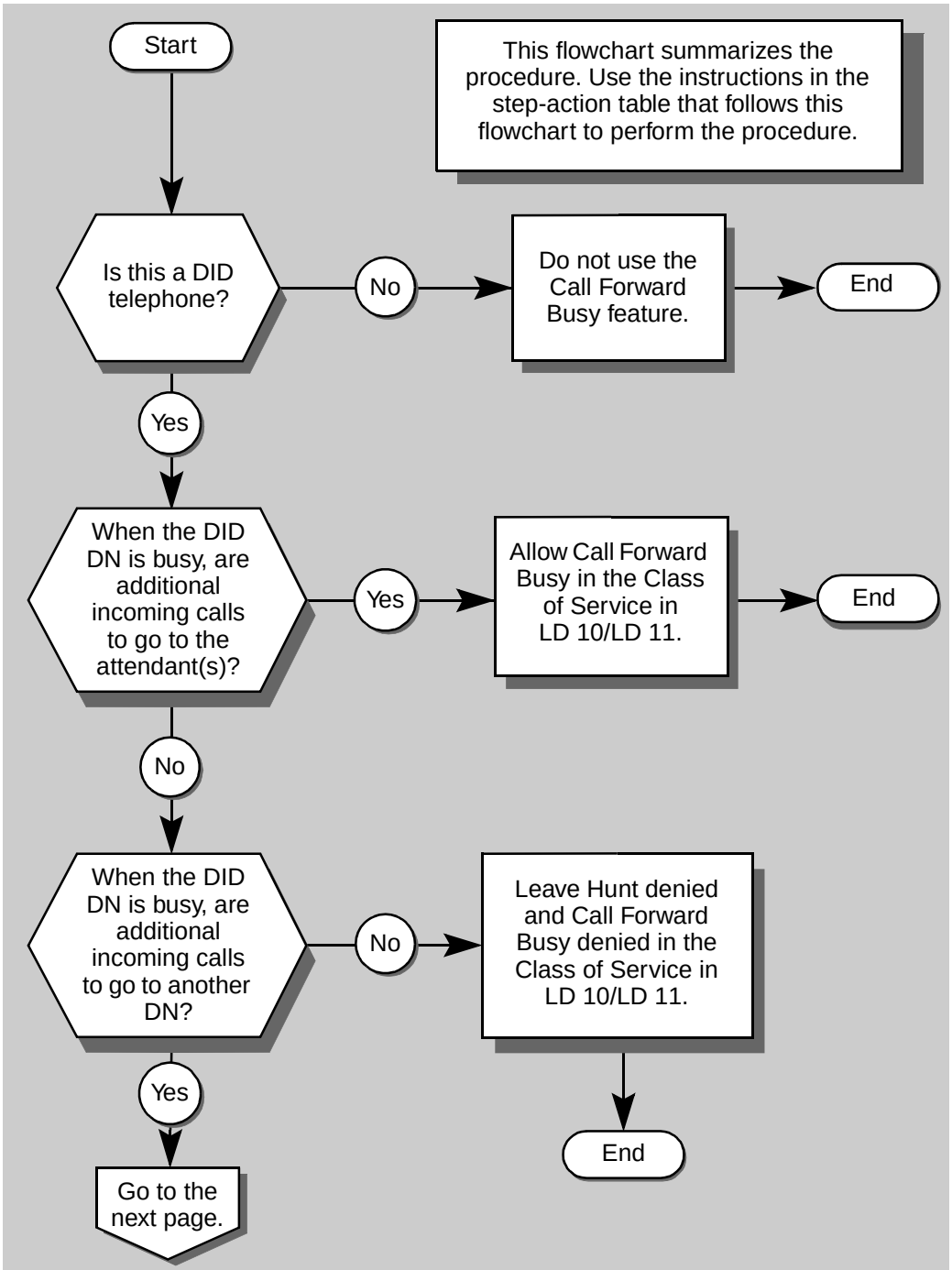
Basic	Optional	Preparation
✔		Decide if the attendant(s) on your system can handle rerouted calls from busy DID telephones.
✔		Decide if the DID telephone can use the attendant(s) as the best form of backup when they are busy.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
	✔	Decide whether the attendant(s) are to have an Incoming Call Indicator key on the console(s).

What's next?

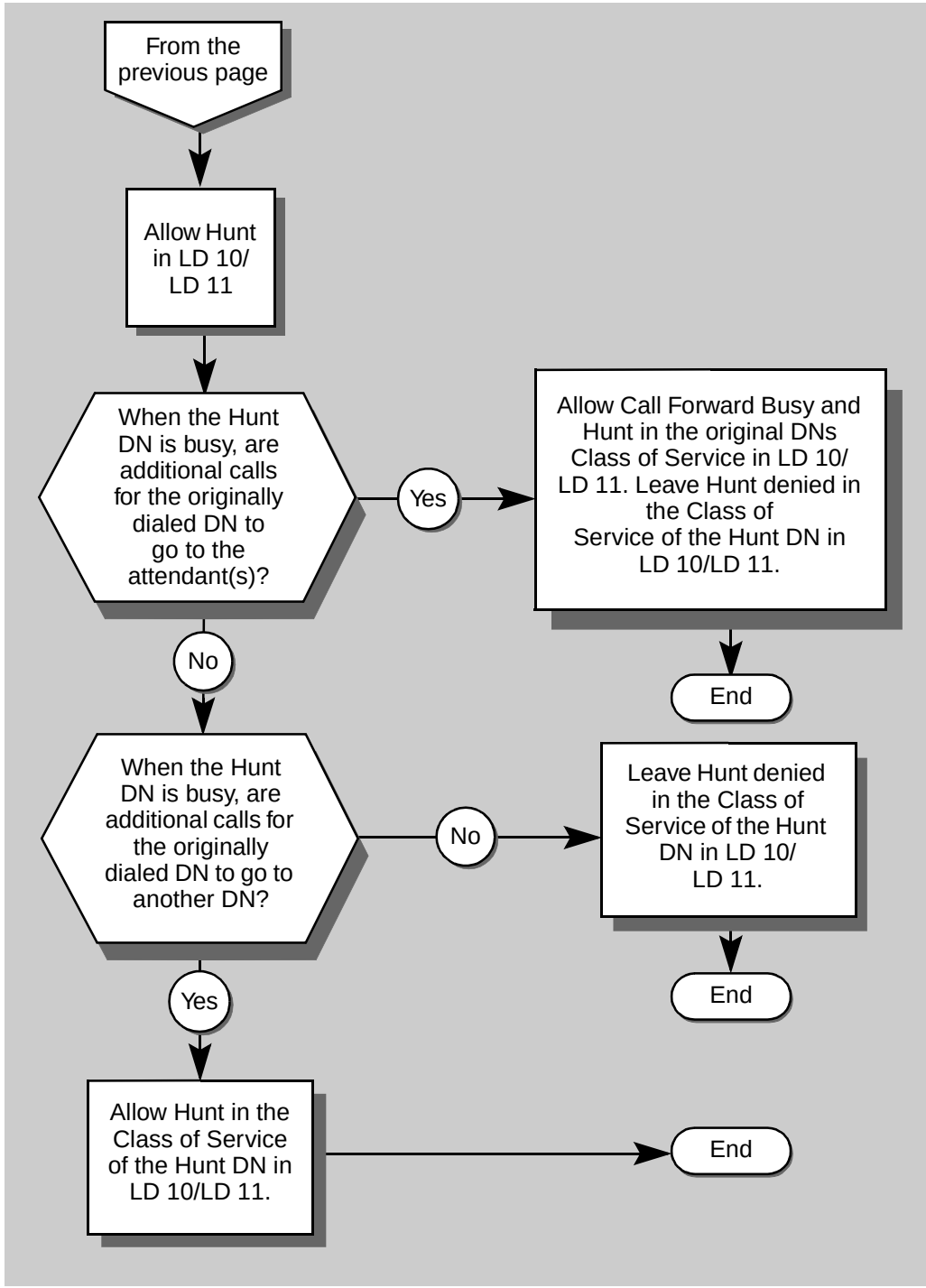
A flowchart follows which summarizes the implementation decisions and procedures for Call Forward Busy.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Call Forward Busy



Call Forward Busy



Call Forward Busy

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Forward Busy feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
new dial or Digitone-type telephone	step 3
change to a dial or Digitone-type telephone	step 4
new digital or SL-1-type telephone	step 11
change to a digital or SL-1-type telephone	step 12

— continued —

Call Forward Busy

STEP	ACTION
3	**Program a new dial or Digitone-type telephone.**

> LD 10

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt CLS

CLS	FBD or	
	<cr>	Call Forward Busy denied — default
	FBA	Call Forward Busy allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 19.

4	**Print a TN Block of the existing telephone.**

Refer to *Basic programming instructions* for help.

5	**Check to see if the Hunting feature is allowed or denied.**

Look at the printout data for the existing telephone.

Beside the CLS prompt look for one of these two mnemonics: HTA or HTD

This information is needed later in this procedure.

— continued —

Call Forward Busy

STEP	ACTION
6	**Program a change to the Call Forward Busy feature on a dial or Digitone-type telephone.**

```
> LD 10
REQ     CHG       Program a change to an existing telephone
TYPE    500       Dial or Digitone-type telephone
TN      L S C U   Input the Terminal Number of the telephone
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 7.
not using “Easy Change”	Input NO or <cr> and go to step 8.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

7	**Program an “Easy Change” to an existing dial or Digitone-type telephone.**

The item you are changing is the Class of Service (CLS) followed by a space and one of the choices below.

If	Do
telephone is changing to Call Forward Busy allowed	Input FBA — go to step 10.
telephone is changing to Call Forward Busy denied	Input FBD — go to step 9.

step 7 continues.....

— continued —

Call Forward Busy

STEP	ACTION
7 continued ...	
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory.
8	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**
	Carriage return until you see the prompt CLS

If	Do
telephone is changing to Call Forward Busy allowed	Input FBA — go to step 10.
telephone is changing to Call Forward Busy denied	Input FBD — go to step 9.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

— continued —

Call Forward Busy

STEP	ACTION
9	**Program correct interaction with the Hunting feature.**

If	Do
callers are to hear busy tone when this telephone is busy	Check the TNB printout you did earlier. Ensure Hunting is denied (CLS HTD) and then go to step 19. If Hunting is not denied, refer to Task 37, *Hunting* for information on programming a change to the Hunting feature.
calls are to Hunt to another DN when the telephone is busy	Refer to Task 37, *Hunting*, for more information on the Hunting feature. Go to step 19.

10	**Program correct interaction with the Hunting feature.**

If	Do
calls are to go immediately to the attendant when this telephone is busy	Check the TNB printout you did earlier. Ensure that Hunting is denied (CLS HTD) is programmed. Refer to Task 37, *Hunting*, for more information on the Hunting feature. Go to step 19.
calls are to go to another DN when this telephone is busy and to the attendant if that telephone is also busy	Check the TNB printout you did earlier. Ensure that Hunting is allowed (CLS HTA) is programmed. Print a TNB of the other telephone to ensure it is programmed as Hunting denied (CLS HTD).

Refer to *Basic programming instructions* for help with the TNB. Refer to Task 37, *Hunting* for more information on the Hunting feature.

Go to step 19.

— continued —

Call Forward Busy

STEP	ACTION
11	**Program a new digital or SL-1-type telephone.**

> LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone

program the basics … Refer to Tasks 7–19 for information.

carriage return until you see the prompt CLS

CLS	FBD or	
	<cr>	Call Forward Busy denied-default
	FBA	Call Forward Busy allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 19.

12	**Print a TN Block of the existing telephone.**

Refer to *Basic programming instructions* for help.

13	**Check to see if the Hunting feature is allowed or denied.**

Look at the printout data for the existing telephone.

Beside the CLS prompt look for one of these two mnemonics: HTA or HTD

This information is needed later in this procedure.

— continued —

STEP	ACTION

14 Program a change to the Call Forward Busy feature on a digital or SL-1-type telephone.

> LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

15 Program an “Easy Change” to an existing digital or SL-1-type telephone.

The item you are changing is the Class of Service (CLS) followed by a space and one of the choices below.

If	Do
telephone is changing to Call Forward Busy allowed	Input FBA — go to step 18.
telephone is changing to Call Forward Busy denied	Input FBD — go to step 17.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

— continued —

Call Forward Busy

STEP	ACTION
16	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**
	Carriage return until you see the prompt CLS
	If — **Do**
	telephone is changing to Call Forward Busy allowed — Input FBA — go to step 18.
	telephone is changing to Call Forward Busy denied — Input FBD — go to step 17.
	Carriage return until you see one of the following messages: **`U.data P.data`** small systems or **`MEM AVAIL: (U/P) USED:TOT:`** large systems
	When one of these messages appears, your change has been entered into the memory.
17	**Program correct interaction with the Hunting feature.**
	If — **Do**
	callers are to hear busy tone when this telephone is busy — Check the TNB printout you did earlier. Ensure Hunting is denied (CLS HTD) and then go to step 19. If Hunting is not denied, refer to Task 37, *Hunting* for information on programming a change to the Hunting feature.
	calls are to Hunt to another DN when the telephone is busy — Refer to Task 37, *Hunting*, for more information on the Hunting feature. Go to step 19.

— continued —

Call Forward Busy

STEP	ACTION
18	**Program correct interaction with the Hunting feature.**

If	Do
calls are to go immediately to the attendant when this telephone is busy	Check the TNB printout you did earlier. Ensure that Hunting is denied (CLS HTD) is programmed. Refer to Task 37, *Hunting* for more information on the Hunting feature. Go to step 19.
calls are to go to another DN when this telephone is busy and to the attendant if that telephone is also busy	Check the TNB printout you did earlier. Ensure that Hunting is allowed (CLS HTA) is programmed. Print a TNB of the other telephone to ensure it is programmed as Hunting denied (CLS HTD).

Refer to *Basic programming instructions* for help with the TNB. Refer to Task 37, *Hunting*, for more information on the Hunting feature.

Go to step 19.

19 Check that the programming which you have just done is correct.

Place DID calls to the telephone when it is busy and make sure the expected treatment happens.

If	Do
feature works properly	step 20
feature does not work properly	step 1

— continued —

Call Forward Busy

STEP	ACTION
20	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 21

21	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

STEP	ACTION
22	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 23

STEP	ACTION
23	**Terminate this overlay program.**

```
. ****
```

STEP	ACTION
24	**Terminate this programming session.**

Log off.

```
> LOGO <cr>
```

STEP	ACTION
25	**You have completed the programming required to add or change the Call Forward Busy feature on a telephone.**

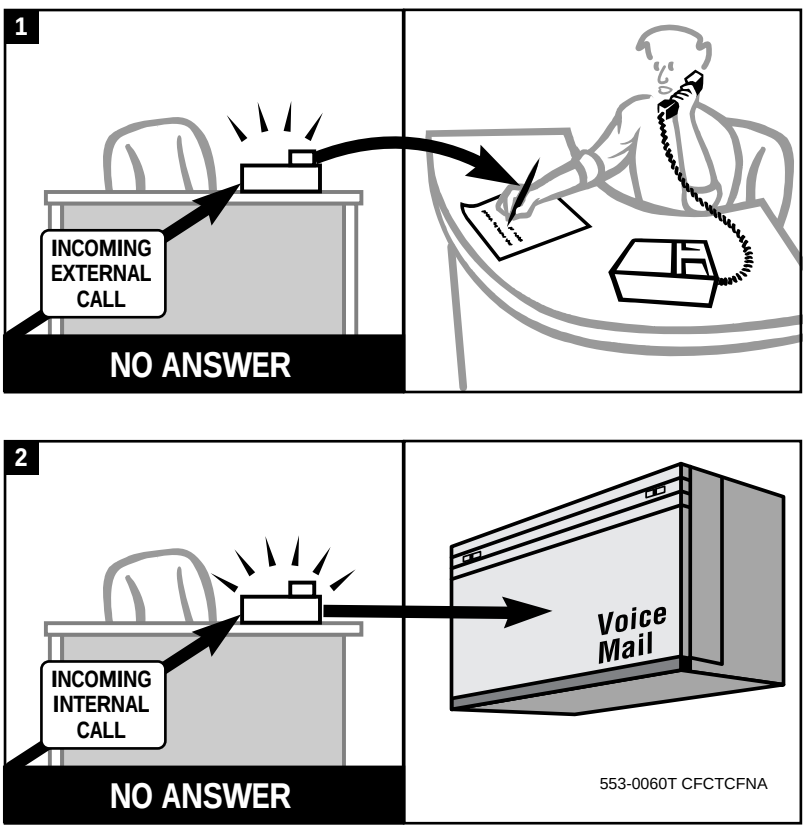
END

Call Forward Busy

Call Forward by Call Type (Call Forward No Answer Option)

Purpose

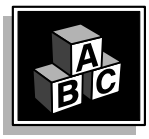
This enhancement to the Call Forward No Answer feature provides the capability for the system to send an internal call to a different Directory Number (DN) from the DN used for an external call when a telephone rings a specific number of times and is not answered.



Call Forward by Call Type (Call Forward No Answer Option)

A very common way to use this capability is shown in the illustration. When a telephone is not answered, internal calls can be redirected to Voice Mail messaging while external calls can be redirected to a person.

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Setting up the feature

Before you read further, refer to Task 36, *Call Forward No Answer* for more information on the basic Call Forward No Answer feature. The information presented here focuses on the enhancements provided by the Call Forward by Call Type - Call Forward No Answer feature.

The name of the feature in the *X11 features and services* is Call Forward by Call Type. Look it up using that name. This Task module concentrates on the Call Forward No Answer aspects of this feature. For more information on the other aspects of this feature, refer to Task 35, *Call Forward by Call Type (Hunting Option).*

Table 192
Software requirements

Release required	Software package(s) required
10	none

Call Forward by Call Type (Call Forward No Answer Option)

Programming the Customer Data Block (LD 15)

There are customer-wide parameters called treatments which must be programmed for the basic Call Forward No Answer feature. These treatments must be programmed for the Call Forward by Call Type (Call Forward No Answer Option) feature to work as well. More information on these parameters can be found in Task 36, *Call Forward No Answer*. Call Forward by Call Type (Call Forward No Answer Option) only works if you program FDN or HNT as the treatments in LD 15.

Programming the telephones

To enable the Call Forward by Call Type (Call Forward No Answer Option) capability, you allow the Call Forward No Answer feature, in addition to the Call Forward by Call Type feature, in the Class of Service of the telephone.

When you allow Call Forward by Call Type in the Class of Service of a telephone, you can program Call Forward No Answer by Call Type as well as Hunting by Call Type. You select the telephones that are to have Call Forward by Call Type, then you use the procedure in this module to program each one.

If LD 15 Call Forward No Answer treatment is HNT when you allow Call Forward by Call Type for a telephone, you program two DNs for the following situations:

- a Hunt DN for internal calls to use for Hunting and Call Forward No Answer
- a Hunt DN for external calls to use for Hunting and Call Forward No Answer

If LD 15 Call Forward No Answer treatment is FDN when you allow Call Forward by Call Type for a telephone, you program four DNs for the following situations:

- a Call Forward No Answer DN for internal calls
- a Call Forward No Answer DN for external calls
- a Hunt DN for internal calls
- a Hunt DN for external calls

Call Forward by Call Type (Call Forward No Answer Option)

You do not have to program four different DNs. For example, you might want internal and external unanswered calls to forward differently, but you might want calls of both types to Hunt to one destination. You can program the same DN for both internal and external Hunting.

Once you activate Call Forward by Call Type in the Class of Service, you must input a DN in response to these two (or four) programming prompts. You cannot leave the response to any of these prompts blank. If you do not want calls of a certain type to forward, you input the DN of the telephone itself in response to the prompt. If you do this, the telephone continues to ring when the telephone is not answered, instead of the call forwarding to another DN.

For the purposes of the Call Forward by Call Type feature, internal calls are defined as:

- telephone to telephone calls
- incoming calls from Direct Inward Sytem Access (DISA) DNs
- incoming calls from trunk groups identified as *internal-type* in the programming of their Route Data Blocks

Only incoming calls from trunk groups which are designated as external-type are sent to the external Hunt DN or the external Call Forward No Answer DN programmed for a telephone when it is busy or not answered. The treatments for external calls, internal calls, and DID calls are specified in the Customer Data Block.

When a telephone is not answered, it is very common for a user to want internal calls routed to Voice Mail and external calls routed to a person. If this is the case, you might want to program a private network TIE trunk group as internal-type, if the calls coming in on these TIE trunks can be routed to Voice Mail along with other internal-type calls.

Using the feature

Refer to the illustrations and text prior to this part for information on the use of this feature.

Call Forward by Call Type (Call Forward No Answer Option)

Interactions with other features

Call Forward by Call Type (Call Forward No Answer Option) works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Refer to Task 36, *Call Forward No Answer* for the interactions mentioned there. Here, the focus is on the interactions specific to Call Forward by Call Type operation. The basic interactions in Task 36, *Call Forward No Answer*, still apply and you should make yourself familiar with them.

Call Forward All Calls interacts with Call Forward by Call Type (Call Forward No Answer Option)

When a user activates the Call Forward All Calls feature, all incoming calls are redirected to the Call Forward All Calls destination manually input by the user at the telephone, regardless of what call-type they are. Incoming calls do not ring the telephone when Call Forward All Calls is active.

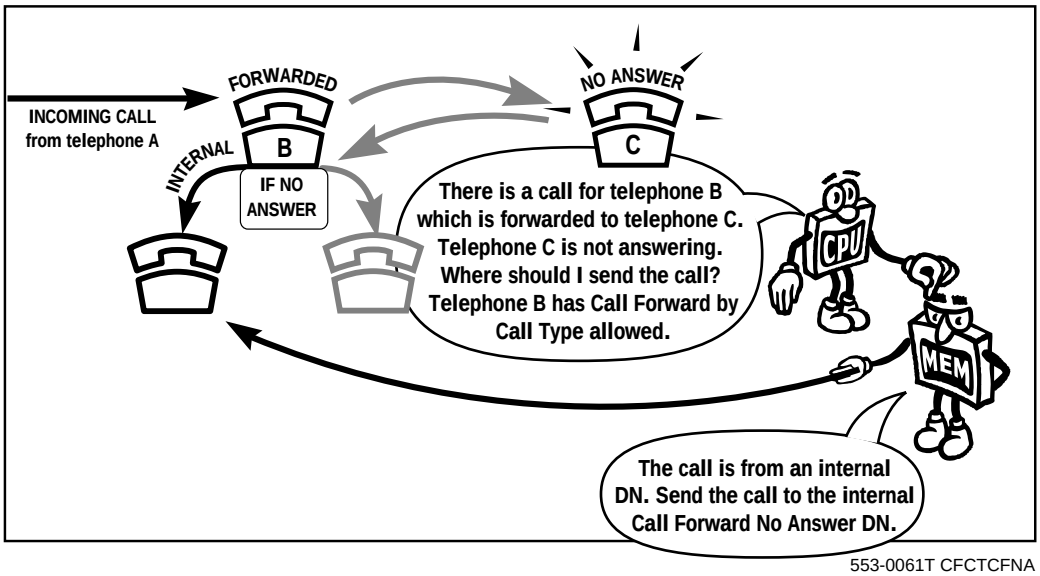
The following example illustrates another way the two features interact.

User A calls telephone B. Telephone B is in Call Forward All Calls mode, redirecting calls to telephone C. If user C does not answer, *the call redirects to the Call Forward No Answer DN programmed for telephone B, since that was the originally dialed DN. The call forwards based on its call-type, if Call Forward by Call Type is allowed.*

If telephone C is the Call Forward No Answer DN of telephone B, then telephone C continues to ring and does not forward, even if Second Level Call Forward No Answer is allowed.

Call Forward by Call Type (Call Forward No Answer Option)

Call Forward All Calls interacts with Call Forward by Call Type (Call Forward No Answer Option)



553-0061T CFCTCFNA

Multiple Appearance DNs interact with Call Forward by Call Type (Call Forward No Answer Option)

Refer to the information on this interaction in Task 36, *Call Forward No Answer*. When the Call Forward No Answer feature name is used, you can substitute the Call Forward by Call Type (Call Forward No Answer Option) feature name and the information still applies.

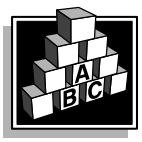
Private Lines interact with Call Forward by Call Type - Call Forward No Answer

Trunks can be programmed to operate as Private Lines. When you program a trunk in this way, incoming calls on the trunk are programmed to terminate at a certain DN. This DN can appear on one, or more than one telephone. Even though the incoming calls on this Private Line ring at a DN, many features that normally operate on a DN do not apply to Private Line DNs. One of these is Call Forward by Call Type (Call Forward No Answer Option). This feature will not operate on that DN when an external or internal call is not answered.

Call Forward by Call Type (Call Forward No Answer Option)

Call Forward by Call Type (Call Forward No Answer Option) only operates on the DNs on a telephone which are not programmed as Private Line DNs.

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Call Party Name Display (CPND)

Table 193
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

The redirection codes can be up to four letters long. The default code for redirection by the Call Forward No Answer feature is the letter N. Calls which are redirected by the feature Call Forward by Call Type (Call Forward No Answer Option) also display the letter N. Decide what codes will work best for your users.

These codes can be seen on telephones with displays when calls are presented to them after being redirected by features such as Hunting.

For example, you might want people to see the code BUSY on their displays when they answer calls for other telephones because those people are busy and the calls Hunted.

Call Forward by Call Type (Call Forward No Answer Option)

People can greet the caller more appropriately if they know why the calls are being presented to their telephones in the first place.

Talk to your system supplier about implementing Call Party Name Display or you can refer to the *X11 features and services* for more information. The programming involved is beyond the scope of this book.

DID calls can ring at a telephone and then forward to the attendant

Direct Inward Dialing Call Forward No Answer Timer interacts with Call Forward No Answer by Call Type

With release 16.87G, you can program a timer defined in terms of the number of rings, that applies to unanswered DID calls. This timer is called the Direct Inward Dialing Call Forward No Answer Timer (DFNR). It must be enabled at the Customer Data Block level. When a call rings no answer, the Call Forward No Answer feature redirects the call. If the DID trunks are programmed as external-type and the unanswered telephone has Call Forward by Call Type allowed in its Class of Service, then the call forwards to the external Call Forward No Answer DN programmed for the telephone. If the DID trunks are programmed as internal-type and the unanswered telephone has Call Forward by Call Type allowed in its Class of Service, then the call forwards to the internal Call Forward No Answer DN programmed for the telephone.

If there is still no answer, the call is redirected to the attendant after the specified number of rings. There is a maximum of two Call Forward No Answer steps for this feature to operate. Therefore the feature called Second Level Call Forward No Answer conflicts with this.

For the feature DFNR Timer to work, the Customer Data Block must be programmed for Call Forward No Answer DID call treatments with a HNT response or FDN response.

Call Forward by Call Type (Call Forward No Answer Option)

An unanswered call can forward twice

Second Level Forward No Answer

Table 194
Software requirements

Release required	Software package(s) required
10	none

When an incoming call is not answered, it redirects to the Call Forward No Answer DN programmed at the originally dialed DN. The Call Forward No Answer DN might also ring no answer.

If it is programmed with Call Forward No Answer and Second Level Forward No Answer allowed in its Class of Service, the call redirects a second time. The call redirects to the Call Forward No Answer DN programmed at the second telephone.

If Call Forward by Call Type is allowed at both telephones, the forwarding occurs based on the call-type of the incoming call and the internal or external forwarding DN programmed at each ringing telephone.

After two Call Forward No Answer steps, a call can:

- recall to an attendant, if the call was originally extended by an attendant
- continue to ring until it is answered, if it is not an attendant-extended call
- stop ringing if the caller hangs up

There is a maximum of two Call Forward No Answer steps per call.

For more information, refer to Task 40, *Second Level Call Forward No Answer*.

Call Forward by Call Type (Call Forward No Answer Option)

A user can change the Call Forward No Answer DN using the telephone

User Selectable Call Redirection (USCR))

Table 195
Software requirements

Release required	Software package(s) required
19	139 — Flexible Feature Codes (FFC)

Ringing Cycle Options are part of the USCR feature.

Basic Call Forward No Answer has only one setting in the Customer Data Block (LD 15), for the number of times a telephone will ring before a call forwards. The setting affects all telephones in that customer group.

With the USCR feature, you can program three different Ringing Cycle Options in LD 15. Designated users can choose from these three ringing options to suit their individual needs. For each option the range is one to fifteen rings and the default for each option is four rings.

When you initially program each telephone, you assign it a Ringing Cycle Option. If you do not set it otherwise, Option 0 is entered by default. This option determines the number of times that telephone rings before Call Forward No Answer occurs. The user can select another ringing option later as long as the User Selectable Call Redirection option has been allowed in their Class of Service and that user has been given a Station Control Password.

Reprogramming redirection DNs is another part of the USCR feature.

A user can modify the DN for the following redirection-related features:

- Call Forward No Answer
- Hunting

Call Forward by Call Type (Call Forward No Answer Option)

If the telephone has Call Forward by Call Type allowed in the Class of Service, the user can change the DNs for the two features just listed as well as for the following two additional features:

- External Call Forward No Answer
- External Hunting

When you install a telephone, you must program a Call Forward No Answer DN (or possibly two different ones for internal calls and external calls) in order for the user to be able to change it with this feature.

For more information, refer to Task 41, *User Selectable Call Redirection*.

Users can choose not to forward when calling an unanswered telephone

Call Forward/Hunt Override Via Flexible Feature Code (FFC)

Table 196
Software requirements

Release required	Software package(s) required
20	139 — Flexible Feature Codes (FFC)

Note: in a networking environment, you need software package 159 — Network Attendant Service (NAS)

If a calling telephone (internal or on a NAS-equipped ISDN network) has the Call Forward/Hunt Override feature enabled in its Class of Service, it can override the Call Forward No Answer feature programmed on the called telephone. External callers (except those using Direct Inward System Access (DISA) ports cannot override the external Call Forward No Answer treatment if the telephone has Call Forward by Call Type allowed.

Call Forward by Call Type (Call Forward No Answer Option)

To use the Call Forward No Answer Override, the user initiates a call using a Flexible Feature Code (FFC) assigned for that purpose. If the called telephone is idle, it rings. Call Forward No Answer does not occur, the telephone rings until it is answered or the caller hangs up.

A call to a busy telephone does not Hunt if the call was initiated with the FFC for the override feature. The caller hears a busy tone. The caller can choose to queue for the busy telephone by using the Ring Again feature. For more information, refer to Task 37, *Hunting*.

Unanswered external calls can be redirected to an alternate DN at certain times of day

Call Redirection by Time of Day

Table 197
Software requirements

Release required	Software package(s) required
22	none

With the Call Redirection by Time of Day (CRTOD) feature, incoming external unanswered calls can be automatically redirected to a predefined Directory Number at a specified time of day. You can program four Alternate Redirection time periods for each Customer Group.

This is useful for users who want their external unanswered calls to redirect to alternate DNs at specified times of the day. You assign one of the Alternate Redirection time periods to the user's telephone.

The Call Redirection by Time of Day feature also applies to Call Forward No Answer, Hunting and Call Forward by Call Type (Hunting option). Refer to the information on those features in this book.

Call Forward by Call Type (Call Forward No Answer Option)

Unanswered calls can be redirected to an alternate DN on certain days

Call Redirection by Day

Table 198
Software requirements

Release required	Software package(s) required
24	none

With the Call Redirection by Day (CRDAY) feature, incoming external calls can be automatically redirected to an alternate predefined Directory Number on one or more specified days of the week and/or holidays. You can program four Alternate Day Lists and four Alternate Holiday Lists for each Customer Group. Each Alternate Holiday List can contain up to 20 dates.

If a user wants their unanswered external calls to be redirected to a DN that is different from the one to which calls are normally sent, on certain days and/or holidays, then you assign one of the Alternate Day Lists and/or one of the Alternate Holiday Lists to the user's telephone. You program the alternate redirection DNs to be used for different types of redirected calls on those days for each telephone.

The Call Redirection by Day feature also applies to Call Forward No Answer, Hunting and Call Forward by Call Type (Hunting option). Refer to the information on those features in this book.

Call Forward by Call Type (Call Forward No Answer Option)

Control tips

- On a regular basis, you might want to print the Call Forward No Answer DNs which users are programming if you have User Selectable Call Redirection in place. If you have a network, users might be programming DNs which are actually in other switches and this might be causing confusion to your callers, especially callers external to your system. Tell users what DNs are acceptable for them to program and tell them you are doing regular printouts to check this.

Administration tips

- The tips in Task 36, *Call Forward No Answer* apply here as well. Refer to these for information.
- Decide which trunk groups to program as external-type and which to program as internal-type.
- Understand the types of incoming calls you get on each different trunk group. Understand how these callers react to different Call Forward No Answer treatments, for example, forwarding to Voice Mail or forwarding to a secretary or forwarding to a co-worker. Find out which treatment best serves the callers.
- If you are implementing Call Forward by Call Type (Call Forward No Answer Option) so that external calls forward to a person and internal calls forward to Voice Mail, ensure that you understand how the callers will react to that. Check that you have implemented Voice Mail so that internal callers can reach a person if they want. Train the users to tell callers, in their Voice Mail greeting, how to reach a person.
- If you have Second Level Call Forward No Answer, you must understand the forwarding pattern that the user is joining before you program the telephone. The person at the second forwarding DN must be trained to deal with the types of calls that will forward to the telephone. For example, if that user will answer external calls only, you must prepare the user for that.

Call Forward by Call Type (Call Forward No Answer Option)

Training tips

- As with basic Call Forward No Answer, the users must be trained to understand the forwarding patterns of the telephones and the interactions that might occur if more than one feature operates simultaneously.
- Use real examples of situations they could encounter. Demonstrate, if possible, to make the users comfortable. This results in fewer repair calls if you and your users understand the features fully.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 199
Checklist

Basic	Optional	Preparation
✔		Decide if your company-wide policies agree with forwarding internal calls differently from external calls.
✔		Decide what choices users have for forwarding DNs, if you want them to treat internal and external calls differently.
✔		Decide, on a user by user basis, who needs this feature. Find out what internal forwarding DN and what external forwarding DN each user needs.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

Table 199
Checklist (Continued)

Basic	Optional	Preparation
✔		Decide which trunk groups to program as internal-type and which to program as external-type.
✔		Verify the treatments for the call-types programmed in LD 15.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same internal and external forwarding DNs for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs and require different forwarding DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
	✔	Prepare your training information, and materials. Plan the way you want to address interactions.
	✔	Assign a code which will display when calls forward. Train the users.
	✔	Print out the second forwarding DN(s) if Second Level Call Forward No Answer is allowed. Make sure the forwarding pattern is appropriate for internal and external calls to this telephone.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

Table 199
Checklist (Continued)

Basic	Optional	Preparation
	✔	Decide if the user should be able to change the forward DN(s) programmed for the telephone. Assign a Station Control Password. Assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user can use the Override capability. If so, assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user needs calls redirected to an alternate DN during a certain daily time period.
	✔	With DID telephones, decide whether you want the DFNR timer.

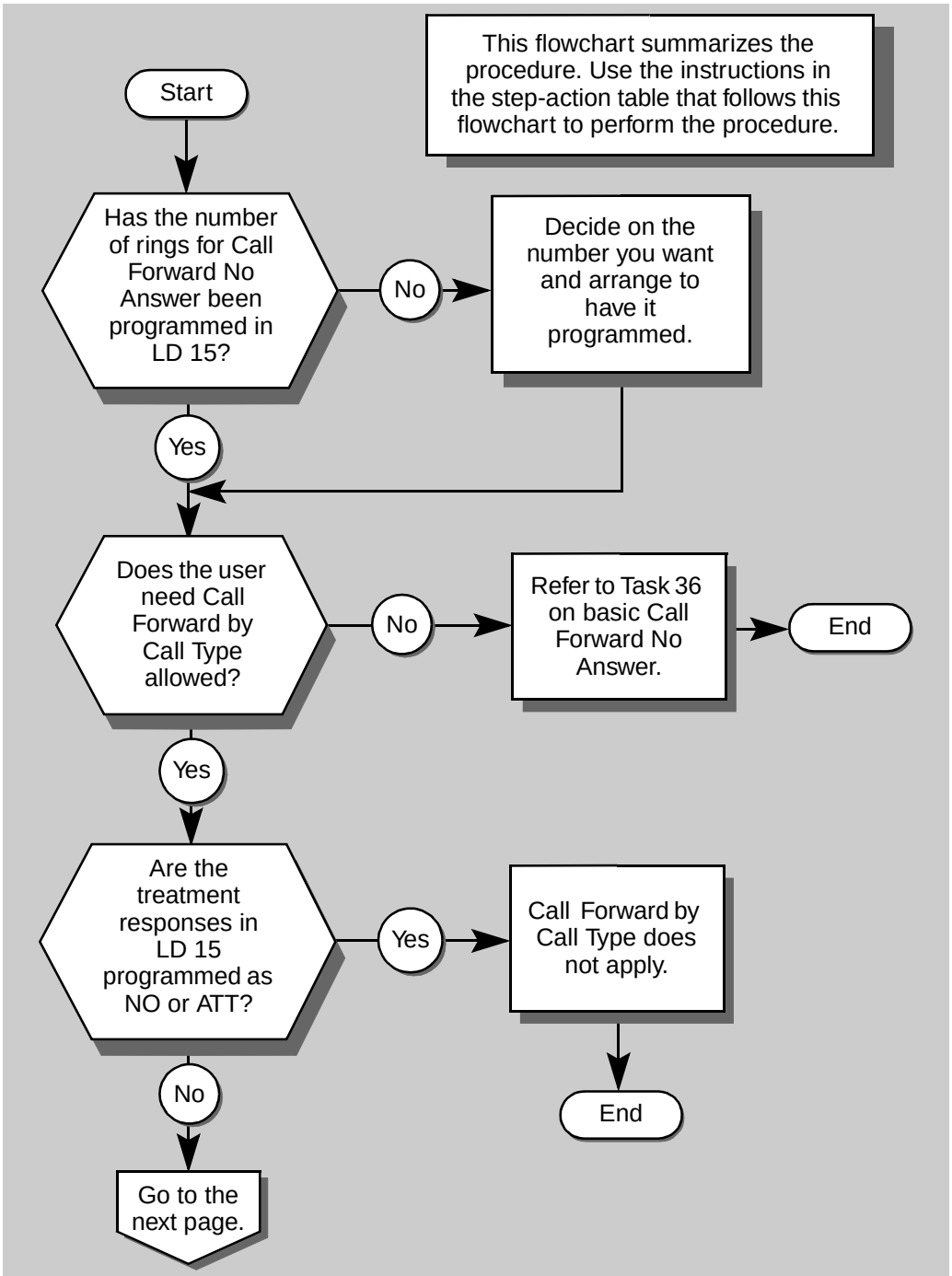
Call Forward by Call Type (Call Forward No Answer Option)

What's next?

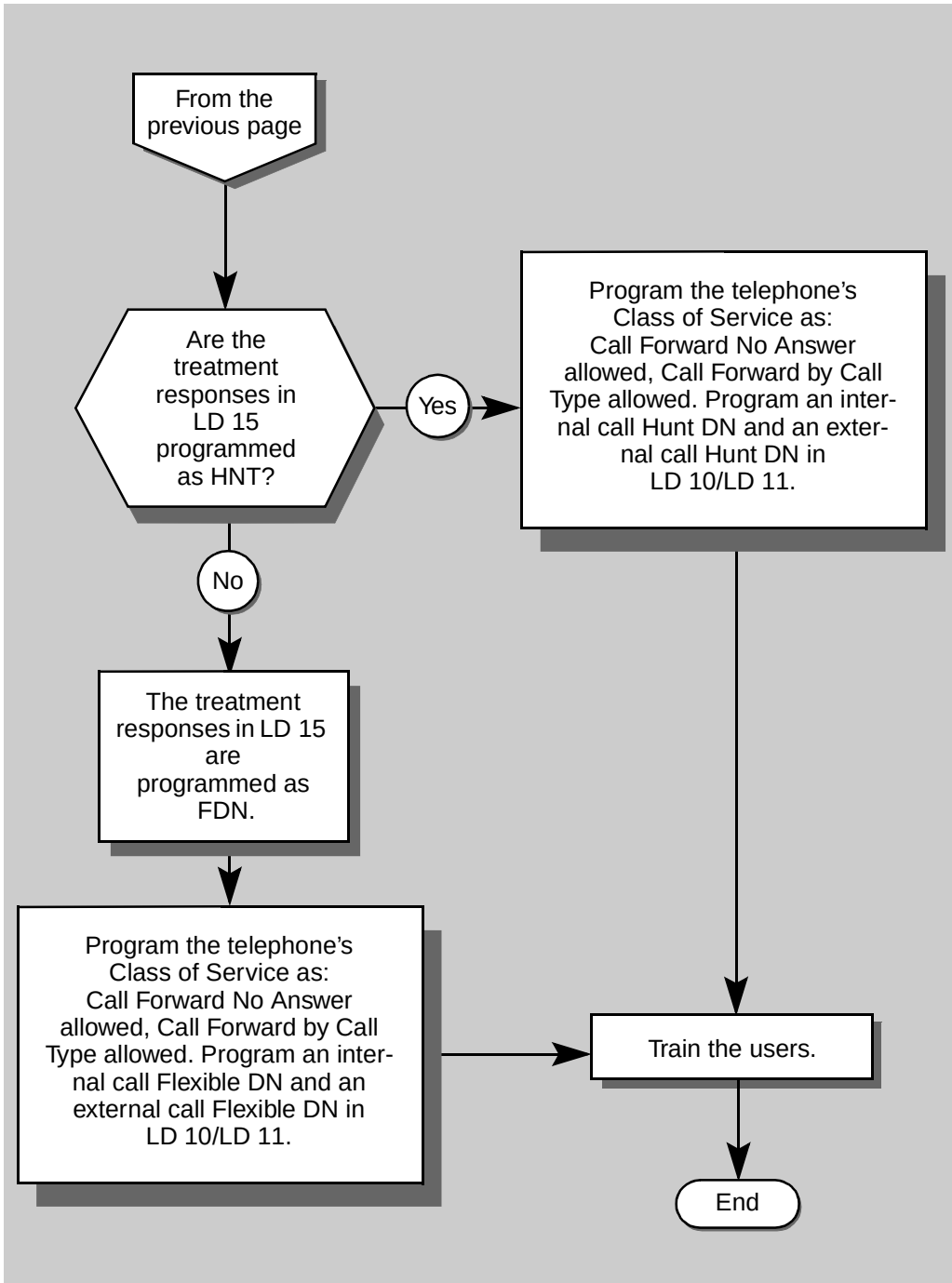
A flowchart follows which summarizes the implementation decisions and procedures for Call Forward by Call Type (Call Forward No Answer Option).

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Call Forward by Call Type (Call Forward No Answer Option)



Call Forward by Call Type (Call Forward No Answer Option)



Call Forward by Call Type (Call Forward No Answer Option)

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Forward by Call Type (Call Forward No Answer Option) feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Choose your starting point from the choices below.**

If	Do
new telephone	step 2
change to an existing telephone	step 11

STEP	ACTION
2	**Check that the number of rings for a “no answer” has been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
not programmed	Ask your system supplier to program it. Go to step 3.
programmed	step 3

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
3	**Check that the call treatments for all call-types on your system have been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
not programmed	Decide what treatments (NO, ATT, HNT, or FDN) suit your needs best and ask your system supplier to program a treatment for each call- type. Go to step 4.
programmed	step 4

4	**Choose your next step from the choices below.**

The treatments programmed in LD 15 affect what programming you must do in LD 10 and LD 11, the telephone overlay programs.

If	Do
treatments are NO	You cannot program Call Forward by Call Type (Call Forward No Answer Option). Leave telephone Class of Service as default, FND, Call Forward No Answer denied. Your task is complete.
treatments are ATT	You cannot program Call Forward by Call Type (Call Forward No Answer Option). Refer to Task 36, if you want basic Call Forward No Answer.
treatments are HNT	step 5
treatments are FDN	step 8

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
5	**Program the new telephone so unanswered calls forward to an internal or external Hunt DN.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
telephone is dial or Digitone-type	step 6
telephone is digital or SL-1-type	step 7

6 Program the new dial or Digitone-type telephone so unanswered calls forward to an internal or external Hunt DN.

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
6 continued ...	
	carriage return until you see the prompt CLS
	CLS FNA CFTA — Call Forward No Answer allowed Call Forward by Call Type allowed
	carriage return until you see the prompt FTR
	FTR EHT X..X — Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.
7	**Program the new digital or SL-1-type telephone so unanswered calls forward to an internal or external Hunt DN.**
	> LD 11
	REQ NEW — Program a new telephone **TYPE** — Input correct type of SL-1 or digital telephone **TN** L S C U — Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
	program the basics... — Refer to Tasks 7–19 for information.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION

7 continued ...

carriage return until you see the prompt CLS

CLS	FNA CFTA	Call Forward No Answer allowed Call Forward by Call Type allowed

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
EHT	X..X	Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
8	**Program the new telephone so unanswered calls forward to the flexible Call Forward No Answer DN.**

Login. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
telephone is dial or Digitone-type	step 9
telephone is digital or SL-1-type	step 10

STEP	ACTION
9	**Program the new dial or Digitone-type telephone so unanswered calls forward to an internal or external FDN.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)

program the basics... Refer to Tasks 1–6 for information.

carriage return until you see the prompt CLS

CLS	FNA CFTA	Call Forward No Answer allowed Call Forward by Call Type allowed

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
9 continued ...	
	carriage return until you see the prompt FTR
	FTR FDN X..X — Input the DN to which internal calls are to forward, X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	FTR EFD — Input the DN to which external calls are to forward, X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.
10	**Program the new digital or SL-1-type telephone so unanswered calls forward to an internal or external FDN.**
	> LD 11
	REQ NEW — Program a new telephone
	TYPE — Input correct type of SL-1 or digital telephone
	TN L S C U — Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
	program the basics... — Refer to Tasks 7–19 for information.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
10 continued ...	

carriage return until you see the prompt FDN

FDN	X..X	Input the DN to which internal calls are to forward. X..X represent a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA CFTA	Call Forward No Answer allowed Call Forward by Call Type allowed

carriage return until you see the prompt EFD

EFD	X..X	Input the DN to which external calls are to forward. X..X represent a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

11 Choose your next step from the choices below.

If	Do
you want to change the number of rings before calls forward	Ask your system supplier to program the change in LD 15.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
11 continued ...	
	If / **Do**
	you want to change the call treatments for any of the call types — Ask your system supplier to program the change in LD 15.
	you want to change a telephone from Call Forward by Call Type denied to allowed — step 12
	you want to change a telephone from Call Forward by Call Type allowed to denied — step 27
	you want to change the DN to which calls forward — step 34
12	**Choose your next step based on what is programmed for treatments in LD 15, the Customer Data Block.**
	If / **Do**
	you do not have access to LD 21 — Ask your system supplier what Call Forward No Answer treatments are programmed in the Customer Data Block. Look at the If-Do list below to find what step to go to based on the treatments which are programmed.
	you do have access to LD 21 — Log in and print your Customer Data Block. Look at the response to each of the following prompts: FNAD, FNAN (pre-Release 10 systems) FNAD, FNAT, FNAL (Release 10 and later)

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
12 continued ...	

If	Do
treatments are NO	You cannot have Call Forward by Call Type. If you want the feature, ask your system supplier to reprogram LD 15. Then follow the step below which is appropriate for the treatments you chose.
treatments are ATT	You cannot have Call Forward by Call Type. If you want the feature, ask your system supplier to reprogram LD 15. Then follow the step below which is appropriate for the treatments you chose.
treatments are HNT	step 13
treatments are FDN	step 20

13 Choose your next step based on the type of telephone you are changing.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
dial or Digitone-type	step 14
digital or SL-1-type	step 17

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
14	**Change an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
15	**Program an "Easy Change" to an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**	
	ITEM CLS CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA, if basic Call Forward No Answer is not already allowed.
	ITEM HUNT X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	ITEM FTR EHT X..X	Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
16	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**

carriage return until you see the prompt HUNT

HUNT X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA, if basic Call Forward No Answer is not already allowed.

carriage return until you see the prompt FTR

FTR EHT X..X	Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
17	**Change an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)

```
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 18.
not using “Easy Change”	Input NO or <cr> and go to step 19.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
18	**Program an "Easy Change" to an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**	
	ITEM CLS CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA, if basic Call Forward No Answer is not already allowed.
	ITEM HUNT X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	ITEM EHT X..X	Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
19	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external Hunt DN.**

carriage return until you see the prompt CLS

CLS	CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA, if basic Call Forward No Answer is not already allowed.

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt EHT

EHT	X..X	Input the DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
20	**Choose your next step based on the type of telephone you are changing.**

Login. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
dial or Digitone-type	step 21
digital or SL-1-type	step 24

21 Change an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external FDN.

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)

ECHG

If	Do
using “Easy Change”	Input YES and go to step 22.
not using “Easy Change”	Input NO or <cr> and go to step 23.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
22	**Program an "Easy Change" to an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external FDN.**	
	ITEM CLS CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA if basic Call Forward No Answer Allowed is not already allowed.
	ITEM FTR FDN X..X	Input the Flexible DN to which internal calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	ITEM FTR EFD X..X	Input the Flexible DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
23	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to allow unanswered calls to forward to an internal or external FDN.**

carriage return until you see the prompt CLS

CLS	CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA if basic Call Forward No Answer is not already allowed.

carriage return until you see the prompt FTR

FTR	FDN X..X	Input the DN to which internal calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
FTR	EFD X..X	Input the DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
24	**Change an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external FDN.**

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 25.
not using “Easy Change”	Input NO or <cr> and go to step 26.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
25	**Program an "Easy Change" to an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external FDN.**	
	ITEM CLS CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA if basic Call Forward No Answer is not already allowed.
	ITEM FDN X..X	Input the DN to which internal calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	ITEM EFD X..X	Input the DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
26	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to allow unanswered calls to forward to an internal or external FDN.**

carriage return until you see the prompt FDN

FDN	X..X	Input the DN to which internal calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	CFTA	Change Class of Service to Call Forward by Call Type allowed. Input FNA if basic Call Forward No Answer is not already allowed.

carriage return until you see the prompt EFD

EFD	X..X	Input the DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
27	**Choose your next step based on the type of telephone you are changing to Call Forward by Call Type denied.**

Do a TNB printout of the telephone you are changing. If you need more information on how to do the printout, refer to *Basic programming instructions* in this book.

If	Do
you do not have access to LD 21	Ask your system supplier what Call Forward No Answer treatments are programmed in the Customer Data Block. Look at the If-Do list below to find what step to go to based on the type of telephone you are programming.
you do have access to LD 21	Log in and print your Customer Data Block. Look at the response to each of the following prompts: FNAD, FNAN (pre-Release 10 systems) FNAD, FNAT, FNAL (Release 10 and later)

If	Do
dial or Digitone-type	step 28
digital or SL-1-type	step 31

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
28	**Change an existing dial or Digitone-type telephone to deny unanswered calls from forwarding by call-type.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 29.
not using “Easy Change”	Input NO or <cr> and go to step 30.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
29	**Program an "Easy Change" to an existing dial or Digitone-type telephone to deny unanswered calls from forwarding by call-type.**

ITEM CLS CFTD — Change Class of Service to Class of Service Call Forward by Call Type denied

If	Do
LD 15 treatment is HNT and existing Hunt DN is not appropriate for forwarding and Hunting of all calls	ITEM HUNT X..X X..X represents the proper DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

The system automatically removes the FTR EHT programming when you deny Call Forward by Call Type.

LD 15 treatment is FDN and existing Hunt DN is not appropriate for Hunting all calls	ITEM HUNT X..X X..X represents the proper DN
LD 15 treatment is FDN and existing FDN is not appropriate for forwarding all calls	ITEM FTR FDN X..X X..X represents the proper DN

The system automatically removes the FTR EFD programming when you deny Call Forward by Call Type.

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
30	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to deny unanswered calls from forwarding by call-type.**

Carriage return until you see the prompt HUNT

If	Do
LD 15 treatment is HNT and existing Hunt DN is not appropriate for forwarding all calls (and Hunting all calls, if you are allowing Hunting)	Input X..X or <cr> X..X represents a DN Input a DN which is appropriate for all hunted and forwarded calls after Call Forward by Call Type is denied. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface) Input <cr> if the existing DN is acceptable.
LD 15 treatment is HNT and existing Hunt DN is appropriate for forwarding all calls (and Hunting all calls, if you are allowing Hunting) or LD 15 treatment is FDN and existing DN is appropriate for Hunting all calls	Input <cr>

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION

30 continued ...

Carriage return until you see the prompt CLS

CLS	CFTD	Change Class of Service to Call Forward by Call Type denied.

Carriage return until you see the prompt FTR. If you do not see FTR, the treatments programmed in LD 15 are HNT.

FTR	FDN X..X	X..X represents a DN Input a DN which is appropriate for all forwarded calls after Call Forward by Call Type is denied. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)
FTR	<cr>	Carriage return, if the existing DN is acceptable.

The system automatically removes the external Hunting and external FDN programming when you deny Call Forward by Call Type.

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
31	**Change an existing digital or SL-1-type telephone to deny unanswered calls from forwarding by call-type.**

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input the correct type of digital or SL-1 telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 32.
not using “Easy Change”	Input NO or <cr> and go to step 33.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
32	**Program an "Easy Change" to an existing digital or SL-1-type telephone to deny unanswered calls from forwarding by call-type.**

ITEM CLS CFTD — Change Class of Service to Call Forward by Call Type denied

If	Do
LD 15 treatment is HNT and existing Hunt DN is not appropriate for forwarding and Hunting of all calls	ITEM HUNT X..X X..X represents the proper DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

The system automatically removes the EHT programming when you deny Call Forward by Call Type.

LD 15 treatment is FDN and existing Hunt DN is not appropriate for Hunting all calls	ITEM HUNT X..X X..X represents the proper DN
LD 15 treatment is FDN and existing FDN is not appropriate for forwarding all calls	ITEM FDN X..X X..X represents the proper DN

The system automatically removes the EFD programming when you deny Call Forward by Call Type.

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
33	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to deny unanswered calls from forwarding by call-type.**

carriage return until you see the prompt FDN

FDN	X..X	X..X represents the proper DN for forwarding all call-types after Call Forward No Answer by Call Type is denied. You see this prompt only if one of the treatments in LD 15 is FDN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	<cr>	Carriage return if the DN is already correct.

carriage return until you see the prompt CLS

CLS	CFTD	Change Class of Service to Call Forward by Call Type denied

carriage return until you see the prompt HUNT

HUNT	X..X	X..X represents the proper DN for forwarding all call-types (and Hunting all call-types if you are allowing Hunting) after Call Forward by Call Type is denied. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection) You program this prompt for Hunting and forwarding, if the treatments in LD 15 are HNT.
	<cr>	Carriage return if the DN is already correct.

Go to step 41.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION

34 Change the DN to which calls forward when the telephone is unanswered.

Log in. Do a TNB printout of the telephone you want to change. Look at what is programmed for the FDN prompt on the printout.

For information on proper login procedures and TNB printouts, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.

If	Do
no FDN is programmed	step 35
FDN is programmed	step 38

35 Change the Hunt DN which is used for forwarding calls.

> LD 10 or **>** LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, or digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 36.
not using “Easy Change”	Input NO or <cr> and go to step 37.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
36	**Program an "Easy Change" to an existing telephone to change the internal or external Hunt DN to which calls forward.**	
	ITEM HUNT X..X	Input the new DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	If	**Do**
	dial or Digitone-type telephone	ITEM FTR EHT X..X Input the new DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	digital or SL-1-type telephone	ITEM EHT X..X Input the new DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
37	**Program a change (not an "Easy Change") to an existing telephone to change the internal or external Hunt DN to which calls forward.**	
	carriage return until you see the prompt HUNT	
	HUNT X..X	Input the new DN to which internal calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	If	**Do**
	dial or Digitone-type telephone	Carriage return until you see the prompt FTR. Input EHT X..X Input the new DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	digital or SL-1-type telephone	Carriage return until you see the prompt EHT. Input X..X Input the new DN to which external calls are to forward (and Hunt, if you are also allowing Hunting). X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
38	**Change the FDN which is used to forward calls.**

> LD 10 or **>** LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 39.
not using “Easy Change”	Input NO or <cr> and go to step 40.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
39	**Program an "Easy Change" to an existing telephone to change the flexible DN to which internal or external calls forward.**

ITEM

If	Do
dial or Digitone-type telephone	Input FTR FDN X..X Input the new DN to which internal calls are to forward. Input FTR EFD X..X Input the new DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
digital or SL-1-type telephone	Input FDN X..X Input the new DN to which internal calls are to forward. Input EFD X..X Input the new DN to which external calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION	
40	**Program a change (not an "Easy Change") to an existing telephone to change the flexible DN to which calls forward.**	
	If	**Do**
	dial or Digitone-type telephone	Carriage return until you see the prompt FTR. Input FDN X..X where X..X represents the new DN for forwarding internal calls. The prompt FTR appears again. Input EFD X..X where X..X represents the new DN for forwarding external calls. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	digital or SL-1-type telephone	Carriage return until you see the prompt FDN. Input X..X where X..X represents the new DN for forwarding internal calls. Carriage return until you see the prompt EFD. Input X..X where X..X represents the new DN for forwarding external calls. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 41.	

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
41	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your Service Change has been entered into the memory.

42	**Check that the programming which you have just done is correct.**

Place calls to the telephone and let it ring with no answer. Make sure the expected treatment happens.

If	Do
feature works properly	step 43
feature does not work properly	step 1

43	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 44

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

STEP	ACTION
44	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

45 Verify that the dump was successful.

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 46

— continued —

Call Forward by Call Type (Call Forward No Answer Option)

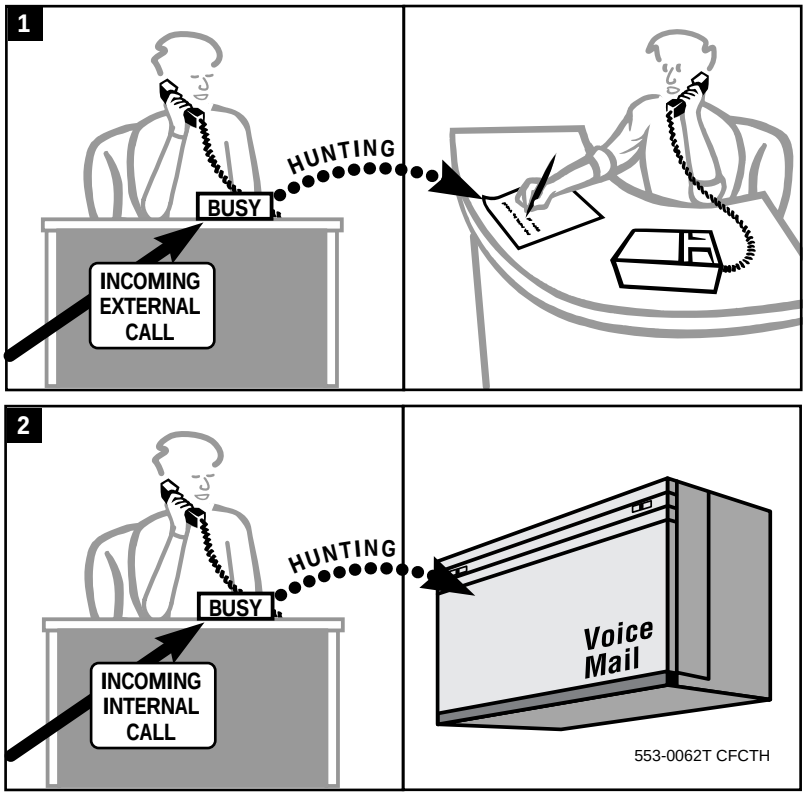
STEP	ACTION
46	**Terminate this overlay program.**
	. ****
47	**Terminate this programming session.**
	Log off.
	> LOGO
48	**You have completed the programming required to add or change the Call Forward by Call Type (Call Forward No Answer Option).**
	END

Call Forward by Call Type (Call Forward No Answer Option)

Call Forward by Call Type (Hunting Option)

Purpose

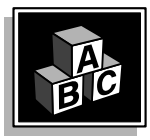
This enhancement to the Hunting feature provides the capability for the system to send an internal call to a Directory Number (DN) different from the DN used for an external call when the telephone is busy.



Call Forward by Call Type (Hunting Option)

A very common way to use this capability is shown in the illustration. When the dialed telephone is already busy with a call, internal calls can be redirected to Voice Mail messaging while external calls can be redirected to a person.

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Setting up the feature

Refer to Task 37, *Hunting* for more information on basic Hunting. The information presented here focuses on the enhancements provided by the Call Forward by Call Type (Hunting Option) feature.

The name of the feature in *X11 features and services* is Call Forward by Call Type. Look it up using that name. This Task module concentrates on the Hunting aspects of this feature. For more information on the other aspects of this feature, refer to Task 34, *Call Forward by Call Type (Call Forward No Answer Option)*.

Table 200
Software requirements

Release required	Software package(s) required
10	none

When you allow Call Forward by Call Type in the Class of Service of a telephone, you can program Call Forward No Answer and Hunting by Call Type. You select the telephones that are to have Call Forward by Call Type, then you use the procedure in this module to program each one.

Call Forward by Call Type (Hunting Option)

When you allow Call Forward by Call Type for a telephone, you program four DNs for the following situations:

- a Call Forward No Answer DN for internal calls
- a Call Forward No Answer DN for external calls
- a Hunt DN for internal calls
- a Hunt DN for external calls

For more information, on Call Forward No Answer by Call Type, refer to Task 34, *Call Forward by Call Type (Call Forward No Answer Option)*.

You do not have to program four different DNs. For example, you might want internal and external unanswered calls to forward differently, but you might want calls of both types to Hunt to one destination. You can program the same DN for both internal and external Hunting.

Once you activate Call Forward by Call Type in the Class of Service, you must input a DN in response to these four programming prompts. You cannot leave the response to any of these four prompts blank. If you do not want calls of a certain type to Hunt, you input the DN of the telephone itself in response to the prompt. When you do this, callers hear a busy tone when the telephone is busy and the call does not Hunt to another DN.

For example, when your telephone is busy you might want internal callers to hear a busy tone but external callers to Hunt to your assistant. Internal callers can activate Ring Again when they hear a busy tone.

The Camp-on feature does not operate, however, when you program calls in this manner, to Hunt to the telephone's DN. This is something you can mention in training. Refer to *X11 features and services* for further information on Camp-on.

Call Forward by Call Type (Hunting Option)

For the purposes of the Call Forward by Call Type feature, internal calls are defined as:

- telephone to telephone calls
- incoming calls from Direct Inward Sytem Access (DISA) DNs
- incoming calls from trunk groups identified as *internal-type* in the programming of their Route Data Blocks

Only incoming calls from trunk groups that are designated as external-type are sent to the external Hunt DN or the external Call Forward No Answer DN programmed for a telephone when it is busy or not answered.

When a telephone is busy, it is very common for a user to want internal calls routed to Voice Mail and external calls routed to a person. If this is the case, you might want to program a private network TIE trunk group as internal-type, if the calls coming in on these TIE trunks can be routed to Voice Mail along with other internal-type calls.

To enable the Call Forward by Call Type (Hunting Option) capability, you must allow the Hunting feature in addition to the Call Forward by Call Type feature in the Class of Service of the telephone.

Hunt chains and Hunt steps

When Call Forward by Call Type (Hunting Option) is allowed, there are two Hunt chains which the telephone becomes a part of, an internal call Hunt chain and an external call Hunt chain. The number of Hunt steps is system dependent. For information on this, refer to Table 1 in Task 37, *Hunting*.

Kinds of Hunting

Just as for basic Hunting, Call Forward by Call Type (Hunting Option) can be programmed to operate in Linear, Circular, Secretarial or Short Hunting patterns.

Using the feature

Refer to the illustrations and text prior to this section for information on the use of this feature.

Call Forward by Call Type (Hunting Option)

Interactions with other features

Call Forward by Call Type (Hunting Option) works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

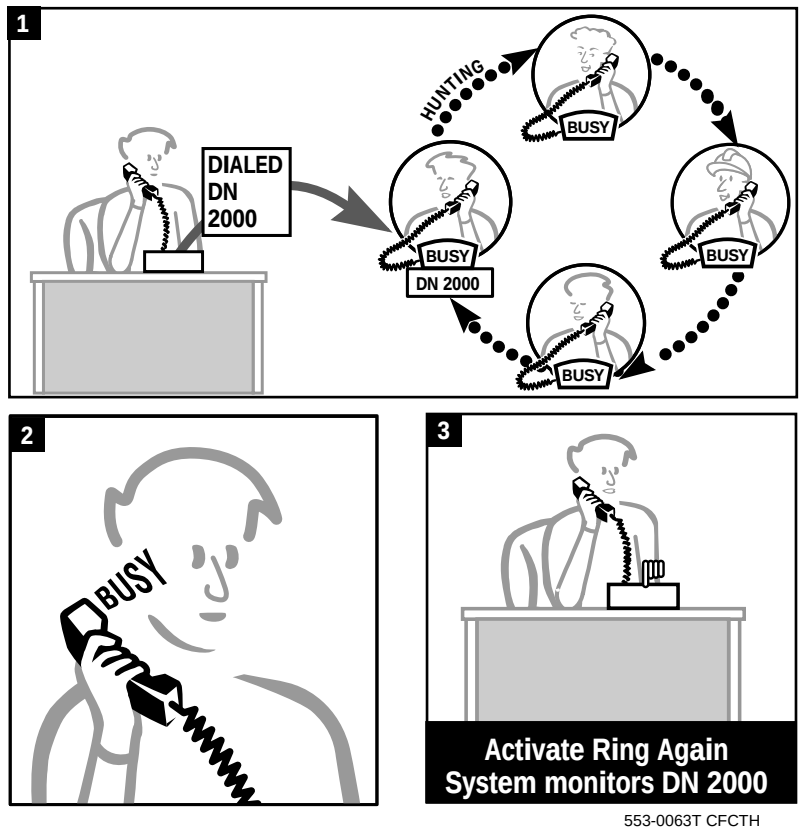
Call Forward by Call Type (Hunting Option)

Ring Again interacts with Call Forward by Call Type (Hunting Option)

When a call comes in for one of the DNs in the Hunt chain and all the telephones in the chain are busy, the caller hears a busy tone. The system checks the status of the DNs in the Hunt chain only once.

When internal callers, or callers using a Private ISDN network, want to queue for a busy telephone that they have called, they can activate the Ring Again feature or the Network Ring Again feature. The system calls them back when the DN becomes idle.

If the caller queues, the system monitors the originally dialed DN only and not the others in the Hunt chain. When the originally dialed DN becomes idle, the caller receives a call-back.

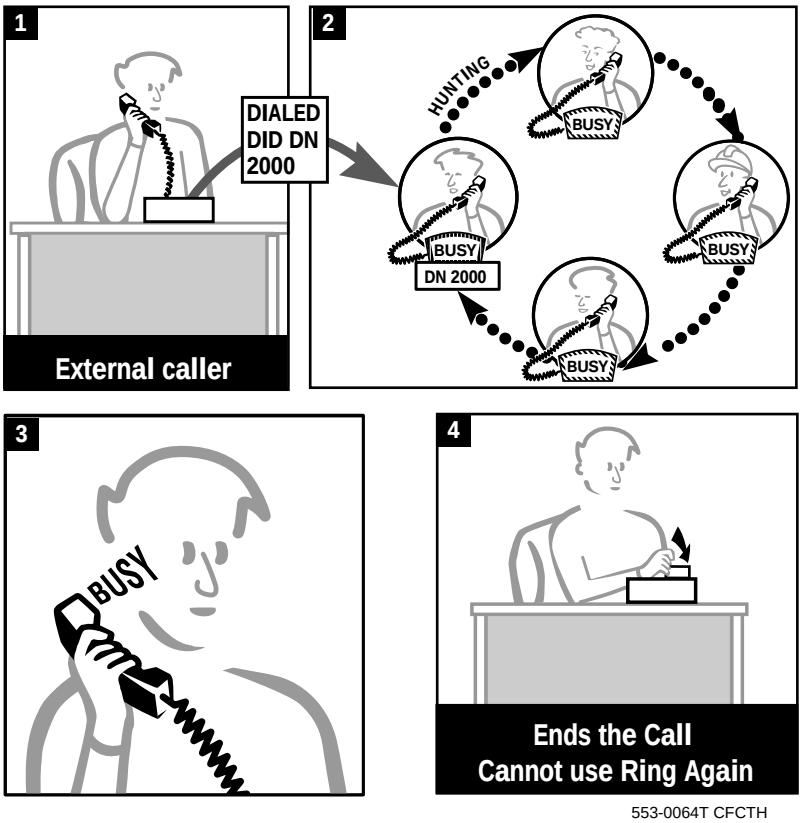


553-0063T CFCTH

Call Forward by Call Type (Hunting Option)

Ring Again interacts with Call Forward by Call Type (Hunting Option)

External callers coming in on non-ISDN trunk groups cannot activate the Ring Again feature if they hear busy tones when all the telephones in the Hunt chain are busy.



553-0064T CFCTH

Call Forward by Call Type (Hunting Option)

Call Forward All Calls interacts with Call Forward by Call Type (Hunting Option)

When a user is talking on a call but they also have the Call Forward All Calls feature activated, incoming calls of both types will be redirected to the Call Forward destination DN, not to the internal Hunt DN or the external Hunt DN programmed for that telephone even though the telephone is busy. The system treats the Call Forward All Calls feature with a higher priority than the Hunting feature. In other words, Call Forward All Calls takes precedence over Hunting.

When a user activates Call Forwards All Calls to another DN and that DN is busy, if that Hunt DN is programmed for Call Forward by Call Type, an internal call Hunts to the internal Hunt DN for that telephone and an external call Hunts to the external Hunt DN for that telephone. This is true unless there is an internal user who is transferring the external call to the original telephone. Then, the call is classified as internal even though the caller is calling in on a trunk.

Call Forward Busy interacts with Call Forward by Call Type (Hunting Option)

You can allow both Call Forward Busy and Call Forward by Call Type (Hunting Option) in the Class of Service of a DID telephone. If you program this, the Hunting feature has priority over Call Forward Busy when the telephone is busy.

When the telephone is busy, and there is an incoming DID call, the system attempts to Hunt the call to the Hunt DN programmed. If the DID trunks are programmed as an internal trunk-type, calls Hunt to the internal Hunt DN. If the DID trunks are programmed as an external trunk-type, calls Hunt to the external Hunt DN.

If that DN is also busy, and it is not programmed to Hunt, the system sends the DID call to the attendant using the Call Forward Busy feature.

If the Hunt DN is also busy, and it is not programmed to Hunt, the system gives the external (non-DID) calls transferred to the telephone by the attendant the usual busy treatment. Refer to the attendant console user guide for the various options which the attendant has when trying to transfer calls to busy telephones.

Call Forward by Call Type (Hunting Option)

Refer to Task 33, *Call Forward Busy* for further information on the Call Forward Busy feature.

Multiple Appearance DNs interact with Call Forward by Call Type - Hunting

Refer to the information on this interaction in Task 37, *Hunting*. When the word Hunting is used, you can substitute the words Call Forward by Call Type (Hunting Option) and the information is still correct.

Call Forward No Answer interacts with Call Forward by Call Type - Hunting

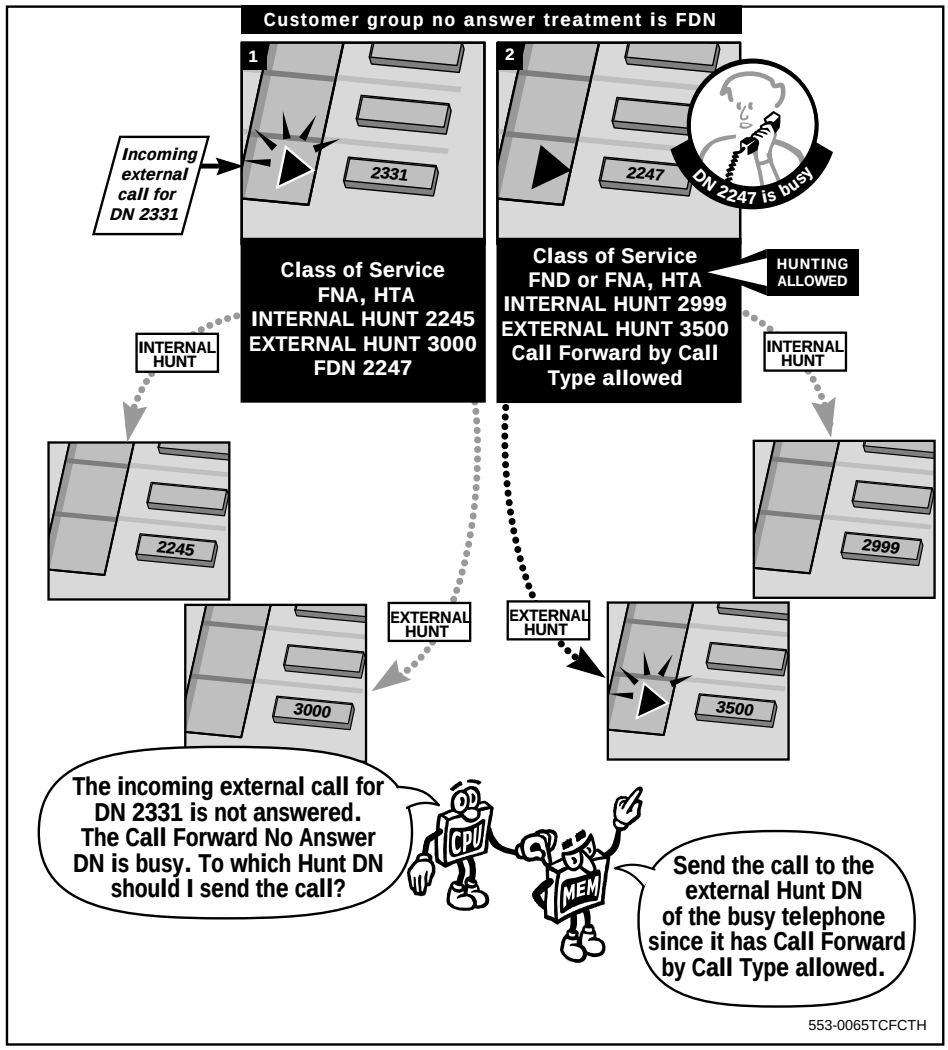
Some common examples of scenarios relating to basic Hunting and Call Forward No Answer are discussed in Task 36, *Call Forward No Answer* in the *Interactions* section. Please refer to that module.

There are interactions between the Call Forward by Call Type (Hunting Option) and Call Forward No Answer features.

It is very important for proper programming and user training that you understand these interactions. It can also reduce the number of repair calls you report.

Call Forward by Call Type (Hunting Option)

Call Forward No Answer interacts with Call Forward by Call Typ



Call Forward by Call Type (Hunting Option)

Private Lines interact with Call Forward by Call Type (Hunting Option)

Trunks can be programmed to operate as Private Lines. When you program a trunk in this way, incoming calls on the trunk terminate at a certain DN that can appear on one or more than one telephone. Even though the incoming calls on this Private Line appear on a DN, you cannot program the Hunting feature or the Call Forward by Call Type - Hunting feature to operate on a Private Line DN. Even though incoming calls on the Private Line are external to the system, the Call Forward by Call Type - Hunting feature does not operate on them when the telephone is busy.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Call Party Name Display

Table 201
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

Call Forward by Call Type (Hunting Option)

The redirection codes can be up to four letters long. The default code for redirection due to the Hunting feature is the letter B. Calls which are redirected by the feature Call Forward by Call Type (Hunting Option) also display the letter B. Decide what codes will work best for your users.

These codes can be seen on telephones with displays when calls are presented to them after being redirected by features such as Hunting.

For example, you might want people to see the code BUSY on their displays when they answer calls for other telephones because those people are busy and the calls Hunted.

People can greet callers more appropriately if they know why the calls are being presented to their telephones in the first place.

Talk to your system supplier about implementing CPND or you can refer to *X11 features and services* for more information. The programming involved is beyond the scope of this book.

Hunting by Call Type

Table 202
Software requirements

Release required	Software package(s) required
10.10C	131 – International Supplementary Features (SUPP)

With this software release and software package, you can program a Class of Service for Direct-Inward-Dial (DID) telephones which allows incoming calls from DID trunks to Hunt when the telephone is busy, but gives internal callers busy tone.

Call Forward by Call Type (Hunting Option)

The following rules apply to the call processing if a DN is busy:

- if its Class of Service is Hunting allowed, then both external an internal calls Hunt, regardless of what is programmed for Call Forward Busy or Hunting by Call Type for the DID telephone
- if its Class of Service is Hunting denied and Hunting by Call Type denied, then internal calls receive busy tone. DID calls forward to the attendant if Call Forward Busy is allowed. If Call Forward Busy is denied, DID calls receive a busy tone.
- if its Class of Service is Hunting denied and Hunting by Call Type allowed, then internal calls receive busy tone. DID calls Hunt. If the Hunt DN is also busy, DID calls go to the attendant if Call Forward Busy is allowed. If the Hunt DN is also busy and Call Forward Busy is denied, DID calls receive a busy tone.

A user can change the Hunt DN using the telephone

User Selectable Call Redirection (USCR)

Table 203
Software requirements

Release required	Software package(s) required
19	139 – Flexible Feature Codes

A user can modify the programming associated with the following redirection-related features:

- Call Forward No Answer (internal)
- Call Forward No Answer (external)
- Hunt (internal)
- Hunt (external)

The DN pre-programmed for these redirections can be changed by the user from the telephone.

In this module, the focus of the discussion is on the Hunting feature. The impact this has on the Call Forward No Answer feature is covered in Task 36, *Call Forward No Answer*.

Call Forward by Call Type (Hunting Option)

When you install a telephone, you must program a Hunt DN (or possibly two; one for internal calls and one for external calls, if you have allowed Call Forward by Call Type), in order for the user to be able to change it with this feature.

You enable the USCR feature in the Class of Service of the telephone.

When the redirection DN is being changed by the user, a Station Control Password is required, as a form of security. That is why the Flexible Feature Code software package is required on the system. It allows this password capability to exist.

Users can choose not to Hunt when calling a busy telephone

Call Forward/Hunt Override Via Flexible Feature Code

Table 204
Software requirements

Release required	Software package(s) required
20	139 – Flexible Feature Codes

Note: In a networking environment, you need software package 159 – Network Attendant Service

If a user calls a telephone that is busy and it is programmed to Hunt, the calling user can override the Hunting feature if the Call Forward/ Hunt Override feature is enabled in the Class of Service of the calling telephone. This is useful when the caller wants to speak to the originally dialed user and does not want to leave a message or speak to anyone else.

The call does not Hunt to the Hunt DN when the call was initiated with the Flexible Feature Code (FFC) for the Call Forward/Hunt Override feature. In that case, if the called telephone is busy, the caller hears a busy tone; the call does not Hunt. The caller can queue for the busy telephone, if desired, using the Ring Again feature.

Call Forward by Call Type (Hunting Option)

The caller must be internal to the same system as the called telephone. External callers cannot use this feature. If Call Forward by Call Type (Hunting Option) is programmed on the called telephone, the internal caller can override the internal Hunt DN and hear a busy tone instead of Hunting.

In this module, the focus of the discussion is on the Hunting feature. The impact this feature has on the Call Forward No Answer feature is covered in Task 36, *Call Forward No Answer*.

For more information refer to *X11 features and services.*

External calls to a busy telephone can be redirected to an alternate DN at certain times of day

Call Redirection by Time of Day

Table 205
Software requirements

Release required	Software package(s) required
22	none

With the Call Redirection by Time of Day (CRTOD) feature, incoming external calls to a busy telephone can be automatically redirected to a predefined Directory Number at a specified time of day. You can program four Alternate Redirection time periods for each Customer Group.

This is useful for users who want their incoming external calls to redirect to alternate DNs at specified times of the day. You assign one of the Alternate Redirection time periods to the user's telephone.

The Call Redirection by Time of Day feature also applies to Call Forward No Answer, Hunting and Call Forward by Call Type (Call Forward No Answer option). Refer to the information on those features in this book.

Call Forward by Call Type (Hunting Option)

External calls to a busy telephone can be redirected to an alternate DN on certain days

Call Redirection by Day

Table 206
Software requirements

Release required	Software package(s) required
24	none

With the Call Redirection by Day (CRDAY) feature, incoming external calls can be automatically redirected to an alternate predefined Directory Number on one or more specified days of the week and/or holidays. You can program four Alternate Day Lists and four Alternate Holiday Lists for each Customer Group. Each Alternate Holiday List can contain up to 20 dates.

If a user who is busy wants external calls to be redirected to a DN that is different from the one to which calls are normally sent, on certain days and/or holidays, then you assign one of the Alternate Day Lists and/or one of the Alternate Holiday Lists to the user's telephone. You program the DNs to be used for different types of redirected calls on those days for each telephone.

The Call Redirection by Day feature also applies to Call Forward No Answer, Hunting, and Call Forward by Call Type (Call Forward No Answer option). Refer to the information on those features in this book.

Control tips

- If you have User Selectable Call Redirection in place, print the Hunt DNs that users are programming, on a regular basis. If you have a network, users might be programming DNs that are actually in other switches and this might be causing confusion to your callers. Tell users what DNs are acceptable for them to program and tell them you are doing regular printouts to check this.

Call Forward by Call Type (Hunting Option)

Administration tips

- The tips in Task 37, *Hunting* apply here as well. Refer to these for information.
- Decide which trunk groups to program as external-type and which to program as internal-type.
- Understand the types of incoming calls you get on each different trunk group. Understand how these callers react to different Hunting treatments; for example, Hunting to Voice Mail or Hunting to a secretary or Hunting to a co-worker. Find out which Hunting best serves the callers.
- If you are implementing Call Forward by Call Type (Hunting Option) so that external calls Hunt to a person and internal calls Hunt to Voice Mail, ensure that you understand how the callers will react to that. Check that you have implemented Voice Mail so that internal callers can reach a person if they want. Train the users to tell the callers, in their Voice Mail greeting, how to reach a person.
- As with basic Hunting, you must understand the Hunt chain the user is joining before you program the telephone. The person at the Hunt DN must be trained to deal with the types of calls which will Hunt to the telephone. For example, if that user will answer external calls only, you must prepare the user for that.

Training tips

- As with basic Hunting, the users must be trained to understand the Hunting patterns of the telephones and the interactions which might occur if more than one feature operates simultaneously.
- Use real examples that they might actually encounter. Demonstrate, if possible, to make the users comfortable. There will be fewer repair calls if you and your users understand the features fully.

Call Forward by Call Type (Hunting Option)

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 207
Checklist

Basic	Optional	Preparation
✔		Decide if your company-wide policies agree with Hunting internal calls differently from external calls.
✔		Decide what choices users have for Hunt DNs if you want them to treat internal and external calls differently.
✔		Decide, on a user by user basis, who needs this feature. Find out what internal and external Hunt DNs each user needs.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide which trunk groups to program as internal-type and which to program as external-type.
✔		Print out the Hunt chain for the Hunt group the user is joining. Make sure it is appropriate for this telephone.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same internal and external Hunt DNs for all telephones sharing the DN.

— continued —

Call Forward by Call Type (Hunting Option)

Table 207
Checklist (Continued)

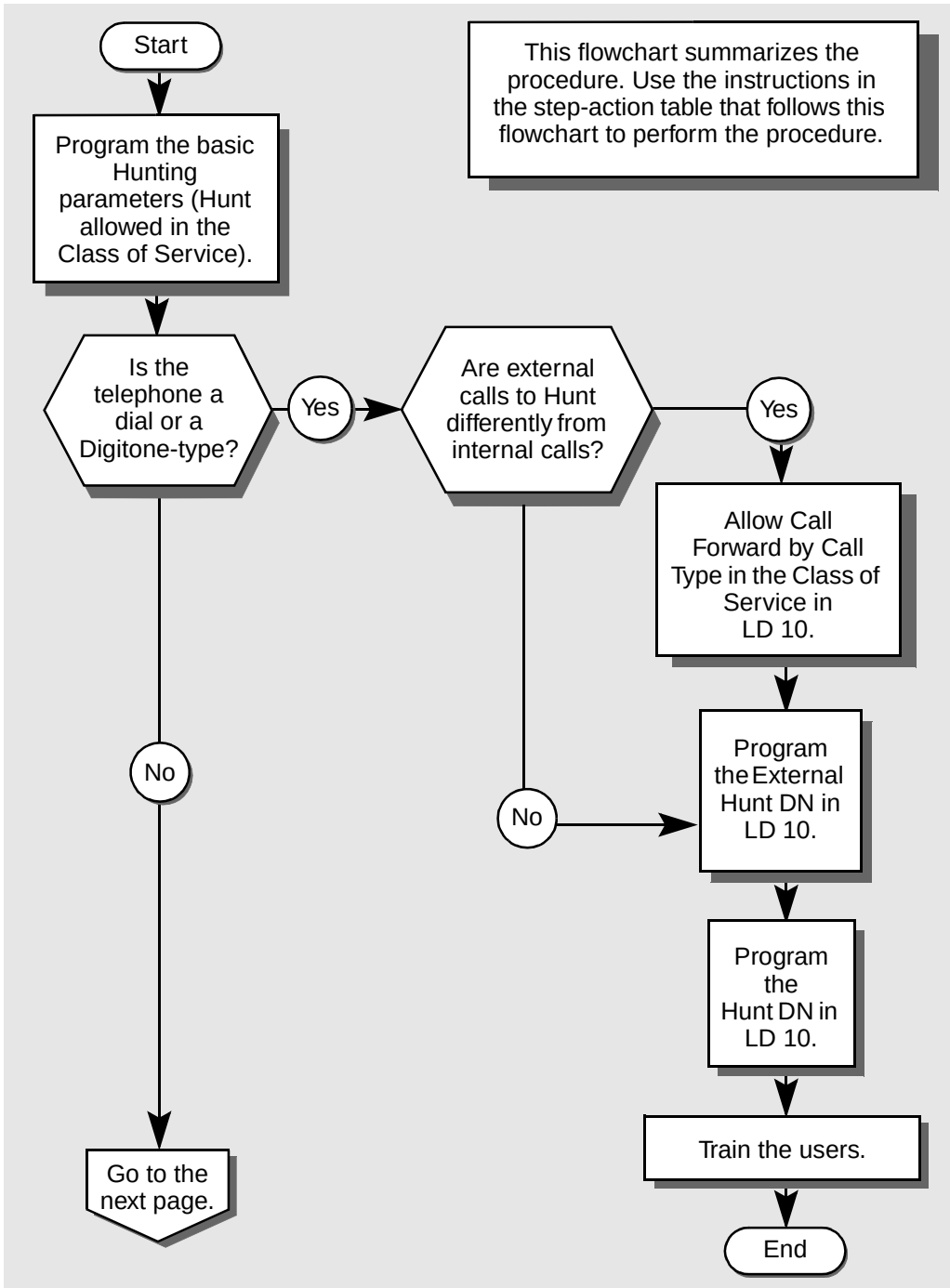
Basic	Optional	Preparation
✔		On systems with software Release 18 or later: If users must share prime DNs and require different Hunt DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
✔		Prepare your training information, and materials. Plan the way you want to address interactions.
	✔	Assign a code which will display when calls Hunt. Train the users.
	✔	Decide if the user should be able to change the Hunt DN(s) programmed for the telephone. Assign a Station Control Password. Assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user needs calls redirected to an alternate DN during a certain daily time period.
	✔	Decide if the user can use the Hunt Override capability. If so, assign a Flexible Feature Code, if there isn't one already assigned. Train the user.

What's next?

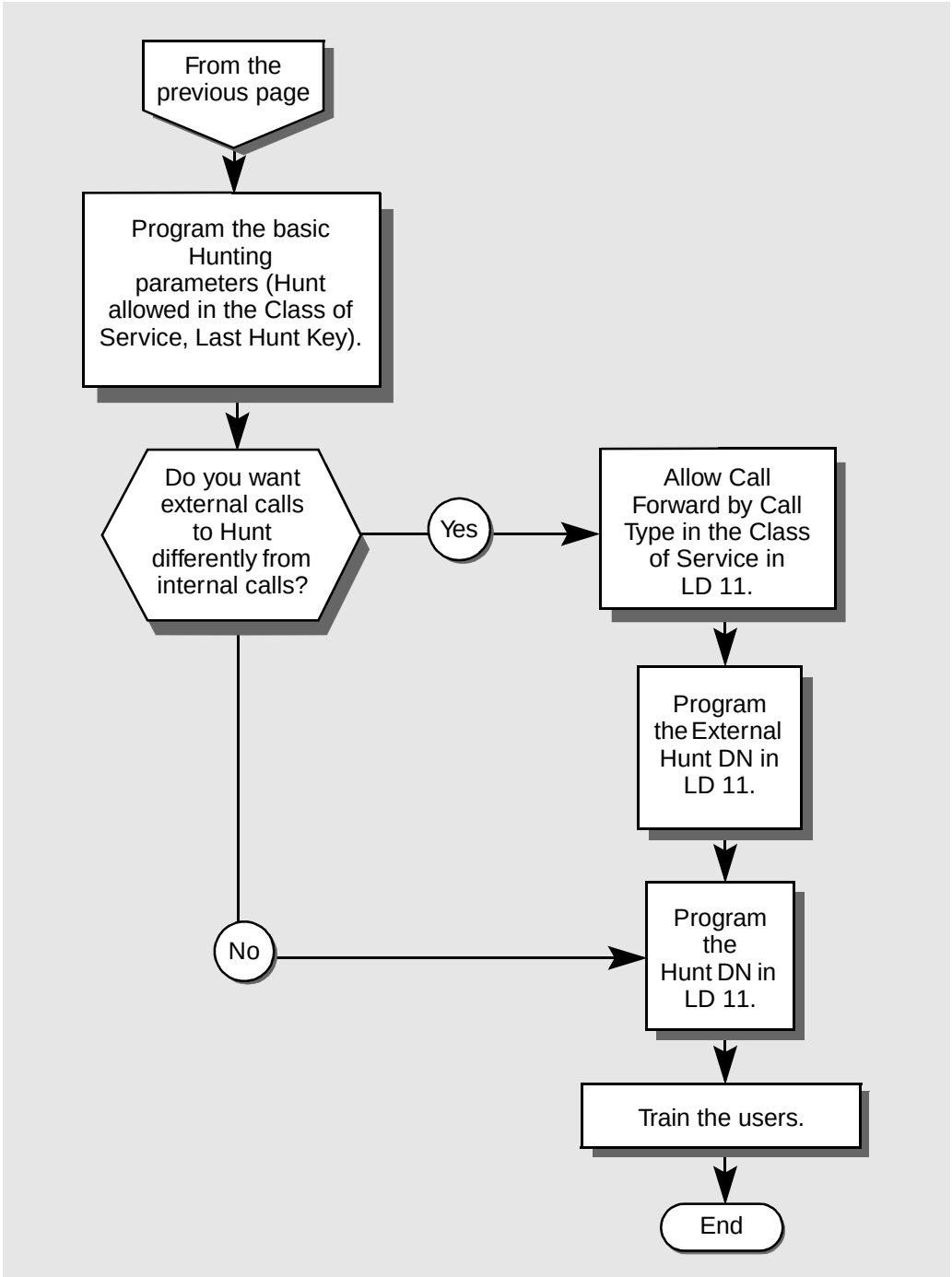
A flowchart follows which summarizes the implementation decisions and procedures for Call Forward by Call Type (Hunting Option).

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

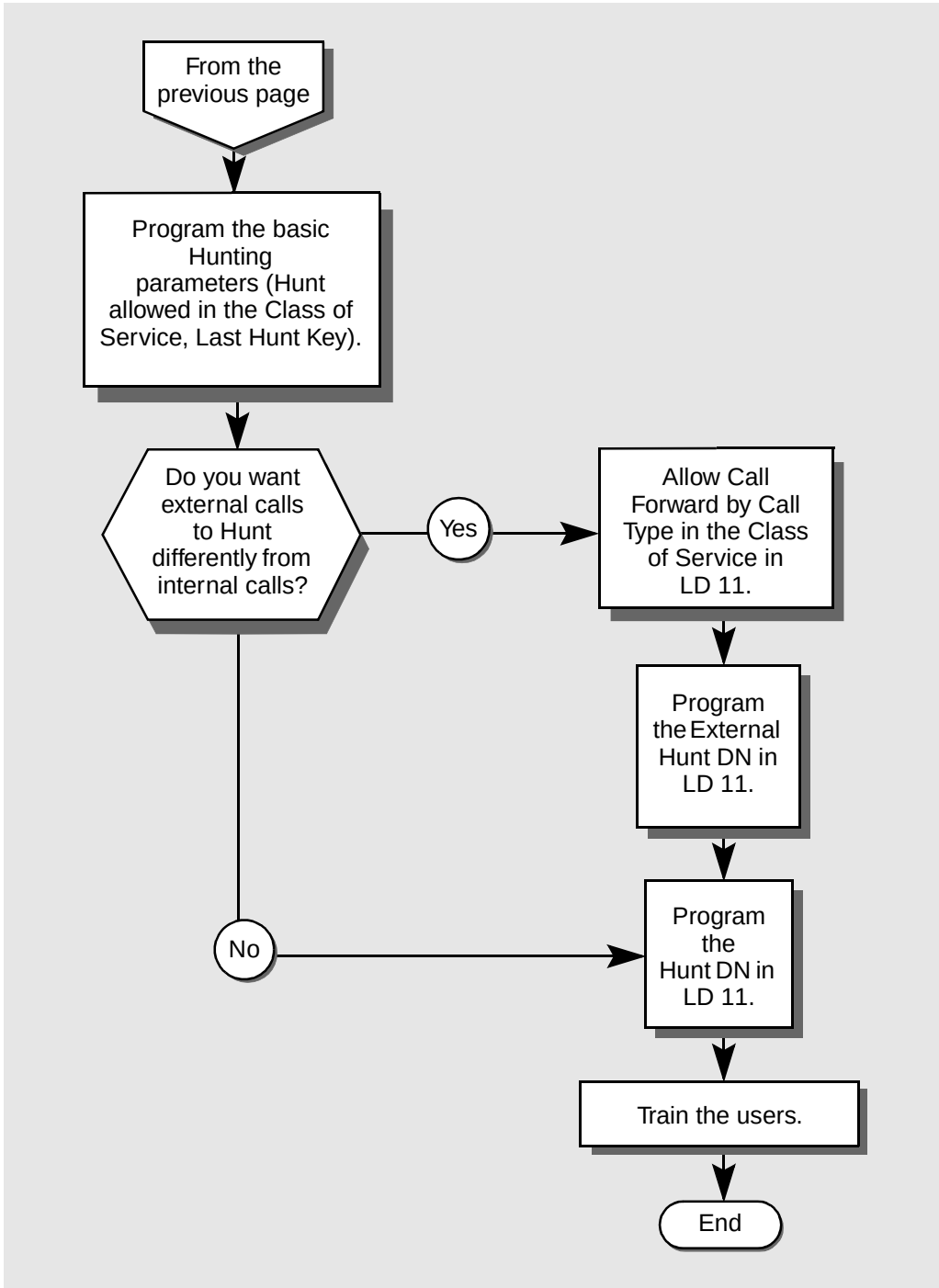
Call Forward by Call Type (Hunting Option)



Call Forward by Call Type (Hunting Option)



Call Forward by Call Type (Hunting Option)



Call Forward by Call Type (Hunting Option)

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Forward by Call Type (Hunting Option) feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Login.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Check the Hunt chain this telephone is joining before you start programming.**
	Use printouts to verify the Hunting which is already programmed for the internal and external Hunt DNs you want to use for this telephone. Refer to *Basic programming instructions* for more information on DNB and TNB printouts. a For the DNs which are the Hunt DNs you want to use, do a DN Block (DNB) printout. b For the TN(s) you see in the DNB printout, do a TN Block (TNB) printout. Notice that digital telephone TNs have an “H” beside those with Hunting enabled. Look for an HTA Class of Service for other types of telephones. c For the TN(s) with Hunting enabled, look at the printout for the Hunt DN(s) they have programmed. Repeat steps a, b, and c, as needed, until you have verified the entire existing Hunt chain.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
2 continued ...	
	You can use LD 20 to print out Hunt chains. Refer to *Basic programming instructions.*
	If you have ODAS software package 20, ask your system supplier to help you use it to print out Hunt chains.
	If any Hunt DN is a Multiple Appearance DN, refer to the information on how Multiple Appearance DNs interact with Hunting, Task 37, *Hunting*.
3	**Determine if the existing Hunt chain is suitable for this telephone.**
	If — **Do**
	Hunt chain is suitable — step 4
	Hunt chain is not suitable — Pick a different internal or external Hunt DN for this telephone or change the Hunting for the telephones in the Hunt chain. Go to step 8 for dial or Digitone-type telephone changes or step 20 for digital or SL-1-type telephone changes.
4	**Choose your starting point from the choices below.**
	If — **Do**
	new dial or Digitone-type telephone — step 5
	change a dial or Digitone-type telephone — step 8
	new digital or SL-1-type telephone — step 19
	change a digital or SL-1-type telephone — step 20

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION	
5	**Program a new dial or Digitone-type telephone.**	
	> LD 10	
	REQ NEW	Program a new telephone
	TYPE 500	Dial or Digitone-type telephone
	TN L S C U	Input the Terminal Number(TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics...	Refer to Tasks 1–6 for information.
	carriage return until you see the prompt HUNT	
	If	**Do**
	you are allowing Call Forward by Call Type	If you are not allowing internal calls to Hunt, input the DN of this telephone, you cannot leave this response blank. If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection).
	you are not allowing Call Forward by Call Type	Input the DN to which all calls are to Hunt.
	carriage return until you see the prompt CLS	
	If	**Do**
	Hunting allowed and Call Forward by Call Type allowed	CFTA HTA — Go to step 6.
	Hunting allowed but Call Forward by Call Type denied	HTA (CFTD is default) — Go to step 7.
	Hunting denied but Call Forward by Call Type allowed	CFTA (HTD is default) — Go to step 6.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
6	**Program external Hunt DN.**

carriage return until you see FTR

If	Do
you allowed Call Forward by Call Type but you are not allowing external calls to Hunt	Input EHT followed by a space and the DN of this telephone. You cannot leave this response blank. Go to step 7.
you allowed Call Forward by Call Type and external calls are to Hunt	Input EHT followed by a space and the DN to which external calls are to Hunt 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection).

7 Finish this overlay program.

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
8	**Program a change to the Call Forward by Call Type - Hunting feature on a dial or Digitone-type telephone.**

Do a DNB and TNB printout of the telephone to see what Hunting parameters are already programmed. You might need this information later. Refer to *Basic programming instructions* in this book for further information.

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 9.
not using “Easy Change”	Input NO or <cr> and go to step 14.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
9	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**

If	Do
telephone has Hunting allowed and you are changing it to Call Forward by Call Type allowed	step 10
telephone has Hunting allowed and you are changing to Call Forward by Call Type denied	step 11
you want to change the internal Hunt DN or external Hunt DN or both	step 12
you want to remove internal or external Hunt DN	step 13

10 **Allow Call Forward by Call Type.**

ITEM CLS CFTA — Class of Service Call Forward by Call Type allowed

ITEM HUNT X..X — Program internal calls to Hunt to a DN

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Input the DN of this telephone if internal callers are to hear a busy tone

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
10 continued ...	
	ITEM FTR EHT X..X — Program Feature for external calls to Hunt to a DN X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection) Input the DN of this telephone, if external callers are to hear a busy tone
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 27.
11	**Deny Call Forward by Call Type.**
	ITEM CLS CFTD — Class of Service Call Forward by Call Type denied
	ITEM HUNT X..X — If existing Hunt DN is not appropriate for Hunting of all calls, input proper DN. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
11 continued ...	

The system automatically removes the external Hunting programming when you deny Call Forward by Call Type.

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

12 Change internal Hunt DN or external Hunt DN or both.

`ITEM` `HUNT X..X` Input DN for Hunting internal calls

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Input the DN of this telephone if internal callers are to hear a busy tone

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
12 continued ...	

ITEM FTR EHT X..X Program Feature for external calls to Hunt to a DN

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Input the DN of this telephone if external callers are to hear a busy tone.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

13 Remove internal Hunt DN or external Hunt DN.

You did a TNB printout of this telephone earlier. Look at it to find the Hunt DN and EHT DN.

ITEM HUNT X..X Input the DN of this telephone. You cannot leave this response blank and you cannot type X to remove the DN.

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION

13 continued ...

ITEM FTR EHT X..X Program Feature for external calls to Hunt to a DN

X..X represents a DN

Input the DN of this telephone. You cannot leave this response blank and you cannot type X to remove the DN.

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
14	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**

If	Do
telephone has Hunting allowed and you are changing it to Call Forward by Call Type allowed	step 15
telephone has Hunting allowed and you are changing to Call Forward by Call Type denied	step 16
you want to change the internal Hunt DN or external Hunt DN or both	step 17
you want to remove internal or external Hunt DN	step 18

15 Allow Call Forward by Call Type.

Carriage return until you see the prompt HUNT

HUNT	X..X	If you are not allowing internal calls to Hunt, input the DN of this telephone, you cannot leave this response blank. X..X represents a DN If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION

15 continued ...

Carriage return until you see the prompt CLS

CLS	CFTA	allow Call Forward by Call Type in the Class of Service

Carriage return until you see the prompt FTR

FTR	EHT X..X	If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank. X..X represents a DN If you are allowing external calls to Hunt, input the DN to which external calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
16	**Deny Call Forward by Call Type.**

You did a TNB printout of this telephone earlier. Look at it to find the Hunt DN and EHT DN.

Carriage return until you see the prompt HUNT

HUNT	X..X	If the existing DN must be changed, input a DN which is appropriate for all Hunted calls when Call Forward by Call Type is denied. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)
	<cr>	If the existing DN is acceptable, carriage return

Carriage return until you see the prompt CLS

CLS	CFTD	deny Call Forward by Call Type in the Class of Service

The system automatically removes the external Hunting programming when you deny Call Forward by Call Type.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
17	**Change internal Hunt DN or external Hunt DN.**

Carriage return until you see the prompt HUNT

HUNT X..X — If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank.

X..X represents a DN

If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt.
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Carriage return until you see the prompt FTR

FTR EHT X..X — Program Feature for external calls to Hunt to a DN

X..X represents a DN

If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank.

If you are allowing external calls to Hunt, input the DN to which external calls are to Hunt.
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
18	**Remove internal or external Hunt DN.**

Carriage return until you see the prompt HUNT

HUNT X..X — If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank and you cannot use X to remove the DN.

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see the prompt FTR

FTR EHT X..X — Program Feature for external calls to Hunt to a DN

X..X represents a DN

If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank and you cannot use X to remove the DN.

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION	
19	**Program a new digital or SL-1-type telephone.**	
	> LD 11	
	REQ NEW	Program a new telephone
	TYPE	Input correct type of SL-1 or digital telephone
	TN L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)
	program the basics...	Refer to Tasks 7–19 for information.
	carriage return until you see the prompt CLS	
	If	**Do**
	you are allowing Call Forward by Call Type	Input CFTA — for Call Forward by Call Type (Hunting Option), you must allow Hunting as well, input HTA. Refer to Task 37, *Hunting*.
	you are not allowing Call Forward by Call Type	Input CFTD — if you want basic Hunting, type HTA, if not, type HTD. Refer to Task 37, *Hunting*.
	carriage return until you see the prompt HUNT	
	If	**Do**
	you allowed Call Forward by Call Type	If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank. If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	you did not allow Call Forward by Call Type	Input the DN to which all calls are to Hunt.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION

19 continued ...

carriage return until you see the prompt EHT

If	Do
you allowed Call Forward by Call Type but you are not allowing external calls to Hunt	Input EHT followed by a space and the DN of this telephone, you cannot leave this response blank.
you allowed Call Forward by Call Type and you are allowing external calls to Hunt	Input EHT followed by a space and the DN to which external calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
20	**Program a change to the Call Forward by Call Type (Hunting Option) feature on a digital or SL-1-type telephone.**

Do a DNB and TNB printout of the telephone to see what Hunting parameters are programmed. You might need this information later. Refer to *Basic programming instructions* in this book for further information.

```
> LD 11
REQ  CHG          Program a change to an existing telephone
TYPE              Input correct type of SL-1 or digital telephone
TN   L S C U      Input the Terminal Number of the telephone
ECHG
```

If	Do
using “Easy Change”	Input YES and go to step 21.
not using “Easy Change”	Input NO or <cr> and go to step 22.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION	
21	**Program an "Easy Change" to an existing digital or SL-1 -type telephone.**	
	If	**Do**
	telephone has Hunting allowed and you are changing it to Call Forward by Call Type allowed	step 10
	telephone has Hunting allowed and you are changing it to Call Forward by Call Type denied	step 11
	you want to change the internal Hunt DN or external Hunt DN or both	step 12. If you are changing a Hunting DN to Short Hunting, input the response 000 in response to the HUNT or EHT prompts. Refer to Task 37, *Hunting*.
	you want to remove internal or external Hunt DN	step 13
22	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**	
	If	**Do**
	telephone has Hunting allowed and you are changing it to Call Forward by Call Type allowed	step 23
	telephone has Hunting allowed and you are changing it to Call Forward by Call Type denied	step 24
	you want to change the internal Hunt DN or external Hunt DN or both	step 25
	you want to remove internal or external Hunt DN	step 26

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
23	**Allow Call Forward by Call Type**

Carriage return until you see the prompt CLS

CLS	CFTA	allow Call Forward by Call Type in the Class of Service

Carriage return until you see the prompt HUNT

HUNT	X..X	If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank. X..X represents a DN If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Carriage return until you see the prompt EHT

EHT	X..X	If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank. X..X represents a DN If you are allowing external calls to Hunt, input the DN to which external calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
24	**Deny Call Forward by Call Type.**

You did a TNB printout of this telephone earlier. Look at it to find the Hunt DN and EHT DN.

Carriage return until you see the prompt CLS

CLS	CFTD	deny Call Forward by Call Type in the Class of Service

The system automatically removes the external Hunting programming when you deny Call Forward by Call Type.

Carriage return until you see the prompt HUNT

HUNT	X..X	If the existing DN must be changed, input a DN which is appropriate for all Hunted calls when Call Forward by Call Type is denied. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)
	<cr>	If the existing DN is acceptable, carriage return.

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
25	**Change internal Hunt DN or external Hunt DN.**

Carriage return until you see the prompt HUNT

HUNT	X..X	If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank. X..X represents a DN Input 000 if you are changing to Short Hunting instead of Hunting to a DN. If you are allowing internal calls to Hunt, input the DN to which internal calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Carriage return until you see the prompt EHT

EHT	X..X	Program Feature for external calls to Hunt to a DN X..X represents a DN If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank. Input 000 if you are changing to Short Hunting instead of Hunting to a DN. If you are allowing external calls to Hunt, input the DN to which external calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface)

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
26	**Remove internal or external Hunt DN.**

Carriage return until you see the prompt HUNT

HUNT X . . X

If you are not allowing internal calls to Hunt, input the DN of this telephone. You cannot leave this response blank and you cannot type X to remove the DN.

X..X represents a DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see the prompt EHT

EHT X . . X

Program Feature for external calls to Hunt to a DN

X..X represents a DN

If you are not allowing external calls to Hunt, input the DN of this telephone. You cannot leave this response blank and you cannot type X to remove the DN.

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 27.

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
27	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **`U.data P.data`** small systems or **`MEM AVAIL: (U/P) USED:TOT:`** large systems When one of these messages appears, your change has been entered into the memory.
28	**Check that the programming which you have just done is correct.**
	Place internal and external calls to the telephone when it is busy. Make sure the expected treatment happens. **If** — **Do** feature works properly — step 29 feature does not work properly — step 1
29	**Arrange for a data dump to be performed.**
	If — **Do** you do not have access to LD 43 — Contact your system supplier. you have access to LD 43 — step 30

— continued —

Call Forward by Call Type (Hunting Option)

STEP	ACTION
30	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

31	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 32

— continued —

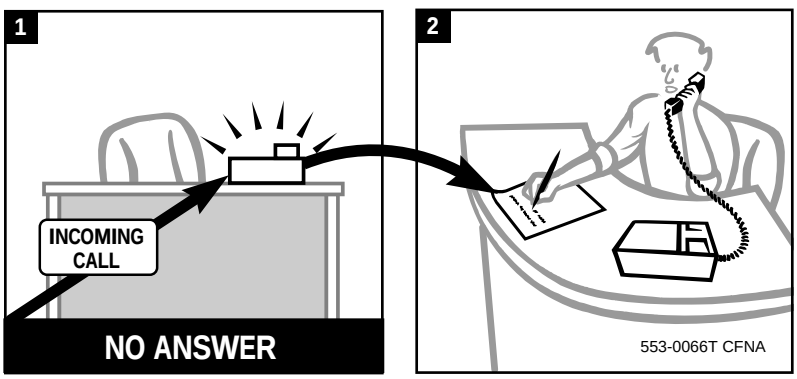
Call Forward by Call Type (Hunting Option)

STEP	ACTION
32	**Terminate this overlay program.**
	. ****
33	**Terminate this programming session.**
	Log off.
	> LOGO
34	**You have completed the programming required to add or change the Call Forward by Call Type - Hunting feature on a telephone.**
	END

Call Forward No Answer

Purpose

When a call is not answered at a Directory Number (DN), the Call Forward No Answer feature redirects it to another place.



Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Call Forward No Answer

Setting up the feature

Call Forward No Answer comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to have the feature, then you use the procedure in this module to program each one.

Call Forward No Answer is activated in two parts:

- Customer Data Block (overlay program 15)
- telephone data blocks (overlay programs 10 or 11)

Customer Data Block (LD 15)

You must consider the following customer-wide options and arrange to have them programmed in the Customer Data Block:

- how many times a telephone rings before the call redirects to another DN
- the treatment to be given to each of the three possible *call types* which are described in the following pages

The number of times a telephone rings before forwarding is determined by a setting in LD 15. Unanswered calls forwarded by this feature are those that do not get answered within a defined number of rings.

The range you have to choose from is one to fifteen rings. Unless it is programmed otherwise, the default setting is four rings.

Prior to Release 19, there is one customer-wide choice for the number of rings. All telephones in the same customer group ring the same number of times before calls are forwarded. Refer to *Improving feature performance* in this module for information on the feature called User Selectable Call Redirection, which enhances this ringing option.

There are three Call Types for the customer group:

- DID
- internal
- external trunk (non-DID)

Call Forward No Answer

Before Release 10, there are only two call types for the customer group:

- DID
- non-DID

The treatment that occurs when calls are not answered is programmable in the Customer Data Block. The programmed treatment governs how Call Forward No Answer works when a telephone call of a particular call type is not answered.

There are four possible treatments to choose from when you program each prompt for call type in LD 15:

- If you respond NO — this allows telephones to continue to ring, calls are not forwarded.
- If you respond ATT — this allows unanswered calls to forward to the attendant(s).
- If you respond HNT — this allows unanswered calls to forward to the same DN to which calls Hunt when the telephone is busy. For more information, refer to Task 37, *Hunting*.
- If you respond FDN — this allows unanswered calls to forward to a Flexible Directory Number which can be different from, or the same as, the Hunt DN programmed for the telephone.

Call Forward No Answer

The treatments are NO, ATT, HNT, FDN

- **NO** is rarely used because people usually want the system to forward calls that are not answered. Choosing this option in LD 15 disables the Call Forward No Answer feature completely.
- **ATT** is not very common since most users want unanswered calls to be sent to another telephone before they are routed to the attendant(s). If ATT is chosen in LD 15, unanswered calls are routed immediately to the attendant.

  A call which was transferred to a telephone by an attendant is returned to an attendant by the Attendant Recall feature if the telephone is not answered. The recall only occurs after the Call Forward No Answer feature has been allowed to work. If the call is still unanswered, it recalls.

  Internal calls and DID calls do not Recall, since they are not calls transferred by the attendant. These calls are redirected by the Call Forward No Answer treatment specified for them in LD 15.
- **HNT** means that if you can program a Hunt DN for each telephone, the system sends calls which are either Hunting or forwarding to the Hunt DN.

  HNT cannot be programmed in LD 15 if any users require a DN for Hunting and a different DN for Call Forward No Answer.
- **FDN** is the most flexible. Every telephone with Hunting and Call Forward No Answer allowed must be programmed for a Hunt DN and a Call Forward No Answer Flexible DN. This is true, even for telephones where the same DN is used for both types of redirection.

Call Types and treatments working together

Table 208
Example 1

LD 15 call type	LD 15 treatment	Result
DID	ATT	unanswered DID calls go to attendant
external	FDN	unanswered external calls go to the Call Forward No Answer DN for each telephone and then back to attendant
internal	FDN	unanswered internal calls go to the Call Forward No Answer DN for each telephone

Table 209
Example 2

LD 15 call type	LD 15 treatment	Result
DID	HNT	unanswered DID calls go to the Hunt DN for each telephone
external	HNT	unanswered external calls go to the Hunt DN for each telephone and then back to attendant
internal	HNT	unanswered internal calls go to the Hunt DN for each telephone

Telephone set programming

You enable the Call Forward No Answer feature in the Class of Service of the telephone. FNA is the mnemonic for Call Forward No Answer allowed. FND is the mnemonic for Call Forward No Answer denied.

If you programmed the treatments HNT or FDN in LD 15, for each telephone with the feature enabled in the Class of Service (FNA), you must program the DN to which unanswered calls are to go.

Call Forward No Answer

Using the feature

Refer to the illustrations and text prior to this section for information on the use of this feature.

Interactions with other features

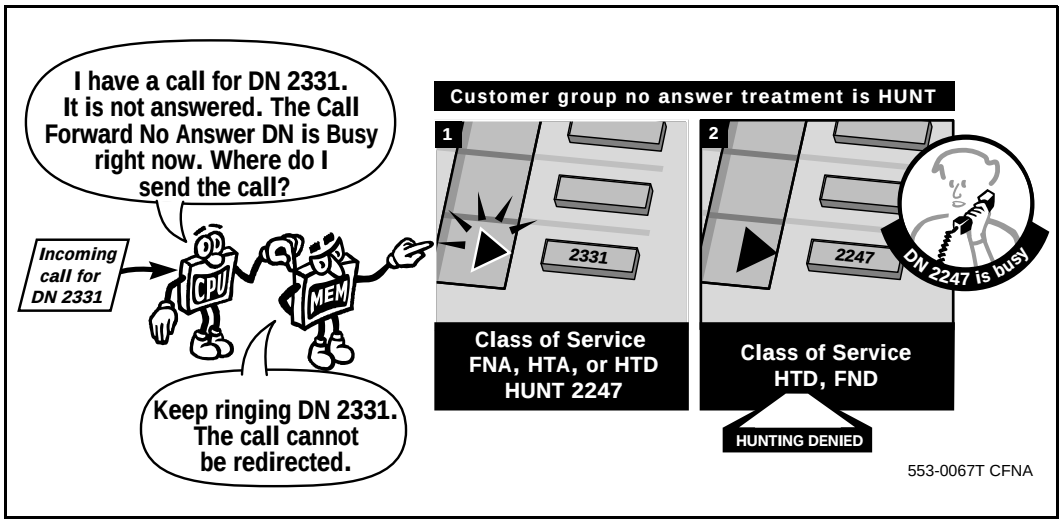
The Call Forward No Answer feature works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use *X11 features and services*.

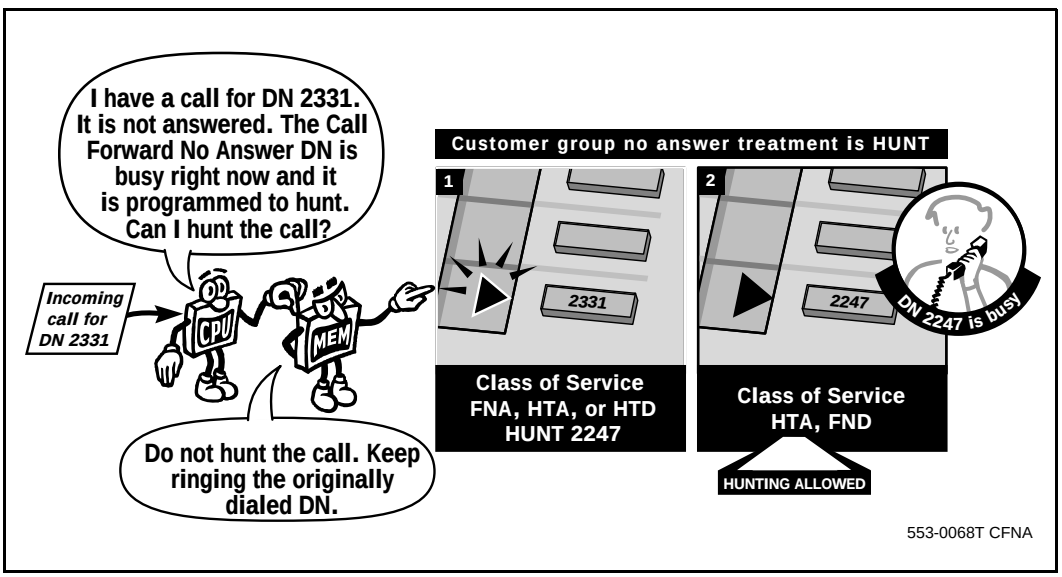
You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as repair problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Call Forward No Answer

Hunting interacts with Call Forward No Answer

The originally dialed DN is not answered and the backup DN is busy.

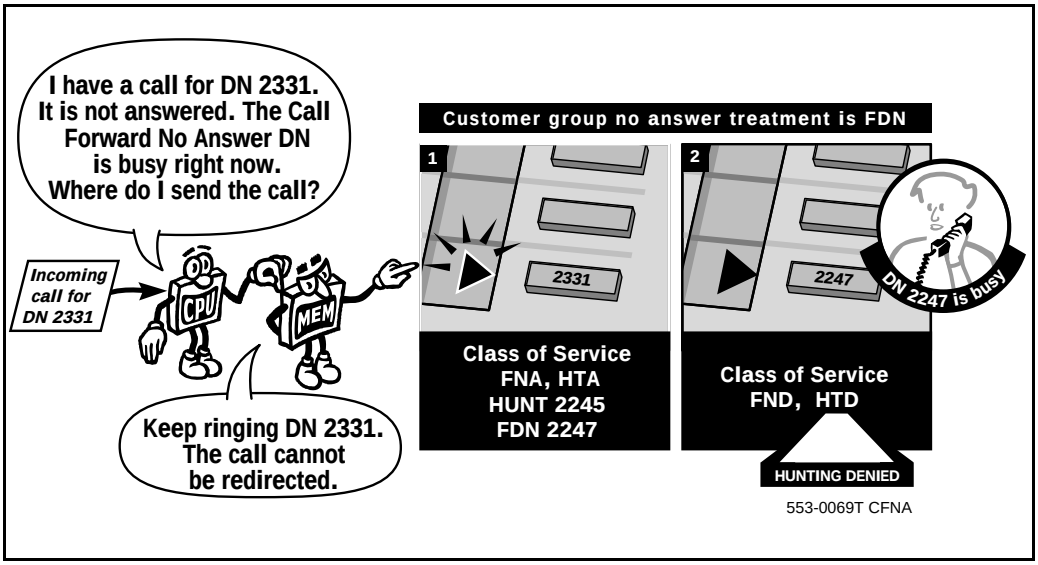




Call Forward No Answer

Hunting interacts with Call Forward No Answer

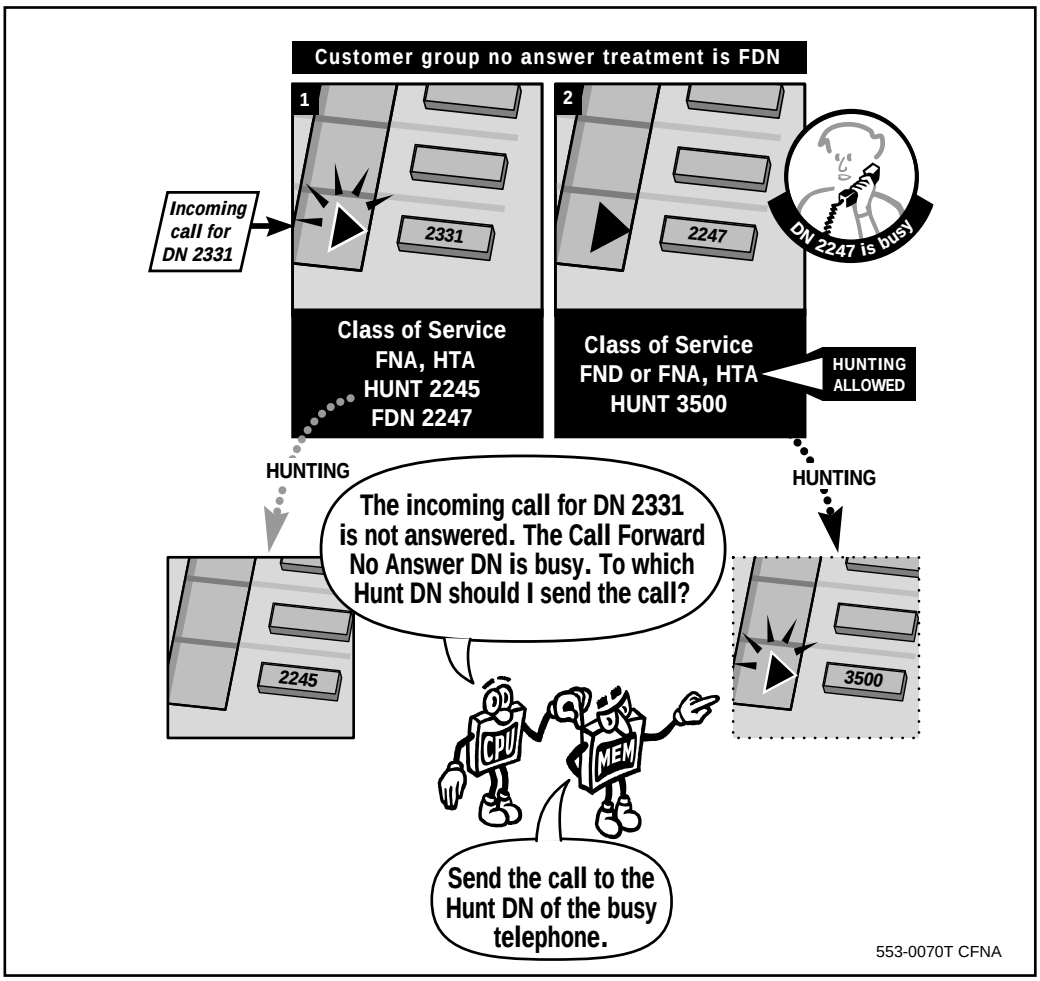
The originally dialed DN is not answered and the backup DN is busy.



Call Forward No Answer

Hunting interacts with Call Forward No Answer

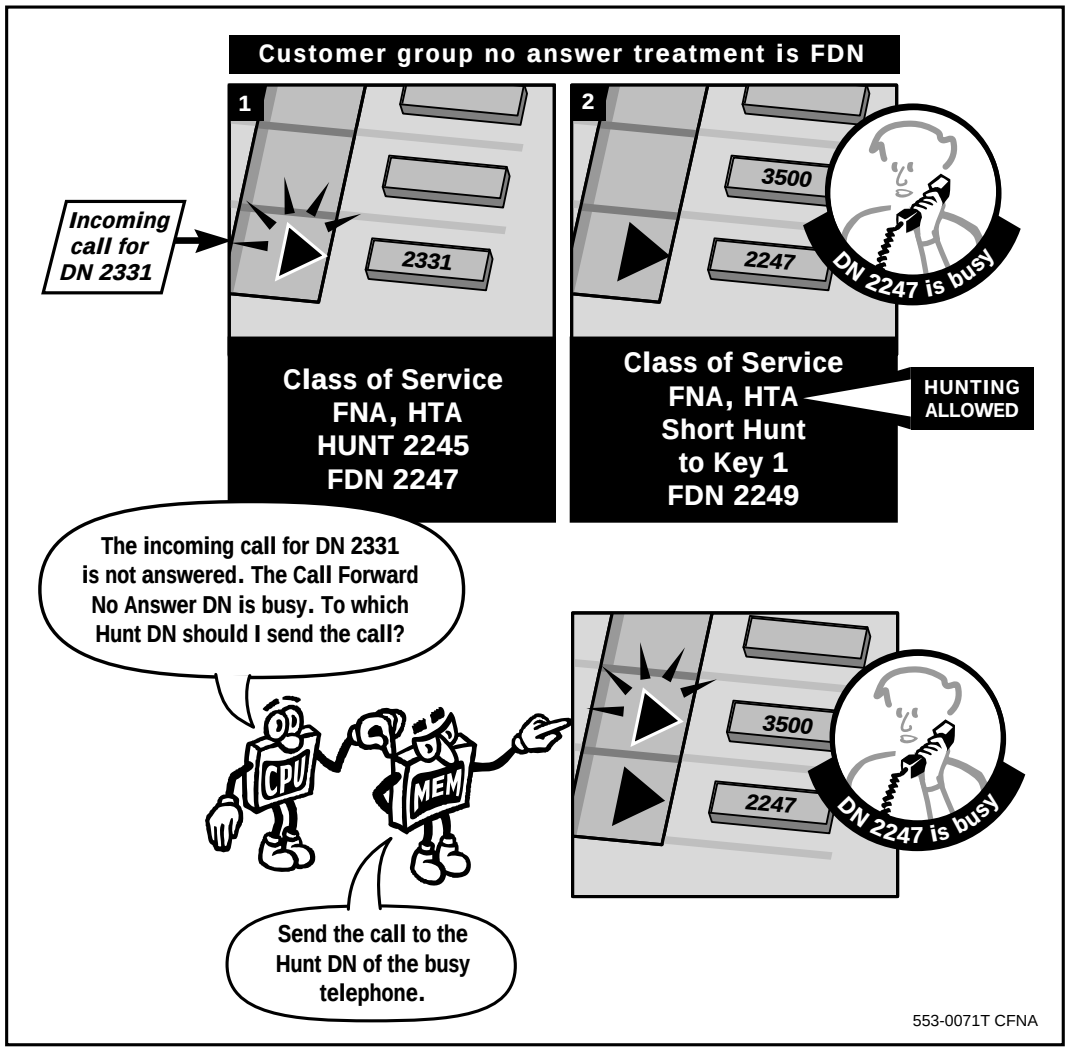
The originally dialed DN is not answered and the backup DN is busy.



Call Forward No Answer

Hunting interacts with Call Forward No Answer

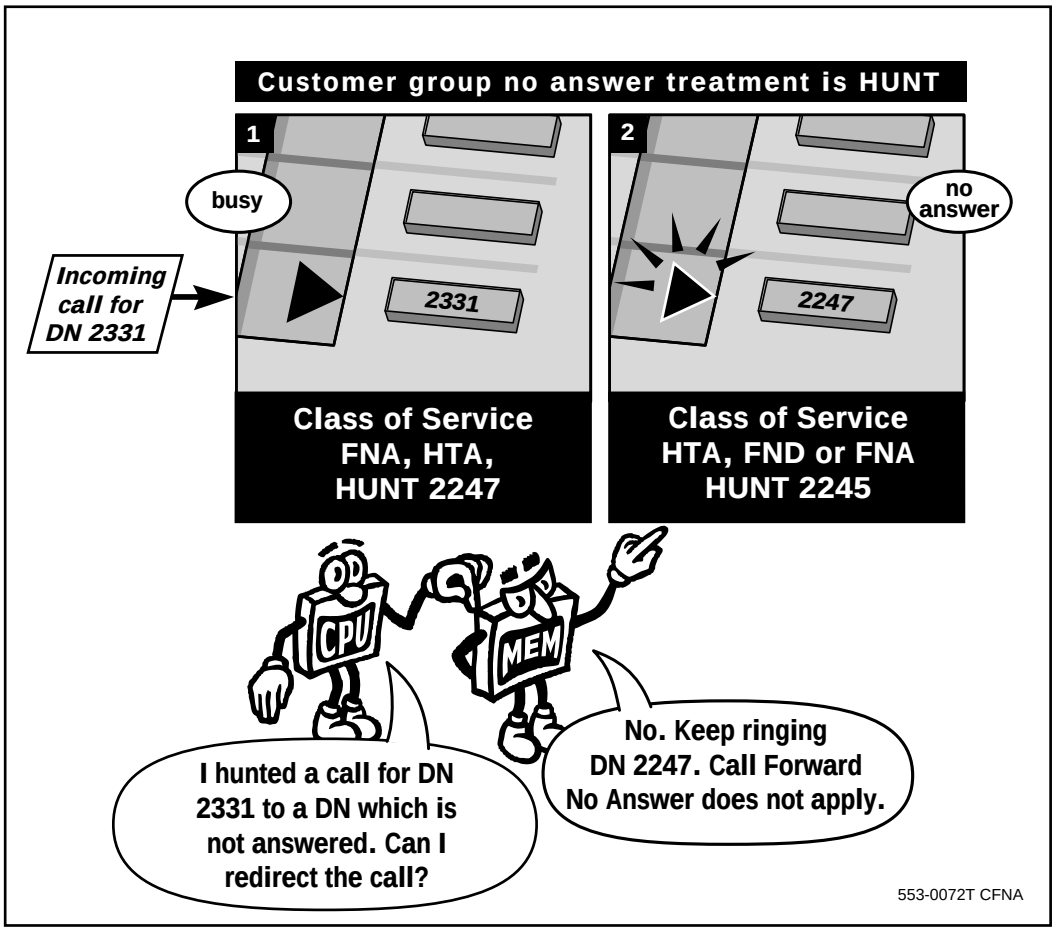
The originally dialed DN is not answered and the backup (Forward No Answer) DN is busy.



Call Forward No Answer

Hunting interacts with Call Forward No Answer

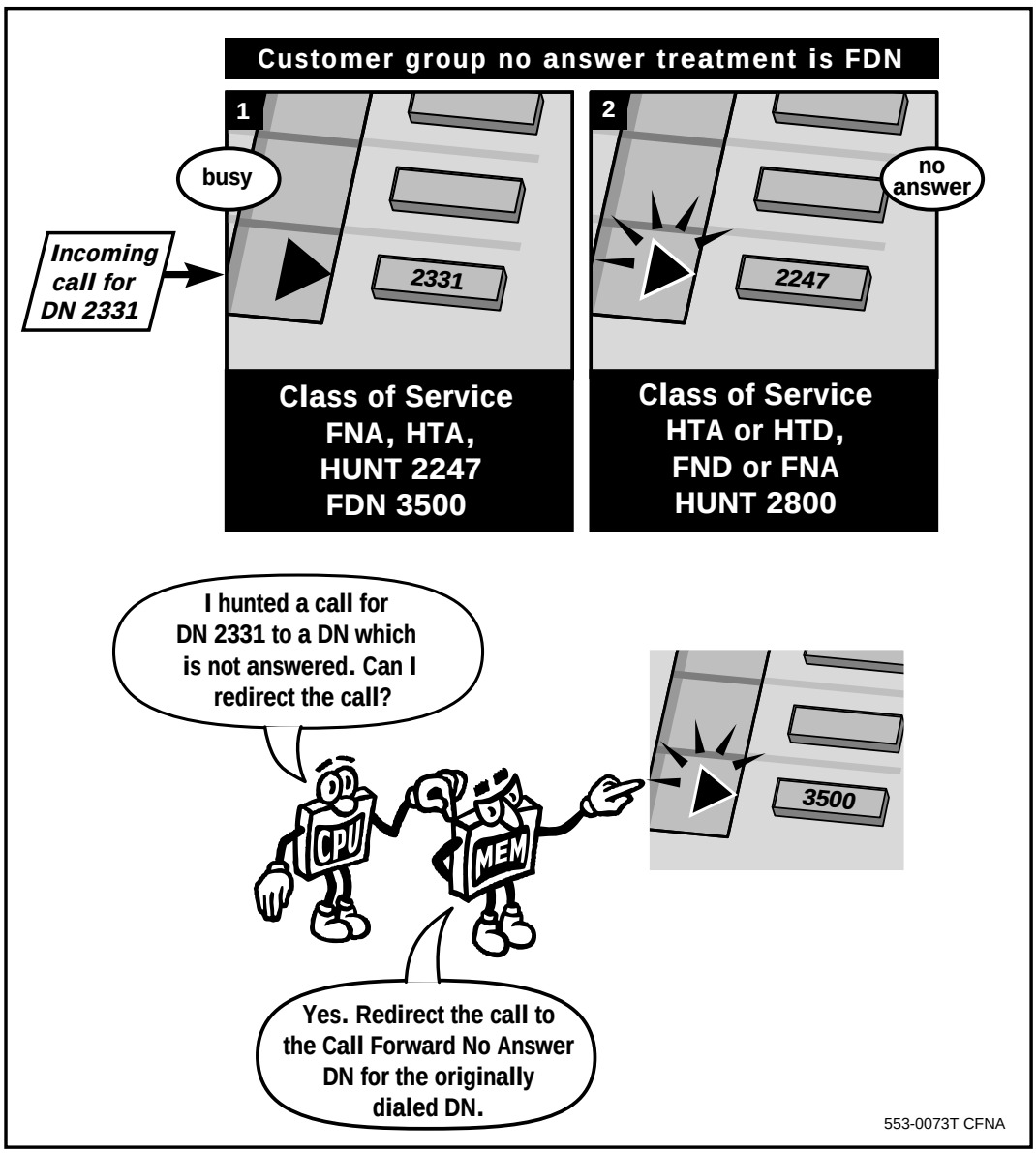
The originally dialed DN is busy and the Hunt DN is not answered.



Call Forward No Answer

Hunting interacts with Call Forward No Answer

The originally dialed DN is busy and the Hunt DN is not answered.



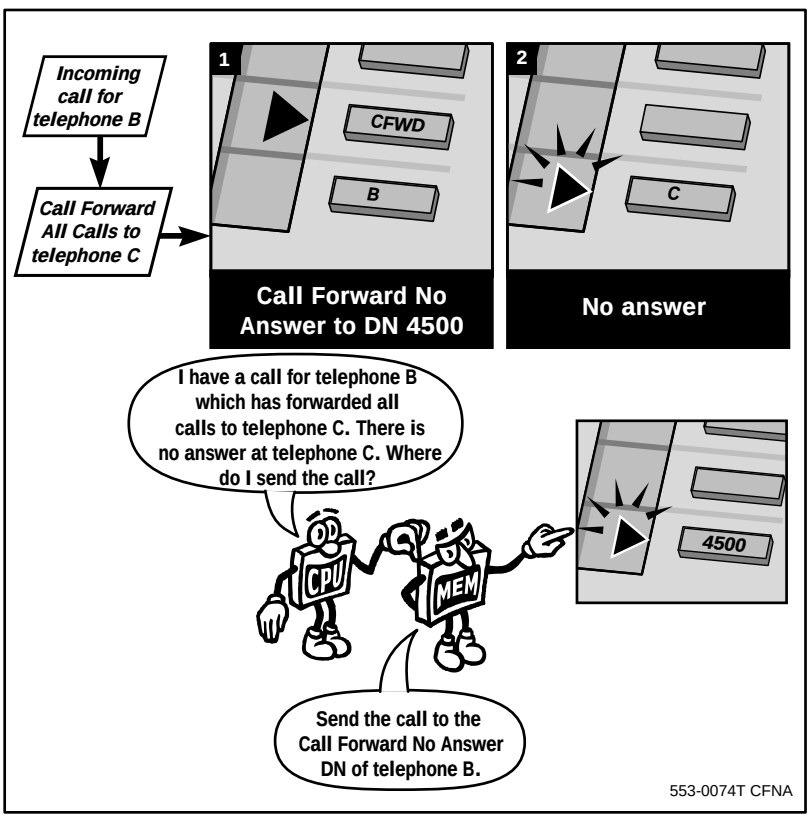
Call Forward No Answer

Call Forward All Calls interacts with Call Forward No Answer

When a user activates the Call Forward All Calls feature, incoming calls are redirected to the Call Forward All Calls destination manually input by the user at the telephone. Incoming calls do not ring the telephone when Call Forward All Calls is active.

The following example illustrates another way the two features interact.

User A calls telephone B. Telephone B is in Call Forward All Calls mode, redirecting calls to telephone C. If user C does not answer, *the call redirects to the Call Forward No Answer DN of telephone B, since that was the originally dialed DN. If telephone C is the Call Forward No Answer DN of telephone B, then telephone C continues to ring and does not forward, even if Second Level Call Forward No Answer is allowed.*



Call Forward No Answer

Shared (Multiple Appearance) DNs interact with Call Forward No Answer

If the same DN appears on more than one telephone or key it is called a *Multiple Appearance DN*.

There might be situations where several telephones share the same DN but they each have a different Call Forward No Answer DN programmed. When that shared DN rings and no one answers, the system must use a rule to determine where to divert calls. The systems are designed to operate as outlined in the text that follows.

Prior to Release 18 the system used the sequence of telephones in a DN Block to determine which telephone would control the Call Forward No Answer feature in a Multiple Appearance DN situation.

The programming associated with telephones that share a DN can be printed out in what is called the DN Block (DNB). The TNs of the telephones which share a particular DN are listed. Refer to *Basic programming instructions* for information on printing a DN Block.

The order of the telephones on this printout relative to each other is very important in redirection related situations like Call Forward No Answer.

In a shared DN situation, the telephone that controls the Call Forward No Answer feature for the shared DN is the telephone that has the shared DN as its prime DN (in other words, the DN is programmed on key 0), and the one with the TN which is nearest to the top of the DNB printout. If there are no prime appearances of the DN on any of the telephones, the Call Forward No Answer DN for that DN when it is not answered is determined by whatever is programmed for the telephone at the bottom of the DNB.

The sequence of the TNs in the list is re-arranged every time a programming change is made to one of the telephones. Also, if the system reloads (SYSLOAD) the sequence changes. Therefore, on systems using software prior to Release 18, it can be difficult to predict how Call Forward No Answer will actually operate. This is especially true if Service Changes are being done fairly often to the telephones which share DNs and the telephones are not programmed to forward calls to the same DN.

Call Forward No Answer

To avoid this confusion, when the same DN appears on more than one telephone, you should try to program them all to forward on a no answer condition to the same DN.

With Release 18 and later software you can choose a Multiple Appearance Redirection Prime (MARP) telephone for each shared DN. You designate the prime telephone, or Terminal Number (TN), which will control the Call Forward No Answer feature on the Multiple Appearance DN. When the shared DN is ringing no answer, the system uses the Call Forward No Answer DN, which you programmed for the designated MARP TN, in order to forward the call. The forwarding occurs in a predictable, consistent fashion, unaffected by Service Changes and SYSLOADS, which affected Call Forward No Answer on earlier software releases. For more information on MARP programming refer to Task 39, *Multiple Appearance DN Redirection Prime*.

If the MARP feature is disabled on a system, the Call Forward No Answer feature operates for Multiple Appearance DNs using the DN-Block procedure like a pre-Release 18 system.

Private Lines interact with Call Forward No Answer

Trunks can be programmed to operate as Private Lines. When you program a trunk in this way, incoming calls on the trunk are programmed to terminate at a certain DN. This DN can appear on one, or more telephones. Even though the incoming calls on this Private Line ring at a DN, many features that normally operate on a DN do not apply to Private Line DNs. One of these is Call Forward No Answer. This feature will not operate on that DN when it is not answered. Call Forward No Answer only operates on the DNs on a telephone which are not programmed as Private Line DNs.

Improving feature performance

The subsections that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Call Party Name Display

Table 210
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display (CPND)

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

The redirection codes can be up to four letters long. The default code for redirection by the Call Forward No Answer feature is the letter N. Decide what codes will work best for your users.

These codes can be seen on telephones with displays when calls are presented to them after being redirected by features such as Call Forward No Answer.

For example, you might want people to see the code CFNA on their displays when they answer calls for other telephones because those users did not answer and the calls were forwarded.

People can greet the caller more appropriately if they know why the calls are being presented to their telephones in the first place.

Talk to your system supplier about implementing Call Party Name Display or you can refer to *X11 features and services* for more information. The programming involved is beyond the scope of this book.

DID calls can ring at a telephone and then forward to the attendant

Direct Inward Dialing Call Forward No Answer Timer

With Release 16.87G, you can program a timer defined in terms of the number of rings, that applies to unanswered DID calls. This timer is called the Direct Inward Dialing Call Forward No Answer Timer (DFNR). It must be enabled at the Customer Data Block level. When a call rings no answer, the Call Forward No Answer feature redirects the call, and then if there is still no answer, the call is redirected to the attendant after the specified number of rings. There is a maximum of two Call Forward No Answer steps for this feature to operate. Therefore the feature called Second Level Call Forward No Answer conflicts with this.

For the feature DFNR Timer to work, the Customer Data Block *must* be programmed for Call Forward No Answer DID call treatments with a HNT response or FDN response.

Treat internal calls differently from external calls when they are not answered

Call Forward by Call Type (Call Forward No Answer Option)

This feature is included in the operation of a feature called Call Forward by Call Type. Look it up in *X11 features and services* using that name. A more complete and descriptive name for this software would be Call Forward No Answer and Hunting by Call Type, which would more accurately describe its function.

Table 211
Software requirements

Release required	Software package(s) required
10	none

Call Forward No Answer

This feature enhancement provides the capability to forward an internal call to a Call Forward No Answer DN different from the DN used for an external call when the DN is not answered.

For the purposes of this feature, internal calls are defined as:

- telephone to telephone calls
- incoming calls from Direct Inward Sytem Access (DISA) DNs
- incoming calls from trunk groups identified as *internal-type* in the programming of their Route Data Blocks

To enable this capability, you allow Call Forward No Answer and Call Forward by Call Type in the Class of Service of a telephone. You program a Call Forward No Answer DN for internal calls and a Call Forward No Answer DN for external calls to that telephone. For more information, refer to Task 34, *Call Forward by Call Type (Call Forward No Answer Option).*

An unanswered call can forward twice

Second Level Forward No Answer

Table 212
Software requirements

Release required	Software package(s) required
10	none

When an incoming call is not answered, it redirects to the Call Forward No Answer DN programmed at the originally dialed DN. The Call Forward No Answer DN might also ring no answer. If it is programmed with Call Forward No Answer and Second Level Forward No Answer allowed in its Class of Service, the call redirects a second time. The call redirects to the Call Forward No Answer DN programmed at the second telephone.

Call Forward No Answer

After two Call Forward No Answer steps, a call can:

- recall to an attendant, if the call was originally extended by an attendant
- continue to ring until it is answered, if it is not an attendant-extended call
- stop ringing, if the caller hangs up

There is a maximum of two Call Forward No Answer steps per call.

For more information, refer to Task 40, *Second Level Call Forward No Answer*.

A user can change the Call Forward No Answer DN using the telephone

User Selectable Call Redirection (USCR))

Table 213
Software requirements

Release required	Software package(s) required
19	139 — Flexible Feature Codes (FFC)

Ringing Cycle Options are part of the USCR feature.

Basic Call Forward No Answer has only one setting in the Customer Data Block (LD 15), for the number of times a telephone will ring before a call forwards. The setting affects all telephones in that customer group.

With the USCR feature, you can program three different Ringing Cycle Options in LD 15. Designated users can choose from these three ringing options to suit their individual needs. For each option the range is one to fifteen rings and the default for each option is four rings.

When you initially program each telephone, you assign it a Ringing Cycle Option. If you do not set it otherwise, Option 0 is entered by default. This option determines the number of times that telephone rings before Call Forward No Answer occurs.

Call Forward No Answer

The user can select another ringing option later as long as the User Selectable Call Redirection option has been allowed in their Class of Service and that user has been given a Station Control Password.

Reprogramming redirection DNs is another part of the USCR feature.

A user can modify the DN for the following redirection-related features:

- Call Forward No Answer
- Hunting

If the telephone has Call Forward by Call Type allowed in the Class of Service, the user can change the DNs for the two features just listed as well as for the following two additional features:

- External Call Forward No Answer
- External Hunting

When you install a telephone, you must program a Call Forward No Answer DN (or possibly two different ones for internal calls and external calls) in order for the user to be able to change it with this feature.

For more information, refer to Task 41, *User Selectable Call Redirection.*

Set Based Administration Enhancements

If your system is equipped with this capability and you know the proper Flexible Feature Code and password, you can go to a telephone programmed for Administrator Access and change the Call Forward No Answer DN for any telephone in the customer group. Depending on the treatment activated in the Customer Data Block, this might mean you change the Hunt DN and External Hunt DN (if one is programmed) or the Call Forward No Answer DN and the External Call Forward No Answer DN (if one is programmed).

This method might be quicker and easier than using a TTY to make the change(s).

You can control the use of this capability by limiting the number of people who know the Flexible Feature Code and password.

Users can choose not to forward when calling an unanswered telephone

Call Forward/Hunt Override Via Flexible Feature Code (FFC)

Table 214
Software requirements

Release required	Software package(s) required
20	139 — Flexible Feature Codes (FFC)

Note: in a networking environment, you need software package 159 — Network Attendant Service

If a calling telephone has the Call Forward/Hunt Override feature enabled in its Class of Service, it can override the Call Forward No Answer feature programmed on the called telephone.

To use the Call Forward No Answer Override, the user initiates a call using a Flexible Feature Code (FFC) assigned for that purpose. If the called telephone is idle, it rings. Call Forward No Answer does not occur, the telephone rings until it is answered or the caller hangs up.

A call to a busy telephone does not Hunt if the call was initiated with the FFC for the override feature. The caller hears a busy tone. The caller can choose to queue for the busy telephone by using the Ring Again feature. For more information, refer to Task 37, *Hunting*.

Call Forward No Answer

Unanswered calls can be redirected to an alternate DN at certain times of day

Call Redirection by Time of Day

Table 215
Software requirements

Release required	Software package(s) required
22	none

With the Call Redirection by Time of Day (CRTOD) feature, incoming unanswered calls can be automatically redirected to a predefined Directory Number at a specified time of day. You can program four Alternate Redirection time periods for each Customer Group.

This is useful for users who want their unanswered calls to redirect to alternate DNs at specified times of the day. You assign one of the Alternate Redirection time periods to the user's telephone.

The Call Redirection by Time of Day feature also applies to Hunting and both of the Call Forward by Call Type options. Refer to the information on those features in this book.

Unanswered calls can be redirected to an alternate DN on certain days

Call Redirection by Day

Table 216
Software requirements

Release required	Software package(s) required
24	none

With the Call Redirection by Day (CRDAY) feature, incoming unanswered calls can be automatically redirected to an alternate predefined Directory Number on one or more specified days of the

week and/or holidays. You can program four Alternate Day Lists and four Alternate Holiday Lists for each Customer Group. Each Alternate Holiday List can contain up to 20 dates.

If a user wants their unanswered calls to be redirected to a DN that is different from the one to which calls are normally sent, on certain days and/or holidays, then you assign one of the Alternate Day Lists and/or one of the Alternate Holiday Lists to the user's telephone. You program the DNs to be used for different types of redirected calls on those days for each telephone.

The Call Redirection by Day feature also applies to Hunting and both of the Call Forward by Call Type options. Refer to the information on those features in this book.

Control tips

- You might want to control the number of telephones or the types of users who can use the Second Level Call Forward No Answer capability. Many callers do not want to wait while the call rings several times before being answered.
- With USCR implemented you might find it useful to do printouts on a regular basis and find out what DNs people are entering for Call Forward No Answer DNs. You might need to set policies on the acceptable DNs for users to choose. If you have a network, users might be programming DNs which are actually in other switches and this might be causing confusion to your callers.

Call Forward No Answer

Administration tips

- For convenient programming of telephones, choose HNT in LD 15 in response to the prompts for call types. If you choose this, you program a Hunt DN for each telephone instead of a Hunt DN and a Call Forward No Answer DN; the two features Hunting and Call Forward No Answer use the same DN. This saves time in programming but it is not a very flexible choice.
- For flexibility, choose FDN in LD 15 in response to the prompts for call types there. This choice results in more time spent programming, but it provides users with more choices for Hunt DNs and Call Forward No Answer DNs.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Tell the users sharing a prime DN which DN will receive calls when the shared DN is not answered.
- Tell users about how Call Forward No Answer interacts with other features they might use. In order to reduce the number of false repair calls reported and improve user efficiency.
- If you are implementing Call Forward/Hunt Override Via Flexible Feature Code, tell users that telephones might continue to ring without forwarding if the caller is using this feature. They must know about this so they won't report this as a repair problem.
- If you are using the Call Redirection codes, users with displays must understand what the codes mean and how this might impact the way they answer calls. If you have policies on what you want them to say if someone is busy or not answering, let them know this in training sessions.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 217
Checklist

Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Verify the number of rings for the Call Forward No Answer setting in LD 15.
✔		Verify the treatments for the call types programmed in LD 15.
✔		Find out the DN the user wants for Call Forward No Answer.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same Call Forward No Answer DN for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs and require different Call Forward No Answer DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
	✔	Prepare your training information, and materials. Plan the way you want to address interactions.
	✔	Ask the user if internal calls are to have a different Call Forward No Answer DN from external calls. Decide what DNs to use.

— continued —

Call Forward No Answer

Table 217
Checklist (Continued)

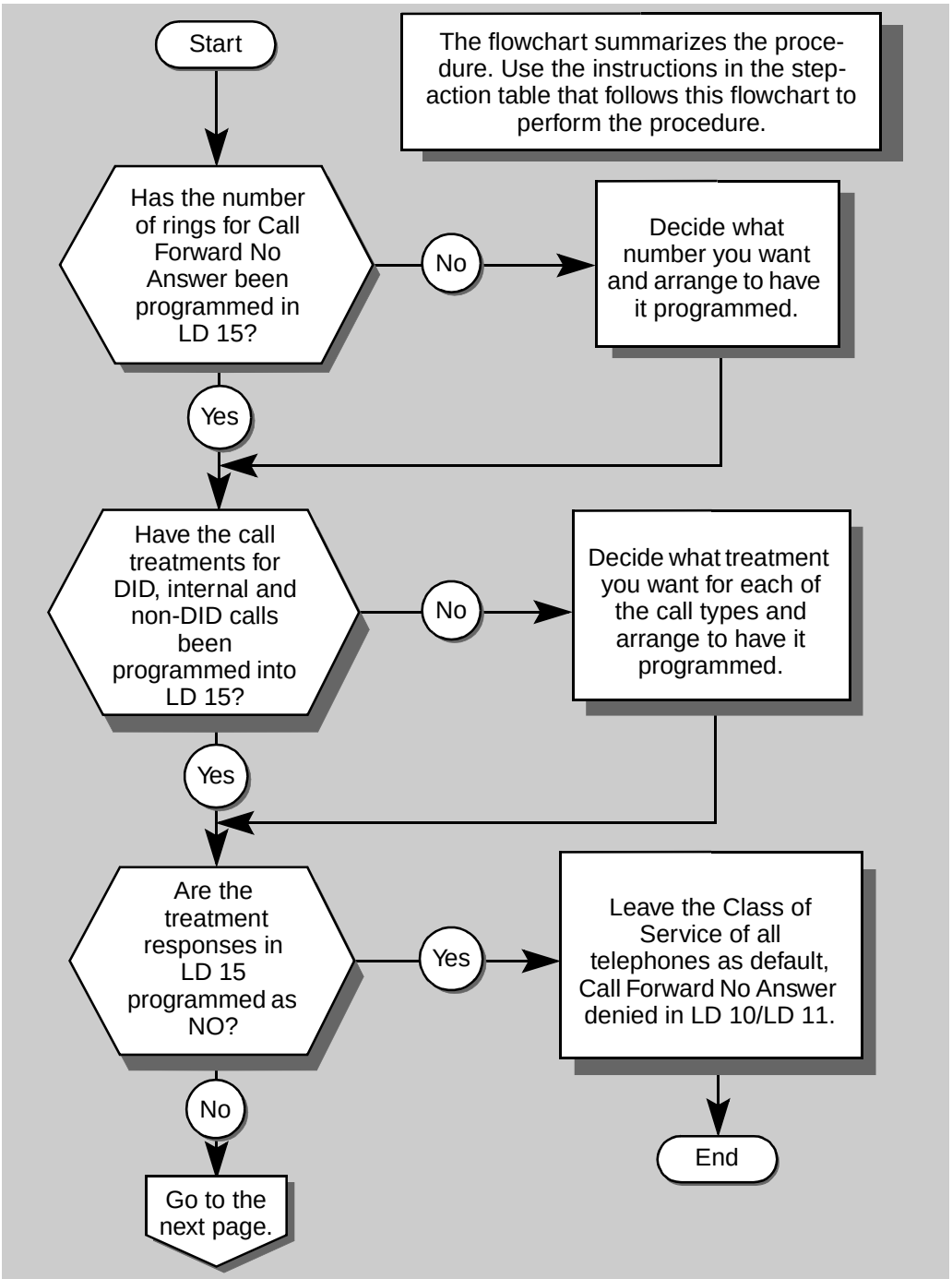
Basic	Optional	Preparation
	✔	Assign a code which will display when calls forward. Train the users.
	✔	Decide if the user should be able to change the Call Forward No Answer DN(s) programmed for the telephone. Select the three Ringing Cycle Options. Assign a Station Control Password. Assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user can use the Hunt Override capability. If so, assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user needs calls redirected to an alternate DN during a certain daily time period.
	✔	With DID telephones, decide whether you want the DFNR timer.
	✔	Decide if user needs Second Level Call Forward No Answer.

What's next?

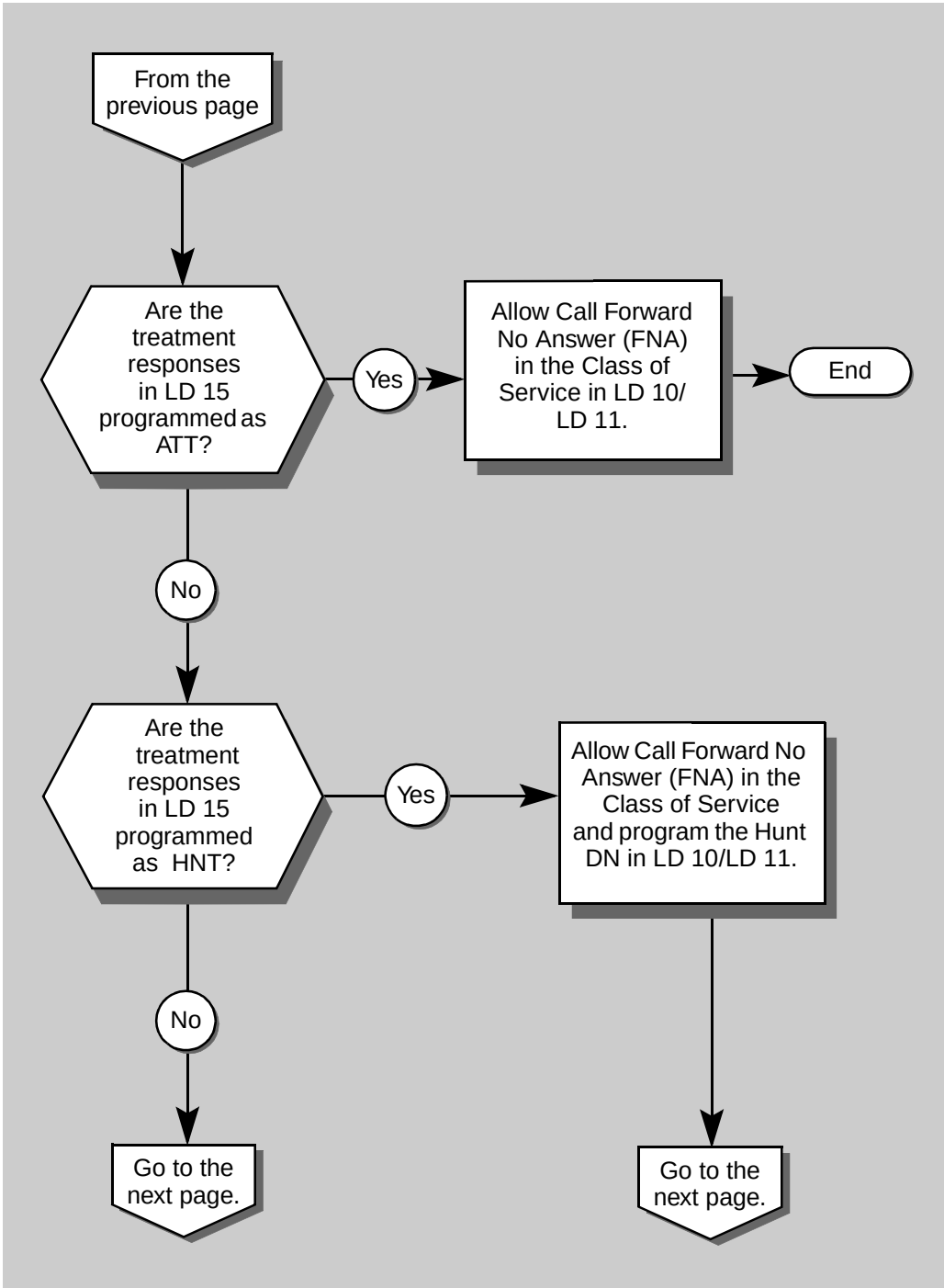
A flowchart follows which summarizes the implementation decisions and procedures for Call Forward No Answer.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

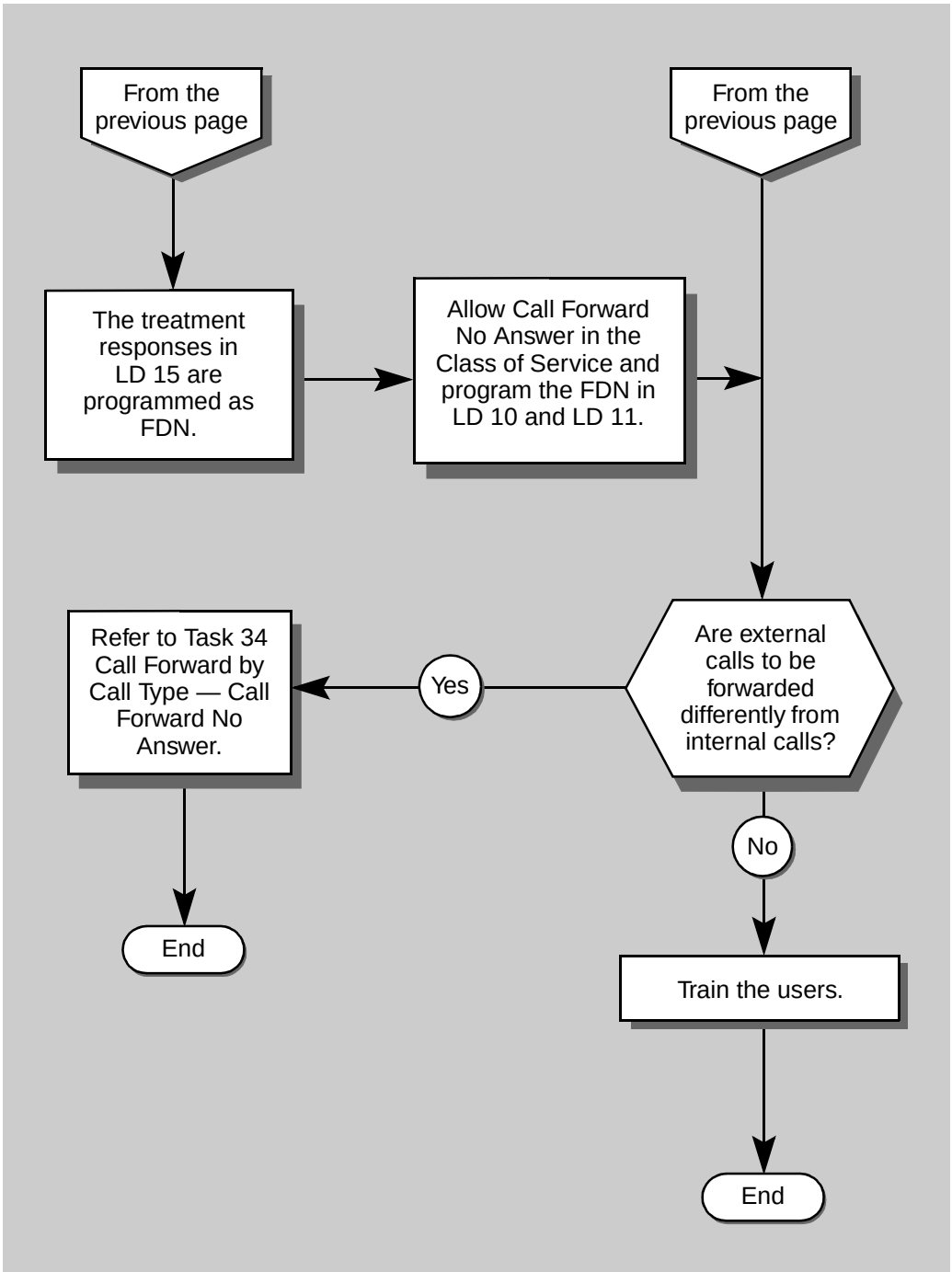
Call Forward No Answer



Call Forward No Answer



Call Forward No Answer



Call Forward No Answer

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Call Forward No Answer feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Choose your starting point from the choices below.**

If	Do
new telephone	step 2
change to an existing telephone	step 12

STEP	ACTION
2	**Check that the number of rings for a “no answer” has been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
not programmed	Ask your system supplier to program it. Go to step 3.
programmed	step 3

— continued —

STEP	ACTION
3	**Check that the call treatments for all call types on your system have been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
not programmed	Decide what treatments (NO, ATT, HNT, or FDN) suit your needs best and ask your system supplier to program a treatment for each call type. Go to step 4.
programmed	step 4

4	**Choose your next step from the choices below.**

The treatments programmed in LD 15 affect what, if any, programming you must do in LD 10 and LD 11, the telephone overlay programs.

If	Do
treatments are NO	Leave telephone Class of Service as default, FND, Call Forward No Answer denied. Your task is complete.
treatments are ATT	step 5
treatments are HNT	step 6
treatments are FDN	step 7

— continued —

Call Forward No Answer

STEP	ACTION
5	**Program the new telephone so all unanswered calls forward to the attendant(s).**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.

> LD 10 or **>** LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of 500, or digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–19 for information.
carriage return until you see the prompt CLS		
CLS	FNA	Call Forward No Answer allowed

Go to step 45.

6	**Program the new telephone so all unanswered calls forward to the Hunt DN.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
telephone is dial or Digitone-type	step 7
telephone is digital or SL-1-type	step 8

— continued —

Call Forward No Answer

STEP	ACTION
7	**Program the new dial or Digitone-type telephone so all unanswered calls forward to the Hunt DN.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone

program the basics... Refer to Tasks 1–6 for information.

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
8	**Program the new digital or SL-1-type telephone so all unanswered calls forward to the Hunt DN.**

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 7–19 for information.

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
9	**Program the new telephone so all unanswered calls forward to the flexible Call Forward No Answer DN.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
telephone is dial or Digitone-type	step 10
telephone is digital or SL-1-type	step 11

10 **Program the new dial or Digitone-type telephone so all unanswered calls forward to the FDN.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

carriage return until you see the prompt FTR

FTR	FDN X..X	Input the DN to which calls are to forward, X..X represents a DN; 1–4 digits prior to Release 13; 1–7 digits Release 13 and later; 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
11	**Program the new digital or SL-1-type telephone so all unanswered calls forward to the FDN.**

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone

program the basics... Refer to Tasks 7–19 for information.

carriage return until you see the prompt FDN

FDN	X..X	Input the DN to which calls are to forward. X..X represent a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION	
12	**Choose your next step from the choices below.**	
	If	**Do**
	you want to change the number of rings before calls forward	Ask your system supplier to program the change in LD 15.
	you want to change the call treatments for any of the call types	Ask your system supplier to program the change in LD 15.
	you want to change a telephone from Call Forward No Answer denied to allowed	step 13
	you want to change a telephone from Call Forward No Answer allowed to denied	step 31
	you want to change the DN to which calls forward	step 38
13	**Choose your next step based on what is programmed for treatments in LD 15, the Customer Data Block.**	
	If	**Do**
	you do not have access to LD 21	Ask your system supplier what treatments are programmed. Look below to find out what step to go to based on the treatments programmed.
	you have access to LD 21	Log in and print your Customer Data Block. Look at the response to each of the following prompts: FNAD, FNAN (pre-Release 10 systems) FNAD, FNAT, FNAL (Release 10 and later)
	treatments are NO	Decide what treatments you want. Ask your system supplier to program them in LD 15. Then follow the step below which is appropriate for the treatments you chose.

— continued —

Call Forward No Answer

STEP	ACTION

13 continued ...

If	Do
treatments are ATT	step 14
treatments are HNT	step 17
treatments are FDN	step 24

14 Change the Class of Service of the telephone to allow unanswered calls to forward to the attendant(s).

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.

> LD 10 or > LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward No Answer

STEP	ACTION
15	**Program an "Easy Change" to an existing telephone to allow unanswered calls to forward to the attendant(s).**
	ITEM CLS FNA — Change Class of Service to allow Call Forward No Answer
	Go to step 45.
16	**Program a change (not an "Easy Change") to an existing telephone to allow unanswered calls to forward to the attendant(s).**
	carriage return until you see the prompt CLS
	CLS FNA — Call Forward No Answer allowed
	Go to step 45.
17	**Choose your next step based on the type of telephone you are changing.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.
	If — **Do**
	dial or Digitone-type — step 18
	digital or SL-1-type — step 21

— continued —

Call Forward No Answer

STEP	ACTION
18	**Change an existing dial or Digitone-type telephone to allow unanswered calls to forward to the Hunt DN.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 19.
not using “Easy Change”	Input NO or <cr> and go to step 20.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

19	**Program an “Easy Change” to an existing dial or Digitone-type telephone to allow unanswered calls to forward to the Hunt DN.**

ITEM CLS FNA	Change Class of Service to Call Forward No Answer Allowed
ITEM HUNT X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
20	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to allow unanswered calls to forward to the Hunt DN.**

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

Go to step 45.

21	**Change an existing digital or SL-1-type telephone to allow unanswered calls to forward to the Hunt DN.**

> LD 11		
REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	**Do**
using "Easy Change"	Input YES and go to step 22.
not using "Easy Change"	Input NO or <cr> and go to step 23.

For more information on "Easy Change," refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward No Answer

STEP	ACTION
22	**Program an "Easy Change" to an existing digital or SL-1-type telephone to allow unanswered calls to forward to the Hunt DN.**
	ITEM CLS FNA — Change Class of Service to Call Forward No Answer Allowed
	ITEM HUNT X..X — Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.
23	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to allow unanswered calls to forward to the Hunt DN.**
	carriage return until you see the prompt CLS
	CLS FNA — Call Forward No Answer allowed
	carriage return until you see the prompt HUNT
	HUNT X..X — Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
24	**Choose your next step based on the type of telephone you are changing.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
dial or Digitone-type	step 25
digital or SL-1-type	step 28

25 Change an existing dial or Digitone-type telephone to allow unanswered calls to forward to the FDN.

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 26.
not using “Easy Change”	Input NO or <cr> and go to step 27.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward No Answer

STEP	ACTION		
26	**Program an "Easy Change" to an existing dial or Digitone-type telephone to allow unanswered calls to forward to the FDN.**		
	ITEM CLS FNA		Change Class of Service to Call Forward No Answer Allowed
	ITEM FTR FDN X..X		Input the Flexible DN to which calls are to forward X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.		
27	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to allow unanswered calls to forward to the FDN.**		
	carriage return until you see the prompt CLS		
	CLS	FNA	Call Forward No Answer allowed
	carriage return until you see the prompt FTR		
	FTR	FDN X..X	Input the DN to which calls are to forward X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.		

— continued —

Call Forward No Answer

STEP	ACTION
28	**Change an existing digital or SL-1-type telephone to allow unanswered calls to forward to the FDN.**

> LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 29.
not using “Easy Change”	Input NO or <cr> and go to step 30.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

29	**Program an “Easy Change” to an existing digital or SL-1-type telephone to allow unanswered calls to forward to the FDN.**

ITEM CLS FNA	Change Class of Service to Call Forward No Answer allowed
ITEM FDN X..X	Input the DN to which calls are to forward X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
30	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to allow unanswered calls to forward to the FDN.**

carriage return until you see the prompt FDN

FDN	X..X	Input the DN to which calls are to forward X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA	Call Forward No Answer allowed

Go to step 45.

31	**Choose your next step based on the type of telephone you are changing to Call Forward No Answer denied.**

Do a TNB printout of the telephone you are changing. If you need more information on how to do the printout, refer to *Basic programming instructions* in this book.

If	Do
dial or Digitone-type	step 32
digital or SL-1-type	step 35

— continued —

Call Forward No Answer

STEP	ACTION
32	**Change an existing dial or Digitone-type telephone to deny unanswered calls from forwarding.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 33.
not using “Easy Change”	Input NO or <cr> and go to step 34.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

33	**Program an “Easy Change” to an existing dial or Digitone-type telephone to deny unanswered calls from forwarding.**

ITEM	CLS FND	Change Class of Service to Call Forward No Answer denied

— continued —

Call Forward No Answer

STEP	ACTION
	33 continued ...

If	Do
you see a DN programmed for FTR FDN in the TNB printout	respond to the ITEM prompt FTR FDN XY..Y Input X before the DN you see in the printout to remove it. Y..Y represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
you see no DN programmed for FTR FDN, only a HUNT DN programmed	

If	Do
the Class of Service (CLS) includes HTA	Leave the Hunt DN as is. Carriage return in response to the ITEM prompt.
the Class of Service (CLS) includes HTD	respond to the ITEM prompt HUNT XY..Y Input X before the DN you see in the printout to remove it. Y..Y represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
Go to step 45.	

— continued —

Call Forward No Answer

STEP	ACTION
34	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to deny unanswered calls from forwarding.**

carriage return until you see the prompt HUNT

HUNT	<cr>	If the TNB printout you did earlier shows the Class of Service is Hunting allowed (CLS includes HTA), leave the Hunt DN as is (carriage return).
	XY..Y	If the TNB printout shows the Class of Service is Hunting denied (CLS includes HTD), input X before the DN you see in the printout to remove it. Y..Y represents a DN.

carriage return until you see the prompt CLS

CLS	FND	Call Forward No Answer denied

carriage return until you see the prompt FTR

FTR	FDN XY..Y	If the TNB printout shows a DN following FDN, input X before the DN to remove it. Y..Y represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
35	**Change an existing digital or SL-1-type telephone to deny unanswered calls from forwarding.**

> LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input the correct type of digital or SL-1 telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 36.
not using “Easy Change”	Input NO or <cr> and go to step 37.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

36	**Program an “Easy Change” to an existing digital or SL-1-type telephone to deny unanswered calls from forwarding.**

ITEM	CLS FND	Change Class of Service to Call Forward No Answer denied

— continued —

Call Forward No Answer

STEP	ACTION

36 continued ...

If	Do
you see a DN programmed for FTR FDN in the TNB printout	respond to the ITEM prompt FTR FDN XY..Y Input X before the DN you see in the printout to remove it. Y..Y represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

if you saw no DN programmed for FDN, only a HUNT DN programmed

If	Do
the Class of Service (CLS) includes HTA	Leave the Hunt DN as is. Carriage return in response to the ITEM prompt.
the Class of Service (CLS) includes HTD	Respond to the ITEM prompt HUNT XY..Y Input X before the DN you see in the printout to remove it. Y..Y represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
37	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to deny unanswered calls from forwarding.**

carriage return until you see the prompt FDN

FDN	XY..Y	If the TNB printout shows a DN following FDN, input X before the DN to remove it. Y..Y represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FND	Call Forward No Answer denied

carriage return until you see the prompt HUNT

HUNT	<cr>	If the TNB printout shows the Class of Service is Hunting allowed (CLS includes HTA), leave the Hunt DN as is.
	XY..Y	If the TNB printout shows the Class of Service is Hunting denied (CLS includes HTD), input X before the DN you see in the printout to remove it.

Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
38	**Change the DN to which calls forward when the telephone is unanswered.**

Look at the TNB printout you did earlier.

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.

If	Do
no FDN is programmed	step 39
FDN is programmed	step 42

39 Change the Hunt DN which is used to forward calls.

> LD 10 or > LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, or digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 40.
not using “Easy Change”	Input NO or <cr> and go to step 41.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Call Forward No Answer

STEP	ACTION
40	**Program an "Easy Change" to an existing telephone to change the Hunt DN to which calls forward.**
	ITEM HUNT X..X — Input the new DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.
41	**Program a change (not an "Easy Change") to an existing telephone to change the Hunt DN to which calls forward.**
	carriage return until you see the prompt HUNT
	HUNT X..X — Input the new DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.

— continued —

Call Forward No Answer

STEP	ACTION
42	**Change the FDN which is used to forward calls.**

> LD 10 or **>** LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 43.
not using “Easy Change”	Input NO or <cr> and go to step 44.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

43	**Program an “Easy Change” to an existing telephone to change the flexible DN to which calls forward.**

ITEM

If	Do
dial or Digitone-type telephone	Input FTR FDN X..X Input the new DN to which calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

— continued —

Call Forward No Answer

STEP	ACTION
43 continued ...	
	digital or SL-1-type telephone: Input FDN X..X Input the new DN to which calls are to forward. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.
44	**Program a change (not an "Easy Change") to an existing telephone to change the flexible DN to which calls forward.**
	If / **Do**
	dial or Digitone-type telephone: Carriage return until you see the prompt FTR. Input FDN X..X where X..X represents the new DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	digital or SL-1-type telephone: Carriage return until you see the prompt FDN. Input X..X where X..X represents the new DN to which calls are to forward. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 45.

— continued —

STEP	ACTION
45	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your Service Change has been entered into the memory.

46	**Check that the programming which you have just done is correct.**

Place calls to the telephone and let it ring with no answer. Make sure the expected treatment happens.

If	Do
the feature works properly	step 47
the feature does not work properly	step 1

47	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 48

— continued —

Call Forward No Answer

STEP	ACTION
48	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

49 Verify that the dump was successful.

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 50

— continued —

Call Forward No Answer

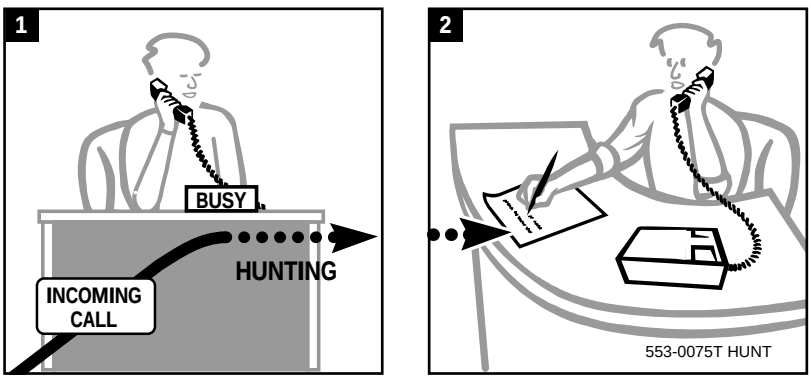
STEP	ACTION
50	**Terminate this overlay program.**
	. ****
51	**Terminate this programming session.**
	Log off. **>** LOGO
52	**You have completed the programming required to add or change the Call Forward No Answer feature on a telephone.**
	END

Call Forward No Answer

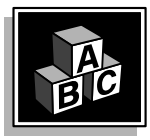
Hunting

Purpose

When the Hunting feature is activated in the programming of a telephone, calls are routed to another Directory Number (DN) when the telephone is busy.



Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Setting up the feature

Hunting comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to have the Hunting feature, then you use the procedure in this module to program each one.

The Hunting feature and a feature called Group Hunting are very similar. To ensure you are choosing the proper feature for your needs, refer to the *X11 features and services* before proceeding to implement the Hunting feature.

Class of Service (CLS)

You allow or deny the Hunting feature in the Class of Service of a telephone.

Hunt DN

For each telephone with the Hunting feature allowed, you program one DN to which incoming calls go when the telephone is busy. This is called the Hunt DN.

Hunting process

When an incoming call is being processed by the system, these are the steps it follows with respect to the Hunting feature:

- it checks to determine whether the originally dialed telephone is busy or idle
- if the telephone is busy, the system checks the programming of the busy telephone for a Class of Service of Hunting allowed and whether there is a Hunt DN
- the system determines whether the Hunt DN is busy or idle
- if that DN is busy, the system checks for a Hunting allowed Class of Service and to determine whether or not a Hunt DN is programmed for that telephone

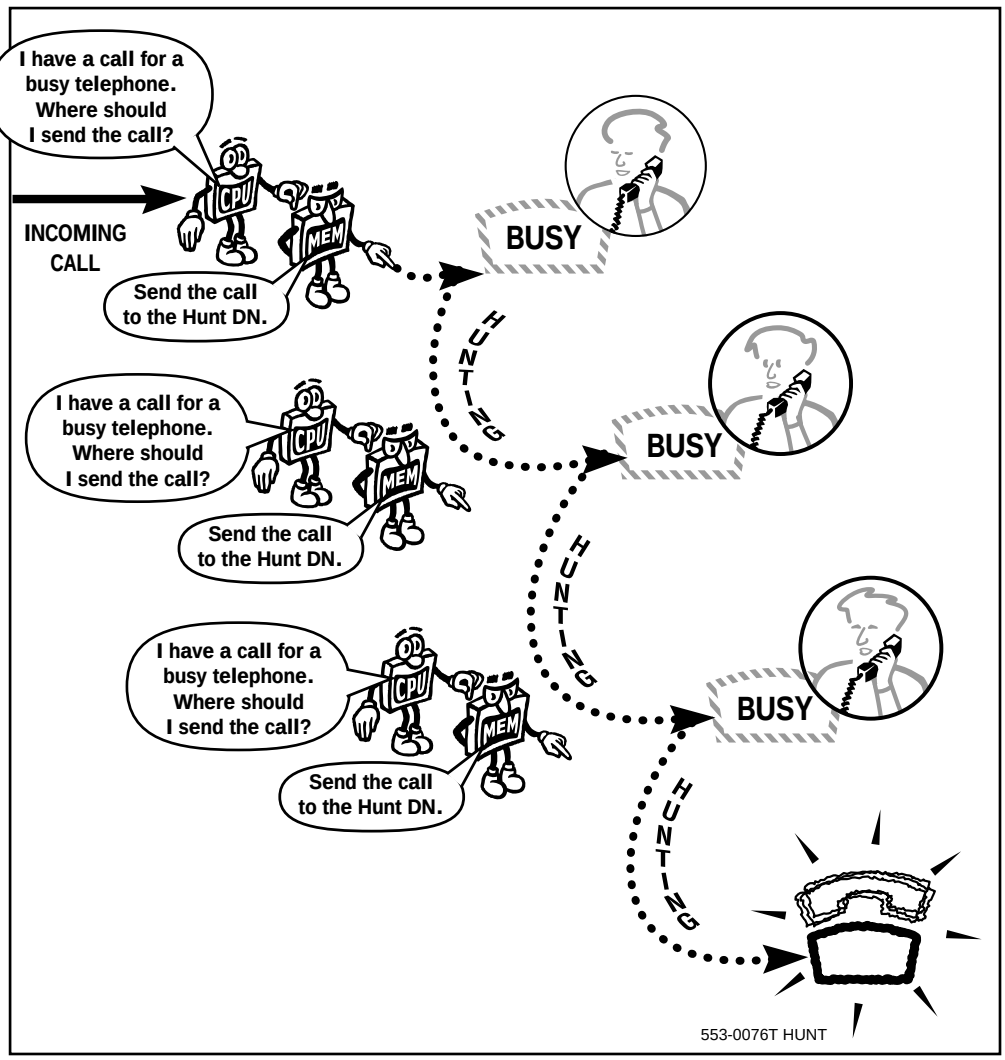
The third and fourth steps repeat until one of the following happens:

- the system finds an idle DN. In this case the caller hears ringback tone.
- the system has scanned all Hunt DNs in the chain following from the originally dialed DN and found them all busy. The caller hears a busy tone.
- the sytem has scanned the maximum number of Hunt steps it is allowed and found them all busy. The caller hears a busy tone.

Hunting

Hunt chains

Because the Hunting process operates as it does, the system can end up checking the status of several DNs, attempting to find an idle DN for the call. These DNs make up what are called *Hunt chains*. A diagram illustrating a Hunt chain is shown below.



Hunt steps per Hunt chain

The maximum number of telephones which the system can scan in a Hunt chain depends on the system type.

Table 218
System type and Hunt step limits

System family	Model	Maximum number of Hunt steps
SL-1	S, M, MS, LE	18
Meridian SL-1	N, ST	18
Meridian 1	Option 21	18
SL-1	VLE,XL	30
Meridian SL-1	XN,NT, XT	30
Meridian 1	Option 21E, 61, 71, 81	30

Kinds of Hunt chains

The Hunting feature can send a call for a DN which is busy to one of the following two places:

- a DN on another telephone
- a DN on another key on the same telephone

If several telephones act as Hunt DNs for each other, different kinds of chains can be set up for different applications.

There are different terms you can use to describe the type of Hunting arrangement you want to implement. These terms describe how the system is set up to Hunt calls when telephones are busy.

- Linear
- Short
- Circular
- Secretarial

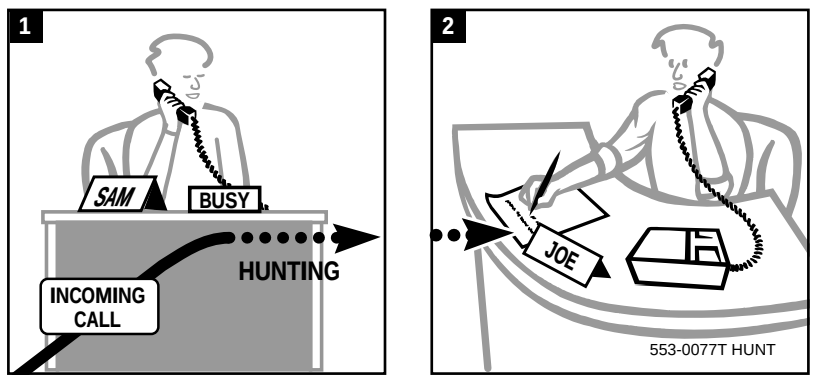
Hunting

Linear Hunting

A user (called Sam in this example) requires another person (Joe in this example) to handle calls for him when he is busy on the telephone. The Hunt DN programmed for Sam's telephone is a DN on Joe's telephone.

If Joe has a digital or SL-1-type telephone, the Hunt DN programmed for Sam's calls can be any one of the DNs on the keys of Joe's telephone.

This is an example of when the Hunt DN for one telephone is a DN assigned on another telephone.



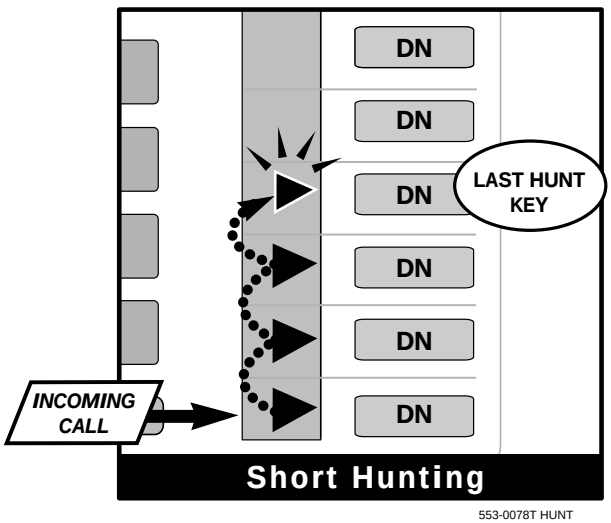
Short Hunting

A person who answers calls for several other users when they are busy might receive a high volume of calls. If you program several DNs on the keys of the telephone, that user can receive several incoming calls at once.

There is a form of Hunting called Short Hunting which is useful on a telephone with several DNs.

Hunting

Short Hunting allows calls to overflow from a busy DN to another DN on the same digital or SL-1-type telephone so that many incoming calls can be handled at once.



The Short Hunting process is as follows:

A call comes into a dialed DN. Once that DN is busy with a call, a second incoming call to the same DN can be programmed to Hunt to the next highest key on the same telephone.

Hunting

Once that key is busy with the second call, a third call can Hunt to the next highest key on the same telephone and so on, until one of the following happens:

- the system reaches the key programmed as the *Last Hunt Key* in the programming of the telephone

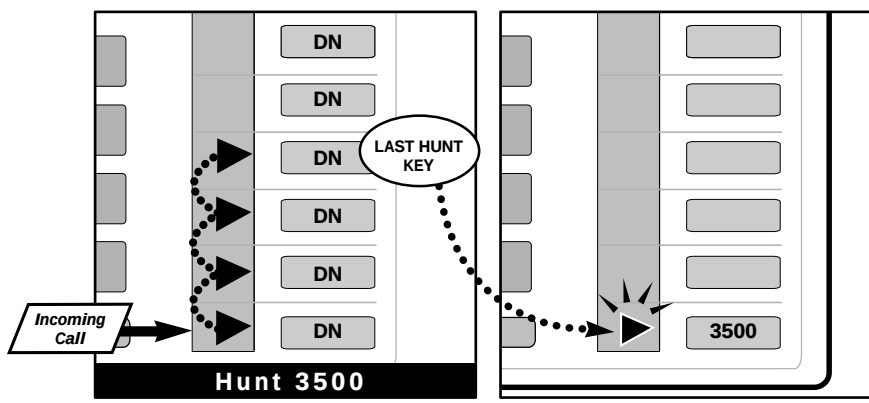
  If the Last Hunt Key is already occupied with a call, the system cannot scan any higher key numbers on that telephone to process a Hunting type call.

- a feature key is the next key - an incoming call cannot be sent to a feature key
- a key with nothing programmed for it - the system cannot send the incoming Hunted call to that key, nor can it scan the next highest key above the blank key for an available DN
- the system reaches its maximum number of Hunt steps; it stops scanning keys and busy tone is given to the caller

Once the system comes to the end of Short Hunting on one telephone, it can send calls to a Hunt DN, if one is programmed for that telephone. In that way, Linear Hunting can follow Short Hunting.

In the first three scenarios in the list above, after the system scans as many keys on one telephone that it is allowed, the system looks for a Hunt DN to which to send the call.

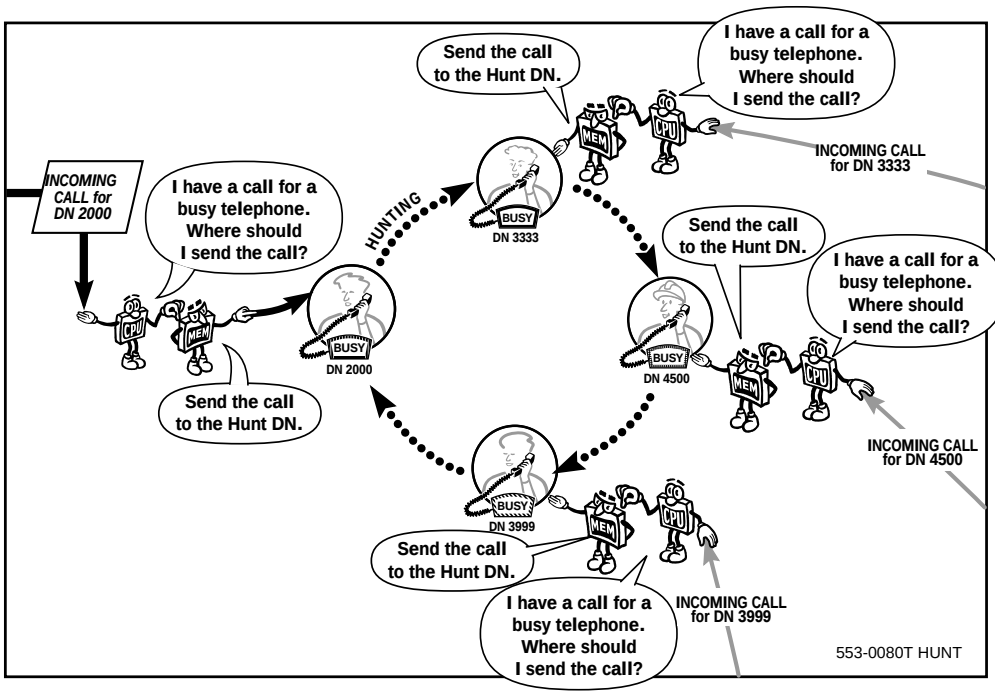
Short Hunting followed by Hunting to another telephone



Circular Hunting

You can program Hunting in a specific way for a group of users who share the same job function. If it does not matter who answers calls that come into any of the telephones in the group, you can program Hunting to operate in a circular fashion.

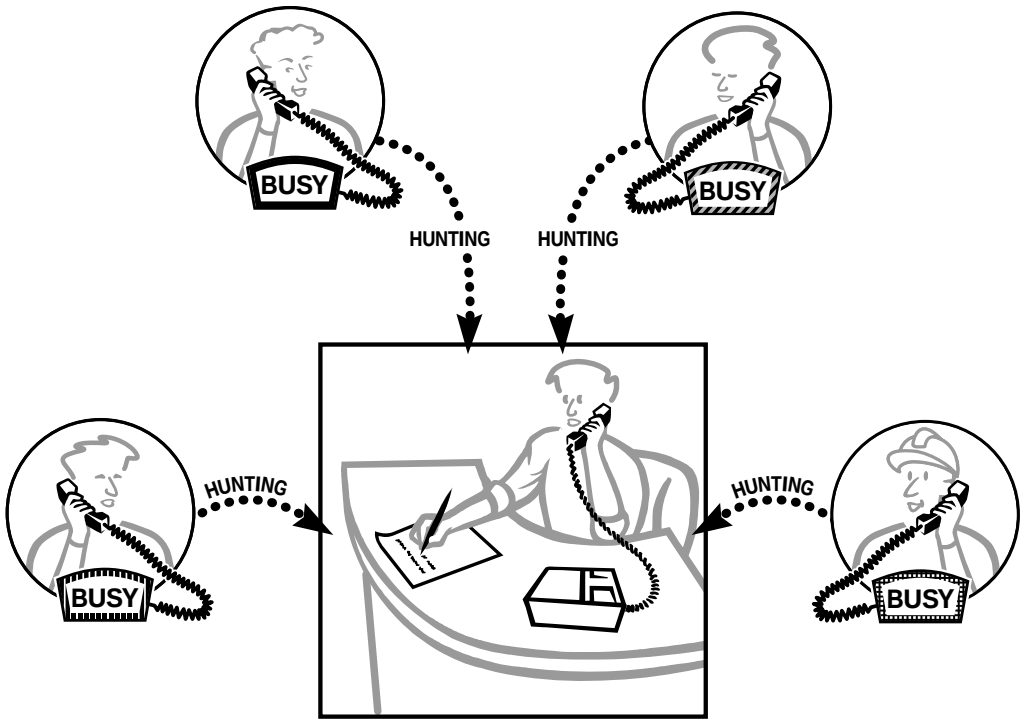
You begin by programming one of the telephones in the group to Hunt to another DN assigned to another telephone in the same group. You program this DN to Hunt to a different DN in the same group and so on until you reach the last telephone in the group. You program the last telephone to Hunt to the first telephone you programmed in the group. As a result of this programming, when a call comes in for any of the DNs in the group and many of them are busy, you know that the system is set up to scan all the telephones in that group because of the Circular Hunting arrangement. Calls have a very good chance of getting through to someone in that group.



Hunting

Secretarial Hunting

In a department where the people want calls to go to the secretary when their telephones are busy, you can implement this form of Hunting. You program several different telephones to Hunt to the one DN (a DN on the secretary's telephone).



553-0081T HUNT

The secretary can usually benefit from having several DNs on the telephone, with Short Hunting programmed, to allow several calls to come in at once.

Printing a Hunt chain

There are various methods you can use to find out about the Hunting patterns that are programmed for telephones on your system. Refer to the *Basic programming instructions* module for further information.

Using the feature

Refer to the illustrations and text prior to this section for information on the use of this feature.

Interactions with other features

The Hunting feature works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Ring Again interacts with Hunting

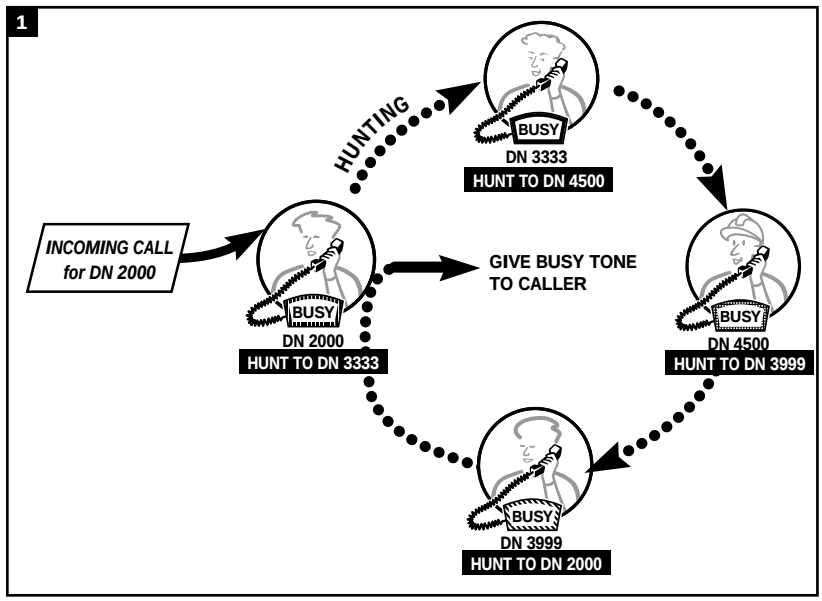
When a call comes in for one of the DNs in the Hunt chain and all of the telephones in the chain are busy, the caller hears a busy tone. The system checks the status of the DNs in the Hunt chain only once.

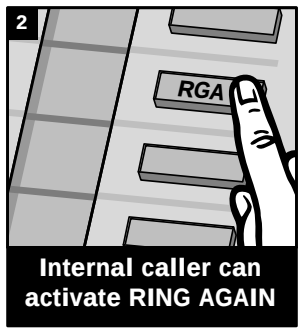
When internal callers or callers using a Private ISDN network want to queue for a busy telephone that they have called, they can activate the Ring Again feature or the Network Ring Again feature respectively. The system calls them back when the DN becomes idle.

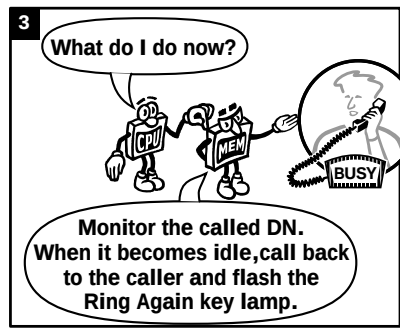
If the caller queues, the system monitors the originally dialed DN only and not the others in the Hunt chain. When the originally dialed DN becomes idle, the caller receives a call-back.

Hunting

Ring Again interacts with Hunting



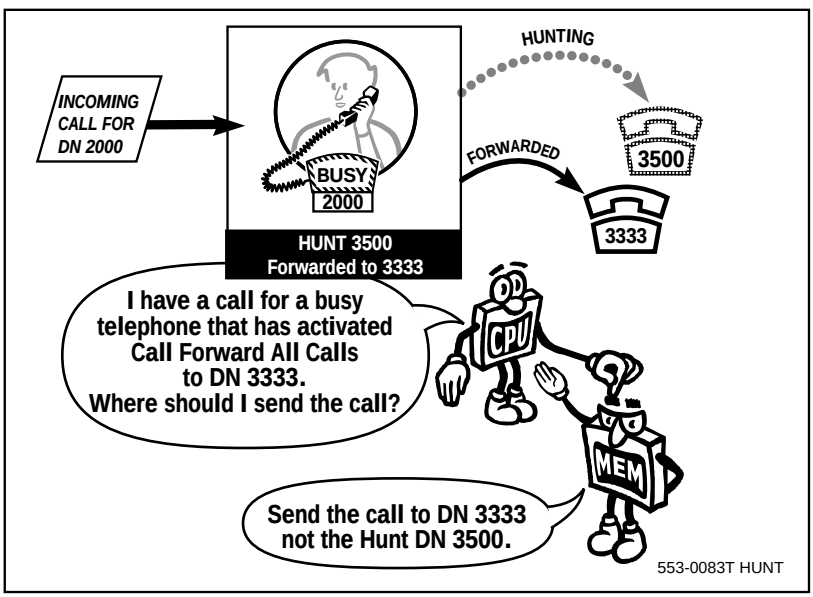




553-0082T HUNT

Call Forward All Calls interacts with Hunting

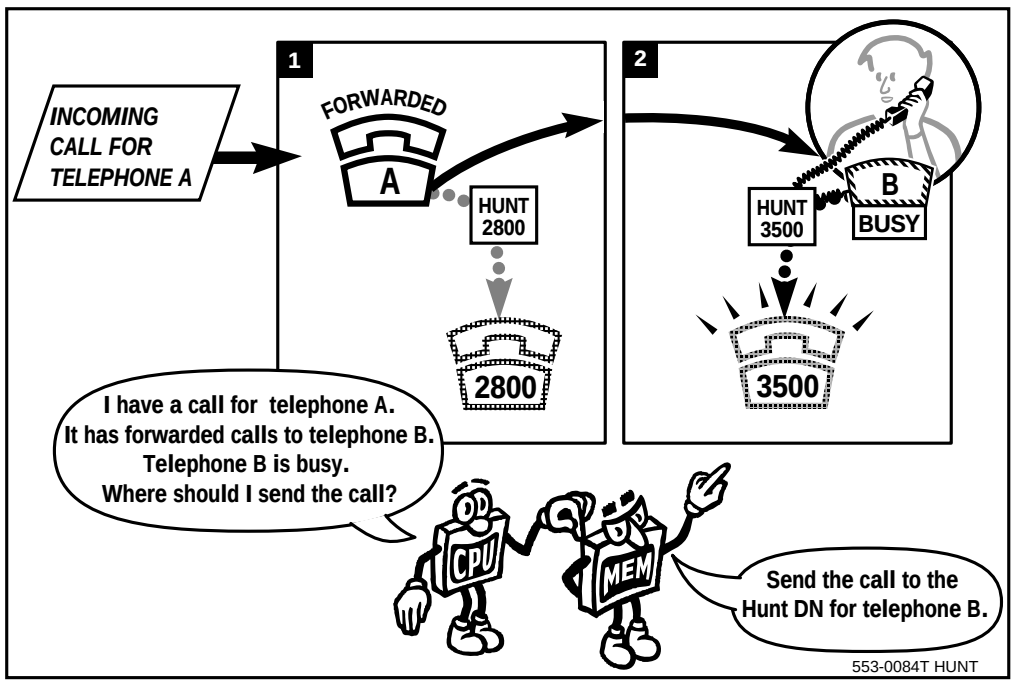
When a user is talking on a call but they also have the Call Forward All Calls feature activated, incoming calls will be redirected to the Call Forward destination DN, not to the Hunt DN programmed for that telephone, even though the telephone is busy. The system treats the Call Forward All Calls feature with a higher priority than the Hunting feature. In other words, Call Forward All Calls takes precedence over Hunting.



Hunting

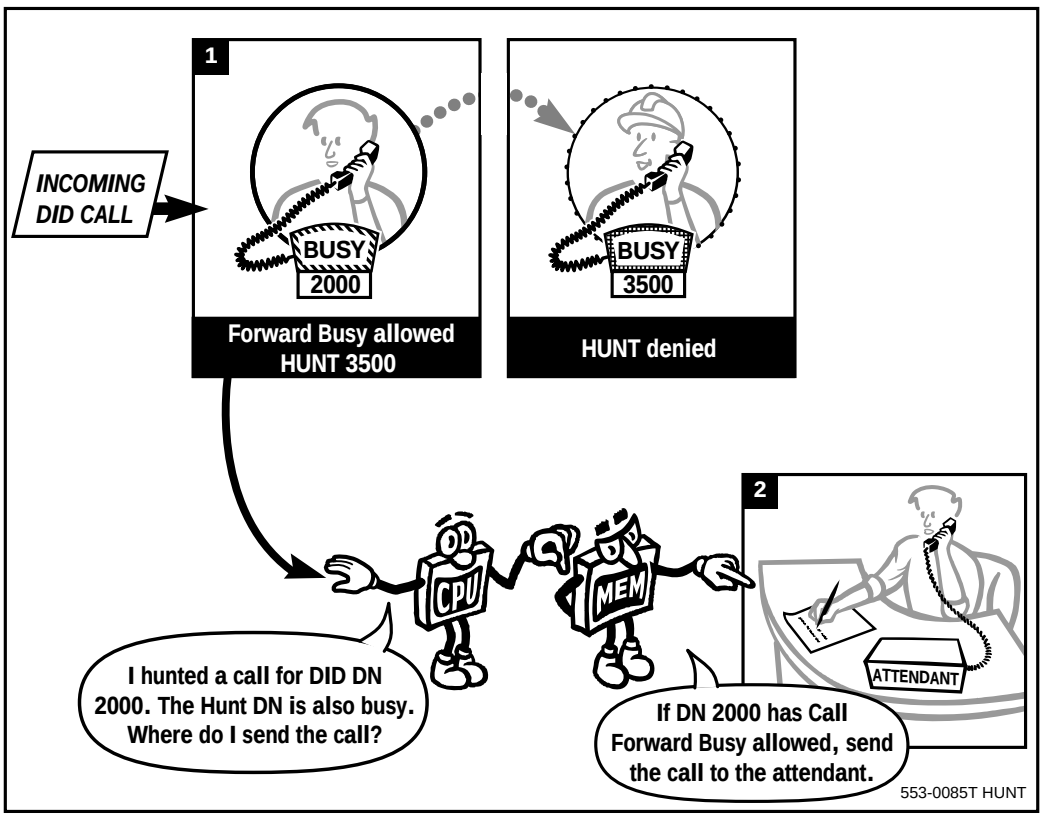
Call Forward All Calls interacts with Hunting

If a user “A” activates Call Forward All Calls to a telephone “B” which is busy, an incoming call will Hunt to the Hunt DN programmed for telephone “B.” The person at that Hunt DN (telephone “C”) begins to receive calls which were originally intended for user “A.” User “A” should be aware of this interaction when Forwarding calls to user “B” and warn user “C” that they may receive calls originally intended for user “A.”



Call Forward Busy interacts with Hunting

You can allow both Call Forward Busy and Hunting in the Class of Service of a DID telephone. If you program this, the Hunting feature has priority over Call Forward Busy when the telephone is busy. When the telephone is busy, and there is an incoming call, the system attempts to Hunt the call to the Hunt DN programmed. If that DN is also busy, and it is not programmed to Hunt, the system sends the call to the attendant using the Call Forward Busy feature. For further information, refer to Task 33, *Call Forward Busy*.

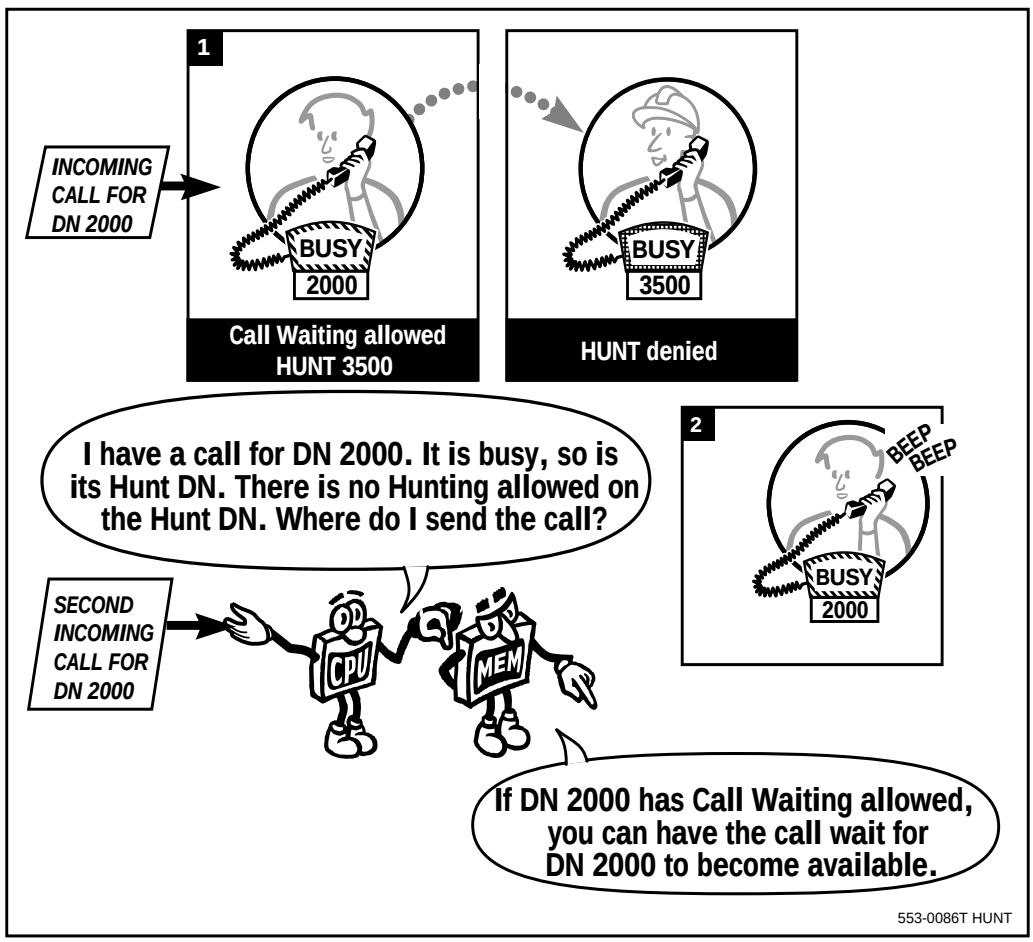


Hunting

Call Waiting interacts with Hunting

If you allow both Hunting and Call Waiting in the Class of Service of one telephone, an incoming call Hunts when the telephone is busy. Hunting has priority over Call Waiting.

If the Hunt DN is also busy and if it does not have Hunting allowed, then the next call goes into a Call Waiting mode at the originally dialed DN, since it has Call Waiting allowed.



Multiple Appearance DNs interact with Hunting

If the same DN appears on more than one telephone or key it is called a Multiple Appearance DN.

There might be situations where several telephones share the same DN but they each have a different Hunt DN programmed. When that shared DN is busy, the system must get instructions on where to Hunt the call. The systems are designed to operate as explained in the following parts.

Prior to Release 18 the system used the sequence of telephones in a DN Block to determine which telephone would control the Hunting feature in a Multiple Appearance DN situation.

The programming associated with telephones that share a DN can be printed out in what is called the DN Block (DNB). The TNs of the telephones which share a particular DN are listed. Refer to *Basic programming instructions* for information on printing a DN Block.

The order of the telephones on this printout relative to each other is very important in redirection related situations like Hunting.

In a shared DN situation, the telephone that controls the Hunting feature for the shared DN is the telephone that has the shared DN as its prime DN (in other words, the DN is programmed on key 0) and the one with the TN that is nearest to the top of the DNB printout. If there are no prime appearances of the DN on any of the telephones, the Hunt DN for that DN when it is busy is determined by whatever is programmed for the telephone at the bottom of the DNB.

The order of telephones in the DN Block changes every time programming is done to one of them. Also, if the system reloads (SYSLOAD), the order changes. Therefore, on systems using software prior to Release 18, it can be difficult to predict how Hunting will actually operate. This is especially true if Service Changes are being done fairly often to the telephones that share DNs and the telephones are not programmed to Hunt calls to the same DN.

To avoid this confusion, when the same DN appears on more than one telephone, you should try to program them all to Hunt to the same Hunt DN.

Hunting

With Release 18 and later software you can choose a Multiple Appearance Redirection Prime (MARP) telephone for each shared DN. You designate the prime telephone, or Terminal Number (TN), which will control the Hunting feature on the Multiple Appearance DN. When the shared DN is busy, the system uses the Hunt DN that you programmed for the designated MARP TN in order to Hunt the call. The Hunting occurs in a predictable, consistent fashion unaffected by Service Changes and SYSLOADS which affected Hunting on earlier software releases. For more information on refer to Task 39, *Multiple Appearance DN Redirection Prime.*

If the MARP feature is disabled on a system, the Hunting feature operates for Multiple Appearance DNs using the DN Block procedure like a pre-Release 18 system.

Call Forward No Answer interacts with Hunting

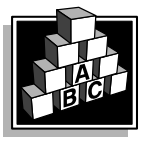
There are interactions between the Hunting and Call Forward No Answer features which are very important. Some common examples of scenarios relating to these two features are discussed in Task 36, *Call Forward No Answer* in the interactions section. Please refer to that module.

It is very important for proper programming and user training that you understand these interactions. It can also reduce the number of repair calls you report.

Private Lines interact with Hunting

Trunks can be programmed to operate as Private Lines. When you program a trunk in this way, incoming calls on the trunk terminate at a certain DN which can appear on one or more than one telephone. Even though the incoming calls on this Private Line appear on a DN, you cannot program the Hunting feature to operate when it is busy. The Hunting programmed for a telephone only operates on DNs which are not Private Lines.

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Call Party Name Display

Table 219
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

The redirection codes can be up to four letters long. The default code for redirection due to the Hunting feature is the letter B. Decide what codes will work best for your users.

These codes can be seen on telephones with displays when calls are presented to them after being redirected by features such as Hunting.

For example: you might want people to see the code BUSY on their displays when they answer calls for other telephones because those people are busy and the calls Hunted.

People can greet callers more appropriately if they know why the calls are being presented to their telephones in the first place.

Talk to your system supplier about implementing CPND or you can refer to *X11 features and services* for more information. The programming involved is beyond the scope of this book.

Treat internal calls differently from external calls when they Hunt

Call Forward by Call Type (Hunting Option)

This feature is included in the operation of a feature called Call Forward by Call Type. Look it up in *X11 features and services* using that name.

Table 220
Software requirements

Release required	Software package(s) required
10	none

This feature enhancement provides the capability to Hunt an internal call to a Hunt DN different from the Hunt DN used for an external call when the telephone is busy.

For the purposes of this feature, internal calls are defined as:

- telephone to telephone calls
- incoming calls from Direct Inward Sytem Access (DISA) DNs
- incoming calls from trunk groups identified as *internal-type* in the programming of their Route Data Blocks

To enable this capability, you allow Hunting *and* Call Forward by Call Type in the Class of Service of a telephone. You go on to program a Hunt DN for internal calls and a Hunt DN for external calls to that telephone. For more information, refer to Task 35, *Call Forward by Call Type (Hunting Option)*.

Hunting by Call Type

Table 221
Software requirements

Release required	Software package(s) required
10.10C	131 – International Supplementary Features (SUPP)

You can program a Class of Service for Direct-Inward-Dial (DID) telephones which allows incoming calls from DID trunks to Hunt when the telephone is busy, but gives internal callers busy tone.

The following rules apply to the call processing if a DN is busy:

- if the Class of Service is Hunting allowed, then both external and internal calls Hunt, regardless of what is programmed for Call Forward Busy or Hunting by Call Type for the DID telephone
- if the Class of Service is Hunting denied and Hunting by Call Type denied, then internal calls receive busy tone. DID calls forward to the attendant if Call Forward Busy is allowed. If Call Forward Busy is denied, DID calls receive a busy tone.
- if the Class of Service is Hunting denied and Hunting by Call Type allowed, then internal calls receive busy tone. DID calls Hunt. If the Hunt DN is also busy, DID calls go to the attendant if Call Forward Busy is allowed. If the Hunt DN is also busy and Call Forward Busy is denied, DID calls receive a busy tone.

For more information on Hunting By Call Type, refer to Task 38, *Hunting by Call Type*.

A user can change the Hunt DN using the telephone User Selectable Call Redirection (USCR)

Table 222
Software requirements

Release required	Software package(s) required
19	139 – Flexible Feature Codes

A user can modify the programming associated with the following redirection-related features:

- Call Forward No Answer (internal)
- Call Forward No Answer (external)
- Hunting (internal)
- Hunting (external)

The DN pre-programmed for these redirections can be changed by the user.

In this module, the focus of the discussion is on the Hunting feature. The impact this has on the Call Forward No Answer feature is covered in Task 36, *Call Forward No Answer*.

When you install a telephone, you must program a Hunt DN (or possibly two different ones for internal calls and external calls) in order for the user to be able to change it with this feature.

You enable the USCR feature in the Class of Service of the telephone.

As a form of security, when the redirection DN is being changed by the user, a Station Control Password is required. That is why the Flexible Feature Code software package is required on the system It allows this password capability to exist.

For more information refer to Task 41, *User Selectable Call Redirection*.

Set Based Administration Enhancements

If your system is equipped with this capability and you know the proper Flexible Feature Code and password, you can go to a telephone programmed for Administrator Access and change the Hunt DN and External Hunt DN (if one is programmed), for any telephone in the customer group.

This method might be quicker and easier than using a TTY to make the change(s).

You can control the use of this capability by limiting the number of people who know the Flexible Feature Code and password.

Users can choose not to Hunt when calling a busy telephone

Call Forward/Hunt Override Via Flexible Feature Code

Table 223
Software requirements

Release required	Software package(s) required
20	139 – Flexible Feature Codes

Note: in a networking environment, you need software package 159 – Network Attendant Service

If a user calls a telephone that is busy and it is programmed to Hunt, the calling user can override the Hunting feature if the Call Forward/ Hunt Override feature is enabled in the Class of Service of the calling telephone. This is useful when the caller wants to speak to the originally dialed user and does not want to leave a message or speak to anyone else.

The call does not Hunt to the Hunt DN when the call was initiated with the Flexible Feature Code (FFC) for the Call Forward/Hunt Override feature. In that case, if the called telephone is busy, the caller hears a busy tone; the call does not Hunt. The caller can queue for the busy telephone, if desired, using the Ring Again feature.

The caller must be internal to the same system as the called telephone. External callers cannot use this feature.

In this module, the focus of the discussion is on the Hunting feature. The impact this feature has on the Call Forward No Answer feature is covered in Task 36, *Call Forward No Answer*.

For more information refer to the *Software Feature Guide*.

Calls to a busy telephone can be redirected to an alternate DN at certain times of day

Call Redirection by Time of Day

Table 224
Software requirements

Release required	Software package(s) required
22	none

With the Call Redirection by Time of Day (CRTOD) feature, incoming calls to a busy telephone can be automatically redirected to a predefined Directory Number at a specified time of day. You can program four Alternate Redirection time periods for each Customer Group.

This is useful for users who want their calls to redirect to alternate DNs at specified times of the day. You assign one of the Alternate Redirection time periods to the user's telephone.

The Call Redirection by Time of Day feature also applies to Call Forward No Answer and both of the Call Forward by Call Type options. Refer to the information on those features in this book.

Calls to a busy telephone can be redirected to an alternate DN on certain days

Call Redirection by Day

Table 225
Software requirements

Release required	Software package(s) required
24	none

With the Call Redirection by Day (CRDAY) feature, incoming calls to busy telephones can be automatically redirected to an alternate predefined Directory Number on one or more specified days of the week and/or holidays. You can program four Alternate Day Lists and four Alternate Holiday Lists for each Customer Group. Each Alternate Holiday List can contain up to 20 dates.

If a user who is busy wants calls to be redirected to a DN that is different from the one to which calls are normally sent, on certain days and/or holidays, then you assign one of the Alternate Day Lists and/or one of the Alternate Holiday Lists to the user's telephone. You program the DNs to be used for different types of redirected calls on those days for each telephone.

The Call Redirection by Day feature also applies to Call Forward No Answer and both of the Call Forward by Call Type options. Refer to the information on those features in this book.

Control tips

- If you have User Selectable Call Redirection in place, print the Hunt DNs that users are programming, on a regular basis. If you have a network, users might be programming DNs which are actually in other switches and this might be causing confusion to your callers. Tell users what DNs are acceptable for them to program and tell them you are doing regular printouts to check this.

Administration tips

- When you are implementing Short Hunt, you might want to experiment with the number of DNs that one person can efficiently handle on one telephone. After you program the telephone initially, you might need to add more DNs or delete extra DNs based on the needs of the user.

  If the person with Short Hunting programmed on the telephone is very busy and callers are hearing busy tone frequently because all the DNs on the telephone are busy, you might want to consider implementing Automatic Call Distribution (ACD) instead. Talk to your system supplier about setting up an ACD queue for the callers coming into that busy person's telephone as a better alternative to using Short Hunting.

  Refer to *Automatic Call Distribution Feature description* for further information on ACD.

- If you have a group of users who share calls, you probably will publish only one of the DNs in a directory or in external advertising material. Even if you implement Circular Hunting, this published DN receives the highest volume of calls. If an equal distribution of calls to the entire group is important, you should consider Automatic Call Distribution (ACD) instead of Circular Hunting.
- Before installing each telephone, find out from the user or the user's manager where calls should go when this user is busy. If the user receives DID calls, refer to Task 33, *Call Forward Busy* before you proceed.

Training tips

- Tell the users sharing a prime DN which Hunt DN will receive calls when the shared DN is busy.
- Train users about the interactions to expect with Hunting and features like Call Forward All Calls. Summarize for them the pertinent issues from the preceding sections on interactions. Diagrams are useful and demonstrations can make it much easier for them to understand. Be specific about where their calls might go if features interact. This way they won't report unusual situations as problems.
- If you are using the Call Redirection codes, users with displays must understand what the codes mean and how this might impact the way they answer calls. If you have policies on what you want them to say if they answer calls for someone who is busy or not answering, let them know this in training sessions.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 226
Checklist

Basic	Optional	Preparation
✔		Decide if the user needs the feature. The user might want callers to hear a busy tone instead of Hunting. If you are allowing Hunting, decide what Hunt DN to use.
✔		Find out where the Hunt DN Hunts to. Decide if this Hunt chain is appropriate.
✔		Decide what the Last Hunt Key is if this is a digital or SL-1 -type telephone and you are programming Short Hunting.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		On systems with software previous to Release 18: If users must share prime DNs, encourage them to use the same Hunt DN for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs and require different Hunt DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
	✔	Prepare your training information, and materials. Plan the way you want to address interactions.

— continued —

Table 226
Checklist (Continued)

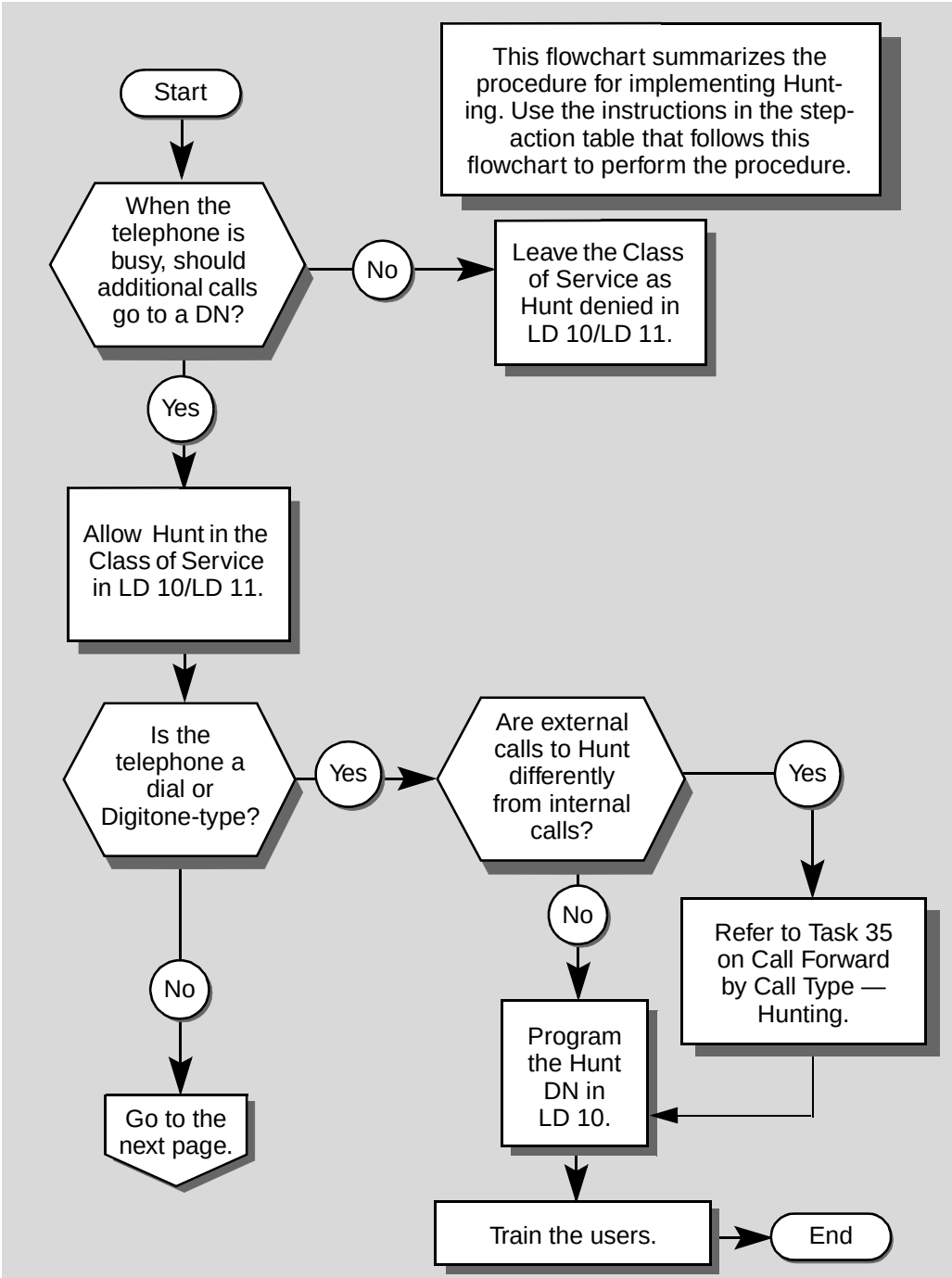
Basic	Optional	Preparation
	✔	Ask the user if internal calls are to have a different Hunt DN from external calls when the telephone is busy. Decide what Hunt DNs to use.
	✔	If the user has a DID telephone number assigned, ask them if DID calls should be treated differently from internal calls. If so, activate Hunting by Call Type.
	✔	Assign a code to display when calls Hunt. Train the users.
	✔	Decide if the user should be able to change the Hunt DN(s) programmed for the telephone. Assign a Station Control Password. Assign a Flexible Feature Code, if there isn't one already assigned. Train the user.
	✔	Decide if the user needs calls redirected to an alternate DN during a certain daily time period.
	✔	Decide if the user can use the Hunt Override capability. If so, assign a Flexible Feature Code, if there isn't one already assigned. Train the user.

What's next?

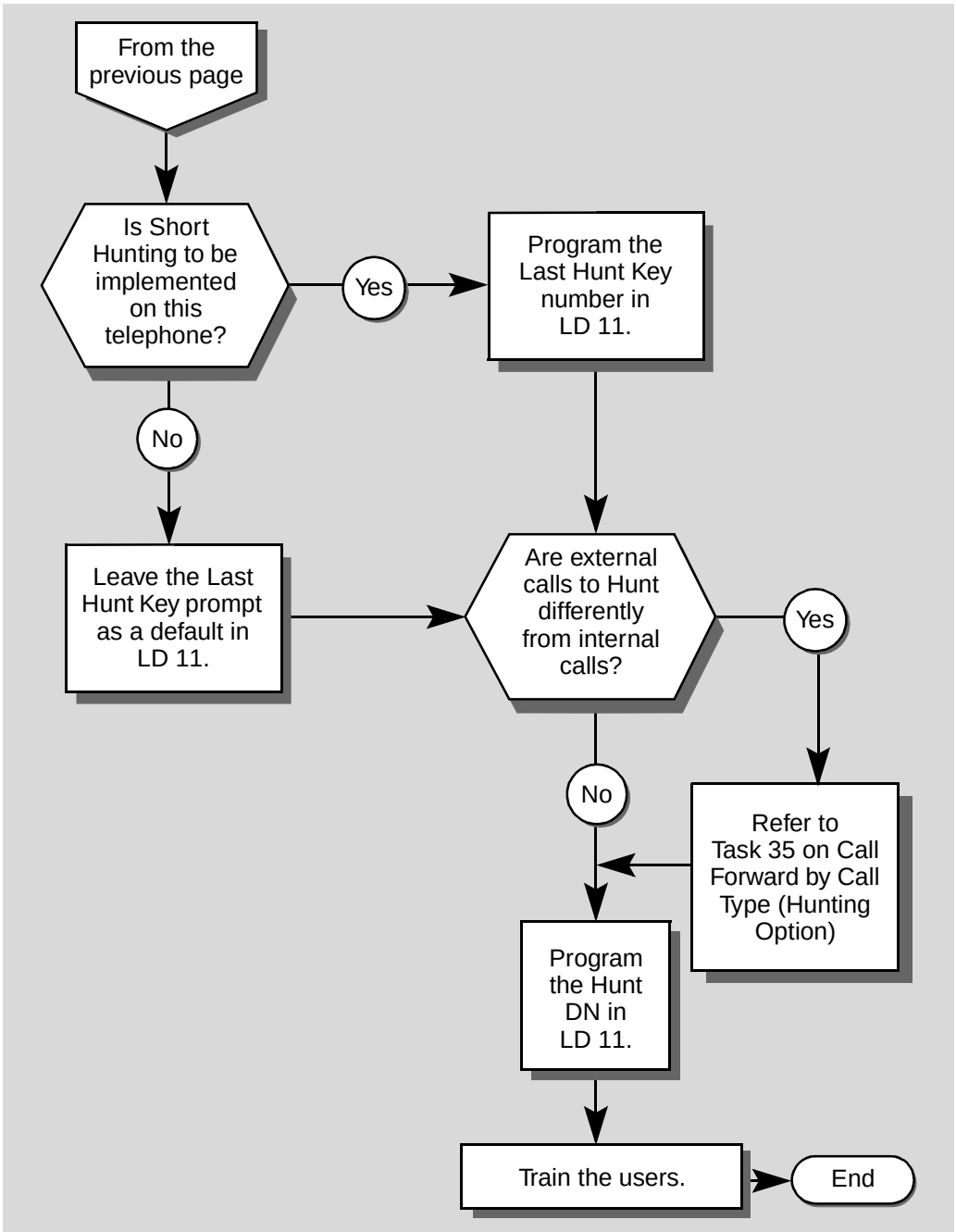
A flowchart follows which summarizes the implementation decisions and procedures for Hunting.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Hunting


This flowchart summarizes the procedure for implementing Hunting. Use the instructions in the step-action table that follows this flowchart to perform the procedure.
Start
When the telephone is busy, should additional calls go to a DN?
No
Leave the Class of Service as Hunt denied in LD 10/LD 11.
Yes
Allow Hunt in the Class of Service in LD 10/LD 11.
Is the telephone a dial or Digitone-type?
Yes
Are external calls to Hunt differently from internal calls?
Yes
Refer to Task 35 on Call Forward by Call Type — Hunting.
No
Program the Hunt DN in LD 10.
No
Go to the next page.
Train the users.
End

Hunting


From the previous page
Is Short Hunting to be implemented on this telephone?
Yes
Program the Last Hunt Key number in LD 11.
No
Leave the Last Hunt Key prompt as a default in LD 11.
Are external calls to Hunt differently from internal calls?
Yes
No
Refer to Task 35 on Call Forward by Call Type (Hunting Option)
Program the Hunt DN in LD 11.
Train the users.
End

Hunting

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Hunting feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Check the Hunt chain this telephone is joining before you start programming.**
	Use the following three steps to get printouts which verify the Hunting already programmed for the Hunt DN you want to use for this telephone. Refer to *Basic programming instructions* for more information on DNB and TNB printouts. — For the DN which is the Hunt DN you want to use, do a DN Block (DNB) printout. — For the TN(s) you see in the DNB printout, do a TN Block (TNB) printout. Notice that digital telephone TNs have an “H” beside those with Hunting enabled. Look for the HTA Class of Service for other types of telephones. — For the TN(s) with Hunting enabled, look at the printout for the Hunt DN(s) they have programmed. Repeat the three steps as needed, until you have verified the entire existing Hunt chain. If the Hunt DN is a Multiple Appearance DN, refer to the information on how Multiple Appearance DNs interact with Hunting in this Task module.

— continued —

STEP	ACTION
2 continued ...	
	You can use LD 20 to print out Hunt chains. Refer to *Basic programming instructions.* If you have ODAS software package 20, ask your system supplier to help you use it to print out Hunt chains.
3	**Determine if the Hunt chain is suitable.**

If	Do
Hunt chain is suitable	step 4
Hunt chain is not suitable	Pick a different Hunt DN for this telephone or change the Hunting for the telephones in the Hunt chain. Go to step 6 for dial or Digitone-type telephone changes or step 16 for digital or SL-1-type telephone changes.

4 Choose your starting point from the choices below.

If	Do
new dial or Digitone-type telephone	step 5
change to a dial or Digitone-type telephone	step 6
new digital or SL-1-type telephone	step 15
change to a digital or SL-1-type telephone	step 16

— continued —

Hunting

STEP	ACTION

5 Program a new dial or Digitone-type telephone.

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt HUNT

HUNT	<cr>	Carriage return, if you are not allowing Hunting.
	X..X	Input the DN to which calls are to Hunt, if you are allowing Hunting 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	HTD or <cr>	Hunting denied — default
	HTA	Hunting allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

STEP	ACTION
6	**Program a change to the Hunting feature on a dial or Digitone-type telephone.**

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 7.
not using “Easy Change”	Input NO or <cr> and go to step 11.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

7	**Program an “Easy Change” to an existing dial or Digitone-type telephone.**

If	Do
telephone is changing to Hunting allowed	step 8
telephone is changing to Hunting denied	step 9
telephone is changing to a different Hunt DN	step 10

— continued —

Hunting

STEP	ACTION
8	**Allow Hunting.**

ITEM HUNT X..X — Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

ITEM CLS HTA — Change the Class of Service to Hunting allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

STEP	ACTION
9	**Deny Hunting.**

ITEM HUNT XY..Y — Input X in front of the DN which exists as the Hunt DN to remove it.

Y..Y represents the DN

ITEM CLS HTD — Change the Class of Service to Hunting denied

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

10	**Change Hunt DN.**

ITEM HUNT X..X — Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Hunting

STEP	ACTION
11	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**

Carriage return until you see the prompt HUNT

If	Do
telephone is changing to Hunting allowed	step 12
telephone is changing to Hunting denied	step 13
telephone is changing to a different Hunt DN	step 14

12	**Allow Hunting.**

HUNT X..X — Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see the prompt CLS

CLS HTA — Change the Class of Service to Hunting allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

STEP	ACTION
13	**Deny Hunting.**

HUNT XY..Y — Input X in front of the DN which exists as the Hunt DN to remove it.

Y..Y represents the DN.

Carriage return until you see the prompt CLS

CLS HTD — Change the Class of Service to Hunting denied

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

14	**Change Hunt DN.**

HUNT X..X — Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Hunting

STEP	ACTION
15	**Program a new digital or SL-1-type telephone.**

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
program the basics...		Refer to Tasks 7–19 for information.

carriage return until you see the prompt CLS

CLS	HTD or <cr>	Hunting denied — default
	HTA	Hunting allowed

carriage return until you see the prompt HUNT

HUNT	<cr>	Carriage return, if you are not allowing Hunting.
	X..X	Input the DN to which calls are to Hunt, if you are allowing Hunting. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	000	Input three zeroes if you want calls to Short Hunting on this telephone without Hunting to another DN.

carriage return until you see the prompt LHK

LHK	0	Input the highest key number for Short Hunted calls. 0 is default — no Short Hunting
	0–7	for M2008
	0–59	for M2216 and M2616
	0–69	for SL-1-type
		Note: the M2006 cannot have Short Hunting

— continued —

STEP	ACTION

15 continued ...

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

16 Program a change to the Hunting feature on a digital or SL-1-type telephone.

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 17.
not using “Easy Change”	Input NO or <cr> and go to step 21.

For more information on “Easy Change,” go to the *Basic programming instructions* module of this book.

— continued —

Hunting

STEP	ACTION
17	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**

If	Do
telephone is changing to Hunting allowed	step 18
telephone is changing to Hunting denied	step 19
telephone is changing to a different Hunt DN	step 20
telephone is changing to a different Last Hunt Key number	step 21

18 **Allow Hunting.**

ITEM	HUNT X..X	Input the DN to which calls are to Hunt 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
ITEM	HUNT 000	Input three zeroes if you want calls to Short Hunt on this telephone without Hunting to another DN
ITEM	CLS HTA	Change the Class of Service to Hunting allowed
ITEM	LHK 0	Input the highest key number for Short Hunted calls. 0 is default — no Short Hunting
	LHK 0–7	for M2008
	LHK 0–59	for M2216 and M2616
	LHK 0–69	for SL-1-type
		Note: the M2006 cannot have Short Hunting

— continued —

STEP	ACTION
18 continued ...	
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 27.
19	**Deny Hunting.**
	ITEM HUNT XY..Y — Input X in front of the DN which exists as the Hunt DN to remove it. Y..Y represents the DN. **ITEM** CLS HTD — Change the Class of Service to Hunting denied **ITEM** LHK 0 — Last Hunt Key 0 – no Short Hunting Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 27.

— continued —

Hunting

STEP	ACTION
20	**Change Hunt DN.**

ITEM HUNT X..X Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1-7 digits Release 13 and later
1-13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

ITEM HUNT 000 Input three zeroes if you want calls to Short Hunting on this telephone without Hunting to another DN

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

21	**Change Last Hunt Key number.**

ITEM LHK 0 Input the highest key number for Short Hunted calls.
0 — no Short Hunting

LHK 0–7 for M2008

LHK 0–59 for M2216 and M2616

LHK 0–69 for SL-1-type

Note: the M2006 cannot have Short Hunting

Go to step 27.

— continued —

STEP	ACTION

22 Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.

Carriage return until you see the prompt CLS

If	Do
telephone is changing to Hunting allowed	step 23
telephone is changing to Hunting denied	step 24
telephone is changing to a different Hunt DN	step 25
telephone is changing to a different Last Hunt Key number	step 26

23 Allow Hunting.

CLS	HTA	Change the Class of Service to Hunting allowed

Carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to Hunt 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
HUNT	000	Input three zeroes if you want calls to Short Hunt on this telephone without Hunting to another DN

— continued —

Hunting

STEP	ACTION

23 continued ...

Carriage return until you see the prompt LHK

LHK	0	Input the highest key number for Short Hunted calls. 0 is default — no Short Hunting
	0 – 7	for M2008
	0 – 59	for M2216 and M2616
	0 – 69	for SL-1-type
		Note: the M2006 cannot have Short Hunting

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

24 Deny Hunting.

CLS	HTD	Change the Class of Service to Hunting denied

Carriage return until you see the prompt HUNT

HUNT	XY..Y	Input X in front of the DN which exists as the Hunt DN to remove it. Y..Y represents the DN.

— continued —

STEP	ACTION

24 continued ...

Carriage return until you see the prompt LHK

LHK 0 Last Hunt Key 0 — no Short Hunting

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

Hunting

STEP	ACTION
25	**Change Hunt DN.**

Carriage return until you see the prompt HUNT

HUNT X..X — Input the DN to which calls are to Hunt
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

HUNT 000 — Input three zeroes if you want calls to Short Hunt on this telephone without Hunting to another DN

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 27.

— continued —

STEP	ACTION
26	**Change Last Hunt Key number.**

Carriage return until you see the prompt LHK

LHK	0	Input the highest key number for Short Hunted calls. 0 — no Short Hunting
	0 – 7	for M2008
	0 – 59	for M2216 and M2616
	0 – 69	for SL-1-type
		Note: the M2006 cannot have Short Hunting

Go to step 27.

27	**Check that the programming which you have just done is correct.**

Place calls to the telephone when it is busy and make sure the expected treatment happens.

If	Do
feature works properly	step 28
feature does not work properly	step 1

28	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 29

— continued —

Hunting

STEP	ACTION
29	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

30	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 31

— continued —

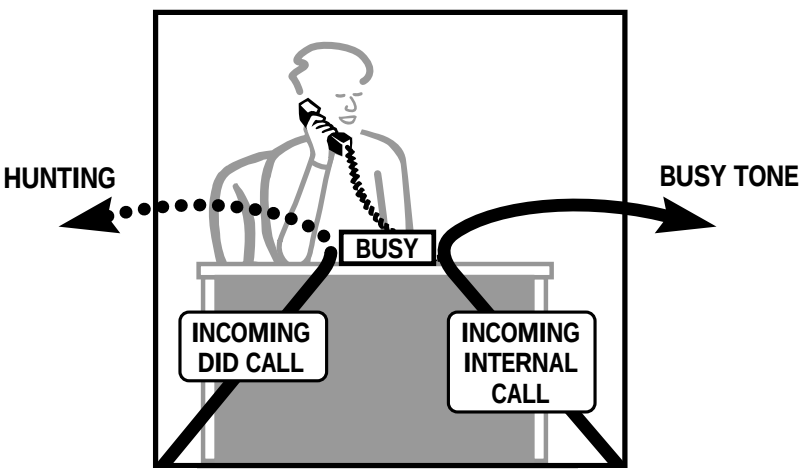
STEP	ACTION
31	**Terminate this overlay program.**
	. ****
32	**Terminate this programming session.**
	Log off.
	> LOGO
33	**You have completed the programming required to add or change the Hunting feature on a telephone.**
	END

Hunting

Hunting by Call Type

Purpose

This feature only applies to telephones which receive their externally originated calls from Direct Inward Dial (DID) trunks. You set it up so that when the telephone is busy, incoming DID calls to the telephone redirect to another Directory Number (DN), but incoming internal calls receive a busy tone.



553-0087T HCT

Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Hunting by Call Type

Setting up the feature

Refer to Task 37, *Hunting* for more information on basic Hunting. The information presented here focuses on the enhancements provided by the Hunting by Call Type feature.

You can program this feature to work when you have met the software requirements listed in the following table.

Table 227
Software requirements

Release required	Software package(s) required
10.10C	131 – International Supplementary Features (SUPP)

You select the DID telephones that are to have Hunting by Call Type, then you use the procedure in this module to program each one.

You enable this feature in the Class of Service of Direct-Inward-Dial (DID) telephones.

For this feature to operate, basic Hunting must be denied in the Class of Service. Since Hunting is denied, external non-DID calls which might be transferred to the telephone by the attendant receive busy tone when the telephone is in use. In this situation, the attendant can use Camp-on or hold the call and transfer it later.

Using the feature

Refer to the illustrations and text prior to this section for information on the use of this feature.

Interactions with other features

Hunting works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Call Forward Busy and Hunting interact with Hunting by Call Type

The system uses the following rules to handle a call if a DN is busy.

- If the Class of Service is Hunting allowed, then both external and internal calls Hunt, regardless of what is programmed for Call Forward Busy or Hunting by Call Type for the DID telephone.
- If the Class of Service is Hunting denied and Hunting by Call Type denied, then internal calls receive busy tone. DID calls forward to the attendant if Call Forward Busy is allowed. If Call Forward Busy is denied, DID calls also receive a busy tone.

- If the Class of Service is Hunting denied and Hunting by Call Type allowed, then internal calls receive busy tone. DID calls Hunt. If the Hunt DN is also busy, DID calls go to the attendant if Call Forward Busy is allowed in the Class of Service of the original DID telephone. If the Hunt DN is also busy and Call Forward Busy is denied in the Class of Service of the original DID telephone, DID calls receive a busy tone.

Ring Again interacts with Hunting by Call Type

If internal callers hear a busy tone when calling a DID telephone on their system, they can activate the Ring Again feature, if that is programmed on their telephones. This allows them to queue for the busy telephone, and when it becomes available, the system calls them back.

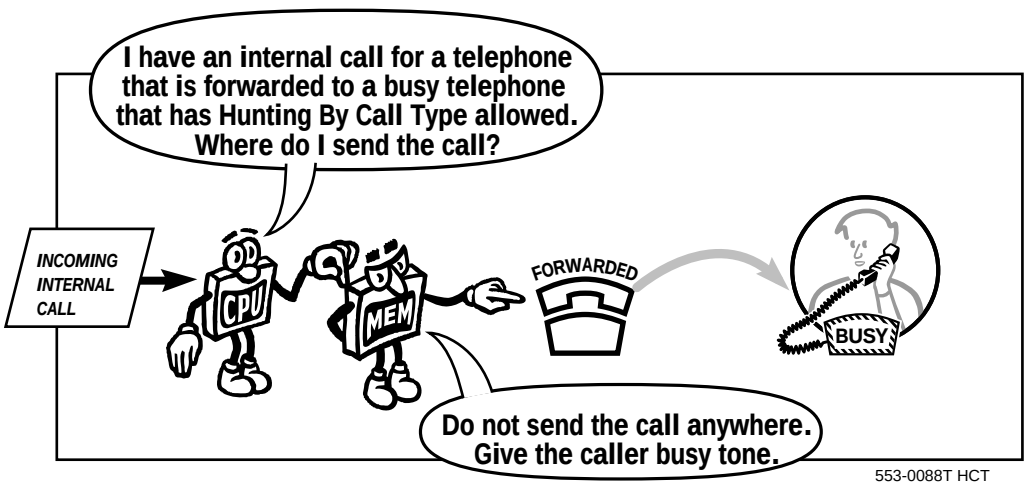
Hunting by Call Type

Call Forward All Calls interacts with Hunting by Call Type

When a user is talking on a call but they also have the Call Forward All Calls feature activated, incoming internal and external calls of both types will be redirected to the Call Forward destination DN, even though the telephone is busy. The system treats the Call Forward All Calls feature with a higher priority than the Hunting feature. In other words, Call Forward All Calls takes precedence over Hunting.

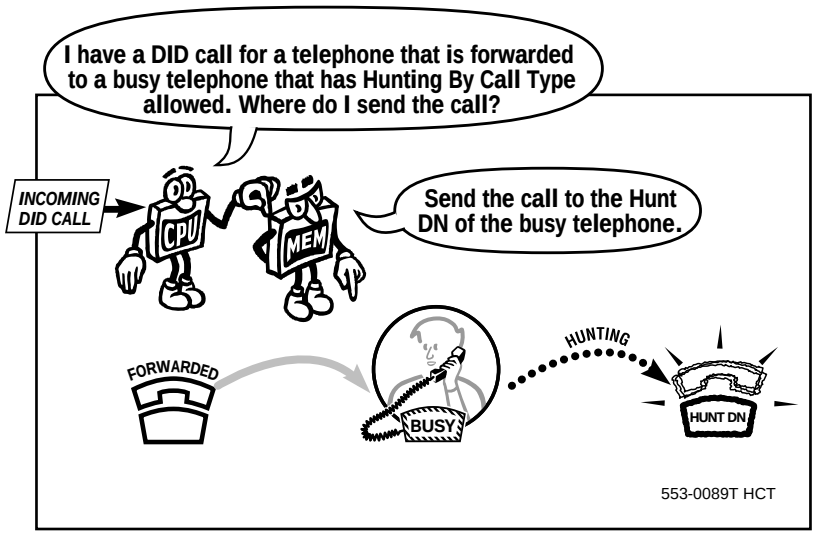
Call Forward All Calls interacts with Hunting by Call Type

When a user activates Call Forward All Calls to another DN and that DN is busy, if that Hunt DN is programmed for Hunting by Call Type, an internal call receives busy tone and a DID call Hunts to the Hunt DN for that telephone. This is true unless there is an internal user who is transferring the DID call to the original telephone. In that case the call is classified as internal, even though the caller is calling in on a DID trunk.



553-0088T HCT

Hunting by Call Type



Multiple Appearance DNs interact with Hunting by Call Type

Refer to the information on this interaction in Task 37, *Hunting*. When the word Hunting is used, you can substitute the words Hunting by Call Type and the information is still correct.

Call Forward No Answer interacts with Hunting by Call Type

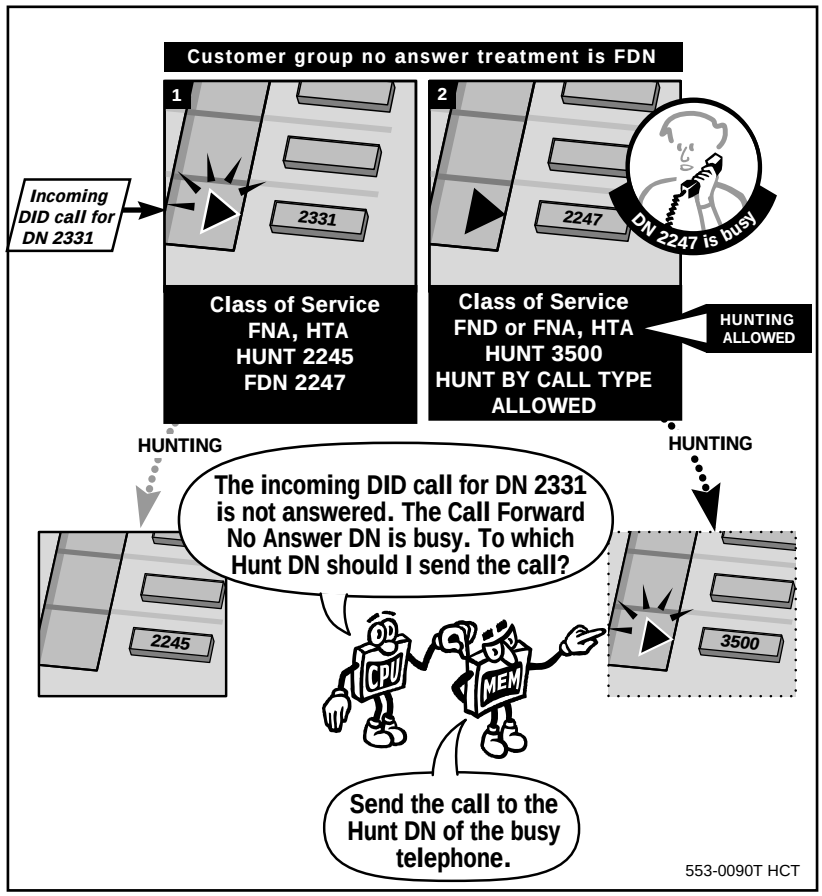
Some common examples of scenarios relating to basic Hunting and Call Forward No Answer are discussed in Task 37, *Hunting*, in the *Interactions with other features* section. Please refer to that module.

There are interactions between the Hunting by Call Type and Call Forward No Answer features.

It is very important for proper programming and user training that you understand these interactions. It can also reduce the number of repair calls you report.

Hunting by Call Type

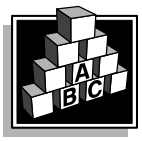
Call Forward No Answer interacts with Hunting by Cal



Private Lines interact with Hunting by Call Type

Trunks can be programmed to operate as Private Lines. When you program a trunk in this way, incoming calls on the trunk terminate at a certain DN that can appear on one, or more than one telephone. Even though the incoming calls on this Private Line appear on a DN, you cannot program the Hunting feature or the Hunting by Call Type feature to operate on a Private Line DN when it is busy.

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Call Party Name Display

Table 228
Software requirements

Release required	Software package(s) required
10	95 – Call Party Name Display

Many people use this software to associate names with DNs, or to associate names with trunk groups. These names are displayed on telephone and console displays when calls come in from those DNs or trunk groups. This makes it easier for the user to identify the caller.

Also, codes can be programmed for your customer group that indicate the reasons that calls are redirected. If you prefer, you can use the CPND software for these redirection codes only.

The redirection codes can be up to four letters long. The default code for redirection due to the Hunting feature is the letter B. Calls which are redirected by the feature Hunting by Call Type also display the letter B. Decide what codes will work best for your users.

These codes can be seen on telephones with displays when calls are presented to them after being redirected by features such as Hunting.

For example, you might want users to see the code BUSY on their displays when they answer calls for other users because those telephones were busy and the calls Hunted.

People can greet callers more appropriately if they know why the calls are being presented to their telephones in the first place.

Hunting by Call Type

Talk to your system supplier about implementing CPND or you can refer to *X11 features and services* for more information. The programming involved is beyond the scope of this book.

Call Forward by Call Type (Hunting Option)

This feature is included in the operation of a feature called Call Forward by Call Type. Look it up in *X11 features and services* using that name. A more complete and descriptive name for this software would be Call Forward No Answer and Hunting by Call Type, which would more accurately describe its function.

Table 229
Software requirements

Release required	Software package(s) required
10	none

This feature enhancement provides the capability to Hunt an internal call to a Hunt DN different from the Hunt DN used for an external call when the telephone is busy.

For the purposes of this feature, internal calls are defined as:

- telephone to telephone calls
- incoming calls form Direct Inward Sytem Access (DISA) DNs
- incoming calls from trunk groups identified as *internal- type* in the programming of their Route Data Blocks

To enable this capability, you allow Hunting *and* Call Forward by Call Type in the Class of Service of a telephone. You go on to program a Hunt DN for internal calls and a Hunt DN for external calls to that telephone.

User Selectable Call Redirection (USCR)

Table 230
Software requirements

Release required	Software package(s) required
19	139 – Flexible Feature Codes

A user can modify the programming associated with the following redirection-related features:

- Call Forward No Answer
- Hunting

The DN pre-programmed for these redirections can be changed by the user from the telephone.

In this module, the focus of the discussion is on the Hunting feature. The impact this has on the Call Forward No Answer feature is covered in Task 36, *Call Forward No Answer*.

When you install a telephone, you must program a Hunt DN in order for the user to be able to change it with this feature.

You enable the USCR feature in the Class of Service of the telephone.

When the redirection DN is being changed by the user, a Station Control Password is required, as a form of security. That is why the Flexible Feature Code software package is required on the system. It allows this password capability to exist.

For more information, refer to Task 41, *User Selectable Call Redirection*.

Hunting by Call Type

Control tips

- If you have User Selectable Call Redirection in place, print the Hunt DNs that users are programming, on a regular basis. If you have a network, users might be programming DNs that are actually in other switches and this might be causing confusion to your callers. Tell users what DNs are acceptable for them to program and tell them you are doing regular printouts to check this.

Administration tips

- The tips in Task 37, *Hunting* apply here as well. Refer to these for information.
- If you are implementing Hunting by Call Type so that internal calls receive a busy tone, ensure that you understand how the callers will react to that. Check that you have implemented Ring Again so that internal callers can queue for a busy telephone if they want. Train people on how to use the Ring Again feature.
- As with basic Hunting, you must understand the Hunt chain the user is joining before you program the telephone. The person at the Hunt DN must be trained to deal with the types of calls that will Hunt to the telephone. For example, if that user will answer DID calls, you must prepare the user for those types of calls.

Training tips

- As with basic Hunting, the users must be trained to understand the Hunting patterns of the telephones and the interactions that might occur if more than one feature operates simultaneously.
- Use real examples they might actually encounter.Demonstrate, if possible, to make the users comfortable. There will be fewer repair calls if you and your users understand the features fully.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 231
Checklist

Basic	Optional	Preparation
✔		Decide if your company-wide policies agree with Hunting internal calls differently from external calls.
✔		Decide, on a user by user basis, who needs this feature. Find out what Hunt DN each user needs.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Print out the Hunt chain for the Hunt group the user is joining. Make sure it is appropriate for this telephone.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same internal and external Hunt DNs for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs and require different Hunt DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
✔		Prepare your training information, and materials. Plan the way you want to address interactions.

— continued —

Hunting by Call Type

Table 231
Checklist (Continued)

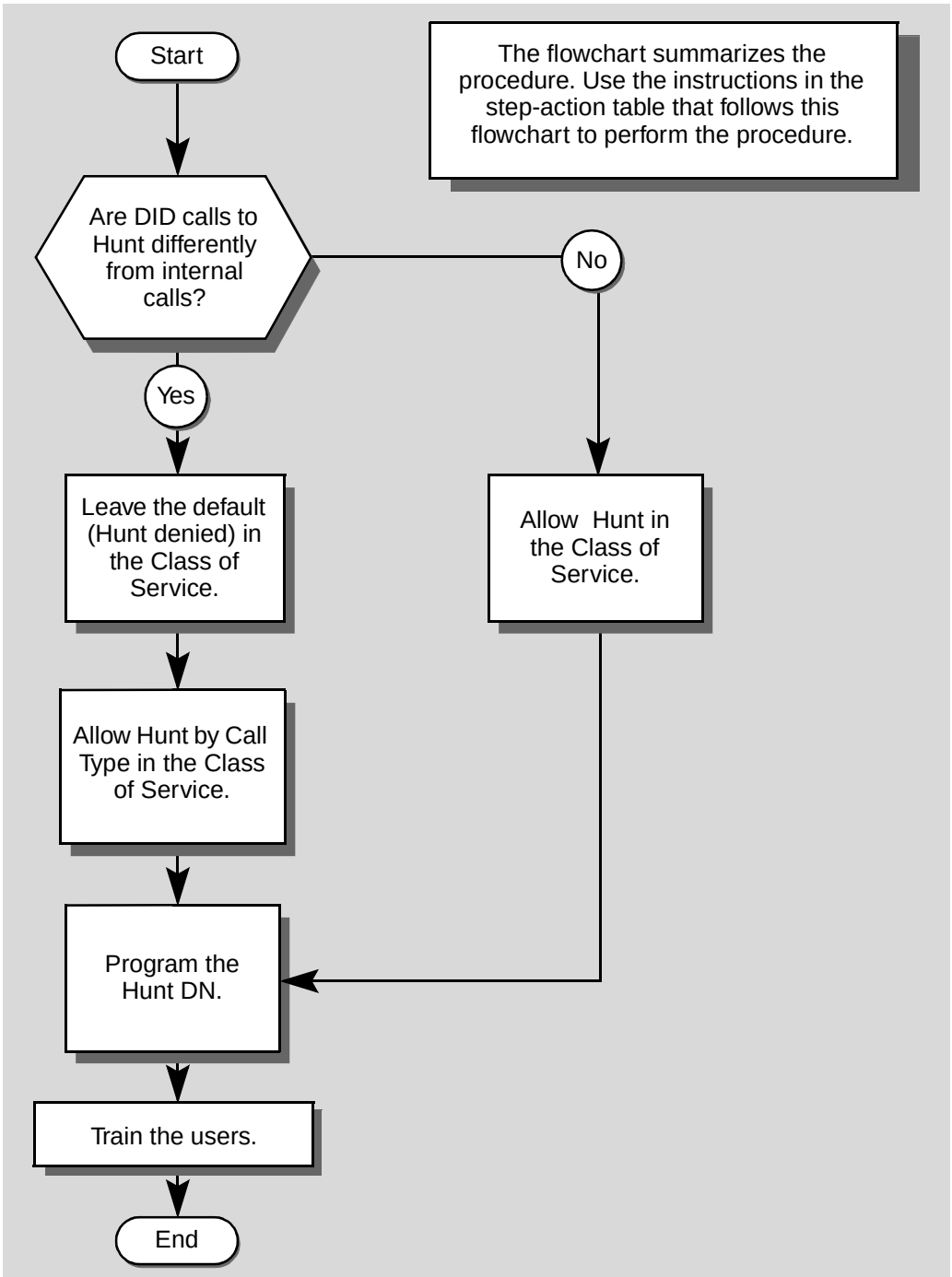
Basic	Optional	Preparation
	✔	Assign a code which will display when calls Hunt. Train the users.
	✔	Decide if the user should be able to change the Hunt DN(s) programmed for the telephone. Assign a Station Control Password. Assign a Flexible Feature Code, if there isn't one already assigned. Train the user.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Hunting by Call Type



Hunting by Call Type

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Hunting by Call Type feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Login.**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Check the Hunt chain this telephone is joining before you start programming.**
	Use the following three steps to get printouts which verify the Hunting already programmed for the Hunt DN you want to use for this telephone. Refer to *Basic programming instructions* for more information on DNB and TNB printouts. — For the DN which is the Hunt DN you want to use, do a DN Block (DNB) printout. — For the TN(s) you see in the DNB printout, do a TN Block (TNB) printout. Notice that digital telephone TNs have an “H” beside those with Hunting enabled. Look for the HTA Class of Service for other types of telephones. — For the TN(s) with Hunting enabled, look at the printout for the Hunt DN(s) they have programmed. Repeat the three steps as needed, until you have verified the entire existing Hunt chain. If the Hunt DN is a Multiple Appearance DN, refer to the information on how Multiple Appearance DNs interact with Hunting in this Task module.

— continued —

Hunting by Call Type

STEP	ACTION
2 continued ...	
	You can use LD 20 to print out Hunt chains. Refer to *Basic programming instructions.* If you have ODAS software package 20, ask your system supplier to help you use it to print out Hunt chains.
3	**Determine if the Hunt chain is suitable.**
	If / **Do** Hunt chain is suitable — step 4 Hunt chain is not suitable — Pick a different Hunt DN for this telephone or change the Hunting for the telephones in the Hunt chain. Go to step 7 for dial or Digitone-type telephone changes or step 22 for digital or SL-1-type telephone changes.
4	**Choose your starting point from the choices below.**
	If / **Do** new dial or Digitone-type telephone — step 5 change a dial or Digitone-type telephone — step 7 new digital or SL-1-type telephone — step 20 change a digital or SL-1-type telephone — step 22
5	**Program a new dial or Digitone-type telephone.**
	> LD 10 **REQ** NEW — Program a new telephone **TYPE** 500 — Dial or Digitone-type telephone **TN** L S C U — Input the Terminal Number of the telephone program the basics... — Refer to Tasks 1–6 for information.
	— continued —

Hunting by Call Type

STEP	ACTION

5 continued ...

carriage return until you see the prompt HUNT

If	Do
you are allowing Hunting by Call Type	input X..X Input the DN to which DID calls are to Hunt, X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
you are allowing basic Hunting only	input X..X Input the DN to which all calls are to Hunt, X..X represents a DN.
you are not allowing basic Hunting or Hunting by Call Type	input <cr> carriage return

carriage return until you see the prompt CLS

If	Do
Hunting by Call Type allowed	input HTD HBTA HTD is default, input HBTA only, if you prefer. Go to step 6.
Hunting by Call Type denied and basic Hunting allowed	input HBTD HTA HBTD is default, input HTA only, if you prefer. Go to step 6.
Hunting by Call Type denied and basic Hunting denied	input HBTD HTD HBTD and HTD are defaults, input <cr> only, if you prefer. Go to step 6.

— continued —

STEP	ACTION
6	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 30.

7 Program a change to the Hunting by Call Type feature on a dial or Digitone-type telephone.

Do a DNB and TNB printout of the telephone to see what Hunting parameters are already programmed. You might need this information later. Refer to *Basic programming instructions* in this book for further information.

```
> LD 10
```

REQ	CHG	Program a change to an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 8.
not using “Easy Change”	Input NO or <cr> and go to step 14.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Hunting by Call Type

STEP	ACTION
8	**Program an "Easy Change" to an existing dial or Digitone-type telephone.**

Refer to the printouts you made of this telephone earlier. Look for the Class of Service HTD (Hunting denied) or HTA (Hunting allowed). Look at the Hunt DN.

If	Do
you want to change telephone to Hunting by Call Type allowed and it has Hunting denied programmed	step 9
you want to change telephone to Hunting by Call Type allowed and it has Hunting allowed programmed	step 10
you want to change telephone from Hunting by Call Type allowed to Hunting by Call Type denied	step 11
you want to change Hunt DN	step 12

9	**Allow Hunting by Call Type, when Hunting is already denied.**

ITEM CLS HBTA	Allow Hunting by Call Type in Class of Service
ITEM HUNT X..X	Input the DN to which DID calls are to Hunt X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 13.

— continued —

Hunting by Call Type

STEP	ACTION	
10	**Allow Hunting by Call Type, when Hunting is allowed.**	
	ITEM CLS HTD	Deny basic Hunting in Class of Service
	ITEM CLS HBTA	Allow Hunting by Call Type in Class of Service
	ITEM HUNT X..X	If the existing Hunt DN you see in the printout is not suitable, input the DN to which DID calls are to Hunt. X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	ITEM <cr>	If the existing Hunt DN you see in the printout is suitable, you do not need to program the Hunt DN. Go to step 13.
11	**Deny Hunting by Call Type.**	
	ITEM CLS HBTD	Deny Hunting by Call Type in Class of Service
		Depending on the needs of the user:
	ITEM CLS HTA	allow basic Hunting or
	ITEM <cr>	leave basic Hunting denied Refer to Task 37, *Hunting* for further information.
	Go to step 13.	

— continued —

Hunting by Call Type

STEP	ACTION
12	**Change Hunt DN**
	ITEM HUNT X..X — Input the DN to which DID calls are to Hunt, X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 13.
13	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory.
	Go to step 30.

— continued —

Hunting by Call Type

STEP	ACTION
14	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone.**

Refer to the printouts you made of this telephone earlier. Look for the Class of Service HTD (Hunting denied) or HTA (Hunting allowed). Look at the Hunt DN.

If	Do
you want to change telephone to Hunting by Call Type allowed and it has Hunting denied programmed	step 15
you want to change telephone to Hunting by Call Type allowed and it has Hunting allowed programmed	step 16
you want to change telephone from Hunting by Call Type allowed to Hunting by Call Type denied	step 17
you want to change Hunt DN	step 18

15	**Allow Hunting by Call Type, when Hunting is already denied.**

carriage return until you see the prompt HUNT

HUNT X..X	Input the DN to which DID calls are to Hunt, X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS HBTA	Allow Hunting by Call Type in Class of Service

Go to step 19.

— continued —

Hunting by Call Type

STEP	ACTION
16	**Allow Hunting by Call Type, when Hunting is allowed.**

carriage return until you see the prompt HUNT

HUNT X..X — If the existing Hunt DN you see in the printout is not suitable, input the DN to which DID calls are to Hunt. X..X represents the DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

HUNT <cr> — If the existing Hunt DN you see in the printout is suitable, you do not need to program the Hunt DN.

carriage return until you see the prompt CLS

CLS HTD HBTA — Deny basic Hunting in Class of Service

Allow Hunting by Call Type in Class of Service

Go to step 19.

17	**Deny Hunt by Call Type.**

carriage return until you see the prompt CLS

CLS HBTD — Deny Hunting by Call Type in Class of Service

You can allow basic Hunting (HTA) or you can leave basic Hunting denied, depending on the needs of the user.

Refer to Task 37, *Hunting*, for more information.

Go to step 19.

— continued —

STEP	ACTION
18	**Change Hunt DN**

carriage return until you see the prompt HUNT

HUNT X..X — Input the DN to which DID calls are to Hunt. X..X represents the DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 19.

19	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 30.

— continued —

Hunting by Call Type

STEP	ACTION
20	**Program a new digital or SL-1-type telephone.**

> LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (Loop number, Shelf number, Card number, Unit number)

program the basics... Refer to Tasks 7–19 for information.

carriage return until you see the prompt CLS

If	Do
Hunting by Call Type allowed	Input HBTA HTD. HTD is default, input HBTA only, if you prefer.
Hunting by Call Type denied and basic Hunting allowed	Input HBTD HTA. HBTD is default, input HTA only, if you prefer.
Hunting by Call Type denied and basic Hunting denied	Input HBTD HTD HBTD and HTD are defaults, input <cr> only, if you prefer.

— continued —

Hunting by Call Type

STEP	ACTION
20 continued ...	

carriage return until you see the prompt HUNT

If	Do
Hunting by Call Type allowed	Input X..X where X..X represents the DN to which DID calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection). Go to step 21.
Hunting by Call Type denied and basic Hunting allowed	Input X..X where X..X represents the DN to which all calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection). Go to step 21.
Hunting by Call Type denied and basic Hunting denied	Carriage return. Go to step 21.

21 Finish the overlay program.

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 30.

— continued —

Hunting by Call Type

STEP	ACTION
22	**Program a change to the Hunting by Call Type feature on a digital or SL-1-type telephone.**

Do a DNB and TNB printout of the telephone to see what Hunting parameters are programmed. You might need this information later. Refer to *Basic programming instructions* in this book for further information.

```
> LD 11
```

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 23.
not using “Easy Change”	Input NO or <cr> and go to step 24.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Hunting by Call Type

STEP	ACTION
23	**Program an "Easy Change" to an existing digital or SL-1-type telephone.**

If	Do
you want to change telephone to Hunting by Call Type allowed and it has Hunting denied programmed	step 9
you want to change telephone to Hunting by Call Type allowed and it has Hunting allowed programmed	step 10
you want to change telephone from Hunting by Call Type allowed to Hunting by Call Type denied	step 11
you want to change Hunt DN	step 12

— continued —

Hunting by Call Type

STEP	ACTION
24	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone.**

Refer to the printouts you made of this telephone earlier. Look for the Class of Service HTD (Hunting denied) or HTA (Hunting allowed). Look at the Hunt DN which might be programmed already.

If	Do
you want to change telephone to Hunting by Call Type allowed and it has Hunting denied programmed	step 25
you want to change telephone to Hunting by Call Type allowed and it has Hunting allowed programmed	step 26
you want to change telephone from Hunting by Call Type allowed to Hunting by Call Type denied	step 27
you want to change Hunt DN	step 28

— continued —

Hunting by Call Type

STEP	ACTION
25	**Allow Hunting by Call Type, when Hunting is already denied.**
	carriage return until you see the prompt CLS
	CLS HBTA — Allow Hunting by Call Type in Class of Service
	carriage return until you see the prompt HUNT
	HUNT X..X — Input X..X where X..X represents a DN Input the DN to which DID calls are to Hunt. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 29.
26	**Allow Hunting by Call Type, when Hunting is allowed.**
	carriage return until you see the prompt HUNT
	HUNT X..X — If the existing Hunt DN you see in the printout is not suitable, input the DN to which DID calls are to Hunt. X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	HUNT <cr> — If the existing Hunt DN you see in the printout is suitable, you do not need to program the Hunt DN.
	carriage return until you see the prompt CLS
	CLS HTD HBTA — Deny basic Hunting in Class of Service Allow Hunting by Call Type in Class of Service
	Go to step 29.

— continued —

Hunting by Call Type

STEP	ACTION
27	**Deny Hunting by Call Type.**
	carriage return until you see the prompt CLS **CLS** HBTD — Deny Hunting by Call Type in Class of Service You can allow basic Hunting (HTA) or you can leave basic Hunting denied, depending on the needs of the user. Refer toTask 37, *Hunting*, for more information. Go to step 29.
28	**Change Hunt DN.**
	carriage return until you see the prompt HUNT **HUNT** X..X — Input the DN to which DID calls are to Hunt X..X represents the DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection).
29	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory.

— continued —

STEP	ACTION
30	**Check that the programming which you have just done is correct.**

Place internal calls and DID calls to the telephone when it is busy. Make sure the expected treatment happens.

If	Do
feature works properly	step 31
feature does not work properly	step 1

31 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 32

32 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

Hunting by Call Type

STEP	ACTION
33	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 34

34	**Terminate this overlay program.**

```
. ****
```

35	**Terminate this programming session.**

Log off.

```
> LOGO
```

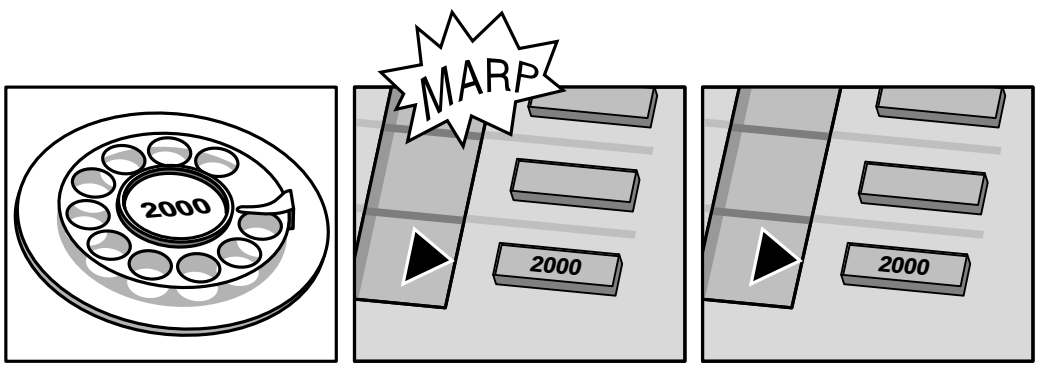
36	**You have completed the programming required to add or change the Hunting by Call Type feature on a telephone.**

END

Multiple Appearance DN Redirection Prime

Purpose

When the same Directory Number (DN) appears on many telephones, it is called a Multiple Appearance DN. If telephones that share DNs are each programmed differently for redirection features, it can be difficult for you to predict where calls will go when the shared DN is not answered, busy or forwarded. The Multiple Appearance DN Redirection Prime (MARP) feature allows you to designate one of the telephones as the *Multiple Appearance DN Redirection Prime Appearance (or MARP TN)* of the shared DN. This tells the system to use the redirection features that are programmed for this telephone to control what happens when the Multiple Appearance DN is busy or not answered or forwarded.



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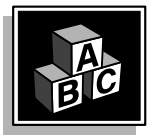
Multiple Appearance DN Redirection Prime

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Setting up the feature

Multiple Appearance DN Redirection Prime (MARP) comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to be designated as the MARP, then you use the procedure in this module to program each one.

Table 232
Software requirements

Release required	Software package(s) required
18	none

You can program the same DN on more than one dial, Digitone-type, digital or SL-1-type telephone. Prior to Release 13, the maximum possible number of appearances of one DN was 16. As of Release 13, there can be up to 30 appearances of one DN, if you have sufficient memory. Your system supplier can assess whether the memory on your system is sufficient to support large numbers of appearances of the same DN.

Regular and proprietary telephones

To make the following information easier to understand, dial and Digitone-type telephones are called regular telephones. Digital and SL-1-type telephones are called proprietary telephones.

Multiple Appearance DN Redirection Prime

Prior to Release 18 software and the introduction of MARP

All systems (pre- and post-Release 18) have sorted lists, in memory, of all telephones connected to them. One list is called the *DN Block.*

If you want to know the sequence of the telephones sharing a particular DN, you request a printout of the DN Block for that DN. The system prints out all Terminal Numbers (TNs) of the telephones which have an appearance of the requested DN. There is more information on TNs and DNs in the *Terms and abbreviations* module in this book. You can print this list anytime you want to know how the telephones are sorted, using overlay program (LD) 20 or 22.

It is recommended that you program the same Hunt DN and Call Forward No Answer DN on telephones which have the same prime DN. Sometimes you cannot avoid having different Hunting DNs and Call Forward No Answer DNs programmed.

When the shared DN is busy or not answered, the system needs some sort of rule in order to choose one Hunting DN or Call Forward No Answer DN in order to redirect the call.

It is the position of the telephone in the DN Block which determines whether or not the system uses the programmingof that telephone to redirect calls. In order for you to be able to predict how the system is going to redirect a call, you need to know how it sorts TNs in the DN Block. The best way of knowing precisely, at any given moment, what will happen is to print a copy of the DN Block using LD 20 or LD 22.

Assembling the DN Block

The telephones which share the same DN are sorted in a complex way using the following rules (prior to Release 18):

- If the DN appears on regular telephones only, the TN with the highest numerical value is at the top of the list. The remaining telephones are listed in decreasing numerical order. For example, TN 8 0 1 3 is listed before TN 4 0 2 1.
- If the DN appears on proprietary telephones only, and all appearances are programmed to ring, the order is the same as for regular telephones.

Multiple Appearance DN Redirection Prime

- If the DN appears on proprietary telephones only, and all appearances are programmed not to ring, the TN with the lowest numerical value is at the top of the list. The remaining telephones are listed in increasing numerical order.
- If the DN appears on both regular and proprietary telephones, the TNs are listed with regular telephones at the top of the list and proprietary telephones at the bottom of the list. The regular telephone TN with the highest numerical value is at the top. The remaining regular telephones are listed in decreasing numerical order. The proprietary telephones are listed in increasing numerical TN order following that, with the highest numerical TN value at the bottom.

For example if there are four telephones with TNs as follows: a regular telephone 28 0 0 1, a proprietary telephone 8 0 1 4, a proprietary telephone 28 0 1 9, a regular telephone 28 0 0 0. The DN Block looks like this:

```
28 0 0 1
28 0 0 0
 8 0 1 4
28 0 1 9
```

Service Changes affect the DN Block

After a Service Change to a telephone the TN list changes as follows:

- if the DN appears on regular telephones only, the changed telephone TN is placed at the top of the list
- if the DN appears on proprietary telephones only, and all appearances are programmed to ring, the changed telephone TN is placed at the top of the list
- if the DN appears on proprietary telephones only, and all appearances are programmed not to ring, the changed telephone TN is placed at the bottom of the list
- if the DN appears on both regular and proprietary telephones, the changed regular telephone TN is placed at the top of the list. The changed proprietary telephone TN (ringing or non-ringing DN) is placed at the bottom of the list.

SYSLOAD affects the DN Block

If the system reloads its data from the disks, the DN Block is re-assembled, according to the rules described under the previous heading *Assembling the DN Block*. There is more information on SYSLOAD in the module called *You should know this* in this book.

What telephone in the DN Block controls the redirection?

Generally, the system searches the DN Block from the top down to determine how to Hunt or forward a call for a Multiple Appearance DN which is busy or not answering. It searches for the first regular telephone with the DN or proprietary telephone with the DN on key 0. It uses the Hunt DN of that telephone if the DN is busy or the Call Forward No Answer DN, if the DN is ringing no answer. If two telephones with a shared prime DN activate Call Forward All Calls, calls will forward to the DN entered by the person who most recently used the feature.

Release 18 software — the introduction of MARP

New systems with Release 18 and later software are installed with the MARP feature active by default. Systems upgrading from pre-Release 18 must have the feature activated by the installer. Until it is activated, the redirection-related features continue to operate as they did on the earlier release of software.

The installer can choose to disable the use of MARP in the configuration overlay program (LD 17). If the feature is disabled, the control of redirection-related features reverts to the method used by pre-Release 18 systems, described previously. When it is disabled, a reminder message (MARP NOT ACTIVATED) prints out when certain overlay programs are loaded. The overlays this happens in are: 10, 11, 20, 22, 25, 80, 81, 82, 83.

MARP TNs are assigned at conversion and SYSLOAD

On upgraded systems or new systems where the MARP feature is active, the system assigns a MARP designation to every Single Appearance DN or Multiple Appearance DN.

Multiple Appearance DN Redirection Prime

A MARP TN is assigned based on the following rules:

- the lowest numerical TN with a primary appearance of the DN is assigned as the MARP TN
- if no primary appearance of the DN is found, the lowest numerical TN with a secondary appearance of the DN is assigned as the MARP TN

Since MARP assignments are being made by the system during a conversion and upgrade, redirections might change from what users were accustomed to prior to the upgrade. You can designate your own MARP TNs to operate as they did previously or you can use the opportunity to designate new telephones to control the redirection-related features.

MARP TNs are assigned at Service Change

When you program a DN, the system presents the MARP prompt(s) and you have the opportunity to assign the TN of your choice as the MARP TN.

After a Service Change or a telephone relocation to a new TN, the system assigns a MARP TN to the DN in the following situations:

- the MARP TN with the DN is removed
- the DN on its MARP TN is changed to another DN
- the DN on its MARP TN is changed from being the redirection prime

When assigning MARP TNs during a Service Change, the system conducts a search beginning at the top of the TN list (the DN Block in memory) for the first appearance of the DN as the prime DN. It assigns the MARP TN based on the following:

- the lowest numerical TN with a primary appearance of the DN
- if no primary appearance of the DN is found, the lowest numerical TN with a secondary appearance of the DN

MARP assignment

The following types of DNs have MARP assigned:

- Single Appearance DN
- Multiple Appearance DN
- data DN
- incoming two-way Hotlines
- private line DN

Automatic Call Distribution (Call Center) DNs are not assigned MARP TNs. Refer to *Automatic Call Distribution Feature description* for more information on ACD.

Using the feature

Refer to the illustrations and text which precede this part for information on the use of this feature.

Interactions with other features

MARP works with, affects, or is affected by other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

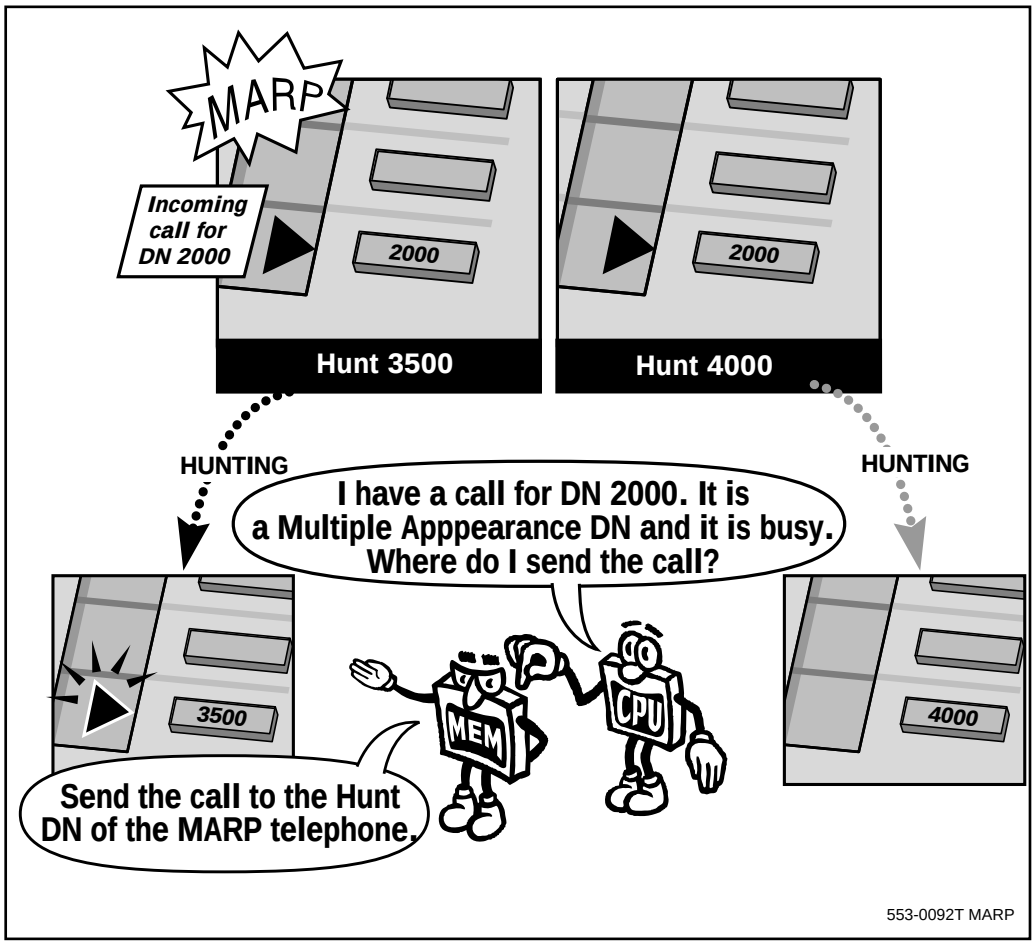
Hunting interacts with MARP

The MARP TN is always checked to determine if and how the call is to be redirected by the Hunting feature when the DN is busy.

Except for the case of Short Hunting, if the MARP TN for that DN does not have Hunting enabled, no Hunting occurs.

Multiple Appearance DN Redirection Prime

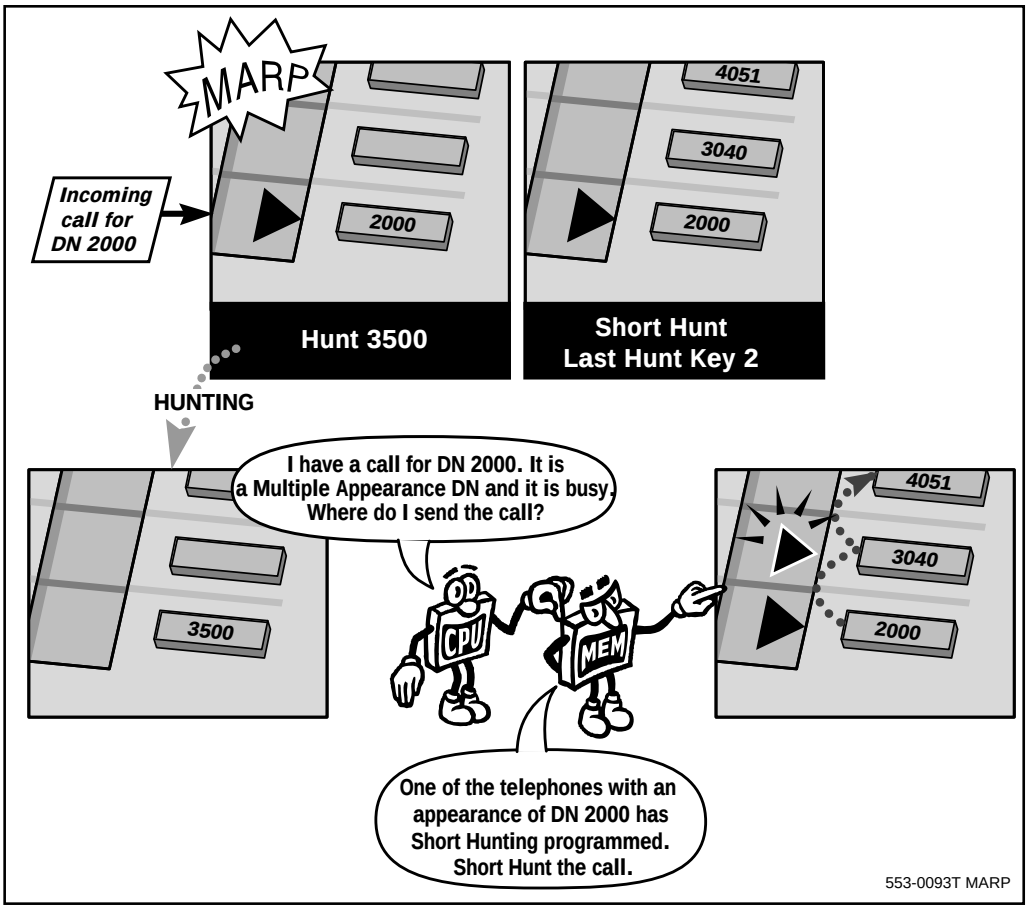
Hunting interacts with MARP



Multiple Appearance DN Redirection Prime

Short Hunting interacts with MARP

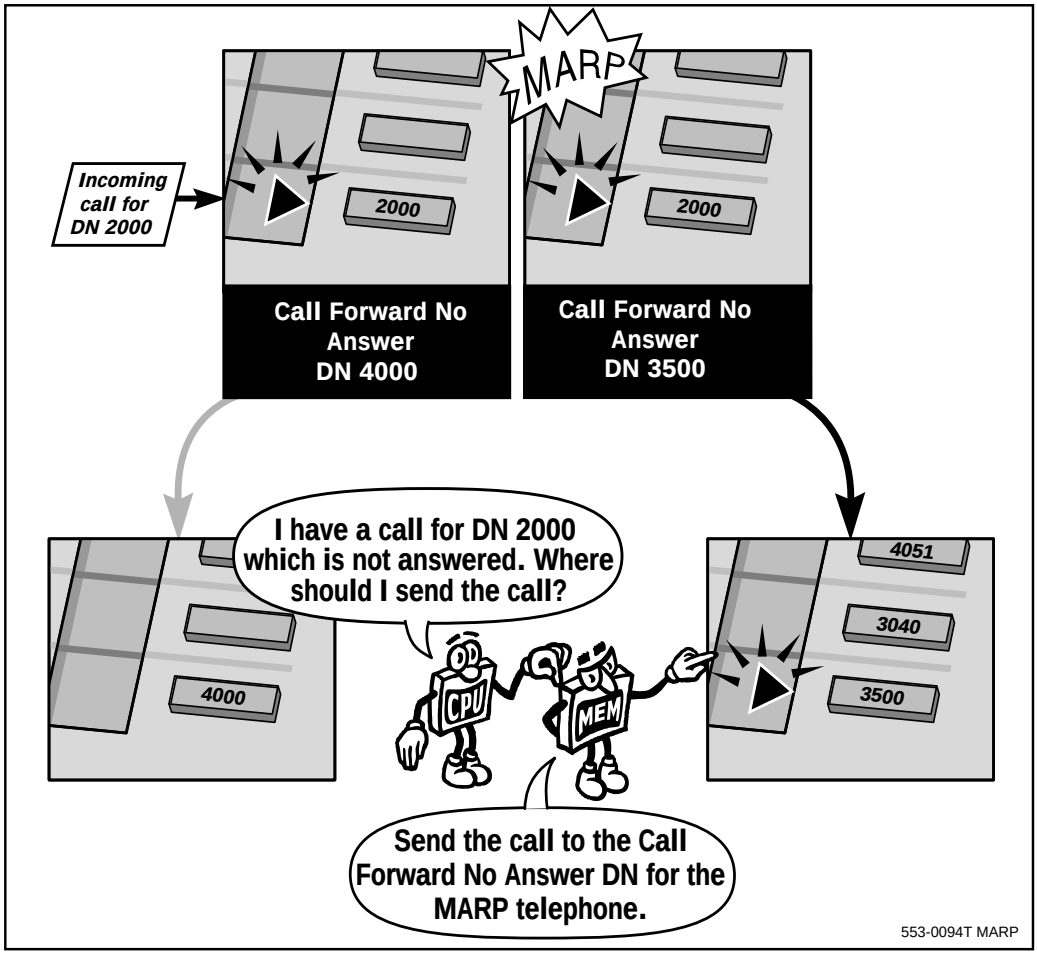
If Short Hunting is programmed on a telephone, with non-MARP appearances of DNs, Short Hunting is allowed to complete before the Hunt DN programmed for the MARP TN is used.



Multiple Appearance DN Redirection Prime

Call Forward No Answer interacts with MARP

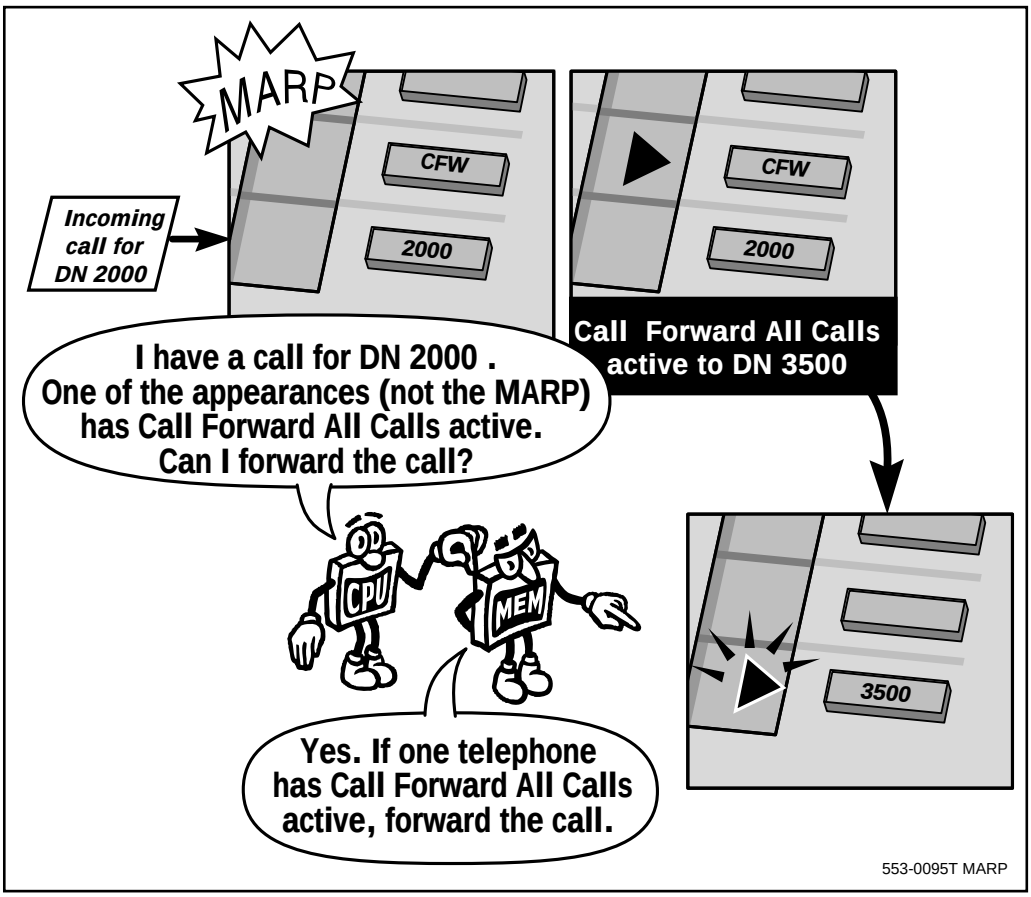
The MARP TN is always checked to determine if and how the call is to be redirected by the Call Forward No Answer feature when the DN is ringing and not answered. The call redirects to the DN programmed at the MARP TN for this feature.



Multiple Appearance DN Redirection Prime

Call Forward All Calls interacts with MARP

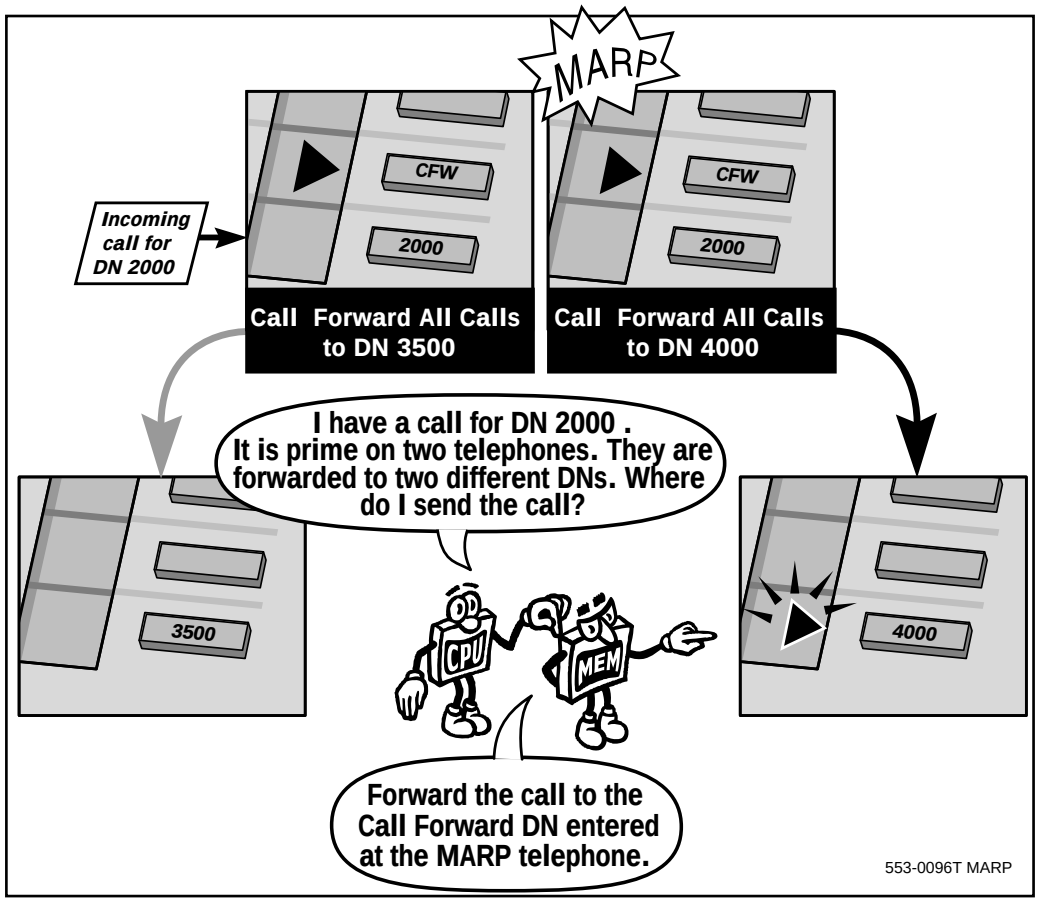
If two telephones share prime DNs and a user at either one of those telephones activates the Call Forward All Calls feature, then calls are forwarded. This happens whether the MARP TN or the non-MARP TN has the Call Forward All Calls feature active.



Multiple Appearance DN Redirection Prime

Call Forward All Calls interacts with MARP

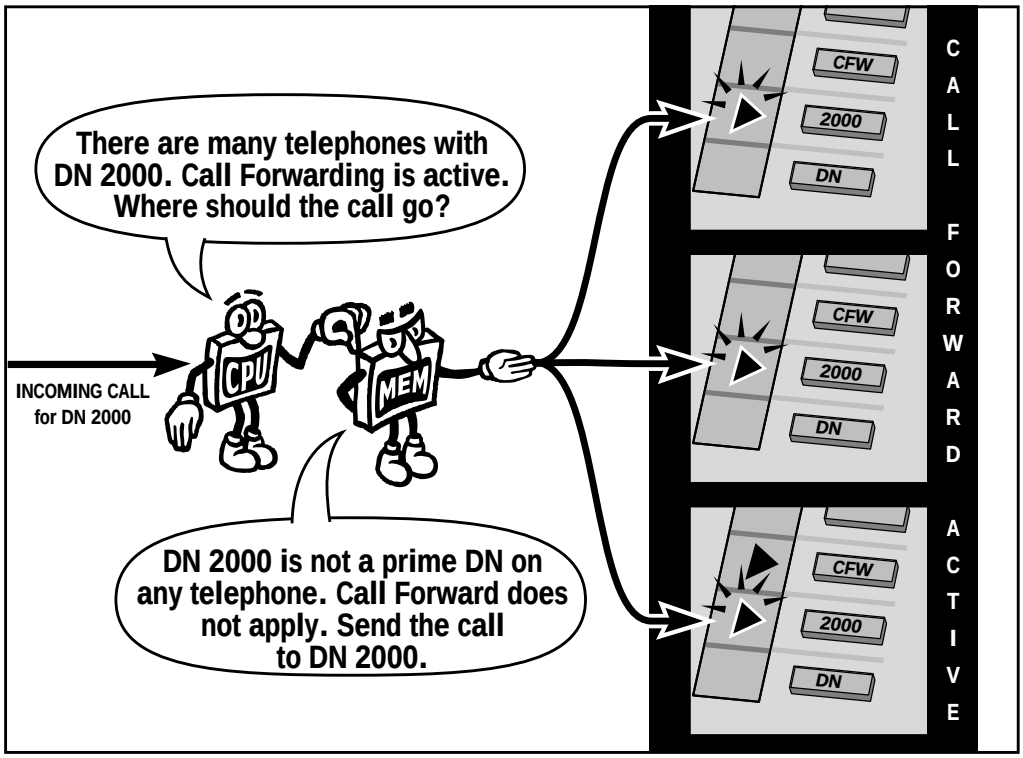
If both telephones with the same prime DN have the Call Forward All Calls feature active simultaneously, incoming calls redirect to the Call Forward DN entered at the MARP TN.



Multiple Appearance DN Redirection Prime

Call Forward All Calls interacts with MARP

If a shared DN is on a secondary key everywhere it appears, users cannot forward incoming calls to that DN no matter whether they use the MARP TN or not.



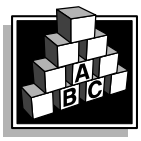
553-0054T CFAC

If a DN is prime on one telephone and secondary on another and the secondary appearance is designated as the MARP, then if both telephones have the Call Forward All Calls feature active, calls go to the DN programmed at the MARP TN. However, if only the MARP telephone is forwarded, and calls come in for the shared DN which is prime on another telephone, calls do not forward, since the telephone where the DN is prime does not have the Call Forward All Calls feature active.

It is not a good idea to designate a secondary appearance of a Multiple Appearance DN as the MARP.

Multiple Appearance DN Redirection Prime

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Automatic Set Relocation (ASR)

If users are moving their own telephones with the ASR feature, a temporary MARP TN is assigned, after the telephone has been removed from a jack and before it is connected to the new jack. When the telephone is connected to the new jack, the original MARP TN is restored. There are Customer Service Change (CSC) messages which appear on the maintenance TTY that tell the system maintainer that telephones are being relocated. There are also Service Change (SCH) messages that print out to indicate the MARP TN for the DN, every time it changes.

User Selectable Call Redirection (USCR)

If the user at the MARP TN for a Multiple Appearance DN enters a new Hunt DN or Call Forward No Answer DN from the telephone, it affects the call redirections for the other users who share the same prime DN.

Control tips

- On systems with software prior to Release 18, try to avoid programming different Hunting and Call Forward No Answer DNs on telephones which share prime DNs. If you must do this, and you have frequent Service Change activity changing the redirection control for that DN, an upgrade to post-Release 18 software is strongly recommended.

Multiple Appearance DN Redirection Prime

Administration tips

- Before you allow users to share prime DNs, discuss other alternatives with your system supplier. If you must share prime DNs, make a good attempt to program the same redirection DNs at the sharing telephones. If you do this, you avoid MARP-related interactions which lead to user questions and caller confusion.
- If the same DN is prime on one telephone and secondary on other telephones, designate the prime appearance of the DN as the MARP.
- If you use User Selectable Call Redirection (USCR) and the MARP feature, the users at the MARP telephones must understand the impact they will have on the other users when they change the redirection-related features from their telephones. You must monitor the use of this feature as well since the MARP telephone users impact other users when they use the USCR feature. You might consider doing regular printouts of the TN-Block to check what has been entered by the users. You can then assess whether that is meeting the needs of the other users who share with the MARP TN user.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- If users understand how the MARP TN affects other telephone users they can use the capability more efficiently. This is especially true of the Call Forward All Calls feature. Include a demonstration of this in your training session.

Multiple Appearance DN Redirection Prime

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 233
Checklist

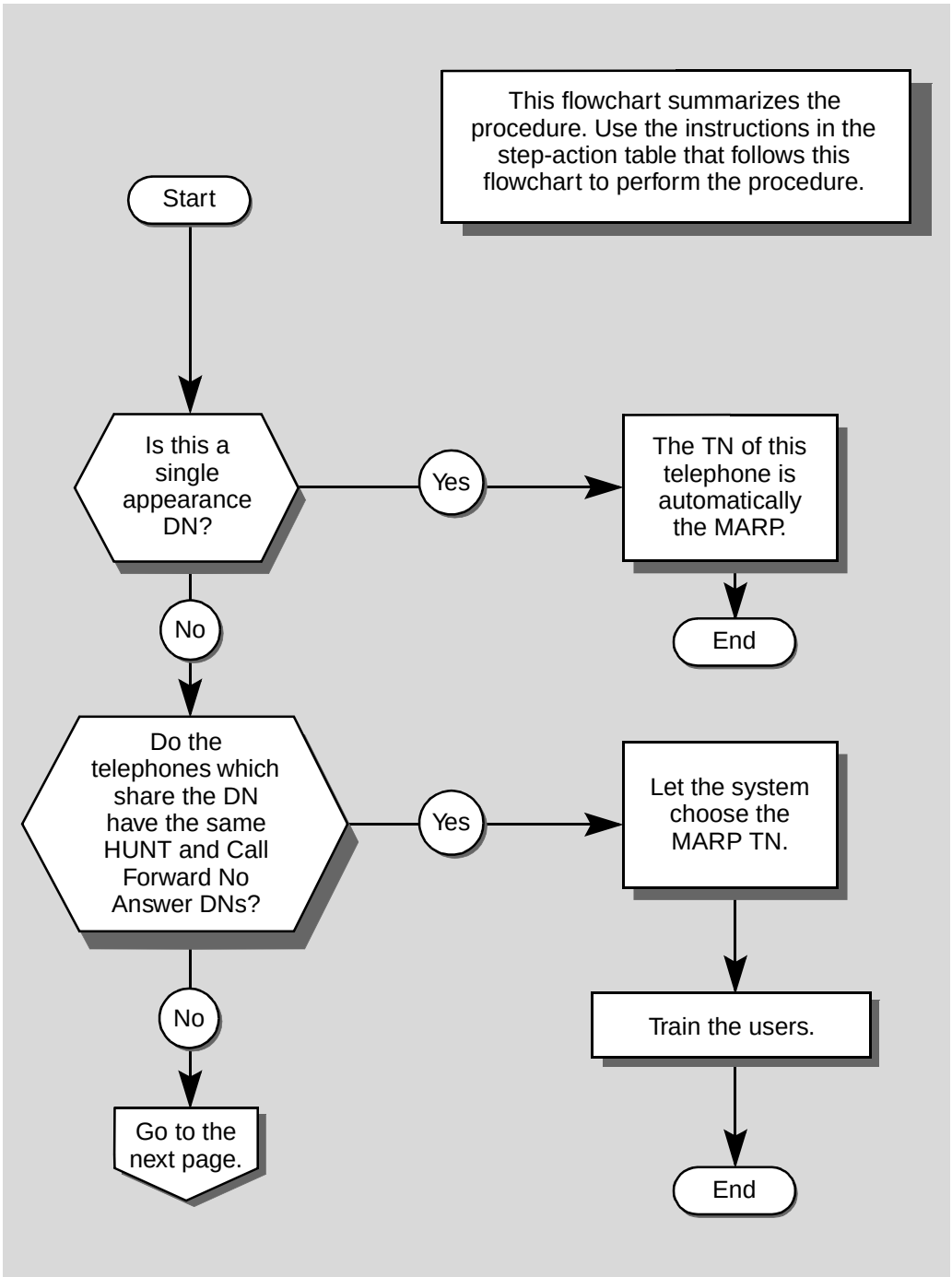
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		With Release 18, for all DNs, there is a MARP TN. Decide what TN you want to designate as the MARP, in shared DN situations.
✔		Train the users.

What's next?

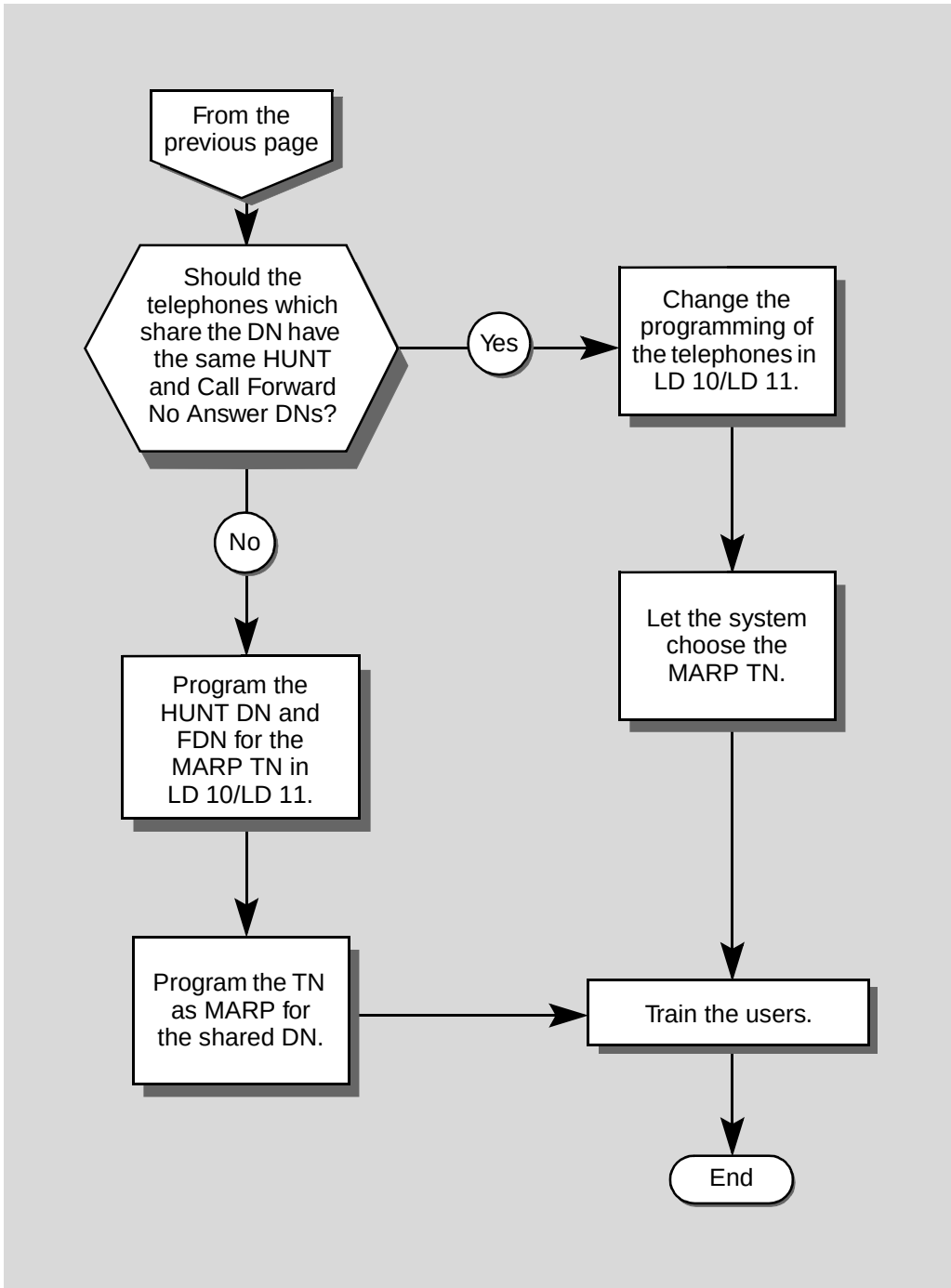
A flowchart follows which summarizes the implementation decisions and procedures for MARP.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Multiple Appearance DN Redirection Prime



Multiple Appearance DN Redirection Prime



Multiple Appearance DN Redirection Prime

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Multiple Appearance DN Redirection Prime feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Obtain a DN Block printout.**

Log in. Use LD 20 or LD 22. For more information, refer to the *Basic programming instructions* module in this book.

If	Do
you are programming a new telephone	Print a DN Block for the DN(s) you want to use. If there are other telephones with this DN, note the TN which is the MARP. Print TN Blocks for the TNs in the printout. Note the programming for Hunting and Call Forward No Answer. Refer to Tasks 37 and 36, if you need more information. Go to step 2.
you are changing the DN(s) of a telephone	Print DN Blocks for the old and new DN(s). Note the TN which is MARP. Print TN Blocks for the TNs which shared the old DN and any which have the new DN. If you are changing the DN of an existing MARP TN, decide which TN to designate as the new MARP. Go to step 2.
you want to make an existing telephone the MARP TN	step 11 for a dial or Digitone-type telephone step 22 for a digital or SL-1-type telephone

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION	
2	**Choose your next step from the choices below.**	
	If	**Do**
	programming a new dial or Digitone-type telephone with a Single Appearance DN	step 3
	programming a new dial or Digitone-type telephone with a Multiple Appearance DN	step 4
	changing the DN of a dial or Digitone-type telephone to a new Single Appearance DN	step 5
	changing the DN of a dial or Digitone-type telephone to a new Multiple Appearance DN	step 8
	programming a new digital or SL-1-type telephone with a Single Appearance DN	step 14
	programming a new digital or SL-1-type telephone with a Multiple Appearance DN	step 15
	changing the DN of a digital or SL-1-type telephone to a new Single Appearance DN	step 16
	changing the DN of a digital or SL-1-type telephone to a new Multiple Appearance DN	step 19

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
3	**Program a new dial or Digitone-type telephone with a Single Appearance DN.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
program the basics...		Refer to Tasks 1–6 for information.

input the basic data until you see the prompt DN

DN	X..X	Input the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later
_MARP		This message prints out to indicate this is the MARP TN for this new DN.

Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
4	**Program a new dial or Digitone-type telephone with a Multiple Appearance DN.**

> LD 10

REQ NEW	Program a new telephone
TYPE 500	Dial or Digitone-type telephone
TN L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
program the basics...	Refer to Tasks 1–6 for information.

input the basic data until you see the prompt DN

DN X..X	Input the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later
-MARP ON TN L S C U	This message prints out to indicate the TN (Loop number, Shelf number, Card number, Unit number) that is the MARP for the DN now.
-MARP NO	Input NO, if you want to leave the existing TN as the MARP — this is default
YES	Input YES, if you want the telephone you are programming to become the MARP

If you input YES, a message prints out to indicate that a MARP has changed.

SCH5524 DN X..X NEW MARP L S C U

X..X represents the new DN

L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone

Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
5	**Change the DN of a dial or Digitone-type telephone to a new Single Appearance DN.**

> LD 10		
REQ	CHG	Program a change on an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 6.
not using “Easy Change”	Input NO or <cr> and go to step 7.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION	
6	**Program an "Easy Change" to an existing dial or Digitone-type telephone to change the DN.**	
	ITEM DN X..X	Change the Directory Number X..X represents the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later
	-MARP	This message prints out to indicate this is the MARP TN for this new DN. If this telephone was the MARP TN for the old DN, a SCH 5524 message prints out. It indicates the new MARP TN for the old DN, if there are other appearances of it.
	Go to step 25.	
7	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to change the DN.**	
	DN X..X	Input the new DN X..X represents the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later
	-MARP	This message prints out to indicate this is the MARP TN for this new DN. If this telephone was the MARP TN for the old DN, a SCH 5524 message prints out. It indicates the new MARP TN for the old DN, if there are other appearances of it.
	Go to step 25.	

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
8	**Change the DN of a dial or Digitone-type telephone to a new Multiple Appearance DN.**

> LD 10

REQ	CHG	Program a change on an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
ECHG		

If	Do
using “Easy Change”	Input YES and go to step 9.
not using “Easy Change”	Input NO or <cr> and go to step 10.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

9	**Program an “Easy Change” to an existing dial or Digitone-type telephone to change the DN.**

ITEM DN X..X	Change the Directory Number X..X represents the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
9 continued ...	
	_MARP ON TN L S C U This message prints out to indicate the TN (Loop number, Shelf number, Card number, Unit number) that is the MARP for the DN now.
	_MARP NO — Input NO, if you want to leave the existing TN as the MARP — this is default.
	YES — Input YES, if you want the telephone you are programming to become the MARP.
	If you input YES, a message prints out to indicate that a MARP has changed.
	SCH5524 DN X..X NEW MARP L S C U X..X represents the new DN L S C U represents the Loop number, Shelf number, Card number, Unit number of this telephone
	Go to step 25.
10	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to change the DN.**
	DN X..X — Input the new DN. X..X represents the new DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later
	_MARP ON TN L S C U This message prints out to indicate the TN (Loop number, Shelf number, Card number, Unit number) that is the MARP for the DN now.
	_MARP NO — Input NO, if you want to leave the existing TN as the MARP — this is default
	YES — Input YES, if you want the telephone you are programming to become the MARP.
	If you input YES, a message prints out to indicate that a MARP has changed.
	SCH5524 DN X..X NEW MARP L S C U X..X represents the new DN L S C U represents the Loop number, Shelf number, Card number, Unit number of this telephone
	Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
11	**Change a dial or Digitone-type telephone to become the MARP TN.**

> LD 10

REQ	CHG	Program a change on an existing telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)

ECHG

If	**Do**
using “Easy Change “	Input YES and go to step 12.
not using “Easy Change”	Input NO or <cr> and go to step 13.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

12	**Program an “Easy Change” to an existing dial or Digitone-type telephone to change it to the MARP TN.**

ITEM MARP YES This telephone becomes the MARP TN.

A message prints out to indicate that a MARP has changed.

SCH5524 DN X..X NEW MARP L S C U

X..X represents the DN

L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone

Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
13	**Program a change (not an "Easy Change") to an existing dial or Digitone-type telephone to change it to the MARP TN.**

DN X..X — Input the existing DN

X..X represents the DN

1–4 digits prior to Release 13
1–7 digits Release 13 and later

_MARP ON TN L S C U

This message prints out to indicate the TN (Loop number, Shelf number, Card number, Unit number) that is the MARP for the DN now.

_MARP YES — Input YES, if you want the telephone you are programming to become the MARP

If you input YES, a message prints out to indicate that a MARP has changed.

SCH5524 DN X..X NEW MARP L S C U

X..X represents the new DN

L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone

Go to step 25.

14	**Program a new digital or SL-1-type telephone with a Single Appearance DN.**

> LD 11

REQ NEW — Program a new telephone

TYPE — Input correct type of SL-1 or digital telephone

TN L S C U — Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)

program the basics... — Refer to Tasks 7–19 for information.

input the basic data until you see the prompt KEY

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
14 continued ...	
	Program the key(s) one of the following ways:
	XX represents the key number (0–69) key 0 must be programmed with a DN
KEY XX SCR X..X	SCR — single call ringing DN
KEY XX SCN X..X	SCN — single call non-ringing DN
	Multiple Call DNs apply to this step when this is the first appearance of the DN programmed so far.
KEY XX MCR X..X	MCR — multiple call ringing DN
KEY XX MCN X..X	MCN — multiple call non-ringing DN
	X..X represents the digits in the DN
	The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.
_MARP	This message prints out to indicate this is the MARP TN for this new DN.
KEY	Repeat the process above until all necessary DNs are programmed on available keys.
Go to step 25.	

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION	
15	**Program a new digital or SL-1-type telephone with a Multiple Appearance DN**	
	> LD 11	
	REQ NEW	Program a new telephone
	TYPE	Input correct type of SL-1 or digital telephone
	TN L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics...	Refer to Tasks 7–19 for information.
	input the basic data until you see the prompt KEY	
	Program the key(s) one of the following ways:	
		XX represents the key number (0–69) key 0 must be programmed with a DN
	KEY XX SCR X..X	SCR — single call ringing DN
	KEY XX SCN X..X	SCN — single call non-ringing DN
	KEY XX MCR X..X	MCR — multiple call ringing DN
	KEY XX MCN X..X	MCN — multiple call non-ringing DN
		X..X represents the digits in the DN
		The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

— continued —

STEP	ACTION
15 continued ...	
	_MARP ON TN L S C U This message prints out to indicate the TN (**L**oop number, **S**helf number, **C**ard number, **U**nit number) that is the MARP for the DN now.
	_MARP NO — Input NO, if you want to leave the existing TN as the MARP — this is default YES — Input YES, if you want the telephone you are programming to become the MARP
	If you input YES, a message prints out to indicate that a MARP has changed. **SCH5524 DN X..X NEW MARP L S C U** X..X represents the new DN L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone
	Go to step 25.
16	**Change a DN on a digital or SL-1-type telephone to a new Single Appearance DN.**
	> LD 11
	REQ CHG — Program a change on an existing telephone
	TYPE — Input correct type of SL-1 or digital telephone
	TN L S C U — Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	ECHG **If** / **Do** using “Easy Change” — Input YES and go to step 17. not using “Easy Change” — Input NO or <cr> and go to step 18.
	For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
17	**Program an "Easy Change" to an existing digital or SL-1-type telephone to change the DN.**

Program the key(s) one of the following ways:

ITEM — XX represents the key number (0–69) key 0 must be programmed with a DN

ITEM KEY XX SCR X..X — SCR — single call ringing DN

ITEM KEY XX SCN X..X — SCN — single call non-ringing DN

Multiple Call DNs apply to this step when this is the first appearance of the DN programmed so far.

ITEM KEY XX MCR X..X — MCR — multiple call ringing DN

ITEM KEY XX MCN X..X — MCN — multiple call non-ringing DN

X..X represents the digits in the DN

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

_MARP — This message prints out to indicate this is the MARP TN for this new DN.

If this telephone was the MARP TN for the old DN, a SCH 5524 message prints out. It indicates the new MARP TN for the old DN, if there are other appearances of it.

ITEM KEY — Repeat the process above until all necessary DNs are programmed on available keys.

Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
18	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to change the DN.**

carriage return until you see the prompt KEY

Program the key(s) one of the following ways:

	XX represents the key number (0–69) key 0 must be programmed with a DN
KEY XX SCR X..X	SCR — single call ringing DN
KEY XX SCN X..X	SCN — single call non-ringing DN
	Multiple Call DNs apply to this step when this is the first appearance of the DN programmed so far.
KEY XX MCR X..X	MCR — multiple call ringing DN
KEY XX MCN X..X	MCN — multiple call non-ringing DN
	X..X represents the digits in the DN
	The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.
_MARP	This message prints out to indicate this is the MARP TN for this new DN.
	If this telephone was the MARP TN for the old DN, a SCH 5524 message prints out. It indicates the new MARP TN for the old DN, if there are other appearances of it.
KEY	Repeat the process above until all necessary DNs are programmed on available keys.

Go to step 25.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION	
19	**Change the DN of a digital or SL-1-type telephone to a new Multiple Appearance DN.**	
	> LD 11	
	REQ CHG	Program a change on an existing telephone
	TYPE	Dial or Digitone-type telephone
	TN L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	ECHG	
	If	**Do**
	using “Easy Change”	Input YES and go to step 20.
	not using “Easy Change”	Input NO or <cr> and go to step 21.
	For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.	
20	**Program an “Easy Change” to an existing digital or SL-1-type telephone to change the DN.**	
	ITEM	Program the key(s) one of the following ways: XX represents the key number (0–69) key 0 must be programmed with a DN
	ITEM KEY XX SCR X..X	SCR — single call ringing DN
	ITEM KEY XX SCN X..X	SCN — single call non-ringing DN
	ITEM KEY XX MCR X..X	MCR — multiple call ringing DN
	ITEM KEY XX MCN X..X	MCN — multiple call non-ringing DN
		X..X represents the digits in the DN The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
20 continued ...	
	_MARP ON TN L S C U This message prints out to indicate the TN (**L**oop number, **S**helf number, **C**ard number, **U**nit number) that is the MARP for the DN now.
	_MARP NO — Input NO, if you want to leave the existing TN as the MARP — this is default
	YES — Input YES, if you want the telephone you are programming to become the MARP
	If you input YES, a message prints out to indicate that a MARP has changed.
	SCH5524 DN X..X NEW MARP L S C U
	X..X represents the new DN
	L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone
	Go to step 25.
21	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to change the DN.**
	carriage return until you see the prompt KEY
	Program the key(s) one of the following ways:
	XX represents the key number (0–69) key 0 must be programmed with a DN
	KEY XX SCR X..X — SCR — single call ringing DN
	KEY XX SCN X..X — SCN — single call non-ringing DN
	KEY XX MCR X..X — MCR — multiple call ringing DN
	KEY XX MCN X..X — MCN — multiple call non-ringing DN
	X..X represents the digits in the DN
	The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
21 continued ...	
	_MARP ON TN L S C U This message prints out to indicate the TN (Loop number, Shelf number, Card number, Unit number) that is the MARP for the DN now.
	_MARP NO — Input NO, if you want to leave the existing TN as the MARP — this is default
	YES — Input YES, if you want the telephone you are programming to become the MARP
	If you input YES, a message prints out to indicate that a MARP has changed.
	SCH5524 DN X..X NEW MARP L S C U X..X represents the new DN L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone
	Go to step 25.
22	**Change a digital or SL-1-type telephone to become the MARP TN.**
	> LD 11
	REQ CHG — Program a change on an existing telephone
	TYPE — Input correct type of SL-1 or digital telephone
	TN L S C U — Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	ECHG
	If / **Do** using “Easy Change” — Input YES and go to step 23. not using “Easy Change” — Input NO or <cr> and go to step 24.
	For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION
23	**Program an "Easy Change" to an existing digital or SL-1-type telephone to change it to the MARP TN.**

ITEM MARP YES — This telephone becomes the MARP TN.

A message prints out to indicate that a MARP has changed.

SCH5524 DN X..X NEW MARP L S C U

X..X represents the DN

L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone

Go to step 25.

24	**Program a change (not an "Easy Change") to an existing digital or SL-1-type telephone to change it to the MARP TN.**

carriage return until you see the prompt KEY

Program the key(s) one of the following ways:

XX represents the key number (0–69)
key 0 must be programmed with a DN

KEY XX SCR X..X — SCR — single call ringing DN

KEY XX SCN X..X — SCN — single call non-ringing DN

KEY XX MCR X..X — MCR — multiple call ringing DN

KEY XX MCN X..X — MCN — multiple call non-ringing DN

X..X represents the digits in the DN

The DN can be 1–7 digits with DNXP software package or 1–4 digits without DNXP.

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION

24 continued ...

_MARP ON TN L S C U

This message prints out to indicate the TN (**L**oop number, **S**helf number, **C**ard number, **U**nit number) that is the MARP for the DN now.

_MARP YES — Input YES, if you want the telephone you are programming to become the MARP

A message prints out to indicate that a MARP has changed.

SCH5524 DN X..X NEW MARP L S C U

X..X represents the new DN

L S C U represents the **L**oop number, **S**helf number, **C**ard number, **U**nit number of this telephone

Go to step 25.

25 Finish the overlay program.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your Service Change has been entered into the memory.

26 Check that the programming which you have just done is correct.

Place a call to the DN and let it ring with no answer. Make sure the expected treatment happens.

If	Do
feature works properly	step 27
feature does not work properly	step 1

— continued —

Multiple Appearance DN Redirection Prime

STEP	ACTION

27 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 28

28 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

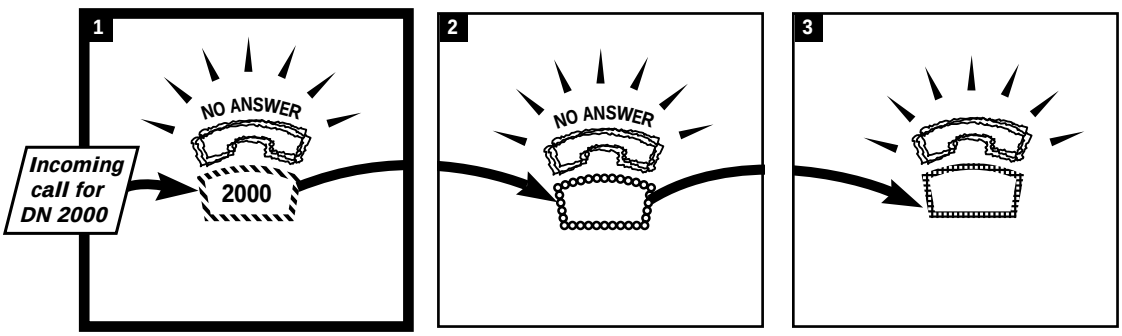
Multiple Appearance DN Redirection Prime

STEP	ACTION
29	**Verify that the dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If — **Do** data dump fails — Contact your system supplier. data dump succeeds — step 30
30	**Terminate this overlay program.**
	. ****
31	**Terminate this programming session.**
	Log off. **>** LOGO
32	**You have completed the programming required to add or change the Multiple Appearance DN Redirection Prime feature on a telephone.**
	END

Second Level Call Forward No Answer

Purpose

When a call is not answered at a Directory Number (DN), the regular Call Forward No Answer feature redirects it to another Directory Number. If the call is not answered there either, and the Second Level Call Forward No Answer feature is enabled, the call is redirected again.



553-0098T SFA

Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Second Level Call Forward No Answer

Setting up the feature

Second Level Call Forward No Answer comes with the communication system, but the telephones do not come programmed to use the capability. You select the telephones that are to have Second Level Call Forward No Answer allowed, then you use the procedure in this module to program each one.

In *X11 features and services*, this feature is called Call Forward No Answer, Second Level.

This feature is an enhancement of the basic Call Forward No Answer feature. You must ensure that the basic Call Forward No Answer pre-requisite programming has been done before you proceed. If you need more information, refer to Task 36, *Call Forward No Answer*.

Table 234
Software requirements

Release required	Software package(s) required
10	none

Programming the Customer Data Block (LD 15)

It is necessary to program customer-wide parameters for both Call Forward No Answer and Second Level Call Forward No Answer. They are:

- a setting in LD 15, the Customer Data Block, that determines the number of times a telephone will ring before a call will forward
- the Call Forward No Answer treatments for different types of calls

Number of rings

The default setting is four rings before a call forwards. If you use the default setting, a call will ring a total of eight times before it will forward to the third telephone (four times at the first telephone and four times at the second telephone).

Second Level Call Forward No Answer

Call types

The three call types for the Customer group are:

- DID
- internal
- external trunk (non-DID)

Before Release 10, there are only two call types for the customer group:

- DID
- non-DID

Treatment when calls are not answered

There are four choices of treatments for each call-type. They are None (NO), Attendant (ATT), Hunt (HNT), and Flexible DN (FDN). There is more information on these treatments in Task 36, *Call Forward No Answer*.

The Second Level Call Forward No Answer feature can only be implemented when either HNT or FDN is chosen for treatments.

Programming the telephones

You must enable the Call Forward No Answer feature in the Class of Service of the originally dialed telephone. You must program a redirection DN for this telephone as follows:

- if the LD 15 treatments are HNT, you must program a Hunt DN
- if the LD 15 treatments are FDN, you must program an FDN

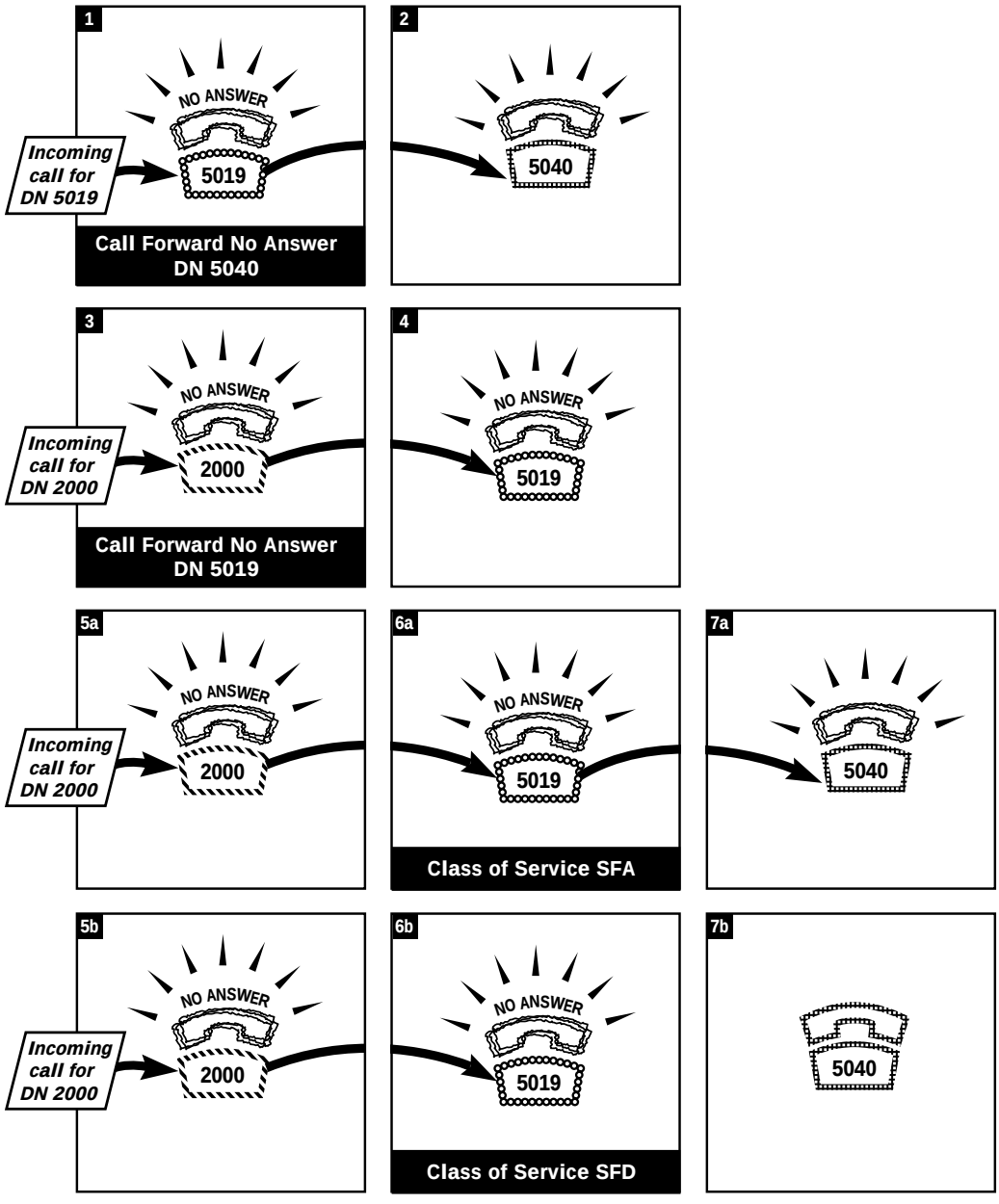
You must enable the Call Forward No Answer feature along with the Second Level Call Forward No Answer feature in the Class of Service of the second ringing telephone.

You must program the DN to which unanswered calls will be sent as follows:

- if the LD 15 treatments are HNT, you must program a Hunt DN
- if the LD 15 treatments are FDN, you must program an FDN

Second Level Call Forward No Answer

Class of Service programming



553-0278T SFA

Second Level Call Forward No Answer

What happens if the third telephone is not answered?

After a call has forwarded twice, and it is still not answered, one of two things can occur.

- If the original call was transferred by an attendant, the call recalls to an attendant.
- If the call is coming in on a DID trunk or is made by an internal caller, the third telephone continues to ring until it is answered, or the caller hangs up.

The call is never forwarded a third time, even if the third telephone has Call Forward No Answer allowed and Second Level Call Forward No Answer allowed.

Using the feature

Refer to the illustrations and text prior to this section for information on the use of this feature.

Interactions with other features

Second Level Call Forward No Answer works with, affects, or is affected by several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services.*

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Second Level Call Forward No Answer

Message Waiting interacts with Second Level Call Forward No Answer

If your system uses a software Release between 10 and 14 inclusive, you cannot enable both Message Waiting and Second Level Call Forward No Answer in the Class of Service of one telephone. What happens is, if the call forwards a second time to a telephone which is a Message Center, when the person at the Message Center activates the Message Indication key to tell the originally dialed person there is a message for them, the Message Waiting indicator lights up on the second telephone, not the originally dialed telephone.

With Release 15 and later, you can program both features in the Class of Service of one telephone. The Message Waiting indicator lights up on the correct telephone when the Message Center activates the Message Indication key.

Attendant Queues and ACD queues interact with Second Level Call Forward No Answer

If a call has been redirected to one of these types of queues by the Call Forward No Answer feature, Second Level Call Forward No Answer will not forward the call again if the call is not answered from the queue within the pre-programmed number of rings. Other programmable features can redirect calls for attendant queues and ACD queues.

Distinctive Ringing interacts with Second Level Call Forward No Answer

There is a setting in the Customer Data Block (LD 15) for the number of Distinctive ringing cycles before an unanswered call forwards. If you are using Distinctive Ringing on your trunk groups, then calls which ring telephones distinctively and go unanswered can be forwarded twice because of Second Level Call Forward No Answer.

Second Level Call Forward No Answer

Call Forward All Calls interacts with Second Level Call Forward No Answer

The following example illustrates an important interaction between these two features.

User A calls telephone B. Telephone B is in Call Forward All Calls mode, redirecting calls to telephone C. If user C does not answer, *the call redirects to the Call Forward No Answer DN of telephone B, since that was the originally dialed DN. If telephone C is the Call Forward No Answer DN of telephone B, then telephone C continues to ring and does not forward, even if Second Level Call Forward No Answer is allowed.*

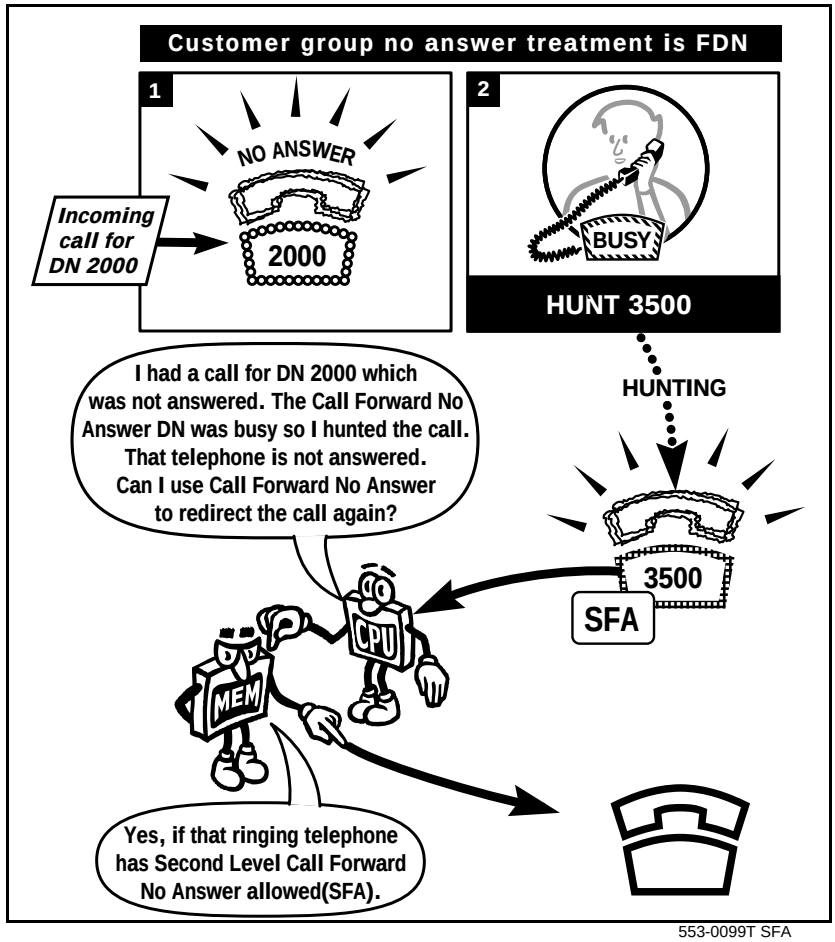
Second Level Call Forward No Answer only works when the originally dialed DN rings no answer and is not in a Call Forward All Calls mode.

Second Level Call Forward No Answer

Hunting interacts with Second Level Call Forward No Answer

On systems where the treatments programmed in the Customer Data block are FDN, there can be interactions between Hunting and the Second Level Call Forward No Answer feature.

If a call rings at telephone A and attempts to forward to telephone B, which is the Flexible DN programmed at telephone A, but telephone B is busy, the call hunts to the DN programmed as the Hunt DN for telephone B. It might ring no answer there as well. If that telephone has Second Level Call Forward No Answer allowed, then the call can forward one more time, to the Flexible DN for the ringing telephone.



553-0099T SFA

Second Level Call Forward No Answer

Call Forward by Call Type - Call Forward No Answer interacts with Second Level Call Forward No Answer

On systems where telephones have Call Forward by Call Type allowed in their Class of Service, calls are tagged with a call-type based on their origin.

If the call is tagged as an external call-type, then it forwards to the external Call Forward No Answer DN programmed at the ringing telephone which is not answered. If that call is not answered at a second telephone, one that has Second Level Call Forward No Answer programmed, the call forwards to its external Call Forward No Answer DN, if that telephone also has Call Forward by Call Type allowed.

User Selectable Call Redirection interacts with Second Level Call Forward No Answer

This feature can be used at individual telephones to change the number of rings before a call is treated as unanswered and forwarded. If one user chooses a Ringing Cycle Option defined as four rings and another chooses an option defined as two rings, then if the two telephones are involved in a Second Level Call Forward No Answer call, the call rings a total of six times before it forwards to the third telephone, four times at the first telephone and twice at the second telephone.

Multiple Appearance DNs interact with Second Level Call Forward No Answer

Refer to Task 36, *Call Forward No Answer* for information on the way the system deals with no answer situations on a DN which appears on more than one telephone or key. The method used by the system changed as of Release 18. With Release 18, you can program one of the telephones to act as the prime appearance for call redirection related features for all of the other appearances. The system uses the programming of the Multiple Appearance Redirection Prime (MARP) telephone to redirect calls when there is no answer at the shared DN. If the MARP telephone has Second Level Call Forward No Answer allowed, then unanswered calls can forward one more time to the DN programmed at the MARP telephone.

Second Level Call Forward No Answer

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist which follows under *What to have ready* to confirm that you have what you need.

Control tips

- Before you implement Second Level Call Forward No Answer, assess the impact of this on your callers. Calculate, based on the setting in your Customer Data Block, how many times a call will ring if it redirects to three different telephones waiting for an answer. Assess whether your callers will wait that long or whether it is better to forward initially to a DN that is always attended, or even to Voice Mail.
- It might be advisable to talk to your staff and let them know that you do not want them to leave their telephones ringing unanswered and to rely too often on forwarding.
- As another alternative, you might want to change the setting in the Customer Data Block to lower the number of rings before calls forward.
- If you have the User Selectable Call Redirection feature on your system, you might need to program the three Ringing Cycle Options so that no matter which option users choose, the total number of rings after two redirections is still an acceptable number.

Second Level Call Forward No Answer

Administration tips

- When you do station reviews with users, before you program their telephones, ensure that the person at the third telephone is prepared to answer calls for the original DN and the second DN which is redirecting calls to that third telephone.
- When users hear a telephone ring nearby, they expect it to forward calls when it is not answered. If the call has already forwarded twice, this will not happen. If the call has only forwarded once, calls will be forwarded again. When the telephone rings, users nearby do not know how many times the call might have been forwarded before getting to that telephone. Tell users about this interaction so they will not report this as a problem.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Tell users about how Second Level Call Forward No Answer interacts with other features they might use. By doing this you reduce the number of repair calls reported and improve user efficiency.

Second Level Call Forward No Answer

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 235
Checklist

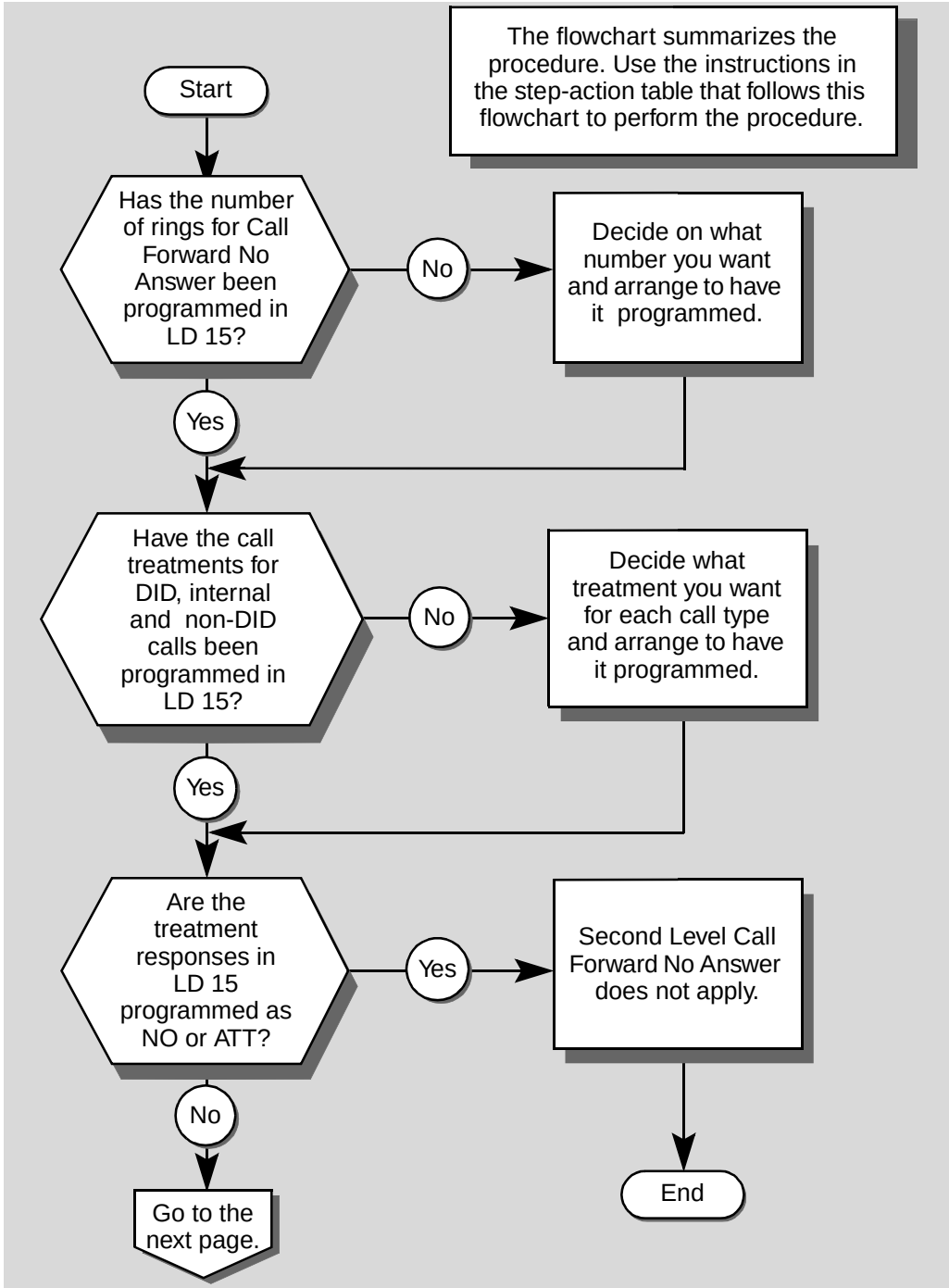
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Verify the number of rings for the Call Forward No Answer setting in LD 15.
✔		Verify the treatments for the call types programmed in LD 15.
✔		Find out the DN the user wants for Call Forward No Answer. Determine if that is suitable as a second level forwarding DN for the first DN in the forwarding chain.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same Call Forward No Answer DN for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs and require different Call Forward No Answer DNs for each telephone, decide on the MARP TN which is appropriate for the group's needs.
	✔	Prepare your training information, and materials. Plan the way you want to address interactions.
	✔	If Call Forward by Call Type is allowed on the second telephone in the forwarding chain, decide what DNs to use for the second level of forwarding for internal and external calls.
	✔	If User Selectable Call Redirection is allowed, select the three Ringing Cycle Options which work best when Second Level Call Forward No Answer operates.

What's next?

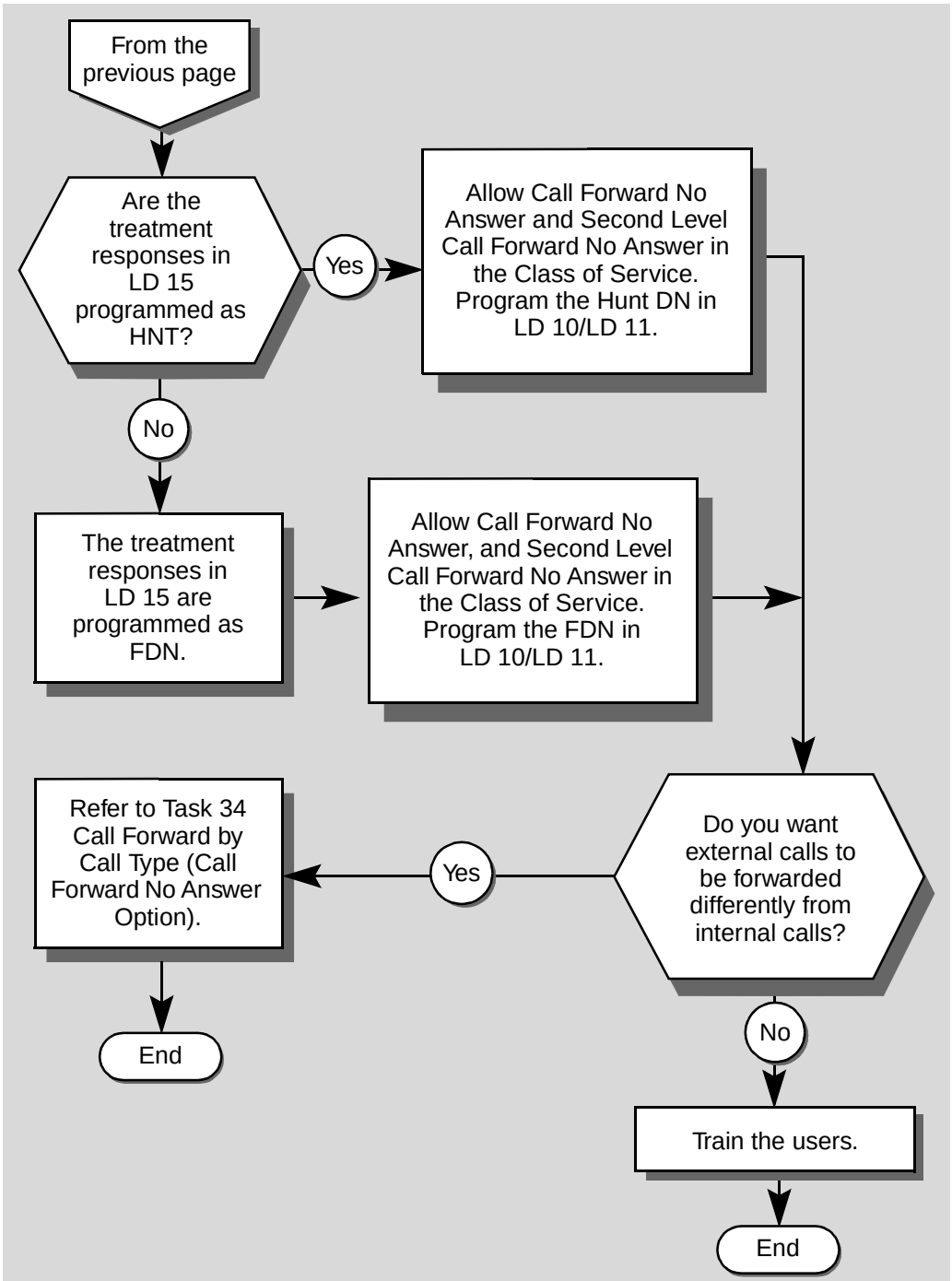
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

Second Level Call Forward No Answer



Second Level Call Forward No Answer



Second Level Call Forward No Answer

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Second Level Call Forward No Answer feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Choose your starting point from the choices below.**

If	Do
new telephone	step 2
change to an existing telephone	step 13

STEP	ACTION
2	**Check that the number of rings for a "no answer" has been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
not programmed	Ask your system supplier to program it. Go to step 3.
programmed	step 3
programmed but not acceptable for Second Level forwarding	Ask your system supplier to change LD 15. Go to step 3.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
3	**Check that the call treatments for all call-types on your system have been programmed.**

The programming for this, in LD 15, the Customer Data Block, is beyond the scope of this book.

If	Do
programmed but not acceptable for Second Level forwarding	Ask your system supplier to change the LD 15 programming for each call-type to HNT or FDN, whichever suits your needs best. Go to step 4.
programmed and acceptable for Second Level forwarding	step 4
not programmed	Decide what treatments (HNT or FDN) suit your needs best and ask your system supplier to program a treatment for each call-type. Go to step 4.

4 Choose your next step from the choices below.

The treatments programmed in LD 15 affect what, if any, programming you must do in LD 10 and LD 11, the telephone overlay programs.

If	Do
treatments are NO	Leave telephone Class of Service as default, FND, Call Forward No Answer denied. Second Level Call Forward No Answer is not possible. Your task is complete.
treatments are ATT	Second Level Call Forward No Answer is not possible. Have your system supplier change the treatments to FDN or HNT if you want the feature.
treatments are HNT	step 5
treatments are FDN	step 6

— continued —

Second Level Call Forward No Answer

STEP	ACTION
5	**Find out what telephones forward calls to this telephone.**

Do a TNB printout of the telephones. Refer to the *Basic programming instructions* module in this book for more information. Look for telephones where:

— the Hunt DN is the DN of this telephone

— the EHT is the DN of this telephone (if CFTA in Class of Service)

Go to step 7.

6	**Find out what telephones forward calls to this telephone.**

Do a TNB printout of the telephones. Refer to the *Basic programming instructions* module in this book for more information. Look for telephones where:

— the FDN is the DN of this telephone

— the EFD is the DN of this telephone (if CFTA in Class of Service)

Go to step 10.

7	**Program the new telephone so all unanswered calls forward to the Hunt DN and Second Level forwarding is allowed.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	**Do**
telephone is dial or Digitone-type	step 8
telephone is digital or SL-1-type	step 9

— continued —

Second Level Call Forward No Answer

STEP	ACTION
8	**Program the new dial or Digitone-type telephone so all unanswered calls forward to the Hunt DN and Second Level forwarding is allowed.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 1–6 for information.

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt CLS

CLS	FNA SFA	Call Forward No Answer allowed Second Level Call Forward No Answer allowed

Go to step 20.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
9	**Program the new digital or SL-1-type telephone so all unanswered calls forward to the Hunt DN and Second Level forwarding is allowed.**

> LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 7–19 for information.

carriage return until you see the prompt CLS

CLS	FNA SFA	Call Forward No Answer allowed Second Level Call Forward No Answer allowed

carriage return until you see the prompt HUNT

HUNT	X..X	Input the DN to which calls are to forward and Hunt, if you are also allowing Hunting. X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 20.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
10	**Program the new telephone so all unanswered calls forward to the flexible Call Forward No Answer DN and Second Level forwarding is allowed.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book.

If	Do
telephone is dial or Digitone-type	step 11
telephone is digital or SL-1-type	step 12

STEP	ACTION
11	**Program the new dial or Digitone-type telephone so all unanswered calls forward to the FDN and Second Level forwarding is allowed.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 1–6 for information.
carriage return until you see the prompt CLS		
CLS	FNA SFA	Call Forward No Answer allowed Second Level Call Forward No Answer allowed
carriage return until you see the prompt FTR		
FTR	FDN X..X	Input the DN to which calls are to forward, X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

Go to step 20.

— continued —

Second Level Call Forward No Answer

STEP	ACTION		
12	**Program the new digital or SL-1-type telephone so all unanswered calls forward to the FDN and Second Level forwarding is allowed.**		
	> LD 11		
	REQ	NEW	Program a new telephone
	TYPE		Input correct type of SL-1 or digital telephone
	TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
	program the basics...		Refer to Tasks 7–19 for information.
	carriage return until you see the prompt FDN		
	FDN	X..X	Input the DN to which calls are to forward. X..X represents a DN. 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	carriage return until you see the prompt CLS		
	CLS	FNA SFA	Call Forward No Answer allowed Second Level Call Forward No Answer allowed
	Go to step 20.		

— continued —

Second Level Call Forward No Answer

STEP	ACTION	
13	**Choose your next step from the choices below.**	
	If	**Do**
	you want to change the number of rings before calls forward	Ask your system supplier to program the change in LD 15.
	you want to change the call treatments for any of the call types	Ask your system supplier to program the change in LD 15.
	you want to change a telephone from Second Level Call Forward No Answer denied to allowed	Print out a TN Block for the telephone you are about to change. Refer to *Basic programming instructions* for help. Ensure that the pre-requisite Call Forward No Answer programming has been done. Ensure that FNA is programmed in the Class of Service and that there is an FDN programmed. If FDN does not appear, check for a HUNT DN. If these pre-requisites are not there, you must program them. Refer to Task 36, *Call Forward No Answer* for further information. When you have done this go to step 14.
	you want to change a telephone from Second Level Call Forward No Answer allowed to denied	step 17
	you want to change the DN to which calls forward	Refer to Task 36, *Call Forward No Answer*.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
14	**Change the Class of Service of the telephone to allow Second Level Call Forward No Answer.**

Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.

> LD 10 or > LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 15.
not using “Easy Change”	Input NO or <cr> and go to step 16.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
15	**Program an "Easy Change" to an existing telephone to allow Second Level Call Forward No Answer.**
	ITEM CLS SFA — Change Class of Service to allow Second Level Call Forward No Answer
	Go to step 20.
16	**Program a change (not an "Easy Change") to an existing telephone to allow Second Level Call Forward No Answer.**
	carriage return until you see the prompt CLS
	CLS SFA — Second Level Call Forward No Answer allowed
	Go to step 20.
17	**Change the Class of Service of the telephone to deny Second Level Call Forward No Answer.**
	Log in. For information on proper login procedures, refer to *Basic programming instructions* in this book. Check there also for the overlay program to use for the kind of telephone you are programming.
	> LD 10 or > LD 11
	REQ CHG — Program a change on an existing telephone
	TYPE — Input correct type of 500, digital, or SL-1-type telephone
	TN L S C U — Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
	ECHG

— continued —

Second Level Call Forward No Answer

STEP	ACTION
17 continued ...	
	If — **Do** using “Easy Change “ — Input YES and go to step 18. not using “Easy Change” — Input NO or <cr> and go to step 19. For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.
18	**Program an “Easy Change” to an existing telephone to allow Second Level Call Forward No Answer.**
	ITEM CLS SFD — Change Class of Service to deny Second Level Call Forward No Answer Go to step 20.
19	**Program a change (not an “Easy Change”) to an existing telephone to deny Second Level Call Forward No Answer.**
	carriage return until you see the prompt CLS **CLS** SFA — Second Level Call Forward No Answer denied Go to step 20.

— continued —

Second Level Call Forward No Answer

STEP	ACTION
20	**Finish the overlay program.**

Carriage return until you see one of the following messages:

`U.data P.data` small systems

or

`MEM AVAIL: (U/P) USED:TOT:` large systems

When one of these messages appears, your Service Change has been entered into the memory.

21	**Check that the programming which you have just done is correct.**

Place calls to a telephone that forwards unanswered calls to the telephone you just programmed. Let it ring unanswered. Let the call forward and ring unanswered at the telephone you just programmed. Make sure the expected treatment happens.

If	**Do**
feature works properly	step 22
feature does not work properly	step 1

22	**Arrange for a data dump to be performed.**

If	**Do**
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 23

— continued —

Second Level Call Forward No Answer

STEP	ACTION
23	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

24	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 25

— continued —

Second Level Call Forward No Answer

STEP	ACTION
25	**Terminate this overlay program.**
	. ****
26	**Terminate this programming session.**
	Log off. **>** LOGO
27	**You have completed the programming required to add or change the Second Level Call Forward No Answer feature on a telephone.**
	END

Second Level Call Forward No Answer

User Selectable Call Redirection

Purpose

This feature allows telephone users to change two different things associated with the programming of their telephones.

- They can individually select and change the number of times the telephone rings before it forwards to another Directory Number (DN).

  Users can choose different ringing options at different times, as their needs change. Or you might want this feature so that each user can choose the option that suits them best.

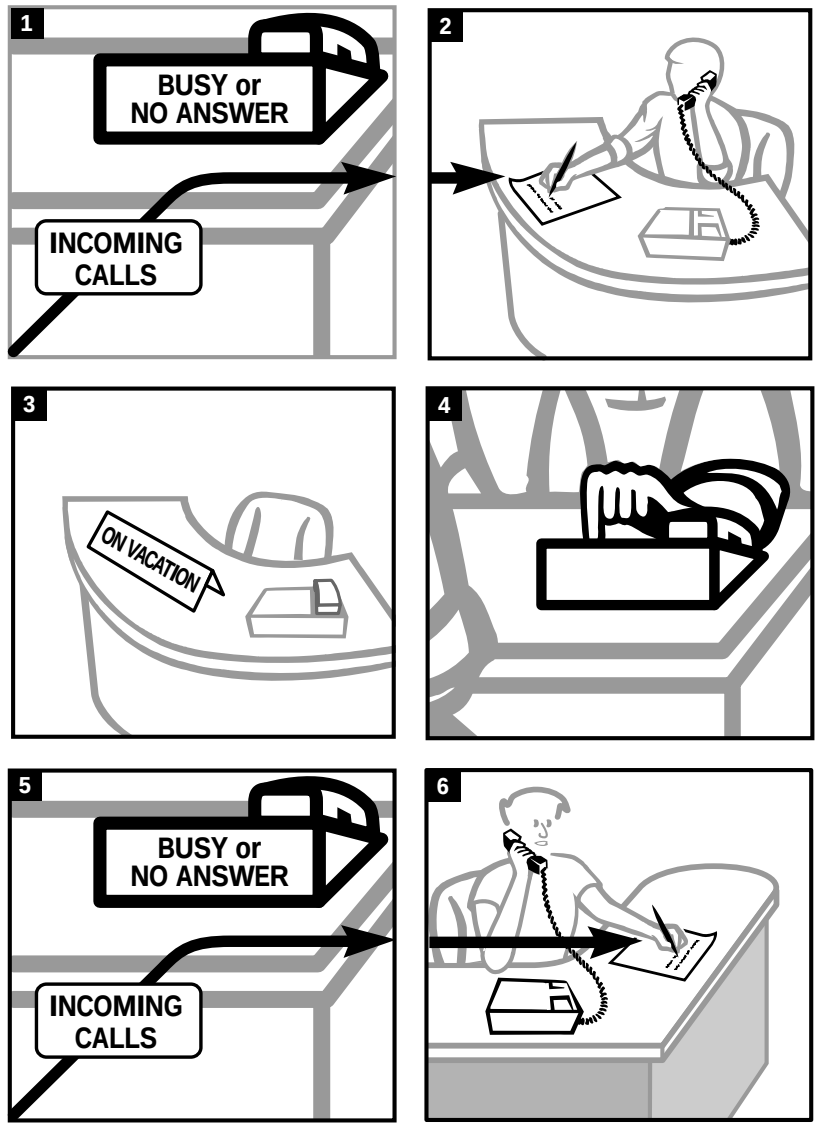
  In different working environments in the same building, each user might have different requirements. Some users, in warehouse environments for example, prefer to let telephones ring for a long time in order to give people who work away from their desks a chance to answer. Other users, in office settings, prefer not to allow the telephone to ring for too long to reduce the amount of noise in the office.

- It also allows the user to change the DN(s) to which calls go when the telephone rings with no answer and when it is busy.

All of these changes can be made from the telephone itself.

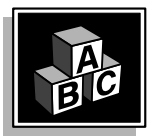
User Selectable Call Redirection

User changing redirection DNs



553-0100T USCR

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the User Selectable Call Redirection feature
- what you need to know to manage interactions with other features

Setting up the feature

You select the telephones that are to have the User Selectable Call Redirection (USCR) capability, then you use the procedure in this module to program each one.

You must meet the following software requirements.

Table 236
Software requirements

Release required	Software package(s) required
19	139 – Flexible Feature codes (FFC)

Ringing Cycle Options

This feature gives telephone users a choice between three different ringing options. These options determine how many times the telephone will ring before the Call Forward No Answer feature redirects the call to another DN.

You must program, on a customer group basis, how many times the telephones will ring for the three different options.

You must also program the default ringing option for each telephone. This determines the number of times it rings before forwarding calls, if the user does not choose any other ringing option from the telephone.

User Selectable Call Redirection

Passwords

For security reasons, this feature can only be used when the user dials a Station Control Password. This prevents users from changing the ringing options or the redirection DNs of other users without them knowing.

Also, the feature can only be activated from the telephone which is being affected. Users at other telephones cannot change the programming of other users' telephones using this feature, even if they know the passwords.

You choose the number of digits in the passwords for the entire customer group. This number is programmed in the Customer Data Block. Talk to your system supplier about programming it once you have decided how many digits you want. The range is one to eight digits. If it is set at zero, the User Selectable Call Redirection feature is disabled.

Telephones

You select the telephone users who need this feature. You activate the following things in the programming of their telephones:

- default Ringing Cycle Option
- Station Control Password
- User Selectable Call Redirection Class of Service
- redirection DN(s) for the Hunting and Call Forward No Answer features

The Hunt DN and/or the Call Forward No Answer DN must be pre-programmed in the database for a telephone in order for a user to be able to change the DNs using this feature.

SL-1-type and digital telephones can be configured with a key for this feature. The Class of Service must still be User Selectable Call Redirection allowed. The user of one of these types of telephones can choose to activate the feature using the key or the dial access methods discussed below.

Using the feature

Special Prefix Code (SPRE) method

There is a standard feature access code “9915,” which works from any telephone, if it has the USCR feature enabled.

To use this, you dial 9915 after the Special Prefix (SPRE) code configured for your customer group. For more information on the Special Prefix code, refer to the *You should know this* module in this book.

Users must dial a code between 1 and 5 to tell the system which item, of five possible choices, they want to reprogram using this feature.

The codes and what they represent are shown in the following table.

Table 237
USCR codes and functions

Code	Used to program
1	Call Forward No Answer DN (Call Forward No Answer DN for internal calls, if Call Forward by Call Type activated *)
2	Hunt DN (Hunt DN for internal calls, if Call Forward by Call Type activated*)
3	Call Forward No Answer DN for external calls, if Call Forward by Call Type activated*
4	Hunt DN for external calls, if Call Forward by Call Type activated*
5	Ringing Cycle Option

* for more information on Call Forward by Call Type see Task 35, *Call Forward by Call Type (Hunting Option)* and Task 34, *Call Forward by Call Type (Call Forward No Answer Option)*.

To use the feature, the user first lifts the handset or gets dial tone by pressing a DN key, if the telephone has keys. For options one to four, the digits a user dials next are:

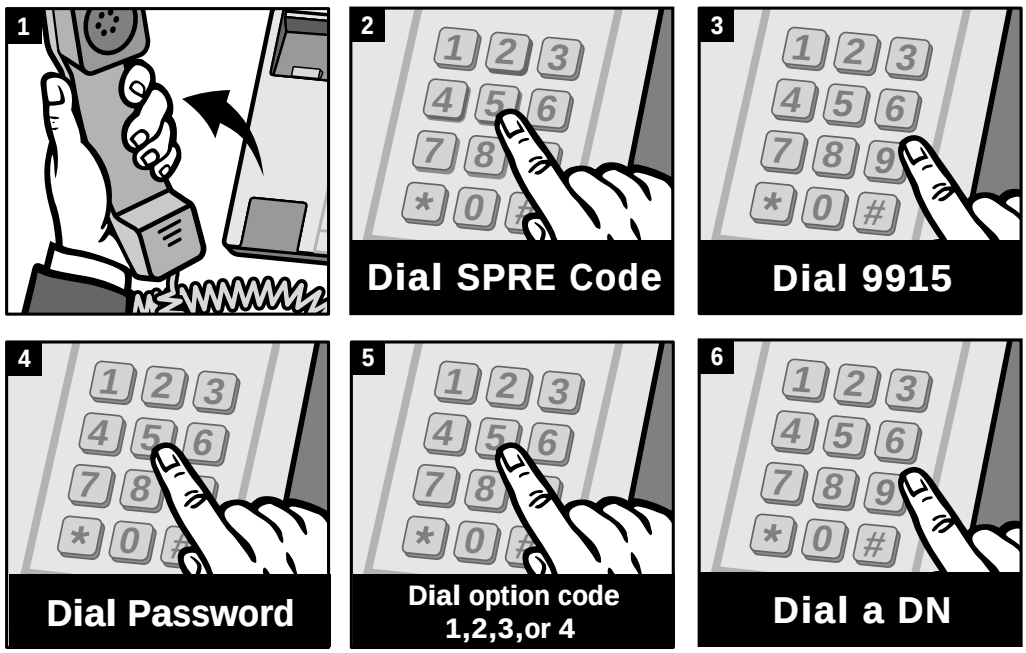
SPRE + 9915 + Station Control Password + USCR option code 1, 2, 3 or 4 + new redirection DN.

User Selectable Call Redirection

For option five, the digits are:

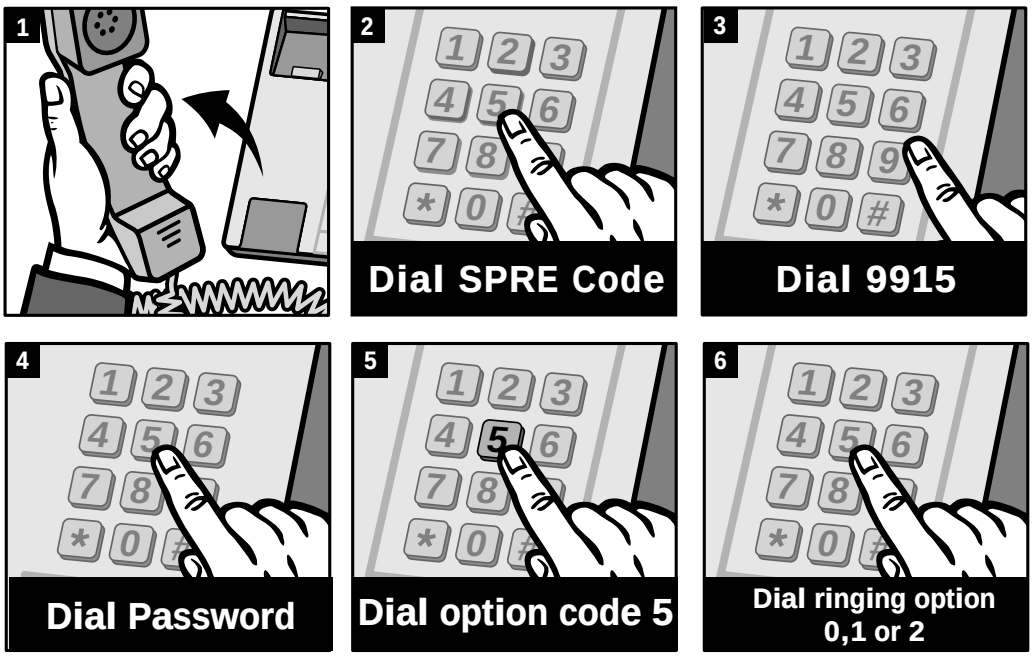
SPRE + 9915 + Station Control Password + USCR option code 5 + Ringing Cycle Option 0, 1 or 2.

SPRE method for changing redirection DNs



553-0101T USCR

SPRE method for changing Ringing Cycle Options



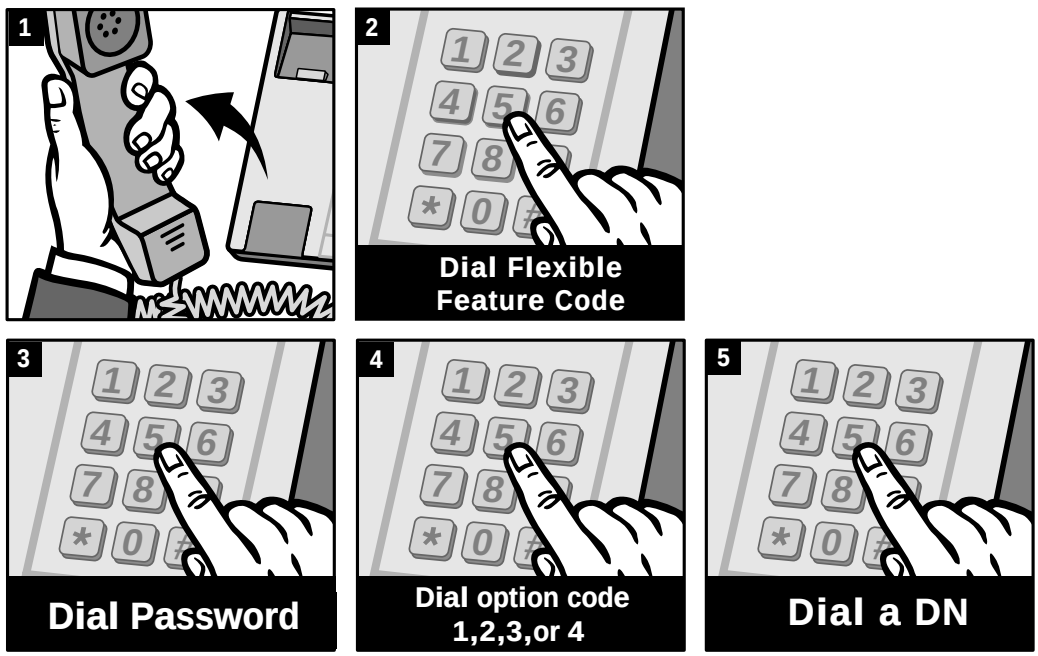
553-0102T USCR

User Selectable Call Redirection

Flexible Feature Code (FFC) method

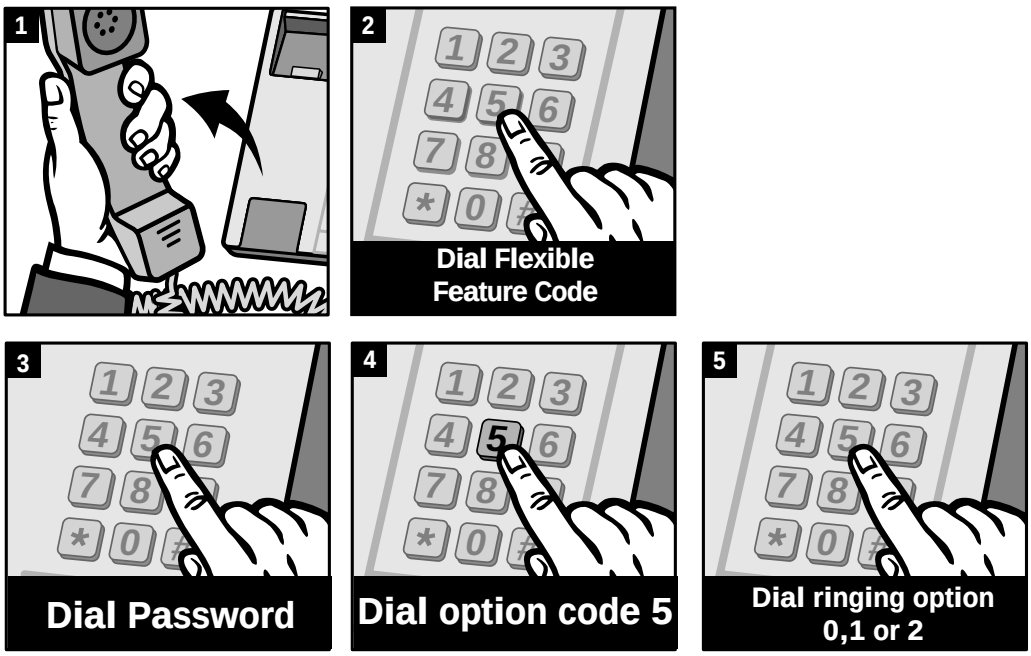
You can also use a Flexible Feature Code if you or your system supplier programs a code for this feature in overlay program 57. This method might be easier to remember than the SPRE method. This code works from any telephone which has the USCR feature enabled. Talk to your system supplier about activating the Flexible Feature Code, if you want it.

FFC method for changing redirection DNs



553-0103T USCR

FFC method for changing Ringing Cycle Options



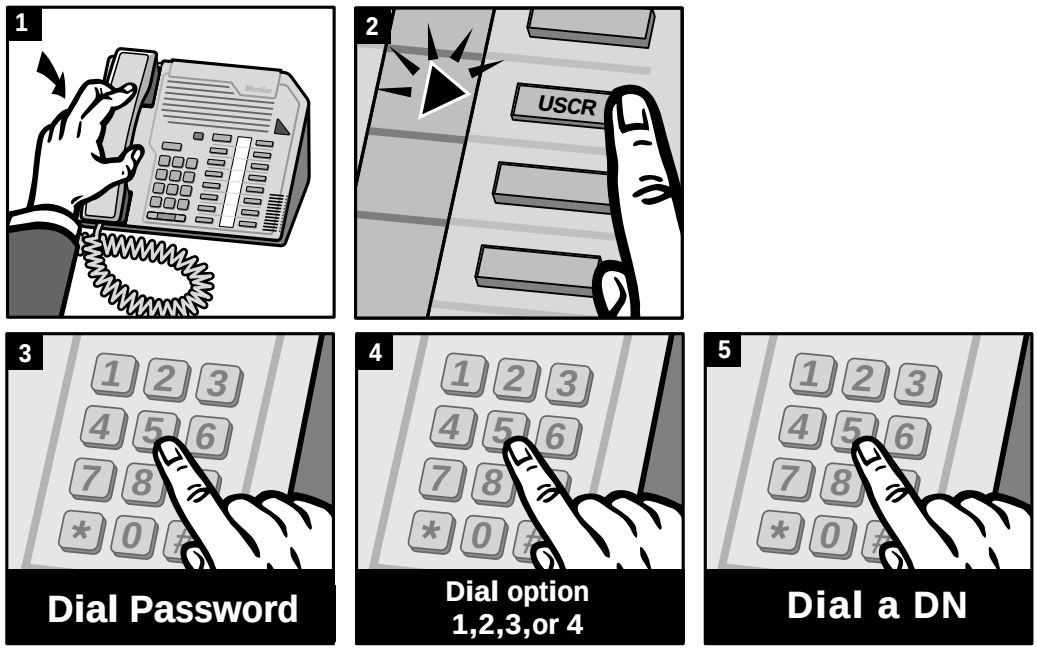
553-0104T USCR

User Selectable Call Redirection

Key method (SL-1-type or digital telephones only)

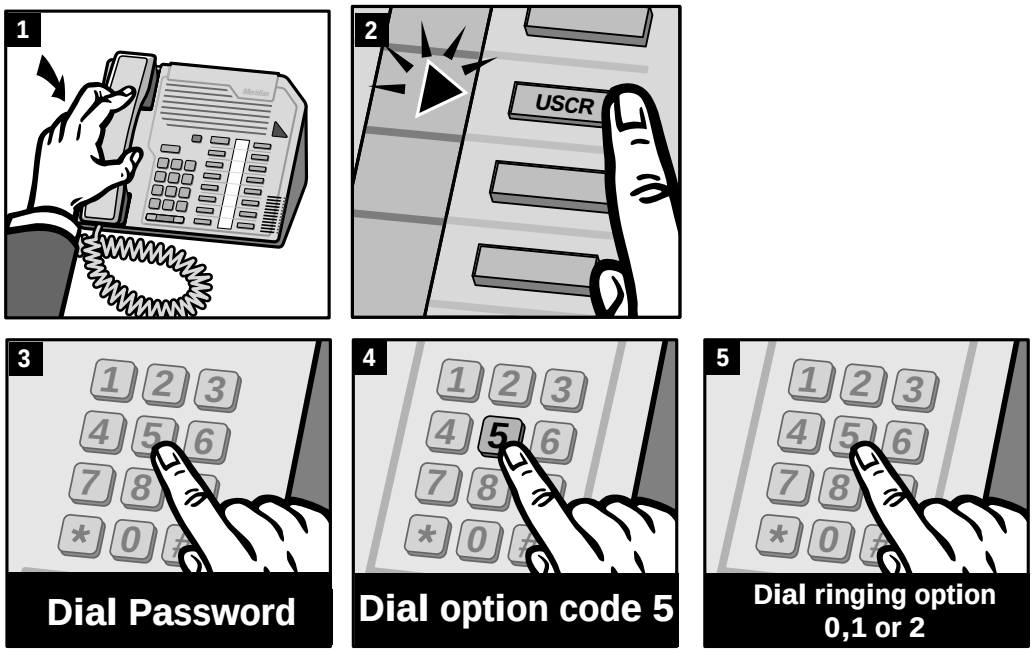
If the Class of Service has the USCR feature allowed, then you can assign a key for this feature. This makes access to the feature very convenient. The user does not have to remember the feature code (either SPRE or FFC method). However, if the user prefers to dial either one of these codes, these types of telephone can be used.

Key method for changing redirection DNs



553-0105T USCR

Key method for changing Ringing Cycle Options



553-0106T USCR

Basic Rate Interface (BRI)

Basic Rate Interface (BRI) telephones are excluded from the use of the USCR feature. These telephones cannot be used for features requiring key access and SPRE codes and FFCs cannot be dialed from them either.

When you program this kind of telephone, the Ringing Cycle Option is set at the default, which is option 0. For the Call Forward No Answer feature to work, these telephones ring the number of times defined for Ringing Cycle Option 0 in the Customer Data Block.

User Selectable Call Redirection

Interactions with other features

User Selectable Call Redirection works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services*.

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Call Forward No Answer and Message Waiting interact with USCR

The only telephones for which you can activate the USCR Ringing Cycle Option are those with Call Forward No Answer allowed or Message Waiting allowed in the Class of Service.

Call Forward by Call Type interacts with USCR

With Call Forward by Call Type activated in the Class of Service of a telephone, the two features Call Forward No Answer and Hunting are affected. For each telephone you can program a different DN for each of the following situations:

- internal calls which are unanswered
- external calls which are unanswered
- internal calls to telephone when busy
- external calls to telephone when busy

For more information, refer to Task 34, *Call Forward by Call Type (Call Forward No Answer Option)* and Task 35, *Call Forward by Call Type (Hunting Option)*.

The USCR feature allows the user to change, from the telephone, the DN pre-programmed for any of the four features listed above.

Distinctive Ringing interacts with USCR

You can ask to have Trunk groups programmed for Distinctive Ringing. If you do this, calls coming in on these Trunk groups ring the telephones in a different way from regular calls. Users can tell what kind of call is ringing the telephone before answering.

On a customer group basis you decide the number of distinctive rings which is considered to be an unanswered call. With USCR operating, there are three Ringing Cycle Options for Distinctive ringing just like there are three Ringing Cycle Options for non-distinctive ringing calls.

When you program a telephone, you give it a particular Ringing Cycle Option. The user might choose a different one with the USCR feature. Non-distinctive ringing calls will ring the number of times programmed for that customer option and distinctive ringing calls will ring the number of times programmed for that customer-wide option.

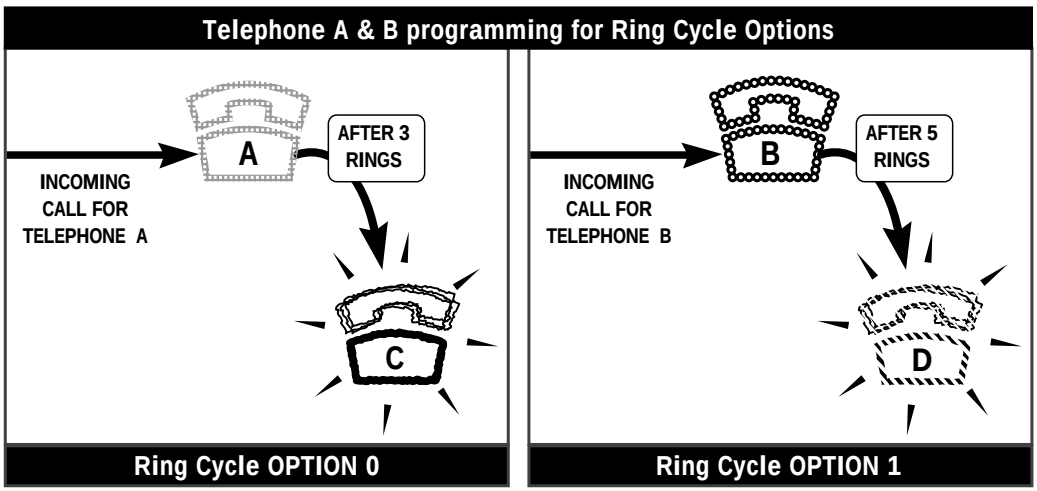
For example, if you assign Ringing Cycle Option 1 to a telephone, and the customer-wide choice for option 1 (non-distinctive) is 3 rings and (distinctive) is 2 rings, the telephone will ring 3 times for non-distinctive calls and twice for distinctive calls, before the Call Forward No Answer feature will redirect the call.

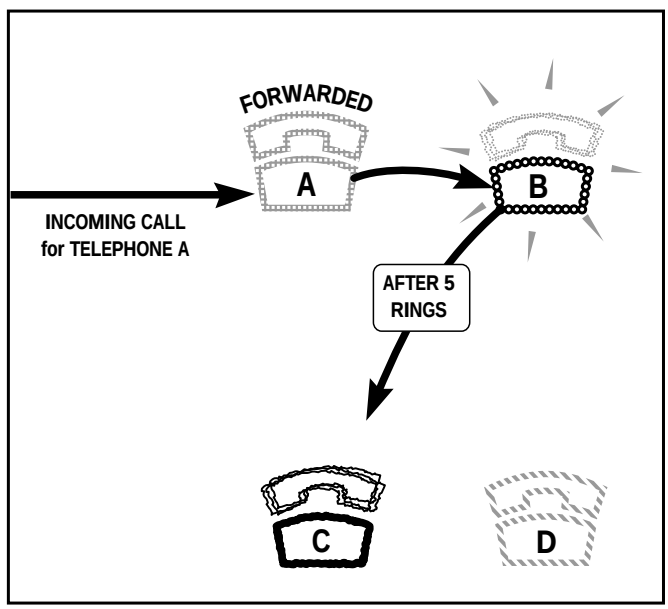
It is important to make users aware of this, otherwise they might report inconsistent ringing as a problem.

User Selectable Call Redirection

Call Forward All Calls interacts with USCR

If a telephone user has Call Forwarded calls to another DN, and a call comes in which rings no answer, it is the Ringing Cycle Option programmed for the other telephone which determines how many times it rings before the Call Forward No Answer feature redirects the call. The call is redirected to the DN which is programmed for the Call Forward No Answer feature at the original telephone.





553-0107T USCR

Second Level Call Forward No Answer interacts with USCR

With this feature you can program a telephone to allow an unanswered call to try another DN, and if it isn't answered there, to try another DN. The limit is two different DNs for one call. The number of times the telephones ring before the call is forwarded is determined by the Ringing Cycle Option programmed at each ringing telephone.

Multiple Appearance Redirection Prime (MARP) interacts with USCR

In a shared (Multiple Appearance) DN situation, on systems using Release 18 or later software, you can designate one of the telephones as prime for redirection features. If the users of the telephones with the Multiple DNs use the USCR feature, the system uses the MARP telephone programming as the prime for the feature.

For more information on MARP and also the way the system operates on pre-Release 18 systems, refer to Task 39, *Multiple Appearance DN Redirection Prime*.

Hunting interacts with USCR

Short Hunting can be programmed on SL-1-type and digital telephones. For more information on this type of Hunting and the Hunting feature in general, refer to Task 37, *Hunting*.

The digits you use in response to the HUNT prompt in the overlay program when you implement Short Hunting are 000, instead of entering the digits in a DN. A user who wants to change to Short Hunting cannot enter 000 using the USCR feature and a user who already has 000 programmed, cannot change it to a DN using USCR. These changes must be made by a programmer.

User Selectable Call Redirection

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Control tips

- If you have User Selectable Call Redirection in place, you might want to print the DNs which users are programming on a regular basis. If you have a network, users might be programming DNs which are actually in other switches and this might be causing confusion to your callers. Tell users what DNs are acceptable for them to program and tell them you are doing regular printouts to check this.

Administration tips

- Decide what number of rings to choose for each of the three Ringing Cycle Options. Ask many different types of users for a good cross-section of the different users' requirements. Do the same for Distinctive Ringing Cycle Options, if you are using it.
- Choose the most common number of rings for Ringing Cycle Option 0 since that is the default when you program a new telephone
- The Password length should be long enough to make it difficult to figure out another user's password, but not so long that the feature is inconvenient to use. A length over four digits is recommended.
- There are messages, called CSC messages, which printout on the technician's printer when users program using the USCR feature from the telephones. The messages which can be most useful are those which indicate the user has made a mistake in inputting the digits. If that user calls in a repair problem, the message can help sort out the problem. You can use the messages to find out who you need to retrain. Talk to your system maintainer about this.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Tell users what number of rings each Ringing Cycle Option is. Tell them what the default setting on the telephones is.
- Decide which method of feature activation you want users to know about. Tell them what the SPRE code is and/or the FFC, depending on the method you choose.
- Tell the users what their Station Control Passwords are and how to change one from the telephone. Stress the confidential nature of the Password.
- This feature is going to require practice to make users comfortable. Include practice in your training sessions.
- Make users aware of any interactions of this feature with others to minimize the number of repair calls you get.

User Selectable Call Redirection

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 238
Checklist

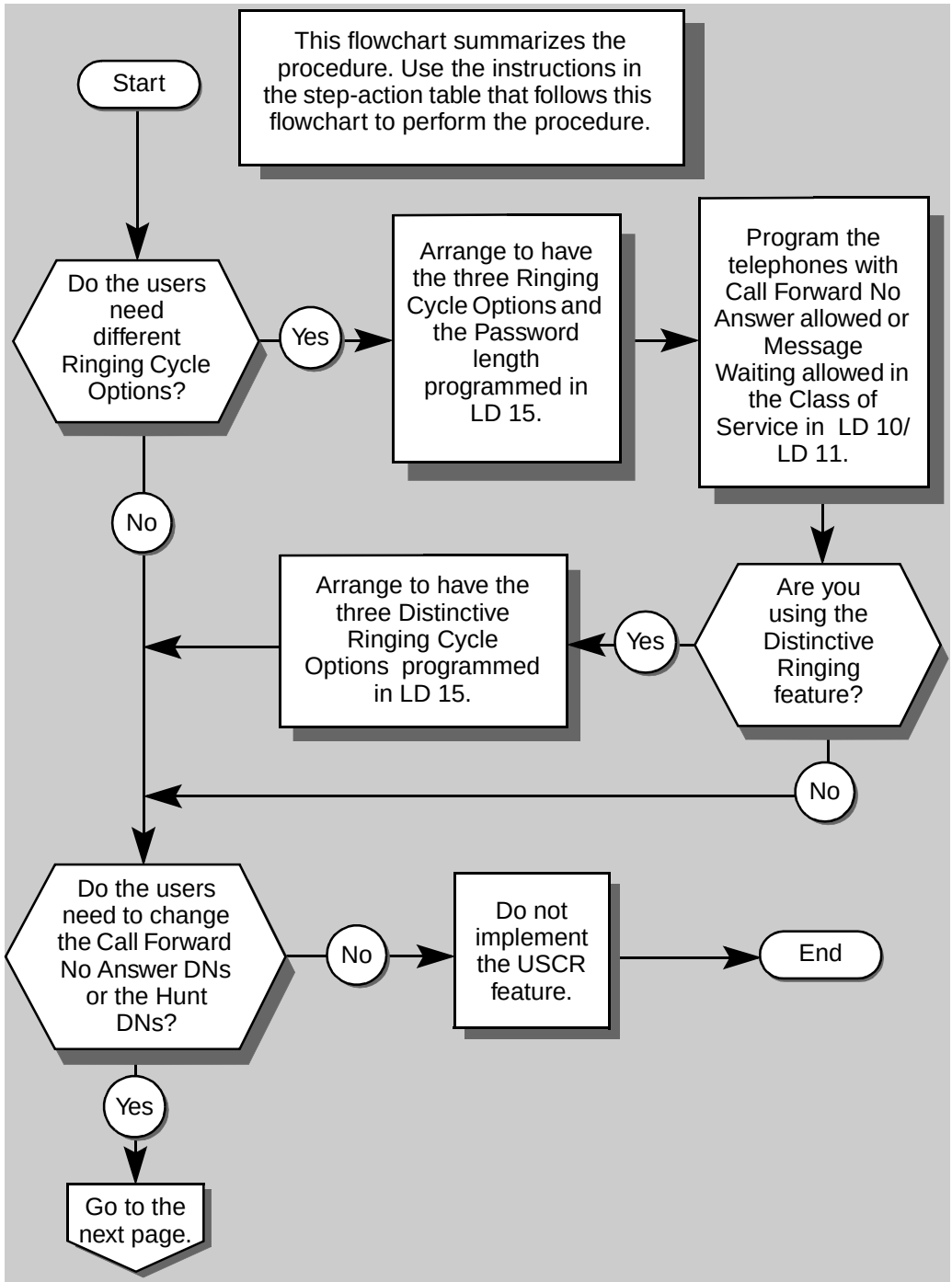
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide how many rings to program for Ringing Cycle Options 0, 1 and 2 for the customer group.
✔		Decide on the Password length for the customer group.
✔		Decide what DNs to program for Hunting and Call Forward No Answer for each telephone.
✔		Decide what users need a key for the feature.
✔		On systems with software previous to Release 18: If users must share prime DNs, strongly encourage them to use the same internal and external Hunt DNs for all telephones sharing the DN.
✔		On systems with software Release 18 or later: If users must share prime DNs decide on the MARP TN which is appropriate for the group's needs. Tell the users involved.
	✔	Decide how many distinctive rings to program for Distinctive Ringing Cycle Options 0, 1 and 2 for the customer group.
	✔	Select a Flexible Feature code.

What's next?

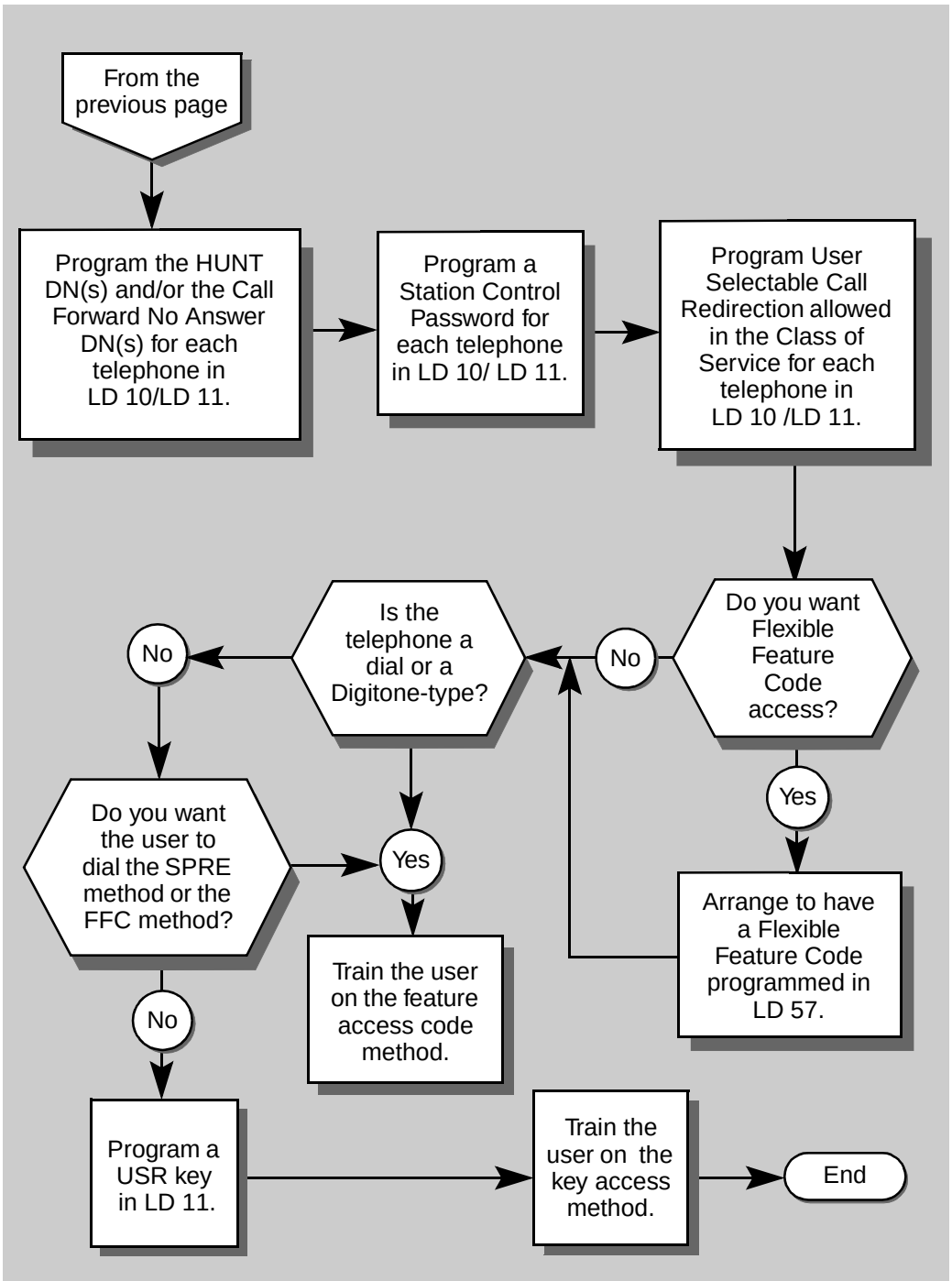
A flowchart follows which summarizes the implementation decisions and procedures for User Selectable Call Redirection.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

User Selectable Call Redirection



User Selectable Call Redirection



User Selectable Call Redirection

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the User Selectable Call Redirection feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Choose your starting point from the choices below.**

If	Do
user needs selectable Ringing Cycle Options and the three options are not programmed already	step 3
user needs selectable call redirections only and Password length is not programmed yet	step 6
user needs selectable Ringing Cycle Options or call redirections and the options and Password length are programmed already	step 7

— continued —

STEP	ACTION

3 Arrange to have Ringing Cycle Options programmed.

Choose the number of rings for the three Ringing Cycle Options.

If you do not have access to LD 15, the Customer Data Block, arrange to have your system maintainer program these values.

CAUTION
Check your maintenance agreement before working in LD 15.

Refer to the *X11 input/output guide* for further information.

4 Decide on Distinctive Ringing Cycle Options.

If	Do
you do not have Distinctive Ringing programmed on any Trunk groups	step 6
you have Distinctive Ringing programmed on your Trunk groups	step 5

— continued —

User Selectable Call Redirection

STEP	ACTION
5	**Arrange to have Distinctive Ringing Cycle Options programmed.**

Choose the number of rings for the three Distinctive Ringing Cycle Options.

If you do not have access to LD 15, the Customer Data Block, arrange to have your system maintainer program these values.

CAUTION
Check your maintenance agreement before working in LD 15.

Refer to the *Software Input/Output Guide Book 1 of 2* for further information.

STEP	ACTION
6	**Arrange to have the Station Control Password length programmed.**

Choose the number of digits in the Station Control Passwords.

If you do not have access to LD 15, the Customer Data Block, arrange to have your system maintainer program these values.

CAUTION
Check your maintenance agreement before working in LD 15.

Refer to the *X11 input/output guide* for further information.

— continued —

User Selectable Call Redirection

STEP	ACTION
7	**Ensure the telephone has the correct Class of Service.**

If	Do
you are programming a new telephone	Allow Call Forward No Answer (FNA) or Message Center (MWA) (if appropriate) in Class of Service. Refer to Task 36, *Call Forward No Answer* or Task 24, *Message Center* for instructions. Return to step 8 after you do this.
you are programming a change to an existing telephone	Do a TNB printout of the telephone you are checking. Refer to *Basic programming instructions* for more information. Look at the Class of Service (CLS). Make sure either Call Forward No Answer is allowed (FNA) or Message Waiting is allowed (MWA).

If	Do
Class of Service is correct	step 8
Class of Service is not correct	Activate the proper Class of Service. Refer to Task 36, *Call Forward No Answer* or Task 24, *Message Center*. Return to step 8 after you do this.

8	**Program the telephone.**

If	Do
new dial or Digitone -type telephone	step 9
changing an existing dial or Digitone -type telephone	step 18
new digital or SL-1-type telephone	step 12
changing existing digital or SL-1-type telephone	step 18

— continued —

User Selectable Call Redirection

STEP	ACTION
9	**Choose the type of redirection feature changes you want the user to make.**

If	Do
you are not activating Call Forward by Call Type and you want users to change Hunt DN and /or Call Forward No Answer DN	step 10
you are activating Call Forward by Call Type and users are to change internal and external Hunt DNs and internal and external Call Forward No Answer DNs	step 11

10 **Program a new dial or Digitone -type telephone without Call Forward by Call Type allowed.**

```
> LD 10
```

REQ	NEW	Program a new telephone
TYPE	500	Dial or Digitone-type telephone
TN	L S C U	Input the Terminal Number(TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 1–6 for information.

step 10 continues.....

— continued —

STEP	ACTION

10 continued ...

carriage return until you see the prompt HUNT

HUNT X..X — If you want user to be able to change the DN, input the DN to which calls are to Hunt

X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt SCPW

SCPW X..X — Number of digits in password must equal the number of digits programmed in LD 15 for Password length (1–8)

SCPW prompt does not appear, if password length is 0 in LD 15

carriage return until you see the prompt CLS

CLS FNA HTA USRA — FNA required if selectable RCO needed (MWA can replace FNA, if you are using Message Center software).
Hunting allowed is required if Hunt DN to be programmed and to be user selectable.
USRA required for USCR feature.

carriage return until you see the prompt RCO

RCO — Input 1 or 2 — default is 0. These relate to the Ringing Cycle Options which were pre-programmed in LD 15.

carriage return until you see the prompt FTR

— continued —

User Selectable Call Redirection

STEP	ACTION
10 continued ...	
	FTR FDN X..X — If you want user to be able to change the DN, input the Flexible Call Forward No Answer DN X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection) Refer to Task 36, *Call Forward No Answer*.
	Go to step 17.
11	**Program a new dial or Digitone -type telephone with Call Forward by Call Type allowed.**
	> LD 10
	REQ NEW — Program a new telephone
	TYPE 500 — Dial or Digitone-type telephone
	TN L S C U — Input the Terminal Number(TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics... — Refer to Tasks 1–6 for information.
	carriage return until you see the prompt HUNT
	HUNT X..X — If you want user to be able to change the DN, input the DN to which internal calls are to Hunt X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

— continued —

STEP	ACTION

11 continued ...

carriage return until you see the prompt SCPW

SCPW X..X — Number of digits in password must equal the number of digits programmed in LD 15 for Password length (1–8)

SCPW prompt does not appear, if password length is 0 in LD 15

carriage return until you see the prompt CLS

CLS FNA HTA CFTA USRA

FNA is required if selectable RCO needed (MWA can replace FNA, if you are using Message Center software).
Hunting allowed is required if Hunt DN to be programmed and to be user selectable.
CFTA is required for redirecting calls by call type. Refer to Tasks 34 and 35.
USRA is required for USCR feature.

carriage return until you see the prompt RCO

RCO — Input 1 or 2 — default is 0. These relate to the Ringing Cycle Options which were pre-programmed in LD 15.Carriage return until you see the prompt FTR.

FTR FDN X..X — If you want user to be able to change the DN, input the Flexible Call Forward No Answer DN for internal calls
X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
Refer to Task 36, *Call Forward No Answer* for more information.

— continued —

User Selectable Call Redirection

STEP	ACTION		
11 continued ...			
	FTR	EFD X..X	If you want user to be able to change the DN, input the External Flexible Call Forward No Answer DN X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection Refer to Task 34, *Call Forward by Call Type (Call Forward No Answer Option)* for more information.
	FTR	EHT X..X	If you want user to be able to change the DN, input the External Hunt DN X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection Refer to Task 35, *Call Forward by Call Type (Hunting Option)* for more information.
	Go to step 17.		
12	**Choose the type of redirection feature changes you want user to make.**		
	If		**Do**
	you are not activating Call Forward by Call Type and you want users to change Hunt DN and /or Call Forward No Answer DN		step 13
	you are activating Call Forward by Call Type and users are to change internal and external Hunt DNs and internal and external Call Forward No Answer DNs		step 14

— continued —

STEP	ACTION		
13	**Program a new digital or SL-1-type telephone without Call Forward by Call Type allowed.**		
	> LD 11		
	REQ	NEW	Program a new telephone
	TYPE		Input correct type of SL-1 or digital telephone
	TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics...		Refer to Tasks 7–19 for information.
	carriage return until you see the prompt FDN		
	FDN	X..X	If you want user to be able to change the DN, input the Flexible Call Forward No Answer DN X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection) Refer to Task 36, *Call Forward No Answer* for more information.
	carriage return until you see the prompt SCPW		
	SCPW	X..X	Number of digits in password must equal the number of digits programmed in LD 15 for Password length (1–8) SCPW prompt does not appear, if password length is 0 in LD 15
	carriage return until you see the prompt CLS		
	CLS FNA HTA USRA		FNA is required if selectable RCO needed (MWA can replace FNA, if you are using Message Center software). Hunting allowed is required if Hunt DN to be programmed and to be user selectable. USRA is required for USCR feature.

— continued —

User Selectable Call Redirection

STEP	ACTION
13 continued ...	
	carriage return until you see the prompt RCO
	RCO — Input 1 or 2 — default is 0. These relate to the Ringing Cycle Options which were pre-programmed in LD 15.
	carriage return until you see the prompt HUNT
	HUNT X..X — If you want user to be able to change the DN, input the DN to which calls are to Hunt X..X represents a DN 1–4 digits prior to Release 13 1–7 digits Release 13 and later 1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
	Go to step 17
14	**Program a new digital or SL-1-type telephone with Call Forward by Call Type allowed.**
	> LD 11
	REQ NEW — Program a new telephone
	TYPE — Input correct type of SL-1 or digital telephone
	TN L S C U — Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	program the basics... — Refer to Tasks 7–19 for information.

— continued —

STEP ACTION

14 continued ...

carriage return until you see the prompt FDN

FDN X..X

If you want user to be able to change the DN, input the Flexible Call Forward No Answer DN for internal calls
X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)
Refer to Task 36, *Call Forward No Answer* for more information.

carriage return until you see the prompt SCPW

SCPW X..X

Number of digits in password must equal the number of digits programmed in LD 15 for Password length (1–8)

SCPW prompt does not appear, if password length is 0 in LD 15

carriage return until you see the prompt CLS

CLS FNA HTA USRA CFTA

FNA is required if selectable RCO needed (MWA can replace FNA, if you are using Message Center software).
HT A is required if Hunt DN to be programmed and to be user selectable.
USRA is required for USCR feature.
CFTA is required for redirecting calls by call type. Refer to Tasks 34 and 35.

carriage return until you see the prompt RCO

RCO

Input 1 or 2 — default is 0. These relate to the Ringing Cycle Options which were pre-programmed in LD 15.

— continued —

User Selectable Call Redirection

STEP	ACTION

14 continued ...

carriage return until you see the prompt EFD

EFD X..X — If you want user to be able to change the DN, input the External Flexible Call Forward No Answer DN
X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection
Refer to Task 36, *Call Forward No Answer* for more information.

carriage return until you see the prompt HUNT

HUNT X..X — If you want user to be able to change the DN, input the DN to which internal calls are to Hunt

X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection)

carriage return until you see the prompt EHT

EHT X..X — If you want user to be able to change the DN, input the External Hunt DN
X..X represents a DN
1–4 digits prior to Release 13
1–7 digits Release 13 and later
1–13 digits Release 14 and later (see ISDN Primary Rate Interface, Network Call Redirection
Refer to Task 35, *Call Forward by Call Type (Hunting Option)* for more information.

Go to step 17.

— continued —

STEP	ACTION
15	**Determine the method of feature access.**

If	Do
users are to have Flexible Feature Code access	Arrange to have a feature code programmed in LD 57, if it is not already programmed. Then go to step 22.
the user is to have a key for the feature on a digital or SL-1-type telephone	step 16
users are to have SPRE code access	step 22

16 Assign a feature key to a telephone.

```
> LD 11
```

REQ	NEW	Program a new telephone
TYPE		Input correct type of SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

carriage return until you see the prompt KEY

KEY	XX USR	XX represents a key number USR feature can be assigned to the following key numbers, depending on the kind of telephone:

Key #	Telephone type
1–5	M2006
1–7	M2008
1–59	M2216, M2616
1–69	SL-1

— continued —

User Selectable Call Redirection

STEP	ACTION
17	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **`U.data P.data`** small systems or **`MEM AVAIL: (U/P) USED:TOT:`** large systems When one of these messages appears, your change has been entered into the memory. Go to step 22.
18	**Decide on the type of change you want to make.**

If	Do
you want to change the Password length	**CAUTION**: A data dump and SYSLOAD are required if you make this change. Contact your system supplier before you proceed.
you want to change the Flexible Feature Code	Arrange to have the code changed in LD 57. Retrain the users.
you want to change a user's Station Control Password	Tell the user how to do it with a Flexible Feature Code or re-program the Password in LD 10 or LD 11. Change the response to the SCPW prompt. Refer to *Basic programming instructions* for help with simple changes.
you want to add a USR key to an existing telephone	step 16, except you respond to the REQ prompt with CHG
you want to change a telephone from USCR allowed to USCR denied	Change the response to the CLS prompt from USRA to USRD. Refer to *Basic programming instructions* for help with simple changes. You do not have to remove the telephone's Password since it is used for other features. Go to step 22.
you want to change a telephone from USCR denied to USCR allowed	step 19

— continued —

STEP	ACTION

19 Change a telephone from USCR denied to allowed.

Do a DNB and TNB printout of the telephone to see what parameters are already programmed. Refer to *Basic programming instructions* in this book for further information.

Look at:

- SCPW for the Password
- Class of Service (CLS) for FNA, if selectable Ringing Cycle Options is required
- FDN, HUNT DN
- if Class of Service (CLS) is Call Forward by Call Type allowed (CFTA), look for the external (EHT) DN and external (EFD) DN.

> LD 10 or **>** LD 11

REQ	CHG	Program a change to an existing telephone
TYPE		Input correct type of 500 (dial or Digitone - type), SL-1 or digital telephone
TN	L S C U	Input the Terminal Number (TN) assigned to the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
ECHG		

If	**Do**
using “Easy Change”	Input YES and go to step 20.
not using “Easy Change”	Input NO or <cr> and go to step 21.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

— continued —

User Selectable Call Redirection

STEP	ACTION
20	**Program an "Easy Change" to an existing telephone.**

ITEM CLS USRA — Class of Service User Selectable Call Redirection allowed

ITEM — Program any required changes to SCPW, CLS, FDN, HUNT, EFD, EHT, or FTR based on what you saw in the TNB printout earlier. Refer to step 9 and step 12 for information about these prompts.

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Go to step 22.

— continued —

STEP	ACTION
21	**Program a change (not an "Easy Change") to an existing telephone.**

carriage return until you see the prompt CLS

CLS USRA Class of Service User Selectable Call Redirection allowed

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your change has been entered into the memory.

Note: Program any required changes to SCPW, CLS, FDN, HUNT, EFD, EHT, or FTR based on what you saw in the TNB printout earlier. Refer to step 9 and step 12 for information about these prompts.

Go to step 22.

22	**Check that the programming which you have just done is correct.**

Verify that the telephone behaves as expected when you attempt to use the User Selectable Call Redirection feature.

If	Do
feature works properly	step 23
feature does not work properly	step 1

— continued —

User Selectable Call Redirection

STEP	ACTION
23	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 24

STEP	ACTION
24	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

STEP	ACTION
25	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 26

26	**Terminate this overlay program.**

```
. ****
```

27	**Terminate this programming session.**

Log off.

```
> LOGO
```

28	**You have completed the programming required to add or change the User Selectable Call Redirection feature on a telephone.**

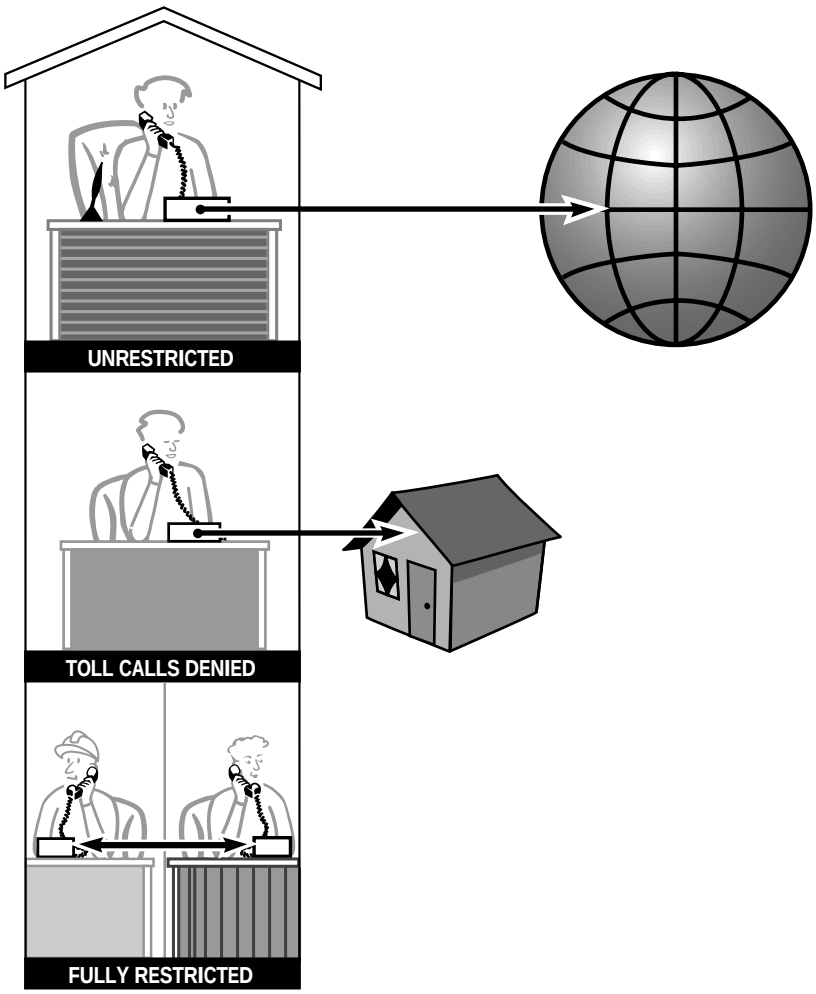
END

User Selectable Call Redirection

Access Restriction

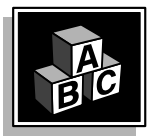
Purpose

You can use the Access Restrictions feature to limit terminal access to the exchange network, and private trunk network, and to control access to certain services and features.



553-0108T AR

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what you need to know to manage interactions with other features

The Access Restriction capability comes with the communication system. You select the telephones that you want to restrict, then you use the procedure in this module to program each one.

How does Access Restriction work?

When a user initiates a call, the system looks at the type of Access Restriction assigned to the telephone before a digit is dialed. As each digit is dialed, the system refers to the type of Access Restriction programmed for the telephone and based on that will either allow or deny the call.

If the type of Access Restriction assigned to the telephone is designed to restrict the digits that the user has dialed, the call is blocked immediately, even though the user might not have completed dialing.

The user hears whatever form of Intercept treatment is programmed in your Customer Data Block (LD 15) for calls blocked in this way. For further information on Intercept treatments, refer to the *Terms and abbreviations* section of this book.

The default Intercept treatment is Overflow tone, sometimes called *fast busy* tone or *re-order* tone.

Toll calls

Some types of Access Restriction specifically restrict *toll calls*. For the purposes of these restrictions, toll calls are defined as calls where the first or second digit following the access code is the digit 1 or 0.

Call modification

Some of the types of Access Restrictions are involved with what is called *call modification.* Call modification occurs when such features as Call Park, Call Pickup, Call Transfer or Conference or Night Service are used in call answering.

For example, if one user calls another user and asks that user to transfer the call out to a trunk, the call is *modified* by the Call Transfer feature.

Class of Service

You can enable and disable many features and services in the Class of Service programming of a telephone. Access Restriction is only one of many parts of the Class of Service.

The following types of terminals have a Class of Service; and therefore, you can assign Access Restrictions to them:

- dial or Digitone-type telephones
- digital or SL-1-type telephones
- Meridian Mail channels
- TIE trunks
- Authorization codes
- Direct Inward System Access (DISA) ports

Before programming you need to understand the requirements of the user or users of the terminal. Restriction requirements differ depending on whether the terminal is a telephone, or a trunk or an authorization code.

To get the appropriate information about a user's needs when making business calls, you might need to talk to the user's manager.

Access Restriction

Types of Access Restrictions

There are eight types of Access Restrictions:

Table 239
Access Restriction names and mnemonics

Restriction name	Mnemonic
Unrestricted	UNR
Conditionally Toll Denied	CTD
Conditionally Unrestricted	CUN
Toll Denied	TLD
Semi-Restricted	SRE
Fully Restricted	FRE
Fully Restricted Type 1	FR1
Fully Restricted Type 2	FR2

The following explanations tell you what each type of restriction allows a user to do.

Unrestricted Service (UNR)

- Allowed to make and receive internal calls.
- Allowed to make and receive calls to and from any trunk group.
- Allowed toll calls on any trunk group.

Conditionally Unrestricted Service (CUN)

- Allowed to make and receive internal calls.
- Allowed access to external calls by using ANI (Automatic Number Identification) trunk groups only.

Conditionally Toll Denied (CTD)

- Allowed to make and receive internal calls.
- Allowed to receive calls from external trunk groups.
- Allowed toll calls on WATS trunks, unless New Flexible Code Restriction (NFCR) denies certain digits. For more information on NFCR, refer to *X11 features and services*.
- Denied toll calls on COT/FEX type trunk groups, unless NFCR allows specific digits.
- Allowed Special numbers like 411, 611, and 911, unless denied by NFCR.
- Allowed toll calls on COT/FEX/WATS trunk groups when Basic Automatic Route Selection (BARS) or Network Alternate Route Selection (NARS) or Coordinated Dialing Plan (CDP) access codes are used.

  NFCR is ignored for CTD terminals when BARS or NARS or CDP codes are used for the call.
- Allowed all calls on TIE trunk groups, unless NFCR denies certain digits and the user dialed a direct trunk access code.

Access Restriction

Toll Denied (TLD)

- Allowed to make and receive internal calls.
- Allowed to receive calls from the exchange network.
- Allowed toll calls on WATS trunk groups using direct trunk access codes or BARS or NARS access codes, unless NFCR denies certain digits.
- Denied toll calls on COT/FEX trunk groups if the user dials direct trunk access codes, unless NFCR allows the digits.
- Denied toll calls on COT/FEX trunk groups if the user dials BARS or NARS access codes, unless NFCR allows the digits.
- Allowed Special numbers like 411, 611, and 911, unless NFCR denies these digits.
- Allowed access to toll calls with assistance from an attendant or an unrestricted telephone user. The attendant or unrestricted telephone user must connect the TLD user to a trunk using the Conference or Call Transfer features.
- Allowed toll calls and special number calls on TIE trunk groups, unless NFCR denies certain digits. This applies if the user dials direct trunk access codes or BARS or NARS access codes.

Semi-Restricted (SRE)

- Allowed to make and receive internal calls.
- Allowed to receive calls from external trunk groups.
- Denied from outgoing access to external trunk groups, except when assisted by an attendant or an unrestricted telephone user who is using Call Transfer or Conference to connect the SRE telephone to a trunk.

Fully Restricted Service (FRE, FR1, FR2)

FRE

- Allowed to make and receive internal calls.
- Allowed access to TIE and CCSA (Common Controlled Switching Arrangement) trunk groups.
- Allowed access to and from external trunk groups with call modification by an unrestricted telephone user.

  There is an FRPT prompt in the Configuration record (LD 17) that controls access to incoming calls for FRE telephones. Access to incoming calls is denied by default, but you can change the programming to allow it.
- Denied access to and from external trunk groups either by direct access, or using the assistance of an attendant.

FR1

- Allowed to make and receive internal calls.
- Allowed access to TIE and CCSA trunk groups.
- Denied access to and from external trunk groups, either by direct access, or using the assistance of an attendant or with call modification from an unrestricted telephone user.

FR2

- Allowed to make and receive internal calls.
- Denied access to TIE and CCSA trunk groups.
- Denied access to and from external trunk groups either by direct access, or using the assistance of an attendant or call modification from an unrestricted telephone user.

Access Restriction

Default settings

With software prior to Release 22, the default Access Restriction setting in the Class of Service of telephones and trunks is UNR, Unrestricted.

With Release 22 and later, the default setting is CTD, Conditionally Toll Denied.

This means that terminals are unrestricted unless you program an access restriction in the Class of Service on systems using software prior to Release 22. Refer to the *Tips* later in this section for the impact this default setting can have.

With Release 22 and later software, by default, terminals are not allowed to make toll calls by accessing trunk groups directly (using access codes). This gives you control of terminals by default. The control is only released if you change the Class of Service to UNR.

> ***Note:*** If Basic Automatic Route Selection (BARS) or Network Alternate Route Selection (NARS) software is programmed then you can assign Network Class of Service (NCOS) values to the terminals. It is the Class of Service and the NCOS that determine what calls are allowed from that terminal. When you assign the CTD Class of Service to terminals, the users are forced to dial toll calls using the BARS or NARS access codes. In this way, you have the control you need in order to benefit from the automatic route selection software in the best way possible.

Using the feature

Table 240
Access Restrictions types and possible applications

Type	Possible application
UNR	Executive telephones
CTD	Telephones on a system with BARS or NARS
CUN	Telephones on a system with ANI trunks
TLD	Telephones with no long distance privileges
SRE	Telephone of a user who is supposed to make calls only when assisted by the attendant or a manager
FRE	Telephone of a user who can make calls to other company locations on the private network but needs assistance from a manager when placing calls on the exchange network
FR1	Telephone of a user who only needs to make calls to other company locations on the private network
FR2	Telephone at a secured entrance to a building

There are many other possible applications of each Access Restriction type. Those shown in the chart above are examples only.

Interactions with other features

Access Restrictions work with, affect, or are affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information, you can use *X11 features and services*.

Features that change the Access Restriction type

The following features change the Access Restriction assigned to a terminal on a per call or permanent basis.

Access Restriction

They are:

- Forced Charge Account
- Authorization Code
- System Speed Call
- Scheduled Access Restriction
- Controlled Class of Service
- Electronic Lock

Refer to *X11 features and services* for further information on the operation of these features. Each one is designed to change the operating Access Restriction type assigned to allow certain types of calls to be made under certain controlled conditions.

Forced Charge Account and Authorization Code features permit a user to change the restriction assigned to the telephone or trunk. When the user enters a code, it prints out on a printer. This can be used for billing purposes.

- The Forced Charge Account code is usually associated with a person for whom or about whom the call is being made. For example, a lawyer would associate a Forced Charge Account Code with each client for whom calls are made.
- An Authorization Code is associated with a user. This allows a user to move around and use other telephones or call in on a trunk and still be billed for the calls they made.

System Speed Call allows you, or someone on your site, to program certain approved telephone numbers on a System Speed Call list. Users can be programmed to have access to the list. When they use the System Speed Call feature to make calls, they temporarily become UNR and long distance numbers stored on the list get processed, even if the telephone is programmed as TLD. However, if they try to dial long distance calls without using the System Speed Call feature, these calls are not allowed.

Access Restriction

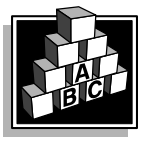
Scheduled Access Restriction Groups allow Access Restriction types for groups of users to change at certain times or on certain days. This feature is often used to control unauthorized calls outside normal working hours. At a certain time each day, the Access Restrictions change to restrict calls.

Controlled Class of Service allows one user to change the Access Restriction assigned to another telephone. It is often used by secretaries to restrict office telephones when the offices are not being used and then unrestrict them when they are being used. Empty conference room telephones can be controlled in this way.

Electronic Lock allows users to change the Access Restriction assigned to their own telephones, for example, when they leave at the end of the day. Before they leave, they dial the codes which restrict the telephones to prevent unauthorized people from making costly calls at night. In the morning, they dial the codes which unrestrict their telephones.

You can mention these interactions to users in training sessions if they are going to use these features. If the telephones are programmed with a very restrictive type of Access Restriction and you intend that approved users override the restrictions with a feature, then you must let users know how they can make approved calls. Users sometimes report these interactions as problems if they lack understanding. Proper training can reduce the number of repair calls of this nature.

Improving feature performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Meridian Mail

The Meridian Mail voice mail system is connected to the Meridian 1 system with channels that are programmed as SL-1-type TNs (without associated telephones) in the Meridian 1. You can program an Access Restriction in the Class of Service.

This impacts the type of calls that a caller can make using the Thru-Dial feature of Meridian Mail where callers can decide not to leave a message in a mailbox in the Meridian Mail, but dial out from the mailbox instead and onto the Meridian 1 trunks.

Access is allowed or denied depending on:

- the Meridian Mail restrictions, which can be programmed for the mailbox itself
- the Meridian 1 restrictions, such as the type of Access Restriction on the channel

Decide what calls you want to allow, if any, using the Thru-Dial feature. Decide whether you want the controls to be implemented in the programming of the mailbox or on the channel using the Meridian 1 Class of Service.

Set Based Administration Enhancements

If your system is equipped with this capability and you know the proper Flexible Feature Code and password, you can go to a telephone programmed for Administrator Access and change the Access Restriction assigned to any telephone in the customer group.

This method might be quicker and easier than using a TTY to make the change(s). It might be useful for controlling the Access Restriction levels of telephones at night or at certain times of the day when unauthorized calls might be made.

You can control the use of this capability by limiting the number of people who know the Flexible Feature Code and password.

Control tips

- With software prior to Release 22, a terminal has unrestricted (UNR) access, by default. Check periodically for telephones on your system which have this UNR Class of Service in error. Check Call Detail Records frequently to monitor the types of calls that are going out of your system. Investigate what terminals are making the calls. Look for calls going out on your trunks originated by incoming TIE trunks, Meridian Mail channels, and DISA ports. In this way, you can be sure to program all the restrictions you need and ensure that the calls that are allowed are approved calls only.
- If a telephone is in an open area and all users can use it, consider implementing some form of Access Restriction to control the calls that can be made.

- DISA ports provide outside callers with access to your system. As a result, they can be risky to have on your system from a security point of view. If you have them, they must be assigned a type of Access Restriction which best suits the needs of the incoming callers who are approved to use the port. You must pay serious attention to controlling or blocking unauthorized calls. System administrators often assign a very restricted Access Restriction type to a DISA port to block unauthorized people. They give each approved caller an Authorization Code which overrides the restriction on the port for each call. Authorization Codes appear in Call Detail Records, if this is turned on, and calls are tracked and billed using this data.

Administration tips

- If you are assigning a Class of Service to a TIE trunk, you must investigate the access requirements of the users at the system at the other end of the TIE trunk. You must also decide what controls you want to place on the calls from the incoming TIE trunk as they access the outgoing trunks on your system.

Access Restriction

When you add a new TIE trunk to an existing group of TIE trunks with the Access Restriction programmed properly, use the same Access Restriction type for the new trunk. Not doing this causes one of the most common network-related repair situations, sporadic restriction-related problems for remote users.

- On systems where users will input Authorization Codes to make calls, you can program telephones with restriction types like TLD or an even more restricted level. The Access Restriction type for the call changes to the one assigned to the Authorization Code the user dialed. This is true even if the Authorization Code has a more restricted type than the one assigned to the telephone.
- You can use both Access Restriction and Trunk Group Access Restriction (TGAR) together in the programming of one telephone. These two features control access to toll calls as well as certain specific trunk groups. For example, you might want a user to be denied from all toll calls, therefore you program the Class of Service as TLD. Additionally, you might not want that user to call out on a specific FEX trunk group. Use the TGAR feature to block the user from that trunk group. For further information refer to Task 44, *Trunk Group Access Restriction.*
- Consider setting up policies about assigning certain Access Restrictions to certain types of users.

  For example, management and senior level employees might be suitable for a UNR setting while other staff might have telephones set as TLD.

  If you have BARS or NARS programmed on your site, it is a good idea to assign CTD to all telephones as the Access Restriction type. That way users will have to dial toll calls using BARS or NARS access codes and the NCOS will control what calls they can make.

  When taking over administration of a system, it is important for you to understand the background behind your system design and existing system policies. Discuss the reasoning behind such things as restrictions with people who understand it.

Training tips

- Avoid problems by doing proper training on an ongoing basis.
- Train users on what Overflow Tone sounds like and what it means. Train them to pay attention to the point in the call at which they heard the tone. This can be significant in trouble shooting.

  If a user hears the tone before completing dialing, it usually means they are restricted. Let them know this in training. Let them know what restrictions they will experience. Let them know what to do if the restrictions they experience are different from what they expected, since there might be programming errors.
- Instead of Overflow Tone, you can implement Recorded Announcements (RANs) for Intercept treatments or have calls go to the attendant. This reduces the need for training since the users understand clearly why they are blocked when they hear an announcement or the attendant speaks to them.

  Before doing this, investigate with your attendants whether they can handle the additional calls this will send to them. Tell them what to say to intercepted callers. Tell them your policies on assisting restricted users to make calls. Give them an Incoming Call Indicator key on the console that lights up as an additional reminder when the user is calling them from a restricted telephone.

Access Restriction

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Table 241
Checklist

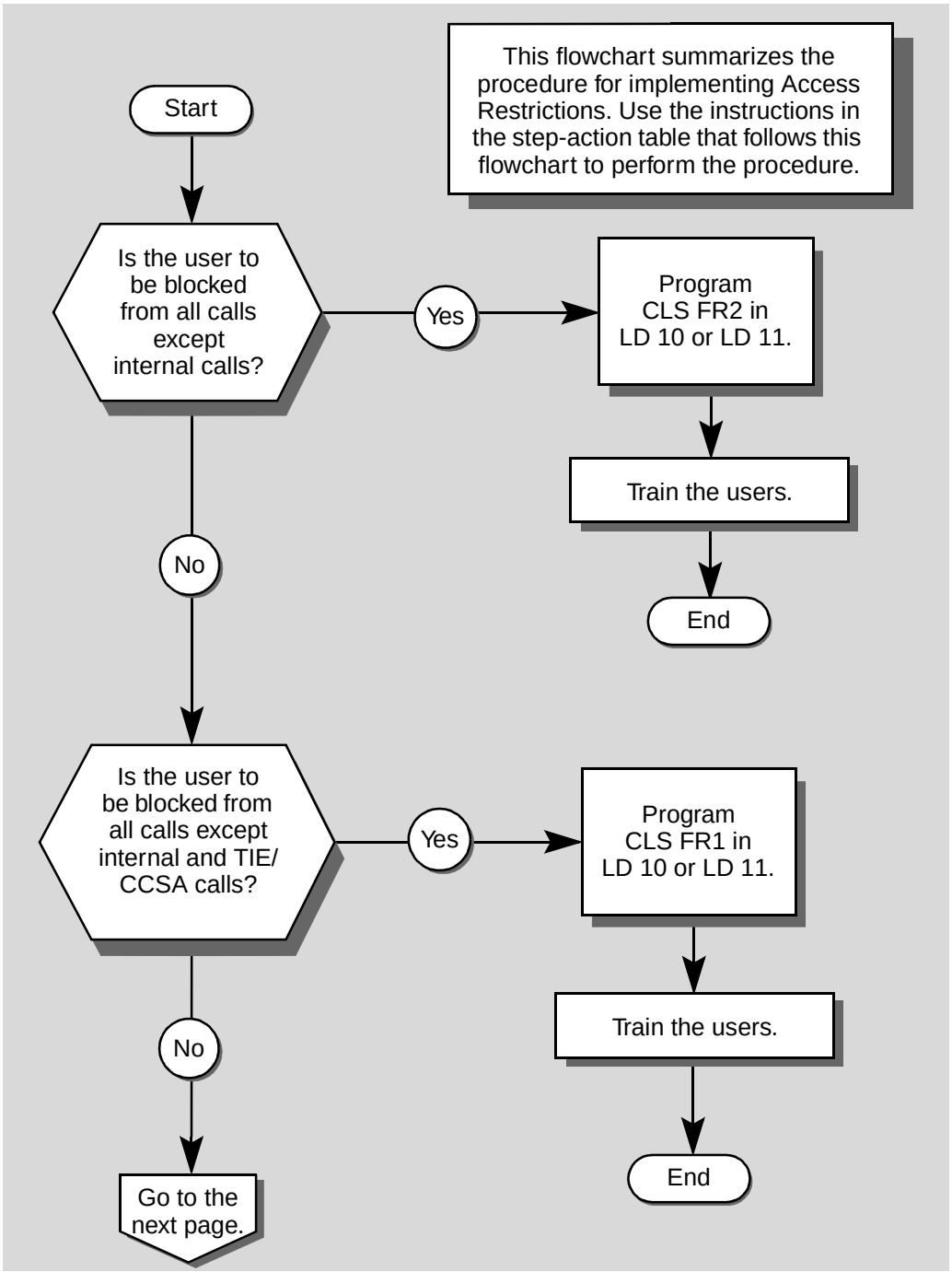
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Find out what Release of software you are using so you understand what the default type of Access Restriction is.
✔		Find out the user's calling needs by talking to the user or the user's manager.
✔		Find out if you have policies in place for assigning certain types of Access Restrictions to certain (or all) users.
	✔	Find out if there are features in place which will affect the Access Restriction of this telephone or telephone user. Assess the impact of these on what setting you will choose for this telephone.

What's next?

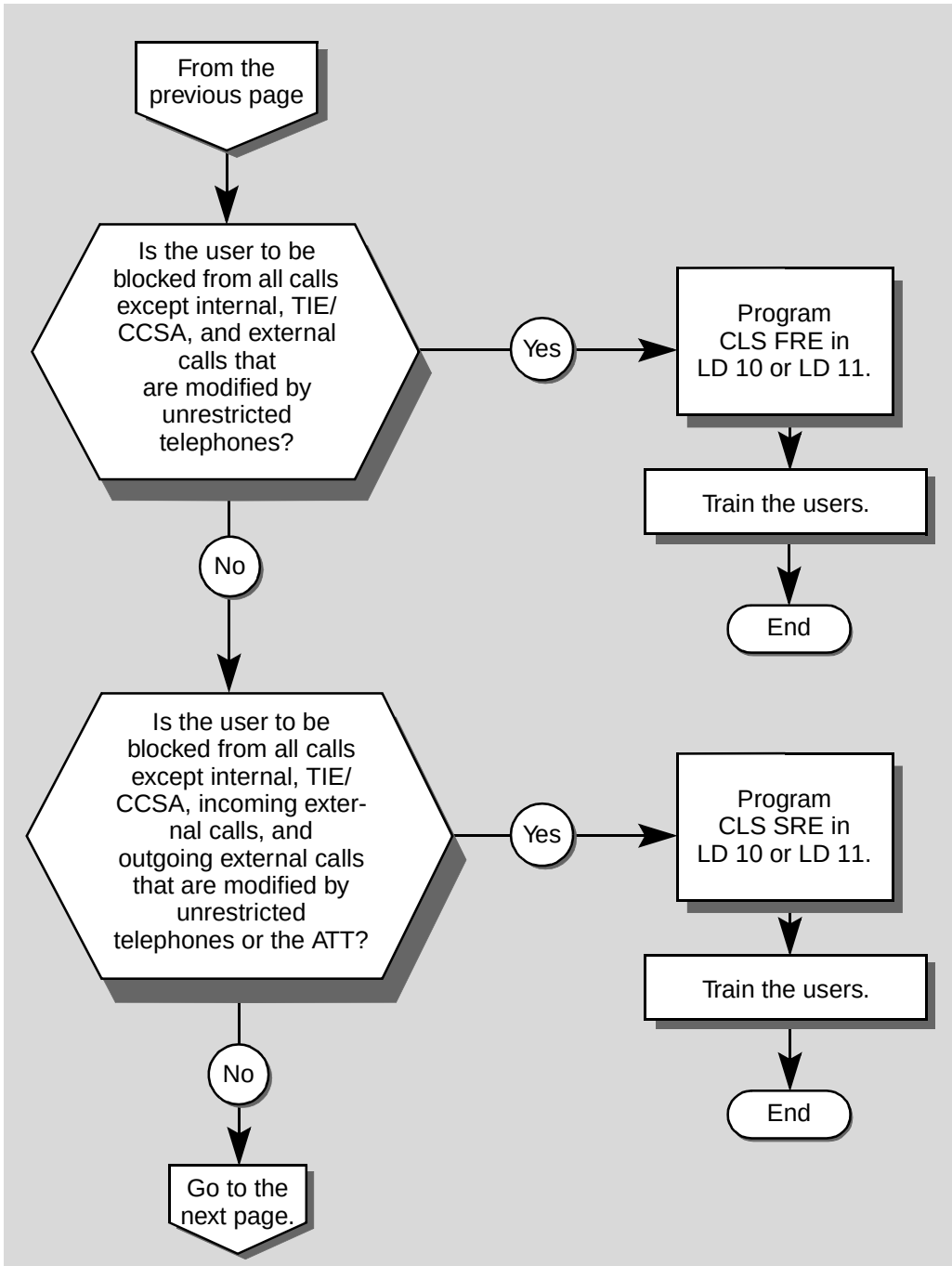
A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. The table explains the programming steps necessary to implement this feature.

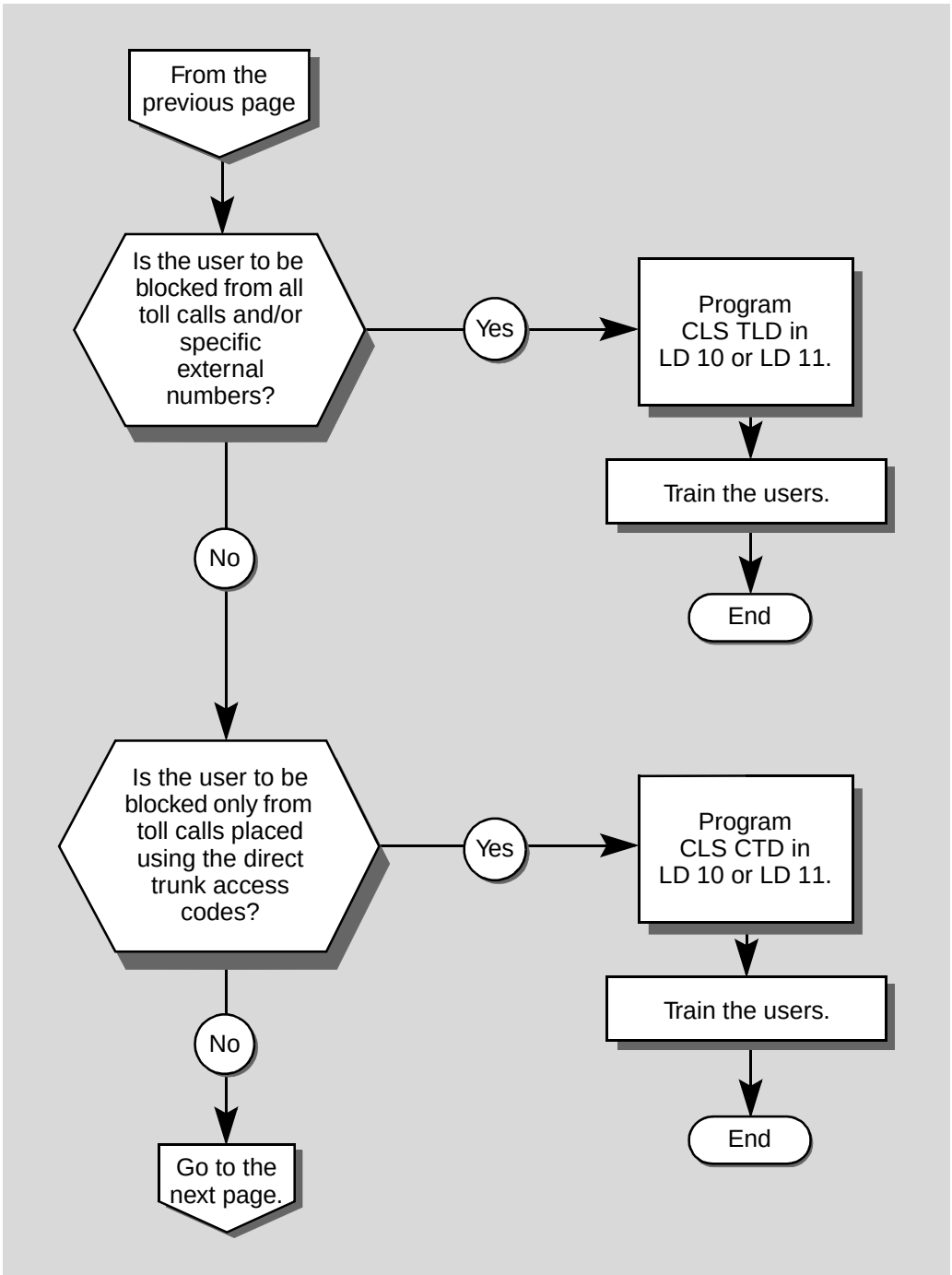
Access Restriction



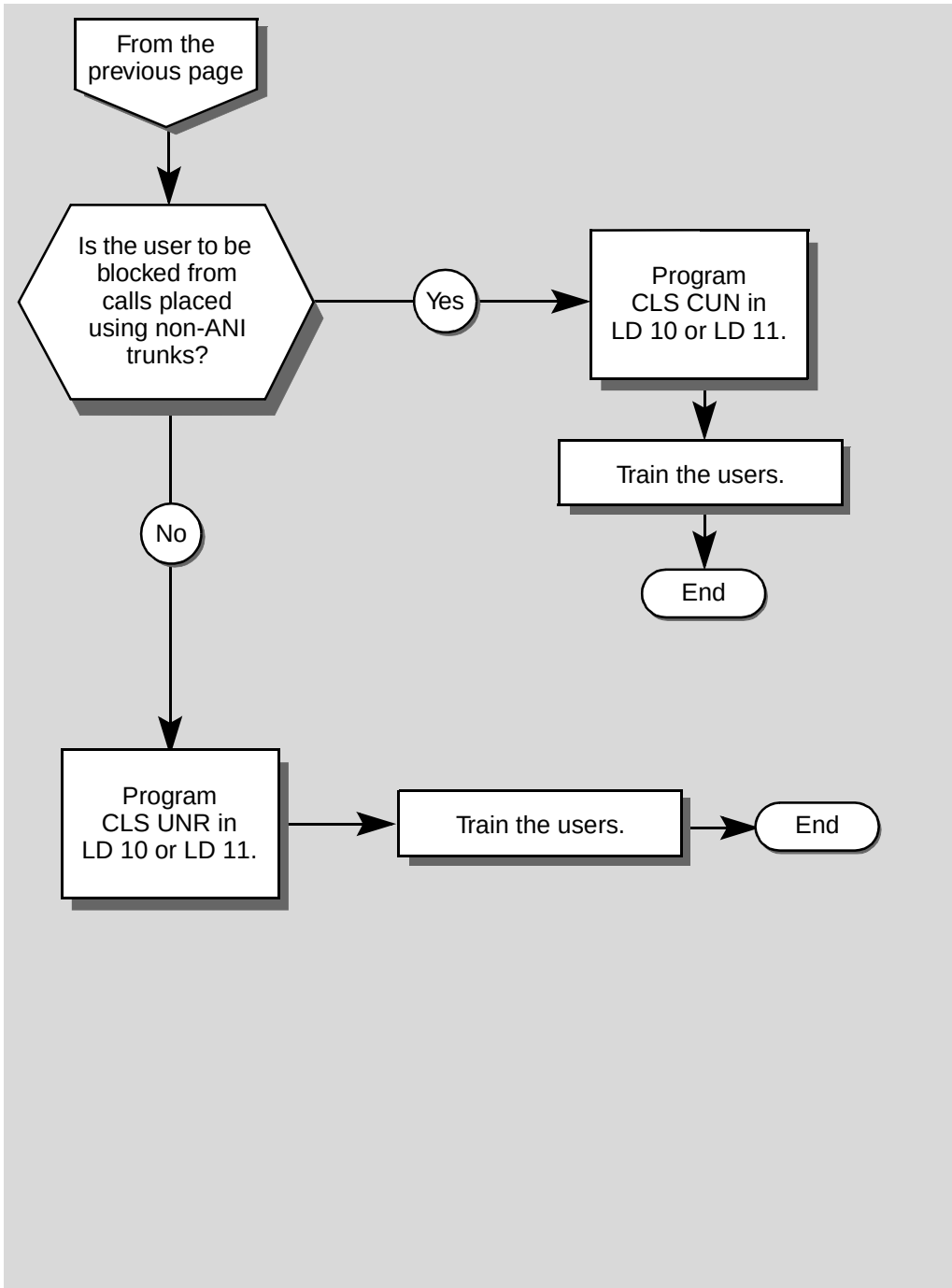
Access Restriction



Access Restriction



Access Restriction



Access Restriction

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Access Restriction feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Login.**
	For information on proper login procedures, refer to the *Basic programming instructions* module in this book. Check there also for the overlay program to use for the kind of telephone you are programming.
2	**Choose your starting point from the choices below.**

If	Do
new telephone	step 3
change to an existing telephone	step 4

3 Program the Access Restriction for a new telephone.

> LD 10 or > LD 11

REQ	NEW	Program a new telephone
TYPE		Input correct type of 500, or digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics...		Refer to Tasks 1–19 for information.

— continued —

Access Restriction

STEP	ACTION

3 continued ...

carriage return until you see the prompt CLS, input one of the following responses:

CLS	UNR	or <cr>	Unrestricted — default pre-Release 22
	CUN		Conditionally Unrestricted
	CTD		Conditionally Toll Denied – default Release22 and later
	TLD		Toll Denied
	SRE		Semi-Restricted
	FRE		Fully Restricted
	FR1		Fully Restricted 1
	FR2		Fully Restricted 2

Go to step 7.

4 Change the Class of Service of the telephone to a different Access Restriction type.

> LD 10 or > LD 11

REQ	CHG	Program a change on an existing telephone
TYPE		Input correct type of 500, digital, or SL-1-type telephone
TN	L S C U	Input the Terminal Number of the telephone (Loop number, Shelf number, Card number, Unit number)
ECHG		

— continued —

STEP	ACTION

4 continued ...

If	Do
using “Easy Change “	Input YES and go to step 5.
not using “Easy Change”	Input NO or <cr> and go to step 6.

For more information on “Easy Change,” refer to the *Basic programming instructions* module of this book.

5 Program an “Easy Change” to an existing telephone to change the Access Restriction to a different type.

ITEM CLS

Input one of the following after CLS and a space:

UNR

CUN

CTD

TLD

SRE

FRE

FR1

FR2

Refer to step 3 for the definitions of each one of these types.

Go to step 7

— continued —

Access Restriction

STEP	ACTION
6	**Program a change (not an "Easy Change") to an existing telephone to change the Access Restriction to a different type.**

carriage return until you see the prompt CLS

CLS	Input one of the following: UNR CUN CTD TLD SRE FRE FR1 FR2

Refer to step 3 for the definitions of each one of these types.

Go to step 7.

7	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems
or
MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your Service Change has been entered into the memory.

— continued —

STEP	ACTION
8	**Check that the programming which you have just done is correct.**

Place calls from the telephone. Verify that the only calls that are allowed from the telephone are those you want to allow.

If	Do
feature works properly	step 9
feature does not work properly	Refer to the information presented before the step-action table for further information on each Access Restriction type. Go to step 1.

9 Arrange for a data dump to be performed.

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 10

10 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

Access Restriction

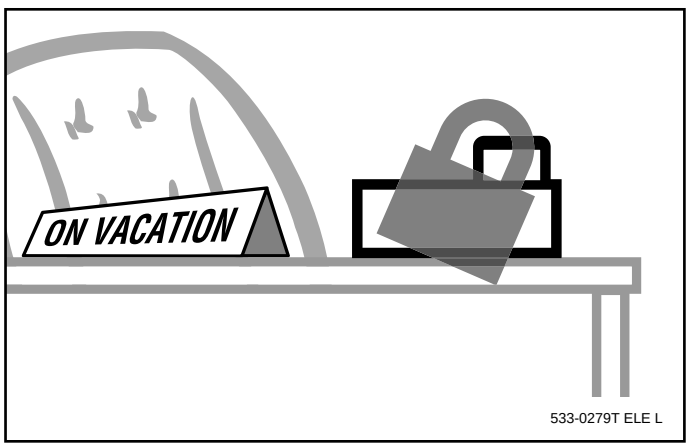
STEP	ACTION
11	**Verify that the dump was successful.**
	TTY response: **NO GO BAD DATA** or **DATA DUMP COMPLETE**
	If / **Do** data dump fails — Contact your system supplier. data dump succeeds — step 12
12	**Terminate this overlay program.**
	. ****
13	**Terminate this programming session.**
	Log off. **>** LOGO
14	**You have completed the programming required to add or change the Access Restriction feature on a telephone.**
	END

Electronic Lock

Purpose

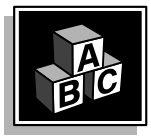
This feature allows you to dial digits that change the Access Restrictions level assigned to your telephone.

When you are going to be away from your telephone, you can prevent unauthorized calls by using the Electronic Lock feature. When you return, you can remove the restriction and the telephone returns to its normal capabilities.



Electronic Lock

Basic feature configuration



This part tells you:

- how the feature has to be set up to make basic feature operation possible
- how a person uses the Electronic Lock feature
- what you need to know to manage interactions with other features

Setting up the feature

Electronic Lock requires software packages called Flexible Feature Codes and Controlled Class of Service to be equipped on your system. You select the telephones that are to have Electronic Lock capabilities, then you use the procedure in this module to program each one.

Table 242
Software requirements

Release required	Software package(s) required
14.46E 15	139 – Flexible Feature Codes(FFC) 81– Controlled Class of Service (CCOS)

If you want further information on Electronic Lock you will find it in the feature description for Flexible Feature Codes in *X11 features and services*.

Customer Data Block

A Controlled Class of Service is used for the Electronic Lock feature and it is assigned on a customer-wide basis.

A telephone becomes “locked” when the Electronic Lock feature is activated. In the locked state, the telephone is assigned a new restriction level called the Controlled Class of Service.

Electronic Lock

Your system supplier can program the customer-wide Class of Service that will be applied to a telephone when Electronic Lock is activated. This is done in the Customer Data Block (LD 15). You can choose any of the Access Restrictions levels for this Electronic Lock Class of Service. The choices are:

- UNR – Unrestricted
- TLD – Toll Denied
- CUN – Conditionally Unrestricted
- CTD – Conditionally Toll Denied
- SRE – Semi-restricted
- FRE – Fully Restricted
- FR1 – Fully Restricted Level 1
- FR2 – Fully Restricted Level 2

Refer to Task 42, *Access Restriction* for further information on the Access Restrictions levels.

If a telephone has a restricted Class of Service, and the Electronic Lock Class of Service is less restricted, use of the Electronic Lock feature can make the telephone less restricted. This is not a common way to use the feature.

It is more common to have telephones programmed with an unrestricted Class of Service for normal calls during business hours and when the telephone is locked, it becomes a new Class of Service such as TLD or FR2. This can control unauthorized calls at night.

Station Control Passwords are necessary when you implement Electronic Lock. The user must dial the password assigned to the telephone before it can be locked. This provides extra security for the user.

The length of the passwords must be consistent for the entire customer group. The length is defined in the Customer Data Block. The length can be from one to eight digits.

Electronic Lock

If the length is defined as zero, then the Electronic Lock feature will not work.

There is more information on Station Control Passwords in the *Basic programming instructions* module.

Flexible Feature Codes

Flexible Feature Codes are programmed in LD 57. You can choose the feature access code you want for Electronic Lock activation and another code for Electronic Lock deactivation. Your system supplier can program the codes for you if you do not have access to this overlay program.

The codes can be up to seven digits long if you have the DN Expansion software package on your system. Otherwise the limit is four digits. There is more information on Flexible Feature Codes in the *You should know this* module of this book.

A confirmation tone can be activated in LD 57. The tone helps a user to know when the features have been performed correctly. The tone sounds after the feature is activated and also after the feature is deactivated.

Telephone programming

Each telephone must have:

- Controlled Class of Service allowed (CCSA) in the Class of Service
- a Station Control Password that is the same length as that specified in the Customer Data Block

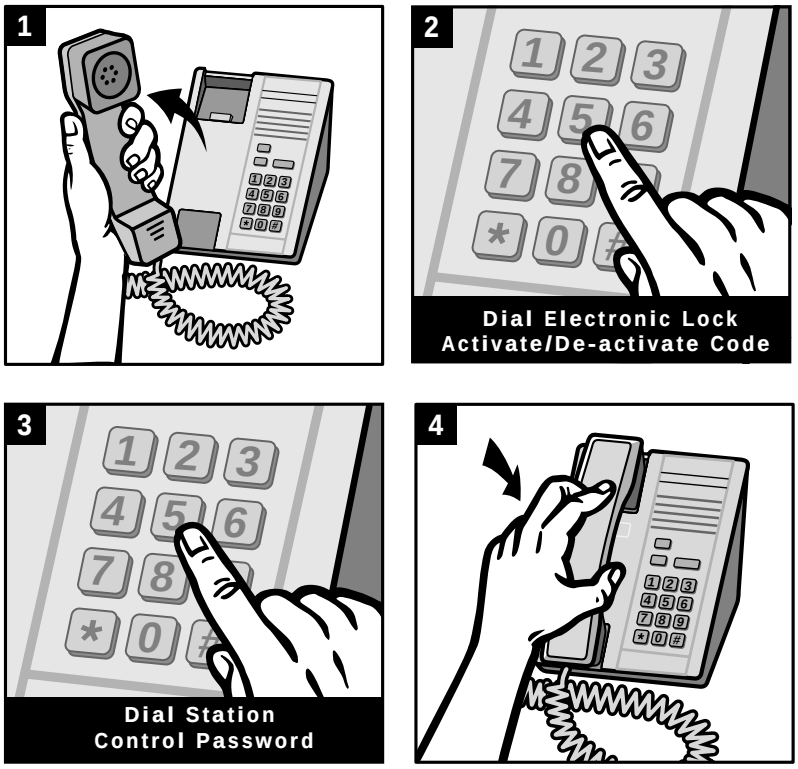
When this programming has been done, the user can dial the FFC for Electronic Lock activation followed by the Station Control Password. The Access Restrictions level of the telephone changes to whatever is defined in LD 15 for Electronic Lock.

If a user wants to change the Access Restrictions level assigned to a remote telephone, the user must dial the FFC, followed by the password of the remote telephone. The telephone being used does not need CCSA in the Class of Service, nor does it need a Station Control Password to be able to do this.

Using the feature

Any type of telephone

Activating and deactivating Electronic Lock

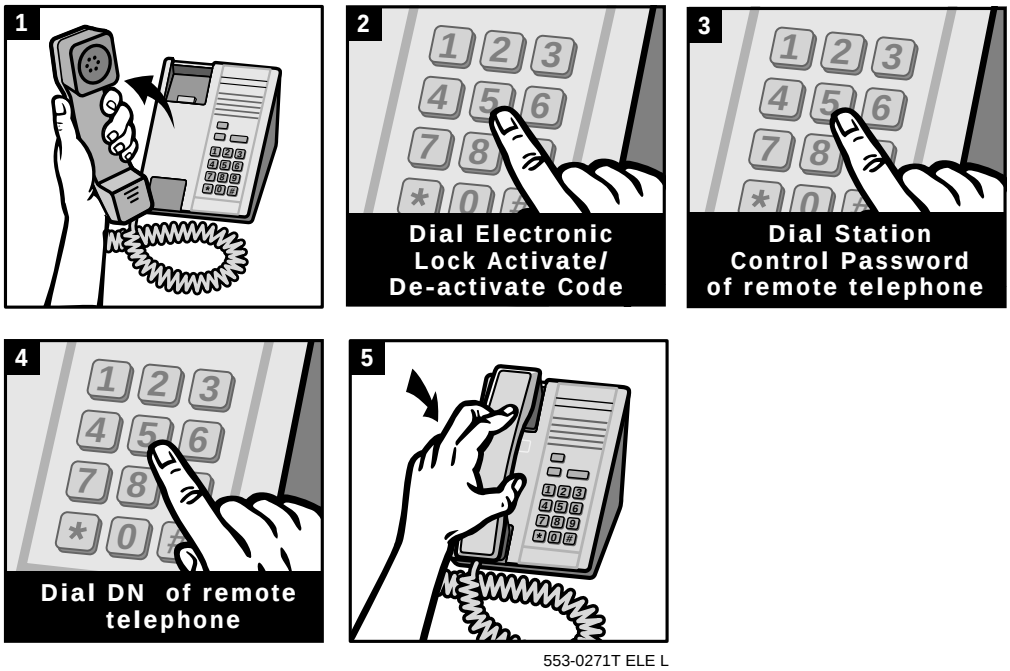


553-0280T ELE L

Electronic Lock

Using the feature

Remote activation and deactivation



553-0271T ELE L

Interactions with other features

Electronic Lock works with, affects, or is affected by, several other features that are basic to the system. You need to be aware of, and understand, these interactions before programming. The rest of this sub-section tells you what you need. For further information you can use the *X11 features and services.*

You can mention these interactions to users in training sessions if they are going to use these features. Users sometimes report these interactions as problems. Proper training can reduce the number of repair calls of this nature.

Remote Call Forward interacts with Electronic Lock

The Station Control Password is also required when a user wants to use the Remote Call Forward feature. Flexible Feature Codes software introduced the Electronic Lock and Remote Call Forward

features. They are both password-protected features. If there is a password length of zero set in the Customer Data Block, users cannot access these two features.

Controlled Class of Service interacts with Electronic Lock

Controlled Class of Service is a feature that a user can activate using a key. It allows a user to change the Class of Service of another telephone to one of three levels. These three Access Restriction levels are programmed in LD 15. One of the levels used is the same as the one used in the Electronic Lock feature. The interactions are as follows:

- If a telephone has Electronic Lock and Controlled Class of Service activated at the same time, the system applies the Electronic Lock Class of Service to the telephone.
- If a telephone has Electronic Lock deactivated, but Controlled Class of Service is active, the Access Restriction level applied to the telephone is the one chosen by whomever activated the Controlled Class of Service feature.
- If the Electronic Lock and Controlled Class of Service features are deactivated, the telephone has the Access Restriction level programmed for it in LD 10 or LD 11.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Electronic Lock

Electronic Lock Network Wide/Electronic Lock on Private Lines

The network-wide version of the feature can be used to change another kind of restriction associated with telephones, the Network Class of Service (NCOS). This form of restriction is used with ESN and ISDN networks.

Table 243
Software requirements

Release required	Software package(s) required
21	139 – Flexible Feature Codes(FFC) 81 – Controlled Class of Service (CCOS) 145 – Integrated Services Digital Network (ISDN)

You activate this feature in a similar way to the remote use of the Electronic Lock feature. The difference is that instead of dialing a DN for a telephone on the same system you must dial the remote DN according to the network dialing plan.

The Station Control Passwords must be the same length at all network systems if you intend to allow the use of this feature network wide.

Private Lines, are not normally affected by Electronic Lock.When you install this feature, the Access Restrictions level associated with a Private Line DN on a telephone is changed when the user activates Electronic Lock. With the Release 21 capability, when the telephone is “locked”, outgoing calls on the Private Line DNs are affected by the Electronic Lock Controlled Class of Service. The Private Line aspect of this feature is enabled or disabled on a customer-wide basis.

Control tips

- Users can change Station Control Passwords using their telephones. The new passwords print out when you print TN Blocks for the telephones.
- Train users to change their passwords at regular intervals. If Electronic Lock or Remote Call Forward are being activated by unauthorized people, change the passwords.
- Check your CDR records to find out what telephones should be locked using this feature. Ask users if they have reasons to suspect that they need the feature.
- Once you make users responsible for the calls that are made from a telephone, you will find they become dedicated users of the Electronic Lock feature.
- Do not display instructions for unlocking a telephone in obvious places. This defeats the purpose of this feature.
- Ask your system supplier if there are any legal constraints on what you choose for the Electronic Lock Class of Service. In some areas of the world, it is a legal requirement that during an emergency, a user must be able to use any telephone to call an emergency number. Be careful not to restrict users excessively.

Administration tips

- When Electronic Lock is active at a particular telephone and you request a TNB printout of the telephone data, the TNB printout does not show the Electronic Lock Class of Service. It shows the originally programmed Access Restrictions level.

  If a user cannot make calls and you suspect that the telephone is locked, unlock it using the procedure shown earlier in this module. Try making calls again to see if this corrected the problem.
- You will probably want to keep all of your Flexible Feature Codes short to make it easier for the users.

Electronic Lock

Training tips

- Users who will be locking and unlocking other telephones must be trained on the passwords of the other telephones. Train other users as well, in case the person who locked a telephone is absent when the telephone must be unlocked.
- Train users on changing Station Control Passwords.
- Instruct users who are having problems making calls to unlock their telephones before reporting repair problems.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic Electronic Lock feature and/or the optional related features associated with the basic feature.

Table 244
Checklist

Basic	Optional	Preparation
✔		Check CDR records for evidence of calls that you want to prevent.
✔		Ask users if they are aware of unauthorized calls being made from their telephones.
✔		Decide which telephones you want to be able to lock.
✔		Decide what customer-wide Class of Service is appropriate for locked telephones.
✔		Decide what length you want the passwords to be.
✔		Decide what Electronic Lock activate and deactivate Flexible Feature Codes you want to assign.
✔		Decide if you want to implement confirmation tone.

— continued —

Table 244
Checklist (Continued)

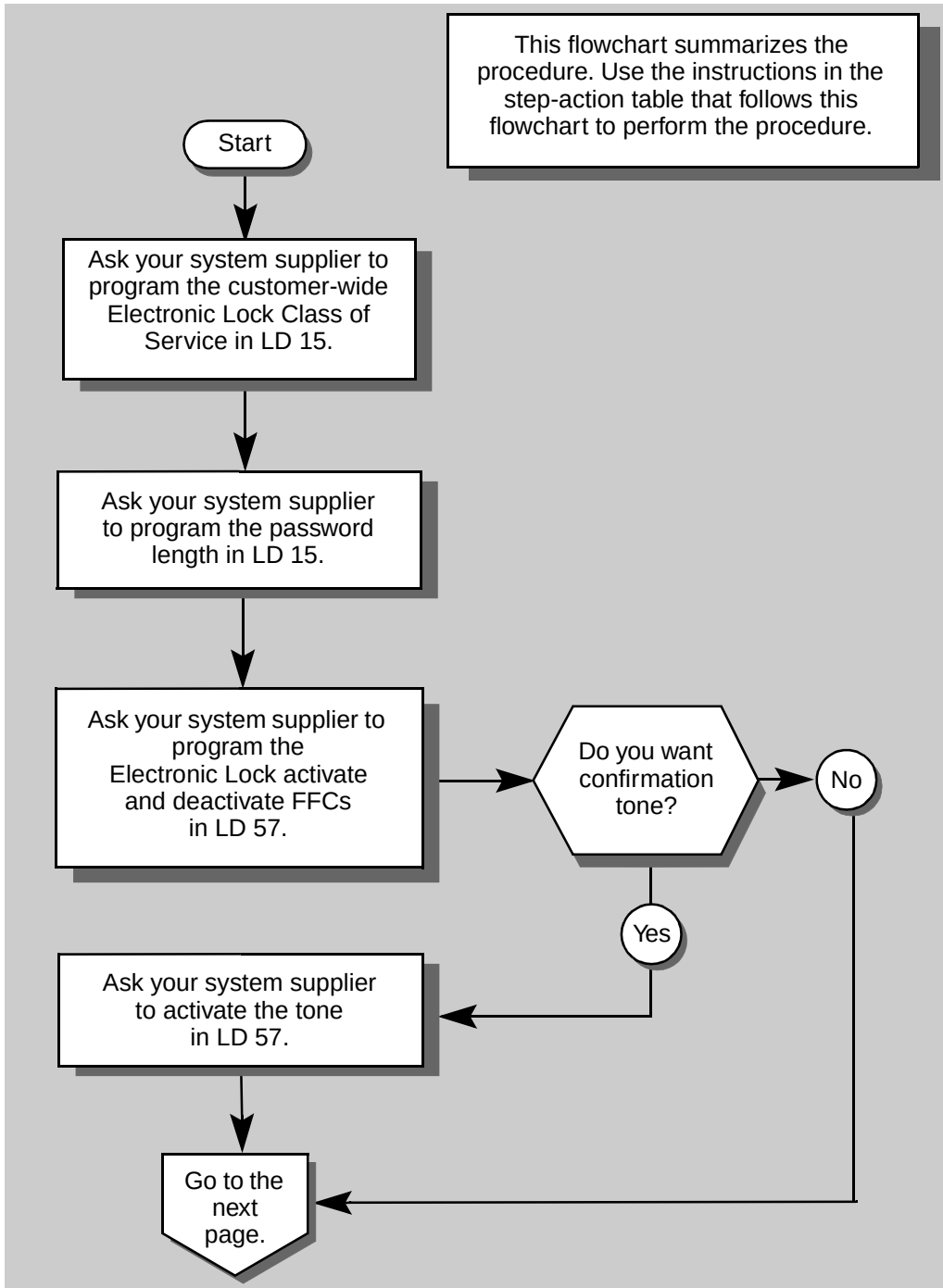
Basic	Optional	Preparation
✔		Assign passwords to the telephones: ◆ Choose passwords you want. Show users how to change them. ◆ Choose passwords they want. Show users how to change them.
✔		Prepare to train users on activating and deactivating the feature at their own telephones and at remote telephones.

What's next?

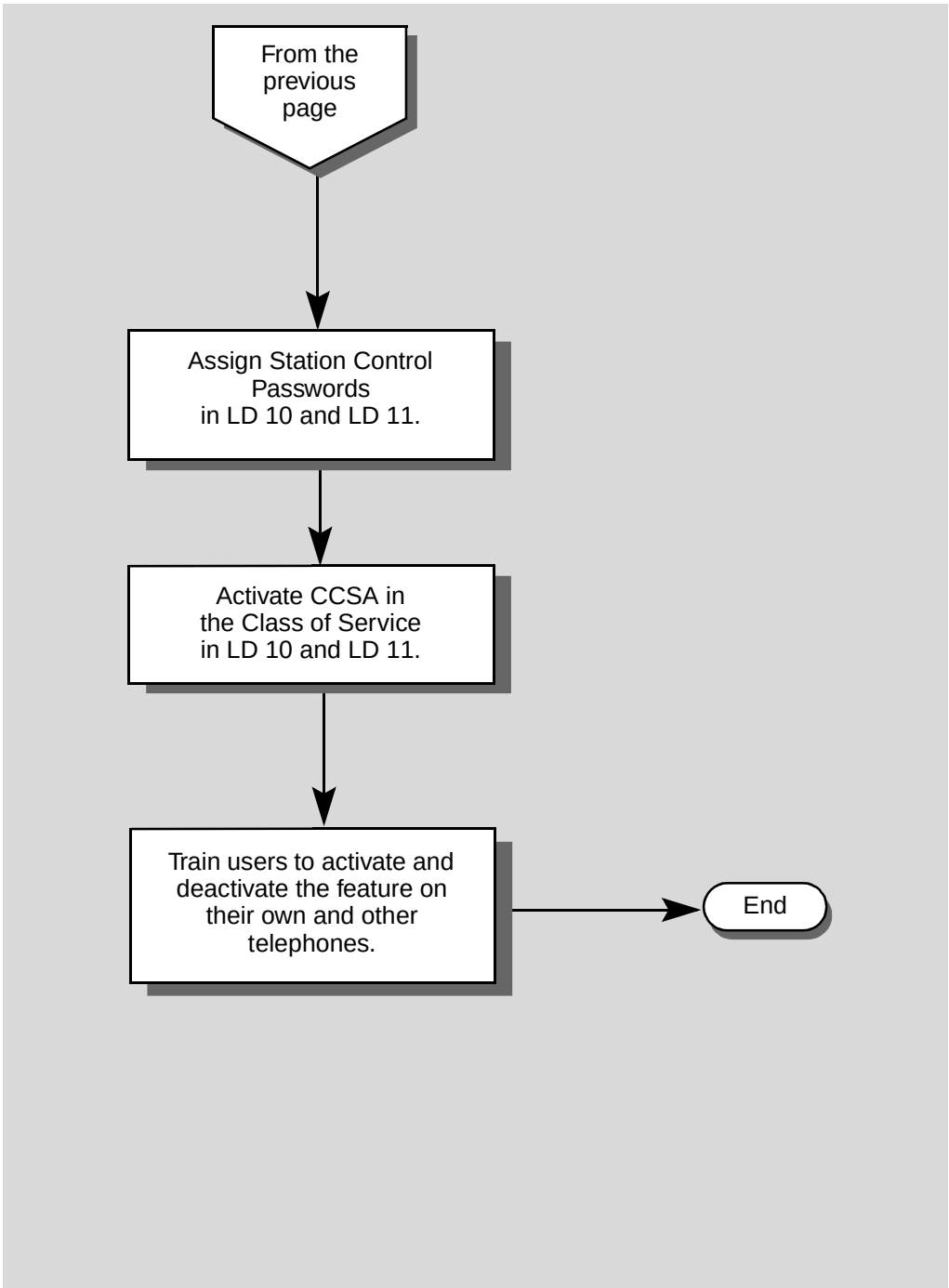
A flowchart follows which summarizes the implementation decisions and procedures for Electronic Lock.

A step-action table follows the flowchart. Use it to do the programming steps necessary to implement this feature.

Electronic Lock



Electronic Lock



Electronic Lock

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the Electronic Lock feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Ensure that the pre-requisite customer-wide programming has been done.**
	Discuss with your system supplier what programming they will do and what your maintenance agreement permits you to do. The following items must be programmed before you proceed: ◆ Electronic Lock Controlled Class of Service (CCRS) in LD 15 ◆ Station Control Password length (SCPL) in LD 15 ◆ Flexible Feature Codes for Electronic Lock activate, deactivate (ELKA, ELKD) in LD 57 ◆ optionally - Flexible Feature Code confirmation tone in LD 57
2	**Log in.**
	For information on proper login procedures, see *Basic programming instructions* in this book.
3	**Choose your starting point from the choices below.**

If	**Do**
you are programming a new telephone	step 4
you are changing an existing telephone	step 5

— continued —

STEP	ACTION
4	**Add Electronic Lock capability to a new telephone.**

If		Do
dial or Digitone-type telephone		Use > LD 10 to program.
digital or SL-1-type telephone		Use > LD 11 to program.
REQ	NEW	Program a new telephone
TYPE		Input the correct type of telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
program the basics.....		Refer to Tasks 1 – 19 for information.
carriage return until you see the prompt SCPW		
SCPW	X..X	Input the user's password X..X represents the one to eight digit password The length must agree with the choice for length pre-programmed in LD 15.
carriage return until you see the prompt CLS		
CLS	CCSA	Controlled Class of Service allowed

Go to step 14.

— continued —

Electronic Lock

STEP	ACTION	
5	**Program a change to the Electronic Lock feature on an existing telephone.**	
	> LD 10	for dial or Digitone-type telephones
	> LD 11	for digital or SL-1-type telephones
	REQ CHG	Program a change to an existing telephone
	TYPE	Input the correct type of telephone
	TN L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
	ECHG	
	If	**Do**
	you want to use "Easy change"	Input YES and go to step 6.
	you do not want to use "Easy change"	Input NO and go to step 10.
	For more information on "Easy change," go to the *Basic programming instructions* section of this book.	
6	**Select the proper programming step from the choices below.**	
	If	**Do**
	you are changing to Electronic Lock allowed	step 7
	you are changing the Station Control Password	step 8
	you changing to Electronic Lock denied	step 9

— continued —

STEP	ACTION	
7	**Program an "Easy Change" to an existing telephone to allow the Electronic Lock feature.**	
	ITEM SCPW X..X	Input the Station Control Password X..X represents the one to eight digit password The length must agree with the choice for length pre-programmed in LD 15.
	ITEM CLS CCSA	Controlled Class of Service allowed
	Go to step 14.	
8	**Program an "Easy Change" to an existing telephone to change the Station Control Password.**	
	ITEM SCPW X..X	Input the new Station Control Password X..X represents the new one to eight digit password The length must agree with the choice for length pre-programmed in LD 15.
	Go to step 14.	***Note:*** The user can change the password from the telephone, if you have a Flexible Feature Code programmed for that capability.
9	**Program an "Easy Change"to an existing telephone to deny the Electronic Lock feature.**	
	ITEM CLS CCSD	Controlled Class of Service denied
	Go to step 14.	

— continued —

Electronic Lock

STEP	ACTION
10	**Select the proper programming step from the choices below.**

If	Do
you are changing to Electronic Lock allowed	step 7
you are changing the Station Control Password	step 12
you changing to Electronic Lock denied	step 13

11 Program a change, not an "Easy Change" to an existing telephone to allow the Electronic Lock feature.

carriage return until you see the prompt SCPW

SCPW	X..X	Input the Station Control Password X..X represents the one to eight digit password The length must agree with the choice for length pre-programmed in LD 15.

carriage return until you see the prompt CLS

CLS	CCSA	Controlled Class of Service allowed

Go to step 14.

— continued —

STEP	ACTION
12	**Program a change, not an "Easy Change" to an existing telephone to change the Station Control Password.**
	carriage return until you see the prompt SCPW
	SCPW X..X — Input the new Station Control Password X..X represents the new one to eight digit password The length must agree with the choice for length pre-programmed in LD 15. ***Note:*** The user can change the password from the telephone, if you have a Flexible Feature Code programmed for that capability.
	Go to step 14.
13	**Program a change, not an "Easy Change"to an existing telephone to deny the Electronic Lock feature.**
	carriage return until you see the prompt CLS
	CLS CCSD — Controlled Class of Service denied
	Go to step 14.
14	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems
	When one of these messages appears, your programming has been entered into the memory.
	Go to step 15.

— continued —

Electronic Lock

STEP	ACTION
15	**Check that the programming which you have just done is correct.**

Refer to the *Using the feature* part of this module for information on how to operate Electronic Lock.

If	Do
the feature operates as you expect	step 16
the feature does not operate as you expect	step 1

16	**Arrange for a data dump to be performed.**

If	Do
you do not have access to LD 43	Contact your system supplier.
you have access to LD 43	step 17

17	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

See the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

STEP	ACTION
18	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 19

19	**Terminate this overlay program.**

. ****

20	**Terminate this programming session.**

Log off.

> LOGO

21	**You have completed the programming required to add or change the Electronic Lock feature on a telephone.**

END

Electronic Lock

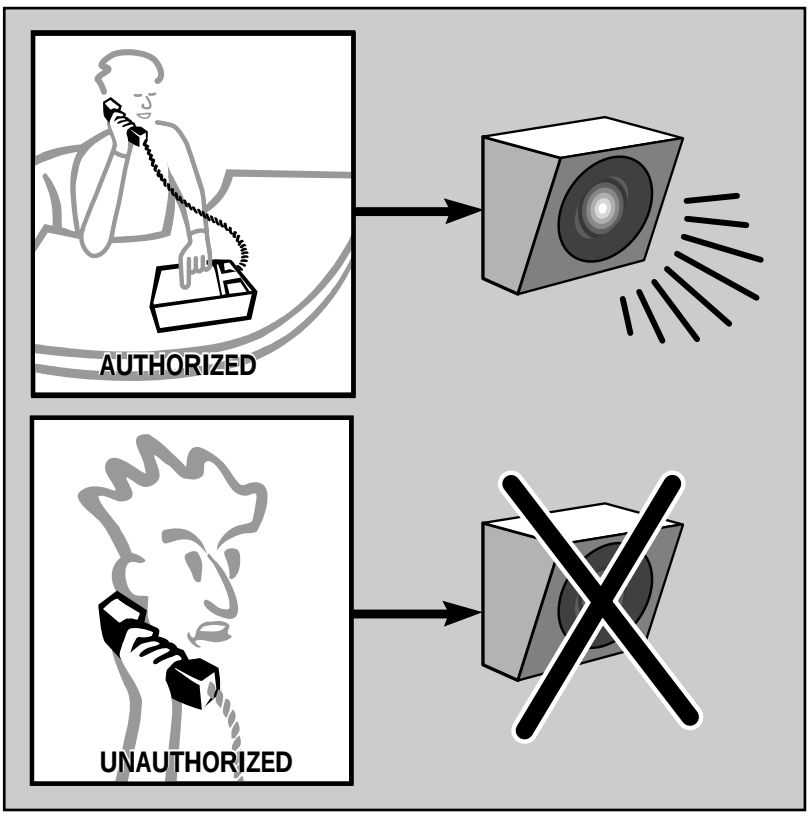
Trunk Group Access Restriction

Purpose

Use this feature to prevent users from placing calls on a particular trunk group.

You may want to do this for one or more of the following reasons:

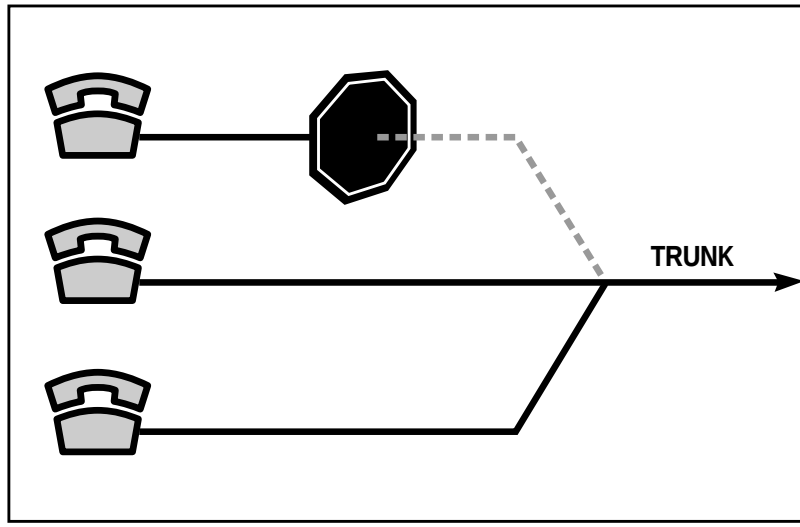
- to restrict users from accessing the paging trunks so that select people, such as the attendant, are the only ones who can page.



553-0109T TGAR

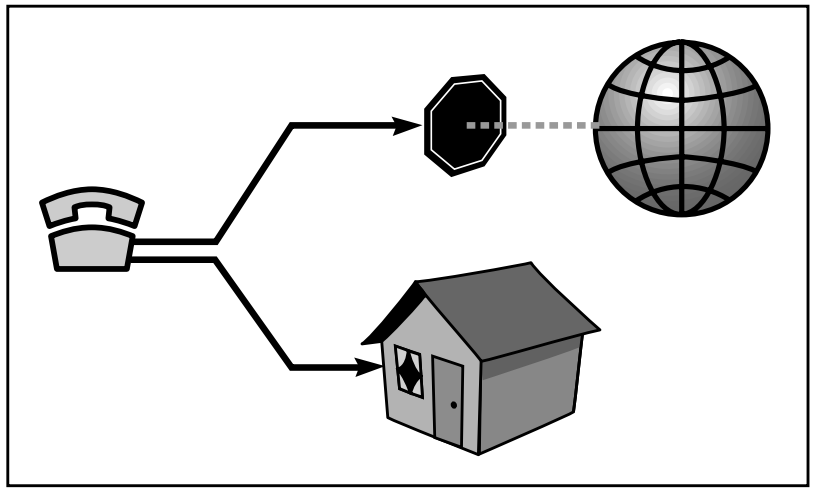
Trunk Group Access Restriction

- to ensure that employees who do not need to use certain trunks for their jobs, will not use up the available trunks and block other employees who require the use of those trunks.



553-0110T TGAR

- to lower long distance costs by permitting employees to access only the trunks they need.



553-0111T TGAR

Trunk Group Access Restriction

Basic feature configuration

This part tells you:

- how the feature has to be set up to make basic feature operation possible
- what happens when the feature is enabled
- what you need to know to manage interactions with other features

Accessing trunk groups

When users wish to make a call on a trunk, they begin by dialing the access code assigned to the trunk group. Then they dial any other digits required for the call. A direct trunk access code is the access code assigned to the trunk group in overlay program 16 (the Route Data Block). Your system supplier takes care of this when the trunk groups are installed. There should be a record of all trunk group access codes included in your system Numbering Plan summary.

Example:

The direct trunk access code for a TIE trunk group might be “82” and the access code to the Central Office or local exchange trunk group might be “9.”

- To place a call to a user on another system connected to your system with TIE trunks, a user would dial 82 plus the digits in the other user’s DN.
- To place an external non-toll call on a local exchange trunk in North America, a user would dial the access code 9 followed by seven more digits.

Setting up the feature

The ability to implement the TGAR capability comes with the communication system, but the telephones do not come programmed with restrictions. You select the telephones that are to have restrictions assigned, then you use the procedure in this module to program each one.

Trunk Group Access Restriction

When a call is to be handled by a trunk, the system allows or denies the call based on the restrictions programmed for the user's telephone.

One method of restricting a user's telephone is by using the Trunk Group Access Restriction feature.

The common term for the Trunk Group Access Restriction feature is TGAR. Information about this feature is part of the Access Restrictions section in *X11 features and services*.

How does TGAR work?

TGAR restriction works in the following way:

- The user dials a trunk group access code to make an external call.
- The system looks at the Class of Service of the telephone. The call may be denied at this point due to Access Restriction.
- If the call is allowed, the system looks at the programming of the trunk group with the access code dialed. The Trunk Access Restriction Group (TARG) programming for the route contains a list of the TGAR codes that are to be blocked.
- The call is blocked if the TGAR code assigned to the calling telephone matches one of the codes listed for TARG on the route.

Trunk groups include:

- Exchange network (Central Office, Foreign Exchange)
- Private network (TIE and CCSA)
- Paging
- Dictation

For example, if a user dials access code "82" from a telephone with TGAR 3, the system looks at the TARG codes assigned to the trunk group with access code 82.

If the TARG codes found are 2, 3 and 17, then the user's TGAR code 3 matches one of the TARG codes programmed on the trunk group. In this case, the user is restricted from using the trunk group.

Trunk Group Access Restriction

A suggested method for deciding what codes to assign to telephones is included in the *Administration tips* part of this Task module.

TGAR code range

A telephone that is assigned TGAR 0 is not blocked from any trunk groups. You can assign TGAR codes 1 – 31 to telephones to restrict them from individual trunk groups. (Prior to Release 13, the range was 1 – 15). Codes higher than 8 have a special way of operating. Refer to the *Interactions with other features* section on Attendant Trunk Group Busy keys for further information on the impact of the numbers.

Default TGAR and TARG

Prior to Release 22, the default TGAR assigned to a telephone is 0. There is no default TARG assigned to a route.

With Release 22 and later, the default TGAR is 1. The default TARG on a route is 1. This means that telephones are blocked from direct trunk access by default. This provides additional security.

- If you have Basic Automatic Route Selection (BARS) or Network Alternate Route Selection (NARS) installed, the users are not supposed to dial toll calls using direct trunk access codes anyway. They are supposed to use the BARS or NARS access codes instead. The default TARG and TGAR settings will not affect their ability to make toll calls using BARS or NARS. There is more information on this later in this section. However, if local calls are to be placed using a direct trunk access code (such as 9), then remove the TARG code 1 from the Central Office Trunk route. Do this right away at installation or users will not be able to reach local emergency numbers such as 911.
- If you do not have BARS or NARS installed, you must plan what TGAR and TARG codes work best for your restriction needs and do the programming changes required.

Trunk Group Access Restriction

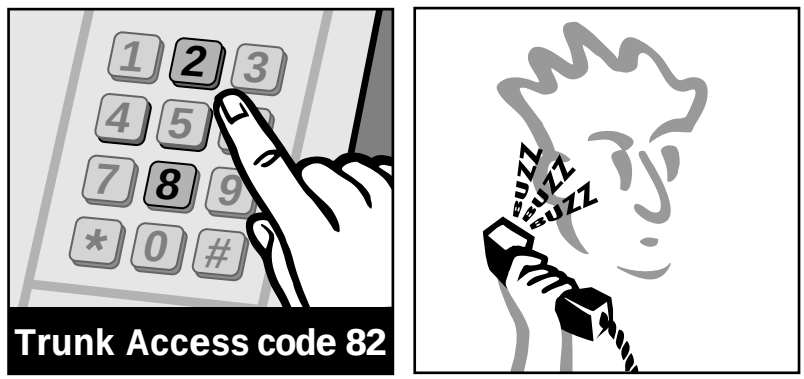
User intercept because of TGAR and TARG

Call which are blocked are intercepted by the system. The intercept treatment which a blocked call receives is defined in the Customer Data Block, overlay program 15. The choice is one of the following:

- give the caller overflow tone
- send the call to the attendant
- give the caller a recorded announcement

The default intercept treatment for TGAR restriction is overflow tone.

The illustration below shows a user intercepting because of a TGAR restriction.



553-0112T TGAR

Using the feature

Any telephone

The information you require is in the previous parts of this module.

Interactions with other features

Trunk Group Access Restriction works with, affects, or is affected by several other features that are basic to the system. Listed below are the features contained in this guide that interact with Trunk Group Access Restriction. For information on other feature interactions, please refer to *X11 features and services.*

Data terminals interact with TGAR

TGAR codes may be assigned to telephones and their associated data terminals, in order to restrict the data calls which can be made from the terminal.

Trunks interact with TGAR

Trunks handling incoming calls can be assigned a TGAR code to restrict any caller using that trunk from accessing certain outgoing trunks. Refer to *Control tips* later in this module for further information. Your system supplier can program the proper TGAR code for each incoming trunk.

Direct Inward System Access (DISA) trunks interact with TGAR

Direct Inward System Access (DISA) trunks handle calls from users when they are placing business calls from outside the system. The user places a call into the system on one of the DISA trunks and then dials an outgoing call on one of the system's trunks. Each trunk programmed as a DISA trunk can have a TGAR assigned. Refer to the *Control tips* later in this module for further information.

Access restrictions interact with TGAR

The system looks first at the access-restriction type assigned in the Class of Service when a call is made. For more information on access-restriction types refer to Task 42, *Access Restriction*.

Example 1:

If a telephone has an access-restriction type of Fully Restricted Type 2 (FR2) assigned in its Class of Service, the system will not allow it to be used for any external calls on TIE trunks or Common Channel Switching Arrangement (CCSA) trunks, or exchange network trunks, regardless of the TGAR assigned to it.

Example 2:

You can assign a TGAR code to a telephone with a toll denied (TLD) Class of Service. The TGAR restricts the telephone user from particular trunk groups when non-toll calls are being made.

Trunk Group Access Restriction

Attendant Trunk Group Busy keys interact with TGAR

Pressing a Trunk Group Busy (TGB) key on the attendant console restricts telephones or incoming trunks with TGAR codes 0-7 from accessing that trunk group. The indicator light beside the key will be steadily lit if the key has been pressed. Callers attempting to access the trunk group will be intercepted to the attendant during the time the TGB key has a steady light.

Telephones or incoming trunks with TGAR codes 8-31 (8-15 with software prior to Release 13) are unaffected by the fact that the TGB key has been pressed. They continue to have access to the trunk group. Assign these codes to telephones for users who require access to trunks at all times, such as technicians, security officers, senior managers and executives, for example.

Improving feature performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

In addition to the basic telephones and trunks which can be restricted using TGAR, the following optional software features can also interact with TGAR.

Authorization codes

Authorization codes may be implemented as an optional software capability. There is Basic Authorization Code (BAUT) and Network Authorization Code (NAUT) software. Users may override the restrictions assigned to a telephone or trunk by inputting an authorization code when they make a call. The TGAR assigned to the code overrides the TGAR assigned to the telephone or trunk. The code also has Class of Service and Network Class of Service restrictions which take over as well. For further information on Authorization Code operation refer to the BAUT/NAUT section of the *Networking Guide*.

Trunk Group Access Restriction

Scheduled Access Restrictions

Telephones and trunks may be assigned to Scheduled Access Restriction (SAR) groups. Optional software is required to implement this capability. Each SAR group has time periods when it is in effect. When it is in effect, the group has a specified TGAR, Class of Service and Network Class of Service assigned. SAR parameters override the normal parameters programmed for the telephone or trunk.

NARS, BARS and CDP

Systems equipped with Network Alternate Route Selection (NARS), Basic Automatic Route Selection (BARS) or Coordinated Dialing Plan (CDP) allow users to place calls on trunks by dialing routing software codes which are not direct trunk access codes. (These routing software codes are called AC1 with BARS, AC1 and AC2 with NARS, and steering codes with CDP). These software packages, if properly programmed, allow a series of route choices to be scanned in a predetermined sequence when calls are made, making the most efficient use of the trunking at a site.

With routing software, the Class of Service and Network Class of Service (NCOS) of the telephone normally determine trunk group access. The TGAR assigned to the calling device is normally ignored, if users make their calls using the routing software access codes.

Optionally, it is possible to activate TGAR so you have the Class of Service, NCOS and TGAR of the calling device determine trunk group access when routing software access codes are dialed. This was primarily designed for systems where two companies share trunk groups. If that is not your application, you should avoid using TGAR this way because you would have to leave routes with no TARG codes so users can access them for alternate routing toll calls. As a result, you no longer have the security of preventing bypass.

Refer to the *Control tips* section for important information on how to prevent users from bypassing BARS, NARS and CDP routing with effective implementation of the TGAR capability.

For more information on NARS or BARS or CDP, refer to the *Networking Guide*.

Trunk Group Access Restriction

Control tips

TIE trunks

Users can dial out on TIE trunks that go to another system and from there call out on trunks on that other system. On networks without ISDN signaling implemented, the caller's identity is not sent from one system to another on the TIE trunk. It is difficult to identify the callers and send a bill to the users who made the calls.

Telecom Managers of both systems must decide what restrictions to assign to the TIE trunks. Incoming callers on these trunks can be controlled using TGAR as a way to prevent unauthorized calls.

When a TGAR is assigned to a TIE trunk, incoming callers using it are blocked from any outgoing trunk groups that have a matching TARG.

Users can access restricted trunks

When blocked from a trunk group because of TGAR, a user may still make a call on that trunk group with the assistance of the attendant or an unrestricted telephone user. The attendant or the other user can use the transfer feature to connect the blocked user to the trunk.

Make sure that you:

- tell users and attendants what your policies are regarding transferring users to outside trunks
- check CDR records frequently to monitor for unauthorized access to trunks

Direct Inward System Access (DISA)

DISA service allows employees to place calls into the system from an outside location and use the office trunks as if they are working at their desk. Calls can be controlled by assigning a TGAR code to the DISA port. The TGAR code blocks calls to trunks with matching TARG codes.

Trunk Group Access Restriction

Unfortunately, non-authorized people sometimes find out the number assigned to the DISA service trunks and try to use the service as well. This can block your outgoing trunks with additional calls and if they are toll calls this can increase your long distance bills dramatically. Therefore, assigning a TGAR code to the DISA trunks and TARG codes to the trunk groups used for outgoing calls is recommended any time DISA service is implemented.

Authorized employees can dial authorization codes to override the TGAR of the DISA trunks. The TGAR assigned to the authorization code is in effect for each call made. Unauthorized people who do not have an authorization code are unable to override the TGAR assigned to the DISA trunk and are therefore blocked from outgoing calls on trunk groups with matching TARGs assigned.

Preventing bypass of NARS, BARS or CDP

Systems use route selection software packages like NARS or BARS or CDP, to route calls the most efficient and cost-effective way possible. However, if users dial their calls beginning with direct trunk access codes, the calls bypass the BARS, NARS and CDP.

To prevent bypass, assign TGAR codes to all telephones and matching TARGs to all toll routes. (This has been done by default on systems using Release 22 and later software). This prevents direct trunk access, thereby enforcing proper dialing and control of the users' calls.

For further information on how to check whether people are using direct trunk access codes for their calls, refer to the section on CDR in the *Administration tips* to follow.

Stress proper dialing in training sessions.

Trunk Group Access Restriction

Administration tips

Do you need to program TGAR codes if users do not know the access codes for certain trunk groups?

- Users experiment with access codes until they find codes that work.
- Users who find out a working access code usually tell other users.
- Users can see the trunk group access codes when they receive external calls on telephones that have displays.
- The attendant knows the trunk access codes because they appear on the console display as calls are presented.
- The attendant is usually trained to use the access codes for trunk testing routines. The attendant may tell users what the codes are.

How can you find out if users are dialing their calls using direct trunk access codes?

Call Detail Records (CDR) print the letter "A" before the field of data showing the digits dialed, when a user dials a call using a BARS or NARS or CDP access code. If this field of data is not preceded with the letter "A," then you know the user dialed the call using a direct trunk access code. In other words, the TGAR assigned did not block the call. Look at your CDR records in this way to find out if any telephone has not been assigned the proper TGAR.

How do you know what TGAR to assign to a new telephone?

- Find out whether the user's trunk-access needs are the same as those of any existing users on the system. Find out what TGAR code is assigned to those telephones. Assign the same code to the new telephone.
- If there is no existing TGAR group that is appropriate, add a new one. Do not assign new TGAR codes to telephones just because the new telephone might be in a functional group different from the existing users. For example, if a new part-time employee in a secretarial group is to be blocked from the same trunk groups as an

employee in the warehouse staff, you can assign the new telephone the same TGAR code as a warehouse telephone (TGAR 3). Change your records to indicate that TGAR 3 is assigned to telephones for both warehouse and part-time staff.

- Before choosing a number for the code, take into account the interaction with the Attendant Console Trunk Group Busy keys.
  - Ask your system supplier to make the necessary changes in LD 16 to adjust TARG codes on the trunk groups.
  - Update your records.
- Keep your use of different TGAR codes to a minimum to keep telephone management simple.
- Keep records of the trunk groups and users' restrictions on a chart. An example of a chart follows.

Table 245
TGAR/TARG summary chart

	Terminals			
Trunk Groups	**TGAR 8 Execs/Mgrs**	**TGAR 1 Admin. staff**	**TGAR 2 Clerical**	**TGAR 3 Warehouse**
FEX TARG 1, 2, 3		X	X	X
TIE TARG 2, 3			X	X
PAG TARG 3				X
COT TARG ---				

Note: X indicates that the user group at the top of that column is blocked from the trunk group on the same row as the X.

The chart shows that users of clerical telephones, for example, are blocked from the FEX and TIE trunk groups. TGAR 2 is assigned to those telephones and TARG 2 is assigned to the FEX and TIE trunk groups.

Trunk Group Access Restriction

If a chart is not being kept on your site get some printouts to find out what TARG codes have been assigned to the trunk groups and what TGAR codes have been assigned to the telephones and incoming trunks. The step-action table in this Task module shows the steps involved in getting this printout.

Training tips

- Train users about the trunk groups they should use for their calls.
- Tell users about the impact of using wrong or unauthorized trunk groups.
- Tell users what the access code is for each trunk group.
- Tell users what will happen when they are blocked.
  - Show them the sound of overflow tone.
  - Tell them what the announcement will say, if you are intercepting calls to a recorded announcement.
  - Tell the attendant how to respond, if calls are intercepting to the attendant when restricted.
- Good, ongoing training reduces repair calls. Untrained users sometimes report blockage as a repair problem.
- Give the attendants and the users clear guidelines on the circumstances when they should or should not transfer a restricted user to a trunk.
- Tell users that you are monitoring the way they dial calls to ensure that correct dialing and correct trunk groups are used.

What to have ready

The following checklist summarizes the steps you should take before implementing the basic feature and/or the optional related features associated with the basic feature.

Trunk Group Access Restriction

Table 246
Checklist

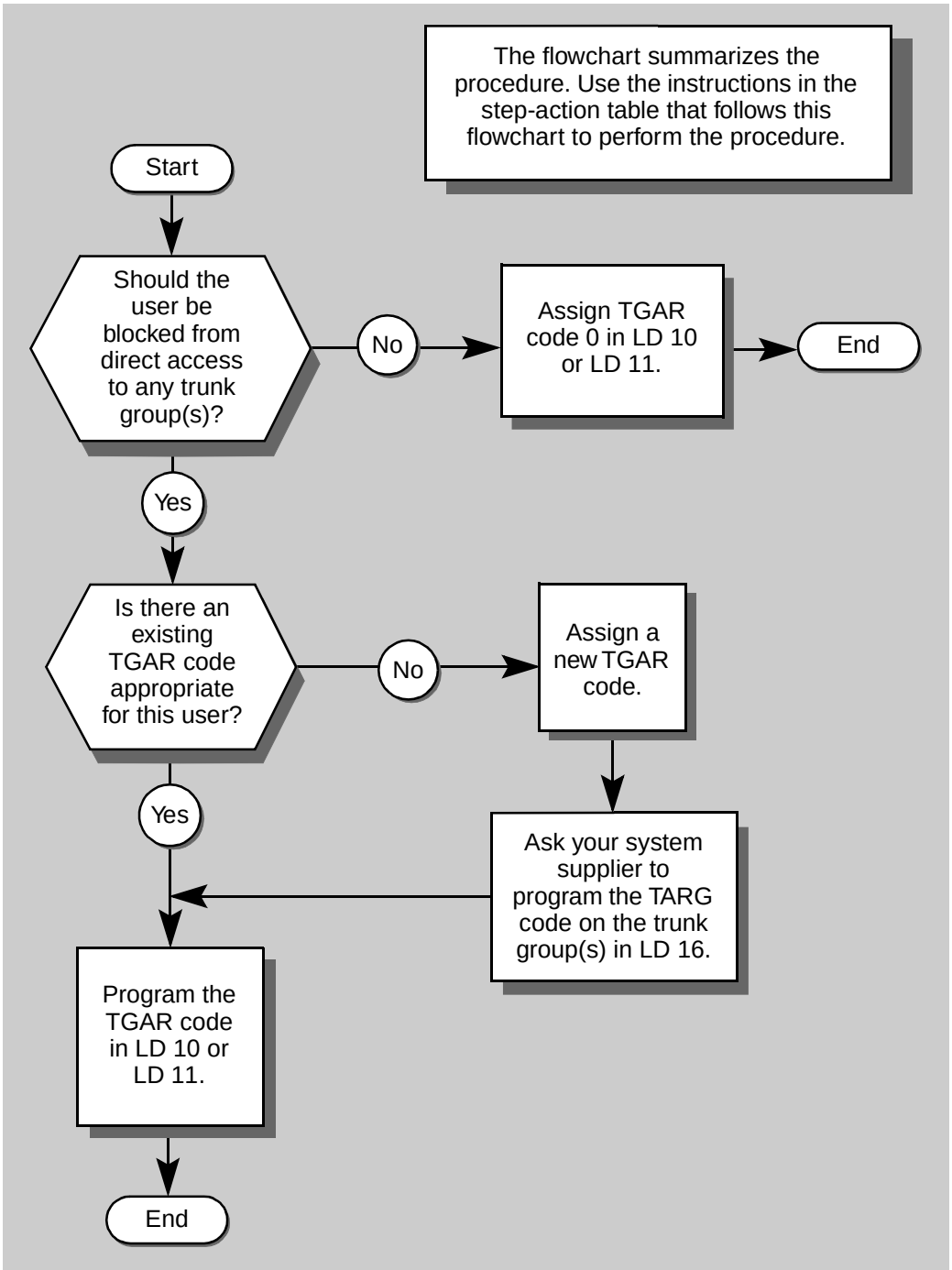
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Decide if the user must be restricted from direct trunk access to certain trunk groups.
✔		Find out what Release of software you are using so you know what the default TGAR and TARG is.
✔		Decide if the user should be blocked if the attendant uses the Trunk Group Busy keys on the console to make a trunk group busy.
✔		Determine, from summary charts or printouts if there is an existing TGAR code which meets the needs of the user. Check that the trunk groups are programmed to block this user.
✔		If no existing TGAR is appropriate, decide on a new TGAR code to use, arrange to program the TARG on the restricted trunk group(s) and update the summary chart.
✔		Determine the intercept treatment users are to receive when they attempt to make a restricted call. Record the announcement if you intend to use that type of intercept treatment. Inform the attendants if you intend to do that.
✔		Prepare training. Plan what you want to tell users about trunk groups and access codes and intercept treatments.
	✔	If BARS, NARS or CDP is programmed, find out whether TGAR has been implemented to prevent bypass using direct trunk access.
	✔	If BARS, NARS or CDP is programmed, ask your system supplier if TGAR has been activated for these types of calls. If so, assign the appropriate TGAR based on their advice.
	✔	Arrange to look at CDR data periodically to ensure unauthorized people are not using direct trunk access and/or accessing trunk groups they do not require.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary to implement this feature.

Trunk Group Access Restriction



Trunk Group Access Restriction

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation or change of the TGAR feature only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION

1 Look for a TGAR/TARG summary chart in your records.

If	Do
summary chart exists	step 6
summary chart does not exist	step 2

2 Log in

For information on proper login procedures, refer to *Basic programming instructions* in this book.

3 Print the TGAR codes assigned to existing telephones.

`> LD 20` (pre-Release 19 software)

`> LD 10` or `> LD 11` or `> LD 20` (Release 19 or later software)

REQ	PRT	Request a printout
TYPE	TNB	Terminal Number Block
TN	<cr>	<cr> = all

You see a printout of all existing TNs.

List all TGAR codes which are assigned to any telephone(s).

Go to step 4.

— continued —

Trunk Group Access Restriction

STEP	ACTION
4	**Print the TARG codes assigned to existing trunk routes.**
	`> LD 21` **REQ** PRT Request a printout **TYPE** RDB Route Data Block **ROUT** <cr> <cr> = all You see a printout of all existing routes. List all TARG codes which are assigned to any trunk routes. Go to step 5.
5	**Build a TGAR/TARG summary chart.**
	Use the example in the *Administration tips* part of this Task module. You now have a visual aid to the TGAR/TARG programming at your site. Go to step 6.
6	**Decide if there is an existing TGAR code in use which suits the telephone you are about to program.**
	If — **Do** one exists — step 8 one does not exist — step 7
7	**Determine if the user should be blocked when the attendant Trunk Group Busy keys are pressed.**
	If — **Do** user should be blocked — Assign an available TGAR between 0–7 user should not be blocked — Assign an available TGAR between 8–31 (Release 13 and later). (8-15, pre-Release 13).

— continued —

Trunk Group Access Restriction

STEP	ACTION

8 Choose the step that applies to what you are doing.

If	Do
installing a new telephone	step 9
changing an existing telephone	step 10

9 Program the TGAR for a new telephone.

Log in, if you have not already done so.

For information on proper login procedures, refer to *Basic programming instructions* in this book.

`>` LD 10 or `>` LD 11

REQ NEW

TYPE Input type of telephone

TN L S C U Input the Terminal Number (TN) assigned to the telephone (**L**oop, **S**helf, **C**ard, **U**nit number)

Program the basics... Refer to Tasks 1–19 for information.

Carriage return until you see the prompt TGAR

TGAR Assign a TGAR code

(0)–15 pre-Release 13 - default 0

(0)–31 Release 13 to Release 21 - default 0

0–(1)–31 Release 22 and later - default 1

— continued —

STEP	ACTION
9 continued ...	
	Carriage return until you see either of the following messages:
	U.data P.data small systems
	or
	MEM AVAIL: (U/P) USED:TOT: large systems
10	**Program the change to TGAR for an existing telephone.**
	Log in, if you have not already done so.
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
	> LD 10 or **>** LD 11
	REQ CHG Program a change to an existing telephone
	TYPE Input type of telephone
	TN L S C U Input the Terminal Number (TN) assigned to the telephone (**L**oop, **S**helf, **C**ard, **U**nit number)
	ECHG
	If / **Do**
	you want to use "Easy change" — Input YES and go to step 11.
	you do not want to use "Easy change" — Input NO or <cr> and go to step 12.
	For more information on "Easy change," go to the *Basic programming instructions* module of this book.

— continued —

Trunk Group Access Restriction

STEP	ACTION
11	**Program an “Easy Change” to an existing telephone.**
	ITEM TGAR X X is 0 – 31 (0–15, pre-Release 13) **ITEM** <cr> Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory. Go to step 13.
12	**Program a change (not an “Easy Change”) to an existing telephone.**
	Carriage return until you see the prompt TGAR **TGAR** X X is 0 –31 (0–15, pre-Release 13) Carriage return until you see one of the following messages: **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems When one of these messages appears, your change has been entered into the memory.
13	**Check the trunk route TARG.**
	Ask your system supplier to check the programming of the trunk groups to ensure this telephone is blocked properly. For the trunk routes to be restricted, ensure there is a TARG programmed which matches the TGAR of this telephone.

— continued —

Trunk Group Access Restriction

STEP	ACTION
14	**Update your summary chart to reflect the programming you just did.**
	Keep the chart for your records.
15	**Check that the feature works on the telephone that you have just programmed.**
	Arrange to have TARG codes programmed on trunk routes, as required. Dial calls using direct trunk route access code(s) and ensure the calls get treated as expected.
	If — **Do**
	feature works — step 16
	feature does not work — step 1
16	**Arrange for a data dump to be performed.**
	If — **Do**
	you do not have access to LD 43 — Contact your system supplier.
	you have access to LD 43 — step 17
17	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

Trunk Group Access Restriction

STEP	ACTION
18	**Verify that the data dump was successful.**

TTY response:

```
NO GO BAD DATA
```

or

```
DATA DUMP COMPLETE
```

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 19

STEP	ACTION
19	**Terminate this overlay program.**

```
. ****
```

STEP	ACTION
20	**Terminate this programming session.**

Log off.

```
> LOGO
```

STEP	ACTION
21	**You have completed the programming required to add or change the TGAR feature on a telephone.**

END

Copying a telephone

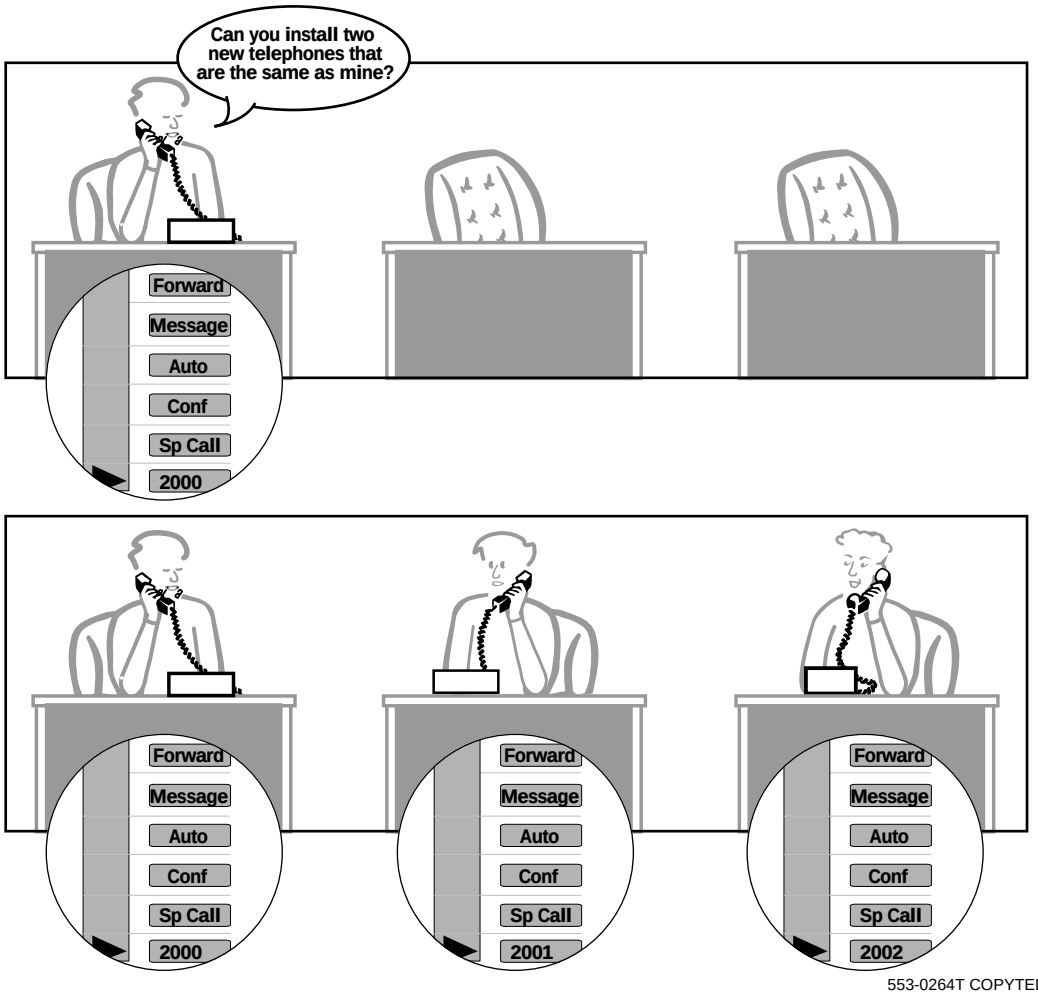
Purpose

The Copy capability can save you time when you are installing one or more new telephones, that are identical to an existing telephone. This allows you to tell the system to duplicate the programming of an existing telephone.

For example, you might need to install three new digital telephones that will have the same feature requirements. You can simply program one of the new telephones and then make two copies. Each new telephone will have the same features programmed as the original telephone. Each telephone will have its own individual DN.

Copying a telephone

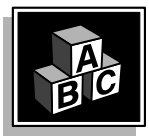
When to use the copy capability



553-0264T COPYTEL

Copying a telephone

Preparation



This part tells you what is involved with using the Copy command. Use the Copy command if there is a telephone already programmed that you want to copy.

When to use the Copy (CPY) command

You can save time when you are programming new telephones if you use the Copy command. You can use the CPY command to make up to 32 copies of an existing telephone.

You can use the Copy capability to:

- make duplicates of existing dial and Digitone-type telephones or SL-1-type and digital telephones
- program one new telephone first and then use it as a template for others

If you are installing several new telephones, complete your review of the new users' needs. Use the CPY command if they have identical requirements for:

- features and the programming of such things as Hunting DNs and Speed Call list numbers
- the number of DNs they need on SL-1 or digital telephones
- the types of telephones
- the number of keys or Key Expansion modules they are using
- displays
- handsfree units

Copying a telephone

The benefits of using the Copy capability are:

- reduced programming time
- reduced use of memory since the system takes advantage of duplicates by storing them against templates
- uniform training of users is possible
- fewer types of training guides are required, if you customize your guides
- users feel comfortable using telephones that are copies of their own
- your system administration and maintenance are easier due to fewer varieties of telephones

Selecting DNs and TNS

You can choose the DN, the TN or both the TN and the DN for each copied telephone that you program. You can have the system select one or both of these for you. Refer to the *Improving performance* part of this module for more information on the special case that applies when you program only one copy.

When you program more than one copy of a telephone, the system presents you with a prompt, CFTN, that means “Copy from what TN?”. You must enter the TN of the telephone that is already programmed and that you are using as the template for the copy.

The next prompt, SFMT, asks you to select a format. The format choices you have are:

- choose the TN and DN manually
- choose the TN manually, let the system choose the DN
- choose the DN manually, let the system choose the TN
- let the system choose the TN and DN automatically

If the system selects the TN or the DN, you must program the starting DN or TN for the system’s use.

Copying a telephone

The system will look for consecutive TNs and DNs to assign to the copies, so you must ensure that these are available before you begin.

After you have entered the response to the DN prompt, system messages will print out. These messages identify the TN and the DN of each new copied telephone. An example is shown below:

```
NEW 2616    TN 003 0 00 01      DN 2000
NEW 2616    TN 003 0 00 02      DN 2001
```

Spare line cards

Ask your system supplier to program spare line cards for you to use when you make telephone copies. These cards are activated in memory for use with the Copy command. The card has no telephone programming until you do the copy programming.

Jacks must be cross-connected to the line cards that are spare. Ask your system supplier to tell you what TN is assigned to each jack, so you can identify each telephone in printouts.

TN-Block printout

After you have programmed the telephone that you will use as the template for the copies, get a TNB printout. Use this printout to verify what the programming will be for all the new telephones. Take some time before you program the copies to assess, in detail, whether this template does apply to every one of the new telephones you are going to program. If there are some modifications that you want to make, take note of the telephones that you will need to change, after you have programmed the copies.

After you have programmed copies, it is a good idea to obtain TNB printouts of the new telephone data as well. Use the messages that printed out automatically to identify the TN(s) of the new telephone(s). The DN shown for each telephone is the prime DN. If you want to verify what secondary DN(s) are programmed on SL-1-type or digital telephones, get a TNB printout of the template telephone or the copied telephone(s).

Copying a telephone

Using the NEW command vs. the CPY command

You can program several new dial or Digitone-type telephones at one time using the NEW command.

If there is no existing telephone already programmed that you want to copy, you can use the NEW command followed by a space followed by the number of new telephones that you want to program at once. If you do not type any number following the NEW command, the system assumes you are installing one new telephone.

You can program a maximum of 255 dial or Digitone-type telephones at one time.

When you use the NEW command, you input the responses to the prompts that appear, just as you would when you install one new telephone. The programming applies to all the new telephones you requested, up to the maximum number you specified.

You choose the TN and DN for the first telephone as you program it. The system prints out a message when you are finished. The message identifies the TN and DN that it assigned automatically, for each of the other new telephones.

If you use the NEW command in this way, the system will only use consecutive TNs and DNs when it assigns these to the new telephone(s). This will work well on a new system when consecutive TNs and DNs are readily available.

Copying a telephone

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

When telephones are similar, not identical

If a new telephone will have a slightly different configuration from an existing telephone, it can still save you time if you program the new telephone using the CPY command.

Use the CPY response followed by a space and the digit 1.

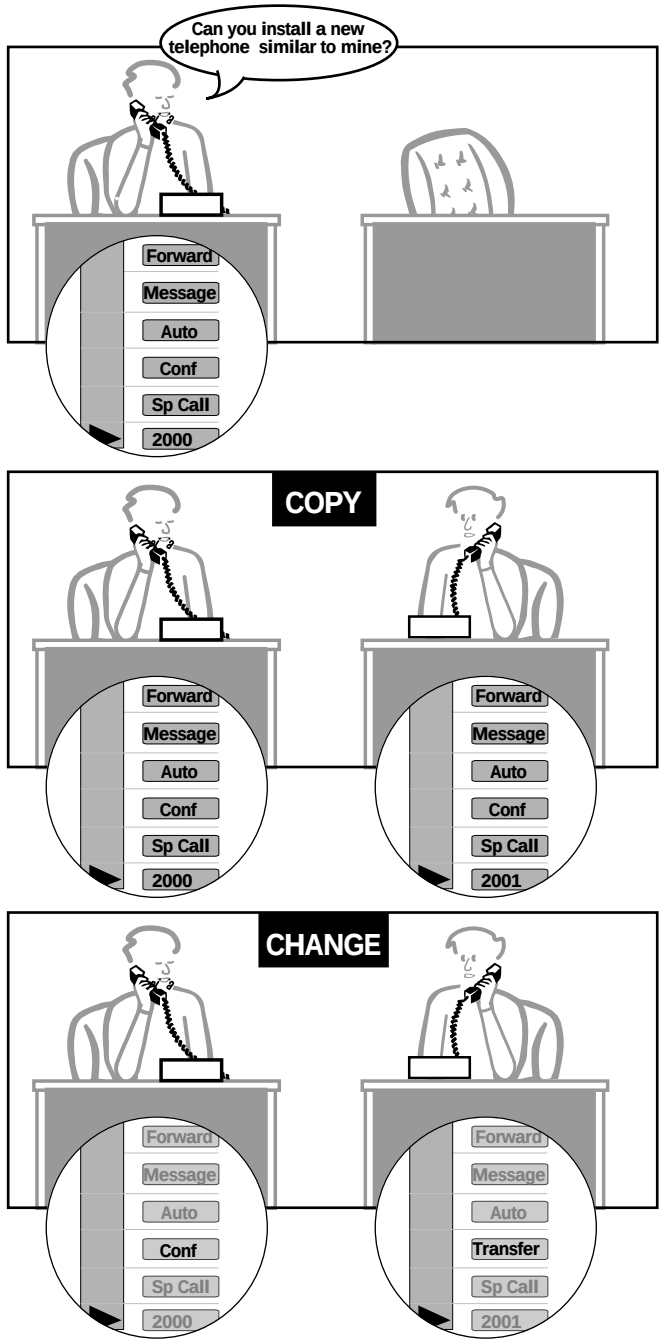
After you have programmed the copy, make the necessary change(s) to the new telephone using Easy Change.

This can be a faster method of programming, compared to programming each new telephone individually.

When you make one copy, the system prompts you to assign both the TN and the DN. On SL-1-type and digital telephones, the DN you assign is the prime DN that appears on key 0. Secondary DNs will be copied from the template telephone that you are using.

After you have made the copy, obtain a TN Block printout. This allows you to verify what has been programmed. It also allows you to organize the data for any changes you might want to make.

Copying a telephone



Copying a telephone

Control tips

- The CPY command improves the efficiency of the use of your system memory. It encourages you to implement a template wherever possible. This in turn allows the system to use templating in its memory. Scrutinize your users' requests, to justify requested differences in telephone layout and programming.
- To maintain control of the system traffic, select the TNs for the copies yourself. Let the system select the DNs, if you have no specific requirements for the DNs that will be assigned.

Administration tips

- If you are allowing the system to choose the TNs for several new copied telephones, you must first assess the impact this will have on the traffic load. Consecutive TNs are selected when they are selected automatically. The new copied telephones will therefore be programmed on the same card, or neighboring cards on the same loop/Superloop. If a loop is already near its recommended maximum traffic load, the extra telephone traffic from the copied telephones may push the traffic volumes over the recommended limits. This is usually not a concern with Superloops.
- The spare cards that are activated in memory, are also used by the Automatic Set Relocation software.This feature allows users to move their own telephones. For more information, refer to the *You should know this* module.
- Avoid programming the telephone copies before the telephones are installed at the jack locations. If the telephones are not installed, you will see SL-1 and digital telephone maintenance messages printing out on the maintenance printer. These messages indicate that there are programmed TNs that do not have telephones connected. The jacks will be disabled if this condition continues. Therefore, if you are copying these kinds of telephones, install the telephone before you program the copy. The system does not print out maintenance messages if dial or Digitone-type telephone jacks have no telephone connected.

Copying a telephone

Training tips

- Once you establish the models or templates of telephones that you will be using on your system, you can publish customized user training guides to go with each telephone template. You can conduct training sessions for users who share common features.

What to have ready

The following checklist summarizes the steps you should take before you use the CPY command.

Table 247
Checklist

Basic	Optional	Preparation
✔		Determine whether the new telephones you adding are: ◆ identical to an existing telephone ◆ almost identical to an existing telephone ◆ identical to each other ◆ almost identical to each other
✔		Determine if there is a telephone already programmed that you can use as a template.
✔		If there is no identical telephone already programmed, program one of the new telephones that you will use as the template.
✔		Get a TNB printout of the telephone you intend to use as the template.
✔		Check the programming in the TNB printout and compare it to the needs of the user of each new telephone. Determine if the Copy command is appropriate for each one.

— continued —

Table 247
Checklist (Continued)

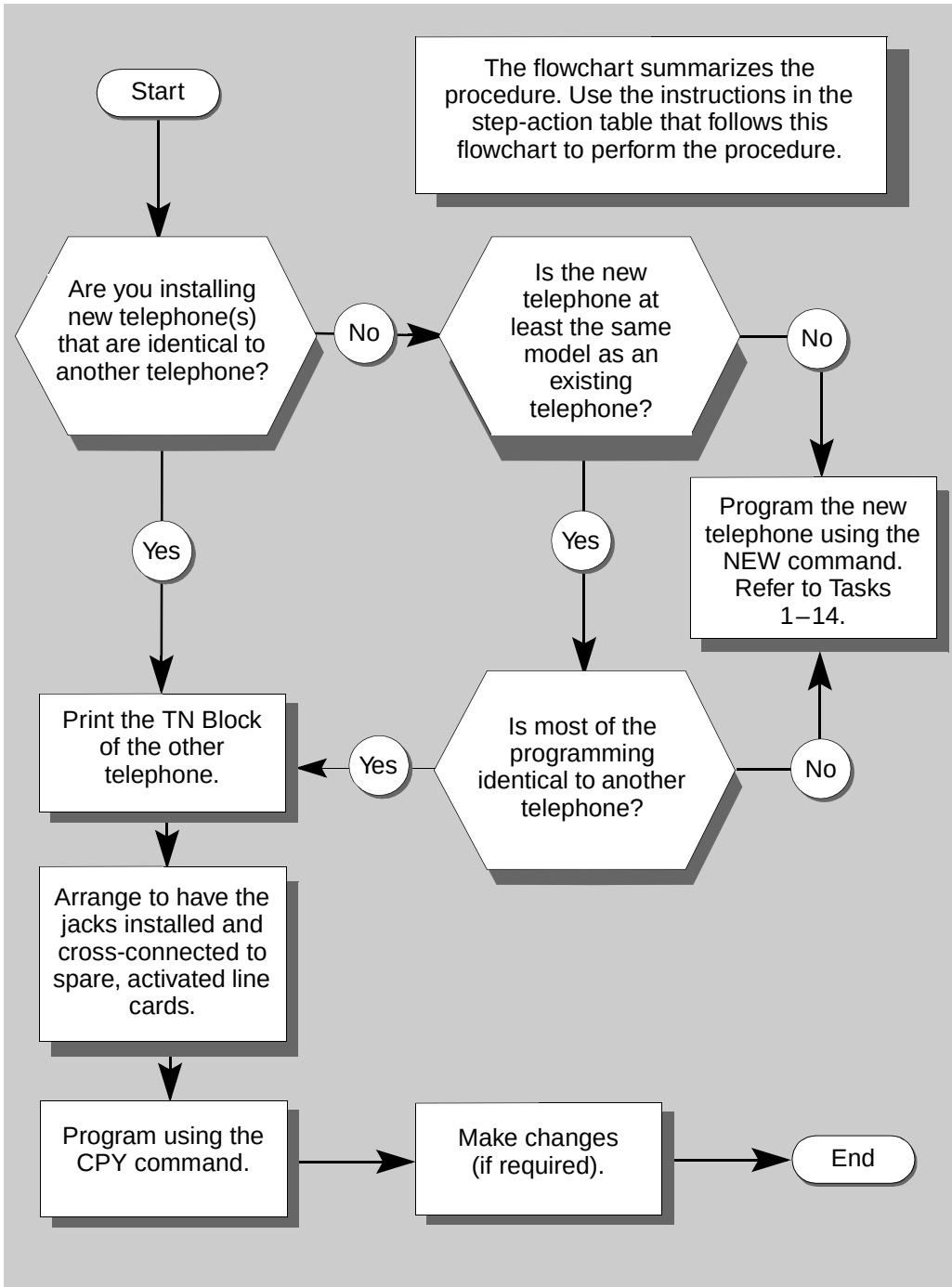
Basic	Optional	Preparation
✔		If a few changes will be needed, fill out worksheets for those changes before you begin.
✔		If you are making more than one copy, determine whether you want to manually select TNs and DNs or whether you will let the system select one or both of those.
✔		Determine if the telephones have been installed.
✔		Determine if the necessary spare line cards have been installed and activated in programming.
✔		Determine if the cross-connect work has been done, connecting the new telephones to the spare line cards.
✔		Find out the TN assigned to each new jack.
✔		Prepare training material for the users.

What's next?

A flowchart follows which summarizes the implementation decisions and procedures.

A step-action table follows the flowchart. Use it to do the programming steps necessary when you make copies of telephones.

Copying a telephone



Copying a telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the implementation of several identical telephones.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in.**
	For information on proper login procedures, see *Basic programming instructions* in this book.
2	**Choose the telephone that you will copy.**
	If / **Do**
	it is already programmed — step 3
	it is not already programmed — Program the new telephone and then go to step 3. Refer to Tasks 1– 44 and the *X11 input/output guide.* Alternately, if it is a dial or Digitone-type telephone you can go to step 16.
3	**Verify the programming of the existing telephone.**
	If / **Do**
	you know the TN of the existing telephone — step 5
	you know the DN but not the TN of the existing telephone — step 4
4	**Print the DN Block of the existing telephone.**
	Use LD 20 or LD 22. For more information, refer to the *Basic programming instructions* module in this book.
	Identify the TN of the telephone you wish to copy. Go to step 5.

— continued —

Copying a telephone

STEP	ACTION	
5	**Print the TN Block of the existing telephone.**	
	Use LD 10 or LD 11 or LD 20. For more information, refer to the *Basic programming instructions* module in this book.	
	Look at the TNB printout carefully.	
	Verify that the programming of this telephone is what you want to copy for the new telephones you will program.	
6	**Program the copies you need.**	
	If	**Do**
	Dial or Digitone-type telephone	step 7
	SL-1-type or digital telephone	step 8
7	**Copy a dial or Digitone-type telephone.**	
	`> LD 10`	
	REQ `CPY X`	Copy a template telephone (Release 12 or later) X represents the number of copies (1–32) you want to make
	TYPE `500`	Dial or Digitone-type telephone
	CFTN `L S C U`	Copy from TN – Input the Loop number, Shelf number, Card number, Unit number for the existing telephone you want to copy
	If	**Do**
	you input CPY 1 at the beginning of the program	TN prompt appears – respond with the TN of the new telephone (L S C U) DN prompt appears – respond with the DN of the new telephone Go to step 14.
	you input CPY 2 through 32 at the beginning of the program	SFMT prompt appears, meaning Select Format – respond with one of the choices in step 9.

— continued —

Copying a telephone

STEP	ACTION
8	**Copy an SL-1-type or digital telephone.**

> LD 11

REQ	CPY X	(Release 12 or later) X represents the number of copies you wish to make (1–32)
TYPE		Input the correct type of SL-1 or digital telephone
CFTN	L S C U	Input the Loop number, Shelf number, Card number, Unit number for the existing telephone you wish to copy

If	Do
you input CPY 1 at the beginning of the program	TN prompt appears - respond with the TN of the new telephone (L S C U) DN prompt appears - respond with the DN of the new telephone — 4 digit maximum without DNXP software, 7 digit maximum with DNXP software Go to step 14.
you input CPY 2 through 32 at the beginning of the program	SFMT prompt appears, meaning select format Respond with one of the choices in step 9.

— continued —

Copying a telephone

STEP	ACTION		
9	**Select format (response to SFMT prompt).**		
	If		**Do**
	you want to choose the TN and DN for each copied telephone		Input TNDN and go to step 10.
	you want to choose the TN and let the system choose the DN for each copied telephone		Input TN and go to step 11.
	you want to choose the DN and let the system choose the TN for each copied telephone		Input DN and go to step 12.
	you want to let the system choose the DN and TN for each copied telephone		Input AUTO and go to step 13.
10	**Input the TN and DN for each copy.**		
	TN	L S C U	Input the TN (Loop number, Shelf number, Card number, Unit number) for the first copy
	DN	X..X	Input the DN for the first copy, X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	A message prints out, indicating the TN and DN of the new telephone.		
	TN	L S C U	Input the TN (Loop number, Shelf number, Card number, Unit number) for the second copy
	DN	X..X	Input the DN for the second copy, X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	Continue inputting TNs and DNs until you have made the number of copies you specified after the CPY command earlier.		
	A message prints out after each DN you select, indicating the TN and DN of each new telephone. Go to step 14.		

— continued —

Copying a telephone

STEP	ACTION		
11	**Input the TN for each copy. Let the system choose the DN.**		
	TN	L S C U	Input the TN (Loop number, Shelf number, Card number, Unit number) for the first copy
	DN	X..X	Input the DN for the first copy. The system will assign DNs to the copies in numerical order, starting from the number you specify here. X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	A message prints out, indicating the TN and DN of the new telephone.		
	TN	L S C U	Input the TN (Loop number, Shelf number, Card number, Unit number) for the second copy
	A message prints out, indicating the TN and DN of each new telephone.		
	Continue inputting TNs until you have made the number of copies you specified after the CPY command earlier. Go to step 14.		
12	**Input the DN for each copy. Let the system choose the TN.**		
	TN	L S C U	Input the TN for the first copy. The system will assign TNs to the copies in numerical order, starting from the number you specify here.
	DN	X..X	Input the DN of the first copy X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	A message prints out, indicating the TN and DN of the new telephone.		
	DN	X..X	Input the DN of the second copy X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	A message prints out, indicating the TN and DN of the new telephone. Continue inputting DNs until you have made the number of copies you specified after the CPY command earlier. Go to step 14.		

— continued —

Copying a telephone

STEP	ACTION		
13	**Let the system choose the DN and TN for each copy.**		
	TN	L S C U	Input the TN for the first copy. The system will assign TNs to the copies in numerical order, starting from the number you specify here.
	DN	X..X	Input the DN for the first copy. The system will assign DNs to the copies in numerical order, starting from the number you specify here. X..X represents the DN 7 digits maximum with DN Expansion (DNXP) software equipped 4 digits maximum without DNXP
	A message prints out, indicating the TNs and DNs of the new telephones.		
14	**The overlay program is finished.**		
	The following message prints out. *****FINISHED***** **U.data P.data** small systems or **MEM AVAIL: (U/P) USED:TOT:** large systems Go to step 18.		
15	**Choose one of the following options.**		

If	Do
you want to program all the telephones as identical new telephones	step 16
you want to program one telephone first and then make copies of it later	Refer to Tasks 1– 44 and the *X11 input/output guide.*Then go to step 3.

— continued —

Copying a telephone

STEP	ACTION
16	**Program more than one new telephone.**

```
> LD 10
```

REQ	NEW XXX	Input NEW followed by a space followed by the number of identical new telephones you want to program. XXX can be 1–255.
TYPE	500	Dial or Digitone-type telephones
TN	L S C U	Input the Loop number, Shelf number, Card number, Unit number of the first new telephone. The system will assign the rest of the TNs for the number of new telephones you specified.

17 Program the rest of the overlay program based on the needs of the new telephone users.

Refer to the appropriate modules in this book that have information on *Making a telephone work* and *Adding and changing features*. Refer to the *X11 input/ output guide* for information on features not included in this book.

At the end of the program the system prints out a message indicating the TNs and DNs of the new telephones, not including the one that you input yourself.

Next the system prints:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

18 Get a TN Block printout of the new telephones

Use LD 20. Refer to the *Basic programming instructions* module in this book for further information.

— continued —

Copying a telephone

STEP	ACTION
19	**Verify that the new telephones work according to the needs of the users.**
	If — **Do**
	you must make changes — Refer to the Task module that applies to the change(s) you require or refer to the *Software Input/Output Guide* for further information.
	no changes are required — step 20
20	**Arrange for a data dump to be performed.**
	If — **Do**
	you do not have access to LD 43 — Contact your system supplier.
	you have access to LD 43 — step 21
21	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

See the *Basic programming instructions* module of this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

— continued —

Copying a telephone

STEP	ACTION
22	**Verify that the data dump was successful.**

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 23

23	**Terminate this overlay program.**

```
. ****
```

24	**Terminate this programming session.**

Log off.

```
> LOGO
```

25	**You have completed the programming related to copying the data associated with a telephone.**

END

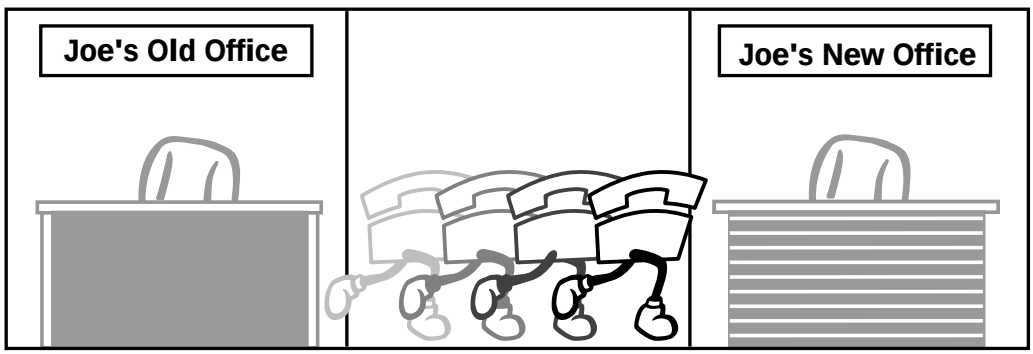
Copying a telephone

Moving a telephone

Purpose

You program a move of a telephone if the user is moving to a new location and will be connected to the same system at the new location.

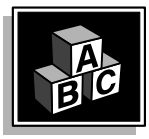
You need to program the system so it has the data associated with the telephone moved to the Terminal Number (TN) of the jack at the new location.



553-0113T MOVE

Moving a telephone

Preparation



This part tells you what issues to consider when you move a telephone.

Physical check

Before you move a telephone from one jack to another, you might want to look at the location where the telephone is. This helps you to discover other equipment, related or unrelated to the telephone system, which you must also move. For example, there might be a PC, a printer, or a fax which you need to move or remove at the same time.

Different approaches

There are three different ways you can move telephones:

- Automatic Set Relocation, if you have software package 53
- TTY programming using the MOV command
- Moving the wires on the cross-connect panel

Automatic Set Relocation method

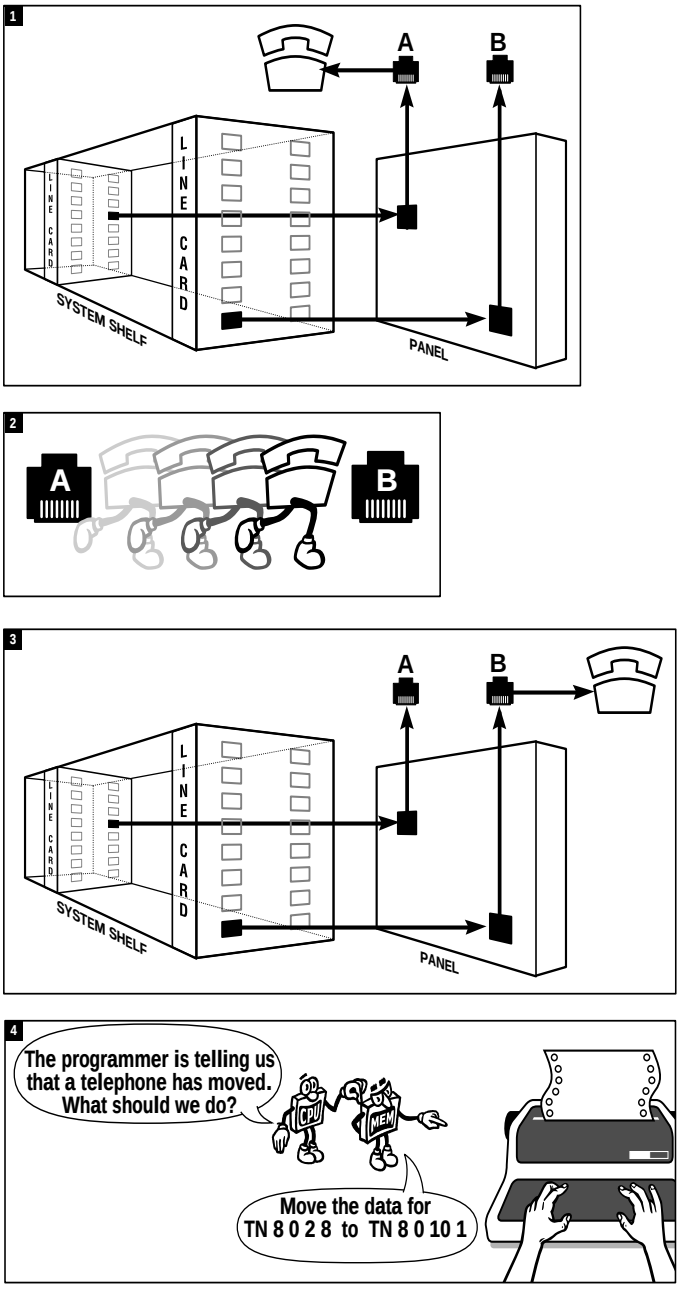
Automatic Set Relocation allows users to move their own telephones using feature codes to tell the system to move the database associated with the moving telephone from one TN to another.

For this feature to work, you must equip your system with the necessary line cards to allow users to move telephones to jack positions that are pre-wired and connected to line cards. Assess the expense and benefits involved against the expense and benefits of the other two alternatives.

If you are interested in Automatic Set Relocation, discuss it with your system supplier or refer to *X11 features and services*.

Moving a telephone

TTY programming method



553-0114T MOVE

Moving a telephone

TTY programming method

This command tells the system the TN of the jack that the telephone is leaving and the TN of the jack in the new location.

CAUTION
Check your maintenance agreement before you attempt to use the MOV command to program a telephone you wish to move.

The MOV command takes the data from the old TN and moves it, intact, to be associated with the new TN.

You need to ensure that the jack in the new location has been connected to a line card and that it is, or will be, cross-connected on the panel as well. If the telephone is moving to a jack which was already connected to a line card and cross-connected, the jack might be in a disabled state before the telephone moves there. During the MOV programming, however, the disabled jack automatically re-enables.

If the cross-connect work has not been done in advance, you need to coordinate the completion of that work before your programming will be effective in getting service to the telephone.

Once the telephone has been moved, if there are modifications you want to make to the programming, you can make them *after* you have used the MOV command. It is probably less time consuming to do this using the CHG command and to change a few prompts, once the telephone has been moved, than to take all data for the telephone out of the old jack and re-program the entire telephone at the new jack.

There is some coordination needed between the programmer and the person who is moving the physical telephone. It is likely best if the telephone is moved from one jack to another before the programmer enters the MOV commmand on the TTY.

If calls come into the old jack once the telephone has been removed, and before the MOV programming has been done, they will go unanswered and redirect to the Call Forward No Answer DN. Before

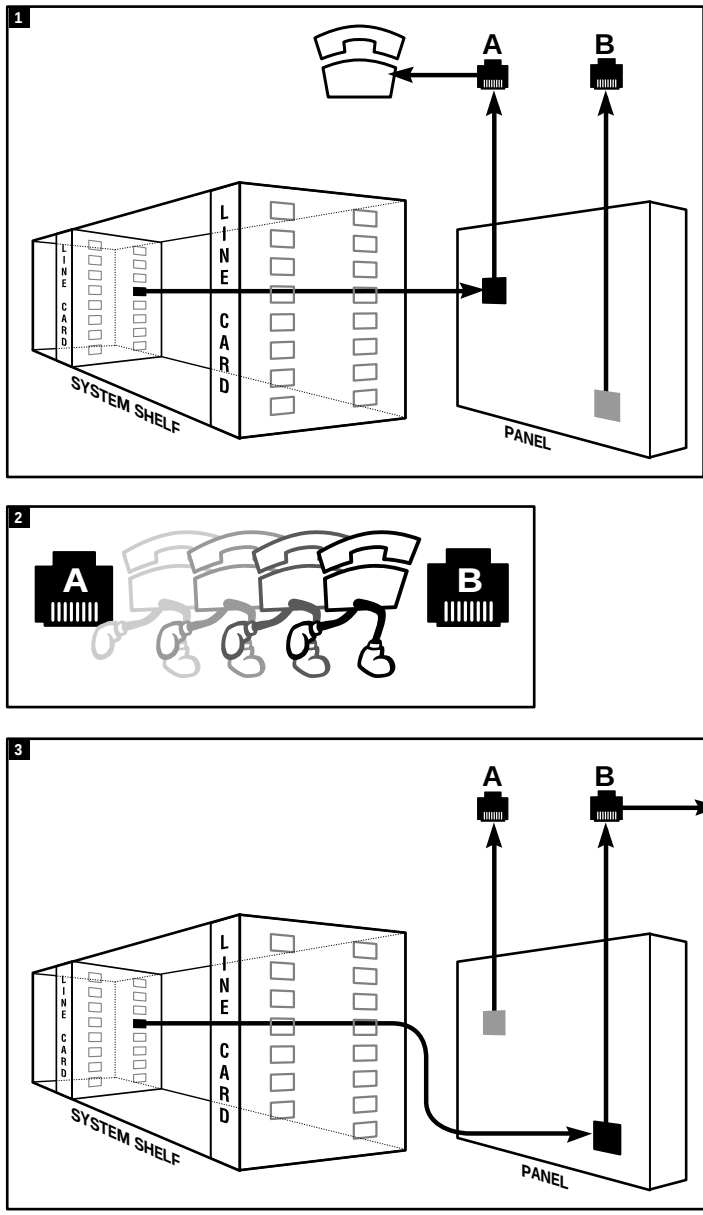
Moving a telephone

they move, users can activate the Call Forward All Calls feature to redirect calls to DNs of their choice, while they are moving. After the jack is installed at the new location, the users can call to get messages. They can deactivate Call Forward All Calls to start receiving calls at the new location.

If the telephone is already at the new location and the MOV programming has not been done yet, the system might do a check of the hardware and find the telephone at the new location with no associated programming. Maintenance messages print out on the maintenance printer for the system maintainer to analyze. If you inform the maintainer about the move in advance, the maintainer will not be concerned about these messages.

Moving a telephone

Cross-connect method



553-0115T MOVE

Moving a telephone

Cross-connect method

This method requires the system maintainer to change the cross-connect panel so that the wires from jack A are no longer connected to the TN. The wires from jack B are connected instead.

If there are changes you want to make to the programming of the telephone after the cross-connect work is done, you can do it by using the CHG command.

This method might require more coordination and scheduling than the TTY method since you must arrange to do any programming changes when your system maintainer does the cross-connect work, and the person moves the physical telephone.

Coordinate programming with the physical move of the telephone

Do not simply unplug the telephone, coordinate the programming with the physical move of the telephone. Jacks with no connected telephones cause different results depending on the type of line card to which the jack is connected. If you unplug a telephone a long time before you move it to the new location and program the MOV command, the following things can happen:

- if the telephone is digital or SL-1-type, the system disables the jack that has no connected telephone after a period of time, and prints out a warning message on the maintenance printer
- if the telephone is dial or Digitone-type, the jack remains in service and a user can plug in another telephone of the same type and get service. You can catch this when you monitor your Call Detail Recording printouts. If you are not doing this monitoring, the user can use that jack to make calls that cost you money.

Line cards

Line cards should be checked when you move a TN using the TTY method. You can check if the old jack TN was the last one programmed on a particular line card. If it was, and no other telephone is being moved here, your system maintainer can remove the card from the system. You can keep it as a spare card or even use the card slot for another type of card that you need for other types of terminals.

Moving a telephone

You will be doing a printout of the TN Block before you move the telephone, and you can look at the printout to see if there are any other programmed TNs on the same card. If not, the technician can remove the card from the card slot.

TN-Block printout

You need to do a TN Block (TNB) printout before you move the telephone for a number of reasons.

- It shows the programming of the telephone that you are about to move.
- It shows the programming of other telephones which will be affected when you move this telephone.
- It shows the programming of telephones that are near the new location of the telephone.
- It shows whether there are any other TNs on the same line card.
- In the case of a digital telephone, it shows you whether there is an associated data terminal to move, along with the telephone.

Make the necessary adjustments, if any, to other telephones before you move this one.

Use the TNB printout to find out the following:

- Look at the TNB printout of one telephone or several telephones near the new location for this telephone. Those that are in the same department or need the same features as the new telephone are good reference points. Interview the user or the user's manager to find out how the new user's needs match with the features programmed for others at the new location.
- If the telephone is getting a new DN assigned to it, update your Numbering Plan records, if you keep them. The DN Block in the system memory is automatically changed when the telephone is changed in the database.
- If the telephone is the Multiple Appearance DN Redirection Prime (MARP) for the DN(s) assigned to it, when you move the telephone and if the DN(s) change, the system reassigns the MARP.

Moving a telephone

If *you* want to assign the MARP, decide what telephone for each DN(s) on this telephone is to be the MARP and reprogram accordingly.

For more information on the MARP feature, refer to Task 39, *Multiple Appearance DN Redirection Prime*.

- If you keep records of the TNs in use, separate from the TN Block printouts, you should update your records. Show what TN is available once the telephone is removed and what TN is used at the new location.
- If the telephone is digital or SL-1-type, are any DN(s) on the telephone programmed for Multiple Call functionality?

  Look for MCR or MCN as the mnemonic in front of the DN number associated with a key.

  If you are going to change the DN to a new one after you move the telephone, look for other telephone(s) with the same DN as the old one programmed. If there is only one other, change that other telephone to a Single Call functionality, unless you intend to add other telephones with the same DN and set them up for Multiple Call. There is no point in having the one remaining single appearance DN programmed for Multiple Call functionality.

  For more information on Single Call and Multiple Call functionality, refer to any of the Tasks 1–14.
- Is this telephone a Speed Call Controller?

  Look for SSC (System Speed Call Controller) or SCC (Speed Call Controller) followed by a Speed Call list number.

  Look for other telephones in the printout that control the same list number. If the telephone you are moving is the only Controller of the list, and you want another telephone to become the Controller after this telephone moves, program the change on the other telephone before you move this telephone. Train the user on how to be a Speed Call Controller.

Moving a telephone

Change the telephone that is moving to have access to the list that best suits its needs at the new location. Check if there is a Controller of that list. If not, decide if there should be one and program accordingly. If you do not have a Speed Call Controller for this list, you will have to program new numbers on that list from the TTY.

For more information on the Speed Call feature, refer to Task 31, *Speed Call and System Speed Call*.

- Are other telephones programmed to Hunt calls to this telephone when they are busy?

  Look for other telephones programmed with the DN of this telephone as the HUNT DN (or EHT DN, if you have activated Call Forward by Call Type).

  For more information on the Hunting feature, refer to Task 37, *Hunting*. Refer to *Basic programming instructions* for more information on how to print out Hunt chains.

  Decide whether these same telephones are to Hunt to this telephone after the telephone has moved to the new location.

  Decide if the Hunting programmed for this telephone should stay the same after it moves.

- Are other telephones programmed to forward calls to this telephone when they are not answered?

  Look for other telephones programmed with the DN of this telephone as the FDN (or EFD DN, if you have activated Call Forward by Call Type).

  If your Customer Data Block is not programmed for FDN but is programmed for HNT instead, then look for the HUNT DN (or EHT DN, if you have activated Call Forward by Call Type).

  For more information on the Call Forward No Answer feature, refer to Task 36, *Call Forward No Answer*.

  Decide whether these same telephones are to forward to this telephone after the telephone has moved to the new location.

Moving a telephone

Decide if the Call Forward No Answer programmed for this telephone should stay the same after it moves.

- Is there another telephone that is a Hot Line which has the DN of this telephone as the DN signaled by that Hot Line telephone?

  You might need to reprogram the Hot Line telephone to signal some other DN.

  For more information on the Hot Line feature, refer to *X11 features and services*.

- Is this telephone the last or second to the last telephone in a Dial Intercom Group?

  Look for the DIG mnemonic followed by a group number.

  If this telephone is one of two remaining members in the group, you might need to reprogram the other telephone to remove the DIG function if the two users no longer need the Intercom feature once the telephone moves.

  For more information on the Dial Intercom Group feature, refer to *X11 features and services*.

- Is there a name in your database associated with the DN(s) on this telephone?

  If the user name is changing along with the move of the telephone, change the name(s) in LD 95, if you have access to it, or ask your system supplier to change the name(s) for you.

  For more information on the Call Party Name Display feature, refer to *X11 features and services*.

- If the telephone is moving and there will be a new user at the new location, you might want to take the telephone OUT at the old location and program it as a NEW telephone at the new location. This depends on the number of changes you will have to make and which would be the most time-saving approach.

  Compare the programming you see in the TNB and what you plan to input for the new user's needs. (Use the worksheet you have filled out with the new data, if you are using a worksheet).

Moving a telephone

Use the Station Review Worksheet in *Appendix 3* to remind you of what questions you need to ask, as a minimum, to be sure you have covered off the new user's needs.

You should also refer to the *X11 input/output guide* for the full set of prompts you will see in LD 10 or LD 11, to ensure you have considered all the prompts that will appear for your system software.

Interactions with other features

Moving a telephone can affect features and other telephones. You need to be aware of, and understand, these interactions before programming.

Improving performance

The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Control tips

The information in the *Preparation* section of this module pertains to control issues related to moving telephones.

Moving a telephone

Administration tips

- Record keeping is critical when you move telephones. This is especially true if you are using the Automatic Set Relocation feature. For this reason, you might not want to permit users to know the security password for this feature so that you are the only one who can move telephones this way. In this way, your records stay up-to-date.

Training tips

- If the move of a telephone causes you to reprogram other telephones, assess whether any training is required to tell the users about the changes.

Moving a telephone

What to have ready

The following checklist summarizes the steps you should take before moving a telephone.

Table 248
Checklist

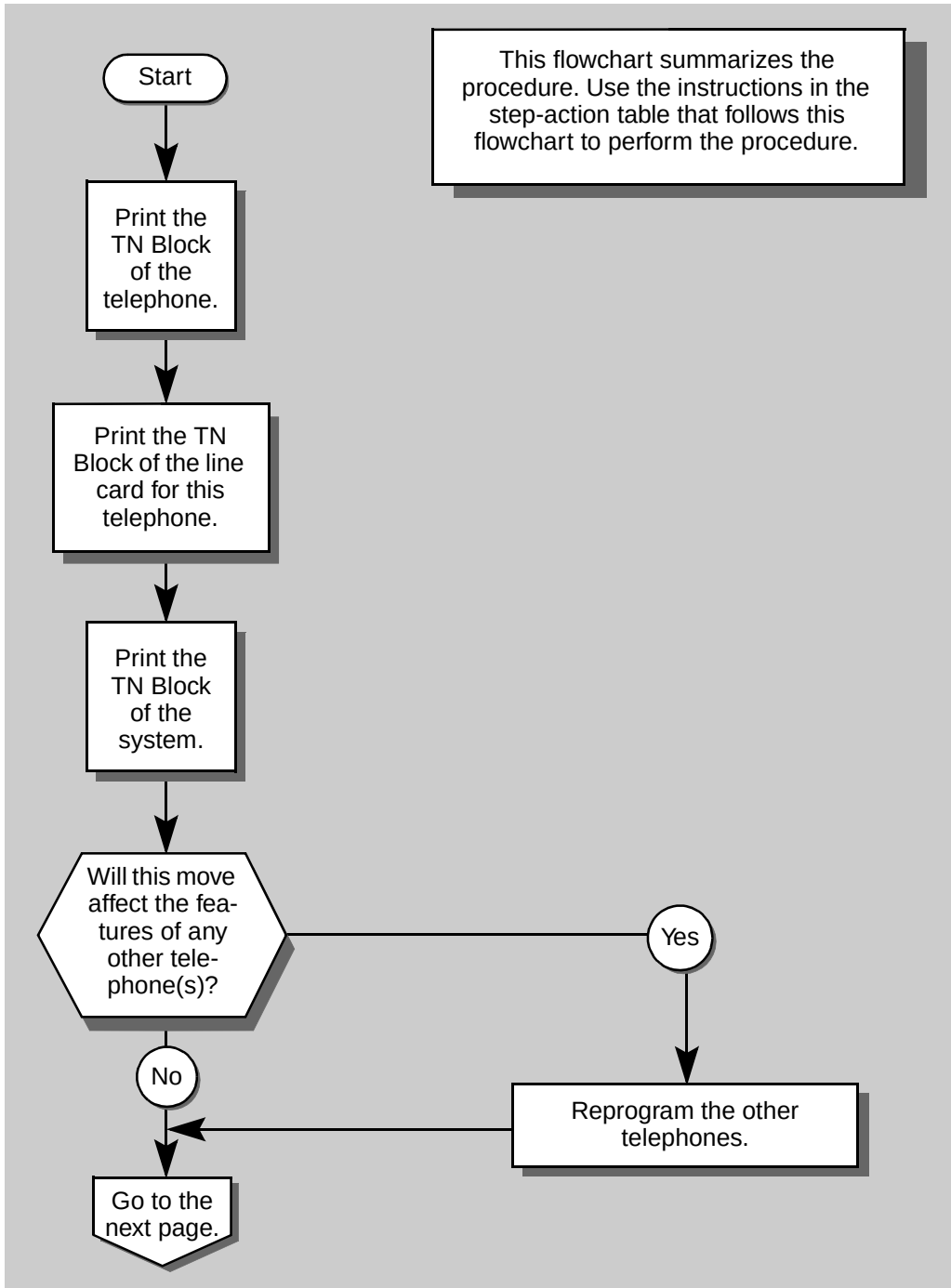
Basic	Optional	Preparation
✔		Decide whether you are choosing the cross-connect method or the TTY method or the Automatic Set Relocation method.
✔		Do a physical check of the new and old telephone location, before the telephone is moved.
✔		Arrange the physical work, if required.
✔		Schedule the move of the telephone with the physical work and the programming, if required.
✔		Determine the TN which is assigned to this telephone. If you do not assign TNs, ask your system supplier.
✔		Determine the new TN of the telephone, if you are using the TTY method.
✔		Print a TN Block of the telephone before it is moved.
✔		Print a TN Block of the line card to which this telephone is connected before it is moved.
✔		Print a TN Block of the system.
✔		Find out the user's needs at the new location. Refer to TNB of telephone(s) nearby for help.
✔		Assess impact on other telephones at the old and new location, when this telephone moves.
✔		Make programming changes to the other telephones.
	✔	Train users who will be affected by the changes caused by the move.
	✔	Update your records.

What's next?

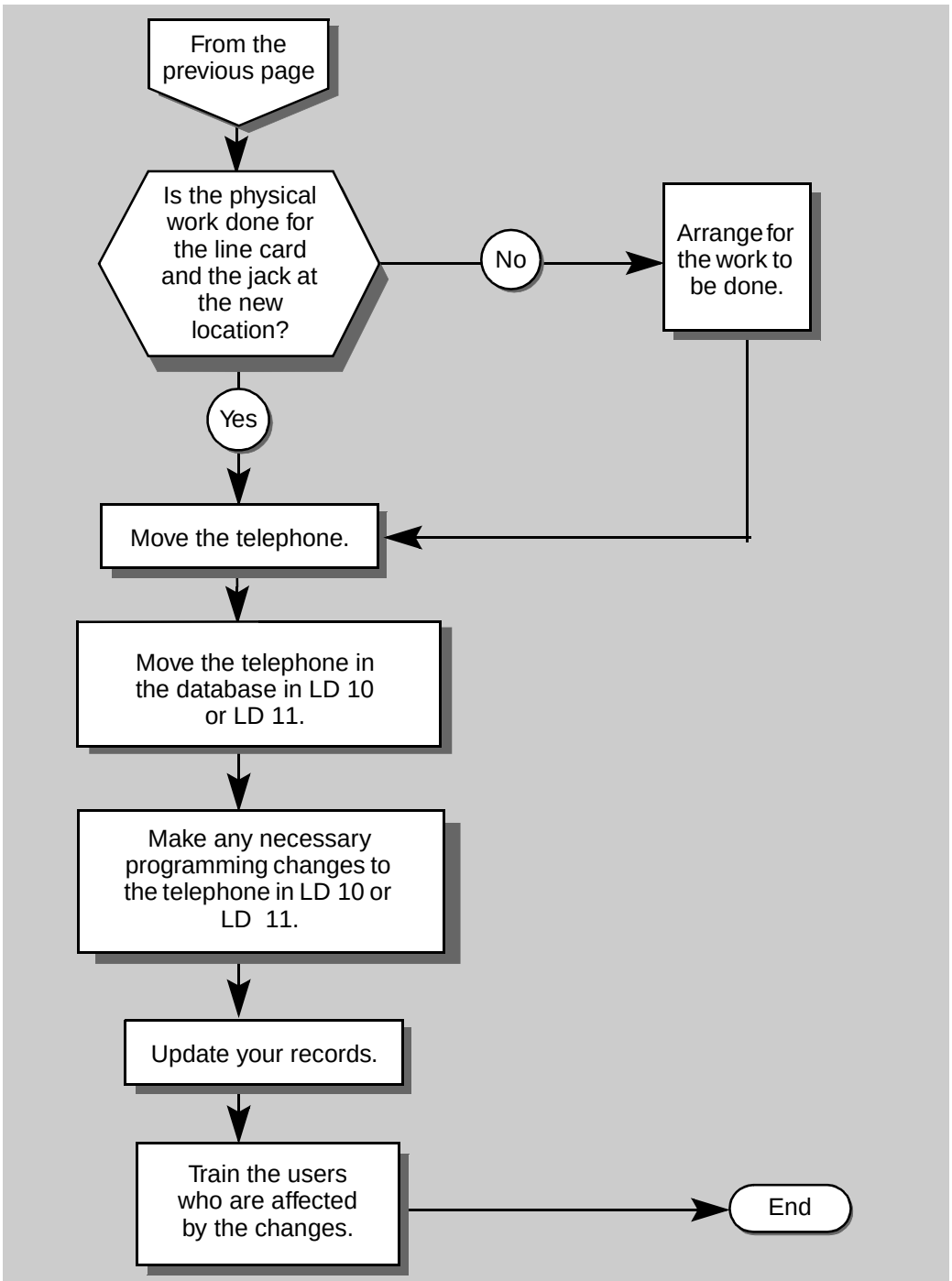
A flowchart follows which summarizes the implementation decisions and procedures for moving a telephone.

A step-action table follows the flowchart. The table explains the programming steps necessary to move a telephone.

Moving a telephone



Moving a telephone



Moving a telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to moving a telephone using the TTY method only.

If you are using the cross-connect method, arrange the necessary work with your system maintainer. If programming changes are required for the telephone at the new location, refer to step 10 in the table below.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Login**
	For information on proper login procedures, refer to the *Basic programming instructions* section in this book.
2	**Print a TN Block of the telephone you plan to move.**
	Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for one telephone Remove this TN from any records you might have.
3	**Print a TN Block of the line card to which this telephone is connected.**
	Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for the TNs on one line card.
4	**Look for a data TN associated with this telephone.**
	Look at the TN Block of the line card.

— continued —

Moving a telephone

STEP	ACTION
4 continued ...	

If	Do
you know there is a data terminal to be moved, and this telephone is dial, Digitone-type or SL-1-type	You should ask your system supplier what the data terminal TN is. Go to step 5.
the telephone is digital and connected to a card with 16 total TNS	Look for the unit numbers of the telephone TNs coupled with the data TNs in the following manner: 0–8, 1–9, 2–10, 3–11, 4–12, 5–13, 6–14, 7–15. Go to step 5.
the telephone is digital and connected to a card with 32 total TNS	Look for the unit numbers of the telephone TNs coupled with the data TNs in the following manner: 0–16, 1–17, 2–18, 3–19, 4–20, 5–21, 6–22, 7–23, 8–24, 9–25, 10–26, 11–27, 12–28, 13–29, 14–30, 15–31. Go to step 5.

5 Look at the printout to see if there will be any TNs programmed on that line card, after you move the telephone.

If	Do
there will not be any TNs programmed	Decide, with your system maintainer, whether the line card should be removed from the card slot. Update your records. Go to step 6.
there will be at least one TN programmed	step 6.

— continued —

Moving a telephone

STEP	ACTION
6	**Print a TN Block of the system.**

Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for the TNs on your system.

Assess the impact that the move of this telephone will have on other telephones at the old jack and new jack locations.

Make the necessary changes to the programming of these telephones. Refer to the earlier information in this module for help.

7	**Move the telephone in the database.**

Refer to *Basic programming instructions* in this book for information on the types of telephones and the overlay program to use for each type.

> LD 10 or **>** LD 11

REQ	MOV	Move the telephone or data terminal
	MOV PAIR	Move the telephone and its associated data terminal (only for octal-density line cards)
TYPE		Input correct type of 500 (dial or Digitone-type), SL-1 or digital telephone, or data terminal (MCA or MCU)
TN	L S C U	Input the old Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)
TOTN	L S C U	Input the new Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

— continued —

Moving a telephone

STEP	ACTION
8	**Finish the overlay program.**
	Carriage return until you see one of the following messages: **`U.data P.data`** small systems or **`MEM AVAIL: (U/P) USED:TOT:`** large systems When one of these messages appears, your Service Change has been entered into the memory.
9	**Check that the programming which you have just done is correct.**
	Request two printouts of the TN Block for the telephone you moved, one for the old TN and another for the new TN. **If** — **Do** TNB prints correctly — step 10. TNB does not print correctly — step 1.
10	**Make any changes you want to make to the telephone.**
	Refer to the Task modules in this book that apply to the changes you want to make. Refer to the *X11 input/output guide* for the changes you want to make that are not in this book.
11	**Arrange for a data dump to be performed.**
	If — **Do** you do not have access to LD 43 — Contact your system supplier. you have access to LD 43 — step 12.

— continued —

Moving a telephone

STEP	ACTION
12	**Perform a data dump to permanently store the programming you have just completed.**

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

STEP	ACTION
13	**Verify that the dump was successful.**

TTY response:

NO GO BAD DATA

or

DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 14.

— continued —

Moving a telephone

STEP	ACTION
14	**Terminate this overlay program.**
	. ****
15	**Terminate this programming session.**
	Log off. > LOGO
16	**You have completed the programming required to move a telephone.**
	END

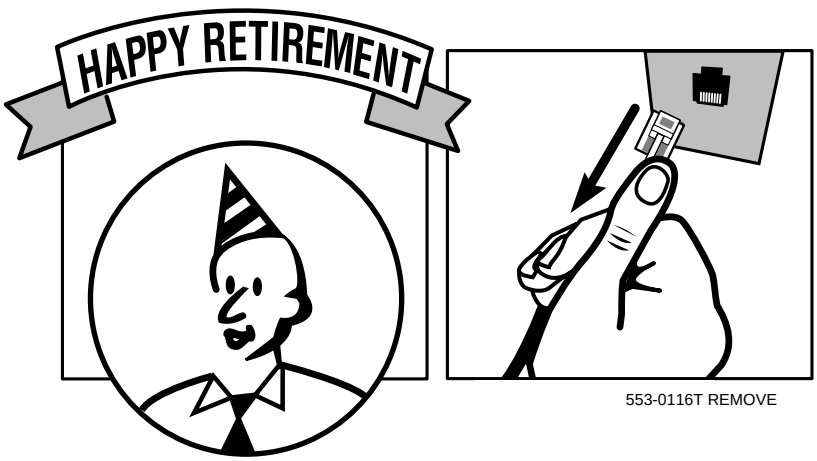
Moving a telephone

Removing a telephone

Purpose

You remove a telephone from the data base when:

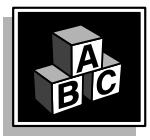
- the user no longer needs a telephone
- there is no longer a user at that location
- the user is moving to a new location



553-0116T REMOVE

Removing a telephone

Preparation



This part tells you what issues to consider before you remove a telephone from the data base.

Physical check

Before you remove a telephone from a jack and disconnect the service in the data base, you might want to look at the location where the telephone is. This helps you to discover other equipment, related or unrelated to the telephone system, which you must also disconnect. For example, there might be a PC, a printer, or a fax which you need to move or remove at the same time.

Do not simply unplug the telephone

- It is not a good idea to remove the telephone from the jack without removing it in the database also.
  - If the telephone is digital or SL-1-type, the system disables the jack after a period of time, and prints out a warning message on the maintenance printer.
  - If the telephone is dial or Digitone-type, the jack remains in service and a user can plug in another telephone of the same type and get service. You can catch this when you monitor your Call Detail Recording printouts. If you are not doing this monitoring, the user can use that jack to make calls that cost you money.
- A jack is connected to a unit on a line card (a Terminal Number or TN). If you leave jacks programmed with active TNs that have no connected telephones, you end up purchasing additional line cards for new telephones when in fact you already have the necessary line cards with enough capacity. This is a needless expense. If the situation is allowed to continue, you can end up buying extra shelves and modules for the extra line cards and your system gets increasingly difficult to manage.

Removing a telephone

Line cards

When you remove a TN, you can check if that is the last one programmed on a particular line card. If it is, you might want the technician who maintains your system to remove the card from the system. You can keep it as a spare card or even use the card slot for another type of card that you need for other types of terminals.

You will be doing a printout of the TN Block before you remove the telephone, and you can look at the printout to see if there are any other programmed TNs on the same card. If not, the technician can remove the card from the card slot.

TN-Block printout

You need to do a TN-Block (TNB) printout before you remove the telephone for a number of reasons.

- It shows the programming of the telephone that you are about to remove.
- It shows the programming of other telephones which will be affected if you remove this telephone.
- It shows whether there are any other TNs on the same line card.
- In the case of a digital telephone, it shows you whether there is an associated data terminal to remove, along with the telephone.

Make the necessary adjustments, if any, to other telephones before you remove this one.

Use the TNB printout to find out the following:

- If the telephone is the only one using the DN that is assigned to it, remove the DN from your Numbering Plan, if you keep one. The DN Block in the system memory is automatically changed when the telephone is removed from the database.
- If the telephone is the Multiple Appearance DN Redirection Prime (MARP) for the DN(s) assigned to it, when you remove the telephone, the system reassigns the MARP. If *you* want to assign the MARP, decide what telephone for each DN (or DNs) on this telephone is to be the MARP and reprogram accordingly.

  For more information on the MARP feature, refer to Task 39, *Multiple Appearance DN Redirection Prime*.

Removing a telephone

- If you keep records of the TNs in use, separate from the TN Block printouts, you should update your records to show the TN is available, after the telephone is removed.
- If the telephone is digital or SL-1-type, are any DN(s) on the telephone programmed for Multiple Call functionality?

  Look for MCR or MCN as the mnemonic in front of the DN number associated with a key. Look for other telephone(s) with the same DN programmed. If there is only one other, change that other telephone to a Single Call functionality, unless you intend to add other telephones with the same DN and set them up for Multiple Call. There is no point in having a single appearance DN programmed for Multiple Call functionality.

  For more information on Single Call and Multiple Call functionality, refer to any of the Tasks 1–14.
- Is this telephone a Speed Call Controller?

  Look for SSC (System Speed Call Controller) or SCC (Speed Call Controller) followed by a Speed Call list number. Look for other telephones in the printout that control the same list number. If the telephone you are removing is the only Controller of the list, then you should make another telephone the Controller before you remove this telephone.

  If you do not have a Speed Call Controller for this list, you will have to program new numbers on that list from the TTY. Reprogram the other telephone. Train the user on how to be a Speed Call Controller.

  For more information on the Speed Call feature, refer to Task 31, *Speed Call and System Speed Call*.

- Are other telephones programmed to Hunt calls to this telephone when they are busy?

  Look for other telephones programmed with the DN of this telephone as the HUNT DN (or EHT DN, if you have activated Call Forward by Call Type).

  For more information on the Hunting feature, refer to Task 37, *Hunting*. Refer to *Basic programming instructions* for further information on how to print out Hunt chains.

Removing a telephone

- Are other telephones programmed to forward calls to this telephone when they are not answered?

  Look for other telephones programmed with the DN of this telephone as the FDN (or EFD DN, if you have activated Call Forward by Call Type).

  If your Customer Data Block is not programmed for FDN but is programmed for HNT instead, then look for the HUNT DN (or EHT DN, if you have activated Call Forward by Call Type).

  For more information on the Call Forward No Answer feature, refer to Task 36, *Call Forward No Answer*.

- Is there another telephone that is a Hot Line which has the DN of this telephone as the DN signaled by that Hot Line telephone?

  You might need to reprogram the Hot Line telephone to signal some other DN.

  For more information on the Hot Line feature, refer to *X11 features and services.*

- Is this telephone the last or second to the last telephone in a Dial Intercom Group?

  Look for the DIG mnemonic followed by a group number. If this telephone is one of two remaining members in the group, reprogram the other telephone to remove the DIG function. If this telephone is the only remaining member, update your records, if you keep them, to reflect the removal of this group from your system.

  For more information on the Dial Intercom Group feature, refer to *X11 features and services.*

- Is there a name in your database associated with the DN(s) on this telephone?

  Remove the name(s) in LD 95, if you have access to it, or ask your system supplier to remove the name(s) for you.

  For more information on the Call Party Name Display feature, refer to *X11 features and services.*

Removing a telephone

- Is this telephone the last one with a particular Trunk Group Access Restrictions (TGAR) code?

  Are there any other telephones with the same TGAR code?

  If not:

  – update your records to indicate that the TGAR code is no longer in use, after you remove this telephone

  – arrange to have the programming of your trunk groups changed so the TGAR code for this telephone is no longer programmed as a TARG code on any trunk group

  For more information on the Trunk Group Access Restrictions feature, refer to Task 44, *Trunk Group Access Restriction.*

- Is this telephone the last one with a particular Network Class of Service (NCOS) number?

  Are there any other telephones with the same NCOS number?

  If not:

  – update your records to indicate that the NCOS number is no longer in use, after you remove this telephone

  – arrange to have the programming of your route lists assessed (if you have Basic Automatic Route Selection [BARS], or Network Alternate Route Selection [NARS], or Coordinated Dialing Plan [CDP]) so the routing of calls reflects the NCOSs which remain.
  If you have New Flexible Code Restriction (NFCR), ask your system supplier to evaluate any changes to that database which are required, if you remove the telephone and it is the last one in this NCOS group.

  For more information on the Network Class of Service, refer to BARS/NARS in the *Networking binder.*

- Is this telephone the last one with a particular Scheduled Access Restrictions Group (SGRP) number?

  Ask your system supplier to assess the impact this has on the reprogramming of the Scheduled Access Restrictions database. Update your records.

Removing a telephone

For more information on the Scheduled Access Restrictions feature, refer to *X11 features and services*.

- Does the user of this telephone have an Authorization Code assigned?

  When you remove the telephone from the database you should arrange to have the Authorization Code deactivated or removed from the database.

  For more information on the Authorization Code feature, refer to *X11 features and services*.

Moving a telephone

Instead of removing the telephone programming from the database and then reprogramming it as a new telephone at another location, you can use the MOV command when you are programming. There is more information on moving telephones in Task .

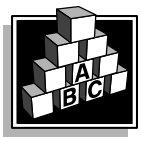
Your system maintainer might prefer to move telephones by working on the cross-connect panel, instead of using the software. Discuss the alternatives with your system maintainer.

Interactions with other features

Removing a telephone can affect features and other telephones. You need to be aware of, and understand, these interactions before programming. Refer to the information presented in the previous section called, *Use the TNB printout to find out the following.*

Removing a telephone

Improving performance



The parts that follow make you aware of issues that could affect implementation. You should resolve these issues before you begin programming. Use the checklist under *What to have ready* to confirm that you have what you need.

Control tips

- The information in the *Preparation* section of this module pertains to control issues related to removing telephones.

Administration tips

- Record keeping is critical when you remove telephones from your system. When such things as Speed Call lists are no longer used because telephones were removed, it is a good idea to reassign these list numbers to new users instead of assigning the highest new list numbers. This way your system uses less memory and is easier to manage.
- Update your directories and any outside publications showing the DN which is removed.

Training tips

- If the removal of a telephone causes you to reprogram other telephones, assess whether any training is required to tell the users about the changes. One common example is when a frequently dialed DN is removed and a new DN is assigned. Users, including the attendant(s), need clear instructions in advance about the change.

Removing a telephone

What to have ready

The following checklist summarizes the steps you should take before removing a telephone.

Table 249
Checklist

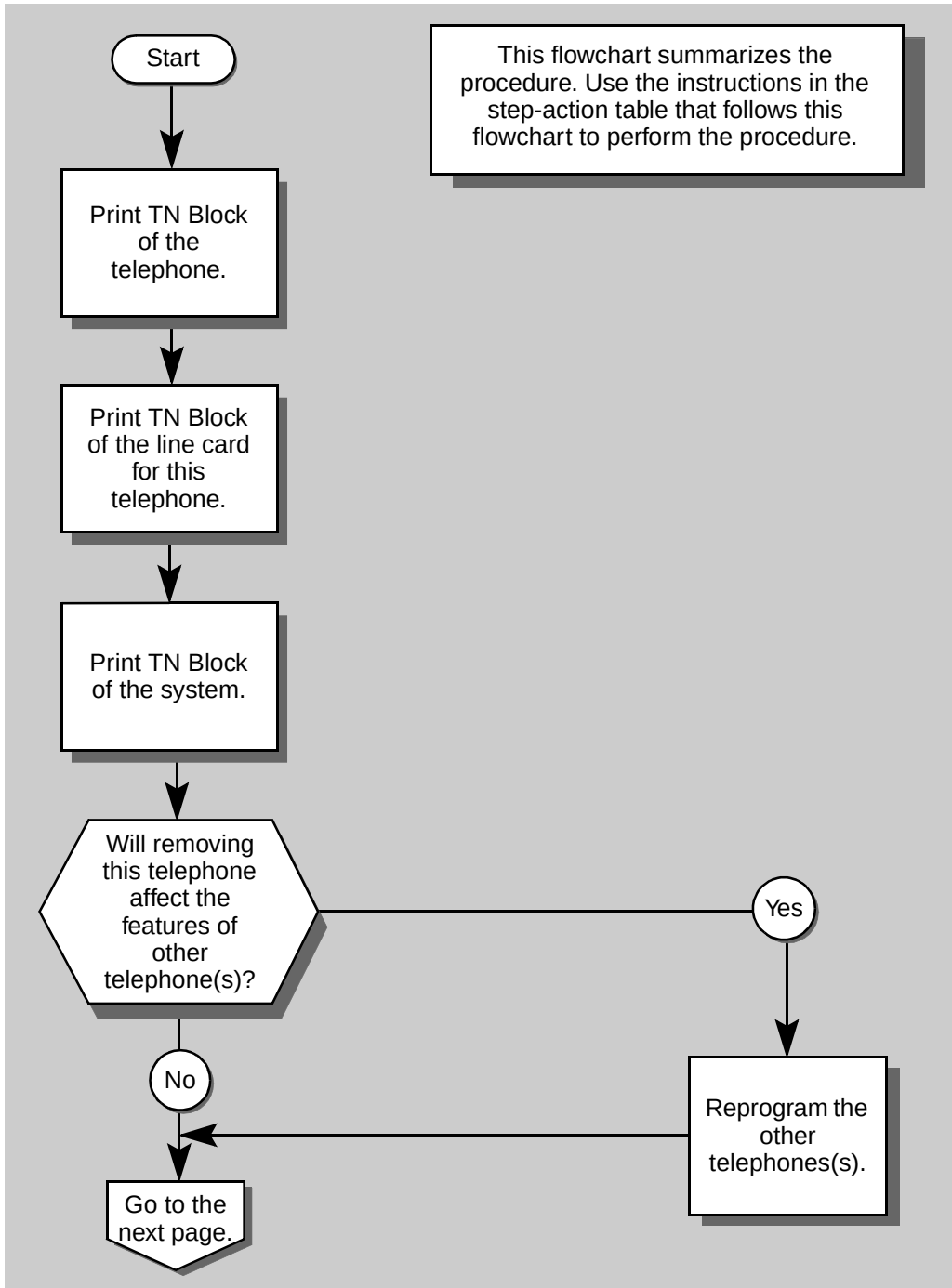
Basic	Optional	Preparation
✔		Determine the TN which is assigned to this telephone. If you do not have a record of the TN, ask your system supplier.
✔		Print a TN Block of the telephone.
✔		Print a TN Block of the line card to which this telephone is connected.
✔		Print a TN Block of the system.
✔		Do a physical check of the telephone location.
✔		Make the necessary programming changes to other telephones and features affected by the removal of this telephone.
	✔	Train users, if necessary, on any changes which affect them.
	✔	Update your records.

What's next?

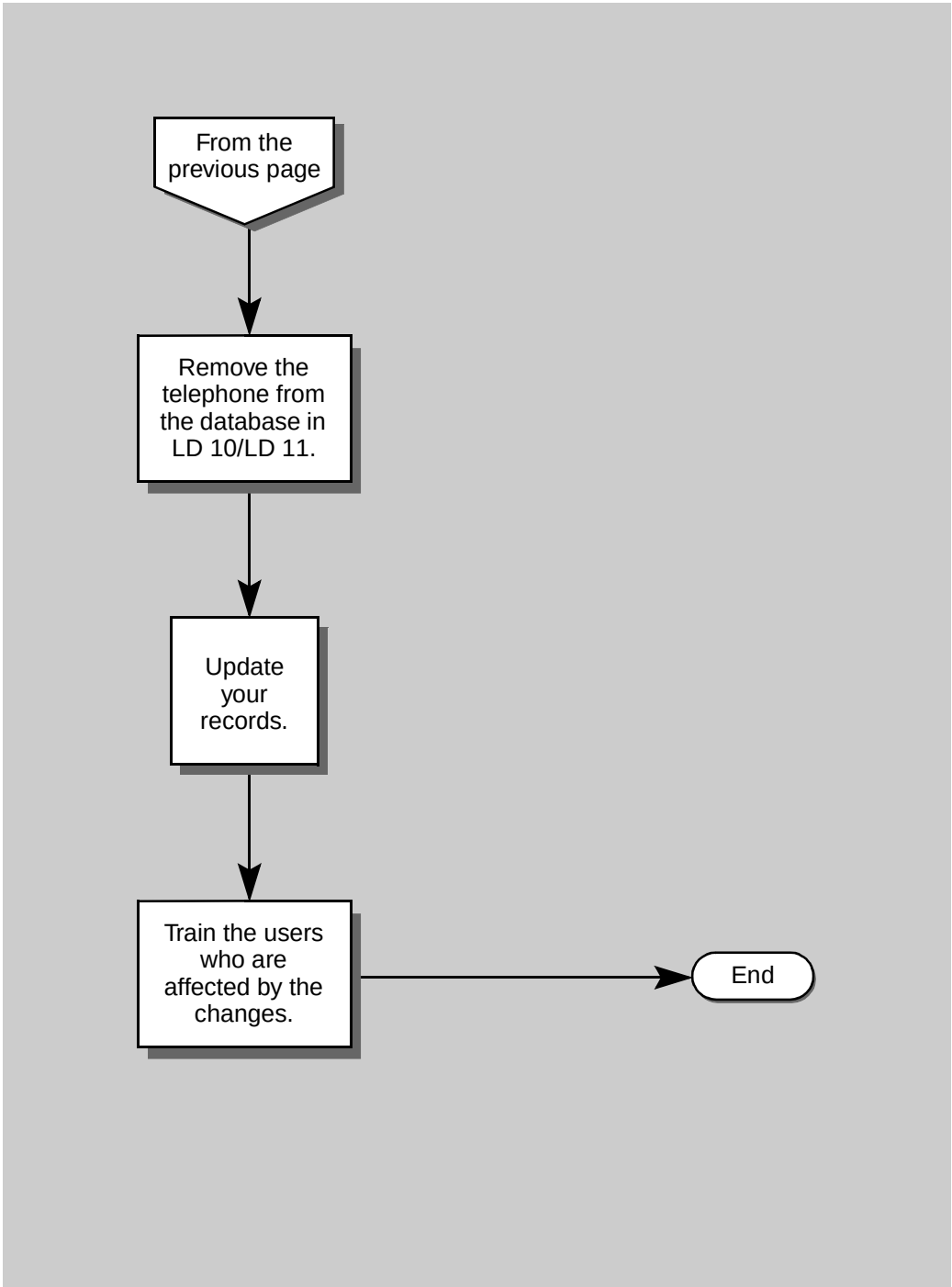
A flowchart follows which summarizes the implementation decisions and procedures for removing a telephone.

A step-action table follows the flowchart. The table explains the programming steps necessary to remove a telephone.

Removing a telephone



Removing a telephone



Removing a telephone

The preceding material in this module contains essential information. You should be aware of this information before you proceed.

This step-action table covers the prompts related to the removal of a telephone only.

SCH codes can appear when you are programming. Refer to the *Basic programming instructions* module for more information.

STEP	ACTION
1	**Log in**
	For information on proper login procedures, refer to *Basic programming instructions* in this book.
2	**Print a TN Block of the telephone you plan to remove.**
	Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for one telephone Remove this TN from any records you might have.
3	**Print a TN Block of the line card to which this telephone is connected.**
	Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for the TNs on one line card.
4	**Look for a data TN associated with this telephone.**
	Look at the TN Block of the line card. **If** — **Do** you know there is a data terminal to be removed, and this telephone is dial, Digitone-type or SL-1-type, you should ask your system supplier what the data terminal TN is. — Arrange with your system supplier to have the data terminal removed.

More choices on next page...

— continued —

Removing a telephone

STEP	ACTION	
	4 continued ...	
	the telephone is digital and connected to a card with 16 total TNs	Look for the unit numbers of the telephone TNs coupled with the data TNs in the following manner: 0–8, 1–9, 2–10, 3–11, 4–12, 5–13, 6–14, 7–15. Ask your system supplier to remove the associated data terminal unit number after you remove the telephone unit number. Go to step 5.
	the telephone is digital and connected to a card with 32 total TNs	Look for the unit numbers of the telephone TNs coupled with the data TNs in the following manner: 0–16, 1–17, 2–18, 3–19, 4–20, 5–21, 6–22, 7–23, 8–24, 9–25, 10–26, 11–27, 12–28, 13–29, 14–30, 15–31. Ask your system supplier to remove the associated data terminal unit number when you remove the telephone unit number. Go to step 5.
5	**Look at the printout to see if there will be any TNs programmed on that line card, after you remove the telephone.**	
	If	**Do**
	there will not be any TNs programmed	Decide, with your system maintainer, whether the line card should be removed from the card slot. Update your records. Go to step 6.
	there will be at least one TN programmed	step 6
6	**Print a TN Block of the system.**	
	Refer to the *Basic programming instructions* section in this book for more information on printing a TN Block for the TNs on your system. You will need the printout for the following steps.	

— continued —

Removing a telephone

STEP	ACTION
7	**If this is a single appearance DN, update your Numbering Plan records.**
	Look at the system TN Block. If no other telephone has the same DN(s) as this telephone, remove the DN(s) from your record of used DNs.
8	**Look at the TN Block for the telephone to see if it is the MARP TN for any DN it has.**

If	Do
it is the MARP TN	Look at the TN Block for the system. Find other telephones with the same DN. Decide what telephone you will change to be the MARP TN. Refer to Task 39, *Multiple Appearance DN Redirection Prime*, for help programming the other telephone. Go to step 9.
it is not the MARP TN	step 9

9	**Look at the TN Block for the telephone to see if any DN it has is a Multiple Call DN.**
	For further information on Multiple Call DNs refer to any of the Tasks 1–14 in the *Making a telephone work* section. Look at the TN Block of your system. Find other TNs with the same DN.

If	Do
there is only one other telephone with this DN	Change that telephone DN appearance to Single Call type.
there is only one other telephone with this DN but you plan to add another telephone with this DN	You can leave the other appearance of the DN programmed as Multiple Call type.
there is more than one other telephone with this DN	You can leave the other appearance of the DN programmed as Multiple Call type.

— continued —

Removing a telephone

STEP	ACTION

10 Look at the TN Block for the telephone to see if it is a Speed Call Controller.

Look at the TN Block of your system. Look for other telephones that are Controllers of the same Speed Call list.

Look for a Speed Call Controller (SCC XXXX) or a System Speed Call Controller (SSC XXXX) where XXXX represents a list number.

If there are no other telephones that control the same list, decide what telephone you want to change to become the Controller and make the change.

For further information on programming the Speed Call feature, refer to Task 31, *Speed Call and System Speed Call*. For further information on System Speed Call refer to *X11 software features and services*.

Plan to train the user who is the new Controller.

11 Find out how the removal of the telephone might impact a Hunt chain.

Look at the TN Block of the system. Find other telephones that use a DN from this telephone as the Hunt DN (or EHT DN if you have Call Forward by Call Type activated).

If you have ODAS software package 20, and Call Forward by Call Type is not active, you can print the Hunt chain this telephone is involved in. Use LD 82.

```
> LD 82
```

REQ	HNT	Print a hunt chain
CUST	X	Input your customer group number (0–31 pre-Release 14)
		(0–99 Release 14 and later)
DATE	<cr>	disregard date restrictions
PAGE	<cr>	data not printed on a per-page basis
DES	<cr>	disregard DES
DN	X..X	Input one of the DNs on this telephone

— continued —

Removing a telephone

STEP	ACTION

11 continued ...

carriage return until your printout appears

For the DN you specified, it shows you the DN which Hunts to it and the DN to which it Hunts.

Repeat the printing until you have specified all the DNs on this telephone.

If	Do
no other telephone Hunts to this telephone	step 12
there is another telephone remaining with the same DN as the telephone you are removing	step 12
another telephone Hunts to a DN on this telephone and the telephone you are removing is the only appearance of that DN	Reprogram the other telephone to Hunt to a different DN. Refer to Task 37, *Hunting*. Then go to step 12.

12 Find out how the removal of the telephone might impact Call Forward No Answer for another telephone.

Look at the TN Block of the system. Find other telephones that use a DN from this telephone to forward calls when unanswered.

Find out what treatments are programmed in your Customer Data Block for Call Forward No Answer.

Refer to Task 36, *Call Forward No Answer*, if you need more information.

— continued —

Removing a telephone

STEP ACTION

12 continued ...

If	Do
LD 15 treatments are HNT	Look for other telephones that have a DN from this telephone as their Hunt DN (or EHT DN, if you have Call Forward by Call Type activated).
LD 15 treatments are FDN	Look for other telephones that have a DN from this telephone as their FDN (or EFD, if you have Call Forward by Call Type activated).

If	Do
no other telephone forwards to this telephone	step 13
there is another telephone remaining with the same DN as the telephone you are removing	step 13
another telephone forwards to a DN on this telephone and the telephone you are removing is the only appearance of that DN	Reprogram the other telephone to forward to a different DN. Refer to Task 36, *Call Forward No Answer*. Then go to step 13.

13 Find out how the removal of the telephone might impact the Hot Line feature programmed at another telephone.

Look at the TN Block of the system. Look for any telephones that use the Hot Line feature to signal a DN from this telephone.

Refer to *X11 features and services*, if you need more information on the Hot Line feature.

— continued —

Removing a telephone

STEP	ACTION

13 continued ...

If	Do
there are no Hot Lines	step 14
there are other appearances of the DN(s) on this telephone	step 14
there are Hot Lines programmed to signal a DN on this telephone and this telephone is the only appearance of the DN	Arrange with your system supplier to have the Hot Line(s) reprogrammed to signal a different DN. Then go to step 14.

14 Find out how the removal of the telephone might impact the Dial Intercom Group feature programmed at another telephone.

Look at the printout of the TN Block for the telephone. Look for the Dial Intercom Group (DIG) number for this telephone.

Look at the system TN Block. Look for other telephones that belong to the same group.

If there is only one other telephone in this group, arrange to have it reprogrammed to remove the feature, unless you will be adding other telephones to the group.

Refer to *X11 features and services*, if you need more information on the Dial Intercom Group feature.

15 Remove the Call Party Name Display (CPND) name(s) from the database.

Ask your system supplier to check the programming of the CPND database (LD 95) to find out whether there are names associated with the DN(s) on this telephone.

These names should be removed from LD 95, if the DN(s) on this telephone do not appear on any other telephones.

Refer to *X11 features and services*, if you need more information on the Call Party Name Display feature.

— continued —

Removing a telephone

STEP	ACTION
16	**Adjust TARG and TGAR programming.**
	Look at the system TN Block printout and the TN block printout for this telephone. Find out if this telephone is the only one with the Trunk Group Access Restrictions (TGAR) code it has. If it is the only telephone with that TGAR code, ask your system supplier to remove the code from the TGAR programming of the trunk groups. Remove the TGAR from your records. Refer to Task 44, *Trunk Group Access Restriction* if you need more information.
17	**Adjust NCOS related data.**
	Look at the system TN Block printout and the TN block printout for this telephone. If this telephone is the only one with a particular Network Class of Service (NCOS), arrange to have your system supplier assess the impact that removing this telephone might have on the Basic Automatic Route Selection (BARS), Network Alternate Route Selection (NARS), Coordinated Dialing Plan (CDP), or New Flexible Code Restriction (NFCR) programming at your site. Refer to the *Networking* binder if you need more information on these features.
18	**Adjust Authorization Code data.**
	If the user of the telephone to be removed has an authorization code, arrange to have the code removed from the data base or deactivated. Refer to *X11 features and services* if you need more information on the Authorization Code feature.
19	**Adjust Scheduled Access Restrictions Group (SGRP) data.**
	Look at the system TN Block printout and the TN block printout for this telephone. If this telephone is the only one with a particular SGRP code, arrange to have your system supplier assess the impact that removing this telephone might have on the SAR Group programming at your site. Refer to *X11 features and services*, if you need more information.

— continued —

Removing a telephone

STEP	ACTION
20	**Remove the telephone from the database.**

Refer to *Basic programming instructions* in this book for information on the types of telephones and the overlay program to use for each type.

> LD 10 or **>** LD 11

REQ	OUT	Remove from the database You can follow the OUT command with a number from 1 to 32, if you are removing several telephones at once. You are prompted for the starting TN only, the next TNs in sequence are automatically removed.
TYPE		Input correct type of 500 (dial or Digitone-type), SL-1 or digital telephone
TN	L S C U	Input the Terminal Number of the telephone (**L**oop number, **S**helf number, **C**ard number, **U**nit number)

21	**Finish the overlay program.**

Carriage return until you see one of the following messages:

U.data P.data small systems

or

MEM AVAIL: (U/P) USED:TOT: large systems

When one of these messages appears, your Service Change has been entered into the memory.

— continued —

Removing a telephone

STEP	ACTION
22	**Check that the programming which you have just done is correct.**
	Attempt a printout of the TN Block for the telephone you removed.
	If — **Do**
	TN data does not print — step 23
	TN data does print — step 20
23	**Remove any associated data terminal TN.**
	If — **Do**
	there is no data terminal — step 24
	there is a data terminal — Ask your system supplier to remove the data TN. Then go to step 24.
24	**Arrange for a data dump to be performed.**
	If — **Do**
	you do not have access to LD 43 — Contact your system supplier.
	you have access to LD 43 — step 25

— continued —

Removing a telephone

STEP	ACTION

25 Perform a data dump to permanently store the programming you have just completed.

CAUTION
Check your maintenance agreement before working in LD 43.

Refer to the *Basic programming instructions* module in this book or refer to the *X11 input/output guide* for more information on LD 43.

```
> LD 43

. EDD <cr>
```

26 Verify that the dump was successful.

TTY response:

NO GO BAD DATA
or
DATA DUMP COMPLETE

If	Do
data dump fails	Contact your system supplier.
data dump succeeds	step 27

— continued —

Removing a telephone

STEP	ACTION
27	**Terminate this overlay program.**
	. ****
28	**Terminate this programming session.**
	Log off.
	> LOGO
29	**You have completed the programming required to remove a telephone.**
	END

Removing a telephone

Terms and abbreviations

2500 set

A Digitone telephone. It is an analog telephone that has buttons, on a key-pad, on the front. When each button is pressed, the telephone transmits a unique tone which represents the digit corresponding to the button pressed. Calls are made by pressing these buttons for the digits in the phone number to be called.

500 set

Dial telephone, sometimes called a rotary telephone. It has a rotary device on the front, used for the purpose of dialing digits to make calls. Each time a person turns the dial with a finger in one of the holes, the dial returns to its rest position. In doing so, the circuit connecting the telephone to the system is broken and reconnected the number of times marked beside the hole in the dial.

Access Restrictions

Sometimes called the Class of Service of a telephone. It is only one component of the Class of Service. The access-restriction type controls the types of calls which can be made from a telephone. For example, if the access-restriction type is programmed as Toll Denied, the telephone cannot be used to make any calls where the digit 1 or 0 is the first or second digit following the access code digits.

There are many different Access Restrictions types that have different levels of control of the types of calls that can be made from the telephone.

ACD (Automatic Call Distribution)

Application software that puts incoming calls in a queue to one or more telephones referred to as agent telephones. The longest-waiting call is sent to the agent telephone that has been idle for the longest time. Incoming calls can be given a priority and answered at a

prioritized telephone as an option. There are enhancements which can be added to basic ACD functionality to help with management and reporting tasks and also to customize and enhance the treatment incoming calls are given. ACD software packages A, B, C, D, and Custom Controlled Routing offer enhancements to management tools and reports, in order to add to the functionality of basic ACD.

analog (500/2500 type) telephone

A name that replaces PBX set. The name describes a standard telephone set that works on many telephone systems. Examples of these systems are the Meridian 1, DMS or other vendors systems. Analog (500/2500 type) telephone describes the North American 500 set, United Kingdom analogue rotary dial, North American 2500 set, United Kingdom MF 4 and Unity telephones.

application processor

A special purpose computer that attaches to the Meridian 1 system to decrease the load on the system processor. The application processor provides value-added and special services. Application processors are used with voice mail, interactive voice response, and automatic call distribution.

Aries telephones

Digital telephones called the M2006, M2008, M2216ACD, M2616 telephones. They are also known as Meridian Modular Digital telephones.

attendant

The main answering position on a system. From the attendant position, incoming calls are transferred to internal telephones. The terminal used at the attendant position is called a console. There can be one or more attendants on a system, although some systems do not have any attendants. Attendants can answer incoming calls for the main listed number, recalls which have not been answered, calls from users who are dialing incorrectly, and calls from users who are attempting to place restricted calls.

Automatic Call Distribution (ACD)

Application software that puts incoming calls in a queue to one or more telephones referred to as agent telephones. The longest-waiting call is sent to the agent telephone that has been idle for the longest time. Incoming calls can be given a priority and answered at a prioritized telephone as an option. There are enhancements which can be added to basic ACD functionality to help with management and reporting tasks and also to customize and enhance the treatment incoming calls are given. ACD software packages A, B, C, D, and Custom Controlled Routing offer enhancements to management tools and reports, in order to add to the functionality of basic ACD.

backup answering

Otherwise known as Call Redirection, backup answering refers to the answering of calls done at a telephone or voice messaging port when the originally dialed caller is busy, not answering, or does not wish to be disturbed, and features like Call Forward are active.

Basic Rate Interface (BRI)

An international standard for connecting terminals to a system. One BRI connection is composed of 2 B-channels at 64 kbit/s each, and 1 D-channel at 16 kbit/s.

BCS set (Business Communication Set)

Nortel Networks term for analog telephones called SL-1 telephones and M1009, M1109, and M1309 telephones.

BRI (Basic Rate Interface)

An international standard for connecting terminals to a system. One BRI connection is composed of two B-channels at 64 kbit/s each, and one D-channel at 16 kbit/s.

Business Communication Set (BCS set)

Nortel Networks term for analog telephones called SL-1 telephones and M1009, M1109, and M1309 telephones.

Terms and abbreviations

Call Center

Another term for a queue of incoming calls being answered by one or more telephones.

Call Detail Recording (CDR)

CDR records can be printed when calls are dialed. CDR records show information about the number dialed, the telephones involved and the duration of the call. Additional information can be printed when CDR enhancements are installed on a system.

Call Pickup

Also called pickup, ringing number pickup. The feature that allows one user to answer an incoming call ringing at another telephone.

call redirection

Also known as backup answering, call redirection refers to the answering of calls done at a telephone or voice messaging port when the originally dialed caller is busy, not answering, or does not wish to be disturbed, and features like Call Forward are active.

Camp-On

This feature allows an attendant to extend a call to a busy telephone. The user of the telephone hears a tone indicating a call is Camped-On. When the user hangs up, the Camped-On call rings the telephone. If the user does not hang up within a programmed amount of time after hearing the tone, the Camped-On call recalls to the attendant.

carriage return

An instruction directing you to press the key on the keyboard marked ENTER, or RETURN. You press the key to indicate that you have finished a line of input. In this book the symbol <cr> is used for carriage return.

CCS (Centa Call Seconds)

A unit of measurement of time. 1 ccs is 100 seconds.

CCSA (Common Control Switching Arrangement)

A service offered by AT&T for private networks that allows any telephone in the network to call another using a seven-digit number.

CDR (Call Detail Recording)

CDR records can be printed when calls are dialed. CDR records show information about the number dialed, the telephones involved and the duration of the call. Additional information can be printed when CDR enhancements are installed on a system.

CE (Common Equipment)

A term for the part of the system that controls the operation of other system components. Common equipment is composed of CPU, memory, input/output ports, and disk storage.

Central Office (CO)

A large telephone switching system that provides service to subscribers located over a large geographic area, usually as part of a public or military switched telephone network.

Central Office trunk (COT)

A central office trunk is a circuit between a public exchange network switch and a Meridian 1 system.

central processing unit (CPU)

The card that controls the functions of the other system components, following instructions it gets from the system memory. Some systems have one CPU and others have two.

Centrex

A type of telephone system that usually resides in the central office and can serve telephones distributed over a wide area. The Nortel Networks system that provides this functionality is called the DMS. It provides services and features that are similar to those of a PBX and some that are different.

channel

A transmission path capable of carrying voice or data.

Class of Service

There are many different capabilities and features which can be activated or deactivated for each telephone or trunk. A programming term is used to refer to these capabilities and features collectively. It is Class of Service. For example, the Last Number Redial feature is activated in the Class of Service.

Some people use the term Class of Service when they are referring to one particular feature called Access Restrictions. When you program Trunks, Meridian Mail channels, Authorization Codes, and Direct Inward System Access ports, you assign a class of service which is in fact the access-restriction type.

CO (Central Office)

In North America a central office is the facility containing the switching equipment that provides telephone service to subscribers in the immediate geographical area.

CODEC (coder-decoder)

A device that codes analog signals into digital signals. It also decodes digital signals into analog signals.

Common Equipment (CE)

A term for the part of the system that controls the operation of other system components. Common equipment is composed of CPU, memory, input/output ports, and disk storage.

COMPANION™

Meridian COMPANION ™ systems offer digital wireless telephone capabilities to Meridian 1 systems that use software later than Release 15. Wireless telephone users can travel around their coverage area while answering, initiating, continuing, or transferring telephone calls using low-powered, pocket-size telephones.

CONF (Conference Card)

The interface card in the system that is responsible for adding additional timeslots to an existing call so that more than two people can be bridged together for one call.

configuration record

A programmable data block that describes the location and function of the CE hardware in the system. The configuration record is programmed in overlay program (load) 17.

confirmation tone

A form of special dial tone that indicates to a telephone user that a feature has been activated.

COT (Central Office trunk)

A central office trunk is a circuit between a public exchange network switch and a Meridian 1 system.

CPU (central processing unit)

The card that controls the functions of the other system components, following instructions it gets from the system memory. Some systems have one CPU and others have two.

cross-connect panel

Sometimes called the jumper panel or main distribution frame (MDF). The panel where wires from telephones and trunks are interconnected with corresponding wires from the system's line and trunks cards.

CSA trunk

Common Control Switching Arrangement trunk. See CCSA.

customer group

A group of users with their own trunk groups, attendants, features and Numbering Plan. A system can be used by one or more unique customer groups.

Terms and abbreviations

Data dump

Storing information from memory onto disks.

DDI (Direct Dialing In)

External callers dialing internal telephones directly, without the intervention of an attendant or interactive voice response system.

default

The response which is preprogrammed in the system software for a prompt which must have a response. If the programmer does not enter any value for this particular element or prompt, then the default value is retained in the database. These default responses, along with the changed data, are shown when a printout is made. They are also explained in the programming sections of this book and the other programming guides available from Nortel Networks.

density

A term that refers to the number of terminals that can be connected to a card. Early vintages of cards, such as line cards and trunk cards, had capacities for fewer terminals than the cards that are made today. Early cards are referred to as single density. Later cards are called double density to indicate that the capacity had doubled. Still later, cards were introduced that are called quadruple (quad) density and octal density.

Designator (DES)

An alphanumeric code that a programmer associates with a telephone, if the system is equipped with Office Data Administration Software package 20 (ODAS). The code can be up to six characters in length. It can be used to identify the telephone in some way that helps the programmer, usually for record keeping purposes. The programmer decides what the codes will be, and what they will mean. Printouts can be made of telephones with specified DES codes to sort the telephone database according to DES code parameters.

For example, the DES system could be set up to identify what department the telephone is in and the floor and building where it is installed. A telephone that is in the accounting department, and on floor 2 of building 1 could have a DES code which is ACF2B1. The programmer could request a printout of all telephones with DES codes that begin with the letters AC, to find out what telephones belong to the accounting department.

Dial tone

The tone produced by the system after a user lifts the telephone handset to initiate a call. This tone is heard through the handset or on the handsfree speaker, if the user is doing on-hook dialing. The user can dial a call when this tone is heard.

DID (Direct Inward Dialing)

External callers dialing internal telephones directly, without the intervention of an attendant or interactive voice response system.

DID trunk

A trunking feature that allows telephone callers connected to the public exchange network to dial directly to a telephone connected to the Meridian 1 system. DID happens without the intervention of an attendant or interactive voice system.

digital telephones

A telephone which uses digital signaling. Analog voice is converted into a digital signal within the telephone. A Macintosh, IBM-PC or other data terminal can be connected to the telephone. The data to and from that terminal is multiplexed on the same set of wires used by the telephone for voice calls.

Digitone

Tones used for signaling the digits 0 through 9, # and *. The tones are a combination of two voice frequencies, a high tone and a low tone.

Digitone-type telephone

An analog telephone that has buttons, on a key-pad, on the front. When each button is pressed, the telephone transmits a unique tone which represents the digit corresponding to the button pressed. Calls are made by pressing these buttons for the digits in the phone number to be called.

DIP

A signaling system that uses electrical pulses to transmit digits.

Direct Inward Dialing (DID)

External callers dialing internal telephones directly, without the intervention of an attendant or interactive voice response system.

Direct Inward System Access (DISA)

A port configured to allow external callers to use the system as if they were internal users.

Directory Number (DN)

A telephone number. This is the number internal callers dial to ring a telephone.

DISA (Direct Inward System Access)

A port configured to allow external callers to use the system as if they were internal users.

disks

Magnetic data storage media.

Distinctive Ringing

There are three features that you can program that cause a telephone to ring differently from the way it rings normally.

You can use the feature called Distinctive Ringing to allow a user to recognize when a call from a particular trunk group is ringing a telephone. If this feature is activated on all trunk groups, then the telephone rings distinctively whenever an external call comes in.

You can program digital telephones to ring in one of four different ringing styles called Distinctive Ringing Groups. This allows a user to differentiate the various telephones when they ring.

You can program a telephone to ring distinctively when a call from a Dial Intercom Group member comes into the telephone. The user can then differentiate a call to a DN as opposed to an incoming call from the intercom group.

DLC (Digital Line Card)

An intelligent digital line card used on systems with Superloops. It can accommodate up to 16 digital telephones and 16 associated data terminals.

DN (Directory Number)

A telephone number. This is the number callers dial to ring a telephone.

download

To receive data from another device.

DTMF

Dual Tone Multi Frequency. See Digitone.

DTN (Digitone)

Tones used for signaling the digits 0 through 9, # and *. The tones are a combination of two voice frequencies, a high tone and a low tone.

DTR (digitone receiver)

A card with Digitone receiver units on it. The DTR units translate analog Digitone signals into a digital format.

Terms and abbreviations

Enhanced network

A card accommodating two loops. Each loop has 32 timeslots.

exchange network

The global network made up of telephone switches operated for the public by telephone utility companies and governments.

fast busy tone

A tone that sounds like busy tone, but turns on and off at a faster rate. Typically, fast busy tone is used to indicate that a call is not progressing or cannot be completed. It may also be called overflow or reorder tone.

features

Capabilities assigned to the terminals which allow the users to do more than make and receive basic calls. Features range from basic Call Transfer to something as complex as Network-wide Message Waiting. Features are provided by system software which is sometimes basic to every system or packaged as separate options which are either chargeable or non-chargeable. In programming a regular telephone there is an element of programming referred to as the “feature prompt”. This element of programming controls certain capabilities which can be activated for that telephone. Some capabilities are activated in the Class of Service. This book explains which capabilities are activated as a feature and which are activated in the Class of Service.

FEX (Foreign Exchange Trunk)

A trunk that provides telephone service to and from a public exchange switch that is outside the subscriber’s local exchange area. A user in one city can dial the access code for his FEX trunk and receive dial tone from the foreign public exchange switch. The user can also receive calls dialed from the foreign exchange switch.

Flexible Features Codes

User-defined numbers of up to four digits that can be used in place of the preprogrammed Special Prefix (SPRE) feature access codes. Flexible Feature Codes allow users to define feature access codes of their choosing.

floppy disks

Magnetic data storage media.

Foreign exchange trunk (FEX)

A trunk that provides telephone service to and from a public exchange switch that is outside the subscriber's local exchange area. A user in one city can dial the access code for his FEX trunk and receive dial tone from the foreign public exchange switch. The user can also receive calls dialed from the foreign exchange switch.

FTM (Failure to Match)

A traffic statistic that prints out when timeslots were not available during the previous study period.

Generic

A family of software releases that are designed to apply to a certain market or application. For example, the Generic called X11 was designed to be used in the North American business market. There are other generics that have existed through the years that were designed for the European market and for the hospitality market. In the future there will be one software generic for all markets.

grade of service

A term for the level of blockage experienced by the system. It is usually expressed as a percentage.

group

A pair of interconnected network modules or shelves. A single network module or shelf is known as a half-group.

Group Call

The name of a feature that allows one user to press a key on a proprietary telephone and automatically call several telephones. When users answer these telephones they are automatically bridged into a conference connection with other users on the same Group Call.

handset

The receiver of a telephone.

Handsfree

Using a telephone without requiring a handset or headset. During handsfree operation, a properly equipped telephone picks up the user's voice through a microphone built into the telephone, and broadcasts the far end user's voice through a built-in speaker.

Initialization

During initialization, transient (unprotected) data is cleared from memory until the initialization is complete. During this time, established calls can remain connected. Calls cannot be originated or disconnected during this time. It generally lasts for a few seconds.

Input/output (I/O) ports

The connection points through which the system outputs data and through which the system receives data input.

intercept treatments

Invalid or denied actions coming from a telephone, TIE trunk, attendant, or CCSA/DID trunk are given a treatment called an intercept treatment. These treatments are defined customer wide. For example, if a user who is Toll Denied tries to dial a toll call, then the intercept treatment for that situation determines what will happen to that user. The user can hear overflow tone, or be routed to the attendant or can hear a recorded announcement.

IPE (Intelligent Peripheral Equipment)

The part of the system composed of interface cards that connect to terminals such as telephones and trunks, and the shelves on which these cards reside. The interface cards are equipped with microprocessors.

ISDLC (Integrated Services Digital Line Card)

Peripheral Equipment line cards that are used to support digital telephones. They can accommodate up to eight digital telephones and eight associated data terminals.

ISDN (Integrated Services Digital Network)

A digital telephony network that allows the transmission of voice and data using internationally approved protocols.

Issue

During development of a new release of software several versions, or issues, are developed in sequence. Each issue fixes problems that have been identified from the previous issue.

jumper panel

Sometimes called the cross-connect panel or main distribution frame (MDF). The panel where wires from telephones and trunks are interconnected with corresponding wires from the system's line and trunks cards.

Key system

A type of telephone system where the exchange lines can be directly accessed using keys or buttons on the telephones.

key

The term used to describe a button on a proprietary telephone that you can assign as a feature or DN function. You assign these keys using overlay program 11. The programming for these keys is stored in the system memory.

LD (Load)

An abbreviation for the term load; otherwise known as overlay program.

link

1. Another name for a communications channel or circuit.
2. A button on certain types of telephones that users can press when they want to perform a switch-hook flash, instead of pressing the switch-hook under the handset.
3. A connection to another system, as in the Meridian Link application.

lockout mode

When a telephone or trunk remains off-hook longer than the preset time given for dialing a DN, a lockout timer expires. The timer causes the telephone or trunk to enter a busy state, return to an idle state, or to some other suitable condition.

loop

A transmission path within the system. Line cards and trunk cards share the transmission path using 32 timeslots.

Main Distribution Frame (MDF)

Sometimes called the cross-connect panel or jumper panel. The panel where wires from telephones and trunks are interconnected with corresponding wires from the system's line and trunk cards.

MARP (Multiple Appearance Directory Number Redirection Prime)

The telephone designated as the controlling one when the same DN appears on more than one telephone. The programming of the MARP telephone controls features such as Hunting, Call Forward No Answer, and Call Forward All Calls.

MCA (Meridian Communications Adapter)

A device that provides an interface between an IBM-PC, Macintosh, or data terminal, and a Meridian Modular digital telephone.

MCU (Meridian Communications Unit)

A device that provides an interface between an IBM-PC, Macintosh, or data terminal, and the Meridian 1 system.

MDF (main distribution frame)

Sometimes called the cross-connect panel or jumper panel. The panel where wires from telephones and trunks are interconnected with corresponding wires from the system's line and trunks cards.

MEM (memory)

The hardware in the system that is used to store the information the system needs in order to operate.

memory (MEM)

The hardware in the system that is used to store the information the system needs in order to operate.

Meridian 1 proprietary telephone

A term replacing BCS set, describing a telephone set designed to operate exclusively with the Meridian 1 PBX. For example, the SL-1, M1000 series, M2000 series, M3000 series and M3900 series telephones.

Meridian Companion

A cordless handset system that works with the Meridian 1. It complies with the $CT2^{+}$ and PCI North American standards.

Meridian Companion DECT

A cordless handset system that works with the Meridian 1. It complies with the DECT standard. DECT stands for Digital Enhanced Cordless Telecommunications.

Meridian Mail

The voice mail system manufactured by Nortel Networks to be compatible with the Meridian 1. Meridian Mail is provided using an external application processor.

Message Center

A configuration where telephones are programmed to redirect calls to either a specific telephone, the attendant, or voice mail when calls are not answered or the telephone was busy.

mnemonic

A code used as a memory aid. Mnemonic codes are also used in programming.

module

A stylish aluminum box that holds a card cage. It is also called a Universal Equipment Module or UEM.

Multiple Appearance Directory Number Redirection Prime (MARP)

The telephone designated as the controlling one when the same DN appears on more than one telephone. The programming of the MARP telephone controls features such as Hunting, Call Forward No Answer, and Call Forward All Calls.

Multiple Appearance DN

A DN that is programmed to appear on more than one telephone or more than one key on one telephone.

Multiple Call DN

A DN that appears on more than one telephone or more than one key on one telephone. It is capable of handling as many calls as there are appearances.

NANP (North American Numbering Plan)

The North American Public Exchange Network has been divided into geographical areas with three digit codes which precede the seven digit local telephone number of the subscriber. Previous to 1995, the three digit area codes assigned to each geographical area were in the format where the first digit was any digit between 2-9 and the last digit was any digit between 0-9. The middle digit was either 0 or 1. As of January 1, 1995, the middle digit can be any digit between 0-9. This increases the capacity of three digit codes available.

NE (Network Equipment)

The part of the Meridian 1 that serves to interconnect terminal equipment. Network Equipment also provides services such as conferencing and tones.

Network Class of Service

A class of service that determines network access.

Network Equipment (NE)

The part of the Meridian 1 that serves to interconnect terminal equipment. Network Equipment also provides services such as conferencing and tones.

NPA (Numbering Plan Area Code)

The North American Public Exchange Network has been divided into geographical areas with three digit codes which precede the seven digit local telephone number of the subscriber. It is used when dialing a long distance call. For example, when someone in a city in the 205 area code wants to direct dial someone located in the 613 area code, they dial 1613 followed by the person's seven digit telephone number.

NTP (Nortel Networks Technical Publication)

The manuals that are published by Nortel Networks that describe how to install, program and maintain all the features, services and components of a Meridian 1 system. Many of these manuals are shipped with every system. Some of the manuals are optional.

Numbering Plan

The leading digits which are assigned to Directory Numbers, trunk route access codes, and the Special Prefix (SPRE) code for feature activation within one customer group database. The same digits cannot be assigned to two different numbers or codes. This is called the “leftwise unique rule.”

For example, it is permissible to have access code 11 for SPRE and access code 130 for paging trunks but it is not permissible to assign access code 55 to a TIE trunk route and access code 552 to a dictation trunk route.

A typical Numbering Plan:

- 0 Attendant
- 11 Special Prefix Code (SPRE)
- 2XXX Directory numbers (DNs)
- 3XXX DID Directory numbers
- 4 Unassigned (for future use)
- 5 Unassigned (for future use)
- 6 Unassigned (for future use)
- 7X Access codes for TIE trunks, paging trunks, dictation trunks
- 8 Access code to Automatic Route Selection calls
- 9 Access code to COT trunks or local calls

NXX (Public Network Exchange code)

The first three digits of a seven digit telephone number assigned to each subscriber in North America. These digits identify the Central Office to which the subscriber is connected.

off-hook

The status of a telephone when the handset is lifted from the switch-hook. The telephone is described as being in an off-hook condition.

on-hook

The status of a telephone when the handset is resting on the switch-hook. The telephone is described as being in an on-hook condition.

outpulse

To transmit digits on external trunks to other systems. Also, telephones can outpulse digits to the system to which they are connected. The user causes either one of these types of outpulsing to occur by dialing digits on a telephone.

overflow Tone

A tone that sounds like busy tone, but turns on and off at a faster rate. Typically, fast busy tone is used to indicate that a call is not progressing or cannot be completed. It may also be called fast busy or reorder tone.

overlay programs

The programs which must be used for entering the data required to customize a system for the particular site and users connected to it. It includes data for such things as features, telephones, trunk groups, hardware, data devices, Automatic Route Selection to name a few.

PBX (Private Branch Exchange)

A telephone switch that serves trunks and telephones.

PBX set

A term replaced by Analog (500/2500 type) telephone. A PBX set is a standard telephone set that works on many telephone systems. Examples of these systems are the Meridian 1, DMS or other vendors systems.

PE (Peripheral Equipment)

The part of the system composed of interface cards that connect to terminals such as telephones and trunks, and the shelves on which these cards reside.

Phantom DN

A DN which appears on a secondary key of a telephone. It is not published.

Phantom TN

A TN defined in software that does not exist in hardware.

Pickup

Also called call pickup, ringing number pickup. The feature that allows one user to answer an incoming call ringing at another telephone.

Pickup groups

A group of telephones provided to users who have to be able to answer incoming calls for each other.

port

A port is:

1. the connection point for a terminal
2. another term for a Terminal Number
3. the connection point for an input/output (IO) device

Primary Rate Interface (PRI)

An international standard for connecting telephone switches. A PRI connection is composed of 23 B-channels at 64 kbit/s each, and one D-channel at 16 kbit/s. A PRI2 connection is composed of 31 B-channels at 64 kbit/s each, and one D-channel at 16 kbit/s.

Prime DN

The DN programmed on key 0 of a telephone.

Private line service

Also known as leased-line service or point-to-point service.

private network

Trunk connections between PBXs and Centrex systems that carry calls between users who reside on different systems that belong to one organization or company. The private network trunks can be used for calls that end up on the public network, if that is allowed in the area where the systems are installed.

prompt

A mnemonic presented by the system when you are programming or issuing commands to the system.

proprietary telephone

A term replacing BCS set, describing a telephone set designed to operate exclusively with the Meridian 1 PBX. For example, the SL-1, M1000 series, M2000 series, M3000 series and M3900 series telephones.

PSTN (Public Switched Telephone Network)

Otherwise known as the public network. The global network made up of telephone switches operated for the public by telephone utility companies and governments.

Public (Exchange) network

Refer to Exchange network.

redirection

Otherwise known as backup answering, redirection refers to the answering of calls done at a telephone or voice messaging port when the originally dialed caller is busy, not answering, or does not wish to be disturbed, and features like Call Forward are active.

regular telephone

An analog telephone which can operate on any system. These telephones work when connected to a central office, key system or Private Branch Exchange (PBX). They have rotary dial or digitone keypads.

Release

A version of software that contains certain features and capabilities (for example, Release 21). Not all releases can be used on all machine types. Each new release has greater functionality than its predecessor. Nortel Networks introduces at least one new release of software each year.

reorder Tone

A tone that sounds like busy tone, but turns on and off at a faster rate. Typically, fast busy tone is used to indicate that a call is not progressing or cannot be completed. It may also be called overflow or fast busy tone.

response

A mnemonic you type in answer to a prompt when you are programming.

restriction

Preventing telephone users from making certain types of calls or accessing certain features.

return key

The key on the keyboard marked ENTER, or RETURN. You press the key to indicate that you have finished a line of input. In this book the symbol <cr> is used for carriage return.

Ring Again

A feature that allows a telephone user to queue for a busy telephone or trunk group.

Ringback tone

The tone the caller hears when the called telephone is ringing.

Ringing number pickup

Also called pickup, ringing number pickup. The feature that allows one user to answer an incoming call ringing at another telephone.

Rls xx

For example Rls 20. Rls is a short form for the word release. A release is a version of software that contains certain feature packages and enhancements.

SDI (Serial Data Interface)

Input/output port.

secondary DN

A DN programmed on a key other than key 0 of a telephone.

service change

A term used when you are programming in administration overlay programs.

service loop

Another name for Tone & Digit Switch and Conference loops. Service loops provide services such as dial tone and multi-party calls.

set

Another term for telephone.

Set- Based Administration

Simplifies system installation and administration by enabling several administrative and maintenance procedures to be performed using a telephone.

Single Appearance DN

A DN that is programmed to appear on only one telephone and one key of one telephone.

Single Call DN

A DN that appears on one telephone or more than one telephone. It is capable of handling one call at a time.

SL-1 telephone

A telephone designed to work with an SL-1 PBX. It can be configured to have one or more than one Directory Number upon which to make and receive calls. It has buttons called keys which are programmable in the system database for such things as features and Directory Numbers.

SL-1-type telephone

An M1009, M1109, or M1309 telephone.

software package

A component of software that, if equipped, provides certain features and capabilities. Software packages are identified by a mnemonic or a number or both.

Special dial tone

A dial tone that sounds different from normal dial tone and indicates to a telephone user the operation of a feature, that a message is waiting, or that a response is required.

Special prefix code (SPRE)

A code defined customer-wide that users of 500- or 2500-type sets dial to access features. The code can also be used on Meridian Digital and SL-1 telephones to access certain features that have not been assigned to keys.

Standard Network

A card that accommodates one loop. Each loop has 32 timeslots. Timeslots are used in matching pairs.

Station

Another term for telephone.

Station Control Password

A password that is assigned to a telephone in overlay program 10 or 11 that the user of the telephone must dial in order to activate features such as Electronic Lock and Remote Call Forward.

storage medium

A term used for referring to streaming tape or floppy diskette or hard disk.

Superloop

A transmission path within the system. Intelligent line and trunk cards share the transmission path using 128 timeslots.

Switch-hook flash

The term used for pressing the button under the handset of a telephone for a specific amount of time. This is done to access certain features.

Switch-hook

The term used to describe the button that sits under the handset of a telephone.The switch-hook is used to disconnect calls, initiate calls and perform features. These features are activated by the user depressing the switch-hook, lifting the receiver off the switch-hook, and flashing the switch-hook respectively. (Refer to switch-hook flash).

SYSLOAD

The reset and start-up of a telephone switch. During SYSLOAD, data is loaded into the system from storage media, and no call processing can take place.

TDS (Tone and Digit Switch)

A card that the system uses to provide many different tones to users.

Terminal Number (TN)

A physical or hardware location address, consisting of a network loop number, PE shelf number, PE card number, and unit number.

The numbers are written and input with a space between each item. For example, a telephone connected to Loop 8, shelf number 0 on Loop 8, card slot 5 on shelf 0, and unit 1 on card 5 has TN 8 0 5 1. The range for each number is:

Loop 0 – 159

Shelf 0 – 3

Card 0 – 15

Unit 0 – 31

TIE trunk

A dedicated circuit that connects two Meridian 1 systems or a Meridian 1 system and any other kind of PBX.

time slot

An interval of time during which you occupy a shared transmission path during an active call.

TN (Terminal Number)

Refer to Terminal Number.

traffic

A measurement of the level of activity of a specific resource.

trunk group

A defined set of trunks that can be used interchangeably by the system to reach a specific destination.

trunk

One or more pairs of wires or optical fibre cable that connect one system to another. There are many types of trunks, distinguished by the types of calls they are designed to carry, and the types of systems they inter-connect. Trunks are grouped together by type into trunk groups. Some examples of trunk types are TIE trunks, central office trunks, and Foreign Exchange trunks.

TTY

A data terminal used to transmit and receive commands and responses when you are programming. Generically a TTY refers to any dumb terminal or DTE used to pass ASCII data.

A DTE that is used for communicating alphanumeric information with the Meridian 1 system.

UEM (Universal Equipment Module)

A stylish aluminum box holding a card cage.

Unity telephone

A family of telephones manufactured by Nortel Networks. They belong in the 500/2500-type telephone family.

WATS (Wide Area Telephone Service) trunk

In North America, a circuit between a public exchange network switch and a Meridian 1 system. WATS telephone calls are billed at a reduced rate.

X08

An early edition of the software package for International Business applications. X08 was replaced by X11 with Supplementary Features. With the release 20 software, X11 denotes global applications software.

X11

A software package for North American Business applications. With the release 20 software, X11 denotes global applications software.

Terms and abbreviations

LD 10 Prompt, Response, Reference

The prompts and responses listed in this Appendix are those covered in this book. You can find further information about the other prompts and responses in the *Software Input/Output Guide*.

Prompt	Response	Reference
REQ		*Basic programming instructions*
	CHG	Tasks 20 – 42
	END	*Basic programming instructions*
	MOV	Task 46
	NEW	Tasks 1–6
	OUT	Task 47
TYPE		*You should know this- Telephones*
	500	Tasks 1 – 6
TN	L S C U	*Terms and abbreviations*
ECHG	(NO) YES	*Basic programming instructions*
- ITEM	aaaa yyy	*Basic programming instructions*
TOTN	L S C U	Task 46
CDEN	SD DD 4D	Tasks 1–6
DES	dddddd	Tasks 1–6
CUST	XX	Tasks 1–6
DN	X..X	Tasks 1–6
- MARP	(NO) YES	Task 39
HUNT	X...X	Task 37

— continued —

LD 10 Prompt, Response, Reference

Prompt	Response	Reference
TGAR	(0) – 15 (Pre- Release 13) (0) – 31 (Release 13 - 21) 0 - (1) - 31 (Release 22 and later)	Task 42
CLS		*Terms and abbreviations*
	(UNR) (CTD) CUN FR1 FR2 FRE SRE TLD	Task 42
	(C6D) C6A	Task 28
	(CFTD) CFTA	Tasks 34 and 35
	(DIP) (DTN)	Tasks 1– 6
	(FBD) FBA	Task 33
	(FND) FNA	Task 36
	(HBTD) HBTA	Task 38
	(HTD) HTA	Task 37
	(LPD) LPA	Task 24
	(MCRD) MCRA	Task 1– 6
	(MWD) MWA	Task 24
	(SFD) SFA	Task 40
	TSA	Task 29
	(USRD) USRA	Task 41
	(XFD) XFA XFR	Task 27
FTR	CFW	Task 32
	EFD X..X	Task 34
	EHT X..X	Task 35
	FDN X..X	Task 36
	SCC X	Task 31
	SCU X	Task 31
End of table		

LD 11 Prompt, Response, Reference

The prompts and responses listed in this Appendix are those covered in this book. You can find further information about the other prompts and responses in the *Software Input/Output Guide*.

Prompt	Response	Reference
REQ		*Basic programming instructions*
	CHG	Tasks 20 – 42
	CPY X	Task 45
	END	*Basic programming instructions*
	MOV	Task 46
	MOV PAIR	Task 46
	NEW	Tasks 7–14
	NEW X	Task 45
	OUT	Task 47
TYPE		*You should know this — Telephones*
	2006	Task 7
	2008	Task 8
	2216	Task 9
	2317	Task 10
	2616	Task 11-14
CFTN	L S C U	Task 45
SFMT		Task 45
	TNDN	
	TN	
	DN	
	AUTO	
TN	L S C U	*Terms and abbreviations*
ECHG	(NO), YES	*Basic programming instructions — Changing a telephone*

— continued —

LD 11 Prompt, Response, Reference

Prompt	Response	Reference
- ITEM	A..A Y..Y	*Basic programming instructions — Changing a telephone*
TOTN	L S C U	Task 46
CDEN	SD DD 4D	Tasks 7–14
DES	A..A	Tasks 7–14
CUST	XX	Tasks 7–14
FDN	X..X	Task 36
TGAR	(0) – 15 (Pre-Release 13) (0) – 31 (Release 13 - 21) 0 - (1) - 31 (Release 22 and later)	Task 42
SCPW	X..X	Task 43
CLS		*Terms and abbreviations*
	(AHD) AHA	Task 26
	(CCSD) CCSA	Task 43
	(CFTD) CFTA	Tasks 34 and 35
	(FBD) FBA	Task 33
	(FND) FNA	Task 36
	(HBTD) HBTA	Task 38
	(HTD) HTA	Task 37
	(MSID) MSIA	Task 23
	(MWD) MWA	Task 24
	(SFD) SFA	Task 40
	(UNR) (CTD) CUN FR1 FR2 FRE SRE TLD	Task 42
	(USRD) USRA	Task 41

— continued —

LD 11 Prompt, Response, Reference

Prompt	Response	Reference
EFD	X..X	Task 34
HUNT	X..X	Task 37
EHT	X..X	Task 35
LHK	XX	Task 37
KEY	XX NUL	*Basic programming instructions*
	XX ADL	Task 30
	XX AO3 XX AO6	Task 28
	XX CFW	Task 32
	XX MCK XX MIK XX MWK X..X	Task 24
	XX MCN X..X XX MCR X..X	Tasks 7 – 14
	XX MSB	Task 23
	XX SCC X..X XX SCU X..X	Task 31
	XX SCN X..X XX SCR X..X	Tasks 7 – 14
	XX TRN	Task 27
	XX USR	Task 41
- MARP	(NO) YES	Task 39
End of table		

LD 11 Prompt, Response, Reference

Station review checklist

To help you prepare for system programming, fill in the following suggested checklist. The contents of the checklist are related to what is covered in this book.

Question	Response
Type of telephone	
Dial, Digitone, M8000*, M8009*, M8314*, M8417*, M2317, M2006*, M2008/M2008HF*, M2216ACD, M2616*, M2616CT*, M3110*, M3310*, M3820*, M3901, M3902*, M3903*, M3904*, M3905. Wireless: C3050, C3060, C4000, C4010, C4040	
*means the telephone is only available in certain countries	
Busy hour traffic expected	
minutes/hour or CCS/hour	voice _____ data (optional) _____
Terminal Number (TN)	
Loop, Shelf, Card, Unit number	___ ___ ___ ___
second TN (for M8417)	___ ___ ___ ___
second TN (for digital telephone data option)	___ ___ ___ ___
Designator (DES)	
(with ODAS software) 6 character maximum	
— continued —	

Station review checklist

Question	Response
Dial or Digitone-type telephone:	
First Directory Number (DN) DID? Second Directory Number (M8417 only) DID? (Refer to Tasks 1–6)	_____ No____ Yes____ _____ No____ Yes____
Digital or SL-1-type telephone:	
Prime DN (Refer to Tasks 10–11)	Key 0 _____
Single Appearance No____ Yes____ Single Call ____ Ring? ____ Special ringing? Task 25 _____	Multiple Appearance No____ Yes____ Single Call ____ Ring?____ Multiple Call ____Ring?____ Delayed ring? No ___Yes ___ MARP? No____ Yes____
Secondary DN	Key ___ _____
Single Appearance No____ Yes____ Single Call ____Ring?____ Special ringing? Task 25 _____	Multiple Appearance Yes ___ No ___ Single Call ____Ring?_____ Multiple Call ____Ring?_____ Delayed ring? No ___Yes ___ MARP? No____ Yes____

— continued —

Station review checklist

Question	Response
Secondary DN	Key ___ _____
Single Appearance No____ Yes____ Single Call ____Ring?____ Special ringing? Task 25 _____	Multiple Appearance No____ Yes____ Single Call ____Ring?_____ Multiple Call ____Ring?_____ Delayed ring? No____ Yes___ MARP? No____ Yes____
Secondary DN	Key ___ _____
Single Appearance No____ Yes____ Single Call ____Ring?____ Special ringing? Task 25 _____	Multiple Appearance No____ Yes____ Single Call ____Ring?_____ Multiple Call ____Ring?_____ Delayed ring? No____ Yes___ MARP? No____ Yes____
Secondary DN	Key ___ _____
Single Appearance No____ Yes____ Single Call ____Ring?____ Special ringing? Task 25 _____	Multiple Appearance No____ Yes____ Single Call ____Ring?_____ Multiple Call ____Ring?_____ Delayed ring? No____ Yes___ MARP? No____ Yes____

— continued —

Station review checklist

Question	Response
Feature requirements:	
Transfer (Task 27)	N ____Y ____ Key ____
Conference 3 (Task 28)	N ____Y ____ Key ____
Conference 6 (Tasks 28 and 29)	N ____Y ____ Key ____
Speed Call — Controller (Task 31)	N ____Y ____ Key ____
Speed Call — User (Task 31)	N ____Y ____ Key ____
Speed Call list number (Task 31)	
Autodial (Task 30)	N ____Y ____ Key ____ N ____Y ____ Key ____ N ____Y ____ Key ____
Automatic Hold (Task 26)	N ____Y ____
Restricting the user:	
Access Restrictions (UNR, CUN, CTD, TLD, SRE, FRE, FR1, FR2) (Task 42)	
TGAR (Task 31)	NO ___ (0) YES ___ (1–31)
Station Control Password (Electronic Lock) (Task 43)	

— continued —

Station review checklist

Question	Response
Redirecting calls:	
If DID DN, choose 1. or 2. below or use the Hunting feature 1. When busy, all calls are to forward to the attendant? (If this is the MARP TN, verify OK for all other appearances) (Task 33) Call Forward Busy	No ____ Yes____
2. When busy, are external calls to Hunt to a DN and internal callers to hear busy tone? (If this is the MARP TN, verify OK for all other appearances) (Task 38) Hunting by Call Type	No ____ Yes____ DN _____
When busy, are all calls to Hunt? (If this is the MARP TN, verify OK for all other appearances) (Task 37) Hunting	No ____ Yes____ DN _____
When busy, are internal calls to Hunt to a different DN than external calls? (If this is the MARP TN, verify OK for all other appearances) (Task 35) Call Forward by Call Type (Hunting Option	No ____ Yes____ Internal Hunt DN _____ External Hunt DN _____

— continued —

Station review checklist

Question	Response
Redirecting calls: (continued)	
When no answer, are calls to forward? (If this is the MARP TN, verify OK for all other appearances) (Task 36) Call Forward No Answer	No ____ Yes ____ Call Forward No Answer DN: _____
If this is a Call Forward No Answer DN for another telephone, and if there is no answer, is second level forward allowed? (If this is the MARP TN, verify OK for all other appearances) (Task 40) Second Level Call Forward No Answer	No ____ Yes ____
When no answer, are internal calls to forward to a different DN than external calls? (If this is the MARP TN, verify OK for all other appearances) (Task 34) Call Forward by Call Type (Call Forward No Answer Option)	No ____ Yes ____ Internal Forward DN _____ External Forward DN _____

— continued —

Station review checklist

Question	Response
Redirecting calls: (continued)	
Is the user to be able to change the Hunt DN and the Call Forward No Answer DN from the telephone? (If this is the MARP TN, verify OK for all other appearances) (Task 41) User Selectable Call Redirection	N ____Y ____ Key _____ (SPRE +9915 or FFC __, works on any telephone)
Is redirection to change at certain times of day? Is redirection to change on certain days?	Start Time: _____ End Time:_____ Details:
Call Forward All Calls maximum number of digits (Task 32) Call Forward All Calls	N ____Y ____ Key ____ _____
Make Set Busy (Task 23) Make Set Busy Improvement	N ____ Y ____ Key ____
Message Center:	
Message waiting indicator (Task 24) Message Center	N ____Y ____ Key ____
Message waiting key to dial Message Center (Task 24) Message Center	N ____Y ____ Key ____
Is the user to take messages for other users? (Task 24) Message Center	N ____Y ____ MIK Key ____MCK Key ____

— continued —

Station review checklist

Question	Response
Display	
	N____Y ____ PROGRAM Key 7 (M2008/M2008HF, M2216ACD, M2616, M3310, M3820)
Handsfree unit	
	N____Y ____ HF/MUTE Key 15 (M2216ACD, M2616) HF/Mute Key 6 (M2008HF) HF/MUTE Key 11 (M2317) HF Key 15 (M3110, M3310, M3820) HF Key __ (M3902, M3903, M3904)
Headset	
	N____Y ____ Details: _____ _____ _____ _____

— continued —

Station review checklist

Question	Response
Data option	
	N ____Y ____ PROGRAM Key 5 (M2006) PROGRAM Key 7 (M2008/M2008HF, M2216ACD, M2616, M3110, M3310, M3820) PROGRAM (No Key required) (M3901, M3902, M3903, M3904, M3905)
External alerter interface	
	N ____Y____
Total number of keys required	**Number of programmable keys on this telephone**
Key Expansion Module(s)	
Required? (* check to see if available with this model) (** with M3900 series, activate Key-based Add-on Module)	No ___Yes ___ 1_____ 2____
External power	
Required? **Associated hardware required?**	No ____Yes ____ No ____Yes ____

— continued —

Station review checklist

Question	Response
Approvals	
Notes:	
End of form	

Meridian Modular Telephones Worksheet (M2006, M2008/M2008HF, M2216ACD, M2616)

KEYS

****15	FTR: or DN:	***7	FTR: or DN: Stop here for **M2008/ M2008HF**
14	FTR: or DN:	*****6	FTR: or DN:
13	FTR: or DN:	**5	FTR: or DN: Stop here for **M2006**
12	FTR: or DN:	4	FTR: or DN:
11	FTR: or DN:	3	FTR: or DN:
10	FTR: or DN:	2	FTR: or DN:
9	FTR: or DN:	1	FTR: or DN:
8	FTR: or DN:	*0	DN:

FTR = Feature

* Note 1 - Key 0 must be programmed with a DN (Prime DN)

** Note 2 - If data unit installed, this key is a PROGRAM key on M2006

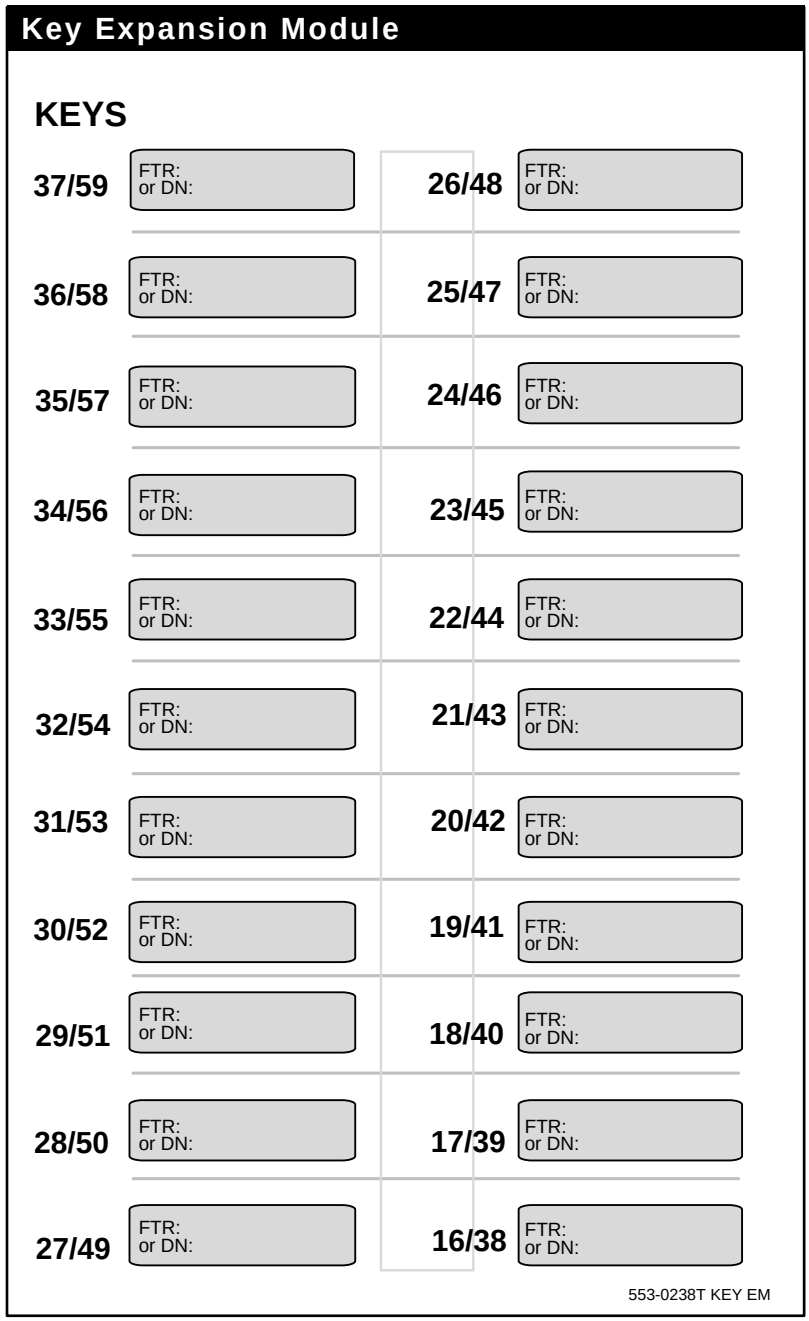
*** Note 3 - If display or data unit is installed, this key is a PROGRAM key on M2008/M2008HF
If no display or data unit is displayed, Key 7 must be NUL on the M2008HF

**** Note 4 - If Handsfree unit is allowed, Key 15 must be a Handsfree/Mute key

***** Note 5 - Key 6 is Handsfree/Mute key on the M2008HF if Handsfree is enabled

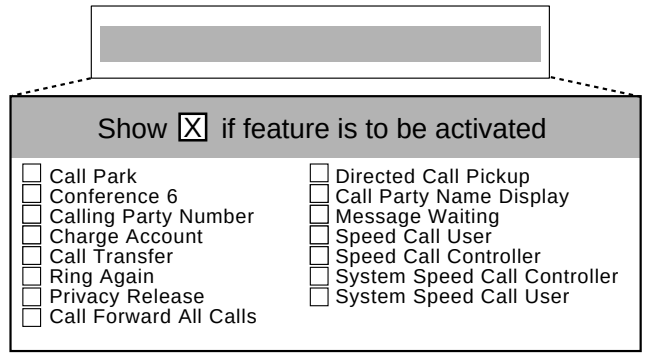
553-0239T DTWM

Station review checklist



M2317 Telephone Worksheet

DISPLAY UNIT



KEYS

	HANDSFREE / MUTE	11		FTR: or DN:	5
	FTR: or DN:	10		FTR: or DN:	4
	FTR: or DN:	9		FTR: or DN:	3

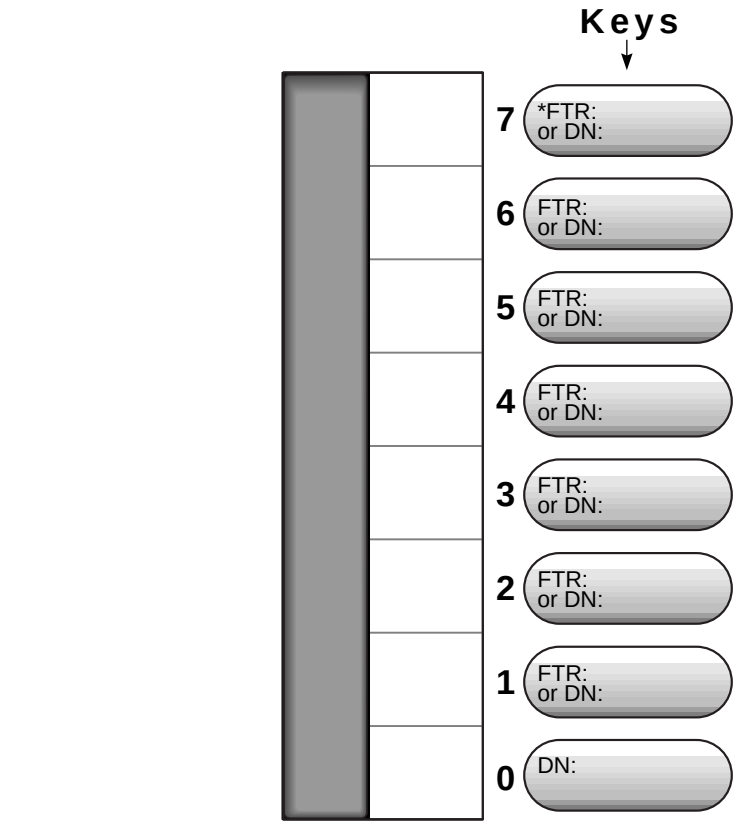
	FTR: or DN:	8		FTR: or DN:	2
	FTR: or DN:	7		FTR: or DN:	1
	FTR: or DN:	6		DN:	0 *

* Note 1 - Key 0 must be programmed with a DN (Prime DN)

553-0240T WS2317

Station review checklist

Meridian Digital Telephone Worksheet (M3110, M3310)



Speaker

Mute

15

Note:

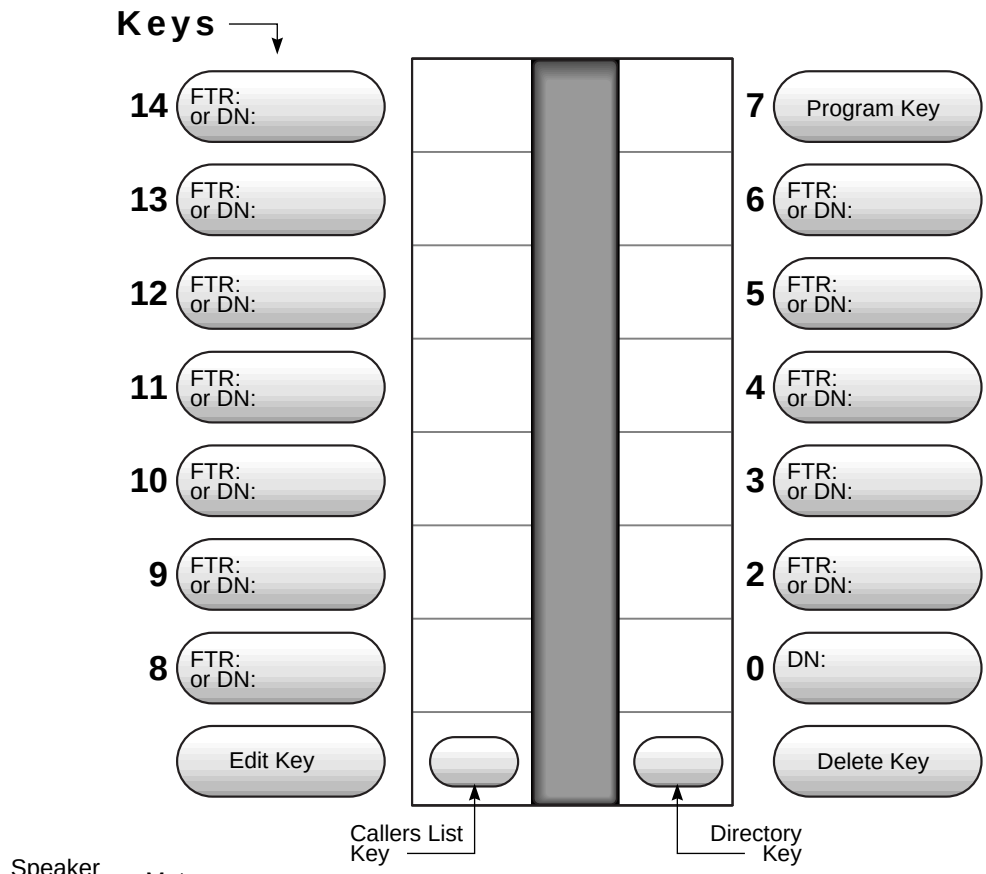
* Key 7 is a Program key on the M3310 only

\- Keys 8-14 are programmed as NUL

\- Key 15 is a handsfree key if handsfree is enabled; otherwise, it is programmed as NUL

553-0392T DTWS M3110/3310

Meridian Digital Telephone Worksheet (M3820)



Note:

- Key 1 is programmed with the same DN as Key 0 if Short hunt is required; otherwise, it is programmed as NUL
- Key 15 is a handsfree key if handsfree is enabled
- Key 7 is the Program key
- Key Expansion modules can be added

553-0391T DTWS M3820

Station review checklist

M3901 and M3902 Digital Telephones Worksheet

Key	M3901	Key	M3902
0	Prime DN	0	Prime DN
1	Feature:	1	Feature:
2	Feature:	2	Feature:
3	Feature:	3	Feature:
4	Feature:	4	Feature: TRN
5	Feature:	5	Feature: MWK

Note: TRN is the programming mnemonic for Call Transfer.
MWK is the programming mnemonic for Message Waiting Key.

M3903 and M3904 Digital Telephones Worksheet

Key	M3903	Key	M3904
0	Prime DN	0	Prime DN
1	DN/Feature:	1	DN/Feature:
2	Blocked	2	DN/Feature:
3	Blocked	3	DN/Feature:
4	Blocked	4	DN/Feature:
5	Blocked	5	DN/Feature:
16	MWK	16	MWK
17	TRN	17	TRN
18	AO3/AO6	18	AO3/AO6
19	CFW	19	CFW
20	RGA	20	RGA
21	PRK	21	PRK
22	RNP	22	RNP
23	SSC/SSU/SCC/SCU	23	SSC/SSU/SCC/SCU
24	PRS	24	PRS
25	CHG	25	CHG
26	CPN	26	CPN
27 to 37	NUL	27 to 31	NUL

Note: Refer to the M3903 and M3904 Task modules for explanations of the programming mnemonics.

Station review checklist

M3905 Digital Telephones Worksheet

Key		Key	
0	ACD In-Calls key	16	MWK
1	DN/Feature:	17	TRN
2	DN/Feature:	18	AO3/AO6
3	DN/Feature:	19	CFW
4	DN/Feature:	20	RGA
5	NUL	21	PRK
6	NUL	22	RNP
7	PROGRAM/NUL	23	SSC/SSU/SCC/SCU
8	MSB	24	PRS
9	NRD	25	CHG
10	EMR	26	CPN
11	ASP	27 to 31	NUL

Note: Refer to the M3905 Task module for explanations of the programming mnemonics. The ACD programming mnemonics on keys 9 - 11 are explained in the *Automatic Call Distribution* NTP.

LD 10 Worksheet

To help you get your responses ready before you begin to program at the TTY, use the following sample worksheets.

The prompts and responses listed in this Appendix are those covered in this book. You can find further information about the other prompts and responses in the *X11 input/output guide*.

Prompt	Response	New telephone	Change telephone
REQ	NEW CHG	NEW	CHG
TYPE	500		
TN	L S C U		
ECHG	(NO), YES	----------	
- ITEM	A..A Y..Y	----------	
CDEN	SD DD 4D		
DES	A..A		
CUST	XX		
DN	X..X		
- MARP	(NO), YES		
HUNT	X..X		
TGAR	(0) – 15 (Pre-Release 13) (0) – 31 (Release 13 - 21) 0 - (1) - 31 (Release 22 and later)		
SCPW	X..X		

— continued —

LD 10 Worksheet

Prompt	Response	New telephone	Change telephone
WRLS	(NO) YES		
CLS			
	(UNR) (CTD) CUN FR1 FR2 FRE SRE TLD		
	(C6D) C6A		
	(CCSD) CCSA		
	(CFTD) CFTA		
	(DIP) (DTN)		
	(FBD) FBA		
	(FND) FNA		
	(HBTD) HBTA		
	(HTD) HTA		
	(LPD) LPA		
	(MWD) MWA		
	(SFD) SFA		
	TSA		
	(USRD) USRA		
	(XFD) XFA XFR		
FTR			
	CFW X..X Y..Y		
	EFD X..X		
	EHT X..X		
	FDN X..X		
	SCC X		
	SCU X		
End of form			

LD 11 Worksheet

The prompts and responses listed in this Appendix are those covered in this book. You can find further information about the other prompts and responses in the *X11 input/output guide*.

Prompt	Response	New telephone	Change telephone
REQ	NEW	NEW	CHG
	CHG		
TYPE	2006		
	2008		
	2216		
	2317		
	2616 (Note 1)		
	3901		
	3902		
	3903		
	3904		
	3905		
TN	L S C U		
ECHG	(NO) YES	----------	
- ITEM	aaaa yyy	----------	
CDEN	SD DD 4D		
DES	dddddd		
CUST	XX		
FDN	X..X		

— continued —

LD 11 Worksheet

Prompt	Response	New telephone	Change telephone
TGAR	(0) – 15 (Pre- Release 13) (0) – 31 (Release 13 - 21) 0 - (1) - 31 (Release 22 and later)		
CLS	(AHD) AHA		
	(CFTD) CFTA		
	(DRG1) DRG2 DRG3 DRG4		
	(FBD) FBA		
	(FND) FNA		
	(HBTD) HBTA		
	(HTD) HTA		
	(MSID) MSIA		
	(MWD) MWA		
	(SFD) SFA		
	(UNR) (CTD) CUN FR1 FR2 FRE SRE TLD(USRD) USRA		
EFD	X..X		
HUNT	X..X		
EHT	X..X		
LHK	XX		
KEY	XX NUL		
	XX AO3 XX AO6		
	XX CFW		
	XX MCK XX MIK XX MWK		
	XX MCN X..X XX MCR X..X		
	XX MSB		
	XX SCC X XX SCU X		

— continued —

LD 11 Worksheet

Prompt	Response	New telephone	Change telephone
KEY (continued)	XX SCN X..X XX SCR X..X		
	XX TRN		
	XX USR		
MARP	(NO) YES		
End of form			

Note 1: Program TYPE 2616 for M3110, M3310 and M3820 telephones.

LD 11 Worksheet

Common term, Nortel term, Reference

Common term	Nortel term	Reference
Backup answering	Redirecting calls	Tasks 32–41
Barring	Access Restrictions	Task 42
	Trunk Barring	*X11 features and services*
Call Forward by Call Type	Call Forward by Call Type – Hunting	Task 35
	Call Forward by Call Type (Call Forward No Answer Option)	Task 34
Call Join	Multi-Party Operations	Task 29
Callback	Ring Again	*Terms and abbreviations*
Class of Service	Class of Service	*Terms and abbreviations*
	Access Restrictions	Task 42
Conference	Conference	Task 28
	Multi-Party Conference	Task 29
Direct Dialing In	Direct Inward Dialing	*Terms and abbreviations*
Direct Extension Select	Voice Call	*X11 features and services*
	Dial Intercom Group	*X11 features and services*
	Speed Call	Task 31
Diversion	Redirecting calls	Tasks 32–41
Earth button	Ground button Switch-hook	Task 29 *You should know this*
Forward	Call Transfer	Task 27
	Call Forward All Calls	Task 32
	Call Forward No Answer	Task 36
	Call Forward Busy	Task 33
	Hunting	Task 37
Forward on busy	Hunting	Task 37

— continued —

Common term, Nortel term, Reference

Common term	Nortel term	Reference
Ground button	Earth button	Task 29
	Switch-hook	*You should know this*
Intercom	Dial Intercom Group	*X11 features and services*
	Paging	*X11 features and services*
Intrusion	Override	*X11 features and services*
MARP	Multiple Appearance DN Redirection Prime	Task 39
Night bells	Night Service	*X11 features and services*
Number Redial	Last Number Redial	*X11 features and services*
	Stored Number Redial	*X11 features and services*
Number Unobtainable Tone	Overflow Tone	*Terms and abbreviations*
Password	Level 1 and 2 passwords	*Basic programming instructions*
	Limited Access Passwords	*Basic programming instructions*
	Station Control Password	Task 43
Pickup group	Call Pickup	*Terms and abbreviations*
Ring Group	Group Call	*X11 features and services*
Set	Telephone	*You should know this*
Shared extension	Multiple Appearance DN	Tasks 1–19
Special Control key	Earth button Ground button Switch-hook	Task 29
Three Party Service	Multi-Party Operations	Task 29
	Conference	Task 28
	Call Transfer	Task 27
Touchtone	Digitone	*You should know this — Telephones*
Transfer	Call Transfer	Task 27
Wait on Busy	Camp-on	*X11 features and services*
	Call Waiting	*X11 features and services*
End of table		

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