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MERLIN LEGEND® Communications System Release 3.0

Feature Reference

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Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

See Appendix A, “Customer Support Information,” for important information.

Security of Your System: Preventing Toll Fraud

As a customer of a new telephone system, you should be aware that there exists an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. For important information regarding your system and toll fraud, see Appendix A, “Customer Support Information.”

Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. For further FCC information, see Appendix A, “Customer Support Information.”

Canadian Department of Communications (DOC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministére des Communications du Canada.

Trademarks

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UNIX is a registered trademark of UNIX System Laboratories, Inc.
CLASS is a service mark of Bellcore.
Windows is a trademark of Microsoft Corporation.

Ordering Information

The ordering number for this document is 555-630-110. To order this document, call the AT&T Customer Information Center at 1-800-432-6600 (in Canada, 1-800-255-1242). For more information about AT&T documents, refer to the section entitled, “Related Documents” in “About This Book.” The *Pocket Reference*, listed in that section, provides full ordering information for replacement parts, accessories, and other compatible equipment; or, contact your AT&T representative.

Support Telephone Number

In the continental U.S., AT&T provides a toll-free customer helpline 24 hours a day. Call the AT&T Helpline at **1-800-628-2888** if you need assistance when installing or using your system.

Outside the continental U.S., contact your local AT&T representative.

Warranty

AT&T provides a limited warranty on this product. Refer to “Limited Warranty and Limitation of Liability” in Appendix A, “Customer Support Information.”

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The exclamation point in an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS

When installing telephone equipment, always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons, including:

- Read and understand all instructions.
- Follow all warnings and instructions marked on or packed with the product.
- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in a wet location unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone wiring has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Use only AT&T-manufactured MERLIN LEGEND Communications System circuit modules, carrier assemblies, and power units in the MERLIN LEGEND Communications System control unit.
- Use only AT&T-recommended/approved MERLIN LEGEND Communications System accessories.
- If equipment connected to the analog extension modules (008, 408, 408 GS/LS) or to the MLX telephone modules (008 MLX, 408 GS/LS-MLX) is to be used for in-range out-of-building (IROB) applications, IROB protectors are required.
- Do not install this product near water, for example, in a wet basement location.
- Do not overload wall outlets, as this can result in the risk of fire or electrical shock.
- The MERLIN LEGEND Communications System is equipped with a 3-wire grounding-type plug with a third (grounding) pin. This plug will fit only into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.
- The MERLIN LEGEND Communications System requires a supplementary ground.
- Do not attach the power supply cord to building surfaces. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.

- Slots and openings in the module housings are provided for ventilation. To protect this equipment from overheating, do not block these openings.
- Never push objects of any kind into this product through module openings or expansion slots, as they may touch dangerous voltage points or short out parts, which could result in a risk of fire or electrical shock. Never spill liquid of any kind on this product.
- Unplug the product from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use cleaners or aerosol cleaners.
- Auxiliary equipment includes answering machines, alerts, modems, and fax machines. To connect one of these devices, you must first have a Multi-Function Module (MFM).
- Do not operate telephones if chemical gas leakage is suspected in the area. Use telephones located in some other safe area to report the trouble.

WARNING:

- *For your personal safety, DO NOT install an MFM yourself.*
- *ONLY an authorized technician or dealer representative shall install, set options, or repair an MFM.*
- *To eliminate the risk of personal injury due to electrical shock, DO NOT attempt to install or remove an MFM from your MLX telephone. Opening or removing the module cover of your telephone may expose you to dangerous voltages.*

SAVE THESE INSTRUCTIONS

About This Book

The MERLIN LEGEND Communications System is an advanced digital switching system that integrates voice and data communications features. Voice features include traditional telephone features, such as Transfer and Hold, and advanced features, such as Group Coverage and Park. Data features allow both voice and data to be transmitted over the same system wiring.

Intended Audience

This book provides detailed information about system features and telephone features. It is intended for use as a reference by anyone needing such information, including support personnel, sales representatives, and account executives. It is also intended for technicians who are responsible for system installation, maintenance and troubleshooting.

How to Use This Book

At the beginning of this book is an Index of Feature Names that can help you to find the appropriate feature name for the function that you want described. You can then find the description of the feature or features using the table of contents.

The description of each feature has the following headings as applicable.

- **At a Glance** provides a convenient table of feature-specific information for quick reference. Information such as Users Affected, Reports Affected, Mode, Telephones, Programming Code, Feature Code, MLX Display Label, System Programming, Hardware, Maximums, Minimums, and Factory Settings is included as appropriate.
- **Description** provides comprehensive information about the feature and its use.

- **Considerations and Constraints** lists exceptions and unusual conditions pertaining to the feature.
- **Mode Differences** explains variations in the use or operation of the feature in Hybrid/PBX, Key, or Behind Switch mode.
- **Telephone Differences** explains any operational variations on specific telephones or consoles.
- **Feature Interactions** describes how the feature operates when used in conjunction with other features.

Refer to the following documentation for additional information:

- *Equipment and Operations Reference* provides detailed information on system hardware, telephones, and other equipment.
- *System Programming* gives procedural instructions for programming system features.
- User's guides and operator's guides give procedural instructions for programming and using telephone features.

"Related Documents," later in this section, provides a complete list of system documentation together with ordering information.

In the U.S.A. only, AT&T provides a toll-free customer Helpline (1-800-628-2888) 24 hours a day. Call the Helpline, or your AT&T representative, if you need assistance when installing, programming, or using your system.

Terms and Conventions Used

In this document, the terms in the following list are used in preference to other, equally acceptable terms for describing communications systems.

Lines, Trunks and Facilities
Facility is a general term that designates a communications path between a telephone system and the telephone company central office. Technically a trunk connects a switch to a switch, for example the MERLIN LEGEND Communications System to the central office. Technically, a line is a loop-start facility or a communications path that does not connect two switches, for example, an intercom line or a Centrex line. However, in actual usage, the terms line and trunk are often applied interchangeably. In this book, we use line/trunk and lines/trunks to refer to facilities in general. Specifically, we refer to digital facilities. We also use terms such as personal line, ground-start trunk, DID trunk, and so on. When you talk to your local telephone company central office, ask them what terms they use for the specific facilities they connect to your system.

Some older terms have been replaced with newer terms. The following list shows the old term on the left and the new term on the right.

trunk module	line/trunk module
trunk jack	line/trunk jack
station	extension
station jack	extension jack
analog data station	modem data station
digital data station	7500B data station
analog voice and analog data station	analog voice and modem data
digital voice and analog data station	MLX voice and modem data
analog data-only station	modem data-only station
digital data-only station	7500B data-only station
digital voice and digital data station	MLX voice and 7500B data station

Typographical Conventions

Certain type fonts and styles act as visual cues to help you rapidly understand the information presented:

Example	Purpose
It is *very* important that you follow these steps. You *must* attach the wristband before touching the connection.	Italics indicate emphasis.
The part of the headset that fits over one or both ears is called a *headpiece.*	Italics also set off special terms.
If you press the **Feature** button on an MLX display telephone, the display lists telephone features you can select. A programmed Auto Dial button gives you instant access to an inside or outside number.	The names of fixed-feature, factory-imprinted buttons appear in bold. The names of programmed buttons are printed as regular text.
Choose Ext Prog from the display screen.	Plain constant-width type indicates text that appears on the telephone display or PC screen.
To activate Call Waiting, dial **11*.	Constant-width type in italics indicates characters you dial at the telephone or type at the PC.

Product Safety Labels

Throughout these documents, hazardous situations are indicated by an exclamation point inside a triangle and the word *caution* or *warning*.

WARNING:
Warning indicates the presence of a hazard that could cause death or severe personal injury if the hazard is not avoided.

CAUTION:
Caution indicates the presence of a hazard that could cause minor personal injury or property damage if the hazard is not avoided.

Security

Certain features of the system can be protected by passwords to prevent unauthorized users from abusing the system. You should assign passwords wherever you can and limit knowledge of such passwords to three or fewer people.

Nondisplaying authorization codes and telephone numbers provide another layer of security. For more information, see Appendix A, “Customer Support Information.”

Related Documents

In addition to this book, the documents listed below are part of the documentation set. Within the continental United States, these documents can be ordered from the AT&T Customer Information Center by calling 1-800-432-6600.

Document	Title
	System Documents
555-630-117	*Introduction*
555-630-118	*System Manager’s Guide*
555-630-110	*Feature Reference*
555-630-115	*Equipment and Operations Reference*
555-630-116	*Pocket Reference*
555-630-111	*System Programming*
555-630-112	*System Planning*
555-630-113	*System Planning Forms*
	Telephone User Support
555-630-122	*MLX-10D™, MLX-10DP™, MLX-28D™, and MLX-20L™ Display Telephones User’s Guide*
555-630-150	*MLX-10D Display Telephone Tray Cards (5 cards)*
555-630-153	*MLX-28D and MLX-20L Telephone Tray Cards (5 cards)*
555-630-124	*MLX-10™ Nondisplay Telephone User’s Guide*
555-630-151	*MLX-10 Nondisplay Telephone Tray Cards (6 cards)*
555-630-120	*Analog Multiline Telephones User’s Guide*
555-630-126	*Single-Line Telephones User’s Guide*
555-630-138	*MDC 9000 and MDW 9000 Telephones User’s Guide*
	System Operator Support
555-630-134	*MLX Direct-Line Consoles Operator’s Guide*
555-630-132	*Analog Direct-Line Consoles Operator’s Guide*
555-630-136	*MLX Queued Call Console Operator’s Guide*
	Miscellaneous User Support
555-630-130	*Calling Group Supervisor’s Guide*
555-630-129	*Data User’s Guide*
	Documentation for Qualified Technicians
555-630-140	*Installation, Programming, & Maintenance (IP&M) Binder*

How to Comment on This Document

We welcome your comments, both good and bad. Please use the feedback form on the next page to let us know how we can continue to serve you. If the feedback form is missing, write directly to:

Documentation Manager
AT&T
211 Mount Airy Road
Room 2W226
Basking Ridge, NJ 07920.

Features

This book is designed to provide both summary and detailed information about every feature in the MERLIN LEGEND Communications System. For each feature, the following types of information are provided, as applicable:

- **At a Glance.** Summary information about the feature, including, for example, users affected, telephones supported, programming code(s), and factory settings.
- **Description.** A detailed description of the functions and typical uses of the feature.
- **Considerations and Constraints.** An explanation of exceptions and unusual conditions pertaining to the feature.
- **Mode Differences.** An explanation of variations in the use of the feature in the different modes supported by the communications system.
- **Telephone Differences.** An explanation of variations in the use of the feature with different telephones.
- **Feature Interactions.** A list of issues and considerations to be aware of when using a feature in conjunction with another feature.

For easy reference, features are covered in alphabetical order. The “Index of Feature Names” shows where information can be found about features and other system components that may have been renamed or reorganized in this release of the communications system and related products. The “Index of Features by Activity” lists features according to tasks typically performed with the system. Use these, or the index at the back of the book, when you’re not sure which entry you should consult.

Index of Feature Names

Feature Name	See
400EM module	*
7500B module	*
A	
Alarm	Alarm*
Alarm Clock	Alarm Clock
Allowed Lists	Allowed/Disallowed Lists, Night Service
Applications	*
Area Code Tables	Automatic Route Selection
Asynchronous data communication	*
Attendant Barge-In	Barge-In
Attendant DSS	Direct Station Selector-MLX
Attendant Message Waiting	Messaging
Attendant console—display	Display
Attendant console—Switched Loop	Queued Call Console
AUDIX Voice Power™	Integrated Administration*
Authorization Codes	Authorization Codes
Auto Answer—All	Auto Answer All
Auto Answer—Intercom	Auto Answer Intercom
Auto Dial	Auto Dial
Auto intercom	Auto Answer Intercom
Auto Login/Logout (calling group)	Group Calling
Automated Attendant Service	Integrated Administration*
Automated Document Delivery System (ADDS)	*
Automatic Answer (data management)	Auto Answer All*
Automatic Callback	Callback, Remote Access
Automatic Completion	Transfer
Automatic Extended Call Completion	Queued Call Console
Automatic Hold or Release	Queued Call Console, Hold
Automatic Line Selection	Automatic Line Selection and Ringing/Idle Line Preference
Automatic Maintenance Busy	Automatic Maintenance Busy
Automatic Route Selection (ARS)	Automatic Route Selection
Autoqueuing	Remote Access
Auxiliary Power Units	*
B	
Backup, battery	*
Barge-In	Barge-In
Barrier code	Remote Access
Behind Switch Mode	*

* See the *Equipment and Operations Reference* for further information.

Feature Name	See
Behind Switch Operation	Recall/Timed Flash, Centrex Operation*
Bridging of station lines on multiline set	Personal Lines, System Access/Intercom Buttons

C

Call Accounting Systems	*
Call Accounting Terminals	*
Call by Call Services Table	Primary Rate Interface (PRI)
Call completion	Transfer (One-Touch)
Queued Call Console (Extended)	
Call Answer Service	Integrated Administration*
Call Coverage	Coverage
Call Forward(ing)/Following	Forward and Follow Me
Call Management System	*
Call Park	Park
Call Pickup	Pickup
Call Pickup—directed	Pickup
Call Pickup—group	Pickup
Call Records	Station Messaging Detail Recording (SMDR)
Call Restrictions	Calling Restrictions
Call Waiting	Call Waiting
Callback	Callback
Callback Queuing	Callback
Calling Group	Group Calling, Integrated Administration
Calls-In-Queue Alarm	Group Calling, Queued Call Console (QCC)
Camp-On	Camp-On
Cancel Delivered Message	Messaging
Capacities	*
CAS	*
CAS Plus V3	*
CAS UNIX®	*
CAT—Business	*
CAT—Hospitality	*
Central Office (CO) Facilities	*
Centralized Telephone Programming	Programming†
Centrex	Centrex Operation*
Class of Restriction	Remote Access
Channel Service Unit	*

* See the *Equipment and Operations Reference* for further information.
† See *System Programming* for further information.

Feature Name	See
Common Administration	Integrated Administration
Conference	Conference
Consultation Transfer	Transfer
CONVERSANT®	*
Coverage Delay Interval	Coverage
Coverage Group	Coverage, Integrated Administration
Coverage Inhibit	Coverage
Coverage On/Off	Coverage
Coverage	Coverage

D

Data Hunt Groups	*
Data Management	*
Data Privacy	*
Data Status	*
Data Support	*
Data transmission speed	*
Default Local and Toll tables	Automatic Route Selection
Delay Announcement	Group Calling
Delay Ring	Ringing Options
Delete Message	Messaging
Deliver Message	Messaging
Dial by name (display feature)	Directories
Dial Dictation adjunct	*
Dial Plan	System Renumbering
Dial Plan Routing Table	Primary Rate Interface
Dial Tone	Inside Dial Tone
Dialed number	Display
DID	*
Digital Data Ports	*
Digits in Extension	System Renumbering
Direct Dept. Calling (Hunting, Hunt Groups)	Group Calling
Direct Facility Termination (DFT)	Personal Lines
Direct Group Calling (DGC)	Group Calling
Direct Inward Dialing (DID) Trunks	*
Direct Inward System Access (DISA)	Remote Access
Direct-line console	Direct-Line Console
Direct Pool Termination (DPT)	Pools
Direct station selector	Direct Station Selector:MLX
Directory built into PBX	Directories
Directory of System Speed Dial numbers	Speed Dial
Directory of extension numbers	Directories

* See the *Equipment and Operations Reference* for further information.

Feature Name	See
Disallowed Lists	Allowed/Disallowed Lists
Display	Display
Display of name associated with station	Labeling
Display prompting	Display
Distinctive Ringing	Ringing Options
Do Not Disturb	Do Not Disturb
Drop	Conference
DS1 facilities	*
E	
Electromagnetic interference (EMI) filter	*
Electrostatic discharge (ESD)	*
Environmental requirements	*
Executive Barge-in	Barge-In
Extended call completion	Queued Call Console
Extended Station Status	Extension Status
Extension Auto Dial	Auto Dial
Extension Directory	Directories, Integrated Administration
Extension Pickup	Pickup
Extension programming	Programming†
Extension Status	Extension Status, Group Calling
External Alerts	*
F	
Facility alpha/number for incoming calls	Labeling
Facility Restriction Level (FRL)	Automatic Route Selection
Fax Attendant	Integrated Administration
Fax message waiting	Messaging
FCC Registration	*
Feature feedback	Display
Flexible Numbering	System Renumbering
Follow me	Forward and Follow Me
Forced Account Code Entry	Account Code Entry/Forced Account Code Entry
Forward	Forward and Follow Me
G	
General Pickup	Pickup
General Purpose Adapter (GPA)	*
Ground-Start Trunks	*

* See the *Equipment and Operations Reference* for further information.
† See *System Programming* for further information.

Feature Name	See
Grounding Requirements	*
Group Assignment	Night Service
Group Call Pickup	Pickup
Group Calling	Group Calling, Extension Status
Integrated Administration	Integrated Administration
Group Coverage	Coverage
Group Paging (Speakerphone)	Paging
Group Pickup	Pickup
H	
Hands-Free Answer on Intercom (HFAI)	Auto Answer Intercom
Hands-Free Unit	Auto Answer Intercom
Handset Mute	Headset Options
Headset Auto Answer	Headset Options
Headset Disconnect	Headset Options
Headset/Handset Mute	Headset Options
Headset Hang Up	Headset Options
Headset Operation	Headset Options
Headset Options	Headset Options
Headset Status	Headset Options, Queued Call Console
Headsets, hardware	*
Hold	Hold
Hold Reminder station	Display
Hold Return	Queued Call Console
Hotel mode	Extension Status
Hunt Groups	Group Calling
Hunt type	Group Calling
Hybrid/PBX Mode	*
I	
ICOM buttons	System Access/Intercom Buttons
Identification of stations being covered on covering party's display	Display
Idle Line Preference	Automatic Line Selection and Ringing/Idle Line Preference
Immediate ring	Ringing Options
Incoming Call Line Identification (ICLID)	Caller ID
Individual Coverage	Coverage
Individual Paging	Paging
Individual Pickup	Pickup
Information Service	Integrated Administration
In-Range Out-of-Building (IROB) protectors	*

* See the *Equipment and Operations Reference* for further information.

Feature Name	See
Inside Auto Dial	Auto Dial
Inside Dial Tone	Inside Dial Tone
Inspect	Inspect
Inspect screen	Display
Integrated Solution II/III	*
Intercom (ICOM) Buttons	System Access/Intercom Buttons
Intercom dialing	System Access/Intercom Buttons
Interfaces	*
IROB protectors	*
ISDN/PRI Interface	Primary Rate Interface (PRI) *

K

Key mode	*

L

Labeling	Labeling
Last Number Dial	Last Number Dial
Last Number Redial	Last Number Dial
Leave Message	Messaging
Leave Word Calling	Messaging
Line Pickup	Pickup
Line Request	Line Request
Lines/Trunks	*
Line/trunk pool button access	Pools
Line/trunk queuing	Callback
Loop Start Trunks	*
Loudspeaker Paging	Paging *

M

Maintenance Alarm	Alarm
Maintenance Busy	Automatic Maintenance Busy
Manual signaling	Signal/Notify
Menu-based feature activation	Display
Menu-based station programming	Programming
MERLIN Attendant™	AT&T Attendant™
MERLIN® modules	*
MERLIN II System Display Console	Direct-Line Console, Direct Station Selector—MLX
MERLIN MAIL®	*
Message (fax)	Messaging
Message Center operation	Queued Call Console
Message Drop Service	Integrated Administration *

* See the *Equipment and Operations Reference* for further information.

Feature Name	See
Message indicator	Messaging
Message Status (operator)	Messaging
Message Waiting Receiver	Group Calling
Messaging	Messaging
Microphone Disable	Microphone Disable
Missed Reminder	Reminder Service
Mode codes	*
Modem pooling	§
Modems	*
Modes of operation	*
Multi-Function Module	Multi-Function Module *
Music On Hold	Music On Hold
Mute	Microphone Disable
Mute, Headset/Handset	Headset Options
N	
N11 table	Automatic Route Selection
Name/number of internal caller	Display
Network Central Office facilities	*
Network Interfaces	*
Next Message	Messaging
Night Service	Night Service
No Ring option	Ringing Options
Notify	Signal/Notify
Numbering Plan	System Renumbering
O	
Off-premises extensions	*
Off-premises Range Extender (OPRE)	*
On- or off-hook queuing	Callback
On-premises host access (data)	*
One-Touch Hold	Transfer
One-Touch Transfer	Transfer
Operator Automatic Hold	Hold
Operator Hold Timer	Hold
OPRE	*
Originate Only	System Access/Intercom Buttons
Out-of-Building Station (Extension)	*
Outside Auto Dial	Auto Dial
Outward Restriction	Calling Restrictions, Night Service
P	
Page All	Paging

* See the *Equipment and Operations Reference* for further information.
§ See *MERLIN LEGEND Communications System Modem Pooling* applications note.

Feature Name	See
Paging	Paging
Park	Park
Patterns	Automatic Route Selection
PBX mode	*
Personal Directory	Directories
Personal Speed Dial	Speed Dial
Personalized Ring	Ringing Options
Pickup, Call Waiting	Call Waiting
Pool Dial-Out Code Restriction	Calling Restrictions
Pool routing	Automatic Route Selection
Pools	Pools
Port/Expansion carrier port slots	*
Position Busy Backup	Queued Call Console
Posted Messages	Messaging
Power Failure Stations (Extensions)	*
Power Failure Transfer	*
Power Requirements	*
PRI	Primary Rate Interface
PRI applications	*
Primary Coverage	Coverage
Primary Rate Interface (PRI)	Primary Rate Interface
Prime line	Centrex Operation
Principal user	Personal Lines, System Access/Intercom Buttons
Printer	Station Message Detail Recording (SMDR)
Printers, hardware	*
Priority call ringing	Ringing Options
Privacy	Privacy
Product Element Codes (PECs)	*
Programming	Programming, Integrated Administration

Q

Queue Priority	Queued Call Console
Queued Call Console	Queued Call Console

R

Recall	Recall/Timed Flash
Recorded announcement	*
Release differences	*
Reminder Service	Reminder Service
Remote Access	Remote Access
Remote Administration	†

* See the *Equipment and Operations Reference* for further information.
† See *System Programming* for further information.

Feature Name	See
Remote Call Forwarding	Forward and Follow Me
Remote programming	†
Restrictions	Calling Restrictions
Retrieve Message	Messaging
Return Call	Messaging
Return Ring Interval	Queued Call Console
Ring Buttons	System Access/Intercom Buttons
Ring generator	*
Ring Timing options	Ringing Options
Ringback (Transfer Audible)	Transfer
Ringing/Idle Line Preference	Automatic Line Selection and Ringing/Idle Line Preference
Ringing options	Ringing Options
Rotary signaling	Touch-Tone or Rotary Signaling
Routes per pattern	Automatic Route Selection
Routing by Dial Plan	Primary Rate Interface

S

SA buttons	System Access/Intercom Buttons
Saved Number Dial	Saved Number Dial
Scroll	Messaging
Secondary Coverage	Coverage
Selective Callback	Callback
Send All Calls	Do Not Disturb
Send/Remove Message	Messaging
Send Ring	Ringing Options
Set Up Space	System Renumbering
Shared System Access	System Access/Intercom Buttons
Signaling	Signal/Notify
Six-digit screening	Automatic Route Selection
SMDR	Station Message Detail Recording (SMDR)
Software capacities	*
Speakerphone Paging	Paging
Special Numbers Pattern	Automatic Route Selection
Special Services Selection Table	Primary Rate Interface
Speed Dial	Auto Dial, Directories, Speed Dial
SPM	Programming†
Station Conference—External Parties	Conference
Station Conference—Total Parties	Conference
Station DSS auto dial	Direct Station Selector
Station lines	System Access/Intercom Buttons
Station Message Detail Recording	Station Message Detail Recording (SMDR)
Station programming	Programming

* See the *Equipment and Operations Reference* for further information.
† See *System Programming* for further information.

Feature Name	See
Station-to-Station Messaging	Messaging, Signal/Notify
Switchhook (Flash)	Recall/Timed Flash
Supplemental Alert Adapter	Multi-Function Module*
Surge Protectors	*
Switched Loop Console	Queued Call Console
Switching, Digital	*
System Access buttons	System Access/Intercom Buttons
System Directory	Directories
System Numbering	System Renumbering
System Programming	Programming†
System Programming and Maintenance	Programming†
System Speed Dial	Speed Dial
T	
T1 Interface (DS1)	Primary Rate Interface (PRI)*
Telephones, hardware	*
Three-Digit Numbering	System Renumbering
Tie Trunks	*
Time-day-date (display)	Display
Timed flash	Recall/Timed Flash
Time of day routing	Automatic Route Selection
Timer	Timer
Tip/Ring devices	
Toll Restriction	Calling Restrictions
Toll Type	Toll Type
Touch-tone receivers (TTRs)	Touch-Tone or Rotary Signaling*
Touch-tone signaling	Touch-Tone or Rotary Signaling*
Transfer	Transfer
Transfer Audible	Transfer
Transfer Return Identification	Display
Transfer Return interval	Transfer
T/R devices	*
Trouble Alarm connections	*
Trunk Pools	Pools
Trunk-to-Trunk transfer	Transfer
TTRs	Touch-Tone or Rotary Signaling*
Two-Digit numbering	System Renumbering
U	
UDC/DDC	Group Calling
Unit Loads	*
Unrestricted Restriction	Calling Restrictions

* See the *Equipment and Operations Reference* for further information.
† See *System Programming* for further information.

Feature Name	See
V	
Video Conferencing	*
VMI (voice messaging interface) Ports	Group Calling
Voice announce	Paging
Voice announce disable	Voice Announce to Busy
Voice announce inside calls	Paging, System Access/Intercom buttons
Voice announce on busy stations	Voice Announce to Busy
Voice Announce Transfer	Transfer
Voice buttons	System Access/Intercom Buttons
Voice mail message waiting	Messaging
Voice mail systems	Integrated Administration*
Voice messaging systems	Integrated Administration*

* See the *Equipment and Operations Reference* for further information.

Index to Features by Activity

The index in this section lists system features according to the activities that people typically perform. (You can also use the index at the back of the book to find the features that support particular activities, but this list supplies more detail.) Operator features are not covered exhaustively here, because they are described in detail in the entries: “Direct-Line Console,” “Direct Station Selector:MLX,” and “Queued Call Console.” This index lists features according to the following categories:

- Basic Calling and Answering
  - Answering calls
  - Conferencing and joining calls
  - Dialing
  - Paging
  - Putting a call on hold
  - Using the system from an outside phone
- Covering Calls or Having Calls Covered
  - When you are covering calls
  - When someone is covering your calls
- Timekeeping
- Calling Privileges and Restrictions
  - To prevent people from making calls
  - To allow calls
  - Other calling privileges
- Messaging
- System Manager Features
- Special Operator and Calling Supervisor Features

Look for the activity in the first column. In the second column, find out who can perform the activity described. The third column cites the name of the feature that you should look up in order to get more information.

Basic Calling and Answering	For	Feature Name
Answering calls		
And seeing who is calling you from another extension	Display phones	Display
And seeing who is calling you from outside	MLX display phones	Display Caller ID Primary Rate Interface (PRI)
And identifying the type of call according to the ring	All	Ringing Options
At another extension	All	Pickup
At a line not on your phone	All	Pickup
At a line you share with others	All	System Access/Intercom Buttons Personal Lines Centrex Operation
For another person or group of people. See "Covering calls or having calls covered"	All	Coverage Personal Lines System Access/Intercom Buttons Forward and Follow Me Queued Call Console Direct-Line Console Group Calling
If you are a calling supervisor for people answering calls	DLC and QCC operators only	Direct-Line Console Queued Call Console Direct Station Selector: MLX Group Calling Extension Status
If you are an operator	DLC and QCC operators only	Direct-Line Console Queued Call Console Direct Station Selector: MLX
If you are part of a group	All	Group Calling Extension Status
Waiting for you, after you hear call-waiting tone	All	Call Waiting
That come to your extension while you're at another extension	All	Forward and Follow Me
And then disconnect it, without using the handset or **Speaker** button	All	Recall/Timed Flash
Using a Hands-Free Unit, without lifting the handset	Analog multiline w/out speaker	Auto Answer Intercom
Using a headset	MLX	Headset Auto Answer
Using a modem, fax machine, or headset	Analog multiline	Auto Answer All

Conferencing and joining calls		
Conferencing inside and outside parties where the inside parties do not share a line	All	Conference
Joining calls of inside parties who share a line	All	System Access/Intercom Buttons Personal Lines Centrex Operation
Preventing others from joining your calls	All except QCC	Privacy
Joining a caller and the extension he or she wants to reach	All except operators	Transfer
Dialing		
An inside call	All	System Access/Intercom Buttons Centrex Operation
An outside call	All	System Access/Intercom Buttons Pools Personal Lines Centrex Operation
An inside or outside number with one touch	All except single-line and QCC	Auto Dial
An inside or outside number with one touch	Operators with MLX phones or System Display Consoles only	Direct Station Selector: MLX
A call from anther extension, using your own calling privileges	All	Authorization Codes
An inside call to anyone in a group of people	All	Group Calling
An Account Code, for billing to a project or client, during or before a call	All	Account Code Entry/Forced Account Code Entry
By entering a 3-digit code for a party that people in your company call often	All	Speed Dial
By entering a 2-digit code for a party you call often (phones with 10 or fewer buttons)	All	Speed Dial
By selecting a name from the display	All	Directories
A person who has left a message on your display, with one touch	Display phones only	Messaging
Outside of normal office hours	All	Night Service
A number you dialed before	All except QCC	Last Number Dial Saved Number Dial
A busy extension to reach it when it's available	All except QCC	Callback Camp-On

A busy line to have your call placed when the line is available	All except QCC (and single-line and cordless or wireless, for Line Request)	Callback Line Request
When you want to interrupt a call at a busy extension or one with Do Not Disturb on	Operators only	Barge-In
Using a special long-distance service such as Megacom® WATS	System managers (to set up)	Primary Rate Interface (PRI) Pools Automatic Route Selection
A voice mail box	All	Direct Voice Mail
Change the Extension Directory to accommodate new or changed extensions.	System managers only	Labeling
Change the System Directory to accommodate business needs.	System managers only	Labeling
Paging		
One person at your company who has a speakerphone and is not a QCC operator or at a single-line phone	All	System Access/Intercom Buttons
Several people at your company who have speakerphones and are not QCC operators or at single-line phones	All	Paging Pickup
All the people at your company who have speakerphones and are not QCC operators or at single-line phones	All	Paging Pickup
Over your company's loudspeaker system	All	Paging Pickup
Prevent voice-announced calls from coming in over your speakerphone, or allow them	Analog multiline and MLX	Voice Announce to Busy
Putting a call on hold		
At your own extension, so that you can pick it up	All except single-line	Hold
At your own extension, so that you can pick it up	Single-line	Recall/Timed Flash
At your own extension, so that you or someone who shares a line can pick it up	All	Hold System Access/Intercom Buttons Personal Lines Centrex Operation
At your own extension, so that you or someone who shares a line can pick it up	All	Hold System Access/Intercom Buttons Personal Lines Centrex Operation

At your own extension, to put an outside call on hold automatically in order to transfer to another extension with a shared line or button	All	Transfer
At your own extension, so that anyone can pick it up after you page them	All except QCC	Park
At one of several reserved extensions, so that anyone can pick it up after you page them	Operators only	Park
Automatically	DLC operators only	Hold Direct-Line Console
Using the system from an outside phone		
To gain access to the system as if you were on an inside extension	N/A	Remote Access
To receive calls that come to your system extension	N/A	Forward and Follow Me
Covering Calls or Having Your Calls Covered		
When you are covering calls		
As an operator	DLC and QCC operators only	Direct-Line Console Queued Call Console Direct Station Selector
As a calling supervisor for people covering calls	DLC and QCC operators only	Direct-Line Console Queued Call Console Direct Station Selector Group Calling Extension Status
As a member of a group	All	Group Calling Coverage
And you want to adjust the ringing at the button where calls come in	All except single-line	Coverage Ringing Options
When your calls are being covered		
By someone who shares a line	All	System Access/Intercom Buttons
Occasionally	All	Forward and Follow Me
By voice mail	All	Coverage
Regularly	All	Coverage
And you want to adjust or remove the ringing at the button(s) where covered calls arrive	All except single-line	Coverage Ringing Options
Timekeeping		
To set others' phones to ring at a certain time as a reminder	DLC operators only	Reminder Service
To set your own phone to ring at a certain time as a reminder	All	Reminder Service
To set the alarm clock on your telephone	Display telephones only	Alarm Clock and Timer

To set the time at your telephone	Display telephones only	Alarm Clock and Timer
To set the timer for calls or other activities	Display telephones only	Alarm Clock and Timer
To set the systemwide time	System manager only	See *System Programming.*

Calling Privileges and Restrictions

To prevent people from making calls

To your extension	All except operator	Privacy Do Not Disturb
To your extension when your phone is too busy to take any more calls or you must be away from your phone	QCC only	Queued Call Console
To outside numbers	System manager only	Calling Restrictions Toll Type
To toll numbers	System manager only	Calling Restrictions Automatic Route Selection Pools Toll Type
To certain numbers or area codes	System manager only	Allowed/ Disallowed Lists
Outside of normal business hours	System manager only	Night Service
On certain outside lines in a Hybrid/PBX system	System manager only	Automatic Route Selection Pools Toll Type

To allow calls

To certain numbers or area codes	System manager only	Allowed/ Disallowed Lists Speed Dial (System Speed Dial)
Outside of normal business hours	System manager only	Night Service

Other calling privileges		
To use your own calling privileges at others' extensions	All	Authorization Codes
To enter your password for off-hours calls	All	Night Service
Customizing Your Phone		
Give your phone its own distinctive ring.	All	Ringing Options
Change the way your phone rings when you're already on a call.	All	Ringing Options
Delay or remove the ring from an outside, **SA**, or **ICOM** line button.	All except single-line	Ringing Options
Change the volume levels for ringing, conversations on the handset, and conversations on the speakerphone.	MLX only	Volume
Change the language used (English, French, or Spanish) at your extension; this also changes the clock, which is 12-hour for English and 24-hour for French or Spanish.	MLX display phones only	Language
Messaging		
Leaving Messages		
Turn an extension's Message light on or off to indicate that you have a message for the party.	Operators only	Messaging (Send/Remove Message)
Call and let a co-worker with a display phone know that you have called.	All	Messaging (Leave Message)
Let a co-worker with a display phone know that you wish to speak with him or her, without calling.	All except QCC	Messaging (Leave Message) Signaling/Notify
Let a co-worker with a multiline phone know that you wish to speak with him or her, without calling.	All except QCC	Signaling/Notify
Post a specific message (such as, OUT TO LUNCH) for co-workers who have display phones.	All except single-line	Messaging (Posted Messages)
Cancel a message left for a co-worker who has a display phone.	All	Messaging (Leave Message)
Receiving Messages		
Read messages.	Display phones only	Messaging
Turn off Message light.	All	Messaging
Delete messages.	Display phones only	Messaging
Return a call from a co-worker who has left a message.	Display phones only	Messaging
Controlling Messaging		
Change the posted messages that users can choose from.	System manager only	Labeling

Change the extension information that appears on display telephones that have messages.	System manager only	Labeling
Set up voice messaging system to take calls.	System manager only	Group Calling
Set up extensions to receive messages from a fax machine that has a delivery for them.	System manager only	Messaging
Set up calling groups to receive messages from co-workers.	System manager only	Messaging

System Manager Features (for System Manager or Programmer Only)

Customizing the system

Set up account codes so that calls can be billed or tracked to a specific client or project.	N/A	Account Code Entry/Forced Account Code Entry
Set up which line is selected when a user lifts the handset or presses the **Speaker** button.	All telephones	Automatic Line Selection and Ringing/Idle Line Preference
Change extension numbers for extensions, adjuncts, trunks, telephones, ranges of extensions on a DSS, Automatic Route Selection, calling groups, Idle Line Access, Listed Directory Number, paging groups, park zones, Pools, or Remote Access.	All	System Renumbering
Change the overall system numbering plan; for example, change to 2-, 3-, or a variable number of digits for extension numbers.	All	System Renumbering
Modify the line buttons (**SA** or **ICOM**) available on a user's telephone: change, add, or delete.	All except single-line	System Access/Intercom Buttons
Adjust the ringing at an extension, including one with a single-line phone or MFM.	For single-line/MFM	Ringing Options Coverage
Set up special phones to be used for incoming and outgoing calls during a commercial power failure.	N/A	Power Failure Transfer
Adjust the system dial tone to accommodate a voice messaging system or modem.	N/A	Inside Dial Tone
Control what a caller hears while waiting for the system (during transfer, while on hold, or during other operations where the caller must wait).	N/A	Music On Hold
Set up an adapter connected to an MLX extension to support a fax machine, modem, or other device.	N/A	Multi-Function Module
Change the language (English, French, or Spanish) used in System Programming and Maintenance (SPM) software.	System manager or programmer	Labeling
Change the language (English, French, or Spanish) used in Station Message Detail Recording (SMDR) and programming reports.	N/A	Labeling
Set up Transfer for one-touch transfer or automatic hold.	All	Transfer

Directories		
Change the Extension Directory to accommodate new or changed extensions.	N/A	Labeling
Change a user's Personal Directory listings.	MLX display phones only	Labeling
Change the names listed with System Directory entries to accommodate business needs.	N/A	Labeling
Getting reports		
Get a report on incoming and outgoing calls, including account codes, if programmed.	N/A	Station Message Detail Recording (SMDR)
Get a report on the way the system is programmed.	N/A	Station Message Detail Recording (SMDR)
Lines and trunks		
Take an outside line out of service when there is a problem with it.	N/A	Automatic Maintenance Busy
In Hybrid/PBX mode, assign lines that can be answered without operator involvement.	All telephones	Personal Lines
In Behind Switch mode, allow **Conference**, **Transfer**, and **Drop** buttons to access host features.	N/A	Recall/Timed Flash
Messages		
Change the language used (English, French, or Spanish) systemwide or at an extension; this also changes the clock, which is 12-hour for English and 24-hour for French or Spanish.	MLX display phones only	Language
Change the posted messages that users can choose from.	N/A	Labeling
Change the extension information that appears on display telephones with inside calls and messages.	N/A	Labeling
Operators		
Allow a QCC operator to join callers and extensions more rapidly.	N/A	Queued Call Console
Find out about the **Alarm** button on operator consoles or set up a special light or bell to signal a system problem.	Operator consoles	Alarm
Set up a group of fax machines to take calls.	N/A	Group Calling
Set up voice messaging system to take calls.	N/A	Group Calling
Prevent DLC operators from accidentally disconnecting callers.	N/A	Hold Direct-Line Consoles
Find out what to do when callers on hold are being disconnected.	N/A	Hold

Make your system more secure from toll fraud.	N/A	Calling Restrictions Remote Access Forward and Follow Me Automatic Route Selection Group Calling
Troubleshooting		
Correct problems that users are having with the switchhook, **Recall**, or **Flash** button.	N/A	Recall/Timed Flash
Special Operator and Supervisor Features		
Join a caller and the extension he or she wants to reach.	Operator consoles	Direct-Line Console Queued Call Console
Find out about the **Alarm** button that signals a system problem.	Operator consoles	Alarm
Find out about the **Alarm** button that signals too many calls waiting in line for your attention or your group's attention.	Operator consoles	Group Calling Auto Dial
Activate Night Service for system use outside of normal business hours.	Operator consoles	Night Service
Set up the way calls are distributed to calling group members.	System manager only	Group Calling
Monitor others' calls.	N/A	Direct-Line Console Queued Call Console Direct Station Selector Extension Status Group Calling
Set up a device to answer calls when a group is unavailable to take them.	System manager only	Group Calling
Log a calling group member in or out.	Operator consoles	Group Calling Extension Status
Log a delay announcement device for a group in or out.	Operator consoles	Group Calling
Allow DLC operators to place calls on hold automatically.	System manager only	Hold Direct-Line Consoles
Turn an extension's Message light on or off to indicate that you have a message for the party.	Operators only	Messaging (Send/Remove Message)
Understanding and Customizing Your Telephone		
Learn about the display on your telephone.	Display telephones	Display
Set contrast on your telephone.	Display telephones except BIS-22D	Display

Use the line buttons on your telephone.	All	System Access/Intercom Buttons Personal Lines Pools Centrex Operation
Program buttons.	Multiline telephones	Programming
Change the ringing sound on your telephone.	All	Personalized Ringing
Change the number of times calls ring.	All	Ringing Options
Use the display to screen incoming calls.	MLX display phones only	Inspect
See what features are programmed on telephone buttons.	MLX display phones only	Inspect
For noisy environments: turn off the microphone at an MLX telephone (except a QCC) so that a user can hear voice announcements but must lift the handset to respond.	System manager only	Microphone Disable

Abbreviated Ring

See “Ringing Options.”

Account Code Entry/Forced Account Code Entry

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Directory Extension Information SMDR
Mode	All
Telephones	All touch-tone telephones
Programming Code	**82*
Feature Code	*82*
MLX Display Label	Account Code [Acct]
System Programming	Enter extensions required to use account codes before making an outside call: • Extensions→Account
Hardware	Printer for SMDR Reports or PC and printer equipped with AT&T CAS software needed for Account Code Reports
Maximums	16 characters (0–9, *)
Factory Settings	Forced Account Code not assigned to any extensions

Description

Use Account Code Entry to enter account codes (developed by accounting or administrative personnel) for outside calls, both incoming and outgoing. These codes appear on Station Message Detailed Recording (SMDR) reports, along with other call information, and are used for billing or cost accounting to identify outgoing calls with a project, client, or department. You can enter an account code before or during a call or not at all. You can also change, correct, or cancel an account code while the call is in progress.

Forced Account Code Entry is similar, but affects only outgoing calls and requires a caller to enter an account code before placing an outside call. You can change or correct an account code while a call is in progress, but you cannot cancel it.

To enter, change, or correct an account code during a call, activate the feature and enter the account code. Only the person who enters the account code hears the tones generated by dialing the account code number. To cancel an account code (when permitted), activate the feature and exit without entering a code.

With Forced Account Code Entry, if you try to make an outside call without entering an account code, the following occurs:

- If you select an outside line on an **SA** button (by dialing a dial-out code) or on an **ICOM** button (by dialing the Idle Line Access code) without entering an account code, the call is blocked. Depending on the type of telephone used, this may be indicated by the programmed Account Code Entry button flashing, the **SA** button going to the off/idle state, or an intercept tone.
- If you try to make an outside call on a personal line or **Pool** button without entering an account code, there is no dial tone.

Considerations and Constraints

If SMDR is set to record outgoing calls only, you cannot enter an account code for incoming calls.

The system does not validate account codes; it only checks for the number of characters entered (maximum of 16) and for completion (dialing # or pressing a programmed Account Code Entry button).

Account codes can be no more than 16 characters in length, and only the digits 0–9 and the character * can be used.

With Forced Account Code Entry, you can enter account codes for incoming calls and for incoming calls added to a conference call by using the Account Code Entry feature. You do not have to enter account codes in these situations. (Outgoing calls added to a conference must have an account code.)

You cannot change an account code entered from another extension.

An incoming caller cannot hear tones as account codes are entered during a call.

An Account Code Entry button only activates and completes the account code entry. It does not automatically enter an account code. A separate outside Auto Dial button can be programmed with an account code number.

Prior to Release 2.1, users at extensions programmed with Forced Account Code Entry need to enter an account code to use Loudspeaker Paging. In Release 2.1 and later, users at extensions programmed with Forced Account Code Entry do not need to enter an account code to use Loudspeaker Paging.

Mode Differences

Behind Switch Mode

In Behind Switch mode, single-line telephones must be programmed through Idle Line Preference to select an **SA** or **ICOM** button when the user lifts the handset to make an outgoing call.

Telephone Differences

Queued Call Consoles

To make an outgoing call from a QCC, activate Account Code Entry by selecting the feature from the Home screen or by pressing the **Feature** button and selecting the Account Code Entry feature from the display. After the account code is dialed, complete the entry by dialing #. Then select a personal line, **SA**, or **Pool** button on which to make the call.

Normally, you cannot enter account codes when you answer a Group Coverage call at a Group Cover button programmed on a multiline telephone. However, when the QCC queue is programmed as the receiver for a coverage group, Cover buttons are not required and the QCC system operator can enter account codes. Those account codes appear on the SMDR printout. In this case, the Account Code Entry feature must be activated from the display and cannot be activated by dialing the feature code.

Other Multiline Telephones

An MLX telephone user can program account codes either individually, on outside Auto Dial buttons, or as an entry in the Personal Directory (MLX-20L™ telephones). Enter an account code by pressing the **Feature** button and selecting Account Code from the display.

On all other multiline telephones, activate Account Code Entry by pressing a programmed Account Code Entry button or by pressing the **Feature** button and dialing *82*. After dialing the account code, complete the entry by pressing a programmed Account Code Entry button or dialing #. On MLX display telephones, the feature can also be activated and completed by pressing the **Feature** button and selecting the feature from the display. Once the entry is complete, select a personal line, **SA**, or **Pool** button, lift the handset, and make the call.

NOTE:
Account codes cannot be entered with System Speed Dial or Personal Speed Dial, because pressing # to activate speed dial completes the account code entry.

If Account Code Entry is assigned to a button, the LED flashes when you lift the handset and attempt an outside call. On MLX display telephones, the feature name appears on the display. Enter the account code, press the programmed Account Code Entry button (the green LED goes from flashing to on), select the outside line, and proceed with the call.

Single-Line Telephones

Single-line telephones in Behind Switch mode by default cannot use Account Code Entry or Forced Account Code Entry. If this feature is to be used, the single-line telephone must be programmed through Idle Line Preference to select an **SA** or **ICOM** button so that the user hears internal dial tone when the handset is lifted for an outgoing call.

Single-line telephones must have touch-tone dialing to use the Account Code Entry feature.

When a single-line telephone user hears internal dial tone, the user can activate the feature by dialing *#82*.

Single-line telephone users cannot enter account codes by using System Speed Dial or Personal Speed Dial because these features are activated by dialing #. Pressing # completes the entry of an account code and cannot also be used to activate the Speed Dial features.

Feature Interactions

Authorization Code	If an account code is not entered, the ACCOUNT field of the SMDR printout contains the authorization code used to obtain restriction privileges. If an account code is entered at any time during a call, the account code is stored in the SMDR record.
Auto Dial	Frequently used account code numbers can be programmed onto *outside* Auto Dial buttons.

Automatic Line Selection	A single-line telephone user can only enter account codes if Automatic Line Selection is programmed to select an **SA** or **ICOM** button when the user lifts the handset.
Automatic Route Selection	When ARS is used on the system, enter an account code before or after dialing the telephone number. If Forced Account Code Entry is assigned, enter the code before dialing the ARS dial-out code.
Callback	Enter an account code before activating Callback. Otherwise, the account code cannot be entered until after the call connects. Account codes cannot be entered while the call is queued.
Conference	Enter a separate account code for each outside call added to a conference. An account code does not carry over to other calls made at the same time.
Coverage	When answering calls on a Primary Cover, Secondary Cover, or Group Cover button, a receiver cannot enter an account code. The account code must be entered from the sender's telephone. (If the receiver tries to enter an account code, no error tone sounds, but the account code does not appear on the SMDR printout.) Because Cover buttons are not required when the Queued Call Console (QCC) queue is programmed as a receiver for a coverage group, a QCC system operator can enter account codes and they will appear on the SMDR printout.
Display	When the Account Code Entry feature is activated, the ACCT: message on the display prompts the user to enter the account code. The account code digits are shown next to the prompt as they are dialed.
Forward and Follow Me	Extensions assigned Forced Account Code Entry can forward calls only to extensions and not to outside numbers. The user hears a fast busy signal if he or she tries to forward a call to an outside number.
Remote Access	Account codes cannot be entered on calls made using Remote Access.
SMDR	The account code is printed in the ACCOUNT field of the SMDR record. If SMDR is programmed for outgoing calls only, an account code cannot be entered for an incoming call.
Speed Dial	Personal Speed Dial or System Speed Dial cannot be used to dial account codes because the # used to access the speed dialing signals an exit from the Account Code Entry feature.
Transfer	When a call is transferred, the destination extension cannot change an account code entered at the originating extension.

Administration

See “Integrated Administration” and “Programming.”

Alarm

At a Glance

Users Affected	Operators
Reports Affected	Extension Information
Mode	All
Telephones	System operator consoles only (QCC or DLC)
Programming Code	**759*
MLX Display Label	Alarm [Alarm]
System Programming	AuxEquip→MaintAlarms
Hardware	Alert device (bell or strobe) for Maintenance Alert

Description

Alarms provide either a visible or audible indication when the system detects a problem that needs immediate attention.

- **Alarm Button.** A programmed button on Direct-Line Consoles (DLCs) and a factory-set button on Queued Call Consoles (QCCs). It alerts the operator to problems detected by the system software. The red LED next to the **Alarm** button on the operator console turns on when the system detects a problem (such as a problem with one of the trunks or some other system error) that requires immediate attention. It remains on until the problem is corrected.
- **Maintenance Alert.** An alert device such as a bell or strobe light connected to the line or trunk designated as a maintenance alarm jack. The device rings or lights when the system detects a problem that requires immediate attention.
- The red LED on the processor module turns on when the system detects a problem that requires immediate attention. It remains lit until the problem is corrected.
- The red LED on certain modules turns on when the system detects a module-related problem, for example, a loss-of-service alarm on the 100D module.

Considerations and Constraints

As soon as the system detects a problem, the red LED next to the **Alarm** button turns on and/or the maintenance alert sounds or flashes.

All system operator consoles with an **Alarm** button receive the indication.

Telephone Differences

Alarm buttons can be programmed only on system operator consoles.

Direct-Line Consoles

An **Alarm** button is factory-assigned on an analog DLC but not on an MLX DLC.

An operator at an MLX DLC can use the Inspect feature to display the number of alarms; an analog DLC operator cannot use Inspect.

On a system with fewer than 29 lines, an **Alarm** button is factory-assigned to analog DLCs with 34 or more buttons.

On a system with more than 29 lines, **Alarm** is replaced with line 30. The **Alarm** button is not a fixed feature and can be assigned to any available button on an analog or MLX DLC.

Queued Call Consoles

Alarm buttons can be programmed only on system operator consoles.

An **Alarm** button is a fixed feature on a QCC.

A QCC operator can use the Inspect feature to display the number of alarms.

Feature Interactions

Automatic Maintenance Busy	The red LED turns on next to the **Alarm** button on system operator consoles, and the designated maintenance alert device sounds or flashes when more than 50 percent of the trunks in the trunk pool are in a maintenance-busy state.
Inspect	Inspect can be used on an MLX DLC or a QCC to display the number of alarms. Inspect cannot be used on an analog DLC.
Personal Lines	A line or trunk jack used for a maintenance alarm cannot be assigned as a personal line.
Pools	A trunk jack used for a maintenance alarm cannot be assigned to a trunk pool (Hybrid/PBX mode only).

Alarm Clock

At a Glance

Users Affected	Users, Operators
Reports Affected	None
Mode	All
Telephones	MLX display and analog multiline telephones
MLX Display Label	AlarmClk [Alarm]

Description

If you have a display phone, you can use your phone as an alarm clock and set it to beep at a particular time to remind you of an appointment, meeting, or other important event. Until canceled, the alarm sounds every day at the set time.

Each MLX telephone and analog multiline display telephone has a timer to time calls, meetings, breaks, or other events. When activated, the timer appears at the top of the display, next to the date, and starts counting. It counts to 59 minutes and 59 seconds, then resets to zero and continues counting.

To Set the Alarm

To set the alarm on an MLX display telephone, follow the procedure below:

1. Press the **Menu** button.
2. Select Alarm Clock [AlClk]. If this feature is not displayed, press the **More** button. The display shows the alarm status (On/Off) and the time set.
3. For English-language operation, dial a 4-digit time from 0100 to 1259 and select a.m./p.m. to switch the display from A.M. to P.M. or back again. For French- or Spanish-language operation, dial a 4-digit time from 0000 to 2359. If you make an error, select Reset and redial.
4. Select On.
5. Press the **Home** button. A bell appears on the Home screen.

To set the alarm on an analog multiline telephone, follow the procedure below:

1. Press the **Set** button. ALARM Off begins to flash.
2. Press the **Fwd** button. ALARM On begins to flash.
3. Press **Set**. Hour and am/pm begin to flash.
4. Press **Fwd** or **Rev** until the setting you want appears on the display.
5. Press **Set**. Minutes begins to flash.
6. Press **Fwd** or **Rev** until the setting you want appears on the display.
7. Press the **Exit** button. A bell appears on the display next to the date.

To Cancel the Alarm

To cancel the alarm on an MLX display telephone, follow the procedure below:

1. Press the **Menu** button.
2. Select Alarm Clock [AlClk]. If this feature is not displayed, press the **More** button.
3. Select Off.
4. Press the **Home** button. The bell disappears from the Home screen.

To set the alarm on an analog multiline telephone, follow the procedure below:

1. Press the **Set** button. ALARM On begins to flash.
2. Press the **Fwd** button. ALARM Off begins to flash.
3. Press the **Exit** button. The bell disappears from the display.

Allowed/Disallowed Lists

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Access to Allowed Lists Access to Disallowed Lists Allowed Lists Disallowed Lists Remote Access (DISA) Information
Mode	All
Telephones	All
System Programming	Establish, change, or remove Allowed/Disallowed Lists: • Tables→AllowList/Disallow Assign or remove Allowed/Disallowed Lists for individual telephones: • Tables→AllowTo/DisallowTo Assign or remove Allowed/Disallowed Lists for non-tie trunks used for Remote Access: • LinesTrunks→RemoteAccss→Non-TIE Lines→ Allow List/DisallowLst Assign or remove Allowed/Disallowed Lists for tie trunks used for Remote Access: • LinesTrunks→RemoteAccss→TIE Lines→ Allow List/DisallowLst Assign or remove Allowed/Disallowed Lists for each remote access barrier code: • LineTrunks→RemoteAccss→Barrier Code→ Allow List/DisallowLst
Maximums	
Allowed Lists	6 digits for each number (+ leading 1, if required) 10 numbers for each list 8 lists for each system 8 lists for each telephone
Disallowed Lists	11 digits for each number (+ wildcard) 10 numbers for each list 8 lists for each system 8 lists for each telephone

Description

Used in conjunction with calling restrictions (outward and toll), an Allowed List is a list of numbers that the caller is allowed to dial, despite restrictions. For example, an Allowed List assigned to an outward-restricted extension can allow calls to specific local numbers, such as emergency (911) or toll numbers. For toll-restricted extensions, an assigned Allowed List can allow calls to specific area codes and/or exchanges needed for daily tasks.

A Disallowed List is a list of local or toll numbers that the telephone user is not allowed to dial, even if the extension is otherwise unrestricted. Disallowed Lists can be used as an alternative to or in conjunction with calling restrictions.

Both Allowed Lists and Disallowed Lists are assigned to individual extensions.

Allowed and Disallowed Lists can also be used in conjunction with Remote Access to restrict calls made through the system from remote locations. In this case, Allowed and Disallowed Lists can be assigned to either specific remote access barrier codes or (if barrier codes are not used) to specific types of trunks (all tie/DID and all non-tie/non-DID trunks).

When an Allowed List is assigned to a barrier code or remote access trunks, the remote access user using that code can dial specific numbers included in the list. When a Disallowed List is assigned to a barrier code, the remote access user using that code cannot reach the specific numbers included in the list.

If barrier codes are not used for remote access, then Allowed and Disallowed Lists for remote access users can be assigned to all tie/DID trunks and all non-tie/non-DID trunks.

A Night Service Allowed List can be programmed with up to 10 numbers that anyone can dial without having to enter a Night Service password. For additional information, see “Night Service.”

Considerations and Constraints

A Disallowed List takes precedence over an Allowed List. If a telephone number is on both an Allowed List and a Disallowed List assigned to an individual extension, the caller cannot complete a call to that number.

If a zero (0) is programmed as the first digit of an Allowed List entry, any toll restriction assigned to an extension is removed for calls placed through a toll operator.

Individual Allowed and Disallowed Lists are numbered 0 through 7. Within each list, there are 10 entries numbered 0 through 9.

The Pause character (entered by pressing the **Hold** button) can be used as a wild card character in Disallowed Lists, for example, to indicate that calls to a given exchange are restricted in every area code. (The Pause character is shown on the planning form as **p**.) Wild card characters are not permitted in Allowed List entries.

When used in conjunction with Remote Access, Allowed and Disallowed Lists are assigned to specific barrier codes or to types of trunks: all tie/DID trunks, or all non-tie/DID trunks. Allowed and Disallowed Lists cannot be assigned to trunks on an individual basis.

When used with Automatic Route Selection (ARS), Allowed and Disallowed Lists are not applied until the caller dials the ARS code and a pool is selected.

Because restrictions imposed by a Disallowed List apply to the extension used to initiate a call to an outside number, a user with a restricted extension can circumvent restrictions by asking an operator with an unrestricted console to connect an outside call.

Feature Interactions

Auto Dial	A user with a restricted extension cannot dial a restricted number (outside or toll) by using an Auto Dial button, unless the number is on the Allowed List for that extension. A user cannot dial an outside number by using an Auto Dial button if the number is on a Disallowed List.
Automatic Route Selection	Automatic Route Selection (ARS) checks Allowed and Disallowed Lists before choosing the route for a call. This prevents users with restricted extensions from dialing numbers that are not on an Allowed List. ARS also prevents a user from dialing numbers on a Disallowed List.
Calling Restrictions	When used with calling restrictions, Allowed Lists can permit the dialing of specific numbers, such as emergency numbers, from an outward- or toll-restricted extension.
Conference	A user with a restricted extension cannot add a participant (outside or toll) to a conference call unless the participant's number is on the Allowed List for that extension. A user cannot add an outside number to a conference call if the number is on a Disallowed List.
Directories	A user with a restricted extension cannot use the System Directory to dial a restricted number unless the System Speed Dial number is marked or the number is on the Allowed List for that extension.

Forward and Follow Me	A user with a restricted extension cannot forward calls to a restricted (outside or toll) number unless the number is on the Allowed List for that extension. If the number is on the Disallowed List for that extension, the call cannot be forwarded. When activating Forward, a user with a restricted extension does not hear an error tone, but when a call is received, the Forward is denied if the number is not on the Allowed List.
Night Service	A Night Service Emergency Allowed List can be programmed with up to 10 numbers that any user can dial without having to enter the Night Service password. For additional information, see “Night Service.”
Personal Lines	A user with a restricted extension cannot dial a restricted number (outside or toll) on a personal line button unless the number is on the Allowed List for that extension. If the number is on a Disallowed List, the user cannot dial it.
Remote Access	Both Allowed and Disallowed Lists are assigned as items of the class of restriction (COR) for the Remote Access feature. When barrier codes are not used, Allowed and Disallowed Lists are assigned to trunks systemwide. When barrier codes are used, Allowed and Disallowed Lists are assigned to individual barrier codes.
Speed Dial	When a tagged System Speed Dial number (the dialed number is suppressed from the display) is used to dial a number, calling restrictions (such as toll or outward restrictions, or Allowed and Disallowed Lists) assigned to that extension are overridden. When an untagged System Speed Dial or a Personal Speed Dial number is used to dial a restricted number, the call cannot be completed unless the number is on the Allowed List for that extension.
Toll Type	When trunks with different toll types are connected (for example, basic trunks and PRI facilities), people must dial a toll prefix (*0* or *1*) for toll calls on some trunks, but it is not required on other trunks. In such instances, two Disallowed List entries are needed to restrict users from dialing specific area codes and/or telephone numbers. For example, to restrict users from dialing area code 505, the Disallowed List must include both 505 and 1505.

Authorization Code

At a Glance

Users Affected	Telephone users
Reports Affected	Extension Information, Authorization Code Information, SMDR
Mode	All
Telephones	All (touch-tone telephones except QCC)
Programming Code	**80*
Feature Code	*80*
MLX Display Label	Auth Code [Auth]
System Programming	
	Assign or remove Authorization Code for a telephone: • Extension→**More**→Auth Code→Enter
	Assign "home extension" in SMDR Report: • Options→SMDR→Auth Code→Home Extension Number
	Assign actual authorization code in SMDR Report: • Options→SMDR→Auth Code→Authorization Code
	To print a report on all authorization codes on a system: • **More**→Print→Auth Code
Maximums	
Number of Digits in authorization code	11 (Range 2–11) (0-9,*)
Factory Settings	
SMDR Report	Home Extension Number
Authorization codes	Not assigned to any extensions

Description

The Authorization Code feature allows you to pick up someone else's telephone, enter your authorization code, and complete a call with the restrictions that apply to your own telephone (*home extension*). This includes toll restrictions, outward restriction, Facility Restriction Level (FRL), Allowed Lists, Disallowed Lists, Forced Account Code Entry (FACE), Night Service Exclusion List, and Dial Access to Pools. All other functions on the telephone are those of the extension you are using, not your home extension.

Each entry of an authorization code provides restriction privileges for a single phone call. If you put the first call on hold and start to make an outside call, the Authorization Code button's green LED goes off. If you wish to make another call, you must reactivate the Authorization Code feature in order to obtain the restriction privileges of the home extension.

Authorization codes can also be used for call control and call accounting through the SMDR printout. SMDR may be programmed so that the “home extension” or the authorization code is stored in the ACCOUNT field when no account code is entered. The factory setting is for the home extension to be stored in the ACCOUNT field.

An authorization code can range from 2 to 11 characters and must be unique across the system. However, more than one user can use an authorization code simultaneously. Authorization codes do not all have to be one length systemwide.

Through system programming, the system manager can assign one authorization code for each telephone extension. One Authorization Code button can be programmed on any MLX or analog multiline telephone (except QCCs). A button with a green LED is suggested.

If a user does not have a physical telephone, a phantom extension may be programmed as a “home extension” to allow the user to use restricted telephones and for call control and call accounting purposes.

The Authorization Code feature can be activated by modems and fax machines as well by dialing *#80* and then entering the authorization code followed by a #.

Activation of Authorization Code

You can pick up any telephone (except a QCC) in the system and use an authorization code. You obtain home extension calling privileges by entering your home extension’s authorization code. Do this in one of the following ways:

- Press a programmed Authorization Code button and then enter the assigned authorization code.
- Press the **Feature** button on an MLX display telephone and then select Auth Code.
- Press the **Feature** button on an MLX telephone or analog multiline telephone and dial *80*.
- Press *#80* while off-hook on an **SA/ICOM** button.

If you activate the feature while on-hook, the features select an **SA/ICOM** button and turns on the speakerphone, if present.

After you activate the feature, the green LED (if present) next to a programmed Authorization Code button starts to flash slowly to indicate that you may enter the code’s digits. An MLX display telephone shows Auth: and an analog multiline display telephone shows Auth?.

Entering Authorization Code

While you enter the assigned authorization code, you hear internal dial tone. If you do not enter the code within 15 seconds, the feature is deactivated.

If a telephone with a display is used, the display shows asterisks instead of the entered digits.

To complete entry of the authorization code, either press a programmed Authorization Code button again, or dial a # to signify the end of the code. If the entered authorization code matches an assigned code, you continue to hear internal dial tone and can start dialing the telephone number.

The green LED associated with a programmed Authorization Code button becomes steady to indicate that an authorization code has been successfully entered. The LED remains steady as long as the Authorization Code feature remains active.

If the authorization code is not valid, you hear an error tone (a high tone followed by a low tone). The green LED associated with a programmed Authorization Code button goes off to indicate that the Authorization Code feature is not active. An MLX display telephone shows the message Auth Code Not Valid, and an analog multiline display telephone shows the message Error.

Deactivation of Authorization Code

Each entry of an authorization code is good for only one phone call. After completing a call, the current extension loses “home extension” privileges. It also loses privileges for subsequent calls after putting a call on Hold, or after initiating Recall, Headset Hang Up, or Park features. If a far-end disconnect is not received from the central office, you must go on-hook or select another outside line to deactivate the Authorization Code feature.

After the feature is deactivated, the green light next to the Authorization Code button (if present) turns off.

Considerations and Constraints

An authorization code can only be entered while hearing internal dial tone.

Incoming calls are not affected by an authorization code.

There is no limit to the number of users who can use the same authorization code simultaneously.

Authorization codes cannot contain a # nor begin with a *.

An authorization code must be no fewer than 2 and no more than 11 digits long.

An authorization code must be unique across the system.

Telephone Differences

Queued Call Console

The Authorization Code feature cannot be activated on a QCC,

Analog Multiline Telephones

At an analog multiline telephone with a General Purpose Adapter connected to it and set for Auto operation, you must lift the handset before activating Authorization Code. Do not use the **Spkrphone** button.

Single-Line Telephones

On single-line telephones, entry of an authorization code is activated by dialing *#80*. The entry is completed by dialing #. Single-line telephones must have touch-tone dialing and must be programmed through Idle Line Preference (using centralized telephone programming) to select an **SA/ICOM** button when the user picks up the handset or activates the speakerphone.

On a single-line telephone, an authorization code must be entered before accessing an outside line.

Single-line telephone users cannot enter authorization codes by using a System Speed Dial or Personal Speed Dial code because these features are activated by dialing #. Pressing # completes the entry of an authorization code, therefore, it cannot also be used to activate the speed dial features.

Feature Interactions

Account Code Entry	If an account code is not entered, the ACCOUNT field of the SMDR printout contains the authorization code or the “home extension” used to obtain restriction privileges. If an account code is entered at any time during a call, the account code is stored in the SMDR record. If the extension used to make a call is assigned Forced Account Code Entry, the caller is not forced to enter the account code while using the Authorization Code feature. If the home extension is assigned Forced Account Code Entry, the caller must enter an account code after (or before) entering an authorization code.
Automatic Route Selection	An authorization code must be entered before making dialing the ARS access code.
Conference	You must enter an authorization code before each outside call for a conference. You may enter a different authorization code for different outside calls. This may be useful if different restriction privileges are required for different outside calls for the conference.

Headsets	Pressing the **Headset Hang Up** button deactivates the Authorization Code feature.
Hold	Initiating Hold after entering an authorization code deactivates the Authorization Code feature for subsequent calls.
Last Number Dial	For security, the authorization code is not saved by the Last Number Dial feature. Authorization Code does not affect Last Number Dial on the extension you are using or on your home extension. You can retrieve the last number dialed on the phone you are using.
Night Service	An authorization code can be used when Night Service is activated.
Park	Initiating Park after entering an authorization code deactivates the Authorization Code feature. An authorization code does not need to be entered to pick up a parked call.
Remote Access	A caller cannot enter an authorization code on a remote access call.
Saved Number Dial	For security, the authorization code is not saved by the Saved Number Dial feature. Authorization Code does not affect Saved Number Dial on the extension you are using or your home extension. You can retrieve the saved number on the phone you are using.
SMDR	All outgoing calls over the minimum call length made using an authorization code are recorded in the SMDR record. If an account code is not entered, the ACCOUNT field of the SMDR printout contains the authorization code used to obtain restriction privileges or the home extension number, depending on how SMDR is programmed. If an account code is entered at any time during a call, the account code is stored in the SMDR record instead.
Speed Dial	Users cannot enter authorization codes by using a System Speed Dial or Personal Speed Dial code because these features are activated by dialing #. Pressing # completes the entry of an authorization code and cannot also be used to activate the speed dial features.
System Renumbering	If extensions are renumbered, authorization codes remain with the logical IDs where they were originally assigned. System Renumbering also removes all phantom extensions and their authorization codes.
Transfer	If the user wants to transfer a call to an outside number, the authorization code must be entered to obtain “home extension” privileges at the beginning of the transfer. In this case, One-Touch Transfer does not work.

Auto Answer All

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information
Mode	All
Telephones	Analog multiline
Programming Code	**754*
MLX Display Label	AutoAns All (in centralized telephone programming)
Hardware	General Purpose Adapter (GPA) needed to connect answering device to analog multiline telephone; 502C headset adapter needed for headset options.

Description

Auto Answer All is used on analog multiline telephones only or analog Direct-Line Consoles (DLCs) with a modem, answering machine, or other answering device connected through a General Purpose Adapter (GPA) to answer both inside and outside calls when the user is not available.

To activate Auto Answer All, slide the switch on the GPA to Auto and press the Auto Answer All button. The green LED next to the button turns on, and incoming calls are answered automatically.

To deactivate the feature, either slide the switch on the GPA to Basic or press the Auto Answer All button. If the button is pressed to deactivate the feature, the green LED next to the button turns off. In either case, the telephone returns to normal operation.

Auto Answer All can also be used with a headset adapter to allow an analog multiline telephone user or analog DLC operator with a headset to be connected automatically to ringing calls. A tone heard through the headset signals an incoming call.

A programmed button activates and deactivates Auto Answer All. Select the lines to be answered by the device by programming Immediate Ring or Delay Ring as the ringing option. Lines that are not to be answered should be programmed as No Ring.

Telephone Differences

Queued Call Consoles

Auto Answer All cannot be used on a QCC.

Other Multiline Telephones

Auto Answer All cannot be used on MLX telephones, cordless telephones, or wireless telephones.

Single-Line Telephones

Auto Answer All cannot be used on single-line telephones. This includes single-line telephones with speakerphones.

Considerations and Constraints

When Auto Answer All is used, all voice announcements (including Voice Announce to Busy) should be disabled because the device connected to the GPA cannot answer voice-announced calls.

Auto Answer All cannot be used with a Hands-Free Unit (HFU).

Occasionally a second alert (or zip) tone may sound on incoming or intercom calls. This is normal.

Auto Answer All should be used instead of Auto Answer Intercom to allow an answering device to answer intercom calls. Auto Answer Intercom can cause intercom calls to be dropped.

Feature Interactions

Auto Answer Intercom	Both Auto Answer All and Auto Answer Intercom can be programmed on the same extension, but they cannot be used at the same time. Auto Answer Intercom should not be used with answering devices.
Auto Dial	At an analog multiline telephone with a General Purpose Adapter (GPA) connected to it and set for Auto operation, you must lift the handset before pressing an Auto Dial button. Do not use the **Spkrphone** button.
Coverage	Auto Answer All is used when a receiver with an analog multiline telephone wants Individual or Group Coverage calls answered by an answering machine connected to the extension.
Forward and Follow Me	An answering device connected to an analog multiline telephone can answer forwarded calls when Auto Answer All is activated.

Group Calling	Members in a calling group with analog multiline telephones can use Auto Answer All when answering machines are connected to their extensions. When the feature is activated, all incoming calls ringing on the calling group member's extension—both calls for the calling group and calls to the member's own extension—are answered automatically by the answering machine.
Ringing Options	An analog multiline telephone user selects the lines to be answered by programming them for Immediate or Delay Ring and selects the lines not to be answered by programming them for No Ring. If the device is to answer only inside calls, all personal lines (outside lines assigned to buttons on the telephone) must be programmed for No Ring.
System Access/Intercom Buttons	When Auto Answer All is activated, all calls received at an **SA Ring**, **ICOM Ring**, **SA Voice**, or **ICOM Voice** button can be answered automatically by the device connected to the GPA. If **Shared SA** buttons are assigned, only the principal extension should be programmed for Immediate Ring to prevent the call from being answered at the principal extension and at extensions with the **Shared SA** button.
Voice Announce	Voice-announced calls received at an analog multiline telephone are not answered by a device connected through a GPA, because ringing current is not sent to the device.

Auto Answer Intercom

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information
Mode	All
Telephones	Analog multiline
Programming Code	**753*
MLX Display Label	AutoAnsIcom (in centralized telephone programming)
Hardware	Hands-Free Unit (HFU) is used to answer inside calls.

Description

MLX telephones can automatically answer calls on their speakerphones if the Hands-Free Answer on Intercom button (HFAI) is activated. Some older models of analog multiline telephones do not have built-in speakerphones. People with these telephones can still answer inside calls without lifting the handset by using Auto Answer Intercom with an optional Hands-Free Unit (HFU).

To activate Auto Answer Intercom, press the Auto Answer Intercom button. The green LED next to the button turns on. The HFU turns on automatically when an inside call is received.

To deactivate the feature, press the Auto Answer Intercom button again. The green LED turns off, and the HFU does not automatically turn on when an intercom call is received.

Mode Differences

When Auto Answer Intercom is activated in Hybrid/PBX mode and a call is received on an **SA** button, the HFU turns on, even if the button is programmed for Delay Ring or No Ring.

Telephone Differences

Queued Call Consoles

Auto Answer Intercom cannot be used on a QCC.

Other Multiline Telephones

Auto Answer Intercom cannot be used on MLX telephones, cordless telephones, or wireless telephones.

Single-Line Telephones

Auto Answer Intercom cannot be used on single-line telephones. This includes single-line telephones with speakerphones.

Considerations and Constraints

Auto Answer All should be used instead of Auto Answer Intercom to allow an answering device to answer intercom calls. Auto Answer Intercom can cause intercom calls to be dropped.

When Auto Answer Intercom is activated in Hybrid/PBX mode and a call is received on an **SA** button, the HFU turns on, even if the button is programmed for Delay Ring or No Ring.

Feature Interactions

Auto Answer All	Both Auto Answer All and Auto Answer Intercom can be programmed on the same telephone, but they cannot be used at the same time.
Coverage	Auto Answer Intercom does not allow a receiver with an analog multiline telephone to use an HFU to answer calls received on a Primary Cover, Secondary Cover, or Group Cover button.
System Access/ Intercom Buttons	When Auto Answer Intercom is activated, the Hands-Free Unit (HFU) answers inside calls received on an **SA** button. The HFU does not answer calls on a **Shared SA** button.

Auto Dial

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information
Mode	All
Telephones	All except QCC and single-line telephones
Programming Codes	
Inside	**22 + ext. no.*
Outside	**21 + number*
MLX Display Labels	Auto Dial, Inside [AutoD,In] Auto Dial, Outside [AutoD,Out]
Maximums	28 digits, including special characters

CAUTION:
Emergency numbers and other numbers should be tested during off-peak hours, such as early morning or late evening. The user should remain on the line and briefly explain to the dispatcher the reason for the call.

Description

Use Auto Dial buttons for one-touch dialing of frequently called telephone numbers. Two types of Auto Dial buttons can be programmed:

- **Inside Auto Dial.** This button automatically dials any extension or group extension in the system such as a co-worker, calling group, fax machine, or voice mail system. An operator can also program inside Auto Dial buttons for park zone extension numbers.

  When an inside Auto Dial button is programmed, the user can see the status of the extension associated with the button; the green LED next to the button is on when a person at the extension is on a call, when Do Not Disturb is on, or when the extension is forced idle for centralized telephone programming or system programming.

- **Outside Auto Dial.** This button automatically dials frequently called telephone numbers, as well as account codes, long distance company access codes, bank access codes, or emergency contact numbers.

Considerations and Constraints

When an Auto Dial button is used to make a call, the green LED next to the button does not turn on.

Only company extension numbers should be programmed on inside Auto Dial buttons. Account codes, long-distance company access codes, and outside telephone numbers should be programmed on outside Auto Dial buttons.

If a user tries to program an incomplete extension number on an inside Auto Dial button, the system provides an error tone and the button remains as programmed.

If numbers are dialed incorrectly by outside Auto Dial, it is possible that the digits are being dialed before a central office dial tone is received. In this case, a Pause should be programmed as the first digit of the dialed number in Key mode and the next digit (after the dial-out code) of the dialed number in Hybrid/PBX mode.

To enter special characters in a telephone number programmed on an outside Auto Dial button, use **Conf** for the Flash character, **Drop** for the Stop character, and **Hold** for the Pause character. See Table 1. These special characters can not be programmed on inside Auto Dial buttons.

If the Stop character is the last character in the number, it has no effect on how the Auto Dial button functions.

In Release 2.1 and later, when a call is forwarded to a multiline telephone that has an inside Auto Dial button programmed for the forwarding telephone, the green light next to the Auto Dial button does not flash.

Table 1. Special Characters for Outside Auto Dial

Press	See*	Means
Drop†	s	**Stop.** Halts dialing within a sequence of automatically dialed numbers. For example, an outside Auto Dial button may be programmed with a password, then a Stop, followed by a telephone number. To use Auto Dial with a Stop in the sequence, press the button to dial the password, listen for the dialing and connection, and press the button again to dial the telephone number.
Hold	p	**Pause.** Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conf†	f	**Flash.** Sends a switchhook flash. Must be the first entry in the dialing sequence.
##	#	**End of Dialing** (for extension programming only). Use at the end of a dialing sequence to indicate that you have finished dialing or to separate one group of dialed digits from another, such as account code and number dialed.
#	#	**End of Dialing.** Use at the end of a dialing sequence to indicate that you have finished dialing or to separate one group of dialed digits from another.

* Display phones only.

† Not available on MLC-5 cordless phones.

Mode Differences

Hybrid/PBX Mode

In Hybrid/PBX mode, the system automatically turns on the speakerphone and selects an **SA** button when you press an inside or outside Auto Dial button before lifting the handset.

Key Mode

In Key mode, the system automatically turns on the speakerphone and selects an outside line button when you press an outside Auto Dial button without lifting the handset. When you press an inside Auto Dial button without lifting the handset, the system automatically turns on the speakerphone and selects an **ICOM** button.

Behind Switch Mode

In Behind Switch mode, the system automatically selects the prime line button and turns on the speakerphone whenever the user presses an outside Auto Dial button. If the Automatic Line Selection sequence has been changed to select the **ICOM** button, press the prime line or outside line button before pressing an outside Auto Dial button. Pressing an inside Auto Dial button without lifting the handset causes the system to automatically turn on the speakerphone and select an **ICOM** button. The system does not automatically select an outside line.

Telephone Differences

Direct-Line Consoles

Inside Auto Dial can be programmed onto available buttons on a DLC. Use the buttons to transfer a call, make an inside call, or determine availability of the extension.

Queued Call Consoles

Use the Personal or System Directory instead of outside Auto Dial buttons, which cannot be programmed on the Queued Call Console (QCC). The Extension Directory or DSS buttons can be used instead of inside Auto Dial buttons.

Other Multiline Telephones

All multiline telephone users can program and use Auto Dial buttons. When using an MLX-20L telephone, use Personal Directory in place of Auto Dial. On an MLX display telephone, select the feature from the display to program it.

At an analog multiline telephone with a General Purpose Adapter (GPA) connected to it and set for Auto operation, you must lift the handset before pressing an Auto Dial button. Do not use the **Spkrphone** button.

Single-Line Telephones

Single-line telephone users cannot program Auto Dial buttons.

Feature Interactions

Account Code Entry	You can program frequently used account code numbers onto outside Auto Dial buttons.
Allowed Lists Calling Restrictions	A user with a restricted extension cannot dial a restricted number (outward or toll) using an Auto Dial button, unless the number is on the Allowed List for that extension.
Automatic Route Selection	You cannot program Automatic Route Selection (ARS) dial-out codes on inside Auto Dial buttons. You can program an ARS dial-out code on an outside Auto Dial button.
Conference	Press the **Conf** button to enter the Flash special character in a telephone number programmed on an outside Auto Dial button. Press the **Drop** button to enter the Stop special character in a telephone number programmed on an outside Auto Dial button.
Disallowed Lists	You cannot dial an outside number using an Auto Dial button when the number is on a Disallowed List assigned to the extension.
Display	When you press a programmed Auto Dial button, the digits appear on the display as if you were dialing them from the dialpad, and the number is automatically dialed. An MLX telephone user can select Auto Dial from the display only during programming.
Do Not Disturb	When you activate Do Not Disturb, the green LED turns on next to all inside Auto Dial buttons programmed with the your extension.
Forced Account Code Entry	Frequently used account code numbers can be programmed onto outside Auto Dial buttons.
Forward and Follow Me	When a call is forwarded to a multiline telephone that has an Auto Dial button programmed for the forwarding telephone, the green light next to the Auto Dial button does not flash.

Group Calling	The Calls-In-Queue-Alarm button for a calling group is assigned on a multiline telephone by programming an inside Auto Dial button with the calling group's extension number. When a DSS is not available, the calling group supervisor uses Auto Dial buttons programmed with each calling group member's extension to monitor group member availability.
Headset Options	If headset operation is activated on the telephone or console, select a line button before using Auto Dial to dial an extension or an outside number.
Last Number Dial	A number you dial by pressing a programmed outside Auto Dial button is saved for Last Number Dial as if you dialed it with the dialpad, but special characters do not work. An extension dialed when you press a programmed inside Auto Dial button is not saved for Last Number Dial.
Microphone Disable	When an MLX telephone user's microphone is disabled, pressing an Auto Dial button turns on the speakerphone so the user can hear the number being dialed. However, the user must lift the handset to talk once the call is answered.
Paging	You can program an extension for a speakerphone paging group on an inside Auto Dial button.
Park	An operator can program park zone codes on inside Auto Dial buttons. An inside Auto Dial button can also be programmed with a user's or system operator's own extension number and can be used to park calls. When the system is programmed for One-Touch Hold with manual completion, you hear a busy signal when parking a call at your own extension number and must complete the transfer by hanging up or pressing the **Transfer** button.
Personal Lines	Only an outside Auto Dial button—not an inside one—can be used on a personal line.
Pools	Pool dial-out codes cannot be programmed on inside Auto Dial buttons. A pool dial-out code can be programmed on an outside Auto Dial button when a telephone number is also included.
Saved Number Dial	A number you dial by pressing a programmed outside Auto Dial button can be saved for Saved Number Dial by pressing the programmed Saved Number Dial button.
Signaling	You cannot program a Signal button and an Auto Dial button for the same extension. Attempting to program both types of buttons for one extension causes the system to erase the button that was programmed first.
SMDR	All numbers dialed on an outside call using Auto Dial are recorded on the SMDR report.

System Access/Intercom Buttons

When you press an inside Auto Dial button, the system automatically selects an **SA** or **ICOM** button and turns on the speakerphone. When you press an outside Auto Dial button, the system automatically selects an outside line button in Key mode, a prime line button in Behind Switch mode, or an **SA** button in Hybrid/PBX mode.

Transfer

You can press inside Auto Dial buttons instead of dialing extension numbers to transfer calls. To use the One-Touch Transfer option, you must program inside Auto Dial buttons for extensions to which you transfer calls. When an operator transfers a call and it returns unanswered, the green LED next to the Auto Dial button flashes to indicate the extension from which the call is returning. Only system operators receive this indication.

Automatic Line Selection and Ringing/Idle Line Preference

At a Glance

Users Affected	Telephone users, operators		
Reports Affected	Extension Information		
Mode	All		
Telephones	All		
Programming Codes			
Ringing/Idle Line Preference			
On	**343*		
Off	**344*		
ALS sequence (centralized telephone programming only for single-line telephones)			
Begin button sequence	**14*		
End button sequence	***14*		
MLX Display Label	Line Prefer [LnPrf] AutoLineSel (centralized telephone programming only)		
Maximums			
Buttons for each telephone in ALS sequence	8		
Factory Settings			
Ringing/Idle Line Preference	On		
ALS Sequence by Mode	Hybrid/PBX	Key	Behind Switch
MLX Telephones	3 **SA**	8 personal lines	1 prime line
Analog Multiline Telephones	3 **SA**	8 personal lines	1 prime line
Single-Line Telephones	3 **SA**	2 **ICOM**	1 prime line
Direct-Line Consoles	2 **SA** + 6 personal lines	8 personal lines	1 prime line + 7 personal lines
Queued Call Consoles	5 **Call** (fixed)		

Description

Automatic Line Selection (ALS) and Ringing/Idle Line Preference are two closely related features. Ringing/Idle Line Preference directs the system to automatically select a line button for making or answering a call; ALS specifies the order in which buttons should be selected.

Ringing/Idle Line Preference

Ringing/Idle Line Preference is a single option that controls two aspects of a telephone's behavior: selection of a line when a call arrives, and selection of a line when a user goes off hook. Turn this option on or off for each extension through extension programming or centralized telephone programming, using the display or programming codes. When Ringing/Idle Line Preference is on for an extension, the system selects a line button automatically, as follows:

- Ringing Line Preference selects a ringing outside line, **SA** or **ICOM** button, or Cover button; that is, the red LED turns on next to the button with the ringing call. If you lift the handset or press the **Speaker** button, you are automatically connected to the ringing call.

  The button must be programmed for Immediate Ring or Delay Ring. The red LED next to a button programmed for No Ring does not turn on unless you press that button to select that line. See "Ringing Options" for additional information.

- Idle Line Preference selects an available outside line, **SA**, or **ICOM** button for an outgoing call. If you lift the handset or press the **Speaker** button when no call is ringing, the red LED turns on next to an available line button, and you are automatically connected to that line.

On is the factory-setting for Ringing/Idle Line Preference for all extensions. If Ringing/Idle Line Preference is turned off for an extension, no line button at that extension is ever selected automatically. The red LED is never on until you press the line button with a ringing call (flashing green LED) or an available line button (green LED off) to make a call.

Automatic Line Selection

When Ringing/Idle Line Preference is turned on at an extension, the system uses the programmed ALS sequence to select an idle **SA** or **ICOM** button or outside line button for originating a call. When you lift the handset or press the **Speaker** button without selecting a line button, the red LED next to the first button in the programmed sequence turns on and you are connected to that line. If the first line is busy, the system selects the second button in the sequence, and so on.

For example, if you normally make toll calls, a WATS line assigned to the extension can be programmed as the first line in the sequence, and local lines as the second, third, and so on. When you lift the handset or press the **Speaker** button, the WATS line, if available, is selected automatically.

On a multiline telephone you can override ALS by pressing the preferred line button before you lift the handset or press **Speaker** (the red LED next to the selected button turns on).

Up to eight line buttons (except on single-line telephones) can be programmed in the ALS sequence for an extension, either through centralized telephone programming or through extension programming, using programming codes only.

IMPORTANT:
Your current Automatic Line Selection table is deleted immediately after you press **14*. There is no way to cancel the operation. You must program new selections and then press ***14* to end the operation.

Table 2 shows the factory-set ALS sequence for each kind of telephone according to system operating mode. When Ringing/Idle Line Preference is on, buttons are selected in the numbered order shown. For multiline telephones (including operator consoles), the factory-set sequence begins with the lower left button of the type indicated, moves upward in the first column of buttons, moves to the bottom of the next column to the right (if necessary), and finally moves upward until the maximum of eight line buttons is included in the sequence. Where outside line buttons are included in the sequence, they are selected in numeric order (by default, 801, 802,…), up to the maximum number of lines shown.

Table 2. Factory-Set Automatic Line Selection Sequence

	Mode					
Telephone	**Hybrid/PBX**		**Key**		**Behind Switch**	
Multiline (MLX or Analog)	3. **SA O** 2. **SA V** 1. **SA R**		3. Line 3 2. Line 2 1. Line 1	8. Line 8 7. Line 7 6. Line 6 5. Line 5 4. Line 4	1. prime line	
Single-Line	3. **SA O** 2. **SA R** 1. **SA R**		2. **ICOM R** 1. **ICOM R**		1. prime line	
Direct-Line Consoles (MLX or Analog)	5. Line 3 4. Line 2 3. Line 1 2. **SA V** 1. **SA R**	8. Line 6 7. Line 5 6. Line 4	3. Line 3 2. Line 2 1. Line 1	8. Line 8 7. Line 7 6. Line 6 5. Line 5 4. Line 4	3. Line 3 2. Line 2 1. prime line	8. Line 8 7. Line 7 6. Line 6 5. Line 5 4. Line 4
Queued Call Console	5. **Call 5** 4. **Call 4** 3. **Call 3** 3. **Call 2** 1. **Call 1**					

SA R, ICOM R = SA Ring, ICOM Ring
SA V, ICOM V = SA Voice, ICOM Voice
SA 0, ICOM 0 = SA Originate Only, ICOM Originate Only

Considerations and Constraints

Outside line buttons and **SA** or **ICOM** buttons can be included in the ALS sequence. However, inside and outside lines should not be interleaved. A typical sequence would consist of all desired **SA** or **ICOM** buttons, followed by all desired outside line buttons.

When personal line or **Pool** buttons are assigned to a single-line telephone or other tip/ring device (such as a fax machine) connected to an 012 module or a Multi-Function Module (MFM), the buttons are automatically added to the ALS sequence.

When a user or system manager enters ALS programming, the system clears the current ALS sequence for the extension. If the person programming the extension exits without selecting any buttons, the extension has no ALS sequence. The effect is as if Idle Line Preference is turned off: no line is selected automatically when the user lifts the handset to place a call.

Mode Differences

Hybrid/PBX Mode

The factory-set ALS sequence for multiline and single-line telephones includes only **SA** buttons. Users can make outside calls by dialing the main pool dial-out code (usually *70*) or Automatic Route Selection code (usually *9*).

Key Mode

The factory-set ALS sequence for multiline telephones (including DLCs) includes only personal line buttons. Users can make inside calls by pressing an available **ICOM** button before dialing.

The factory-set ALS sequence for single-line telephones includes only **ICOM** buttons. Users can make outside calls by dialing the Idle Line Access code (usually *9*).

Behind Switch Mode

The factory-set ALS sequence includes only the prime line. The sequence can be changed to an **ICOM** line followed by the prime line or outside lines. This allows the single-line telephone user to use system features and to select the prime line and/or outside lines by dialing the Idle Line Access code (usually *9*).

Telephone Differences

Queued Call Consoles

The ALS sequence on a QCC starts at the lowest **Call** button and moves upward, and Ringing/Idle Line Preference is on. Neither can be changed.

Other Multiline Telephones

The ALS sequence is assigned through extension programming, using programming codes only, or through centralized telephone programming.

Single-Line Telephones

The ALS sequence for a single-line telephone can be changed only through centralized telephone programming. It cannot be changed by the telephone user.

The ALS sequence for single-line telephones and other tip/ring equipment connected to an 012 module, an 008 OPT module, or a Multi-Function Module is factory-set to include only **SA** or **ICOM** buttons. As outside trunks or pools are assigned to the extension, they are automatically added to the ALS sequence.

In Key mode, if the ALS sequence for a single-line telephone is changed to include only outside lines, the user cannot use system features except through pressing and releasing the **Recall** or **Flash** button. (If the telephone does not have positive disconnect, the user can press and release the switchhook).

In Behind Switch mode, the factory setting for the ALS sequence is the prime line. The sequence can be changed to an **ICOM** button followed by the prime line or outside lines. This allows a single-line telephone user to use system features and to select the prime line and/or outside lines by dialing the Idle Line Access code.

Feature Interactions

Account Code Entry/Forced Account Code Entry	A single-line telephone user can enter account codes only when ALS is programmed to select an **SA** or **ICOM** button when the user lifts the handset.
Coverage	When Ringing/Idle Line Preference is on for an extension, the system automatically selects a Primary Cover, Secondary Cover, or Group Cover button with a ringing call. However, these buttons cannot be programmed in an ALS sequence because they cannot be used to make calls.

Headset Options	When an MLX telephone or console is in headset operation, Ringing/Idle Line Preference is off automatically. Select a line manually to make a call; if Headset Auto Answer is off, manually select a ringing line to answer the call.
Multi-Function Module	When an MFM is installed in an MLX telephone, the ALS sequence for the MFM should be set to select **SA Ring** or **ICOM Ring**, then **SA Originate Only** or **ICOM Originate Only**, then outside lines (or the prime line in Behind Switch mode) assigned to the MFM. Ringing/Idle Line Preference should be on for an MFM.
Ringing Options	Even when Ringing/Idle Line Preference is on, the system does not automatically select an outside line, **SA**, **ICOM**, or Cover button programmed for No Ring. If a call is coming in on such a button, select the button manually to answer. (The green LED flashes when the call arrives; the red LED turns on when the button is pressed.)
System Access/ Intercom Buttons	**SA** (including **Shared SA**) or **ICOM** buttons can be programmed in an ALS sequence. Different button types (personal line, **Pool**, **ICOM**, **SA**, or **Shared SA** buttons) should not be interleaved in an ALS sequence.
Transfer	ALS does not apply when the **Transfer** button is pressed.

Automatic Maintenance Busy

At a Glance

Users Affected	Telephone users, operators
Reports Affected	System Information
Mode	Hybrid/PBX
System Programming	System→MaintenBusy

Description

When Automatic Maintenance Busy is enabled, a malfunctioning loop-start, ground-start, or tie trunk is automatically put in a maintenance-busy state, preventing outside calls from being made on that trunk. Incoming calls are never blocked.

In general, the two reasons for putting an outside trunk in a maintenance-busy state are as follows:

- Faulty or delayed signaling between the system and the central office. To avoid busying out trunks because of slow telephone company central office responses rather than faulty trunks, four consecutive occurrences of faulty or delayed signaling are required before the trunk is put in maintenance-busy state.
- Central office failure to disconnect (make the trunk available for use) after the user hangs up. The trunk is put in maintenance-busy state after two occurrences of a failure to disconnect.

When a trunk is put in maintenance-busy state, an error is recorded on the internal error log. The log indicates which type of error occurred: faulty or delayed signaling, or central office failure to disconnect.

Once a trunk is in maintenance-busy state, the three ways to clear the condition and put the trunk back into service are as follows:

- Periodic testing of the trunk by the system's internal maintenance software to verify proper functioning
- Manual clearing of the error from the error log
- Manual seizure of the trunk at the operator console or through maintenance dial codes

Considerations and Constraints

Incoming calls are received and processed normally on trunks in a maintenance-busy state.

Direct Inward Dialing (DID) trunks (Hybrid/PBX mode only) are not affected by Automatic Maintenance Busy, because these trunks can only receive calls and are not pooled.

100D (DS1) modules configured as ground-start, loop-start, or tie trunks are monitored and maintained by Automatic Maintenance Busy.

No more than 50 percent of the trunks in a trunk pool can be placed in maintenance-busy state at one time, *except* when the central office has failed to disconnect a trunk (preventing its use) or when an entire trunk module is manually taken out of service (called a *user-imposed* maintenance-busy state). In the case of the 100D module, any failure in the DS1 link causes the module to generate a loss-of-service alarm, and the entire module is taken out of service.

Mode Differences

Hybrid/PBX Mode

To provide optimal performance, Automatic Maintenance Busy should be enabled when a Hybrid/PBX system includes trunk pools.

Key and Behind Switch Modes

Automatic Maintenance Busy is not available in Key and Behind Switch modes.

Feature Interactions

Alarm	The red LED next to the **Alarm** button on system operator consoles turns on, and the designated maintenance alarm alert device sounds or flashes when more than 50 percent of the trunks in a trunk pool are in a maintenance-busy state.
Automatic Route Selection	When Automatic Route Selection (ARS) is used to make an outside call, the system does not select trunks that are in maintenance-busy state.

Automatic Route Selection

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Automatic Route Selection Extension Directory Extension Information Remote Access (DISA) Information
Mode	Hybrid/PBX only
Telephones	All
System Programming	Specify the type of table (6-digit, area code, local exchange, or 1 + 7) and the area codes and/or exchanges to be included in the table: • Tables→ARS→ARS Input Specify that 1 + 7 tables should be searched when a leading 1 is dialed: • Tables→ARS→ARS 1 + 7Dial Specify time of day when calls are routed by using Subpattern A or B routing information: • Tables→ARS→Sub B Start/Stop Identify the trunk pools (up to six) on which calls are to be routed: • Tables→ARS→Sub A Pools/Sub B Pool Assign or remove the FRL associated with each route: • Tables→ARS→Sub A FRL/Sub B FRL Specify the number of digits that need to be absorbed by the system when it routes calls on an identified route: • Tables→ARS→Sub A Absorb/Sub B Absorb Specify the digits or special characters that must be added by the system to the number dialed by the user when calls are routed on an identified route: • Tables→ARS→Sub A Digit/Sub B Digit Specify the Facility Restriction Level (FRL) and/or digits that must be added when people dial emergency numbers in the Special Numbers (N11) table: • Tables→ARS→**More**→SpeclNumber→ARS FRL/ARS Digit

At a Glance - *Continued*

System Programming continued	Specify the pool routing, FRL, and digits or special characters that must be added by the system to the number dialed by the user when calls are routed on the Dial 0 table: • Tables→ARS→**More**→Dial 0→ARS Pool/ARS FRL/ARS Digits Specify whether a route is to be used for voice, data, or both on a PRI call: • Tables→**More**→Sub A Data/Sub B Data Allow or restrict remote access users (without barrier codes) from using selected trunks: • LinesTrunks→RemoteAccss→Non-TIE/TIE Lines→ARS Restrct Allow or restrict remote access users (with barrier codes) from using selected trunks: • LinesTrunks→RemoteAccss→BarrierCode→ARS Restrct Assign or restrict extensions from using selected trunks: • Extensions→ARS Restrct
Maximums	
Programmable Routing Tables	16 (1–16)
Entries for each table	100
Factory-set tables	4: Dial 0 (table 19), Special Numbers (N11, table 20), Default Toll (table 17), Default Local (table 18)
Subpatterns	2 for each programmable table
Routes	6 (1–6) for each subpattern
Absorbed digits	11 (0–11) for each route
System-prefixed characters	20 (0–9,*, and Pause) for each route
Factory Settings	
ARS dial-out code	9
FRL (routes)	3 (0–6; 0 least restrictive, 6 most restrictive)
FRL (telephones)	3 (0–6; 0 most restrictive, 6 least restrictive)
FRL (Remote Access barrier codes and trunks)	0 (0–6; 0 most restrictive, 6 least restrictive)
Time to Start	00:00 (midnight, both Subpattern A and B)
System-prefixed characters	None
Absorbed digits	0
1 + 7 dialing requirements	Not within area code
Data	Voice only

Description

Automatic Route Selection (ARS) is available only in Hybrid/PBX mode. ARS allows outgoing calls to be dynamically routed over selected trunk facilities after dialing an ARS access code (usually a *9*). This enables the system to select the least expensive route for each call.

Programmable lists, called *tables*, indicate the desired routes (line/trunk facilities) for specified area codes and/or exchanges. There is a different ARS table for each type of call (local, toll, special number, etc.). The tables are chosen according to the telephone number digits that are dialed by the user. Each ARS table has a particular trunk pool that it routes calls to.

A table contains some or all of the following types of information:

- **Table Type.** Indicates how to interpret the information in the table. Table types are Area Code, Local Exchange, 6-Digit, 1 + 7, Dial 0, Special Numbers (N11), Default Toll, and Default Local. Details for each table type are discussed later in this section.
- **Digit Strings.** 3-digit entries in the table, typically area codes or exchanges. Dialed digits are compared to the stored digits. A match should occur in only one table and cause selection of the routes specified in that table.
- **Subpattern.** An array of up to six routes. There are two subpatterns for all tables except the Special Numbers (N11) and Dial 0 tables. The subpattern selected depends on the time of day that the call is made, and the start time associated with each subpattern. (The start time for Subpattern A is specified as the stop time for Subpattern B.)

  The Special Numbers (N11) Table always uses the main pool and thus has neither subpatterns nor routes. The Dial 0 Table has no subpatterns and only one route.
- **Routes.** A structure that defines possible trunks to be used in a preferred order, usually based on lowest cost and the telephone user's privilege level or Facility Restriction Level (FRL). Routes cannot be programmed for the Special Numbers (N11) Table. A route contains the following types of information.
  - **Pool.** A group of trunks that are to be used for this route. A pool must be programmed before any other route information.
  - **Facility Restriction Level (FRL).** A value from 0 to 6 associated with the route. (0 is the least restrictive and 6 is the most restrictive value for routes.) In order to use the route, a caller (according to extension or remote access barrier code/trunk) must have an FRL that is equal to or greater than the FRL of a route.

- **Absorbed Digits.** The number (0 to 11) of user-dialed digits that ARS absorbs (does *not* dial out) on this route. Digits are absorbed starting with the first user-dialed digit.
- **System-Prefixed Digits.** A string of up to 20 digits (0–9, *****, and Pause) that ARS dials out on this route *before* dialing any remaining user-dialed digits.

ARS allows up to 16 programmable tables, each of which may contain one of the following types of information:

- **Area Code Tables.** These tables are lists of 3-digit area codes. Area code tables are useful if just one type of trunk (for example, a regional WATS trunk) is used for all calls to each area code on the list.
- **Local Exchange Tables.** These tables list 3-digit exchanges within the local area code. They can be used to route calls over in-state WATS lines.
- **6-Digit Tables.** If the cost of calls to another area code varies according to the exchange, this table can be used to route calls on different trunk pools, depending on both the area code and the exchange.

  In the 6-digit tables, an area code is the first entry. The remaining 99 entries are exchanges within the area code. The system scans the first 6 digits of the user-dialed number (area code and exchange) to route the call.
- **1 + 7 Tables.** In some areas, callers must dial a *1* and a 7-digit number to call certain exchanges, even though the call is within the local area code. A 1 + 7 table contains a list of exchanges within the local area code that require dialing a 1 but *not* an area code before the 7 digits.

In addition to the fully programmable tables, ARS has four factory-set tables:

- **Dial 0 Table.** This factory-set table routes calls to numbers that start with 0. The international dialing code, 011, is treated as a special case and can be put into a programmable table. If 011 is not specified in a programmable table, international calls are routed through the Dial 0 Table. Programming of this table is limited to a single pool, its FRL, and system-prefixed digits.
- **Special Number (N11) Table.** This factory-set table routes calls to the special numbers 411, 611, 811, and 911. The main pool is always used. This table is not programmable.
- **Default Toll Table.** This factory-set table routes toll calls to numbers that do not match entries in any of the area code, 6-digit, or 1 + 7 digits. This table has two subpatterns of up to six routes each, but neither absorbed digits nor system-prefixed digits are used.

- **Default Local Table.** This factory-set table routes local calls to numbers that do not match entries in the local exchange tables. This table has two subpatterns of up to six routes each, but neither absorbed digits nor system-prefixed digits are used.

The system can have up to 20 tables, 16 of which are fully programmable. The Dial 0, Special Number (N11), Default Toll, and Default Local tables are factory set and allow limited programming.

Each table (where appropriate) can have two subpatterns (A and B) with an associated start time. (The start time for Subpattern A is specified as the stop time for Subpattern B.) One or the other subpattern is selected based on the time of day and the subpattern start time. (If both subpatterns have 00:00 start time, Subpattern A is selected.) Each subpattern can contain up to six routes, listed in order of preference or cost effectiveness.

In addition, each route has a Facility Restriction Level (FRL) associated with it. The FRL is used to refine the route selection process further. Each extension or remote access barrier code or remote access is assigned an FRL from 0 through 6. Each route is also assigned an FRL from 0 through 6. For extensions, 0 is the most restrictive and 6 is the least restrictive level. For line/trunks, 6 is the most restrictive and 0 is the least restrictive level. An extension can use a route only if its FRL is greater than or equal to the route's FRL.

Other digits or special characters may be required so the system can route a call on a particular trunk pool. For example, some companies use an alternate toll call carrier that requires dialing the telephone number with Pauses and access codes. Each ARS route may have up to 20 characters that are automatically prefixed when the user dials a number. The allowed characters are the digits 0 through 9, *, and Pause.

ARS also provides an absorb (ignore) digit capability for each route. For example, if the central office does not require 1 before an area code, the system can be programmed to ignore that first digit. Up to 11 characters can be automatically absorbed when the user dials a number. For 10-digit toll calls, the prefix 1 *must* be dialed to indicate to ARS that a toll call is about to be dialed. If the central office does not require the prefix 1 to be dialed for toll calls, the ARS digit absorption feature may be used to eliminate the prefix as the destination is dialed. Initially, all 20 tables are in the list of available tables associated with the call.

How ARS Works

A user with inside dial tone on an **SA** button dials the ARS Access Code (usually a *9*) and is connected to ARS. Then the user dials a call. If the telephone is restricted or toll-restricted and the number dialed is not on the Allowed List, or if the number dialed is on the Disallowed List, the user receives a system error tone. Otherwise, ARS compares the number dialed with information in the tables. All tables are available for use at first. Tables are then eliminated from possible use on the call, one by one, until the best table is selected.

Once the table is selected, ARS chooses the appropriate subpattern and checks restrictions, eliminating from consideration any routes with restriction levels higher than the telephone's. Any remaining eligible routes are scanned from the beginning of the list. The first eligible route that is not busy is selected.

Table Selection

411, 611, 811, 911, or 10*xx* (Equal Access Code)

If the caller dials one of these N11 or equal access numbers, the call is routed over the main pool, using the factory-set Special Number (N11) Table.

Area Code Tables	Local Exchange Tables	6-Digit Tables	1+7 Tables
Dial 0 Table	Special No. (N11) Table	Default Toll Table	Default Local Table

First Digit Not a 1, N11, or Equal Access Code

In this case, all but the Local Exchange, Default Local, and Dial 0 Tables are eliminated.

Area Code Tables	Local Exchange Tables	6-Digit Tables	1+7 Tables
Dial 0 Table	Special No. (N11) Table	Default Toll Table	Default Local Table

Next, ARS examines the entries in the Local Exchange Tables:

- If ARS finds only one match, it selects that Local Exchange Table.
- If ARS finds more than one match, it selects the lowest-numbered Local Exchange Table.
- If ARS finds no match and the first digit is 0, it selects the Dial 0 Table.
- If ARS finds no match and the first digit is not 0, it selects the Default Local Table.

First Digit a 1 (Not an Equal Access Code)

In this case, ARS eliminates the Default Local, Dial 0, Special Number, and Local Exchange Tables. ARS proceeds as described below.

Area Code Tables	Local Exchange Tables	6-Digit Tables	1+7 Tables
Dial 0 Table	Special No. (N11) Table	Default Toll Table	Default Local Table

- If only a 1 and 7 digits have been dialed and there is one 1+7 Table that matches, it is selected; if more than one table matches, the lowest-numbered table is selected. If there are no 1+7 Tables that match, the Default Toll Table is selected.
- If more than 7 digits have been dialed after the 1, the 1+7 Tables are eliminated. The next 3 digits following the 1 are compared to the 3-digit area codes in the Area Code Tables and the first 3 digits of the 6-Digit Tables; any unmatching tables are eliminated. If there are no matches, the Default Toll Table is selected.
- If there are matching tables, the next 3 digits are compared to the second through ninety-ninth entry in the remaining 6-Digit Tables. If there is only one match, that 6-Digit Table is used. If there is more than one match the lowest 6-Digit Table is used. If there are no matches and there are no Area Code tables left, the Default Toll Table is selected. If there are no matches and there are Area Code Tables that have not been eliminated, one of the Area Code Tables is chosen. If there is one table left, it is used. If there is more than one table, the lowest one is used.

Figure 1 is a flowchart that shows how a table is selected.

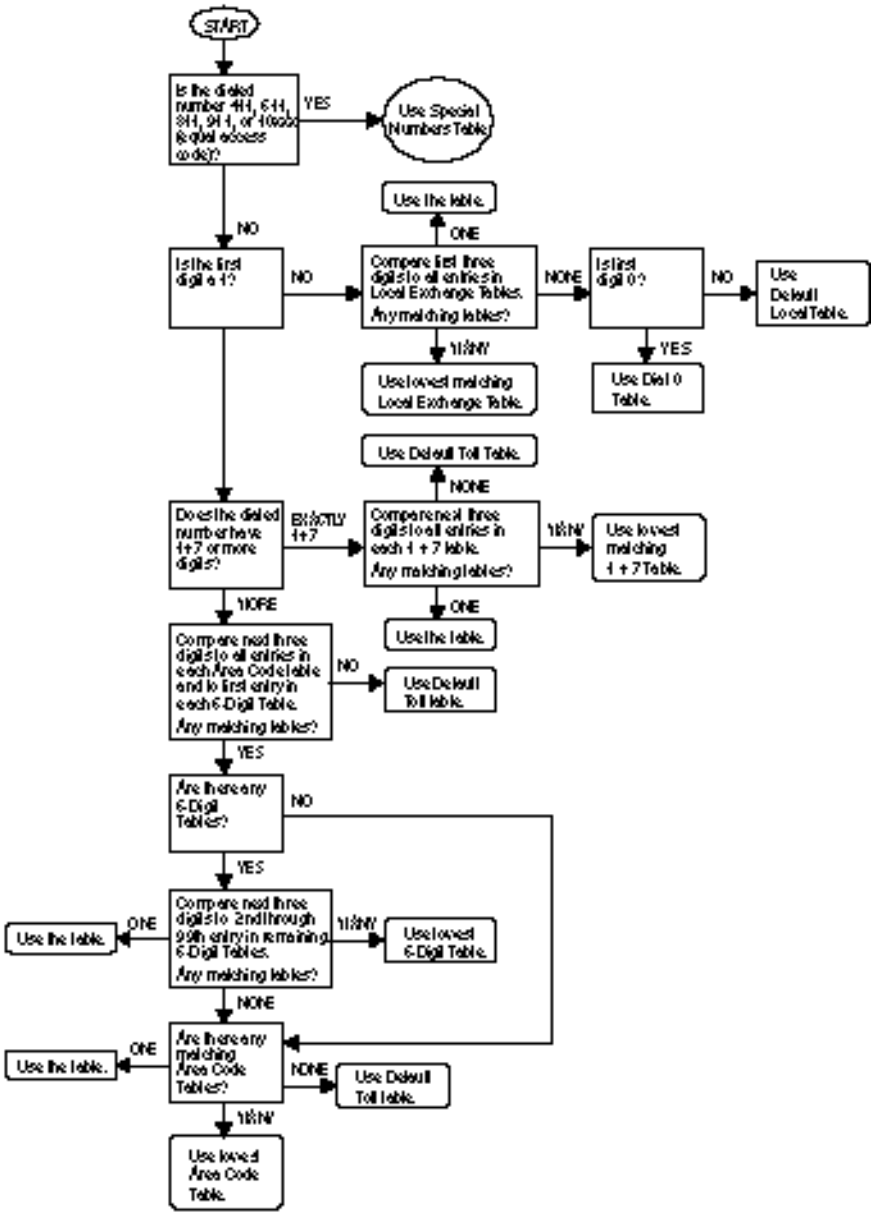


Figure 1. ARS Table Selection

Route Selection within the Table

Once the table is selected, ARS checks the subpatterns within the table (if applicable) and the restrictions on the routes.

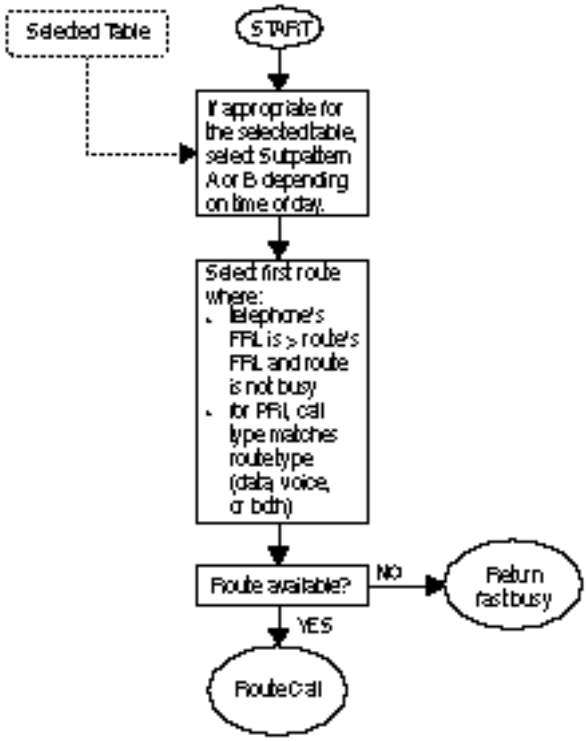


Figure 2. ARS Route Selection within a Table

Subpatterns

Depending on the time of the call, one of two subpatterns (arrays of up to six different routes) is chosen for each table [except the Special Numbers (N11) and Dial 0 tables]. The time of day is compared to the start and stop times of Subpatterns A and B. (The start time for Subpattern A is the stop time for Subpattern B.) If the time of the call is between the Subpattern B start time and stop time, then Subpattern B is selected; otherwise Subpattern A is selected. If both Subpatterns have 00:00 start times, Subpattern A is selected. See Figure 3 below.

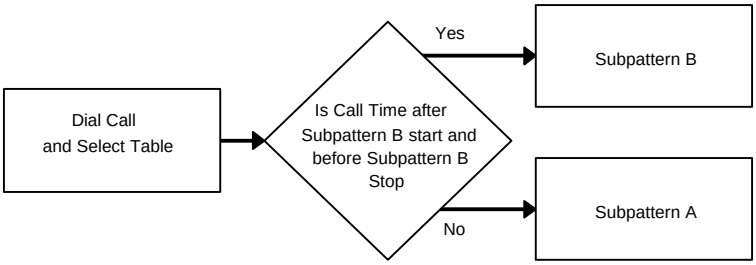


Figure 3. Subpattern Selection

Restrictions

If the extension's Facility Restriction Level (FRL) is equal to or greater than the FRL of any of the routes in the selected subpattern, those routes are eligible for selection. Table 3 shows how FRLs are used to decide whether a route is allowed.

Table 3. Facility Restriction Levels

Extension FRL	Route FRL	Allowed
0	0 only	Yes
0	1 and up	No
1	0 and 1	Yes
1	2 and up	No
2	0–2	Yes
2	3	No
3	0–3	Yes
3	4 and up	No
4	0–4	Yes
4	5 and up	No
5	0–5	Yes
5	6	No
6	Any	Yes

For a PRI call, any route that does not match the call type (voice or data) is eliminated from eligibility. Each route may be specified as voice, data, or both.

Any remaining eligible routes are scanned from the beginning of the list. The first eligible route that is not busy is selected. If all eligible routes are busy, the user hears fast busy and can use Callback to queue the call *for the first route only.*

NOTE:
Emergency numbers must be on an Allowed List to be called from a call-restricted extension.

Considerations and Constraints

ARS restrictions (FRLs) operate independently of dial-access-to-pool restrictions, providing greater flexibility in assigning the type of usage an extension is allowed.

The international dialing code (011) can be included in any fully programmable table. If this is done, calls beginning with 011 are routed according to the table on which 011 is entered, and not according to the Dial 0 table.

The wild card character (Pause) cannot be used in system programming to enter area codes and/or exchanges in ARS tables.

Calls made to the equal access code (10*xxx*) are always routed immediately over the main pool, regardless of whether or not they appear in other ARS tables.

People who are restricted from using a particular ARS route hear a high-low error tone indicating the call cannot be completed.

Even if the local telephone company does not require it, callers must dial *1* before any 10-digit telephone number to allow determination of whether a call is toll or local. If the 1 is not required by the local central office, the system may be programmed to ignore it.

Some central offices still require the prefix 1 for dialing certain exchanges. If 1 + 7-Digit Dialing Requirements option is programmed as Within Area Code, the system expects either dial timeout or a # (end of dialing) to indicate whether a 1 + 7-digit or a 1 + 10-digit number has been dialed. (This may result in delays while the user waits for timeout.) To avoid timeout delays, 1 + 7-Digit Dialing Requirements can be programmed as Not Within Area Code, but all exchanges requiring a system-prefixed 1 must be listed in a Local Exchange Table, and the 1 must be specified as a character to be prefixed. In this case, users must not dial the *1* before dialing those exchanges.

Area Codes 800 and 900 are treated as entries in programmable tables. They may be programmed as either area codes or as exchanges.

Mode Differences

ARS is available only in Hybrid/PBX mode.

Feature Interactions

Account Code Entry	When ARS is used on the system, an account code can be entered before or after dialing the telephone number.
Allowed Lists	ARS prevents people with restricted extensions from dialing numbers that are not included on an Allowed List. Emergency numbers must be included on an Allowed List it they are to be called from restricted extensions.
Authorization Code	An authorization code can be entered before dialing the ARS access code. After dialing the ARS access code, you can only enter an authorization code if a **Feature** button or programmed Authorization Code button is used.
Auto Dial	The ARS code can be programmed before a telephone number on an Auto Dial button.
Automatic Maintenance Busy	If ARS is used to make an outside call, the system selects another trunk in the pool when the first trunk is in the maintenance-busy state.
Callback	When a call is made using ARS and all possible trunk routes are busy, the call can be queued only for the first route in the pattern. However, if the FRL for the extension does not allow the call to be made over the route, the call is not queued.
Calling Restrictions	The use of ARS does not allow callers to avoid calling restrictions. The system checks for outward or toll restrictions assigned to the extension or barrier code before it selects the best route for making the call. ARS and dial access to pools function independently from each other. If ARS restrictions are programmed to allow access to a pool, the user may seize a pool that the extension is not normally allowed to use with pool dial access restrictions.
Direct Station Selector	The LED next to a DSS button for the ARS code is always off.
Directories	System Directory and Personal Directory (MLX-20L telephones only) numbers can include the ARS dial-out code.
Disallowed Lists	ARS does not allow a caller to dial numbers on a Disallowed List assigned to the extension.
Display	Only the ARS dial-out code and the dialed number are displayed. Digits added by ARS before the dialed number and digits ignored by ARS are not displayed. The digit 9 is replaced with OUTSIDE when ARS selects a line.

Forced Account Code Entry	If Forced Account Code Entry is assigned to the extension, the caller must enter the code before dialing the ARS dial-out code.
Forward and Follow Me	ARS can select the facility on which to forward calls to an outside telephone number when the ARS code is dialed before the telephone number. The FRL for the call is that of the extension from which calls are being forwarded.
Night Service	When Night Service with Outward Restriction is programmed, enter the password before dialing the ARS dial-out code, unless the extension is assigned to an Exclusion List or the number is on the Night Service Emergency Numbers List.
Recall	Before Release 2.0, Recall could not be used to hold an outside line if ARS was used to make the call. For Release 2.0 and later, Recall can be used with calls made through ARS.
Remote Access	Remote access users can make calls using ARS by dialing into the system, entering a barrier code if required, and dialing the ARS code while listening to the system dial tone. Facility Restriction Levels (FRLs) can be assigned to restrict the routes that remote callers can use. When barrier codes are not used, FRLs are assigned to all remote access trunks. When barrier codes are used, FRLs are assigned to individual barrier codes.
Saved Number Dial	The ARS dial-out code is saved with the telephone number dialed.
SMDR	SMDR reports for systems with ARS show all the digits dialed by the user in the CALLED NUMBER field, including any absorbed (ignored) digits, and the facility used to make the call. The reports do not include the ARS dial-out code or any digits added by ARS.
Speed Dial	Personal Speed Dial and System Speed Dial numbers can include the ARS code.
System Access/Intercom Buttons	The ARS FRL assigned to the telephone being used to make the call applies to calls made on both **SA** and **Shared SA** buttons.
System Numbering	The ARS access code can be renumbered (factory setting is 9).
Toll Type	In certain areas, the local telephone company requires the prefix 1 for certain exchanges. In these cases, the exchanges can be assigned to a 1 + 7 Table; the 1 + 7 Dialing Requirements must be set to Within Area Code so that people calling numbers in other exchanges do not have to dial *1*.

Barge-In

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information
Mode	All
Telephones	All except single-line telephones
Programming Code	**58* (centralized telephone programming only)
QCC Display Label	Barge In

Description

Barge-In allows a caller to contact a co-worker in an emergency or when the caller has been given special instructions to interrupt. If the extension is busy, Barge-In includes the user in the call. If Do Not Disturb is activated, Barge-In overrides the feature and makes the telephone ring.

On multiline telephones, except QCCs, the caller interrupts a call or overrides Do Not Disturb by calling the extension number and then pressing the programmed Barge-In button. On a QCC, the user presses the **Feature** button and selects Barge In from the display.

A tone, heard by the user and the people on the call, indicates that the user is bridged onto a conversation in progress. Ringing indicates that Do Not Disturb is on at the extension.

Considerations and Constraints

Barge-In does not override Privacy.

If Caller A is in the process of dialing and Caller B uses Barge-In to reach Caller A, the touch tones generated by dialing cancel the Barge-In tone. As a result, Caller A may not be aware that someone else is joining the call.

If a caller presses the Barge-In button while calling an MLX telephone, an extra ring occurs on the MLX telephone. A Barge-In button can be programmed only through centralized telephone programming.

Telephone Differences

Direct-Line Consoles

If the DLC operator uses Barge-In to reach someone with Coverage or Forwarding (including Remote Call Forwarding) on, the call from the operator is not directed to the destination (receiver's) extension. The call is directed to the extension on which Barge-In is used.

Queued Call Consoles

A QCC operator can use Barge-In only by selecting the feature from the display. Barge-In can be used to join an inside call to a QCC operator only if the user dials the *caller's* extension instead of the QCC operator's number. If a user tries to use Barge-In after dialing a QCC system operator's extension and waiting in the QCC queue, the feature has no effect and the user hears an error tone. If the error tone times out while the call is still in the QCC queue, the call is disconnected. However, if a QCC system operator becomes available before the error tone times out, the error tone is removed and the call is delivered to the operator normally.

Single-Line Telephones

Single-line telephones cannot use Barge-In, but other telephone set users can use Barge-In to call or monitor single-line telephones.

Feature Interactions

Callback	If Callback is used to request a busy extension or pool and the user is waiting on the line for the queued call, Barge-In cannot interrupt.
Conference	Barge-In can interrupt conference calls; all participants hear the Barge-In tone. Barge-In does not connect the user to a conference call if the conference already has the maximum number of participants. If Barge-In is used to connect to a conference call that involves an outside trunk and the person on the outside trunk hangs up, the person using Barge-In is also dropped.
Coverage	Barge-In can be used for Individual or Group Coverage calls answered at any receiver's extension. However, if an operator uses Barge-In to reach an extension with Coverage, the call from the operator is not directed to the receiver's extension.

Display	Barge-In appears on the display as a feature choice only on QCC operator consoles. On an MLX display telephone receiving a Barge-In call, the message Barge In and either the name or extension number of the person joining the call remains on the display until the receiving telephone user hangs up. If Barge-In is denied because Privacy has been activated, no error message is displayed on the calling telephone to indicate that the attempt was unsuccessful.
Do Not Disturb	If Do Not Disturb is activated, Barge-In overrides the feature and makes the telephone ring.
Forward and Follow Me	If an operator uses Barge-In to call an extension with Call Forwarding or Remote Call Forwarding, the call from the operator is not directed to the destination extension. When a forwarded call is answered at the destination extension, Barge-In can be used to join the call only by dialing the extension number for the destination extension (not the number for the originating extension). Barge-In cannot be used to join a call forwarded to an outside telephone number.
Group Calling	Barge-In can be used for calling group members, but the member's extension must be used instead of the calling group extension. If a user tries to use Barge-In after dialing the calling group extension number and waiting in the queue, the feature has no effect. If a person uses Barge-In to reach another user who is waiting in a calling group queue, the call is removed from the queue and both people and the delay announcement, if programmed, are connected. If a person uses Barge-In for the delay announcement extension and the device is playing a message to a caller, the call is removed from the queue and both people and the delay announcement are connected.
Headset Options	If Barge-In is used to contact a user with Headset Auto Answer, the call is automatically answered.
Messaging	If Barge-In is used to contact a user with a posted message, the caller's telephone does not display the posted message.
Paging	Barge-In cannot be used to join speakerphone or loudspeaker paging calls.
Privacy	Barge-In does not override Privacy. The caller hears a busy signal.

Call Waiting

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information
Mode	All
Telephones	All except QCC
Programming Codes	
On	**11*
Off	***11*
Feature Code	87 (for call-waiting pickup)
MLX Display Label	CallWaiting,On [CWait,On] CallWaiting,Off [CWait,Off]
Factory Setting	Off

Description

When an extension is programmed with Call Waiting, a user hears a tone when his or her extension is busy, the user is off hook, and another call is received. For an inside call, the user hears one beep; for an outside call, the user hears two beeps. MLX display telephone users also see Call Waiting on the display. The caller hears a special ringback to indicate that the extension is busy and that the call-waiting tone has been sent.

A multiline telephone is considered busy when no **SA** or **ICOM** button is available for incoming calls and, if Coverage is programmed, all coverage points are busy.

When the called party frees an **SA** or **ICOM** button and there is a call waiting, the caller hears dequeuing tone and the call waiting call appears on the free **SA** or **ICOM** button of the called party.

A single-line telephone is considered busy when a call rings on the telephone or the user lifts the handset and, if Coverage is programmed, all coverage points are busy.

Each extension can be programmed with Call Waiting on or off. The default is Call Waiting off.

The user hears a call-waiting tone for the following types of calls that ring on an **SA** or **ICOM** button:

- An inside call
- A call received on a Direct Inward Dial (DID) trunk
- A call from a remote access user

- A call received on an automatic dial-in tie trunk
- A call transferred to the extension

The user does not hear a call-waiting tone for calls received on a personal line unless the business subscribes to call-waiting service from the local telephone company.

The person receiving the call-waiting tone has these options:

- Ignore the new call and continue with the current call; the caller continues to hear the special ringback.
- Complete the current call, hang up, and answer the waiting call when it rings; the caller hears normal ringback.
- On a multiline telephone, put the current call on hold and answer the new call using an **ICOM Originate Only** or **SA Originate Only** button (if one is available) by using call waiting pickup. Call waiting pickup is activated on an **ICOM Originate Only** or **SA Originate Only** button by pressing the **Feature** button followed by *87* or by dialing *#87*.
- On a single-line telephone, put the current call on hold by pressing and releasing the switchhook or the **Flash** or **Recall** button. Dial *#87* to answer the incoming call.

Considerations and Constraints

A user can have more than one call waiting. If there is more than one call waiting, then a user using call waiting pickup answers the individual calls on a first-come first-served basis.

Call Waiting is not activated if a line button of the appropriate type (such as **ICOM** or **SA**) is available to receive a call.

An extension programmed as a fax extension can activate Call Waiting so callers can wait until a fax machine is available. To prevent disruption of a fax message in progress, a call-waiting tone is not sent to a fax extension.

If a person with Call Waiting on is in the process of dialing and receives a call, the touch tones generated while dialing cancel the call-waiting tone. As a result, the person may not be aware that a call is waiting.

Telephone Differences

Queued Call Consoles

Call Waiting cannot be used on Queued Call Consoles (QCCs); the calls are already queued.

Release a call to a busy extension by selecting Camp-On from the display or by pressing the **Release** button. If Camp-On is used, the call does not return to the QCC queue until the Camp-On return interval expires. If you press the **Release** button, the extension being called receives the call-waiting tone (not Camp-On) and the call returns to the QCC queue when the transfer return interval expires.

If the system is programmed for Automatic Extended Call Completion, you must press the **Start** button to use Camp-On, then dial the extension manually, activate Camp-On, and press **Release**. If you press a DSS button, the transfer is automatically completed and Camp-On cannot be used.

Other Multiline Telephones

If a multiline telephone does not have an **SA Originate Only** or **ICOM Originate Only** button assigned or available, the user cannot pick up the waiting call. To pick up the call, the user presses an available **SA Originate Only** or **ICOM Originate Only** button, presses the **Feature** button and dials *87*.

If either Transfer or Camp-On is used to transfer a call to a busy extension, the call is placed in the call waiting queue and the caller hears the call-waiting tone whether or not the extension has the Call Waiting feature activated.

Single-Line Telephones

If a single-line telephone user presses and releases the **Recall** or **Flash** button (if you have a telephone without positive disconnect press and release the switchhook) after picking up a waiting call, the call that was picked up is disconnected and the user is reconnected to the original call. If the user hangs up after picking up a waiting call, the picked-up call is disconnected and Transfer is initiated for the first call; the original call goes on hold and transfer return applies.

Feature Interactions

Callback

When Automatic Callback is used to queue a call at an extension that has Call Waiting, Callback overrides Call Waiting. The user with Call Waiting does not hear the call-waiting tone, and the call is queued until the extension becomes available.

When Selective Callback is used to queue a call at an extension that has Call Waiting, the user with call waiting hears the call-waiting tone and the call is queued until the extension becomes available.

Camp-On

A user with no available buttons to receive a transferred call hears the call-waiting tone when a co-worker uses Camp-On to transfer a call, even if Call Waiting is not activated.

Conference	A call-waiting tone is only heard by the person receiving the call and not by other conference participants. If the conference originator reaches a busy extension, hears the call-waiting special ringback, and tries to add the call to the conference, the system returns a busy tone. To drop the busy tone from the conference, the originator presses the **Drop** button and then the line button used to call the busy extension.
Coverage	A call to a sender with Call Waiting activated goes to Individual and/or Group Coverage first. If all coverage points are busy, the sender hears the call-waiting tone. Changing the status of Coverage On/Off to On after hearing the call-waiting tone does not force the waiting call to coverage receivers but sends subsequent calls to coverage.
Display	When a user has a call waiting, Call Waiting is shown on the display.
Forward and Follow Me	Call Waiting does not apply to forwarded calls because the system tries the destination extension instead of the forwarding extension. However, if the call is not forwarded for any reason (for example, the trunk selected is an unreliable loop-start trunk), Call Waiting functions normally.
Group Calling	Calls made to a calling group are not eligible for Call Waiting because the call rings into the calling group's queue. However, Call Waiting can be used for calls to individual members of the calling group.
Hold	A person with all calls on hold cannot hear the call-waiting tone.
Paging	Call Waiting cannot be used for Group Paging calls to busy extensions.
Personal Lines	A user does not hear a call-waiting tone for calls received on a personal line unless the business subscribes to a call-waiting service from the local telephone company.
Pickup	Pickup features cannot be used to answer a waiting call at another extension.
Reminder Service	Reminder calls are not eligible for Call Waiting.
SMDR	SMDR does not begin measuring the duration of a call-waiting call until the call is answered.
System Access/ Intercom Buttons	An extension is considered busy when all **SA** or **ICOM** buttons (excluding **SA Originate Only** or **ICOM Originate Only**) are in use. A multiline telephone user can dial the Call Waiting feature code to pick up a waiting call only when an **SA Originate Only**, or **ICOM Originate Only** button is available.
Transfer	A user with no available buttons to receive a transferred call hears the call-waiting tone when a co-worker uses Transfer to transfer a call, even if Call Waiting is not activated. A call received by using call waiting pickup can be transferred only if an **SA** or **ICOM** button to transfer the call on becomes available.

Callback

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information Remote Access (DISA) Information System (Setup) Information
Mode	All
Telephones	All except QCC
Programming Codes	
Auto on	**12*
Auto off	***12*
Selective	**55*
Feature Codes	
Selective	*55*
Cancel request	**55* (single-line telephones)
MLX Display Label	Cback Auto,On [CbckA,On] Cback Auto,Off [CbckA,Off] Cback Sel [CbckS]
System Programming	Specify the number of rings to the callback originator before the system cancels a callback request: • Options→Callback Enable or disable the use of Callback for busy trunk pools for remote access users: • LinesTrunks→RemoteAccss→AutoQueuing
Maximums	
Dialed digits for each queued call	40
Queued calls in the system	64
Factory Settings	
Automatic Callback rings	3 before system cancels callback request (range 1–6)
Automatic Callback	Off

Description

Callback provides an easy way to complete calls to busy extensions and, in Hybrid/PBX mode, to outside numbers when all trunks are busy in the pool through which calls are made. (See “Line Request” for information about busy lines in Key and Behind Switch modes.)

Two types of Callback can be programmed for an extension:

- **Automatic.** Callback is activated automatically whenever the caller reaches a busy extension or when all trunks in a pool are busy. This is a status feature that is set to On or Off for each extension.
- **Selective.** Callback is activated only when a caller chooses it by dialing a feature code or, on multiline telephones, by pressing a programmed Selective Callback button. On MLX display telephones, a caller can also select the feature from the display.

With Automatic Callback, when a caller reaches a busy extension or trunk pool, he or she hears the queuing tone (five short beeps) instead of the busy tone. This indicates that the system is putting the call into the callback queue.

With Selective Callback, when the caller reaches a busy extension, he or she must activate Callback while listening to the busy signal. If the caller tries to make a call by using a pool in which all trunks are busy, he or she hears a fast busy signal immediately after dialing the pool dial-out code. After activating Callback, the caller receives dial tone; after all digits are dialed, the caller hears the queuing tone and the call is added to the callback queue.

With both types of Callback, a caller can either stay on the line until the call is completed or hang up.

- If the caller stays on the line, the red and green LEDs are on next to the line button used to make the call. When the busy extension or pool is available, the caller hears the out-of-queue tone (three short beeps) and the call is completed automatically.
- If the caller hangs up, the green LED flashes next to the line button, indicating that the button is being held for the queued call. When the busy extension or pool is available, the caller hears a priority ring (four bursts of ring on an MLX telephone and three bursts of ring on an analog multiline telephone or single-line telephone). If the user does not answer the callback call within the number of rings programmed for the system (1–6), the callback request is canceled.

For inside and outside calls, the caller hears ringback when the extension is available, but the system does not make the call until the caller picks up.

Considerations and Constraints

Callback cannot be used for personal lines assigned to buttons on a telephone. See “Line Request” for additional information. If more than one call is waiting for the same extension or trunk pool, the call that has been queued the longest is connected first.

When a call is waiting in queue for an extension, no new calls are sent to the extension until after the queued call is completed.

When the queue contains 64 calls (system limit), additional calls sent to the queue result in a busy signal.

No more than 40 dialed digits can be included in a queued call.

In order to use Callback with pools consisting of loop-start trunks, the loop-start trunks must be programmed for reliable disconnect.

Mode Differences

Hybrid/PBX Mode

Callback can be used for busy extensions and for outside calls on pools where all trunks are busy.

Key and Behind Switch Modes

Callback can be used only for busy extensions. Line Request is used for busy outside lines that are assigned to line buttons.

Telephone Differences

Queued Call Consoles

A QCC operator cannot use Callback.

Other Multiline Telephones

On all other multiline telephones, Selective Callback is activated by pressing a programmed Callback button or by pressing the **Feature** button and dialing *55*. On MLX display telephones, Selective Callback is also activated by pressing the **Feature** button and selecting the feature from the display. If the user is on another call when the system tries to call back, he or she hears an abbreviated ring.

A multiline telephone user can queue more than one call to the same extension.

On a multiline telephone, cancel a callback request by pressing the **SA** or **ICOM** button used to make the call, lifting the handset, pressing the **Drop** button, and pressing the **SA** or **ICOM** button again. The red and green LEDs next to the button go off, and the request is canceled.

Single-Line Telephones

A single-line telephone user can make and receive other calls while waiting for the call to be completed. The request remains in the queue until the user who initiated the request is available. Queued calls ring at a single-line telephone in the order which they were queued.

A single-line telephone can queue only one call at a time. If a single-line telephone user who has already queued one call tries to transfer a second call to a busy pool, the transferred caller hears a fast busy tone. The system considers the transfer complete, and the call is not returned to the single-line telephone user who transferred the call.

Cancel a callback request by lifting the handset and dialing *#*55* while listening to internal dial tone. The system sends a confirmation tone to indicate that the request is canceled.

A single-line telephone user cannot use Callback if another call is on hold. A waiting outside call rings at a single-line telephone before any calls queued for that extension.

Feature Interactions

Account Code Entry	An account code should be entered before activating Callback. If it is not, wait until after the call is connected before entering the account code. Account codes cannot be entered while the call is queued.
Automatic Route Selection	When a call is made using Automatic Route Selection (ARS) and all possible trunk routes are busy, the call can be queued for the first route in the pattern. However, if the Facility Restriction Level (FRL) for the extension does not allow the call to be made over the route, the call is not queued.
Barge-In	If Callback is used to request a busy extension or pool and the caller is waiting on the line for the queued call, Barge-In cannot be used.
Calling Restrictions	In Hybrid/PBX mode, a person with a restricted extension can use Callback for a busy pool because restrictions are based on the specific trunk being used to make the call. When a trunk in the busy pool is available, the system checks for restrictions assigned to the extension. If the extension is restricted, a fast busy signal indicates that the call is not dialed.
Call Waiting	When Automatic Callback is used to queue a call at an extension that has Call Waiting, Callback overrides Call Waiting. The user with Call Waiting does not hear the call-waiting tone, and the call is queued until the extension becomes available. When Selective Callback is used to queue a call at an extension that has Call Waiting, the user with call waiting hears the call-waiting tone and the call is queued until the extension becomes available.

Conference	With Automatic Callback, the call is automatically queued; however, if a person tries to add the queued call to the conference, the system returns a busy tone. With Selective Callback, the system also returns a busy tone. To drop the busy tone from the conference, the originator presses the **Drop** button and then the line button used to call the busy extension.
Coverage	The sender and all coverage receivers must be busy before a call to the sender can be queued. The call is sent to coverage before it is put in the callback queue. Once a call is in the callback queue, it is not sent to coverage again. The callback call indicating that a busy extension or pool is available is not eligible for Individual or Group Coverage.
Display	When a call is queued by Automatic Callback on multiline telephones or by Selective Callback on analog multiline telephones, the display shows a feedback message. When an MLX telephone user activates Selective Callback, the display prompts the user to enter the telephone number. When the queued call rings the user's telephone, the display indicates that it is a returning callback call.
Do Not Disturb	Calls to extensions that are using Do Not Disturb are not eligible for callback queuing. If a callback originator is using Do Not Disturb, the system overrides the feature and the telephone rings when the busy extension or trunk is available.
Extension Status	In Hotel mode, an extension in Extension Status 1 or 2 cannot use Callback to request busy pools.
Forced Account Code Entry	An account code must be entered before Callback is activated. If not, the user hears a busy tone.
Forward and Follow Me	If a user queues a call and then uses Forward, Remote Call Forward, or Follow Me, the call does not ring back at the destination extension or telephone number; the callback call returns only to the forwarding telephone. If a forwarding extension is busy when a user calls, the user can queue the call for callback. Callback is completed when the forwarding extension is no longer busy. If the forwarding extension and the forwarded-to extension are available, the call rings at both extensions. If the forwarded-to extension is not available, the call rings at the forwarding extension only. If an inside caller using Automatic Callback calls an extension with Remote Call Forward and no pools are available, the caller hears queuing tone, but the call queues for the extension only, not for the remote number. When the extension becomes available, dequeuing tone is heard and the call is placed to the extension (not the Remote Call Forwarding number) if the user has stayed on the line. If the caller has hung up, priority ring is heard as the callback call is dispensed to the caller.

Forward and Follow Me ***continued***	If an inside caller without Automatic Callback on calls an extension with Remote Call Forward and no pools are available, the call follows the extension's coverage path, if any. If there is no coverage and the inside caller activates Selective Callback while listening to the busy signal, the call queues for the extension but not for the Remote Call Forward number.
Group Calling	Calls made to a calling group are not eligible for Callback because the call rings into the calling group's queue. However, Callback can be used for calls to individual calling group member extensions or to the delay announcement device. Calling group calls are not sent to a group member when the member has used Callback for a busy extension or pool, or if another person used Callback to reach the member and the callback call is ringing on the member's telephone.
Headset Options	Callback calls are answered automatically by using Headset Auto Answer, but the user hears the out-of-queue tone instead of the zip tone. When both calling and receiving users have headsets with Headset Auto Answer activated (MLX telephones only), the person being called hears the zip tone when the callback call is completed; the callback originator does not hear zip tone or dequeuing tone.
Hold	Pressing the **Hold** button while waiting for a queued call is similar to hanging up (the green LED flashes next to the line button, indicating that the button is being used for the queued call).
Line Request	Returning callback calls cancel Line Request.
Multi-Function Module	Both Automatic and Selective Callback can be used from an MFM; however, a callback call cannot be manually canceled because the MFM does not recognize the switchhook flash produced by pressing the **Drop** button.
Music On Hold	An outside caller waiting in the callback queue hears Music On Hold if it is programmed.
Paging	Callback cannot be used for calls to a speakerphone paging group. A voice-announced inside call that is queued using Callback automatically becomes a ringing call. Systems with Loudspeaker Paging can be set up to allow calls to be queued for the Loudspeaker Paging system by placing the Loudspeaker Paging jack in its own pool and having users access the paging system through the pool. When the pool is busy, the call can be queued.
Park	Calls waiting in a callback queue cannot be parked.
Personal Lines	The Callback feature cannot be used to request a busy personal line. See "Line Request."
Pickup	A callback request cannot be picked up at another extension.
Reminder Service	Reminder calls cannot be queued by using Callback.

Remote Access

Remote access users can use Callback if the system is programmed for remote access Callback (Autoqueuing). The user cannot hang up but must wait on the line until the extension or trunk pool is available. The caller hears Music On Hold if it is programmed.

SMDR

SMDR begins measuring the duration of callback calls when the call is completed.

System Access/ Intercom Buttons

Callback can be used on **SA** and **ICOM** buttons. When Callback is used on an **SA** button, the call rings and the green LED next to the button flashes only at the telephone that originated Callback. If a user other than the person originating the callback call selects the **SA** button (with a flashing LED) with a queued call and lifts the handset, the person hears the queuing tone and the green LED on the originator's telephone goes from flashing to steady. If the second person hangs up, the green LED on the originator's telephone goes back to flashing and the system directs the callback call to the originator. If the second person stays on the line, the system directs the call to the second person and not to the callback originator.

A call can be manually queued (Selective Callback) from an **SA** or **Shared SA** button. The green LED next to the button at the telephone that originated Callback and all those next to other related **SA** and **Shared SA** buttons remain on.

Transfer

A queued callback call cannot be transferred, but calls transferred to busy extensions are eligible for Callback. When a user reaches a busy extension while transferring a call, he or she can use Automatic Callback or Selective Callback to queue the call before completing the transfer. The caller hears ringback or Music On Hold (if programmed) as with any transfer. When the extension is available, the call is transferred to the extension automatically. If the extension is not available before the transfer return interval expires, the call is removed from the callback queue and returned to the transfer originator.

Caller ID

At a Glance

Users Affected	Telephone users, operators
Reports Affected	SMDR System Information GS/LS/Trunk Information
Mode	All
Telephones	MLX Display only
System Programming	Lines/Trunks→**More**→LS-ID Delay→Entry Mode
Special Services	Custom Local Access Signaling System (CLASS℠) Caller Identification
Hardware	800 GS/LS-ID circuit module
Factory Setting	LS-ID Delay option off
Type of Facility	Loop-Start

Description

Beginning with Release 3.0, the system supports Caller ID. This feature is part of local telephone companies' Custom Local Access Signaling Service (CLASS). It provides the user with calling party number information from the central office (CO) when a call rings on a loop-start trunk connected to an 800 GS/LS-ID module. This information appears on MLX display telephones, much like the Primary Rate Interface Automatic Number Identification (ANI).

NOTE:
Calling number identification is not available in all areas or jurisdictions. Check with your local telephone company. The availability of caller identification information may also be limited by the local-serving (caller's) jurisdiction, availability, or central office equipment.

800 GS/LS-ID Circuit Module

The 800 GS/LS-ID circuit module provides eight analog loop-start or ground-start line jacks, with each port capable of processing Caller ID information (over loop-start lines only). It also provides two touch-tone receivers (TTRs) and can have updated firmware downloaded to it through a PCMCIA card inserted in the processor module.

The module may be programmed through the MLX-20L or through the PC-based System Programming and Maintenance (SPM) interface. It is stored with other system information on the PCMCIA memory card. Beginning with Releases following 3.0, this module is upgradable through the memory card. (For information about system programming, see "Programming.")

LS-ID Delay Option

Caller ID information is sent from the central office during the first silent interval of ringing. Since it is possible to answer a call before this information arrives, you can turn on the LS-ID Delay option, which suppresses ringing until the Caller ID information arrives. This option can be programmed for each trunk. The factory setting is Off.

On telephones with personal lines, users see the green LED flash next to the personal line button when a call arrives on the line. The red LED lights and the telephone rings after a 6-second delay or when Caller ID information arrives, whichever occurs first. Other telephones do not receive the call until after the 6-second delay or Caller ID information arrives.

NOTE:
The caller may hear one or two extra bursts of ringback if LS-ID Delay is programmed while the person receiving the call has not heard a ring yet.

When the option is programmed on a 2-way trunk, the system does not seize a trunk from the pool for an outgoing call if that trunk is receiving an incoming call.

The differences between LS-ID Delay and Delay Ring are that Delay Ring provides a fixed delay for all calls that arrive on the button programmed for Delay Ring . LS-ID Delay affects calls that are received on lines connected to an 800 GS/LS-ID module. LS-ID Delay causes a variable delay in ringing at every extension throughout the system on incoming calls to 800 GS/LS-ID modules. The call is only delayed until Caller ID information is received from the central office (on loop-start lines).

Facilities

The interface to Caller ID is provided by the 800 GS/LS-ID line/trunk module. This module supports loop-start trunks and ground-start trunks but only supports Caller ID on loop-start trunks.

Display Operation

Caller ID information is displayed on MLX display telephones only.

The display shows No Caller ID when the call is answered before the Caller ID data arrives, when the Caller ID data is corrupted, or when no Caller ID data is sent from the central office.

Private may appear if the caller has subscribed to a Central Office service that blocks call identification. The phrase Out of Area appear on the display if the call originates from a line or caller area without Caller ID or caller information, or from areas run by different local service companies than your own.

Hyphens are inserted between the digits. Examples: 555-1234 for a 7-digit telephone number and 916-555-1234 for a 10-digit number.

See “Display” for more information.

Normal Incoming Call

When a call comes in on a personal line or **Shared SA** button, the calling party number information appears at the principal owner’s extension. Incoming call information is displayed on Line 1 of the first and second screens.

Group Calling

Caller ID information appears in the PRI Automatic Number Identification (ANI) format without called party information.

Transferring a Call

The phone receiving the transfer displays standard incoming call identification information until the transfer is completed. The second screen shows call transfer information. Caller ID information appears on the display.

Calls returned after the transfer return interval expires also display standard incoming call identification information.

Mode Differences

Behind Switch Mode

If a customer subscribes to both Caller ID and a CO’s call-waiting service on the same line, Caller ID information for the first incoming call is transmitted and appears at the display. However, the communications system does not provide the Caller ID information for the second (call waiting) call.

Considerations and Constraints

General

A user must subscribe to the Caller ID service in order for incoming calls through the 800 GS/LS-ID port module to receive Caller ID information (loop-start lines only).

Caller ID/PRI ANI Comparison

Caller ID information arrives between the first and second ring at an extension.

PRI ANI uses the second screen of the telephone display to show the called party number, while Caller ID generally uses this page to display the facility number.

Feature Interactions

Conference	The number of participants is shown on Line 1 of the display. The conference originator can view call information associated of any participant by pressing the **Inspct** button and the button the caller is on.
Displays	No Caller ID is displayed if the call is answered before the Caller ID data arrives. Calling Party Number information appears in the PRI ANI format. However, outgoing calling information is not displayed.
Do Not Disturb	Caller ID information is not displayed if the user turns on Do Not Disturb. If the user turns on Do Not Disturb while receiving Caller ID information, the information remains on the display,
Group Calling	Caller ID information appears on the display. Outgoing call information is not displayed.
Headset Auto Answer	When using Headset Auto Answer, program the LS-ID Delay option to avoid loss of Caller ID information.
Night Service	Caller ID information appears on the display whether or not Night Service has been activated.
Pools	Collisions are avoided on 2-way trunks. Trunks programmed with the LS-ID Delay option are not seized from a pool for outgoing calls if a call is coming in on that trunk.
Remote Access	Caller ID information is not retrieved on remote access trunks unless LS-ID Delay is programmed for the trunk because the calls are answered too quickly.
Ringing Options	LS-ID Delay or Delay Ring can be used to delay the ringing on lines answered automatically so Caller ID information is not lost. If a trunk has LS-ID Delay, Delay Ring gives an additional delay.
Shared Personal Lines	Caller ID information appears on the display. Outgoing call information is not displayed.
System Access /Intercom Buttons	Calls ringing on both **SA** and **Shared SA** buttons display Caller ID information on Line 1 of the first display screen. The information remains on the answering extension's display only. If another person picks up on that extension, he or she sees In Use on the display and the answering extension shows Shared Line: Ext Alpha/# of the other extension on Line 2 of the first display screen.

SMDR

Use the ISDN format if Caller ID is subscribed to, whether or not PRI is subscribed to. The calling party number of an incoming call appears in the NUMBER field. Also, an I appears in the CALL TYPE field. If no information was received from the CO, the word IN appears in the NUMBER field and a C appears in the CALL TYPE field.

If you do not use any type of delay option and are using a device with automatic pickup or if you manually pick up the call before the Caller ID information arrives, IN appears in the NUMBER field and a C appears in the CALL TYPE field.

Transfer

If Caller ID information is available, the caller's telephone number is shown on Line 1 of the first screen. Outgoing call information is not displayed. The extension that initiated the transfer is shown on Line 1 of the second screen. Caller ID information is also displayed when a call returns from transfer.

Calling Restrictions

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	All
System Programming	Assign or remove outward/toll restriction for individual telephones: • Extensions→Restriction Assign or remove pool dial-out code restriction for individual extensions: • Extensions→Dial OutCd Assign or remove outward/toll restriction from non-tie trunks used for Remote Access: • LinesTrunks→RemoteAccss→Non-TIE Lines→Restriction Assign or remove outward/toll restriction from tie trunks used for Remote Access: • LinesTrunks→RemoteAccss→TIE Lines→Restriction Assign or remove outward/toll restriction for each remote access barrier code: • LinesTrunks→RemoteAccss→BarrierCode→Restriction Assign or remove the ARS FRL for individual extensions: • Extensions→**More**→ARS Restrct Assign or remove the ARS FRL associated with each route: • Tables→ARS→Sub A FRL or Sub B FRL Assign or remove the ARS FRL associated with non-tie trunks used for Remote Access: • LinesTrunks→RemoteAccssNon-TIE→ARS Restrct Assign or remove the ARS FRL associated with tie trunks used for Remote Access: • LinesTrunks→RemoteAccss→TIE Lines→ARS Restrct Assign or remove the ARS FRL for each remote access barrier code: • LinesTrunks→RemoteAccss→BarrierCode→ ARS Restrct

At a Glance - *Continued*

Factory Settings	
Phones	
Outward/Toll Restriction	Unrestricted
ARS FRL	3 (range 0–6)
Pool Dial-Out Code	All extensions can dial any code
Remote Access Trunks/ Barrier Codes	
Outward/Toll Restriction	Unrestricted
ARS FRL	3 (range 0–6)
	See “Allowed/Disallowed Lists,” “Remote Access,” and “Night Service” for additional calling restrictions.

Description

The calling restrictions features are used to control outgoing calls from individual extensions, specific pools, types of trunks used for Remote Access, or specific trunks associated with individual barrier codes. When used in conjunction with Automatic Route Selection, calling restrictions can be used to apply ARS Facility Restriction Levels on specific extensions, routes, types of trunks used for Remote Access, and specific trunks associated with individual barrier codes. (Incoming calls are never restricted.) Through calling restrictions, users at individual extensions can be restricted from making certain types of calls, as described below.

Outward and Toll Restrictions

An extension cannot be used to make toll calls if toll-restricted and cannot be used to make any outside calls if outward-restricted.

If the restrictions are too limiting, an Allowed List can be used in conjunction with calling restrictions. An Allowed List is a list of telephone numbers (such as emergency numbers) that a user with an outward- or toll-restricted extension can dial. If no calling restrictions are assigned to an extension or to supplement calling restrictions, a Disallowed List can be used. A Disallowed List is a list of telephone numbers (for example, 900 numbers) that cannot be dialed from an extension. See “Allowed/Disallowed Lists” for additional information.

Pool Dial-Out Code Restriction (Hybrid/PBX Only)

A restricted extension cannot be used to dial specific pool dial-out codes. This restricts outgoing calls from specific pools and can be used to reserve pools for specific purposes, for example, data communications.

Facility Restriction Level (Hybrid/PBX Only)

The Automatic Route Selection (ARS) Facility Restriction Level (FRL) is used to restrict the extension to certain routes. When ARS is used, an FRL is assigned to control or restrict access to specific routes in an ARS table. There are seven FRLs assigned to routes, ranging from 0 to 6, where 0 is the least restricted and 6 is the most restricted.

FRLs from 0 to 6 are also assigned to extensions and are used to determine whether callers have permission to use the routes. To use a route, the telephone must have an FRL equal to or greater than the route's FRL. Therefore, the restrictions of the FRL assigned to an extension are the opposite of the restrictions of an FRL assigned to a route. In other words, an extension with an FRL of 0 has the fewest ARS privileges (routes with levels 1 through 6 cannot be used), and an extension with an FRL of 6 has the most privileges (any route may be used). See "Automatic Route Selection" for additional ARS information.

Remote Access

Outward/toll and FRL calling restrictions can also be applied to remote access users. These calling restrictions can be applied to each individual barrier code (up to 16), or, if barrier codes are not used, to all remote access tie/DID trunks and all remote access non-tie/non-DID trunks. See "Remote Access" for additional information.

Night Service

Other calling restrictions can be applied when Night Service is activated. Night Service can be set up to require a password to be dialed before a non-emergency number. When the correct password is entered, the system then checks for calling restrictions assigned to each extension before allowing calls to outside numbers.

A Night Service Exclusion List can be created to exempt specific extensions from the password requirement. However, normal calling restrictions (if any) assigned to the extension are still in effect. A Night Service Emergency Allowed List can also be created, which can contain up to 10 numbers that can be dialed without entering the Night Service password. See "Night Service" for additional information.

Considerations and Constraints

In Hybrid/PBX mode, an outward-restricted extension cannot be used to make an ARS call except to emergency numbers. See "Allowed List/Disallowed List" for additional information.

Only outgoing calls are affected; users can receive inside, local, and toll calls on restricted extensions and can join any type of call in progress.

When a user with an outward-restricted extension presses the dialpad while on a call, the call is disconnected, the user hears a fast busy signal, and the trunk is released. The system assumes that the user is trying to make an outside call, which is not allowed because of the outward restriction assigned to the extension.

Users with **Pool** buttons on their telephones can use the pool even if the pool dial-out restriction is assigned to the extension.

Outward and toll restriction do not work with tie trunks or with T1 lines emulating tie trunks which are set to tie-PBX. Automatic Route Selection or pool dial-out codes should be used to restrict these types of line/trunks.

Since calling restrictions apply to extensions used to initiate a call transfer to an outside number, a user with a restricted extension can circumvent restrictions by asking an operator with an unrestricted console to connect an outside call.

When a marked System Speed Dial code is used to dial a number, the System Speed Dial number overrides calling restrictions (such as outward or toll restrictions).

If Centrex service is used, any calling restrictions for the extension must be administered by the telephone company at the central office.

Mode Differences

Hybrid/PBX Mode

In Hybrid/PBX mode, all calling restrictions can be assigned.

Key and Behind Switch Modes

In Key and Behind Switch modes, outward and toll restrictions can be assigned, while pool dial-out code restrictions and ARS FRL cannot be assigned.

Feature Interactions

Allowed Lists	When used with calling restrictions, Allowed Lists can permit the dialing of specific numbers (such as emergency numbers) from an outward- or toll-restricted extension.
Auto Dial	A user with a restricted extension cannot dial a restricted number (outward or toll) by using an Auto Dial button unless the number is on the Allowed List for that extension.

Automatic Route Selection	ARS does not allow users to avoid calling restrictions. The system checks for outward or toll restrictions assigned to the extension before it selects the best route for making the call. If the ARS FRL assigned to the extension restricts use of the route, the user hears an error tone and the call does not go through. Since FRL assignment determines pools selected in each route, a user may be allowed to select a pool using ARS even if the extension is restricted from the pool dial-out code.
Callback	In Hybrid/PBX mode, a user with a restricted extension can use Callback for a busy pool because restrictions are based on the specific trunk being used to make the call. When a trunk in the busy pool is available, the system checks for restrictions assigned to the extension. If the extension is restricted, the user hears a fast busy signal to indicate that the call is not allowed.
Conference	A user with an outward/toll-restricted extension cannot add an outside/toll participant to a conference unless the participant's number is on an Allowed List for that extension.
Coverage	In Release 2.1 and later, users answering calls on Cover buttons can generate touch tones (for example, dialing a *1* to accept a collect call) if their telephones are not outward- or toll-restricted. If the telephone is outward- or toll-restricted, the user hears the touch tones, but the tones are not sent out over the line.
Disallowed Lists	Disallowed Lists can prevent the dialing of specific numbers from an unrestricted or toll-restricted extension. A Disallowed List takes precedence over an Allowed List.
Display	Call Denied is shown on an MLX display telephone when a call is denied because of calling restrictions. The message is not shown on an analog multiline display telephone.
Extension Status	To allow users in the Hotel configuration of Extension Status to dial emergency or other selected numbers when the extension is in Status 1 or 2, the extension must be assigned to an Allowed List.
Forward and Follow Me	A user with an outward- or toll-restricted extension cannot forward calls to a number (outward or toll) unless the number is on an Allowed List for that extension. No error tone sounds when the user with a restricted extension activates the Forward feature; however, when a call is received at the extension, the system checks restrictions and denies the forward if the number is not on the Allowed List.
Night Service	For Night Service with outward restriction, a Night Service Emergency Allowed List must be created; it consists of emergency numbers that can be dialed from any extension without dialing the password (10 emergency numbers, 9 digits each). Any restrictions assigned to an extension on the Night Service Exclusion List are in effect when Night Service is activated.

Personal Lines	A user at an outward-restricted extension cannot dial a restricted number (outward or toll) on a personal line unless the number is on an Allowed List for that extension.
Pools	Specific pools can be restricted from being used for outgoing calls by assigning a pool dial-out code restriction to extensions.
Speed Dial	A user with an outward- or toll-restricted extension cannot dial a restricted number (outward or toll) by using Personal Speed Dial or System Speed Dial (except for a marked System Speed Dial code), unless the number is on an Allowed List for that extension.
System Access/Intercom Buttons	For **Shared SA** buttons, calling restrictions apply to the extension with the **Shared SA** button, not to the principal user.

Camp-On

At a Glance

Users Affected	Telephone users, operators
Reports Affected	System Information
Mode	All
Telephones	All (except single-line telephones)
Programming Code	**57*
Feature Codes	*57* *87* (Call Waiting Pickup)
MLX Display Label	Camp On [Camp] + *caller's extension label*
System Programming	Change the amount of time before a camped-on call returns to originator: • Options→CampOn
Factory Setting Return Interval	90 seconds (range 30–300, in increments of 10 seconds)

Description

Camp-On allows you to complete a transfer to a busy extension. The call is put on hold until the extension can receive a call; then it rings automatically. While the call is on hold, the caller (inside or outside) hears special ringback. The person at the busy extension hears a call-waiting tone to indicate that a call is waiting. If the call is not answered within the programmed Camp-On return interval (30 to 300 seconds), the call returns to the originator. The originator hears a priority ring (one ring and two beeps) to indicate a returning Camp-On call.

Camp-On can also be used to complete a transfer to an extension that is not busy. This can increase the amount of time before the call returns to the originator because the return is timed according to the Camp-On return interval (30–300 seconds) instead of the transfer return interval (1–9 rings). Camp-On can be activated by using either a programmed button or a feature code.

Considerations and Constraints

A Camp-On return interval of 30–300 seconds in increments of 10 seconds can be programmed. The factory setting is 90 seconds.

A person at a destination telephone hears a call-waiting tone when a call is camped on even if Call Waiting is not programmed on the destination extension.

Multiple calls can be camped-on to individual extensions.

To use Camp-On, the feature must be activated while the person is listening to ringing, a busy tone, or call-waiting ringback. Camp-On can not be activated at other times, and no error tone sounds when a user unsuccessfully tries to use Camp-On at an inappropriate time.

Camp-On cannot be used on a system that includes a voice messaging system.

Telephone Differences

Direct-Line Consoles

When a Direct-Line Console (DLC) system operator uses Camp-On to transfer a call to a busy extension, the call is placed in the call-waiting queue and the caller hears the call-waiting tone whether or not the user has the Call Waiting feature activated.

If the system is programmed for One-Touch Transfer with automatic completion, the operator uses Camp-On by pressing the **Transfer** button, dialing the extension manually, and activating Camp-On.

If the operator presses an Auto Dial or DSS button, the transfer is automatically completed and Camp-On cannot be used.

Queued Call Consoles

A Camp-On button cannot be programmed on a QCC. Instead, you release a call to a busy extension by selecting Camp On from the display. The call does not return to the QCC queue until the Camp-On return interval expires. If you press the **Release** button, the extension being called receives the call-waiting tone and the call returns to the QCC queue when the transfer return interval expires.

To use Camp-On when the system is programmed for Automatic Extended Call Completion, you must press the **Start** button, dial the extension manually, activate Camp-On, and press **Release** or hang up. If you press a DSS button, the transfer is automatically completed and Camp-On cannot be used.

Other Multiline Telephones

Camp-On can be used when a multiline telephone user hears ringing, a busy tone, or call-waiting ringback while transferring a call. To use Camp-On to complete the transfer, press a programmed **Camp-On** button or press the **Feature** button and dial *57*. On MLX display telephones, a user can also press the **Feature** button and select Camp On from the display.

Single-Line Telephones

Calls can be camped on to single-line telephones, but single-line telephone users cannot use Camp-On.

Feature Interactions

Call Waiting	A user with no available buttons to receive a transferred call hears the call-waiting tone when a caller uses Camp-On to transfer a call, even if Call Waiting is not activated.
Coverage	All individual and/or Group Coverage points must be busy before a call can be camped-on to a coverage sender's extension. Coverage calls answered by a receiver can be camped-on to another user.
Direct Station Selector	When Camp-On is used to complete a call transfer and the call returns, the DSS button for the extension where the call was transferred goes off and does not flash as it does for a Transfer return or Park return.
Display	After Camp-On is activated, the display on an MLX display telephone shows Camp On: and the caller's extension label.
Do Not Disturb	A Camp-On call does not ring when Do Not Disturb is activated.
Group Calling	A user can transfer a call to a calling group by using Camp-On, but the call does not return to the originating extension, even if it is not answered within the programmed Camp-On return interval.
Line Request	Returning Camp-On calls cancel Line Request.
Music On Hold	When Camp-On is used to complete the transfer of an outside call, the caller hears: Music On Hold until the call is answered if the transfer audible is set to Music On Hold; ringing if the transfer audible is set to ringback.
Paging	Camp-On cannot be used for calls to busy speakerphone paging groups.
SMDR	If an incoming call is camped on but is not picked up by the called extension, the extension of the user who activated Camp-On is shown in the STN (station extension) field of the SMDR report. If an incoming call is camped on and picked up by the destination extension, the destination extension is shown in the STN field.
System Access/ Intercom Buttons	A user can pick up a camped-on call by using an idle **SA Originate Only** or an idle **SA** button.
Transfer	A transfer can be completed by using the Camp-On feature, whether or not the destination extension is busy. When the feature is used, the Camp-On return interval is used instead of the transfer return interval. If a user wishing to transfer a call to an outside number presses the Camp-On button or dials the Camp-On feature code, the call to the outside number is disconnected. The original call, waiting for transfer, remains on hold.

Centrex Operation

At a Glance

Users Affected	Telephone users, operators
Reports Affected	System Information
Mode	All
Telephones	All touch-tone telephones
System Programming	Specify mode of operation: • SysProgram→System→Mode For additional programming requirements, see “Recall/Timed Flash”

Description

Centrex is an optional telephone service that business customers can obtain from telephone companies. A Centrex line/trunk provides access to telephone features similar to those available from a PBX switch located on the customer’s premises. Basic Centrex features often include the following:

- Transfer
- 3-way conference
- Drop
- Hold
- Recall
- Call forwarding
- Call waiting
- Call pickup
- Group pickup
- Automatic callback

NOTE:
The term *communications system* here refers to the MERLIN LEGEND Communications System, as distinguished from the Centrex system provided by the central office.

Additional features, such as speed dialing and night service, may also be available from some telephone companies. Centrex features other than those specifically discussed in this section are accessed by sending a switchhook flash and dialing the appropriate feature code. These codes are not intercepted or interpreted by the communications system.

To use the features available through Centrex, dial a Centrex feature code from a touch-tone telephone. Some features must be programmed for customers by the telephone company at the central office (CO). The system can be configured for either full or limited Centrex service.

Full Centrex

Full Centrex requires that each telephone have a direct Centrex line/trunk (*prime line*) to the CO. Full Centrex can also be used when only some telephones have prime lines, but the telephones without prime lines have limited ability to use Centrex features. Prime lines can be shared between telephones.

The prime line allows users to dial outside numbers directly after dialing an access code (usually *9*). For this reason, any calling restrictions for the telephone must be programmed by the telephone company.

The prime line is also used to call other 4-digit Centrex extension numbers that may be located at different sites served by the same telephone company. The communications system's intercom lines are used to dial other telephones in the communications system.

With full Centrex, users can send a switchhook flash using the **Recall** or **Flash** button. The fixed-function buttons (**Hold**, **Drop**, and **Transfer**) control Centrex features rather than communications system features. (Additional buttons can be programmed for communications system use.) The communications system does not intercept or respond to Recall or fixed-function button signals. See "Recall/Timed Flash" for additional information.

For full Centrex operation, the system must be in Behind Switch mode. A full Centrex configuration operates on three levels, as shown in Figure 4. The telephone user must be aware of which level he or she is at when making a call or activating a telephone feature.

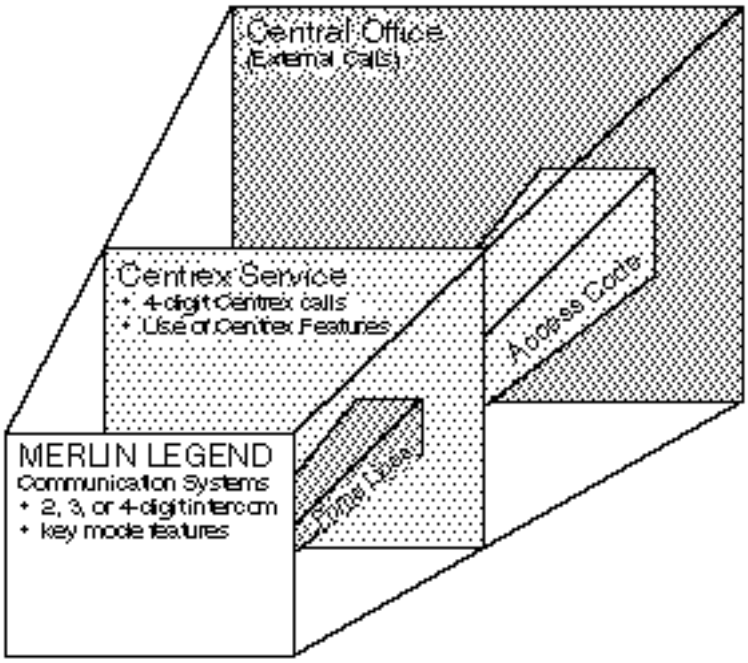


Figure 4. Full Centrex Service

Limited Centrex

With limited Centrex service, users depend principally on the communications system's features, but a limited number of prime lines can be used to access the CO Centrex. There are two cases that are particularly suitable for limited Centrex:

- Centrex lines/trunks may be less expensive than other lines.
- Different users may have different needs for telephone service, so that some users benefit more from Centrex, while other users benefit more from direct use of the communications system.

In the limited Centrex configuration, some telephones may have prime lines while other telephones access the prime lines through a pool. Telephones can also be assigned ground-start, tie, or DID lines, which is not possible in full Centrex. Telephones without prime lines can use a **Pool** button to access Centrex facilities or may use an **SA** button to access pooled facilities by dialing an access code. Once connected to a pool, users may dial other Centrex extensions or dial an access code for outside calls. Outside calls made by using an **SA** button to access a pool require two access codes for outside calls, one for the pool and one for outside lines on Centrex.

For limited Centrex operation, the communications system must be in Key or Hybrid/PBX mode. The total system operates on three levels, as shown in Figure 5. The telephone user must be aware of which level he or she is at when making a call or activating a feature.

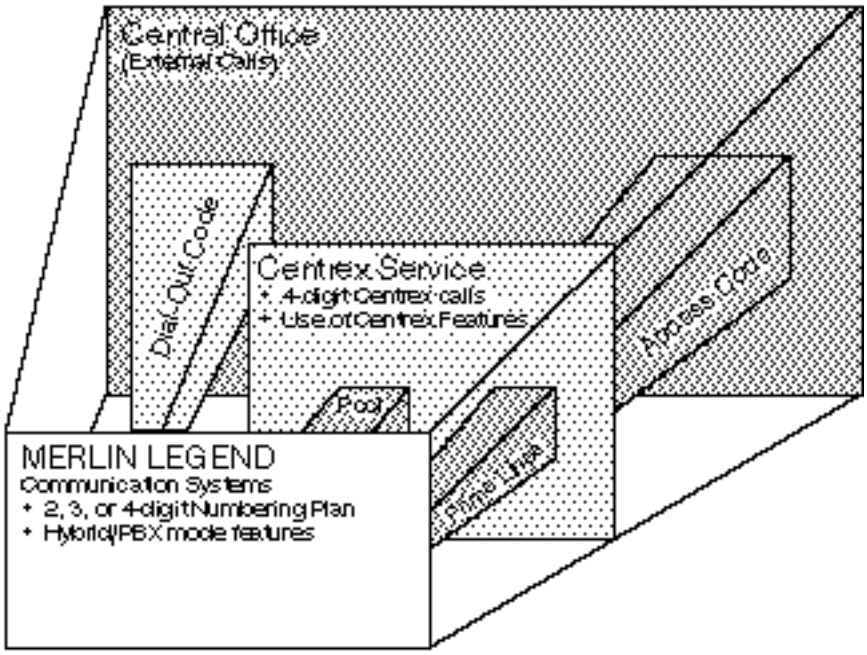


Figure 5. Limited Centrex Service

Differences Between Full and Limited Centrex

The major difference between full Centrex and limited Centrex is where and how PBX functions are provided:

- In full Centrex, the Centrex service provides PBX services to all telephones.
- In limited Centrex, the Centrex service provides PBX services to telephones making calls at the Centrex level on prime lines, while other services are provided by the communications system, acting as a switch for calls between extensions and calls that do not require Centrex features.

In full Centrex service:

- The communications system operates in Behind Switch mode.
- Calls can be made between Centrex extensions at separate sites served by the same Centrex.
- Key mode features are provided by the communications system.
- Intercom calls can be made between communications system extensions.
- A switchhook flash, feature access code, or **Feature** button-press is interpreted as intended for the Centrex service.

In limited Centrex service:

- The communications system operates in Key or Hybrid/PBX mode.
- Intercom calls can be made between communications system extensions.
- Calls to Centrex extensions require access to a prime line.
- A switchhook flash, feature access code, or **Feature** button-press activates the communications system feature, not the Centrex feature.
- Outside calls using Centrex service are made through individual prime lines or pooled prime lines.

  Other types of lines (tie, DID, and T1) can also be used for outside calls without using Centrex service.

Considerations and Constraints

To prevent user confusion, extension numbers in the communications system should reflect the ending digits of the Centrex prime line number. For example, a telephone with a Centrex prime line number of 4322 should have an extension number of 4322 in a 4-digit numbering plan, 322 in a 3-digit numbering plan, or 22 in a 2-digit numbering plan.

Centrex service supports only touch-tone telephones.

With full Centrex, the **Recall** or **Flash** and fixed-function buttons (**Conf**, **Transfer**, and **Drop**) control Centrex functions. Corresponding communications system functions can be programmed on buttons if any are available. (See "Recall/Timed Flash" for additional information.) With limited Centrex, the **Recall** or **Flash** and fixed-function buttons control communications system functions. In either case, some Centrex functions can be programmed on the Directory and on Auto Dial buttons, but not on other unused feature buttons.

Centrex service is supported only on loop-start trunks. A new tariff allows central offices to offer Centrex features on ground-start trunks; however, the MERLIN LEGEND Communications System does not support Centrex features on ground-start trunks. Centrex service on T1 trunks with loop-start emulation is also not supported.

During high-traffic periods, the loop-start lines/trunk used by Centrex can cause a glare problem when multiple calls access the same line simultaneously. Loop-start lines/trunks also have higher cable losses than ground-start lines and cannot guarantee secure toll restriction.

With limited Centrex in Hybrid/PBX mode, DID, tie, WATS, and T1 lines/trunks can be used. In Key mode, tie, WATS, and T1 lines/trunks can be used. These lines/trunks cannot be used with full Centrex in Behind Switch mode.

With limited Centrex, outside calls made by using an **SA** button to access a pool require two access codes for outside calls, one access code for the pool, and one for outside lines on the Centrex service.

Centrex users should not be assigned calling restrictions because the system prevents a telephone with calling restrictions from sending a switchhook flash to the central office. Calling restrictions should be placed through the Centrex service.

Once a call connection is made to Centrex service, the communications system cannot detect additional calls that are initiated following a Centrex switchhook flash. Therefore, the SMDR and systems such as Call Accounting System (CAS), Integrated Solution II (IS II), Integrated Solution III (IS III), and Call Accounting Terminal (CAT) do not report the additional calls.

Users who have access to both Centrex and communications system features must be aware of which they are connected to when they attempt to use a feature. Use of Centrex buttons when connected to the communications system, or of communications system buttons when connected to Centrex service, causes misdialed calls.

If a Multi-Function Module (MFM) is not being used on an MLX telephone, the second extension should be removed, in order to reduce the number of Centrex lines. The automatic assignment of two extensions to each MLX set may mean the installer must renumber the system, because the removed numbers are not automatically reassigned and their removal leaves empty places in the sequential numbering of extensions. See “System Numbering” for additional information.

Beginning with Release 3.0, companies may use the 800 GS/LS-ID module to capture calling number identification information (subscribed to from the CO on loop-start lines only, if available) and MLX display telephones in these systems to show the number of an outside call received on a line connected to the module. However, if the customer also subscribes to call waiting through Centrex, the number of the waiting call is not shown on the MLX display. For more information, see “Caller ID.”

Mode Differences

Hybrid/PBX Mode

Hybrid/PBX mode can only be used in a limited Centrex configuration. Prior to Release 2.0, a switchhook flash could be sent to the Centrex service only when the prime line was terminated on a personal line or **Pool** button. (Prime lines can be shared.) Accessing the same prime line through an **SA** button did not allow the switchhook flash to be sent to the Centrex service.

In Release 2.0 and later, Centrex lines active on an **SA** button (including a **Shared SA** button) can use Recall or switchhook flash.

Tie, WATS, and T1 lines can be used in pools. They can only be used as personal lines with Centrex service in Key and Behind Switch modes.

Key Mode

Key mode can only be used in a limited Centrex configuration.

Key mode avoids the problem of each extension requiring a prime line (or shared prime line) to make Centrex calls. It allows the use of an **ICOM** button for access to Centrex lines. It also allows the use of tie, WATS, and T1 lines as personal lines.

In releases prior to Release 2.0, a switchhook flash can be sent to the Centrex service only when the line is terminated on a personal line. Accessing the same line through an **ICOM** button does not allow the switchhook flash to be sent to the Centrex service.

In Release 2.0 and later, Centrex lines active on an **ICOM** button can use Recall or switchhook flash.

Behind Switch Mode

For full Centrex configuration, the communications system must be in Behind Switch mode.

Behind Switch mode does not support MERLIN MAIL, AUDIX Voice Power, Call Accounting System, or Call Management System. These applications are supported only in Key and Hybrid/PBX modes.

Full Centrex service supports only loop-start facilities. While lines that are not loop-start lines will not be blocked by the communications system, they have the potential for causing dialing errors. Even random use of modules that are not loop-start (such as E&M modules) throws off the default line assignments. If boards other than loop-start boards must be used, they must be positioned after the last loop-start line module, or prime lines on later modules may be assigned incorrectly. If a DS1 module is used, it must be placed after all other loop-start boards on the system so that default line assignments on the communications system are not affected. PRI facilities are not supported in Behind Switch mode.

In Behind Switch mode, during periods of high telephone traffic, users may experience delays in obtaining dial tone from the Centrex system. This could cause misdialing when using System or Personal Speed Dial.

Calls to calling groups in a system set up in Behind Switch mode follow the communications system ring pattern, not the central office ring pattern.

Telephone Differences

Multiline Telephones

MLX Telephones

On MLX telephones, special ringing patterns are used to differentiate various call types. If Personalized Ringing is used, the personalized ring comes before the distinctive pattern.

- Centrex intercom calls are indicated by the personalized ring followed by a beep.
- Centrex special or priority calls are indicated by the personalized ring followed by three short rings.
- Outside calls are indicated by the personalized ring followed by two short rings.
- Centrex special signaling is indicated by the facility-tracking tone.

Adjuncts connected to a Multi-Function Module (MFM) cannot send a switchhook flash to the Centrex line. (Whenever possible, such adjuncts should be attached to an 012 module.)

Analog Multiline Telephones

On analog multiline telephones, special ringing patterns differentiate various call types. If Personalized Ringing is used, the personalized ring comes after the distinctive pattern.

- Centrex intercom calls are indicated by a beep followed by the personalized ring.
- Centrex special signaling is indicated by the facility-tracking tone.
- Centrex special or priority calls are indicated by two short rings followed by the personalized ring.
- Outside calls are indicated by one short ring followed by the personalized ring.

Single-Line Telephones

When single-line telephones are used in Behind Switch mode, a prime line is assigned automatically to the extension.

Centrex service supports only touch-tone telephones.

When single-line telephones are connected directly to a prime line, they have limited functionality because they cannot access communications system features or make intercom calls. They can, however, use all the Centrex features by dialing the proper access codes.

If a single-line telephone has the Idle Line Preference programmed for an **ICOM Ring** button, the user has complete use of all communications system features. Access to Centrex lines and features is gained by dialing the Centrex access code. However, a single-line telephone cannot use the communications system's Conference, Transfer, or Drop because the switchhook flash goes directly to the Centrex line and is not intercepted or interpreted by the communications system.

Single-line telephones should be connected using an 012 or OPT module. If a single-line telephone is connected to a MFM, it cannot send a switchhook flash.

In Hybrid/PBX mode, special ringing patterns are used on single-line telephones to differentiate various call types. (Personalized Ringing is not available.)

- Centrex intercom calls are indicated by 2-burst ringing.
- Centrex special or priority calls are indicated by 3-burst ringing.
- Outside calls are indicated by 3-burst ringing.
- Centrex special signaling is not indicated.

Feature Interactions

Caller ID	Beginning with Release 3.0, companies may use the 800 GS/LS-ID module to capture calling number identification information (subscribed to from the central office on loop-start lines only, if available). MLX display telephones in these systems show the number of an outside call received on a line connected to the module. However, if the customer also subscribes to call waiting through Centrex, the number of the waiting call is not shown on the MLX display. For more information, see "Caller ID."
Calling Restrictions	Centrex users should not be assigned calling restrictions, because the calling restrictions should be assigned through the CO.
Conference	In Behind Switch mode, the fixed-function **Conf** button applies to Centrex operation and is not recognized by the communications system. A button can be programmed for communications system Conference.
Drop	In Behind Switch mode, the fixed-function **Drop** button applies to Centrex operation and is not recognized by the communications system. A button can be programmed for communications system Drop.
Group Calling	Calls to calling groups in a system set up in Behind Switch mode follow the communications system ring pattern, not the central office ring pattern.
Recall	In Behind Switch mode, a Recall button should be programmed to send switchhook flash to activate Centrex features. The system supports the use of a Recall button only on loop-start lines.
Speed Dial	During periods of high traffic, users may experience a delay in obtaining dial tone from the Centrex service. This could cause misdialing when using System Speed Dial or Personal Speed Dial. Pause characters can be programmed as part of the Speed Dial number after entering the access code.
Transfer	In Behind Switch mode, the fixed-function **Transfer** button applies to Centrex transfers and is not recognized by the communications system. A button can be programmed for communications system Transfer.

Conference

At a Glance

Users Affected	Telephone users, operators
Reports Affected	System Information
Mode	All
Telephones	MLX telephones and analog multiline telephones except MLC-5 cordless telephone.
Programming Codes	
Conference	**772*
Drop	**773*
MLX Display Label	Conference [Conf] Drop [Drop]
System Programming	Assign host system conference dial code: • Options→**More**→BehndSwitch→Conference Assign host system drop dial code: • Options→**More**→BehndSwitch→Drop
Maximums	
Multiline telephones	5 participants (originator + 2 inside, 2 outside)
Single-line telephones	3 participants (originator + 2)

Description

Conference allows conference calls that include inside lines, outside lines, or both.

NOTE:
Conference and **Drop** buttons are available in all modes; they are programmable only in Behind Switch mode.

Adding Conference Participants

A user can consult privately with each participant before adding the person to the conference. Anyone who shares a personal line or **Shared SA** button with the originator can join the conference on that button and is counted as a participant.

Dropping Conference Participants

A multiline telephone user can selectively drop conference participants while the conference is in progress by using the **Drop** button. However, a QCC operator cannot selectively drop participants from a conference. When the QCC operator presses the **Drop** button, only the most recently added participant is dropped. Single-line telephone users can drop the most recently added participant from the conference by issuing a switchhook flash.

Leaving a Conference

The conference originator can leave the conference by pressing the **Hold** button (the conference continues). If a conference originator (excluding a QCC operator) leaves a conference by either hanging up or selecting another line, the entire conference is disconnected.

Considerations and Constraints

Transmission quality may vary during the conferencing of outside lines.

A call to a busy number cannot be added to a conference.

Pressing the **Drop** button and the line button for a participant also disconnects a participant who joined the conference by using a shared personal line or an **SA** or **ICOM** button.

When a conference originator puts the conference on hold, Music On Hold is not activated.

In Release 1.1 and later, the system automatically selects an **SA** or **ICOM** button when the user presses the **Conf** button. In Release 1.0, the system does not automatically select an **SA** or **ICOM** button; the user must select the line manually.

In addition, beginning with Release 1.1, prompts help MLX display telephone users set up conference calls. Pressing the **Conf** button causes one of the following to happen:

- If the system is in Hybrid/PBX mode and the user has an available **SA** button, the system automatically selects one in the following order of preference:
  - **SA Originate Only** (Ring)
  - **SA Originate Only** (Voice)
  - **SA Ring**
  - **SA Voice**

SECURITY ALERT:
If the system selects a voice button, the caller hears a beep instead of ringing. If a person does not answer at the destination extension and the originator completes the conference, the conversation of the other parties is broadcast on that extension's speaker. The originator must be sure to drop the unanswered destination extension on a voice button to prevent this from happening.

- If the system is not in Hybrid/PBX mode or the user has no available **SA** button, the prompt Select a Line appears on Line 2 of the display on an MLX display telephone.

After the system selects an **SA** button or the originator selects a line, Line 2 displays the prompt Dial. The originator can dial a number or select another line. Line 1 shows call-handling information, such as dialed digits, while Line 2 is unchanged. The originator should then press **Conf** to connect all parties. The prompt on Line 2 is replaced by the date and time. Line 1 displays the number of parties in the conference.

If the conference originator presses the **Conf** button, selects a line button, dials a number, and presses the **Conf** button again before the person being called answers, all conference participants hear ringback, which may cause voices to cut in and out.

If the conference originator calls a co-worker and presses the **Conf** button, and the co-worker while on hold for the conference presses a **Hold**, **Conf**, or **Transfer** button, the call is disconnected.

If a conference participant (excluding the originator) who is included on a conference call on an **SA** or **ICOM** button leaves the conference temporarily by putting the call on hold and then rejoins the conference on a shared personal line or **Shared SA** button, the person is connected to the conference. However, the LED for the original conference call line on the **SA** or **ICOM** button turns off.

In Release 2.1 and later, a call on hold at a programmed Cover button can be added to a conference by an originator with a personal line for the call.

Mode Differences

Behind Switch Mode

The fixed **Conf** button on multiline telephones activates conference from the host system. The dial codes for the host system for conference and drop must be system-programmed. A multiline telephone user can program a Conference or Drop button to use the communications system's Conference or Drop features as described above.

A single-line telephone user cannot use the Conference feature in Behind Switch mode.

Telephone Differences

Queued Call Consoles

To arrange a conference call using a Queued Call Console (QCC), press the **Conf** button after receiving a call or dialing the first outside number or extension. The green LED next to the **Call** button flashes to indicate that the person is on hold for the conference. An outside participant hears Music On Hold if it is programmed; an inside participant hears nothing. Then dial the next number and press the **Conf** button again; all participants are connected.

To add another person, press the **Conf** button again. The green LED next to the **Call** button flashes, indicating a call on hold, and the participants can converse. Add more participants by dialing their numbers and pressing the **Conf** button until up to two outside lines and three extensions (including you, the originator) are added. You can converse privately with each participant before pressing the **Conf** button to join other participants.

Calls to busy numbers cannot be added to a conference. To disconnect a call to a busy number, press the **Call** button with the conference call. Then continue adding participants, if desired.

All conference participants are connected together on one **Call** button. This allows you to put the conference on hold and have other **Call** buttons available to make or receive other calls. However, since all participants are on one **Call** button, by pressing the **Drop** button and the **Call** button used to originate the conference, you can drop only the last party added to the conference.

To rejoin a held conference call, press the **Call** button with the conference participant. To end the conference, join the conference and press the **Forced Release** button; all participants are disconnected. If, instead of pressing the **Forced Release** button, you hang up, the conference is put on hold.

When you arrange a 3-participant conference (yourself and two other participants) and then press the **Release** button or hang up, you are released from the call and the other two participants remain connected. If you arrange a 3- or 4-participant conference, pressing the **Release** button has no effect; however, if you hang up, the conference is put on hold.

Other Multiline Telephones

To arrange a conference call using a multiline telephone, press the **Conf** button after receiving a call or dialing the first outside number or extension. The green LED next to the button used to make the call flashes to indicate that the person is on hold for the conference. (An outside participant hears Music On Hold if it is programmed, and an inside participant hears nothing.) Then select another line button, dial the next number, and press the **Conf** button again. Pressing the **Conf** button a second time connects all participants (including you).

To add another person, press the **Conf** button again. The green LEDs next to the line buttons flash, but the participants can converse. Then select a line or dial a number, and press the **Conf** button again. Repeat the process for other conference participants. Up to two outside lines and three extensions (including you) can be in the conference. You can converse privately with each participant before pressing the **Conf** button to join other participants.

Calls to busy numbers cannot be added to a conference. An originator who reaches a busy number can press any of the line buttons associated with the conference call to disconnect the call to the busy number before continuing to add participants.

To selectively drop a participant, press the **Drop** button followed by the line button for the participant to be dropped. To leave the conference call temporarily without disconnecting the call, press the **Hold** button. To rejoin a held conference call, press any line button representing a conference participant. To end the conference, hang up; all participants are disconnected.

Drop buttons are automatically assigned to Line 6 on MDC 9000 and MDW 9000 telephones.

Single-Line Telephones

To arrange a conference call using a single-line telephone, press and release the **Recall** or **Flash** button or switchhook after receiving a call or dialing the first outside number or extension. The participant automatically goes on hold (an outside participant hears Music On Hold if it is programmed, and an inside participant hears nothing). Then dial the other number and press and release the **Recall** or **Flash** button or switchhook again. All participants are connected on the conference call.

A total of three participants can be included on a conference call originated from a single-line telephone. You can converse privately with each participant before pressing and releasing the **Recall** or **Flash** button or the switchhook to join other participants.

Calls to busy numbers cannot be added to a conference. If you reach a busy number, you can press and release the **Recall** or **Flash** button or switchhook to drop the outside line.

A single-line telephone user can drop the most recently added participant from the conference by pressing and releasing the **Recall** or **Flash** button or switchhook.

If a single-line telephone with a timed or positive disconnect (for example, AT&T model 2500YMGK or 2500MMGK) is used, pressing the switchhook disconnects the call. With this type of telephone, the **Recall** or **Flash** button must be used instead of the switchhook to add a conference participant or drop the most recently added conference participant.

Feature Interactions

Account Code Entry — A separate account code must be entered for each outside call added to the conference.

Allowed Lists — A user with an outward-restricted extension cannot add an outside participant to a conference unless the participant's number is on an Allowed List assigned to the extension. A user with a toll-restricted extension cannot dial a toll number to add a participant unless the participant's number is on an Allowed List assigned to the extension.

Authorization Code — Enter an authorization code before each outside call for a conference is made.

You may enter a different authorization code for different outside calls if you wish. This may be useful if different restriction privileges are required for different outside calls for the conference.

Auto Dial — When programming an Auto Dial button, press the **Conf** button to enter the Flash special character in a telephone number programmed on an Auto Dial button. Press the **Drop** button to enter the Stop special character in a telephone number programmed on an Auto Dial button.

Barge-In — Barge-In can be used to interrupt conference calls; all participants hear the Barge-In tone. Barge-In, however, does not connect the user to a conference call if the conference already has the maximum number of participants. If Barge-In is used to connect to a conference call that involves an outside trunk and the person on the outside trunk hangs up, the person using Barge-In is also dropped.

Call Waiting — A call-waiting tone is only heard by the person receiving the call and not by other conference participants. If the conference originator reaches a busy extension, hears the call-waiting special ringback, and tries to add the call to the conference, the system returns a busy tone. To drop the busy tone from the conference, the originator must press the **Drop** button and then press the line button used to call the busy extension.

Callback	A queued call cannot be part of a conference. With Automatic Callback, the call is automatically queued; however, if you try to add the queued call to the conference, the system returns a busy tone. If you use Selective Callback to queue a call while setting up a conference, the system returns a busy tone. Press the **Drop** button and the line button with the queued call to drop the busy tone from the conference.
Calling Restrictions	See “Allowed Lists” and “Disallowed Lists” in this section.
Coverage	You can originate a conference call from a Cover button only when you press the **Transfer** button, dial the number for another person, and then press the **Conf** button to complete the transfer. In this case only, instead of the call being transferred, a conference call with three participants (including the originator) is established.
Directory	The Extension, Personal, and System Directory features can be used to set up conference calls. Press the **Conf** button to enter the Flash special character in a Directory listing telephone number. Press the **Drop** button to enter the Stop special character.
Disallowed Lists	You cannot add an outside number to a conference if the number is on a Disallowed List assigned to your extension.
Display	As with any other call, the dialed digits appear on Line 1 of the display as you set up a conference call. On MLX telephones, Line 1 of the display shows the number of conference participants. In addition, the MLX telephone display prompts you each time you press the **Conf** button. The display also prompts you to drop a conference participant after you press the **Drop** button; then it shows the updated conference information on Line 1 and on Line 2 shows which line or extension was dropped. Beginning with Release 1.1, if the system is not in Hybrid/PBX mode or you have no available **SA** or **ICOM** button, the prompt Select a Line appears on Line 2 of the display. After the system selects an **SA** or **ICOM** button line or the originator selects a line, Line 2 displays the prompt Dial. After dialing a number or selecting another line, the prompt on Line 1 changes to show call-handling information, such as dialed digits. Then press **Conf** to connect all parties. The prompt on Line 2 is replaced by the date and time, while Line 1 displays the number of parties active on the call.
Forced Account Code Entry	You must enter a separate account code for each outside call you add to the conference.

Forward and Follow Me	Under certain circumstances, when calls received on a personal line are forwarded to an outside telephone number, a person joining the call is considered the conference originator and the forwarded call can be conferenced. The person joining the call must share the personal line and the trunk selected to forward the call and must join the in-progress call by pressing the personal line button. If the person who joined the call hangs up, all participants on the conference call are disconnected.
Group Calling	Calls waiting in the calling group queue or ringing at a calling group member's extension cannot be added to a conference call. A user must be connected to a calling group member before the call can be added to the conference.
Headset Options	Headset Auto Answer is disabled and must be activated manually while an MLX telephone user with a headset is setting up a conference.
Hold	The conference originator receives the Hold Reminder tone when the conference is on hold for more than one minute as a result of using the **Hold** button or adding other participants. If Direct-Line Console (DLC) Operator Automatic Hold is programmed and used by a DLC operator setting up a conference, the entire conference goes on hold. Both sides of an inside call cannot be put on hold. Therefore, if the user presses the **Hold** button while waiting on hold for a conference initiated by another user (an inside call) or if the user presses the **Conf** button while waiting on hold on an inside call, all participants are disconnected.
Inspect	If the user presses the **Conf** button while Inspect is activated, Inspect is canceled and the system tries to activate the Conference feature. When a user joins a conference by using a shared outside line or **Shared SA** button, the QCC display reflects the correct number of participants. However, if the QCC operator uses the Inspect feature to verify the number of participants, the number shown on the display does not include participants joining the conference on a shared button.
Multi-Function Module	The Conference feature cannot be used on the MFM because the system ignores the switchhook flash sent by the MFM.
Music On Hold	If the first participant put on hold for a conference is an outside call, the caller hears Music On Hold until the second participant is added. When a conference originator puts the conference on hold, Music On Hold is not activated.
Paging	Speakerphone and loudspeaker paging calls cannot be added to a conference.
Park	Conference calls cannot be parked.
Pickup	A conference call cannot be picked up at another extension. A conference originator can, however, pick up a call and add it to the conference.

Recall	A single-line telephone user with a **Recall** or **Flash** button adds a participant to a conference call and connects all participants by using the **Recall** or **Flash** button. In addition, the **Recall** or **Flash** button can be used to drop the most recently added participant or to drop a busy number.
Signaling	Signaling can be used during a conference.
SMDR	When a conference call includes inside and outside participants, records are generated only for outside participants. When a call is dropped from a conference call, it is considered a completed call and is sent to the SMDR print queue.
Speed Dial	Press the **Conf** button to enter the Flash special character in a Personal Speed Dial or System Speed Dial telephone number. Press the **Drop** button to enter the Stop special character.
System Access/ Intercom Button	Calls on **SA** and **ICOM** buttons (including **Shared SA** buttons) can be included in a conference call. If a user involved in a conference call on an **SA** or **ICOM** button also has a **Shared SA** button for one of the conference participants, the call is active at the **SA** or **ICOM** button and not at the **Shared SA** button for the other participant.
Transfer	A conference call with three or more participants (including the conference originator) cannot be transferred. However, if the conference originator has one person on hold for the conference (the originator pressed the **Conf** button after reaching the first person) and after dialing the number for the next participant decides to transfer the call, the originator can press the **Transfer** button to transfer the call instead of conferencing it.

Coverage

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Direct Group Calling Information Extension Information Group Coverage Information Operator Information System Information
Mode	All
Telephones	
Individual sender	All except QCC
Individual receiver	All multiline telephones except QCC
Group member (sender)	All except QCC
Group receiver	Multiline telephones, QCC queue, calling group (if calling group, no others)
Programming Codes	
Sender buttons	
Coverage Off	**49*
Coverage VMS Off	**46*
Receiver buttons	
Primary Cover	**40 + sender's ext. no.*
Secondary Cover	**41 + sender's ext no.*
Group Cover	**42 + sender's group no.*
Coverage Inside Off	***48* (send outside calls only)
Coverage Inside On	**48* (send inside and outside calls)
MLX Display Labels	CoverageOff [CvOff] CoverInside,Off [CvIns,Off] CoverInside,On [CvIns,On] Coverage VMS off [Cvvms,off] Coverage,Primary [Cover,Prmry] Coverage,Secondary [Cover,Secnd] Coverage,Group [Cover,Group]
System Programming	Assign extensions to a coverage sender group: • Extensions→**More**→Group Cover Assign a calling group as a Group Coverage receiver: • Extensions→**More**→Grp Calling→GrpCoverage Change number of rings before call is sent to Group Coverage receivers: • Options→**More**→Cover Delay

At a Glance - *Continued*

System Programming (continued)	Change delay for Cover buttons programmed for Delay Ring; change additional delay before call is sent to Group Coverage receivers: • Options→Delay Ring Assign or remove principal user of a personal line (calls follow coverage pattern of principal user only): • LinesTrunks→**More**→PrncipalUsr Assign QCC queue as receiver for specific coverage groups and assign QCC Queue Priority for Group Coverage calls: • Operator→Queued Call→Call Types→GrpCoverage→Priority Assign QCC operator to receive calls for a coverage group: • Operator→Queued Call→Call Types→GrpCoverage→Operator
Maximums	
Individual Coverage receivers for each extension (sender)	8
Group Coverage receivers for each coverage group (senders)	8 (not counting QCC queue)
Group memberships for each extension (sender)	1
Cover buttons for each multiline telephone (receiver)	8
Coverage groups	30
Members for each coverage group	Unlimited
Coverage groups sending to one calling group *or* QCC queue	30
Factory Settings	
Coverage	On
Coverage Inside	On (inside and outside calls covered)
Coverage VMS	On (inside and outside calls covered by VMS)
Delay Ring intervals	2 rings (range 1–6 rings)
Coverage Delay Interval	3 rings (range 1–9 rings)
Secondary Coverage Delay Interval	2 rings (fixed)
Retry Timing Interval	5 seconds (fixed)
QCC Queue Priority for coverage group	4 (range 1–7)
QCC operator to receive calls for coverage group	Primary system operator

Description

Coverage allows a call ringing at one extension (a *sender*) to ring at another extension (a *receiver*) at the same time, and to be answered at either extension. It is not necessary for the sender and receiver to have shared personal lines or **Shared SA** buttons. A coverage sender, the extension whose calls are covered, can be an individual extension (*Individual Coverage*) or a group of extensions (*Group Coverage*).

An extension becomes a sender and has its calls covered in *either or both* of the following ways:

- An Individual Cover button is programmed for the sender on a multiline telephone (a receiver).
- The sender is made a part of a coverage group through system programming. A receiver for the group is programmed in any of the following ways:
  - A Group Cover button is programmed for the group on a multiline telephone (a receiver).
  - The Queued Call Console (QCC) queue is programmed to be a receiver for the group.
  - A calling group is programmed to be a receiver for the group.

An individual multiline telephone can have any combination of up to eight Individual Cover and Group Cover buttons.

Several timers, summarized in Table 4, affect the delivery of a call to coverage. Explanations of these timers are included in the descriptions of Individual Coverage and Group Coverage later in this section.

Individual Coverage

An Individual Coverage receiver, who covers calls, has a button programmed on his or her multiline telephone that corresponds to another extension. A given sender can have up to eight Individual Coverage receivers covering calls. A receiver can have separate buttons for up to eight senders, but can have only one button to provide Individual Coverage for a given sender.

A button for Individual Coverage can be programmed as either Primary Cover or Secondary Cover. The Secondary option provides a 2-ring delay (the Secondary Coverage delay interval) to allow the sender to answer before the receiver; the Primary option does not provide this delay. In addition, each Cover button can be programmed with ringing options: Immediate Ring, Delay Ring, or No Ring.

Table 4. Timers Affecting Coverage

Timer	Factory Setting	Range	Description
Coverage Delay Interval	3 rings	1–9 rings	Delay before sending calls to Group Coverage, when: Sender also has Individual Coverage and receiver is available. Sender does not have Individual Coverage or receiver is not available, and Group Coverage receiver is calling group only or QCC queue only (no Group Cover buttons on multiline telephones).
Ring Timing Options:			Programmable on any line button, including Cover buttons on multiline telephones
Immediate	—	—	—
Delay Ring	2 rings	1–6 rings on Cover buttons Fixed at 2 rings on **SA** and **ICOM**	Delay before sending calls to Group Coverage (in addition to coverage delay interval), when sender also has Individual Coverage *and* receiver is available
No Ring	—	—	On sender (covered) telephone, prevents calls from going to coverage
Secondary Coverage Delay Interval	2 rings	Fixed	Delay before sending Individual Coverage calls to a Secondary Cover button, when sender also has Individual Coverage to a Primary Cover button.
Retry Timing Interval	5 sec	Fixed	Repetition interval for trying to send calls to group coverage until call is answered by sender or receiver (or caller hangs up)

Regardless of how these options are programmed, the green LED next to the Cover button on the receiver's telephone flashes immediately when a call begins ringing at the sender's telephone. The receiver's telephone rings as shown in Table 5. Both telephones continue to ring as programmed. The green LED on both telephones continues to flash until the call is answered either by the sender or by the receiver or the caller hangs up.

Group Coverage

Up to 30 coverage groups can be programmed for the system. Group Coverage is an arrangement in which senders are organized into groups (*Coverage group*) and calls received by any unavailable group member are sent to one or more receivers. There is no limit to the number of members in a group, but a given extension can be a member of only one group. Any telephone except a QCC can be a member of a coverage group.

Table 5. Ringing on Individual Coverage (Receiver) Buttons

Ringing Option	Primary Cover	Secondary Cover
Immediate Ring	Immediately	After sender's telephone rings 2 times (*SC*)
Delay Ring	After sender's telephone rings 1–6 (*DR*) times	After sender's telephone rings 2 times (*SC*) + 1–6 (*DR*) times
No Ring	Does not ring	Does not ring

DR = Delay ring interval
SC = Secondary Coverage delay interval

Three types of receivers can be assigned to cover calls for coverage groups:

- A multiline telephone can have a Group Cover button for a specific coverage group, assigned either through extension programming or centralized telephone programming. The button is usually labeled with the name of the group, for example *Sales*. A given coverage group can send its calls to up to eight Group Cover buttons; all eight can be programmed on one multiline telephone or can be distributed on as many as eight telephones.

  Each Group Cover button can be programmed for Immediate Ring, Delay Ring, or No Ring.

  A single-line telephone cannot be programmed individually as a Group Coverage receiver. However, it can be a member of a calling group that is a receiver.

- The QCC queue can be assigned through system programming as a receiver for up to 30 coverage groups, with up to 4 QCC operators (the maximum allowed number of QCCs) assigned to receive calls for each coverage group. A QCC cannot have programmed Group Cover buttons. The QCC queue can be the only receiver or can be used in addition to Group Cover buttons on multiline telephones. If both are used, the QCC queue is not counted in the 8-receiver maximum for the group. Because QCC calls are queued, the operator cannot distinguish a coverage call from any other type.

- A calling group can be assigned through system programming as a receiver for up to 30 coverage groups.

  When a calling group is programmed as a receiver for a coverage group, a call to a coverage group member enters the calling group queue and waits for an available calling group member. When the call rings at an available member's telephone, it stops ringing at the sender's telephone and the sender's green LED turns off. Because calling group calls are queued, a

calling group member cannot distinguish a coverage call from any other type.

Group Coverage by a calling group is used to provide coverage by a voice messaging system (VMS).

NOTE:
If a calling group is assigned to take calls for a coverage group, no other types of receivers—multiline telephones with Group Cover buttons or the QCC queue—can be assigned for that coverage group.

Selective Coverage

When an extension has calls covered, all of its eligible calls are covered unless the sender uses one of the following coverage options:

- **Coverage Off** turns off all coverage. (If a Group Coverage sender uses Coverage Off, other telephone users can use Group Pickup to answer the sender's calls; however, they cannot use Individual Pickup.)

  To turn coverage off or on, the sender must have a programmed **Coverage Off** button.

- **Coverage Inside** prevents or allows coverage of inside calls:

  — With Coverage Inside Off, only outside calls are covered.

  — With Coverage Inside On, inside and outside calls are covered.

  To use Coverage Inside Off/On, the sender must use the programming code or select it from the display of a display telephone (using ListFeature) in extension programming. It cannot be programmed on a button.

- **Coverage VMS Off** prevents outside calls from being sent to voice mail. With Coverage VMS Off, only inside calls are covered by voice mail. Outside calls go to any other points of coverage. Coverage VMS Off is available only in Release 2.0 and later. To use this feature, the sender must have a programmed Coverage VMS Off button.

- **Do Not Disturb** Inside callers get a busy signal and external callers go to coverage, if programmed.

Eligibility for Coverage

Not all calls are eligible for coverage. Eligibility is determined by the type of call and how the sender's telephone is set up. Table 6 shows which calls at the sender's telephone are eligible for coverage.

Table 6. Calls Eligible and Calls Ineligible for Coverage

Call Rings on...	Eligible	Ineligible
SA or **ICOM** buttons programmed for Immediate or Delay Ring		
Inside calls	3	
DID trunk calls	3	
Inside or outside transferred calls	3	
Calls forwarded from another extension		3
Calls on **Shared SA** buttons		3
Calls on Cover buttons		3
Voice-announced calls		3
Transfer Return calls		3
Returning parked calls		3
Reminder service calls		3
Personal line buttons programmed for Immediate or Delay Ring		
Sender is principal user	3	
Someone else is principal user		3
No principal user is assigned	3	
Pool buttons programmed for Immediate or Delay Ring	3	
Any button programmed for No Ring		3

NOTES:

1. In Release 2.0 and later, when a coverage receiver calls a coverage sender, the call can be sent to coverage. If a receiver calls a sender for whom he or she is covering and the sender is busy or unavailable, the call proceeds to other points of coverage. It does not come back to the receiver who originated the call.

   In Release 1.0 or Release 1.1, a call from a receiver to a sender is not sent to coverage.

2. If a sender sets the Ring Timing option for No Ring on any personal line, **Pool**, **SA**, or **ICOM** buttons, calls arriving on those buttons do not go to coverage.

Interaction of Individual and Group Coverage

Group Coverage can be used alone or with Primary and/or Secondary Individual Coverage. When both Individual Coverage and Group Coverage are used, the interactions between them follow this principle: If possible, a caller should always get personal attention from someone with a Cover button for the sender—first an Individual Coverage receiver, then a multiline telephone with a Group Cover button. In these cases, the receiver can answer with

the names of the individual or group for whom he or she is covering. Only when these types of receivers are unavailable or not programmed will the call go to another, more impersonal type of Group Coverage—either the QCC queue or a calling group.

A call to a sender that is also ringing on Primary Cover, Secondary Cover, and/or Group Cover buttons rings until answered (or the caller hangs up). When the call is answered, the ringing and flashing green LED are removed from all other telephones providing coverage for the sender. However, when a calling group is programmed as the receiver for a coverage group, the ringing and flashing green LED are removed from the sender's telephone as the call leaves the calling group queue and is sent to an available calling group member. (A call on a personal line button on the sender's telephone is an exception. The ringing and flashing green LED remain on that button until answered, either by the sender or by a receiver.)

NOTE:
The duration of the ringback heard by an outside caller is shorter than the actual ring heard at an MLX or analog multiline telephone. Therefore, an outside caller hears one or two rings, and may also hear the number of rings programmed for the coverage delay interval, plus the number of rings programmed for the Delay Ring interval. For example, if the coverage delay interval is programmed for one ring and the Delay Ring interval is programmed for two rings, an outside caller hears four rings before the call begins ringing at receivers' telephones. If both intervals are set to their maximum values, the caller can hear up to two additional rings.

A call goes to Group Coverage depending on the following conditions:

- Whether the sender is available or unavailable
- Whether the sender has Individual Coverage (Primary Cover or Secondary Cover buttons programmed on other extensions), and if so, whether an Individual Coverage receiver is available
- The type of Group Coverage receivers programmed:
  - Only Group Cover buttons on multiline telephones
  - Only the QCC queue
  - Only a calling group
- The value set for the coverage delay interval through system programming (1–9 rings). When used in combination with Delay Ring, make sure that this value is higher than the Delay Ring interval.
- The value set for the Delay Ring interval (1–6 rings) through system programming (affects Individual Coverage only).

A sender is considered unavailable (his or her telephone does not ring) under the following conditions:

- The sender has turned on Do Not Disturb.
- All **SA** or **ICOM** buttons are in use on the sender's telephone.

- The sender is using extension programming or testing the telephone.
- The sender with an MLX display telephone is using the Alarm Clock or Directory feature.
- The sender's telephone is forced idle for system programming or centralized telephone programming.
- The sender's telephone is not responding (for example, not connected).
- The sender has activated Remote Call Forwarding.

A receiver is considered unavailable (his or her telephone does not ring) under the following conditions:

- The receiver has turned on Do Not Disturb (in this case, the sender can call the receiver).
- Another call is ringing or answered on the receiver's Cover button for that sender.
- The receiver is in extension programming or is testing the telephone.
- The receiver with an MLX display telephone is using the Alarm Clock or Directory feature.
- The receiver's telephone is forced idle for system programming or centralized telephone programming.
- The receiver's telephone is not responding (for example, not connected).

Table 7 shows when a call goes to Group Coverage receivers, *after* first going to any available Individual Coverage receivers (as described in Table 5).

If a call is sent to Group Coverage and no receiver is available, the system continues trying to send the call every 5 seconds until a Group Coverage receiver becomes available. This repeated attempt to send the call is call *retry timing*. The 5-second retry timing interval cannot be changed.

Table 7. Group Coverage Call Delivery Rules

Receiver Type	Sender Status	Individual Coverage Receiver Status	Call Delivered to Group Coverage after...
Group Cover button(s) only or Group Cover button(s) and QCC queue	Available	Available	*CD* + *DR**
	Available	Unavailable or not programmed	Immediate*
	Unavailable	Available	*CD* + *DR**
	Unavailable	Unavailable or not programmed	Immediate*
QCC Queue only or Calling group only	Available	Available	*CD* + *DR**
	Available	Unavailable or not programmed	*CD*
	Unavailable	Available	*CD* + *DR**
	Unavailable	Unavailable or not programmed	Immediate*

CD = Coverage delay interval

DR = Delay Ring interval

* Ringing is delayed an additional *DR* after the green LED turns on at a Group Cover button programmed for Delay Ring on a multiline telephone.

See Figure 6 and Figure 7 for examples of LED and ringing patterns. Figure 6 shows examples of when only Group Coverage is used or when all Individual Coverage receivers are unavailable. Figure 7 shows examples of when both Individual Coverage (Primary and Secondary) and Group Coverage are programmed for an individual sender.

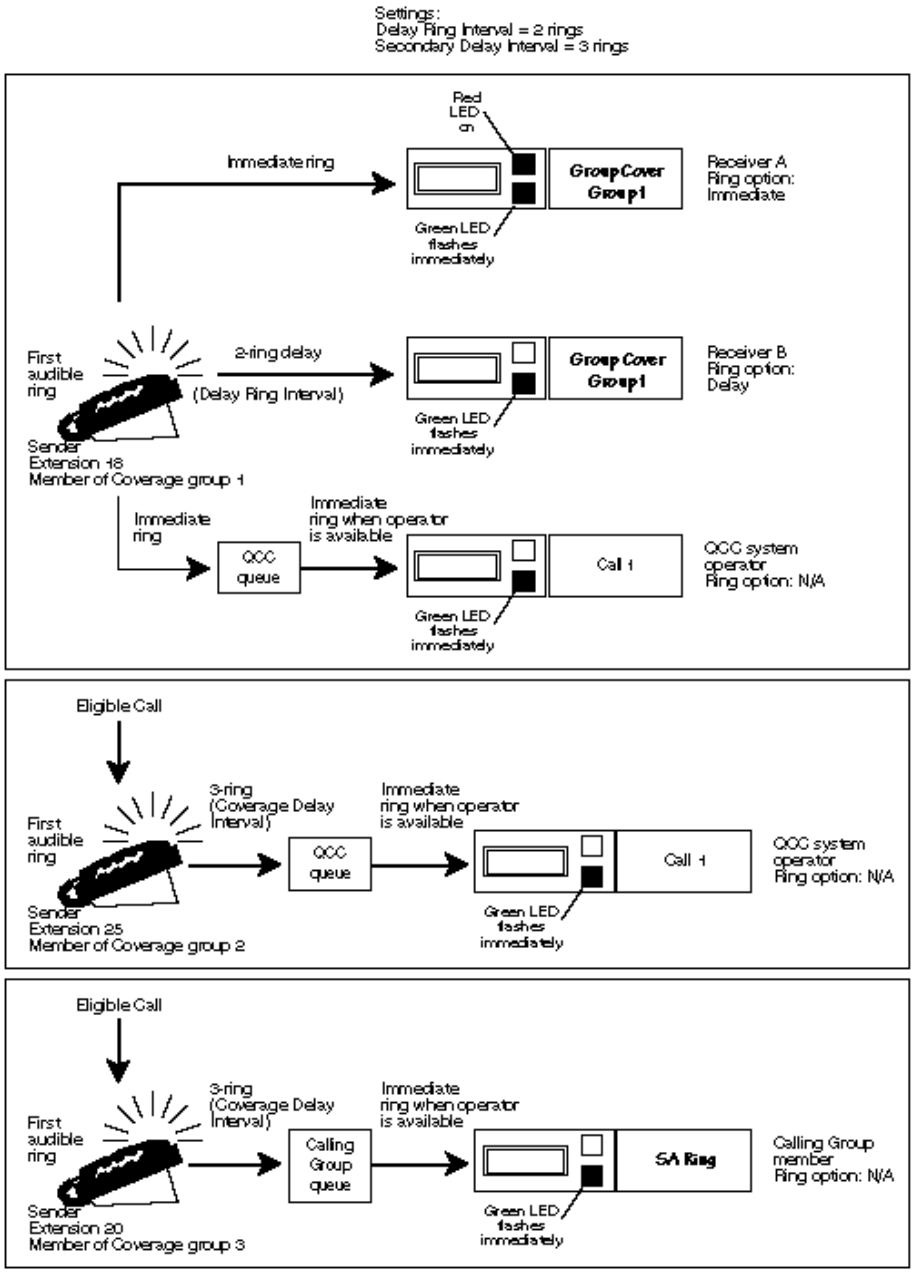


Figure 6. Group Coverage Only or All Individual Coverage Receivers Not Available

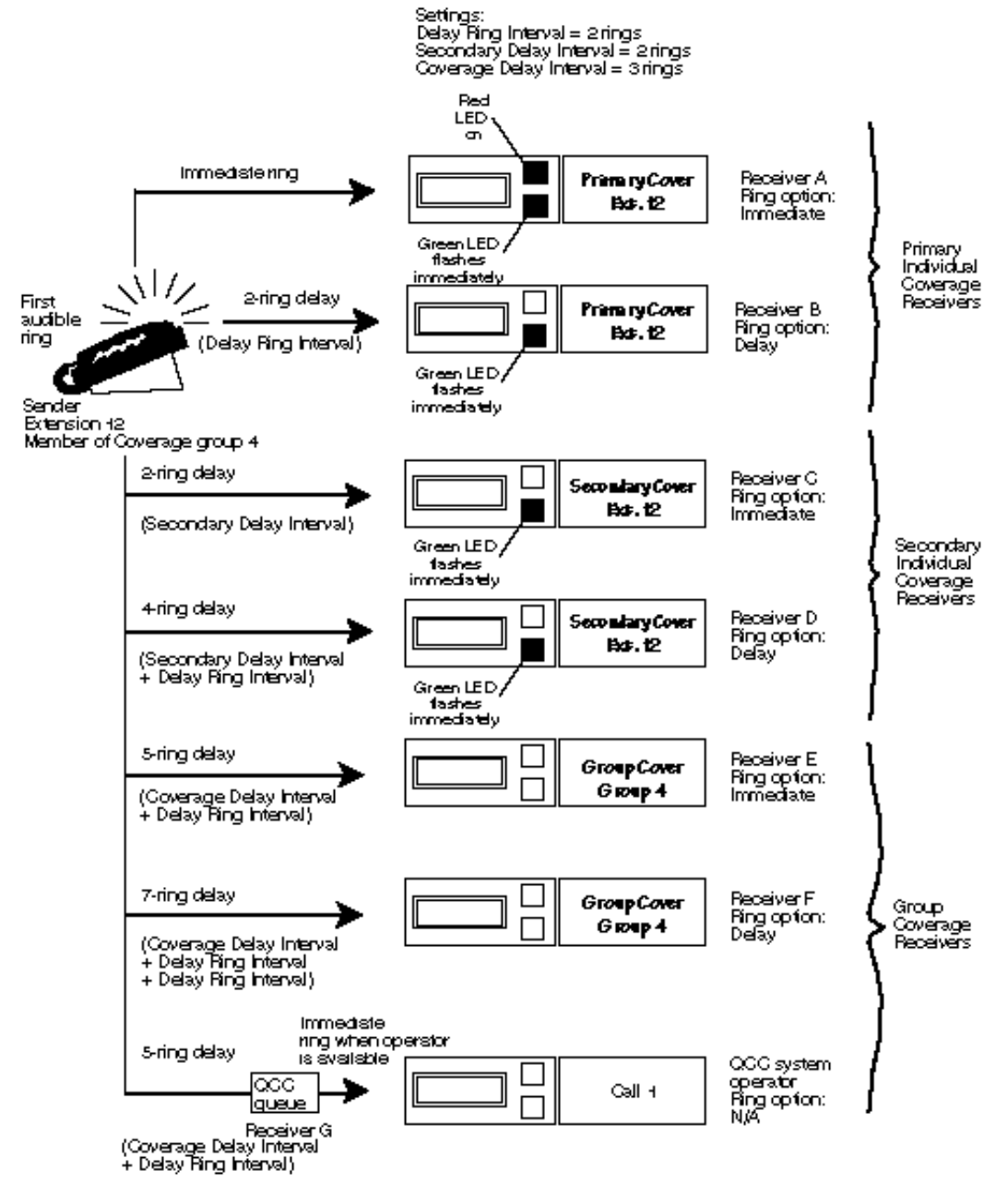


Figure 7. Individual (Primary and Secondary) and Group Coverage Ringing Patterns

Cover to Voice Mail with Escape to System Operator

When DID or Auto Attendant are used, users receive calls directly, without the intervention of an operator. In these situations, the telephone should have voice mail coverage instead of coverage by a receptionist (operator). The caller then has the option to leave a message or press *0* in order to talk to the receptionist. If after talking to the receptionist the caller wants to leave a message, the receptionist can always transfer the call back to voice mail using the Direct Voice Mail feature.

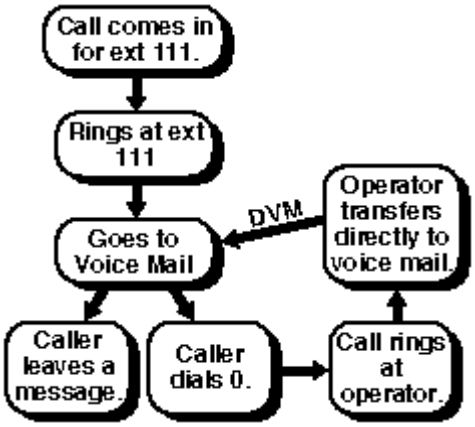


Figure 8. Cover to Voice Mail with Escape to System Operator

This configuration is usually the best solution for coverage to voice mail. This configuration has the following advantages:

- It reduces the burden on the receptionist or operator.
- It allows the caller to make the choice whether to leave a message or speak to an operator.
- It allows the caller to leave a message without waiting for the receptionist to answer.

Cover to System Operator before Voice Mail

If coverage must go to a receptionist, coverage can be set up using one of the following methods:

- Primary Coverage (8 or fewer extensions)
- Phantom calling groups (30 or fewer extensions)
- Phantom extensions (30 or more extensions)

Primary Coverage

If eight or fewer extensions require coverage to the system operator, use delayed Primary Coverage or Secondary Coverage to allow calls to be covered by the operator. When a caller dials the user's number, the call is covered by the operator, and the operator can then send the call to voice mail using the Direct Voice Mail feature. If the operator does not answer, the call may or may not go to coverage, depending on the status of the user's Coverage VMS Off button. If the Coverage VMS Off button is not selected (the light is off), the call goes to voice mail, if the Coverage VMS Off button is selected (the light is on), the call continues to ring at the extension.

To set up Primary Coverage to the operator before going to voice mail, do the following:

- Assign an extension to a coverage group. Assign the coverage group to calling group 770 (Voice Mail).
- Program a Primary Cover button for the extension on the operator's Direct-Line Console (cannot be a QCC). Program it for Delay Ring.
- If you want to keep calls from going to voice mail when the operator does not pick up, program a Coverage VMS Off button on the extension.

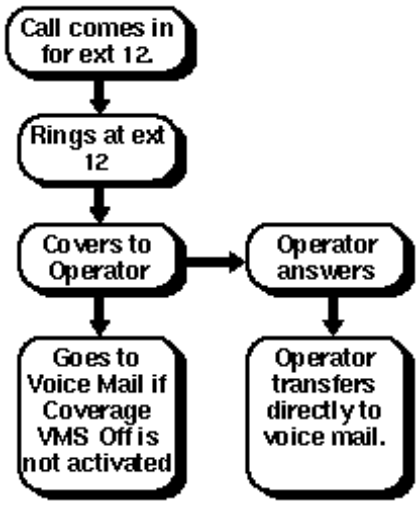


Figure 9. Primary Coverage

With the primary coverage configuration, calls are handled as follows. A caller dials a DID number (for example 555-5512). The extension for the DID number (for example, extension 12) rings several times. If the telephone is not answered, the call is covered by an operator. If the operator fails to answer, the call goes either to voice mail or keeps ringing, depending on the Coverage VMS Off status on the extension for the DID number. The operator answers the call and the caller asks to leave a message. The operator transfers the caller to the extension's voice mail (for example, extension 12) using Direct Voice Mail. The caller leaves a message at the extension and the extension's message light goes on.

Phantom Calling Groups

If fewer than 30 extensions require coverage to the main operator, phantom calling groups can be used to provide a second extension number for each user's voice mail. The actual extension covers to the operator (Group Coverage) and the calling group covers to voice mail. When someone dials the user's number, the call covers to the operator, who can then transfer the call to the voice mail extension.

To set up phantom coverage to the operator before going to voice mail coverage, do the following:

- Assign an extension (for example, 101) to a coverage group. Assign a Group Cover button to the operator (if a DLC), or assign the coverage group to ring at the QCC.
- Renumber a calling group (for example, 771 to 201). You may have to renumber 201 first.
- Assign the calling group (for example, 201) to overflow to calling group 770 (Voice Mail) with a threshold of 1. Assign 101 as the message receiver for calling group 770.

With the phantom calling groups coverage configuration, a caller dials a DID number (for example 555-5101). The extension for the DID number (for example, Extension 101) rings several times. If the telephone is not answered, the call is covered by an operator. The operator answers the call, and the caller asks to leave a message. The operator transfers the call to 201, and the call goes to voice mail, the Message light goes on at the extension for the DID number (for example, 101).

NOTE:
A user can give out a regular telephone number (555-5101) and a voice mail number (555-5201). This way, callers can leave a message without ringing the telephone. This is necessary to receive messages outside of office hours. Callers cannot leave messages after hours unless they know the second DID number.

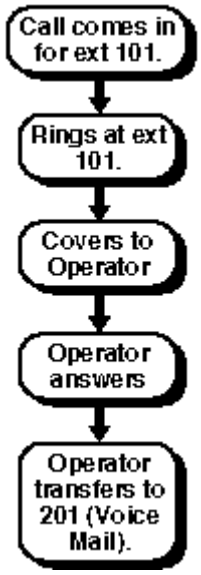


Figure 10. Phantom Calling Groups

Phantom Extensions

If more than 30 extensions require coverage to the operator, phantom extensions can be used after all of the phantom calling groups are used up. This setup is slightly different than the previous two scenarios. In this case, the published DID number is the number for the phantom extension. The actual telephone has **Shared SA** buttons of the phantom extension, so the call rings at the telephone with the **Shared SA** button. The phantom extension covers to the operator, and the operator has the ability to send the calls to the original extension's voice mail using the Direct Voice Mail feature.

To set up phantom coverage to the operator before going to voice mail, do the following:

- Assign extension (for example, 114) to a coverage group. Assign a **Group Cover** button to the operator if a DLC, or assign the coverage group to ring at the QCC.
- Assign a phantom extension to a number (for example, 214. You may have to renumber 214 first.) It's best to use the MFM number for that extension (100 higher than the extension number) to prevent confusion.

- Assign **Shared SA** buttons for the phantom extension to the real extension (for example, assign **Shared SA** buttons for 214 to 114), and remove all but one **SA** button for the real extension. (You may want to make this a No Ring button and move it to a virtual button that is not actually on the physical telephone. This conserves buttons and prevents accidental calls to 114 from ringing at the extension.)
- Assign extension (114) to coverage group 1. Assign coverage group 1 to calling group 770 (Voice Mail).

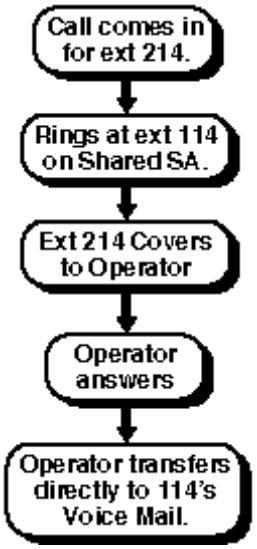


Figure 11. Phantom Extensions

With the phantom extensions coverage configuration, a caller dials the DID number (for example, 555-5214). Extension 114 rings several times on a **Shared SA** button. If the call is not answered, it is covered by an operator (display shows Cover ext 214). The operator answers the call and the caller asks to leave a message. The operator transfers the caller to the extension's voice mail (Extension 114) using Direct Voice Mail. The caller leaves a message for the extension, and the Message light goes on.

NOTE:
A user can give out a regular telephone number (555-5214) and a voice mail number (555-5114). This way, callers can leave a message without ringing the telephone. This is necessary to receive messages outside of office hours. Callers cannot leave messages after hours unless they know the second DID number.

Cover to Personal Secretary before Voice Mail

If you need coverage by a personal secretary, who is not a system operator at an operator console, then Primary Coverage can be used on the secretary's telephone. The secretary can use Direct Voice Mail to transfer the call back to the user's voice mail. If the secretary is out, calls can either continue to ring or go to voice mail, depending on the status of the user's Coverage VMS Off button.

To set up Primary Coverage to a personal secretary before going to voice mail do the following:

- Assign the extension to a coverage group. Assign the coverage group to calling group 770 (Voice Mail).
- Program a Primary Cover button for the extension on the secretary's telephone. Program it for Delay Ring.
- If you want to keep calls from going to voice mail when the secretary does not pick up, program a Coverage VMS Off button on the extension.

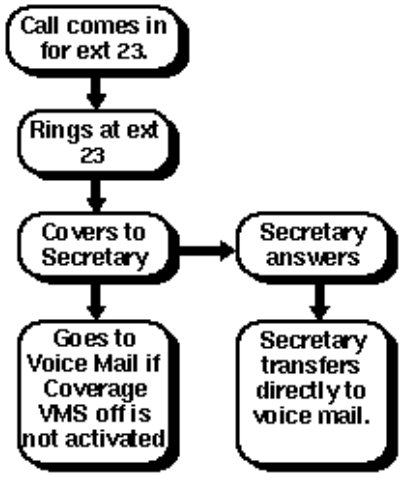


Figure 12. Phantom Calling Groups

A caller dials the DID number (for example, 555-5523). Extension 23 rings several times. The call is covered by a secretary. The secretary answers, and the caller asks to leave a message. The secretary transfers the caller to the extension's voice mail using the Direct Voice Mail feature. The caller leaves a message at the extension, and the extension's Message light goes on. If the operator fails to answer, the call goes either to voice mail or keeps ringing, depending on the Coverage VMS Off status at the extension for the DID number.

Considerations and Constraints

In Release 2.0 and later, if a receiver calls a sender for whom he or she is covering and the sender is busy or unavailable, the call proceeds to other points of coverage. It does not come back to the receiver who originated the call. In Release 1.0 or Release 1.1, a call from a receiver to a sender is not covered.

A maximum of eight Primary Cover and Secondary Cover buttons can be assigned to provide Individual Coverage for a given sender. Only one Cover button can be programmed on a multiline telephone for a given sender.

A maximum of eight Group Cover buttons can be assigned to provide Group Coverage for each coverage group. All eight can be programmed on one multiline telephone, or the Group Cover buttons can be distributed on as many as eight multiline telephones.

A receiver with a multiline telephone can have a maximum of eight Cover buttons, which can be programmed for any combination of Group and Individual Coverage.

If a receiver has both a Primary Cover or Secondary Cover button for a sender and a Group Cover button for the group of which the sender is a member, a call for the sender rings only at the receiver's Primary Cover or Secondary Cover button. This prevents multiple deliveries of the same call to the same receiver.

Each coverage group can have any number of members, from none to all the extensions in the system.

Each sender can be a member of only one coverage group.

If a sender is a member of a coverage group and no receivers are assigned for the group (and the sender does not have Individual Coverage), a caller hears ringback (not a busy tone) when the sender is unavailable.

If a calling group is assigned as a receiver for a coverage group, it is the only receiver for that group; no other types of Group Coverage receivers can be programmed. However, individual members of the coverage group can be senders to Individual Coverage receivers.

A calling group can be a receiver for up to 30 coverage groups.

A receiver with a Group Cover button can also be a member of the coverage group for which the button is programmed. Calls to that receiver are sent to all other receivers programmed for the group.

When both the QCC queue and multiline telephones are programmed as receivers for a coverage group, the QCC queue is not counted in the 8-receiver maximum for the group.

A QCC cannot be a coverage sender.

When Group Coverage is the only type of coverage programmed for a sender, the QCC queue should not be programmed along with Group Cover buttons on multiline telephones. Because the QCC cannot be programmed for Delay Ring, eligible calls ring immediately both at the sender's telephone and at the QCC queue. This may not allow the sender enough time to answer the call before a QCC operator answers.

If a call is sent to coverage because the sender did not have a button available to take the call, the call does not return to the sender's telephone, even if a button becomes available while the call is ringing at a coverage receiver's telephone.

An inside voice-announced call made on an **SA Voice** or **ICOM Voice** is not covered. If it is converted to a ringing call—for example, because the sender's speakerphone is in use—the ringing call is sent to coverage.

No type of Cover button can be used to make calls.

When the sender also has Individual Coverage and an Individual Coverage receiver is available, the Delay Ring interval is used as an additional delay (in addition to the coverage delay interval) before a call goes to Group Coverage.

When no principal user is assigned for a personal line, calls received on the personal line cannot be forwarded to outside telephone numbers. Calls follow the Individual Coverage patterns of all senders who share the line and the Group Coverage pattern of the extension with the lowest logical identification number (lowest numbered jack on the module).

Telephone Differences

Direct-Line Consoles

A DLC can be both an Individual or Group Coverage receiver and a member of a coverage group.

Queued Call Consoles

The Queued Call Console (QCC) cannot be a sender for either Individual or Group Coverage. The QCC queue can be a Group Coverage receiver for up to 30 coverage groups. Since Cover buttons cannot be programmed on the QCC, the queue is not counted in the 8-receiver maximum allowed for each coverage group. The QCC cannot be an Individual Coverage receiver.

The QCC queue priority and the individual QCC operator to receive calls for each coverage group are assigned independently for each group.

If a trunk is programmed to ring in to the QCC queue and also appears as a personal line on a telephone that is a member of a coverage group covered by the QCC queue, a call on that trunk does not appear as a coverage call at the QCC.

If Group Cover buttons are programmed for a coverage group in addition to the QCC queue and all QCC operators are in Position-Busy mode, a Group Coverage call goes to all receivers except the QCC queue.

When Group Coverage is the only type of coverage programmed for a sender, the QCC queue should not be programmed in addition to Group Cover buttons on multiline telephones. Because the QCC cannot be programmed for Delay Ring, eligible calls ring immediately both at the sender's telephone and at the QCC queue. This may not allow the sender enough time to answer the call before a QCC operator answers.

When the QCC queue is assigned as a receiver for a coverage group and a call transferred to a group member is not answered, the call returns to the queue as follows:

- If the QCC return ring interval is shorter than the coverage delay interval, the call returns as a returning transfer call.
- If the QCC return ring interval is longer than the coverage delay interval, the call returns as a Group Coverage call.

Other Multiline Telephones

Any type of multiline telephone can be a sender and/or receiver for either Individual Coverage or Group Coverage and can have up to eight Cover buttons.

Single-Line Telephones

A single-line telephone can be a sender for either Individual or Group Coverage. A single-line telephone can be a receiver for Individual Coverage. It can be a receiver for Group Coverage only when it is a member of a calling group assigned as a receiver for a coverage group.

Transferred calls to a busy single-line telephone are not eligible for coverage unless Coverage Inside is on. A transferred call to a busy single-line telephone with Group Coverage and Coverage Inside off camps on at the single-line telephone and returns to the originator if not answered before the transfer return interval expires.

Feature Interactions

Account Code Entry

When answering calls on a Primary Cover, Secondary Cover, or Group Cover button, a receiver cannot enter an account code. If the receiver tries to enter an account code, no error tone sounds, but the account code does not appear on the SMDR report.

Since Cover buttons are not required when the QCC queue is assigned as a receiver for a coverage group, a QCC operator can enter an account code, and the account code appears on the SMDR printout.

Auto Answer All

A sender or receiver on an analog multiline telephone can use Auto Answer All to have calls answered by an answering machine connected to the telephone.

Auto Answer Intercom

Auto Answer Intercom prevents a receiver on an analog multiline telephone from using a Hands-Free Unit (HFU) to answer calls received on a Primary Cover, Secondary Cover, or Group Cover button.

Automatic Line Selection

Primary Cover, Secondary Cover, and Group Cover buttons cannot be programmed in an ALS sequence, because the buttons cannot be used to make calls.

Barge-In

Barge-In can be used to join an Individual or Group Coverage call answered at any receiver telephone.

Callback

The sender and all receivers must be busy before a call to a sender can be queued. The call is sent to coverage before it is put in the callback queue. Once a call is in the callback queue, it is not sent to coverage again. A callback call indicating that a busy extension or pool is available is not sent to coverage.

Caller ID

Caller ID information is available to users receiving coverage calls.

Calling Restrictions

In Release 2.1 and later, users answering calls on Cover buttons can generate touch tones (for example, dialing a *1* to accept a collect call) if their telephones are not outward- or toll-restricted. If the telephone is outward- or toll-restricted, the user hears the touch tones, but the tones are not sent out over the line (and the user cannot, for example, accept collect calls by dialing a *1*).

Call Waiting

A call to a sender with Call Waiting turned on goes to Individual and/or Group Coverage first. If all coverage points are busy, the sender receives the call-waiting tone.

Camp-On

Coverage calls answered by any receiver can be camped-on to another user.

Conference

Conference calls can be originated from a Cover button only when the user with a caller on the Cover button presses the **Transfer** button, dials the number for another person, and then presses the **Conf** button to complete the transfer. In this case only, instead of the call being transferred, a conference call with three participants (including the originator) is established.

Direct Station Selector

When a system operator transfers an Individual or Group Coverage call and the call returns, the red LED next to the DSS button for the sender does not flash as it does for a transfer return for calls received on other types of line buttons.

Display

When an Individual or Group Coverage call is answered by a receiver with a display telephone, Cover is shown for the call type, followed by the sender's name (if programmed) or extension number, and the reason the call was sent to coverage: No Ans, Busy, or DND. On an MLX telephone, other reasons why calls are sent to coverage are also shown: Invalid/unknown DID number or Invalid/unknown Remote Access number. The receiver sees the caller information by pressing the **More** button.

Do Not Disturb

When a sender turns on Do Not Disturb, Individual Coverage or Group Coverage receivers for that sender can call the sender. All other calls to the sender go to coverage.

When a receiver turns on Do Not Disturb, he or she does not receive coverage calls. However, a sender whose calls are set to be covered by the receiver can call that receiver, despite Do Not Disturb.

If both a sender and all receivers have Do Not Disturb on, the sender's calls do not go to coverage and the caller hears a busy signal. On a personal line, the caller hears ringback and the green LED flashes, but the telephone does not ring.

Forward and Follow Me

When a coverage sender forwards calls, calls are forwarded and sent to coverage at the same time. Calls received on Primary Cover, Secondary Cover, or Group Cover buttons are not forwarded.

If a sender has Group Coverage by the QCC and has also forwarded calls to the QCC operator, calls go to the QCC as coverage calls.

If a coverage receiver has activated Remote Call Forwarding, calls sent to that extension through Coverage are not forwarded to the remote location.

Group Calling

A calling group can be a receiver for up to 30 coverage groups. A calling group cannot be a receiver for Individual Coverage. A coverage group can have only one calling group as a receiver, but members of the coverage group can also have Individual Coverage receivers.

As soon as a Group Coverage call is sent from the calling group queue to a calling group member, ring and LED flashing are removed from the sender's telephone (except for outside calls received on personal lines).

A calling group cannot be a sender, but an individual calling group member can be a sender for Individual Coverage and/or a member of a coverage group. When a call to the calling group extension number is sent from the queue to the calling group member, it goes only to the member's Individual Coverage receivers and not to the member's Group Coverage receivers. Calls to the member's individual extension go to both Individual and Group Coverage receivers.

Hold

Coverage calls answered by any type of receiver can be put on hold. The Hold Timer or Operator Hold Timer applies to a coverage call on hold.

Multi-Function Module

A Multi-Function Module (MFM) can be a sender or a receiver for Individual or Group Coverage. This allows the associated MLX telephone user to screen calls by using an answering machine connected to the MFM or to supplement ringing with an external alert connected to the MFM. A sender can use Coverage Off to prevent calls from being sent to an answering machine.

Park

A returning parked call is not eligible for coverage. A call answered on a Primary Cover, Secondary Cover, or Group Cover button cannot be parked on that button. To park calls received on a Cover button at your extension, press the **Transfer** button, dial your own extension, and press the **Transfer** button again to complete parking the call.

Personal Lines

When a principal user is assigned a personal line, calls arriving on the personal line follow that user's coverage pattern, if any. Calls received on personal line buttons on senders' telephones other than the principal user's do not go to coverage.

If no principal user is assigned, calls received on the personal line are sent to all available Individual Coverage receivers for all senders sharing the line and to the Group Coverage receivers programmed for the sender whose telephone is connected to the lowest jack in the lowest-numbered slot in the control unit.

In Release 2.1 and later, calls received on personal lines with Do Not Disturb on will go immediately to coverage instead of waiting for the coverage delay interval.

Personal Lines (*continued*)	In Release 2.1 and later, a call answered on a personal line using a Cover button can be picked up by anyone with a button for that personal line. However, the picked-up call cannot be transferred because it is still considered to be on hold at the covering extension. In systems prior to Release 2.1, once a receiver answers a call received on a personal line using a Cover button and puts the call on hold, the sender and any other user who shares the personal line cannot pick up the call by pressing the personal line button. For proper handling, the receiver should transfer the call to the sender.
Pickup	An Individual or Group Coverage sender or receiver can be a member of a Pickup group. This allows Pickup to be used to answer a ringing Individual or Group Coverage call. If a sender who is a member of a Pickup group uses Coverage Off to prevent calls from being sent to Individual or Group Coverage receivers, his or her calls can be picked up by using the Individual Pickup feature. However, calls cannot be picked up by using the Group Pickup feature. When a coverage call is answered by using Pickup, the call appearance is removed from all other telephones in the coverage arrangement.
Pools	Calls received on a sender's **Pool** button programmed for Immediate or Delay Ring are eligible for Individual or Group Coverage.
Recall	Recall has no effect on a call answered on a Primary Cover, Secondary Cover, or Group Cover button. In Release 2.0 and later, Recall can be used on a Group Coverage call answered by a member of a calling group. In Release 1.0 or Release 1.1, Recall cannot be used on a call of this type, since it is answered on an **SA** or **ICOM** button.
Reminder Service	Reminder calls are not eligible for Individual or Group Coverage.
Ringing Options	Calls received on line buttons programmed for No Ring are not sent to coverage. Primary Cover, Secondary Cover, and Group Cover buttons can be programmed for Immediate Ring, Delay Ring, or No Ring. If an Individual or Group Coverage receiver is on a call when a coverage call is received, the receiver hears an abbreviated ring if Abbreviated Ring is enabled. Calls received on a Primary Cover, Secondary Cover, or Group Cover button ring with the receiver's (not the sender's) personalized ringing pattern.
SMDR	The extension number answering an Individual or Group Coverage call is shown on the SMDR report.

System Access/Intercom Buttons	A covered call remains on the sender's **SA** or **ICOM** button until it is answered at the receiver's telephone. A call received on a **Shared SA** button is not eligible for Individual or Group Coverage. If a receiver programs a Primary Cover, Secondary Cover, or Group Cover button for a sender and also has a **Shared SA** button associated with the sender, the green LEDs next to both the Cover button and the **Shared SA** button flash. The red LED stays on at the **Shared SA** button, but does not go on at the Cover button.
Transfer	A call answered on a Primary Cover, Secondary Cover, or Group Cover button can be transferred. Calls transferred to a sender are eligible for Individual and/or Group Coverage. However, the sender hears a call-waiting tone if he or she is using Coverage Off to prevent calls from going to coverage and does not have an available **SA** or **ICOM** button to receive a transferred call. When One-Touch Transfer is programmed, a call answered on a Cover button can be transferred by using a DSS button but not by using an Auto Dial button. Transfer returns are not eligible for coverage.
Voice Announce to Busy	An inside voice-announced call is not sent to coverage, because if the sender's speakerphone is available, the call is answered as soon as it is made. If the sender's speakerphone is in use, the call is converted to a ringing call and sent to coverage.

Direct-Line Console

At a Glance

Users Affected	DLC operators only
Reports Affected	System information (SysSet-up) Operator information Extension information
Mode	All
Telephones	
MLX	MLX-20L, MLX-28D™
Analog Multiline	BIS-22D, BIS-34, BIS-34D, MERLIN II System Display Console
System Programming	Assign or remove an individual DLC position: • Operator→Positions→Direct Line Enable or disable DLC Operator Automatic Hold systemwide: • Operator→DLC Hold When One-Touch Transfer is programmed, select either automatic or manual completion for system operators: • Options→Transfer→One Touch→Transfer Change the duration of the timer signaling a call still on hold: • Operator→Hold Timer
Maximums	
Operator positions (total DLCs and QCCs)	8
DLCs for each module	2
MLX Display Labels	See “Display.”
Factory Settings	
Personal Lines	
MLX DLC	Lines 1–18
Analog DLC	Lines 1–32
DLC Operator Automatic Hold	Disabled
Operator Hold Timer	60 sec (range 10–255 sec)
One-Touch Transfer with Automatic Completion	Enabled
Primary System Operator Position	First (lowest) jack on first MLX or analog extension module, fixed
Park Zone Extensions	881–888

Description

The Direct-Line Console (DLC) is an answering position that system operators use for the following purposes:

- Answer outside calls that are not directed to an individual user or group.
- Answer inside calls.
- Transfer inside and outside calls to an extension or an outside telephone number.
- Make outside calls, for example, for users with extensions restricted from making outside calls.
- Set up conference calls.
- Monitor system operation.
- Monitor group member or room status when used with Extension Status in calling group Call Management System (CMS) or Hotel mode.

A DLC operates like other multiline telephones. In all three modes of operation, outside lines are assigned to individual buttons on the console as personal lines. The lines assigned on an individual DLC can also be assigned to buttons on other consoles or other extensions. Incoming calls can ring on any of the line buttons, and several calls can ring simultaneously. The operator directs calls to other extensions or to outside telephone numbers through the **Transfer** button.

When programmed systemwide, DLC Operator Automatic Hold puts an active call on hold when the DLC operator presses another line button. When One-Touch Hold is programmed systemwide, pressing an Auto Dial button or DSS button also puts an active outside call on hold. Both prevent accidental disconnection of callers and speed call handling. The DLC operator hears an abbreviated ring as a reminder of a call on hold every time the interval programmed for the operator hold timer (10–255 seconds) expires.

A multiline telephone, assigned as a DLC through system programming, can use both operator features and telephone features available for non-operator multiline telephones to increase call-handling efficiency. The operator features that can be assigned to buttons on the console are Alarm, Night Service, Missed Reminder, and Send/Remove Message.

On a system with 29 or fewer lines, Alarm, Night Service, and Send/Remove Message are assigned by default to analog DLCs on buttons 32–34. On a system with more than 29 lines, Alarm is replaced with line 30, Night Service is replaced with line 31, and Send/Remove Message is replaced with line 32. The first 18 lines on an MLX DLC are always factory-set as personal lines.

Each MLX DLC can have one or two Direct Station Selector (DSS) adjuncts attached. A DSS cannot be attached to an analog DLC; however, the MERLIN II System Display Console provides a built-in DSS.

Inside Auto Dial buttons can also be programmed on DLCs. The operator can use these buttons to transfer a call, make an inside call, or determine whether an extension has Do Not Disturb turned on.

Considerations and Constraints

The maximum number of DLC operator positions is eight. These can be all DLCs or a mixture of DLCs and QCCs. When both DLCs and Queued Call Consoles (QCCs) are assigned, no more than four can be QCCs. In a system with both DLC and QCC positions, the *primary system operator position* must be a QCC. The primary operator position is the first (lowest) jack on the first MLX or analog extension module.

Only multiline telephones connected to the first and fifth extension jacks on a MLX or analog module can be assigned as DLCs. This includes DLC positions used for calling group supervisors and Call Management System (CMS) supervisors.

A maximum of two DLCs can be assigned for each MLX or analog extension jack module.

A DLC cannot be located off-premises.

When only DLCs (and not QCCs) are assigned, the first DLC connected to the control unit is the primary system operator position. When the system is first connected, all Dial 0 calls, invalid destination calls from remote access users, and unassigned Direct Inward Dial (DID) calls are directed to this position. Call Management System equipment is connected to analog extension jacks that are assigned as DLCs. Two DLCs on the same module must be assigned for each CMS (maximum of two) connected to the system.

Mode Differences

Hybrid/PBX Mode

If QCCs are assigned with DLCs, a QCC must be connected to the first extension jack on the first MLX module in the first carrier as the primary system operator position.

Pool buttons cannot be assigned on a DLC; however, trunks included in a pool can be assigned as personal line buttons on a DLC.

Trunks that are not assigned to buttons on the DLC can be selected by the operator only by dialing the pool dial-out code from the **SA** button or, on an MLX DLC, by selecting a DSS button for the pool dial-out code.

Trunks that are not assigned to a pool cannot be selected from a DLC unless they are assigned to buttons on the console. **Shared SA** buttons cannot be assigned to DLCs.

Key and Behind Switch Modes

Only DLCs (not QCCs) are allowed in Key and Behind Switch modes.

A DLC operator cannot select lines that are not assigned to buttons on the console.

Telephone Differences

MLX Telephones

An MLX-20L assigned as a DLC can also be used for system programming by connecting it to any of the first five extension jacks on the first MLX module and designating the extension jack for system programming. The Home screens of the MLX-20L and MLX-28D are the same as that of non-operator telephones.

The built-in DSS field on the MERLIN II System Display Console corresponds to physical extension jacks in the control unit instead of specific extension numbers in the numbering plan. Therefore, DSS buttons on the MERLIN II System Display Console cannot be used to monitor the busy status of trunk pools or calling groups.

All Dial 0 calls are directed to the QCC queue and do not ring at any DLC positions. A DLC cannot use Position Busy, which is only for QCCs. A DLC cannot be assigned as a position-busy backup for a QCC (only calling groups can provide backup for a QCC).

Analog Multiline Telephones

An analog DLC cannot be used for system programming.

Feature Interactions

Alarm

A DLC operator uses an **Alarm** button to monitor system operation. The red LED next to the **Alarm** button on the operator console goes on when the system detects a problem that requires immediate attention. An operator with an MLX DLC can use Inspect to display the number of alarms; an operator with an analog DLC cannot use Inspect. On a system with fewer than 29 lines, an **Alarm** button is factory-assigned to analog DLCs with 34 or more buttons.

On a system with more than 29 lines, **Alarm** is replaced with line 30. The **Alarm** button is not a fixed feature and can be assigned to any available button on an analog or MLX DLC.

Auto Dial

An inside Auto Dial button can be programmed on a DLC. The DLC operator can use the button to transfer a call, make an internal call, or determine whether or not the extension is available.

Calling Restrictions

Calling restrictions can be assigned to DLCs to prevent users with restricted extension from circumventing restrictions by asking system DLC operators with unrestricted consoles to connect them to an outside call.

Call Waiting and Camp-On

When a DLC operator uses Camp-On to transfer a call to a busy extension, the call is placed in the call-waiting queue and the caller hears the call-waiting tone whether or not the extension has Call Waiting activated. If the system is programmed for One-Touch Transfer with Automatic Completion, the operator uses Camp-On by pressing the **Transfer** button, dialing the extension manually, activating Camp-On, hanging up, and pressing either another line button or the **Transfer** button again. If the operator presses an Auto Dial or DSS button, the transfer is automatically completed and Camp-On cannot be used.

Coverage

A DLC can be both an Individual or Group Coverage receiver and a member of a coverage group. No more than eight Primary Cover, Secondary Cover, or Group Cover buttons can be assigned on a DLC. A DLC can also be a sender.

Directories

An operator with a MLX DLC can use all Directory features.

Disallowed Lists

Disallowed Lists can be assigned to DLCs.

Do Not Disturb

The green LED next to an Auto Dial or DSS button on a DLC turns on when a user activates Do Not Disturb. In Release 2.0 and later, the operator can inspect a DSS button whose red LED is on to see whether the extension is busy or using Do Not Disturb. If the user at the extension has turned on Do Not Disturb, the Do Not Disturb message is also posted and appears on the operator's display. (However, the message may also mean that the user has posted the message without turning on the Do Not Disturb feature.)

Extension Status

Extension Status capability can be assigned to DLCs only. In hotel configuration, only a DLC operator can change an extension to Status 0. In the Group Calling/Call Management System configuration, a calling group or CMS supervisor uses a DLC to monitor and change group member status.

Forward and Follow Me

A DLC operator can forward calls to extensions and, if the capability is assigned in system programming, to outside telephone numbers. In Key mode, because outside lines are assigned as personal line buttons on the console, the ability to forward calls received on each outside line (excluding loop-start trunks with unreliable disconnect) to an outside number must also be assigned in system programming; it can be assigned to only one telephone for each individual trunk. In addition, the DLC must be designated as the principal user. In Hybrid/PBX mode, it can be assigned to multiple telephones for each pool.

Group Calling

A DLC can be a member of a calling group and is used in the calling group supervisor position.

Hold

When programmed systemwide, DLC Operator Automatic Hold puts an active call on hold when the DLC operator presses another line button. When One-Touch Hold is programmed systemwide, pressing an Auto Dial button or DSS button also puts an active outside call on hold. This prevents accidental disconnection of callers and speeds call handling. If a call is on hold, the DLC operator hears an abbreviated ring as a reminder every time the interval programmed for the operator hold timer (10–255 seconds) expires.

Messaging

The Send/Remove Message feature is only for operators. It is used by a DLC operator to turn on the Message LED to indicate that a message is waiting. For telephones without a display, Send/Remove Message is the only way the Message LED can be turned on and off by operators. The **Send/Remove Message** button is factory-assigned to analog DLCs on button 34. The **Send/Remove Message** button is replaced with line 32 when the system has more than 29 lines. Send/Remove Message is not a fixed feature and can be assigned to any available button on an analog or MLX DLC.

Multi-Function Module

An MFM cannot be assigned as a DLC position.

Night Service

A **Night Service** button is assigned to operator consoles only and is used by a DLC operator to activate and deactivate Night Service. A **Night Service** button is factory-assigned to analog DLCs on button 31. On a system with more than 29 lines, the **Night Service** button is replaced with line 31. The **Night Service** button is not a fixed feature and can be assigned to any available button on an analog or MLX DLC.

Paging	The trunk jack programmed for Loudspeaker Paging can be assigned to a button on an analog or MLX DLC for one-touch access. An operator with an MLX DLC can also access a loudspeaker paging system by dialing the trunk number (801–880) for the trunk jack on which the loudspeaker paging system is connected.
Park	Eight park zone codes are automatically reserved for parking calls from a DLC. The factory-set extension numbers are 881–888. These numbers cannot be assigned to the DSS buttons on a MERLIN II System Display Console. To assign the park zones to a DSS connected to a MLX DLC, the extension numbers must be in the range programmed for the **Page** buttons. An operator can program the park zone codes on inside Auto Dial buttons. An inside Auto Dial button can also be programmed with a user's (or system operator's) own extension number and can be used to park calls. When the system is programmed for One-Touch Hold with Manual Completion, the user hears a busy signal and completes the transfer by hanging up or pressing the **Transfer** button.
Personal Lines	The factory setting in all modes for analog DLCs is that the first 32 lines connected to the system are automatically assigned as personal lines. On MLX DLCs, the first 18 lines connected to the system are automatically assigned as personal lines.
Pickup	A DLC can be part of a pickup group. This allows other group members to provide backup coverage for the DLC. In turn, the DLC operator uses Pickup to answer calls on trunks that are not assigned to buttons on the console.
Pools	In Hybrid/PBX mode, a **Pool** button cannot be assigned to a DLC. The DLC operator uses trunks in pools by dialing the pool dial-out code from an **SA** button, or, on an MLX DLC with a DSS, by pressing the DSS button associated with the pool dial-out code. Trunks assigned to pools can be assigned as personal lines only on a DLC.
Reminder Service	DLC operators can use Reminder Set to set or cancel reminders directed to other users. The operator can also see when a reminder was missed (the user did not answer the call) and cancel the missed reminder. The Missed Reminder feature can be used only at operator positions.
Remote Access	Invalid remote access calls can be programmed to ring on an **SA** or **ICOM** button on a DLC.
Speed Dial	System Speed Dial numbers can be programmed from the first DLC connected to the first (lowest) analog extension jack on the module in slot 01 of the control unit.
System Access/ Intercom Buttons	**Shared SA** buttons cannot be assigned to DLCs.
Transfer	A DLC operator uses Transfer to direct calls to other users. See "Transfer" for further information.

Direct Station Selector: MLX

At a Glance

Users Affected	Operators
Reports Affected	Operator Information
Mode	All
Telephones	MLX-20L, MLX-28D
System Programming	Assign extension numbers selected when DSS buttons are pressed: • SysRenumber→Single→**More**→DSS Button
Maximums	16 DSSs for each system 2 DSSs for each console (1 for each console if 3 or more consoles in one carrier) 150 extension numbers for each DSS (3 pages of extension numbers, 50 extension numbers for each page)
Factory Settings	
Page 1 button	Starts with Extension 0
Page 2 button	Starts with Extension 50
Page 3 button	Starts with Extension 100

Description

One or two Direct Station Selectors (DSSs) can be connected to an MLX-20L or MLX-28D telephone assigned as an operator position. The DSS enhances the call-handling capabilities of an operator with a Direct-Line Console (DLC) or a Queued Call Console (QCC). When connected to an MLX-20L telephone used as a system programming console, the DSS facilitates system programming and centralized telephone programming procedures. When used with the Extension Status feature or by a calling group or Call Management System (CMS) supervisor, the DSS allows the user to determine, at a glance, calling group or CMS group member status or room status.

The DSS provides the following call-handling capabilities or information:

- One-touch dialing of inside extensions
- One-touch transfer
- One-touch hold (DLC only)
- On hook, off hook, or Do Not Disturb status of extensions in the system
- Extension status indication (room or group member status)
- Calling group queue status

- Message-waiting LED status
- Operator park zones

The DSS, shown in Figure 13, has an array of 50 buttons, called *DSS buttons*, with red LEDs. A maximum of two DSSs can be connected to provide a field of 100 buttons. Ten additional fixed-feature buttons with green LEDs are at the bottom of the DSS. The first three (from left to right) on the top row are **Page** buttons, which are used to select the range of extension numbers represented by the DSS buttons. A fourth button (lower leftmost) is the **Message Status** button, which is used to turn message status operation on and off. When you are using the Message Status feature, the LED next to each DSS button indicates whether or not a message is waiting from a system operator. The remaining six buttons on the first DSS and the 10 buttons at the bottom of the second DSS are not operable (reserved for future use), except on a QCC, where the right-most button on the second to last row of the first DSS activates the Direct Voice Mail feature.

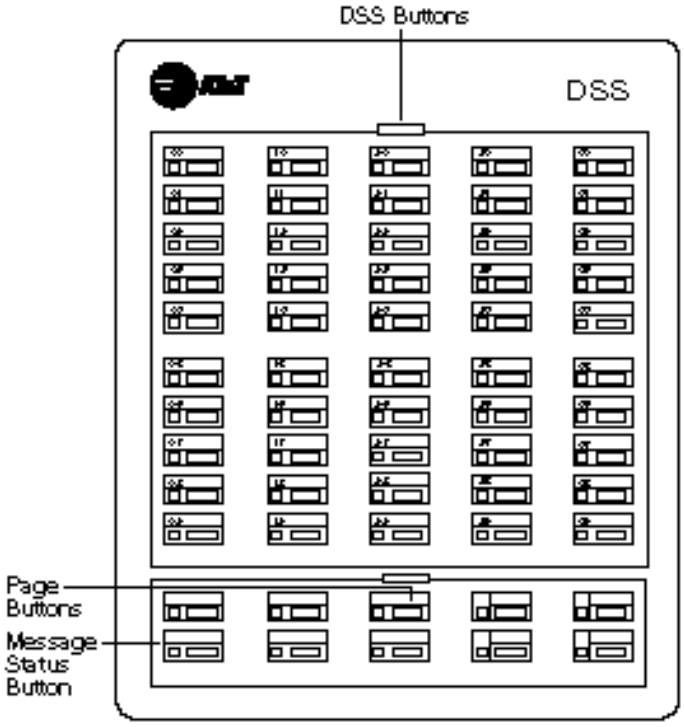


Figure 13. Direct Station Selector

A page is the range of extension numbers assigned to a DSS. A single DSS can have three pages of extension numbers, with 50 extension numbers for each page, for a total of 150 extension numbers. When two DSSs are connected, each page's capacity is increased to 100 extension numbers. The two connected DSSs can have three pages of extension numbers for a total of 300 extension numbers.

The beginning number for each page is assigned through system programming. When the operator presses a **Page** button, the page of the DSS corresponds to a range of 50 (for a single DSS) or 100 (for two connected DSSs) extension numbers. The factory settings for **Page** buttons are as follows: the **Page 1** button begins with Extension 0; the **Page 2** button begins with 50; and the **Page 3** button begins with 100.

If only one DSS is attached, each **Page** button assignment sets the console for a range of 50 extension numbers. If two DSSs are attached, each **Page** button assignment sets the console for a range of 100 extension numbers. If 2 DSSs are used, the factory setting *must* be changed so that the difference between extensions assigned to the range is at least 100. For example, assign **Page 1** button to begin with extension 100, **Page 2** button to begin with extension 200, and **Page 3** button to begin with extension 300.

The beginning extension number associated with each **Page** button is the same for all operator positions and cannot be programmed differently for individual operator positions.

Each **Page** button range can begin with any extension number that is a multiple of 50, in the range of 0–9950. However, to speed call handling, the assignments should be sequential; the range starting with the lowest extension number should be assigned to **Page 1**, the range starting with the next higher extension number should be assigned to **Page 2**, and the range starting with the highest extension number should be assigned to **Page 3**. You cannot program individual buttons on a DSS.

Each of the 50 DSS buttons corresponds to one of three extension numbers. The specific extension number is determined by the **Page** button that the operator presses. For example, if the first extension number for the **Page 1** button is programmed to be extension 100, the DSS buttons and associated LEDs on a single DSS correspond to extensions 100 to 149. The specific extensions represented by each DSS button are assigned from top to bottom, left to right, as shown in Figure 13.

Each DSS button can correspond to numbers for one of the following:

- User extension number
- Trunk number (801–880)
- Pool dial-out code (Hybrid/PBX only)

- Calling group extension number
- Paging group extension number
- Operator park zone extension number
- Access code (usually *9*) for Automatic Route Selection (ARS) or Idle Line Preference
- Remote access dial code
- Listed Directory Number (the extension for the QCC queue)

The use and definition of each DSS button's LED depend on both the extension represented by the button and whether the operator position is used for normal call handling, calling group or CMS supervisory operation, Extension Status in Hotel configuration, or message status operation. See "Extension Status" and "Group Calling" for additional information.

Normal Call-Handling Operation

Normal call-handling operation is active when the position is not in Message Status or Extension Status operation. The DSS buttons are used for one-touch dialing of extension numbers. When a button for a telephone extension, calling group extension, or paging group extension is pressed, the extension number is dialed automatically. In Hybrid/PBX mode, the operator can either select a specific pool or dial the Automatic Route Selection (ARS) code by pressing the DSS button for a pool dial-out code or ARS code. If the operator presses a DSS button for any of the extensions or codes mentioned above before lifting the handset, the speaker is turned on automatically and an **SA** or **ICOM** button is selected.

An operator can also use a DSS button to activate a feature that requires an extension number: Barge-In, Conference, Send/Remove Message, Forward (including Remote Call Forward), Follow Me, Leave Message, Reminder service, and Transfer. To do this, the operator presses the **Feature** button, dials the feature code, and then presses the DSS button for the extension number.

The result of pressing a DSS button while on a call depends on the type of operator position, the type of button pressed, and whether the system is programmed for One-Touch Hold or One-Touch Transfer, as described in Table 8 and Table 9. For a QCC operator position, see Table 10.

Table 8. Results of Pressing DSS Button While Active on a Call: DLC Position with One-Touch Hold

Extension Type	Result
Individual, calling group, paging group	An outside caller is put on hold, an **SA** or **ICOM** button is selected automatically, and the extension number is dialed automatically. Transfer is not completed automatically. An inside call is not put on hold, and Transfer is not activated automatically. If the DSS button is for a user, a beep is sent to that user. If the DSS button is for a calling group or paging group, pressing the button has no effect.
Pool dial-out code, ARS code	The caller is put on hold, Transfer is initiated, the pool dial-out code or ARS code is automatically dialed, and the operator can then dial the outside telephone number. Transfer completion is always manual—the operator must press another button or hang up to complete the transfer.
Park zone	The Park feature is activated, and the call is put on hold on the selected park zone to allow Pickup from any extension in the system.
Line/trunk number, Listed Directory Number, unassigned extension numbers, dial 0 calls	Ignored, no effect

Table 9. Results of Pressing DSS Button While Active on a Call: DLC Position with One-Touch Transfer

Extension Type	Result
Individual or calling group	The caller is put on hold, Transfer is initiated, an **SA** or **ICOM** button is selected automatically, and the extension number is dialed automatically. If manual completion is programmed, the operator must press another button or hang up to complete the transfer. If automatic completion is programmed, the transfer is completed automatically.
Pool dial-out code or ARS code	The caller is put on hold, Transfer is initiated, the pool dial-out code is automatically dialed, and the operator can then dial the outside telephone number. Transfer completion is always manual; the operator must press another button or hang up to complete the transfer, regardless of whether the system is programmed for manual or automatic completion.
Paging group	The caller is put on hold, an **SA** or **ICOM** button is selected automatically, and the paging group extension number is dialed automatically. Transfer is not completed automatically, regardless of whether the system is programmed for One-Touch Hold or One-Touch Transfer, because calls cannot be transferred to a paging group.
Park zone	The Park feature is activated and the call is put on hold in the selected park zone to allow Pickup from any extension in the system.
Line/trunk number, Listed Directory Number, unassigned extension numbers, Dial 0 calls	Ignored, no effect

Table 10. Results of Pressing DSS Button While Active on a Call: QCC Position

Extension Type	Result
User or calling group	The caller is put on hold, the transfer is initiated, and the extension is dialed automatically. If extended call completion is programmed with the Manual option, the operator must press the **Release** button or hang up to complete the transfer. If extended call completion is programmed with the Automatic option, the transfer is completed automatically.
Pool dial-out code or ARS code	The caller is put on hold, the transfer is initiated, and the pool dial-out or ARS code is dialed automatically. The operator can then dial the telephone number. Transfer completion is always manual; the operator must press the **Release** button or hang up to complete the transfer, regardless of whether extended call completion is programmed as manual or automatic.
Paging group	The caller is put on hold, a **Call** button is automatically selected, and the paging group extension number is automatically dialed. The call transfer process is not automatically initiated because calls cannot be transferred to a paging group.
Park zone	The Park feature is activated, and the call is put on hold in the selected park zone to allow Pickup from any extension in the system.
Line/trunk number, Listed Directory Number, unassigned extension numbers, “Dial 0” calls	Ignored, no effect

The red LEDs for each DSS button are used to determine whether a user is on a call (off hook), has no call active (on hook), or is using Do Not Disturb. The LED indication (on) is the same for off-hook and Do Not Disturb; however, for Release 2.0 and later, the operator can inspect the DSS button to determine whether the user is on a call or has activated Do Not Disturb. For a calling group extension on a DSS button, the red LED indicates the status of the queue. For a pool dial-out code on a DSS button, the red LED indicates trunk availability.

Table 11 shows the meanings of the red LEDs for DSS buttons while the operator position is in normal operation and message status is not active.

Table 11. LED Meanings for Normal Call-Handling Operation

LED Status	Extension Type	Meaning
Off	Individual	The person is not on the telephone and is not using Do Not Disturb.
	Line/Trunk number	The line/trunk is not in use.
	Pool dial-out code	At least one trunk is available for making an outside call.
	Calling group	The calling group queue is below the programmed threshold.
	Paging group	The group is available for making a group announcement.
	Operator Park Zone	A call is not parked on this park zone code.
	ARS, Remote access, Listed Directory Number	Not applicable, red LED is always off.
On	Individual	The person is on the telephone or has activated the Do Not Disturb feature.
	Line/trunk number	The line/trunk is in use.
	Pool dial-out code	No trunks are available in this pool for outside calls.
	Calling group	The calling group queue is at or above the allowable threshold.
	Paging group	An announcement is being made to a paging group.
	Operator Park Zone	A call is parked in this park zone.
	ARS, Remote Access, Listed Directory Number	Not applicable, red LED is always off.
Fast flashing	Individual	The person is calling the system operator position.
Slow flashing	Individual	A call transferred by the system operator to the extension is returning.
	Line/trunk number	A call is ringing on this line/trunk.

NOTE:
Fast flashing is not applicable for extension types other than individual. Slow flashing is not applicable for extension types other than individual and line/trunk number.

Calling Group or CMS Supervisory Operation

A supervisor with a DLC switches from normal call handling to supervisor operation by pressing the **Feature** button, dialing *32*, and pressing the **Hold** button. The effect of pressing a DSS button while in supervisor operation is the same as that described for normal call-handling operation. See “Group Calling” for additional information.

When the supervisory position is not in Message Status operation (the green LED next to the **Message Status** button is off), the red LED next to each DSS button for a calling group member’s extension is used to monitor the availability of members to take calls directed to the calling group. The meaning of the red LED associated with each group member is shown in Table 12.

Table 12. LED Meanings for Supervisor Operation Without Message Status Active

LED Status	Extension Status	Meaning
Off □	0	The extension is signed out from the group, and the member is unavailable to take calls.
On ■	2	The extension is signed into the group, and calls can be sent to the member.
Slow Flashing	1	Used for CMS only: the extension is in the after-call work state, and the group member is not available to take calls.

NOTE:
The LEDs next to DSS buttons for all other types of extensions are always off and have no meaning.

Extension Status Operation (Hotel Configuration)

When Extension Status is in Hotel configuration, the Extension Status feature is assigned to and removed from individual DLCs through system programming (see “Extension Status” for details). Hotel Extension Status operation is always active unless the operator presses the **Message Status** button to use the Auto Dial or DSS buttons to see message-waiting status for each extension. Pressing a DSS button while in Hotel Extension Status operation has the same effect as for normal call-handling operations.

When not in Message Status operation, the red LED next to each DSS button for a room extension is used to monitor room availability, and the DSS button is used to restrict the extensions when the rooms are not occupied.

The meaning of the red LED next to the DSS button for each room is shown in Table 13.

Table 13. LED Meanings for Hotel Extension Status Operation Without Message Status Active

LED Status	Extension Status	Meaning
Off □	0	The room is occupied, and the extension is in regular call-handling state.
On ■	2	The room is vacant and available for occupancy, and outside calls cannot be made from the extension.
Slow flashing	1	The room is vacant and ready for cleaning. Outside calls cannot be made from the extension.

NOTE:
The LED next to the DSS button for all other types of extensions is always off and has no meaning.

Message Status Operation

Message Status operation activates when the operator presses the **Message Status** button (the lower-left feature button on the first DSS) while in normal call-handling, calling group, CMS supervisory, or Extension Status operation. The green LED next to the **Message Status** button is on when Message Status operation is active.

While the position is in Message Status operation, the red LEDs next to the DSS buttons for user extensions indicate whether or not the Message LED was turned on by a system operator and do not light when a Message LED was turned on by another source, such as a fax machine or another user. An LED associated with a calling group extension or a pool dial-out code is always off while the position is in Message Status operation.

If an operator wants to turn on the message-waiting LED to indicate that a message is waiting, the operator first checks the LED next to the recipient's DSS button to determine whether or not the recipient's message-waiting LED is on; the operator's lights do not light when a message-waiting LED was turned on by another source, such as a fax machine or another user. To leave a message-waiting indication when the LED is off, the operator presses the programmed Send/Remove Message button, followed by the DSS button or Auto Dial button for the person for whom the message is intended. The operator presses the **Message Status** button to return to normal call handling.

By pressing the **Feature** button and selecting Leave Msg from the display, MLX DLC operators can leave a message at another extension. This does not however affect the Message Status operation, because Message Status only shows messages sent with the Send/Remove Message button. See "Messaging" for more information about sending and receiving messages.

For calling group or CMS supervisory operation or for Hotel Extension Status in Message Status operation, the red LED next to a DSS button for a user extension indicates whether or not a message has been sent by any of the operator positions. On a button for a calling group extension number, the red LED indicates the status of the queue. For a DSS button storing a pool dial-out code, the red LED indicates trunk availability. The meanings of the red LEDs next to the DSS buttons while the operator position is in Message Status operation are shown in Tables 14 and 15.

Table 14. LED Meanings for Hotel Extension Status Operation With Message Status Active

LED Status	Extension Type	Meaning
Off □	Individual	A system operator has not turned on the Message LED.
On ■	Individual	A system operator turned on the Message LED to indicate a waiting message.
Off □	All other types of extensions	No meaning

Table 15. LED Meanings for Supervisor or Hotel Extension Status Operation with Message Status Active

LED Status	Extension Type	Meaning
Off □	Individual	The person is not on the telephone and is not using Do Not Disturb.
	Line/trunk number	The line/trunk is not in use.
	Pool dial-out code	At least one trunk is available for making an outside call.
	Calling group	The calling group queue is below the programmed threshold.
	Paging group	The group is available for making a group announcement.
	Operator park zone	A call is not parked on this park zone code.
	ARS, Remote Access, Listed Directory Number	Not applicable; the red LED is always off.
On ■	Individual	The person is on the telephone or is using Do Not Disturb.
	Line/trunk number	The line/trunk is in use.
	Pool dial-out code	No trunks are available on this pool for outside calls.
	Calling group	The calling group queue is at or above the allowable threshold.
	Paging group	An announcement is being made to the paging group.
	Operator park zone	A call is parked on this park zone code.
	ARS, Remote Access, Listed Directory Number	Not applicable; the red LED is always off.

Considerations and Constraints

One or two DSSs can be connected to an MLX-20L or MLX- 28D telephone. DSSs cannot be connected to an MLX-10™, MLX-10DP™, MLX-10D™, analog multiline, or single-line telephone.

Only a DLC or QCC can have a DSS.

Operator park zone codes must be included in the extension number range specified for one of the **Page** buttons.

If an extension is busy because features are being assigned through system or centralized telephone programming, the red LED next to the associated DSS button is on to indicate the busy condition.

For a QCC only, while active on a call, pressing the DSS button for a trunk number, Listed Directory Number, or unassigned extension number is ignored.

In Release 2.1 and later, when a call is forwarded to a multiline telephone that has a DSS button for the forwarding telephone, the light next to the DSS button does not flash.

DSSs that are out of the building require local power. Any console with two DSSs require local power.

Mode Differences

Behind Switch Mode

In Behind Switch Mode, DSS buttons for operator park zones are not operable.

Feature Interactions

Automatic Route Selection	The LED next to a DSS button for the ARS code is always off.
Barge-In	After making a call to an extension by using a DSS button on a DLC, activate Barge-In by pressing a programmed Barge-In button. QCC operators select the feature from the display.
Camp-On	When Camp-On is used to complete a call transfer and the call returns, the LED of the DSS button associated with the extension transfer destination stays off and does not flash, as it does for a transfer return.
Direct Voice Mail	On a Queued Call Console, the Direct Voice Mail button is a fixed button (the right-most button in the second row from the bottom on the DSS) on a DSS connected to a QCC.

Display

When the operator presses a DSS button representing an extension number, the extension label, if any, and the extension number are shown on the display while it is dialed. When the operator presses the **Page** button after pressing the **Inspct** button, the display shows Page, the page number selected, and the first extension number in the range. When the operator presses the **Message Status** button after pressing the **Inspct** button, the display shows Message Status to indicate that the DSS is in message status operation.

When the operator presses a DSS button representing an extension number after pressing the Inspct button, the display shows the extension label, extension number, number of messages, and for Release 2.0 and later, any posted messages.

Do Not Disturb

In Release 2.0 and later, an operator can check the status of an extension whose red LED is on by using the **Inspct** button to determine whether the extension is busy or using Do Not Disturb. If the user at the extension is using Do Not Disturb, the Do Not Disturb message is also posted and appears on the operator's display. (However, the message may also mean that the user has posted the message without turning on the Do Not Disturb feature.)

Extension Status

A calling group, CMS supervisor, or an operator at a DLC with Extension Status assigned can change the status of a group member or room by pressing a programmed Available or Unavailable extension status button and then pressing the DSS button for the group member or room.

Forward and Follow Me

Activate Forwarding by pressing a programmed button or using a feature code and then pressing a DSS button for the extension where calls should go. Activate Follow Me by using the feature code and then pressing a DSS button for the sender's extension number.

Group Calling

The DSS button's LED for a calling group extension number indicates the status of calls in the calling group queue. The LED is on when calls are at or above the programmed threshold and off when the number is below the threshold.

Hold

When One-Touch Hold is programmed, only outside callers are automatically put on hold when a DSS button for a user, calling group, or paging group is pressed while another call is active. For an inside caller, pressing a DSS button for a user sends a manual signal to the user's extension; pressing a DSS button for a calling group or paging group has no effect.

Inspect

Inspect can be used to determine the corresponding extension for each DSS button. To use Inspect, press the **Page** button for the range of extensions, press the **Inspct** button, and press each DSS button to see what it represents; the label and number of messages in the mailbox are also shown. Information is displayed on only one extension at a time; to see information for another range of extensions, press the **Home** button and repeat the process. In Release 2.0 and later, if a message is posted at an extension associated with a DSS button, the message is shown on Line 2 of the display when the operator inspects the DSS button.

Last Number Dial

An extension dialed by pressing a DSS button is not stored for Last Number Dial.

Messaging

When an operator presses the **Message Status** button on a DSS, the LEDs on the DSS reflect only messages left by an operator using the Send/Remove Message or Leave Message features and not messages left by any co-worker (non-operator) using the Leave Message feature.

In Release 2.0 and later, an operator can view a posted message for an extension by pressing the **Inspct** button and then the DSS button.

Paging

The DSS button for a trunk programmed as a loudspeaker paging jack only indicates whether or not the paging system is in use. The button cannot be used to gain access to the loudspeaker paging system. It can be used only to dial an extension for a paging group. When a DSS button for a paging group is pressed, the transfer process is not initiated, even if One-Touch Transfer (DLC only) or Automatic Extended Call Completion (QCC only) is programmed for the system. Calls cannot be transferred to a paging group extension number.

Park

Park zone codes cannot be assigned to the DSS buttons on a MERLIN II System Display Console. For the park zones to be assigned to a DSS connected to an MLX telephone, the extension numbers must be in the range programmed for the **Page** buttons. Only DSS buttons corresponding to an operator park zone can be used to park calls; calls cannot be parked on a DSS button corresponding to any other type of extension.

When an operator parks a call by using an associated DSS button and the call returns, the red LED associated with the park zone where the call was parked stays off and does not flash, as it does for a transfer return.

To park a call at a park zone, the operator with a DSS presses the DSS button for the park zone while the caller is on the line. If an operator tries to park a call by pressing the **Transfer** button followed by the DSS button for the park zone, the call is put on hold for transfer and is not parked. This error can transfer a call to an outside number.

Pickup

DSS buttons associated with trunk numbers (801–880) cannot be used for answering calls on specific trunks through individual Pickup. These DSS buttons are used strictly for busy or not busy status of each trunk.

Saved Number Dial

An extension dialed by pressing a DSS button is not stored for Saved Number Dial.

Signaling

If a user presses a Signal button programmed with the operator's extension while making a call to the operator, the LED next to the DSS button associated with the user changes from flashing to on while the Signal button is held down.

System Numbering

The beginning extension number for each page is assigned through system programming. The factory settings are as follows: **Page 1** button begins with Extension 0, **Page 2** button begins with Extension 50, and **Page 3** button begins with Extension 100.

Transfer

The Transfer option of One-Touch Hold applies only to outside calls on a DLC and not to calls on a QCC. When One-Touch Hold is programmed and an operator presses a DSS button with an inside caller on the line (or, in Hybrid/PBX mode, with an outside caller on an **SA** button), the call is not put on hold and a signal is sent to the extension corresponding to the DSS button pressed. When One-Touch Transfer (with either manual or automatic completion) is programmed and the operator presses the DSS button while the caller is on the line and no **SA** or **ICOM** button is available to transfer the call, the call does not go on hold. If the operator hangs up, the caller is disconnected.

Transfer is always initiated and Transfer completion is manual when an operator presses the DSS button corresponding to a trunk number, pool dial-out code (Hybrid/PBX only), or ARS access code (Hybrid/PBX only), even if One-Touch Hold, One-Touch Transfer with Automatic Completion (DLC only), or Automatic Extended Call Completion (QCC only) is programmed for the system.

When an operator transfers an Individual or Group Coverage call and the call returns, the red LED next to the DSS button for the sender does not flash as it does for a transfer return for calls received on other types of line buttons.

When an operator transfers a call to a calling group and the call returns, the red LED associated with the calling group does not flash as it does for a transfer return from a user's extension.

Direct Voice Mail

At a Glance

Users Affected	Telephone users
Reports Affected	Extension Directory, operators
Mode	Hybrid/PBX, Key
Telephones	All
MLX Display Label	Direct VM [DrcVM]
Programming Code	**56*
Feature Code	*56*

Description

Direct Voice Mail allows you to place or transfer a call directly to another person's voice mail without ringing that person's telephone.

You can either transfer an active call to an extension's voice mail or place an intercom call directly to the extension's voice mail. Activating Direct Voice Mail while on hook selects the next available **SA** or **ICOM** button. At least one **SA** or **ICOM** button must be available. To activate Direct Voice Mail, do one of the following:

- Press the programmed Direct Voice Mail button and press a DSS button or Auto Dial button, or select a Directory entry for the extension.
- Press the programmed Direct Voice Mail button and dial the extension number.
- Press the **Feature** button and select Direct VM [DrcVM] and dial the extension number.
- For a single-line telephone only:
  - If active on a call, press the **Flash** or **Recall** button (or if your telephone does not have positive disconnect, press and release the switchhook). Then dial *#56* followed by the extension number.
  - If you hear dial tone, dial *#56* followed by the extension number.

On display telephones, the display shows the message Send Voice Mail to: before the extension is selected or dialed.

The green LED associated with the Direct Voice Mail button lights when the feature is activated. The LED turns off when the feature is deactivated (by pressing the Direct Voice Mail button again) or when the call or transferred call has gone to voice mail.

If you have a programmed Direct Voice Mail button you can also activate Direct Voice Mail while transferring or making a call by pressing the Direct Voice Mail button. The call or transferred call goes to the extension's voice mail. In this case, the green LED does not turn on .

If you activate Direct Voice Mail to transfer a call and then press the Direct Voice Mail button to deselect the feature, the original call is still on hold for transfer. You can either enter an extension number and complete the transfer to another extension (by hanging up or pressing the **Transfer** button) or press the line button to pick up the call.

Considerations and Constraints

You cannot place a call to your own voice mail by using Direct Voice Mail.

If you are on an MLX display telephone and you use the System or Extension Directory to select the extension to receive voice mail, the display does not show the message Send Voice Mail to:.

Mode Differences

Behind Switch Mode

Although programming a Direct Voice Mail button is allowed, the button serves no function in Behind Switch mode, because no on-premises voice mail systems are supported. Direct Voice Mail does not work with a voice mail system on the host PBX or with Centrex voice mail.

Telephone Differences

Queued Call Consoles

The Direct Voice Mail button is a fixed button (the right-most button in the second row from the bottom on the DSS) on a DSS connected to a Queued Call Console.

QCC operators may also select the feature from the display.

Single-Line Telephones

If you already hear dial tone and want to call directly to an extension's voice mail, dial *#56* followed by the extension number. Single-line telephones must press a **Recall** or **Flash** button (or if the telephone does not have positive disconnect, press and release the switchhook) and dial *#56* to transfer a call to an extension's voice mail.

Feature Interactions

Coverage Direct Voice Mail overrides Coverage-inhibiting features such as Coverage Off, Coverage VMS Off, and Coverage Inside Off.

Transfer A user with a Direct Voice Mail button can activate Direct Voice Mail after starting to transfer a call. While a transfer is being made, press the Direct Voice Mail button to transfer the call to the extension's voice mail. Complete the transfer as usual by pressing the **Transfer** button or hanging up.

Directories

At a Glance

Users Affected	
System Directory	Telephone users
Extension Directory	MLX display telephone users
Personal Directory	MLX-20L telephone users
Reports Affected	Direct Group Calling Information Extension Directory Label Information System Directory System Information
Mode	All
Telephones	
System Directory	All
Extension Directory	MLX display telephones
Personal Directory	MLX-20L telephones
MLX Display Label	
System Directory	Directory, System Dir [Dir, SysDir]
Extension Directory	Directory, Ext Dir [Dir, ExtDir]
Personal Directory	Directory, Per Dir
System Programming	Create, change, or delete System Directory listings: • **More**→Labeling→Directory→System Create, change, or delete Extension Directory listings: • **More**→Labeling→Directory→Extension Create, change, or delete Personal Directory listings: • **More**→Labeling→Directory→Personal Assign outside line/trunk labels: • **More**→Labeling→LinesTrunks Assign calling group labels: • **More**→Labeling→Grp Calling
Maximums	
System Directory	130 listings 3 digits for each Speed Dial field 11 characters for each name field 40 digits for each number field
Extension Directory	1 listing for every extension in the system 7 characters for each name field 4 digits for each extension field
Personal Directory	50 listings for each Personal Directory 48 MLX-20L users 11 characters for each name field 28 digits for each number field

Description

The Directory feature is a built-in, interactive telephone book that stores listings of names and telephone or extension numbers. People with MLX display telephones can dial numbers by selecting listings from the display.

Directory listings are divided into three types:

- **System Directory.** Names and numbers of outside contacts (such as clients and suppliers). These listings are created in system programming and are assigned System Speed Dial codes to allow users with telephones other than MLX display telephones to dial these listings in the directory. See “Speed Dial” for details.
- **Extension Directory** (MLX display telephones only). System extensions and the names of the users assigned to them. This directory can only be accessed with a name. Names are added to the directory by using the Labeling feature of system programming.
- **Personal Directory** (MLX-20L telephones only). Individual users’ listings of names and numbers (outside telephone numbers and extensions). This directory is accessible only at the extension where it was created (or through system programming).

System Directory

System Directory listings are established and changed only through system programming using the Labeling feature. Each listing consists of a 3-digit Speed Dial number, an 11-character name field, and a 40-digit number field. Up to 130 listings are stored. Any listing can be specifically designated to suppress the display of a confidential number. When dialing a number designated or *tagged* in this way, users see only the System Speed Dial code associated with the listing. A tagged System Speed Dial code can be identified in the System Directory Report by an asterisk preceding the telephone number.

When a tagged System Speed Dial code is used to dial a number, any calling restrictions associated with that number (such as outward or toll restrictions) are overridden. Tagged System Speed Dial does not override Automatic Route Selection restrictions.

Special characters may be needed when programming System Speed Dial codes. Each of these characters counts as one of the 40 digits allowed in the telephone number. For information on special characters and their meanings, see Appendix G, “Programming Special Characters.”

A user can access the System Directory by lifting the handset or pressing the **Speaker** button, pressing the **Feature** button, and dialing a 3-digit System Speed Dial code. If the System Speed Dial code is associated with a telephone number that begins with a dial-out code (usually *9*), the user must be using an **SA** or **ICOM** button. If the associated telephone number does not begin with a dial-out code, the user must be using an outside line button.

Extension Directory

Extension Directory listings are established and changed only through system programming by using the Labeling feature. Each listing consists of a 7-character name field and a number field of up to four digits. There can be one listing for every extension on the system. All of the extensions in the system can be stored.

While the extension is being dialed, the display of the extension number cannot be suppressed.

Personal Directory

Personal Directory listings can be established and changed through system programming, using the Labeling feature, or by an MLX-20L user at the extension. Each listing consists of an 11-character name field and a 28-digit number field. Up to 50 listings can be included in each Personal Directory; up to 48 users of MLX-20L telephones can have Personal Directories.

For purposes of privacy or security, any listing can be *tagged* to suppress the display of the telephone number during dialing. The tag, however, does not prevent the telephone number from being displayed when an MLX-20L telephone user selects Show Number to display the telephone number associated with an individual listing.

Special characters may be needed when programming Personal Directory entries. Each of these characters counts as one of the 28 digits allowed. For information on special characters and their meanings, see Appendix G, “Programming Special Characters.”

A listing cannot be used if the first character of the listing is a punctuation character such as a hyphen.

Any MLX-20L telephone user, except a Queued Call Console (QCC) operator, can display up to 16 Personal Directory listings on the Home screen, on two screens. Frequently used features and not Personal Directory listings are displayed on a QCC operator’s Home screen. A QCC operator can access the Personal Directory by selecting Directory on the Home screen.

Extension numbers can be programmed in a Personal Directory. However, in Key and Behind Switch modes, press an **ICOM** button before selecting a listing to dial a number.

Considerations and Constraints

While a Personal Directory on an MLX-20L telephone is being programmed, the user cannot receive calls (the caller hears a busy signal).

Personal Speed Dial is not related to the Personal Directory. See “Speed Dial” for additional information on Personal Speed Dial.

In Release 2.1 and later, when an MLX telephone other than an MLX-20L is plugged into a port that has a Personal Directory resource allocated, and the Personal Directory does not contain any entries, the Personal Directory resource is released and can be programmed to be used by another user. (Up to 48 Personal Directories can exist on a system.)

Telephone Differences

Direct-Line Consoles

An operator with a digital Direct-Line Console (DLC) can use all Directory features.

Queued Call Consoles

To dial extensions or telephone numbers with the touch of a button, Directory features must be used. QCC operators cannot use Auto Dial.

A QCC operator can access the Personal Directory by selecting Directory on the Home screen. A QCC operator can only place 12 entries in the Personal Directory (six on the first page and six more on the second page of entries).

Directory features can be used for transferring calls. If an operator releases the call immediately after pressing the button for the listing, the caller hears the dial tone plus the touch tones for the dialed digits. If the operator waits until after dialing begins, the caller does not hear the dial tone and dialed digits.

Other Multiline Telephones

Analog Multiline or MLX-10 Telephones

A user with an analog multiline telephone or an MLX-10 telephone cannot use the Extension Directory feature or the Personal Directory feature but can dial the listings in the System Directory by dialing the System Speed Dial codes assigned to them.

MLX-20L Telephones

While a Personal Directory on an MLX-20L telephone is being programmed, the user cannot receive calls (the caller hears a busy signal) but can still hear the telephone ringing. In Release 1.0, ringing is normal. In Release 1.1 and later, ringing occurs at 20-second intervals.

To use the System or Extension Directory feature on an MLX-20L telephone, press the **Menu** button, then select Directory from the display, then select either type of directory from the display. Next, select a range of letters from which to begin the search. The display shows the first seven listings that begin with the first letter in the range.

To scroll through the listings, select Next Page (the next seven entries are shown) or Prev Page (the previous seven entries are shown) from the display. To display the telephone number associated with an individual listing, select Show Number from the display (Show Number is highlighted) and press the button next to the listing. To exit the Show Number function, select Show Number again (the highlight is removed from Show Number). To dial a number for a listing shown on the display, press the button next to the listing.

To use the Personal Directory on an MLX-20L telephone, press the **Home** button; a QCC operator selects Directory from the Home screen. If listings have been programmed to appear on the Home screen, the first eight listings (six listings for a QCC operator) are shown. To see the second eight listings (six listings for a QCC operator), select Next Page. To select listings by using a range of letters, select Next Page from the Home display two times. Use the same procedure to search for listings as is used in System and Extension Directories. To dial a number for a listing shown on the display, press the button next to the listing.

NOTE:
The telephone number for a tagged Personal Directory listing is displayed when you choose Show Number. A tagged Personal Directory listing is a listing that has been specifically designated during programming to suppress the telephone number from the display when the number is dialed from the display.

MLX-28D, MLX-10DP, and MLX-10D Telephones

To use either the System or Extension Directory, press the **Menu** button, select Directory from the display, then select either type of directory from the display. To begin the search, spell the name of the directory entry by using the dialpad. For example, to spell the name Wayne, dial *92963* and select Enter from the display; the name with the closest match is displayed.

Scroll through the listings by selecting Prev (the previous listing is shown) or Next (the next listing is shown). To start a new search, select New. To dial the number for the name currently shown on the display, select Dial, and the number is automatically dialed. If the display of the telephone number has not been suppressed, > appears on the far right of the display. To see the number dialed, press the **More** button.

Single-Line Telephones

Single-line telephone users cannot use the Extension Directory feature or the Personal Directory feature but can dial the listings in the System Directory by dialing the System Speed Dial codes assigned to the listings.

Feature Interaction

Account Code Entry and Forced Account Code Entry	An MLX telephone user can program an account code on an outside Auto Dial button or (on MLX-20L telephones) as a listing in a Personal Directory. Enter from the display the account code by activating Account Code Entry and selecting the directory entry containing the actual account code.
Allowed Lists	A user with an outward-restricted extension cannot dial an outside number by using a Personal Directory or System Directory listing (excluding a tagged System Directory listing), unless the number is on an Allowed List assigned to the extension. A user with a toll-restricted extension cannot dial a toll number by using a Personal Directory or System Directory listing (excluding a tagged System Directory listing), unless the number is on an Allowed List assigned to the extension.
Automatic Route Selection	In Hybrid/PBX mode, System Directory and Personal Directory numbers can include the Automatic Route Selection (ARS) dial-out code.
Calling Restrictions	Using a tagged System Directory listing to dial a number overrides any calling restrictions (such as toll or outward restrictions) assigned to the extension.
Conference	The Extension, Personal, and System Directory features set up conference calls. Press the **Conf** button to enter the Flash special character in a Directory listing telephone number.

Disallowed Lists	A user cannot dial an outside number by using a Personal Directory or System Directory listing when the number is in a Disallowed List assigned to the extension, unless the number is dialed by using a tagged System Directory listing.
Display	MLX display telephone users can use the Extension and System Directories. Search for stored listings on the display and automatically dial the listing by pressing the corresponding button. MLX-20L telephone users also can create a Personal Directory. When dialing a number using a Directory feature, the digits dialed are shown on Line 1 of the display.
Drop	Press the **Drop** button to enter the Stop special character in a Directory listing telephone number.
Hold	Press the **Hold** button to enter the Pause special character in a directory listing telephone number.
Labeling	Labeling is used to enter names of people, groups, and locations associated with the extensions in the system and stored as listings in the Extension Directory. You can also enter labels (such as the name of a person or a business) associated with System Speed Dial numbers by using the Labeling feature, and they are stored as listings in the System Directory.
Last Number Dial	Last Number Dial does not store a number dialed by using a Personal, Extension, or System Directory.
Messaging	When the Extension Directory is used to call a co-worker with a posted message, the posted message is not displayed on the caller's telephone.
Personal Lines	A System or Personal Directory can be used to dial numbers on a personal line. An Extension Directory is used only for inside calls and cannot be used to dial calls on a personal line.
Pools	When a pool dial-out code is included in the telephone number for a Personal or System Directory listing, a Pause character may be needed immediately following the pool dial-out code, depending on the local telephone company. Pause characters are entered by pressing the **Hold** button.
Recall	Press the **Conf** button to enter the Flash special character in a Directory listing telephone number.
Saved Number Dial	Saved Number Dial does not store numbers dialed by using a Personal, Extension, or System Directory listing.

Display

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	MLX display telephones, MERLIN II System Display Console, BIS-22D, BIS-34D
System Programming	See “Labeling.”

Description

The following display telephones can be connected to the system:

- MLX display telephones:
  - MLX-20L (7-line by 24-character display)
  - MLX-28D (2-line by 24-character display)
  - MLX-10D (2-line by 24-character display)
- Analog multiline display telephones:
  - MERLIN II System Display Console (2-line by 40-character display)
  - BIS-34D (1-line by 16-character display)
  - BIS-22D (1-line by 16-character display)

The telephone display provides prompts, messages, and menu selections that help users handle calls, use features, and program their extensions. In addition, the display of the MLX-20L telephone supports system programming when the telephone is used as the system programming console. (For information on system programming displays, see “Programming.”)

Beginning with Release 3.0, when a number is displayed for an incoming call, it appears with hyphens inserted between the digits. Examples: 555-1234 for 7-digit numbers and 908-555-1234 for 10-digit numbers. Any other number of digits appears without hyphens.

The level of support the display provides depends on whether the telephone is an MLX telephone or an analog multiline telephone:

- MLX display telephones provide menu-driven telephone programming and allow people to select and use features from the display. In Release 1.1 and later, MLX telephones can display information in English, French, or Spanish. (The system can be programmed to provide all displays to MLX telephones in one of these languages;

each MLX telephone can be programmed to operate in English, French, or Spanish, independently of the system language.)

- The displays on analog multiline telephones provide call-handling information; they do not support menu-driven telephone programming, selection of features from the display, or operation in languages other than English.

Table 16 shows examples of call-handling displays.

Table 16. Call-Handling Displays

Receiving Calls	Sample Displays	
	Analog Multiline	**MLX**
When a user makes a call, the digits appear on the display as they are dialed with the dialpad or any of the quick-dialing features (Auto Dial, Speed Dial, Directory, Last Number Dial, or Saved Number Dial).	1234	1234
If the caller dials an extension and labels are programmed, the name is displayed after all the digits are dialed. (MLX only)*	12	YVONNE Ext 12
If a caller dials *0* to reach a system operator or dials the Listed Directory Number (the QCC queue extension), the display identifies the number as the operator. When the call is sent immediately to a system operator without waiting in the QCC queue, the extension or label for the operator receiving the call is shown instead.	0	OPERATR 0
When a caller goes off-hook on a personal line or **Pool** button, the display shows the label (if programmed) for the line or pool that was selected (MLX only). On MLX telephones, this information remains on the display. On analog multiline telephones, the line label is erased when the caller begins dialing. If the caller dials more than 15 digits on an MLX telephone or more than 16 digits on an analog multiline telephone, the remaining digits are shown on Line 2.	5551234	FX-NYC 5551234

* If a user calls an extension and the person at that extension transfers the call, the first user's display is not updated with the number for the transfer destination. Similarly, if a user calls an extension and the call is answered at a **Shared SA** button, the caller's display shows the principal owner's extension, not the answering extension.

Table 16 - *continued*

For inside calls, the display shows the name of the caller (if labels have been programmed) and/or the extension number. On analog multiline telephones, the display also shows whether the call is a voice call (V) or a ringing call (R).	MICHEL - Ext R	MICHEL - x1234
For outside calls, the display shows the line that the call came in on.	FX-NYC	FX-NYX
If station identification (SID) and/or automatic number identification (ANI) are available, the number of the caller is shown on Line 1 on MLX display telephones. This information is also provided for transferred, forwarded, and calling group calls.	No display	FX-NYX 555-1234
For Caller ID, the number of the caller is shown on Line 1 on MLX display telephones and the info is provided for transferred, forwarded, and calling group calls.	No display	OUTSIDE 555-1234
For certain types of incoming calls, the display also shows the type:		
Transfer	Transfer Receive	Transfr
Return from Transfer	Trf Ret -	Return
Coverage	Cvr	Cover
Forwarded	Forward	Forward
Returning Callback	Callbck	Callbck
Group Calling	No display	GrpCl

* For calls received on tie trunks, the display shows information only if the receiver preselects the button.

MLX Display Telephones

Four types of screens appear on both the 7-line and the 2-line displays:

- Home screen
- Menu screens
- Feature screen
- Inspect screens

The display ordinarily shows the Home screen; at other times, users access the Home, Menu, Feature, and Inspect screens by pressing the corresponding fixed **Home**, **Menu**, **Feature**, or **Inspct** button.

The fixed **More** button is used to read screens that include too much information to fit on the display all at once. The availability of more information is indicated by the appearance of a > character on the right side of the screen. On the 7-line by 24-character display, in Release 2.0 and later, this More symbol appears on Line 1, next to the **More** button. In Release 1.0 or Release 1.1, the More symbol appears on Line 7.

Home Screen

The Home screen, illustrated in Figure 9 and Figure 10, is the display's home base. It remains on the display unless the user selects another screen. If the user has programmed a posted message and no call is active on the extension, Line 1 shows the posted message. When the user makes or receives a call, Line 1 is overwritten with call-handling information, such as a number being dialed, the name or number of a caller, and the type of incoming call. In Release 2.0 and later, the date is shown as pictured in Figures 9 and 10; in Release 1.0 or Release 1.1, the date is shown as, for example, 3/15.

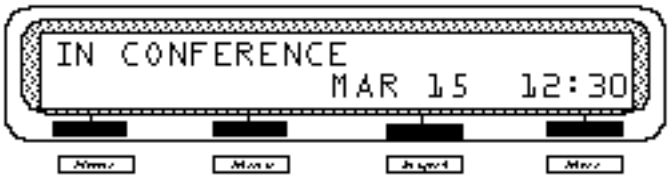


Figure 14. 2-Line Display Home Screen

When the extension is idle, Line 2 of the Home screen shows the date and time. If the timer is running or the user has programmed an Alarm button, this information is also shown on Line 2.

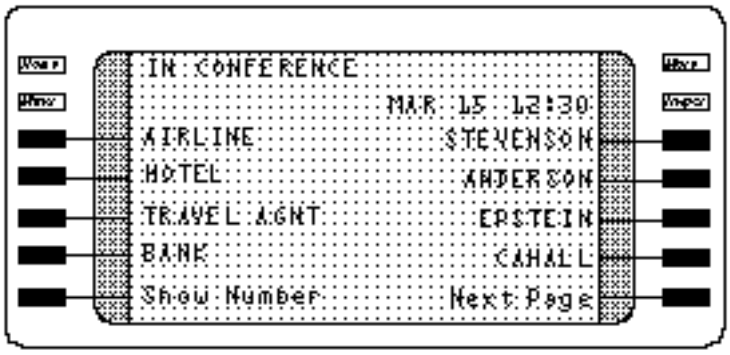


Figure 15. 7-Line Display Home Screen

On an MLX-20L telephone, two pages of listings from the user's Personal Directory (a total of 16 entries) can be programmed to appear on the Home screen. The Queued Call Console (QCC) does not have this capability. Activating features causes information on the Home screen to be replaced with prompts and feedback. In general, prompts appear on Line 1 and feedback appears on Line 2.

Menu Screen

The Menu screen, illustrated in Figure 16 and Figure 17, lists features and functions that are used through the display, such as Alarm Clock and Directories. For everyone with displays, except QCC operators, the Menu screen also provides access to the extension programming function used to program the extension.

Press the **Menu** button next to or below the display to access the Menu screen. To access additional menu choices on the 2-line display, press the **More** button. After you make a selection from the menu by pressing the button next to the selection (on the 7-line by 24-character screen) or below the selection (on the 2-line by 24-character screen) a submenu, feature screen, or data-entry screen appears. When programming is complete, the Menu screen reappears. To exit from the Menu screen, press the **Home** button.

Figure 16. 2-Line Display Menu Screen

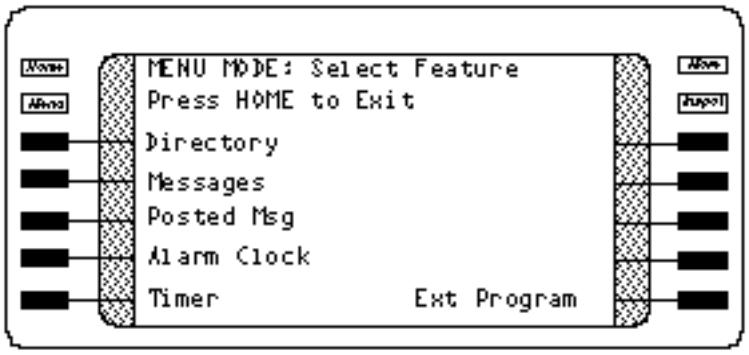


Figure 17. 7-Line Display Menu Screen

NOTE:
The Menu screen on a QCC does not include the Ext Program option.

Feature Screen

The Feature screen provides quick access to commonly used features. Press the **Feature** button to display one of four Feature screens with feature names. The feature names shown depend on what the user is doing and how the system and the extension are programmed, as shown in Table 17.

To select a feature, press the button next to or below the feature name on the Feature screen. (On a 2-line display, it may be necessary to press **More** to access the desired feature.) Once selected, the feature is activated unless more information is required. If more information is required, you are prompted to enter it. For example, if you choose the Account Code Entry feature, the display prompts for an account code. Once account code entry is completed correctly, the Home screen returns.

Table 17 lists the features that users see on the Feature screen, depending on their current calling activity.

Table 17. Feature Screen Options

User's Telephone...	Feature Options	2-by-24 Display	7-by-24 Display
Is on hook or has a dial tone on an inside line	Last Number Dial	Last#	LastNumDial
	Pickup Group*	PkupG	Pickup Grp
	Pickup	Pkup	Pickup
	Loudspeaker Page*	LdsPg	Louspkr Pg
	Account Code	Acct	AccountCode
	Follow Me	FlwMe	Follow Me
	Authorization Code	Auth	Auth Code
	Direct Voice Mail	DrcVM	Direct VM
Has reached a busy extension	Selective Callback	CbckS	Cback Sel
	Barge-In*	Barge	Barge In
	Leave Message	LvMsg	Leave Msg
	Camp-On*	Camp	Camp On
Is ringing at an extension or connected to an inside call	Leave Message	LvMsg	Leave Msg
	Barge-In*	Barge	Barge In
	Park*	Park	Park
	Camp-On*	Camp	Camp On
	Direct Voice Mail	DrcVM	Direct VM
Is connected to an outside line	Last Number Dial*	Last#	LastNumDial
	Park*	Park	Park
	Camp-On*	Camp	Camp On
	Account Code	Acct	AccountCode
	Follow Me	FlwMe	Follow Me
	Direct Voice Mail	DrcVM	Direct VM

* See Notes.

NOTE:

1. Pickup Group appears on the display only if the extension is part of a Pickup Group.
2. Barge In appears only on operator consoles.
3. Loudspeaker Page appears only if a loudspeaker paging system has been programmed.
4. Last Number Dial and Park do not appear on a QCC.
5. Camp-On can be used only to complete a transfer to an inside extension.

Inspect Screens

The Inspect screen, illustrated in Figure 18 and Figure 19, appears when the you press the **Inspct** button and then presses a line button. Two kinds of information can appear:

- If the button is associated with a call, calling information is displayed. If you are already on a call and another call arrives, pressing **Inspct** and the line button with the new call displays information about that call, without interrupting the first call.
- If the button is not associated with a call, the line or feature programmed on the button is displayed, with the exception of Last Number Dial and Saved Number Dial:
  - In Release 2.0 and later, inspecting a programmed Last Number Dial or Saved Number Dial button displays the number stored on the button if the button has been used, otherwise it displays the feature name.
  - In Release 1.0 or Release 1.1, the Inspect screen shows the name of the feature on the button.

To exit from the Inspect screen, press the **Home**, **Feature**, or **Menu** button.

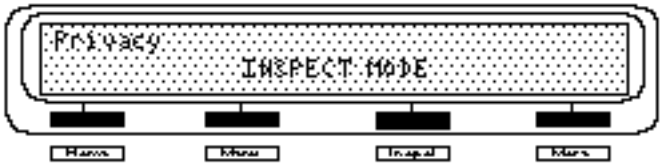


Figure 18. 2-Line Display Inspect Screen for Programmed Button

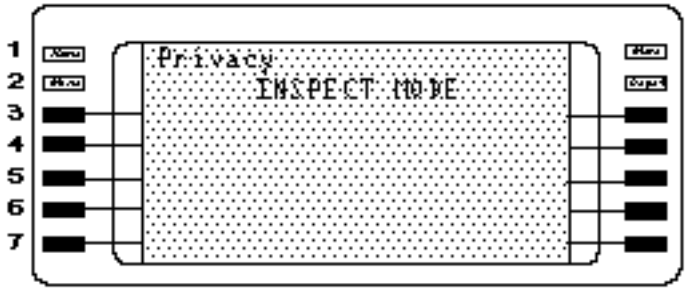


Figure 19. 7-Line Display Inspect Screen for Programmed Button

MLX display telephones allow you to change the contrast of the screens. The method varies among the different MLX display telephones. The MLX-20L has a sliding control immediately behind the screen. The MLX-10D, MLX-10DP, and MLX-28D allow you to adjust the contrast through the Ctrst item in the Menu screen. Select Ctrst and then raise or lower the contrast by selecting Up or Down.

Analog Multiline Display Telephones

The following types of information appear on the 1-line by 16-character or 2-line by 40-character display of an analog multiline display telephone:

- **Call-Handling Information.** Shows telephone numbers as they are dialed, the name or number of a caller, and the type of incoming call.
- **Feature Programming Support.** Allows the user to see what features have been programmed on buttons.
- **Prompts and Feedback.** Prompts for information such as an account code, and provides feedback, such as confirmation of feature activation.
- **Posted Message and Leave Message.** Allow the user to see messages from other telephone users and operators.
- **Timekeeping Functions.** Include an alarm clock and a built-in timer, as well as the ability to set the date and time that appear on the display.

Analog multiline display telephones do not offer menu-driven telephone programming and do not allow users to select and use features from the display.

The procedure for changing the contrast on the analog multiline display telephones varies among display telephones. The BIS-34D and the MERLIN II Display Console have dials to change the contrast of the screens. The BIS-22D has no controls for the contrast.

Considerations and Constraints

The date and time shown on MLX telephones is controlled by the processor module in the control unit. When the date or time changes, the control unit sends the message to MLX telephones one at a time, which can cause a slight difference in the time and/or date displayed on each telephone.

Users with analog multiline telephones with displays must set the time and date at their individual telephones.

Feature Interactions

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Account Code Entry	When a user activates the feature, the display prompts for an account code.	Acct:	Acct:
	As the code is dialed, it appears on the screen next to the prompt.	Acct: 123456	Acct: 123456
Alarm Clock	An MLX telephone user programs the Alarm Clock feature from the Menu screen. An analog multiline telephone users sets the alarm by using the timekeeping buttons next to the display. Once the alarm is set on either type of telephone, a bell appears on the display. In Release 1.0, the bell appears next to the time, not the date, and on MLX telephones, the date appears as mm/dd (05/08).	5-08 🔔	May 08 🔔 12:00

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Alarm Clock ***continued***	On an MLX telephone, the ringer and the LEDs are turned off when Alarm is selected from the display. If the user is on a call and selects Alarm, the call is dropped.		
Authorization Codes	When a display telephone user activates Authorization Code, the screen prompts the user for an entry.	Auth?	Auth:
Auto Dial	When a user presses a programmed Auto Dial button, the digits appear on the display as if the user were dialing them from the dialpad, and the number is dialed automatically. (For a list of special characters that can be used in dialing strings, see Appendix G, "Programming Special Characters.") If the Auto Dial number has a Stop character programmed in the middle of the number, the user presses the Auto Dial button to complete dialing.	5551234	5551234
Barge-In	An MLX telephone user sees a message on the display when using Barge-In. If Barge-In is denied, the message does not appear.	No display	Barge-In
	The extension receiving the call also sees a message indicating who initiated the Barge-In call. The message remains on the display until the person hangs up.	No display	Barge In: JUANITA

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Calendar	See “Date and Time.”		
Callback	When a call is queued using Automatic Callback on an MLX or analog multiline telephone, or using Selective Callback on an analog multiline telephone, the display shows a feedback message.	Call is Queued	Queued MARIA 1234 Call is Queued
	When an MLX telephone user uses Selective Callback, the display prompts the user to dial the telephone number. After the number is dialed, the display provides the same feedback as on an Automatic Callback call.	No display	Dial Telephone Number
	When the queued call rings at the user’s extension, the display indicates that the call is a returning Callback call.	Callbck 1234	Cback MARIA 1234
Calling Restrictions	When a restricted MLX telephone user tries to dial a number that is restricted, the user sees a message on the display.	No display	Call Denied
Call Waiting	When a user has a call waiting, a message appears on the display.	Call Waiting	Call Waiting

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Camp-On	After Camp-On is activated, the MLX display shows a feedback message.	No display	CampOn: JORGE Ext1234
	On the QCC only, returning camped-on calls are identified by call type and by the name and extension number of the person that the call was transferred to. The second line of the QCC display also shows the caller information.	No display	CampRet JORGE Ext1234 Caller: ELAINE Ext1244
Conference	As with any other call, the dialed digits appear on Line 1 of the display as a user sets up a conference call.	1234	1234
	On MLX telephones, Line 1 shows the number of conference participants.	No display	Conference: 4
	If an **SA** button is not selected automatically, the MLX telephone user is prompted to select a line.	No display	Select a Line
	After a line is selected by the system or the user, the MLX telephone display prompts the user to dial the next participant.	No display	Dial, then Press Conf
	The MLX display also prompts the user to drop a conference participant after the **Drop** button is pressed and then shows the updated conference information on Line 1 and the dropped line or extension on Line 2.	No display	Conference: 3 MARIA Dropped

Feature	Description	Sample Displays	
		Analog Multiline	**MLX**
Coverage	When a call is sent to coverage, the person who answers the call sees a message on the display indicating who the call was intended for and the reason the call was sent to coverage:		
	All telephones:		
	No Answer	Cov No A JUAN	Cover JUAN No Ans
	Busy	Cov Bsy JUAN	Cover JUAN Busy
	Do Not Disturb active	Cov DND JUAN	Cover JUAN DND
	MLX telephones (additional reasons):		
	Invalid/unknown DID number	No display	DID#?
	Invalid/unknown remote access (DISA) number	No display	DISA#?
	MLX telephones also show the caller's information on Line 2 of the Home screen.	No display	Caller: FX-NYC Trk825
Date and Time	An analog multiline telephone user can set the date and time on the display. On MLX telephones, the date and time are controlled by the system time.	3:00p We 4-01	Apr 01 3:00
	In Release 1.1 and later, when the system or MLX display telephone is set for operation in French or Spanish, the date is displayed as *day, month,* and the *time* uses a 24-hour clock.		01 Apr 15:00 01 Abr 15:00
	In Release 1.0, the date is displayed as *month*/*day* on an MLX display telephone.		4/1 3:00

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Directories	When a number is dialed using a directory, the dialed digits are shown on Line 1 of the display unless the number is tagged.	No display	5551212
Direct Station Selector	When an operator with one or two DSSs connected to an MLX telephone presses the **Inspect** button and then the **Page** button, a message appears that indicates the page number and the first extension number in the range.	No display	Page 1: 100
Do Not Disturb	When a user with coverage turns on Do Not Disturb, the receiver who answers the call sees a message showing that the call was redirected because the sender has Do Not Disturb on.	COV DND-AGNES	Cover RUBEN DND
	An MLX display telephone with Do Not Disturb on shows a Do Not Disturb message on the Home screen.	No display	DO NOT DISTURB
	In Release 2.0 and later, an inside caller to an extension with Do Not Disturb on sees a Do Not Disturb message. (Analog multiline and MLX-10 telephones must have a Posted Message button programmed for DO NOT DISTURB to be displayed automatically.)	DO NOT DISTURB	DO NOT DISTURB

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Do Not Disturb ***continued***	When a user dials an extension that has Do Not Disturb activated and is covered by another extension, the display depends on the type of button the call was placed on:		
	For **SA Ring**:	12	STEPHEN Ext 12
	For **SA Voice**:	DO NOT DISTURB	STEPHEN Ext 12 DO NOT DISTURB
Extension Status	Hotel/Motel mode:		
	When a supervisor changes a room's ES status, the supervisor is prompted to select the room.	No display	Select Room
	When the room has been selected and the supervisor has selected ES1, ES2, or ES3, confirmation is displayed. ES1 = Checked Out ES2 = Available ES3 = Occupied	No display	Checked Out Available Occupied
	When the guest or housekeeper changes a room's ES status to ES1 or ES2, a confirmation is displayed.	No display	Checked Out Available
	Calling group/CMS mode:		
	When the supervisor position is put into Supervisor mode, the supervisor is prompted to press **Hold**. After the supervisor presses the **Hold** button, the new status is confirmed.	No display	PressHold-EnterGrpCl/CMS Entered Grp/Cl/CMS Supvr

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Extension Status ***continued***	When the supervisor position is taken out of Supervisor mode, the supervisor is prompted to press **Drop**. After the supervisor presses the **Drop** button, the new status is confirmed.	No display	Press Drop-ExitGrpCl/CMS Exited GrpCl/CMS Supvr
	When the supervisor changes an agent's ES status, the supervisor is prompted to select the agent.	No display	Select Agent for ACW Select Agent to Log In Select Agent to Log Out
	When the agent has been selected, a confirmation is displayed.	No display	After Call Work Available Unavailable
	If the ES status is changed at the extension, a confirmation is displayed.	No display	After Call Work Available
	When an extension logs into or out of a calling group, a confirmation is displayed.	No display	Available Unavailable
Follow Me	When Follow Me is turned on or off, MLX telephone users see a prompt followed by a confirmation.	No display	Follow from: Cancel from: Signed IN: INES Signed OUT: INES
Forward	If the extension from which calls are being forwarded is an MLX display telephone, the user sees a message indicating that calls are being forward.	No display	Forward to: JEANNE
	If the MLX telephone user enters an invalid destination, the display clears. If the analog multiline user enters an invalid destination, an error message appears.	Error	No display

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Forward ***continued***	When an MLX telephone user turns on Forward, the display prompts the user for the extension. After entering the extension, the user sees a confirmation displayed.	No display	**Page 1:** Forward to: Forward to: JUAN
	For outside calls, Page 2 shows the line the call came in on and, if ANI or Caller ID is available, the caller's number.	No display	**Page 2:** No ANI/Caller ID: Caller: OUTSIDE Trk801 With Caller ID: OUTSIDE 555-1234
	For inside calls, Page 2 shows the caller's name and extension.	No display	Caller: PABLO x1234
	On an MLX telephone, when a user forwards calls to an outside number (Remote Call Forwarding), the display prompts the user to enter the telephone number.	No display	Forward to:
	On MLX and analog multiline telephones, the digits appear on the display as the number is dialed.	12015551234	12015551234
	On an MLX telephone, a confirmation is displayed.	No display	Forward to: 12015551234
	A user receiving a forwarded call sees a message indicating who forwarded the call.	No display	Forward from HITOSHI

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Group Calling	A calling group agent with MLX telephone sees feedback messages on the display when logging in to the Available state.	No display	Available
	When a calling group supervisor with an MLX telephone logs an agent in or out, a message appears on the supervisor's display and on the group member's display.	No display	Available Unavailable
	After pressing either the Available or Unavailable button or dialing the feature code, a supervisor with an MLX telephone is prompted to indicate which group member to log in or out.	No display	Select Agent to Log In Select Agent to Log Out
	When a group member with an MLX telephone receives an outside call for the calling group, the type of call is identified on the display along with the label for the line the call came in on. If automatic number identification (ANI) or Caller ID is available, the caller's number is shown on Page 2 (press **More** button) on MLX telephones. Analog multiline telephone users see only the line information. For PRI calls Page 1 shows Called Party Number (if you have ANI service) isntead of the trunk label.	WATS	**Page 1:** No calling group label programmed: GrpCl WATS Calling group label programmed: SALES WATS PRI calls: OUTSIDE 212-555-1234 **Page 2:** No Caller ID/ANI present: Trk805 Caller ID/ANI present: Trk805 908-555-1234

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Group Calling ***continued***	Any MLX telephone user can inspect the number of calls in queue by pressing the **Inspct** button and then pressing a button programmed with the calling group's extension. The display shows the label associated with the calling group and the number of calls.	No display	Group Call SALES 12
Hold	When an MLX telephone user or an MLX DLC operator places a call on hold, a confirmation is displayed.	No display	Call on Hold
	When an MLX telephone user or an MLX DLC operator has a call on hold for a longer time than the Hold timer value, a message appears on the display.	No display	Call on Hold
	On the QCC only, when a held call returns to the queue after the second hold reminder, it is identified by call type and by the name and extension of the operator who put the call on hold. Line 2 of the QCC display also shows the caller information.	No display	HoldRet AHMED x10 Caller: MATHILDE x1235

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Inspect	An MLX telephone user can inspect the contents of programmed buttons by pressing the **Inspct** button and then pressing the programmed button. In most cases, the display shows the feature or line assigned to the button. (In Release 2.0 and later, inspecting a Last Number Dial or Saved Number Dial button shows the number stored on the button.)	No display	Account Code
	Users can also inspect incoming calls or their calls on hold. The display shows standard call information (see "Receiving Calls," in this table).	No display	FX-NYC (*outside*) DANNY x1234(*inside*)
	If a user inspects a line that someone else is using, the display shows that the line is in use.	No display	In Use
Last Number Dial	When a user presses a programmed Last Number Dial button, the user sees digits on the display as if dialing them from the dialpad.	5551234	5551234
	In Release 2.0 and later, inspecting a Last Number Dial button shows the number stored on the button.	No display	5551234
Messaging	When a user sends a message to another telephone, the display shows a feedback message.	Msg Sent CARLOS Cannot Send Message Box Full	Msg. Sent to: CARLOS Cannot Send Message Message Box Full
	When a user tries to retrieve messages and the message box is empty, the display indicates that there are no messages.	No Messages	No Messages

Feature	Description	Sample Displays	
		Analog Multiline	**MLX**
Messaging ***continued***	When a user has a message, the display shows the name or extension of the caller and, on MLX telephones, the time and date the message was left. Messages can be sent from inside extensions, by the operator, by a fax machine, or, if the telephone has voice mail, by outside callers. The display indicates the sender of the message. On MLX telephones, an unread message is marked with an asterisk (*). On analog multiline telephones, an unread message is also marked with an asterisk, but no message information is shown.		
	Messages can be of the following types:		**Note:** Press the **More** button to see Page 2.
	Unread message	*	Page 1: *JOSE 10:43P> Page 2: 06/15 Ext7846 >
	Co-worker	Call ROSA	Page 1: ROSA 11:03P> Page 2: 06/15 Ext1625 >
	Voice mail message	V	Page 1: VMS 11:03P> Page 2: 06/15 Ext1234 >
	System operator	A	Page 1: ATT OPERATOR 11:03P> Page 2: 06/15 Ext1223 >
	Fax	F	Page 1: FAX 11:03P> Page 2: 06/15 Ext1236 >

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Messaging ***continued***	**Note:** The type of message does not allow a calling group message-waiting receiver to distinguish between a message left for the calling group and a fax or personal message.		
	A user with a display telephone who calls an extension with a posted message sees the message on the display.	IN A MEETING	IN A MEETING
	A display telephone user posting a message sees the message displayed on the Home screen.	AT HOME	AT HOME
	When an operator using an MLX telephone sends or removes a message with the Send/Remove message feature, the operator is prompted for the number.	No display	Dial Telephone Number:
	After the number is dialed, a confirmation is displayed.	Msg Sent MANUEL Msg Rmvd DOROTHY	Msg Sent to: MANUEL Msg Rmvd from: DOROTHY
Night Service	When an operator with an MLX telephone uses a programmed Night Service button to turn on Night Service, a confirmation is displayed.	No display	Night Service ON
	If the operator must enter a password to turn Night Service on and off, the display prompts the operator for the password. No message is displayed when the operator turns on Night Service by using a feature code or when Night Service is off.	No display	Enter Password:

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Paging	An MLX telephone user who uses Group Paging sees a message on the display indicating the number of the paging group.	No display	Paging 793
Park	When a call is parked, a confirmation is displayed.	Parked ANITA	Parked: ANITA
	On a QCC, returning parked calls are identified by call type and the name or extension number of the operator who parked the call.	No display	ParkRet JUAN Ext1220
	Line 2 of the QCC display also shows the caller information.	No display	Caller: ANITA Ext1235
Pickup	When an MLX telephone user activates Pickup, a prompt appears on the display. (The prompt is not displayed if a button programmed for a specific line or extension is used.)	No display	Pickup Line/Ext:
	After the user enters the line or extension number to pick up the call, a confirmation message is displayed.	No display No display	Pickup: OUTSIDE Pickup: JOE
	If the call cannot be picked up, a feedback message is displayed.	Cannot Pickup	Cannot Pickup Call

Feature	Description	Sample Displays	
		Analog Multiline	**MLX**
Programming	When an analog multiline telephone user enters extension programming, a confirmation appears on the display. An MLX telephone user sees the first Extension Programming screen.	Program Mode	**MLX-20L:** Extension Program 10 ⋮ Press HOME to Exit Start **Other MLX:** Extension Program 10 (HOME to Exit) Start
	If the user presses a button that is already programmed, the name of the feature appears on the display.	Camp On	Camp On
	If the button is not programmed, the display shows that the button is blank.	Blank	Blank
	Any digits dialed during programming appear on the display of an analog multiline telephone.	5551234	No display
	Status feedback messages are shown on analog multiline telephones when features that affect telephone operation are programmed. Status messages are not shown on MLX telephones. (For more about extension programming, see Appendix C.)	RecvVoiceAnn On/Off Call Waiting On/Off AutoCallback On/Off Shared SA Ring On/Off AbbreviateRing On/Off Cover Inside On/Off	No display

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Recall	When an MLX telephone user presses a programmed Recall button while on an outside line, the line information is redisplayed just as if the user had gone off-hook on the line.	No display	FX-NYC
Reminder Service	When Reminder Set is activated, the extension number and either the set time or an indication that no time has been set is displayed.	7103: 9:15a 7103: No Rmdr Set	7103: 9:15a 7103: No Reminder Set
	If the user enters a new time, the display changes with the first digit.	Time: 12:30p	Time: 12:30p
	When the time is set, a confirmation including the extension and the time is displayed.	7103: 12:30p	7103: 12:30p
	When a reminder call alerts an extension, the display indicates a reminder call.	Rmdr Call	Reminder Call
	When an extension cancels a reminder, a confirmation is displayed.	Rmdr Off at 7103	Reminder Off: JAQUES
	When an operator sets or cancels a reminder for an extension, the MLX operator is prompted for the extension.	Rmdr Set Rmdr Off	Press DSS Key to Select Reminder Set Press DSS Key to Select Reminder Off
Remote Access	A call received through remote access shows standard call information for outside calls, including the caller's number (MLX only) if ANI, SID or Caller ID is available.	WATS Trk 825	WATS Trk 825 WATS 555-1234

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Remote Access *continued*	If a remote access call is sent to coverage because an invalid number was dialed, an MLX telephone user who receives the call sees a message. If Caller ID is available pressing the More button shows the calling party number and facility label.	No display	Page 1: Cover DISA#? Caller Outside Trk801 Page 2: OUTSIDE 908-555-8989
Saved Number Dial	When an MLX telephone user presses a programmed Saved Number Dial button, a confirmation is displayed.	No display	Number Saved
	When a user dials a number by pressing a programmed Saved Number Dial button, the digits appear on the display as if from the dialpad.	5551234	5551234
	In Release 2.0 and later, inspecting a Saved Number Dial button shows the number stored on the button.	No display	5551234
Timer	Display telephones have a built-in timer that allows the user to time telephone calls or other events. The timer appears on Line 2 of the display and counts to 59 minutes and 59 seconds, then resets to zero and continues counting.	39:15	39:15

Feature	Description	Sample Displays	
		Analog Multiline	MLX
Transfer	When an MLX telephone user presses the **Transfer** button, the display prompts the user to dial the extension number.	No display	Transfer To:
	When an MLX telephone user initiates a transfer on a voice-announced button (**SA Voice** or **ICOM Voice**), the user is prompted to enter the extension.	No display	Announce To:
	The display shows the digits as they are dialed. When all digits have been dialed, the display shows the name of the person if labels are programmed.	1234 No display	1234 JOSE x1234
	On an MLX telephone, when the transfer is completed, a confirmation is displayed.	No display	Call Transferred
	Calls returning from transfer are identified by call type and by the name and extension the call was transferred to. Line 2 of the MLX telephone display also shows the caller information.	TrfRet-CHARLES No display	Return CHARLES x1234 Caller: ANNA x1235
	When an MLX telephone user does not complete a transfer, for example, because Do Not Disturb is on at the destination extension, the call returns to the user's telephone and call information is displayed. The reason for the incomplete transfer is not indicated.	No display	Incomplete Transfer Caller: SUSAN x1235

Feature	Description	Sample Displays	
		Analog Multiline	**MLX**
Transfer ***continued***	When an MLX telephone user receives a transferred call, the display shows the type of call and the caller information on Line 1. When an inside call is being transferred, the extension or name is shown. When an outside call is being transferred, the line the call came in on or the caller's telephone number (if ANI or SID or Caller ID is available) is shown. The transfer originator is shown on Line 2 on a QCC. On all other telephones, press the **More** button to show Page 2 on Line 1 of the display.	Transfer Receive	Transfer an inside extension: **Page 1:** Transfr ANGELA **Page 2** (Line 2 on QCC)**:** Transfr by MIGUEL Transfer an outside call with Calling Party Number: **Page 1:** Transfr 555-1212 **Page 2** (Line 2 on QCC)**:** Transfr by MARIA Transfer an outside call without Calling Party Number: **Page 1:** Transfr OUTSIDE Trk 801 **Page 2** (Line 2 on QCC)**:** Transfr by MARIA

Do Not Disturb

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information
Mode	All
Telephones	All except QCC and single-line telephones
Programming Code	**47*
MLX Display Label	DO NOT DISTURB [DND]

Description

Do Not Disturb prevents calls from ringing and prevents paging over a speakerphone. When you turn on the feature and receive an outside call, the caller hears ringback, but your telephone does not ring. The green LED next to the line button with the ringing call flashes to indicate an incoming call, and, if you choose, you can answer the call. If the feature is turned on and you receive an inside call, the inside caller hears a busy signal. The telephone does not ring, and the green LED next to an **SA** or **ICOM** button does not flash.

The following types of priority calls override Do Not Disturb and cause the telephone to ring (the green LED also flashes):

- A call (including a transferred call) from any coverage receiver to a sender with Do Not Disturb on
- A Barge-In call
- A returning transferred or camped-on call, or a parked call returning to a Direct-Line Console (DLC) operator
- A callback call, notifying you that a call to a busy extension or to a busy pool (Hybrid/PBX mode only) can be completed
- A Reminder call

In Release 2.0 and later, when you turn on the feature, the system automatically posts the message DO NOT DISTURB. Users with analog multiline telephones or MLX-10 nondisplay telephones must program a Posted Message button in order for the message to be displayed to callers. This message appears on the Home screen of an MLX display telephone with Do Not Disturb turned on, and on the screen of any inside caller with a display telephone who calls you. When you turn off Do Not Disturb, the system automatically removes the message. You can also post and remove the message by using a programmed Posted Messages button. However, using this button only posts or removes the message; it does not turn on or turn off the Do Not Disturb feature.

Considerations and Constraints

Do Not Disturb must be programmed onto an available button.

If you turn on Do Not Disturb while receiving a call (either ringing or voice-announced), the caller continues to hear ringback (or a voice-announced caller may stay on the line), but you do not hear ringing. The Do Not Disturb feature remains on.

When the principal's Do Not Disturb is turned on, his or her calls ring at other telephones with shared personal lines or at coverage receivers but not at other telephones with **Shared SA** buttons.

Telephone Differences

Direct-Line Consoles

The green LED next to an Auto Dial or DSS button on a DLC turns on when a user turns on Do Not Disturb, indicating that the user is not available.

Queued Call Consoles

Do Not Disturb cannot be used on a QCC; Position Busy must be used instead. The green LED next to a DSS button turns on when a user turns on Do Not Disturb, indicating to the QCC operator that the user is not available.

Other Multiline Telephones

Turn on Do Not Disturb on a multiline telephone by pressing the programmed Do Not Disturb button. The green LED next to the button goes on to indicate that the feature is active. To turn off the feature, press the programmed Do Not Disturb button again. The green LED next to the button turns off to indicate that the feature is turned off. Feature codes cannot be used to turn Do Not Disturb on and off.

In Release 2.0 and later, turning on Do Not Disturb on an analog multiline or MLX-10 nondisplay telephone does not automatically post the Do Not Disturb message; program a Posted Messages button for the message to be posted automatically. In this case, when Do Not Disturb is turned on, the green LED next to the Posted Messages button lights automatically and the system posts DO NOT DISTURB. When Do Not Disturb is turned off, the system automatically turns off the green LED next to the Posted Messages button.

Single-Line Telephones

Do Not Disturb is not available on single-line telephones.

Feature Interactions

Auto Dial	When you turn on Do Not Disturb, the green LEDs next to all Auto Dial buttons programmed with your extension go on.
Barge-In	Barge-In overrides Do Not Disturb.
Callback	Calls to a user with Do Not Disturb turned on are not eligible for callback queuing. If the callback originator is using Do Not Disturb, the system overrides the feature and the telephone rings when the busy extension or trunk is available.
Caller ID	Caller ID information is not displayed if the user turns on Do Not Disturb. If the user turns on Do Not Disturb while receiving Caller ID information, that information remains on the display.
Camp-On	A Camp-On call does not ring when the destination extension has Do Not Disturb turned on.
Coverage	When a sender turns on Do Not Disturb, calls go to Individual and/or Group Coverage receivers. Individual and/or Group Coverage calls are not sent to a receiver with Do Not Disturb turned on. If a sender and all receivers have Do Not Disturb turned on, the call is not sent to coverage and the caller hears a busy tone. When a sender turns on Do Not Disturb, any receivers for that sender can call the sender. In Release 2.1 and later, calls received on personal lines with Do Not Disturb on go immediately to coverage instead of waiting for the coverage delay interval.
Display	In Release 2.0 and later, when a multiline telephone user with coverage turns on Do Not Disturb and calls are sent to coverage receivers, the receiver who answers the call sees a Do Not Disturb message if the telephone has a display, showing that the call was redirected because the sender turned on Do Not Disturb. If a display telephone user tries to transfer a call to a user with Do Not Disturb active, the display shows DO NOT DISTURB.
Forward and Follow Me	Calls are not forwarded to a user who has Do Not Disturb active; the call rings at the forwarding telephone. Activating Do Not Disturb at the forwarding telephone does not prevent calls from being forwarded.
Group Calling	If a calling group member uses Do Not Disturb, calls are not sent to the group member even if he or she is logged in and available.
Headset Options	If an MLX telephone user with Headset Auto Answer uses Do Not Disturb, any calls that override Do Not Disturb (such as Barge-In calls and callback calls) are automatically answered.

Multi-Function Module	Using Do Not Disturb is not recommended because the device connected to the MFM does not have an LED to indicate when the feature is active.
Paging	Group page calls cannot be made to a telephone with Do Not Disturb turned on.
Posted Message	In Release 2.0 and later, when Do Not Disturb is turned on, the system automatically posts DO NOT DISTURB. This message appears on the Home screen of an MLX display telephone user with Do Not Disturb turned on. It also appears on the screen of any inside caller with a display telephone who calls a user with the feature turned on. The system automatically removes the message when the user turns off the feature. Users with analog multiline or MLX-10 nondisplay telephones must program a Posted Messages button for the system to automatically post or remove the message when the feature is turned on or off. A user can post or remove a Do Not Disturb message by pressing a programmed Posted Messages button. Posting the DO NOT DISTURB message does not turn the feature on; removing the posted message does not turn the feature off.
Reminder Service	Reminder calls ring at telephones with Do Not Disturb turned on.
Signaling	Signaling cannot be used when the destination telephone user turns on Do Not Disturb.
System Access/Intercom Buttons	Do Not Disturb prevents ringing of incoming calls at **SA** or **ICOM** buttons (including **Shared SA** buttons) on the telephone where the feature is turned on. This also prevents calls received on the principal's **SA** buttons from ringing at other telephones with **Shared SA** buttons for that extension.
Transfer	Calls transferred to telephones that have Do Not Disturb turned on are returned after the transfer return interval expires, unless the telephone has coverage and a receiver is available. In that case, the transferred call is sent to the receiver.
Voice Announce to Busy	A user with Do Not Disturb active does not receive voice-announced calls.

Drop

See “Conference.”

Extension Status

At a Glance

Users Affected	DLC operators, hotel or calling group supervisors/rooms or members, Call Management System (CMS) supervisors/members
Reports Affected	Direct Group Calling Information SMDR System Information
Mode	All
Telephones	DLCs and rooms or calling group member (agent) telephones
Programming Codes	
DLCs/Supervisors	
Status 0/Unavailable	**760*
Status 1/After-call work state	**761* (hotel and CMS only)
Status 2/Available	**762*
Telephones (rooms or agents)	
Status 1/After-call work state	**45* (hotel and CMS only)
Status 2/Log in or out	**44*
Feature Codes	
Activate Extension Status/Supervisory Operation	*32* + **Hold** (calling group/CMS only)
Deactivate Extension Status	*32* + **Drop** (calling group/CMS only)
DLC	
Status 0/Unavailable	*760* + DSS
Status 1/After-call work state	*761* + DSS (hotel and CMS only)
Status 2/Available	*762* + DSS
Telephones (rooms or agents)	
Status 0/Unavailable	**44* (calling group/CMS only)
Status 1/After-call work state	*45* (hotel and CMS only)
Status 2/Available	*44*
MLX Display Label	
Status 0/Unavailable	ES Status,ES Off [ES,ESOff]
Status 1/After-call work state	ES Status,ES1 [ES,ES1]
Status 2/Available	ES Status,ES2 [ES,ES2]
System Programming	Designate either Hotel or Calling Group/CMS mode: • Options→Ext Status In hotel mode, activate Extension Status on DLC: • Extensions→**More**→Ext Status
Hardware	Printer for reports

Description

Extension Status can be used by an operator or a calling group or Call Management System (CMS) supervisor with a Direct-Line Console (DLC). Extension Status allows the operator or supervisor to use the LEDs on a DLC to monitor the status of extensions differently from the standard call-handling status of available, busy, and Do Not Disturb. (For more information about calling groups, see “Group Calling.”) The red LEDs next to DSS buttons or the green LEDs next to Auto Dial buttons programmed with extension numbers are on, off, or flashing, depending on the extension’s status. The two modes for Extension Status that can be selected during system programming and the status indicated by the LEDs are as follows:

- **Hotel.** Employees at the front desk at a hotel or motel can use Extension Status to monitor room availability and restrict the telephones when the rooms are not occupied. Table 18 shows Extension Status 0, 1, and 2 for Hotel mode and the associated LED status for each.

  Hotel mode allows different meanings to be assigned to extension statuses. The system restricts or unrestricts telephones based on the meaning assigned.

- **Calling Group/CMS.** A calling group or CMS supervisor can use Extension Status to monitor the availability of agents who can take calls directed to the calling group. Table 19 shows Extension Status 0, 1, and 2 for the Calling Group/CMS mode and the associated LED status for each.

Table 18. Extension Status for Hotel Mode

Extension Status	LED Status	Meaning
0	Off □	Room is occupied and telephone is in regular call-handling state.
1	Flashing	Room is unoccupied and ready for cleaning; outside calls cannot be made from the telephone.
2	On ■	Room is vacant and outside calls cannot be made from the telephone.

Table 19. Extension Status for Calling Group/CMS Mode

Extension Status	LED Status	Meaning
0	Off	Telephone is signed out from the group, and member is unavailable to take calls.
1	Flashing	Used for CMS only. Telephone is in the after-call work state; group member is unavailable to take calls.
2	On	Telephone is signed into the group; calls can be sent to group member.

In either Hotel or Calling Group/CMS mode, an operator or a calling group or CMS supervisor with a DLC can change the status of an extension either by using a programmed button or by pressing the **Feature** button and dialing a code. In addition, users in either mode with any type of telephone can change to Status 1 and Status 2. In calling groups, agents do not change to Status 1. In Calling Group/CMS mode, users can change sign out of the group by changing to Status 0; however, in Hotel mode, an extension can be changed to Status 0 only from a DLC.

Considerations and Constraints

The system can be set up for either Hotel or Calling Group/CMS mode but not for both.

In hotel mode, when DSS buttons are used to monitor status, operators can use the **Message Status** button to see whether an operator turned on message LEDs at the telephones. In Calling Group mode, message status shows busy/not busy status of the agents.

If a hotel has more than three floors and you wish to have the first digit of the extensions correspond to the floor number (for example, Floor 5 has extensions 501-520) then you should use a MERLIN II System Display Console with built-in DSS buttons instead of DSS adjuncts. This is because the DSS buttons on the MERLIN II System Display Console correspond to the extension jacks instead of a range of extension numbers, as on the DSS adjunct. A DSS adjunct cannot have buttons for more than three ranges of numbers. The status of the first 120 rooms is displayed, and if the hotel has more than 120 rooms, Auto Dial buttons can be assigned to up to 33 line buttons on the console to be used for Extension Status and for transferring calls to the rooms.

In Hotel mode, the MERLIN MAIL or AUDIX Voice Power outcalling feature does not work.

In Hotel mode, when Auto Dial buttons are used to monitor the status of telephones (instead of buttons on a DSS), the green LED next to the button indicates extension status (0, 1, or, 2) and the red LED indicates message status. In calling group mode, the green LED also indicates extension status, but the red LED indicates busy/not busy status.

If the system is programmed for Extension Status in Hotel mode, telephones can be changed to Status 0 (regular call handling) only from the operator console.

Extension Status cannot be changed from rotary telephones.

In hotel mode, when the system restarts (for example, for maintenance) and the calling group type is set for Auto Logout (see “Group Calling” for details), extensions that are assigned Status 1 are changed automatically to Status 0 and restrictions are removed. If the calling group type is changed to Auto Login, extensions assigned Status 1 are changed automatically to Status 2 and restrictions remain.

Telephone Differences

Direct-Line Consoles

Extension Status/Supervisory Operation can be assigned to DLCs only. In Hotel mode, only a DLC operator can change an extension to Status 0. In Calling Group/CMS mode, a calling group or CMS supervisor uses a DLC to monitor and change group member status.

Queued Call Consoles

Extension Status/Supervisory Operation cannot be used on a Queued Call Console (QCC), and a QCC cannot be a calling group or CMS supervisor console or a calling group member.

Multiline Telephones

Only a telephone assigned as a DLC can activate Extension Status/Supervisory Operation to see the status of telephones. In Hotel mode, the feature is assigned to the console in system programming and is always active on the console unless the operator presses the **Message Status** button to use the Auto Dial or DSS buttons to see message-waiting status for each telephone.

To activate Extension Status/Supervisory Operation in Calling Group/CMS mode, the calling group or CMS supervisor assigned as a DLC presses the **Feature** button, dials *32*, and presses the **Hold** button. To deactivate the feature and return to normal call handling, the supervisor presses the **Feature** button, dials *32*, and presses the **Drop** button.

To change the status of a telephone, the DLC operator or supervisor activates Extension Status (if not already active) and then presses a programmed button for Status 0, Status 1, or Status 2, and finally presses the Auto Dial or DSS button for the telephone. The DLC operator or supervisor can also change the status of telephones by pressing the **Feature** button, dialing the feature code (*760* for Status 0, *761* for Status 1, and *762* for Status 2), and pressing the Auto Dial or DSS button for the extension.

NOTE:
MLX display telephone users see only the first three characters dialed (for example, F76) when changing the status of telephones.

In either Hotel or Calling Group/CMS mode, regular multiline telephone users can change to Status 1 or Status 2 by pressing a programmed button for each state or by pressing the **Feature** button and dialing the feature code (*45* for Status 1 or *44* for Status 2). In Calling Group/CMS mode only, the user can change to Status 0 by pressing the **Feature** button and dialing **44*.

Single-Line Telephones

A single-line telephone user can change to Status 1 (CMS or Hotel only) or Status 2 by lifting the handset, which must be connected to an **ICOM** or **SA** line, and dialing *#45* for Status 1 or *#44* for Status 2. In Calling Group/CMS mode only, the user can change to Status 0 by dialing *#*44*.

Feature Interactions

Allowed Lists and Calling Restrictions	To allow users in Hotel mode to dial emergency or other selected numbers when the telephone is in Status 1 or 2, access must be assigned to an Allowed List.
Callback	In Hotel mode, an extension in Extension Status 1 or 2 cannot use Callback to request busy pools.
Direct Station Selection	A calling group or CMS supervisor or a DLC with Extension Status assigned can change the status of a group member or room by pressing a programmed Available or Unavailable button and then pressing the DSS button for the group member or room.
Do Not Disturb	The LED next to an Auto Dial or DSS button is on when the user activates Do Not Disturb or is busy on a call. In Release 2.0 and later, an MLX operator can inspect the DSS button to see if a Do Not Disturb message is posted.
Group Calling	Extension Status allows calling group supervisors to change and monitor calling group member status and to enable group members to sign in and out of the calling group.

Forced Account Code Entry

See “Account Code Entry.”

Forward and Follow Me

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information Operator Information
Mode	All
Telephones	
Sending	All except QCC
Receiving	All
Programming Code	
Forward	**33*
Feature Codes	
Forward On	
To inside ext.	*33 + ext. no.*
To outside no.	*33 + dial-out code + telephone no. + #*
Follow Me On	*34 + sending ext no.*
Forward/Follow Me Off	
At sending ext.	*33 + sending ext no.*
At receiving ext., for one sending ext.	**34 + sending ext no.*
At receiving ext., for all sending extensions	**34**
MLX Display Labels	Forward [Forwd] Follow Me [FlwMe] CanclFollow (QCC only)
System Programming	Allow (or disallow) individual extensions to forward calls to outside telephone numbers (Remote Call Forwarding): • Extensions→**More**→Remote Frwd Assign or remove principal user of a personal line (only the principal user can use Remote Call Forwarding for calls on the personal line): • LineTrunks→**More**→PrncipalUsr
Maximums	
Forward-to destinations for each sending extension	1
Forward-from extensions for each receiving extension	Unlimited
Factory Setting	
Remote Call Forward	Not allowed

Description

Forward and Follow Me provide two ways for a user to send calls to another number. Calls can be forwarded either to another inside extension (for example, if a user is temporarily working at a different desk) or to an outside number (for example, if a user is working at home). When calls are forwarded to an outside number, the feature is called Remote Call Forward.

NOTE:
Calls forwarded to outside telephone numbers may vary in transmission quality.

Whether calls are sent using Forward or using Follow Me depends on where the feature is turned on:

- Forward and Remote Call Forward are turned on at the user's own extension or from an outside telephone by remote access. Forward can be turned off at the user's own extension, at an extension to which the user's calls are forwarded, or from an outside telephone by remote access. (System programming is required to allow Remote Call Forwarding.)
- Follow Me is turned on at another inside extension to send the user's calls to that extension. It can be turned off at the user's own extension or at the extension to which calls are sent. Follow Me can be used only to send calls to an extension, not to an outside telephone number.

If several extensions are sending their calls to a user, that user can turn off Forward and Follow Me either for one extension at a time or for all extensions at once.

All users except Queued Call Console (QCC) operators can use Forward or Follow Me to forward calls to another extension. Calls cannot be forwarded to a calling group.

The factory setting for Remote Call Forward is that users are not allowed to forward calls to outside numbers. Through system programming, use of the feature can be allowed for individual extensions.

Forward, Remote Call Forward, and Follow Me send the following types of calls:

- Ringing inside calls
- Transferred inside or outside calls
- Outside calls directed to the extension and received on a tie trunk
- Outside calls received on a Direct Inward Dial (DID) trunk

An available calling group member is automatically logged out when the member forwards his or her calls. If a calling group member logs in while calls are being forwarded, Forward or Remote Call Forward is automatically canceled.

Forward, Remote Call Forward, and Follow Me do not send the following types of calls:

- Voice-announced inside calls
- Calls received on a Cover button
- Returning parked or transferred calls
- Callback calls from the system
- Calls received on a **Shared SA** button
- Calls received on a **Call** button on a QCC
- Calls transferred from a calling group for a voice messaging system (VMS) connected to a jack programmed as generic VMI.
- Calls forwarded from other extensions

Calls received on a personal line (an outside line assigned to a button on the telephone) are forwarded to outside numbers using Remote Call Forward only under the following circumstances:

- The extension must be assigned as the principal user of the personal line through system programming. Only one extension can be the principal user for a given trunk.
- If the personal line is a loop-start trunk, it must provide a reliable disconnect signal. A disconnect signal is the signal sent by the local telephone company to notify the system that an outside caller has hung up. Disconnect signaling is considered reliable when a disconnect signal is sent on every call when the caller hangs up, and is considered unreliable when a disconnect signal is not sent on every call. The factory setting for loop-start trunks is Unreliable Disconnect; this setting can be changed to Reliable Disconnect through system programming. Remote Call Forward cannot be used to forward calls arriving on a trunk programmed as unreliable.

NOTE:
Programming a loop-start trunk as reliable when in fact it does not provide reliable disconnect signaling leaves the trunk in a permanent busy condition after a call on that trunk has been forwarded to an outside number.

A forwarded call rings as shown in Table 20.

Table 20. Forwarded Call Ringing

Telephone Type	Calls forwarded to Inside Extension	Outside Number
Multiline	Forwarding telephone rings once. Green LED continues flashing (call can still be answered). Receiving telephone rings, and green LED flashes at available **SA** or **ICOM** button until call is answered.	Forwarding telephone does not ring. Destination telephone rings.
Single-line	Forwarding telephone rings until call is answered. Destination telephone rings, and green LED flashes at available **SA** or **ICOM** button until call is answered.	Forwarding telephone does not ring. Destination telephone rings.

Considerations and Constraints

On multiline telephones, Forward should be programmed on a button so that the LEDs provide a visual reminder when calls are being forwarded.

A user can forward calls to only one extension or outside telephone number.

A user can receive forwarded calls from an unlimited number of extensions.

Forward (including Remote Call Forward) and Follow Me cannot be used at the same time. When the second feature is turned on, the first one is automatically turned off.

A call forwarded to an MLX or analog multiline telephone extension rings only once at the forwarding telephone and rings until answered at an available **SA** or **ICOM** button on the destination telephone (See Table 20). A call forwarded to an outside number does not ring at the forwarding telephone. A call forwarded to a single-line telephone rings until the call is answered.

A forwarded outside call rings as an inside call (one ring burst) at the destination extension; it does not ring with the normal distinctive ring for an outside call.

The ability to use Remote Call Forward to forward calls received on a personal line to an outside number must be assigned through system programming. If this ability is assigned, only the principal user of a personal line can forward calls on that line to an outside number. If a principal user is not assigned, calls on a personal line cannot be forwarded to an outside number. When the principal user turns on Remote Call Forward, all calls received at that extension on an **SA** or **ICOM** button are forwarded to the outside number.

No error tone sounds when a user with a restricted telephone uses Remote Call Forward. However, when a call eligible for forwarding is received, the system checks restrictions and denies the forward if the outside telephone number is not on an Allowed List assigned to the restricted extension or is included on a Disallowed List assigned to the restricted extension.

If a user is off hook on an **SA** or **ICOM** button while turning on Forward, Remote Call Forward, or Follow Me, and enters an invalid destination, he or she hears an error tone. On an MLX display telephone, the display clears. If a user enters an invalid extension while turning on Forward, Remote Call Forwarding, or Follow Me at an analog multiline display telephone, the display shows Error.

Reliable disconnect cannot be programmed for a T1 channel programmed to emulate a loop-start trunk. When a call is received on a loop-start emulation channel and Remote Call Forward is used, the call is forwarded to the primary system operator instead of to the destination telephone number.

A user who shares a personal line cannot join a call in progress forwarded to an outside telephone number unless the user shares both the personal line on which the call was received and the trunk selected to forward the call to the outside number.

When two or more people sharing a personal line use Forward or Follow Me to send to extensions, calls received on the personal line are forwarded to all destinations.

If Forward is turned on at an extension while it is ringing with an incoming call, the call continues to ring at that extension and also begins to ring at the destination extension.

Forward, Remote Call Forward, and Follow Me forward a call only once. For example, if Extension A forwards calls to Extension B, which in turn is forwarding calls to Extension C, calls arriving for Extension A are forwarded only to Extension B and do not go on to Extension C.

Calls received on a Cover button are not forwarded. When a coverage sender turns on Forward, his or her calls are forwarded and go to coverage at the same time.

In Release 2.1 and later, when a call is forwarded to a multiline telephone that has a DSS or Auto Dial button for the forwarding telephone, the red LEDs next to the DSS buttons or green LEDs next to Auto Dial buttons associated with the caller and the forwarding telephone on the forwarded to telephone's DSS do not flash.

Telephone Differences

Direct-Line Consoles

The DLC operator can forward calls to extensions and, if allowed through system programming, to outside telephone numbers. Since outside lines are assigned as personal line buttons on the console, the ability to forward calls received on each outside line (excluding loop-start trunks with unreliable disconnect) to an outside number must also be assigned through system programming and can be assigned to only one telephone for each individual trunk.

Queued Call Consoles

Calls cannot be forwarded from a QCC to another extension or an outside number. (The QCC operator uses Position Busy instead.) However, users can forward calls to an individual QCC.

To turn on Follow Me for another extension at a QCC, press the **Feature** button and select the Follow Me feature from the display. At the prompt, dial the extension of the forwarding telephone.

To cancel Forward and Follow Me from other extensions: at the destination QCC, press the **Feature** button, select CanclFollow (Cancel Follow Me) from the display, and do one of the following:

- To cancel forwarding from one extension, dial that extension number.
- To cancel forwarding from all extensions, dial *.

Other Multiline Telephones

To forward calls to an extension, either press a programmed Forward button and dial the destination extension number, or press the **Feature** button, dial *33*, and dial the destination extension number. If off-hook on an **SA** or **ICOM** button, you hear a confirmation tone (double break in dial tone), and then dial tone is removed. If a programmed Forward button is used, the green LED next to the button turns on.

To forward calls to an outside telephone number, either press a programmed Forward button or press the **Feature** button and dial *33*. Then select the outside trunk or pool on which to route forwarded calls by dialing the Automatic Route Selection (ARS) or pool dial-out code (Hybrid/PBX mode only), the Idle Line Access code (usually *9*; Key and Behind Switch modes only), or the trunk number (usually 801–880). Then dial the destination telephone number followed by a pound sign (#) to signal the end of the dialing sequence. If off-hook on an **SA** or **ICOM** button, you hear a confirmation tone, and then dial tone is removed. If a programmed Forward button is used, the green LED next to the button turns on.

To turn on Follow Me, press the **Feature** button, dial *34*, and dial the forwarding telephone's extension. If off-hook on an **SA** or **ICOM** button, you hear a confirmation tone and dial tone is removed. An MLX display telephone user can also use Follow Me by pressing the **Feature** button, selecting the feature from the display, and dialing the forwarding telephone's extension.

To turn off Forward, Remote Call Forward, and Follow Me at the originating multiline telephone, press the programmed Forward button, or press the **Feature** button, dial *33*, and dial your own extension number (in effect, "forwarding" calls to that extension). If off-hook on an **SA** or **ICOM** button, you hear a confirmation tone, and then dial tone is removed. If a programmed **Forward** button is used, the green LED next to the button turns off.

At a destination (receiving) multiline telephone, to cancel Forward and Follow Me from other extensions, press the **Feature** button, dial **34*, and do one of the following:

- To cancel forwarding from one extension, dial that extension.
- To cancel forwarding from all extensions, dial *.

If off hook on an **SA** or **ICOM** button, you hear confirmation tone, and then dial tone is removed.

Single-Line Telephones

At a single-line telephone, turn on forwarding to an extension by lifting the handset, which must connect to an **SA** or **ICOM** line, and dialing *#33* and the destination extension number. You hear a confirmation tone (double break in dial tone), and dial tone is removed.

To forward calls to an outside telephone number, lift the handset (the telephone must connect to an **SA** or **ICOM** line), and dial *#33*. Then select the outside trunk or pool on which to route forwarded calls by dialing the ARS or pool dial-out code (Hybrid/PBX mode only), the Idle Line Access code (usually *9*; Key and Behind Switch modes only), or the trunk number (usually 801–880). Then dial the destination telephone number followed by a pound sign (*#*) to signal the end of the dialing sequence. You hear a confirmation tone and dial tone is removed.

To turn on Follow Me, lift the handset (the telephone must connect to an **SA** or **ICOM** line), and dial *#34* and your own extension. You hear a confirmation tone and dial tone is removed.

To cancel Forward, Remote Call Forward, and Follow Me at the originating single-line telephone, lift the handset (the telephone must connect to an **SA** or **ICOM** line), and dial *#33* and your own extension number (in effect, "forwarding" calls to that extension). You hear a confirmation tone and dial tone is removed.

At a destination single-line telephone, cancel Forward and Follow Me from other extensions by lifting the handset (the telephone must connect to an **SA** or **ICOM** line), and dialing *#*34*; then one of the following:

- To cancel forwarding from one extension, dial that extension.
- To cancel forwarding from all extensions, dial *.

If off hook on an **SA** or **ICOM** button, the user hears confirmation tone and then dial tone is removed.

Feature Interactions

Account Code Entry	You cannot enter account codes for calls forwarded to outside telephone numbers. Account codes are not necessary for calls forwarded to extensions.
Allowed Lists and Calling Restrictions	A user with an outward- or toll-restricted telephone cannot forward calls to an outside number unless the number is on an Allowed List assigned to the restricted extension. No error tone sounds when a user with a restricted telephone uses Remote Call Forward. However, when a call eligible for forwarding is received, the system checks restrictions and denies the forward if the outside telephone number is not on an Allowed List assigned to the restricted extension.
Auto Answer All	An answering device connected to an analog multiline telephone can answer forwarded calls when Auto Answer All is turned on.
Automatic Route Selection	To have ARS select the facility on which to forward calls to an outside telephone number, enter the ARS code before the telephone number. The Facility Restriction Level for the call is that of the extension from which calls are being forwarded.
Barge-In	When a forwarded call is answered at the destination extension, Barge-In can be used to join the call only by dialing the extension number for the destination extension (not the number for the originating extension). Barge-In cannot be used to join a call forwarded to an outside telephone number.

Callback

If a user queues a call and then uses Forward, Remote Call Forward, or Follow Me, the call does not ring back at the destination extension or telephone number; the callback call returns only to the forwarding telephone.

If a forwarding extension is busy when a user calls, the user can queue the call for callback. Callback is completed when the forwarding extension is no longer busy. If the forwarding extension and the forwarded-to extension are available, the call rings at both extensions. If the forwarded-to extension is not available, the call rings at the forwarding extension only.

Callback ***continued***

If an inside caller using Automatic Callback calls an extension with Remote Call Forward and no pools are available, the caller hears queuing tone. When the extension becomes available, dequeuing tone is heard and the call is placed to the extension (not the Remote Call Forwarding number) if the user has stayed on the line. Otherwise, if the caller has hung up, priority ring is heard as the callback call is dispensed to the user.

If an inside caller without Automatic Callback on calls an extension with Remote Call Forward, and no pools are available, the call follows the extension's coverage path, if any. If there is no coverage, and the inside caller activates Selective Callback while listening to the busy signal, the call queues for the extension but not for the Remote Call Forward number.

Call Waiting

Call Waiting does not apply to forwarded calls, because the system tries the destination telephone instead of the forwarding telephone. However, if the call is not forwarded for any reason (for example, because the user has tried to use Remote Call Forward from a restricted telephone), Call Waiting functions normally.

Conference

When calls received on a personal line are forwarded to an outside telephone number and another user who shares the personal line and the trunk selected to forward the call joins the in-progress call (by pressing the personal line button), the person joining the call is considered the conference originator and the forwarded call can be conferenced. If the person joining the call hangs up, all participants on the conference call are disconnected.

Coverage

When a coverage sender forwards calls, calls are forwarded and sent to coverage at the same time. Calls received on a Primary Cover, Secondary Cover, or Group Cover button are not forwarded.

If a coverage receiver has activated Remote Call Forwarding, calls sent to that extension through Coverage are not forwarded to the remote location.

Direct Station Selector

Forward can be turned on by pressing a programmed Forward button or using the feature code, then pressing a DSS button corresponding to the destination extension. Follow Me can be turned on by using the feature code and pressing a DSS button corresponding to the forwarding extension. In Release 2.1 and later, when a call is forwarded to a multiline telephone that has a DSS or Auto Dial button for the forwarding telephone, the red LEDs next to the DSS buttons or green LEDs next to Auto Dial buttons associated with the caller and the forwarding telephone on the forwarded-to telephone's DSS do not flash.

Disallowed Lists

A user with an outward- or toll-restricted telephone cannot forward calls to an outside number if the number is on a Disallowed List assigned to the restricted extension. No error tone sounds when a user with a restricted telephone uses Remote Call Forward. However, when a call eligible for forwarding is received, the system checks restrictions and denies the forward if the outside telephone number is on the Disallowed List assigned to the restricted extension.

Display

When an MLX display telephone user forwards calls to an extension, the display prompts for the extension. After Forward is turned on, the user sees a confirmation message. A user receiving a forwarded call sees a message indicating which extension forwarded the call. For an outside call, pressing **More** displays the line the call came in on and, if Automatic Number Identification (ANI) or Caller ID is available, the caller's number. For an inside call, pressing **More** shows the caller's name and extension.

When an MLX display telephone user forwards calls to an outside telephone number, the display prompts for the number. On MLX and analog multiline telephones, the digits appear on the display as the user dials the number. An MLX display telephone user receives a feedback message confirming that his or her calls are now forwarded to an outside number.

When an MLX display telephone user turns Follow Me on or off, the display prompts for the forwarding extension. After the feature is turned on, the message Signed In appears. After the feature is turned off, Signed Out appears.

If an MLX display telephone user enters an invalid destination while turning on Forward, the display clears. If a user enters an invalid extension while turning on Forward, Remote Call Forwarding, or Follow Me at an analog multiline display telephone, the display shows Error.

Do Not Disturb

Calls are not forwarded to a destination extension that has Do Not Disturb turned on; the call rings only at the forwarding telephone as described in Table 20. Turning on Do Not Disturb at the forwarding extension does not prevent the calls from being forwarded.

Forced Account Code Entry	Telephones with Forced Account Code Entry assigned can forward calls only to extensions and not to outside telephone numbers. If Forced Account Code Entry is activated at an extension, the extension cannot use Remote Call Forwarding to program an outside number. If the extension already has Remote Call Forwarding on with an outside number programmed when Forced Account Code Entry is activated, then Remote Call Forwarding is overridden and calls ring only at the extension.
Group Calling	An available calling group member is automatically logged out when the member forwards his or her calls. If a calling group member logs in while calls are being forwarded, Forward or Remote Call Forward is automatically canceled. Calls cannot be forwarded to a calling group. When a trunk programmed to ring into a calling group is assigned as a personal line on a principal user's telephone, an incoming call received on the personal line is not sent to the calling group if the principal user forwards calls to an outside telephone number through Remote Call Forwarding.
Multi-Function Module	Forward (including Remote Call Forward) and Follow Me should not be used on an MFM because the user does not have an LED that indicates when the feature is active.
Night Service	When Night Service is turned on, calls arriving for a Night Service group member can be forwarded to an extension using Forward or Follow Me. However, calls cannot be forwarded to an outside telephone number using Remote Call Forward.
Paging	Calls cannot be forwarded to a paging group. The trunk number used to connect loudspeaker paging equipment cannot be used to forward calls to outside telephone numbers.
Park	Returning parked calls are not forwarded.
Personal Lines	When an extension is programmed as the principal user of a personal line, calls arriving on the personal line can be forwarded to an outside number (if the extension can use Remote Call Forward), unless the personal line is a loop-start trunk with unreliable disconnect.
Pickup	Pickup cannot be used to answer calls being forwarded to an outside telephone number.
Pools	A pool can be used to forward calls to an outside telephone number. Enter the pool dial-out code before the telephone number.
Remote Access	Turn on Forward or Remote Call Forward through Remote Access. To do so, call into the system on a trunk that is programmed for Remote Access and enter the barrier code, if required. To forward calls to an extension, dial *#33* while listening to system dial tone; then dial the forwarding extension number and the destination extension number.

Remote Access ***continued***

To forward calls to an outside telephone number, dial *#33* , then the forwarding extension number, then the ARS or pool dial-out code (Hybrid/PBX mode only), the Idle Line Access code (usually *9*; Key and Behind Switch modes only), or the trunk number (usually 801–880). Then dial the destination telephone number and # to signal the end of the dialing sequence.

To cancel forwarding calls to an extension, dial *#33* while listening to system dial tone; then dial the forwarding extension number and then the forwarding extension number again.

Ringing Options

If the forwarding telephone is set to Immediate Ring, calls are forwarded immediately. If the forwarding telephone button is set to Delay Ring, calls that arrive on that button are delayed before forwarding. If the forwarding telephone button is set to No Ring, calls that arrive on that button do not get forwarded.

SMDR

If the system is programmed to track both incoming and outgoing calls, two Station Message Detail Recording (SMDR) records are generated when an outside call is forwarded to an outside telephone number. One record shows the incoming call, and the other record shows the call made to the destination telephone number with the forwarding telephone as the originator.

Programming of the Remote Call Forwarding number for incoming calls to be forwarded to is completed by pressing #. The SMDR report includes the # with the number for calls forwarded to the number.

System Access/ Intercom Buttons

A **Shared SA** button cannot be used to turn on Forward or Remote Call Forward for the principal's telephone. Calls received on a **Shared SA** button are not forwarded.

When calls are forwarded to an extension, a call received on an **SA** or **ICOM** button rings once at the forwarding extension's **SA** or **ICOM** button (including all assigned **Shared SA** buttons, even though a call received on these buttons is not forwarded) and rings at the destination extension's **SA** or **ICOM** button (including all assigned **Shared SA** buttons) until it is answered.

Transfer

Inside and outside calls transferred by another user or by an operator are forwarded. If a user transfers a call to an extension with calls forwarded, the extension receiving the forwarded calls hears one burst of ring, indicating an inside call. If the extension is a display telephone, the call information appears as an inside call and not an outside call. Returning transferred calls are not forwarded.

Voice Announce

Voice-announced calls are not forwarded.

Group Calling

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Dial Plan
	Direct Group Calling Information
	Extension Information
	System Information
Mode	All
Telephones	
Supervisor	One of the following assigned as a DLC:
	MLX-20L
	MLX-28D
	MERLIN II System Display Console
	BIS-34D
	BIS-22D
Member	All
Programming Codes	
Any multiline telephone	
Calls-In-Queue Alarm	**22* + *calling group ext. no*.
Calling group supervisor	
Unavailable (ES Status 0)	**760*
Available (ES Status 2)	**762*
Calling group members	
Log in/out	**44*
Feature Codes	
Calling group supervisor	
Enter Supervisory Operation	*32* + **Hold**
Exit Supervisory Operation	*32* + **Drop**
Unavailable (ES Status 0)	*760* + DSS
Available (ES Status 2)	*762* + DSS
Calling Group members	
Log In	*44*
Log Out	**44*
MLX Display Labels	
Unavailable (ES Status 0)	ES Status,ES Off [ES,ESOff]
Available (ES Status 2)	ES Status,ES2 [ES,ES2]

At a Glance - *Continued*

System Programming	Assign calling group members and calling group supervisors to each calling group: • Extensions→**More**→Grp Calling→Members Assign lines/trunks to ring into calling group: • Extensions→**More**→Grp Calling→Line/Pool Select hunt type, Circular or Linear: • Extensions→**More**→Grp Calling→Hunt Type Designate delay announcement device: • Extensions→**More**→Grp Calling→DelayAnnce Calling group as receiver for a Group Coverage sender: • Extensions→**More**→Grp Calling→GrpCoverage Assign message-waiting receiver for calling group: • Extensions→**More**→Grp Calling→Message Set overflow threshold and designate calling group or QCC queue as overflow receiver: • Extensions→**More**→Grp Calling→Overflow→Change Choose calling group type to determine whether calling group members are automatically logged in after a system restart. When calling group is used for voice messaging systems, specify whether VMI type is integrated or generic: • Extensions→**More**→Grp Calling→Group Type→Change Calls-in-queue alarm threshold: • Extensions→**More**→Grp Calling→Queue Alarm Assign external alert to notify calling group members of calls-in-queue alarm: • Extensions→**More**→Grp Calling→Xtnl Alert Enter display label for calling group: • **More**→Labeling→Grp Calling
Maximums	
Calling groups	32
Telephones for each group	20
Calling groups for each telephone	1
Calling groups for each trunk	1
Delay announcement devices for each system	32 (one for each group, can be shared among groups)
Message-waiting receivers for each calling group	1 (can be shared among groups)

At a Glance - *Continued*

Overflow Threshold (for calls-in-queue alarm)	1 (range 1–99)
External Alerts for each group	1
Overflow Receivers for each group	1 (can be shared among groups)
Factory Settings	
Calling group extension numbers	770–791, 7920–7929
Extension Status	Calling Group/CMS
Hunt Type	Circular
Group Type	Auto Logout

For additional information about calling group activities, see “Extension Status.”

Description

Group Calling is used to direct incoming calls to a specific group of telephones (a *calling group*). A calling group is a team of individuals who answer and handle the same kinds of calls, for example, high-volume work groups such as sales, service, marketing, repair, and technical support. Also, fax machines that receive a large number of fax messages can be placed in a calling group to allow multiple calls to be sent.

Through Group Calling, all members in the calling group are assigned to a single extension number. Specific trunks can be assigned to ring directly into the calling group so that outside callers can dial a published telephone number to reach the group, bypassing the operator.

Individual calling group member extensions are assigned an extension number, allowing a group member to receive calls as an individual and as a group member. Calls that come into a calling group are usually not intended for a particular group member and can be handled by any member. However, inside callers can reach a specific calling group member by dialing the individual extension number assigned to the member.

As calls come into the calling group, the system hunts for an available group member in a circular or linear manner (See “Hunt Type” in this section). If a group member is available, the call rings on an **SA** or **ICOM** button. If all group members are busy or otherwise unavailable, calls are held in a queue. As calling group members become available, the calls are distributed on a first-in, first-out basis.

When all calling group members are busy, inside callers who are transferred to the calling group hear regular ringback and the call is sent to the calling group queue; outside callers hear special ringback or Music On Hold if it is programmed for the system. In addition, an announcement device can be assigned to the group to play a recorded announcement to each waiting caller, in the order that the calls arrive in the queue.

Calling group members log in when they are ready to take calls (called *available status*) and log out while they finish call-related activities or when they leave their positions (called *unavailable status*). Calls are sent to a calling group member only if the member is logged in and is not busy on another call. When the group type is set to Auto Logout (the factory setting) and a call sent to a calling group member is not answered within 30 seconds (5 rings), the call is sent to another member or to the front of the queue if another calling group member is not available. The system automatically logs out the extension where the call went unanswered and makes it unavailable for subsequent calls until the calling group member logs in.

A calling group member is considered available if *all* of the following conditions are met:

- The extension is signed in to the calling group (available status).
- The extension handset is on-hook and a red light is on next to the next line button to be used by Automatic Line Selection, or a headset user has disconnected the last call no red light is on at any line buttons, and the speakerphone is off.
- The extension is not ringing or busy on another call.
- The extension does not have a call on hold (except for a call awaiting transfer).
- The extension is not in programming or test mode.
- An **SA** or **ICOM** button is available for call delivery.
- Do Not Disturb is off.
- Calls are not being forwarded through Forward, Remote Call Forward, or Follow Me.
- The calling group member has not activated Callback to reach a busy trunk (Hybrid/PBX mode only) or extension.
- The calling group member is not about to receive a call from another extension who has used Callback to reach the member.

Calling Group Options

This section describes the Group Calling options assigned through system programming and available only for calling groups.

Calling Group Supervisor Position

The calling group supervisor position is a Direct-Line Console (DLC) with Extension Status assigned through system programming. The calling group supervisor monitors and controls calling group activity by using the LEDs and programmed buttons on the console or DSS.

The supervisor console should include the following programmed buttons:

- For each calling group member, one button programmed with the member's extension, on the telephone (inside Auto Dial) or optional DSS.
- A Calls-In-Queue Alarm button (either on the console or on a DSS), programmed with the calling group's extension, for monitoring calls in queue. A supervisor who manages more than one group needs a button for each group.
- Status buttons for controlling calling group member availability; an Available (ES2) button and an Unavailable (ES0) button. Extension Status features allow a calling group supervisor to change and monitor calling group members' status (and enable members to sign in and out of the calling group). See "Extension Status" for additional information.

Hunt Type

The placement of each extension in the hunting sequence used by the system to search for an available calling group member is determined by the order in which each extension is assigned to the group during system programming. When the first call arrives for a calling group after a system is installed or restarted (cold start), the system searches for an available group member, starting with the first extension assigned to the group during system programming.

The order in which the system searches for an available calling group member for subsequent calls can be either circular or linear and is called the *hunt type*. The two hunt types are as follows:

- **Circular.** As subsequent calls arrive, the system searches for an available calling group member, starting with the extension after the last extension to receive a call. This ensures that calls are evenly distributed among group members. The circular order is the factory setting and is used when all group members have the same responsibilities for handling calls.
- **Linear.** As subsequent calls arrive, the system distributes calls, starting with the first extension assigned to the group through system programming. Consequently, most calls are handled by the first member assigned to the group. This method is used, for example, when the primary responsibility of the first calling group member is to take calls, while other group members provide backup.

Delay Announcement

Each calling group can have a delay announcement device that plays a message to a caller, explaining the delay. The device can be connected to the control unit on a 012 (tip/ring) or 008 OPT module, can be connected to an analog multiline telephone through a General Purpose Adapter (GPA), or to an MLX telephone by using a Multi-Function Module (MFM). Each device is identified by the extension number assigned in the system numbering plan. Each calling group can have a separate delay announcement (only one for each calling group), or any number of groups can share one. The delay announcement device should not be assigned as a calling group member.

When no calling group members are available and calls enter the calling group queue, the announcement device answers the call that has been waiting longest and plays the recorded message. After the delay announcement, an inside caller hears a special ringback, a transferred inside caller hears regular ringback, and an outside caller (including a transferred outside caller) hears special ringback or Music On Hold, if programmed, until the call is answered by a calling group member. The delay announcement is played only once while the call is in queue.

In Release 2.0 and later, all calls delivered to a jack programmed as a calling group delay announcement device produce a 1-burst inside ring (heard by the caller). In addition, outside calls transferred to a calling group and then answered by either the delay announcement device or a calling group member show the most recent answering extension, not the transferring extension, on the Station Message Detail Recording (SMDR) call record.

If a calling group member becomes available while the caller is listening to the delay announcement, the system immediately routes the caller to the calling group member. The announcement device is then free to handle another queued call.

Each announcement device has an extension number. Therefore, a calling group member or calling group supervisor can dial this number to check or change the announcement as long as the delay announcement device allows the user to read or change messages remotely.

If the device is malfunctioning and does not answer the call within 30 seconds (five rings), the system automatically logs out the device and makes it unavailable for subsequent calls until the calling group supervisor logs in the device or until the next system restart. The only effect on incoming calls is that callers do not hear the announcement.

If a caller hangs up while listening to the delay announcement device, the extension of the delay announcement device, not that of the calling group, is recorded on the SMDR.

Message-Waiting Receiver

The message-waiting receiver is the extension designated to receive message-waiting indications for the calling group. This includes message-waiting indications sent from the operator, from a display telephone using Leave Message, or from a fax machine. Any type of telephone with a message LED can be assigned as a message-waiting receiver.

The extension designated as the message-waiting receiver does not have to be a member of the calling group. Each calling group can have only one extension assigned as its message-waiting receiver, but the same extension can be assigned as the message-waiting receiver for more than one calling group.

Message-waiting indications cannot be sent to the extension number assigned to the group unless this option is programmed. The message-waiting receiver cannot distinguish between messages left for the calling group and personal messages.

Overflow Threshold (Calls-In-Queue Alarm Threshold)

The overflow threshold is the number of calls (1–99) allowed in the queue before calling members are notified. When the number of waiting calls is equal to or greater than the programmed overflow threshold (factory setting is one call), the calling group members can be notified in one of two ways:

- Through an external alert connected to an MLX telephone by using a Multi-Function Module (MFM); the MFM is programmed as the alert. Since the tone sent to the alert is continuous, use only a device such as a strobe light, which stays lit until the number of calls drops below the limit. Only one external alert can be assigned to each calling group, and each external alert can be assigned to only one calling group. You should not use a Supplemental Alert Adapter with an analog multiline telephone, because a steady tone is emitted from the telephone when the visual alert is on.

  The system does not block the programming of any extension jack (including extension jacks used for telephones or operator consoles) as an external alert to provide the calls-in-queue alarm. However, programming a telephone or console extension as a calls-in-queue alarm is not recommended, because the telephone rings continuously while the number of calls in the calling group queue is equal to or greater than the programmed threshold.

- Through the LED associated with a Calls-In-Queue Alarm button (inside Auto Dial button) programmed with the calling group's extension or a DSS button that corresponds to the extension. The LED associated with either type of button does not go out until the number of calls drops below the programmed limit. There is no limit to the number of buttons that can be programmed to provide the calls-in-queue alarm indication.

Any multiline telephone in the system can be used to monitor the status of a calling group's queue by programming a Calls-In-Queue Alarm button. An MLX display telephone can be used to view the number of calls in a queue (1–99) on the display by pressing the **Inspct** button and then pressing the Auto Dial button (Calls-In-Queue Alarm button) programmed with the calling group's extension number. The Inspect feature cannot be used on a DSS button.

Overflow Receiver

When the number of calls waiting in the calling group queue reaches the overflow threshold, calls can be sent to an overflow receiver, which can be another calling group or the Queued Call Console (QCC) queue. Only one calling group or the QCC queue can be programmed to provide overflow coverage for the same calling group, and each calling group or the QCC queue can provide overflow coverage for more than one calling group. If no overflow receiver is programmed, the call continues to ring in the queue until it is answered or the caller hangs up.

Calling Group Overflow Receiver

Calls to do not go to an overflow receiver that is a calling group until each of the following conditions is met:

- The number of calls in the queue is equal to or greater than the programmed overflow threshold.
- The overflow calling group has an available calling group member.
- No other calls are already queued for the overflow calling group.

If all conditions are met, the calls are directed to the overflow receiver on a first-in/first-out basis until the number of queued calls in the covered calling group is less than the overflow threshold. The system searches for an available calling group member according to the hunt type assigned to the sending calling group. Calls that overflow to a secondary group cannot overflow again or hear a second announcement.

When the overflow group type is set to Auto Logout and an overflow call is not answered within 30 seconds (5 rings), the overflow calling group member is logged out. The call is returned to the sender calling group's queue and is placed at the front of the queue. The caller does not hear the sender's delay announcement even if the call was sent to the overflow calling group before the caller heard the delay announcement.

QCC Queue Overflow Receiver

When the QCC queue is assigned to provide overflow coverage for a calling group, the following conditions must be met before calls are directed to the QCC queue:

- The number of calls in the calling group queue must be equal to or greater than the programmed overflow threshold.
- No QCC operators can have Position Busy on.

An overflow call that is sent to the QCC queue does not normally return to the calling group even if the call is not answered. If all QCCs have Position Busy active, the calls from the calling group do *not* overflow, and continue to wait in the calling group queue. If all QCC operators *activate* Position Busy *while* an overflow call is in the QCC queue, the call is rerouted to the original calling group.

Calling Group Type

The Group Type setting determines whether or not the system automatically logs in members of a calling group following a power failure. The setting also determines the type of voice messaging interface (VMI) when the calling group is used to connect voice messaging systems or automated attendant applications. The following settings are available:

- **Auto Logout.** This setting is used to specify that the system does not automatically log in calling group members after a power failure. When the Group Type is set to Auto Logout (the factory setting) and a call sent to a calling group member is not answered within 30 seconds (5 rings), the call is sent to another member, or to the front of the queue if no calling group member is available.
- **Auto Login.** This setting is for calling groups used for fax machines or data (also called *data hunt groups*) to specify that the system automatically logs in calling group members following a power failure. Auto Login can be set for calling groups used for telephones.
- **Integrated VMI.** This setting is used when a voice messaging system (such as AUDIX Voice Power, or MERLIN MAIL) that requires special signaling for integrated operation is connected to one or more extension jacks assigned to a calling group. The system automatically logs in the calling group members after a power failure.
- **Generic VMI.** This setting is used when a voice messaging system (such as AT&T Attendant or Integrated Voice Power Automated Attendant) that does not require special signaling is connected to one or more extension jacks assigned to a calling group. The system automatically logs in the calling group members after a power failure.

Considerations and Constraints

An extension can be a member of only one calling group. Calling groups with no members are allowed.

Extension Status must be set to calling group/Call Management System (CMS), the factory setting, and not hotel configuration.

The Integrated or Generic Voice Messaging Interface (VMI) group type should not be assigned to a calling group used for fax machines.

To allow all calling group members' extensions to ring when an outside call is not answered within three rings, the trunks programmed to ring into the queue can

also be assigned to buttons on calling group members' telephones and programmed for Delayed Ring. This does not work for inside calls, remote access calls, and Direct Inward Dial (DID) calls, or if a delay announcement device is assigned to the group.

Trunks that are programmed to ring into a calling group also ring at any telephones that have the trunk assigned to a button. If a call is answered at any one of these telephones, the call is removed from the calling group queue. A trunk can be assigned to a calling group and as a personal line.

A trunk cannot be programmed to ring into more than one calling group.

A trunk cannot be programmed to ring into both a calling group and a QCC queue.

If no trunks are assigned to the calling group, only inside calls are eligible for calling group distribution.

The calling group supervisor can log delay announcement devices in or out.

Any of the multiline and single-line telephones compatible with the system can be used as calling group member positions.

Labels can be assigned to calling groups to identify the name of the group, such as SALES, SERVICE, or CLAIMS, on display telephones.

Do not use a Supplemental Alert Adapter with an analog multiline telephone because a steady tone is emitted from the telephone when the visual alert is on.

The system does not prevent users who are not members of a calling group from using the Available (ES2) and Unavailable (ES0) programmed buttons or feature codes. Call Management System (CMS) agents who may not be calling group members can use these same codes to log in and out of the CMS.

The published number for a calling group can be a DID number.

In Release 2.1 and later, an 012 port that is programmed as a generic VMI port can transfer an outside call to an outside number (trunk-to-trunk transfer). Release 2.0 and earlier can only perform a trunk-to-trunk transfer on ports programmed as integrated VMI.

SECURITY ALERT:

Calling restrictions (for example, Disallowed Lists, Toll Restriction, Facility Restriction Levels) should be programmed, as appropriate, to minimize toll fraud abuse, especially if a single-line telephone is connected to an integrated VMI port. See "Calling Restrictions" and Appendix A, "Customer Service Information" for additional information on programming calling restrictions.

Mode Differences

Behind Switch Mode

Calls to calling groups in a system set up in Behind Switch mode follow the communications system ring pattern, not the central office ring pattern.

Telephone Differences

Direct-Line Consoles

A DLC can be a member of a calling group and is normally used as the calling group supervisor position. Supervisor positions must be assigned to a DLC. Any of the following telephones assigned as a DLC can be used as a calling group supervisor's console:

- MLX-20L telephones with or without a DSS
- MLX-28D telephones with or without a DSS
- BIS-22D
- BIS-34D
- MERLIN II System Display Console with built-in DSS

The supervisor must activate Extension Status to see the status of calling group members and to change their availability; this cannot be done from normal call-handling operation.

To activate Extension Status, press the **Feature** button, dial *32*, and press the **Hold** button. To return to normal call handling, press the **Feature** button, dial *32*, and press the **Drop** button.

To change the availability of a calling group member, the supervisor activates Extension Status (if not already active), and presses a programmed button for Available (ES2) or Unavailable (ES0) and the Auto Dial or DSS button for the group member's extension number. The supervisor can also change the status of extensions by pressing the **Feature** button, dialing the feature code [*762* for Available (ES2) and *760* for Unavailable (ES0)], and pressing the Auto Dial or DSS button for the group member's extension number. A supervisor with an MLX display telephone can change the status of extensions by pressing the **Feature** button, selecting the feature from the display (ES2 On for Available and ES Off for Unavailable), and pressing the Auto Dial or DSS button for the group member's extension number.

Queued Call Consoles

A QCC cannot be a member of a calling group and cannot be assigned as a calling group or CMS supervisor position.

The QCC queue can be designated to provide overflow coverage for calls from one or more calling groups. When an overflow call is sent to the QCC queue, it cannot be identified as a calling group call.

Other Multiline Telephones

Calling group members log into the group by pressing the programmed Available button or by pressing the **Feature** button or # and dialing *44*. To log out, press the programmed Available button or press the **Feature** button or # and dial **44*. A confirmation tone is heard.

To see the number of calls waiting in queue, using an MLX display telephone, press the **Inspct** button followed by the programmed Calls-In-Queue Alarm button. An analog multiline user cannot use the Inspect feature.

Single-Line Telephones

Log into and out of the calling group by lifting the handset (which must be connect to an **SA** or **ICOM** button) and dialing *#44* to log in or *#*44* to log out. A confirmation tone is heard.

Feature Interactions

Auto Answer All

A calling group member with an analog multiline telephone can use Auto Answer All when an answering machine is connected to the extension. When the feature is activated, all incoming calls ringing on the group member's telephone (both calls for the calling group and calls to the group member's own extension) are answered automatically by the answering machine.

Auto Dial

The Calls-In-Queue Alarm button is assigned on a multiline telephone by programming an inside Auto Dial button with the calling group's extension number.

When a DSS adjunct is not available, Auto Dial buttons programmed with each calling group member's extension are used by the calling group supervisor to monitor group member availability.

Barge-In

Barge-In can be used for calling group members, but the member's extension must be used instead of the calling group extension. If a user tries to use Barge-In after dialing the calling group extension number and waiting in the queue, the feature has no effect.

If a person uses Barge-In to reach another user who is waiting in a calling group queue, the queued call is removed from the queue and both people are connected. If a person uses Barge-In for the delay announcement extension and the device is playing a message to a caller, the call is removed from the queue and both people are connected.

Callback

Calls made to a calling group are not eligible for Callback because the call rings into the calling group's queue. However, Callback can be used for calls to individual calling group member extensions or to the delay announcement device. Calling group calls are not sent to the group member extension when the calling group member uses Callback for a busy extension or pool, or if another person used Callback to reach a calling group member and the callback call is ringing on that person's telephone.

Call Waiting

Calls made to a calling group are not eligible for Call Waiting because the call rings into the calling group's queue. However, Call Waiting can be used for calls to individual members of the calling group. If the calling group member is a fax machine, the call-waiting tone is not given to the fax jack.

Camp-On

Users can transfer calls to a calling group by using Camp-On, but calls do not return to the originating extension, even if it is not answered within the programmed camp-on interval. If the calling group is made up of fax machines, a call-waiting tone is not given to the fax jack when the call is camped-on.

Conference

Calls waiting in the calling group queue or ringing at a calling group member's extension cannot be added to a conference call. A user must be connected to a calling group member before the call can be added to the conference.

Coverage

A calling group cannot be programmed as a receiver for Individual Coverage. A coverage group can have a maximum of one calling group as a receiver. If a calling group is programmed as a receiver for a coverage group, it must be the only Group Coverage receiver. However, Individual Coverage (primary and/or secondary) receivers can be programmed. A calling group can be a receiver for a maximum of 30 coverage groups.

As soon as the call is sent from the calling group queue to a calling group member or the delay announcement, the ringing and lit LED is removed from the sender's extension (except for an outside call received on a personal line).

Coverage VMS Off can be activated if the user does not want outside calls to be sent to the voice messaging system.

A calling group cannot be a sender. A calling group member can be a sender for Individual Coverage (Primary or Secondary) or Group Coverage. Calls to the calling group extension number are sent only to the calling group member's Individual Coverage receivers and not to the Group Coverage receivers. Calls to the calling group member's individual extension are sent to both Individual and Group Coverage receivers.

Display

Calling group agents with MLX display telephones see feedback messages on the display when they log into the Available state. When a calling group supervisor with an MLX display telephone logs calling group members in or out, a message appears on the supervisor display and on the group member's display. After pressing either the programmed Available or Unavailable button or dialing the feature code, supervisors with MLX telephones are prompted to indicate which group member they want to log in or out. When a calling group member with an MLX telephone receives an outside call for the calling group, the label of the calling group or GrpCl appears on the display along with the label for the line on which the call came in. If automatic number identification (ANI) or, in Release 2.0 and later, station identification (SID) is available, the number of the caller is shown on the display on MLX telephones after the **More** button is pressed. Analog multiline telephone users see only the line information. Any MLX telephone user can inspect the number of calls in queue by pressing the **Inspct** button and then pressing a button programmed with the calling group's extension. The display shows the label associated with the calling group and the number of calls.

Do Not Disturb

If a calling group member uses Do Not Disturb, calls are not sent to the group member even if he or she is logged in and available.

Extension Status

Extension Status allows calling group supervisors to change and monitor calling group member status and enables group members to sign in and out of the calling group.

Forward and Follow Me

An available calling group member is automatically logged out when she or he forwards calls to an extension or telephone number. If a calling group member logs in while calls are being forwarded, Forward or Remote Call Forward is automatically canceled. Calls cannot be forwarded to calling groups.

A trunk can be assigned both to ring into a calling group and as a personal line. The principal user of the personal line can use Remote Call Forwarding to forward calls to an outside telephone number. In this case, incoming calls do not ring into the calling group.

Hold

A calling group member who puts a call on hold by using the **Hold** button is considered unavailable for incoming calls. Inside callers waiting in the calling group queue cannot put themselves on hold.

Labeling

An alphanumeric label can be assigned to the calling group. The label is displayed on incoming calling group calls to MLX calling group members or when an MLX display telephone user presses the **Inspct** button and an Auto Dial button programmed with the calling group's extension number.

Messaging	Users can leave messages for the calling group only if the system has been programmed with a designated calling group message-waiting receiver. The receiver also receives fax message-waiting indications directed to the calling group. The message-waiting receiver cannot distinguish between messages left for the calling group and fax or personal messages.
Multi-Function Module	A Multi-Function Module can be a member of a calling group, can be assigned as a delay announcement for a calling group, or can be used to connect an external alert for a Calls-In-Queue Alarm. An MFM that is used for the delay announcement or Calls-in-Queue Alert should not be assigned as a group member.
Music On Hold	An outside caller waiting in the calling group queue hears Music On Hold, if programmed.
Night Service	In Release 2.0 and later, a calling group can be a Night Service group member.
Park	A calling group member who parks a call is considered available to receive another call.
Personal Lines	To allow all calling group members' telephones to ring when an outside call is not answered within three rings, the trunks programmed to ring into the queue can also be assigned to buttons on group member telephones and programmed for Delay Ring. This Delay Ring technique does not work for inside calls, remote access calls, or DID calls, or when a delay announcement device is assigned to the group. If a person with a shared personal line button answers a call waiting in the calling group queue, the call is removed from the queue. If a delay announcement is playing, it is disconnected from the call.
Pickup	A calling group member can be a member of a Pickup group. Calling group members can use Pickup to answer a call (either to the calling group or to the individual group member's extension) ringing at another group member's telephone. Line Pickup can be used to pick up a call in the calling group queue.
Pools	Trunks assigned to pools can be assigned to ring into a calling group. An incoming call on a trunk assigned to the pool rings on an **SA** button, even if the calling group member has a **Pool** button assigned.
Remote Access	Remote access users cannot log into a calling group, but a remote access user can call into a calling group regardless of the restrictions applied. When the call rings at a calling group member's telephone, it rings as an outside call. A calling group can be programmed to receive calls from remote access users to invalid extensions. If a trunk is programmed for both Remote Access and Group Calling, Remote Access overrides Group Calling.

Ringing Options

Abbreviated Ring is not operable for calls to the calling group extension because a calling group member active on a call is considered unavailable for incoming calls. In Hybrid/PBX mode, calling group members should program **SA** buttons for Immediate Ring.

Signaling

A Signaling button cannot be programmed for a calling group.

SMDR

In Release 2.0 and later, calls to calling groups are associated with the most recent extension to handle the call; that is, if a call is transferred to a calling group, the calling group extension appears on the Station Message Detail Report (SMDR). If the call is answered by the calling group delay announcement device, the extension for the device is recorded on the SMDR record, but it is overwritten if the call is answered by a calling group member.

Timing begins as soon as the calling group member or delay announcement device answers the call. If the caller hangs up while listening to a delay announcement, the call is associated with the extension of the answering device.

System Access/Intercom Buttons

Calls to a calling group ring on **SA** or **ICOM** buttons on the telephones of calling group members. A calling group member who is making or receiving a call on a **Shared SA** button is considered unavailable by the system; the principal owner, however, is considered available and can still receive calls directed to the calling group.

System Numbering

Extensions for calling groups (the factory-set extensions are 770–791 and 7920–7929) are assigned and can be renumbered through system numbering.

Transfer

A call transferred to a calling group is not returned to the originator; the call is handled like any other call received in the calling group. For example, the system follows the same hunt sequence to locate an available calling group member, and the call is eligible for a delay announcement if one is programmed. A calling group member who has a call on hold for transfer is considered available for a call, since transfer hold requires pressing the **Transfer** button rather than the **Hold** button.

Voice-announced transfers cannot be made to a calling group. There is no limit to the number of calls that can be transferred to a calling group.

In Release 2.0 and later, when an inside caller is transferred to a calling group and no members are available, the inside caller hears a 1-burst ringback. When an outside caller is transferred to a calling group and no members are available, the outside caller hears a 2-burst ringback or Music On Hold (if programmed).

Headset Options

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information
Mode	All
Telephones	MLX telephones
Programming Codes	
Headset Hang Up	**781* (centralized telephone programming only; not applicable on QCC)
Headset Status	**782*
Headset Auto Answer	**780*
Headset/Handset Mute	**783*
MLX Display Labels	
Headset Hang Up	Hdset,Hang Up
Headset Status	Hdset,Status [Hdset,Stat]
Headset Auto Answer	Hdset,Auto Answer [Hdset,Auto]
Headset/Handset Mute	Hdset,mute [Hdset,Mute]

Description

Four headset options are provided for MLX telephone users and operators who have an optional headset adjunct:

- Headset Hang Up (except for Queued Call Console)
- Headset Status
- Headset Auto Answer
- Headset/Handset Mute

Headset Hang Up

When programmed on a button on an MLX telephone or MLX Direct-Line Console (DLC), Headset Hang Up serves two purposes:

- Programming a Headset Hang Up button automatically turns on headset operation for that extension, enabling the user or operator to answer and make calls using the headset instead of the handset. Removing the Headset Hang Up button from an MLX telephone or MLX DLC automatically turns off headset operation for that extension.

- The user or operator presses the Headset Hang Up button to disconnect a headset call. The button replaces switchhook operation, which is disabled when headset operation is active. (Pressing the button has no effect on its LEDs, which are always off.)

For the user or operator to be able to use the headset, a Headset Hang Up button must be programmed (centralized telephone programming) for an MLX telephone or MLX DLC.

A Headset Hang Up button is not needed and cannot be programmed on a Queued Call Console (QCC).

To give control of headset/handset operation to an MLX telephone user or MLX DLC operator who has a Headset Hang Up button, a Headset Status button can also be programmed, as described in the next section. On a telephone or console with a Headset Hang Up button but without a Headset Status button, headset operation is always on.

NOTE:
If an MLX telephone or MLX DLC has a Headset Status button and/or a Headset Auto Answer button (described in the following two sections) in addition to a Headset Hang Up button, the Headset Hang Up button can be removed through centralized programming, without removing the Headset Status or Headset Auto Answer button. If either of these features is on, the green LED next to the button stays on. However, the telephone or console is no longer in headset operation and neither the Headset Status nor the Headset Auto Answer button has any effect, whether on or off, until a Headset Hang Up button is reprogrammed for the extension.

Headset Status

When a Headset Hang Up button is programmed on an MLX telephone or MLX DLC, Headset Status is automatically turned on. Programming a Headset Status button also allows the user or operator to turn headset operation off and on manually. With headset operation on (green LED next to Headset Status button is on), the user or operator answers and makes calls with the headset. With headset operation off (green LED next to Headset Status button is off), the user or operator answers and makes calls with the handset. Two conditions are necessary for an MLX telephone user or MLX DLC operator to use the Headset Status feature:

- A Headset Hang Up button must be programmed, as described in the previous section.
- A Headset Status button must be programmed on the telephone or console, either through extension programming or through centralized telephone programming.

A **Headset Status** button is a fixed feature on a QCC and cannot be deleted or changed.

To use Headset Auto Answer, Headset/Handset Mute, or Headset Hang Up on a telephone or console with a Headset Status button, Headset Status must be on.

When Headset Status is on, switchhook operation is disabled. The handset or speakerphone can be used to make or answer a call, but the only way for the user or operator to disconnect from a call is by pressing the Headset Hang Up button. The user or operator can turn off the headset and switch back to switchhook operation by pressing the Headset Status button (the green LED next to the button turns off).

Headset Auto Answer

A Headset Auto Answer button allows an MLX telephone user or operator with a headset to be connected automatically to a ringing call. Headset Status must be on, as described in the two previous sections before Headset Auto Answer can be used.

When Headset Auto Answer is turned on (green LED next to Headset Auto Answer button is on), the user or operator hears a zip tone through the headset to indicate an incoming call. Following the tone is a brief pause, during which the microphone is temporarily disabled to prevent the user's or operator's private conversation from being heard by the caller.

If a user with Headset Auto Answer on presses the button with a ringing call (for example, when Ringing/Idle Line Preference is turned off), the call is answered without the user hearing zip tone.

Headset Auto Answer can be turned on and off during a call without disconnecting the caller and takes effect immediately.

Headset Auto Answer does not automatically answer voice-announced calls. When the user or operator is on a call, Headset Auto Answer is turned off; calls are not answered automatically until the caller hangs up or the user or operator presses the Headset Hang Up button to disconnect the call.

When the user or operator has a call on hold or is in the process of transferring a call or setting up a conference, Headset Auto Answer is also turned off. If the user or operator pressed the **Conf**, **Hold**, **Direct Voice Mail** (to transfer to voice mail), or **Transfer** button, he or she must press the Headset Auto Answer button to turn the feature back on before another call can be answered automatically.

Two things are necessary for an MLX telephone user or MLX DLC operator to use the Headset Auto Answer feature:

- A Headset Hang Up button must be programmed, as described earlier in this section.
- A Headset Auto Answer button must be programmed on the telephone or console, either through extension programming or through centralized telephone programming.

NOTE:
Users who have extensions programmed for Headset Auto Answer may also receive Caller ID information provided by a loop-start line/trunk connected to the 800 GS/LS-ID module. They should set the line buttons (**SA**, **ICOM**, or other) where the Caller ID information arrives to Delay Ring so that Caller ID information is not lost.

A **Headset Auto Answer** button is a fixed feature on a QCC and cannot be deleted or changed.

Headset/Handset Mute

Headset/Handset Mute allows an MLX telephone user or operator to turn the microphone in the headset or handset off and on. The user or operator can then talk privately with another person in the same room without the caller hearing the conversation. If headset operation is on, Headset/Handset Mute turns off the headset microphone; if headset operation is off, Headset/Handset Mute turns off the handset microphone. The red LED next to the Headset/Handset Mute button is on when the headset or handset microphone is off; it is off when the headset or handset microphone is on.

When headset operation is off, the handset microphone can be turned off using Headset/Handset Mute only when the user lifts the handset.

When headset operation is on, the user presses the programmed Headset Hang Up button to end an outside call even if the caller hangs up. For an MLX telephone user or MLX DLC operator to use Headset/Handset Mute, a Headset/Handset Mute button must be programmed on the telephone or console, either through extension programming or through centralized telephone programming.

A **Headset/Handset Mute** button is a fixed feature on a QCC and cannot be deleted or changed.

Considerations and Constraints

The headset, handset, and speakerphone can be used only one at a time.

Headset Hang Up cannot be programmed on a QCC.

Headset options cannot be used on analog multiline telephones or on single-line telephones.

A headset user must manually select a line button or **Call** button (on the QCC) before making an inside or outside call.

A user can press the **Speaker** button to move the call from the headset to the speakerphone.

Privacy should be programmed when headset users with Headset Auto Answer turned on have **Shared SA** buttons or share one or more personal lines. Privacy keeps people from competing for the same call. When two or more users answer the same call on a **Shared SA** or personal line button, the red and green LEDs next to the button go on, but only one person can talk with the caller.

Telephone Differences

Queued Call Consoles

A QCC does not have a Headset Hang Up button, nor can the button be programmed. Headset operation is automatically available, and **Headset Auto Answer**, **Headset/Handset Mute**, and **Headset Status** are fixed buttons on a QCC.

The function of disconnecting calls served by the Headset Hang Up feature is replaced by the Release, Forced Release, Camp-On, and Automatic Release features.

Other Multiline Telephones

Headset options apply to MLX telephones and consoles only.

The telephone user or operator cannot use feature codes or extension programming to activate Headset Hang Up. This feature must be programmed on a button through centralized telephone programming.

The telephone user or operator cannot use feature codes to turn Headset Auto Answer, Headset/Handset Mute, or Headset Status on or off. These features must be programmed on buttons through extension programming or centralized telephone programming. MLX display telephone users can select the feature from the display only during extension programming.

Feature Interactions

Authorization Code	If a call is made using an authorization code, pressing the **Headset Hang Up** button causes deactivation of the Authorization Code feature.
Auto Dial	If headset operation is turned on at the telephone or console, select a line button before dialing an extension or an outside number using Auto Dial.
Automatic Line Selection	Automatic Line Selection does not work when an MLX telephone or console is in headset operation. A headset user must select a line manually before making a call.
Barge-In	If Barge-In is used to contact a user with Headset Auto Answer turned on, the call is answered automatically.
Callback	Callback calls are answered automatically when Headset Auto Answer is turned on, but the user hears the dequeuing tone instead of zip tone. When both caller and receiver have headsets with Headset Auto Answer on, the person being called hears zip tone when the callback call is completed, but the callback originator does not hear zip tone or dequeuing tone.
Caller ID	When using Headset Auto Answer on an extension, the intercom and line buttons should be programmed for Delay Ring so that the Caller ID information, available to the user after the first ring, is not lost.
Conference	Headset Auto Answer is turned off automatically while the user sets up a conference, and must be turned on manually to resume using the feature.
Direct Voice Mail	When an MLX telephone user (except for a QCC operator) transfers a call using Direct Voice Mail, Headset Auto Answer is turned off and must be turned on manually to resume using the feature.
Do Not Disturb	If an MLX telephone user with Headset Auto Answer turned on uses Do Not Disturb, any calls that override Do Not Disturb (such as Barge-In calls and callback calls) are answered automatically.
Hold	Headset Auto Answer is turned off automatically when a user or operator puts a call on hold and must be turned on manually to resume using the feature.
Paging	A user or operator with a headset operation active hears a group page over the speakerphone.
Park	If a user or operator has a call parked, another call can be answered automatically by using Headset Auto Answer.

Privacy	Privacy should be programmed when headset users with Headset Auto Answer on have **Shared SA** buttons or share one or more personal lines. Privacy keeps the users from competing for the same call. When two or more users answer the same call on a **Shared SA** or personal line button, the red and green LEDs next to the button go on, but only one person can talk with the caller.
Ringing Options	Headset Auto Answer does not automatically answer calls ringing on buttons programmed for No Ring. A user must manually select the button to answer the call. When Abbreviated Ring is programmed, the user hears an abbreviated ring if another call comes in while he or she is already on a call.
Ringing/Idle Line Preference	Ringing Line Preference does not operate if Headset Auto Answer is turned off while headset operation is active. To answer a call, press the button with the ringing call. Idle Line Preference does not operate when headset operation is active. Select a line button manually before making an inside or outside call.
Transfer	When an MLX telephone user (except for a QCC operator) transfers a call, Headset Auto Answer is turned off and must be turned on manually to resume using the feature.

Hold

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Operator Information, System Information
Mode	All
Telephones	All
Feature Codes	
Hold	*771*
Hold Release	**
System Programming	Change hold disconnect interval: • Lines/Trunks→**More**→HoldDiscnct Enable or disable DLC operator Automatic Hold for all DLC operators: • Operator→DLC Hold Change operator hold timer for all DLC and QCC operators: • Operator→Hold Timer Specify whether calls on hold return to QCC queue after operator hold timer has expired twice: • Operator→Queued Call→Hold Rtrn Select Automatic Hold or Automatic Release for all QCC operators: • Operator→Queued Call→HoldRelease
Factory Settings	
Hold Disconnect Interval	Long (450 ms)
DLC Operator Automatic Hold	Disabled
Operator Hold Timer	60 sec (range 10–255 sec)
Hold Timer for Users	60 sec (fixed)
QCC Hold Return	Remain on Hold
QCC Hold Release	Automatic Release

Description

Hold allows a user to leave a call temporarily in order to perform some other function, such as take another call, look up information, or activate a feature.

When a user, except for a Queued Call Console (QCC) operator, puts an outside call on hold, the green LED next to the line button flashes at a faster rate to distinguish the call from calls put on hold by other users.

An outside caller on hold hears Music On Hold, if programmed, or silence. If a call on hold is not picked up within a set length of time, the person who put the call on hold hears a reminder: a beep for a telephone user, an abbreviated ring for a system operator. This hold timer is fixed at 60 seconds for telephone users. It is programmable for DLC and QCC operators, as described below.

At an MLX display telephone, the message Call On Hold appears briefly on the display when the user first puts a call on hold. This message reappears briefly each time the hold timer expires.

Five systemwide Hold options can be set through system programming:

- **Hold Disconnect Interval.** Determines how long the system waits before releasing the trunk when an outside caller on hold on a loop-start trunk hangs up. The hold disconnect interval should be programmed to match the local telephone company's disconnect timing: Long if disconnect is unreliable, and Short if disconnect is reliable. The hold disconnect interval applies to all telephone users and system operators. This interval can be set to the following values:
  - Long (the factory-set value): 450 ms
  - Short: 50 ms
- **DLC Operator Automatic Hold.** Determines what happens when a DLC operator is on a call and presses another line button, an Auto Dial button, or a Direct Station Selector (DSS) button. The DLC Operator Automatic Hold setting applies only to DLC operators. This option can be set to the following values:
  - **Enabled.** The active call is automatically put on hold. This prevents accidental disconnection of callers.
  - **Disabled** (factory-set time). The active call is disconnected. This allows the operator to disconnect one call and answer or dial another by pressing a single button.
- **Operator Hold Timer.** Determines how long a call stays on hold before the system reminds the DLC or QCC operator that it has not been picked up. The operator hold timer applies only to DLC and QCC operators. The operator hears a reminder (abbreviated ring) when the timer expires. This timer can be set to a value between 10 and 255 seconds (the factory-set value is 60 seconds).

  If a call is ringing at the console when the timer expires, the reminder is delayed for 10 seconds so that the operator has a chance to hear it. (If after 10 seconds the call is still ringing or a new call is ringing, the reminder is delayed for another 10 seconds, and so on.)

- **QCC Hold Return.** Determines what happens to a call that a QCC operator has put on hold and that has not been picked up after the operator hold timer has expired twice. (The timer is not counted as having expired until the operator actually hears the reminder.) The QCC Hold Return option applies only to QCC operators. This option can be set to the following values:
  - **Remain on Hold** (factory setting). The call remains on hold until picked up. The QCC operator continues to hear an abbreviated ring every time the operator hold timer expires.
  - **Return to Queue.** The call returns to the QCC queue. The caller hears ringback.
- **QCC Hold Release.** Determines what happens when a QCC operator is on a call and presses another **Call** button. The Hold Release option applies only to QCC operators. This option (equivalent to DLC Operator Automatic Hold for DLC operators) can be set to the following values:
  - **Automatic Hold.** The active call is put on hold. This prevents accidental disconnection of callers.
  - **Automatic Release** (factory setting). The active call is released. This allows the operator to disconnect one call and answer another by pressing a single button.

Considerations and Constraints

The factory setting for the hold disconnect interval is Long (450 ms), since that is the interval used by most local telephone companies.

If the hold disconnect interval set for the system does not match that of the local telephone company, the system may have the following problems with calls on hold:

- If the interval is shorter than the setting at the local central office, callers on hold may be disconnected.
- If the interval is longer than the setting at the central office, the LED next to the line button continues to flash after a caller on hold hangs up.

Both parties on an inside call cannot put each other on hold. If a user presses the **Hold** button while waiting on hold on an inside call, the call is disconnected.

Telephone Differences

Direct-Line Consoles

When DLC Operator Automatic Hold is enabled, a DLC operator can put an active call on hold by pressing another line button or DSS button.

If the system is programmed for One-Touch Transfer, the operator can press an Auto Dial or DSS button to put an active inside or outside call on hold and initiate a transfer, whether or not DLC Operator Automatic Hold is enabled.

If the system is not programmed for One-Touch Transfer, the operator can press an Auto Dial or DSS button to put an active *outside* call on hold and initiate a transfer, whether or not DLC operator Automatic Hold is enabled. (This capability is called *One-Touch Hold*.)

Every time the operator hold timer expires, the DLC operator hears an abbreviated ring as a reminder that a call is on hold.

Queued Call Consoles

Pressing the **Hold** button to put a caller on hold makes the QCC operator available for incoming calls from the QCC queue.

The first two times the operator hold timer expires, the QCC operator hears an abbreviated ring as a reminder that a call is on hold.

If the operator does not pick up a call by the time the timer expires twice, the Hold Return option determines whether the call remains on hold or returns to the QCC queue. If this option is programmed for calls to remain on hold, the operator hears the abbreviated ring every time the operator hold timer expires and no call is ringing on the console. If the option is programmed for calls to return to the queue, each call on hold at the QCC is timed individually. (The operator hold timer is applied separately to each **Call** button.)

When a held call returns to the queue after the second hold reminder, the call is identified by call type and by the name and extension number of the operator who put it on hold. The second line of the QCC display also shows the caller information.

Other Multiline Telephones

Multiline telephones have built-in **Hold** buttons.

When a call is first put on hold, the display on an MLX telephone briefly shows Call on Hold. This message reappears briefly each time the hold timer expires.

Single-Line Telephones

A single-line telephone user can put a call on hold by sending a switchhook flash: pressing and releasing the **Recall** or **Flash** button or the switchhook, depending on the telephone model. If a single-line telephone user with a call on hold hangs up, the call rings back at the extension.

NOTE:
Some single-line telephones, such as AT&T models 2500YMGL and 2500MMGK, use a timed or positive disconnect. On these telephones, pressing the switchhook disconnects the call. Use the **Recall** or **Flash** button instead of the switchhook to send a switchhook flash.

Feature Interactions

Auto Dial

The **Hold** button is used to enter the Pause special character in a telephone number programmed on an Auto Dial button.

Call Waiting

A person with all calls on hold cannot hear the call-waiting tone.

Conference

When adding other participants to a conference, the conference originator hears the hold reminder if the conference is on hold for longer than one minute (if the originator is a telephone user) or for longer than the operator hold timer setting (if the originator is an operator).

If DLC Operator Automatic Hold is programmed and used by a DLC operator while setting up a conference, the entire conference goes on hold.

Both parties on an inside call cannot put each other on hold. If a user presses the **Hold** button while waiting on hold for a conference initiated by another user (an inside call) or if the user presses the **Conf** button while waiting on hold on an inside call, the entire conference call is disconnected.

The initiator of a conference call can leave the conference by touching **Hold**. The conference initiator can rejoin the conference call by touching the line button of any conference participant.

In Release 2.1 and later, a call that has been put on hold on a Cover button can be added to a conference by a user who has a personal line for the call.

Coverage

Coverage calls answered by any type of receiver can be put on hold. The hold timer or operator hold timer applies to a coverage call on hold.

In Release 2.1 and later, a call that has been put on hold on a Cover button can be picked up by a user who has a personal line for the call. When the call is picked up, the green light next to the personal line lights steady; however, the call is still on hold at the coverage receiver's telephone. Therefore, the user who picked up the held call cannot transfer the call. In order to transfer a call on hold at a Cover button, use Pickup instead of picking up on a personal line button.

Directories

The **Hold** button is used to enter the Pause special character in a telephone number programmed as a System Directory, Extension Directory, or Personal Directory listing.

Disallowed Lists	The **Hold** button is used to enter a wild card character in a Disallowed List entry.
Display	When a call is first put on hold, the display on an MLX telephone briefly shows Call On Hold. This message reappears each time the hold timer expires. On a QCC only, when a held call returns to the queue after the second hold reminder, the call is identified by call type and by the name and extension number of the operator who put it on hold. The second line of the QCC display also shows the caller information.
Group Calling	A calling group member who has put a call on hold is considered unavailable for incoming calls. A user waiting in the calling group queue cannot put the call on hold.
Headset Options	Headset Auto Answer is automatically turned off when an MLX telephone user puts a call on hold.
Hold	If a single-line telephone user with a call on hold hangs up, the call rings back at the extension.
Inspect	If the user presses the **Hold** button while in Inspect mode, Inspect is canceled. The system puts the active call (if there is one) on hold.
Multi-Function Module	A single-line telephone connected to an MFM cannot put a call on hold because the MFM cannot send a switchhook flash.
Paging	A speakerphone paging call can be put on hold only by the originator. However, when an **SA** or **ICOM** Voice button is used to make an inside voice-announced call, either the originator or the person being called can put the call on hold.
Park	When a user or operator parks a call received on a personal line button and it is picked up at another extension and then put on hold, other users who share the personal line cannot press the line button and pick up the call.
Personal Lines, Pickup, and Transfer	The hold timer or operator hold timer applies to a call on hold for transfer. The user or operator hears a reminder (a beep or abbreviated ring) after the timer expires. If a call is received on a personal line and is transferred to another user who receives the call on an **SA** or **ICOM** button and then puts the call on hold, another user who shares the personal line cannot select the shared personal line button and pick up the call. If for some reason the person who received the transfer and put the call on hold cannot return to the call, another user must use Pickup to pick up the call. (For example, an operator can take a message and then disconnect the caller.)

Personal Lines, Pickup, and Transfer ***continued***	In Release 2.1 and later, a call that has been put on hold at a Cover, **SA**, **Shared SA**, or **Pool** button can be picked up by a user who has a personal line button for the call. When the call is picked up, the green light next to the personal line lights steady; however, the call remains on hold at the Cover, **SA**, **Shared SA**, or **Pool** button. The user who picked up on the personal line cannot transfer the call that has been picked up. In order to transfer a call on hold at a Cover, **SA**, **Shared SA,** or **Pool** button, use Pickup instead of picking up on a personal line button.
Privacy	Privacy only protects a call while the user is active on the call. Privacy does not keep a user at another extension from picking up a call while it is on hold.
Recall	Single-line telephones use a switchhook flash to put a call on hold by pressing and releasing the **Recall** or **Flash** button (or if the telephone does not have positive disconnect, press and release the switchhook) depending on the telephone model.
Speed Dial	The **Hold** button is used to enter the Pause special character in a Personal Speed Dial or System Speed Dial telephone number.
System Access/Intercom Buttons	If a call is put on hold on an **SA** or **Shared SA** button, it can be picked up at the principal extension's **SA** button or at any other **Shared SA** button corresponding to the button with the held call. The hold reminder is heard only at the extension that put the call on hold. In Release 2.1 and later, any user with a **Shared SA** button for the call can transfer the held call after picking it up on the **Shared SA** button.

Idle Line Preference

See “Automatic Line Selection and Ringing/Idle Line Preference.”

Inside Dial Tone

At a Glance

Users Affected	Telephone users, operators
Reports Affected	System Information
Mode	All
Telephones	All
System Programming	Options→InsideDial
Factory Setting	Inside dial tone

Description

The system’s inside dial tone is heard when a user lifts the handset or presses the **Speaker** button after an **SA** or **ICOM** button is selected. Two choices are available for inside dial tone:

- **System Inside Dial Tone.** Makes it easy to distinguish an inside line from an outside line.
- **Outside Dial Tone.** Required by some adjuncts and applications that do not recognize inside dial tone, such as voice messaging systems or modems connected to the system. With this setting, inside dial tone sounds the same as outside dial tone.

Inspect

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	MLX display telephones

Description

Inspect allows an MLX display telephone user who is on a call to see call information about an incoming call that is ringing, alerting, or on hold.

Call information includes whether it is an inside or outside call, any programmed labels for the caller (such as the inside caller's name or the label assigned to the outside line), and how the call came to the user (transferred, coverage call, forwarded, and so on). Inspect can also be used to inventory what is programmed on the telephone's buttons.

To use Inspect to screen incoming calls while on another call or to identify callers on hold on the telephone using an MLX display telephone, press the **Inspct** button and then press the line button with the incoming or held call. The call information is displayed on the Inspect screen.

To Inspect a programmed button, press the **Inspct** button and then press the programmed button. The name of the feature programmed on the button is displayed on the Inspect screen. However, beginning with Release 2.0, pressing a programmed Last Number Dial or Saved Number Dial button shows the telephone number stored; if no number has been stored on either of these buttons, the feature name is displayed.

Considerations and Constraints

If the company subscribes to special services, such as AT&T's INFO2 Automatic Number Identification (ANI) service or Caller ID, the display shows the outside telephone number of the person calling.

NOTE:
The availability of the caller identification information may be limited by local-serving (caller's) jurisdiction, availability, or central office equipment.

If a line button is being inspected, it cannot be used to make or receive a call.

If a user inspects a line that someone else is using, the display shows that the line is in use.

If Inspect is activated and someone makes a voice-announced call or a group page to the user, the Inspect feature is canceled and the Home screen is displayed.

Pressing the **Feature**, **Menu**, or **Home** button while Inspect is activated cancels Inspect.

If a user is active on a call while using Inspect and presses a fixed-feature button, for example, the **Hold**, **Transfer**, or **Drop** button, the system cancels Inspect and attempts to activate the feature.

Telephone Differences

Direct-Line Consoles

Inspect cannot be used on analog Direct-Line Consoles (DLCs).

Queued Call Consoles

When a conference participant joins a conference by using a shared personal line or **Shared SA** button, the QCC display is updated to include this participant. However, if the QCC operator uses the Inspect feature to verify the number of participants, the number shown on the display does not include participants joining the conference on the **Shared SA** or personal line button.

If a QCC operator presses any of the buttons programmed with fixed QCC features (for example, a **Call**, **Start**, or **Source** button) while in Inspect mode, the console remains in Inspect mode. However, if the operator presses the **Feature**, **Transfer**, **HFAI**, **Conf**, **Mute**, **Drop**, **Speaker**, or **Hold** button, the console is removed from Inspect mode.

Other Multiline Telephones

Inspect is available only on MLX display telephones.

Single-Line Telephones

Inspect cannot be used on single-line telephones.

Feature Interactions

Alarm (Operator)	Inspect can be used on an MLX DLC or a Queued Call Console (QCC) to display the number of system alarms.
Conference	If the user presses the **Conf** button while Inspect is activated, Inspect is canceled and the system tries to activate the Conference feature.

Direct Station Selector

Inspect can be used to display limited information, such as extension number and label and number of messages, for each DSS button. To use Inspect, the operator presses the **Page** button for the range of extensions, then the **Inspct** button, then the individual DSS button for an extension. Inspect must be activated separately for each page on the DSS; to inspect another page of extensions, the operator must press the **Home** button and repeat the process.

When the operator inspects a DSS button associated with an extension, Line 1 of the display shows the extension, the label associated with the extension, if any, and the number of messages that have been left for that extension, if any. It the extension has posted a message, Line 2 shows the posted message.

In Release 2.0 and later, the operator can inspect a DSS button with a red LED on to see whether the extension is busy or using Do Not Disturb. If the user at the extension has turned on Do Not Disturb, the Do Not Disturb message is also posted and appears on the operator's display. (However, the message may also mean that the user has posted the message without turning on the Do Not Disturb feature.)

Drop

If the user presses the **Drop** button while active on a call with Inspect activated, Inspect is canceled and the system attempts to activate the Drop feature.

Group Calling

Any MLX telephone user can inspect the number of calls in the calling group queue by pressing the **Inspct** button and then pressing a button programmed with the calling group's extension (Calls-In-Queue Alarm button). The display shows the label associated with the calling group and the number of calls in the queue.

Hold

If the user presses the **Hold** button while active on a call with Inspect activated, Inspect is canceled and the system tries to put the call on hold.

Last Number Dial

Starting with Release 2.0, if a programmed Last Number Dial button is inspected, the display shows the last number stored for dialing. If no number was stored, the feature name is displayed.

Paging

If the user gets a voice-announced inside call or a group speakerphone page while using the Inspect feature, the Inspect feature is canceled and the user is returned to the Home screen.

Saved Number Dial

Starting with Release 2.0, if a programmed Saved Number Dial button is inspected, the display shows the last number stored for dialing. If no number was stored, the feature name is displayed.

Transfer

If a user tries to transfer a call by pressing the **Transfer** button while active on a call with Inspect activated, Inspect is canceled and the user is returned to the Home screen.

Integrated Administration

At a Glance

Users Affected	System manager, installer
Reports Affected	Direct Group Calling Information Group Coverage Information GS/LS Trunk Information System Information
Mode	Key and Hybrid/PBX
Telephones	All
Factory Settings	
Automated Attendant Calling Group	770
Call Answer Calling Group	7926
Fax Response Calling Group	7924
Information Service Calling Group	7927
Message Drop Calling Group	7928
Voice Mail Calling Group	7925
Coverage Group	30 (range 1–30)
Reliable Disconnect	Yes
Delay Ring	2 rings (range 1–6 rings)
Coverage Delay Ring	3 rings (range 1–9 rings)
VMS Transfer Return Interval	6 rings (range 0–9 rings)
Transfer Return Time	6 rings (range 0–9 rings)

NOTE:
Integrated Administration is available with Release 2.0 and later.

Description

The Integrated Administration capability of Integrated Solution III (IS III) simplifies the programming of common information for the system, AUDIX Voice Power, and, if it is also installed, AT&T FAX Attendant System™. Since the AUDIX Voice Power and FAX Attendant applications use some of the same information programmed on the system, Integrated Administration lets the installer or system manager make changes or additions to this information just once, instead of in both applications and the system itself. Using Integrated Administration reduces programming time and effort and ensures that the system and the applications are in agreement.

NOTE:
Integrated Administration uses the word *switch* to refer to the communications system (what we call the *system* in this book).

The communications system and the applications share the following information:

- System numbering of extensions, trunks, and pools
- System labeling that determines the user or other name associated with each extension, trunk, and pool
- The coverage group that sends its calls to the applications
- The calling group set up for each service of the applications
- The Reliable Disconnect setting for loop-start trunks
- The Delay Ring and Coverage Delay Interval settings
- The Transfer Return Time and VMS transfer return interval settings

Integrated Administration consists chiefly of three related functions accessed from the Integrated Solution III menu (for users) or the Integrated Solution Maintenance menu (for qualified technicians only):

- **Extension Directory Setup** (on the Technician Maintenance menu, for qualified technicians only). Used during installation to read all switch extensions and extension labels into the database of extensions accessed by the applications.
- **Extension Directory.** Allows the technician or system manager to add, change, or delete extensions, change extension labels, and add or delete subscribers to AUDIX Voice Power or AUDIX Voice Power/FAX Attendant.
- **System Programming/Switch Administration.** Accessed through the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu, allows the technician or system manager to program common information used by the communications system and the applications. Through this selection, the user configures call handling by Automated Attendant and adds or deletes trunks and pools for Call Answer, FAX Response, Information Service, Message Drop, and Voice Mail.

Application Switch Defaults

Integrated Administration provides application switch (system) defaults on the Technician Maintenance menu, for qualified technicians only. This program option displays current values and allows the user to change the following settings used by the applications:

- Coverage group
- Automated Attendant calling group
- Call Answer calling group
- FAX Response calling group

- Information Service calling group
- Message Drop calling group
- Voice Mail calling group

This screen also displays the following current defaults that are used when programming the applications. For comparison purposes, it also shows the current values set on the system (the *switch*):

- Reliable Disconnect
- Delay Ring
- Coverage Delay Interval
- VMS transfer return interval
- Transfer Return Time

Using this screen, the user can change the values for the applications only. A difference between the AUDIX Voice Power and switch (system) default columns, other than at initial installation, indicates that the values have been changed on the system through system programming, using the programming console or System Programming and Maintenance (SPM). This information can be helpful in troubleshooting problems.

- **Backup Files.** Allows the user to back up all Integrated Administration programming to tape. (Note that this function backs up the application database, and is not the same as the system programming backup available through SPM.)
- **Restore Files** (on the Technician Maintenance menu, for qualified technicians only). Allows the user to restore all Integrated Administration programming from tape. (Note that this function restores the application database, and is not the same as the system programming restore available through SPM.)

Automatic Reconciliation

NOTE:
The automatic reconciliation program has been disabled, beginning with Integrated Solution III Version 1.2.

If the technician or system manager changes extension numbering on the switch, using the MLX-20L console or System Programming and Maintenance (SPM), the system and the application database are no longer in agreement. To reduce the chance that such changes will disrupt communication between the system and the applications, Integrated Administration includes an automatic reconciliation program that runs every day at 3:00 a.m., comparing the application database to the switch programming and bringing the two into

agreement. The program makes changes, as necessary, only to the application database, according to the rules listed in Table 21. It does not change the system programming.

Table 21. Database Reconciliation Rules

Extension appears in...		
System	**Application Database**	**Action**
Yes	Yes	None
Yes	No	Extension is added to database. Can be added as AUDIX Voice Power or AUDIX Voice Power/FAX Attendant subscriber through Extension Directory screen.
No	Yes (regular extension)	Extension is deleted from database and removed as an AUDIX Voice Power or AUDIX Voice Power/FAX Attendant subscriber.
No	Yes (special extension)	Extension is retained as special-purpose extension in database.
Yes	Yes (special extension)	Extension is converted from special-purpose extension to regular extension in database.

Platform Requirements

IS III is delivered already installed and configured with the applications the customer has ordered. The system consists of an AT&T Multi-Application Processor/5 running UNIX System V Release 3.2.2. Various hardware configurations are available; see *Integrated Solution III Installation and Maintenance Guide* for details.

For AUDIX Voice Power, an 012 module with a ring generator must provide the tip/ring interface.

The number of voice channels required for AUDIX Voice Power depends on the number of incoming trunks, the number of subscribers programmed for the system, and the number of busy-hour calls. Table 22 shows these requirements.

Table 22. Voice Channels Required

Channels Required	Trunks	Subscribers	Busy-Hour Calls
2	1 to 6	1 to 20	1 to 20
4	7 to 18	21 to 60	21 to 60
6	19 to 24	61 to 80	61 to 80
8	25 to 42	81 to 200	81 to 200
12	Over 42	201 to 300	201 to 300

Installation Overview

The qualified technician uses Integrated Administration during installation. The steps below describe basic tasks, not detailed procedures. (See the AUDIX Voice Power or FAX Attendant *System Manager's Guide* for complete instructions on programming the applications and *System Programming* for complete instructions on programming the system.) Note that the sequence of tasks differs, depending on the installation:

- If the communications system and IS III are both being installed for the first time, the technician must do some initial programming on the system, as described in Step 1.
- If IS III is being installed on an existing system, the technician skips Step 1.

1. *On installation of both the system and IS III*, program the following basic system operating conditions. SPM in surrogate mode is typically used for this step, but the programming console can also be used.
    - Mode of operation (Hybrid/PBX or Key only for Integrated Administration)
    - System renumbering
    - System operator positions
    - Phantom extensions
    - Assignment of trunks to pools
2. Select Application Switch Defaults from the IS III Technician Maintenance menu, and, if necessary, change any of the values displayed for the applications.
3. Select Extension Directory Setup from the Technician Maintenance menu. This step reads the system extension directory (including any labels already programmed on the switch) into the application database.
4. Select Extension Directory and on the resulting screens, program the following:
    - Assignment of extensions as AUDIX Voice Power subscribers (if FAX Attendant is installed, this step also assigns the extensions as FAX Attendant subscribers)
    - Assignment of special-purpose extensions
    - Labeling of extensions
5. Select System Programming/Switch Admin from the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu, and program any of the services below, as applicable.

    NOTE:
    During initial Integrated Administration programming for an existing system, do not assign any lines or pools to the calling groups set up for

services. Otherwise, the lines begin ringing into the service before greetings or other service-specific options are programmed. Go on to Step 6 and finish programming the application; then return to Step 5 through the System Programming/Switch Admin menu and add lines and pools.

On first use of Integrated Administration, the user automatically steps through each of these services:

- Automated Attendant (Immediate, Delayed, or Night Service call handling and lines and pools)
- Call Answer (lines and pools)
- Information Service (lines and pools)
- Message Drop (lines and pools)
- Voice Mail (lines and pools)
- FAX Response (lines and pools)

On subsequent uses of Integrated Administration, select System Programming/Switch Admin from the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu, then select System Programming/Switch Admin Form. Finally, select the specific service to be programmed from the list above.

6. Program any application options that are not system-related (such as Outcalling and voice menus and prompts) through the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu.
7. On installation of both the system and IS III, exit from IS III, then perform all remaining system programming that is not application-related, using SPM or the programming console.

Operation

Access Integrated Administration in one of the following ways:

- Log in to IS III as is and enter a password, if applicable. The Integrated Solution III menu for users appears, with the following selections for Integrated Administration:

  AUDIX Voice Power (AVP)or
  AUDIX Voice Power/FAX Atendant (AVP/FA)

  Extension Directory

  User Maintenance

- Log in to IS III as maint and enter the maintenance password. The Integrated Solution Maintenance menu for qualified technicians only appears, with the following selections for Integrated Administration:

  AUDIX Voice Power (AVP)
  or AUDIX Voice Power/FAX Attendant (AVP/FA)

Extension Directory

Technician Maintenance

Other selections on these menus, including System Programming and Maintenance (SPM), are used for purposes other than Integrated Administration.

The Integrated Administration selections on these menus are used to access the screens described in the following sections.

On data entry screens described below, the screen-labeled options listed in Table 23 are displayed, as appropriate for each screen. Select one by pressing the corresponding function key.

Table 23. Screen-Labeled Function Keys for Integrated Administration

Label	Key	Action
Add	1	Display a pop-up form for adding information, such as adding lines and pools to the calling group for a service.
Cancel	6	Cancel any changes made on the current screen and return to the previous screen.
Chg-Key	8	Toggle between two sets of screen-labeled selections. (For example, this table shows two different selections—Choices and Delete—corresponding to 2. Chg-Key changes the label to the alternative selection.)
Choices	2	Display a list of valid choices for the current field.
Delete	2	Display a pop-up form for deleting information, such as deleting lines and pools from the calling group for a service.
Display	1 or 4	Display information about the record on the current screen, such as the label associated with an extension.
Frm-Mgmt	7	(Frame Management) Display options for managing the screen, such as Refresh and Resize.
Help	1	Display help for the current screen. (Help is available for every Integrated Administration screen.)
NextPage	5	On a multiple-page screen, go to the next page.
Next-Rec	5	Display the next record, such as the next extension, on the current screen.
PrevPage	4	On a multiple-page screen, return to the previous page.
Prev-Rec	4	Display the previous record, such as the previous extension, on the current screen.
Save	3	Validate and save the information on the current screen, updating the application database and/or the switch as appropriate.

Application Switch Defaults Screen

A qualified technician can access the Application Switch Defaults screen from the Technician Maintenance menu. Figure 20 shows this screen as it appears with only AUDIX Voice Power installed and as it appears with both AUDIX Voice Power and FAX Attendant installed. A description of its use follows.

```
                    APPLICATION SWITCH DEFAULTS
                  AUDIX VOICE POWER SWITCH DEFAULTS

AUTOMATED ATTENDANT CALLING GROUP:          770
      CALL ANSWER CALLING GROUP:            7926
INFORMATION SERVICE CALLING GROUP:          1927
   MESSAGE DROP CALLING GROUP:              7928
     VOICE MAIL CALLING GROUP:              1925
              COVERAGE GROUP:               30

                                  AVP DEFAULT   CURRENT SWITCH
          RELIABLE DISCONNECT:    [YES/NO]      NO
                 DELAY RING:      2             2
        COVERAGE DELAY RING:      3             3
VMS TRANSFER RETURN INTERVAL:     6             4
      TRANSFER RETURN TIME:       6             4
```

```
                    APPLICATION SWITCH DEFAULTS
              AUDIX VOICE POWER/FAX ATTENDANT SWITCH DEFAULTS

AUTOMATED ATTENDANT CALLING GROUP:          770
      CALL ANSWER CALLING GROUP:            7926
     FAX RESPONSE CALLING GROUP:            7924
INFORMATION SERVICE CALLING GROUP:          7927
   MESSAGE DROP CALLING GROUP:              7928
     VOICE MAIL CALLING GROUP:              7925
              COVERAGE GROUP:               30

                                  AVP DEFAULT   CURRENT SWITCH
          RELIABLE DISCONNECT:    YES           NO
                 DELAY RING:      2             2
        COVERAGE DELAY RING:      3             3
VMS TRANSFER RETURN INTERVAL:     6             4
      TRANSFER RETURN TIME:       6             4
```

Figure 20. Application Switch Defaults Screens

The values shown in the screens in Figure 20 are the defaults for all information on the Application Switch Defaults screen. When the user accesses the screen, the current programmed values are shown.

The settings in the Current Switch column for Reliable Disconnect, Delay Ring, Coverage Delay Ring, VMS transfer return interval, and Transfer Return Time are displayed for comparison purposes and cannot be changed on this screen. The values in the AVP Default column can be changed, and are sent to the switch when the user presses 3 (Save). A difference between the two columns, other than at initial installation, indicates that the values have been changed through system programming on the system, using the programming console or SPM. Knowing this can be helpful in troubleshooting problems.

NOTE:
The calling group numbers and coverage group number displayed on this screen (including any changes made by the user) are the values used for the information sent to the system when services are programmed on the System Programming/Switch Admin Form screen, Figure 23, and when subscribers are added to the AUDIX Voice Power coverage group on the AUDIX Voice Power User or AUDIX Voice Power/FAX Attendant User screen, Figure 22. Therefore, if any of these group numbers are to be changed, it is important to make those changes *first*, before programming the services or subscribers.

If it is necessary to change any calling group numbers *after* initial programming of the services, make the changes in the following order:

1. Remove the affected services by deleting those services from all channels on the System Programming/Switch Admin Form screen.
2. Change the appropriate calling group numbers on the Application Switch Defaults screen.
3. Reinstall the affected services by adding them to channels on the System Programming/Switch Admin Form screen.

   Calling Groups

   The calling group numbers shown in Figure 20 are the defaults assigned to each service. Change these numbers by positioning the cursor on the appropriate field and entering a new value. No two services can share a calling group; each number must be unique.

   Coverage Group

   Coverage group 30 is the default for the extensions covered by the applications. Change the group number by positioning the cursor on this field and entering a new value from 1 to 30.

   Reliable Disconnect

   Press F2 (Choices) and select YES (Reliable Disconnect) or NO (Unreliable Disconnect).

When an outside caller on a loop-start trunk hangs up on Automated Attendant or Call Answer, a setting of NO may result in lost jack availability or recording of dial tone or messages from the telephone company (such as “Please hang up and dial again”). To prevent this from happening, reliable disconnect should be set to YES. If Automated Attendant is allowed to transfer calls to outside numbers and has access to any loop-start trunks, reliable disconnect *must* be set to YES.

NOTE:
You should find out if your loop-start lines/trunks provide reliable disconnect.

Delay Ring and Coverage Delay Ring

Change these values by positioning the cursor on the appropriate field and entering a new value. The range for Delay Ring is 1 to 6 rings; the range for Coverage Delay Ring is 1 to 9 rings.

The combined total of these two values should be less than either the VMS transfer return interval or the transfer return time. This ensures that a transferred call always rings at a coverage point before the applicable return timer expires and the call either is transferred to the alternative destination (in the case of a transfer from AUDIX Voice Power) or returns to the transfer originator (in the case of a transfer from any other extension).

VMS Transfer Return Interval and Transfer Return Time

Change these values by positioning the cursor on the appropriate field and entering a new value. The range for both timers is 0 (transferred calls are never returned or redirected) to 9 rings.

The VMS transfer return interval governs how long a call transferred from an AUDIX Voice Power extension rings before it is redirected; the transfer return time governs how long a call transferred from any other extension rings before it returns to the transfer originator.

Each of these values should be greater than the combined total of the Delay Ring and Coverage Delay Ring values. This ensures that a transferred call always rings at a coverage point before the applicable return timer expires and the call either is transferred to the alternative destination (in the case of a transfer from AUDIX Voice Power) or returns to the transfer originator (in the case of a transfer from any other extension).

System Programming Results

The following information is sent to the system:

- Reliable Disconnect setting
- Delay Ring value
- Coverage Delay Ring value

- VMS transfer return interval setting
- Transfer Return Time setting

Screen Results

After the Application Switch Defaults screen, press 3 (Save); the Technician Maintenance menu returns.

Extension Directory Setup

When the technician selects Extension Directory Setup from the Technician Maintenance menu during installation, IS III checks whether the system Extension Directory already exists in the application database. If the directory does not exist, IS III reads the switch extensions into the database, together with the label for each extension, if there is one. If the directory does exist, the technician has the following choices:

- Exit without making any changes to the database, using 6 (Cancel).
- Reinstall the database. This choice completely replaces the existing Extension Directory in the application database.
- Reconcile the database with the switch. This choice follows the same rules as the daily reconciliation program, as described earlier in Table 21.

System Programming Results

No information is sent to the switch.

Screen Results

The user is returned to the Technician Maintenance menu.

Extension Directory

Figure 21 shows the Extension Directory screen. A description of its use follows.

- **Extension.** Enter an extension number in this field. To show information available for that extension in the application database, press 1 (Display); the information fills the remaining fields. When the Extension Directory screen is first accessed after performing an Extension Directory Setup, only the Extension Label field is filled in, assuming the extension is a valid one and a label was programmed for it on the system.

  Press 2 (Delete) to delete the information on the extension from the application database. If the extension still exists on the system, the information is restored to the application database the next time the reconciliation program runs.

  If the user enters a non-valid extension (one that is not in the Extension Directory), then when he or she finishes with this screen and presses 3 (Save), a request for confirmation appears. If the user confirms the entry, the extension is identified as a special-purpose extension. Since Integrated Administration never adds extensions to the system, the

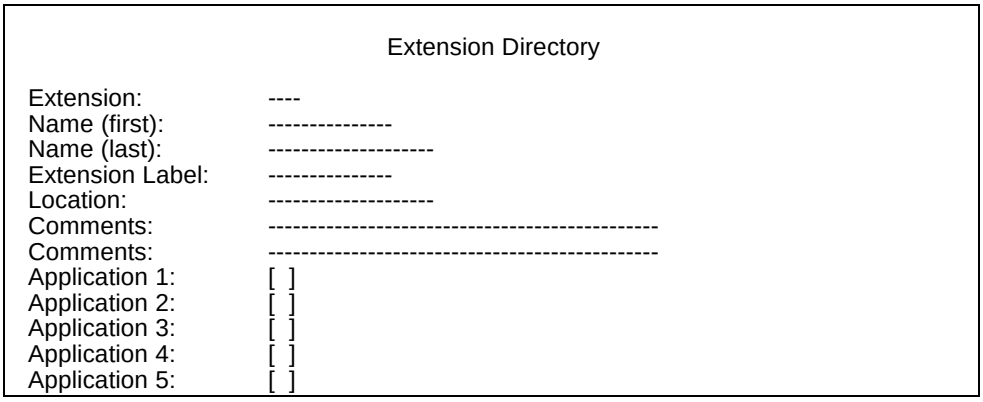


Figure 21. Extension Directory Screen

extension appears only in the application database. The Location field is filled with the word Special. (Special-purpose extensions are used for such features as guest mailboxes or group fax extensions, as described later under the AUDIX Voice Power/FAX Attendant User screen, Figure 22.)

- **Extension Label.** The user can change the information in this field.
- **Name (first), Name (last), Location, Comments.** The user can enter information in these fields, if desired. This information is not sent to the system.
- **Application 1 through Application 5.** The user can add the extension as an AUDIX Voice Power or AUDIX Voice Power/FAX Attendant subscriber by typing *AVP* or using 2 (Choices) and selecting *AVP* in one of these fields. If FAX Attendant is installed, an AUDIX Voice Power subscriber is automatically a FAX Attendant subscriber as well.

NOTE:
In the "System Programming Results" sections that follow, any information that is sent to the system is sent after pressing 3 (Save). This information replaces existing system programming of the items sent.

System Programming Results

The following information and directions are sent to the system:

- Extension label(s), if any
- Remove deleted extension(s) from AUDIX Voice Power coverage group (30), if they were added previously as subscribers.

Screen Results

When finished with the Extension Directory screen, press 3 (Save). If the AUDIX Voice Power User screen or FAX Attendant is installed, the AUDIX Voice Power/FAX Attendant User screen appears. Figure 22 shows these screens. A description of their use follows.

AUDIX Voice Power User

Extension:	*nnnn*
Add User to AUDIX Voice Power Cover Group:	[yes/no]
AUDIX Voice Power button number:	--

AUDIX Voice Power/FAX Attendant User

Extension:	*nnnn*
Add User to AUDIX Voice Power Cover Group:	[yes/no]
AUDIX Voice Power button number:	--
Private Fax Extension:	----

Figure 22. AUDIX Voice Power and AUDIX Voice Power/FAX Attendant User Screens

- **Extension.** The extension displayed is the one entered in the Extension Directory screen.
- **Add User to AUDIX Voice Power Cover Group.** Press 2 (Choices) and select yes or no.

  On initial installation only, this information is passed to the Subscriber screen for AUDIX Voice Power or AUDIX Voice Power/FAX Attendant. This screen is used for programming the applications only. If the user subsequently changes this field, the change is not passed to the Subscriber screen. This allows two choices to be set independently: the item on the AUDIX Voice Power User or AUDIX Voice Power/FAX Attendant User screen, which controls the addition of the extension to the coverage group; and the item on the Subscriber screen, which controls whether AUDIX Voice Power does supervised or unsupervised transfers to the extension. See the AUDIX Voice Power or FAX Attendant *System Manager's Guide* for details.

- **AUDIX Voice Power Button Number.** Enter a button number (1–34) for an Auto Dial button on the telephone at the extension for the Automated Attendant calling group. If the specified button is already programmed as a personal line or **Pool** button, or if it is the only **SA** or **ICOM** button on the telephone, the Auto Dial button is not programmed. The Auto Dial button can replace any other button that is already programmed, including an **SA**, **Shared SA**, or **ICOM** button.

  The Auto Dial button programming does not appear in the application database. As a result, if the user returns to this screen, Integrated Administration does not show the button or prevent the programming of a different button with the same Auto Dial number. To determine what buttons are programmed on an extension, use Inspect at the telephone or through centralized telephone programming.

  If the Auto Dial button is to be programmed for the calling group number for Call Answer or Voice Mail, it must be reprogrammed on the system through extension programming or centralized telephone programming.

  If the user leaves this field blank or enters *0*, no button is programmed.

- **Private Fax Extension.** The user can enter either the system extension of a tip/ring jack connected to a fax machine or a phantom extension. The extension is added (on the system) to the coverage group that sends its calls to AUDIX Voice Power. If the user leaves this field blank or blanks it out, the extension in the Extension field will not have FAX Attendant services.

  Unless a DID line is assigned to an extension for private fax purposes, a personal line must be assigned to the extension and the extension must be the principal user of that line.

  No two subscribers can be assigned the same private fax extension. However, a group of individuals can use the same private fax extension, as follows:

  — An extension number that is not a valid extension on the system is assigned as a special-purpose extension, as described earlier under the Extension Directory screen. This extension is the *group fax administrator*.

  — The special-purpose extension is assigned a private fax extension on the AUDIX Voice Power/FAX Attendant User screen.

  — Group members are assigned as FAX Attendant subscribers on the Extension Directory screen, but are *not* assigned private fax extensions.

  When callers reach the group fax administrator's private fax extension, they are prompted for the voice extension of the group member to receive the fax. (See the FAX Attendant *System Manager's Guide* for instructions on programming voice prompts.)

System Programming Results

The following information is sent to the system:

- Add extension(s) to or delete from AUDIX Voice Power coverage group (30), depending on selection in Add User to AUDIX Voice Power cover group field.
- Add Auto Dial button for Automated Attendant calling group (770).
- Add private fax extension(s) to or delete from AUDIX Voice Power coverage group.

Screen Results

When finished using AUDIX Voice Power User or AUDIX Voice Power/FAX Attendant User screen, press 3 (Save). The Subscriber screen appears for AUDIX Voice Power or for AUDIX Voice Power/FAX Attendant. Subscriber screens are for programming application parameters and do not send any information to the switch.

Access the Subscriber screens by selecting Subscriber Administration from the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu under the Integrated Solution III or Integrated Solution Maintenance menu. This method allows information about an existing subscriber to be changed but does not allow the addition of a new subscriber.

System Programming/Switch Admin

On initial installation of IS III, selecting System Programming/Switch Admin from the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu brings up the System Programming/Switch Admin Form screen. Figure 23 shows this screen, and a description of its use follows.

On subsequent access, the System Programming/Switch Admin selection brings up the System Programming/Switch Admin Menu screen. Figure 24 shows this menu, both as it appears with only AUDIX Voice Power installed and as it appears with both AUDIX Voice Power and FAX Attendant installed.

Note that one of the selections on the System Programming/Switch Admin menu (Figure 24) is System Programming/Switch Admin Form, which brings up the System Programming/Switch Admin Form screen (Figure 23).

System Programming/Switch Admin Form

Channel	Extension	Service
0	----	[Service]
1	----	[Service]
2	----	[Service]
3	----	[Service]
4	----	[Service]
5	----	[Service]
6	----	[Service]
7	----	[Service]
8	----	[Service]
9	----	[Service]
10	----	[Service]
11	----	[Service]

Figure 23. System Programming/Switch Admin Form Screen

The purpose of this screen is to assign switch (system) extensions to AUDIX Voice Power and FAX Attendant services. The channel numbers represent physical channels on the AUDIX Voice Power IVP4 or IVP6 board or the FAX Attendant IFP2 or IFP4 board in the IS III computer.

- **Extension.** Press 1 (Add) and enter a valid switch extension for the service, or press 2 (Delete) to delete an extension from a service.
- **Service.** Press 2 (Choices) and select a service from the following list:
  - AA (Automated Attendant) is the default for all channels. This selection also provides Call Answer and Voice Mail, and, if FAX Attendant is installed, FAX Call Answer and FAX Mail services.
  - CA (Call Answer) also provides FAX Call Answer service if FAX Attendant is installed.
  - FR (FAX Response) is available if FAX Attendant is installed.
  - IS (Information Service)
  - MD (Message Drop)
  - VM (Voice Mail) also provides FAX Mail service if FAX Attendant is installed.

System Programming Results

The following information is sent to the system (see “Application Switch Defaults Screen,” earlier in this section, for details):

- Reliable Disconnect: yes
- Delay Ring: 2

- Coverage Delay Ring: 3
- VMS Transfer Return Interval: 6
- Transfer Return Time: 6

The following service-specific information is sent to the system for the services selected.

If Automated Attendant is selected:

- Add label AUDIXVP to or delete from Automated Attendant extension(s).
- Add label AUDIXVP to Automated Attendant calling group (770) when first Automated Attendant extension is added, or delete label when last Automated Attendant extension is deleted.
- Set group type to Integrated VMI for Automated Attendant calling group when first Automated Attendant extension is added; or set it to Auto Logout when last Automated Attendant extension is deleted.
- Set hunt group type to Circular for Automated Attendant calling group when first Automated Attendant extension is added.
- Add Automated Attendant extension(s) to or delete from Automated Attendant calling group.
- Add Automated Attendant extension(s) to or delete from Night Service exclusion list.
- Add AUDIX Voice Power coverage group (30) to Automated Attendant calling group when first Automated Attendant extension is added; or delete from calling group when last Automated Attendant extension is deleted.
- Delete all lines from Automated Attendant calling group when last Automated Attendant extension is deleted and Automated Attendant was set for immediate call-handling operation.
- Delete backup operator from AUDIX Voice Power coverage group when last Automated Attendant extension is deleted and Automated Attendant was set for delayed call-handling operation.
- Delete AUDIX Voice Power coverage group from Night Service group for affected operator when last Automated Attendant extension is deleted and Automated Attendant was set for Night Service operation.

If Call Answer is selected:

- Add label AUDIXVP to or delete from Call Answer extension(s).
- Add label AUDIXVP to Call Answer calling group (7926) when first Call Answer extension is added; or delete label when last Call Answer extension is deleted.

- Set group type to Integrated VMI for Call Answer calling group when first Call Answer extension is added; or set it to Auto Logout when last Call Answer extension is deleted.
- Set hunt group type to Circular for Call Answer calling group when first Call Answer extension is added.
- Add Call Answer extension(s) to or delete from Call Answer calling group.
- Add Call Answer extension(s) to or delete from Night Service exclusion list.

NOTE:
Since Call Answer is typically not assigned as the only service in a system, the AUDIX Voice Power coverage group (30) is not assigned to the Call Answer calling group. If Call Answer is to be the only service, the coverage group must be assigned to the Call Answer calling group through system programming at the programming console or System Programming and Maintenance (SPM).

If FAX Response is selected:

- Add label AVP-FA to or delete from Fax Response extension(s).
- Add label AVP-FA to Fax Response calling group (7924) when first Fax Response extension is added; or delete label when last Fax Response extension is deleted.
- Set group type to Integrated VMI for Fax Response calling group when first Fax Response extension is added; or set it to Auto Logout when last Fax Response extension is deleted.
- Set hunt group type to Circular for Fax Response calling group when first Fax Response extension is added.
- Add Fax Response extension(s) to or delete extension(s) from Fax Response calling group.
- Delete all lines from Fax Response calling group when last Fax Response extension is deleted.

If Information Service is selected:

- Add label AUDIXVP to or delete from Information Service extension(s).
- Add label AUDIXVP to Information Service calling group (7927) when first Information Service extension is added or delete label when last Information Service extension is deleted.
- Set group type to Integrated VMI for Information Service calling group when first Information Service extension is added; or set it to Auto Logout when last Information Service extension is deleted.
- Set hunt group type to Circular for Information Service calling group when first Information Service extension is added.

- Add Information Service extension(s) to or delete from Information Service calling group.
- Delete all lines from Information Service calling group when last Information Service extension is deleted.

If Message Drop is selected**:**

- Add label AUDIXVP to or delete from Message Drop extension(s).
- Add label AUDIXVP to Message Drop calling group (7928) when first Message Drop extension is added or delete label when last Message Drop extension is deleted.
- Set group type to Integrated VMI for Message Drop calling group when first Message Drop extension is added; or set it to Auto Logout when last Message Drop extension is deleted.
- Set hunt group type to Circular for Message Drop calling group (when first Message Drop extension is added).
- Add Message Drop extension(s) to or delete from Message Drop calling group.
- Delete all lines from Message Drop calling group when last Message Drop extension is deleted.

If Voice Mail is selected:

- Add label AUDIXVP to or delete from Voice Mail extension(s).
- Add label AUDIXVP to Voice Mail calling group (7925) when first Voice Mail extension is added; or delete label when last Voice Mail extension is deleted.
- Set group type to Integrated VMI for Voice Mail calling group when first Voice Mail extension is added; or set it to Auto Logout when last Voice Mail extension is deleted.
- Set hunt group type to Circular for Voice Mail calling group.
- Add Voice Mail extension(s) to or delete from Voice Mail calling group.
- Add Voice Mail extension(s) to or delete from Night Service exclusion list.
- If Automated Attendant was not selected, add AUDIX Voice Power coverage group (30) to Voice Mail calling group when first Voice Mail extension is added.
- Delete all lines from Voice Mail calling group when last Voice Mail extension is deleted.

Screen Results

On initial installation of IS III, after the System Programming/Switch Admin Form screen, the program steps through the applicable screens shown in Figure 25 through Figure 33, depending on the services selected on this form.

On subsequent access, after the System Programming/Switch Admin Form screen, the AUDIX Voice Power or AUDIX Voice Power/FAX Attendant menu returns. The user can then access the screens shown in Figure 25 through Figure 33 individually, through selections on the System Programming/Switch Admin Menu screen, shown in Figure 24. (This menu includes the selection FAX Response only if FAX Attendant is installed.)

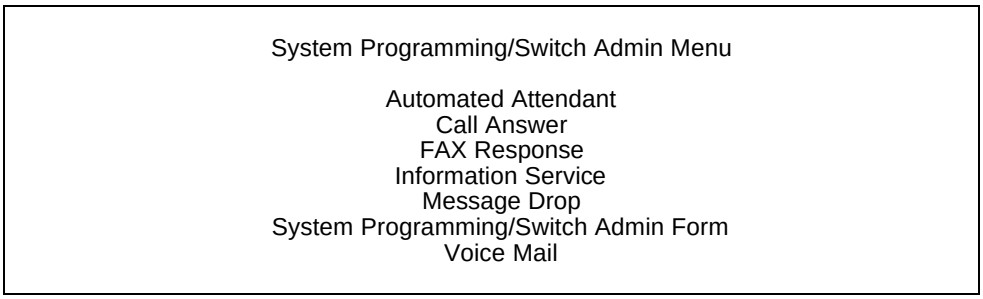


Figure 24. System Programming/Switch Admin Menu Screen

Automated Attendant

If a user chooses Automated Attendant as a service on the System Programming/Switch Admin Form screen during initial installation or selects it from the System Programming/Switch Admin menu on subsequent access, the screen shown in Figure 25 appears.

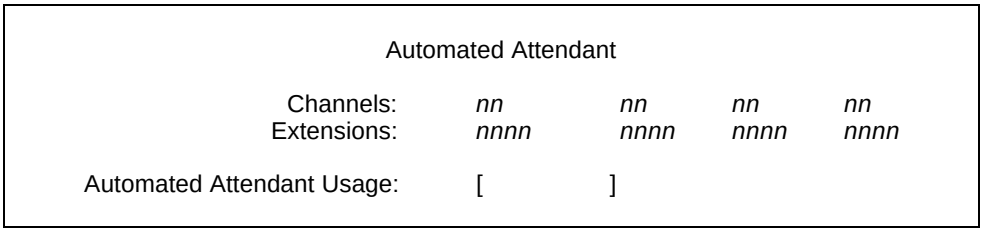


Figure 25. Automated Attendant Screen

- **Channels and Extensions.** The values displayed are the ones entered for Automated Attendant on the System Programming/Switch Admin Form screen.
- **Automated Attendant Usage.** Press 2 (Choices) and select Immediate, Delayed, or Night Service.

System Programming Results

The following information is sent to the system:

- Delete all lines from Automated Attendant calling group (770) if Automated Attendant usage was changed from Immediate to Delayed or Night Service.
- Delete backup operator from AUDIX Voice Power coverage group (30) if Automated Attendant usage was changed from Delayed to Immediate or Night Service.
- Delete AUDIX Voice Power coverage group from Night Service group for affected operators (see Figure 28) if Automated Attendant usage was changed from Night Service to Immediate or Delayed.

Screen Results

After the Automated Attendant screen, press 3 (Save). If Automated Attendant Usage has been changed, one of the following screens appears, depending on the selection in the Automated Attendant Usage field:

- Automated Attendant: Immediate Call Handling (Figure 26)
- Automated Attendant: Delayed Call Handling (Figure 27)
- Automated Attendant: Night Service (Figure 28)

If Automated Attendant usage has not been changed, on initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 29 through 33). On subsequent access, the System Programming/Switch Admin menu returns.

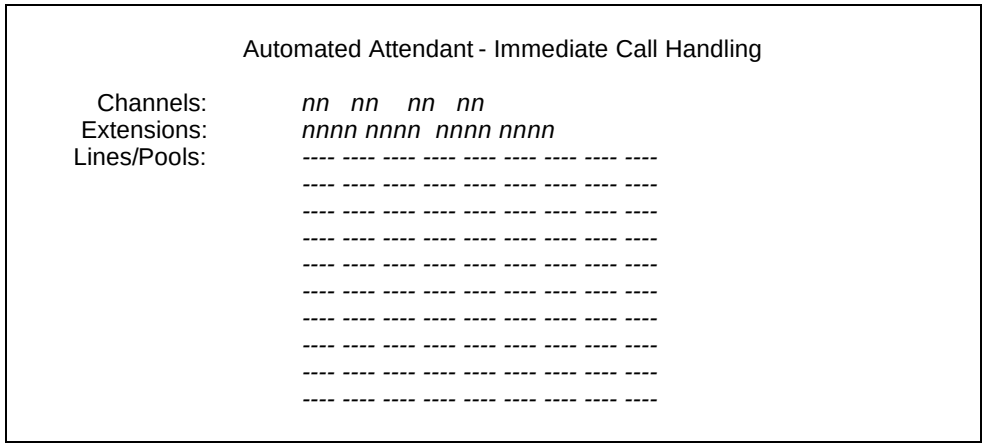


Figure 26. Automated Attendant Immediate Call Handling Screen

- **Channels and Extensions.** The values displayed are the ones entered for Automated Attendant on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

System Programming Results

Add lines to and/or delete lines from Automated Attendant calling group (770).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 29 through 33).

On subsequent access, the System Programming/Switch Admin menu returns.

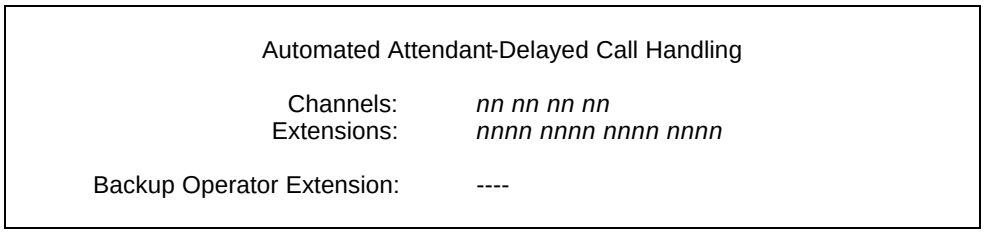


Figure 27. Automated Attendant Delayed Call Handling Screen

- **Channels and Extensions.** The values displayed are the ones entered for Automated Attendant on the System Programming/Switch Admin Form screen.
- **Backup Operator Extension.** For delayed call handling, enter a phantom extension that has already been programmed on the system and assigned as an operator position through system programming at the programming console or System Programming and Maintenance (SPM). The phantom operator has the default configuration of lines assigned to it: the first 32 lines for a phantom analog extension or the first 18 lines for a phantom MLX extension. If these are not the lines for which backup operation is desired, the assignments must be reprogrammed through system programming.

  The phantom operator must also be added as an AUDIX Voice Power subscriber on the Extension Directory screen, Figure 21.

  If the user blanks out this field to delete the phantom operator, or changes Automated Attendant operation to Immediate or Night Service on the Automated Attendant screen, the extension should also be deleted as a subscriber on the Extension Directory screen to maintain consistency between the application database and the switch.

System Programming Results

Add backup operator to or delete from AUDIX Voice Power coverage group (30).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 29 through 33.)

On subsequent access, the System Programming/Switch Admin menu returns.

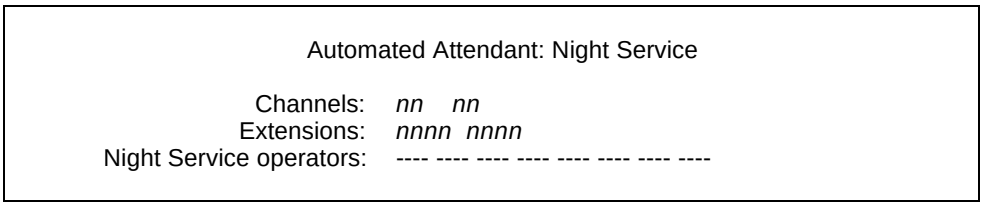


Figure 28. Automated Attendant Night Service Screen

- **Channels and Extensions.** The values displayed are the ones entered for Automated Attendant on the System Programming/Switch Admin Form screen.
- **Night Service Operators.** Press 1 (Add) or 2 (Delete) to add or delete an operator. A pop-up window appears for entry of an operator extension. At least one operator must be added or deleted.

System Programming Results

Add Automated Attendant calling group (770) to or delete from the Night Service group for operator(s) entered.

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 29 through 33).

On subsequent access, the System Programming/Switch Admin Menu screen returns.

Call Answer

If the user chooses Call Answer or Automated Attendant as a service on the System Programming/Switch Admin Form screen during initial installation, or selects Call Answer from the System Programming/Switch Admin menu on subsequent access, the screen shown in Figure 29 appears.

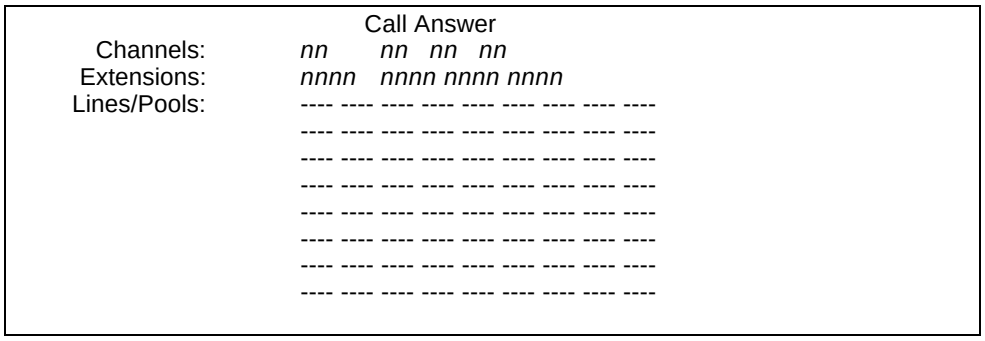


Figure 29. Call Answer Screen

- **Channels and Extensions.** The values displayed are the ones entered for Call Answer or Automated Attendant on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) Or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

System Programming Results

Add lines to and/or delete lines from Call Answer calling group (7926).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 30 through 33).

On subsequent access, the System Programming/Switch Admin menu returns.

FAX Response

If FAX Response is chosen as a service on the System Programming/Switch Admin Form screen during initial installation or is selected from the System Programming/Switch Admin menu on subsequent access, the screen shown in Figure 30 appears.

- **Channels and Extensions.** The values displayed are those entered for FAX Response on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

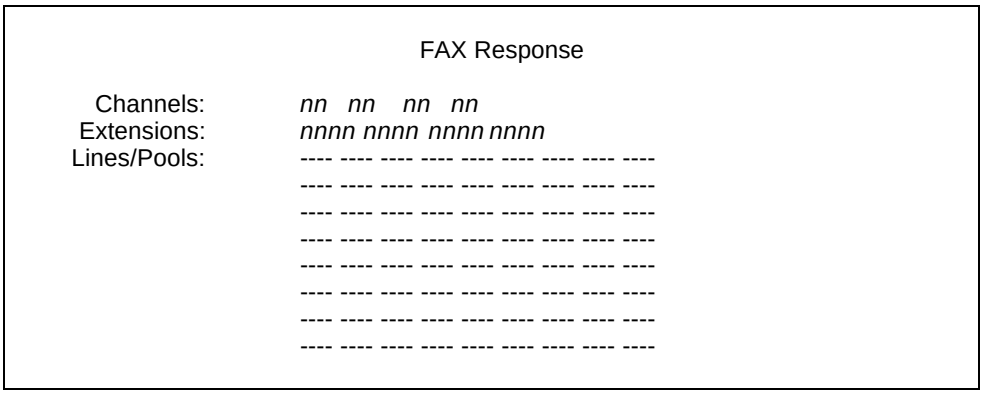


Figure 30. FAX Response Screen

System Programming Results

Add lines to and/or delete lines from Fax Response calling group (7924).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 26 through 28).

On subsequent access, the System Programming/Switch Admin menu returns.

Information Service

If the user has selected Information Service as a service on the System Programming/Switch Admin Form screen during initial installation, or selects it from the System Programming/Switch Admin menu on subsequent access, the screen shown in Figure 26 appears.

- **Channels and Extensions.** The values displayed are the ones entered for Information Service on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

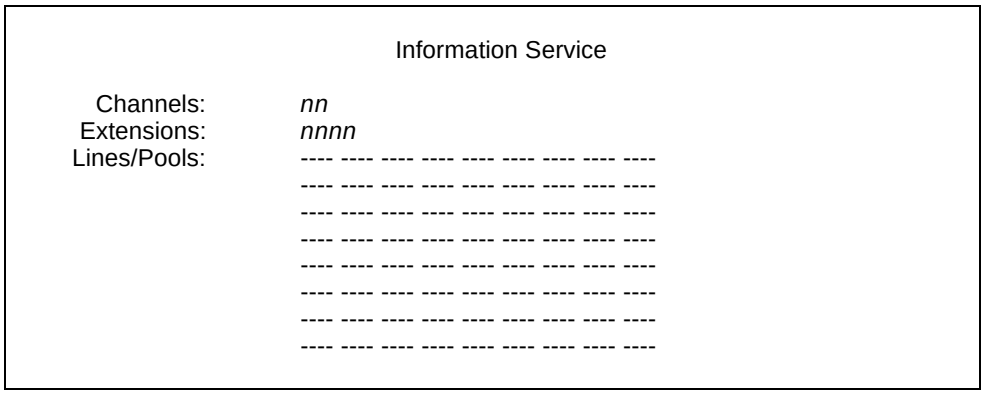


Figure 31. Information Service Screen

System Programming Results

Add lines to and/or delete lines from Information Service calling group (7927).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figures 32 and 33).

On subsequent access, the System Programming/Switch Admin menu returns.

Message Drop

If the user has chosen Message Drop as a service on the System Programming/Switch Admin Form screen during initial installation or selects it from the System Programming/Switch Admin menu, on subsequent access the screen shown in Figure 32 appears.

- **Channels and Extensions.** The values displayed are the ones entered for Message Drop on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

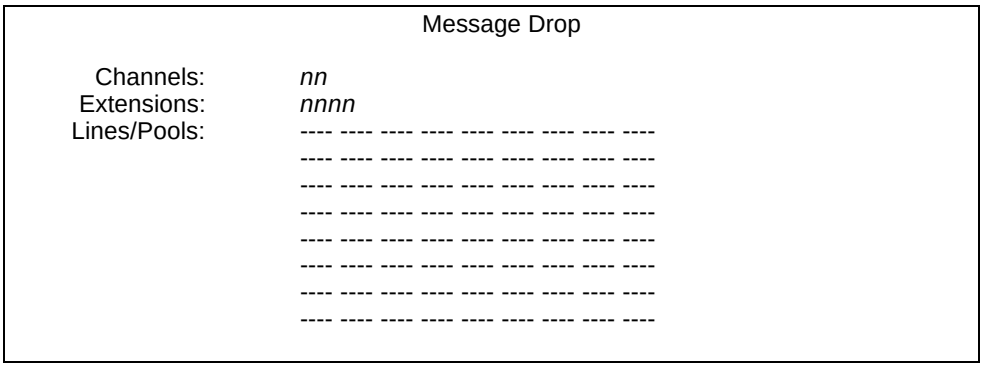


Figure 32. Message Drop Screen

System Programming Results

Add lines to and/or delete lines from Message Drop calling group (7928).

Screen Results

On initial installation, the screen for the next service selected on the System Programming/Switch Admin Form screen appears (see Figure 33).

On subsequent access, the System Programming/Switch Admin menu returns.

Voice Mail

If the user has chosen Voice Mail or Automated Attendant as a service on the System Programming/Switch Admin Form screen during initial installation, or selects Voice Mail from the System Programming/Switch Admin menu on subsequent access, the screen shown in Figure 33 appears.

- **Channels and Extensions.** The values displayed are the ones entered for Voice Mail or Automated Attendant on the System Programming/Switch Admin Form screen.
- **Lines/Pools.** Press 1 (Add) or 2 (Delete) to add or delete a line or pool for this service. A pop-up window appears for entry of a line or pool number.

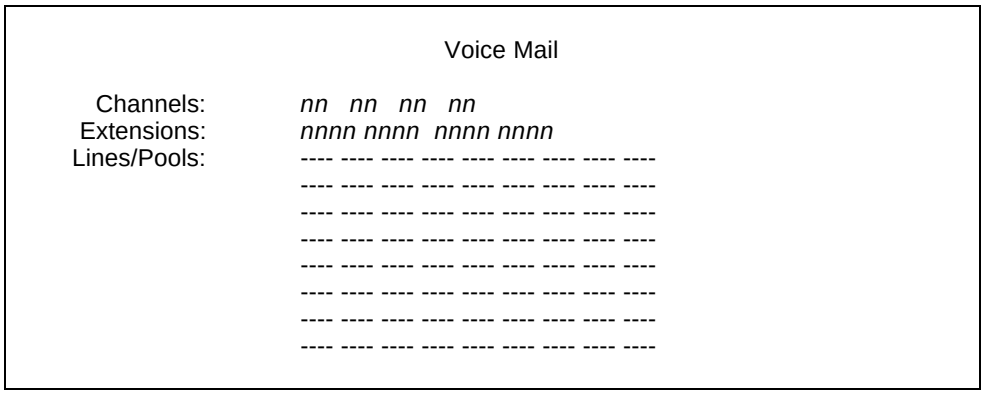


Figure 33. Voice Mail Screen

System Programming Results

Add lines to and/or delete lines from Voice Mail calling group (7925).

Screen Results

After the Voice Mail screen, the System Programming/Switch Admin menu returns.

Considerations and Constraints

Integrated Administration never adds or changes extensions on the switch. When the application database is reconciled with the system extension database, the system information is always assumed to be correct.

In a Release 2.0 and later system with Integrated Solution III Version 1.0 or 1.1, use the System Renumbering feature cautiously. When this feature is used, all messages and greetings for users that have been renumbered may be erased from AUDIX Voice Power when the automatic reconciliation program runs at 3:00 a.m. (the reconciliation program is disabled in Integrated Solution III Version 1.2).

When Integrated Administration is sending information to the system, users are blocked from entering system programming at the console or SPM until Integrated Administration is finished. Likewise, if the console or SPM is being used for system programming, Integrated Administration is blocked from sending information to the system until system programming is finished.

While Integrated Administration is sending information to the system about an extension or trunk, that extension or trunk is forced idle.

For coverage by AUDIX Voice Power to work properly, the values programmed for the transfer return time and the VMS transfer return interval each must be greater than the combined total of the values programmed for the coverage delay interval plus Delay Ring.

FAX Attendant cannot be installed as a stand-alone application, but only in conjunction with AUDIX Voice Power.

If an AUDIX Voice Power mailbox is needed for a person with no telephone, a phantom extension (on the system) or special-purpose extension (through Integrated Administration) must be assigned to that person.

The date and time should be set the same for AUDIX Voice Power as for the system.

Mode Differences

AUDIX Voice Power (including FAX Attendant) is not supported in Behind Switch mode.

Feature Interactions

Coverage

AUDIX Voice Power and private fax extensions are automatically assigned to coverage group 30, which is covered by the AUDIX Voice Power calling group. This assignment can be changed on the Application Switch Defaults screen by a qualified technician.

If the Automated Attendant service is configured for delayed call handling, a backup (phantom) extension should be assigned and Integrated Administration sets up coverage for it.

The total of the values programmed for coverage delay interval plus Delay Ring should be less than either the transfer return time or the VMS transfer return interval. (These values are shown on the Application Switch Defaults screen.)

Group Calling

AUDIX Voice Power services and the FAX Response service are set up as members of dedicated calling groups. Integrated Administration sets up the necessary calling groups with the applicable options for correct operation of these services.

Labeling	Names entered on the Extension Directory screen are sent to the switch and appear on system programming labeling screens on the programming console or System Programming and Maintenance (SPM). Names entered on the console or SPM appear on the Extension Directory screen after Extension Directory setup is completed. Labels are added to lines and calling groups, as appropriate, when services are selected through Integrated Administration.
Night Service	The Automated Attendant service can be used for Night Service operation. The necessary system programming options can be set through Integrated Administration.
Ringing Options	The total of the values programmed for Delay Ring plus coverage delay interval should be less than either the transfer return time or the VMS transfer return interval. (These values are shown on the Application Switch Defaults screen.)
System Renumbering	System renumbering can be done only through system programming on the programming console or SPM. Integrated Administration never sends system numbering information to the system.
Transfer	Both the transfer return time and the VMS transfer return interval should be greater than the total of the values programmed for Delay Ring plus the coverage delay interval. (These values are shown on the Application Switch Defaults screen.)

Labeling

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Dial Plan Direct Group Calling Information Extension Directory Group Coverage Information Label Information Operator Information System Directory
Mode	All
Telephones	Display telephones
System Programming	Create, change, or delete System Directory listings: • **More**→Labeling→Directory→System Assign extension labels: • **More**→Labeling→Directory→Extension Create, change, or delete Personal Directory listings: • **More**→Labeling→Directory→Personal Assign outside line/trunk labels: • **More**→Labeling→LinesTrunks Assign calling group labels: • **More**→Labeling→Grp Calling Create, change, or delete posted messages: • **More**→Labeling→PostMessage
Maximums	
System Directory Labels	11 characters for each label
Extension Labels	7 characters for each label
Line/Trunk Labels	7 characters for each label
Calling Group Labels	7 characters for each label
Posted Messages	16 characters for each message 20 messages
Factory Settings	
Posted Messages	1 fixed message 9 preset but modifiable messages 10 blank custom messages available for customer use

Description

Through the use of the Labeling feature, the system manager can program the system to provide identification information (called *labels*) and posted messages on display telephones. Alphanumeric labels can be assigned to the following:

- **System Directory Listings.** To identify the company or person associated with a specific System Speed Dial number. This information appears when a user activates the System Directory.
- **Extension Directory Listings.** To identify the name of the person or room (for example, a conference room) associated with an extension. This information is displayed when a user receives an inside call, when a co-worker leaves a message, or when a user accesses the Extension Directory.
- **Personal Directory Listings.** To identify the name of the person or business associated with a frequently called personal number. This information is displayed when an MLX-20L user accesses a Personal Directory.
- **Outside Trunks.** To identify the type of trunk (for example, WATS or tie trunk), the telephone number, or the department to which the trunk belongs. This information is displayed when a user makes or receives a call.
- **Calling Groups.** To identify the group. This information is displayed when a group member answers a group calling call.

Extension, outside trunk, and calling group labels are downloaded through Integrated Administration to applications, such as AUDIX Voice Power, and FAX Attendant System. These labels can be assigned once in Integrated Administration for both the application and the system. See “Integrated Administration” for additional information.

Labeling is also used to create messages that can be posted to a caller with a display telephone to explain why a person is not answering his or her telephone. Each posted message has a number. To post a message, enter the posted message number. When another user with a display telephone calls, the message is displayed on the caller’s telephone. (See “Messaging” for additional information on how to post a message.) Table 24 lists the factory-set posted messages and their numbers.

Table 24. Factory-Set Posted Messages and Their Codes

Number	Message
01	DO NOT DISTURB (not modifiable in Release 2.0 and later, modifiable in earlier releases)
02	OUT TO LUNCH (modifiable)
03	AT HOME (modifiable)
04	OUT SICK (modifiable)
05	IN A MEETING (modifiable)
06	IN A CONFERENCE (modifiable)
07	WITH A CLIENT (modifiable)
08	WITH A CUSTOMER (modifiable)
09	AWAY FROM DESK (modifiable)
10	OUT ALL DAY (modifiable)
11–20	CUSTOM MSG 11, 12, ... (available for customer-created messages)

Considerations and Constraints

If a label is assigned to the extension, the MLX telephone user sees the label, the extension number, and the posted message, for example, STEVE B Ext 7101 OUT TO LUNCH. If a label is not assigned to an extension and a caller dials that extension, the telephone's extension number is displayed (instead of the user's name), along with any posted messages. For example, an MLX display telephone user sees Ext 7103 OUT TO LUNCH.

If labels are not assigned to operator extensions, display telephone users see Operator and the operator's extension number when receiving a call from the operator.

If labels have not been assigned to outside trunks, display users see the factory-set label, OUTSIDE and the trunk number (such as Trk 810), when an outside call is made or received. With AT&T's INFO2 ANI service or a calling number identification service and 800 GS/LS-ID module (loop-start lines only), the information displayed also identifies the number of the caller (MLX display telephones only).

NOTE:
The availability of the caller identification information may be limited by local-serving (caller's) jurisdiction, availability, or central office equipment. Programmed labels cannot be shown on nondisplay telephones or on single-line telephones.

Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes(') stars (*) and pound signs (#).

Labels that are programmable by a user are displayed in all-capital letters.

Telephone Differences

Multiline Telephones

Only MLX-20L telephone users can have Personal Directories. Labels for the entries in this directory can be programmed by the system manager, using system programming, or by the MLX-20L telephone user at the extension.

Feature Interactions

Directories	Labeling is used to enter the names of the persons or businesses associated with the System Speed Dial numbers stored as listings in the System Directory. It is also used to enter the names of people, groups, and locations associated with the extensions in the system stored as listings in the Extension Directory. Labeling is used to enter the telephone numbers and label information associated with Personal Directories on MLX-20L telephones, and this information can also be programmed by the user at the extension.
Do Not Disturb	Posted message 01, DO NOT DISTURB, is modifiable prior to Release 2.0. Starting with Release 2.0, when an MLX user activates the Do Not Disturb feature, the Do Not Disturb message is automatically posted. Therefore, in Release 2.0 and later, this posted message is not allowed to be changed. (The message may be posted even if the user does not activate Do Not Disturb.)
Group Calling	An alphanumeric label can be assigned to the calling group. The label is displayed when a group member answers a group call or when an MLX display telephone user presses the **Inspct** button and an Auto Dial button programmed with the calling group's extension number.
Integrated Administration	Extension, trunk, and calling group labels are shared with certain applications. The extension labels may be entered or updated in Integrated Administration, affecting both the system and the applications.
Messaging	The labels stored in the Extension Directory appear on MLX display telephones when users send each other messages. Messages include the name (the 7-character label) of the user who sent the message and the time and day the user called. Posted messages are created and changed by using Labeling.
Speed Dial	Labeling is used to enter the telephone numbers and label information associated with System Speed Dial codes.

Language Choice

At a Glance

Users Affected	Telephone users, operators, system manager
Reports Affected	Extension Information SMDR System Information
Mode	All
Telephones	MLX telephones only
Feature Codes	
English	*790*
French	*791*
Spanish	*792*
System Programming	Select a language for the entire system: • **More**→Language→SystemLang Select a language for an extension: • **More**→Language→Extensions Select a language for SMDR headers: • **More**→Language→SMDR Select a language for printing programming reports: • **More**→Language→Printer
Factory Settings	
System Language	English
Extension Language	English
SMDR Report Language	English
Programming Report Language	English
SPM Language	English

NOTE:
Language choice is available with Release 1.1 and later systems.

Description

Since Release 1.1, the system has supported system operation and programming in three languages: English, French, and Spanish. This enables system managers and MLX telephone users to customize aspects of the system for their linguistic convenience.

- The system manager can program the entire system to operate in English, French, or Spanish, including MLX prompts and displays, SMDR headings, and system programming reports.

- The system manager can program specific extensions or consecutive blocks of extensions in English, French, or Spanish as necessary. In addition, an individual user with a Release 1.1 and later MLX telephone can choose one of the three languages most appropriate for his or her own extension.
- The system manager can program SMDR report headers and the headings and text of system programming reports to be printed in English, French, or Spanish.
- A user of System Programming and Maintenance (SPM) software can select English, French, or Spanish as the language for its displays and messages.
- MLX-10D, MLX-20L, and MLX-28D display telephones and MLX-10 nondisplay telephones can be obtained in three separate versions, with factory-imprinted buttons in English, French, or Spanish.

System Language

Through system programming, the system manager selects a language for the entire system, determining the language used for all MLX telephone displays, SMDR headings, system programming reports, and maintenance displays.

Extension Language

A Release 1.1 and later MLX telephone can operate in English, French, or Spanish, independently of the system language. The language for an extension can be selected either by the system manager through system programming or by the user at the extension. This setting also controls the Reminder feature and the Alarm Clock feature on MLX display and nondisplay telephones, using a 12-hour clock on telephones operating in English and a 24-hour clock on telephones operating in French or Spanish.

After the user selects a language, the choice is confirmed on Line 2 of MLX display telephones. If the choice is English, the display shows the words *In English*.

If the choice is French, the display shows the words *En français*.

If the choice is Spanish, the display shows the words *En español*.

After 5 seconds, Line 2 changes to a display of the date and time. In English, the date is shown as *month day* and the time is shown in 12-hour format (a.m. or p.m.). In French and Spanish, the date is shown as *day month* and the time is shown in 24-hour format. At MLX nondisplay telephones, the only effect of this selection is a different time format (12-hour clock versus 24-hour clock) required when dialing times for the Reminder feature.

SMDR Report Language

Through system programming, SMDR reports can be printed with headers in English, French, or Spanish, regardless of the language selected for the system and for SPM.

Programming Report Language

Through system programming, programming reports can be printed in English, French or Spanish, regardless of the language selected for the system or for System Programming and Maintenance (SPM).

SPM Language

Unlike the SMDR and programming report languages, which are selected through system programming, the SPM language is selected by the SPM user. When the software is first installed, the user is prompted (in English) for line speed, color or black-and-white monitor, and other configuration options. These selections are stored in a system-created configuration file c:\spm\ams.cfg (DOS version) or /usr/ams/ams.cfg (UNIX System version). The language selection made at this time determines whether SPM menus, pop-up windows, and other messages are presented in English, French, or Spanish. A second language selection option on the SPM screen affects messages from the control unit to SPM, and controls the 7-line by 24-character console simulation window for the duration of the session. These two language options operate independently of each other. An SPM user, for example, can select English for one and French for the other.

The following discussion refers to the language specified in the SPM configuration files as the *PC language* and the language used by the control unit as the *console window language*.

PC Language

Once a PC language has been chosen during initial installation, that selection is written into the configuration file and becomes the default language. Invoking SPM calls that particular language selection. If a user wishes to specify a different language, he or she can do so using the -l option as follows:

```
spm -l english
spm -l french
spm -l spanish
```

(Note that the option is a lowercase letter L, not the number 1.) Use of the -l option changes the language attribute in the SPM configuration file. The language specified becomes the new PC language, used whenever SPM is started without the -l option.

Console Window Language

Since the console window language selection is made only after the selection of the PC language, the language used in the 7-line by 24-character console simulation window always defaults to the PC language. However, by pressing 0 and making a selection, the SPM user can select a different language for this window for the duration of the current session.

Considerations and Constraints

After a System Reset (cold start), the system language reverts to the default setting, English.

Prior to Release 1.1, if a user attempts to set the language on a telephone, he or she hears a reorder tone or an error beep.

When the system and extension language selections are different, the extension language takes precedence.

Telephone Differences

Multiline Telephones

Language choice is supported only on MLX telephones.

Since the extension language chosen takes precedence over the system language, Alarm Clock (display telephones only) and Reminder differ, depending on the language selection made for a particular extension. When the extension language is set for English, or the system language has been set for English and no extension language selection has been programmed, MLX telephone users set the Alarm Clock and Reminder features using 12-hour time (a.m. or p.m.). When the extension language is set for French or Spanish, or the system language is set for French or Spanish and no extension language has been chosen, the MLX telephone user sets the Alarm Clock and Reminder features using 24-hour time. Language choice affects only the Reminder feature on MLX-10 telephones.

Feature Interactions

Alarm Clock and Reminder Service

Enter the time settings for Alarm Clock and Reminder in accordance with the language selection governing the extension. If the language selection is English, the time setting for Alarm Clock and Reminder must be entered in 12-hour format (0100–1259) followed by either a ***2 (A)*** for a.m. or a ***7 (P)*** for p.m. If the governing language selection is French or Spanish, the time setting must be entered in 24-hour format (0000–2359).

Last Number Dial

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information
Mode	All
Telephones	All except QCC
Programming Code	**84*
Feature Code	*84*
MLX Display Label	LastNumDial [Last#]
Maximums	1 Last Number Dial button for each multiline telephone 16 digits saved by Last Number Dial

Description

Last Number Dial automatically saves the last number dialed from an extension and allows the user to call the number again without manually redialing. The number is saved even if the called party answers.

The number saved is any extension or telephone number dialed in any of the following ways:

- Manually dialing the complete number on the dialpad
- Dialing the number using a Personal Speed Dial code
- Dialing a number using a programmed outside Auto Dial button
- Dialing a number using a programmed Saved Number Dial button

Each time the user dials a new number using any of these methods, the old number saved for Last Number Dial is erased and replaced with the new number.

Considerations and Constraints

Only one Last Number Dial button can be programmed on each multiline telephone.

A maximum of 16 digits is saved by Last Number Dial.

Since the type of line button used to make the call (personal line, **SA**, or **ICOM**) is not stored, the user must select the appropriate line button before using Last Number Dial to redial a number.

Last Number Dial saves whatever you dial, whether the number is valid or not.

If you dial a telephone number and, after the call is connected, dial additional digits, such as an account number or password, Last Number Dial saves all digits, including those dialed after the call is connected. In addition, if someone other than the owner of a display telephone presses the Last Number Dial button, all dialed digits are shown on the display, including confidential information such as passwords or account codes.

Last Number Dial does not store numbers dialed through an Extension, Personal, or System Directory, an inside Auto Dial button, a System Speed Dial code, or a DSS button.

If the number is dialed using an outside Auto Dial button or Personal Speed Dial code and includes a special character such as Pause or Stop, the special character does not work when the number is redialed using Last Number Dial.

Mode Differences

Behind Switch

In Behind Switch mode, when a user manually dials an outside number that includes a dial-out code (for example, an Automatic Route Selection or pool dial-out code) required by the host system, the Pauses required to wait for dial tone from some host systems are not automatically stored for Last Number Dial. As a result, the user may either hear a fast busy signal or reach a wrong number when using Last Number Dial.

Key Mode

In Key mode, Last Number Dial cannot be used unless a Feature button is programmed on an analog multiline telephone in Key mode. This Feature button is used instead of the # button to activate the feature code.

Telephone Differences

Queued Call Consoles

Last Number Dial cannot be used on QCCs.

Other Multiline Telephones

To redial a number using Last Number Dial on a multiline telephone, select the appropriate personal line (outside line) or **SA** button for the call, and then either press the programmed Last Number Dial button or press the **Feature** button and dial *84*. The number saved by the feature is dialed automatically. On MLX display telephones, press the **Feature** button and select LastNumDial [Last#] from the display.

Single-Line Telephones

To redial a number using Last Number Dial, lift the handset (the telephone must connect to an **SA** or **ICOM** line) and then dial *#84.* The number that was last dialed is dialed automatically.

Feature Interactions

Authorization Code	After activating the Authorization Code feature, Last Number Dial cannot be used. Once the Authorization Code feature is deactivated, Last Number Dial can be used and contains the last number dialed before the Authorization Code feature was activated.
Auto Dial	Last Number Dial does not store numbers dialed using an inside Auto Dial button. If a number containing special characters is dialed using an outside Auto Dial button, the special characters do not work when the number is redialed using Last Number Dial.
Direct Station Selector	An extension number dialed by pressing a DSS button is not stored for Last Number Dial.
Directory	Last Number Dial does not store a number dialed using a Personal, Extension, or System Directory.
Display	When a user presses a programmed Last Number Dial button, the digits appear on the display as if the user were dialing them from the dialpad.
Inspect	In Release 1.0 and 1.1. when a user presses **Inspct** and then a programmed Last Number Dial button, Last Number Dial appears on the display. In Release 2.0 and later, when a user presses **Inspct** and then a programmed Last Number Dial button, the saved number appears on the display.
Microphone Disable	When an MLX telephone user's microphone is disabled, pressing the programmed Last Number Dial button before lifting the handset turns on the speakerphone so the user can hear the number being dialed. However, the user must lift the handset to talk once the call is answered.
SMDR	All outside numbers dialed using Last Number Dial are recorded on the SMDR report.

Speed Dial	Telephone numbers dialed using Personal Speed Dial are stored by Last Number Dial. However, if the number includes special characters such as Pause or Stop, the special characters do not work when the number is redialed using Last Number Dial. Telephone numbers dialed using System Speed Dial are not stored by Last Number Dial.
System Access/Intercom Button	When Last Number Dial is used on a call made with a **Shared SA** button, the number is stored on the extension where Last Number Dial was used, not on the principal extension.
Transfer	Last Number Dial can be used to dial the outside number of the telephone to which the call is being transferred.

Line Request

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	All except MLC-5 cordless, MDC 9000, MDW 9000, QCC, and single-line telephones

Description

If a user wants to make a call on a busy outside line assigned to a button (the green LED next to the button is on or flashing), Line Request notifies the user when the line is available.

Line Request is automatically available and does not require programming. To request the busy line, the multiline telephone user presses the line button for the busy line without lifting the handset. The red LED next to the line button turns on, and when the line becomes available, the telephone automatically alerts the user with a beep. To make a call using the requested line, the user lifts the handset or presses the **Speaker** button.

Line Request is canceled if the user presses another line button or makes or receives a call.

Line Request applies to personal lines only, not to pools or to lines on **SA** or **ICOM** buttons. To complete calls to busy extensions, or to complete calls to outside numbers using a pool in which all trunks are busy, use Callback.

Considerations and Constraints

Line Request does not reserve the line; it only alerts you that the line is available.

Line Request cannot be used for an **SA** or **ICOM** button.

Line Request cannot be used on single-line telephones or on a Queued Call Console (QCC).

In Hybrid/PBX mode, Line Request cannot be used on a **Pool** button or for a busy pool.

Mode Differences

Hybrid/PBX Mode

In Hybrid/PBX mode, Line Request can be used for personal lines or special-purpose lines (such as WATS) assigned to line buttons on a multiline telephone. Callback should be used instead of Line Request to complete calls to busy extensions or outside numbers when the call is made by using a pool in which the trunks in the pool are busy.

NOTE:
Do not use Callback when your system includes a voice messaging system.

Key and Behind Switch Modes

Line Request only works for outside lines that are assigned to line buttons.

Telephone Differences

Queued Call Consoles

Line Request cannot be used on QCCs.

Other Multiline Telephones

Line Request cannot be used on MLC-5, MDW 9000 cordless, or MDC 9000 cordless/wireless telephones.

Single-Line Telephones

Line Request cannot be used on single-line telephones.

Feature Interactions

Callback	Returning Callback calls cancel Line Request.
Camp-On	Returning camped-on calls cancel Line Request.
Park	Returning parked calls cancel Line Request.
Transfer	Returning transferred calls cancel Line Request.

Messaging

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Direct Group Calling Information Extension Directory Extension Information Label Information
Mode	All
Telephones	All
Programming Codes	
Send/Remove Message	**38* (Operator only)
Leave Message	**25*
Posted Message	**751*
Delete Message	**26* (Analog display telephones only)
Return Call	**27* (Analog display telephones only)
Next Message	**28* (Analog display telephones only)
Scroll	**29* (Analog display telephones only)
Feature Codes	
Send/Remove Message	*38 + extension number* (Operator only)
Leave Message	
After calling	*25*
Without calling	*53 + extension number*
Cancel Message Sent	**53 + extension number*
Message LED off	*54*
Delete Message	*26* (Analog display telephones only)
Return Call	*27* (Analog display telephones only)
Next Message	*28* (Analog display telephones only)
Scroll	*29* (Analog display telephones only)
MLX Display Labels	
Delete Message	Messages,Delete Msg [Msgs,Dlete]
Next Message	Messages,Next Msg [Msgs,Next]
Return Call	Messages,Return Call [Msgs,Call]
Leave Message	Leave Msg [LvMsg]
Posted Message	Messages,Posted Msg [Msgs,Post]
Send/Remove Message	Messages,Send/RmvMsg [Msgs,SdMsg]

At a Glance - *Continued*

System Programming	Change or add posted messages: • Labeling→**More**→PostMessage Identify fax extension jacks, assign fax message-waiting receivers, specify length of time before system sends fax message-waiting indication: • AuxEquip → Fax→Msg Waiting Assign a message-waiting receiver for a calling group: • Extensions→**More**→Grp Calling→Message
Maximums	
Messages for each display telephone	10
Message-Waiting Receivers programmed for fax	4
Message-Waiting Receiver telephones for each Calling Group	1
Fax Message Threshold	10 seconds (range 0–30 seconds)

Description

Messaging features allow users to do the following:

- Send messages
- Receive messages
- Post messages

Sending Messages

The following features are used to send messages:

- **Send/Remove Message.** For operators only.
- **Leave Message.** For any user to leave a message for a co-worker with a display telephone.

Send/Remove Message

The Send/Remove Message feature, available only to operators, is used to turn the Message LED on and off for any telephone connected to the system. For telephones without a display, Send/Remove Message is the only way the Message LED can be turned on unless the extension is programmed as the message-waiting receiver for a fax machine or calling group, or the system has a voice messaging system connected (see “Direct Voice Mail”).

A **Send/Remove Message** button is a fixed button on Queued Call Consoles (QCCs) and cannot be reassigned. On a system with 29 or fewer lines, Send/Remove Message is assigned by default to analog DLCs on button 34. On a system with more than 29 lines, Send/Remove Message is replaced with line 32.

On QCCs and MLX DLCs with a DSS, as well as MERLIN II System Display Consoles, the operator can use the LEDs next to the DSS buttons to determine whether *an operator* turned the Message LED on. Before sending a message, the operator presses the **Message Status** button and checks the red LED next to the DSS button of the person to whom the message will be sent; the red LED is on when a message is waiting from an operator and off if no message is waiting from an operator. The LEDs on the DSS do not go on when Message LEDs were turned on by using the Leave Message feature, voice messaging system, fax arrival, or when a message is left for a calling group. To leave a message-waiting indication when the LED is off, the operator presses the programmed Send/Remove Message button, followed by the DSS button or Auto Dial button for the person for whom the message is intended. The operator presses the **Message Status** button to return to normal call handling. MLX DLC operators can also press the **Feature** button and select the feature from the display.

NOTE:
If the operator sends a message while on a call, only an inside caller hears the touch tones; an outside caller does not.

When Message Status is on, if the LED next to a DSS button is on and the operator uses the Send/Remove Message feature, the user's message LED is turned off (unless the LED is also on for a reason other than an operator using Send/Remove Message). When the LED next to a DSS button is off and the operator uses the Send/Remove Message feature, the user's Message LED is turned on.

A DLC operator without a DSS can check message status by using Auto Dial buttons programmed with extension numbers. The red LED next to an Auto Dial button indicates whether the Message LED is on. A QCC operator without a DSS cannot check message status. If an operator who cannot check status sends a message, that message can cancel a message-waiting indication sent by another system operator who used Send/Remove Message.

Leave Message

The Leave Message feature allows any user (including operators) to send messages to co-workers with display telephones.

When you call a co-worker with a display telephone and get no answer or a busy signal, press a programmed Leave Message button or press the **Feature** button and dial *25*. On MLX display telephones, select the feature from the display while listening to ringback or a busy tone. A message is sent to the display telephone user. The message includes the caller's name (if labels are programmed) or extension, and the time and date of the call.

If the caller leaves another message for the same person before that person responds to a previous message, the previous message is overwritten. A person with a display telephone who has received a message sees only the caller's name (if labels are programmed) or extension and date and time for the new message.

To use the Leave Message feature without calling a user, the multiline telephone user presses the **Feature** button (without lifting the handset) and then dials *53* and the person's extension number. QCC operators cannot use Leave Message without calling the user.

NOTE:
If the Message LED of the person receiving the message is already on, using the Leave Message feature does not turn the LED off even if an operator uses Leave Message to send a message to a display telephone user.

When a person with any telephone tries to use the Leave Message feature to send a message to a person with a single-line telephone or a multiline telephone without a display, the caller hears a single beep indicating that a message must be left with the operator. If the caller has a display telephone, the message Cannot Send Message is displayed.

When a user tries to use the Leave Message feature and the co-worker's message box is full, the co-worker's telephone continues to ring and the caller's telephone beeps once. If the caller has a display telephone, Message Box Full is displayed, and the caller must leave a message with the operator or voice mail (if available).

Cancel a sent message by pressing the **Feature** button and dialing **53* plus the extension where the message was sent. QCC operators cannot cancel messages they sent.

Receiving Messages

When the Message LED on a telephone is on or when a single-line telephone user hears a stutter dial tone when lifting the handset, there is a message waiting for that person or for the calling group (if the extension is programmed as a message-waiting receiver for a calling group). The message can be from the following sources:

- The operator
- A voice messaging system

- A fax machine, if the extension is programmed as a fax message waiting-receiver for fax transmissions
- Another user

An MLX display telephone user (including a QCC operator) reads messages by pressing the **Menu** button and selecting Messages from the display. The first line of the most recent message received is shown on the display. To see the rest of the message, press the **More** button. To see the next message, select Next Message from the display. To return the call using an MLX display telephone (including QCCs), select Return Call from the display. The extension of the person who left the message is dialed automatically. To delete the message, select Delete Message from the display. The Message LED turns off when all messages have been deleted.

An analog multiline telephone user with a display reads messages by pressing the **Message** button. The first message received is shown on the display. If the message is longer than one line, press a programmed Scroll button or press the **Feature** button and dial *29*. To see the next message, press a programmed Next Message button or press the **Feature** button and dial *28*. To return the call, press a programmed Return Call button or press the **Feature** button and dial *27*. To delete the message, press a programmed Delete Message button or press the **Feature** button and dial *26*. The Message LED turns off when all messages have been deleted.

NOTE:
In Release 2.0 and later, when someone uses the Return Call feature for a voice messaging system, a call is returned to the voice messaging system, not to the specific VMI extension that sent the message-waiting code.

Display telephones show messages in reverse order of when they were received; the most recent message is displayed first. Each message is identified on the display as follows:

Table 25. Message-Waiting Display Identifiers

Type of Display Telephone	Identifier	Meaning
Analog multiline	*	New or unread message
	Call *ext.* or *name*	Message from *caller's extension number or caller's name*
MLX	*	New or unread message
	ATT	Message from system operator (attendant)
	FAX	You have a fax.
	VMS	You have a voice mail message.
	EXT	Message from an extension (co-worker)

The type of message indicated does not allow a calling group message-waiting receiver to distinguish between a message left for the calling group and a fax or personal message.

Multiline telephone users without a display cannot use programmed message buttons or feature codes to respond to messages. Normally, the Message LED is turned off by the operator. However, an analog multiline telephone user (excluding those with BIS-34 telephones) can turn off the Message LED by pressing the associated **Message** button. Users of BIS-34 telephones or MLX-10 telephones can turn off the LED by pressing the **Feature** button and dialing *54*.

Check with all message sources (system operator, fax, voice messaging) before turning off the LED.

Fax Message-Waiting Receivers

The Fax Message-Waiting feature notifies designated extensions of the arrival of fax transmissions. Up to four extensions can be programmed to receive message-waiting indications when a fax transmission is received on a specific fax machine. The Message LED goes on when the fax message threshold is exceeded. The fax message threshold is the length of time (0–30 seconds) before the system assumes that a fax has arrived.

Return Call is not operable for messages received from a fax machine and cannot be used to make a call to the fax.

NOTE:
Fax machines can only send message-waiting indications. They cannot receive message-waiting indications.

Calling Group Message-Waiting Receivers

An extension can be programmed as the message-waiting receiver for a calling group. The user can receive personal messages or messages intended for the calling group from any of the sources listed under “Receiving Messages.”

Posted Messages

Users can post a message to provide special information to co-workers with display telephones—for example, to tell callers where the person is when not answering the telephone or why the person does not want to be disturbed. When a user with a display telephone calls a co-worker who has a message posted, the posted message is shown on the caller’s display (even if the call is answered). Users do not need a display telephone to post a message.

Twenty different posted messages can be programmed in the telephone system. Ten messages are programmed by the factory and can be changed. Ten additional messages can be programmed, and are factory set as CUSTOM MSG ##. Beginning with Release 2.0, posted message 01, DO NOT DISTURB, cannot be changed.

Table 26. Posted Messages

01 DO NOT DISTURB	06 IN CONFERENCE	11 CUSTOM MSG 11	16 CUSTOM MSG 16
02 OUT TO LUNCH	07 WITH A CLIENT	12 CUSTOM MSG 12	17 CUSTOM MSG 17
03 AT HOME	08 WITH A CUSTOMER	13 CUSTOM MSG 13	18 CUSTOM MSG 18
04 OUT SICK	09 AWAY FROM DESK	14 CUSTOM MSG 14	19 CUSTOM MSG 19
05 IN A MEETING	10 OUT ALL DAY	15 CUSTOM MSG 15	20 CUSTOM MSG 20

See “Labeling” for more information on creating posted messages.

In Release 2.0 and later, when Do Not Disturb is turned on, the system automatically posts the Do Not Disturb message. This message appears on the Home screen of an MLX display telephone user with Do Not Disturb turned on and on the screen of any inside caller with a display telephone who calls that user. The system automatically removes the Do Not Disturb message when the user turns off the feature. On analog multiline or MLX-10 telephones the Do Not Disturb message is not posted automatically unless the telephone has a programmed Posted Messages button.

A user can post or remove a Do Not Disturb message by pressing a programmed Posted Messages button. However, this does not turn on or off the Do Not Disturb feature.

Users with MLX display telephones can post a message by pressing the **Menu** button, selecting Posted Msg [Post] from the display, selecting the desired message, and selecting Post.

Users with analog multiline or MLX-10 nondisplay telephones must program a Posted Messages button for the system to automatically post or remove the message when the feature is turned on or off. They program a Posted Messages button with programming code **751*. To post a message, press the programmed Posted Messages button (the green LED next to the button flashes), and then dial the code for the desired message (the LED next to the button becomes steady). To cancel a posted message, press the programmed Posted Messages button and dial *00* (the green LED next to the button turns off).

Considerations and Constraints

In Release 2.0 and later, if a user at an analog multiline or MLX-10 telephone has a programmed Posted Message button and the Do Not Disturb feature is turned on, the system automatically posts the Do Not Disturb message for callers with display telephones. The programmed button is not required at MLX display telephones. When the feature is turned off, the message is canceled. However, posting or canceling the Do Not Disturb message does *not* turn the feature on or off.

A user does not need a display telephone to use the Leave Message feature, but the person to whom the message is sent must have a display telephone. Unlike Send/Remove Message, when the Leave Message feature is used to send a message to a person whose Message LED is on, the LED is not turned off even if the caller is an operator.

If an operator uses the Send/Remove Message feature while on a call, only an inside caller hears the touch tones; an outside caller does not. If 10 messages have been stored and a user tries to send an eleventh message, the caller hears a beep and display telephones show Message Box Full.

Responding to messages by using Return Call does not delete the message. The user must delete all messages before the Message LED turns off. A fax machine can send the message-waiting indication, but a fax machine cannot be assigned as a message-waiting receiver for another fax or for a calling group.

If a fax message-waiting indication is deleted by one of the four message-waiting receivers, the message is deleted from all analog multiline display telephones programmed as a message-waiting receivers for the fax, but the message is not deleted from MLX display telephones programmed as message-waiting receivers for the fax.

Each calling group can have only one extension assigned as its message-waiting receiver, but the same extension can be assigned as the message-waiting receiver for more than one calling group.

Messages can be posted only by using a programmed button or, for MLX display telephone users, by selecting the feature from the display.

A single-line telephone user cannot post a message.

When a user posts a nonexistent message CUSTOM MSG*nn* is displayed (A message has not been programmed for this message number by the system manager.)

Posted messages are only seen by multiline display telephone users. Users with single-line telephones or multiline telephones without a display cannot receive a message posted by another user.

Posting a message does not prevent the telephone from ringing.

Message Waiting does not work for off-premises telephones.

Telephone Differences

Direct-Line Consoles

The Send/Remove Message feature is an operator-only feature used by the DLC operator to turn on the Message LED to indicate a message waiting. For telephones without a display, Send/Remove Message is the only way the Message LED can be turned on and off by operators.

A Send/Remove Message button is factory-assigned to an MLX-28D used as a DLC. On a system with 29 or fewer lines, Alarm, Night Service, and Send/Remove Message are assigned by default to analog DLCs on buttons 32-34. On a system with more than 29 lines, Alarm is replaced with line 30, Night Service is replaced with line 31, and Send/Remove Message is replaced with line 32. The first 18 lines on an MLX DLC are always factory set as personal lines.

Queued Call Consoles

A Queued Call Console (QCC) operator can use Leave Message only by selecting the feature from the display. A **Send/Remove Message** button is programmed as a fixed feature on a QCC.

Other Multiline Telephones

The 5-button analog multiline telephone (no longer available) has neither a Message LED nor a **Message** button.

MDC 9000 and MDW 9000 telephones cannot receive Leave Message or Posted Message messages. They can receive operator (Send/Remove Message) and voice mail message notification. When the telephone is turned on, MSG appears on the display.

Single-Line Telephones

Single-line telephone users cannot post a message.

To use the Leave Message feature while listening to ringback or the busy tone on a single-line telephone, dial *#25*. To use Leave Message without calling the extension, lift the handset (the telephone must connect to an **SA** or **ICOM** button) and dial *#53* and the person's extension number.

In either case, if the person's message box is full or the receiver is a single-line telephone or a multiline telephone without a display, the caller hears a beep indicating that the message was not left.

To cancel a message sent, lift the handset and dial *#*53* and the extension number where the message was left.

Single-line telephone users without a Message LED hear a stutter dial tone when a message is waiting. A single-line telephone user cannot respond to messages by using feature codes. Normally, if a single-line telephone has a Message LED, it is turned off by the operator. However, a single-line user can turn off the Message LED by lifting the handset and (while listening to inside dial tone) dialing *#54*. Check with all message sources (system operator, fax, voice messaging) before turning off the LED.

Feature Interactions

Barge-In

If Barge-In is used to contact a user with a posted message, the caller's telephone does not display that message.

Directory

When an Extension Directory is used to call a co-worker with a posted message, the posted message is not displayed on the caller's telephone.

Direct Station Selector

When an operator presses the **Message Status** button on a DSS adjunct, the LEDs on the DSS reflect only messages left by an operator using the Send/Remove Message feature and not messages left by any user (including an operator) using the Leave Message feature.

Display

When users try to send messages to an extension with a full message box, they see Message Box Full on the display. When a user tries to retrieve messages and the message box is empty, No Messages appears on the display.

When a user has a message from a co-worker, the display shows the name or extension number (if no label is programmed) of the caller and, on MLX telephones, the time and date the message was left. An unread message is marked with an asterisk (*).

Messages can also be received from outside callers (if the telephone has a voice messaging system) and from the operator. On MLX display telephones, messages left by a voice messaging system are identified as VMS, messages from the operator are identified as ATT, and message-waiting indications received by a fax message-waiting receiver are identified as FAX. On analog multiline telephones, messages are indicated by Call *extension* or *caller's name*.

Return Call is not operable for messages received from a fax machine and cannot be used to make a call to the fax.

Display ***continued***	The type of message indicated does not allow a calling group message-waiting receiver to distinguish between a message left for the calling group and a fax or personal message.
Do Not Disturb	In Release 2.0 and later, when Do Not Disturb is turned on, the system automatically posts DO NOT DISTURB. This message appears on the Home screen of an MLX display telephone user with Do Not Disturb turned on and on the screen of any inside caller with a display telephone who calls that user. The system automatically removes the Do Not Disturb message when the user turns off the feature. Users with analog multiline or MLX-10 nondisplay telephones must program a Posted Messages button for the system to automatically post or remove the message when the feature is turned on or off. A user can post or remove a Do Not Disturb message by pressing a programmed Posted Messages button. However, this does not turn the Do Not Disturb feature on or off.
Group Calling	Users can leave messages for the calling group only if the system has been programmed with a designated calling group message receiver. The calling group also receives fax message-waiting indications directed to the calling group. The message-waiting receiver cannot distinguish between messages left for the calling group and fax or personal messages.
Labeling	The labels stored in the Extension Directory appear on MLX display telephones when users send each other messages. Messages include the name (the 7-character label) of the user who sent the message and the time and day the user called. Posted messages (except for posted message 01, DO NOT DISTURB) are created and changed using Labeling.
Multi-Function Module	A single-line telephone with a Message LED connected to an MFM can receive message-waiting indications.
Signaling	If a display telephone user presses only a Signaling button to send an audible signal to an extension with a posted message, the posted message at the destination is not shown on the display. However, if a display telephone user selects an **SA** or **ICOM** button, lifts the handset, and uses the Signaling button to dial the extension, the posted message is shown.
System Access/Intercom Buttons	When a **Shared SA** button is used to leave a message for a display user, the extension shown is that of the telephone with the **Shared SA** button and not that of the principal owner. When a principal extension owner with an MLX display telephone posts a message and a call is answered at the **Shared SA** button, the Home screen on which the posted message was previously shown is not restored. If the principal owner presses the **Home** button or makes or receives a call, the Home screen is restored.

Transfer

A nondisplay telephone user who sends a message by using Leave Message while a transfer to another telephone is in progress cannot determine who received the message. For example, suppose Extension A calls Extension B and Extension B transfers the call to Extension C. If Extension A sends a message before the transfer is complete, Extension B receives the message. If Extension A sends a message after Extension B completes the transfer, Extension C receives the message, even if Extension C does not answer and the call is ringing at Extension B as a transfer return.

If an inside call is transferred to an extension with a posted message, only the display telephone user who transfers the call, and not the original caller, sees the posted message, even after the transfer is completed.

If a call is transferred to an extension programmed as a fax extension, the message indication is not sent to the fax message-waiting receiver regardless of the amount of time programmed for the fax message threshold.

Voice Messaging Interface (VMI)

In Release 2.0 and later, when using the Return Call feature for a voice messaging system, a call is returned to the voice messaging system, not to the specific VMI jack that sent the message-waiting code.

Microphone Disable

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Directory
Mode	All
Telephones	All MLX (except QCC)
System Programming	Enable or disable individual MLX telephone microphones: • Extensions→**More**→Mic Disable
Factory Setting	Enabled

Description

Microphone Disable can be assigned through system programming to any MLX telephone except a Queued Call Console (QCC) to limit the use of the speakerphone. When the feature is assigned, the microphone does not function, but the speaker functions normally. A user can listen to calls or announcements over the speakerphone but must use the handset to respond.

For some features, such as Auto Dial, Last Number Dial, or Saved Number Dial, the system automatically selects a line and activates the speakerphone. When one of these features is used on a telephone with Microphone Disable assigned, the system selects the line and activates the speaker, but the microphone is muted automatically; the red LED next to the **Mute** button turns on. To be heard, lift the handset. The Mute and Speaker LEDs go off.

Also, when group pages or voice-announced transfers are received on a telephone with Microphone Disable assigned, the user can hear the announcement over the speakerphone, but the microphone is muted automatically. Lift the handset to speak to an inside caller who is transferring a call or calling the user through an **SA Voice** or **ICOM Voice** button. Microphone Disable is appropriate when speakerphones pick up too much background noise or are needed only by some employees.

Considerations and Constraints

The LED next to the **Mute** button goes on whenever the speakerphone is activated. Pressing the **Mute** button does not turn off the LED or deactivate Microphone Disable.

If a user presses the **Speaker** button before lifting the handset, the system selects a line and the user can dial a number. The microphone is muted, and the user must lift the handset to speak to the person being called.

Telephone Differences

Queued Call Consoles

The microphone on a QCC cannot be disabled.

Other Multiline Telephones

Microphone Disable cannot be assigned to analog multiline telephones.

Single-Line Telephones

Microphone Disable cannot be assigned to single-line telephones.

Feature Interactions

Auto Dial, Last Number Dial, and Saved Number Dial	Pressing a programmed Auto Dial, Last Number Dial, or Saved Number Dial button turns on the speakerphone so the user can hear the number being dialed. However, when an MLX telephone user's microphone is disabled, the user must lift the handset to talk once the call is answered.
HFAI	Users whose microphones are disabled cannot use HFAI to respond to voice-announced calls. Pressing the **HFAI** button does not turn on the LED or activate the feature.
Paging	Calls made to speakerphone paging groups can still be heard over telephones whose microphones are disabled.
Transfer	Calls can be transferred with a voice announcement to users whose microphones are disabled, but the users must lift the handset to talk.
Voice Announce to Busy	Users who are on their telephones and whose microphones are disabled can still hear a voice-announced call over the speakerphone. They must press the button with the incoming call and use the handset to talk to the caller.

Multi-Function Module

At a Glance

Users Affected	Telephone users except DLC, QCC operators
Reports Affected	SMDR
Mode	All
Telephones	MLX telephones except QCC
Hardware	Tip/ring interface

RISK OF ELECTRICAL SHOCK: Follow all warnings and cautions.

WARNING:

ONLY a qualified technician should install, repair, or set options for an MFM.

Do not touch the circuitry on the MFM. Touching the circuitry may result in component damage from electrostatic discharge.

Before installing the MFM, disconnect all trunk andlor power cords attached to the MLX telephone. This is to ensure that no hazardous voltages are present during assembly. Ringing voltage from the MFM attached to the MLX telephone can cause electrical shock if adjustments are made while the cords are connected.

Description

The Multi-Function Module (MFM) is an optional adapter installed inside an MLX telephone and used for connecting tip/ring or external alert devices. The MFM operates on one of the two communications channels assigned to the telephone; therefore, calls can be made to and from the device independently of the telephone. The communications channel is also used for the Voice Announce to Busy feature. Because of this, when a call is active at both the MLX telephone and the MFM device, the Voice Announce to Busy feature cannot be used to reach the MLX telephone user. Conversely, if the Voice Announce to Busy feature is being used to reach the MLX telephone user, calls cannot be made from the device connected to the MFM. In addition, if the Voice Announce to Busy feature is being used at the same time that a call is received at the MFM extension number, the caller hears ringing and the device rings if it can. But the call to the MFM extension number cannot be answered until one of the communications channels is free (the MLX telephone user hangs up or the person calling the MLX telephone user hangs up).

Although each MLX extension jack used to connect an MLX telephone is assigned only one logical ID, the system automatically assigns two extension numbers, one for the MLX telephone and one for the device connected to the MFM. Both extension numbers are assigned to the jack whether or not an MFM is connected. Since a separate extension number is assigned, features and trunk access can be assigned to the MFM independently of the MLX telephone. See "System Numbering" for details on specific extension numbers assigned.

The ringing patterns for devices connected to an MFM are similar to those of an MLX telephone rather than a single-line telephone ring for inside calls: two rings for outside calls, and a ring and two beeps for priority ring or transfer return.

A switch on the MFM can be set for one of the following operations:

- Tip/ring interface
- Supplemental Alert Adapter (SAA)

Tip/Ring Interface

When the MFM is set for tip/ring interface operation, only dual-tone multifrequency (DTMF) tip/ring devices can be used to make and/or receive inside and outside calls. The following types of DTMF devices can be used:

- Single-line telephones
- Modems
- Fax machines
- Credit card verification terminals
- Cordless single-line telephones
- Speakerphones that emulate a tip/ring device
- Answering machines

Supplemental Alert Adapter

When the MFM is set for SAA operation, an external alert that requires a 48-VDC contact closure can be connected.

If the external alert is used to supplement the ringing for both inside and outside calls, the MFM should be assigned (through centralized telephone programming) as a Primary Individual Coverage receiver with the ringing option of Immediate Ring. The MLX telephone can use Coverage On/Off to activate the alert. In addition, by specifying that both inside and outside calls or only outside calls are covered with the coverage arrangement, the sender (in this case the MLX telephone user) can specify that the device (the receiver) rings for both inside and outside calls or only for outside calls.

If the external alert is used to supplement ringing only for calls received on personal lines (outside lines assigned to buttons), the same outside trunks and ringing options assigned to the MLX telephone should also be assigned to the MFM. In this arrangement, the MFM device does not ring when inside calls are received on an **SA** or **ICOM** button.

An external alert connected to an MFM set for SAA operation can be manually signaled, can serve as a calling group Calls-in-Queue Alert, or can provide supplemental alerting for after-hours calls received in a Night Service group. Only a strobe or other light should be used as a Calls-in-Queue Alert; if a bell is used, it rings continuously while the number of calls in the calling group queue exceeds the programmed threshold.

Programming Requirements

Although the devices connected through an MFM may not have buttons, the system treats them as multiline telephones with 34 buttons. In Hybrid/PBX mode, the system automatically assigns one **SA Ring**, one **SA Voice**, and one **SA Originate Only** button to the MFM. In Key mode, the system automatically assigns one **ICOM Ring** and one **ICOM Voice** button to the MFM. In Behind Switch mode, the system automatically assigns one **ICOM Ring**, one **ICOM Voice**, and one prime line button.

NOTE:
Do not attempt to enter extension programming from a device connected to an MFM. Make changes to programming for an MFM through centralized telephone programming only.

To ensure proper operation of devices connected through an MFM, the following should be assigned through centralized telephone programming:

- Voice Announce to Busy should be disabled.
- The **SA** or **ICOM** button assignments should be changed to one **SA Ring** or **ICOM Ring** and one **SA Originate Only** or **ICOM Originate Only** button.
- Ringing/Idle Line Preference should be enabled.
- The Automatic Line Selection sequence should be set to the following:
  - **SA Ring** or **ICOM Ring**
  - **SA Originate Only** or **ICOM Originate Only**
  - In Key and Behind Switch modes, outside lines that make calls from the MFM device
  - In Behind Switch mode only, the prime line

When the ALS sequence is set to select an **SA** or **ICOM** button, an outside line can be selected by dialing the Idle Line Access code (usually *9*) in Key and Behind Switch modes, or by dialing the pool dial-out or Automatic Route Selection code in Hybrid/PBX mode. If ALS is set to select an outside line button before an **SA** or **ICOM** button, the device cannot be used to make inside calls (inside calls can be received only).

- Ring Timing options should be set to No Ring for each outside line on which calls will not be received.
- When the device is used only on personal lines for supplementary answering (such as an answering machine) or ringing (such as an external alert) and trunks are assigned to or removed from the associated MLX telephone, the trunks should also be assigned to or removed from the MFM.
- When the device is used for both inside and outside calls to supplement ringing (external alert) or to answer or screen calls (answering machine), calls can be redirected to the device by assigning a Primary Cover, Secondary Cover, Group Cover, or **Shared SA** button. In addition, the MLX telephone user can activate Forward and Follow Me to redirect incoming calls to the device. However, Coverage and Forward and Follow Me should not be used simultaneously.

NOTE:
Forward and Follow Me (including Remote Call Forward) and Privacy are not recommended because the user does not have an LED that indicates when the feature is active.

Considerations and Constraints

When both the MLX telephone and the device connected to an MFM are in use, the Voice Announce to Busy feature cannot be used to reach the MLX telephone user. Voice Announce to Busy interferes with data calls made to a data station including an MFM.

The tip/ring or SAA interface is selected by setting pin straps in the MFM. Only authorized technicians can install or set options in the MFM.

When Ringing/Idle Line Preference is turned on for an MFM and Automatic Line Selection is set to an outside trunk, inside calls cannot be made and features cannot be used. Both inside and outside calls can be received.

Calls are independently sent to the MLX telephone and its associated MFM. The following features can be used when the user wants calls to be received at both the MLX telephone and the device connected to an MFM:

- Cover buttons
- **Shared SA** buttons

- Buttons assigned the same outside lines
- Forward and Follow Me
- Transfer

An MFM can be assigned as a calling group delay announcement or as a calls-in-queue alert for a calling group queue.

Tip/ring devices connected on an MFM should not be used with Call Management System (CMS).

Features and tip/ring applications that require a switchhook flash for operation (such as AT&T Attendant or MERLIN MAIL Voice Messaging System) cannot be connected through an MFM because the system ignores the switchhook flash sent by the device.

Some answering machines have the built-in ability to disconnect when someone picks up a line they have already answered. However, when a **Shared SA** button or a shared personal line is assigned to the MFM, the device cannot detect when a line is picked up by the sharing user. Therefore, if such an answering machine is connected to the MFM, the machine does not automatically disconnect if someone picks up the shared lines that the machine already answered. Similarly, if the MFM extension is a Primary Coverage receiver for the MLX telephone or has the MLX extensions calls forwarded to it, the machine does not automatically disconnect when the telephone user picks up a call.

When programming, an MFM can not be selected by slot and port (*[*sspp*]) or by logical ID (#[*nnn*]).

Mode Differences

Hybrid/PBX Mode

When Ringing/Idle Line Preference is turned on and Automatic Line Selection is set to select an **SA** button, an outside line can be selected by dialing the pool dial-out or Automatic Route Selection code.

Key and Behind Switch Modes

When Ringing/Idle Line Preference is turned on and Automatic Line Selection is set to select an **ICOM** button, an outside line can be selected by dialing the Idle Line Access code (usually *9*).

Telephone Differences

Direct-Line Consoles

An MFM in a Direct-Line Console (DLC) serves only as another extension, without the characteristics of the operator extension.

Queued Call Consoles

An MFM cannot be connected to a Queued Call Console (QCC).

Other Multiline Telephones

An MFM can be installed only in MLX telephones and cannot be used with analog multiline telephones.

Single-Line Telephones

A single-line telephone or other type of tip/ring device up to 1000 feet away can be connected to the MFM and used to make and receive inside and outside calls.

A single-line telephone connected to an MFM cannot use the Pickup, Conference, Hold, or Transfer features.

Music On Hold

At a Glance

Reports Affected	System Information
Mode	All
Telephones	All
System Programming	Designate the Music On Hold extension jack: • AuxEquip⟶MusicOnHold
Maximums	1 Music On Hold extension for each system

Description

Music On Hold can be used to provide music or recorded information to an outside caller when the following features are used:

- Conference (while on hold)
- Group Calling (while waiting in the calling group queue for a busy extension after listening to the delay announcement)
- Hold

NOTE:
The music source or recorded announcement device must be connected to a ground-start or loop-start line/trunk jack programmed for Music On Hold. If Music On Hold is used without connecting a music source properly, the outside caller hears silence.

In addition, Music On Hold can be programmed for the Transfer Audible feature as an alternative to ringback in the following feature interactions:

- Camp-On
- Hold, Transfer, and Conference for single-line telephones
- Park
- Transfer

If transfer audible is programmed, what callers hear is described in Table 27 below.

Table 27. Call Types and Transfer Audible

Type of Caller	Music On Hold Programmed as Transfer Audible	Ringback Programmed as Transfer Audible with No MOH port
Outside caller who directly dialed calling group that has a delay announcement device*	Ringing before announcement plays; MOH after announcement plays until call leaves the queue and is delivered to an agent; ringing until agent answers	Special ringing after announcement plays until call leaves the queue and is delivered to an agent; ringing until agent answers
Outside caller who directly dialed a calling group that does not have a delay announcement device	Ringing until agent answers	Ringing until agent answers
Outside caller transferred to a calling group that has a delay announcement device	MOH (both before and after announcement plays) until call leaves the queue and is delivered to an agent; ringing until agent answers	Special ringing (both before and after announcement plays) until call leaves the queue and is delivered to an agent; ringing until agent answers
Outside caller transferred to calling group that does not have a delay announcement device	MOH until call leaves the queue and is delivered to an agent; ringing until agent answers	Special ringing until call leaves the queue and is delivered to an agent; ringing until agent answers
Outside caller whose call is parked by telephone user or operator†	MOH until call is picked up	Ringing until call is picked up
Outside call that is camped-on to an extension†	MOH until call is answered	Ringing until call is answered
Outside caller transferred with consultation to an extension other than a calling group's*	MOH (during consultation part of transfer) until transfer is completed; ringing until call is answered.	Ringing until call is answered
Outside caller transferred without consultation to an extension other than a calling group's*	**Manual Completion.** MOH during dialing of destination, then ringing. **Automatic Completion.** Ringing.	**Manual Completion.** Ringing until call is answered. **Automatic Completion.** Ringing until call is answered.
Inside caller*	Ringing or special ringing	Ringing or special ringing

† If the Park Return Timer or the Camp-On Return Interval expires before the parked or camped-on call is answered, the call returns to the extension that parked or camped on the call and the outside caller continues to hear Music On Hold until the call is picked up.

* This operation has not changed from Release 1.0 or Release 2.0.

Considerations and Constraints

Music On Hold is not provided to inside callers.

Music On Hold is never heard by callers in the Queued Call Console queue.

Direct Inward Dialing (DID) and tie trunk jacks cannot be used for Music On Hold. A line/trunk jack designated for Music On Hold cannot be grouped in a pool.

When programming a line/trunk jack for Music On Hold, the entire system is forced idle.

If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from or pay fees to a third party such as the American Society of Composers, Artists, and Producers (ASCAP) or Broadcast Music Incorporated (BMI). You can purchase a Magic on Hold® system, which does not require such a license, from AT&T.

Mode Differences

Hybrid/PBX Mode

In Hybrid/PBX mode, trunk jacks used for Music On Hold cannot be assigned to trunk pools.

Feature Interactions

Callback	An outside caller waiting in the callback queue hears Music On Hold.
Camp-On	When Camp-On is used to complete the transfer of an outside call, the caller hears Music On Hold until the call is answered if the transfer audible is set to Music On Hold. See Table 27 for more information.
Conference	If the first participant put on hold for a conference call is an outside caller, the caller hears Music On Hold until the second participant is added.
Group Calling	Outside callers waiting in calling group queues hear Music On Hold.
Park	A parked caller hears Music On Hold.
Personal Lines	A trunk used for Music On Hold cannot be assigned as a personal line.
Remote Access	A remote access user who is waiting for a busy trunk pool or extension hears Music On Hold.
Transfer	If the system is programmed for Music On Hold, music is played only during the period before the transfer is completed by the extension originating the transfer. The caller hears music when the **Transfer** button is pressed and when the extension number is dialed. When the transfer originator presses the **Transfer** button a second time or hangs up, the caller hears ringing. If the transfer uses Automatic Completion to a non-calling group extension, the outside caller hears ringing.

Night Service

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information Night Service Information
Mode	All
Telephones	All
Programming Code	**39*
Feature Code	*39*
MLX Display Label	Night Srvc [Night]
System Programming	Assign or remove telephones from Night Service group: • NightSrvce⟶GroupAssign Select Night Service with Outward Restriction by assigning a password: • NightSrvce⟶OutRestrict Add or remove telephone numbers from Night Service Emergency Allowed List: • NightSrvce⟶Emergency Assign telephones to Exclusion List (password not required): • NightSrvce⟶ExcludeList Select start time and stop time for each day of the week for Night Service with Time Set: • Nightsrvce⟶Start/Stop⟶Day, Hr, Min
Maximums	
Night Service groups	8 (one for each operator)
Number of telephones in Night Service group	Unlimited
Calling group extension for each Night Service group	1 (Release 2.0 and later)
Night Service groups for each telephone	Unlimited
Emergency telephone numbers	10
Digits for each telephone number	12
Telephones on Exclusion List	Unlimited
Password	4 digits (0–9)

Description

Night Service provides options for after-hours telephone operation that can be programmed in any combination of the following:

- Night Service with Group Assignment
- Night Service with Outward Restriction
- Night Service with Time Set

NOTE:
The term *after-hours* is only used for convenience. Night Service can operate at any time it is activated and is intended for use outside of normal business hours.

Only operators can activate or deactivate Night Service by using a Direct-Line Console (DLC) or a Queued Call Console (QCC). To activate or deactivate Night Service, an operator presses the programmed Night Service button. If the Night Service with Outward Restriction option is programmed, the green LED flashes when the DLC operator presses the programmed Night Service button, and the operator must enter the assigned password (within 60 seconds) to activate or deactivate Night Service. When Night Service is activated, the green LED next to the programmed Night Service button turns on. When the feature is deactivated, the green LED turns off.

Night Service Group Assignment

Each Night Service group is associated with an individual QCC (in Hybrid/PBX mode) or an individual DLC during system programming. Any type of telephone or one calling group (Release 2.0 and later) can be a member of a Night Service group.

When an operator associated with a Night Service group activates Night Service, any calls received on trunks programmed to ring at individual consoles ring immediately at all available extensions assigned to the group. An extension in a Night Service group is considered unavailable and a Night Service call does not ring at it when any of the following occurs:

- A telephone is in the extension or system programming mode.
- A user with an MLX display telephone is using Alarm Clock or Directory features.
- A telephone is busied-out for maintenance or system programming.
- All **SA** or **ICOM** buttons are in use.
- A single-line telephone user is on a call.

NOTE:
Up to eight Night Service groups can be created, one for each operator. There is no limit to the number of extensions assigned to each group, and each extension can be assigned to more than one group.

Night Service with Outward Restriction

Night Service with Outward Restriction prevents unauthorized after-hours use of telephones. When this option is programmed, only authorized operators can activate and deactivate Night Service, and only authorized users can place calls.

A system operator must enter a password to activate or deactivate Night Service. When one operator activates or deactivates Night Service by using a password, all consoles are put into Night Service. If Night Service groups are assigned, Night Service is activated or deactivated for all groups and cannot be activated or deactivated independently for each group. When the Night Service feature is activated, enter a password before making a nonemergency outside call. When you have entered the correct password, the system checks for calling restrictions assigned to your extension before allowing the call.

A Night Service Emergency Allowed List of emergency numbers can be created and can include up to 10 numbers, each with a maximum of 12 digits. Users who do not know the Night Service password can dial only the numbers on the list; calls to numbers not on the list do not go through unless the caller enters a password.

One Exclusion List for Night Service can be created to exempt specific extensions from the password requirement. An unlimited number of extensions can be assigned to the list. However, normal calling restrictions (if any) assigned to the extension are still in effect. Unrestricted extensions on the list are not protected against unauthorized after-hours use.

Night Service with Time Set

When the Night Service with Time Set option is programmed, the system automatically activates Night Service on all operator consoles at a specified time of day and on specified days of the week. A different time of day to activate or deactivate Night Service can be programmed for each day of the week. System operators can still override the timer and turn Night Service on and off manually if they prefer. If one system operator overrides the timer, Night Service is activated or deactivated on all consoles.

Night Service can also be activated through system programming for special conditions, such as a midweek holiday.

Considerations and Constraints

A Direct Inward Dialing (DID) call to any member of a Night Service group rings at all group members' telephones.

If an extension assigned to a Night Service group has the same outside line (personal line) as the operator console, calls to this line ring immediately at each telephone, even if the personal line on the telephone is programmed for Delay Ring or No Ring. If the extension does not have the outside line assigned, the call rings on an **SA** or **ICOM** button.

When Night Service is deactivated by the system operator or automatically by the system, extensions are reset to their programmed ringing options. When a feature code is used to activate or deactivate Night Service and Outward Restriction is programmed, the DLC operator does not hear an error tone if an invalid password is entered. Unless a Night Service button is programmed, the operator cannot determine whether Night Service is active.

When both the Night Service with Outward Restriction and Night Service with Time Set options are programmed, the system imposes restrictions automatically.

When Night Service with Outward Restriction and/or Night Service with Time Set are programmed, Night Service is activated or deactivated for all operator consoles. If Night Service groups are also programmed, Night Service cannot be activated or deactivated for each group independently.

When Night Service with Outward Restriction is activated and a user with a restricted extension presses a dialpad button while on a call, the call is disconnected, the user hears a fast busy signal, and the trunk is released. When the dialpad is used, the system assumes that the user is trying to make an outside call, which is not allowed because of the Night Service restriction assigned to the extension.

System operators can override Night Service with Time Set and turn Night Service on or off manually.

Night Service with Time Set can be deactivated through system programming for special conditions such as a midweek holiday.

An answering machine connected to a 012 module can be set up as a member of a Night Service group to automatically answer after-hours calls. External alerts, such as strobes, bells, or chimes, can be connected to an analog multiline telephone by using a Supplemental Alert Adapter or to an MLX telephone by using a Multi-Function Module (MFM) that is a member of a Night Service group. The external alert sounds or lights when a Night Service call comes into that telephone.

When Night Service with Outward Restriction is used, an operator must enter a password to manually activate or deactivate Night Service.

Changing the system time while in Night Service mode deactivates Night Service; Night Service then must be reactivated manually.

Telephone Differences

Direct-Line Consoles

A DLC operator can also activate Night Service by pressing the **Feature** button and dialing *39*. When a feature code is used to activate or deactivate Night Service and Outward Restriction is programmed, the DLC operator does not hear an error tone when an invalid password is entered and, unless a Night Service button is programmed, cannot determine whether Night Service is active.

On a system with 29 or fewer lines, a **Night Service** button is factory-assigned to analog DLCs with 34 buttons or more. On a system with more than 29 lines, the Night Service button is replaced with line 31. The Night Service button is not a fixed feature and can be assigned to any available button on either an analog or MLX DLC.

Queued Call Consoles

The **Night Service** button is factory-assigned as a fixed feature on a QCC.

If more than one QCC operator is assigned to receive calls on an individual trunk, Night Service must be activated at all assigned positions before calls on the trunk ring on telephones programmed as members of the Night Service group. If Night Service is not activated by one of the QCCs programmed to receive the calls, after-hours calls ring at that position and do not receive Night Service coverage.

When Night Service is on, unassigned DID extension and Listed Directory Number (operator) call types ring into the QCC queue. If these call types are programmed not to go to the QCC queue, the caller hears an error tone when Night Service is off. However, when Night Service is on, these call types still ring into the QCC queue, regardless of programming.

When multiple Night Service calls are received in the QCC queue at the same time and none of the calls are answered by a Night Service group member (all group member **SA** or **ICOM** buttons are busy), new calls are sent to the QCC queue and can be answered only by the QCC operator. To avoid this situation, all outside lines assigned to ring on the QCCs should be assigned as personal lines on at least one group member's telephone.

Other Multiline Telephones

To make a call when Night Service with Outward Restriction is assigned on a multiline telephone, before lifting the handset, press the **Hold** button and dial the password. When you have entered the correct password, lift the handset and make the outside call.

Night Service password entry is not supported on MDC 9000 or MDW 9000 telephones.

Single-Line Telephones

Single-line telephones cannot make outside calls when Night Service with Outward Restriction is activated.

Feature Interactions

Authorization Code	An authorization code can be used when Night Service is activated. For Night Service with Outward Restriction, the user must enter a valid password before entering an authorization code.
Automatic Route Selection	When Night Service with Outward Restriction is programmed, the user must enter the password before dialing the Automatic Route Selection (ARS) dial-out code unless the extension is assigned to an exclusion list or the number is on an emergency numbers list.
Calling Restrictions	For Night Service with Outward Restriction, a Night Service Emergency Numbers List must be created to include emergency numbers that can be dialed from any extension without dialing the password. Any restrictions assigned to an extension assigned to the Exclusion List are in effect when Night Service is activated.
Display	If the system operator must enter a password to turn Night Service on and off, the display prompts the operator for the password. No message is displayed when the operator activates Night Service by using a feature code or when Night Service is off. If an MLX display telephone is in test mode and a Night Service call arrives, the call rings at the telephone. However, the calling information is not displayed until the user presses the **Home** button to see it.
Forward and Follow Me	When an extension is a member of a Night Service group and Night Service is activated, calls received at the extension are forwarded to extensions by using Forward and Follow Me but are not forwarded to outside telephone numbers when remote call forwarding is used.
Group Calling	In Release 2.0 and later, a calling group can be a Night Service group member. If a calling group is used as a Night Service member no other calling groups or telephones are allowed to be Night Service members.
Caller ID	Caller ID information appears on the display whether or not Night Service has been activated.
Multi-Function Module	An MFM can be a member of a Night Service group. An external alert connected to the MFM in supplemental alert adapter operation, when assigned to a Night Service group, can be used for supplemental ringing for after-hours calls.

Personal Lines	If the voice mail calling group is assigned as a member of a Night Service group, incoming lines receive Automated Attendant treatment. When a call is answered by the Night Service group, ringing does not occur at a telephone with that personal line and the Night Service coverage is used instead of the principal user's coverage.
Pickup	By using Pickup, a user at another extension can answer a call ringing at a Night Service group extension.
Remote Access	When shared Remote Access is assigned to a trunk, incoming calls on that trunk receive remote access treatment only when Night Service is activated on all operator positions that receive calls on the trunk. When a call is received on a trunk assigned for shared Remote Access and Night Service is not activated, the call rings at the assigned telephone, operator console, or calling group.
Ringing Options	When Night Service is turned on, calls received at a Night Service group member's telephone ring immediately, even if the line buttons are programmed for Delay Ring or No Ring. When Night Service is turned off, extensions return to their programmed ringing options.
System Access/ Intercom Buttons	Night Service calls override any ringing options (Delay Ring or No Ring) programmed for **SA** buttons and ring immediately. **Shared SA** buttons flash and do not ring.

Notify

See “Signal/Notify.”

Paging

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Dial Plan Extension Information Group Paging System Information
Mode	All
Telephones	All
Programming Code	**22 + group or Page All ext. no.*
MLX Display Label	Group Page [GrpPg] Loudspkr Pg [LdsPg]
System Programming	Assign telephones to paging groups: • Extensions→ **More**→Group Page Designate a loop-start or ground-start/loop-start line jack as a paging jack: • AuxEquip→Ldspkr Pg
Maximums	
Groups	6 speakerphone paging groups 1 Page All group
Telephones	10 in each paging group (see Note)
Line Jacks	3, programmed as loudspeaker paging ports
Factory Settings	
Extensions	793–798 (speakerphone paging groups) 799 (Page All group)

NOTE:
Each extension can belong to up to seven paging groups (for example, each of the six speakerphone paging groups and the Page All group).

Description

Paging allows users to broadcast announcements using their telephones. There are two types of paging: Speakerphone Paging and Loudspeaker Paging. Speakerphone Paging allows broadcasting to specific individuals or designated groups. Loudspeaker Paging allows broadcasting to specific groups or all extensions, depending on whether or not the loudspeaker system is a multizone paging system.

Speakerphone Paging

An announcement made using Speakerphone Paging is heard on telephones with built-in speakerphones (except single-line telephones with built-in speakerphones) or speakerphone adjuncts. Speakerphone Paging can be directed to an individual telephone, to groups of telephones, or to all speakerphones throughout the system.

Individual Paging

The **SA Voice** or **ICOM Voice** button on multiline telephones is used for Speakerphone Paging directed to an individual extension (also called *voice-announced inside calls*). Select the voice button, and then dial the extension for the telephone to receive the voice-announced call. If the voice announcement can be made, the user hears a tone and then speaks into the handset.

NOTE:
QCC operators cannot make or receive voice-announced inside calls.

The person called hears the announcement over the speakerphone unless one of the following conditions exist:

- The telephone does not have a speakerphone or loudspeaker.
- The person called is using the speakerphone.
- The person called is on an analog multiline telephone, and Voice Announce to Busy is not assigned to the extension.
- The person called has an MLX telephone or analog multiline telephone and has disabled voice announcements.
- The person called is using Do Not Disturb.
- The person called is a QCC operator.

When any of these conditions exists, the caller hears ringback if the person called has an available **SA** or **ICOM** button; or hears the busy, call-waiting, or callback tone when the person called is busy on all **SA**, or **ICOM** buttons. If the person called is using Do Not Disturb, the caller hears a busy signal.

Speakerphone Paging to an individual extension is considered an inside call. The green LED next to an available **SA** or **ICOM** button flashes to indicate an incoming call. The person called can use the Hands-Free Answer on Intercom (HFAI) feature to talk to the caller or can pick up the handset and speak.

Group Paging

Group Paging is used to direct Speakerphone Paging to a selected group of extensions, such as a department or work area, or to all extensions in the system, except QCC operator positions.

The system automatically reserves extension numbers 793–798 for the first six speakerphone paging groups. Up to 10 extensions can be assigned to each speakerphone paging group. The seventh speakerphone paging group is called the Page All group and is factory-set to page all extension numbers. The system automatically reserves extension number 799 for the Page All group. An extension can belong to up to seven speakerphone paging groups (including the Page All group).

When the extension number for a speakerphone paging group is dialed by using an **SA** or **ICOM** button, the announcement is heard over the speakerphones on all telephones assigned to the group. If the extension dialed is for the Page All group, the announcement is heard on speakerphones throughout the system. A speakerphone paging group member does not hear a group page if one of the following conditions exists:

- The paging group member is using the speakerphone.
- The paging group member is on an analog multiline telephone, and Voice Announce to Busy is not assigned to the telephone.
- The paging group member has an MLX telephone and has disabled voice announcements.
- The paging group member has an MLX telephone and is either programming (extension, centralized, or system) or testing the phone.
- The paging group member has an analog multiline telephone and is in extension programming. (Speakerphone pages are received on an analog multiline telephone in test mode.)
- The paging group member is using Do Not Disturb.

When a group member does not hear the announcement for any of these reasons, the caller is not notified unless all extensions in the group cannot hear the page, in which case the caller hears the busy signal.

The people being paged can only listen to the page over the speakerphone and cannot respond to the person making the page.

Loudspeaker Paging

Loudspeaker Paging is used when a loudspeaker paging system is connected to the system on a line jack programmed for Loudspeaker Paging. Pages over a loudspeaker paging system are heard everywhere in the building or just in a particular area, depending on whether or not the loudspeaker system is a multizone paging system.

Considerations and Constraints

A telephone without a speakerphone, loudspeaker, or speakerphone adjunct cannot be a member of a speakerphone paging group.

After using Loudspeaker Paging, users must be sure to disconnect the paging call. Otherwise, the loudspeaker paging system may not be available by someone else.

When a user tries to direct an announcement to a speakerphone paging group that is receiving a page, the user hears a busy signal.

When a group member does not hear the announcement, the caller is not notified unless all telephones in the group cannot hear the page, in which case the caller hears a busy signal.

If an analog multiline telephone user does not have Voice Announce to Busy and lifts the handset while listening to a speakerphone page, he or she is disconnected from the page.

If an analog multiline telephone user with Voice Announce to Busy or an MLX telephone user lifts the handset while listening to a page, the page continues and the user can still make a call.

A maximum of three line jacks can be programmed for Loudspeaker Paging and used to connect a single-zone or multizone paging system. Each zone requires its own loudspeaker paging jack, and users cannot use more than one paging system at a time by dialing a single access code.

Using the speakerphone for making a Speakerphone or Loudspeaker Paging call may create a feedback tone.

Loudspeaker paging jacks are LS or GS line ports programmed as paging ports. Up to three can be programmed. An extension jack cannot be programmed for loudspeaker paging.

Any loop-start or ground start/loop start line/trunk jack can be assigned as a loudspeaker paging jack. A line/trunk jack on an 800 DID, 100D, or 400EM (tie trunk) module cannot be programmed as a loudspeaker paging jack.

The loudspeaker paging jack cannot be assigned to a pool that contains trunks used to make or receive outgoing calls.

When a line/trunk jack is assigned for Loudspeaker Paging, only the loudspeaker paging system can be connected.

If the loudspeaker paging system is multizone, users must dial the appropriate zone number specified by the paging system before making an announcement.

The system supports loudspeaker systems with talkback (bidirectional paging), which allows users to respond to pages.

Prior to Release 2.1, users at extensions programmed with Forced Account Code Entry need to enter an account code to use Loudspeaker Paging. In Release 2.1 and later, users at extensions programmed with Forced Account Code Entry do not need to enter an account code to use Loudspeaker Paging.

Telephone Differences

Direct-Line Consoles

The trunk jack programmed for Loudspeaker Paging can be assigned to a button on an analog or digital Direct-Line Console (DLC) for one-touch access. An operator with a MLX DLC can also access a loudspeaker paging system by dialing the trunk number (801–880) for the trunk jack on which the loudspeaker paging system is connected.

Queued Call Consoles

A Queued Call Console (QCC) cannot make or receive voice-announced inside calls (speakerphone calls to an individual extension). A QCC cannot be a member of a speakerphone paging group and cannot receive group pages; however, it can make announcements to a paging group.

A QCC operator can use the Group Paging feature by selecting a **Call** button and pressing the DSS (Direct Station Selector) button or dialing the extension for the group.

A QCC operator can use a loudspeaker paging system only by selecting a **Call** button, selecting Loudspeaker Paging from the display, and then dialing the Loudspeaker Paging line number (801–880).

Cordless and Cordless/Wireless Telephones

MLC-5, MDC 9000 and MDW 9000 telephones cannot be members of paging groups or receive speakerphone pages.

Loudspeaker pages can be made from MLC-5 cordless telephones.

All Other Multiline Telephones

To receive pages, analog multiline telephones must have Voice Announce to Busy on, and MLX telephones must have Voice Announce on; these are the factory settings. For analog multiline telephones, turning on the feature also requires assigning two consecutive jacks to the telephone: one for normal calls and another for pages.

To direct Speakerphone Paging to an individual extension, select an **SA Voice** or **ICOM Voice** button, dial the extension number, and speak into the handset or speakerphone. To direct Speakerphone Paging to a group of extensions or to all extensions by using Page All, select any **SA** or **ICOM** button, press the programmed Group Page button or dial the extension for the speakerphone paging group or Page All group, and speak into the handset. (Using a speakerphone for a group page can cause feedback.

A multiline telephone user can access the loudspeaker paging equipment and make an announcement through Loudspeaker Paging in the following ways:

- Select a line button programmed for the line jack on which the loudspeaker paging system is connected.
- Select an **SA** button and dial the pool dial-out code for the loudspeaker paging jack.
- Select an **SA** or **ICOM** button (either by pressing a Pickup button programmed specifically for the paging line or pressing the **Feature** button), and then dialing *9* followed by the paging line number (801–880).
- Select Loudspeaker Page from the display (MLX display telephones only) and dial the line number (801–880).

Once the loudspeaker paging system is accessed, dial the assigned code number for the paging zone (if required by the loudspeaker paging system) and speak into the handset.

Single-Line Telephones

Single-line telephones cannot receive pages, even if they have speakerphones. Consequently, they cannot be included as members of a speakerphone paging group.

Single-line telephones cannot be used to make or receive voice-announced inside calls (Speakerphone Paging directed to an individual extension). To direct Speakerphone Paging to a group of extensions or to all extensions by using Page All, lift the handset, while listening to inside dial tone dial the extension for the paging group or Page All group, and speak into the handset.

To use Loudspeaker Paging, lift the handset and (while listening to inside dial tone) dial *#9* (Pickup) and then the paging jack's line number, and speak into the handset. The paging jack is normally not assigned to a single-line telephone.

Feature Interactions

Auto Dial	A speakerphone paging group extension number can be programmed onto an inside Auto Dial button.
Barge-In	Operators cannot use Barge-In to join speakerphone or loudspeaker paging calls.
Callback	A speakerphone paging (voice-announced inside) call that is queued by using Callback automatically becomes a ringing call. Callback cannot be used for calls to a speakerphone paging group. Systems with loudspeaker paging can be set up to allow calls to be queued for the loudspeaker paging system by placing the loudspeaker paging line in its own pool and having users access the paging system through the pool. When the pool is busy, calls to the loudspeaker paging system can be queued.
Call Waiting	Call Waiting cannot be used for calls to busy speakerphone paging groups.
Camp-On	Camp-On cannot be used for calls to busy speakerphone paging groups.
Conference	Group and loudspeaker paging calls cannot be added to a conference.
Direct Station Selector	A DSS button for a trunk programmed as a loudspeaker paging line is used only to indicate whether the paging system is in use and cannot be used to gain access to the loudspeaker paging system. A DSS button can be used only to dial an extension for a paging group. When a DSS button for a paging group is pressed, transfer is not automatically initiated.
Display	When users with MLX display telephones use Group Paging, they see a message on the display indicating the number of the paging group. If a loudspeaker paging jack is not programmed, Loudspeaker Page is not shown as a feature choice on MLX display telephones.
Do Not Disturb	Speakerphone paging calls cannot be made to an extension with the Do Not Disturb feature activated.
Forward and Follow Me	Calls cannot be forwarded to a paging group. The trunk number used to connect loudspeaker paging equipment cannot be used to forward calls to outside telephone numbers.
Headset Options	A user with a headset hears group pages over the speakerphone.

Hold	A paging call can be put on hold by the caller. An inside voice-announced call can be put on hold by the person being called.
Inspect	If the user gets a voice-announced inside call or a group page while using the Inspect feature, the Inspect feature is canceled and the user is returned to the Home screen.
Microphone Disable	Calls made to speakerphone paging groups can still be heard over telephones where microphones are disabled.
Multi-Function Module	A Multi-Function Module (MFM) should not be a member of a speakerphone paging group.
Personal Line	A trunk used for loudspeaker paging equipment cannot be assigned as a personal line.
Pickup	When the line number used for loudspeaker paging is not assigned to a button on a multiline telephone, you can access the loudspeaker paging system with Individual Pickup: dial the paging jack's line number (801-880) or program a Pickup button specifically for the paging line number.
Pools	In Hybrid/PBX mode, trunk jacks used for loudspeaker paging cannot be assigned to trunk pools.
Remote Access	Loudspeaker Paging cannot be accessed from outside the system through either DID lines or remote access.
SMDR	Paging calls are not printed on the SMDR report.
System Access/ Intercom Buttons	Announcements using Speakerphone Paging can be made from a **Shared SA** button. However, users cannot join a page on a **Shared SA** button.
System Numbering	Extensions for paging groups can be renumbered, (The factory-set extensions are 793–799; Page All is 799.)
Transfer	Calls cannot be transferred to paging groups or to the loudspeaker paging extension.
Voice Announce to Busy	Users who program their extensions to turn Voice Announce to Busy (Voice Announce on MLX telephones) off do not receive individual or group speakerphone pages.

Park

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information Operator Information System Information
Mode	All
Telephones	All except single-line
Programming Codes	
Park at own extension	**86*
Park Zone	**22* + *park zone* (DLC operators only)
MLX Display Label	
Park at own extension	Park
Park Zone	Park Zone [PrkZn]
System Programming	Assign return interval before unanswered parked call returns: • Options→CallParkRtn
Maximums	
No. of parked calls in park zones	8 (one parked call for each zone)
Factory Settings	
Park Zones	881–888
Call Park Return Interval	180 sec (range 30–300 sec, in increments of 10 sec)
QCC Priority Level for returning parked calls	4 (range 1–7)

Description

Park puts a call on a special type of hold, so that it can be picked up from any extension in the system. A user can park a call and then pick it up at another telephone or can use Paging to announce the call so that another person can pick it up. A parked call is picked up by using the Pickup feature.

A user (excluding QCC operators) can park calls at his or her own extension by activating Park during the call or by pressing the **Transfer** button, dialing his or her own extension number, and pressing the **Transfer** button again to complete the transfer. At least two **SA** or **ICOM** buttons are required to use Park this way, and if a user must park more than one call, more **SA** or **ICOM** buttons should be assigned to the telephone. The green LED winks at the button where the call is parked and at all other associated **SA** and **Shared SA** buttons.

If a parked call is not picked up within the call park return interval (30–300 seconds; the factory setting is 180 seconds), the call returns to and rings at the extension that parked the call. For QCC operators, returning parked calls can also be programmed to return to a different operator.

The system also automatically reserves eight extensions (881–888) for operator park zones. Only operators can use these park zone extensions to park calls.

Considerations and Constraints

Only system operators can use park zones to park calls.

System operators must share the eight extensions (881–888) reserved for operator park zones.

To park a call at a park zone, the operator with a DSS presses the DSS button for the park zone while the caller is on the line. If an operator tries to park a call by pressing the **Transfer** button followed by the DSS button for the park zone, the call is put on hold for transfer and is not parked. This may result in transferring a call to an outside number by mistake.

Telephone Differences

Direct-Line Consoles

DLC operators can park calls by activating Park during the call or by pressing the DSS button programmed for the operator park zone. DLC operators can also park calls at their own extensions. The eight park zone codes cannot be assigned to the DSS buttons on a MERLIN II System Display Console. For the park zones to be assigned to a DSS connected to an MLX DLC, the extension numbers must be in the range programmed for the **Page** buttons.

Queued Call Consoles

A QCC operator must have a DSS to park a call, which he or she does by pressing the DSS button for the park zone or by pressing the **Start** button and then the DSS button for the operator park zone. The call is automatically parked; the operator does not need to press the **Release** button.

QCC operators cannot park calls at their own extensions.

For park zones to be assigned to a DSS connected to a QCC position, the extension numbers must be in the range programmed for the **Page** buttons.

Calls parked by QCC operators can be programmed to return to the QCC queue or can be assigned to the QCC operator who parked the calls and/or to another QCC operator. Returning parked calls are assigned a QCC priority level (the factory setting is 4) by using the Returning Call Type setting. A QCC operator can return a parked call to the message center position.

To pick up a parked call, the QCC operator selects Pickup from the display and dials the extension number for the telephone or park zone where the call is parked.

Other Multiline Telephones

Multiline telephone users park calls at their own extension numbers by pressing programmed Park buttons. On an MLX display telephone, a user can press the **Feature** button and select Park from the display.

If a user pages another person, the extension number for the telephone or park zone should be provided as part of the call announcement.

A multiline telephone user can also park calls by pressing the **Transfer** button, dialing his or her own extension number (the user hears a busy tone), and then pressing the **Transfer** button again to complete the transfer. The call is automatically parked when the transfer is completed.

To pick up a parked call, press a programmed Pickup button or press the **Feature** button, dial *9*, and then dial the extension number for the telephone or park zone where the call is parked. MLX telephone users can also press the **Feature** button and select the feature from the display.

Single-Line Telephones

To park a call, a single-line telephone user presses and releases the **Recall** or **Flash** button or switchhook and dials his or her own extension. The user hears a busy tone and the call is parked.

NOTE:
If a single-line telephone with a positive or timed disconnect is used, for example, the AT&T model 2500YMGL or 2500MMGK, pressing the switchhook disconnects the call. With this type of telephone, the **Recall** or **Flash** button must be used to park a call instead of the switchhook.

To pick up a parked call, the single-line user lifts the handset and (while listening to inside dial tone) dials *#9* and the extension number for the telephone or park zone where the call is parked.

Feature Interactions

Auto Dial	An operator can program park zones on inside Auto Dial buttons. An inside Auto Dial button can also be programmed with a user's (including an operator's) own extension number and can be used to park calls. When the system is programmed for One-Touch Hold with Manual Completion, the user hears a busy signal and must complete the transfer by hanging up or by pressing the **Transfer** button.
Callback	Calls waiting in a callback queue cannot be parked.
Conference	Conference calls cannot be parked. If a QCC operator tries to park a conference call by pressing the **Start** button and then pressing the DSS button for the park zone, the park is denied and the operator is reconnected to the conference call.
Coverage	A returning parked call is not eligible for coverage. A call answered on a Primary Cover, Secondary Cover, or Group Cover button cannot be parked on that button. To park calls received on a Cover button at your extension, press the **Transfer** button, dial your own extension, and press the **Transfer** button again to complete parking the call.
Direct Station Selector	Park zone codes cannot be assigned to the DSS buttons on a MERLIN II System Display Console. For the park zones to be assigned to a DSS connected to an MLX operator console, the extension numbers must be in the range programmed for the **Page** buttons. When an operator parks a call by using an associated DSS button and the call returns, the red LED associated with the park zone where the call was parked turns off and does not flash as it does for a transfer return. To park a call at a park zone, the operator with a DSS presses the DSS button for the park zone while the caller is on the line. If an operator tries to park a call by pressing the **Transfer** button followed by the DSS button for the park zone, the call is put on hold for transfer and is not parked. This may result in the operator transferring a call to an outside number in error.
Display	On a QCC, returning parked calls are identified by call type and the name or extension number of the operator who parked the call. The second line of the QCC display also shows the caller information. On 2-line displays, press **More** to see complete caller information.
Forward and Follow Me	Returning parked calls are not forwarded.
Group Calling	A calling group member who parks a call is considered available to receive another call.
Headset Options	If a call is parked, another call can be automatically answered by using Headset Auto Answer.

Hold	If a single-line telephone user with a call on hold hangs up, the call is disconnected. Park should be used instead of Hold. When a user or system operator parks a call received on a personal line button and it is picked up using the Pickup feature at another telephone and then put on hold by using the **Hold** button, other users who share the personal line cannot press the line button and pick up the call.
Line Request	A returning parked call cancels Line Request.
Multi-Function Module	A user at a Multi-Function Module (MFM) cannot park a call but can pick up a call parked by another user.
Music On Hold	If Music On Hold is programmed, a parked caller hears Music On Hold.
Pickup	A parked call can be picked up by using Individual Pickup.
SMDR	If an incoming call is parked but not picked up by the other extension, the extension of the user who activated Park is shown in the STN field of the SMDR record for the call. If an incoming call is parked and picked up by the destination extension, the destination extension is shown in the STN field of the SMDR report.
System Access/ Intercom Buttons	When a user parks a call made or received on an **SA** button, **Shared SA** buttons do not ring when the parked call returns.
System Numbering	System operator park zones (the factory-set zones are 881–888) can be renumbered.
Transfer	A user can also park calls by pressing the **Transfer** button, dialing his or her own extension, and pressing the **Transfer** button again. DLC operators can press **Transfer** and dial an operator park zone. When this method is used, complete the transfer by pressing the **Transfer** button or by hanging up. This method cannot be used by QCC operators.

Personal Lines

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information
Mode	All
Telephones	All except QCC
System Programming	Assign or remove personal lines: • Extensions→LinesTrunks Assign or remove principal user of a personal line: • LinesTrunks→ **More**→PrncipalUsr
Maximums	64 telephones for each personal line 1 telephone as principal user 3 simultaneous users for each personal line
Factory Settings	
Assigned Personal Lines	Analog DLC: Lines 1–32 MLX DLCs: Lines 1–18 Multiline telephones: Lines 1–8 (Key Mode)

Description

A personal line, also called a *direct facility termination*, is an outside trunk assigned to a button on one or more telephones. A personal line can provide either the shared or exclusive use of a specific trunk. In Hybrid/PBX mode, a personal line allows users to receive outside calls without operator involvement.

When a personal line is assigned to more than one telephone, a principal user of the personal line can be assigned through system programming. Assigning the telephone as the principal user has the following effects:

- If remote call forwarding is enabled for the extension, only the principal user can forward personal line calls to an outside telephone number.
- Calls received on the personal line follow the principal user's Individual or Group Coverage patterns unless the personal line is set to No Ring.

Select a personal line to make or receive outside calls by pressing the associated personal line button on a multiline telephone; a dial-out code is not needed. When the line is in use, the green LED is on at all multiline telephones that share the personal line. Inside calls cannot be made or received on a personal line.

When two or more users answer the same call on a **Shared SA** or personal line button, the red and green LEDs next to the button go on, but only one person

has a talk path with the caller. Privacy should be used to eliminate competition for the same call.

When an individual personal line is assigned to a line button on more than one telephone, a maximum of three users of that personal line can participate in an in-progress call (including conference calls) on which Privacy has not been activated. Users select the personal line button with the call.

Personal lines can be assigned through system programming to single-line telephones or any other type of tip/ring device to allow the user to receive outside calls. Normally the Ringing/Idle Line Preference for single-line telephones or other tip/ring devices is activated and Automatic Line Selection (ALS) is set to select an **SA** or **ICOM** button. With this arrangement in Key and Behind Switch modes, the single-line telephone user can select the personal line to make an outside call by dialing the Idle Line Access code (usually *9*) while listening to inside dial tone.

In Hybrid/PBX mode, when Ringing/Idle Line Preference is deactivated or the ALS is set to select an **SA** button, the single-line user cannot select the personal line to make calls but can receive calls on the personal line.

For single-line telephones or other tip/ring devices in any mode of operation, the ALS can be set to select the personal line. However, the user cannot make inside calls or activate system features with this arrangement.

A multiline telephone user can program personal line buttons for Immediate Ring, Delay Ring, or No Ring. When a personal line button is programmed for No Ring, the user can still answer calls received on a personal line by pressing the personal line button with the flashing green LED. However, when a personal line is set to No Ring and Individual and/or Group Coverage is programmed for the user, calls received on the personal line are not sent to coverage.

Considerations and Constraints

DID trunks should not be used as personal lines. If a DID trunk is assigned as a personal line, and a call received on the DID trunk is ringing at the extension programmed to receive the calls (the routing extension), the call can be answered by using the personal line button. However, this is not recommended, because the purpose of DID trunks is to route calls to specific extensions without the need for personal line assignment or system operator assistance.

If a trunk is not assigned as a personal line, grouped in a pool (Hybrid/PBX only), or assigned to ring into the Queued Call Console (QCC) queue, and a call is received on the trunk, the caller hears ringback even if that trunk does not terminate anywhere in the system.

An extension can be programmed as the principal user (owner) of a personal line. When this is programmed, only the principal owner can forward calls to an outside number by using remote call forwarding. When the owner has Individual or Group Coverage, calls received on the personal line follow the owner's coverage and not the coverage of telephones that also share the personal line.

When no principal user is assigned for a personal line, calls received on the personal line cannot be forwarded to outside telephone numbers. Calls follow the Individual Coverage patterns of all senders who share the line and the Group Coverage pattern of the extension with the lowest logical identification number (lowest numbered jack on the module).

Two users can join a call in progress (including conference calls) for a maximum of three users on the same personal line.

Outside trunks used as personal lines cannot be assigned to a pool and cannot be assigned as loudspeaker paging, Music On Hold, or maintenance alarm jacks.

Automatic Route Selection (ARS) cannot be used on personal lines.

In all modes, no personal lines are assigned to single-line telephones or tip/ring devices connected to a 012 or 008 OPT module.

In Release 2.1 and later, calls received on personal lines with Do Not Disturb on will go immediately to coverage, instead of waiting for the coverage delay interval.

Mode Differences

Hybrid/PBX Mode

When Ringing/Idle Line Preference is turned on and ALS is set to select an **SA** button, the single-line telephone user cannot select the personal line to make calls. However, outside calls can be received on the personal line.

In Hybrid/PBX mode, the factory setting assigns personal lines to DLC positions rather than to multiline telephones.

Key and Behind Switch Modes

When Ringing/Idle Line Preference is turned on and ALS is set for an **ICOM** button, the single-line user can select the personal line to make an outside call by dialing the Idle Line Access code (usually *9*) while listening to inside dial tone.

In Key mode, the factory setting for personal lines assigns the first 1–8 lines connected to the system as personal lines on all multiline telephones, including Multi-Function Modules (MFMs) connected to MLX telephones.

In Behind Switch mode, the factory setting assigns personal lines to DLC positions rather than to multiline telephones.

Telephone Differences

Direct-Line Consoles

The factory setting for analog DLCs assigns the first 1–32 lines connected to the system as personal lines in all modes of operation. For MLX DLCs, the first 1–18 lines connected to the system are automatically assigned as personal lines.

Queued Call Consoles

Personal lines cannot be assigned to a QCC or to a pool.

Other Multiline Telephones

A personal line is selected by pressing the associated personal line button. Dial-out codes are not required for making outside calls.

Single-Line Telephones

A single-line telephone user can receive calls on a personal line. To allow a single-line telephone user to select a personal line to make a call, Ringing/Idle Line Preference must be turned on and ALS must be set to select an **SA** or **ICOM** button. With this arrangement, in Key and Behind Switch modes, the single-line telephone user can select the personal line to make an outside call by dialing the Idle Line Access code (usually *9*) while listening to inside dial tone.

Feature Interactions

Alarm	A trunk jack used for a maintenance alarm cannot be assigned as a personal line.
Allowed Lists	A user with an outward-restricted or toll-restricted extension cannot dial a toll or outside number on a personal line button unless the number is on an Allowed List assigned to the extension.
Auto Dial	An outside Auto Dial button can be used on a personal line.
Callback	The Callback feature cannot be used to request a busy personal line.
Calling Restrictions	See “Allowed Lists/Disallowed Lists.”

Call Waiting

A user does not hear a call-waiting tone for calls received on a personal line unless the business subscribes to call-waiting service from the local telephone company.

Coverage

Assigning a sender as the principal user of a personal line specifies that the calls received on the personal line are sent to the principal user's individual and group receivers. A principal user with remote call forwarding can forward calls received on the personal line to an outside number.

Calls received on personal line buttons programmed for No Ring or on senders' extensions other than the principal user's are not eligible for coverage.

If no principal user is assigned and the personal line is shared by other senders, calls received on the personal line are sent to all available Individual Coverage receivers for all senders sharing the line and to the Group Coverage receivers programmed for the sender with the lowest logical ID.

In Release 2.1 and later, a call answered on a personal line using a Cover button can be picked up by anyone with a button for that personal line. However, the picked up call cannot be transferred because it is still considered to be on hold at the other extension.

Prior to Release 2.1, once a person answers a call received on a personal line on a Cover button and puts the call on hold, the sender and any other user who shares the personal line cannot pick up the call by pressing the personal line button. For proper handling, the receiver should transfer the call to the sender.

In Release 2.1 and later, calls received on personal lines with Do Not Disturb on will go immediately to coverage instead of waiting for the coverage delay interval.

Directories

A Personal Directory (MLX-20L only) or System Directory can be used to dial numbers on a personal line. An Extension Directory is used only for inside calls and cannot be used to dial calls on a personal line.

Disallowed Lists

A user cannot select a personal line and dial an outside number when the number is on a Disallowed List assigned to the extension.

Forced Account Code Entry

When Forced Account Code Entry is assigned to an extension and the user tries to dial an outside call on a personal line button without entering the account code, the call does not go through.

Forward and Follow Me

When an extension is programmed as the principal user of a personal line, calls received on the personal line are forwarded to an outside number (if the extension can use remote call forwarding), unless the outside trunk is a loop-start trunk with unreliable disconnect.

Group Calling

If a person uses a shared personal line button to join a call in the calling group queue, the call is removed from the queue. If a delay announcement is playing, it is disconnected from the call.

Group Calling ***continued***	To allow all calling group members' telephones to ring when an outside call is not answered within three rings, the trunks programmed to ring into the queue can also be assigned as personal lines on group member telephones and programmed for Delay Ring. This does not work for inside calls, remote access calls, DID calls, or when a delay announcement device is assigned to the group.
Hold	If a call is received on a personal line and is transferred to another user who receives the call on an **SA** or **ICOM** button and puts the call on hold, users who share the line cannot select the personal line button and pick up the call. If the person who received the transfer and put the call on hold cannot return to the call, another user must use the Pickup feature to enter the line number and pick up the call. In Release 2.1 and later, a call that has been put on hold at a Cover, **SA**, **Shared SA**, or **Pool** button can be picked up by a user who has a personal line button for the call. When the call is picked up, the green light next to the personal line lights steady; however, the call remains on hold at the Cover, **SA**, **Shared SA** or **Pool** button. The user who picked up on the personal line cannot transfer the call that has been picked up. In order to transfer a call on hold at a Cover, **SA**, **Shared SA**, or **Pool** button, use Pickup instead of picking up on a personal line button.
Multi-Function Module	If an MFM device is used to answer calls or provide supplementary ringing for its associated MLX telephone, any personal lines removed from the telephone should also be removed from the MFM. When the device connected to an MFM requires a personal line to make and/or receive calls (a modem or fax, for example) a personal line should be assigned.
Music On Hold	A trunk used for Music On Hold cannot be assigned as a personal line.
Night Service	If the voice mail calling group is assigned as a member of a Night Service group, incoming lines receive Automated Attendant treatment. When a call is answered by the Night Service group, ringing does not occur at a telephone with that personal line and the Night Service coverage is used instead of the principal user's coverage.
Paging	A trunk used for loudspeaker paging equipment cannot be assigned as a personal line.
Pools	A personal line cannot be assigned to a pool.
Privacy	When an individual personal line is assigned to more than one telephone, a user with the personal line cannot join an in-progress call on which Privacy has been activated.
System Access/ Intercom Buttons	When a call on a personal line button is transferred to another user, the call rings on an **SA** or **ICOM** button. The LED next to the personal line flashes rapidly to indicate that the call is on hold for transfer. If the call is answered at an **SA** or **ICOM** button, the LED next to the personal line turns on steadily. If a user shares the personal line appearance and answers the call by using the personal line button, the call is removed from the **SA** or **ICOM** button.

Personalized Ringing

See “Ringing Options.”

Pickup

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information Group Call Pickup
Mode	All
Telephones	All (except MLC-5 cannot be assigned to Pickup groups)
Programming Codes	
Individual Pickup	
General use	**9*
Specific extension	**9 + ext. no.*
Specific line	**9 + line no*.
Group Pickup	**88*
Feature Codes	
Individual Pickup	
Specific extension.	*9 + ext. no.*
Specific line	*9 + line no.*
Group Pickup	*88*
MLX Display Labels	
Individual Pickup	
General use	Pickup,General [Pkup,Genrl]
Specific extension.	Pickup,Extension [Pkup,Ext]
Specific line	Pickup,Line [Pkup,Line]
Group Pickup	Pickup,Group [Pkup,Group]
System Programming	Assign or remove telephones from Pickup groups: • Extensions→Call PickUp
Maximums	30 Pickup groups 15 members for each group 1 Pickup group for each telephone

Description

Pickup allows users to answer calls that are ringing, parked, or on hold anywhere in the system. There are two types of Pickup: Individual and Group. Individual Pickup can be used in three ways: Extension, Line, and General. Table 28 shows the calls that can be answered

with each type of Pickup. Note that if more than one call is ringing or on hold, the first call received is the one picked up.

Table 28. Types of Call Pickup

Individual Extension	Individual Line	Individual General	Group
Inside ringing Inside held Parked Outside ringing Outside held	Outside ringing Outside held	Inside ringing Inside held Outside ringing Outside held	Inside ringing Outside ringing

Individual Pickup

Individual Pickup can be used in the following ways:

- **Extension Pickup.** From the display, select Pickup and then dial the extension number of the call to be picked up. Alternatively, a programmed Individual Extension Pickup button can be set to pick up calls on one specific extension. If that extension has more than one call, the first call sent to the extension is picked up. To pick up a call parked by the operator, select Pickup from the display or press the programmed Individual Extension Pickup button; then dial the park zone.
- **Line Pickup.** From the display, select Pickup, then dial the line number (801–880) to select a specific outside line from which to pick up a ringing or held call. Alternatively, a programmed Individual Line Pickup button can be set to pick up calls on one specific line. Line Pickup can also be used to make announcements through the loudspeaker paging system.
- **General Pickup.** Multiline telephone users can program a general-purpose Pickup button to pick up calls on either extensions or lines with the same button. When a general Pickup button is used, enter the line or extension number for the call to be picked up every time the button is used.

Group Pickup

Group Pickup is used to answer a ringing call for any member of the group by dialing the Group Pickup code or pressing a programmed Group Pickup button. It is not necessary to know the extension number or line number of the ringing call. The system automatically connects to an inside or outside call that is ringing at a telephone assigned to the group.

A telephone cannot be assigned to more than one Pickup group.

Considerations and Constraints

When Group Pickup is used to answer a call, the user cannot determine whose call is being answered. An MLX display telephone user receives call information and can determine whose call is answered only after the call is picked up.

Individual Pickup, not Group Pickup, is used to pick up calls parked in a park zone by an operator.

Telephone Differences

Direct-Line Consoles

A Direct-Line Console (DLC) can be part of a Pickup group. This allows other group members to provide backup coverage for the DLC. The DLC operator can use Pickup to answer calls on trunks that are not assigned to buttons on the console.

Queued Call Consoles

Individual Pickup

To pick up a call using a Queued Call Console (QCC), select the feature from the Home screen or press the **Feature** button and select the feature from the display. Then press the DSS (Direct Station Selector) button or dial the extension for the telephone or park zone.

To answer calls on specific lines, select the feature from the Home screen or press the **Feature** button and select the feature from the display; then dial the line number (801–880) with the call.

Group Pickup

To pick up a call ringing on any other group member's telephone, select Pickup Grp from the Home screen or press the **Feature** button and select the feature from the display.

Other Multiline Telephones

Individual Pickup

To pick up a call, all other multiline telephone users press a programmed general-purpose Pickup button or press the **Feature** button and dial *9*. MLX telephone users can also press the **Feature** button and select the feature from the display, then dial the extension for the telephone or park zone.

To answer calls on specific lines, press a programmed general-purpose Pickup button or press the **Feature** button and dial *9*; then dial the line number with the call.

If a Pickup button is programmed for a specific telephone or outside line, press that Pickup button to pick up a call.

Group Pickup

To pick up a call ringing on any other group member's telephone, press a programmed Group Pickup button or press the **Feature** button and dial *88*. MLX telephone users can also press the **Feature** button and select the feature from the display.

MLC-5 cordless telephones cannot be assigned to Pickup groups.

Single-Line Telephones

Individual Pickup

To pick up a parked call, lift the handset and (while listening to inside dial tone) dial *#9* and the extension number for the telephone or park zone.

Group Pickup

To pick up a call ringing at any other group member's telephone, lift the handset and (while listening to inside dial tone) dial *#88*.

NOTE:
When the single-line telephone user is on a call and puts the call on hold to pick up another call by using Individual or Group Pickup, the user cannot put the picked-up call on hold to return to the first call. If the user presses the **Recall** or **Flash** button (or, if the telephone does not have timed or positive disconnect, presses and releases the switchhook), the picked-up call is dropped and the user is reconnected to the original held call. If the user hangs up, the picked-up call is disconnected and the first call is considered on hold for transfer and is not returned to the user until after the transfer return interval.

Feature Interactions

Callback	A callback request cannot be picked up at another telephone.
Call Waiting	Pickup cannot be used to answer a waiting call at another extension.
Conference	A conference call cannot be picked up at another extension. A conference originator can, however, pick up a call and add it to the conference call.
Coverage	An Individual or Group Coverage sender or receiver can be a member of a Pickup group. This allows Pickup to be used to answer a ringing Individual or Group Coverage call. If a sender who is a member of a Pickup group uses Coverage On/Off to prevent calls from being sent to Individual or Group Coverage receivers, his or her calls can be picked up by using Individual Pickup; however, calls cannot be picked up by using Group Pickup. When a coverage call is answered by using Pickup, the call appearance is removed from all other telephones in the coverage arrangement.

Direct Station Selector	The DSS buttons associated with a trunk number (801–880) cannot be used to answer calls on specific trunks by using Individual Pickup. These DSS buttons are used strictly to the show busy or not-busy status of each trunk.
Display	When a user with an MLX display telephone selects Pickup, the PickupLine/Ext: prompt appears on the display. (The prompt is not displayed if a button programmed for a specific line or extension is used.) After the user enters the line or extension number to pick up the call, a confirmation message is displayed (for example, Pickup: OUTSIDE or Pickup: JOE).
Forward and Follow Me	Pickup cannot be used to answer calls being forwarded to an outside telephone number.
Group Calling	A calling group member can be a member of a Pickup group. Calling group members can use Pickup to answer a call (either a calling group or individual group member extension) that is ringing at another group member's telephone. Line Pickup can be used to pick up a call that is in the calling group queue.
Night Service	A call ringing at a Night Service group extension can be answered from another extension by using Pickup.
Paging	When the line number used for loudspeaker paging is not assigned to a button on a multiline telephone, a user can access the loudspeaker paging system by using Individual Pickup and dialing the loudspeaker paging line number (801–880), or by using a Pickup button specifically programmed for the paging line number.
Park	A parked call can be picked up by using Individual Pickup.
Personal Lines	If a call received on a personal line is transferred to another user who receives the call on an **SA** or **ICOM** button and then puts the call on hold, another user who shares the personal line cannot select the shared personal line button to pick up the call. If the user who received the transfer and put the call on hold cannot return to the call, another user must use Line Pickup to pick up the call (for example, an operator can take a message and then disconnect the caller).
SMDR	The extension of a user who picks up a call by using Pickup is shown on the SMDR report.
System Access/ Intercom Buttons	If Pickup is used to answer a call ringing at an **SA** or **Shared SA** button, the call is removed from the ringing telephone and moves to the **SA** or **Shared SA** button used to pick up the call. The green LED turns on next to the **SA** button used to answer the call and next to all **Shared SA** buttons programmed for that specific button. An inside call ringing at an **SA** or **Shared SA** button can be picked up at another telephone. All associated **SA** and **Shared SA** buttons go idle.
Transfer	A transferred call can be answered by using Pickup.

Pools

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Dial Plan
Mode	Hybrid/PBX only
Telephones	All
System Programming	Assign individual trunks to pools: • LinesTrunks→Pools Assign **Pool** buttons to telephones: • Extensions→LinesTrunks Restrict telephone from using pool dial-out code: • Extensions→Dial OutCd
Maximums	
Pools for each system	11
Trunks for each pool	Unlimited
Buttons assigned for each pool	64
Factory Settings	
Main Pool	70
Ground-Start Trunk Pool	890
Dial-In Tie Trunk	891
Automatic-In Tie Trunk	892
Pool Dial-Out Code Restrictions	None

Description

Hybrid/PBX mode allows outside trunks to be grouped together in pools. Users select trunks by using **SA** buttons instead of having a separate button for each trunk in the system. To access pools by using an **SA** button, users dial pool dial-out codes. Pools can also be assigned to buttons on one or more telephones to allow the user to select the pool without dialing the pool dial-out code or Automatic Route Selection (ARS) access code.

When the system is set up and the Hybrid/PBX mode of operation is selected, the system automatically groups trunks into the following pools:

- All loop-start trunks (basic and special-purpose) are assigned to the main pool. The factory-set extension number for the main pool is 70.
- All ground-start trunks are assigned to the pool with the factory-set extension number 890.

NOTES:

1. On initialization of a Release 1.0 system, all loop-start and ground-start trunk programming reverts to loop-start. The ground-start pool never has trunks assigned to it automatically but must be programmed after the ground-start jacks are designated. In Release 1.1 and 2.0 (or later), ground-start trunks are assigned to the ground-start pool on initialization, except in a system modified for permanent Key mode operation.

   - All dial-in tie trunks are assigned to the pool with the factory-set extension number 891.
   - All automatic-in tie trunks are assigned to the pool with the factory-set extension number of 892.

2. The factory setting for the type of trunk connected to a 400 LS, 800 GS/LS, 408 GS/LS, 408 GS/LS-MLX, or 800 GS/LS-ID module is loop-start. The system does not automatically make pool assignments for loop-start, ground-start, or tie trunks that are emulated by using a T1 facility. Each of these types must be grouped into a pool through system programming.

The system can have a maximum of 11 pools. Each pool can be assigned to a button on a maximum of 64 telephones. The number of trunks in each pool is limited only by the number of trunks connected to the system. However, a trunk can be assigned to only one pool.

Considerations and Constraints

The maximum number of **Pool** buttons that can be assigned to multiline telephones excluding Queued Call Consoles (QCCs) is limited only by the maximum number of pools allowed (11) and the number of buttons on the telephone.

The number of trunks in each pool is limited only by the number of trunks connected to the system. A trunk can be assigned to only one pool.

Each pool should contain the same type of trunks (for example, basic trunks, WATS trunks, or foreign-exchange trunks), because users cannot control the specific trunks selected by the system. Ground-start and loop-start trunks of the same type (for example, WATS trunks) can be mixed in the same pool. Direct Inward Dialing (DID) trunks should not be put into pools; trunks used for Music On Hold or maintenance alarms cannot be grouped into pools. Also, dial-in tie trunks should not be placed in a pool that is assigned to a button on the telephone.

Trunks assigned to pools cannot be assigned as personal lines (on buttons) on any telephone except a Direct-Line Console (DLC). However, calls that come in on trunks assigned to pools can be programmed to be received by one or more QCC operators.

When all trunks in the pool are in use, the green LEDs turn on next to the **Pool** buttons assigned to multiline telephones and next to any DSS (Direct Station Selector) buttons associated with the pool dial-out code.

Individual extensions can be restricted to deny dial access to particular trunk pools. See “Calling Restrictions” in this section.

Users with **Pool** buttons on their telephones can use the pool even if the pool dial-out restriction is assigned to the extension.

One pool can be assigned to buttons on a maximum of 64 extensions.

Mode Differences

Although trunk pools are available only in Hybrid/PBX mode, users operating in Behind Switch mode can access the trunk pools in the host switch through their prime lines.

Telephone Differences

Direct-Line Consoles

A **Pool** button cannot be assigned to a DLC. The DLC operator accesses pools by dialing the pool dial-out code from an **SA** button or, on an MLX DLC with a DSS, by pressing the DSS button associated with the pool dial-out code. Trunks in pools cannot be assigned as personal lines (assigned to line buttons) on any telephone except a DLC.

Queued Call Consoles

A **Pool Status** button is assigned as a fixed-feature button on a QCC and provides the operator with the status of all the trunk pools (a maximum of 11). The operator presses the **Inspct** button followed by the **Pool Status** button, and the busy or available status of trunk pools is shown on the display. **Pool** buttons cannot be assigned to a QCC, but a QCC operator can use pools to make outgoing calls by selecting a **Call** button and dialing the ARS or pool dial-out code. A QCC operator can be assigned to receive calls on trunks assigned to pools.

Feature Interactions

Alarm A trunk jack used for a maintenance alarm cannot be assigned to a trunk pool.

Auto Dial	Pool dial-out codes cannot be programmed on inside Auto Dial buttons. A pool dial-out code can be programmed on an outside Auto Dial button when a telephone number is also included. However, Pause characters may be required before the telephone number, depending on the local telephone company. Enter Pause characters by pressing the **Hold** button.
Automatic Maintenance Busy	To provide optimal performance, Automatic Maintenance Busy should be enabled when a Hybrid/PBX system includes trunk pools.
Automatic Route Selection	ARS ensures appropriate and cost-effective use of trunk pools. ARS and dial access to pools function independently from each other. If ARS restrictions are programmed to allow access to a pool, the user may seize a pool that the extension is not normally allowed to use with pool dial access restrictions.
Callback	In Hybrid/PBX mode, Callback can be used to complete calls to outside number only when all trunks are busy in the pool.
Caller ID	If the LS-ID Delay option is programmed on a 2-way trunk, the system does not seize a trunk from a pool for an outgoing call when that trunk is receiving an incoming call.
Calling Restrictions	Specific pools can be restricted from use for outgoing calls by assigning a pool dial-out code restriction to extensions.
Coverage	Calls received on a sender's **Pool** button that is programmed for Immediate Ring or Delay Ring are eligible for Individual or Group Coverage.
Directory	When a pool dial-out code is included in the telephone number for a Personal or System Directory listing, Pause characters may be required immediately following the pool dial-out code, depending on the local telephone company. Pause characters are entered by pressing the **Hold** button.
Display	When a display telephone user selects a **Pool** button and lifts the handset, the display shows the label (if programmed) for the lines in the selected pool.
Forced Account Code Entry	When Forced Account Code Entry is assigned to an extension and the user tries to dial an outside call on a **Pool** button without entering the account code, the call does not go through.
Forward and Follow Me	A pool can be used to select the facility for forwarding calls to an outside telephone number. The user enters the pool dial-out code before the telephone number.
Group Calling	Trunks assigned to pools can be assigned to ring into a calling group. An incoming call on a trunk assigned to the pool rings on an **SA** button even if the calling group member has a **Pool** button assigned to his or her telephone.

Line Request	Line Request cannot be used on a **Pool** button.
Music On Hold	Trunk jacks used for Music On Hold cannot be assigned to trunk pools.
Paging	Trunk jacks used for loudspeaker paging cannot be assigned to trunk pools.
Speed Dial	A pool dial-out code can be included with the telephone number associated with a Personal Speed Dial or System Speed Dial code. However, Pause characters may be required immediately following the pool-dial-out code, depending on the local telephone company. Enter Pause characters by pressing the **Hold** button.
SMDR	When outgoing calls are made by using a pool, the trunk selected by the system is reported on the SMDR report.
System Numbering	Pool dial-out codes (the factory-set codes are 70 and 890–899) can be renumbered.

Power Failure Transfer

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	Single-line telephones
Hardware	If ground-start trunks are used in Hybrid/PBX mode, a KS23566, L1 ground-start button is required on single-line sets used during a power failure.

Description

Power Failure Transfer (PFT) provides incoming and outgoing service through the use of power failure telephones during a commercial power failure.

A power failure telephone is a single-line telephone connected to a PFT jack on a 400, 400 LS/TTR, 800, 800 GS/LS, 800 GS/LS-ID, 408, 408 GS/LS, or 408 GS/LS-MLX module. Each module has one PFT jack for each series of four line jacks, for example, the 800 and 800 GS/LS modules each have two PFT jacks.

When a power failure occurs, all calls are dropped and the power failure telephone automatically goes on. It can be used to make and receive calls on the trunk connected to the first (lowest) trunk jack on that module.

Considerations and Constraints

The power failure telephone does not function and cannot be used to make or receive calls when the system is operating normally.

System features and restrictions are not available when PFT occurs.

Telephone Differences

Multiline Telephones

Multiline telephones cannot be used as power failure telephones.

Single-Line Telephones

Touch-tone single-line telephones must be connected to PFT line jacks for touch-tone trunks; rotary single-line telephones must be connected to PFT line jacks for rotary-dialing trunks.

Power failure telephones cannot be working extensions. They are dedicated power failure telephones only.

Feature Interactions

SMDR No SMDR records are generated during a power failure.

Primary Rate Interface (PRI)

At a Glance

Users Affected	Telephone users, operators
Reports Affected	DS1 Information PRI Information SMDR
Mode	Key, Hybrid/PBX
Telephones	All (display support on MLX sets only)
System Programming	
100D Module	Specify type of facility connected to 100D module: • LinesTrunks→LS/GS/DS1→Type Specify framing format for 100D module: • LinesTrunks→LS/GS/DS1→FrameFormat Specify line coding for 100D module: • LinesTrunks→LS/GS/DS1→Suppression Specify line compensation between 100D module and channel service unit (CSU) or far end: • LinesTrunks→LS/GS/DS1→Line Comp Specify 100D modules that provide primary, secondary, and tertiary clock synchronization and source of clock synchronization; also activate/deactivate clock: • LinesTrunks→LS/GS/DS1→ClockSync Specify type of CSU equipment provided by CO: • LinesTrunks→LS/GS/DS1→Channel Unit
PRI	Assign telephone numbers to PRI lines: • LinesTrunks→PRI→Telephone Number Assign B-channels to group: • LinesTrunks→PRI→B-ChannlGrp→B-channels Assign PRI lines to B-channel groups: • LinesTrunks→PRI→B-ChannlGrp→Lines Specify type of network service for each B-channel group: • LinesTrunks→PRI→B-ChannlGrp→NetworkServ Specify whether telephone number to send to network for outgoing calls should be copied from line telephone number: • LinesTrunks→PRI→B-ChannlGrp→Copy Number

At a Glance - *Continued*

System Programming PRI (continued)	Specify telephone number to send to network for outgoing calls on PRI lines: • LinesTrunks→PRI→NumbrToSend Assign test line telephone number for each 100D module: • LinesTrunks→PRI→Test TelNum Set timer and counter thresholds for each 100D module: • LinesTrunks→PRI→Protocol Timers Assign link layer address or Terminal Equipment Identifier (TEI) of equipment connected to each D-channel: • LineTrunks→PRI→Protocol→TEI
Maximums	
PRI modules	3
B-channels	69
Lines (total)	72
Digits for each telephone number assigned to a PRI line	12
ISDN lines for each B-channel group	24
B-channels for each B-channel group	23
Digits for each telephone number sent to network for outgoing calls	12
Digits for test trunk telephone number	12
Dial Plan Routing Table (Hybrid/PBX)	
Number of entries	16 (0–15)
Digits for each pattern	8
Digits to delete	14 (range 0–14, 0=wildcard)
Digits to add	4
Network Selection Table	
Number of entries	4 (0–3)
Digits for each pattern	8 (*=wild card, at least one * required, all *s must be at end and contiguous)
Special Services Selection Table	
Number of entries	8 (0–7)
Digits for each pattern	4
Digits to delete	4

At a Glance - *Continued*

Call-by-Call Services Table	
Number of entries	10 (0–9)
Number of patterns for each entry	10
Number of digits for each pattern	8
Factory Settings	
100D Module	
Type of Facility	T1
Framing Format	D4 compatible
Line Coding	AMI-ZCS
Signaling	Robbed-Bit Signaling (RBS)
Line Compensation	1 (range 1–5) 1 = 0.6 dB loss 2 = 1.2 dB loss 3 = 1.8 dB loss 4 = 2.4 dB loss 5 = 3 dB loss
Clock Synchronization Source	Loop
Primary Clock	First 100D module in control unit
Clock	Active
Type of CSU equipment	Foreign Exchange
PRI	
Telephone number assigned to PRI line	0 digits
B-channels assigned to group	None
PRI lines assigned to B-channel groups	None
Type of network service for each B-channel group	None
Copy telephone number to send from telephone number assigned	Do Not Copy
Telephone number to send to network for outgoing PRI calls	0 digits
Test trunk telephone number for each 100D module	None
Call-by-Call Services Table	
Patterns	Blank
Call type	Both (Voice and Data)
Service	Blank
Digits to delete	0

At a Glance - *Continued*

Factory Settings *(Continued)*	
Timer and counter thresholds for each 100D module	
T200 Timer	1 second (range 1000–3000 ms)
T203 Timer	30 seconds (range 1–60)
N200 Counter	3 transmissions (range 1–5)
N201 Counter	260 octets (range 16–260)
K Counter	7 frames (range 1–15)
T303 Timer	4 seconds (range 4–12)
T305 Timer	4 seconds (range 4–30)
T308 Timer	4 seconds (range 4–12)
T309 Timer	90 seconds (range 30–120)
T310 Timer	10 seconds (range 2–10)
T313 Timer	4 seconds (range 4–12)
T316 Timer	120 seconds (range 30–120)
Link layer address or TEI assigned	0 (range 0–63)
Dial Plan Routing Table	
Service value	Empty
Digits for each pattern	Blank
Digits in Called Party Number	0
Digits to add	Blank

Description

The ISDN (Integrated Services Digital Network) Primary Rate Interface (PRI) is a standard access arrangement that can be used to connect the system to a network providing voice and digital data services. Releases 1.0 and 1.1 enable PRI connection through a 4ESS™ Generic 16. Release 2.0 and later enables PRI connection through a 5ESS® Generic 6 and a 5ESS serving the FTS2000 (government only) network. Release 2.0 and later also includes Call-by-Call Service Selection for outgoing PRI calls, support for Station Identification/Automatic Number Identification (SID-ANI) as a Calling Party Number, and Dial Plan Routing.

Terminology

Called Party Number (CdPN)

In general, the term *Called Party Number* (CdPN) is a telephone number that was dialed to reach a destination. However, while routing the call, the network can change the Called Party Number to make routing easier. In either case, the

network sends the Called Party Number to the system when a call arrives at the system.

Calling Party Number

If you subscribe to the AT&T INFO2 Automatic Number Identification (ANI) service, an incoming call on an ISDN line includes accompanying information about the party placing the call. This can be either a station (extension) identification (SID-ANI) number that is defined by the internal dial plan of the system where the call originated (Extension Only), or billing number information (Line Telephone Number), or both (Base Number with Ext.). With this information, a call recipient may identify the caller before answering.

Lines/Trunks

In this section on PRI, *lines* are the representations that appear on extension sets or are put into pools. They represent the type of service requested on a call. *Trunks* are the facilities that link switches. For all except DS1, lines have a one-to-one correspondence to trunks, since there are 24 transmission channels for each DS1 connection. With PRI, lines are further removed from trunks because the type of service is not linked to the B-channel (trunk). The system has an intermediary, called a *B-channel group* (BCG). Lines are used to place and receive calls, and a BCG links B-channels to lines. B-channel groups may be a single B-channel or multiple B-channels grouped together.

Figure 34 shows how lines, trunks (B-channels), and B-channel groups, function together. For outgoing calls, the user selects a PRI line that routes the call to a B-channel group. The BCG selects an open B-channel and connects over the PRI connection. For incoming calls, the network selects an open B-channel and the BCG directs the call to the PRI line for which it was intended by matching Called Party Number with the line's administered telephone number. In addition, the Dial Plan Routing feature may be used to further direct the call to a specific station (**SA** button) or Calling Group by matching some portion of the Called Party Number against the system dial plan. Dial Plan Routing is similar to Direct Inward Dialing.

Each DS1 module is given 24 lines, regardless of whether or not it is used for emulation of trunks or for PRI.

PRI and T1

A T1 line consists of 24 channels, sometimes referred to as DS0 channels, each with a capacity of 64 kbps. When used for PRI, a T1 channel can be designated as either a B-channel (*bearer channel*) or a D-channel (*data channel*). *DS1* refers to the twenty-four 64-kbps channels, plus framing and signaling bits, multiplexed together to form a 1.544-Mbps *digital signal level 1* signal.

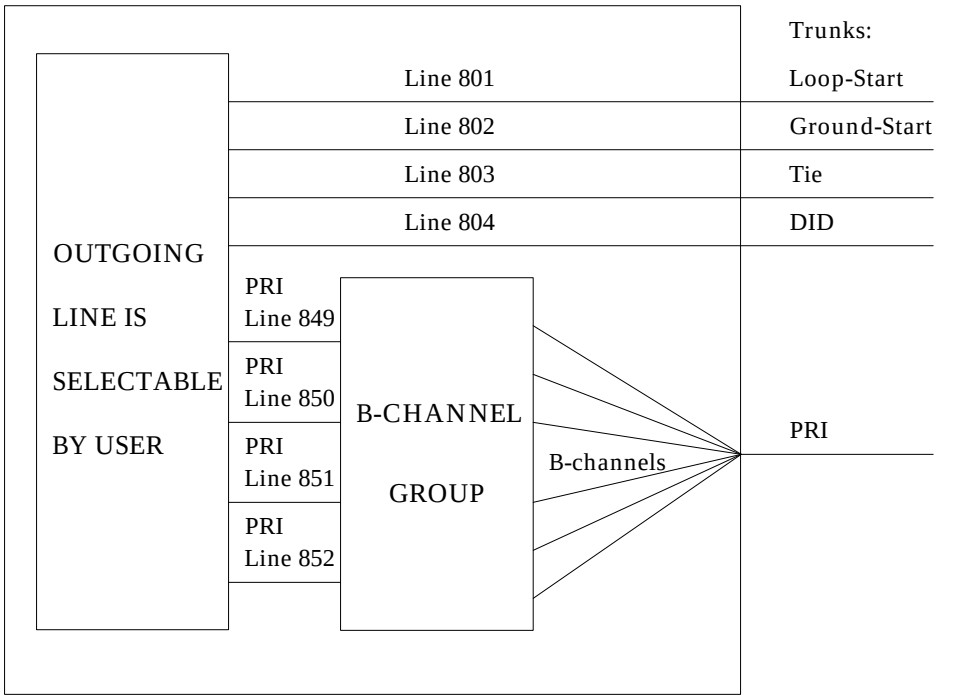


Figure 34. PRI Lines and B Channel Groups

A B-channel is used to carry user information, such as the voice or data content of a call, between the system and the far-end switch. Each B-channel provides access to one or more network services. Releases 1.0 and 1.1 support access to only one network service for each B-channel. Release 2.0 and later supports Call-by-Call Service Selection, which allows multiple network services over the same B-channels. The D-channel conveys signaling required to set up, control, and clear calls made over all of the B-channels.

The most common configuration of a T1 line for PRI consists of 23 B-channels and 1 D-channel, although other combinations are possible. Each PRI must include a D-channel, but may include fewer than 23 B-channels. The remaining channels cannot be used for any other purpose.

NOTE:
The MERLIN LEGEND Communications System does not support multiple PRI trunks sharing one D-channel (as allowed with Non-Facility Associated Signaling).

Up to three T1 carrier trunks (maximum of two in one carrier), and therefore three PRIs, can be connected to the system through separate 100D modules, each of which occupies a slot in the system carrier. In terms of system capacity, each T1 channel counts as a trunk endpoint, so the maximum number of B-channels supported by the system is 69. Their signaling is provided over 3 separate D-channels, using up 72 of the system's 80-line capacity.

The following benefits are provided by PRI service:

- **Speed.** Data calls to outside destinations can be established on the same B-channels used for voice calls if the service allows; ACCUNET® Switched Data Service must be subscribed to. Modems and dedicated, conditioned lines/trunks are not needed. By supporting high-speed digital data transmission, PRI provides the capability for video conferencing and Group IV (G4) fax.
- **AT&T's INFO2 Station Identification/Automatic Number Identification (SID-ANI) Service.** Customers who subscribe to this service can identify the incoming caller on a PRI line/trunk by either telephone number or billing number.

  NOTE:
  The availability of the caller identification information may be limited by local-serving (caller's) jurisdiction, availability, or telephone company.

- **Dynamic B-Channel Assignment.** An individual B-channel can be removed from service without blocking ISDN calls to or from any station.
- **Improved Toll Restriction.** The ways that toll restriction can be bypassed are limited on PRI lines/trunks. Specifically, three types of toll abuse are eliminated with PRI service:
  - Since dialing is in the form of out-of-band messages that must be generated by the system, a user cannot use a touch-tone generating device, such as a pocket dialer, to send dialed digits directly through the system to the trunk.
  - Without PRI service, toll restriction can be deceived by dialing digits on a loop-start trunk before the far-end switch applies dial tone. These initial digits may indicate a local call to the system's toll restriction checking while the subsequent digits, those actually recognized by the far-end switch, may produce a toll call. This is not possible with PRI service, because every digit screened and passed on by the system's toll restriction is guaranteed to be received by the far-end switch.
  - A PRI line's far-end disconnect signal provides a reliable indication when a call ends, and a new call cannot be initiated until the line has been released from the prior call on both ends. This prevents a user on a loop-start trunk, waiting off-hook for the restoration of dial tone after a previous call, from placing a second call before toll restriction is reapplied.

- **Reliable Indication of Far-End Disconnect.** This prevents an incoming call from being blocked because a trunk has not been released when a call is ended.

Features offered by PRI are as follows:

- **Connectivity to 5ESS Generic 6** (Release 2.0 and later). The benefits of 5ESS connectivity include making local calls, operator access (local, common carrier, and operator-assisted calls), common carrier selection, and 5ESS PRI services.
- **Routing by Dial Plan** (Release 2.0 and later). Routing by Dial Plan supports call handling similar to Direct Inward Dialing (DID). It is especially suitable to supporting the Dialed Number Identification Service (DNIS), a service attribute of the Megacom 800 service that routes incoming 800 or 900 calls according to customer selected parameters, such as area code, state, or time of call. For example, a customer can specify that calls received from a particular area code should be routed to a specific individual or group responsible for accounts in the area.

  Routing by Dial Plan performs digit analysis on incoming calls, matches to Called Party Numbers (CdPNs), and delivers the calls to the destination endpoints based on the respective Called Party Numbers. It also allows multiple calls to the same directory number, that is, multiple concurrent incoming calls with the same Called Party Number can be delivered to an endpoint simultaneously.
- **Call-by-Call Service Selection** (Release 2.0 and later). This feature allows maximum utilization of communications lines, providing more services with fewer lines. Call-by-Call Service Selection provides more than one PRI service (such as Megacom WATS, ACCUNET Switched Digital 56/64, SDN, OUT WATS, and Virtual Private Network Access) for each B-channel. Based on the number dialed and the bearer capability (voice, data, or both), the system chooses what service is used. If a caller requests operator service, the system bypasses Call-by-Call Service Selection.
- **Restriction Code Handling for FTS2000 Network** (Release 2.0 and later). FTS2000 network users can have restriction codes applied to their extensions. A person who attempts to place a call that exceeds the set restriction level must first enter an restriction code. If no code is entered, the FTS2000 network prompts the user to enter the code from the telephone dialpad.

  The system allows an restriction code to be entered with the Account Code Entry feature. This is especially useful for data calls.

- **Station Identification/Automatic Number Identification (SID/ANI) as Calling Party Number** (Release 2.0 and later). The Calling Party Number (CPN) in Release 1.0 is facility-based, whereas it can be extension-based in Release 2.0 and later if so programmed. Extension-based CPN is called SID/ANI and results in a more PBX-like performance from the system.

DS1 Facility Options

A digital signal level 1 (DS1) facility is a transmission system that transports digital signals in the DS1 format. The interface that allows the connection of DS1 facilities to the system is the 100D module. Through this module, voice and data calls can be made or received using a DS1 facility.

Twenty-four digital signal level 0 (DS0) channels, each operating at 64 kbps, plus framing bits, are multiplexed, forming a DS1 signal of 1.544 Mbps. Each DS0 channel within the DS1 signal corresponds to a logical endpoint. Even though there is only one physical jack, the 100D module supports up to 24 logical endpoints or ports (one for each channel).

In DS1 format, calls to other digital PBXs or telephone company foreign exchanges (FXs) remain digital, and signals do not need to be converted to analog for acceptance by the connecting trunk (excluding networked applications like off-premises stations, or if the customer's communications equipment does not allow a DS1 digital interface). In addition, the 100D module can be configured to work with T1 or PRI service.

To connect the 100D module to an outside DS1 facility, a channel service unit (CSU) is used. The CSU regulates the transmission into and out of the 100D module so that the module matches the transmission of the outside facility.

Both ends of the DS1 facility must be able to communicate. To ensure this, the following options are set during system programming to match the transmission of the outside DS1 facility:

- Type of service (T1 or PRI)
- Framing format
- Line coding
- Channel service unit
- Line compensation
- Clock synchronization
- Signaling mode (for T1 service only)

NOTE:
Most of these settings are dependent upon the central office and the type of service (T1 or PRI) you subscribe to.

Type of Service

The system supports two types of service for DS1 facilities: T1 and PRI. The 100D module can be programmed to operate in either type of service. T1 service transmits and receives voice and analog data; PRI transmits and receives voice, analog, and digital data. Any combination of the following AT&T Switched Network (ASN) Services can be provided through a T1 or a PRI line/trunk:

- Megacom WATS service for domestic outgoing long-distance voice calls
- Megacom 800 service for domestic toll-free incoming voice calls
- Software-Defined Network (SDN) for voice and circuit-switched data calls
- MultiQuest® for 900 service numbers

PRI interacts with the ACCUNET Switched Digital Service for 56-kbps, 64-kbps restricted, and 64-kbps clear circuit-switched data calls.

T1 and PRI support Shared Access for Switched Services (SASS), which allows both Megacom and Megacom 800 services to be offered over the same line. This eliminates the need to have separate incoming and outgoing trunks when these services are chosen.

T1 is the factory setting and, when selected for the DS1 facility, allows each of the 24 channels to be programmed to emulate tie, loop-start, ground-start, or DID lines in any combination. Therefore, a single 100D module can take the place of 24 regular outside trunks.

If common-channel signaling (CCS) is selected, 23 channels are available for emulation, and the twenty-fourth channel carries trunk supervision signals. (See “Signaling Mode,” later in this section.)

Framing Format

To identify the DS0 channels, the DS1 signal is segmented into blocks of 193 bits called *frames*. A frame consists of 24 eight-bit words (one for each channel) plus a framing bit at the beginning of each frame (24 words x 8 bits = 192 bits). Thus, a framing bit appears in every one hundred ninety-third bit position of the 1.544-Mbps DS1 signal.

Frames repeat at a rate of 8000 per second, with each frame repeating DS0 channels 1 through 24 sequentially.

The following two methods of framing can be used by a 100D module, but the framing method chosen must match the framing at the far end:

- **D4 Framing Format.** The system is factory set for D4 framing. A D4 frame consists of 24 eight-bit time slots and one framing bit. To perform synchronization, the receiving equipment uses the framing information to identify the start of each frame and to identify which frames contain signaling information. The framing information repeats once every 12 frames; these 12 frames form the D4 superframe.
- **ESF Framing Format.** The extended superframe (ESF) format extends the 12-frame D4 superframe to a 24-frame superframe. The 24 framing bits include a cyclic redundancy check (CRC) for the entire ESF and a facility data link for maintenance. The ESF can detect more errors than D4 framing can.

Line Coding

The DS1 signal consists of a continuous stream of ones and zeros, encoded into bipolar pulses for transmission. Only the ones create a pulse; the zeros represent the absence of a pulse. Pulses alternate between positive and negative. This type of line coding is called *bipolar or alternate mark inversion* (AMI). The line-coding formats guarantee that the ones-density requirement is met to achieve clock recovery.

To meet the ones-density requirement, either zero code suppression (ZCS) or bipolar 8 zero substitution (B8ZS) line coding can be chosen, but the line coding chosen must match the line coding at the far end.

ZCS line coding monitors each DS0 channel and prevents strings of eight or more zeros. Upon detecting eight consecutive zeros in a channel octet, ZCS line coding forcibly changes the seventh zero (the second least significant bit) to a one. The factory-set line coding is ZCS.

B8ZS line coding matches the ones-density requirement by using a special sequence with a *bipolar violation* in bit positions 4 and 7. Normally for bipolar transmission, ones are encoded alternately as a positive then negative, or negative then positive, pulse. If two positive or two negative pulses are received in succession, a bipolar violation occurs. Bipolar violations are normally caused by noise hits to the signal, however B8ZS uses a specific binary sequence with bipolar violations as a code for an all-zero channel octet.

B8ZS line coding is preferred over ZCS, since it provides no possibility of corrupting data transmissions.

B8ZS violations are passed by the ACCULINK™ 3150 and 3160/3164, and ESF T1 channel service units (CSUs), but not by other CSUs.

Channel Service Unit

The channel service unit (CSU) is the interface between the 100D module and the DS1 facility provided by the telephone company. This facility contains 24 channels on one 4-pair wire.

The CSU is a hardware component needed when two endpoints are located in different buildings or when the distance between the two endpoints makes office or line repeaters necessary. The CSU is located on the customer's premises and is used to connect the system to DS1 network facilities. The CSU has the following functions:

- It terminates an outside DS1 facility on the 100D module.
- It ensures that the signals entering the public network comply with the requirements of the DS1 facility as specified by the FCC.
- It includes maintenance, diagnostic, and testing capabilities.

There are several channel service units: ACCULINK 3150 and 3160/3164 ESF T1 CSUs, ESF T1 CSU (no longer available but still supported), and 551 T1 L1 CSU (no longer available but still supported). The ACCULINK 3150 or 3160/3164 CSUs are recommended for this system because they allow maintenance without interrupting service, and provide diagnostic and testing capabilities, as well as B8ZS line coding. They can be programmed remotely or on-site, using menus. The lower-cost 551 T1 L1 CSU does not provide the B8ZS line coding required for 64-kbps data (clear channel signaling support) and for maintenance features; it also does not provide diagnostic and testing capabilities for the DS1 facility.

Line Compensation

Line compensation adjusts for the amount of cable loss in decibels (dBs), based on the length of cable between the 100D module and the CSU or other far-end connection point. The factory setting is a value of 1, which allows a maximum loss of 0.6 dB. The possible settings are shown in Table 29.

Table 29. Line Compensation Settings

Setting	dB Loss	Cable Length (22-Gauge Wire)
1	0.6	0–133 feet (0–40.5 meters)
2	1.2	133–266 feet (40.5–81 meters)
3	1.8	266–399 feet (80–121.5 meters)
4	2.4	399–533 feet (121.5–162 meters)
5	3.0	533–655 feet (162–199.5 meters)

Clock Synchronization

Clock synchronization is an arrangement in which digital facilities operate from a common clock. Whenever digital signals are transmitted over a communications link, the receiving end must be synchronized with the transmitting end to receive the digital signals without errors.

The system synchronizes itself by extracting the timing signal from the incoming digital stream. If the system has more than one 100D module, the module that provides the primary synchronization for the other 100D modules and for the system's time-division multiplexing (TDM) bus must be identified during system programming. The factory setting is the first 100D module in the carrier. This can be changed to the second or third module.

In the event of a maintenance failure of the primary 100D module, backup synchronization can be provided by programming the second and third installed modules as secondary and tertiary synchronization.

In addition, the source of synchronization is factory-set to Loop Clock Reference Source (the clock is synchronized to the external endpoint) or can be set to Local Clock Reference Source (the clock is free-running). This setting must be made for the primary, secondary, and tertiary synchronization modules.

Signaling Mode

Signaling is the process of communicating channel-state information, such as dialing, from endpoint to endpoint. Two types of signaling can be used in T1 transmission: robbed-bit signaling (RBS) and common-channel signaling (CCS). Choosing a signaling mode is important only for T1 service; PRI always uses CCS (23 B-channels and 1 D-channel). The signaling types are as follows:

- **Robbed-Bit Signaling.** Robbed-bit signaling (RBS) replaces the least significant bit of every sixth frame of each DS0 channel with signaling information. RBS is also called *in-band signaling*, since signaling information is embedded in the same channel that carries the user's voice or data in a call.

  Robbed-bit signaling is appropriate for voice and voice-grade data, but facilities using RBS cannot accurately transmit digital data. Therefore, the channel is limited to voice and analog voice-band data applications.

- **Common-Channel Signaling.** Common-channel signaling (CCS) is an out-of-band signaling format that places the signaling bits for channels 1 through 23 into the 8-bit word of the twenty-fourth channel. This restricts DS1 from using the twenty-fourth channel for voice or data transmissions. D4 framing does not preclude the use of CCS, but CCS is not compatible with D4 channel banks, because the D4 channel banks only recognize RBS.

ESF framing should be used to take advantage of its improved maintenance, diagnostic, and testing capabilities. If the transmission between two systems is voice-only, RBS should be used for all 24 communication paths. For voice transmission, both ZCS and B8ZS line coding can be used to satisfy the ones-density requirement: the preferred line-coding format is B8ZS, which is needed for 64-kbps digital data.

The framing and signaling formats depend on the network and interconnection devices (CSUs) used. For example, the 551 T1 L1 CSU only supports ZCS line coding.

NOTE:
Digital data up to 64 kbps is possible only through PRI. Also, ESF framing mode, CCS signaling, and B8ZS line coding are required. An ACCULINK 3150/3160/3164 or ESF-T1 CSU must be used for DS1 connections within a building.

PRI Programming Options

The following options should be programmed for PRI facilities connected to a 100D (DS1) module.

PRI Telephone Number

The PRI telephone number is a string of up to 12 digits (any combination of digits 0 through 9) assigned to each PRI line. This string is matched to the Called Party Number sent by the network that indicates the number dialed by the outside caller. The communications system uses this number to send the call to the correct personal line button.

Network Services Supported

This option specifies the type of network service provided by each B-channel group. The choices are as follows:

- Megacom WATS
- Megacom 800
- MultiQuest Service
- ACCUNET Switched Digital Service (SDS)
- Software-Defined Network (SDN)
- OUTWATS
- INWATS
- 56/64 Digital Data
- Virtual Private Network
- Call-by-Call
- Other

Copy Telephone Number to Send

This option specifies whether or not the telephone number to send to the network for outgoing calls made on PRI lines assigned to a B-channel group is copied from the PRI telephone number assigned to that PRI line. Select the Copy Telephone Number to Send option when the telephone number sent to the network should match the number received from the network indicating the number dialed by the outside caller. Select the Do Not Copy Telephone Number option when a telephone number to send is assigned to each PRI line in the B-channel group or when no telephone number is to be sent to the network.

Telephone Number to Send

This option assigns the telephone number to send to the network when outgoing calls are made on PRI lines. If the person being called subscribes to the AT&T INFO2 Automatic Number Identification (ANI) service, the number indicates who is calling.

Test Telephone Number

This option assigns a test line telephone number for each 100D (DS1) module installed in the control unit that provides ISDN PRI service.

Timers and Counters

This option sets the timer and counter thresholds. The factory settings for thresholds are standard and rarely need to be changed. (See “At a Glance” in this section for factory settings and valid ranges.) When no response is received from the network before the duration of the timer setting, the communications system takes the appropriate corrective action. The timers and counters are as follows:

- **T200 Timer.** Times the delay in link layer acknowledgment of a message sent from the communications system to the network over a D-channel.
- **T203 Timer.** Times the period of time between each exchange of messages between the communications system and the network on the D-channel.
- **N200 Counter.** Counts the number of times the communications system has transmitted a message on a D-channel because no link layer acknowledgment is received from the network.
- **N201 Counter.** Counts the maximum number of layer 3 octets the system can send or receive in a single D-channel message.
- **K Counter.** Counts the number of layer 3 unacknowledged messages sent from the communications system to the network on a D-channel.
- **T303 Timer.** Times the delay in network response when the communications system sends a setup message to initiate an outgoing call.
- **T305 Timer.** Times the delay in network response when the communications system sends a disconnect message to clear a call.

- **T308 Timer.** Times the delay in network response when the communications system sends a release message to clear a call.
- **T309 Timer.** Times the duration of a D-channel data link failure (a loss of signaling for the entire PRI connection).
- **T310 Timer.** Times the network delay following the receipt of a call proceeding message on an outgoing call.
- **T313 Timer.** Times the delay in network response when the communications system sends a connect message that indicates the completion of an incoming call.
- **T316 Timer.** Times the delay in network response when the communications system sends a restart message to clear a B-channel.

CAUTION:
After initial installation, these timers rarely if ever should be changed.

Terminal Equipment Identifier (TEI)

This option assigns the link layer address of a piece of equipment connected to each D-channel. Normally, only one is connected, and the network assumes that its TEI is 0.

Call Processing

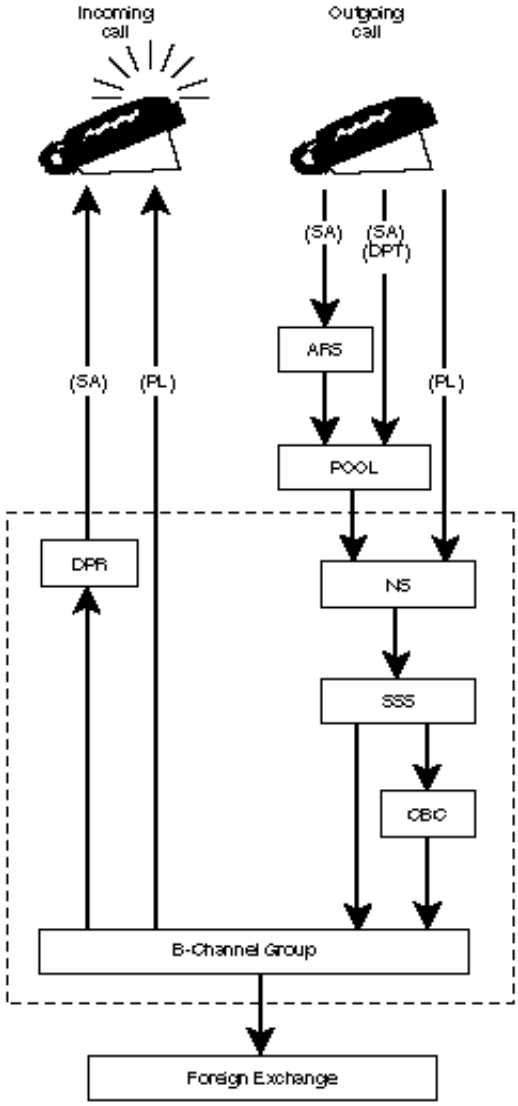
Figure 35 shows the order of call processing for both incoming and outgoing calls; the section of the figure within the box applies specifically to call processing on a system with PRI. An explanation of incoming and outgoing call processing follows.

Incoming Calls

In Releases 1.0 and 1.1, incoming calls are routed by line appearance. Beginning with Release 2.0, incoming calls can also apply Routing by Dial Plan, a routing system for incoming calls administered by the Dial Plan Routing Table (see Table 30).

Routing by Dial Plan (Hybrid/PBX only)

Routing by Dial Plan is similar in concept to Direct Inward Dialing (DID). It provides the ability to direct a call automatically to the proper endpoint for improved call distribution and call handling. Unlike a DID line, a PRI line programmed for Routing by Dial Plan can accommodate outgoing calls as well as incoming calls. As with DID operation, this feature is available only in Hybrid/PBX mode.



ARS=Automatic Route Selection
CBC=Call-by-Call Services Table
DPR=Dial Plan Routing Table
DPT=Direct Pool Termination
NS =Network Selection Table
SA =System Access
PL=Personal Line
SSS=Special Services Selection Table

Figure 35. PRI Call Processing

Routing by Dial Plan also allows multiple calls to a directory number. Concurrent incoming calls with the same Called Party Number can be delivered to an endpoint simultaneously.

The Dialed Number Identification Service (DNIS) is a service attribute of the Megacom 800 service. Based upon customer-selected parameters, such as area code, state, or time of call, it provides distinct Called Party Numbers for incoming 800 and 900 calls. In Releases 1.0 and 1.1, DNIS has the restriction of one active call per Called Party Number for each B-channel group. The PRI telephone number, which is matched against the Called Party Number(CdPN), is used for routing a call to a specific line that normally terminates on a personal line button. In Release 2.0 and later, the restriction of one active call per CdPN does not apply.

For each B-channel group, the system can be programmed for either routing by line appearance or Routing by Dial Plan. With Routing by Dial Plan, the Dial Plan Routing Table must be programmed to contain a series of patterns—the number of digits in the Called Party Number (CdPN), network services on which to match, and a number of digits to add or delete for each match—in order to route the call to the proper endpoint.

If a B-channel group is programmed for Routing by Dial Plan, all calls into that B-channel group are routed in a DID-like manner and terminate on an **SA** button, a single-line telephone, into a calling group queue, or at a Queued Call Console (QCC). When an incoming call arrives, its network service type and Called Party Number are compared to entries in the Dial Plan Routing Table. If no match is found, the call is routed to the programmed backup position for unassigned DID calls (normally the primary system operator). If a match is found, the Called Party Number is manipulated according to the Dial Plan Routing Table before matching it against the internal Dial Plan to identify an endpoint to which the call is delivered. If the manipulated Called Party Number does not match an internal endpoint, it is treated as an unassigned DID call.

If a fast busy tone is programmed as the routing endpoint for unassigned Direct Inward Dialing calls, the call is rejected. This typically causes the network to return an intercept tone rather than a fast busy tone. If the number matches an endpoint that DID calls are not permitted to reach (for example, pool access codes, group page codes, line access codes, or the ARS access code), the call is routed to the programmed endpoint for unassigned DID calls (unless the backup is a fast busy tone).

Table 30 is a sample Dial Plan Routing Table. Note that in the sample table all incoming calls through the Megacom 800 service are delivered to an endpoint whose dial plan number is 1234. Entry 15 would be skipped because No Service is specified.

Table 30. Sample Dial Plan Routing Table

Entry	0	1	2	3	...	15
Service	SDN	SDN	MEG800			No Service
# of digits in CdPN	7	10	10			[not specified]
Example #	555-1234	908-555-1234				
Pattern	555	[none]	[none]			[none]
Digit deletion	3	6	10			14
Digit addition	[none]	[none]	1234			0

When Routing by Dial Plan is used for an incoming call, if the programmed service, number of digits in the Called Party Number (CdPN) and patterns match those associated with the incoming call, the appropriate digit deletion and addition are performed. The process is as follows:

1. The programmed service is compared with the B-channel service, if supplied. A match is found if the two services are equivalent or if the programmed service in the Dial Plan Routing Table is All Services. If a match is found, the system continues to search the entry. If no match is found or if No Service is specified, the system skips the entry and proceeds to the next one. If no service is supplied, the call is matched to No Service table entries.
2. The programmed number of digits is compared with the number of digits in the actual Called Party Number. A match is found if the two numbers are equivalent or if the programmed number of digits is 0. If a match is found, the system continues to search the entry. If no match is found, the system skips the entry and proceeds to the next one. If the programmed number of digits is 0, any number of digits in the Called Party Number is acceptable.
3. The programmed pattern is compared with the digits associated with the incoming call. If the pattern matches, the entry is tagged as a possible best match for the incoming call; it is possible that more than one entry can match the incoming call. The entry chosen is the one that matches on the greatest number of digits in the pattern. For example, if 555-2000 is the Called Party Number and the two patterns that match are 555 and 5552, the entry associated with 5552 is chosen as the best match. If the pattern is not programmed, it is considered a match with the number of digits in the pattern equal to 0.
4. After the table is scanned and the best match is found, the programmed digit manipulation (addition and/or deletion) associated with the entry is performed. If the digit manipulation results in an invalid dial plan endpoint, the call is routed to the endpoint for unassigned DID calls.

Characteristics and valid entries for the Dial Plan Routing Table are as follows:

- The factory-set table value for service is Empty (not specified). Entries that remain empty are skipped when the system searches for a match.
- There can be up to 16 entries (0 through 15).
- The service can be specified as any one of the supported services, Other, No Service, or All Services.
- If the service is programmed as All Services, it matches any input and thus acts as a wild card. If the B-channel receiving the incoming call is also programmed for Call-by-Call Service Selection, the system retrieves the service type as supplied by the FX, since an incoming call could be arriving on any of the services.
- An entry programmed for No Service matches calls in which no service is supplied by the foreign exchange or B-channel group.
- Each pattern can have 0 through 8 digits. The default is blank.
- The number of digits can be 0 through 14. A value of 0 in the table represents “any number” and thus acts as a wild card. The default number of digits is 0.
- The maximum number of digits to delete is 14.
- The digits to add include the digits 0 through 9. The length of this item is 0 through 4 digits. The default is blank.
- The digit count and pattern are optional. When not programmed, they are considered wild cards that match any input.

Display Operation

The PRI display provides call-related information about incoming PRI calls delivered over the B-channel, if available. Otherwise, it displays the line label and the digits dialed.

Beginning with Release 3.0, hyphens are inserted between the digits on incoming calls. Examples: 555-1234 for a 7-digit display and 123-555-1234 for a 10-digit display. Any other number of digits appears without hyphens.

A brief description of the display support provided in Release 2.0 and later follows. Refer to the “Display” entry, earlier in this book, for additional details.

NOTE:
PRI display support for Release 2.0 and later applies to MLX display sets only. There is no PRI display support for analog multiline sets.

- **All Incoming PRI Calls.** When the calling party information is available from the network, the Calling Party Number (CPN) appears on the user’s display. Pressing the **More** button shows the Called Party Number on the second screen of the display. If the Called Party Number is more than 15 characters in length, the digits at the end are dropped.

- **Group Calling.** The MLX display of a calling group member shows the original Called Party Number (before digit analysis). The same display applies to PRI calls routed by dial plan to a group calling member extension. Pressing the **More** button shows the Calling Party Number on the second screen of the display.
- **Transfer Without Consultation.** In Release 2.0 and later, pressing the **More** button on an MLX display telephone that is a transfer destination shows the original Called Party Number (before digit analysis). The same display applies to transferred PRI calls routed by dial plan.

Outgoing Calls

Call-by-Call Service Selection is a feature for outgoing calls in Release 2.0 and later; it allows a group of B-channels to carry a variety of supported PRI services programmed in the Call-by-Call Services Table (see Table 33). The service selected is based on the digits dialed and the bearer capability (voice, data, or both) of the originating endpoint. In Releases 1.0 and 1.1, an outgoing call is carried on a static B-channel, that is, a B-channel dedicated to one specific service.

Outgoing calls can be made by accessing a personal line, a Pool, or Automatic Route Selection (ARS). When a call is placed, the system determines whether the line accessed is a PRI facility. If so, the system performs digit analysis with the entries in the Network Selection Table (see Table 31) and the Special Services Selection Table. The Network Selection table lists the prefixes for dial access to alternative long distance carriers (for example, 10*xxx*), and the Special Services Selection Table (see Table 32), lists prefixes that represent special services, such as operator service or international dialing (*0* or *00*).

In addition, if the B-channel group for an outgoing call is programmed for Call-by-Call Service Selection, the system performs *digit analysis*, with the entries in the Call-by-Call Services Table (see Table 33). The entries in this table indicate the service and tell the system how to delete digits and successfully route an outgoing call.

A sample of each of these tables follows. Refer to *System Programming* for information about programming these tables.

Network Selection Table

The Network Selection table lists the prefixes for dial access to alternative long distance carriers (for example, 10*xxx*). If multiple entries in the Network Selection Table match the dialed number, the one with the most non-wild card digits prevails. If the first digits of a dialed number (on PRI) match any entry in this table, the entry pattern is deleted from the dialed number, and the number

represented by the asterisks is used as the network selected. Characteristics and valid entries for the Network Selection table are as follows:

- There can be up to four entries (0 through 3).
- The pattern can be up to eight digits.
- An asterisk (*) is a wild card.
- The pattern cannot begin with an asterisk but must contain at least one.
- All asterisks must be at the end of the pattern and contiguous.

Table 31. Sample Network Selection Table

Entry Number	0	1	2	3
Pattern	101****	10***		

Special Services Selection Table

The Special Services Selection Table (see Table 32), lists prefixes that represent special services, such as operator service or international dialing (*0* or *00*). If multiple entries in the Special Services Selection Table match the dialed number, the one with the most digits prevails. Characteristics and valid entries are as follows:

- There can be up to eight entries (0 through 7).
- The pattern can be up to four digits (no wild cards).
- The choices for Operator are Operator (OP), Presubscribed Common Carrier Operator (OP/P), and None.
- The choices for Type of Number are National (N) and International (I).
- The number of digits to delete can be from zero to four.

Table 32. Sample Special Services Selection Table

Entry Number	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Pattern	011	010	01	00	0	1		
Operator	None	OP	OP	OP/P	OP	None	None	None
Type of Number	I	I	I	N	N	N	N	N
Digit Deletion	3	3	2	2	1	1	0	0

OP = Operator
OP/P = Presubscribed Common Carrier Operator

Call-by-Call Services Table

When a call is placed on a Call-by-Call B-channel group, the dialed number and type of call must match one of the entries, the specified number of digits is deleted, and the specified service is selected. Similar patterns for the same type of call are permissible in this table; in such a situation, the feature selects the entry with the longest matching pattern. For example, based on the entries in Table 33 and a voice call with a Called Party Number (CdPN) of 908957, Entry 1 is selected, not Entry 2. The last entry is used if the patterns are of equal matching digits.

For each entry, the following can be specified: a set of patterns, the type of call, the service to use, and the number of digits to delete.

Characteristics and valid entries for the Call-by-Call Services Table are as follows:

- By default, the patterns are blank, Call Type is Both, Service is blank, and Delete Digits is 0.
- There can be up to 10 entries (0 through 9).
- Each entry can contain up to 10 patterns of up to 8 digits each.
- The number of digits to delete can be from 0 through 8 (default is 0).
- The user can use an entry as a default by selecting a Call Type and Service and not specifying any patterns.
- If Service is null (not selected), the entry is ignored. Null and No Service are not equivalent.

Table 33. Sample Call-by-Call Services Table

Entry Number	0	1	2	3	4	...	9
	700	908957	908				
		908949					
Patterns		908615					
		303843					
Call Type	DATA	BOTH	VOICE	VOICE	DATA	BOTH	BOTH
Service	ACCUNET	SDN	MEG WATS	MEG WATS	SDN		
Delete Digits	0	0	0	0	0	0	0

Call-by-Call Service Selection closely resembles ARS in reducing costs and maximizing the benefits derived from limited resources. While ARS selects the most cost-effective route, Call-by-Call Service Selection selects the optimal service for that particular call. Call-by-Call Service Selection is integrated with ARS by including the bearer capability of the calling party in its routing decisions. As such, ARS is the main gateway for accessing the Call-by-Call

B-channel group. The basic calling process for Call-by-Call Service Selection with ARS is as follows:

1. A user dials ARS.
2. ARS selects the route and, in this case, the route points to a Call-by-Call B-channel group.
3. ARS performs digit deletion/addition operations for the route, and in so doing may indirectly specify the best service for the call.
4. With these ARS outgoing digits, the Call-by-Call B-channel group selects the service, possibly based on digits added by ARS, and performs digit deletion as required.
5. A call setup message is sent to the network/central-office switch.

Restriction Code Handling for FTS2000 Network

FTS2000 network users can have restriction codes applied to their extensions. A person who attempts to place a call that exceeds the set restriction level must first enter a restriction code. If no code is entered, the FTS2000 network prompts the user to enter the code from the telephone dialpad.

Prior to Release 2.0, the restriction codes are input in-band (using touch-tones). In Release 2.0 and later, the system allows a restriction code to be entered with the Account Code Entry feature. This is especially useful for data calls because there is no in-band signaling to interfere with the data, as the restriction code is sent out of band in the setup message.

Station Identification-Automatic Number Identification (SID-ANI) as Calling Party Number

In Release 1.0 and later, facility-based information is used by the network for sending the Calling Party Number. If the SID-ANI option is programmed (and the service subscribed to), Release 2.0 and later systems send a systemwide base number of up to 12 digits, with the final digits (up to 4 digits) replaced with the extension number that the call was made from. For example, a call made from extension 7104 with a systemwide base number of 908-555-7000 will send the number 908-572-7104. For facility-to-facility calls, where there is no call-originating extension (for example Remote Call Forwarding) the systemwide base number is substituted. However, trunk-to-trunk transfer results in a CPN that consists of a base number where the last digits are replaced by the number of the transferring extension.

In some instances, the systemwide base number is not sufficient to cover all extension numbers in the system. For example, the base number might be 908-555-7000 and there might be a group of extensions 7000-7099 that correspond to telephone numbers from 908-555-7000 to 908-555-7099; there might be another group of extensions numbered 300-399, whose telephone numbers are 908-555-0300 through 908-555-0399. In a case like this, there is no base number that can cover all of the extensions so that the number sent is the correct number for the extension.

Considerations and Constraints

General

If a B-channel is not available when a call is placed, a fast busy tone is returned. While the tone is in progress, the line is considered busy. If the originator goes on hook while the tone continues, the call is ended and the line is idled. Otherwise, the call appearance is removed and the line is idled 15 seconds after the tone is applied.

A telephone is considered busy when: no **SA** button (aside from Originate Only buttons) is available; Do Not Disturb is activated, or the extension is either being programmed, is in forced idle; the alarm clock is being set. The caller hears a busy tone; the call receives coverage if programmed.

A PRI line can be assigned to only one B-channel group.

If the internal dial plan uses extension numbers with different numbers of digits, for example, both 3-digit extension numbers and 4-digit extension numbers, Station Identification/Automatic Number Identification (SID-ANI) may not work properly.

The PRI telephone number assigned to each channel must be different from the numbers assigned to other channels assigned to the same B-channel group and from that of the associated test number. Also, the number of each channel must be the same number as that supplied by the PRI service provider. The test telephone number assigned for each 100D (DS1) module in the control unit must be different from the numbers assigned to other channels in the same B-channel group and must be the same number as that supplied by the PRI service provider.

An invalid timer value entered in system programming results in that number being truncated to the closest valid value. If, for example, 45 is entered for a counter that ranges from 0 to 30 seconds, 4 is recorded.

Incoming Calls

When an incoming call is given Routing-by-Dial-Plan treatment, the green LED associated with the appearance of the line lights steadily; the LED does not flash to indicate that the trunk is ringing. The green LED associated with the personal line lights steadily, and ringing on an **SA** button occurs; the LED does not flash to indicate that the trunk is ringing.

Routing by Dial Plan requires programming of the Dial Plan Routing Table and the B-channel group to be routed by dial plan.

Call Management System (CMS) does not support Routing by Dial Plan.

Display support for Routing by Dial Plan is on MLX telephones only.

If the endpoint number for an incoming call given Routing by Dial Plan treatment is not found, the call is sent to the invalid number destination for DID calls. This can be a dial plan extension number or fast busy tone. However, if it is fast busy tone, the call is rejected and the network applies intercept tone.

A PRI line that has been programmed for Routing by Dial Plan should not be programmed for remote access or Shared System Access.

Outgoing Calls

The outgoing telephone number that matches the digit pattern in the Network Selection Table is deleted automatically. This is not programmable. The common carrier ID is sent to the foreign exchange.

In systems that are programmed using a non-uniform extension dialing plan, one base number may not be able to represent all telephones.

To specify that no telephone number is sent to the network, choose the Do Not Copy Telephone Number programming option and use the Telephone Number to Send procedure to ensure that no telephone number is assigned to each channel in the B-channel group. A network option to block presentation of CPN is also available.

If Automatic Route Selection (ARS) identifies a call as applying to a Call-by-Call B-channel group but the Call-by-Call Services table does not show a matching digit pattern and bearer capability, the call is rejected.

Outgoing calls using Call-by-Call Selection Service can be made by pressing a line button, pressing a **Pool** button, dialing a trunk pool number, or using ARS.

The Call-by-Call Services Table must be programmed for the Call-by-Call Service Selection feature to take effect. If a service is not specified in the table, the entry is ignored.

An SMDR record is not recorded for any call on a PRI facility that is less than the programmed SMDR Call Length. Usually, the SMDR Call Length is programmed to compensate for connection and ringing time of calls on non-PRI facilities before they are answered. For systems where the majority of lines are PRI lines, the call length should be programmed for one (1) second.

Feature Interactions

Account Code Entry

Enter an account code at an extension assigned to a PRI line before the call is made or during the call. An account code entered before a call is treated as an restriction code for all the outgoing calls placed over the PRI line.

If the SMDR feature is not enabled to record incoming calls, the system does not accept Account Code Entry information for incoming calls.

Automatic Route Selection

An incoming call can access Automatic Route Selection (ARS) only through Remote Access, transferring, or Remote Call Forwarding through ARS. A PRI line can be a member of a pool accessed through ARS. Before ARS routes a call to a pool, it checks whether one or more member lines in that pool are available. If not, it selects an alternative pool so that the call is not blocked. Even if a B-channel is available when ARS selects a pool with an available line, there may be none available when it is time to send a setup message to the network. Or, after the setup message is sent, the network may determine that the B-channel proposed by the system is not available. In either case, the call fails and fast busy tone is heard.

If an incoming call matches the ARS access code, it is routed to the extension programmed for unassigned DID calls.

Barge-In

Barge-In can be used on a PRI line.

Call Waiting

Call Waiting is provided on PRI lines at extensions so programmed. The call-waiting tone is not blocked from PRI at an extension if turned on. Until the call is answered, answer supervision is not returned to the network, and the caller hears regular ringback as opposed to call-waiting ringback.

Callback

Callback cannot be used to request a busy PRI line assigned as a personal line. A pool with PRI lines as members may be queued for. An idle PRI line is not considered an available pool member unless a check determines that it is associated with an available B-channel. Even if a B-channel is available when the pool selects a line for a queued call, there may be none available when it is time to send a setup message to the network. Or, after the setup message is sent, the network may determine that the B-channel proposed by the system is not available. In either case, the call fails and a fast busy tone is applied.

Calling Restrictions

Outward and toll restrictions do not work with T1 lines emulating tie trunks when the lines are set to Tie-PBX. Use Automatic Route Selection or pool dial-out codes instead.

Group Calling

A PRI line that is a member of a B-channel group programmed for Routing by Dial Plan should not belong to a calling group. A line that is part of a B-channel group included in a calling group should not be programmed for Routing by Dial Plan.

HFAI	Incoming calls on a line that is a member of a B-channel group programmed for Routing by Dial Plan are not eligible for answer by Hands-Free Answer on Intercom (HFAI).
Paging	If the extension for an incoming call matches a group paging extension, the call is treated as an unassigned Direct Inward Dial (DID) call.
Personal Lines	A personal line can be assigned to an extension to represent a PRI line with Routing by Dial Plan. The green LED associated with the personal line lights steadily, and ringing on an **SA** button occurs; the LED does not flash to indicate that a trunk is ringing.
Remote Access	A PRI line that has been programmed for Routing by Dial Plan should not be programmed for remote access.
Remote Call Forward	A PRI line that has been programmed for Routing by Dial Plan cannot have Remote Call Forwarding allowed.
SMDR	The trunk number of a PRI line is shown in the LINE field of the SMDR report. The restriction code for the FTS2000 network is shown in the ACCOUNT field.
SMDR ***continued***	Call timing begins when the PRI line is selected. The Called Number field shows the number dialed by the user, before any digits are manipulated by ARS or PRI tables (Network Selection Table, Special Services Selection Table, or Call-by-Call Services Table). In Release 2.1 and later, call timing begins when the call is answered. Therefore, calls that are not answered do not have an SMDR call record generated. If the SMDR feature is not enabled to record incoming calls, the system does not accept Account Code Entry information for these calls. See Appendix F for print reports showing the actual SMDR fields.
Transfer	For trunk-to-trunk transfer with no extension number involved, the Calling Party Number for the outbound call is the programmed base number.

Privacy

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Directory
Mode	All
Telephones	All except QCC
Programming Codes	**31*
Feature Codes	
On	*31*
Off	**31*
MLX Display Label	Privacy [Prvcy]

Description

Privacy prevents other people from joining calls on shared personal lines or **Shared SA** buttons. Privacy also prevents Barge-In from being used to join a call.

A user can turn on Privacy before or during a call, and it remains on for all calls to and from that extension until the user turns it off.

When Privacy is turned on at an extension, anyone selecting a shared personal line or **Shared SA** button on which a call is active hears silence instead of joining the call. A person using Barge-In hears a busy signal when trying to join a call on a telephone with Privacy turned on.

If Privacy is turned on while a call is in progress, it does not affect anyone who has already joined the call but prevents other users from joining the call.

Privacy is automatically turned on for data calls to 7500B data stations and analog voice and modem data stations connected to analog multiline telephones. Privacy must be turned on manually for modem data-only stations and analog MLX voice and modem stations connected to a Multi-Function Module.

Considerations and Constraints

If a multiline telephone user intends to use Privacy, he or she should program a button for it, so that the green LED next to the button gives a visual reminder when Privacy is turned on.

Single-line telephone users receive no indication of whether Privacy is on or off.

Privacy is on automatically at data stations except modem only-data stations, where Privacy can be activated as part of the dialing sequence.

Telephone Differences

Queued Call Consoles

A QCC operator cannot use Privacy.

Other Multiline Telephones

To turn on Privacy, press the programmed Privacy button (the green LED turns on) or press the **Feature** button and dial *31*.

To turn off Privacy, press the programmed Privacy button (the green LED turns off) or press the **Feature** button and dial **31*.

When an MLX display telephone user turns on Privacy, the display briefly shows the message Privacy On before returning to the Home screen or call-handling display. When the user turns off Privacy, the display briefly shows the message Privacy Off.

When an MLX-10 nondisplay or analog multiline telephone user (with or without a display) turns Privacy on or off, there is no visual confirmation unless a Privacy button is programmed on the telephone. If a Privacy button is programmed, its green LED turns on and off with the Privacy feature.

Single-Line Telephones

To turn on Privacy before making or receiving a call, lift the handset and (while listening to inside dial tone) dial *#31*; then hang up. To turn on Privacy while a call is in progress, press and release the **Recall** or **Flash** button or switchhook and dial *#31*. To return to the call, press and release the **Recall** or **Flash** button or switchhook again.

To turn off Privacy before making or receiving a call, lift the handset and (while listening to inside dial tone) dial *#*31*; then hang up. To turn off Privacy while a call is in progress, press and release the **Recall** or **Flash** button or switchhook and dial *#*31*. To return to the call, press and release the **Recall** or **Flash** button or switchhook again.

A single-line telephone user has no indication of whether Privacy is on or off.

NOTE:
Some single-line telephones, such as AT&T models 2500YMGL and 2500MMGK, use a positive or timed disconnect. On these telephones, pressing the switchhook disconnects the call. The user must use the **Recall** or **Flash** button instead of the switchhook when turning Privacy on or off.

Feature Interactions

Barge-In	Barge-In does not override Privacy.
Display	When an MLX display telephone user turns on Privacy, the display briefly shows the message Privacy On before returning to the Home screen or call-handling display. When the user turns off Privacy, the display briefly shows the message Privacy Off.
Headset Options	Privacy should be turned on when headset users with Headset Auto Answer turned on have **Shared SA** buttons or share one or more personal lines. Privacy keeps the users from competing for the same call. When two or more users try to answer the same call on a **Shared SA** or personal line button, the red and green LEDs next to the button go on, but only one person can talk with the caller.
Hold	Privacy only protects a call while the user is active on the call. Privacy does not keep a user at another extension from picking up a call while it is on hold.
Multi-Function Module	Privacy should not be used on an MFM (unless Privacy is to stay on all times, as at a data station), because the user does not have an LED to indicate whether Privacy is on or off.
Personal Lines	If Privacy is turned on at an extension, a user with a shared personal line button for that extension cannot join a call on that button. If Privacy is turned on while a call is in progress, it does not affect anyone who has already joined the call but prevents other users from joining the call.
Recall	A single-line telephone user with a **Recall** or **Flash** button can use **Recall** or **Flash** to turn Privacy on or off during a call. The user must press **Recall** or **Flash** and *#31* to turn Privacy on, or **#31* to turn Privacy off.
Signaling	Users can program and use a Signaling button to contact a co-worker who has turned on Privacy.
System Access/ Intercom Buttons	If Privacy is turned on at an extension with a **Shared SA** button, other users, including the principal extension, cannot join a call on that button. If Privacy is turned on while a call is in progress, it does not affect anyone who has already joined the call but prevents other users from joining the call.

Programming

At a Glance

Users Affected	System Manager
Mode	All
Telephones	All

SECURITY ALERT:
Remote System Programming

As a customer of a new telephone system, you should be aware that there exists an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, and breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the telephone network through the use of remote access features.

The Remote Access feature of your system, if you choose to use it, permits off-premises callers to access the system from a remote telephone by using an 800 number or a 7- or 10-digit telephone number. The system returns an acknowledgment signaling the user to key in his or her barrier code, which is selected and administered by the system manager. After the barrier code is accepted, the system returns dial tone to the user. If you do not program specific egress restrictions, the user will be able to place any call normally dialed from a telephone associated with the system. Such an off-premises network call is originated at, and will be billed from the system location.

The Remote Access feature, as designed, helps the customer, through proper administration, to minimize the ability of unauthorized persons to gain access to the network. Most commonly, telephone numbers and codes are compromised when overheard in a public location, through theft of a wallet or purse containing access information, or through carelessness (writing codes on a piece of paper and improperly discarding it. Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Enormous charges can be run up quickly. It is the customer's responsibility to take the appropriate steps to properly

implement the features, evaluate and administer the various restriction levels, protect access codes, and distribute access codes only to individuals who have been fully advised of the sensitive nature of the access information.

Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. AT&T T cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

To minimize the risk of unauthorized access to your communications system:

- *Use a nonpublished Remote Access number.*
- *Assign barrier codes randomly to users on a need-to-have basis, keeping a log of ALL authorized users and assigning one code to one person.*
- *Use random sequence barrier codes, which are less likely to be easily broken.*
- *Deactivate all unassigned codes promptly.*
- *Ensure that remote access users are aware of their responsibility to keep the telephone number and any barrier codes secure.*
- *When possible, restrict the off-network capability of off-premises callers, through use of Call Restrictions and Disallowed List capabilities.*
- *When possible, block out-of-hours calling.*
- *Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.*
- *Limit Remote Call Forward to persons on a need-to-have basis.*

Description

Programming allows you to customize and update your system and provides telephone users and operators with a wide range of features. There are three types of programming:

- System programming
- Centralized telephone programming
- Extension programming

The tables in Appendix C provide complete lists of system operator and telephone features, their programming codes, and the telephones on which the features can be programmed. The tables also show which features can be assigned only through centralized telephone programming.

System Programming

Initial system programming is done when the system is planned and installed. The system can be reprogrammed as needs change.

Like centralized telephone programming, system programming can be done either on the system programming console or using SPM software.

Brief descriptions of the pertinent programming paths can be found in the “At a Glance” section.

Complete information about system programming can be found in *System Programming*.

A chart showing the system programming hierarchy can be found in Appendix E.

Programming with the MLX-20L Telephone

The MLX-20L telephone is the only telephone that can be used as a system programming console (see Figure 36). The MLX-20L telephone must be connected to the first extension jack on the first MLX module for initial programming of a new system.

For subsequent programming, the jack assignment can be changed. The system operator jack can be used, or a separate system programming jack can be designated to allow programming of the system without interfering with system operator call handling.

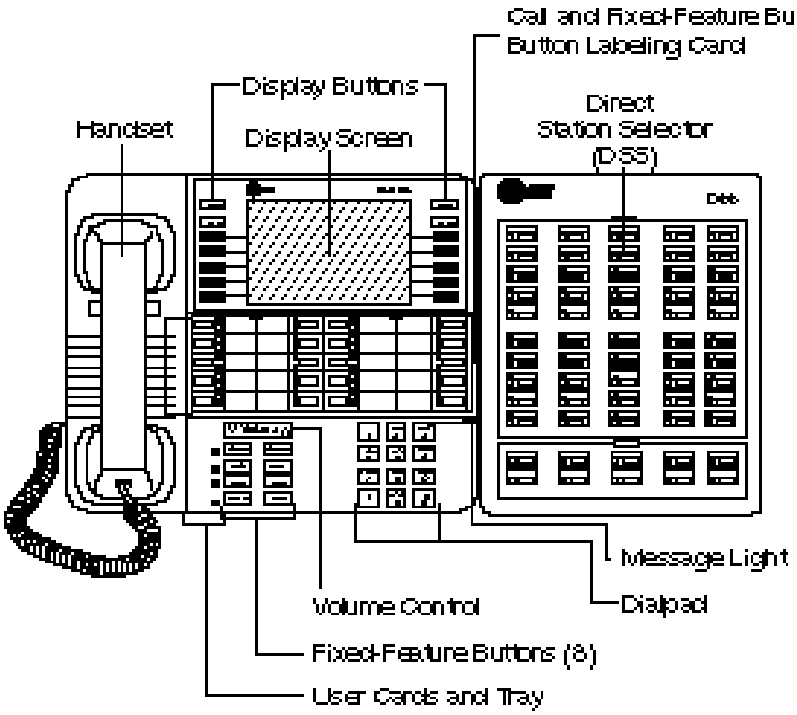


Figure 36. MLX-20L Telephone and DSS

The buttons next to the console's display are used to do most of the programming. The top two buttons on each side are labeled and have the same functions in every screen. They are **Home**, **Menu**, **More**, and **Inspct**. The next five unlabeled buttons on each side are used to select options from a menu displayed on the screen.

Programming the system may also involve using the dialpad, some of the labeled function buttons on the lower portion of the console, or the 20 line and feature buttons in the center of the console. The overlay that "renames" buttons for use during programming is shown in Figure 37. The overlay shows the number of the line buttons when in centralized telephone programming (both pages). It also shows the letters that the buttons correspond to in programming Directories.

The red and green LEDs next to the 20 line and feature buttons assist the system programmer. These buttons are on or off during programming, depending on whether or not they have already been programmed.

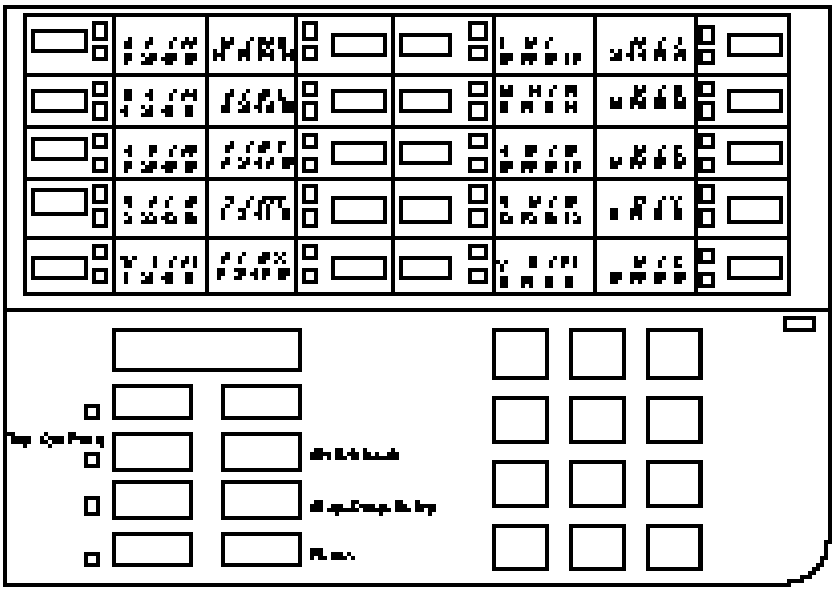


Figure 37. System Programming Console Overlay

Direct Station Selector

One or two Direct Station Selectors (DSSs) can be used with the MLX-20L telephone. Each DSS adds 50 buttons to the system programming console. For more information about the DSS, see “Direct Station Selector.”

The LEDs on the DSS indicate the status of telephone features during system programming, such as calling restrictions. Each LED on the DSS represents a telephone connected to the system. When certain features are selected from the System Programming menu, the LEDs on the DSS indicate the status of the feature for each telephone. For example, if Restriction is selected from the Extension menu, the red LED is on for each extension that is toll-restricted.

Programming with SPM on a PC

The advantages of programming the system with a PC are the availability of surrogate mode and, in releases prior to Release 3.0 (where programming can be backed up on a PCMCIA memory card), the security that comes from knowing that programming can be backed up on a floppy or hard disk. This makes recovery of system programming fast and efficient in the event of an inadvertent system shutdown or loss of power.

To program with a PC, SPM software is needed, along with DOS or UNIX operating system software (the latter is only necessary if you are using Integrated Solution II/III). SPM provides an interface to the programming and maintenance software in the control unit processor module. The SPM software emulates the display screen and buttons of a system programming console (the MLX-20L telephone). As shown in Figure 38, the SPM display mirrors the following three areas of the console:

- Display and display buttons (at the top of the SPM screen)
- Function buttons (described on the right side of the screen)
- Line buttons (represented in the lower portion of the display)

To use SPM for system programming, the PC must be connected to the control unit. This can be done either directly through the system programming jack on the control unit or through a modem (modems can be used for either on-site or remote programming). See *System Programming* for details on SPM use.

NOTE:
Beginning with Release 3.0, SPM is no longer necessary in order to back up system programming. System programming can be backed up on a memory card. For details, see *System Programming*.

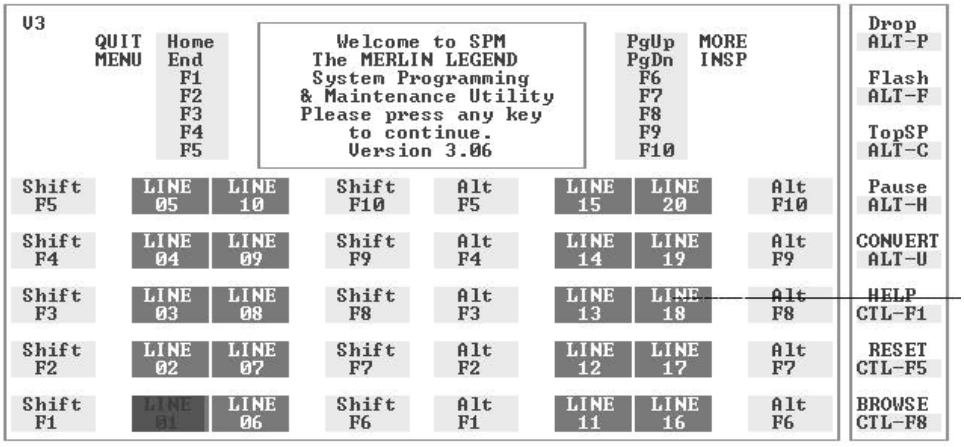


Figure 38. SPM Display

On-Site and Remote Programming

PC-based SPM programming through a modem can be done either on-site or from a remote location. In both cases, the built-in modem of the control unit is used. Accessing the modem for on-site programming is done by dialing the code

for the control unit's modem (**10*), which establishes connection to the system programming jack.
Accessing the built-in modem for remote programming can be done in any of the following ways:

- Calling the system on a remote-access line and entering a barrier code (if needed), and then dialing the code for the control unit's built-in modem
- Calling the system on a regular line and asking the system operator to transfer the call to the control unit's built-in modem
- Calling the remote PC with SPM from a telephone on the system, then transferring the call to the control unit's built-in modem

Remote programming allows qualified technicians to run diagnostic tests and to display information needed to maintain the system. It is also used by AT&T technical support organizations for installation and maintenance support.

Remote system programming overrides on-site system programming unless an on-site backup or restore procedure is taking place. If on-site system programming is being performed when a remote connection is attempted, the system sends a message to the programmer that a remote connection has been established and the current on-site programming session is terminated.

If remote system programming is to be done over loop-start lines, the loop-start lines should be set to reliable disconnect. Otherwise, the line could be seized indefinitely.

System Programming Screens

The system programming console display and SPM screen present step-by-step prompts throughout programming. Three different types of screens appear on the console display and SPM screen:

- **Menu Selection Screens.** Allow selection of menu options. After making a selection, either a more detailed menu screen or a data entry screen is shown.
- **Informational Screens.** Show currently programmed information. Changes cannot be made to these screens.
- **Data Entry Screens.** Allow identification information (such as an extension number or trunk number) or values (such as number of seconds or rings) to be entered.

The menu hierarchy—the sequence of menu screens that appear as different options are selected from menus during system programming—is shown in Appendix D, "System Programming Menu Hierarchy."

System Programming Reports

System programming reports are available when Print opts is selected from the System Programming menu. These reports can be directed to the SMDR printer or a printer connected to the PC used for system programming. In addition, Print opts allows you to direct reports to the PC, so you can use the Browse option to read reports on the PC screen. See Appendix E, “Sample Reports,” for sample reports.

Centralized Telephone Programming

Centralized telephone programming allows the system manager to program from a single location any feature that can be programmed by individual telephone users or system operators. Centralized telephone programming can be done on the programming console (MLX-20L) or on a PC with SPM software.

The following features can be programmed only through centralized telephone programming (not by individual users):

- Barge-In
- Headset Hang Up
- All **SA** buttons (Hybrid/PBX mode) and **ICOM** buttons (Key and Behind Switch modes)

Extension Programming

Extension Programming allows telephone users and system operators to customize their extensions to meet personal needs. Multiline telephone users can assign a wide range of features to buttons on the telephone. Many other settings (Call Waiting, for example) that do not require button assignment can be programmed on both multiline telephones and single-line telephones.

Users can program their extensions by dialing programming codes or, on MLX display telephones, selecting features from the display. When a telephone user programs his or her extension, the system considers the extension busy; therefore, no incoming calls ring at the telephone until programming is completed. See Appendix C, “General Feature Use and Telephone Programming,” for instructions on how to program features on MLX, analog, multiline, and single-line telephones.

NOTE:
When programming a feature onto a button that already has a feature assigned to it, any light associated with that button should be off before you begin programming. In some cases, if the light is not off, the feature remains active (even though a new feature has been programmed onto the button). If this happens, you can only turn off the original feature by programming a new button with that feature and deactivating the feature with that button. You can then delete the new feature.

Queued Call Console

At a Glance

Users Affected	QCC operators
Reports Affected	Operator Information System information
Mode	Hybrid/PBX
Telephones	MLX-20L telephones
System Programming	Assign or remove a QCC position: • Operator→Positions→Queued Call Change operator hold timer for all QCC (and DLC) operators: • Operator→Hold Timer Assign QCC queue priority to individual trunks: • LinesTrunks→**More**→QCC Prior Assign QCC operator to receive calls on individual trunks: • LinesTrunks→**More**→QCC Oper Specify treatment for calls on DID trunks to invalid (unassigned) extensions: • LinesTrunks→DID→InvalDstn Specify destination for calls on DID trunks to invalid extensions, if sent to backup extension: • Options→**More**→Unassigned Assign call types to ring in to QCC queue, QCC operator to receive calls, and priority level: • Operator→Queued Call→Call Types Specify frequency for elevate priority (queue reprioritization): • Operator→Queued Call→ElvatePrior Specify whether calls on hold return to QCC queue after operator hold timer has expired twice: • Operator→Queued Call→Hold Rtrn Select Automatic Hold or Automatic Release for all QCC operators: • Operator→Queued Call→HoldRelease Enable or disable calls-in-queue alert: • Operator→Queued Call→InQue Alert Specify threshold for queue-over-threshold alert: • Operator→Queued Call→Threshold

At a Glance - *Continued*

System Programming (continued)	Select automatic or manual extended call completion for all QCC operators: • Operator→Queued Call→ExtndComplt Designate calling group as QCC position-busy backup: • Operator→Queued Call→**More**→QCC Backup Specify return ring interval for extended calls: • Operator→Queued Call→Return Ring Assign QCC positions for message center operation: • Operator→Queued Call→Msg Center Change Overflow Coverage Number: • Extensions→**More**→Grp Calling→Overflow Change Listed Directory Number extension: • SysRenumber→Single→**More** → ListDirectNo
Hardware	008 MLX or 408 GS/LS-MLX module
Maximums	
QCC Positions	4 (8 operators total, including DLCs)
QCCs for each Module	2
Position-Busy Backups	1
Factory Settings	
Operator Hold Timer	60 sec (range 10–255 sec)
QCC Queue Priority for Trunks/Call Types	4 (range 1–7)
Treatment of Calls to Invalid Extensions	Backup Extension
Destination for Calls to Invalid Extensions	QCC Queue
Call Types	
Dial 0	Primary system operator
Unassigned DID	Primary system operator
Listed Directory Number	Primary system operator
Returning Calls	Originating operator position (Initiator)
Group Coverage	none
Elevate Priority	0 (no reprioritization) (range 5–30 sec, 0)
QCC Hold Return	Remain on Hold
QCC Hold Release	Automatic Release
Calls-in-Queue Alert	Disabled
Queue Over Threshold	0 (no alert) (range 1–99 calls, 0)
Extended Call Completion	Automatic
Position Busy Backup	None
Return Ring Interval	4 rings (range 1–15 rings)
Message center position	None
Listed Directory Number	800

Description

The Queued Call Console (QCC) is an answering position available only in Hybrid/PBX mode. The QCC is an MLX-20L telephone used by operators to do the following:

- Answer outside calls that are directed to the QCC queue or to a specific QCC operator.
- Answer inside calls to the operator or to a specific QCC operator's extension.
- Direct (*extend*) inside and outside calls to an extension or to an outside telephone number.
- Serve as a message center.
- Make outside calls, for example, for users with extensions restricted from making outside calls.
- Set up conference calls.
- Monitor system operation.

The system can have a maximum of four QCCs. Two QCCs can be designated for each 008 MLX or 408 GS/LS-MLX module, with QCCs assigned only to the first and fifth station jacks on each module. The first QCC must be assigned to the first extension jack in the system—that is, Port 1 of the MLX module installed in the lowest-numbered slot.

The first jack on the first MLX module is factory-set as the *primary system operator position.* This cannot be changed. The primary system operator is designated to receive Dial 0, Unassigned DID, and Listed Directory Number calls. If a system has both DLC and QCC operator positions, the factory-set primary operator position must be a QCC.

QCC Operation

Call Delivery

Outside calls designated through system programming to ring at a QCC are sent by the system to a single common QCC *queue*, where they wait to be sent to a QCC operator console. When a QCC operator is available to receive a call, the system removes the call from the queue and sends it to an idle **Call** button on the QCC. (**Call** buttons are used on QCCs to answer incoming calls and make inside and outside calls.)

Calls are delivered to the QCC operator in first-in first-out order, according to the *queue priority level* assigned to each type of call. If more than one QCC operator is available, the operator who has been idle the longest receives the call.

Both inside and outside calls ring on **Call** buttons on the QCC. Unlike the Direct-Line Console (DLC), on which multiple incoming calls can ring simultaneously, the QCC receives one call at a time. regardless of the number of calls in the QCC queue. When a call rings on a **Call** button, call origin information is shown on the display.

Operator Availability

A QCC operator is available to receive a call from the queue when there are no active calls (including ringing calls) at the console except calls on hold. A QCC operator is unavailable to receive a call from the queue under the following conditions:

- A call is ringing at the console.
- The operator is on a call.
- The operator has a call in the *split condition* (see below).
- The operator is setting up a conference.
- All **Call** buttons are busy.
- The console is being used for system programming.
- The console is in maintenance mode.
- The operator is programming a Personal Directory listing or the Alarm Clock.
- The console is not plugged in.

Extending Calls

To direct an active call to another extension or outside number using a QCC, press either the **Start** button or a Direct Station Selector (DSS) button. The **Start** button *splits* the call, or divides it into two separate halves, each connected to the QCC.

The active call, or *source*, automatically goes on hold at the **Source** button (the green LED next to the **Source** button flashes). An outside caller hears Music On Hold, if programmed, or silence. An inside caller hears silence.

The QCC operator hears a dial tone on the same **Call** button where the call had been active. The operator can use the dialpad, a Directory feature, or a DSS button to dial another extension or an outside number. This second half of the call is the *destination*.

The QCC display shows that the call is split. Once the destination has answered, the operator can press the appropriate button (**Source** or **Destination**) to speak with the party on either half of the split call. The operator can go back and forth between the source and destination as many times as necessary. The operator connects the two halves of the split call by pressing one of the following buttons:

- **Join** connects all three parties—source, destination, and operator—in a 3-way conference on the original **Call** button.
- **Release** connects the source and destination and removes the call from the QCC. The operator is now available to receive another call from the queue. Only one split call can be active at any given time on a QCC.

A DSS button does one of two things, depending on how extended call completion is programmed for the system:

- With *manual completion*, the call is split automatically. When the operator presses a DSS button, the active call (the source) goes on hold at the **Source** button and the extension represented by the DSS button (the destination) is dialed. Once the destination user answers, the operator can press the **Source** or **Destination** button to talk to one party at a time (automatically putting the other on hold) or press the **Release** or **Join** button to connect the parties to each other.
- With *automatic completion*, the extension is dialed automatically and the call is released from the console. The effect is the same as if the operator had split the call, dialed an extension, and then pressed **Release** to join the source and destination and remove the call from the console.

NOTE:
When the system is programmed for automatic completion, the operator can still split and complete the call manually by pressing the **Start** button, then using the dialpad or a Directory feature to dial the destination, and pressing the **Release** or **Join** button. In this situation, the operator cannot use a DSS button to dial, because automatic completion takes over and releases the console.

QCC Features

The MLX-20L telephone is the only telephone that can be assigned as a QCC. A QCC operator cannot use feature codes to activate features. Only the features that can be selected from the display or assigned permanently as buttons on the console can be used. To simplify call handling, the Home screen includes features used often by a QCC operator. The features available on the Home screen depend on the status of the call in progress, as shown in Table 34.

Table 34. Features Available at Call Progress Stages

Call Progress	Feature Displayed	Display Appearance
Inactive or inside dial tone	Group Pickup	Pickup Grp
	Pickup	Pickup
	Loudspeaker Page	Loudspkr Pg
	Account Code Entry	AccountCode
	Follow Me	Follow Me
	Cancel Follow Me	CanclFollow
Reached busy extension	Barge-In	Barge In
	Leave Message	Leave Msg
	Camp On	Camp On
Ringing at, or connected to extension	Barge-In	Leave Msg
	Leave Message	Barge In
	Camp On	Camp On
Connected to an outside line	Camp-On	Camp On
	Account Code	AccountCode
	Follow Me	Follow Me
	Cancel Follow Me	CanclFollow

The 7-line, 24-character display also provides the QCC operator with descriptive information about incoming and outgoing calls. This information includes extension numbers and any programmed labels (such as names), trunk identifiers, reasons for call return and redirection, and the number of unanswered calls waiting in the queue. See “Display” for details on call information displays.

The QCC is automatically assigned the buttons shown in Figure 39. These assignments cannot be changed or reprogrammed. Each of these buttons is described following Figure 39.

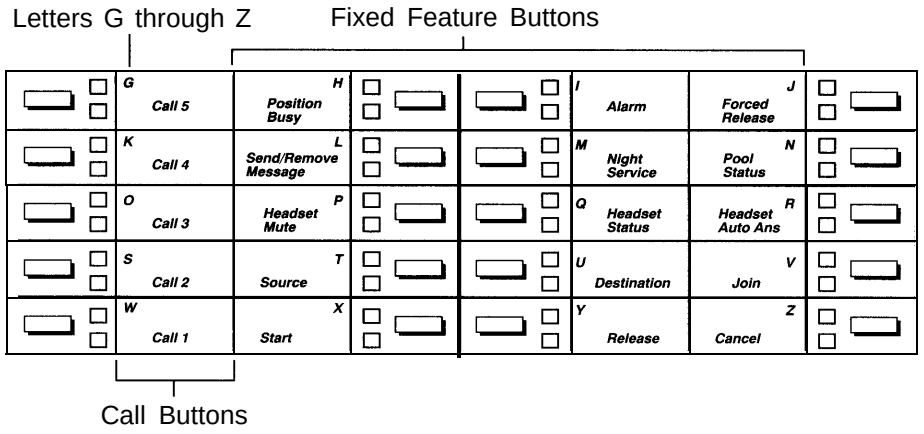


Figure 39. QCC Button Assignments

Button	Description
Call	Five **Call** buttons are used for answering incoming calls and making inside and outside calls. **Call** buttons are set for Immediate Ring and cannot be changed.
Start	Initiates directing of a call by putting a caller on hold at the **Source** button and providing inside dial tone to the QCC operator.
Source	Reconnects the QCC operator to the source and puts the destination on hold while the call is split.
Destination	Reconnects the QCC operator to the destination and puts the source on hold while the call is split.
Release	Releases the QCC operator from a call and/or completes call direction, making the operator available for another call.
Cancel	Cancels directing of a call and reconnects the QCC operator with the caller (source). If the QCC operator is already connected to the source (destination is on hold), pressing this button has no effect.
Join	Connects all three parties—source, destination, and QCC operator—in a three-way conference on one **Call** button.
Headset/ Handset Mute	Turns the handset or headset microphone off or on. When the microphone is off, the QCC operator can speak with another person without being heard by the caller. The red LED next to the button is on when the headset or handset microphone is off, and off when the headset or handset microphone is on.

Button	Description
Headset Status	Turns headset operation on the console on and off. When headset operation is on, the green LED next to the button is on and the QCC operator must use a headset or the speakerphone. When headset operation is off, the green LED is off and the QCC operator must use the handset or the speakerphone.
Headset Auto Ans	Turns the Headset Auto Answer feature on and off when headset operation is activated. The green LED next to the Headset Auto Answer button is on when the feature is on and off when the feature is off. When the feature is on and a call arrives at the QCC, the operator is connected to the call automatically. To protect the privacy of any conversation the operator may be having, the operator hears a tone in the headset and the microphone is turned off briefly before the call is connected. The feature can be turned on during a call without disconnecting the caller and is effective immediately.
Send/Remove Message	Turns the Message LED on a telephone on or off. For telephones without a display, this button is the only way the message LED can be turned on, unless the telephone is programmed as a message-waiting receiver for a fax machine or calling group or the system has a voice messaging system (VMS) connected.
Position Busy	Temporarily takes the QCC out of service. When the console is in the position-busy state, the green LED next to the button is on and the position does not receive calls from the QCC queue. However, the position does receive calls to the QCC operator's extension and Forward and Follow Me calls directed to that extension. When the QCC operator puts the console in the position-busy state, incoming calls and any calls already in the queue are directed to other available QCCs (regardless of whether they normally receive such calls). When all QCC operators are in the position-busy state, calls are directed to a calling group assigned as the position-busy backup. The QCC operator can still make calls when the console is in the position-busy state.
Night Service	Turns Night Service on and off.
Alarm	Provides visible indication of a system alarm. When there is a system alarm, the red LED next to the button is on and the QCC operator can use Inspect to determine the number of alarms present.

Button	Description
Pool Status	Provides the QCC operator with information on the status of all trunk pools. The QCC operator presses the **Inspct** button, then the **Pool Status** button, and the busy or available status of trunk pools is shown on the display. The information includes the number of trunks and the number of busy trunks in each pool.
Forced Release	Disconnects the QCC from an active call and makes the operator available to receive another call. If the QCC has a split call, this button disconnects the operator and both halves of the call.

Each QCC can have one or two DSSs attached. The QCC operator can use the buttons during call handling, for example, to direct a call, make an inside call, park a call, or to see the availability of an extension. See “Direct Station Selector: MLX” for detailed information on the use of the DSS.

QCC Options

The following options are assigned through system programming and are available only for QCCs:

Trunk Routing

The factory setting does not assign trunks to any QCC. Calls received on each trunk can be programmed to ring on one or more individual QCCs.

When a QCC receiving calls is in the position-busy state, any incoming calls (except for calls directed to that console’s extension and forwarded calls) are directed to other available QCCs that are programmed to receive calls on the trunk. If no QCC position is programmed to receive the call, the call is directed to any available QCC regardless of whether it normally receives such calls. When all QCC operators are in the position-busy state, calls received on trunks (including calls currently waiting in the queue) are sent to the programmed backup calling group.

In addition to specifying the trunks that ring on each QCC, a priority can be specified for each trunk. See “QCC Queue Priority” later in this section.

Personal line and **Pool** buttons cannot be assigned to a QCC.

DID trunks, dial-in tie trunks, or dedicated remote access trunks cannot be programmed to ring into the QCC queue, although calls on these trunks can be assigned to ring at a QCC operator’s extension, as described later in this section.

Trunks assigned to ring into the QCC queue can also be assigned as personal lines on one or more telephones.

Call Types

The Call Types option specifies other types of calls that ring into the QCC queue. The following types of calls may be directed to a specific QCC position with a specified queue priority level:

- Dial 0 calls (calls to the QCC operator)
- Calls to unassigned (invalid) extensions, received on DID or dial-in tie trunks or dialed by remote access users

  Calls to unassigned extensions can be programmed to receive a fast busy or to be directed to a backup position. The backup position can be any individual extension (including one that is not an operator position), the QCC queue, or a calling group.

  NOTE:
  Assigning a QCC operator to receive the calls does not cause the calls to ring into the queue. The calls must be programmed to go to a backup position, and the QCC queue must be programmed as the backup position.

- Calls to the Listed Directory Number (the extension for the QCC queue)
- Returning calls (unanswered directed, camped-on, held, and QCC operator-parked calls)
- Group Coverage calls (the QCC can be designated to receive Group Coverage calls)

The following types of calls are assigned only a queue priority level and cannot be directed to an individual QCC operator position because they are always made to a specific operator position by the caller:

- Calls signed in (Follow Me) or forwarded to the QCC operator
- Calls to a QCC operator extension (for example, calls received from an inside or remote access user)
- Calls received on DID or dial-in trunks programmed to reach the QCC operator's extension rather than the QCC queue

The factory setting directs the following call types to the primary QCC operator position:

- Dial 0 calls
- Calls to the Listed Directory Number
- Calls to invalid destinations (unassigned extensions, for example)

Group Coverage calls are not programmed to ring at any specific QCC.

For returning calls, the factory setting returns calls to the originating operator position (the initiator).

The factory settings can be changed so that each type of call is directed to a different and/or additional QCC, or is not directed to any of the QCC operator positions. In addition, if the QCC queue is assigned to be a Group Coverage receiver, and if no QCC operator is assigned to receive calls for the coverage group, the coverage calls go to the primary QCC operator position.

If a call on a DID or dial-in tie trunk or dialed by a remote access user is not programmed to ring at a QCC extension and if the caller dials *0* or the Listed Directory Number, the caller hears a fast busy tone. On other types of lines, the caller hears an error tone.

If returning calls are not directed to a QCC operator position, the caller hears normal ringback, Music On Hold, or silence, and is not made aware by any special audible feedback that the call is not returning to the queue for further handling.

Programming an operator to receive DID calls to invalid destinations (unassigned extension numbers) does not cause the calls to ring into the QCC queue unless the QCC queue is also programmed as the backup extension.

QCC Queue Priority

The QCC queue priority determines the priority (within the QCC queue) of calls programmed to ring into the QCC queue. A priority value of 1–7 is assigned, which determines the order in which calls are sent to QCCs. A value of 1 is the highest priority of calls, and 7 is the lowest. The factory-set priority level is 4 for all call types and trunks.

The values can be changed for each trunk and each call type according to the order that calls should be answered. Call types are as follows:

- Dial 0
- Forward/Follow Me
- Unassigned DID
- Listed Directory Number
- Returning
- Group Coverage
- QCC extension

For example, if important customer calls are received on particular trunks, a priority value of 1 should be programmed so that the calls are answered before any others. Values of 2 through 7 should be assigned to trunks or call types used for less important calls. Careful planning of QCC queue priority assures prompt answering of all important business calls.

Elevate Priority

During high-volume calling periods, it is possible that only high-priority calls will be delivered to a QCC within a reasonable amount of time. Low-priority calls can remain unanswered if there is a constant flow of higher priority calls.

Elevate Priority helps avoid this problem by allowing the system to raise the priority of a call that has been waiting too long in the QCC queue. The setting determines the length of time (5–30 seconds) before calls waiting in the QCC queue are automatically reprioritized to a higher level. The factory setting is 0, which means that calls are not reprioritized.

When the QCC queue is reprioritized, the priority of every call in the queue is increased to the next higher level. For example, a call that is currently at a priority level of 4 is changed to the next higher priority level of 3 when the timer expires. However, the priority of a call is never elevated to 1, because calls assigned to that level must reach the QCC operator as quickly as possible.

Extended Call Completion

The setting for the Extended Call Completion option determines whether or not the process of directing calls (also known as *extending* calls) is completed automatically when a QCC operator with a DSS presses a DSS button. The following are the available settings for extended call completion:

- **Automatic** (the factory setting). The QCC operator can answer a call and direct it by pressing the DSS button. The operator does not need to press the **Start** button to begin directing the call or the **Release** button to complete the process. If the QCC operator chooses, he or she can press the **Start** button before pressing the DSS button. However, call directing is automatically completed when the QCC operator presses a DSS button.

  With the Automatic setting for extended call completion, the QCC operator can announce transferred calls only by pressing the **Start** button and then manually dialing the destination extension number.

- **Manual.** The QCC operator can initiate the call direction and dial the extension by pressing a DSS button while on a call. However, the QCC operator must complete call direction manually by then pressing the **Release** button or hanging up. The QCC operator does not need to press the **Start** button to begin the direction process. This allows the QCC operator to speak to the destination and/or announce the call before connecting the caller.

When Automatic Release is programmed and the QCC operator tries to direct a call to an invalid extension (such as a paging group), the display shows Denied: Cannot Release.

NOTES:

1. This message also appears immediately if the QCC operator presses the DSS button for Automatic Route Selection (ARS) or a pool dial-out code. The QCC operator can, however, dial the outside telephone number and release the call manually, even though Denied: Cannot Release is shown on the display.
2. The QCC operator cannot use Camp-On when Automatic Release is programmed and she or he presses a DSS button for call direction.

Message Center Operation

The Message Center Operation setting is useful for sending these types of calls to a specific QCC. Message Center Operation designates one or more QCC positions to function as message centers to receive the following types of calls:

- QCC operator returning calls (returning transferred, parked, held, and camped-on calls)
- Group Coverage calls
- Calls to unassigned (invalid) extensions received on DID or dial-in tie trunks or made by remote access users

The factory setting is that no message center position is assigned and that returning calls are returned to the originating operator position (the initiator), which, by definition, is a QCC queue (when the system has QCCs). Group Coverage calls are not programmed to ring at any specific QCC operator position. When a message center is programmed, these calls are directed to the message center position. The QCC queue can be programmed so that other QCC operator positions can receive Group Coverage calls, calls to unassigned extensions, and returning calls. If the factory setting remains unchanged (where returning calls are sent to the originating operator position), returning calls are sent to the programmed message center instead of the originating operator. If, however, this factory setting is changed so that calls are sent to the QCC queue instead of the originating operator, returned calls are sent to either destination—the QCC queue or the programmed message center.

The QCC operator position programmed as the message center position can also receive other call types by assigning the position as a QCC operator to receive the call type.

Position Busy Backup

The Position Busy Backup option designates a calling group to receive calls when all QCCs are in a position-busy state. Only calling groups can be designated as QCC position-busy backups. If no calling group is assigned to provide position-busy backup, the system does not allow the last QCC operator to use Position Busy. The Position Busy Backup option is programmed for the QCC queue rather than individual operator positions. Only one position busy backup can be programmed.

Operator Hold Timer

The Operator Hold Timer option specifies the length of time that must elapse (10–255 seconds) before the operator is reminded (with an abbreviated ring) that a call is on hold. The factory setting for this interval is 60 seconds. Operator Hold Timer can be set for both DLCs and QCCs. It cannot be programmed for individual operator positions. If another call is received at the same time that the hold timer expires, 10 seconds are added to the programmed operator hold timer interval.

Hold Return

The Hold Return option determines whether calls put on hold at a QCC remain on hold at the QCC operator's console indefinitely or are returned to the QCC queue after the hold timer has expired twice. The factory setting is that calls remain on hold.

When the QCC Hold Return option is set for calls to remain on hold indefinitely, the QCC operator hears an abbreviated ring every time the interval expires. If the QCC Hold Return option is set for calls to return to the queue, each call on hold at the QCC operator console is timed individually (a queue return timer is used for each **Call** button).

Automatic Hold or Release

Automatic Hold or Automatic Release determines whether a call in progress on a **Call** button is automatically put on hold (Automatic Hold) or released (Automatic Release) when the QCC operator presses another **Call** button. The factory setting is Automatic Release.

Return Ring Interval

Return Ring Interval determines the number of rings (1–15) before an unanswered directed call returns to the QCC queue or returns to a QCC message center position. The factory setting is 4 rings.

Calls-In-Queue Alert

When the Calls-In-Queue Alert option is enabled for an individual QCC operator, the operator hears a single tone every time a new call enters the queue. By monitoring the Calls-In-Queue Alert, the QCC operator can determine whether heavy call volumes warrant the need for additional answering positions. The factory setting for the Calls-In-Queue Alert option is Disabled for each QCC operator.

Queue Over Threshold

The Queue Over Threshold setting is the maximum number of calls allowed in the QCC queue before all QCC operators are warned that too many unanswered calls are waiting in the queue. The factory setting is 0 (operators are not notified). The threshold can be changed to 1–99 calls.

In normal call handling, Line 3 of each QCC operator's display shows the number of calls currently in the queue for that QCC position and the total number of calls in the queue for all QCC operators. The information is updated each time a call enters or leaves the queue. When the number of calls is equal to or greater than the programmed threshold, the queue indicator is highlighted, and QCC operators who are on a call hear a tone.

NOTE:
When there are more than 99 calls in the queue, the display shows 99 until the number of calls drops below 99.

If two QCC operators are on the same call, only one QCC operator hears the queue-over-threshold tone when the number of calls in the QCC queue is equal to or greater than the programmed threshold.

Considerations and Constraints

A system operating in Hybrid/PBX mode can include both QCCs and DLCs (see "Direct-Line Console"). The system can have a total of eight system operators, which can include no more than four QCCs.

When a system includes QCCs, the first MLX module used to connect QCCs must be installed in the control unit to the left of any other type of module with extension jacks. A QCC can be connected only on the first and fifth extension jack on each MLX module.

Unless calls to unassigned extension numbers received on DID or dial-in tie trunks or from remote access users are programmed to go to a backup position, and the QCC queue is programmed as the backup position for these calls, assigning a QCC operator to receive the calls does not cause the calls to ring into the queue.

Trunks cannot be programmed to ring both into the QCC queue and into a calling group.

Trunks assigned to ring into the QCC queue can also be assigned as personal lines on one or more telephones.

When a QCC operator wants to make an outgoing call, he or she should press the **Position Busy** button before pressing the **Hold** button for an existing call. This makes the console temporarily unavailable for calls from the queue. (The operator can receive calls forwarded or made to the operator's individual extension number.) If the operator presses only the **Hold** button, the position is still available for calls and a call can be delivered from the queue. Receipt of a call at this time can prevent the operator from making the outgoing call or cause the call ringing on the console to remain unanswered until the operator finishes the outgoing call.

Voice announcements do not come over QCC speakerphones. QCCs cannot make voice-announced calls.

QCCs have no programmable buttons (all features are factory-assigned) and cannot use feature codes.

If a QCC operator receives a call and another user joins the call by using a shared personal line or **Shared SA** button, the QCC operator can press the **Start** button to begin the direction process and then press the **Join** button to connect all three parties in a conference call. However. the operator cannot release the call; the QCC operator sees the Denied: Cannot Release message on the screen.

When a QCC operator is assigned to receive calls on a tie trunk (excluding dial-in tie trunks), and the caller at the other system uses the trunk and dials *0*, the call is treated as an unassigned DID call. The QCC operator who receives the call sees DID# as the call type (along with the trunk label and trunk number) on the display, instead of seeing Dial 0 as the call type.

Mode Differences

QCCs are only available in Hybrid/PBX mode.

Telephone Differences

Direct-Line Consoles

Both DLCs and QCCs can be assigned in Hybrid/PBX mode. The maximum combined number of operator positions is eight. No more than four can be QCCs.

In a system with both DLC and QCC positions, the primary QCC operator position must be a QCC.

All Dial 0 calls are directed to the QCC queue and do not ring at any DLC positions.

Feature Interactions

Account Code Entry

A QCC operator can use Account Code Entry only by selecting the feature from the display, not by using the feature code. Normally, account codes cannot be entered when a Group Coverage call is answered at a Cover button programmed on a multiline telephone. However, when the QCC queue is programmed as the receiver for a coverage group, the QCC operator can enter account codes and the account code appears on the Station Message Detail Recording (SMDR) printout. This is because Cover buttons are not required when the QCC queue is programmed as a receiver for a coverage group.

Alarm

An **Alarm** button is assigned as a fixed feature on the QCC.

Authorization Codes

QCCs cannot have authorization codes, and the Authorization Code feature cannot be used from a QCC.

Auto Answer All and Auto Answer Intercom

Auto Answer All and Auto Answer Intercom cannot be assigned to a QCC.

Auto Dial

Auto Dial buttons cannot be programmed on a QCC. For one-touch dialing of extensions, the QCC operator can use the buttons on a DSS or select from the Extension Directory. In addition, the QCC operator can use the System Directory and Personal Directory for one-touch dialing of outside numbers.

Automatic Line Selection

Automatic Line Selection on a QCC is a fixed sequence that starts at the lowest **Call** button and moves upward. The sequence cannot be changed.

Barge-In

Barge-In allows the QCC operator to contact a person who is busy on a call or using Do Not Disturb. Barge-In does not override Privacy. On a QCC, Barge-In can be used only by pressing the **Feature** button and selecting it from the display.

Barge-In can be used to join only an inside call to a QCC. The caller's extension number must be dialed instead of the QCC operator's extension number. If a user tries Barge-In after dialing a QCC operator's extension (while waiting in the QCC queue), the feature has no effect and the user hears an error tone. If the error tone times out while the call is still in the QCC queue, the call is disconnected. If the QCC operator becomes available before the error tone times out, the error tone is removed and the call is delivered to the QCC operator normally.

Callback

Calls to QCCs are not eligible for Callback because the calls ring into the QCC queue. Callback cannot be used on a QCC.

Calling Restrictions

Calling restrictions can be assigned to QCCs.

Camp-On

A QCC operator can release a call to a busy extension by selecting Camp On from the display or by pressing the **Release** button. If Camp-On is used, the call does not return to the QCC queue until the Camp-On return interval expires. If the operator presses the **Release** button, the extension being called receives the call-waiting tone and the call returns to the QCC queue when the transfer return interval expires.

To use Camp-On when the system is programmed for automatic Extended Call Completion, the operator must press the **Start** button, dial the extension manually, then select Camp On from the display. If the QCC operator presses a DSS button, the transfer is completed automatically and Camp-On cannot be used.

Conference

When a QCC operator arranges a conference call on a QCC, all conference participants (a maximum of 5) are connected on one **Call** button. This allows the QCC operator to put the conference on hold and still have other **Call** buttons available to make or receive calls. However, since all participants are on one **Call** button, the operator can drop only the last person added to the conference by pressing the **Drop** button and the **Call** button for the conference.

When a QCC operator arranges a 3-participant conference (the QCC operator and two other participants) and then presses the **Release** button or hangs up, the QCC operator is released from the call and the other two participants remain connected. If the QCC operator arranges a 4- or 5-participant conference, the **Release** button is ignored and has no effect. If the QCC operator hangs up or presses the **Hold** button, the QCC operator is released and the remaining conference participants remain connected. The **Forced Release** button disconnects all parties from the call.

Coverage

An individual QCC operator cannot be a sender or receiver for Individual or Group Coverage. However, the QCC queue can be a receiver for up to 30 coverage groups when the system manager assigns one or more QCC operators to receive the calls. The QCC queue can be assigned as a receiver in addition to multiline telephones programmed with Group Cover buttons; however, the QCC queue is not counted in the 8-receiver maximum for each coverage group. The QCC queue priority and the individual QCC operator to receive Group Coverage calls are set independently for each group.

Coverage ***continued***

If Group Cover buttons are programmed for a coverage group in addition to the QCC queue and all QCC operators are in the position-busy state, a Group Coverage call does not go to the backup calling group.

When the QCC queue is programmed as a receiver for a coverage group and a personal line on a coverage group member's extension is also programmed to ring into the QCC queue, calls received on that personal line are not sent to the queue as coverage calls. However, calls received on the personal line can be sent to multiline telephone group coverage receivers.

When the QCC queue is programmed as a receiver for a coverage group and a call transferred to a group member is not answered, the call returns to the queue as a transfer return if the QCC return ring interval is shorter than the coverage delay interval. If the QCC return ring interval is longer than the coverage delay interval, the call returns to the QCC queue as a Group Coverage call.

Direct Voice Mail

The Direct Voice Mail button is factory-assigned on DSSs connected to QCCs.

Directories

QCC operators use Directory features to dial extensions or telephone numbers with the touch of a button. The Extension Directory allows the operator to locate and dial system extension numbers. The System Directory and Personal Directory can be used to locate and dial outside numbers. Directory features can be used for directing calls. However, if a QCC operator releases the call immediately after pressing the button for the listing, the caller hears the dial tone plus the touch tones for the dialed digits. If the operator waits until after dialing begins, the caller does not hear the dial tone and touch tones.

Disallowed Lists

Disallowed Lists can be assigned to QCCs.

Display

Features not assigned to buttons on the QCC can be activated only by selecting them from the display. The QCC operator also uses the display for call information such as the person or extension calling, trunk identifiers, reasons for call return and redirection, and the number of calls waiting in the queue. In a split condition, the QCC operator sees information about both the source and destination. If the operator presses the **Home** button while in the split condition, the information is replaced with information about the source only. The operator can restore the information by pressing the **Source** and **Destination** buttons or by pressing the **Inspct** button followed by the **Source** or **Destination** button.

Do Not Disturb

Do Not Disturb cannot be used on a QCC; the operator must use Position Busy instead.

The red LED next to a DSS button turns on when a user turns on Do Not Disturb.

Extension Status	Extension Status cannot be used on a QCC, and a QCC cannot be a calling group or CMS supervisor or a calling group member.
Forced Account Code Entry	Forced Account Code Entry can be assigned to a QCC. However, a QCC operator can use Account Code Entry only by selecting the feature from the display, not by using the feature code.
Forward and Follow Me	A QCC operator cannot forward calls to extensions or telephone numbers. The operator instead uses Position Busy to send calls to a backup calling group. Calls that are forwarded to an individual QCC operator or Follow Me calls that are signed in to a QCC can be assigned a queue priority level. When the QCC operator uses Position Busy, forwarded calls and Follow Me calls signed in to the QCC position continue to ring at the QCC.
Group Calling	Only a calling group can be programmed to provide Position Busy backup when all QCC operators activate Position Busy. If no calling group is designated to provide backup, the system does not allow the last QCC operator to activate Position Busy. A QCC cannot be a member of a calling group. A calling group can be a backup for calls in the QCC queue when all QCC operators are in the position-busy state. The QCC queue can be designated to provide overflow coverage for calls from one or more calling groups. When an overflow call is sent to the QCC queue, it cannot be distinguished as a call to a calling group. When the QCC queue is providing overflow coverage for a calling group and all QCC operators are in the position-busy state, overflow calls do not receive position-busy backup (are not redirected to a second calling group providing position-busy backup for the QCC queue) and continue to wait in the original calling group queue. If all QCC operators activate Position Busy while an overflow call is in the QCC queue, the call is rerouted to the original calling group, not to the calling group providing position-busy backup. If a QCC operator switches out of Position Busy while a backup call is in the calling group queue or has already been delivered to a calling group member, the call does not go back into the QCC queue.
HFAI	The **HFAI** (Hands Free Answer on Intercom) button does not work on a QCC.
Headset Options	Headset Auto Answer, Headset/Handset Mute, and Headset Status are assigned as fixed features on buttons on a QCC. Headset Hang Up cannot be programmed on a QCC. The function of disconnecting calls served by the Headset Hang Up feature is replaced with Release, Forced Release, Camp-On, and Automatic Release through DSS buttons on the QCC.

Hold	Pressing the **Hold** button to put a caller on hold makes the QCC operator available for incoming calls from the QCC queue. The DLC Operator Automatic Hold feature is not used for QCCs.
Inspect	When a conference participant joins a conference call by using a shared outside line or a **Shared SA** button, the QCC display reflects the correct number of participants. However, if the QCC operator uses the Inspect feature to verify the number of participants, the number shown on the display does not include participants joining the conference call on **Shared SA** buttons. Pressing any of the buttons programmed with fixed QCC features (for example, a **Call**, **Start**, or **Source** button) while in Inspect mode does not remove the console from Inspect mode. However, pressing the **Feature**, **Transfer**, **HFAI**, **Conf**, **Drop**, **Speaker**, or **Hold** button does remove the console from Inspect mode.
Last Number Dial	Last Number Dial cannot be used on a QCC.
Line Request	Line Request cannot be used on a QCC.
Messaging	A QCC operator can use Leave Message only by selecting the feature from the display. A **Send/Remove Message** button is programmed as a fixed feature on a QCC.
Microphone Disable	The microphone on a QCC is automatically disabled and cannot be enabled.
Multi-Function Module	An MFM cannot be connected to an MLX-20L telephone assigned as a QCC. As a result, adjuncts such as answering machines and fax machines cannot be used with the console.
Night Service	A **Night Service** button is assigned as a fixed feature on a QCC. If more than one QCC operator is assigned to receive calls on an individual trunk, Night Service must be turned on at all assigned positions before calls coming in on the trunk can ring on extensions programmed as members of the Night Service group. If Night Service is not turned on at QCC position programmed to receive the calls, after-hours calls ring at that position and do not receive Night Service treatment. When Night Service is on, unassigned DID extension and Listed Directory Number call types ring into the QCC queue, and this cannot be changed. If these call types are programmed not to go to the queue, callers hear an error tone when Night Service is off. When multiple Night Service calls are received in the QCC queue at the same time and none of the calls are answered by a Night Service member (all group member **ICOM** or **SA** buttons are busy), new calls are sent to the QCC queue and can be answered only by the QCC operator. To avoid this situation, all outside lines assigned to ring in to the QCC queue should be assigned as personal lines on at least one group member's extension.

Paging

A QCC cannot make or receive voice-announced inside calls (speakerphone calls to an individual extension). A QCC cannot be a member of a speakerphone paging group. A QCC operator can use a loudspeaker paging system only by selecting the feature from the display and can use the Group Paging feature by selecting a **Call** button and pressing the DSS button or dialing the extension for the paging group.

Park

Eight park dial codes are automatically reserved for parking calls from a QCC. The factory-set extension numbers are 881–888. To assign the park zones to a DSS connected to a QCC, the extension numbers must be in the range programmed for the **Page** buttons.

A QCC operator with a DSS parks a call by pressing the DSS button for the park zone or by pressing the **Start** button and then the DSS button. The call is automatically parked (the operator does not need to press the **Release** button). A QCC operator without a DSS cannot park calls.

To pick up a parked call, the QCC operator presses the **Feature** button and selects PickUp from the display, then dials the extension number for the telephone or park zone where the call is parked.

Calls parked by QCC operators can be programmed to return to the QCC operator who parked the calls and/or to another QCC operator. Returning parked calls are also assigned a QCC queue priority level (the factory setting is 4). With message center operation, a call parked by a QCC operator can be returned to the message center position.

Personal Lines

Personal lines cannot be assigned to a QCC.

Pickup

A QCC can be a member of a Pickup group. QCC operators can only use Individual Pickup and Group Pickup by selecting them from the display. Individual Pickup and Group Pickup are included on the Home screen on QCCs.

Pools

Pool buttons cannot be assigned to a QCC, but a QCC operator can select pools to make outgoing calls by pressing a **Call** button and dialing the ARS or pool dial-out code. A QCC operator can be assigned to receive calls on trunks assigned to pools.

A **Pool Status** button is assigned as a fixed-feature button on a QCC and provides the QCC operator with the status of all the trunk pools (a maximum of 11). The QCC operator presses the **Inspct** button, followed by the **Pool Status** button, and the busy or available status of trunk pools is shown on the display.

Privacy

A QCC operator cannot use Privacy.

Recall

A **Recall** button cannot be programmed on a QCC.

Reminder Service

Reminder service cannot be used on a QCC.

Remote Access	If a remote caller uses a rotary phone and the system does not require a barrier code, the call, after it times out, is sent to a QCC that is assigned as a backup station. One or more QCC operators can be assigned to receive calls on trunks programmed for shared remote access. Calls received on trunks specified for shared remote access receive remote access treatment only when all QCC operators who are assigned to receive calls on shared remote access trunks turn on Night Service. If Night Service is turned off by one or more QCC operators assigned to receive the calls, calls ring in to the QCC queue normally and do not receive remote access treatment.
Ringing/Idle Line Preference	Ringing/Idle Line Preference is turned on and cannot be turned off on a QCC.
Ringing Options	Personalized Ringing cannot be programmed on a QCC, nor can ringing options be adjusted on a QCC. The **Call** buttons are fixed to Immediate Ring. A QCC only receives two types of distinctive ringing: one ring for an inside call and two rings for an outside call. A QCC does not receive the three rings that indicate a returning transferred call.
Saved Number Dial	Saved Number Dial cannot be used on a QCC.
Signaling	Notify and Signaling buttons cannot be used on a QCC. However, pressing a DSS button sends a signal to the extension associated with the DSS button in the following instances: ■ The QCC operator is timed out from dial tone on a **Call** button or has pressed the **Forced Release** button while listening to dial tone on a **Call** button. ■ The QCC operator, in a split condition, pressed the **Source** button after contacting the destination but did not connect both parties by using the **Join** button. If the operator presses a DSS button, a manual signal is sent to the destination extension.
Speed Dial	Personal Speed Dial and System Speed Dial cannot be used to dial numbers on a QCC. The Directory features are used instead.
SMDR	When a QCC operator arranges a 3-party conference (the operator and two other participants) and presses the **Release** button, the operator is released from the call and the other two participants remain connected. Although this process is similar to directing a call, the QCC operator's extension remains on the SMDR record.
System Access/ Intercom Buttons	**SA** buttons are not assigned on a QCC. The QCC operator uses **Call** buttons to make and receive inside and outside calls.
System Renumbering	The Listed Directory Number (the extension number for the QCC queue) can be renumbered. The factory-set extension is 800.

Transfer	The QCC operator uses the **Start** and **Release** buttons or a DSS button to transfer calls. However, pressing the **Transfer** button on a QCC is the same as pressing the **Start** button. A QCC operator cannot make or receive voice-announced transfers. When the operator uses the **Start** and **Release** buttons to transfer a call, the return ring interval applies for transfer return timing instead of the transfer return interval.
Voice Announce to Busy	Voice announcements cannot be received on a QCC. Voice Announce to Busy cannot be turned on at a QCC.

Recall/Timed Flash

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information System Information
Mode	All
Telephones	All except QCC
Programming Codes	
Recall	**775*
Conference	**772* (Behind Switch mode only)
Drop	**773* (Behind Switch mode only)
Transfer	**774* (Behind Switch mode only)
Feature Code	*775*
MLX Display Label	Recall [Recll]
System Programming	Change timed-flash duration (recall timer): • Options→**More**→RecallTimer Program fixed Conference, Drop, and Transfer buttons to access host features in Behind Switch mode: • Options→**More**→BehndSwitch→Conference/Drop/ Transfer
Factory Setting	
Recall Timer	450 ms (options 350 ms, 450 ms, 650 ms, 1 sec)

Description

Recall sends a momentary signal called a *timed flash* or *switchhook flash* while the phone is on the hook. A timed flash is used as a control signal, as follows:

- On an inside call, the signal is intercepted by the control unit.
  - A multiline telephone user can use Recall to disconnect a call and get a new dial tone without hanging up. The user can be on an active call or listening to ringback or dial tone. When the user is listening to a busy signal, Recall has no effect.
  - A single-line telephone user can use Recall to put an active call on hold and access system features such as Conference and Transfer.
- On an outside call, when the system is using host switch services such as Centrex, the signal may be sent to the host, depending on the type of telephone and system operating mode.

- A multiline telephone user can use Recall to access host features. The user can be connected to another party or can be listening to outside dial tone, ringback, or a busy signal.
- A single-line telephone user can use Recall to access host services only if the system is programmed for Behind Switch mode.

Recall is used by pressing a fixed or programmed **Recall** button (or **Flash** button on some single-line telephones) or dialing the Recall feature code. The Recall timer, which specifies the duration of the switchhook flash, is set through system programming. The duration required by the host switch is specified by the local telephone company.

The Recall timer should be reset if multiline telephone users experience either of the following problems:

- When the user presses the **Recall** button on an outside call, nothing happens. This indicates that the interval is too short and should be increased to 650 milliseconds or 1 second.
- In a system operating in Behind Switch mode, when the user presses the **Recall** button on an outside call, the call is disconnected. This indicates that the interval is too long and should be decreased to 350 ms.

Release Differences

Release 1.0 or Release 1.1

Recall can be used on an outside call only if the call has been made or received on a personal line or **Pool** button. Recall cannot be used on an outside call made or received on an **SA** or **ICOM** button.

Release 2.0 and Later

In addition to calls made or received on a personal line button or a **Pool** button, Recall can be used on an outside call made or received on an **SA** (including **Shared SA**) or **ICOM** button. This includes the following kinds of calls:

- Transferred calls, Group Calling, and forwarded calls received on **SA** or **ICOM** buttons
- Automatic Route Selection (ARS) calls and calls made using a pool dial-out code (on **SA** buttons) or using the Idle Line Access code (on **ICOM** buttons)

When used after dialing is completed on an outside trunk, Recall sends a timed flash to the host switch, the trunk is kept, the user hears a new outside dial tone, and calling restrictions are reapplied. On an ARS call or a call on a rotary-dial trunk, Recall cannot be used until dialing is completed. On a call made using the pool dial-out code, Recall can be used during, as well as after, dialing. Recall can be used only on loop-start lines.

Considerations and Constraints

Recall can be used to send a timed flash to the host switch only on a loop-start trunk.

The **Recall** or **Flash** button sends a switchhook flash. It is not a “redial” button.

Mode Differences

Hybrid/PBX Mode

In Release 1.0 or 1.1, Recall cannot be used on any outside call made or received on an **SA** button. In Release 2.0 and later, this restriction is removed.

A Recall signal from a single-line telephone accesses the communications system’s Hold, Conference, and Transfer features.

Key Mode

In Release 1.0 or 1.1, Recall cannot be used on any outside call made or received on an **ICOM** button. In Release 2.0 and later, this restriction is removed.

A Recall signal from a single-line telephone accesses the communications system’s Hold, Conference, and Transfer features.

Behind Switch Mode

If Recall is used on a call made or answered on the prime line, the timed flash is sent to the host switch.

The fixed **Conf**, **Drop**, and **Transfer** buttons on an MLX or analog multiline telephone must be programmed through system programming to send a timed flash plus the code expected by the host to activate those features on the host. Once this programming is done, these fixed buttons have no effect when pressed during an inside call.

If use of the communications system’s Conference, Drop, and Transfer features is also desired, they must be programmed on available line buttons on each multiline telephone through extension programming or centralized telephone programming.

In Release 1.0 or 1.1, Recall cannot be used on any outside call made or received on an **ICOM** button. In Release 2.0 and later, this restriction is removed.

A Recall signal from a single-line telephone is ordinarily sent to the host switch, since the factory setting for the Automatic Line Selection (ALS) sequence selects the prime line. However, if the ALS sequence has been changed to select an **ICOM** button and the user has used the Idle Line Access code to initiate a call, the Recall signal accesses the communications system's Hold, Conference, and Transfer features, not those of the host switch.

Telephone Differences

Queued Call Consoles

A Queued Call Console (QCC) cannot use Recall. A **Recall** button cannot be programmed on the QCC, nor can the QCC use the Recall feature code.

Other Multiline Telephones

Analog multiline BIS telephones have a fixed **Recall** button that can be pressed to access the Recall feature.

MLX telephone users and cordless/wireless telephone users can use Recall by pressing the **Feature** button and dialing *775*, but it is recommended that a **Recall** button be programmed instead.

To activate host system features, in Behind Switch mode, the fixed **Conf**, **Drop**, and **Transfer** buttons on an MLX or analog multiline telephone must be programmed through system programming to send a timed flash plus the code expected by the host. Once this programming is done, these fixed buttons have no effect when pressed during an inside call.

If use of the communications system's Conference, Drop, and Transfer features is also desired in Behind Switch mode, they must be programmed on available line buttons on each multiline telephone, using extension programming or centralized telephone programming.

Single-Line Telephones

A single-line telephone user without a **Recall** or **Flash** button must use the switchhook to send a timed flash. The communications system intercepts the signal; if it is to be sent on to a host switch, the system sends a signal of the duration programmed for the Recall timer.

In Hybrid/PBX or Key mode, a Recall signal from a single-line telephone accesses the communications system's Hold, Conference, and Transfer features.

In Behind Switch mode, a Recall signal from a single-line telephone is ordinarily sent to the host switch, since the factory setting for the Automatic Line Selection (ALS) sequence selects the prime line. However, if the ALS sequence is changed to select an **ICOM** button and an Idle Line Access code initiates a call, the Recall signal accesses the communications system's Hold, Conference, and Transfer features, not those of the host switch.

NOTES:

1. If a single-line telephone with a timed or positive disconnect is used, pressing the switchhook disconnects the call. With this type of telephone, the **Recall** or **Flash** button must be used instead of the switchhook for features that require a switchhook flash.
2. A single-line telephone user without a **Recall** or **Flash** button, or with buttons that activate telephone-only features, must press and release the switchhook to send a timed flash.
3. A single-line telephone user who has a 2500 YMGL or 8101 telephone with positive disconnect on *cannot* press the switchhook to activate features. The user must press the **Hold** button or the **Flash** button to activate a feature.

Feature Interactions

Allowed Lists, Disallowed Lists, and Calling Restrictions	If Recall is used on a personal line or **Pool** button, (or, in Release 2.0 and later, on an **SA** or **ICOM** button used to access an outside loop-start trunk) the accessed trunk is kept, the user hears outside dial tone, and calling restrictions are reapplied.
Auto Dial	The **Conf** button is used to enter the Flash special character, which simulates pressing the **Recall** button, in a telephone number programmed on an Auto Dial button. If Recall is used during an inside call made on an Auto Dial button, the call is disconnected and the user hears inside dial tone.
Automatic Route Selection	In Release 2.0 and later, Recall can be used on an ARS call. Recall cannot be used during dialing. When dialing is completed, pressing the **Recall** button sends a timed flash to the host, the accessed trunk is kept, the user hears outside dial tone, and calling restrictions are reapplied. In Release 1.0 or 1.1, Recall cannot be used on an ARS call, because the call is made on an **SA** button.
Barge-In	In Release 2.0 and later, Recall can be used by the user who has joined a call with Barge-In, as well as by the user who was interrupted. In Release 1.0 or 1.1, Recall cannot be used with Barge-In, because Barge-In is used on an **SA** or **ICOM** button.
Callback	If Recall is used while the user is off-hook with a queued callback request, the call is disconnected and the user hears dial tone.

Call Waiting	If Recall is used while the user is hearing special ringback, the call is disconnected and the user hears inside dial tone.
Conference	The **Conf** button is used to enter the Flash special character, which simulates pressing the **Recall** button in telephone numbers programmed for Directories, Auto Dial buttons, or Speed Dial codes. In Hybrid/PBX and Key modes, a single-line telephone user with a **Recall** or **Flash** button can add a participant to a conference call and connect all participants by using the **Recall** or **Flash** button. In addition, the **Recall** or **Flash** button can be used to drop the most recently added participant or to drop a busy number. In Behind Switch mode, the fixed **Conf** button on an MLX or analog multiline telephone must be programmed through system programming to send a timed flash plus the code expected by the host switch to activate Conference on the host. If use of the communications system's Conference feature is also desired, it must be programmed on an available line button on each multiline telephone through extension programming or centralized telephone programming. Recall has no effect on a completed conference call.
Coverage	Recall has no effect on a call answered on a Primary Cover, Secondary Cover, or Group Cover button. In Release 2.0 and later, Recall can be used on a Group Coverage call answered by a member of a calling group. In Release 1.0 or 1.1, Recall cannot be used on a call of this type, because it is answered on an **SA** or **ICOM** button.
Directory	The **Conf** button is used to enter the Flash special character, which simulates pressing the **Recall** button in a Directory listing telephone number.
Forward and Follow Me	A multiline telephone user on an inside Forward or Follow Me call can use Recall. In Release 2.0 and later, Recall can also be used on an outside call received on a loop-start trunk.
Group Calling	A user who has received an inside calling group call can use Recall. In Release 2.0 and later, Recall can also be used on an outside call received on a loop-start trunk.
Hold	A single-line telephone user with a **Recall** or **Flash** button can press **Recall** or **Flash** to put a call on hold.
Multi-Function Module	An MFM cannot send a timed flash. As a result, a single-line telephone or other device connected to an MFM cannot use Recall.
Last Number Dial	Recall can be used on a call made using Last Number Dial on a personal line or **Pool** button (loop-start only), an inside call, or, in a Release 2.0 and later, an outside call made on a loop-start trunk using an **SA** or **ICOM** button.
Night Service	A user (except a QCC operator) on an inside Night Service call can use Recall. In Release 2.0 and later, Recall can also be used on an outside call received on a loop-start trunk.

Park	A single-line telephone user can press a **Recall** or **Flash** button to use Park.
Personal Lines	Recall can be used by either inside party when two users have joined an outside call on a shared personal line (loop-start only).
Pools	If a user presses the **Recall** button during or after dialing, a timed flash is sent to the host switch, the accessed trunk is kept, the user hears dial tone, and calling restrictions are reapplied.
Privacy	A single-line telephone user with a **Recall** or **Flash** button can use the button to turn Privacy on or off during a call.
Reminder Service	Recall can be used to disconnect an answered reminder call.
Saved Number Dial	Recall can be used on a call made using Saved Number Dial on a personal line or **Pool** button (loop-start only), an inside call, or, in Release 2.0 and later, an outside call made on a loop-start trunk using an **SA** or **ICOM** button.
SMDR	Each time Recall is used on a call, a new Station Message Detail Recording record is generated. For example, if a user is active on a call and uses Recall to initiate a conference call, SMDR timing is stopped for the original call and a new record is begun. If the user then calls a second party and uses Recall again to join the conference parties, a third SMDR record is generated with an empty CALLED NUMBER field.
Speed Dial	The **Conf** button is used to enter the Flash special character, which simulates pressing the **Recall** button in a Personal Speed Dial or System Speed Dial telephone number.
System Access/Intercom Buttons	Recall can be used on a ringing or answered inside call made on an **SA** or **ICOM** button. The call is disconnected and the user hears dial tone. When the user is listening to a busy signal, Recall has no effect. Either the user with the principal **SA** button or the user with a **Shared SA** button who has joined a call can use Recall. In Release 2.0 and later, Recall is available on an outside call on a loop-start trunk when the call was made or received on the **SA** or **Shared SA** button.
Transfer	A single-line telephone user with a **Recall** or **Flash** button can use it to transfer a call. In Release 2.0 and later, Recall can be used on a transferred outside call on a loop-start trunk, because the transfer is received on an **SA** or **ICOM** button. In Behind Switch mode, the fixed **Transfer** button on an MLX or analog multiline telephone must be programmed through system programming to send a timed flash plus the code expected by the host switch to activate transfer on the host. If use of the communications system's Transfer feature is also desired, it must be programmed on an available line button on each multiline telephone, using extension programming or centralized telephone programming.

Reminder Service

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information System Information
Mode	All
Telephones	All except QCC
Programming Codes	
Set	**81*
Cancel	***81*
Missed Reminder	**752* (operators only)
Feature Codes	
Set (users)	*81* + *time* + *A* or *P* (see note)
Set (operators)	*81* + Auto Dial or DSS + *time* + *A* or *P* (see note)
Cancel (users)	**81*
Cancel (operators)	**81* + Auto Dial or DSS
MLX Display Labels	
Set	Reminder,Set [Rmind,Set]
Cancel	Reminder,Cancel [Rmind,Cancl]
Missed Reminder	Reminder,Missed [Rmind,Missd]
System Programming	Set time of day when all reminders are automatically canceled: • Options→ReminderSrv

NOTES:

1. In Releases 1.1 and later, do not use the *A* or *P* on telephones programmed for French or Spanish; on these telephones, time is entered in 24-hour format. In Release 1.0, time *must* be entered in 12-hour format, using *A* or *P*, for telephones programmed in English, French, or Spanish.
2. Operators cannot enter Reminder extensions from the dialpad. Instead, they must use Auto Dial buttons or a Direct Station Selector (DSS).

Description

With Reminder service, users can arrange for the system to make reminder calls at preset times. Users can set and cancel reminder calls for their own telephones. Direct-Line Console (DLC) operators can set and cancel Reminder service for any telephone in the system (for example, to alert several telephones as a reminder for a meeting or, in a hotel or motel, for wake-up call service). Reminder service is available for all telephone users, but for display telephone users, the display's Alarm Clock feature is easier to use and more effective for most purposes. (See "Alarm Clock and Timer" for more information.)

When Reminder service is set for a telephone, the system makes a call to the extension at or close to the preset time (reminder calls may arrive up to three minutes before or after the set time). The call rings for 30 seconds or until the telephone is answered. When the call is answered, Reminder service is canceled for that telephone.

If a reminder call is not answered or the telephone is busy, the call is considered a missed reminder. If Reminder service has been set and the call is not answered, the green LED flashes next to the Missed Reminder button on the operator's console.

An operator with a display console can press the Missed Reminder button to display any missed reminder call messages. This message identifies the name and extension of the missed reminder call, along with the set time for the reminder. The green LED next to the Missed Reminder button lights steadily while missed reminder call messages are being read. After the messages have been read, the operator can use Reminder service to resend a reminder call to an extension. The operator can then clear the missed reminder by pressing the programmed Missed Reminder and Reminder Cancel buttons.

Through system programming, all outstanding reminders can be canceled by the system at a preset time every day (for example, after business hours when all users are not available to answer reminder calls).

Considerations and Constraints

The system time must be set in order for people to use Reminder service.

Missed Reminder buttons can be programmed only on operator display consoles, because the display is needed to show which reminder was missed. To activate, the operator's console must have either Direct Station Selector (DSS) or inside Auto Dial buttons to access extensions. This feature cannot be used by dialing an extension from the dialpad.

Reminder Set cannot be used to set a reminder time when the green LED next to the Missed Reminder button is steadily on. (This indicates that the operator can read missed reminder messages.)

Only one reminder can be set for a telephone at a time.

Reminders do not carry over to the next day; they are sent only once and are either received or missed.

Missed reminders can be canceled only by an operator. A missed reminder stays on the system until canceled.

Reminders use system time, which can differ from the time set by a user with an analog multiline display telephone.

If a time for a reminder is already set, it is shown on display telephones when the Reminder button is pressed.

Telephone Differences

Direct-Line Consoles

DLC operators can use Reminder service to set or cancel reminders for other users. An operator with a DLC sets a reminder for another telephone by:

1. Pressing a programmed Reminder Set button or pressing the **Feature** button and dialing *81*
2. Pressing an Auto Dial or DSS button
3. Dialing a 4-digit time, *0100* to *1259* and either *2* for a.m. or *7* for p.m. on telephones programmed for English, or (in Releases 1.1 and 2.0 and later) *0000* to *2359* on telephones programmed for French or Spanish

NOTES:

1. In Release 1.0, time must be programmed in 12-hour format only.
2. To cancel a reminder for another telephone, the operator presses a programmed Reminder Cancel button or presses the **Feature** button and dials **81*, and then uses an Auto Dial or DSS button.
3. The operator can also see when a reminder was missed and cancel missed reminders. The Missed Reminder button can be programmed on DLC operator consoles only.

Queued Call Consoles

Reminder service cannot be used on a Queued Call Console (QCC).

Other Multiline Telephones

Reminder service cannot be used on MLC-5 cordless telephones.

Multiline telephone users set reminders for their telephones by pressing a programmed Reminder Set button or pressing the **Feature** button and dialing *81*, and then entering a 4-digit time. Enter time as follows:

- In Release 1.0, enter the time in 12-hour format in the range from 0100 to 1259 and either *2*(A) for a.m. or *7*(P) for p.m.
- In Release 1.1 and later:
  - On telephones programmed for English, enter the time in 12-hour format in the range from 0100 to 1259 and either *2*(*A*) for a.m. or *7*(*P*) for p.m.
  - On telephones programmed for French or Spanish, enter the time in 24-hour format in the range from 0000 to 2359.

To cancel a reminder, press a programmed Reminder Cancel button or press the **Feature** button and dial **81*.

Single-Line Telephones

Set a reminder by lifting the handset and (while listening to inside dial tone) dialing *#81* and a 4-digit time (*0100–1259*) and either *2* for a.m. or *7* for p.m. To cancel a reminder, lift the handset (the telephone must connect to an **SA** or **ICOM** button) and dial *#*81*.

Feature Interactions

Callback	Reminder calls cannot be queued by using Callback.
Call Waiting	Reminder calls are not eligible for Call Waiting.
Coverage	Reminder calls are not eligible for Individual or Group Coverage.
Do Not Disturb	Reminder calls ring at telephones with Do Not Disturb activated.
Ringing Options	A reminder call overrides programmed ring timing options (Delay Ring and No Ring) and rings with a priority ring at an **SA** or **ICOM** button.
System Access/ Intercom Buttons	A reminder call overrides programmed ring timing options (Delay Ring and No Ring) and rings at the principal extension; reminder calls do not ring at **Shared SA** buttons.

Remote Access

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Remote Access (DISA) Information Station Message Detail Recording (SMDR)
Mode	All
Telephones	Touch-tone only
System Programming	Assign Dedicated or Shared Remote Access to trunks: • LinesTrunks→RemoteAccss→LinesTrunks If barrier codes are not used, assign class of restrictions to trunks: • LinesTrunks→RemoteAccss→Non-Tie/Tie Lines→ Restriction/ARS Restrct/AllowList/DisallowList Assign class of restriction for each barrier code: • LinesTrunks→RemoteAccss→BarrierCode Restriction/ARS Restrct/AllowList/DisallowList Specify that barrier codes are required for Remote Access: • LinesTrunks→RemoteAccss→Non-Tie/Tie Lines→BarrierCode Add, change, or remove individual barrier codes, or change length of all barrier codes: • LinesTrunks→RemoteAccss→BarrierCode→CodeInfo Assign barrier codes to Remote Access system programming trunks (nonfunctional; do not use): • LinesTrunks→RemoteAccss→BarrierCode→SProgMaint Enable or disable Callback for busy pools: • LinesTrunks→RemoteAccss→AutoQueuing Specify destination of remote access calls to unassigned numbers: • Options→**More**→Unassigned Change remote access code: • SysRenumber→Single→RemoteAccs
Maximums	16 barrier codes, with a 4- to 11-digit range (set systemwide), using 0–9 and dialpad characters. (All barrier codes are deleted when the systemwide barrier code length is changed.)

At a Glance - *Continued*

Factory Settings	
ARS Facility Level for Barrier Codes or Trunks	3
Autoqueuing	Disabled
Call Restriction for Barrier Codes or Trunks	Outward-Restricted
Maintenance/Programming Barrier Code	In Release 3.0 and later, there is no default barrier code. In Release 2.1 and earlier, the default barrier code is *16*.
Redirect Destination for Calls to Unassigned Numbers	Primary Operator
Remote Access Code	*889*

SECURITY ALERT:

Security of Your System

As a customer of a new telephone system, you should be aware that there exists an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, and breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the telephone network through the use of remote access features.

The Remote Access feature of your system, if you choose to use it, permits off-premises callers to access the system from a remote telephone by using an 800 number or a 7- or 10-digit telephone number. The system returns an acknowledgment signaling the user to key in his or her barrier code, which is selected and administered by the system manager. After the barrier code is accepted, the system returns dial tone to the user. If you do not program specific egress restrictions, the user will be able to place any call normally dialed from a telephone associated with the system. Such an off-premises network call is originated at, and will be billed from the system location.

The Remote Access feature, as designed, helps the customer, through proper administration, to minimize the ability of unauthorized persons to gain access to the network. Most commonly, telephone numbers and codes are compromised when overheard in a public location, through theft of a wallet or purse containing access information, or through carelessness (writing codes on a piece of paper and improperly discarding it). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Enormous charges can be run up

quickly. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and administer the various restriction levels, protect access codes, and distribute access codes only to individuals who have been fully advised of the sensitive nature of the access information.

Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. AT&T cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

To minimize the risk of unauthorized access to your communications system:

- *Program the maximum length (11) for systemwide barrier code length (Release 3.0)*
- *Use a nonpublished Remote Access number.*
- *Assign barrier codes randomly to users on a need-to-have basis, keeping a log of ALL authorized users and assigning one code to one person.*
- *Use random sequence barrier codes, which are less likely to be easily broken.*
- *Deactivate all unassigned codes promptly.*
- *Ensure that remote access users are aware of their responsibility to keep the telephone number and any barrier codes secure.*
- *When possible, restrict the off-network capability of off-premises callers, through use of Call Restrictions and Disallowed List capabilities.*
- *When possible, block out-of-hours calling.*
- *Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.*
- *Limit Remote Call Forward to persons on a need-to-have basis.*
- *Change barrier codes periodically.*

Beginning with Release 3.0, additional security to prevent telephone toll fraud was added:

- *The Remote Access default requires a barrier code.*
- *The barrier code is a flexible-length code ranging from 4 to 11 digits (with a default of 7) and includes the * character. The length is set systemwide.*

- *The user is given three attempts to enter the correct barrier code.*
- *An inter-digit timeout occurs during the first attempt, even if the digits dialed are incorrect. And the system only processes the valid number of digits. So if a hacker enters four digits and the length is four digits, he or she hears dial tone. If a hacker enters four digits and keeps entering more, the system uses the timeout to hide the correct number of digits from the hacker. The timeout recurs until the caller has dialed the eleventh digit—giving the impression that additional digits are required—even if the barrier code length is shorter.*
- *SMDR will register sixteen zeroes for any remote access calls with three failed attempts.*

Description

The Remote Access feature allows employees to use the system by dialing the number of a trunk designated for remote access. The remote user should be required to dial a barrier code (password) after reaching the system. Beginning with Release 3.0, the systemwide barrier code length is programmed for a minimum of 4 digits and a maximum of 11. After gaining access to the system, the remote user can do any of the following:

- Dial extension numbers directly without going through the system operator. Remote callers can call internal telephones, data terminals, or calling groups just as if they were calling from an extension within the system.
- Select a regular or special-purpose outside line (for example, a WATS line) or a pool or Automatic Route Selection (ARS) line to make outgoing calls. If the pool is busy, the system can be programmed to allow the remote user to use Callback to queue a call for the busy pool.
- Arrange to have calls forwarded, change the forwarding destination, or cancel call forwarding to a telephone inside or outside the system.

NOTE:
Calls made through Remote Access to locations outside the system may vary in transmission quality.

Remote Access also allows remote system programming and maintenance by qualified technicians.

Specific outside trunks (ground-start, loop-start, or emulated ground-start or loop-start) are programmed for either dedicated or shared Remote Access. When dedicated Remote Access is programmed for a trunk, all incoming calls on that trunk are treated as remote access calls. When shared Remote Access is programmed for a trunk, incoming calls on that trunk are treated as remote access calls only when Night Service is activated on the system. Remote Access can be programmed for any outside line connected to the system, except for Direct Inward Dialing (DID) or dial-in tie trunks. Loop-start trunks that are

programmed for Remote Access should also be programmed for reliable disconnect.

For DID trunks, the routing digits must correspond to the remote access code programmed into the dial plan. For dial-in tie trunks, Remote Access is possible when the remote user dials the remote access code (the factory-set code is 889).

When a person calls into the system on a trunk that is programmed for Remote Access, the system answers the call and the caller receives a special dial tone. If a barrier code is not required, the caller can dial an extension, pool dial-out code, ARS code, telephone number, or feature code. If a barrier code is required, the caller dials the required 4- to 11-digit barrier code and receives a second dial tone.

NOTE:
To activate features when using Remote Access, press * followed by the feature code. Pressing # followed by the feature code (as on a single-line telephone) does not work.

Lines and Trunks

Remote access calls are treated differently, depending on the type of line/trunk and how it is routed.

- **Line.** Loop-start, ground-start, emulated loop-start, emulated ground-start, and PRI B-channels programmed for line routing are programmed for Remote Access, dedicated or shared. The remote access caller does not dial the remote access code when remote access is in effect on these lines/trunks.
- **Dial-In Tie.** This type of line/trunk requires the caller to enter the remote access code when dial tone is received. The code is not part of the telephone number.
- **Dial Plan.** If a remote access caller dials the system on a DID, E&M, PRI B-channel with dial plan routing, T1-emulated tie line, or T1-emulated DID trunk, the caller can be connected without entering the remote access code separately. Instead, the remote access code is part of the telephone number dialed by the caller and is routed automatically by the system as a remote access call. If the dialed telephone number does not include the remote access number or the line/trunk is not programmed for Routing by Dial Plan, the call is treated as a normal incoming call and remote access is not available.

When a call is received on a dial plan-routed (DID) trunk, a dial-in tie trunk, or a trunk programmed for shared Remote Access, and Night Service is not activated, the call is redirected to the QCC queue, a calling group, or an extension, depending on how the destination of calls to unassigned numbers is programmed. The factory setting specifies the primary operator as the destination.

The following table summarizes the three ways Remote Access is made available to callers, depending upon the type of trunk and the routing used on that trunk.

Table 35. Remote Access Routing

Routing	Facility	User Dials	Facility Remote Access Programming
Line	Loop-start, ground-start, emulated loop- or ground-start, PRI B-channel group programmed for line routing, automatic-in tie, emulated automatic-in tie	Telephone number	Must be programmed for dedicated or shared Remote Access.
Not routed	Dial-in tie or emulated dial-in tie	Remote access code	None
Dial-Plan	DID or emulated DID, PRI B-channel group programmed for dial-plan routing	Telephone number that includes remote access code	System must be programmed to add or delete digits to or from dialed telephone numbers received on the facilities, so the remote access code is received.

See “Primary Rate Interface” in this book and the *Equipment and Operations Reference*, for more information.

User Interaction

Beginning with Release 3.0, the caller has three chances to enter the correct barrier code. An inter-digit timeout occurs during the first attempt, even if the dialed digits are incorrect. The system only processes the valid number of digits. A dial tone is given after the correct code is entered. If you enter more than the correct number of digits, the system uses the timeout to hide the correct number of digits. The timeout recurs until the caller has dialed the eleventh digit—giving the impression that additional digits are required—even if the barrier code length is shorter. A distinctive tone sounds after an incorrect entry. After three incorrect entries, the system disconnects the caller.

The following steps describe a remote access call.

1. The caller dials into a line/trunk that accepts remote access callers. (The lines/trunks are described in the section above.) Personal lines light steady green.
2. If a barrier code is not required, the caller hears a dial tone and proceeds to Step 4.
3. If a barrier code is required, the caller dials the code.

NOTE:
A barrier code cannot begin with * (star), nor can there be two *s, because ** is used to erase an entry.

a. If a correct barrier code is entered, the caller hears a dial tone and proceeds to Step 4. If an incorrect barrier code is entered, the caller hears an alternating high-low tone followed by a dial tone, and can enter the barrier code again. Up to three attempts are allowed.

b. If the caller enters an incorrect barrier code, he or she hears a retry tone 15 seconds after the system determines that the code is invalid. During this step, the caller can enter two asterisks (**) to erase the entry. This is treated as a failed attempt and the system erases the code entry and sends a retry tone for another attempt at entering the barrier code (unless this was the caller's third attempt). If the caller fails all three attempts at entering the code, he or she hears the reorder dial tone and is eventually disconnected by the system.

4. The caller may now enter a telephone number, pool number, ARS, or maintenance code for the desired endpoint.

Class of Restrictions

Barrier codes should be used for all trunks. A maximum of 16 barrier codes is allowed, each with a different class of restrictions. The class of restrictions allows or denies the use of system features to individuals or groups of users. Classes of restrictions are assigned whether or not barrier codes are used for Remote Access or not. If barrier codes are used, the class of restriction is assigned to each barrier code. If barrier codes are not used, the class of restriction can be assigned to all non-tie trunks, or all tie trunks and DID trunks with Remote Access.

The restriction classes are as follows:

- **Calling Restrictions.** Determine whether remote access users can make local and/or toll calls. The factory setting is Outward-Restricted, meaning the user can make inside calls only. The restricted user cannot make toll calls or any outside calls. The setting can be changed to unrestricted (meaning the user can make inside local, toll, or outside calls) or toll-restricted (meaning the user can make only inside and local outside calls). When barrier codes are not used, restrictions are assigned to all trunks and cannot be assigned to individual tie trunk or non-tie trunks. When barrier codes are used, restrictions are assigned to individual barrier codes.
- **Automatic Route Selection (ARS) Facility Restriction Level.** If the system uses the Automatic Route Selection (ARS) feature, you can restrict the use of outgoing trunks by remote access users by assigning a user restriction level from 0 to 6. The factory setting, 0, is the most restrictive, and 6 is the least restrictive. The value assigned corresponds inversely to the Facility Restriction Level (FRL) assigned to the ARS route. (That is, an FRL of 0 is the least restrictive, and one of 6 is the

most restrictive.) To restrict remote users from using selected trunks, a value should be assigned that is lower than the FRL assigned to the route. When barrier codes are not used, the FRL is assigned to all remote access trunks and cannot be assigned to individual trunks. When barrier codes are used, FRLs are assigned to individual barrier codes.

- **Allowed List Assignment.** Assigns Allowed Lists and is used when remote access users are restricted from making local and/or toll calls. When an Allowed List is assigned, remote access users can call specific numbers included on the list (local or long-distance). Allowed Lists are set up for all system users (see “Allowed/Disallowed Lists”). When barrier codes are used, Allowed Lists are assigned to individual barrier codes.
- **Disallowed List Assignment.** Assigns Disallowed Lists; use when remote access users are not restricted from making local and/or toll calls. When a Disallowed List is assigned, remote users cannot dial the specific numbers included on the list. Disallowed Lists are set up for all system users (see “Allowed/Disallowed Lists”). When barrier codes are not used, Disallowed Lists can be assigned to all remote access trunks and cannot be assigned to individual trunks. When barrier codes are used, Disallowed Lists are assigned to individual barrier codes.
- **Autoqueuing** (Automatic Callback). The factory setting prevents a remote caller who reaches a busy trunk pool (Hybrid/PBX only) or extension from using the Automatic Callback feature to request a trunk pool or extension. The factory setting can be changed to allow remote users to use Automatic Callback to request busy trunk pools or extensions. Automatic Callback assignment applies to all remote access users and cannot be assigned to trunks or barrier codes on an individual basis.

Considerations and Constraints

Under applicable tariffs, the customer is responsible for any charges incurred through the remote use of system facilities. To prevent unauthorized use of the system’s outside lines by remote callers, also called *toll fraud*, see “Security Alert” at beginning of this section.

Beginning with Release 3.0, combining mismatched trunk types (touch tone and rotary) does not cause a call to fail.

Rotary-dial telephone users are routed to a QCC assigned as a backup extension. From there, callers are connected to the system operator.

Remote access calls ring on **SA** or **ICOM** buttons; however, the telephone rings like an outside call.

Systems with DID trunks can designate a DID extension that off-site users can dial to use remote access.

If a remote caller does not dial a number or feature code before the timeout period expires, the call is sent to the redirect destination programmed for Remote Access.

Trunks used for dedicated Remote Access must not be assigned to ring into a calling group.

Systems using Call Accounting System (CAS) track calls by barrier codes.

Mode Differences

Hybrid/PBX Mode

Remote access Automatic Callback is available only in Hybrid/PBX mode for calls made to busy pools.

Feature Interactions

Account Code Entry

A remote access user cannot enter account codes. However, if a remote access user calls an inside extension and the person at that extension enters an account code, the code overwrites the barrier code number (01–16) in the ACCOUNT field.

You cannot enter account codes on calls made through Remote Access. However, if a remote access user calls an inside extension and the person at that extension enters an account code, the code overwrites the barrier code number (01–16) in the ACCOUNT field of the SMDR report.

Allowed Lists

An Allowed List is one of the class of restriction items for Remote Access. When barrier codes are not used, Allowed Lists can be assigned to trunks systemwide (tie trunks and non-tie trunks are grouped separately.) When barrier codes are used, Allowed Lists can be assigned to individual barrier codes.

Automatic Route Selection

Remote access users can make calls by using ARS. Dial into the system, enter a barrier code if one is required, and dial the ARS code while listening to system dial tone. Facility Restriction Levels (FRLs) can be assigned to restrict the routes that remote callers can use. When barrier codes are not used, an FRL is assigned to all trunks (tie trunks and non-tie trunks are grouped separately) and cannot be assigned to individual trunks. When barrier codes are used, FRLs are assigned to individual barrier codes.

Callback

If the system is programmed for Remote Access, remote access users can use Callback. (The factory setting for Automatic Callback is off, but you can enable this feature for remote access callers.) The user cannot hang up but must wait on the line until the extension or trunk pool is available.

Caller ID

If a remote access call comes in on a loop-start facility providing Caller ID (with a jack on an 800 GS/LS-ID module) caller information is recorded in the SMDR.

Caller ID information is not retrieved on remote access trunks unless LS-ID Delay is programmed for the trunk because the calls are answered too quickly.

Conference

An internal user can initiate a conference with the callers involved in a remote access call by selecting the active remote access trunk.

Disallowed Lists

Disallowed Lists can be assigned as one of the items of the class of restriction for Remote Access. When barrier codes are not used, Disallowed Lists can be assigned to trunks systemwide (tie trunks and non-tie trunks are grouped separately). When barrier codes are used, Disallowed Lists can be assigned to individual barrier codes.

Display

Calls received through Remote Access show standard call information for outside calls, including the caller's number if Automatic Number Identification (ANI) or Caller ID is available. If a remote access call is sent to coverage because an invalid number was dialed, an MLX display telephone user who receives the call sees Cover DISA#?.

Forced Account Code Entry

Forced Account Code Entry cannot be assigned to remote access users.

Forward and Follow Me

Users can set up forwarding of calls to extensions or outside telephone numbers through Remote Access, as long as the system manager has enabled Remote Call Forwarding. To do so, call into the system on a trunk that is programmed for Remote Access. If a barrier code is required, the remote access dial tone (stutter tone) sounds; enter the barrier code. Once you have correctly entered the barrier code (or if barrier codes are not required), the system dial tone sounds.

To forward calls to an extension, dial *#33* while listening to system dial tone; then dial the forwarding extension number and the destination extension number.

To forward calls to an outside telephone number, dial *#33*, then the forwarding extension number, then the ARS or pool dial-out code (Hybrid/PBX mode only), the Idle Line Access code (usually *9*; Key and Behind Switch modes only), or the trunk number (usually 801–880). Then dial the destination telephone number and a # to signal the end of the dialing sequence.

To cancel, forwarding calls to an extension, dial *#33* while listening to system dial tone; then dial the forwarding extension number and then the forwarding extension number again.

Group Calling

A remote access user cannot be a member of a calling group, but a remote access user can call into a calling group. When the call rings at a calling group member's telephone, it rings as an outside call. A calling group can be programmed to receive calls that remote access users make to invalid extensions. If a trunk is programmed for both Remote Access and Group Calling, Remote Access overrides Group Calling.

Music On Hold

Remote access users waiting for a busy trunk pool or extension do not hear Music On Hold, even if it is programmed on the system. They hear the queuing tone, then silence.

Night Service

When incoming calls are received on a trunk programmed for shared Remote Access, they are treated as remote access calls only when Night Service is activated on all of the operator positions that receive calls on that trunk. When a call is received on a trunk that is programmed for shared Remote Access and Night Service is not activated, the call rings at the extension programmed as the redirect destination for calls to invalid numbers.

Paging

Loudspeaker paging cannot be accessed from outside the system through DID lines or Remote Access.

Station Message Detail Recording (SMDR)

Remote access calls are recorded only if SMDR is programmed to track incoming calls. If a barrier code is entered, the barrier code number (01–16) appears in the ACCOUNT field of the report, preceded by 999999. If the caller uses Remote Access to dial an extension and the call is answered, the extension number is shown in the STN (station) field. If the call is not answered at the extension, the STN field is blank.

If no barrier code is required, the ACCOUNT field contains 99999900.

Beginning with Release 3.0, if the caller provides an invalid or incomplete barrier code for three attempts, either 999999 or 16 zeros are recorded in the ACCOUNT field. If the connection is broken before the third attempt, the ACCOUNT field contains 999999. If the callller hangs up after the third attempt, but before receiving reorder tone, the ACCOUNT field may contain either 999999 or 16 zeros. If the caller hangs up after the third attempt and after receiving reorder tone, the ACCOUNT field contains 16 zeros.

If the caller uses Remote Access to dial out on a line or trunk, the STN field is blank on the first SMDR record and a second record is generated for the outgoing call.

System Numbering

If the system includes DID or dial-in tie trunks. the number assigned to the trunk can be programmed for Remote Access. This allows remote access users to call in on the DID or dial-in trunk.

The remote access code can be renumbered. The factory-set remote access code is 889.

Ringing Line Preference

See “Automatic Line Selection and Ringing/Idle Line Preference.”

Ringing Options

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information System Information
Mode	All
Telephones	All except QCC
Programming Code	
Ring Timing Options	(centralized telephone programming only for single-line telephones and MFM)
All personal line and **Pool** buttons on extension	
Immediate Ring	**347*
Delay Ring	**346*
No Ring	**345*
Individual personal line, **Pool**, **SA**, **ICOM**, and Cover buttons	
Immediate Ring	**37*
Delay Ring	**36*
No Ring	**35*
Send Ring (on principal extension, for **Shared SA** buttons with Delay Ring)	
On	**15*
Off	***15*
Abbreviated Ring (multiline telephones only)	
On	**341*
Off	**342*
Personalized Ringing (multiline telephones only)	**32* + *ringing pattern number* (1–8)

At a Glance - *Continued*

MLX Display Label	RingOptions,All Lines,Immed Ring/Delay Ring/No Ring [RngOp,AllLn,Immed/Delay/No] RingOptions,One Line,Immed Ring/Delay Ring/No Ring [RngOp,1Line,Immed/Delay/No] SharedSARng,On/Off [ShRng,On/Off] RingOptions,Abbreviated,On/Off [RngOp,Abbrv,On/Off] PersonalRng,Pattern *#n* [PRing,Pat*#n*]
System Programming	To specify delay timing for Cover buttons programmed for Delay Ring: • Options→Delay Ring
Factory Settings	
Ring Timing Option (all buttons)	Immediate Ring
Delay Ring Interval	2 rings (range 1–6 rings)
Send Ring	On
Abbreviated Ring	Enabled
Personalized Ringing Pattern	1 (pattern numbers 1–8)

Description

Ringing Options refers collectively to three options that determine how users' telephones ring when they receive a call: Ring Timing options, Abbreviated Ring options, and Personalized Ringing options. These options are programmed for each extension through extension programming or centralized telephone programming, using the display or programming codes. In addition, the system uses distinctive ringing patterns to identify various call types to the telephone user.

Ring Timing Options

Ring Timing options control how soon a telephone rings, or whether it rings at all when a call arrives. Line buttons on each extension can be programmed so that calls ring as follows:

- **Immediate Ring** (factory setting). The telephone rings as soon as a call arrives.
- **Delay Ring.** Provides a delay before the telephone rings. The length of the delay depends on the type of button and the coverage arrangement:
  - On outside line, **SA** (including **Shared SA**), and **ICOM** buttons programmed for Delay Ring, the delay is fixed at two rings and cannot be changed.

  - On Cover buttons programmed for Delay Ring, the delay ring interval, set through system programming, provides a delay of 1 to 6 rings (the factory setting is 2).
  - When a sender has both Individual and Group Coverage and an Individual Coverage receiver is available, the programmed delay ring interval of 1 to 6 rings provides a delay (in addition to the coverage delay interval) before calls go to Group Coverage.

- **No Ring.** Prevents the telephone from ringing at all. (However, the distinctive returning transfer and callback rings, described later in this section under “Distinctive Ringing,” do sound.)
- **Send Ring.** An additional Ring Timing option, used at the principal extension to override Delay Ring programming for any **Shared SA** buttons. With Send Ring on (the factory setting), a call arrives at a busy **SA** button at the principal extension and rings immediately at the **Shared SA** buttons programmed for Delay Ring.

Ring Timing options can be programmed *individually* for each personal line, prime line, **Pool**, **SA** (including **Shared SA**) or **ICOM**, and Cover button on an extension. The extension can also be programmed so that all *outside* calls on personal line, prime line, and **Pool** buttons ring uniformly with one of these options. (**SA**, **ICOM**, and Cover buttons must always be programmed individually.)

Regardless of the Ring Timing option selected, the green LED next to the line button with a call flashes immediately when the call arrives.

NOTE:
Ring Timing options cannot be programmed for **SA Originate Only** or **ICOM Originate Only** buttons, since they do not ordinarily receive calls.

Abbreviated Ring Options

Abbreviated Ring specifies how a telephone rings if a call arrives when the user is already on another call. Each extension can be programmed to ring in one of the following ways:

- **Abbreviated Ring** (factory setting). When the user is already on a call, a new call arriving on a line button programmed for Immediate Ring or Delay Ring rings only once. The ring is at a lower volume (called *attenuated ring*) than the normal ring.
- **Repeated Ring.** The telephone rings normally. When the user is already on a call, an incoming call continues to ring until it is answered.

Personalized Ringing Options

Personalized Ringing options allow the user to select one of eight different ringing patterns for his or her telephone, making it easier to distinguish its ring from other telephones. (Pattern #1 is the factory setting.) The user hears the personalized ringing pattern as the long part of the distinctive ring for an inside, outside, returning transfer, or callback call, described in the next section.

Distinctive Ringing

Distinctive ringing allows users to identify the type or origin of an incoming call. The system identifies calls with the distinctive ringing patterns listed in Table 36. These patterns cannot be changed.

Table 36. Distinctive Ringing

Call Type	Telephone Type			
	MLX*	Analog Multiline*	Single-Line	QCC
Inside	1 long ring	1 long ring	1 ring	1 ring
Outside	1 long ring + 1 short ring	1 short ring + 1 long ring	2 rings	2 rings
Transferred outside call or returning Transfer	1 long ring + 2 short rings	2 short rings + 1 long ring	3 short rings	1 ring
Returning callback call (priority ring)	1 long ring + 3 short rings	2 short rings + 1 long ring	3 short rings	

* Includes Direct-Line Consoles.

NOTE:
The long ring is the Personalized Ringing pattern selected for the telephone.

Considerations and Constraints

Transfer returns ring repeatedly until answered, regardless of the Abbreviated Ring setting for the telephone.

When one of the eight personalized ringing patterns is selected, either through extension programming or centralized telephone programming, the person programming the option hears the ring selected. In Release 2.0 and later, an MLX display telephone user *must* select Enter from the display to confirm and store the selection. After choosing Enter, the user again hears the selected ring.

The personalized ringing pattern selected for each extension is not shown on system programming reports.

Delay Ring is especially useful on a Cover button, because it gives the sender a chance to answer before the call rings at the receiver's telephone. No Ring is appropriate for users who do not usually answer outside calls. To answer a call when a telephone is programmed not to ring, simply press the line button with the flashing green LED.

While using programming codes or display selections to program Ring Timing options for one line, press a line to which these options apply—any line button with an outside line or any **SA** or **ICOM** button. If you press any other type of button, an error tone sounds; the display telephone user also sees an error message. While programming Ring Timing options for all outside lines, you can press *any* line button, not necessarily an outside line button.

Telephone Differences

Queued Call Consoles

Ringing options cannot be programmed on a QCC. The **Call** buttons are fixed to Immediate Ring. A QCC receives only two types of distinctive ringing—one ring for an inside call and two rings for an outside call.

Other Multiline Telephones

Personalized Ringing can be programmed for an MLC-5 cordless telephone only through centralized telephone programming.

Personalized Ringing is not supported on MDC 9000 telephones.

Ring Timing Options can be programmed for a Multi-Function Module (MFM) only through centralized telephone programming.

Single-Line Telephones

Neither Abbreviated Ring nor Personalized Ringing can be programmed for single-line telephones, and Ring Timing options can be programmed only through centralized telephone programming.

Single-line telephones connected to an 008 OPT module do not receive distinctive ringing for the various call types listed in Table 36.

Feature Interactions

Auto Answer All	An analog multiline telephone user selects the lines to be answered by the device connected to a General Purpose Adapter (GPA) by programming each line for Immediate or Delay Ring. The lines not to be answered are programmed for No Ring. If the user wants the device to answer only inside calls, all personal lines must be programmed for No Ring.
Automatic Line Selection	The system does not automatically select outside line, **SA**, **ICOM**, or Cover buttons programmed for No Ring, even when Ringing/Idle Line Preference is turned on. The user must select the button manually to answer a call. (The green LED flashes when the call arrives; when the user presses the button, the red LED turns on.)
Caller ID	The Delay Ring option can be used as an alternative to the LS-ID Delay option to delay ringing at automatically answering adjuncts so that Caller ID information is received. LS-ID Delay delays ringing at all extensions in the system, while Delay Ring delays ringing only at the station programmed for it. Delay Ring timing starts when LS-ID Delay ends.
Coverage	Primary Cover, Secondary Cover, and Group Cover buttons can be programmed for Immediate Ring, Delay Ring, or No Ring. Calls received on line buttons programmed for No Ring are not sent to coverage. If an Individual or Group Coverage receiver is on a call when a coverage call is received, the receiver hears an abbreviated ring (if Abbreviated Ring is enabled). Calls received on a Primary Cover, Secondary Cover, or Group Cover button ring with the receiver's (not the sender's) personalized ringing pattern. In addition to its primary function, the delay ring interval provides a delay before calls go to Group Coverage (in addition to the coverage delay interval), when the sender also has Individual Coverage and a receiver is available.
Forward and Follow Me	On multiline telephones, calls forwarded to an extension ring with an abbreviated ring at the forwarding extension and also ring at the destination extension. On single-line telephones, calls forwarded to an extension ring at both the forwarding extension and the destination extension. On both multiline and single-line telephones, calls forwarded to a telephone number do not ring at the forwarding extension.

Forward and Follow Me ***continued***	Outside calls received at the forwarding extension ring as inside calls at the destination extension (one ring) and do not receive the normal distinctive ring for an outside call. For ringing options set to Immediate Ring, calls are sent to the forwarded extension immediately. For Delay Ring, calls are delayed before being forwarded. For No Ring, calls are not forwarded.
Group Calling	Abbreviated Ring is not operable for calls to the calling group extension, because a calling group member who is active on a call is considered unavailable for incoming calls. In Hybrid/PBX mode, calling group members should program **SA** buttons for Immediate Ring.
Headset Options	Headset Auto Answer does not automatically answer calls ringing on buttons programmed for No Ring on an MLX telephone; the user must select the button manually to answer the call. When Abbreviated Ring is enabled, the user hears the abbreviated ring if another call rings while the user is on a call.
Multi-Function Module	The ringing patterns for tip/ring devices connected to an MFM are those of an MLX telephone rather than a single-line telephone—one ring for inside calls, two rings for outside calls, and three rings for priority ring or transfer return. Personalized Ringing patterns cannot be programmed for an MFM. Centralized telephone programming must be used to program Ring Timing options (Immediate Ring, Delay Ring, or No Ring).
Night Service	When Night Service is turned on, calls received at a Night Service group member's telephone ring immediately even if the line buttons are programmed for Delay Ring or No Ring. When Night Service is turned off, telephones return to their programmed Ring Timing options.
Reminder Service	A reminder call overrides programmed Ring Timing options (Delay Ring and No Ring) and rings with a priority ring at an **SA** or **ICOM** button.
Transfer	Transfer returns ring until answered and do not receive abbreviated ringing.

Saved Number Dial

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Directory
Mode	All
Telephones	All except QCC and single-line telephones
Programming Code	**85*
MLX Display Label	SaveNumDial [Save#]
Maximums	16 digits

Description

Saved Number Dial allows a user to save the last number dialed from a multiline telephone and call the number again without manually redialing. You can save the number even if the called party answers. The number saved is any extension or telephone number dialed using one of the following methods:

- Dialing the complete number on the dialpad
- Dialing the number using a Personal Speed Dial code
- Dialing the number using a programmed outside Auto Dial button
- Dialing the number using a programmed Last Number Dial or Saved Number Dial button

Saved Number Dial requires a programmed button. It does not store numbers dialed with an Extension, Personal, or System Directory, an inside Auto Dial button, a System Speed Dial code, or a DSS (Direct Station Selector) button.

Unlike Last Number Dial, Saved Number Dial does not replace the number saved each time you dial a new number, only when you press the programmed Saved Number Dial button before hanging up.

Considerations and Constraints

The number of Saved Number Dial buttons that can be programmed on each multiline telephone is limited only by the number of available programmable buttons.

When Saved Number Dial is used on an analog multiline telephone connected to a General Purpose Adapter (GPA) in Auto mode, the user must lift the handset before activating the feature.

Since the type of line button (personal line, **SA**, or **ICOM**) used to make the call is not stored, select the appropriate line button before using Saved Number Dial to redial a number.

The green LED next to the programmed Saved Number Dial button does not go on when the feature is used.

Saved Number Dial saves whatever you dial, whether the number is valid or not.

NOTES:

1. If you dial a telephone number and, after the call is connected, dial additional digits, such as an account number or password, Saved Number Dial saves all the digits, including those dialed after the call is connected (up to a total of 16).
2. If someone presses the Saved Number Dial button, all dialed digits are shown on the display of a display telephone, including confidential information such as passwords or account codes. Do not use Saved Number Dial with sensitive information.

If the number dialed with an outside Auto Dial button or Personal Speed Dial code includes a special character such as Pause or Stop, the special character does not work when the number is redialed by Saved Number Dial.

Mode Differences

Behind Switch

When you manually dial an outside number that includes a dial-out code, for example, an Automatic Route Selection (ARS) or pool dial-out code required by the host system, the Pauses required to wait for dial tone from some host systems are not automatically stored when Saved Number Dial is used. As a result, you may either hear a fast busy signal or reach a wrong number when redialing the stored number using Saved Number Dial.

Key Mode

In Key mode, Saved Number Dial cannot be used on an analog multiline telephone unless a Feature button or Saved Number Dial button is programmed on the telephone. Saved Number Dial cannot be activated by pressing # and entering the feature code. The programmed Feature button must be used instead.

Telephone Differences

Queued Call Consoles

Saved Number Dial cannot be used on a QCC.

Other Multiline Telephones

To save a number using Saved Number Dial on a multiline telephone, press the programmed Saved Number Dial button before hanging up. The green LED next to the programmed button does not go on when the feature is used.

To redial a number using Saved Number Dial, select the appropriate line for the call and press the programmed Saved Number Dial button. The number saved by the feature is dialed automatically. MLX display telephone users cannot use the feature by selecting it from the display but can use the display to program the feature onto a button.

When Saved Number Dial is used on an analog multiline telephone connected to a General Purpose Adapter (GPA) in Auto mode, the user must lift the handset before activating the feature.

Single-Line Telephones

Saved Number Dial cannot be used on a single-line telephone.

Feature Interactions

Auto Dial	A number dialed by pressing a programmed outside Auto Dial button is stored for Saved Number Dial as if it were dialed with the dialpad, but special characters do not work. An extension dialed by pressing a programmed inside Auto Dial button is not stored for Saved Number Dial.
Automatic Route Selection	The ARS dial-out code is saved with the telephone number dialed.
Directory	Saved Number Dial does not store numbers dialed using a Personal, Extension, or System Directory listing.
Direct Station Selector	An extension number dialed by pressing a DSS button is not stored for Saved Number Dial.
Display	When a user presses a programmed Saved Number Dial button, the digits appear on the display as if dialed from the dialpad.

Inspect	In Releases 1.0 and 1.1, when a user presses **Inspct** and then a programmed Saved Number Dial button, Saved Number Dial appears on the display. In Release 2.0, when a user presses **Inspct** and then a programmed Saved Number Dial button, the saved number appears on the display.
Microphone Disable	When an MLX telephone user's microphone is disabled, pressing a Saved Number Dial button before lifting the handset turns on the speakerphone so the user can hear the number being dialed. However, once the call is answered, the user must lift the handset to talk.
Speed Dial	Telephone numbers dialed using Personal Speed Dial are stored by Saved Number Dial. If the number includes special characters, such as Pause or Stop, the special characters do not work when the number is redialed using Saved Number Dial. Telephone numbers dialed using System Speed Dial are not stored by Saved Number Dial.
SMDR	All outside numbers dialed using Saved Number Dial are recorded on the SMDR report.
System Access/ Intercom Button	When Saved Number Dial is used on a call made with a **Shared SA** button, the number is stored on the telephone where Saved Number Dial was used, not on the principal extension.
Transfer	The Saved Number Dial feature can be used to dial an outside number of the telephone to which a call is being transferred.

Signal/Notify

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension information
Mode	All
Telephones	All except QCC and single-line telephones
Programming Codes	
Signal	**23 + ext. no*.
Notify, Send	**757 + ext. no*.
Notify, Receive	**758 + ext. no*.
MLX Display Labels	
Signal	Signal [Signl]
Notify, Send	Notify,Send [Ntfy,Send]
Notify, Receive	Notify,Receive [Ntfy,Recv]

Description

A user can signal another telephone user without making a call to that extension, using either the Signal feature, which beeps the destination extension, or the Notify feature, which lights an LED on the destination extension. The meaning of the signal can be prearranged between the sending and receiving users.

Signal

Using the Signal feature, a multiline telephone user can beep another telephone. To use the feature, press a programmed Signal button without lifting the handset. A beep is heard at the destination extension for as long as the sender holds the button down.

In addition to sending a beep, the Signal button can be used to see the status of the destination extension. When the destination extension user lifts the handset or uses Do Not Disturb, the green LED next to the Signal button turns on.

The user can also use the Signal button to dial the destination automatically. However, the user must select an **SA** or **ICOM** button and either lift the handset or press the **Speaker** button before using the Signal button; this is different from Auto Dial, which automatically selects a line and activates the speakerphone.

Notify

With Notify, a multiline telephone user can light an LED on another telephone. To use this feature, a Send button must be programmed at the sender's telephone and a Receive button must be programmed at the receiver's telephone. (These buttons are typically labeled with the names of the sender and recipient, for example, "Notify Mary" at the sending telephone and "Call Consuela," at the receiving telephone.")

When the sender presses the Send button, a green LED turns on next to the Receive button (at the receiver's telephone) and the Send button (at the sender's telephone). Both LEDs remain on until the sender presses the Send button again or the receiver presses the Receive button.

The visual notification (lighting the destination telephone's LED) is sent only one way (sender to receiver). If both users want to send and receive the visual notification, both telephones must be programmed with Send and Receive buttons. Unlike the Signal feature, Notify cannot be used to see the status of a destination extension, nor can it be used to automatically dial the extension.

Considerations and Constraints

Signal and Notify can be used even when both users are on the telephone.

Telephone Differences

Queued Call Consoles

Notify and Signal buttons cannot be used on QCCs; however, pressing a DSS button sends a signal to the extension associated with the DSS button in the following instances:

- The QCC operator is timed out from dial tone on a **Call** button or presses the **Forced Release** button while listening to dial tone on a **Call** button.
- The QCC operator, in a split condition, presses the **Source** button after contacting the destination but does not connect both parties by using the **Join** button. If the operator presses a DSS button, a signal is sent to the destination extension.

Other Multiline Telephones

Both Signal and Notify require a programmed button (Notify requires two). MLX display telephone users cannot select either of these features from the display.

Single-Line Telephones

Neither Signal nor Notify can be used on single-line telephones.

Feature Interactions

Auto Dial	A Signal button and an Auto Dial button cannot be programmed for the same extension. If a user tries to program one of these buttons while the other is already programmed, the feature being programmed erases the previously programmed feature.
Conference	Signal and Notify can be used during a conference call.
Direct Station Selector	If a user presses a Signal button programmed with the system operator's extension while making a call to the system operator, the LED next to the operator's DSS (Direct Station Selector) button changes from flashing to steady while the Signal button is held down.
Do Not Disturb	Signal cannot be used when the destination telephone user activates Do Not Disturb.
Group Calling	A Signal button cannot be programmed for a calling group.
Messaging	If a display telephone user presses a Signal button only to send an audible signal with a posted message to a telephone, the posted message is not shown on the display at the destination. However, if a display telephone user selects an **SA** or **ICOM** button, lifts the handset, and *then* uses the Signal button to dial the extension, the posted message is shown at the destination telephone.
Multi-Function Module	When set for supplemental alert adapter operation, a Multi-Function Module (MFM) can receive a signal but cannot send one. An MFM cannot receive a signal when set for tip/ring operation.
Privacy	Users can program and use the Signal and Notify features to signal co-workers who have activated Privacy.
Transfer	A Signal button can be used to dial the extension during a transfer after the **Transfer** button and either an **SA** or **ICOM** button is pressed. Signal buttons cannot be used to initiate one-touch Transfer.

Speed Dial

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Extension Information System Directory
Mode	All
Telephones	
System Speed Dial	All except QCC
Personal Speed Dial	Multiline telephones with 10 or fewer buttons, single-line telephones
Programming Codes	
System Speed Dial	**24 + System Speed Dial code*
Personal Speed Dial	*# + Personal Speed Dial code (01–24) + *21 + dial-out code + tel. no. + ##*
MLX Display Label	SysSpeedDl [SpdDl]
System Programming	Create, change, or delete System Speed Dial entries: • **More**→Labeling→Directory→System
Maximums	
System Speed Dial	130 numbers 40 characters for each number 11 characters for each label
Personal Speed Dial	1200 numbers in the system 24 numbers for each user 28 characters for each number
Factory Settings	
System Speed Dial Codes	600–729
Personal Speed Dial Codes	01–24

Description

Speed Dial allows users to dial outside numbers quickly, using a 2- or 3-digit code. There are two types of Speed Dial: System Speed Dial and Personal Speed Dial.

System Speed Dial

System Speed Dial allows the system manager to program frequently used numbers that can be dialed by any user (including data stations) using a 3-digit code.

In Hybrid/PBX mode, numbers can include pool dial-out codes or the ARS code.

System Speed Dial numbers are programmed by using the Labeling feature. The programmed labels include the name of the business or person being called and the number dialed. When a person with a display telephone uses a Speed Dial code to dial the number, the number being dialed appears on the display, unless it is a tagged Speed Dial number.

For numbers that include confidential information, such as passwords or account billing numbers, the listing can be specifically designated in system programming to suppress the number dialed so that users with display telephones see only the code that was dialed (600–729) and not the number dialed. This is called a *tagged* System Speed Dial code. When a number is dialed with a tagged System Speed Dial code, any calling restrictions (such as toll or outward restrictions) assigned to the extension are overridden. In addition, the System Speed Dial code is printed on Station Message Detail Recording (SMDR) reports instead of the number.

The range of numbers available for System Speed Dial codes is 600–729; this cannot be changed.

The codes are available to all users except Queued Call Console (QCC) system operators. On multiline telephones, line buttons can be programmed with individual 3-digit System Speed Dial codes. Each System Speed Dial code must be programmed on a separate button.

Programmed System Speed Dial numbers are stored in the System Directory. MLX display telephone users can search the directory and select a listing by pressing a display button to dial a System Speed Dial number. Users with analog multiline display telephones or nondisplay telephones dial the same numbers by using the 3-digit System Speed Dial codes or by programming individual System Speed Dial codes onto a button.

Personal Speed Dial

Personal Speed Dial is used only by single-line telephone users and users with multiline telephones with 10 or fewer buttons (for example, MLX-10 and MLX-10D telephones). Personal Speed Dial may be used by 7500B data stations and modem data only stations, but all numbers must be programmed for the communications device through centralized telephone programming. Personal Speed Dial allows the user to program up to 24 numbers that can be dialed using a 2-digit code.

This allows the user to dial a 2-digit code for long numbers that may require, for example, account codes, long-distance company access codes, and area codes. In Hybrid/PBX mode, a Personal Speed Dial number can also include pool dial-out codes or the Automatic Route Selection (ARS) code. When dial-out codes are included, Pause characters may be required immediately following the dial-out code to allow time to receive the telephone company dial tone.

The Personal Speed Dial codes used to select specific programmed numbers are 01 to 24. Since each user has the same codes to choose from, the telephone numbers associated with the codes only apply to the extension on which they were programmed.

NOTE:
This feature should be used with BIS-10, MLC-5, MDW 9000, MDC 9000, MLX-10, MLX-10DP, or MLX-10D phones *only*. MLX-20L telephone users should program a Personal Directory instead of Personal Speed Dial codes. MLX-28D telephone users and users of analog multiline telephones with more than 10 buttons should program Auto Dial buttons instead of Personal Speed Dial codes. Programming Personal Speed Dial codes on phones with more than 10 buttons may delete features already programmed onto those buttons.

Considerations and Constraints

Personal Speed Dial numbers can be used only with single-line telephones and multiline telephones with 10 buttons or fewer.

Beginning with Release 1.1, when programming Personal Speed Dial on MLX-10D or MLX-10DP telephones, select Enter from the display after dialing the telephone number or the feature is not programmed.

When a number is dialed using a tagged System Speed Dial code, any calling restrictions (such as toll or outward restrictions) assigned to the extension are overridden.

The following special characters can be used in numbers programmed on Speed Dial codes: Pause (**Hold**), Stop (**Drop**), Flash (**Conf**), and End of Dialing (#). See Appendix G, “Programming Special Characters,” for additional information.

When a pool dial-out or ARS code is included in the dialing sequence associated with a Personal Speed Dial or System Speed Dial code, Pauses may be required immediately after the dial-out code. This allows enough time to receive outside dial tone.

Personal Speed Dial and System Speed Dial cannot be used from rotary-dial telephones.

Personal Speed Dial can be used at digital (7500B) data and modem-only stations, but must be programmed through centralized telephone programming for the extension with the communications device.

On multiline telephones, line buttons can be programmed with individual System Speed Dial codes. Each System Speed Dial code must be programmed on a separate button.

Personal Speed Dial should not be confused with Personal Directories. See “Directories” for more information.

Mode Differences

Hybrid/PBX Mode

A pool dial-out code or an Idle Line Preference access code can be included with the telephone number in a Personal Speed Dial or System Speed Dial code. To allow time to receive a local telephone company dial tone, Pause characters may be required immediately following a pool dial-out code or an access code for a long-distance carrier. (Pauses are not needed following the ARS code).

When ARS is used, the pound sign (#) should be pressed twice after the dialed digits when programming a Personal Speed Dial or System Speed Dial code for a 7-digit toll number. This signals the end of the dialing sequence. See Appendix G, “Programming Special Characters,” for information about special characters.

Behind Switch Mode

The user can program any dial-out codes required by the host system into Personal Speed Dial or System Speed Dial codes.

To allow time to receive a local telephone company dial tone, Pause characters may be programmed after a pool dial-out code. Pause characters may also be required by the host system, or after entering an access code for a long-distance carrier.

Telephone Differences

Direct-Line Consoles

System Speed Dial numbers can be programmed from the first Direct-Line Console (DLC) connected to the first analog extension jack. In extension programming, press the **Feature** button or pound sign (#), the 3-digit System Speed Dial code, the outside telephone number, and the pound sign.

Queued Call Consoles

Personal Speed Dial and System Speed Dial cannot be used to dial numbers on a QCC. Directory features can be used instead.

Other Multiline Telephones

System Speed Dial

To dial a System Speed Dial number, press a System Speed Dial button programmed with the code. Alternatively, lift the handset, press the **Feature** button, and dial the System Speed Dial code associated with the number. Analog multiline telephone users without programmed Feature buttons should select an **SA** or **ICOM** button, lift the handset, and dial the System Speed Dial code.

Personal Speed Dial

Users of multiline telephones with more than 10 buttons should not use Personal Speed Dial; doing so may delete features already programmed onto buttons. To dial a Personal Speed Dial number on a multiline telephone, press the **Feature** button and dial the Personal Speed Dial code (01–24) associated with the number. While off-hook or on an **SA** or **ICOM** button at an analog multiline telephone without a programmed **Feature** button, dial # and the Personal Speed Dial Code.

Starting with Release 1.1, MLX-10D telephone users, when programming Personal Speed Dial numbers, must select Enter from the display after dialing the telephone number.

Single-Line Telephones

To dial a Personal Speed Dial or System Speed Dial number using a single-line telephone, lift the handset and (while listening to inside dial tone), and then dial # and the Speed Dial code.

Feature Interactions

Account Code Entry	A System Speed Dial number or a Personal Speed Dial number can be programmed to replace a long account number, but it cannot be programmed to contain both an account number and a telephone number. Single-line telephones cannot use Personal Speed Dial or System Speed Dial to dial account codes because the # required to use Speed Dial is also used to terminate Account Code Entry.
Allowed Lists	A user with an outward-restricted or toll-restricted telephone cannot dial an outside number by using a Personal Speed Dial or System Speed Dial code (excluding a tagged System Speed Dial code), unless the number is on an Allowed List assigned to the extension.
Automatic Route Selection	Personal Speed Dial and System Speed Dial numbers can include the ARS code.

Callback	When a Stop character is programmed as part of a Speed Dial number, stay on the line, wait for the callback call, and then reactivate Speed Dial. This signals the system to continue dialing the digits following the Stop character.
Calling Restrictions	When a tagged System Speed Dial code is used to dial a number, any calling restrictions (such as toll or outward restrictions) assigned to the extension are overridden.
Conference	Press the **Conf** button to enter the Flash special character in a Personal Speed Dial or System Speed Dial telephone number.
Directories	System Speed Dial numbers are stored in the System Directory. MLX display telephone users can dial the numbers by selecting the name from the display. If the number is on a tagged System Directory listing, select the listing and dial the number regardless of any calling restrictions (toll and outward) assigned to the extension.
Disallowed Lists	A user cannot dial an outside number by using Personal Speed Dial or System Speed Dial if the number is on a Disallowed List assigned to the extension, unless the number is dialed using a tagged System Speed Dial code.
Drop	Press the **Drop** button to enter the Stop special character in a Personal Speed Dial or System Speed Dial telephone number.
Forced Account Code Entry	Multiline telephone users who use a programmed Account Code button or display telephone users who select the feature from the display can use Personal Speed Dial and System Speed Dial to store account codes. Single-line telephone and multiline telephone users who complete the entry by dialing a # cannot use Personal Speed Dial or System Speed Dial to dial account codes because the # required to use Speed Dial is also used to activate Account Code Entry.
Hold	Press the **Hold** button to enter the Pause special character in Personal Speed Dial or System Speed Dial telephone numbers.
Labeling	The telephone numbers associated with System Speed Dial codes are entered using the programming screens to program labels for System Directory listings.
Last Number Dial	Telephone numbers that are dialed by using Personal Speed Dial are stored by Last Number Dial. However, if the stored number includes a special character, such as Pause or Stop, the special character does not work when the number is redialed by using Last Number Dial. Telephone numbers that are dialed by using a System Speed Dial code are not stored by Last Number Dial.

Pools	A pool dial-out code can be programmed on Personal Speed Dial and System Speed Dial numbers. When a pool dial-out code is included in the number dialed, Pause characters may immediately follow the dial-out code to allow time to receive a local telephone company dial tone.
Recall	Press the **Conf** button to enter the Flash special character, which simulates pressing the **Recall** button, in a Personal Speed Dial or System Speed Dial telephone number.
Saved Number Dial	Telephone numbers that are dialed by using a Personal Speed Dial code are stored by Saved Number Dial. If the number includes a special character, such as Pause or Stop, the special characters do not work when the number is redialed by using Last Number Dial. Telephone numbers that are dialed by using a System Speed Dial code are not stored by Saved Number Dial.
Station Message Detail Recording (SMDR)	When Personal Speed Dial or System Speed Dial is used to dial an outgoing call, the actual digits dialed by the system appear on the report. However, when a tagged System Speed Dial number is used, the Speed Dial code, rather than the digits dialed, prints on the report.
Transfer	Both Personal and System Speed Dial can be used to dial a transfer destination.

Station Message Detail Recording (SMDR)

At a Glance

Users Affected	Telephone users, operators, system manager
Reports Affected	System Information
Mode	All
System Programming	Select types of calls recorded: • Options→SMDR→Call Report Select minimum duration of calls recorded: • Options→SMDR→Call Length Select report format: • Options→SMDR→Format
Hardware	Printer needed for reports
Maximums	
Queue	100 records
Called Number Field	15 digits
Factory Settings	
Calls Recorded	Incoming and outgoing calls
Call Length	40 sec (range 0–255)
Format	Basic

Description

The Station Message Detail Recording (SMDR) feature is used to capture detailed information on incoming and outgoing voice and data calls. The information is sent to an output device such as a printer or an optional call accounting system.

SMDR records are gathered sequentially and sent to the RS-232 SMDR jack on the processor module of the control unit. They can be printed on a serial printer connected to the SMDR jack. To assist further with cost allocation and unauthorized call detection, an AT&T Call Accounting System (IS CAS for IS III, CAS Plus V3, CAS for Windows™, CAT/B, or CAT/H) can be connected to the SMDR jack on the control unit.

Two SMDR report formats are available: the factory-set Basic format or the ISDN (Integrated Services Digital Network) format. The ISDN format is used when the business subscribes to the AT&T INFO2 Automatic Number Identification (ANI) service or to Caller ID service (requiring an 800 GS/LS-ID module for the loop-start trunks on which the service is provided). When the ISDN format is

selected during system programming, the CALLED NUMBER field of the call report shows the number dialed by a party calling into the system on a line where the service is provided (not all calling numbers can be identified; for details, see “Caller ID”).

Call information can be recorded for incoming and outgoing calls (the factory setting) or for outgoing calls only. In addition, the system is factory-set to record only calls that last at least 40 seconds. The setting can be changed to anything in the range 0 to 255 seconds.

For outgoing calls, timing starts when dialing is completed (the system detects end of dialing). If incoming calls are included on call reports, the timing begins when a user answers the call. Timing is stopped for both incoming and outgoing calls when the call is disconnected. Figure 40 shows a sample SMDR report in ISDN format. In Release 2.1 and later, call timing for outgoing calls on PRI (Primary Rate Interface) lines begins when the call is answered. Therefore, no SMDR record is generated for unanswered calls on these lines. Timing on non-PRI lines begins when dialing is complete.

1 2	3	4	5	6	7	8
DATE	TIME	CALLED NUMBER	DUR.	LINE	STN.	ACCOUNT
C 06/27/92	20:33	5553643	0:01:33	801	15	123456
C 06/27/92	21:01	12125555436	00:02:44	804	14	129345
C 06/27/92	21:02	IN	00:01:55	809	17	
I 06/27/92	21:12	5553633	00:00:55	802	16	459995
C 06/27/92	21:33	5553463*	00:11:33	801	15	
D 06/27/92	21:53	1215555123456 78?	00:01:33	801	15	129345

Figure 40. Sample SMDR Report in ISDN Format

A page heading indicates the name of each field in an SMDR record, as follows (Caller ID is available in Release 3.0 and later only):

- **CALL TYPE** (Column 1). In Release 2.0 and earlier, in Basic format:
  - C indicates a voice call.
  - D indicates a data call.

  In ISDN format:
  - I indicates an incoming voice call on a PRI facility.
  - C indicates an outgoing or incoming voice call on a non-PRI facility.
  - D indicates an outgoing data call.

In Release 2.1 and later (see Table 37), in Basic format:

- C indicates a voice call or a data call on an analog facility.
- D indicates a data call on a PRI facility.

In ISDN format (see Table 38):

- I indicates an incoming voice or data call on a PRI or Caller ID (Release 3.0 and later only) facility if the Calling Party Number is received.
- C indicates an outgoing or incoming voice call on a non-PRI or non-Caller ID facility, an outgoing voice call on a PRI or Caller ID facility, or an incoming call on a Caller ID facility if no Caller ID information is received.
- D indicates an outgoing data call on a PRI facility.

- **DATE** (Column 2). The date of the connection is shown in *mm/dd/yy* format. Leading zeros are not suppressed.
- **TIME** (Column 3). The time of the connection is shown in *hh:mm* format. The system time is used and is shown in 24-hour (military) form.
- **CALLED NUMBER** (Column 4). For an outgoing call, this is the dialed number or, if the number has been suppressed for reasons of privacy or security, the tagged System Speed Dial code associated with that number. In Basic format, an incoming call has only the word IN in this field. In ISDN format, for an incoming call on a PRI facility with Automatic Number Identification (ANI), or a loop-start trunk with the Caller ID service provided through the CO and the system's 800 GS/LS-ID module (Release 3.0 and later on loop-start lines only), the calling telephone number, if available, is included here. If the calling party number was not available for a call on one of these facilities, the word IN appears in this field. In Release 2.1 and later, all incoming calls on non-PRI facilities without identification services also have the word IN in this field. The maximum number of digits for the field is 15. An asterisk (*) indicates far-end disconnect if the call is on a supervised facility. A question mark (?) indicates that the number overflowed (was more than 15 digits).
- **DUR.** (Column 5). The duration of the call is shown in *hh:mm:ss* format.
- **LINE** (Column 6). This is the facility number or outside trunk used to make or receive the reported call.
- **STN.** (Column 7). This is the extension that first answered or made the recorded call. The exception is an incoming call that is transferred to another extension or is parked and picked up by another extension; the destination extension or the extension that picked up is then recorded.

- **ACCOUNT** (Column 8). Shows the account code, if used, for an incoming or outgoing call attributed to a specific project, department, or employee for billing purposes. If an incoming call is a successful remote access call, this field contains the barrier code ID number (2 digits, from 00 to 16; 00 is recorded when no barrier code is required) preceded by six consecutive 9s. If a remote access caller has failed to enter a correct barrier code, this field contains 16 zeros. If an account number is also entered, the barrier code ID number is overwritten. If the call is a PRI call, the restriction code for the FTS 2000 network (U. S. Federal Government only) is shown in the ACCOUNT field.

Table 37. Call Types for SMDR Basic Report Format (Release 2.1 and Later)

Facility	Voice/Data	Call Direction	Call Type on Report
Analog	Voice	Incoming	C
		Outgoing	C
	Data	Incoming	C
		Outgoing	C
PRI Facilities	Voice	Incoming	C
		Outgoing	C
	Data	Incoming	D
		Outgoing	D

Table 38. Call Types for SMDR ISDN Report Format (Release 2.1 and Later)

Facility	Voice/Data	Call Direction	Call Type on Report
Analog	Voice	Incoming	C or I*
		Outgoing	C
	Data	Incoming	C or I*
		Outgoing	C
PRI Facilities	Voice	Incoming	I
		Outgoing	C
	Data	Incoming	I
		Outgoing	D

* For calls received on loop-start lines/trunks connected to an 800 GS/LS-ID module with Caller ID (if Caller ID information was received).

Considerations and Constraints

Printing system programming reports has a higher priority than printing SMDR reports. SMDR records are queued until programming report printing is completed. Records are also queued if the printer is turned off, disconnected, runs out of paper, or if a paper jam occurs. Up to 100 SMDR records can be queued. SMDR records generated after maximum capacity is exceeded may be lost, since only the newest 100 records are retained.

System time and date must be set correctly to print accurate SMDR reports.

The maximum digits recorded in the CALLED NUMBER field is 15.

When the number included in the CALLED NUMBER field contains both an equal access code and a country code for an overseas call, the maximum digits recorded may not provide enough information for call accounting software to process the call and supply cost data.

Call information can be recorded for incoming and outgoing calls (factory setting) or for outgoing calls only. If SMDR is set to record outgoing calls only, an account code cannot be entered for incoming calls.

Inside calls are not recorded on SMDR reports.

When a user joins a call on a shared line and continues on the call after the originator drops off, SMDR records the total duration of the call, up through the time the last person hangs up.

If a person selects a line and cannot complete the call (for example, due to restrictions), yet is on the line for more than the programmed call duration, an SMDR record is created, even though a call was never made on that line.

In the event of a power failure, any calls in progress and the SMDR records for those calls are lost.

In Release 2.1 and later, an SMDR record is not generated for calls made to loudspeaker paging ports.

Telephone Differences

Queued Call Consoles

When a QCC system operator arranges a 3-participant conference call (the system operator and two other participants) and presses the **Release** button, the QCC system operator is released from the call, but the other two participants remain connected. However, the QCC operator's extension remains on the SMDR record.

Feature Interactions

Account Code Entry

The account code is printed in the ACCOUNT field of the SMDR record. If SMDR is set to record outgoing calls only, an account code cannot be entered on incoming calls. If a remote access barrier code is entered for an incoming call and then an account code is entered, the account code only (not the barrier code ID) appears on the report.

Authorization Code

All outgoing calls over the minimum call length made using an authorization code are recorded in the SMDR record.

If an account code is not entered, the ACCOUNT field of the SMDR report contains the authorization code used to obtain calling privileges. If an account code is entered at any time during a call, the account code is stored in the SMDR record.

Auto Dial

All calls made to an outside number using Auto Dial are recorded on the SMDR report.

Automatic Route Selection

The CALLED NUMBER field of SMDR reports for systems with Automatic Route Selection (ARS) shows all the digits dialed by the user, including any digits absorbed by the system and the facility used to make the call. The records do not include the ARS dial-out code or any digits added by ARS.

Callback and Call Waiting

SMDR begins measuring the duration of callback calls when the trunk is seized and the system begins dialing the call. Call-waiting calls are measured as soon as the call is answered.

Caller ID

Calling party numbers (if available) for incoming calls (including remote access calls) that are received on a facility with Caller ID are recorded in the SMDR report only if the SMDR report is set for ISDN format.

Camp-On

If an incoming call is camped on but is not picked up by the other extension, the extension of the user that activated Camp-On is shown in the STN field of the SMDR report. If an incoming call is camped on and picked up by the destination extension, the destination extension is shown in the STN field of the SMDR report.

Conference

When a conference call includes inside and outside participants, records are generated only for outside participants. When a call is dropped from a conference call, it is considered a completed call and is sent to the SMDR print queue.

Coverage

The extension of the telephone on which an Individual or Group Coverage call is answered is shown on the SMDR report.

Forward and Follow Me

If the system is programmed to track both incoming and outgoing calls, two SMDR records are generated when an outside call is forwarded to an outside telephone number. One record shows the incoming call, and the other record shows the call made to the destination telephone number, with the forwarding telephone as the originator.

Forward and Follow Me ***continued***	The Remote Call Forwarding number for incoming calls to be forwarded to is completed by pressing #. The SMDR report includes the # with the number for calls forwarded to the number.
Group Calling	Calls to calling groups are associated with the first extension to handle the call. If the call is answered by the calling group delay announcement device, the extension for the delay announcement device is recorded on the SMDR record, even if the call is later answered by a calling group member or overflow group member. The timing begins as soon as the calling group member or delay announcement device answers the call. If the caller hangs up while listening to a delay announcement, the call is associated with the extension of the delay announcement device.
Last Number Dial	All calls made to outside numbers using Last Number Dial are recorded on the SMDR report.
Multi-Function Module	A Multi-Function Module (MFM) is treated as an MLX telephone on SMDR reports. The system waits until the end of dialing before sending a connect message to the MFM. Any digits dialed after the connect message is received are not recorded on SMDR reports.
Paging	Paging calls are not reported to SMDR.
Park	If an incoming call is parked but is not picked up by the other extension, the extension of the user who activated Park is shown in the STN field of the SMDR record for the call. If an incoming call is parked and picked up by the destination extension, the destination extension is shown in the STN field of the SMDR report.
Pickup	The extension of the person answering the call and using Pickup is shown on the SMDR report.
Pools	For outgoing calls made by using a pool, the trunk selected by the system is reported on the SMDR report.
Power Failure Transfer	During a commercial power failure, all calls are disconnected and no SMDR records are generated for calls made using a Power Failure Transfer telephone.
Recall	If a multiline telephone user presses the **Recall** button to get a new dial tone, SMDR timing is stopped for the previous call and timing begins for a new call.

Remote Access

Remote access calls are recorded only if SMDR is programmed to track incoming calls. If a barrier code is entered, the barrier code number (01–16) appears in the ACCOUNT field of the report, preceded by 999999. If the caller uses Remote Access to dial an extension and the call is answered, the extension number is shown in the STN (station) field. If the call is not answered at the extension, the STN field is blank.

If no barrier code is required, the ACCOUNT field contains 99999900.

Remote Access *continued*

Beginning with Release 3.0, if the caller provides an invalid or incomplete barrier code for three attempts, either 999999 or 16 zeros are recorded in the ACCOUNT field. If the connection is broken before the third attempt, the ACCOUNT field contains 999999. If the calller hangs up after the third attempt, but before receiving reorder tone, the ACCOUNT field may contain either 999999 or 16 zeros. If the caller hangs up after the third attempt and after receiving reorder tone, the ACCOUNT field contains 16 zeros.

If the caller uses Remote Access to dial out on a line or trunk, the STN field is blank on the first SMDR record and a second record is generated for the outgoing call.

Saved Number Dial

All calls made to outside numbers using Saved Number Dial are recorded on the SMDR report.

Speed Dial

When Personal Speed Dial or System Speed Dial is used to dial an outgoing call, the actual digits dialed by the system appear on the report. However, when a tagged System Speed Dial number is used, the System Speed Dial code prints rather than the digits dialed.

System Access/Intercom Buttons

When a call is made on a **Shared SA** button, the SMDR report records the extension number that the call was made from, not the principal extension number.

Transfer

The number of the extension that hangs up on an incoming outside call is shown in the STN field of the SMDR report, regardless of how many times the call is transferred. For outgoing outside calls, the number of the extension that dialed the call is shown on the SMDR report, even if the call is later transferred to another extension.

System Access/Intercom Buttons

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Information
Mode	
SA buttons	Hybrid/PBX
ICOM buttons	Key and Behind Switch
Telephones	All except QCC
Programming Code	
Assign Buttons (centralized telephone programming only) Default Ring	
SA or **ICOM**	**16*
SA or **ICOM Originate Only**	**18*
Shared SA	**17 + primary extension*
Change Button Type (centralized telephone or extension programming)	
Ring	***19*
Voice	**19*
Send Ring (on principal extension for **Shared SA**)	
On	**15*
Off	***15*
MLX Display Label	
Assign Buttons (centralized telephone programming only, multiline telephones only)	
SA or **ICOM**	SysAcc (same for **SA** or **ICOM**)
SA or **ICOM Originate Only**	SysAcc–oo (same for **SA** or **ICOM**)
Shared SA	ShareSysAcc
Change Button Type (centralized telephone or extension programming, multiline telephones only)	
Ring	Voice Annce,Place,Ring[Voice,Place,Ring]
Voice	Voice Annce,Place,Voice[Voice,Place,Voice]

At a Glance - *Continued*

Maximums	10 **SA** or **ICOM** buttons for each extension 27 **Shared SA** buttons for each multiline telephone 16 **Shared SA** buttons for each principal extension 3 system users for each call on **Shared SA**	
Factory Settings		
Button Assignments by Mode	Hybrid/PBX	Key and Behind Switch
Direct-Line Consoles	1 **SA Ring** 1 **SA Voice**	1 **ICOM Ring** 1 **ICOM Voice**
Other Multiline Telephones and MFMs	1 **SA Ring** 1 **SA Voice** 1 **SA Originate Only**	1 **ICOM Ring** 1 **ICOM Voice**
Single-Line Telephones	2 **SA Ring** 1 **SA Originate Only**	2 **ICOM Ring**
Additional buttons assigned (including **Shared SA**)	Ring	
Ring Timing Option	Immediate Ring	
Send Ring (on principal extension)	On	

Description

Users access the system by pressing buttons on their telephones. These buttons are called System Access (**SA**) or Intercom (**ICOM**) buttons, depending on the system operating mode. How **SA** and **ICOM** buttons operate also depends on the operating mode.

SA Buttons: Hybrid/PBX Mode

In Hybrid/PBX mode, telephones have **SA** buttons, which are used as follows:

- To make an outside call by dialing an Automatic Route Selection (ARS) code (usually *9*) and a telephone number
- To make an outside call using a trunk pool by dialing the pool dial-out code and a telephone number
- To make an inside call
- To activate a feature by using a feature code
- To receive inside and outside calls, including voice-announced inside calls and transferred calls

An **SA** button can have one of three attributes:

- **Ring.** Button is used to make and receive inside and outside ringing calls.
- **Voice.** Button is used to make and receive inside and outside calls. An inside call made on this button is a voice-announced call. If the person receiving the call has a speakerphone and it is not already in use or disabled by having Voice Announce to Busy turned off, the call arrives on the speakerphone. Both parties hear a beep and the called person hears the caller's voice over the speakerphone. Since voice-announced calls cannot be made to single-line telephones, a call made on this button to a single-line telephone is a ringing call, even if the single-line telephone has a speakerphone.
- **Originate Only.** Button is used only to make inside and outside calls. Calls are not received on this button. Its purpose is to ensure that the user always has a button available to make or transfer calls, establish conference calls, answer call-waiting calls, or pick up parked calls. The button can be programmed for either Ring or Voice operation for inside calls.

The default attribute for all **SA** buttons (including **Shared SA** buttons) after the factory settings by telephone type is Ring. The factory setting for Automatic Line Selection (ALS) is a sequence of **SA** buttons. Ringing for all types of **SA** buttons is set by default to Immediate Ring and can be changed to Delay Ring or No Ring (see "Ringing Options").

Shared SA Buttons: Hybrid/PBX Mode

Each **SA** button (whether Ring, Voice, or Originate Only) assigned as a factory setting or through centralized telephone programming is identified with a specific extension. To allow two or more telephone users to join in each others' conversations and answer each others' calls, **Shared SA** buttons can be assigned. In a shared arrangement, the **SA** button identified with the extension is the *principal* (or primary) button. Up to 16 other multiline telephones can have **Shared SA** buttons corresponding to the principal extension. A telephone can have up to 27 **Shared SA** buttons for other extensions but can have only one **Shared SA** button for a given principal extension. (One of the first 10 buttons must be an **SA** button.)

The green LED next to a **Shared SA** button behaves in the same way as on the principal extension. When the principal extension or any **Shared SA** button corresponding to it is busy on a call, the LED is on at the principal extension and at all **Shared SA** buttons for that extension. When a call arrives at the principal extension, that extension rings and the LED at its **SA** button flashes. All telephones with corresponding **Shared SA** buttons also ring, and the LED at the **Shared SA** button flashes.

The telephone user at the principal extension can use Send Ring. This feature overrides Delay Ring programmed for any telephones with **Shared SA** buttons for the principal extension. When a call arrives for the principal extension while it is busy, the telephones with the **Shared SA** buttons for that extension ring immediately.

When Do Not Disturb is turned on at the principal extension, calls do not ring at that extension or at other telephones with **Shared SA** buttons for that extension.

The principal extension or a **Shared SA** button can be used to join a conversation in progress. A maximum of three parties can participate in one call.

NOTE:
Shared SA buttons cannot be assigned to single-line telephones or other tip/ring equipment connected to a 012 or 008 OPT module. **Shared SA** buttons can be assigned to a tip/ring or external alert device connected to an MFM in an MLX telephone or a GPA connected to an analog multiline telephone.

ICOM Buttons: Key and Behind Switch Modes

In Key mode and Behind Switch mode, telephones have **ICOM** buttons, which are used as follows:

- To dial the Idle Line Access code (usually *9*) to select the first idle personal line assigned to the telephone (Key mode only)
- To make an inside call
- To activate a feature by using a feature code
- To receive inside calls, including voice-announced calls, and transferred outside calls

An **ICOM** button can have one of three attributes:

- **Ring.** This button is used to make inside ringing calls, to receive inside and transferred outside calls, and to dial the Idle Line Access code to select a personal line.
- **Voice.** This button is used to make inside voice-announced calls, to receive inside ringing calls, and to dial the Idle Line Access code to select a personal line. If the person receiving an inside call made from this button has a speakerphone and it is not already in use or disabled by having Voice Announce to Busy turned off, the call arrives on the speakerphone. Both parties hear a beep and the called person hears the caller's voice over the speakerphone. Because voice-announced calls cannot be made to single-line telephones, a call made on this button to a single-line telephone is a ringing call even if the single-line telephone has a speakerphone.

- **Originate Only.** This button is used only to make inside calls. Calls are not received on this button. Its purpose is to ensure that the user always has a button available to make or transfer calls, establish conference calls, answer call-waiting calls, or pick up parked calls. The button can be programmed for either Ring or Voice operation.

The default attribute for all **ICOM** buttons after the factory settings by telephone type is Ring.

In Key mode, the factory setting for Automatic Line Selection (ALS) for multiline telephones is a sequence of outside line buttons. The factory setting for ALS on single-line telephones is an **ICOM** button.

In Behind Switch mode, the factory setting for ALS for both multiline and single-line telephones is the prime line.

Ringing for all types of **ICOM** buttons is set by default to Immediate Ring and can be changed to Delay Ring or No Ring (see “Ringing Options”).

NOTE:
ICOM buttons are not shared.

Considerations and Constraints

At least one **SA** or **ICOM** button must be assigned to each extension in the system.

SA or **ICOM** buttons can be assigned or removed only through centralized telephone programming.

On a multiline telephone, **SA** or **ICOM** buttons can be assigned only on buttons 1 through 10.

Any **SA** button can be the principal extension for up to 16 **Shared SA** buttons on other telephones. Any multiline telephone can have up to 28 **SA** or **Shared SA** buttons, at least one of which must be an **SA** button. No **SA** buttons may be assigned beyond line button 10, although **Shared SA** buttons may.

The maximum number of system users that can be on a call on a **Shared SA** button (including the principal extension) is three.

When a call is received at the principal extension, it rings on the principal extension’s **SA** button as well as on all corresponding **Shared SA** buttons. **Shared SA** buttons cannot be assigned to a single-line telephone. A single-line telephone cannot be the principal extension for a **Shared SA** button, unless the telephone is connected to an MFM.

When two or more users answer the same call on a **Shared SA** button, the red and green LEDs next to the button go on, but only one person has a talk path with the caller. Privacy should be used to eliminate competition for the same calls.

Calls received on DID trunks ring on an **SA** button and on all **Shared SA** buttons for the receiving button.

Mode Differences

Hybrid/PBX Mode

SA buttons, including **Shared SA** buttons, are available only in Hybrid/PBX mode.

Key and Behind Switch Modes

ICOM buttons are available only in Key and Behind Switch modes.

Telephone Differences

Direct-Line Consoles

Each DLC is assigned one **SA Ring** or **ICOM Ring** and one **SA Voice** or **ICOM Voice** button. Additional **SA** or **ICOM** buttons cannot be assigned to a DLC. This includes **Shared SA** buttons corresponding to **SA** buttons on other telephones. In addition, the DLC cannot be the principal extension for **Shared SA** buttons on other telephones.

Queued Call Consoles

A Queued Call Console (QCC), which uses **Call** buttons, cannot be assigned **SA** buttons, including **Shared SA** buttons (neither can it be assigned **ICOM** buttons, since the QCC is available only in Hybrid/PBX mode).

Other Multiline Telephones

In Hybrid/PBX mode, each multiline telephone (except for DLCs) and Multi-Function Module (MFM) device is automatically assigned one **SA Ring**, one **SA Voice**, and one **SA Originate Only** button.

In Key and Behind Switch modes, each multiline telephone (including DLCs) and MFM device is automatically assigned one **ICOM Ring** and one **ICOM Voice** button.

Single-Line Telephones

In Hybrid/PBX mode, each single-line telephone (or other device connected to a 012 or 008 OPT module) is automatically assigned two **SA Ring** buttons and one **SA Originate Only** button.

In Key and Behind Switch modes, each single-line telephone (or other device connected to a 012 or 008 OPT module) is automatically assigned two **ICOM Ring** buttons.

The default assignment of **SA** or **ICOM** buttons to single-line telephones is fixed and cannot be changed—no **SA** or **ICOM** buttons can be removed or added.

A single-line telephone cannot be the principal extension for a **Shared SA** button, unless the telephone is connected to a Multi-Function Module (MFM).

Feature Interactions

Auto Answer All

When Auto Answer All is activated, all calls received at an **SA Ring**, **ICOM Ring**, **SA Voice**, **or ICOM Voice** button can be answered automatically by the device connected to a General Purpose Adapter (GPA).

If **Shared SA** buttons are assigned, they should be programmed for either Delay Ring or No Ring and the corresponding **SA** button at the principal extension should be programmed for Immediate Ring. This prevents calls to the principal extension from being answered simultaneously at the principal extension and at another device with a corresponding **Shared SA** button.

Voice-announced calls received at an analog multiline telephone are not answered by a device connected through a GPA because ringing current is not sent to the device.

Auto Answer Intercom

When the Auto Answer Intercom feature is activated, a Hands-Free Unit (HFU) cannot be used to answer calls on a **Shared SA** button.

Automatic Line Selection

SA buttons (including **Shared SA** buttons) or **ICOM** buttons can be programmed as part of an Automatic Line Selection (ALS) sequence. You should not interleave different button types (personal line, **Pool**, **SA**, or **ICOM**); for example, in Hybrid/PBX or Key mode, the sequence might include all **SA** or **ICOM** buttons first, then **Pool**, then personal line buttons.

Automatic Route Selection

When a call is made on a **Shared SA** button, the ARS Facility Restriction Level (FRL) that applies is the level programmed for the telephone with the button, not the level for the principal extension.

Callback

Callback can be used on an **SA** or **ICOM** button. When Callback is used on a **Shared SA** button, the callback call from the system rings and the LED next to the button flashes only at the telephone that originated Callback.

If a user other than the person originating Callback selects a **Shared SA** button with a queued callback request and lifts the handset, the user hears the queuing tone and the green LED on the originator's telephone goes from flashing to on. If the user hangs up, the green LED on the originator's telephone goes back to flashing and the system directs the callback call to the originator. If the user does not hang up, the system directs the callback call to the user and not to the callback originator.

Caller ID

Both **SA** and **Shared SA** extensions display Caller ID information on Line 1 of the first screen of the display. This information remains on the answering extension's display and is cleared from the other extensions. If another user picks up on the call, that person sees In Use, and the principal extension user sees the caller information of the person who picked up; it is displayed on Line 2 of the first screen.

Calling Restrictions

When a call is made on a **Shared SA** button, the calling restrictions that apply are those programmed for the extension with the button, not those for the principal extension.

Call Waiting

A telephone is considered busy when all **SA** or **ICOM** buttons (except **SA Originate Only** or **ICOM Originate Only**) are in use. The user can dial the Call Waiting feature code to pick up a waiting call only when an **SA Originate Only**, **Shared SA**, or **ICOM Originate Only** button is available.

Conference

Calls on **SA**, **Shared SA**, or **ICOM** buttons can be included in a conference call. If a user involved in a conference call on an **SA** button also has a **Shared SA** button for one of the conference participants, the call is active at the **SA** button, not at the **Shared SA** button.

Coverage

When a Primary Cover, Secondary Cover, or Group Cover button is programmed, a call received on an **SA** or **ICOM** button that is eligible for Individual or Group Coverage remains on the sender's **SA** or **ICOM** button until it is answered at the receiver's telephone. Once answered by a receiver, the call is removed from the sender's **SA** (including **Shared SA**) or **ICOM** button. However, when a calling group is programmed as a Group Coverage receiver, the call is removed from the sender's telephone as soon as it is sent from the calling group queue to an available member.

Calls received on **Shared SA** buttons are not eligible for Individual or Group Coverage.

Coverage ***continued***

If a receiver has a Primary Cover, Secondary Cover, or Group Cover button for a sender and also has a **Shared SA** button associated with the sender, the green LEDs next to both the Cover button and the **Shared SA** button flash when a call arrives for the sender. In addition, the red LED stays on at the **Shared SA** button.

Display

If a user with a display telephone calls an extension and the call is answered at a **Shared SA** button, the caller's display shows the principal extension, not the answering extension.

Do Not Disturb

When Do Not Disturb is turned on at the principal extension, calls do not ring at that extension or at other telephones with **Shared SA** buttons for that extension.

Forward and Follow Me

When a telephone user with **Shared SA** buttons forwards his or her calls, only calls to his or her extension are affected. Calls ringing on a **Shared SA** button are not forwarded.

Group Calling

If a calling group member is busy on a **Shared SA** button, the principal extension is still considered available.

If a delay announcement for a calling group is a principal extension that has **Shared SA** buttons on other telephones, and if a user uses a corresponding **Shared SA** button to join the announcement while a caller is listening to it, the call is removed from the calling group queue and both parties are connected. (The delay announcement is not disconnected until it finishes playing.)

If a call from the **SA** button of a user at a principal extension with **Shared SA** buttons is waiting in the calling group queue, other users cannot use the corresponding **Shared SA** buttons to join the call.

Hold

A call put on hold on an **SA** or **Shared SA** button can be picked up at the principal extension or at any telephone with a **Shared SA** button for that extension, unless Privacy is turned on at the telephone that put the call on hold. The hold reminder tone is heard only at the telephone that put the call on hold.

Prior to Release 2.1, a call on hold on a **Shared SA** button can not be transferred by the user who picked up the call. In Release 2.1 and later, an inside call on hold at an **SA** button can be picked up and transferred by a user with a **Shared SA** button corresponding to the button with the held call.

In Release 2.1 and later, a call that has been put on hold at a Cover, **SA**, **Shared SA**, or **Pool** button can be picked up by a user who has a personal line button for the call. When the call is picked up, the green light next to the personal line lights steady; however, the call remains on hold at the Cover, **SA**, **Shared SA**, or **Pool** button. The user who picked up on the personal line cannot transfer the call that has been picked up. To transfer a call on hold at a Cover, **SA**, **Shared SA** or **Pool**, button, use Pickup instead of picking up on a personal line button.

Last Number Dial	If Last Number Dial is used on a **Shared SA** button, the number is stored on the telephone that used the feature, not on the principal extension.
Line Request	Line Request cannot be used for an **SA** or **ICOM** button.
Messaging	If a **Shared SA** button is used to leave a message for a display telephone user, the extension of the telephone with the **Shared SA** button (not that of the principal extension) is shown in the message. When a principal extension user with an MLX display telephone posts a message and a call is answered at the **Shared SA** button, the calling information is cleared from the principal extension. However, the Home screen on which the posted message is shown is not restored. If the principal extension user presses the **Home** button or makes or receives a call, the Home screen is restored.
Multi-Function Module	One **SA Ring** or **ICOM Ring** button and one **SA Originate Only** or **ICOM Originate Only** button should be assigned to a Multi-Function Module (MFM). At least one **SA** or **ICOM** button must be assigned to an MFM. Assigning a **Shared SA** button to an MFM means that the principal extension can join a call that has already been answered by an answering machine connected to the MFM.
Night Service	Night Service calls override any Ring Timing options (Delay Ring or No Ring) programmed for an **SA** button and ring immediately. On a **Shared SA** button, Night Service calls follow the programmed option (Immediate Ring, Delay Ring, or No Ring).
Paging	Announcements using Speakerphone Paging can be made from a **Shared SA** button. However, users cannot join a page (as they can other calls) on a **Shared SA** button.
Park	When a user parks a call made or received on an **SA** button, **Shared SA** buttons do not ring when the parked call returns.
Pickup	An inside call ringing at an **SA** or **Shared SA** button can be answered at another telephone. All associated **SA** or **Shared SA** buttons are cleared.
Privacy	If Privacy is turned on at a telephone with a **Shared SA** button, other users, including the principal extension and other corresponding **Shared SA** buttons, cannot join a conversation on the **Shared SA** button. If Privacy is turned on after another user joins the conversation, it does not affect that person, but no other users can join the conversation.
Recall	Recall can be used on a ringing or answered inside call made on an **SA** or **ICOM** button. When the user is listening to a busy signal, Recall has no effect.

Recall ***continued***	On a call at an **SA** button, either the principal user or another person who has joined the call on a **Shared SA** button can use the feature. In Release 2.0 and later, Recall can be used on **SA** buttons during outside calls made or received on a loop-start trunk.
Reminder Service	Reminder calls do not ring at **Shared SA** buttons.
Ringing Options	Ring Timing options (Immediate Ring, Delay Ring, No Ring) cannot be programmed for **SA Originate Only** or **ICOM Originate Only** buttons, since they do not ordinarily receive calls. Incoming calls on a **Shared SA** button ring with the personalized ringing pattern programmed for the telephone with the button (not the principal extension). The principal extension of a **Shared SA** button can use Send Ring. This feature overrides Delay Ring programmed for any telephones with **Shared SA** buttons for the principal extension. When a call arrives for the principal extension while it is busy, the **Shared SA** buttons ring immediately.
Saved Number Dial	If Saved Number Dial is used on a **Shared SA** button, the number is stored on the telephone that used the feature, not on the principal extension.
SMDR	When a call is made from a **Shared SA** button, the SMDR report records the extension from which the call was made, not the principal extension.
Transfer	A transferred call returns only to the telephone that originated the transfer, whether from an **SA** or a **Shared SA** button. If a transfer originator has a **Shared SA** button for the person receiving the transfer, the LED next to the **Shared SA** button flashes to indicate a ringing call. However, if the transfer originator answers the call, it is disconnected.

System Renumbering

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Automatic Route Selection Dial Plan Extension Directory Extension Information Group Paging Operator Information Remote Access (DISA) Information
Mode	All
Telephones	All
System Programming	Change the 2-digit numbering plan to 3-digit or Set Up Space: • SysRenumber→Default Numbering→2-Digit/3-Digit/Set-up Space Renumber individual extensions or groups of extensions, calling group extensions, Group Paging extension, pool dial-out codes, system operator park zones, the Listed Directory Number extension, the remote access code, the ARS access code, or assign the range of extensions on a DSS: • SysRenumber→Single • SysRenumber→Block
Maximum	Numbering Range: 0–9950
Factory Settings	
Numbering Plan	2-digit
ARS/Idle Line Access Code	9 (all numbering plans)
Calling Groups	770–791 and 7920–7929 (all numbering plans)
DSS **Page 1** button	starts with extension 0
DSS **Page 2** button	starts with extension 50
DSS **Page 3** button	starts with extension 100
Extra Adjuncts	6900–6985 (2-digit plan)
Extra Extensions	6800–6885 (2-digit plan)
Listed Directory Number	800 (all numbering plans)
MFMs/7500Bs	710–767 (2-digit plan) 300–443 (3-digit plan)
Operator	0 (not programmable)
Paging Groups	793–799 (all numbering plans)
Park Zones	881–888 (system operator only)

At a Glance - *Continued*

Factory Settings (continued)	
Pool	
Main Pool	70 (all numbering plans)
Dial-In Tie Trunk	891 (all numbering plans)
Automatic-In Tie Trunk	892 (all numbering plans)
Remote Access Code	889 (all numbering plans)
Extensions	10–67 (2-digit plan)
	100–243 (3-digit plan)
Trunks	801–880 (all numbering plans)

Description

System renumbering is the process of reassigning extension numbers to extensions, adjuncts, trunks, telephones, ranges of extensions on a DSS, Automatic Route Selection (ARS), calling groups, Idle Line Access, Listed Directory Number, paging groups, park zones, Pools, and Remote Access.

When the system is turned on, it identifies the type of module installed in each slot in the control unit and automatically assigns extension numbers. When assigning extension numbers, the system begins with the lowest-numbered slot containing extension jacks and assigns numbers starting with the bottom (lowest) jack and moving consecutively up to the top jack. The system then moves in ascending order to the next slot that contains extension jacks and repeats the assigning process.

The factory default assigns 2-digit extension numbers, starting with extension 10. If a user needs a specific extension number, it is simpler to connect the user's telephone to the extension jack that is already assigned the requested extension number than it is to renumber the jack where the telephone is connected.

Both the number of digits and the extension numbers assigned by the system can be changed to individually address a company's needs. For example, extension numbers can match room numbers.

Whenever extension numbers are renumbered, the following must be considered:

- Extension numbers can contain digits 0 through 9 in any combination, except that no extension can begin with 0. Zero is a fixed extension representing the primary system operator. The system can also be programmed to associate 0 with a QCC operator position.
- Extension numbers can contain one to four digits and must be unique. If you renumber an extension number with one or two digits, you cannot use

those digits as the leading digits for a longer extension number. For example, if extension numbers 1, 2, 30, and 40 are assigned to telephones, those numbers cannot be used as the first number in longer extension numbers such as 10, 200, 302, or 4052.

- Whenever an extension number is renumbered, the original extension number is available for use.
- The reserved system-assigned extension numbers (shown in Figures 41, 42, and 43) must be assigned a new extension number before the original extension number can be used for anything else.

The system offers three numbering plans:

- 2-Digit
- 3-Digit
- Set Up Space

Each of the plans allows renumbering of all or selected extensions (single or block). The system numbering plans, with the numbers they automatically assign, are shown in Figures 41 through 43 and are described in the following three sections.

NOTE:
Figures 41 through 43 show the default settings in the gray spaces. Extensions can be renumbered to any number shown in the white spaces.

2-Digit Numbering Plan

The 2-digit numbering plan is the factory setting. This plan is designed for companies with fewer than 50 extensions that do not anticipate a need for more than 50 extensions in the next one or two years.

Figure 41 shows the numbers automatically assigned by the system.

The numbers in Figure 41 are arranged in rows according to the first digit. The type of equipment, jack, or feature to which they are assigned is indicated in each block within the row.

0	**Operator Console (not flexible) 0**										
1	**Extensions 10–19**										
2	**Extensions 20–29**										
3	**Extensions 30–39**										
4	**Extensions 40–49**										
5	**Extensions 50–59**										
6	**Extensions 60–67**			**Extra Extensions 6800–6885**		**6886–6889**		**Extra Adjuncts 6900–6985**		**6986–6999**	
7	**Main Pool 70**		**MFMs/7500Bs 710–767**		**768, 769**	**Calling Groups 780–791,7920–7929**				**Paging Groups 793–799**	
8	**800***	**Trunks 801–880**				**Park 881–888**		**889†**		**Pools 890–899**	
9	**ARS Access (Hybrid/PBX Mode) / Idle Line Access 9**										

* Listed Directory Number (QCC Queue)
† Remote Access

Figure 41. 2-Digit Numbering Plan

Each of the first 58 extension jacks defaults to a 2-digit extension number beginning with 10 and ending with 67. The rest of the extensions (extension jacks 68–144) are assigned the 4-digit extension numbers 6800–6885.

The extension numbers shown for Multi-Function Modules (MFM) (710–767) are reserved for MLX extension jacks. These numbers are automatically assigned by the system to adjuncts (such as a modems, 7500B data modules, answering machines, or fax machines) connected to MLX telephones using MFMs. For the first 58 digital extension jacks (numbered 10 through 57), the extension number assigned to the MFM adjunct is the extension number assigned to the MLX telephone preceded by a 7. For example, if the extension assigned to an MLX telephone is 25, the extension for the MFM adjunct on that telephone is 725. In this example, a call can be made to the telephone by dialing *25* or to the adjunct by dialing *725*.

Additional extension jacks are shown in Figure 41 as Extra Extensions (6800–6885), and additional MFMs are shown as Extra Adjuncts (6900–6985). If extra extensions are assigned, the extension numbers for extra adjuncts are assigned by the system to MFM adjuncts. The extension number assigned to the MFM adjunct is the extension number assigned to the MLX telephone increased by 100. For example, if the extension assigned to an MLX telephone is 6800, the extension for the MFM adjunct on that telephone is 6900. In this example, a call can be made to the telephone by dialing *6800* or to the adjunct by dialing *6900*.

NOTE:

1. The extension numbers are reserved whether or not an adjunct is connected to an MLX telephone.
2. If you renumber the extension number of the telephone, the system does not automatically change the extension number of the adapter.

3-Digit Numbering Plan

The 3-digit numbering plan is designed for companies with more than 50 extensions. Figure 42 shows the numbers automatically assigned by the system when you renumber the system using the 3-digit numbering plan.

0	**Operator Console (not flexible) 0**					
1	**Extensions 100–199**					
2	**Extensions 200–243**	**Extensions 244–299**				
3	**MFMs/7500Bs 300–399**					
4	**MFMs/7500B 400–443**	**444–499**				
5	**500–599**					
6	**600–699**					
7	**Main Pool 70**	**71–76**	**Calling Groups 770–791, 7920–7929**			**Paging Groups 793–799**
8	**800***	**Trunks 801–880**		**Park 881–888**	**889†**	**Pools 890–899**
9	**ARS Access (Hybrid/PBX mode)/Idle Line Access**					

* Listed Directory Number (QCC Queue)

† Remote Access

Figure 42. 3-Digit Numbering Plan

Extensions default to 3-digit extension numbers beginning with 100 and ending with 243.

The extension numbers shown for Multi-Function Modules (MFMs) (300-443) are reserved for MLX extension jacks. These numbers are automatically assigned by the system to adjuncts (such as a data terminal, answering machine, or fax machine) connected to an MLX telephone using an MFM or 7500B data module. The extension number assigned to the MFM adjunct is the extension number assigned to the MLX telephone increased by 200. For example, if the extension assigned for an MLX telephone is 125, the extension for the adjunct on that telephone is 325. In this example, a call can be made to the telephone by dialing *125* or to the adjunct by dialing *325*.

NOTES:

1. The extension numbers are reserved whether or not an MFM adjunct is connected to an MLX telephone.
2. If you renumber the extension number of the telephone, the system does not automatically change the extension number of the MFM.

Set Up Space Numbering Plan

The Set Up Space numbering plan is designed for businesses that want to customize their system numbering plans and assign extension numbers that vary in length (1 to 4 digits). Variable-length extension numbers may be more meaningful for the business or more convenient for users; 1-, 2-, 3-, and 4-digit numbers can be used in the same system. As an example, hotels and motels may want to renumber extensions to match room numbers, and to renumber extensions for services (such as Housekeeping or Room Service) to more convenient 1-digit extension numbers.

Figure 43 shows the numbers automatically assigned by the system when you renumber the system using the Set Up Space numbering plan. As shown in Figure 43, the system reassigns extension numbers beginning with 7100 and ending with 7243. This makes all numbers beginning with 1 through 6 available for use in renumbering extension numbers. These new extensions can be from one to four digits long.

The extension numbers shown for Multi-Function Modules (7300-7443) are reserved for MLX extension jacks. These numbers are automatically assigned to adjuncts (such as modems, 7500B data modules, answering machines, or fax machines) connected to an MLX telephone using an MFM. The actual extension number assigned to the adjunct is the extension number assigned to the MLX telephone increased by 200. For example, if the extension for an MLX telephone is 7125, the extension for the MFM adjunct on that telephone is 7325. In this example, a call can be made to the telephone by dialing *7125* or to the adjunct by dialing *7325*.

0	Operator Console (not flexible)						
1	100–199						
2	200–299						
3	300–399						
4	400–499						
5	500–599						
6	600–699						
7	Main Pool 70	Extensions 7100–7243	7244–7299	MFMs/7500Bs 7300–7443	7444–7699	Calling Group 770–791, 7920–7929	Paging Groups 793–799
8	800*	Trunks 801–880		Park 881–888	889†	Pools 890–899	
9	ARS Access (Hybrid/PBX mode)/Idle Line Access 9						

* Listed Directory Number (QCC Queue)

† Remote Access

Figure 43. Set Up Space Numbering Plan

NOTES:

1. The extension numbers are reserved whether or not an adjunct is connected to an MLX telephone.
2. If you renumber the extension number of the telephone, the system does not automatically change the extension number of the adapter.

Renumbering Extensions

Table 39 gives a brief overview of the extensions that can or cannot be renumbered and lists their factory settings.

Single Renumbering

Single Renumbering should be used any time the extension numbers you are changing *to* or *from* are not sequential.

Single Renumbering can be used to assign a specified extension number to the following: extensions, adjuncts, trunks, telephones, Automatic Route Selection Access Code, calling groups, Idle Line Access Code, Listed Directory Number, paging groups, park zones, Pools, and remote access code.

Table 39. Renumbering Extensions

Extensions	Renumbering Yes or No	Factory Settings
ARS Access Code or Idle Line Access Code	Yes	9
Calling Groups	Yes	770–791 and 7920–7929
DSS **Page 1** button	Yes	starts with extension 0
DSS **Page 2** button	Yes	starts with extension 50
DSS **Page 3** button	Yes	starts with extension 100
Extra Adjuncts	Yes	6900–6985 (2-digit plan)
Extra Extensions	Yes	6800–6885 (2-digit plan)
Listed Directory Number*	Yes	800
MFMs	Yes	710–767 (2-digit plan) 300–443 (3-digit plan)
Operator (Primary System or QCC)	No	0
Paging Groups	Yes	793-799
Park Zones	Yes	881-888 (system operator only)
Pool	Yes	Main Pool: 70 Dial-in Tie Trunk: 891 Automatic-in Tie Trunk: 892
Remote Access Code	Yes	889
Extensions	Yes	10–67 (2-digit plan) 100–243 (3-digit plan)
Trunks	Yes	801–880

* In Hybrid/PBX mode, an extension is assigned to the Listed Directory Number (the published main number) for the QCC queue.

In Release 1.0, when using single renumber to assign a specified extension number, the system is forced idle during the renumbering process. In Release 1.1 and later, the system is not forced idle when renumbering telephones, Automatic Route Selection access code, calling groups, Idle Line Access Code, Listed Directory Number, paging groups, park zones, Pools, and remote access code. However, in Release 1.1 and later, when you are renumbering an extension, an adjunct, or a trunk, the individual facility is forced idle during the renumbering process.

Block Renumbering

Block renumbering can be used only when the extension numbers you are changing *from* are sequential and the extension numbers you are changing *to* are sequential. Block

renumbering can be used to assign extension numbers to a group of extensions, adjuncts, or lines.

When you are renumbering extensions using block renumbering, the system is forced idle during the process.

DSS Renumbering

System renumbering is used to assign the beginning extension number in a *page*. A page is the range of extension numbers that is assigned to a DSS. A single DSS can have three pages of extension numbers, with 50 extension numbers for each page, for a total of 150 extension numbers. When two DSSs are connected, each page's capacity is increased to 100 extension numbers. The two connected DSSs can have three pages of extension numbers, for a total of 300 extension numbers.

Page buttons work like Shift keys on a keyboard. When the operator presses a **Page** button, he or she selects a page of the DSS, which corresponds to a range of 50 (for a single DSS) or 100 (for two connected DSSs) extension numbers. The factory settings for **Page** buttons are as follows: the **Page 1** button begins with extension 0, the **Page 2** button begins with 50, and the **Page 3** button begins with 100.

If 2 DSSs are attached, the factory setting *must* be changed so that the difference between extensions assigned to the range is at least 100. For example, assign the **Page 1** button to begin with extension 10, the **Page 2** button to begin with extension 110, and the **Page 3** button to begin with extension 210. **Page** button assignments should be sequential.

The beginning extension number associated with each **Page** button is the same for all operator positions and cannot be programmed differently for individual operator positions.

Each **Page** button can be programmed to begin with any extension number that is a multiple of 50 in the range of 0–9950. However, to expedite call handling, the assignments should be sequential. The range starting with the lowest extension number should be assigned to **Page 1**, the range starting with the next higher extension number should be assigned to **Page 2**, and the range starting with the highest extension number should be assigned to **Page 3**. You cannot program individual buttons on a DSS.

Operator park zones must be included in the extension number range specified for one of the **Page** buttons.

Each of the 50 DSS buttons corresponds to one of three extension numbers. The specific extension number is determined by the **Page** button that the system operator presses. For example, if the first extension number for the **Page 1** button is programmed to be extension 100, the DSS buttons and associated LEDs on a single DSS correspond to extensions 100 to 149.

Remote Access Renumbering

The number assigned to the trunk can be reprogrammed and used (after appropriate digit deletion and addition) as a remote access code. Users can call in on a trunk, programmed to supply the remote access code, and reach a system dial tone (barrier code entry may be necessary). From the system dial tone, users can call an extension, call a calling group, call a trunk number (if permitted), or make an outside call (if permitted). See “Remote Access” for more information.

Considerations and Constraints

Extensions do not need to be renumbered in the following cases:

- The default 2-digit extension numbers are acceptable.
- No special extension numbers are needed.
- There are fewer than 50 extensions in the system.

Any extension number except 0 (system operator) can be renumbered. Trunk numbers (801–880) can be renumbered.

After an extension is renumbered, the original extension number is available for use. For example, after extension 32 is renumbered to 40, extension 32 is available for use.

System renumbering should not be confused with board renumbering, which is used when modules in the control unit are changed. For additional information about board renumbering, see *System Programming*.

When you use system renumbering in Release 2.0 or earlier with Integrated Solution III version 1.0 or 1.1, AUDIX Voice Power erases all messages and greetings for extensions that have been renumbered. This occurs when the automatic reconciliation program runs at 3:00 a.m. The reconciliation program is disabled in Integrated Solution III version 1.2.

Feature Interactions

Authorization Code	Authorization codes are associated with logical IDs, not extension numbers. If extensions are renumbered and the logical IDs for the extensions change, the authorization codes may be reassigned to different extensions.
Automatic Route Selection	In Hybrid/PBX mode, the Automatic Route Selection (ARS) access code (factory setting is 9) can be renumbered.
Ringing/Idle Line Preference	In Key and Behind Switch modes, the Idle Line Access code (factory setting is 9) can be renumbered.

Timed Flash

See “Recall/Timed Flash.”

Timer

At a Glance

Users Affected	Users, Operators
Reports Affected	None
Mode	All
Telephones	MLX display and analog multiline telephone users
MLX Display Label	Timer [Timer]

Description

Each MLX telephone and analog multiline display telephone has a timer to time calls, meetings, breaks, or other events. When activated, the timer appears at the top of the display, next to the date, and starts counting. It counts to 59 minutes and 59 seconds, then resets to zero and continues counting.

MLX Display Telephones

To start the timer on an MLX display telephone:

1. Press the **Menu** button.
2. Select Timer. If this feature is not displayed, press the **More** button. The display returns to the Home screen, and the timer starts counting automatically.

To stop the timer on an MLX display telephone:

1. Press the **Menu** button.
2. Select Timer. If this feature is not displayed, press the **More** button. The display returns to the Home screen, and the timer is no longer displayed.

Analog Multiline Display Telephones

To use the timer on an analog multiline display telephone:

1. Press the **Time/Timer** button.
2. Press the **Start** button to reset timer. The timer starts counting at ***00:00***.
3. When finished timing, press the **Stop** button. The timer stops counting.
4. Press **Time/Timer** to return to normal display.

NOTE:
If timing a call, the timer does not stop automatically when the call is completed.

Toll Type

At a Glance

Users Affected	Telephone users, operators
Reports Affected	General Trunk Information
Mode	All
Telephone	All
System Programming	Designate whether or not a toll prefix is required: • LinesTrunks→Toll Type
Factory Setting	Toll prefix required

Description

The Toll Type setting allows the system to classify calls as either local or toll, based on the number a user dials. The factory setting for Toll Type requires the user to dial a toll prefix (*1* or *0*) before dialing the area code and telephone number for a toll call. In some areas, a toll prefix is not necessary. The factory setting for Toll Type can be changed to specify that no toll prefix is required for these types of trunks.

Dialing a prefix depends on local telephone company requirements and the type of trunk being used.

Considerations and Constraints

Toll Type does not apply to tie trunks or Direct Inward Dialing (DID) trunks. The local telephone company must be consulted to determine which of the system's trunks require a toll prefix.

Mode Differences

Hybrid/PBX

Systems in Hybrid/PBX mode with Automatic Route Selection (ARS) always require the user to dial *1* before dialing a 10-digit toll call. Some 7-digit numbers may require dialing *1* as well.

Feature Interactions

Automatic Route Selection

In certain areas, the local telephone company requires dialing the prefix 1 for certain exchanges. In these cases, the exchanges can be assigned to a 1 + 7 ARS table, and the 1 + 7 Dial setting must be set to “within area code.” This dialing requirement is not related to toll type.

Disallowed Lists

When trunks with different toll types are connected to the system (for example, basic trunks and PRI facilities), a toll prefix (0 or 1) may be required for toll calls on some trunks but not on other trunks. In this case, two Disallowed List entries are required to restrict users from dialing specific area codes and/or telephone numbers. For example, to restrict users from dialing calls in the 505 area code on both toll types, one entry must be 1505 and the other entry must be 505. When the Disallowed List is assigned to an extension, the 505 entry restricts users from making calls to the 505 area code on trunks that do not require a toll prefix and the 1505 entry restricts users from making calls (including local calls) to the 505 area code on trunks that do require a toll prefix.

Touch-Tone or Rotary Signaling

At a Glance

Users Affected	Telephone users, operators
Reports Affected	DID Trunk Information GS/LS Trunk Information System Information Tie Trunk Information
Mode	All
Telephones	All
System Programming	Change individual trunk to rotary or touch-tone service: • LinesTrunks→TT/LS Disc→Outmode Change individual tie trunk to rotary or touch-tone service: • LinesTrunks→TIE Lines→Inmode Change individual tie trunk to rotary or touch-tone service: • LinesTrunks→TIE Lines→Outmode Change DID trunk block to rotary or touch-tone signaling: • LinesTrunks→DID→Signaling Change rotary signaling: • Options→**More**→Rotary→Delay/No Delay
Factory Settings	
DID	Rotary
Loop-Start/ Ground-Start	Touch-tone
Tie	Rotary
Rotary Signaling	Delay

Description

Touch-tone, tip/ring devices, such as single-line telephones or fax machines, are equipped with a dialpad that generates dual-tone multifrequency (DTMF) signals when a dial button is pressed. Analog multiline and MLX telephones are equipped with dialpads that generate digitally coded signals when a dial button is pressed. The duration of the signal sent is 50 milliseconds (50 ms) and is not adjustable.

A touch-tone receiver (TTR) is required to make calls from tip/ring equipment or to use the Remote Access feature. TTRs are provided on 400, 400 GS/LS, 800 DID, 008 OPT, 800 GS/LS-ID, and 012 modules. Normally, these TTRs are sufficient to handle the calls originated from these modules. However, additional TTRs may be needed to support the following services:

- Tie trunks and DS1-emulated tie trunks set for DTMF signaling
- Remote Access
- Account Code Entry
- Authorization Codes
- IS II/III AUDIX Voice Power
- IS II/III Integrated Voice Power Automated Attendant
- IS III FAX Attendant
- MERLIN MAIL
- AT&T Attendant

If more TTRs are needed to support these services, 400 GS/LS modules can be added (each module provides four TTRs). Table 40 shows the estimated number of TTRs needed, depending on the call volume and the type of service. Table 40 is based on the assumption that the system already has basic telephones, Remote Access, and tie trunks.

Table 40. Number of TTRs Required

Calls per Hour	No Acct. Codes or VMS/AA	Acct. Codes or VMS/AA	Acct. Codes or VMS/AA
110	2	4	6
180	4	6	8
350	4	8	10
420	6	8	10
610	6	10	12
710	8	10	14

The touch-tone receiver (TTR) is allocated for 15 seconds at the beginning of the call and decreases to 5 seconds as the number of digits dialed increases. Each time the user presses another digit, the TTR timer decreases. If the user does not dial a digit within the time frame, the TTR is removed from the call and, after about 24 seconds, the call is disconnected and the user hears a recording or a fast busy. The system is factory-set to generate touch-tone signals for all trunks, except tie trunks, when users dial outside calls. The factory setting can be changed for individual rotary trunks so that touch-tone signals are converted to rotary pulses for transmission to the central office.

Rotary signaling can be set for Delay or No Delay. Delay is the factory setting; it makes the rotary pulse inaudible to the telephone user and delays sending the dialed number from the control unit to the trunk until the user is finished dialing.

Considerations and Constraints

Tie trunks are set up either to send signals to or receive signals from another PBX, or they are set up to be bidirectional, that is, to send and receive signals. If the system has bidirectional tie trunks, the signaling can be set for both directions independently. For example, outgoing (outmode) signaling can be rotary and incoming (inmode) can be touch-tone. Consult the local telephone company for more information.

The audible feedback for touch tones generated when a user presses a dialpad button can be heard by any user who shares a personal line or a **Shared SA** button with the telephone that is used to make a call. Therefore, when dialing confidential numbers such as passwords or account information, the user should take precautions, such as activating Privacy, to prevent others from hearing the touch tones.

Touch-tone dial mode cannot be programmed for DID trunks that are immediate start.

Touch-tone dial mode cannot be programmed for incoming, immediate tie trunks.

Touch-tone, single-line telephone users cannot make calls using individual trunks programmed for rotary operation. The touch-tone signals generated from the telephone while dialing are transmitted to the central office at the same time the rotary signals are sent by the system. The central office receives both signals and cannot process the call.

Mode Differences

In Behind Switch mode, the factory setting for rotary signaling should be changed to No Delay.

Transfer

At a Glance

Users Affected	Telephone users, operators
Reports Affected	Operator Information SMDR System Information
Mode	All
Telephones	All
Programming Code	*774 (Behind Switch mode only)
MLX Display Label	Transfer [Trans]
System Programming	To program the **Transfer** button in Behind Switch mode: • Options→Behind Switch→Transfer To specify how long a transferred call goes unanswered before returning: • Options→Transfer→Return Time To assign One-Touch Transfer (with either Automatic or Manual Completion) or One-Touch Hold: • Options→Transfer→One Touch→Transfer (Manual/Automatic)/Hold To select button type (Ring or Voice) to use for transfers: • Options→Transfer→Type To specify either Music On Hold or ringback for the Transfer Audible: • Options→Transfer→Audible
Factory Settings	
Transfer Return Time	4 rings (range 1–9 rings, 0 = disabled)
One-Touch	Key and Hybrid/PBX: One-Touch Transfer with Automatic Completion Behind Switch: One-Touch Hold
One-Touch Transfer	Automatic Completion
Type of Transfer	Ring
Transfer Audible	
Outside callers	Music On Hold (if available)
Inside callers	Ringback (cannot be changed)

Description

Users can transfer inside or outside calls to inside extensions or to outside numbers. Transferring an outside call to an outside number is called *trunk-to-trunk transfer*.

Calls can be transferred with or without consultation:

- **With Consultation.** A transfer with consultation can be made only to an inside extension. The user initiating the transfer calls the destination extension and speaks to the person at that extension before completing the transfer.

  If the transfer is initiated on an **SA Voice** or **ICOM Voice** button, the transfer is called a *voice-announced transfer* (see "Type of Transfer," later in this section). In a voice-announced transfer, the user initiating the transfer can speak to the person at the inside destination extension on that person's speakerphone before completing the transfer. When the transfer is completed, it arrives at the destination extension as a ringing call.

- **Without Consultation.** A transfer without consultation can be made to an inside extension or an outside number. The user initiating the transfer completes the transfer before the person at the destination extension or number answers.

  NOTE:
  Queued Call Console (QCC) system operators ordinarily use the **Start** and **Release** buttons to transfer calls, rather than the transfer process described in this section. For more information, see "Queued Call Console."

Transfer Options

The sections below describe system-programmed options that determine how to transfer calls.

Transfer Return Time

If a transferred call is unanswered within a programmed number of rings, it rings back at the transfer originator's telephone. This transfer return time can be set to a value of 1 to 9 rings, or 0 (the factory setting is 4 rings). If the transfer return time is set to 0, a transferred call continues to ring until it is answered or the caller hangs up.

A returning transferred call continues to ring on the telephone it was transferred to and on the extension that originated the transfer until either user answers or the caller hangs up.

Timing begins when the transfer is completed. If the transfer fails for any reason (such as an invalid destination), the transfer return time is automatically set to 2 rings to allow a faster return, unless the programmed value is 0 (no transfer return).

Except on a QCC, returning transferred calls ring at the originating extension with a distinctive ring (a 3-ring pattern). Display telephone users also see the call type Return on the display.

NOTES:

1. A call transferred to an extension programmed as a fax extension does not return to the originator, but continues to ring at the fax extension. This eliminates the possibility that a high-pitched fax tone will be heard by the person who answers the returning call.
2. A call transferred to a calling group does not return, and the ringing and flashing LED is cleared from the **SA** or **ICOM** button on the originator's telephone as soon as the transfer is completed (the call does not stay on hold).

One-Touch Transfer

The system is programmed either for One-Touch Transfer (the factory setting in Hybrid/PBX mode and Key mode) or for One-Touch Hold (described below). With One-Touch Transfer, a telephone user or operator can transfer a call to another extension by pressing a programmed Auto Dial or Direct Station Selector (DSS) button for the extension. With this single press of a button, the active call is put on hold and the system automatically selects an **SA** or **ICOM** button and dials the transfer destination.

With One-Touch Transfer, the system is also programmed to complete transfers in one of the following ways:

- **Automatic Completion** (the factory setting). A transfer is completed automatically as soon as the Auto Dial or DSS button is pressed. The call is removed from the telephone that initiated the transfer and begins ringing at the destination extension.

  One-Touch Transfer with automatic completion does not allow a transfer with consultation. This type of transfer is always a ringing call, and voice announcements cannot be made. However, telephone users and operators can still initiate a transfer with consultation by pressing the **Transfer** button, then dialing the destination extension or pressing an Auto Dial or DSS button.

  Using One-touch Transfer with Automatic Completion, when a call is transferred to a busy extension or an extension with Do Not Disturb on, the transfer is completed automatically even though the call cannot be connected. The call does not return to the transfer originator until the transfer return time expires.

- **Manual Completion.** The originator completes the transfer by pressing the **Transfer** button or another line button, or by hanging up.

  One-Touch Transfer with Manual Completion allows a transfer with consultation; the user can delay completing the transfer until the destination extension is answered.

One-Touch Hold

If the system is not programmed for One-Touch Transfer, it is programmed for One-Touch Hold (the factory setting in Behind Switch mode). This transfer option applies to outside calls only. With One-Touch Hold, a telephone user or operator can transfer a call on an outside line button to another extension with a shared button for the same outside line. The user or operator presses an Auto Dial or DSS button for the extension to initiate the transfer. The outside call is put on hold, and the system automatically selects an **SA** or **ICOM** button and dials the transfer destination. The originator announces the call to the person at the destination extension, who completes the transfer by pressing the line button with the call.

There is no transfer return function with One-Touch Hold. If the transfer destination does not answer or is busy, the person who initiated the transfer must notify the outside caller, or the call remains on hold.

Type of Transfer

The system can be programmed for automatic selection of either a ringing button—**SA Ring** or **ICOM Ring** (the factory setting)—or a voice-announce button—**SA Voice** or **ICOM Voice**—when a transfer is initiated. Type of transfer does not apply to calls transferred outside the system.

If the system is programmed to select a ring button and one is available, the call rings at the destination extension. If the system is programmed to select a voice-announce button and one is available, the person at the destination extension hears a voice announcement. If that person does not have a speakerphone, has turned off Voice Announce to Busy, or is already using the speakerphone, the call is converted to a ringing call. A transfer to an outside number is always a ringing call.

If the specified type of button is not available, the system automatically selects the next available **SA** or **ICOM** button. If no **SA** or **ICOM** button is available, the caller is put on hold for transfer and no line is selected. The user can then select a **Shared SA** button, an **SA Originate Only** or **ICOM Originate Only** button, wait for a free **SA** or **ICOM** button, or select an outside line button to transfer a call to an outside number.

The following types of calls ring at the telephone they are transferred to, regardless of the programmed type of transfer:

- Calls that arrive after waiting in a callback or call-waiting queue
- Calls to busy extensions that do not have the Voice Announce to Busy capability
- Calls to a telephone with Voice Announce to Busy turned off
- Calls to a telephone whose speakerphone is in use
- Calls to single-line telephones

- Calls to a calling group
- Calls to a QCC operator

Transfer to Busy Extension

If a call is transferred to an extension with no **SA** or **ICOM** buttons available, the call is queued for the destination extension. If the destination extension is an MLX display telephone, it receives a Call Waiting message. If Call Waiting is programmed on any type of telephone, the destination extension receives a call-waiting tone. If an **SA** or **ICOM** button does not become available within the transfer return interval, the call is returned to the extension that initiated the transfer.

Transfer Audible

The system can be programmed so that when outside callers are on hold for transfer, they hear ringback or Music On Hold (the factory setting), if available. Music On Hold changes to ringback when the transfer is completed. Inside callers always hear ringback.

If Transfer Audible is programmed for Music On Hold, and if the person transferring a call hangs up before announcing it or uses Camp-On, the transfer is considered completed and the outside caller hears ringback instead of Music On Hold.

Considerations and Constraints

Calls transferred to outside numbers may vary in transmission quality.

Calls cannot be transferred to outside numbers on a loop-start trunk unless the trunk is programmed for reliable disconnect. (The Reliable Disconnect setting indicates that a disconnect signal is sent by the local telephone company to the system shortly after a caller hangs up.)

The ability to transfer calls to outside numbers cannot be specifically blocked for an individual extension. However, calling restrictions or Disallowed Lists can be assigned to individual extensions to prevent outward or toll calls.

When an outside call is transferred to an outside number (trunk-to-trunk transfer), two outside lines are used for as long as the call is in progress.

When a call is transferred to an outside number, the system does not recognize the transfer until a dialing timeout occurs. Avoid a delay by dialing # after dialing the telephone number.

When you try to complete a transfer to an outside number under the following conditions, the call to the outside destination is disconnected:

- The outside line used to make the call is a loop-start line programmed for unreliable disconnect.
- Another inside user joined the call and the call is now a conference call, which cannot be transferred.

The transfer originator does not receive an error tone to indicate that the transfer was denied. When a call is received on a T1 channel that is programmed to emulate a loop-start trunk and then is transferred to an outside telephone number where the caller hangs up before the call is answered, the call is not disconnected and remains on hold.

Except when One-Touch Hold is used, a transferred call always arrives on an **SA** or **ICOM** button or, when transferred to a QCC operator, on a **Call** button.

Calls cannot be transferred *from* an extension programmed for a fax machine, but inside and outside calls can be transferred *to* a fax machine. A call transferred to a fax extension does not return to the originator, but continues to ring at the fax extension. This eliminates the possibility that a high-pitched fax tone will be heard by the person who answers the returning call.

If a multiline telephone user presses the **Feature** button after initiating a transfer, the dialed digits activate a feature (for example, Privacy). After the feature is activated, the user should redial the extension or telephone number to transfer the call.

In Release 2.1 and later, a 012 port that is programmed as a generic VMI port can transfer an outside call to an outside number (trunk-to-trunk transfer). Release 2.0 and earlier systems can only perform a trunk-to-trunk transfer on ports programmed as integrated VMI.

SECURITY ALERT:
Calling Restrictions (for example, Disallowed Lists, Toll Restriction, Facility Restriction Levels) should be programmed, as appropriate, to minimize toll fraud abuse, especially if a single-line telephone is connected to an integrated VMI port. See "Calling Restrictions" for additional information on programming calling restrictions.

Mode Differences

Behind Switch Mode

In Behind Switch mode, the Transfer feature of the host switch is used instead of the system's Transfer feature when the fixed **Transfer** button is pressed. However, to activate Transfer, the fixed **Transfer** button on an MLX or analog multiline telephone must be programmed through system programming to send a timed flash plus the code expected by the host. The fixed button has no effect

when pressed during an intercom call within the communications system. (Inside transfers are made using trunk-to-trunk transfer on prime lines.) If use of the communications system's Transfer feature is also desired (to lower traffic on prime lines, for example), it must be programmed on an available line button on each multiline telephone through extension programming or centralized telephone programming, and then can only be used when transferring within the local system. (This option is not available in Hybrid/PBX or Key mode.) One-Touch Hold is the factory setting in Behind Switch mode. The selection of One-Touch Transfer is not blocked in system programming, but the setting is always One-Touch Hold regardless of which option is chosen.

In Behind Switch Mode, the Transfer Return Time and Type of Transfer options apply only to inside transfers (Intercom/SA calls made within the communications system), in which the caller, the transfer originator, and the transfer destination are all system extensions.

Telephone Differences

Queued Call Consoles

The QCC operator uses the **Start** and **Release** buttons or a DSS button to transfer calls. However, pressing the **Transfer** button on a QCC is the same as pressing the **Start** button.

A QCC operator cannot make or receive voice-announced transfers.

When a QCC operator uses the **Start** and **Release** buttons to transfer a call, the QCC return ring interval applies for transfer return timing instead of the transfer return time. The QCC return ring interval is the number of rings (1–15) before an unanswered extended call returns to the QCC queue. See "Queued Call Console" for additional details.

Single-Line Telephones

The One-Touch Transfer option does not apply to single-line telephones.

Single-line telephone users cannot make voice-announced transfers. A single-line telephone user cannot transfer an outside call to an outside number. If the user tries to complete a trunk-to-trunk transfer, the caller remains on hold for transfer and the transfer destination is disconnected.

To make a transfer with consultation, the single-line telephone user presses and releases the **Recall** or **Flash** button or switchhook. The call is put on hold. The user then dials the destination extension. After consultation, the user hangs up and the call is transferred. If the transfer cannot be made, the user presses and releases the **Recall** or **Flash** button or switchhook to return to the caller. To make a transfer without consultation, the single-line telephone user presses and releases the **Recall** or **Flash** button or switchhook, dials the extension or outside number, and hangs up. The call is transferred.

If a single-line telephone with positive or timed disconnect is used, for example, AT&T models 2500YMGL and 2500MMGK, pressing the switchhook disconnects the call. With this type of telephone, the **Recall** button must be used instead of the switchhook to transfer a call.

Feature Interactions

Auto Dial

Users can press inside Auto Dial buttons instead of dialing extension numbers to transfer calls. To use One-Touch Transfer, users must program an Auto Dial button for every extension to which they transfer calls. When a system operator transfers a call and it returns unanswered, the green LED next to the Auto Dial button flashes to indicate the extension from which the call is returning. Only system operators receive this indication.

Automatic Line Selection

The ALS sequence does not apply when the **Transfer** button is pressed.

Callback

A queued callback call cannot be transferred, but calls transferred to busy extensions are eligible for Callback. When a user reaches a busy extension while transferring a call, Automatic Callback or Selective Callback can be used to queue the call before completing the transfer. The caller hears ringback or Music On Hold.

When the extension is available, the call is transferred to the extension automatically. If the extension is not available before the transfer return time expires, the call is removed from the callback queue and returned to the originator.

Caller ID

If a call comes in over a line connected to an 800 GS/LS-ID module and the customer subscribes to Caller ID service (loop-start lines/trunks only), when the call is transferred, the caller's telephone number is shown on Line 1 of the first screen. The extension that initiated the transfer is shown on Line 1 of the second screen. (The call must be from an area where call identification is supported.)

Caller ID information is displayed when a call returns from transfer because the extension that the call was transferred to is busy or is not answering.

Call Waiting

If a transfer is completed to a busy extension, the destination hears the call-waiting tone, if programmed, and the caller hears call-waiting ringback. The call waits in queue until the transfer return time expires. Calls answered by picking up a call-waiting call cannot be transferred.

Camp-On

A transfer can be completed by using the Camp-On feature, whether or not the destination extension is busy. When the feature is used, the Camp-On return interval is used instead of the transfer return time. The Camp-On return interval is normally longer.

Camp-On ***continued***

A transfer can be camped-on only to an inside extension. If a user presses the programmed **Camp-On** button or dials the Camp-On feature code while transferring a call to an outside number, the call to the outside number is disconnected. The original call remains on hold.

Conference

A conference call cannot be transferred. However, a user who starts a conference sequence can complete it by pressing the **Transfer** button and transfer the original call instead of completing the conference. Likewise, if a transfer originator has one person on hold for transfer and, after dialing the destination extension or telephone number, decides to establish a conference call, he or she can press the **Conf** button to establish the conference instead of completing the transfer.

Coverage

Calls transferred to a sender are eligible for Individual and/or Group Coverage. However, if the sender is using Coverage On/Off to prevent calls from going to coverage and does not have an available **SA** or **ICOM** button to receive a transferred call, the sender hears a call-waiting tone, even if an Individual or Group Coverage receiver is available.

Calls answered on a Primary Cover, Secondary Cover, or Group Cover button can be transferred using One-Touch Transfer or the **Transfer** button.

Transfer returns are not eligible for Individual or Group Coverage.

Direct Station Selector

DSS buttons can be used to transfer outside calls using One-Touch Hold only by a DLC operator; a QCC operator cannot use this feature. When One-Touch Hold is programmed, if a DLC operator presses a DSS button with an inside caller on the line or, in Hybrid/PBX mode, with an outside caller on an **SA** button, the call is not put on hold. A beep is sent to the extension instead.

When One-Touch Transfer (with either Automatic Completion or Manual Completion) is programmed, and the system operator presses a DSS button while a caller is on the line with no **SA** or **ICOM** button is available to transfer the call, the call does not go on hold. If the operator hangs up, the caller is disconnected.

Display

When an MLX display telephone user presses the **Transfer** button, the display prompts the user to dial the extension number and shows the digits as they are dialed. When dialing is completed, the display shows the name of the person at the destination extension, if labels are programmed.

Display *continued*

Transfer return calls are identified by call type and by the name and extension number to which the call was transferred. The second line of the display also shows the caller information. When an MLX display telephone user receives a transferred call, the display shows the type of call and the caller information on Line 1. When an inside call is being transferred, the display shows the extension number or trunk number. When an outside call is being transferred the line the call came in on or the caller's telephone number, if automatic number identification (ANI) or Caller ID is available, is shown. The transfer originator is shown on Line 2.

When an MLX display telephone user makes a voice-announced transfer, the display on his or her telephone shows Announce to. After the transfer is completed, the user's display shows Call Transferred.

When an MLX display telephone user does not complete a transfer (for example, because Do Not Disturb is on at the destination extension), the call returns to the originator's telephone and call information is displayed. The reason for the incomplete transfer is not indicated.

Do Not Disturb

If a call is transferred to an extension that has Do Not Disturb on and that has neither forwarding on nor coverage receivers, the call returns to the transfer originator immediately. If there are coverage receivers, the transfer returns to the originator after the transfer return time expires.

Forced Account Code Entry

When a call is transferred, the destination extension cannot enter an account code or overwrite the account code entered at the originating telephone.

Forward/Follow Me

Transferred inside and outside calls are forwarded. If a user transfers a call to an extension with Forward activated, the person receiving the forwarded calls hears one ring, indicating an inside call. In addition, if the person has a display telephone, he or she sees the call information for an inside call.

Group Calling

A call transferred to a calling group does not return to the originator; the call is handled just as any other call received in the calling group queue. For example, the system follows the programmed hunt sequence to locate an available calling group member, and the call is eligible for a delay announcement if one is programmed.

A calling group member is considered available for a call while in the process of transferring a call.

Voice-announced transfers cannot be made to a calling group. There is no limit to the number of calls that can be transferred to a calling group.

When an inside caller is transferred to a calling group and no members are available, the caller hears regular ringback. When an outside caller is transferred to a calling group and no members are available, the caller hears regular ringback or Music On Hold, if programmed.

If a call being transferred to a calling group is on an **SA** or **ICOM** button, the button is cleared.

Headset Options

When an MLX telephone user (except for a QCC operator) transfers a call, Headset Auto Answer is turned off and must be turned on manually to resume using the feature.

Hold

Calls on hold for transfer are timed so that the user or system operator hears a reminder after the timer expires.

In Release 2.1 and later, a call that has been put on hold at a Cover, **SA**, **Shared SA**, or **Pool** button can be picked up by a user who has a personal line button for the call. When the call is picked up, the green light next to the personal line lights steady; however, the call remains on hold at the Cover, **SA**, **Shared SA**, or **Pool** button. The user who picked up on the personal line cannot transfer the call that has been picked up. In order to transfer a call on hold at a Cover, **SA**, **Shared SA** or **Pool** button, use Pickup instead of answering on a personal line button.

Inspect

If an MLX telephone user presses the **Transfer** button while in Inspect mode, Inspect is canceled and the user is returned to the Home screen and transfer is initiated.

Last Number Dial

The Last Number Dial feature can be used to originate a transfer to an outside telephone number.

Line Request

Returning transferred calls cancel Line Request.

Messaging

A nondisplay telephone user who uses Leave Message to send a message while a transfer is in progress cannot determine who received the message.

For example, suppose that Extension A calls Extension B, and Extension B transfers the call to Extension C. If Extension A sends a message before the transfer is completed, Extension B receives the message. If Extension A sends a message after Extension B completes the transfer, Extension C receives the message, even if Extension C does not answer and the call is ringing at Extension B as a transfer return.

If an inside call is transferred to a telephone with a posted message, only the display telephone user who transfers the call sees the message. The original caller does not see the posted message even after the transfer is completed.

If a call is transferred to an extension programmed for a fax machine, the message indication is not sent to the fax message-waiting receiver, regardless of the amount of time programmed for the fax message-waiting threshold.

Microphone Disable

A call to a user whose microphone is disabled can be transferred with a voice announcement, but the user must lift the handset to talk.

Multi-Function Module	Calls cannot be transferred from an MFM because the MFM cannot send a switchhook flash.
Music On Hold	An outside caller hears Music On Hold if it is programmed as the transfer audible. Music is played only before the transfer is completed by the originating extension. The caller hears music when the **Transfer** button is pressed and while the destination extension is being dialed. When the transfer originator presses the **Transfer** button a second time or hangs up, the caller hears ringback.
Paging	Calls cannot be transferred to paging groups or the loudspeaker paging extension.
Park	A user can park calls by pressing the **Transfer** button and dialing his or her own extension. A DLC operator can also press the **Transfer** button and dial a system operator park zone extension. When either of these methods are used, the transfer must be completed by pressing the **Transfer** button or hanging up. This method cannot be used by QCC operators.
Pickup	A transferred call can be answered by using Pickup.
PRI	If a call comes in over a PRI facility where ANI is available, the caller's telephone number is shown on Line 1 of the first screen when the call is transferred. The extension that initiated the transfer is shown on Line 1 of the second screen.
Recall	A single-line telephone user with a **Recall** or **Flash** button can use it to transfer a call.
Ringing Options	Transfer returns ring until answered and do not receive Abbreviated Ring. Ring Timing options are ignored on a transfer return call; the button rings immediately, even if it is programmed for No Ring.
Saved Number Dial	The Saved Number Dial feature can be used to originate a transfer to an outside telephone number.
Signaling	A Signaling button can be used to dial the destination extension after the **Transfer** button is pressed but cannot be used to initiate One-Touch Transfer.
Speed Dial	Both Personal Speed Dial and System Speed Dial can be used to dial a transfer destination.
SMDR	The number of the extension that hangs up on an incoming outside call is shown in the STN field of the Station Message Detail Recording (SMDR) report, regardless of how many times the call is transferred. For a call to an outside number, the extension that dialed the call is shown on the SMDR report, even if the call is then transferred to another extension.

System Access/Intercom Buttons

Transferred calls always arrive on **SA** or **ICOM** buttons. The only exception is that when One-Touch Hold is used, the transferred outside call stays on hold on an outside line button until it is picked up. When a transfer is initiated, the system automatically selects an **SA** or **ICOM** button. (A **Shared SA** button is not automatically selected.) If no button is available, the caller is put on hold for transfer and no line is selected. The user can then select a **Shared SA** button or an **SA Originate Only** or **ICOM Originate Only** button, wait for a free **SA** or **ICOM** button, or select an outside line button to transfer a call to an outside number.

A transferred call that returns to the principal extension does not ring on any corresponding **Shared SA** buttons. If a transfer originator has a **Shared SA** button for the person receiving the transfer, the LED next to the **Shared SA** button flashes to indicate a ringing call. However, the call is disconnected if the transfer originator answers.

Voice Announce to Busy

At a Glance

Users Affected	Telephone users, DLC operators
Reports Affected	Extension Directory Extension Information
Mode	All
Telephones	All except QCC and single-line telephones
Programming Code	
Receive On	**10*
Receive Off	***10*
MLX Display Label	Voice Annce,Receive,On[Voice,Recv,On] Voice Annce,Receive,Off[Voice,Recv,Off]
System Programming	Extensions→VoiceSignl
Factory Setting	Voice announcements on

Description

Voice Announce to Busy allows MLX and analog multiline telephone users to receive inside calls on their speakerphones, even if they are on a call. A telephone user can turn off all incoming voice announcements, calls made from an **SA Voice** or **ICOM Voice** button on another extension, or group pages.

When Voice Announce to Busy is turned on at an extension and the handset at that extension is in use, an inside caller can reach that extension by speaking on its speakerphone. When Voice Announce to Busy is turned off at an extension, no caller can turn on that extension's speakerphone. However, the user at that extension can still make calls and speak on the speakerphone.

Voice Announce to Busy requires two communication channels between the control unit and the telephone, one for voice-announced calls and one for ringing calls. Turning off the feature at an extension converts the second, voice-announced, channel into a ringing channel. Calls made to the extension as voice-announced calls arrive as ringing calls instead.

For an MLX telephone, Voice Announce to Busy is automatically available because the MLX extension jack provides two communication channels. For an analog multiline telephone, enabling the feature requires assigning two consecutive extension jacks to the telephone. The extension assigned to the odd-numbered jack is the telephone's extension; the extension assigned to the next higher even-numbered jack is used for voice announcements and cannot be dialed. A single-line telephone cannot receive voice-announced calls even if the set has a speakerphone.

When a caller makes a voice-announced call to an extension with Voice Announce to Busy, the caller hears a tone. The called person hears a beep and the caller's voice over the speakerphone, unless one of the following is true:

- The called person is already using the speakerphone. In this case, the caller hears ringback and the called person hears an abbreviated ring, if programmed.
- The called person has turned off Voice Announce to Busy. In this case, the caller hears ringback and the called person hears ringing for an inside call.
- The called person has turned on Do Not Disturb. The caller hears a busy signal and, if the caller has a display telephone, sees the message DO NOT DISTURB.

Considerations and Constraints

By turning off Voice Announce to Busy, MLX and analog multiline telephone users can prohibit all voice announcements to their telephones. When a user turns off Voice Announce to Busy, the Hands Free Answer on Intercom (HFAI) capability is also turned off.

Voice Announce to Busy should be turned off at data stations that include an MLX telephone or that include an analog multiline telephone, a GPA, and a modem.

Telephone Differences

Queued Call Consoles

Voice Announce to Busy is turned off on a QCC and cannot be turned on. In addition, voice-announced transfers cannot be made from the QCC.

Other Multiline Telephones

Voice Announce to Busy is available only on multiline telephones. The feature is automatically available on an MLX telephone. An analog multiline telephone requires an additional extension jack.

MLC-5, MDC 9000, and MDW 9000 cordless and cordless/wireless telephones cannot receive voice-announced calls. However, Voice Announce to Busy is not automatically turned off for this type of telephone. If a multiline telephone user tries to make a voice-announced call to a cordless telephone on which Voice Announce to Busy has not been turned off, the cordless telephone beeps. The user can then answer the call using the handset.

Single-Line Telephones

Single-line telephone users cannot make or receive voice announcements, even if the set has a speakerphone.

Feature Interactions

Do Not Disturb	A user with Do Not Disturb on does not receive voice announcements.
HFAI	When Voice Announce to Busy is turned on, HFAI is disabled.
Paging	A user who turns off Voice Announce to Busy does not receive group pages.

Volume

At a Glance

Users Affected	Telephone users, operators
Mode	All
Telephones	MLX telephones

Description

The **Volume** button on the MLX-10, MLX-10D, MLX-10DP, MLX-20L, and MLX-28D telephones controls the volume levels for ringing, conversations on the handset, and conversations on the speakerphone. The user can set each of these volume levels independently of the others, and it stays as set until the user changes it again.

Press the side of the **Volume** button labeled ∧ to raise the volume and the side labeled ∨ to lower it, as follows:

- Change the ringing volume while the telephone is ringing.
- Change the handset volume while on a call using the handset.
- Change the speakerphone volume while on a call using the speakerphone.

Telephone Differences

Only MLX telephones have a **Volume** button.

Customer Support Information

A

Support Telephone Number

In the U.S.A. only, AT&T provides a toll-tree customer Helpline (1-800-628-2888) 24 hours a day. If you need assistance when installing, programming, or using your system, call the Helpline, or your AT&T representative.

Outside the U.S.A., if you need assistance when installing, programming, or using your system, contact your AT&T representative.

Federal Communications Commission (FCC) Electromagnetic Interference Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Department of Communications (DOC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioelectriques dépassant les limites applicables aux appareils numériques de la class A préscrites dans le reglement sur le brouillage radioélectrique edicté par le ministère des Communications du Canada.

FCC Notification and Repair Information

This equipment is registered with the FCC in accordance with Part 68 of its rules. In compliance with those rules, you are advised of the following:

- **Means of Connection.** Connection of this equipment to the telephone network shall be through a standard network interface jack, USOC RJ11C, RJ14C, RJ21X. Connection to E&M tie trunks requires a USOC RJ2GX. Connection to off-premises extensions requires a USOC RJ11C or RJ14C. Connection to 1.544-Mbps digital facilities must be through a USOC RJ48C or RJ48X. Connection to DID requires a USOC RJ11C, RJ14C, or RJ21X. These USOCs must be ordered from your telephone company.
- **Party Lines and Coin Telephones.** This equipment may not be used with party lines or coin telephone lines.
- **Notification to the Telephone Companies.** Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the following:
  - — The telephone number(s) you will be using with this equipment.
  - — The appropriate registration number and ringer equivalence number (REN), which can be found on the back or bottom of the control unit, as follows:
    - If this equipment is to be used as a Key system, report the number AS593M-72914-KF-E.
    - If the system provides both manual and automatic selection of incoming/outgoing access to the network, report the number AS593M-72682-MF-E.

- If there are no directly terminated trunks, or if the only directly terminated facilities are personal lines, report the number AS5USA-65646-PF-E.
- The REN (Ringer Equivalency Number) for all three systems is 1.5A.

— For tie line connection, the facility interface code (FIC) is TL31M and the service order code (SOC) is 9.0F.

— For connection to off-premises stations, the FIC is OL13C and the SOC is 9.0F.

— For equipment to be connected to 1.544-Mbps digital service, the FIC is 04DU9-B for D4 framing format or 04DU9-C for extended framing format, and the SOC is 6.0P.

— For equipment to be connected to DID facilities, the FIC is 02RV2-T and the SOC is 9.0F.

— The quantities and USOC numbers of the jacks required.

— For each jack, the sequence in which lines are to be connected, the line types, the FIC, and the REN by position when applicable.

- **Disconnection.** You must also notify your local telephone company if and when this equipment is permanently disconnected from the line(s).
- **REN.** The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the line may result in the devices not ringing in response to an incoming call. In most, but not all, areas the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENS, contact the telephone company to determine the maximum REN for the calling area.

Installation and Operational Procedures

The manuals for your system contain information about installation and operational procedures.

- **Repair Instructions.** If you experience trouble because your equipment is malfunctioning, the FCC requires that the equipment not be used and that it be disconnected from the network until the problem has been corrected. Repairs to this equipment can be made only by the manufacturers, their authorized agents, or others who may be authorized by the FCC. In the event repairs are needed on this equipment, contact your authorized AT&T dealer or, **in the U.S.A. only**, contact the National Service Assistance Center (NSAC) at 1-800-628-2888.

- **Rights of the Local Telephone Company.** If this equipment causes harm to the telephone network, the local telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.
- **Changes at Local Telephone Company.** Your local telephone company may make changes in its facilities, equipment, operations, or procedures that affect the proper functioning of this equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.
- **Hearing Aid Compatibility.** The custom telephone sets for this system are compatible with inductively coupled hearing aids as prescribed by the FCC.
- **Automatic Dialers.** WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS:
  - — Remain on the line and briefly explain to the dispatcher the reason for the call.
  - — Perform such activities in off-peak hours, such as early morning or late evening.
- **Direct Inward Dialing (DID).** This equipment returns answer supervision signals to the Public Switched Telephone Network when:
  - — Answered by the called station
  - — Answered by the attendant
  - — Routed to a recorded announcement that can be administered by the customer premises equipment user
  - — Routed to a dial prompt

  This equipment returns answer supervision on all DID calls forwarded back to the Public Switched Telephone Network. Permissible exceptions are when:
  - — A call is unanswered
  - — A busy tone is received
  - — A reorder tone is received

  Allowing this equipment to be operated in such a manner as not to provide proper answer supervision signaling is in violation of Part 68 rules.

DOC Notification and Repair Information

NOTICE: The Canadian Department of Communications (DOC) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The DOC does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to connect it to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring for single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or any equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected. This precaution may be particularly important in rural areas.

! CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority or electrician, as appropriate.

To prevent overloading, the Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop used by the device. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

DOC Certification No.: 230 4095A
CSA Certification No.: LR 56260
Load No.: 6

Renseignements sur la notification du ministère des Communications du Canada et la réparation

AVIS: L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'enterprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel aux jacks d'abonné, sauf dans les cas précis prévus pas les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

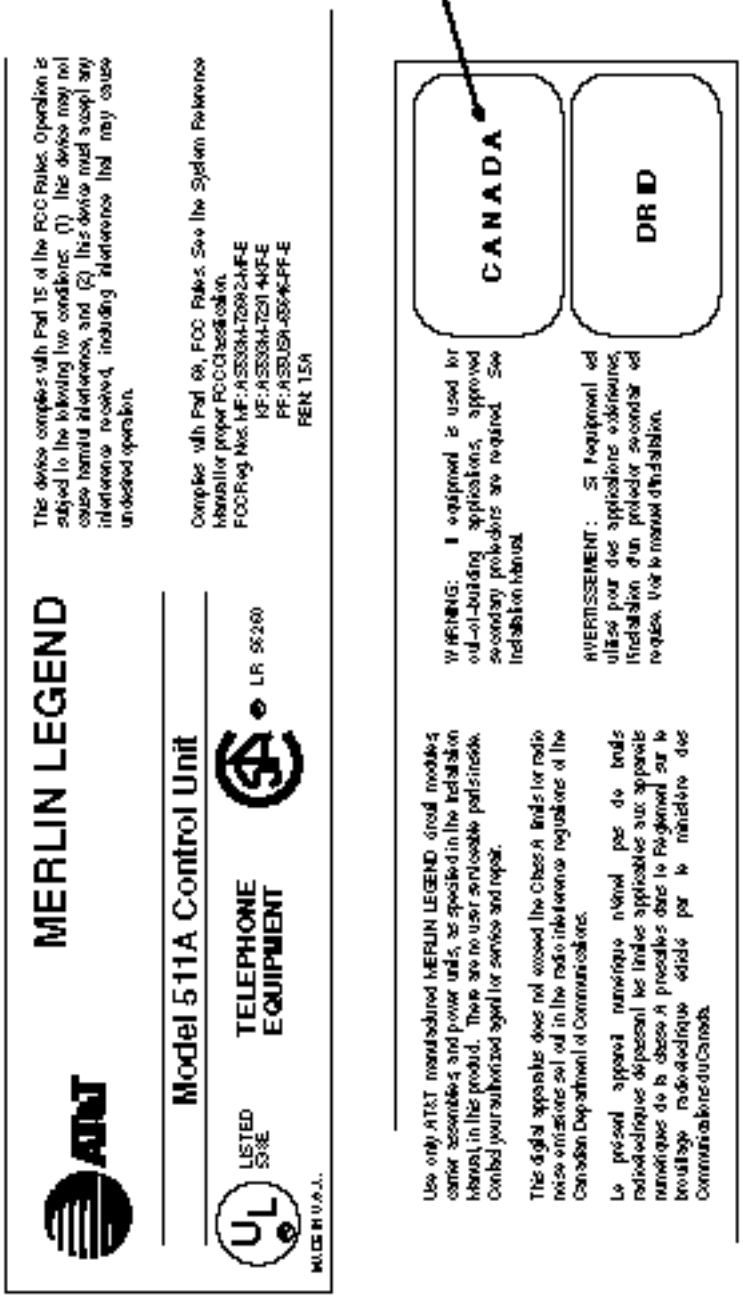
AVERTISSEMENT: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un electricien, selon le cas.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositits ne dépasse pas 100.

No d'homologation: 230 4095A
No de certification: CSA LR 56260
L'indice de charge: 6

MERLIN LEGEND D.O.C. Location Label Placement

Ministère des Communications du Canada emplacement de l'étiquette



Security of Your System: Preventing Toll Fraud

As a customer of a new telephone system, you should be aware that there is an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, and breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the telephone network through the use of remote access features.

The Remote Access feature of your system, if you choose to use it, permits off-premises callers to access the system from a remote telephone by using a telephone number with or without a barrier code. The system returns an acknowledgment signaling the user to key in his or her barrier code, which is selected and administered by the system manager. After the barrier code is accepted, the system returns dial tone to the user. If you do not program specific outward calling restrictions, the user will be able to place any call normally dialed from a telephone associated with the system. Such an off premises network call is originated at, and will be billed from, the system location.

The Remote Access feature, as designed, helps the customer, through proper administration, to minimize the ability of unauthorized persons to gain access to the network. Most commonly, phone numbers and codes are compromised when overheard in a public location, through theft of a wallet or purse containing access information, or through carelessness (for example, writing codes on a piece of paper and improperly discarding it). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Enormous charges can be run up quickly. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and administer the various restriction levels, protect access codes, and distribute access codes only to individuals who have been fully advised of the sensitive nature of the access information.

Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. AT&T cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

To minimize the risk of unauthorized access to your communications system:

- Use a nonpublished Remote Access number.
- Assign access codes randomly to users on a need-to-have basis, keeping a log of *all* authorized users and assigning one code to one person.
- Use random-sequence access codes, which are less likely to be easily broken.
- Deactivate all unassigned codes promptly.
- Ensure that Remote Access users are aware of their responsibility to keep the telephone number and any access codes secure.
- When possible, restrict the off-network capability of off-premises callers, using calling restrictions, Facility Restriction Levels, and Disallowed List capabilities.
- When possible, block out-of-hours calling.
- Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.
- Limit Remote Call Forwarding to persons on a need-to-have basis.

Limited Warranty and Limitation of Liability

AT&T warrants to you, the customer, that your MERLIN LEGEND Communications System will be in good working order on the date AT&T or its authorized reseller delivers or installs the system, whichever is later (“Warranty Date”). If you notify AT&T or its authorized reseller within one year of the Warranty Date that your system is not in good working order, AT&T will without charge to you repair or replace, at its option, the system components that are not in good working order. Repair or replacement parts may be new or refurbished and will be provided on an exchange basis. If AT&T determines that your system cannot be repaired or replaced, AT&T will remove the system and, at your option, refund the purchase price of your system, or apply the purchase price towards the purchase of another AT&T system.

If you purchased your system directly from AT&T, AT&T will perform warranty repair in accordance with the terms and conditions of the specific type of AT&T maintenance coverage you selected. If you purchased your system from an AT&T-authorized reseller, contact your reseller for the details of the maintenance plan applicable to your system.

This AT&T limited warranty covers damage to the system caused by power surges, including power surges due to lightning.

The following will not be deemed to impair the good working order of the system, and AT&T will not be responsible under the limited warranty for damages resulting from:

- Failure to follow AT&T's installation, operation, or maintenance instructions
- Unauthorized system modification, movement, or alteration
- Unauthorized use of common carrier communication services accessed through the system
- Abuse, misuse, or negligent acts or omissions of the customer and persons under the customer's control
- Acts of third parties and acts of God

AT&T'S OBLIGATION TO REPAIR, REPLACE, OR REFUND AS SET FORTH ABOVE IS YOUR EXCLUSIVE REMEDY.

EXCEPT AS SPECIFICALLY SET FORTH ABOVE, AT&T, ITS AFFILIATES, SUPPLIERS, AND AUTHORIZED RESELLERS MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Limitation of Liability

EXCEPT FOR PERSONAL INJURY, DIRECT DAMAGES TO TANGIBLE PERSONAL PROPERTY PROXIMATELY CAUSED BY AT&T, AND LIABILITY OTHERWISE EXPRESSLY ASSUMED IN A WRITTEN AGREEMENT SIGNED BY AT&T, THE LIABILITY OF AT&T, ITS AFFILIATES, SUPPLIERS, AND AUTHORIZED RESELLERS FOR ANY CLAIMS, LOSSES, DAMAGES, OR EXPENSES FROM ANY CAUSE WHATSOEVER (INCLUDING ACTS OR OMISSIONS OF THIRD PARTIES), REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT OR OTHERWISE, SHALL NOT EXCEED AN AMOUNT EQUAL TO THE LESSER OF THE DIRECT DAMAGES PROVEN OR THE PURCHASE PRICE OF THE SYSTEM. IN NO EVENT SHALL AT&T OR ITS AFFILIATES, SUPPLIERS, OR AUTHORIZED RESELLERS BE LIABLE FOR INCIDENTAL, RELIANCE, CONSEQUENTLY, OR ANY OTHER INDIRECT LOSS OR DAMAGE (INCLUDING LOST PROFITS OR REVENUES) INCURRED IN CONNECTION WITH THE SYSTEM. THIS LIMITATION OF LIABILITY SHALL SURVIVE FAILURE OF THE EXCLUSIVE REMEDY SET FORTH IN THE LIMITED WARRANTY ABOVE.

Voice Mail Systems

Your voice mail system permits callers to leave verbal messages for system users or gain access to the backup position in an emergency as well as create and distribute voice messages among system users.

The voice mail system, through proper administration, can help you reduce the risk of unauthorized persons gaining access to the network. However, phone numbers and authorization codes can be compromised when overheard in a public location, are lost through theft of a wallet or purse containing access information, or through carelessness (writing codes on a piece of paper and improperly discarding them). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Substantial charges can accumulate quickly. It is your responsibility to take appropriate steps to implement the features properly, evaluate and administer the various restriction levels, protect and carefully distribute access codes.

Under applicable tariffs, you will be responsible for payment of toll charges. AT&T cannot be responsible for such charges and will not make any allowance or give any credit resulting from unauthorized access.

To reduce the risk of unauthorized access through your voice mail system, please observe the following procedures:

- Employees who have voice mailboxes should be required to use the passwords to protect their mailboxes.
  - — Have them use random sequence passwords.
  - — Impress upon them the importance of keeping their passwords a secret.
  - — Encourage them to change their passwords regularly.
- The administrator should remove any unneeded voice mailboxes from the system immediately.
- AUDIX Voice Power has the ability to limit transfers to subscribers only. You are strongly urged to limit transfers in this manner.
- Use the Hybrid/PBX or Key system administration capability to do the following:
  - — Block direct access to outgoing lines and force the use of account codes/authorization codes.
  - — Disallow trunk-to-trunk transfer unless required.
  - — Assign toll restriction levels to all AUDIX Voice Power ports or other voice mail ports.
  - — If you do not need to use the Outcalling feature, completely restrict the outward calling capability of the AUDIX Voice Power ports. Use voice mail application features to do this.
- Monitor SMDR reports or Call Accounting System reports for outgoing calls that might be originated by AUDIX Voice Power ports or other voice mail ports.

Remote Administration and Maintenance

The Remote Administration and Maintenance feature of your telecommunications system, if you choose to use it, permits users to change the system features and capabilities from a remote location.

The Remote Administration and Maintenance feature, through proper administration, can help you reduce the risk of unauthorized persons gaining access to the network. However, telephone numbers and access codes can be compromised when overheard in a public location, are lost through theft of a wallet or purse containing access information, or through carelessness (for example, writing codes on a piece of paper and improperly discarding them). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Substantial charges can accumulate quickly. It is your responsibility to take appropriate steps to implement the features properly, evaluate and administer the various restriction levels, and protect and carefully distribute access codes.

Under applicable tariffs, you will be responsible for payment of toll charges. AT&T cannot be responsible for such charges and will not make any allowance or give any credit resulting from unauthorized access.

To reduce the risk of unauthorized access through Remote Administration and Maintenance, please observe the following procedures:

- The System Administration and Maintenance capability of a Hybrid/PBX or Key system is protected by a password.
  - — Change the default password immediately.
  - — Continue to change the password regularly.
  - — Only give the password to people who need it and impress upon them the need to keep it secret.
  - — If anyone who knows the password leaves the company, change the password immediately.
- If you have a special telephone line connected to your Hybrid/PBX or Key system for Remote Administration and Maintenance, you should do one of the following:
  - — Unplug the line when it is not being used.
  - — Install a switch in the line to turn it off when it is not being used.
  - — Keep the Remote Administration and Maintenance telephone number secret. Only give it to people who need to know it, and impress upon them the need to keep it a secret. Do not write the telephone number on the Hybrid/PBX or Key system, the connecting equipment, or anywhere else in the system room.
- If your Remote Administration and Maintenance feature requires that someone in your office transfer the caller to the Remote Administration and Maintenance extension, you should impress upon your employees the importance of only transferring authorized individuals to that extension.

Features and Planning Forms

B

This appendix contains an alphabetical list of the features that can be assigned to the system or telephones and the planning forms associated with each feature.

Features and Planning Forms

Feature	Planning Forms
Abbreviated Ring *(See Ringing Options)*	
Account Code Entry/ Forced Account Code Entry	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) Data Form 1a—Modem Data Station Data Form 1b—7500B Data Station
Alarm	2c—System Numbering: Line/Trunk Jacks 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital

Feature	Planning Form
Allowed/Disallowed Lists	3a—Incoming Trunks: Remote Access 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 6e—Allowed Lists 6f—Disallowed Lists 6g—Call Restriction Assignments and Lists 9b—Night Service: Outward Restriction Data Form 1a—Modem Data Station Data Form 1b—7500B Data Station
Auto Answer All	Button diagrams on all appropriate telephone forms
Auto Answer Intercom	Button diagrams on all appropriate telephone forms
Auto Dial	Button diagrams on all appropriate telephone forms
Automatic Line Selection and Ringing/Idle Line Preference	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC
Automatic Maintenance Busy	1—System Planning
Automatic Route Selection (Facility Restriction Level)	3a—Incoming Trunks: Remote Access 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 6g—Call Restriction Assignments and Lists

Feature	Planning Form
Automatic Route Selection (Facility Restriction Level) *(continued)*	3e—Automatic Route Selection Worksheet 3f—Automatic Route Selection Tables 3g—Automatic Route Selection Default and Special Numbers Tables Data Form 1a—Modem Data Station Data Form 1b—7500B Data Station
Barge-In	Button diagrams on all appropriate telephone forms
Callback	3a—Incoming Trunks: Remote Access 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 8a—System Features
Calling Restrictions	3a—Incoming Trunks: Remote Access 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 6e—Allowed Lists 6f—Disallowed Lists 6g—Call Restriction Assignments and Lists 9b—Night Service: Outward Restriction Data Form 1a—Modem Data Station Data Form 1b—7500B Data Station
Call Waiting	Not Applicable
Camp-On	8a—System Features Button diagrams on all appropriate telephone forms
Centrex Operation	1—System Planning Button diagrams on all appropriate telephone forms

Feature	Planning Form
Conference	1—System Planning Button diagrams on all appropriate telephone forms
Coverage	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 6a—Optional Operator Features 7c—Group Coverage 7d—Group Calling Button diagrams on all appropriate telephone forms
Direct-Line Console	1—System Planning 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 6a—Optional Operator Features
Directories	2a—System Numbering: Extension Jacks 10b—System Speed Dial
Direct Station Selector-MLX	5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 6a—Optional Operator Features
Display	Not Applicable
Do Not Disturb	Button diagrams on all appropriate telephone forms
Drop	1—System Planning Button diagrams on all appropriate telephone forms
Extension Status	5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 8a—System Features

Feature	Planning Form
Forward and Follow Me (Remote Call Forward)	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 6a—Optional Operator Features Button diagrams on all appropriate telephone forms
Group Calling	2d—System Numbering: Special Renumbers 6e—Group Calling 6f—System Features 7a—Night Service: Group Assignment Data Form 2—Data Hunt Groups
Headset Options	4b—Analog Multiline Telephone 4d—MLX Telephone 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5d—Queued Call Console (QCC) Button diagrams on all appropriate telephone forms
Hold	2c—System Numbering: Line/Trunk Jacks 6a—Optional Operator Features 8a—System Features
Idle Line Preference *(See Automatic Line Selection and Ringing/Idle Line Preference)*	
Inside Dial Tone	8a—System Features
Inspect	Not Applicable
Integrated Administration	1—System Planning 2c—System Numbering: Line/Trunk Jacks 2d—System Numbering: Special Renumbers 7d—Group Calling 8a—System Features 9a—Night Service: Group Assignment 9b—Night Service: Outward Restriction

Feature	Planning Form
Labeling	2a—System Numbering: Extension Jacks 2c—System Numbering: Line/Trunk Jacks 2d—System Numbering: Special Renumbers 10a—Label Form: Posted Message 10b—System Speed Dial
Language Choice	1—System Planning 4d—MLX Telephone 5b—Direct-Line Console (DLC): Digital 5d—Queued Call Console (QCC)
Last Number Dial	Button diagrams on all appropriate telephone forms
Line Request	Not Applicable
Messaging (Message Waiting Receivers)	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f —Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 6a—Optional Operator Features 7d—Group Calling 10a—Label Form: Posted Message
Microphone Disable	4d—MLX Telephone 5b—Direct-Line Console (DLC): Digital
Multi-Function Module	2a—System Numbering: Extension Jacks 2b—System Numbering: Digital Adjuncts 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC
Music On Hold	2c—System Numbering: Line/Trunk Jacks 8a—System Features
Night Service	9a—Night Service: Group Assignment 9b—Night Service: Outward Restriction 9c—Night Service: Time Set

Feature	Planning Form
Notify *(See Signaling)*	
Paging	2c—System Numbering: Line/Trunk Jacks 2d—System Numbering: Special Renumbers 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 7b—Group Paging
Park	2d—System Numbering: Special Renumbers 6a—Optional Operator Features 8a—System Features Button diagrams on all appropriate telephone forms
Personal Lines	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC
Pickup	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 7a—Call Pickup Groups

Feature	Planning Form
Pools	2c—System Numbering: Line/Trunk Jacks 2d—System Numbering: Special Renumbers 4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 4f—Tip/Ring Equipment 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC 5d—Queued Call Console (QCC) 3e—Automatic Route Selection Worksheet 3f—Automatic Route Selection Tables 3g—Automatic Route Selection Default and Special Numbers Tables Data Form 1 a—Modem Data Station Data Form 1 b—7500B Data Station Data Form 2—Data Hunt Group
Power Failure Transfer	Not Applicable
Primary Rate Interface (PRI)	3b—Incoming Trunks: DS1 Connectivity (100D Module)
Privacy	Button diagrams on all appropriate telephone forms
Programming	1—System Planning
Queued Call Console	1—System Planning 2d—System Numbering: Special Renumbers 5d—Queued Call Console (QCC) 6a—Optional Operator Features 7c—Group Coverage 7d—Group Calling 8a—System Features
Recall/Timed Flash	1—System Planning Button diagrams on all appropriate telephone forms
Reminder Service	8a—System Features Button diagrams on all appropriate telephone forms
Remote Access	2d—System Numbering: Special Renumbers 3a—Incoming Trunks: Remote Access

Feature	Planning Form
Ringing/Idle Line Preference *(See Automatic Line Selection and Ringing/Idle Line Preference)*	
Ringing Options	4b—Analog Multiline Telephone 4d—MLX Telephone 4e—MFM Adjunct: MLX Telephone 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital 5c—MFM Adjunct: DLC
Saved Number Dial	Button diagrams on all appropriate telephone forms
Signal/Notify	Button diagrams on all appropriate telephone forms
Speed Dial	10b—System Speed Dial
Station Message Detail Recording (SMDR)	8a—System Features
System Access/Intercom Buttons	Button diagrams on all appropriate telephone forms
System Renumbering	2a—System Numbering: Extension Jacks 2b—System Numbering: Digital Adjuncts 2c—System Numbering: Line/Trunk Jacks 2d—System Numbering: Special Renumbers 6a—Optional Operator Features 7b—Group Paging 7d—Group Calling
Toll Type	2c—System Numbering: Line/Trunk Jacks 3e—Automatic Route Selection Worksheet
Touch-Tone or Rotary Signaling	2c—System Numbering: Line/Trunk Jacks 3c—Incoming Trunks: Tie 3d—Incoming Trunks: DID 8a—System Features
Transfer	1—System Planning 6a—Optional Operator Features 8a—System Features Button diagrams on all appropriate telephone forms

Feature	Planning Form
Voice Announce to Busy (Simultaneous Voice/Data)	4b—Analog Multiline Telephone 4d—MLX Telephone 5a—Direct-Line Console (DLC): Analog 5b—Direct-Line Console (DLC): Digital Data Form 2—Data Hunt Group
Volume	Not Applicable

System Features

C

This appendix provides an alphabetical list of systemwide features and outlines their availability by mode. This list also includes notes, where appropriate, which briefly describe mode differences and specific release availability. For information on feature use on the MLX, analog multiline, and single-line telephones, see Appendix D, “General Feature Use and Telephone Programming.”

System Features

Feature	Availability by Mode			Notes
	Key	Hybrid / PBX	Behind Switch	
Authorization Code	✓	✓	✓	Release 3.0 and later
Automatic Line Selection	✓	✓	✓	
Automatic Maintenance Busy	✓	✓	✓	
Automatic Route Selection (ARS)		✓		With trunk pools only
Call-by-Call Service Selection		✓		Release 2.0 and later
Call Waiting	✓	✓	✓	
Callback	✓	✓	✓	Key and Behind Switch: not available for outside lines
Calling Restrictions	✓	✓	✓	Hybrid/PBX: can deny access to trunk pools
Camp-On	✓	✓	✓	
Conference	✓	✓	✓	
Coverage	✓	✓	✓	
Coverage VMS	✓	✓		Release 2.0 and later
Delay Ring interval	✓	✓	✓	
Direct-Line Console (DLC) Options	✓	✓	✓	Hybrid/PBX: cannot have trunk pool access buttons
Directories	✓	✓	✓	
Direct Inward Dial (DID) Trunk Options		✓		
Direct Voice Mail	✓	✓		Release 3.0 and later
DS1 Module Options	✓	✓	✓	
Extension Status	✓	✓	✓	

Feature	Availability by Mode			Notes
	Key	Hybrid / PBX	Behind Switch	
Forced Account Code Entry	✓	✓	✓	Behind Switch: unavailable for single-line telephones Hybrid/PBX and Behind Switch: must enter account code before dial-out code
Group Call Coverage	✓	✓	✓	
Group Calling	✓	✓	✓	Behind Switch: calls do not follow the telephone company's central office ring pattern.
Headset Status	✓	✓	✓	
Hold Disconnect Interval	✓	✓	✓	
Inside Dial Tone	✓	✓	✓	
Labeling	✓	✓	✓	
Language Choice	✓	✓	✓	Release 1.1 and later
Line/Trunk Options	✓	✓	✓	
Loudspeaker Paging	✓	✓	✓	
Microphone Disable	✓	✓	✓	
Night Service	✓	✓	✓	
Paging Groups	✓	✓	✓	
Park	✓	✓	✓	
Pickup Groups	✓	✓	✓	
Pools (trunk group)		✓		
Primary Rate Interface (PRI) Options	✓	✓	✓	Release 2.0 and later
Queued Call Console (QCC)		✓		
Recall Interval *(See Recall/Timed Flash)*	✓	✓	✓	Behind Switch: recall interval may need to be shortened.

Feature	Availability by Mode			Notes
	Key	Hybrid / PBX	Behind Switch	
Reminder Service Cancel	✓	✓	✓	
Remote Access	✓	✓	✓	
Remote Call Forward	✓	✓	✓	Behind Switch: unavailable for single-line telephones
Ringing/Idle Line Preference	✓	✓	✓	
Routing by Dial Plan		✓		Release 2.0 and later
Station Message Detail Recording (SMDR)	✓	✓	✓	
System Numbering	✓	✓	✓	Hybrid/PBX: extension number is assigned to Listed Directory Number (the published main number) for QCC.
System Restart	✓	✓	✓	
System Speed Dial	✓	✓	✓	
Tie Trunk Options	✓	✓	✓	
Timed Flash (See Recall/Timed Flash)	✓	✓	✓	Release 2.0 and later
Toll Type	✓	✓	✓	
Touch-Tone or Rotary Signaling	✓	✓	✓	
Transfer Options	✓	✓	✓	
Trunk Pools		✓		
Voice Announce to Busy	✓	✓	✓	

General Feature Use and Telephone Programming

D

This appendix contains information on the general use of features for the MLX, analog multiline, and single-line telephones. It covers telephone and operator features and the acceptable programming codes for each. It also describes how to program these features on MLX and analog multiline telephones.

General Feature Use Information

The following sections provide general instructions for feature use on MLX, analog multiline, and single-line telephones. Features can be used in the following ways:

- Press a dedicated feature button
- Press a programmed button

Fixed Features

All multiline telephones have a group of dedicated (or fixed) feature buttons that are programmed and labeled at the factory. The functions of these buttons, which include **Conf**, **Transfer**, and **Speaker**, cannot be changed. Press the button for the feature you want to use.

Programmed Buttons

Any unlabeled line button on multiline telephones can be programmed with a feature for one-touch activation. See Tables D–1 through D–4 for additional information on programming features onto line buttons.

Some features, such as Auto Dial, must be programmed onto line buttons in order to use them. Other features, such as Privacy, are best used if programmed onto line buttons—the LED next to the line button provides visual indication that the feature is in use. The following features must be programmed onto line buttons:

- Auto Answer All
- Auto Answer Headset
- Auto Dial
- Barge-In
- Coverage
  - Group Coverage
  - Primary Coverage
  - Secondary Coverage
  - Coverage Off
- Do Not Disturb
- Extension Status-Agent Login/Logout
- Feature Button (analog multiline telephones only)
- Headset/Handset Mute
- Headset Status
- Headset Hang Up
- Notify
- Posted Message (available from display on MLX display telephones)
- Saved Number Dial
- Signal

Feature Codes

Feature codes are 1-, 2-, and 3-digit codes that activate features. A feature code is used by first pressing the dedicated **Feature** button on MLX telephones; pressing a programmed **Feature** button on analog multiline telephones; dialing # on single-line telephones. Each of these methods sends a signal to the system that a feature code is about to be dialed. When the code is dialed, the feature is activated.

NOTE:
Queued Call Console (QCC) system operators cannot use feature codes.

The following features can be used only by dialing feature codes:

- Call Pickup
- Forward/Follow Me—Cancel One
- Forward/Follow Me—Cancel All
- Message Cancel
- Personal Speed Dial
- System Speed Dial

NOTE:
Pressing the **Conf**, **Transfer**, **Speaker**, or **Feature** button while activating a feature cancels the process. Pressing any other button, such as the **Mute**, **HFAI**, **Message Status**, **DSS Page**, **More**, **Message**, **Clock**, analog multiline display keys, or analog multiline disconnect button does not cancel the feature activating process.

Telephone and Operator Features

Table D–1 lists the telephone and operator features that can be assigned to telephones or consoles through centralized telephone programming or by users from their telephones.

Table D–0. Telephone and Operator Features

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
Account Code Entry	**82*	*82 + code*	Acct	AccountCode
Alarm*	**759*		Alarm	Alarm
Alarm Clock			AlClk	Alarm Clock
Authorization Code	**80*	*80*	Auth	Auth Code
Auto Answer All	**754*			AutoAns All
Auto Answer Intercom	**753*			AutoAnsIcom
Auto Dial			AutoD	Auto Dial
Inside (ext., group, zone)	**22 + ext. no*		In	Inside
Outside	**21 + tel. no.*		Out	Outside
Automatic Line Selection				
Begin Sequence	**14*			
End Sequence	***14*			
Barge-In*†	**58*		Barge	Barge In
Callback				
Automatic			CbckA	Cback Auto
On	**12*		On	On
Off	***12*		Off	Off
Selective	**55*	*55*	CbckS	Cback Sel
Cancel selective		**55*		
Call Waiting			CWait	CallWaiting
On	**11*		On	On
Off	***11*		Off	Off
Call Waiting Pickup		*87*		
Camp-On	**57*	*57*	Camp	Camp On
Conference	**772*	*772*	Conf	Conference
Contrast			Ctrst	
Coverage			Cover	Coverage
Cover inside & outside calls	**48*		CvIns, On	CoverInside, On
Cover outside calls only	***48*		CvIns, Off	CoverInside, Off
Receiver buttons				
Group	**42 + ext. no.*		Group	Group
Primary	**40 + ext. no.*		Prmry	Primary
Secondary	**41 + ext. no.*		Secnd	Secondary
Sender buttons				
Coverage Off	**49*			
Coverage VMS Off	**46*		Cvoff	CoverageOff

* System operator-only feature

† Centralized telephone programming only

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
K P B	K P B	K P B	K P	K P B	K P B	Account Code Entry
	K P B	K P B			K P B	Alarm*
K P B	K P B	K P B		K P B	K P B	Alarm Clock
K P B	K P B	K P B	K P B	K P B	K P B	Authorization Code
					K P B	Auto Answer All
					K P B	Auto Answer Intercom
K P B	K P B	K P B	K P B		K P B	Auto Dial
						Inside (ext., group, zone)
						Outside
K P B	K P B	K P B	K P B	K P B	K P B	Automatic Line Selection
						Begin Sequence
						End Sequence
K P B	K P B	K P B	K P B		K P B	Barge-In*†
K P B	K P B	K P B	K P B	K P B	K P B	Callback
						Automatic
						On
						Off
						Selective
						Cancel selective
K P B	K P B	K P B	K P B	K P B	K P B	Call Waiting
						On
						Off
						Call Waiting Pickup
K P B	K P B	K P B	K P B		K P B	Camp-On
B	B	B	B		B	Conference
K P B	K P B	K P B			K P B	Contrast
K P B	K P B	K P B	K P B		K P B	Coverage
				K P B		Cover inside & outside calls
				K P B		Cover outside calls only
						Receiver buttons
K P B	K P B	K P B	K P B		K P B	Group
K P B	K P B	K P B	K P B		K P B	Primary
K P B	K P B	K P B	K P B		K P B	Secondary
						Sender buttons
				K P B		Coverage Off
				K P B		Coverage VMS Off

Table D–1. Telephone and Operator Features *(Continued)*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
Data Status	**83 + ext. no.*			
Direct Voice Mail	**56*	*56*	DrcVM	Direct VM
Directories			Dir	Directory
Extension Directory	(display only)		ExtDir	Ext Dir
Personal Directory	(display only)			Personal Dir
System Directory	(system programming)		SysDir	System Dir
Do Not Disturb	**47*		DND	DoNotDistrb
Drop	**773*	*773*	Drop	Drop
Extension Status				
Direct-Line Console*				
Status Off	**760*	*760 + DSS button*	OPES, ESOff	OperatorES, ESOff
Status 1	**761*	*761 + DSS button*	OPES, ES1	OperatorES, ES1
Status 2	**762*	*762 + DSS button*	OPES, ES2	OperatorES, ES2
Telephones (rooms or agents)				
Status Off		**44*		
Status 1	**45*	*45*	ES, ES1	ES Status, ES1
Status 2	**44*	*44*	ES, ES2	ES Status, ES2
Feature button	**20*			Feature Btn
Forward and Follow Me				
Activate				
Forward (inside)	**33*	*33 + ext. no.*	Forwd	Forward
Remote Call Forward (outside)	**33*	*33 + tel no. +*	Forwd	Forward
Follow Me		*34 + ext. no.*	FlwMe	Follow Me
Cancel				
cancel sending from your telephone		*33 + your ext. no.*		
cancel sending from one extension		**34 + ext. no.*		CanclFollow (QCC only)
cancel sending from all extensions		**34**		CanclFollow (QCC only)

* System operator-only feature

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
K P B	K P B	K P B	K P B		K P B	Data Status
K P	K P	K P	K P	K P	K P	Direct Voice Mail
						Directories
K P B	K P B	K P B				Extension Directory
		K P B				Personal Directory
K P B	K P B	K P B				System Directory
K P B	K P B	K P B	K P B		K P B	Do Not Disturb
B	B	B	B		B	Drop
						Extension Status
	K P B	K P B			K P B	Direct-Line Console*
						Status Off
						Status 1
						Status 2
K P B	K P B	K P B	K P B	K P B	K P B	Telephones (rooms or agents)
						Status Off
						Status 1
						Status 2
					K P B	Feature button
K P B	K P B	K P B	K P B	K P B	K P B	Forward and Follow Me
						Activate
						Forward (inside)
						Remote Call Forward (Outside)
						Follow Me
						Cancel
						cancel sending from your telephone
						cancel sending from one extension
						cancel sending from all extensions

Table D–1. Telephone and Operator Features *(Continued)*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
Group Calling				
In-Queue Alarm button	**22 + calling group ext. no.*		GrpCl	Group Call
Calling group supervisor				
Enter supervisor mode*		*32 + Hold*		
Exit supervisor mode*		*32 + Drop*		
Available (ES Status 2)	**762*	*762 + DSS button*	OPES, ES2	OperatorES, ES2
Unavailable (ES Status Off)	**760*	*760 + DSS button*	OPES, ESOff	OperatorES, ES Off
Calling group members				
Sign in (Available)	**44*	*44*	ES	Status, ES2
Sign out (Unavailable)		**44*	ES,Off	ES Status, ES Off
After-call work state (CMS only)	**45*	*45*	ES,ES1	ES Status, ES1
Group Page Auto Dial Button	**22 + paging group ext. no.*		GrpPg	Group Page
Headset Options			Hdset	Hdset
Auto Answer	**780*		Auto	Auto Answer
Hang Up†	**781*			Hang Up
Mute (Headset/Handset)	**783*		Mute	Mute
Status	**782*		Stat	Status
Hold		*771*		
Hold release		****		
Intercom buttons				
Assign buttons†				
ICOM (Default Ring)	**16*			SysAccess
ICOM Originate Only	**18*			SysAcc-00
Change type of				
Intercom button Ring	***19*		Voice, Place, Ring	Voice Annce, Place, Ring
Voice	**19*		Voice, Place, Voice	Voice Annce, Place, Voice
Language Choice				
English		*790*		
French		*791*		
Spanish		*792*		
Last Number Dial	**84*	*84*	Last#*	LastNumDial

* System operator only feature

† Centralized telephone programming only

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
						Group Calling
K P B	K P B	K P B	K P B		K P B	In-Queue Alarm button
	K P B	K P B			K P B	Calling group supervisor
						Enter supervisor mode*
						Exit supervisor mode*
						Available (ES Status 2)
						Unavailable (ES Status Off)
K P B	K P B	K P B	K P B	K P B	K P B	Calling group members
						Sign in (Available)
						Sign out (Unavailable)
						After-call work state (CMS only)
K P B	K P B	K P B	K P B		K P B	Group Page Auto Dial Button
K P B	K P B	K P B	K P B			Headset Options
						Auto Answer
						Hang Up†
						Mute (Headset/Handset)
						Status
B	B	B	B		B	Hold
B	B	B	B	B	B	Hold release
K B	K B	K B	K B		K B	Intercom buttons
						Assign buttons†
				K B		**ICOM** (Default Ring)
				K B		**ICOM Originate Only**
						Change type of Intercom button Ring
						Voice
K P B	K P B	K P B	K P B			Language Choice
						English
						French
						Spanish
K P B	K P B	K P B	K P B	K P	K P B	Last Number Dial

Table D–1. Telephone and Operator Features *(Continued)*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
Messaging			Msgs	Messages
Leave Message	**25*			
After calling		*25*	LvMsg	Msg Leave
Without calling		*53 + ext no.*		
Cancel message left		**53 + ext no.*		
Message LED off	**54*	*54*		
Posted Message	**751*		Post	Posted Msg
Send/Remove Message*	**38*	*38 + ext no.*	SdMsg	Send/RmvMsg
Receiving messages:			Msgs	Messages
Delete Message‡ ‡	**26*	*26*	Dlete	Delete Msg
Next Message‡	**28*	*28*	Next	Next Msg
Return Call‡	**27*	*27*	Call	Return Call
Scroll‡	**29*	*29*		
Night Service*	**39*	*39*	Night	Night Srvc
Notify			Ntfy	Notify
Send	**757 + ext. no.*		Send	Send
Receive	**758 + ext. no.*		Recv	Receive
Paging				
Group Paging			GrpPg	Group Page
Loudspeaker Paging			LdsPg	Loudspkr Pg
Park	**86*		Park	Park
Park Zone Auto Dial	**22 + park zone*		PrkZn	Park Zone
Personal Speed Dial	*# + (01-24) + *21 + tel no. + ##*		PSpdDl	PersSpeedDl
Personalized Ringing	**32 + ring (1–8)*		PRing, Pat #1 ... Pat*8	PersonalRng, Pattern #1 ... Pattern #8
Pickup			Pkup	Pickup
General use	**9*		Genrl	General
Specific extension	**9 + ext. no.*	*9 + ext. no.*	Ext	Extension
Specific line	**9 + line no.*	*9 + line no.*	Line	Line
Group	**88*	*88*	PkupG	PickupGroup

* System operator-only feature

‡ Display telephones only. Programming and feature codes are used with analog multiline telephones only.

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
						Messaging
K P B	K P B	K P B	K P B	K P B	K P B	Leave Message
						After calling
						Without calling
						Cancel message left
K P B	K P B	K P B	K P B		K P B	Message LED off
K P B	K P B	K P B	K P B		K P B	Posted Message
	K P B	K P B			K P B	Send/Remove Message*
						Receiving messages:
K P B	K P B	K P B			K P B	Delete Message‡
K P B	K P B	K P B			K P B	Next Message‡
K P B	K P B	K P B			K P B	Return Call†
					K P B	Scroll‡
	K P B	K P B			K P B	Night Service*
K P B	K P B	K P B	K P B		K P B	Notify
						Send
						Receive
K P B	K P B	K P B	K P B		K P B	Paging
						Group Paging
						Loudspeaker Paging
K P B	K P B	K P B	K P B	K P	K P B	Park
	K P B	K P B			K P B	Park Zone Auto Dial
K P B			K P B	K P	K P B	Personal Speed Dial
K P B	K P B	K P B	K P B		K P B	Personalized Ringing
K P B	K P B	K P B	K P B	K P	K P B	Pickup
						General use
						Specific extension
						Specific line
						Group

Table D-1. Telephone and Operator Features *(Continued)*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
Privacy			Prvcy	Privacy
On	**31*	*31*		
Off		**31*		
Recall	**775*	*775*	Recll	Recall
Reminder Service			Rmind	Reminder
Set	**81*	*81 + time + A* or *P*§	Set	Set
Operator Set*		*81 + ext. no. + time + A* or *P*§		
Cancel	***81*	**81*	Cancl	Cancel
Operator Cancel*		**81 + ext. no.*		
Missed*	**752*		Missd	Missed
Ringing/Idle Line Preference				
On	**343*		LnPrf, On	Line Preference, On
Off	**344*		LnPrf, Off	Line Preference, Off
Ringing Options			RngOp	RingOptions
Individual lines			1Line	One Line
Immediate ring	**37*		Immed	Immed Ring
Delay ring	**36*		Delay	Delay Ring
No ring	**35*		No	No Ring
All lines			AllLn	All Lines
Immediate ring	**347*		Immed	Immed Ring
Delay ring	**346*		Delay	Delay Ring
No ring	**345*		No	No Ring
Abbreviated ring			Abbrv	Abbreviated
On	**341*		On	On
Off	**342*		Off	Off
Send Ring (Shared SA)			ShRng	SharedSARng
On	**15*		On	On
Off	***15*		Off	Off
Saved NumberDial	**85*		Save#	SaveNumDial
Send/Remove Message*	**38*	*38 + ext. no.*	SdMsg	Send/RmvMsg
Signal (manual)	**23 + ext. no.*		Signl	Signal

* System operator-only feature

§ English only: time is 12-hour (0100-1259) + 2(A) or 7(P).
French and Spanish: time is 24-hour (0000-2359).

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
K P B	K P B	K P B	K P B	K P	K P B	Privacy On Off
K P B	K P B	K P B	K P B		K P B	Recall
K P B	K P B	K P B	K P B	K P B	K P B	Reminder Service Set Operator Set*
						Cancel Operator Cancel* Missed*
K P B	K P B	K P B	K P B		K P B	Ringing/Idle Line Preference On Off
						Ringing Options
K P B	K P B	K P B	K P B		K P B	Individual lines Immediate ring Delay ring No ring
K P B	K P B	K P B	K P B		K P B	All lines Immediate ring Delay ring No ring
K P B	K P B	K P B	K P B		K P B	Abbreviated ring On Off
P	P	P	P	P	P	Send Ring (Shared SA) On Off
K P B	K P B	K P B	K P B		K P B	Saved NumberDial
	K P B	K P B			K P B	Send/Remove Message*
K P B	K P B	K P B	K P B		K P B	Signal (manual)

Table D–1. Telephone and Operator Features *(Continued)*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display
System Access buttons				
Assign buttons*				
SA (Default Ring)	**16*			SysAccess
SA Originate Only	**18*			SysAcc-00
Shared SA	**17 + primary ext. no.*			ShareSysAcc
Change type (**SA** or **Shared SA**)				
Ring	***19*			
Voice	**19*			
System Speed Dial	**24 + code* (600–729)	600-729	SpdDl	SysSpeedDl
Timer			Timer	Timer
Transfer	**774*	774	Trans	Transfer
Voice Announce to Busy			Voice Place Recv	Voice Annce Place Receive
On	**10*		On	On
Off	***10*		Off	Off

* System operator-only feature

† Centralized telephone programming only

MLX-10D	MLX-28D	MLX-20L	MLX-10	Single-Line	Analog Multiline	Feature
P	P	P	P		P	System Access buttons
						Assign buttons†
				P		SA (Default Ring)
				P		SA Originate Only
				P		Shared SA
						Change type
						(SA or Shared SA)
						Ring
						Voice
K P B	K P B	K P B	K P B	K P	K P B	System Speed Dial
K P B	K P B	K P B	K P B		K P B	Timer
B	B	B	B		B	Transfer
K P B	K P B	K P B	K P B		K P B	Voice Announce to Busy
						On
						Off

Telephone Programming

The following describes how to program features on MLX and analog multiline telephones. Since Personal Speed Dial is the only feature that single-line telephone users can program, general programming instructions for single-line telephones are not provided.

NOTE:
Features cannot be programmed on QCCs in system operator positions. Features assigned to these consoles are fixed and cannot be changed.

Programming Methods

Telephones can be programmed by dialing programming codes or, on MLX display phones, selecting features from the display. An analog multiline telephone cannot be programmed by selecting features from the display.

To program a telephone, first enter programming mode:

- On analog multiline telephones, slide the Test/Program (T/P) switch on the side of the telephone to **P**, or lift the handset, or press **Spkrphone** and dial *#00*.
- On MLX-10 telephones, press the **Feature** button and dial *00*.
- On MLX display telephones, use the same procedures as for the MLX-10 telephones or enter programming mode by selecting Ext Program from the menu screen on the display.
- On MDC9000 and MDW9000 telephones, press the imprinted **Feat** button and dial *00*.

See the appropriate user or operator guide for more information.

NOTE:
Features can also be programmed onto individual telephones through centralized telephone programming. The steps for using programming codes vary depending on the telephone. Tables D–2 through D–5 list the basic steps for programming each telephone type.

Table D–0. Programming Analog Multiline Telephones

Step		Action
1	Label the button. **Note:** Skip this step if the feature will not be programmed onto a button.	Remove the clear label cover from the telephone by inserting the end of a paper clip in the notch at the top of the cover. Write the feature name on the card next to the button to be programmed. Replace the cover.
2	Begin programming.	Slide the T/P switch on the side of the telephone to **P**.
3	Select the feature or setting.	Press the button you labeled. *If you have a display, it shows the name of the feature currently programmed on the button. If no feature is programmed, the display indicates that the button is blank.* **Note**: If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way. Dial the programming code. *The feature is programmed.*
4	End programming.	Slide the T/P switch to the center position.

Table D–0. Programming MLX-10 Telephones

Step		Action
1	Label the button. **Note:** Skip this step if the feature will not be programmed onto a button.	Remove the clear label cover from the telephone by pulling up on the tab that extends from the top of the cover. Write the feature name on the card next to the button to be programmed. Replace the cover.
2	Begin programming.	Press the **Feature** button and then dial ***00***.
3	Select the feature or setting.	Press the button you labeled. **Note**: If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way. Dial the programming code. *The feature is programmed.*
4	End programming.	Press the **Feature** button and dial ****00***.

Table D–0. Programming MLX Display Telephones Using the Display

Step		Action
1	Label the button to be programmed. **Note:** Skip this step if the feature will not be programmed onto a button.	Remove the clear label cover from the telephone by pulling up on the tab that extends from the top of the cover. Write the feature name on the card next to the button to be programmed. Replace the cover.
2	Begin programming	Press **Menu**. Select Ext Program from the display. Select Start from the display.
3	Identify the button to be programmed.	Press the button you labeled. **Note:** If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way. *The display identifies the feature currently programmed on the button. If no feature is programmed, the display indicates that the button is blank.*
	To delete the features currently programmed on the button:	Select Delete from the display. *The button is now blank.* Press the button you labeled again to continue programming. **Note**: If the currently programmed feature was not deleted from the button, the new feature programmed onto it will replace it.
	To display features:	Select List Feature from the display. *The screen lists feature names in alphabetical order.*

Continued on next page

Table D–0. ***Continued***

Step		Action
4	Select the feature.	
	If the feature name is on the display:	Press the button next to or below the name of the feature to be programmed.
	If the feature name is not on the display:	
	To move through the list of features page by page,	Press **More.**
	or	
	To jump to the screen that displays the feature name.	Select Find Feature from the display.
		Select the range of letters from the display that corresponds to the first letter of the feature name (for example, it the feature begins with A, select ABC).
		If the feature is not displayed on the page that you jumped to, press **More.**
		When you find the feature you want, press the button next to or below it.
5	Respond to any additional prompts on the display.	Select the appropriate prompt (for example, select On or Off to turn inside Coverage on or off), and/or enter required information (for example, dial a phone number for Auto Dial).
		Select Enter.
6	End programming.	
	To return to the Home screen:	Press **Home** or lift and replace the handset.
	To return to the Menu screen:	Press **Menu.**

NOTE:
MLX display telephones can also be programmed using the method described for MLX-10 telephones. For example, the programming mode can be entered by pressing the **Feature** button and dialing 00, then referring to the display to continue the programming process. Or, enter programming by using the display and then dial a programming code to select the feature rather than selecting it from the display.

Table D–5. Programming MDC 9000 and MDW 9000 telephones

Step		Action
1	Label the button to be programmed. **Note:** Skip this step if the feature will not be programmed onto a button.	Remove the clear label cover from the telephone by pulling up on the tab that extends from the top of the cover. Write the feature name on the card next to the button to be programmed. Replace the cover.
2	Begin programming.	Press the imprinted **Feat** button. Dial *00*.
3	Select the feature or setting.	Press the button you labeled. **Note:** If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way. Dial the programming code. *The feature is programmed.*
4	End programming.	Press the imprinted **Feat** button. Dial *00*.

System Programming Menu Hierarchy

E

The system programming menu hierarchy details the sequence of menu screens that appear when you select the system programming options. The choice of an option on the first menu screen leads to either a second menu screen or a data-entry screen. A secondary menu screen may lead to still another menu screen, and so on up to six screens, as shown on the following pages.

You can use the Inspect feature in system programming to display the telephone or line/trunk numbers that are programmed with a specific feature. Inspect is helpful when you must assign a feature to many lines/trunks or extensions and you do not have a Direct Station Selector (DSS) attached to the system programming console, or when you are programming using a PC with the SPM (System Programming and Maintenance) program.

Inspect can be used with the menu options on the following pages that have an asterisk (*) next to them. To use Inspect in system programming, choose an eligible option, and press **Inspct** or **PgDn.**

Replace this page with File: `menu2.ps`

System Menu Hierarchy

Replace this page with Back side of File: `menu2.ps`

System Menu Hierarchy

Sample Reports

F

This appendix includes samples of the print reports generated by the communications system. Table F–1 lists the system reports and the pages in this appendix where samples can be found.

Table F–0. Report Contents

For...	See...
System Information Report	F–6
Dial Plan Report	F–8
Label Information Report	F–10
Tie Trunk Information Report	F–11
DID Trunk Information Report	F–12
GS/LS Trunk Information Report	F–13
General Trunk Information Report	F–14
DS1 Information Report	F–15
PRI information Report	F–16
Remote Access (DISA) Information Report	F–18
Operator Information Report	F–19
Allowed Lists Report	F–21
Access to Allowed Lists Report	F–22
Disallowed Lists Report	F–23
Access to Disallowed Lists Report	F–24
Automatic Route Selection Report	F–25
Extension Directory Report	F–27
System Directory Report	F–28
Group Paging Report	F–29
Extension Information Report	F–30
Group Coverage Information Report	F–32

Continued on next page

For...	See...
Direct Group Calling Information Report	F–33
Night Service Information Report	F–34
Group Call Pickup Report	F–35
Error Log Report	F–36
Authorization Code Information Report	F–37

Table F–2 lists all of the system reports and includes the print menu option used to print each report, the report name, and a brief description of each report.

The menu options referred to in Table F-2 are accessed by selecting the Print option on the System Programming menu. Refer to the “Print Reports” section of this guide for details on the Print option.

Table F–2. System Reports

Menu Option	Report Name	Description
All		Prints each of the reports available on the Print menu, from SysSet-up to Error Log. **Note:** When All is selected, the four Trunk Information reports automatically print. See Trunk Info.
SysSet-up	System Information	Systemwide information such as return intervals, system mode, system programming port, slot assignments, and so on.
Dial Plan	Dial Plan	Extensions assigned to pools, paging zones, calling groups, lines or trunks, and extensions; labels for lines/trunks and extensions.
Labels	Label information	Labels assigned to extensions Posted Messages, and names and telephone numbers included in MLX-20L telephone user’s Personal Directory.

Menu Option	Report Name	Description
Trunk Info		Select to display four trunk options: tie, DID, loop/ground, general.
TIE	TIE Trunk Information	Extensions assigned to and signaling attributes associated with tie trunks.
DID	DID Trunk Information	Extensions assigned to and signaling attributes associated with DID trunks.
Loop/ Ground	GS/LS Trunk Information	Extensions assigned to and signaling attributes associated with ground- and loop-start trunks.
General	General Trunk Information	All identified extensions and feature-related attributes of each extension.
T1 Info	DS1 Information	Options (line, signal, etc.) assigned to T1 trunks or lines.
PRI Info	PRI Information	PRI facilities assigned to B-channel groups.
Rmote Access	Remote Access (DISA) Information	Remote access dial code, class of restriction, and barrier code information.
Oper Info	Operator Information	For each system operator position: the logical ID, extension number, label, type (DLC or QCC); all general system operator options, such as backup position, and so on; call types and priorities.
AllowList	Allowed Lists	Telephone numbers included in Allowed Lists. Lists are numbered 0–7, and entries are numbered 0–9.
AllowListTo	Access to Allowed Lists	Lists are numbered 0–7. If the Allowed List is assigned to remote access users and barrier codes are used, the barrier codes are numbered 0–16. If no barrier codes are used, 17 indicates that the Allowed List is assigned to tie-trunk users, and 18 indicates that the Allowed List is assigned to non-tie trunk users.
DisallowLst	Disallowed Lists	Telephone numbers included in Disallowed Lists. Lists are numbered 0–7, and entries are numbered 0–9.

Menu Option	Report Name	Description
DisallowTo	Access to Disallowed Lists	Telephones to which Disallowed Lists are assigned. Lists are numbered 0–7. If the Disallowed List is assigned to Remote Access users and barrier codes are used, the barrier codes are numbered 0–16. If no barrier codes are used, 17 indicates that the Disallowed List is assigned to tie-trunk users, and 18 indicates that the Disallowed list is assigned to non-tie trunk users.
ARS	Automatic Route Selection	Access code; table types with area codes and exchanges; routes for subpatterns A and B, FRL, absorb digit, delete digit, Dial 0, and N11 tables.
Ext Direct	Extension Directory	Slot/port addresses, extensions, labels, and feature-related attributes. Column headings are printed on the first page only and are not carried over to subsequent pages. Column headings 4 through 10 (and 14 through 20) should be read vertically. That is: FACE (Forced Account Code Entry); HBIS (HFAI/BIS); RCFW (Remote Call Forward); MICD (Microphone Disable); SIG (Voice Signal); RSTR (Calling Restrictions); ARSR (ARS Restriction Level).
Sys Direct	System Directory	System Speed Dial number, label, and telephone number in System Directory, and whether number should display.
Group Page	Group Paging	Extension number for each group and the extension number of each telephone assigned to the group.
Ext Info	Extension Information	For each specified extension, type of equipment connected, features assigned to extension, and features assigned to each button on the extension.
GrpCoverage	Group Coverage Information	Extension number for each group and the extension number for each telephone assigned to the group. Information is printed only for calling groups with members and/or lines/trunks assigned.
Grp Calling	Direct Group Calling Information	Group calling options (hunt, type, message waiting, extension, and son on), the extension number for each telephone assigned to the group, and the lines or trunks assigned to the group.

Menu Option	Report Name	Description

Night Service	Night Service Information	The operator, password required. time-of-day, and Emergency Allowed List extension numbers.
Call Pickup	Group Call Pickup	Extension numbers for telephones assigned to each group. Pickup groups are numbered 1–30.
Error Log	Error Log	Error message and code, time and day error occurred, frequency of error. See *Maintenance and Troubleshooting* (qualified technicians only).
Auth Code	Authorization Code	Authorization Codes assigned to extensions.

System Reports

System Information Report

Print Menu Option: SysSet-up

```
SYSTEM INFORMATION
Current Date:    01/04/00
Current Time:    00:21:15

System :   Mode           AutoMaintBusy   AutoBusyTie
       :   Hybrid/PBX     Disable         Disable

Language:    SystemLang         SMDR            Printer
             English               English         English

Direct Line Operators           :    14   18   22   42
Queued Call Operators           :    10
SysProg Port                    :    10             Password    :          craft

Transfer : Type      Audible       OneTouch(Complete)   ReturnTimer
         : Ring      MusicOnHold    Transfer(Auto)        5 rings

VMS Transfer Return Interval    : 4
Paging System Lines             :
Music On Hold Line              : 804
Camp On Time                    : 90 sec
Call Park Return Time           : 180 sec
Delay Rings                     : 2
Coverage Delay                  : 3
Auto Callback Rings             : 3
Extension Status (ESS)          : Group Call / CMS
ESS Operators                   :

SMDR :   Min.CallTime        CallReport                 Format
    :     40 sec            In/Out             Basic

Intercom Dial Tone              :  Inside
Reminder Service Cancel         :    :
Behind Switch Code              :  Drop    Transfer   Conference
                                :

Recall Timer                    :  450 msec
Rotary Line Cut Through         :  Delay
Unassigned Extension            :    10

Automatic Backup                :  Weekly - 04:30 Sunday
```

System Information Report—*Continued*

```
Slot # 1:         008 MLX
Slot # 2:         408
Slot # 3:         008
Slot # 4:         408
Slot # 5:         800 GS/LS
Slot # 6:         008 GS/LS-MLX
Slot # 7:         800
Slot # 8:         008
Slot # 9:         012
Slot #10:         408 GS/LS
Slot #11:         008
Slot #12:         800
Slot #13:         800 DID
Slot #14:         400 EM
Slot #15:         012
Slot #16:         008 MLX
Slot #17:         408                   * Not Present *
```

Dial Plan Report

Print Menu Option: Dial Plan
Sections: Pools; Telephone Paging Zones; Direct Group Calling Group; Lines/Trunks; Stations

```
DIAL PLAN FOR POOLS

POOL.#  1:    70
POOL.#  2:   890
POOL.#  3:   891
POOL.#  4:   892
POOL.#  5:   893
POOL.#  6:   894
POOL.#  4:   895
POOL.#  8:   896
POOL.#  9:   897
POOL.# 10:   898
POOL.# 11:   899

DIAL PLAN FOR TELEPHONE PAGING ZONES

TPZ #  1:   793
TPZ #  2:   794
TPZ #  3:   795
TPZ #  4:   796
TPZ #  5:   797
TPZ #  6:   798
TPZ #  7:   799

DIAL PLAN FOR DIRECT GROUP CALLING GROUP

DGCG  #  1:   770
DGCG  #  2:   771
DGCG  #  3:   772
DGCG  #  4:   773
DGCG  #  5:   774
```

Dial Plan Report—*Continued*

```
DIAL PLAN FOR LINES/TRUNKS

LINE #  1:    801        OUTSIDE          LINE #    2:   802      OUTSIDE
LINE #  3:    803        OUTSIDE          LINE #    4:   804      OUTSIDE
LINE #  5:    805        OUTSIDE          LINE #    6:   806      OUTSIDE
LINE #  7:    807        OUTSIDE          LINE #    8:   808      OUTSIDE
LINE #  9:    809        OUTSIDE          LINE #   10:   810      OUTSIDE

DIAL PLAN FOR STATIONS

STN #:  1     10         OPERATR          STN  #:   2    710
STN #:  3     11                          STN  #:   4    711
STN #:  5     12                          STN  #:   6    712
STN #:  7     13         EXT 13           STN  #:   8    713
STN #:  9     14         EXT 14           STN  #:  10    714
STN #: 11     15                          STN  #:  12    715
STN #: 13     16                          STN  #:  14    716
STN #: 15     17                          STN  #:  16    717
STN #: 17     18         EXT 18           STN  #:  18     19
STN #: 19     20                          STN  #:  20     21
STN #: 21     22         OPERATR          STN  #:  22     23
STN #: 23     24                          STN  #:  24     25
STN #: 25     26                          STN  #:  26     21
STN #: 27     28                          STN  #:  28     29
STN #: 29     30         AUDIXVP          STN  #:  30     31        AUDIXVP
STN #: 31     32         AUDIXVP          STN  #:  32     33        AUDIXVP
STN #: 33     34                          STN  #:  34     35
STN #: 35     36                          STN  #:  36     31
STN #: 37     38                          STN  #:  38     39
STN #: 39     40                          STN  #:  40     41
STN #: 41     42         EXT 42           STN  #:  42    742
.
.
.
STN #: 53     54         EXT 54           STN  #:  54    754       AUDIXVP
```

Label Information Report

Print Menu Option: Labels
Sections: Telephone Personal Directory; Posted Messages and Numbers

```
LABEL INFORMATION

Executive Telephone #   10:  Personal Directory

Name          Number                          Display

Executive Telephone #   14:  Personal Directory

Name          Number                          Display

Executive Telephone #   15:  Personal Directory

Name          Number                         Display
MSG #                POSTED MESSAGE

   1                    DO NOT DISTURB
   2                    OUT TO LUNCH
   3                    AT HOME
   4                    OUT SICK
   5                    IN A MEETING
   6                    IN CONFERENCE
   7                    WITH A CLIENT
   8                    WITH A CUSTOMER
   9                    AWAY FROM DESK
  10                    OUT ALL DAY
  11                    CUSTM MSG11
  12                    CUSTM MSG12
  13                    CUSTM MSG13
  14                    CUSTM MSG14
  15                    CUSTM MSG15
  16                    CUSTM MSG16
  17                    CUSTM MSG17
  18                    CUSTM MSG18
  19                    CUSTM MSG19
  20                    CUSTM MSG20
```

Tie Trunk Information Report

Print Menu Option: Trunk Info and TIE

```
TIE TRUNK INFORMATION

TRUNK     849        Slot/Port : 14/ 1       TIE-PBX
Direction: 2 Way     E&M Signal: Type1S      Dialtone  : Remote
InType   : Wink      InMode    : Rotary      AnsSupvr  : 300  ms
OutType  : Wink      OutMode   : Rotary      Disconnect: 300  ms

TRUNK     850        Slot/Port : I4/ 2       TIE-PBX
Direction: 2 Way     E&M Signal: Type1S      Dialtone  : Remote
InType   : Wink      InMode    : Rotary      AnsSupvr  : 300  ms
OutType  : Wink      OutMode   : Rotary      Disconnect: 300  ms

TRUNK     851        Slot/Port : 14/ 3       TIE-PBX
Direction: 2 Way     E&M Signal: Type1S      Dialtone  : Remote
InType   : Wink      InMode    : Rotary      AnsSupvr  : 300  ms
OutType  : Wink      OutMode   : Rotary      Disconnect: 300  ms

TRUNK     852        Slot/Part : 14/ 4       TIE-PBX
Direction: 2 Way     E&M Signal: Type1S      Dialtone  : Remote
InType   : Wink      InMode    : Rotary      AnsSupvr  : 300  ms
OutType  : Wink      OutMode   : Rotary      Disconnect: 300  ms
```

DID Trunk Information Report

Print Menu Option: Trunk Info and DID

```
DID   TRUNK INFORMATION

Trk SS/PP Blk DiscTime Type ExpDig DelDig AddDig  Signal    InvDest
841 13/ 1  1    500ms  Wink    4      3       1   TouchTone BkupExt
842 13/ 2  1    500ms  Wink    4      3       1   TouchTone BkupExt
843 13/ 3  2    500ms  Wink    3      0              Rotary BkupExt
844 13/ 4  2    500ms  Wink    3      0              Rotary BkupExt
845 13/ 5  1    500ms  Wink    4      3       1   TouchTone BkupExt
846 13/ 6  1    500ms  Wink    4      3       1   TouchTone BkupExt
847 13/ 7  2    500ms  Wink    3      0              Rotary BkupExt
848 13/ 8  1    500ms  Wink    4      3       1   TouchTone BkupExt
```

GS/LS Trunk Information Report

Print Menu Option: Trunk Info and Loop/Ground

```
GS/LS TRUNK INFORMATION

Trk  SS/PP    Type     OutMode        RelDisc     ChannelUnit     LS-ID Delay
801    2/ 1    Loop     TouchTone        Yes       N/A             N/A
802    2/ 2    Loop   TouchTone          Yes       N/A             N/A
803    2/ 3    Loop     TouchTone        Yes       N/A             N/A
804    2/ 4    Loop     TouchTone        Yes       N/A             N/A
805    4/ 1    Loop     Rotary           Yes       N/A             N/A
806    4/ 2    Loop     Rotary           Yes       N/A             N/A
807    4/ 3    Loop     Rotary           Yes       N/A             N/A
808    4/ 4    Loop     Rotary           Yes       N/A             N/A
809    5/ 1    Ground   TouchTone        N/A       N/A             N/A
810    5/ 2    Ground   TouchTone        N/A       N/A             N/A
811    5/ 3    Loop     Rotary           Yes       N/A             N/A
812    5/ 4    Loop     Rotary           Yes       N/A             N/A
813    5/ 5    Loop     Rotary           Yes       N/A             N/A
814    5/ 6    Loop     Rotary           Yes       N/A             N/A
815    5/ 7    Loop     TouchTone        Yes       N/A             N/A
816    5/ 8    Loop     Rotary           Yes       N/A             N/A
817    6/ 1    Ground   Rotary           N/A       N/A             N/A
  .
  .
879   15/ 7    LS-ID    Rotary           Yes       N/A             Yes
880   15/ 8    LS-ID    Rotary           Yes       N/A             No
```

General Trunk Information Report

Print Menu Option: Trunk Info and General

GENERAL TRUNK INFORMATION

Trk	SS/PP	RemAccess	Pool	TlPrfx	HldDisc	Principal	QCC Prty	QCC Oper
801	2/ 1	No Remote	70	Yes	Long		4	
802	2/ 2	No Remote	70	Yes	Long		4	
803	2/ 3	No Remote	70	Yes	Long		4	
804	2/ 4	No Remote		Yes	Long		4	
805	4/ 1	No Remote		Yes	Long		4	
806	4/ 2	No Remote		Yes	Long		4	
807	4/ 3	No Remote		Yes	Long		4	
808	4/ 4	No Remote		Yes	Long		4	
809	5/ 1	No Remote	890	Yes	Long		4	10
810	5/ 2	No Remote		Yes	Long		4	
811	5/ 3	No Remote		Yes	Long		4	
812	5/ 4	No Remote		Yes	Long		4	
813	5/ 5	No Remote		Yes	Long		4	
814	5/ 6	No Remote		Yes	Long		4	
815	5/ 7	No Remote		Yes	Long		4	
816	5/ 8	No Remote		Yes	Long		4	
817	6/ 1	Dedicated		Yes	Long	42	4	

DS1 Information Report

Print Menu Option: T1 Info

```
DS1 SLOT ATTRIBUTES

Slot   Type    Format    Supp      Signal    LineComp   ClkSync     Src     Active
  3     T1       D4       ZCS      Rob Bit       1        Prim      Loop     Yes
  3     T1       D4       ZCS      Rob Bit       1        None      Local    Yes
```

PRI Information Report

Print Menu Option: PRI Info
Sections: Network Selection, Special Service, Call-by-Call and Dial Plan Routing Tables; PRI Information

```
PRI INFORMATION

System: By line

BchnlGrp #:       Slot:       TestTelNum:     NtwkServ:   Incoming Routing:
1                 9                           00011         By Line Appearance

Channel ID: 1

Line          PhoneNumber      NumberToSend

Network Selection Table

Entry Number:       0         1        2        3
Pattern to Match:   101****   10***    101****

Special Service Table

Entry Number:          0      1        2        3      4      5      6      7
Pattern to Match:      011    010      01       00     0      1
Operator:              none   none     OP       OP     OP/P   none   none   none
Type of Number:        I      I        I        N      N      I      I      N
Digits to Delete:      3      1        3        2      1      1      0      0

Call-By-Call Service Table

Entry Number:      0          1                2             3           4
Pattern    0:      777
Pattern    1:                  212555
Pattern    2:                  212
Call Type:         BOTH       BOTH             BOTH          BOTH        BOTH
NtwkServ:                     No Service                     OUT WATS
DeleteDigits:      0          1                2             0           0

Entry Number:      5          6                7             8           9
Call Type:         BOTH       BOTH             BOTH          BOTH        BOTH
NtwkServ:          No Service                  00111
DeleteDigits:      0          0                0             0           0
```

PRI Information Report—*Continued*

```
Dial Plan Routing Table

Entry Number:           0          1            2             3
NtwkServ:                          OUT WATS     Any service   11100
Expected Digits:        0          0            11            0
Pattern to Match:                  222
Digits to Delete:       0          1            0             0
Digits to Add:                     22

Entry Number:           4          5            6             7
NtwkServ:               11100
Expected Digits:        2          1            0             0
Pattern to Match:       2
Digits to Delete:       0          1            2             0
Digits to Add:          2

Entry Number:           8          9           10            11

PRI INFORMATION

NtwkServ:
Expected Digits:        0          0            0             0
Pattern to Match:
Digits to Delete:       0          0            0             0
Digits to Add:

Entry Number:          12         13           14            15
NtwkServ:
Expected Digits:        0          0            0             0
Pattern to Match:
Digits to Delete:       0          0            0             0
Digits to Add:
```

Remote Access (DISA) Information Report

Print Menu Option: Rmote Access
Sections: General Options; System Default Class of Restrictions (Non-TIE); System Default Class of Restrictions (TIE); Barrier Code Administration

```
GENERAL OPTIONS (ACCESS CODE 889)

Barrier Code required for Non-TIE DISA lines: Yes
Barrier Code required for TIE DISA lines    :No
Automatic Queuing enabled for DISA lines    :Yes
System Wide Barrier Code Length: 07
Date And Time of Last Barrier Code Length Change: 09:23:94, 09:45 PM

SYSTEM DEFAULT CLASS OF RESTRICTIONS (NON-TIE)

Restriction          :  UNRESTRICTED
ARS Restriction Level:  3
Allowed Lists        :
Disallowed Lists     :

SYSTEM DEFAULT CLASS OF RESTRICTIONS (TIE)

Restriction          :  UNRESTRICTED
ARS Restriction Level:  3
Allowed Lists        :
Disallowed Lists     :

BARRIER CODE ADMINISTRATION

Barrier Code number  :  1
Barrier Digits       :  2468345
Restriction          :  OUTWARD RESTRICTED
ARS Restriction Level:  3
Allowed Lists        :
Disallowed Lists     :

Barrier Code number  :  2
Barrier Digits       :  1234693
Restriction          :  UNRESTRICTED
ARS Restriction Level:  3
Allowed Lists        :
Disallowed Lists     :

Barrier Code number  :  16
Barrier Digits       :  9876115
Restriction          :  OUTWARD RESTRICTED
ARS Restriction Level:  0
Allowed Lists        :
Disallowed Lists     :
```

Operator Information Report

Print Menu Option: Oper Info
Sections: Operator Positions; General Options; DSS Options; QCC Operator Options: QCC Call Types

```
OPERATOR POSITIONS

PORT                                  CALL ALERT
ADDR.   EXT #    LABEL     TYPE      (QCC ONLY)
====    =====   =======    ====      ==========
1/ 1       10   OPERATR     QCC         No
1/ 5       14   EXT 14      DLC         N/A
2/ 1       18   EXT 18      DLC         N/A
2/ 5       22   OPERATR     DLC         N/A
6/ 1       42   EXT 42      DLC         N/A

GENERAL OPTIONS

Length of hold reminder timer: 60 sec
DLC Automatic hold enabled   : No

DIRECT STATION SELECTOR (DSS) OPTIONS

BUTTON       FIRST
NUMBER     DIAL CODE
======     =========
  1             0
  2            50
  3           100
Operator Call Park codes:  881  882  883  884  885  886  884  888

QCC OPERATOR OPTIONS

Listed Directory Number for queue : 800
Held calls return to queue        : No
Automatic hold enabled            : No
Calls-in-queue alarm threshold    : 0
Time until priorities are elevated: 0 sec
Message Center Operators          :
One Touch Extend                  : AUTOMATIC
Rings before extended calls return: 4
Backup operator station           :
```

Operator Information Report—*Continued*

QCC CALL TYPES:

CALL TYPE	PRIORITY	OPERATORS
Dial 0 Operator	4	10
Follow Forward	4	N/A
Unassigned DID	4	10
Listed Directory Number	4	10
Operator’s Extension	4	N/A
Returning	4	0
Group Coverage		
Group # 1	4	
Group # 2	4	
Group # 3	4	
Group # 4	4	
Group # 5	4	
Group # 6	4	
Group # 7	4	
Group # 8	4	
Group # 9	4	
Group # 10	4	
Group # 11	4	
Group # 12	4	
Group # 13	4	
Group # 14	4	
Group # 15	4	
Group # 16	4	
Group # 17	4	
Group # 18	4	
Group # 19	4	
Group # 20	4	
Group # 21	4	
Group # 22	4	
Group # 23	4	
Group # 24	4	
Group # 25	4	
Group # 26	4	
Group # 27	4	
Group # 28	4	
Group # 29	4	
Group # 30	4	

Allowed Lists Report

Print Menu Option: AllowList
Sections: Lists 1 through 7

```
ALLOWED LISTS

List :   0

Entry 0:   ------
Entry 1:   ------
Entry 2:   ------
Entry 3:   ------
Entry 4:   ------
Entry 5:   ------
Entry 6:   ------
Entry 7:   ------
Entry 8:   ------
Entry 9:   ------
   .
   .
   .
List :   7

Entry 0:   ------
Entry 1:   ------
Entry 2:   ------
Entry 3:   ------
Entry 4:   ------
Entry 5:   ------
Entry 6:   ------
Entry 7:   ------
Entry 8:   ------
Entry 9:   ------
```

Access to Allowed Lists Report

Print Menu Option: AllowListTo

```
ACCESS TO ALLOWED LISTS

FOR REMOTE ACCESS 17 & 18 MEAN TIE & NON-TIE RESTRICTIONS

List    1    STNS      10

             RACC       1      17     18

List    3    STNS      33

             RACC
```

Disallowed Lists Report

Print Menu Option: DisallowLst
Sections: Lists 1 through 7

```
DISALLOWED LISTS

List :   0

Entry 0:   ------------
Entry 1:   ------------
Entry 2:   ------------
Entry 3:   ------------
Entry 4:   ------------
Entry 5:   ------------
Entry 6:   ------------
Entry 7:   ------------
Entry 8:   ------------
Entry 9:   ------------
   .
   .
   .
List :   7

Entry 0:   ------------
Entry 1:   ------------
Entry 2:   ------------
Entry 3:   ------------
Entry 4:   ------------
Entry 5:   ------------
Entry 6:   ------------
Entry 7:   ------------
Entry 8:   ------------
Entry 9:   ------------
```

Access to Disallowed Lists Report

Print Menu Option: DisallowTo

```
ACCESS TO DISALLOWED LISTS

FOR REMOTE ACCESS 17 & 18 MEAN TIE & NON-TIE RESTRICTIONS

List     1   STNS       33

             RACC        9

List     3   STNS       33

             RACC
```

Automatic Route Selection Report

Print Menu Option: ARS
Sections: Tables

```
AUTOMATIC ROUTE SELECTION

ARS IS: ACTIVE           ACCESS CODE: 9

TABLE 17: Default Toll Output Table

Pool      Absorb   Other Digits           FRL     Call type     Start   Pattern
1)70--        00   -------------------     3      BOTH          --:--   A
2)----        --   -------------------     -      -----         --:--   A
3)----        --   -------------------     -      -----         --:--   A
4)----        --   -------------------     -      -----         --:--   A
5)----        --   -------------------     -      -----         --:--   B
6)----        --   -------------------     -      -----         --:--   B

Pool      Absorb   Other Digits           FRL     Call type     Start   Pattern
1)70--        00   -------------------     3      BOTH          --:--   B
2)----        --   -------------------     -      -----         --:--   B
3)----        --   -------------------     -      -----         --:--   B
4)----        --   -------------------     -      -----         --:--   B
5)----        --   -------------------     -      -----         --:--   B
6)----        --   -------------------     -      -----         --:--   B

TABLE 18: Default Local Output Table

Pool      Absorb   Other Digits           FRL     Call type     Start   Pattern
1)70--        00   -------------------     3      BOTH          --:--   A
2)----        --   -------------------     -      -----         --:--   A
3)----        --   -------------------     -      -----         --:--   A
4)----        --   -------------------     -      -----         --:--   A
5)----        --   -------------------     -      -----         --:--   B
6)----        --   -------------------     -      -----         --:--   B

Pool      Absorb   Other Digits           FRL     Call type     Start   Pattern
1)70--        00   -------------------     3      BOTH          --:--   B
2)----        --   -------------------     -      -----         --:--   B
3)----        --   -------------------     -      -----         --:--   B
4)----        --   -------------------     -      -----         --:--   B
5)----        --   -------------------     -      -----         --:--   B
```

Automatic Route Selection Report—*Continued*

```
TABLE 19: Dial 0 Output Table

Pool      Absorb   Other Digits          FRL      Call type     Start    Pattern
1)70--         00   -------------------    3       BOTH          --:--    A

TABLE 20: N11 Output Table
01)411 02)611 03)811 04)911

Pool      Absorb   Other Digits          FRL      Call type     Start    Pattern
1)70--         00   -------------------    3       BOTH          --:--    A
1)70--         00   -------------------    3       BOTH          --:--    A
```

Extension Directory Report

Print Menu Option: Ext Direct

```
EXTENSION DIRECTORY

Port  Ext #  Label    F H R M V R A     Port  Ext #  Label      F H R M V R A
Addr                  A B C I S S R     Addr                    A B C I S S R
                      C I F C I T S                             C I F C I T S
                      E S W D G R R                             E S W D G R R

1/ 1   10  OPERATR    N N N N   U 3     1/21  710              N N N N   U 3
1/ 2   11             N N N N   O 3     1/22  711              N N N N   U 3
1/ 3   12             N N N N   U 3     1/23  712              N N N N   U 3
1/ 4   13   EXT 13    N N N N   U 3     1/24  713              N N N N   U 3
1/ 5   14   EXT 14    N N N N   U 3     1/25  714              N N N N   U 3
1/ 6   15             N N N N   U 3     1/26  715              N N N N   U 3
1/ 7   16             N N N N   U 3     1/27  716              N N N N   U 3
1/ 8   17             N N N N   U 3     1/28  717              N N N N   U 3
2/ 1   18   EXT 18    N Y N N   U 3     2/ 2  19               N Y N N   U 3
2/ 3   20             N Y N N   U 3     2/ 4  21               N Y N N   U 3
2/ 5   22  OPERATR    N Y N N   U 3     2/ 6  23               N Y N N   U 3
2/ 7   24             N Y N N   U 3     2/ 8  25               N Y N N   U 3
3/ 1   26             N Y N N   U 3     3/ 2  27               N Y N N   U 3
3/ 3   28             N Y N N   U 3     3/ 4  29               N Y N N   U 3
3/ 5   30  AUDIXVP    N Y N N   U 3     3/ 6  31               N Y N N   U 3
3/ 7   32  AUDIXVP    N Y N N   U 3     3/ 8  33               N Y N N   U 3
4/ 1   34             N Y N N   U 3     4/ 2  35     AUDIXVP   N Y N N   U 3
4/ 3   36  AUDIXVP    N Y N N   U 3     4/ 4  37               N Y N N   U 3
4/ 5   38             N Y N N   U 3     4/ 6  39               N Y N N   U 3
4/ 7   40             N Y N N   U 3     4/ 8  41               N Y N N   U 3
6/ 1   42   EXT 42    N N N N   U 3     6/21  742              N N N N   U 3
  .
  .
  .
7/ 1   54   EXT 54    N N N N   U 3     7/2   754              N N N N   U 3
```

System Directory Report

Print Menu Option: Sys Direct

```
SYSTEM DIRECTORY

 Code  Name              Number           Display
  600  ABC Company       555-9999           YES
  601  Jacques Smith     5551212            YES
  605  Travel Agency     912015556677       YES
```

Group Paging Report

Print Menu Option: Group Page

```
GROUP PAGING

Group #   793   STNS   :   20   21   22   23   24   25

Group #   794   STNS   :   15   16   17   18   19
```

Extension Information Report

Print Menu Option: Ext Info plus extension number

```
EXTENSION INFORMATION

Extn     SS/PP     Type
  10     1/ 1      MLX-20L + 1 DSS

Pool Access         : 70  890  891  892  893  894  895  896  897  898  899
Page Group          :
Primary Coverage    :
Secondary Coverage  :
Coverage Group      : 5
Group Coverers      : 773
NS Groups           : 10
Group Calling Member:
Pickup Groups       :
Allowed Lists       :
Disallowed Lists    :
Restrictions        : UNRESTRICTED
Auto Callback       : OFF
Call Waiting        : ON
Abbreviated Ring    : ON
Line Preference     : ON
Shared SA Ring      : ON
Receive Voice Calls : ON
Coverage Inside     : OFF
Forwarding to       :
ARS Restriction     : 3
Forced Account Code : No
Microphone Disable  : No
Remote Forward Allow: No
NS Exclusion        : No
Voice Announce Pair : No
Voice/Data Pair     : No
BIS/HFAI            : No
Language            : English
Authorization Code  : 3134
```

Extension Information Report—*Continued*

```
EXTENSION INFORMATION

Extn      SS/PP      Type
  10       1/ 1      MLX-20L + 1 DSS

Button      34      Blank                       Status None
Button      33      Blank                       Status None
Button      32      Blank                       Status None
Button      31      Blank                       Status None
Button      30      Blank                       Status None
Button      29      Blank                       Status None
Button      28      Blank                       Status None
Button      27      Blank                       Status None
Button      26      Blank                       Status None
Button      25      Blank                       Status None
Button      24      Blank                       Status None
Button      23      Blank                       Status None
Button      22      Blank                       Status None
Button      21      Blank                       Status None
Button      20      Forced Release              Status None
Button      19      Pool Inspect                Status None
Button      18      Headset Auto Answer         Status Off
Button      17      Join                        Status None
Button      16      Cancel                      Status None
Button      15      Alarm Status                Status Off
Button      14      Night Service               Status Off
Button      13      Headset Status              Status Off
Button      12      Destination                 Status None
Button      11      Release                     Status None
Button      10      Position Busy               Status Off
Button       9      Send/Remove Message         Status None
Button       8      Handset/Headset Mute        Status Off
Button       7      Source                      Status None
Button       6      Start                       Status None
Button       5      Call 5                      Status None
Button       4      Call 4                      Status None
Button       3      Call 3                      Status None
Button       2      Call 2                      Status None
Button       1      Call 1                      Status None
```

Group Coverage Information Report

Print Menu Option: GrpCoverage

```
GROUP COVERAGE INFORMATION

Group #     2   Senders :     6802 6804
Group #     5   Senders :       10   11   12   13   14   18   19   20   42
                               44   45   47 6810

DIRECT GROUP CALLING INFORMATION

Group #  :  770         Group Type : AutoLogout
Call Distribution Type   : CIRCULAR
Delay Announcement Ext # : 11
Message Waiting Station  : 20
Calls_in_queue Threshold : 1
External Alert ext #     : 21
Overflow Threshold       : 1
Overflow to DGC group #  :

Group Coverage :   1

No.    EXT #         LABEL
 1
 2
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18
19
20
```

Direct Group Calling Information Report

Print Menu Option: Grp Calling
Sections: Each programmed group

```
DIRECT GROUP CALLING INFORMATION

Group #  : 782         Group Type : AutoLogout
Call Distribution Type   : CIRCULAR
Delay Announcement Ext # :
Message Waiting Station  :
Calls_in_queue Threshold : 1
External Alert ext #     :
Overflow Threshold       : 1
Overflow to DGC group #  :

Group Coverage :   1

No.    EXT #         LABEL
 1     12
 2     13
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18
19
20

LINES:
```

Night Service Information Report

Print Menu Option: Night Service

```
NIGHT SERVICE INFORMATION

OPERATOR      10 DGCG     #:
                 STNS      :   10
OPERATOR      14 DGCG     #:
                 STNS      :   14
OPERATOR      18 DGCG     #:
                 STNS      :   18
OPERATOR      22 DGCG     #:
                 STNS      :   22
OPERATOR      42 DGCG     #:
                 STNS      :   42

Password    :

Current Day : OFF

              Turn off at:      Turn on at:
  Sunday            :                :
  Monday            :                :
  Tuesday           :                :
  Wednesday         :                :
  Thursday          :                :
  Friday            :                :
  Saturday          :                :

Emergency Allowed List:
 0)
 1)
 2)
 3)
 4)
 5)
 6)
 7)
 8)
 9)
NS Excluded STNS:
  61   62   63   64   65
```

Group Call Pickup Report

Print Menu Option: Call Pickup

```
GROUP CALL PICKUP

Group #  1  STNS  :  10  11  12  13  I4  15  16
Group #  2  STNS  :  17  18  19  20
Group #  3  STNS  :  21  22  23  24  25  26  27  28  29  30
Group #  4  STNS  :  31
Group #  5  STNS  :  32
Group #  6  STNS  :  33
Group #  7  STNS  :  34
Group #  8  STNS  :  35
Group #  9  STNS  :  36
Group # 10  STNS  :  37
```

Error Log Report

Print Menu Option: Error Log

```
ERROR LOG

Last 10 System Errors:

Message                  ss/pp    Cnt  First        Last       Code
PRI SVC AUDIT TIMEOUT    00/00     -     -     01/08 00:00:53  7001
TIMEOUT COLD START       00/00     -     -     01/11 00:04:08  0001
PRI SVC AUDIT TIMEOUT    00/00     -     -     01/11 00:04:14  7001
TIMEOUT COLD START       00/00     -     -     01/21 00:22:14  0001
PRI SVC AUDIT TIMEOUT    00/00     -     -     01/03 00:22:14  7001
PRI SVC AUDIT TIMEOUT    00/00     -     -     01/04 00:22:14  7001
SOFTWARE COLD START      00/00     -     -     01/04 00:21:14  0003
SOFTWARE COLD START      00/00     -     -     01/04 00:21:14  0003
PRI SVC AUDIT TIMEOUT    00/00     -     -     01/04 00:21:14  7001
SOFTWARE COLD START      00/00     -
```

Authorization Code Information Report

Print Menu Option: Auth Code

Extension	Authorization Code
10	3124
15	1357921
20	6578
23	443796

Button Diagrams

G

This appendix contains the button diagrams for Hybrid/PBX systems as well as button diagrams for Key and Behind Switch systems.

Figure G–1. MLX Telephone Button Diagram (Hybrid/PBX Mode)

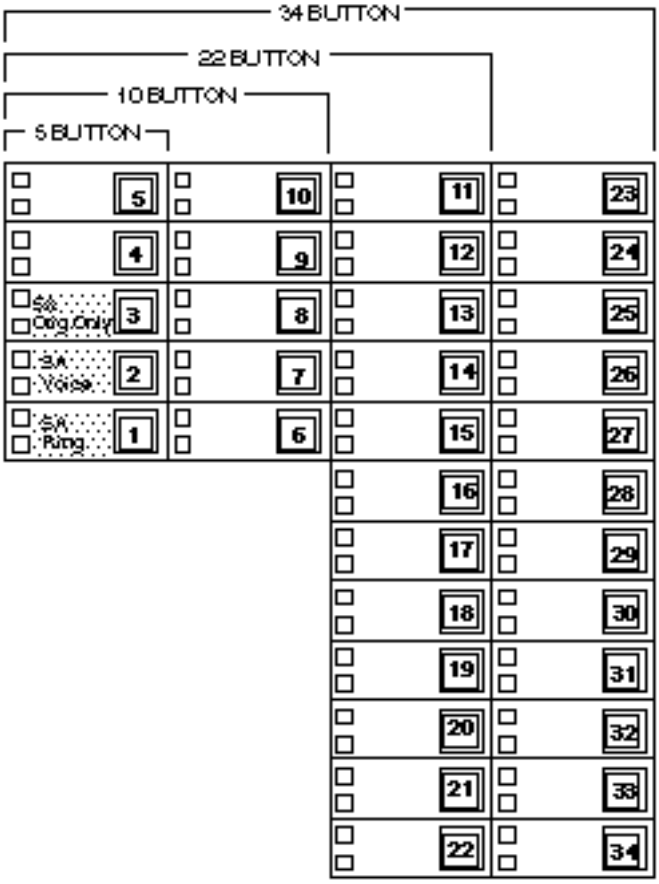


Figure G–2. Analog Multiline Telephone Button Diagram (Hybrid/PBX Mode)

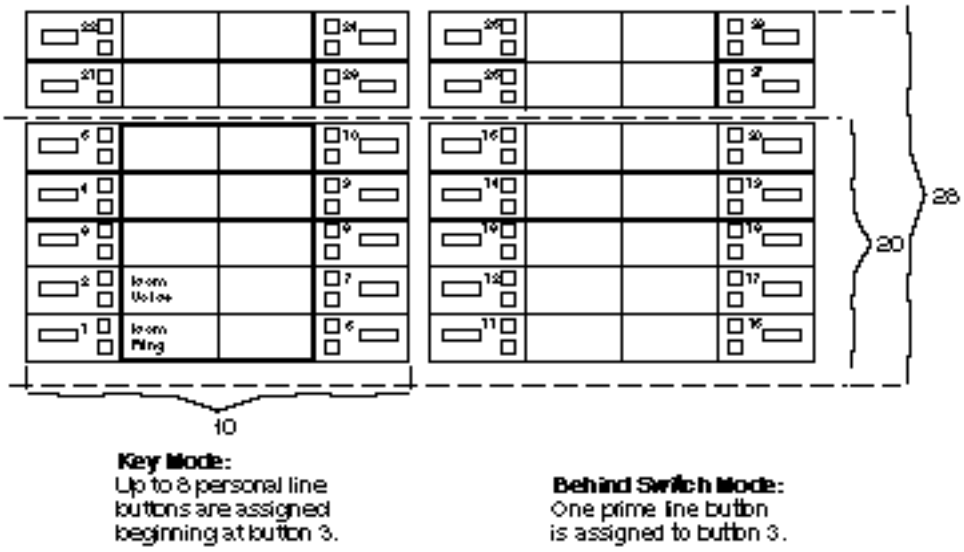


Figure G–3. MLX Telephone Button Diagram (Key and Behind Switch Mode)

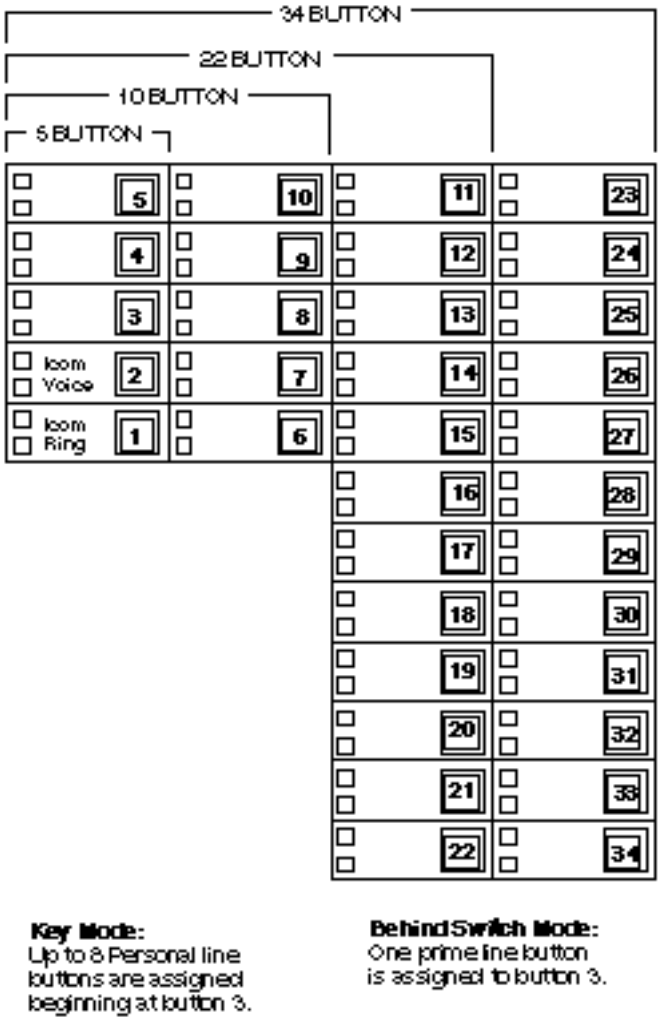


Figure G–4. Analog Multiline Telephone Button Diagram (Key and Behind Switch Mode)

Programming Special Characters

H

This appendix provides the special characters used in dialing sequences for numbers dialed automatically, such as on Auto Dial buttons. The characters allowed depend on the type of telephone.

Single-Line Telephones

Some dialing sequences need special characters. For example, the user presses and releases either the **Recall** or **Flash** button or the switchhook to insert a Pause in a dialing sequence after a dial-out code to allow the system to seize an outside line/trunk before dialing the number.

Table H–1. Special Characters for Single-Line Telephones

Press ...	Means ...
Recall, **Flash**, or switchhook*	Pause. Inserts a 1.5-second Pause in the dialing sequence. Multiple consecutive Pauses are allowed.
#	End of Dialing. Used to signal the end of the dialing sequence or to separate one group of dialed digits from another, such as an Account Code from a telephone number.

* On single-line telephones with positive or timed disconnect (such as the 2500YMGL) the **Recall** or **Flash** button, instead of the switchhook, must be used.

Analog Multiline Telephones

Some dialing sequences need special characters. For example, the user presses **Hold** to insert a Pause (p) after the dial-out code in a dialing sequence to allow the system to seize an outside line before dialing the number. A Pause can also be used to separate a telephone number from an extension number.

Table H–2. Special Characters for Analog Multiline Telephones

Press...	See*...	Means...
Drop†	s	Stop. Inserts a Stop within a sequence of automatically dialed numbers. For example, an outside Auto Dial button may be programmed with a password, then a Stop, then a telephone number. To use Auto Dial with a Stop in the sequence, the user presses the button to dial the password, listens for the dialing and connection, and presses the button again to dial the number.
Hold	p	Pause. Inserts a 1.5-second Pause in the dialing sequence. Multiple consecutive Pauses are allowed.
Conference†	f	Flash. Sends a switchhook flash. Must be the first entry in the dialing sequence.
##	#	End of Dialing for Auto Dial buttons. Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
#	#	End of Dialing. Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.

* Display telephones only
† Not available on MLC-5 cordless telephones

MLX-10 Non-Display Telephones

Some dialing sequences need special characters. For example, the user presses **Hold** to insert a Pause (p) after the dial-out code in a dialing sequence to allow the system to seize an outside line before dialing the number. A Pause can also be used to separate a telephone number from an extension number.

Table H–3. Special Characters for MLX Non-Display Telephone

Press ...	Means ...
Drop	Stop. Halts the dialing sequence to allow the system to respond.
Hold	Pause. Inserts a 1.5-second Pause in the dialing sequence. Multiple consecutive Pauses are allowed.
Conf	Flash. Sends a switchhook flash. Must be the first entry in the dialing sequence.
	End of Dialing for extension programming only. Used at the end of a dialing sequence to indicate the user has finished dialing or to separate one group of dialed digits from another.
	End of Dialing. Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

MLX Display Telephones

Some dialing sequences need special characters. For example, the user presses **Hold** to insert a Pause in a dialing sequence after a dial-out code to allow the system to seize an outside line before dialing the number. A Pause can also be used to separate a telephone number from an extension number.

Table H–4. Special Characters for MLX Display Telephones

Press...	See...	Means...
Drop	s	Stop. Halts the dialing sequence to allow for system response.
Hold	p	Pause. Inserts a 1.5-second Pause in the dialing sequence. Multiple consecutive Pauses are allowed.
Conf	f	Flash. Sends a switchhook flash. Must be the first entry in the dialing sequence.
		End of Dialing for extension programming only. Used at the end of a dialing sequence to indicate the user has finished dialing or to separate one group of dialed digits from another.
		End of Dialing. Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

Glossary

GL

#

7500B Data Module See *ISDN 7500B Data Module*.

A

account code Code used to associate incoming and outgoing calls with corresponding accounts, employees, projects, and clients.

Accunet AT&T's switched digital service for 56-kbps, 64-kbps restricted, and 64-kbps clear circuit-switched data calls.

address A coded representation of the destination of data or of the data's originating terminal, such as the dialed extension number assigned to the data terminal. Multiple terminals on one communication line must each have a unique address.

ADDS (Automated Document Delivery System) Computer-based application that stores documents in a database and automatically faxes them on request.

adjunct Optional equipment used with the communications system, such as an alerting device or *modem* that connects to a multiline telephone or to an extension jack.

ALS (Automatic Line Selection) Programmed order in which the system makes outside lines available to a user.

AMI	(alternate mark inversion) Line-coding format in which a binary one is represented by a positive or negative pulse, a binary zero is represented by no line signal, and subsequent binary ones must alternate in polarity; otherwise, a *bipolar violation* occurs. AMI is used in the *DS1* interface.
analog transmission	Mode of transmission in which information is represented in continuously variable physical quantities such as amplitude, frequency, phase, or resistance. See also *digital transmission*.
ANI	(Automatic Number Identification) AT&T servece that automatically identifys a caller's billing number and transmits that number from the caller's local central office to another point on or off the public network.
application	Software and/or hardware that adds functional capabilities to the system. For example, MERLIN Identifier is an application that provides caller identification information (if available in the local area or jurisdiction).
ARS	(Automatic Route Selection) System feature that routes calls on outside trunks according to the number dialed and trunk availability.
ASCAP	(American Society of Composers, Artists, and Producers)
ASN	(AT&T Switched Network) AT&T telecommunications services provided through an Integrated Digital Services Network Primary Rate Interface (ISDN-PRI) trunk, *Accunet* switched digital service, *Megacom*, *Megacom 800*, Software Defined Network (*SDN*), MultiQuest, and Shared Access for Switch Services (SASS).
asynchronous data transmission	A method of transmitting a short bitstream of digital data, such as printable characters represented by a 7- or 8-*bit* ASCII code. Each string of data bits is preceded by a start bit and followed by a stop bit, thus permitting data to be transmitted at irregular intervals. See also *synchronous data transmission*.
AT&T Attendant	Application with equipment that connects to one or more *tip/ring* extension jacks and automatically answers incoming calls with a recorded announcement; directs calls in response to touch tones.
AT&T Switched Network	See *ASN*.

AUDIX Voice Power — A voice-processing application, part of *IS II/III*, that provides Automated Attendant, Call Answer, Information Service, Message Drop, Voice Mail, and, optionally, *FAX Attendant System* for use with the system.

Automated Attendant — *IS II/III*, *MERLIN MAIL*, and *AT&T Attendant* application that automatically answers incoming calls with a recorded announcement and directs callers to a department, an extension, or the system operator.

Automatic Line Selection — See *ALS*.

Automatic Number Identification — See *ANI*.

automatic ringdown tie-trunk — See *automatic-start tie trunk*.

Automatic Route Selection — See *ARS*.

automatic-start tie trunk — *Tie trunk* on which incoming calls are routed to an operator or other designated destination without a start signal, as soon as the trunk is seized; the destination is specified during programming. Also called “automatic ringdown” or “auto-in” tie trunk.

auxiliary power unit — Device that provides additional power to the system.

B

B8ZS — (bipolar 8 zero substitution) Line-coding format that encodes a string of eight zeros in a unique binary sequence to detect *bipolar violation*. See also *bipolar signal*.

backup — Procedure for saving a copy of system programming onto a floppy disk or *memory card*. See also *restore.*

bandwidth — Difference, expressed in hertz, between the highest and lowest frequencies in a range that determines channel capacity.

barrier code — Password used to limit access to the *Remote Access* feature of the system.

basic carrier Hardware that holds and connects the *processor*, *power supply*, and up to five modules in the system. See also *expansion carrier*.

baud rate Strictly speaking, a measurement of transmission speed equal to the number of signal level changes per second. In practice, often used synonymously with *bit rate* and *bps*.

B-channel (Bearer-channel) 64-kbps channel that carries a variety of digital information streams, such as voice at 64 kbps, data at up to 64 kbps, wideband voice encoded at 64 kbps, and voice at less than 64 kbps, alone or combined.

bearer-channel See *B-channel*.

Behind Switch mode One of three modes of system operation, in which the control unit is connected to (behind) another telephone switching system, such as *Centrex* or DEFINITY®, which provides features and services to telephone users. See also *Hybrid/PBX mode* and *Key mode*.

binary code Electrical representation of quantities or symbols expressed in the base-2 number system, which includes zeros and ones.

bipolar 8 zero substitution See *B8ZS*.

bipolar signal Digital signal in which pulses (ones) alternate between positive and negative. See also *AMI*, *B8ZS*, and *bipolar violation*.

bipolar violation Condition occurring when two positive or two negative pulses are received in succession. See also *AMI* and *B8ZS*.

BIS (Built-In Speakerphone) Part of the model name of some analog multiline telephones.

bit (binary digit) One unit of information in binary notation; it can have one of two values, zero or one.

bit rate Speed at which bits are transmitted, usually expressed in *bps*. Also called “data rate.” See also *baud rate.*

blocking Condition in which end-to-end connections cannot be made on calls because of a full load on all possible services and facilities. See also *glare.*

BMI (Broadcast Music Incorporated)

board A module, for example, 100D or 408 MLX GS/LS, that allows you to connect lines/trunks and extensions to the communications system.

board assignment SPM procedure for assigning line/trunk and extension modules to slots on the control unit.

board renumbering System programming procedure for renumbering boards that have already been assigned to specific slots on the control unit.

BRI (Basic Rate Interface) Standard digital frame format that specifies the protocol between the communication system and a terminal. BRI runs at 192 Kbps and provides two 64-Kbps voice or B-channels and on 16-Kbps signaling or D-channel per port. The remaining 48 Kbps are used for framing and D-channel contention.

broadband Transmission path having a bandwidth greater than a voice-grade channel.

BTMI (basic telephone modem interface)

bus Multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

button Key on the face of a telephone that is used to access a line, activate a feature, or enter a code on a communications system.

byte Sequence of *bits* (usually eight) processed together. Also called “octet.”

C

Call Accounting System See *CAS*.

Call Accounting Terminal See *CAT*.

Caller ID A service provided by some local telephone companies (if local regulations allow) that supplies the calling party telephone number. In Release 3.0 and later, an 800 GS/LS-ID module on the system connected to a loop-start line subscribed to this service can capture this information and display it on the screens of MLX telephones. Also called ICLID (Incoming Caller Line Identification). See also *ANI*.

Calling group Team of individuals who answer the same types of calls.

Call Management System	See *CMS*.
campus cable	Cable that runs between buildings connected to the same communications system.
CAS	(Call Accounting System) DOS- or UNIX system-based application that monitors and manages telecommunications costs.
CAT	(Call Accounting Terminal) Stand-alone unit with a built-in microprocessor and data buffer that provides simple call accounting at a low cost.
CCITT	(International Telegraph and Telephone Consultative Committee)
CCS	(common-channel signaling) Signaling in which one channel of a group of channels carries signaling information for each of the remaining channels, permitting each of the remaining channels to be used to nearly full capacity. In the system's 100D module, Channel 24 can be designated as the signaling channel for Channels 1–23.
centralized telephone programming	Programming of features on individual telephones; performed at a central location by the *system manager*. See also *system programming* and *extension programming.*
central office	See *CO*.
Centrex	Set of system features to which a user can subscribe on telephone trunks from the local telephone company.
channel	Telecommunications transmission path for voice and/or data.
channel service unit	See *CSU*.
checksum	Sum of ones in a sequence of ones and zeros used to detect or correct errors in data transmission.
circuit-switched data call	Data call made through an exclusively established and maintained connection between *data stations*.
class of restriction	See *COR*.
clock synchronization	Operation of digital facilities from a common clock.

CMS (Call Management System) DOS-based application that simulates the actions of a system operator by answering and distributing calls. Also produces reports for call analysis.

CO (central office) Location of telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

coaxial cable Cable consisting of one conductor, usually a small copper tube or wire within and insulated from another conductor of larger diameter, usually copper tubing or copper braid.

codec (coder-decoder) Device used to convert analog signals such as speech, music, or television to digital form for transmission over a digital medium and back to the original analog form.

common channel signaling See *CCS*.

communications system Software-controlled processor complex that interprets dialing pulses, tones, and or keyboard characters and makes the proper interconnections both inside and outside. Consists of a computer, software, a storage device, and *carriers* with special hardware to perform the actual connections. Provides voice and/or data communications services, including access to public and private networks, for telephones and other equipment. Also referred to in this guide as “system,” short for MERLIN LEGEND Communications System.

control unit *Processor*, *power supply*, modules, *carriers*, and housing of the system.

console Refers to telephone and adjuncts (if any) at operator or system programmer extension.

CONVERSANT Voice response application that automatically answers and routes calls and executes telephone transactions.

conversion resource See *modem pool*.

COR (class of restriction) Various types of restrictions that can be assigned to *remote access* trunks or barrier codes. These restrictions consist of Calling Restrictions, *ARS* Facility Restriction Levels (*FRL*s), Allowed Lists, Disallowed Lists, and Automatic Callback queuing.

Coverage Set of system features that can determine how extensions’ calls are covered when the person at the extension is busy or not available.

CRC (cyclic redundancy check) An error-detection code used on *DS1* facilities with the extended superframe format (*ESF*).

CSU (channel service unit) Equipment used on customer premises to provide *DS1* facility terminations and signaling compatibility.

cyclic redundancy check See *CRC*.

D

D4 framing format *Framing format* consisting of a sequence of individual frames of 24 eight-*bit* slots and one signal bit (193 bits) in a 12-frame superframe. See also *ESF*.

data-channel See *D-channel*.

data communications equipment See *DCE*.

data hunt group See *DHG*.

data module See *ISDN 7500B Data Module*.

data rate See *bps*.

data station Special type of extension where data communications take place; includes *DTE* and *DCE*; sometimes a telephone is also part of a data station.

data terminal An input/output (*I/0*) device (often a personal computer) that can be connected to the control unit via an interface.

data terminal equipment See *DTE* and *data terminal*.

DCE (data communications equipment) Equipment such as *modem*s or data modules used to establish, maintain, and terminate a connection between the system and data terminal equipment (*DTE*), such as printers, personal computers, host computers, or network workstations.

D-channel (Data-channel) 16-or 64-kbps channel that carries signaling information or data on a *PRI*.

dedicated feature buttons — The imprinted feature buttons on a telephone: **Conf** or **Conference**, **Drop**, **Feature**, **HFAI** (Hands Free Answer on Intercom), **Hold**, **Message**, **Mute** or **Microphone**, **Recall**, **Speaker** or **Speakerphone**, and **Transfer**.

delay-dial-start tie trunk — *Tie trunk* on which the originating end of the tie trunk transmits an off-hook signal to the receiving end and waits for the receiving end to send an off-hook signal followed by an on-hook signal. Also called “dial-repeating tie trunk.”

DFT — (direct facility termination) See *personal line*.

DHG — (data hunt group) Group of analog or digital *data stations* that share a common access code. Calls are connected in a round-robin fashion to the first available data station in the group.

dial access — See *feature code*.

Dialed Number identification Service — See *DNIS*.

dial-out code — Digit (usually a *9*) or digits dialed by telephone users to get an outside line.

dial plan — Numbering scheme for system extensions, lines, and trunks.

dial-repeating tie trunk — See *delay-dial start tie trunk*.

DID — (Direct Inward Dialing) Service that transmits from the telephone company central office and routes incoming calls directly to the called extension, *calling group*, or outgoing trunk *pool*, bypassing the system operator.

DID trunk — Incoming trunk that receives dialed digits from the local exchange, allowing the system to connect directly to an extension without assistance from the system operator.

digital — Representation of information in discrete elements such as off and on or zero and one. See also *analog transmission*.

Digital Communications Protocol — See *DCP*.

Digital Signal 0 — See *DS0*.

Digital Signal 1 — See *DS1*.

digital switch element — See *DSE*.

digital transmission Mode of transmission in which the information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses. See also *analog transmission*.

DIP switch (dual in-line package) Switch on a 400EM module used to select the signaling format for tie-line transmission. Also used on other equipment for setting hardware options.

direct facility termination (DFT) See *personal line*.

Direct Inward Dialing See *DID.*

Direct-Line Console See *DLC*.

Direct Station Selector See *DSS*.

display buttons Buttons on an MLX display telephone used to access the telephone's display.

DLC (Direct-Line Console) Telephone used by a system operator to answer outside calls (not directed to an individual or a group) and inside calls, transfer calls, make outside calls for users with outward calling restrictions, set up conference calls, and monitor system operation.

DNIS (Dialed Number Identification Service) Service provided by the AT&T Switched Network (*ASN*); it routes incoming 800 or 900 calls according to customer-selected parameters, such as area code, state, or time of call.

door answering unit Device connected to a basic telephone jack and used at an unattended extension or front desk.

DOS (disk operating system)

DS0 (Digital Signal 0) Single 64-kbps voice or data channel.

DS1 (Digital Signal 1) *Bit*-oriented signaling interface that multiplexes twenty-four 64-kbps channels into a single 1.544-Mbps stream.

DSS (Direct Station Selector) 60-button *adjunct* that enhances the call-handling capabilities of an MLX-20L or MLX-28D telephone used as an operator console.

DTE (data terminal equipment) Equipment that makes the endpoints in a connection over a data connection, for example, a data terminal, personal computer, host computer, or printer.

DTMF signaling (dual-tone multifrequency signaling) Touch-tone signaling from telephones using the voice transmission path. DTMF signaling provides 12 distinct signals, each representing a dialed digit or character, and each composed of two voiceband frequencies.

E

E&M signaling (ear & mouth signalling) Trunk supervisory signaling, used between two communications systems, in which signaling information is transferred through two-state voltage conditions (on the Ear and Mouth leads) for analog applications and through two *bit*s for digital applications. See also *tie trunk*.

EIA (Electronic Industries Association)

EIA-232-D Physical interface, specified by the *EIA*, that transmits and receives asynchronous data at speeds of up to 19.2 Kbps over cable distances of 50 (15 m).

Electronic Switching System See *ESS*.

endpoint Final destination in the path of an electrical or telecommunications signal.

ESF (extended superframe format) *Framing format* consisting of individual frames of 24 eight-*bit* slots and one signal bit (193 bits) in a 24-frame extended superframe. See also *D4 framing format.*

ESS (Electronic Switching System) Class of central office (*CO*) switching systems developed by AT&T in which the control functions are performed principally by electronic data processors operating under the direction of a stored program.

expansion carrier *Carrier* added to the control unit when the basic carrier cannot house all of the required modules. Houses a power supply and up to six additional modules.

extension An endpoint on the internal side of the communications system. An extension can be a telephone with or without an adjunct. Also called “station.” See also *data station.*

extension jack — An analog, digital, or *tip/ring* physical interface on a module in the control unit for connecting a telephone or other device to the system. Also called “station jack.”

extension programming — Programming performed at an extension to customize telephones for personal needs; users can program features on buttons, set the telephone ringing pattern, and so on. See also *centralized telephone programming* and *system programming*.

extended superframe format — See *ESF*.

F

facility — Equipment (often a *trunk*) constituting a telecommunications path between the system and the telephone company central office (*CO*).

Facility Restriction Level — See *FRL*.

factory setting — Default state of a device or feature when an optional setting is not programmed by the user or system manager.

fax — (facsimile) Scanning and transmission of a graphic image over a telecommunications facility, or the resulting reproduced image, or the machine that does the scanning and transmitting.

FAX Attendant System — Fax-handling and processing application available with *AUDIX Voice Power*.

FCC — (Federal Communications Commission)

feature — Function or service provided by the system.

feature code — Code entered on a dialpad to activate a feature.

feature module — Prior to Release 3.0, a circuit pack inserted into the *processor* module, used to provide system features and replaced when the system is upgraded.

Feature screen — Display screen on MLX display telephones; provides quick access to commonly used features.

Flash ROM — Beginning with Release 3.0, a type of memory provided on the *processor* module.

forced idle Condition of the system during certain programming or maintenance procedure; system prevents initiation of new calls.

foreign exchange See *FX*.

frame One of several segments of an analog or digital signal that has a repetitive characteristic. For example, a *DS1* frame consists of a framing *bit* and 24 bytes, which equals 193 bits.

framing format Pattern of *frames* used in transmissions.

FRL (Facility Restriction Level) *ARS* calling restriction type that restricts outgoing calls to certain specified routes.

FX (foreign exchange) Central office (*CO*) other than the one that is providing local access to the public telephone network.

G

General-Purpose Adapter See *GPA*.

glare Condition that occurs when a user tries to call out on a *loop-start* trunk at the same time that another call arrives on the same trunk.

GPA (General-Purpose Adapter) Device that connects an analog multiline telephone to optional equipment such as an answering machine or a fax machine.

ground-start trunk Trunk on which the communications system, after verifying that the trunk is idle (no ground on tip lead), transmits a request for service (puts ground on ring lead) to the telephone company central office (*CO*).

Group IV (G4) fax machine A fax unit, offering 400 by 100 dots per inch (dpi) in fine mode, that can operate at any speed for communication with a Group III (G3) fax machine or another Group IV (G4) fax machine.

H

Hands Free Answer on Intercom — See *HFAI*.

hands-free unit — See *HFU*.

headset — Lightweight earpiece and microphone used for hands-free telephone operation.

HFAI — (Hands Free Answer on Intercom) Feature that allows a user to answer a voice-announced call.

HFU — (Hands-Free Unit) Unit for analog multiline telephones that allows users to make and receive calls on the speakerphone without using the handset.

Home screen — Display normally shown on an MLX display telephone; shows time, date, and call information, and shows when some features are in use.

host — Telephone company or other switch providing features and services to the system users, usually when the system is operating in *Behind Switch mode*.

Hybrid/PBX mode — One of three modes of system operation, in which the system uses trunk *pool*s and *ARS* in addition to *personal lines*. Provides a single interface (**SA** buttons) to users for both inside and outside calling. See also *Behind Switch mode* and *Key mode*.

I

ICOM buttons — (intercom buttons) Telephone buttons that provide access to inside system lines for calling other extensions or receiving calls from them.

immediate-start tie trunk — *Tie trunk* on which no start signal is necessary; dialing can begin immediately after the trunk is seized.

in-band signaling — See *robbed-bit signaling*.

inside dial tone — A tone users hear when they are off-hook on an ***SA*** or ***ICOM*** *button*.

Inspect screen — Display screen on an MLX display telephone that allows the user to preview incoming calls and see a list of the features programmed on line buttons.

Integrated Administration — Capability of *IS III* that simplifies the programming of common information for the system, *AUDIX Voice Power*, and, if it is also installed, *FAX Attendant System*.

Integrated Services Digital Network — See *ISDN*.

Integrated Solution II/III — See *IS II/III*.

Integrated Voice Power Automated Attendant — *IS II* application that automatically answers incoming calls with a recorded announcement and directs callers to a department, an extension, or the system operator.

intercom buttons — See ***ICOM** buttons.*

interface — Hardware and/or software that links systems, programs, or devices.

I/O device — (input/output device) Equipment that can be attached to a computer internally or externally for managing a computer system's input and output of information.

IROB protector — (In-Range Out-of-Building protector) Surge-protection device for off-premises telephones at a location within 1000 feet (305 m) of cable distance from the control unit.

IS II/III — (Integrated Solution II or Integrated Solution III) Set of UNIX system-based applications that augments and provides additional services using the system.

ISDN — (Integrated Services Digital Network) Public or private network that provides end-to-end digital connectivity for all services to which users have access by a limited set of standard multipurpose user and *network interfaces*; provides digital circuit-switched or packet-switched connections within the network and to other networks for national and international digital connectivity.

ISDN 7500B Data Module — Data communications device that allows connection between an RS-232 *DTE* device and the control unit via MLX extension jacks on the 008 MLX or 408 GS/LS-MLX module.

J

jack — Physical connection point to the system for a telephone, trunk. or other device. Also called "port."

K

kbps Kilobits per second.

Key mode One of three modes of system operation, in which the system uses personal lines on line buttons for outside calls, with a separate interface (***ICOM*** *buttons*) for internal calling. See also *Behind Switch mode* and *Hybrid/PBX mode.*

L

LAN (local area network) Arrangement of interconnected personal computers or terminals, sometimes accessing a host computer, sometimes sharing resources like files and printers.

LDN (Listed Directory Number)

LED (light-emitting diode) Semiconductor device that produces light when voltage is applied; light on a telephone.

line Connection between extensions within the communications system; often, however, used synonymously with *trunk*.

line and trunk assignment Assignment of lines and trunks connected to the system control unit to specific buttons on each telephone.

line coding Pattern that data assumes as it is transmitted over a communications channel.

line compensation Adjustment for the amount of cable loss in decibels (dB), based on the length of cable between a 100D module and a channel service unit (*CSU*) or other far-end connection point.

line/trunk Refers to inside system lines and outside trunks in general terms. See also *line* and *trunk*.

line/trunk jack Physical interface on a module in the control unit for connecting an outside trunk to the communications system. Also called “trunk jack.”

line/trunk and extension module — Module on which the jacks for connecting central office lines/trunks and/or the jacks for connecting the extensions are located.

local host computer access — A method for connecting an extension jack to an on-site computer for data-only calls through a *modem* or data module.

local loop — See *access line.*

logical ID — Unique numeric identifier for each *extensio*n and *line/trunk jack* in the system control unit.

loop-start trunk — Trunk on which a closure between the tip and ring leads is used to originate or answer a call. High-voltage 20-Hz AC ringing current from the central office signals an incoming call.

M

Magic on Hold — An AT&T Music on Hold enhancement that promotes a company's products or services.

Mbps — (megabits per second)

Megacom — AT&T's tariffed digital *WATS* offering for outward calling.

Megacom 800 — AT&T's tariffed digital 800 offering for inward calling.

memory card — Storage medium, similar in function to a floppy disk, that allows information to be added to or obtained from the communication system through the PCMCIA interface slot on the processor module.

MERLIN Identifier — Adjunct that allows users to receive, store, and use information provided by Caller ID and a caller identification service provided by the local telephone company.

MERLIN MAIL Voice Messaging System — Application that provides automated attendant, call answering, and voice mail services on the system.

MFM — (Multi-Function Module) Adapter that has a *tip/ring* mode for answering machines, modems, fax machines, and tip/ring alerts, and an *SAA* mode for -48 VDC alerts. Installed inside an MLX telephone, and is used to connect optional equipment to the telephone. The optional equipment and the telephone operate simultaneously and independently.

MLX-10 or MLX-10D telephone 10-line button digital telephone offered with (MLX- 10D) or without (MLX-10) a 2-line by 24-character display.

MLX-20L telephone 20-line button digital telephone with a 7-line by 24-character display.

MLX-28D telephone 28-line button digital telephone with a 2-line by 24-character display.

mode codes Streams of touch-tone codes used by voice messaging applications to communicate with the system's control unit.

modem Device that converts digital data signals to analog signals for transmission over a telephone line, and analog signals received on a telephone line to digital signals.

module Circuit pack in the control unit that provides the physical jacks for connection of telephones and/or outside trunks to the communications system. In the name of a module, the first digit indicates the number of *line/trunk* jacks it contains; the last digit indicates the number of *extension jacks* it contains. If no letters appear after the number, a line/trunk module provides *loop-start trunks* or an extension jack module provides analog or *tip/ring* jacks. For example, a 408 GS/LS MLX module contains four line/trunk jacks and eight digital (MLX) extension jacks, provides either loop-start (LS) or *ground-start* (GS) *trunks.*

Multi-Function Module See *MFM*.

multiline telephone An analog or digital (MLX) telephone that provides multiple line buttons for making or receiving calls or programming features.

multiplexing The division of a transmission channel into two or more independent channels, either by splitting the frequency band into a number of narrower bands or by dividing the channel into successive time slots.

Music On Hold Customer-provided music source or Magic On Hold connected to the system through a *loop-start* jack.

N

network Configuration of communications devices and software connected for information interchange.

network interface Hardware, software, or both that links two systems in an interconnected group of systems, for example, between the local telephone company and a PBX.

O

off-hook Telephone is said to be off-hook when the user has lifted the handset, pressed the **Speaker** button to turn on the speakerphone, or used a headset to connect to the communications system or the telephone network.

off-premises telephone See *OPT*.

ones density Requirement for channelized *DS1* service to the public network that eight consecutive zeros cannot occur in a digital data stream.

on-hook Telephone is said to be on-hook when the handset is hung up, the speakerphone is turned off, and the user is not using a headset to connect to the communications system or the telephone network.

OPT (off-premises telephone) *Single-line telephone* or other *tip/ring* device connected to the system via an 008 OPT module in the control unit. Appears as an inside extension to the system, but may be physically located away from the system.

OPX (off-premises extension)

out-of-band signaling Signaling that uses the same path as voice-frequency transmission and in which the signaling is outside the band used for voice frequencies.

P

parity The addition of a *bit* to a bit string so that the total number of ones is odd or even, used to detect and correct transmission errors.

PassageWay® Solution — Set of software applications that provide an interface between a personal computer and the system: cardfile, telephone programming application, call log and viewer, database for use with Caller ID and applications manager.

pass-through — Connection from an internal *modem* to a programming jack on the system.

PBX — (private branch exchange) Local electronic telephone switch that serves local stations (for example, extensions within a business) and provides them with access to the public network.

PC — (personal computer)

PCMCIA memory card — (Personal Computer Memory Card International Association memory card) See *memory card*.

personal line — Central office trunk that terminates directly on one or more telephones. In *Hybrid/PBX mode*, a personal line cannot be part of a trunk *pool*. Also called “DFT” (direct facility termination).

PFT — (Power Failure Transfer) Feature that provides continuity of telephone service during a commercial power failure by switching some of the system’s trunk connections to telephones connected to specially designated extension jacks.

pool — In *Hybrid/PBX mode*, a group of outside trunks that users can access with a **Pool** button or by dialing an access code on an ***SA** button*. Also used by the *ARS* feature when choosing the least expensive route for a call.

port — See *jack*. Also, refers to *extension* or *line jacks* before these are numbered according to the *dial plan* during programming. The lowest jack on a module is always Port 1.

Power Failure Transfer — See *PFT*.

power supply module — Device that directs electricity to modules and telephones on the system. One power supply module is needed for each carrier, and an *auxiliary power unit* is added if the module exceeds capacity.

PRI — (Primary Rate Interface) Standard interface that specifies the protocol used between two or more communications systems. As used in North America, provides twenty-three 64-kbps *B-channel*s for voice and/or data and one 16-kbps *D-channel*, which carries multiplexed signaling information for the other 23 channels.

primary system operator position — First jack on the first MLX or analog multiline extension module in the control unit, that is, the extension jack with the lowest logical ID in the system.

prime line — Individual extension number assigned to a telephone in a system operating in *Behind Switch mode*. Each telephone user has his or her own prime line and is automatically connected to that line when he or she lifts the handset.

processor module — Module in the second slot of the control unit (Slot 0, to the right of the *power supply*). Includes the software and memory that runs the system.

programming port reassignment — Reassignment of the system programming jack position to any of the first five extension jacks on the first MLX module in the control unit.

protocol — Set of conventions governing the format and timing of message exchanges between devices, such as an MLX telephone and the control unit.

public network — Network that is commonly accessible for local or long-distance calling. Also called “public switched telephone network.”

Q

QCC — (Queued Call Console) MLX-20L telephone used by a system operator in *Hybrid/PBX mode* only. Used to answer outside calls (directed to a system operator position) and inside calls, direct inside and outside calls to an extension or an outside telephone number, serve as a message center, make outside calls for users with outward calling restrictions, set up conference calls, and monitor system operation.

R

RAM — (random-access memory) Computer memory in which an individual *byte* or range of bytes can be addressed and read or changed without affecting other parts of memory.

read-only memory See *ROM*.

Remote Access System feature that allows an outside caller to gain access to the system, almost as if at a system extension.

restore Procedure whereby saved and archived system programming is reinstated on the system, from a floppy disk or *memory card*. See also *backup*.

riser cable Cable that runs between floors in a multistory building and connects wiring closets.

RS-232 Physical interface, specified by the Electronics Industries Association (*EIA*), that transmits and receives *asynchronous* data at distances of up to 50 feet (15 m).

robbed-bit signaling Signaling in which the least significant *bit* of every sixth frame per channel is used for signaling in that channel.

ROM (read-only memory) Computer memory that can be read but cannot be changed.

S

SAA (Supplemental Alert Adapter) Device that permits -48-VDC alerting equipment to be connected to an analog multiline telephone jack so that people working in noisy or remote areas of a building can be alerted to incoming calls.

SA buttons Telephone buttons that provide a single interface to users for both inside and outside calling.

SDN (Software Defined Network) AT&T private networking service created by specialized software within the public network.

SID [station (extension) identification]

signaling Sending of control and status information between devices to set up, maintain, or cease a connection such as a telephone call.

single-line telephone Industry-standard touch-tone or rotary-dial telephone that handles only one call at a time and is connected to the system by an *extension jack* on a basic 012 or 008 OPT module.

slot Position in a *carrier* for a module; numbered from 0 (*processor module*).

SMDR	(Station Message Detail Recording) Feature that captures detailed usage information on incoming and outgoing voice and data calls.
SMDR printer	Printer used to produce SMDR reports. Connected to the system via an RS-232 jack on the *processor* module.
Software Defined Network	See *SDN*.
special character	Pause, Stop, or End-of-Dialing signal in a programmed dialing sequence such as an Auto Dial or Personal Speed Dial number.
SPM	(System Programming and Maintenance) *DOS*- or UNIX system-based application for programming and maintaining the system.
station	See *extension*.
station jack	See *extension jack*.
Station Message Detail Recording	See *SMDR*.
Supplemental Alert Adapter	See *SAA*.
switchhook flash	Momentary (320 ms to 1 second) on-hook signal used as a control signal. May be directed either to the control unit or to a *host* switch outside the system. Also called “Recall” or “timed flash.”
synchronous data transmission	Method of transmitting a continuous digital data stream in which the transmission of each binary *bit* is synchronized with a master clock. See also *asynchronous data transmission*.
system acceptance test	Test of all trunks, telephones, data terminals, and features after installation to ensure that they are working correctly.
System Access buttons	See ***SA** buttons*.
system date and time	Date and time that appear on MLX display telephones and *SMDR* reports.
system programming	Programming of system functions and features that affect most users, performed from an MLX-20L telephone or a computer using *SPM*. See also *extension programming* and *centralized telephone programming.*
System Programming and Maintenance	See *SPM*.

system renumbering	Procedure used to change the numbers assigned to telephones, adjuncts, *calling groups*, paging groups, park zones. *Remote Access*, and lines/trunks.

T

T1	Type of digital transmission facility that in North America transmits at the *DS1* rate of 1.544 Mbps.
tie trunk	Private trunk directly connecting two telephone switches. See also *automatic-start tie trunk*, *delay-dial-start tie trunk*, *immediate-start tie trunk*, and *wink-start tie trunk.*
timed flash	See *switchhook flash*.
tip/ring	Contacts and associated conductors of a *single-line telephone* plug or jack.
touch-tone receiver	See *TTR*.
T/R	See *tip/ring*.
trunk	Line creating a telecommunications path between the communications system and the telephone company central office (*CO*) or another switch. Often used synonymously with *line*.
trunk jack	See *line/trunk jack*.
trunk pool	See *pool* and *modem pool*.
TTR	(touch-tone receiver) Device used to decode *DTMF* touch-tones dialed from *single-line telephones* or *Remote Access* telephones.

V

VAC	Alternating-current voltage.
VDC	Direct-current voltage.
VMI	(voice messaging interface) An enhanced *tip/ring* port.
voice-band channel	A transmission channel. generally in the 300–3400-Hz frequency band.

voice mail — Application that allows users to send messages to other extensions in the system, forward messages received with comments, and reply to messages.

voice messaging interface — See *VMI*.

W

WATS — (Wide Area Telecommunications Service) Service that allows calls to certain areas for a flat-rate charge based on expected usage.

Wink-start tie trunk — *Tie trunk* on which the originating end transmits an off-hook signal and waits for the remote end to send back a signal (a wink) that it is ready for transmission.

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