Lucent Technologies
Bell Labs Innovations

MERLIN LEGEND®

Communications System
Release 6.0

System Programming and Maintenance (SPM)

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. It follows *Maintenance and Troubleshooting* in this binder.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system, and if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use. 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 classe A préscrites dans le réglement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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Ordering Information

For more information about Lucent Technologies documents, refer to the section entitled, "Related Documents" in "*About This Book.*"

Support Telephone Number

In the continental US, Lucent Technologies provides a toll-free customer helpline 24 hours a day. Call the Lucent Technologies Helpline at **1 800 628-2888** or your Lucent Technologies authorized dealer if you need assistance when installing, programming, or using your system. Outside the continental US, contact your local Lucent Technologies authorized representative.

Lucent Technologies Corporate Security

Whether or not immediate support is required, all toll fraud incidents involving Lucent Technologies products or services *should be reported* to Lucent Technologies Corporate Security at **1 800 821-8235**. In addition to recording the incident, Lucent Technologies Corporate Security is available for consultation on security issues, investigation support, referral to law enforcement agencies, and educational programs.

Lucent Technologies Fraud Intervention

If you *suspect you are being victimized* by toll fraud and you need technical support or assistance, call BCS National Service Assistance Center at **1 800 628 2888**.

Warranty

Lucent Technologies provides a limited warranty on this product. Refer to "Limited Warranty and Limitation of Liability" in Appendix A, "Customer Support Information," which follows *Maintenance and Troubleshooting* in this binder.

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About This Book

System Programming and Maintenance (SPM) is a software tool develped specifically for the MERLIN LEGEND Communications system to allow programming, administration, and maintenance tasks to be done on a PC.

Intended Audience

This book is intended for anyone who uses a PC to perform programing or maintenance tasks for the communications system. It is especially aimed at system managers and support personel.

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

In the USA only, Lucent Technologies provides a toll-free customer Helpline (1 800 628-2888) 24 hours a day. Call the Helpline, or your Lucent Technologies representative, if you need assistance when installing, programming, or using your system.

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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, Direct Inward Dialing (DID) trunk, and so on. When you talk to your local telephone company central office, ask them which 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	terminal adapter
7500B data station	terminal adapter
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	terminal adapter only station
7500B data only station	terminal adapter only station
digital voice and digital data station	MLX voice and terminal adapter station

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MLX voice and 7500B data station   MLX voice and terminal
                                            adapter 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 personal computer (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**.

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⚠ 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" following *Maintenance and Troubleshooting*.

Throughout this document, toll fraud security hazards are indicated by an exclamation point inside a triangle and the words **Security Alert**.

⚠ **Security Alert:**

Security Alert indicates the presence of a toll fraud security hazard. Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party (for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf). Be sure to read "Your Responsibility for Your System's Security" on the inside front cover of this book and "Security of Your System: Preventing Toll Fraud" in Appendix A, "Customer Support Information."

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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 Lucent Technologies BCS Publications Center by calling 1 800 457-1235.

Document No.	Title
	System Documents
555-660-100	*Customer Documentation Package* Consists of paper versions of *System Manager's Guide, Feature Reference,* and *System Programming.*
555-660-110	*Feature Reference*
555-660-111	*System Programming*
555-660-112	*System Planning*
555-660-113	*System Planning Forms*
555-660-116	*Pocket Reference*
555-660-118	*System Manager's Guide*
555-660-150	*Network Reference*
555-660-800	*Customer Reference CD-ROM* Contains *System Manager's Guide, Feature Reference, System Programming,* and *Network Reference.*
	Telephone User Support
555-660-122	*MLX Display Telephones User's Guide*
555-630-150	*MLX-5D, MLX-10D and MLX-10DP Display Telephone Tray Cards (5 cards)*
555-630-152	*MLX-28D and MLX-20L Telephone Tray Cards (5 cards)*
555-660-124	*MLX-5 and MLX-10 Nondisplay Telephone User's Guide*
555-630-151	*MLX-5 and MLX 10 Nondisplay Telephone Tray Cards (6 cards)*
555-630-155	*MLX-16DP Display Telephone Tray Cards (5 cards)*
555-660-120	*Analog Multiline Telephones User's Guide*
555-660-126	*Single-Line Telephones User's Guide*
555-660-138	*MDC and MDW Telephones User's Guide*
	System Operator Support
555-660-134	*MLX Direct-Line Consoles Operator's Guide*

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Document No.	Title
555-660-132	*Analog Direct-Line Consoles Operator's Guide*
555-660-136	*MLX Queued Call Console Operator's Guide*
	Miscellaneous User Support
555-660-130	*Calling Group Supervisor's Guide*
555-650-105	*Data and Video Reference*
	Documentation for Qualified Technicians
555-660-140	*Installation, Programming & Maintenance (IP&M) Binder* Consists of *Installation, System Programming & Maintenance (SPM),* and *Maintenance & Troubleshooting*
	Toll Fraud Security
555-025-600	*BCS Products Security Handbook*

How to Comment on This Document

We welcome your comments, both positive and negative. 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
Lucent Technologies
211 Mount Airy Road
Room 2W226
Basking Ridge, NJ 07920

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System Programming and Maintenance

The System Programming and Maintenance (SPM) software package offers an alternate method of programming the MERLIN LEGEND Communications System using a PC. This method frees the system programming console for other uses and also provides the additional functions listed below:

- Backing up system programming information

- Restoring system programming information from a backup

- Converting system programming information from one release to another (part of the upgrade procedure)

- Upgrading the communications system to a newer release

- Printing, viewing, and storing reports

- Programming the communications system remotely

- Programming in surrogate mode

SPM runs on a DOS-based PC as a standalone program or on a UNIX System platform as part of Intuity, Integrated Solution II, or Integrated Solution III (IS II/III are discontinued products). It is available on a 3.5-inch diskette for DOS or UNIX, or on a 5.25 inch diskette for DOS.

$\Longrightarrow$ NOTE:

SPM software can be used directly from the floppy disks on a DOS machine; however, if your PC has a hard disk, you should install SPM onto the hard disk.

This book describes the use of SPM on a PC with a DOS operating system. If your system has the Intuity or IS II/III application, you have the UNIX System version of SPM.

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For information about accessing SPM from the IS II/III application, refer to the following books:

- Integrated Solution III System Manager's Guide, order no. 555-601-010

- Integrated Solution III Installation and Maintenance Guide, order no. 555-601-011

- Integrated Solution II System Manager's Guide, order no. 555-600-726

- Integrated Solution II Installation and Maintenance Guide, order no. 555-600-720

System Requirements

To use SPM for system programming, you need the SPM diskette and an approved PC with version 3.3 (or later) of MS-DOS®. At a minimum, your PC should support and include the following items:

- At least 640 kbytes of RAM

- A floppy disk drive that will accommodate the SPM diskette (3.5-inch or 5.25-inch)

- A monochrome or color monitor

- A serial port that can use either a DB-9 or DB-25 connector

- For a DB-9 connector, use a 9-pin to 25-pin adapter to attach the 25-pin connector of the RS-232 interface cable.

- An RS-232 interface cable of appropriate length for your site connection(s)

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Depending on how you connect the PC to the control unit, you also need the following items:

- Direct local connection, if the PC is within 50 ft. of the control unit.

    — Either a 355AF modular adapter (if there is a male connector on the interface cable) or a 355A modular adapter (if there is a female connector on the interface cable)

    — A four-pair modular cord (D8W)

- Direct local connection, if the PC is more than 50 ft. from the control unit.

    — 355AF adapter

    — EIA crossover cable

    — Two Z3A2 Asynchronous Data Units (ADUs)

    — ADU crossover cable

    — 400B2 power adapter

    — 2012D transformer

    — BR1A-4P adapter and either a 102 connecting block or 103 connecting block

    — 248B adapter

    — eight-position wall jacks

    — four-pair plug-ended cable

    — D8W cords

    — D6AP power cord

    — EIA-23D cables

- Modem (local or remote) connection

    — A modem that supports 1200- or 2400-bps connections

In addition, a parallel printer is useful for reports (the PC needs a parallel port for the connection).

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> **NOTE:**
> SPM uses Interrupt 4 and I/O address 3F8 for COM1. It uses Interrupt 3 and I/O address 2F8 for COM2.

Installing the SPM Software

Before you install or run SPM, use diskcopy on a DOS PC (see your operating system guide) to make a backup copy of the SPM diskette and store the original in a safe place. Use the backup copy to run the installation program.

For installing SPM on a DOS PC, follow the appropriate instructions in the next section of this book.

> **NOTE:**
> If your PC does not have a hard disk, you do not need to run the installation program. Go to "Initializing the SPM Software."

DOS Installation

Use the following procedure to install SPM on the hard drive of a DOS PC.

> **NOTE:**
> If you are updating SPM, you do not need to remove the current SPM files. The new files will overwrite your current SPM files.

Considerations

Review the following items before you begin the installation procedure.

The installation program automatically performs the following:

- Checks available space on the hard disk. If space is insufficient, the installation is terminated and an error message is generated.

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- Checks the autoexec.bat and config.sys files. If either file is write-protected, the installation is terminated and an error message is generated. SPM must make changes to these files.

- Saves a copy of autoexec.bat as autoexec.old.

- Saves a copy of config.sys as config.old.

- If autoexec.bat has not already been configured for SPM, performs the following:

    — Adds c:\spm to the path statement

    — Adds the line SET AMS PATH=C:

    — Adds the background print command
      PRINT /D:PRN /B:4096 /U:3 /M:200 /S:1 >NUL

- Adds the following line to config.sys if it is not already present DEVICE=C:\ANSI.SYS.

- Copies the ansi.sys file from the floppy disk to c:\.

- Creates the directory c:\spm.

- Copies the following files from the floppy disk into c:\spm:

    — spm.exe

    — ams_hlp.eng (English language help file)

    — ams_hlp.fre (French language help file)

    — ams_hlp.spa (Spanish language help file)

- Creates the following directories if they do not already exist:

    — c:\spm\backup

    — c:\spm\reports

    — c:\spm\tmp

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- Does one of the following:

    — Creates the SPM configuration file c:\spm\ams.cfg, if it does not already exist. In this case, the ams.cfg file consists of only one line, in which the language attribute is specified: LANG 1 if you specified English or did not specify a language with the install command;

    — Modifies the ams.cfg file, if it already exists, by adding or changing the LANG value.

Follow the steps below to install SPM on the PC's hard disk.

▶ 1. **Switch to Drive A, if it is not already the current drive.**

A:> appears on the screen.

▶ 2. **Insert the backup copy of the SPM diskette into Drive A.**

▶ 3. **Type one of the commands shown below and press** Enter↵ **.**

- *install*
- *install french*
- *install spanish*

Because English is the default language, install and install english have the same result. If you do use the language argument (english, french, or spanish), you must type it in lowercase letters as shown. The command install may be uppercase or lowercase.

▶ 4. **Wait for the message shown below to appear.**

```
SPM HARD DISK INSTALLATION PROGRAM
Strike a key when ready
```

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▶ 5. **Press any key to begin the installation.**

When the installation is finished, the following message appears:

```
SPM HARD DISK INSTALLATION IS NOW COMPLETE
YOU MUST REBOOT YOUR SYSTEM BEFORE USING SPM
```

▶ 6. **Remove the SPM diskette from Drive A and reboot your system.**

The installation procedure is complete. Go to "Initializing the SPM Software."

DOS Installation with Windows 95

Using DOS SPM with Windows 95 improves the interaction of SPM with the operating system as compared to Windows 3.x installation. For example, the interaction with the print driver is improved. If an online printer is not available when you try to print while using SPM, you see a message box explaining the problem. You can correct the problem by bringing the printer on-line and continuing, or you can cancel the print operation. SPM operation is not affected by the error message or the action you take to correct the problem.

Use the following procedure to install SPM. You do not need to remove the current SPM files. The new files automatically overwrite your current SPM files.

Considerations

Review the following items before you begin the installation procedure.

The installation program automatically performs the following:

- If you typed `install` (the command for DOS installation) instead of `instal95`, checks if your PC has Windows 95 installed. If Windows 95 is detected, you see an error message that tells you to run the Instal95 program.

- Creates the directory c:\spm if it does not already exist.

- Checks if the print.exe file is present in any directory listed in the PATH environment variable.

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- Runs the DOS SETVER command to set the version table for print.exe to 6.22. This is required to enable print.exe to run on Windows 95.

- Creates an spm.bat file in the directory c:\spm. The spm.bat file contains the ams_path and print statements required to run SPM.

- Unzips and copies the remaining files into the directory c:\spm.

- Instructs you to refer to this document for details on using the PIF Editor to configure an SPM PIF file to work with the spm.exe file.

Installation

With Windows 95 running on your PC, follow these steps to install SPM on the PC's hard drive:

1. Insert a backup copy of SPM in any floppy disk drive (usually the A drive).

2. Choose *one* of the following two methods to install SPM:

   Method 1- Install DOS SPM with French, Spanish, or English Language:

   a. Open a DOS Window from the Windows Explorer.

   b. At the DOS prompt, switch to the drive with the backup copy of SPM diskette (usually the A drive).

   c. At the DOS prompt, type one of the commands shown below and press [Enter←] ☐

      - `instal95 or instal95 english`
      - `instal95 french`
      - `instal95 spanish`

➡ NOTE:
Because English is the factory-set language, *instal95* and *instal95 english* have the same result. If you do use the language argument (`english`, `french` or `spanish`), you must type it

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in lowercase letters as shown. The command *instal95* may be in uppercase or lowercase letters.

Method 2- Install DOS SPM with French, Spanish, or English Language:

a. From the Windows Explorer, select the floppy drive that contains the backup copy of SPM diskette.

b. Select and run Instal95 (either by double clicking on the file name or single clicking on the file name and using the menu choice **File:Open**).

3. After you start DOS SPM installation using either method, the following message appears:

SPM WINDOWS 95 HARD DISK INSTALLATION PROGRAM
Press any key to continue.

4. Press any key to begin the installation.

5. If your PC does not have a copy of PRINT.EXE in any directory listed in your system's PATH environment, the following message appears:

```
Copying print.exe to directory c:\spm
file(s) copied

WARNING - The application you are adding to the Windows
version table may not have been verified by Microsoft in
this version of Windows. Please contact your software
vendor for information on whether this application will
operate properly under this version of Windows. If you
execute this application by instructing Windows to report
a different
MS-DOS version number, you may lose or corrupt data, or
cause system instabilities. In that circumstance,
Microsoft is not responsible for any loss or damage.

Version table successfully updated.
The version change will take effect the next time you
restart your system.

*****************************************************
```

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```
SPM Note: The warning message seen above was produced by
the SETVER command. This command was used in the SPM
install program to set the proper version of PRINT.EXE
file in the DOS version table. Please note that in Windows
95, running SETVER always produces the warning message
seen above, even when the command is run properly.

********************************************************

Press any Key to continue . . .
```

6. Press any key to continue installation. When SPM installation is complete the following message appears:

```
Installation of SPM for DOS on your Windows 95 hard drive
is now complete. For easy access to SPM from Windows 95,
configure an SPM.PIF file. See the SPM Manual for details.
Press any key to continue . . .
```

7. Press any key

   — If you installed DOS SPM using Method 1 in Step 2, close the DOS Window by typing **exit** at the DOS prompt and pressing Enter ↵ . If the window does not close, then the Close on Exit option for the DOS window is not set. In this case, close the window by clicking on the upper right window icon (the box with an **x** in it).

   — If you installed DOS SPM using Method 2 in Step 2, the DOS window closes automatically.

8. If the print.exe file was copied to your PC in Step 5, you must reboot your PC.

9. You should now configure a PIF file for SPM. Use the instructions that follow

Configuring a PIF file for DOS SPM

Refer to the Windows 95 help topic on "PIF" for details on using the PIF editor to implement an SPM PIF file to work with the spm.exe file.

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Configure a PIF file for DOS SPM by doing the following:

1. In the Windows Explorer, select the SPM application file. Then select the menu item **File:Properties**. The screen that pops up will have tabs along the top.

2. In Program Tab:, put the following line in the Working Directory entry:

   C:\SPM

3. In Program Tab:, put the following line in the Batch File entry:

   C:\SPM\SPM.BAT

4. In Program Tab:, make sure the Close on Exit checkbox is checked.

You can now double click on either the SPM application icon or the SPM "Shortcut to MS-DOS" icon to run SPM. When you quit SPM (by pressing the **Home** key), the window closes automatically.

Hiding the spm.exe and spm.bat Files

If you want to hide the spm.exe and spm.bat files, use the following steps:

1. In the Windows 95 Explorer, select each file.

2. Click File from the menu bar, then select Properties.

3. In the Properties dialog box, click on the Hidden checkbox located under the General Tab in the Attributes section.

Initializing the SPM Software

To run correctly, the DOS version of SPM requires certain information (transmission speed, type of monitor, and so on). You need to supply this information only once, the first time you run SPM.

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The information you provide during the initialization process is written to the SPM configuration file (ams.cfg). If you need to change this information at some later time, you can do so in either of the following ways:

- Use any of the options in Table 1 to change the information in ams.cfg.

- Edit the ams.cfg file. (If you are unsure about editing the file, you can remove it. You are prompted to reinitialize the next time you invoke SPM. The file is created at that time.)

➡ NOTE:
The DEBUG attribute is also specified in ams.cfg as DEBUG=0 (off), the default setting, or DEBUG=1 (on). This attribute is used to enable the Escape-to-Shell feature of SPM, activated by pressing Ctrl + 9. To turn DEBUG on, you must edit the ams.cfg file; it is not part of the initialization process. The DEBUG attribute is for use by qualified service personnel only.

Table 1.   SPM Configuration File (ams.cfg) Options

Option	Use
spm ▯com1	Specifies COM1 as the serial communications port used by SPM
spm ▯com2	Specifies COM2 as the serial communications port used by SPM
spm ▯s1200	Specifies modem speed of 1200 bps
spm ▯s2400	Specifies modem speed of 2400 bps
spm ▯color	Specifies color monitor
spm ▯mono	Specifies monochrome monitor
spm ▯l english	Specifies English as the PC language
spm ▯l french	Specifies French as the PC language
spm ▯l spanish	Specifies Spanish as the PC language

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Follow the steps below to perform the SPM initialization.

▶ 1. **Type** *spm* **and press** Enter↵ **to display the SPM Welcome screen shown in Step 2.**

   ■ *Make your entry at the C:> prompt if your PC has a hard disk.*

   ■ *Make your entry at the A:> prompt if you are using the floppy drive.*

▶ 2. **Press any key.**

```
      Welcome to SPM

    The MERLIN LEGEND

    System Programming

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  Please press any key

      to continue

     Version X.XX
```

X.XX = current version of SPM

The screens shown in Steps 3 through 7 appear only if the system has not been initialized. Otherwise, the screen shown in Step 8 appears.

▶ 3. **Select the serial communications port used for SPM and press** Enter↵ **.**

```
COMM PORT:

1.  Comm 1

2.  Comm 2

Enter selection #
```

Type *1* for serial port 1 (COM1).
Type *2* for serial port 2 (COM2).

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▶ **4. Select the communications port speed and press** `Enter ←` **.**

```
Speed:
1.  1200
2.  2400
Enter selection #
```

Type *1* for 1200 bps.
Type *2* for 2400 bps.

▶ **5. Respond to the color prompt and press** `Enter ←` **.**

```
COLOR
Enter selection (y/n):
```

Type *y* if you have a color monitor.
Type *n* if you do not have a color monitor.

▶ **6. Select a language and press** `Enter ←` **.**

```
Language:
1.  English
2.  French
3.  Spanish
Enter selection #:
```

Type *1* for English.
Type *2* for French.
Type *3* for Spanish.

The language you select here becomes the SPM (PC) language.

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▶ 7. **Review your selections.**

```
SPM CONFIGURATION:
Comm Port:  x
Speed: x
Color: x
Desire change (y/n)?
```

x = the values entered for each
entry in Steps 3 through 6

- ■ To change any of the information shown, type ⦅Y⦆ and press ⦅Enter◄┘⦆.
  The screen shown in Step 3 appears. Repeat Steps 3 through 6.

- ■ To save the information shown, type ⦅N⦆ and press ⦅Enter◄┘⦆.

  — If the PC is connected to the processor, the SPM Main Menu
  appears as shown in Step 8.

  — If the PC is not connected, go to "Connecting the PC."

▶ 8. **Press the function key that corresponds to the option you want.**

```
        SPM Main Menu
Menu: Select Function
```

	SPM Main Menu		
F1	Sys Program	Maintenance	F6
F2	Backup	Restore	F7
F3	Boards	Pass-Thru	F8
F4	Print Opts	Password	F9
F5	Monitor	Language	F10

➲ NOTE:
The function keys shown on either side of the display are included here for
quick reference. See "SPM Screens" for details on using the PC keys in
SPM.

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Connecting the PC

There are three ways to connect the PC to the control unit. Choose the method below that is most useful for your installation.

- Direct local connection

- Local modem connection

- Remote modem connection

Direct Local Connection

For a direct local connection, you must connect the PC to the system programming jack. This is the lower modular RS-232 jack on the processor module, as shown in Figure 1. (The upper jack is reserved for the SMDR printer.)

To connect a PC more than fifty feet from the control unit, see Figure 2.

For direct local connections, the system supports speeds of 1200 and 2400 bps.

➡ NOTE:
You must use a direct local connection to program in surrogate mode.

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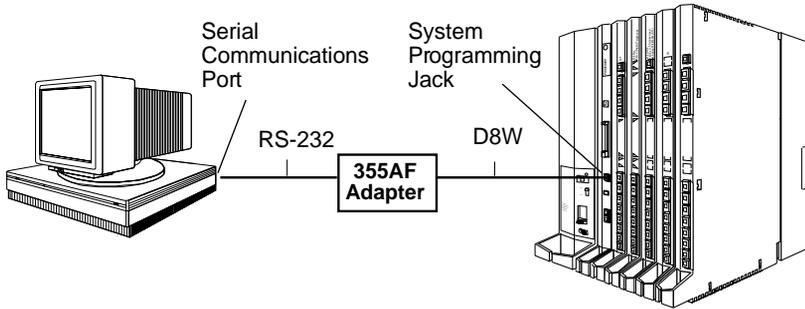
Figure 1. Direct Local Connection

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Figure 2. Direct Local Connection, PC More Than 50 ft. Away

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Local Modem Connection

For a local modem connection, you must use a modem (either connected to, or built into, the PC) to access the internal modem in the control unit. Connect the modem to an 012 or 016 module in the control unit, as shown in Figure 3.

The internal modem operates at speeds of 1200 and 2400 bps.
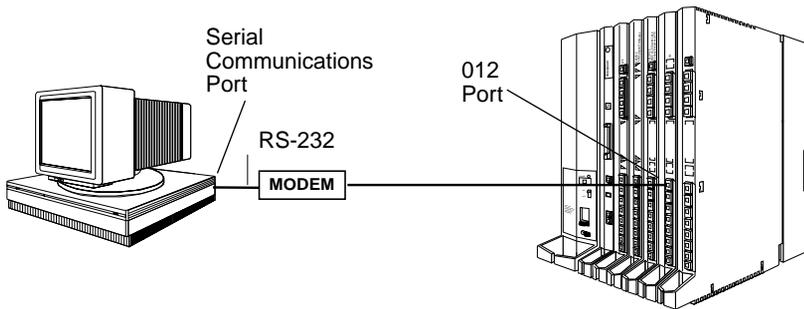
Figure 3.   Local Modem Connection

Remote Modem Connection

For a remote modem connection, you must use a modem (either connected to, or built into, the PC) to access the internal modem in the control unit. You must also use a dial-up connection, as shown in Figure 4. See "Accessing SPM" for details on accessing SPM with a remote modem connection.

The internal modem operates at speeds of 1200 and 2400 bps.

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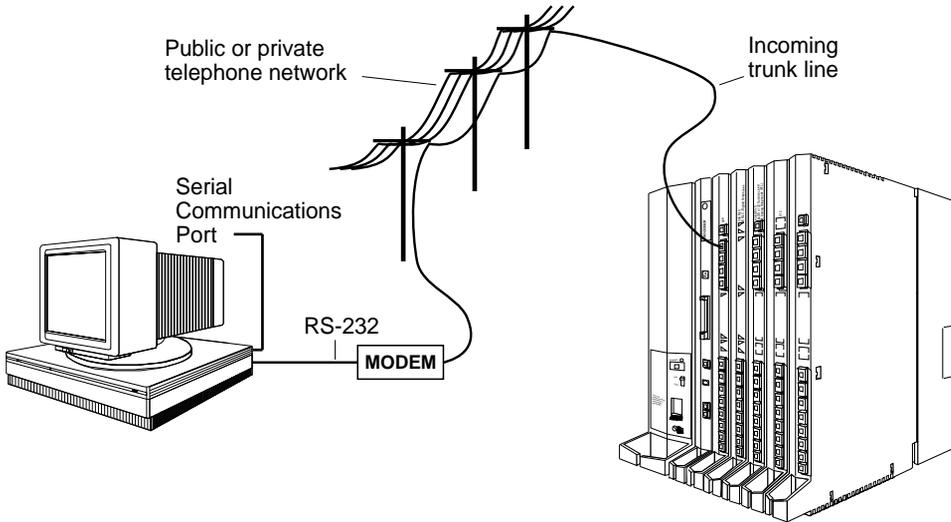
Figure 4. Remote Modem Connection

➡ **NOTE:**

Remote access (modem connection) has priority over local access (direct connection), unless a backup or restore procedure is in progress through a direct local connection. If a modem connection is attempted while any other type of on-site programming is in progress (either at the system or at a directly-connected PC), the system sends a message to the on-site programmer. The message indicates that a modem connection is being established and the on-site programming session is terminated.

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Accessing SPM

The procedure for accessing SPM depends on whether your PC is connected to the control unit with a modem (either local or remote) or without a modem (direct). This section covers both of these access procedures.

With a Direct Local Connection

To access SPM when your PC is connected directly to the control unit, follow the steps below.

▶ 1. **Set up the appropriate physical connections between the PC and the control unit.**

See "Connecting the PC."

▶ 2. **If you installed SPM on the hard disk of the PC, go to Step 5.**

▶ 3. **If the PC does not have a hard disk, insert the SPM diskette into Drive A.**

▶ 4. **Type** *a:* **and press** $\boxed{\text{Enter} \leftarrow}$ **.**

A: > appears on the screen.

▶ 5. **Type spm and press** $\boxed{\text{Enter} \leftarrow}$ **to display the SPM Welcome screen shown below.**

```
    Welcome to SPM

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Please press any key

     to continue

    Version X.XX
```

X.XX current version of SPM

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▶ 6. **Press any key to display the SPM Main Menu shown below.**

```
        SPM Main Menu

    Menu: Select Function

    Sys Program    Maintenance
    Backup         Restore
    Boards         Pass-Thru
    Print Opts     Password
    Monitor        Language
```

[F1] [F2] [F3] [F4] [F5]

[F6] [F7] [F8] [F9] [F10]

> **➡ NOTE:**
> The function keys shown on either side of the display are included
> here for quick reference. See "SPM Screens" for details on using
> the PC keys in SPM.

■ If the SPM Main Menu does not appear or if the information on the
screen is garbled, press any key again.

■ If the COM Port (communications port) screen appears instead of the
SPM Main Menu, it indicates that the SPM software has not been
initialized. See "Initializing the SPM Software."

▶ 7. **To select an option, press the function key that corresponds to the
option you want. For example, to select** Language **press** [F10]**.**

With a Local or Remote Modem Connection

The method you use to access SPM by modem depends on whether you are
programming on site (locally) or from a remote location.

■ If you are on site, the modem must be connected to an 012 or 016
module on the control unit. To establish a connection to the control
unit's internal modem, dial *10.

■ If you are at a remote location, do one of the following:

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— Place a call to the system on a Remote Access line, enter the barrier code (if required), and dial the code for the internal modem (*10).

— Place a voice call to the system using the line to which the modem is connected and ask the operator to transfer you to the modem (by pressing **Transfer,** dialing *10, then hanging up the telephone). When you hear the modem answer tone, switch to data mode.

Considerations

Review the following items before you begin the modem connection procedure.

Set the Programming Language

If you prefer to program in a language other than the current SPM language setting, see "Language."

Modem Connections

You must make a data connection to a modem. The following modem dialing commands are for Hayes® and Hayes-compatible modems. These may not be the commands your modem uses—refer to the user guide that came with your modem for specific information.

- If the PC is in the same location as the control unit, type *10.

- If the PC is in a remote location and your system has activated the Remote Access feature, type the following and press Enter↵ :

    — Without barrier codes type:

    ATDT ; the remote access telephone number; and *W*10.
    For example: *ATDT12015551234 W*10 Enter↵ .

    — With barrier codes type:

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> $ATDT$; the remote access telephone number; the barrier code
> preceded by a "W" and $W*10$. The barrier code in the example
> below is 555555.
> For example: $ATDT12015551234\ W555555\ W*10$ [Enter←] .

- The password prompt appears on the screen when the connection is
  made. (You may have to press [Enter←] more than once to get the
  password prompt.)

- If the PC is in a remote location and your system has not activated the
  Remote Access feature, do the following:

    — Use the main telephone number to place a voice call to the
      system on the line to which the modem is connected.

    — Instruct the operator to transfer you to the modem (by pressing
      Transfer, dialing $*10,$ then hanging up the telephone).

    — To put the modem on line, type $ATH1$ and press [Enter←] , then
      hang up the telephone.

➡ NOTE:
If you enter a telephone number of fewer than 11 digits, you must end it
with a pound sign (#).

To access SPM through a local or remote modem connection, follow the steps
below.

▶ 1. **Set up the appropriate physical connections between the PC and the
   control unit. See "Connecting the PC."**

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▶ **2.** **Type** *spm* **and press** ⎡Enter⏎⎤ **to display the SPM Welcome screen shown below.**

```
    Welcome to SPM

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 & Maintenance Utility

  Please press any key

      to continue

    Version X.XX
```

X.XX = current version of SPM

If you wish to program in a language other than the current language set for SPM, see "Set the Programming Language."

▶ **3.** **Press any key to display a blank screen on which you can enter modem commands. (You may have to press the key several times.)**

▶ **4.** **Make a data connection to the modem of the control unit.**

See "Modem Connections." When the connection is made, the password prompt appears as shown in Step 4.

▶ **5.** **Type the SPM password to display the SPM Main Menu shown in Step 6.**

```
Enter Password:
```

The password does not display as you type it.

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▶ 6. **To select an option, press the function key that corresponds to the option you want. For example, to select** Language **press** F10**.**

```
          SPM Main Menu

     Menu: Select Function

F1   Sys Program    Maintenance   F6

F2   Backup         Restore       F7

F3   Boards         Pass-Thru     F8

F4   Print Opts     Password      F9

F5   Monitor        Language      F10
```

➡ NOTE:
The function keys shown on either side of the display are included here for quick reference. See "SPM Screens" for details on using the PC keys in SPM.

Using SPM

This section describes how to use the SPM screens, SPM Help, and the SPM options listed below.

- ■ Backup

- ■ Boards

- ■ Browse

- ■ Convert

- ■ Language

- ■ Maintenance

- ■ Monitor

- ■ Pass-Thru

- ■ Password

- ■ Print Options

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- ■ Restore

- ■ System Programming

➡ NOTE:
Some of the procedures described in this section should be performed by qualified service personnel only.

SPM Screens

SPM screens simulate the system programming console. Each SPM screen includes a 7-line by 24-character console simulation window that corresponds to the display area of the MLX-20L telephone. To the right and left of this console simulation window are columns that list the keys corresponding to similarly-located buttons on the MLX-20L telephone. If you are working with Version 2.0 or higher, the version number appears in the upper left corner of the screen (for example, V6). Figure 5 illustrates the SPM display screen.

Figure 5. SPM Display

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$\boxed{\text{F1}}$ through $\boxed{\text{F5}}$, and $\boxed{\text{F6}}$ through $\boxed{\text{F10}}$ display on either side of the console simulation window. They represent the function keys to use when you select screen options. When a screen contains several choices, press the function key identified by the label next to your choice. (If you were programming on the console, you would press the telephone button next to your choice.)

Below the console simulation window are 20 simulated line buttons. The 20 line buttons can be selected using the arrow keys to position the cursor on the appropriate button. Using $\boxed{\text{PgDn}}$ (the Inspect feature), you can determine the status of each line and the features programmed on each line according to the letter that appears next to the line number (see below).

On the PC screen, the letters R and G represent the ON state of the red and green LEDs, respectively, that are on the console. For example, if a line, trunk, or pool is assigned to a line button, on the console a green LED lights next to the button. On the PC screen, the letter G (for green) displays next to the button. Similarly, if a line, trunk, or pool is not assigned to a line button, neither G nor R display next to the button on the PC screen. If a trunk is assigned to a pool, an R (for red) displays on the PC screen.

The labels in the column on the right side of the screen show key combinations that correspond to buttons on the MLX-20L telephone. Table 2 describes the function of PC keys in SPM.

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Table 2. **Function of PC Keys in SPM**

PC Key	Console	SPM Function
Home	**Home**	Quit. Exit from SPM and return to the DOS prompt when you finish with system programming. If you are using a modem, the call is disconnected.
End	**Menu**	Return to the SPM Main Menu.
PgUp	**More**	Display more menu items (when there is another screen and the > symbol appears next to the key).
PgDn	**Inspct**	Show the current information that has been programmed for a feature or button.
Alt + P	**Drop**	Enter a stop in a speed dialing sequence. This combination also deletes an entry in a field on any screen except one in which you are entering a speed dialing sequence.
Alt + F	**Conf**	Flash. Enter a switchhook flash in a speed dialing sequence.
Alt + C	n/a	TopSP. Return to the top of the System Programming menu.
Alt + H	**Hold**	Pause. Enter a pause in a speed dialing sequence.
Alt + U	n/a	Convert. Convert a backup file from its original Release format to a different Release format.
Alt + N	n/a	Toggle modem speed between 1200 and 2400 bps.
Ctrl + F1	n/a	Help. Display a help screen about SPM operations. To exit from Help, press End.
Ctrl + F5	n/a	Reset. Reset the communications port. For example, if the information on the screen is garbled, try exiting from and then re-entering the screen. If the screen remains garbled, use Ctrl + 5 to clear the screen and return to the SPM Welcome screen. Note that using Ctrl + 5 drops the modem connection.
Ctrl + F8	n/a	Browse. View print reports saved with Print Opts.

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Table 2.   Function of PC Keys in SPM — *Continued*

PC Key	Console	SPM Function
Ctrl + F9	n/a	Escape to shell. To use this key sequence, you must set DEBUG=1 in the configuration file ams.cfg. You can then use this key sequence to execute DOS (or UNIX System) commands. To return to SPM, type *exit*.
Enter ⏎	Enter	The Enter ⏎ key on your PC can be used instead of F10 when **Enter** appears as a choice in the console simulation window.
Bksp	Backspace	The Bksp key on your PC can be used instead of F9 (**Backspace**) when it appears as a choice in the console simulation window.
Del	Delete	The Del key on your PC can be used instead of F8 (**Delete**) when it appears as a choice in the console simulation window.
↑ ↓ ← →	n/a	The up, down, left, and right arrow keys can be used to highlight selections in a menu and to select the 20 line buttons below the console simulation window.

SPM Main Menu Options

The SPM Main Menu provides access to system programming and to the SPM functions listed in Table 3.

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Table 3.   SPM Main Menu Options

SPM Menu Option	Function
Sys Program	To program the system
Backup*	To make a backup copy of your system programming and store it on diskette or on hard disk
Boards*	Shows which modules (port boards) are in each slot of the control unit and allows you to assign boards to slots
Print Opts*	Directs reports to the printer or to the PC for storage on diskette or hard disk
Monitor*	Restricted to use by your technical support organization
Maintenance	Restricted to use by your technical support organization and qualified technicians
Restore*	To restore your system programming from diskette or hard disk
Pass-Thru*	(IS II/III only) To make a remote connection, through the control unit, to an IS II/III PC to administer applications on the IS II/III PC.
Password*	To change the password for remote entry into the system.
Language	To select a language (English, French, or Spanish) for the console simulation window on the PC. (There is also a Language option available on the System Programming menu that allows you to set the system language.)

*   SPM option only. Not available on the MLX-20L system programming console. To be used only by
    qualified service personnel.

SPM Help

To access the SPM help screens, press Ctrl + F1 .

To review the help screens press, PgUp and PgDn .

To return to the first help screen, press Home .

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To exit from SPM help, press End.
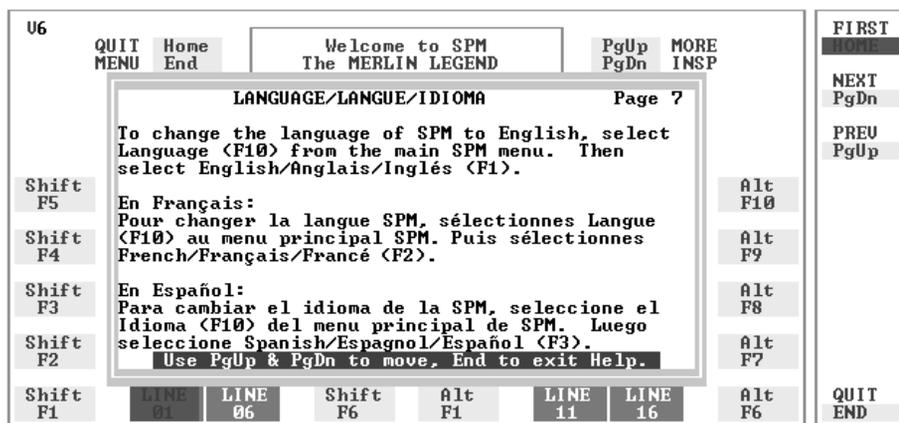
A typical help screen is shown in Figure 6.

Figure 6. SPM Help

Backup

The Backup procedure is used by qualified service personnel to create a file of system programming information either in the \spm\backup directory (on the hard drive of the PC) or in the root directory of a diskette (on the floppy disk drive of the PC).

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➡ **NOTE:**
  Back up your system programming information on a regular basis. A current backup file allows you to quickly and easily restore your system, if the need arises.

Determining the Release Number of a Backup File

If you have a backup diskette but do not know its release number, you may be able to find this information in the backup header. Beginning with later versions of Release 1.1, the backup file contains a backup header 128 bytes long. Approximately 59 of these bytes are currently used. Bytes 55 through 59 of the header contain the MERLIN Legend Communication System Release number, as shown in Table 4. (Release 1.0 and early versions of Release 1.1 do not contain this information in readable form.)

Table 4.   Backup Header: Release Number

	Release No.	Build No.	System Size	Mode
Size	2 bytes	12 bytes	1 byte	1 byte
Examples	03 00	32	01	01 - Key
	02 01			02 - Behind Switch
				03 - Hybrid/PBX

The release number is found in the first two bytes (four characters) of the identification number. For example, 0300 = 3.0, 0201 = 2.1.

If the backup file is compressed, you can read the header but you cannot read the data area following the header. Use *type* [*backup filename*] to read the header on a DOS system or *cat* [backup *filename*] to read the header on a UNIX System.

Note that the communication system release number, not the version number of SPM, reflects whether the backup file is compressed or uncompressed.

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Release 1.0 backups are uncompressed and Release 1.1 and later backups are compressed. Uncompressed files take longer to restore.

Considerations

Review the following items before you begin the backup procedure:

- The communications system does not have to be idle during backup; however, extension programming is blocked.

- Any objects that are in a maintenance-busy state are stored in that state. When you restore system programming, these objects are busied out, even if they have since been released from the maintenance-busy state.

- If you plan to store your backup file on a diskette, format a DOS diskette. (DOS formatting can be done on either a UNIX System PC or a DOS PC).

- Uncompressed backup files are 100,000 to 210,000 bytes in size; compressed files are about 70,000 to 85,000 bytes.

- Maintenance data (error logs and other data used by qualified service technicians) is not saved in the backup file.

Follow the steps below to perform the backup procedure.

▶ 1. **At the SPM Main Menu, press** `F2` **to select** Backup**.**

```
       SPM Main Menu

   Menu: Select Function

   Sys Program    Maintenance

   Backup         Restore

   Boards         Pass-Thru

   Print Opts     Password

   Monitor        Language
```

`F2`

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▶ 2. **Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the `GOTO FLOPPY` and `MAKE NEW FILE` options and a directory listing for the C:\spm\backup directory.

- ■ If you are saving the backup file to a floppy disk, go to Step 3.

- ■ If you are saving the backup file to the hard disk, go to Step 4.

▶ 3. **Remove the SPM diskette and insert a formatted diskette. Use the arrow keys to highlight** `GOTO FLOPPY` **and press** `Enter ⏎` **.**

```
Make a selection for          GOTO FLOPPY

 the BACKUP file.             MAKE NEW FILE

MAKE NEW FILE will            backup.ams

  create a new file           file.1

  on selected device.         file.2


Press ESC to abort.
```

After you press `Enter ⏎` , the `GOTO FLOPPY` statement shown above changes to `GOTO HARD DISK` and the directory listing for A:\ is displayed. Continue with Step 4.

The screen displays the default name for the backup file (backup.ams).

▶ 4. **Specify a backup filename.**

- ■ To select the default filename, use the arrow keys to highlight `backup.ams` and press `Enter ⏎` . Go to Step 6.

- ■ To enter a different filename, use the arrow keys to select `MAKE NEW FILE` and press `Enter ⏎` . Go to Step 5.

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▶ **5. Type the new filename and press** ⏎Enter .

```
    Press ESC to Abort.




Enter filename:


(default is backup.ams)
```

If you are working from the floppy drive,
A:\ appears on the screen.

You can specify a drive letter with the filename but no path information.

▶ **6. Verify that the filename chosen does not already exist.**

The following screen appears only if the filename chosen already exists.
Continue with Step 7 if this screen does not appear.

```
The file already exists.
If you continue, the old
version will be deleted.
Press ESC to abort.
or c to continue.


```

Press Esc to abort the backup. Go to
Step 1 to create a different backup file.

Press C to continue. Go to Step 7.

▶ **7. Observe the backup status screen.**

```
Press ESC to Abort.
Est. Blocks: xxx  xxxx


   filename


BACKUP IN PROGRESS
Received Block xx
```

filename = the backup filename specified
in Step 5

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SPM indicates the status of the backup by displaying the number of the last block received (*xx*). Line 2 of the display screen shows the estimated number of blocks to be sent from the control unit (*xxx□xxxx*). This line is blank if you are backing up from Release 1.0.

If you abort the backup, the partial backup file is deleted to prevent restoration from a corrupted file and you see the screen shown in Step 8.

When the backup is complete, you see the screen shown in Step 9.

▶ **8. To abort the backup press** ⌈Esc⌋ **to return to the SPM Main Menu.**

```
Press ESC to Abort.

Est. Blocks: xxx □ xxxx


   filename


BACKUP IN PROGRESS

XMODEM ABORT - User
```

▶ **9. When the backup is complete, press** ⌈Enter←⌋ **to return to the SPM Main Menu.**

```
Backup successful.

Please press Enter

to see the Main Menu




Received xxx Blocks
```

xxx = total number of blocks received

Boards

The Boards option allows qualified service personnel to add a board to the next available slot. The system must be idle to use this option. This option is not available from the system programming console.

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The Boards option is also available in surrogate mode. In surrogate mode, you can assign trunk and extension modules (boards) to slots, even though the boards have not actually been installed. This type of board is referred to as a "phantom" or "null" board.

You cannot use the Boards option to change an actual board type. All boards assigned with the Boards option, including phantom boards, are cleared (unassigned) if you perform a board renumber (System→Board Renum).

➡ NOTE:

You must assign phantom boards to higher slot numbers than those you assign to any real boards. If you assign a phantom board to a lower slot number than a real board, the control unit does not recognize the real board(s) that follow the phantom board.

➡ NOTE:

If you remove a board but do not replace it, and then perform a board renumber, the control unit will not recognize any boards that follow the empty slot. You must reseat all of the boards to fill the empty slot before you perform the board renumber.

The Inspect function ([PgDn]) lets you see which modules have been assigned to slots on the control unit. Note that both phantom boards and real boards display if you use the Inspect function. To see only real board assignments, you must print the System Information report:

System→**More**→Print→SysSet-up.

Table 5 shows the type of boards that you can select.

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Table 5.   **Board Types**

Board Type	Description
`400LSR`	4 loop-start line jacks with 4 touch-tone receivers
`400GLR`	4 ground-start/loop-start line jacks with 4 touch-tone receivers
`800LS`	8 loop-start line jacks
`800GLID`	8 ground-start/loop-start line jacks with Caller ID capability available on the loop-start lines and 2 touch-tone receivers
`800GLS`	8 ground-start/loop-start line jacks
`408LSA`	4 loop-start line jacks and 8 ATL analog extension jacks
`408GLA`	4 ground-start/loop-start line jacks and 8 ATL analog extension jacks
`408GLM`	4 ground-start/loop-start line jacks and 8 MLX extension jacks (16 endpoints)
`008ATL`	8 analog extension jacks
`008MLX`	8 MLX-20L extension jacks (16 endpoints)
`012TR/OPT`	12 tip/ring extension jacks with 2 touch-tone receivers or 008 OPT jacks
`016TR`	16 tip/ring extension jacks with 4 touch-tone receivers
`800DID`	8 DID trunk jacks with 2 touch-tone receivers
`400E&M`	4 E&M tie trunk jacks
`100D`	1 DS1 jack (24 channels)
`800BRI`	8 BRI trunk jacks (16 channels)

Follow the steps below to assign modules.

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▶ **1.** **At the SPM Main Menu, press** ⟨F3⟩ **to select** Boards**.**

```
        SPM Main Menu

Menu: Select Function

Sys Program      Maintenance

Backup           Restore

Boards           Pass-Thru

Print Opts       Password

Monitor          Language
```

⟨F3⟩

▶ **2.** **Press the function key that corresponds to the module you want to select.**

```
Boards:                 >

Make a selection

408LSA        800LS

012TR/OPT     008ATL

800DID        008MLX

800GLS        400GLR

Exit          400LSR
```

⟨F1⟩ ⟨F2⟩ ⟨F3⟩ ⟨F4⟩ ⟨F5⟩   ⟨F6⟩ ⟨F7⟩ ⟨F8⟩ ⟨F9⟩ ⟨F10⟩

```
Boards:

Make a selection

400E&M016TRR

408GLA800GLID

100D800BRI

408GLM

Exit
```

⟨F1⟩ ⟨F2⟩ ⟨F3⟩ ⟨F4⟩ ⟨F5⟩   ⟨F6⟩ ⟨F7⟩ ⟨F8⟩

If the module you want to assign is not shown on the first screen of the Boards menu, press ⟨PgUp⟩ to display the next menu screen.

▶ **3.** **Type the control unit slot number (01 through 17) in which the module is to be installed.**

```
module name

Enter slot numbers

(01-17)


                Delete

Backspace       Next

Exit            Enter
```

module name = option selected in Step 2

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▶ **4. Assign or remove the module from the slot entered in Step 3.**

```
module name

Enter slot numbers

(01-17)

nn
                    Delete      F8

Backspace           Next        F9

Exit                Enter       F10
```

module name = option selected in Step 2
nn = slot entered in Step 3

To remove the module type from the specified slot number, press F8 (Delete).
The Boards menu reappears.

To assign the module type to the specified slot number and assign that same
module type to another slot, press F9 (Next).

To assign the module type to the specified slot number and assign a different
module type to another slot, press F10 (Enter).

To terminate the procedure and assign a different module, press
F5 (Exit) and repeat Steps 2 through 4.

To view types of modules assigned to all slots, press PgDn (Inspect).

▶ **5. Save your entry.**

Select Exit. F5

The programming session terminates and the system restarts.

Browse

The Browse option allows you to browse through reports saved in the Reports
directory (\spm\reports) on the hard disk of the PC or on a floppy.

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▶ 1. **At the SPM Main Menu press** Ctrl **+** F8 **.**

```
┌─────────────────────────────────┐
│                                 │
│  Please enter file name         │
│                                 │
│                                 │
│                                 │
│                                 │
│  Press ESC to Abort.            │
│                                 │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│  GOTO FLOPPY                     │
│  FILENAME.XXX                    │
│  FILENAME.YYY                    │
│                                 │
│                                 │
│                                 │
│                                 │
└─────────────────────────────────┘
```

FILENAME.XXX and *FILENAME.YYY* from the \spm\reports directory

▶ 2. **Use the arrow keys to highlight the source (hard disk or floppy) from which you want to view the reports and press** F10 **.**

A list of the current reports appears.

▶ 3. **Use the arrow keys to highlight the report you want to view and press** F10 **.**

The report appears.

- ■ To view the next page of a report, press PgDn.

- ■ To view the previous page of a report, press PgUp.

- ■ To return to the beginning of a report, press Home.

- ■ To exit from the Browse option and return to the SPM Main Menu, press Esc.

Convert

The Convert option (which can be used remotely) simplifies upgrading from an earlier release to a later release of the communications system. (See "Upgrading the Communications System.") This procedure should be done only by qualified service personnel.

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Convert uses two files: the existing backup file (the "convert from" file) and the converted file (the "convert to" file), which is created when you run the Convert option. The converted file contains system programming information in an uncompressed form. The "convert from" file is unchanged. Because uncompressed files take longer to process than compressed files, you may want to restore this uncompressed backup to the old control unit and then create a new backup. This new backup is in compressed form and does not have to be converted. For more information about compressed and uncompressed files see "Backup."

To convert system programming to Release 6.0 format, Version 6.15 of SPM is required. This version can be easily identified by the version number, V⃗, in the upper left corner of the screen.

Help screens are available to guide you through the Convert procedure. See "SPM Help."

Before you use the Convert option, you must complete the following tasks:

- If your PC has a hard disk, install the appropriate version of the SPM software. See "Upgrading the System."

- Back up system programming. See "Backup."

- Make sure you know the name of the backup file that you have created.

$\Longrightarrow$ **NOTE:**
Once the actual file conversion begins, you cannot stop the process; pressing [Esc] has no effect.

Follow the steps below to perform the conversion.

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▶ **1. At the SPM Main Menu, press** Alt **+** U **to begin the conversion.**

```
      SPM Main Menu

Menu: Select Function

Sys Program     Maintenance

Backup          Restore

Boards          Pass-Thru

Print Opts      Password

Monitor         Language
```

▶ **2. Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the GOTO FLOPPY option and a
directory listing for the C:\spm\backup directory.

   ■ If the backup file is stored on a floppy disk, go to Step 3.

   ■ If the backup file is stored on a hard disk, go to Step 4.

▶ **3. Use the arrow keys to highlight** GOTO FLOPPY **and press** Enter↵ **.**

```
Please select file name

    to convert from¬

    then press Enter




    Press ESC to abort.
```

```
GOTO FLOPPY

FILENAME.XXX

FILENAME.YYY
```

FILENAME.XXX and *FILENAME.YYY* are from the \spm\backup directory.

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After you press ⌷Enter←⌷ , the GOTO FLOPPY statement shown above changes to
GOTO HARD DISK and a directory listing from the root directory of the floppy disk
appears. Go to Step 4.

```
                                    ┌─────────────────────────────┐
┌─────────────────────────────┐    │ GOTO HARD DISK              │
│                             │    │                             │
│ Please select file name     │    │ FILENAME.XXX                │
│                             │    │                             │
│    to convert from┐         │    │ FILENAME.YYY                │
│                             │    │                             │
│    then press Enter         │    │                             │
│                             │    │                             │
│                             │    │                             │
│                             │    │                             │
│    Press ESC to abort.      │    │                             │
│                             │    │                             │
└─────────────────────────────┘    └─────────────────────────────┘
```

FILENAME.XXX and *FILENAME.YYY* are from the root directory of the disk in
Drive A.

▶ 4. **Use the arrow keys to highlight the name of the backup file to be con-
verted and press** ⌷Enter←⌷ **.**

■ If the backup file you select is a 6.0 backup, it can not be converted
and the following message appears:

File has already been converted.
Press Enter to continue.

Press ⌷Enter←⌷ to select another filename, or press ⌷Esc⌷ to abort the
convert procedure.

■ If the backup file you select can be converted, go to Step 6.

▶ 5. **Observe the updated file selection screen and press** ⌷Enter←⌷ **.**

```
┌─────────────────────────────┐
│                             │
│ Please select file name     │
│                             │
│    to convert from┐         │
│                             │
│    then press Enter         │
│                             │
│                             │
│ N: FILENAME.XXX             │
│                             │
│    Press ESC to abort.      │
│                             │
└─────────────────────────────┘
```

FILENAME.XXX =the backup filename
selected in Step 4
N = drive

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▶ 6. **If converting from Release 1.0 or 1.1, select the CONVERT TO release. To convert from Release 1.2, 2.0, or 2.1 go to Step 7.**

```
Please enter your
CONVERT TO release
and press ENTER.
1.2i            1.4i
2.0             2.1
3.0             4.0/5.0
Enter number:x.x
```

All characters must be entered as they appear on the screen, including the decimal point.

The screen below appears when converting from Release 1.0 or 1.1.

▶ 7. **Follow the instructions for a floppy or a hard disk.**

  ■ If the CONVERT TO file will be saved to a floppy disk, go to Step 8.

  ■ If the CONVERT TO file will be saved to the hard disk, go to Step 9.

▶ 8. **Use the arrow keys to highlight** GOTO FLOPPY **and press** Enter⏎ **.**

```
Please select file name
to convert to, or select
NEW FILE to create a new
 file on selected drive.
    Enter Filename:
```

```
GOTO FLOPPY
MAKE NEW FILE
FILENAME.XXX
FILENAME.YYY
```

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After you press `Enter⏎` , the `GOTO FLOPPY` statement shown above changes to
`GOTO HARD DISK` and the directory listing from the root directory of the disk in
Drive A appears. Continue with Step 9.

```
Please select file name
to convert to, or select
NEW FILE to create a new
 file on selected drive.
    Enter Filename:


   Press ESC to abort.
```

```
GOTO HARD DISK
MAKE NEW FILE
FILENAME.XXX
FILENAME.YYY
```

▶ 9. **Specify a filename for the converted file.**

- ■ Highlight the name of the file you want to convert to, press `Enter⏎` ,
  and go to Step 11.

- ■ To enter a different filename, use the arrow keys to select `MAKE NEW
  FILE` and press `Enter⏎` .

▶ 10. **Enter the new filename and press `Enter⏎`.**

```
Please select file name
to convert to, or select
NEW FILE to create a new
 file on selected drive.
     Enter Filename:
A:\filename.new
(default is RESTORE.NEW )
```

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The converted file cannot have the same name as the file from whch you converted. If you specify the same filename, the following screen appears:

```
 The file selected to
convert to is the same
as the file selected to
convert from.  Please
choose a different file.


Press Enter to continue
```

Press ⌷Enter↵⌷ and repeat this step.

▶ 11. **Check the updated file screen and press** ⌷Enter↵⌷ **.**

```
Please select file name
to convert to¬ or select
NEW FILE to create a new
 file on selected drive.
     Enter Filename:
N: FILENAME.NEW
(default is RESTORE.NEW)
```

FILENAME.NEW = name entered in
Step 10
N = drive

Observe the conversion progress screen.

```
CONVERSION IN PROGRESS


    Converting From:
N: FILENAME.XXX
    Converting To:
N: FILENAME.NEW

```

FILENAME.XXX = name entered at Step 4
FILENAME.NEW = name entered at
Step 10
N = drive

When the conversion completes, the screen shown in Step 13 appears.

▶ 12. **Press any key to return to the SPM Main Menu.**

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Language

A language attribute in the SPM configuration file \spm\ams.cfg (DOS version) or
/usr/ams/ams.cfg (UNIX System version) specifies whether SPM menus, pop-up windows, and other messages are presented in English, French, or Spanish. A second language selection option affects messages from the control unit to SPM and controls the display on the console simulation window for the duration of the session. These two language options operate independently of each other.

The following discussion refers to the language specified in the SPM configuration file as the *PC language* and the language used by the control unit as the *console window language.*

PC Language

During SPM installation, you select a language that is recorded in the SPM configuration file. Any time thereafter, SPM can be started with the *-l* option to specify a different language, using one of the following command lines:

- *spm ▢l english*
- *spm ▢l french*
- *spm ▢l spanish*

Note that the option is a lowercase letter L and not the number 1.

Use of the -l option changes the language attribute in the ams.cfg file. The language specified becomes the new PC language, used whenever SPM is started without the -l option.

Console Window Language

By default, the language used in the console simulation window is the language specified in the ams.cfg file; however, you can select a different language for this window for the duration of the current session.

To select a different language, follow the steps below.

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▶ **1. At the SPM Main Menu press** ⌈F10⌉ **to select** Language.

```
     SPM Main Menu

Menu: Select Function

Sys Program      Maintenance

Backup           Restore

Boards           Pass-Thru

Print Opts       Password

Monitor          Language                                    ⌈F10⌉
```

▶ **2. Press the function key that corresponds to your language selection.**

```
Display Language

Make a Selection:

English

French

Spanish



Exit
```

The Display Language screen reappears, with the language you selected.

▶ **3. Press** ⌈F5⌉ **to return to the SPM Main Menu or select another language.**

Maintenance

⚠ **CAUTION:**
> *This option is for use by qualified technicians only. Maintenance
> procedures are provided in the documentation for qualified
> technicians. See "Related Documents."*

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Monitor

> ## ⚠ CAUTION:
> *This is a password-protected option and is for use by your technical support organization only.*

Pass-Thru

The Pass-Thru option allows qualified service personnel to administer IS II/III applications on a remote PC. It permits you to establish a remote connection with the control unit to which the IS II/III PC is directly connected. Figure 7 illustrates the relationship of the SPM PC, the communications system control unit, and the IS II/III PC.
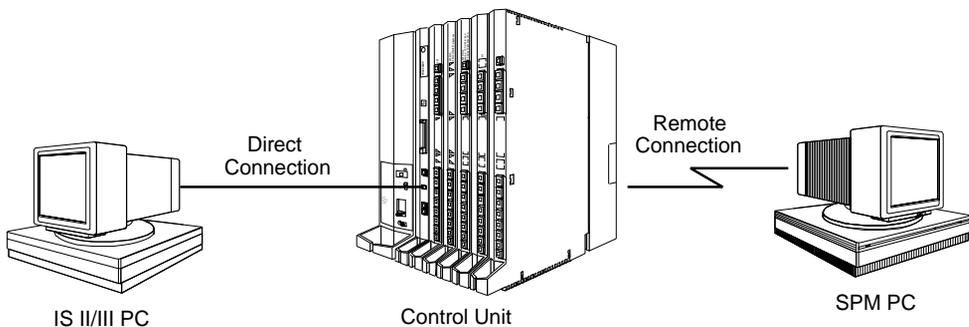
Figure 7. Pass-Thru

A Pass-Thru request must be initiated at a DOS PC; it is not available from a UNIX System PC; that is, Pass-Thru cannot be established between two IS II/III PCs. The local admin PC must be in an idle state.

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A Pass-Thru request to a locally-connected IS II/III system causes the modem to fall back to 1200 bps if the speed is set to 2400 bps and the modem call to the control unit is at 1200 bps. If necessary, the communications system adjusts its speed to that of the local SPM PC.

Once the Pass-Thru connection is established, you can program in any of the following IS II/III applications from your SPM PC:

- AUDIX Voice Power™
- Call Accounting System
- Fax Attendant System® (IS III only)
- CONVERSANT Intro® (IS III only)

$\Longrightarrow$ **NOTE:**
You cannot program the SPM application on the IS II/III PC because the remote call (from your SPM PC) uses the IS II/III PC's COM1 port; therefore, the system programming jack cannot be used for system programming. For the same reason, a user at the IS II/III PC end of the connection cannot use SPM while your Pass-Thru is in effect. If use of SPM is attempted, the user at the IS II/III end sees the following message:

> PRE-EMPT IN PROGRESS
> Please try again.

To initiate Pass-Thru, establish a modem connection between the SPM PC and the control unit.

If the IS II/III PC does not respond to the Pass-Thru request from the control unit (for example, because the PC is turned off), you see the following message:

> Pass-thru failed.
> Please try again.

If the connection between the control unit and the IS II/III PC fails, the connection between the control unit and the SPM PC is dropped. You see the following message:

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```
Pass-through Session
unexpectedly terminated.
Please press Enter
to continue.
```

When you press $\boxed{\text{Enter}\leftarrow}$ you return to the SPM Main Menu.

Follow the steps below to initiate the Pass-Thru.

▶ 1. **At the SPM Main Menu press** $\boxed{\text{F8}}$ **to select** Pass-Thru.

```
    SPM Main Menu

Menu: Select Function

Sys Program    Maintenance

Backup         Restore

Boards         Pass-Thru      F8

Print Opts     Password

Monitor        Language
```

The display area changes to 24-lines by 80-characters, which is much larger than the display area on the console simulation window (7-lines by 24-characters).

▶ 2. **Type your login name and press** $\boxed{\text{Enter}\leftarrow}$ **.**

```
Welcome to
IS-II/III

login:
```

▶ 3. **Type the IS II/III password and press** $\boxed{\text{Enter}\leftarrow}$ **.**

```
Password:
```

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▶ 4. **Type** *ams* **for the terminal emulation type and press** Enter↵ **.**

    Unix disk usage
    information

    Term=

  - ■ If you are working with IS II, the IS II main menu appears.

  - ■ If you are working with IS III, the system prompts you for your login registration. After you enter your login and press Enter↵ , the IS III main menu appears.

▶ 5. **To exit from IS II/III programming, press** F5 **(Exit).**

The system prompts you for confirmation that you want to exit. After confirmation the following message appears.

    Returning to SPM

Password

The Password option is used by qualified service personnel to change the modem connection password. A password is always required to establish a connection with the built-in modem. The password always consists of seven characters. You can perform remote system programming only if you enter the password correctly. A default password is set at the factory. You must obtain this password from your system consultant (SC).

Follow the steps below to change the modem connection password.

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▶ 1.   **At the SPM Main Menu, press** ⎡F9⎤ **to select** `Password.`

```
        SPM Main Menu

Menu: Select Function

Sys Program       Maintenance

Backup            Restore

Boards            Pass-Thru

Print Opts        Password          ⎡F9⎤

Monitor           Language
```

▶ 2.   **Type the old (current) password. Do not press** ⎡Enter ←⎤ **.**

```
Password:

Enter Old Password
```

If you type the old password incorrectly, the bottom of the screen displays the
message `Not Equal`. Repeat Step 2. If you fail to enter the password correctly
after three attempts, the bottom of the screen displays the message `Old`
`Password in Use` and the procedure terminates. Press ⎡Enter ←⎤ to return to the
SPM Main Menu.

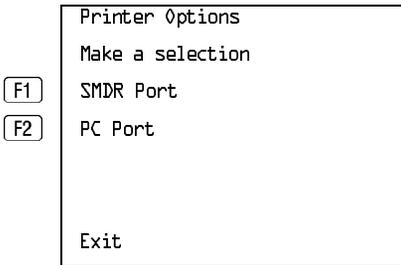▶ 3.   **Type the new password (any five characters). Do not press** ⎡Enter ←⎤ **.**

```
Password

Enter New Password
```

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The password does not appear on the screen as you type it.

⚠ **Security Alert:**

Always use the longest length password allowed on the system.

Passwords should consist of a random, non-repetitive, hard-to-guess sequence of digits.

▶ 4. **Type the new password again. Do not press** `Enter←` **.**

```
Password
Enter New Password again




New Password in use
```

▶ 5. **Press** `F5` **to return to the SPM Main Menu.**

Print Options

The Print Opts option allows qualified service personnel to direct the output of system programming reports either to the PC (where you can save them, browse through them, or print them with the system programming Print option) or to the SMDR printer.

Follow the procedure below to direct the output of the system programming reports.

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▶ 1.   **At the SPM Main Menu press** ⌐F4⌐ **to select** `Print Opts.`

```
     SPM Main Menu

Menu: Select Function

Sys Program      Maintenance

Backup           Restore

Boards           Pass-Thru

Print Opts       Password

Monitor          Language
```

⌐F4⌐
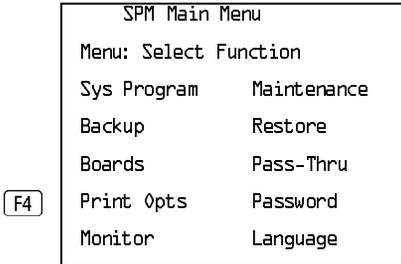
▶ 2.   **Select the target device for the reports.**

```
Printer Options

Make a selection

SMDR Port

PC Port




Exit
```

⌐F1⌐
⌐F2⌐

▶ 3.   **Press** ⌐F5⌐ **to return to the SPM Main Menu.**

SMDR Port Output

See "Printing System Reports" in Chapter 3 of *System Programming* for more information about the print procedure using the system console and the SMDR port.

PC Port Output

See "Printing Reports" for more information about the print procedure using SPM and the PC port.

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Restore

The Restore option allows qualified service personnel to load system programming from either a diskette or from the hard disk into the processor module memory.

This procedure is used either to program a new system if a disk was created through surrogate mode programming, or to restore information (using a backup disk) lost through system failure. It is also part of the upgrade procedure.

Considerations

Review the following items before you begin the restore procedure.

- The system will be forced idle during a restore procedure.

- You must have a backup file containing system programming before you use this procedure. See "Backup."

- Features that were not programmed when the backup file was created are reset to factory defaults.

- The data restored reflects the number of extensions and lines available on the system at the time the backup was created. The remaining extensions and lines are set to the default values that are initialized during a Restart (cold start).

- Restore is terminated under the following conditions:

  If fewer boards are listed on the disk than on the control unit

  If any real board is out of sequence with the boards listed on the disk

  If phantom boards are not listed last

  If the operating mode of the system being restored is Hybrid/PBX, but the control unit processor module has been modified to operate only in Key mode

- A successful restore is followed automatically by a Restart (cold start)

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⚠️ **WARNING:**

> *An unsuccessful or terminated restore results in a System Erase (frigid start). All calls are dropped. The system configuration is erased. All system programming is lost and the system returns to the factory settings. If the restore is being done remotely, the connection is dropped immediately. If this happens, attempt to reconnect to the control unit and immediately perform another restore. If this is not successful, programming must be restored on site.*

Follow the steps below to perform a restore.

▶ 1. **At the SPM Main Menu, press** `F7` **to select** Restore**.**

```
      SPM Main Menu
Menu: Select Function

Sys Program     Maintenance

Backup          Restore          F7

Boards          Pass-Thru

Print Opts      Password

Monitor         Language
```

▶ 2. **Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the GOTO FLOPPY option and a directory listing for C:\spm\backup.

-   ■ If you are performing a Restore with a file saved on a floppy disk, go to Step 3.

-   ■ If you are performing a Restore with a file saved on the hard disk, go to Step 4.

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▶ **3. Use the arrow keys to highlight** GOTO FLOPPY **and press** Enter↵ **.**

```
Make a selection for
the RESTORE file.


If upgrading, convert
files before restoring.


Press ESC to Abort.
```

```
GOTO FLOPPY
backup.ams
file.1
file.2
```

After you press Enter↵ , the GOTO FLOPPY statement shown above changes to
GOTO HARD DISK. Go to Step 5.

▶ **4. Specify the filename to restore from.**

- To select the default backup filename, use the arrow keys to highlight
  backup.ams and press F10 Enter↵ .

- If you used a different backup filename, use the arrow keys to select
  one of the other filenames and press Enter↵ .

  If the file you select is not in the same format as the communications
  system, the screen below appears. Press Enter↵ to return to the SPM
  Main Menu. See "Convert" for details about converting a backup file.

```
File must be converted
before restoring.


Please press Enter
to see the main menu:
```

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▶ 5. **Observe the restore progress screen.**

```
Press CTRL-F5 to Abort
Est. total time: xx min


filename
RESTORE IN PROGRESS
Blocks Sent   Remaining
    xxxx          xxxx
```

xx = approximate number of minutes
filename = name entered in Step 5
xxxx = number of blocks

To abort the restore press Ctrl + F5 . You return to the SPM Main Menu.

▶ 6. **When the restore completes, press Enter↵ to return to the SPM Main Menu.**

```
Restore successful.
Please press Enter
to see the Main Menu




Sent xxxx Blocks
```

xxxx = number of blocks sent

System Programming

A primary function of SPM is to provide a method for programming the communications system. The Sys Program option gives you access to all of the system programming features available from the system programming console.

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Basic Programming Information

To begin programming, you must perform one of the following to display the System Programming menu on the console or PC:

On the console: **Menu**→Sys Program →Exit

On the PC: Type *spm*→Enter ↵ →*Press any key*→ F1 → F5

In most cases, you can press Exit or 5 to exit from a screen without making any changes. Exceptions to this are noted as part of a procedure. When you complete a procedure and press Exit (F5), you usually move up one screen in the menu hierarchy. Occasionally, when you press Exit (F5), you return to the previous screen. *In a few cases,* pressing Exit brings you back to the System Programming menu where you can select another option to program or exit from system programming.

To complete a procedure and save the information you have programmed, press Enter (F10).

If you are programming a group of sequentially numbered extensions or trunks, you may have the option of pressing Next (F8). This saves your entry and automatically provides the number of the next extension or trunk in the sequence, thus saving you a couple of steps. If Next displays on the screen, you can use it with the current option.

In most cases, you will be at an intermediate step in the procedure you have just completed. At that point, you can select one of the options shown on the screen and continue programming, or you can press Exit (F5) again. This usually takes you back to the System Programming menu. If not, you again can continue programming on the current screen or press Exit (F5) again.

Idle States

A few of the programming procedures can be started only when the entire system or some part of it, such as a trunk or an extension, is idle (not in use). Some procedures require that the trunk or extension be idle only at the instant of programming. Other procedures, which take longer, require the system,

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trunk, or extension to be forced into remaining idle until programming is completed. These procedures wait for the system, trunk, or extension to become idle and then prevent the initiation of any new calls. This condition is called *forced idle.*

➡ NOTE:
If a procedure requires an idle condition, perform the programming outside of normal business hours.

If a procedure requires that the system be in an idle state and the system is busy when you begin, you see the screen shown below.

```
┌─────────────────────────────┐
│ System Busy   Pls Wait      │
│                             │
│ Dial Code:    nnnn          │
│ Slot/Port:    ss/pp         │
│                             │
│                             │
│                             │
│ Exit                        │
└─────────────────────────────┘
```

The screen changes to the appropriate programming screen when the system is no longer busy.

System Forced Idle

When the entire system is forced idle, no calls can be made or received. The procedures listed below can be performed only when the entire system (every line and every extension) is idle:

- Select system mode
- Identify system operator positions
- Renumber boards
- Renumber system

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- Identify telephones with voice signal pairs for the Voice Announce to Busy feature

- Identify telephones that need the Simultaneous Voice and Data feature

- Restore system programming information

- Identify the Music On Hold jack

When the system is forced idle, the following occurs: multiline telephone users hear a reminder tone that indicates the telephone cannot be used; display telephone users see the message Wait: System Busy; single-line telephone users do not hear a dial tone.

Line or Trunk Idle

Since these procedures require the line or trunk to be idle *only* at the instant of programming, the line or trunk is not forced idle. The following procedures can be performed only when the line or trunk being programmed is idle:

- Identify loudspeaker paging line jack

- Assign trunks to pools

- Specify incoming or outgoing DID- or tie-trunk type

- Specify tie-trunk direction

- Specify tie-trunk E&M signal

Extension Forced Idle

When an extension or data terminal is forced idle, no calls can be made or received on that extension or data terminal. The following procedures can be performed only when the extension or data terminal being programmed is idle:

- Assign call restrictions

- Assign pool dial-out restrictions

- Copy extension assignments

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- ■ Assign lines, trunks, or pools to extensions

- ■ Assign labels to a personal directory

- ■ Use centralized telephone programming

When the extension is forced idle, the following occurs: multiline telephone users hear a reminder tone that indicates the telephone cannot be used; display telephone users see the message Wait: System Busy; single-line telephone users do not hear a dial tone.

Forced Idle Reminder Tone

The forced idle reminder tone is a high-low "door-phone" tone—400 ms of 667 Hz tone followed by 400 ms of 571 Hz tone. The tone is provided under the following circumstances:

- ■ At the extension, to remind the user that the system or the extension is in the forced idle state

- ■ At the programming console or at a PC running SPM, to remind the system manager that the system (or at least one extension) is in the forced idle state because of administrative activity

In Release 1.1 and higher of the communications system, forced idle reminder tones occur every 20 seconds. You can adjust the volume of these tones with the volume control on the system console.

Accessing System Programming

Follow the steps below to access system programming.

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▶ 1.   **At the SPM Main Menu press** F1 **to select** Sys Program.

```
      SPM Main Menu

Menu: Select Function

Sys Program      Maintenance

Backup           Restore

Boards           Pass-Thru

Print Opts       Password

Monitor          Language
```

F1
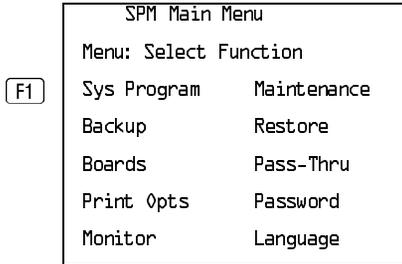
▶ 2.   **Press the function key next to the option you want.**

```
System Programming:    >          System Programming:

Make a selection                  Make a selection
```

F1	System	Extensions	F6
F2	SysRenumber	Options	F7
F3	Operator	Tables	F8
F4	LinesTrunks	AuxEquip	F9
F5	Exit	NightSrvce	F10

F1	Labeling	Language	F6
F2	Data		
F3	Print		
F4	Cntr-Prg		
F5	Exit		
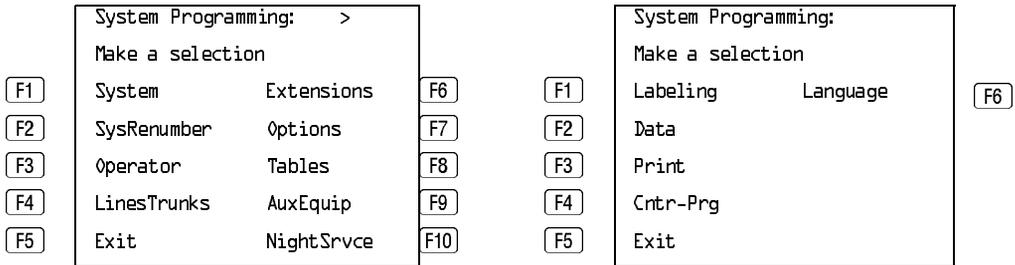
If the option you want does not appear on the first screen of the System
Programming menu, press PgUp to display the second screen of the menu.

Printing Reports

Use the following procedure to print system reports using SPM at the PC. The
SPM Print Opts must be set to PC Port. See "Print Options" for details about
setting the printer output port.

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▶ 1. **At the second page of the System Programming menu, press** ⌷F3⌷ **to select** Print.

```
┌──────────────────────────────┐
│ System Programming:    >      │
│                              │
│ Make a selection             │
```
⌷F1⌷ │ Labeling
⌷F2⌷ │ Data
⌷F3⌷ │ Print
⌷F4⌷ │ Cntr-Prg
⌷F5⌷ │ Exit

▶ 2. **Press the function key that corresponds to the report to be printed.**

```
┌──────────────────────────────┐
│ Print (English   ):      >    │
│ Make a selection             │
```
⌷F1⌷ │ All   Trunk Info   ⌷F6⌷
⌷F2⌷ │ SysSet-up   T1 Info   ⌷F7⌷
⌷F3⌷ │ Dial Plan   Pri Info   ⌷F8⌷
⌷F4⌷ │ Labels   RmoteAccess   ⌷F9⌷
⌷F5⌷ │ Exit   Oper Info   ⌷F10⌷

▶ 3. **Use one of the methods shown after this procedure to print the report(s).**

```
┌──────────────────────────────┐
│                              │
│ Please enter file name       │
│     to store print           │
│ (default is print.ams)       │
│                              │
│                              │
│ Press Esc to Abort.          │
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│ LPT1:                        │
│ GOTO FLOPPY                  │
│ MAKE NEW FILE                │
│ PRINT.AMS                    │
│                              │
│                              │
│                              │
└──────────────────────────────┘
```

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▶ 4.   **Observe the print status screen.**

```
┌─────────────────────────────┐
│  Print in Progress ...       │
│                              │
│                              │
│                              │
│                              │
│                              │
│                              │
│                              │
│                              │
│  5  │  Exit                  │
│                              │
└─────────────────────────────┘
```
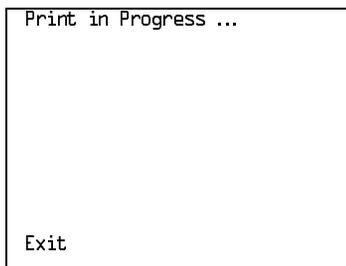
You can press F5 to interrupt printing and return to the SPM Main Menu.

Print Hard Copy

To print a hard copy of the report, use the arrow keys to highlight LPT1: and press [Enter ←].

Print to Hard Disk

To print the reports to the hard disk if the print file does not exist, use the arrow keys to highlight MAKE NEW FILE and press [Enter ←].

- To save to the default print filename (**print.ams**), press [Enter ←].

- To save to the filename of your choice, type [*filename*] and press [Enter ←].

To print the reports to the hard disk if the print file already exists, use the arrow keys to highlight the [*filename*] and press [Enter ←].

Print to Floppy Disk

Use the arrow keys to highlight GOTO FLOPPY: and press [Enter ←]. Use one of the methods shown below.

- To print the reports to a floppy disk if the print file does not exist, use the arrow keys to highlight MAKE NEW FILE and press [Enter ←].

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— To save to the default print filename (`print.ams`), press Enter↵ .

— To save to the filename of your choice, type [*filename*] and press Enter↵ .

■ To print the reports to a floppy disk if the print file already exists, use the arrow keys to highlight the [*filename*] and press Enter↵ .

Upgrading the System

⚠ WARNING:
The following procedures are to be used by qualified technicians or service personnel only. Installation or maintenance of this product by anyone other than qualified personnel may damage or impair the product; your limited warranty does not cover such damage. For details, see your limited warranty in the Customer Support Information in the back of this book. Hazardous electrical voltages are present inside this product.

This section describes upgrading your communications system to Release 6.0. You can use this procedure to perform the following upgrades:

■ From Release 1.0 to Release 6.0

■ From Release 1.1 to Release 6.0

■ From Release 2.0 to Release 6.0

■ From Release 2.1 to Release 6.0

■ From Release 3.0 to Release 6.0

■ From Release 3.1 to Release 6.0

■ From Release 4.0 to Release 6.0

■ From Release 4.1 to Release 6.0

■ From Release 4.2 to Release 6.0

■ From Release 5.0 to Release 6.0

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> **NOTE:**
> You must have a version later than SPM 4.15 to upgrade from Release 3.1 to Release 4.0.

MERLIN II Communications System programming cannot be upgraded to this communications system. The new communications system must be completely reprogrammed.

Before You Begin

Before you begin the upgrade to Release 6.0, you will need the items listed below.

- SPM Version 6.15 or later to back up and convert system programming information and to restore system programming information after the processor module with PCMCIA memory card slot has been installed.

- One or both of the following:

    — Processor module with PCMCIA memory card slot (when converting from Release 2.1 or earlier).

    — A forced installation PCMCIA memory card with Release 6.0 system software (when converting from any release).

- DOS-formatted diskette

> **NOTE:**
> If SPM is already installed, the `Welcome to SPM` screen that appears when you start SPM identifies the version on both the last line of the console simulation window and in the upper left corner of the screen. If you are working with Version 6.15, `V6` appears in the upper left-hand corner of the screen and `Version 6.15` appears on the last line of the console simulation window.

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Inter-Release Compatibility

It is important to understand compatibility between files created on each of the different versions of SPM, not only for upgrading but also for programming.

Table 6 summarizes programming compatibility. (It is assumed that the majority of the programming is done in surrogate mode and backed up on disk).

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Table 6.   Programming Compatibility

SPM Version	Program Backup on	Restore on								
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0
1.13	1.0	yes	no	no	no	no	no	no	no	no
1.16	1.0	yes	yes	no	no	no	no	no	no	no
2.09	1.0	yes	yes	yes*	no	no	no	no	no	no
2.16	1.0	yes	yes	yes*	no	no	no	no	no	no
3.18	1.0	yes	yes	yes*	yes*	yes*	no	no	no	no
4.15	1.0	yes	yes	yes*	yes*	yes*	yes*	no	no	no
4.25	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	no	no
5.15	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	yes*	no
6.15	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	yes*	yes*
1.16	1.1	no	yes	no	no	no	no	no	no	no
2.09	1.1	no	yes	yes*	no	no	no	no	no	no
2.16	1.1	no	yes	yes*	no	no	no	no	no	no
3.18	1.1	no	yes	yes*	yes*	yes*	no	no	no	no
4.15	1.1	no	yes	yes*	yes*	yes*	yes*	no	no	no
4.25	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	no	no
5.15	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	yes*	no
6.15	1.1	no	no	no	no	no	no	no	no	yes*
2.09	2.0	no	no	yes	no	no	no	no	no	no
2.16	2.0	no	no	yes	no	no	no	no	no	no
3.18	2.0	no	no	yes	yes*	yes*	no	no	no	no
4.15	2.0	no	no	yes	yes*	yes*	yes*	no	no	no
4.25	2.0	no	no	yes*	yes*	yes*	yes*	yes*	no	no
5.15	2.0	no	no	yes*	yes*	yes*	yes*	yes*	yes*	no
6.15	2.0	no	no	yes*	yes*	yes*	yes*	yes*	yes*	yes*

*   The backup file must be converted before it is restored.

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Table 6.   **Programming Compatibility** — *Continued*

SPM Version	Program Backup on	Restore on								
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0
2.16	2.1	no	no	no	no	no	no	no	no	no
3.18	2.1	no	no	no	yes*	yes*	no	no	no	no
4.15	2.1	no	no	no	yes*	yes*	yes*	no	no	no
4.25	2.1	no	no	no	yes*	yes*	yes*	yes*	no	no
5.15	2.1	no	no	no	yes*	yes*	yes*	yes*	yes*	no
6.15	2.1	no	no	no	yes*	yes*	yes*	yes*	yes*	yes*
3.18	3.0	no	no	no	no	no	no	no	no	no
4.15	3.0	no	no	no	no	no	yes*	no	no	no
4.25	3.0	no	no	no	no	no	yes*	yes*	no	no
5.15	3.0	no	no	no	no	no	yes*	yes*	yes*	no
6.15		no	no	no	no	no	yes*	yes*	yes*	yes*
3.18	3.1	no	no	no	no	no	no	no	no	no
4.15	3.1	no	no	no	no	no	yes*	no	no	no
4.25	3.1	no	no	no	no	yes*	yes*	yes*	no	no
5.15	3.1	no	no	no	no	yes*	yes*	yes*	yes*	no
6.15	3.1	no	no	no	no	yes	yes*	yes*	yes*	yes*
4.15	4.0	no	no	no	no	no	yes	no	no	no
4.25	4.0	no	no	no	no	no	yes*	yes*	no	no
5.15	4.0	no	no	no	no	no	yes*	yes*	yes*	no
6.15	4.0	no	no	no	no	no	yes	yes*	yes*	yes*
4.25	4.1/4.2	no	no	no	no	no	no	yes*	no	no
5.15	4.1/4.2	no	no	no	no	no	no	yes*	yes*	no
6.15	4.1/4.2	no	no	no	no	no	no	yes	yes*	yes*
5.15	5.0	no	no	no	no	no	no	no	yes*	no
6.15	5.0	no	no	no	no	no	no	no	yes	yes*
6.15	6.0	no	no	no	no	no	no	no	no	yes

*   The backup file must be converted before it is restored.

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➡️ NOTE:

The default barrier code and any programmed barrier codes from Release
2.1 and earlier are carried over to Release 3.0 and later with no change
and the barrier code length is four (4). It is the responsibility of the system
manager to change the barrier code length and the barrier codes if so
desired.

Upgrade Procedure

➡️ NOTE:

The system upgrade procedure must follow the order of the steps shown
below.

▶ 1. Install SPM.

To upgrade the system to Release 6.0, you need to install (or upgrade to)
Version 6.15 of SPM. See "Installing the SPM Software."

▶ 2. Back up your system programming.

This step creates a file containing system programming information. See
"Backup."

▶ 3. Convert your back up file.

This step converts the backup file created in Step 2.
See "Convert" earlier in this book.

▶ 4. Turn off AC power switches on the control unit in the following order:

(1) Basic carrier

(2) Expansion carrier 1, if present

(3) Expansion carrier 2, if present

▶ 5. Replace the processor module (when upgrading from Release 2.1 and earlier).

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     a. Unplug the interface cords from the SPM and SMDR printer ports on the processor module.

     b. Remove the processor module from Slot 0.

     c. Install the new processor module in Slot 0.

     d. Plug the interface cords into the SPM and SMDR printer ports on the processor module.

▶ **6. Insert the forced installation memory card into the PCMCIA interface slot on the processor module.**

$\Longrightarrow$ **NOTE:**
Using the forced installation memory card will cause a frigid start.

▶ **7. Turn on the AC power switches on the control unit in the following order:**

     (1) Expansion carrier 2, if present

     (2) Expansion carrier 1, if present

     (3) Basic carrier

▶ **8. Restore your system programming.**

The system is forced idle and cannot be used during this procedure. See "Restore."

▶ **9. Program new features.**

If you wish to use the factory defaults for the new features available with Release 6.0, skip this step.

See the following tables, which follow this list:

- **Table 7.** Lists the features added with Release 1.1 of the communications system.

- **Table 8.** Lists the features added with Release 2.0 or 2.1 of the communications system.

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- **Table 9.** Lists the features added with Release 3.0 of the communications system.

  — When you upgrade from Release 2.0 or 2.1 to Release 3.0, you must program these features as the last step of the upgrade procedure.

  — When you upgrade from Release 1.1 to Release 3.0, you must program the features listed in Table 8, then the features listed in Table 9.

  — When you upgrade from Release 1.0 to Release 3.0, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9.

- **Table 10.** Lists the features added with Release 3.1 of the communications system.

  — When you upgrade from Release 3.0 to Release 3.1, you must program these features as the last step of the upgrade procedure.

  — When you upgrade from Release 2.0 or 2.1 to Release 3.1, you must program the features listed in Table 9, then the features listed in Table 10.

  — When you upgrade from Release 1.1 to Release 3.1, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10.

  — When you upgrade from Release 1.0 to Release 3.1, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10.

- **Table 11.** Lists the features added with Release 4.0 of the communications system.

  — When you upgrade from Release 3.1 to Release 4.0, you must program these features as the last step of the upgrade procedure.

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- — When you upgrade from Release 3.0 to Release 4.0, you must program the features listed in Table 10, then the features listed in Table 11.

- — When you upgrade from Release 2.0 or 2.1 to Release 4.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11.

- — When you upgrade from Release 1.1 to Release 4.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11.

- — When you upgrade from Release 1.0 to Release 4.0, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11

- ■ **Table 12.** Lists the features added with Release 4.1 of the communications system.

- — When you upgrade from Release 4.0 to Release 4.1, you must program the features listed in Table 12.

- — When you upgrade from Release 3.1 to Release 4.1, you must program the features listed in Table 11, then the features listed in Table 12.

- — When you upgrade from Release 3.0 to Release 4.1, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.

- — When you upgrade from Release 2.0 or 2.1 to Release 4.1, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.

- — When you upgrade from Release 1.1 to Release 4.1, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.

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— When you upgrade from Release 1.0 to Release 4.1, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.

■ **Table 13.** Lists the features added with Release 4.2 of the communications system.

— When you upgrade from Release 4.1 to Release 4.2, you must program the features listed in Table 13.

— When you upgrade from Release 4.0 to Release 4.2, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

— When you upgrade from Release 3.1 to Release 4.2, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

— When you upgrade from Release 3.0 to Release 4.2, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

— When you upgrade from Release 2.0 or 2.1 to Release 4.2, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

— When you upgrade from Release 1.1 to Release 4.2, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

— When you upgrade from Release 1.0 to Release 4.2, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed

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in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

- **Table 14.** Lists the features added with Release 5.0 of the communications system.

  - When you upgrade from Release 4.2 to Release 5.0, you must program the features listed in Table 14.

  - When you upgrade from Release 4.1 to Release 5.0, you must program the features listed in Table 13, then the features listed in Table 14.

  - When you upgrade from Release 4.0 to Release 5.0, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

  - When you upgrade from Release 3.1 to Release 5.0, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

  - When you upgrade from Release 3.0 to Release 5.0, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

  - When you upgrade from Release 2.0 or 2.1 to Release 5.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

  - When you upgrade from Release 1.1 to Release 5.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

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— When you upgrade from Release 1.0 to Release 5.0, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

- **Table 15.** Lists the features added with Release 6.0 of the communications system.

    — When you upgrade from Release 5.0 to Release 6.0, you must program the features listed in Table 15.

    — When you upgrade from Release 4.2 to Release 6.0, you must program the features listed in Table 14, then the features listed in Table 15.

    — When you upgrade from Release 4.1 to Release 6.0, you must program the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

    — When you upgrade from Release 4.0 to Release 6.0, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

    — When you upgrade from Release 3.1 to Release 6.0, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

    — When you upgrade from Release 3.0 to Release 6.0, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

    — When you upgrade from Release 2.0 or 2.1 to Release 6.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the

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features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

— When you upgrade from Release 1.1 to Release 6.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

— When you upgrade from Release 1.0 to Release 6.0, you must program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15

Table 7.   Programming Needed after Upgrade to Release 1.1

Feature	Sequence
System language	SysProgram→**More**→Language→SystemLang
Extension language	SysProgram→**More**→Language→Extensions
SMDR language	SysProgram→**More**→Language→SMDR
Printer language	SysProgram→**More**→Language→Printer

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Table 8.   Programming Needed after Upgrade to Release 2.0

Feature	Sequence
Primary Rate Interface (PRI)	SysProgram→LinesTrunks→LS/GS/DS1→Type→PRI
	SysProgram→LinesTrunks→LS /GS/DS1→FrameFormat
	SysProgram→LinesTrunks→LS/GS/DS1→Suppression
	SysProgram→LinesTrunks→PRI→PhoneNumber
	SysProgram→LinesTrunks→PRI→B-ChannlGrp
	SysProgram→LinesTrunks→PRI→NumbrToSend
	SysProgram→LinesTrunks→PRI→Test TelNum
	SysProgram→LinesTrunks→PRI→Protocol
	SysProgram→LinesTrunks→PRI→DialPlanRtg
	SysProgram→LinesTrunks→PRI→OutgoingTbl
	SysProgram→Tables→ARS
DID Emulation on T1	SysProgram→LinesTrunks→LS/GS/ DS1→Type→**More**→DID/All DID
Night Service Calling Group	SysProgram→NightSrvce→GroupAssign→Calling Group
Coverage VMS Off	SysProgram→**More**→Cntr-Prg→Program Ext
Data Status	SysProgram→**More**→Cntr-Prg→Program Ext
Extension Copy	SysProgram→**More**→Cntr-Prg→Copy Ext
Posted Message button on analog multiline and MLX-10 non-display telephones (for use with Do Not Disturb)	SysProgram→**More**→Cntr-Prg→Program Ext

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Table 9.   Programming Needed after Upgrade to Release 3.0

Feature	Sequence
Automatic Backup	SysProgram→System→Back/Restore→Auto Backup
Incoming Call Line Identification Delay	LinesTrunks→**More**→LS-ID Delay→**Drop**→Dial trunk no.→Enter
Remote Access Barrier Codes	LinesTrunks→RemoteAccss→BarrierCode→Code Info→Code Length
	LinesTrunks→RemoteAccss→BarrierCode→Code Info→Code Entry
Authorization Codes	Extensions→**More**→Auth Code

Table 10.   Programming Needed after Upgrade to Release 3.1

Feature	Sequence
Trunk-to-Trunk Transfer	Extensions→**More**→**More**→TrkTransfer→Toggle LED On/Off or Dial ext. no.→Enter→Exit→Exit
Second Dial Tone Timer	Options→**More**→SecDT→dial second dial tone timer value→Enter

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Table 11. **Programming Needed after Upgrade to Release 4.0**

Feature	Sequence
Delayed Call Forwarding	Extensions→**More**→Delay Frwd→**Dial ext. no.**→Enter→Dial no. of delay rings→Enter
Group Calling Overflow and Thresholds	Extensions→**More**→Grp Calling→Overflow→Dial calling group ext. no.→Enter→Dial ext. no.→Enter→Number Based Overflow→**Drop**→Dial no. of calls→ Enter→Time Based Overflow→**Drop**→Dial no. of seconds→Enter
Voice Announce on a QCC	Operator→Queued Call→**More**→Voice Annc→Enabled **or** Disabled→Enter
2B Data	Data→2B Data→Dial adjunct ext. no.→Enter
Basic Rate Interface (BRI)	LinesTrunks→**More**→BRI→SPID/DN.→Dial line/trunk no.→Enter→**Drop**→Dial SPID→Enter→**Drop**→Dial DN→Enter LinesTrunks→**More**→BRI→Timers→Select timer→**Drop**→Dial no. of seconds or ms→Enter
Clock Synchronization	LinesTrunks→**More**→ClockSync→Primary→**Drop**→ Dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter→Secondary→Dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter→Tertiary→dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter
Ringing Frequency (016 module)	Options→**More**→Ringing Freq→dial slot no.→Select 20Hz or 25Hz→Enter

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Table 12. **Programming Needed after Upgrade to Release 4.1**

Feature	Sequence
Group Coverage Ring Delay	SysProgram→Extensions→**More**→**More**→Cover Delay→ Group Cover→sender's extension→number of rings→Enter
Primary Cover Ring Delay	SysProgram→Extensions→**More**→**More**→Cover Delay→ Primary→sender's extension→number of rings→Enter
Secondary Cover Ring Delay	SysProgram→Extensions→**More**→**More**→Cover Delay→Secondry→sender's extension→number of rings→Enter
Night Service Group Line Assignment	SysProgram→NightSrvce→GroupAssign→Lines→ Night Service attendant position number→Enter→line number→Enter
Night Service Coverage Control	SysProgram→NightSrvce→CoverContrl→Enable or Disable→Enter
Board Renumber (When an 012 module is replaced by an 016 module)	System→Board Renum→Yes

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Table 12.   Programming Needed after Upgrade to Release 4.1 – *Continued*

Feature	Sequence
Switched 56 Data	To select T1- All Tie: Switched 56 Data: LinesTrunks→LS/GS/DS1→Dial slot no.→Enter→Type→T1→Enter→All TIE→Enter→S56→Enter→Dial channel no.→Enter→Exit→Exit→Exit→Exit
	To select T1- Tie: Switched 56 Data: LinesTrunks→LS/GS/DS1→Dial slot no.→Enter→Type→T1→Enter→TIE→Enter→S56→Enter→Dial channel no.→Enter→Exit→Exit→Exit→Exit
	To select T1-All :Switched 56 Data: LinesTrunks→LS/GS/DS1→Dial slot no.→Enter→Type→T1→Enter→**More**→ALL S56 Data→Enter→Select Direction, Intype, Outtype, AnsSupv, Disconnect, Inmode, or Outmode→Program options→Enter→Exit→Exit→Exit→Exit
	To select T1:Switched 56 Data: LinesTrunks→LS/GS/DS1→Dial slot no.→Enter→Type→T1→Enter→**More**→S56 Data→Enter→Dial channel no.→Enter→Select Direction, Intype, Outtype, AnsSupv, Disconnect, Inmode, or Outmode→Program options→Enter→Exit→Exit→Exit→Exit

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Table 12. **P**rogramming Needed after Upgrade to Release 4.1 – *Continued*

Switched 56 Data Network Dial Plan Routing	To specify Expected Digits: LinesTrunks→**MORE**→T1 Data NW→S56 Dial Plan Routing→Expected Digits→**Drop**→Dial expected digits→Enter→Exit→Exit→Exit
	To specify Delete Digits: LinesTrunks→**MORE**→T1 Data NW→S56 Dial Plan Routing→Delete Digits→**Drop**→Dial delete digits→Enter→Exit→Exit→Exit
	To specify Add Digits: LinesTrunks→**MORE**→T1 Data NW→S56 Dial Plan Routing→Add Digits→**Drop**→Dial add digits→Enter→Exit→Exit→Exit

Table 13. Programming Needed after Upgrade to Release 4.2

Feature	Sequence
SMDR Talk Time	Options→SMDR→Talk Time→Enable or Disable →Enter→Exit→Exit
PRI Switch Types	To select the Nortel DMS-250 for MCI services: SysProgram→Exit→LinesTrunks→PRI→SwitchType →Slot Number→Enter→DMS-250→Enter
	To select the Digital Switch Corporation DEX600E for MCI services: SysProgram→Exit→LinesTrunks→PRI→SwitchType →Slot Number→Enter→DEX600E→Enter
	To select the Nortel DMS-100 for local exchange carrier services: SysProgram→Exit→LinesTrunks→PRI→SwitchType →Slot Number→Enter→DMS-100→Enter

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Table 13. **Programming Needed after Upgrade to Release 4.2** – *Continued*

PRI Network Service	To select MCI Toll services for a DMS-250 or DEX600E switch type: SysProgram→Exit→LinesTrunks→PRI→B-ChannlGrp→NetworkServ→B-Channel group number→Enter→MCI Toll→MCI PRISM or MCI VNET or MCI 800 or MCI 900→Enter
	To select local exchange carrier services for a DMS-100 switch type: SysProgram→Exit→LinesTrunks→PRI→B-ChannlGrp→NetworkServ→B-Channel group number→Enter→DMS-100Local→DMS-Private or DMS-INWATS or DMS-OUTWATS or DMS-FX or DMS-TieTrk→Enter
PRI Dial Plan Routing	To specify MCI Toll Dial Plan Routing services for a DMS-250 or DEX600E switch type: SysProgram→Exit→LinesTrunks→PRI→DialPlanRtg→Service→Entry number→Enter→MCI Toll→MCI PRISM or MCI VNET or MCI 800 or MCI 900→Enter
	To specify local exchange carrier Dial Plan Routing services for a DMS-100 switch type: SysProgram→Exit→LinesTrunks→PRI→DialPlanRtg→Service→Entry number→Enter→DMS-100Local→DMS-Private or DMS-INWATS or DMS-OUTWATS or DMS-FX or DMS-TieTrk→Enter
PRI Call-by-Call Services Table	To select MCI Toll Call-by-Call Services for a DMS-250 or DEX600E switch type: SysProgram→Exit→LinesTrunks→PRI→OutgoingTbl→CBC Service→NetworkServ→List number→Enter→MCI Toll→MCI PRISM or MCI VNET→Enter
	To specify local exchange carrier Dial Plan Routing services for a DMS-100 switch type: SysProgram→Exit→LinesTrunks→PRI→OutgoingTbl→CBC Service→NetworkServ→List number→Enter→DMS-100Local→DMS-Private or DMS-OUTWATS or DMS-FX or DMS-TieTrk→Enter

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Table 14. **Programming Needed after Upgrade to Release 5.0**

Feature	Sequence
CTI Link	Busy out the board first:* **Menu**→Maintenance→Slot→Dial the slot no.→Enter→Busy-Out→Yes * This is a Maintenance step. Start the procedure from the main menu, not the System Programming screen.
	Program the CTI Link (Note: The switch must be in Hybrid/PBX mode): AuxEquip→CTI Link→Dial extension number→Enter→Exit→Exit
	Restore the slot:* **Menu**→Maintenance→Slot→Dial the slot no.→Enter→Restore→Yes * This is a Maintenance step. Start the procedure from the main menu, not the System Programming screen.

➡ **NOTE:**
   If the MLX module containing the CTI Link is the first module, use the SPM program to busy-out the slot.

Feature	Sequence
Calling Group Alarm Thresholds	Extensions→**More**→Grp Calling→Queue Alarm→Dial calling group ext. no.→Enter→Alarm Threshold 1 or Alarm Threshold 2 or Alarm Threshold 3→**Drop**→Dial no. of calls→Enter→Exit→Exit
HotLine	Extensions→**More**→**More**→HotLine→Enter HotLine extension→Enter→Exit→Exit
Calling Group Hunt Type	Extensions→**More**→Grp Calling→Hunt Type→Dial calling group ext. no.→Enter→Circular, Linear, or Most Idle→Enter→Exit→Exit→Exit
Group Calling Delay Primary Announcement	Extensions→**More**→Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Primary Announcement→ Enter Exstenion number of Announcent device→Enter (to program another Announcement device) or Exit (to end procedure)→Exit

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Table 14. Programming Needed after Upgrade to Release 5.0 − *Continued*

Feature	Sequence
Group Calling Delay Secondary Announcement	Extensions→**More**→Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Secondary Announcement →Enter Exstenion number of Announcent device→Enter →Exit→Exit
Group Calling Announcement Interval	Extensions→**More**→Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Announcement Interval→Enter Announcent Interval in seconds→Enter→Exit→Exit
Group Calling Repeat Announcement	Extensions→**More**→Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Repeat Announcement→Yes or No→Enter→Exit→Exit

Table 15. Programming Needed after Upgrade to Release 6.0

Feature	Sequence
UDP Routing Patterns	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→ Enter→Pool→Enter pool dialout code
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→ Enter→FRL→Enter restriction level (0-6)
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→ Enter→Absorb→Enter number absorption digits (0-11)
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→ Enter→Digits→Enter other digits
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→ Enter→Data→Select Voice Only, Data Only, or Voice/ Data

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Feature	Sequence
	Sys Program→Extensions→**More**→**More**→ DisplayPre→Dial ext. no.→Enter→Select Calling Name, Calling Num, or Both
	Sys Program→SysRenumber→NonLocal UDP→Enter starting number→Enter→Enter ending number
	Sys Program→LinesTrunks→**More**→UDP→ SwNum-Single→Enter trunk number→Enter→Enter switch number→Enter
	Sys Program→LinesTrunks→**More**→UDP→ SwNum-Block→Enter starting number→Enter→Enter ending trunk→Enter→Enter switch number→Enter
	Sys Program→LinesTrunks→**More**→UDP→ SMDR→Enter trunk number→Enter→Select Log incoming, Log outgoing, Log both, or Log none
	Sys Program→LinesTrunks→PRI→B-ChannlGrp→ NetworkServ→Enter→LegendUDP→ Select ElecTandNtwk
	Sys Program→LinesTrunks→PRI→B-ChannlGrp→ IncomingRtg→Enter→Route Directly to UDP→ Enter
	Sys Program→LinesTrunks→PRI→SwitchType (Select Legend-Ntwk or Legend-PBX)→Enter

Surrogate Mode Programming

Surrogate mode allows qualified service personnel to perform system programming at an off-site service location. The actual communications system hardware does not have to be installed—the programmer needs only a direct connection from the PC to the processor module. By following a customer's set of completed planning forms, the system can be programmed as if the appropriate modules, trunks, and telephones have been installed. When system programming is completed, a system backup is performed to save the

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information on disk. This backup disk is then taken to the new installation site and used with the Restore option to provide complete system programming for a new communications system.

You do not "select" surrogate mode programming—you enter it automatically under the following conditions:

- The PC is connected to the lower RS-232 port on a control unit (direct local connection).

- Only the processor and power modules are connected.

Once you enter surrogate mode programming, you must follow the sequence of procedures shown below.

- At the service location, perform the following:

    1. System Erase

    2. Program the Boards

    3. System Programming

    4. Backup

- At the installation site, perform a Restore.

While you are in surrogate mode, the Pass-Thru and Password options are not available.

➡ NOTE:
Surrogate mode is available only through the local programming port. You cannot access surrogate features through the system programming console.

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