COVER Book Cover

IBM Personal System/2
Model L40 SX Quick Reference

Document Number 10G3052

EDITION Edition Notice

#**Second Edition (October 1991)**

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#UL	Underwriters Laboratories Inc.
#Windows	Microsoft Corporation
#80387SX	Intel Corporation

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The following statement applies to this IBM product. The statement for other IBM products intended for use with this product will appear in their accompanying manuals.

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Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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CAUTION:
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This equipment does not exceed Class B limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

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The following information should be recorded and retained.

IBM Product Name	***IBM Personal System/2 Model L40 SX***
IBM Model Number	
IBM Serial	

Number	

- For the location of the type/model and serial numbers, see step 4 in topic 1.4.

- The model number of this product has a preface of:

  Type or
  Model.

- The serial number of this product has a prefix of *S/N*.

CAUTION:
The Backup Battery (3V, 1200 mAh, UL (**) recognized component or equivalent), containing less than 500 mg of lithium, can explode if not properly used, handled, or disposed of. Do not: (1) throw or immerse into water, (2) heat to more than 100°C (212°F), or (3) recharge, repair, or disassemble. Dispose of it as required by your company's safety procedures or local procedures.

CAUTION:
The Standby Battery contains a small amount of nickel and cadmium. Do not disassemble it, incinerate it, or short-circuit it. Dispose of it as required by your company's safety procedures or local procedures.

CAUTION:
The fluorescent light contains a small amount of mercury. Dispose of it as required by your company's safety procedures or local procedures.

PICTURE 1

(**) UL is a trademark of Underwriters Laboratories Inc.

CONTENTS Table of Contents

1.0 Getting Started

This section provides information for carrying and caring for your computer and explains how to set up and start your computer.

This section contains:

Subtopics

1.1 Carrying the Computer

When you carry the computer, follow these instructions.

1. Remove any diskette from the drive.

2. Turn off all attached options.

3. Unplug all external cables and cords connected to the computer.

4. Firmly close the display. It is recommended that the display be
| closed whenever the computer is moved in order to prevent any damage
| to data on the hard disk.

#You can now carry the computer. It is recommended that the carrying case
#be used and that the Reference Summary and the backup copy of the
#Reference Diskette be included in the carrying case.

1.2 Caring for Your Computer

For maximum computer efficiency, follow these instructions.

- To prevent damaging the LCD (liquid crystal display):
  - Avoid scratching its surface.
  - Avoid placing anything heavy on the LCD when closed.
  - Avoid twisting or hitting the LCD.

- Keep your computer away from devices that generate a strong magnetic field such as a motor, refrigerator, or speaker.

- Your computer is designed to operate in temperatures between approximately 5°C and 35°C (41°F and 95°F). If the temperature is outside the range, the temperature icon PICTURE 2 appears on the system status display; the computer automatically enters suspend mode. However, if you plan to use the diskette drive, you should be aware that diskettes cannot be used below approximately 10°C (50°F).

  Keep your computer in a place where the humidity is between 5% and 95% (non-condensing). If the humidity is outside this range, the dew point (humidity) icon PICTURE 3 appears on the system status display panel.

- If you do not use your computer for a long period, remove the Rechargeable Battery from the center compartment and keep it in a cool place.

1.3 Before Setting Up

Before starting to set up, check that you have the following items. If any are missing or damaged, call your IBM marketing representative or IBM authorized dealer.

&ballot. Model L40 SX PICTURE 4	**&ballot.** Rechargeable Battery PICTURE 5
&ballot. AC Adapter PICTURE 6	**&ballot.** Power Cord PICTURE 7
&ballot. Numeric Keypad PICTURE 8	**&ballot.** Reference Diskette PICTURE 9
&ballot. Quick Reference (this book) PICTURE 10	**&ballot.** Reference Summary PICTURE 11
&ballot. Three Keyboard Overlays PICTURE 12	**&ballot.** Carrying Case PICTURE 13

Attention

PICTURE 14	The setup procedure requires making a copy of the Reference Diskette. Obtain one blank diskette whose storage capacity is 2MB (Megabytes. 1MB = 1 048 576 bytes.). To identify a 2MB diskette, see page A.1.2.

1.4 Setting Up Your Computer

Set up your computer as follows.

1. Open the left compartment cover in order of 1 and 2 .

PICTURE 15

2. Connect the numeric keypad connector in order of 1 and 2 . Open the cover of the numeric keypad 3 .

PICTURE 16

3. Open the center compartment cover in order of 1 and 2 .

PICTURE 17

4. Write the machine model and serial numbers 1 on page NOTICES.

PICTURE 18

5. Insert the Rechargeable Battery into the center compartment by tilting it to clear the latch 1 ; lower the battery and press it in until it clicks into place.

PICTURE 19

6. Close the center compartment cover.

PICTURE 20

7. Plug the AC Adapter into the computer 1 . Plug the power cord into the AC Adapter 2 ; plug the other end into a properly grounded electrical outlet 3 .

PICTURE 21

8. Push in the release buttons 1 and lift to raise the display 2 .

PICTURE 22

9. Adjust the display angle for your viewing comfort by moving it back and forth.

PICTURE 23

10. Set both Contrast 1 and Brightness 2 Controls to their middle position.

PICTURE 24

11. Gather the following diskettes in one place.

□ The Reference Diskette Version 1.01 or later

□ A blank diskette whose storage capacity is 2MB. It has the
letters HD 1 , is usually labeled 2.0MB capacity 2 and has two
square cutouts 3 . Ensure that it is write-enabled by sliding
the switch 4 up.

#PICTURE 25

12. Insert the **Reference Diskette**, with the label facing up and metal-shutter end first, into the drive. Make sure the diskette clicks into place.

PICTURE 26

13. Is the computer turned on?

No Turn on the computer as shown in the following figure.

| **Yes** Press Ctrl+Alt+Delete.

PICTURE 27

After a short wait, a large IBM-logo appears on the screen.

PICTURE 28

If a screen other than the above appears, or nothing appears, go to step 2 in topic 4.1.

14. Press Enter; the following screen should appear. Otherwise, follow the instructions on the screen until the following screen appears.

```
+------------------------------------------------------------+
|                                                            |
$ |                        Main Menu                         |
|                                                            |
$ | Select one:                                              |
|                                                            |
$ |  1.¦Backup¦the¦Reference¦Diskette¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦ |
$ |  2. Set configuration                                    |
$ |  3. Set features menu                                    |
$ |  4. Set passwords and network server mode                |
$ |  5. Test the computer                                    |
$ |  6. Display revision levels                              |
|                                                            |
$ |  Enter      F1=Help      F3=Exit                         |
|                                                            |
+------------------------------------------------------------+
```

Follow the instructions on the screen to make a backup copy of the Reference Diskette.

#**15.** Remove the backup copy of the Reference Diskette from the diskette
drive. Store the Reference Diskette in a safe place and always use
the backup copy. Turn off the computer.

@**16.** If you install OS/2 (*), go to step 18.

@**17.** If you install DOS, go to step 19.

@**18.** Do the following to install OS/2.

Install **OS/2**.	Use the OS/2 manuals and the instructions on the screen.

@ □

Install the **power management device driver program**.	See page D.1.1.

@ □

Install **application programs**.	Use the manuals and diskettes supplied with the applications.

@ **Note:** Utility programs are available under OS/2. See "Large Pointer
@ Program" in topic E.3 and "Hot Key Program" in topic E.4.

@ Go to step 20.

@**19.** Do the following to install DOS.

Install **DOS**.	Use the DOS manuals and the instructions on the screen.

@ □

If you use **QEMM** (Quarterdeck Expanded Memory Management (**)) 5.11 or later with **Microsoft**** **Windows** (**) **3.0**, read "QEMM 5.11 or Later."	See page D.3.

@ □

If you use **Microsoft Windows 3.0**, install it.	See page D.2.

@ □

Install the **power management device driver**.	□ For Windows 3.0, see page D.2.4. □ For QEMM 5.11 or later, see page D.3.2. □ For EMM386 (**), see page D.5.1.

@ □

Install **application programs**.	Use the manuals and diskettes supplied with the applications. For Paradox (**), see also page D.4

@ **Notes:**

@ a. Utility program is available under DOS. See "Hot Key Program" in
@ topic E.4.

@ b. Utility programs are available under Windows 3.0. See "Large
@ Pointer Program" in topic E.3 and "Hot Key Program" in topic E.4.

@**20.** Leave the Rechargeable Battery in the computer with the AC Adapter
@ connected for approximately 48 hours as shown in the figure below.
@ You can operate the computer during this period.

@ *The Rechargeable and Standby Batteries are not charged at the time of*
@ *shipment. Therefore, this **INITIAL CHARGING** of both the batteries is*
@ *necessary.* PICTURE 29

@ +--- **Important** ----------+
| |
@ | The Rechargeable Battery, a nickel-cadmium battery, has the |
@ | characteristic of improved working time after being fully charged |
@ | and discharged several times. Therefore, after you perform step |
@ | 20, the following discharge-charge operation should be done at |
@ | least three times. |
| |
+---------------------------------+

@ **Fully Discharging:** Operate the computer only with the Rechargeable
@ Battery until three beeps sound and the icon
@ PICTURE 30 starts blinking. (For icon information

@ see page 2.5.)

@ **Fully Charging:** Leave the Rechargeable Battery inserted and the AC
@ Adapter connected for approximately 10 hours.

@ **Notes:**

@ a. For more information about the Rechargeable Battery, see page
@ 3.1.1.2.

@ b. A list of features that can maximize the life of the Rechargeable
@ Battery is provided on page 3.4.

This completes the setup of your computer.

#You can now set a power-on password for data security. Refer to "Setting
Passwords" in topic 3.7.

(*) OS/2 is a trademark of the International Business Machines
@ Corporation.

@ (**) Quarterdeck Expanded Memory Management is a trademark of
@ Quarterdeck Office Systems.

@ (**) Microsoft and Windows are trademarks of Microsoft
@ Corporation.

@ (**) EMM386 is a trademark of Microsoft Corporation.

@ (**) Paradox is a trademark of Borland International, Inc.

1.5 Starting Your Computer

This section explains start-up after the power is turned on, and provides steps to ensure it is working properly.

1. Turn on the power switch.

The computer automatically starts its self-test.

PICTURE 31

The computer memory is now being tested. The number (XXXX) increases until it matches the amount of usable memory.

2. The following screen appears.

PICTURE 32

3. One beep sounds and the speaker icon is displayed on the system status display panel at the same time.

The computer has successfully completed its self-test.

PICTURE 33

PICTURE 34

4. You see one of these on the screen:

- Password prompt
- Error prompt
- Diskette and F1 prompts
- The beginning of your program.

If something else appears, there is a problem. To fix the problem, go to "Solving Computer Problems" on page 4.0.

Subtopics
1.5.1 Password Prompt
1.5.2 Error Prompt
1.5.3 Diskette and F1 Prompts

1.5.1 Password Prompt

PICTURE 35

Meaning: The computer is requesting that you enter the power-on password. When a power-on password is set, the password prompt (PICTURE 36) appears each time the computer is turned on.

Note: The password prompt does not appear when the computer
returns to resume mode, but you must still enter the
power-on password. For more information, see "Power-On
Password" in topic 3.7.1.

Action: Type the correct power-on password and press Enter.

1.5.2 Error Prompt

PICTURE 37

Meaning: The computer detected an error during the self-test. The cause of the error is one of the following.

- There is a problem with the computer.
- The computer configuration is not set correctly with the backup copy of the Reference Diskette.

Action: Insert the backup copy of the Reference Diskette into the diskette drive and press F1. Follow the instructions on the screen. If the instructions do not remove the error prompt, have the computer serviced.

1.5.3 Diskette and F1 Prompts

PICTURE 38

Meaning: When the computer is turned on, it first tries to read from a diskette in the diskette drive. If no diskette or an unreadable diskette is in the drive, it then attempts to read from the hard disk. If no operating system is found in either drive, the Diskette and F1 prompts appear.

Action: Insert a diskette with your operating system on it into the diskette drive and press F1 to start the diskette.

2.0 Introducing the IBM Personal System/2 Model L40 SX

The IBM* Personal System/2* Model L40 SX (hereafter referred to as the *Model L40 SX*) is a new generation of IBM personal computer. Because of its compact size and light weight, it can be easily carried from place to place. Furthermore, the Rechargeable Battery makes the Model L40 SX well suited to operate outside an office environment, such as in a car, train, or other place where no external power source is available.

Although the Model L40 SX is small, it can support a wide range of application programs compatible with the IBM Personal Computer AT (*).

The distinctive qualities of the Model L40 SX are:

- Laptop size computer
- Battery powered
- High-performance 32-bit microprocessor
- High-resolution liquid crystal display (LCD)
- Memory expandable up to 18MB
- High capacity hard disk drive
- Diskette drive.

This section contains:

(*) IBM, Personal System/2, and Personal Computer AT are trademarks of the International Business Machines Corporation.

Subtopics

2.1 Basic Features

Rechargeable Battery
This is installed at the rear of the computer and supplies power necessary to operate the computer.

Numeric Keypad
This is an external keypad consisting of 17 data keys labeled with 0 through 9 and special characters. The numeric keypad also has a connector for a mouse or the Trackpoint.

AC Adapter
This portable power device allows you to operate the Model L40 SX with ac power.

2.2 Accessory

Deluxe Carrying Case
This provides additional carrying capacity and convenience.

2.3 Options

You can have the system capabilities expanded by installing the following options. Contact your IBM marketing representative or IBM authorized dealer.

Update Configuration

If the Internal Data/Fax Modem, Memory Module Kit, Serial Adapter, or math coprocessor is installed, the dealer should update the system configuration using the **Run automatic configuration** program on the backup copy of the Reference Diskette.

Contact your IBM marketing representative or IBM authorized dealer for installation of the following options.

Internal Data/Fax Modem

Warning: Failure to have this option installed by authorized, trained service personnel could cause permanent damage to the machine, the option, or both.

This is a dual function modem that not only operates as a data modem but also as a facsimile (Fax) modem.

The Data Modem operates at a speed of up to 2400 bps in duplex mode and supports Microcom Networking Protocol (MNP (**)) services classes 4 and 5. The Fax Modem can be operated at a speed of up to 9600 bps in half-duplex mode.

Note: This option is available only in the U.S. and Canada.

Memory Module Kit

This upgrades the memory size of your computer by installing 2MB-, 4MB-, or 8MB-Memory Module Kits into 2 expansion memory connectors inside the computer.

Note: You cannot select the combination of two 4MB-Memory Module Kits. Any other combination or the use of only one memory module kit is permitted.

Serial Adapter

Warning: Failure to have this option installed by authorized, trained service personnel could cause permanent damage to the machine, the option, or both.

This provides a second serial RS-232D interface for external communication. Operating instructions are covered in Appendix B, "Operating Instructions for the Serial Adapter" in topic B.0.

Math Coprocessor Socket

This socket is inside the computer. The 20 MHz/80387SX (**), or an equivalent, is available. A math coprocessor is IBM dealer-installable.

The following options are also available and do not require installation by a dealer.

Car Battery Adapter

Enables the computer to operate in an automobile by plugging it into the cigarette-lighter socket.

Quick Charger

This is a device that completely charges the Rechargeable Battery in about 2.5 hours. To charge the Rechargeable Battery, you remove it from the computer, then set it on the Quick Charger.

Spare AC Adapter

This extra adapter allows you to use the computer in two places without carrying an AC Adapter with you.

Spare Rechargeable Battery

This allows you to continue your work without delay. For more information, see page 3.1.1.5.

Trackpoint

This is a pointing device that can be used in both track ball and mouse modes.

@ (**) MNP is a trademark of Microcom, Inc.

@ (**) 80387SX is a trademark of the Intel Corporation.

2.4 Identifying the Computer Features

This section identifies and describes each computer feature.

PICTURE 39

1 **Display (LCD, liquid crystal display)** displays output. You can also
| use an external PS/2 (*) display by connecting it to the external
PS/2 display connector at the rear of the computer.

2 **Release Buttons** are located on both sides of the computer. Pushing these buttons causes the upper part of the computer to pop-up slightly so that you can easily open the computer.

3 **Contrast Control** adjusts the contrast of the display.

4 **Brightness Control** adjusts the brightness of the display.

5 **Power Switch** turns the computer on (**I**) and off (**O**).

6 **Diskette-Eject Button** releases a diskette from the drive. 1.44 is printed on the button to indicate that it is a 1.44MB diskette drive (see page A.1 for more information).

7 **Diskette Drive** reads data from or writes data to a diskette. For information about using the correct diskettes, see page A.1.

@ Because the diskette drive can be affected by a magnetic field, you
@ should not use the system unit near electric appliances such as a TV
@ set or a speaker. If you use a PS/2 or other display near the system
@ unit, set it more than 13 cm (5 in.) away from the diskette drive.

8 **System Status Display** shows the computer status by using small symbols called icons (see page 2.5 for the meaning of each symbol).

9 **Numeric Keypad** is an auxiliary input device consisting of 17 data keys and is connected to the pointing-device connector at the rear of the computer. The numeric keypad has a connector to accept a mouse.

| 10 **IBM Mouse** is an optional pointing device that can be connected either to the numeric keypad or to the pointing-device connector at the rear of the computer.

11 **Keyboard** is used to enter information into the computer.

12 **Economy Switch** determines the processing speed of the computer to economize on power usage. There are two modes.

If **A** (automatic) mode is selected, the computer varies its processing speed depending on how much activity occurs. This mode conserves battery power. If the **M** (manual) mode is selected, you can run the
computer at a fixed processing speed specified on the **Set Features**
Menu (see page 3.8.3).

PICTURE 40

1 **Power Jack** is where the AC Adapter plugs in.

2 **Pointing Device Connector** is where a mouse or keypad cable plugs in. When you connect the numeric keypad into this connector, a mouse can be plugged into the connector on the rear of the numeric keypad.

| 3 **Parallel Connector** is where a printer or adapter signal cable plugs
| in. These devices should be compatible with the Centronics (**)
| parallel interface.

| 4 **Serial Connector** is where a 9-pin serial device cable plugs in. It is fully programmable and supports asynchronous communications.

5 **Rechargeable Battery** supplies the power required to operate the
computer. The Rechargeable Battery can be removed.

Note: This computer has two additional batteries installed inside the computer: the Backup Battery and the Standby Battery. For more information, see page 3.1.1.

6 **External PS/2 Display Connector** is the place where the signal cable
of a display that supports a video graphics array (VGA) resolution
can be plugged in. Be aware that some display plugs may not fit this
connector.

Note: If an external display is connected, the LCD display is
disabled. The external display can be enabled or disabled
using the Set features program. An external display can be
referred to as a *CRT display* as compared to the LCD display in
this manual. For more information, see page 3.8.3.1.

Warning: The CRT must be attached before turning on the the computer.
Unpredictable results can occur if the CRT is plugged in while the
system is powered up.

7 **System Expansion Connector** offers an IBM Personal Computer AT compatible interface.

8 **Communication Interface Connector** is reserved for the output of the Serial Adapter (optional) or the Internal Data/Fax Modem (optional) for external communication.

| (*) PS/2 is a trademark of the International Business Machines
| Corporation.

| (**) Centronics is a trademark of Centronics Data Computer
| Corporation.

2.5 System Status Display

#This section identifies **icons** and explains each. They are displayed on
#the system status display panel and indicate the status of the computer.

PICTURE 41

Icon	Meaning
PICTUR	Appears when the computer has entered suspend mode. This icon stays on as long as the computer is in suspend or partial suspend modes. See "Suspend and Resume Modes" in topic 3.5 for more information about suspend mode.
PICTUR	Alternately turns on and off each time the Scroll Lock key is pressed.
PICTUR	Alternately turns on and off each time the CapsLock key is pressed. Caps lock specifies a certain character set based on the keyboard language used. Characters a through z (English) are converted to A through Z.
PICTUR	Alternately turns on and off each time the Num Lock key is pressed. Numeric lock fixes the upshifted character selection on the numeric keypad.
PICTUR	Appears when the drive is reading data from or writing data to a6diskette. Do not enter suspend or partial suspend mode when this icon is displayed.
PICTUR	Appears when the drive is reading data from or writing data to the hard disk. Do not enter suspend or partial suspend mode when this icon is displayed.
PICTUR	Appears when the temperature is outside the operating range of the computer, between approximately 5°C and 35°C (41°F and 95°F); accompanied by one long and one short beep. When the temperature is outside the operating range, any of the following may occur. □ The system does not start or enters suspend or partial suspend mode when the computer is turned on. □ Charging of the Rechargeable Battery stops even though the AC Adapter or the Car Battery Adapter is connected. In these cases, turn off the power and do not use the computer until the temperature of the computer is within the operating range. This icon disappears when the temperature of the computer is within the operating range.
PICTUR	Appears when the humidity is outside the operating range of the computer, between 5% and 95%; accompanied by one long and one short beep. This icon disappears when the humidity returns to the acceptable range. When the humidity is outside the acceptable range and the computer is turned on, the system does not start. In this case, restart the system when the humidity returns to the acceptable range.
PICTUR	Appears indicating that the speaker sounded. 50 This icon blinks until any key input or mouse operation is performed.
PICTUR	Appears when the communication link is established. 51

Icon	Battery Status	Meaning
PICTURE 2	Full	More than approximately 66% of the power remains in the Rechargeable Battery.
PICTURE 3	Mid	Between approximately 15 and 66% of the power remains in the Rechargeable Battery.
PICTURE 4	Low	Less than approximately 15% of the power remains in the Rechargeable Battery. When the remaining power of the battery is less than 3%, the computer emits three beeps and the icon starts blinking. After blinking for a while, this icon turns off and the computer enters suspend or partial suspend mode. In this case, do either of the following within 1 hour. □ Connect the AC Adapter or the Car Battery Adapter without removing the Rechargeable Battery. □ Replace the Rechargeable Battery of low power with a fully-charged spare Rechargeable Battery. See "Battery Exchange" on page 3.5.1.3.
PICTURE 5	Charging, Low	The Rechargeable Battery is being charged and is less than approximately 15% full.
PICTURE 6	Charging, Mid	The Rechargeable Battery is being charged and is between approximately 15 and 66% full.
PICTURE 7	Charging, Nearly Full	The Rechargeable Battery is being charged and is not fully charged yet. Continue charging until the Charging, Full icon appears.
PICTURE 8	Charging, Full	Charging is complete and the Rechargeable Battery is fully charged.

3.0 Operating Your Computer

This section provides information for operating the Model L40 SX.

This section contains:

Subtopics

@3.1 Power Sources and Charging Devices

@This section provides information about:

@□ Power sources to supply power to the computer

@□ Charging devices to charge the Rechargeable Battery.

Subtopics
3.1.1 AC Adapter and Batteries
3.1.2 Three Ways to Charge the Rechargeable Battery

3.1.1 AC Adapter and Batteries

The Model L40 SX uses the following power sources:

- **Rechargeable Battery**

  See page 3.1.1.2.

- **AC power using the AC Adapter**

  Use of the AC Adapter is recommended when line current is available. This keeps the Rechargeable Battery charged and ready to use when line current is unavailable.

- **Car Battery Adapter**

  This adapter allows you to use the cigarette-lighter socket of a motor vehicle to power the computer. If the Car Battery Adapter is connected, the computer can be operated even when the power of the Rechargeable Battery is low. This adapter is an option.

- **Standby Battery**

  This battery supplies enough power to the computer while in suspend mode to maintain your data during replacement of the Rechargeable Battery. The Standby Battery is not charged at the time of shipment and must be charged for 48 hours using the AC Adapter. Therefore, do not replace the Rechargeable Battery within the first 48 hours of use without first saving your data and powering off the system or plugging in the AC Adapter. The Standby Battery is rechargeable but can only be replaced by IBM or an IBM authorized dealer. It is not customer replaceable.

  Initial Charging

  The Rechargeable and Standby Batteries are not charged at the time of shipment. An initial charging of both the batteries is necessary. See page 1.4.

- **Backup Battery**

  This battery maintains stored data (such as configuration information, date, and time) after the system is powered off. It is not rechargeable but is replaceable by IBM or an IBM authorized dealer, not customer-replaceable.

Subtopics

3.1.1.1 Using the AC Adapter

Warning: The AC Adapter is for use only with the Model L40 SX. Do not connect it to any other device. Do not use any ac adapter with the Model L40 SX, other than those authorized by IBM.

The AC Adapter enables the Model L40 SX to operate under standard ac power at frequencies of 50 to 60 Hz and voltages of:

Low range: 100-125 V ac (nominal)

High range: 200-240 V ac (nominal)

To use the AC Adapter, follow the instructions below.

Plug the AC Adapter into the computer 1 . Plug the power cord into the AC Adapter 2 ; plug the other end into a properly grounded electrical outlet 3 .

PICTURE 59

Note: If the AC Adapter is connected, you can operate the computer even with the Rechargeable Battery removed. However, do not remove the Rechargeable Battery during suspend or partial suspend mode before attaching the AC Adapter and plugging it into a working electrical outlet.

3.1.1.2 Using the Rechargeable Battery

CAUTION:
To avoid injury to yourself or damage to the computer, follow the instructions listed below.

- Do not connect the battery terminals together.
- Keep the battery away from fire.
- Keep the battery terminals clean. If they are contaminated, clean them with a soft cloth.
- Do not soak the battery in water or expose to rain.
- Do not attempt to disassemble the battery.
- Avoid any mechanical shock.

When disposing of the Rechargeable Battery, comply with the law of your locality or your company's safety standards.

Installing/Removing Battery

- To install the Rechargeable Battery, see page 3.3.
- To remove the Rechargeable Battery, see page 3.2.

3.1.1.3 Before Using the Rechargeable Battery

The battery is not charged at the time of shipment. Complete charging is essential before using. The working time of the Rechargeable Battery can be short if the battery is charged only once. The working time improves after it has been fully charged and discharged several times. This is a characteristic of nickel-cadmium batteries. (See page 1.4 for important information concerning the charging and discharging this battery.)

3.1.1.4 When Not Using the Rechargeable Battery for a Long Period

If you do not use the Rechargeable Battery for a long period, remove it from the computer and keep it in a cool place. The Rechargeable Battery should be charged at least once every 6 months to extend the battery life.

3.1.1.5 Knowing the Amount of Power

While operating the computer, you can monitor the amount of remaining battery power on the system status display panel. If the computer detects a battery-low condition, the icon PICTURE 60 starts blinking after three beeps to indicate that it is time to charge the Rechargeable Battery. For information on how to charge the Rechargeable Battery, see page 3.1.2.

Warning: This blinking icon PICTURE 61 indicates that the Rechargeable Battery urgently needs charging and that less than 3% of the full power of the battery remains. The computer will enter suspend or partial suspend mode in approximately 1 minute to preserve data. *Do not leave the computer in this condition for more than 1 hour as this can shorten the life span of the battery.* For more information, see page 2.5.

For Your Convenience (Spare Rechargeable Battery)

Usually, a complete charge makes it possible to use the battery for up to 3 hours depending on applications and the configuration. However, a fully-charged battery gradually loses its charge if not used for a month or so. In this condition, the battery does not reach full charge by charging it only once.

It is recommended that you obtain a spare Rechargeable Battery so you can immediately replace the Rechargeable Battery with the low charge and continue your work without delay. The low battery can be replaced without losing data or saving an application. The low battery can be recharged later when you are not operating the computer. See page 3.1.2.

A spare Rechargeable Battery (part number 79F0197) can be ordered from IBM or an IBM authorized dealer.

3.1.1.6 Using the Car Battery Adapter

The Car Battery Adapter is an option that can power the computer. The computer is powered by plugging it into the cigarette-lighter socket through the Car Battery Adapter. For more information, refer to the instructions supplied with the adapter.

3.1.2 Three Ways to Charge the Rechargeable Battery

The following shows three ways to charge the Rechargeable Battery and each charging time.

Charging Device	**Approximate Time (Hours)**
AC Adapter + Recharge	10
Quick Charger + Recharge	2.5
Car Battery Adapter + Recharge	10

Installing/Removing Battery

- To install the Rechargeable Battery on the computer, see page 3.3.
- To remove the Rechargeable Battery from the computer, see page 3.2.

Subtopics
3.1.2.1 Charging with the AC Adapter
3.1.2.2 Charging with the Car Battery Adapter
3.1.2.3 Charging with the Quick Charger

3.1.2.1 Charging with the AC Adapter

Warning: The AC Adapter is for use only with the Model L40 SX. Do not connect it to any other device. Do not use any ac adapter with the Model L40 SX, other than those authorized by IBM.

The Rechargeable Battery automatically begins charging when it is installed and the AC Adapter is plugged in. Charging continues even when the computer is operating.

It takes approximately 10 hours to fully charge the Rechargeable Battery whether the computer is turned on or off.

Notes:

1. If a charging icon, PICTURE 62 or PICTURE 63 , does not come on during charging, let the computer cool and then restart charging.

2. It is normal for the Rechargeable Battery to be warm during or after charging.

3.1.2.2 Charging with the Car Battery Adapter

The Car Battery Adapter is an option that provides a way of charging the Rechargeable Battery. The Rechargeable Battery is charged by plugging the computer into the cigarette-lighter socket through the Car Battery Adapter. For more information, see the instructions supplied with the Car Battery Adapter.

Note: If a charging icon, PICTURE 64 or PICTURE 65 , does not come on during charging, let the computer cool and then restart charging.

3.1.2.3 Charging with the Quick Charger

Warning: The Quick Charger is designed to charge the Rechargeable Battery that is used only for the Model L40 SX. Do not use it for any other purpose.

The Quick Charger is an option that provides the fastest way of charging the Rechargeable Battery. Using this Quick Charger, you can fully charge the battery in about 2.5 hours. For more information, see the instructions supplied with the Quick Charger.

3.2 Removing the Rechargeable Battery

To remove the Rechargeable Battery, follow the instructions below.

Warning: Do not remove the Rechargeable Battery for at least 48 hours after you start using the computer. Doing so can cause the loss of data because the Standby Battery will not be fully charged. This warning also applies if you restart the computer after a long idle period and you attempt to use it without connecting it to external power through the AC Adapter.

1. Close the display.

2. Open the center compartment cover in order of 1 and 2 .

PICTURE 66

3. While raising the latch 1 to release the Rechargeable Battery, hold the tab 2 and pull the Rechargeable Battery out of the center compartment.

PICTURE 67

4. Close the center compartment cover.

PICTURE 68

3.3 Installing the Rechargeable Battery

To install the Rechargeable Battery, follow the instructions below.

1. Open the center compartment cover in order of 1 and 2 .

PICTURE 69

2. Insert the battery into the center compartment by tilting it to clear the latch 1 ; lower the battery and press it in until it clicks into place.

PICTURE 70

3. Close the center compartment cover.

PICTURE 71

3.4 Maximizing Battery Life

This section lists several features that can maximize the life of the Rechargeable Battery.

- **Lower the screen brightness.** Set the brightness control to the lowest brightness that allows you to view the screen comfortably. See page 2.4 for the location of the brightness control. (Changing the contrast does not affect battery life.)

- **Install the power management device driver programs.** If you have not installed the power management device driver program for:

  - OS/2, see "Installing the Power Management Device Driver for OS/2" in topic D.1.1.

  - Windows 3.0, see "Installing the Power Management Device Driver for Windows 3.0" in topic D.2.4.

  - QEMM 5.11 or later, see "Installing the Power Management Device Driver for QEMM 5.11 or Later" in topic D.3.2.

  - EMM386, see "Installing the Power Management Device Driver for EMM386" in topic D.5.1.

- **Change all related operational features at a time.** Use the sample batch program named TRAVEL. See page 3.8.5.

- **Change automatically all related operational features from the AC Adapter to the battery.** Use the utility program named EXT_PWR.EXE. See page E.2.

- **Turn off operational features that are not being used.** Use the **Set features program**, found on the Reference Diskette, to minimize the power usage of the following.

  - The LCD display
  - The hard disk
  - The processing speed
  - The parallel port
  - The serial port
  - The Internal Data/Fax Modem.

  See "Managing Power Usage" in topic 3.8.3.2 for more information.

- **Enter suspend mode.** See "Suspend and Resume Modes" in topic 3.5.

3.5 Suspend and Resume Modes

The Model L40 SX is a battery-powered computer with unique techniques to conserve battery power. For example, if the display is closed while
#operating the computer, it automatically enters suspend mode and all tasks
#are stopped to save power; the present state is stored in the computer
#memory. Later, when the display is opened, the computer automatically
#returns to resume mode and restores to the same state as when it entered
#suspend mode.

|The following figure shows what causes the computer to enter suspend mode
|and return to resume mode.

@PICTURE 72

Subtopics
3.5.1 Suspend Mode (Full Suspend Mode)
3.5.2 Resume Mode

3.5.1 Suspend Mode (Full Suspend Mode)

Suspend mode may be referred to as *full suspend mode* as compared to partial suspend mode in this manual.

Very Important

Do not change the diskette in the drive while the computer is in suspend mode. Otherwise, information from the previous diskette might be written onto the new one after the computer returns to resume mode.

Subtopics

3.5.1.1 Entering Suspend Mode

The computer enters suspend mode when one of the following occurs.

- Closing the display
  PICTURE 73

Do not open the display until you hear:

- One beep sounds for suspend mode
- Two beeps sound for partial suspend mode. For "Partial Suspend Mode," see page 3.5.1.2.

- Issuing the PS2 OFF command in the Set features program
- Setting the *System power off after* option to XX minutes
- Detecting battery-low condition. For more information, see page 2.5.
- Detecting temperature outside the operating range, approximately 5°C through 35°C (41°F through 95°F).

Note: To again enter suspend mode immediately after resume mode:

1. Make sure that the computer has returned to resume mode (one beep).
2. Wait 10 seconds.
3. Close the display.

If you do not follow the above instructions, you cannot know which mode the computer is in. If you have opened and then closed the display without waiting for resume mode to appear, you could find the computer is in resume mode even though the display is closed.

3.5.1.2 Partial Suspend Mode

Some application software interferes with the power management capability of the computer and prevents it from entering full suspend mode. If this happens, the computer beeps twice because it is entering partial suspend mode. To resume, open the display as with full suspend mode.

@Power management device drivers programs for some operating systems or @applications are available on the Reference Diskette. Installing these @drivers before entering suspend mode eliminates the application software @interference. This allows the L40 SX, when entering suspend mode, to @enter full suspend mode. To install those programs, see Appendix D, @"Customizing Software" in topic D.0.

Very Important

The following should be considered before using suspend or partial suspend mode.

3.5.1.3 Considerations for Suspend or Partial Suspend Mode

1. **Power Saving Less in Partial Suspend Mode**
   Avoid leaving the computer in partial suspend mode for an extended period. More power is expended in partial suspend mode than in full suspend mode.

   Warning: If you need to exchange batteries during partial suspend mode, first connect the AC Adapter or the Car Battery Adapter, then make the battery exchange.

2. **Battery Exchange**
   To replace a discharged Rechargeable Battery with a charged one, close the display to put the computer in suspend mode, wait 10 seconds after the one beep, replace the battery within 1 minute, and then open the display to resume operation. If the computer has been in suspend mode because of the low battery power, no beep sounds even though the display is closed.

   Warning: If you need to exchange batteries during partial suspend mode, first connect the AC Adapter or the Car Battery Adapter, then make the battery exchange.

3. **Pointing Devices**
   Pointing devices are movement-sensitive. You cannot operate or move them during two short periods of time. The following shows the periods.

   PICTURE 74

4. **Diskette or Hard Disk**
   While the computer is reading data from or writing data to a diskette or the hard disk, avoid entering suspend or partial suspend mode.

3.5.2 Resume Mode

@The computer returns to resume mode when one of the following occurs.

@□ Opening the computer after having placed it in suspend mode.
@ PICTURE 75

@ **Note:** When you open the display and successfully return to resume
@ mode, one beep sounds.

@□ Issuing the **PS2 ON** at **HH:MM:SS** command in the Set features program
@□ Activating the Ring Indicator on the communication interface.

@ Warning: To resume immediately after entering suspend mode adhere to
@ the following instructions to avoid losing data.

@ 1. Make sure that the computer has entered suspend mode (one beep) or
@ partial suspend mode (two beeps).

@ 2. Wait 10 seconds.

@ 3. Open the display.

@ Warning: If you do not follow the above instructions, the application
@ system may be stopped. In this case, you have to turn off and turn on
@ the computer to restart the application program.

Very Important

Before or when the computer returns to resume mode, the following should be considered.

Subtopics
3.5.2.1 Considerations for Resume Mode

3.5.2.1 Considerations for Resume Mode

1. **Pointing Devices**
   Pointing devices are movement-sensitive. You cannot operate or move them during two short periods of time. The following shows the periods.

   PICTURE 76

2. **Attached Devices**
   Attached devices, such as a printer and a serial device, can be reset or lose their configuration when returning to resume mode. Restart the application using the devices after resuming.

3. **Input Is Not Displayed**
   Any screen on which you can enter data that appears after suspend mode, you can type in data but it is not displayed or executed until one beep sounds.

#3.6 Using the Reference Diskette Version 1.01 or Later

The Reference Diskette provided with the Model L40 SX contains the following programs.

- **Backup the Reference Diskette** to make a backup copy of the Reference Diskette

- **Set configuration** to tailor the computer to your needs

- **Set features** to operate your computer more effectively

- **Set passwords and network server mode** to prevent unauthorized access to your computer

- **Test the computer** to test the computer hardware

- **Display revision levels** to show the machine level

$- **Utility installation program** to make it easy to install certain
$ programs contained on the Reference Diskette. These programs include
$ utility and other programs that customize the environment.

|- **EMS memory manager** to use the main storage above the 1MB boundary as
| the EMS memory

@- **Power management device drivers** to use suspend and resume modes under:

@ - OS/2
@ - Microsoft Windows 3.0
@ - QEMM 5.11 or later
@ - EMM386 in DOS 5.0.

- **Sample batch programs for the set features program** to set or change many operational features using one command.

#- **Utility programs** to operate your computer more easily and more
effectively. See Appendix E, "Utility Programs" in topic E.0.

The Reference Diskette is a permanently write-protected diskette. You *can read* information from the diskette, but you *cannot write* (record) information onto the diskette. Therefore, making a backup copy of the diskette is necessary to use the above programs.

Once the backup copy is made, put the original diskette in a safe place and always use the backup copy.

Subtopics

#3.6.1 Starting the Reference Diskette Version 1.01 or Later

1. Insert the Reference Diskette, with the label facing up and metal-shutter end first, into the drive. Make sure the diskette clicks into place.

PICTURE 77

2. Is the computer turned on?

| **Yes** Press Ctrl+Alt+Delete.

No Turn on the computer.

3. The following screen appears.

PICTURE 78

4. Press Enter; the following screen should appear. Otherwise, follow the instructions on the screen until the following screen appears.

```
    +---------------------------------------------------------------+
    ¦                                                               ¦
$   ¦                           Main Menu                           ¦
    ¦                                                               ¦
$   ¦ Select one:                                                   ¦
    ¦                                                               ¦
$   ¦  1.¦Backup¦the¦Reference¦Diskette¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦ ¦
$   ¦  2. Set configuration                                         ¦
$   ¦  3. Set features menu                                         ¦
$   ¦  4. Set passwords and network server mode                     ¦
$   ¦  5. Test the computer                                         ¦
$   ¦  6. Display revision levels                                   ¦
    ¦                                                               ¦
    ¦                                                               ¦
    ¦                                                               ¦
    ¦                                                               ¦
    ¦                                                               ¦
    ¦                                                               ¦
    ¦                                                               ¦
$   ¦  Enter      F1=Help      F3=Exit                              ¦
    ¦                                                               ¦
    +---------------------------------------------------------------+
```

Follow the instructions on the screen.

The following briefly explains each program that appears on the **Main Menu** after starting the Reference Diskette.

3.6.2 Backup the Reference Diskette

|Makes a copy of the original Reference Diskette onto another diskette, but
|not onto the hard disk. To make the backup copy, you need a blank 2.0MB capacity diskette that is not write-protected (see "Write-Protecting Diskettes" on page A.1.4).

Whenever you need to use the Reference Diskette, always use the backup copy. This ensures that the backup copy contains your computer's current configuration information and testing programs.

3.6.3 Set configuration

This is used to view, change, back up, or restore the computer configuration, and to run automatic configuration.

During configuration, the computer makes a list of what it sees as being installed and assigns those items to operate a certain way. Then this configuration information is stored in the computer memory and is kept current by the Backup Battery even when the computer is turned off.

The configuration lists:

- Installed memory size
- Built-in connectors and their assignments
- Installed IBM options with their location and assignments.

Subtopics
3.6.3.1 View configuration
3.6.3.2 Change configuration
3.6.3.3 Backup configuration
3.6.3.4 Restore configuration
3.6.3.5 Run automatic configuration

3.6.3.1 View configuration

Shows you the present configuration stored in the computer memory.

3.6.3.2 Change configuration

Changes the configuration stored in the computer memory. Changing the configuration lets you tailor computer operation to your needs.

3.6.3.3 Backup configuration

This copies the configuration stored in the computer memory onto the backup copy of the Reference Diskette. If you have made changes to the configuration, back up (copy) the configuration in the event the Backup Battery is removed or replaced.

Remember, computer configuration is stored in the computer memory and kept current by the Backup Battery. If the Backup Battery is removed or replaced, the configuration information is lost.

3.6.3.4 Restore configuration

This retrieves the configuration copied by "Backup configuration" and restores it into the computer memory. Use "Restore configuration" after the Backup Battery is removed or replaced.

3.6.3.5 Run automatic configuration

This is used when you want the computer to automatically configure itself. During automatic configuration, the computer makes a list of what it sees as being installed and assigns those items to operate a certain way.

3.6.4 Set features menu

Use this to set and change operational characteristics for your convenience. This program also helps minimize the use of battery power by specifying options associated with power management.

See "Changing Operational Features" in topic 3.8 for more information.

3.6.5 Set passwords and network server mode

This prevents the use of the computer by unauthorized persons. Three password methods available for the Model L40 SX are:

- Power-on password
- Network server mode
- Keyboard password.

See "Setting Passwords" in topic 3.7.

3.6.6 Test the computer

This tests the computer hardware. If a problem occurs during this testing, an error message appears showing the cause of the problem and the action to take.

3.6.7 Display revision levels

This displays the machine level that is used by service personnel.

$*3.6.8 Utility installation program*

$This program saves you time when installing the following programs
$contained on the Reference Diskette.

$□ Keyboard password program
$□ Set features program
$□ Disk cache driver
$□ Power management device driver programs for:
$ - OS/2
$ - Microsoft Windows 3.0
$ - QEMM 5.11 or later
$ - EMM386 in DOS 5.0.
$□ Utility programs for:
$ - Large pointer
$ - Hot key
$ - Parallel connector setup.

Subtopics
3.6.8.1 Using the utility installation program

$*3.6.8.1 Using the utility installation program*

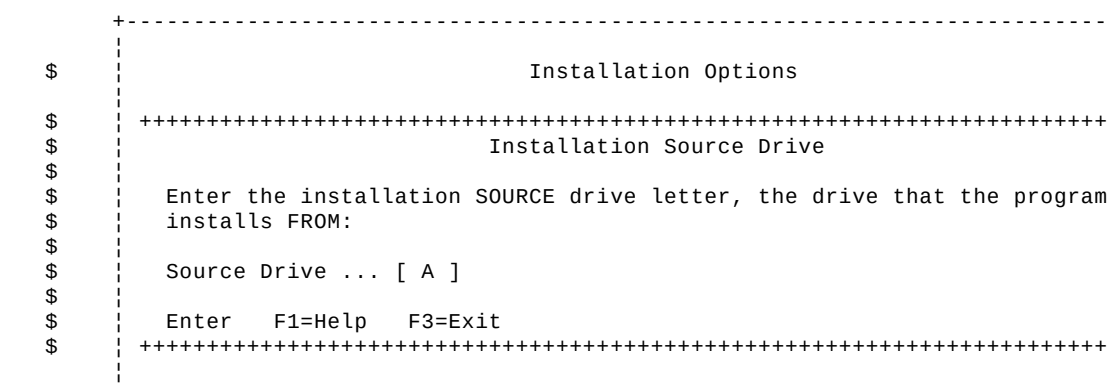
$Information for using the utility installation program is provided in
$sections where the above programs are described. The following shows a
$summary of how to use the utility installation program.

$**Note:** If you are using OS/2, make sure that the DOS compatibility box has
$ been configured.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt or the prompt on the DOS compatibility box, type
$ **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select the item you desire.
$ Press Enter. Follow the instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

3.7 Setting Passwords

|Passwords restrict the use of the computer to authorized persons.

Instructions for setting passwords are also on the Reference Diskette.
The information is provided here for your convenience as the computer must
be turned off, then on again to follow some of the password instructions.

Subtopics
3.7.1 Power-On Password
3.7.2 Network Server Mode
3.7.3 Keyboard Password

3.7.1 Power-On Password

+--- **Do Not Forget Your Power-On Password** ----------+
¦ ¦
¦ Record your power-on password. If you forget your power-on password, ¦
¦ take your system unit to IBM or an IBM authorized dealer. A service ¦
¦ charge may be incurred. ¦
¦ ¦
+---+

|Setting a power-on password restricts the use of the computer to
|authorized persons. The password can be no more than seven characters and does not appear when typed. Once the power-on password is set, whenever you turn on the computer, the password prompt PICTURE 79 appears (see "Password Prompt" in topic 1.5.1).

Note: Once set, a power-on password is required not only when powering-on but also when you return to resume mode. When you return to resume mode, the password prompt and any other messages do not appear.
| The cursor does not move as you type the power-on password, but it
| is entered. Now press Enter; the cursor is unlocked and you can use your application.

To use the computer, you must type the correct password and press Enter. When the password is entered correctly, an **OK** appears momentarily. If the password is entered incorrectly, a key with an X over it appears. If you have not entered the password correctly after three tries, you must turn off the computer, then on, to try again.

□ **To set a power-on password**

1. Start the backup copy of the Reference Diskette (see page 3.6.1).

2. Select **Set passwords and network server mode** on the Main Menu and press Enter.

3. Select **Set power-on password** and press Enter. Follow the instructions on the screen.

4. Write down the power-on password and store it in a safe place.

□ **To change a power-on password**

1. Turn on the computer.

2. When the password prompt PICTURE 80 appears, type your current password, then press the key 1 located to the left of the right Shift key.

PICTURE 81

3. Write down your new power-on password (seven characters or less) and store it in a safe place.

4. Type the password and press Enter.

□ **To remove a power-on password**

1. Turn on the computer.

2. When the password prompt PICTURE 82 appears, type your current password, then press the key 1 located to the left of the right Shift key.

PICTURE 83

3. Press Enter.

#**Note:** If you have locked the keyboard using **KP** but have not set a
power-on password, the keyboard is not locked *after* full suspend
mode. To keep the keyboard locked *after* this mode, set a power-on
password.

3.7.2 Network Server Mode

If your computer is a server on a network, you can set the network server mode. Before setting the network server mode, you must first set a power-on password. To set a power-on password, see page 3.7.1. Your computer can now be turned on so other computers can access your hard disk while your keyboard is locked.

To set the network server mode

1. Start the backup copy of the Reference Diskette (see page 3.6.1).
2. Select **Set passwords and network server mode** on the Main Menu and press Enter.
3. Select **Set network server mode** and press Enter. Follow the instructions on the screen.

To remove the network server mode

1. Start the backup copy of the Reference Diskette (see page 3.6.1).
2. Select **Set passwords and network server mode** on the main menu and press Enter.
3. Select **Set network server mode** and press Enter. Follow the instructions on the screen.
4. When asked **Set network server mode?**, type **N** and press Enter.

3.7.3 Keyboard Password

Setting a keyboard password lets you lock the keyboard without turning the computer off. If a power-on password has been set (see page 3.7.1), it can also serve as your keyboard password.

|You need to first install the keyboard password program from the Reference |Diskette onto the hard disk drive or diskette that contains DOS, before a keyboard password can be set.

To install keyboard password program

Before installing keyboard password program, set your power-on password.

$ **1.** Insert the backup copy of the Reference Diskette into the diskette drive.

$ **2.** At the DOS prompt on the screen (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.

```
+--------------------------------------------------------------------
¦
¦                              Installation Options
¦
¦ +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
¦                           Installation Source Drive
¦
¦   Enter the installation SOURCE drive letter, the drive that the program
¦   installs FROM:
¦
¦   Source Drive ... [ A ]
¦
¦   Enter   F1=Help   F3=Exit
¦ +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
¦
```

$ **3.** Press Enter twice.

$ The screen for selection appears.

$ **4.** Using Down Arrow (□) or Up Arrow (□) select **Install Keyboard Password Program**. Press Enter. Follow the instructions on the screen.

$ **5.** Remove the backup copy of the Reference Diskette from the diskette drive.

To install a keyboard password

```
+--- DOS 3.3 ----------------------------------------------------+
¦                                                                ¦
¦ If you are using DOS 3.3, start with step 5.                   ¦
¦                                                                ¦
+----------------------------------------------------------------+
```

1. Remove the backup copy of the Reference Diskette.

| **2.** Press Ctrl+Alt+Delete.

3. **Start Programs** panel of DOS appears. Select **File System** and press Enter.

4. **File System** panel appears. Press Shift+F9.

| **5.** At the C:\> prompt, type **KP /c** and press Enter. Follow the instructions on the screen.

To lock the keyboard

Type **KP** and press Enter. The keyboard is locked when you hear a beep.

To unlock the keyboard

1. Type your keyboard password (usually the same as your power-on password).

Note: While entering your keyboard password, the cursor does not
move. However, your keyboard password is entered.

2. Press Enter. The keyboard is unlocked when you hear a beep.

To remove the keyboard password

Turn off the computer.

To change the keyboard password

This procedure allows you to set a keyboard password that is different from your power-on password.

DOS 3.3

If you are using DOS 3.3, start with step 3.

1. Go to **Start Programs** panel of DOS. Select **File System** and press Enter.

2. **File System** panel appears. Press Shift+F9.

3. At the C:\> prompt, type **KP /c** and press Enter; follow the instructions on the screen.

Notes:

1. Ensure that the keyboard password program is installed on the hard disk or diskette that contains DOS. Go to the DOS prompt (usually C:\> or A:\>).

2. The keyboard password program works only with DOS.

3. If you restart the computer (by pressing Ctrl+Alt+Delete) and then lock the keyboard, the computer acts as if you typed **KP /c**.

#4. To keep the keyboard locked during and after partial suspend mode, you need to lock the keyboard using **KP** after setting a power-on password.

3.8 Changing Operational Features

The Model L40 SX is designed so you can change its operational features to operate more effectively. Usually, you do not need to change any of them because of the default options set at the time of shipment. However, you can change some or all of them to suit your needs.

Subtopics

3.8.1 Operational Features You Can Set and Change

The operational features you can set and change are:

- Operational convenience
  - Updating date and time
  - Changing keyboard speed
  - Switching speaker sound
  - Specifying display features.
- Power management
  - Internal device power-off time
  - System power-off time
  - System speed
  - Power control for communication devices.

You can change and set them using the **Set features** program or sample batch programs supplied by the Reference Diskette.

3.8.2 Setting and Changing the Operational Features

Three ways to set and change the operational features are:

- Start the backup copy of the Reference Diskette each time you want to use it. For more details, see "Starting the Set Features from the Reference Diskette" in topic 3.8.3.

- Store the Set features program, including the control program, on your hard disk or diskette.

  Once the program is resident on your hard disk or diskette, you can call and change any of the operational features by entering commands at the command line, or by running a batch file containing these commands. For more details, see "Starting the Set Features Program with Commands" in topic 3.8.4.

- Copy sample batch programs from the backup copy of the Reference Diskette onto your hard disk or diskette. For more details, see "Using the Sample Batch Programs" in topic 3.8.5.

3.8.3 Starting the Set Features from the Reference Diskette

1. Start the backup copy of the Reference Diskette to display the Main Menu (see page 3.6.1 on how to start the Reference Diskette).

$**2.** Select **Set features menu** and press Enter.

```
     +-------------------------------------------------------------+
     |                                                             |
$    |                          Main Menu                          |
     |                                                             |
$    | Select one:                                                 |
     |                                                             |
$    |  1. Backup the Reference Diskette                           |
$    |  2. Set configuration                                       |
$    |  3.¦Set¦features¦menu¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦  |
$    |  4. Set passwords and network server mode                   |
$    |  5. Test the computer                                       |
$    |  6. Display revision levels                                 |
     |                                                             |
     |                                                             |
     |                                                             |
     |                                                             |
     |                                                             |
     |                                                             |
     |                                                             |
     |                                                             |
$    |  Enter      F1=Help      F3=Exit                            |
     |                                                             |
     +-------------------------------------------------------------+
```

@**3.** Place the cursor at the desired item and press the Spacebar to display possible selections one by one, then press Enter to save the selection.

The Set Features Menu consists of two screens as shown in the following two figures. Using F8 and F7, you can switch from one screen to the other to select desired items.

Online help is always available when you press F1 on these screens.

PICTURE 84

#PICTURE 85

Subtopics
3.8.3.1 Maintaining Operational Convenience
3.8.3.2 Managing Power Usage

3.8.3.1 Maintaining Operational Convenience

Key	Purpose	Option
1	**Updating Date and Time** Sets and stores the current date and time.	Current date: MM:DD:YYYY Current time: HH:MM:SS
2	**Changing Keyboard Speed** Changes the speed at which the keyboard responds when you type. Turning the click sound of the keyboard on or off can also be specified.	Speed: Slow **Medium** Fast Click: **On** Off
3	**Switching Speaker Sound** Setting the System audio to Off suppresses the speaker sound. The low battery alarm sounds when the remaining power of the rechargeable battery is less than approximately 15%. Setting the Low battery alarm to Off suppresses both the alarm and the speaker icon except when you turn on the computer.	System audio: **On** Off Low battery alarm: **On** Off
4	**Specifying Display Features** Selects both mode and type of display attached to the computer. To change the LCD display mode option while the system is running under OS/2, first change the mode and shut down all running OS/2 applications, then restart your system. If no display is attached, LCD is automatically displayed on the screen.	LCD display mode: **LCD Color Reversed** LCD Mono Reversed LCD Color LCD Mono Display device: **LCD** CRT

Note: Default value is highlighted in the Option column.

3.8.3.2 Managing Power Usage

Key	Purpose	Option
5	**Internal Device Power Off Time** Automatically turns off internal devices and system power if no keyboard input or other device activity occurs in a specified time. Hard disk drive is turned on when the system attempts to read or write to the hard disk. Pressing any key causes the display to turn on again; however, that keystroke is accepted by the system as input. System power is resumed when, for example, the display is lowered and raised or any other condition occurs. See page 3.5.2. Other internal devices such as diskette drive automatically turn off when not in use. No action is required by you to turn these devices on or off.	Display off after: **10** (1 through 20) mins Hard disk off after: **5** (1 through 15) mins System power off after: **20** (1 through 20) mins **Note:** If **0** is specified, no automatic power-off is assumed.
6	**System Speed** Minimizes power usage by changing the processing speed. You can specify two values, one for the A (automatic) mode, the other for the M (manual) mode. The value for the Auto mode becomes effective when the economy switch is set to A; the value for the Manual mode becomes effective when the economy switch is set to M.	Auto: **High Performance** Long Battery Life **Note:** If you select **High Performance**, use of the AC Adapter is recommended. Manual: **20** MHz 10 MHz 5 MHz **Note:** It is recommended that 20 MHz be specified if you use the serial port at a line speed of above 9600 bps.
Note: Default value is highlighted in the Option column.		
7	**Power Control for Communication Devices** You can determine whether power is supplied to each external device	Onboard Parallel power: **On** Off

	port. To minimize power usage, select option Off for the port when no device is connected. **Note:** You can set the Onboard Parallel power to Off when both the Onboard Serial power and the Serial Adapter power (or the Data/Fax Modem power) are set to Off.	Onboard Serial power: **On** Off	
		Serial Adapter power: **On** Off	
		Note: This option is available and displayed when the Serial Adapter is installed.	
		Data/Fax Modem power: **On** Off	
		Note: This option is available and displayed when the Internal Data/Fax Modem is installed.	

Note: Default value is highlighted in the Option column.

3.8.4 Starting the Set Features Program with Commands

To change any of the operational features with commands, you first need to
|copy the Set features program from the backup copy of the Reference
|Diskette onto your hard disk or diskette.

If you have not done so, follow the instructions below, otherwise go to "Commands" in topic 3.8.4.2 on how to use the command.

Subtopics
3.8.4.1 Copying the Set features program
3.8.4.2 Commands
3.8.4.3 Format

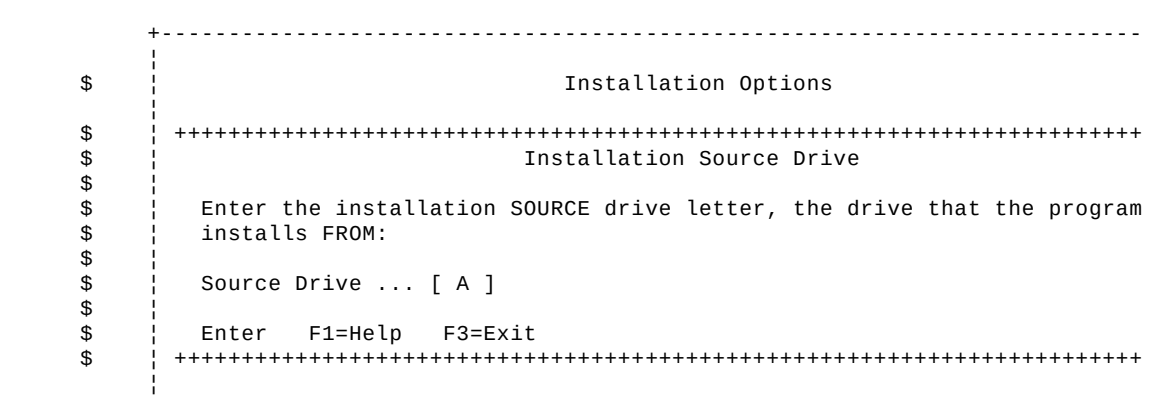
3.8.4.1 Copying the Set features program

$**Note:** If you are using OS/2, make sure that the DOS compatibility box has
$ been configured.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt or the prompt on the DOS compatibility box, type
$ **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Set Features**
$ **Utility**. Press Enter. Follow the instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

3.8.4.2 Commands

All feature items can be accessed either by entering commands or by running a batch file containing these commands. The following describes the commands.

3.8.4.3 Format

PS2 option1 option2

#option1 and option2:

option	*option2*	
	First Value	***Second Value***
--	Displays the Set Features Menu. No first and second values are required.	
? | **H**elp	Displays the format of all the commands available. No first and second values are required.	
[**SET**]	**A**udio	**ON** | **OF**f
SET	**AUT**o	**B**attery | **P**erformance
[**SET**]	**DISK**	***XX*** minutes (0 - 15)
[**SET**]	**DIS**play map*	**C**olor | **M**ono
[**SET**]	**K**eyboard **C**lick	**ON** | **OF**f
[**SET**]	**K**eyboard **S**peed	**F**ast | **M**ed | **S**low
[**SET**]	**LC**d	***XX*** minutes (0 - 20)
[**SET**]	**LCD** | **CRT***	
[**SET**]	**LO**w battery alarm	**ON** | **OF**f
SET	**MA**nual	**20** | **10** | **5**
[**SET**]	**M**odem	**OF**f | **O**n
[**SET**]	**N**ormal	
--	**OF**f	
--	**ON** at	***HH:MM:SS***
SET	**P**arallel	**OF**f | **ON**
[**SET**]	**PO**wer off	***XX*** minutes (0 - 20)
[**SET**]	**R**eversed	
[**SET**]	**SER**ial	**OF**f | **O**n
[**SET**]	**SER**ial **A**dapter	**OF**f | **O**n

Notes:

1. The following explains [**SET**], **SET**, and **--** in the left column of this table.

   [**SET**] Indicates that you can omit the value, **SET**, for **option1**. If you specify **SET**, the command you enter is stored and remains in the computer memory even though the power switch is turned off. If you do not specify **SET**, the command is no longer in effect when the power switch is turned off.

   SET Indicates that you cannot omit the value, **SET**, for **option1**.

   -- Indicates that you cannot specify the value, **SET**, for **option1**.

2. * Indicates that this command is not supported in the OS/2 environment.

Usage Note: When using any of these commands, type only highlighted letters in the above tables.

#Examples: The following shows examples of commands to modify the

operational features.

Command	Meaning
PS2	Displays the **Set Features Menu**.
PS2 XXXX	Shows the command syntax if **XXXX** is invalid.
PS2 ?	Displays all available commands in format.
PS2 H	Displays all available commands in format.
PS2 SET A OF	Suppresses the speaker sound. This command is restored at the next system power up.
PS2 SET AUT P	Maximizes power usage when using the AC Adapter. This command is restored at the next system power up.
PS2 DISK 5	Turns off the hard disk drive in 5 minutes.
PS2 DIS M	Sets the display mapping to monochrome to run an application that was developed for a monochrome display.
PS2 KC OF	Suppresses the click sound of the keyboard.
PS2 K S F	Sets the highest keyboard speed.
PS2 LC 1	Turns off the LCD display in 1 minute.
PS2 CRT	Disables the LCD display to enable an external CRT display if it has been attached since the power-on.
PS2 SET LO OF	Sets the battery-low alarm to off. This command is restored at the next system power up.
PS2 SET MA 20	Sets the highest processing speed. This command is restored at the next system power up.
PS2 M O	Enables the Internal Data/Fax Modem.
PS2 N	Changes the LCD display image to normal video.
PS2 OF	Enters suspend mode immediately.
PS2 ON 23:59:01	Returns to resume mode at 23:59:01.
PS2 SET P ON	Enables the parallel connector. This command is restored at the next system power up.
PS2 PO 3	Turns off the computer in 3 minutes.
PS2 R	Changes the LCD display image to reverse video.
PS2 SER O	Turns on the onboard serial power.
PS2 SER A O	Enables the Serial Adapter.

3.8.5 Using the Sample Batch Programs

$The following sample batch programs are provided so you can set or change one or all operational features using one command:

- **DEFAULT**

  This program sets all the operational features to the default values. The default values are the same values as set at the factory.

- **TRAVEL**

  This program sets all the operational features related to the power
$ supply by the Rechargeable Battery to the values that make the battery
$ life between charges as long as possible.

#- **PRINTCOM**

  This program turns off and on the parallel, serial, and communication interface connectors at the same time.

$- **SETUPPWR**

$ This program detects what power source the computer is using, and
$ calls the sample batch program:

$ - TRAVEL when the Rechargeable Battery is being used.

$ - DEFAULT when the AC Adapter or the Car Battery Adapter is being
$ used.

Subtopics
3.8.5.1 Installing the Sample Batch Programs
3.8.5.2 Usage Note:

3.8.5.1 Installing the Sample Batch Programs

1. Insert the backup copy of the Reference Diskette into the diskette drive.

2. Install a sample batch program using the copy command peculiar to the DOS or OS/2 operating systems.

Note: Sample batch programs are provided for both operating systems. The extension **.BAT** on a file name identifies the DOS sample (for example, **DEFAULT.BAT**) while the extension **.CMD** identifies the OS/2 sample (for example, **DEFAULT.CMD**).

3.8.5.2 Usage Note:

1. When you use the TRAVEL command, ensure that the economy switch is set to **A** to conserve battery power.

2. The format of the PRINTCOM command is PRINTCOM OFF or PRINTCOM ON.

$3. When you use the SETUPPWR command, ensure that the EXT_PWR.EXE file is
$ on your hard disk or diskette.

4. You can copy and modify any of the sample batch programs to make a new batch program tailored to meet your system configuration or preference.

4.0 Solving Computer Problems

Problems with your computer can be caused by software, hardware, or both. You can test the hardware yourself using computer internal self-tests and the testing programs on the backup copy of the Reference Diskette. If a hardware problem occurs during this testing, an error message appears with the cause of the problem and the action to take.

By using the Reference Diskette, the Troubleshooting Charts, and the other information in this section, you should be able to solve the problem yourself or obtain a considerable amount of information about the problem.

Always use the backup copy of the Reference Diskette. The backup copy should contain your computer's current configuration information and testing programs.

Important

Use this section to test IBM products *only*. Non-IBM products may give misleading errors or incorrect computer responses. Refer to the instructions supplied with those products for testing information.

This section contains:

Subtopics

4.1 Testing

1. Start the backup copy of the Reference Diskette (see page 3.6.1).

2. Does this screen appear?

PICTURE 86

Yes The computer has completed its internal self-tests. Press Enter.

- If the **Main Menu** appears, select **Test the computer** and follow the instructions on the screen to start the testing program.

Note: If you hear three beeps or the icon PICTURE 87
starts blinking, connect the AC Adapter and continue
the test.

  - **If the computer did not beep**, the speaker is not working and you should have the system serviced. If you are not sure about the beep, turn the computer off, then on again.
  - **If you cannot go beyond the IBM screen**, have the system serviced.
  - **If the testing stops and does not continue**, have the system serviced.

- If the **Main Menu** does NOT appear, the internal self-test found a problem. Follow the instructions on the screen.

No If the AC Adapter is not connected, connect it and go to step 1 again. If the AC Adapter is connected, locate the problem in "Troubleshooting Charts" in topic 4.2 and follow the prescribed actions.

4.2 Troubleshooting Charts

Subtopics
4.2.1 Display Problems
4.2.2 Messages on the Screen

4.2.1 Display Problems

PROBLEM	ACTION
Blank screen plus no beeps. **Note:** If you are not sure about the beeps, turn the computer off, then on again. If no beep sounds, the speaker icon is not displayed.	Check to see if: 1. The charged Rechargeable Battery is correctly installed. 2. The AC Adapter or the Car Battery Adapter is connected to the computer and the power cord is plugged into a working electrical outlet (see page 3.1.1.1 on how to use the AC Adapter). 3. The power switch is on. 4. *On* is specified for the System audio option of the Set Features Menu. 5. The math coprocessor just installed is installed correctly. If the above items are correct and the screen still remains blank, have the system serviced.
Blank screen plus one beep. **Note:** Any beep is always accompanied by a display of the speaker icon.	Check to see if: 1. Both brightness and contrast controls on the LCD display are properly adjusted when an external PS/2 display is not attached. 2. An external PS/2 display is turned on and the brightness and contrast controls are turned up. When an PS/2 display is attached, the LCD remains blank. If the above items are correct and the screen remains blank, have the system serviced.
Blank screen plus two or more beeps. **Note:** Any beep is always accompanied by a display of the speaker icon.	If the dew point (humidity) icon or the temperature icon does not turn on, have the system serviced.
Only the cursor appears.	Have the system serviced.
Screen is unreadable or distorted.	Check to see if the screen is still unreadable or distorted by changing a value for the LCD display mode option of the Set Features Menu. See page 3.8.3.1. If this action does not solve the problem, have the system serviced.
Wrong characters appear on the screen.	Have the system serviced.

4.2.2 Messages on the Screen

SCREEN MESSAGE	ACTION
Numbers. PICTURE 88	The computer's internal self-test found an error. Check to see: 1. That you have the backup copy of the Reference Diskette in the drive. 2. That the diskette is inserted correctly--with the label up and metal-shutter end inserted first--into the drive. (See "Starting the Reference Diskette Version 1.01 or Later" in topic 3.6.1.) If you cannot start the Reference Diskette and display the screen shown in step 2 on page 4.1, have the system serviced.
Diskette and F1 prompts. PICTURE 89	Check to see: 1. What the diskette and F1 prompts mean on page 1.5.3. 2. That you have the backup copy of the Reference Diskette in the drive. 3. That the diskette is inserted correctly-- with the label up and metal-shutter end inserted first--into the drive. (See "Starting the Reference Diskette Version 1.01 or Later" in topic 3.6.1.) If the above items are correct and both prompts remain, have the system serviced.
Password Prompt. PICTURE 90	A power-on password is set. To use the computer, type the correct power-on password and press Enter (see pages 1.5.1 and 3.7.1). If the power-on password is not working properly, have the system serviced.
Error Prompt. PICTURE 91 --or-- **A screen or message that is not listed above.**	Check to see: 1. What the error prompt means on page 1.5.2. 2. That you have the backup copy of the Reference Diskette in the drive. 3. That the diskette is inserted correctly--with the label up and metal-shutter end inserted first--into the drive. (See "Starting the Reference Diskette Version 1.01 or Later" in topic 3.6.1.) If the above items are correct and you cannot display the screen shown in step 2 on page 4.1, have the system serviced.
Resume Failure. PICTURE 92	Turn off the computer power, then turn it on again. Any data that was not saved before entering suspend mode can be lost. If any error code other than 12X appears, have the system serviced. **Note:** This error code might appear if the computer is stored or used in a wrong environment. However, if this error code appears frequently, have the system serviced.

4.3 What If Testing Cannot Find the Problem?

If the testing programs on the backup copy of the Reference Diskette cannot find the problem, use the troubleshooting charts that follow to find your computer problem.

Subtopics

4.3.1 Icons on the System Status Display Panel

ICON	ACTION
PICTURE 93 Remains on.	When the computer is in suspend mode, this icon appears but does not blink. When the computer is in resume mode, this icon blinks. If this icon remains on when the computer is not in suspend or resume mode, check to see if: 1. The AC Adapter or the Car Battery Adapter is connected and the Rechargeable Battery is installed. 2. The AC Adapter or the Car Battery Adapter is connected. If either of the above items is correct, go to the section of the temperature icon on page 4.3.1.
PICTURE 94	The diskette is now being read from or written to. If this icon stays on, check to see that: 1. The diskette is good and not damaged. Try a backup copy if you have one. 2. The diskette is inserted correctly--with label up and metal-shutter end inserted first--into the drive. 3. Your software program is OK (see page 4.3.7). If the above items are correct and this icon still remains, have the system serviced.
PICTURE 95	The hard disk is now being read from or written to. If this icon stays on, have the system serviced.
PICTURE 96	This icon appears indicating that the speaker sounded. This icon blinks until any key input or mouse operation is performed. If this icon stays on, have the system serviced.
PICTURE 97	Appears when the communication link is established. If this icon stays on, have the system serviced.
PICTURE 98	The temperature is outside the operating range of the computer between approximately 5°C and 35°C (41°F and 95°F). Check to see if: □ The computer has been left or used in too cold or too hot a place. If the above items are OK, power off or close the computer display and let it cool down or warm up. After the computer cools or warms, turn on the computer power or open the display. If this icon still remains on, have the system serviced.
PICTURE 99	Excessive humidity has been detected. Excessive humidity can occur when the computer goes from a cold atmosphere to a warm atmosphere. Power off the computer or close the computer display and remove the computer from the humid atmosphere. If this icon still remains on when the computer power is restored or the display is opened, have the system serviced.
PICTURE 100	The numeric lock is in effect. Press the **Num Lock** key again to release the numeric lock.
PICTURE 101	The caps lock is in effect.

	Press the **Caps Lock** key again to release the caps lock.
PICTURE 102	The scroll lock is in effect. Press the **Scroll Lock** key again to release the scroll lock.

4.3.2 Power Problems

PROBLEM	ACTION
A wrong battery-status icon remains on.	Have the system serviced.
A fully-charged Rechargeable Battery is discharged too soon.	1. Check to see if the Rechargeable Battery you are using has been charged more than 10 hours with the AC Adapter. See page 1.4. 2. Check to see if the Auto option of the Set Features Menu is set correctly and the economy switch is set to automatic mode. For automatic mode and the Auto option, see pages 2.4 and 3.8.3.2. 3. Repeat complete charge and discharge several times, if the battery has not been used for a long period. **Note:** Usually, a complete charge makes it possible to use the battery for approximately 3 hours. However, a fully-charged battery gradually loses its charge if not used for a month or so. In this condition, the battery does not reach full charge by charging it only once. 4. Have the Rechargeable Battery checked or the system serviced.
Battery-Low icon remains on.	The over-current protection device inside the Rechargeable Battery has been activated. Wait for several hours and use it again. If the problem still appears, replace the Rechargeable Battery or have the system serviced.

4.3.3 Keyboard, Pointing Device Problems

PROBLEM	ACTION
All or some of the keys do not work.	If the testing programs on the Reference Diskette do not find the problem, have the system serviced.
The mouse or pointing device does not work.	If the testing programs on the Reference Diskette do not find the problem, check the instructions supplied with the mouse or pointing device for additional testing information. If no testing information is available, have the mouse or pointing device serviced.
The numeric keypad does not work.	Check if the cable between the numeric keypad and the computer is properly connected. If the cable check is OK, have the system serviced.

#4.3.4 Printer and Parallel Device Problems

PROBLEM	ACTION
The printer does not work.	**Note:** If the computer enters suspend mode while the printer is printing out any data, the printer may not print out the data as you expected after returning to resume mode. This is not a problem with the printer. See "Attached Devices" on page 3.5.2.1. Check to see that: 1. The printer is turned on and is online. 2. The printer signal cable is plugged into the parallel connector on the computer. For the location of the parallel connector, see page 2.4. 3. The Onboard Serial power option of the Set Features Menu is set to *On* if the printer is connected to the serial connector. 4. The Onboard Parallel power option of the Set Features Menu is set to *On* if the printer is connected to the parallel connector. If the above items are correct and the printer still does not work, run the tests described in the printer manual. If the tests show the printer is OK, have the system serviced.
The parallel device does not work.	Take the same actions as you do in **The printer does not work.** If the parallel device still does not work, see "Parallel Connector Setup Program" in topic E.5 because some parallel devices do not work when the parallel connector of the Model L40 SX is in extended mode that allows bidirectional input and output.

4.3.5 External PS/2 Display Problems

PROBLEM	**ACTION**
Blank screen.	Check to see if : 1. The power cord for the PS/2 display is plugged into a working electrical outlet and into the PS/2 display. 2. The PS/2 display is turned on and the brightness and contrast controls for the PS/2 display are turned up. 3. The signal cable for the PS/2 display is plugged into the external PS/2 display connector on the system. Some of the signal cables may not be able to plug into the external PS/2 display connector. 4. The Display device option of the Set Features Menu is set to *CRT*. If the above items are correct and the screen of the PS/2 display remains blank, run the display tests described in the instructions supplied with the PS/2 display. If those tests show the PS/2 display is OK, have the system serviced.
Screen is unreadable or distorted.	Run the tests described in the instructions supplied with the PS/2 display. If those tests show the PS/2 display is OK, have the system serviced.
Wrong characters appear on the screen.	Have the system serviced.

4.3.6 Option Problems

PROBLEM	**ACTION**
An *IBM* option that used to work does not work now.	Check to see: 1. If the option came with its own testing instructions, follow those instructions to test the option. 2. If the option came with instructions to update the backup copy of the Reference Diskette, follow the instructions supplied with the option. 3. If the Serial Adapter is installed, *On* is specified for the Serial Adapter power option of the Set Features Menu, or the PS2 command, **PS2 SET SER A O** (or **PS2 SER A O**) is performed. 4. If the Internal Data/Fax Modem is installed, *On* is specified for the Data/Fax Modem power option of the Set Features Menu, or the PS2 command, **PS2 SET M O** (or **PS2 M O**) is performed. If the above items are correct and the testing programs on the Reference Diskette found no problem, have the system and option serviced.

4.3.7 Software Problems

PROBLEM	ACTION
Is your software program OK?	To determine if problems are caused by the software, check to see if: 1. The software is designed to operate on your computer. 2. Your computer meets the minimum requirements to use the software. Refer to the manuals supplied with the software to verify this. 3. Other software works on your computer. 4. The software you are using works on another computer. 5. You received any error messages when using the software program. Refer to the manuals supplied with the software for a description of the messages and solutions to the problem. Some programs may require you to change the LCD display mode option of the Set Features Menu shown on page 3.8.3.1. If the above items are correct and the problem remains, contact your place of purchase for help.

4.3.8 Intermittent Problems

PROBLEM	**ACTION**
Does your computer have an intermittent problem?	A problem may be difficult to find because it occurs only occasionally. If your computer has such a problem, check to see that: 1. All cables and cords are tightly connected to the rear of the computer and attached options. 2. If the problem occurs only when the computer is powered by the Rechargeable Battery, replace it with a fully charged one. If the above actions do not correct it, write down what the problem is and what the computer is doing when the problem occurs. Then contact your place of purchase for help.

4.3.9 Reference Diskette Problems

PROBLEM	**ACTION**
Is your backup copy of the Reference Diskette current?	Always use your *backup copy* of the Reference Diskette as it should contain the current configuration information and testing programs for your computer. (See "Set configuration" on page 3.6.3 for more information.) If the backup copy is not current, the computer may not find all problems when you run the testing programs.

4.4 Getting Service

If the computer needs service, you can:

- Take it to an *IBM* authorized dealer
- Call IBM for service.

When requesting service, describe the error message or problem. Error messages help identify what service action is required and help provide quick and efficient service to you.

Note: If the message, **have the system serviced**, appears on the screen, have the following (if any) as well as the system unit serviced.

- AC Adapter
- Internal Data/Fax Modem
- Math coprocessor
- Memory Module Kit
- Rechargeable Battery
- Serial Adapter
- Trackpoint.

For your convenience, write down service phone numbers here:

A.0 Appendix A. Additional Information

Subtopics
A.1 Diskette Drives and Diskettes
A.2 IBM Cassette BASIC
A.3 IBM Power Cords

A.1 Diskette Drives and Diskettes

Diskette drives and diskettes are identified by their storage capacity (for example, 1.44MB diskette drive; 2MB diskette).

The Model L40 SX operates with a 1.44MB diskette drive. This drive uses 1MB or 2MB 3.5-inch diskettes. Other IBM computers may operate with 720KB diskette drives that use only 1MB 3.5-inch diskettes.

The 1MB diskettes can be used in both 720KB and 1.44MB diskette drives; however, 2MB diskettes can be used in 1.44MB diskette drives only. If you intend to transfer diskettes between computers that have diskette drives with different capacities, use only 1MB diskettes formatted to 720KB.

Subtopics

A.1.1 Identifying Diskette Drives

A 1.44MB diskette drive has 1.44 printed on the diskette-eject button. A 720KB diskette drive has no identification mark.

A.1.2 Identifying Diskettes

A 1MB diskette looks like this:

It is usually labeled 1.0MB capacity or 2DD 1 , and has a square cutout 2 .

PICTURE 103

A 2MB diskette looks like this:

It has the letters HD 1 , is usually labeled 2.0MB capacity 2 and has two square cutouts 3 .

PICTURE 104

A.1.3 Formatting Diskettes

A diskette must be formatted to prepare it for use. Your operating system manual describes the commands for formatting diskettes. When using commands that format a diskette before writing (for example, the DOS command DISKCOPY), be sure the target diskette has the appropriate storage capacity.

1MB Diskettes must be formatted to 720KB. You can do this with either a 720KB or 1.44MB diskette drive. When you use a 1.44MB diskette drive, be sure to specify a format of 720KB; otherwise the diskette will be formatted to 1.44MB with unpredictable results.

2MB Diskettes must be formatted to 1.44MB. To do this, you must use a 1.44MB diskette drive.

A.1.4 Write-Protecting Diskettes

It is possible to format a diskette or write (record) information onto a diskette unintentionally. Important information could be lost. For this reason, you should write-protect important diskettes. Some diskettes like the Reference Diskette are permanently write protected. When diskettes are write protected, you can read from the diskettes, but you cannot write onto them.

To locate the write-protect switch, turn the diskette over with the label facing down.

- **To prevent writing** onto a diskette, slide the switch down.
- **To enable writing** onto a diskette, slide the switch up.

PICTURE 105

A.2 IBM Cassette BASIC

IBM Cassette BASIC (Beginner's All-Purpose Symbolic Instruction Code) is built into the Model L40 SX to help maintain software compatibility with other *IBM* computers. Cassette BASIC is the lowest version of BASIC and is not intended for production use because no information can be saved. For more information about Cassette BASIC and other types of BASIC, refer to the *IBM BASIC* manual (not included with this product).

Note: If your computer has a hard disk drive with an operating system already installed, you will not be able to start Cassette BASIC, but you can use Cassette BASIC by typing **basic** and pressing Enter at the command prompt.

To start Cassette BASIC:

1. Remove the diskette from the diskette drive.

2. Turn on the computer.

3. When the F1 and diskette prompts appear, press F1.

4. When the following screen appears, Cassette BASIC is loaded and ready to use:

   PICTURE 106

A.3 IBM Power Cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriters Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at **115 volts**: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at **230 volts (in the U.S.)**: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at **230 volts (outside the U.S.)**: Use a cord set of a minimum 18 AWG, and a grounding-type attachment plug rated 15 amperes, 250 volts. The cord set should be marked HAR and have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country are usually available only in that country:

IBM Power Cord Part Number	**Use in These Countries**
6952291	Argentina, Paraguay, Uruguay
6952300	Bahamas, Barbados, Bermuda, Bolivia, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Korea (South), Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Suriname, Taiwan, Trinidad (West Indies), United States of America, Venezuela
6952311	Australia, New Guinea, New Zealand, Papua
1838574	Thailand
6952320	Austria, Belgium, Bulgaria, Czechoslovakia, Egypt, Finland, France, Germany, Greece, Hungary, Iceland, Indonesia, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Turkey, Yugoslavia
6952329	Denmark
6952347	Bangladesh, Pakistan, South Africa, Sri Lanka
6952356	Abu Dhabi, Albania, Antigua, Bahrain, Brunei, Dubai, Fiji, Hong Kong, India, Ireland, Kenya, Kuwait, Macau, Malaysia, Nigeria, Oman, People's Republic of China, Qatar, Singapore, United Kingdom
6952365	Switzerland
6952374	Chile, Italy
6952383	Israel
78F9924	Japan

B.0 Appendix B. Operating Instructions for the Serial Adapter

Subtopics

B.1 Introduction

This appendix provides information for operating the IBM Personal System/2 Serial Adapter for Model L40 SX.

Note: The IBM Personal System/2 Serial Adapter for Model L40 SX is an IBM service or IBM authorized dealer installed option.

B.2 Word Length

5-, 6-, 7-, and 8-bit are supported.

B.3 Stop Bit

1, 1.5, and 2 are supported.

B.4 Line Speed

50 through 19 200 bps are supported.

B.5 Pin Assignments

The following table shows the Serial Adapter external connector pin assignments.

Pin No.	Signal Name	Directio	Description
3	TX DATA	Out	Transmit Data
2	RX DATA	In	Receive Data
7	RTS	Out	Request to Send
8	CTS	In	Clear to Send
6	DSR	In	Data Set Ready
5	GND		Signal Ground
1	DCD	In	Data Carrier Detect
4	DTR	Out	Data Terminal Ready
9	RI	In	Ring Indicator

B.6 Modem Connection

The example in Figure 1 shows the Serial Adapter modem connection using the cable.

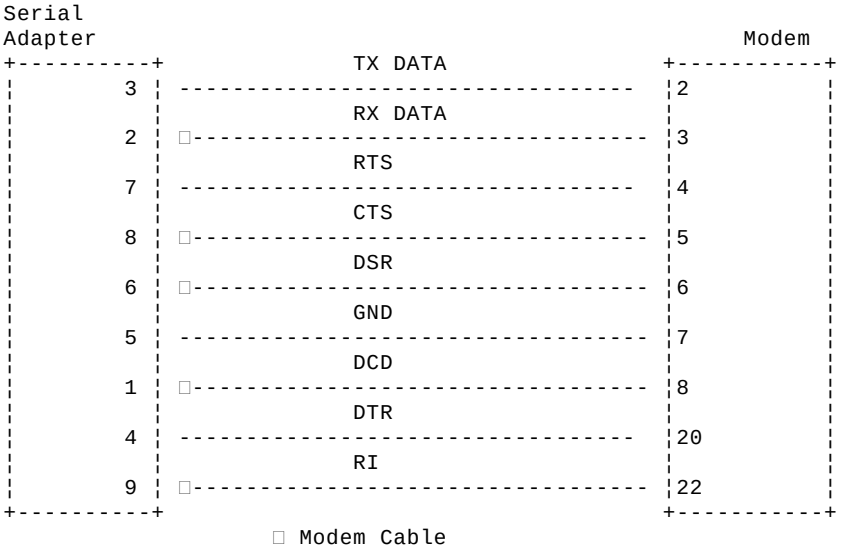


Figure 1. Example of the Serial Adapter Modem Connection

C.0 Appendix C. Installing the EMS Memory Manager

This appendix explains how to install the EMS (expanded memory specification) memory manager.

|The EMS memory manager supports the Lotus (**) /Intel (**) /Microsoft EMS $4.0. The EMS memory manager allows other device drivers, such as the RAM $disk, to use the main storage above 1MB boundary configured with **Set** $**configuration** as the EMS memory.

The EMS memory manager must be installed in the CONFIG.SYS file as the first device driver.

Note: The EMS memory manager is designed to support only the IBM Personal System/2 Model L40 SX.

| (**) Lotus is a trademark of Lotus Development Corporation.

| (**) Intel is a trademark of Intel Corporation.

Subtopics
C.1 How to Install the EMS Memory Manager

C.1 How to Install the EMS Memory Manager

The section describes how to install the EMS memory manager.

1. Insert the backup copy of the Reference Diskette into the diskette drive.

2. At the DOS prompt, type **COPY A:\MM.SYS C:** and press Enter.

3. Edit the CONFIG.SYS file using EDLIN.COM or other editor programs. The format and explanation of parameters and values are shown below.

Subtopics
C.1.1 Format:

Format:

C.1.1 Format:

```
device = mm.sys [/Exclude=xxxx-xxxx]
                [/Frame=xxxx]
                [/Handles=nnn]
                [/Include=xxxx-xxxx]
                [/Test]
                [/Fulldisplay]
                [/Showoptions]
```

[/Exclude=xxxx-xxxx]: **xxxx-xxxx** is a range of addresses that should not be used for the EMS mapping. By default, the EMS memory manager automatically excludes areas known to contain ROM or video RAM. This parameter allows you to exclude a range of addresses that might be included by the automatic selection process. Specify hexadecimal segment addresses. You can specify as many exclude ranges as necessary and these can overlap.

[/Frame=xxxx]: **xxxx** is the starting address for the 64KB EMS window frame. By default, the start for the EMS window frame is selected automatically by the memory manager software. This parameter allows you to explicitly choose the address. Specify a hexadecimal segment address on a 16KB boundary where no ROM or RAM resides.

[/Handle=nnn]: **nnn** is the number of handles available for programs that use EMS memory. The valid range is 4 to 255. The default is 255.

[/Include=xxxx-xxxx]: **xxxx-xxxx** is a range of addresses that should always be used for the EMS mapping. By default, the EMS memory manager automatically excludes areas known to contain ROM or video RAM. This parameter allows you to include a range of addresses that might be excluded by the automatic selection process. Specify hexadecimal segment addresses. You can specify as many include ranges as necessary and these can overlap.

[/Test]: Specifies that memory be tested when the EMS memory manager is loaded. Because POST (power-on self test) does not test the expanded memory, it is recommended that you specify this parameter.

[/Fulldisplay]: Specifies that the EMS memory manager display information about the EMS configuration after its sign-on.

[/Showoptions]: Specifies that the EMS memory manager show its command line options after its sign-on.

Defining the EMS Memory Size: The amount of memory that is available for the EMS memory is determined by the system BIOS. To allocate memory for the EMS memory, insert the backup copy of the Reference Diskette and press Ctrl+Alt+Delete to restart the system. From the Main Menu, select **Set configuration**. Then select **Change configuration**. Set the desired amount of memory for **Expanded Memory**. Once set, the expanded memory can be used by the EMS memory manager. The memory manager uses:

- Any memory not configured as extended memory, or
- System memory as the EMS memory.

Memory Manager Error Messages: This section provides explanations of error messages issued by the EMS memory manager.

- Expected equal after parameter -

Explanation: One of the parameters on the command line expected an equal symbol (=) after the parameter, but none was found.

- Invalid exclusion specified -

Explanation: The Exclude parameter was specified incorrectly. See page C.1.1 for the Exclude parameter.

- Invalid hardware for memory manager -

Explanation: Indicates that the memory manager was run on a system board that did not contain the correct hardware.

- Invalid inclusion specified -

Explanation: The Include parameter was specified incorrectly. See page C.1.1 for the Include parameter.

- Invalid number specified -

Explanation: A number was expected, but non-numerals or a number containing characters or symbols was found.

- Invalid page frame address specified -

Explanation: The page frame address specified is not available for banking. The EMS memory manager requires a 64KB area above C000 that is free of expansion ROM and RAM.

- Invalid parameter specified -

Explanation: One of the parameters specified on the command line in your CONFIG.SYS file is invalid.

- No expanded memory available -

Explanation: No expanded memory is available for use.

- No 64k page frame available -

Explanation: The EMS memory manager was unable to find a 64KB window for the page frame. For the EMS memory manager to operate, a 64KB window free of expansion ROM or RAM must exist above C000.

- Number of handles cannot exceed 255 -

Explanation: The number of handles specified is above 255. The number of handles specified must be between 4 and 255. See page C.1.1 for the Handle parameter.

- Number of handles must be at least 4 -

Explanation: The number of handles specified is below 4. The number of handles specified must be between 4 and 255. See page C.1.1 for the Handle parameter.

- RAM address error detected -

Explanation: An address error was detected during the expanded memory tests.

- RAM data error detected -

Explanation: A data error was detected during the expanded memory tests.

- RAM parity error detected -

Explanation: A parity error was detected during the expanded memory tests.

@D.0 Appendix D. Customizing Software
@This appendix provides procedures for customizing:

@□ OS/2 Standard Edition (SE) 1.3

@□ OS/2 Extended Edition (EE) 1.3

@□ Microsoft Windows 3.0

@□ Quarterdeck QEMM 5.11 or later

@□ Paradox 3.5

@□ EMM386 in DOS 5.0.

@**Note:** Versions 1.3 of the OS/2 Standard and Extended Editions are
@ supported at refresh level 1.30.1 or later.

@This section contains:

@D.1 The OS/2 Operating System

@The OS/2 power management device driver program is available. This
@program enables this operating system to work properly with suspend and
@resume modes.

@Warning: Unpredictable results can occur when power is suspended and
@later resumed if this driver is not used.

Subtopics
D.1.1 Installing the Power Management Device Driver for OS/2

@D.1.1 Installing the Power Management Device Driver for OS/2

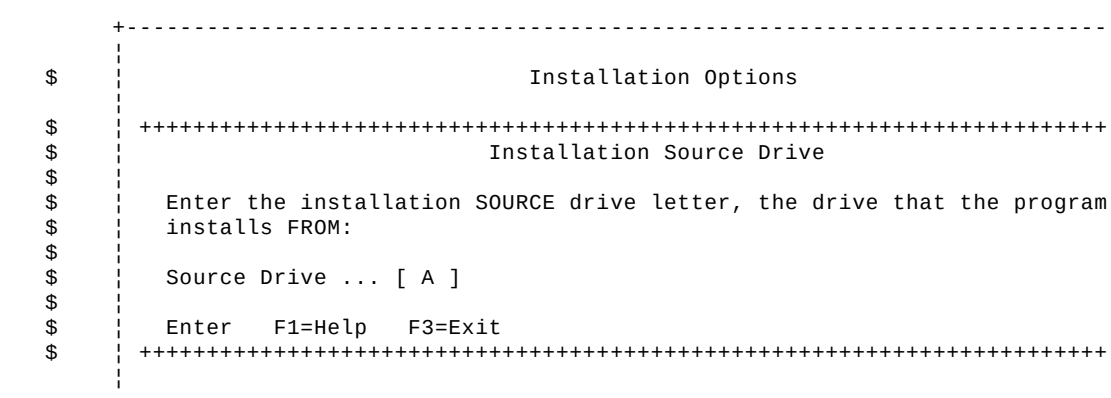
@If you installed the OS/2 operating system, do the following to install
@the power management device driver program for it.

@**Note:** Make sure that the DOS compatibility box has been configured.

@**1.** Insert the backup copy of the Reference Diskette into the diskette
@ drive.

$**2.** At the prompt on the DOS compatibility box, type **A:UINSTALL** and press
$ Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install OS/2 Power**
$ **Management Device Driver**. Press Enter. Follow the instructions on
$ the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

@+--- **IDLE.EXE** ----------+

@¦ If IDLE.EXE has been installed and IDLE.EXE is specified in ¦
@¦ STARTUP.CMD to start whenever the system starts, do the following. ¦

@¦ 1. Modify STARTUP.CMD so that IDLE.EXE will not start even though the ¦
@¦ system starts. ¦

@¦ 2. Restart the system. ¦

@¦ 3. Reinstall the power management device driver program for OS/2. ¦

@+----------+

@**Note:** Utility programs are available under OS/2. See "Large Pointer
@ Program" in topic E.3 and "Hot Key Program" in topic E.4.

@D.2 Microsoft Windows 3.0

@Be sure to read this entire section before installing Windows for the
@first time.

@+--- **DOS 3.3 or Later Is Required** ----------+
  ¦   ¦
@¦ Do not install Windows 3.0 unless you have a DOS 3.3 or later diskette ¦
@¦ available.   ¦
  ¦   ¦
  +--+

@For Windows to operate properly on your L40 SX, it is necessary to make
@changes to the Windows installation. Some changes are made during the
@Windows SETUP procedure; others are made after installation.

Subtopics
D.2.1 Setting Keyboard Type
D.2.2 For DOS 3.3 and DOS 4.0 Users
D.2.3 For DOS 5.0 Users
D.2.4 Installing the Power Management Device Driver for Windows 3.0
D.2.5 Creating PIF File

@D.2.1 Setting Keyboard Type

@When you install Microsoft Windows, the Windows SETUP program
@automatically detects the hardware configuration of your L40 SX. Running
@Windows SETUP on the L40 SX without the numeric keypad plugged in, SETUP
@detects your keyboard as:

@ **All AT type Keyboards (84 - 86 keys)**

@This selection does not allow some keyboard functions. To have Windows
@detect the proper keyboard, override keyboard detection in SETUP. When
@SETUP presents the list of detected hardware, highlight the keyboard type
@and press Enter for a list of choices. Select: **Enhanced 101 or 102 key
@US and Non US keyboards**

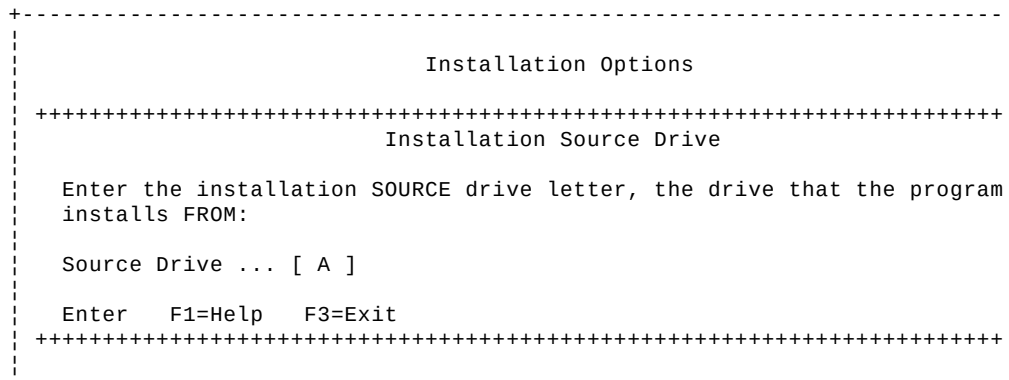
@D.2.2 For DOS 3.3 and DOS 4.0 Users

@If you have installed Windows 3.0, do the following.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Disk Cache Driver**.
$ Press Enter. Follow the instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

@D.2.3 For DOS 5.0 Users

@If you have installed Windows 3.0, do the following.

@**1.** At the DOS prompt (usually C:\>), type:

@ **CD **

@ and press Enter.

@**2.** Type:

@ **COPY CONFIG.SYS CONFIG.BAK**

@ and press Enter.

@ *This makes a backup copy of the CONFIG.SYS file.*

@**3.** Find in the CONFIG.SYS file the two DEVICE command lines that specify
@ the filenames, HIMEM.SYS and SMARTDRV, for Windows 3.0. Using a
@ non-formatting text editor, change the DEVICE command lines to the
@ following.

@ **DEVICE=C:\DOS\HIMEM.SYS**
@ **DEVICE=C:\DOS\SMARTDRV.SYS 512**

@ *HIMEM.SYS and SMARTDRV.SYS are the two drivers required to use this*
@ *disk cache program.*

@**4.** Save and then exit from the file.

@D.2.4 Installing the Power Management Device Driver for Windows 3.0

@The power management device driver program for Windows 3.0 is available.
@The program enables Windows 3.0 to work properly with suspend and resume
@modes.

@Warning: Unpredictable results can occur when power is suspended and
@later resumed if this driver is not used.

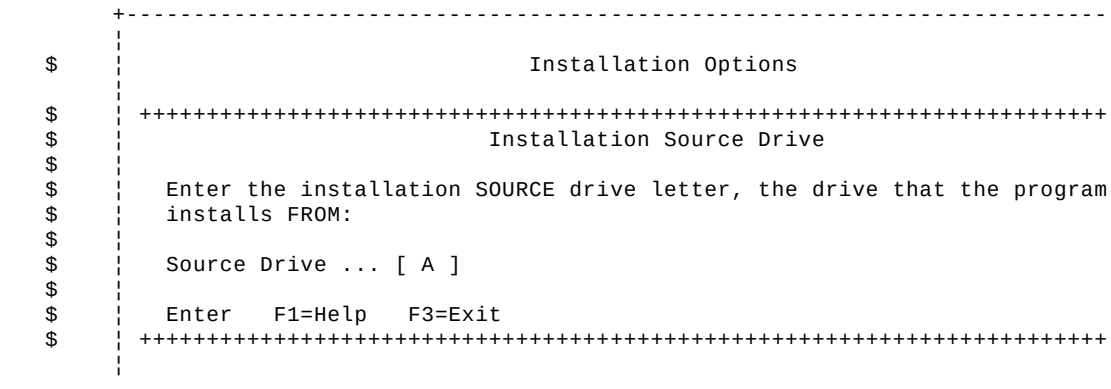
@If you installed Windows 3.0, do the following to install the power
@management device driver program for Windows 3.0.

@+--- **Assumption** --+
 ¦   ¦
@¦ The following steps assume: ¦
 ¦   ¦
@¦   You have installed Windows 3.0 in a directory called WINDOWS. If ¦
@¦   you named the directory something else, modify the installation   ¦
@¦   target path during installation appropriately. For example, if   ¦
$¦   Windows is installed in **C:\WIN3**, install the file to **C:\WIN3**   ¦
@¦   instead.   ¦
 ¦   ¦
 +---+

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Windows 3.0 Power
$ Management Device Driver**. Press Enter. Follow the instructions on
$ the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

@D.2.5 Creating PIF File

@To use the Set features program under the Windows 3.0, it is recommended @that you create the PIF file by setting the **FULLSCREEN** and **EXCLUSIVE** @options. For more information on the Set features program, see "Set @features menu" in topic 3.6.4. For more information on how to create and @use the PIF file, refer to the Windows 3.0 manuals.

@**Note:** Utility programs are available under Windows 3.0. See "Large @ Pointer Program" in topic E.3 and "Hot Key Program" in topic E.4.

@D.3 QEMM 5.11 or Later

@You must use QEMM (Quarterdeck Expanded Memory Management) 5.11 or later
@for proper operation on the Model L40 SX. If you plan to run Windows 3.0
@with QEMM 5.11 or later, you must also install the power management device
@driver program for Windows 3.0.

@A change to the DEVICE=QEMM386.SYS statement in the CONFIG.SYS file is
@***required*** for proper operation of Windows with QEMM on the L40 SX. Failure
@to make this change can cause unpredictable results.

Subtopics
D.3.1 Changing CONFIG.SYS File
D.3.2 Installing the Power Management Device Driver for QEMM 5.11 or Later

@D.3.1 Changing CONFIG.SYS File

@To change the DEVICE=QEMM386.SYS statement in the CONFIG.SYS file, do the
@following.

@**1.** Edit the file named CONFIG.SYS using an editor. CONFIG.SYS is in your
@ root subdirectory.

@**2.** Find in the CONFIG.SYS file the statement:

@ **DEVICE=QEMM386.SYS**

@**3.** Change it to:

@ **DEVICE=QEMM386.SYS X=B&zero.&zero.&zero.-B7FF**

@D.3.2 Installing the Power Management Device Driver for QEMM 5.11 or Later

@The power management device driver program for QEMM 5.11 or later is
@available. The program enables QEMM 5.11 or later to work properly with
@suspend and resume modes.

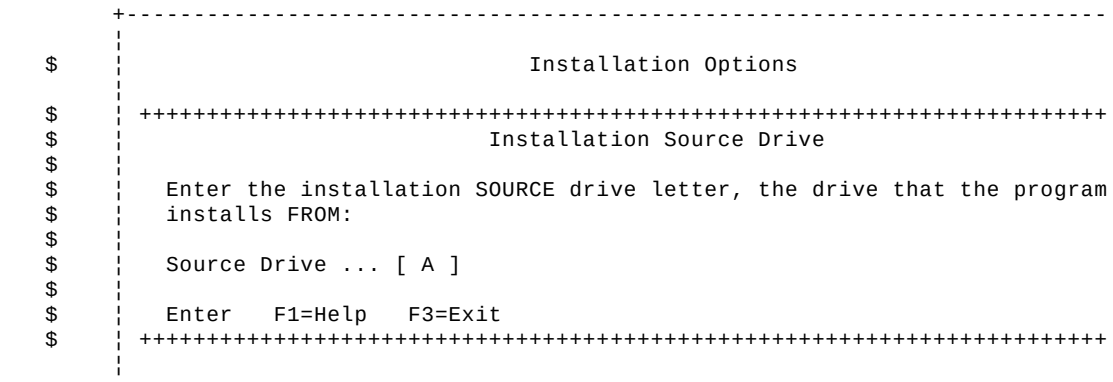
@Warning: Unpredictable results can occur when power is suspended and
@later resumed if this driver is not used.

@If you installed QEMM 5.11 or later, do the following to install the power
@management device driver program for it.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Additional DOS**
$ **Power Management (VCPI) Device Driver**. Press Enter. Follow the
$ instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

@D.4 Borland International Paradox 3.5

@You must configure Paradox to run with the IBM PS/2 Model L40 SX. Paradox
@provides a special script to configure Paradox to run with systems that it
@does not recognize called CUSTOM. *Failure to run the CUSTOM script will*
@cause your keyboard to lock up.

Subtopics
D.4.1 Customizing Paradox

@D.4.1 Customizing Paradox

@To customize Paradox, do the following.

@**1.** Start Paradox by typing:

@ **PARADOX CUSTOM -REAL**

@**2.** When the Paradox menu is displayed:

@ a. Select **Tune** and press Enter.

@ b. Select **ProtectedMode** and press Enter.

@ c. Select **Configure** and press Enter.

@ d. Follow the instructions displayed by Paradox.

@ **Note:** The keyboard will lock up. This is NORMAL. Turn the system
@ power off and start the process again. You must do this at
@ least twice. On the third attempt the CUSTOM script will run
@ to successful completion.

@**3.** While in the Custom script, set **AUTOSAVE** to **NO**. Select **DEFAULTS**, then
@ **AUTOSAVE**, then **NO**.

@ *This prevents damage to disk files when returning to resume mode on*
@ *the L40 SX.*

@**4.** Copy PARADOXK.EXE to a diskette for safe-keeping.

@ *This file can be restored if you reinstall Paradox and you will not*
@ *have to run the CUSTOM program again.*

@D.5 EMM386 in DOS 5.0

@The power management device driver program for EMM386 is available. The
@program enables an application that use EMM386 to work properly with
@suspend and resume modes.

@Warning: Unpredictable results can occur when power is suspended and
@later resumed if this driver is not used.

Subtopics
D.5.1 Installing the Power Management Device Driver for EMM386

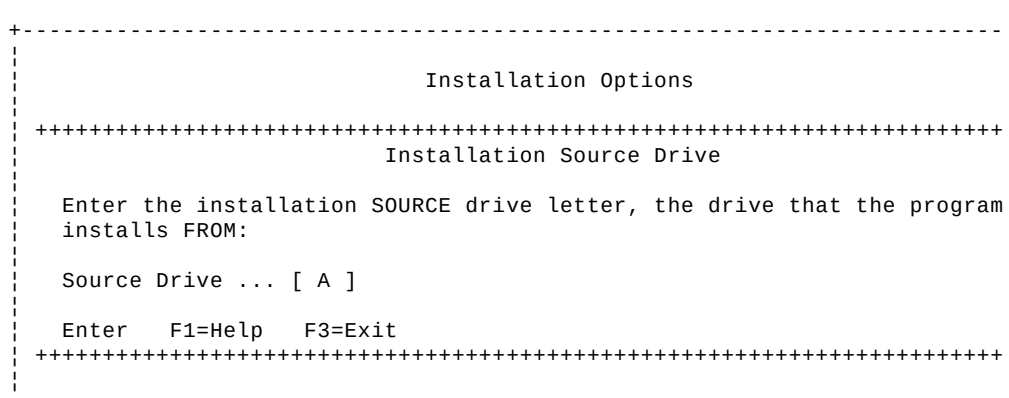
@D.5.1 Installing the Power Management Device Driver for EMM386

@If you install an application that uses EMM386, do the following to
@install the power management device driver program for them.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Additional DOS**
$ **Power Management (VCPI) Device Driver**. Press Enter. Follow the
$ instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

E.0 Appendix E. Utility Programs

This appendix introduces utility programs the Model L40 SX provides and describes how to use them.

This section contains:

Subtopics

#E.1 Disk Cache Program

#This section explains the SMARTDRV disk cache program and instructions for
#installing the program on your system. The program is contained in the
#Reference Diskette.

#The program can be used with IBM Disk Operating System (DOS), versions 3.3
#or 4.0 and is compatible with the advanced functions of your computer.

#+--- **To Install the Disk Cache Program** ----------------------------------+
  ¦   ¦
#¦ □   If you use **Windows 3.0** under **DOS 3.3**, **4.0**, or **5.0**, follow the ¦
#¦   instructions that are provided in "Microsoft Windows 3.0" in   ¦
#¦   topic D.2.   ¦
  ¦   ¦
#¦ □   If you use **DOS 3.3** or **4.0** but do not use Windows 3.0, follow the ¦
#¦   instructions that are provided in this section.   ¦
  ¦   ¦
#¦ □   If you use **DOS 5.0** but do not use Windows 3.0, follow the   ¦
#¦   instructions that came with DOS 5.0.   ¦
  ¦   ¦
 +--+

#The disk cache program can improve the performance of some application
#programs that repeatedly access the same data from the hard disk drive.
#The disk cache program stores this data in memory where it can be accessed
#more rapidly.

#To install the SMARTDRV disk cache program, continue with the instructions
#on the next page.

#+--- **Important** --+
  ¦   ¦
#¦ The design of the Model L40 SX incorporates some advanced   ¦
#¦ hard-disk-drive functions. IBM Disk Cache (IBMCACHE.SYS) is a disk   ¦
#¦ cache program provided with other IBM Personal System/2 computers. Do ¦
#¦ not use IBM Disk Cache, version 1.0, or any other version of IBM Disk ¦
#¦ Cache on your computer. IBM Disk Cache could reduce performance or   ¦
#¦ cause data to be lost.   ¦
  ¦   ¦
 +--+

 Subtopics
 E.1.1 Installing the SMARTDRV Driver
 E.1.2 Technical Information

#E.1.1 Installing the SMARTDRV Driver

Assumption

The following steps assume:

- You have installed DOS 3.3 or 4.0.
- You know how to copy files from the diskette drive to the hard disk drive.

1. Insert the backup copy of the Reference Diskette into the diskette drive.

2. At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

The following screen appears.

```
                              Installation Options

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           Installation Source Drive

   Enter the installation SOURCE drive letter, the drive that the program
   installs FROM:

   Source Drive ... [ A ]

   Enter   F1=Help   F3=Exit
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

3. Press Enter twice.

The screen for selection appears.

4. Using Down Arrow (□) or Up Arrow (□) select **Install Disk Cache Driver**. Press Enter. Follow the instructions on the screen.

5. Remove the backup copy of the Reference Diskette from the diskette drive.

Subtopics
E.1.1.1 If You Have Any Problems

#E.1.1.1 If You Have Any Problems

#If you have any problems installing or running this program or no longer
#want to use it, follow the steps below:

#**1.** With the DOS prompt on the screen (usually C:\>), type:

**CD **

and press Enter.

#**2.** Type:

COPY CONFIG.BAK CONFIG.SYS

and press Enter.

This will restore your original CONFIG.SYS file.

#**3.** Restart your computer. The disk cache program will no longer be
automatically loaded.

#E.1.2 Technical Information

#The following technical information is intended for experienced users and
#programmers who want to know more about the SMARTDRV disk cache program.

Subtopics
E.1.2.1 HIMEM.SYS
E.1.2.2 Format:
E.1.2.3 Note on Default Memory Allocation:
E.1.2.4 Examples:
E.1.2.5 SMARTDRV.SYS
E.1.2.6 Format:
E.1.2.7 Notes:
E.1.2.8 Examples:

#E.1.2.1 HIMEM.SYS

#This device driver manages the use of extended memory.

#The HIMEM.SYS device driver manages an application's use of extended
#memory and the high memory area (HMA). This prevents applications from
#simultaneously using the same area of memory. You install the HIMEM.SYS
#device driver by adding a DEVICE command for it in your CONFIG.SYS file.
#The DEVICE command for HIMEM.SYS must precede any DEVICE commands for
#applications or device drivers that use extended memory (such as
#SMARTDRV.SYS).

#E.1.2.2 Format:

#**DEVICE=DRIVE:PATH HIMEM.SYS**
#**[/Hmamin=m]**
#**[/Numhandles=n]**
#**[/Int15=*xxxx*]**
#**[/Machine:*xxxx*]**
#**[/A20control: ON** | **OFF]**
#**[/Shadowram: ON** | **OFF]**
#**[/Cpuclock: ON** | **OFF]**

#[/HMAMIN= ***m***]: **m** is the amount of memory (in kilobytes) an application #must use before HIMEM.SYS permits the program to use the HMA. The valid #range is 0 to 63. The default is 0.

#[/NUMHANDLES= ***n***]: **n** is the maximum number of extended-memory-block (EMB) #handles that can be used simultaneously. The valid range is 1 to 128. #The default is 32. Each additional handle requires an additional 6 bytes #of resident memory.

#[/INT15= ***xxxx***]: Allocates the specified amount of extended memory (in #kilobytes) for the Interrupt 15h interface. Some older applications use a #conflicting extended-memory scheme. To use memory allocated by this #parameter, applications must recognize VDisk headers. To ensure enough #memory is available, add 64 to the value you want to specify for **xxxx**. #The valid range is 64 to 65535. If you specify a value less than 64, it #is assumed to be 0. The default is 0.

#[/MACHINE: ***xx***]: Specifies an A20 handler to be used. An A20 handler is a #part of your computer that gives it access to the HMA.

#Typically, HIMEM.SYS detects which A20 handler is being used. You might #have to specify a value for this parameter if the A20 handler reports #problems or if you have problems using DOS in the HMA.

#The value for **xx** can be any of the following.

Code Assigned to A20 handler	**For Machine**
at | **1**	IBM AT
ps2 | **2**	IBM PS/2
at1 | **11**	IBM AT
at2 | **12**	IBM AT (alternative delay)
at3 | **13**	IBM AT (alternative delay)

#The default is **at** or **1**.

#[/A20CONTROL: ON | **OFF]**: Specifies whether HIMEM.SYS is to take control #of the A20 line even if A20 was ON when HIMEM.SYS was loaded. If you #specify OFF, HIMEM.SYS takes control of the A20 line only if A20 was Off #when HIMEM.SYS was loaded. The default is ON.

#[/SHADOWRAM: ON | **OFF]**: Specifies whether HIMEM.SYS is to switch off #shadow-RAM (random access memory) used for ROM (read-only memory) and add #that RAM to its memory pool. If your computer has less than 2 megabytes #of RAM, the default is OFF. This parameter is supported only on some #computers.

#[/CPUCLOCK: ON | **OFF]**: Specifies whether HIMEM.SYS is to affect the clock #speed of your computer. If the clock speed changes when you install #HIMEM.SYS, specifying ON might correct the problem. Specifying ON slows #down HIMEM.SYS. The default is ON.

#E.1.2.3 Note on Default Memory Allocation:

#Only one application can use the HMA at a time. If you omit the /HMAMIN=**m**
#parameter (or specify 0 for **m**), HIMEM.SYS reserves the HMA for the first
#application that requests it. HIMEM.SYS reserves the HMA for the first
#application that meets the memory requirements set by the /HMAMIN=**m**
#parameter. To ensure the most efficient use of the HMA, you should set **m**
#to the amount of memory required by the application that uses most of the
#HMA memory.

#E.1.2.4 Examples:

#To install HIMEM.SYS, using the default values, add the following line to
#the CONFIG.SYS file:

DEVICE=HIMEM.SYS

#Since no location is specified, DOS searches for HIMEM.SYS in the root
#directory of your startup drive.

#Suppose you want a program to use at least 40KB of memory before it has
#access to the HMA. To specify this and that HIMEM.SYS is located in the
#DOS directory of drive C, add the following line to the CONFIG.SYS file

DEVICE=C:\DOS\HIMEM.SYS /HMAMIN=40

#To install HIMEM.SYS and specify the A20 handler for the Model L40 SX, add
#either of the following lines to the CONFIG.SYS file:

DEVICE=HIMEM.SYS /MACHINE:PS2

#or

DEVICE=HIMEM.SYS /MACHINE:2

#E.1.2.5 SMARTDRV.SYS

#Creates a disk cache in extended or expanded memory. A disk cache can
#significantly speed up DOS disk operations. You can control the size of
#the SMARTDRV.SYS memory cache, and you can set up the disk cache expanded
#or extended memory.

#E.1.2.6 Format:

#**DEVICE=DRIVE:PATH SMARTDRV.SYS**
#**[*InitCacheSize*]**
#**[*MinCacheSize*]**
#**[/A]**

#[***InitCacheSize***]: Specifies the initial size (in kilobytes) of the memory #cache. The valid range is 128 to 8192. The default is 256.

#[***MinCacheSize***]: Specifies a minimum cache size (in kilobytes). Some #applications can reduce the cache size. If you specify no value, there is #no minimum cache size (that is, an application can reduce the cache size #to zero). This parameter is useful only if you are running Windows #version 3.0 or later.

#[/A]: Specifies that you want SMARTDRV.SYS to put the disk cache in #expanded memory. If you omit this parameter, SMARTDRV.SYS puts the cache #in extended memory.

#E.1.2.7 Notes:

#Specifying the Initial Memory Cache: SMARTDRV.SYS rounds the value you #specify for the **InitCacheSize** parameter to the nearest multiple of 16. If #you plan to run an application that uses expanded or extended memory, #specify a cache size that leaves enough memory for that application after #SMARTDRV.SYS is installed.

#If there is not enough memory to create a cache of the size you specify, #SMARTDRV.SYS creates a smaller cache, using the available memory.

#Using Extended Memory: For SMARTDRV.SYS to use extended memory, you must #first install HIMEM.SYS or other extended-memory manager that conforms to #the Lotus/Intel/Microsoft/AST (**) Extended Memory Specification (XMS). #In the CONFIG.SYS file, the DEVICE command that installs the #extended-memory manager must precede the DEVICE command that installs #SMARTDRV.SYS.

#Using Expanded Memory: For SMARTDRV.SYS to use expanded memory, you must #configure your system to provide expanded memory. In the CONFIG.SYS file, #the DEVICE command that installs the expanded-memory manager must precede #the DEVICE command that installs SMARTDRV.SYS. The expanded-memory #manager must conform to the Lotus/Intel/Microsoft Expanded Memory #Specification (LIM EMS). See Appendix C, "Installing the EMS Memory #Manager" in topic C.0.

#Using SMARTDRV.SYS: If you place the disk cache in extended memory, you #will probably have the best results.

#You Cannot Run the Disk Compaction Program: To avoid losing data, do not #run any disk-compaction program while SMARTDRV.SYS is loaded.

(**) AST is a trademark of Advanced Systems Technology.

#E.1.2.8 Examples:

#To create a disk cache in extended memory and set a cache size of 256KB
#(the default size), add the following line to the CONFIG.SYS file:

DEVICE=SMARTDRV.SYS

#Since no location is specified, DOS searches for SMARTDRV.SYS in the root
#directory of your startup drive.

#Suppose you want to create a disk cache in extended memory, allocate a
#cache size of 2048KB, and ensure that applications cannot reduce the size
#of the cache to less than 512KB. To do this and to specify that
#SMARTDRV.SYS is located in the DOS directory on drive C, add the following
#line to the CONFIG.SYS file:

DEVICE=C:\DOS\SMARTDRV.SYS 2048 512

#E.2 EXT_PWR.EXE

#This program detects what power source your computer is using, and returns
#two kinds of codes depending on the power sources. You can use the return
#codes as the conditions to manage the power usage.

#The following table shows the return codes associated with different power
#sources.

Power Source	**Return Code**
Power through the AC Adapter	**ERRORLEVEL 1**
Power through the Car Battery Adapter	**ERRORLEVEL 1**
Power through the AC Adapter with the Rechargeable Battery inserted	**ERRORLEVEL 1**
Power through the Car Battery Adapter with the Rechargeable Battery inserted	**ERRORLEVEL 1**
The Rechargeable Battery only	**ERRORLEVEL 0**

Subtopics
E.2.1 How to Use EXT_PWR.EXE
E.2.2 Sample Coding
E.2.3 Usage Note for OS/2

#E.2.1 How to Use EXT_PWR.EXE

#In a batch file you create or copy from a sample batch file:

#□ SETUPPWR.BAT for DOS
#□ SETUPPWR.CMD for OS/2

#you can use the return codes as conditions to call the sample batch
#programs, DEFAULT and TRAVEL. For DEFAULT and TRAVEL, see page 3.8.5.

#**Note:** You can use the function of this utility program in your

□ AUTOEXEC.BAT for DOS
□ STARTUP.CMD for OS/2.

#E.2.2 Sample Coding

```
#Note:  It is recommended that a subdirectory named L40SXUT be created on
#       the hard disk and the batch file you created be placed on the
#       subdirectory and the path to it be set.

#The following shows the contents of the SETUPPWR.CMD file.  This sample
#coding resets the operational features to the optimum rate of battery
#power consumption when the computer is operating only with the
#Rechargeable Battery; resets the operational features to the maximum rate
#of power when using the AC Adapter or the Car Battery Adapter.
```



```
#   @Echo off
#   EXT_PWR
#        If ERRORLEVEL 2 goto Error
#        If ERRORLEVEL 1 goto External_Power
#   rem  If ERRORLEVEL 0 goto Battery_Power
#   :Battery_Power
#        call TRAVEL
#        goto Done
#   :External_Power
#        call DEFAULT
#        goto Done
#   :Error
#        Echo  "Error on EXT_PWR.EXE"
#   :Done
```

#E.2.3 Usage Note for OS/2

#Because the program, EXT_PWR.EXE, accesses the system hardware, add the
#following line to the CONFIG.SYS file.

IOPL=YES

#Otherwise, accessing the system hardware results in an error condition
#(for example, SYS0197).

#E.3 Large Pointer Program

#This utility program allows you to change the pointer style from the
#standard type to one of two types: white large pointer and black large
#pointer. The utility programs both for OS/2 and Windows 3.0 are available
#on the Reference Diskette.

Subtopics
E.3.1 Installing the Large Pointer Program for OS/2
E.3.2 Installing the Large Pointer Program for Windows 3.0
E.3.3 Removing the Large Pointer Program for Windows 3.0

#E.3.1 Installing the Large Pointer Program for OS/2

#To install this program, follow the steps below.

#**1.** Insert the backup copy of the Reference Diskette into the drive.

#**2.** At the OS/2 prompt, type:

A:\LRGPTR2 /*style* /C:\L40SXUT

and press Enter.

Note: To select white large pointer, specify **1** for ***style***. To select
black large pointer, specify **2** for ***style***.

#**3.** Using a non-formatting text editor, in the CONFIG.SYS file, add
C:\L40SXUT to change the LIBPATH command line to read:

LIBPATH=C:\L40SXUT;C:\OS2\DLL;. . .

#**4.** Remove the backup copy of the Reference Diskette from the drive.

#**5.** Shut down then restart OS/2.

The pointer you selected is displayed.

#+--- **Changing the Pointer Style** --+
¦ ¦
#¦ To change the pointer style from the once installed type to the other ¦
#¦ type, do the following. ¦
¦ ¦
#¦ 1. Delete **C:\L40SXUT;** from the LIBPATH command line of the CONFIG.SYS ¦
#¦ file. ¦
¦ ¦
#¦ 2. Shut down then restart OS/2. ¦
¦ ¦
#¦ 3. Perform again the procedures for installing the large pointer ¦
#¦ program. ¦
¦ ¦
+---+

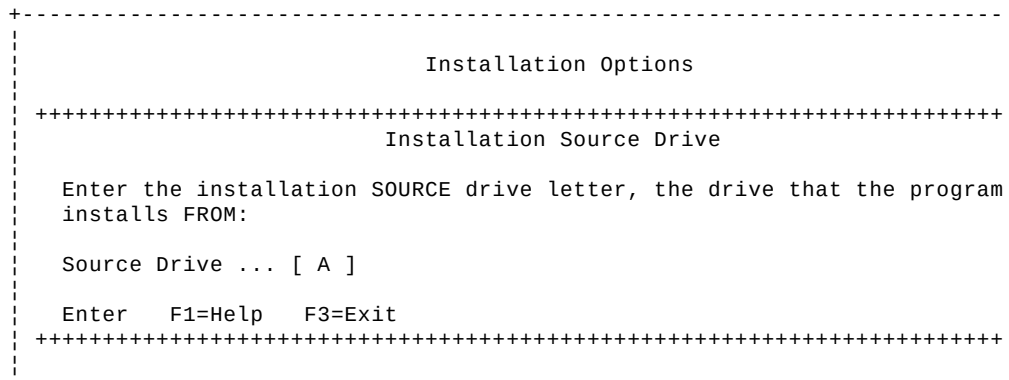
#E.3.2 Installing the Large Pointer Program for Windows 3.0

#To install this program, follow the steps below.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Large Pointer**
$ **Program for Windows**. Press Enter. Follow the instructions on the
$ screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

#**6.** Do you need to change the pointer style from the screen?

Yes Perform only step 8.

No Perform only step 7.

#**7.** Pull down the File menu and select **Run** in the Windows Program Manager.
Type on the RUN= line:

C:\L40SXUT\LRGPTR.EXE /S *style*

and press Enter. *The pointer you selected appears.*

Note: To select white large pointer, specify **1** for ***style***. To select
black large pointer, specify **2** for ***style***. To select standard
pointer, specify **0** for ***style***.

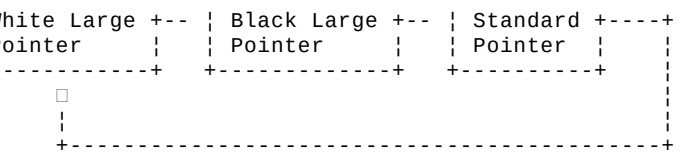
#**8.** Pull down the File menu and select **Run** in the Windows Program Manager.
Type on the RUN= line:

C:\L40SXUT\LRGPTR.EXE /S /I *style*

and press Enter.

Note: To select white large pointer, specify **1** for ***style***. To select
black large pointer, specify **2** for ***style***. To select standard
pointer, specify **0** for ***style***.

The pointer you selected appears and the pointer icon is displayed.
Each time you double-click on this icon, the pointer style changes as
shown below.



#E.3.3 Removing the Large Pointer Program for Windows 3.0

#To remove the large pointer program once installed, follow the steps
#below.

#**1.** Using a non-formatting text editor, scroll through the WIN.INI file to
find the section with the header: **[Windows]**.

#**2.** Find either of the the following lines:

run=C:\L40SXUT\LRGPTR.EXE
load=C:\L40SXUT\LRGPTR.EXE

#**3.** Delete **C:\L40SXUT\LRGPTR.EXE** from the line to read:

run=
or
load=

#**4.** Save the file. Restart the system.

#E.4 Hot Key Program

#This utility program provides a conventional way to change operational
#features outside the Set Features Main Menu. The utility programs for
#DOS, OS/2, and Windows 3.0 enhanced mode are available on the Reference
#Diskette.

#Using the utility program, you can define an alphabetic key (*A* through *Z*)
#as a key that calls an operational feature when pressed while holding down
#Ctrl+Alt. Available operational features vary depending on an operating
#system. To see them on the screen, press F1 twice from the menu for
#defining hot keys.

Subtopics
E.4.1 Installing the Hot Key Program for DOS
E.4.2 Installing the Hot Key Program for OS/2
E.4.3 Installing the Hot Key Program for Windows 3.0 Enhanced Mode

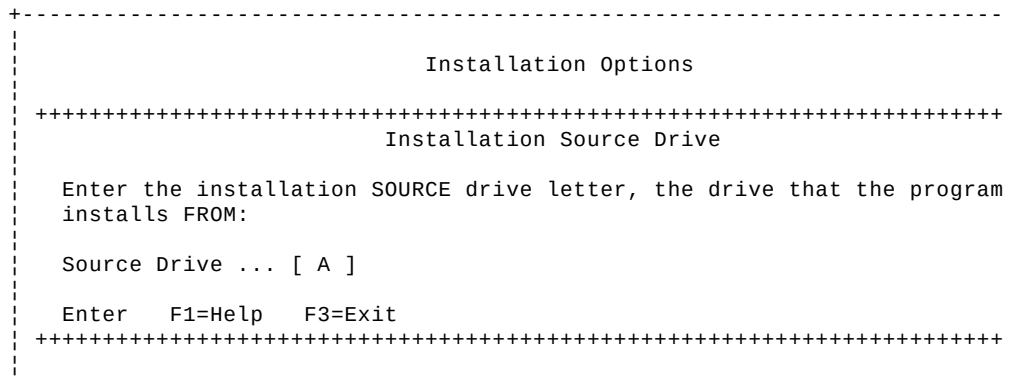
#E.4.1 Installing the Hot Key Program for DOS

#To install this program, follow the steps below.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Hot Key Main**
$ **Program**. Press Enter. Follow the instructions on the screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

#**6.** Type:

C:\L40SXUT\L40SXHK /MENU

and press Enter. *The menu for defining hot keys appears.*

#**7.** Define hot keys for desired functions by following the instructions on
the menu. Then press F10 to save your definitions.

#E.4.2 Installing the Hot Key Program for OS/2

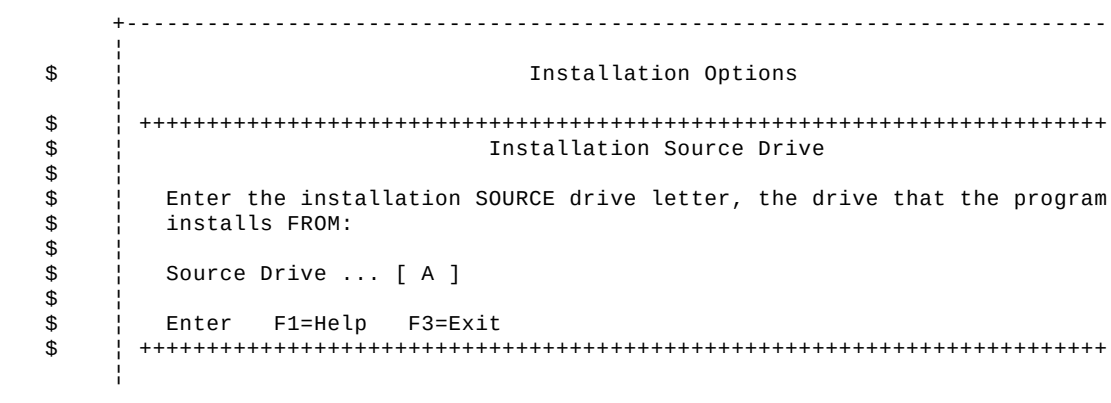
#+--- **To Use the Hot Key Utility** ----------+
#¦ To use the hot key utility: ¦
#¦ □ The power management device driver program for OS/2 must have been ¦
#¦ installed. ¦
#¦ □ The DOS compatibility box must have been configured. ¦
#¦ For the power management device driver program for OS/2, see page ¦
#¦ D.1.1. ¦
+---------+

#To install the program, follow the steps below.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the prompt on the DOS compatibility box, type **A:UINSTALL** and press
$ Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Hot Key Main**
$ **Program**. Press Enter. Follow the instructions on the screen.

$**5.** Return to the screen for selection. Using Down Arrow (□) or Up Arrow
$ (□) select **Install Hot Key Program OS/2 Extension**. Press Enter.
$ Follow the instructions on the screen.

$**6.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

$**7.** Press F3 to exit from the screen for selection.

$**8.** Type:

C:\L40SXUT\L40SXHK /MENU

and press Enter. *The menu for defining hot keys appears.*

#**9.** Define hot keys for desired functions by following the instructions on
the menu. Then press F10 to save your definitions.

#**10.** Shut down then restart OS/2.

#**Notes:**

#1. Only the left Ctrl and left Alt keys are available.

#2. Do not define an alphabetic key as a hot key if it is already assigned
a function by an application. Otherwise, pressing the key while
holding down the left Ctrl and left Alt keys will perform both
functions: first the function defined by the application, and then the
function defined by the hot key program.

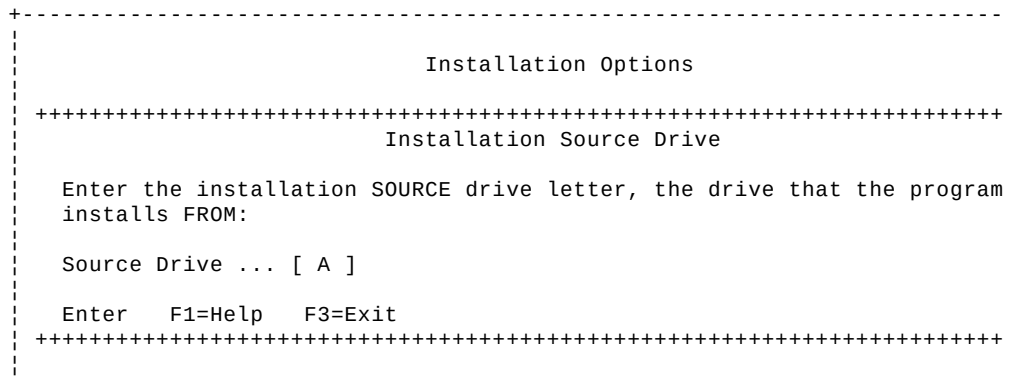
#E.4.3 Installing the Hot Key Program for Windows 3.0 Enhanced Mode

#To install this program, follow the steps below.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Hot Key Main**
$ **Program**. Press Enter. Follow the instructions on the screen.

$**5.** Return to the screen for selection. Using Down Arrow (□) or Up Arrow
$ (□) select **Install Hot Key Program Windows Extension**. Press Enter.
$ Follow the instructions on the screen.

$**6.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

$**7.** Press F3 to exit from the screen for selection.

#**8.** Type:

C:\L40SXUT\L40SXHK /MENU

and press Enter. *The menu for defining hot keys appears.*

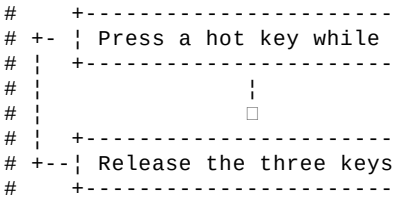
#**9.** Define hot keys for desired functions by following the instructions on
the menu. Then press F10 to save your definitions.

#**10.** Shut down then restart Windows.

#**Notes:**

#1. Whenever you changed any hot key definition, you need to restart
Windows to use the new definition.

#2. To call more than one operational feature, do not continuously press
hot keys while holding down Ctrl+Alt. Release three keys (Ctrl+Alt+a
hot key) and then press the next hot key while holding Ctrl+Alt as
shown below.



#E.5 Parallel Connector Setup Program

#After POR (power-on reset), by default, the parallel connector of the
#Model L40 SX is set to extended mode that allows bidirectional input and
#output. However, some parallel devices do not work in extended mode. The
#parallel connector setup program resets extended mode so such parallel
#devices can work. The programs both for DOS and OS/2 are available on the
#Reference Diskette.

Subtopics
E.5.1 Installing the Parallel Connector Setup Program for DOS
E.5.2 Installing the Parallel Connector Setup Program for OS/2

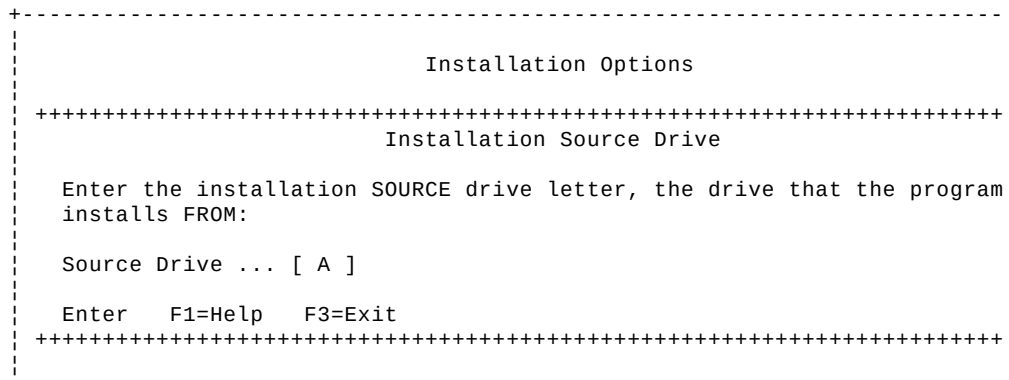
#E.5.1 Installing the Parallel Connector Setup Program for DOS

#To install this program, follow the steps below.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the DOS prompt (usually C:\>), type **A:UINSTALL** and press Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Parallel Connector**
$ **Setup Program for DOS**. Press Enter. Follow the instructions on the
$ screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.

#E.5.2 Installing the Parallel Connector Setup Program for OS/2

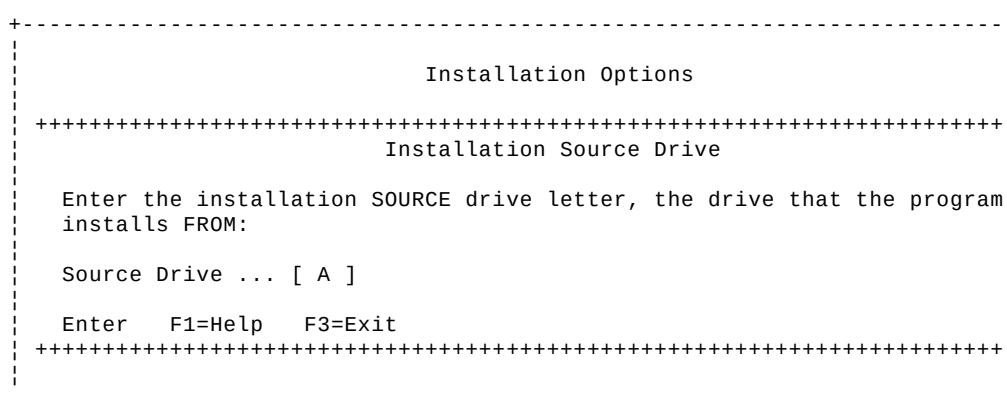
#To install this program, follow the steps below.

#**Note:** Make sure that the DOS compatibility box has been configured.

$**1.** Insert the backup copy of the Reference Diskette into the diskette
$ drive.

$**2.** At the prompt on the DOS compatibility box, type **A:UINSTALL** and press
$ Enter.

$ The following screen appears.



$**3.** Press Enter twice.

$ The screen for selection appears.

$**4.** Using Down Arrow (□) or Up Arrow (□) select **Install Parallel Connector**
$ **Setup Program for OS/2**. Press Enter. Follow the instructions on the
$ screen.

$**5.** Remove the backup copy of the Reference Diskette from the diskette
$ drive.