

FRONT

PICTURE 1

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Part Number 10G6609

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*EDITION Edition Notice*  
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Refer to the *Hardware Maintenance Reference General Information pamphlet* for the following safety information:

- General Safety*
- Electrical Safety.*

**First Edition (March 1992)**

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Subtopics

FRONT\_1.1 General IBM Electro-Static Discharge (ESD) Instructions

*FRONT\_1.1 General IBM Electro-Static Discharge (ESD) Instructions*

These are general instructions for handling ESD sensitive parts. Any part containing transistors or ICs should be considered ESD Sensitive. Use *product specific ESD procedures when they exceed the requirements noted here*. ESD damage can occur when there is a difference in charge between objects. We can protect against ESD damage, by equalizing the charge so that the machine, the part, the work mat and the person handling the part are all at the same charge. Ground is desirable but not required to protect against ESD damage. The wrist band must be worn against the skin. The grounding cord system should be selected to provide protection for the specific service requirement. If an ESD sensitive part is swapped, the mat must be used to provide an ESD safe work surface to protect the part removed from the product. The mat may not be required for a simple insertion. The mat may be used as a ESD protective container for swapping parts between machines. The mat should be used with the BLACK side up.

The ESD ground clip can be attached to any frame ground, ground braid or green wire ground. For products that are double insulated, or battery operated, an ESD common ground or reference point should be used. The round ground prong on the AC plug, can be used on AC operated products. Coax or connector outside shells can be used on double insulated or battery operated products.

ESD sensitive parts must not touch any part of your clothing. Most clothing is insulative and retains a charge *even when you are wearing a wrist strap*. Avoid contact with other people when handling ESD sensitive parts. Keep ESD sensitive parts in protective packages until they are inserted into the product.

CONTENTS Table of Contents

EDITION	Edition Notice
FRONT_1	Notices
FRONT_1.1	General IBM Electro-Static Discharge (ESD) Instructions
CONTENTS	Table of Contents
1.0	Product Description
1.1	Security
1.1.1	Power-On Password
1.2	System-Board Features
1.2.1	Microprocessor
1.2.2	CMOS RAM
1.2.3	ROM BIOS
1.2.4	Display Connectors
1.2.5	Serial Port
1.2.6	Parallel Port
1.2.7	Diskette-Drive Controller
1.2.8	Hard-Disk-Drive Connector
1.2.9	Keyboard Connector and Pointing-Device Connector
2.0	Option Compatibility
2.1	Incompatible Adapters
2.2	Hard Disk and Diskette Drives
2.3	Terminators
2.4	Drive and Diskette Compatibility
3.0	Operating Requirements
3.1	Power Supply
3.2	Power-On Self-Test (POST)
3.3	System Memory
4.0	Specifications
5.0	Special Tools
6.0	Removals and Replacements
6.1	1000 Cover
6.2	1010 Top, Side, and Rear Cover
6.3	1015 Diskette Drive
6.4	1017 Hard Disk Drive (Integrated Adapter)
6.5	1020 Adapters
6.6	1025 Bus Adapter and Bracket
6.7	1035 Display Assembly
6.8	1040 Memory Module Kits
6.9	1045 Math Coprocessor
6.10	1047 Clock Battery
6.11	1050 System Board
6.12	1053 Bracket
6.13	1055 Front Bezel
6.14	1060 Tilt Assembly
6.15	1065 Base Frame Assembly
6.16	1070 Diskette-Drive Bezel and Blank Bezel
6.17	1073 Hard-Disk Bezel and Keylock
6.18	1075 Diskette-Drive Cable
6.19	1077 Hard-Disk Drive Signal Cable
6.20	1078 Hard-Disk Drive Power Cable
7.0	Locations
7.1	Front View
7.2	Rear View
7.3	Interior View (Part 1 of 2)
7.4	Interior View (Part 2 of 2)
7.5	System Board
7.6	Diskette-Drive Cable
7.7	Hard-Disk Drive Signal Cable
7.8	Hard-Disk Drive Power Cable
8.0	Grounds

## 1.0 Product Description

The features of the IBM(\*) Personal System/2(\*) Model 25 SX are:

- Security: Power-on password, and keyboard password.
- System board:
  - 16-MHz 80386SX Microprocessor
  - 80387SX Math Coprocessor socket
  - 1MB random access memory soldered to the system board on model K00, expandable to 9MB on the system board and 16MB in the system
  - 4MB random access memory soldered to the system board on all other models, expandable to 12MB on the system board and 16MB in the system
  - 64 bytes of complementary metal-oxide semiconductor random access memory (CMOS RAM)
  - Read-only memory basic input/output system (ROM BIOS)
  - One internal display connector
  - One external display port (except model K00)
  - Bus adapter with two 16-bit expansion slots (one full-size, one half-size)
  - Serial port
  - Parallel port
  - Diskette-drive controller
  - Keyboard connector
  - Pointing-device connector
  - Hard-disk-drive (fixed disk drive) connector.
- 124 watt power supply, manually switchable for 100-125 V ac or 200-240 V ac, 50 or 60 Hz
- Beeper
- Choice of 84- or 101-key non-removeable key-cap keyboard
- Keyboard cable
- Mouse
- Two DASD bays
- Ethernet or Token-Ring adapter (except model K00)
- DOS 5.0 or later.

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### Subtopics

1.1 Security

1.2 System-Board Features

1.1 Security

Subtopics

1.1.1 Power-On Password

### 1.1.1 Power-On Password

A power-on password denies access to the system when the system is powered-on. To service a system with an active and *unknown* power-on password, power-off the system and do the following:

- See page 7.5 for the password-override connector location (J2) on the system board.
- Note the position of the jumper. If the jumper covers the first and second pins, move it so that it covers the second and third pins. If the jumper covers the second and third pins, move it so that it covers the first and second pins. To move the jumper, lift it straight up.

**Note:** After you have moved the jumper to the new position, leave it in that position until the next time you need to reset the password.

To reactivate the power-on password, the user must start the system with the starter diskette inserted, select the **Set features** option from the main menu, and follow the instructions.

## 1.2 System-Board Features

The major features of the system board are:

- 80386SX microprocessor
- CMOS RAM
- Internal display connector
- External display port (except model K00)
- Serial port
- Parallel port
- Keyboard connector
- Diskette-drive controller
- Pointing-device (mouse) connector.

### Subtopics

- 1.2.1 Microprocessor
- 1.2.2 CMOS RAM
- 1.2.3 ROM BIOS
- 1.2.4 Display Connectors
- 1.2.5 Serial Port
- 1.2.6 Parallel Port
- 1.2.7 Diskette-Drive Controller
- 1.2.8 Hard-Disk-Drive Connector
- 1.2.9 Keyboard Connector and Pointing-Device Connector

*1.2.1 Microprocessor*

The microprocessor interprets and carries out instructions. The 80386SX Microprocessor is a 32-bit processor with a 16-bit external data bus and a 24-bit external address bus. It operates in two modes: real-address and virtual-address (protected) mode. The processor speed is 16 MHz.

1.2.2 CMOS RAM

The CMOS RAM provides 64 bytes of storage. The real-time clock uses the first 14 bytes to track the date, time, and battery level. The remaining 50 bytes are used to store system-configuration and security information.

The data stored in CMOS RAM is kept active by the clock battery when the system is powered-off. If the stored data is lost due to a depleted battery, the data can be restored by starting the starter diskette to allow the automatic configuration program to run. The data also can be restored by using the restore configuration program on the user's backup copy of the starter diskette.

1.2.3 ROM BIOS

ROM BIOS contains the instructions and routines that control the keyboard, diskette drives, hard disk drive, displays, and other major input/output devices in the system. Some adapters have their own ROM modules containing extended BIOS routines that work with the system board ROM BIOS. The routines for performing the power-on self-test (POST) are also contained in the ROM BIOS.

#### 1.2.4 Display Connectors

One internal display connector and one external display port are on the system board. (Model K00 has only the internal display connector.) The controller supports color and monochrome analog direct-drive displays in a variety of modes, including alphanumeric text mode and all-points-addressable (APA) graphics mode.

The controller supports a maximum of 720 x 400 picture elements (PELs) in the text mode and a maximum of 640 x 480 PELs in graphics mode. Up to 256 colors or 64 shades of gray can be used at one time. The 3278-compatibility modes 2, 3, 4, and 5 are supported; composite video is not supported.

#### 1.2.5 Serial Port

The serial port is fully programmable and supports asynchronous communications. The 25-pin, D-shell connector provides the signals to drive a device with a standard 25-contact, RS-232 connector. The connected device is identified (addressed) by the system configuration as either Serial 1 (primary) or Serial 2 (alternate).

If an adapter with a serial port is installed in the system, it should be set to Serial 2.

**Note:** Conflicts occur when using multiple communication ports if two or more ports are addressed the same. Select the **Set configuration** option on the starter diskette. Select **View configuration** to verify that no conflict exists.

### 1.2.6 Parallel Port

The parallel port allows the attachment of devices that accept eight bits of parallel data at standard transistor-transistor-logic (TTL) levels. The port has a 25-pin, D-shell connector and is designed primarily for printers. However, the port can be used as a general input/output port for any device or application that matches its input/output capabilities. The connected device is identified (addressed) by the system configuration as Parallel 1, Parallel 2, or Parallel 3.

When an adapter with an additional parallel port is installed, it should be set as Parallel 2. The system can support two different devices, each addressed separately.

**Note:** Conflicts occur when using multiple communication ports if two or more ports are addressed the same. Select the **Set configuration** option on the starter diskette. Select **View configuration** to verify that no conflict exists.

1.2.7 *Diskette-Drive Controller*

The controller connects to the diskette drives through a single 40-pin connector on the system board. The signals and voltages are supplied through the diskette-drive cable that plugs into the drive connector. Up to two media-sense diskette drives can be supported.

*1.2.8 Hard-Disk-Drive Connector*

The hard disk drive is connected to the system board through a single 40-pin connector. Signals are supplied through the cable that plugs into the drive connector. (Voltages are supplied on a separate power cable.) One AT-integrated-controller hard disk drive is supported.

*1.2.9 Keyboard Connector and Pointing-Device Connector*

The two 6-pin connectors at the rear of the system board are for connecting a keyboard and a pointing device (mouse). The keyboard connector is marked with a k; the mouse connector is marked with an m. The interface logic does not allow the keyboard and the pointing device to be interchanged.

2.0 Option Compatibility

Subtopics

- 2.1 Incompatible Adapters
- 2.2 Hard Disk and Diskette Drives
- 2.3 Terminators
- 2.4 Drive and Diskette Compatibility

### 2.1 Incompatible Adapters

Certain adapters are not compatible when used in the same system. If one of the following adapters is installed, the other adapter may not be installed in the same system unit:

- Synchronous Data Link Control (SDLC) Communications Adapter
- 3278/3279 Emulation Adapter.

Problems can occur in the system when adapters share the same interrupt level. Check the adapter interrupt levels to ensure that they do not conflict. If the adapters have selectable interrupt levels, verify that the jumpers on the adapters are not set for the same level.

Some option adapters are not supported by the Model 25 SX. Supported option adapters are listed in the parts section of the *Model 25 SX Hardware Maintenance Service* pamphlet.

*2.2 Hard Disk and Diskette Drives*

The Model 25 SX supports only media-sense internal 3.5-inch diskette drives.

The Model 25 SX supports one 1.44MB 3.5-inch drive and one 3.5-inch hard disk drive, or two 1.44MB 3.5-inch diskette drives.

2.3 Terminators

Terminators are not required for the drives used in the Model 25 SX.

2.4 Drive and Diskette Compatibility

The following provides information concerning the identification of 3.5-inch diskette drives.

Diskette Drive	Identifying Mark
3.5-Inch - 1.44MB	1.44 on the Eject Button

The following addresses the compatibility of 3.5-inch diskettes to 3.5-inch diskette drives.

Diskette Capacity	1.44MB Drive
1.0MB	Read/Write
2.0MB	Read/Write

For additional information, see "Diskette Drives and Diskettes" in the *IBM Personal System/2 Hardware Maintenance Reference General Information* pamphlet.

### 3.0 *Operating Requirements*

This section describes the operations that occur from the time the system is powered-on until the minimum operating requirements have been met.

#### Subtopics

3.1 Power Supply

3.2 Power-On Self-Test (POST)

3.3 System Memory

### 3.1 Power Supply

The manually-switchable power supply must be switched to either the 100-125 V ac or the 200-240 V ac range *before* the power cord is plugged into an outlet. The ac input is converted to dc outputs that supply the system with the proper operating voltages.

When the system is powered-off and then powered-on, the power supply generates a 'power good' signal that resets system logic. The presence of the 'power good' signal indicates that the power supply is operating properly.

The 'power good' signal turns on the green power good light on the front of the system unit, indicating that all system-board power requirements have been met.

**Note:** There may be a 3 to 5 second delay before output voltages are generated after power-on, due to system sequencing requirements.

### 3.2 Power-On Self-Test (POST)

The POST, which is initiated automatically each time the system is powered on, is a series of system checks and initializations that verify the correct operation of the system unit.

The POST tests only those areas that allow the system to be operational enough to run advanced diagnostics. It detects two types of errors: critical and noncritical.

*Critical errors* prevent the system from operating or can cause incorrect results that are apparent to the user. Examples of critical errors include microprocessor or interrupt-controller errors. If the POST detects a critical error, the microprocessor attempts to display the error and all testing stops.

*Noncritical errors* cause incorrect results that might not be apparent to the user. An example of a noncritical error would be a serial communication failure. If the POST detects a noncritical error, the microprocessor attempts to display the error. Pressing the F1 key allows the diskette to be loaded or the operating system to be initialized.

After a successful POST, one short beep occurs. Control is then given to a BIOS routine called the system bootstrap loader. The bootstrap loader attempts to load an operating system or a program from either a diskette or the hard disk drive. If neither is present in the system, the Insert Diskette icon is displayed (see the *IBM Personal System/2 Non Micro Channel Diagnostics* pamphlet). This icon indicates that a self-starting (bootable) diskette should be inserted into one of the drives in the startup sequence. After the diskette is inserted, press the F1 key to resume operation. If the F1 key is pressed with no diskette in the diskette drive, the IBM BASIC screen appears (unless BASIC has been removed from the startup sequence).

### 3.3 System Memory

The Model 25 SX K00 has at least 1MB of memory installed at the time of shipment. All other Model 25 SXs have at least 4MB of memory installed at the time of shipment. One additional 1, 2, 4, or 8MB memory-module kit can be installed in the memory-module connector on the system board providing a maximum system-board memory capacity of 9MB or 12MB depending on the system's minimum memory. Maximum usable system memory is 16MB.

When memory is added to or removed from the system, run **Set configuration** on the starter diskette.

If the POST detects an error in the first 512KB of system-board memory, the first 1MB block of system-board memory is deactivated to bypass the critical system-halting error path so that the diagnostic diskette can be run. The following sequence occurs:

If an additional 1MB of system-board memory is installed, the addresses assigned to the deactivated block are reassigned to the second block of system-board memory.  
If additional system-board memory is not installed, no address reassignment occurs and an error code is displayed.  
The first 512KB of memory address space cannot be assigned to adapter memory.

If the POST detects a memory error in any memory after the first good 512KB of system-board memory, the 1MB block of memory is not deactivated and an error code is displayed.

#### 4.0 Specifications

##### Size

- Width: 319 mm (12.5 in.)
- Depth: 375 mm (14.7 in.)
- Height: 384 mm (15.1 in.).

##### Weight

- Maximum configuration: 16.8 kg (37 lb).

##### Environment

- Temperature:
  - Power on: 10° to 35°C (50° to 95°F)
  - Power off: 10° to 43°C (50° to 110°F).
- Humidity:
  - Power on: 8% to 80%
  - Power off: 8% to 80%.
- Maximum altitude: 2134 m (7000 ft).

##### Heat Output (Approximate)

- Minimum (as shipped by IBM): 44.9 British thermal units (BTUs) per hour (131 watts)
- Maximum: 570 BTUs per hour (166 watts).

##### Electrical

- Input Voltage - Sinewave input (50 or 60 Hz)
  - Low Range:
    - Minimum: 90 V ac
    - Maximum: 137 V ac.
  - High Range:
    - Minimum: 180 V ac
    - Maximum: 265 V ac.
- Input kilovolt-amperes (kVA) (Approximate)
  - Configuration as shipped from IBM: 0.25 kVA
  - Maximum Configuration: 0.35 kVA.

5.0 Special Tools

The following special tools are required to service the Model 25 SX.

**Volt-Ohm Meter**

A meter similar to the Triplet Model 310. (1)

**Wrap Plug**

Use the Tri-Connector wrap plug (IBM part 72X8546) during advanced diagnostic tests of serial and parallel ports.

PICTURE 2

(1) Manufactured by Triplet Corporation, Bluffton, Ohio 45817,  
U.S.A.

## 6.0 Removals and Replacements

This section contains information on removals and replacements, component locations, and system grounding.

The arrows in the figures in this section show the direction of movement to remove a field replaceable unit (FRU), to turn a screw, or to press a tab to release a FRU. The arrows are marked in numeric order to show the correct sequence of removal.

When other FRUs must be removed prior to removing the failing FRU, they are listed at the top of the page. Go to the removal procedure for each FRU listed, remove the FRU, then continue with the removal of the failing FRU.

To replace a FRU, reverse the removal procedure and follow any notes that pertain to replacement.

### CAUTION:

Before removing any FRU, power-off the system, unplug all power cords from electrical outlets, and disconnect any interconnecting cables.

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching system boards, adapters, math coprocessors, memory module kits, diskette drives, or hard disk drives.

### Subtopics

- 6.1 1000 Cover
- 6.2 1010 Top, Side, and Rear Cover
- 6.3 1015 Diskette Drive
- 6.4 1017 Hard Disk Drive (Integrated Adapter)
- 6.5 1020 Adapters
- 6.6 1025 Bus Adapter and Bracket
- 6.7 1035 Display Assembly
- 6.8 1040 Memory Module Kits
- 6.9 1045 Math Coprocessor
- 6.10 1047 Clock Battery
- 6.11 1050 System Board
- 6.12 1053 Bracket
- 6.13 1055 Front Bezel
- 6.14 1060 Tilt Assembly
- 6.15 1065 Base Frame Assembly
- 6.16 1070 Diskette-Drive Bezel and Blank Bezel
- 6.17 1073 Hard-Disk Bezel and Keylock
- 6.18 1075 Diskette-Drive Cable
- 6.19 1077 Hard-Disk Drive Signal Cable
- 6.20 1078 Hard-Disk Drive Power Cable

6.1 1000 Cover

**CAUTION:**

Before removing any field replaceable unit (FRU), power-off the system, unplug all power cords from their electrical outlets, and disconnect any interconnecting cables.

**Notes:**

1. If the keylock is installed, turn the key to the unlocked position, and remove the key. Damage to the system unit or keylock occurs if the keylock is locked and the cover is opened forcibly.
2. To prevent cable strain, remove the cable from the cable clamp 4 before fully opening the tilt assembly.

PICTURE 3

6.2 1010 Top, Side, and Rear Cover

- Cover (1000)
- Base Frame Assembly (1065)

**Note:** Do not remove secondary FRUs listed in the base frame assembly (1065). Unplug all display assembly cables from the system board.

PICTURE 4

PICTURE 5

6.3 1015 Diskette Drive

- Tilt Assembly (1060)
- Base Frame Assembly (1065)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching the diskette drive.

Do not remove secondary FRUs listed in base frame assembly (1065). Unplug all display assembly cables from the system board.

**Notes:**

1. The connector key on this cable (step 1) **must be** connected in only one way (connector-key down).
2. Diskette drive B is shown for screw location (step 2), the screw shown in step 3 is for diskette drive A only.

PICTURE 6

6.4 1017 Hard Disk Drive (Integrated Adapter)

- Tilt Assembly (1060)
- Base Frame Assembly (1065)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching the hard disk drive.

**Note:** Do not remove secondary FRUs listed in base frame assembly (1065).  
Unplug all display assembly cables from the system board.

PICTURE 7

6.5 1020 Adapters

Cover (1000)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching any adapter.

PICTURE 8

6.6 1025 Bus Adapter and Bracket

□ Adapters (1020)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching the system board or any adapters.

PICTURE 9

6.7 1035 Display Assembly

DANGER

```
+-----+
| This unit contains electrical shock hazards; do not attempt to remove |
| the display assembly cover.                                           |
+-----+
```

CAUTION:

Before removing any field replaceable unit (FRU), power-off the system, unplug all power cords from their electrical outlets, and disconnect any interconnecting cables.

- Cover (1000)
- Top, Side, and Rear Cover (1010)
- Front Bezel (1055) (Do not remove drive and blank bezels.)

PICTURE 10

6.8 1040 Memory Module Kits

- Cover (1000)
- Adapters (1020)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching memory module kits.

PICTURE 11

6.9 1045 Math Coprocessor

□ Cover (1000)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching the math coprocessor. The math coprocessor can be damaged by electrostatic discharge. Remove the math coprocessor carefully.

**Note:** The Model 25 SX uses a 16-MHz 80387SX Math Coprocessor. When replacing the math coprocessor, make sure the dot or dimple on the coprocessor is aligned with the beveled corner of the connector. (From the front of the system, the bevel is on the front left corner.)

PICTURE 12

6.10 1047 Clock Battery

CAUTION:

The lithium battery presents a fire, explosion, or severe burn risk. Do not recharge it, disassemble it, heat it above 100°C (212°F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. When replacing the battery, use only Part No. 33F8354. Use of another battery could result in ignition or explosion of the battery. Replacement batteries can be ordered from IBM or IBM Authorized Dealers.

**Note:** After you replace the battery, run **Set configuration** from the starter diskette.

- Cover (1000)
- Adapters (1020)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching system boards, adapters, math coprocessors, memory module kits, diskette drives, or hard disk drives.

PICTURE 13

6.11 1050 System Board

**Notes:**

1. Disconnect all cables from the system board.
2. When installing the system board, do not tighten screws until the bus adapter and bracket are installed.

- Adapters (1020)
- Bus Adapter and Bracket (1025)
- Memory Module Kits (1040)
- Math Coprocessor (1045)
- Bracket (1053)

Warning: Follow "General IBM Electro-Static Discharge (ESD) Instructions" in topic FRONT\_1.1 before touching the system board.

PICTURE 14

6.12 1053 Bracket

□ Cover (1000)

PICTURE 15

6.13 1055 Front Bezel

- Top, Side, and Rear Cover (1010)
- Diskette-Drive and Blank Bezels (1070)
- Hard-Disk Bezel and Keylock (1073)

PICTURE 16

6.14 1060 Tilt Assembly

PICTURE 17

**Note:** Remove the shield behind the tilt assembly.

6.15 1065 Base Frame Assembly

- Cover (1000)
- Diskette Drive (1015)
- Hard Disk Drive (1017)
- Diskette-Drive Cable (1075)
- System Board (1050)

**Note:** Squeeze and twist base-to-cover retainer 1 .

PICTURE 18

6.16 1070 Diskette-Drive Bezel and Blank Bezel

- Base Frame Assembly (1065)

**Note:** Do not remove secondary FRUs listed in the base frame assembly (1065). Unplug all display assembly cables from the system board.

PICTURE 19

6.17 1073 Hard-Disk Bezel and Keylock

Base Frame Assembly (1065)

**Note:** Do not remove secondary FRUs listed in the base frame assembly (1065). Unplug all display assembly cables from the system board.

PICTURE 20

6.18 1075 Diskette-Drive Cable

- Tilt Assembly (1060)
- Unplug the cable 1 from J11 on the system board.
- Feed the cable into the base frame assembly.
- Unplug the cable 2 from the diskette drive.

PICTURE 21

6.19 1077 Hard-Disk Drive Signal Cable

- Tilt Assembly (1060)
- Cover (1000)
- Bracket (1053)
- Unplug the cable 1 from J10 on the system board.
- Feed the cable into the base frame assembly.
- Unplug the cable 2 from the hard disk drive.

PICTURE 22

6.20 1078 Hard-Disk Drive Power Cable

- Tilt Assembly (1060)
- Cover (1000)
- Bracket (1053)
- Unplug the cable 1 from the system board.
- Feed the cable into the base frame assembly.
- Unplug the cable 2 from the hard disk drive.

PICTURE 23

7.0 Locations

Subtopics

- 7.1 Front View
- 7.2 Rear View
- 7.3 Interior View (Part 1 of 2)
- 7.4 Interior View (Part 2 of 2)
- 7.5 System Board
- 7.6 Diskette-Drive Cable
- 7.7 Hard-Disk Drive Signal Cable
- 7.8 Hard-Disk Drive Power Cable

7.1 Front View

- 1 Display
- 2 Diskette drive A
- 3 Diskette-eject button
- 4 Display-brightness control
- 5 Diskette drive B or hard disk drive C
- 6 Display-contrast control
- 7 Keylock (hard disk drive only)
- 8 Power switch
- 9 Power-on indicator

PICTURE 24

7.2 Rear View

- 1 Tilt handle
- 2 Voltage-selector switch
- 3 Power connector
- 4 Ethernet connector
- 5 External display port
- 6 Serial port
- 7 Keyboard connector
- 8 Pointing-device connector
- 9 Parallel port
- 10 Expansion slots

PICTURE 25

7.3 Interior View (Part 1 of 2)

- 1 Top, side, and rear cover
- 2 Front bezel
- 3 Diskette drive B or hard disk drive C
- 4 Diskette, hard disk, or blank bezel
- 5 Diskette-drive bezel
- 6 Diskette drive
- 7 Display assembly

PICTURE 26

7.4 Interior View (Part 2 of 2)

- 8 Feature-card retainer
- 9 Base-to-cover retainer
- 10 Hard-disk-drive signal cable
- 11 Hard-disk-drive power cable
- 12 Tilt assembly
- 13 Diskette-drive cable
- 14 Base frame assembly
- 15 System board
- 16 Bus adapter
- 17 Bus-adapter bracket

PICTURE 27

7.5 System Board

- 1 Parallel port
- 2 Pointing-device connector
- 3 Keyboard connector
- 4 Serial port
- 5 External display port (not on model K00)
- 6 Hard-disk power connector
- 7 Power-supply connector (J12 & J13)
- 8 Diskette-drive connector
- 9 Internal display connector
- 10 Hard-disk drive connector
- 11 Memory-module connector
- 12 Math-coprocessor socket
- 13 Password-override connector (J2)
- 14 Clock-battery socket
- 15 Bus-adapter connector

PICTURE 28

7.6 Diskette-Drive Cable

- 1 System board
- 2 Drive A

PICTURE 29

7.7 *Hard-Disk Drive Signal Cable*

- 1 System board
- 2 Hard disk drive

PICTURE 30

7.8 Hard-Disk Drive Power Cable

- 1 System board
- 2 Hard disk drive

PICTURE 31

8.0 Grounds

- 1 Primary ground

PICTURE 32