FRONT

PICTURE 1

Part Number 64F3811

Form Number S64F-3811-0

EDITION Edition Notice
Safety Information

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

- *General Safety*
- *Electrical Safety.*
- *Safety Inspection Guide.*

First Edition (March 1990)

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time.

It is possible that this publication may contain reference to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that IBM intends to announce such IBM products, programming, or services in your country.

Requests for technical information about IBM products should be made to your IBM Authorized Dealer or your IBM Marketing Representative.

FRONT_1 Special Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights or other legally protectible rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by IBM, are the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Commercial Relations, IBM Corporation, Purchase, NY 10577.

The following terms, denoted by an asterisk (*) in this publication, are trademarks of the IBM Corporation in the United States and/or other countries:

IBM Personal System/2

CONTENTS Table of Contents
EDITION Edition Notice
FRONT_1 Special Notices
CONTENTS Table of Contents
1.0 Product Description
1.1 Security
1.1.1 Keylock
1.1.2 Power-On Password
1.2 System-Board Features
1.2.1 Microprocessor
1.2.2 CMOS RAM
1.2.3 VGA
1.2.4 Serial Port
1.2.5 Parallel Port
1.2.6 Keyboard Connector and Pointing-Device Connector
2.0 Option Compatibility
2.1 Incompatible Adapters
2.2 Drive and Diskette Compatibility
2.3 Fixed Disk and Diskette Drives
2.4 Terminators
3.0 Operating Requirements
3.1 Power Supply
3.2 Power-On Self-Test (POST)
3.3 System Memory
3.3.1 System-Board Memory
3.3.2 Memory-Expansion Adapters
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 Fixed 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 Pack
6.9 1045 Math Coprocessor
6.10 1047 Clock Module
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 and Blank Bezel
6.17 1073 Fixed Disk Bezel and Keylock
6.18 1075 Diskette-Drive Cable
6.19 1077 Fixed-Disk-Drive Cable
6.20 1080 Audio Card Jack Assembly
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 Fixed-Disk-Drive Cable
8.0 Safety Grounds

1.0 Product Description

The features of the IBM (*) Personal System/2 (*) Model 25 286 are:

- Security: keylock on models with fixed disk drive
- System board:
  - 10-MHz 80286 microprocessor
  - 80287 math-coprocessor connector
  - Complementary metal-oxide semiconductor random access memory (CMOS RAM)
  - 512KB (KB=1024 bytes) random access memory (RAM), can be expanded to 4MB (MB=1,048,576 bytes)
  - Video graphics array (VGA)
  - Two expansion slots
  - Serial port
  - Parallel port
  - Keyboard connector
  - Pointing-device (mouse) connector
  - Display connector
  - Fixed-disk-drive connector
  - Diskette-drive connector
  - Audio jack.
- Power supply:
  - Manually switchable to 115 or 230 Vac
  - 50 or 60 Hz
  - 113 watts.
- Battery (to keep CMOS RAM active when power is off)
- 84/85-key or 101/102-key keyboard.
- Integrated analog color display.
- Fixed disk and diskette drives supported (see "Fixed Disk and Diskette Drives" in topic 2.3).

Subtopics
1.1 Security
1.2 System-Board Features

1.1 Security

Subtopics
1.1.1 Keylock
1.1.2 Power-On Password

1.1.1 Keylock

If a keylock is installed, it is on the fixed-disk-drive bezel and can be unlocked with the user's key.

If the keys for the keylock are lost, a new keylock assembly can be ordered (see the parts section in the Model 25 286 Service pamphlet). The new keylock assembly contains two keys. Use one of the new keys, along with a pair of pliers, to force the old keylock open.

1.1.2 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 7.5for the password-override connector location (J13) 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: Once 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:

- 80286 microprocessor
- CMOS RAM
- VGA
- Serial port
- Parallel port
- Keyboard connector
- Pointing-device (mouse) connector.

Subtopics
1.2.1 Microprocessor
1.2.2 CMOS RAM
1.2.3 VGA
1.2.4 Serial Port
1.2.5 Parallel Port
1.2.6 Keyboard Connector and Pointing-Device Connector

1.2.1 Microprocessor

The microprocessor interprets and carries out instructions. The 80286 Microprocessor is a 16-bit processor and operates in two modes: real-address mode and virtual address (protected) mode. The microprocessor speed is 10 MHz.

1.2.2 CMOS RAM

The CMOS RAM provides 64 bytes of storage. The real-time clock uses 14 bytes to track the date, time, and battery level.

The data stored in CMOS RAM is kept active by the battery when the system is powered-off. If the stored data is lost due to a depleted or removed 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 VGA

The VGA is a graphics controller on the system board. The VGA supports color analog direct drive displays in a variety of modes, including alphanumeric text mode and all-points-addressable (APA) graphics mode.

The VGA 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. The VGA can support 256 colors or 64 shades of gray at one time. Composite video is not supported.

1.2.4 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 by the system configuration as either COM1 or COM2.

If an option adapter with a serial port is installed in the system, it should be set to COM2.

1.2.5 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. When option adapters with additional parallel ports are installed, the system can support two different devices, each addressed separately as LPT1 or LPT2.

1.2.6 Keyboard Connector and Pointing-Device Connector

The two 6-pin connectors in the rear of the system board are for connecting a keyboard and a pointing device (mouse). The keyboard connector is marked with a "1" molded into the back panel; the pointing-device connector is marked with a "2." The interface logic is the same for both.

2.0 Option Compatibility

Subtopics
2.1 Incompatible Adapters
2.2 Drive and Diskette Compatibility
2.3 Fixed Disk and Diskette Drives
2.4 Terminators

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 adapters listed may not be installed in the same system unit:

- Synchronous Data Link Control (SDLC)
- 3278 - 3279 Emulation Adapter
- Speech 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 adapters are not supported by the Model 25 286. Supported option adapters for the Model 25 286 are listed in the parts section of the *Hardware Maintenance Service* pamphlet for the system you are servicing.

2.2 Drive and Diskette Compatibility

The following provides information concerning the identification of diskette drives.

Diskette Drive	**Identifying Mark**
3.5 Inch - 720KB	None
3.5 Inch - 1.44MB	1.44 on the Eject Button

The following addresses the compatibility of diskettes to diskette drives.

Diskette Capacity	**720KB Drive**	**1.44MB Drive**
1.0MB	Read/Write	Read/Write
2.0MB	Not Compatible	Read/Write

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

2.3 Fixed Disk and Diskette Drives

The Model 25 286 supports one external 5.25-inch diskette drive and one 1.44MB 3.5-inch diskette drive, *or* one 1.44MB 3.5-inch diskette drive and one 3.5-inch fixed disk drive, *or* two 1.44MB 3.5-inch diskette drives.

2.4 Terminators

Terminators are not required for the drives used in the Model 25 286.

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 115 or 230 volt *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 for 5 seconds or more 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 and that the minimum under-voltage sense levels have been established. This means that all system-board power requirements have been met.

Output (Vdc)	**Minimum Under-Voltage Sense Level (Vdc)**
+ 5.0	+ 4.5
- 5.0	- 4.3
+12.0	+10.8
-12.0	-10.2

The 'power good' signal turns on the green power-good light on the front of the system. If the green light is not on, the power supply is not functioning properly.

3.2 Power-On Self-Test (POST)

The POST is initiated automatically each time the system power is turned on.

The POST 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. The POST can detect 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 communications failure. If the POST detects a noncritical error, all testing stops and the microprocessor attempts to display the error. Pressing the F1 key allows testing to continue.

When the Advanced Diagnostics Diskette is in drive A, and a noncritical error is detected, the system displays the POST error message along with a message generated from the Advanced Diagnostics Diskette. The Advanced Diagnostics Diskette message instructs the user to take a specific action to correct the error.

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 fixed 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 in this manual). This icon indicates that a diskette should be inserted into drive A. After the diskette is inserted, press the F1 key to resume operation. If the F1 key is pressed when no diskette is in the diskette drive, the IBM Cassette BASIC screen appears.

3.3 System Memory

Subtopics
3.3.1 System-Board Memory
3.3.2 Memory-Expansion Adapters

3.3.1 System-Board Memory

The Model 25 286 system board has at least 512KB RAM installed at the time of shipment. This memory consists of two 256KB memory packs. The system-board memory can be expanded to 1MB RAM by the addition of two 256KB memory packs.

System-board memory can be expanded to 2MB or 4MB by removing all of the 256KB memory packs from the system board and installing *either* two or four 1MB memory packs (256KB memory packs cannot be mixed with 1MB memory packs). Some memory-expansion adapters may limit the amount of memory that can be installed on the system.

3.3.2 Memory-Expansion Adapters

An optional memory adapter, the IBM PS/2 Multifunction Adapter, is available to extend the capabilities of the Model 25 286. Two 256K memory packs must remain on the system board. One or two of these adapters can be installed on the system board. These adapters can add 15.5MB of memory. If two of these adapters are installed, the combined memory cannot exceed 15.5MB. When memory-expansion adapters are installed, the system can support 16MB of memory. For other supported options, see the parts section in the *Hardware Maintenance Service* pamphlet for the model you are servicing.

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 (color): 16.8 kg (37 lb).

Environment

- Temperature:
  - Power on: 15.6° to 32.2°C (60° to 90°F)
  - Power off: 10° to 43°C (50° to 110°F).
- Humidity:
  - Power on: 8% to 80%
  - Power off: 20% to 80%.

  - Maximum altitude: 2134 m (7000 ft).

Heat Output

- 386 British thermal units (BTUs) per hour (113 watts per hour).

Electrical Input

- Low Range:
  - Minimum: 90 Vac
  - Maximum: 137 Vac.
- High Range:
  - Minimum: 180 Vac
  - Maximum: 265 Vac.
- Input kilovolt-amperes (kVA)
  - Minimum Configuration (as shipped from IBM): Approximately 0.12 kVA
  - Maximum Configuration: Approximately 0.3 kVA.

5.0 Special Tools

The following special tools are required to service the Model 25 286.

Volt-Ohm Meter

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

Wrap Plug

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

PICTURE 2

Note: Existing wrap plugs (IBM part 8529228 and IBM part 8529280), also can be used.

Module Puller

PICTURE 3

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

6.0 Removals and Replacements

This section contains information on removals and replacements, locations, and safety grounds.

The arrows in the removals and replacements 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, and 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. See "Locations" for internal cable connection and arrangement information.

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

Warning: The system board, adapters, memory modules, and the math coprocessor are sensitive to, and can be damaged by, electrostatic discharge. Establish personal grounding by touching a ground point with one hand before touching these units.

Note: An electrostatic discharge (ESD) strap may be used to establish personal grounding.

Subtopics
6.1 1000 Cover
6.2 1010 Top, Side, and Rear Cover
6.3 1015 Diskette Drive
6.4 1017 Fixed 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 Pack
6.9 1045 Math Coprocessor
6.10 1047 Clock Module
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 and Blank Bezel
6.17 1073 Fixed Disk Bezel and Keylock
6.18 1075 Diskette-Drive Cable
6.19 1077 Fixed-Disk-Drive Cable
6.20 1080 Audio Card Jack Assembly

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.

Note: 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.

PICTURE 4

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 from the system board all display assembly cables.

PICTURE 5

PICTURE 6

6.3 1015 Diskette Drive

- Tilt assembly **(1060)**

- Base frame assembly **(1065)**

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

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.

3. Before installing a new drive, remove and discard its bottom rail, if present.

PICTURE 7

6.4 1017 Fixed Disk Drive (Integrated Adapter)

- Tilt assembly **(1060)**
- Base frame assembly **(1065)**

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

PICTURE 8

6.5 1020 Adapters

- Cover **(1000)**

PICTURE 9

6.6 1025 Bus Adapter and Bracket

- Adapters **(1020)**

PICTURE 10

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 diskette drive and blank bezels **(1070)**)

PICTURE 11

6.8 1040 Memory-Module Pack

- Cover **(1000)**

PICTURE 12

6.9 1045 Math Coprocessor

Warning: Remove the math coprocessor carefully. Do not bend the pins when removing the math coprocessor. The math coprocessor can be damaged by electrostatic discharge, prying between the module and connector, or prying between the connector and system board. Establish personal grounding by touching a ground point with one hand before touching the math coprocessor.

Note: Align the notch on the math coprocessor with the notch in the math coprocessor socket.

- Cover **(1000)**
- Adapters **(1020)**

PICTURE 13

6.10 1047 Clock Module

Warning: Remove the clock module carefully. Do not bend the pins when removing the clock module. The clock module can be damaged by electrostatic discharge, prying between the module and connector, or prying between the connector and system board.

Note: Align the white dot on the module toward the rear of the system unit.

- Cover **(1000)**
- Adapters **(1020)**

PICTURE 14

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 modules and packages **(1040)**
- Math coprocessor and 80286 microprocessor **(1045)**
- Bracket **(1053)**
- Audio Card Jack Assembly **(1080)**

PICTURE 15

6.12 1053 Bracket

- Cover **(1000)**

PICTURE 16

6.13 1055 Front Bezel

- Top, side, and rear cover **(1010)**
- Diskette drive and blank bezels **(1070)**
- Fixed disk bezel and keylock **(1073)**

PICTURE 17

6.14 1060 Tilt Assembly

PICTURE 18

6.15 1065 Base Frame Assembly

- Cover **(1000)**
- Diskette drive **(1015)**
- Fixed disk drive **(1017)**
- Diskette-drive cable **(1075)**
- System board **(1050)**

Note: Squeeze and twist plastic retainer 1.

PICTURE 19

6.16 1070 Diskette Drive and Blank Bezel

- Base frame assembly **(1065)**

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

PICTURE 20

6.17 1073 Fixed Disk Bezel and Keylock

- Base frame assembly **(1065)**

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

PICTURE 21

6.18 1075 Diskette-Drive Cable

- Tilt assembly **(1060)**
- Unplug P12 from J12 on the system board.
- Feed cable into base frame assembly.
- Unplug cable from the diskette drive.

6.19 1077 Fixed-Disk-Drive Cable

- Tilt assembly **(1060)**
- Cover **(1000)**
- Bracket **(1053)**
- Unplug P11 from J11 on the system board.
- Feed cable into base frame assembly.
- Unplug cable from the fixed disk drive.

PICTURE 22

6.20 1080 Audio Card Jack Assembly

- Cover **(1000)**

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 Fixed-Disk-Drive Cable

7.1 Front View

1 Display
2 Diskette drive A
3 Diskette-eject button
4 Display-brightness control
5 Diskette drive B or fixed disk drive C
6 Display-contrast control
7 Keylock (fixed 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 Audio jack
5 Keyboard connector
6 Pointing-device connector
7 Serial port
8 Parallel port
9 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 fixed disk drive C
4 Diskette, fixed 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 Fixed-disk-drive cable
11 Tilt assembly
12 Diskette-drive cable
13 Base frame assembly
14 System board
15 Bus Adapter
16 Bus Adapter bracket

PICTURE 27

7.5 System Board

System Board

1. Parallel port (J3)
2. Serial port (J5)
3. Bus Adapter connector (J6)
4. Pointing-device connector (J1)
5. Keyboard connector (J2)
6. Memory module package 1
7. Memory module package 2
8. Fixed-disk-drive connector (J11)
9. Power connector (J7)
10. Power connector (J14)
11. Display connector (J4)
12. Password Override connector (J13)
13. 80286 Processor (ZM36)
14. Clock Module (ZM35)
15. Math Coprocessor (ZM1)
16. Diskette Drive Connector (J12)

PICTURE 28

7.6 Diskette-Drive Cable

1 System board
2 Drive A
3 Drive B

PICTURE 29

7.7 Fixed-Disk-Drive Cable

1 System board
2 Fixed disk drive
3 Base Assembly (indentation)

PICTURE 30

8.0 Safety Grounds

1 Primary ground
2 Chassis ground

PICTURE 31