

FRONT

PICTURE 1

March 19, 1992

This booklet contains procedures for isolating problems to a FRU, a Symptom-to-FRU Index, and a parts listing for the IBM Personal System/2 Model CL57 SX.

This pamphlet is intended to be used with the IBM Personal System/2 *Hardware Maintenance Reference* manual (part number 15F2190, form number S15F-2190-00) and the IBM Personal System/2 *Hardware Maintenance Service* manual (part number 15F2200, form number S15F-2200-00).

Part Number 41G8696

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FRONT_1 Safety Information

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

- General Safety
- Electrical Safety
- Safety Inspection Guide.

Second Edition (March 1992)

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Subtopics

FRONT_2.1 Trademarks and Service Marks

FRONT_2.1 Trademarks and Service Marks

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IBM
Personal System/2.

1.0 General Checkout

The diagnostic tests are intended to test *only* IBM (*) products. Non-IBM products, prototype cards, or modified options can give false errors and invalid system responses.

Warning: Drives in the system you are servicing might have been rearranged or the drive startup sequence might have been altered. Be extremely careful during write operations such as copying, saving, or formatting. Data or programs can be overwritten if you select an incorrect drive.

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Subtopics

- 1.1 Automatic Configuration
- 1.2 How to Diagnose Combined FRUs
- 1.3 How to Use Error Messages
- 1.4 How to Cancel the Power-On Password

1.1 Automatic Configuration

Warning: A customized setup configuration (other than default settings) may exist on the system you are servicing. Running Automatic Configuration may alter those settings. Note the current configuration settings (using the View Configuration option) and verify that the settings are in place when service is complete. (For more information about configuration, refer to the *Hardware Maintenance Reference* manual.)

1.2 How to Diagnose Combined FRUs

If an adapter or device consists of more than one FRU, an error code may be caused by any of the FRUs. Before replacing the adapter or device, remove the FRUs, one by one, to see if the symptoms change.

1.3 How to Use Error Messages

Use the error codes displayed on the screen to diagnose failures. If more than one error code is displayed, begin the diagnosis with the first error code. The cause of the first error code can result in false error codes being displayed. If no error code is displayed, see if the error symptom is listed in the "Symptom-to-FRU Index" in topic 11.0.

1.4 How to Cancel the Power-On Password

To cancel the power-on password, do the following:

1. Power-off the system.
2. Remove the keyboard and the top cover.
3. Identify the password-override connector on the system board.
4. Install a jumper over the pins of the password-override connector as shown.

PICTURE 2

5. Power-on the system and leave it until the POST ends.

Make sure that you remove the jumper from the password-override connector when you are finished.

To set the password, start the system programs, select **Set features** from the Main Menu, then select **Set password and unattended start mode**, and follow the instructions on the screen.

```
+----+
|001|
+----+
```

DOES THE PROBLEM APPEAR TO BE A POWER SUPPLY FAILURE?

Yes No

```
|
|
| +----+
| |002|
| +----+
| Go to Step 006.
```

```
+----+
|003|
+----+
```

DO ALL SYSTEM-STATUS INDICATORS REMAIN OFF?

Yes No

```
|
|
| +----+
| |004|
| +----+
| Go to Step 006.
```

```
+----+
|005|
+----+
```

- Make sure the power control switch at the rear of the system is set to ON.
- Go to "Power Supply" in topic 5.0.

```
+----+
|006|
+----+
```

- Power-off the system and all external devices.
- Check all cables and power cords.
- Make sure no diskette is in the drive.
- Power-on all external devices.
- Power-on the system and check for the following responses:
 1. All system-status indicators appear once for about 1 second.

Note: Some indicators remain on and others go off after 1 second.

2. Memory test (the number increases.)
3. Audible responses:
 - One short beep
 - or -
 - Two short beeps.

DID YOU RECEIVE THE RESPONSES LISTED ABOVE?

Yes No

```
|
|
| +----+
| |007|
| +----+
| Go to Step 013.
```

```
+----+
|008|
+----+
```

- Press Ctrl+Alt+Delete. When the cursor moves to the upper right, press Ctrl+Alt+Insert to start the system program. If the IBM logo screen does not appear, insert the backup Reference Diskette into the diskette drive and repeat this step.
 1. If you are not at the Main Menu, follow the instructions on the

screen to advance to the Main Menu.

If you cannot advance to the Main Menu, go to "Symptom-to-FRU Index" in topic 11.0.

- or -

If that does not correct the problem, go to "Undetermined Problem" in topic 3.0 .

Notes:

- a. If the system has an incorrect keyboard or numeric keypad response, go to "Keyboard" in topic 8.0.
- b. If the printer has incorrect responses, go to "Printer" in topic 6.0.
- c. If the external CRT display has problems such as jittering, rolling, shifting, or being out-of-focus, go to "External Display Self-Test" in topic 9.0.

2. Press Ctrl+A and run the system checkout.

IS THE LIST OF INSTALLED DEVICES CORRECT?

Yes No

```
| |
| |
| +---+
| |009|
| +---+
| Go to "Installed Devices List" in topic 2.0.
```

+---+

|010|

+---+

- Run the diagnostic tests.

DID THE TEST IDENTIFY A FAILURE?

Note: If the test stops and you cannot continue, replace the last device tested.

- or -

If any POST error code appears, go to "Symptom-to-FRU Index" in topic 11.0 .

Yes No

```
| |
| |
| +---+
| |011|
| +---+
| You may have an intermittent problem:
|  Check for damaged cables and connectors.
|  Reseat all adapters, drives, and modules.
|  Start an error log and run the tests multiple times.
|  Check the power supply in use when the error is reported (see
| "Power Supply" in topic 5.0).
|  Check "Symptom-to-FRU Index" in topic 11.0. If this did not fix
| the problem, go to "Undetermined Problem" in topic 3.0.
```

+---+

|012|

+---+

Go to "Symptom-to-FRU Index" in topic 11.0.

+---+

|013|

+---+

DID YOU RECEIVE NOTHING DISPLAYED ON THE SCREEN?

Yes No

```
| |
| |
| +---+
| |014|
| +---+
|  If all system-status indicators do not appear for about 1 second,
| go to Step 016 under "Power Supply" in topic 5.0.
|  If the memory count is incorrect, go to "Memory" in topic 10.0.
|  Go to "Symptom-to-FRU Index" in topic 11.0.
| If that does not correct the problem, go to "Undetermined Problem"
| in topic 3.0 .
```

+---+

|015|

+---+

Go to "Symptom-to-FRU Index" in topic 11.0.

- or -

If that does not correct the problem, go to "Undetermined Problem" in topic 3.0 .

2.0 Installed Devices List

The Installed Devices List shows the presence of devices on the system. If an adapter or device is missing from the list, you may have one of the following conditions.

Warning: A customized setup configuration (other than default settings) might exist on the system you are servicing. Running Automatic Configuration can alter those settings. Note the current configuration settings (using the **View configuration**) and verify that the same settings are in place when service is complete. (For more information about configuration, refer to the *Hardware Maintenance Reference* manual.)

- The protected partition on the hard disk or the Reference Diskette you are using does not contain the code required to support that device.
- An adapter or device is defective.
- The device missing from the list is an unrecognizable drive or adapter.
- The device missing from the list requires an additional diskette. (See the service manual.)
- A power supply voltage is incorrect (see "Power Supply" in topic 5.0).

If the adapter is on the list, run the adapter diagnostics tests. If the list contains an adapter or device that is not installed, go to "Undetermined Problem" in topic 3.0.

3.0 Undetermined Problem

You are here because the diagnostics tests did not identify the failing FRU.

Check the power supply in use (see "Power Supply" in topic 5.0). If the power supply is operating correctly, return here and continue with the following procedure.

1. Power-off the system and remove the battery packs from the system.
2. Remove or disconnect one of the following devices or adapter: (Do not isolate FRUs that are known to be good.)
 - a. Non-IBM devices
 - b. Modem, printer, mouse, or other external device
 - c. IC DRAM card
 - d. Hard disk drive (fixed disk drive) or diskette drive
 - e. Communications cartridge
 - f. Any adapter and device.
3. Power-on the system and start the system program.
4. Press Ctrl+A to run the system checkout. Do not configure the system. If diagnostics cannot be loaded from the hard disk, try and load them from the Reference Diskette. Test only those adapters and devices still attached to the system.
5. If the symptom remains, repeat steps 1 through 3 until you find the failing FRU or until all FRUs have been removed.
6. If all of the FRUs listed have been removed and the problem remains, replace the system board.

4.0 *Hard Disk Partition*

A protected partition on the hard disk contains the system configuration data set, system setup programs, and customer and advanced diagnostics. System setup and diagnostic programs can be loaded from this partition by pressing and holding Ctrl+Alt+Delete and, as soon as the cursor moves to the upper right corner of the display, pressing and holding Ctrl+Alt+Insert.

Subtopics

4.1 Restoring the Partition

4.1 Restoring the Partition

If a system or hard disk problem prevents system setup or diagnostic programs from being loaded from the protected partition, load and run the programs from the Reference Diskette. If no errors are found, restore the programs to the protected partition on the hard disk using the following procedure.

1. Start the system with the customer's backup copy of the Reference Diskette installed.
2. Select the **Backup/Restore system programs** from the Main Menu.
3. Select the **Restore the system partition** to load the system setup and utility programs, and the customer and advanced diagnostics programs onto the system partition of the hard disk.

If this does not correct the problem, use the backup copy of the Reference Diskette to format the hard disk and then restore the programs to the protected partition. If the problem remains, return to the **I998XXXX**, **I9990303** error code (on page 11.4 in the Symptom-to-FRU index).

Note: After the programs have been restored, the Diskette and F1 prompts appear, unless an operating system is present.

- Numeric keypad
 - Math coprocessor
 - Mouse
 - External display.
- Go to Step 010.

+----+
| 010 |
+----+

- Plug in the AC adapter and power-on the system.

DOES ANY INDICATOR REMAIN ON?

Yes No

| |
| |
| +----+
| | 011 |
| +----+
| - Power-off the system and remove the following.
| Hard disk drive
| Diskette drive
| LCD cables
| Keyboard flexible cables
| - Power-on the system again.
| - Go to Step 013.
| |

+----+
| 012 |
+----+

Suspect one of the options or devices.

- Reinstall each of the options or devices to the system one at a time, and power-on the system to see if the original problem occurs.
- Replace the last installed option or device when the problem occurs.

+----+
| 013 |
+----+

DOES ANY INDICATOR REMAIN ON?

Yes No

| |
| +----+
| | 014 |
| +----+
| - Replace the following FRUs one at a time until the problem is corrected.
| Indicator card
| System board
| Voltage converter
| |

+----+
| 015 |
+----+

Suspect one of the devices.

- Reinstall each of the devices to the system one at a time, and power-on the system to see if the original problem occurs.
- Replace the last installed device when the problem occurs.

+----+
| 016 |
+----+

- Observe the system-status indicators for about 1 second after power on.

System-Status Indicator	Condition A	Condition B
Power-On	Off	On
Suspend Mode	Off	On
Scroll Lock	On	Off
Caps Lock	On	Off
Numeric Lock	On	Off
Diskette Drive in Use	On	Off
Hard Disk Drive in Use	On	Off
Battery ID 2	Off	On
Battery Status 2	Off	On
Battery ID 1	Off	On
Battery Status 1	Off	On
Carrier Detect	-	-

If the status is equal to one of the above conditions, replace the

voltage converter. If the status differs or replacing the voltage converter does not correct the problem, go to "Undetermined Problem" in topic 3.0.

Subtopics

- 5.1 Checking the AC Adapter
- 5.2 Checking the Battery Packs
- 5.3 Checking the Backup Battery

5.1 Checking the AC Adapter

If the Power-On indicator is not on, check the power cord of the AC adapter for proper installation and continuity.

1. If any noise can be heard from the AC adapter when it is plugged into line voltage, replace the AC adapter with a new one.

If no noise can be heard from the adapter, go to Step 3.

2. If the noise still comes from the new AC adapter, suspect the system unit. Replace the AC adapter with the original one, then go to the next step. If no noise comes from the new adapter, the original adapter has the problem.
3. Unplug the AC adapter cable from the system and measure the output voltages at the plug of the AC adapter cable. Connect the minus lead of the volt-ohm meter to pin 3 during the measurement.

PICTURE 3

Pin	Voltage (V dc)
1	+18 to +22
2	+17 to +21
3	GND
4	Communication GND

- If the voltages are not correct:
 1. Unplug the AC adapter from the ac power outlet and leave it for a few minutes.
 2. Plug the AC adapter into the ac outlet.
 3. Measure the output voltages of the AC adapter.
 4. If the voltages are still not correct, replace the AC adapter.
- If the voltages are OK, plug the cable into the system and try the failing operation again.

If the problem still remains, replace the voltage converter. If the problem disappeared, suspect the installation and continuity of the AC adapter cable.

5.2 *Checking the Battery Packs*

1. Remove each battery pack and measure the voltage at the battery terminals between (+) and (-).

PICTURE 4

Terminal	Voltage (V dc)
(+)	+12 to +18
(T)	Thermal Detection
(-)	Ground

- If the voltage is less than +12 V dc, the battery pack is discharged or defective.
 - If the voltage is more than +12 V dc, go to the next step.
2. Using a low-power ohm meter, measure the resistance at the battery terminals between (T) and (-). The resistance must be 500 ohms to 20 kilohms.

If the resistance is out of range, replace the battery pack.

5.3 *Checking the Backup Battery*

1. Remove the keyboard and the top cover.
2. Disconnect the battery connector from the system board.
3. Measure the voltage of the backup battery.

PICTURE 5

Wire	Voltage (V dc)
Red	+2.5 to +3.7
Black	Ground

If the voltage is correct, replace the system board. If it is not, the backup battery is discharged by a short circuit or is defective.

6.0 Printer

1. Make sure the printer is properly connected and powered on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly, install a wrap plug on the parallel port and run the advanced diagnostics tests to determine which FRU failed.

If the advanced diagnostics tests (with the wrap plug installed) do not detect a failure, replace the printer cable. If that does not correct the problem, replace the system board.

7.0 LCD Panel

- If missing or discolored dots appear on the LCD panel, carefully read the following note and determine whether you should replace the LCD panel.

```
+--- Important -----+
|
| The LCD panel for the Model CL57 SX contains over 921 000 thin
| film transistors (TFTs). A small number of missing or discolored
| dots is a characteristic of TFT LCD technology. The LCD panel
| should only be replaced if the number of missing or discolored
| dots causes viewing problems.
|
+-----+
```

- If the LCD panel displays nothing, follow these steps to isolate the FRUs.
 1. Power-off the system, wait 10 seconds, then power it on again.
 2. During the POST, check that the green LED (Light Emitting Diode) lights through the viewing hole on the I/O panel.
 - If the LED does not light, replace the voltage converter.
 - If the LED lights and nothing appears on the screen, replace the LCD panel.

If the above does not correct the problem, replace the regulator and the LCD panel at the same time.

8.0 Keyboard

- If the system has no response when the numeric keypad is used:
 1. Disconnect the numeric keypad from the system.
 2. Repeat the failing operation.

If the problem does not reappear, replace the numeric keypad. If the problem still remains, replace the keyboard control card. If that does not correct the problem, replace the system board.

- Make sure that the two flexible cables extending from the keyboard are properly attached to the connectors on the keyboard control card.
- If you suspect a problem with any of the auxiliary input devices, replace the device. If that does not correct the problem, replace the keyboard control card. If this does not correct the problem, replace the system board.
- If the system has an incorrect keyboard response, replace the following FRUs one at a time until the problem is corrected.
 - Keyboard control card
 - Keyboard
 - System board.

Note: The following auxiliary input devices are available for Model CL57 SX.

- Numeric keypad
- Mouse.

9.0 External Display Self-Test

If the display problem occurs only when using an external display, use the following instructions to correct the problem.

1. If the screen is rolling, replace the display.
If the problem remains, go to the next step.
2. Run the following display self-test:
 - a. Power-off the system and the display.
 - b. Disconnect the display signal cable from the system.
 - c. Power-on the display.
 - d. Turn the contrast control to its maximum position.
 - e. Turn the brightness control to the center detent position.
3. Check for the following conditions:
 - The screen should be white or light gray, with a black margin as described below:
 - **8503, 8512, 8513, 8514:** 2-20 mm (0.08-0.79 in.) wide on one or both sides
 - **8506:** 2-50 mm (0.08-1.97 in.) wide on the top, bottom, or both
 - **8507, 8508, 8515:** 2-20 mm (0.08-0.79 in.) wide on the top, bottom, or both.
 - The screen intensity should vary when turning the contrast and brightness controls.

If the screen differs from the above, replace the display.

If the display passes the display self-test, replace the FRUs, in the following order, until the problem is corrected.

- a. I/O panel assembly
- b. Display control card

11.0 Symptom-to-FRU Index

The Symptom-to-FRU Index lists error symptoms and possible causes. The most likely cause is listed first. Always begin with "General Checkout" in topic 1.0. This index also can be used to help you decide which FRUs to have available when servicing a system.

If you are unable to correct the problem using this index, go to "Undetermined Problem" in topic 3.0.

IMPORTANT:

1. If you have both an error message and an incorrect audio response, diagnose the error message first.
2. If you cannot run the advanced diagnostics tests, but did receive a POST error message, diagnose the POST error message.
3. If you did not receive an error message, look for a description of your error symptoms in the first part of this index.
4. Check all power supply voltages before you replace the system board. (See "Power Supply" in topic 5.0.)
5. If an error message is not listed, there is a device installed that requires an additional diskette or service manual. Refer to the diskette or service manual for that device.

How to Read POST Error Messages

POST error messages are displayed on the screen as 3, 4, 5, or 8 digits. The error messages that can be displayed as shorter POST messages are highlighted in this Symptom-to-FRU Index.

The following example shows which digits display the shorter POST error messages.

PICTURE 6

In the following index, an X in an error message can be any number.

Subtopics

- 11.1 No-Beep Symptoms
- 11.2 Beep Symptoms
- 11.3 Miscellaneous Symptoms
- 11.4 Numeric Error Codes

11.1 No-Beep Symptoms

Note: A *no beep* symptom can be caused by incorrect volume setting of the speaker. Set the speaker volume to its maximum position.

Symptom/Error	FRU/Action
A <i>no beep</i> and a blank or unreadable display during POST. (See "Power Supply" in topic 5.0 before replacing any FRUs.)	System Board Voltage Converter Communications Cartridge Hard Disk Drive Display Control Card Any options Power source when failing
A <i>no beep</i> with a blinking cursor.	System Board Display Control Card Communications Cartridge
A <i>no beep</i> with a normal display during POST.	Speaker Indicator Card System Board Keyboard Control Card
A <i>no beep</i> and the system hangs up after displaying memory count.	System Board Communications Cartridge Hard Disk Drive

11.2 Beep Symptoms

Symptom/Error	FRU/Action
Continuous beep.	System Board
Repeating short beeps. (See "Keyboard" in topic 8.0 before replacing any FRUs.)	Keyboard Keyboard Control Card System Board
One long and one short beep.	System Board
One long and two short beeps.	Display Control Card System Board
One short beep and a blank, unreadable, or flashing display with no external display attached. (See "LCD Panel" in topic 7.0 before replacing any FRUs.)	LCD Panel Display Control Card System Board LCD Cable
One short beep and Diskette Prompt or a program load from the hard disk or unable to read diskette.	Diskette Drive System Board Diskette Drive Cable
Two short beeps and a blank display.	System Board

11.3 Miscellaneous Symptoms

Symptom/Error	FRU/Action
LCD too dark, unable to adjust contrast or brightness. (See "LCD Panel" in topic 7.0 before replacing any FRUs.)	LCD Panel Regulator Voltage Converter
LCD unreadable or illegible. (See "LCD Panel" in topic 7.0 before replacing any FRUs.)	LCD Panel Display Control Card LCD Cable
Missing or discolored dots on the LCD panel.	See "LCD Panel" in topic 7.0 before replacing the LCD panel.
Unable to turn the LCD on and off.	Regulator Voltage Converter LCD Cable
Blank screen, or extra horizontal or vertical line(s) displayed on upper or lower half of the LCD. (See "LCD Panel" in topic 7.0 before replacing any FRUs.)	LCD Panel Display Control Card LCD Cable
Four battery indicators are blinking. Battery ID 1 Battery Status 1 Battery ID 2 Battery Status 2	Voltage Converter System Board
System status indicator is incorrectly blinking or stays on.	Related Device System Board Indicator Card
System status indicator stays off, but the POST ends without an error.	Indicator Card System Board Related Device
Keyboard does not work.	Keyboard-control card Keyboard Cable Numeric Keypad if used System Board
One or more keys do not work. (See "Keyboard" in topic 8.0 before replacing any FRUs.)	Keyboard Numeric Keypad if installed Keyboard Control Card
External display problems. (See "External Display Self-Test" in topic 9.0 before replacing any FRUs.)	External Display Display Control Card
Incorrect memory size during POST. (See "Memory" in topic 10.0 before replacing any FRUs.)	System Board Memory Module IC DRAM Card
System hang-up or Intermittent hang-up. (See "Undetermined Problem" in topic 3.0 before replacing any FRUs.)	System Board Hard Disk Drive Cable Hard Disk Drive Replace the last device being tested Display Control Card Memory Module IC DRAM Card Voltage Converter
The system goes into suspend mode after the POST.	System Board Voltage Converter Lid Switch Keyboard Control Card
The system does not suspend or resume.	System Board Voltage Converter Lid Switch Keyboard Control Card
The system does not power off.	Voltage Converter System Board Indicator Card

Miscellaneous Symptoms

Real-time clock inaccurate. (See "Checking the Backup Battery" in topic 5.3 before replacing any FRUs.)	Backup Battery System Board
Printer problems.	See "Printer" in topic 6.0.
Serial or parallel port device problems.	Device Cable System Board Serial Adapter (if attached) I/O Panel Assembly
Internal Data/Fax modem does not communicate with a remote modem or a fax.	See the <i>Internal Data/Fax Modem Hardware Maintenance Service supplement.</i>

11.4 Numeric Error Codes

Symptom/Error	FRU/Action
00010200, 00010300, 00010400, 00010700	System Board
00010800	System Board Communications Cartridge
00011000 (See "Memory" in topic 10.0 before replacing any FRUs.)	IC DRAM Card or Memory Module System Board
000110XX	IC DRAM Card or Memory Module System Board
000113XX	System Board Communications Cartridge Any Drive
000114XX	Communications Cartridge
000118XX	IC DRAM Card or Memory Module System Board
00016100	See "Checking the Backup Battery" in topic 5.3 . System Board Voltage Converter
00016300, 00016400, 00016500, 00016900 (If setting configuration does not solve the problem, see "Installed Devices List" in topic 2.0.)	Set Configuration/Features System Board Communications Cartridge Hard Disk Drive IC DRAM Card Memory Module
000166XX	Communications Cartridge
000171XX	See "Checking the Backup Battery" in topic 5.3 . System Board
000172XX	System Board
00017300	See "Checking the Backup Battery" in topic 5.3 . System Board Voltage Converter
00017400 (If Automatic Configuration does not solve the problem, run Advanced Diagnostics.)	Set Configuration/Features System Board Math Coprocessor
00019000, 000191XX	System Board
00019200	Lid Switch Keyboard Control Card System Board
00019300	System Board
000199XX	System Board
0001XXXX (not listed above)	System Board Communications Cartridge Indicator Card
0002XXXX (See "Memory" in topic 10.0 before replacing any FRUs.)	IC DRAM Card or Memory Module System Board
00030100, 00030500	Keyboard Control Card System Board Keyboard or Numeric Keypad
00030200, 00030300, 00030400	System Board Keyboard Control Card

IBM PS/2 Model CL57 SX HMS
Numeric Error Codes

	Keyboard or Numeric Keypad
00030600	Keyboard or Numeric Keypad Auxiliary Input Device Keyboard Control Card System Board I/O Panel Assembly
0004XXXX	System Board Any Parallel Device Communication Cable I/O Panel Assembly
000601XX	Diskette Drive System Board Diskette Drive Cable
000602XX	Defective Diskette
000655XX, 000662XX 000670XX - 000675XX	System Board Diskette Drive Diskette Drive Cable
0006XXXX Unsupported drive or cable.	Diskette Drive System Board Diskette Drive Cable
000720XX	System Board Math Coprocessor
0007XXXX	Math Coprocessor System Board
0011XX00	System Board Serial Connector Any Serial Device Communication Cable
0014XXXX (See "Printer" in topic 6.0 before replacing any FRUs.)	Printer System Board
0024XX00	Display Control Card Voltage Converter
005002XX, 005006XX, 005008XX	Display Control Card Voltage Converter External Display I/O Panel Assembly
005004XX, 005010XX, 005032XX	Display Control Card LCD Panel LCD Cable
005009XX	External Display Display Control Card I/O Panel Assembly
00860100, 00860200 00861700, 00861800	Mouse or Trackball System Board Numeric Keypad I/O Panel Assembly
0086XX00	System Board Mouse or Trackball Numeric Keypad I/O Panel Assembly
0101XXXX	See the Internal Data/Fax Modem Hardware Maintenance Service supplement.
010436XX	System Board Hard Disk Drive Hard Disk Drive Cable
0104XXXX	Hard Disk Drive System Board Hard Disk Drive Cable
0130XXXX	Indicator Card

IBM PS/2 Model CL57 SX HMS
Numeric Error Codes

	System Board Keyboard Control Card
0137XXXX	Serial Adapter System Board Communication Adapter Holder Any Serial Device Communication Cable
0166XXXX, 0167XXXX	Adapter in Communications Cartridge Communications Cartridge
I9990301 (Startup drive not found.)	Start the backup copy of the Reference Diskette and check if the startup sequence is correct. 1. Select Set features from the Main Menu. 2. Select Set startup sequence . 3. Check the list of devices on the screen.
I9990302 (Operating system not found.)	Make sure that an operating system is installed. Hard Disk Drive System Board Hard Disk Drive Cable
I998XXXX, I9990303 (See "Hard Disk Partition" in topic 4.0 before replacing any FRUs.)	Restore the system programs onto the system partition. Set configuration Hard Disk Drive System Board Hard Disk Drive Cable

12.0 How To Use This Parts Catalog

INDEX REFERENCE NUMBERS: Refer to the illustrations for the index reference numbers that are listed in the left margin of the parts listing.

SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical parts, they are broken down on the same list. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.

AR: (As Required) indicates that the quantity is not the same for all machines.

R: (Restricted) indicates that the part has a restricted availability.

INDENTURE: The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly. For example:

Indenture Relationship of Parts

- (No dot) Main Assembly
- (One dot) □ Detail parts of a main assembly
- (One dot) □ Subassembly of the main assembly
- (Two dots) □ □ Detail part of a one-dot subassembly
- (Two dots) □ □ Subassembly of a one-dot subassembly

13.0 System Overview

PICTURE 7

14.0 Parts

Index System Unit

1	Frame, Keyboard	07G1393
2	Bezel, LCD	07G1391
3	LCD Panel	95F4080
4	Cover, LCD Rear	07G1392
	Cable, LCD	07G1384
5	Speaker	07G1229
6	Indicator Card	07G1375
	Support, Indicator Card	07G1398
7	Top Cover	07G1390
8	Trackball Assembly	1397752
9	Guide, Modem	07G1378
	Bracket, Modem	07G1408
10	Hinge, Support	07G1407
	Hinge, Left	07G1403
	Hinge, Right	07G1404
11	Cover, I/O Connectors	07G1394
12	Cover, Option Slot	07G1395
	Cover, Math Coprocessor	07G1429
13	Backup Battery, Lithium	35G2282
14	Diskette Drive Assembly	72X6074
	Bracket, Diskette Drive	07G1405
	Cable, Diskette Drive	07G1379
15	Lid Switch	07G1386
16	Hard Disk Drive, 80MB	95F4708
	Bracket, Hard Disk Drive	07G1406
	Cable, Hard Disk Drive	07G1380
17	Bottom Cover	07G1389
18	Keyboard Control Card	1397751
19	Voltage Converter	07G1373
20	IC DRAM Card:	
	2MB	07G1414
	4MB	07G1415
	8MB	07G1416
21	Regulator	06G9536
22	Connector, IC DRAM Card	07G1377
23	Memory Module Kit, System Board	07G1879
24	System Board	07G1371
25	Switch, Communications Cartridge	07G1385
26	Display Control Card	07G1372
27	I/O Panel Assembly	07G1374
	Bracket, Connector	07G1402
	Serial Connector Assembly	07G1426
28	Keyboard (see Keyboard)	
	Cable, Keyboard	07G1381
	Battery Pack, Rechargeable	07G1413
	for Benelux	06G8433
	for Nordic countries	06G8434
	for Switzerland	06G8432

System Unit

Holder, Battery Pack	07G1376
Sensor, Thermal	07G1387
Slide, Brightness/Contrast	07G1399
Slide, Power Switch	07G1400
Slide, Volume Control	07G1401
Foot, Left	07G1396
Foot, Right	07G1397
Cable, 50-Pin	07G1382
(Voltage Converter to System Board)	
Cable, 4-Pin	07G1383
(Voltage Converter to System Board)	
Communications Adapter:	
Serial Adapter	79F6840
Data/Fax Modem Adapter	94X2554
Telephone Cable	94X1540
Miscellaneous Kit	07G1409
Miscellaneous Kit, LCD	07G1410
Screw Kit	07G1411
Reference Diskette	06G9546

Options and Adapters

AC Adapter, CVCC	06G8457
for Japan	06G8462
for U.S. / Canada	06G8452
Communications Cartridge	07G3999
Miniature Mouse	95F5723
Strap	07G1449

Keyboard

French	1397927
German	1397926
Italian	1397928
Spanish	1397929
U.K. English	1397925
U.S. English	1397750

Numeric Keypad

French	95F6313
German	95F6314
Italian	95F6316
Spanish	95F6315
U.K. English	95F5741
U.S. English	95F5741

8503 Monochrome Display (with Tilt /Swivel Stand)

110/120 V ac	68X3045
220/240 V ac (Northern Hemisphere)	68X3046
220/240 V ac (Southern Hemisphere)	72X7878
Tilt /Swivel Stand	68X3061

8506 Monochrome Display (with Tilt /Swivel Stand)

110/120 or 220/240 V ac	39F8087
110/120 or 220/240 V ac (Northern Hemisphere)	39F8088
110/120 or 220/240 V ac (Southern Hemisphere)	39F8089

8507 Monochrome Display (with Tilt /Swivel Stand)

110/120 or 220/240 V ac (Universal Model)	6247808
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8508 Monochrome Display (with Tilt /Swivel Stand)

110/120 or 220/240 V ac	6247838
110/120 or 220/240 V ac (Northern Hemisphere)	39F8067
110/120 or 220/240 V ac (Southern Hemisphere)	39F8068

8512 Color Display (without Tilt /Swivel Stand)

110/120 V ac	61X8924
220/240 V ac (Northern Hemisphere)	61X8928
220/240 V ac (Southern Hemisphere)	61X8927
Tilt /Swivel Stand	61X8925

8513 Color Display (with Tilt /Swivel Stand)

110/120 V ac	68X3088
220/240 V ac (Northern Hemisphere)	72X7870
220/240 V ac (Southern Hemisphere)	72X7877
Tilt /Swivel Stand	68X3061

8514 Color Display (without Tilt /Swivel Stand)

110/120 V ac	75X5945
220/240 V ac (Northern Hemisphere)	75X5946
220/240 V ac (Southern Hemisphere)	75X5947
Tilt /Swivel Stand	75X5907

8515 Color Display (with Tilt /Swivel Stand)

90/137 V ac (U.S. and Canada) with Tilt /Swivel and packaging set	38F3911
90/265 V ac (Northern Hemisphere) with Tilt /Swivel and packaging set	38F3912
180/265 V ac (Southern Hemisphere) with Tilt /Swivel and packaging set	38F3913
90/137 V ac (Japan, Korea, Taiwan) with Tilt /Swivel and packaging set	38F3914
Shipping material:	16F0188
<input type="checkbox"/> Box	
<input type="checkbox"/> Front cushion	
<input type="checkbox"/> Rear cushion	
Power cable, 1.8 meters (6 ft.), U.S.	38F3968
Alternative to part number 38F3968 above	6952301

Tools and Miscellaneous

Tri-Connector Wrap Plug	72X8546
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