Model CL57 (8554)

General Checkout

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 computer is set to ON.
– Go to “Power Systems Checkout” on page 117.

006

– Power-off the computer 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 computer 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 on page 114.

008

– Press **Ctrl**+**Alt**+**Del**. When the cursor moves to the upper right, press **Ctrl**+**Alt**+**Ins** 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" on page 122.

   - or -

   If that does not correct the problem, go to "Undetermined Problem" on page 130.

   Notes:

   a. If the computer has an incorrect keyboard or numeric keypad response, go to "External Keyboard/Auxiliary Input Device Checkout" on page 465.

   b. If the printer has incorrect responses, go to "Printer Checkout" on page 468.

   c. If the external CRT display has problems such as jittering, rolling, shifting, or being out-of-focus, go to "External Display Self-Test" on page 464.

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

IS THE LIST OF INSTALLED DEVICES CORRECT?

Yes **No**

009

Go to "Checking Installed Devices" on page 131.

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" on page 122.

Yes **No**

011

You might 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.

(Step **011** continues)

(CONTINUED)

011 (continued)

- Check the power supply in use when the error is reported (see “Power Systems Checkout” on page 117).
- Check “Symptom-to-FRU Index” on page 122. If this did not fix the problem, go to “Undetermined Problem” on page 130.

012

Go to “Symptom-to-FRU Index” on page 122.

013

DID NOTHING APPEAR ON THE SCREEN?

Yes **No**

014

- If all system-status indicators do not appear for about 1 second, go to Step 016 under “Power Systems Checkout” on page 117.
- If the memory count is incorrect, go to “Memory Checkout” on page 115.
- Go to “Symptom-to-FRU Index” on page 122. If that does not correct the problem, go to “Undetermined Problem” on page 130.

015

Go to “Symptom-to-FRU Index” on page 122.

- or -

If that does not correct the problem, go to “Undetermined Problem” on page 130.

Memory Checkout

Customer diagnostics can eliminate defective memory so no memory error code appears at power-on reset. After you replace a defective memory module on the system board or IC DRAM card, run **Automatic Configuration**. Otherwise, the new memory will not be recognized. (If you have to run configuration with your own diskette, be sure the customer has all the correct option diskettes available.) Power-off the computer before removing or replacing parts.

001

– Remove all IC DRAM cards from the slots if installed.
– Run the memory tests.
  Use the RUN TESTS ONE TIME option.

DID THE MEMORY TESTS END WITHOUT AN ERROR?

Yes **No**

002

Replace the memory module on the system board.

003

DID YOU REMOVE THE IC DRAM CARD FROM SLOT 1?

Yes **No**

004

Go to Step 007.

005

– Reinstall the IC DRAM card into slot 1 and run **Automatic Configuration**.
– Run the memory test.
  Use the RUN TESTS ONE TIME option.

DID THE MEMORY TESTS END WITHOUT AN ERROR?

Yes **No**

006

Replace the IC DRAM card in slot 1.
If that does not correct the problem, replace the system board.

007

DID YOU REMOVE THE IC DRAM CARD FROM SLOT 1?

Yes **No**

008

(Step **008** continues)

(CONTINUED)

008 (continued)
Go to Step 011.

009

– Reinstall the IC DRAM card into slot 2 and run **Automatic Configuration**.
– Run the memory test.
Use the RUN TESTS ONE TIME option.

DID THE MEMORY TESTS END WITHOUT AN ERROR?

Yes **No**

010

Replace the IC DRAM card in slot 2.
If that does not correct the problem, replace the system board.

011

If the problem occurs intermittently, run the memory tests multiple times to have an error log.

Power Systems Checkout

Note

One or all of the batteries can discharge if there is a short circuit in the computer.

1. Replace the failing FRU if the power supply problem is caused by a short circuit.
2. Determine if one (or all) of the batteries have become discharged. Replace a discharged battery with a known-good spare.
3. Observe the Battery ID indicators or swap the two battery packs to determine which one has become discharged.

The test procedures for each power supply are found on the following pages.

"Testing the AC Adapter" on page 120.
"Testing the Battery Pack" on page 121.
"Testing the Backup Battery" on page 121.

None of the above? Follow the steps below.

001

DID THE PROBLEM OCCUR ONLY WHEN USING THE AC ADAPTER?

Yes **No**

002

Go to Step 004.

003

Go to "Testing the AC Adapter" on page 120. If that does not correct the problem, replace the voltage converter.

004

DID THE PROBLEM OCCUR ONLY ON BATTERY POWERED OPERATION?

Yes **No**

005

Go to Step 007 on page 118.

006

– Make sure the battery packs are fully charged.
– Go to "Testing the Battery Pack" on page 121 and check the battery packs. If that does not correct the problem, replace the voltage converter.

007

(Step **007** continues)

(CONTINUED)

007 (continued)
DO ALL SYSTEM STATUS INDICATORS REMAIN OFF AFTER POWER ON?
Yes **No**

008

Go to Step 016 on page 119.

009

– Remove the following if installed:

- Battery packs
- Backup battery
- IC DRAM card
- Internal Data/Fax modem
- Serial adapter
- Numeric keypad
- Math coprocessor
- Mouse
- External display

– Go to Step 010.

010

– Plug in the AC adapter and power-on the computer.
DOES ANY INDICATOR REMAIN ON?
Yes **No**

011

– Power-off the computer and remove the following.

- Hard disk drive
- Diskette drive
- LCD cables
- Keyboard flexible cables

– Power-on the computer again.
– Go to Step 013.

012

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

013

(Step **013** continues)

013 (continued)
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 computer one at a time, and power-on the computer 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.

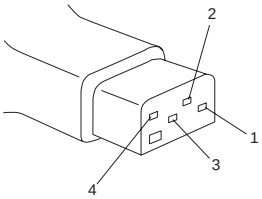
System-Status Indicator	Condition A	Condition B
Power-On	Off	On
Suspend Mode	Off	On
Scroll Lock	On	Off
Caps Lock	On	Off
Numeric Lock	On	Off
Diskette Drive	On	Off
Hard Disk Drive	On	Off
Battery ID 2	Off	On
Battery Status 2	Off	On
Battery ID 1	Off	On
Battery Status 1	Off	On
Carrier Detect	–	–

If the status lights match either condition A or B, replace the voltage converter. If the status lights are different from condition A or B, or replacing the voltage converter does not correct the problem, go to “Undetermined Problem” on page 130.

Testing 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 computer. 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 computer 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.



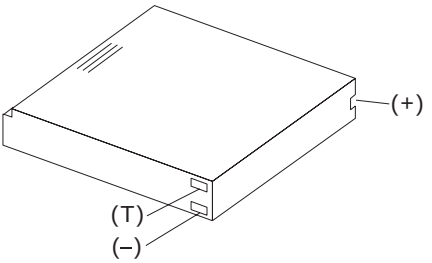
Pin	Voltage (V dc)
1	+18 to +22
2	+17 to +21
3	GND
4	Communication GND

- 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 computer 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.

Testing the Battery Pack

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



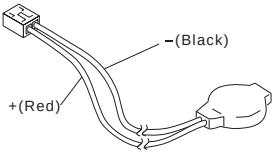
Terminal	Voltage (V dc)
(+)	+12 to +18
(T)	Thermal Detection
(-)	Ground

   - 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.

Testing 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.



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.

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” on page 112. This index also can be used to help you decide which FRUs to have available when servicing a computer.

If you are unable to correct the problem using this index, go to “Undetermined Problem” on page 130.

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 Systems Checkout” on page 117.)
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.

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

Numeric Error Codes

Symptom/Error	FRU/Action
000**102**00, 000**103**00, 000**104**00, 000**107**00	1. **System Board**
000**108**00	1. **System Board** 2. Communications Cartridge
000**110**00 (See "Memory Checkout" on page 115 before replacing any FRUs.)	1. **IC DRAM Card** or **Memory Module** 2. System Board
000**110**XX	1. **IC DRAM Card** or **Memory Module** 2. System Board
000**113**XX	1. **System Board** 2. Communications Cartridge 3. Any Drive
000**114**XX	1. **Communications Cartridge**
000**118**XX	1. **IC DRAM Card** or **Memory Module** 2. System Board
000**161**00	1. **See "Testing the Backup Battery" on page 121.** 2. System Board 3. Voltage Converter
000**163**00, 000**164**00, 000**165**00, 000**169**00 (If setting configuration does not solve the problem, see "Checking Installed Devices" on page 131.)	1. **Set Configuration** 2. System Board 3. Communications Cartridge 4. Hard Disk Drive 5. IC DRAM Card 6. Memory Module
000**166**XX	1. **Communications Cartridge**
000**171**XX	1. **See "Testing the Backup Battery" on page 121.** 2. System Board
000**172**XX	1. **System Board**
000**173**00	1. **See "Testing the Backup Battery" on page 121.** 2. System Board 3. Voltage Converter

Symptom/Error	FRU/Action
000**174**00 (If Automatic Configuration does not solve the problem, run Advanced Diagnostics.)	1. **Set Configuration** 2. System Board 3. Math Coprocessor
000**190**00, 000**191**XX	1. **System Board**
000**192**00	1. **Lid Switch** 2. Keyboard Control Card 3. System Board
000**193**00	1. **System Board**
000**199**XX	1. **System Board**
0001**XX**XX (not listed above)	1. **System Board** 2. Communications Cartridge 3. Indicator Card
0002**XX**XX (See “Memory Checkout” on page 115 before replacing any FRUs.)	1. **IC DRAM Card** or **Memory Module** 2. System Board
000**301**00, 000**305**00	1. **Keyboard Control Card** 2. System Board 3. Keyboard or Numeric Keypad
000**302**00, 000**303**00, 000**304**00	1. **System Board** 2. Keyboard Control Card 3. Keyboard or Numeric Keypad
000**306**00	1. **Keyboard or Numeric Keypad** 2. Auxiliary Input Device 3. Keyboard Control Card 4. System Board 5. I/O Panel Assembly
0004**XX**XX	1. **System Board** 2. Any Parallel Device 3. Communication Cable 4. I/O Panel Assembly
000**601**XX	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable
000**602**XX	1. **Defective Diskette**
000**655**XX, 000**662**XX 000**670**XX to 000**675**XX	1. **System Board** 2. Diskette Drive 3. Diskette Drive Cable
0006**XX**XX Unsupported drive or cable.	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable
000**720**XX	1. **System Board** 2. Math Coprocessor
0007**XX**XX	1. **Math Coprocessor** 2. System Board

Symptom/Error	FRU/Action
00**11XX**00	1. **System Board** 2. Serial Connector 3. Any Serial Device 4. Communication Cable
00**14XX**XX (See “Printer Checkout” on page 468 before replacing any FRUs.)	1. **Printer** 2. System Board
00**24XX**00	1. **Display Control Card** 2. Voltage Converter
00**5002**XX, 00**5006**XX, 00**5008**XX	1. **Display Control Card** 2. Voltage Converter 3. External Display 4. I/O Panel Assembly
00**5004**XX, 00**5010**XX, 00**5032**XX	1. **Display Control Card** 2. LCD Panel 3. LCD Cable
00**5009**XX	1. **External Display** 2. Display Control Card 3. I/O Panel Assembly
00**8601**00, 00**8602**00 00**8617**00, 00**8618**00	1. **Mouse or Trackball** 2. System Board 3. Numeric Keypad 4. I/O Panel Assembly
00**86XX**00	1. **System Board** 2. Mouse or Trackball 3. Numeric Keypad 4. I/O Panel Assembly
0**101XX**XX	1. **See “Fax/Modem Checkout” on page 466.**
0**10436**XX	1. **System Board** 2. Hard Disk Drive 3. Hard Disk Drive Cable
0**104XX**XX	1. **Hard Disk Drive** 2. System Board 3. Hard Disk Drive Cable
0**130XX**XX	1. **Indicator Card** 2. System Board 3. Keyboard Control Card
0**137XX**XX	1. **Serial Adapter** 2. System Board 3. Communication Adapter Holder 4. Any Serial Device 5. Communication Cable
0**166XX**XX, 0**167XX**XX	1. **Adapter in Communications Cartridge** 2. Communications Cartridge

Symptom/Error	FRU/Action
I9990301 (Startup drive not found.)	1. **Start the backup copy of the Reference Diskette and verify if the startup sequence is correct.** a. Select **Set features** from the Main Menu. b. Select **Set startup sequence**. c. Check the list of devices on the screen.
I9990302 (Operating system not found.)	1. **Make sure that an operating system is installed.** 2. Hard Disk Drive 3. System Board 4. Hard Disk Drive Cable
I998XXXX, **I9990303** (See “Hard Disk Partition” on page 132 before replacing any FRUs.)	1. **Restore the system programs onto the system partition.** 2. Set configuration 3. Hard Disk Drive 4. System Board 5. Hard Disk Drive Cable

Beep Symptoms

Symptom/Error	FRU/Action
Continuous beep.	1. **System Board**
Repeating short beeps. (See "External Keyboard/Auxiliary Input Device Checkout" on page 465 before replacing any FRUs.)	1. **Keyboard** 2. Keyboard Control Card 3. System Board
One long and one short beep.	1. **System Board**
One long and two short beeps.	1. **Display Control Card** 2. System Board
One short beep and a blank, unreadable, or flashing display with no external display attached. (See "CL57 LCD FRU Replacement Notice" on page 133 before replacing any FRUs.)	1. **LCD Panel** 2. Display Control Card 3. System Board 4. LCD Cable
One short beep and Diskette Prompt or a program load from the hard disk or unable to read diskette.	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable
Two short beeps and a blank display.	1. **System Board**

Miscellaneous 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 *no beep* and a blank or unreadable display during POST. (See "Power Systems Checkout" on page 117 before replacing any FRUs.)	1. **System Board** 2. Voltage Converter 3. Communications Cartridge 4. Hard Disk Drive 5. Display Control Card 6. Any options 7. Power source when failing
A *no beep* with a blinking cursor.	1. **System Board** 2. Display Control Card 3. Communications Cartridge
A *no beep* with a normal display during POST.	1. **Speaker** 2. Indicator Card 3. System Board 4. Keyboard Control Card

Symptom/Error	FRU/Action
A *no beep* and the computer hangs after displaying memory count.	1. **System Board** 2. Communications Cartridge 3. Hard Disk Drive
LCD too dark, unable to adjust contrast or brightness. (See "CL57 LCD FRU Replacement Notice" on page 133 before replacing any FRUs.)	1. **LCD Panel** 2. Regulator 3. Voltage Converter
LCD unreadable or illegible. (See "CL57 LCD FRU Replacement Notice" on page 133 before replacing any FRUs.)	1. **LCD Panel** 2. Display Control Card 3. LCD Cable
Missing or discolored dots on the LCD panel.	1. **See "CL57 LCD FRU Replacement Notice" on page 133.**
Unable to turn the LCD on and off.	1. **Regulator** 2. Voltage Converter 3. LCD Cable
Blank screen, or extra horizontal or vertical line(s) displayed on upper or lower half of the LCD. (See "CL57 LCD FRU Replacement Notice" on page 133 before replacing any FRUs.)	1. **LCD Panel** 2. Display Control Card 3. LCD Cable
Four battery indicators are blinking. Battery ID 1 Battery Status 1 Battery ID 2 Battery Status 2	1. **Voltage Converter** 2. System Board
System status indicator is incorrectly blinking or stays on.	1. **Related Device** 2. System Board 3. Indicator Card
System status indicator stays off, but the POST ends without an error.	1. **Indicator Card** 2. System Board 3. Related Device
Reference Diskette does not work. (Try another Reference Diskette or any bootable diskette before replacing FRUs. Ensure all correct level drivers are loaded.)	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable 4. Reference Diskette

Symptom/Error	FRU/Action
Keyboard does not work.	1. **Keyboard Control Card** 2. Keyboard Cable 3. Numeric Keypad if used 4. System Board
One or more keys do not work. (See “External Keyboard/Auxiliary Input Device Checkout” on page 465 before replacing any FRUs.)	1. **Keyboard** 2. Numeric Keypad 3. Keyboard Control Card
External display problems. (See “External Display Self-Test” on page 464 before replacing any FRUs.)	1. **External Display** 2. Display Control Card
Incorrect memory size during POST. (See “Memory Checkout” on page 115 before replacing any FRUs.)	1. **System Board** 2. Memory Module 3. IC DRAM Card
Computer hang or Intermittent hang. (See “Undetermined Problem” on page 130 before replacing any FRUs.)	1. **System Board** 2. Hard Disk Drive Cable 3. Hard Disk Drive 4. Replace the last device being tested 5. Display Control Card 6. Memory Module 7. IC DRAM Card 8. Voltage Converter
The computer goes into suspend mode after the POST.	1. **System Board** 2. Voltage Converter 3. Lid Switch 4. Keyboard Control Card
The computer does not suspend or resume.	1. **System Board** 2. Voltage Converter 3. Lid Switch 4. Keyboard Control Card
The computer does not power off.	1. **Voltage Converter** 2. System Board 3. Indicator Card
Real-time clock inaccurate. (See “Testing the Backup Battery” on page 121 before replacing any FRUs.)	1. **Backup Battery** 2. System Board
Printer problems.	1. **See “Printer Checkout” on page 468.**

Symptom/Error	FRU/Action
Serial or parallel port device problems.	1. **Device** 2. Cable 3. System Board 4. Serial Adapter (if attached) 5. I/O Panel Assembly
Internal Data/Fax modem does not communicate with a remote modem or a fax.	1. **See "Fax/Modem Checkout" on page 466.**

Undetermined Problem

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

Check the power supply in use (see "Power Systems Checkout" on page 117). If the power supply is operating correctly, return here and continue with the following procedure.

1. Power-off the computer and remove the battery packs from the computer.
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 computer and start the system program.
4. Press **Ctrl**+**A** to run the system checkout. Do not configure the computer. 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 computer.
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.

Related Service Procedures

This section provides related service information on the following:

"Checking Installed Devices"
"Power-on Password" on page 132
"How to Run the Advanced Diagnostics" on page 132
"Hard Disk Partition" on page 132
"Restoring the Partition" on page 133
"CL57 LCD FRU Replacement Notice" on page 133

Checking Installed Devices

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

Warning: A customized setup configuration (other than default settings) might exist on the computer 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.

- 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.
- A power supply voltage is incorrect (see "Power Systems Checkout" on page 117).

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" on page 130.

Power-on Password

Important

This information is not available in this HMM online format. See your IBM Servicer or IBM Authorized Dealer for this procedure.

How to Run the Advanced Diagnostics

1. Power-on the computer.
2. When the cursor moves to the upper right, press **Ctrl**+**Alt**+**Ins** to start the system program. If the IBM logo does not appear, insert the backup copy of the Reference Diskette into the diskette drive, press **Ctrl**+**Alt**+**Del**, then repeat this step.
3. Advance to the Main Menu.
4. Press **Ctrl**+**A** to run the system checkout.

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**+**Del** and, as soon as the cursor moves to the upper right corner of the display, pressing and holding **Ctrl**+**Alt**+**Ins**.

Restoring the Partition

If a computer 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 computer 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 126 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.

CL57 LCD FRU Replacement Notice

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

Important

The LCD for the Model CL57 contains over 921 000 thin film transistors (TFTs). A small number of missing, discolored or lighted dots (on all the time) is characteristic of TFT LCD technology, but excessive pixel problems can cause viewing concerns. The LCD should be replaced if the number of dots satisfies either of the following conditions:

- The number of missing or discolored dots in any colored back ground, except black, is 14 or more.
- The number of lighted dots in a black background is 7 or more.

Product Overview

The following table provides a brief overview of the computer features.

Feature	Description
Processor (MHz)	386SX 20 MHz
Bus Architecture	Micro Channel
Memory (Standard)	2MB
Memory (Maximum)	16MB
Video	VGA
Diskette Drive	3.5-inch
Hard Drive	80MB

FRU Removals and Replacements

Follow the numerical sequence in the FRU removal sequence list and the exploded view to remove or disconnect parts in the correct order. The letters in parentheses in the list indicate screw types. See the “Screw Size Chart” on page 19 to match the letters to the correct screw type and size before replacing each screw.

Safety Notice 8: Translation on page 13

Before removing any FRU, power-off the computer, unplug all power cords from electrical outlets, remove the battery pack, then disconnect any interconnecting cables.

Safety Notice 1: Translation on page 7

Before the computer is powered-on after FRU replacement, make sure all screws, springs, or other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical shorts.

1. **Battery Cover**
2. **Battery Pack**
3. **Hinge Covers**
4. **Six Screws (4-EE, 2-C)**
   (One at each bottom corner and two through extensions at bottom of LCD)
5. **LCD Rear Cover**
   (To separate panel from rear cover, place screwdriver in small slit in bottom front of LCD panel and release latch.)
   Two Cables from LCD Assembly
6. **Four Screws (LL)**
   (Two on each side)
   LCD Assembly
7. **Bend Back Thirteen LCD Panel Tabs**
   Four LCD Panel Screws (MM)
   (From back of panel)
8. **Separate LCD Panel and LCD Bezel**
9. **Three Bottom Cover Screws (LL)**
   (At bottom-front)
10. **Keyboard Frame**
11. **Two Screws (MM)**
    (At rear of keyboard)
12. **Loosen Keyboard**
13. **Four Screws (MM)**
    (Look for 13 four times in illustration.)
14. **Loosen Top Cover**
15. **Two Ribbon Cables**

Keyboard
(Keyboard can be removed without removing top cover. However, keyboard cables cannot be reconnected with top cover installed.)
Trackball Cable
(At right-rear of keyboard)

16 **Indicator Card Cable**
Top Cover
(See step 14 . Ensure that keyboard is removed before removing top cover.)

17 **Two Trackball Assembly Screws (LL)**

18 **Trackball Assembly**

19 **Speaker Cable**

20 **Four Screws (LL)**
(Two indicator card screws from rear and two speaker retainer bracket screws from bottom)

21 **Indicator Card**
(When replacing indicator card, ensure that speaker volume switch and power-on switch fit into their respective slots in top cover.)

22 **Speaker**

23 **Two Diskette Drive Ribbon Cables**

24 **Four Diskette Drive Screws (LL)**
Micro Switch Cable

25 **Diskette Drive and Mounting Bracket**

26 **Two Hard Disk Drive Ribbon Cables**

27 **Four Hard Disk Drive Screws (LL)**

28 **Hard Disk Drive and Mounting Bracket**
(Have customer backup all information on hard disk drive before removal. When replacing hard disk drive, use customer's backup Reference Diskette to restore system partition.)

29 **Backup Battery**

30 **Keyboard Control Card Ribbon Cable**
Three Keyboard Control Card Screws (NN)

31 **Keyboard Control Card**

32 **Display Control Card Ribbon Cable**
(Press and hold metal clips on each side of cable connector.)

33 **Two Display Control Card Screws (LL)**

34 **Display Control Card**

35 **Two Hinge Support Screws (LL)**
(On hinge support)

36 **Six Screws (4-PP, 2-QQ) and Hinge Assemblies**
(Three screws on each side)

37 **Loosen Hinge Support**
Two Regulator Card Cables

38 **Three Regulator Card Screws (LL)**

39 **Regulator Card**

40 **Two I/O Connector Ribbon Cables**

41 **Two Threaded Spacers**

42 **Three Modem Guide Screws (V)**

43 **Two Threaded Hex Spacers**
(At each end of system board)

44 **Voltage Converter Cable**

45 **System Board Cable (upper left)**

System Board and Mounting Bracket
(When installing system board, ensure that power control switch on I/O panel is set to On. Also, run Automatic Configuration and set time and date. Transfer math coprocessor (if installed) to new system board.)

IC DRAM Card Connector
(Connected under system board.)

46 **Two I/O Connector Screws (LL)**

47 **I/O Connectors and Cover**

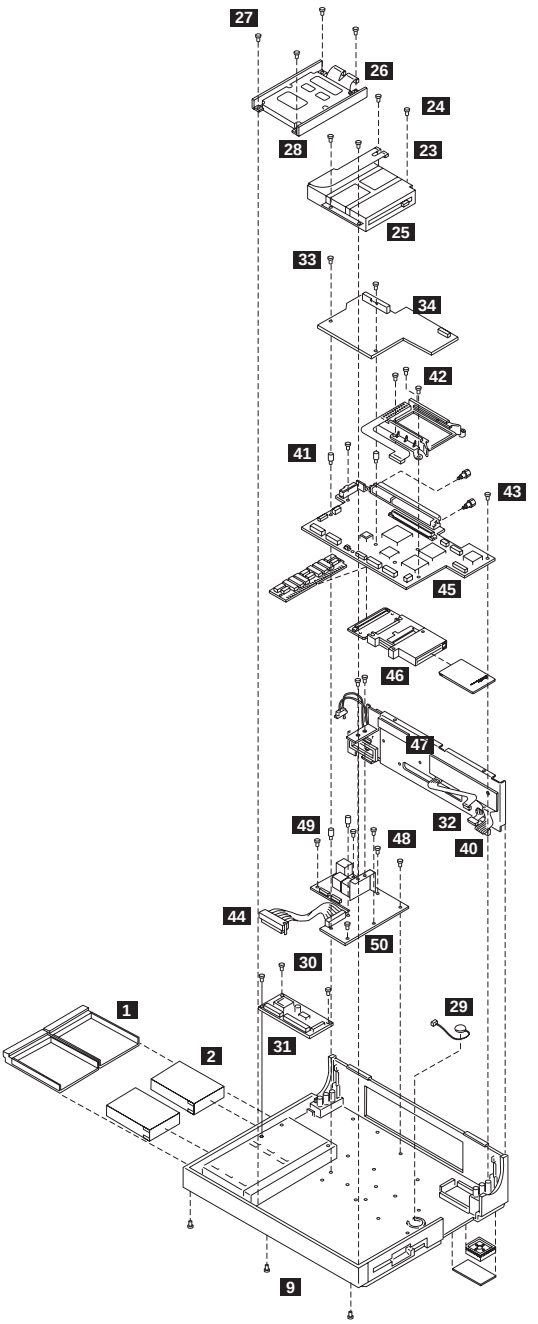
48 **Six Voltage Converter Card Screws (SS)**

49 **Two Threaded Spacers**
(On voltage converter card)

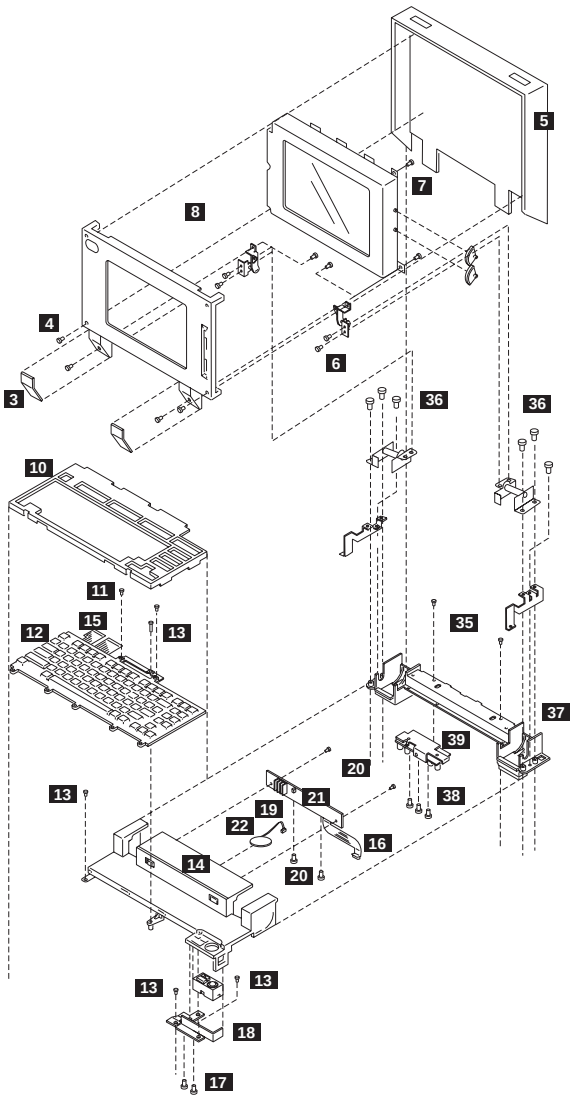
Battery Cable

50 **Voltage Converter Card**
(Be careful to use correct screws to replace voltage converter. Bottom cover can be cracked.)

Model CL57 Exploded View



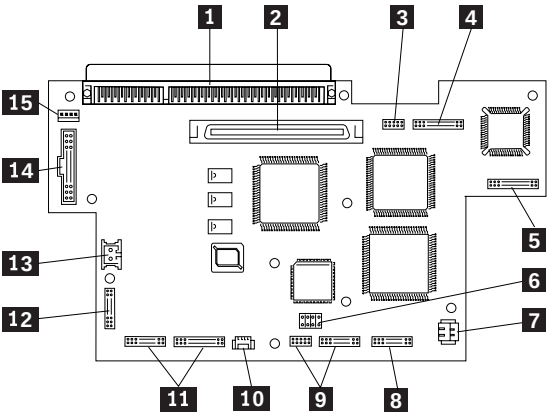
Model CL57 Exploded View (continued)



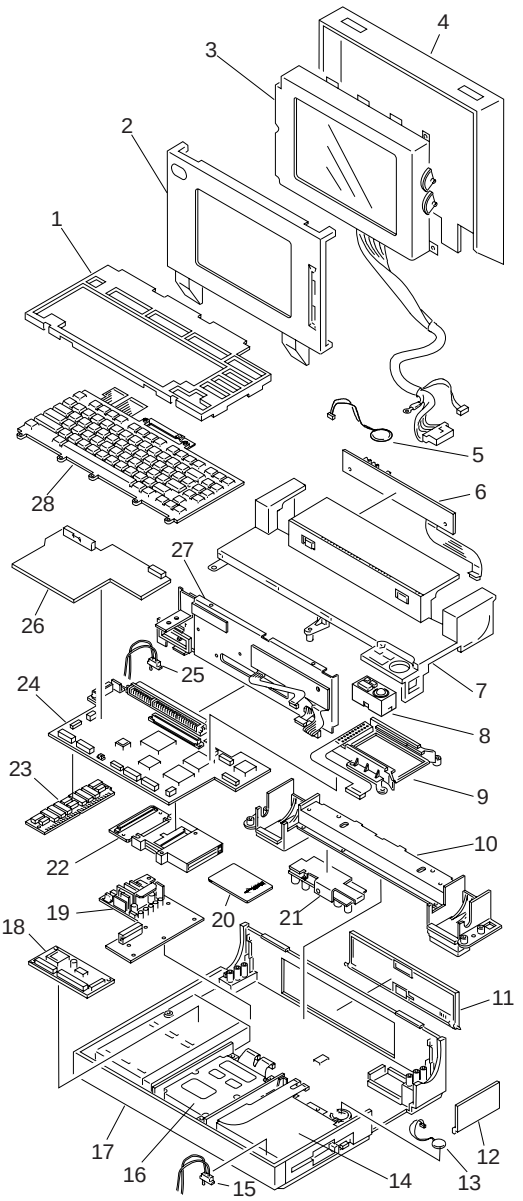
Locations

System Board

1. System Expansion Connector (150-pin)
2. Display Control Card
3. Serial Connector
4. I/O Panel (Parallel/External Input)
5. Indicator Card
6. Password-Override Connector
7. Backup Battery
8. Communication Interface (Modem/Serial)
9. Diskette Drive
10. Thermal Sensor
11. Hard Disk Drive
12. Trackball/Keyboard Card Connector
13. Dew Point Sensor
14. Voltage Converter
15. Voltage Converter



Parts Listing



System Unit

Index		
1	Frame, Keyboard	07G1393
2	Bezel, LCD	07G1391
3	LCD Panel	48G9999
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	2MB IC DRAM Card	07G1414
	4MB IC DRAM Card	07G1415
	8MB IC DRAM Card	07G1416
21	Regulator	06G9536
22	Connector, IC DRAM Card	07G1377
23	Memory Module Kit, System Board	07G1879
24	System Board	07G1371
	Note: On system board EC level C81806A, J2 and J12 have been removed, and the cable between J2 and Voltage Converter (index 19) is not used.	
	System Board Dew Sensor	35G2319
25	Switch, Communications Cartridge	07G1385
26	Display Control Card	07G1372
27	I/O Panel Assembly	07G1374
	Bracket, Connector (includes slide and connector screws)	07G1402
	Serial Connector Assembly	07G1426
28	Keyboard (see Keyboards)	
	Battery Pack, Rechargeable, HHR140A	07G1413
	For Benelux	06G8433
	For Nordic countries	06G8434
	For Switzerland	06G8432
	Battery Pack, Rechargeable, HHR150A	06G9259
	For Switzerland	06G9264
	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 (voltage converter to system board)	07G1382
Cable, 4-Pin (voltage converter to system board)	07G1383
Communications Adapters:	
Serial Adapter	79F6840
Data/Fax Modem Adapter (U.S., Canada only)	53G7772
High-Speed Data/Fax Modem (U.S., Canada only)	92F0288
Telephone Cable	94X1540
Miscellaneous Kit	07G1409
Miscellaneous Kit, LCD	07G1410
Screw Kit	07G1411

Options and Adapters

AC Adapter, CVCC, World Trade	06G8457
for Japan	06G8462
for U.S./Canada	06G8452
AC Adapter, CT	
for Japan	35G2285
for U.S./Canada	07G1412
Communications Cartridge	07G3999
External Battery Pack	34G9869
Battery Pack Cable (for 34G9869)	34G9870
FaxConcentrator Adapter/A	94X2540
FaxConcentrator Adapter/A Cable	94X2527
Miniature Mouse	95F5723
Strap	07G1449
Trackball Cable	07G1381

Keyboards

French	1397927
German	1397926
Italian	1397928
Japanese	1398299
Spanish	1397929
U.K. English	1397925
U.S. English	1397750
Cable, Keyboard	07G1381

Numeric Keypad

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