ThinkPad 701C/701CS (2630)

Checkout Guide

> **Service for U. S. and Canada**
>
> In the U. S. and Canada, the ThinkPad 701C/701CS is serviced only through EasyServe.

Use the following procedure as a guide for computer problems:

1. Ask the customer for as much detail as possible about the failing symptoms.
2. Verify the symptoms by attempting to recreate the failure either by running the diagnostics test or by repeating the same operation. (To run the diagnostics, refer to "Running the Diagnostics" on page 156.)
3. Use the following table with the verified symptom to determine which page to go to. Search the symptoms column and find the description that best matches your symptom; then, go to the page shown in the "Go to" column.

   Note: Before replacing any FRU, see "FRU Removals and Replacements" on page 161.

Symptom	Go to
Power failure. (The power indicator does not go on or stay on.)	"Power Systems Checkout" on page 135.
POST does not complete. No beeps or error codes are indicated.	"No-Beep Symptoms" on page 146.
POST beeps, but no error codes are displayed.	"Beep Symptoms" on page 145.
POST detected an error and displayed numeric error codes.	"Numeric Error Codes" on page 142.
The diagnostics test detected an error and displayed a FRU code.	"FRU Codes" on page 144.
The configuration is not the same as for the installed devices.	"Checking Installed Devices" on page 157.
Other symptoms (such as LCD display problems).	"Symptom-to-FRU Index" on page 141, and then use the symptoms tables.
Symptoms cannot be recreated. (Intermittent problems.)	Use the customer-reported symptoms and also see "Intermittent Problems" on page 152.

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:

- Only trained personnel should service the computer.
- Drives in the computer that 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 destroyed if you select an incorrect drive.

Perform the following procedures to complete a general checkout:

1. Power-off the computer and all external devices.
2. Check all cables and power cords for correct connection.
3. Power-on all external devices.
4. Power-on the computer.
5. Press the **F1** key any time while the POST memory count is proceeding. The computer emits one short beep at the end of POST and the Easy-Setup screen appears. If this does not occur, go to "Symptom-to-FRU Index" on page 141.
6. Run the advanced diagnostics tests. For information on how to run the diagnostics tests, see "Running the Diagnostics" on page 156. For information on how to disable the password, see "Removing the Power-On Password" on page 156.
7. Find your symptom in the table in "Checkout Guide" on page 127, and then go to the appropriate page. Otherwise, see "Symptom-to-FRU Index" on page 141, and then go to "Undetermined Problems" on page 152.

Memory Checkout

Depending on the amount of additional memory installed by the customer, the memory size that is available for customer use appears differently. This is *not* a hardware problem. Consult the following table for the available memory on a system with a 4MB base memory when the customer installs different sizes of small outline dual inline memory module (SO-DIMM).

SO-DIMM Installed	Total Memory	Available Memory
None	4MB	3 712KB
4MB	8MB	7 808KB
8MB	12MB	11 904KB
16MB	20MB	20 096KB

The following table shows the available memory on a
system with an 8MB base memory with different sizes of
SO-DIMM.

SO-DIMM Installed	Total Memory	Available Memory
None	8MB	7 808KB
4MB	12MB	11 904KB
8MB	16MB	16 000KB
16MB	24MB	24 192KB

Memory errors might stop system operations or cause
error codes to be displayed.

Use the following procedure to isolate memory problems:

> **Note:** Make sure that the SO-DIMM is fully installed
> in the connector. A loose connection can cause an
> error. For more information about installing
> SO-DIMMs, see "FRU Removals and Replacements"
> on page 161.

1. Power-on the computer. Press the **F1** key any time
   while the POST memory count is proceeding. At the
   end of the memory test, the Easy-Setup screen
   appears.
2. Select **Test** and press **Enter**.
3. Press **Ctrl**+**A** to enter advanced diagnostics.
4. Select **Memory** and press **Enter** to run the memory
   test on base memory.
   - If an error appears below 3 712KB on a system
     with a 4MB base memory (7 808KB with an 8MB
     base memory), replace the bottom system board.
   - If an error appears above 3 712KB on a system
     with 4MB base memory (7 808KB with an 8MB
     base memory), replace the SO-DIMM.
5. If after replacing the SO-DIMM, an error above
   3 712KB on a system with a 4MB base memory or
   7 808KB with an 8MB base memory still appears,
   replace the bottom system board.
6. To exit from the test screen, press **Esc**.

If memory problems occur intermittently, use the loop
option to repeat the test. For more information on running
the loop test, see "Running the Diagnostics" on page 156.
When the test detects an error, an error log is printed on
the printer connected to the parallel port. See "Printing
and Displaying Error Logs" on page 157 for more
information.

Do not replace FRUs because of a single, nonreproducible
failure. Single failures can occur for a variety of reasons
that have nothing to do with a hardware defect, such as
electrostatic discharge or software errors. Consider
replacing a FRU only when a recurring problem exists. If
you suspect that problems besides a failing FRU exist,

clear the error log and run the test again. Do not replace any FRUs if errors do not reoccur.

Updating Flash Memory: BIOS and Easy-Setup, which includes configuration programs and diagnostic tests, are stored in Flash memory. To update them, Flash memory must be updated.

When Updating Flash Memory

Do not power-off the computer, disconnect the Vac power, or remove the battery pack during the Flash update. The system board will have to be replaced if the update is interrupted.

Updating Flash memory also resets all of the customer's configuration settings to the default values.

To update the Flash memory, perform the following steps:

1. Within the Configuration Utility, check the "Startup Sequence" setting and make sure that it is set to **Smart** or **Conventional**. If it is set to **Hard Disk**, change the setting to **Smart** or **Conventional** to set the system to boot from the update diskette in the following procedure.

   If you change the user's setting, make a note of the setting before changing it.
2. Power-off the computer.
3. Connect the computer to Vac power and install a charged battery pack.
4. Insert the Flash update diskette in drive A.
5. Power-on the computer.
6. Follow the instructions as they appear to update Flash memory.
7. Power-off the computer, and then power it on again. Error codes 162 and 163 will be displayed.

   Press **Enter** to enter the Configuration Utility. Reset the date and time.
8. Press **Esc** to leave the Configuration Utility, and then press **Enter** to save the changes.
9. If the Flash update fails, replace the bottom system board. Save the system board that failed, marking it "to be reflashed."

Keyboard/Auxiliary Input Device Checkout

Remove the external keyboard if the internal keyboard is to be tested.

If the internal keyboard does not work or an unexpected character appears, make sure that the three flexible cables extending from the keyboard are correctly seated in the connectors on the top system board.

If the keyboard cable connection is correct, run the **Keyboard Test** by performing the following steps:

1. Power-off the computer, and then power it on again.
2. Press the **F1** key any time while the POST memory count is proceeding. At the end of the memory test, the Easy-Setup screen appears.
3. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
4. Press **Ctrl+A** to enter advanced diagnostics.
5. Press **Ctrl+K** to start the keyboard diagnostics test.
6. Press each key. A shaded box appears in the corresponding key position on the keyboard layout on the screen. Press the key again to remove the box.

   Note: The shaded box appears in **Fn** only during the first keyboard test of a diagnostics session.

7. To exit from the test screen, press **Esc**.

If the tests detect a keyboard problem, perform the following tasks one at a time to correct the problem:

Note: Do not replace a nondefective FRU.

- Reseat the three cables.
- Replace the keyboard.
- Replace the top system board.

The following auxiliary input devices are supported for this computer through the MultiPort II:

- Numeric keypad
- Mouse (PS/2* compatible)
- External keyboard (standard PS/2 or with keyboard/mouse cable)

If any of the above devices do not work, reseat the cable connector and repeat the failing operation. If the problem does not reoccur, recheck the connector. If the problem reoccurs, repeat the operation with a device that is known to be good. If the problem still reoccurs, go to "MultiPort II Checkout" on page 134.

TrackPoint III Checkout

If the TrackPoint III does not work, check the configuration in the Configuration Utility by pressing **PgDn** to reach the **I/O Management** screen. If the setting for TrackPoint III is 0ff, press the left or right arrow to change it to 0n. If this does not correct the problem, continue with the following procedure:

Note: The TrackPoint III performs automatic compensations to adjust the pointer sensor. During this process, the pointer moves about the screen for a short time. This self-acting pointer movement can occur when a slight, steady pressure is applied to the TrackPoint III pointer when the computer is powered on, when the system is running, or when readjustment is required because the temperature has changed significantly within a short period of time or the temperature is higher than its operating temperature. This symptom does not indicate a hardware problem. No service actions are necessary if the pointer movement stops in a short period of time. However, the TrackPoint III will not stabilize if you apply pressure to it. If pointer movement occurs, you can go into Suspend mode, and then resume normal operation. Resuming or turning the computer on both cause the TrackPoint III to be calibrated, which may correct the problem. If you see continual movement of the pointer, the TrackPoint III is probably defective. In rare cases, the top system board can also cause this problem.

If a click-button problem or TrackPoint III problem occurs, perform the following steps:

1. Power-off the computer, and then power it on again.
2. Press the **F1** key any time while the POST memory count is proceeding. At the end of the memory test, the Easy-Setup screen appears.
3. Select an item with the TrackPoint III.
4. Press either the left or right click button.
5. Verify that both buttons work correctly.

If either the TrackPoint III or the click button does not work, perform the following tasks one at a time to correct the problem:

Note: Do not replace a nondefective FRU.

- Reseat the three keyboard cables.
- Replace the keyboard.
- Replace the top system board.

Diskette Drive Checkout

Use the following procedure to isolate the diskette problem to a controller, drive, or diskette. For this test, you need a scratch, write-enabled, double-sided, high-density diskette (2.0MB that formats to 1.44MB) that is known to be good.

1. Power-off the computer.
2. Attach the external diskette drive if it is not already attached.
3. Power-on the computer.
4. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
5. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
6. Press **Ctrl**+**A** to enter the advanced diagnostics.
7. Select the **FDD-1** icon and press **Enter**. This runs the controller test and the drive read/write test.
8. If the controller test detects an error, FRU code 10 appears. First, replace the diskette drive and cable and run the test again. If FRU code 10 appears from this second test, replace the top system board.
9. If the controller test runs without errors, select **Tool** from the advanced diagnostics screen. (See "Running the Diagnostics" on page 156 for instructions.) Select the **FDD-1** icon and insert a scratch diskette to continue with the drive test.
10. Select the **FDD-1** icon from the advanced diagnostics screen and press **Enter**.
11. If the drive test detects an error, FRU code 50 appears. Replace the drive or the drive cable.
12. To exit from the test screen, press **Esc**.

Hard Disk Drive Checkout

1. Power-off the computer.
2. Insert the hard disk drive to be tested.
3. Power-on the computer. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
4. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
5. Press **Ctrl**+**A** to enter advanced diagnostics. and press **Enter**.
6. If the test detects an error, FRU code 60 appears under the **HDD-1** icon. Replace the hard disk drive.
7. To exit from the test screen, press **Esc**.

MultiPort II Checkout

Use the following procedure to isolate a MultiPort II problem. The MultiPort II attaches to the system expansion connector at the rear of the computer.

1. Power-off the computer.
2. Remove all of the devices from the MultiPort II.
3. Unplug the AC adapter from the computer, if attached, and plug the AC adapter into the MultiPort II if it is not already attached.
4. Attach wrap plugs to the serial port and the parallel port on the MultiPort II.
5. Power-on the computer.
6. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
7. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
8. Press **Ctrl+A** to enter advanced diagnostics.
9. Select **Tool** to install the wrap plugs on the ports. (See "Running the Diagnostics" on page 156 for instructions.)
10. Run the diagnostics tests on the parallel and serial ports on the computer and the MultiPort II. To test the external display device, select the **Display** icon. Test results will be displayed under the icon for each selected device.
11. If the diagnostics tests do not find errors, suspect a problem with the previously attached devices.

    If the tests find errors, perform the following steps to recheck the computer:
    - Power-off the computer.
    - Remove the MultiPort II from the computer.
    - Power-on the computer and rerun the tests on the available parallel and serial ports.

    If the errors do not reoccur, replace the MultiPort II. If the errors persist, suspect that the errors are related to internal FRUs and replace the appropriate FRU (for information on FRU codes, see "FRU Codes" on page 144).
12. If power problems appear only when using the MultiPort II, replace the MultiPort II.
13. To exit from the test screen, press **Esc**.

Power Systems Checkout

To verify the symptom of the problem, power-on the computer using each of the power sources available as follows:

1. Remove the battery.
2. Connect the AC adapter and check that power is supplied by pressing the power switch.
3. Disconnect the AC adapter and install the charged battery; then, check that power is supplied from the battery by pressing the power switch.

Note: The battery is charged only while the computer is powered-on (the computer can be in the suspend mode). The battery cannot be charged if the computer is powered-off.

If you suspect a power problem, see the appropriate power-supply check listed below:

- "Checking the AC Adapter."
- "Checking the Battery Pack" on page 136.
- "Checking the Standby Battery" on page 137.

Checking the AC Adapter: Check the AC adapter if the computer fails only when the AC adapter is used, or if the battery does not charge when the AC adapter is attached and the computer is on or in suspend mode.

- If the power problem occurs only when the MultiPort II is used, replace the MultiPort II.
- If the power-on indicator does not turn on, check the AC adapter for correct continuity and installation. If the connection is suspect, replace the AC adapter.
- If the operational charge does not work, go to "Power Related Symptoms" on page 149.

Note: Several types of AC adapters can be supplied with the ThinkPad 701C/701CS. The procedure for checking them is the same.

1. Unplug the AC adapter cable from the computer and measure the output voltage at the plug of the AC adapter cable. See the following figure.
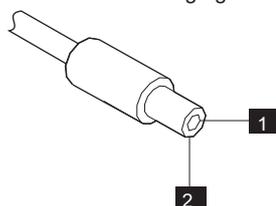
Pin	Voltage (V dc)
1	+15.5 to +17.0
2	Ground

2. If the voltage is not correct, replace the AC adapter.

    Note: In rare cases, the problem may be in the AC adapter even when the voltage is correct. If an AC adapter is available, try replacing the computer's AC adapter.

3. If the voltage is correct, replace the top system board. If this does not correct the problem, go to "Undetermined Problems" on page 152.

Note: An audible noise from the AC adapter does not always indicate a defective adapter.

Checking the Battery Pack: Perform the following steps to check the battery:

┌─── **Safety Notice 7: Translation on page 12** ───┐

Though main batteries have low voltage, a shorted or grounded battery can produce enough current to burn combustible materials or personnel.

└───┘

1. Remove the battery.

    Note: To remove the battery, end external communications if you are not using an AC adapter. Power-off the computer, and then close the lid. Unlock the battery compartment door located on the bottom of the computer. Slide the battery out of the compartment.

2. Measure the voltage between battery terminals 1 (+) and 4 (−). See the following figure.
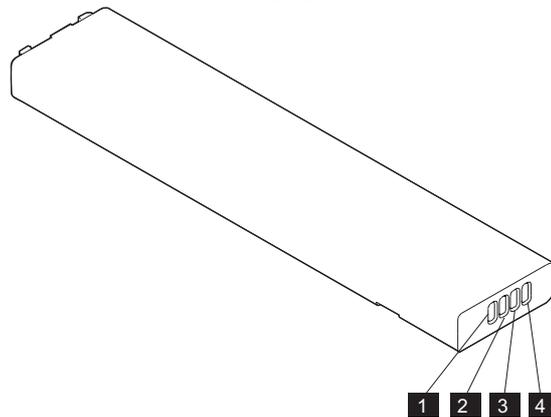
Terminal	Voltage (V dc) / Signal
1	11.0 (nominal) (Range +10.0 to +16.0)
2	VCC
3	I/O
4	Ground

> **Note:** The signal lines not used in these steps, terminals 2 and 3, are used for communication between the system and the battery.

3. If the voltage is less than +10.0 V dc, the battery has been discharged or is defective. Recharge the battery.

   If the voltage is still less than +10.0 V dc after the recharging, replace the battery.

Checking the Standby Battery: Before performing the following steps, make sure that the standby battery is fully charged by leaving the computer plugged into ac power while on or in suspend mode for 24 hours. The computer can be used normally while the standby battery is charging. If any problem is not corrected after charging the standby battery, perform the following steps.

1. Power-off the computer and unplug the AC adapter from the computer.
2. Remove the battery.
3. Remove the top system board.
4. Replace the standby battery from the bottom of the top system board.
5. Reinstall the top system board.
6. Plug the computer into ac power, power-on the computer, and let the standby battery charge for 24 hours.
7. To verify standby battery operation, remove and reinstall the battery while the computer is in the suspend mode.

   > **Note:** For this test to be valid, the battery should reinstalled within 1 minute.

   The resume operation should start.
8. If the resume operation does not work, replace the top system board.

Infrared Transceiver Checkout

The infrared transceiver is located on the inverter card in the ThinkPad 701C/701CS. When you run diagnostics on the infrared transceiver, the test is actually checking the top system board, not the infrared transceiver itself. Therefore, complete the following steps before running diagnostics or replacing any FRUs.

If the customer cannot establish a connection between the ThinkPad 701C/701CS and a remote system, perform the following steps:

1. Ensure that the device the customer attempted to connect with is an Infrared Data Association (IRDA) compliant device.

2. Check to make sure that both systems are using the same revision level of the same software.

3. Check setup options on both systems to ensure that the baud rate and other setup parameters are the same.

4. Check the Configuration Utility to ensure that the infrared transceiver is assigned to the same serial port that is designated in the application software and that the IRQ assignment is not shared with any other device such as the internal modem or external serial port on the MultiPort II.

5. Verify that the two systems are in close proximity (less than 1 meter [3.2 feet] apart for IRDA-compliant devices) and that the infrared transceiver window on the ThinkPad 701C/701CS is aligned with (directly opposite) the remote device's window.

6. Ensure that the windows on both systems are clean and unobstructed.

If the two systems still will not connect after you have followed the preceding steps and the remote system is another computer with a terminal program (for example, Windows** Terminal** or Procomm**) installed, perform the following tests:

1. Set up the terminal application on each system to communicate with the infrared transceiver serial port at a speed of 115KB per second.

2. Type characters on the ThinkPad 701C/701CS keyboard and check to see whether or not these characters appear on the remote system. (Note that the characters you type will not appear on the ThinkPad 701C/701CS system.)

3. Type characters on the remote keyboard and check to see whether or not these characters appear on the ThinkPad 701C/701CS system.

4. If characters do not appear in either step 2 or 3 and you are certain that infrared is working correctly on the remote system, replace the inverter card.

5. If characters do appear, consult the software vendor to ensure that the customer is using a compatible software package and that the setup parameters are correct.

If data transfers between the ThinkPad 701C/701CS and the remote system are slow or unstable:

1. Verify that the two systems are in close proximity (less than 1 meter [3.2 feet] apart for IRDA-compliant devices) and that the infrared window on the ThinkPad 701C/701CS is aligned with the remote device's window.

2. Ensure that the windows on both systems are clean and unobstructed.

3. If you are using TranXit, check the `IRDELAY` parameter in the TRANXIT.INI file in the TRANXIT directory. The parameter should be set to `10`.

To run the diagnostics test on the infrared transceiver, perform the following steps:

1. Power-off the computer, and then power it on again.
2. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
3. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
4. Press **Ctrl**+**A** to enter advanced diagnostics.
5. Select **Infrared** and press **Enter** to run the test on the infrared transceiver. Test results will be displayed under the **Infrared** icon.
6. If no errors are detected, the "OK" message appears.
7. If an error is detected, the FRU code and error description message appear. Go to "FRU Codes" on page 144 and replace the FRU.
8. To exit from the test screen, press **Esc**.

PCMCIA Checkout

For a more thorough test, use one PCMCIA card in each slot. Perform the following steps to test the PCMCIA** slots:

1. Power-off the computer, and then power it on again.
2. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
3. Press the left or right arrow key to select **Test** and press **Enter** or position the pointer over the **Test** icon and click the left click button once.
4. Press **Ctrl**+**A** to enter advanced diagnostics.
5. If you are using PC test cards, select **Tool** to install them. Insert the cards when prompted. (For instructions on installing test cards, see "Running the Diagnostics" on page 156. For instructions on inserting the cards, see "Removing PCMCIA Cards" on page 159.)

6. Select the **PCMCIA** icon and press **Enter** to run the test on the PCMCIA slots. The green LED on the PCMCIA card should turn on when the test runs. (If the green LED does not turn on, see "Reading the PC Test Card LED" on page 158.) Test results will be displayed under the **PCMCIA** icon.
7. If no errors are detected, the "OK" message appears.
8. If an error is detected, the FRU code and error description message appear. Go to "FRU Codes" on page 144 and replace the FRU.
9. To exit from the test screen, press **Esc**.

Symptom-to-FRU Index

The Symptom-to-FRU Index contains tables that list causes of symptoms. The most likely cause is listed first. Use this index to help you decide which FRUs to have available when servicing a computer.

```
┌─── 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.  │
│                                               │
└───────────────────────────────────────────────┘
```

Perform the FRU replacement or actions in the sequence shown in the "FRU / Action" columns. If the replacement FRU did not solve the problem, put the original FRU back in the computer.

Notes:
1. Before replacing the top and bottom system boards, try reseating the boards. If reseating the boards does not correct the problem, replace the boards.
2. If possible, install the latest level of BIOS available before replacing any FRU.

Before completely reassembling a computer that has been repaired, try to reboot the computer to check the repairs that have been completed. However, when you reboot without the keyboard attached, the computer will display error codes 8603, 8613, and 86XX.

Use displayed numeric error codes to determine the system problem. If numeric error codes are not available, use the other symptom tables that describe specific symptoms. If the symptom is not listed, go to "Undetermined Problems" on page 152.

```
┌─── Note: ──────────────────────────────────────┐
│                                                │
│  For IBM devices not supported by diagnostics  │
│  codes of ThinkPad 701C/701CS, see the manual  │
│  for those devices.                            │
│                                                │
└────────────────────────────────────────────────┘
```

Numeric Error Codes

Numeric error codes show the errors detected in POST or system operation. 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.

In the following error codes, **X** can be any number.

Symptom/Error	FRU/Action
02X, 101, 107	1. **Battery**. 2. AC Adapter 3. Memory Option. 4. Top System Board.
10X	1. **Bottom System Board**.
119	1. **Top System Board**.
161, 163	1. **Set Configuration**. (Press **Fn**+**F1** to enter the Configuration Utility and set the time and date.) 2. Top System Board. 3. Bottom System Board.
162 (Check the Installed Devices list for a missing device.)	1. **Set Configuration**. (Press **Fn**+**F1** to enter the Configuration Utility and set your configuration.) 2. Any Missing Device. 3. Top System Board. 4. Bottom System Board.
164 (Memory size error)	1. **If a SO-DIMM card has been removed, press Fn+F1 to enter the Configuration Utility, and verify the memory size.** 2. Replace the installed SO-DIMM. 3. Bottom System Board.
184	1. **Press Fn+F1 to enter the Configuration Utility, and then reset the Power-on Password.**
195 (The hibernate partition does not match memory size.)	1. **Check if the disk drive is from another computer or if the memory size has changed.** 2. **Go to "Hard Disk Drive Checkout" on page 133.** 3. Hard Disk Drive

Symptom/Error	FRU/Action
196 (Read error occurred in the hibernate area of the Hard Disk Drive.)	1. **Disable, and then enable Hibernate mode.** 2. Go to "Hard Disk Drive Checkout" on page 133. 3. Hard Disk Drive
197 (The computer memory size is not equal to the hibernate area size on the Hard Disk Drive.)	1. **Disable, and then enable Hibernate mode.**
1XX (Not listed above.)	1. **Top System Board**. 2. Bottom System Board.
2XX	1. **Go to "Memory Checkout" on page 128.** 2. SO-DIMM 3. Bottom System Board
3XX (Before replacing FRUs, power-off, and then power-on the computer.)	1. **Remove attached external devices.** 2. Reseat cables. 3. Keyboard 4. Top System Board
6XX	1. **Go to "Diskette Drive Checkout" on page 133.** 2. Diskette 3. Diskette Drive Cable 4. Diskette Drive 5. Top System Board
09XX, 10XX	1. **Top System Board.**
11XX	1. **Modem** 2. Top System Board 3. Bottom System Board
17XX	1. **Go to "Hard Disk Drive Checkout" on page 133.** 2. Hard Disk Drive 3. Bottom System Board
24XX (For external displays, see the "External Display Self-Test" in the Common Devices Checkout section before replacing any FRUs.)	1. **External Display.** 2. External Display Power Cord. 3. Backlight Lamp Assembly. 4. LCD Assembly. 5. Bottom System Board. 6. Inverter Card.
8000	1. **Set Configuration.** 2. PCMCIA Card. 3. Bottom System Board.

Symptom/Error	FRU/Action
860X (Pointing device error when TrackPoint III is disabled.)	1. **External Mouse.** 2. External Keyboard. 3. Top System Board. 4. Bottom System Board.
861X (Pointing device error when TrackPoint III is enabled.)	1. **Reseat the TrackPoint III cable (the narrowest keyboard cable) at the Top System Board.** 2. External Mouse. 3. Keyboard. 4. Top System Board. 5. Bottom System Board.
86XX (Not listed above)	1. **Pointing Device.** 2. TrackPoint III. 3. Keyboard. 4. Numeric Keypad. 5. Top System Board. 6. Bottom System Board.
12902	1. **Bottom System Board.**
I9990305	1. **Go to "Hard Disk Drive Checkout" on page 133.** 2. Hard Disk Drive 3. Bottom System Board
Other codes not listed above	1. **Go to "Undetermined Problems" on page 152.**

FRU Codes

If an error is detected by the diagnostics tests, a *four-digit* FRU code is displayed, along with an error code. The FRU code indicates two suspected FRUs. Replace the FRU that is indicated by the *two leftmost digits* first, and then replace the FRU indicated by the *two rightmost digits*. No FRU is assigned to code 00. If only one FRU is suspected, the other FRU code is filled with zeros. See the referenced page before replacing the FRU.

FRU Code	FRU/Action
10	1. Diskette Drive 2. Bottom System Board 3. Top System Board
12	Top System Board
14	Bottom System Board
20	Memory (See "Memory Checkout" on page 128.)
32	External Keyboard
33	External Mouse

FRU Code	FRU/Action
40	LCD Assembly (See "Disassembling the LCD Assembly" on page 172.)
45	External CRT
50	1. Reseat the Diskette Drive (FDD-1). 2. Diskette Drive (FDD-1)
51	1. Reseat the Diskette Drive (FDD-2). 2. Diskette Drive (FDD-2)
55	1. Insert a correctly formatted 2.0MB diskette into the Diskette Drive.
60	1. Reseat the Hard Disk Drive (HDD-1). 2. Hard Disk Drive (HDD-1)
61	1. Reseat the Hard Disk Drive (HDD-2) on the docking station. 2. Hard Disk Drive (HDD-2)
70	External PCMCIA
81	Internal Modem Card
91	If MultiPort II is installed: 1. Reseat MultiPort II. 2. MultiPort II. If Dock II is installed: 1. Reseat Dock II. 2. Dock II

Note: The device ID and error codes are used to indicate in detail the portion of the FRU that caused the error. If replacing a FRU does not correct a problem, see the device ID or error code from the previous failure. If they have changed, the new FRU might be defective or incorrectly installed.

If the problem remains after replacement of the FRUs, go to "Undetermined Problems" on page 152.

Beep Symptoms

Symptom/Error	FRU/Action
Continuous beeps.	1. **Top System Board**
One beep and a blank, unreadable, or flashing LCD.	1. **Reseat all LCD connectors**. 2. LCD Assembly 3. Bottom System Board
One beep, and the message "Unable to access boot source."	1. **Boot device** 2. System Board
One long, two short beeps, and a blank or unreadable LCD.	1. **Bottom System Board.** 2. LCD Assembly

Symptom/Error	FRU/Action
One long beep followed by four short beeps each time the power switch is operated. (System cannot power-on due to low battery voltage.)	1. **Connect the AC adapter or install a fully charged battery.**
One beep every second. (System is entering Suspend mode due to low battery voltage.)	1. **Connect the AC adapter or install a fully charged battery (allows system to suspend operation before changing the battery).**
Two short beeps with error codes.	1. **POST error. See "Numeric Error Codes" on page 142.**
Two short beeps with blank screen.	1. **Top System Board**. 2. Bottom System Board.

No-Beep Symptoms

Symptom/Error	FRU/Action
No beep, power-on indicator not on, and a blank LCD during POST.	1. **Go to "Power Systems Checkout" on page 135.** 2. Top System Board. 3. Power sources.
No beep, power-on indicator on, and a blank LCD during POST.	1. **Top System Board**. 2. Bottom System Board.
No beep, power-on indicator on, and a blinking cursor only during POST.	1. **Top System Board**. 2. Bottom System Board.
No beep during POST but system runs correctly.	1. **Turn the volume up.** 2. Speaker. 3. Top System Board.

LCD-Related (Video) Symptoms

Note that LCD-related symptoms might be a result of software problems. Therefore, before working on hardware to correct video problems, make sure that the system has the latest versions of the video drivers installed. Systems that do not have the latest versions of video drivers might experience symptoms such as random extra pixels.

Note: To check the versions of the video drivers, follow these steps:

- In DOS.

  Drivers display their version level when they are loaded. To check them after they have been loaded, look in CONFIG.SYS or AUTOEXEC.BAT files for video driver information.
- In Windows.

  Drivers installed using the video driver installation utility place an icon in the **Control Panel**, in the **Main** group. Double-click on the **ChipsCPL** icon to display the driver dialog box. Choose the **Version** button to display the driver level.

Symptom/Error	FRU/Action
No beep, power-on indicator on, and a blank LCD during POST.	1. **Adjust contrast.** 2. Top System Board. 3. Bottom System Board.
• LCD backlight not working, or • LCD too dark, or • LCD brightness cannot be adjusted.	1. **Reseat LCD connectors.** 2. Reseat inverter card. 3. Inverter Card. 4. LCD Assembly.
LCD contrast cannot be adjusted (ThinkPad 701CS only).	1. **Reseat LCD connectors.** 2. Top System Board. 3. LCD Assembly.
• LCD screen unreadable, or • Characters missing pels, or • Screen abnormal, or • Wrong color displayed.	**[See important note for "Disassembling the LCD Assembly" on page 172.]** 1. **Check that the latest versions of the drivers are installed.** 2. Reseat LCD connectors. 3. Bottom System Board. 4. LCD Assembly.
LCD has extra horizontal or vertical lines displayed.	1. **LCD Assembly**.
Blank LCD, system runs correctly during POST.	1. **Check display type.** (Press **Fn**+**F1** to enter the Configuration Utility, and then reset Display type to LCD.)

Keyboard and TrackPoint III Symptoms

Symptom/Error	FRU/Action
Keyboard (one or more keys) does not work.	1. **Reseat the two larger keyboard cables.** 2. Keyboard. 3. Top System Board.
TrackPoint III does not work or the pointer moves automatically ("drifts") or does not work correctly.	1. **Go to "TrackPoint III Checkout" on page 132.**

MultiPort II Related Symptoms

Before testing or replacing the MultiPort II, ensure that the customer installed the MultiPort II while the computer was powered-off or in Suspend mode. Make sure the problems occur when the MultiPort II has been installed correctly.

Symptom/Error	FRU/Action
Devices connected to the MultiPort II do not work correctly.	1. **Check the device connectors to make sure that they are connected correctly.** 2. Check the cables to make sure they are not defective or damaged. 3. Go to "MultiPort II Checkout" on page 134.
Problems occur when the MultiPort II is connected or removed (unlatched).	1. **Verify that the MultiPort II is correctly seated and that the latches are engaged properly.** 2. Go to "MultiPort II Checkout" on page 134.
Power problems occur when the MultiPort II is connected to the computer.	1. **Remove and then reattach the AC adapter to the computer or the MultiPort II.** 2. MultiPort II. 3. Top System Board.

Indicator Related Symptoms

Symptom/Error	FRU/Action
Indicator incorrectly remains on or off, but system runs correctly.	1. **Reseat the inverter card.** 2. Inverter Card. 3. Top System Board.
Battery status indicator blinks green and beeps three times at power-on or Resume.	1. **Check that a fully charged battery is installed.** 2. Battery Pack 3. Reseat Top and Bottom System Boards together. 4. Top System Board. 5. Bottom System Board.
Battery status indicator blinks green at power-on.	1. **Check the card-to-card connection. Reseat Top and Bottom System Boards together.** 2. Top System Board. 3. Bottom System Board.
Battery status indicator does not turn on when battery fuel gauge is over 90% but less than 100%.	1. **This is normal operation if charging continues. Leave the computer charging, and then recheck the battery fuel gauge a short time later to see whether the charge has increased.**

Power Related Symptoms

Symptom/Error	FRU/Action
Power shut down during operation.	1. **Go to "Power Systems Checkout" on page 135.** 2. Battery Pack 3. Power sources 4. Top System Board
The system will not power-off.	1. **If you are in Suspend mode, resume by pressing Fn. Then, try to power-off.** 2. Disconnect the computer from ac power. 3. Remove the battery. 4. If problem occurs consistently, replace the Top System Board.

Symptom/Error	FRU/Action
Battery pack charges, but the battery status indicator does not light.	1. **Reseat the Inverter Card.** 2. Replace the Inverter Card.
Battery pack does not charge, the battery status indicator does not light, and the battery fuel gauge is less than 90%.	1. **Check the AC adapter connection. Make sure that the computer is powered-on or in Suspend mode.** 2. Check the Configuration Utility to ensure that the AC adapter is supplying the correct voltage level. 3. Check the AC adapter. 4. Make sure that the computer is within the operational temperature range. 5. Change the AC adapter. 6. Replace the Battery Pack. 7. Replace the Top System Board.

Function Related Symptoms

Symptom/Error	FRU/Action
The system will not enter Suspend mode or resume by opening or closing the LCD.	1. **Check the Configuration Utility to ensure that the Suspend on Lid Close function is enabled.** 2. Check that the computer can enter Suspend mode by pressing **Fn**+**F4.** 3. Top System Board. 4. Bottom System Board.
Memory count (size) appears different from actual size.	1. **Go to "Memory Checkout" on page 128.**
System configuration does not match the installed devices.	1. **Go to "Checking Installed Devices" on page 157.**
System stops intermittently.	1. **Go to "Intermittent Problems" on page 152.**

Infrared Related Symptoms

See "Infrared Transceiver Checkout" on page 137 for information on the infrared transceiver and infrared transceiver checkout.

Audio Related Symptoms

Symptom/Error	FRU/Action
You cannot hear any sound.	1. **In the Configuration Utility, check the volume level and the settings for Audio Power and Mute.** 2. Attach external speakers or headphones and check for sound: • If the external speakers or headphones work, replace the internal speaker. • If the external speakers or headphones do not work, replace the Top System Board.
Internal microphone does not record.	1. **Check the application's recording source and level.** 2. Attach an external microphone and check for recording: • If the external microphone works, replace the internal microphone. • If the external microphone does not work, replace the Top System Board.
Other audio problems.	1. **Replace the Top System Board.**

Peripheral Device Related Symptoms

Before testing or replacing any peripheral device, go into the Configuration Utility and ensure that all of the configurations are correct. Also, check applications to ensure that devices are configured correctly.

Symptom/Error	FRU/Action
External display does not work correctly.	1. **See "External Display Self-Test" in "Common Devices Checkout" section.**
Printer problems.	1. **Run Printer self-test**. 2. Cable. 3. Parallel Port Device. 4. Top System Board.
Serial or parallel port device problems.	1. **Device.** 2. Device Cable. 3. Top System Board.

Other Symptoms

Symptom/Error	FRU/Action
Errors occur only when MultiPort II is used	1. **See "MultiPort II Checkout" on page 134.**
PCMCIA slot pin is damaged.	1. **Bottom System Board**.

Note: If you cannot find a symptom or error in this list and the problem remains, see "Undetermined Problems."

Intermittent Problems

Intermittent system interruptions can be caused by a variety of reasons that have nothing to do with a hardware defect, such as electrostatic discharge or software errors. Consider replacing a FRU only when a recurring problem exists.

When analyzing the intermittent problem, perform the following steps:

1. Run the advanced diagnostics test in loop mode at least 10 times.
2. If no error is detected, do **not** replace any FRUs.
3. If any error is detected, replace the FRU shown by the FRU code. Rerun the test to verify that no more errors exist.

Undetermined Problems

Perform the following procedures to isolate the failing FRU if the diagnostics tests did not identify which adapter or device failed, or whether the installed devices are incorrect, a short circuit is suspected, or the system is inoperative.

Note: Do not replace a nondefective FRU.

Before performing these procedures, perform the following actions:

- Verify that all attached devices are supported by the computer.
- Verify that the power supply being used at the time of the failure is operating correctly. (See "Power Systems Checkout" on page 135.)

1. Power-off the computer.
2. Check the cables, wires, and connectors for short circuits and open circuits. Visually check them for damage. If any problems are found, replace the FRU.

3. Remove or disconnect all of the following devices:
   a. Non-IBM devices
   b. Devices attached to the expansion bus connector
   c. Printer, mouse, and other external devices
   d. Battery pack
   e. Hard disk drive
   f. Diskette drive or the device attached to the diskette drive connector
   g. SO-DIMM card
   h. PCMCIA cards

   Note: Remember that removing the hard disk drive, a SO-DIMM card, or any adapter or device will cause configuration errors. Error code 162 will occur.

4. Power-on the computer.
5. Determine whether the problem has changed.
6. If the problem does not occur again, reconnect the removed devices one at a time until you find the failing FRU.
7. If the problem remains, replace the following FRUs one at a time.

   Note: Do not replace a nondefective FRU.
   - Inverter Card.
   - LCD Assembly.
   - Top System Board.
   - Bottom System Board.

Related Service Procedures

Understanding Fn Key Combinations

The following table shows the **Fn** key and function key combinations and their corresponding functions.

The **Fn** key works independently from the operating system. The operating system obtains the status through the system management interface to control the system.

Fn+	Description
(alone)	Resumes operation from Suspend mode.
F1	Enters the Configuration Utility.
F2	Turns the battery-gauge icon on and off.
F3	Enters Standby mode.
F4	Enters Suspend mode.
F5	Mutes and unmutes speaker.
F6	Turns the hard disk off.
F7	Cycles through display options (LCD, CRT, both).
F8	Reverses video display.
F9	Reserved.
F10	Reserved.
F11	Reserved.
F12	Enters Hibernate mode.
Insert	Increases contrast. (This combination key does not provide this function on ThinkPad 701C as TFT screens do not require contrast adjustment.)
Delete	Decreases contrast. (This combination key does not provide this function on ThinkPad 701C as TFT screens do not require contrast adjustment.)
Home	Increases brightness.
End	Decreases brightness.
PgUp	Increases speaker volume, unmutes speaker.
PgDn	Decreases speaker volume.

Reading Status Indicators

The system status indicators show the current computer status in different colors (green and yellow).

Symbol	Color	Meaning
⊏+⊐◀	Green	Battery charging.
	Blinking green	Battery low.
⊖	Yellow	Hard disk drive in use.
⬆	Green	Keys in NumLk mode.
⬆	Green	Keys in Caps Lock mode.
⬍	Green	Keys in ScrLk mode.
⊘	Green	Computer powered on and not in Suspend mode.

Reading the Battery Status: If the computer is using the battery, the **Battery Status** field in the Configuration Utility indicates whether the battery is OK or low. If the computer is using external power, this field indicates whether the battery is fully charged or still charging. The battery fuel gauge provides a visual indication of the battery power level.

Understanding the Power-On Self-Test

Each time you power-on the computer, the power-on self-test (POST) is initiated. The POST takes up to 90 seconds to complete, depending on the options installed.

The POST checks the following items: system boards, memory, display, keyboard, diskette drive, hard disk drive, parallel port, and serial port.

To start the POST, power-on the computer. The following actions will happen:

1. If a critical error occurs during the POST, the system halts. The system might beep or display a message.

   If the POST cannot be completed successfully, an error code appears on the display, and you are prompted to press **Esc** or **Enter**. If you press **Esc**, the computer bypasses the error and attempts to complete the POST. If you press **Enter**, the computer displays the Configuration Utility window. You can then try to correct the error. (See "Running the Diagnostics" on page 156.)
2. The computer issues one short beep when the POST ends successfully.

3. The computer attempts to load the operating system as customized. If the computer does not find an operating system, it displays a graphic message requesting that you insert a bootable diskette in the diskette drive and press **F1** to resume operation.

Removing the 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. │
│   │
└────────────────────────────────────┘

Running the Diagnostics

Use either the TrackPoint III or the cursor movement keys to interact with the tests. When asked for an "OK" response, press **Enter** or select the **OK** button.

1. With the computer powered-off, attach any test tools to the device to be tested. For example, attach a wrap plug to the serial port on the MultiPort II or insert the PC test cards in the PCMCIA slot.
2. Power-on the computer. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
3. Select **Test** and press **Enter**.
4. Press **Ctrl**+**A** to enter advanced diagnostics.
5. Select **Tool** to install a test tool.

   Select the test tool for a device, and press the spacebar or click button to install it. A √ mark appears for the selected device. Repeat this step to install multiple devices.

   Note: A graphic message prompts you to attach the selected test tools.

6. Select **OK** and press **Enter** if the selection is correct.
7. Select a device and press **Enter** to start the tests.
8. Select **Test All** to test all devices.
9. Select **Looptest** to loop tests.

   A loop option menu appears in which you can select a loop test for one or more devices. Select a device and press the spacebar or click key. A √ mark appears for the selected device. Repeat this step to select multiple devices. Press **Enter** to start the diagnostics loop. If no device is selected, all device tests are looped.

10. To exit the loop, keep pressing **Ctrl**+**Pause** until the test exits. The system emits a beep sound to notify you that the test program has received the exit interrupt.
11. Press **Esc** to exit the test screen.
12. Choose **Restart** to leave Easy-Setup and restart your system.

13. Select **OK** or press **Enter** to confirm the restart.

Printing and Displaying Error Logs

Diagnostics errors are printed on the printer that is attached to the parallel port when the error is detected. The error is also logged in the system memory.

Use the following procedure to display the errors:

1. End the test, if it is running.
2. Press **Ctrl+A** to enter the advanced diagnostics.
3. Press **Ctrl+E.**
4. The error log appears.
5. To exit the screen, select **Cancel** or press **Esc**.

The error log is not saved when system power is turned off.

Checking Installed Devices

Installed devices are displayed as dark icons on the diagnostics screen. All other devices are displayed with gray icons.

If a device is installed but the icon appears gray rather than dark, the device is defective. Reseat the device connectors, and then restart diagnostics. If the symptom remains, replace the device or the system board. If needed, adjust the contrast control to clearly distinguish the shades of the icon.

If a device that is not installed appears in a dark shade, for example, if HDD-2 appears in a dark shade when a second hard disk drive is not installed, perform the following steps:

1. Replace the *first* device, such as HDD-1.
2. If the problem persists, replace the relevant system board.

The PCMCIA, System Board, Display, and infrared transceiver icons are always displayed in a dark shade, because the icons represent subsystems of the system board and not attached devices. The parallel port icon is dark except when the diskette drive is attached to the parallel port; in that case, the FDD icon is dark and the parallel port icon is gray. Icons for devices attached through the MultiPort II are dark when the devices are attached, and are gray when the devices are removed from the MultiPort II.

The HDD-1 icon represents the *first* drive in the system configuration. Similarly, the HDD-2 icon represents the *second* drive, attached to the docking station.

Running the Low-Level Format

Perform the following steps to format the hard disk:

Warning: All data and formatting on the disk will be destroyed and cannot be recovered. Have the user make a backup copy of all information on the hard disk that should be saved. Make sure that a bootable diskette is available. Make sure that the drive address to be formatted is correct.

Use either the TrackPoint III or the cursor movement keys to interact with the tests. When asked for an "OK" response, press **Enter** or select the **OK** button.

1. Power-off the computer, and then power it on again.
2. Press the **F1** key any time while the POST memory count is proceeding. When the memory test is completed, the Easy-Setup screen appears.
3. Select **Test** and press **Enter**.
4. Press **Ctrl**+**A** to enter advanced diagnostics.
5. Press **Ctrl**+**F**. The **Format** icon appears at the top of the advanced diagnostics screen.
6. Select the **Format** icon and press **Enter**.
7. Select the hard disk to be formatted and press **Enter**.
8. A confirmation screen appears, showing the number of cylinders, heads, and sectors on the hard disk.
9. Press **Esc** to exit the low-level format screen without formatting the hard disk.
10. Press **Enter** to begin the low-level format of the hard disk. When the low-level format is completed, the advanced diagnostics screen is displayed.
11. When you restart the computer, a graphic message is displayed at the end of POST, requesting that you insert a bootable diskette into the diskette drive and press **F1** to resume operation.

Reading the PC Test Card LED

The green LED on a PC test card (JEIDA/PCMCIA wrap card) turns on when the PCMCIA test is running. If the LED does not turn on, check that the card is installed correctly by reseating the card. If it still does not turn on after the card is reseated and you are using one PC test card, try using the other slot for the test. If you are using two cards, try swapping the cards in the slots. If the LED still does not turn on and the test fails, replace the FRU shown in the diagnostics error code.

Removing PCMCIA Cards

After removing the PCMCIA cover, and filler plug if it is installed, you can insert or remove PCMCIA cards during most computer operations.

To insert a PCMCIA card, perform the following steps:

1. Insert the PCMCIA card into one of the available slots, with the long row of pin sockets facing the computer and the label on the PCMCIA card facing up. When the card is in place, the blue eject button at the left of the slot pops out. Do not force the card. If the card does not fit into the slot, turn it over.

   Note: A Type III PCMCIA card occupies both PCMCIA slots. To insert the card, aim its bottom ridges at the lower PCMCIA card slot.

2. Replace the outer cover over the PCMCIA slots.

To remove a PCMCIA card, perform the following steps:

1. Use a small pointed object such as the point of a pen to press the blue eject button located to the left of the PCMCIA card slot.

   Note: A Type III PCMCIA card occupies both PCMCIA slots. To remove the card, press the bottom eject button.

2. Carefully slide the PCMCIA card out of the slot.

3. If both PCMCIA slots are empty, replace the filler plug and replace the outer cover over the PCMCIA slots.

Note: Do not remove PCMCIA cards while the system is in Suspend or Hibernate mode. If you remove a PCMCIA card while the system is in either mode, you might lose configuration information. Or, if you remove a PCMCIA card and insert another card, your system might not recognize the new card.

Product Overview

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

Feature	Description
Processor	Intel** 486** DX2 25/50MHz or DX4 25/75MHz, with math coprocessor.
Memory (Standard)	4MB or 8MB (on the system board).
Memory (Optional)	4, 8, or 16MB SO-DIMM.
Bus Architecture (Two Busses)	• Local bus for hard drive and video (with hardware line draw, BITBLT, cursor, and sprite support). • ISA bus

Feature	Description
CMOS RAM	128 Bytes.
VGA Video	• **ThinkPad 701CS** 10.4-inch, 640 × 480, 256/226K color, DS-STN LCD color. • **ThinkPad 701C** 10.4-inch, 640 × 480, 256/226K color, TFT LCD color.
Diskette Drive	1.44MB (3-mode for Japan, 2-mode for other countries) 3.5-inch external.
Hard Drive (Removable)	• 360MB, 2.5-inch • 540MB, 2.5-inch • 720MB, 2.5-inch (optional)
Audio	• Built-in speaker • Built-in microphone. • Microphone jack. • Speaker/headphone jack. • Line-in jack. • Supports SoundBlaster** and SoundBlaster Pro** applications.
Internal Modem Card	Data/Fax/Voice Modem with 14.4 Kbps transmission rate and telephony support (U.S. and Canada only).
PCMCIA Cards	Accepts any of the following: • One or two Type I. • One or two Type II. • One Type I and one Type II. • One Type III.
Infrared Transceiver	Integrated infrared hardware IRDA-compatible transceiver with 115.2 Kbps transmission rate.

FRU Removals and Replacements

This section contains information about removals and replacements.

Follow the numerical sequence in "Disassembling the ThinkPad 701C/701CS" on page 163 and the three exploded views to remove or disconnect parts in the correct order. Reverse the numerical sequence to replace FRUs. Note exceptions and special instructions for replacement throughout the FRU removal procedure.

The letters in parentheses in the list indicate screw types. Consult the following screw size chart to match the letters to the correct screw type and size before replacing each screw.

BA	Nut, M2.5	Silver
BC	M2.5, 6 mm	Black
BD	M2.5, 8.4 mm	Black
BE	M2.5, 10 mm	Black
BF	M1, 3 mm	Black
BG	M2.5, 7.5 mm	Black
BH	M2.5, 8 mm	Black
BI	M2.5, 5 mm	Black
BJ	M2, 8 mm	Silver
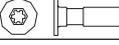
BK	M2.5, 16 mm	Black
BL	M2.5, 6 mm	Black

Note:

1. Use a TORX** T1 screwdriver on the BF screw. Torque to 0.5 in./lb.

2. For the other listed screws, use a TORX T6 screwdriver. Torque to 2.5 in./lb.

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.

Note: Before removing any FRU, remove any attached devices, including the diskette drive, diskette drive cable, and MultiPort II if they are attached.

Safety Notice 2: Translation on page 8

Some standby batteries contain a small amount of nickel and cadmium. Do not disassemble it, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the RTC or backup battery. Use of an incorrect battery can result in ignition or explosion of the battery.

Disassembling the ThinkPad 701C/701CS

This procedure provides the steps required to completely disassemble the ThinkPad 701C/701CS.

The three exploded views show the parts of the computer that are removed at various stages of the disassembly process. The numbered callouts in the figures correspond to steps in the procedure.

ThinkPad 701C/701CS Exploded View
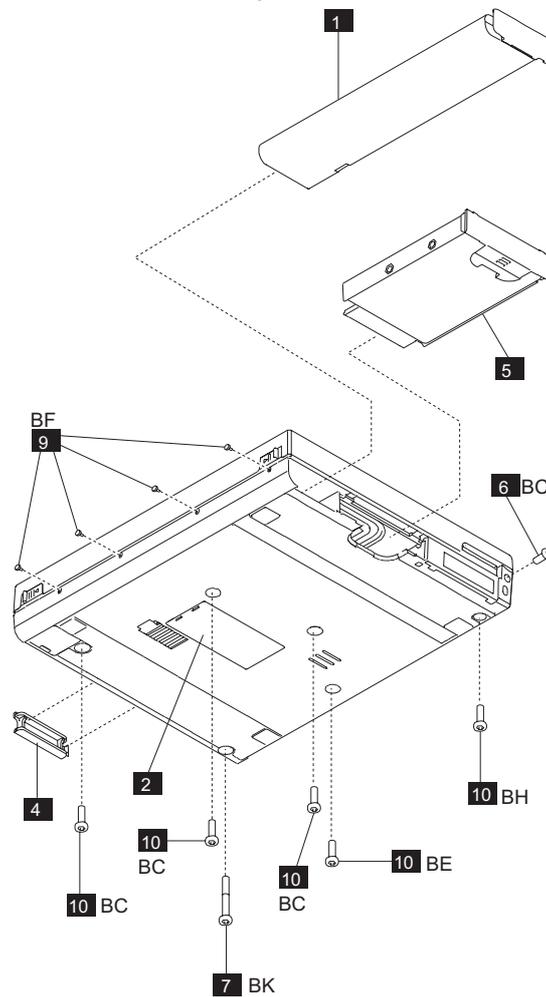
ThinkPad 701C/701CS Exploded View
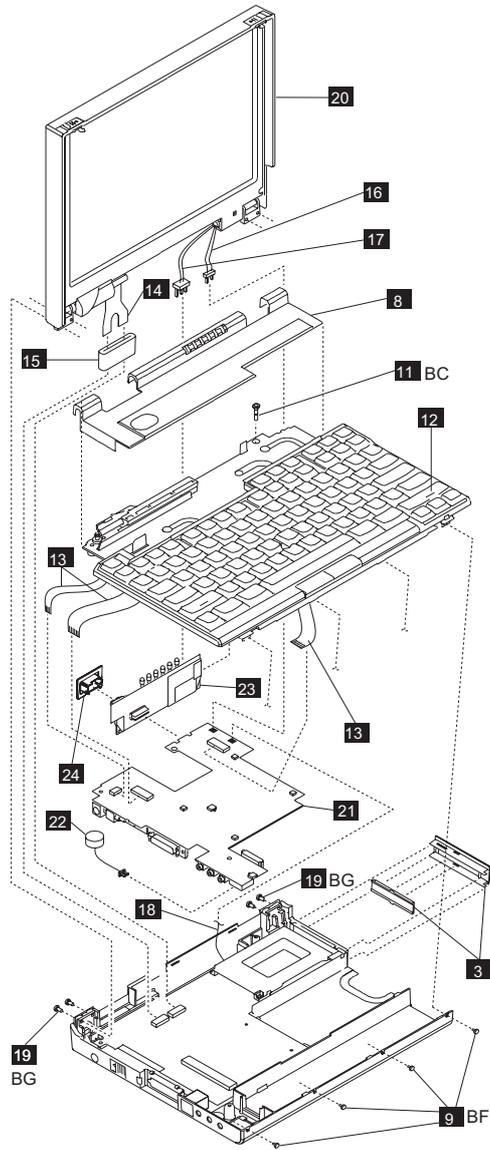
ThinkPad 701C/701CS Exploded View
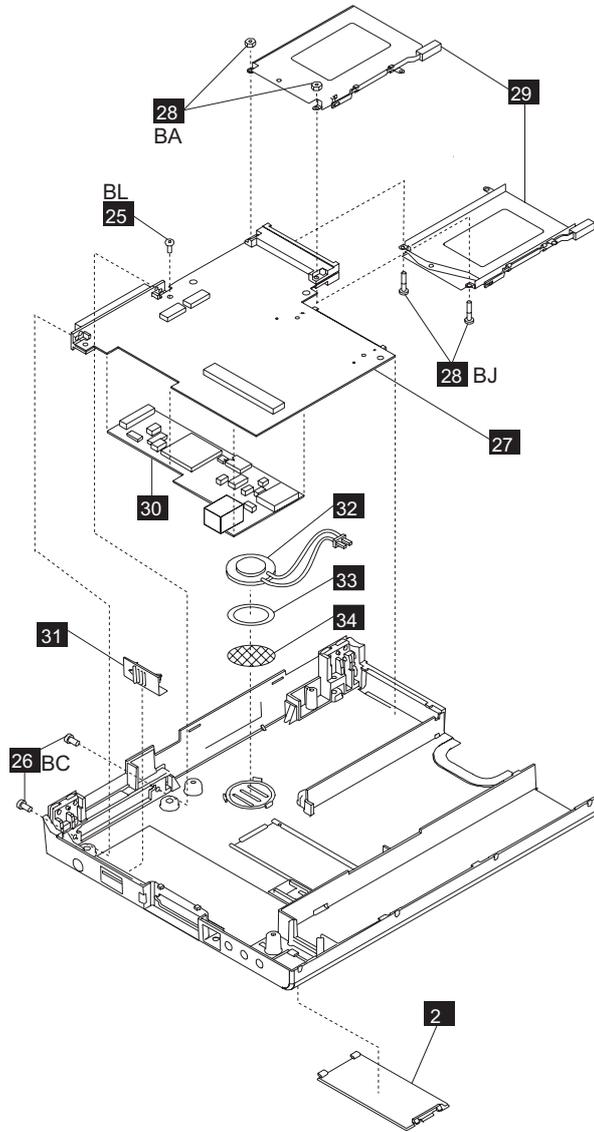
If you follow all of the steps in this procedure, you completely disassemble the ThinkPad 701C/701CS.

However, for some replacement operations, you may not need to completely disassemble the ThinkPad 701C/701CS. In those situations, the relative sequence of steps in this procedure is important. Some FRUs must be removed to reach the failing FRU, or to make it easier to work with another FRU.

This procedure contains instructions for the following:

- Removing the Keyboard Cover
- Removing the Keyboard
- Separating the Display and Base Units
- Removing the Top System Board and Inverter Card
- Removing the Bottom System Board and Modem
- Taking Apart the Base Assembly

1 **Remove the battery shown in the figure on page 163.**

2 **Remove the SO-DIMM cover and any installed SO-DIMM cards, shown in the figure on page 163.**

See "Removing and Replacing the SO-DIMM Card" on page 178 for more detailed information.

3 **Remove the PCMCIA cover and filler plug shown in the figure on page 164. Remove any installed PCMCIA cards.**

See "Removing PCMCIA Cards" on page 159 for more detailed information.

4 **Remove the parallel port cover, shown in the figure on page 163.**

Warning: Do not drop or apply any shock to the hard disk drive. The hard disk drive is sensitive to physical shock. Incorrect handling can damage it and cause permanent loss of data on the hard disk. Before removing the hard disk drive, have the user make a backup copy of all the information on the hard disk. Never remove the hard disk drive while the system is operating or while it is in Suspend mode.

5 **Remove the hard disk drive, shown in the figure on page 163.**

Note: Remove the hard disk drive by inserting a coin in the slot and twisting until the hard disk drive is unseated. Do not apply any extra force to the hard disk drive when removing it.

Removing the Keyboard Cover

6 **Remove the screw (BC) located on the right side toward the back of the computer, shown in the figure on page 163.**

7 Remove the screw (BK) located on the rear bottom left of the computer shown in the figure on page 163.

8 Open the computer lid all the way (180°) and remove the keyboard shelf, shown in the figure on page 164.

To release the keyboard shelf from the base assembly:

1. Gently pull up on the right side of the keyboard shelf.
2. Insert a tool into the slots on the back of the computer and gently push in to release the tabs holding in the shelf.

Removing the Keyboard

9 Remove the four screws (BF) located on the front, below the keyboard, shown in the figures on pages 163 and 164.

10 Remove the five remaining screws from the bottom of the base.
(For the screw types that are removed in this step, see the figure on page 163.)

Replacement:

Warning: When you reinstall the screws, be careful when tightening the middle screw toward the rear of the computer. If you tighten the screw too much, you can break the plastic base. If you are using an electric screwdriver, set it to a low or sensitive setting to prevent breakage.

11 Remove the screw (BC) located below the right hinge.

Replacement: When you replace the screws in the base and the keyboard shelf, perform the steps in the following order:

1. Replace the screw (BC) in step **11** shown in the figure on page 164. Do not tighten the screw until the front keyboard screws are in place.
2. Replace the keyboard shelf.
3. Replace the front keyboard screws in step **9** shown in the figure on page 163.
4. Tighten the BC screw.
5. Replace the screws in step **10** .

12 Remove the keyboard, shown in the figure on page 164.

To remove the keyboard, push it backward slightly, and then pull it up, then forward and out.

Replacement: When you reinstall the keyboard, follow these steps:

Warning: When you reinstall the keyboard, be careful not to damage the keyboard cables by pinching or crushing them.

1. Attach the three flat cables.
2. Tilt the front of the keyboard up and push the rear of the keyboard toward the back of the computer.
3. Press the keyboard down.
4. Pull the keyboard slightly forward to engage the latches located at the back right, and in the middle of the left and right sides.

Warning: Do not pull out the cable before releasing the sliding latch connector.

13   **Detach the three keyboard cables from the top system board shown in the figure on page 164.**

The keyboard cables use zero insertion force (ZIF) connectors.

Instructions for working with ZIF connectors:

To detach the cables, pull out the small sliding latch under each cable using a small tool to pull on each side. Try to pull the latch out incrementally on each side, or pull out both sides simultaneously.

Replacement: When you reinstall cables in ZIF connectors, insert the cable connector end, metal side facing up, into the connector, and then gently push in each sliding latch to secure the cable. Do not twist the cables.

Warning: Do not pull out the cable before releasing the sliding latch connector.

Separating the Display and Base Units

14   **Detach the LCD cable shown in the figure on page 164.**

Slide up the ferrite core on the cable to reach the latches.

The LCD cable uses ZIF connectors.

Replacement: For information about reconnecting the LCD cable, see "Replacing the LCD Assembly" on page 175.

15   **Remove the ferrite core from the LCD cable shown in the figure on page 164.**

Replacement: For information about replacing the ferrite core, see "Replacing the LCD Assembly" on page 175.

16   **Detach the microphone cable from the top system board, shown in the figure on page 164.**

Replacement: Make sure that the two aluminum spacers are in place. After you reattach the microphone cable, place any excess cable behind the PCMCIA slot assembly. For information on

routing the backlight cable, see "Routing the Backlight Cable" on page 176.

17 **Detach the LCD backlight cable from the inverter card, shown in the figure on page 164.**

Replacement: For information on routing the backlight cable, see "Routing the Backlight Cable" on page 176.

18 **Detach the speaker cable from the top system board, shown in the figure on page 164.**

Replacement: After you reattach the speaker cable, place any excess cable behind the PCMCIA slot assembly.

19 **Remove the four hinge screws (BG) shown in the figure on page 164.**

Close the computer lid before removing the screws.

20 **Remove the LCD assembly, shown in the figure on page 164.**

Replacement: See "Disassembling the LCD Assembly" on page 172 for instructions on FRU removals and replacements for the LCD assembly. See "Replacing the LCD Assembly" on page 175 for instructions on replacing the LCD assembly.

Removing Top System Board and Inverter Card

21 **Remove the top system board and the attached standby battery and inverter card, shown in the figure on page 164.** Reuse the rubber spacers.

Separate the metal spacers between the top and bottom system boards. Gently pull up the front of the top system board and insert a tool at the slot located near the battery connector. Press down with the tool and gently pry up to detach the top system board from the bottom system board.

Replacement: See "Replacing the Top System Board" on page 178 for information about replacing the top system board.

┌─── **Safety Notice 3: Translation on page 9** ───┐

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.

└──┘

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22 **Remove the standby battery, shown in the figure on page 164.**

Replacement: When you replace the standby

battery, fold the cable and place the standby battery in the space beside the battery pack connector.

Safety Notice 6: Translation on page 12

To avoid shock, do not remove the plastic cover that surrounds the lower portion of the inverter card.
---

23   **Remove the inverter card from the top system board, shown in the figure on page 164.**

24   **Remove the infrared window from the inverter card, shown in the figure on page 164.**

Removing Bottom System Board and Modem

25   **Remove the screw (BL) holding in the bottom system board, shown in the figure on page 165.**

26   **Remove the two screws (BC) located on the docking connector shown in the figure on page 165.**

     Replacement: When you replace these screws, use the following order:

1. Install one docking connector screw.
2. Install the bottom system board screw (from step **25**).
3. Install the other docking connector screw.

Safety Notice 4: Translation on page 10

The backup battery is a lithium battery and can cause a fire, explosion or severe burn. Do not recharge it, remove its polarized connector, disassemble it, heat it above 100 degrees C (212 degrees F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. Use of an incorrect battery can result in ignition or explosion of the battery. Replacement batteries can be ordered from IBM or IBM Authorized Dealers.
---

27   **Remove the bottom system board and the attached modem shown in the figure on page 165.**

     To remove the bottom system board, push in lightly on the modem connector to free it from the base. Make sure that the modem connector has been freed from its slot in the base before removing the bottom system board.

     Replacement: When you replace the bottom system board, keep the speaker cable toward the rear of the computer. Do not leave it folded under the bottom system board. Reuse the rubber spacers.

28   **Remove the two bolts (BJ) and nuts (BA) holding the PCMCIA slot assembly to the bottom system board, shown in the figure on page 165.**

29   **Remove the PCMCIA slot assembly, shown in the figure on page 165.**

30   **Remove the modem shown in the figure on page 165.**

The modem is held in place with an adhesive gasket. You may need to pry gently on the modem to remove it from the bottom system board. When you reinstall the modem, you may need to apply a new adhesive gasket.

Taking Apart the Base Assembly

31   **Remove the power switch cover, shown in the figure on page 165.**

Warning: The speaker can magnetize metal and corrupt a diskette.

Warning: A scratch can damage the speaker. Be careful not to damage it with screwdrivers, screws, or other objects.

32   **Remove the speaker, shown in the figure on page 165.**

After you have removed the speaker, carefully remove any metal particles that might have flaked off.

33   **Remove the adhesive gasket shown in the figure on page 165.**

Replacement: Follow these steps in order:

1. Remove the old adhesive gasket and apply a new one to the base.

2. With the front of the base facing you, rotate the speaker so that the speaker wires are at "one o'clock," then attach the speaker to the gasket.

3. Position the speaker cable under the bottom system board and between the inverter card and the top system board to the connector on the top system board.

34   **Remove the screen over the speaker, shown in the figure on page 165.**

If the screen over the speaker is damaged, replace it.

Disassembling the LCD Assembly
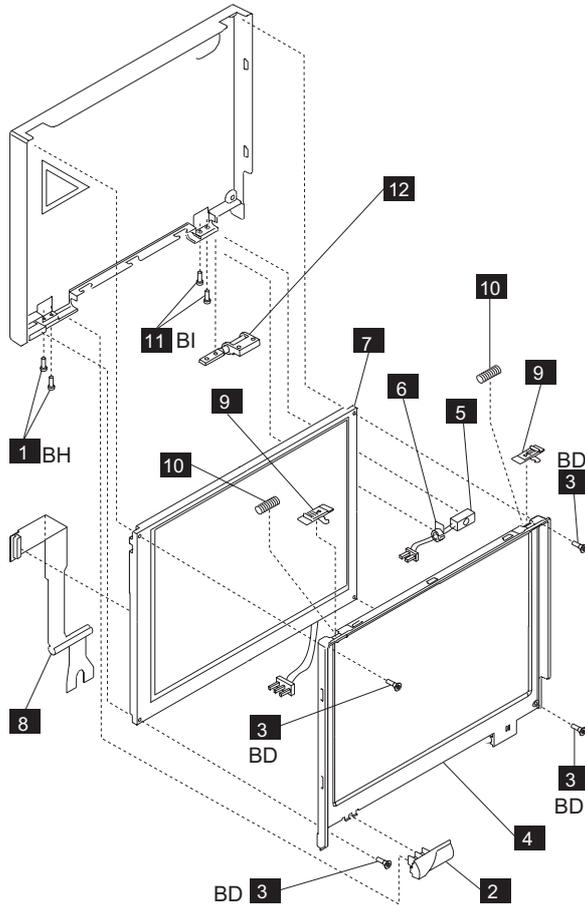
Safety Notice 5: Translation on page 11

If the LCD breaks and the fluid from inside the LCD
gets into your eyes or on your hands, immediately
wash the affected areas with water for at least 15
minutes. Seek medical care if any symptoms from the
fluid are present after washing.

---

1 Remove the two bottom screws (BH).

2 Remove the left hinge cover (cam).

3 Remove the four bezel screws (BD).

4 Carefully unsnap the T-shaped snaps along the bottom edge of the bezel, and lift it out.

Be sure to use the correct replacement bezel for the LCD.

The TFT bezel has adhesive on its top side wall. When you install a new TFT bezel, remove the backing first.

5 Remove the microphone.

6 Remove the backlight cable protective sleeve.

Replacement:

For detailed information about replacing the microphone and sleeve, see "Replacing the Microphone and Sleeve" on page 174.

7 Remove the LCD.

When you replace the LCD, be sure to replace it with the correct type of LCD (STN or TFT).

8 Remove the LCD cable from the LCD.

9 Remove the latches from the bezel.

10 Remove the latch springs from the latches.

Replacement:

When replacing the latches, place the latch in the bezel, and then slide the spring over the post on the latch. Compress the spring slightly and slip it into the recess in the bezel.

11 Remove the two right hinge screws (BI).

12 Remove the right hinge.

The left hinge is part of the top cover assembly, and should be replaced with it as a unit.

Note: To clean the LCD, use rubbing alcohol and a soft cloth.

To avoid damaging the LCD, do not scratch or apply any force to its surface.

Important

The LCD for the ThinkPad 701C 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 missing or discolored, or lighted dots in any background is 21 or more.

Replacing the Microphone and Sleeve
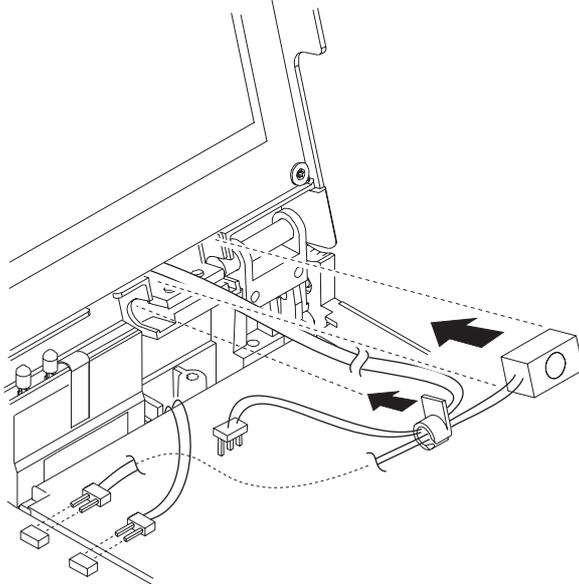
The right hinge should already be installed. To replace the microphone and cables, perform the following steps:

1. Insert the microphone wires into the small slit in the backlight cable protective sleeve.
2. Holding the microphone and sleeve near the hinge, insert the yellow backlight cable through the slit in the sleeve, and then the brown cable. Do not allow the microphone cable to twist around the backlight cables.
3. Slip the sleeve into place so that the flange is inside the computer lid, toward the LCD.
4. Insert the microphone into the space between the hinge and the LCD, with the foam block against the right side of the space. Press the block gently to ensure that it is completely inserted.

   Make sure that the foam does not cover the microphone diaphragm. When installed correctly, the microphone lines up with the two small slots in the bezel.

Replacing the LCD Assembly
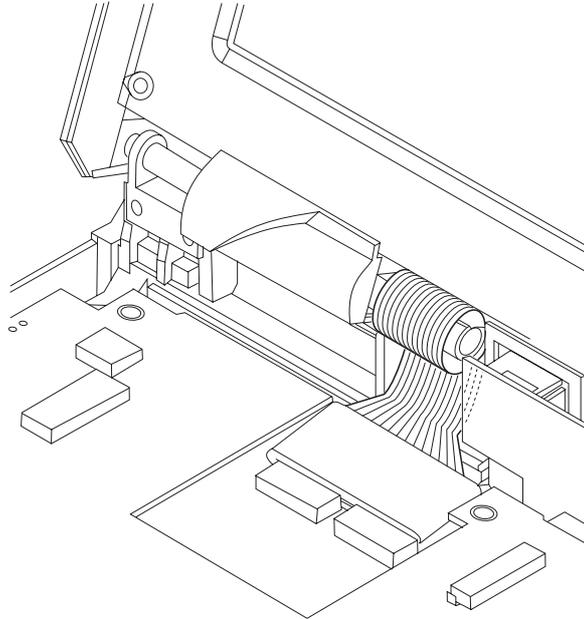
To reattach the LCD assembly, follow these steps:

1. With the LCD cable flat, carefully wrap the end of the LCD cable around the attached sleeve on the cable, finishing with the end of the cable coming from behind the sleeve.
2. To prevent possible damage, tape the end of the cable to the bezel while you reattach the LCD assembly.
3. Place the LCD assembly on the base in the closed position. Make sure that the backlight and microphone cables are *inside* the base unit.
4. Replace the four hinge screws (BG).
5. Open the computer lid all the way (180°) and remove the tape from the the LCD cable.
6. Slide the ferrite core over the end of the LCD cable, pushing the core onto the cable just far enough to expose the two sets of silver contacts on the cable.
7. Connect the LCD cable to the connectors on the bottom system board by inserting the flat ends of the cable. Then, push in the small sliding latch under each cable to secure the cable in the connector. Do not bend or fold the LCD cable. Press on the loop of cable around the sleeve to insert the cable ends into the connectors.
8. Pull the ferrite core forward on the cable until the core touches the connectors and it can be pressed down flat on top of the bottom system board.

Routing the Backlight Cable
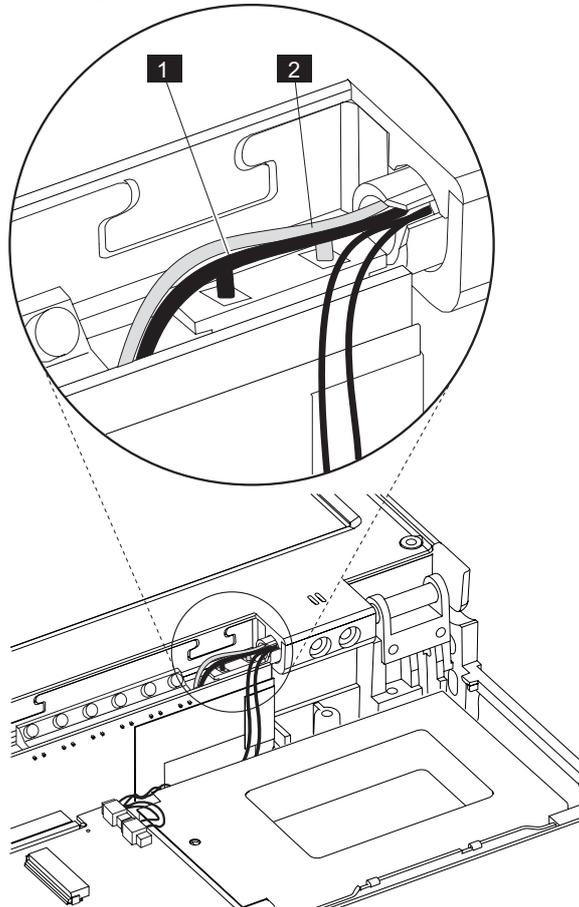
1 Brown wire.
2 Yellow wire.

Warning: Incorrect routing of the backlight cable may cause it to break after repeated opening and closing of the computer lid. Routing the cable correctly is important to prevent this breakage.

To route the backlight cable, follow these steps:

1. Plug the LCD backlight cable into the inverter card. Do not twist the wires.
2. Position the brown wire behind the connector so that after it exits the connector housing, it goes down between the inverter card and back wall of the base cover. (It must be outside of the inverter insulator.)
3. Loop the brown wire toward the LEDs and over the top of the connector.
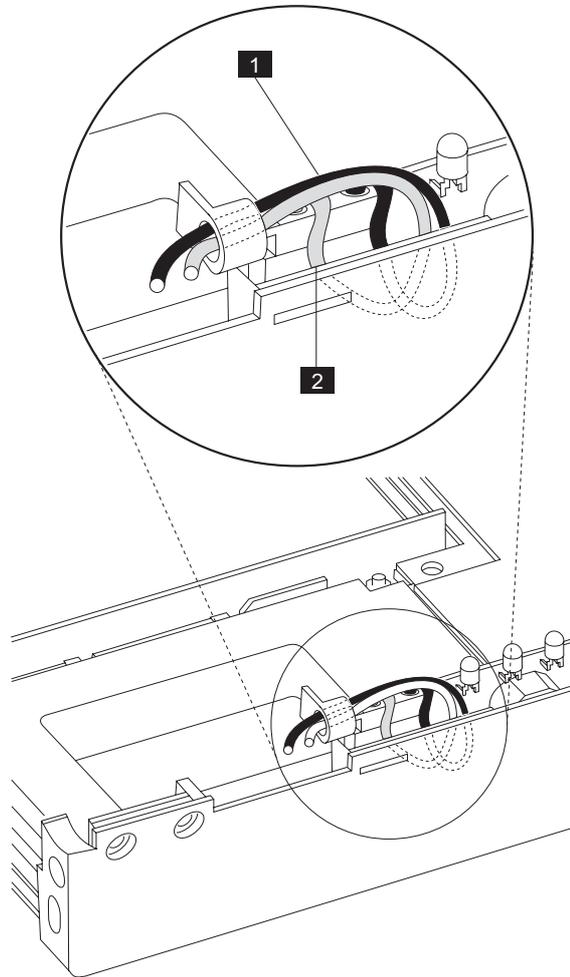
Backlight cable routing from the rear, shown without the computer lid.

1 Brown wire.
2 Yellow wire.

4. Route the yellow wire in the same manner as the brown wire. Position the yellow wire beside the brown wire where it runs over the connector on the side toward the back of the computer. Do not allow the wires to cross.
5. Be careful to keep the cable in the correct position as you complete the assembly of the computer.

Replacing the Top System Board

Perform the following steps when you replace the top system board:

1. Before inserting the top system board, move the power switch cover forward toward the front of the base assembly. Make sure that the spring in the power switch is fully inside the plastic housing.
2. Insert the top system board, tilting the board to the left and aligning the appropriate connectors with the slots on the base assembly. Be careful to align the power switch cover with the switch mechanism on the board.
3. Gently press the battery pack connector down to place the connector in the slot on the base assembly.
4. Ensure that the inverter card is firmly attached to the top system board, and that the infrared window is attached to the inverter card. The infrared window has a top and bottom. Install the window with the long side with the partial cutout facing the top of the inverter card.
5. Feed the speaker cable between the inverter card and the top system board to the right of the inverter card connector to the board.
6. As you press lightly down on the top system board and the inverter card, slip the bottom corners of the inverter card into the slots in the base assembly.
7. Gently but firmly press on the middle of the top system board to finish inserting the board and to ensure a complete connection between the board-to-board connectors.

Removing and Replacing the SO-DIMM Card

Warning: The SO-DIMM card is sensitive to physical shock. Incorrect handling of the card can damage it.

To remove a SO-DIMM card, follow these steps:

1. Power-off the computer.
2. Remove the battery.
3. Disconnect all cables and other devices, including the AC adapter.
4. Close the computer and turn it upside down.
5. Open the SO-DIMM door.
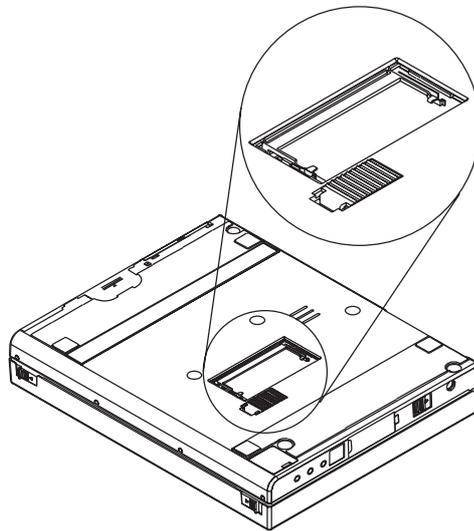
6. Press the metal tabs on each side of the SO-DIMM away from the card. The card should raise slightly as the tabs are pulled away from it.
7. Remove the card by holding it at a 15 to 20 degree angle and pulling it firmly away from the SO-DIMM socket.
8. Replace the SO-DIMM door.
9. Reattach all cables and other devices, including the AC adapter.
10. Power-on the computer. The computer will display error code 164.

To insert a SO-DIMM card, follow these steps:

1. Power-off the computer.
2. Remove the battery.
3. Disconnect all cables and other devices, including the AC adapter.
4. Close the computer and turn it upside down.
5. Remove the SO-DIMM door.
6. Locate the notch on the SO-DIMM.

Warning: Do not insert the SO-DIMM too far. You might damage the SO-DIMM or SO-DIMM socket.

7. Position the card at a 15 to 20 degree angle to the SO-DIMM socket with the notch facing to the right when you are looking into the socket, and push it into the socket firmly.
8. The card is fully inserted when the gold connectors are almost completely concealed by the SO-DIMM socket and only the top of each connector is visible.

Warning: The card will not lock into place if it has not been fully inserted into the socket.

9. Once the card is fully inserted into the socket, press the card down until it locks into place. It is held in place by two tabs, one on either side of the card.
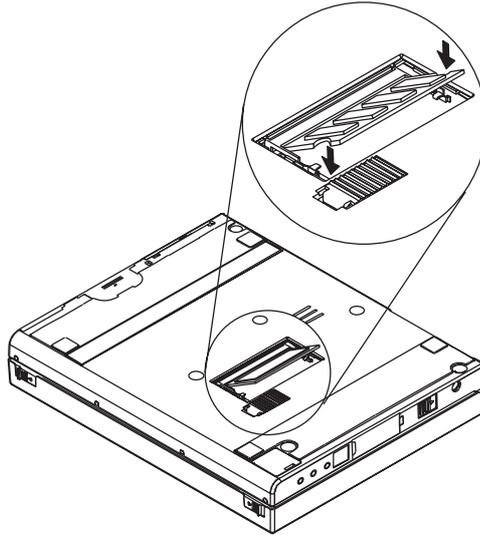
10. Replace the SO-DIMM door.
11. Reattach all cables and other devices, including the AC adapter, and power-on the computer.
12. Verify that the memory count displayed during the POST is correct. (See "Memory Checkout" on page 128 for information on memory size.)

Locations

System (Front View)

1 Latches
2 LCD
3 Keyboard
4 Click Buttons
5 TrackPoint III
6 Fn Key
7 Status Indicators
      See "Reading Status Indicators" on
      page 155.
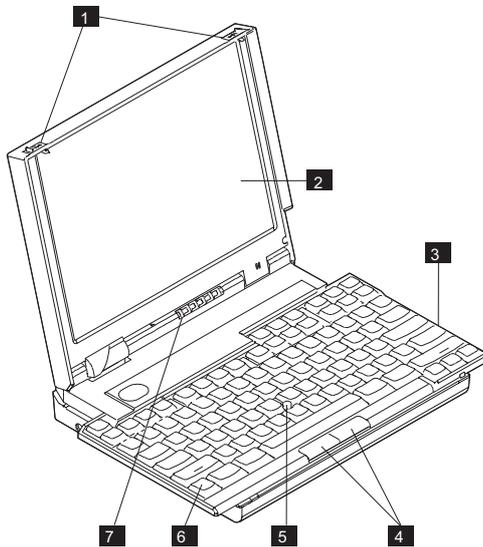
System (Left Side View)

1 Power Jack
2 Power Switch
3 Parallel/Diskette Drive Connector
4 Microphone-In Jack
5 Line-In Jack
6 Headphone-/Speaker-Out Jack
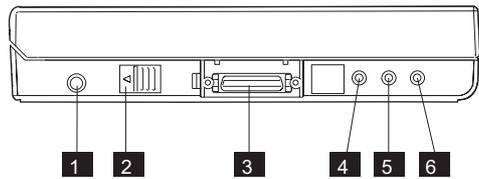
System (Right Side View)

1 Battery Pack
2 Hard Disk Drive
3 PCMCIA Access Port
4 Slot for Kensington Lock
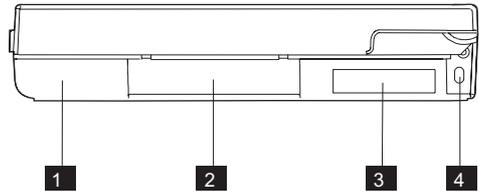
System (Rear View)

1 Latches
2 System Expansion Connector
3 Docking Door

A MultiPort II or Dock II can be connected to this interface to support the following features:

- 16-bit AT-bus interface
- Serial port
- Parallel port
- Keyboard and mouse
- Hard disk drive connection
- LED control signals
- Video signals
- Audio signals
- Diskette drive
- PCMCIA
- Power controls
- Power line
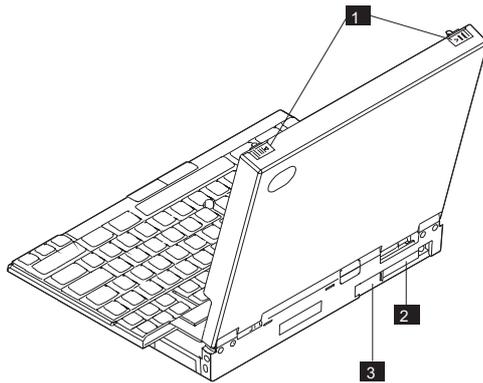
Top System Board (Top View)

1 Keyboard Connectors
2 Inverter Card Connector
3 Microphone Connector
4 Speaker Connector
5 Battery Pack Connector
6 Lid Close Sensor
7 Parallel/Diskette Drive Connector
8 TrackPoint III Connector
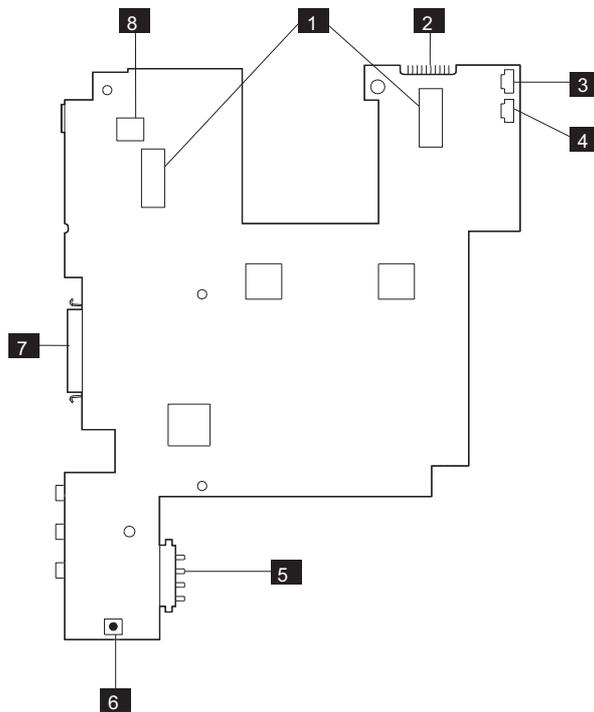
Top System Board (Bottom View)

1 Inverter Card Connector
2 Power Jack
3 Power Switch
4 Parallel/Diskette Drive Connector
5 Microphone-In Jack
6 Line-In Jack
7 Headphone-/Speaker-Out Jack
8 Standby Battery Connector
9 Battery Pack Connector
10 Board-to-Board Connector
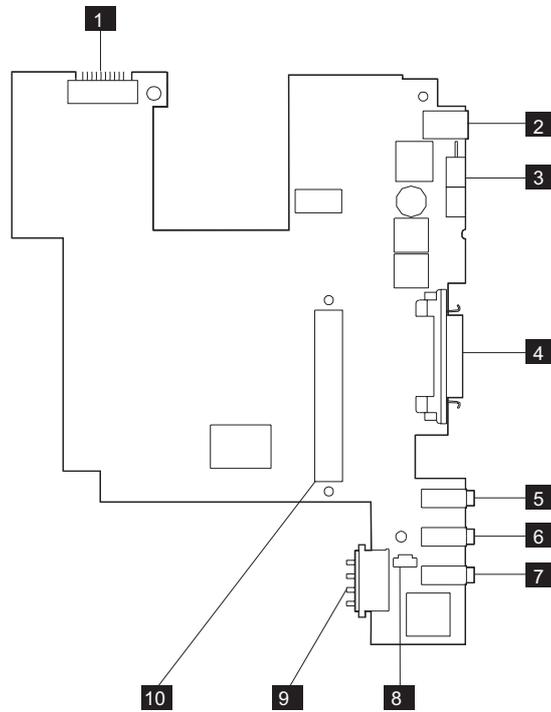
Bottom System Board (Top View)

1 System Expansion Connector
2 LCD Connectors
3 PCMCIA Controller
4 PCMCIA Slots
5 System Controller
6 Board-to-Board Connector
7 Video Controller
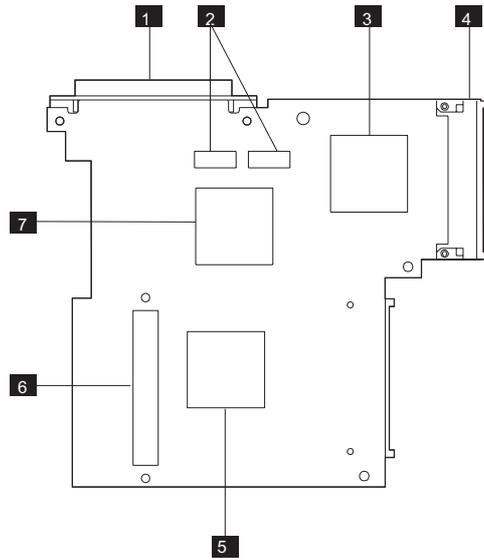
Bottom System Board (Bottom View)

1 PCMCIA Connector
2 Processor
3 System Expansion Connector
4 Modem Connector
5 Random Access Memory
6 SO-DIMM Connector
7 Hard Disk Drive Connector
8 RTC Battery
9 Power-On Password Bypass Pads
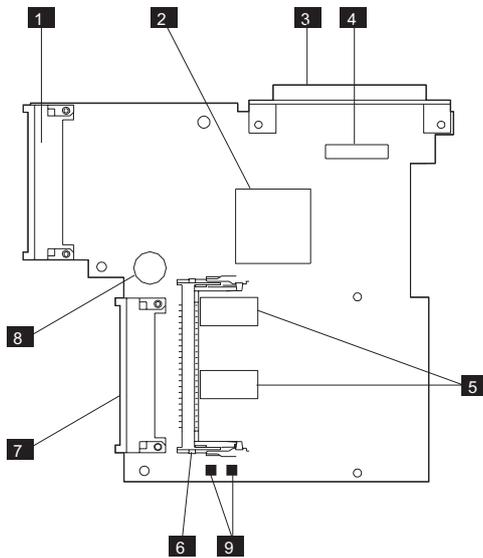
Inverter Card (Front View)

1 Light-Emitting Diodes
2 System Board Connector
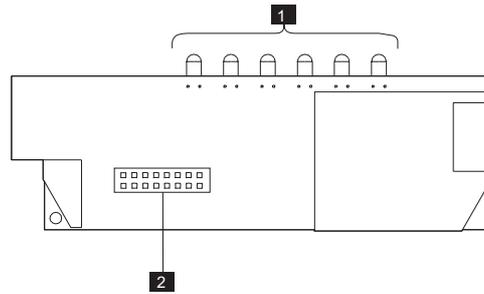
Inverter Card (Rear View)

1 Light-Emitting Diodes
2 Infrared Serial Port
3 LCD Connector
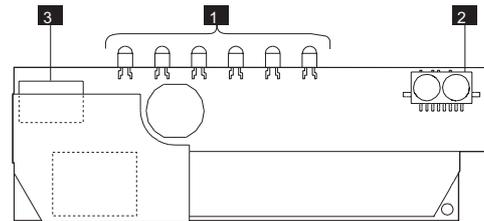
MultiPort II (Front View)

1 Port Connector
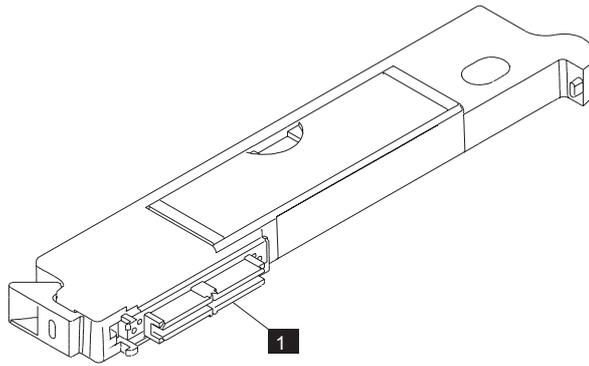
MultiPort II (Rear View)

1 Release Lever
2 External Display Port
3 AC Adapter Port
4 External Mouse/Numeric Keypad Port
5 External Keyboard Port
6 Audio Out
7 Audio In
8 Parallel Port
9 Serial Port
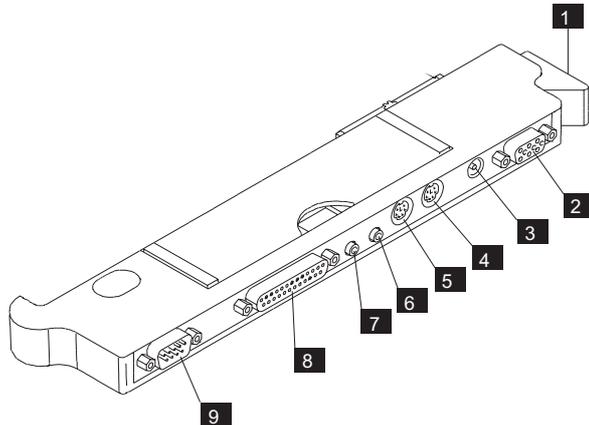
Parts Listing
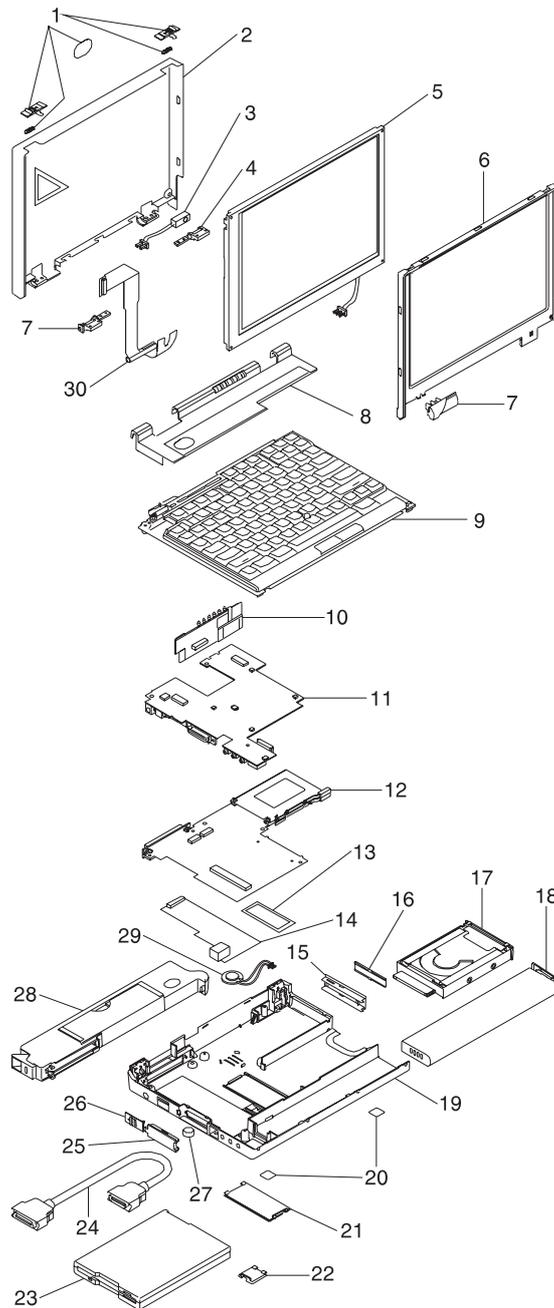
System Unit (ThinkPad 701C/701CS)

Index FRU

Index	FRU	
1	Latch Kit	04H8327
	(Includes logos and spring)	
2	Display Cover Assembly	04H8326
3	Microphone	04H8328
4	Right Hinge	04H8388
5	Color LCD (ThinkPad 701CS)	04H8333
5	Color LCD (ThinkPad 701C)	04H8331
6	LCD Bezel (ThinkPad 701CS)	04H8325
6	LCD Bezel (ThinkPad 701C)	04H8332
7a	Keyboard Cam	42H1505
7b	Keyboard Hinge	04H8389
8	Keyboard Shelf	04H8336
9	See Keyboard List	
10	Inverter Card/Infrared Transceiver	04H8347
11	Top System Board	04H8343
12	Bottom System Board (25/50MHz)	04H8342
12	Bottom System Board (25/75MHz)	25H4883
13	SO-DIMM	
	(See options list)	
14	Modem	04H8341
15	PCMCIA Cover	04H8346
16	PCMCIA Filler Plug	04H8348
17	360MB Hard Disk Drive	04H6829
17	540MB Hard Disk Drive	04H6830
17	720MB Hard Disk Drive	25H4873
18	Battery Pack NiCD	04H6898
	For Worldwide Use	04H6902
	(Including Benelux)	
18	Battery Pack NiMH	04H6197
19	Base Assembly	04H8335
20	Base Feet Kit	04H8390
21	SO-DIMM Door	04H8337
22	Standby Battery Door	04H8338
23	Diskette Drive	10H4056
	For Japan	10H4055
24	Diskette Drive Cable	04H6916
25	Parallel Port Door	04H8340
26	Power Switch Cover	04H8349
27	Standby Battery	04H8345
28	MultiPort II	04H6915
29	Speaker	04H8344
30	LCD Cable	04H8329
	Parallel Port Cable	10H4070
	Screen for Speaker	10H4086
	Speaker Gasket	04H8383
	Docking Door	04H8339

Keyboards

Country

Arabic	04H8319
Belgian	04H8317
Canadian French	04H6918
Danish	04H8316
Dutch	04H8318
French	04H8310
German	04H8311
Greek	04H8322
Hebrew	04H8320
Italian	04H8309
Japanese	04H8323
Latin American	04H6919
Norwegian	04H8314
Portuguese	04H8312
Spanish	04H8308
Swedish/Finnish	04H8313
Swiss/French	04H8315
Swiss/German	04H8373
Turkish	04H8321
U.K. English	04H8307
U.S. English	04H6917

Common/Option Parts List

Miscellaneous Parts

AC Adapter	
For Americas and Japan	04H6903
For Worldwide Use	04H6904
Screw Kit	04H8330
(Includes the following TORX screws)	
Nuts (2)	
M2.5 x 6 mm (9)	
M2.5 x 8.4 mm (4)	
M2.5 x 10 mm (1)	
M1 x 3 mm (4)	
M2.5 x 7.5 mm (4)	
M2.5 x 8 mm (3)	
M2.5 x 5 mm (2)	
M2 x 8 mm (2)	
M2.5 x 16 mm (1)	
TrackPoint III Cover	04H8387

Notes

1. When you replace the AC adapter with a new one, use the one for the country you are in even if the system is from a different country.
2. The warranty for the system unit does not apply to all options.

Options

Memory 70ns, 3.3v, nonparity, self-refresh DIMM

Memory SO-DIMM 4MB	92G7260
Memory SO-DIMM 8MB	92G7262
Memory SO-DIMM 16MB	92G7264
AC Adapter (U.S.)	04H6903
360MB Hard Disk Drive	04H6829
540MB Hard Disk Drive	04H6830
720MB Hard Disk Drive	25H4873
Dock II Adapter Card	04H8353
Dock II Adapter Kit Diskette Drive Cable	25H4879

Tools

Standard Tri-Connector Wrap Plug	72X8546
PCMCIA (PC Test Card)	35G4680
Standard Audio Wrap Cable	66G5180
Standard Screwdriver Kit	95F3598
TORX T1 Screwdriver	10H4156
TORX T6 Screwdriver	10H4157

Power Cords

U.S., Canada	04H6905
Asia Pacific	04H6906
Latin America	04H6907
Europe	04H6908
Japan	04H6909

Warning:

Use the power cord certified for your country.