



iBook

iBook, iBook (FireWire)

Updated December 5, 2002



Take Apart

iBook / iBook (FireWire)



Tools

Use the following tools for procedures in this chapter:

- Coin the size of a U.S. quarter (to remove battery door)
- 5 mm nut driver
- 4 mm nut driver (to remove sound board on iBook)
- Torx T8 screwdriver
- #0 Phillips screwdriver (for optical drive bezel screws)
- #1 Phillips screwdriver
- Very small jeweler's flat-head screwdriver (for keyboard locking screw)
- Flat-blade tool, ESD-safe, non-marring (such as the nylon probe tool 922-5065)
- IC extractor (to remove display cable connector)
- Fine point needle nose pliers (to adjust handle tension)



Cables

Follow these guidelines when working with cables:

- Ensure that all cables are routed exactly as they were found when reassembling. Use all grooves and/or protrusions to align cabling. If the cable is improperly routed, you may not be able to reassemble the computer, or once reassembled, the computer may fail to function.
- Check that all cables are properly aligned in the connectors and that the connections are tight.
- Handle flex cables carefully. Using excessive force to disconnect a cable can tear or damage it so it will not work properly.
- Use a nylon tool or dental pick to help loosen cable connections.



Battery

Before you begin, unplug the AC adapter.

1. Use a coin to turn the battery door screws to the left a quarter turn. The screws will pop up but not come out all the way.
2. Remove the battery door and pull up on the plastic tab attached to the battery to remove it from the compartment.



CD-ROM Bezel

Before you begin, remove the following:

- AC adapter
- Battery

1. Turn the computer over and press the manual disc eject button to eject the CD tray.
2. Use a #0 Phillips screwdriver to remove the small screw on the CD tray near the center of the bezel.
3. Carefully rotate the bezel as shown, to remove.



DVD-ROM Bezel

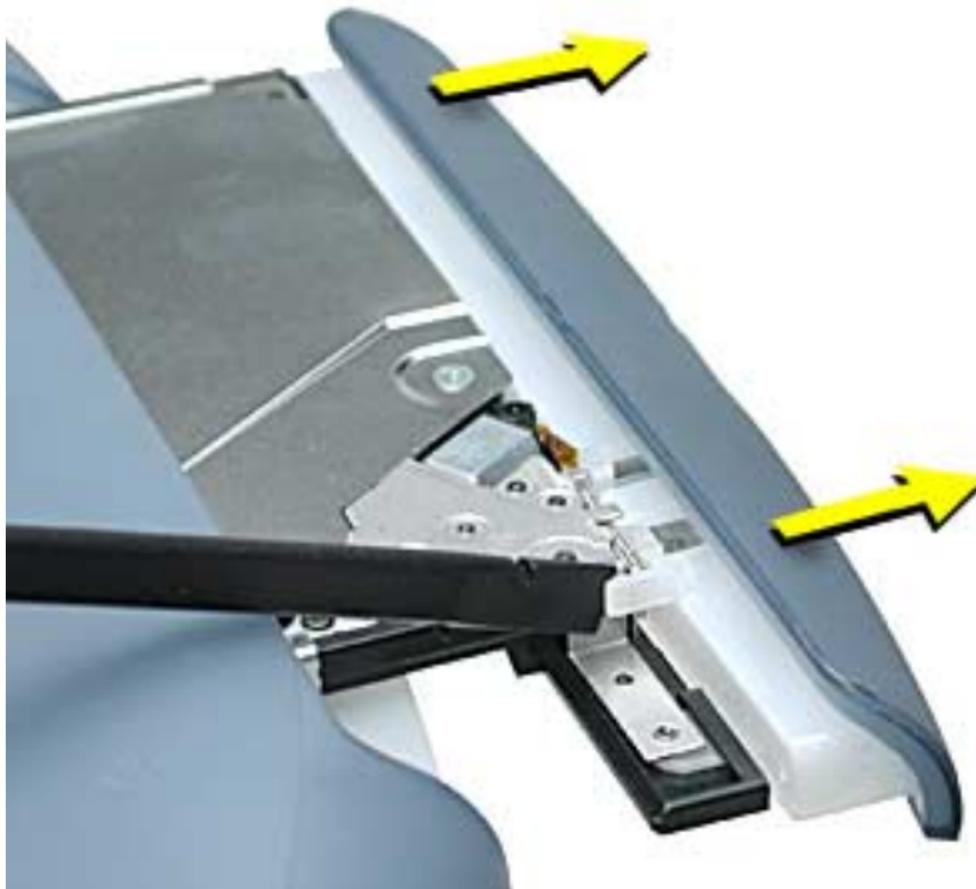
Before you begin, remove the following:

- AC adapter
- Battery

1. Press the manual disc eject button to eject the DVD tray.
2. Use a #0 Phillips screwdriver to remove the three small screws shown here.

Replacement Note: The screw holes strip easily. Gently tighten the screws. Do not overtighten.





3. Turn the computer over.
4. With a non-marring flat-blade tool, carefully push where shown to release the tab catch.
5. Carefully pull the bezel straight off to remove.



Keyboard and AirPort Card

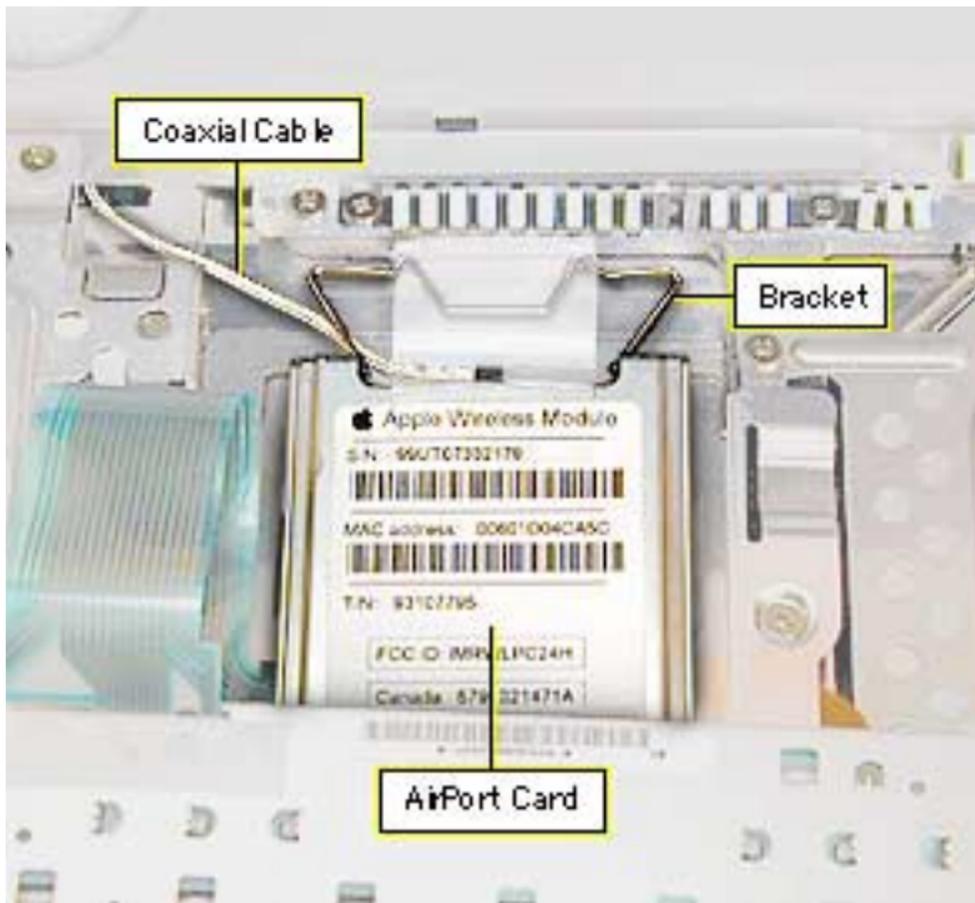
Before you begin, remove the following:

- AC adapter
- Battery

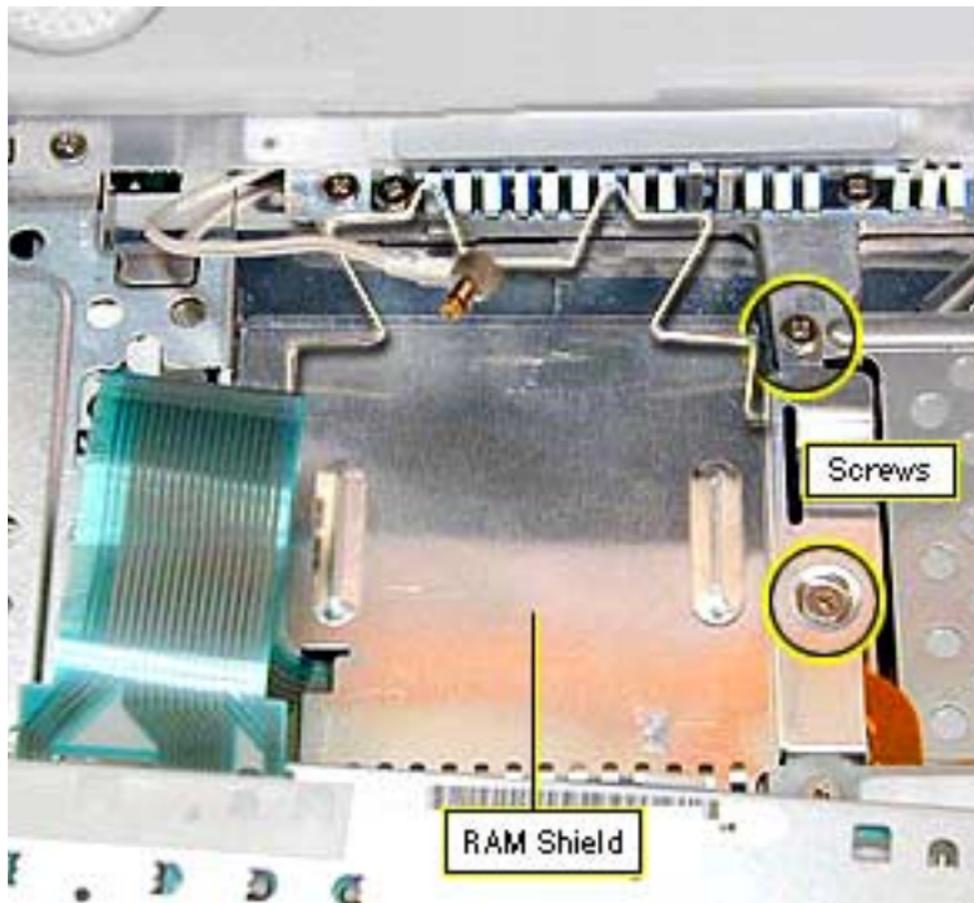
1. Place a cloth on the palmrest to protect it from scratches.
2. Locate the two keyboard release tabs on the keyboard to the left of the F1 and F9 keys, and slide them toward you.



3. If the keyboard does not pop up, it may be locked. Locate the keyboard lock screw (left of the num lock key). Turn the lock a half turn in either direction until the tab slides out from under the top case.
4. When the keyboard pops up, move it slightly toward the display to release the tabs in the front.
5. Flip the keyboard over and lay it on top of the palmrest.



- 6 Flip up the wire bracket, and remove the installed AirPort Card from its connector. Disconnect the AirPort antenna coaxial cable.



7. Remove the two Phillips screws on the right side of the RAM shield.
8. Pull up on the shield and remove it.
9. Pull up on the keyboard cable connector loop to disconnect the keyboard from the logic board.



Memory Card (RAM)

Before you begin, remove the following:

- AC adapter
- Battery
- AirPort Card
- RAM shield (see Keyboard and AirPort Card Take Apart procedure)

1. If a memory card is in the memory slot under the RAM shield, carefully spread the brackets apart on each side of the memory card until the card releases.





2. Pull the memory card up and out of the memory slot.
3. To install the new memory card, line up the notch in the card with the small tab in the memory slot. Hold the card at a 30-degree angle and then push the card into the slot until it is firmly seated.
4. Then, gently push the card down until the two brackets on either side of the card lock into place.



Top Case

Before you begin, remove the following:

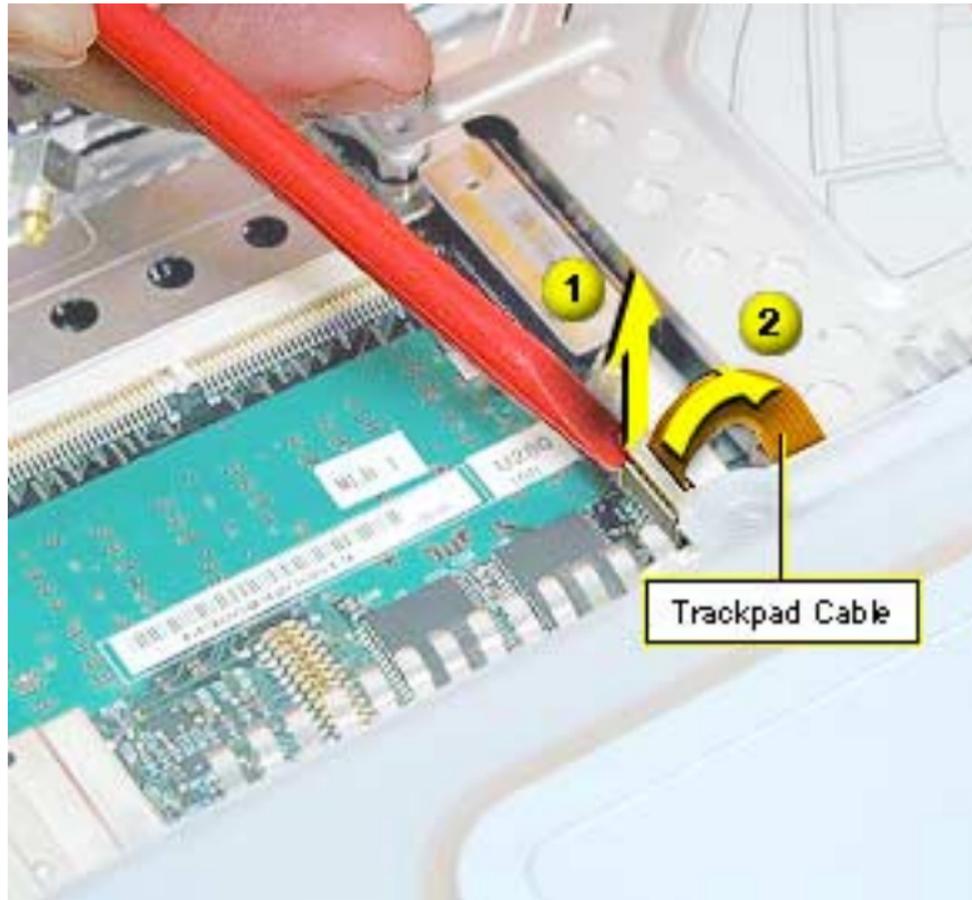
- AC adapter
- Battery
- Keyboard

Note: Use a clean padded work surface.

1. Close the display and turn the computer upside down.
2. Remove the two long T8 screws near the handle.
3. Remove the four shorter T8 screws in the battery compartment.

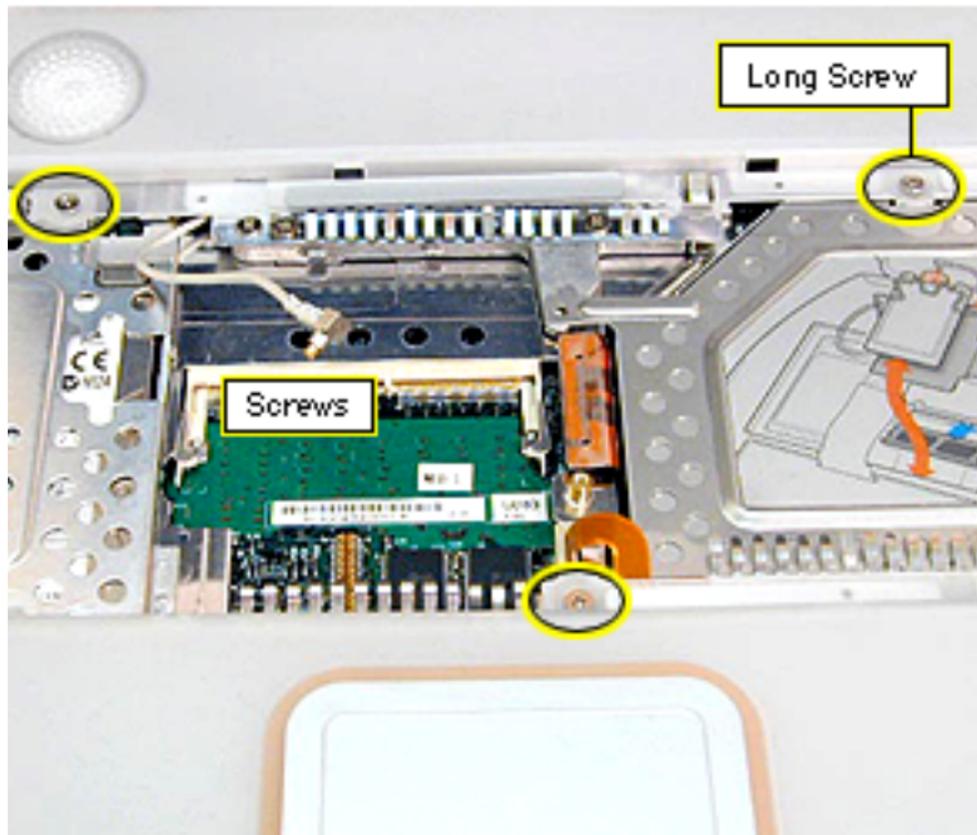


4. Press the manual disc eject button with the tip of a jeweler's screwdriver or paper clip to eject the optical drive tray.
5. Remove the small Phillips screw in the top of the drive compartment.



6. Leave the optical drive tray partly open and turn the computer right-side up and open the display.
7. **Important:** The side brackets are extremely fragile. Do not move them or place pressure on them while prying up the top of the trackpad connector. Use extreme care.

Use an ESD-safe flat-blade tool (using a fingernail might also work) to carefully pry up the top of the



trackpad cable connector, only enough to release the trackpad cable. Do not remove the connector.

8. Remove the three Phillips screws from the keyboard opening.



9. With the optical drive tray open, push up on the underside of the top case while pushing out on the clear lip that holds the back right edge of the top case until the case pops open.
10. Work your fingers along the back seam and press out on the clear lip at the left edge until the top case pops open.



11. At the front left corner, push in on the bottom front while pulling up on the top case.

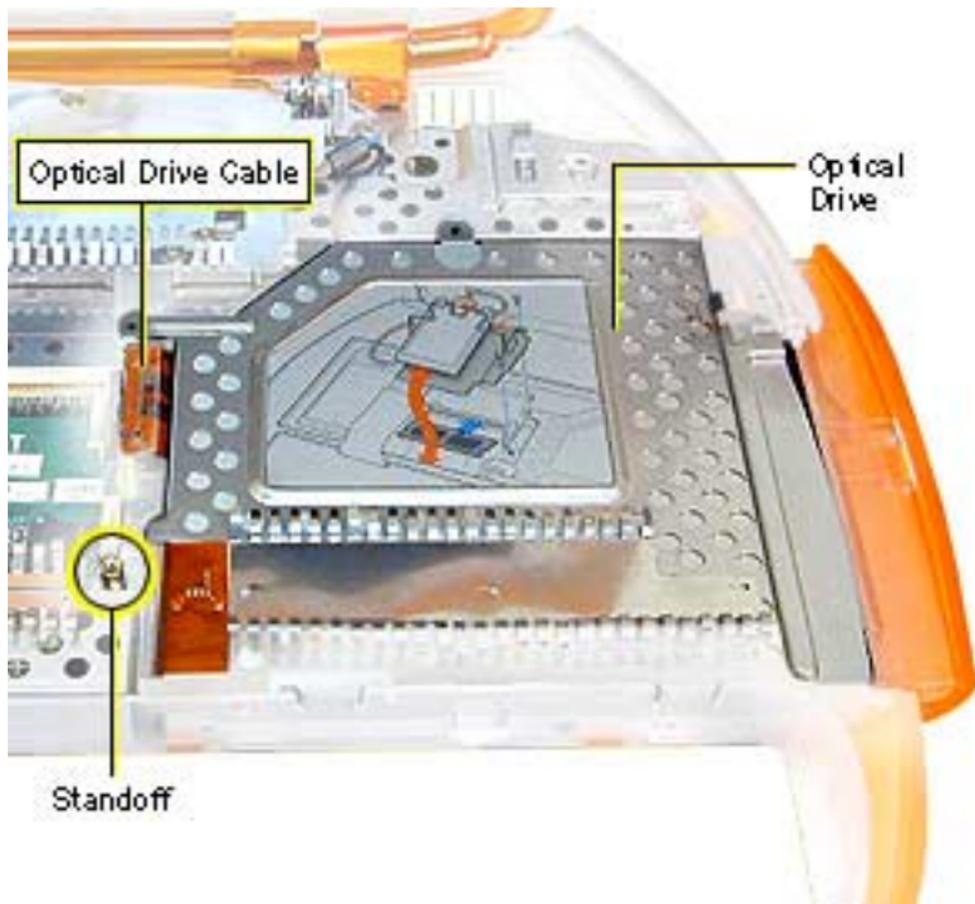
12. Repeat this process at the front, right corner.

Important: Do not remove the top case yet since the speaker wire is still connected to it.



13. Carefully rotate the top case up and rest it against the display, then disconnect the speaker cable.

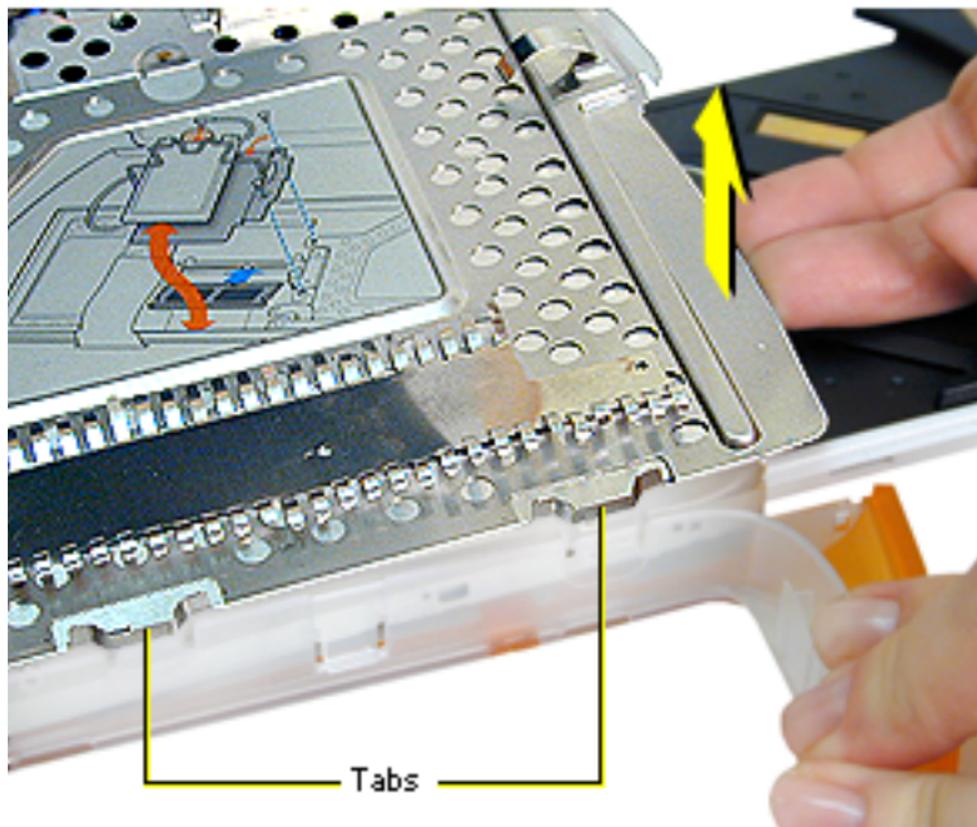
Replacement Note: Connect the speaker cable, then engage the alignment ridges on the front of the bottom case to the front of the top case first, then lower the top case. Push firmly on the top edges of the top case until they snap into place.



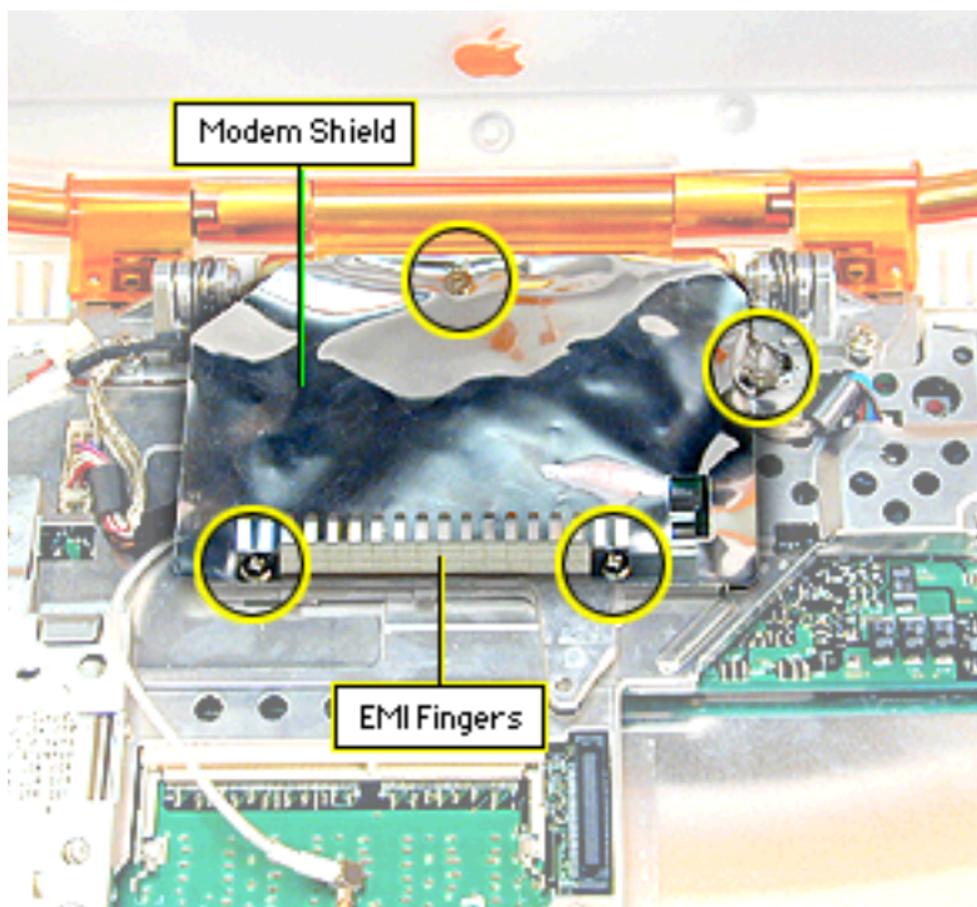
Optical Drive

Before you begin, remove the following:

- AC adapter
 - Battery
 - Keyboard
 - Top case
1. Disconnect the optical drive cable from the logic board.
 2. Remove the standoff on the left side of the optical drive with a 5 mm nut driver.



3. Locate the two tabs on the front side of the drive carrier. Press on the plastic below the tabs and lift up on the inside of the drive compartment with your right hand until the carrier clears the tabs.
4. With the drive tray still open, tilt the drive assembly and lift it out of the bottom case.



Modem

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case

Note: The modem is located under the foil modem shield.

1. Remove the Phillips screw holding the back of the modem shield. This screw is longer than the other shield screws.
2. Remove the Phillips



screw holding the right side of the modem shield.

3. Remove the two Phillips screws holding the EMI fingers to the modem shield and lift the EMI fingers off.

Important: Do not pull on the EMI fingers.

Replacement Note: Verify that the metal tab on the right side of the EMI fingers makes contact, through the hole in the shield, with the metal on the corner of the modem.

4. Peel up the modem shield all around the front and side edges and push back.

Note: On the iBook (FireWire) the foil EMI shield is wider at the left side, has a folded-over tab at the right back corner that must be peeled back, and has a larger cut out in front for access to a large Phillips screw that must be removed before removing the modem.

5. If removing a modem on an iBook (FireWire), remove



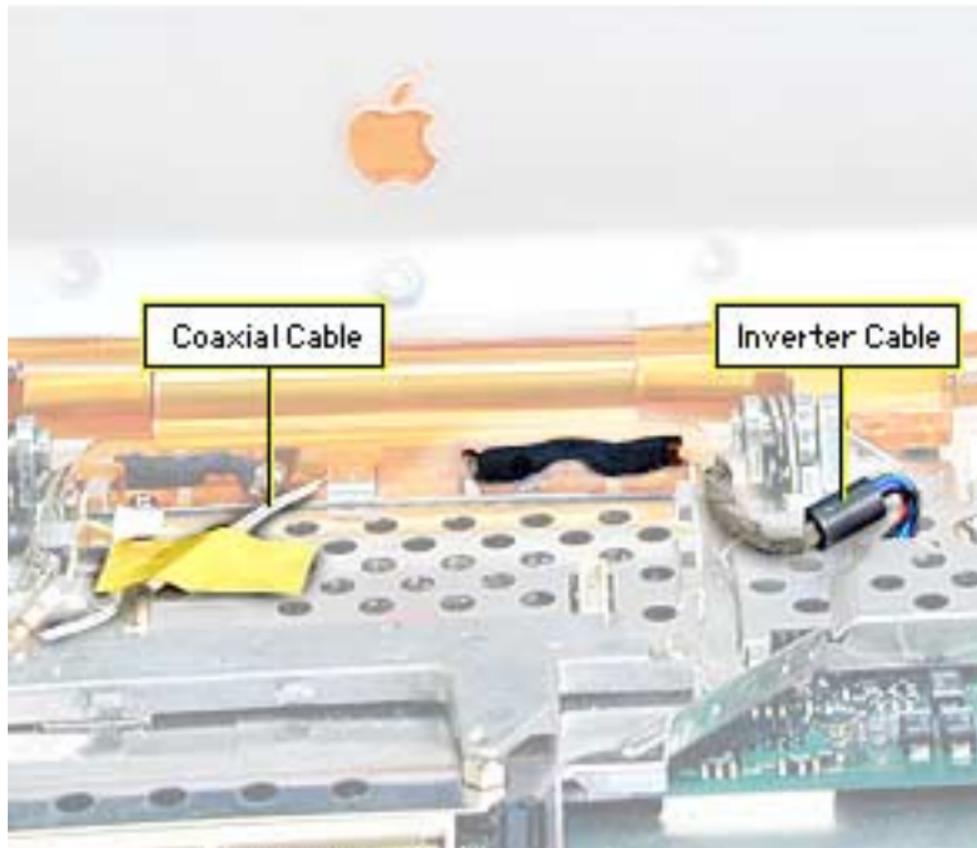
Replacement Note: After replacing an international modem, use the Modem Country Selector utility to set the modem to the correct country.



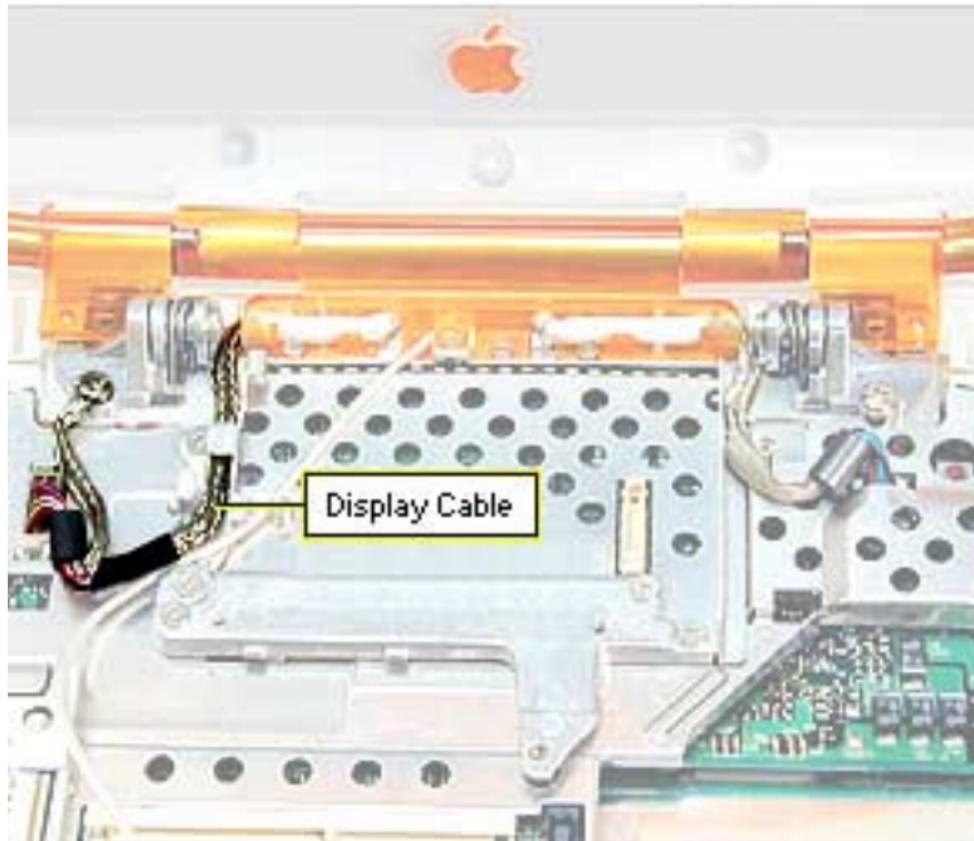
Display Assembly

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Modem



1. Disconnect the inverter cable connector from the logic board and deroute the cable from the logic board EMI shield and the guides on the center right clutch cover.
2. Remove the tape from the antenna coaxial cable

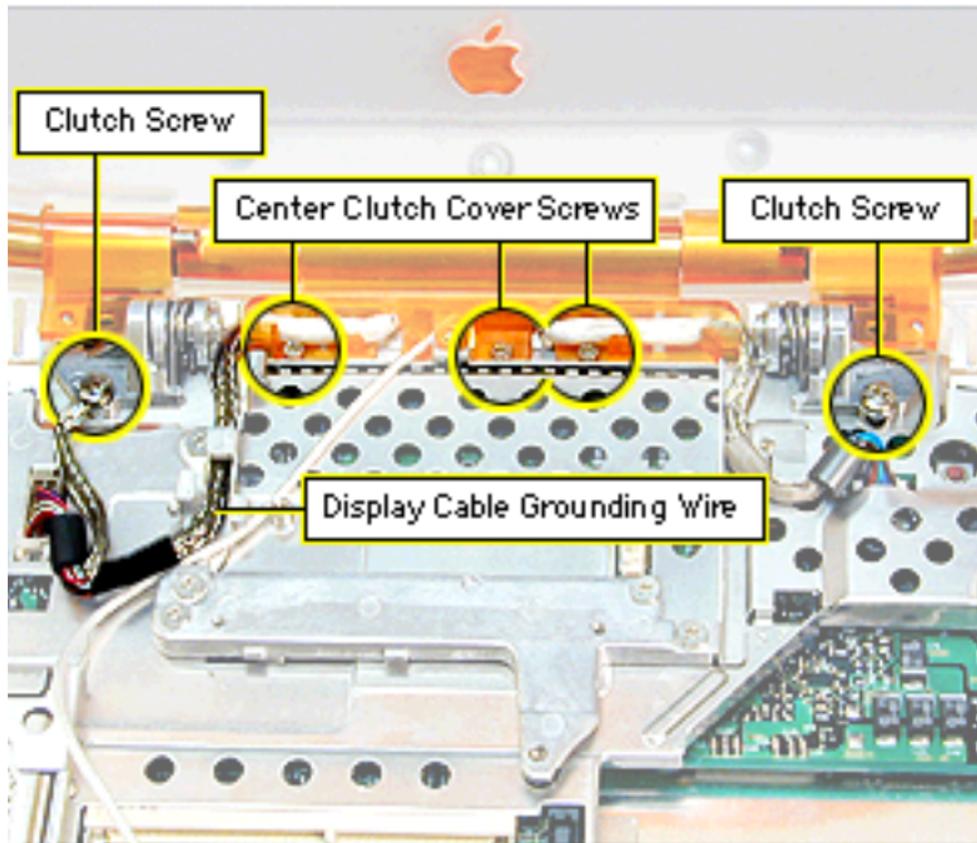


and deroute the cable from the Logic board EMI shield.

Note: The hard drive area of the logic board EMI shield is a convenient place to keep tape for reuse.

3. **Important:** The display cable is fragile. Handle with care.

Use an IC extractor to remove the display cable connector located left of the modem area and deroute the display cable from the guides on the logic board EMI shield

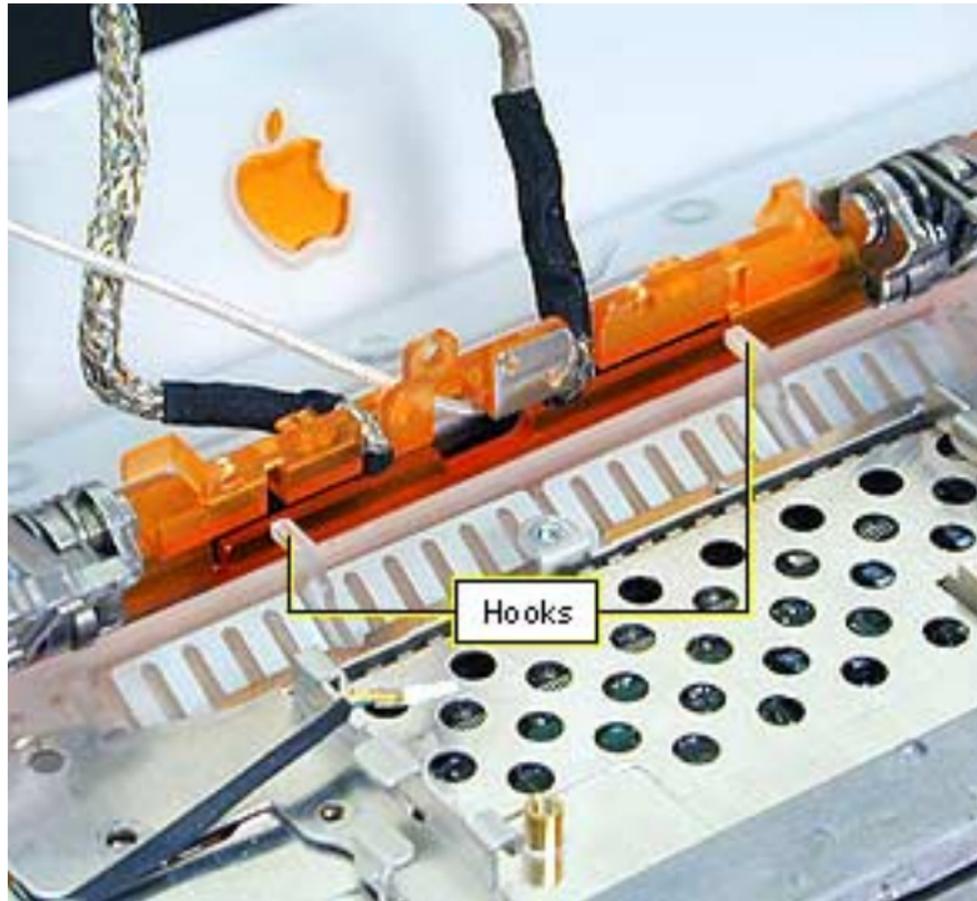


and center clutch cover.

4. Remove the three small Phillips screws holding the center clutch cover to the logic board EMI shield.
5. Support the display with one hand and remove the two large Phillips screws on the clutches.

Replacement Note: Verify that display cables do not get pinched under clutch hinges.

Remember to attach the display cable grounding wire with the left clutch screw.



6. Move the display straight back to clear the two hooks near the center of the clutch.

Important: The hooks are fragile. Use care to avoid breaking.

Replacement Note: From behind the bottom case, hold the display upright and tilted back. Move the display toward the hooks on the bottom case and guide the hooks into the slot of the center clutch cover so that the hooks catch on the back



edge of the cover. Check the back of the computer before tightening all the screws to see that the hooks are not sticking out the back of the clutch cover.

If the hooks show, you may be able to carefully flex the clutch cover with a non-marring flat-blade tool until the hooks snap into place.



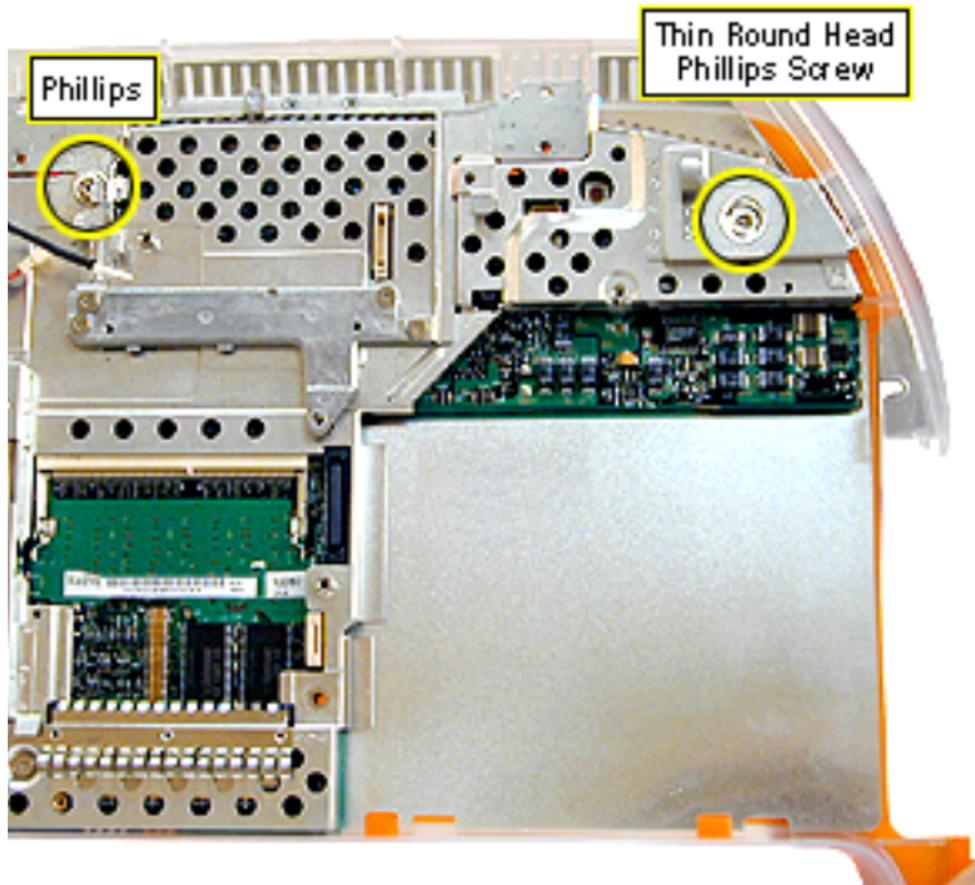
Logic Board EMI Shield

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Optical drive
- Modem
- Display assembly

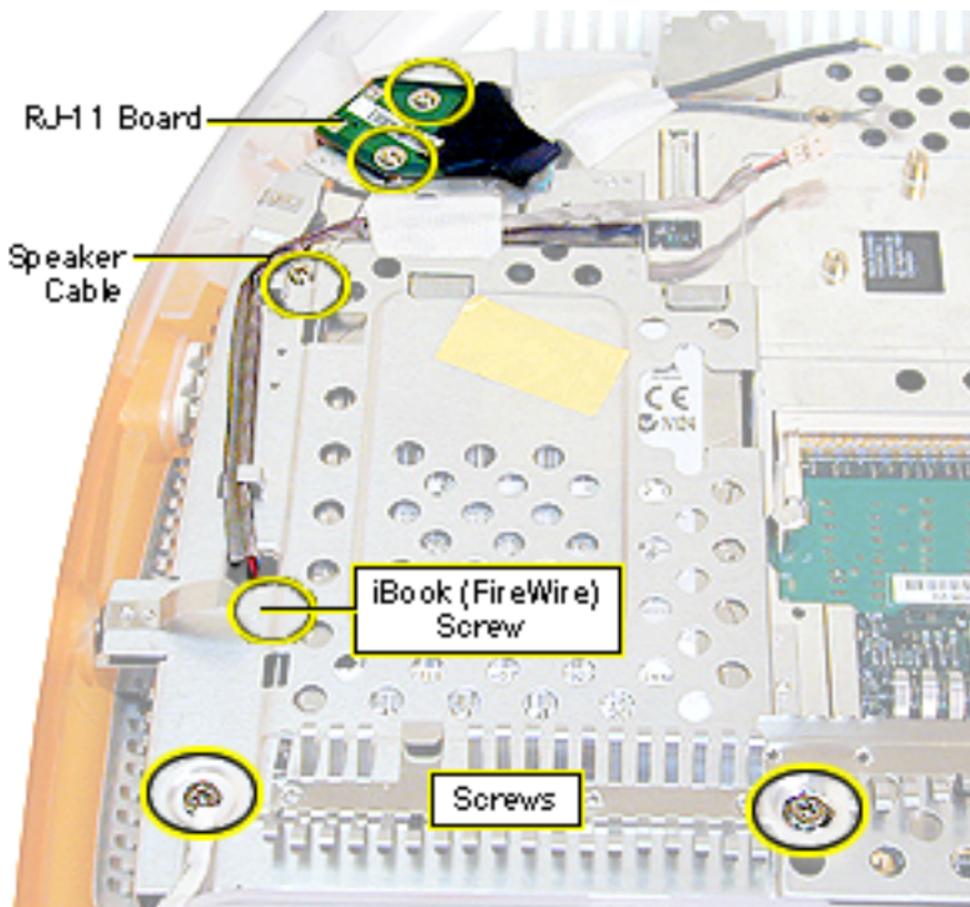
Logic Board EMI Shield





1. Remove the thin round head Phillips screw near the power port.
2. Remove the small Phillips screw to the left of the modem area.

Note: On the iBook (FireWire) also remove the screw located near the hole for the speaker wire in the EMI shield.



3. Remove the two Phillips screws near the front edge of the logic board EMI shield near the hard drive.
4. Remove the tape on the speaker cable and deroute the cable.
5. Remove the small Phillips screw on the left side of the logic board EMI shield, between the Ethernet and USB ports.
6. Remove the tape on the cable of the RJ-11 board and remove the two thin



Phillips screws. Lift the board out.

Note: You may need to flex the outer plastic case outward slightly to clear the RJ-11 board for removal.

7. Lift up on the right side of the logic board EMI shield to remove it.

Replacement Note: Route the speaker cable through the hole in the logic board EMI shield that is above the speaker cable connector.

Verify that the shield's edges all fit inside the metal lining of the bottom case.

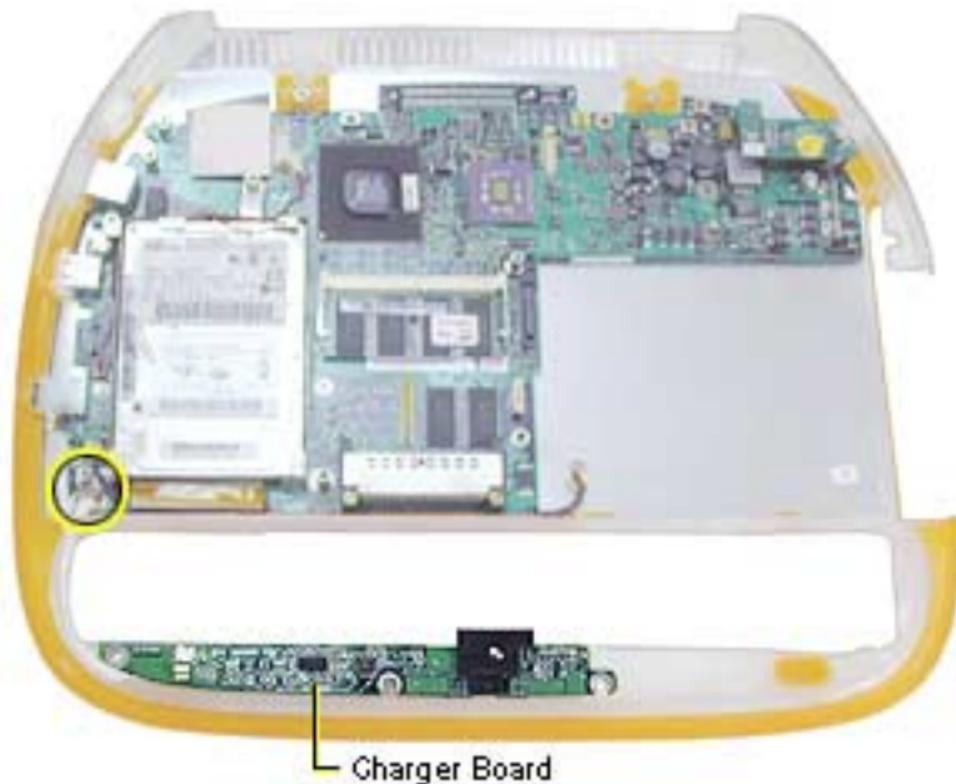


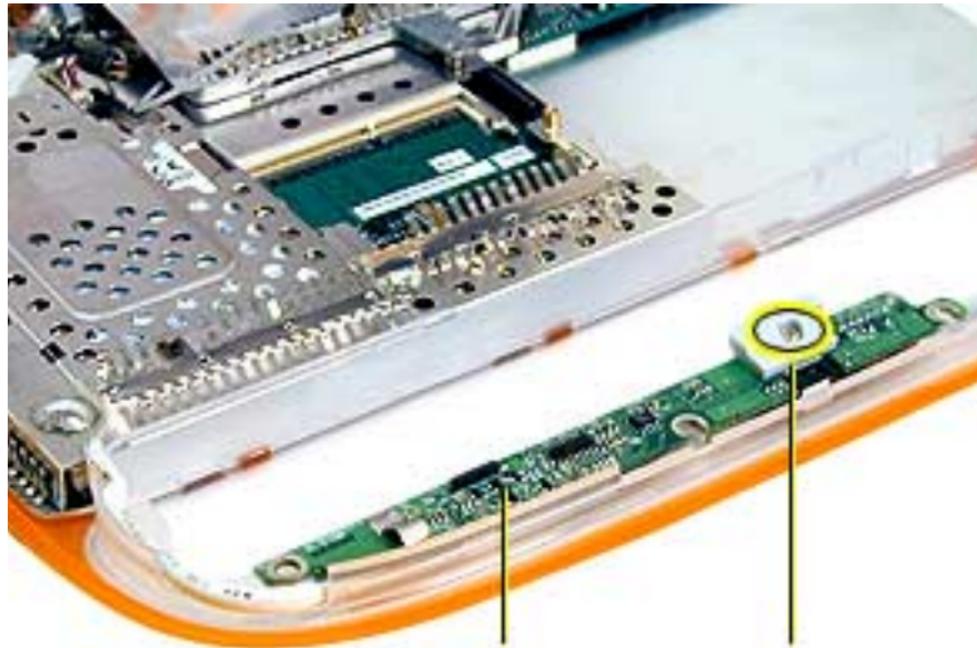
Charger Board

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Optical drive
- Modem
- Display assembly
- Logic board EMI shield

1. Disconnect the charger board's power cable connector from the logic board.



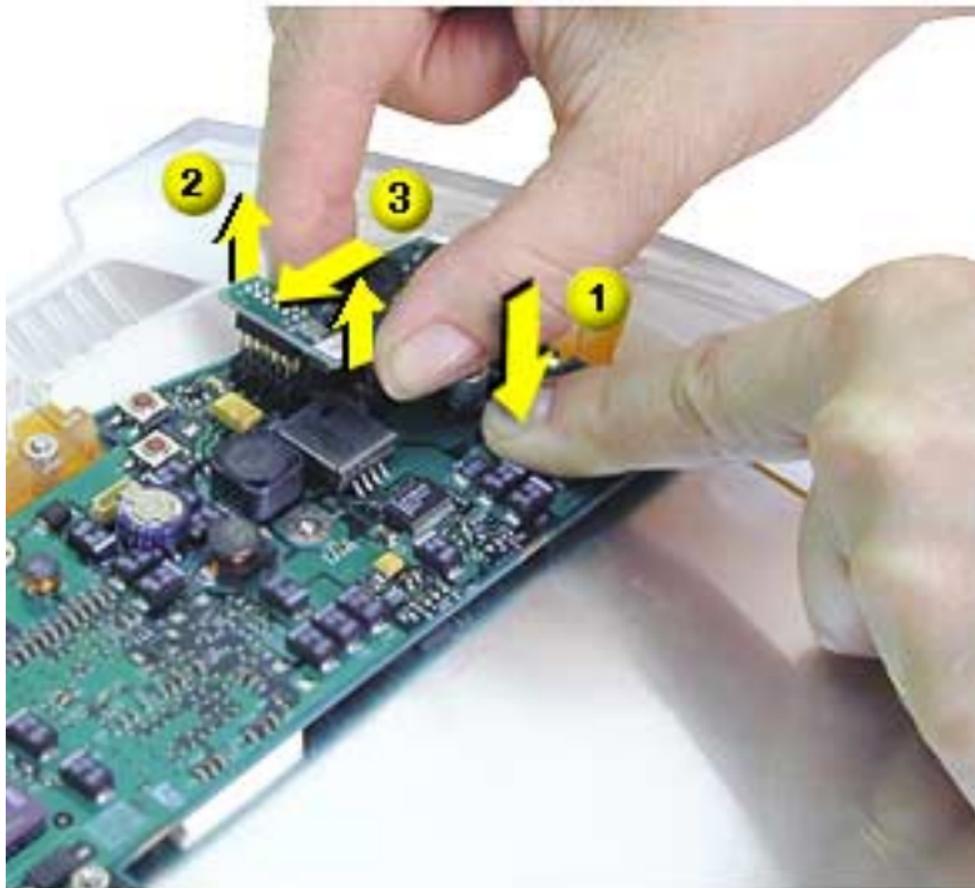


Charger Board

Trackpad Support

2. Remove the Phillips screw holding the plastic trackpad support then remove the support.
3. Lift the charger board out of its compartment.

Replacement Note: Be sure that the shield under the charger board is in place before installing the charger board.



DC-In Board

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Optical drive
- Modem
- Display assembly
- Logic board EMI shield

1. Press down gently on the logic board near the DC-in board.
2. Pull up on the left side of the DC-in board until



the pins are clear of the connector.

Important: Be very careful not to bump or bend the pins on the board during this procedure.

3. Grasp the board and the plastic bracket below the board and pull up and out until the entire unit including the DC-in port comes free.

Note: Rotating the DC-in port clockwise may help to release it.

4. Pull the plastic bracket off the DC-in board.

Replacement Note: Insert the plastic bracket into the logic board so that the bumps on the bottom fit into the corresponding holes on the logic board.

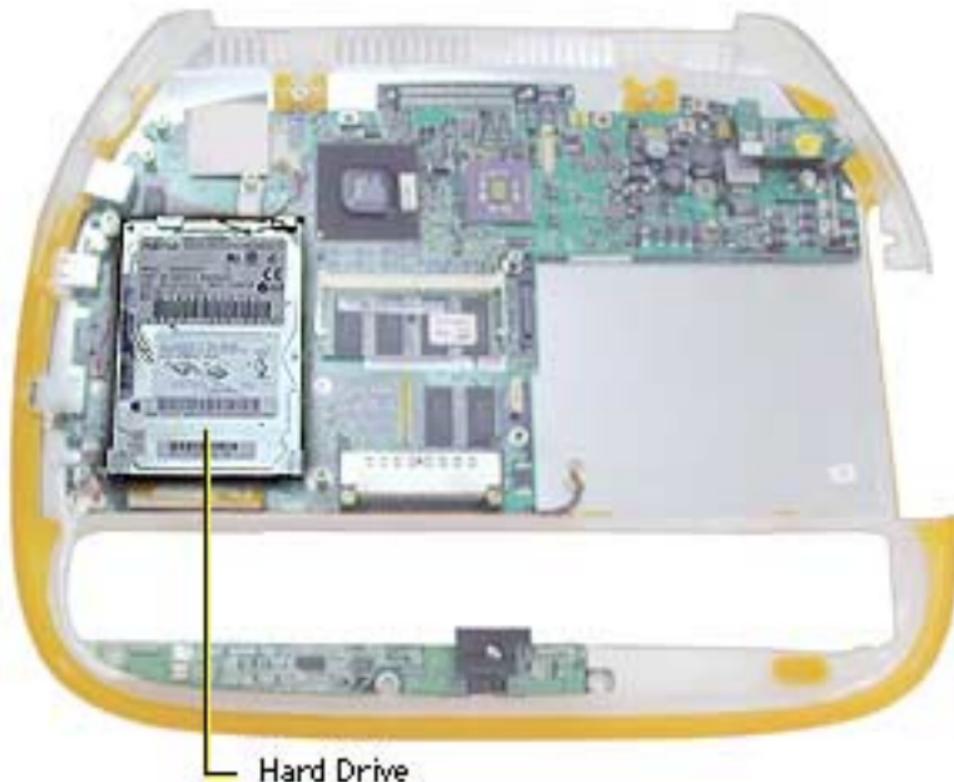


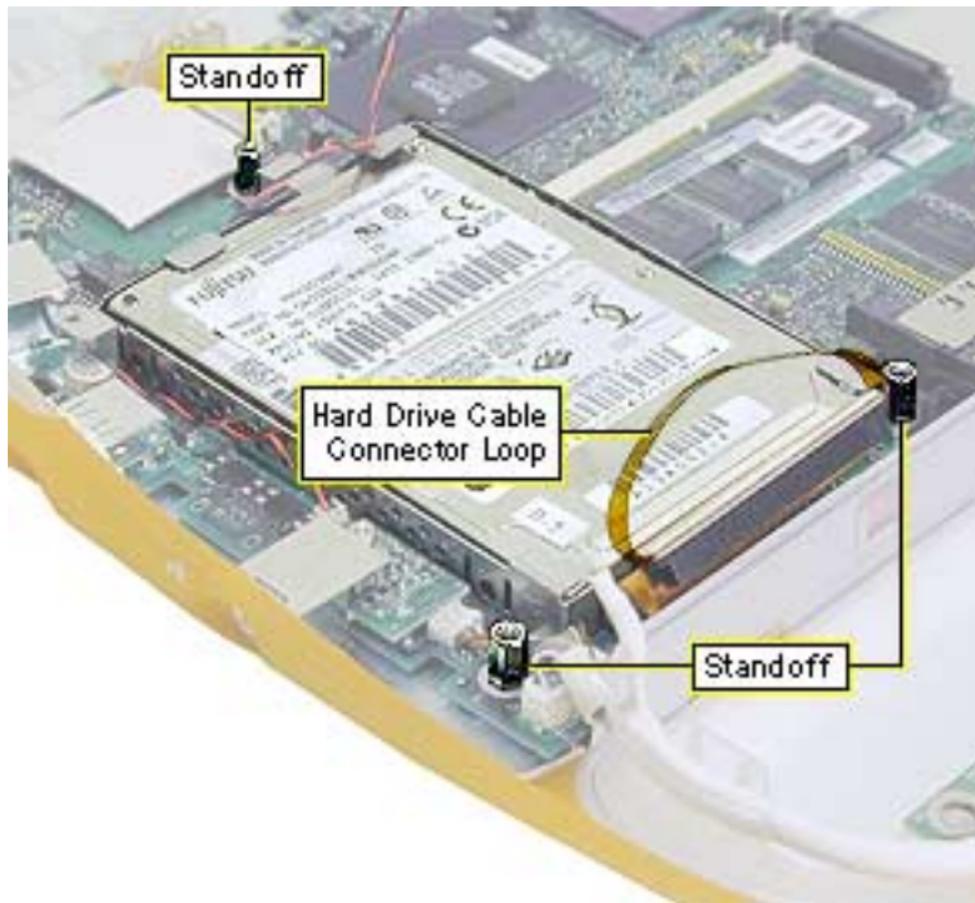
Hard Drive

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Optical drive
- Modem
- Display assembly
- Logic board EMI shield

1. Lift up on the hard drive cable connector loop until the connector disconnects from the logic board.





Important: Pull straight up to prevent bending pins on the logic board.

2. Remove the three 5 mm standoff screws holding the hard drive bracket to the logic board.
3. Lift the hard drive off the logic board.
4. If the hard drive bracket remains attached to the hard drive, carefully pull it off. It may be held on with double-sided tape. The bracket is fragile; handle it carefully.



Replacement Note: The hard drive cable is keyed so that it will only connect to the hard drive one way. Fit the cable to the hard drive first to make sure you have the cable installed correctly.

Connect the hard drive cable to the logic board and then replace the standoff screws.

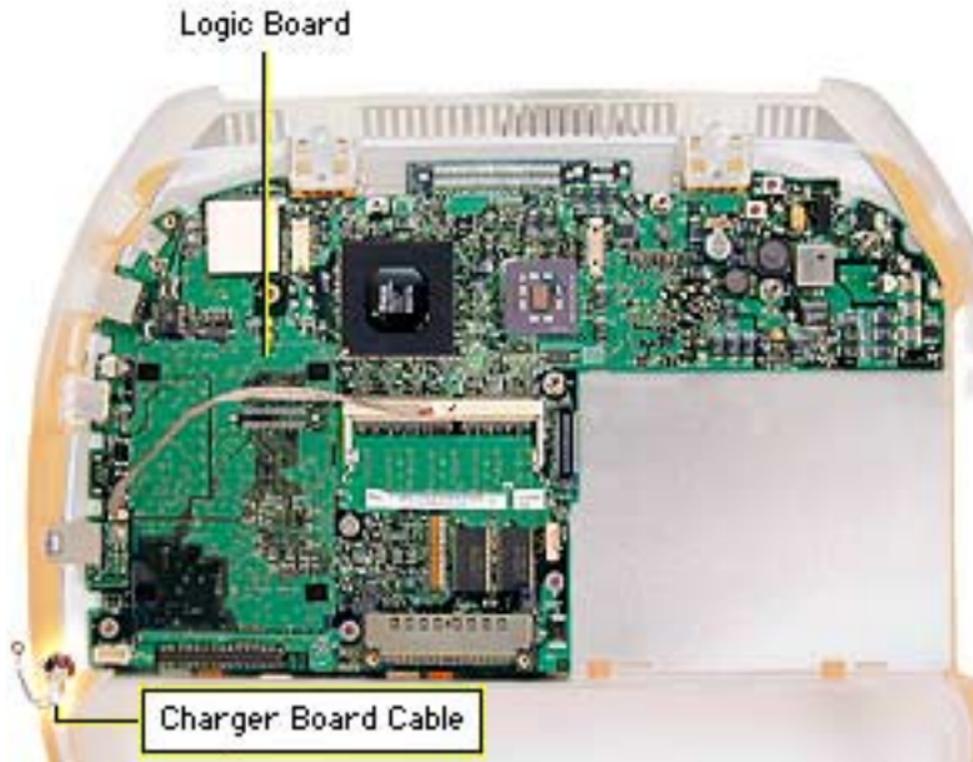


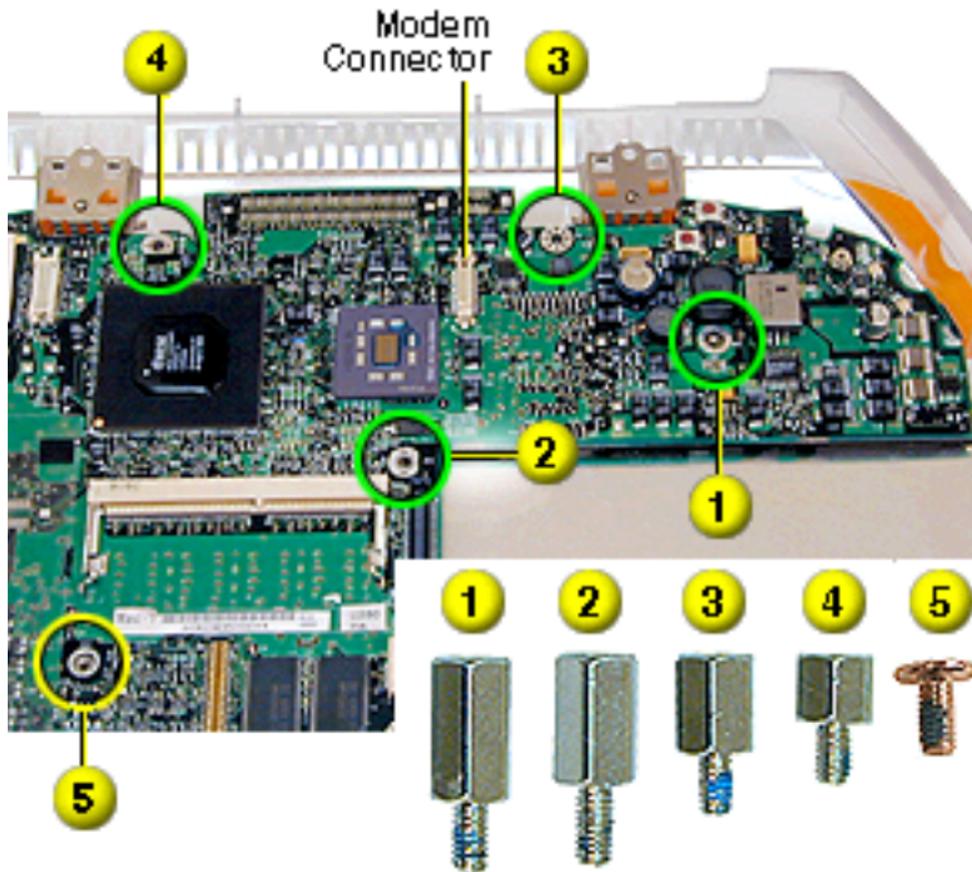
Logic Board

Before you begin, remove the following:

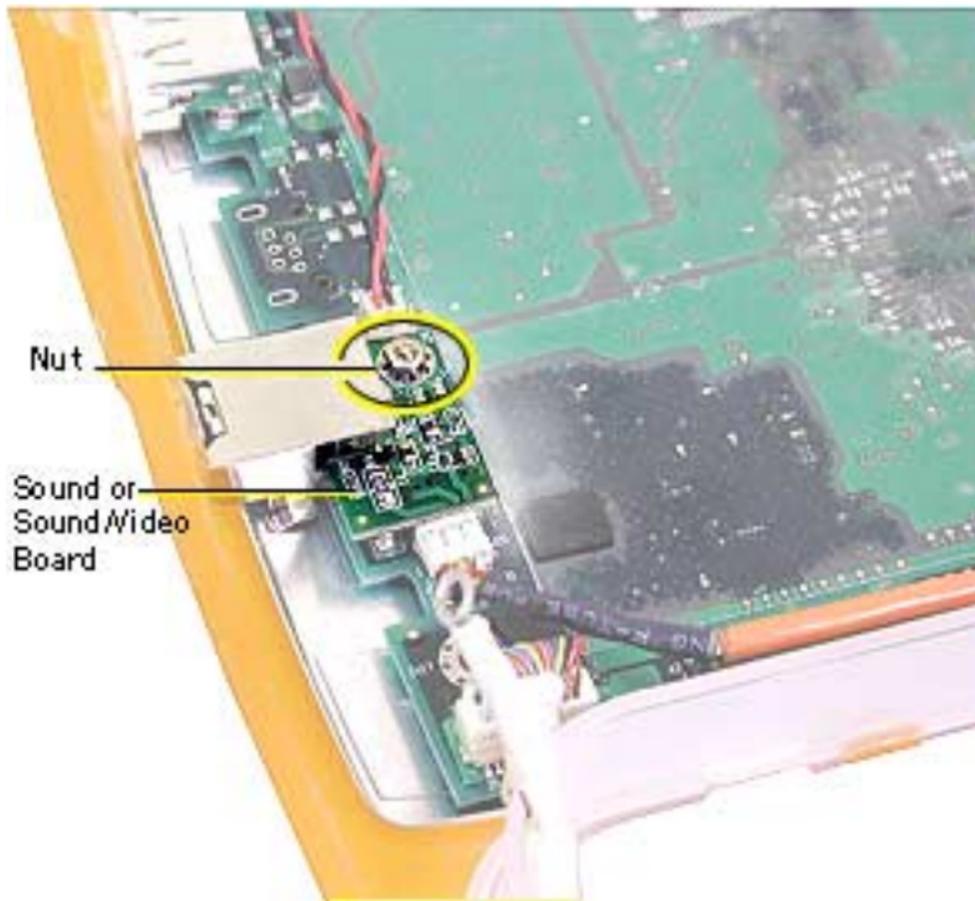
- AC adapter
- Battery
- Keyboard
- Memory card (if any)
- Top case
- Optical drive
- Modem
- Display assembly
- Logic board EMI shield
- Hard drive
- DC-in board

1. Disconnect the charger board cable connector from the logic board.





2. Remove the standoff screw above the optical drive area [1].
3. Remove the standoff screw at the corner of the optical drive cut-out on the logic board [2].
4. Remove the standoff screw to the right of the modem connector [3].
5. Remove the standoff screw near the left clutch notch [4].
6. Remove the Phillips screw below the left side of the memory card slot [5].
7. Lift the logic board out.



Sound or Sound/Video Board

Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Optical drive
- Modem
- Display assembly
- Logic board EMI shield

1. On the iBook, remove the 4 mm nut on the sound board.



On the iBook (FireWire), remove the 5mm nut on the video/sound board.

2. Lift up on the right end of the board to release it from its connector, then tilt the board and slide it out of the port opening.



Displays

Display assemblies for the iBook are manufactured by several different companies. The procedures that follow are for the IBM display. Take Apart procedures can vary for different manufacturers' displays.

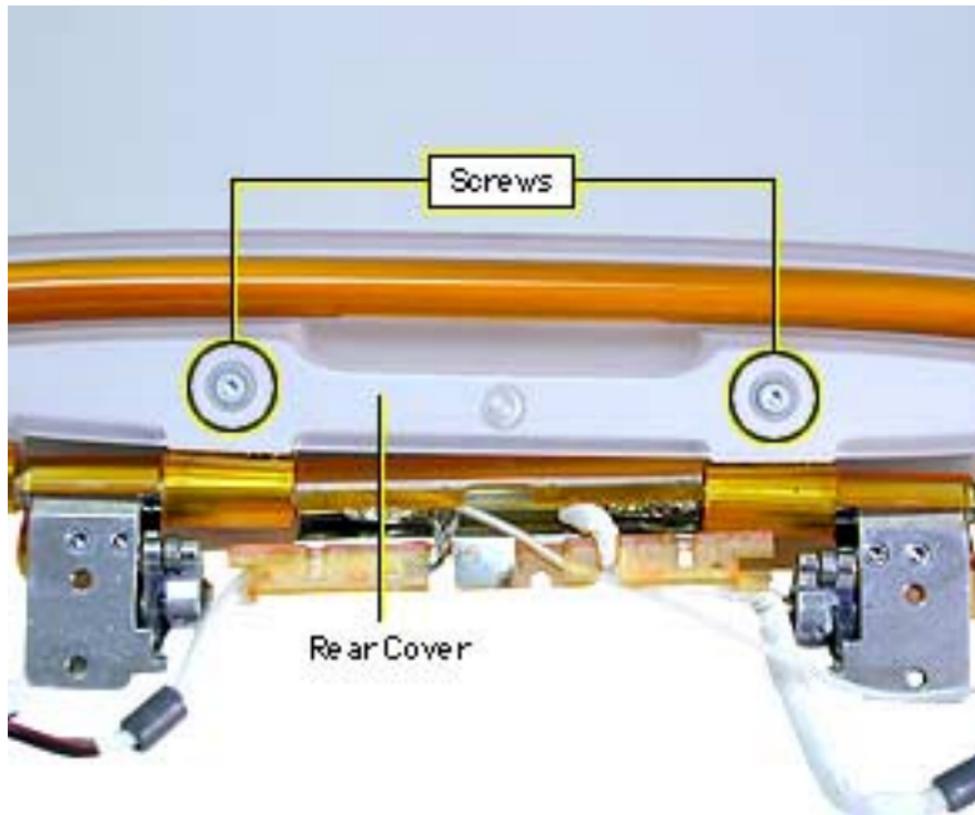
Use the correct replacement part for the display that you are replacing. Manufacturer-specific parts include the following: display, display cable, EMI shield and mounting frame.



Display Bezel

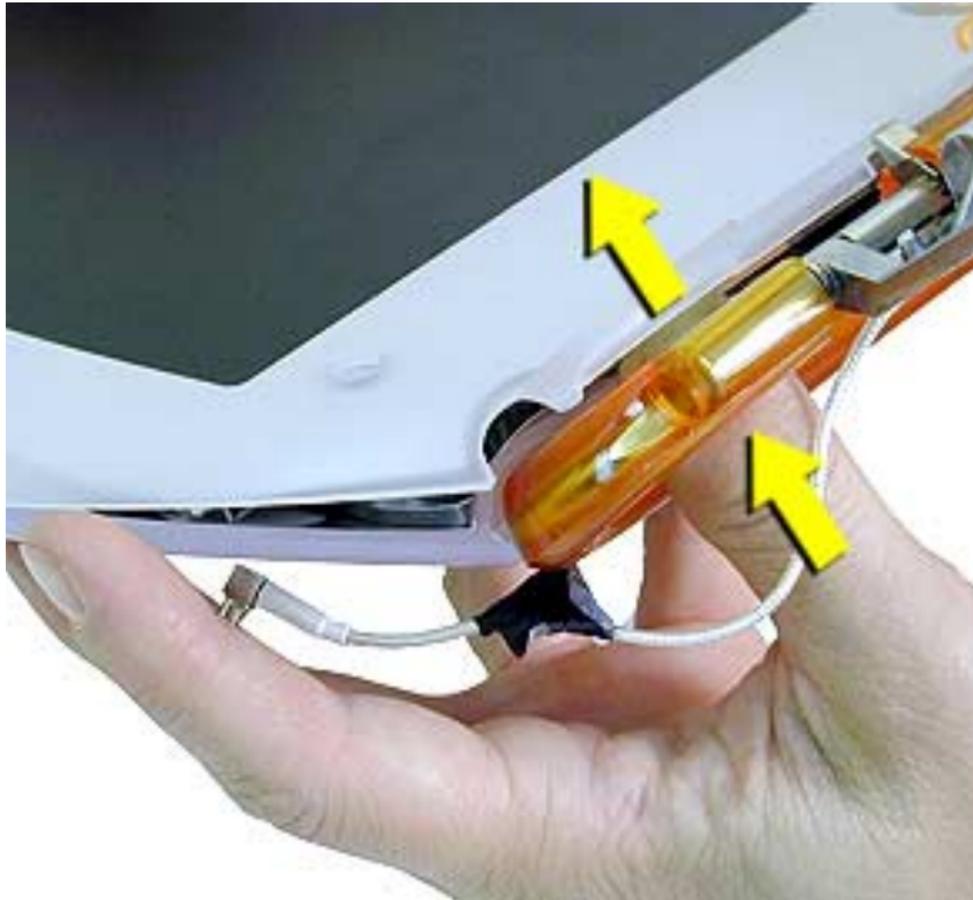
Before you begin, remove the following:

- AC adapter
 - Battery
1. Remove the two long T8 screws on the bottom front of the bezel.



2. Turn the display face down and remove the two short T8 screws on the rear cover inside the handle.
3. Open the handle and pull the rear cover and shield off.

Replacement Note: There is a cosmetic shield under the rear cover. Be sure it is in place before continuing.



4. Turn the display over so the screen faces up.
5. Push up on the bezel from inside the handle area until the bezel and display housing pops apart.
6. Use the same procedure to separate the other bottom corner.



7. Work your hands around each side, separating the bezel from the display housing. At the top corners, pull the plastic of the display housing out while pulling up on the bezel.

Important: If there is glue (double-stick tape) along the bottom of the display that adheres to the cosmetic metal on the inside of the bezel, use care when removing to avoid damage to the metal.

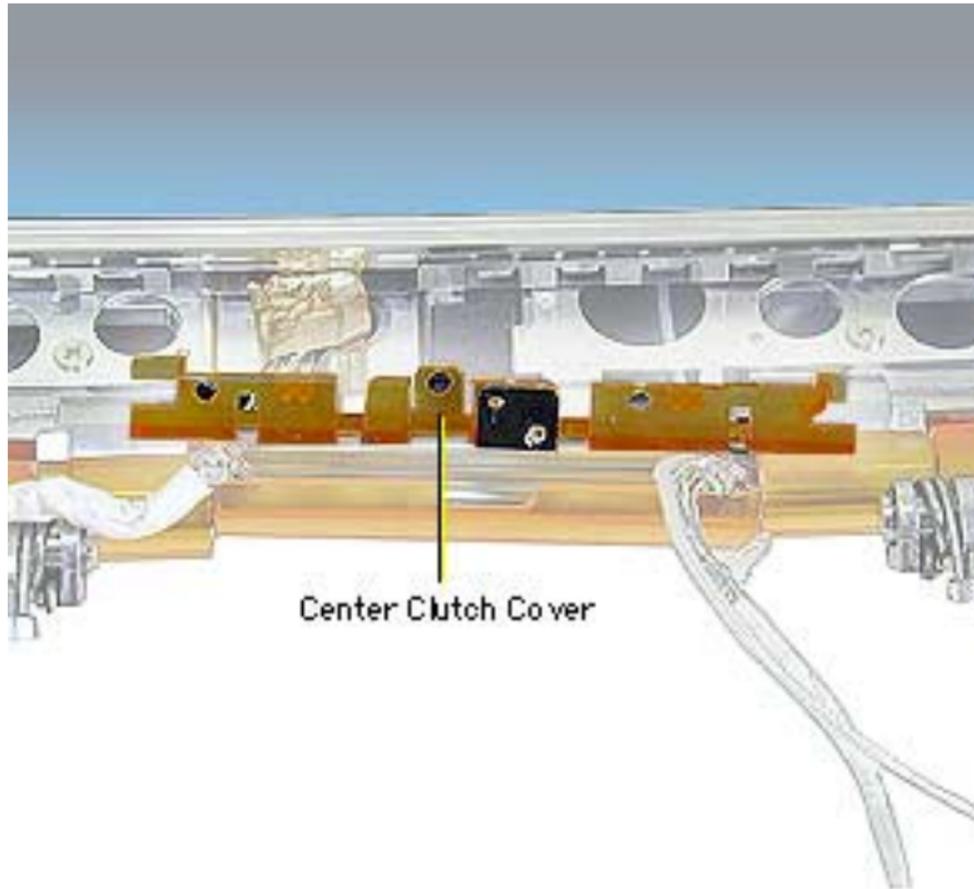


Display (IBM)

Before you begin, remove the following:

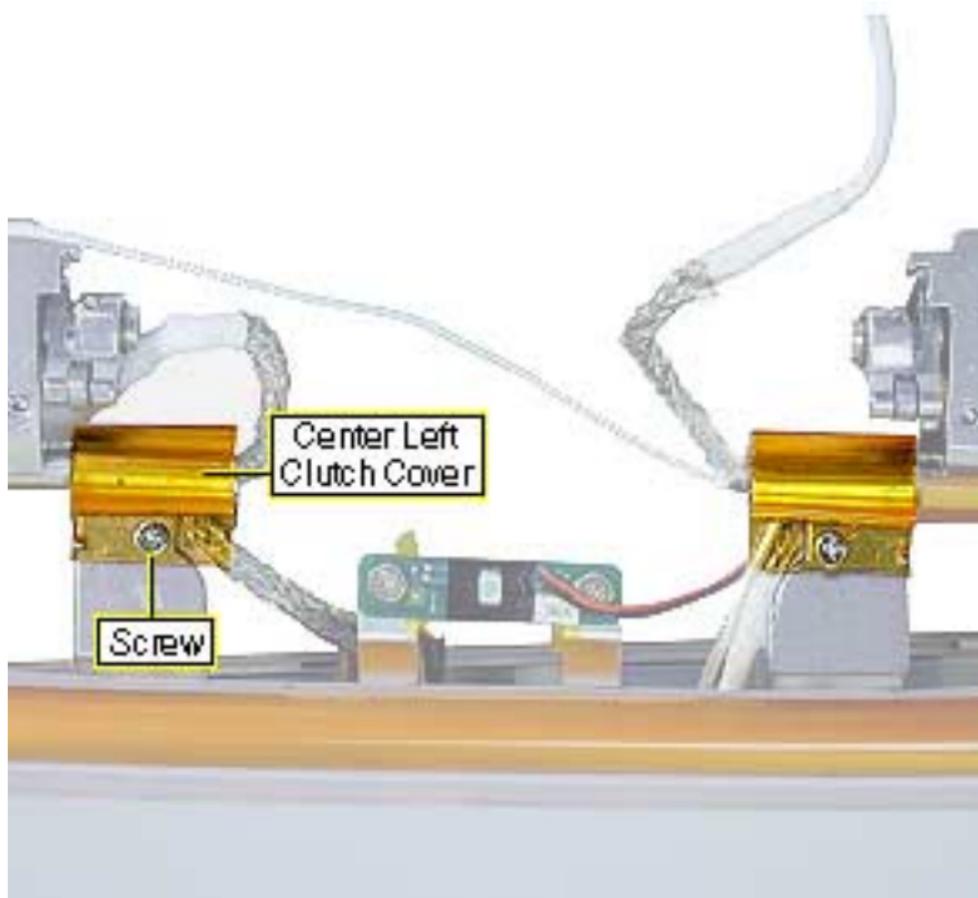
- AC adapter
- Battery
- Keyboard
- Top case
- Modem
- Display assembly
- Display bezel

1. Remove any tape from the bulb wire connection sleeve.
2. Pull the connection sleeve out and slide it toward you to expose the

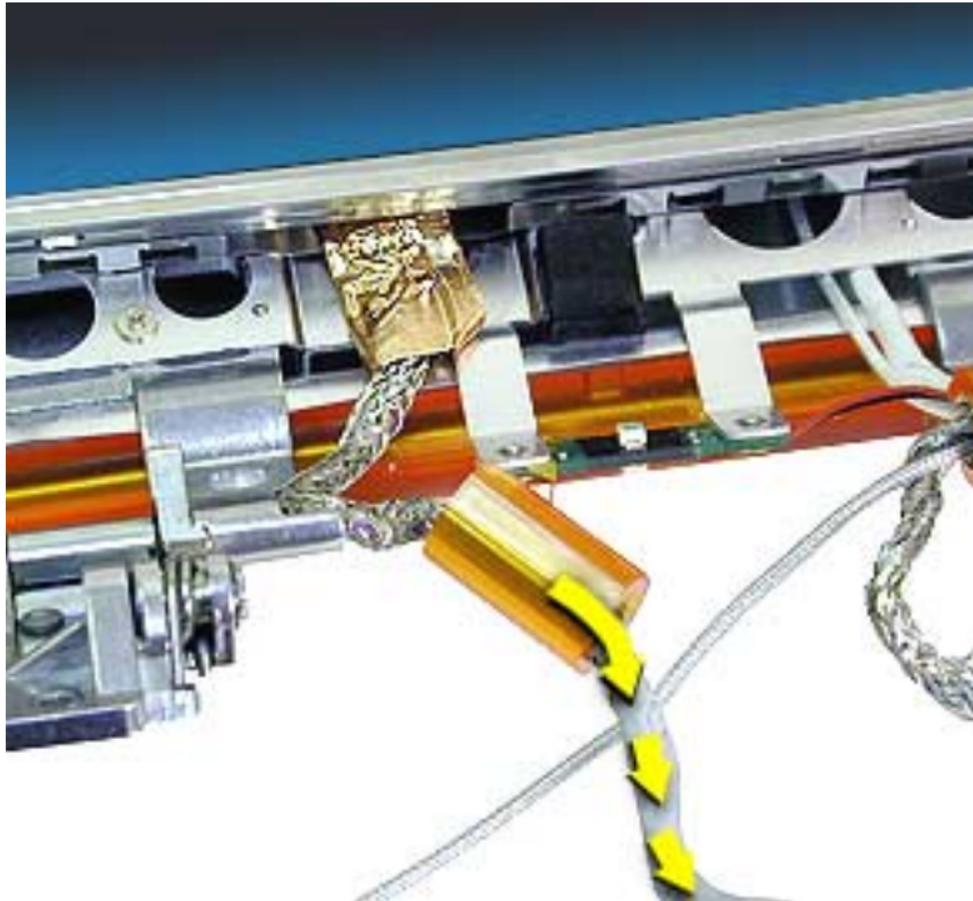


connector. Remove any tape on the connector, then disconnect the bulb wire connector (from the inverter board connector).

3. Deroute the cables from the center clutch cover.
4. Tilt the center clutch cover and remove it.
5. Lift up the back of the display until the center left and right clutch covers are visible.



6. Remove the screw on the back of the center left clutch cover.



7. Slide the center left clutch cover along the cable until you can remove it from the cable.
8. Remove the grounding strap, if any, attached to the display frame from this cable.



9. Remove the four Phillips screws on the corners of the display.

10. Remove the display.

Replacement Note: Separate the inner metal shield from the center left clutch cover and replace it first. Then slide the plastic cover over it.



Inverter Board

Before you begin, remove the following:

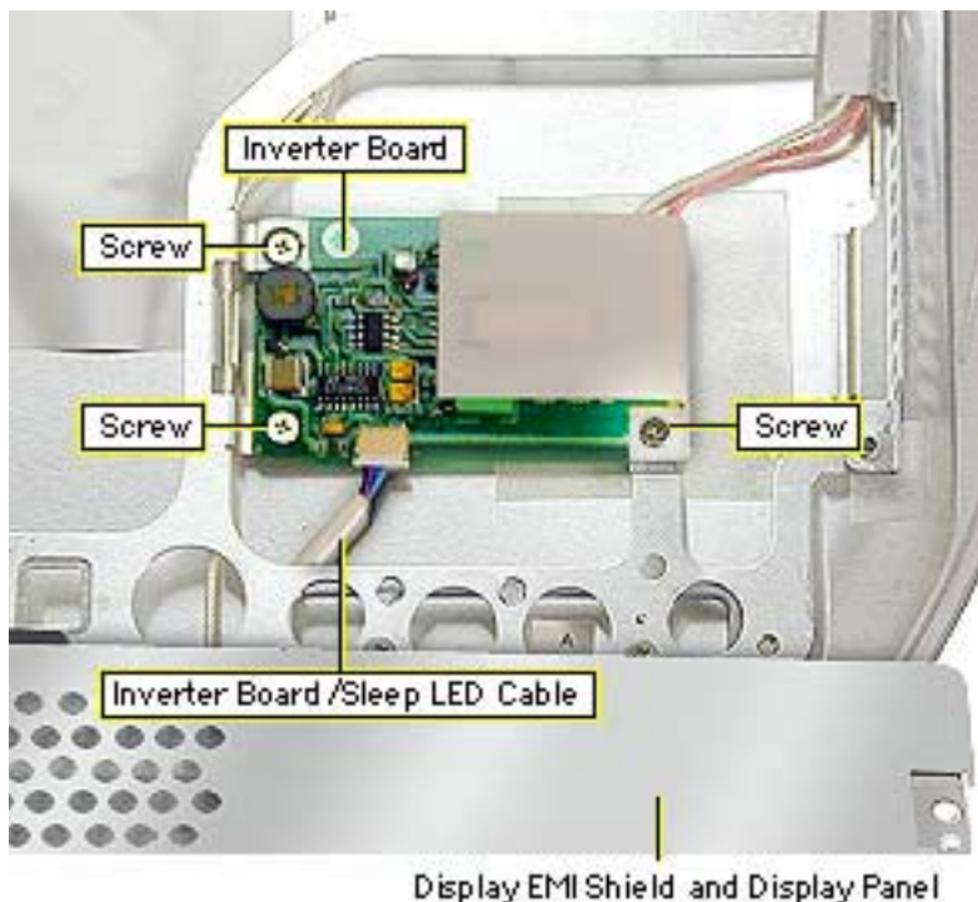
- AC adapter
- Battery
- Keyboard
- Top case
- Modem
- Display assembly
- Display bezel

Note: It is not necessary to remove the display completely.

1. Remove the four Phillips screws on the corners of the display.



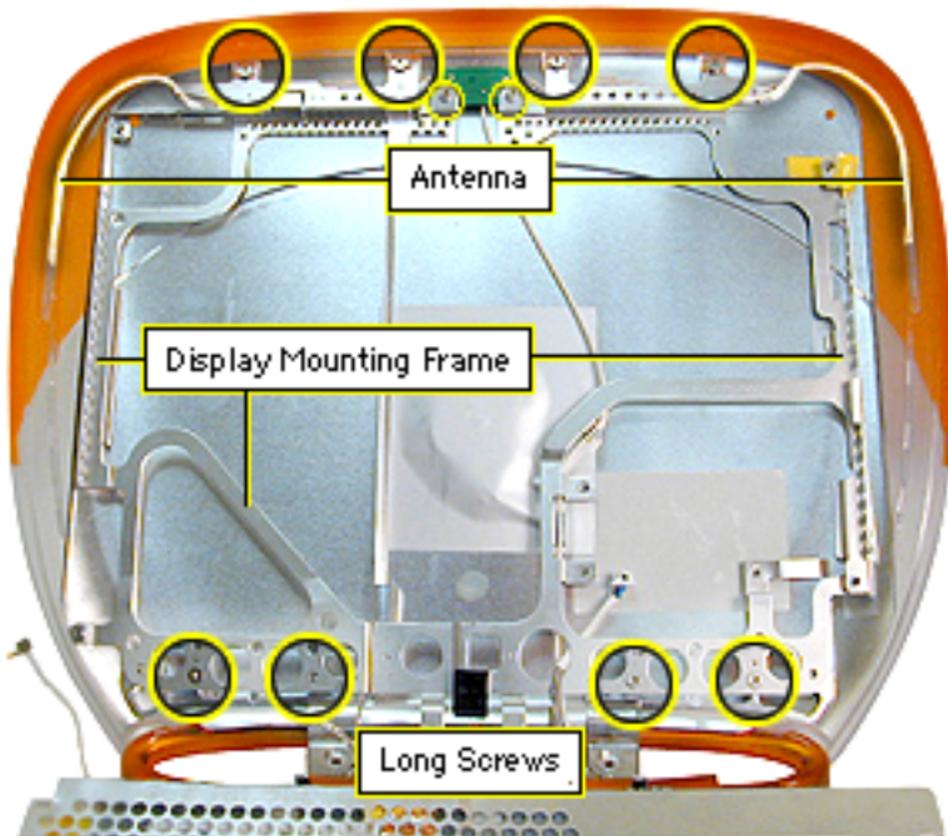
2. Remove any tape from the bulb wire connection sleeve.
3. Pull the connection sleeve out and slide it toward you to expose the connector. Remove any tape on the connector, then disconnect the bulb wire connector (from the inverter board connector).
4. Place a protective paper or cloth over the clutch, then tilt the display and the shield forward and rest them on the clutches.



5. Disconnect the inverter board/sleep LED cable from the inverter board.
6. Remove the three Phillips screws from the inverter board and remove the board.



Short Screws



Wireless Antenna

Before you begin, remove the following:

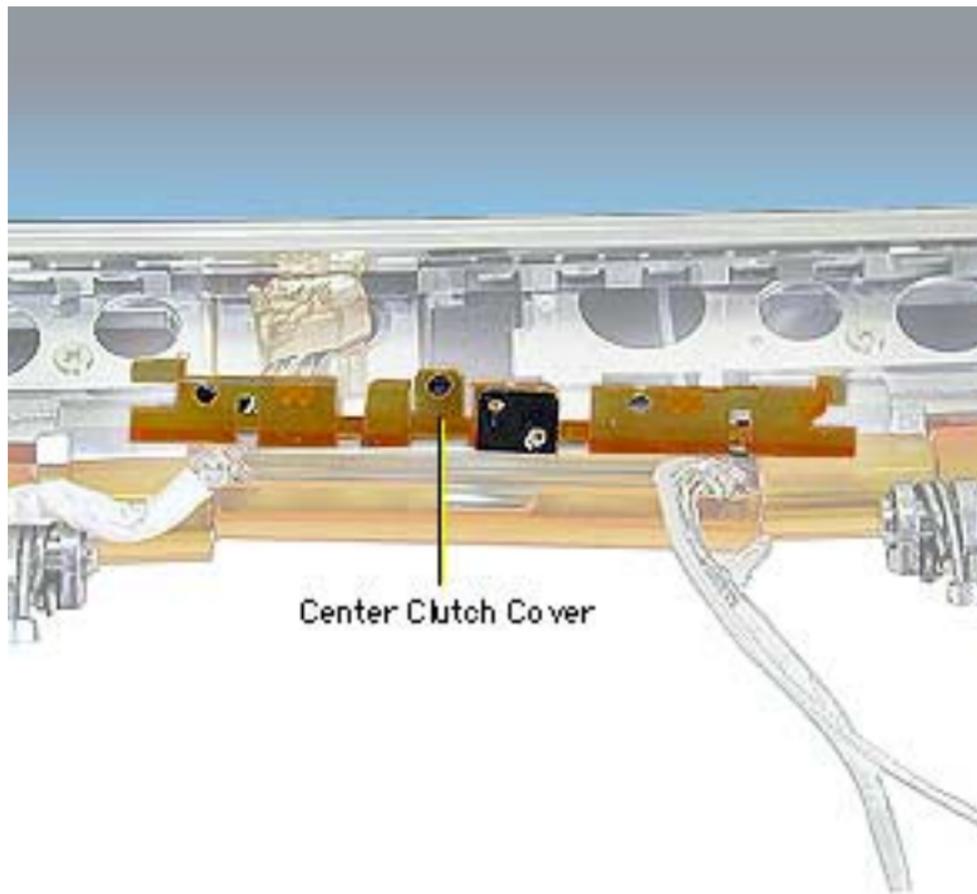
- AC adapter
- Battery
- Keyboard
- Top case
- Modem
- Display assembly
- Display bezel
- Display
- Inverter board

1. Loosen the four short Phillips screws on the top of the display mounting frame.



2. Remove the four long Phillips screws on the bottom of the display mounting frame (three, if a grounding screw was removed when removing the display).
3. Pull up on the ends of the antennas to remove them from the display housing. The antennas fit in grooves and are held in place with adhesive.
4. Lift up on the bottom of the display mounting frame and slide it toward the handle.
5. Lift the mounting frame out.
6. Deroute the antenna from the display frame.
7. Remove the two screws from the antenna IC board.

Replacement Note: Verify that the EMI spring is slid onto the bottom left inverter board screw tab on the mounting frame and will contact the metal of the display housing.



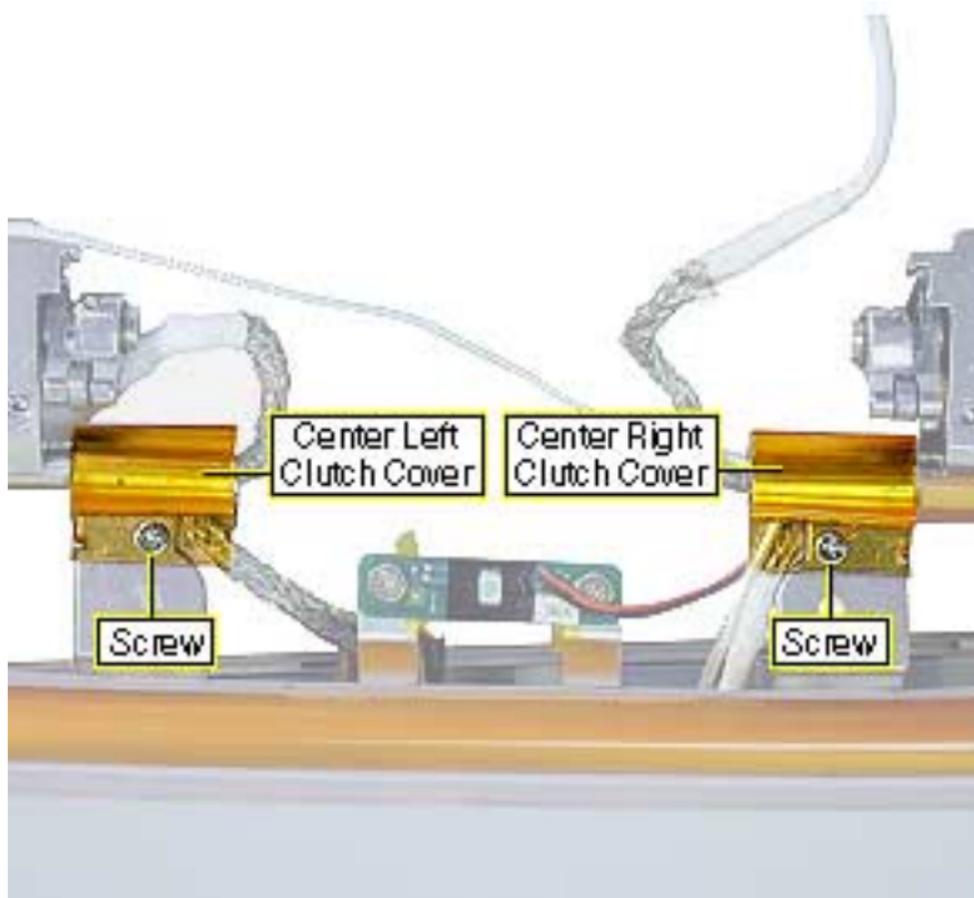
Center Clutch Cover

Handle

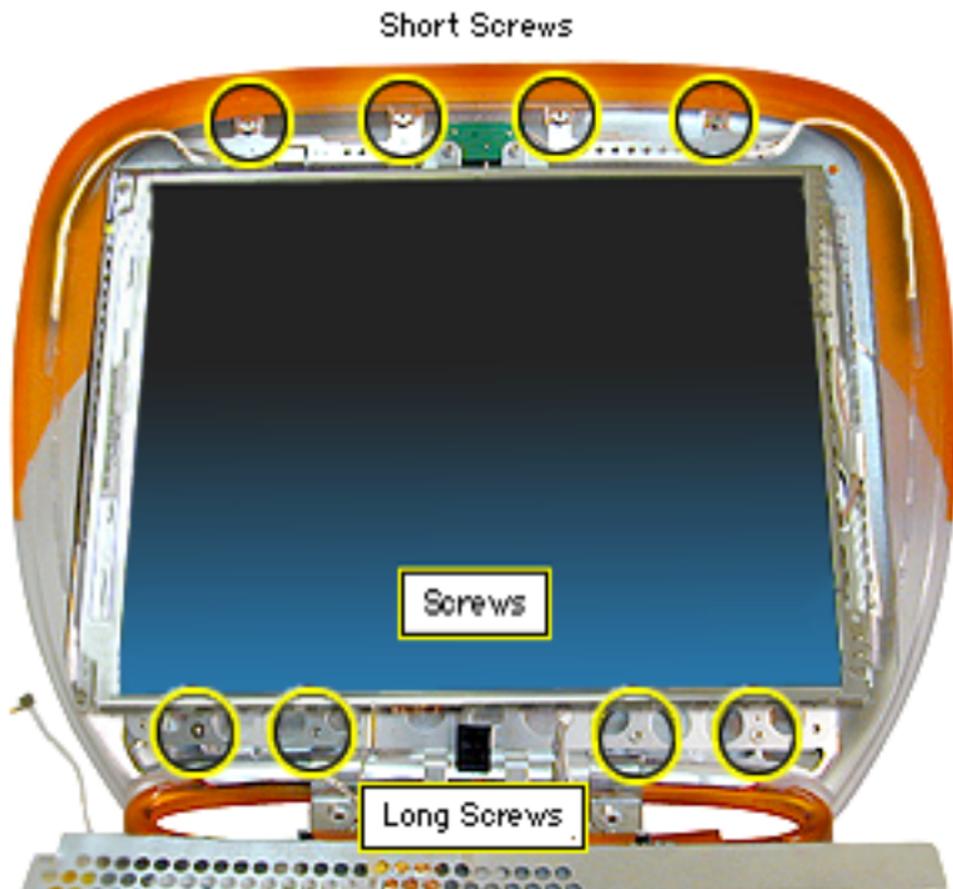
Before you begin, remove the following:

- AC adapter
- Battery
- Keyboard
- Top case
- Modem
- Display assembly
- Display bezel

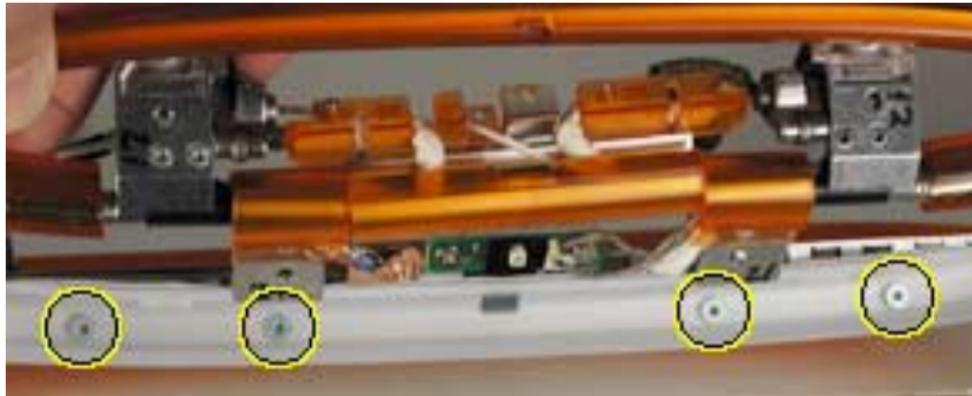
1. Deroute the cables from the center clutch cover.
2. Tilt the center clutch cover and remove it.



3. Lift up the back of the display until the screws on the back of the center left and right clutch covers are visible. Remove the screws.
4. Slide the clutch covers and their metal sleeves off of the clutches.
5. Deroute the cables off of the clutches.



6. Loosen the four short Phillips screws on the top of the display mounting frame.
7. Remove the four long Phillips screws on the bottom of the display mounting frame.



8. Remove the four exterior screws on the display housing.

Important: These screws have a cosmetic finish. Keep them separate from other screws.

9. Slide the display toward you, then lift up on the bottom of the display and remove the handle and clutch assembly.
10. Pull the clutches off the handle.



Handle Replacement

Important: The left and right clutches have unique springs.

1. Fit a spring onto a spring shaft so the cross-wire on the end of the spring slides into the slot in the end of the spring shaft.
2. Insert the spring assembly into the appropriate handle end.
3. Position the handle so that the holes in the handle plastic face up





Spring tension adjustment

and the handle ends are closest to you.

4. Lay the clutch for this side of the handle, in the open position, on the handle in its approximate position.
5. From above the handle, position a very thin needle nose pliers so that its handle is up and the nose points down.
6. Firmly grab the flat sides on the end of the spring shaft; leave enough room on the end so that the clutch can be put onto it slightly, as the clutch will be used to hold the tension on the spring while repositioning the pliers. Rotate the pliers handle toward you and around, approximately 180 degrees, while verifying that the shaft stays flush against the handle. Then slide the clutch onto the end of the spring shaft to hold it securely from turning.
7. Remove the pliers, then firmly reposition the pliers as before and hold the spring shaft from turning. Remove



the clutch, turn the pliers another 180 degrees (for a total of 360 degrees), then slide the clutch all the way onto the spring shaft as you remove the pliers.

8. Temporarily secure the clutch and handle end assembly with tape to prevent it from sliding apart.
9. Repeat the procedure for the other side of the handle.
10. Place the clutches on the handle assembly under the bottom of the display frame so that the pins in the clutches align with the pin holes in the display frame. Secure the clutches to the frame with screws. Make sure to attach any grounding strap under the appropriate screw.

Important: Verify that the cables are not caught between the display frame and clutch assembly.

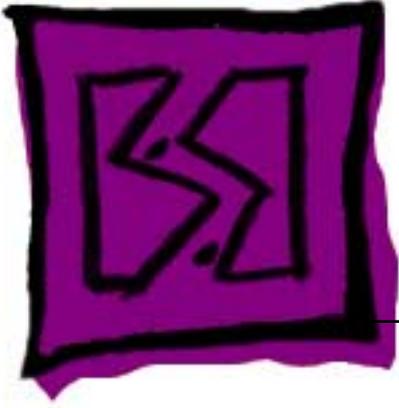
11. Remove any tape used to secure the handle and clutches.



12. Slide the top of the display frame into the slots at the top of the display housing.

Important: Verify alignment of the antenna cable.

13. Attach the exterior screws.



Exploded Views

iBook / iBook (FireWire)

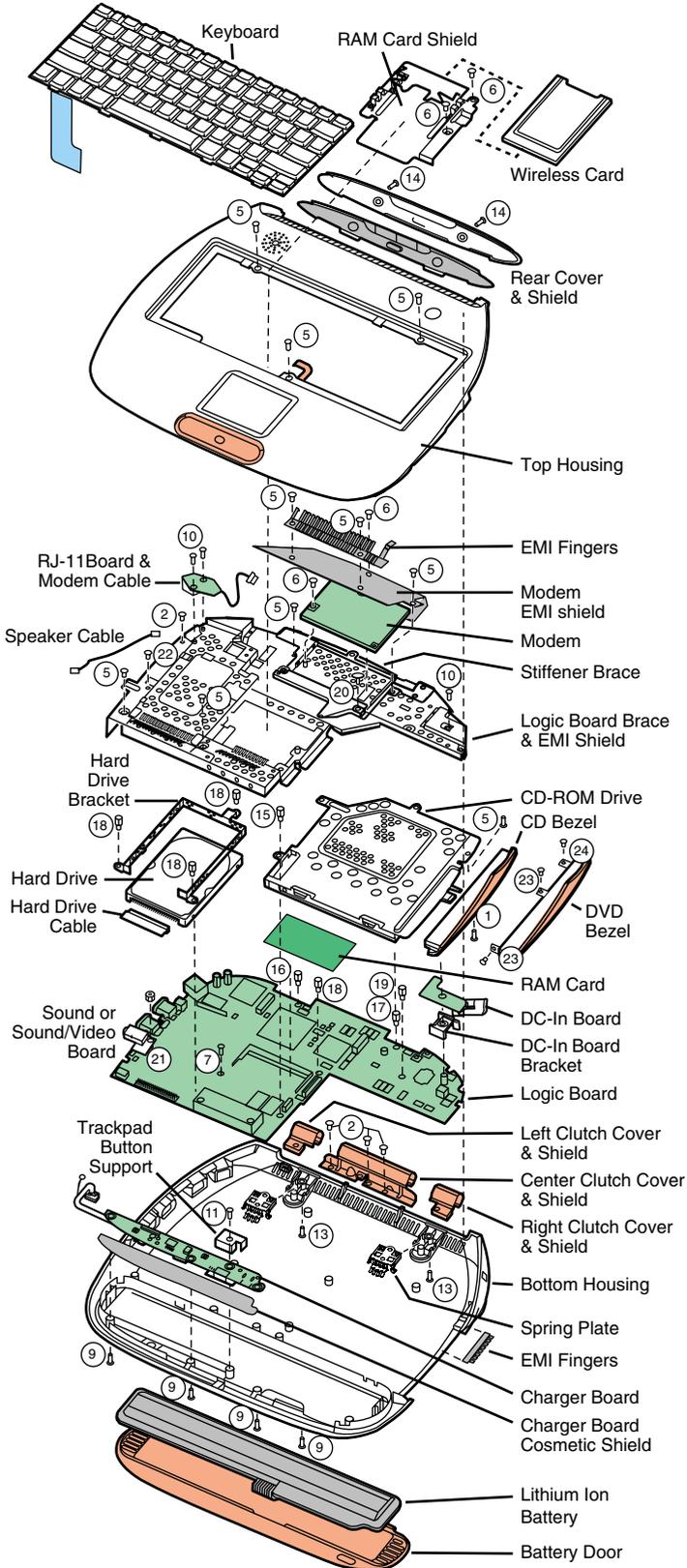
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iBook CPU Case Exploded View and Screw Locator

Note:

Circled numbers indicate which screw is used at that location and correspond to the screws on the iBook Screw Reference Sheet.

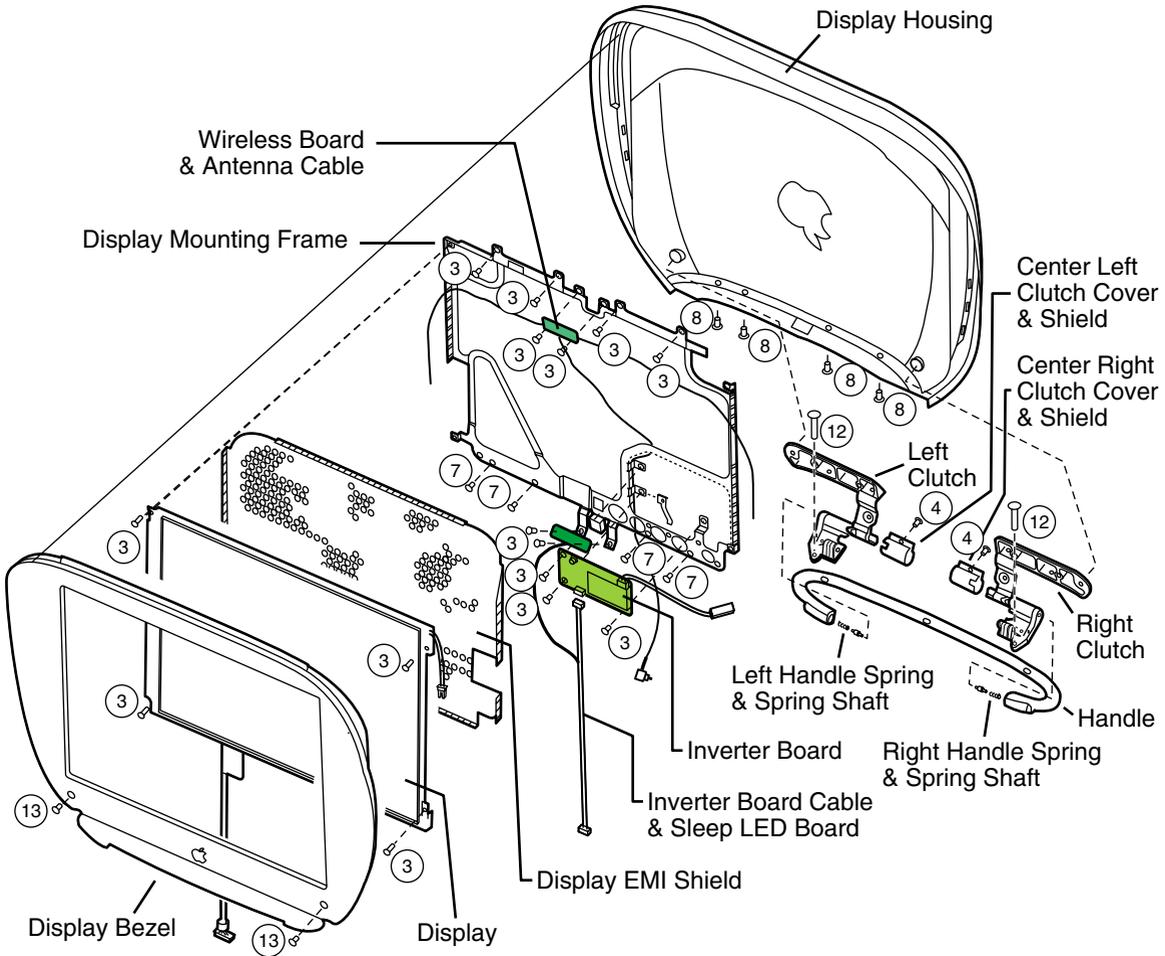




iBook Display Case Exploded View and Screw Locator

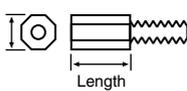
Note:

Circled numbers indicate which screw is used at that location and correspond to the screws on the iBook Screw Reference Sheet.





iBook Screw Reference Sheet

SCREW DIMENSIONS (MM)**HEX DIMENSIONS (MM)****Note:**

The circled numbers in front of each screw description correspond to the screw location in the Exploded View diagrams.

The number in parenthesis at the end of the screw's description indicates the quantity used at that location.

Screw ID	Part Number	Head Type	Dimensions (mm)	Location
①	922-5396	Phillips	4.5 mm	CD-ROM Drive Bezel (1) (black)
②	922-5377	Phillips	3 mm	Center clutch cover (3) Logic board EMI shield by USB port (1)
③	922-5378	Phillips	2.7 mm	Display bracket corners (4) Display mounting frame, top (4) Sleep LED board (2) Wireless antenna board (2) Inverter board (3)
④		Phillips (thin head)	3 mm	Center right/left clutch covers (2)
⑤	922-5380	Phillips	4 mm	Top case (3) Top case inside CD tray (1) Modem EMI shield, right (1) Modem EMI fingers (2) Logic board EMI shield by modem (1) Logic board EMI shield by hard drive (2)
⑥	922-5382	Phillips	5 mm	RAM shield (2) Modem EMI shield, top (1) Modem (1)
⑦	922-5383	Phillips (with patchlock)	5 mm	Logic board by RAM card (1) Display mounting frame, bottom (4)
⑧	922-5376	Phillips	5 mm	Clutch to display (white zinc finish) (4)
⑨	922-5391	Torx T-8	6 mm	Bottom case under battery door (4)
⑩	922-5394	Phillips	7 mm	Logic board EMI shield near power port (1) RJ-11 board (2)
⑪	922-5371	Phillips	7 mm	Charger board trackpad support (1) — iBook (original)
⑪		Phillips	5 mm	Charger board trackpad support (1) — iBook (FireWire)
⑫	922-5372	Phillips	10 mm	Clutch to logic board shield (2)
⑬	922-5392	Torx T-8	13 mm	Bottom case by handle (2) Display bezel (2)
⑭	922-5393	Torx T-8	4.5 mm	Display rear door (2)
⑮	922-5410	Hex	5x5 mm	CD to logic board shield (1)
⑯	922-5412	Hex	5x4.5 mm	Logic board left of modem (1)
⑰	922-5411	Hex	5x6.3 mm	Logic board right of modem (1)
⑱	922-5408	Hex	5x8 mm	Hard drive to logic board (3) Logic board left of CD (1)
⑲	922-5409	Hex	5x9 mm	Logic board above CD (1)
⑳	922-5385	Phillips	4.5 mm	Stiffener brace, bottom right (1) — iBook (FireWire)
㉑	922-5417	Hex nut	4 mm	Sound board (1) — iBook (original)
㉑		Hex nut	5 mm	Sound/video board (1) — iBook (FireWire)
㉒		Phillips	2.7 mm	Logic board EMI shield by speaker cable hole (1) — iBook (FireWire)
㉓		Phillips (black)	3.2 mm	DVD-ROM bezel (2)
㉔		Phillips (black)	2 mm	DVD-ROM bezel (1)



Troubleshooting

iBook / iBook (FireWire)

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Power Issues

⚠ Warning: The iBook has no backup battery. Therefore, shut the system down before changing the battery, or make sure an AC power adapter is connected. Changing the battery while the system is in sleep mode, without a power adapter, will result in a loss of all data stored in RAM.

Sleep

There is an option in the Energy Saver control panel called “Preserve memory contents on sleep.” When this option is selected, the system creates a file containing all the information contained in RAM at that time, and stores it on the hard disk before going into sleep mode.

Battery Verification

When the power adapter is being used, the ring around the power adapter port glows green when the battery is fully charged. The ring glows amber if the battery is being charged.

You can also check the battery status by looking at the Battery portion of the control strip or the battery symbol in the upper right corner of the Finder menu bar.

Power Adapter Verification

Try using a known-good power adapter if the computer cannot run off the existing one, or try the existing power adapter with another iBook or G3 Series PowerBook

Under normal operation, the ring around the power adapter port will glow green or amber if the computer is receiving adequate power.

Power Manager Reset

⚠ Warning: Resetting the power manager permanently erases and removes a RAM disk. Resetting the power manager also resets the date and time.

iBook computers have a reset button on the keyboard above the power button. Press the button once with a paper clip to reset the power manager. Make sure the button clears the plastic of the top case when you release it, and is not stuck in the down position.



PRAM Reset

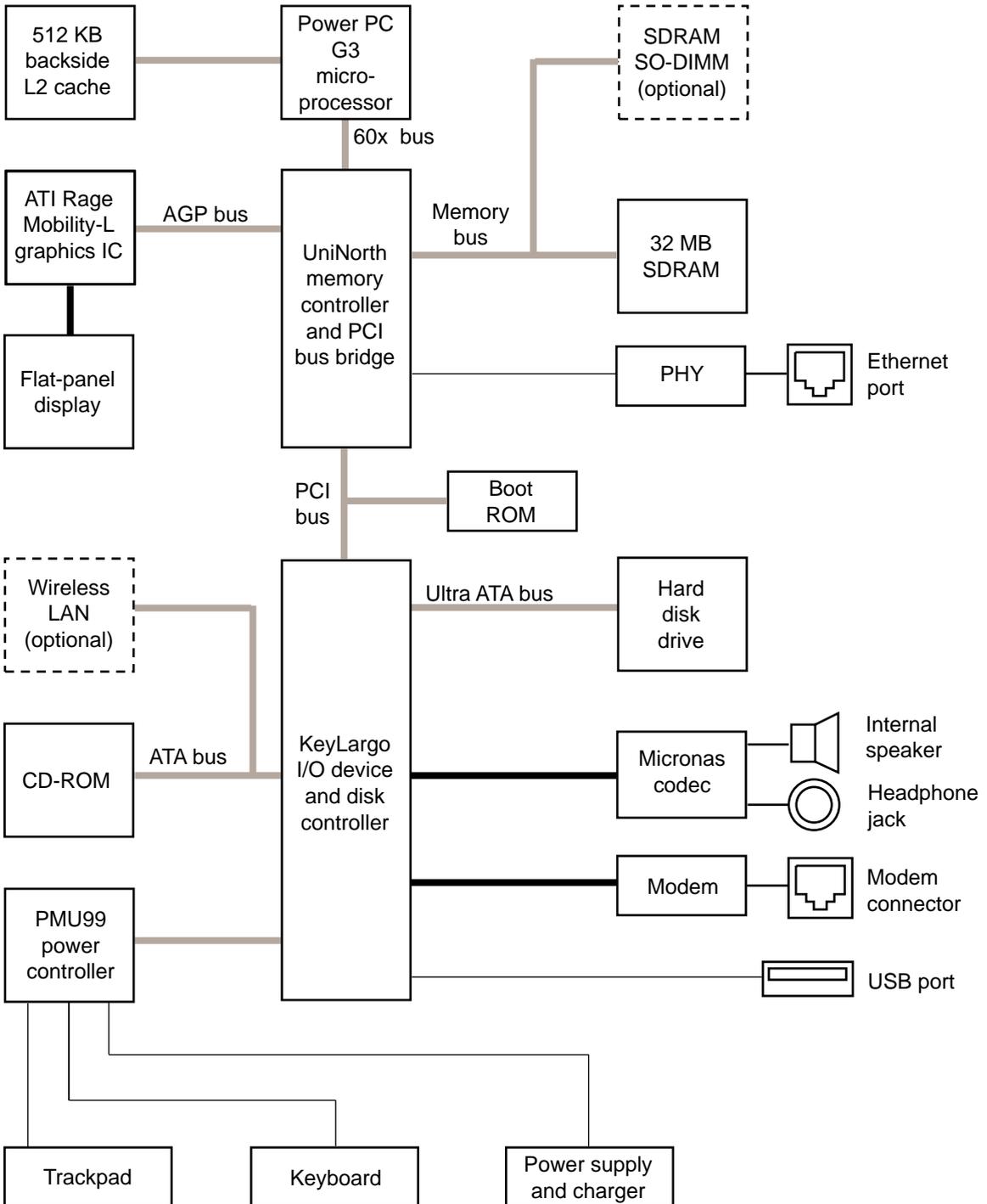
⚠ Warning: Resetting PRAM erases the contents of the RAM disk if you do not have “Save on Shutdown” selected in the Memory control panel. Resetting PRAM also restores default settings, such as Time Zone and Daylight Savings Time settings, in some control panels, so note custom settings before you reset PRAM.

- Turn on the computer by pressing the power button.
- Immediately hold the Option-Command-P-R keys.
- Hold down the keys until you hear the startup chime at least one additional time after the initial startup chime.

Block Diagrams

iBook

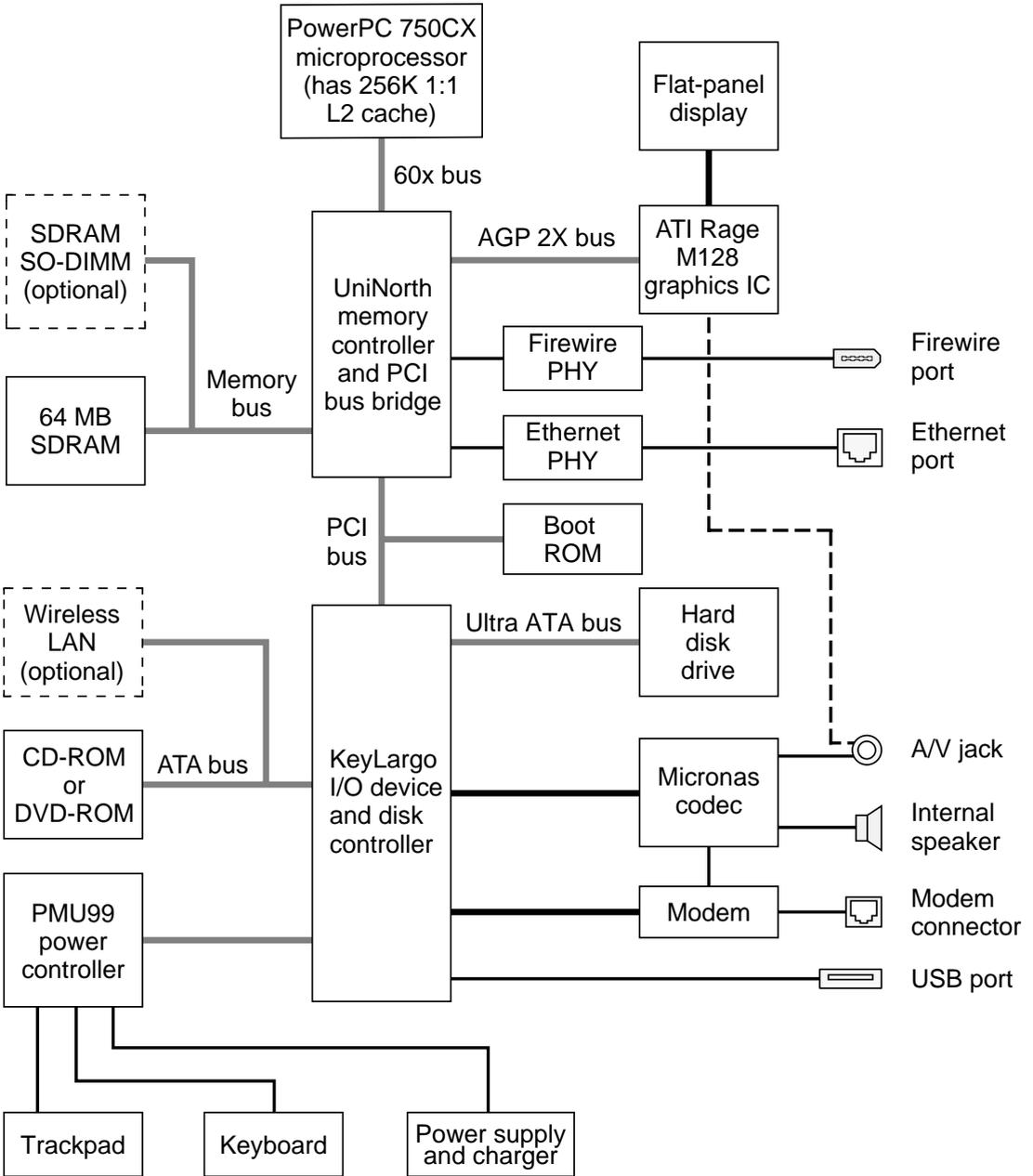
This is a simplified block diagram of the iBook. The diagram shows the main ICs and the buses that connect them.





iBook (FireWire)

This is a simplified block diagram of the iBook (FireWire). The diagram shows the main ICs and the buses that connect them.





Symptom Charts

How to Use the Symptom Charts

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to the product.

The steps to solve a symptom are listed sequentially. You might not need to perform every step before the symptom is solved. Start with the first step, and then test for the symptom. If the symptom persists, replace any modules you removed, go to the next step, and test again. Continue down the list until the symptom is solved.

AirPort Card

AirPort Card not recognized

- 1 Use Software Update control panel or see the Apple Software Updates web page to make sure the latest version of AirPort software is installed.
- 2 Boot using Mac OS All extensions setting.
- 3 Reseat AirPort Card.
- 4 Remove and reinstall the AirPort software.
- 5 Replace with known-good AirPort Card.
- 6 Replace logic board.

CD-ROM Drive

Drive does not accept disc (mechanical failure)

- 1 Verify disc is properly seated in the carrier.
- 2 Replace drive.
- 3 Replace logic board.

Disc icon does not show up on desktop, or dialog box appears to initialize disc

- 1 Verify disc is not a DVD-ROM or DVD-RAM disc.
- 2 Check that the correct software extensions are loaded.
- 3 Replace disc (if dirty or damaged).
- 4 Verify the CD cable is firmly connected to the logic board.

DVD-ROM Drive

Drive does not accept disc (mechanical failure)

- 1 Verify disc is properly seated in the carrier.
- 2 Replace drive.
- 3 Replace logic board.

Disc icon does not show up on desktop, or dialog box appears to initialize disc

- 1 Check that the correct software extensions are loaded.
- 2 Replace disc (if dirty or damaged).
- 3 Verify the DVD cable is firmly connected to the logic board.



Error Beeps

The computer automatically performs a power-on self test when it is turned on after being fully shut down (not a restart). This section describes what to do if beeps are heard during the startup.

Note: The iBook and iBook (FireWire) have one memory expansion slot. Refer to the Memory Replacement instructions for removal and installation.

- | | |
|---------------------------------------|--|
| Computer beeps once at startup | <ol style="list-style-type: none">1 One beep means that no RAM is detected.2 If a RAM card is installed in the expansion slot, remove it and put in known-good and compatible RAM and restart.<ul style="list-style-type: none">• If symptom does NOT repeat, replace RAM card.• If symptom repeats, replace logic board.3 If no RAM card is installed, replace logic board. |
| Computer beeps twice at startup | <ol style="list-style-type: none">1 Two beeps means that EDO memory is installed in the expansion slot. The iBook does not accept EDO memory.2 Replace RAM card with known-good and compatible RAM and restart.<ul style="list-style-type: none">• If symptom repeats, replace logic board. |
| Computer beeps three times at startup | <ol style="list-style-type: none">1 Three beeps means that no RAM banks passed memory testing.2 If a RAM card is installed in the expansion slot, remove it and put in known-good and compatible RAM and restart.<ul style="list-style-type: none">• If symptom does NOT repeat, replace RAM card.• If symptom repeats, replace logic board.3 If no RAM card is installed, replace logic board. |
| Computer beeps four times at startup | <ol style="list-style-type: none">1 Four beeps indicates a bad checksum for the remainder of the boot ROM. The ROM (which is located on the logic board) is bad.2 If a RAM card is installed in the expansion slot, remove it and put in known-good and compatible RAM and restart.<ul style="list-style-type: none">• If symptom does NOT repeat, replace RAM card.• If symptom repeats, replace logic board.3 If no RAM card is installed, replace logic board. |

Related articles:

58442: Power On Self-Test Beep Definition - Part 2



Hard Drive

- Internal hard drive does not spin
- 1 Make sure power adapter is connected.
 - 2 Disconnect external USB devices.
 - 3 Verify Drive Setup does not see the hard drive.
 - 4 Check hard drive connection.
 - 5 Replace hard drive cable. **Note:** Pull up evenly on the cable to avoid bending pins.
 - 6 Replace hard drive.
 - 7 Replace logic board.

Keyboard and Trackpad

- No response from any key on keyboard
- 1 Verify that computer is on.
 - 2 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.
 - 3 Boot from the system software CD.
 - 4 Check keyboard connection by disconnecting and reconnecting the keyboard cable.
 - 5 Replace keyboard.
 - 6 Replace logic board.
- Cursor does not move when you are using trackpad
- 1 Verify that no USB device is connected.
 - 2 Reset power manager and boot from startup CD. (Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.)
 - 3 Check trackpad connection to the logic board.
 - 4 Connect USB mouse and try to move cursor. If trackpad does not move cursor but external USB mouse does, replace trackpad (included in top case).
 - 5 Replace logic board.
- Cursor moves on screen with external mouse connected, but clicking or double-clicking the mouse has no effect
- 1 If the mouse is connected to an external USB keyboard, connect the mouse to the USB port on the computer.
 - 2 Try an Apple mouse with no other USB devices connected.
 - 3 Boot off the CD that came with the computer. If the mouse works, perform a clean installation of the system software.



Cursor moves, but clicking trackpad button has no effect

- 1 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.
- 2 Remove top case and manually press trackpad button on charging board with a nylon tool or other non-metal object. If button activates cursor, check top case seating.
- 3 Verify the charging board is connected to the logic board.
- 4 Replace charging board.
- 5 Replace trackpad button actuator (included in the top case).

Cursor does not move on the screen with an external mouse, but USB external keyboard works

- 1 Verify that the mouse is connected securely to the USB keyboard or port.
- 2 Check inside mouse for buildup of dirt or other contaminants. Clean mouse if necessary.
- 3 Start up from the system software CD to see if the problem is software.
- 4 If mouse is connected to the keyboard, connect it to a USB port.
- 5 Try another mouse.
- 6 Replace logic board.

Cursor intermittently does not move or moves erratically

- Note:** User must touch trackpad with the surface of only one finger at a time and point directly down on the trackpad surface.
- 1 Clean trackpad surface (with computer off, using a non-static-inducing material).
 - 2 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.
 - 3 Try the computer on battery power. If problem goes away, replace power adapter.
 - 4 Boot from the system software CD to see if the problem is software.
 - 5 Check trackpad connection to the logic board.
 - 6 Replace trackpad (included in top case).
 - 7 Replace logic board.



Modem

- | | |
|---|--|
| No dial tone | <ol style="list-style-type: none">1 Verify known-good analog (not digital) telephone line.2 Verify known-good RJ11 telephone cable.3 Verify RJ11 cable is not plugged into Ethernet port.4 Inspect RJ11 connector and modem port for pin damage.5 Verify RJ11 telephone cable is firmly installed in the modem port.6 If using Apple Remote Access 3.0, select Ignore Dial Tone in the Modem control panel. If the modem connects with this setting selected, try another phone line. If using a terminal or communications program, enter atx1 to disable tone detection. To reset the modem back to the factory settings, enter atz.7 Verify cable connector from RJ-11 board is plugged into modem correctly.8 Replace the RJ-11 board and connector cable.9 Replace modem. |
| No internal modem selection available | <ol style="list-style-type: none">1 Verify modem is properly installed and plugged in.2 Verify correct modem software is installed and selected.3 Reset PRAM and perform a clean installation of system software. To reset PRAM, press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.4 Replace modem. |
| Modem reports an error when dialing out | <ol style="list-style-type: none">1 Use the Modem Country Selector utility to make sure the modem is set to the correct country.2 Make sure the correct driver is installed and the correct CCL is selected and that they are not corrupted. If necessary, reinstall the driver and/or CCL.3 Try another cable and phone jack.4 If problem persists, reinstall system and modem software. |
| Modem is having trouble connecting to Online site | <ol style="list-style-type: none">1 Use the Modem Country Selector utility to make sure the modem is set to the correct country.2 The phone line may have too much noise. If the user has a second line, try that one. The user should contact their local phone company and request their line be checked.3 Check to make sure the TCP/IP control panel is correctly configured for the user's Internet Service Provider. If the TCP/IP control panel is not configured correctly, it may connect but won't be able to access any sites.4 Sometimes online services use different servers for dial-up/ |



authentication and for services. If one server is down, users may be able to log on but not access any services. Contact the online service for help.

The dialup software will not initiate a connection

- 1 Use the Modem Country Selector utility to make sure the modem is set to the correct country.
- 2 Make sure dialup software is fully installed and all required extensions are enabled. If necessary, reinstall the dialup software and provide the necessary information for setup.

Modem is dropping its connection

- 1 Use the Modem Country Selector utility to make sure the modem is set to the correct country.
- 2 Try another cable and phone jack.
- 3 The phone line may be too noisy to handle the higher modem speeds. Try connecting at a slower speed or use a generic CCL file. (If you are familiar with the CCL script language, you can edit the modem script to force a connection at a lower speed.) If the problem continues, contact the phone company to report the bad phone line.
- 4 Verify that the user has call waiting on that phone line. With call waiting active, an incoming call can interrupt the connection. Disable call waiting using AT commands placed in the init string of the dialup application. Usually the string is *70.
- 5 There may be a problem with the server to which you are connecting. Servers sometimes develop problems that disconnect users without explanation. Try calling back later or use an alternate number if one is available.
- 6 Check with the Internet Service Provider.
- 7 Reseat the modem. If the problem persists, replace the modem.

Power

Computer won't start up

- 1 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.
- 2 Try known-good power adapter.
- 3 Remove battery.
- 4 Disconnect internal keyboard completely and try starting up the computer. If the computer starts up, replace keyboard.
- 5 Remove any additional RAM and AirPort Card.
- 6 Replace DC-in board
- 7 Replace logic board.



- | | |
|--|--|
| Computer runs when plugged into power outlet but not on battery power | <ol style="list-style-type: none">1 Turn off the computer, then reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. Note: Before continuing, make sure the reset button is not caught under the plastic of the top case.2 Reseat battery to make sure battery is mating with contacts on logic board.3 Try known-good, firmly seated, charged battery. Repeat once.4 Replace charging board.5 Replace logic board. |
| Computer runs with battery, but not with the power adapter plugged into power outlet | <ol style="list-style-type: none">1 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. Note: Before continuing, make sure the reset button is not caught under the plastic of the top case.2 Try a known-good power adapter.3 Check lights around power port to see if they glow amber or green.4 Replace DC-in board.5 Replace logic board. |
| Screen is blank; backlight isn't on; computer doesn't respond | <ol style="list-style-type: none">1 Reset the computer by holding the Command-Control-power button simultaneously.2 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. Note: Before continuing, make sure the reset button is not caught under the plastic of the top case.3 Check power adapter cable.4 Try known-good, charged battery.5 Try known-good power adapter.6 Reset PRAM. Press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.7 Check inverter and display cable connections to the logic board.8 Remove keyboard and additional memory (if installed) and restart computer.9 Replace logic board. |
| Power adapter is plugged in, but Control Strip doesn't indicate adapter is connected | <ol style="list-style-type: none">1 Verify that power adapter is connected correctly and the power cord is plugged solidly in the adapter.2 Verify that there is power at the outlet.3 Try known-good power adapter (45 watt).4 Try known-good power cord.5 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power |



button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.

- 6 Replace DC-in board.
- 7 Replace logic board.

Battery won't charge

- 1 Turn off the computer and press the reset button above the power button. Wait five seconds and press the power button.
- 2 Insert battery, leave in 15 seconds, then remove it. Repeat 4–5 times.
- 3 Try known-good battery. Repeat once.
- 4 Check the connection from the charging board to the logic board.
- 5 Replace charging board.
- 6 Replace logic board.

Battery will not charge unless the computer is in sleep mode or shut down

Verify that the appropriate power adapter (45 watt) is being used.

Sound

No sound from speaker

- 1 Verify that mute mode is not enabled (F6 on the keyboard).
- 2 Check the volume setting by pressing F4 on the keyboard without pressing the function key first.
- 3 Verify no external speakers or headphones are plugged in.
- 4 Reset PRAM. Press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.
- 5 Make sure speaker cable is plugged into speaker and logic board.
- 6 Replace speaker.
- 7 Replace logic board.

Startup sound is heard, then no sound from speaker

- 1 Remove sound preferences from System Folder, reset PRAM, then restart. To reset PRAM, press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.
- 2 Perform clean installation of system software.

Volume control does not operate correctly

- 1 Check the Fn keys with the Fn key down.
- 2 Check Monitors & Sound control panel setting.
- 3 Verify that mute mode is not enabled.
- 4 Verify the setting of volume control button.
- 5 Verify hot keys are enabled in the Keyboard control panel.
- 6 Reset the power manager by pressing the reset button above



the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.

- 7 Verify software by booting from the CD.
- 8 Replace keyboard.

Startup

Dialog box “Built-in memory test has detected an error” comes up on startup

- 1 Remove RAM and test again.
- 2 Replace RAM card.
- 3 Replace logic board.

USB Peripherals

After you connect external USB device, computer does not start up

- 1 Verify current driver for the device is installed (check with the manufacturer of the device).
- 2 Disconnect all external devices and boot computer. Then plug in USB peripherals.
- 3 Eliminate chain by plugging in only one peripheral.
- 4 If USB device is self-powered, switch on external USB device before starting computer.
- 5 Check cable connections.
- 6 Try known-good USB cable.
- 7 Try known-good external USB device.
- 8 Replace logic board.

USB device not recognized by computer

Note: If you are trying to use a serial device with a USB/Serial adapter, check with the manufacturer of the adapter for compatibility.

- 1 Verify current driver for the device is installed.
- 2 Turn on camera after initiating download with camera application.
- 3 Try different USB device on same port.
- 4 Eliminate chain by plugging in only one peripheral.
- 5 Troubleshoot extensions and perform a clean installation of system software.
- 6 Replace logic board.

I/O devices are unrecognized, or garbage is transmitted or received

- 1 Check cables.
- 2 Check with vendor for current drivers.
- 3 Test device with known-good computer.
- 4 Troubleshoot extensions and perform a clean installation of system software.
- 5 Replace logic board.



Known-good USB printer does not print	<ol style="list-style-type: none">1 Verify that computer has correct driver installed. Check vendor's Web site to download current driver.2 Reset PRAM. Press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.3 Verify that Chooser and Control Panel settings are correct.4 Run Apple System Profiler to see if it recognizes that a USB printer is connected. If it does, it is a software issue.5 Check cables.6 Replace logic board.
USB device experiences a partial lack of power	<ol style="list-style-type: none">1 Plug the device into a power outlet if it has a power cord.2 Unplug the device and plug it into another device plugged into a power outlet such as a USB hub.
Not enough power for the USB device to function at all	<ol style="list-style-type: none">1 Plug the device into a power outlet if it has a power cord.2 Unplug the device and plug it into another device plugged into a power outlet such as a USB hub.
After sleep, a USB peripheral is sometimes not recognized	<ol style="list-style-type: none">1 Restart the computer.2 Contact peripheral manufacturer for latest driver update.

Video

Note: A certain number of pixel anomalies are inherent in liquid crystal display technology and vary by many factors, including type of technology. If you suspect that the display contains an abnormal number of pixel anomalies, call Apple Technical Support.

Partial or full row of pixels is always on or never comes on	<ol style="list-style-type: none">1 Check display cable connection to the logic board.2 Replace display.3 Replace logic board.
Multiple vertical or horizontal rows of pixels are always on or never come on	<ol style="list-style-type: none">1 Check display cable connection to the logic board.2 Replace display cable.3 Replace display.4 Replace logic board.
No display, but computer appears to operate correctly	<ol style="list-style-type: none">1 Connect power adapter.2 Adjust screen brightness setting with Fn key pressed and not pressed.3 Restart computer by holding Command-Control-power button.4 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power



button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.

- 5 Verify the display cable and inverter board cable connections to the logic board.
- 6 Replace inverter board.
- 7 Replace display.

Backlight doesn't operate; screen is very dim

- 1 Adjust screen brightness setting.
- 2 Verify that backlight cable connection is secure.
- 3 Check display cable and inverter board connections to the logic board.
- 4 Verify that cables are not pinched or severed.
- 5 Replace inverter board.
- 6 Replace display.
- 7 Replace logic board.

Display is very light or totally white

- 1 Start up from CD to verify the problem is not software.
- 2 Verify display cable and inverter board cable connections to the logic board.
- 3 Replace inverter board cable.
- 4 Replace display cable.
- 5 Replace display.

Miscellaneous

Sleep light won't come on

- 1 Verify that computer is in sleep mode and not turned off.
- 2 Reset the power manager by pressing the reset button above the power button. Wait five seconds and press the power button. **Note:** Before continuing, make sure the reset button is not caught under the plastic of the top case.
- 3 Replace inverter board/sleep LED cable.
- 4 Replace inverter board.

Screen goes blank and computer shuts down every few minutes

- 1 Computer is going into system sleep to conserve battery power. Adjust sleep delays in Energy Saver control panel or connect power adapter.
- 2 Verify that the appropriate power adapter is being used.
- 3 Try a known-good power adapter.

Application seems to run slower after a few seconds

Computer is either in processor cycling mode or in reduced processor speed mode. If this interferes with operation of application, turn off Allow Processor Cycling in the Energy Saver control panel and quit any other applications running in the background. **Note:** These features extend battery life when running off battery power.



Known-good Ethernet network printer does not print

- 1 Verify that Chooser and Control Panel settings are correct.
- 2 Reinstall printer drivers.
- 3 Check cables.
- 4 Attach computer directly to printer using Ethernet crossover cable, and retest.
- 5 Reset PRAM. Press the power button, then hold down the Option-Command-P-R keys until you hear the startup chime at least one additional time after the initial startup chime.
- 6 Replace logic board.

Hard drive is slow to respond, or screen goes blank too often

Adjust sleep delays in Energy Saver control panel or connect power adapter.

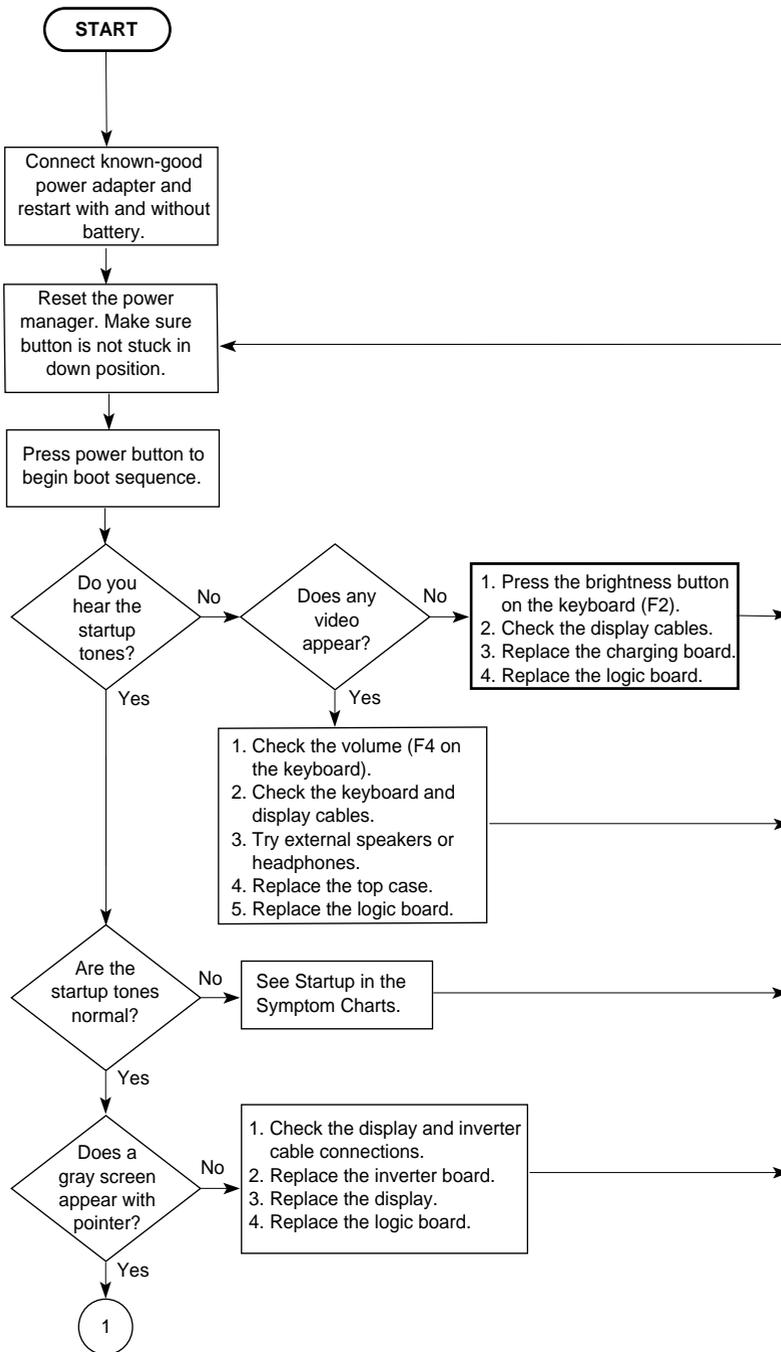
FAX software is not working

The iBook comes with FAXSTF software installed. Apple does not provide support for this software. Contact STF Technology (Smith Micro) at 660-463-2021 or at stfsupport@smithmicro.com.



Troubleshooting Flowchart

iBook





iBook (cont.)

