Service Source

iMac (17-inch Late 2006)

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Service Source

Take Apart

iMac (17-inch Late 2006)

![General Information logo]

General Information

Product View

Note About Images in This Manual

Because a pre-production model was used for most of the images shown in this manual, you may notice small differences in appearance between the image pictured and the computer you are servicing. However, although the appearance differs, the steps and sequence are the same unless noted.

Tools Required

The following tools are required to service the computer. Note that a special access card (part 922-7172) is required to open the front bezel.

- ESD-safe workstation and mat
- Soft, clean towel or cloth (to protect the display and removed parts from scratches)
- Access card (part 922-7172)
- Black stick (or other nonconductive nylon or plastic flat-blade tool)
- Phillips #1 screwdriver
- Phillips #2 screwdriver
- Torx T8 screwdriver (magnetized)
- Torx T6 screwdriver (magnetized)
- Torx T10 screwdriver (magnetized)
- Flat-blade screwdriver

Serial Number Location

iMac serial numbers are located on the bottom of the computer stand.
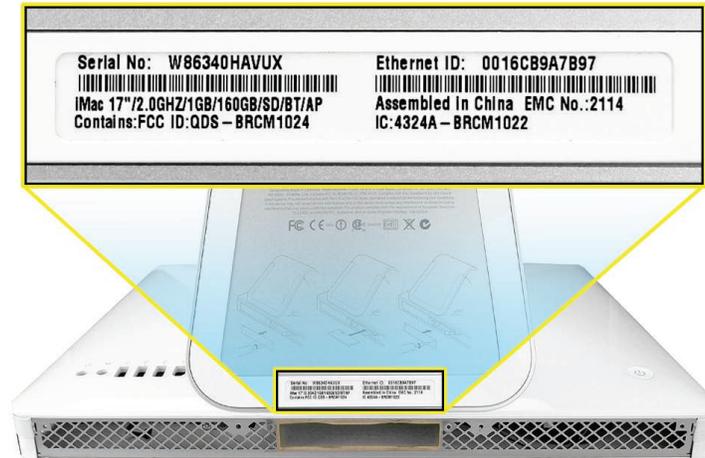
Safety

Warning: When the iMac is under power, be aware that the power supply contains high voltages that pose a potential hazard to your personal safety. Never work on or near the power supply with the unit powered on, and as a further precaution always make sure the unit is unplugged when working on it with the front bezel removed.

WARNING: HIGH VOLTAGE
Text or photographs marked by this symbol indicate that a potential hazard to your personal safety exists from a high voltage source.

The power supply board is a high voltage source with the unit under power, and remains powered up whenever the system is plugged in, whether or not the system is turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

- Disconnect power to the system before performing maintenance.
- Don't work alone. In the event of an electrical shock it is important to have another individual present who can provide assistance.
- Keep one hand in your pocket when working on any iMac that is plugged in. This will help ensure that your body does not provide a path to ground in the event that you accidentally make contact with the line voltage.
- Don't wear jewelry, watches, necklaces, or other metallic articles that could present a risk if they accidentally make contact with the power supply circuitry.
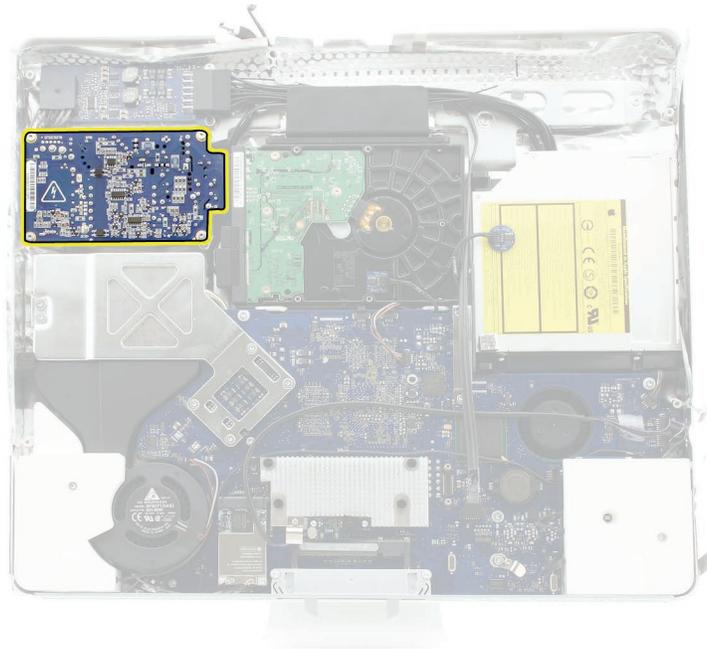
Opening the Computer

Apple authorized, desktop certified technicians only should ever remove the front bezel on the iMac. When the front bezel is removed, be sure to always ground yourself and follow ESD-safe repair practices

Removing the front bezel requires using a special access card (part 922-7172) to release latches located inside the upper corners of the front bezel. Slightly bending the upper quarter of the access tool card will help engage the latch more securely.

As you are inserting the card to disengage the latch squeeze the top of the bezel, that will help take pressure off of the latch and enable it to open easier. **Note**: If the bezel won't open, read the next topic, Access Tool Modification.

Once the card has been released it is safe to open the bezel. See the **Front Bezel** Take Apart procedure for more information.

Access Tool Modification

If you wish to modify the access card tool, order kit 076-1213. The kit contains an access card and a piece of EMI gasket that can be cut and added to the top of the card. The additional thickness on the card will improve the contact with each bezel latch.

1. Remove the tape on the gasket to expose the sticky side of the gasket. Attach the sticky side of the EMI gasket to the top of the access card.

2. Cut the EMI gasket to the edge of the access card.

3. Using packing tape, or something equivalent, fold the tape over the EMI gasket to attach the gasket to the card.

4. Bend the card at a slight angle at the top to make sure the card makes contact with each latch.

5. Refer to **Removing the Front Bezel** for the complete procedure.

EMI Shielding

The iMac enclosure is wrapped in EMI shielding that is easily torn and damaged. To maintain a properly shielded unit, you must repair all accidental tears and cracks to the shielding by covering them with EMI tape. Order EMI tape, part number 922-4786 (a long, thin strip) or 922-5026 (short, wide strips).

Cover nicks, such as the those shown below, with EMI tape. Pay particular attention to the EMI shielding inside the rear housing, shown below. The EMI shield is easily damaged when replacing modules.
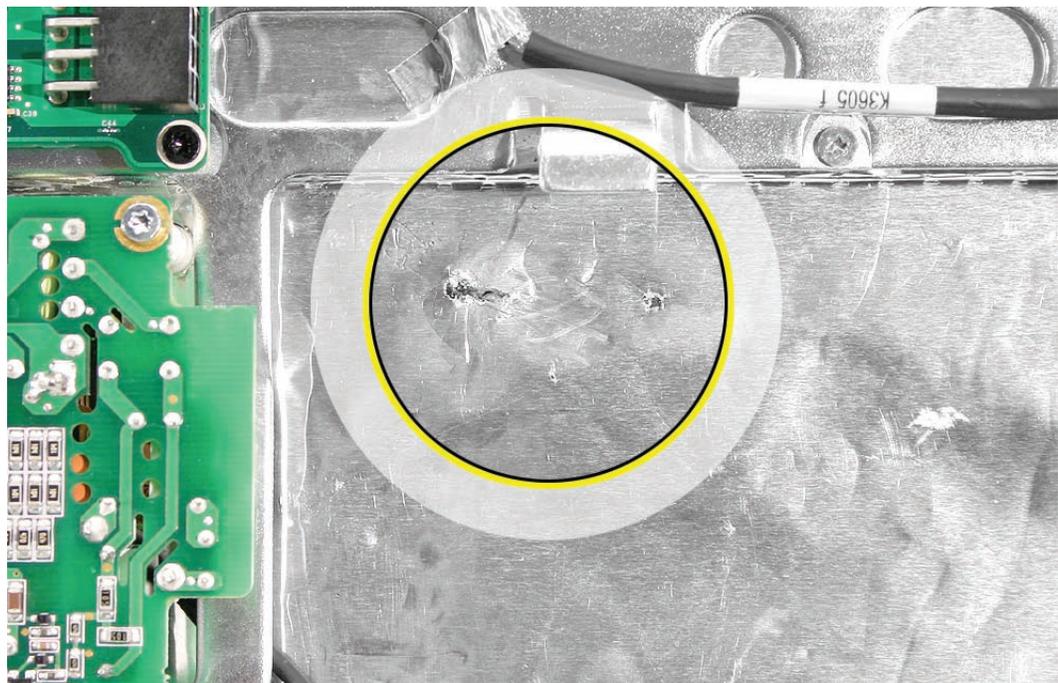
Lower EMI Shield

EMI tape covers the top and sides of the display panel, and the lower EMI shield covers the logic board along the bottom of the unit. The EMI tape and lower EMI shield are easily damaged when removed, and removal is necessary in order to access most components within the unit.

Should the EMI tape that seals the display, or the EMI shield covering the bottom of the enclosure (see photo below) accidentally tear, use EMI tape (922-4786 or 922-5026) to repair and completely seal the unit.
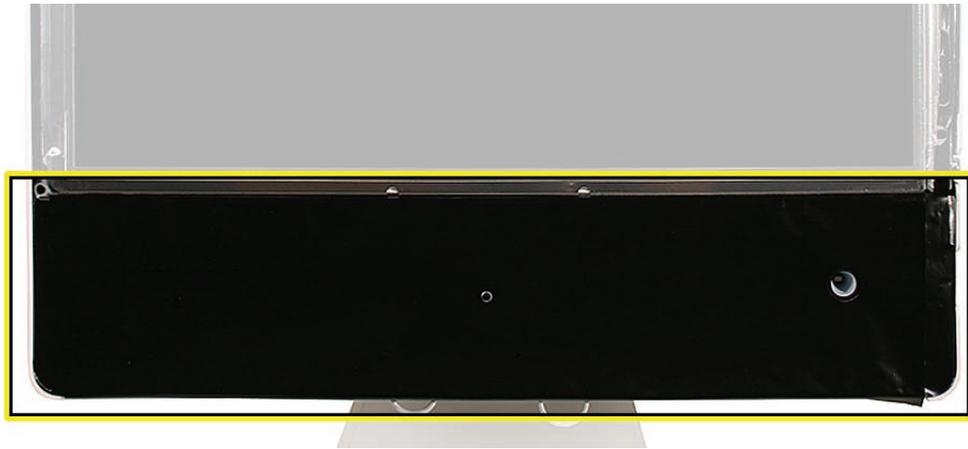
When properly repaired, all edges shown below will be wrapped by EMI tape, and the tape securely adhered to all edges. Use a black stick to flatten the EMI tape tightly and rub out air pockets and wrinkles.
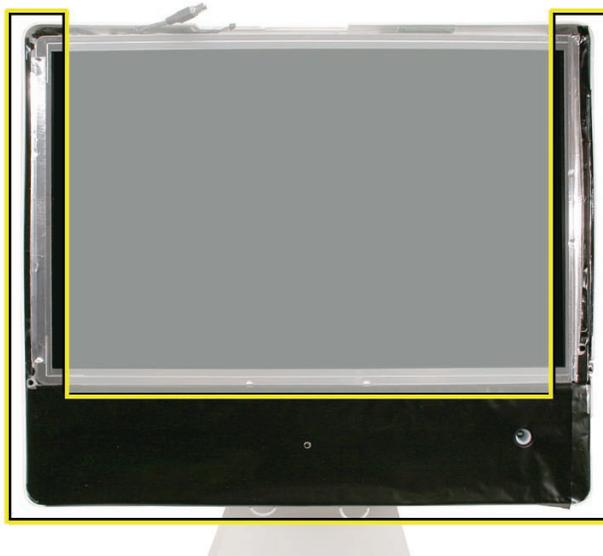
What's New

29 October 2007

A note was added to the Logic Board Replacement section to inform service providers to install the iMac Firmware Update 1.2 (or later)
- For proper performance and reliability of the Intel Core 2 Duo processors, apply the iMac firmware update after replacing the logic board. The firmware update also allows Apple service to consolidate the version 1 and version 2 logic boards. Refer to Kbase article: Firmware updates for Intel-based Macs.
  - The 661-4105 logic board will be replaced by 661-4290
  - The 661-4106 logic board will be replaced by 661-4291

23 April 2007
- The **optical drive removal procedure** has been updated. Using a screwdriver to release the optical drive tabs is causing damage to the logic board. The updated procedure shows how to remove the optical drive using a needlenose pliers.
- Additional information on handling slot-load optical drives can be referenced in **Kbase article 305282.**

22 February 2007
- Updated Upper Exploded View and created hyperlink to EEE code compatiblilty chart.

16 February 2007
- The AirPort Extreme Card and Logic Board sections in Take Apart have been updated with EEE code compatibility information. Before replacing either part, check for compatibility.

12 January 2007
- The "**No Power**" symptom in Troubleshooting has been updated. If your computer won't turn on, try removing and reinstalling the SO-DIMMs.

11 November 2006
- The clutch (922-7074) was renamed "clutch mechanism" in the Exploded View drawing.

31 October 2006

- Troubleshooting has been updated with a new symptom, "**Fans running at full speed after computer turns on**." **Note:** The customer may have entered a diagnostic mode that causes the fans to run at full speed. This symptom is very easy to resolve at the customer level.

29 September 2006

- Photos of the EMI tape (922-44786 and 922-5026), used to repair torn and damaged EMI shielding, have been added to the **EMI Shielding** section in the General Information chapter.
- The logic board section has been updated with new photos for screw and cable locations.
- The inverter and display panel sections have an updated photo showing the clear tape locations on the back of the panel.
- The display panel section has been updated to show the placement location of three pieces of EMI tape that attach from the bottom of the panel to the lower EMI shield.

6 September 2006

Product Introduction: iMac (17-inch Late 2006)
- Logic board, 2GHz Intel Core 2 Duo processor
- Two built-in AirPort Extreme wireless antennas
- Built-in wireless Bluetooth 2.0 module standard
- 1GB of 667MHz DDR2 SDRAM standard, PC2-5300, supports up to 3.0 GB system memory
- 160, 250, 500 GB hard drive with serial ATA
- **Troubleshooting LEDs** are located under the SATA drive cable and to the left of the battery

Access Door

Tools

- Phillips #2 screwdriver
- ESD-safe workstation and mat
- Soft, clean towel or cloth

Preliminary Steps

Before you begin, lay the computer down so the panel is face down and the bottom is facing you.

Part Location

Removing the Access Door

1. Raise the stand and use a Phillips #2 screwdriver to loosen the two captive screws that secure the memory access door. Remove the access door.

Replacing the Access Door

1. Make sure the memory ejector tabs are in the closed position before attaching the access door.

2. Position the access door on the rear housing over the memory compartment.

3. Lift the stand out of the way.

4. Use a Phillips #2 screwdriver to tighten the captive screws.

Memory

Tools

- Phillips #2 screwdriver
- ESD-safe workstation and mat
- Soft, clean towel or cloth

Preliminary Steps

Before you begin, lay the computer down so the panel is face down and the bottom is facing you.

Part Location

Removing the Memory

1. After removing the access door, touch the metal frame around the memory compartment to discharge any static electricity from your body.
    Important: Always discharge static before you touch any parts such as the memory board. To avoid generating static electricity, do not walk around the room until you have finished replacing the memory.

2. Pull the two levers in the memory compartment toward you. If a memory module is installed in the slot, pulling the levers will dislodge it. **Note:** The levers are used to remove memory not to install memory. Always install memory with your fingers.
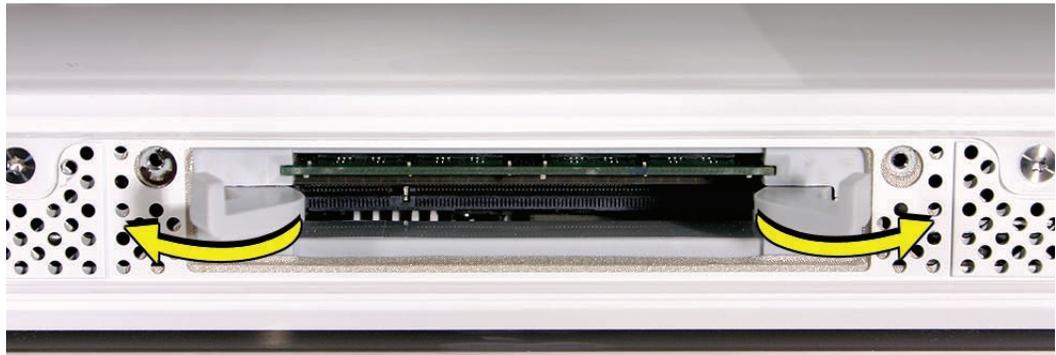
3. Set the memory modules aside.

Replacing the Memory

1. Make sure the DIMM levers are all the way open.

2. With the computer face down, orient the DIMM with the notch on the left.

3. With your fingers, press the DIMM fully into the slot until you hear a click. After inserting the memory, fold the DIMM levers closed. There will be a slight resistance and you will hear a click when they fold into the closed position.
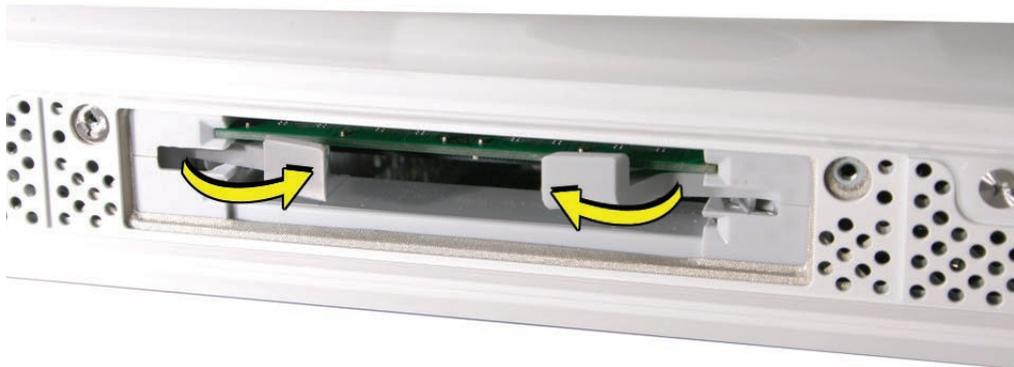
4. Replace the access door on the memory compartment.

5. Use a Phillips #2 screwdriver to tighten the captive screws on the access door.

Front Bezel

Tools

- Access card tool 922-7172
- Torx T8 screwdriver

Preliminary Steps

Before you begin, remove the **access doo**r and the **memory.**

Part Location

Removing the Front Bezel

1. With the bottom facing toward you use a T8 torx screwdriver to remove the four bezel mounting screws. The screws are shown in the order they were removed, left to right.

922-7011 (x3)

922-7749 (x1)

2. Stand the computer upright.

3. Located the access card tool. Bend the upper quarter of the access tool card slightly to engage the front bezel latches. **Note**: Refer to **Access Tool Modification** in the General Information chapter if the bezel is difficult to open.

4.   This picture shows how the access tool pushes the latch. Go on to the next step to use the tool.

5.   Start on the left side (looking from the back of the unit). Insert the card to disengage the latch. Squeeze the top of the bezel, that will help take pressure off of the latch and enable it to open easier. As the bezel releases, pull the bezel away from the rear housing.

6. Repeat step 5 to release the locking latch in the right corner. Again, pull the bezel away as the card releases the latch.
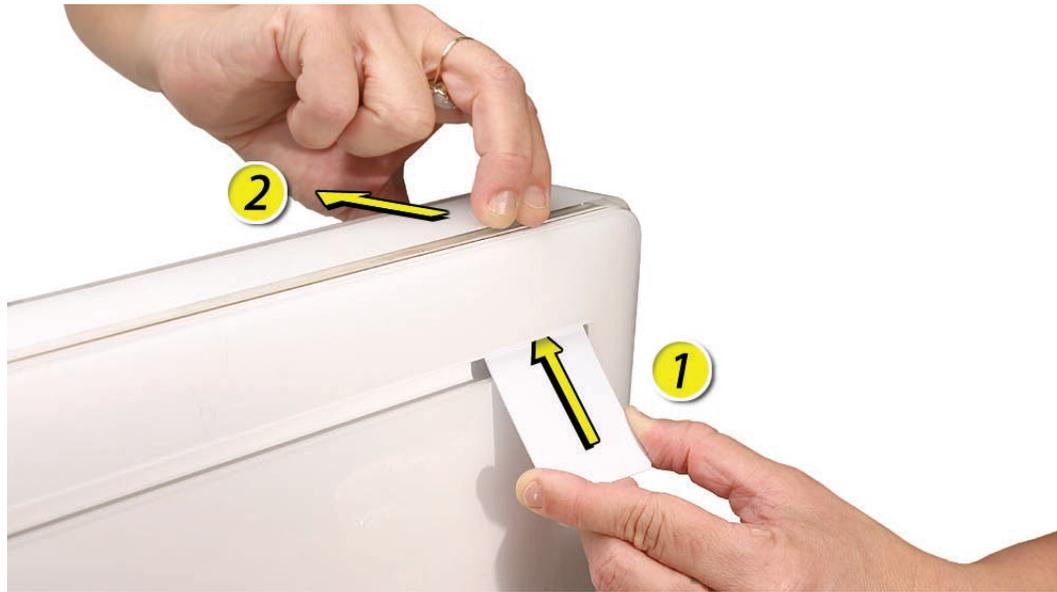
7. If the bezel won't release, pull the bottom of the bezel out a bit and insert the access card again.

8. Repeat step 7 for the left side.

9. Once the access card has been removed, it is safe to open the bezel. Position the unit on an ESD mat, with the bottom facing toward you. **Caution**: Make sure the memory levers are closed and not protruding from the bezel when removing the bezel.
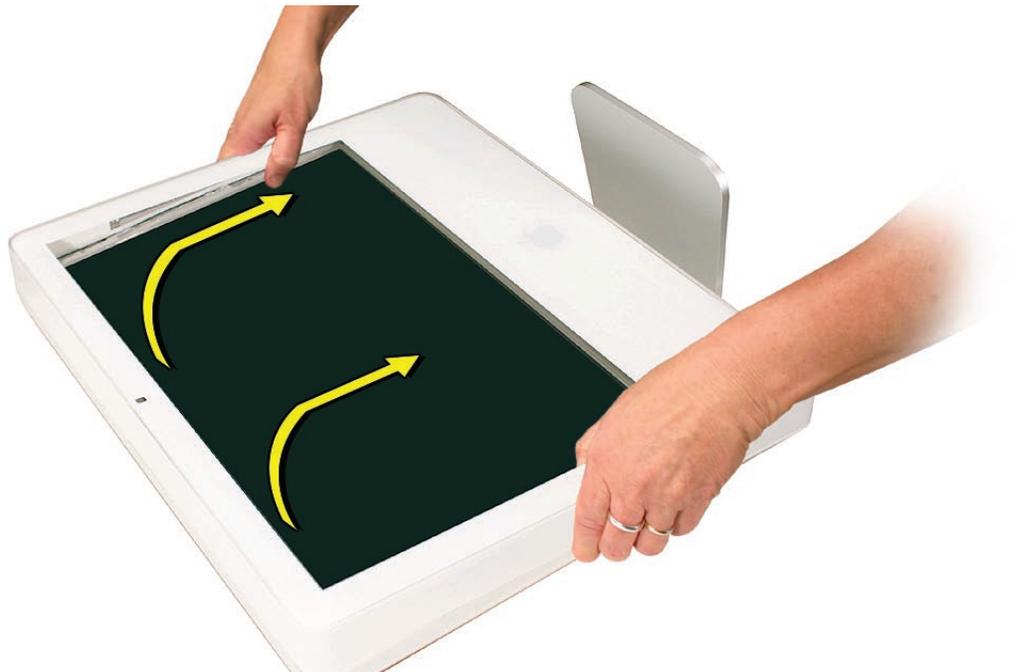
10. Lift the bottom of the front bezel straight up to remove it, and swing the bezel over onto its top edge. Disconnect the two cables attached to the top of the bezel.

11. Swing the bezel up so you can disconnect the two camera board cables Remove the any kapton tape and disconnect the camera and microphone cables from the camera board..
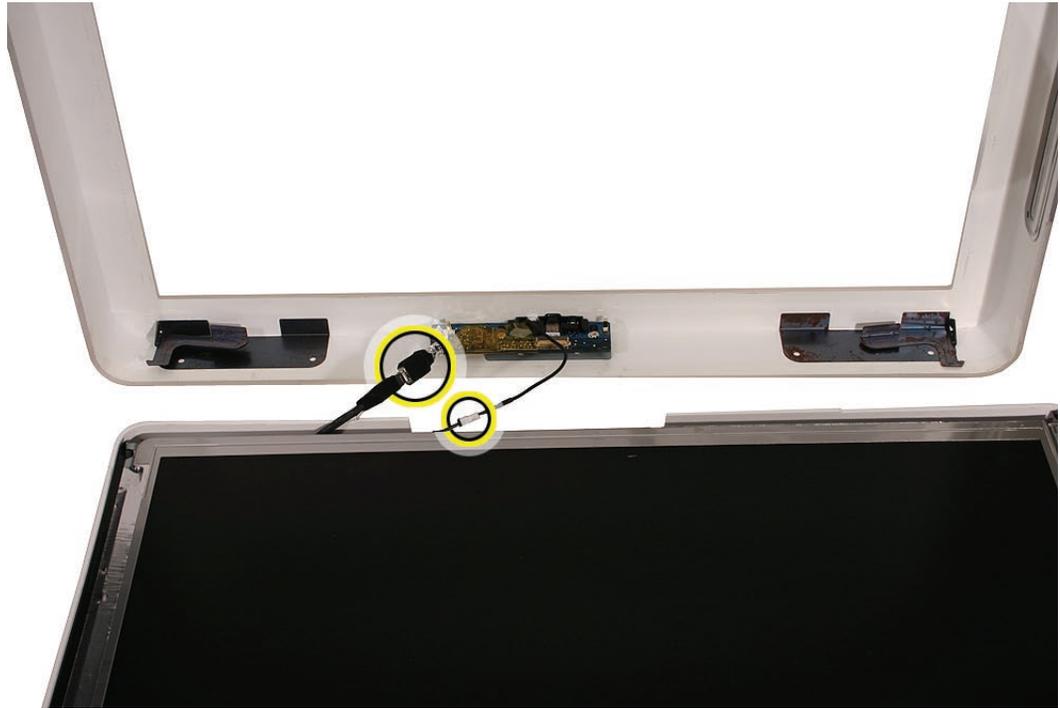
12. If replacing a damaged front bezel, remove the camera board.

Replacing the Front Bezel

1. Position the front bezel near the top edge of the unit and connect the two camera board connectors.

2. Make sure the black EMI shielding along the top of the LCD panel is not in the way of the locking mechanisms when you lower the front bezel onto the computer. Use a black stick to press (re-stick) the EMI shielding along the top of the panel.
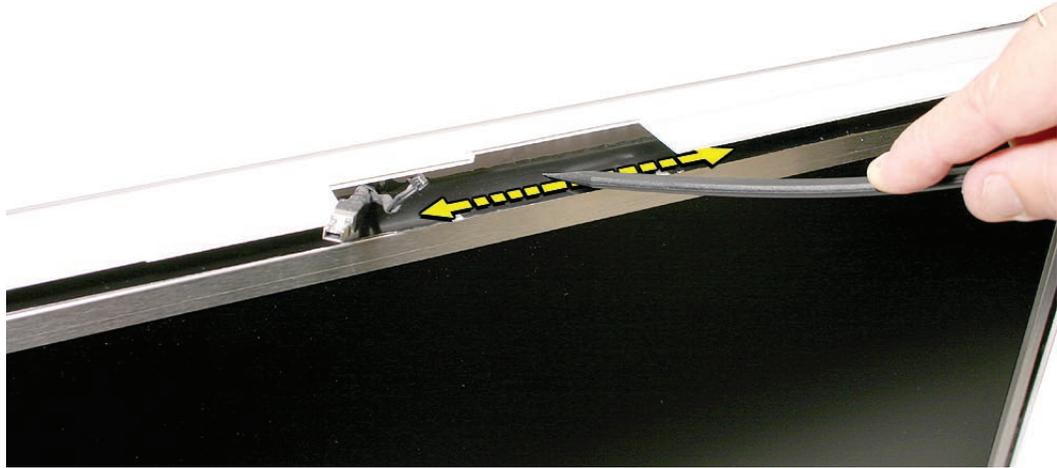
3. Wrap the cables with kapton tape then tuck the cables neatly into the channel on the rear housing.
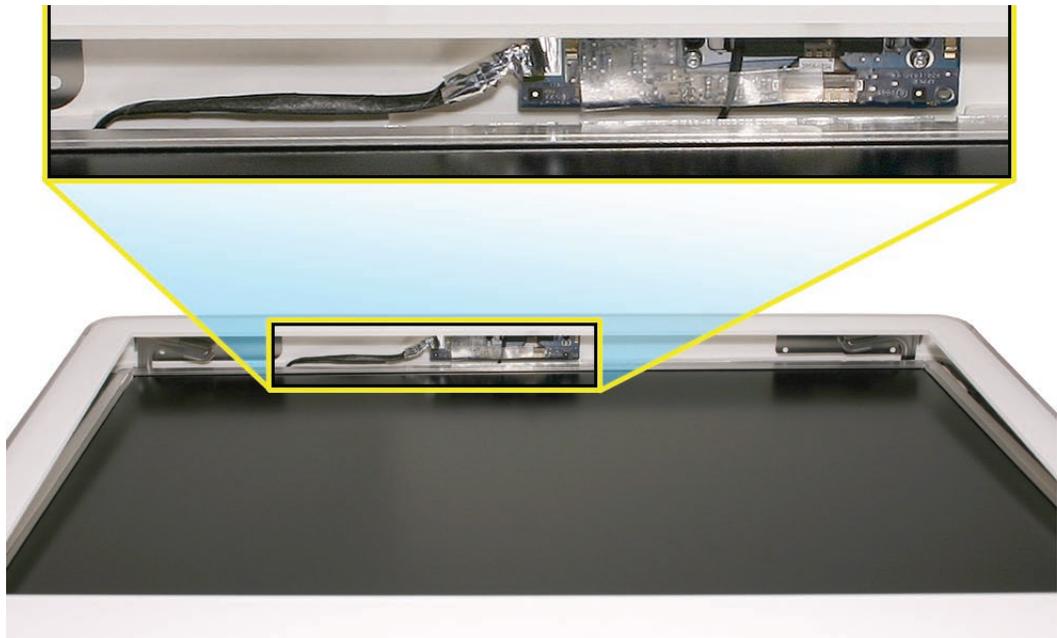
4. Make sure the memory ejector levers are in the closed position (as shown) before lowering the front bezel over the ejectors.

5. Continue to lower the font bezel down and press the top corners of the front bezel to connect the latches. **Note**: Check that the latches are connected by lifting the front bezel at each corner.

6. Replace the four bezel screws along the bottom of the computer.

7. Replace the access door and tighten the two captive screws.

8. Install any removed DIMMS after the unit is fully assembled. **Important**: Memory DIMMs must be installed by hand. Do not use the memory ejector levers to install memory.

Camera Board

Tools

The only tool required for this procedure is a T6 screwdriver.

Preliminary Steps

Before you begin, follow steps for remove:
- **Access doo**r
- **Memory**
- **Front bezel**

Part Location

Removing the Camera Board

1. The camera board and cables are visible as you lift the front bezel off the computer.

2. Remove any kapton tape wrapped around the cables. Disconnect the camera and microphone cables.
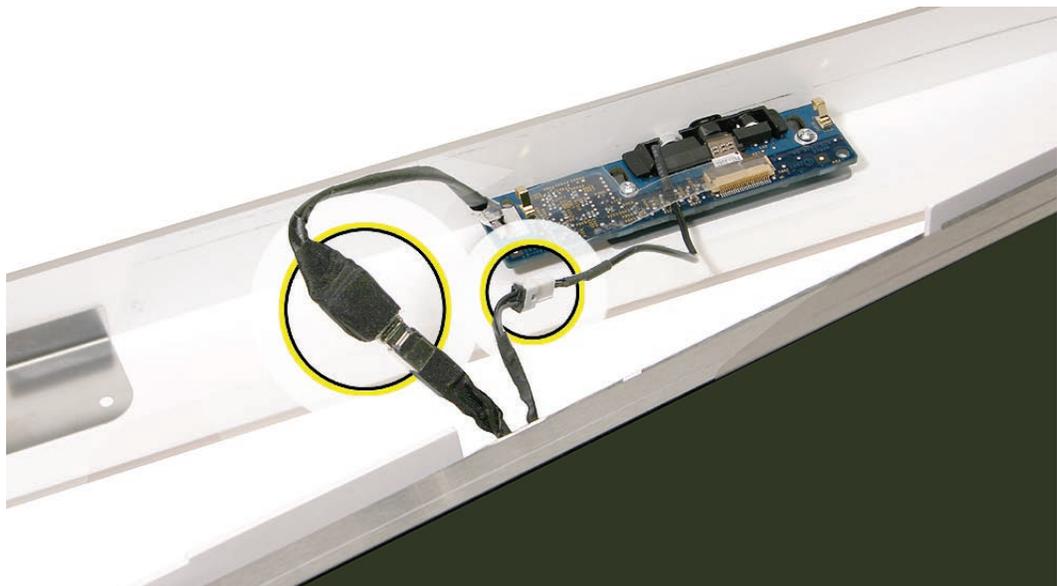
3. Using a T6 screwdriver, remove the two camera board mounting screws.

922-7713
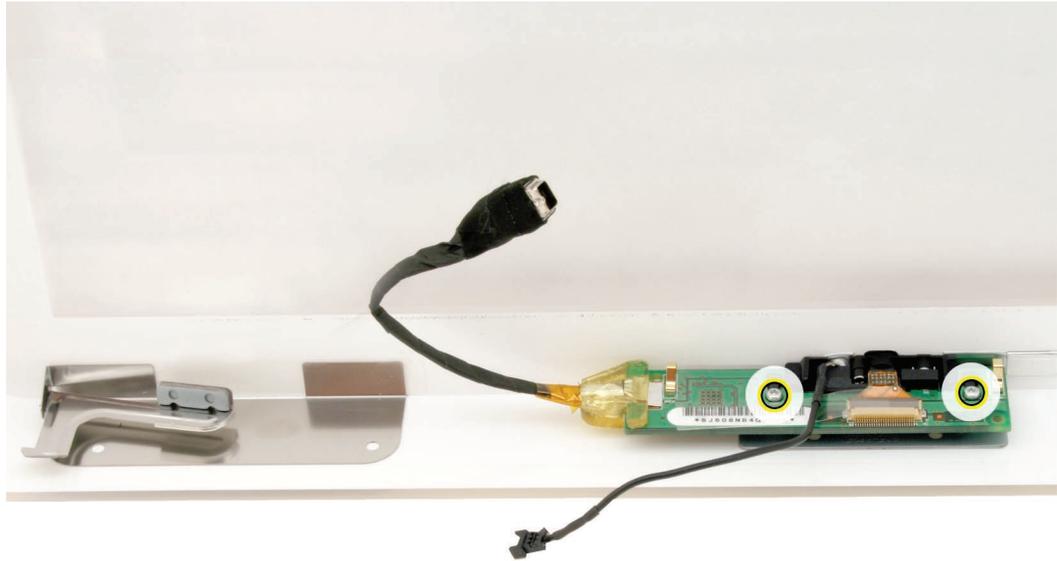
4. Pull the camera board straight out of the lens aperture opening in the bezel.

Replacing the Camera Board

1. Carefully insert the camera lens in the bezel opening.

922-7713

2. Install the camera board to the bezel with two T6 mounting screws.

3. Replace the front bezel.

4. Replace the access door.

Lower EMI Shield

Tools
- Black stick (or other nonconductive nylon or plastic flat-blade tool).

Preliminary Steps

Before you begin, remove:
- **Access door**
- **Front bezel**

Part Location
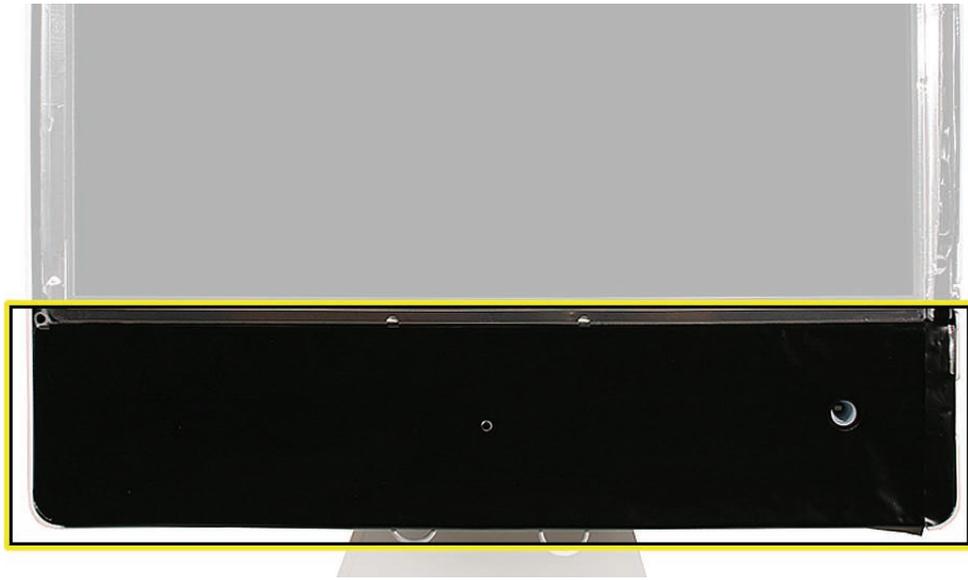
Removing the Lower EMI Shield

1. Carefully peel the lower EMI shield off the bottom edge and side of the rear housing. Use a black stick to help peel back the shield.

2. If replacing a torn or damaged lower EMI shield, peel the lower EMI shield off the bottom edge of the display.
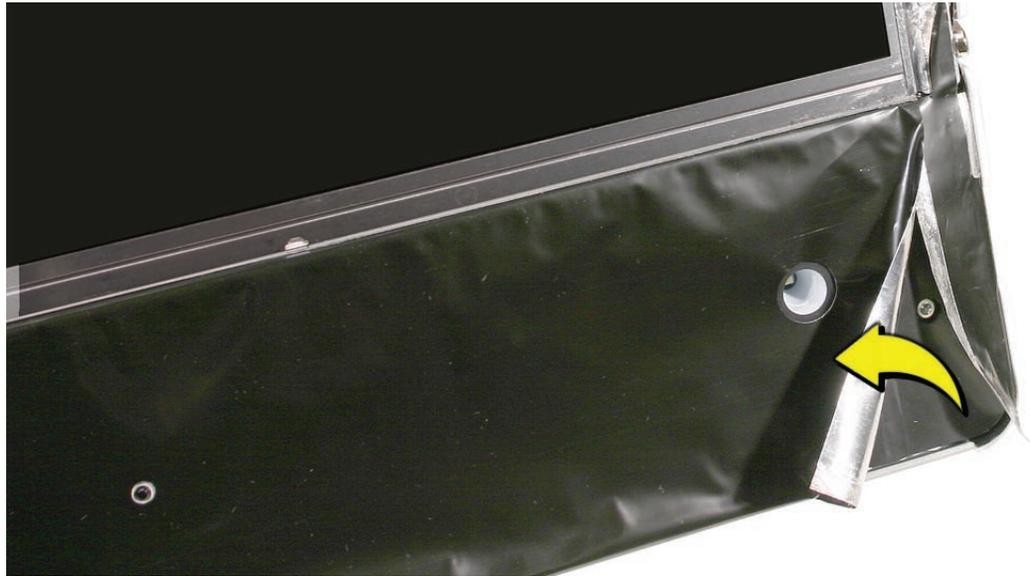
Replacing the Lower EMI Shield

1. Position the lower EMI shield over the bottom of the unit so that the holes in the shield are properly aligned.

2. Press the sticky, top edge of the EMI shield onto the bottom side of the display panel. The crease in the EMI shield should align with the edge of the panel.

3. Fold down the EMI shield and press it firmly over the bottom edge of the rear housing. Use a black stick to rub out wrinkles and ensure that the EMI shield adheres firmly along all edges.

4. Replace the front bezel.

5. Replace the access door.

IR Board

Tools
- Torx T8 screwdriver (magnetized)

Preliminary Steps

Before you begin, remove:
- **Access door**
- **Front bezel**
- **Lower EMI shield**

Part Location
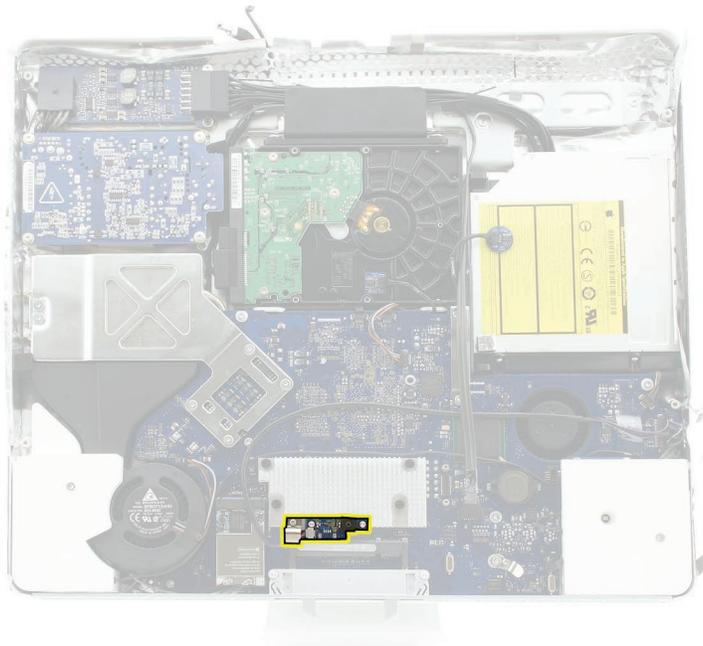
Removing the IR Board

1. Disconnect the IR cable from the IR board.
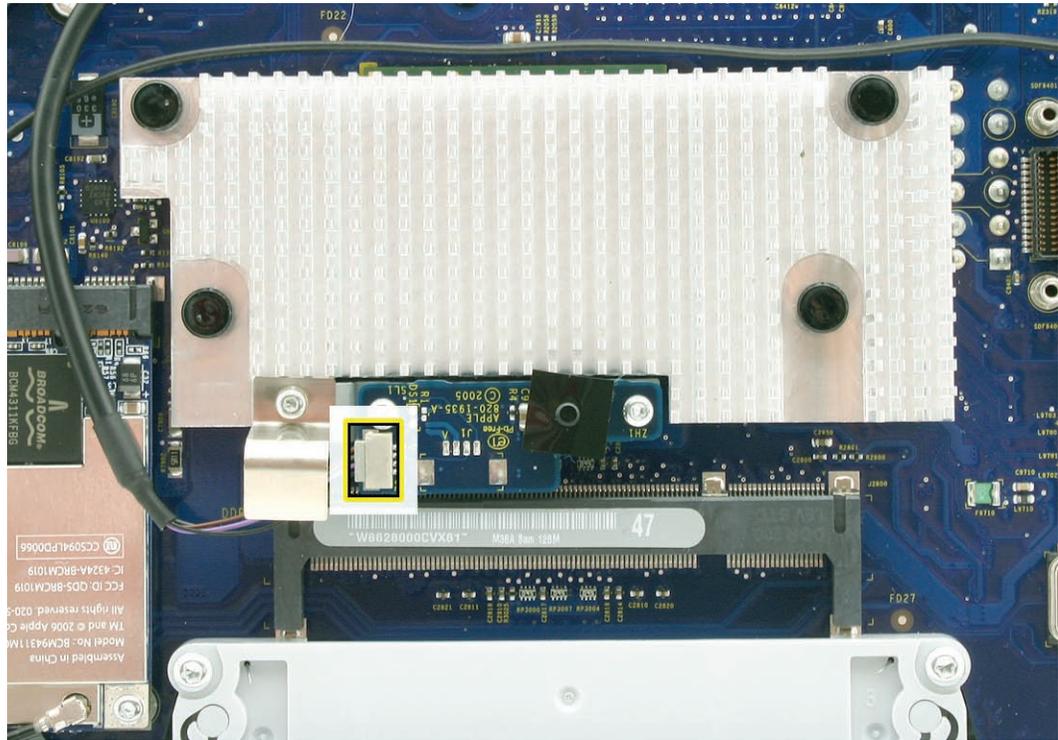
2. Using a Torx T6 screwdriver, remove the two IR screws. Lift the IR board from its mounting bracket.

922-7010
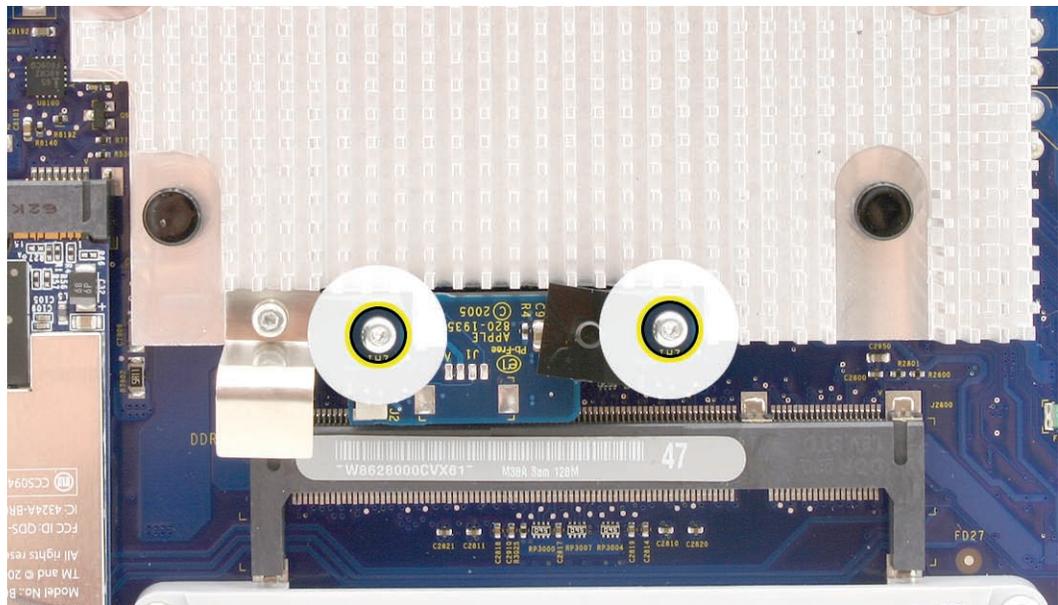
Replacing the IR Board

1. Install the IR board and two T6 mounting screws.

2. Connect the IR cable to the IR board connector.

3. Replace the lower EMI shield.

4. Replace the front bezel.

5. Replace the access door.

AirPort Extreme Card

Tools
- Torx T6 screwdriver (magnetized)

Preliminary Steps

Before you begin, remove:
- **Access door**
- **Front bezel**
- **Lower EMI shield**

Part Location
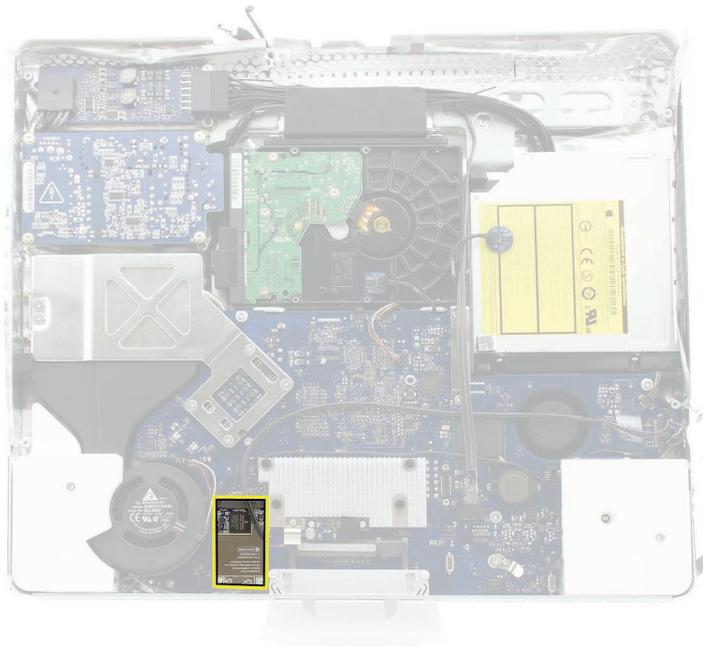
Removing the AirPort Extreme Card

1. Disconnect the two antenna cables from the AirPort Extreme card.
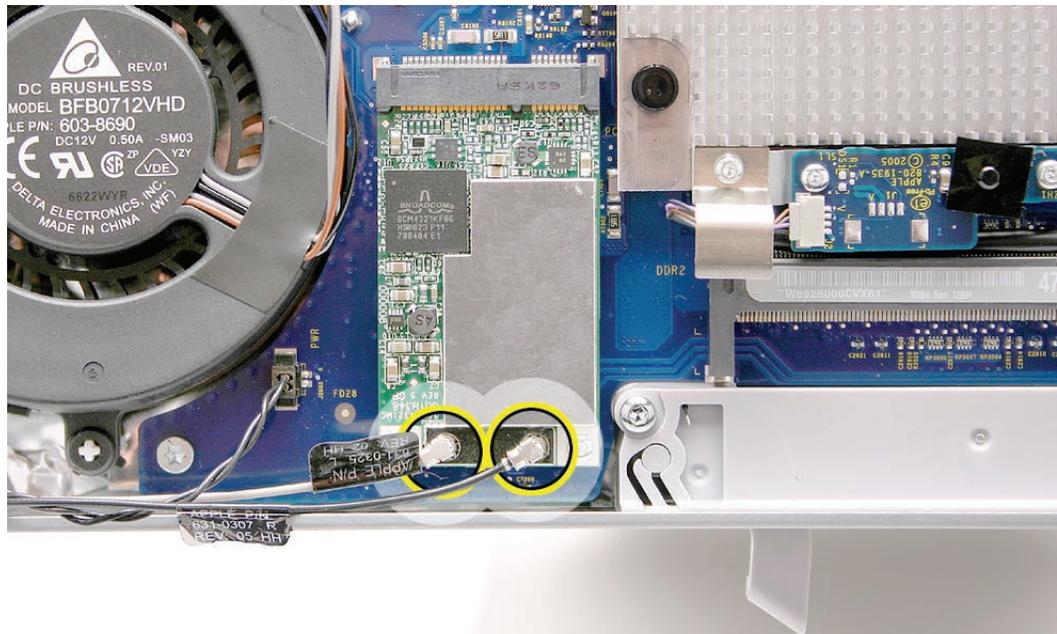
922-7010

2. Remove the two T6 screws from the AirPort Extreme card.
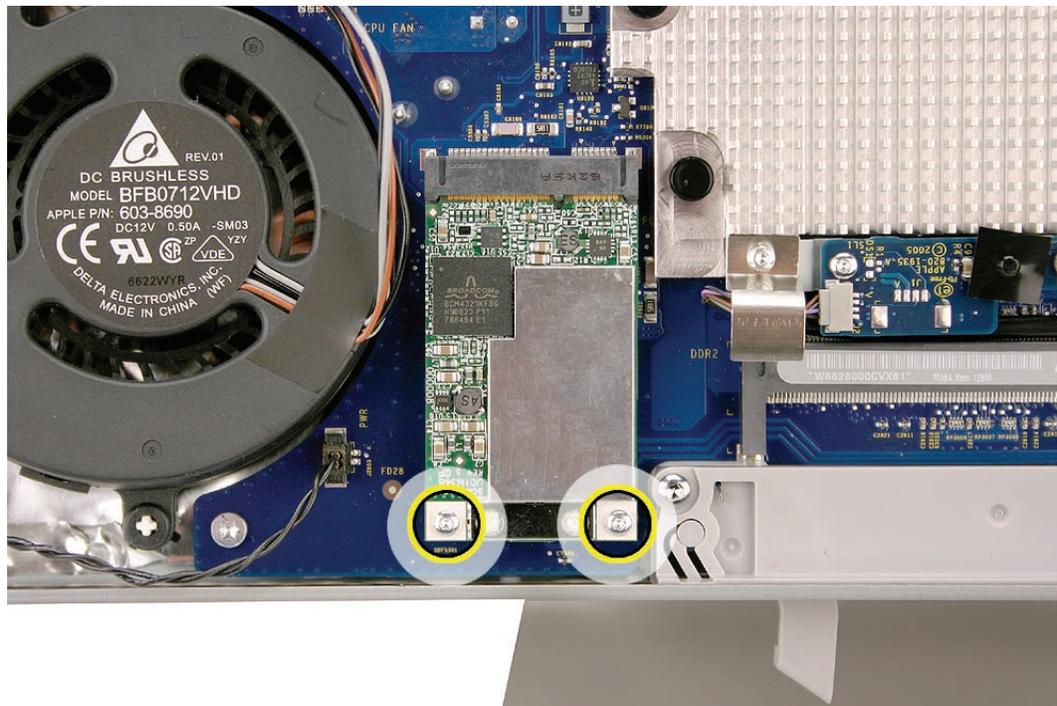
3. The card will spring up when the screws are removed. Grab the card from the connector end and pull the card from the socket on the logic board.

Replacing the AirPort Extreme Card

1. See the following section on compatibility to order the replacement part by EEE code.

2. Install the AirPort Extreme card into the logic board socket.

3. Install the two T6 mounting screws securing the card to the logic board.

4. Connect the AirPort antenna cables to the connectors on the card.

5. Replace the lower EMI shield.

6. Replace the front bezel.

7. Replace the access door.

Checking Compatibility between AirPort Card and Logic Board

The iMac (Late 2006) computers were built with a number of logic boards and AirPort Extreme cards. To avoid confusion identifying the correct logic board and AirPort Extreme card for the system, refer to the table in this section which lists the corresponding EEE codes.

Locating the EEE Code

To locate the EEE code on the AirPort Extreme card, remove the card from the logic board. Turn the card over, and look for the representative EEE code within the card's serial number. Locate the last four digits in the serial number. Drop the last digit (in this case, the letter "A"). The EEE code is the next three digits. In this case it's "VZL", shown below.

To locate the EEE code on the logic board, locate the memory slot inside the computer. Locate the last four digits in the serial number. Drop the last digit, in this case, the letter "A." The EEE code is the next three digits. In this case the EEE code is "WZH."

EEE Code Table

Use the table below to identify the logic board and AirPort Extreme card EEE codes for the iMac system. Order the correct service part based upon the corresponding EEE code. The table is available in Knowledge Base article **305112 - iMac (Late 2006): AirPort Card Differences**.

iMac Model	Logic Board Part #	Logic Board EEE Code	AirPort Extreme Card Part #	AirPort Extreme Card EEE Code
iMac (17-inch Late 2006)	661-4290, Board , Logic, 2.0 GHz	XYA XYB XYC	661-4289, B661-4289, J661-4289, KH661-4289, PA661-4289, Z661-4289	WQX WQY WQZ WR2 WR0 WR1
iMac (17-inch Late 2006)	661-4105, Board , Logic, 2.0 GHz	VX6 VX7 VX8	661-4060, B661-4060, J661-4060, KH661-4060, PA661-4060, Z661-4060	VZL VZM VZN VZR VZP VZQ

iMac Model	Logic Board Part #	Logic Board EEE Code	AirPort Extreme Card Part #	AirPort Extreme Card EEE Code
iMac (17-inch Late 2006)	661-4106, Board , Logic, 2.16 GHz	W4Y W4Z W50	661-4060, B661-4060, J661-4060, KH661-4060, PA661-4060, Z661-4060	VZL VZM VZN VZR VZP VZQ
iMac (17-inch Late 2006)	661-4291, Board , Logic, 2.16 GHz	XDH XHE XHF	661-4289, B661-4289, J661-4289, KH661-4289, PA661-4289, Z661-4289	WQX WQY WQZ WR2 WR0 WR1

Battery

Tools

- Black stick

Preliminary Steps

Before you begin, remove:
- **Access door**
- **Front bezel**
- **Lower EMI shield**

Part Location
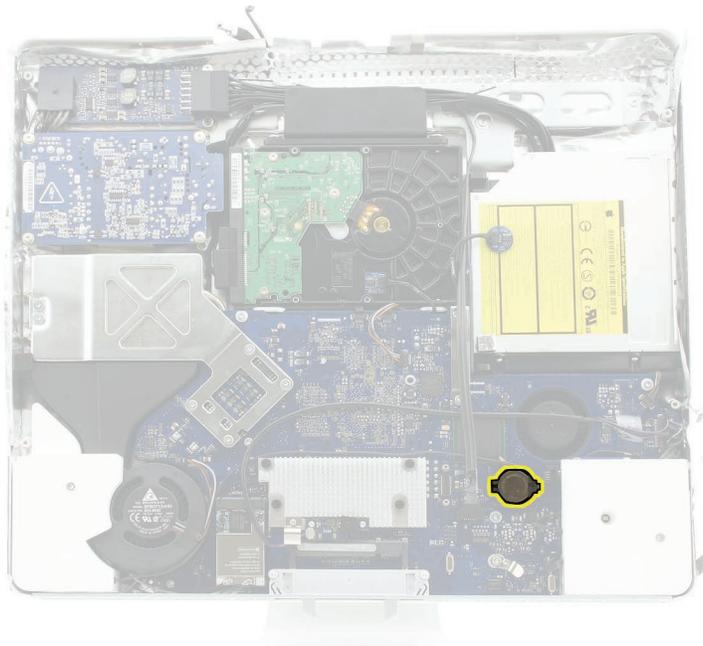
Removing the Battery

1. Using a black stick, pry the battery from the battery slot.

Replacing the Battery

1. Slide the battery (with voltage information face up) into the battery holder. Press the battery into place.

2. Replace the lower EMI shield.

3. Replace the front bezel.

4. Replace the access door.

LCD Display

Tools

- Torx T10 screwdriver
- Torx T6 screwdriver
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, remove:
- **Access door**
- **Front bezel**
- **Lower EMI shield**

Part Location
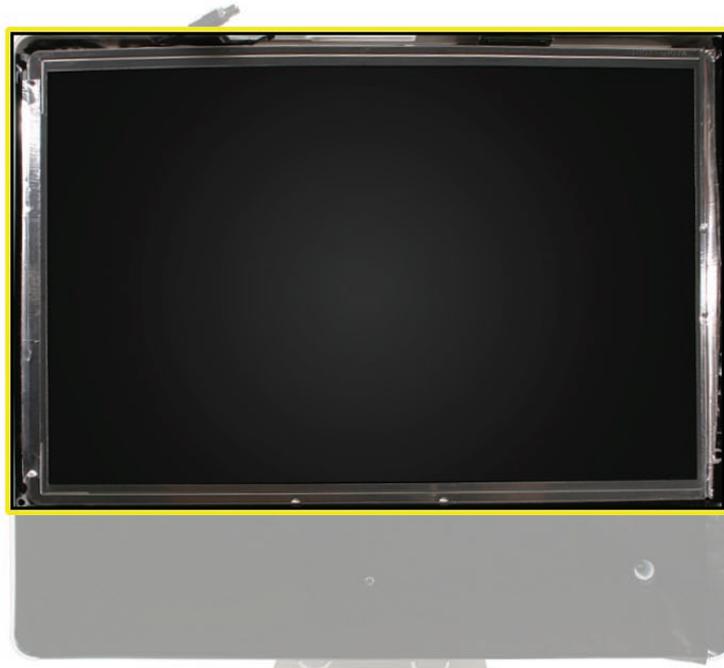
Removing the LCD Display

1. Using the black stick, or access tool, carefully peel back the EMI shielding from the left, right, and bottom edges of the computer

2. Using a Torx T6 screwdriver, remove the two LVDS cable connector screws. Disconnect the LVDS display cable from the logic board.

922-7010
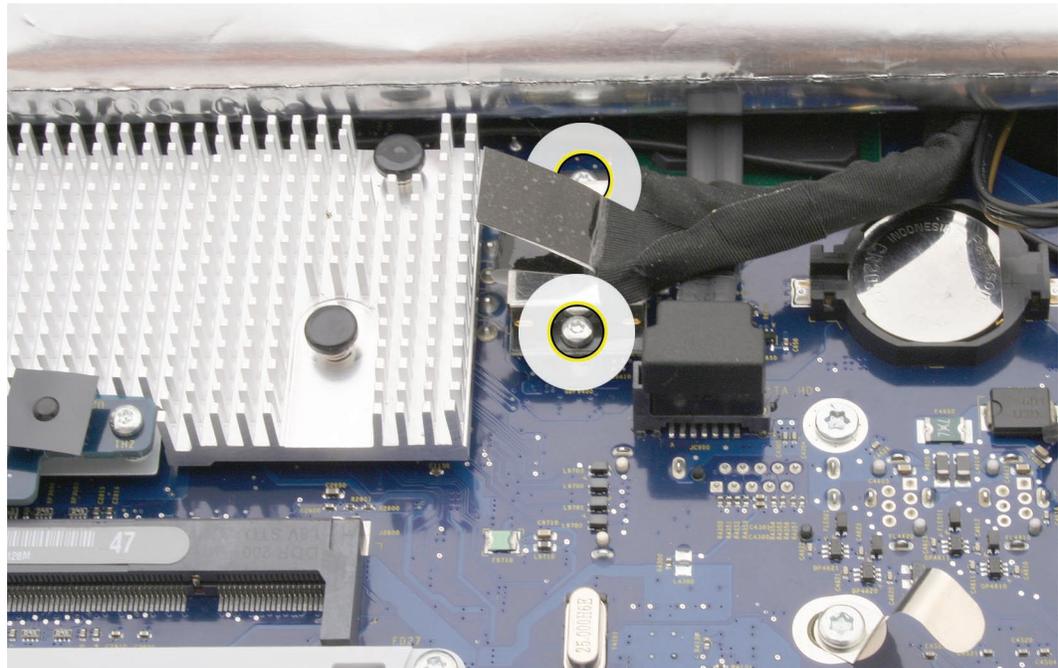
3. To the right of the battery is the inverter cable connector. Disconnect the inverter cable from the logic board.

4. Using the access card or a black stick, peel the EMI tape away from each side of the panel. Remove the four panel mounting screws with a T10 screwdriver.

922-7023
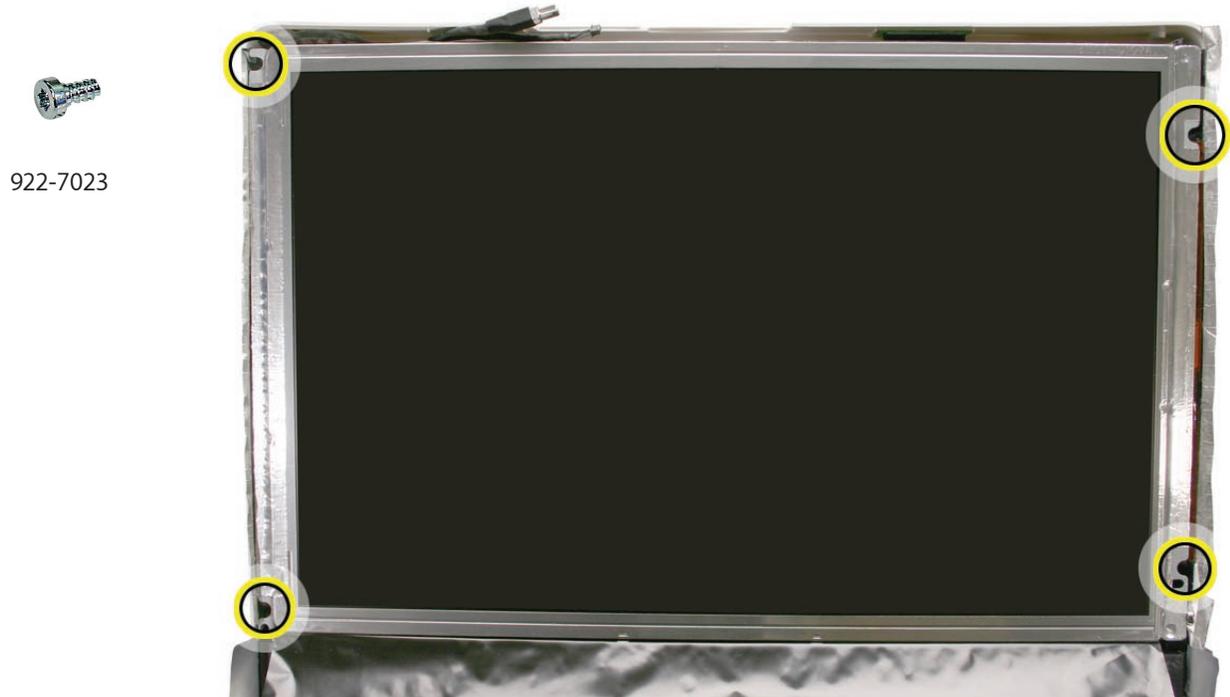
5. Pivot the panel up, as shown, then carefully peel the top edge of the panel away from the EMI shield. **Note**: Continue with steps 6-12 if you are replacing the display panel.

Note: If replacing a bad LCD display, you will need to remove the lower EMI shield (if still attached), the display panel mounting brackets, and the LVDS cable as follows.

6. Peel the lower EMI shield off the bottom edge of the display panel.

7. Using a torx T10 screwdriver, push the tape aside and remove two screws from the left side panel mounting bracket. Repeat for the other side.

922-7158

8. Peel back the clear tape and disconnect the two inverter-to-display cable connectors.
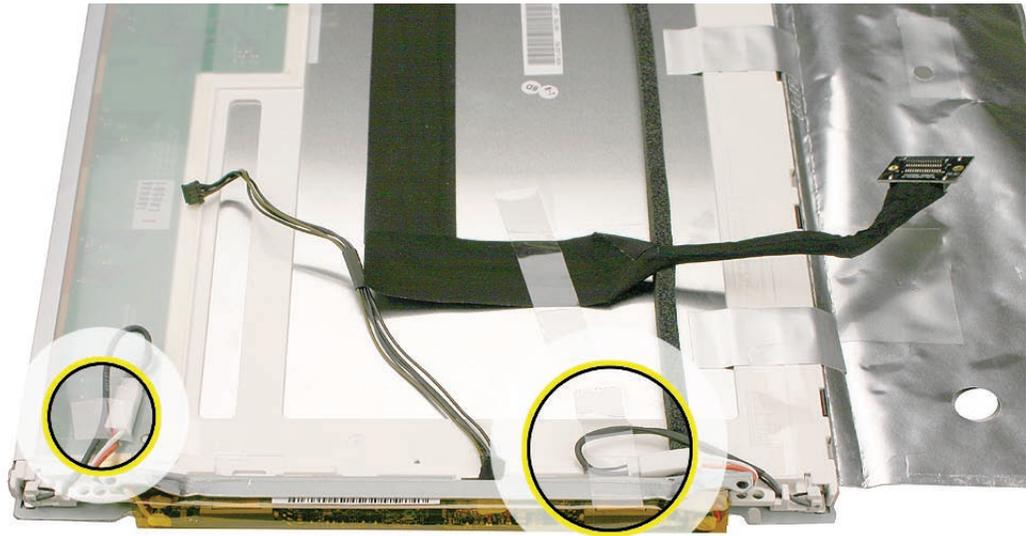
9. To access the LVDS cable connector, peel back the clear tape and the black mylar (if necessary). Pinch together the connector locking levers, and disconnect the LVDS cable connector.
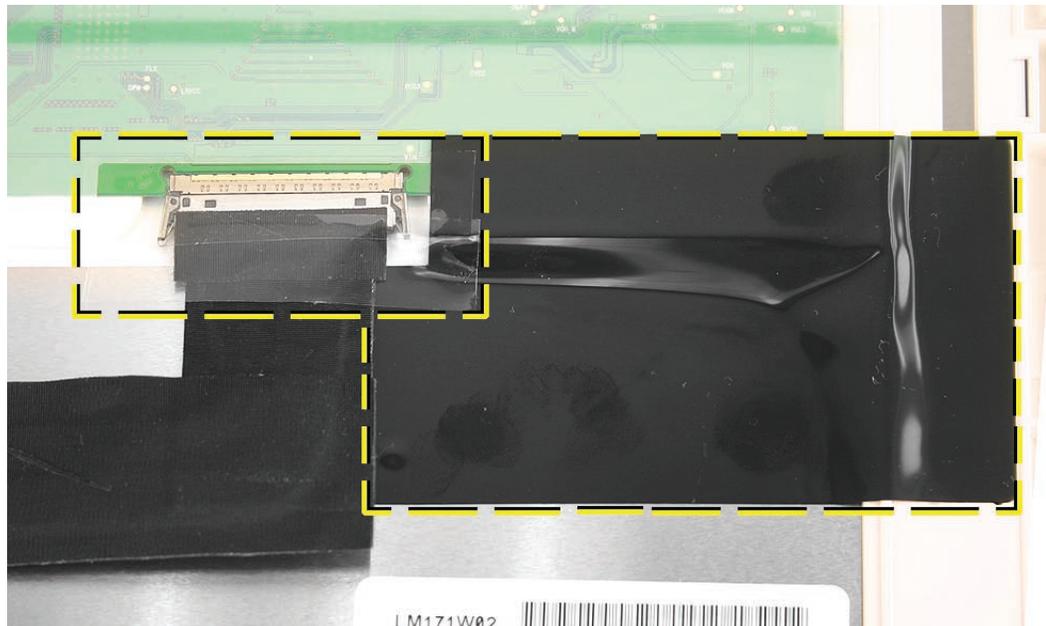
10. Return the panel to Apple.

Replacing the LCD Display

1. Replace the LVDS cable on the rear of the display panel.

2. Secure the LVDS cable with clear tape and the black mylar.
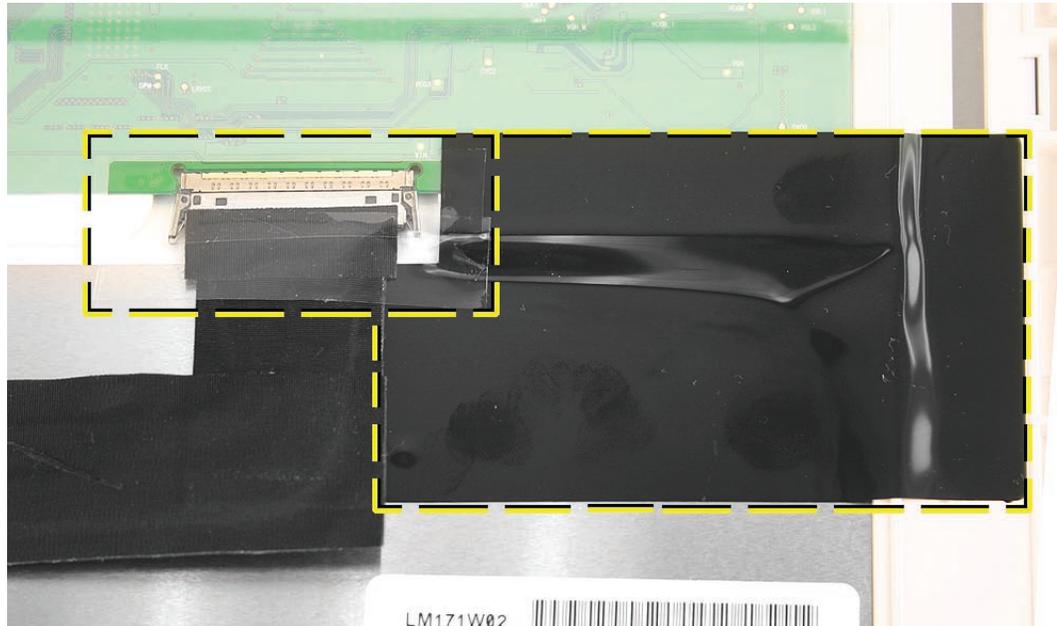
3. Replace the right panel mounting bracket on the display panel with two T8 screws.

4. Replace the left bracket on the display panel with two T8 screws.

5. Connect the two inverter-to-display cable connectors and tape them to the back of the display panel.
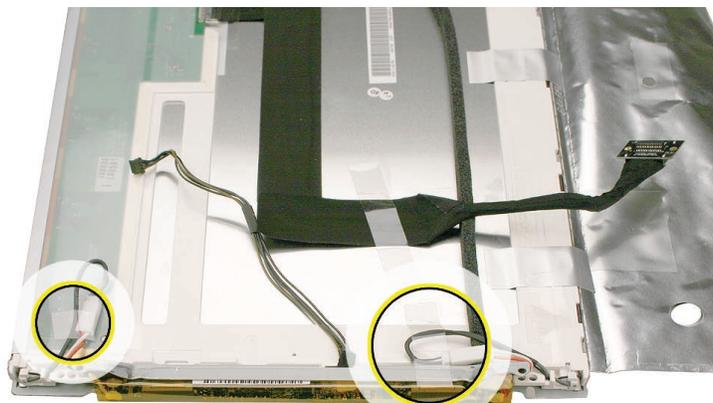
6. Turn over the panel. If the lower EMI shield was removed, reattach the lower EMI shield across the bottom of the panel.

7. Attach the three pieces of aluminum tape along the bottom of the panel. The tape comes with the replacement panel. The tape should attach to the panel on one side and to the lower EMI shield on the other side.
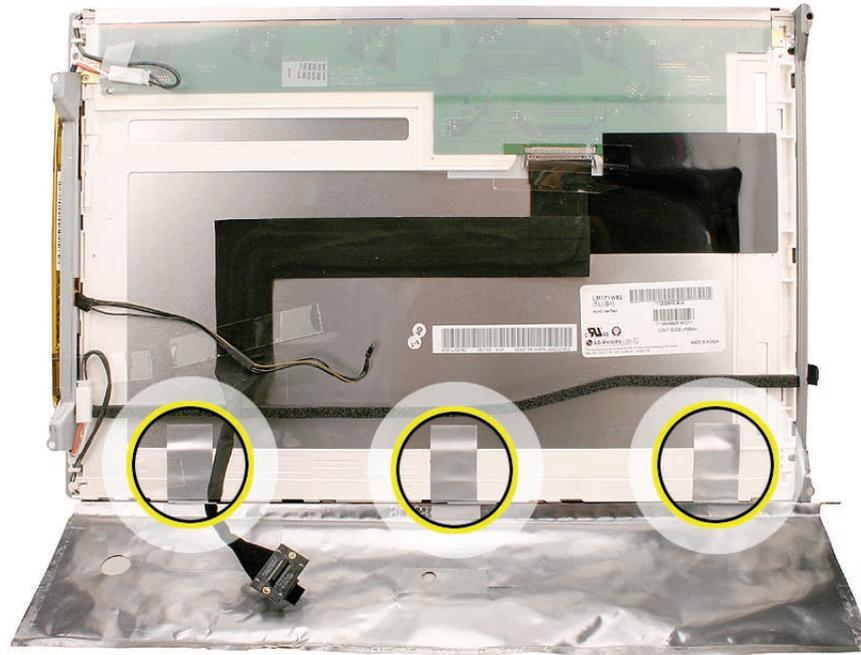
8. Position the panel into the rear housing. Make sure the inverter cable and the LVDS cable are accessible and not tucked under the panel.

9. Secure the panel with four T10 mounting screws.

10. Connect the inverter cable connector to the logic board.

11. Connect the LVDS cable connector to the logic board and secure it with two T6 screws.

12. Fold the EMI tape firmly over the left, top, and right edges of the display panel. Use the black stick to adhere the tape firmly and rub out wrinkles.

13. Replace the front bezel.

14. Replace the access door.

LVDS Display Cable

Tools

No tools are required.

Preliminary Steps

Before you begin, remove
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
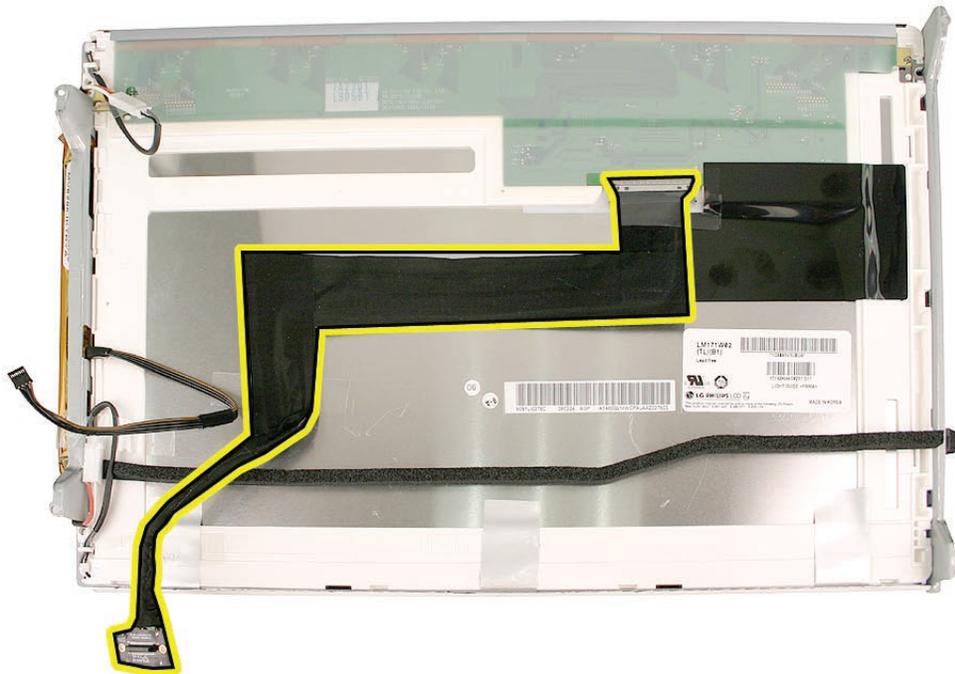
Remove the LVDS Cable

1. Locate the LVDS cable on the back side of the display panel. Remove the piece of tape that secures the cable to the panel.
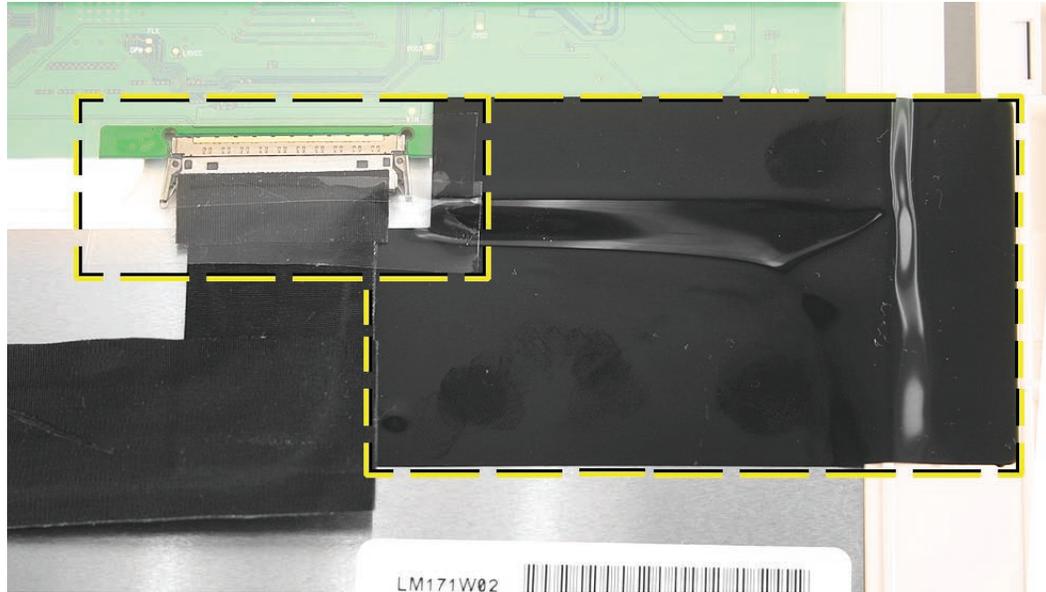
2. Pinch together the connector locking levers, and disconnect the LVDS cable connector.
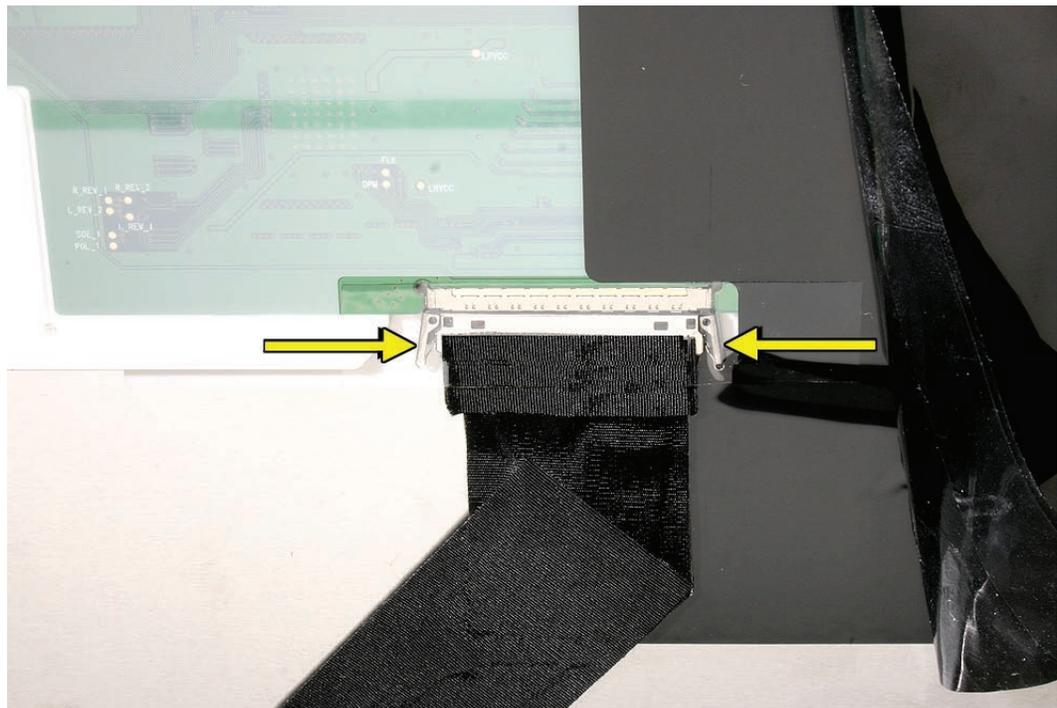
Replacing the LVDS Cable

1. Attach the LVDS cable on the back of the display panel as shown.
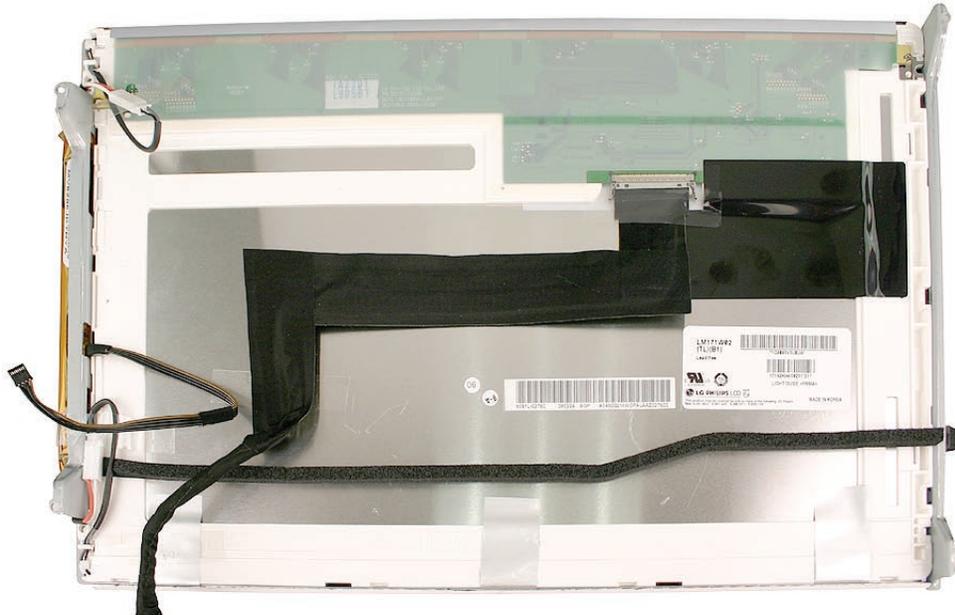
2. If you are replacing the display, a piece of black mylar is enclosed in the box with the display module. The dotted lines below show the correct placement of the clear tape and black mylar.

(
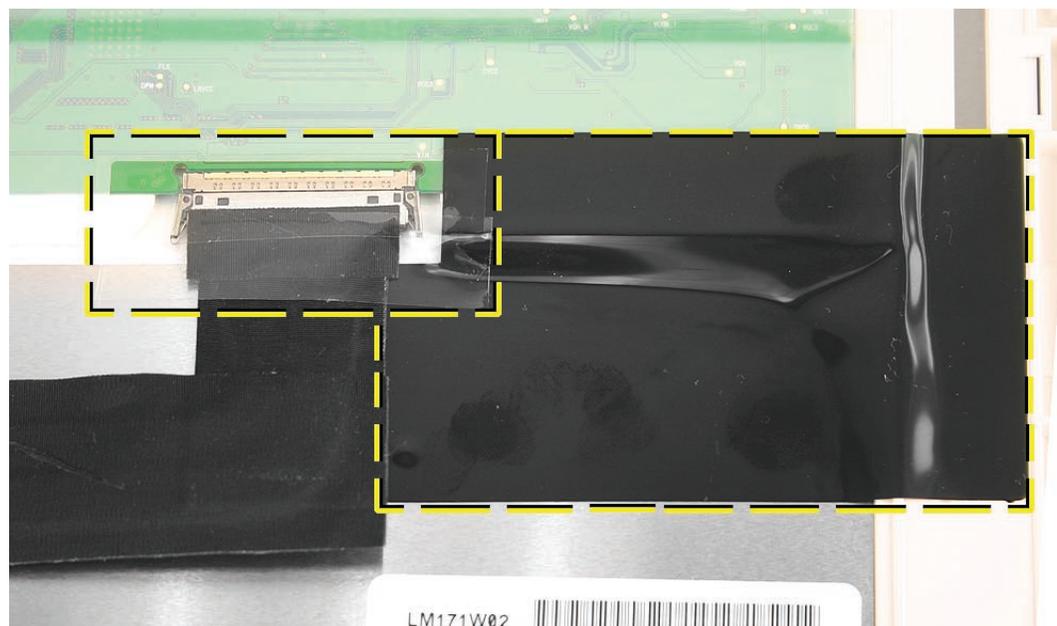
3. Replace the lower EMI shield.

4. Lower the display into place. Replace the four display screws.

5. Replace the front bezel.

6. Replace the access door.

Inverter

Tools

- Flat-blade screwdriver

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
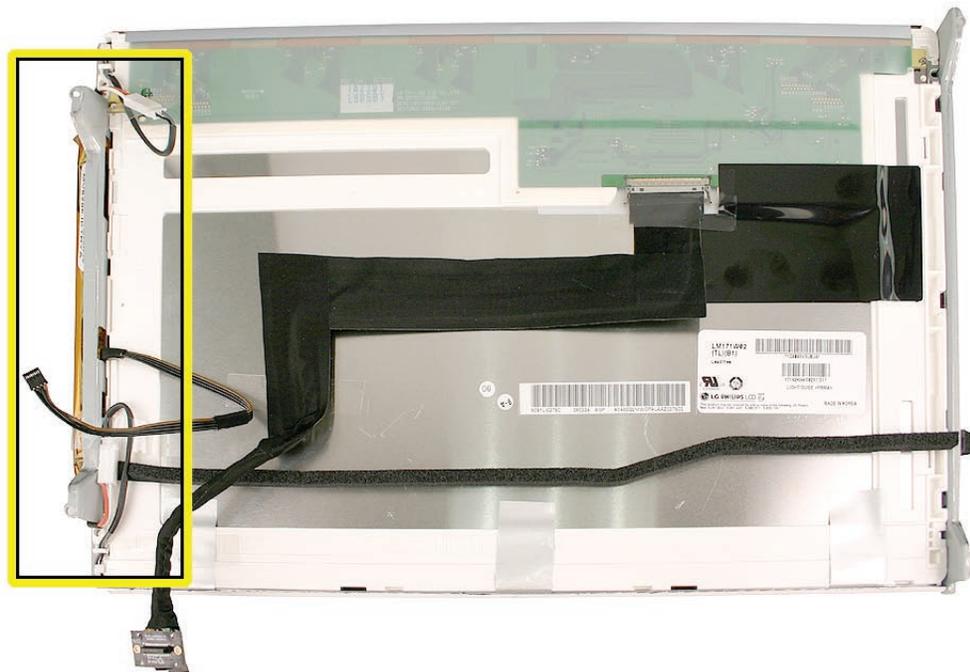
Removing the Inverter

1. Remove three pieces of tape that secure the inverter cables to the back of the display panel, and disconnect the two white inverter connectors shown.
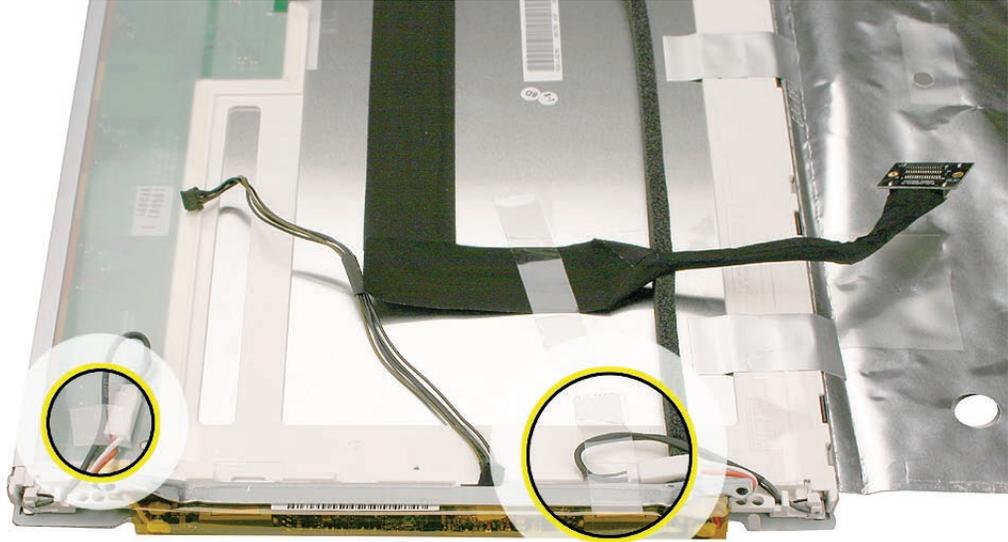
2. Using a flat-blade screwdriver as shown, pry up the inverter to remove it from inside the display panel mounting bracket.
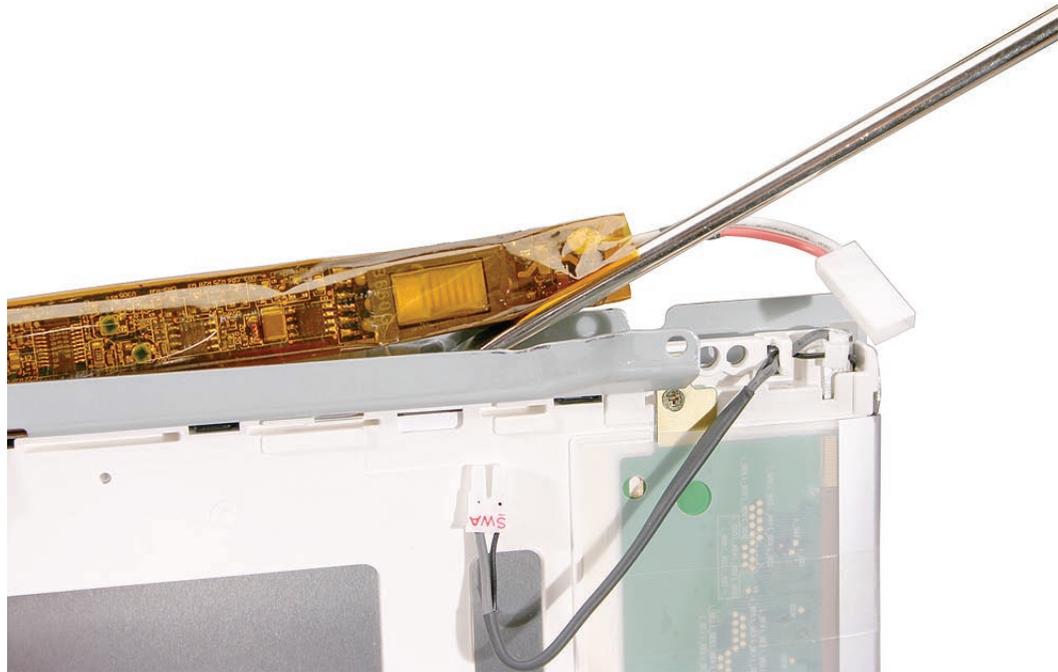
Replacing the Inverter

1. Insert the long, black inverter cable through a hole at the back center of the right mounting bracket, and press the sticky side of the replacement inverter onto the back edge of the bracket.

2. Connect the inverter-to-display cables and tape them to the back of the display panel.
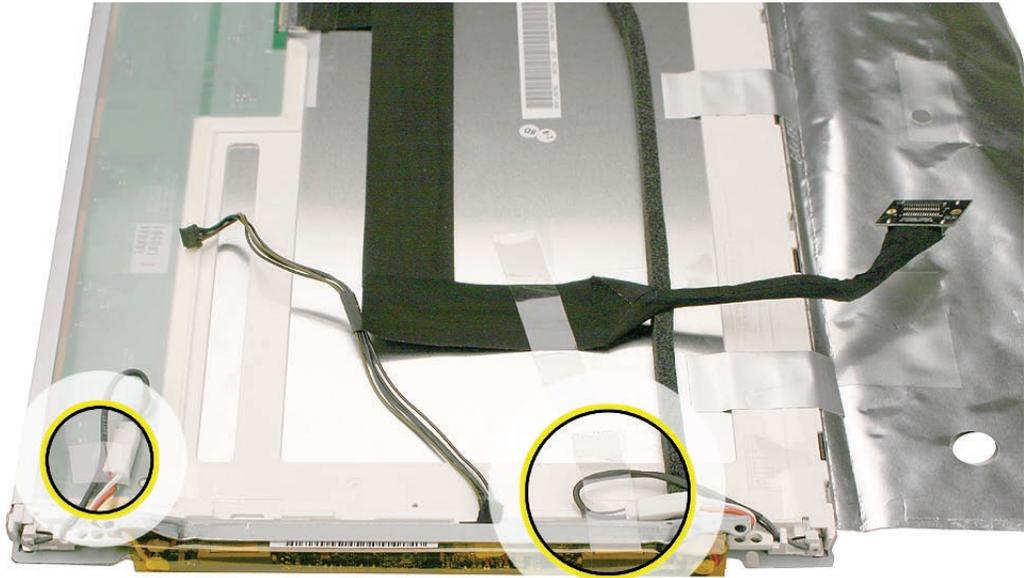
.

3. Replace the display panel.

4. Replace the lower EMI shield.

5. Replace the front bezel.

6. Replace the access door.

Speakers

Tools

- Torx T10 screwdriver (magnetized)
- Torx T6 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
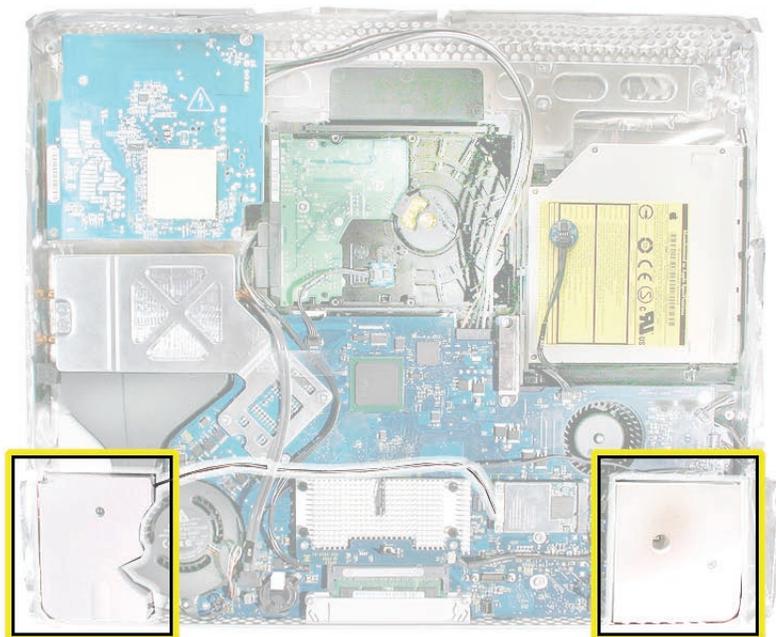
Removing the Speakers

1. Using a T10 torx screwdriver, remove the screws from the left and right speakers.
   Replacement Note: The longer of the two speaker mounting screws is used to secure the left speaker; the shorter screw secures the right speaker.

922-7067

922-7068
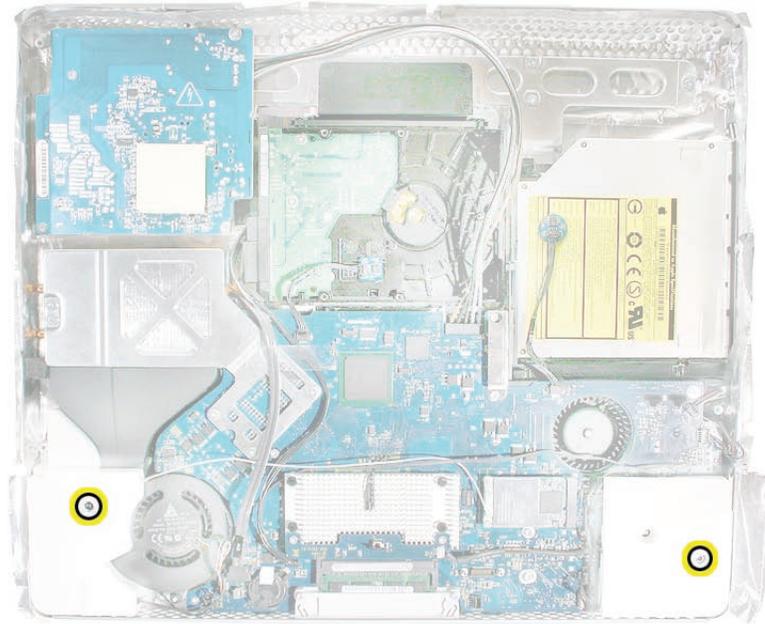
2. Lift up the right speaker. The speaker cable routes under the Bluetooth board. Remove the two T6 screws on the Bluetooth board. Lift the Bluetooth board to access the speaker cable.
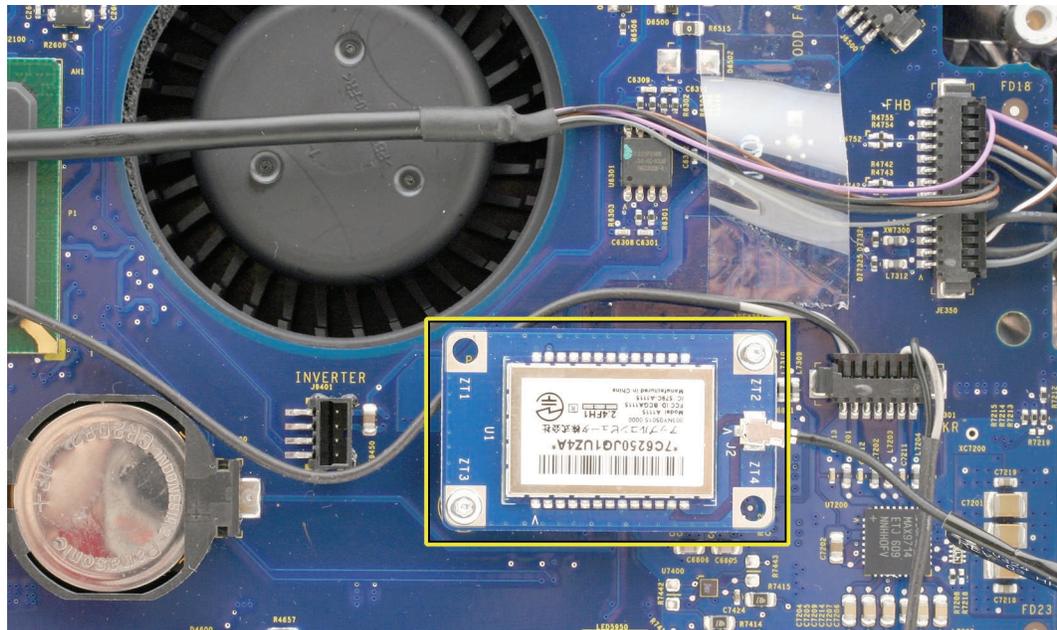
3. Disconnect the speaker cable located to the right of the Bluetooth board.
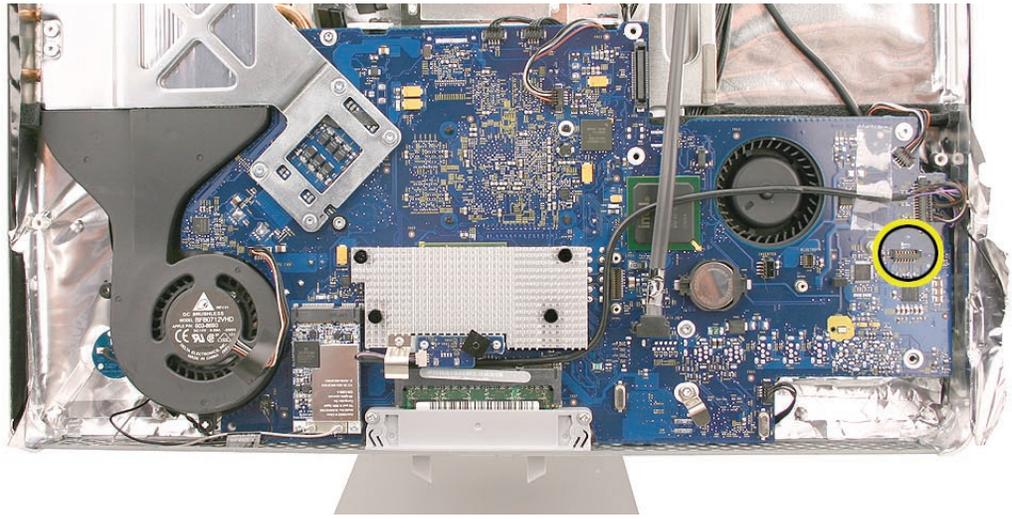
Replacing the Speakers

1. Connect the speaker cable to the connector on the logic board.

2. Route the speaker cable under the Bluetooth board. Replace the two T6 screws.
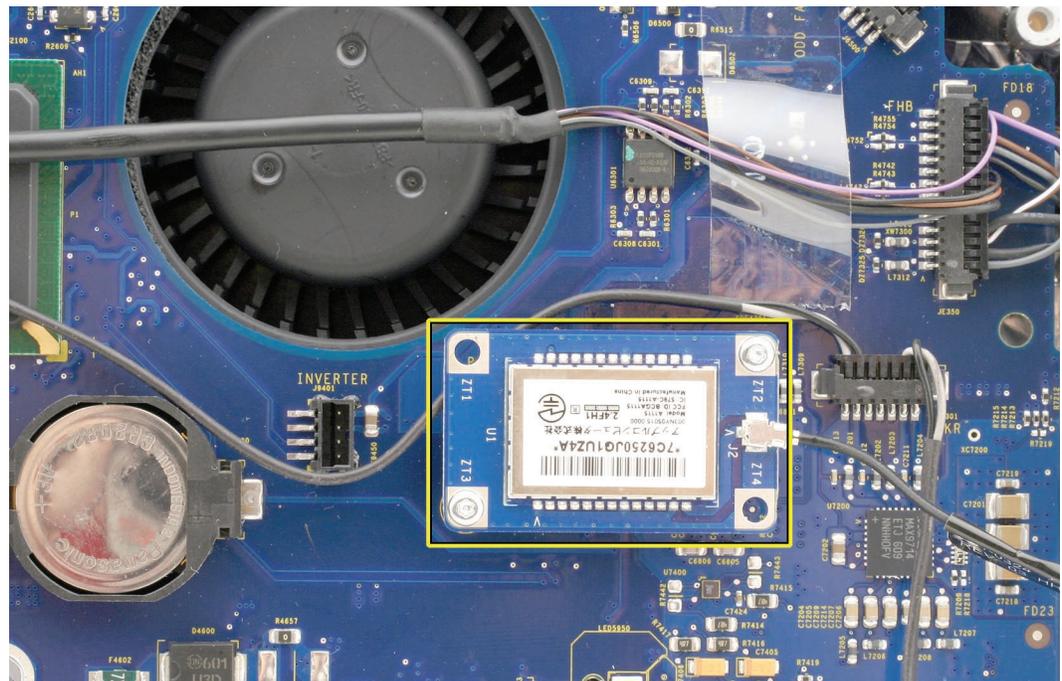
3.   Install the speakers and position the speaker wire above the heatsink.

4.   Secure the right speaker with the shorter of the two mounting screws.

5.   Secure the left speaker with the longer of the two mounting screws.

6.   Replace the display panel.

7.   Replace the EMI shield.

8.   Replace the front bezel.

9.   Replace the access door.

Bluetooth Board

Tools

- Torx T6 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Speakers**

Part Location

Note: The Bluetooth board is located under the right speaker.
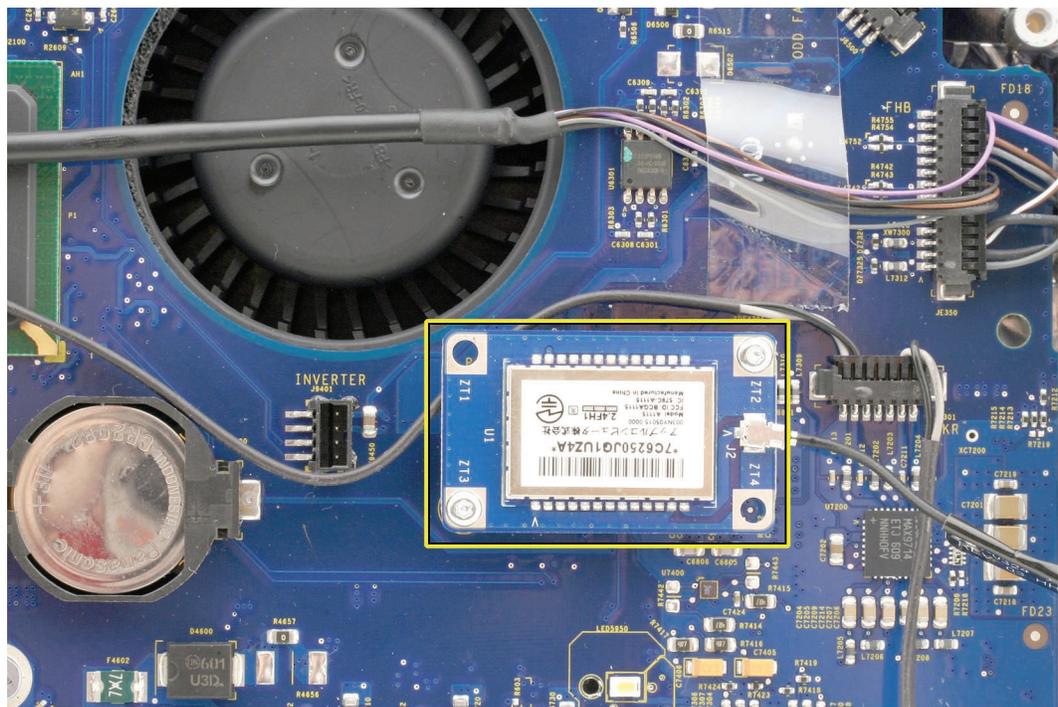
Remove the Bluetooth Board

1. Using a T6 torx screwdriver, remove the mounting screws from Bluetooth card and gently disconnect the Bluetooth antenna from the connector on the card.

922-7010
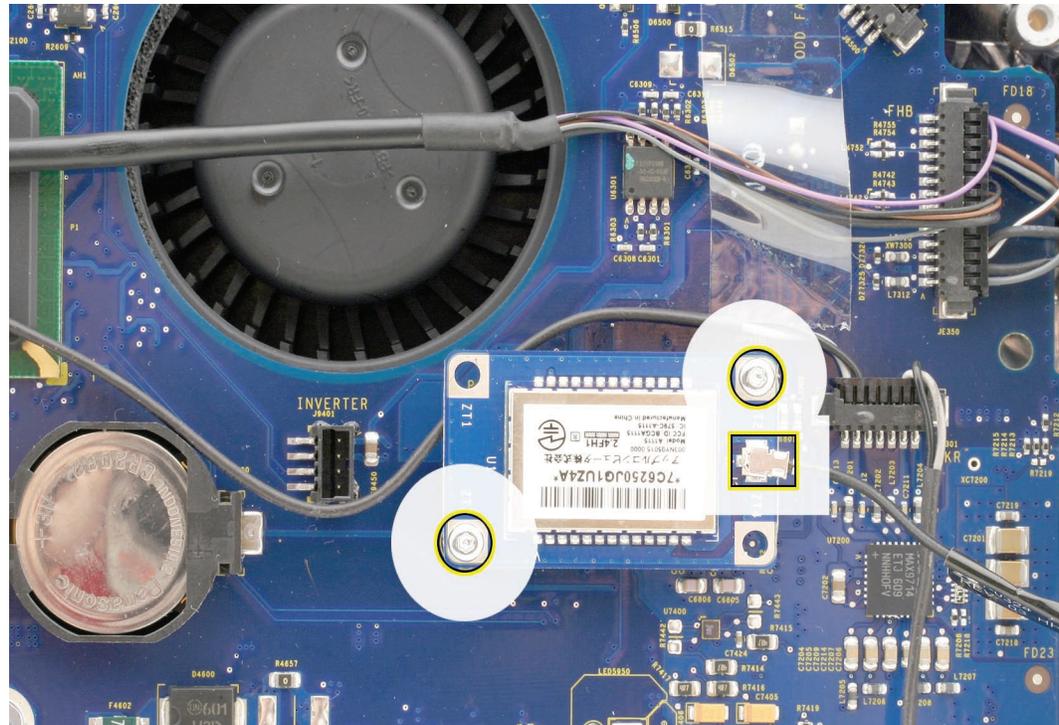
2. Lift the Bluetooth card straight up and off the logic board connector.

Replacing the Bluetooth Board

1. Connect the Bluetooth board to the logic board.

2. Attach the Bluetooth antenna to the Bluetooth board.

3. Replace the two T6 screws on the Bluetooth board.

4. Connect the speaker cable connector to the logic board,

5. Secure the right speaker with the smaller of the two mounting screws.

6. Secure the left speaker with the longer of the two mounting screws.

7. Replace the display panel.

8. Replace the EMI shield.

9. Replace the front bezel.

10. Replace the access door.

Optical Drive

Tools

- Torx T10 screwdriver (magnetized)
- Torx T6 screwdriver (magnetized)
- Needlenose pliers (with teeth)

Preliminary Step

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
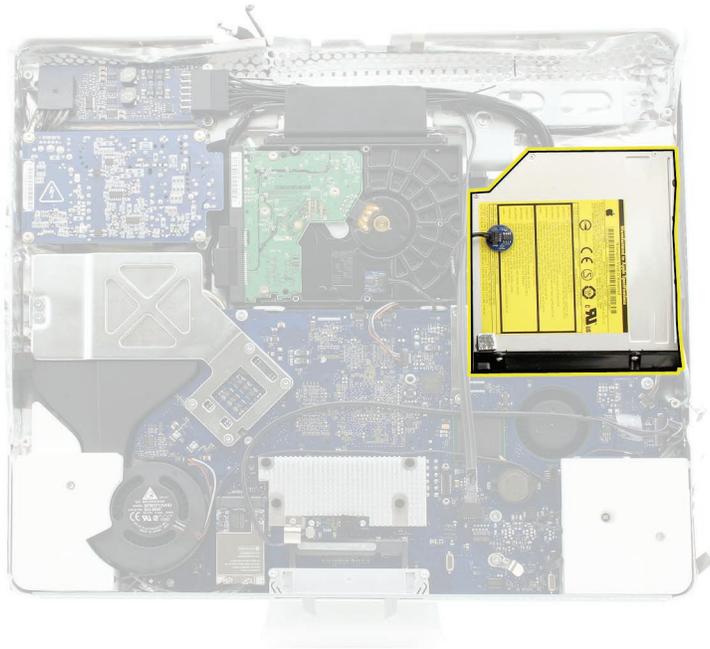
Removing the Optical Drive

1. Disconnect the sensor cable from the temperature sensor on top of the optical drive and remove the two T10 screws from the optical drive clip on the logic board.

922-6842
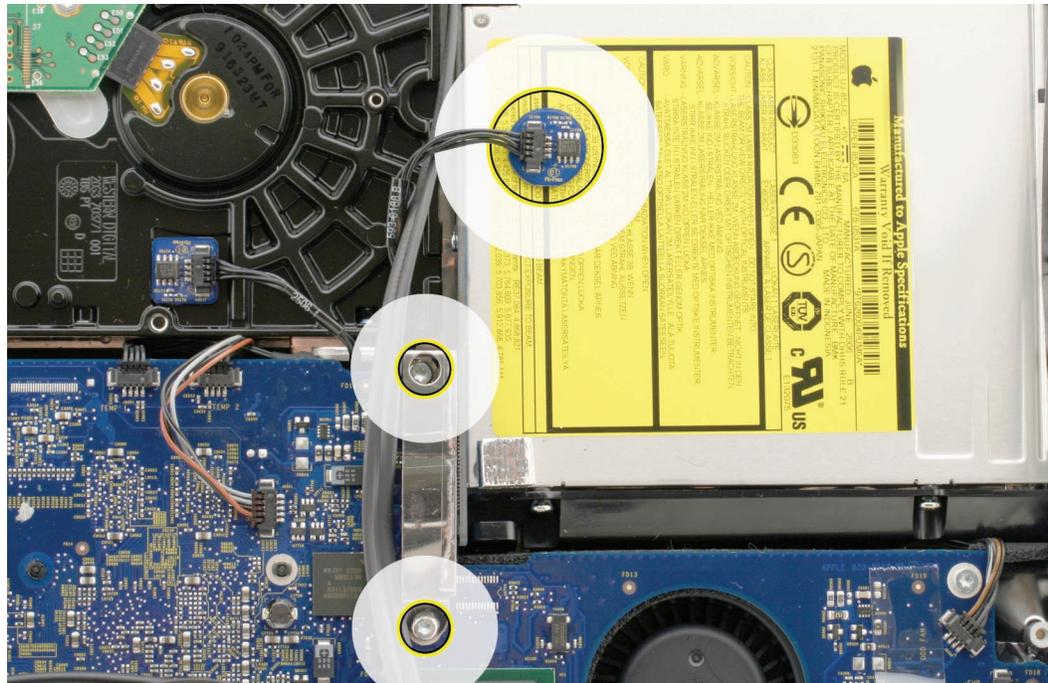
2. **Note**: Make sure to use a needlenose pliers with teeth to remove the optical drive. The pliers must have a textured surface to properly grasp the optical drive release tabs.

3. Locate the black tabs at each side of the plastic optical drive mounting bracket. Starting at the release tab that is furthest from the logic board, grasp the tab with needlenose pliers, and flex the tab toward the optical drive flexible cable. (**Note**: This graphic shows a different iMac model, but the removal procedure is the same for each model.) Use one finger underneath the edge of the optical drive to gently lift up that corner of the drive.
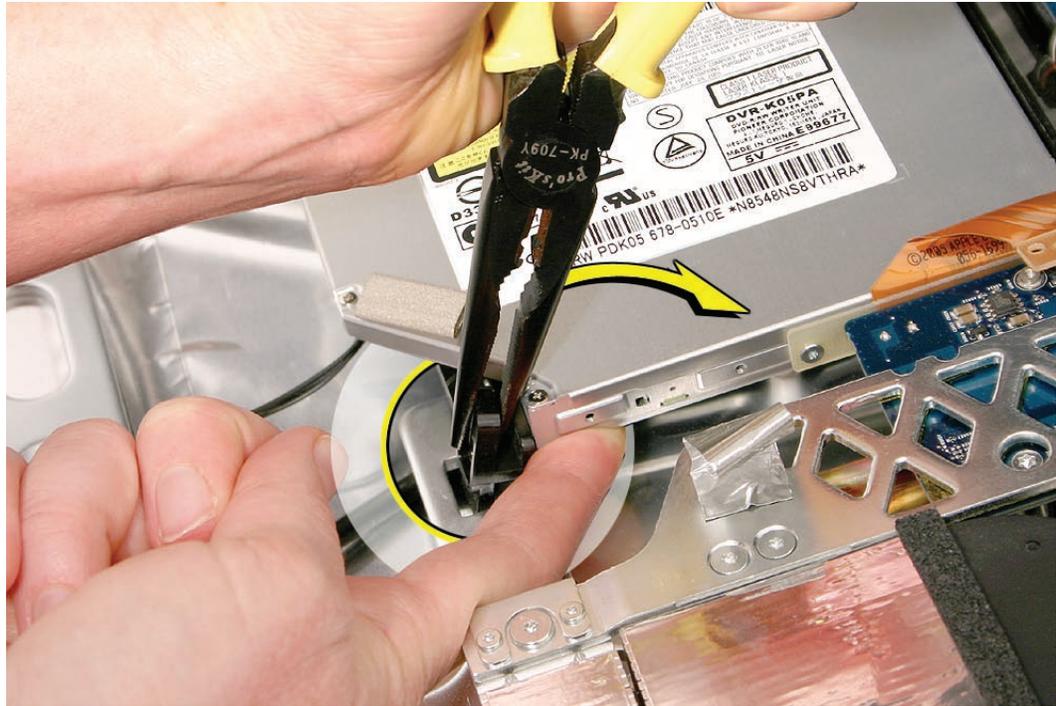
Caution: Never press down on or grasp the body (silver) of the optical drive when removing or installing it. Depressing the body of the optical drive could damage the mechanism. Grasp the optical drive by its mounting bracket only.

4. **Warning**: iMac main logic boards returned with physical damage such as scratches, fractures, or broken or missing components caused by improper servicing may be classified as customer abuse. When using a tool to release the latches, be careful not to apply pressure to the logic board or it may be damaged.

    While avoiding the logic board, grasp the tab with needlenose pliers, and flex the tab toward the optical drive. Use one finger underneath the rear edge of the optical drive to gently tilt up the end of the drive and remove the optical drive out of the housing. **Note**: This graphic shows a different iMac model, but the removal procedure is the same.
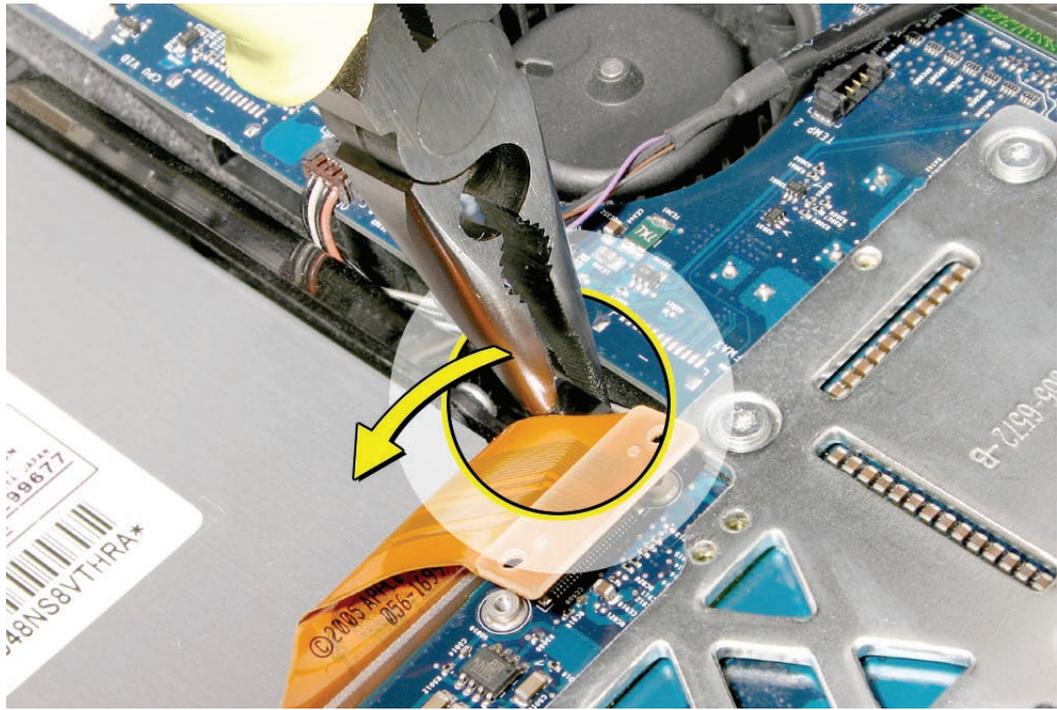
5. **Caution:** Never press down on or grasp the body (silver) of the optical drive when removing or installing it. Depressing the body of the optical drive could damage the mechanism. Grasp the optical drive by its mounting bracket only.

6. Lift the rear of the drive and pull the front bezel of the drive straight back and out of the disc opening in the rear housing.

7. If replacing a bad optical drive, use a T6 torx screwdriver to remove two optical drive board mounting screws. Disconnect and keep the board for installation on the replacement drive.

922-7656

8. If replacing a bad optical drive the replacement drive will have a new sensor installed.

Replacing the Optical Drive

1. If removed, install the optical drive board to the optical drive with two T6 screws.

2. Insert the optical drive "bezel-end-first" into the opening in the housing. Be sure to align the two guide holes in the front bezel with guide posts at each end of the bezel opening.
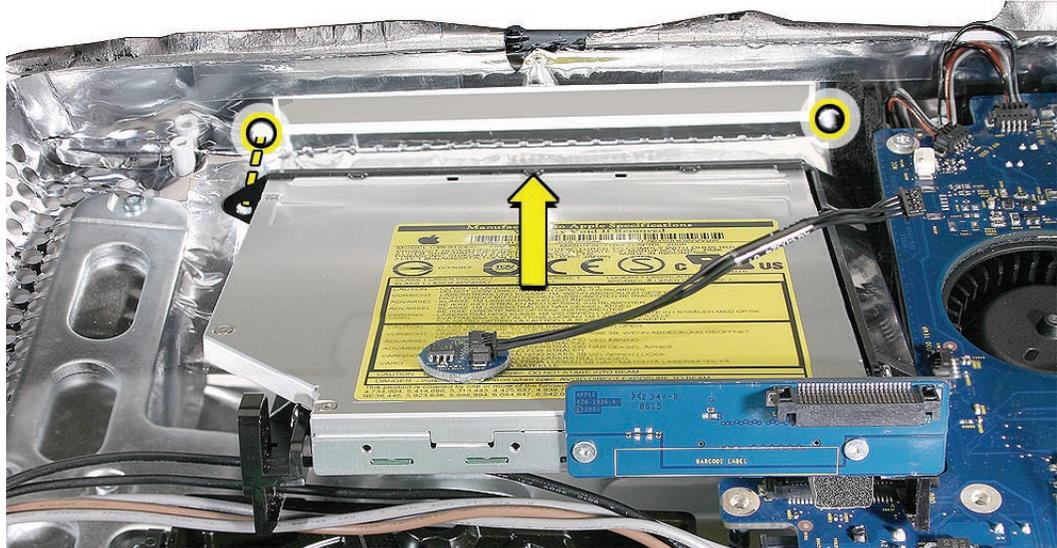
Push down on the black mounting bracket to lock the optical drive securely into place on the chassis.
Caution: Never press down on or grasp the body (silver) of the optical drive when removing or installing it. Depressing the body of the optical drive could damage the mechanism. Grasp the optical drive by its mounting bracket only.

3. Secure the optical drive board to the logic board with the metal mounting clip and two T10 screws.

4. Connect the optical cable to the optical sensor on one end and to the logic board on the other end.

5. Replace the display panel.

6. Replace the lower EMI shield.

7. Replace the front bezel.

8. Replace the access door.

Hard Drive

Tools

- Torx T8 screwdriver (magnetized)
- Flat-blade screwdriver

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
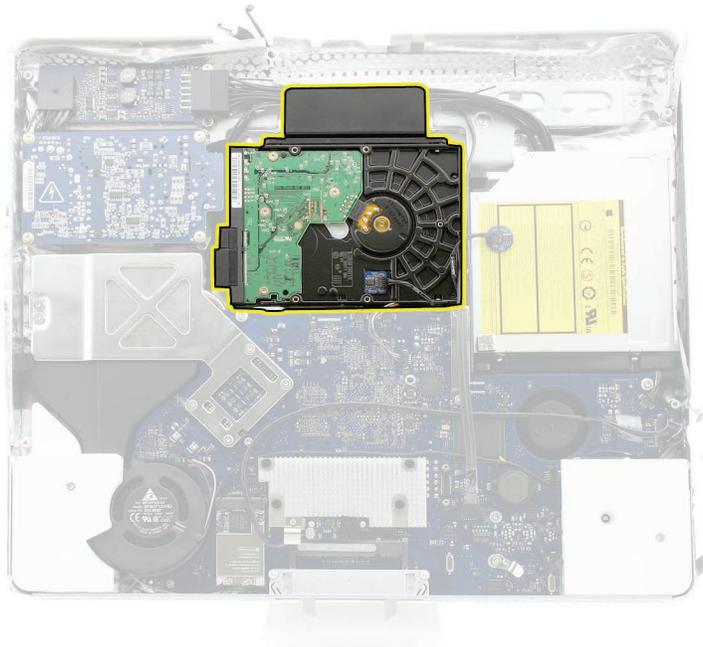
Remove the Hard Drive

1. Disconnect the hard drive sensor from the top of the hard drive.

2. Position yourself at the base of the computer closest to the stand.

3. Pull in on the edge of the mounting bracket until you feel it release from the chassis. Pull HARD! The hard drive bracket will release on the end near your hands.
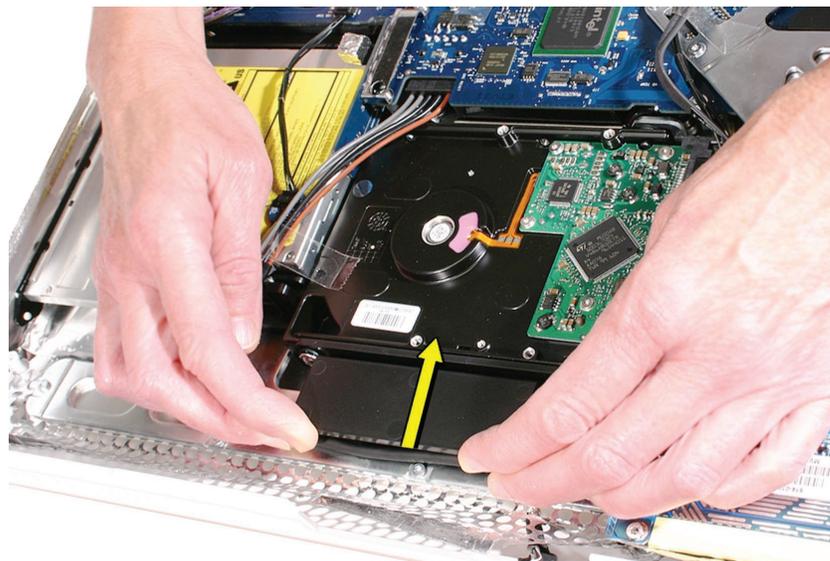
4. Disconnect the hard drive power and data cables. Set the hard drive aside.

5. **Transfer the temperature sensor from the bad drive to the replacement hard drive.** Note: If you are replacing a hard drive, also remove the mounting bracket and the mounting pins shown in the following steps.

6.   Using a T8 torx screwdriver, remove two screws and the mounting bracket from the drive.

922-7019

7.   Using a T8 torx screwdriver, remove two mounting pins from the other side of the drive.

922-7001
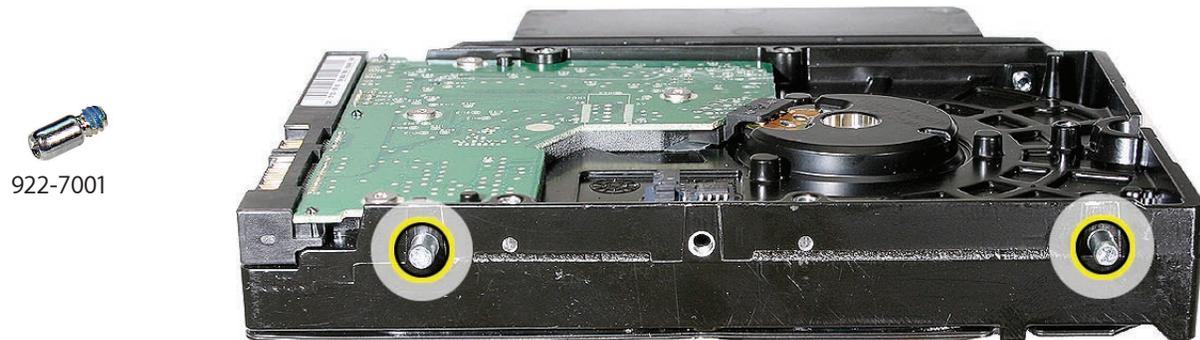
Replacing the Hard Drive

1. Install the temp sensor on the replacement drive.

2. If necessary, install two mounting pins on side of the hard drive mounting bracket.

3. If necessary, install the mounting bracket to the top of the hard drive with two screws.

4. Connect the temp sensor cable to sensor and to the logic board connector.

5. Connect the hard drive power and data cables.

6. Insert the hard drive mounting pins and position the drive on the chassis. Make sure the hard drive power and data cables are routed correctly and don't get pinched as you lower the drive into the chassis. Press down on the mounting bracket to lock it in place on the chassis.

7. Replace the display panel.

8. Replace the lower EMI shield.

9. Replace the front bezel.

10. Replace the access door.

DC-DC Board

Tools

- Torx T10 screwdriver (magnetized)

Preliminary Steps

Before you begin, remove:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**

Part Location
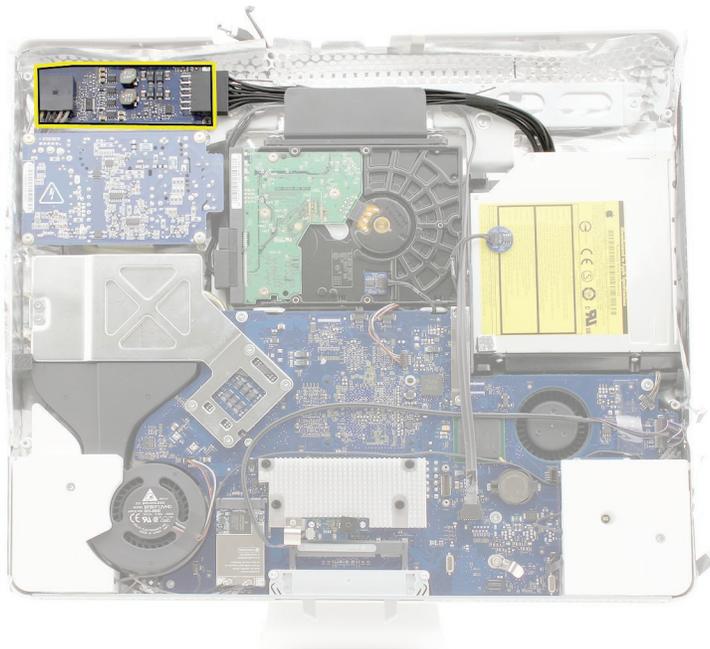
Removing the DC-DC Board

1. Disconnect the power supply cable and the DC power cable from the DC-DC board.
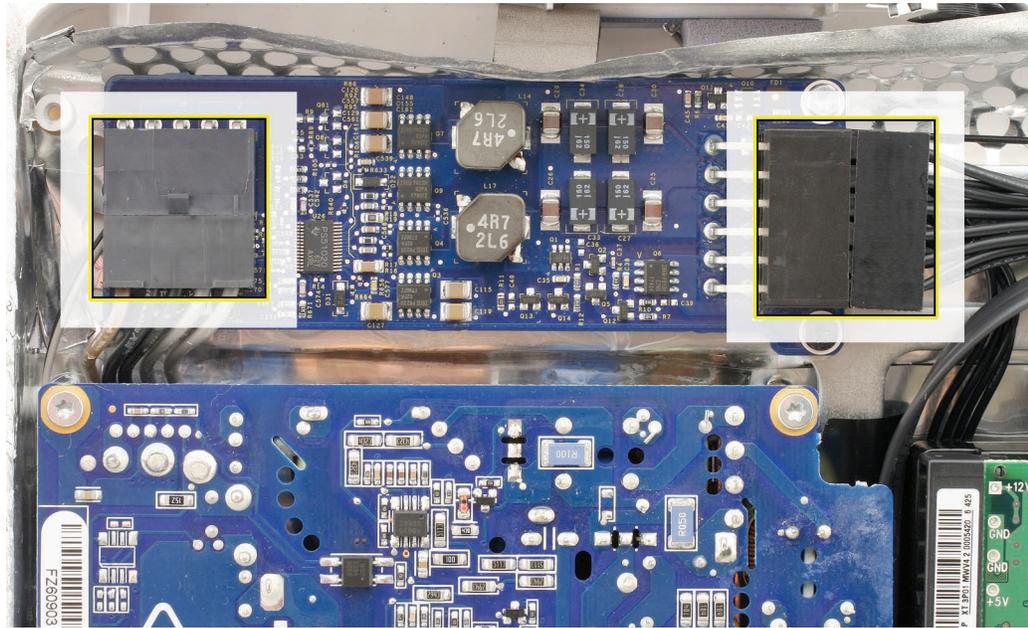
2. Using a T10 torx screwdriver, remove the two self-tapping screw from the bottom corners of the board and the machine screw in the top right corner.

922-7159 (bottom left)

922-7157 (bottom right)

922-6842
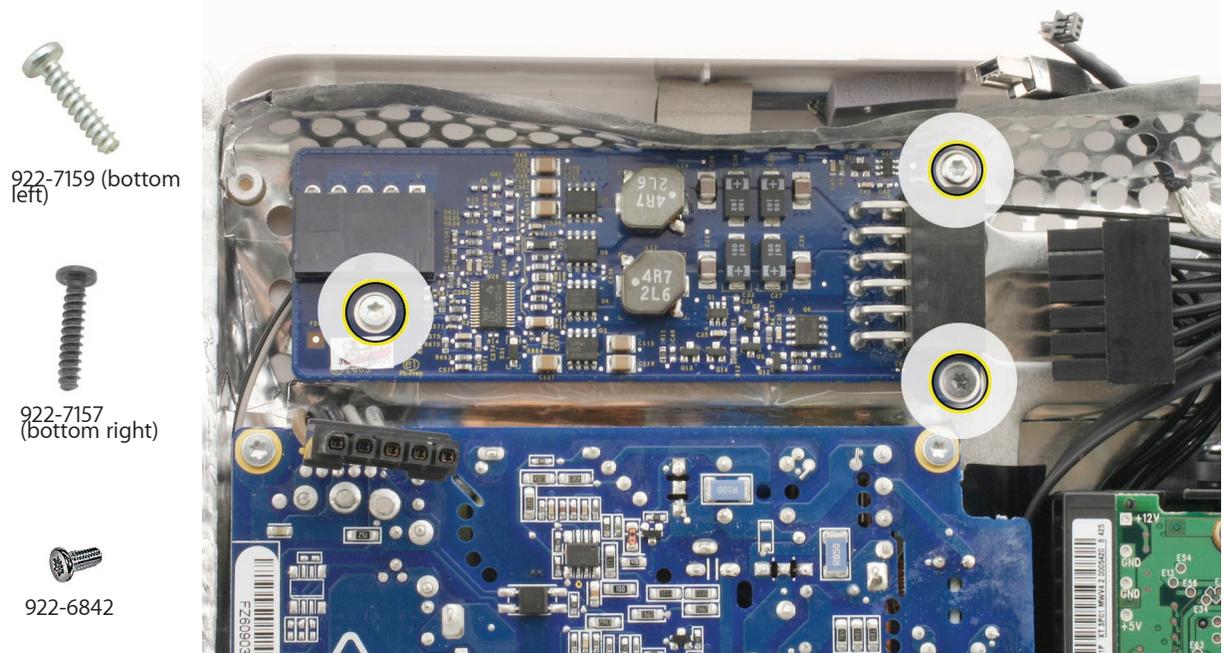
Replacing the DC-DC Board

1. Position the DC-DC board and install the long black self-tapping screw in the lower right corner, the other self-tapping screw in the lower left corner, and the machine screw in the top right corner.

2. Connect the DC power cable and the power supply cable to connectors on the DC-DC board.

3. Replace the display panel.

4. Replace the lower EMI shield.

5. Replace the front bezel.

6. Replace the memory access door.

Power Supply

Tools

- Torx T8 screwdriver (magnetized)
- Torx T10 screwdriver (magnetized)
- Black stick

## Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**

Part Location
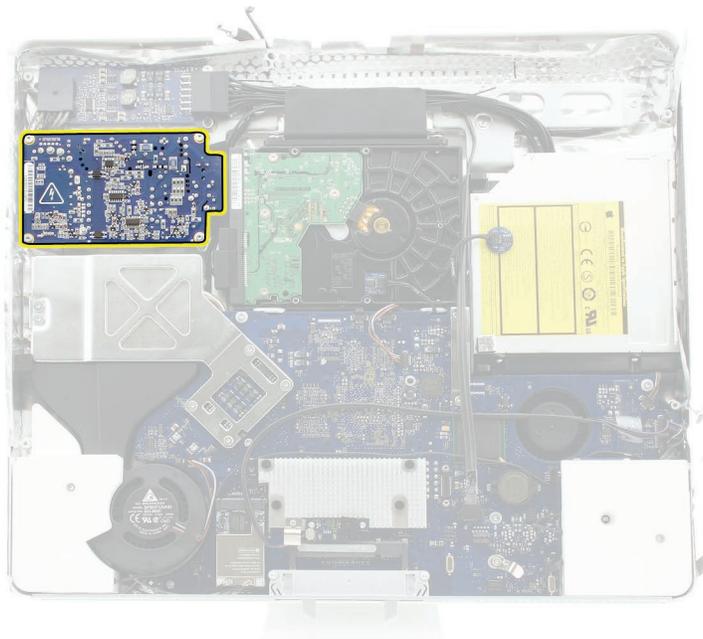
About the Power Supply

Warning: When the iMac is under power, be aware that the power supply contains high voltages that pose a potential hazard to your personal safety. Never work on or near the power supply with the unit powered on, and as a further precaution always make sure the unit is unplugged when working on it with the front bezel removed.

WARNING: HIGH VOLTAGE
Text or photographs marked by this symbol indicate that a potential hazard to your personal safety exists from a high voltage source.

The AC/DC power supply board is a high voltage source with the unit under power, and remains powered up whenever the system is plugged in, whether or not the system is turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

- Disconnect power to the system before performing maintenance.
- Don't work alone. In the even of an electrical shock it is important to have another individual present who can provide assistance.
- Keep one hand in your pocket when working on any iMac that is plugged in. This will help ensure that your body does not provide a path to ground in the event that you accidentally make contact with the line voltage.
- Don't wear jewelry, watches, necklaces, or other metallic articles that could present a risk if they accidentally make contact with the power supply circuitry.

Removing the Power Supply
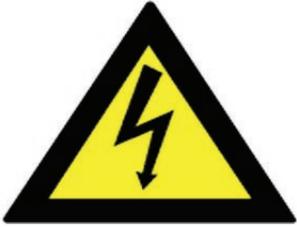
1. **WARNING: HIGH VOLTAGE**
    Disconnect the AC power inlet connector on the right side of the power supply board. The power supply to AC cable connector is tucked under the chassis. Pry the cable from under the chassis with a black stick. Next, disconnect the power supply-to-DC board on the left side the DC-DC board.
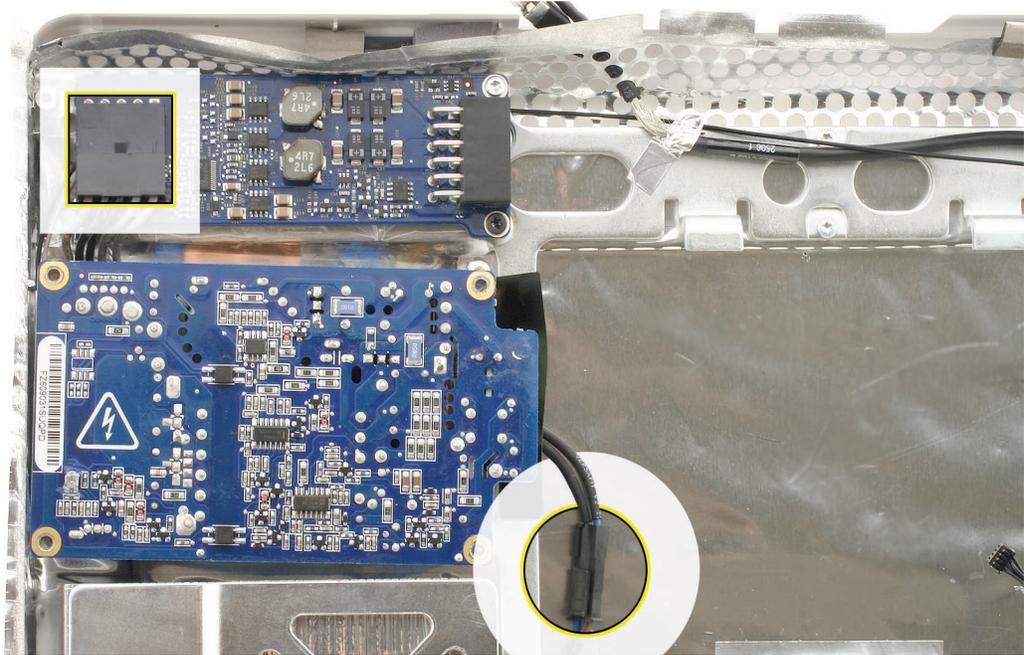
2. Using a T10 screwdriver, remove the three self-tapping screws (top right and the two on the left side) and the one machine screw on the lower right corner of the board.

922-7066 (x1)

922-7159 (x3)
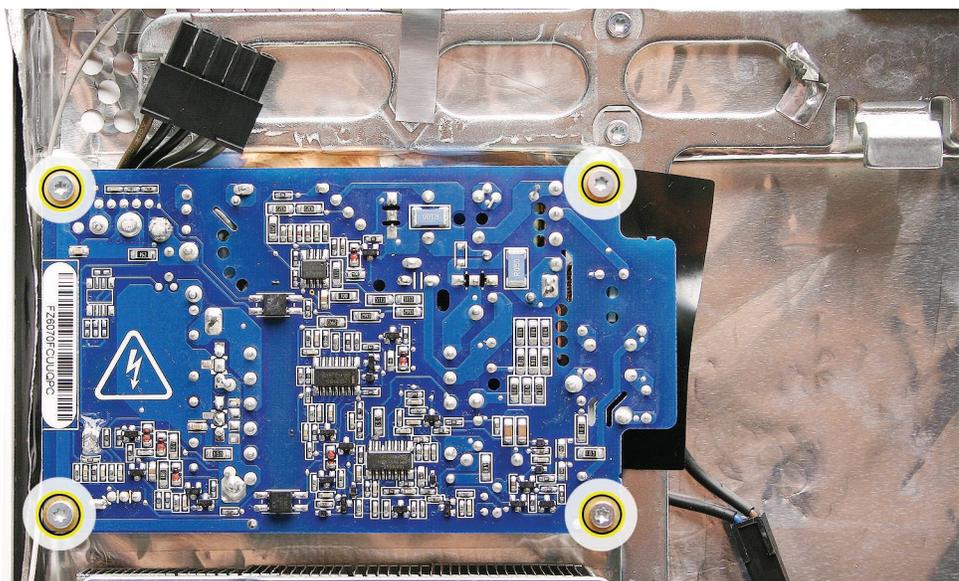
3. Remove the power supply from the enclosure.

4. If you are replacing the power supply-to-logic board cable, disconnect the cable from the logic board and remove the cable from the enclosure.
   Note: To disconnect the cable, do the following:
   - Rotate the computer so that the stand is away from you.
   - Locate the power supply connector underneath the logic board.
   - Pinch the tab and pull the connector to the left to release the connector.
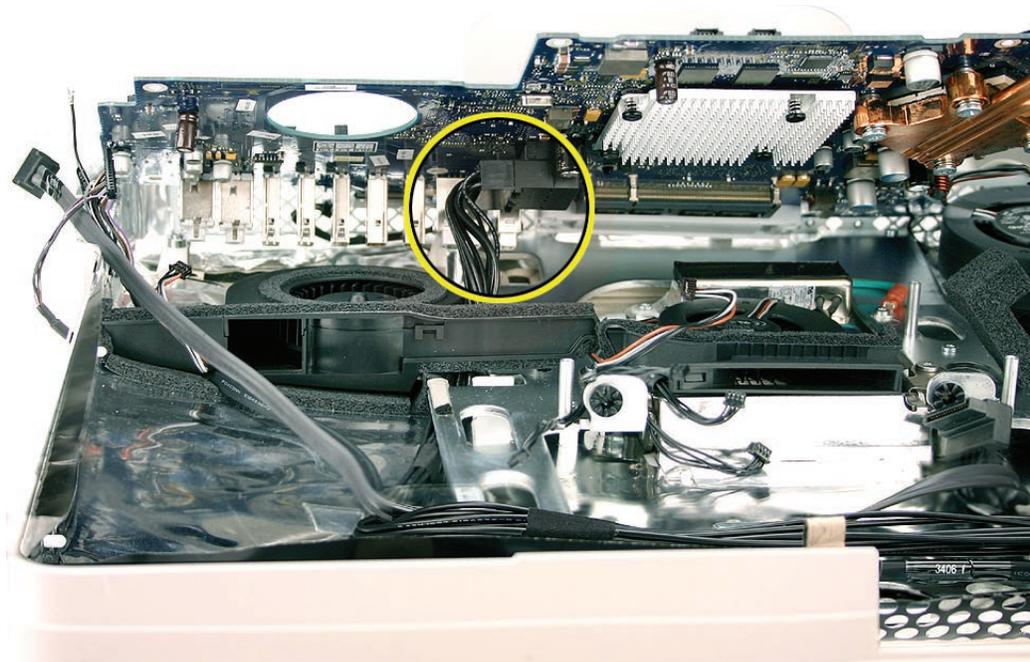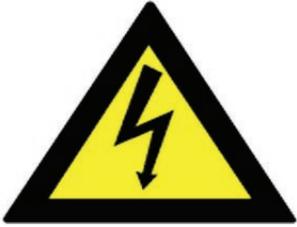
Replacing the Power Supply

1. **WARNING: HIGH VOLTAGE**
   Position the power supply loosely in its mounting location.

2. Connect the power supply-to-AC power inlet cable. Tuck the cable beneath the chassis and away from the hard drive bay.

3. Connect the DC-DC cable to the power supply board and to the underside of the logic board (if previously disconnected).

4. Install the four power supply screws, starting with the machine screw in the lower right corner of the power supply. Then install the other screws (see photo above for locations).

5. Replace the hard drive.

6. Replace the display panel.

7. Replace the lower EMI shield.

8. Replace the front bezel.

9. Replace the access door.

# Logic Board

Tools

- Torx T10 screwdriver (magnetized)
- Torx T6 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**
- **Optical drive**
- **Bluetooth Board**
- **Speakers**
- **Memory**

Part Location
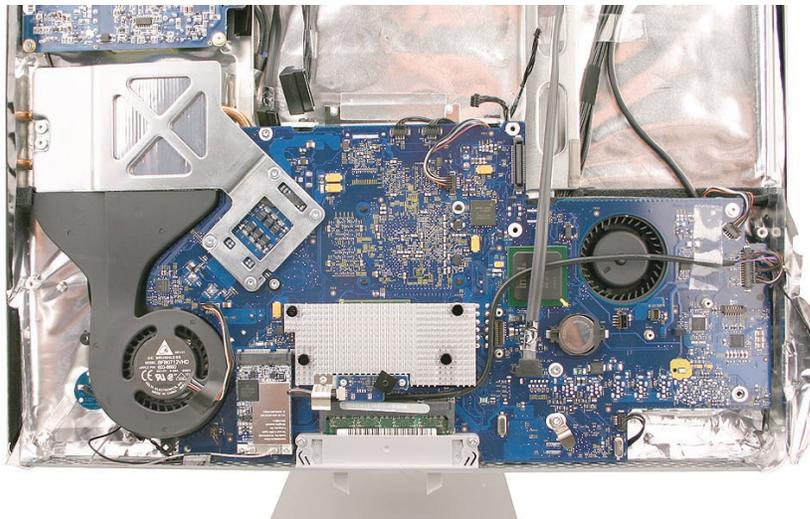
Removing the Logic Board

1. Disconnect the ten cables from their connectors on the logic board.
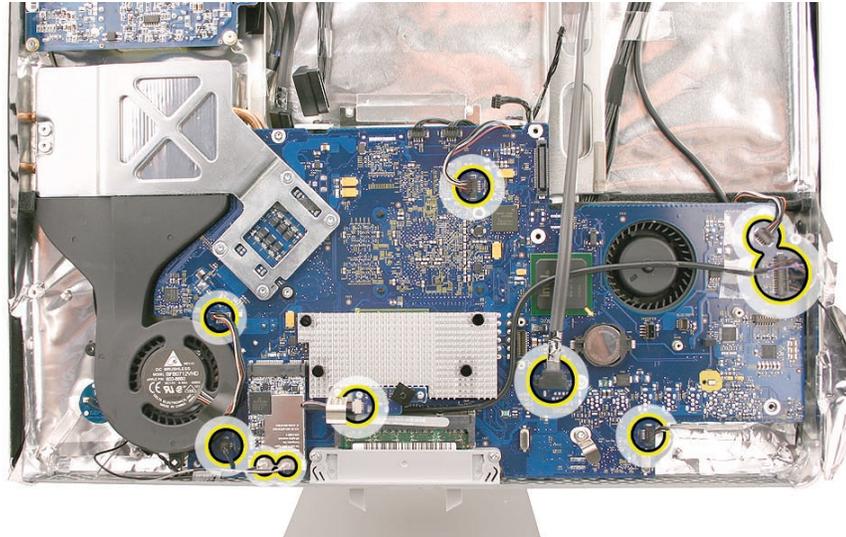
2. Using a T10 torx screwdriver, remove the screws from the logic board. The locations of the three self-tapping screws are marked by and "S" in the photo. The remaining three screws, are machine screws; they are marked with an "M". **Note**: Transfer the small metal grounding (located two screws below the battery) clip to the replacement logic board.
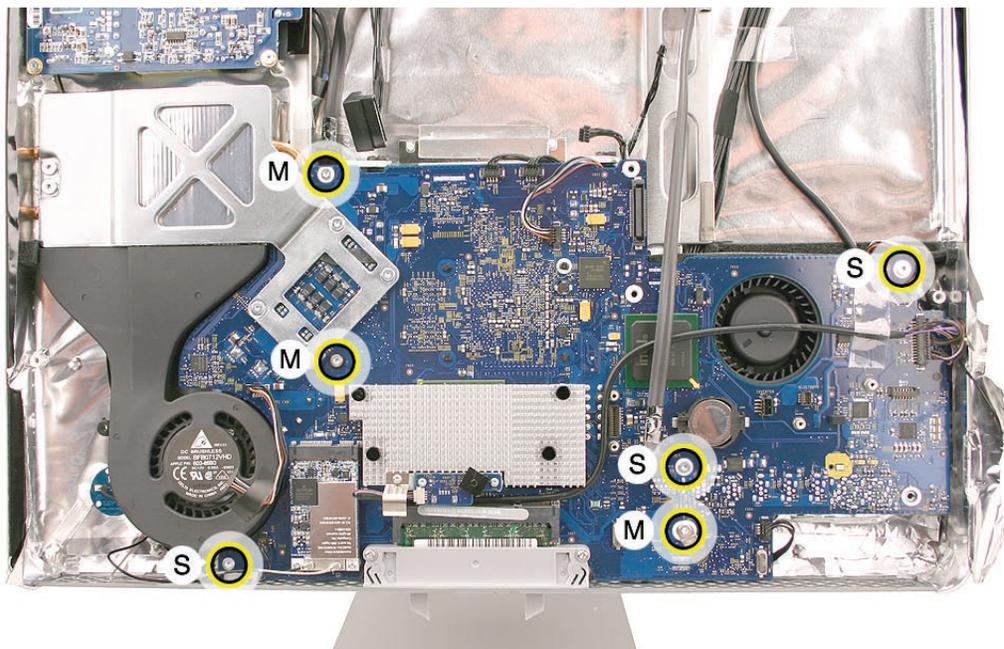
3. Rotate the unit so the top of the rear housing is facing you. With a black stick, disconnect the power supply cable on the underside of the logic board.
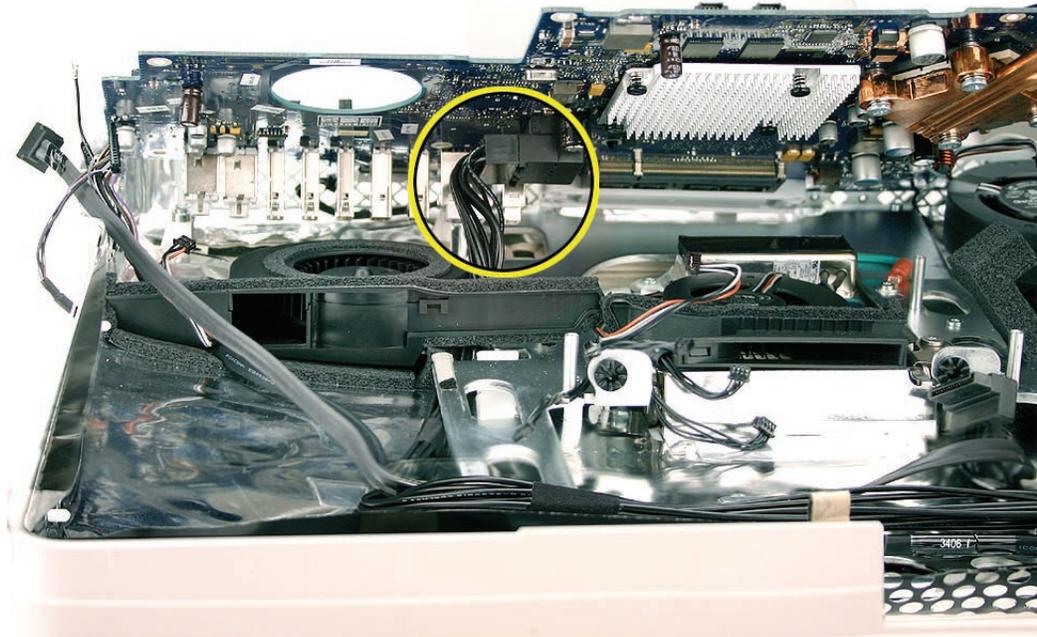
4. Pull the board toward you and gently lift the board up. **Note:** The I/O ports fit tightly into the port hole openings on the rear cover. You may have to wiggle with the board to free the ports from the rear cover.

Replacing the Logic Board

Note: iMac Firmware Update 1.2 (or later) Required

For proper performance and reliability of the Intel Core 2 Duo processors, apply the iMac firmware update after replacing the logic board. The firmware update also allows Apple service to consolidate two logic boards. The 661-4105 logic board will replaced by 661-4290 and the 661-4106 will be replaced by the 661-4291.

1. See the following section on compatibility to order the replacement part by EEE code.

2. Route all the cables so they are off to the side and out of the way of the logic board. Lower the logic board into the rear housing. Connect the DC power cable on the underside of the board.

3. Check that the screw holes are aligned with the screw mounts in the chassis. **Replacement Note:** The logic board should rest on the screw mounts without any binding or bowing—if it doesn't, adjust any cables that are interfering with the logic board. Reconnect the ten logic board cables.
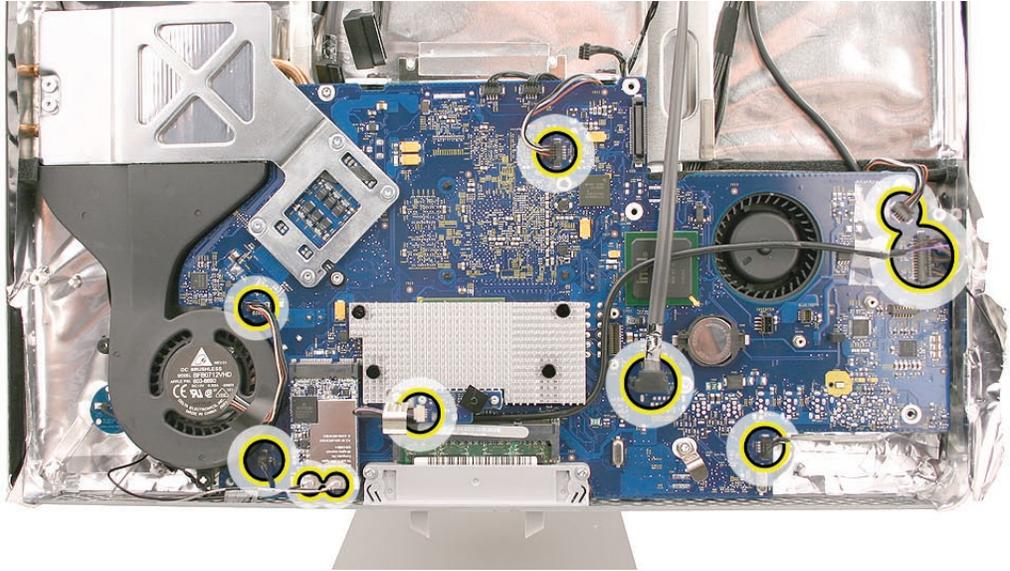
4. Secure the logic board by installing the machine screws first and then the self-tapping screws, marked with an "S".
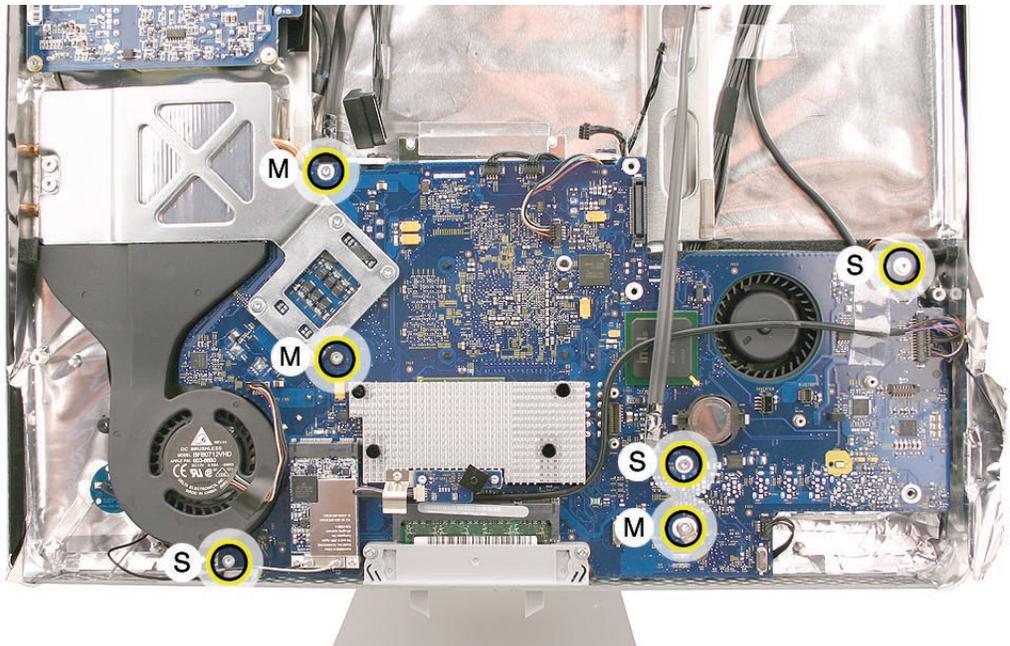
5. Install the optical drive.

6. Replace the hard drive.

7. Replace the speakers.

8. Connect the AirPort antennas to the AirPort Extreme card. **Replacement Note: Add new info here**

9. Replace the Bluetooth board.

10. Connect the Bluetooth antenna to the Bluetooth board.

11. Replace the display panel.

12. Replace the lower EMI shield.

13. Replace the front bezel.

14. Replace the memory.

15. Replace the memory access door.

Checking Compatibility between AirPort Card and Logic Board

The iMac (Late 2006) computers were built with a number of logic boards and AirPort Extreme cards. To avoid confusion identifying the correct logic board and AirPort Extreme card for the system, refer to the table in this section which lists the corresponding EEE codes.

Locating the EEE Code

To locate the EEE code on the AirPort Extreme card, remove the card from the logic board. Turn the card over, and look for the representative EEE code within the card's serial number. Locate the last four digits in the serial number. Drop the last digit (in this case, the letter "A"). The EEE code is the next three digits. In this case it's "VZL", shown below.

To locate the EEE code on the logic board, locate the memory slot inside the computer. Locate the last four digits in the serial number. Drop the last digit, in this case, the letter "A." The EEE code is the next three digits. In this case the EEE code is "WZH."

EEE Code Table

Use the table below to identify the logic board and AirPort Extreme card EEE codes for the iMac system. Order the correct service part based upon the corresponding EEE code. The table is available in Knowledge Base article **305112 - iMac (Late 2006): AirPort Card Differences**.

iMac Model	Logic Board Part #	Logic Board EEE Code	AirPort Extreme Card Part #	AirPort Extreme Card EEE Code
iMac (17-inch Late 2006)	661-4290, Board , Logic, 2.0 GHz	XYA XYB XYC	661-4289, B661-4289, J661-4289, KH661-4289, PA661-4289, Z661-4289	WQX WQY WQZ WR2 WR0 WR1
iMac (17-inch Late 2006)	661-4105, Board , Logic, 2.0 GHz	VX6 VX7 VX8	661-4060, B661-4060, J661-4060, KH661-4060, PA661-4060, Z661-4060	VZL VZM VZN VZR VZP VZQ
iMac (17-inch Late 2006)	661-4106, Board , Logic, 2.16 GHz	W4Y W4Z W50	661-4060, B661-4060, J661-4060, KH661-4060, PA661-4060, Z661-4060	VZL VZM VZN VZR VZP VZQ
iMac (17-inch Late 2006)	661-4291, Board , Logic, 2.16 GHz	XDH XHE XHF	661-4289, B661-4289, J661-4289, KH661-4289, PA661-4289, Z661-4289	WQX WQY WQZ WR2 WR0 WR1

CPU Fan

Tools

No tools are required to remove the CPU fan.

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**
- **Optical drive**
- **Speakers**
- **Memory**
- **Logic Board**

Part Location
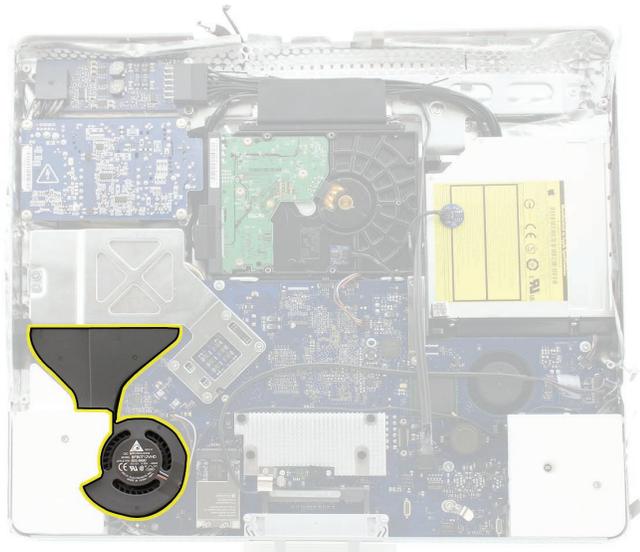
Removing the CPU Fan

1. Lift the CPU fan off the white mounting posts.
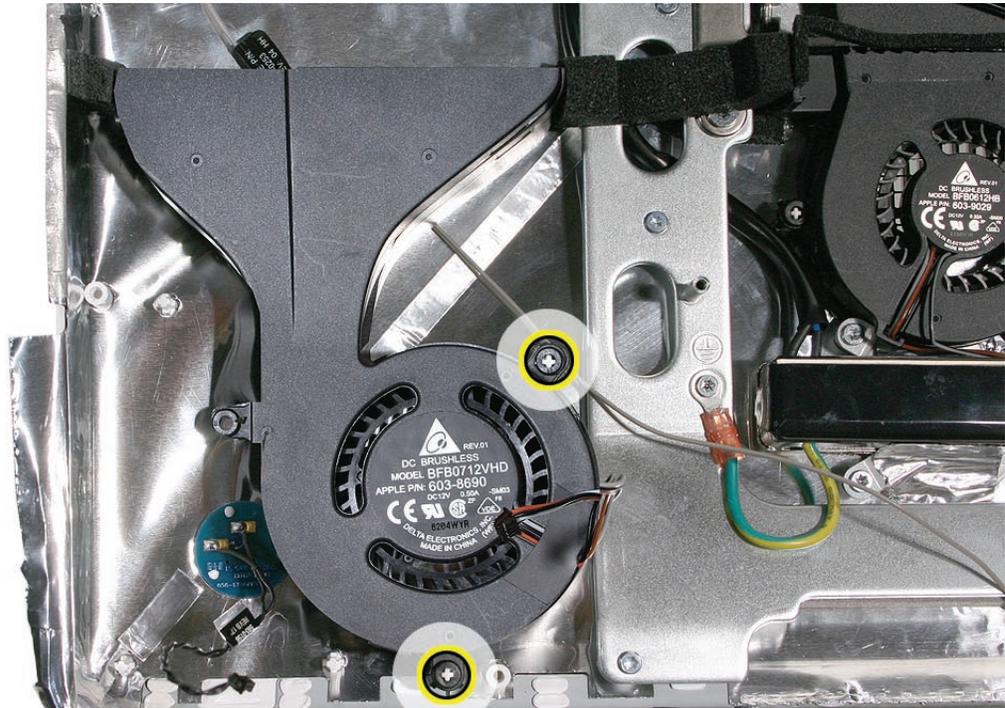
Replacing the CPU Fan

1. Align the CPU fan with the two mounting posts in the rear housing, and push it straight down onto the posts. **Note**: Route the antenna cable under the fan (as shown above), but pull it aside (to the left side) when installing the logic board.

2. Replace the logic board.

3. Connect the CPU fan cable and the rest of the cables to the logic board.

4. Replace the speakers.

5. Replace the display panel.

6. Replace the lower EMI shield.

7. Replace the front bezel.

8. Replace the memory.

9. Replace the access door.

Optical Drive Fan

Tools

No tools are required to remove the optical drive fan.

Preliminary Steps

Before you begin, follow steps for the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**
- **Optical drive**
- **Speakers**
- **Disconnect the IR board cable**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic Board**

Part Location
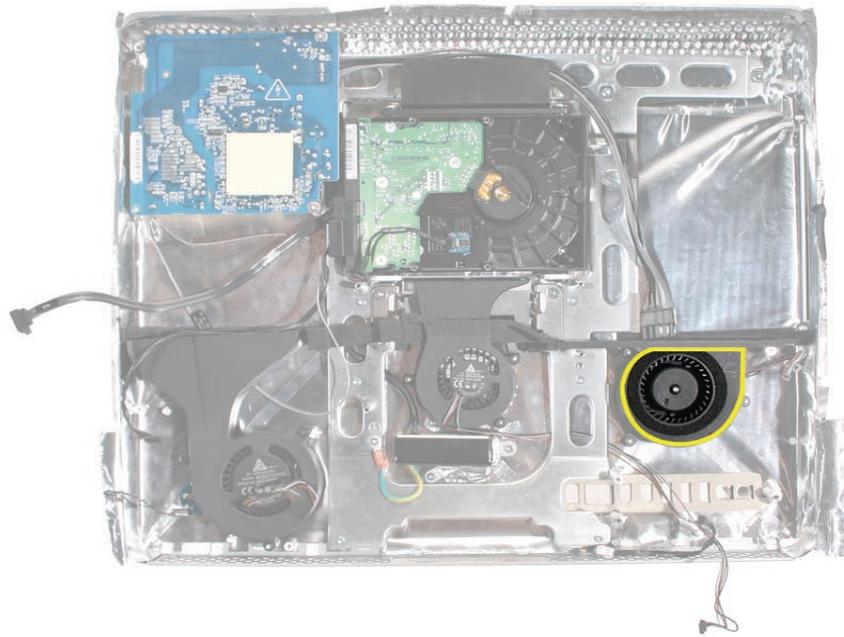
Remove the Optical Drive Fan

1. Lift the optical drive fan straight up and off three mounting posts.
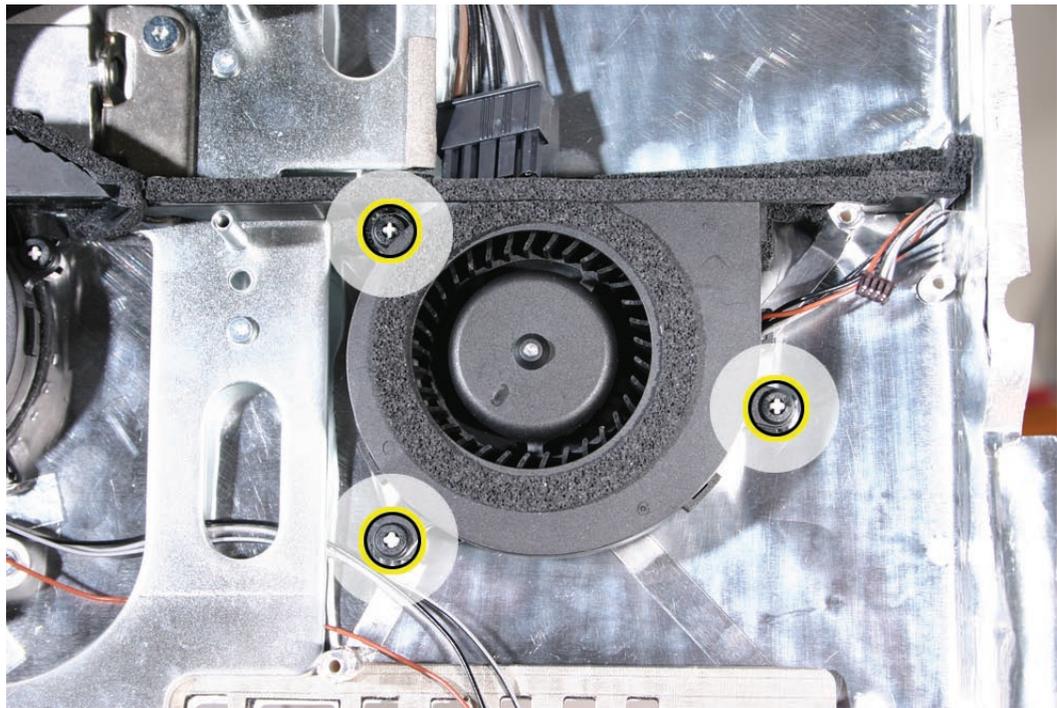
Replace the Optical Drive Fan

1. Align and install the optical drive fan on three mounting posts. Push it down snug onto the posts.

2. Replace the logic board.

3. Replace the optical drive.

4. Replace the speakers.

5. Replace the display panel.

6. Reconnect the AirPort and Bluetooth antennas.

7. Replace the lower EMI shield.

8. Replace the front bezel.

9. Replace the memory.

10. Replace the memory access door.

Hard Drive Fan

Tools

No tools are required to remove the optical drive fan.

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**
- **Optical drive**
- **Speakers**
- **Disconnect the IR board cable**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic Board**

Part Location
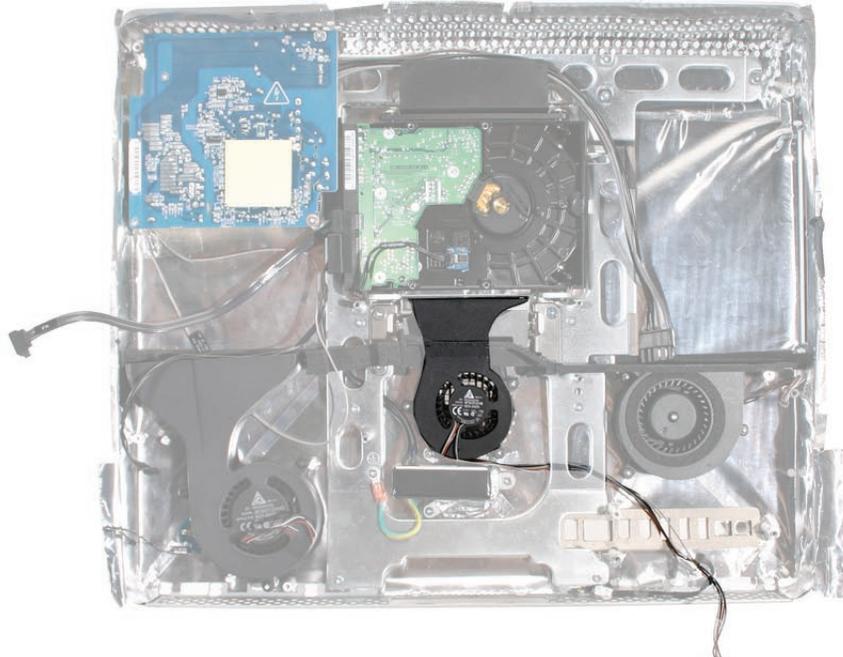
Note: This hard drive fan photo is of the iMac (17-inch Mid 2006), however the hard drive fan is in the same location on the iMac (17-inch Late 2006). The hard drive fan cable is routed differently on the iMac (17-inch Late 2006) model. Refer to the next page for a photograph.

Remove the Hard Drive Fan

1. Lift the hard drive fan straight up and off three mounting posts.
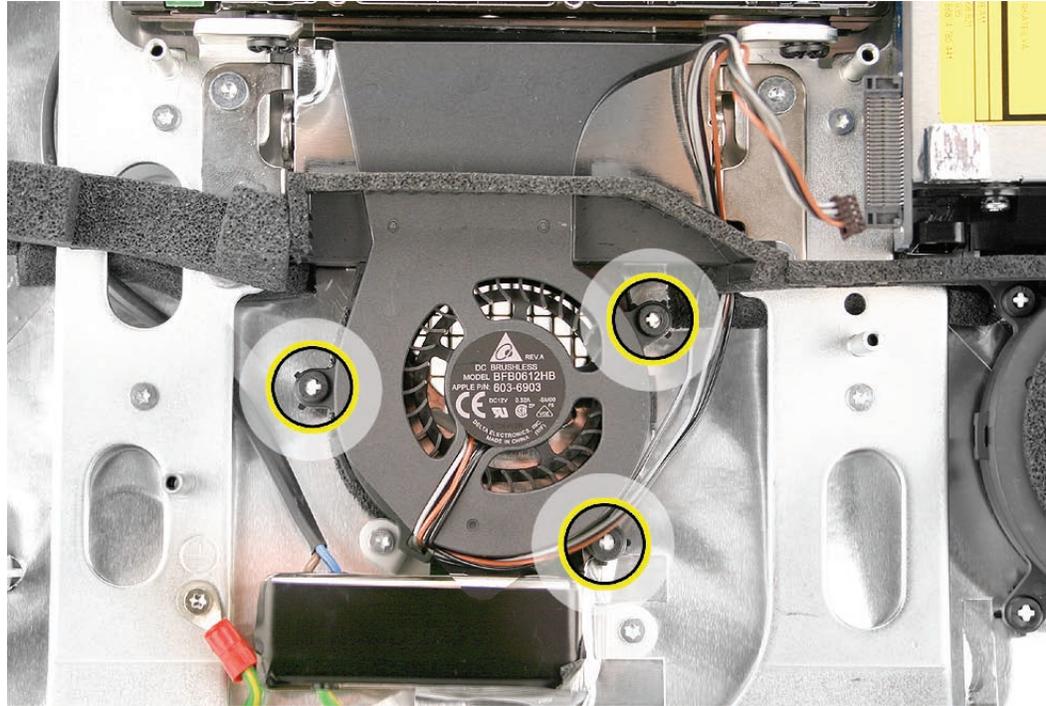
Replacing the Hard Drive Fan

1. Route the hard drive fan cable around the bottom of the fan and up toward the optical drive. Look at the cable routing in the photo above.

2. Align and install the hard drive fan on the mounting posts. Push it down snug onto the posts.

3. Replace the logic board.

4. Replace the optical drive.

5. Replace the speakers.

6. Replace the display panel.

7. Replace the lower EMI shield.

8. Connect the AirPort and Bluetooth antennas to their cards.

9. Replace the front bezel.

10. Replace the memory.

11. Replace the memory access door.

AC Power Inlet

Tools

- Torx T10 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD Display**
- **Hard Drive**
- **Optical drive**
- **Speakers**
- **Disconnect the IR board cable**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic Board**

Part Location

Removing the AC Power Inlet

1. Using a Torx T10 screwdriver, remove the three self-tapping screws from the power inlet.

2. Using a Torx T10 screwdriver, remove the machine screw from the power inlet ground cable.

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3. Peel the EMI tape off the power inlet.

4. Disconnect the AC power inlet cable from the power supply and unlace the power inlet cable from beneath the chassis..
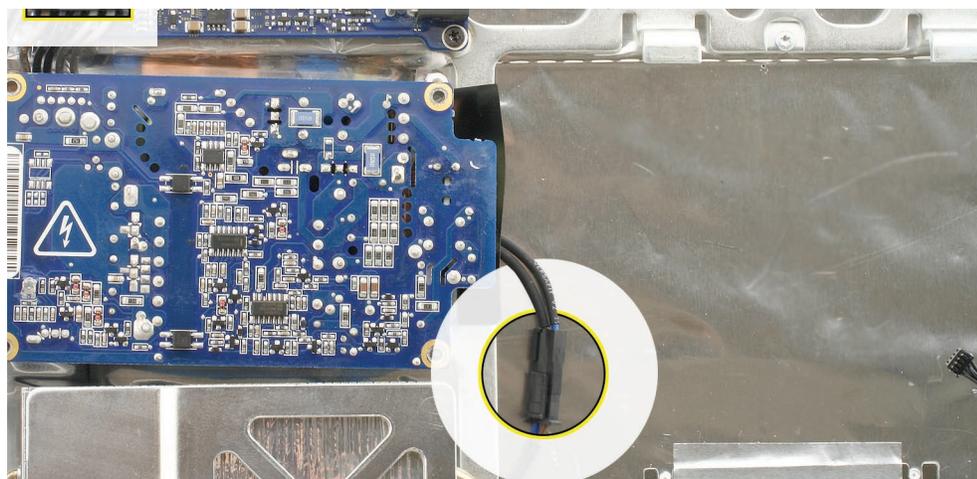
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Replacing the AC Power Inlet

1. Install the AC power inlet on the rear housing screw mounts with three self tapping screws.

2. Install the power inlet ground cable to the chassis with a machine screw.

3. Route the power inlet cable beneath the chassis as shown and connect it to the power supply.

4. Using EMI tape, securely tape the top and bottom edges of the AC power inlet to the rear housing.

5. Replace the hard drive fan.

6. Replace the logic board.

7. Replace the optical drive.

8. Replace the speakers.

9. Replace the display panel.

10. Reconnect the AirPort and Bluetooth antennas.

11. Replace the lower EMI shield.

12. Replace the front bezel.

13. Replace the memory.

14. Replace the memory access door.

Ambient Light Sensor Board

Tools

No tools are required to remove the ambient light sensor board.

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**

Part Location

Removing the Ambient Light Sensor Board

1. Remove the rubber bumper from between the chassis and the board.
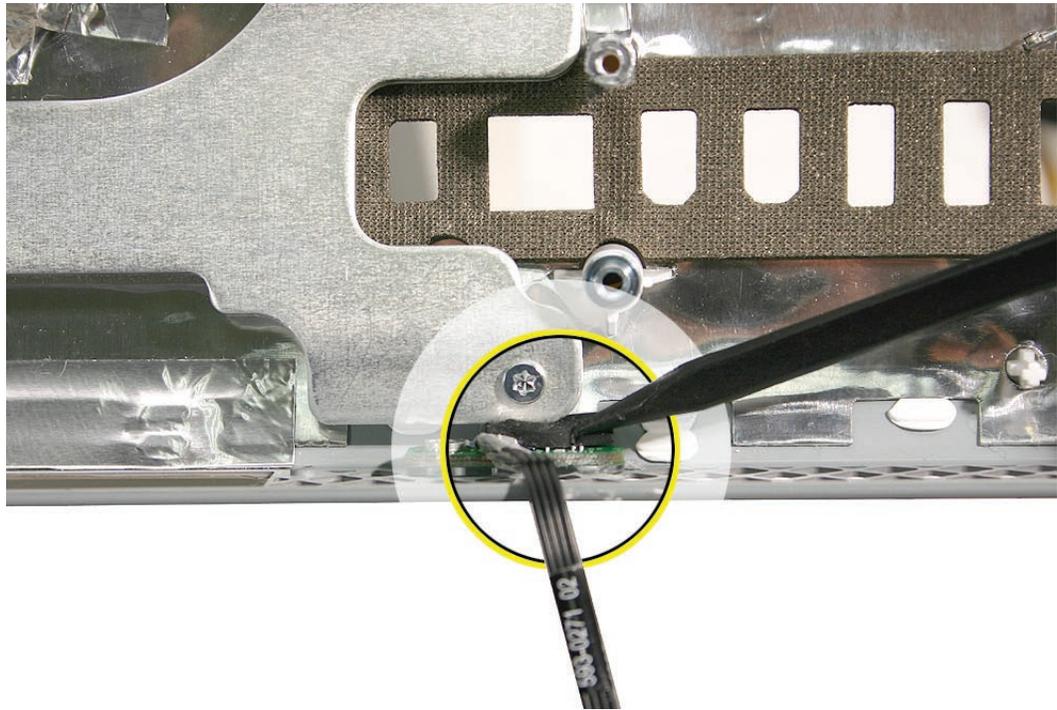
2. With a black stick, pry the ambient light sensor board from the frame.
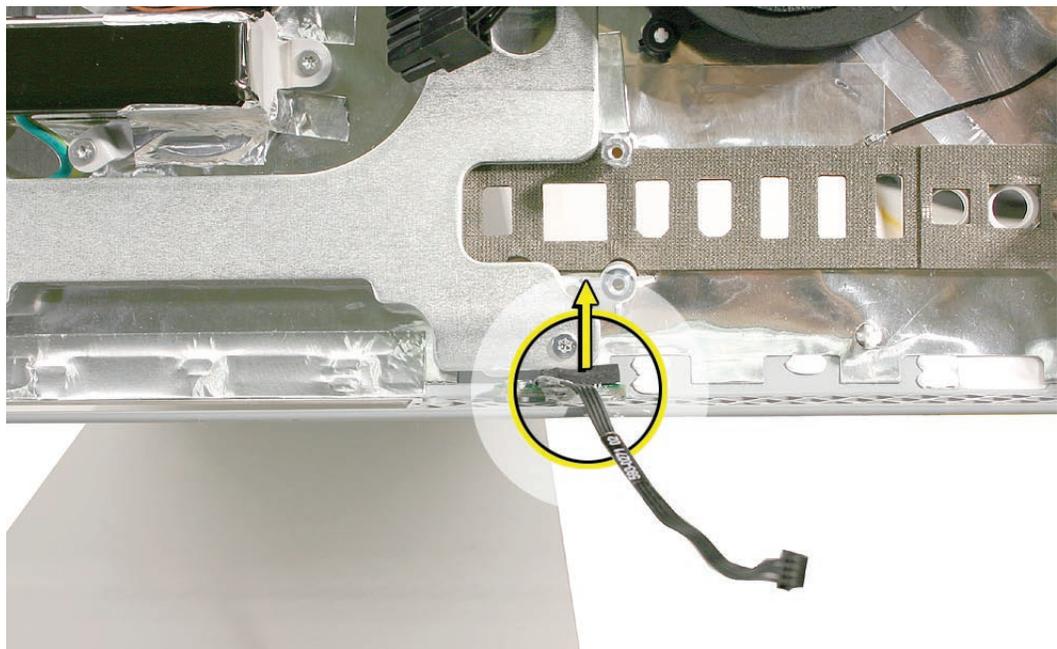
Replacing the Ambient Light Sensor Board

1. Press the sticky side of the ambient light sensor board to the bottom inside edge of the rear housing.

2. Install the rubber bumper between the back of the ambient light sensor board and the chassis.

3. Replace the logic board.

4. Replace the optical drive.

5. Replace the speakers.

6. Reconnect the AirPort and Bluetooth antennas.

7. Replace the display panel.

8. Replace the lower EMI shield.

9. Replace the front bezel.

10. Replace the memory.

11. Replace the memory access door.

Clutch Mechanism

Tools

Removing the clutch requires using the following tools:

· Torx T10 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:

· **Access door**
· **Front bezel**
· **Lower EMI shield**
· **LCD display**
· **Optical drive**
· **Speakers**
· **Disconnect the AirPort card antennas**
· **Disconnect the Bluetooth antenna**
· **Memory**
· **Logic board**
· **Hard drive fan**

Part Location
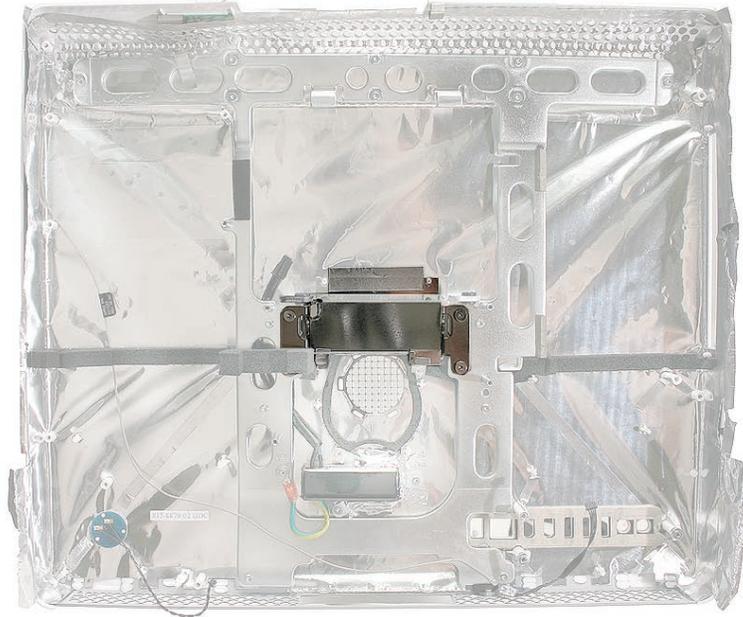
Removing the Clutch

1. Carefully peel the three pieces of EMI tape up and off the metal clutch cover.
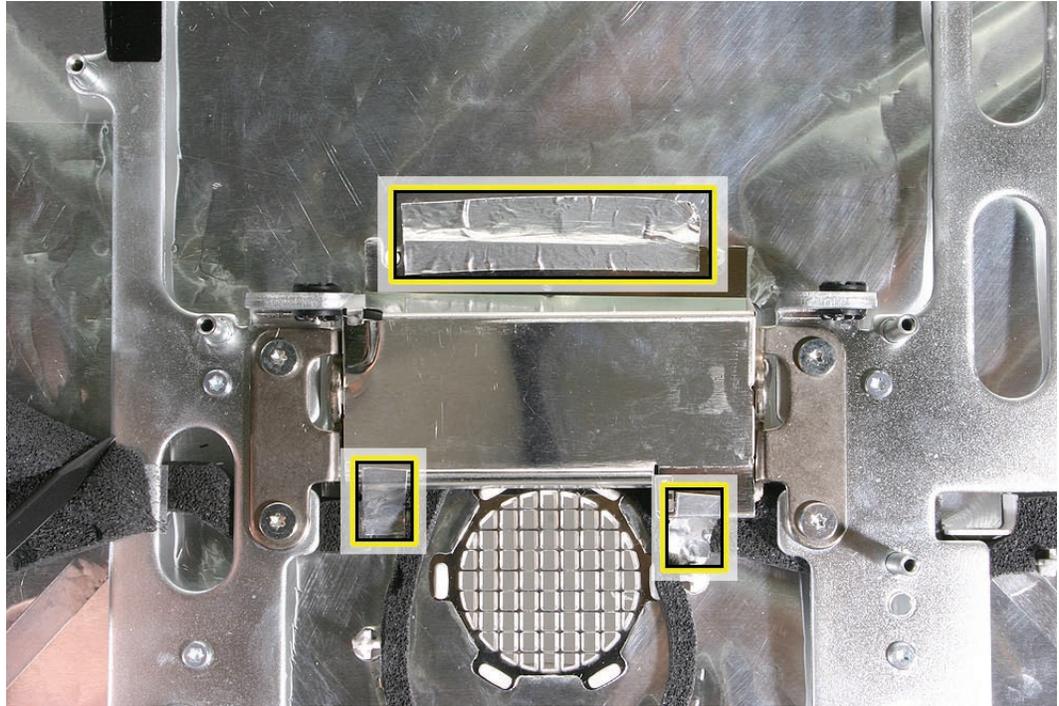
2. Remove the metal clutch cover.
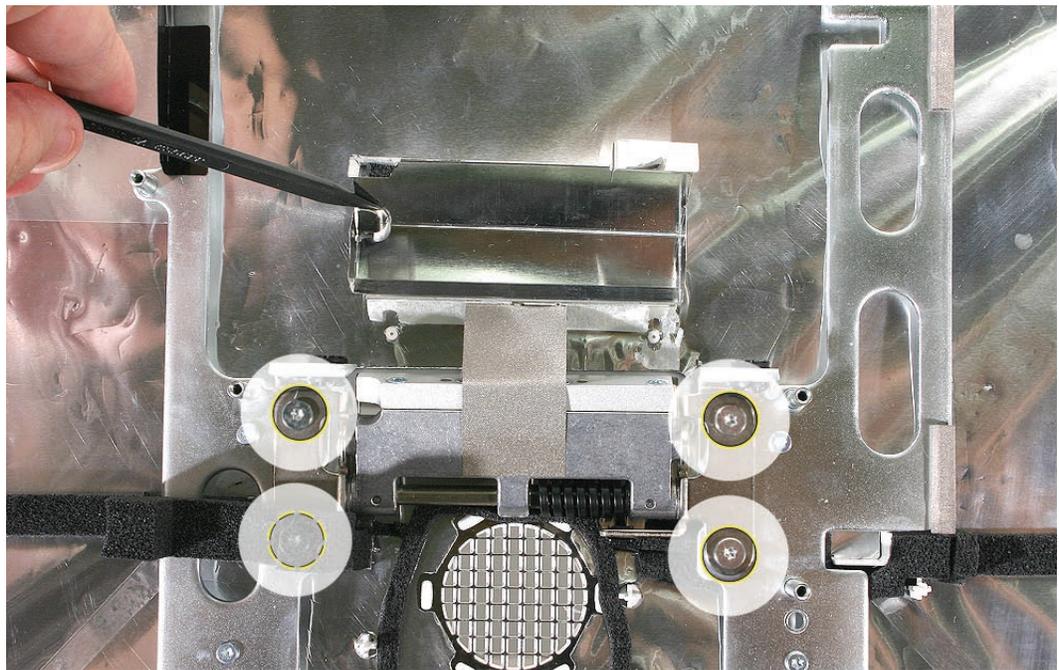
3. Using a T10 torx screwdriver, remove the four clutch mounting screws. Peel the EMI tape up to access the stand screws.
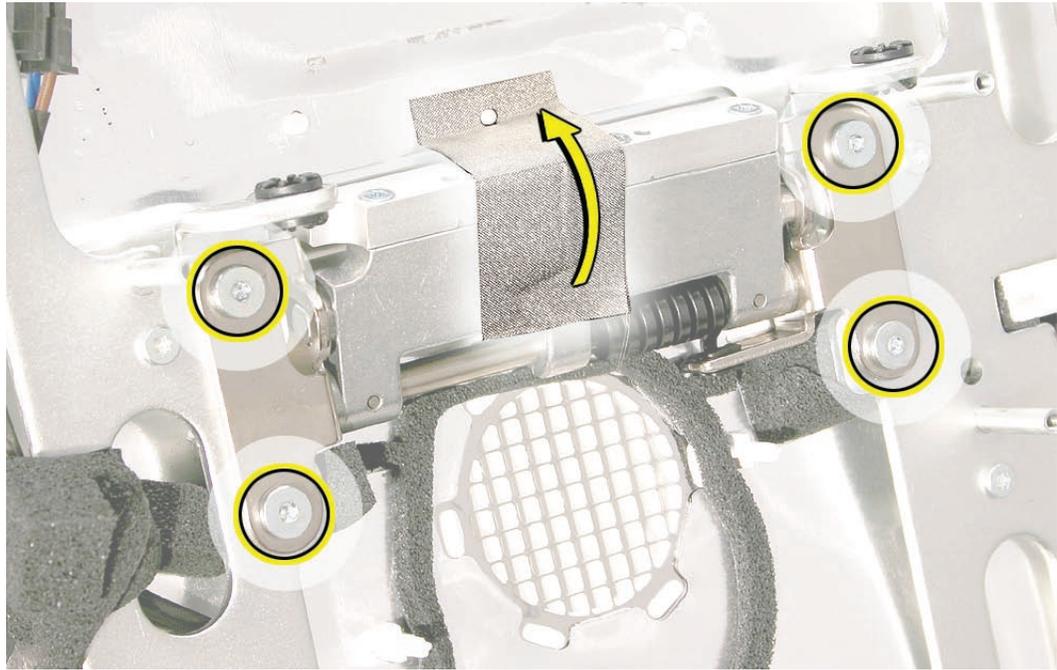
4. Stand up the unit and remove the four clutch-to-stand mounting screws. Separate the clutch from the rear housing and the stand.
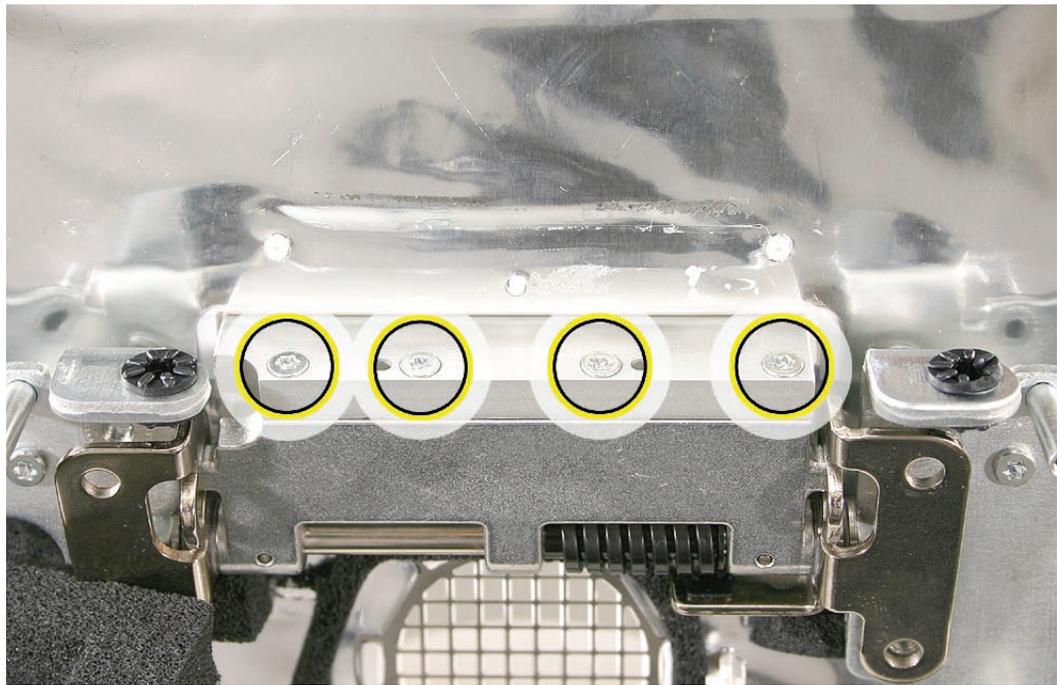
Replace the Clutch

1. Make sure the stand is erect and the end of the stand is inserted through the mounting hole in the rear housing.

2. Position the clutch on the stand with the spring at bottom right. Install the four long, clutch-to-stand mounting screws.

3. Adjust the clutch so that its chassis mounting holes align, and install the four machine screws that secure the clutch to the chassis.

4. Replace the optical drive.

5. Replace the hard drive fan.

6. Replace the logic board.

7. Replace the speakers.

8. Replace the display panel.

9. Reconnect the AirPort and Bluetooth antennas.

10. Replace the lower EMI shield.

11. Replace the front bezel.

12. Replace the memory access door.

AirPort Antennas

Tools

Removing the wireless antenna requires using the following tools:
- Flat-blade screwdriver
- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**
- **Hard drive fan**

Part Location
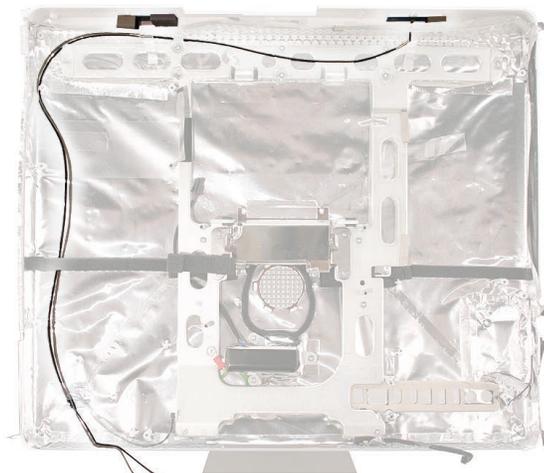
Removing the AirPort Extreme Antennas

1. To remove the left antenna, carefully peel back the tape (circled) and the EMI backing from the rear housing as shown below. Peel back just enough EMI backing to access the antenna board. Using a flat-blade screwdriver, pry the antenna board off the rear housing.
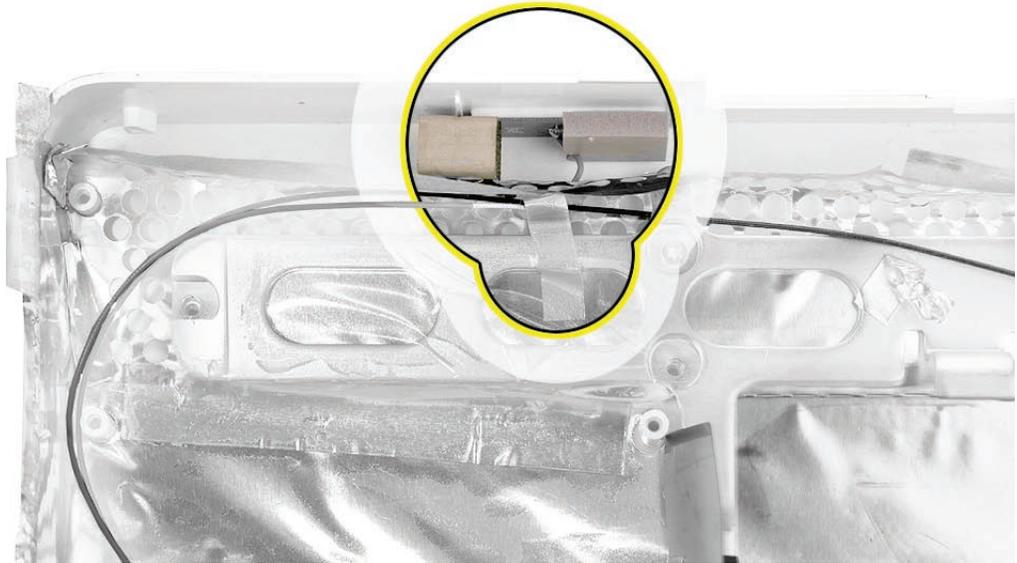
2. Repeat step 1 to remove the right antenna (shown below).
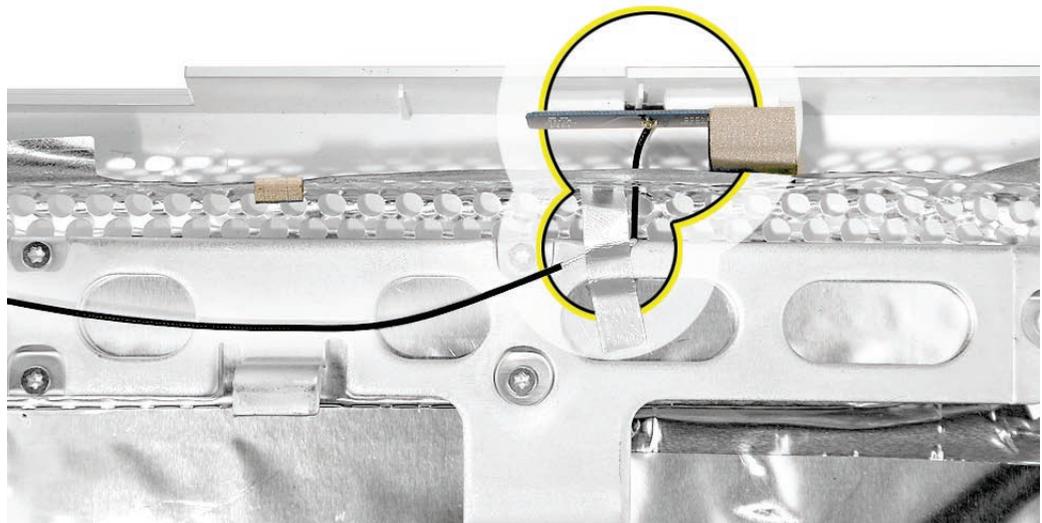
3. Remove any other tape that secures the antenna cables to the rear housing.
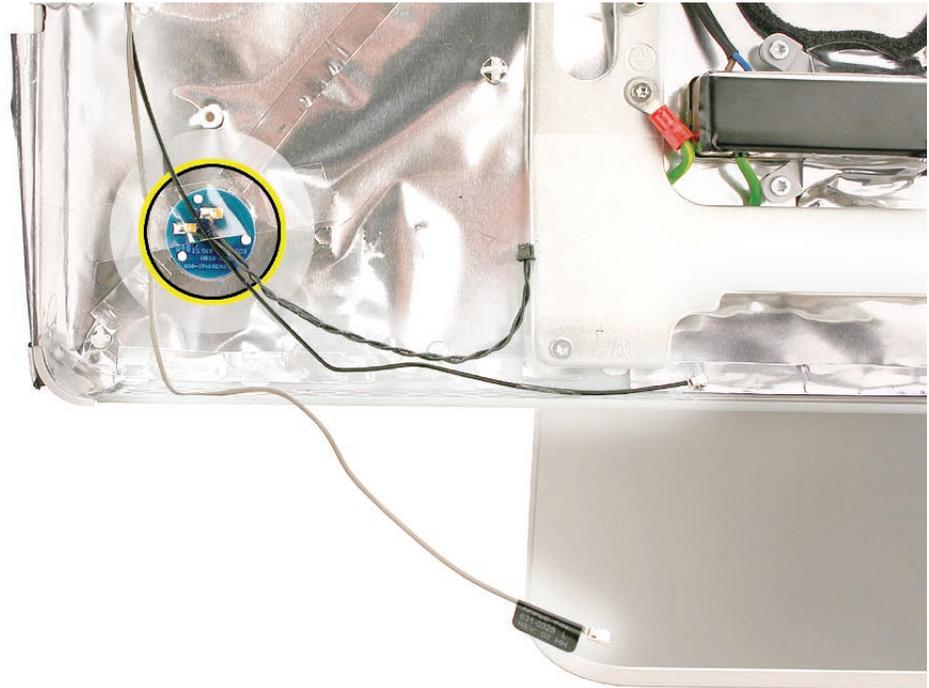
4. Pull the antenna cables through the access hole in the EMI shield at the top, near the antenna board.

Replacing the AirPort Extreme Antennas

1. Locate the antenna mounting channel inside the left corner of the rear housing, and position the antenna board in the channel. Compress the sticky side of the antenna board to the housing until securely fastened.

2. Route the antenna cables through the EMI shield and on top of the EMI.

3. Secure the antenna cables to the housing with tape.

4. Replace the CPU fan.

5. Replace the logic board.

6. Replace the DC power supply.

7. Replace the optical drive.

8. Replace the speakers.

9. Replace the display panel.

10. Replace the lower EMI shield.

11. Replace the front bezel.

12. Replace the memory access door.

Bluetooth Antenna

Tools

- Black stick (or other nonconductive nylon or plastic flat-blade tool)

Preliminary Steps

Before you begin, follow steps for removing the following:

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Hard drive**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**

Part Location
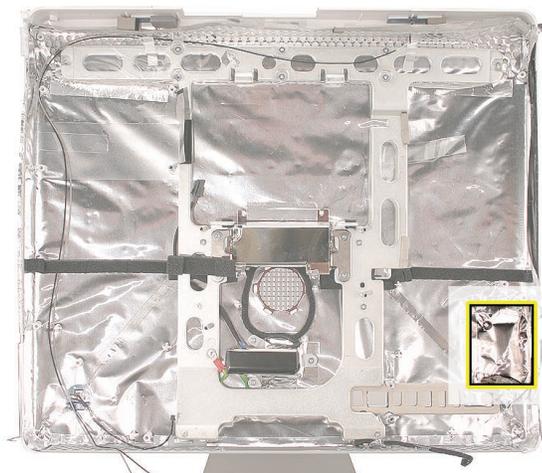
Removing the Bluetooth Antenna

Carefully peel back the EMI shield (#1) and the EMI tape (#3) from the rear housing to access the antenna. Using a black stick, pry the antenna board (#2) off the rear housing.
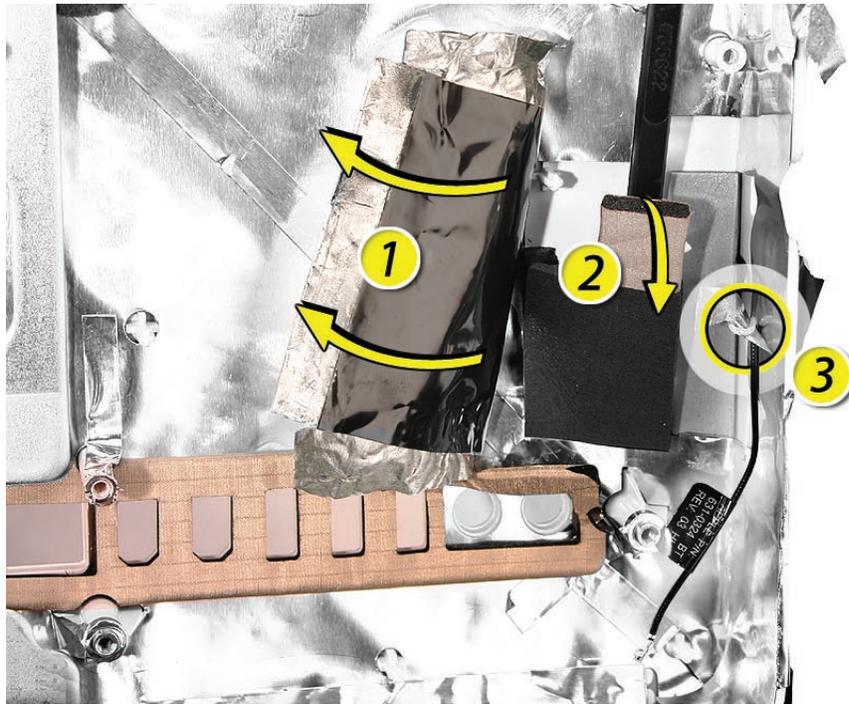
Replacing the Bluetooth Antenna

1. Position the antenna board into the rear housing, with the antenna wire on the right side. Compress the sticky side of the antenna board to the housing until securely fastened.

2. Adhere the exposed section of antenna wire to the inside (side wall) of the rear cover with a piece of EMI tape (see below). Make sure the antenna wire is positioned correctly so it reaches the antenna connector on the Bluetooth board (on the top side of the logic board).

3. Replace the logic board.

4. Replace the hard drive.

5. Replace the optical drive.

6. Replace the speakers.

7. Replace the display panel.

8. Reconnect the AirPort and Bluetooth antennas.

9. Replace the lower EMI shield.

10. Replace the front bezel.

11. Replace the memory.

12. Replace the memory access door.

Camera Cable

Tools

No tools are required to remove the camera cable.

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**

Part Location
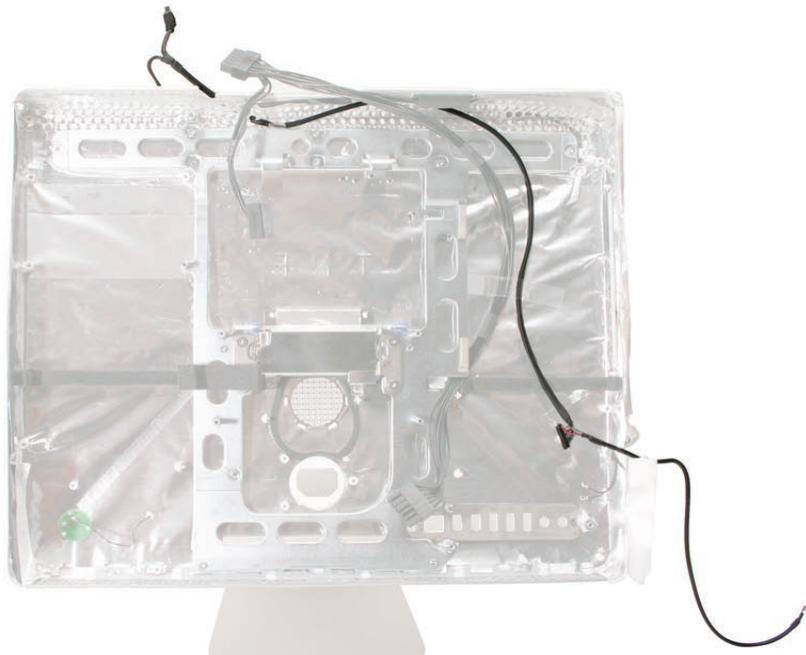
Removing the Camera Cable

1. Remove tape that secures the camera cable to the rear housing. Remove the two-headed end of the cable from the access hole in the upper EMI shield, and remove the camera cable.
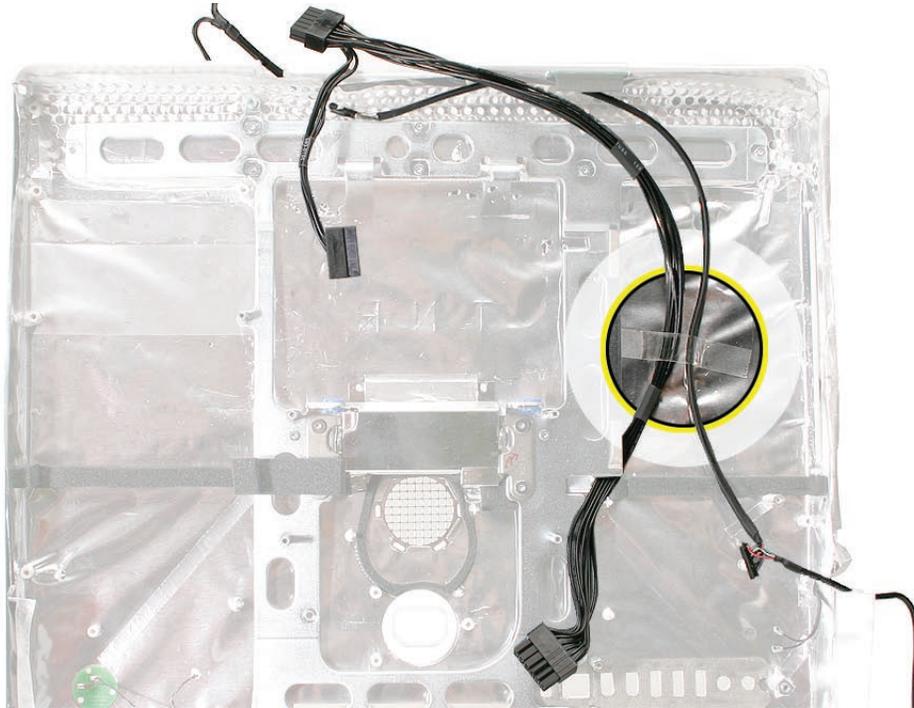
Replacing the Camera Cable

1. Insert the two-headed end of the camera cable through the access hole in the upper EMI shield.

2. Replace the EMI grounding tape as shown below. The metallic tape should secure the cable to the metal chassis.
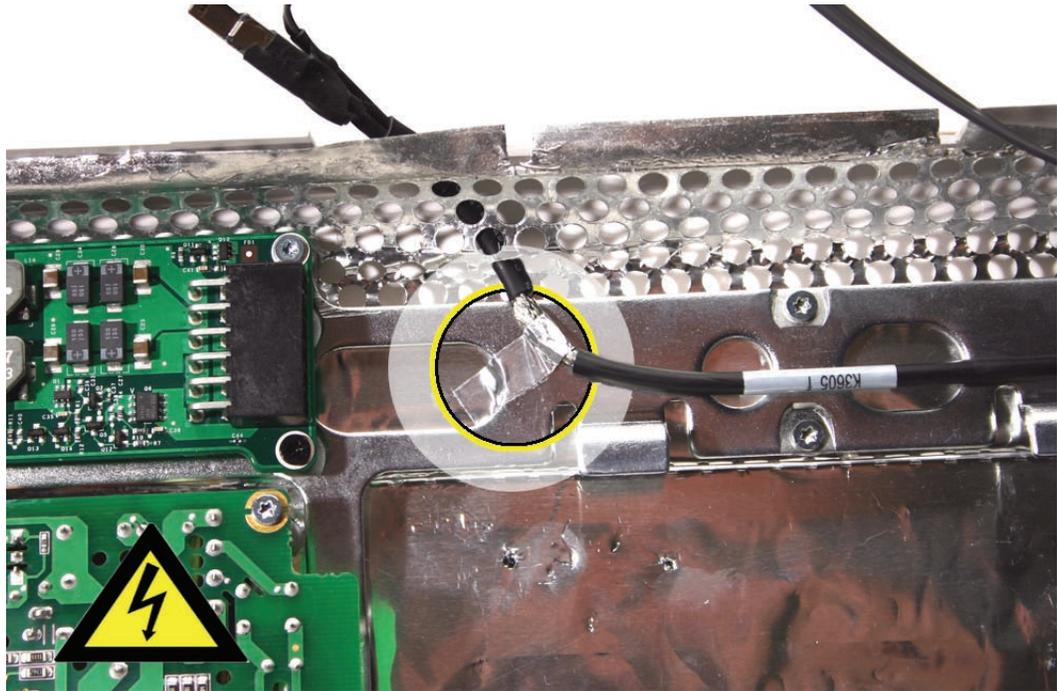
3. Route the camera cable as shown, and tape the camera cable and DC power cable to the rear housing as shown below.
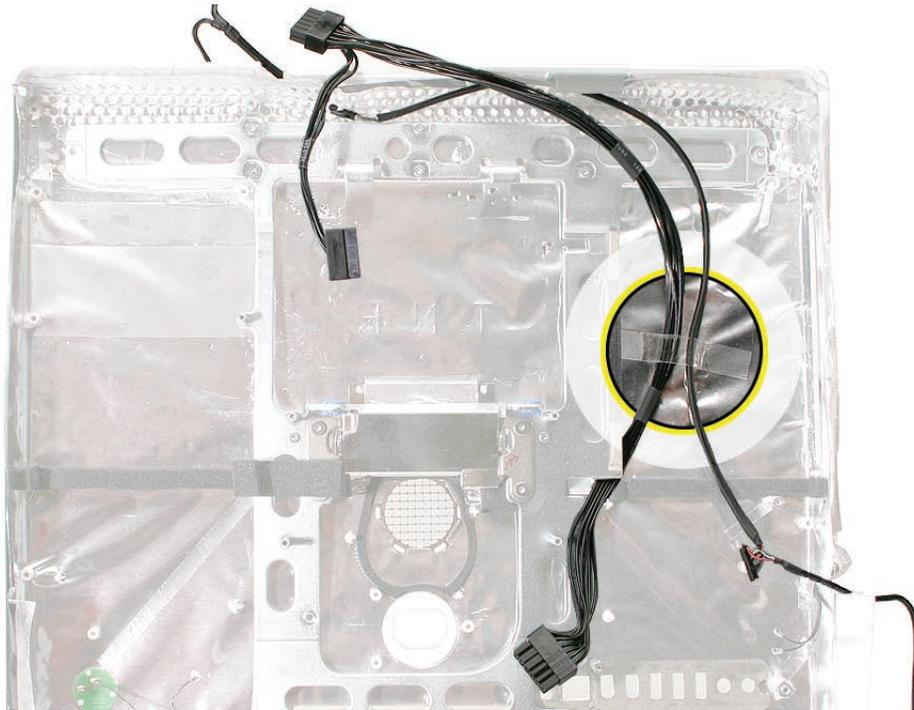
4. Replace the hard drive.

5. Replace the optical drive.

6. Replace the optical drive fan.

7. Replace the logic board.

8. Replace the speakers.

9. Replace the display panel.

10. Replace the IR Board.

11. Replace the lower EMI shield.

12. Replace the front bezel.

13. Replace the memory access door.

Chassis

Tools
- Torx T10 screwdriver (magnetized)

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**
- **Hard drive fan**
- **Power supply**
- **DC-DC board**
- **DC-DC power cable**
- **CPU fan**
- **Optical fan**
- **AC power inlet**
- **Clutch mechanism**

Part Location
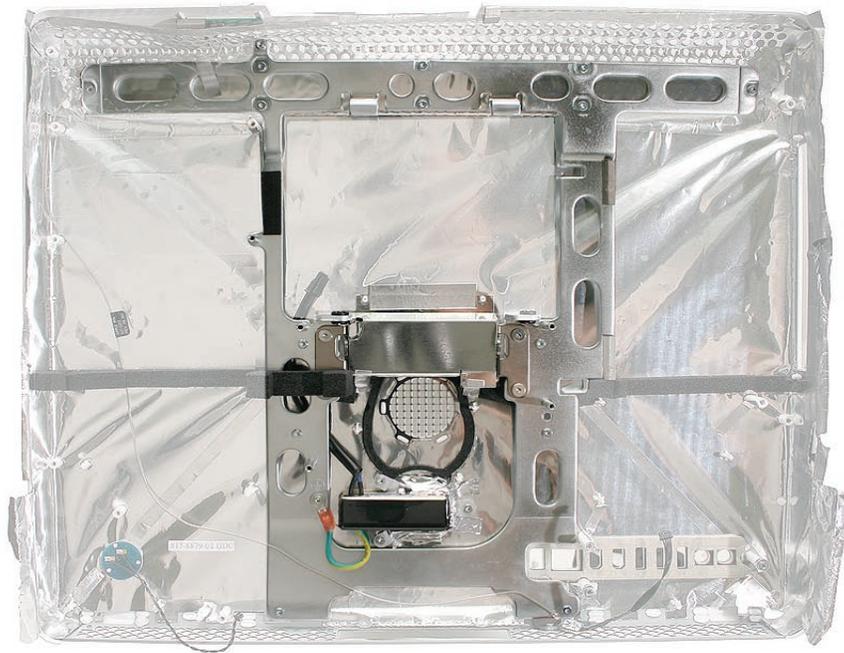
Removing the Chassis

1. With all the other parts removed, use a T10 torx screwdriver to remove the self-tapping screws circled below. Lift the chassis from the rear housing.
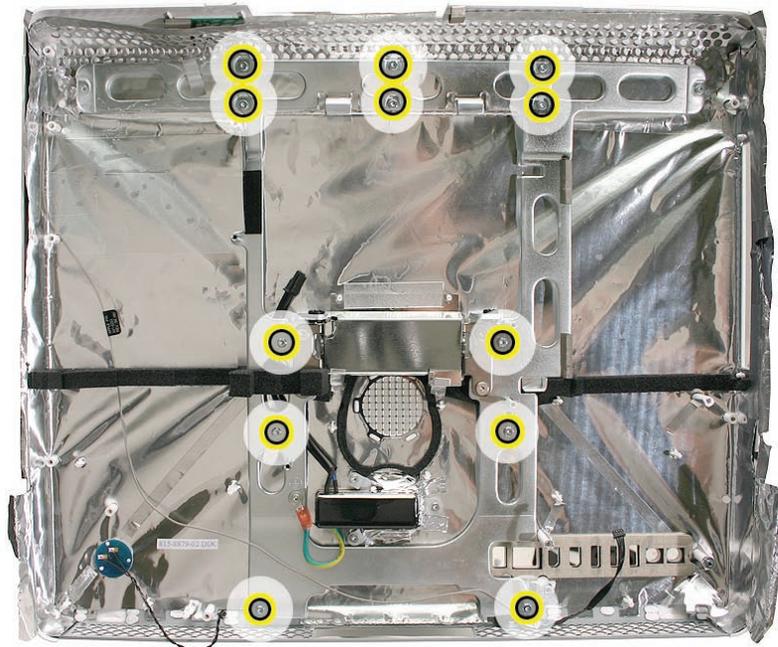
Replacing the Chassis

1. Position the chassis on the rear housing and install the self-tapping mounting screws.

2. Replace the clutch mechanism.

3. Replace the AC power inlet.

4. Replace the three fan fans.

5. Replace the power supply.

6. Replace the hard drive.

7. Replace the optical drive.

8. Replace the logic board.

9. Replace the speakers.

10. Replace the display panel.

11. Replace the lower EMI shield.

12. Replace the front bezel.

13. Replace the memory access door.

Rear Housing

Tools

No tools are required to remove the rear housing in addition to those referenced below.)

Remove and Replace the Rear Housing

To remove the rear housing, follow steps for removing the parts below. Reverse these steps to replace the rear housing.

- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**
- **Hard drive fan**
- **Power supply**
- **DC-DC board**
- **DC-DC power cable**
- **CPU fan**
- **Optical fan**
- **AC power inlet**
- **Clutch mechanism**
- **Chassis**
- **Ambient Light Sensor**

Note: The rear housing contains the AirPort and Bluetooth antennas.

DC Power Cable

Tools

No tools are required to remove the DC power cable.

Preliminary Steps

Before you begin, follow steps for removing the following:
- **Access door**
- **Front bezel**
- **Lower EMI shield**
- **LCD display**
- **Optical drive**
- **Speakers**
- **Hard drive**
- **Disconnect the AirPort card antennas**
- **Disconnect the Bluetooth antenna**
- **Memory**
- **Logic board**
- **Optical drive fan**

Part Location
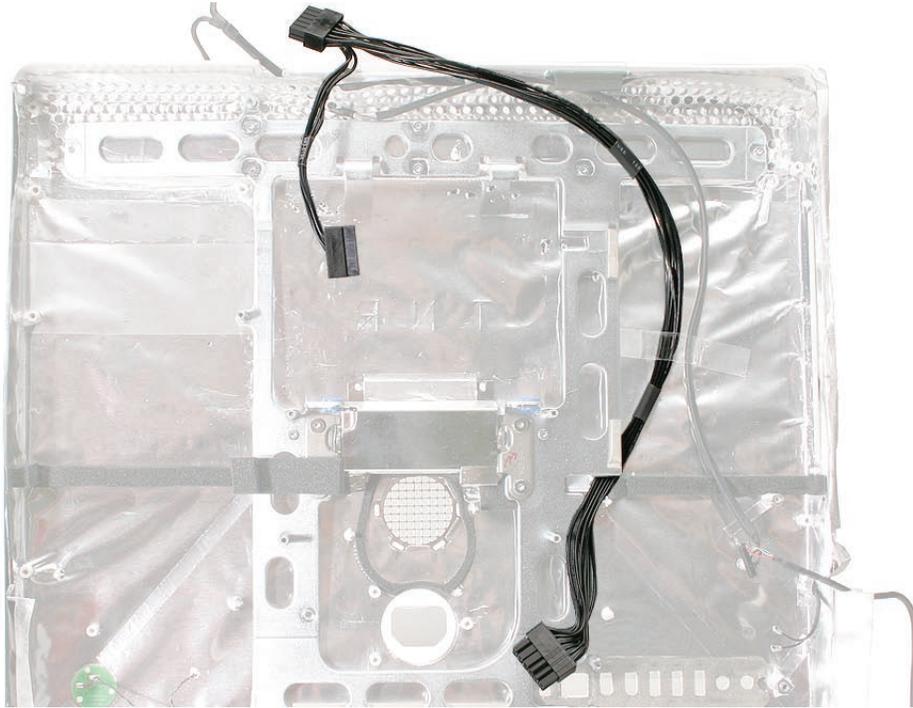
Removing the DC Power Cable

1. Remove tape that secures the DC power cable to the rear housing, and remove the DC power cable.

Replace the DC Power Cable

1. Route the DC power cable as shown above. Tape the DC power cable and the camera cable to the rear housing as shown below.
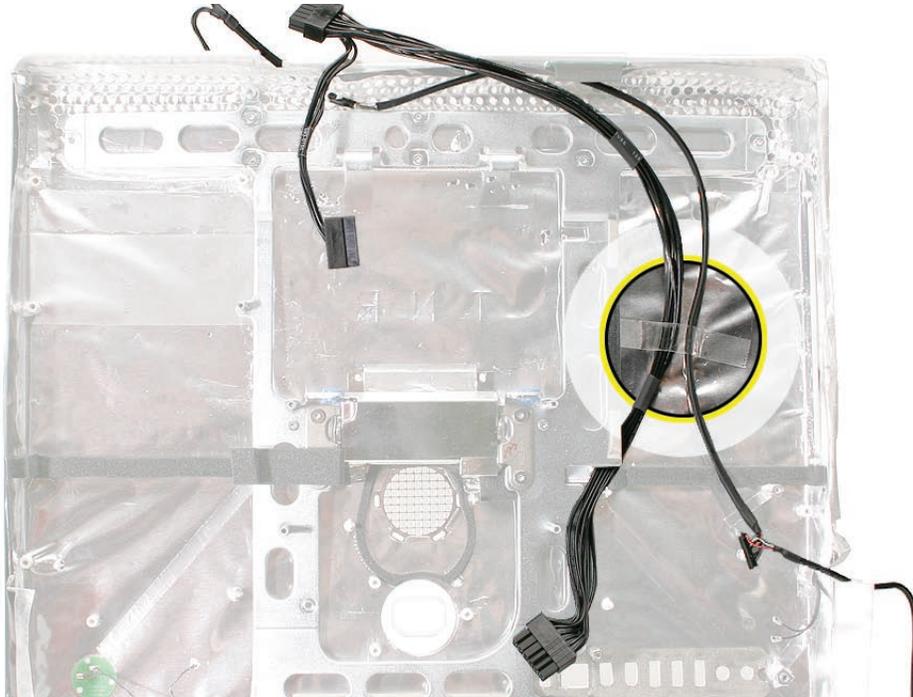
2. Replace the hard drive.

3. Replace the optical drive.

4. Replace the optical drive fan.

5. Replace the logic board.

6. Replace the speakers.

7. Connect the AirPort and Bluetooth antennas.

8. Replace the display panel.

9. Replace the lower EMI shield.

10. Replace the front bezel.

11. Replace the memory.

12. Replace the memory access door.

Service Source

Troubleshooting

iMac (17-inch Late 2006)

General Information

Serial Number

iMac (17-inch Late 2006) serial number is located on the bottom of the computer stand.

Block Diagram

This is the block diagram for the iMac (17-inch Late 2006).

CPU Merom 2.0/2.16/2.33 GHz

Voltage Regulator IMVP

Internal Display LVDS (dual channel)

FSB 667Mhz

GPU ATI M56

PCIE x16 / SDVO

MCH Calistoga 945GM

DDR2 667 MHz

SODIMM 0

SODIMM 1

mini-DVI TMDS & VGA

Frame Buffer

Internal mic

DMI

Line-In & S/PDIF

Azalia Audio SigmaTel STAC9221

HD Audio

PCI 33 MHz

FireWire 400 Mb Agere FW323

6 pin

6 pin

Headphone & S/PDIF

ICH ICH7M

PCIE x1

Ethernet 10/100/1G Marvell Yukon

RJ45

Speaker amp

PCIE x 1

USB

USB 2.0

AirPort M35b/a

USB

Boot ROM

SPI

SATA

USB

Parallel ATA

Camera

Bluetooth M13d

"Linda card" Override ROM, Port 80, serial port access

LPC

SMC functions:
• LED control
• ALS (Ambient Light Sensor)
• Voltage & Current Sensors
• Power Switch Intercept
• Fan Control
• Flash ROM Self-Update
• Power management

SMC Renesas H8S/2116

Power On Self Test (POST)

Intel-based Mac computers such as the iMac (17-inch Late 2006) rely on a combination of tones and blinking LEDs to display Power On Self Test (POST) error codes.

- If the computer detects out-of-specification or no SDRAM or the RAM installed does not meet the appropriate specifications, the screen will remain black but the power LED on the front of the computer will blink once per second to signal the error. This error condition may be due to physically damaged RAM, installing the incorrect type of RAM, or not having RAM installed.
- Some RAM may appear to pass the Power-On-Self-Test (POST) but still cannot be used by the operating system. In this case, the computer will display a gray screen, sound three tones and blink the power LED on the front of the computer three times, pause, and repeat the blinking until the computer is turned off.
- The solution to both of these situations is to first re-seat the memory and test the computer again. If the memory fails the POST test again, try memory that has been verified to work correctly on another system (i.e., "known-good") or order new memory.

DDR Memory

The iMac (17-inch Late 2006) computer has two SDRAM slots in the bottom of the computer. The iMac ships from the factory with at least 1GB of DDR2 SDRAM, installed as a 512 MB DIMM in the top slot and a 512 MB DIMM in the bottom slot. (The computer may come with more RAM, depending on how the computer was ordered from Apple.) The system can support up to 3 GB of memory. If you install two 2GB DIMMs, the "About this Mac" will show 4GB of memory installed, however; the system will only utilize 3GB of memory.

You can use small-outline dual inline memory modules (SO-DIMMS) that meet all of these criteria:
*   PC2-5400
*   unbuffered
*   nonparity
*   200-pin
*   667 MHz DDR2 SDRAM

Note: DIMMs with any of the following features are NOT supported in this iMac:
*   registers or buffers
*   PLLs
*   ECC
*   parity
*   EDO RAM

How to Reset the System Management Controller (SMC)

The System Management Controller (SMC) is a chip on the logic board that controls all power functions for your computer. If your computer is experiencing any power issue, resetting the SMC may resolve it. The SMC controls several functions, including:

- Telling the computer when to turn on, turn off, sleep, wake, idle, and so forth.
- Handling system resets from various commands.
- Controlling the fans.

Note that resetting the SMC does not reset the PRAM. Resetting the SMC will not resolve issues in which your computer is unresponsive—in these situations, restarting your computer will generally suffice. If your computer isn't responding, perform these steps one at a time, in this order, until the issue has been resolved:

1. Force Quit (Option-Command-Escape).

2. Restart (Control-Command-Power).

3. Force Shut Down (press the power button for 10 seconds).

Resetting the SMC can resolve some computer issues such as not starting up, not displaying video, sleep issues, fan noise issues, and so forth. If your computer still exhibits these types of issues after you've restarted the computer, try resetting the SMC.

To reset the SMC on an iMac (17-inch Late 2006)

1. From the Apple menu, choose Shut Down (or if the computer is not responding, hold the power button until it turns off).

2. Unplug all cables from the computer, including the power cord.

3. Wait at least 15 seconds.

4. Plug the power cord back in, making sure the power button is not being pressed at the same time.

5. Reconnect your keyboard and mouse to the computer.

6. Press the power button on the back to start up your computer.

Diagnostic LEDs

The iMac (17-inch Late 2006) has three built-in diagnostic LEDs and a front power-on/sleep LED on the main logic board that can help you to troubleshoot the computer.

To Access the Diagnostic LEDs:v

1. Follow the take apart instructions to remove the RAM access door, front bezel, and lower EMI shield.

2. Locate the SO-DIMM slot and LVDS video connector. The three diagnostic LEDs 1, 2, and 3 are located to the left of the battery and under the SATA cable. Note that the LEDs are marked 1, 2, 3 from left to right, as show below. An additional front bezel LED is located in an opening at the center of the right speaker, as shown below.
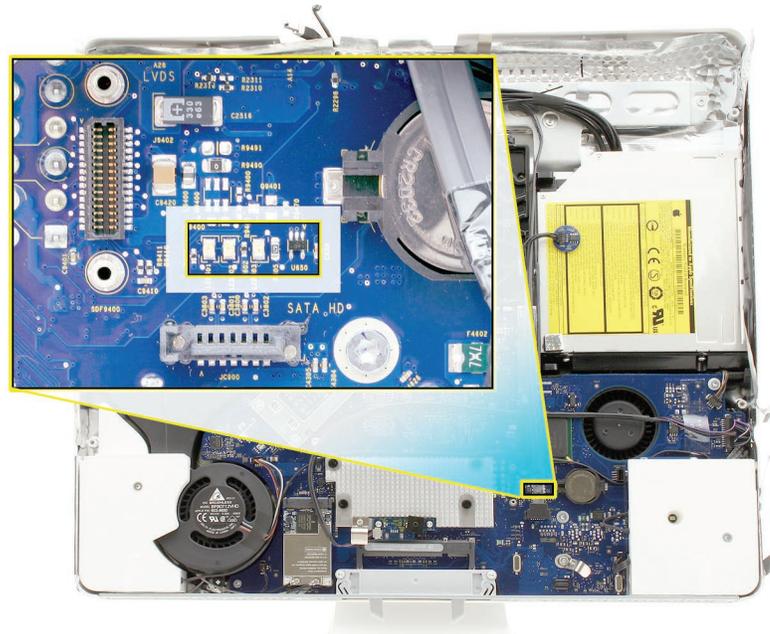
LED #1

*   Indicates that the trickle voltage from the power supply has been detected by the main logic board. This LED will remain ON whenever the iMac is connected to a working AC power source. The LED will remain on even when the computer has been shut down or put to sleep. The LED will turn off only if the AC power source is disconnected or the power supply is faulty.

LED #2

*   Indicates that the main logic board has detected proper power from the power supply when the computer is turned on. This LED will be ON when the computer is turned on and the power supply is working correctly.

LED #3

- Indicates that the computer and the LCD display are communicating. This LED will be ON when the computer is turned on and video signal is being generated.

Front **LED**

- Indicates that the computer has power but no video signal (e.g., the computer is starting up or the display has entered Sleep mode, turning off the video signal). This LED will pulse when the entire system has entered Energy Saver mode.
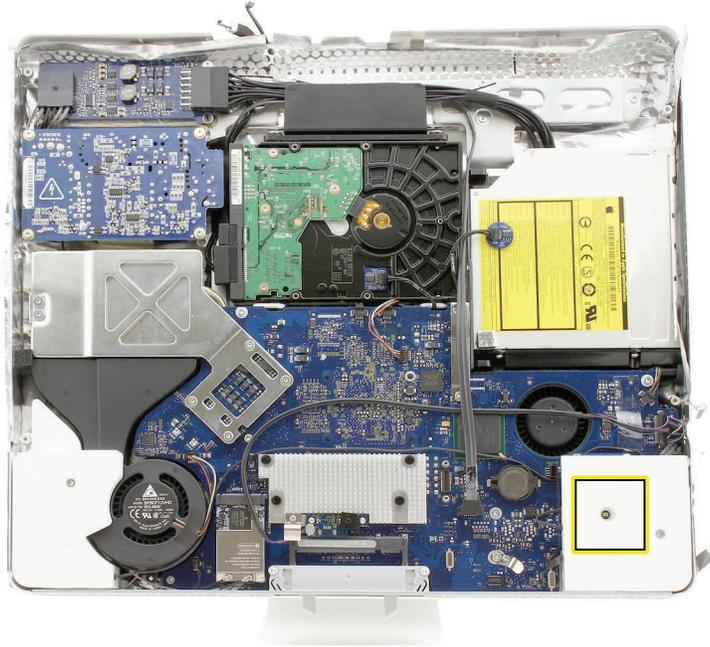
Symptom Charts

How to Use the Symptom Charts

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to the product. Because cures are listed on the charts in the order of most likely solution, try the cures in the order presented. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure.

Note: If a cure instructs you to replace a module, reinstall the original module before you proceed to the next cure.

Power Issues

No Power

The iMac (17-inch Late 2006) will not turn on. The display remains black and there are no sounds from the fans or drives.

1. Verify the power outlet is good. Plug a different device into the socket to ensure there is power, or plug the iMac into another outlet. Does the iMac power on now?

   Yes: Resolved. Bad outlet.

   No: Go on to the next step.

2. Check the power cord. Use a known good power cord. Does the iMac power on now?

   Yes: Your power cord has failed. Replace the AC power cord.

   No: Go on to the next step.

3. Check the connection of the power cord on both ends. Verify that the power cord is securely plugged into both the AC outlet and back of the computer. Does the iMac power on now?

   Yes: You may have a loose fit to your power cord. Replace the AC power cord and test.

   No: Go on to the next step.

4. Follow instructions in the General Information chapter to **reset the SMC**. Does the iMac power on now?

   Yes: Issue resolved.

   No: Go on to the next step.

5. **Remove and reinstall the SO-DIMM memory** modules, located in the bottom of the computer. Does the iMac power on now?

   Yes: Issue resolved.

   No: Go on to the next step.

6. Remove the RAM access door, front bezel, and lower EMI shield to gain access to the three diagnostic LEDs. See "**Diagnostic LEDs**" in the General Information chapter for complete instructions on this procedure.

7. Plug the power cord into the iMac and the power cord into the AC outlet. Check to see if LED #1 is On or Off.

   LED #1 is On: This indicates that the power supply is getting good power from the AC outlet. Go on to the next step.

   LED #1 is Off: This indicates that either the power inlet assembly or the power supply should be replaced.

8 Press the power button. Check to see if LED # 2 comes On, comes on momentarily, or stays Off.

LED # 2 is On: The Power Supply is functioning. Go on to the next step.

LED # 2 comes on momentarily or stays Off: Replace the Power Supply.

9. At this point in the Power On process, you should hear a boot chime and see the front LED on the computer light up. When the main logic board and LCD panel communicate to deliver video, the front LED should go off, and LED # 3 should be on. Does the Front LED go off?

Yes: The LCD and main logic board have communicated. If there is no picture on the display, follow "No Video" troubleshooting.

No: Your logic board is not communicating with LCD panel. Go on to the next step.

10. Check to see if LED # 3 is On or Off.

LED # 3 is On: The logic board is communicating with LCD panel. Follow "No Video" troubleshooting.

LED # 3 is Off: The logic board is not communicating with LCD panel. Reseat the LVDS cable and test again. If the issue persists, replace the main logic board.

Audible buzzing, whining, or ticking noise

The iMac (17-inch Late 2006) contains several mechanical devices such as motors and fans that may make audible buzzing, ticking, or whining noises when they are operating in a normal manner. The sounds will vary depending on how the system is used.

When troubleshooting abnormal noises try the following:

1. Verify that the computer is running a supported version of the Mac OS X operating system. If an earlier version of the operating system has been installed then the fans may run at excessive speeds.

2. Determine that this noise is related to the computer by removing and shutting down all other devices in the vicinity of the computer that could be causing a sound.

3. Eject any media inserted into the optical drive. The optical drive will make a variety of normal sounds when accessing the optical media.

4. Quit all applications and test the computer again. Processor intensive applications may cause the fans to run at a higher RPM and therefore be more audible.

5.   Boot to the latest version of Apple Service Diagnostic for iMac (17-inch Late 2006) and select the EFI test suite by holding down the D key during startup. The diagnostic tests fan speeds and thermal sensor functionality. Should tests fail, replace any parts indicated by the diagnostic.

6. Reboot the computer and check the computer again. If the noise persists and is unusually loud, contact Apple Technical Support.

No Video

No Video, No Boot Chime, White LED ON (Symptom 1)

The iMac (17-inch Late 2006) will turn on (indicated by the front LED ON), but there is NO boot chime and No Video on the display. The faint sound of the fans, hard drive, and optical drive may also be heard.

1. Follow instructions in the "General Information" chapter to **reset the SMC**. Does the computer display video after successfully resetting the SMC?

> **Yes**: Problem solved.

> **No**: Continue to next step.

2. Verify that only supported SDRAM memory has been installed and that it has been installed correctly. Unsupported and/or defective memory can prevent the iMac (17-inch Late 2006) from booting. It may be necessary to install known good memory for testing purposes and replace any unsupported or defective SO-DIMM's identified during this process. Does the computer display video after verifying and/or replacing the memory with known good memory?

> **Yes**: Problem solved. Verify full system functionality before return the system to the customer.

> **No**: Replace the logic board.

No Video, Boot Chime heard, White LED ON (Symptom 2)

The iMac (17-inch Late 2006) will turn on, the boot chime can be heard, a white LED appears on the front bezel and sounds from the fan or drive activity can be heard, but the display has no picture or color.

1. Check if the computer is sleeping. Press the space bar to wake the computer from sleep mode. Did the computer wake from sleep?

> **Yes:** Put the computer to sleep from the Apple menu and wake the computer again to test. Check Energy Saver setting to see when the computer has been designated to sleep.

> **No**: Continue to next step.

2. Reset your computer's PRAM (Parameter RAM):
> - If your iMac is on, turn it off by holding the power button until the unit powers off. You should hear the fans go quiet.
> - While the computer is off, with your left hand, hold down the Apple key, the Option key next to it, and the letter "R" key on the keyboard. When you have these keys all pressed down, push the power button with your right hand and then quickly move that hand to hold down the letter "P" on the keyboard. Keep these four keys pressed while the computer starts up.
> - Make sure you hold down the four keys (P - R - Apple - Option) while the computer is starting up. When you hear the computer's start up chime for the second time, you can let go of the keys on the keyboard.

- If you didn't hear at least two startup chimes, go to the top of this section and begin again. It's important that you hear two startup chimes when performing this procedure. This indicates that you have successfully reset the computer's PRAM (Parameter RAM).

3. Does the computer display video after successfully resetting the computer's PRAM?

Yes: Restart the computer from the Apple menu and make sure the computer is now working correctly.

No: Continue to next step.

4. Make sure the machine is powered off; power off the machine by holding in the Power Button on the rear of the machine. Turn on the machine. Observe the white LED on the front bezel during startup; it should go out after a few moments. Did the LED go off?

Yes: If the LED went off, this indicates that the main logic board has communicated with the LCD display for video signal and your main logic board should be good. You can confirm by connecting an external monitor and checking to see that you have video out. Go to Step 7.

No: Continue with the next step to **reset system power management (SMC)**.

5. Follow instructions in the "General Information" chapter to reset the SMC. Does the computer display video after successfully resetting the SMC?

Yes: Press and hold the power button until the computer powers off. Start the computer again and confirm that front LED is reliably going off. If the computer still has no video but the LED is reliably going off, continue with step 7.

No: Go to the next step.

6. Unplug the iMac and remove the SDRAM. Replace with known good SDRAM. Plug the iMac back in and power the unit on. Does the front LED go off after a few moments now?

Yes: Replace the original SDRAM and test again. If the front LED does not go off with the only the original SDRAM installed, replace the SDRAM. If the LED is now reliably going off after a few moments, but yet you still do not have any video, go to step 7.

No: If the LED remained on, the main logic board is not communicating with the LCD panel to generate video. Replace the main logic board.

7. With the LED going off, you may have a No Backlight condition or an LCD failure. In a dim room, turn the display at an angle to you and look closely at the display. Is the display completely black or can you see a dim, purplish light or glow to the display?
- Completely black: Replace the inverter
- Dim purplish light or glow: Replace the LCD panel.

Display is tinted another color.

1. Reset the parameter RAM. Press the Command-Option-P-R keys. When you keep all the keys held down, you will hear the startup chime over and over again (about every ten seconds) until you let go. After you hear the second chime, you can let go of the keys.
    Does the computer display video after successfully resetting the computer's PRAM?
    Yes: Problem resolved. Restart the computer from the Apple menu and make sure the computer display is no longer tinted another color.
    No: Continue to the next step.

2. Connect an external monitor to the mini-VGA port. Does the external display exhibit the same color tinting?
    Yes: Replace the logic board.
    No: Check the LVDS cable connection. If connected and same color tinting persists, replace the LVDS cable. Does color tinting persist after changing the LVDS cable?
        Yes: Replace the LCD display panel.
        No: Problem solved. Restart the computer from the Apple menu and make sure the computer display is no longer tinted another color.

Display

When displaying a single color over the screen area, the LCD panel shows one or more pixels that are not properly lit

Active-matrix LCD technology uses rows and columns of addressable locations (pixels) that render text and images on screen. Each pixel location has three separate subpixels (red, green, and blue) that allow the image to be rendered in full color. Each subpixel has a corresponding transistor responsible for turning the subpixel on or off.

There are typically millions of these subpixels on an LCD display. For example, the LCD panel used in the Apple Cinema HD display is made up of 2.3 million pixels and 6.9 million red, green, and blue subpixels. Occasionally, a transistor does not work perfectly, which may result in the affected subpixel being turned on (bright) or turned off (dark). With the millions of subpixels on a display, it is quite possible to have a low number of faulty transistors on an LCD. Therefore, a certain number of subpixel anomalies is considered acceptable. Rejecting all but perfect LCD panels would significantly increase the retail price for products using LCD displays. These factors apply to all manufacturers using LCD technology—not just Apple products.

To determine whether or not the display has an acceptable number of pixel anomalies, follow the steps below:

1. Set the display image to one of the following colors: all-white display, all-red display, all-green display, or all-blue display.

2. Using a jeweler's loupe, pocket microscope, or other magnifying device, identify and count each subpixel anomaly:
   • Bright subpixel anomaly = subpixel that is always on
   • Dark subpixel anomaly = subpixel that is always off

3. **Important:** Check the number of subpixel anomalies with the following chart:

LCD Size (inches)	Acceptable Number of Subpixel Anomalies			Replace the Display		
	Bright	Dark	Both	Bright	Dark	Both
17 to 20	up to 4	up to 6	up to 8	5 or more	7 or more	9 or more

4. If the number of subpixel anomalies exceeds the acceptable number listed in the chart, replace the LCD panel.

5. If the number of subpixel anomalies is acceptable, explain to the customer that the pixel anomalies are within specifications, and no repair is necessary.

Important: Do not release the specifications to customers. Instead, inform them that a certain number of subpixel anomalies is considered acceptable, and these factors apply to all manufacturers using LCD technology—not just Apple products.

Hard Drive

Flashing question mark, or an alternating question mark and Mac OS (face or a folder)

Note: When troubleshooting hard drive problems it is a good idea, if possible, to back up any important data. Some troubleshooting steps may require erasing the contents of the hard drive.

1. Boot from the system CD that came with the computer, and open Disk Utility. Does the hard drive show in Disk Utility?
   Yes: Run Repair Disk and Repair Permissions to correct any directory and permissions issues. Go on to Step 2.
   No: Go to Step 3.

2. Did Disk Utility successfully repair directory or permissions?
   Yes: Restart the computer to the hard drive. Go on to Step 3.
   No: Go to Step 3.

3. Did the computer successfully start to the internal Hard Drive?
   Yes: Run Apple Hardware Test for this machine and return to the customer if it passes.
   No: Boot the machine to Apple Hardware Test or to Apple Service Diagnostic for iMac (17-inch Late 2006), version 3S106 or later.

4. Did the machine successfully boot to the Diagnostic?
   Yes: Run the test suites.
   No: Make sure you're using the correct version of the Diagnostic, and that the disc is able to boot another machine that it supports. If so, then try booting from an external optical drive. If this is successful, you should replace the optical drive and retest the machine booting to the diagnostic disc.

5. Did the tests pass?
   Yes: Reinstall the System Software that came with the computer and test.
   No: Replace the component (s) indicated by the test results.

Hard Drive Issues

Note: The following information is for Intel-based and PPC Macintosh drive compatibility
- Drives to be used in booting Intel-based Macintosh hardware should be formatted and partitioned with an Intel-based Macintosh disk utility running on Intel-based Macintosh hardware. That should ensure you get the correct default partition map and structure for reliable booting.
- Intel-based Macintosh CPUs in Target Disc Mode will only mount on PPC machines running Mac OS X 10.4 or later, and may show one contiguous partition rather than separate partitions on the host machine.
- Always make sure to use the OS that came with the machine if you need to reinstall software (ask the customer for the discs if necessary), and the diagnostics specifically designated for that hardware.

System hangs during normal startup process

1. Boot from the system CD that came with the computer. Use Disk Utility to verify the hard drive.

2. Using Disk Utility, reformat the hard drive.

3. Check all cable connections to and from the hard drive.

4. Replace the hard drive data cable.

5. Replace the hard drive.

6. Replace the logic board.

Optical Drive

CDs or DVDs don't show up on the Desktop.

1. Select Preferences from the Finder menu and make sure the option to show CDs, DVDs and iPods is checked: in the General window as shown below.

2. Select System Preferences from the Apple menu and open the CDs & DVDs preferences window. Make sure that audio CDs are set to launch iTunes and movie DVDs set to launch DVD Player when those media are inserted, as shown below.
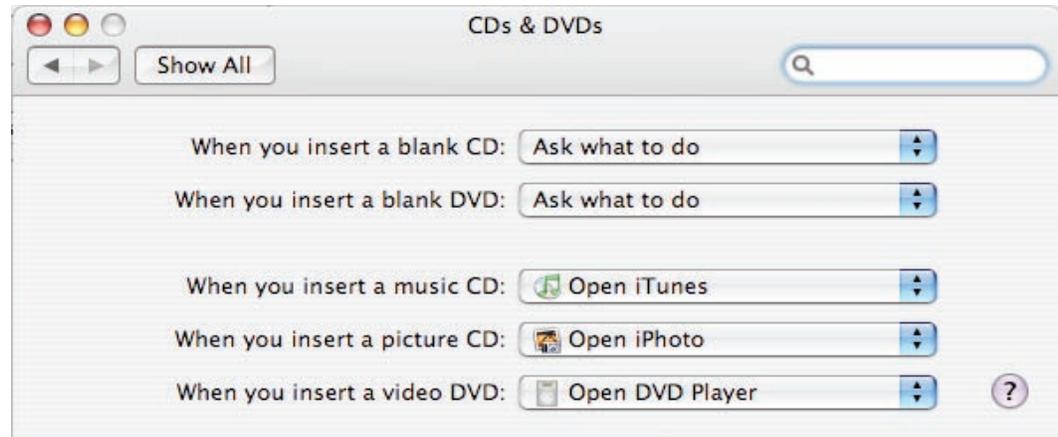
3. Check that the drive can read discs normally. Insert an audio CD and check whether it shows up on your desktop or launches iTunes.
    Does the audio CD mount on the desktop or in iTunes?
    Yes: The drive seems to read CD discs okay. Go on to Step 4.
    No: Make sure the disc is readable by other computers. Try other CD discs. If none mount or no audio CDs launch iTunes, replace the optical drive."

4. Eject the audio CD and insert the iMac Software Install and Restore DVDs that came with the customer's computer, or insert a DVD movie.
    Does this disc show up on the desktop, or does the movie launch DVD Player?
    Yes: The computer is reading CD and DVD media. This may be related to a specific disc or discs the customer is using and you should examine those discs.
    No: The optical disc is reading CD media, but not DVD media. Try other DVD discs. If none mount or movie DVDs do not launch DVD Player, replace the optical drive adapter board

5. If after replacing the optical drive adapter board the drive still won't mount any optical media, replace the optical drive. If the issue persists, then replace the logic board.

The computer won't burn discs.

1. Check whether the drive can read CDs and DVDs normally. Perform the steps above for "CDs or DVDs don't show up on the Desktop."

2. Try a test burn by creating a Burn Folder, as follows.
   • In the Finder, choose "New Burn Folder" from the File menu.
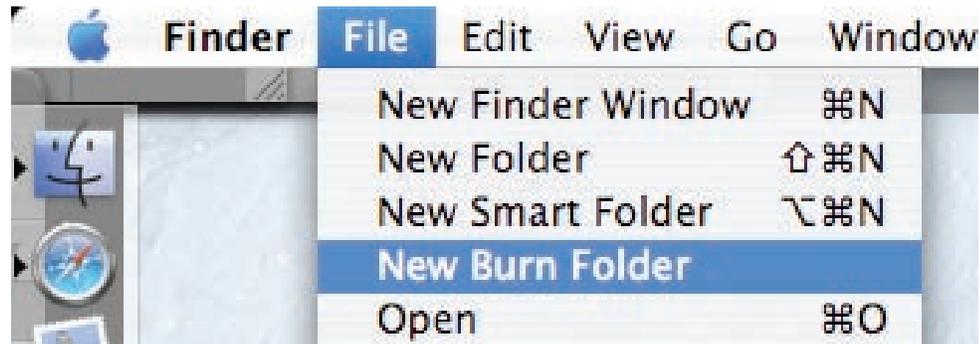
   • Open the Burn Folder, drag an item inside for testing, and click "Burn" in the upper right corner of the window.
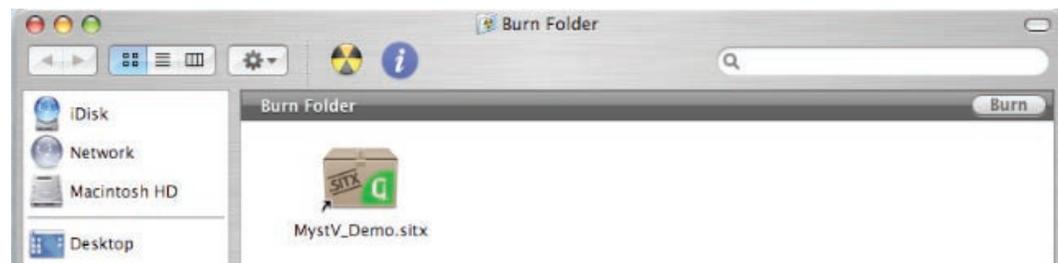
   • When prompted, insert a blank disc and follow the dialog instructions.
   Does the disc burn successfully (problem solved), fail with an error, or is the disc ejected?

3. If the disc fails to burn with an error, check for these error messages.
   Unknown Error -2147352480. See Knowledge Base article **25480** and **25750** for more information.
   Buffer underrun error. See Knowledge Base articles **25480** and **25750** for more information.
   Unknown Error. If you see "Unknown Error" without "-2147352480", you will want to see Knowledge Base article **152224** for more information.

4. If the blank disc is ejected, try another blank disc. If the issue persists, try another brand and speed of blank media; if you're using blank CD media, see if this happens with blank DVD media. If the drive consistently rejects all blank media, or only rejects blank CD media while accepting blank DVD media or vice versa, replace the optical drive adapter board and test. Does the drive successfully burn to disc after replacing the optical drive adapter board?
   Yes: Problem solved.

No: Replace the optical drive. Does it burn correctly now?

   Yes: Problem solved.

   No: Replace the logic board.

Discs won't insert.

1. Is there a disc already in the drive?

    Yes: Eject the disc before inserting another. Refer to Knowledge Base article **51008** - "iMac: If You Can't Eject a CD or DVD, or Open the Drive Tray". If none of these options will eject the disc, you may have to disassemble the drive to recover the disc. See Knowledge Base article **86382** - "Macintosh: How to Remove a Stuck Disc From a Slot-Loading Drive."

    No: Reseat the optical drive. Perform the "Optical Drive" procedure in Take Apart to reseat the drive in the mounting aperture and reconnect the optical drive to the logic board.

2. After reinstalling the optical drive, can you now insert a disc?

    Yes: Issue resolved. Run diagnostics and return the system to the customer.

    No: Replace the optical drive adapter board.

    Yes: Problem solved. Run diagnostics and trying inserting a disc again.

3. After replacing the optical drive adapter board, can you insert a disc now?

    Yes: Issue resolved. Run diagnostics and return the system to the customer.

    No: Replace the optical drive.

Optical disc constantly ejects

1. Disconnect all peripheral devices, especially the mouse in cases where the disc is constantly ejecting. Retest. If the issue is resolved, reconnect peripherals one-at-a-time until faulty peripheral is identified.

2. Try cleaning the disc. If the disc is dirty or scratched, it may not mount.
   Is the issue resolved?
   Yes: Problem solved.
   No: Try a different disc. If the issue persists, go on to the next step.

3. Boot from Apple Hardware Test (hold down the "D" key at startup). If you can boot to this volume, run the Quick and Extended tests.
   Does the unit pass the tests?
   Yes: Restart to the internal hard drive and test again.
   No: Replace the component (s) indicated by the test results. If you cannot boot to Apple Hardware Test because it ejects, go on to step 4.

4. Boot from the system install DVD (use Startup Manager, hold down the Option key at startup). If you can boot from this volume, perform an Archive and Install with the Install DVD that came with the computer and test.
   Is the issue resolved?

5. **Yes:** Problem solved.
   No: If you cannot boot to Apple Hardware Test or to the Install DVD because they eject, reseat the optical drive adapter board to the logic board and retest.

6. Replace the optical drive adapter board.

7. Replace the optical drive.

8. Replace the logic board

Fan Sound

Fans running at full speed after the computer turns on

The customer may have entered a diagnostic mode that causes the fans to run at full speed.*
Restarting the system will not restore normal fan operation. To solve the problem, the user or
technician should do the following:

1. Shut down the system.

2. Disconnect the power cord and wait 15 seconds.

3. Reconnect the power cord and wait 5 seconds.

4. Power on the system.

*Note: Customers reporting this symptom should be told to press the power button AFTER the
power cord has been fully inserted. Inserting the power cord while pressing the power button
will cause the fans to run at full speed.

Loud fan noise coming from inside the computer

The iMac (17-inch Late 2006) has a trio of fans that circulate air throughout the system. It also
includes temperature sensors, and advanced thermal software that spins the fans fast or slow as
needed. As the system usage increases, the fans will adjust their speed using advanced thermal
software to meet the cooling needs of the system.

Under normal conditions, rotating fans will make a slight hum that varies in relationship with
their rotational speed and the amount of air that they are moving. In addition, the normal
functioning of the hard drive and optical drive will generate additional whirring and scratching
sounds that may be audible. All of these sounds are normal and do not indicate a failure with
your computer.

To begin troubleshooting a possible fan issue, we need to qualify the sound that you're
experiencing.

1. Does the sound occur only under specific light/heavy usage conditions?

    Yes: CPU intensive applications such as iTunes, Garage Band, DVD Player, etc., or two or more
    applications open at once will cause the fans to run at an increased rate making them more
    noticeable. If the sound only occurs when one or more of these applications is running, this
    is normal.

    No: If the sound isn't affected by CPU intensive application it may be due to other factors. Go
    on to the next step.

2. Is the sound always present, or does the sound vary?

The sound is always present: The normal functioning of the hard drive and optical drive will generate additional whirring and scratching noises that may be audible. Check whether this sound is related to one of the components. Go to step 4.

The sound varies: Under normal conditions rotating blowers will make a slight hum that varies in relationship with their rotational speed and the amount of air that they are moving. Let's see if this is indeed the case. Go to Next Step.

3. Are the fans making a normal humming sound that increases/decreases in relation to processor usage? As the fans increase their speed to cool the system the sound level will increase.

    Launch the Activity Monitor application included with Mac OS X in the Utilities folder to determine whether the noise corresponds with heavy usage of the CPU. Does fan activity increase / decrease with the CPU Usage graph in Activity Monitor? Check by running CPU intensive applications such as iTunes.

    Yes: This is normal operation and none of the fans require replacement.
    No: If the fan activity does not coincide with CPU usage, the sound you're hearing may not be fan activity. Go to the Next Step.

4. The normal functioning of the hard drive and optical drive will generate additional whirring and scratching noises that may be audible. We can isolate these noises by booting the computer to the iMac Install Mac OS X Install Disc 1.

    - Place the disc in the drive, and restart your machine while holding down the "C" key as the machine starts up.

    - Once at the Installer window, choose Open Disk Utility from the Installer Menu.

    - Once Disk Utility is open, select the system's hard drive and on the toolbar choose Unmount. **Note:** if the drive has multiple partitions, unmount each of these partitions. This will spin down the hard drive. The optical drive will also be busy at this time; wait a moment for the optical drive to spin down also and then listen to the machine.

    Is the sound still present?

    Yes: With the hard drive and optical drive inactive, all you should be hearing are the fans in the machine. While booted to the CD, these fans should be running at a lower level since CPU activity is low with both drives inactive. Fan sound that includes objectionable ticking, whistling, or squealing may require further investigation and/or replacement of the particular fan. Go on to the next step.

    No: The normal functioning of the hard drive and optical drive will generate additional whirring and scratching sounds that may be audible. All of these sounds are normal and do not indicate a failure with the machine. If you wish to check the health of the hard drive, see

Knowledge Base article 152349, "Replacing a disk before it fails."

5. Shut down the computer, remove the power cord and any other connected cables, and remove the access door, front bezel, and EMI shield.
    Stand up the computer, plug it in, and start it up by pressing the external power button.

    As the machine starts up, listen carefully to each of the three fans, and see if you can locate the fan from which the objectionable ticking, whistling, or squealing sound is coming. The CPU fan is the left-most fan, the hard drive fan is in the center, and the optical drive fan is on the right.

    Can you pinpoint the fan making the sound?

    Yes: Replace the noisy fan.

    No: If you can hear an objectionable ticking, whistling, or squealing sound, but you cannot identify the source of the sound, contact Apple Technical Support.

Fans are running at a constant high speed

If the fans on the system are running at a constant high speed, or ramp very quickly to high speed and do not vary once this speed is reached, the fans are most likely receiving incorrect thermal input. Follow these steps:

1. **Reset the SMC** and then test to see if the fans still exhibit the issue.

2. Boot to the EF1 tests of the latest version of Apple Service Diagnostic for iMac (17-inch Late 2006). This will test the fans and thermal input of the sensors. If the tests fail, replace the component (s) indicated by the test.

3. Replace the optical drive temperature sensor.

4. Replace the hard drive.

5. Replace the logic board.

AirPort

Not able to connect wirelessly with AirPort

1. From the Apple menu, choose About this Mac.

2- Click on More Info. System Profiler should open.

3- In System Profiler, in the column on the left, look under Network for a line called "AirPort Card". Select that line.

4- Does the section to the right say "No Information Found"?

> **Yes:** The computer doesn't realize it has an AirPort card installed. Go to step. 5

> **No**: The iMac recognizes that it has an AirPort card installed. Go to step 6.

5- Remove the front bezel, lower EMI shield, and two card mounting screws and reseat the AirPort card. Re-install the two card mounting screws and check System Profiler again to see if the computer sees the AirPort card. Does it recognize the card now?

> **Yes**: Problem solved. Replace the lower EMI shield and front bezel and re-test the system to verify that the original symptom is resolved.

> **No**: Replace the AirPort card. Refer to the Take Apart section for AirPort Card. If the issue persists after replacing the AirPort card, replace the logic board.

6- Now that we know the iMac recognizes the AirPort card, check the antennas. If the antennas are not plugged in all the way, you may have very short AirPort range.

7- Remove the access door, front bezel, lower EMI shield, and the two AirPort card mounting screws . Disconnect the card, turn it over and reconnect the antenna cable connectors to the card. Make sure the antenna leads are firmly seated. Replace the card and other components and retest.

8- If the antenna leads are plugged in properly and the AirPort card is recognized but the problem persists, there are a number of other things that could cause issues with wireless networking. Refer to Knowledge Base document **106858** for more networking information.

9- Replace the AirPort card. Refer to Take Apart/Airport Card.

10- Replace the AirPort antennas. Refer to Take Apart/AirPort Antennas.

11- Replace the logic board. Refer to Take Apart/Logic Board.

Bluetooth

Bluetooth devices won't sync with my computer

1. Make sure the computer has a Bluetooth board installed. Open System Preferences (from the Apple menu, choose System Preferences) and verify that "Bluetooth" appears in the Hardware section of the window.

2. Locate the Bluetooth board inside the computer. Reseat the Bluetooth board and the Bluetooth antenna.

3 Turn on Bluetooth. In System Preferences, click Bluetooth and then click the Settings tab. If you don't see "Bluetooth Power: On," click the "Turn Bluetooth On" button. Make sure that you also enable Bluetooth on your device too (please refer to your device's documentation for instructions).

4 Set up a new device. To set up a Bluetooth phone or PDA, click the Devices tab in Bluetooth preferences and then click "Set Up New Device" to open the Bluetooth Setup Assistant. Follow the onscreen instructions to set up your device. To set up an Apple Wireless Keyboard and Mouse, open System Preferences, click Keyboard & Mouse, click the Bluetooth tab, and then click "Set Up New Device" to open the Bluetooth Setup Assistant. Follow the onscreen instructions to set up your keyboard and mouse.

5 Recharge or replace your Bluetooth device's battery. If your Bluetooth device's battery is low, you may experience connection issues.

6 Download and install the latest software for the device.

7 Check for a Bluetooth update. Choose Software Update from the Apple menu (make sure that your computer is connected to the Internet). If newer Apple Bluetooth software exists, Software Update will find it.

8 Check for signal spoilers. Avoid situations in which metal objects come between your device and computer. Don't put the computer under a metal desk or locked away behind a metal cabinet. Keep cordless phone base stations, microwave ovens, and other electrical devices that operate on a 2.4 GHz bandwidth away. And make sure that the device and computer aren't more than 30 feet apart from each other.

9 Restart your computer. You may also want to try resetting your computer's PRAM and NVRAM.

10 Reset your Bluetooth device. First try turning your device off and then on again. If that doesn't work, see if you can reset your device.

11. Replace the Bluetooth board and test the computer again.

12. Refer to the Bluetooth Support site at **http://www.apple.com/support/bluetooth.**

13 Replace the logic board.

IR Remote

Remote won't communicate with system applications such as iTunes or iPhoto, or with the optical drive.

Make sure of the following when using the Apple Remote:
- You are within 30 feet of the front of the computer.
- You have an unobstructed line-of-sight to the front of the computer.
- You are pointing the lens end of the Apple Remote directly at the front of the computer.
- The computer is powered on and awake.
- The "Disable remote control infrared receiver" checkbox in the Security pane of System Preferences is NOT checked.
- Make sure the active application works with Apple Remote. Apple Remote uses Front Row, and from Front Row it can access DVD Player, iPhoto, iTunes, and QuickTime Player.
- Make sure the remote is paired with the computer. Access the System Preferences/Security pane and check "Unpair" if available. Close the Security pane, and re-pair the Apple Remote with the computer. See Knowledge Base article **302545**.

1. Use a digital camera to test your Apple Remote.
   If you have a digital camera or DV camera with an LCD display, you can use it to see if your Apple Remote is emitting a signal. Infrared beams are invisible to the human eye, but most digital cameras and video cameras use Charged-Coupled Device (CCD) chips or image sensors that are sensitive to infrared light.

   To use a camera to test your Apple Remote, follow these steps:
   • Turn on your digital camera or DV camera and remove any lens cover.
   • Point your Apple Remote toward the camera lens.
   • Press and hold the Menu button on the remote while looking at your camera's LCD display.
   • If you see a faint blinking light coming from the Apple Remote in the camera's LCD, then the remote is working properly.
   • If you don't see any blinking light in the camera's LCD, replace the battery in your Apple Remote and then test it again with your computer (see How to replace the Apple Remote battery" for instructions). (KBase article **302543**)

2. Does the IR remote now communicate with an active application that works with Apple Remote?
   Yes: IR remote is functioning correctly.
   No: Replace Apple Remote.

IR Sensor/Receiver

Supported applications do not respond to input from the remote control.

1. Perform the checks above under "IR Remote" to verify that the Apple Remote is functioning correctly, and retest. Do supported applications now respond to input from the IR remote?
   Yes: Problem resolved.
   No: Go to the next step.

2. Verify that the IR Sensor can be seen in the Apple System Profiler. Open the Apple System Profiler and click on the "USB" section. You should see the following listed:

   IR Receiver:

Version:	0.58
Bus Power (mA):	100
Speed:	Up to 12 Mb/sec
Manufacturer:	Apple Computer, Inc.
Product ID:	0x8240
Vendor ID:	0x05ac (Apple Computer, Inc.)

   Do you see the IR Receiver listed under the USB section of the Apple System Profiler?
   Yes: Go on to the next step.
   No: Replace the IR cable and retest. Refer to the "IR Board" take apart procedure
   Do supported applications now respond to input from the IR remote?
   > **Yes:** Problem resolved.
   > **No:** Replace the IR sensor board and retest. Refer to the "IR Board" take apart procedure.
   If the issue persists after replacing these parts, replace the logic board.

3. Access System Preferences and click Security. In the Security pane check the following:
   • Make sure "Disable remote control infrared receiver" checkbox is not checked.
   • If "Unpair" is available in the Security pane of System Preferences, another Apple Remote may be paired to the computer (pairing allows only one Apple Remote to control the computer). To delete a pairing between the remote and the iMac G5 (iSight), click Unpair. (You may have to enter your Administrator password to make changes in the Security pane.) After making sure these features are disabled, does the Apple Remote control the machine now?
   Yes: Problem resolved.
   No: Replace the IR sensor board and retest. Refer to the "IR Board" take apart procedure.

Built-in iSight Camera

The built-in camera is not recognized.

1. Boot the iMac (17-inch Late 2006) to the desktop and launch iChat AV. **Note**: You do not need to be connected to a network to use iChat AV to troubleshoot. Verify that the correct versions of Mac OS X and iChat AV are installed. Reinstall or update software as needed.

2. Open the iChat AV preferences and click on the 'Video' icon. Verify whether the camera is recognized by the iChat AV software. Is the camera recognized?

    Yes: the camera is recognized and video preview is normal: This indicates the camera is functioning. Pull down the 'Video' options from the menu bar and verify that the camera is enabled. The camera must be enabled to function.

    No: the camera is not recognized and no video preview is visible. This indicates the camera may not be functioning properly. Open the iMac and inspect the camera board (inside the front bezel) and the attached cable. Reseat the cable on the camera board and check the other end of the camera cable connections to the logic board. The camera cable connectors are on the right side of the logic board, below the optical drive and to the right of the fan. Go on to the next step if this didn't solve your problem.

3. Replace the camera board located inside the front bezel.

4. Replace the camera cable.

5. If the iSight camera still doesn't appear in System Profiler on the USB bus after replacing the camera board or camera cable, replace the logic board.

Camera recognized but no video.

1. Verify that the lens assembly for the iSight camera located in the top middle of the front bezel is not obstructed by anything including Post-It notes or other objects.

2. Replace the camera board in the front bezel and retest.

Camera image quality poor.

The built-in camera is recognized by iChat AV and other supported video applications however the image quality is poor.

1. Verify that the lens assembly for the iSight camera is clean. Fingerprints and other contaminants can affect image quality. Clean the lens using a lint free lens cleaning cloth being while being careful not to scratch the lens.

2. Verify that there is sufficient lighting to produce a good quality image. Lighting which is comparable to that found in a well lit office will product a good quality image. If possible, avoid having a brightly lit background. Diffused lighting is preferred over direct lighting.

3. Launch iChat AV and open the iChat AV preferences. Click on the 'Video' tab. Is the video quality acceptable?
    Yes: The camera is functioning normally. The image quality problems may be caused by

bandwidth limitations when using iChat over the internet. Instruct the customer to use the iChat AV connection doctor feature to verify that there is sufficient bandwidth to have a video iChat session without a significant degradation of image quality.

No: The camera may not be functioning normally. Replace the camera board in the front bezel and retest.

Camera recognized but no audio

1. Open the System Preferences window and click on Sound.

2. Verify that the built in iSight camera has been selected as the device for sound input.

3. Verify that the volume settings (on the slider bar) are appropriate.

4. Launch iChat AV and open the iChat AV preferences. Click on the 'Video' icon. Speak into the microphone while monitoring the microphone level indicator. Does the line level meter respond while you are speaking?

   Yes: The microphone circuit is functioning correctly. Check the preference settings of any supported AV applications the customer is experiencing problems with to make sure that the microphone feature is enabled and that the internal iSight microphone has been selected as the input device.

   No: Inspect the microphone / camera cable attached to the camera board inside the front bezel. If the cable is damaged, replace the cable and retest. If the issue continues, replace the front bezel. The front bezel contains the microphone.

Audio Quality Poor

The camera is recognized but the built-in microphone's audio quality is poor.

1. Open the System Preferences window and click on Sound.
   - Verify that the built-in camera has been selected as the sound input port.
   - Verify that the input volume settings are appropriate. Use the volume level meter to verify settings.

2. Open iMovie and create a new project. Click on the Audio button and record a sound sample. Is the sound quality acceptable?

   Yes: The microphone is functioning normally. The audio quality problems may be caused by bandwidth limitations when using iChat over the internet. Instruct the customer to use the iChat AV connection doctor feature to verify that there is sufficient bandwidth to have an audio iChat session without a significant degradation of audio quality.

   iChat AV allows the user to limit the allocated bandwidth which could impact audio quality. Check the settings and increase the bandwidth if needed.

   No: The microphone may be faulty. Replace the front bezel which houses the microphone.

Speakers

Can't hear sound from the speakers.

1. Disconnect any external microphones, speakers, or headphones.

2. Access System Preferences and select Sound. In the Sound pane, select Output and make sure the Internal speakers are selected as the device for sound output, the Output volume is adequate, and Mute is not selected. Do you have sound now?
    Yes: Problem resolved.
    No: Go to the next step.

3. Reset parameter RAM. Press Command-Option-P-R during startup but before "Welcome to Macintosh" appears. Do you have sound now?
    Yes: Problem resolved.
    No: Go to the next step.

4. Plug headphones or external speakers into the Line out /headphone port. Do you have sound through these devices when plugged in?
    Yes: Verify that the speaker cable connector is securely attached to the logic board. If the issue persists, replace the speakers.
    No: Replace the logic board

5. Verify that the speaker cable connector is securely attached to the logic board. Do you have sound now?
    Yes: Problem resolved.
    No: Replace the speakers.

I hear sound out of only one speaker.

1. Are there any external microphones, speakers or headphones plugged into the iMac?
    Yes: Disconnect any external microphones, speakers, or headphones. Do you hear audio from both of the built in speakers on your iMac?
    　　Yes: Good. It looks like the built-in speakers are working properly. This may be an issue with the microphone, speakers or headphones that were plugged into your iMac. Please work with the manufacturer to troubleshoot this issue.
    　　No: Go to step 2.
    No: Check your speaker balance. If your balance setting was set to the left or right speaker, you would only hear sound from one speaker. Go to step 2.

2. Open System Preferences. (System Preferences can be found under the Apple menu.)

3. Click once on the sound icon.

4. Click once on the Output tab.

5. Make sure your balance setting is in the middle. After adjusting the audio balance, do you have audio from both speakers now?
    Yes: It looks like the issue was the balance was not set properly.
    No: Replace the speakers.

6. If the speakers did not solve the problem, replace the logic board.

Mouse

The mouse is slow or not tracking smoothly

Refer to Knowledge Base article **93369.**

The Apple Wireless keyboard and mouse have connection issues.

If you have any of these issues, refer to Knowledge Base article **86496** for more information.
• If you can't wake the computer up using the Apple Wireless Keyboard or Apple Wireless Mouse.
• You can't pair the computer with the Apple Wireless Keyboard or Apple Wireless Mouse.
• You can't maintain a connection between the computer and the Apple Wireless Keyboard or Apple Wireless Mouse.

My mouse doesn't work at all.

1. Turn over the mouse and check the if the red LED on the underside of the mouse. Is the LED lit?
   Yes: The mouse has power. Try using the mouse on another surface. Non-reflective, opaque surfaces without repetitive patterns work best. The surface should be clean, but not shiny. Optical mice won't work on glass, mirrored surfaces, glossy materials or mouse pads with pictures.
   No: There is no power to the mouse. Try plugging the mouse into one of the USB ports on the machine. If the mouse won't power on from any USB port, try it on a known good machine. If the mouse fails to power on with known good machine, replace the mouse. If the mouse will power on with a known good machine, replace the main logic board.

2. If the underside LED is lit and the surface is good, and the mouse still does not track, try plugging the mouse into another USB port on the machine. Does the mouse track now?
   Yes: Issue resolved. Try the other USB ports on the system to make sure you don't have a bad port.
   No: Try using a known good mouse. If a known good mouse resolves the issue, replace the mouse. If a known good mouse does not resolve the issue, replace the main logic board.

My mouse works intermittently (the cursor freezes randomly) or is slow to respond.

1. Try using the mouse on another surface. Non-reflective, opaque surfaces without repetitive patterns work best. The surface should be clean, but not shiny. Optical mice won't work on glass, mirrored surfaces, glossy materials or mouse pads with pictures. Does the mouse track correctly on a proper surface?
   Yes: Issue resolved.
   No: Check the Mouse Tracking setting in the Mouse control panel.

2. Boot to another volume (like the System Install Disc). Does the mouse track properly now?
   Yes: Reinstall System Software
   No: Try a using a known good mouse. If a known good mouse resolves the issue, replace the mouse. If the issue persists with a known good mouse, replace the main logic board.

Keyboard

The Apple Wireless keyboard and mouse have connection issues.

If you have any of these issues, refer to Knowledge Base article **86496** for more information.
- If you can't wake the computer up using the Apple Wireless Keyboard or Apple Wireless Mouse.
- You can't pair the computer with the Apple Wireless Keyboard or Apple Wireless Mouse.
- You can't maintain a connection between the computer and the Apple Wireless Keyboard or Apple Wireless Mouse.

Certain keys or none of the keys on the keyboard function.

1. Unplug all devices from your computer, including your mouse and keyboard as well as printer, scanner, external hard drives, and hubs. (Warning: Some devices may require you to perform steps before it is safe to unplug them, e.g., external storage devices.) Be sure to unplug your hub, if you have one.

2. Plug your keyboard into the back of your computer firmly and securely. Plug your mouse into the back of your computer firmly and securely. Take special care to make sure the connector is completely in the socket. Go on to step 3.

3. Does your keyboard work now?

    Yes: Problem solved.

    No: Unplug your keyboard and plug it into another USB slot on the back of your iMac. Does it work now?
       Yes: Replace the logic board.
       No: Unplug your keyboard and plug your mouse into the port the keyboard just occupied. Go on to step 4.

4. Does your mouse work now?

    Yes: Replace the keyboard.

    No: Replace the logic board.

My keys are sticky or slow to respond.

1. Try a known good keyboard.

2. Open System Preferences. Click on the keyboard and mouse icon. Adjust the "key repeat speed and delay until repeat" rate.

3. Replace the keyboard.

When I type, strange characters appear on the screen.

1. Depending on your iMac's settings, a simple keystroke can change your keyboard from English to Japanese. This can result in some pretty funny characters showing up when you

type. To switch to the US keyboard.

2. Open System Preferences.

3. Click on the International icon.

4. Click on the Input Menu near the top of the screen.

5. Scroll down the list and uncheck any non-US keyboard layouts.

6. Close the System Preferences. Try typing a few characters. Did is solve the problem?
Yes: Problem solved.
No: Replace the keyboard.

The USB port on my keyboard doesn't work.

1. Unplug all devises from your keyboard.

2. Plug your Apple mouse into the left USB port on your keyboard. Does your mouse work when it's plugged into this port?

    Yes: Now plug the mouse into the right port. Does it work?
        Yes: Try a known good keyboard.
        No: Try a known good mouse to rule out the mouse. Then go to step 3.
    No: Try a different mouse or keyboard.

3. Now unplug the keyboard from the USB port on the back of the iMac, and plug the mouse into the port the keyboard had been in. Does the mouse work now?
Yes: Replace the keyboard?
No: It appears that your USB port isn't functioning properly. Go on to step 4.

4. Replace the logic board.

Error Beep(s)

Refer to **Power On Self Test (POST)** covered in the General Information section of this manual.

USB

A USB device doesn't work

1. Please unplug all of your USB devices from your iMac except your Apple Keyboard and Apple mouse.

2. Now plug your device directly into the back of your iMac. Does it work as expected now?

    Yes: Your device works when plugged directly into the computer. This indicates a conflict with one of the other USB devices. You can test by gradually adding your devices back and seeing where the issue occurs, then contacting the manufacturer of the device(s)) for assistance.

    No: Unplug your device from the iMac and plug the keyboard into the port your device just occupied. Is your keyboard still working?
    　　Yes: Your Apple Keyboard works when plugged into the USB port your device was plugged into. This points to an issue with your device. Please review the documentation that came with your device. Install any necessary drivers and contact the manufacturer of your device for assistance.
    　　No: Replace the logic board

I see a message saying not enough power to function.

It appears that this device needs to be plugged into the computer's USB port, rather than the keyboard USB port. Any USB device connected to the keyboard needs to be either a self-powered device (a USB device with its own AC power supply), or a low-power device (a device that does not need a large amount of voltage to operate). Your device may draw more power than the keyboard can provide.

Service Source
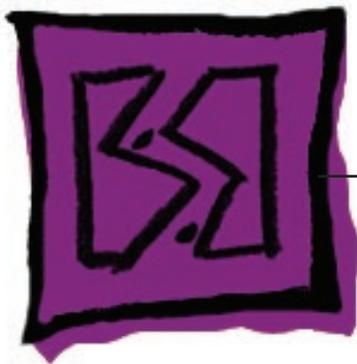
Views

iMac (17-inch Late 2006)

iMac (17-inch Late 2006)—Upper Exploded View

Camera Board
661-3893

Front Bezel
922-7243

Access Door
922-7246

Inverter
661-3841

Lower EMI Shield
922-7150

Right Bracket
922-7077

LCD Display, LVDS
661-4020

Left Bracket
922-7078

LVDS Cable
922-7239

Hard Drive Fan
922-7063

Optical Drive Fan
922-7062

Speakers
922-7057

Bluetooth Card
922-7289

Hard Drive
Data Cable
922-7058

Logic Board
661-4105, 2.0 GHz
661-4106, 2.16 GHz
661-4290, 2.0 GHz
661-4291, 2.16 GHz

AirPort Extreme Card
661-4060 (VZL EEE code)
661-4289 (WQX EEE code)

IR Board
922-7293

CPU Fan
922-7641

IR Mounting Bracket
922-7151

iMac (17-inch Late 2006)—Lower Exploded View

Board, Optical Adapter
(not shown)
922-7281

DC-DC Board — 661-3878

Power Supply
661-3780

HD Mounting Bracket — 922-7072

Hard Drive
661-4023 160 GB, 7200, SATA
661-4024 250 GB, 7200, SATA
661-4027 500 GB, 7200, SATA

AirPort Antennas
Antenna, Wireless, Left 922-7747
Antenna, Wireless, Right 922-7746

Camera Cable — 922-7149

Clutch Cover — 922-7080

Clutch Mechanism — 922-7074

Chassis
922-7750

Not Shown:
Apple Remote, 661-3756
Access Card, 922-7172
Apple USB Modem, 661-3797
Apple Mighty Mouse, 661-3662
Wireless Keyboard, 661-2746
Wireless Mouse, 661-2747
Power Cord, 922-7139
EMI Foil, Rear Housing 922-7753
EMI tape, one strip, 922-4786
EMI tape, five rectangular pieces, 922-5026

HD Temp Sensor Cable
922-7059

ODD Temp Sensor Cable
922-7060

Temp Sensor, Optical
922-7282

Temp Sensor, Hard Drive
922-7242

SuperDrive, 8x
661-4025
Optical Clip
922-7752

HD Pins
922-7001

DC Power Cable
922-7056

ALS Board
922-7238

AC Power Inlet
922-7155

Apple Remote
661-3756

Rear Cover
922-7657

Wireless Antenna Bluetooth
922-7748 (in rear cover,
             not shown)

SO-DIMM SDRAM,
661-3876 512 MB, DDR2 667
661-4186 1GB, DDR2 667

Stand
922-7751

Screw Charts

Screw Charts

iMac (17-inch Late 2006)   Note: Screws are not to scale.

922-6800 T10	922-6842 T10	922-6850 T10
Logic board to rear cover AC power inlet to chassis (3)	Logic board to rear cover	Chassis to rear cover
922-7001 T8	**922-7010 T6**	**922-7011 T10, shorter (x3)** **922-7749 T10, longer (x1)**
Hard drive pins (2)	LVDS cable to logic board (2) Bluetooth board to logic board (2) IR board to logic board (2) IR mounting bracket to logic board (2) AirPort card to logic board (2)	Front bezel to bottom housing (4 total) **Note**: The longer bezel screw attaches next to the ambient light sensor

922-7012 T10	922-7018 T10	922-7019 T10
Stand to interconnect mechanism (4)	Optical drive to optical bezel (4)	Hard drive clip to hard drive (2)
922-7020 **T10**	**922-7023** **T10**	**922-7066** **T10**
Clutch mechanism to chassis((4)	LCD assembly to rear cover via left and right brackets (4)	Power supply to rear chassis (2)
922-7067 **T10**	**922-7068** **T10**	**922-7069** **T10**
Left speaker to rear cover (1)	Right speaker to rear cover(1)	AC power inlet ground to chassis (1)
922-7158 **T8**	**922-7159** **T8**	**922-7654** **T10**
Left and right LCD bracket to LCD (4)	Power supply to (top right corner) rear chassis (1)	Power supply to (bottom left corner) rear cover/chassis (1). *Longer power supply screw.

922-7655 T8	922-7656 T6	922-7157 T10
IR board to logic board (2)	Optical direct connect board to optical drive (2)	DC board to rear cover (1)
922-7713 T6		
Camera board to front bezel		