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Apple Service Source



iMac G5 (20-inch, iSight)

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16 November 2005

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# iMac G5 (20-inch, iSight)

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Apple Service Source



Take Apart  
iMac G5 (20-inch, iSight)



# General Information

## Product View



## 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

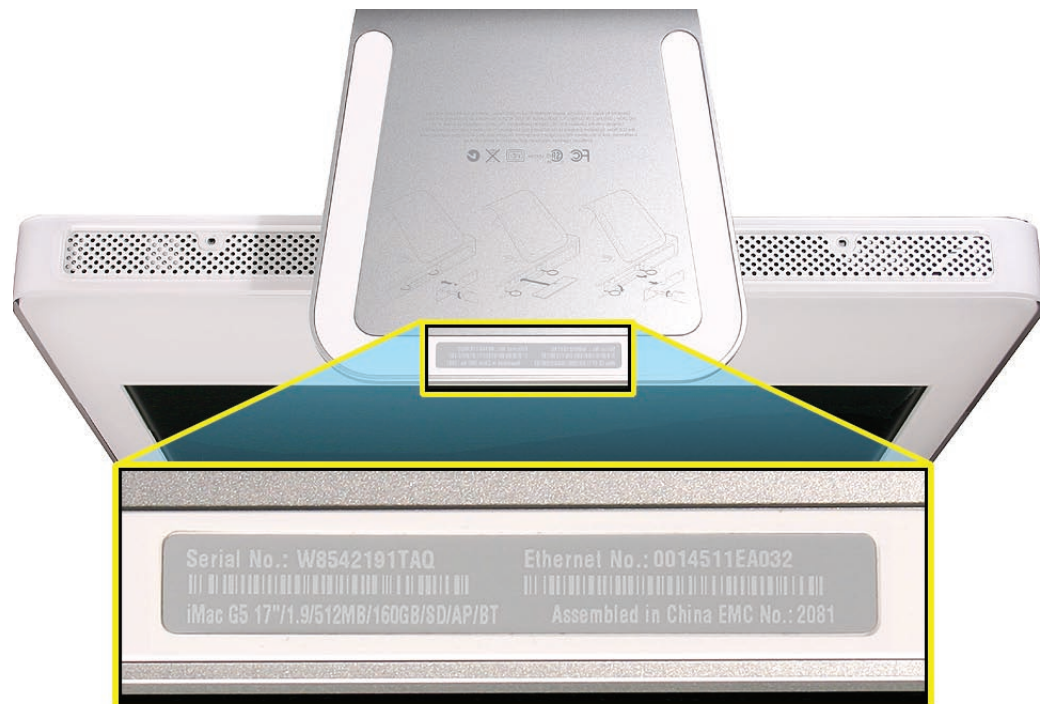
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## Orientation

For most repairs, the unit should be placed screen-side up, with the bottom facing toward you. Most photos in this manual reflect that orientation. The DIMM slot is located beneath the front bezel and is more easily accessed with the unit face-down on a soft, clean cloth.

## Serial Number Location

iMac G5 (iSight) serial numbers are located on the bottom of the computer stand.



## Safety

**Warning:** When the iMac G5 (iSight) 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

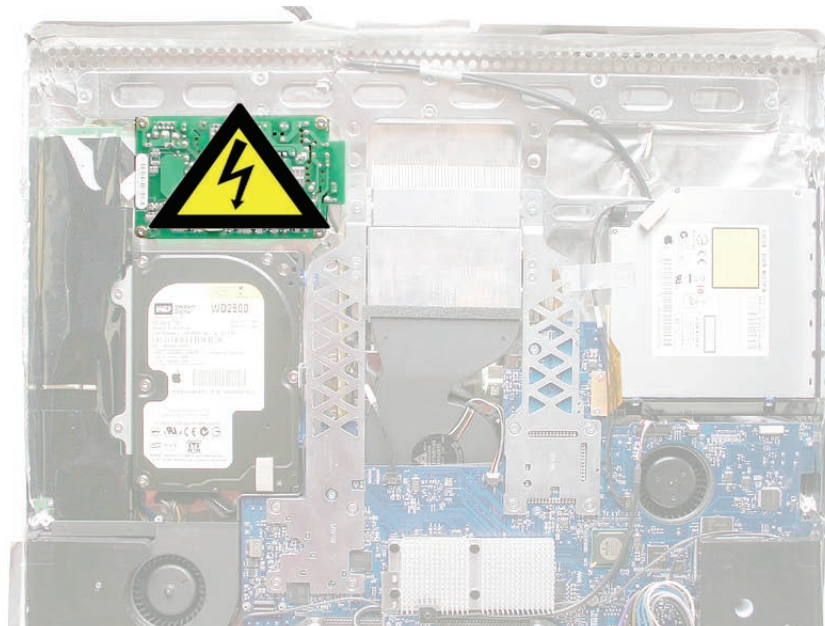
Text or photographs marked by this symbol indicate that a potential hazard to your personal safety exists from a high voltage source.

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.



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- 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 G5 (iSight) 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 G5 (iSight). 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 you should 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, try cutting the card lengthwise into 3/4 inch or 1.5 cm strips. Insert the card on a 45° angle, aimed toward the outer corner, and try again.

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

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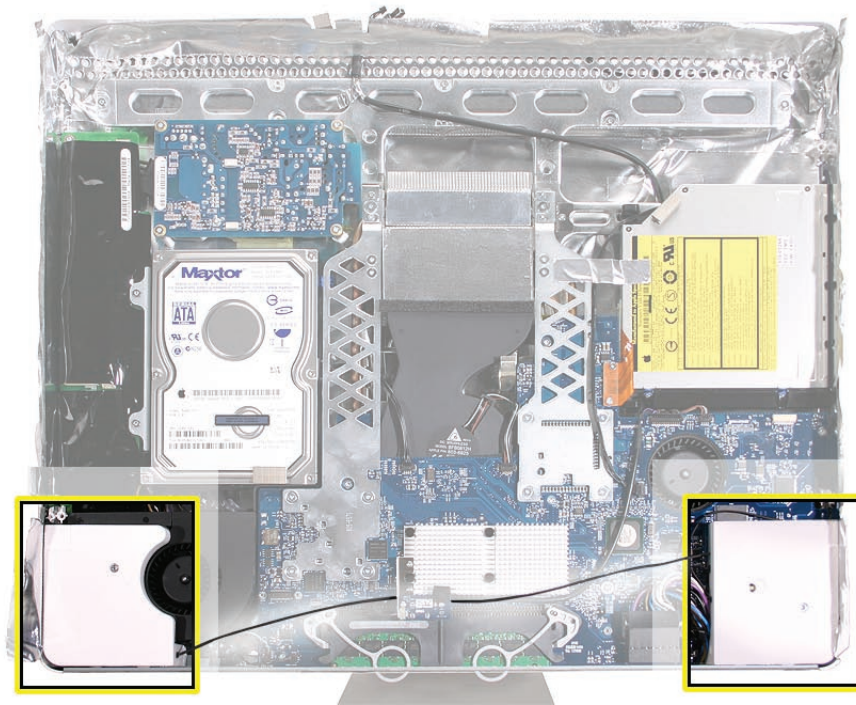
## EMI Shielding

The iMac G5 (iSight) 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.

Cover nicks or tears in the EMI shielding with EMI tape.

## Speakers

The speakers shown in this manual are black, however the final production units have white speakers, as shown below. Refer to the speaker part number 922-6988 for details.







## Access Door

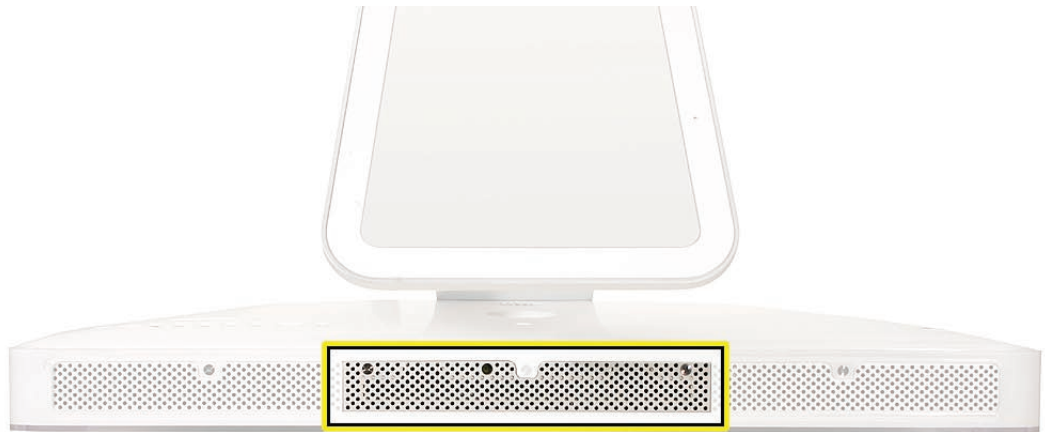
### Tools

- 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



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## Removing the Access Door

1. Raise the stand and use a Phillips #2 screwdriver, to loosen the two captive access door screws.

**Warning:** The ambient light sensor is located between the two screws, as shown in the graphic. Don't mistake the ambient light sensor for a screw. Sticking a screw driver or other sharp object in the ambient light sensor could damage the computer.

2. Remove the access door.



## Replacing the Access Door

1. Replace the access door using it to push the rings into the memory compartment.
2. Use a Phillips #2 screwdriver to tighten the captive screws.



## Front Bezel

### Tools

- Torx T8 screwdriver
- Access card tool 922-7172
- ESD mat, soft , clean towel or cloth

### Preliminary Steps

Before you begin, remove the [access door](#).

### Part Location



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## Removing the Front Bezel

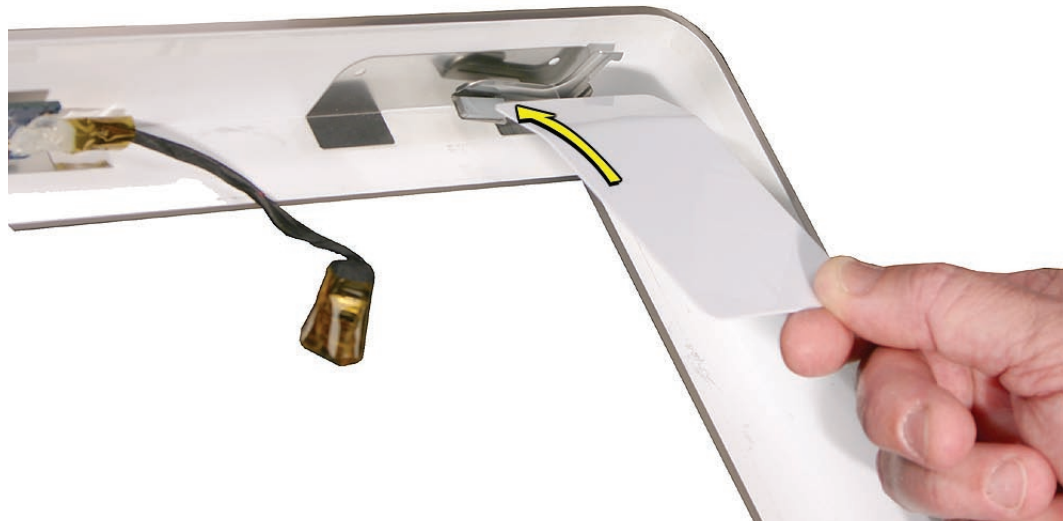
1. Position unit on rear cover (back).
2. Tilt up the front bezel and remove three screws along the bottom.  
**Warning:** The ambient light sensor is located next to the center screw. Don't mistake the ambient light sensor for a screw. Sticking a screwdriver or other sharp object in the ambient light sensor could damage the computer.



3. Slightly bending the upper quarter of the access tool card will help engage the latch more securely.



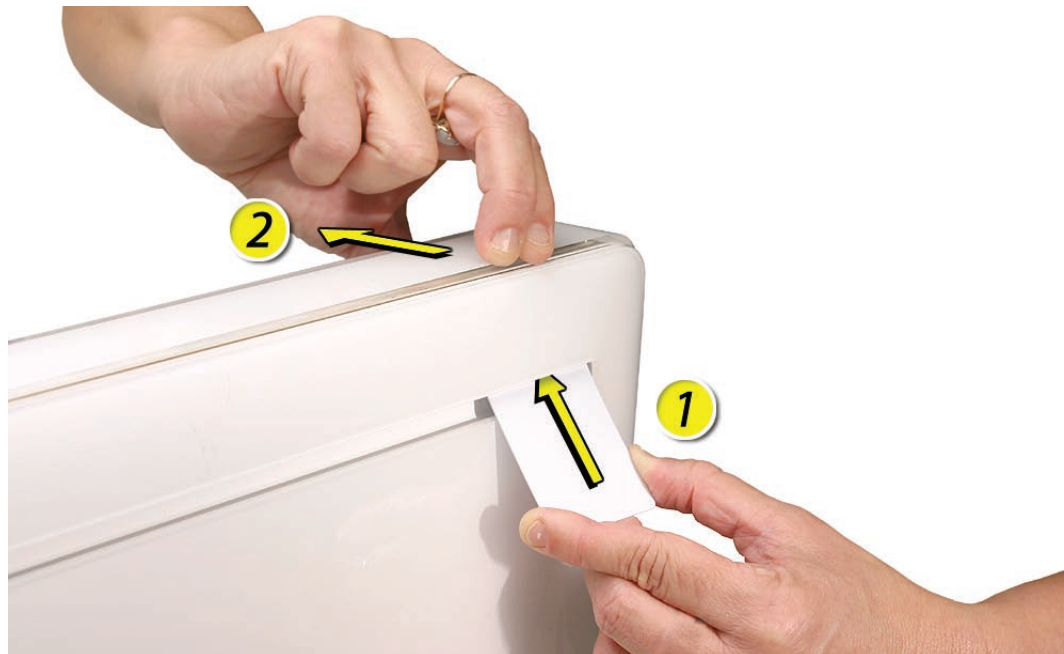
4. This picture shows how the access tool works. Pushing the tool up the vent on the rear cover releases the latches on the inside of the front bezel. Refer to the next step for the procedure.



5. Start on the left side (looking from the back of the unit). As you 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. Note: If the bezel won't open, try cutting the card lengthwise into 3/4 inch or 1.5 cm strips. Insert the card on a 45° angle, aimed toward the outer corner, and try again.



- Repeat step 5 to release the locking latch in the right corner. Again, pull the bezel away as the card releases the latch.



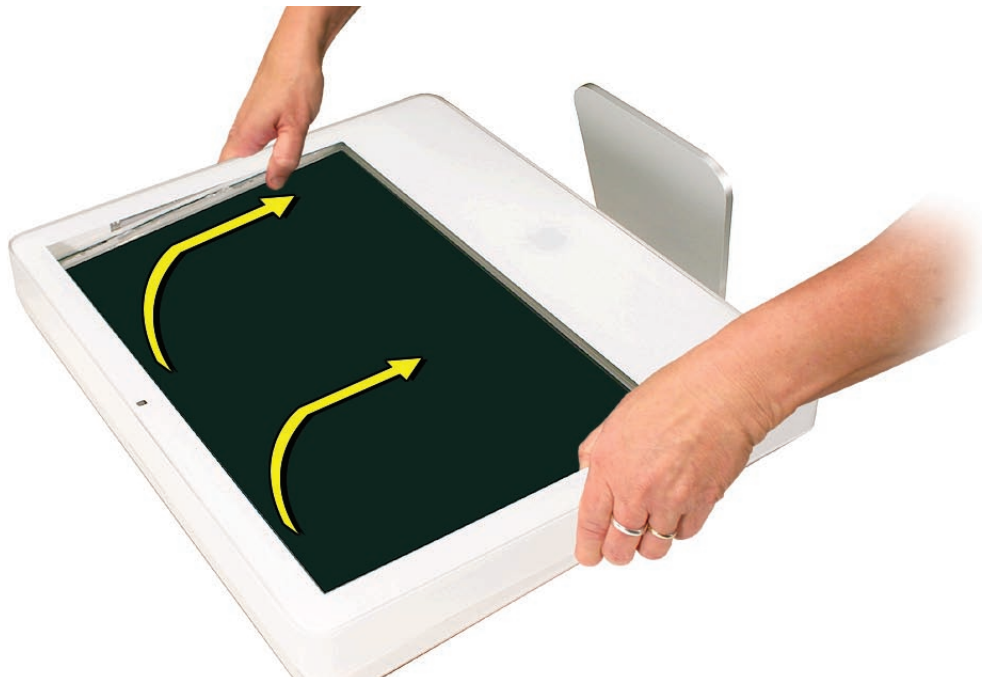
- If the bezel won't release, pull the bottom of the bezel out a bit and insert the access card again.



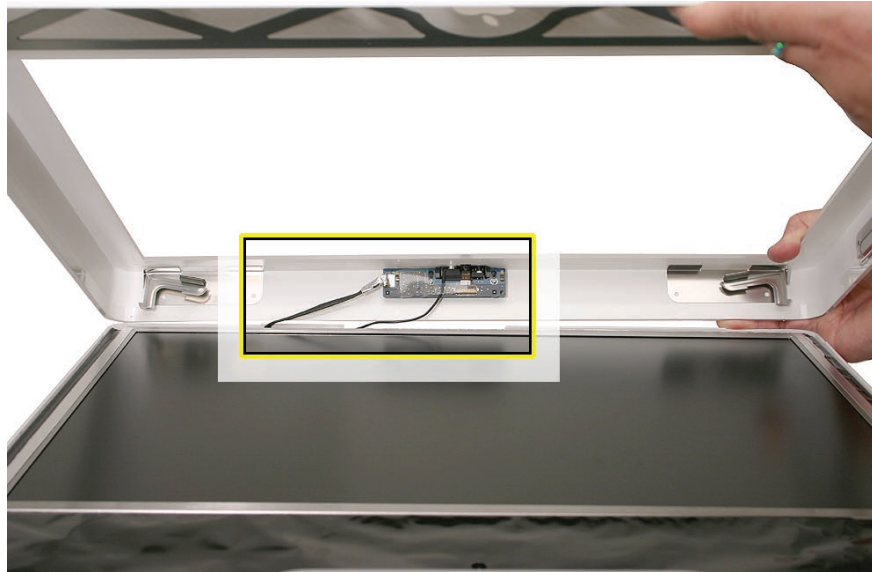
- 
8. Repeat step 7 for the left side.



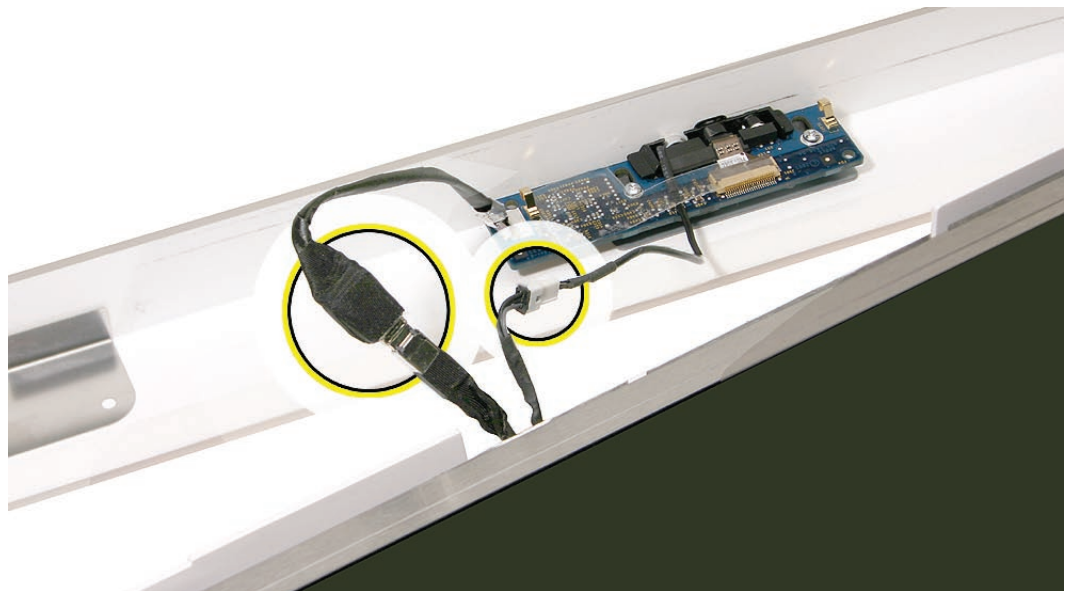
9. Once the access card has been removed, it is safe to open the bezel. Position the unit on an ESD mat, with the bottom facing toward you. Lift up the top of the bezel and pull it up and slightly toward you. **Caution:** Make sure the memory eject rings are not protruding from the access door when you lift the bezel or you could bend or damage the eject rings.



10. Swing the bezel up so you can disconnect two cables on the camera board at the top of the bezel.



11. Disconnect the camera and microphone cables from the camera board.



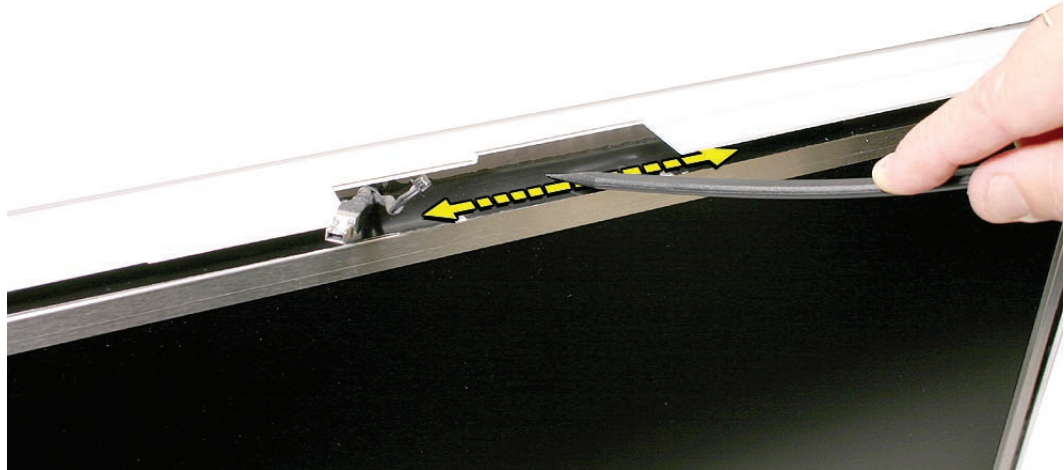
12. Lift the front bezel off the computer. **Note** the microphone is part of the front bezel assembly.



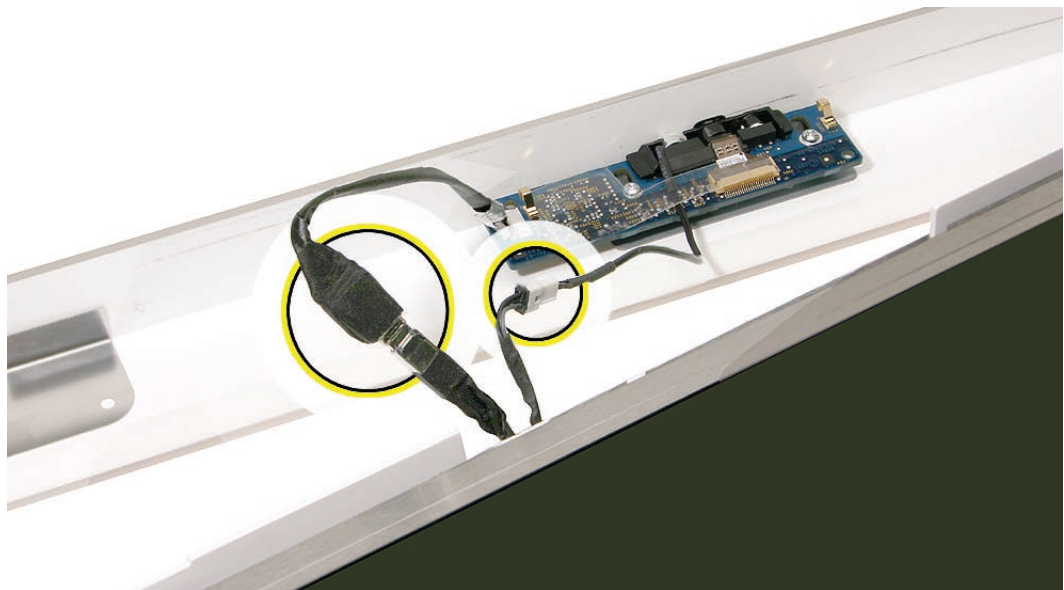
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## Replacing the Front Bezel

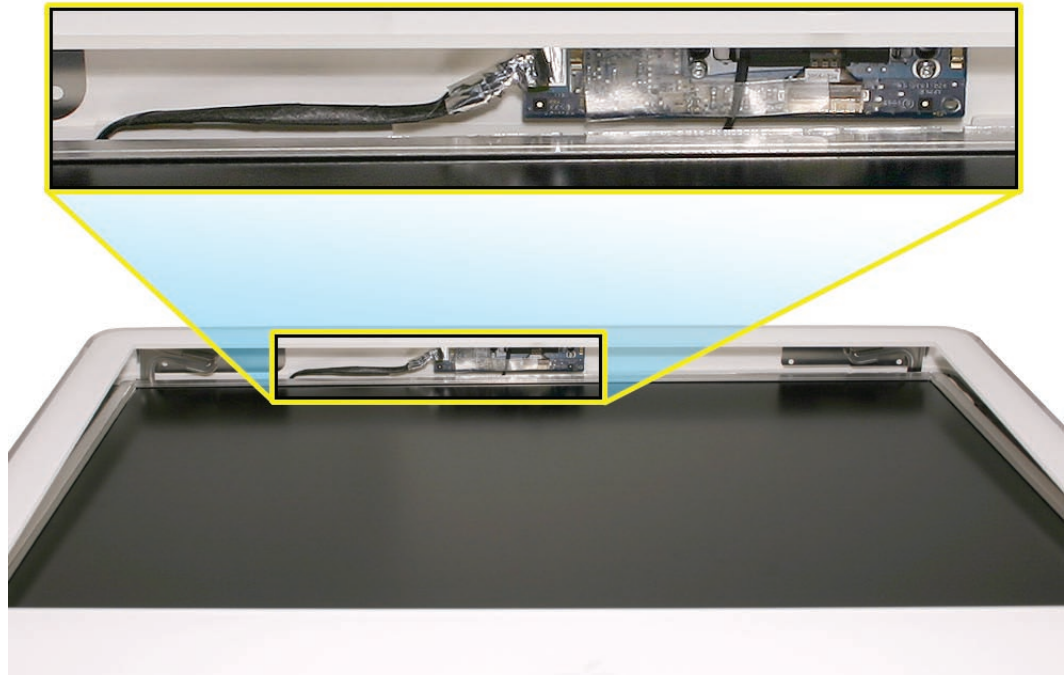
1. Make sure the black EMI shielding along the top of the LCD panel is not in the way of the bezel latches when you lower the front bezel onto the computer. Use a black stick to press (re-stick) the EMI shielding onto the panel.



2. Connect the camera and microphone cables (on the camera board) to the cables sticking out of the top of the computer.



3. Tuck the cables neatly into the channel on the rear housing.



4. Continue to lower the front bezel down over the pull rings (in the memory compartment) and then press the top corners of the front bezel to connect the magnetic latches. **Note:** check that the latches are connected by lifting the front bezel at each corner.
5. Replace the three front bezel screws along the bottom of the computer.
6. Replace the access door; tighten the two captive screws.



# Camera Board

## Tools

- Torx T6 screwdriver
- ESD mat, soft , clean towel or cloth

## Preliminary Steps

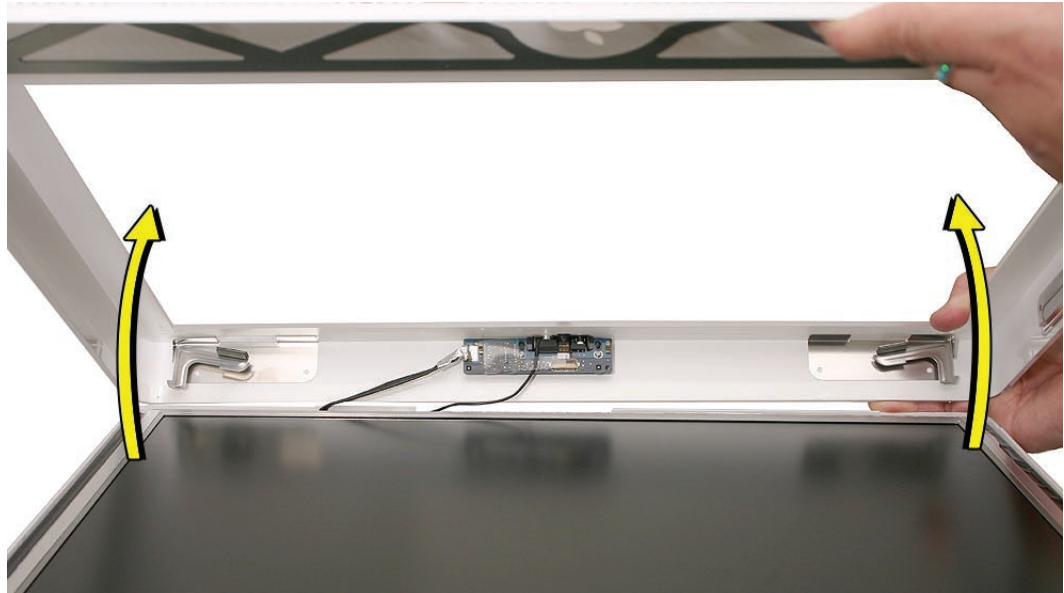
Before you begin, remove the [access door](#) and [front bezel](#).

## Part Location

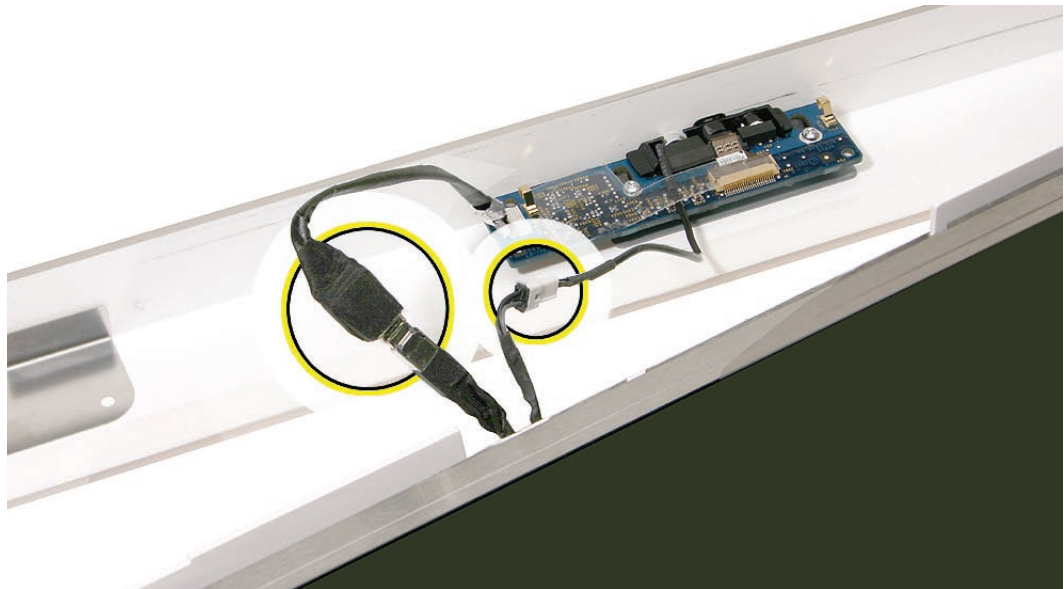


## Removing the Camera Board

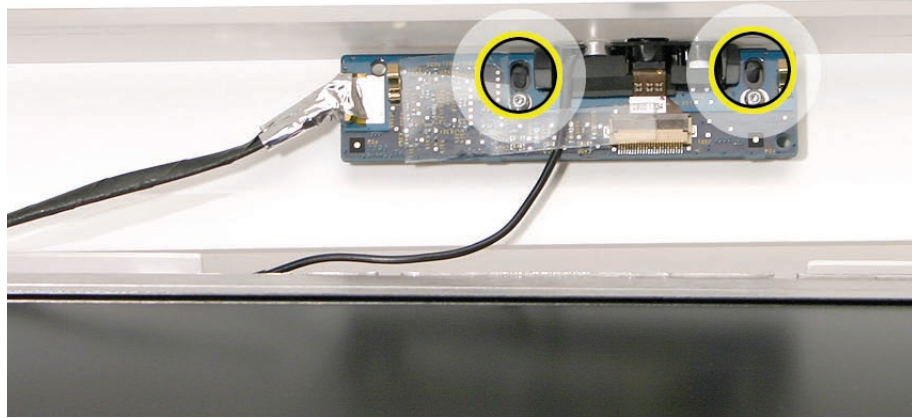
1. The camera board and cables are visible as you lift the front bezel off the computer.



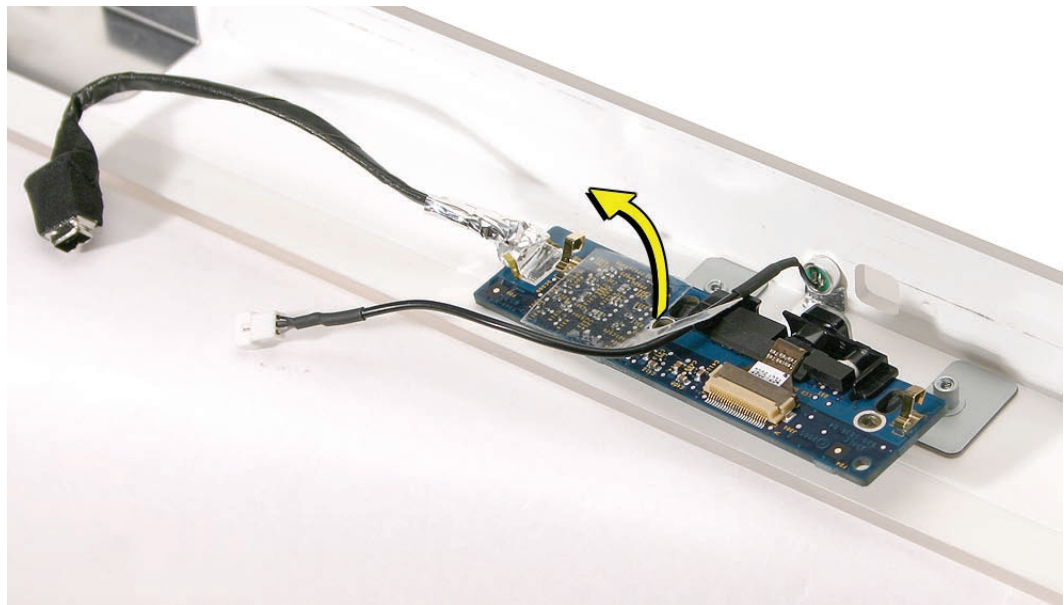
2. Disconnect the camera and microphone cables.



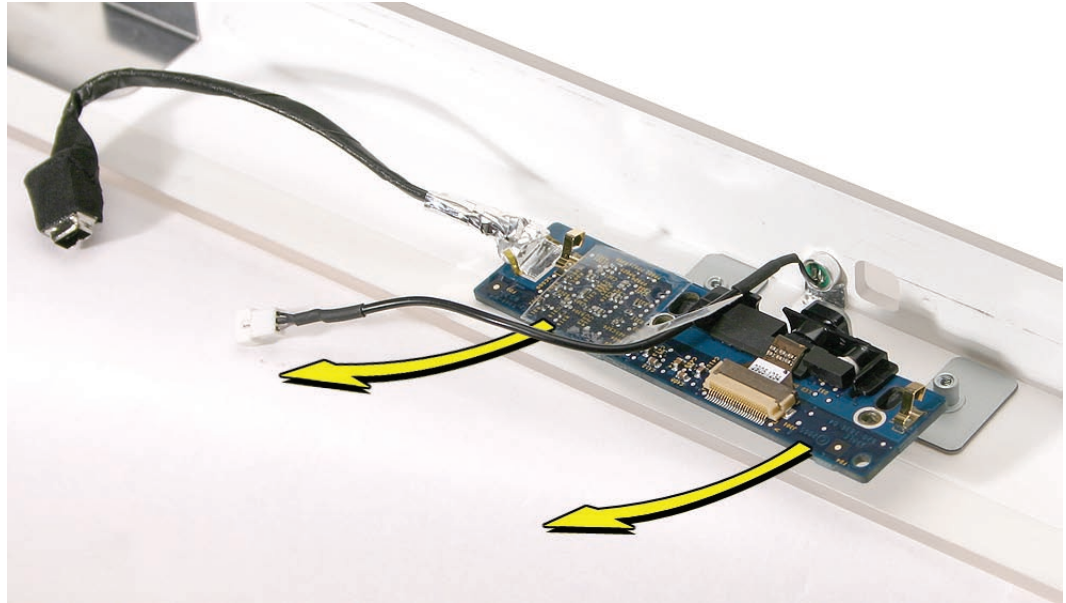
3. Remove the two T6 screws on the camera board.



4. Peel back the clear mylar material to free the microphone cable from the camera board.



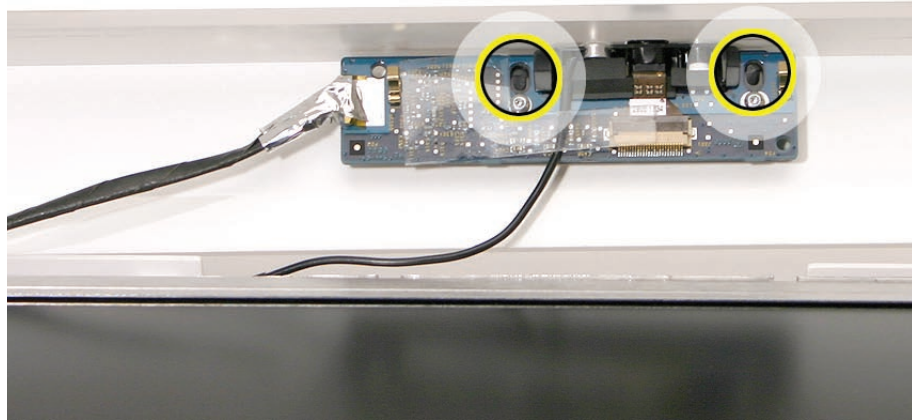
- 
5. Remove the camera board from the front bezel.



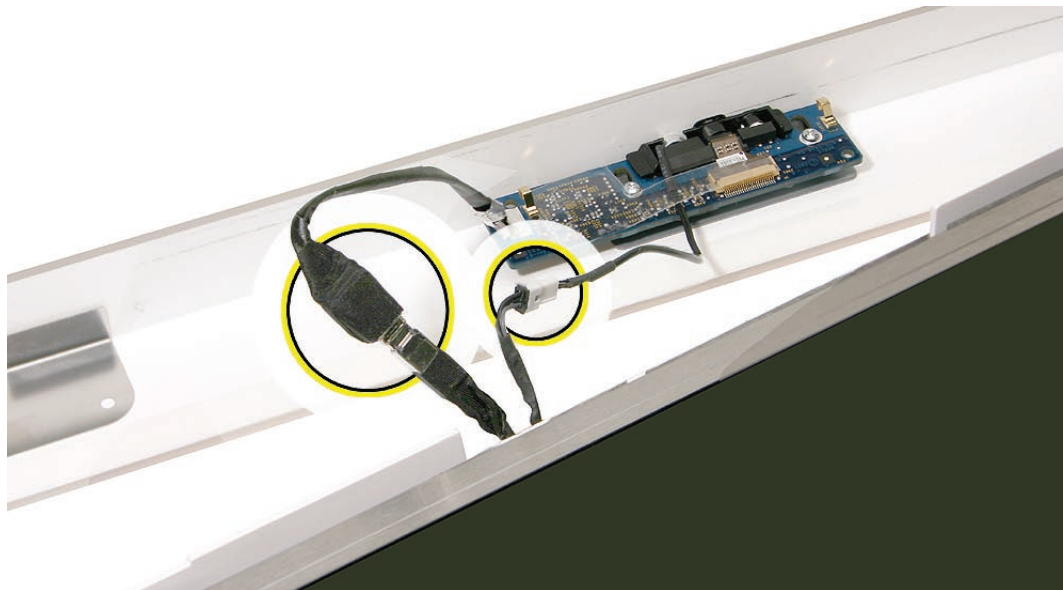
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## Replacing the Camera Board

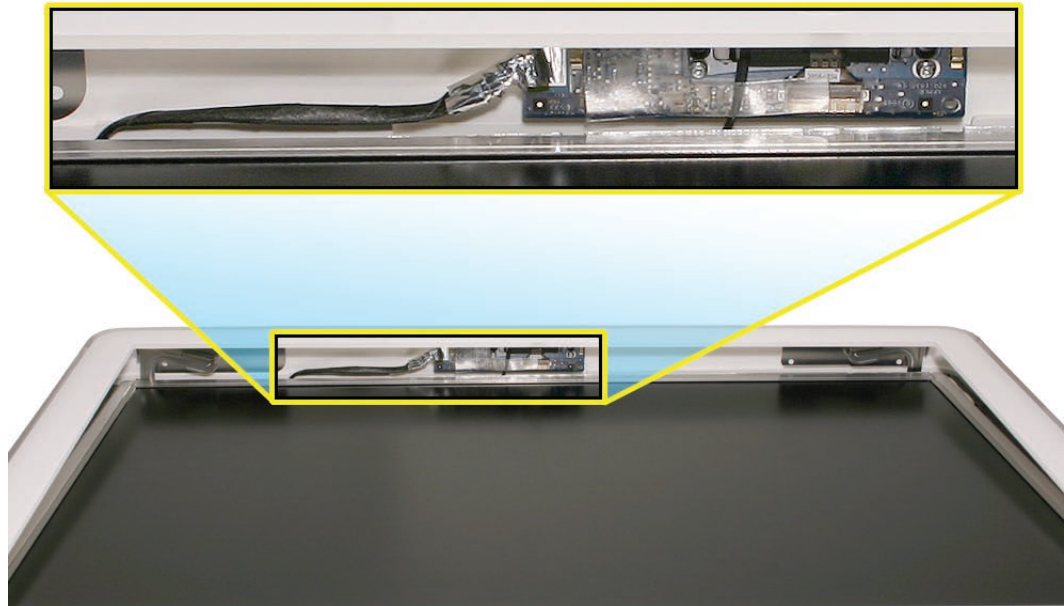
1. Replace the camera board on the front bezel. Carefully align and insert the camera lens until it is snug in the bezel aperture
2. Replace the two screws on the camera board. Route the microphone cable under the clear mylar.



3. Connect the camera and microphone cables.



4. Tuck the camera board cables neatly into the channel on the rear housing.



5. Continue to lower the front bezel down over the pull rings (in the memory compartment) and then lower the top corners of the front bezel so they connect with the magnetic latches.  
**Note:** check that the latches are connected by lifting the front bezel at each corner.
6. Replace the three bezel screws along the bottom of the computer.
7. Replace the access door; tighten the two captive screws





## Lower EMI Shield

### Tools

The only tool required for this procedure is a black stick (or other nonconductive nylon or plastic flat-blade tool).

### Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)

### Part Location



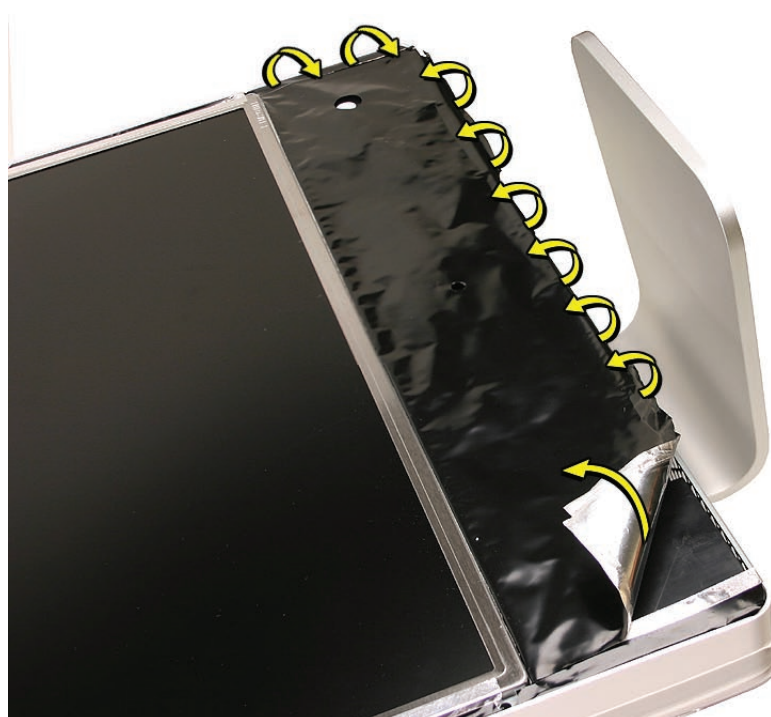
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## Removing the Lower EMI Shield

1. Carefully peel the EMI shields off the each side of the lower rear housing. Use a black stick to help peel back the shields.



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



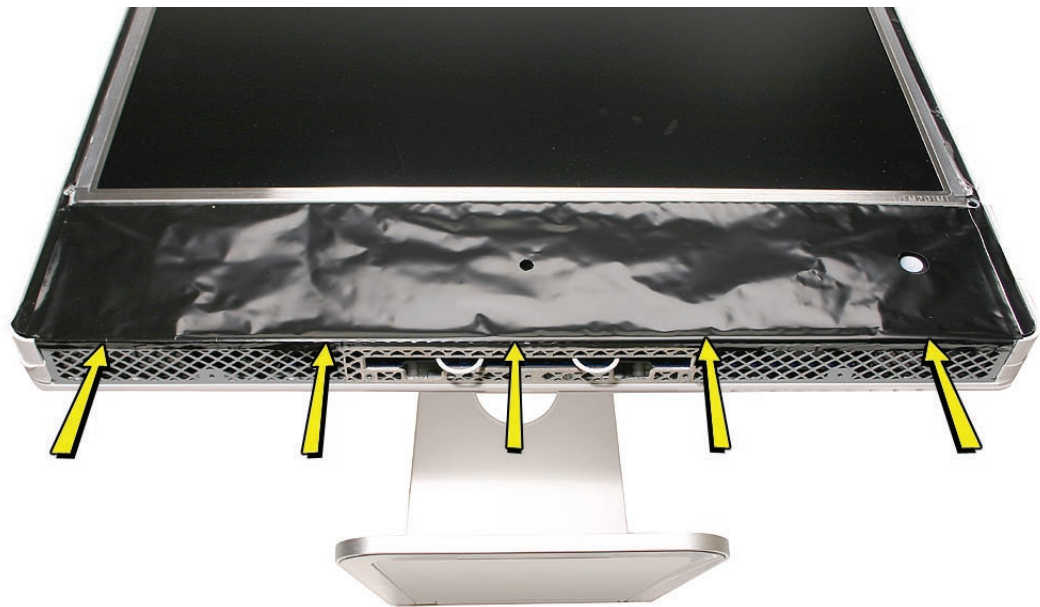
- 
3. Peel the lower EMI shield upward to remove or view the:
- LCD display panel
  - Speakers
  - IR board
  - AirPort Extreme/Bluetooth card
  - Troubleshooting LEDs



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## Replacing the Lower EMI Shield

1. Position the lower EMI shield over the bottom of the unit so that the holes (for the IR board and the LED) in the shield are properly aligned.
2. Press the sticky, 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 any air bubbles and ensure that the EMI shield adheres firmly and without wrinkles along all edges.



4. Replace the front bezel.
5. Replace the access door.



## IR Board

### Tools

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

### Preliminary Steps

Before you begin, remove the following:

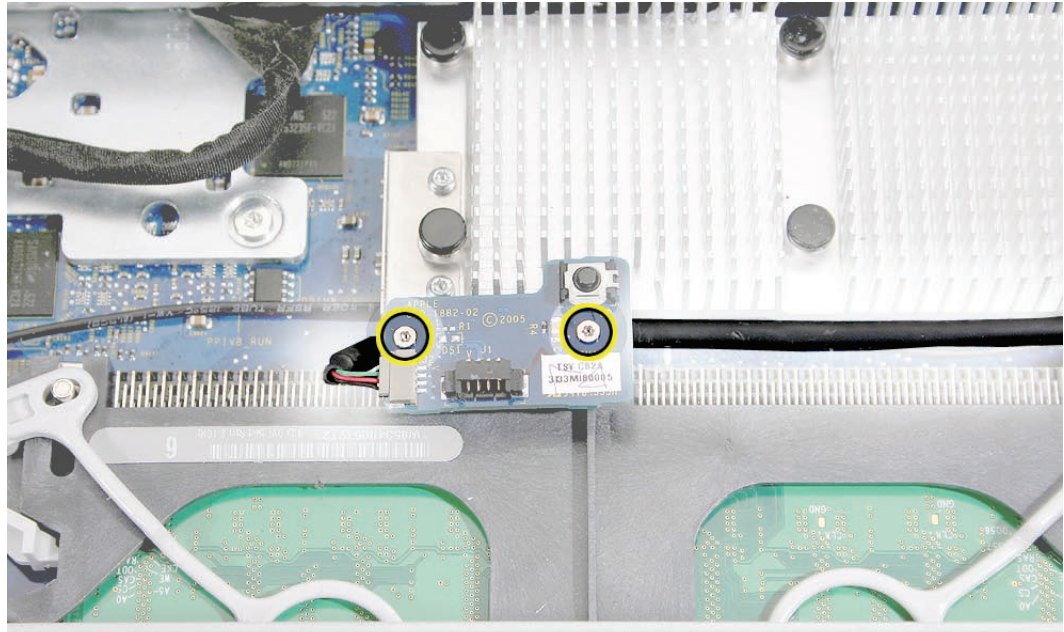
- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)

### Part Location

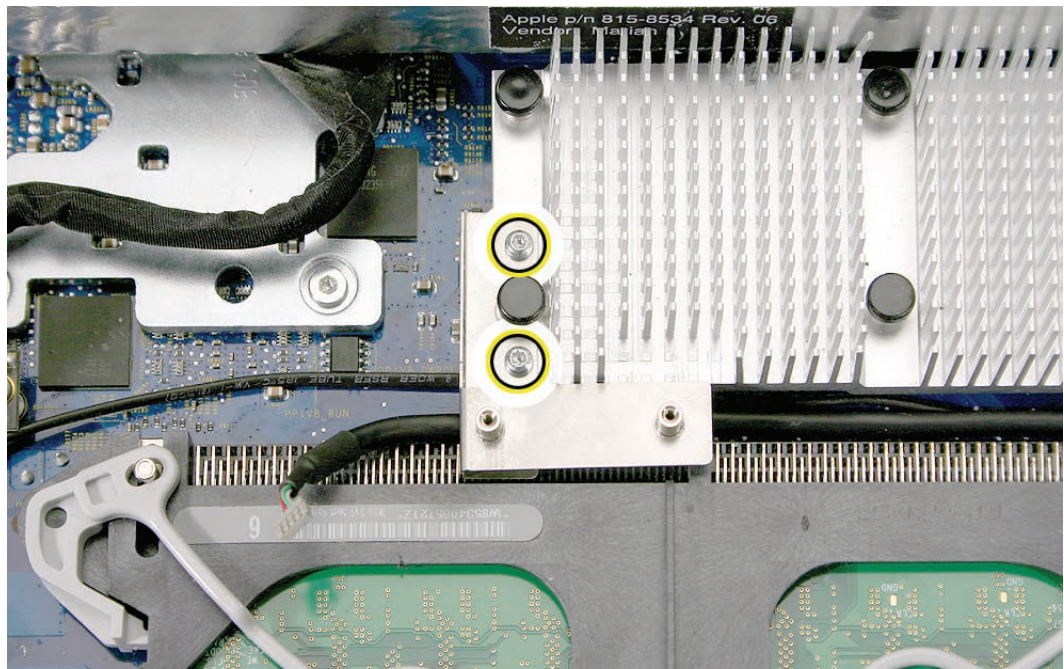


## Removing the IR Board

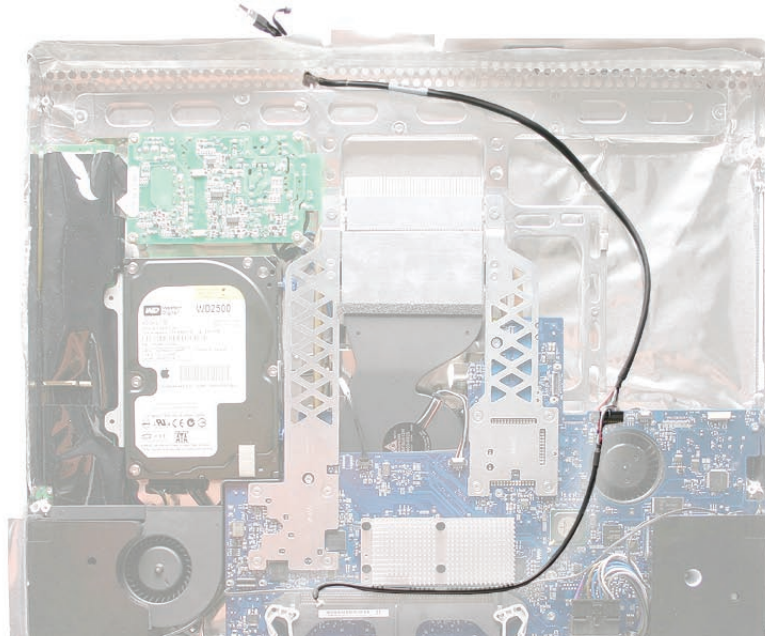
1. Disconnect the IR cable from the IR board connector.
2. Using a Torx T6 screwdriver, remove the two IR board screws. Remove the IR board from its mounting bracket.



3. Using a Torx T6 screwdriver, remove the two IR board mounting screws. Remove the IR board mounting bracket from the logic board.



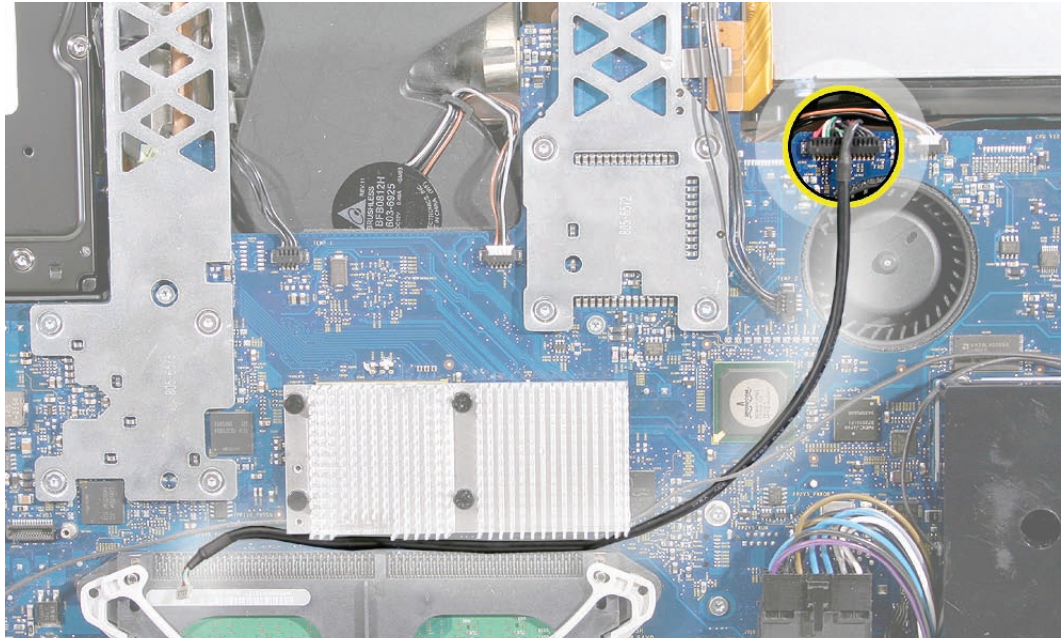
- 
4. **Note:** If you are replacing the IR cable, you must remove the optical drive and disconnect the cable from the logic board.



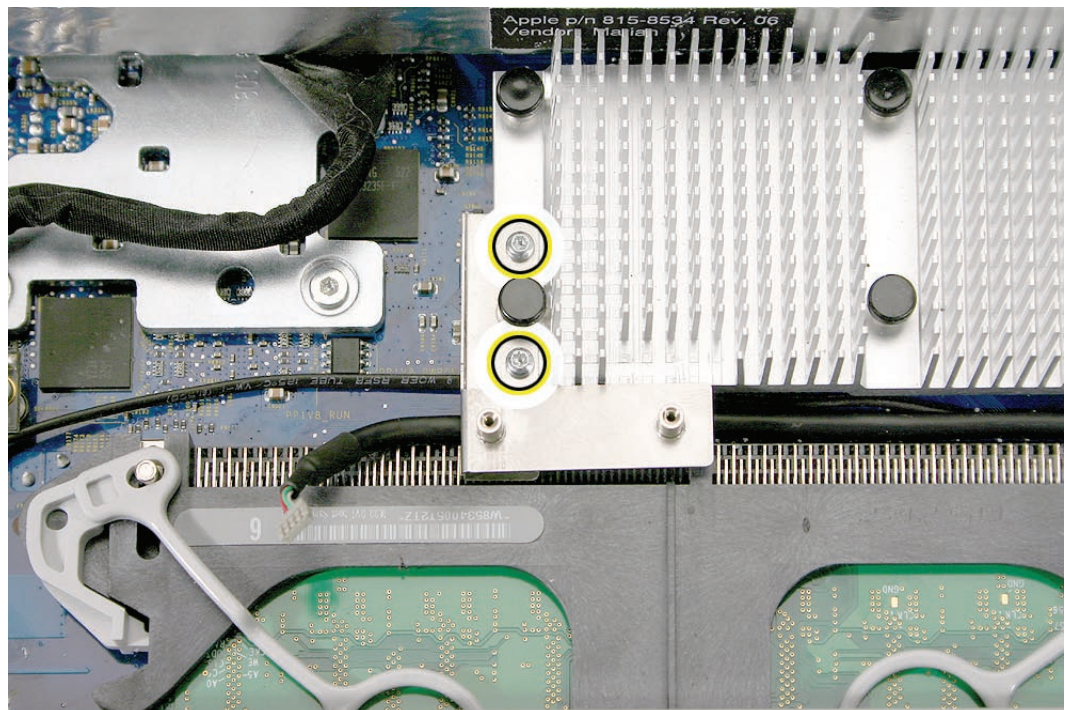
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## Replacing the IR Board

1. Route the IR cable as shown below and make sure the cable is connected to the logic board.

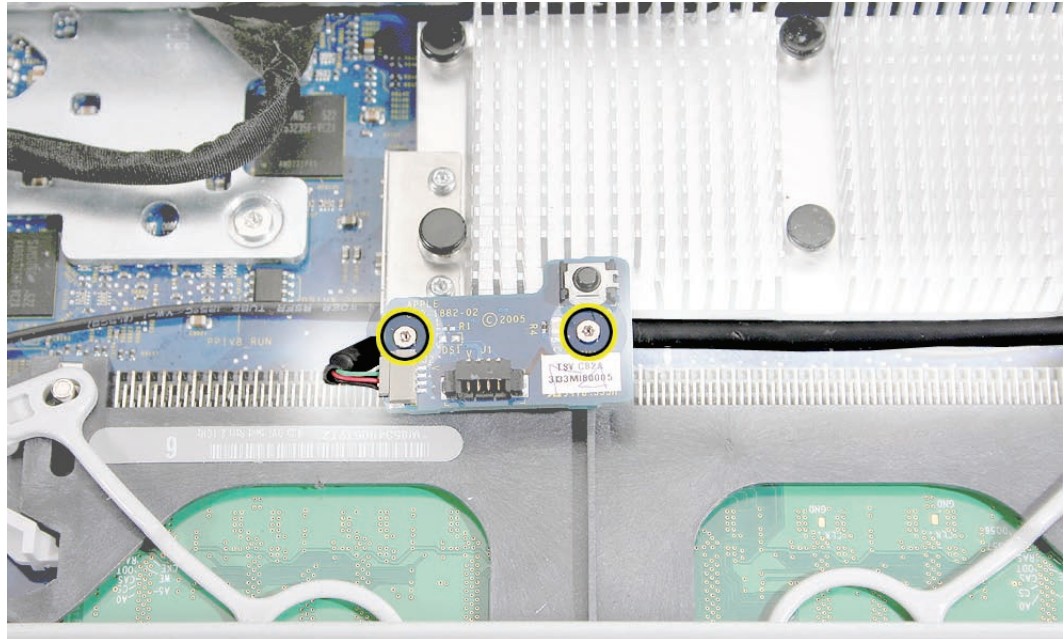


2. Install the IR board mounting bracket and screws.





3. Replace the IR board onto the mounting bracket. Connect the cable and replace the two T6 screws.



4. Replace the lower EMI shield.
5. Replace the front bezel.
6. Replace the access door.



# LCD Display Panel

## Tools

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

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)

## Part Location



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## Removing the Display Panel

1. Using your fingers or a black stick, carefully peel the EMI tape off the right and left sides of the lower housing.



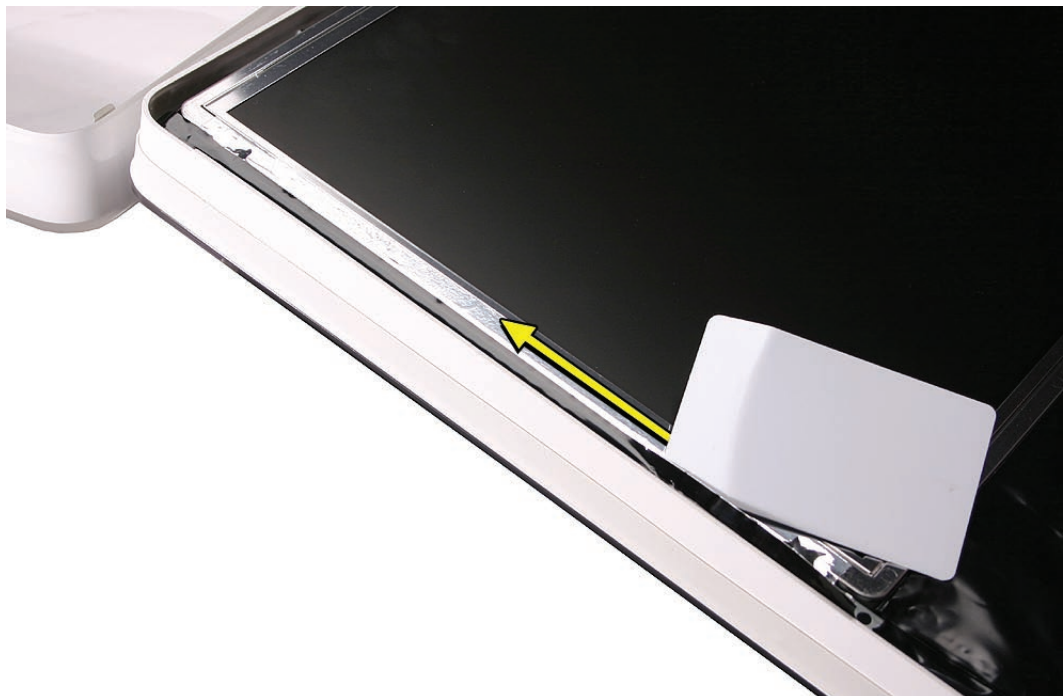
2. Peel the bottom of the EMI shield off the frame.



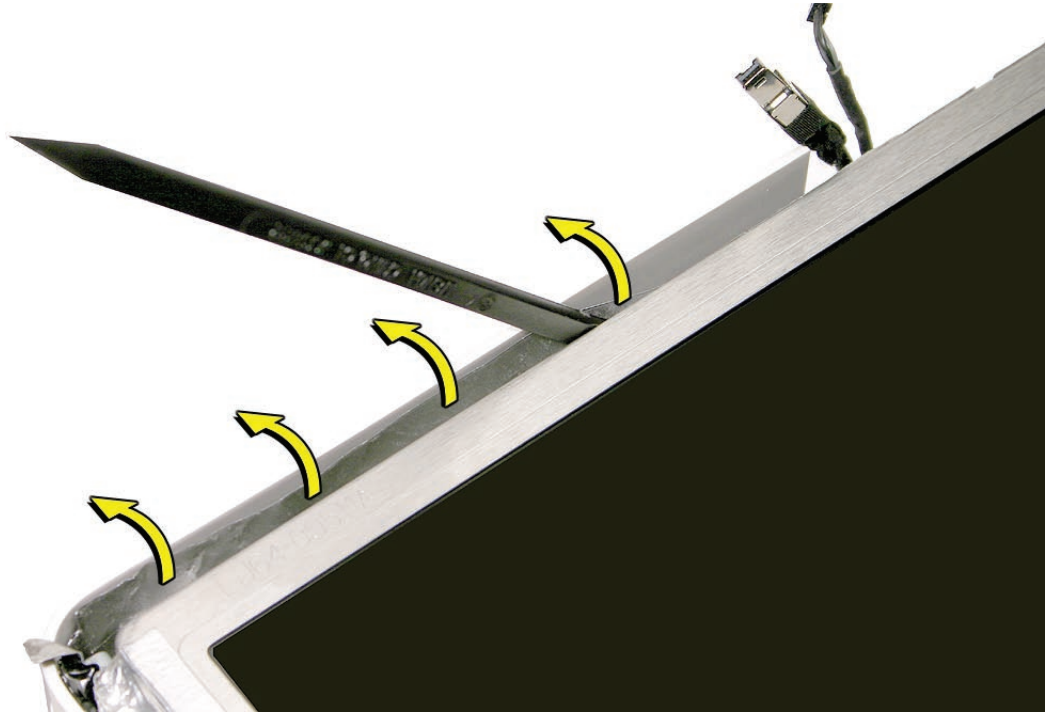
- 
3. Peel the EMI housing up as shown.



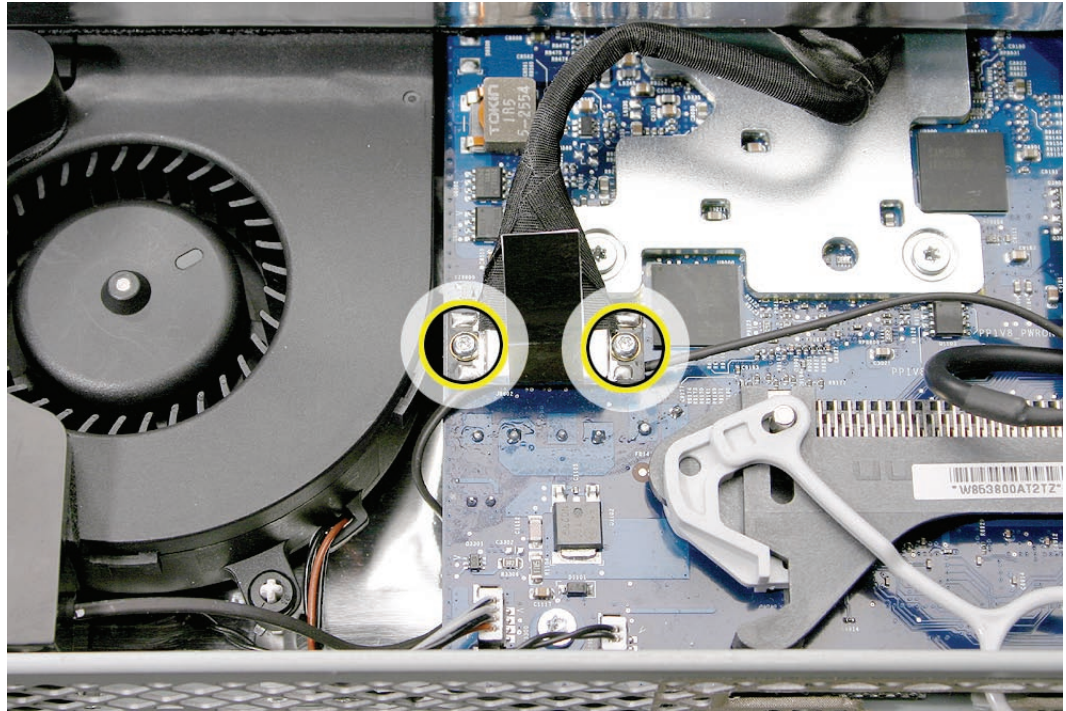
4. Using the access tool, a black stick, or your fingers, peel the black EMI tape off the right and left sides of the panel.



- 
- Using the access tool or black stick, peel back the black EMI tape stuck along the entire length of the top panel.



- Using a Torx T6 screwdriver, remove the two TMD5 connector screws. Pull the black tab on the connector to disconnect the TMD5 cable from the logic board.



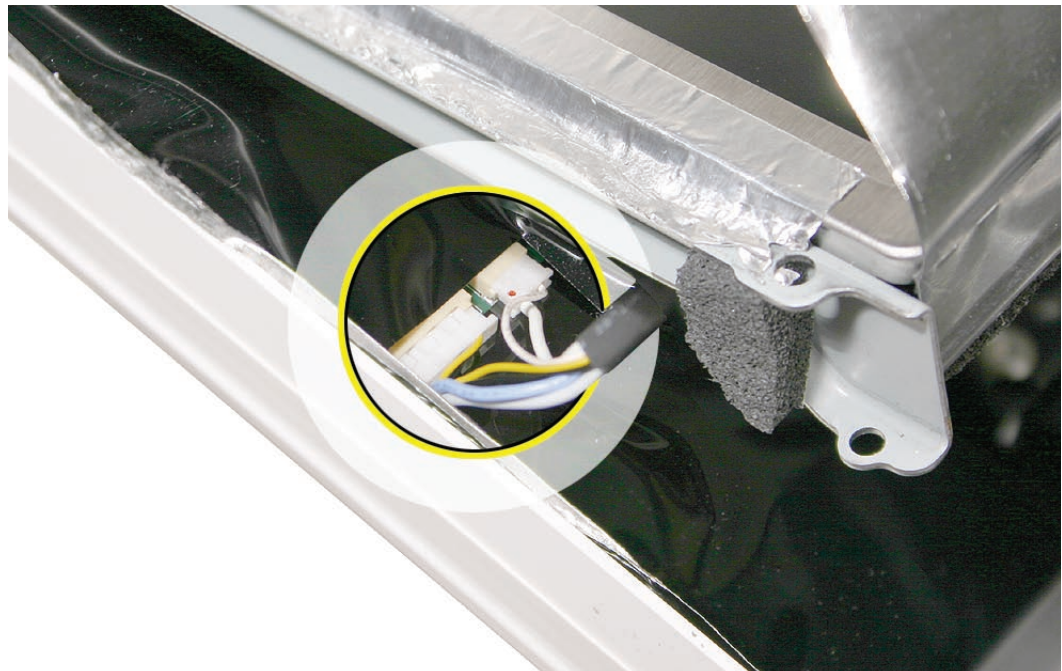
- Using a Torx T10 screwdriver, remove the four panel mounting screws.



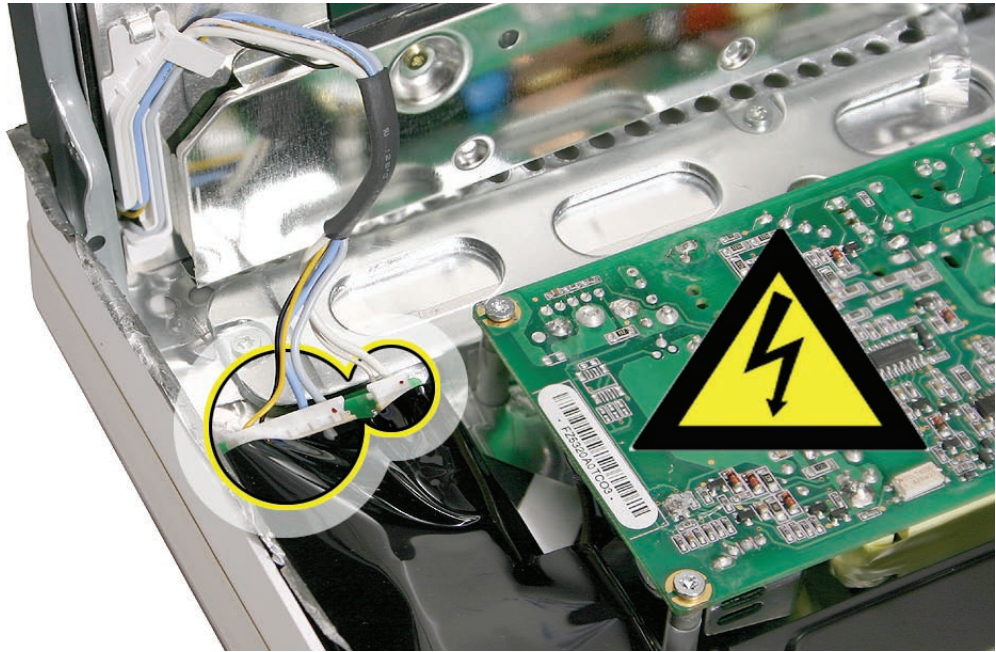
- Lift the panel up just enough to see the inverter cables on the left side.



- Disconnect the two panel-to-inverter cables on the bottom left side of the display.  
**Replacement Note:** The cable connectors are marked with dots to indicate “right-side-up”.



- 
10. Raise the panel up the rest of the way to locate the two inverter cables on the top left side of the display. **Replacement Note:** The cable connectors are marked with dots to indicate “right-side up”.



11. Lift the panel off the computer.  
**Note:** If replacing the display panel, remove the lower EMI shield (if still attached), the display panel mounting brackets, and the TMDS cable from the back of the display panel before returning the module to Apple.





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## Replacing the Display Panel

1. Replace the TMDS cable on the rear of the display panel.
2. If removed, replace the metal panel mounting brackets to each side of the display.
3. Connect the four inverter-to-display cable connectors. Remember the connectors are keyed; dot-side-up.
4. Replace the display panel with four mounting screws.
5. Connect the TMDS cable connector on the logic board and secure it with two screws.
6. Fold the EMI tape firmly over the left, top, and right edges of the display panel. Use your fingers or the black stick to adhere the tape firmly and rub out wrinkles. **Note:** If the tape was ripped or damaged, replace the damaged EMI tape with new EMI tape
7. Replace the lower EMI shield.
8. Replace the front bezel.
9. Replace the access door.



# Speakers

## Tools

- Torx T10 screwdriver

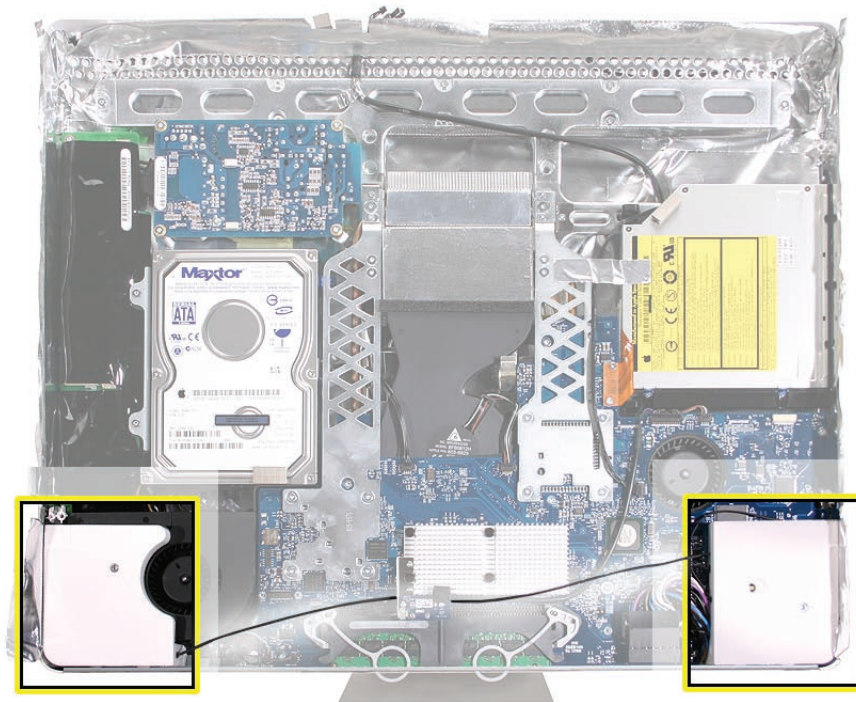
## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)

## Part Location

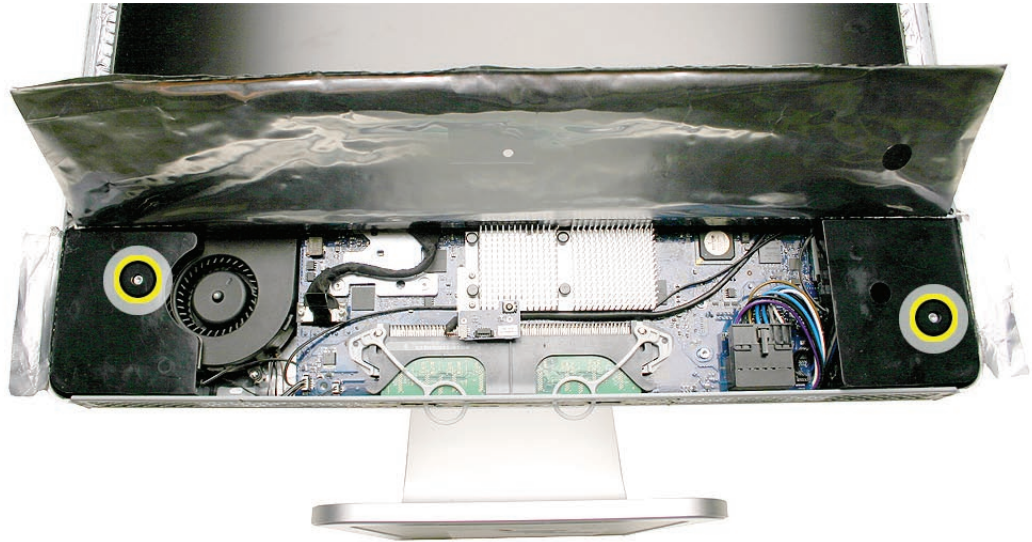
**Note:** The speakers on all production units are white, as shown below, however, the photos in this manual were taken with a pre-production unit.



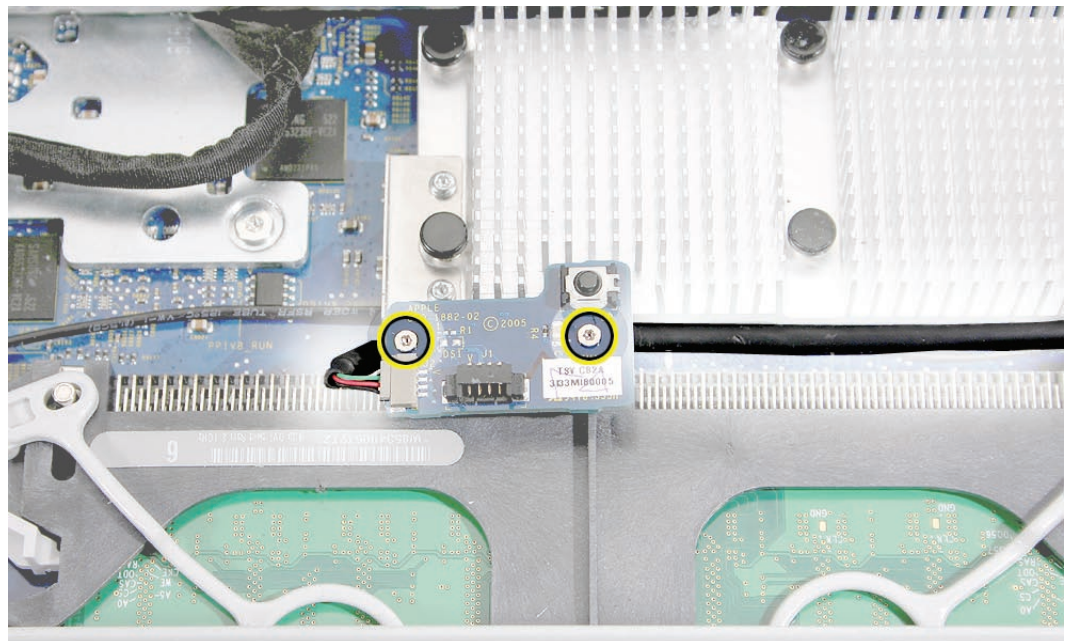
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## Removing the Speakers

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.

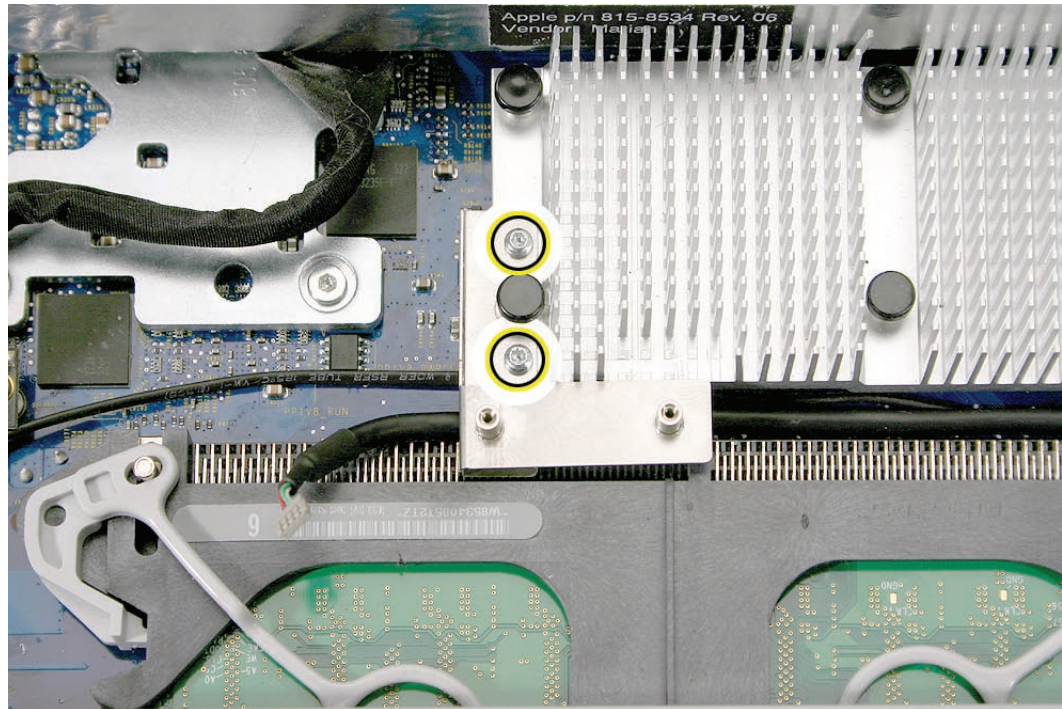


2. Using a T6 torx screwdriver, remove the screw that secures the IR board to the IR mounting bracket. Disconnect the IR cable from the IR board.

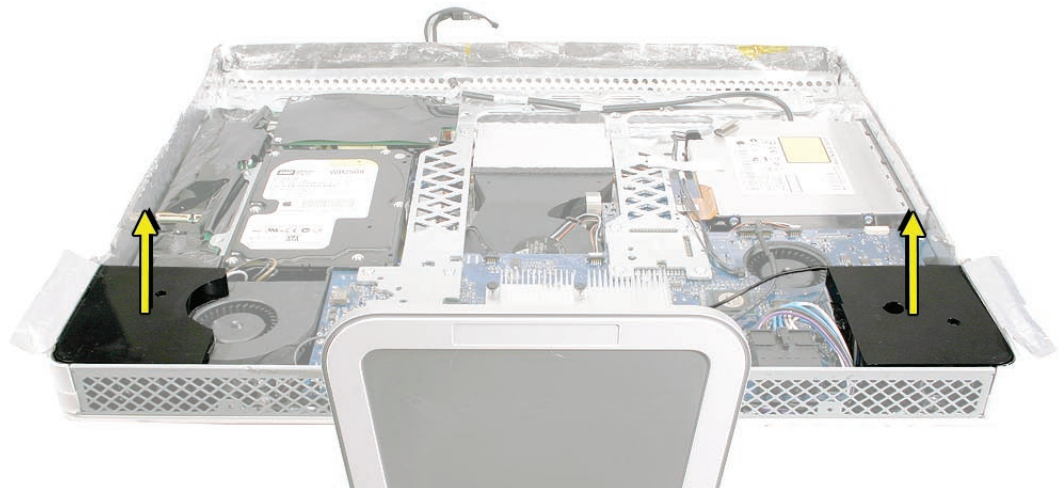


3. Remove the IR mounting bracket screws. Lift the bracket off the logic board to free the speaker cable.

**Replacement Note:** Take note of the location and positioning of the speaker cable (top cable in this photo) for reinstallation later.



4. Lift the speakers and attached cable straight up.



- 
5. Under the right speaker, disconnect the speaker cable from the logic board.



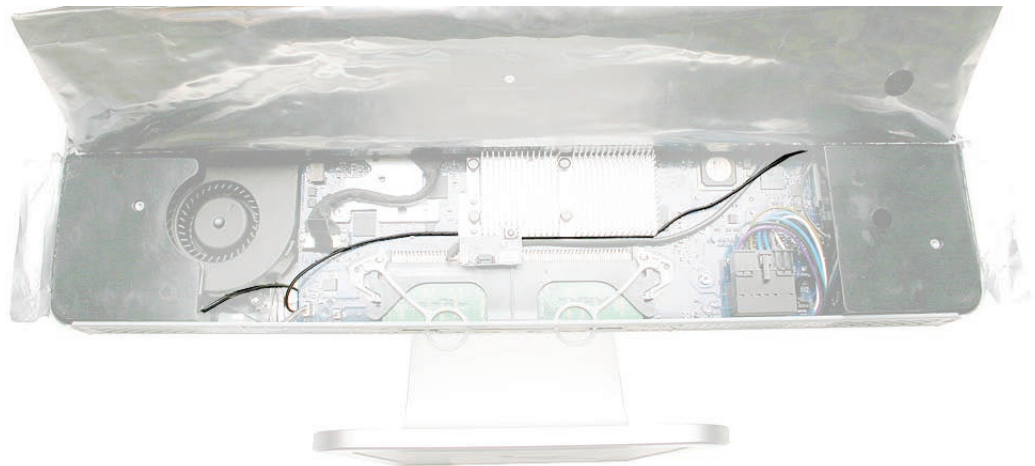
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## Replacing the Speakers

1. Connect the speaker cable to the logic board.



2. Install the speakers and route the speaker wire as shown below.



3. Secure the right speaker with the smaller of the two mounting screws.
4. Secure the left speaker with the longer of the two mounting screws.
5. Install the metal IR mounting bracket and two T6 screws.

- 
6. Install the IR board and two T6 screws to the IR mounting bracket.
  7. Replace the display panel.
  8. Replace the lower EMI shield.
  9. Replace the front bezel.
  10. Replace the access door.



# Memory

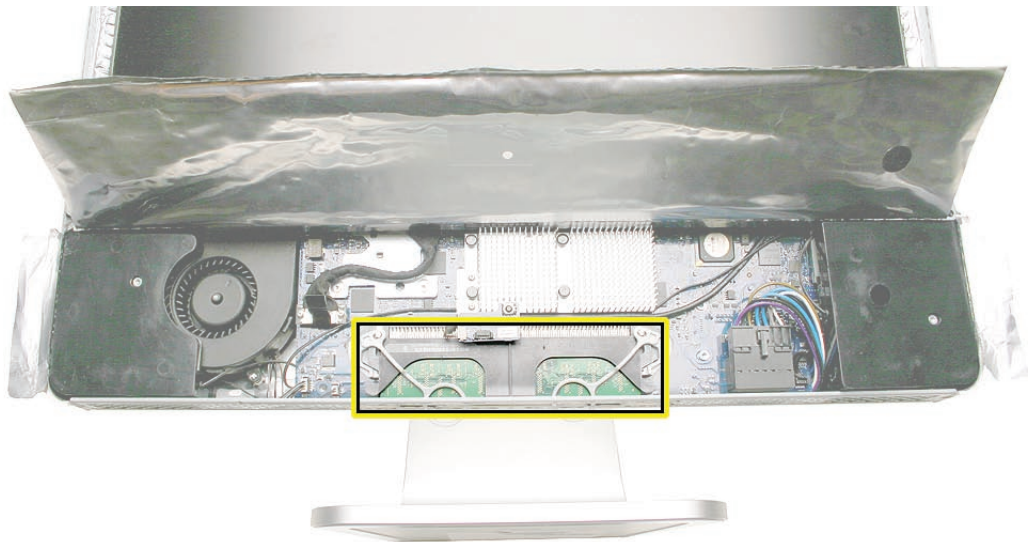
## Tools

- Phillips #2 screwdriver
- ESD mat, soft , clean towel or cloth

## Preliminary Steps

Before you begin, lay the computer down so the panel is face down with the bottom is facing you; and remove the [access door](#).

## Part Location





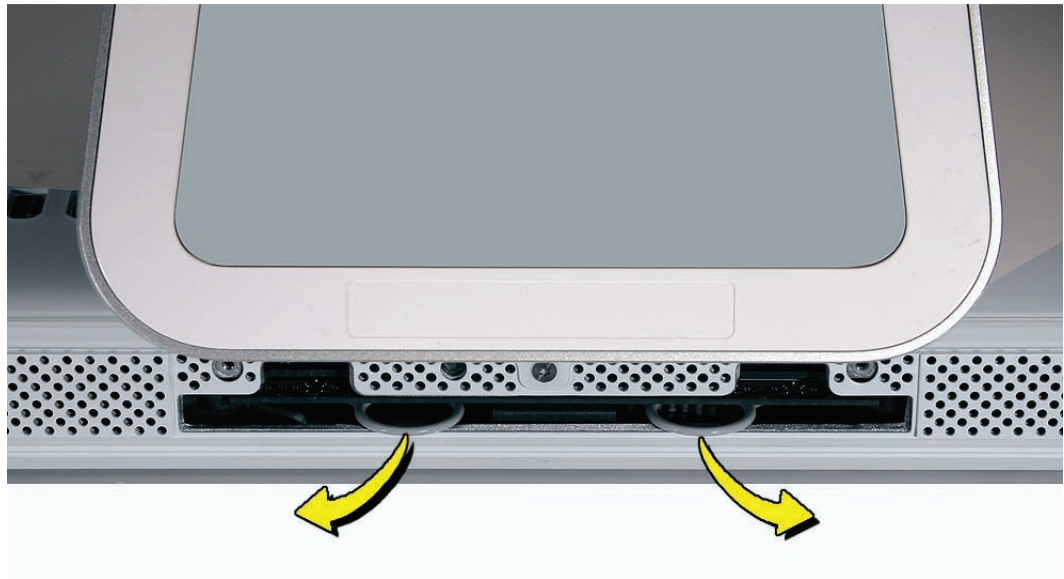
---

## 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 rings in the memory compartment down simultaneously. If a memory module is installed in the slot, pulling the rings will dislodge it.

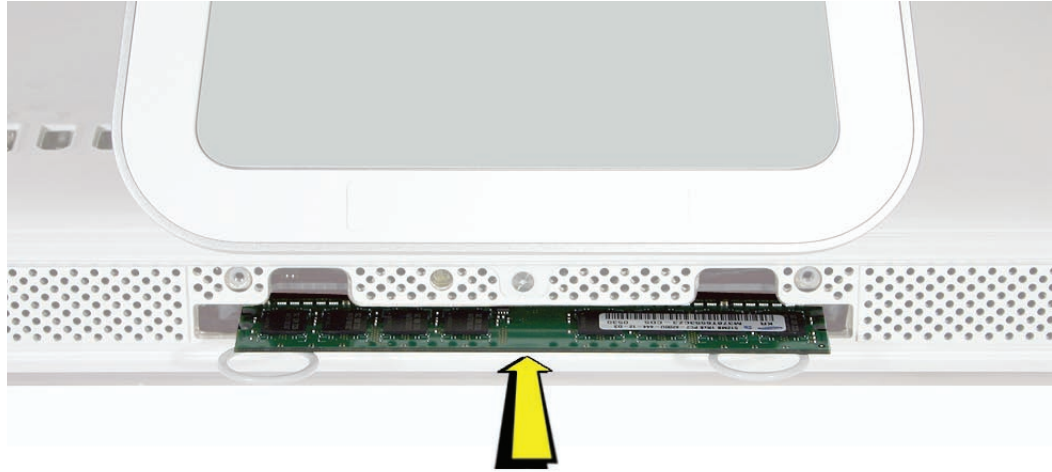


3. Set the memory module aside.

---

## Replacing the Memory

1. Insert the memory module into the memory compartment. The module fits in the slot only one way (see graphic below). **Note:** Refer to the illustrations on the bottom of the stand for additional memory installation information.



2. Replace the access door using it to push the rings into the memory compartment.
3. Use a Phillips #2 screwdriver to tighten the captive screws on the access door.



# AirPort Extreme/Bluetooth Card

## Tools

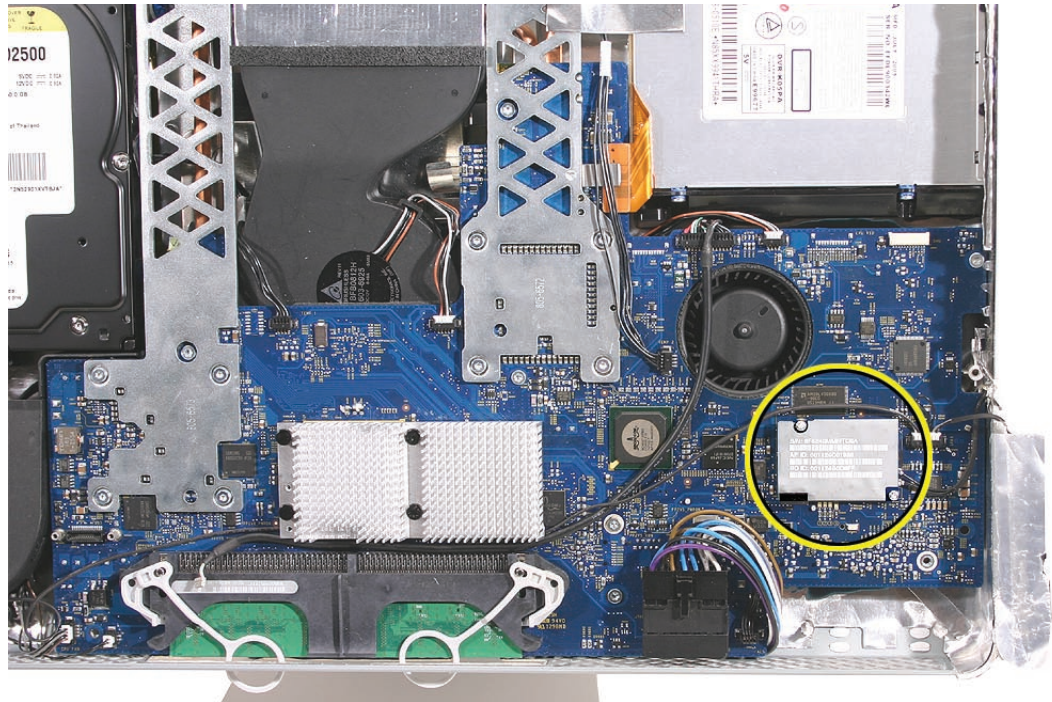
- Torx T6 screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)
- [Speakers](#)

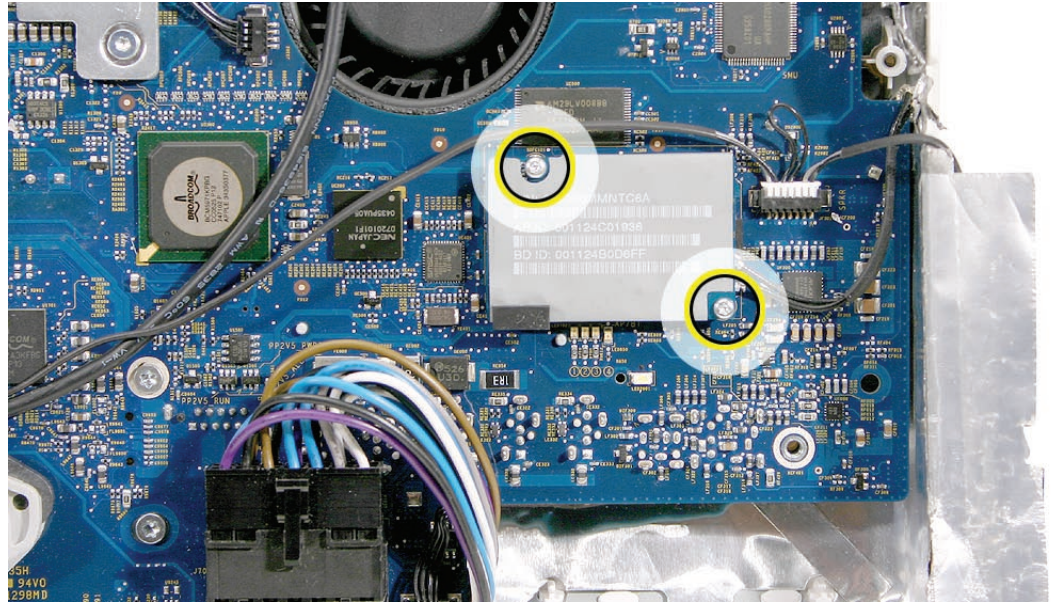
## Part Location



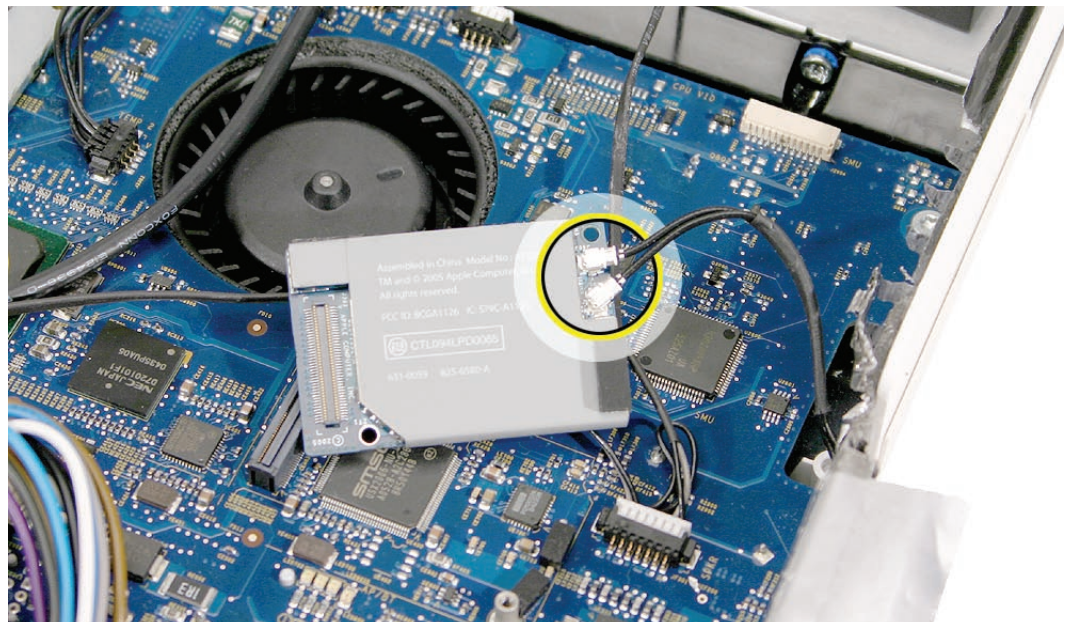
---

## Removing the AirPort Extreme/Bluetooth Card

1. Using a T6 torx screwdriver, remove the two screws on the AirPort Extreme/Bluetooth card. Pull the card straight up to disconnect it from the logic board.



2. Disconnect the two antenna cables from the AirPort Extreme/Bluetooth card.



---

## Replacing the AirPort Extreme/Bluetooth Card

1. Connect the two antenna cables to the card.
2. Press the AirPort Extreme/Bluetooth card onto the logic board connector. Make sure the card and antennas are securely connected before installing the speakers.
3. Replace the two AirPort Extreme/Bluetooth card screws.
4. Replace the speakers and speaker screws.
5. Install the metal IR mounting bracket and two T6 screws.
6. Install the IR board and two T6 screws to the IR mounting bracket.
7. Replace the display panel.
8. Replace the lower EMI shield.
9. Replace the front bezel.
10. Replace the access door.



# Optical Drive

## Tools

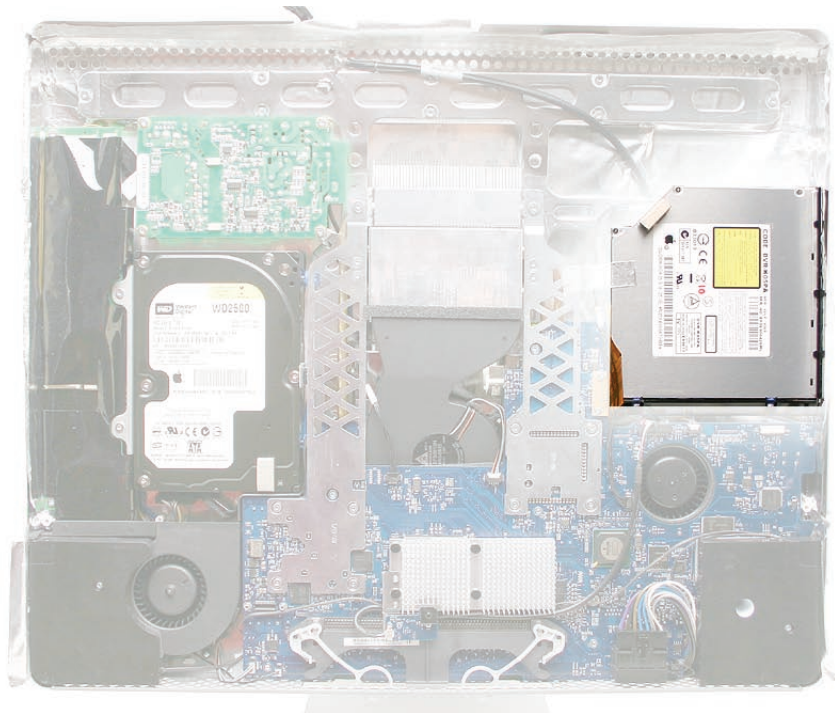
- Torx T10 screwdriver
- Torx T6 screwdriver
- Flat-blade screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)

## Part Location

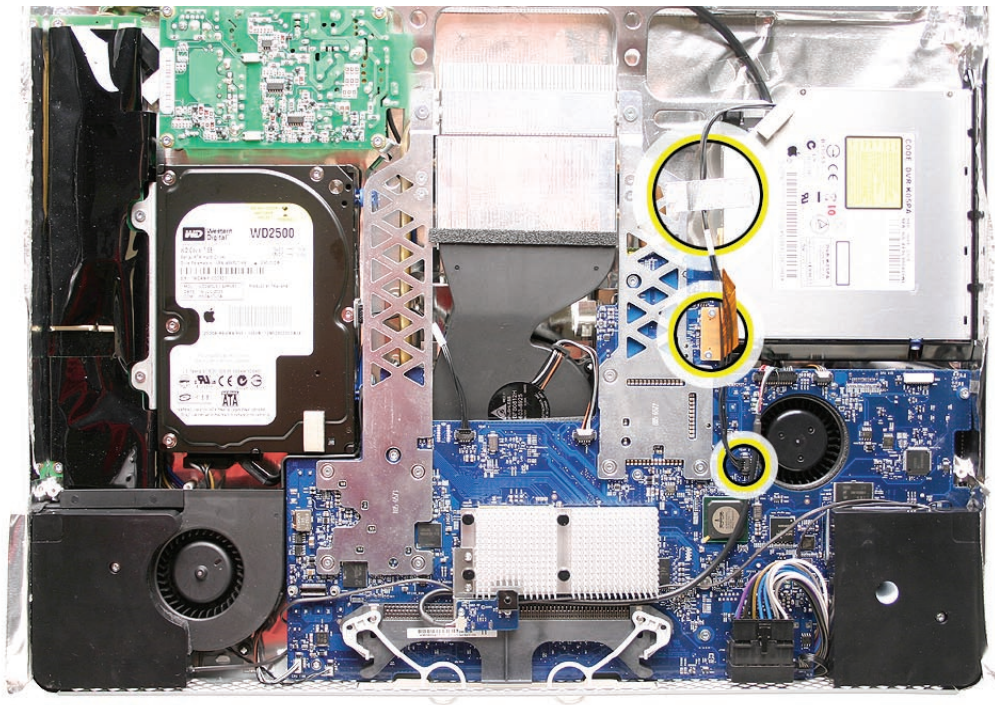


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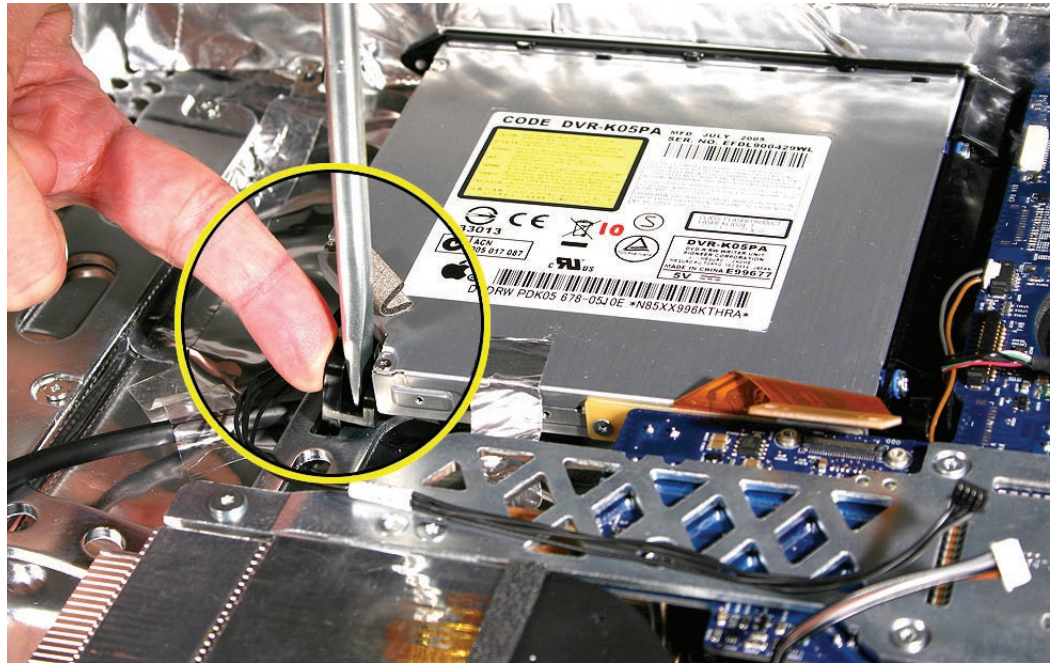
## Removing the Optical Drive

1. Looking at the circles below, starting with the top circle, do the following:  
Peel back the silver EMI tape going from the chassis frame to the optical drive, remove the two T6 screws on the optical drive flex cable, disconnect the flexible cable, and disconnect the optical drive sensor cable from the logic board.

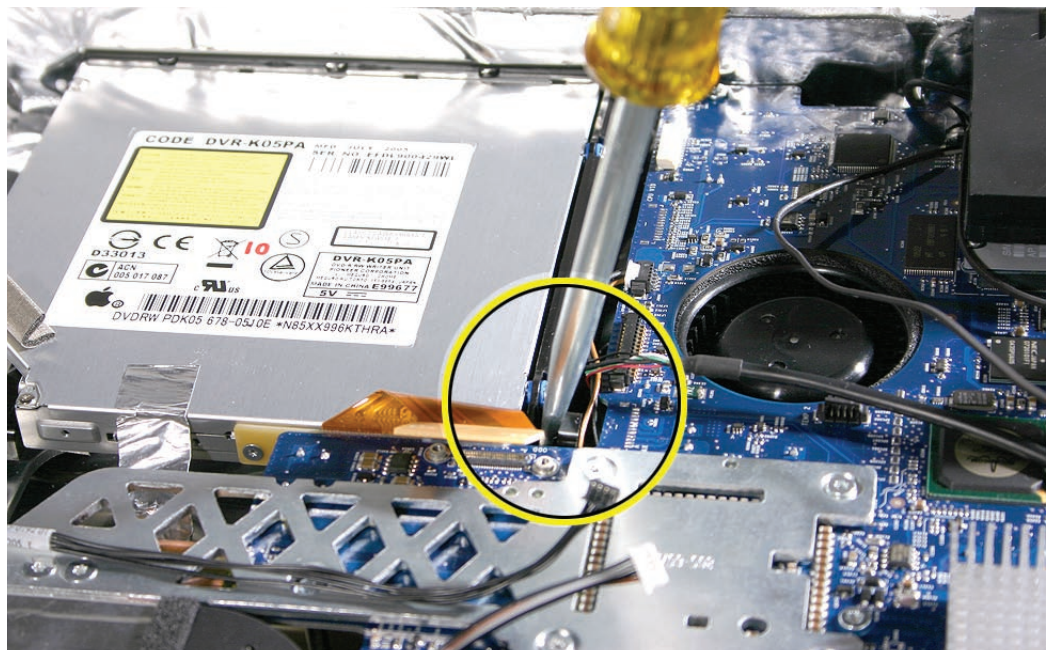
**Caution:** Never press down on or grasp the body of the optical drive. Pressing or squeezing the body of the optical drive could damage the mechanism.



2. Locate the black release levers on the mounting bracket. Using a flat-blade screwdriver as shown, press straight down at the base of the release lever, while pushing the release lever toward the center of the drive. Pressing down disengages the lever from the chassis. Repeat the process to unhook the other release lever. Refer to step 4 for another visual aide.

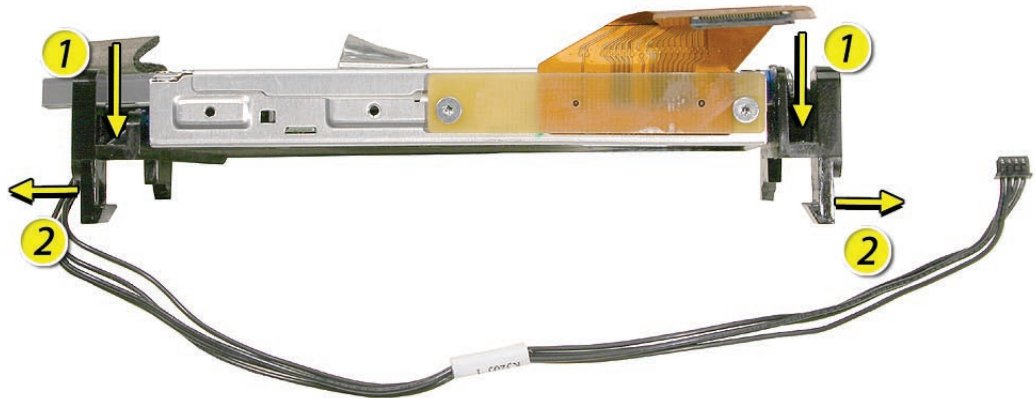


3. Repeat the release process on the second lever. Press down with the screwdriver, press the lever inward, toward the center of the optical drive. Lift the drive out of the housing.

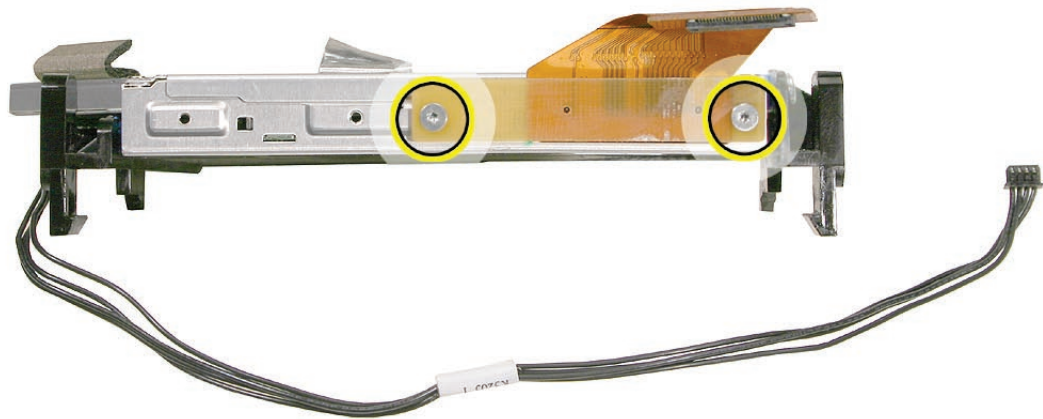




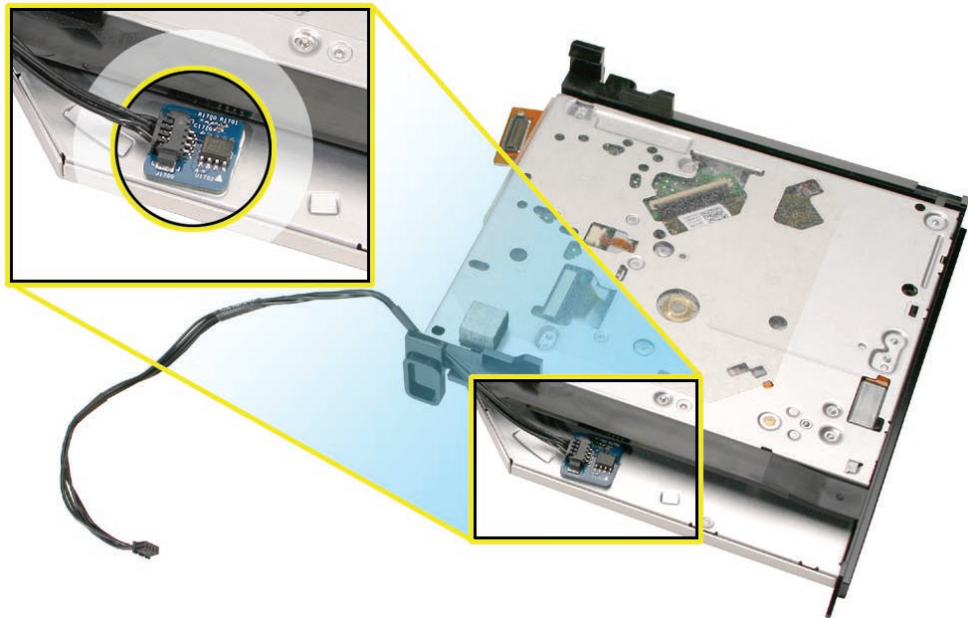
- 
4. This photo shows the optical drive out of the computer so you can visualize how the clips move. Pressing down (#1) releases the clips (#2) outward from the metal chassis.  
**Caution:** Never press down on or grasp the body of the optical drive when removing or installing it. Pressing or squeezing the body of the optical drive could damage the mechanism.



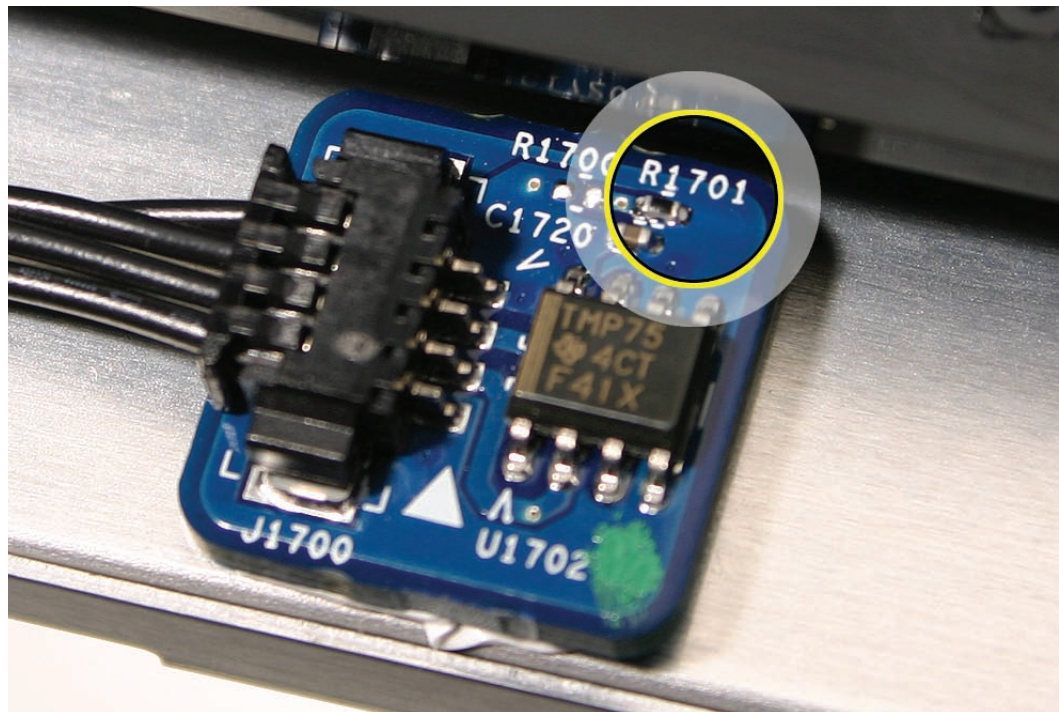
5. If replacing the optical drive, use a T6 torx screwdriver to remove two flex cable screws attaching to the optical drive. **Note:** Disconnect the flex cable and transfer it to the replacement drive. Go on to the next step.



6. If replacing the optical drive, disconnect the sensor cable from the optical sensor located on the underside of the optical drive. Transfer the sensor cable to the replacement drive.

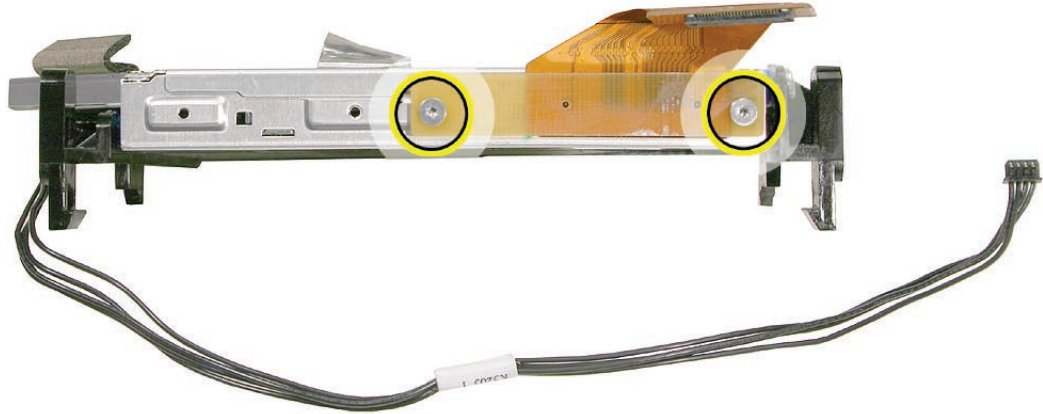


7. The optical drive sensor can be identified by the presence of resistor R1701. The hard drive also has a sensor, but the resistor that is present is R1700. **Note:** The optical drive sensor and mounting bracket will be attached to all replacement optical drives.



## Replacing the Optical Drive

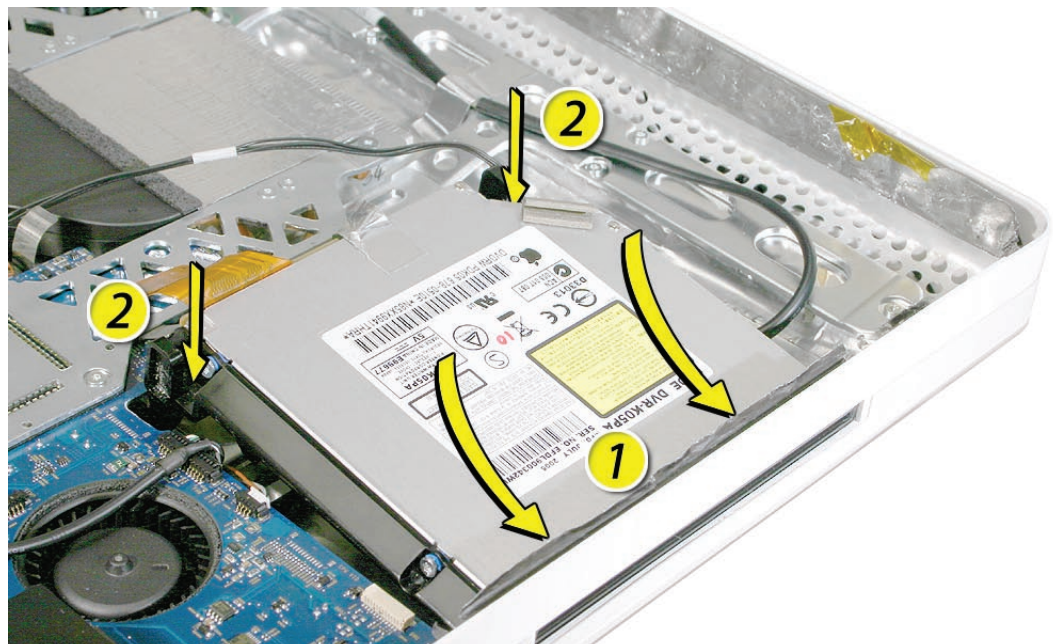
1. Install the flex cable to the optical drive with two T6 screws.



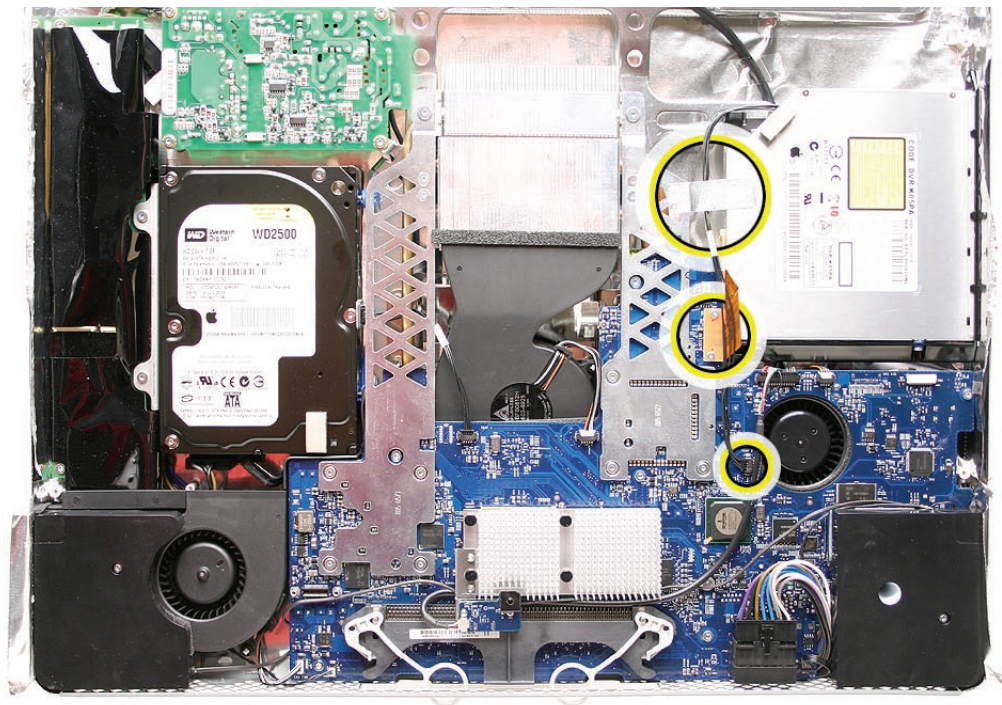
2. Insert the optical drive bezel into the rear housing, lining up the bezel with the slot opening (#1). Be sure to align the two guide holes in the front bezel with guide posts at each end of the drive access hole.

Push down on the mounting brackets (#2) to lock the optical drive securely into place on the chassis.

**Caution:** Never press down on or grasp the body of the optical drive when installing it. Pressing or squeezing the body of the optical drive could damage the mechanism.



3. Connect the optical sensor cable to the logic board, attach the flex cable and secure it with the T6 screws, and reattach the silver EMI tape.



4. Replace the display panel.
5. Replace the lower EMI shield.
6. Replace the front bezel.
7. Replace the access door.



# Hard Drive

## Tools

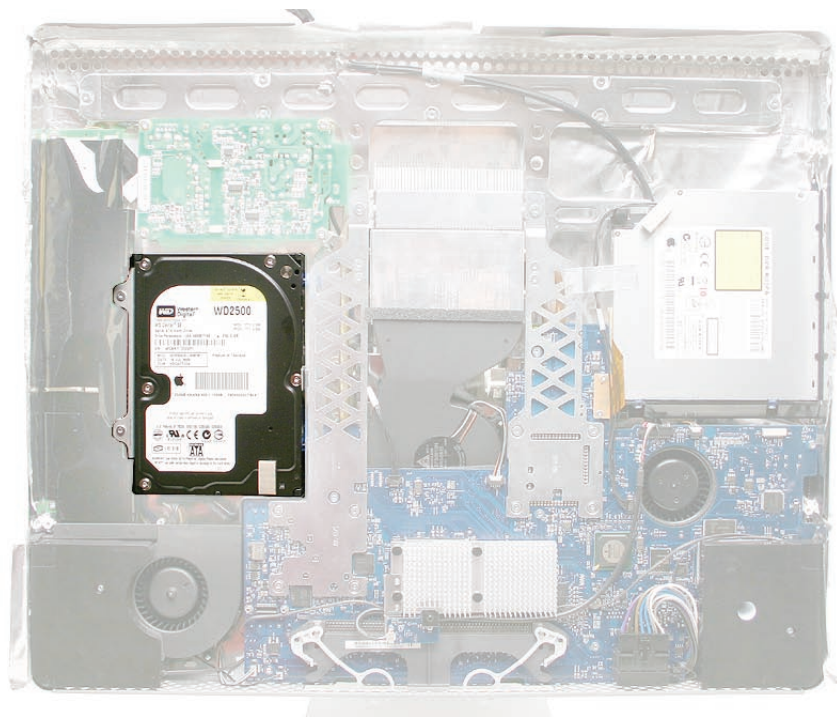
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

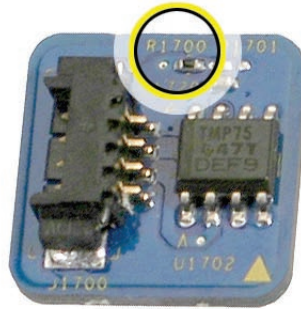
- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)

## Part Location

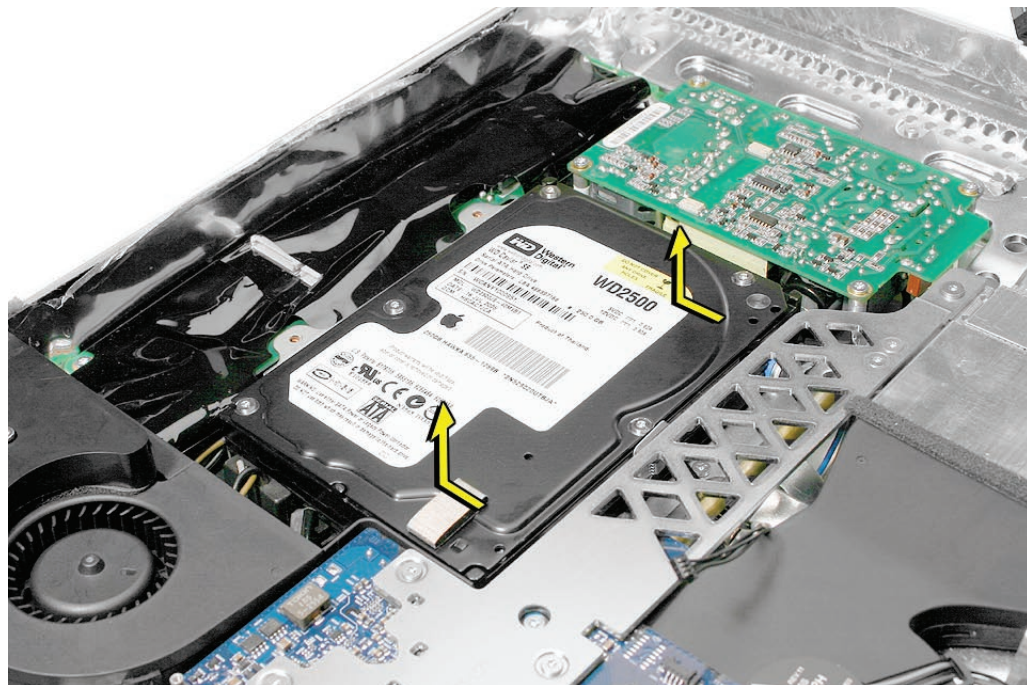




- The hard drive sensor is different from the optical drive sensor. The hard drive sensor can be identified by resistor R1700. **Replacement Note:** Make sure to transfer the sensor to the replacement hard drive. Use the double-stick tape enclosed with the replacement hard drive to attach the sensor to attach the sensor.



- Holding the drive by the metal bracket, pull the hard drive toward the inverter and then up to release the hard drive mounting pins from the grommets on the chassis.



5. Disconnect the hard drive power and data cables.



6. If you are replacing the hard drive, remove the temperature sensor, mounting bracket, and mounting pins (circled) before returning the drive to Apple. Transfer these parts to the replacement drive.





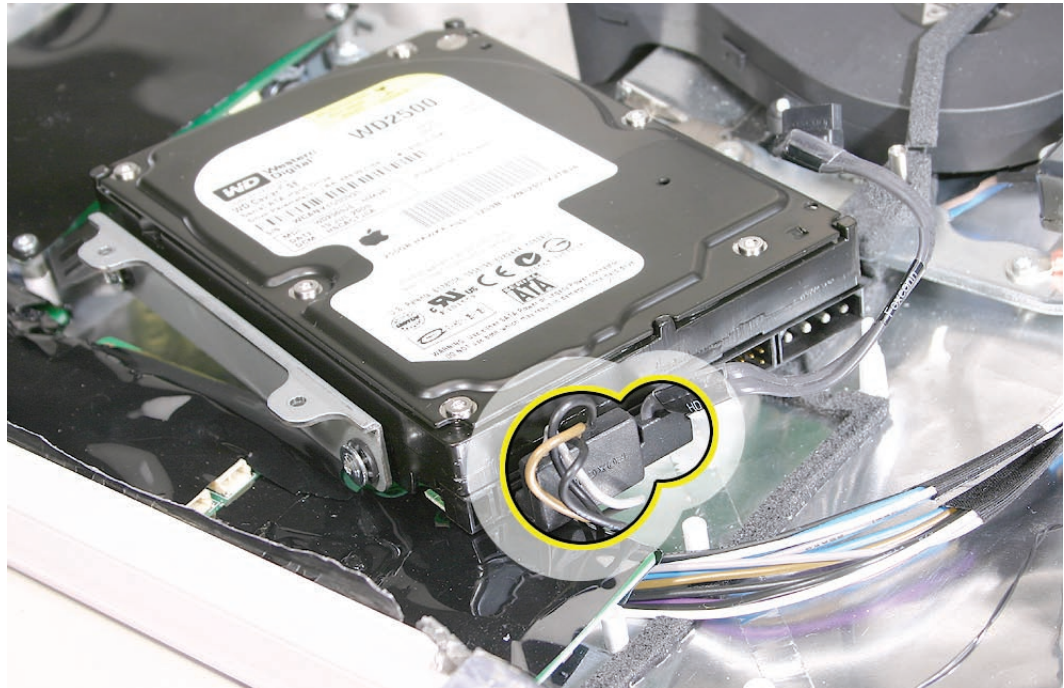
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## Replacing the Hard Drive

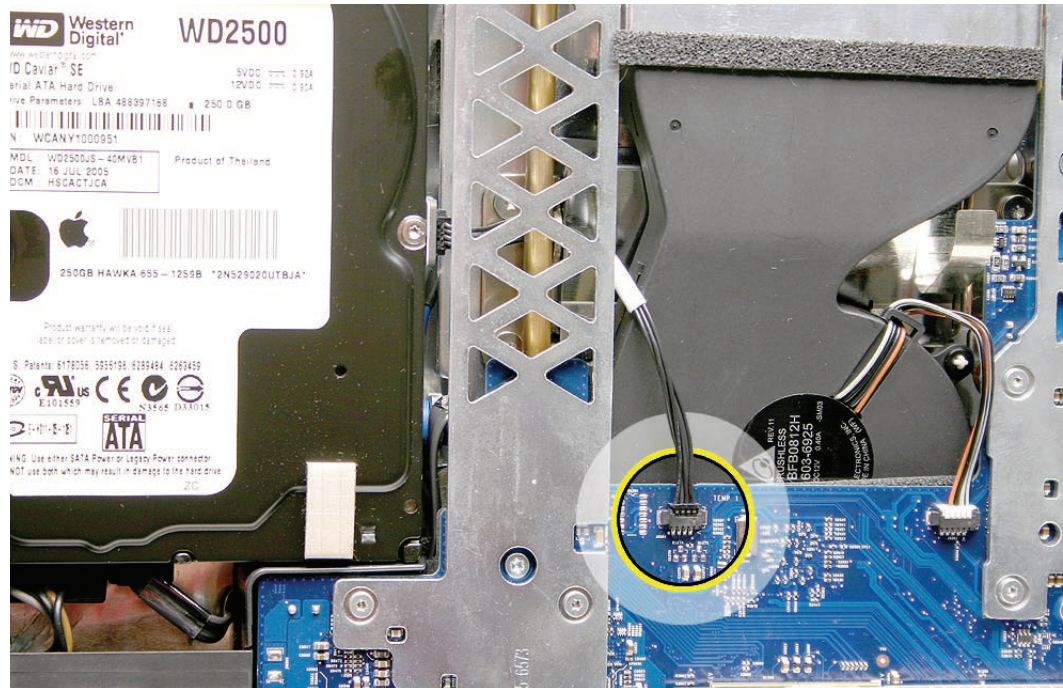
1. Attach the hard drive sensor and sensor cable to the side of the hard drive.



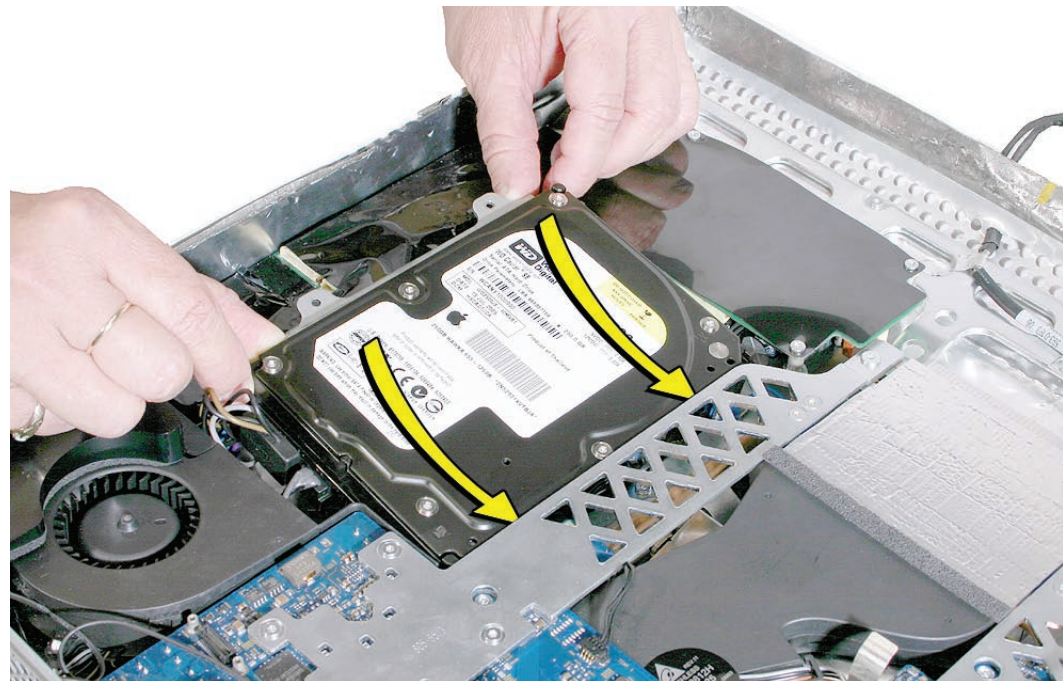
2. Attach the mounting bracket and pins if they were removed. Connect the hard drive data and power cables.



3. Route the hard drive sensor cable under the metal chassis. Connect the sensor cable to the logic board.



4. Insert the hard drive pins into the grommets. Lower the drive into the rear housing.



- 
5. Secure the two T10 screws on the hard drive mounting bracket to the DC/DC/inverter board.
  6. Replace the display panel.
  7. Replace the lower EMI shield.
  8. Replace the front bezel.
  9. Replace the access door.



# Power Supply, AC/DC

## Tools

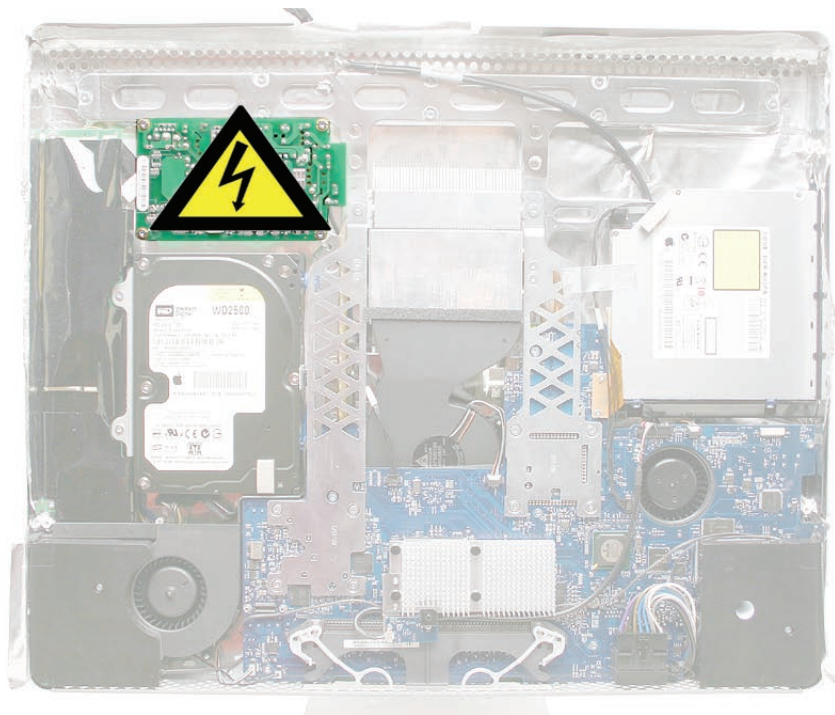
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)

## Part Location

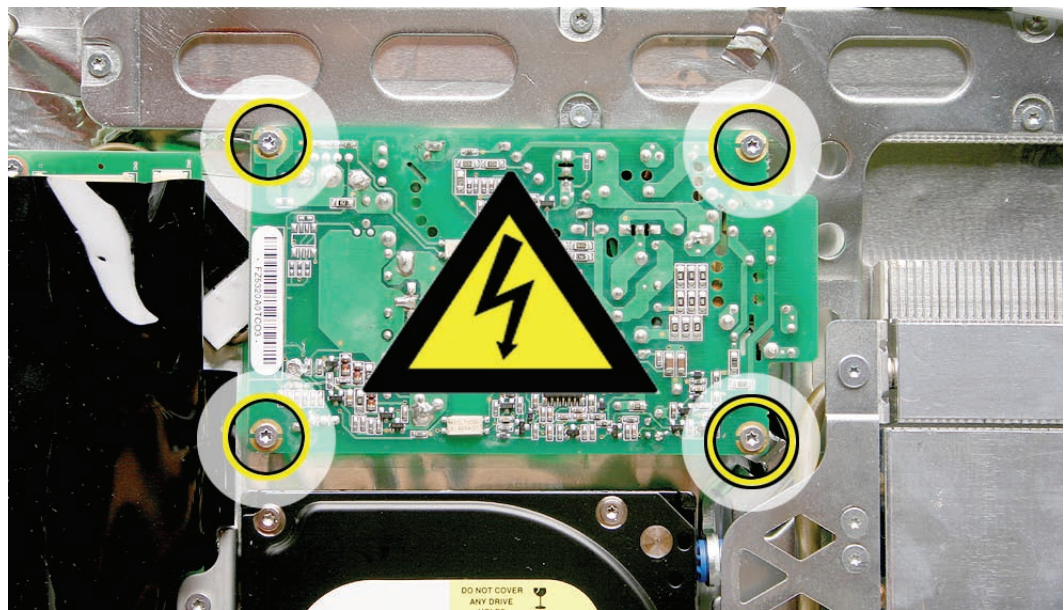


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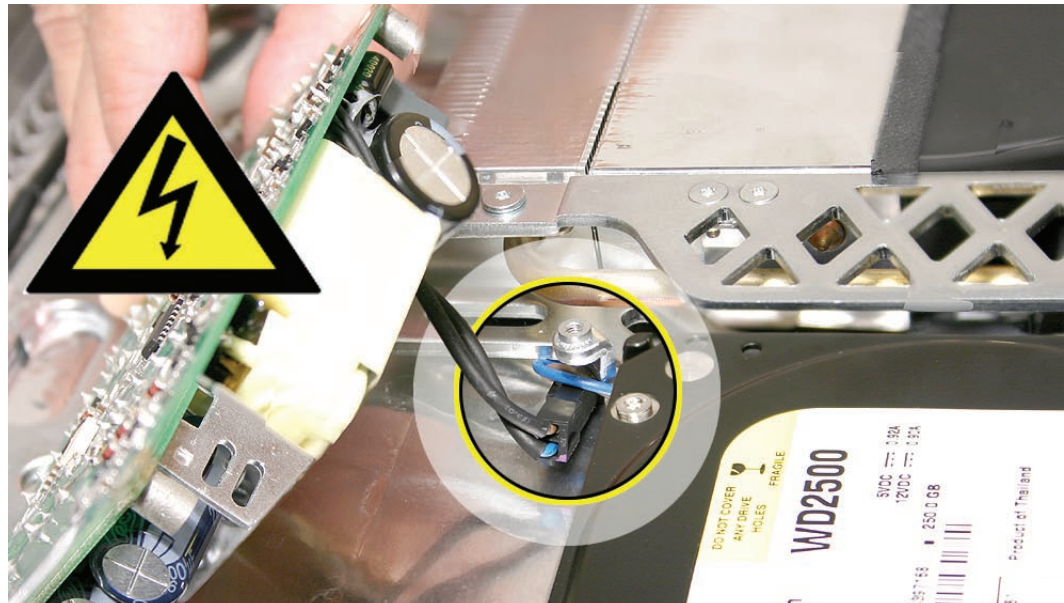
## Removing the AC/DC Power Supply

**WARNING:** The AC/DC power supply PCB remains powered up whenever the system is plugged in, whether or not the system has been turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

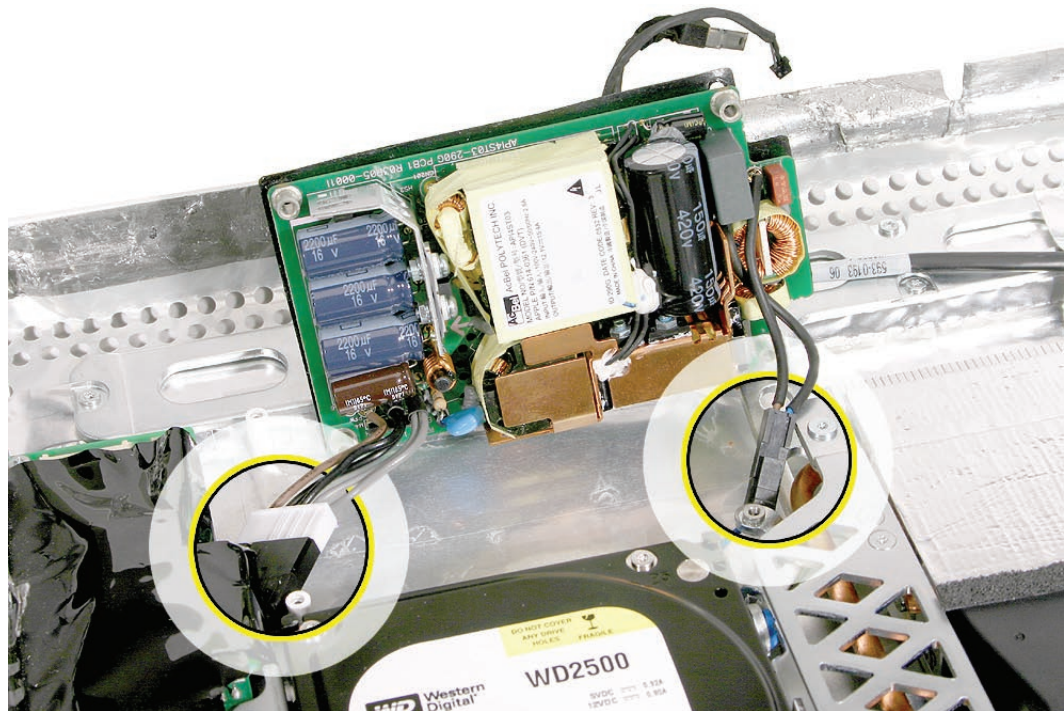
- Don't work alone. In the event of an electrical shock it is important to have another individual present who can provide assistance.
  - Keep one hand in your pocket when working on any iMac G5 (iSight) system that is plugged in. This will help ensure that your body does not provide a path to ground 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.
1. Using a torx screwdriver, remove the three self-tapping screws from the top and bottom left corners of the DC-DC board. Then remove the machine screw from the bottom right corner of the board. **Replacement Note:** Install the machine screw (bottom right) first when installing the replacement board.



2. Lift the power supply up and remove the cable and connector from under the chassis. This cable connects to the AC filter board located under the logic board. Note the routing of the cable under the chassis.



3. Disconnect the two power supply cables; the left cable connects to the DC/DC inverter board and the right cable connects to the AC filter board.

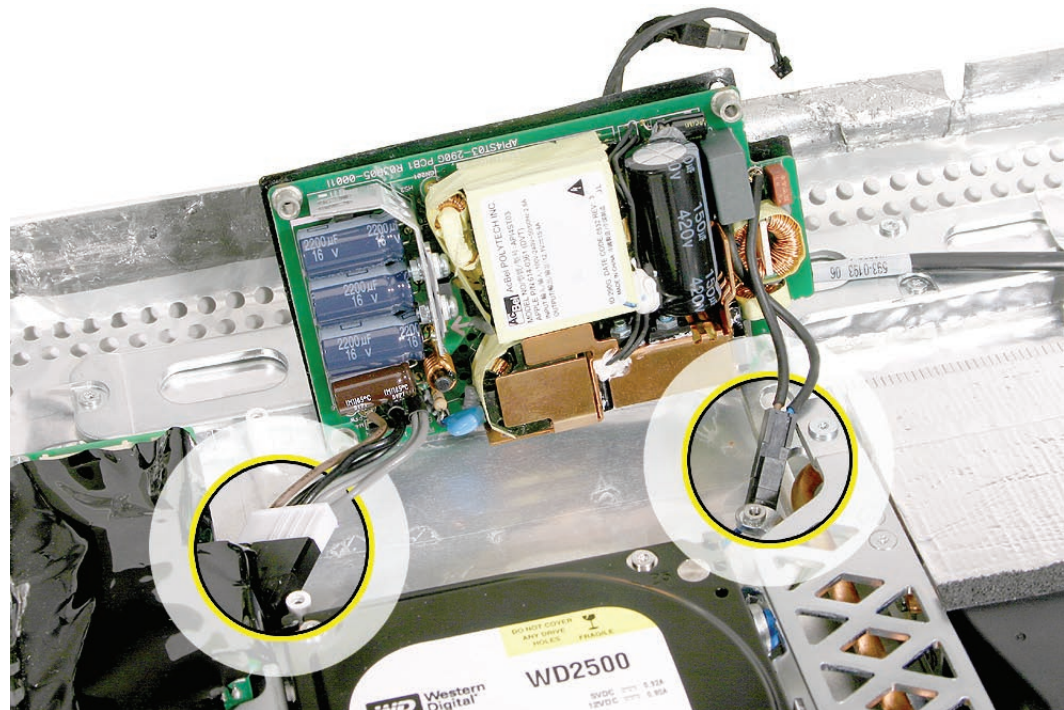


## Replacing the AC/DC Power Supply

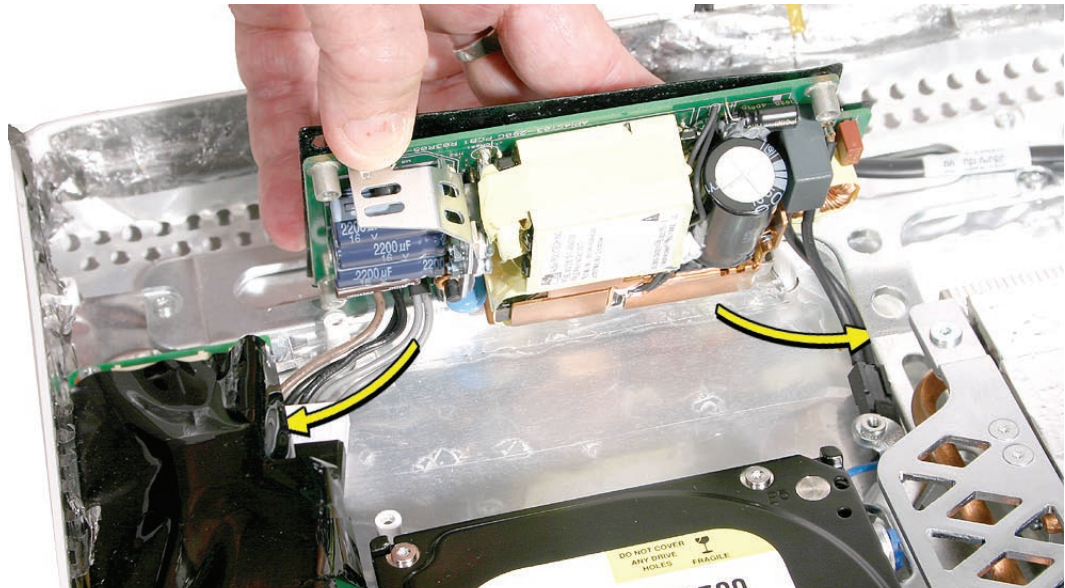
**WARNING:** The AC/DC power supply PCB remains powered up whenever the system is plugged in, whether or not the system has been turned on. Use extreme caution when troubleshooting the system with the front bezel removed.

- 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 G5 (iSight) system 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.

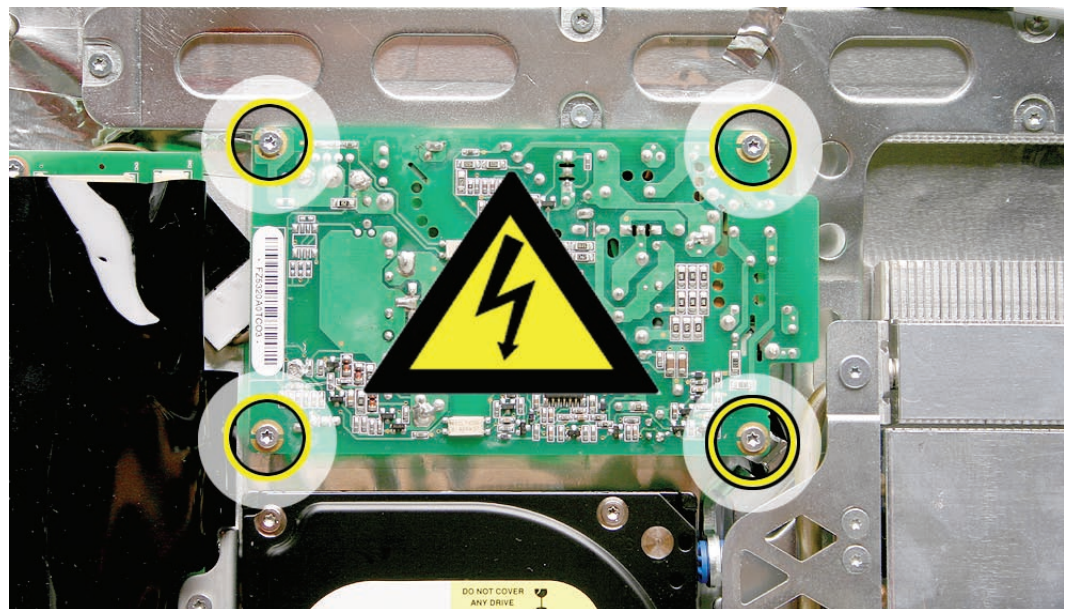
1. Reconnect the power supply cables.



2. Tuck the cables under the DC/DC power supply/inverter and the metal chassis as shown.



3. Replace the power supply screws. Install the machine screw (bottom right corner) first when installing the power supply.



4. Replace the display panel.
5. Replace the lower EMI shield.
6. Replace the front bezel.
7. Replace the access door.



- 
8. Replace the display panel.
  9. Replace the lower EMI shield.
  10. Replace the front bezel.
  11. Replace the access door.



# Logic Board

## Tools

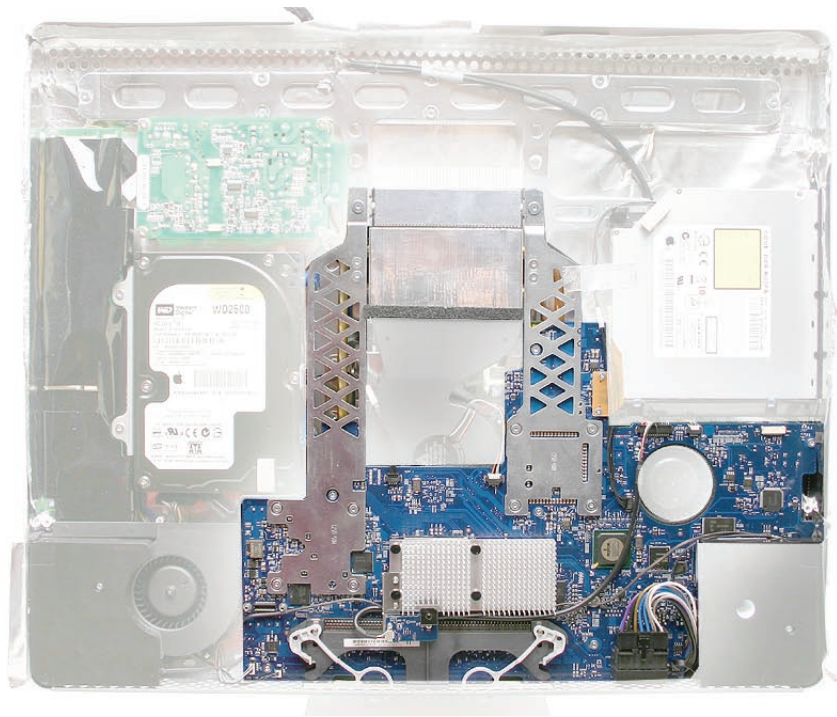
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Display Panel](#)
- [Speakers](#)

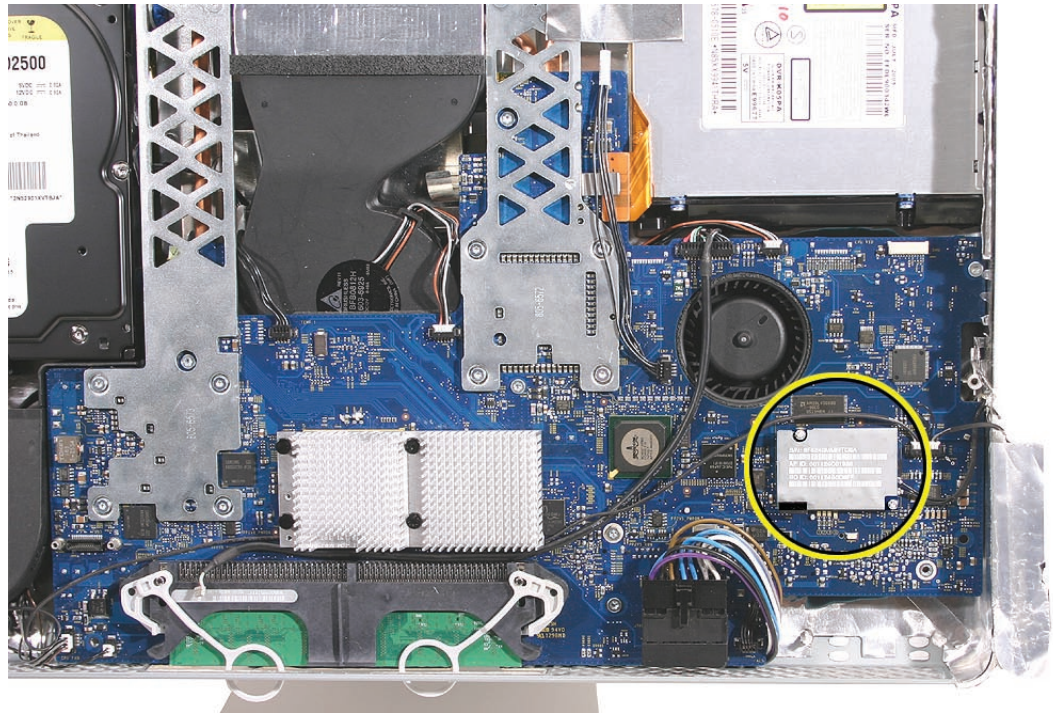
## Part Location



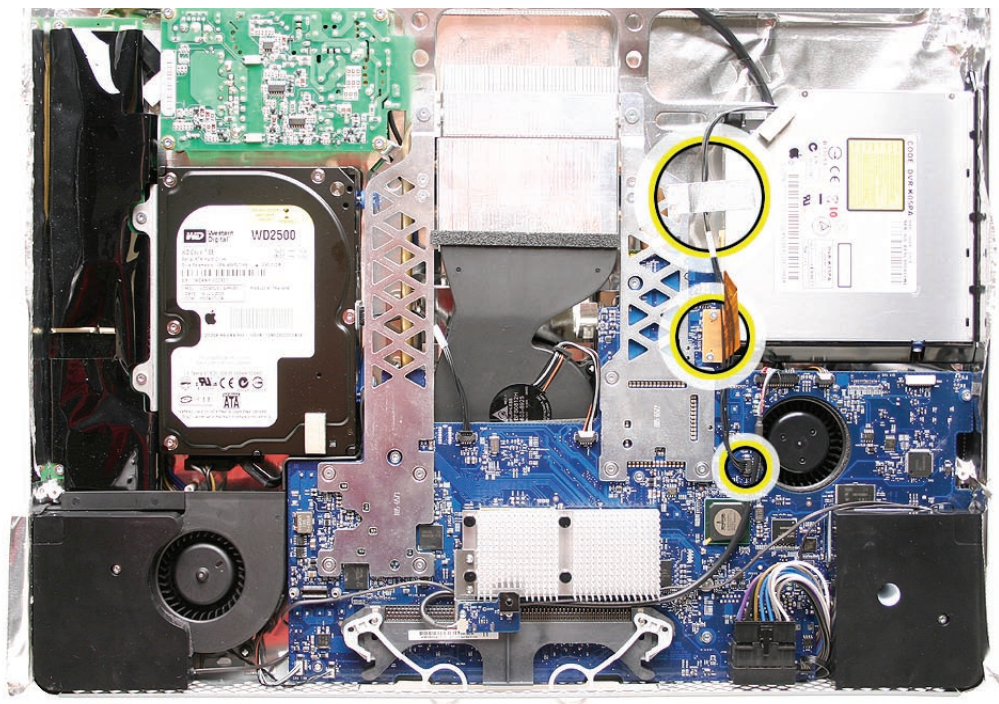
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## Removing the Logic Board

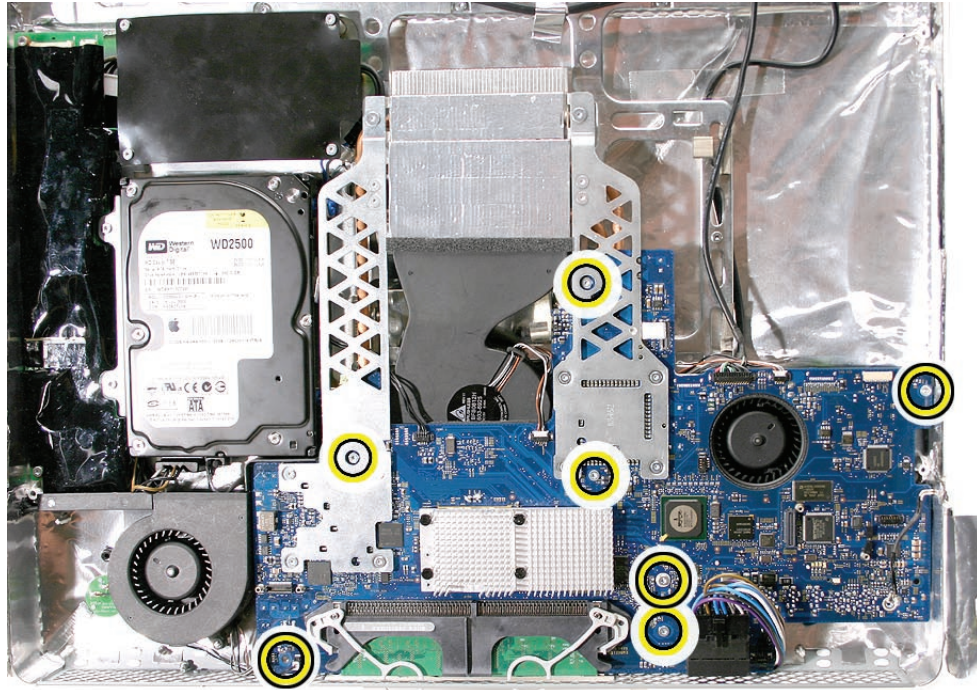
1. Remove the AirPort Extreme/Bluetooth card from the logic board. Disconnect the antennas



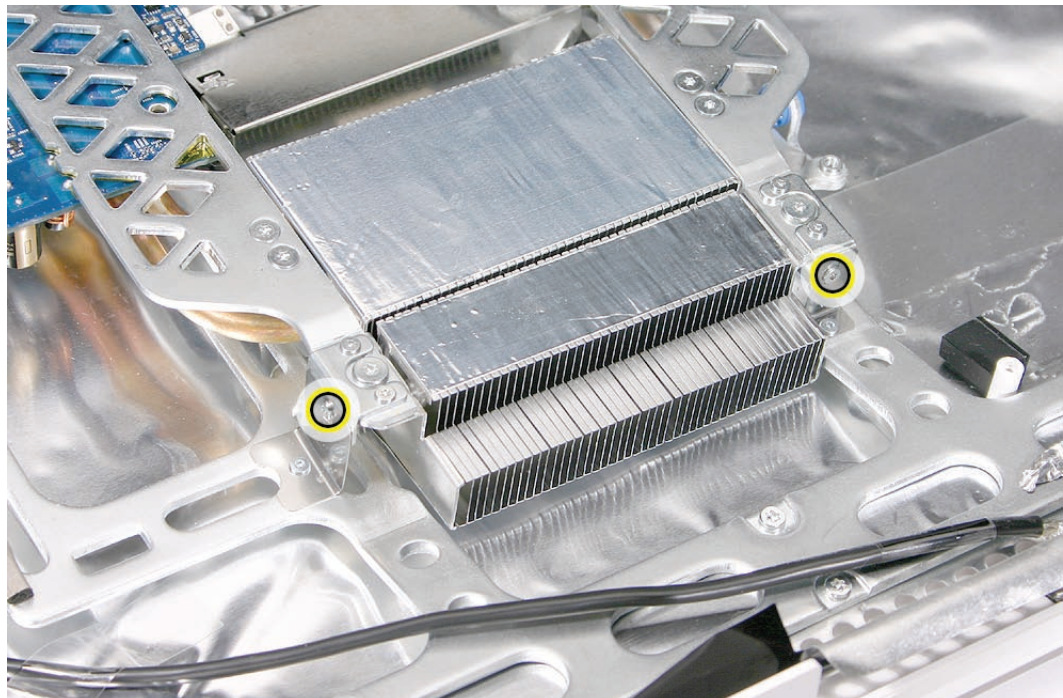
2. Disconnect the optical cable, flex cable, and peel back the silver EMI tape from the logic board frame.



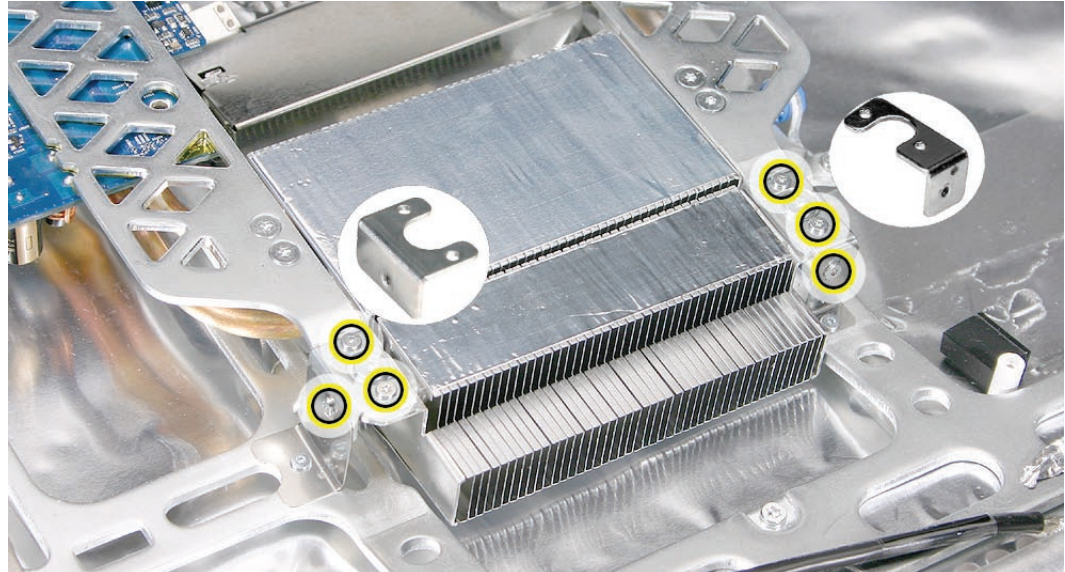
- Using a T10 torx screwdriver, remove the seven screws on the board. Remove the self-tapping screws first (black and yellow thinner circles). **Replacement Note:** Always install the machine screws (shown with wide white circles) before installing the self-tapping screws



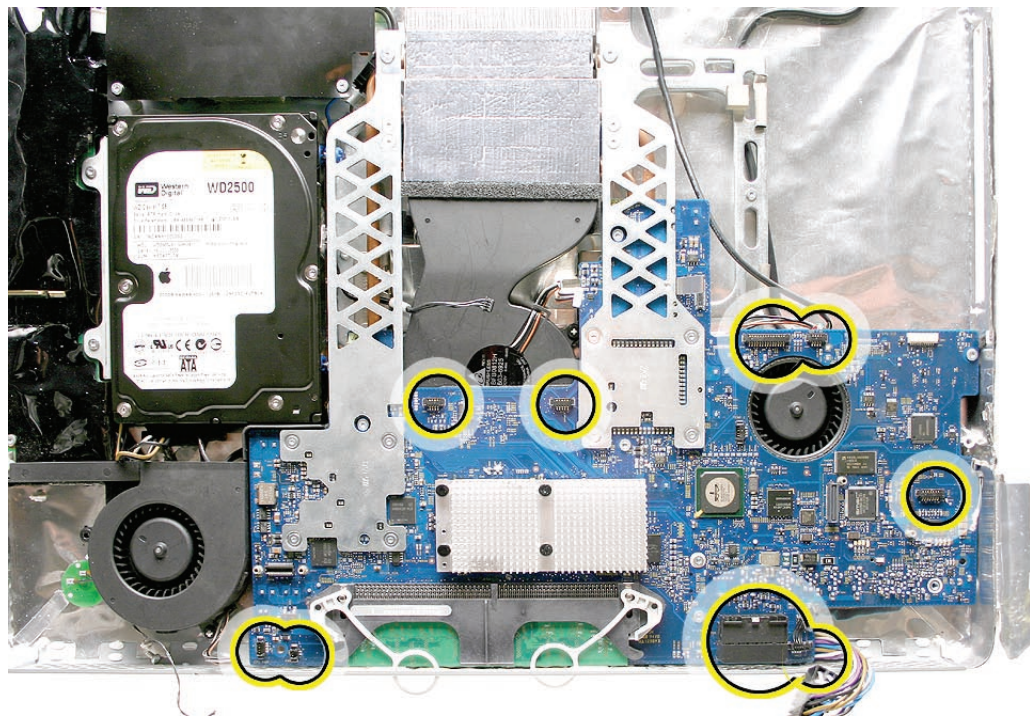
- At the top of the heatsink, remove the T-7 screw from each support bracket.



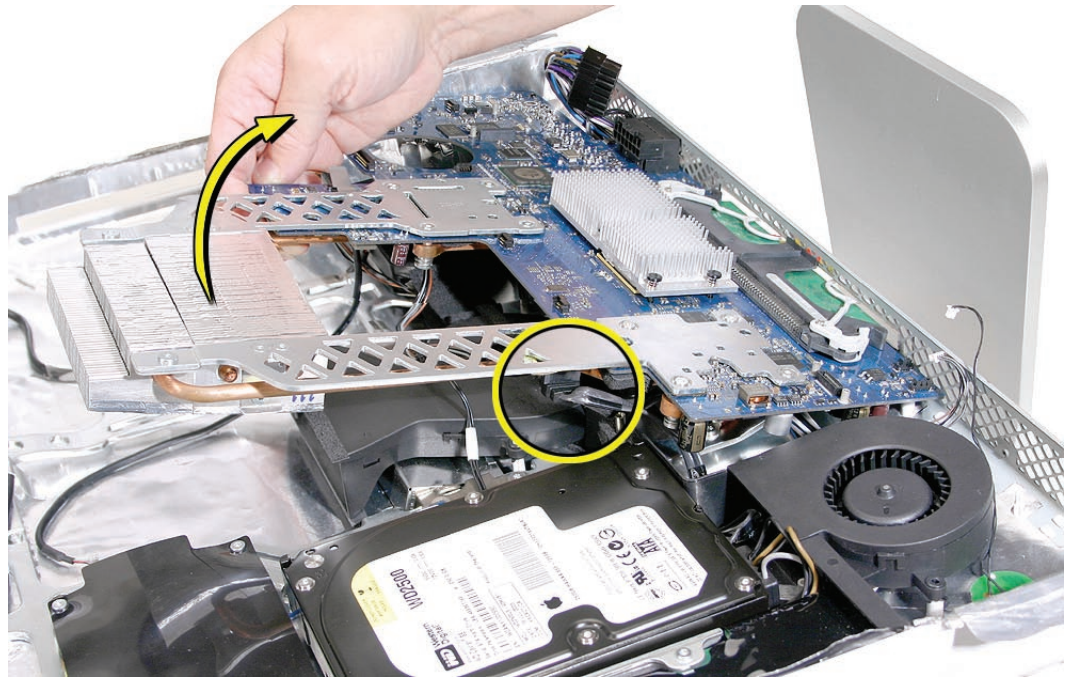
5. **Note:** If the replacement logic board doesn't have the support brackets (shown below) installed on the heatsink, transfer them to the replacement logic board. Remove the two T6 screws on the top of the brackets and the T7 screws from the side support bracket.



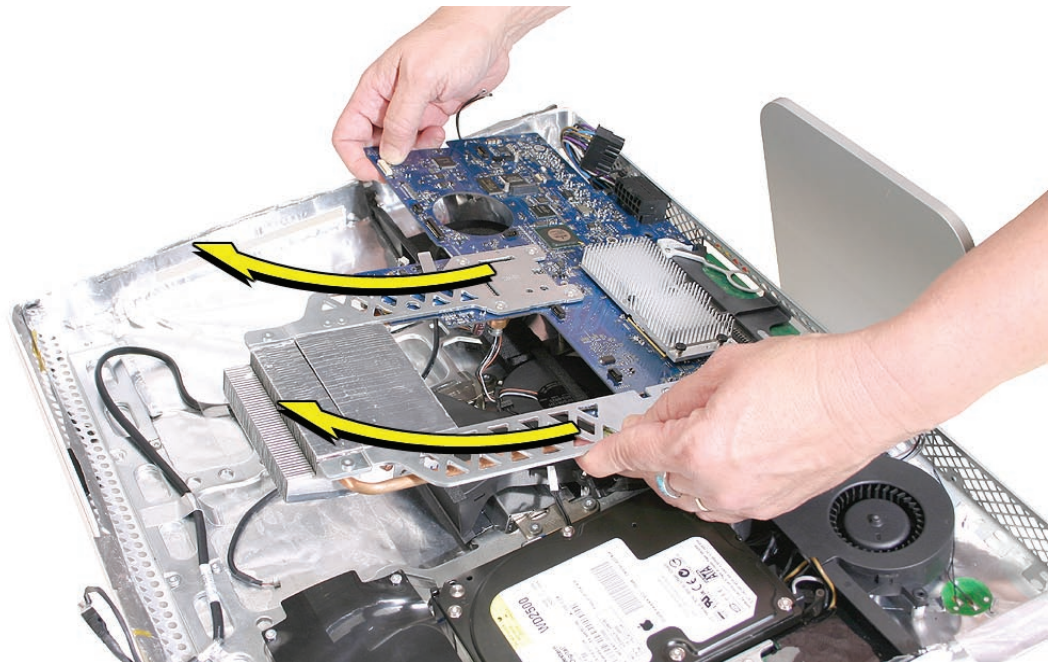
6. Disconnect nine cables from the connectors on the logic board.



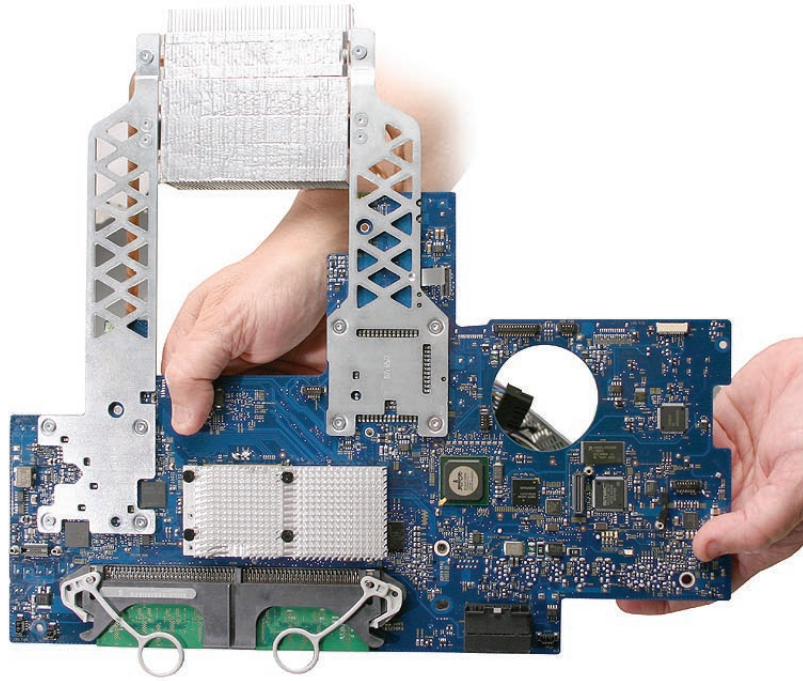
7. Lift the board enough to disconnect the hard drive data cable located on the underside of the metal railing, on the left.



8. Holding the board by the sides, lift it up and toward the top of the computer. **Note:** Remove the memory module from the slot before returning the board to Apple.

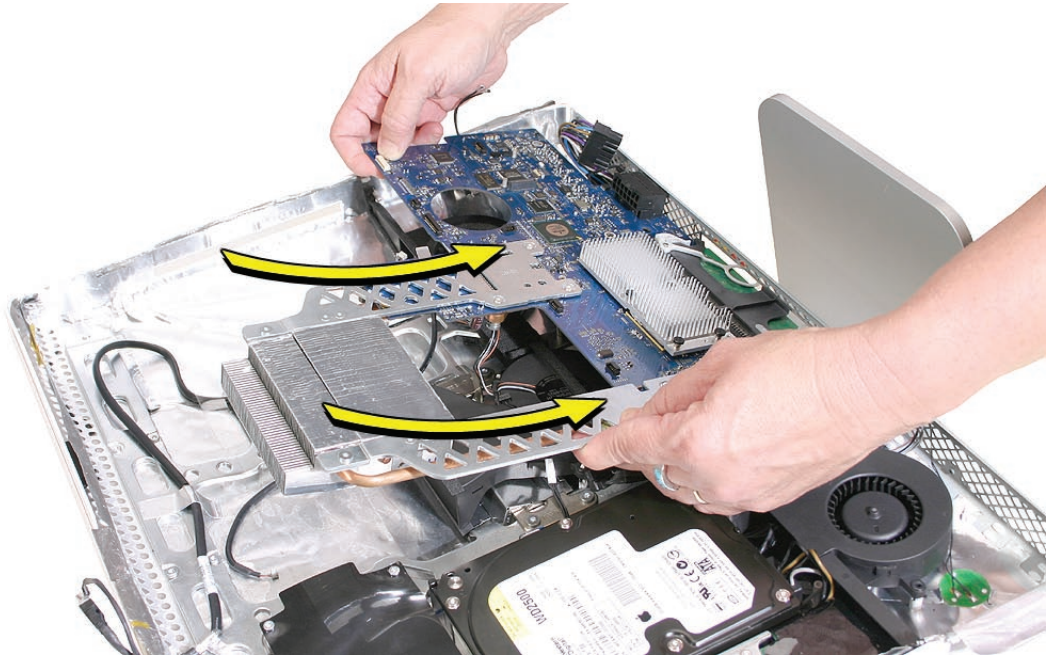


- 
9. When handling the logic board, hold the board as shown below. **Important:** Never handle or carry the board by the heatsink or metal rails.

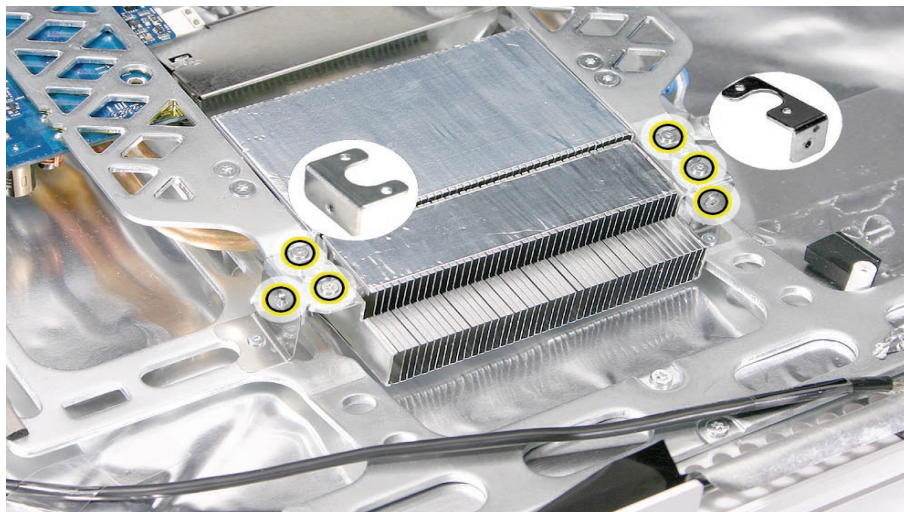


## Replacing the Logic Board

1. Position all the logic board cables out of the way (except for the hard drive cable that attaches underneath) so the logic board can be placed into the rear housing.
2. As you lower the board into the rear housing, make sure the memory pull-tabs are lowered through the access door opening and the screw holes line up with the board.



3. **Note:** If the replacement logic board doesn't have the support brackets (shown below) installed on the heatsink, transfer the brackets from the old board. Replace the two T6 screws on the top of the brackets and the T7 screws from the side support bracket.

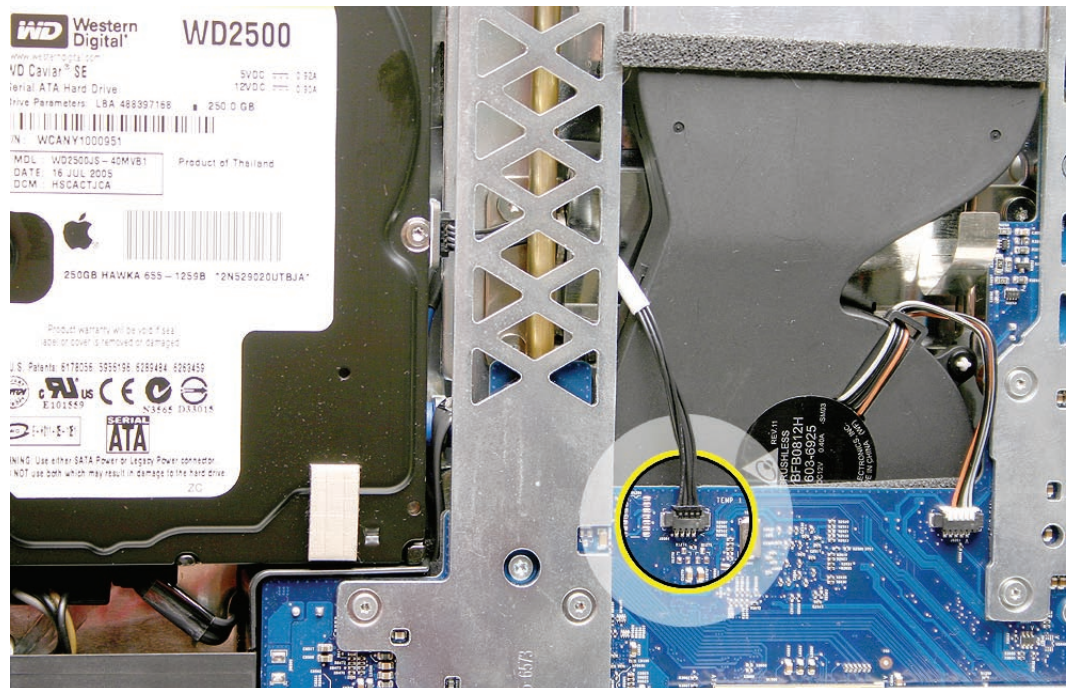




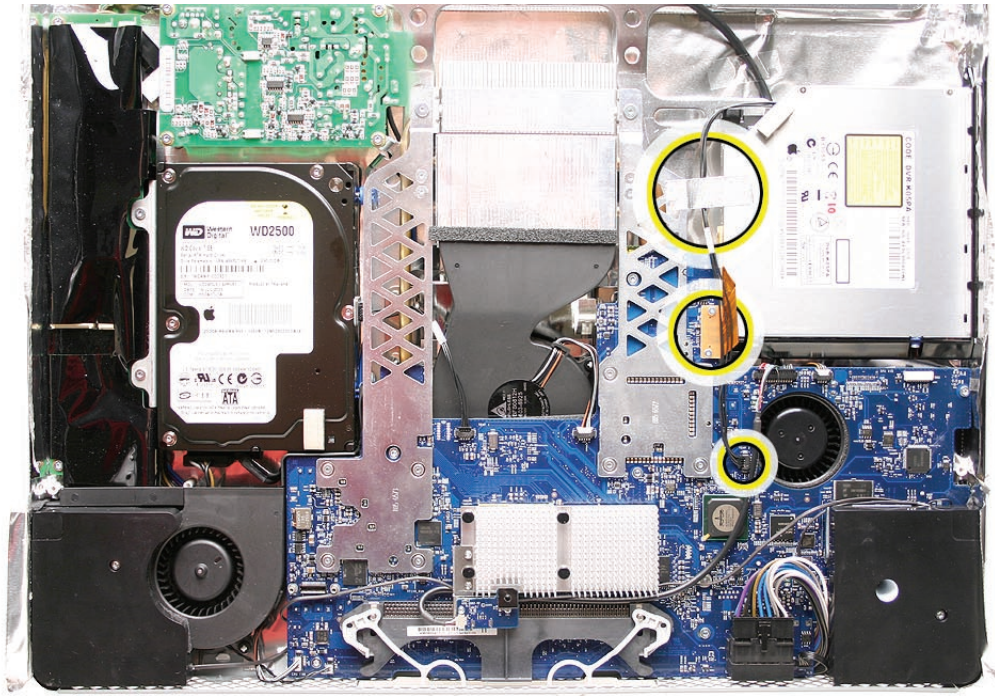
4. Connect the hard drive data cable to the underside of the board (on the left side). **Note:** The hard drive is removed so you can see the location of the cable and its routing.



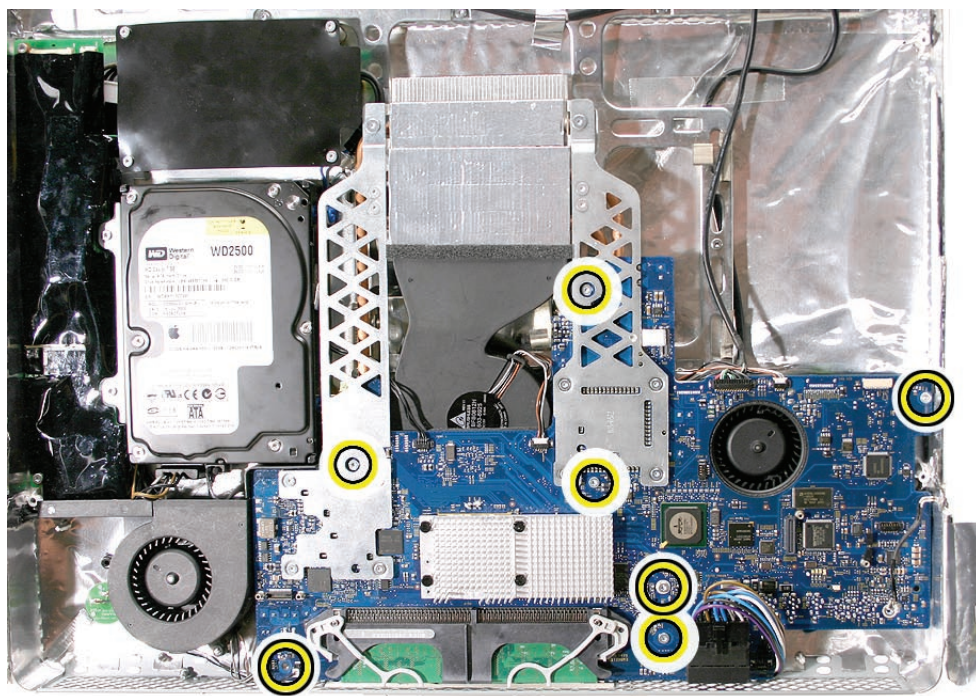
5. Make sure the hard drive sensor and the sensor cable are attached to the side of the hard drive. Route the sensor cable under the chassis and connect it to the logic board.



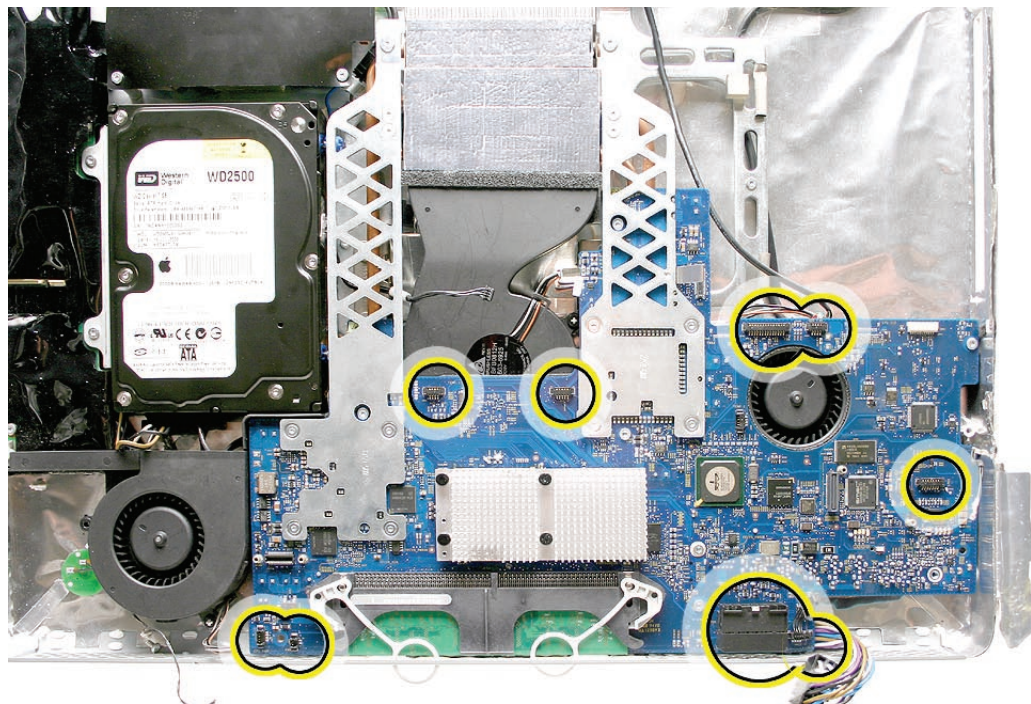
6. Replace the optical drive sensor cable, flex cable and screws, and the silver EMI tape.



7. Using a T10 torx screwdriver, replace the seven screws on the board. Always install the machine screws (drawn in yellow/white circles) before installing the self-tapping screws (shown in orange).



8. Connect the following cables to the connectors on the logic board. Connectors are shown starting in the lower left corner, proceeding clockwise **Note:** The hard drive sensor cable and the optical sensor cable were connected earlier in the procedure.
- Hard drive fan
  - Power on
  - Hard drive temperature sensor
  - CPU fan
  - Camera board and IR board
  - Optical drive fan
  - Speakers
  - Ambient light sensor
  - DC/DC Power (Inverter)



- 
9. Connect the AirPort and Bluetooth cables to connectors on the combo card.  
**Note** that the cables can be connected to either connector on the combo card.
  10. Connect the AirPort Extreme/Bluetooth combo card and install two mounting screws.
  11. Replace the speakers.
  12. Replace the IR board.
  13. Replace the display panel.
  14. Replace the lower EMI shield.
  15. Replace the front bezel.
  16. Replace the memory access door.



# AC Line Filter

## Tools

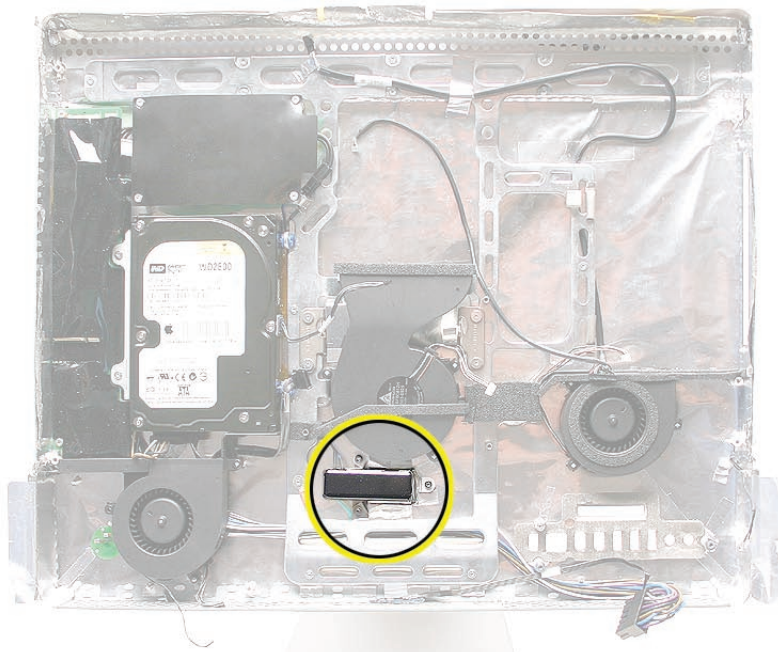
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

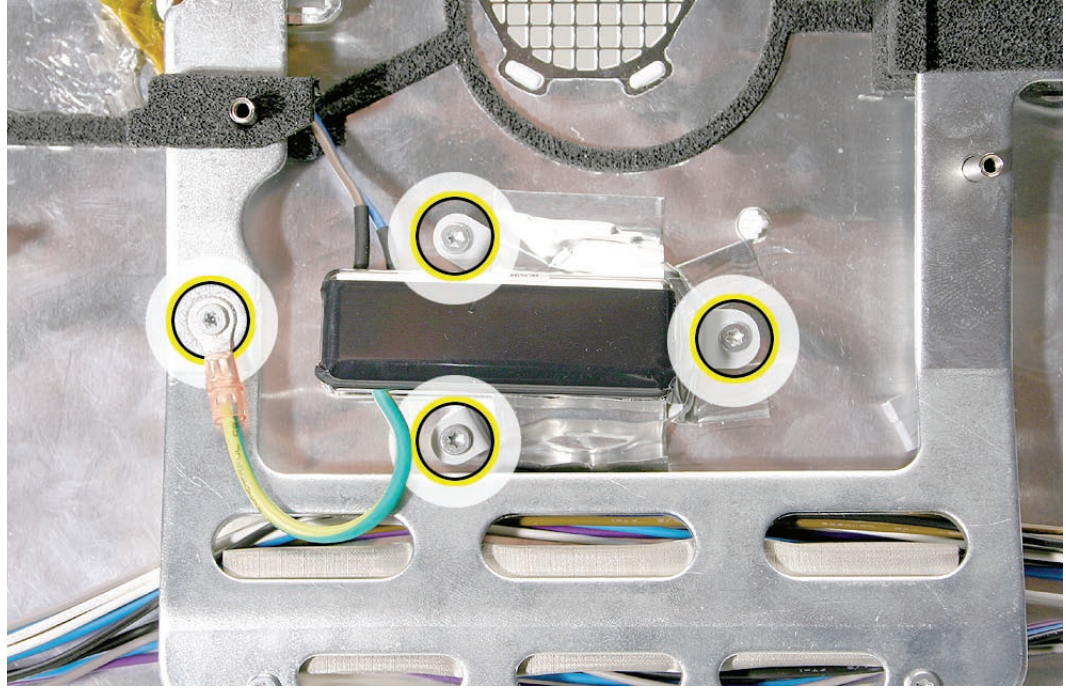
- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Hard Drive](#)
- [Power Supply, AC/DC](#)

## Part Location

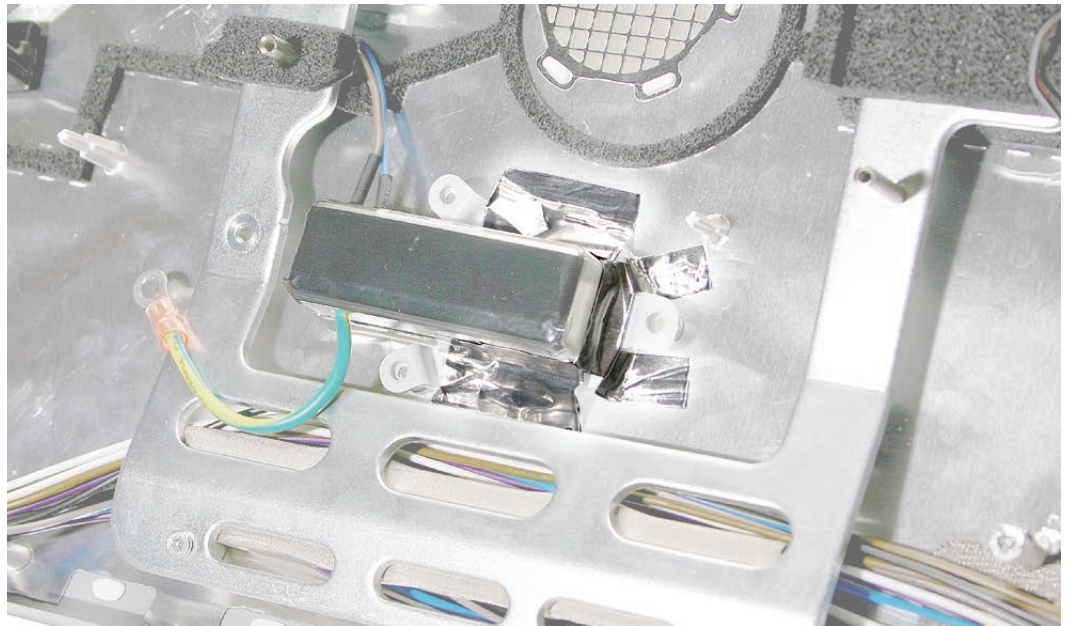


## Removing the AC Line Filter

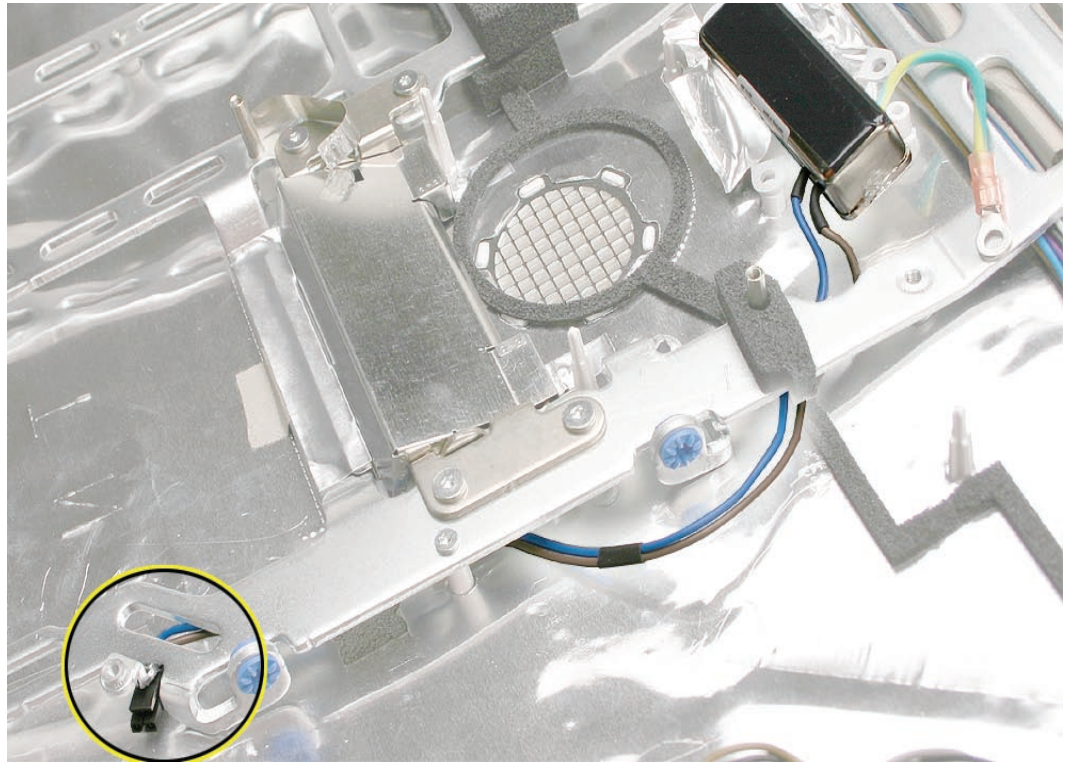
1. Using a torx T10 screwdriver, remove the three self-tapping screws from the power inlet and the machine screw from the power inlet ground cable .



2. Carefully peel up the EMI tape on the AC filter; peel off both the large and small EMI pieces of tape. Set them aside.



3. Disconnect the AC filter cable from the power supply. Notice the routing of the AC filter cable under the chassis.



4. Lift the AC filter out of the rear housing.

---

## Replacing the AC Line Filter

1. Install the AC power filter 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 in the photo above, and connect it to the power supply.
4. Using the EMI tape, securely tape the top and bottom edges of the AC power inlet to the rear housing.
5. Replace the AC/DC power supply.
6. Replace the hard drive.
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.





# Fan, Hard Drive

## Tools

- No tools are required to remove the hard drive fan.

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Logic Board](#)

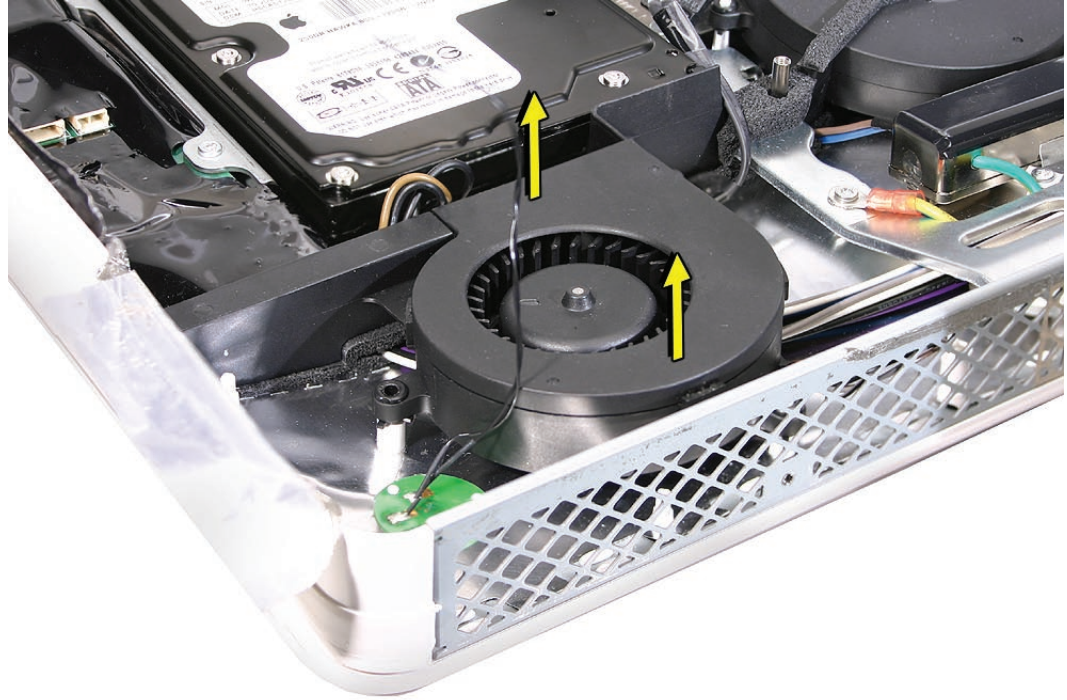
## Part Location



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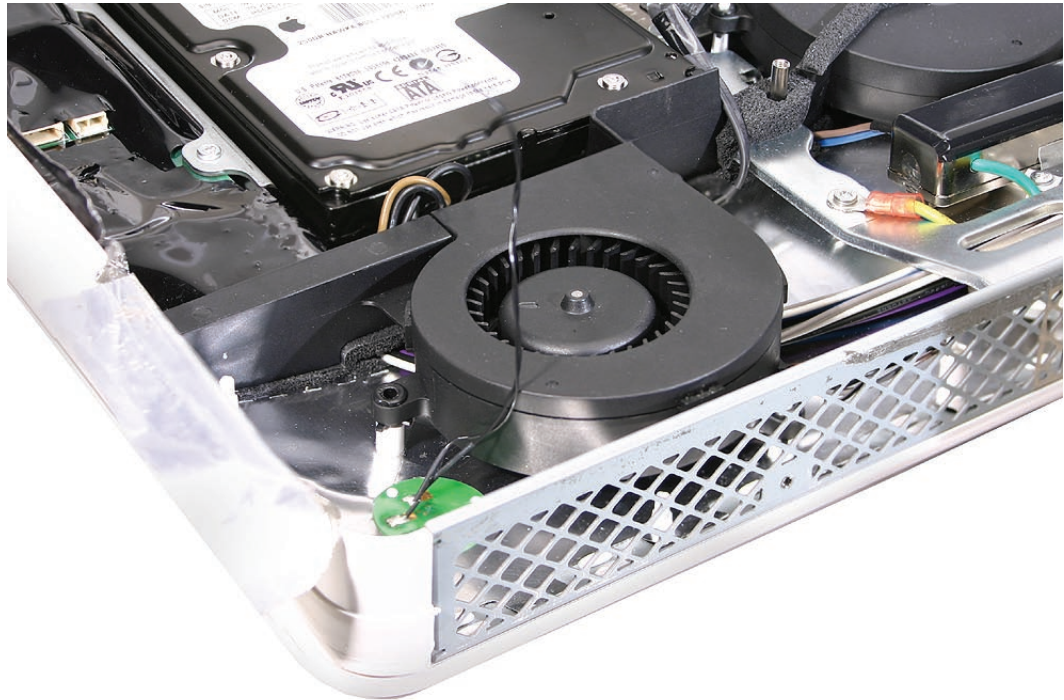
## Removing the Hard Drive Fan

Once the logic board and speakers have been removed, the fan will already be disconnected. Lift the fan straight up and out of the rear housing.

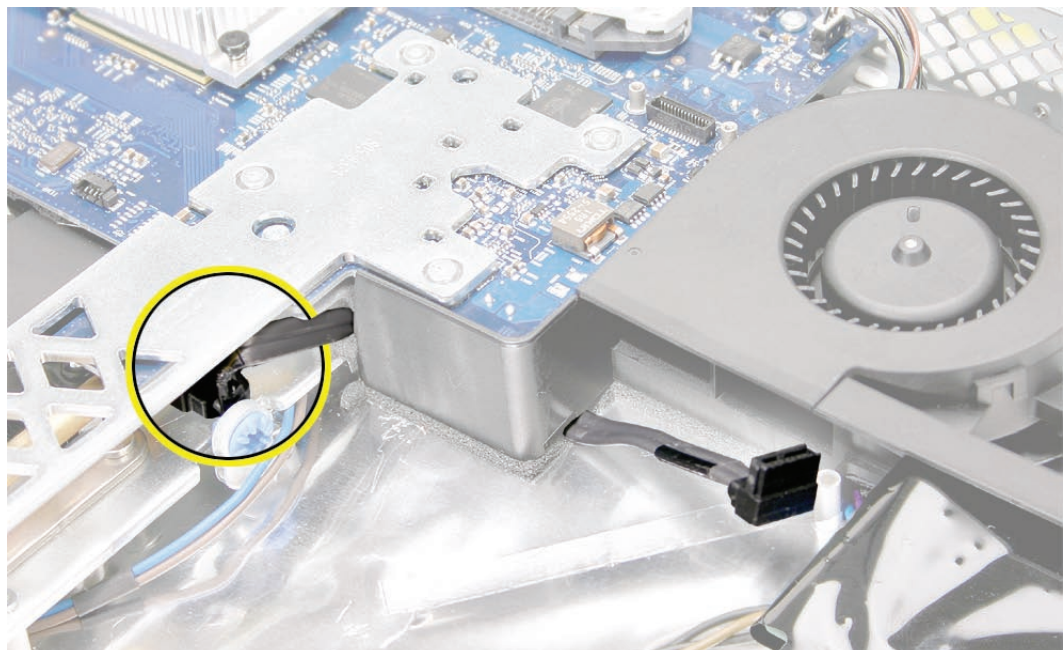


## Replacing the Hard Drive Fan

1. Lower the fan onto the white posts in the rear housing. Push it down snug onto the posts.



2. Make sure to route the hard drive data cable under the fan as shown in the photo. Connect the hard drive cable to the logic board if it was removed during the take apart.



- 
3. Replace the logic board.
  4. Replace the speakers.
  5. Replace the display panel.
  6. Replace the IR Board.
  7. Replace the lower EMI shield.
  8. Replace the front bezel.
  9. Replace the memory access door.



# Fan, Optical Drive

## Tools

- No tools are required to remove the optical drive fan.

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Logic Board](#)

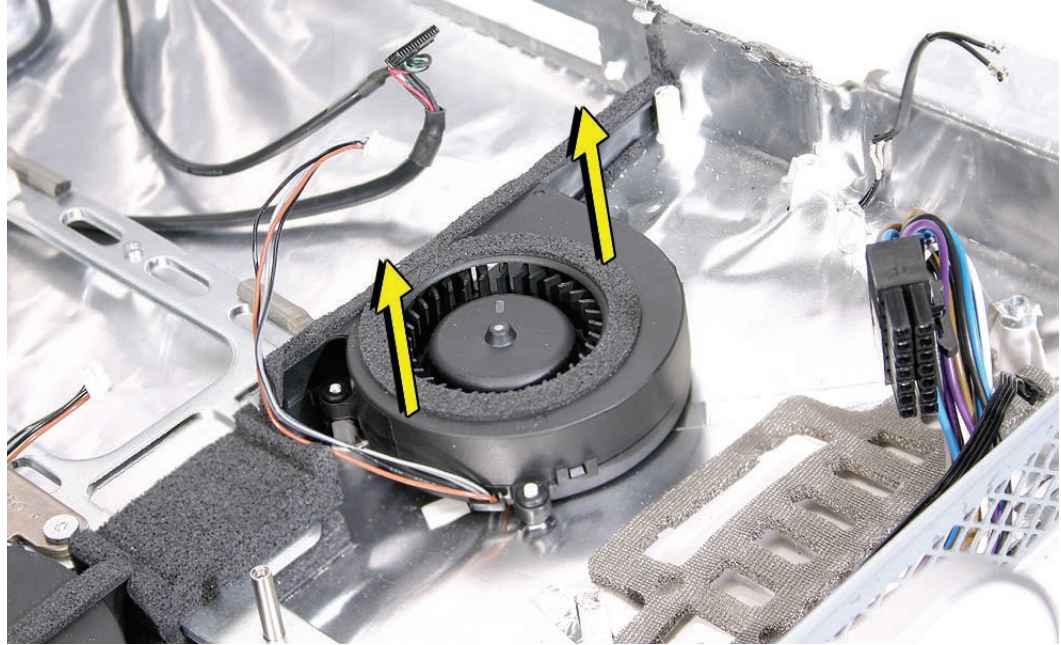
## Part Location



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## Removing the Optical Drive Fan

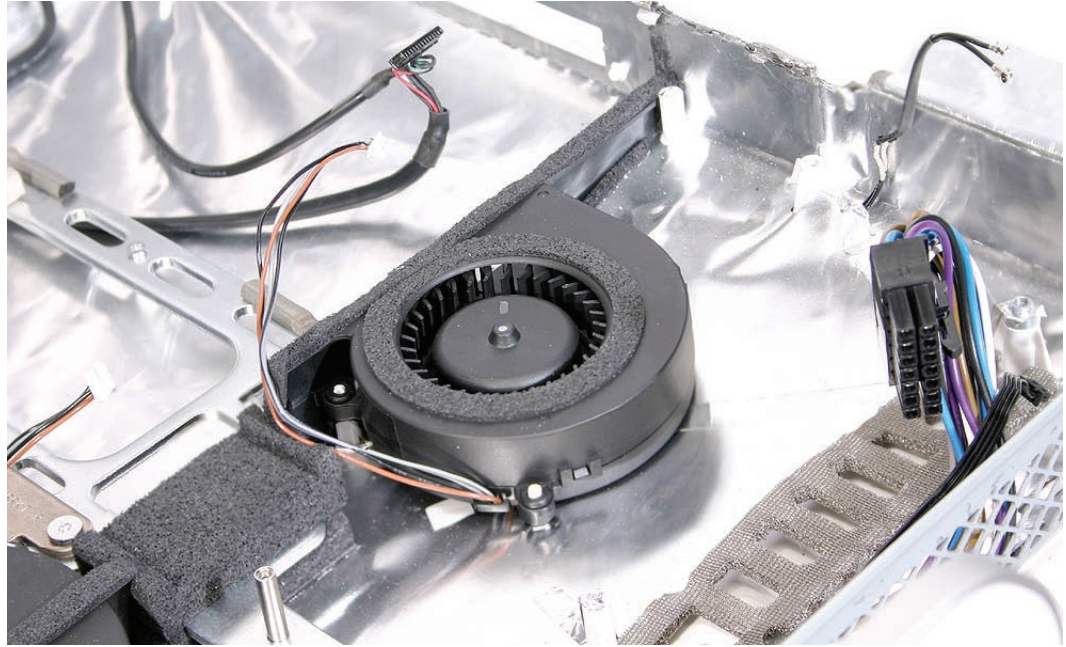
Once the logic board and speakers have been removed, the fan will be disconnected. Lift the fan straight up and out of the rear housing.



---

## Replacing the Optical Drive Fan

1. Lower the fan onto the white posts in the rear housing, above the port openings. Route the fan cable around the left side of the fan, through the foam gaskets. Push it down snug onto the posts.



2. Replace the logic board.
3. Replace the speakers.
4. Replace the display panel.
5. Replace the IR Board.
6. Replace the lower EMI shield.
7. Replace the front bezel.
8. Replace the memory access door.



## Fan, CPU

### Tools

- No tools are required to remove the CPU fan.

### Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Logic Board](#)

### Part Location

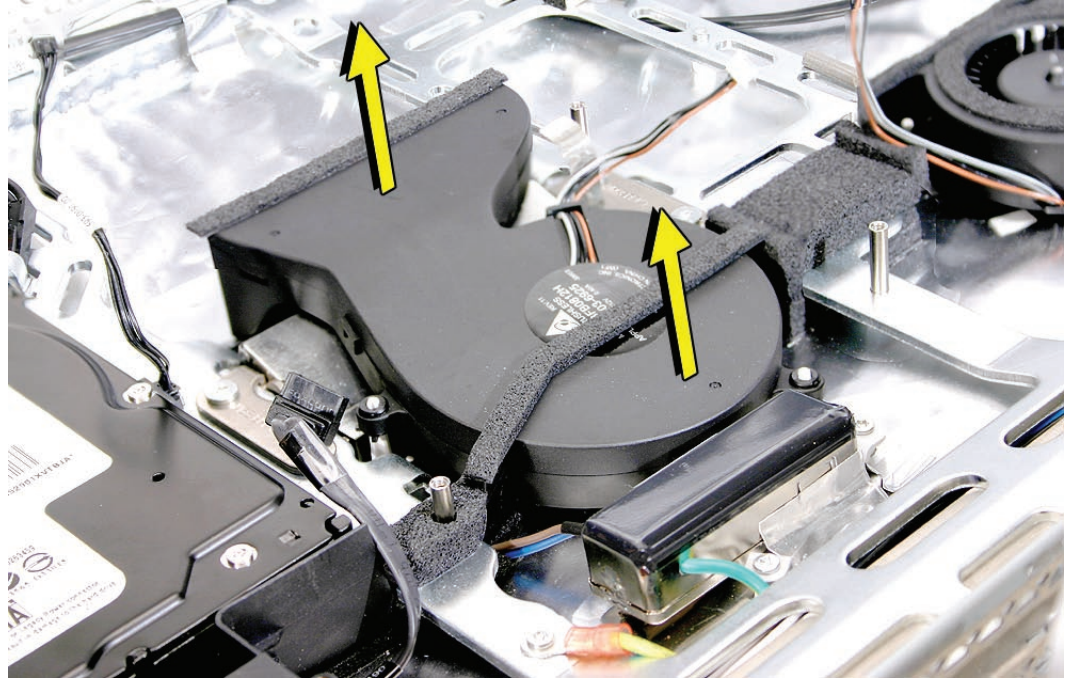




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## Removing the CPU Fan

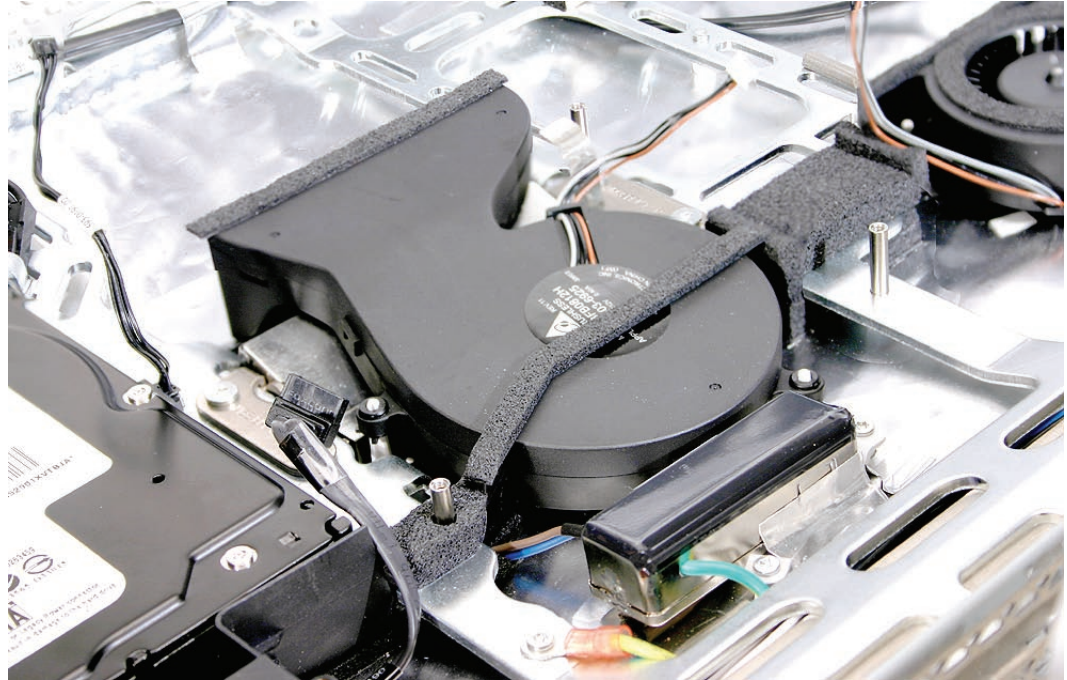
Once the logic board and speakers have been removed, the fan will already be disconnected. Lift the fan straight up and out of the rear housing.



---

## Replacing the CPU Fan

1. Lower the fan onto the white standoffs in the rear housing. Push it down snug onto the posts.



2. Replace the logic board.
3. Replace the speakers.
4. Replace the display panel.
5. Replace the IR Board.
6. Replace the lower EMI shield.
7. Replace the front bezel.
8. Replace the memory access door.



# Power Supply, DC/DC, Inverter

## Tools

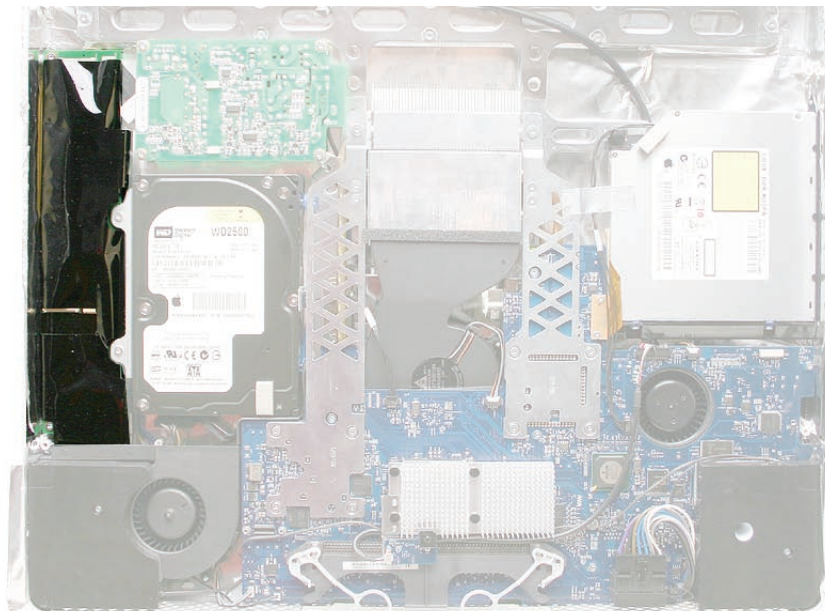
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Logic Board](#)
- [Hard Drive](#)
- [Power Supply, AC/DC](#)
- [Hard drive fan](#)
- [CPU fan](#)

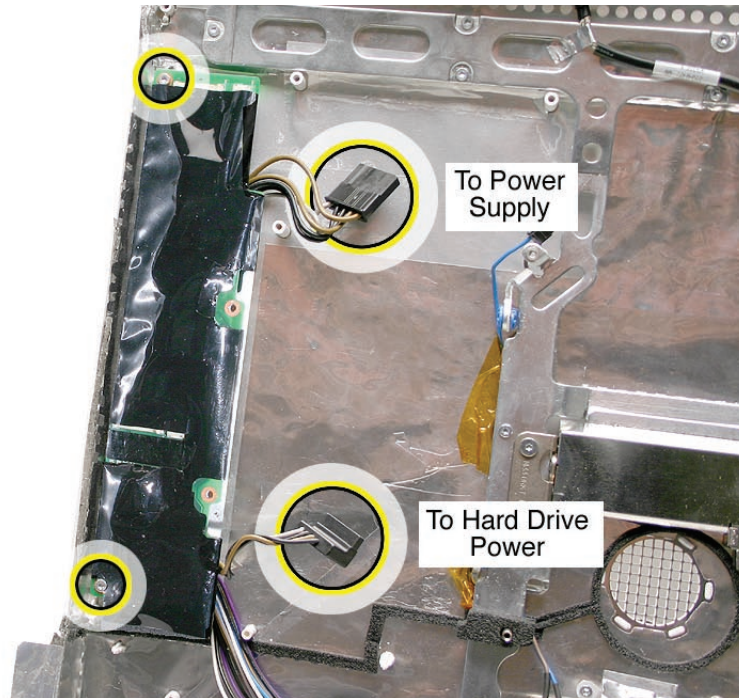
## Part Location



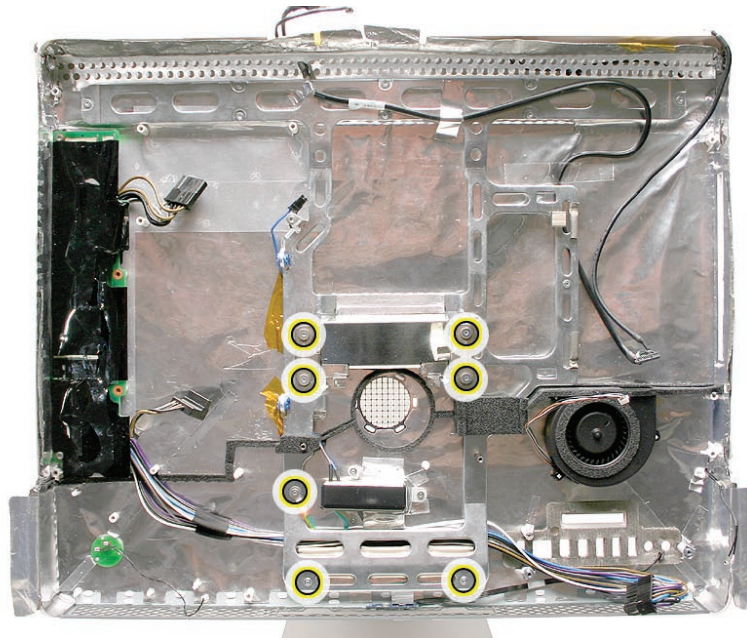
---

## Removing the DC/DC Power Supply/Inverter

1. Using a torx T10 screwdriver, remove the two power supply, DC-DC inverter screws connecting the board to the rear housing. Disconnect the two cables; one going to the AC-DC power supply and the other connecting to the hard drive.



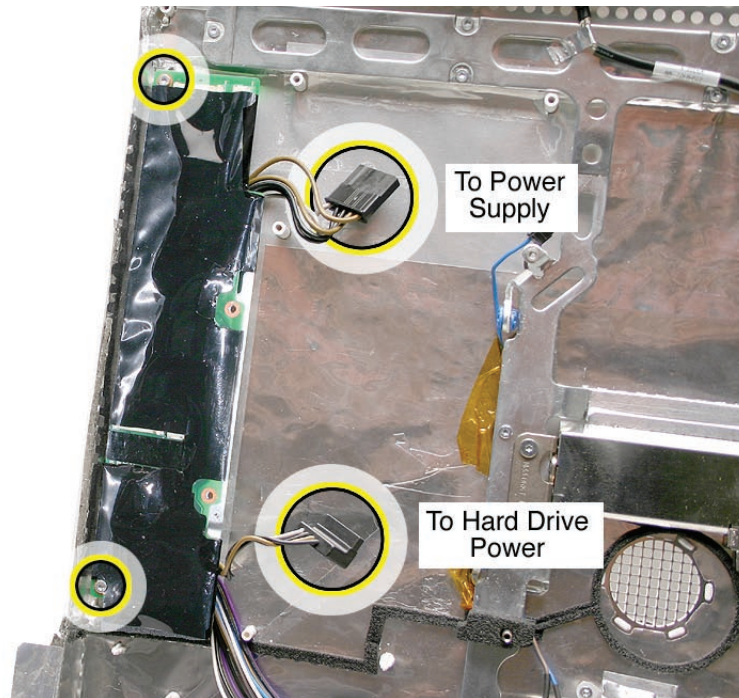
2. Remove just the circled chassis screws, one of which is the AC filter ground screw. Carefully lift the chassis frame just enough to pull the inverter cable from under the metal chassis.



---

## Replacing the DC/DC Power Supply/Inverter

1. Route the inverter cable under the metal chassis frame. Check the routing of the cable so it doesn't get pinched under the chassis.
2. Install the screws on the chassis frame and the AC filter ground screw.
3. Replace the CPU fan.
4. Connect the cables to the AC/DC power supply and to the hard drive. Replace the two screws connecting the DC/DC power supply/inverter to the rear housing.



5. Replace the AC/DC power supply.
6. Replace the hard drive.
7. Replace the hard drive fan.
8. Replace the logic board.
9. Replace the speakers.
10. Replace the display panel.
11. Replace the IR Board.
12. Replace the lower EMI shield.
13. Replace the front bezel.
14. Replace the memory access door.



# Ambient Light Sensor Board

## Tools

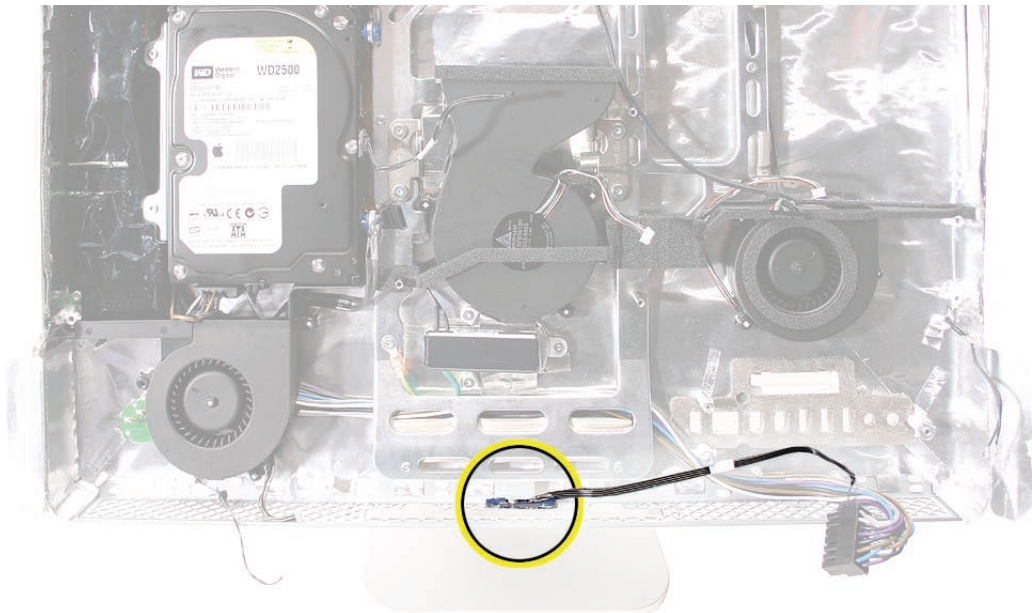
- A black stick or equivalent tool

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Speakers](#)
- [Logic Board](#)

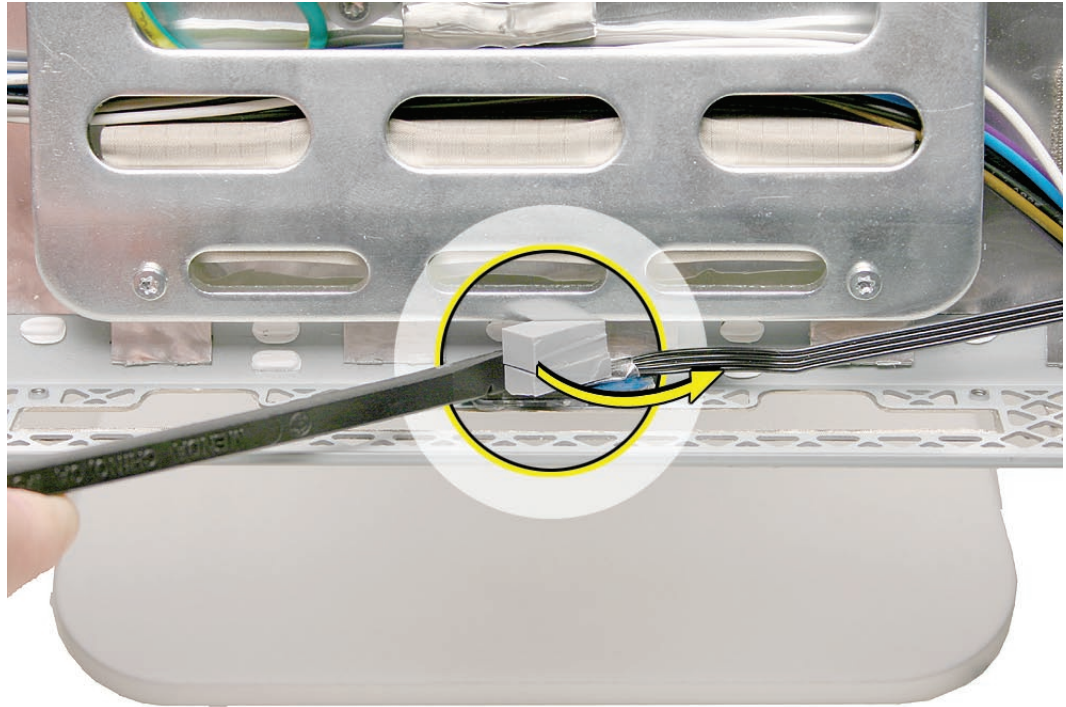
## Part Location



---

## Removing the Ambient Light Sensor Board

1. Remove the rubber bumper from between the chassis and the sensor board.



2. Using a black stick, pry the ambient light sensor off the inside of the rear housing. The sensor is stuck to the rear housing with double-stick tape. **Note:** never poke the ambient light or you could damage the sensor board.

---

## Replace 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 sensor board and the chassis.
3. Replace the logic board.
4. Replace the speakers.
5. Replace the display panel.
6. Replace the IR Board.
7. Replace the lower EMI shield.
8. Replace the front bezel.
9. Replace the memory access door.





# Cable, Camera and IR

## Tools

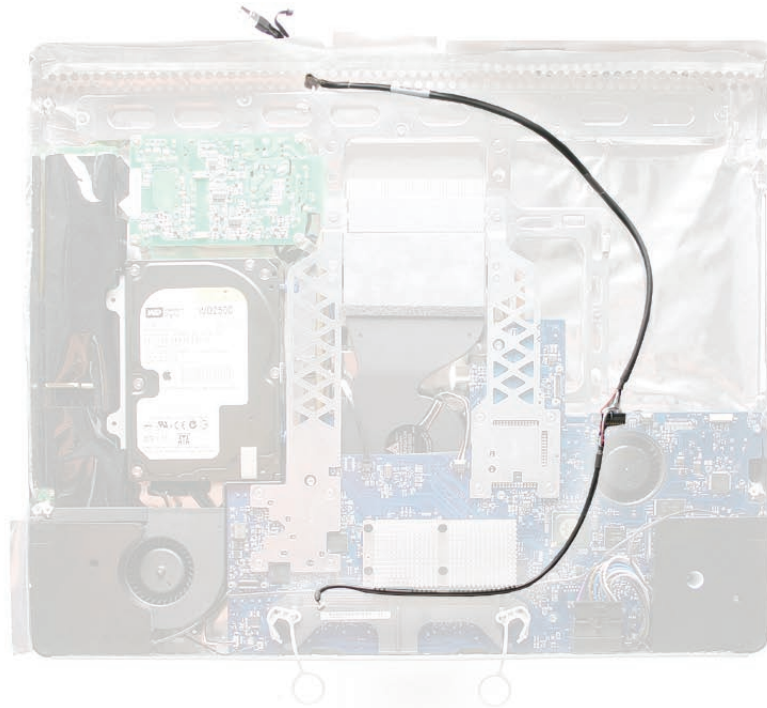
No tools are required to remove the camera cable.

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR Board](#)
- [Display Panel](#)
- [Optical Drive](#)

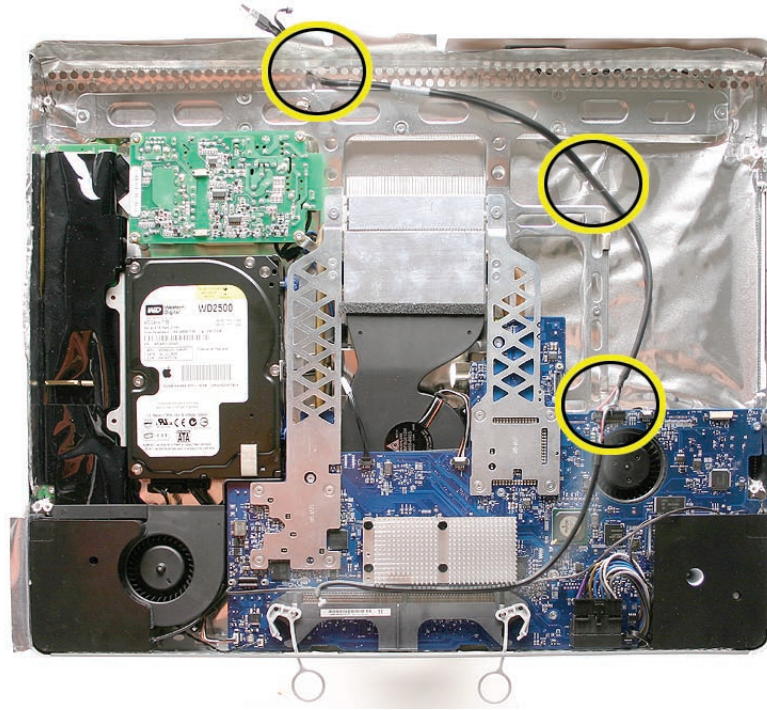
## Part Location



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## Removing the Camera and IR Cable

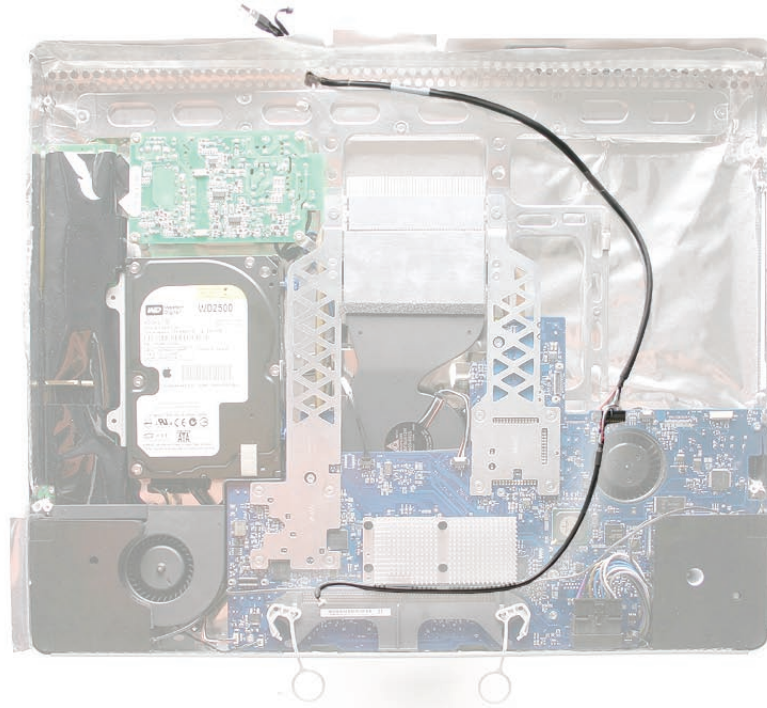
1. Remove the two-headed end of the cable from the access hole in the upper EMI Faraday shield.
2. Remove the tape that secures the cable to the rear housing and disconnect the cable from the logic board. Remove the camera cable.



---

## Replacing the Camera and IR Cable

1. Insert the two-headed end of the camera cable through the access hole in the upper EMI Faraday shield.
2. Route the camera cable as shown below. Tape the camera cable to the rear housing.



3. Replace the optical drive, flex drive cable and screws, and optical drive sensor cable.
4. Replace the logic board.
5. Replace the speakers.
6. Replace the display panel.
7. Replace the IR Board.
8. Replace the lower EMI shield.
9. Replace the front bezel.
10. Replace the memory access door.
11. Replace the front bezel.
12. Replace the memory access door.



# Wireless Antenna

## Tools

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

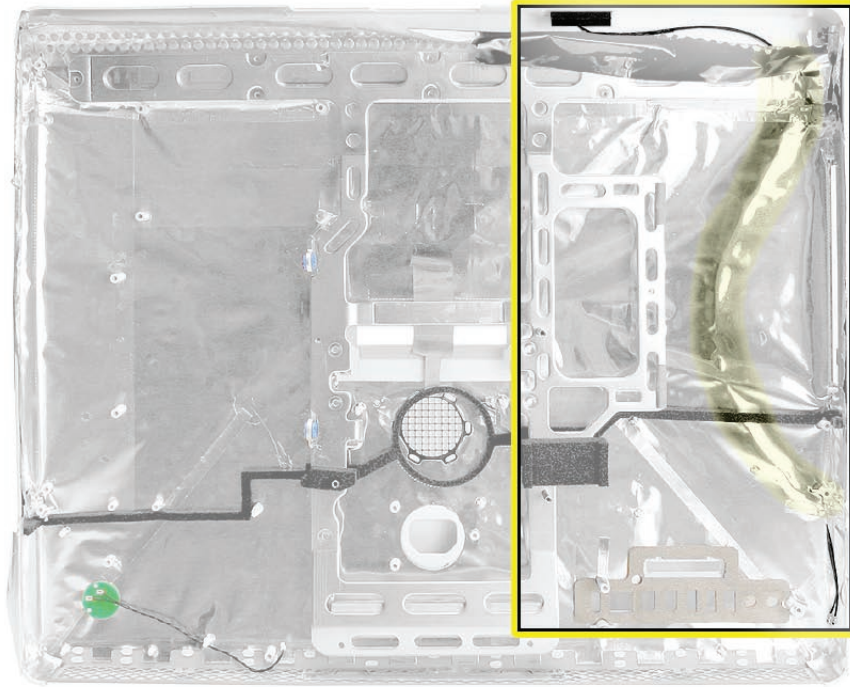
## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Speakers](#)
- [AirPort Extreme/Bluetooth Card](#)
- [IR Board](#)
- [Display Panel](#)
- [Optical Drive](#)
- [Logic Board](#)
- [Optical Drive Fan](#)

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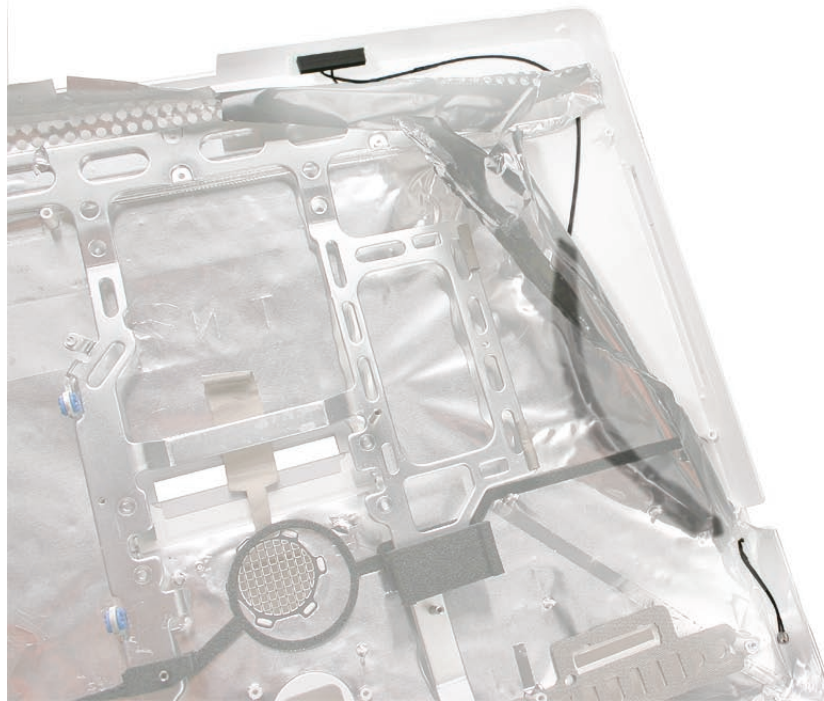
## Part Location



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## Removing the Wireless Antenna Cable

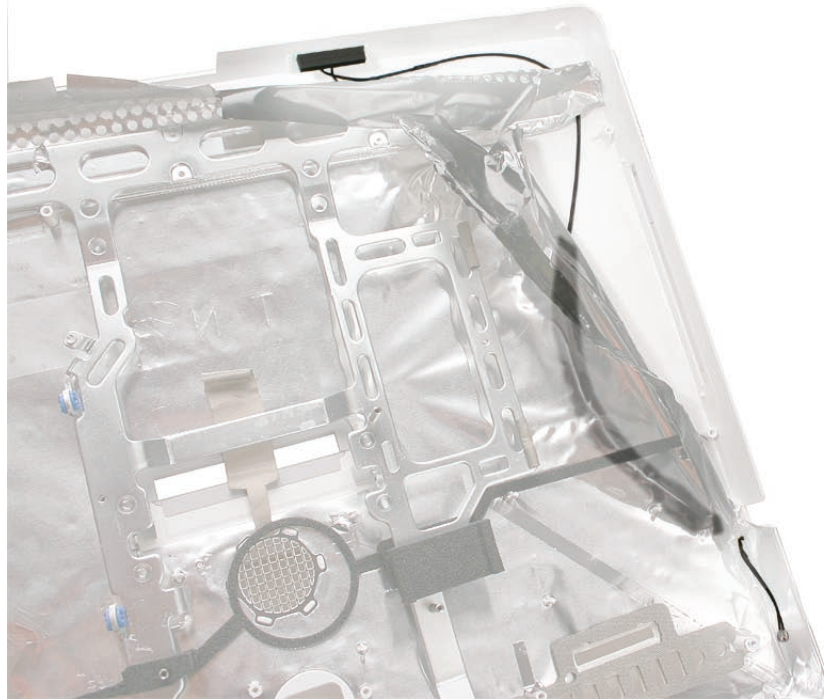
1. Carefully peel back the EMI Faraday shield and backing from the top right inside corner of the rear housing as shown below. Peel back just enough of the Faraday shield backing to access the antenna cable.
2. Using a flat-blade screwdriver, pry the antenna off the top of the rear housing.
3. Pull the antenna cables through the side access hole in the Faraday shield.



---

## Replacing the Wireless Antenna Cable

1. Attach the antenna board to the top inside of the rear housing with double-stick tape.
2. Route the antenna cable along the top inside corner of the rear housing. Make sure the antenna cable routes around the white post in the corner. Check that the cable doesn't protrude from the vent on the rear housing.



3. Route the antenna cable as shown above and insert the connector's end of the cable through the access hole in the Faraday shield. Leave about 2 inches of cable extending from the Faraday shield.
4. Replace the optical drive fan.
5. Replace the logic board.
6. Replace the optical drive.
7. Replace the speakers.
8. Replace the display panel.
9. Replace the IR Board.
10. Replace the lower EMI shield.
11. Replace the front bezel.
12. Replace the front bezel.
13. Replace the memory access door.



# Clutch

## Tools

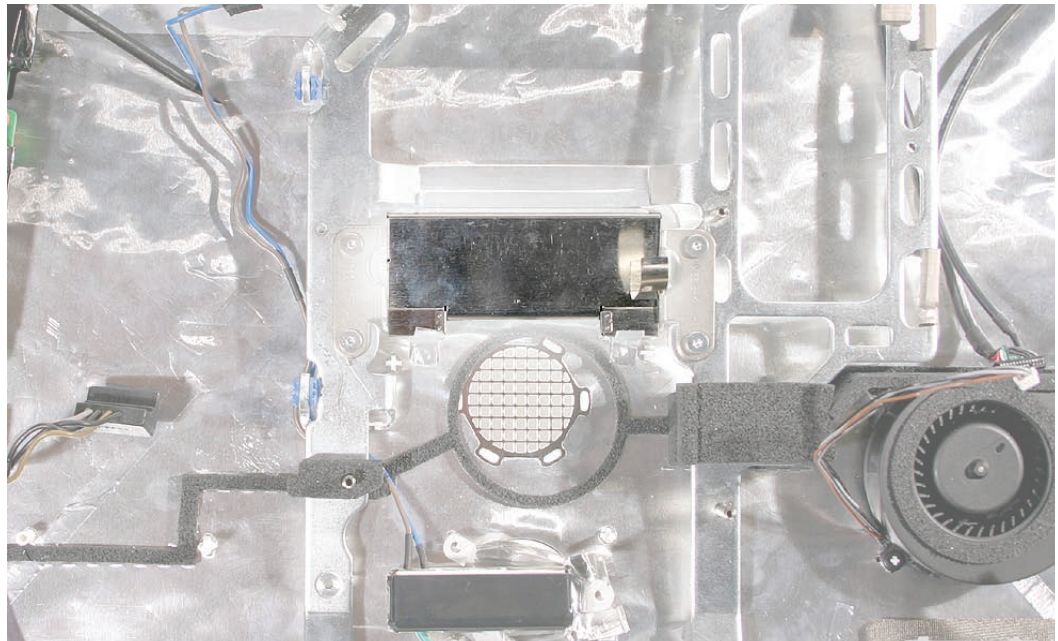
- Torx T10 screwdriver

## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Speakers](#)
- [AirPort Extreme/Bluetooth Card](#)
- [IR Board](#)
- [Display Panel](#)
- [Logic Board](#)
- [CPU Fan](#)

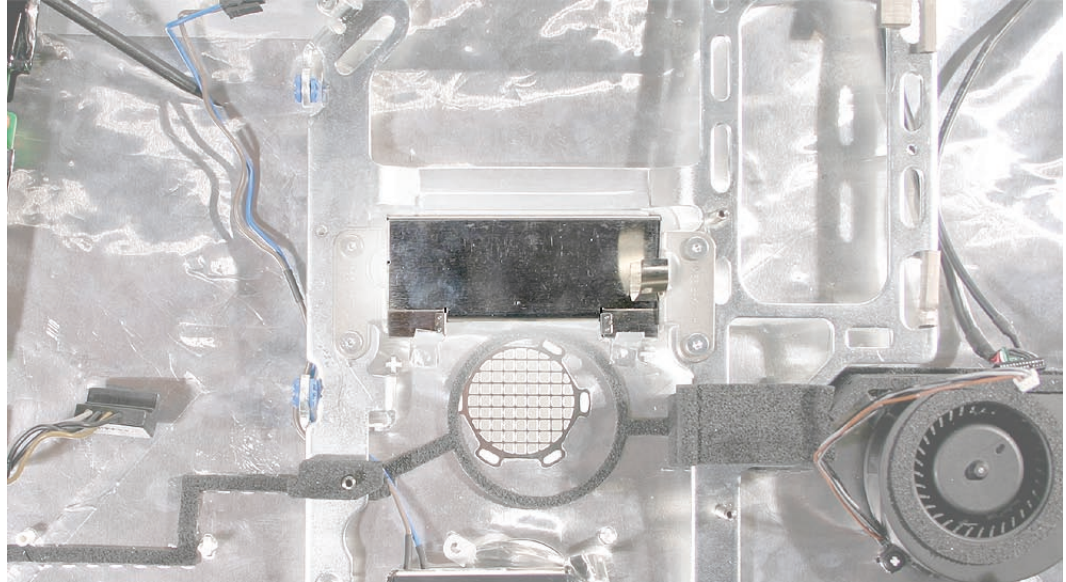
## Part Location



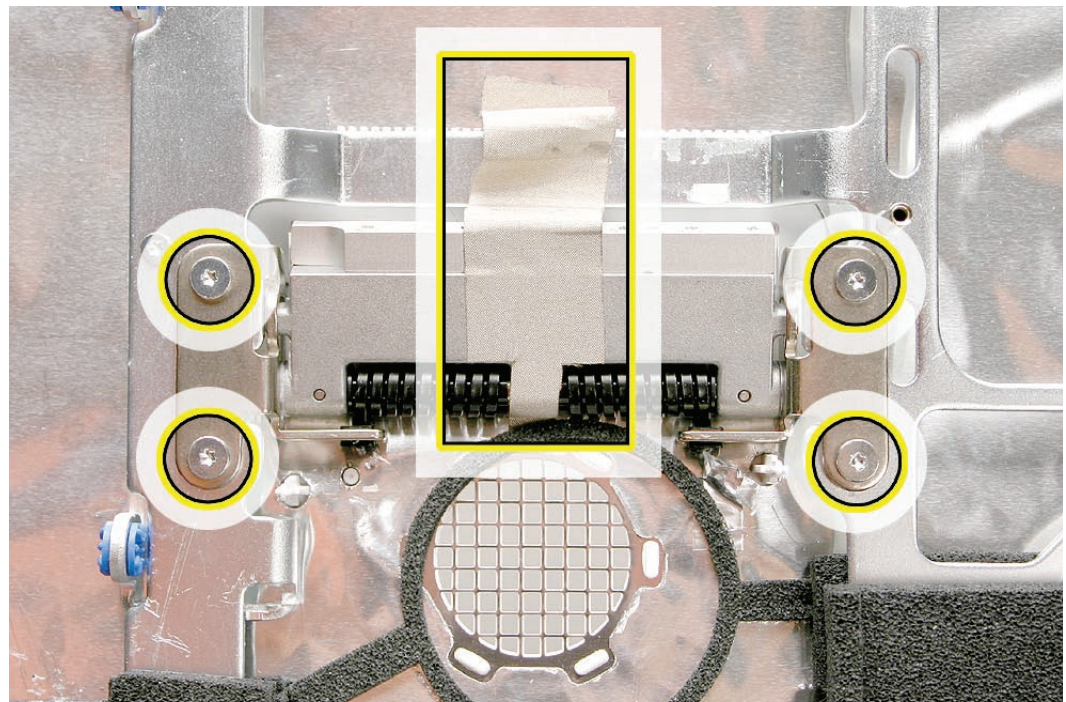


## Removing the Clutch

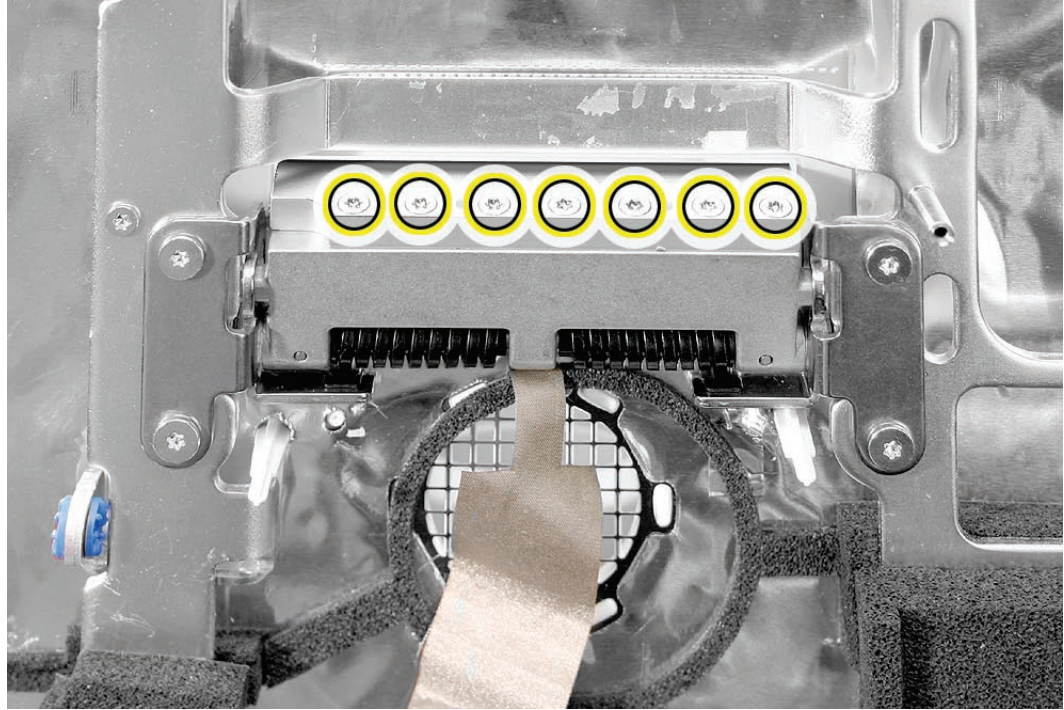
1. Remove the EMI tape attached along the top and bottom sides of the clutch cover. After removing the tape, pull the cover straight off the clutch.



2. Peel back the EMI tape on top of the mechanism. Using a torx T10 screwdriver, remove the four clutch mounting screws.



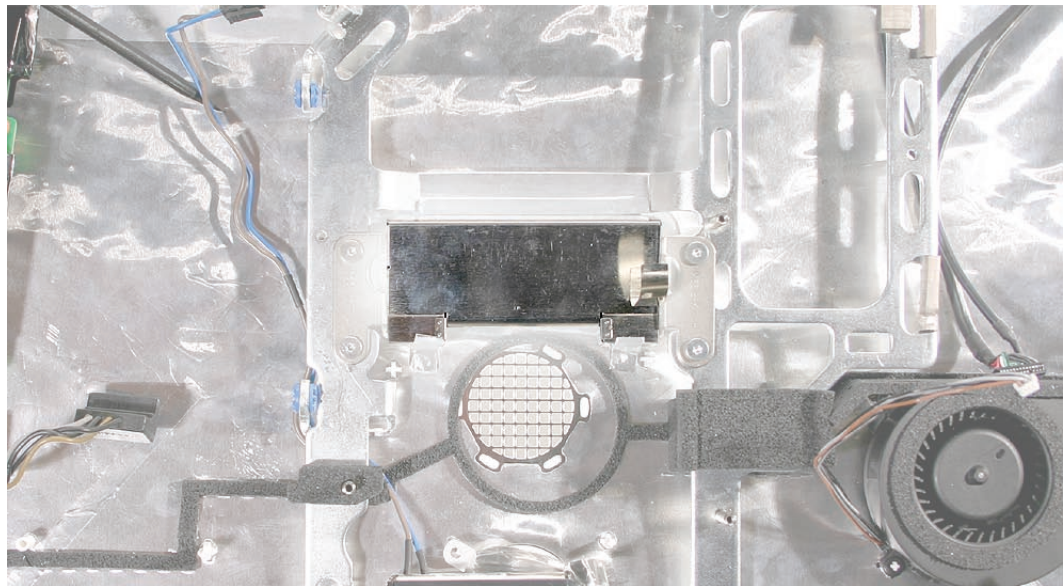
3. Stand up the unit, to access the clutch-to-stand mounting screws.
4. Using a T10 torx screwdriver, remove the seven clutch-to-stand screws. Separate the mechanism and the stand from the rear housing.



---

## Replacing 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 clutch springs at bottom. Install the seven long, clutch-to-stand mounting screws.
3. Adjust the clutch so that its chassis mounting holes align, and install the four screws that secure the clutch to the chassis.
4. Replace the silky EMI tape on top of the mechanism, press it into place.
5. Replace the metal mechanism cover.
6. Replace the EMI tape along the top and bottom of the mechanism cover. Make sure the spring clip on the right side of the mechanism cover is attached to the mechanism cover.



7. Replace the CPU fan.
8. Replace the logic board.
9. Replace the speakers.
10. Replace the display panel.
11. Replace the IR Board.
12. Replace the lower EMI shield.
13. Replace the front bezel.
14. Replace the memory access door.



# Chassis

## Tools

- Torx T10 screwdriver

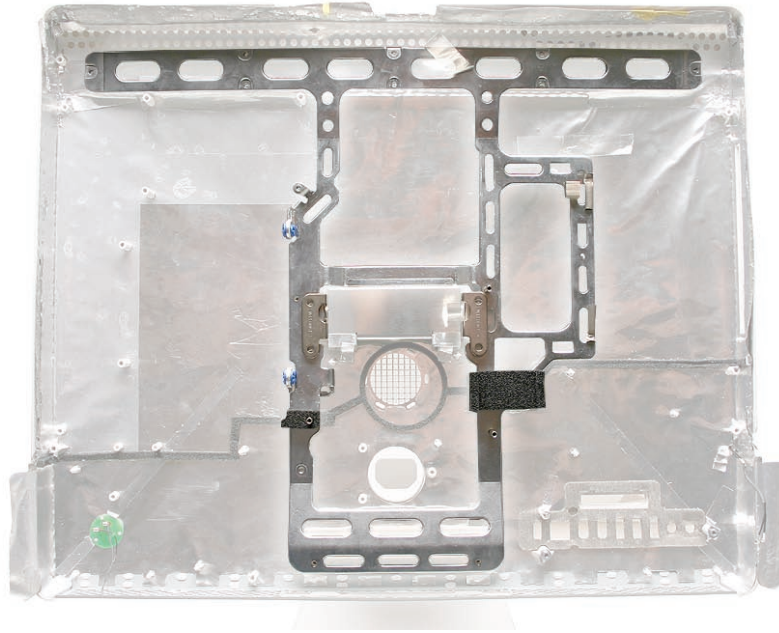
## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Speakers](#)
- [AirPort Extreme/Bluetooth card](#)
- [IR board](#)
- [Display panel](#)
- [Optical Drive](#)
- [Logic board](#)
- [CPU Fan](#)
- [AC Line Filter](#)
- [Hard drive](#)
- [Power supply, AC/DC](#)
- [Clutch](#)
- [Stand](#)

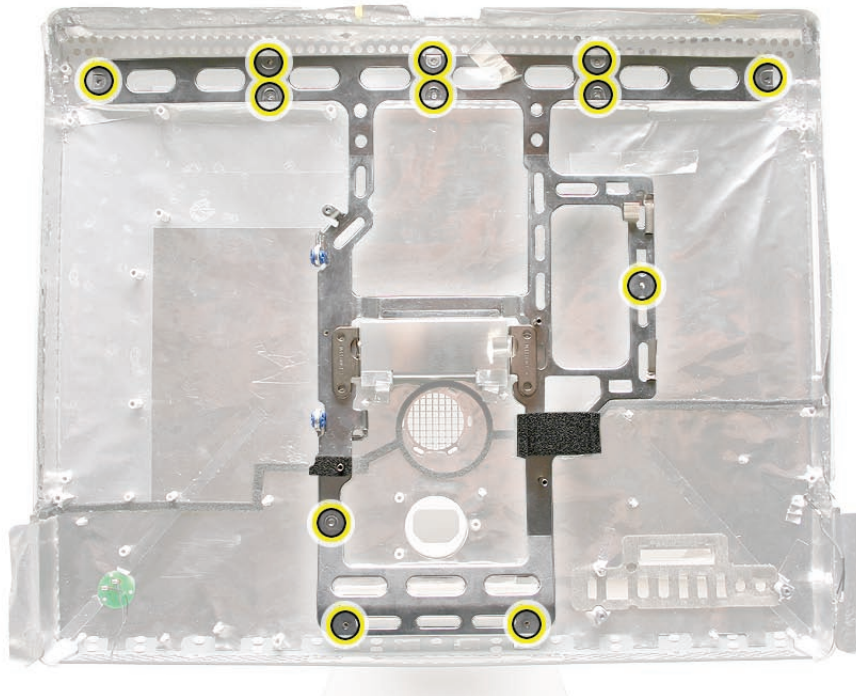
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## Part Location



## Removing the Chassis

Using a T10 screwdriver, remove 12 self-tapping screws from the chassis, and remove the chassis from the rear housing.



---

## Replace the Chassis

1. Position the chassis on the rear housing as shown and install 12 self-tapping mounting screws.
2. Replace the clutch mechanism.
3. Replace the AC line filter.
4. Replace the AC/DC power supply.
5. Replace the hard drive.
6. Replace the optical drive.
7. Replace the hard drive and optical drive fans (if removed).
8. Replace the CPU fan.
9. Replace the logic board.
10. Replace the speakers.
11. Replace the display panel.
12. Replace the IR Board.
13. Replace the lower EMI shield.
14. Replace the front bezel.
15. Replace the memory access door.



# Rear Housing

## Tools

No tools are required to remove the rear housing.

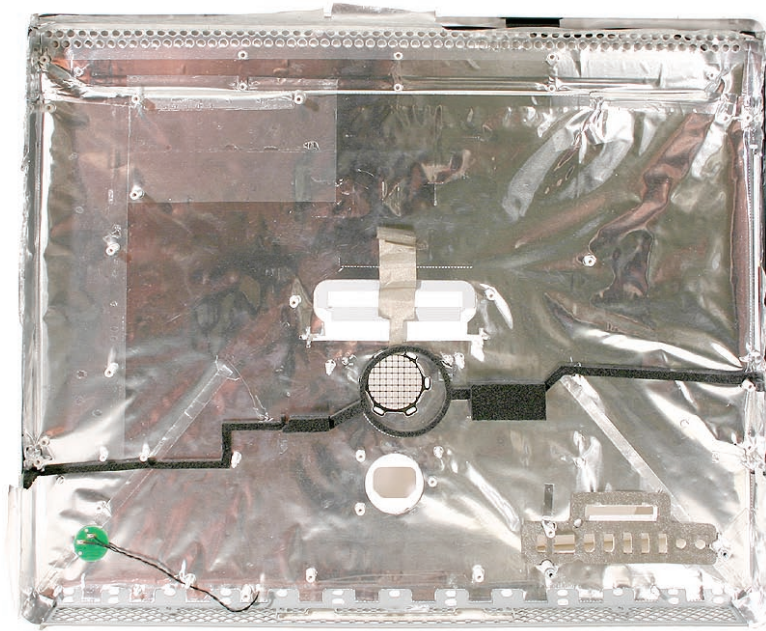
## Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [IR board](#)
- [Display panel](#)
- [Speakers](#)
- [AirPort Extreme/Bluetooth card](#)
- [Optical Drive](#)
- [Logic board](#)
- [CPU Fan](#)
- [Optical fan](#)
- [Hard drive fan](#)
- [AC Line Filter](#)
- [Hard drive](#)
- [Power supply, AC/DC](#)
- [Power supply, DC/DC, Inverter](#)
- [Camera cable](#)
- [Wireless antenna](#)
- [Clutch](#)
- [Stand](#)
- [Ambient Light Sensor](#)
- [Chassis](#)

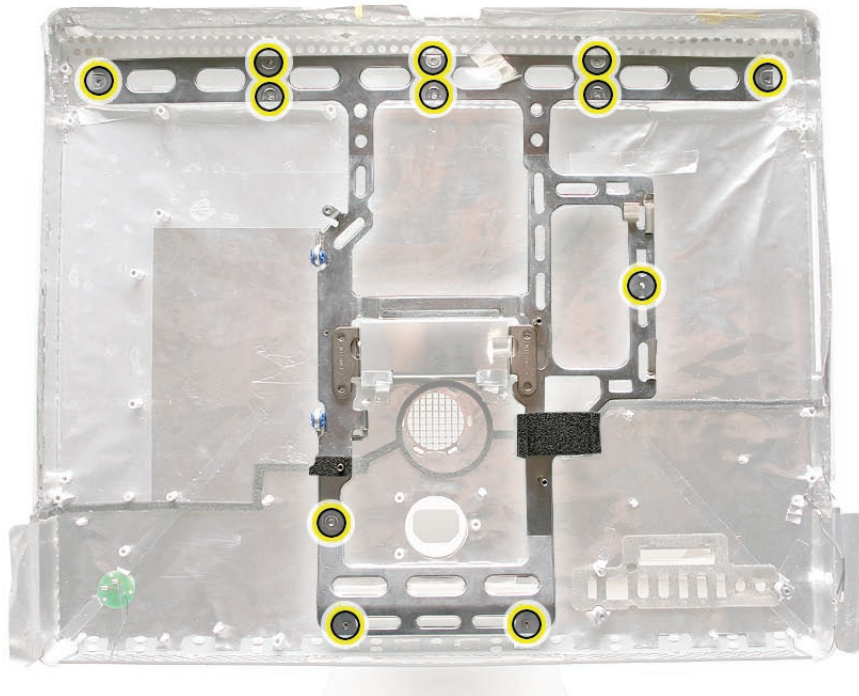
---

## Part Location



## Removing the Rear Housing

Using a T10 torx screwdriver, remove 12 self-tapping screws from the chassis, and remove the chassis from the rear housing. **Note:** the EMI Faraday shield is part of the rear housing.





---

## Replace the Rear Housing

1. Position the chassis on the rear housing as shown and install 12 self-tapping mounting screws.
2. Replace the clutch mechanism.
3. Replace the stand.
4. Replace the AC line filter.
5. Replace the AC/DC power supply.
6. Replace the hard drive.
7. Replace the optical drive.
8. Replace the hard drive and optical drive fans (if removed).
9. Replace the CPU fan.
10. Replace the logic board.
11. Replace the speakers.
12. Replace the display panel.
13. Replace the IR Board.
14. Replace the lower EMI shield.
15. Replace the front bezel.
16. Replace the memory access door.



## Stand

### Tools

- Torx T10 screwdriver

### Preliminary Steps

Before you begin, remove the following:

- [Access door](#)
- [Front bezel](#)
- [Lower EMI shield](#)
- [Speakers](#)
- [AirPort Extreme/Bluetooth Card](#)
- [IR Board](#)
- [Display Panel](#)
- [Logic Board](#)
- [CPU Fan](#)
- [Clutch](#)

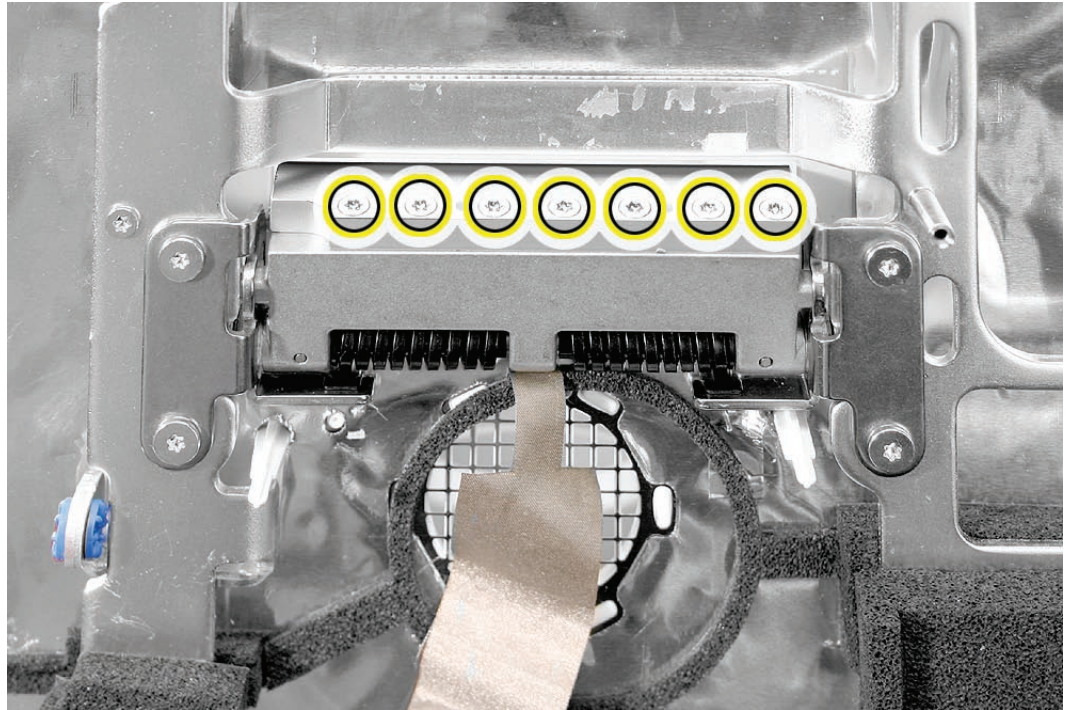
### Part Location



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## Removing the Stand

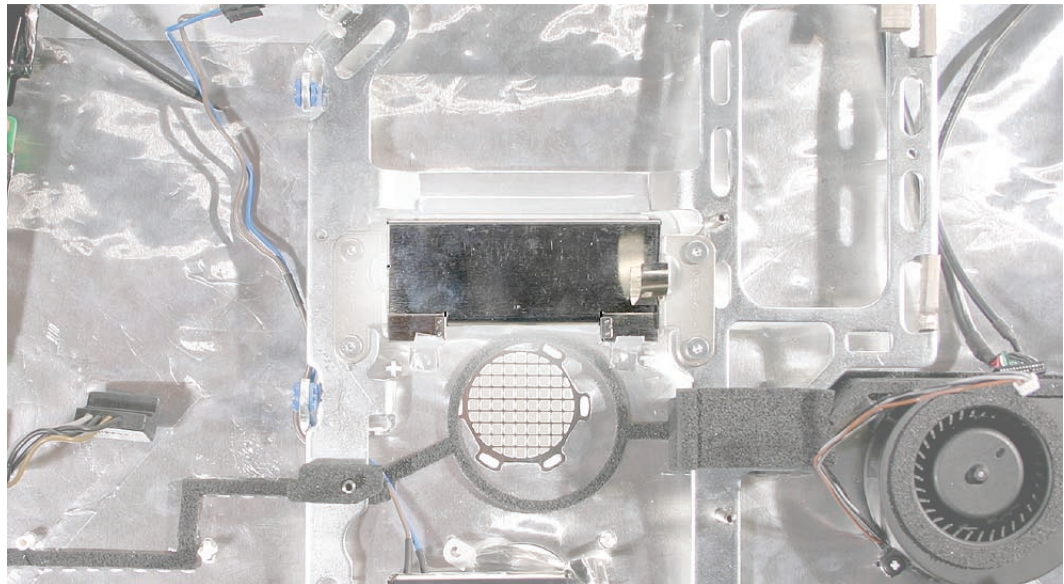
1. Stand up the unit, to access the clutch-to-stand mounting screws.
2. Using a T10 torx screwdriver, remove the seven clutch-to-stand screws. Separate the mechanism and the stand from the rear housing.



---

## Replacing the Stand

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 clutch springs at bottom. Install the seven long, clutch-to-stand mounting screws.
3. Adjust the clutch so that its chassis mounting holes align, and install the four screws that secure the clutch to the chassis.
4. Replace the silky EMI tape on top of the mechanism, press it into place.
5. Replace the metal mechanism cover.
6. Replace the EMI tape along the top and bottom of the mechanism cover. Make sure the spring clip on the right side of the mechanism cover is attached to the mechanism cover.



7. Replace the CPU fan.
8. Replace the logic board.
9. Replace the speakers.
10. Replace the display panel.
11. Replace the IR Board.
12. Replace the lower EMI shield.
13. Replace the front bezel.
14. Replace the memory access door.



---

Apple Service Source



Troubleshooting  
iMac G5 (20-inch, iSight)



## General Information

### Serial Number Location

iMac G5 (iSight) serial numbers are located on the bottom of the computer stand.

### Accessing the Diagnostic LEDs

The iMac G5 (20-inch iSight) has four built-in diagnostic LEDs on the main logic board that can help you troubleshoot the computer. Follow the steps below to access the LEDs.

1. Shut down the computer and disconnect all cables except the power cord.
2. Place a soft, clean towel or cloth on the desk or flat surface. Grasp the sides of the unit and slowly lay it screen-down on the cloth, with the bottom facing you.
3. 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.



4. Turn over the unit and place it screen-up, with the bottom facing toward you.
5. Tilt up the front bezel and use a T8 torx screwdriver to remove the three bezel mounting screws.



6. Stand up the unit. Using the plastic access card, unhook the bezel locking mechanism in one upper corner of the front bezel, and pull the bezel slightly away from the rear housing.  
**Note:** You must Insert the access card through the vent in the rear housing as shown below, and push it up and back until the latch releases.

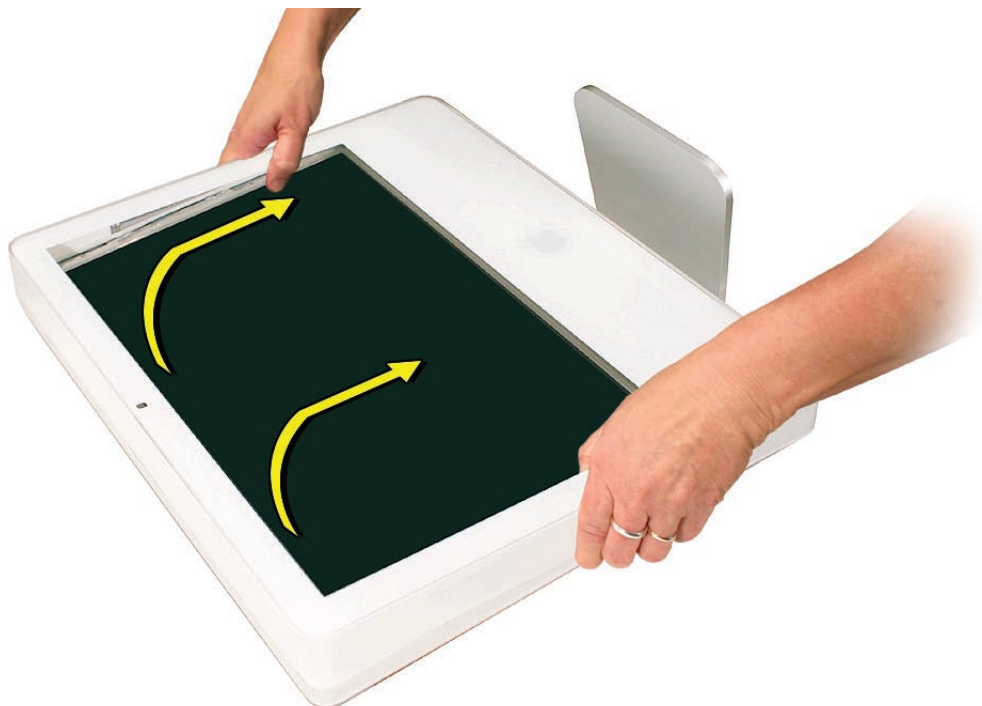




- 
7. Repeat step 6 to release the locking mechanism in the opposite upper corner.

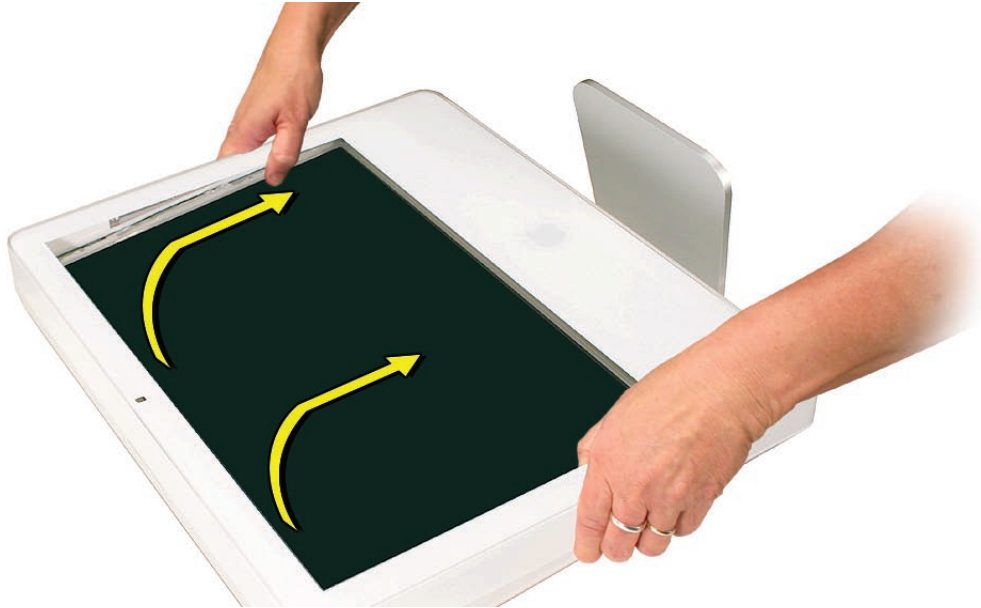


8. Lay the unit screen-up on an ESD mat, with the bottom facing toward you. Lift up the top of the bezel and pull it slightly toward you to separate it from the top of the rear housing.

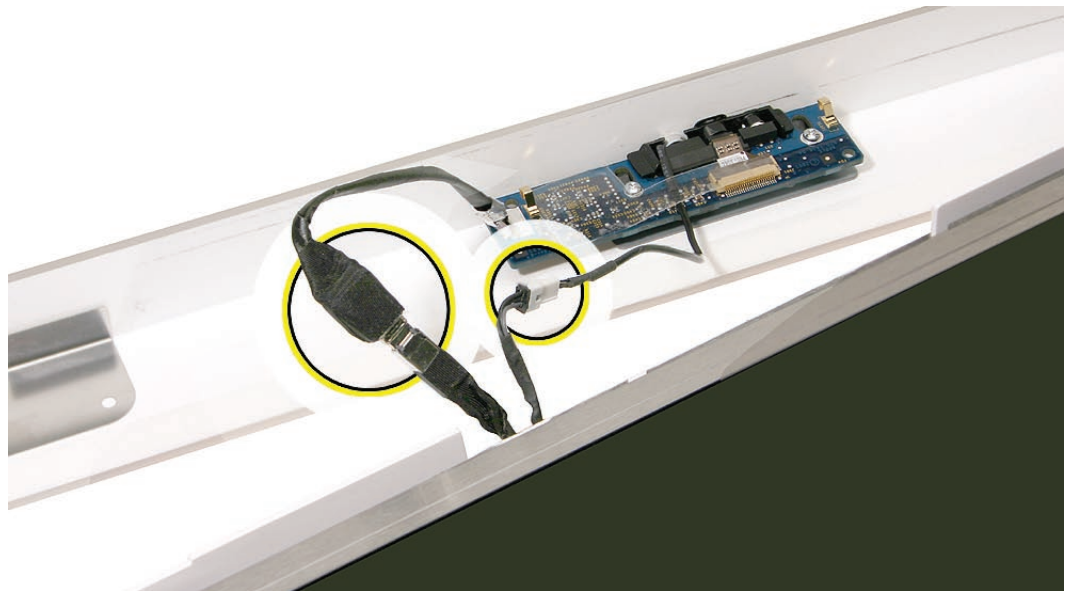


9. Lift the front bezel straight up to remove it. Then swing the bezel upright onto its top edge so you can disconnect two cables that tether the bezel to the rest of the unit.

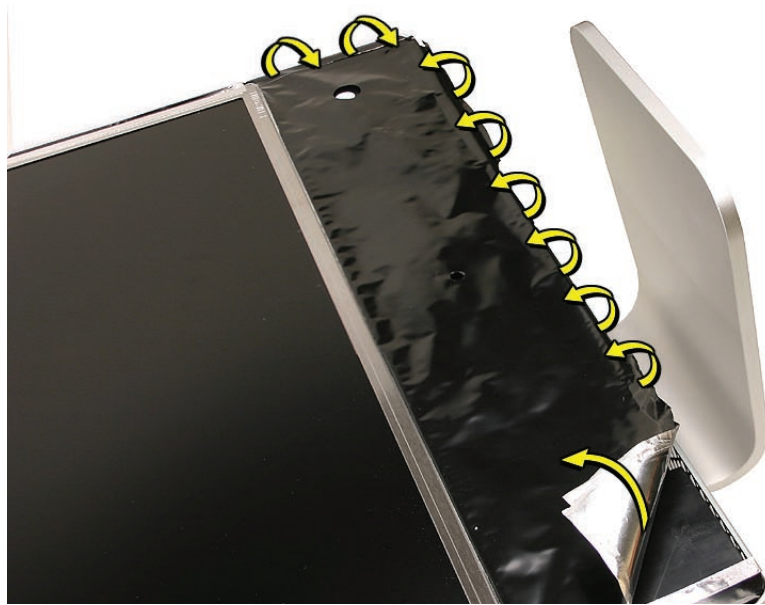
**Caution:** Make sure the memory eject rings are not protruding from the bezel when you lift it or you could bend or damage the rings. Also, do not use excessive force when removing the front bezel or you could break the locking mechanisms. If you feel resistance when lifting the bezel, repeat step 3 until each locking mechanism audibly unlocks.



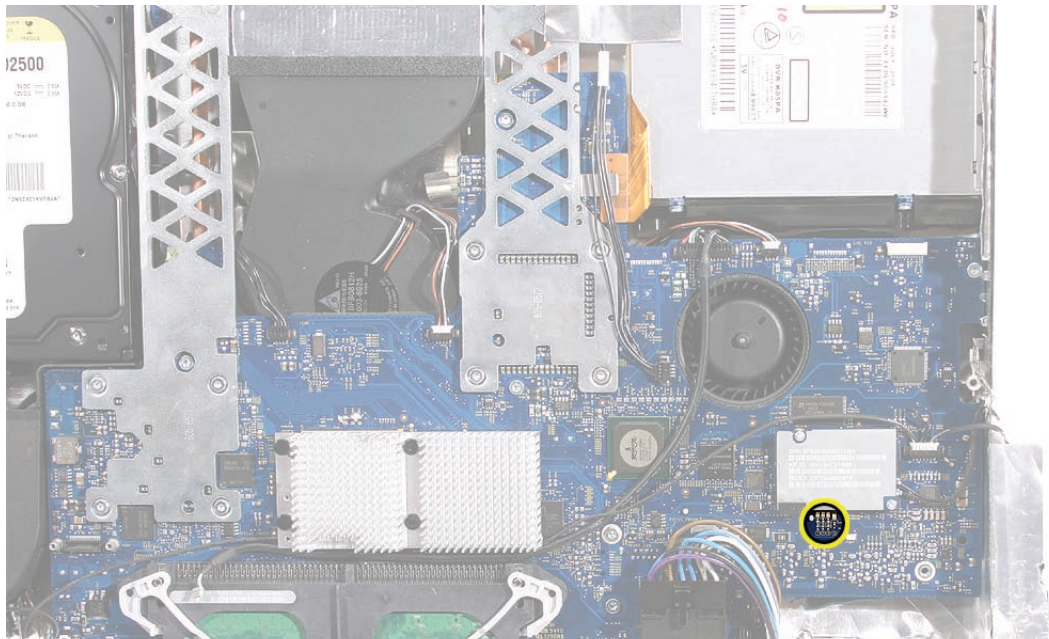
10. Disconnect the two camera board connectors.



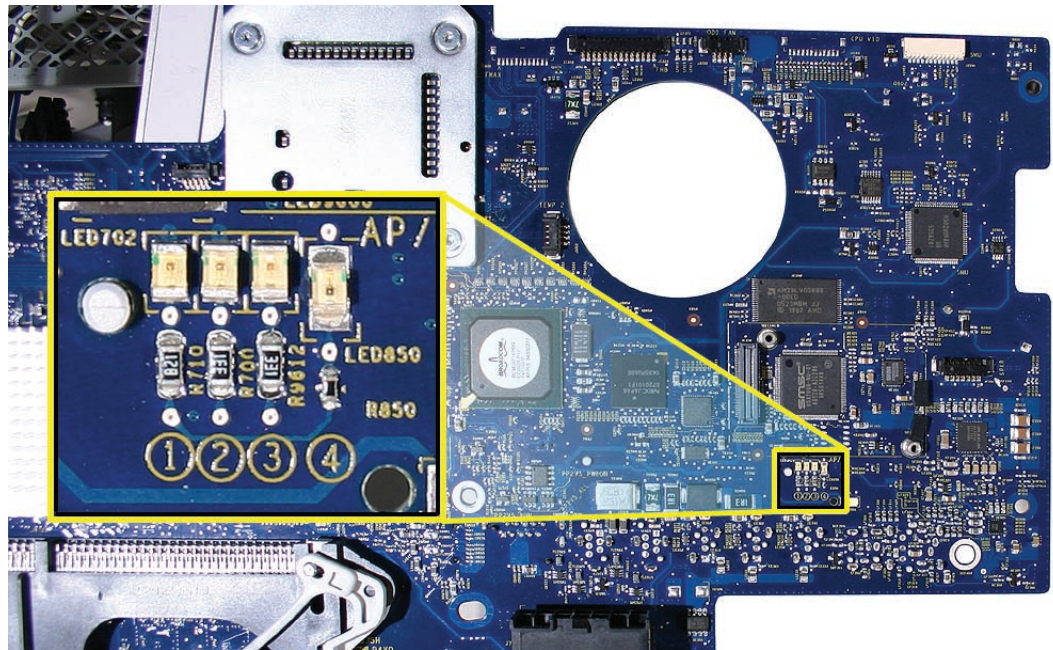
11. To protect the computer from electrostatic discharge, ground yourself by touching the metal frame around the display panel. **Caution:** Always discharge static electricity before you touch any parts or install any components inside the computer.
12. Carefully peel the lower EMI shield off the bottom edge of the rear housing. Use a black stick to help peel back the shield.



13. Remove the speakers. The LEDs are under the right speaker.



14. The four labelled diagnostic LEDs shown below.



- **LED 1:** Indicates that trickle voltage from the AC power inlet to the power supply has been detected. This LED will be ON when the computer is turned off and your power supply is working correctly.
- **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 main logic board has established communication with the LCD display.
- **LED 4:** Indicates a processor over-temperature condition. The system will shut down when this LED turns on.

---

## Testing Under Power

Using the diagnostic LEDs to check for power issues requires powering on the system with the diagnostic LEDs visible. To access the Diagnostic LEDs, follow the preceding steps under “Accessing the Diagnostics LEDs.” **Never remove components not included in the “Accessing the Diagnostic LEDs” procedure when testing the system under power.**



### WARNING: HIGH VOLTAGE

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 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 G5 (iSight) 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.

To power on the computer with the diagnostic LEDs visible:

1. Follow the steps in the “Accessing the Diagnostic LEDs” procedure.
2. Stand up the computer—return it to an upright position.
3. Plug in the power cord. Press the power button at the rear of the unit.
4. Observe the LEDs, which will come on indicating the computer status as indicated below:

**LED 1 Operation:** Should turn on as soon as the power cord is plugged into the system, indicating that line voltage is present and basic power supply functionality is OK.

**LED 2 Operation:** Should turn on as soon as the power button is pressed, indicating the remainder of the power supply system is functioning.

**LED 3 Operation:** Should turn on as soon as the system confirms that communication is established with the LCD display. The display and backlights should be on.

**LED 4 Operation:** Turns on in the event that the processor overheats.

5. To shut off the computer with the front bezel removed, press the power button at the rear of the unit for at least five seconds. The green LEDs will go out.

---

## SMU (System Management Unit)

The iMac G5 (iSight) uses an advanced system management unit (SMU) to manage the thermal and wattage conditions, while keeping the acoustic noise to a minimum. The SMU controls the fans and regulates the speeds to run each fan.

### The SMU supports the following functions:

- provides initial configuration of system clocks
- automatically initiates and sequences voltage and frequency slews when the OS requests a transition to a new run level
- handles all power button and environmental user events
- controls RPM of the fans
- monitors processor temperature and power consumption

The iMac G5 (20-inch iSight) enclosure is divided into two discrete thermal zones. The two zones split the enclosure approximately in half. Temperature and power consumption are monitored by the operating system which communicates with the SMU, which in turn controls and monitors fan operation. If Mac OS X is not booted, thermal management must be provided by the alternate development operating system.

**Note:** The SMU controls the fans and regulates the speeds to run each fan. If the SMU does not receive an update from the operating system within two minutes, it begins to ramp up the speed of the fans to full speed.

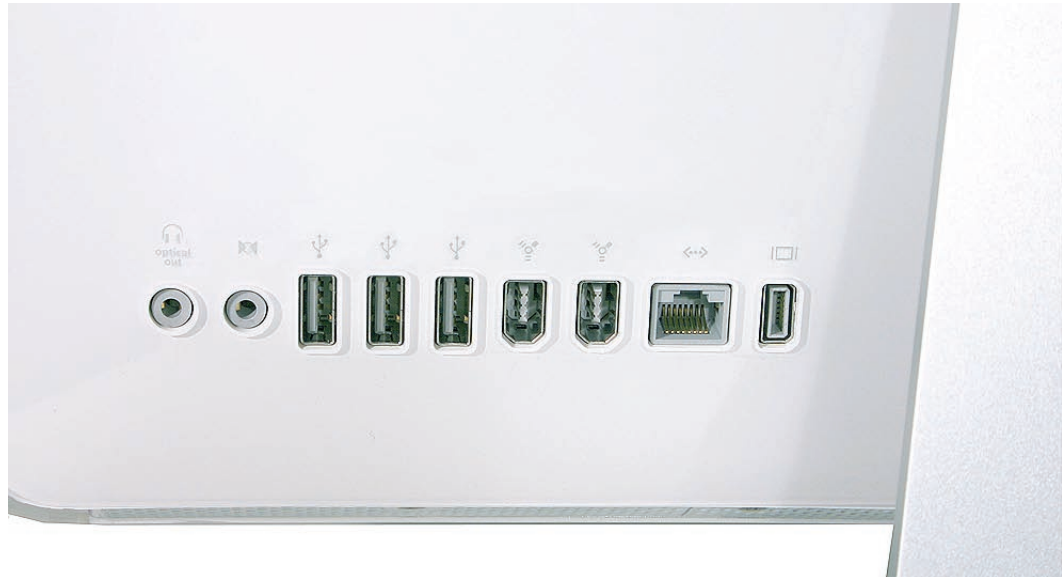
## Resetting the SMU (System Management Unit)

1. Unplug all cables from the computer, including the power cord.
2. Wait 10 seconds.
3. Plug in the power cord while simultaneously pressing and holding the power button on the back of the computer.
4. Let go of the power button.
5. Press the power button once more to start up your iMac G5 (20-inch iSight).

---

## Ports

The iMac G5 (20-inch iSight) ports are shown below.



## DDR Memory

iMac G5 (20-inch iSight) computers work with memory modules (DIMMs) that meet all of these criteria: PC3200, 2.5V, unbuffered, 8-byte, nonparity, 184-pin, 533Mhz DDR2 SDRAM.

iMac G5 (20-inch iSight) comes with 512 MB of memory soldered to the main logic board, and includes one user-configurable RAM slot. User-configurable memory can be installed by the customer by removing the memory access door on the bottom edge of the unit.

The maximum amount of RAM you can install is 2.5 GB. User-configurable memory is available in RAM module sizes of 512 MB, 1 GB, and 2 GB.

DIMMs with any of the following features are not supported in the iMac G5 (20-inch iSight) computer: registers or buffers, PLLs, ECC, parity, or EDO RAM.



# 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.

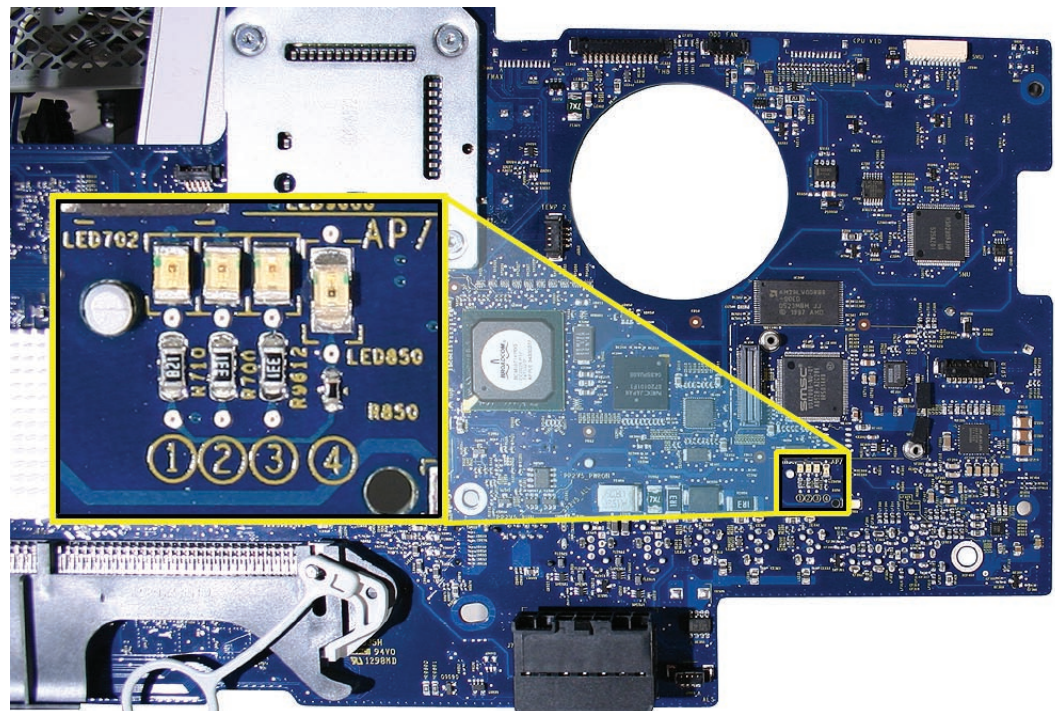


## Power Issues

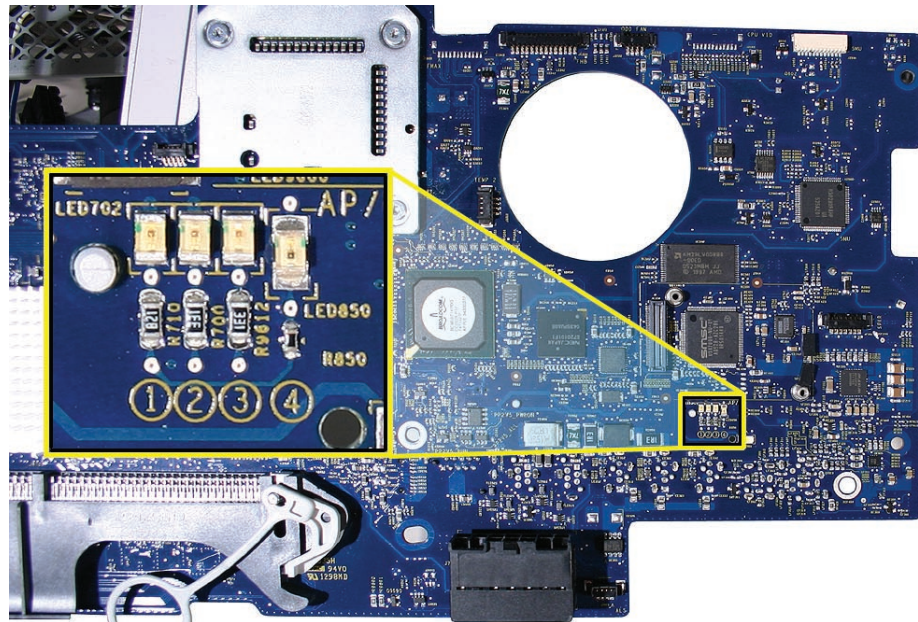
### No Power.

The iMac G5 will not turn on. The display has no picture or color and no sounds can be heard coming from the fan or hard drive.

1. Verify power outlet is good. Plug a different device into the socket to ensure there is power, or plug the iMac G5 into another outlet.
2. Check the power cord. Use a known good power cord.
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 the back of the computer.
4. Remove keyboard, mouse, and other peripherals such as external speakers, memory cards connected to the card reader, and FireWire or USB devices. Try starting up the computer with these devices removed. If the computer starts up, re-connect the peripherals one at a time until you determine which device is causing the “no power” symptom.
5. Remove the front bezel to access the diagnostic LEDs on the main logic board. See “Accessing the Diagnostic LEDs” in the Troubleshooting chapter for complete instructions on this procedure.
6. With the front bezel and speakers removed, locate LEDs 1 through 4 on the main logic board.



7. Plug the power cord into the iMac G5 and into the AC outlet. Check to see if diagnostic LED #1 is On or Off.



**LED #1 is On:** This indicates that the AC power inlet and AC-to-DC power supply is getting good power from the AC outlet, and the DC-to-DC board is receiving 12VDC. Go to step 8.

**LED #1 is Off:** Inspect for loose or disconnected cables. If cables are connected, your AC-to-DC power supply or AC power inlet may need to be replaced. Since power inlets rarely fail, replace the power supply first and retest for system power. If the symptom persists, replace the power inlet.

- 
8. Turn the computer on by pressing the power button on the rear of the case. Go to the next step.



9. Does the computer start up normally after pressing the power button?

**Yes:**

Press and hold the power button until the computer powers off.

Unplug the power cord from the iMac, and replace the front bezel.

Return the computer to the upright position and connect the power cord.

Press the power button to turn on the computer.

Make sure the computer starts up properly. Attach applicable external peripherals removed in step 4, and verify that the system remains operational. If OK, return the system to the customer.

**No:**

When pressing the power button to start up the computer, does LED 2 come on momentarily, or does LED 2 not come on at all?

**Momentarily:** The logic board has detected 12V, but the power supply cannot maintain it. Replace the DC-DC board.

**Not at all:** The DC-DC board is unable to power up. Replace the DC-DC board. If replacing the DC-DC board doesn't correct the problem, replace the logic board..

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## Audible buzzing, whining, or ticking noise

The iMac G5 (iSight) 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. Check the volume settings in the Sound window in System Preferences.
6. Reboot the computer and check the computer again. If the noise persists and is unusually loud, contact Apple Technical Support.

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## No Video

The computer will turn on, but the display has no picture or color. The boot chime, the fan, and hard drive activity can be heard.

1. Check if the computer is sleeping. Press the space bar to wake the computer from sleep mode.
2. Did the computer wake from sleep?  
**Yes:** Put the computer to sleep from the Apple menu and wake the computer again to test the settings. Check Energy Saver setting to see when the computer has been designated to sleep.  
**No:** Continue to the next step.
3. Reset your computer's PRAM (Parameter RAM).
  - If your iMac is on, turn it off by pressing the power button in until the computer powers off. You should hear the drives and fans go quiet.
  - Wait for a few seconds.
  - While the computer is off, with your left hand, hold down the Apple key, the option key next to it, and the letter R. When you have them all pressed push the power button with your right hand and then quickly move that hand to hold down the letter P. Keep the four keys pressed while the computer starts up.
  - Make sure you hold down the four keys (P-R-Command-Option) while the computer starts up. 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.
  - If you didn't hear at least two startup chimes, go to step one on this page and try 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).
4. 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 is starting up properly.  
**No:** Continue to the next step.
5. Remove the access door, front bezel, and lower EMI shield, and speakers to access the diagnostic LEDs on the logic board. Refer to "Accessing the Diagnostic LEDs" earlier in this chapter.
6. Locate diagnostic LEDs 1 through 4 on the logic board.
7. Plug the power cord into the iMac G5 and into a known good AC outlet. LED 1 should come on if your computer has been starting up properly. If LED 1 is Off, refer to the "No Power" troubleshooting earlier in this chapter.

- 
8. Turn on the computer by pressing the power button.
  9. When the computer starts up, LED 2 will light, indicating the power supply is functioning properly. If LED 2 does not light, refer to the “No Power” troubleshooting earlier in this chapter.
  10. LED 3 will light last, indicating that the logic board and LCD assembly have communicated and the LCD is ready to receive video. Does LED 3 come on?  
**Yes:** This indicates that your logic board is working correctly to produce video. Continue to step 12.  
**No:** Continue to step 11 to reset system power management.
  11. Reset the SMU (System Management Unit). Refer to “Resetting the SMU” mentioned earlier in this chapter. After resetting the SMU, did the video return?  
**Yes:** Press and hold the power button until the computer powers off. Start the computer again and confirm that the computer is functioning normally. Continue to step 14.  
**No:** Go to the next step.
  12. Connect an external display. Does the external display show an image?  
**Yes:** This indicates that the logic board video circuitry is functioning properly. Continue to step 13.  
**No:** This indicates that the logic board video circuitry may have failed. Replace the logic board and retest.
  13. Turn the display at an angle to you and look closely at the display. It may be necessary to dim the room lights. Is the display completely black, or can you see a dim light or purple glow to the display?  
**Completely black:** Replace the inverter.  
**Dim light or purple glow:** The inverter and LCD backlights are functioning. Replace the display panel and continue to step 14.
  14. Turn the machine off by holding the power button until the unit powers off. Unplug the computer and reinstall the EMI shield, front bezel, and access door. Return the computer to the upright position. Plug in the computer again and power on the computer. Does the computer have video now?  
**Yes:** Restart the computer and make sure that the computer is operating properly.  
**No:** Return to step 1 to verify system functionality.

---

## 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 TMDS cable connection. If connected and same color tinting persists, replace the TMDS cable. Does color tinting persist after changing the TMDS 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.



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## 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 v2.5.3 or later for this machine and return to the customer if it passes.  
**No:** Boot the machine to Apple Hardware Test v2.5.3 or Apple Service Diagnostic v2.6.3 (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.

### System hangs during normal startup process

1. Boot from the system CD that came with the computer and see if the hard drive mounts on the desktop.
2. Using Drive Setup, reinstall the system software drivers for the hard drive.
3. Using Drive Setup, reinitiation the hard drive.
4. Check all cable connections to and from the hard drive.
5. Replace the hard drive data cable.
6. Replace the hard drive.
7. 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.



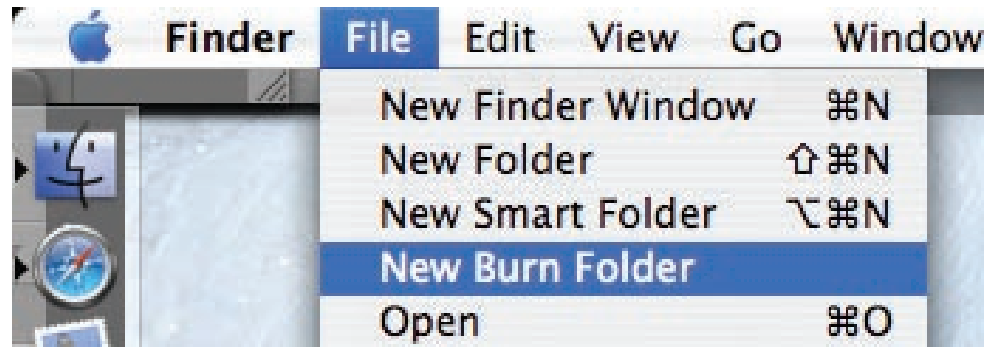
2. Select System Preferences from the Apple menu and open the CDs & DVDs preferences window. Make sure that audio CDs are set to launch iTunes and movie DVDs set to launch DVD Player when those media are inserted, as shown below.



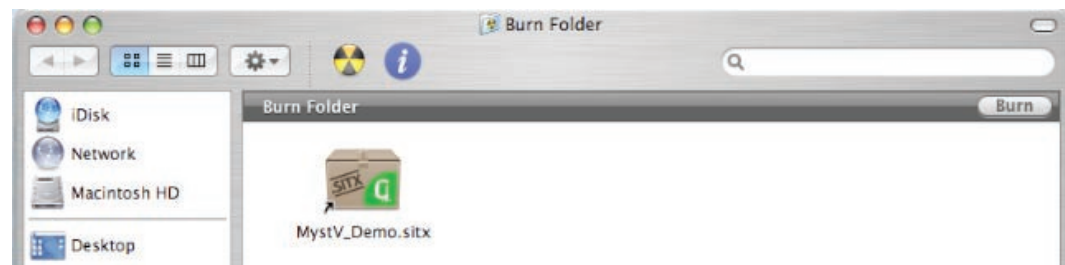
3. Check that the drive can read discs normally. Insert an audio CD and check whether it shows up on your desktop or launches iTunes.  
Does the audio CD mount on the desktop or in iTunes?  
**Yes:** The drive seems to read CD discs okay. Go on to Step 4.  
**No:** Make sure the disc is readable by other 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 flex cable.
5. If after replacing the optical drive flex cable 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 flex cable and test. Does the drive successfully burn to disc after replacing the optical flex cable?  
**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 106752, "Macintosh: How to Eject a Disc When Other Options Do Not Work". 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 flex drive cable connector.

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 flex cable.

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

3. After replacing the optical drive flex cable, 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 "C" 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, reseal the optical drive flex cable and retest.
6. Replace the optical drive flex cable.
7. Replace the optical drive.
8. Replace the logic board

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## Fan Sound

### Loud fan noise coming from inside the computer

The iMac G5 (20-inch iSight) 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 G5 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 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.



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## 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 SMU (refer to “Resetting the SMU” mentioned earlier in this chapter) and then test to see if the fans still exhibit the issue.
2. Boot to Apple Service Diagnostic v2.5.8 or later Open Firmware (OF) partition and run the suite of tests. This will test the fans and thermal input of the sensors. If the tests fail, replace the component (s) indicated by the test.
3. Verify that the hard drive temperature sensor cable, and the optical drive temperature sensor cable are plugged in correctly. If necessary, replace the hard drive and optical drive temperature sensor cables.
4. Replace the hard drive and optical drive temperature sensors.
5. Replace the hard drive.
6. Replace the logic board.

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## AirPort/Bluetooth

### Not able to connect wirelessly with AirPort or Bluetooth

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 Hardware 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/Bluetooth combo card installed. Go to step. 5  
**No:** The iMac recognizes that it has an AirPort/Bluetooth combo card installed. Go to step 6.
5. Remove the front bezel, lower EMI shield, and two combo card mounting screws and reseal the AirPort/Bluetooth combo card. Re-install the two combo card mounting screws and check System Profiler again to see if the computer sees the AirPort/Bluetooth combo 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/Bluetooth combo card. Refer to the Take Apart - Logic board procedure for replacement instructions. If the issue persists after replacing the AirPort/Bluetooth card, replace the logic board..

6. Now that we know the iMac recognizes the AirPort/Bluetooth combo card, check the antenna. If the antenna is not plugged in all the way, you may have very short AirPort/Bluetooth range.
7. Remove the access door, front bezel, lower EMI shield, and right speaker, and the two AirPort/Bluetooth combo card mounting screws . Disconnect the card, turn it over and reconnect the antenna cable connectors to the combo card. Make sure the antenna leads are firmly seated. Replace the card and other components and re-test.
8. If the antenna leads are plugged in properly and the AirPort/Bluetooth combo 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/Bluetooth combo card. Refer to Take Apart/Logic Board.
10. Replace the antenna. Refer to Take Apart/Wireless Antenna.
11. Replace the logic board. Refer to Take Apart/Logic Board.

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## AirPort signal seems to be very weak

1. Check the antenna. If the antenna is not plugged in all the way to the AirPort/Bluetooth combo card, AirPort range may be very short.

Remove the front bezel, lower EMI shield, right speaker, and the combo card mounting screw. Disconnect and turn over the combo card, and reconnect the antenna cables to the card. Press the antenna connector firmly to make sure it's fully connected to the card. Replace the cover and reconnect the power cord.

2. Try connecting to a wireless access point. Did reception improve?

**Yes:** Problem resolved. It looks like the antenna was not plugged in all the way.

**No:** The AirPort/Bluetooth card is connected properly and recognized, but there are a number of other things that could cause issues with wireless networking. Refer to Knowledge Base document 106858 for more networking information.

3. Replace the AirPort/Bluetooth card.
4. Replace the antenna.
5. Replace the logic board.

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## 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 "iMac G5 (iSight): 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.

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## 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” procedure in Take Apart.

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” procedure in Take Apart. 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” procedure in Take Apart.

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## Built-in iSight Camera

The built-in camera is not recognized.

1. Boot the iMac G5 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 G5 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 connection to the logic board. The camera cable connector is on the right side of the logic board, above the AirPort/Bluetooth combo card.

3. Replace the camera cable.
4. Replace the camera board located inside the front bezel.
5. If the iSight camera still doesn't appear in System Profiler on the USB bus after replacing the camera board, 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

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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.

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## 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. M. 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. 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.
5. After replacing the speakers, do you have sound now?  
**Yes:** Problem resolved.  
**No:** Replace the logic board.

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.



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## Mouse

### My mouse doesn't work at all.

1. Turn over the mouse and check if the red LED on the underside of the mouse is 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 a 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 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.

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## Keyboard

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 it solve the problem?  
**Yes:** Problem solved.  
**No:** Replace the keyboard.

### The USB port on my keyboard doesn't work.

1. Unplug all devices 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)

### Computer beeps at startup.

1. Check that the memory DIMMs are iMac G5 (20-inch iSight) compliant. iMac G5 (20-inch iSight) computers work with memory modules (DIMMs) that meet all of these criteria:
  - DDR2 SDRAM (Double Data Rate 2, Synchronous Dynamic Random Access Memory)
  - 533 MHz, PC2-4200 compliant (also referred to as DDR2 533)
  - 184-pin, 2.5V
  - unbuffered and unregistered

There is one RAM slot. The maximum amount of RAM you can install is 2.5 GB. You can use RAM module sizes of 512 MB, 1 GB, and 2 GB.

DIMMs with any of the following features are not supported in the iMac G5 (iSight) computers: registers or buffers, PLLs, ECC, parity, or EDO RAM.

2. Reseat the memory into the slot.
3. Replace the memory.
4. Replace the logic board.

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## 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

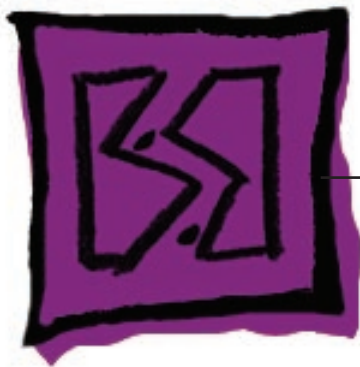
### I see a message saying not enough power to function.

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.



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Service Source

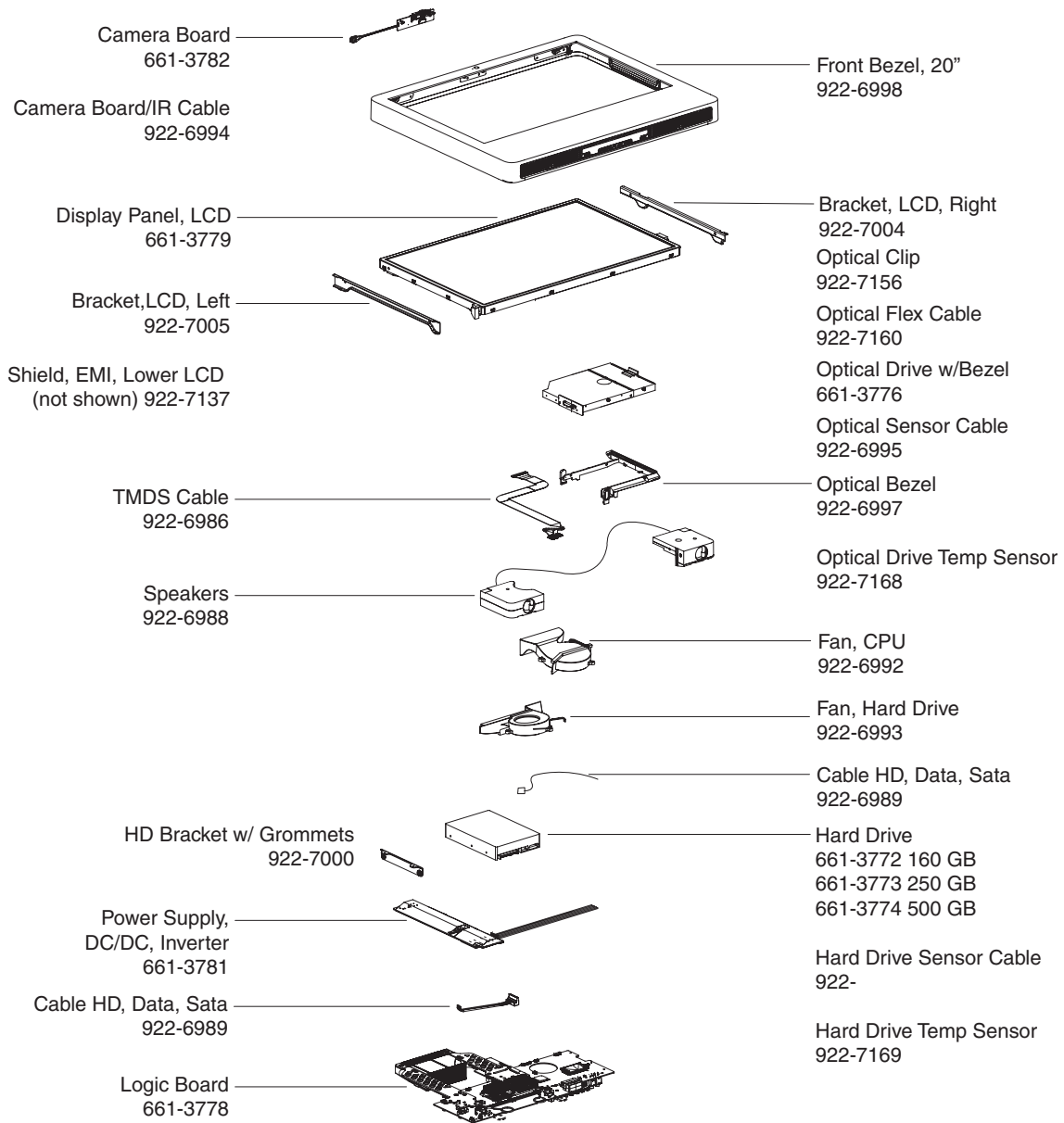


Views

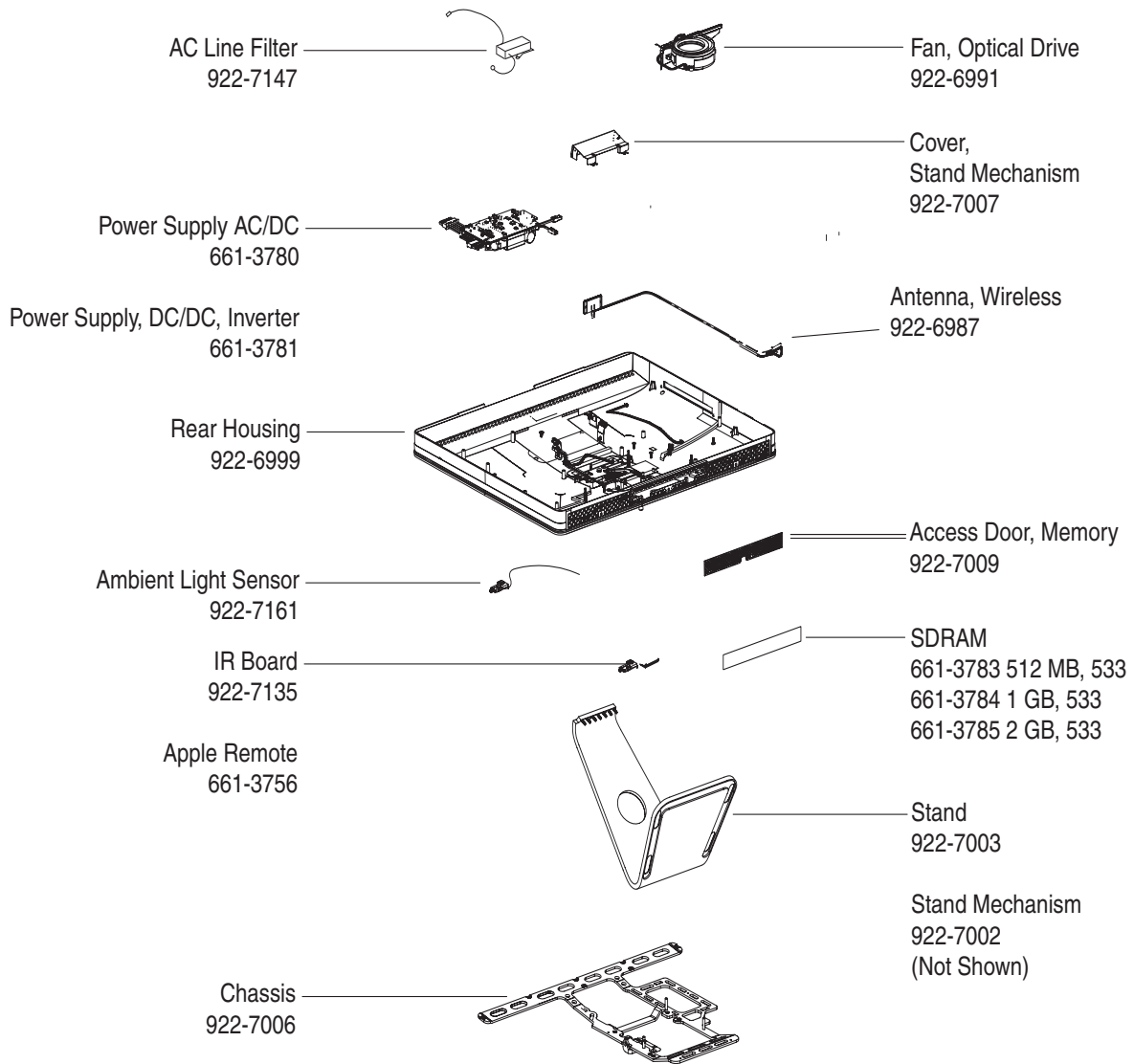
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iMac G5 (20-inch, iSight)

## iMac G5 (20-inch iSight) — Upper Exploded View



## iMac G5 (20-inch iSight) — Lower Exploded View



Not Shown:  
 Modem, External 661-3797  
 Battery 922-6476  
 Power Cord 922-7139  
 Access Tool 922-7172