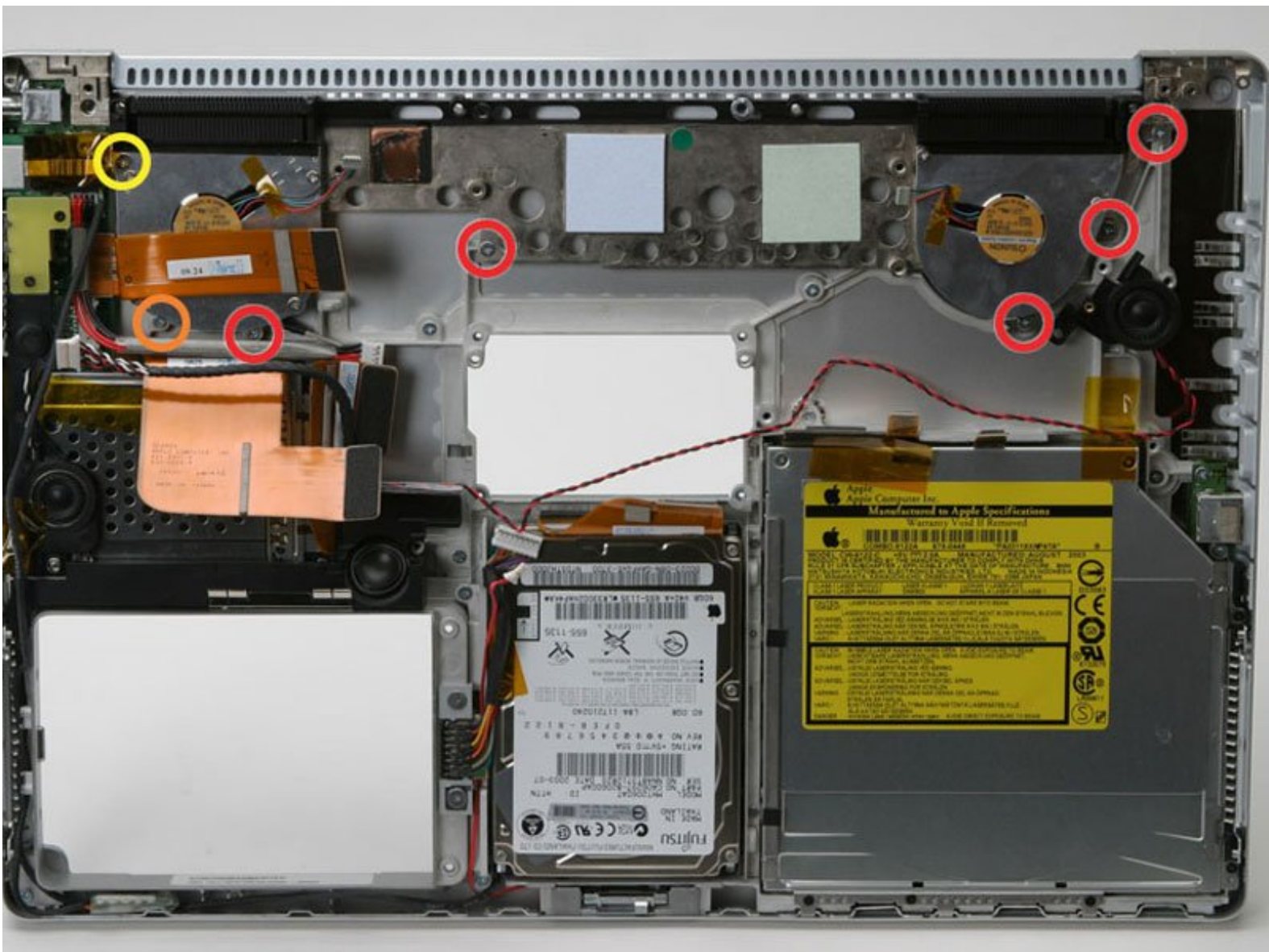




# PowerBook G4 Aluminum 15" 1-1.5 GHz Heat Sink Replacement

Written By: iRobot



# INTRODUCTION

The heat sink helps keep the processor cool and happy.



## TOOLS:

- [Anti-Static Wrist Strap](#) (1)
- [Arctic Silver ArctiClean](#) (1)
- [Arctic Silver Thermal Paste](#) (1)
- [Coin](#) (1)
- [Phillips #00 Screwdriver](#) (1)
- [Push Pin](#) (1)
- [Spudger](#) (1)
- [T6 Torx Screwdriver](#) (1)
- [T8 Torx Screwdriver](#) (1)



## PARTS:

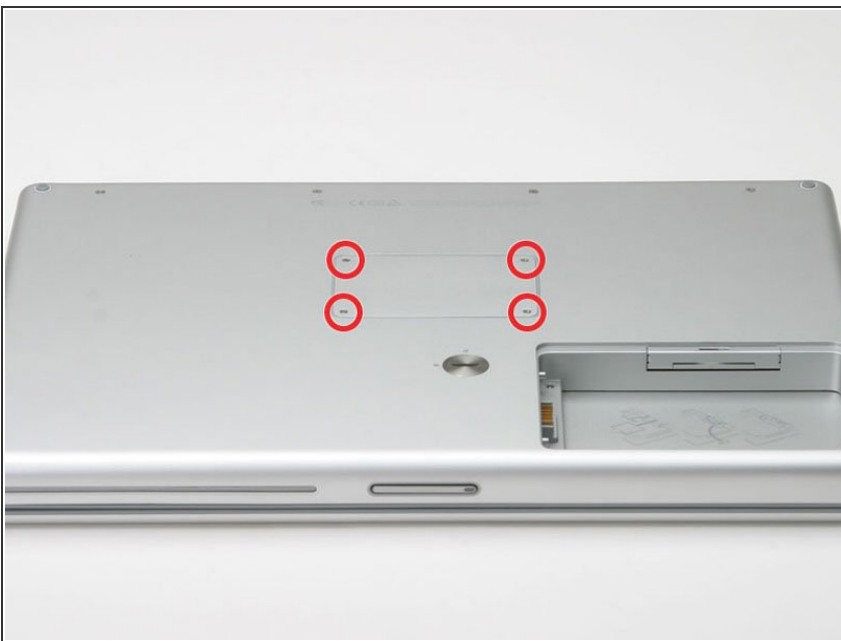
- [G4 Aluminum 15" 1/1.25 GHz Heat Sink](#) (1)
- [G4 Aluminum 15" 1.33/1.5/1.67 GHz Heat Sink](#) (1)

## Step 1 — Battery



- Use a coin to turn the battery locking screw 90 degrees clockwise.
- Lift the battery out of the computer.

## Step 2 — Upper Case



- Remove the four Phillips screws from the memory door.
- Slide the memory door away from the memory compartment.

## Step 3



- Remove the following 8 screws:
  - Two 3 mm Phillips in the battery compartment, on either side of the battery contacts.
  - Two 9 mm Phillips on either side of the memory compartment.
  - Four 16 mm Phillips along the hinge.

## Step 4



- Rotate the computer 90 degrees clockwise, so that the power receptacle faces you.
- Remove the three 3 mm Phillips screws.
- ★ When replacing these screws, you must place each screw in the correct order. Begin by installing the screw closest to the display hinge, and go out from there.

## Step 5



- Turn the computer 90 degrees clockwise so that the hinge faces you.
- Remove the bottom 5 mm Phillips screw on either side of the hinge (two total).

## Step 6



- Rotate the computer 90 degrees clockwise, so that the ports face you.
- Remove the three 3 mm Phillips screws.
- ★ When replacing these screws, you must place each screw in the correct order. Begin by installing the screw closest to the display hinge, and go out from there.



## Step 7



- Turn the computer over and open the display.
- Remove the 4.2 mm 1/16" H 1.5 hex screws in either corner, next to the display (a T6 Torx driver will also do the job nicely).

## Step 8



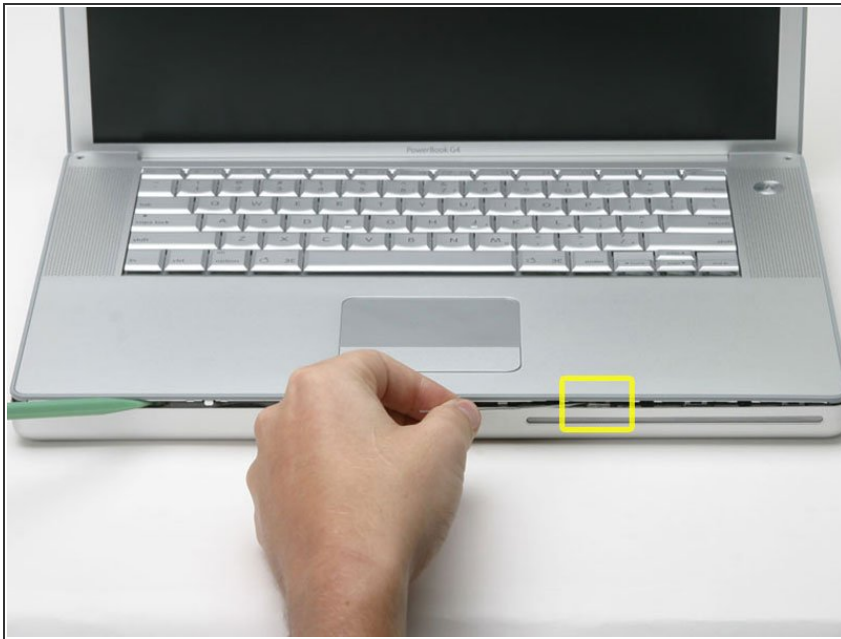
- ⓘ This step covers the hardest part to get inside this computer. Take a deep breath and think happy thoughts.
- Grasp the back corners of the upper case and pull up, disengaging hidden tabs on the sides. Do not pull the upper case off yet; you still need to free tabs in the front of the case.
- ⓘ The seam is beneath the plastic molding on the upper case.

## Step 9



- ⓘ There is one latch that stops you from pulling the upper case right off, located on the left side of the optical drive slit. To free the upper case, you will be pulling a thin metal latch toward you, freeing it from the clasp holding it in place.
- Pry up the left side of the upper case slightly with your hand and wedge a spudger into the seam between the upper case and lower case.
- Leave the tool in place applying pressure to the upper case for the next step.

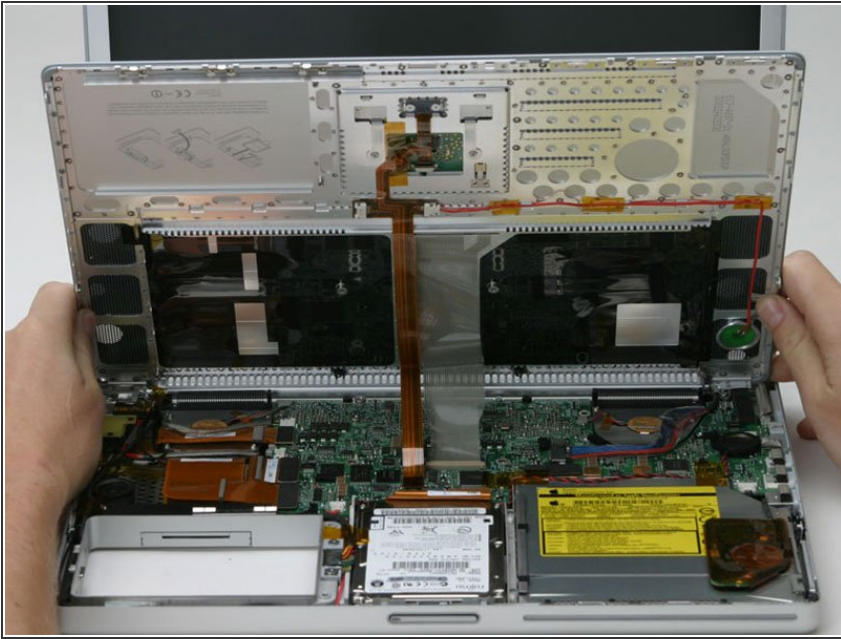
## Step 10



- Place enough pressure on the upper case to allow you to slide a tool just within the seam between upper case and lower case as shown in the picture. A dentist's hook, push pin, or similar tool will work.
- ⓘ Do not yank the upper case off as soon as you free the clasp. The case is attached to the logic board via two ribbon cables.
- Delicately slip the tip of your tool behind the silver metal latch and pull it forward while pulling up on the case. This may take some effort.
- Alternatively, you can free the clasp with a small flathead screwdriver through the CD slot. The clasp is 1-3/16 in (3cm) from the left side of the slot. Use the screwdriver to lift out (or press back) the felt lining; then use the screwdriver to pull the clasp (shiny metal) forward to free it from the catch behind it (dull metal).

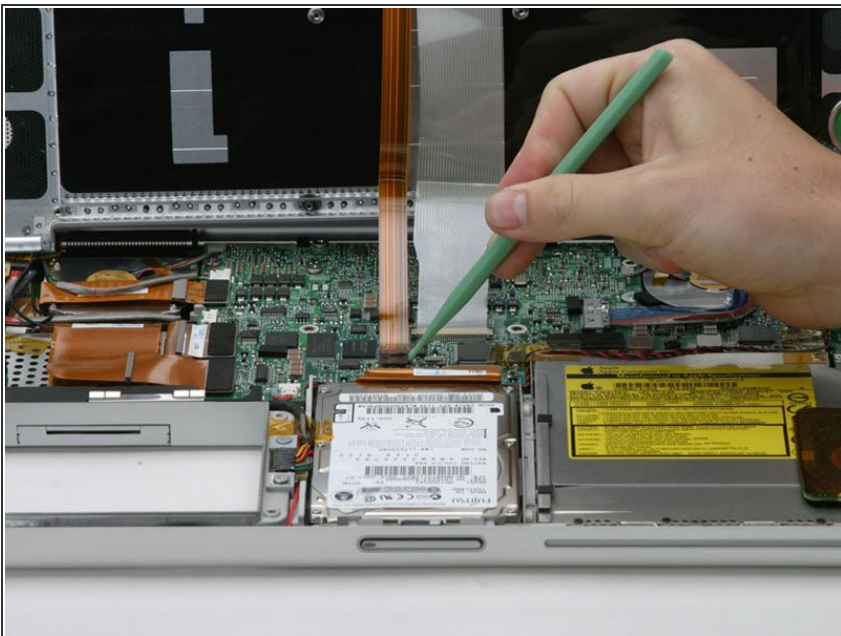


## Step 11



- Lift the back of the case up and work your fingers along the sides, freeing the case as you go. Once you have freed the sides, you may need to rock the case up and down to free the front of the upper case.
- Rotate the upper case up and toward the screen, so that the upper case rests against it.

## Step 12



- Remove the orange tape securing the trackpad ribbon to the logic board.
- Disconnect the trackpad ribbon from the logic board.

## Step 13



- i** This is a diagram of the keyboard ribbon clamp connector you will disconnect in the next step.
- 1) With your fingernails, grasp the locking bar on either side and pull up a small amount (about 1/16" or 2 mm).
- 2) After disengaging the locking bar, slide the cable out of the connector.

## Step 14



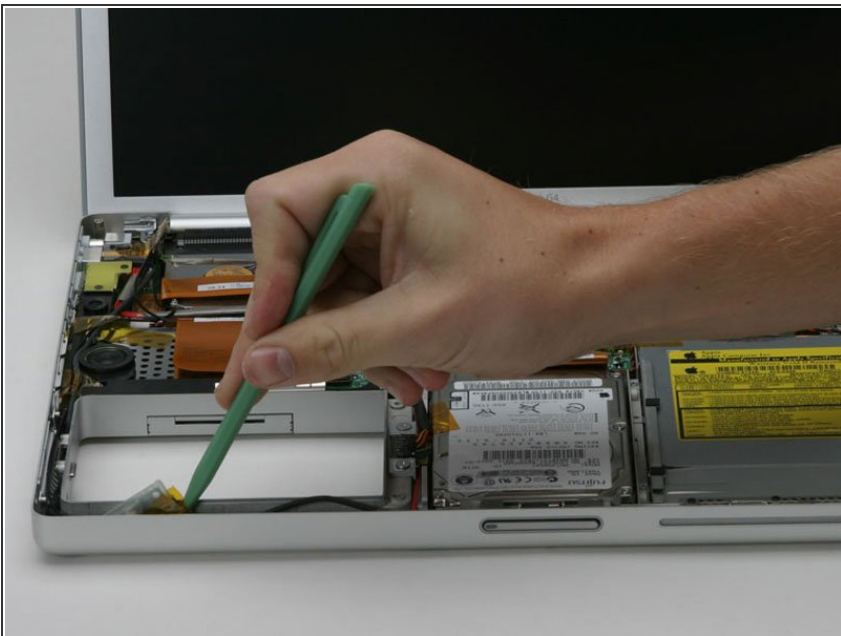
- Loosen the keyboard ribbon clamp by pushing the thin black piece toward the screen, using the tips of your fingers.
- !** The black piece is very fragile and easily broken. Use care when separating it from the main socket.
- Slide the grey keyboard ribbon out of the loosened connector.
- Remove the upper case from the computer.

## Step 15 — Display



- ❗ If you have already removed the hard drive or optical drive, your computer may differ slightly from the images in this section. These parts do not affect this procedure.
- Close the display and turn the hinge side of the computer to face you.
- Remove the remaining Phillips screw on either side of the hinge (two screws total).

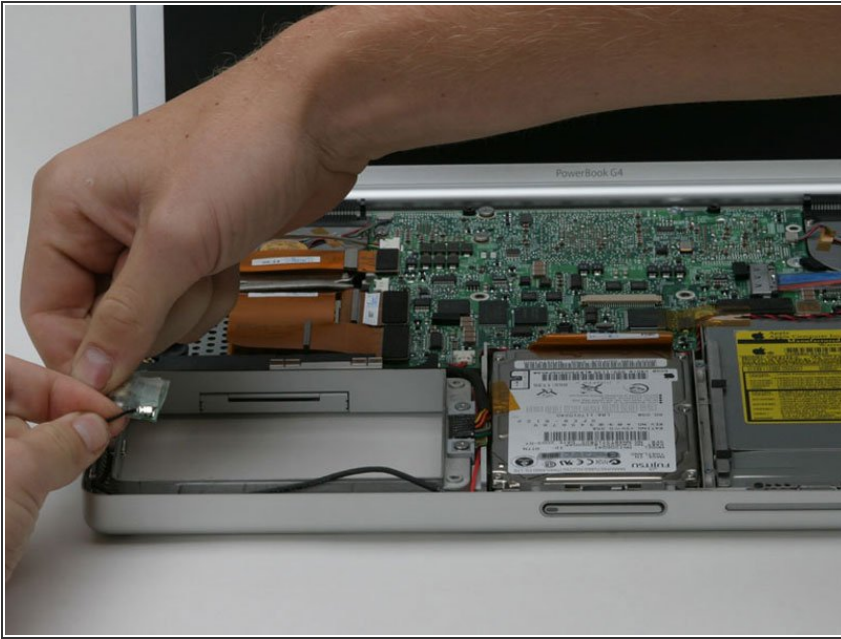
## Step 16



- Open the computer with the display facing you.
- Use a spudger to pry the bluetooth board from the gap between the battery housing and front of the lower case.

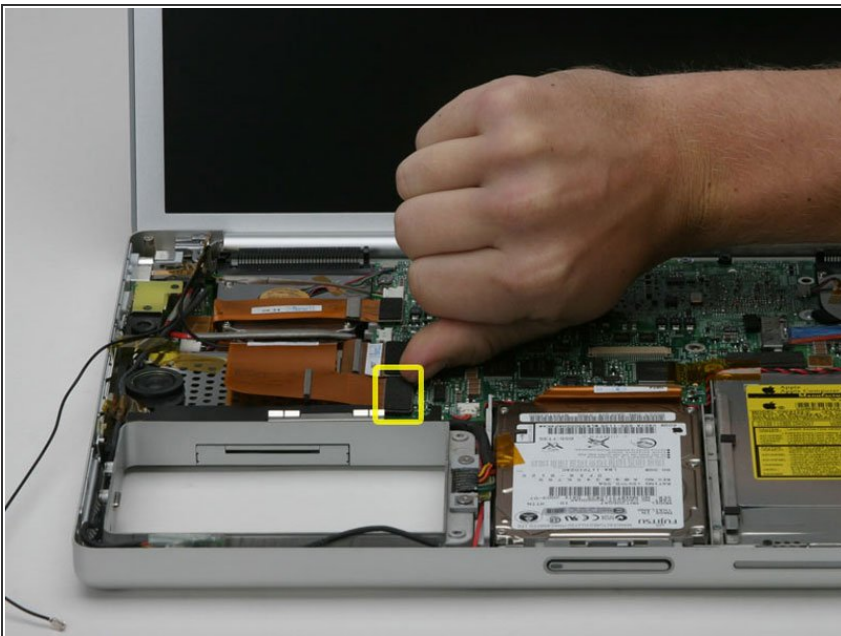


## Step 17



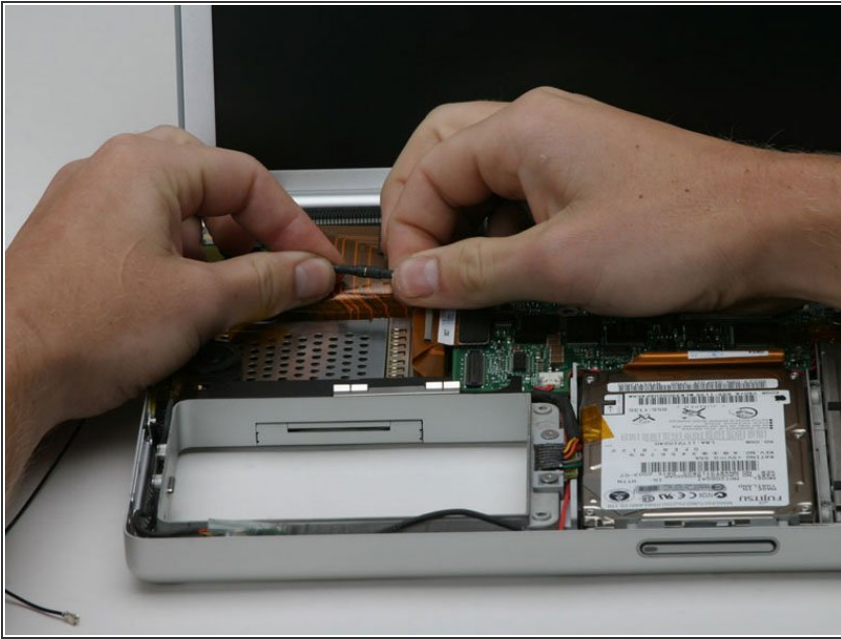
- Disconnect the bluetooth antenna cable from the bluetooth board.
- Deroute the bluetooth antenna cable along the left edge of the computer, removing tape as necessary.

## Step 18



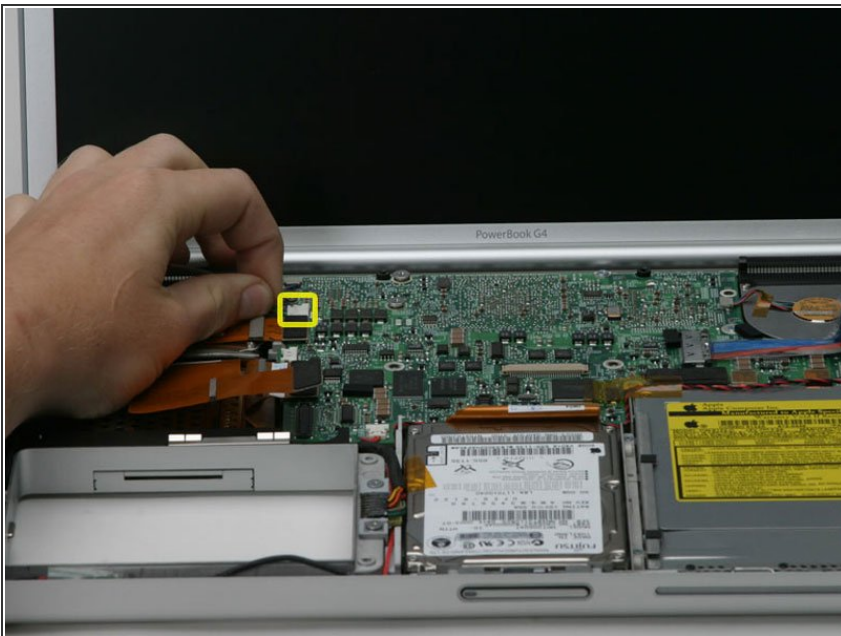
- Disconnect the large orange Airport ribbon from the logic board.

## Step 19



- Pull the Airport ribbon cable up in order to access the black Airport antenna connector.
- Disconnect the Airport antenna cable at the black connector, making sure you pull only on the black rubber portion of the connector.

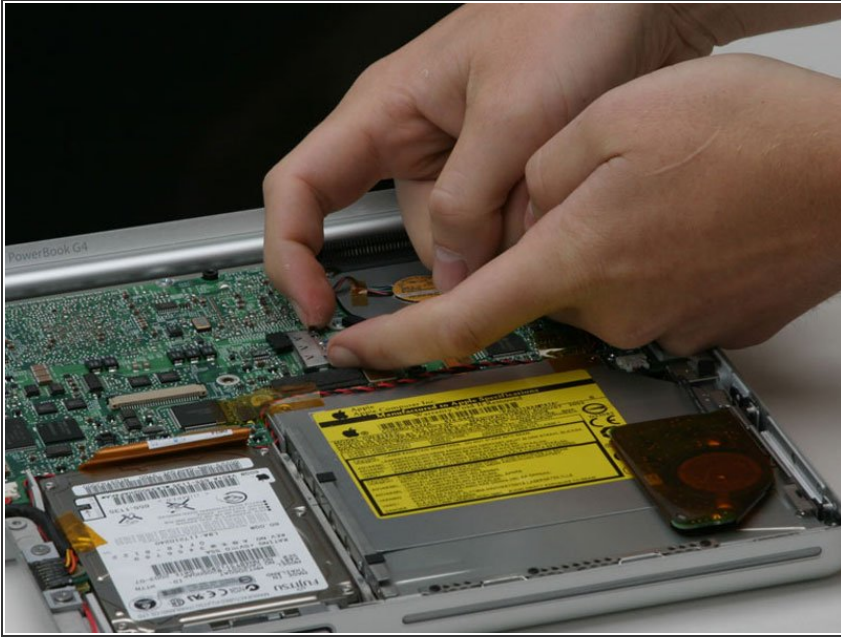
## Step 20



- Disconnect the inverter cable from the logic board.



## Step 21



- Remove the two pieces of orange tape covering the display data cable and disconnect the cable from the logic board.

## Step 22



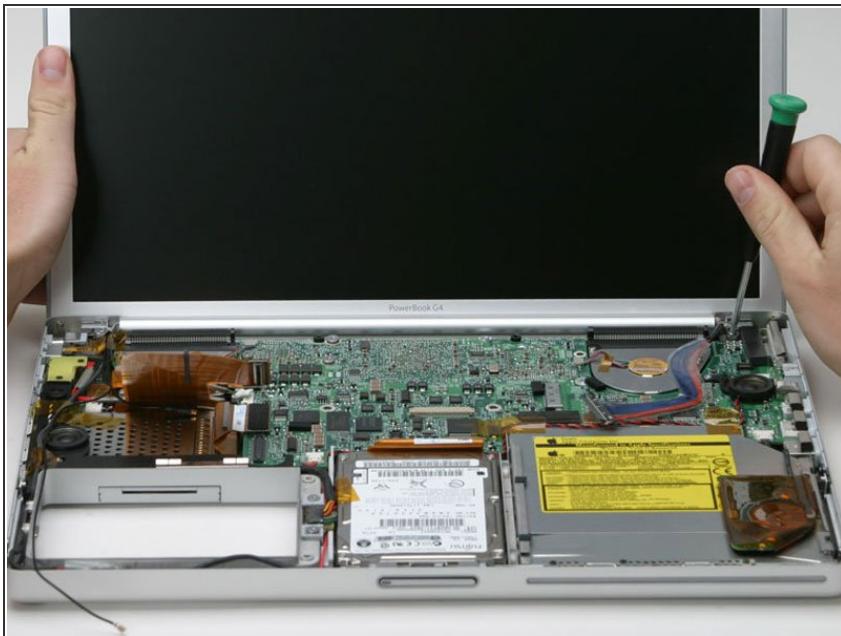
- ⓘ Make sure you've freed up all four cables attached to the display assembly, and will pull away easily with the rest of the display.
- Remove the T8 Torx screw closer to the display on either side of the hinge (two screws total).

## Step 23



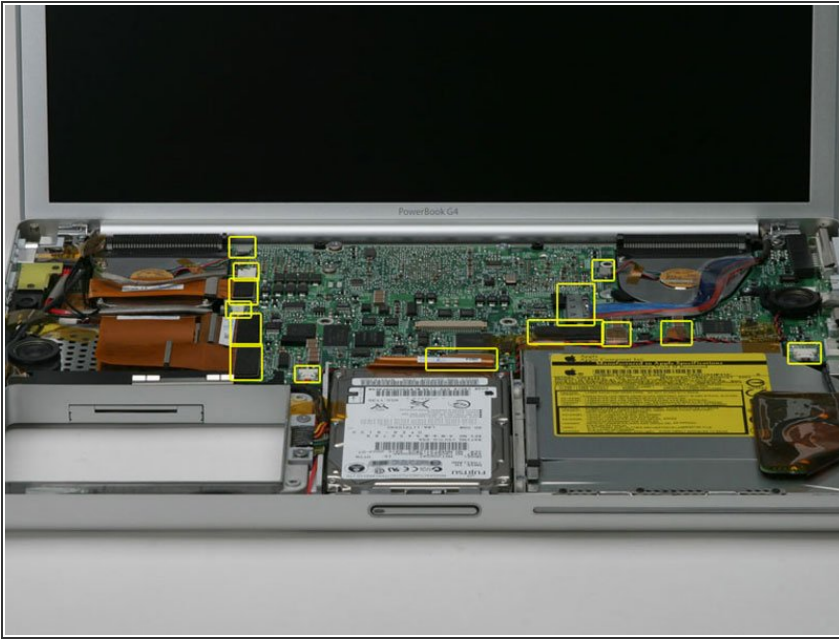
- **i** Be sure to support the display with one hand while removing the final two screws.
- Remove the longer T8 Torx screw remaining on either hinge (two screws total).

## Step 24



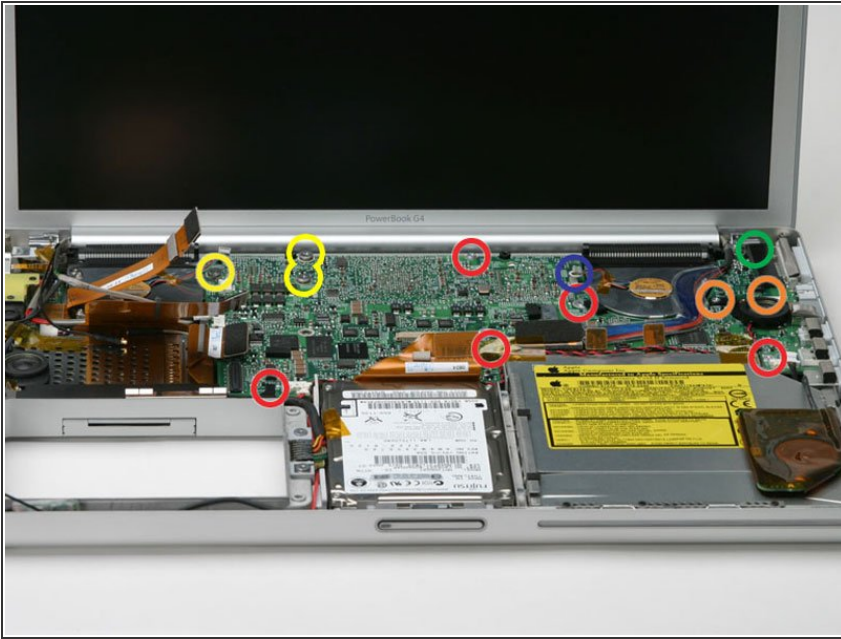
- Lift the display off.

## Step 25 — Logic Board



- **i** If you have already removed the display or hard drive, you may have already removed some of the cables described in this step. You may also ignore their presence in the following images; they do not further affect the disassembly procedure.
- Disconnect the indicated 14 cables from the logic board, starting in one place and moving around the board.

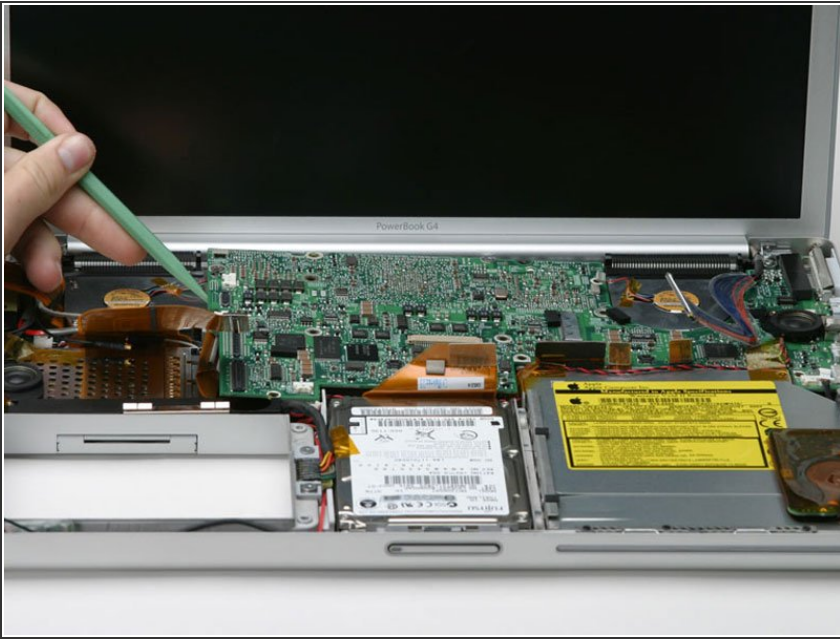
## Step 26



- i There should be no cables connected to the top of the logic board at this point.
- Remove the following 12 Phillips screws from the logic board:
  - Six 4 mm around the edges of the logic board.
  - Two 5 mm securing the right speaker to the logic board (move the speaker off of the logic board).
  - Three 6 mm with wavy washers in the upper, left corner of the logic board.
  - One 4 mm underneath a black bumper in the back right corner of the logic board.
  - One 4 mm screw may not be present on some logic boards.



## Step 27



- ⓘ Two cables still connect to the logic board and must be removed before pulling the board entirely out of the computer.
- Use a spudger to gently (very gently) pry up the left side of the logic board.

## Step 28



- Disconnect the DC-In connector from the left side of the logic board.



## Step 29



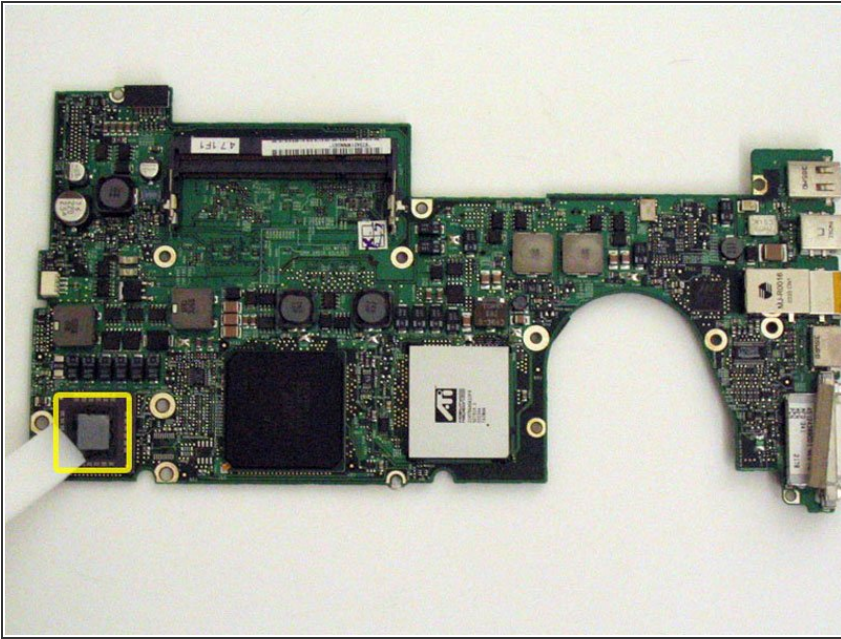
- Disconnect the battery cable from the front, left corner of the logic board.

## Step 30



- Grasp the logic board at the left edge with one hand and at the thinnest section with the other hand. Lift the left edge of the board up to approximately a 30 degree angle (if you don't have your protractor handy, just lift until the DVI port clears the right hinge).
- Once the logic board clears the ports, slide it out to the left.

## Step 31

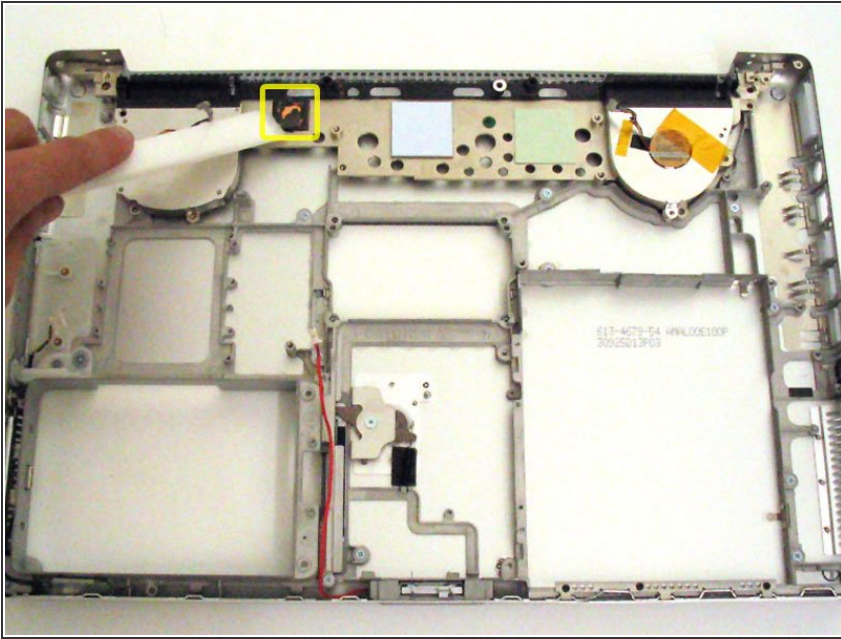


✦ Important: when you reinstall a logic board, you'll need to replace the thermal paste that goes between the processor on the logic board and the heat sink. Failure to remove the old paste and apply a new layer can cause the computer to overheat and sustain damage. The following steps refer to replacing the thermal paste between the processor and heat sink; follow these steps only when you are ready to place the logic board in the computer.

- Use a firm plastic edge to scrape the thermal material off the processor.
- For more advanced instructions on this procedure, see our [Applying Thermal Paste Guide](#).

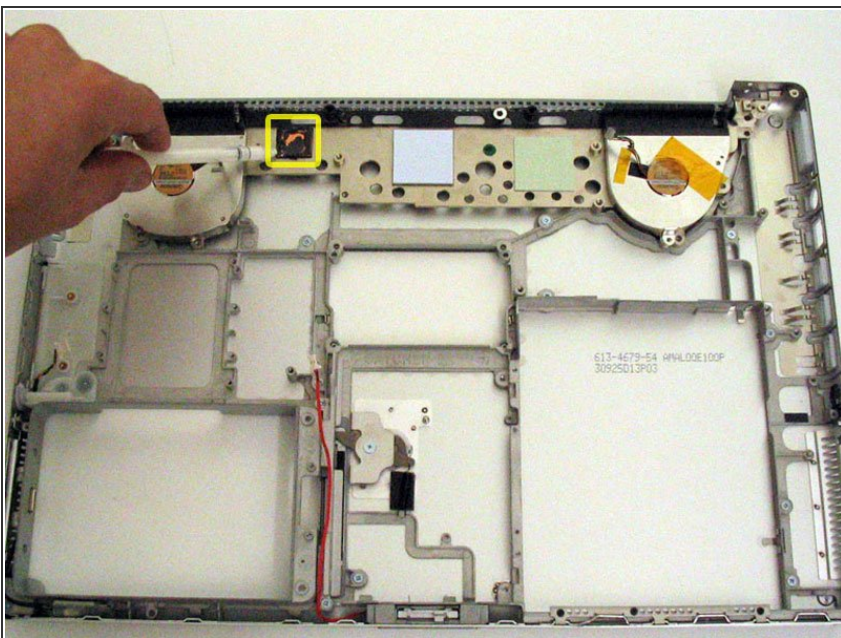


## Step 32



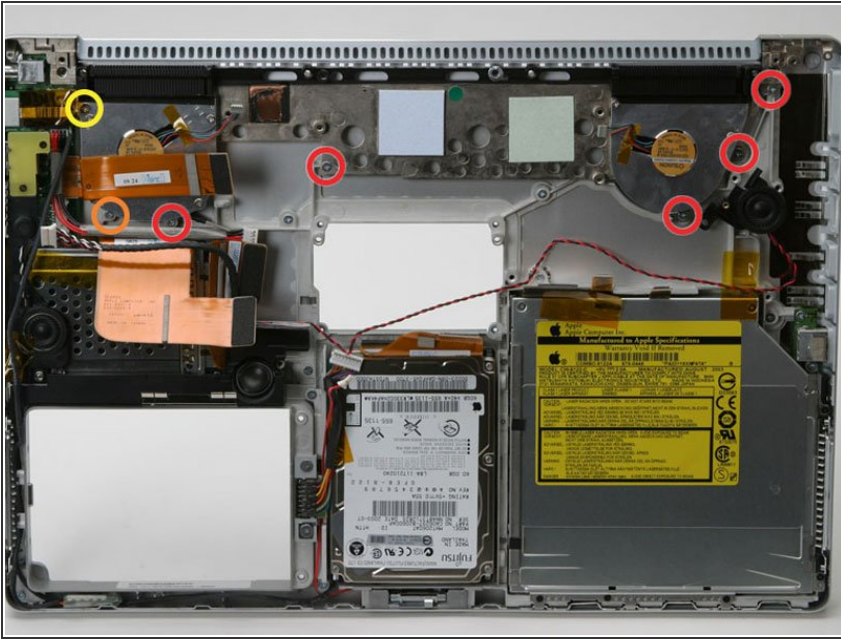
- Use a firm plastic edge to scrape the thermal material off the heat sink.

## Step 33



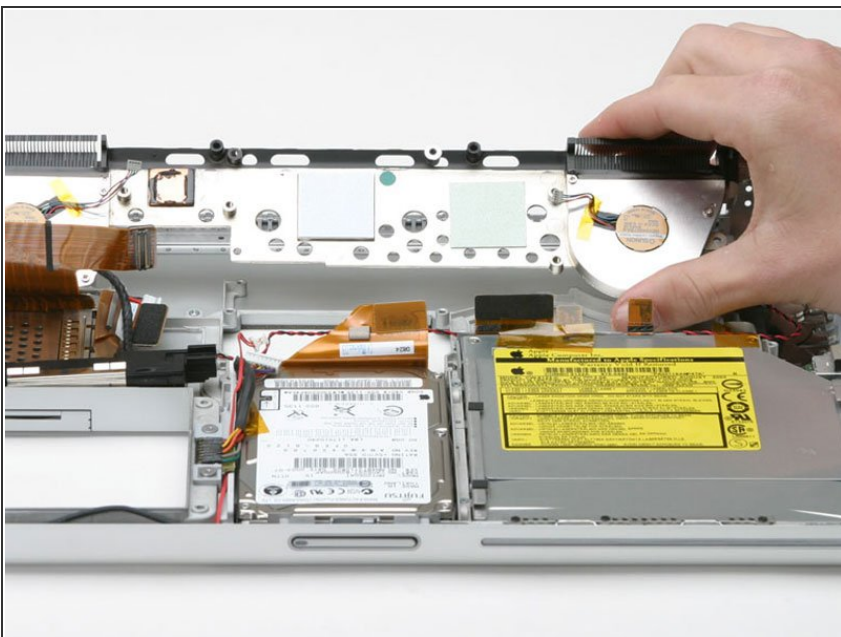
- Apply a new layer of thermal paste to the copper heat conduit.
- ☑ When replacing the logic board, make sure all cables are routed around and above - not under - it, and to connect the two cables that do go beneath before pushing the board into place.
- ☑ Place the logic board back in the computer, trying not to move it around once the processor has come into contact with the newly-applied thermal paste.

## Step 34 — Heat Sink



- ❗ If you have already removed the hard drive or speaker assembly, your computer may differ slightly from the images in this section. These parts do not affect this procedure.
- Remove the following 7 Phillips screws attaching the heat sink to the metal framework:
  - Five 5 mm screws scattered around the heat sink.
  - One 6 mm on the front left corner of the heat sink.
  - One 10 mm in the back left corner of the left fan.

## Step 35



- Remove the heat sink from the case, minding the left corner, as it tends to catch in the case (the fans will come out with the heat sink).

To reassemble your device, follow these instructions in reverse order.