



# MacBook Core 2 Duo Heat Sink Replacement

The heat sink helps keep the processor cool and...

Written By: iRobot



# INTRODUCTION

The heat sink helps keep the processor cool and happy.



## TOOLS:

[Arctic Silver ArctiClean](#) (1)  
[Arctic Silver Thermal Paste](#) (1)  
[Coin](#) (1)  
[Phillips #0 Screwdriver](#) (1)  
[Phillips #000 Screwdriver](#) (1)  
[Phillips #00 Screwdriver](#) (1)  
[Spudger](#) (1)



## PARTS:

[MacBook Heat Sink \(Three-wall Connectors\)](#) (1)  
[MacBook Santa Rosa/Penryn Heat Sink](#) (1)  
[MacBook \(Mid 2009\) Heat Sink](#) (1)  
[MacBook \(Early 2009\) Heat Sink](#) (1)

## Step 1 — Battery



- Use a coin or spudger to rotate the battery-locking screw 90 degrees clockwise.

## Step 2



- Lift the battery out of the computer.

## Step 3 — Memory Cover



- Unscrew the three evenly-spaced Phillips screws from along the rear wall of the battery compartment.
- ★ The screws are captive to the metal memory cover so you cannot lose them.
- i Using The Flexible Extension sold by iFixit will help with this step.

## Step 4



- Grasp the right end of the L-shaped memory cover, then pull it towards you so it clears the battery compartment opening.
- Lift the memory cover up and out of the computer.

## Step 5 — Upper Case



- Remove the following 3 screws:
  - One 11 mm Phillips#00 in the middle of the lower case. (Head: 5mm dia. x .75mm thick)
  - Two 14.5 mm Phillips #00 (Head: 5mm dia. x .75mm thick)
- ⓘ If the screws stick in the case, you can use a magnetized screwdriver to draw them out.
- ★ The shorter of the three screws goes in the middle of the lower case.

## Step 6



⚠ Take extra caution with these screws as they can strip easily!

ⓘ You could use a flexible extension to minimize stripping.

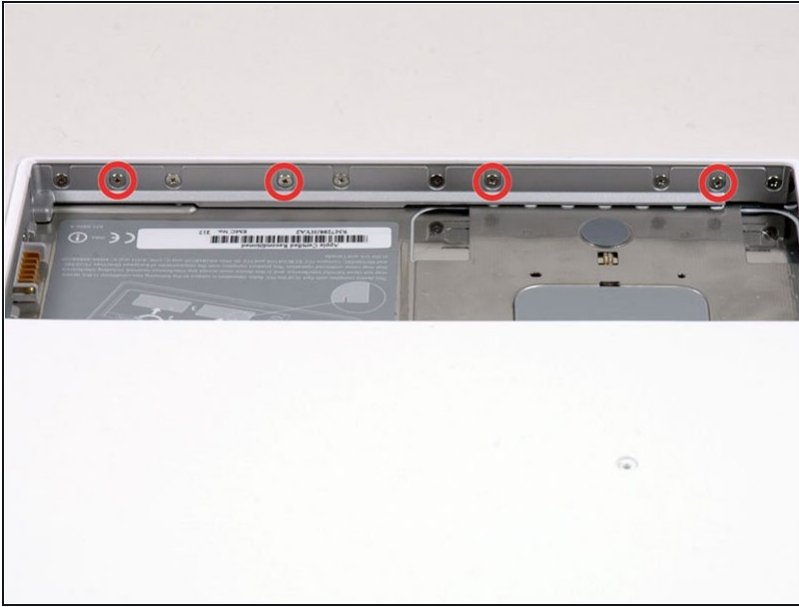
- Remove the following 3 screws from the rear wall of the battery compartment:
  - One 3 mm Phillips #0. (Head: 2.75 mm. dia.)
  - Two 4 mm Phillips #0 on the either side. (Head: 2.75mm dia.)

## Step 7



- Remove the two Phillips screws from either side of the right wall of the battery compartment (not the ones closest to the battery connector).
- Two 6.25 mm Phillips #000. (Head: 4 mm. dia. x .5mm thick)

## Step 8



- Remove the four indicated Phillips screws from the front wall of the battery compartment. When working from the left, remove the 2nd, 4th, 7th and 9th screws.
- Four 3.25 mm Phillips #000. (Head: 4 mm. dia. x 4mm thick)

## Step 9



- Remove the following 4 screws from the back of the computer:
  - Two 11 mm Phillips #00, with Shank (2.2mm dia. x 2 mm len.) (Head: 3.2 mm. dia. x .5mm thick)
  - Two 7.25 mm Phillips #00, with Shank (2mm dia. x 3.75 mm len.) (Head: 3.2 mm. dia. x .5mm thick)
- ☒ During reassembly, the two longer screws go on the inside, and the two shorter screws go on the outside.



## Step 10



- Remove the two Phillips screws from the optical drive (right) side of the computer:
  - Two 5.2 mm Phillips #00, with shank (2.3mm dia. x 3.25 mm len.) (Head: 3.2 mm. dia. x .5mm thick)
- ⓘ It is not necessary to remove the similar screws on the ports (left) side of the computer.

## Step 11

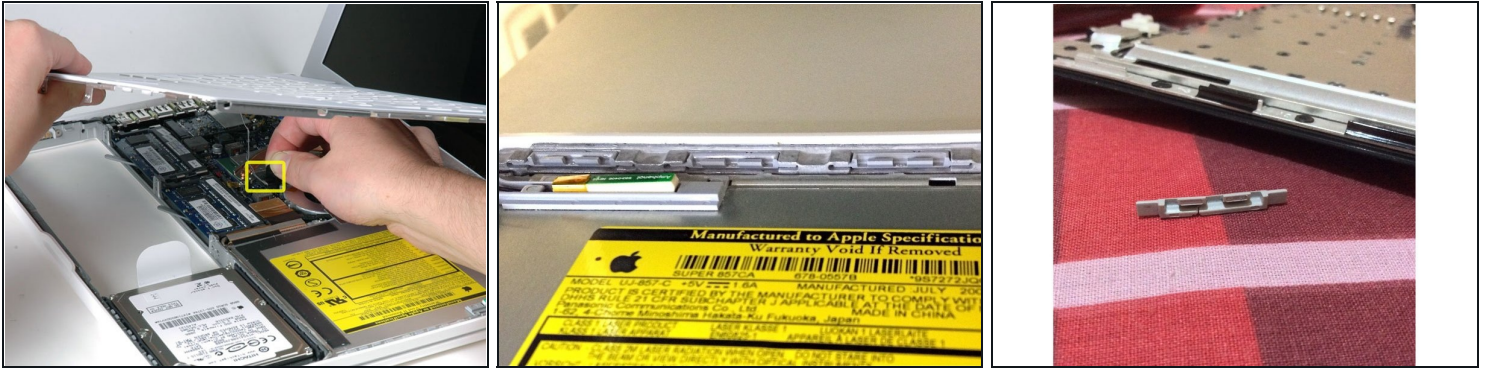


- ⚠ There's a trackpad and keyboard ribbon cable connecting the upper case to the logic board, so don't pull the upper case off entirely just yet.
- Use a plastic opening tool, an expired plastic credit, or a similarly-thick card to pry up on the upper case, starting in the upper-left corner and working around to the front of the computer.

- ① The upper case is likely to stick at its connection above the front edge of the optical drive. If this happens, first free all other sides, then proceed to pull upward on the upper case from either side of the optical drive opening. Here again, inserting a [plastic card](#), guitar pick, etc. can be useful.
- ① If you stand the base of the MacBook on one end to get a better look, you may displace the four grey plastic clips that hold the right side of the upper case in place. Don't panic. They slide into slots at the top rightmost edge of the lower frame, above the front edge of the optical drive.
- ★ During reassembly, make sure the clips on the right side, above the optical drive, click firmly into place. They're different from the clips on the left side, and so normally they require a little firmer pressure to click into place.



## Step 12



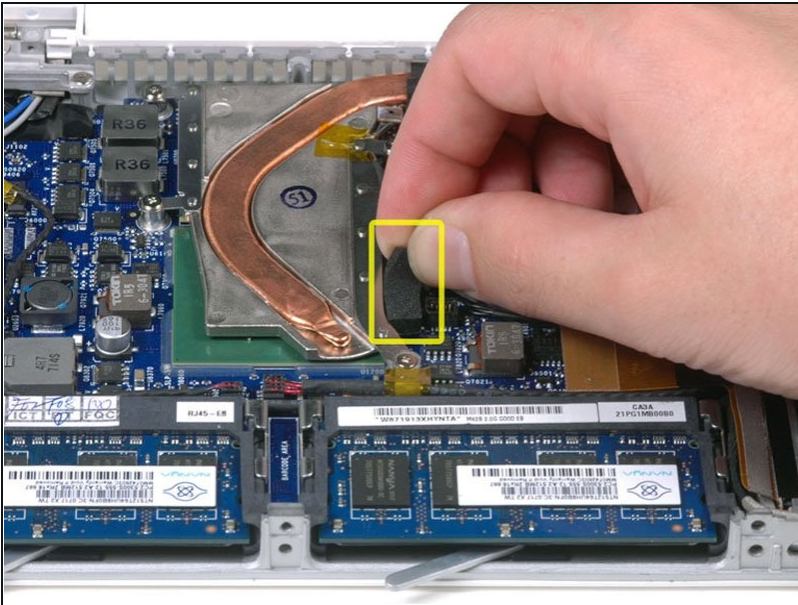
- While holding up the upper case, pull up the black tab on the connector end of the silver ribbon cable away from the connector's socket on the logic board.
- ① If there is no black tab, you can also use a spudger to gently pry the connector out of its socket on the logic board. This connector is tall, so be sure to pry straight up.
- ① If you happen to break your upper case cable when removing the upper case, we stock the [cable](#) individually and we have a [guide](#) that makes replacing it easy.
- ① While you have the upper case removed, it's a good time to remove dust, hair, etc. It's best to use a can of compressed air, though if you use a brush, make sure that its bristles are made of a material (usually animal hair) that doesn't generate static electricity, which can destroy electronics.
- ① Upon reassembly, there are 4 grey plastic clips installed in slots running along the top of the frame in front of the optical drive (refer to second and third pictures). These clips must be installed in their slots for their mating tabs on the underside of the right side of the upper case to snap into them.

## Step 13 — Heat Sink



- Carefully peel up the black felt tape between the heat sink and fan.

## Step 14



- Peel up the small black rubber cover from the right side of the heat sink.

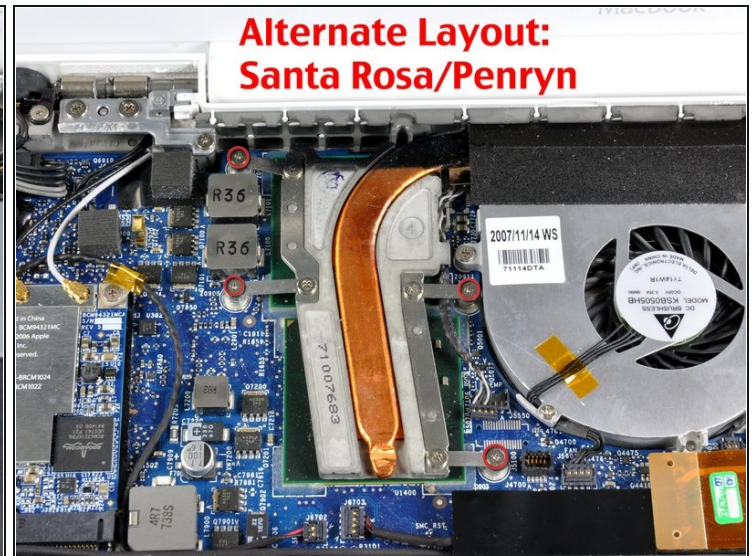
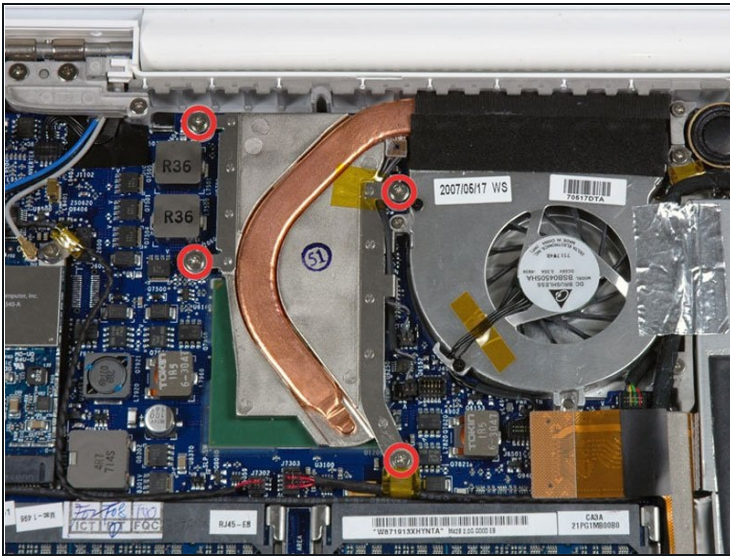
## Step 15



- Use a spudger to disconnect the two newly-revealed temperature sensor connectors from the logic board.
- ① If you have a MacBook Core 2 Duo Santa Rosa/Penryn, there is only one temperature sensor.



## Step 16



- Remove the four Phillips screws securing the heat sink to the lower case.
- ☑ Be sure to secure the ground loop for the speaker cable beneath the screw in the lower right corner when replacing the heat sink.
- ⓘ If you have a MacBook Core 2 Duo Santa Rosa/Penryn, the two Philips screws on the right are in a different location.

## Step 17



- Lift the heat sink out of the computer, making sure the black tape doesn't catch on the heat sink.
- ⓘ If you need to mount the heat sink back into the laptop, we have a [thermal paste guide](#) that makes replacing the thermal compound easy.

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