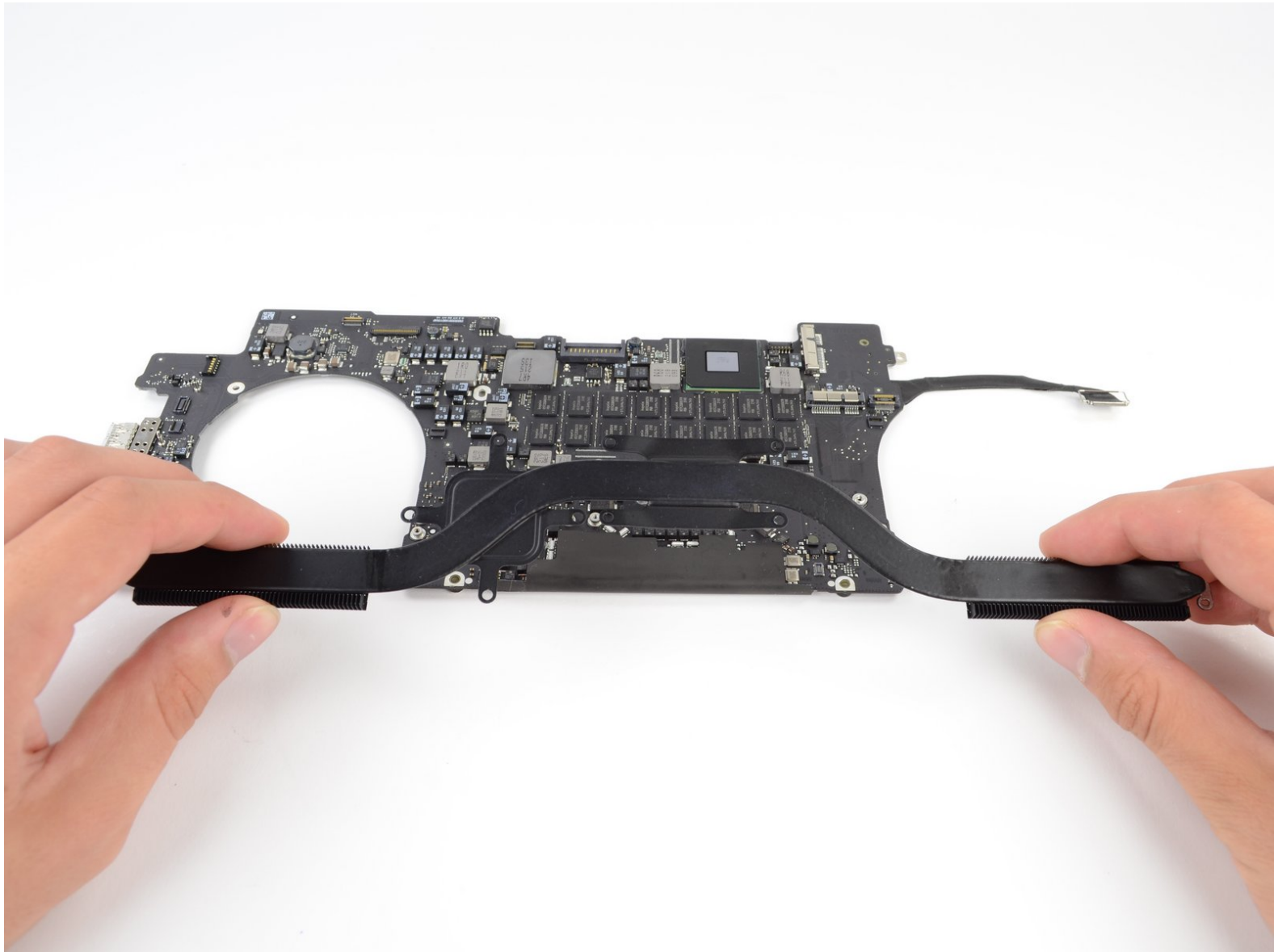




# MacBook Pro 15" Retina Display Mid 2012 Heat Sink Replacement

Replace the heat sink in the MacBook Pro 15" Retina Display Mid 2012.

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# INTRODUCTION

Things starting to heat up inside your device? Use this guide to install a new heat sink.

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## TOOLS:

- [MacBook Pro and Air 5-Point Pentalobe Screwdriver](#) (1)
  - [iFixit Opening Tools](#) (1)
  - [Spudger](#) (1)
  - [T5 Torx Screwdriver](#) (1)
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## Step 1 — Lower Case



- Remove the following P5 pentalobe screws securing the lower case to the MacBook Pro:
  - Eight 3.0 mm
  - Two 2.3 mm

## Step 2



- Lifting from the edge nearest the clutch cover, lift the lower case off the MacBook Pro.
- Set the lower case aside.

## Step 3 — Battery Connector



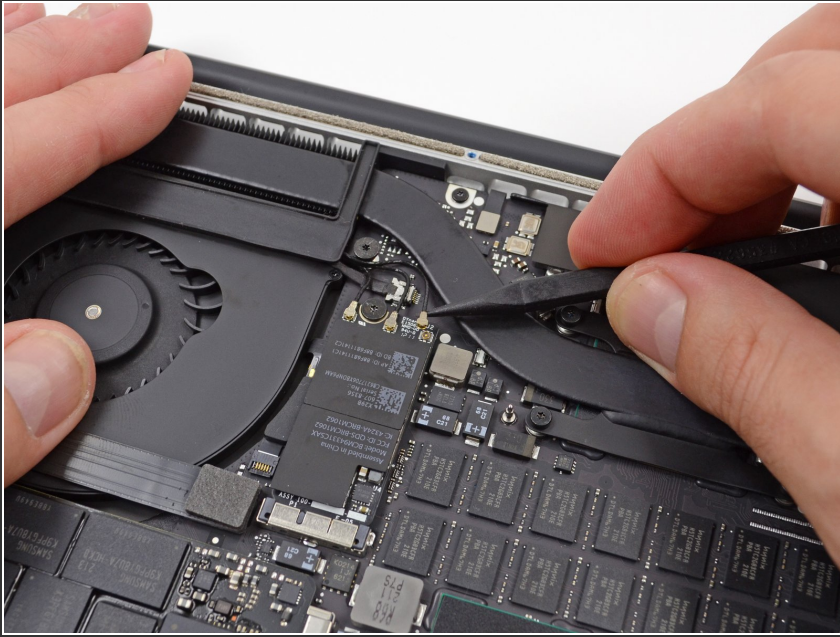
- Peel back the warning label covering the battery connector.

## Step 4



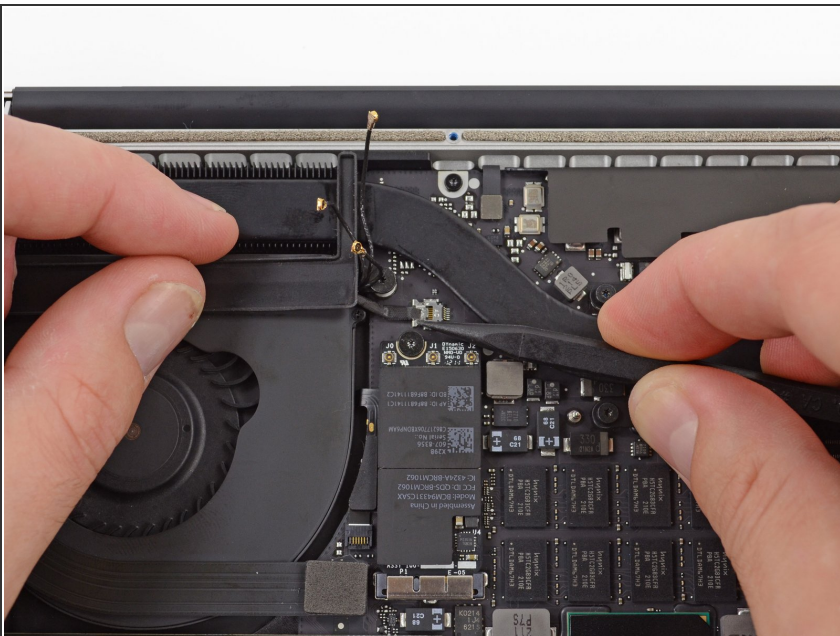
- Using the flat end of a spudger, gently pry the battery connector straight up out of its socket on the logic board.
- Bend the battery cables back and out of the way, ensuring that the battery connector doesn't accidentally make contact with the logic board.

## Step 5 — AirPort/Camera Cable



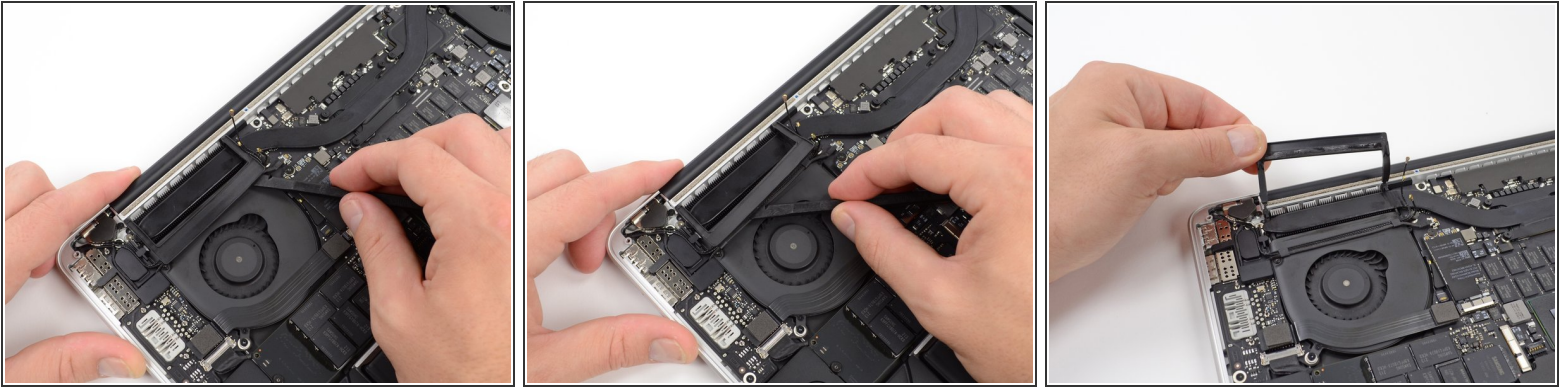
- Use a spudger or tweezers to pry the three AirPort antenna cables straight up off of their sockets on the AirPort board.
- ⚠ The cable connection points are fragile. Be careful to lift only on the connector, and not on the socket or cable.
- 🔧 To reconnect, align the connector carefully into position over the socket, and press it down firmly with the flat of your spudger.

## Step 6



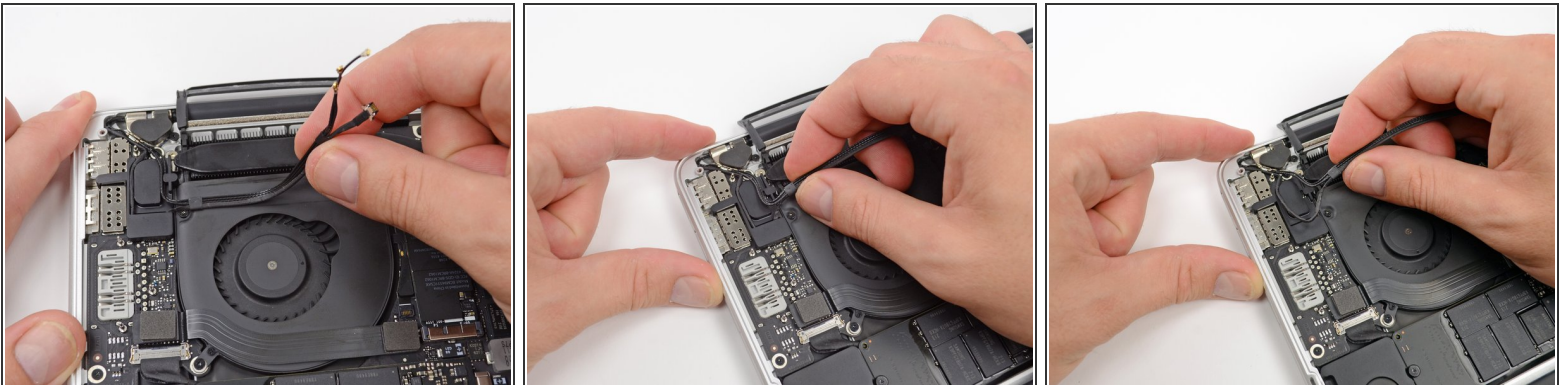
- Use the tip of a spudger to push the camera cable connector toward the fan and out of its socket on the logic board.
- ⚠ Be sure to push parallel to the board, first on one side, then the other, to slowly "walk" the connector out of its socket. Do not pry up, or you will damage the socket.

## Step 7



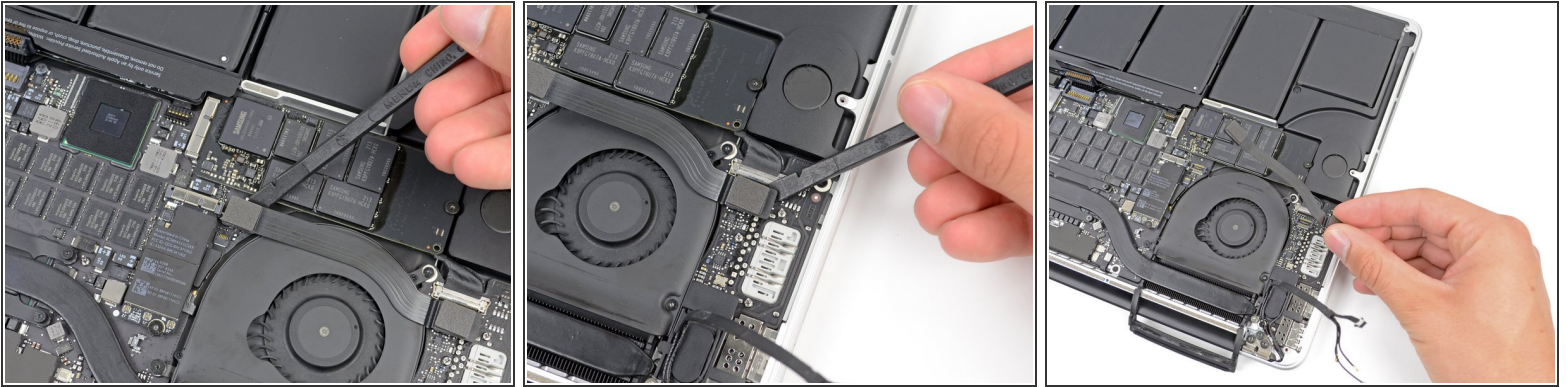
- Insert the flat end of a spudger underneath the rubber heat sink cover on the right fan.
- Slide the spudger underneath the length of the cover, releasing the adhesive.
- Lift the cover and flip it back so that you can access the cables underneath.

## Step 8



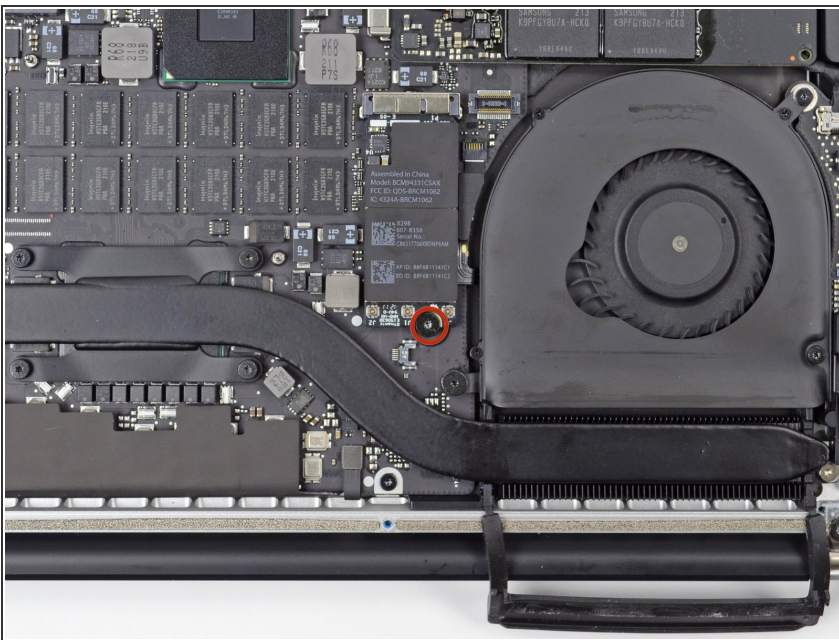
- Use your fingers to pull the AirPort/Camera cables up off the fan.
  - ⓘ The cables are adhered to the fan, so peel them up carefully to avoid damaging them.
- Carefully de-route the cables from the plastic cable guide.

## Step 9 — I/O Board Cable



- Using the flat end of a spudger, pry the I/O Board connector straight up out of its socket on the logic board. On reassembly, connect this end first as it does not flex.
- In a similar fashion, remove the I/O Board connector from its socket on the I/O Board.
- Remove the I/O Board cable from the MacBook Pro.

## Step 10 — Right Fan



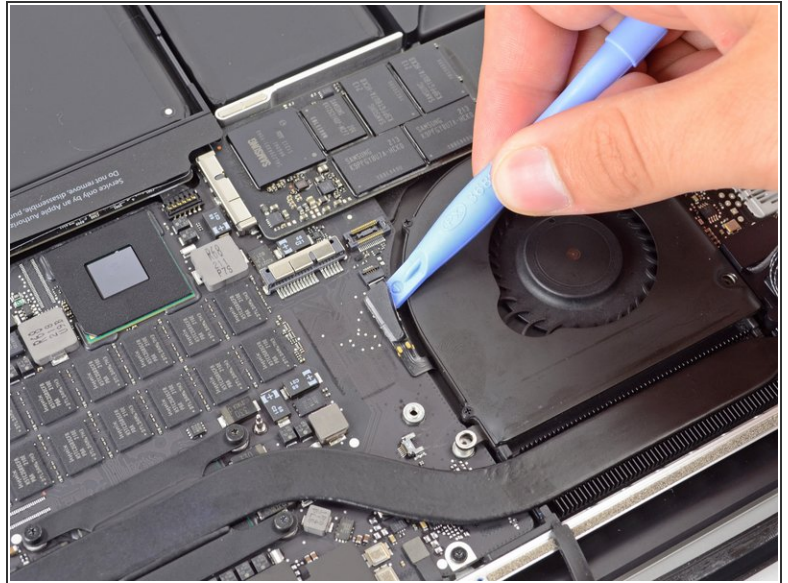
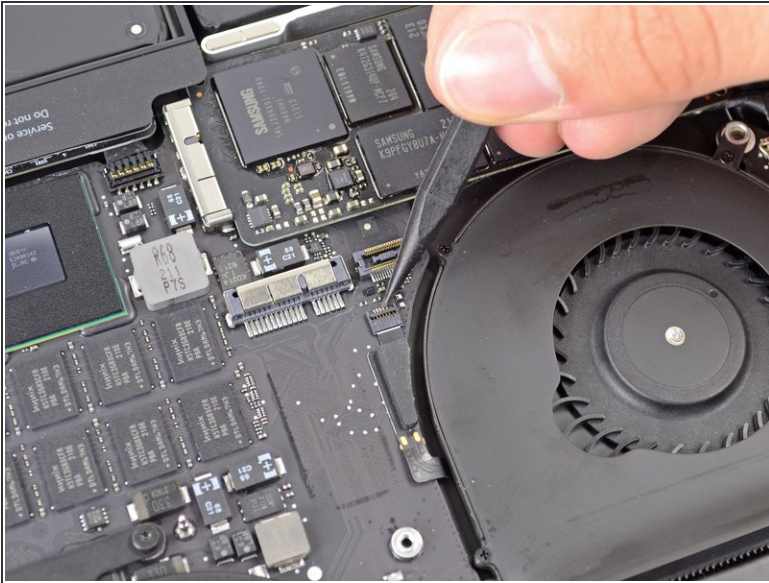
- Remove the single 2.9 mm T5 (sometimes T6) Torx screw securing the AirPort card to the logic board.

## Step 11



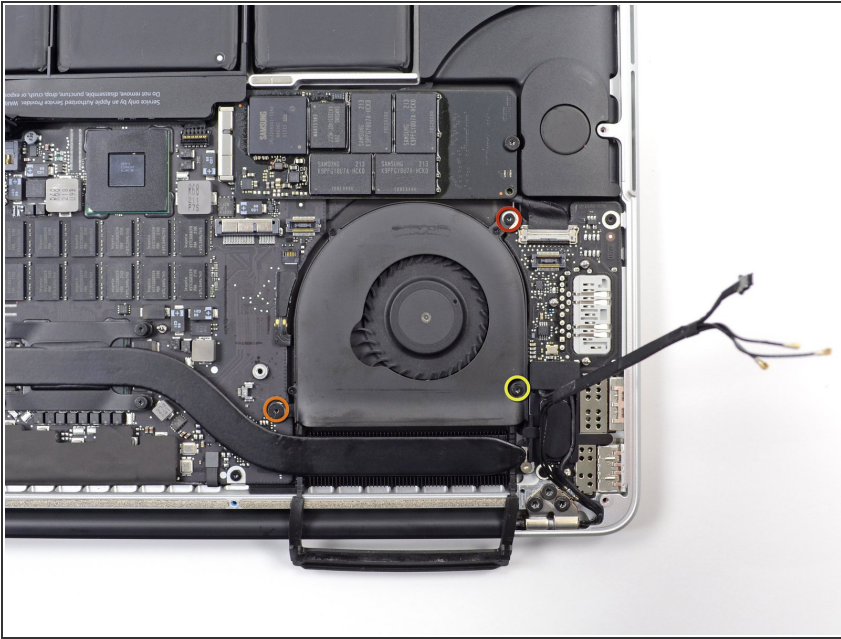
- Grasp the thin sides of the AirPort card and pull parallel to the logic board, removing the AirPort card from the MacBook Pro.

## Step 12



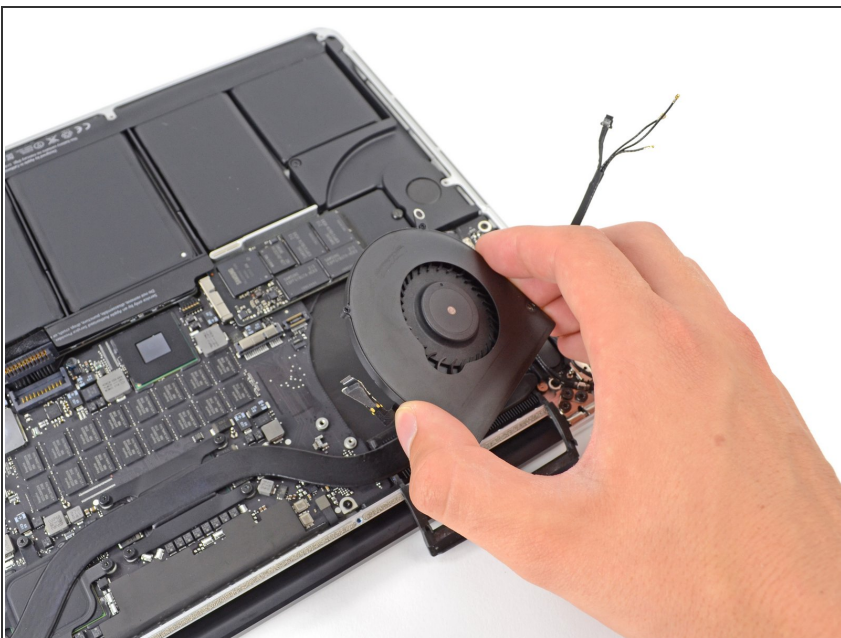
- Use the tip of a spudger to flip up the retaining flap on the right fan ribbon cable [ZIF](#) socket.
- ⚠ Be sure you are prying up on the hinged retaining flap, **not** the socket itself.
- Starting at the top of the cable, slide a plastic opening tool under the right fan cable to free it from the logic board.
- ⚠ Use caution when freeing the cable, as it is strongly adhered to the logic board.

## Step 13



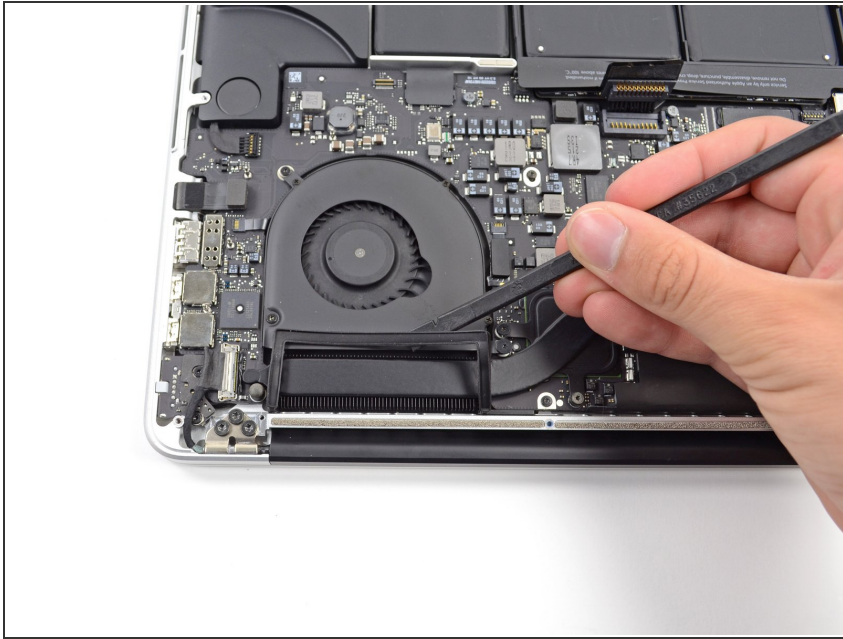
- Remove the following three screws securing the right fan to the logic board:
  - One 4.4 mm T5 Torx screw
  - One 3.9 mm T5 Wide Head Torx screw
  - One 5.0 mm T5 Torx screw with 2 mm collar

## Step 14



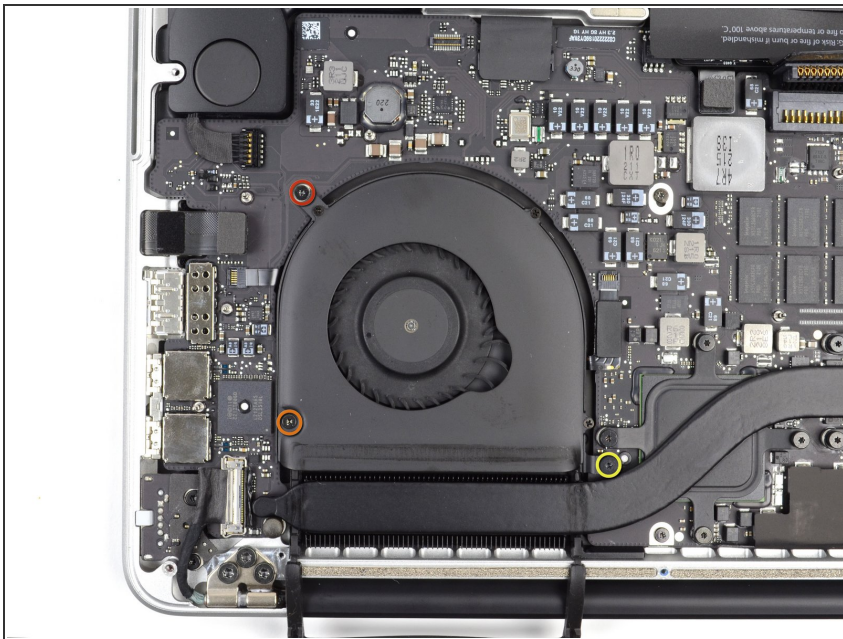
- Lift and remove the fan out from the MacBook Pro.
- ☑ When reinstalling the fan, it's easiest connect the fan ribbon cable as you drop the fan in place, rather than after you've installed the three fan screws.

## Step 15 — Left Fan



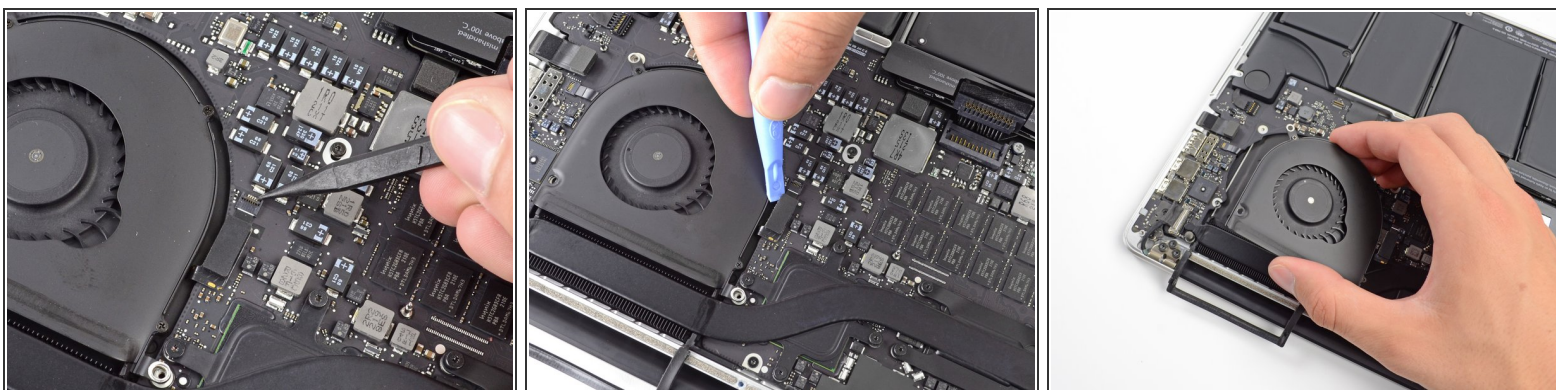
- Use the flat end of a spudger to lift the rubber heat sink cover up off the left fan.

## Step 16



- Remove the following three screws securing the left fan to the logic board:
  - One 4.4 mm T5 Torx screw
  - One 5.0 mm T5 Torx screw with 2 mm collar.
  - One 3.9 mm T5 Wide Head Torx screw

## Step 17



- Use the tip of a spudger to flip up the retaining flap on the left fan ribbon cable ZIF socket.

⚠ Be sure you are prying up on the hinged retaining flap, **not** the socket itself.

- Starting at the top of the cable, slide a plastic opening tool under the left fan cable to free it from the logic board.

⚠ Use caution when freeing the cable, as it is strongly adhered to the logic board. If necessary, use an iOpener or hair dryer to heat the cable in order to soften the adhesive and make it easier to remove.

- Lift the left fan out of the device.

☞ When reinstalling the fan, it's easiest connect the fan ribbon cable as you drop the fan in place, rather than after you've installed the three fan screws.

## Step 18 — SSD



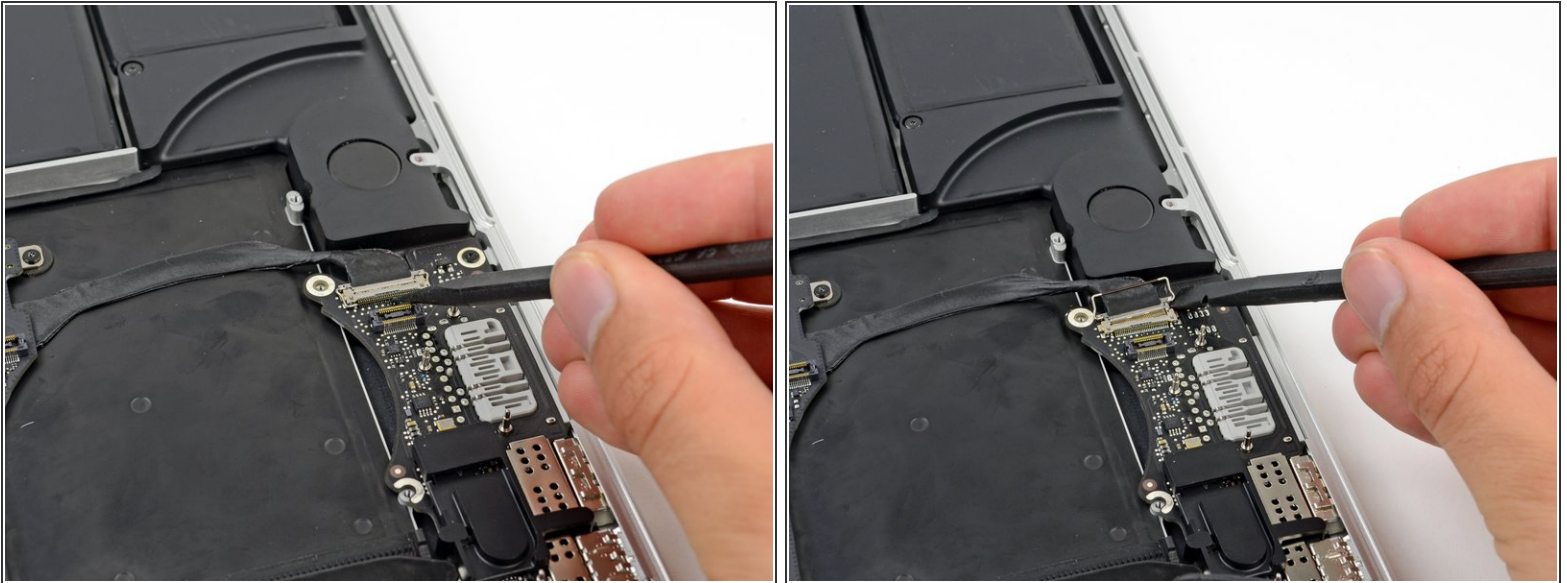
- Remove the single 3.1 mm T5 Torx screw securing the SSD to the logic board.

## Step 19



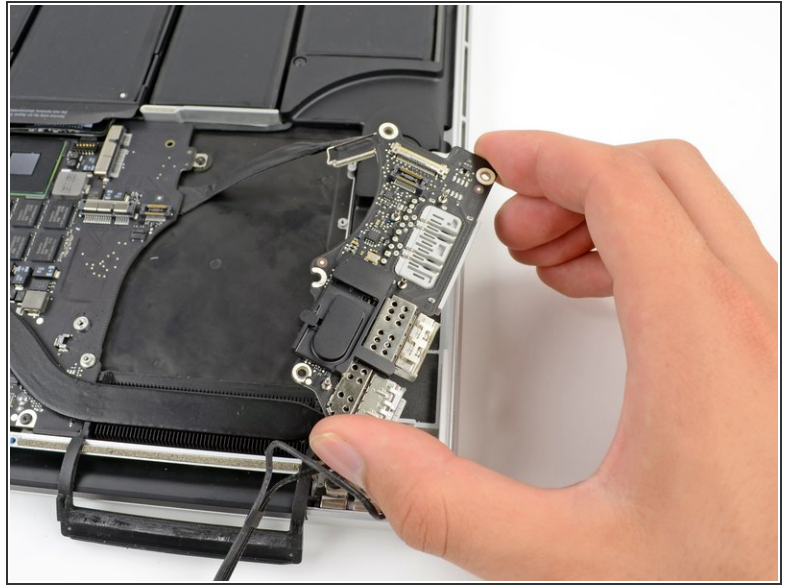
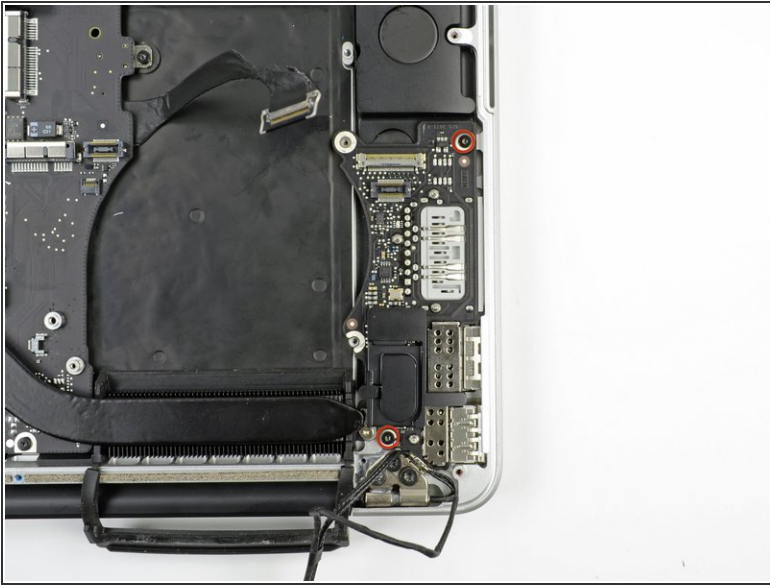
- Slightly lift the rightmost side of the SSD and firmly slide it straight away out of its socket on the logic board.

## Step 20 — I/O Board



- Use the tip of a spudger to flip up the I/O board data cable lock and rotate it toward the battery side of the computer.
  - Use the flat end of a spudger to slide the I/O board data cable straight out of its socket on the logic board.
-  Do not lift up on the I/O board data cable, as its socket is very fragile. Pull the cable parallel to the face of the logic board.

## Step 21



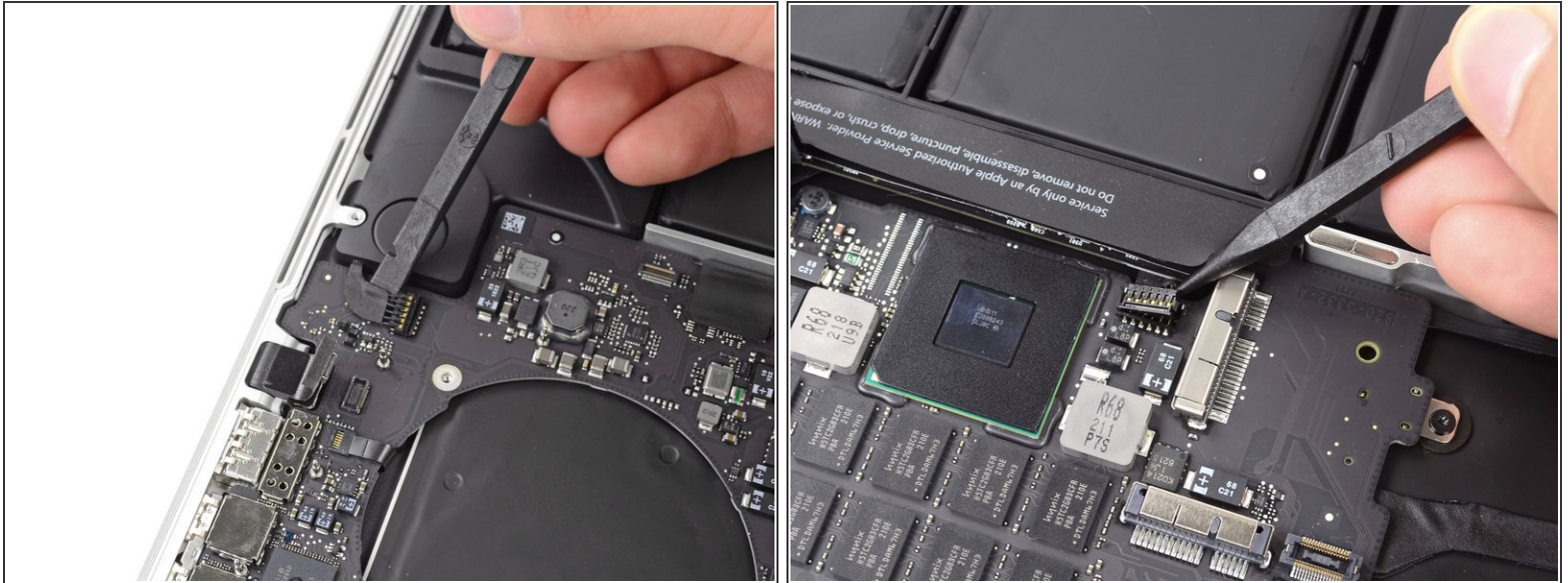
- Remove the two 3.1 mm T5 Torx screws securing the I/O board to the logic board.
- Carefully lift the I/O board and remove it from the lower case.

## Step 22 — Logic Board Assembly



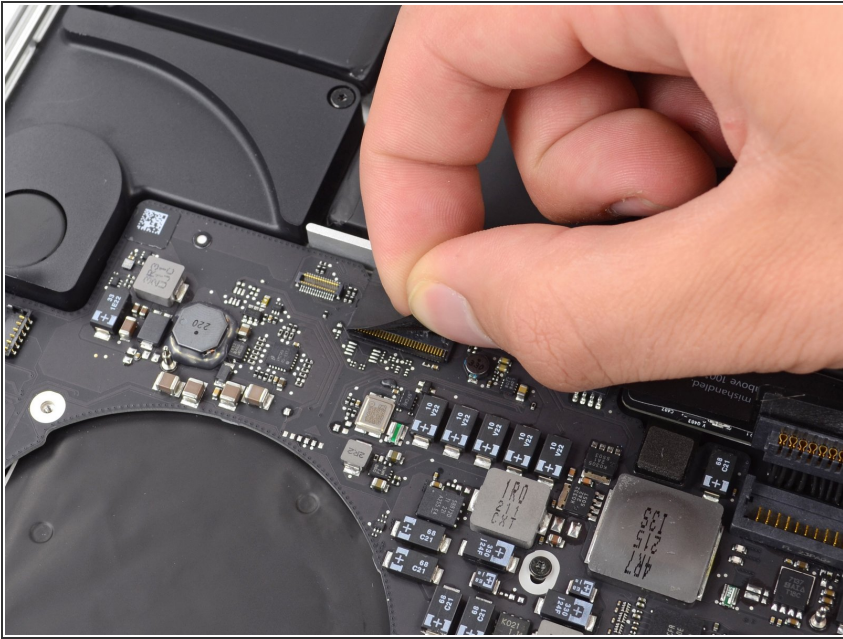
- Use the flat end of a spudger to pry the headphone jack connector up from its socket on the logic board.

## Step 23



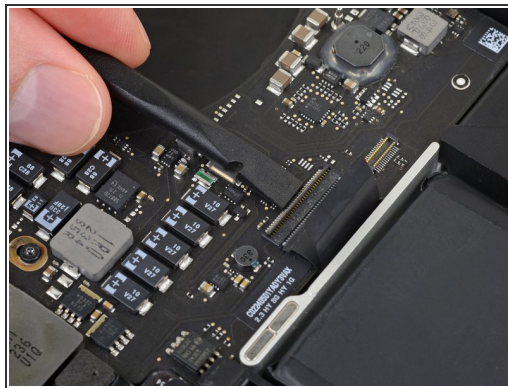
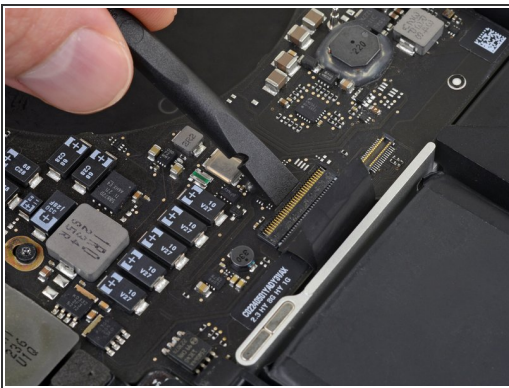
- Use the flat end of a spudger to pry the left speaker connector up and out of its socket on the logic board.
  - Use the tip of a spudger to pry the right speaker connector up and out of its socket on the logic board
- ⚠ Be sure to pry on the cable head, and not on the socket itself. Prying on the socket may cause it to separate from the logic board.

## Step 24



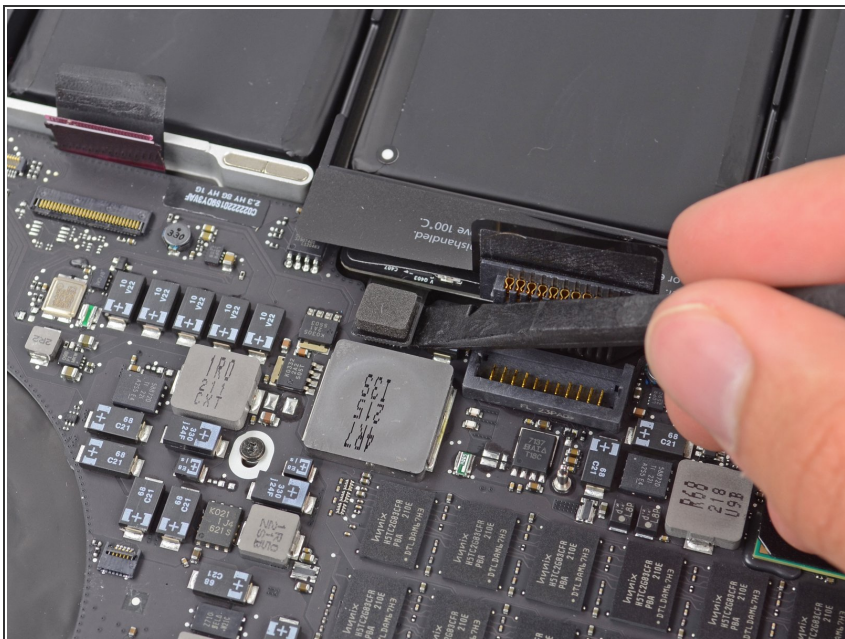
- Peel back any tape covering the keyboard ribbon cable connector.

## Step 25



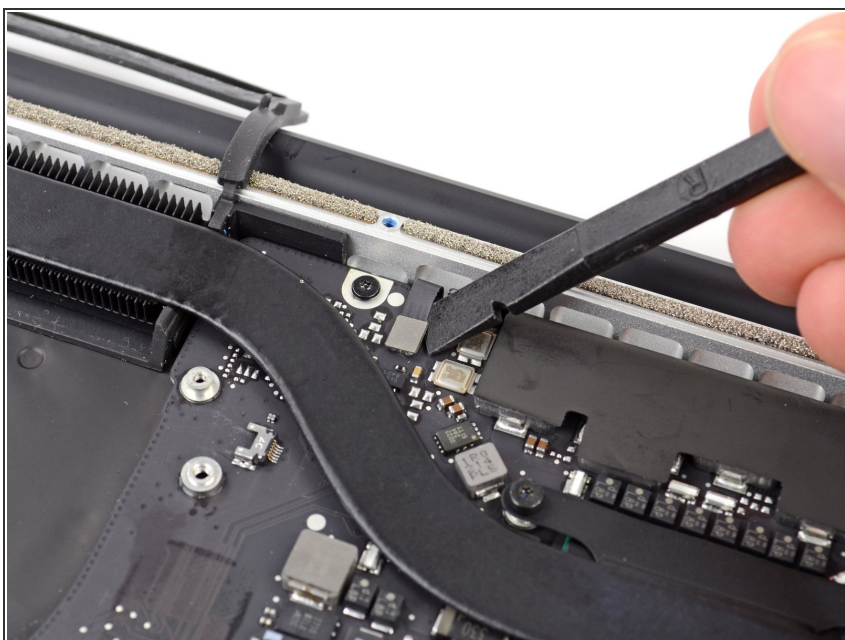
- Use the flat end of a spudger to flip up the retaining flap on the keyboard ribbon cable ZIF socket.  
 Pry only under the hinged retaining flap, **not** the socket itself, or you may break it off the board.
- Use the flat end of a spudger to gently back the keyboard ribbon cable out of its socket by pushing first at one side, then the other.

## Step 26



- Use the flat end of a spudger to pry the trackpad ribbon cable connector up from its socket on the logic board.

## Step 27



- Use the flat end of a spudger to pry the keyboard backlight connector up from its socket on the logic board.

## Step 28



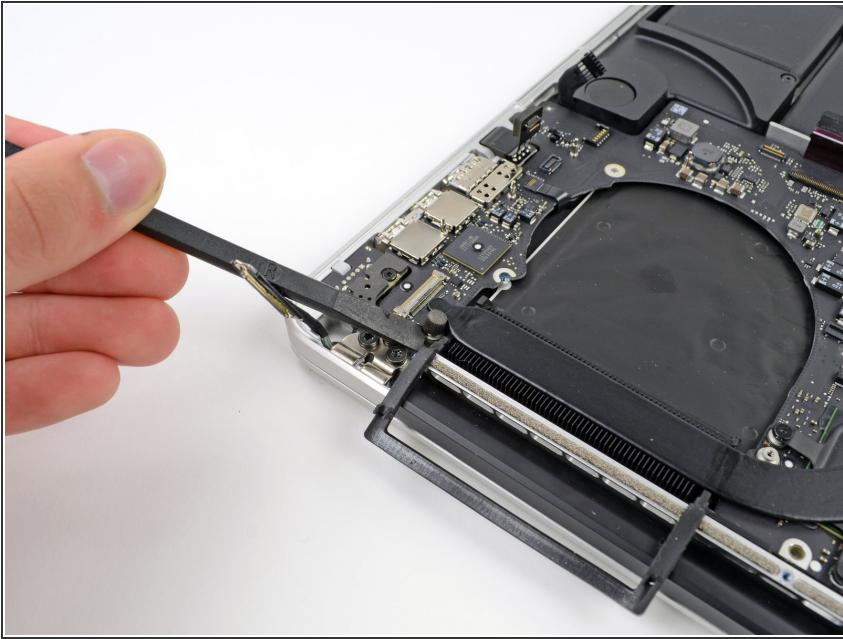
- Use the tip of a spudger or your fingernail to flip up the retaining flap on the microphone ribbon cable ZIF socket.
- ⚠ Be sure you are prying up on the hinged retaining flap, **not** the socket itself.
- Pull the microphone ribbon cable out of its socket.

## Step 29



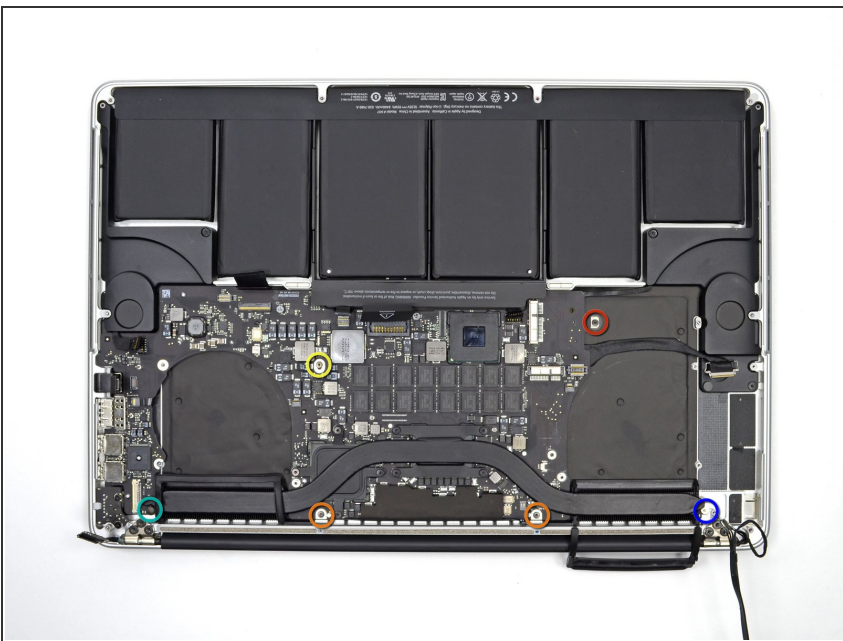
- Use the tip of a spudger to pry the display data cable lock and rotate it toward the DC-In side of the computer.
  - Pull the display data cable straight out of its socket on the logic board.
- ⚠ Do not lift up on the display data cable, as its socket is very fragile. Pull the cable parallel to the face of the logic board.

## Step 30



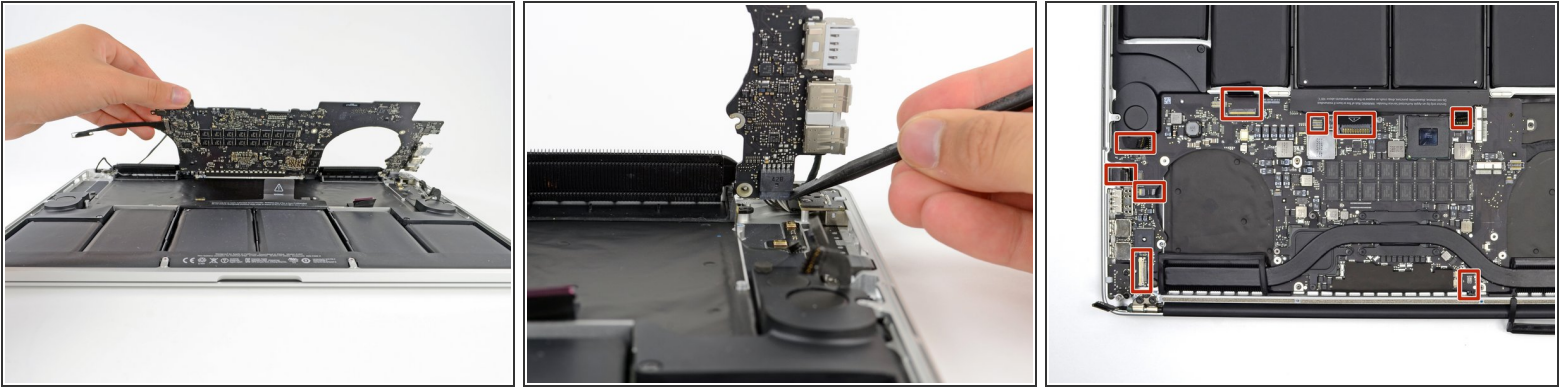
- Use the flat end of a spudger to carefully pry off the rubber screw cap on the raised screw head near the MagSafe 2 connector.

## Step 31



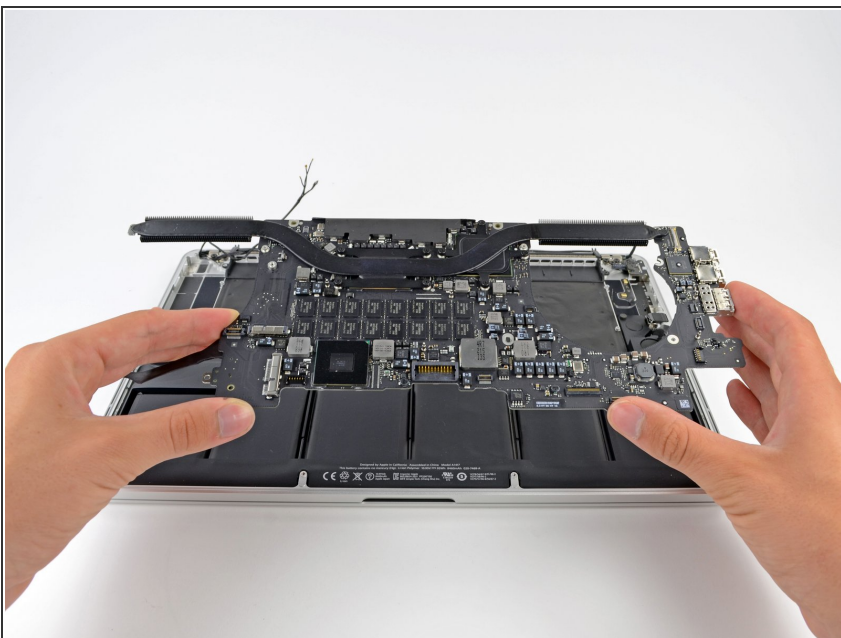
- Remove the following six screws securing the logic board to the upper case:
  - One 2.6 mm T5 Torx screw
  - Two 5.8 mm T5 Torx screws
  - One 3.8 mm T5 Torx screw
  - One 5.2 mm Raised Head T5 Torx screw
  - One 3.5 mm Silver T5 Torx screw

## Step 32



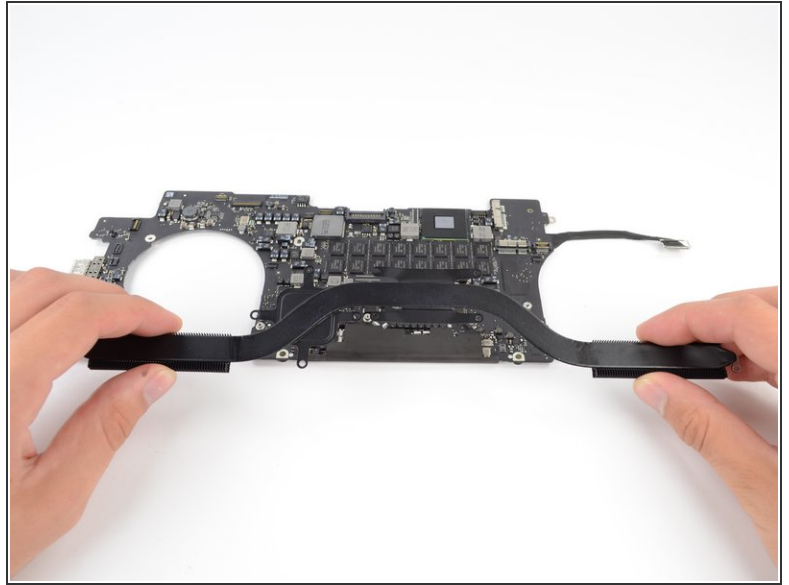
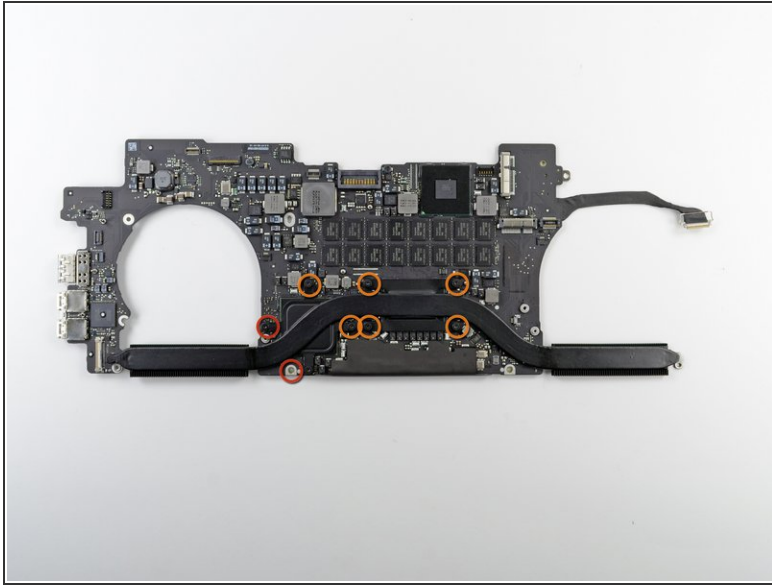
- Lifting from the side nearest the battery, rotate the logic board toward the top of the MacBook Pro.
- Using the flat end of a spudger, carefully push the MagSafe 2 connector out of its socket on the bottom of the logic board.
- ☑ When reinstalling the logic board, check the cables at the marked locations to make sure they don't get pinned underneath the logic board.
  - Clockwise from top: keyboard, trackpad, battery, right speaker, keyboard backlight, display, microphone, headphone jack, left speaker.

## Step 33



- Remove the logic board assembly from the MacBook Pro.

## Step 34 — Heat Sink



- Remove the following eight screws securing the heat sink to the logic board:
  - Two 2.4 mm T5 screws
  - Six 3.4 mm T5 screws
- Grip both ends of the heat sink and lift it up from the logic board.
- ⓘ When installing the new heat sink, do not forget to replace the thermal paste underneath the heat sink.

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