



# Fan & Interior Cleaning

Clean dust and grime out of the fan assembly without removing the heat sink.

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## INTRODUCTION

Dust can accumulate in all corners of a MacBook Pro, significantly affecting cooling. With some compressed air and a few screwdrivers, however, you can easily clean it out, reducing your CPU temperatures, fan noise, throttling, and power consumption.

If your fan assembly is relatively clean, you can skip the In-Place Fan Cover Removal steps. If, however,

1. The fan blades are visibly caked in dust
2. You need easier access to the heat sink for cleaning
3. You suspect there might be clumps of dust in the fan assembly that are too large to blow out with air

Then you can remove the fan assembly cover for full access— *without* having to remove the heat sink and worrying about reapplying thermal paste—by following this guide.



### TOOLS:

- [T5 Torx Screwdriver](#) (1)
- [Phillips PH000 Screwdriver](#) (1)
- [P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
- [Spudger](#) (1)
- [Anti-Static Brush](#) (1)
- [Compressed Air](#) (1)



### PARTS:

- [MacBook Pro 13" Retina \(Late 2013\) Lower Case](#) (1)
- [MacBook Pro Retina \(2012-2015\) Lower Case Screw Set](#) (1)
- [MacBook Pro 13" Retina \(Late 2013/Early 2015\) Fan](#) (1)

## Step 1 — Lower Case



- Remove the following ten screws securing the lower case to the upper case:
  - Two 2.3 mm P5 Pentalobe screws
  - Eight 3.0 mm P5 Pentalobe screws
- ☑ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your device.



## Step 2



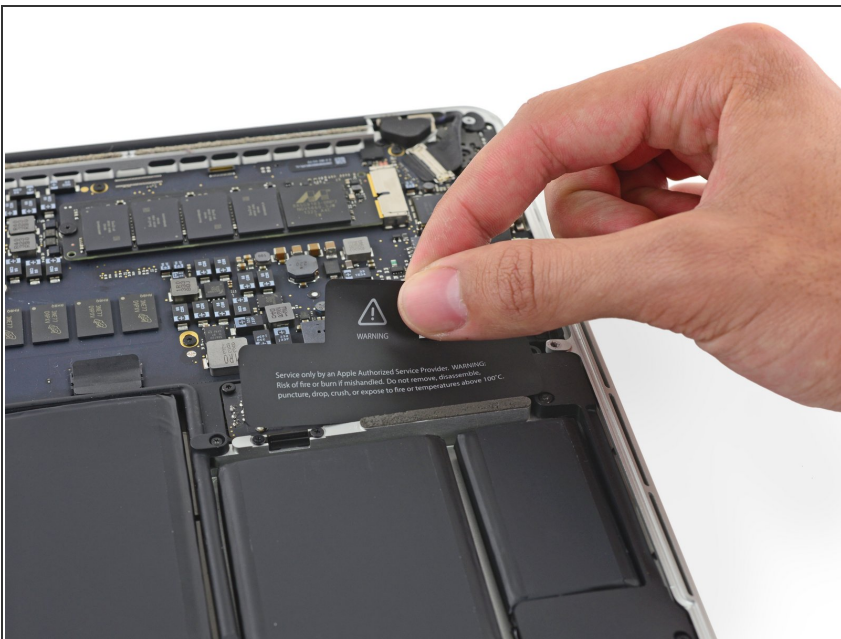
- Wedge your fingers between the upper case and the lower case.
- Gently pull the lower case away from the upper case to remove it.


### Step 3



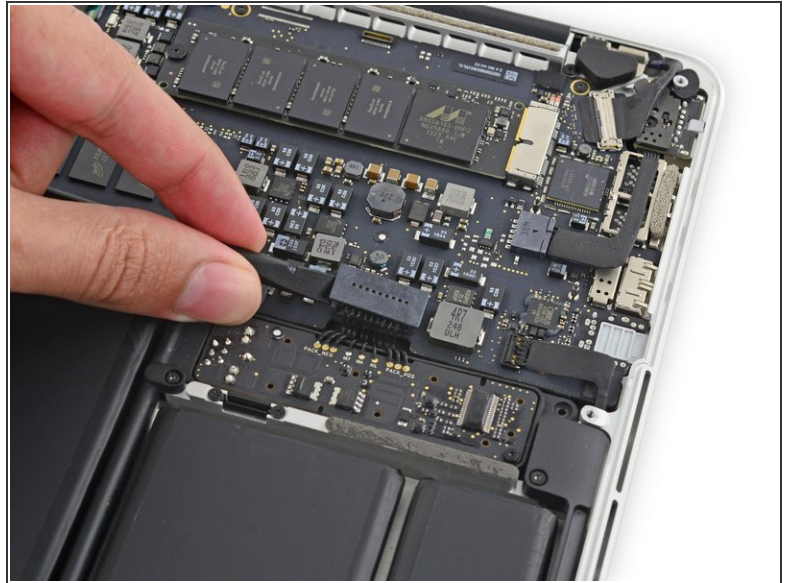
-  The lower case is connected to the upper case with two plastic clips near its center.
-  During reassembly, gently push down the center of the lower case to reattach the two plastic clips.

### Step 4 — Battery Connector



-  If necessary, remove the plastic cover adhered to the battery contact board.

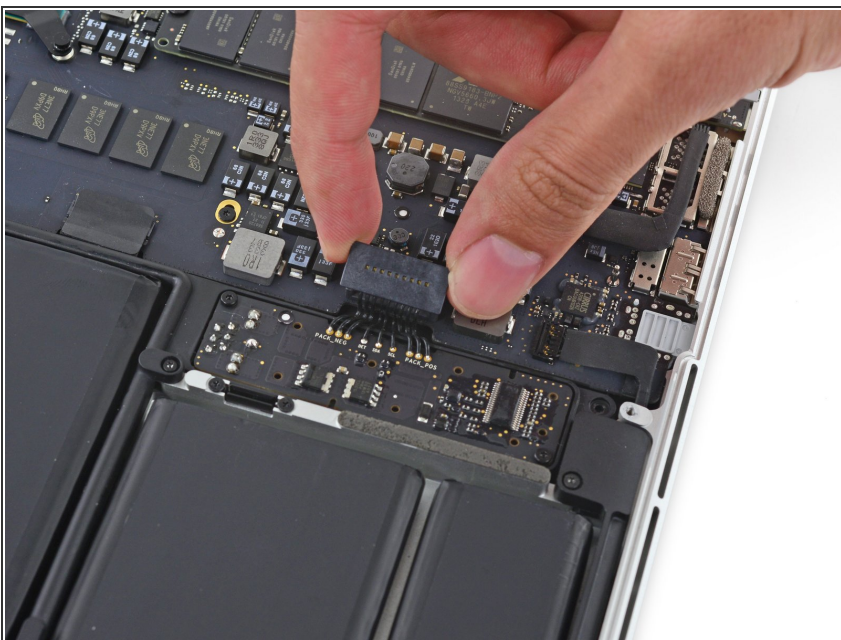
## Step 5



- Use the flat end of a spudger to lift the battery connector straight up out of its socket on the logic board.

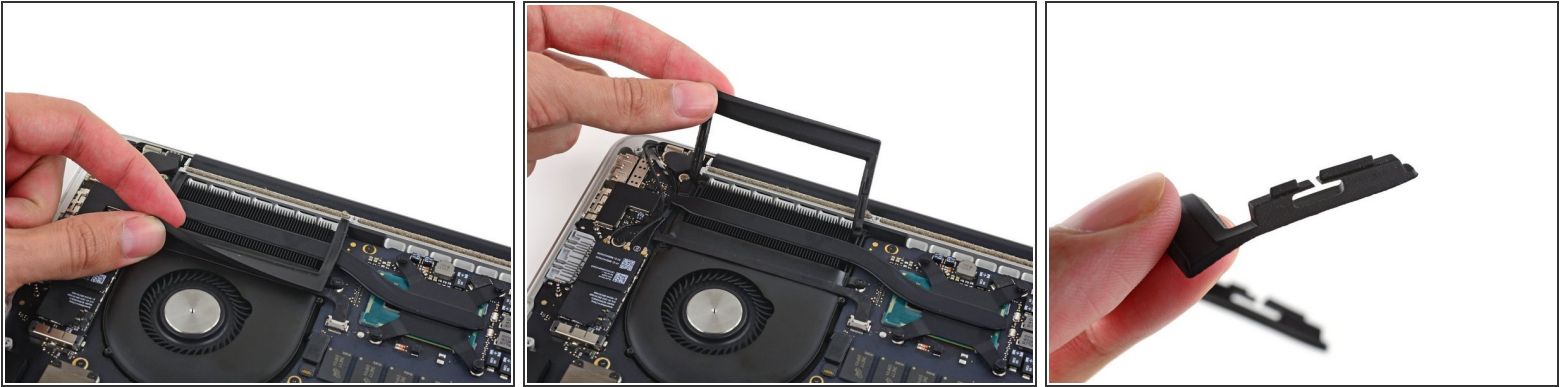
⚠ Be sure you lift up only on the connector itself, **not** the socket, or you risk permanent damage to the logic board.

## Step 6



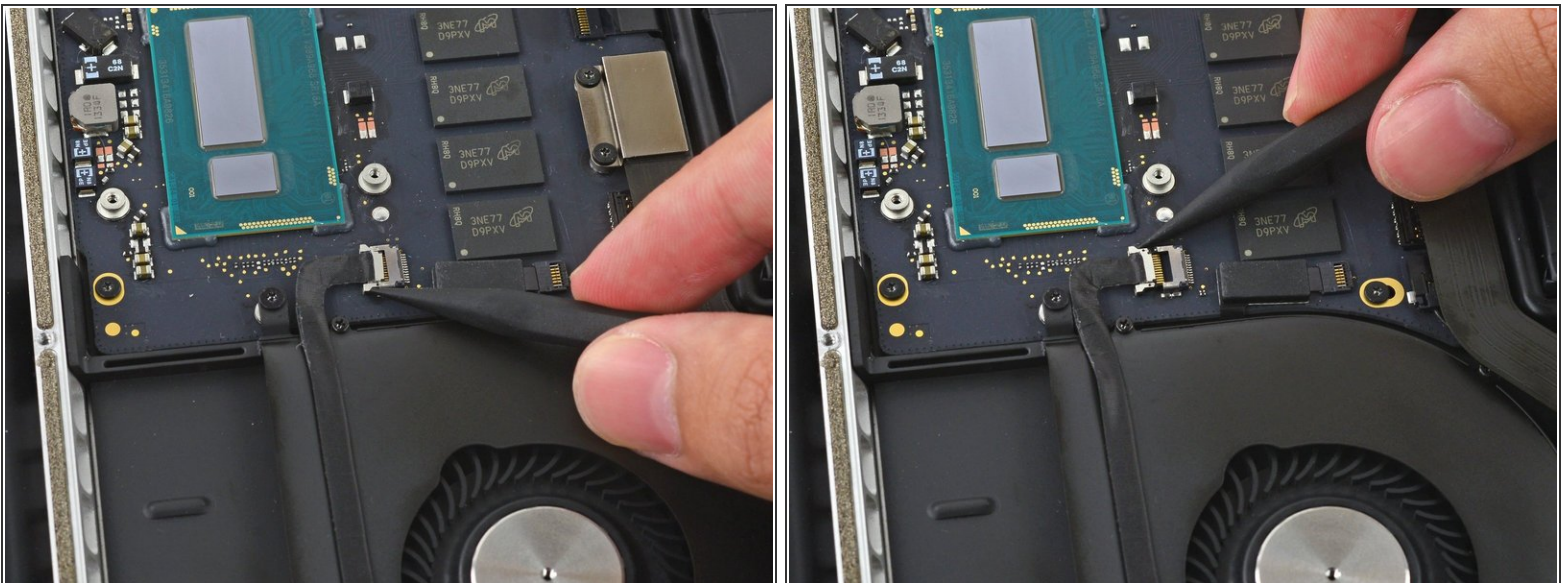
- ☑ Bend the battery connector up out of the way to prevent accidental contact with its socket during your repair.

## Step 7 — Remove fan bumper



- Carefully remove the rubber fan bumper from the edge of the heat sink.
- ☑ The bumper is gently held in place by the lips in the third image which wrap under the heat sink. There is no adhesive, so removal and reseating should be easy.

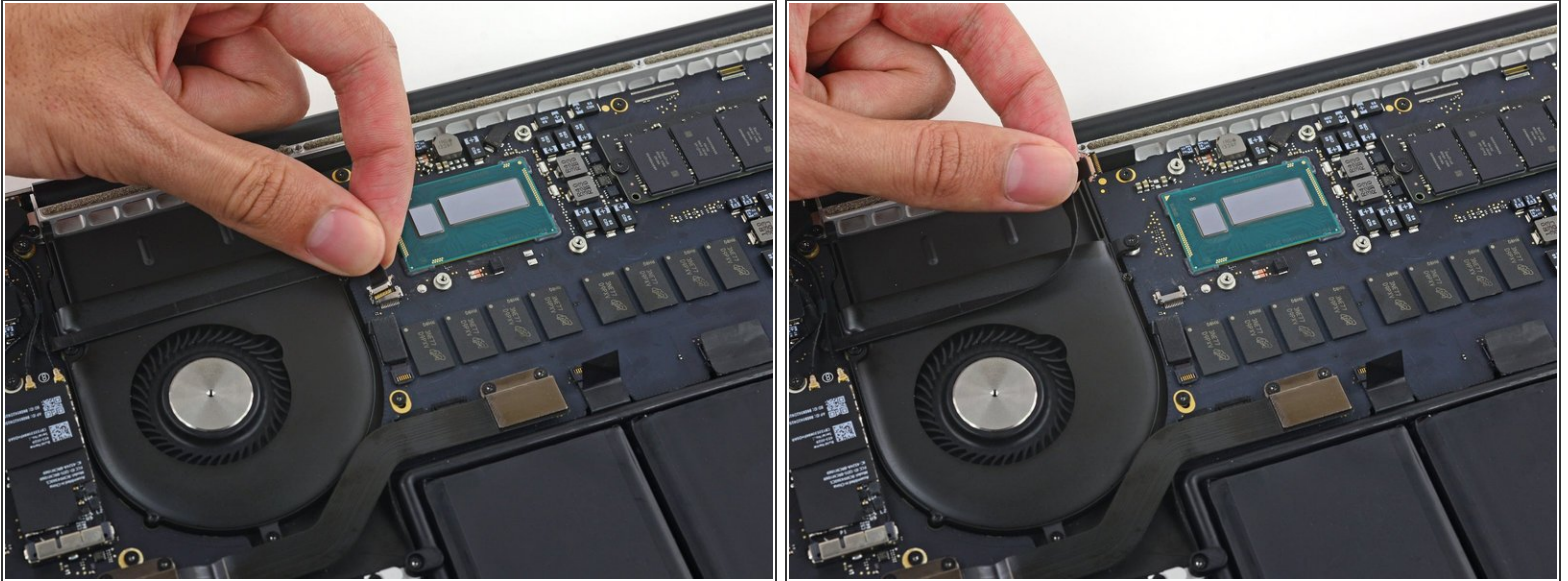
## Step 8 — iSight Cable



- Use the tip of a spudger to push on either side of the the iSight camera cable connector to walk it out of its socket on the logic board.

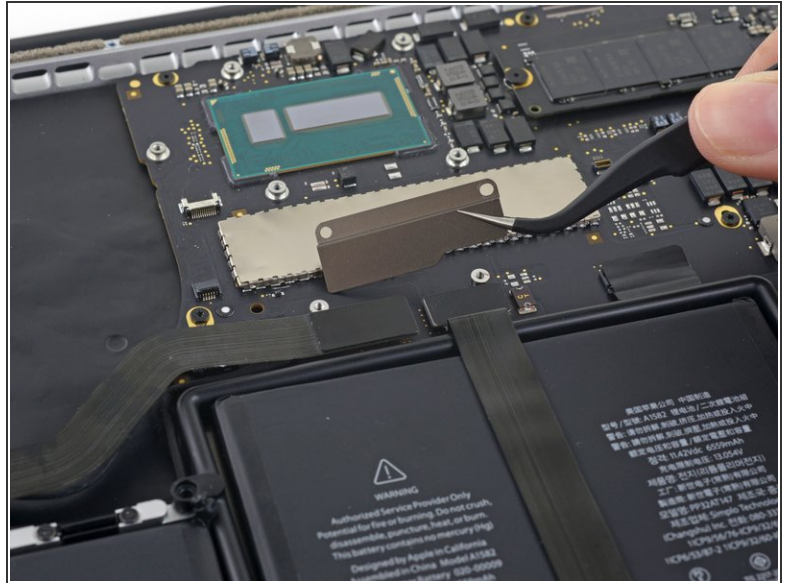
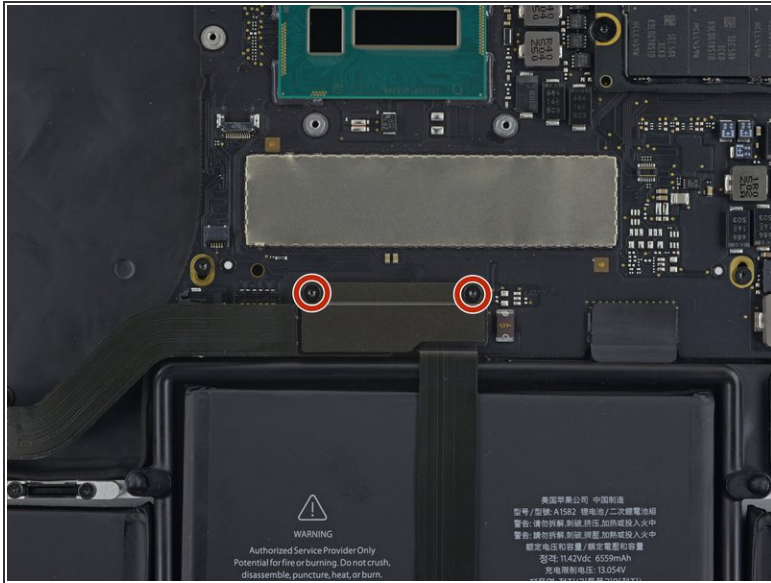
**⚠ The cable connector is small and delicate, so make sure to nudge it out a little bit at a time from each side, alternating until it is fully out. A spudger or tweezers are ideal for this.**

## Step 9



- Peel the iSight camera cable off the fan housing to fold it out of the way.
- ⓘ You can optionally use hot air to soften the adhesive and/or a spudger to help separate the cable from the fan housing.

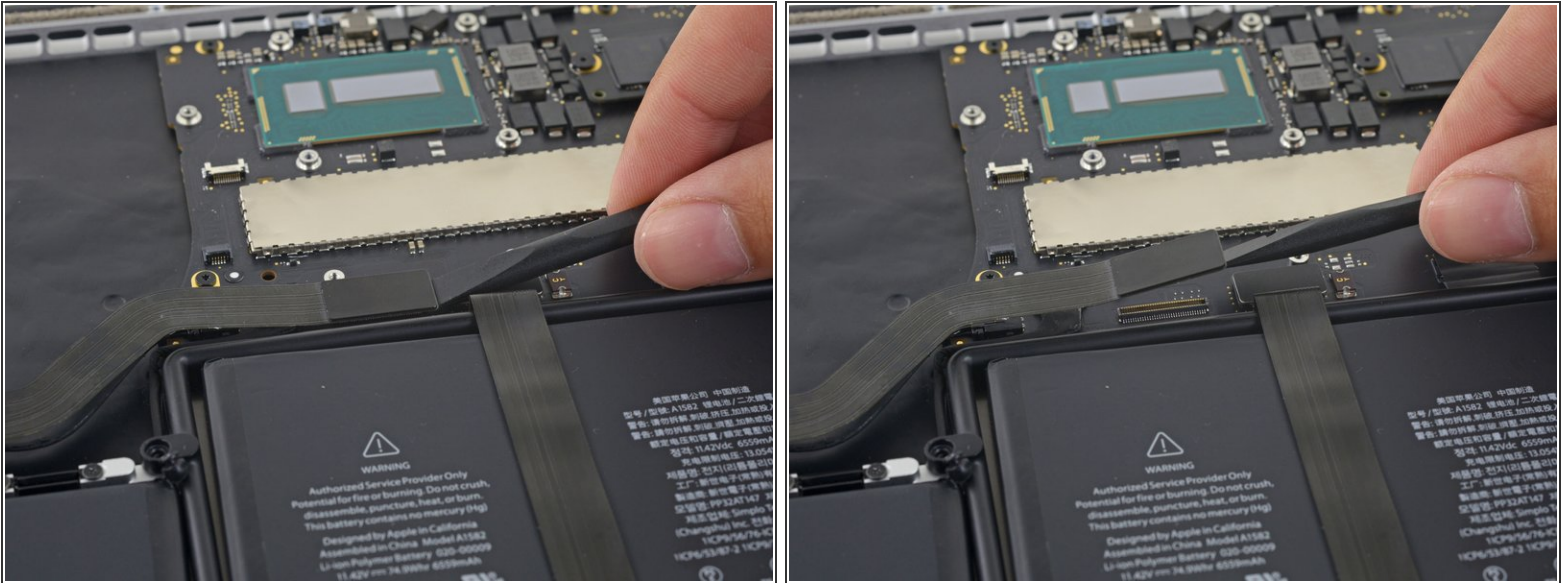
## Step 10 — Disconnect I/O board cable



- One of the screws holding the top shell of the fan assembly is hidden just behind the I/O board cable.
- Remove the two 2.1 mm T5 Torx screws securing the I/O board cable bracket to the logic board.
- Remove the I/O board cable bracket.



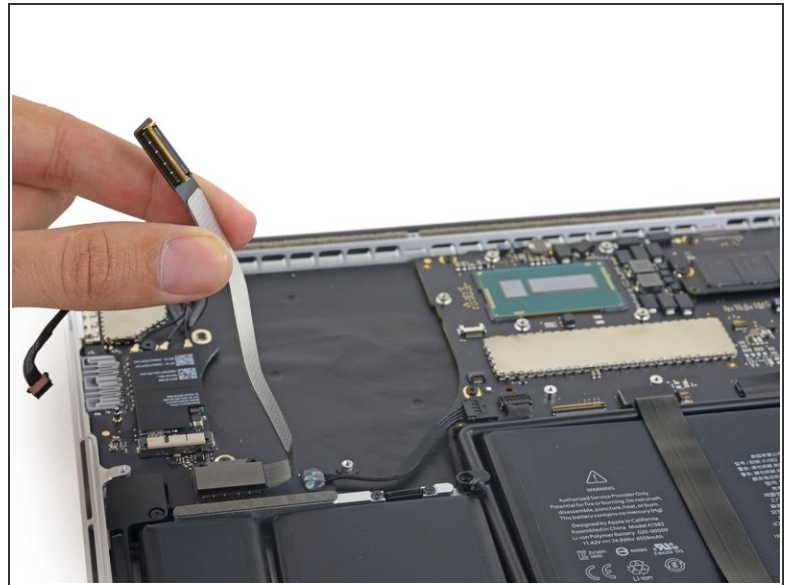
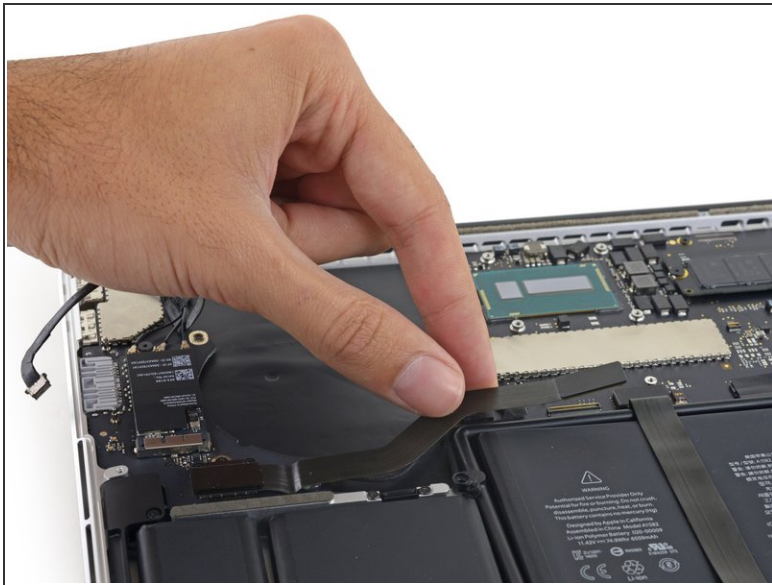
## Step 11



- Use the flat end of a spudger to pop the I/O board connector straight up off its socket on the logic board.

⚠ Be careful to only pry up on the I/O board cable, **not** on the socket itself or you risk damaging your logic board.

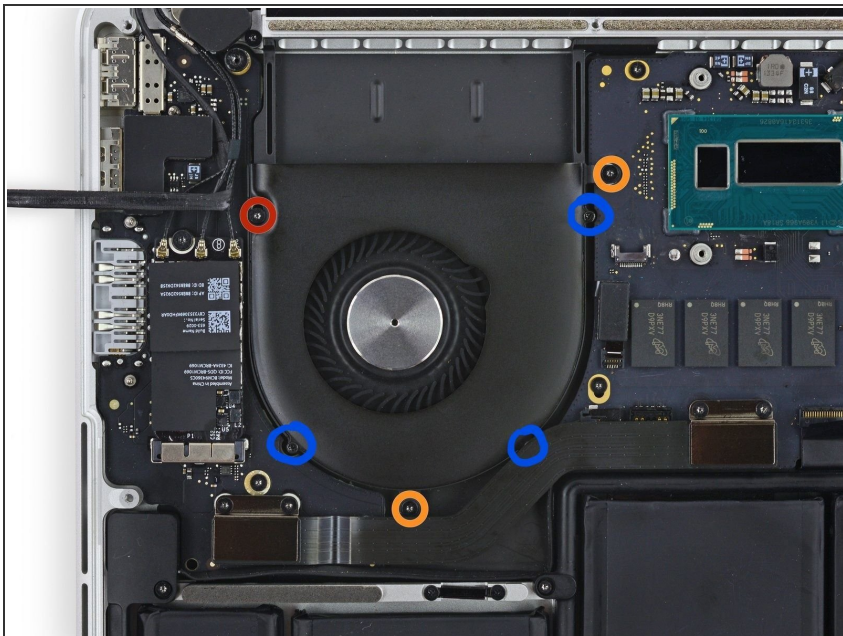
## Step 12



- Lift the logic board end of the I/O board cable straight up to bend it out of the way.

**⚠** To avoid damage to the cable, fold only at the bend in the I/O board end of the cable. It will only be in the way momentarily, so don't try forcing it to stay.

## Step 13



- Remove the following screws securing the fan assembly cover to the rest of the assembly:
  - One 5.0 mm T5 Torx screw.
    - ⓘ This screw holds the upper case, main fan assembly, and fan assembly together, and so must be removed.
  - 3 Phillips #000 screws.

- ⓘ The bottom right screw is just under the I/O board cable, and will be visible after it has been lifted out of the way.

## Step 14 — Remove dust



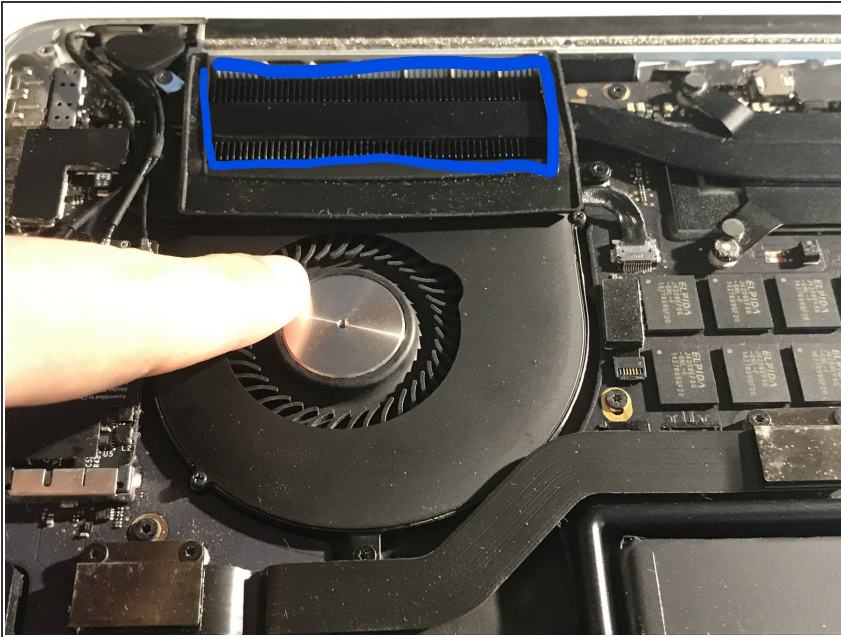
- The inside of the case plate will likely have dust caked on. Since this piece has no delicate electronics, you can simply wipe it with your Anti-static brush, or even better, a used toothbrush.
- ⓘ Ideally, do this step outside.
- ★ You can optionally use a small amount of rubbing alcohol if gunk has built up anywhere (as long as you let it dry before reinstalling), though this shouldn't usually be necessary.

## Step 15



- Use your compressed air can to blow away loose dust from the motherboard.
  - ⚠ Follow the instructions on your compressed air can. Generally, you will hold the nozzle 3-4 inches from the target, **right side up**, and only apply short bursts of air.
  - ⚠ **Do not** blow compressed air near the fan assembly without holding the fan still, as this can spin the fan blades at high speed and generate a damaging voltage.
- ⓘ If you are wearing a grounded anti-static bracelet, you can remove larger chunks of dust by hand.
- ⓘ If you have an anti-static brush, you can use it to dust away or loosen dust before blasting it away with the air.

## Step 16



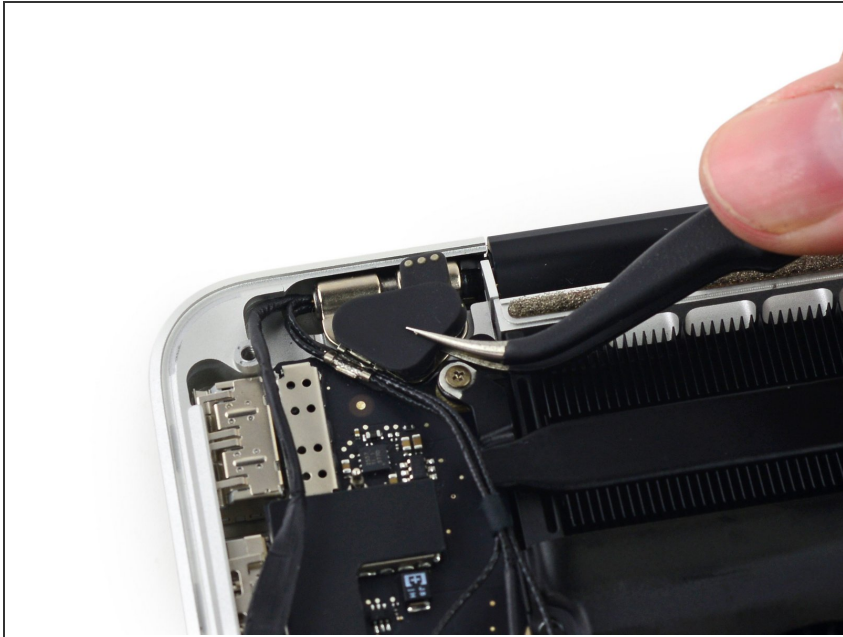
- If there is only a light amount of dust in the heat sink and fan assembly, you can blow it out without removing the fan assembly cover, as long as you hold the fan steady.
- ☑ If the fan blades are very dusty, you will need to remove the fan assembly cover to clean them more thoroughly and remove any large clumps of dust.

## Step 17



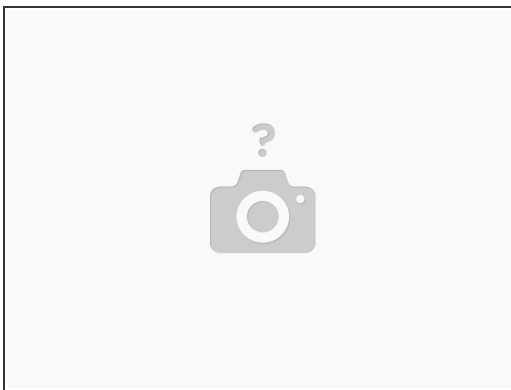
- Remove the fan assembly cover; it should come off with no resistance at all if you removed all 4 screws
- Use a brush to loosen caked on dust.
- ⓘ As long as you are careful to only brush the plastic fan blades and enclosure, you don't strictly need an anti-static brush. An old toothbrush will once again work perfectly here.

## Step 18



- Carefully turn the laptop upside down on a flat surface to let the loose dust fall out.
- ⓘ At this point, the only thing besides dust that might fall out (besides dust) are the rubber hinge covers, whose adhesive might be loose. Simply replace these as shown in the last photo if necessary.

## Step 19



- You should have a less obstructed view of the heat sink fins. Loosen any caked dust with an **anti-static** brush before blasting loose dust out the back vents of the case with compressed air.

**⚠ Again, hold the fan still whenever blowing compressed air anywhere near it.**

- Blow away any loose air from the interior of the fan assembly.
- Inspect the rest of the interior of the computer for stray dust that may have landed, and clear that away before closing everything back up.

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