



MacBook Unibody Model A1342 Teardown

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INTRODUCTION

We were curious to see why Apple thought the MacBook Polycarbonate Unibody was so special, so we took it apart! We got the MacBook from our local Apple store on October 20, 2009.

Want up-to-the-minute updates? Follow [@ifixit on twitter](#). You can also check out the YouTube [video slideshow](#)!

Wired and iFixit are hosting a [Sony Teardown contest](#). Take apart anything made by Sony, take photos, and use [our editor](#) to post a teardown. You could win a PS3 or PSP Go!

TOOLS:

- [Phillips #00 Screwdriver](#) (1)
- [Spudger](#) (1)
- [T6 Torx Screwdriver](#) (1)
- [T8 Torx Screwdriver](#) (1)
- [Y1 Tri-point Screwdriver](#) (1)

Step 1 — MacBook Unibody Model A1342 Teardown



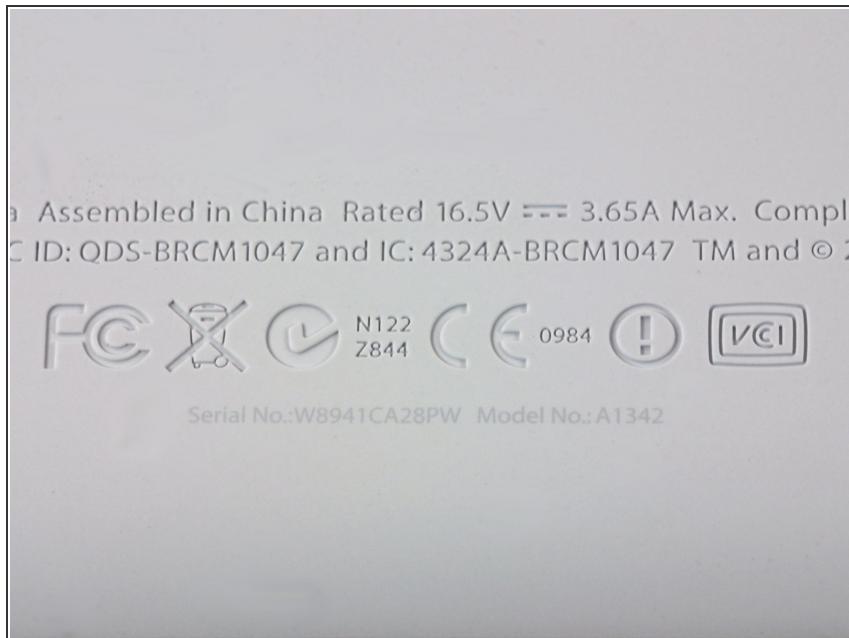
- Oh, plastic MacBook, how we've missed you...
- Apple has made a bunch of changes to their base workhorse, including:
 - A polycarbonate unibody upper case
 - An LED backlit display with the same 1280x800 resolution as previous models
 - A glass multi-touch trackpad
 - An integrated lithium-polymer battery
 - Non-slip coating covering the bottom panel.
- The case revision also allowed Apple to update the aesthetics on the new Macbook. Its contoured edges fit right in with the rest of the unibody lineup.

Step 2



- Top: New MacBook, Middle: [MacBook Pro](#), Bottom: Old MacBook
- **FireWire is gone!** If you need FireWire, now only a MacBook Pro will do.
- Also gone is an IR port for a remote. As far as we know, that makes the MacBook the only currently shipping Apple laptop that doesn't support a remote.
- There's also no external battery indicator, a *feature* borrowed from the MacBook Air.
- Apple has also replaced Mini-DVI with Mini DisplayPort, and replaced the two audio jacks with a single audio in/out port.

Step 3



- After more than three years, the MacBook finally gets a new model number! **A1342**.
- Unfortunately, Apple only allows those with 20/20 vision to find out their model and serial number. That text is incredibly tiny and difficult to read.
- This new MacBook weighs in at 4.7 lbs. That's .3 lbs less than the old plastic MacBook, but .2 lbs more than the 13" Unibody MacBook Pro.

Step 4



- Removing the lower case...
- There are no more rubber feet to tear off!
- Eight Phillips #00 screws hold the lower case in place, two less than the 13" Pro.
- The lower case is surprisingly heavy, weighing in at 266 grams. The lower case is actually a sheet of aluminum with rubberized coating injection-molded onto one side.
- In contrast, the lower case on the 13" Pro weighs only 142 grams, so the rubber coating nearly doubles the part's weight.

Step 5



- Apple boasts an impressive seven hour battery life from the new MacBook, matching that of the 13" and 15" MacBook Pros.
- The battery is held in with both tri-wing and Phillips screws, an indication that Apple doesn't want you replacing the battery yourself.
- One of the three tri-wing screws is beneath a warning label in the top left corner of the battery.
- For most repairs, removing the battery is not necessary, you just need to disconnect it from the logic board. You can use a [spudger](#) or your fingernails to lift battery connector straight up out of its socket on the logic board.

Step 6



- The battery is 60 watt-hours, the same capacity as the 13" MacBook Pro.
- The previous plastic MacBooks featured a 55 watt-hour battery and claimed a 5-hour run time. Apple has added 5 watt-hours of battery capacity and two hours of run time. Either this machine is substantially more efficient than its predecessor (thanks to the LED backlight?), or Apple's new battery life claims are overly optimistic.
- Despite its higher capacity, this new battery is actually lighter than the previous MacBook's battery. This battery boasts a power to weight ratio that's 23.5% better than its predecessor.

Step 7



- The MacBook now uses PC3-8500 RAM. Conveniently, all Apple portables with RAM slots as well as the iMacs currently use the same RAM type.
- Like the Pro models, the RAM chips are stacked vertically, one directly above the other.
- Our machine came with two 1 GB chips. Apple says the machine will support 4 GB maximum. There are 4 GB PC3-8500 chips available, and users have reported successful installations of 8 GB chips in this model.

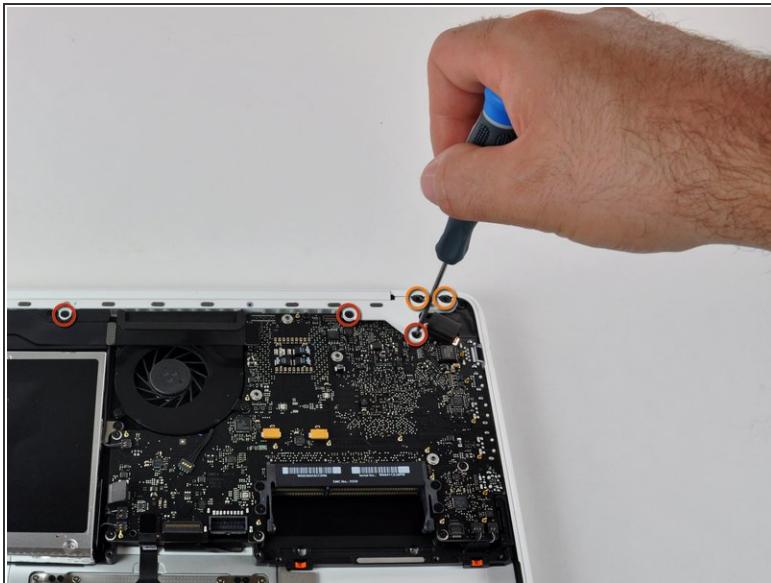
Step 8



- The hard drive isn't as easy to replace as it used to be, but it can be done. The hard drive is still considered "user replaceable" by Apple. It's strange that the hard drive is "user replaceable", but the battery is not.
- After removing two Phillips screws and the hard drive bracket they hold down, lift the hard drive out of the MacBook by its pull tab and disconnect the SATA connector.

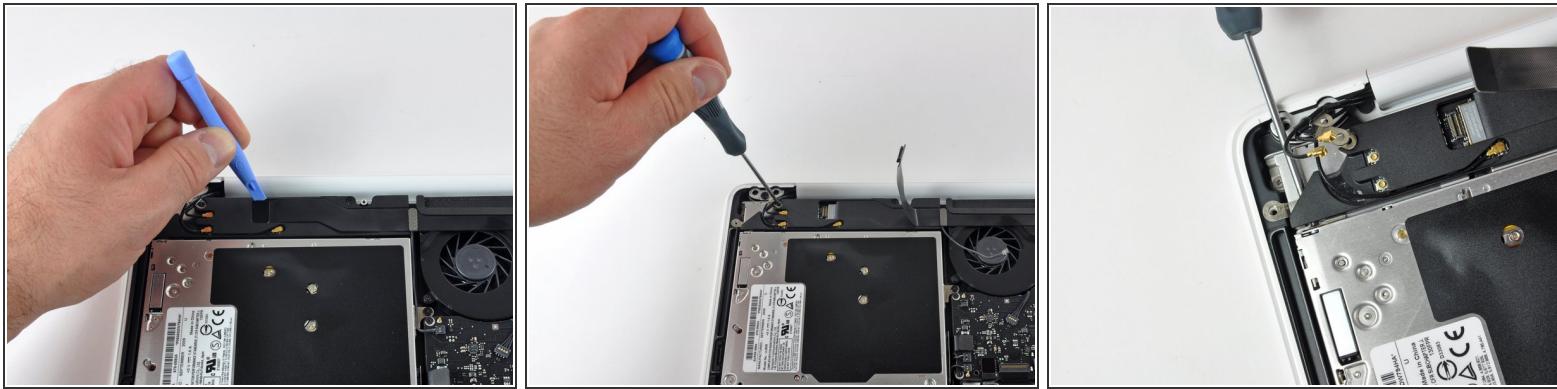
i If you're installing a new hard drive, you'll need a [T6 Torx screwdriver](#) to transfer the mounting screws to your new hard drive.

Step 9



- Getting to the optical drive takes a bit more work...
- The rear vent is held in place by both Phillips #00 and T8 Torx screws.
- The cast aluminum vent plate is painted with a satin white rubberized paint and probably adds a good amount of rigidity to the device.
- The lack of structural supports like these in previous plastic MacBooks accounts for their flexibility.

Step 10



- The digging continues as we remove the speaker/AirPort/Bluetooth card assembly.
- After popping off a few connectors, removing a few screws (including one inserted into the **side** of the optical drive), the optical drive is *almost* free.

Step 11



- Unlike the earlier plastic MacBooks, AirPort and Bluetooth share the same board.
- The Bluetooth model number is BCM943224PCIEBT.

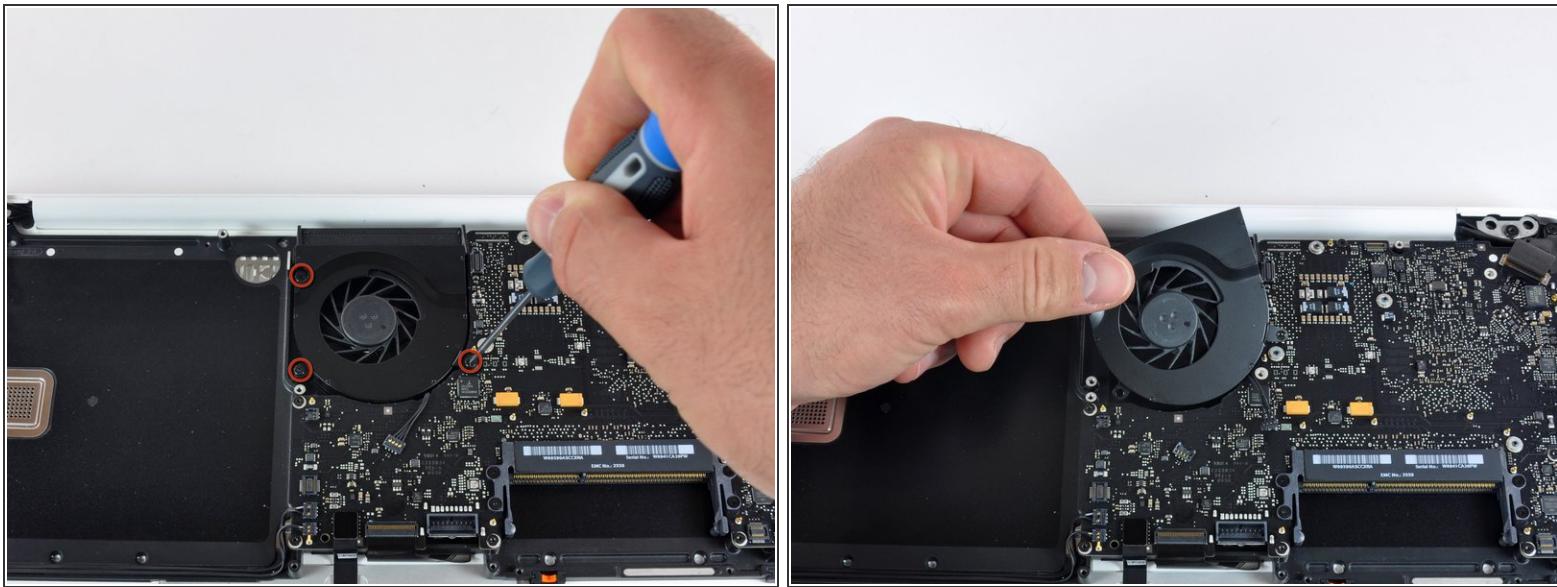
i All three antenna cables appear to route into the display assembly. This may be an improvement for Bluetooth range, since on previous MacBooks the Bluetooth antenna was located above the optical drive and not inside the display assembly.

Step 12



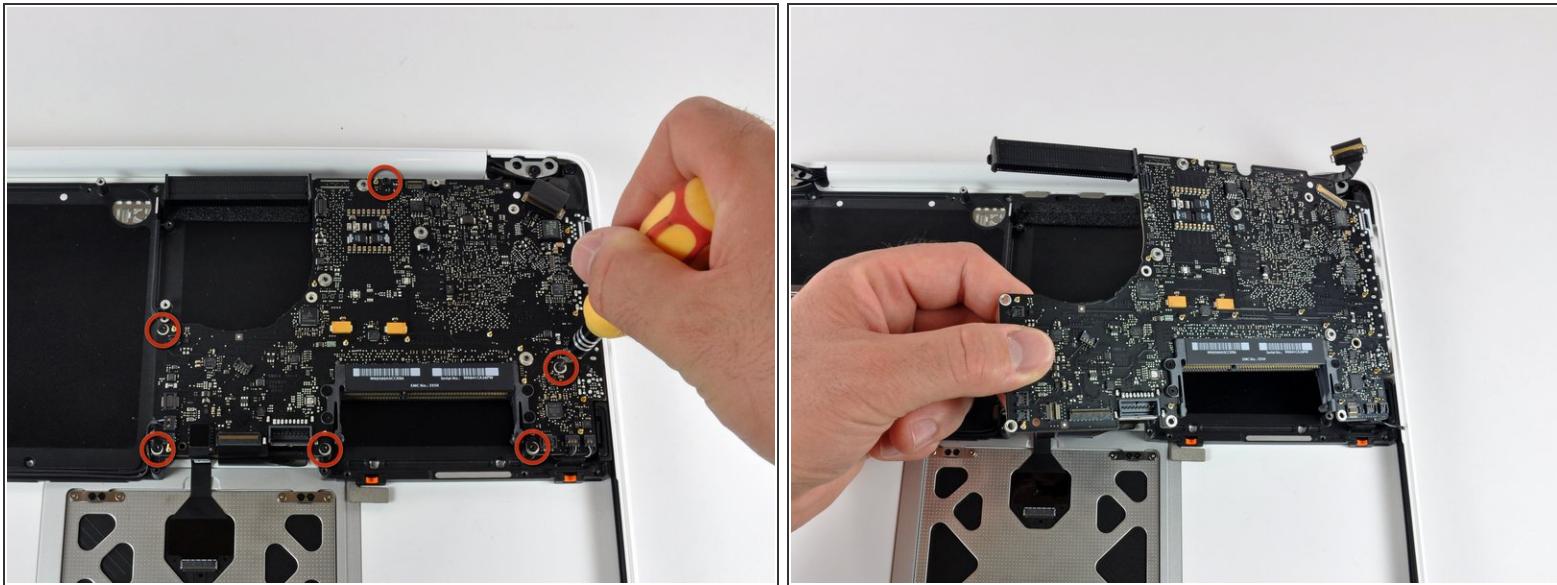
- After removing the final few screws, lift the optical drive out of its comfy plastic unibody home.
- No surprises here. The optical drive is an 8x SATA SuperDrive. It's a Panasonic model UJ898, made in China September of 2009.

Step 13



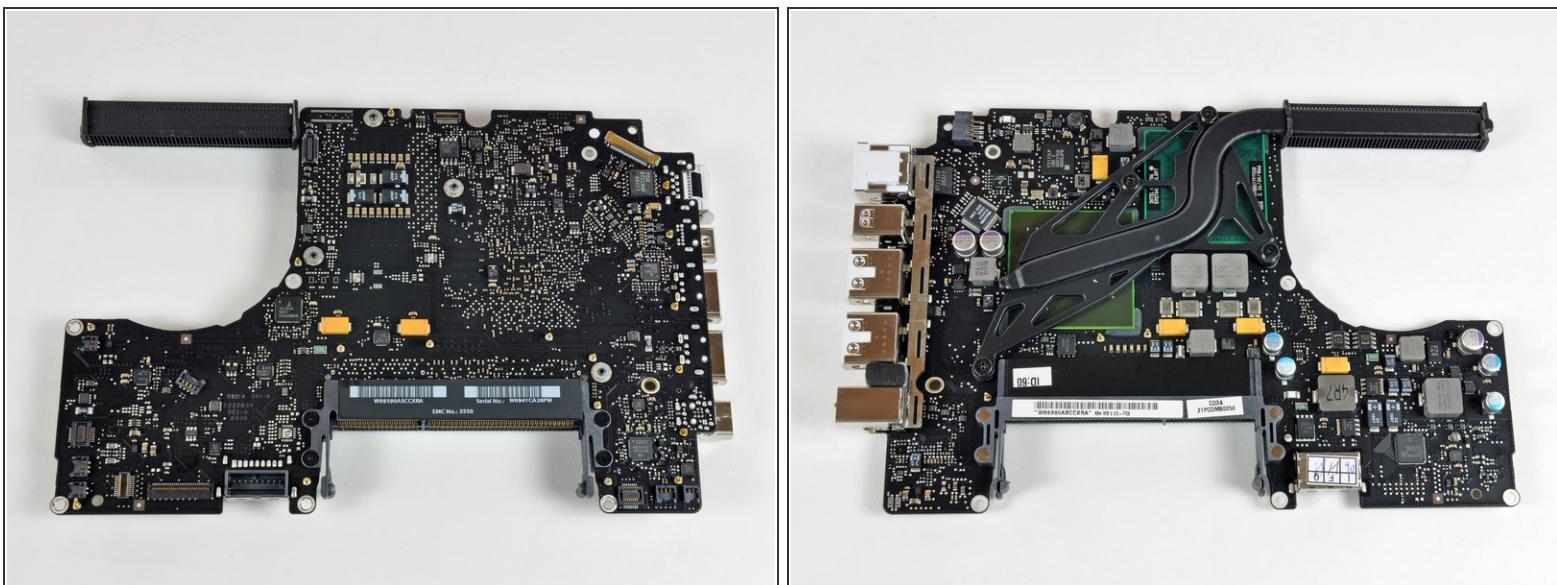
- It has a fan.
- After a few twists of a screwdriver and the flick of a spudger, the fan lifts right out.
- The fan design appears relatively unchanged from previous plastic MacBooks, except that it mounts to the upper case on this model.

Step 14



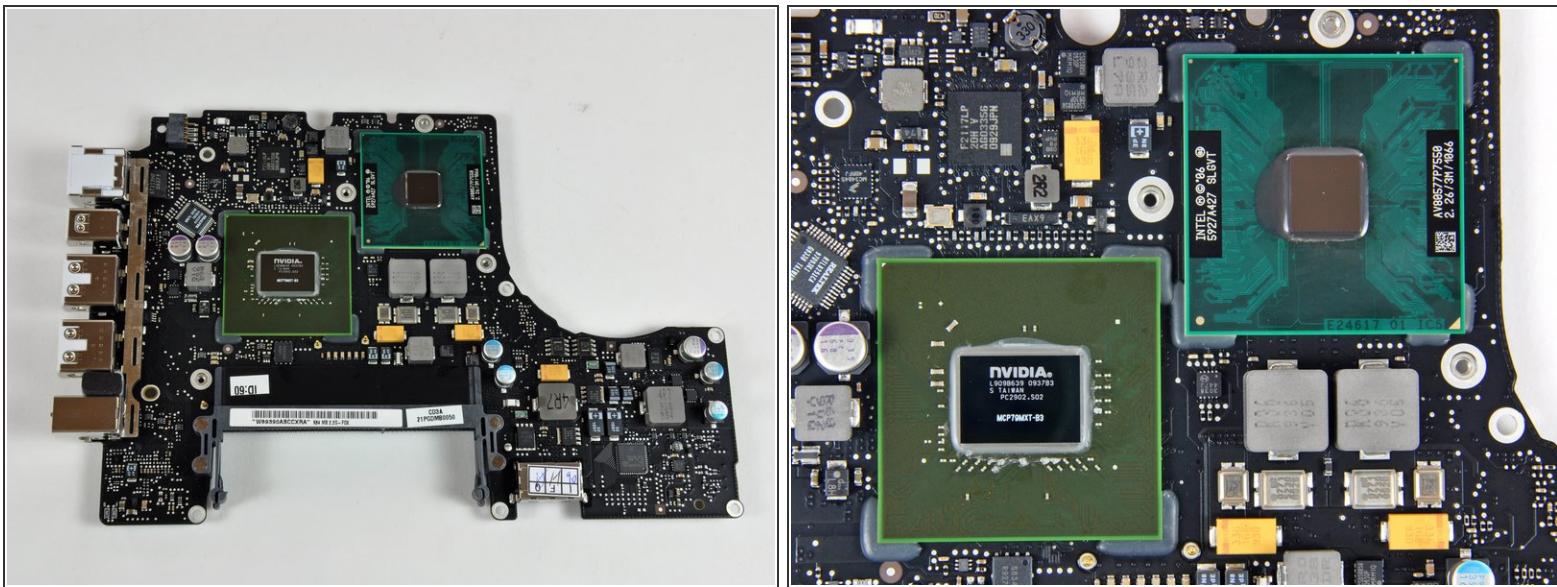
- Six T6 screws and several fragile connectors stand between us and logic board freedom.

Step 15



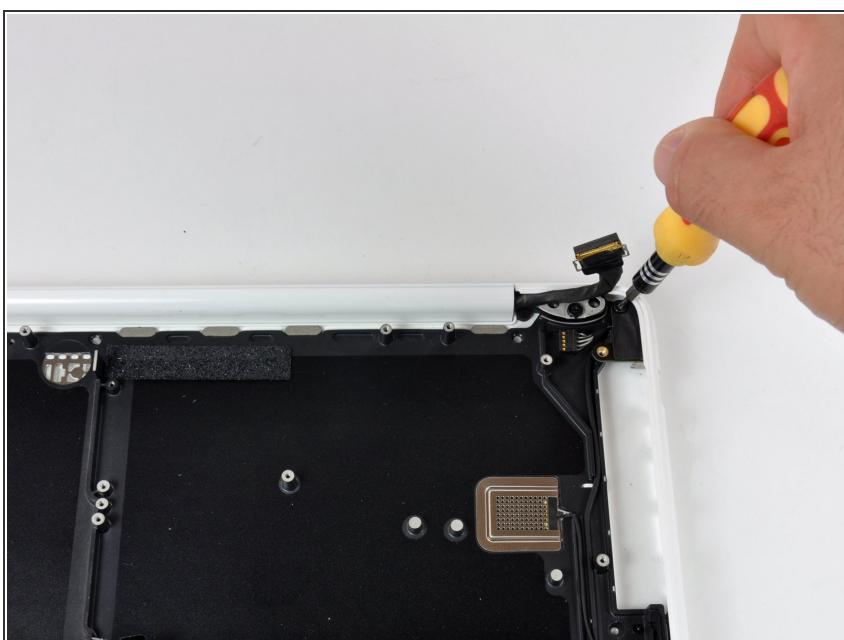
- The logic board removed.
- Like the MacBook Pro Unibody, Apple nicely designed this machine so the logic board and heat sink come out as a single part. This way, you'll only need to get your hands dirty with thermal paste if you're replacing the logic board.

Step 16



- The MacBook sports a NVidia 9400M GPU and an Intel Core 2 Duo 2.26 GHz CPU.
- This is exactly the same GPU and CPU in the base model 13" Unibody MacBook Pro. This CPU offers a whopping 130 MHz increase over the 2.13 GHz chip that powered the old plastic MacBook.

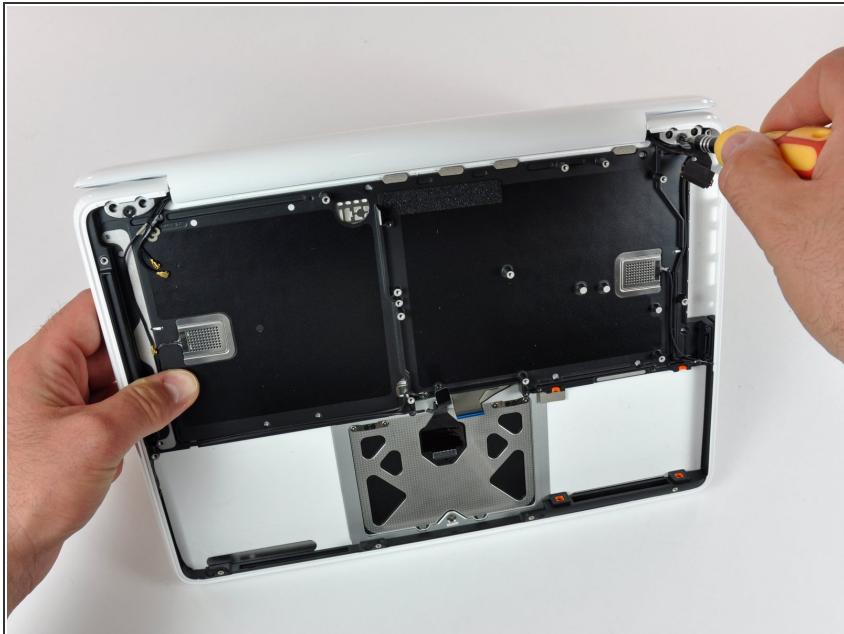
Step 17



- Like other MacBooks, the MagSafe port gets its own board.
- Even though the new MacBook ships with a new-style MagSafe adapter, older Magsafe adapters should work just fine.

- Notice the silver grate of a speaker on the right side of this photo. This machine sports two small tweeters beneath the keyboard, one below the caps lock key, and the other below the return key.

Step 18



- The display assembly is secured by two large T8 screws, one on each side.

i Apple's certainly giving us quite the screw variety on this machine. We've found tri-wing, Phillips #00, T6, and T8 Torx screws.

- We [sell a screwdriver kit](#) that will enable you to remove all these screws.

Step 19



- The display assembly. (We did turn it on briefly, and it looks really nice!) On the right side are the three wireless antennas, and on the left side is the single display data cable.
- Since the MacBook now uses a LED backlit LCD, there's no inverter cable. All data and power is transmitted through a single cable.
- Apple has shaved about 50 grams off the weight of the display assembly compared to the one on the previous plastic MacBook.

Step 20



- Success! The new MacBook is quite a nice machine to disassemble.
- *i* We'll be creating detailed repair guides for this machine in the future, enabling you to repair your MacBook if and when something goes wrong.
- We plan on taking apart Apple's new iMac as soon as we can get our hands on it. Apple's made some major improvements on their new iMac, so it should be interesting to see what's inside. Follow [@ifixit on twitter](#) and we'll keep you updated.