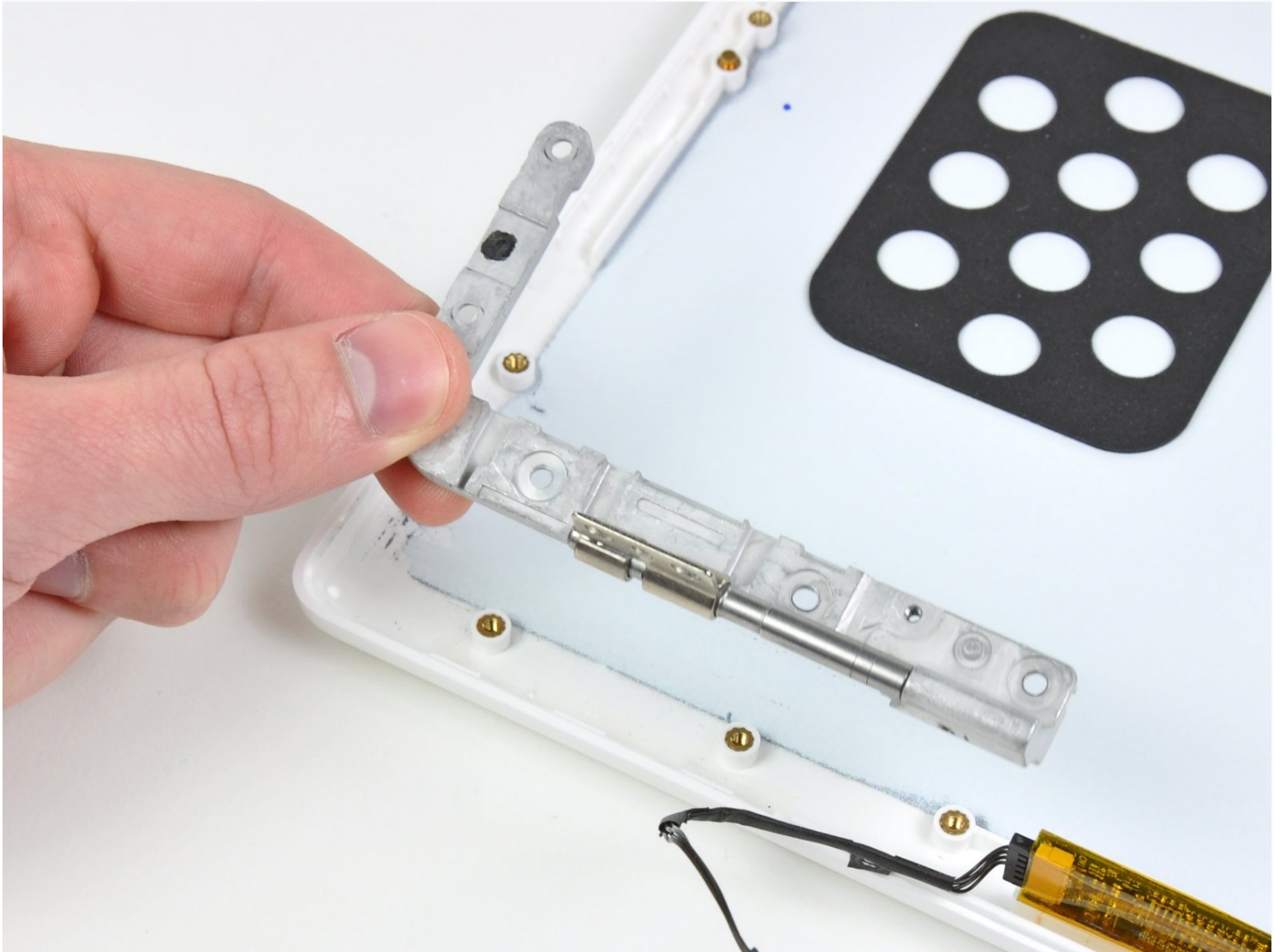




MacBook Core Duo Left Clutch Hinge Replacement

A MacBook display is only as good as its...

Written By: Andrew Bookholt



INTRODUCTION

A MacBook display is only as good as its weakest link. If that weak link happens to be the left clutch hinge, replace it with a new one.



TOOLS:

[Coin](#) (1)

[Phillips #00 Screwdriver](#) (1)

[Plastic Cards](#) (1)

[Spudger](#) (1)



PARTS:

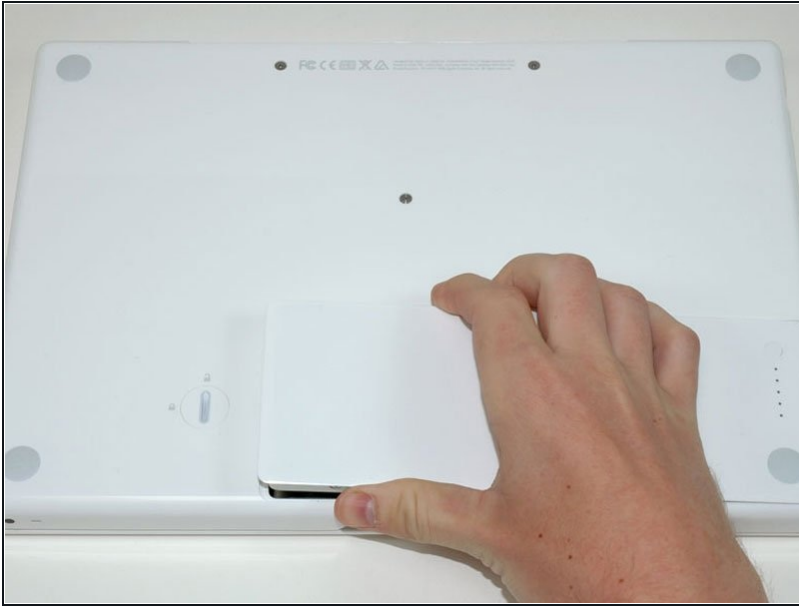
[MacBook Left Clutch Hinge](#) (1)

Step 1 — Battery



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

Step 2



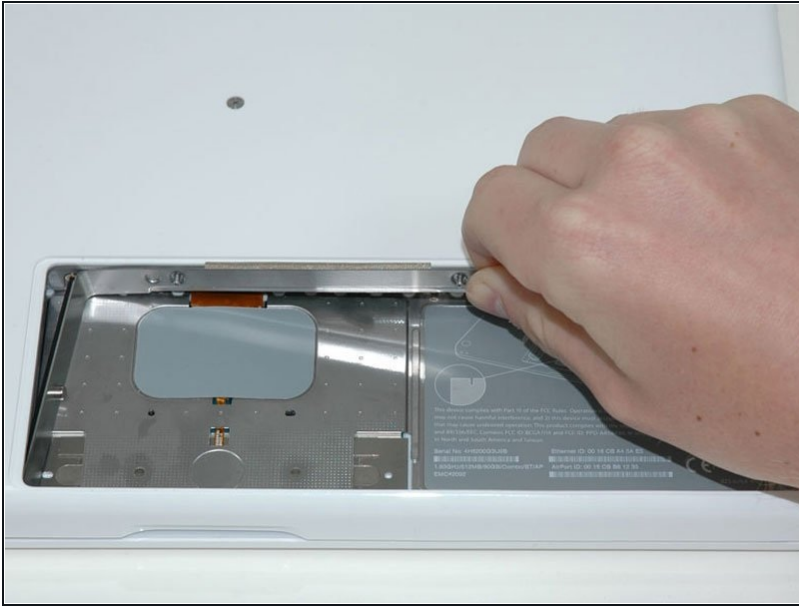
- Lift the battery out of the computer.

Step 3 — Memory Cover



- Remove the three evenly-spaced Phillips screws from along the rear wall of the battery compartment.
- ☑ The screws are captive to the metal memory cover.
- ☑ When replacing the battery casing, use a spudger to re-insert the foam cushioning behind the rear wall for proper battery spacing.

Step 4



- Lift up on L-shaped memory cover, slide it to the right, and lift it out of the computer.

Step 5 — Upper Case



- Remove the following 3 screws:
 - One 11 mm Phillips #00 in the middle of the case.
 - Two 14.5 mm Phillips #00.
- ⓘ 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.

Step 6



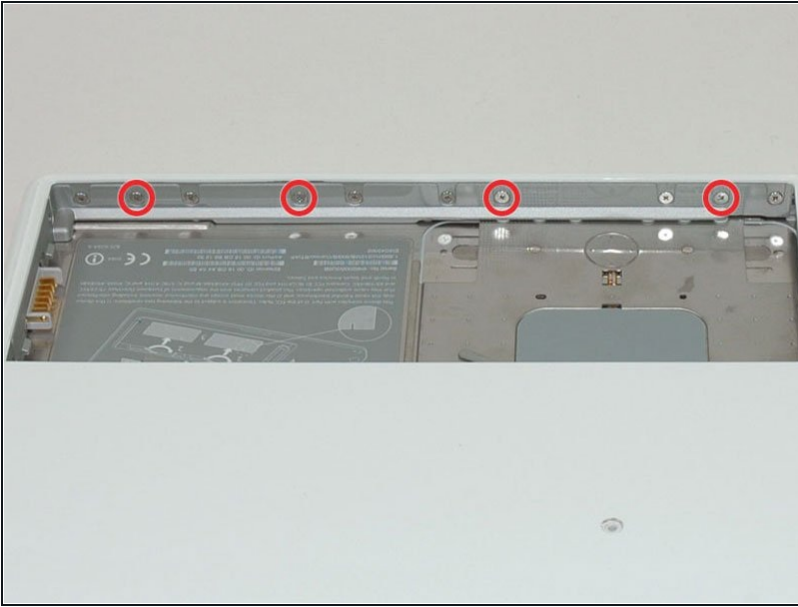
- Remove the following 3 screws from the rear wall of the battery compartment:
 - Two 3 mm Phillips #00. (A1181 has three 3 mm screws and one 4 mm.)
 - One 4 mm Phillips #00 on the right side.
- ☑ When reinstalling these screws, press gently on the lower case to line up the screw holes.
- ⓘ These screws easily strip, so be careful while taking these particular screws out.

Step 7



- Remove the two 6 mm Phillips #00 screws from either side of the right wall of the battery compartment (not the ones closest to the battery connector).

Step 8



- Remove the four 3 mm indicated Phillips #00 screws from the front wall of the battery compartment. When working from the left, remove the 2nd, 4th, 7th and 9th screw.

Step 9



- Remove the following 4 screws from the back of the computer:
 - Two 7 mm shouldered Phillips on the far sides.
 - Two 10.5 mm Phillips toward the center.
- ⓘ Do not over-tighten these; you can cause the case to distort.

Step 10



- Remove the two 5.2 mm shouldered Phillips #00 screws from the optical side of the computer.
- ⓘ It is not necessary to remove the similar screws on the other side of the computer.

Step 11

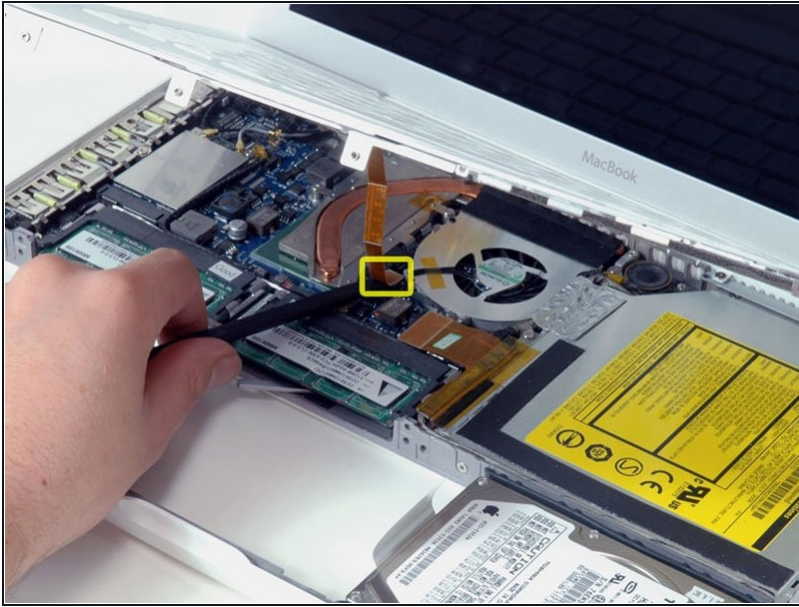


- Starting near the display and working around to the front of the computer, pry up on the upper case. It is held with clips on the right above the optical drive. These will release with some firm lifting pressure.
- Be careful when prying up the upper case. It's very easy to slice open a fingertip and thus provide the blood sacrifice the Mac gods sometimes require of those who insist on doing their own repairs.

⚠ There's a trackpad and keyboard ribbon connecting the upper case to the logic board, so don't pull the upper case off entirely just yet.

- ① If you have trouble getting the clips to release, be careful that you are not prying the plastic top of the upper case away from its metal frame.

Step 12



- While holding up the upper case (from the bottom or the top), use a spudger to pry up the orange trackpad and keyboard cable from its connector.

ⓘ Take care to pry between the black socket and the white connector. You might have to pry on both sides for it to release properly.

⚠ Do not pry from the bottom or the top, but from the sides.

ⓘ 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.

Step 13 — Optical Drive



- Grasp the white plastic tab attached to the hard drive and pull it to the left, removing the hard drive from the computer.

Step 14



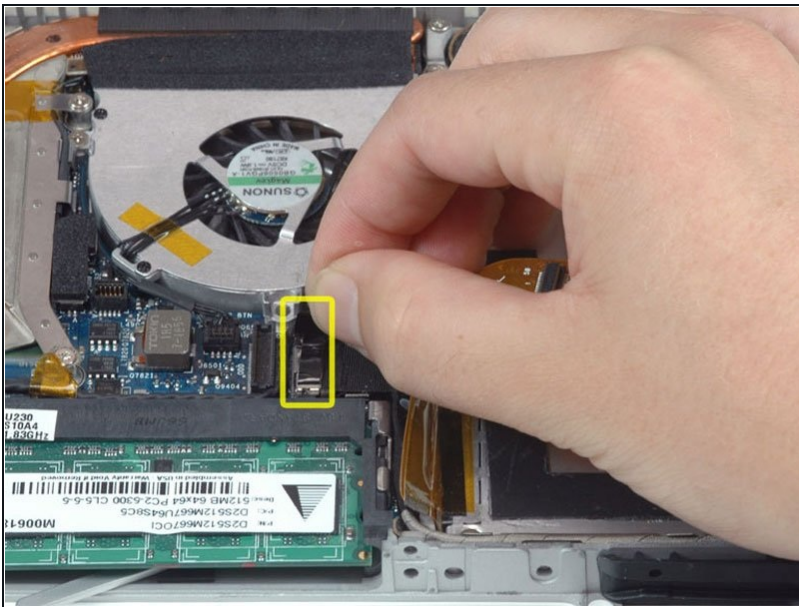
- Remove the two Phillips screws from the front edge of the optical drive.
- ① The shorter screw (3 mm) is recessed nearest the RAM modules. The other is 3.5 mm.

Step 15



- Disconnect the orange optical drive ribbon cable from the logic board.

Step 16



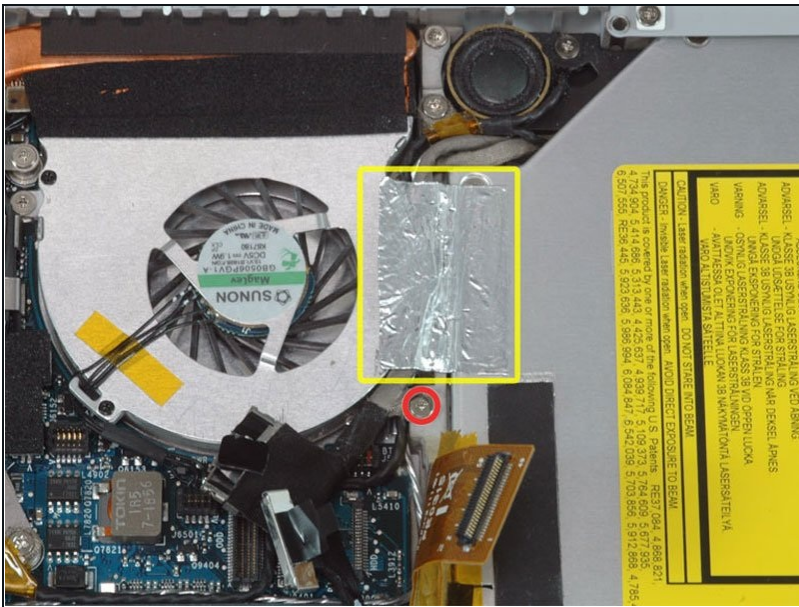
- Disconnect the newly-revealed display data cable. If there is no pull-tab on the top of the connector, it may be helpful to use a spudger to disconnect this connector.

Step 17



- Disconnect the (once again) newly-revealed hard drive cable.

Step 18



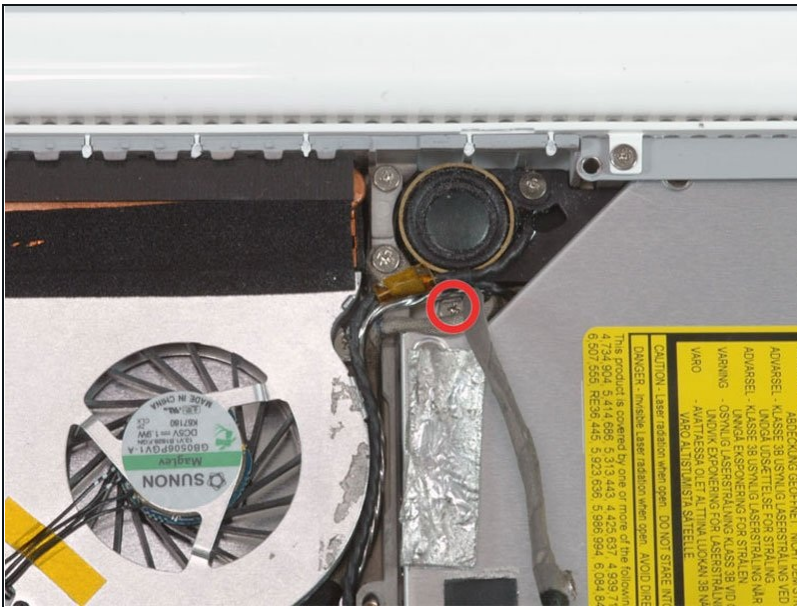
- Peel up the foil tape between the fan and the optical drive.
- Remove the 8.5 mm Phillips screw securing the display data cable to the metal framework.

Step 19



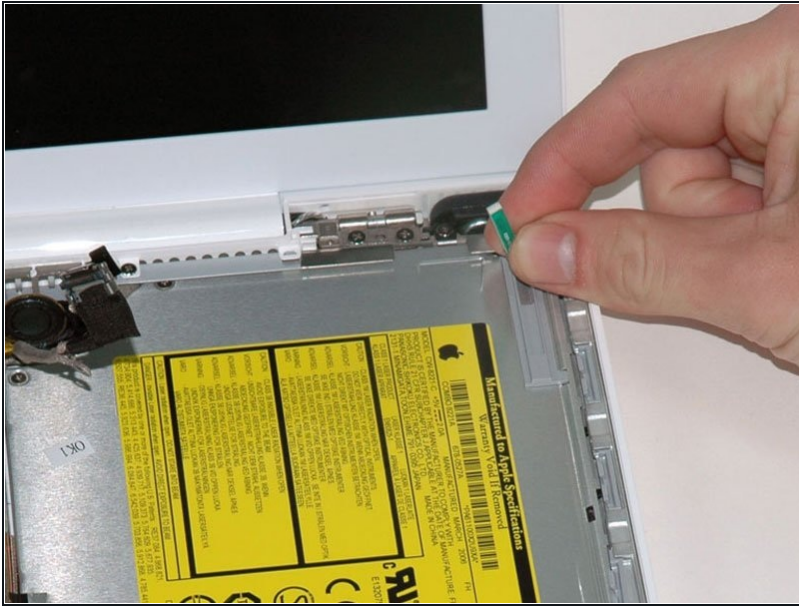
- Pull up the display data cable from along the edge of the optical drive to reveal a silver Phillips screw.

Step 20



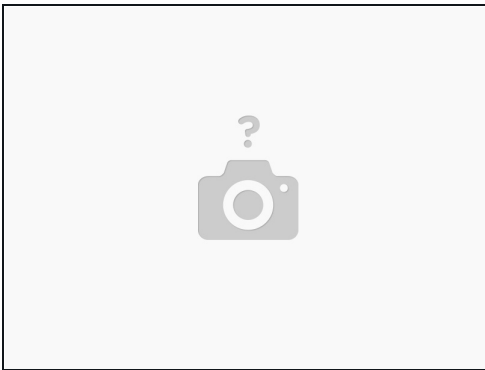
- Remove the 2.8 mm Phillips screw securing the optical drive.
- ⓘ The Bluetooth cable may be covering the screw; carefully push it aside before removing the screw.
- ★ Do not over-tighten this screw when re-mounting. You could break the plastic enclosure.
- After removing the screw, push the metal tab backwards, towards the fan, to release the front of the optical drive.

Step 21



- Lift the Bluetooth antenna board from the right side of the optical drive.

Step 22



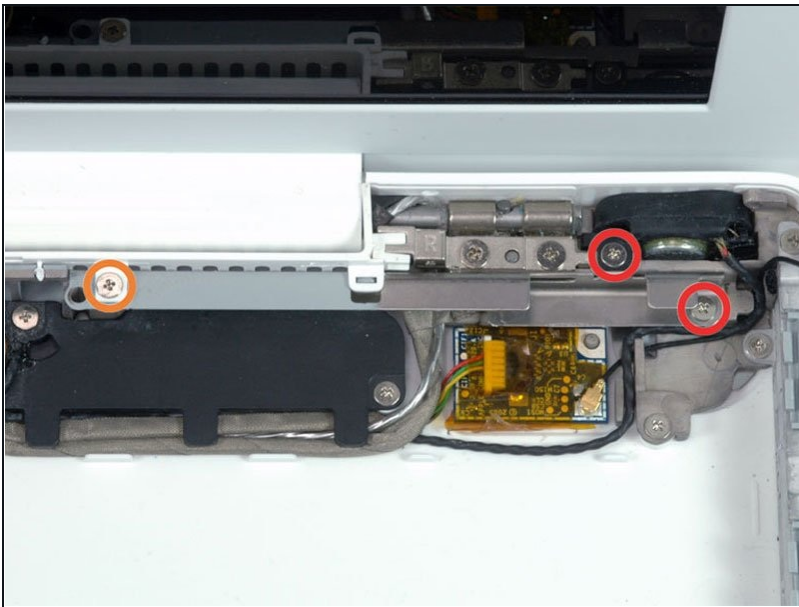
- Deroute the hard drive cable from along the front of the optical drive.

Step 23



- Lift the front edge of the optical drive and slide it up and out of the computer.

Step 24 — C-Channel



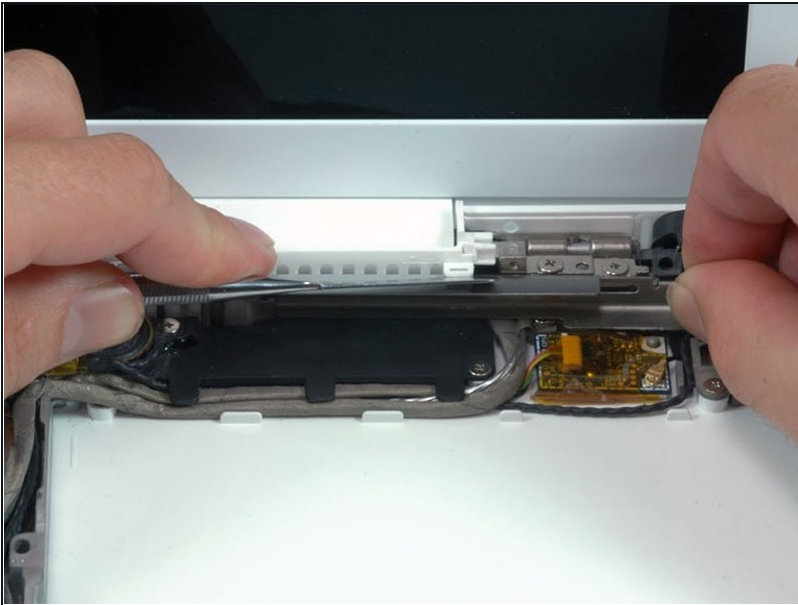
- Remove the following 3 screws:
 - Two 3 mm Phillips near the right speaker.
 - One 6 mm Phillips threaded through a hole in a plastic finger above the subwoofer.
- ☑ Be careful not to over-tighten the screw above the subwoofer too tight or the plastic could crack.

Step 25



- Lift the right speaker out of its housing and set it to the side.

Step 26



- Using a spudger, gently pry up the white plastic slot and slide the metal c-channel to the right and away from the display.

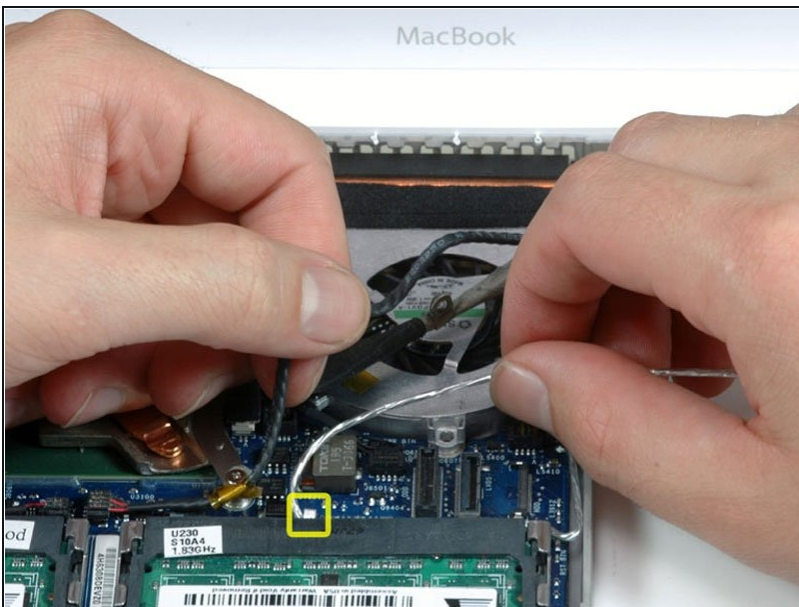
Step 27 — Display



- Use a spudger to carefully disconnect the microphone cable from the logic board. You'll want to work from side to side, and slowly wiggle the connector out of its socket.

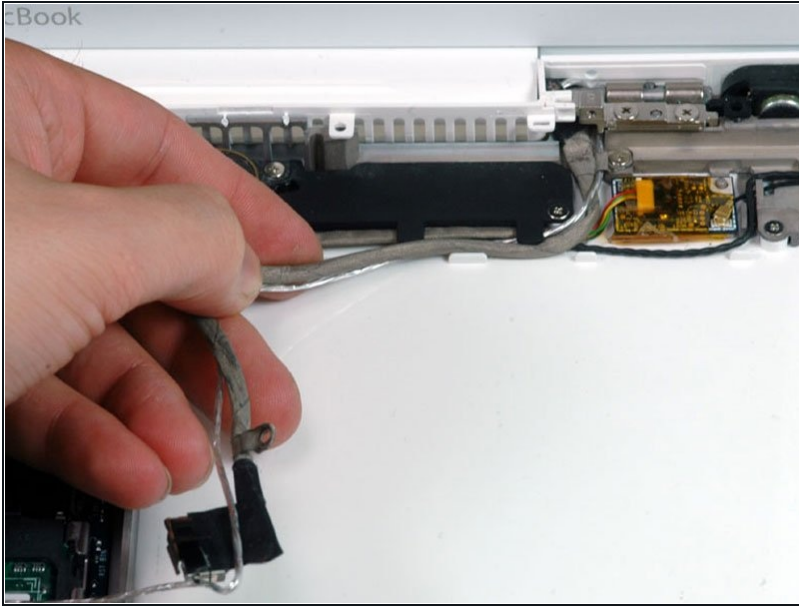
⚠ Pulling on this connector vertically will break the socket off the logic board. This connector should be removed horizontally by gently pulling the microphone cable toward the screen while working a spudger between the connector and the socket.

Step 28



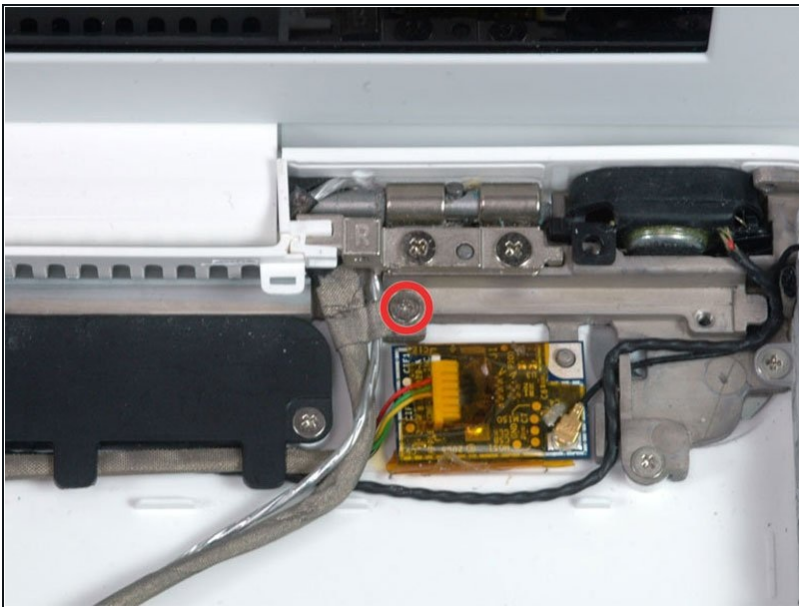
- Lift up on the black right speaker cable with one hand, and deroute the silver microphone cable from the silver metal clip just above the right RAM slot.

Step 29



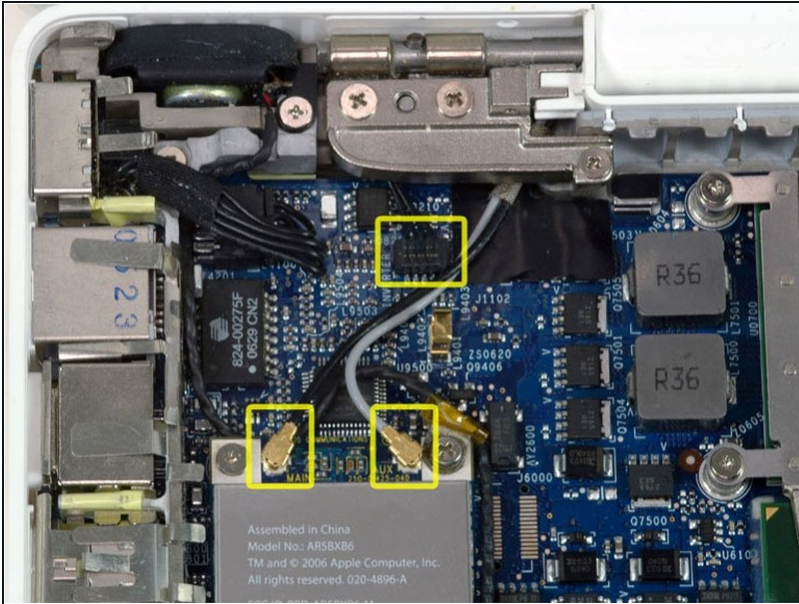
- Deroute the silver microphone cable and gray display data cable from the tabs at the bottom of the subwoofer.

Step 30



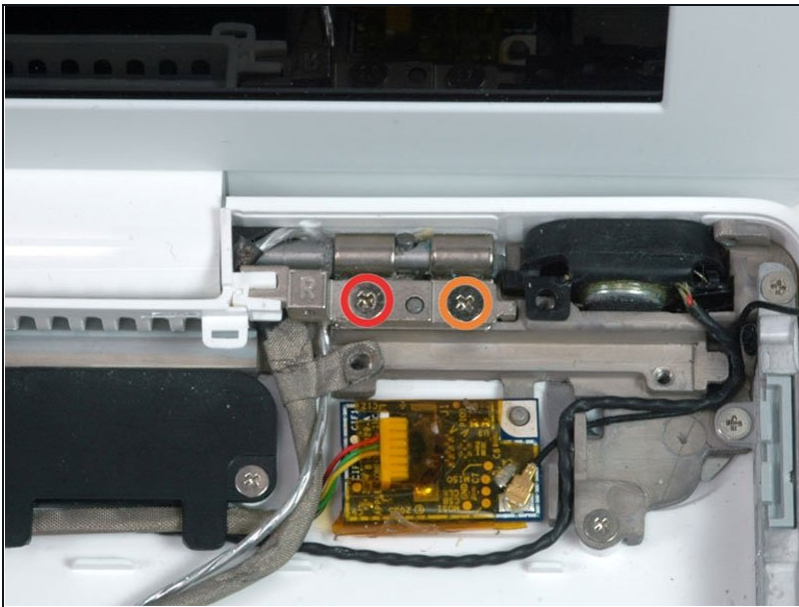
- Remove the single 3.2 mm Phillips screw securing the ground loop in the display data cable located just above the Bluetooth board.

Step 31



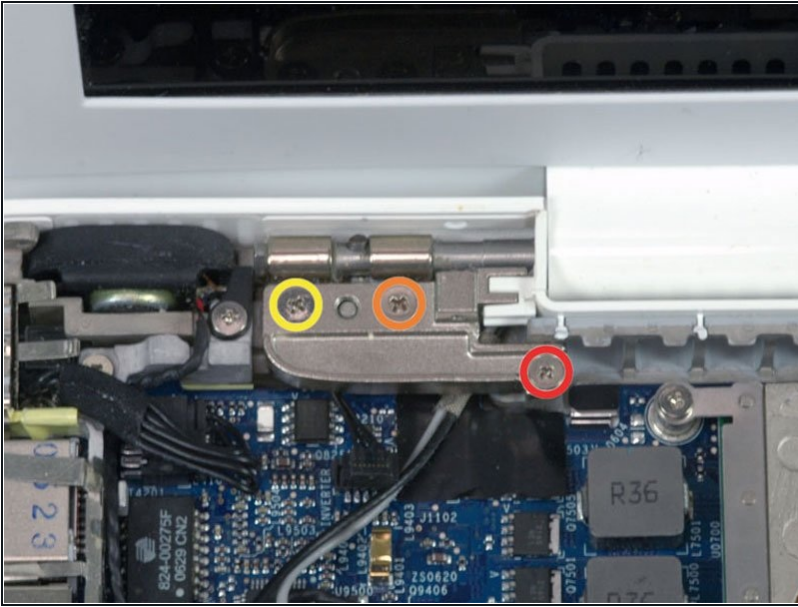
- Disconnect the two antenna cables from the Airport card, and the black inverter cable from the logic board. (Pull vertically on all three.)

Step 32



- Remove the following 2 screws from the right hinge mount:
 - One 6 mm Phillips on the left side of the hinge mount.
 - One 10 mm Phillips on the right side of the hinge mount.
- Lift the right hinge mount out of the computer.

Step 33



- Hold the display with one hand while removing the screws from the left hinge mount.
- Remove the following 3 screws from the left hinge mount:
 - One 6 mm smaller diameter Phillips from the right side.
 - One 6 mm larger diameter Phillips from the middle.
 - One 10 mm Phillips from the left side.
- Lift the left hinge mount out of the computer.

Step 34



- Grasp the display assembly on either side, and lift it up and out of the computer.

Step 35 — Front Display Bezel



① The following steps should be identical for both white and black MacBooks.

- Use a thin [plastic card](#) to release the tabs and their clips holding the front display bezel to the display assembly. There are five tabs along the left side of the display bezel.

① You may find some display bezels are easier to remove if you work from their inside edges, directly adjacent to/above the LCD panel.

⚠ Don't use a card that cannot be replaced if damaged. The clips can be difficult to remove and the card can bend and break, rendering it useless.

Step 36



- Continue to free the tabs along the top edge of the display assembly.

⚠ Be careful when working near the iSight camera.

Step 37



- Next, free the five tabs securing the display bezel on the right side.

Step 38



- Lift up the front display bezel from the top and use your plastic card to free the tabs along the bottom edge of the display bezel.
- ① Make sure that your card is between the metal frame around the LCD panel and the display bezel and not touching the LCD panel itself.
- After freeing all holding tabs, lift the front display bezel away from the display assembly.
- ① When reinstalling the front display bezel onto the display housing, you may find it easier to get the tabs and clips to connect if you push on the four sides of the bezel in this order: top, bottom, then the sides (left or right). You may have to apply extra pressure along the bottom side of the bezel to get it to snap into place firmly.

Step 39



- ⓘ Sometimes when removing the front display bezel, the retaining clips that should remain captive in the LCD brackets come out with the front display bezel. Follow this and the next step to transfer the clips back to the LCD bracket.
- Use a metal spudger or another thin tool to carefully pry the gray plastic clips off the tabs molded into the front display bezel. A 0.8mm flat screwdriver may be useful for this step. You may find that it's easier to remove some of these clips by prying up on their long sides.

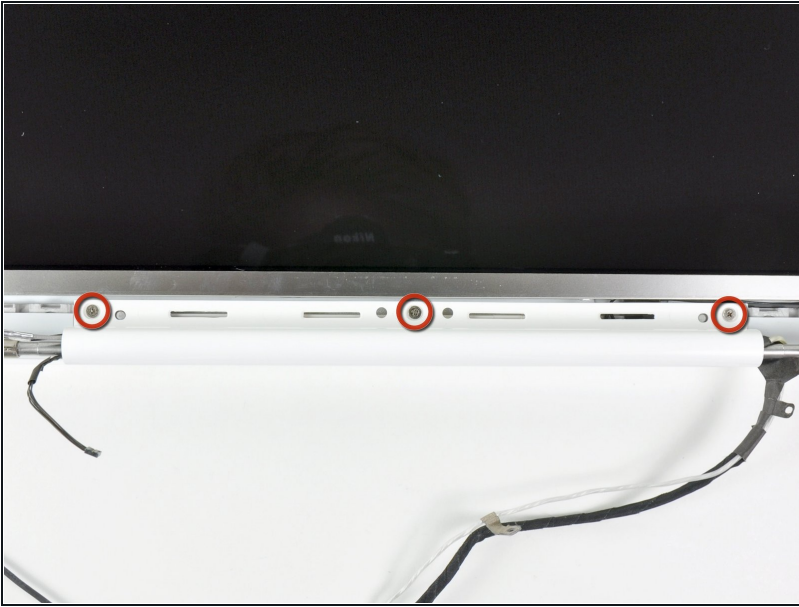
⚠ Be careful, as the clips are made of thin plastic and are inherently delicate.

Step 40



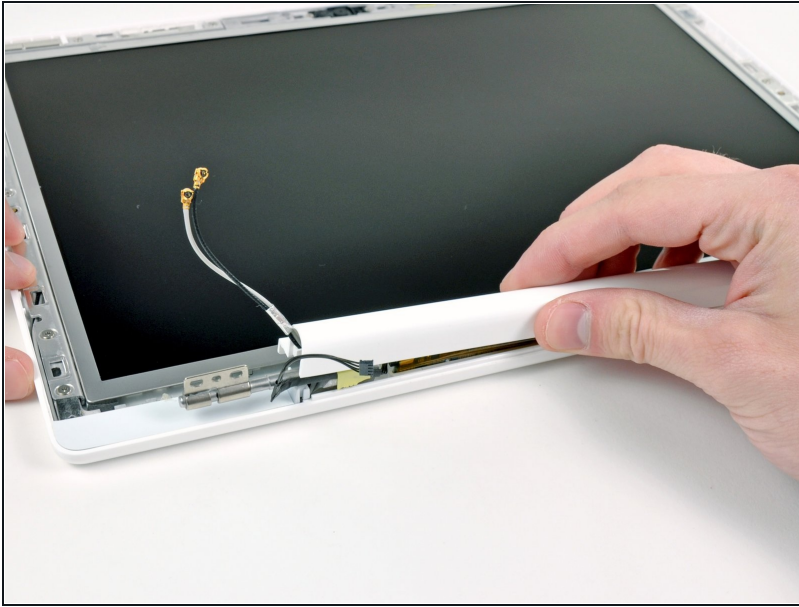
- Insert one end of the retaining clip beneath the edge of its recess cut into the LCD bracket.
 - Use the edge of a spudger to push the short hook tab on the underside of the other end of the retaining clip into the recess cut into the LCD bracket.
- ① The second picture shows a retaining clip properly installed.
- ① You may find it easier to get the short hook tabs on the underside of each end of the clip to fit down inside their cutout in the LCD bracket by first very slightly bending down the two ends of the clip, but be careful not to bend the clips too much--only a slight bend is needed, and too much force will break them.

Step 41 — Clutch Cover





- Remove the three 4.2 mm Phillips screws securing the clutch cover.

Step 42



- While holding the display down with one hand, use your other hand to lift the left end of the clutch cover off the clutch hinge and guide the inverter cable and AirPort cables through the gap in the clutch cover. If the cables snag on the two hooked tabs on the inside end of the clutch cover, free them carefully.

 It may help to wiggle the clutch cover as you pull it up from the display.

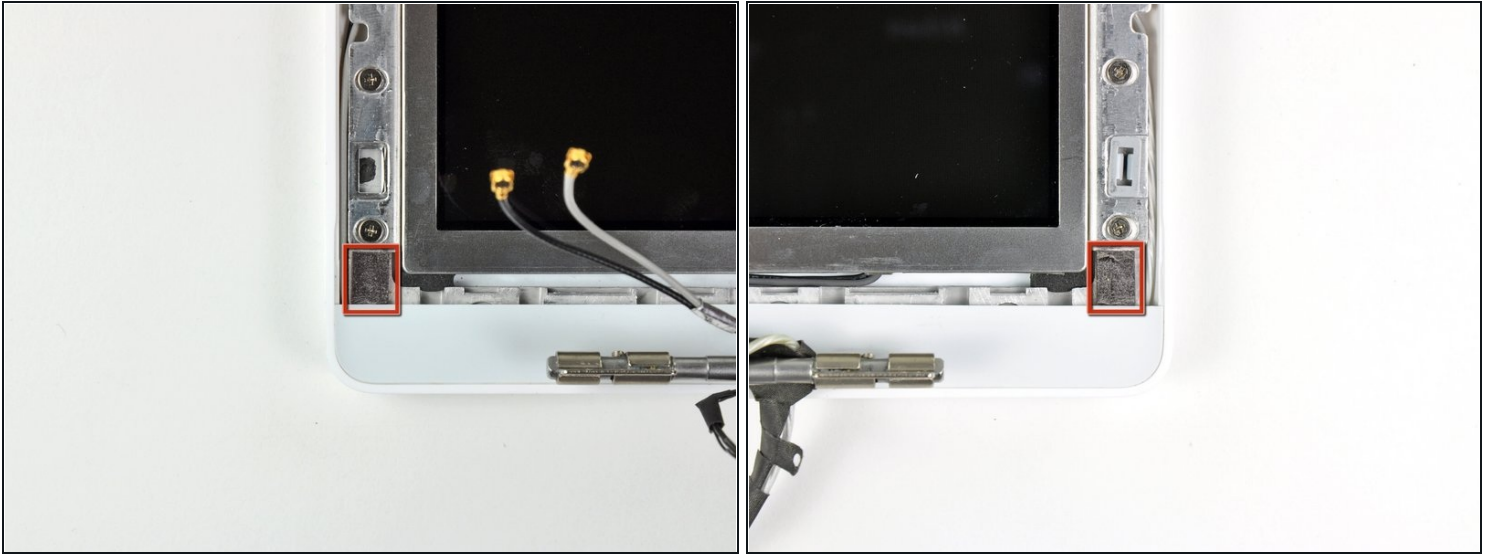
 During reassembly, make sure not to pinch the black inverter cable or the Airport wires when snapping the left end of the clutch cover back into place. To avoid pinching, it may help to lift up and hold these cables and wires in place at the top of the hinge, rather than leaving them running along the sides of the hinge.

Step 43



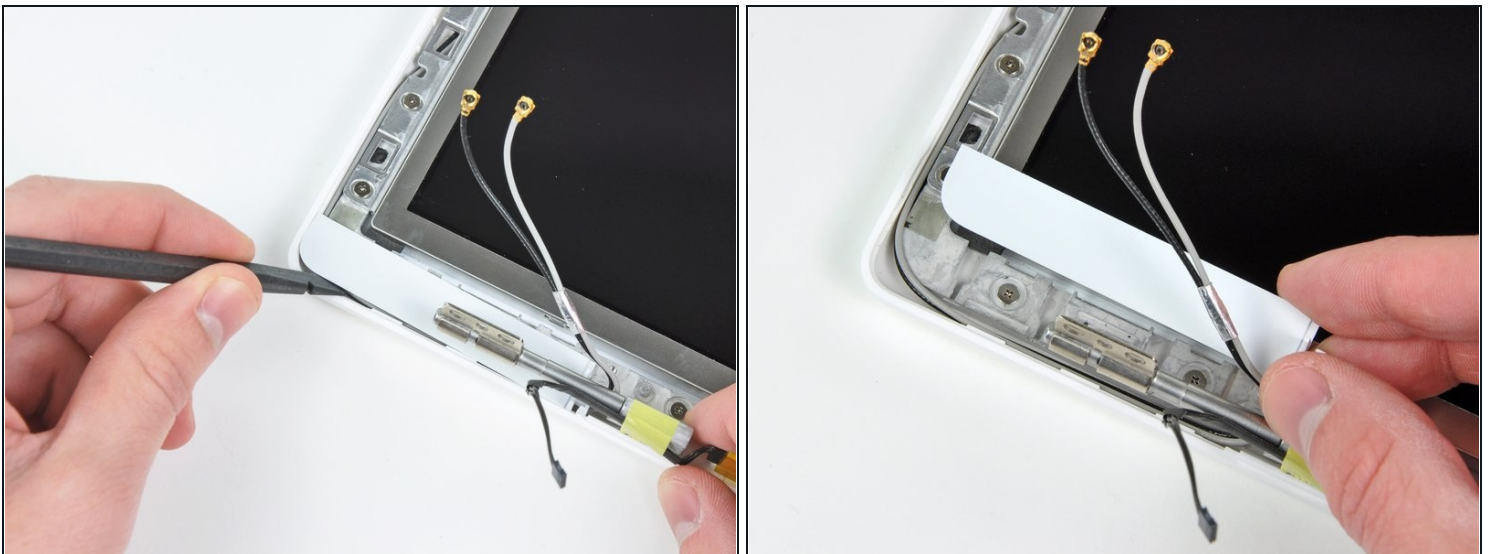
- Lift up the right end of the clutch cover while guiding the display data and iSight cables through the gap and the two hooked tabs at the right end of the clutch cover. If the cables snag on the two hooked tabs, free them carefully.
- Lift the clutch cover off of the display assembly.
- ☑ During reassembly, avoid pinching the display data and iSight cables. While guiding the right end of the clutch cover into place, but before snapping it down, guide these cables between the two hooked tabs inside the right end of the clutch cover, and up into the curved area of the clutch cover, above the hinge.
- ☑ Also avoid pinching the backlight wires (with the white connector on the end, plugged into the right end of the inverter). They should run under the upper right edge of the clutch cover. In some models, the two wires are gray and black, and in others they're white and pink. They lead into a hole in the lower right edge of the LCD to the backlight.

Step 44 — LCD Assembly



- Remove the small piece of foam tape stuck down above each of the bezel covers, at the lower left and right corners.

Step 45



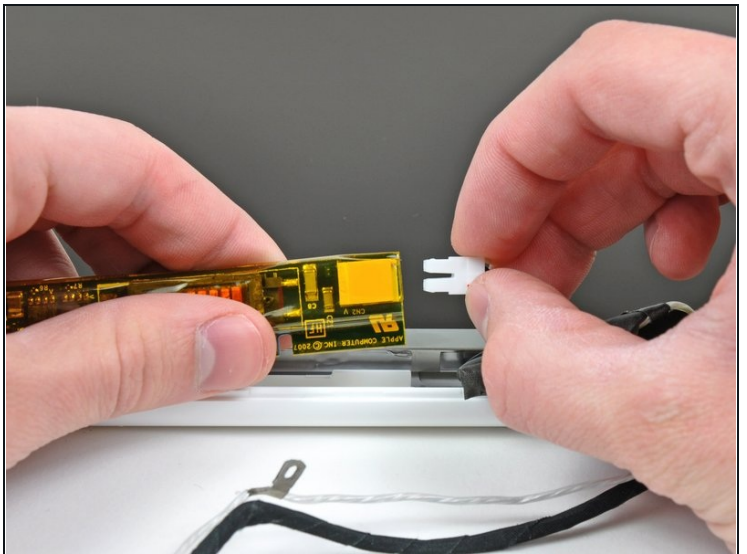
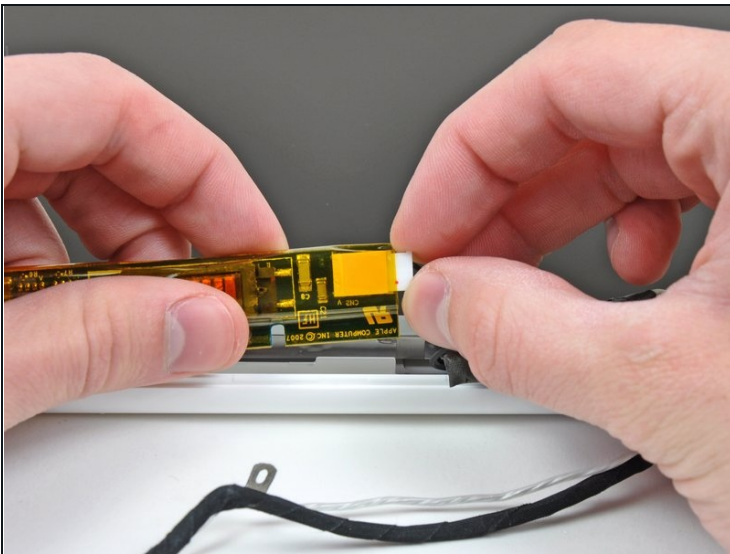
- Use a spudger to slide the left bezel cover towards the LCD panel.
⚠ Do not lift up vertically on the cover! Unlike the large display bezel, this one has horizontal hooks to keep it in place. These will break easily.
- Lift the left bezel cover off the display assembly.

Step 46



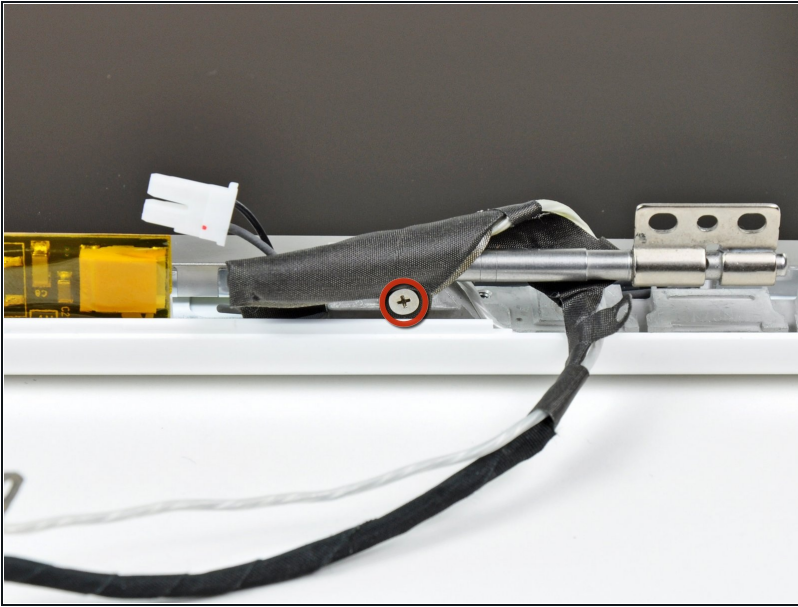
- Use a spudger to slide the right bezel cover toward the LCD panel.
- Lift the right bezel cover off the display assembly.

Step 47



- Lift the inverter out of the display slightly and disconnect the backlight cable from its right side.
- Place the inverter back down in its recess.

Step 48



- Remove the single 3.2 mm Phillips screw securing the display data cable to the right clutch hinge.

Step 49



- Move the display data cable out from under the mounting arm of the right clutch hinge.

Step 50



- Remove the twelve 4.2 mm Phillips screws securing the LCD assembly to the rear display bezel.
- ⓘ Make sure you pay attention to how the microphone cable (and antenna cable on some models) are routed around the outside of the two screws at the bottom left and right corners of the screen. It's easy to damage the cables if not routed properly when reinstalling these screws. To see the cable routing more clearly, click on the photo and zoom in.

Step 51



- Raise the bottom edge of the LCD assembly slightly, then slide it down slightly to free its upper edge from a slight overhang in the rear display bezel.
- Lift it out of the rear display bezel, minding any cables that may get caught.
- ☑ When reinstalling the LCD assembly back into the rear display bezel, before you tighten down any of its frame mounting screws, make sure the short brass posts, one each on the left and right sides of the bezel, fit into their corresponding holes in the LCD assembly frame.

Step 52



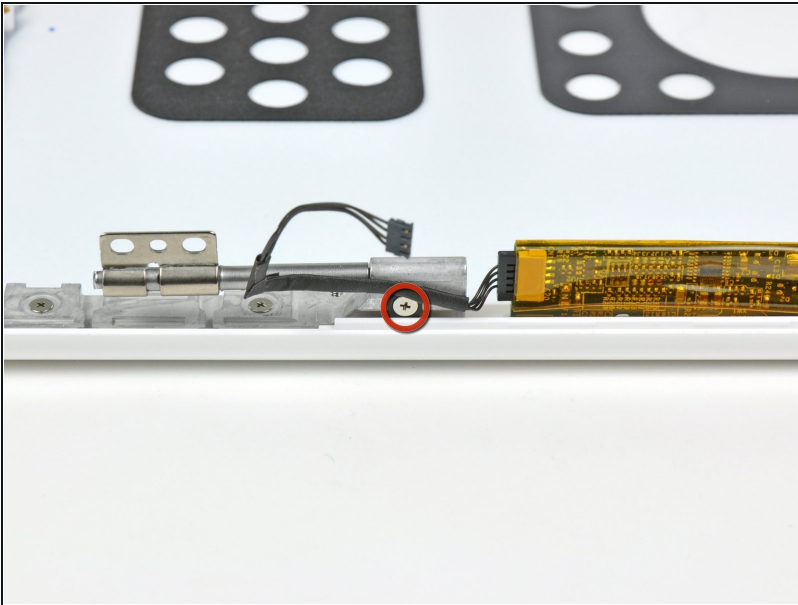
- ⓘ Be sure to keep track of the small magnet along the left side of the display. It may be stuck to the LCD frames or to the rear display bezel.
- ⓘ When the display lid is closed, this magnet comes in proximity to a sensor on a small circuit board at the bottom end of the I/O board, to tell the Macbook that the display has been closed, so that the Macbook can go into clamshell sleep mode.
- ✦ To reinstall this magnet, press it back into its cavity in the rear display bezel, with its short side facing up (see photo 2), then place the LCD panel back into the rear display bezel and screw it down so that the magnet doesn't drop out and disappear.

Step 53 — Left Clutch Hinge



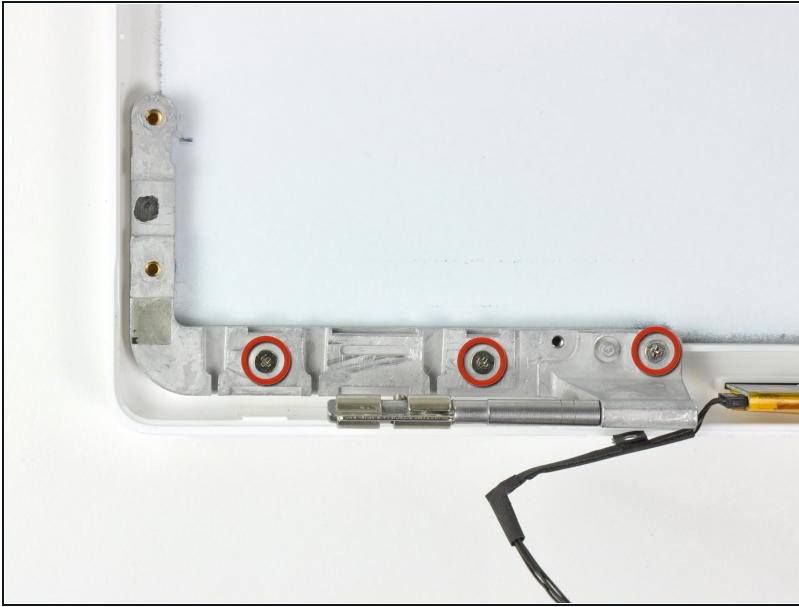
- Remove the piece of tape stuck to the left clutch hinge.

Step 54



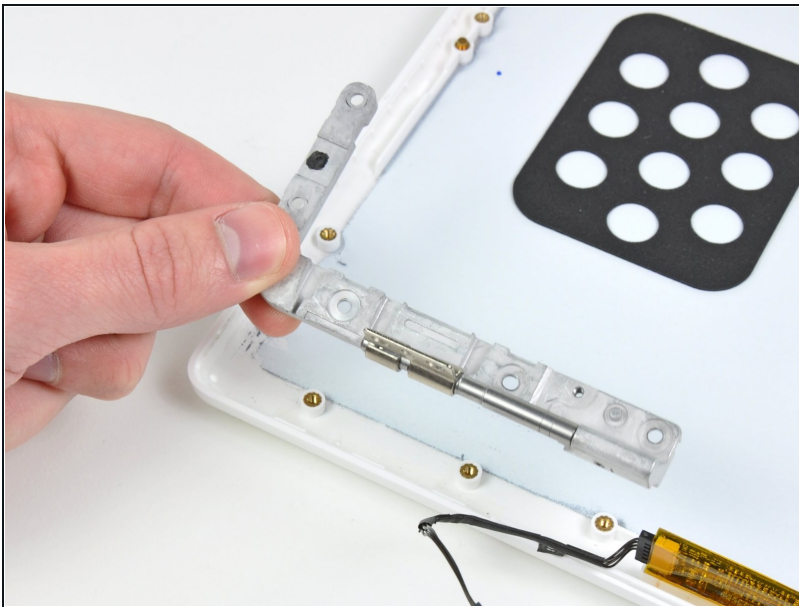
- Remove the single 3.2 mm Phillips screw securing the inverter cable to the left clutch hinge.

Step 55



- Remove the three 3.2 mm Phillips screws securing the left clutch hinge to the rear display bezel.

Step 56



- Remove the left clutch hinge from the rear display bezel.

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