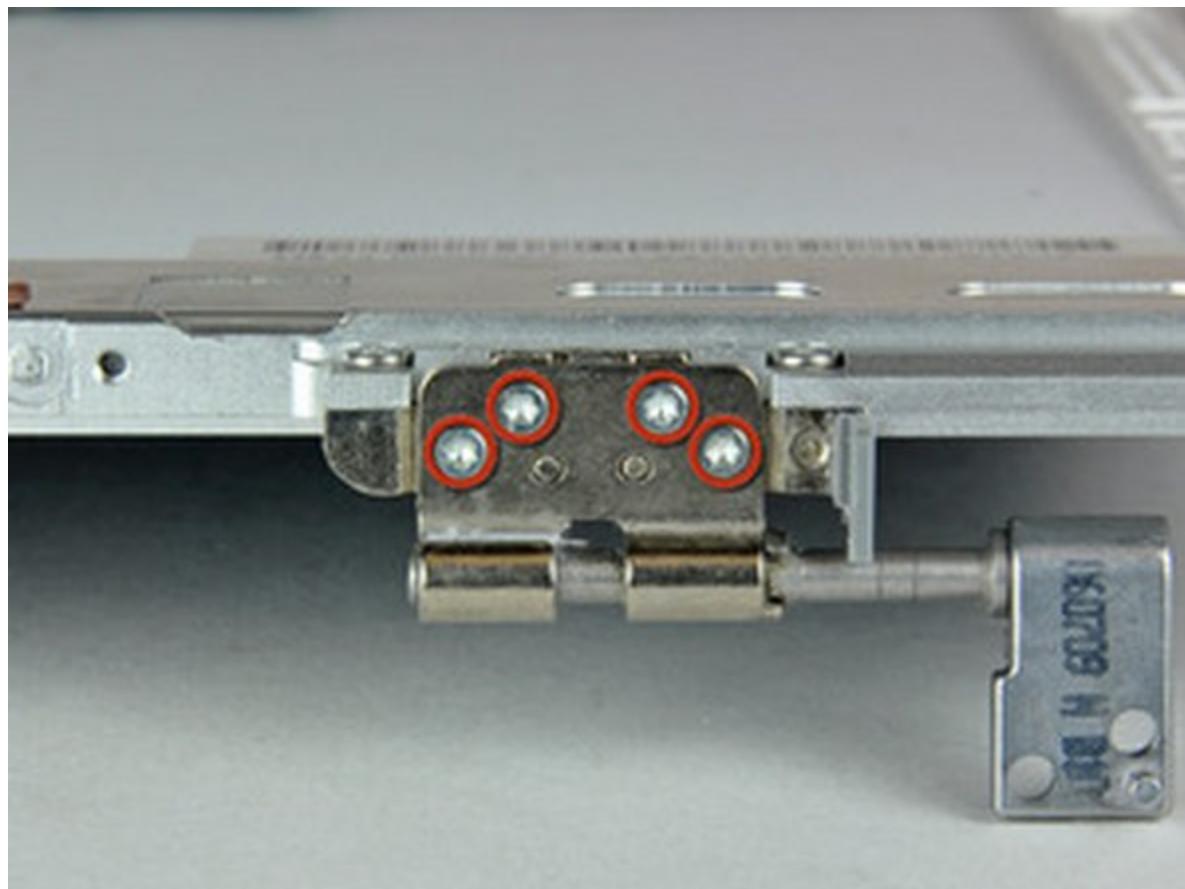




# MacBook Pro 15" Core 2 Duo Model A1211 Left Clutch Hinge Replacement

Written By: Ben Eisenman



## INTRODUCTION

Replace a broken clutch hinge to keep your display opening silky-smooth.

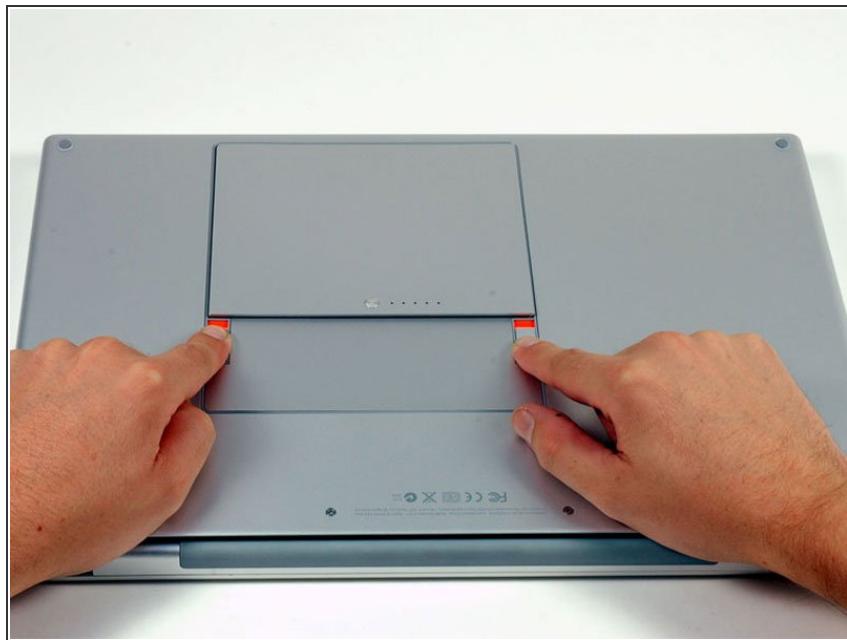
### TOOLS:

- [Phillips #00 Screwdriver](#) (1)
- [Spudger](#) (1)
- [T6 Torx Screwdriver](#) (1)

### PARTS:

- [MacBook Pro 15" Left Clutch Hinge](#) (1)

## Step 1 — Battery



- Use your fingers to push both battery release tabs away from the battery, and lift the battery out of the computer.

## Step 2 — RAM Shield



- Remove the three identical Phillips screws from the memory door.

## Step 3



- Lift the memory door up enough to get a grip on it, and slide it toward you, pulling it away from the casing.

## Step 4 — Upper Case



- Remove the two 2.8 mm Phillips screws in the battery compartment near the latch.

## Step 5



- Remove the following 6 screws:
  - Two 10 mm T6 Torx screws on either side of the RAM slot.
  - Four 14.5 mm Phillips screws along the hinge.

## Step 6



- Remove the four 3.2 mm Phillips screws on the port side of the computer.

## Step 7



- Rotate the computer 90 degrees and remove the two 3.2 mm Phillips screws from the rear of the computer.

## Step 8



- Rotate the computer 90 degrees again and remove the four 3.2 mm Phillips screws from the side of the computer.

## Step 9



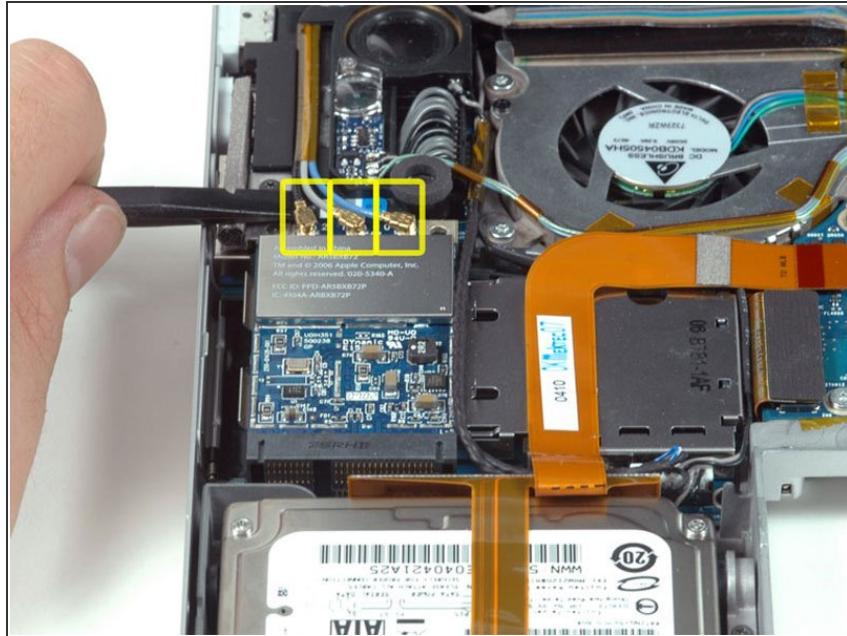
- **Do not yank the upper case off quickly. The case is attached to the logic board via a ribbon cable.**
- Lift up at the rear of the case and work your fingers along the sides, freeing the case as you go. Once you have freed the sides, you may need to rock the case up and down to free the front of the upper case (there are some hidden plastic clips that need to be clicked off).

## Step 10



- Disconnect the trackpad and keyboard ribbon cable from the logic board, removing tape as necessary.
- Remove the upper case.

## Step 11 — Display Assembly



- Disconnect the three antenna cables attached to the Airport Extreme card.

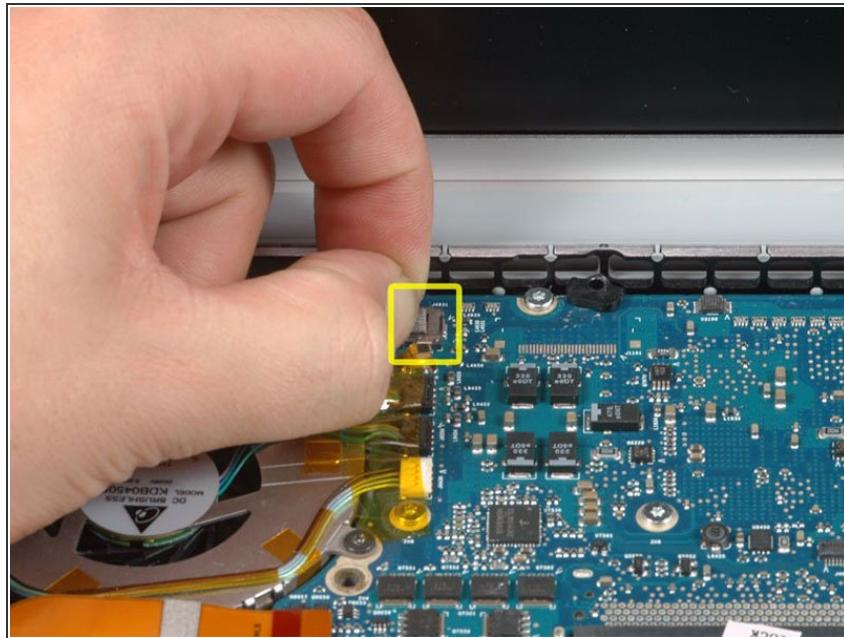
➡ Apple was kind enough to include a label showing where each color antenna cable plugs in - just make sure to look at this when reconnecting the antenna cables.

## Step 12



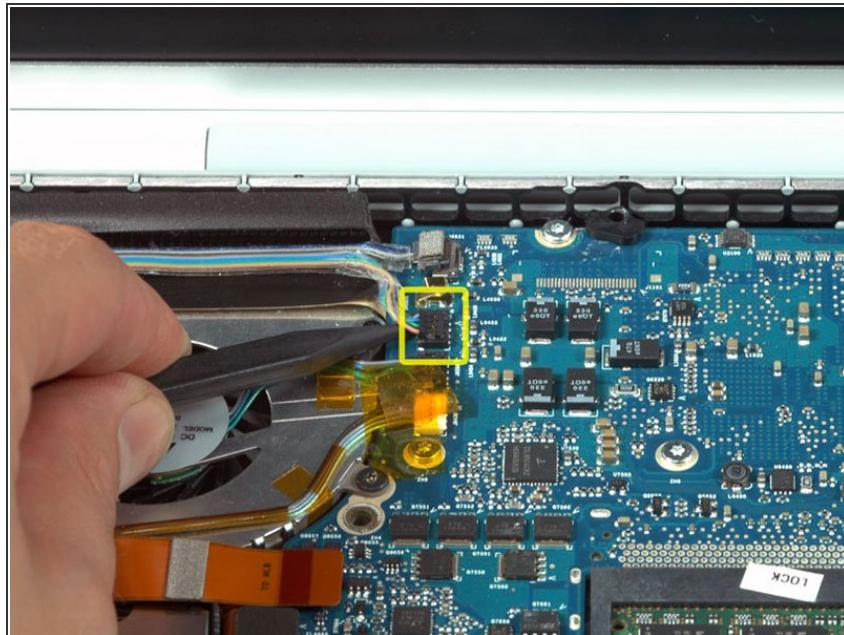
- Deroute the Airport antenna cables from their channel in the left speaker.

## Step 13



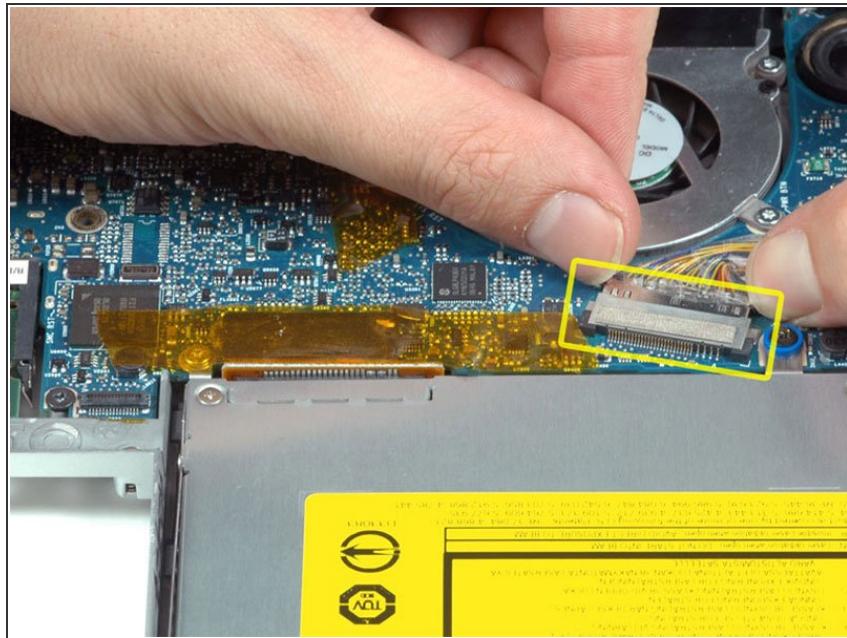
- Disconnect the iSight cable from the logic board by sliding the cable to the left and out of its connector.

## Step 14



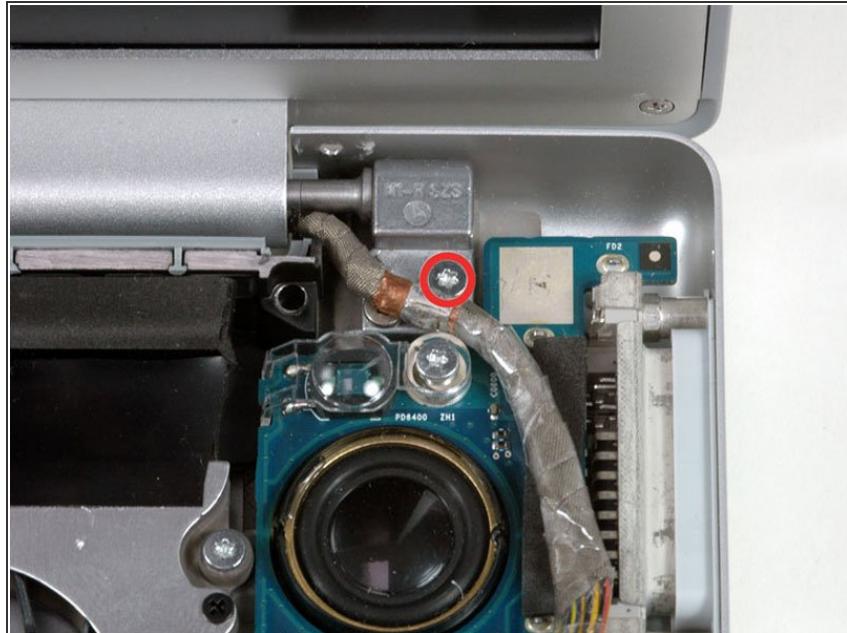
- Disconnect the inverter cable from the logic board by placing a spudger beneath the cable and lifting up.

## Step 15



- Disconnect the display data cable from the logic board by pulling sideways.

## Step 16



- Remove the silver T6 Torx securing the ground loop in the display data cable to the casing.

## Step 17



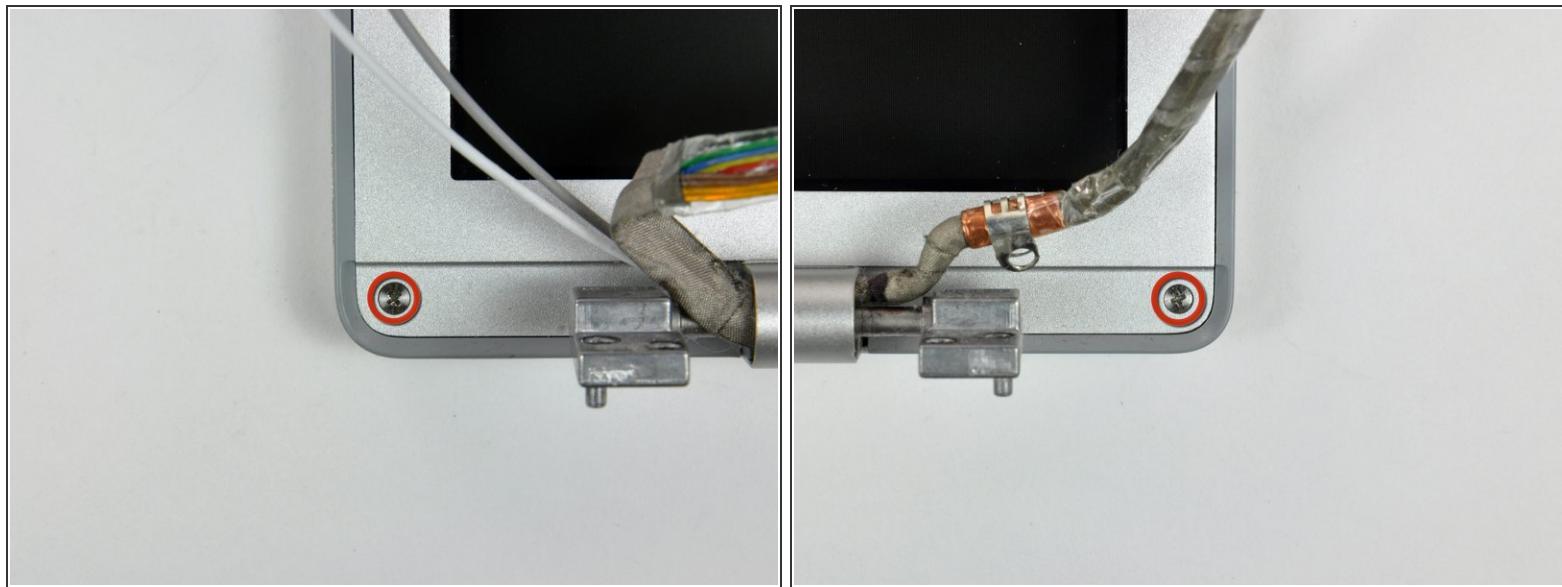
- Support the display with one hand while removing the following 3 screws:
  - Two 9.5 mm silver T6 Torx screws with threads on only part of the shaft on the inside of the display hinges.
  - One 9.5 mm silver T6 Torx screw with threads on the entire shaft on the outside of the left hinge.

## Step 18



- Grasp the display assembly on both sides and lift it up and out of the computer.

## Step 19 — Rear Display Bezel



- Remove the two 5 mm Phillips screws from the lower left and right corners of the display (two screws total).

## Step 20

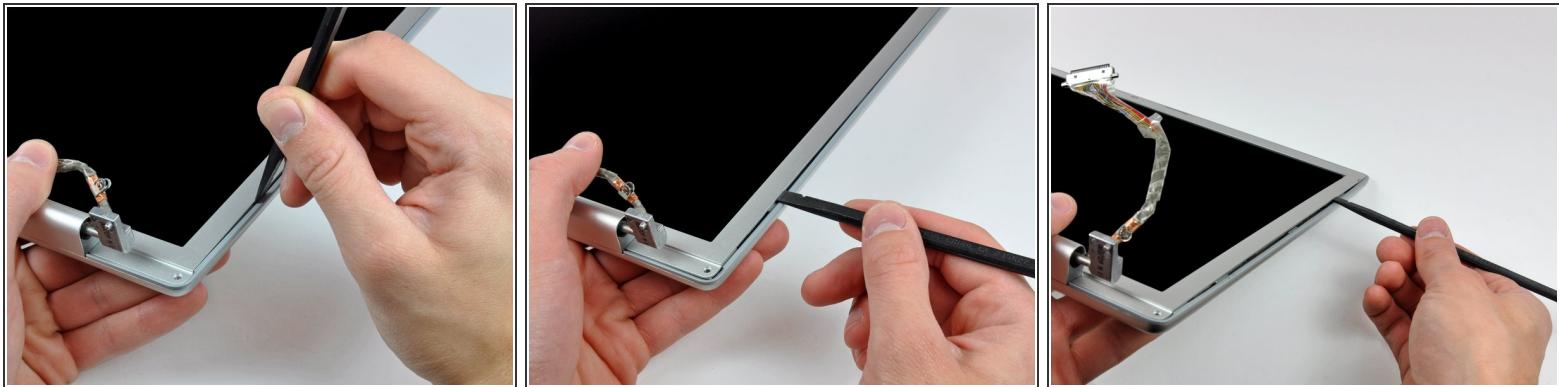


- Insert the flat end of a spudger perpendicular to the face of the display between the plastic strip attached to the rear bezel and the front bezel.

**⚠** Do not insert your spudger between the plastic strip and the rear bezel.

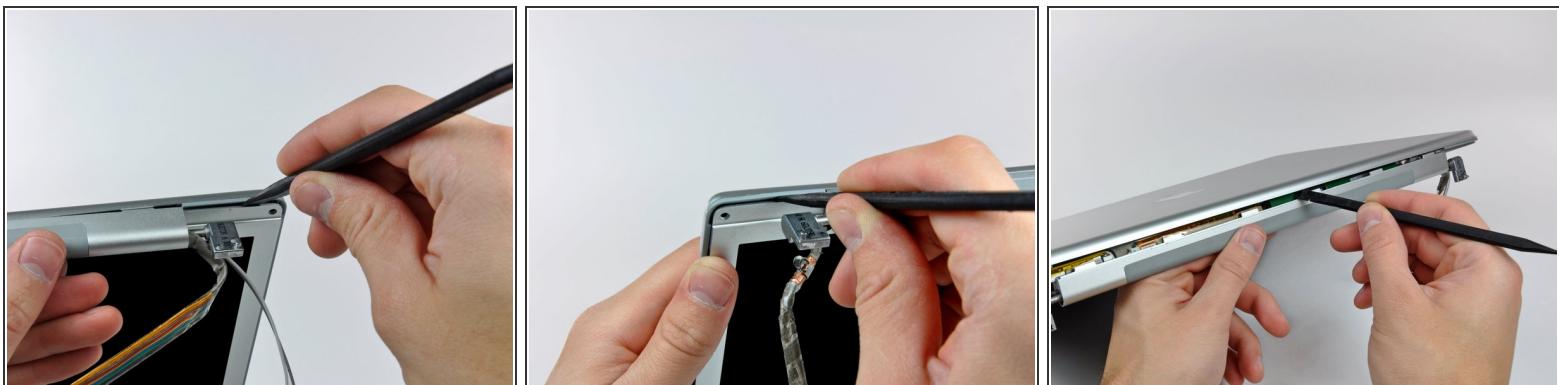
- With the spudger still inserted, rotate it away from the display to separate the front and rear bezels.
- Work along the left edge of the display until the rear bezel is evenly separated from the front bezel.

## Step 21



- Insert the flat end of a spudger perpendicular to the face of the display between the plastic strip attached to the rear bezel and the front bezel.
- With the spudger still inserted, rotate it away from the display to separate the front and rear bezels.
- Work along the right edge of the display until the rear bezel is evenly separated from the front bezel.

## Step 22



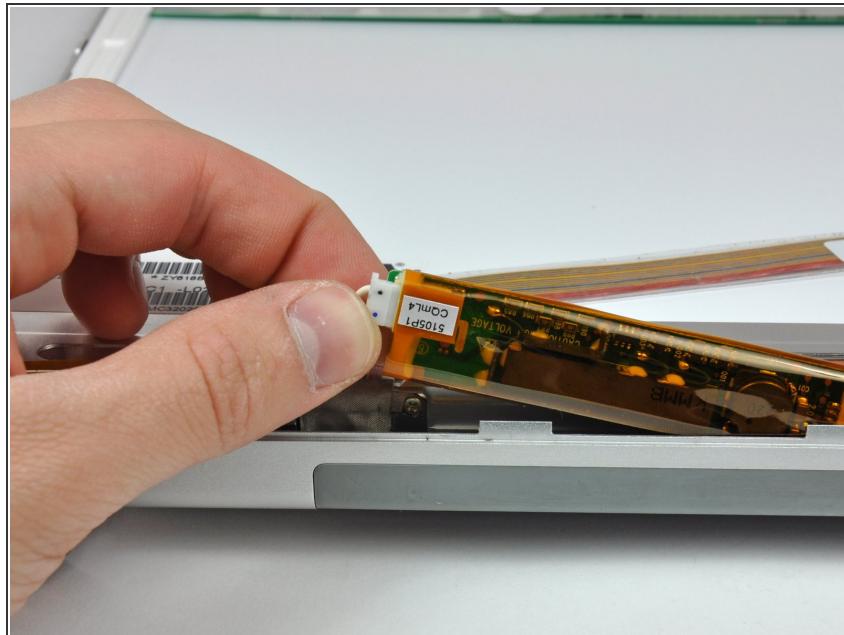
- Insert the flat end of a spudger between the front bezel and the plastic strip attached to the rear bezel near the screw holes at the bottom corners of the display.
- Rotate your spudger toward the rear bezel to separate it from the front bezel.
- If necessary, enlarge the gap between the lower edge of the rear bezel and the clutch cover until the two components are completely separated.

## Step 23



- Lift the rear bezel by its bottom edge and rotate it away from the display assembly to separate the top edge.
- Remove the rear display bezel from the display assembly.

## Step 24 — Display Inverter



The display inverter is a very thin and delicate circuit board that is easily broken. Use caution when handling.

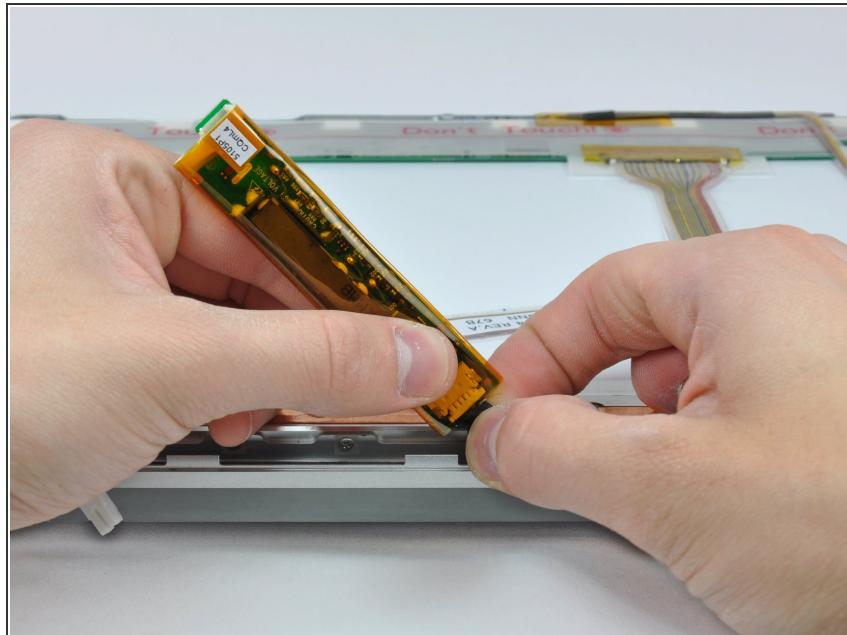
- Carefully lift the inverter board out of the clutch cover.

## Step 25



- Disconnect the LCD backlight from the inverter by pulling its connector away from the inverter board.

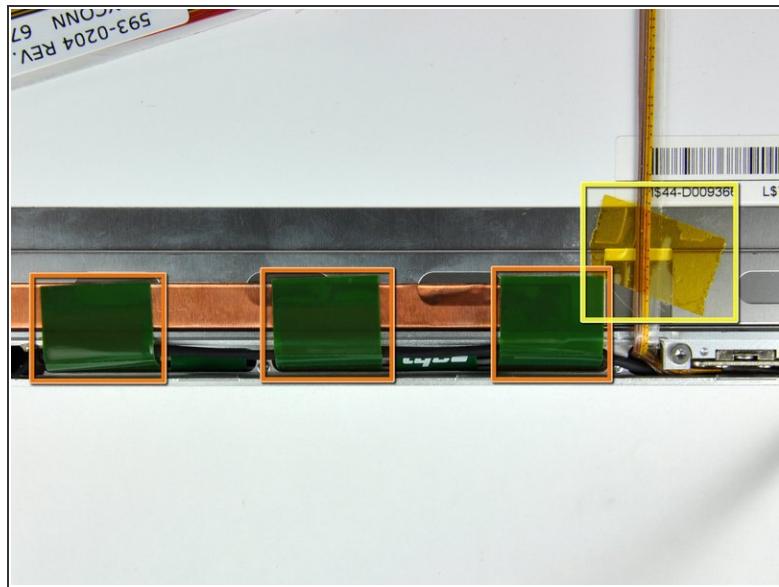
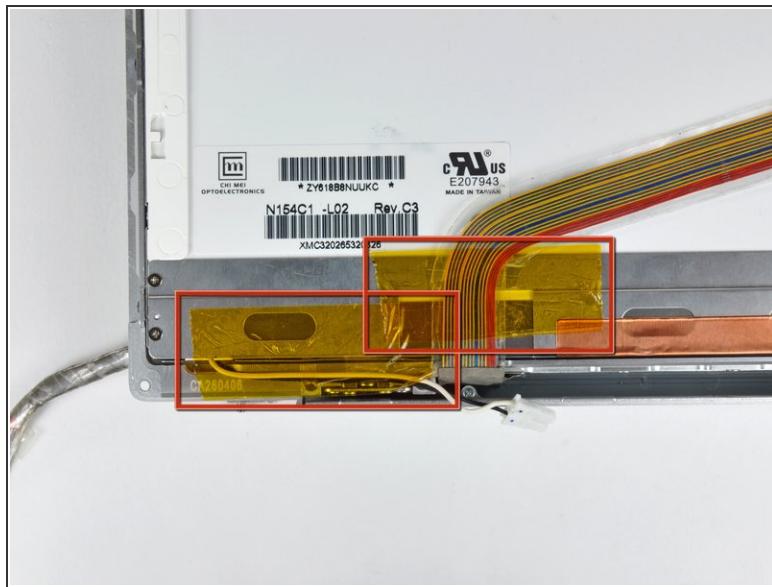
## Step 26



⚠ Be cautious to not put any strain on the inverter cable ground loop, as it is a very thin and delicate wire.

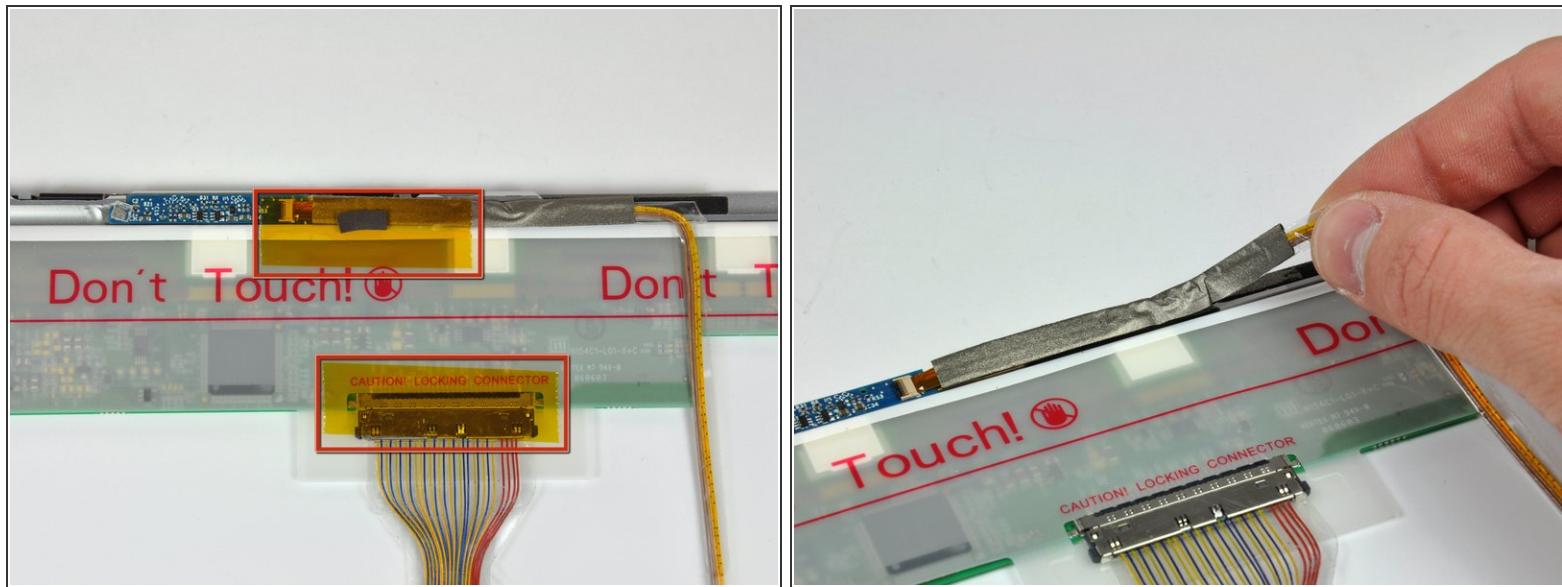
- Disconnect the inverter cable by pulling its connector away from the socket on the inverter.

## Step 27 — Clutch Assembly



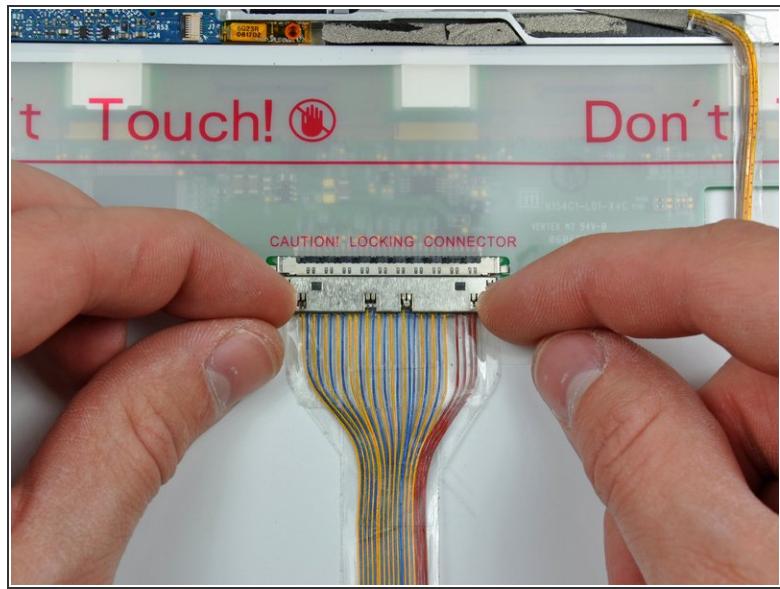
- Remove the pieces of yellow kapton tape from the bottom left corner of the display.
- Peel the three green antenna ground straps off the copper tape along the bottom edge of the LCD.
  - ⚠ The adhesive connecting these straps to the display is very strong. An edged tool is helpful to separate the adhesive while you peel the straps off.
- Remove the piece of tape securing the camera cable to the LCD.

## Step 28



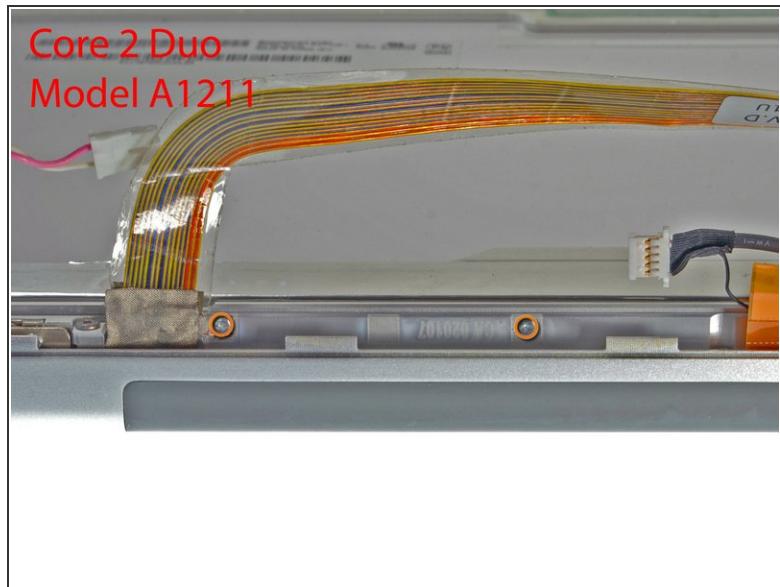
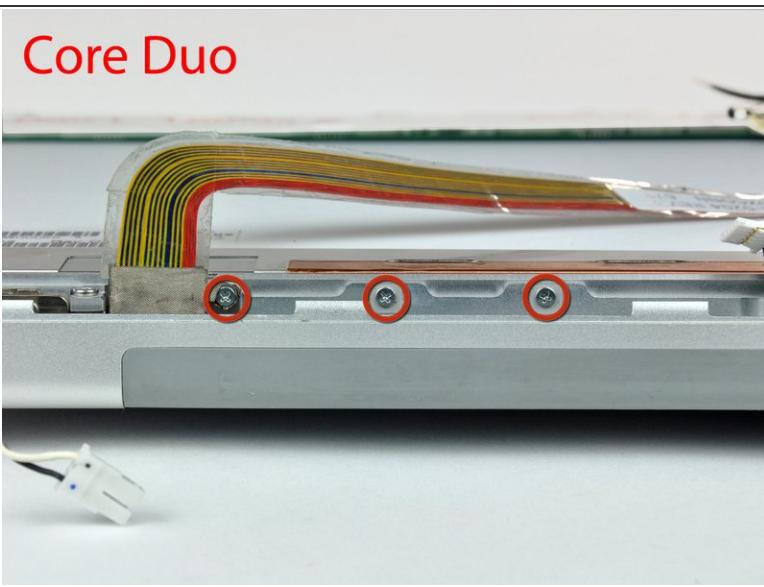
- Remove the pieces of tape covering the display data cable and camera cable connectors.
- Carefully peel the camera cable off the foam tape along the top edge of the LCD.

## Step 29



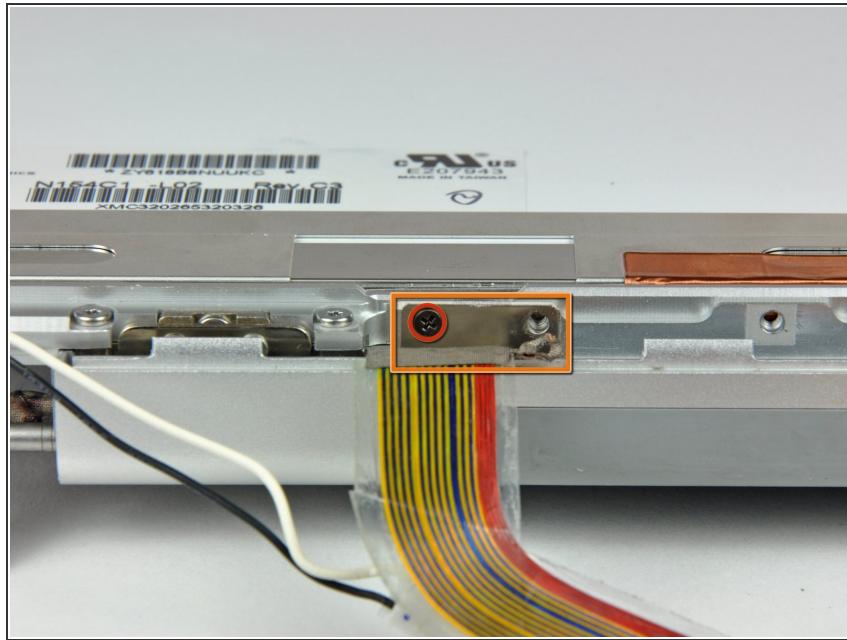
- Gently pull the camera cable away from its socket on the camera board.
- Pull the display data cable connector away from its socket on the LCD.
- Pull both cables parallel to the face of the logic board.

## Step 30



- If you have a Core Duo machine, refer to picture 1 and remove three Phillips screws connecting the clutch assembly to the lower edge of the front display bezel near the display data cable.
- If you have a Core 2 Duo Model A1211 machine, refer to picture 2 and remove two Phillips screws connecting the clutch assembly to the lower edge of the front display bezel near the display data cable.

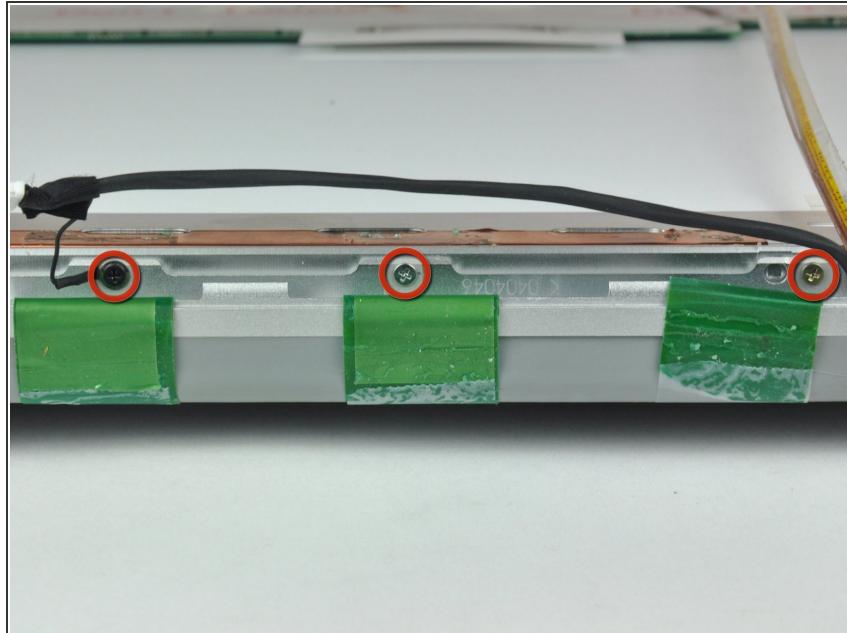
## Step 31



- Remove the small Phillips screw from behind the display data cable.
- Remove the small rectangular steel bracket by sliding it away from the right clutch hinge.

***i*** If you have a Core 2 Duo Model A1211, there is no steel bracket. Simply remove the screw and continue to the next step.

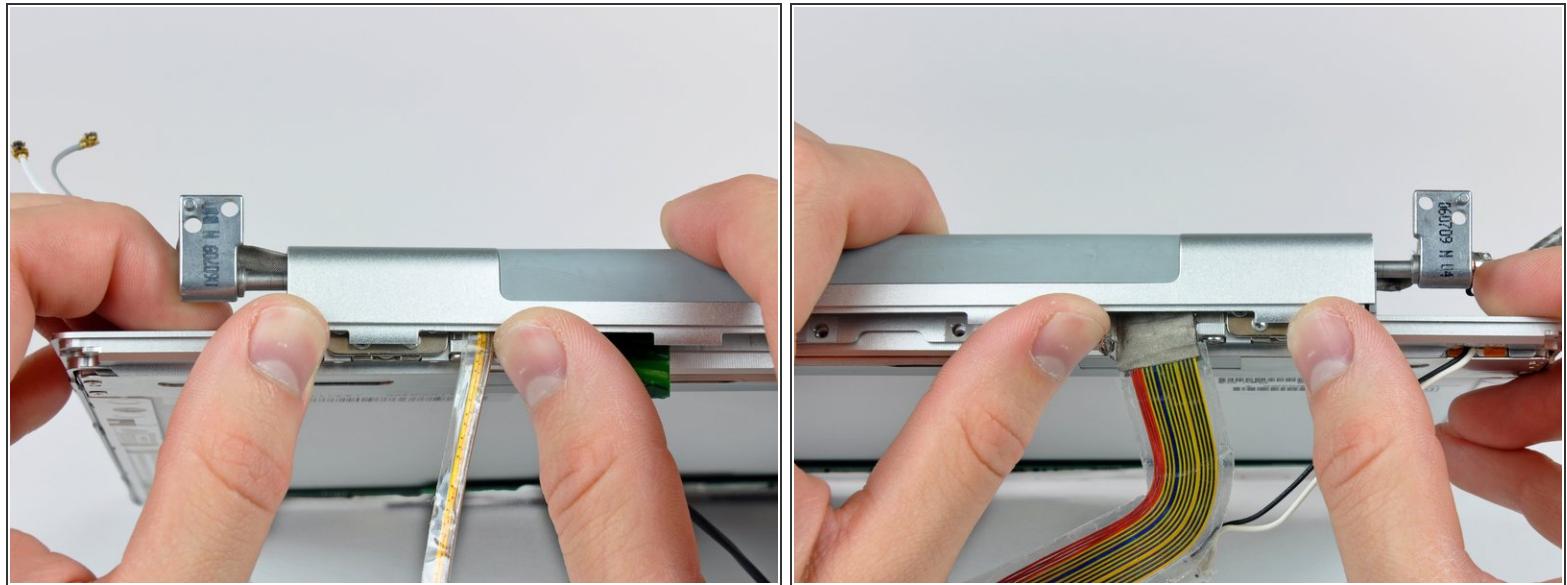
## Step 32



- Remove three Phillips screws attaching the clutch assembly to the lower edge of the front display bezel.

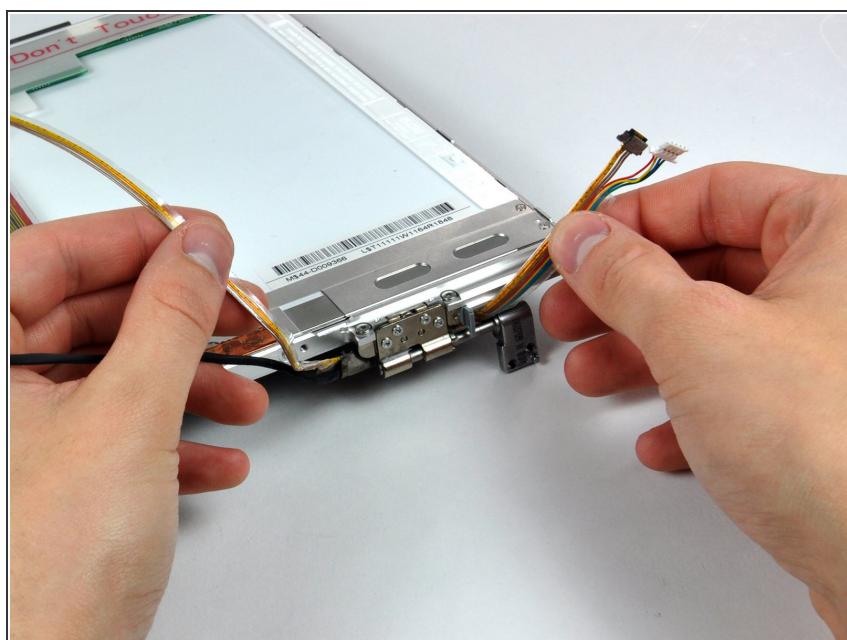
**⚠** The inverter cable ground loop is a very thin and delicate wire. Work gently.

## Step 33



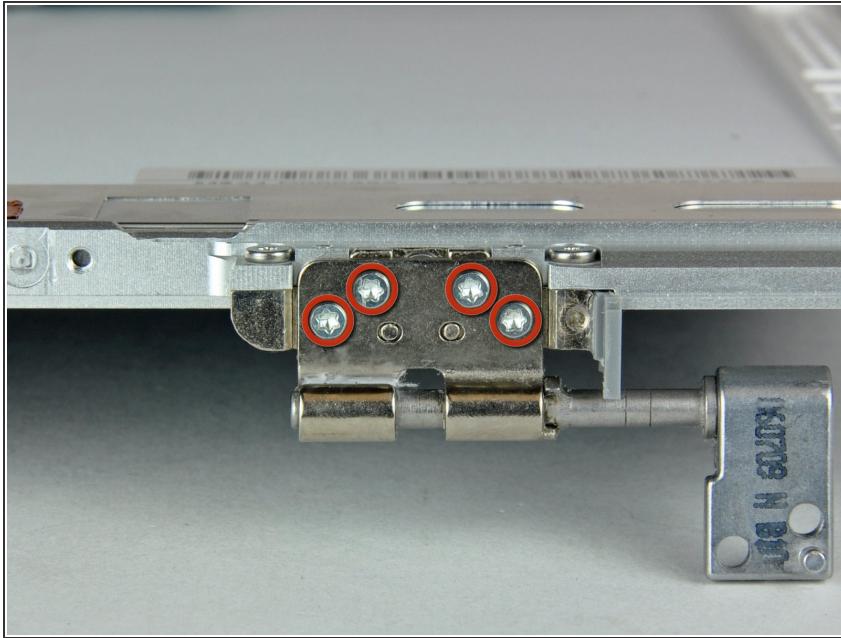
- Push the open edge of the clutch cover away from the left clutch hinge to pop it off the clips attaching the two parts.
- If necessary, repeat this process for the right side of the clutch assembly.
- Remove the clutch assembly from the front display bezel.

## Step 34 — Inverter/Camera Cable



- De-route the inverter/camera cable from the left clutch hinge and remove it from the display.

## Step 35 — Left Clutch Hinge



- Remove the four T6 Torx screws securing the left clutch hinge to the front display bezel.

## Step 36



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

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