



# Repairing iPhone 4 LCD Backlight Dim spot issue

found a way to fix a liquid damaged iphone screen back light issue

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# INTRODUCTION

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## TOOLS:

- [P2 Pentalobe Screwdriver iPhone](#) (1)

*If iPhone has external Pentalobe screws.*

- [Phillips #000 Screwdriver](#) (1)
  - [iFixit Opening Tool](#) (1)
  - [SIM Card Eject Tool](#) (1)
  - [2.5 mm Flathead Screwdriver](#) (1)
  - [Spudger](#) (1)
  - [Paper Clip](#) (1)
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## Step 1 — Rear Panel



**⚠ Before you begin, discharge your iPhone battery below 25%. A charged lithium-ion battery can catch fire and/or explode if accidentally punctured.**

- Power off your iPhone before beginning disassembly.
  - Your iPhone 4 rear cover may have either two #000 Phillips screws or Apple's 5-Point "Pentalobe" screws ([second image](#)). Check which screws you have, and ensure you also have the correct screwdriver in order to remove them.
  - Remove the two 3.6 mm Pentalobe or Phillips #000 screws next to the dock connector.
- ⓘ** Be sure the driver is well seated when removing Pentalobe screws, they are very easy to strip.

## Step 2



- Push the rear panel toward the top edge of the iPhone.
- ⓘ The panel will move about 2 mm.

## Step 3



- Pinch the rear panel with your fingers and lift it away from the iPhone. Alternatively, use a Small Suction Cup .

**⚠ Be careful not to damage the plastic clips attached to the rear panel.**

- ☑ If you are installing a new rear panel, be sure to remove the plastic protective sticker from the inside of the camera lens and the sticker from the large black area near the lens.



## Step 4 — Battery



- Remove the single 2.5 mm Phillips screw securing the battery connector to the logic board.
- ⓘ Some devices may have two screws, one of which holds down the contact pad which is located above the screw indicated in red in the photo.

## Step 5



- Use a plastic opening tool to gently pry the battery connector up from its socket on the logic board.
- ⓘ Pry from the top and bottom of the connector bracket—there isn't as much of an overhang on the sides, and you may damage the connector.

**⚠ Be very careful to only pry up on the battery connector and not the socket on the logic board. If you pry up on the logic board socket, you may break it entirely.**

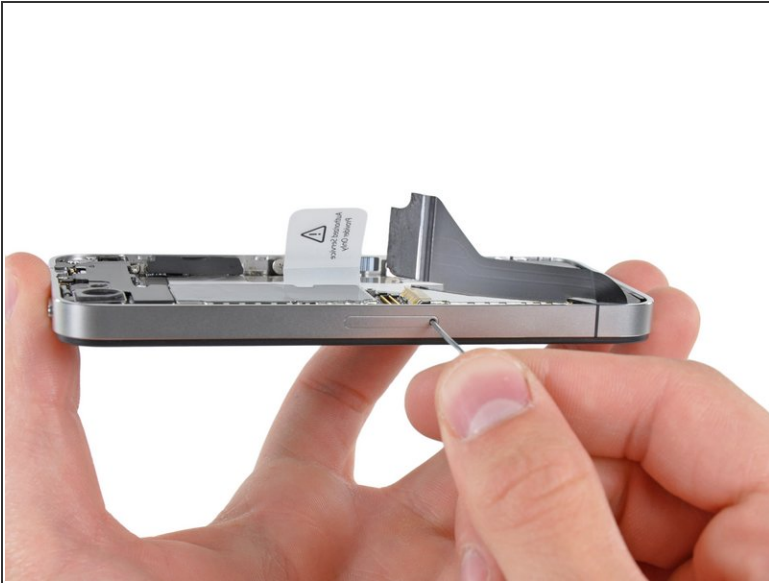
- Remove the metal clip covering the antenna connector.

## Step 6



- Use the clear plastic pull tab to gently lift the battery out of the iPhone.
- ⓘ If the tab breaks before the battery is freed, apply a few drops of high concentration (over 90%) isopropyl alcohol under the edge of the battery. Wait about one minute for the alcohol solution to weaken the adhesive. Carefully slide a spudger under the battery tab to release the adhesive.
  - ⚠ Prying in other places may cause damage. Don't try to forcefully lever the battery out. If needed, apply a few more drops of alcohol to further weaken the adhesive. Never deform or puncture the battery with your pry tool.
- If there's any alcohol solution remaining in the phone, carefully wipe it off or allow it to air dry before installing your new battery.
- ⓘ If your replacement battery came in a plastic sleeve, remove it before installation by pulling it away from the the ribbon cable.
- Before reconnecting the battery connector, be sure the contact clip (shown in red) is properly positioned next to the battery connector.
- ☑ Before reassembly, clean metal-to-metal contact points with a de-greaser such as windex. The oils from your fingers have the potential to cause wireless interference issues.
- ☑ Perform a [hard reset](#) after reassembly. This can prevent several issues and simplify troubleshooting.

## Step 7 — Logic Board



- Use a SIM card eject tool or a paperclip to eject the SIM card and its holder.

**⚠ This may require a significant amount of force.**

- Remove the SIM card and its holder.



## Step 8

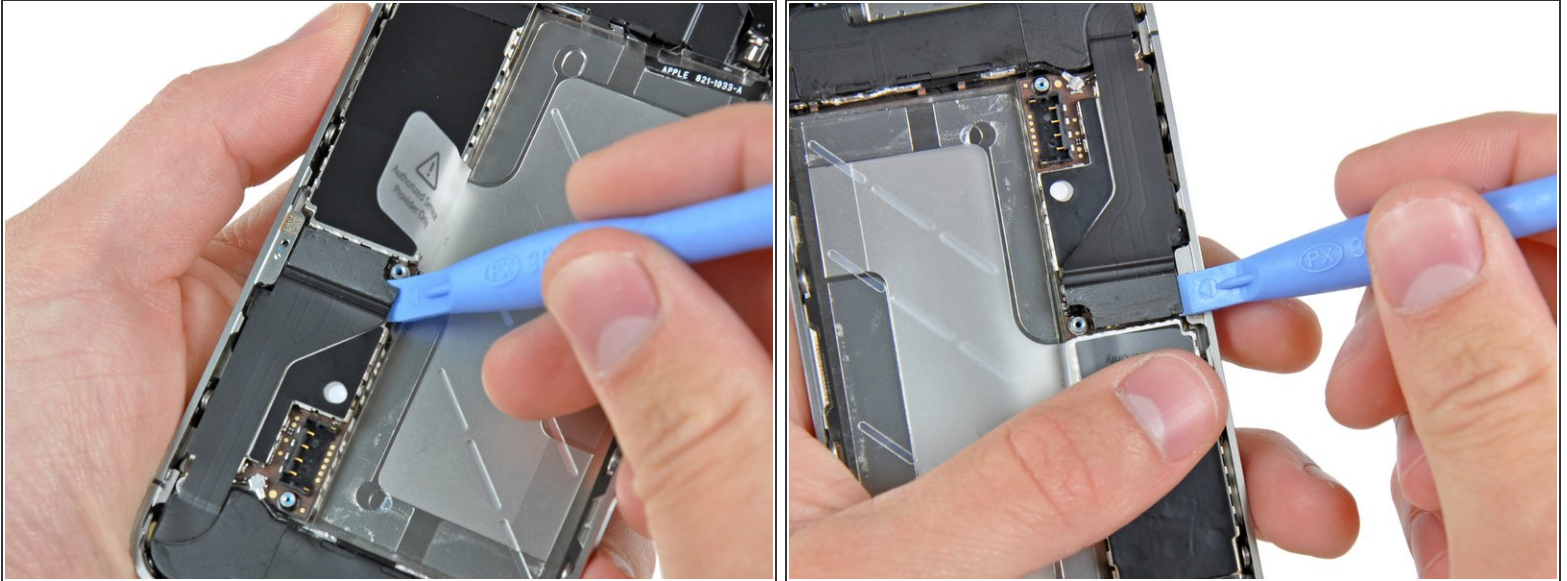


- Remove the following two screws:
  - One 1.2 mm Phillips
  - One 1.6 mm Phillips
- Remove the thin steel dock connector cable cover from the iPhone.

**⚠ Before reassembly, be sure to clean all metal-to-metal contact points on the dock connector cable cover with a de-greaser such as windex. The oils on your fingers have the potential to cause wireless interference issues.**



## Step 9



- Use an iPod opening tool to gently pry the dock cable connector up off the logic board from both short ends of the connector.

## Step 10



- Carefully peel the dock ribbon cable off the logic board and the lower speaker enclosure.

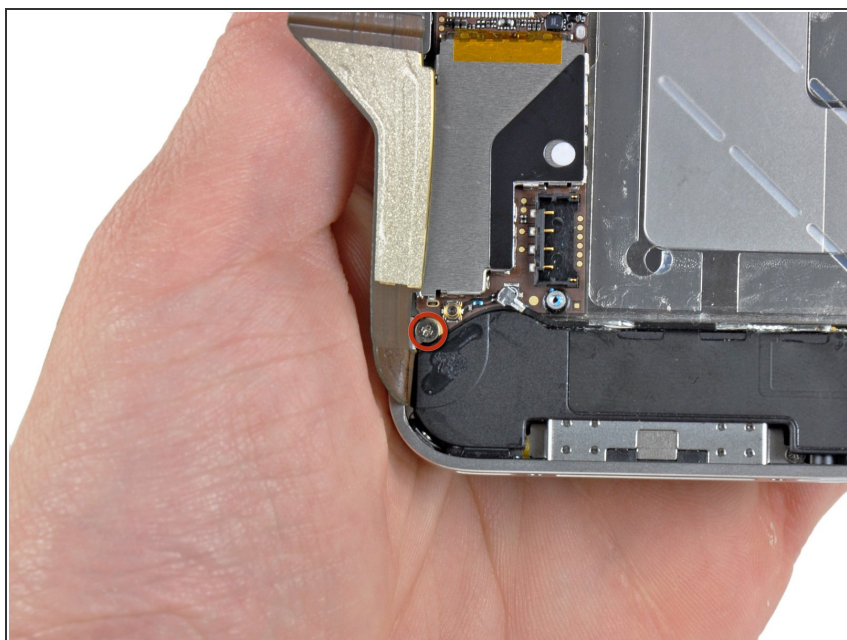
**⚠ Do not use excessive force to peel the dock ribbon cable off the logic board. Doing so may tear the cable.**

## Step 11



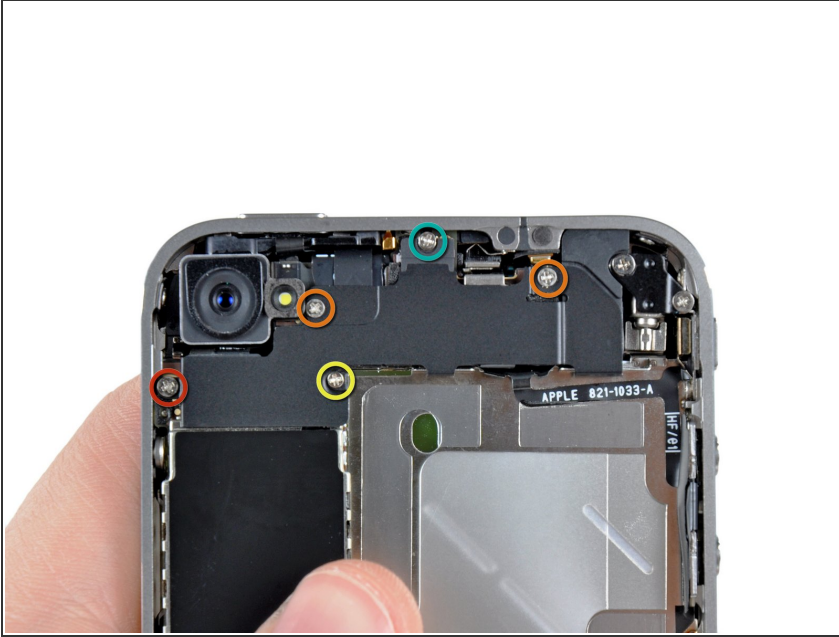
- Use a plastic opening tool to pry the lower antenna connector up off its socket on the logic board.

## Step 12



- Remove the 1.9 mm Phillips screw securing the bottom of the logic board to the inner case.

## Step 13



- Remove the following five screws securing the Wi-Fi antenna to the logic board:

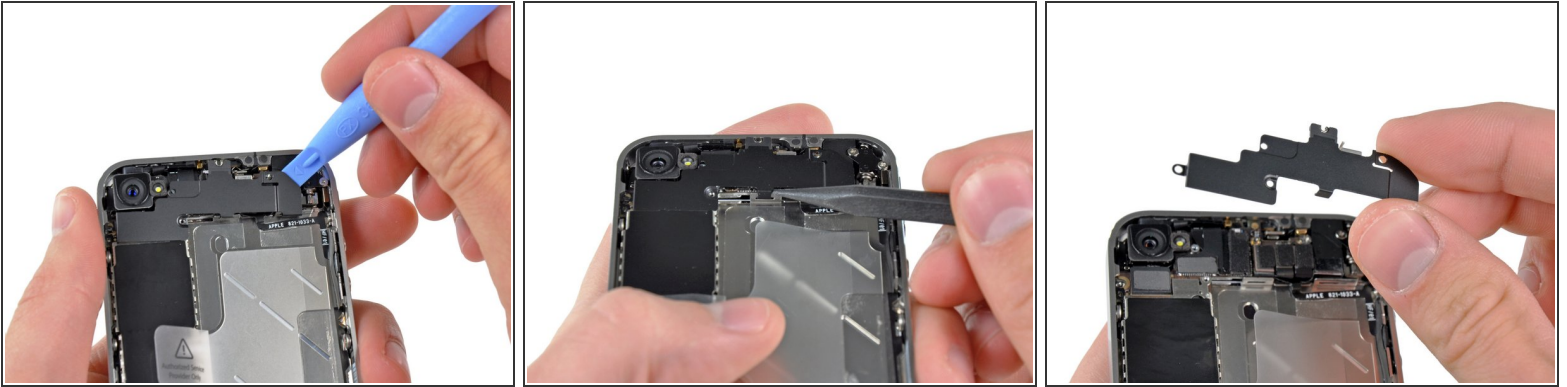
- One 2.3 mm Phillips
- Two 1.6 mm Phillips
- One 1.4 mm Phillips
- One 4.8 mm Phillips

⚠ When re-assembling, start off with replacing the 4.8 mm Philips screw first, then the 2.3 mm. *This is to ensure there is no mix-up, and avoid rendering the LCD and digitizer useless.*

⚠ Also make sure to put the long 4.8 mm Philips back in correctly when reassembling. This is the ground for the Wi-Fi antenna and is often the culprit if you are having bad Wi-Fi reception after reassembly.



## Step 14

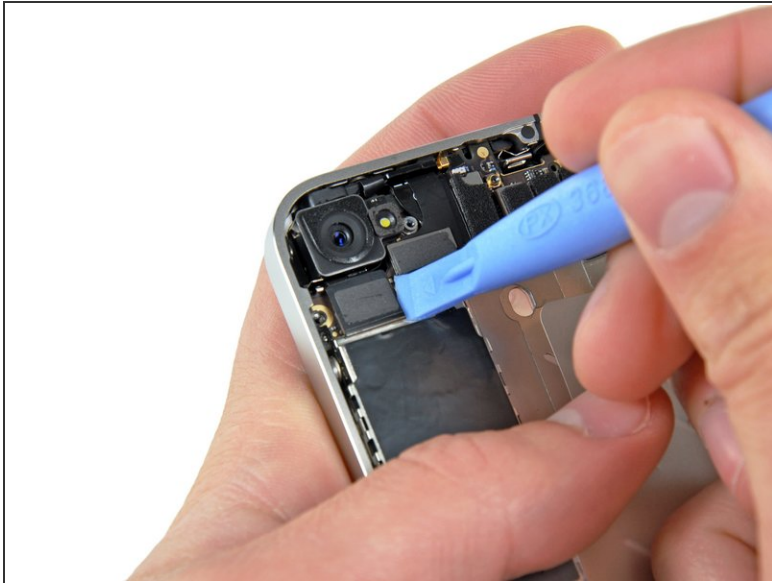


- Use an iPod opening tool to slightly lift the top edge of the Wi-Fi antenna away from the logic board.
- Use the tip of a spudger to pull the Wi-Fi retaining clips away from the inner frame.
- Remove the Wi-Fi antenna from the iPhone. Make sure you don't lose the metal clips on the top of the cover where the 4.8mm screw attaches or the 4.8mm screw. That's the primary reason for abnormal Wi-Fi performance after the reassembly.

**⚠ Before reassembly, be sure to clean all metal-to-metal contact points on the connector cover with a de-greaser such as Windex. The oils on your fingers have the potential to cause wireless interference issues. **Do not** clean the connectors themselves with Windex.**



## Step 15



- Use an iPod opening tool to carefully lift the rear camera connector up off its socket on the logic board.
- Remove the rear camera.

## Step 16



- Remove the small circular white sticker (warranty sticker and water indicator) covering the screw near the battery pull tab.
- Remove the 2.4 mm Phillips screw that was hidden underneath the sticker.

## Step 17



- Use the edge of a plastic opening tool to gently pry the following connectors up and out of their sockets on the logic board:
  - Digitizer cable (pry from bottom)
  - LCD cable (pry from bottom)
  - Headphone jack/volume button cable (pry from top)
  - Top Microphone/sleep button cable (pry from top)

- Front camera cable (pry from top)

## Step 18



- Remove the 4.8 mm standoff screw near the headphone jack.
  - ⓘ Standoff screws are best removed using a [standoff screwdriver](#) or bit.
  - ⚠ In a pinch, a small flathead screwdriver will do the job—but use extra caution to ensure it doesn't slip and damage surrounding components.
  - ⓘ When reassembling the device, this standoff sets the height of the Wi-Fi shield removed in step 13. If not torqued down, the shield will be above the plane of the frame and the back will not slide into place in step 2. The shield should be flush with the headphone jack.
  - ✦ When reassembling the motherboard, ensure that its edge sits under the circled standoff, otherwise the screws will not fit.
  - ✦ When reassembling ensure that the small rubber spacer attached to the top of the motherboard is in place.
    - Without this part, the motherboard could damage the ribbon cables around it.



## Step 19



- Carefully remove the logic board from the iPhone, minding any cables that may get caught.

⚠ Be careful not to damage the small gold prong (marked in red, near the top) as it's very fragile.

- ☑ On reassembly, be careful not to trap the lower antenna cable beneath the logic board.

## Step 20 — Speaker Enclosure Assembly



- Remove the single 2.4 mm Phillips screw securing the speaker enclosure to the side of the inner frame.



## Step 21

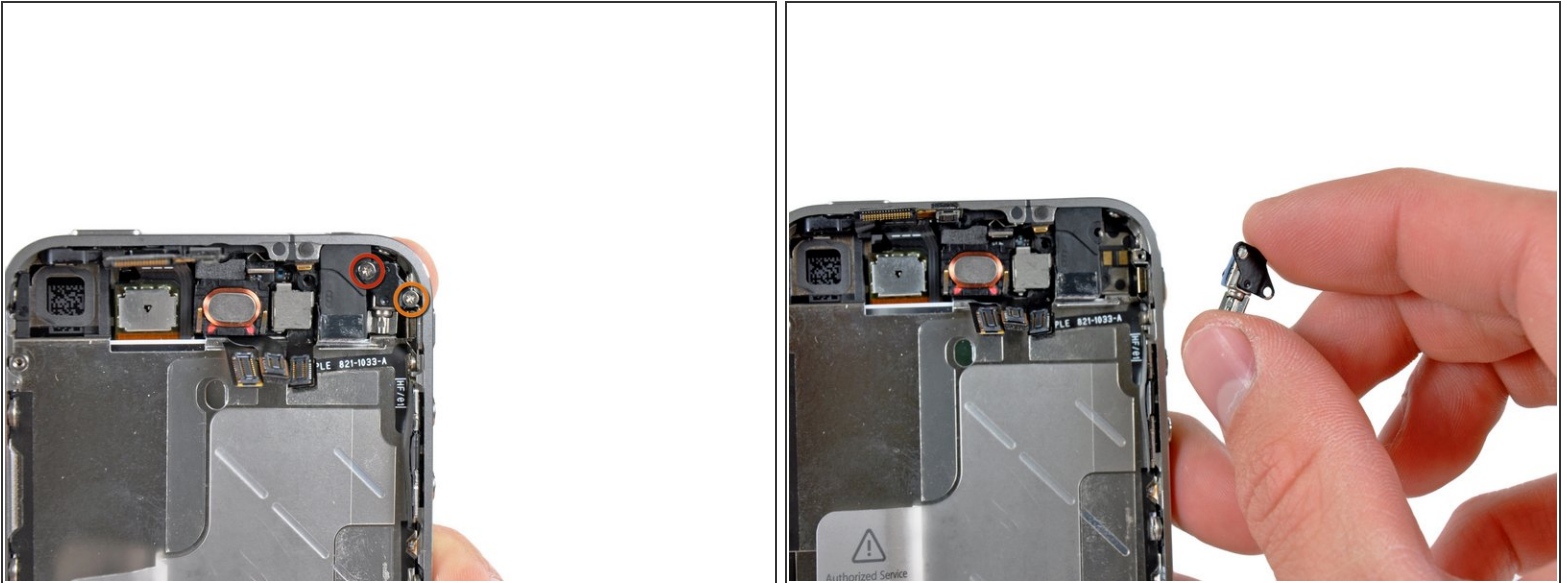


- Remove the speaker enclosure from the iPhone.

- ☑ Before re-fastening the speaker enclosure to the inner frame, be sure the four small EMI fingers rest below the lip of the LCD frame.

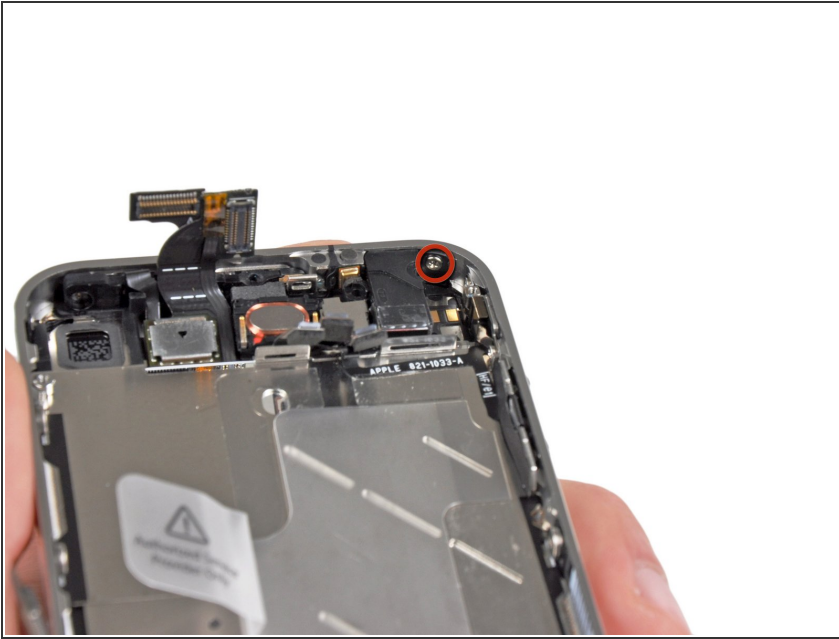
⚠ Before reassembly, be sure to clean all metal-to-metal contact points between the EMI fingers and the internal frame as well as the brass screw mounting point with a de-greaser such as Windex. The oils on your fingers have the potential to cause wireless interference issues.

## Step 22 — Display Assembly



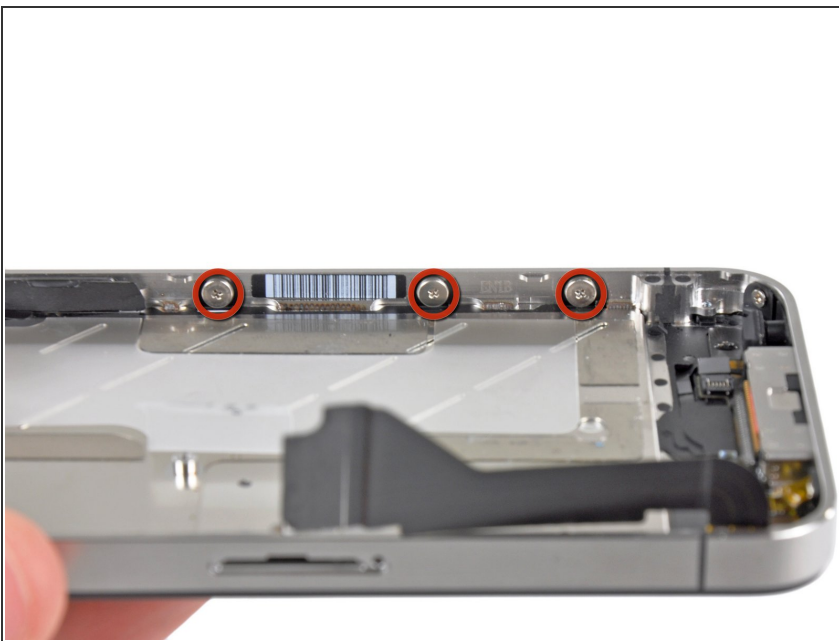
- Remove the following two screws securing the vibrator to the inner frame:
  - One 6 mm Phillips
  - One 1.4 mm Phillips
- Remove the vibrator from the iPhone.

## Step 23



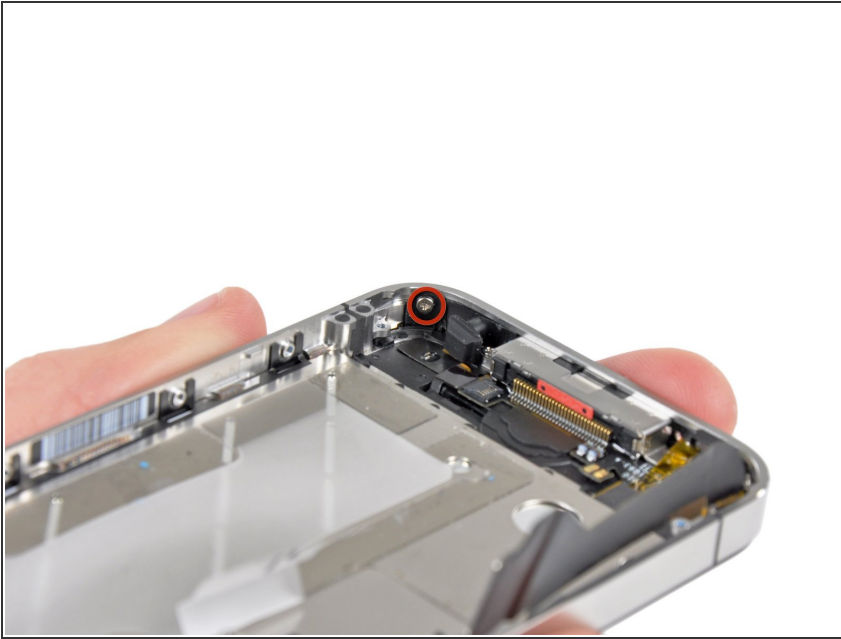
- Remove the 1.5 mm Phillips screw securing the front panel near the headphone jack.

## Step 24



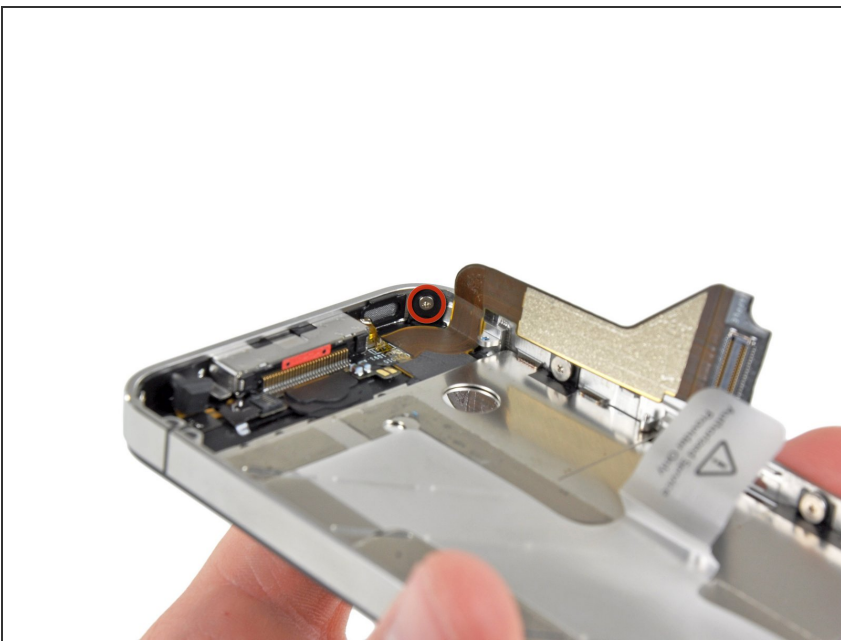
- Remove the three large-headed 1.5 mm Phillips screws along the volume button side of the iPhone.
- ★ Keep track of the washers under each of the screws.
- i *Tip: It can be tricky, but it is also possible to just loosen the large-headed 1.5 mm Phillips screws slightly, without having to remove and replace the screw-and-washer set.*

## Step 25



- Remove the 1.5 mm Phillips screw near the lower microphone.

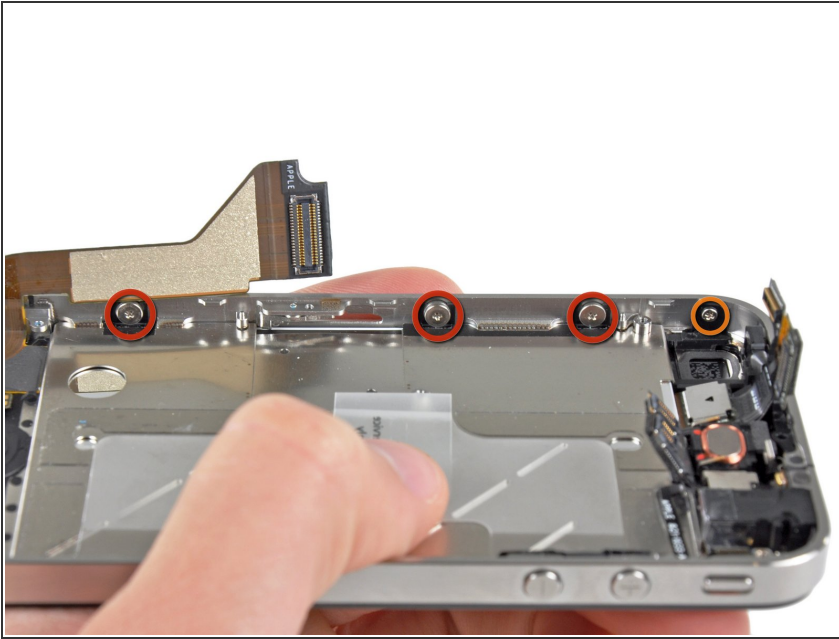
## Step 26



- Remove the 1.5 mm Phillips screw near the dock connector ribbon cable.



## Step 27



- Remove the three large-headed 1.5 mm Phillips screws along the SIM card side of the iPhone.
- ☑ Keep track of the washers under each of the screws.
- ⓘ *Tip: It can be tricky, but it is also possible to just loosen the large-headed 1.5 mm Phillips screws slightly, without having to remove and replace the screw-and-washer set.*
- Remove the small-headed 1.5 mm Phillips screw near the rear camera (previously removed).

## Step 28



- Carefully insert the edge of an iPod opening tool between the rubber bezel around the front glass panel and the steel inner frame.

 **Do not attempt to insert the tool between the glass and the rubber bezel.**

- Carefully pry the upper edge of the front panel assembly away from the steel inner frame.

## Step 29



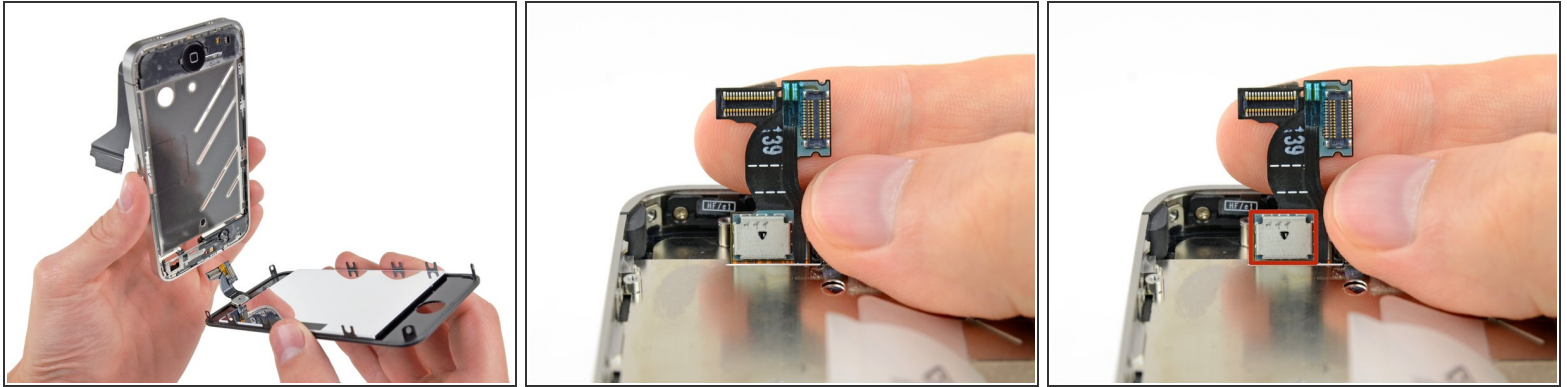
- Slowly and gently lift the top edge of the front panel assembly away from the steel inner frame.
- Continue to rotate the front panel assembly away from the steel inner frame until it slowly begins to peel off the adhesive applied below the home button area.
  - It may be easiest to insert a spudger at the top and work it around the edges, spreading gently as you go.
- Carefully pull the lower edge of the front panel assembly away from the steel inner frame.

⚠ Be careful, if the home button sticks to the front panel you may tear the home button cable.

⚠ Do not pull the front glass completely away from the frame. Doing so may result in damage to the digitizer cable.

⚠ If the glass is cracked (which it probably is since you're replacing it) removing the panel is likely to cause it to bend, kicking off small shards of glass. Before you do this step, cover the front with clear tape, then perform the actual removal over a trash can. Protective eyewear would also be prudent.

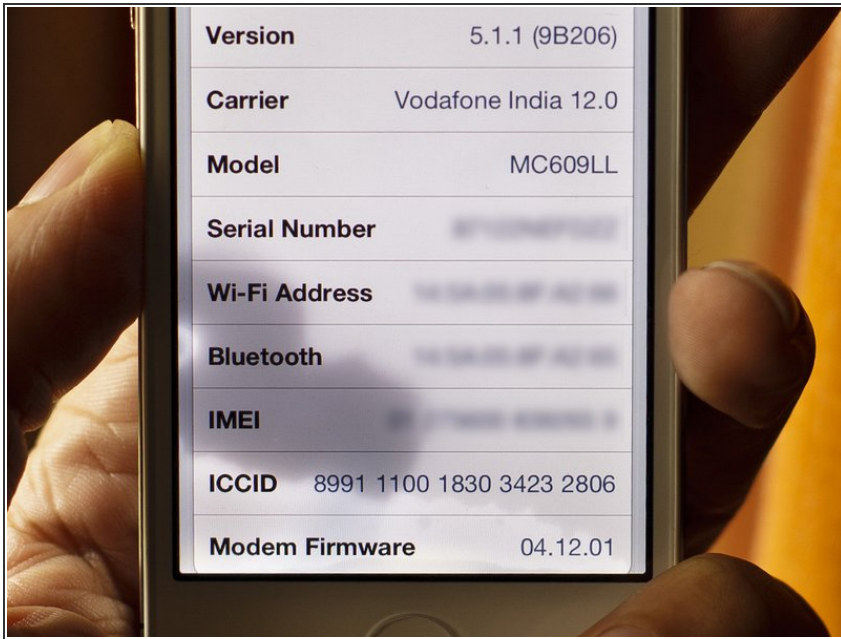
## Step 30



- De-route the digitizer and LCD cables through the steel inner frame, and remove the display from the iPhone.
- ✦ When reinstalling the display, carefully straighten the digitizer and LCD data cables, and feed them through the slot cut in the steel frame. [This photo](#) shows the display assembly being installed **incorrectly**, with a fold in the digitizer cable.
  - When the front panel has been correctly installed, both the LCD and digitizer cables should be immediately next to one another and should be the same length, as shown in the second photo.
- ⚠ If the digitizer cable has not been installed correctly, it will not reach its socket on the logic board. **Do not** attempt to pull it through by force, or it will tear. Remove the display assembly, straighten the cable, and feed it through to its full length, as shown.
- During reassembly, do not touch the metallic area at the base of the LCD data cable, as this can cause problems with the LCD. If you do touch it accidentally, clean it gently with an alcohol wipe before continuing.



## Step 31 — Repairing iPhone 4 LCD Backlight Dim spot issue



- This is what the damage was. The digitiser was fine, the display was fine, but the backlight is damaged and dark patches exist.
- As you can see, the screen was damaged by Acetone while trying to fix the home button. Some of it seeped in the screen because I tilted the device upside down.

## Step 32



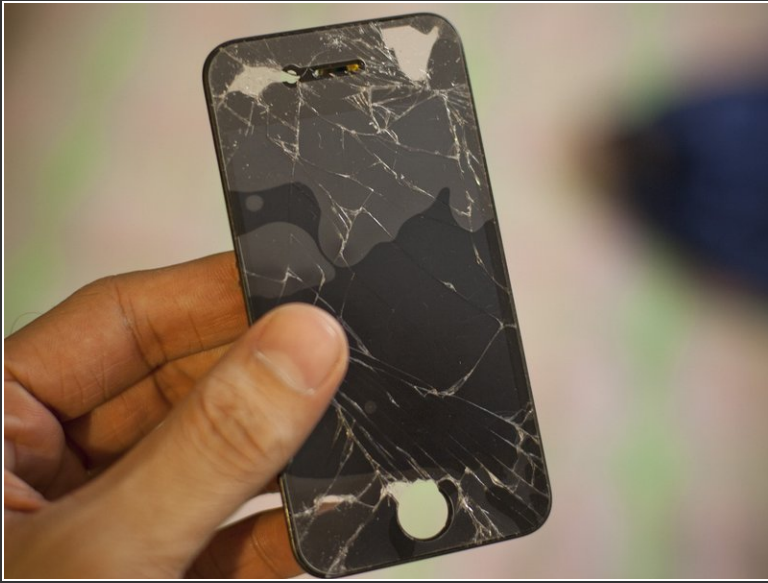
- I had no idea if I could fix it, I just wanted to find out what exactly was wrong.
- Now that we have the screen out, the chrome with white border is a casing on the backlight, so I took it apart by peeling it off gently, by the white plastic frame.
- Here we are, the chrome part is out, the backlight is naked and you see that transparent plastic part lying there. This is like a fibre optic transmitting light from the LEDs to the whole screen. This was damaged by the Acetone.

## Step 33



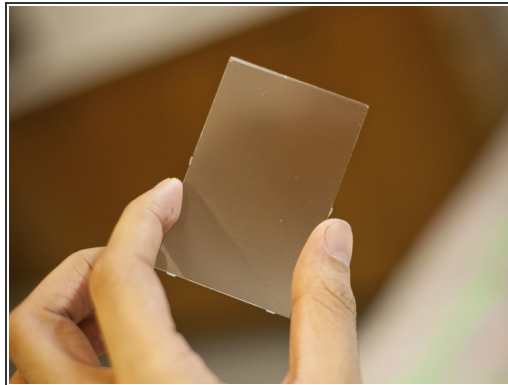
- This is the plastic part (ignore the crack, it was broken while taking it out). You can see the damage on the top, it looks as if someone spilled acid. Light transmission was obstructed to this area, hence the dim spots.

## Step 34



- I got this damaged iPhone 4 screen from a local repair guy. He gave it to me for free as it is of no use to him.
- Make sure the back LCD/Backlight part isn't damaged or missing.

## Step 35



- Remove the part, extract the fresh, non-damaged plastic backlight part from it.
- Just replace the part and put everything back together with the chrome cover and plastic frame, and reassemble your phone.
- Sure looks back to what it was - at least 95%. It's a job involving no cost at all! Worth the effort.

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