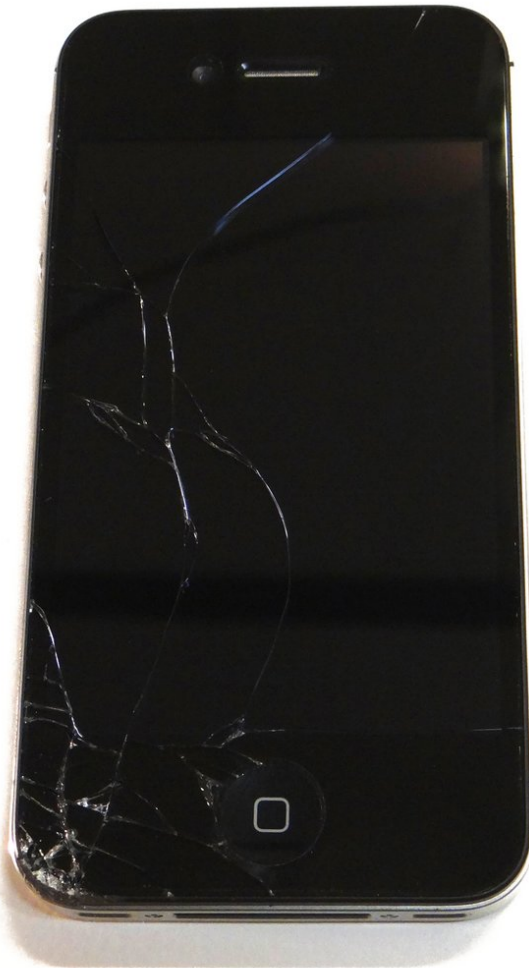


CELLPHONESANDBOX

Manual 11 - Display Assembly

Replace the Display Assembly on an iPhone 4S

Written By: James Linder

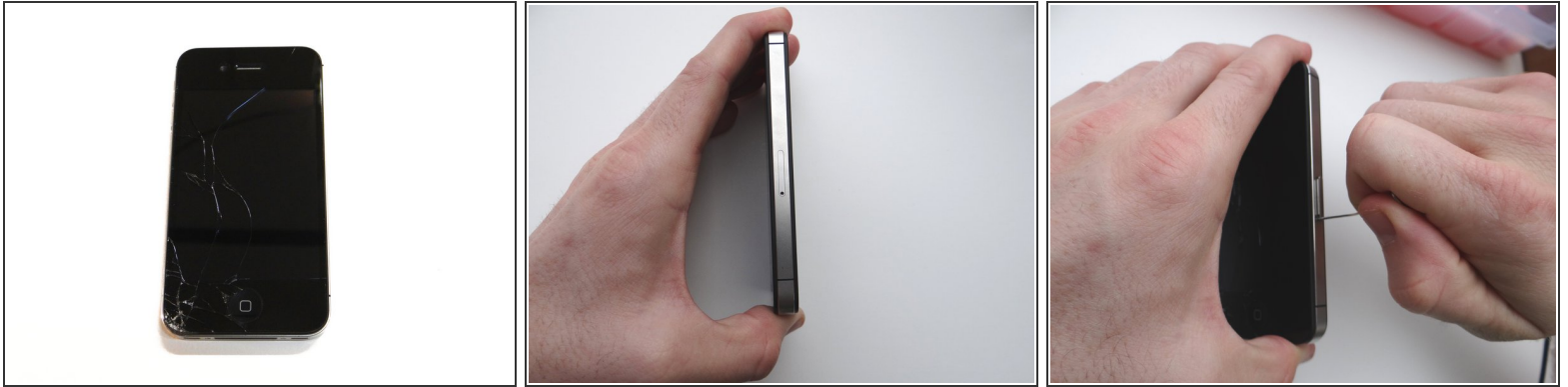




TOOLS:

- [Technician Starter Package](#) (1)
-

Step 1 — Removal 1 - Battery Cover



- Before disassembling the iPhone, thoroughly wash and dry your hands.
- Make sure handset is powered off. Use a SIM card eject tool or a paperclip to eject the SIM card tray. This may require a significant amount of force.
- Place the SIM card and SIM card tray in COMPARTMENT A.

Step 2



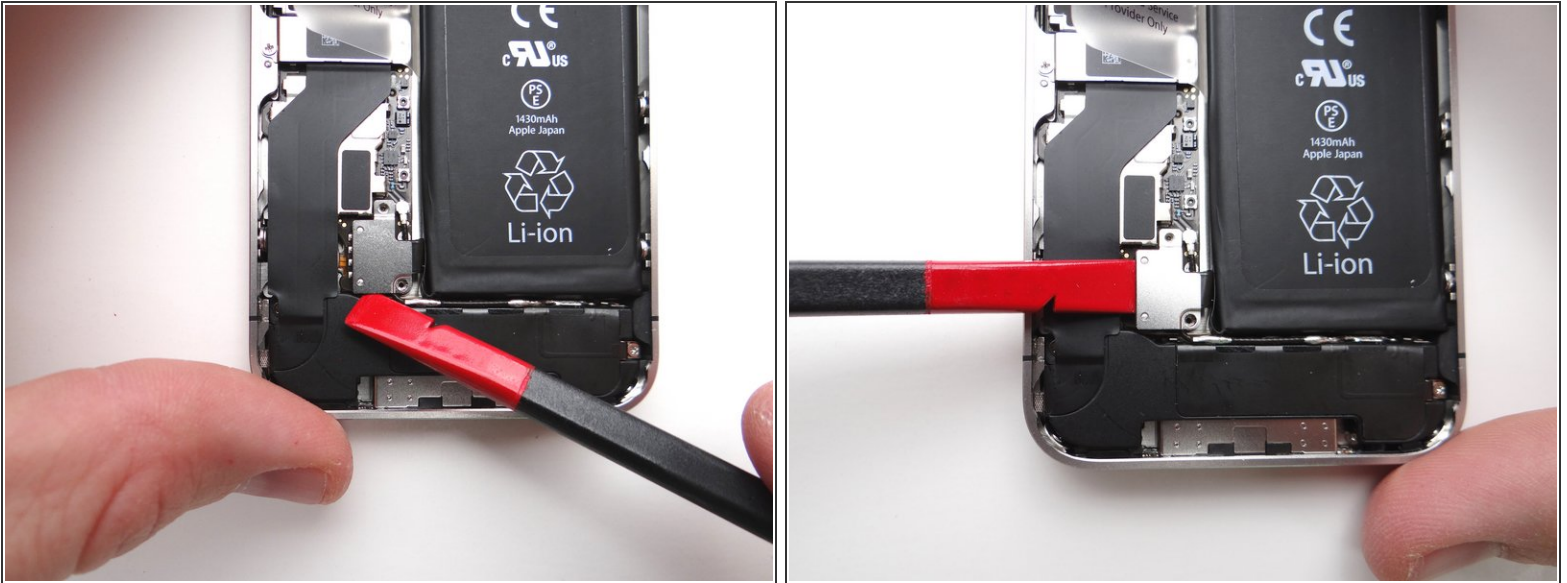
- Place the handset in your non-dominant hand. Remove two Pentalobe screws near charging port with special 5-point Pentalobe screwdriver. Place screws in SLOT 1.
- Gently slide battery cover upwards. Pull battery cover away from iPhone. Place battery cover in ZONE I.

Step 3 — Removal 2 - Battery



- Picture 1: Remove 1.7 mm Phillips screw and place it in SLOT 2.
- Picture 2: Remove 1.5 mm Phillips screw place it in SLOT 3.
- Picture 3: Use Fine Point Tweezers to remove the L-Shaped Antenna Shield before releasing the battery connector. Place the Antenna Shield with the screw in SLOT 3.

Step 4



- Picture 1: Place the flat end of the Black Spudger (tip is painted red for better illustration) at the bottom of the battery connector. Twist the spudger counter-clockwise to lift the bottom of the connector from its socket.

⚠ Be very careful to only pry up on the battery connector and not the socket on the logic board. If you pry on the socket, you could break the socket off the logic board.

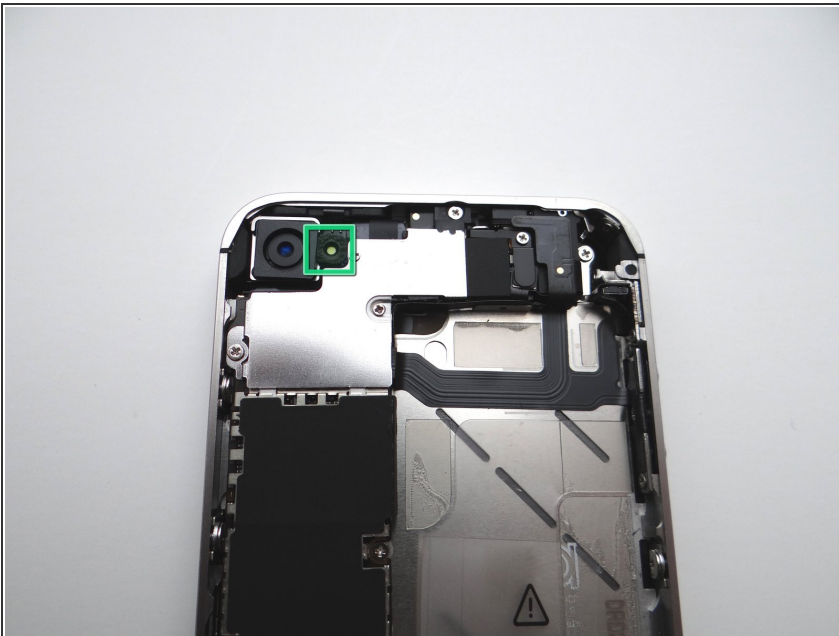
⚠ Picture 2: After freeing the bottom of the connector, finish freeing it by inserting the spudger from the side and slowly lifting. Again, be careful to only pry on the battery connector and not the socket on the logic board.

Step 5



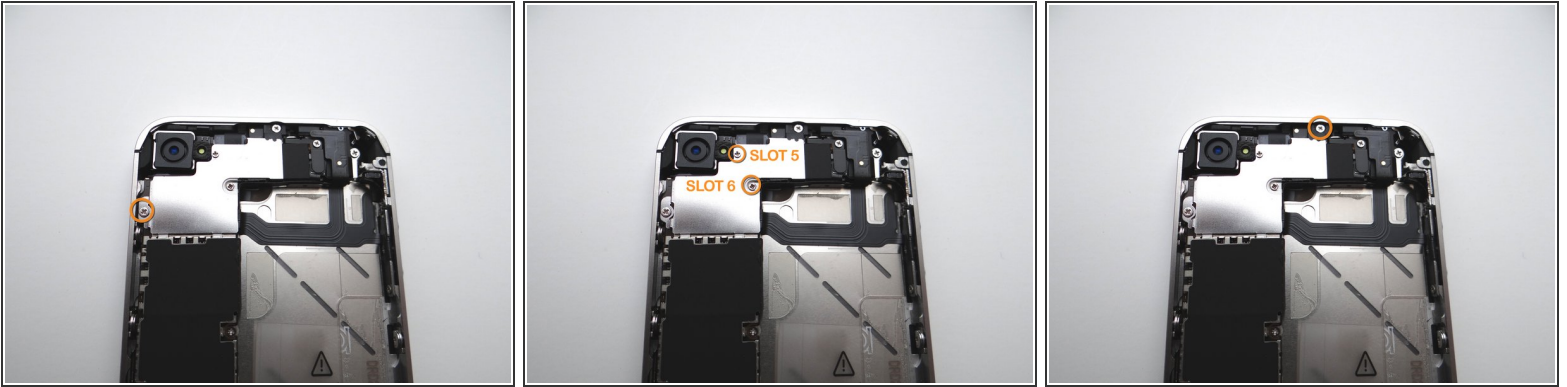
- Apply low-level heat (100* Celcius or less) to edges of battery for 60 seconds to loosen the adhesive securing the battery to the iPhone.
- Wedge the flat end of the Black Spudger on the right edge of the battery. Gently pry up in three or four spots along the right edge to release the adhesive adhering it to the mid-frame.
- Once loose, use the plastic pull tab to peel the battery free from the iPhone. Place the battery in ZONE II.

Step 6 — Removal 3 - Rear Camera



- Use a pair of tweezers to remove the outer plastic ring (if present) located on top of the rear camera's flash. Place in COMPARTMENT B.

Step 7



- Remove four Phillips screws from the Cable Shield surrounding the camera. Use fine point tweezers to remove the screws if the screwdriver won't hold them:
- Picture 1: Remove one 2.6 mm Phillips screw. Place in SLOT 4.
- Picture 2: Remove 1.3 mm Phillips screw (labelled SLOT 5) - Place in SLOT 5.
- Picture 2: Remove one 1.2 mm Phillips screw (labelled SLOT 6) - Place in SLOT 6.
- Picture 3: Remove one 2.7 mm Phillips screw. Place in SLOT 7.

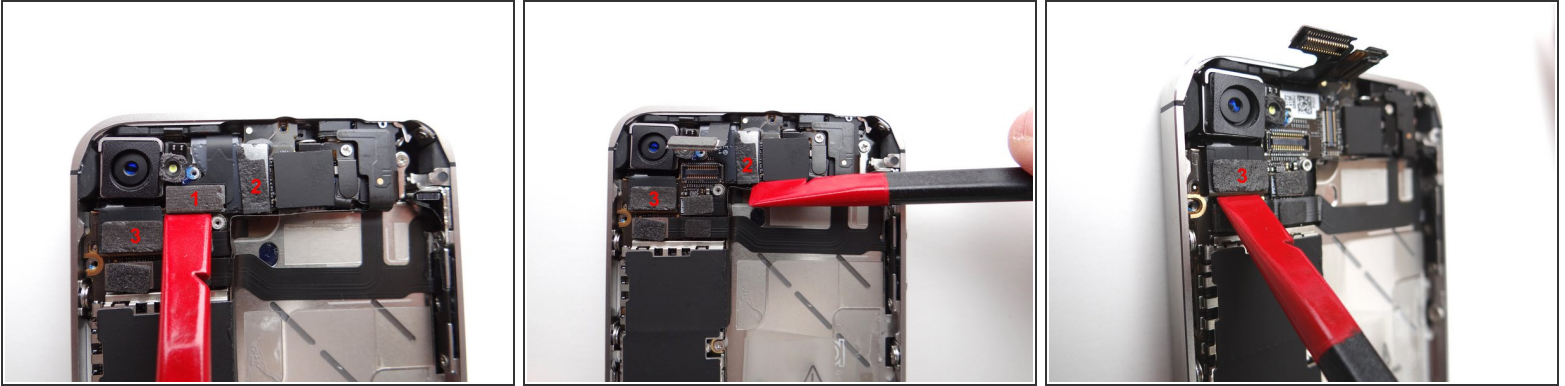
Step 8



- Using your fingers (or plastic tweezers if needed), grab the top-right of the Cable Shield. Gently lift the shield 25 degrees.
- Next, slowly pull Cable Shield towards top of iPhone until the tabs at the bottom of the shield (see red squares) are free.

- Place Cable Shield in COMPARTMENT B (with the plastic ring from the camera flash, if present).

Step 9



- Use the flat end of the black spudger to gently pry three cables free from their sockets on the logic board.

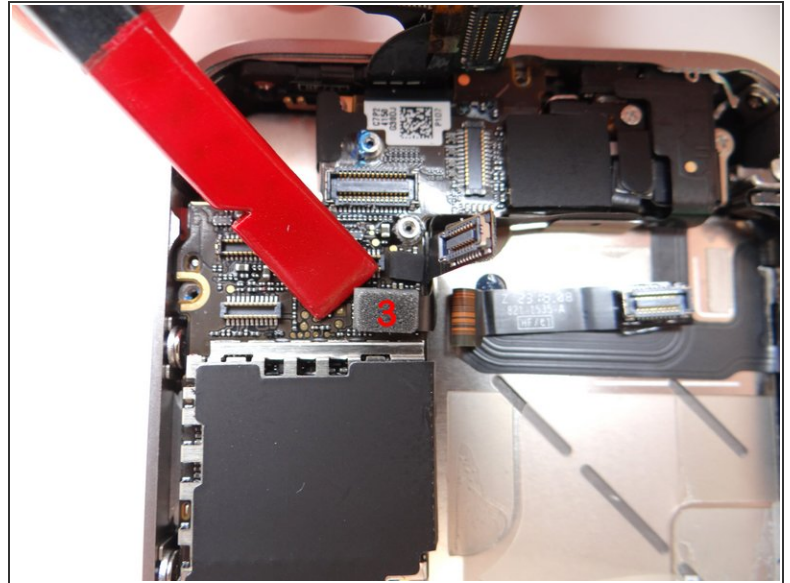
⚠ Be careful not to break any components off the surrounding area on the logic board as you pry upwards.

Step 10



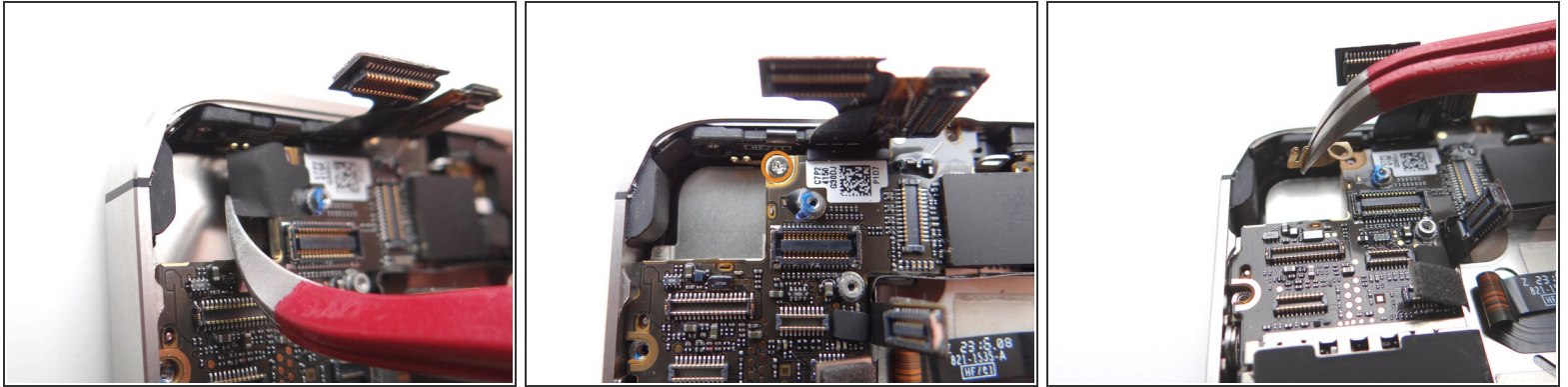
- Remove the Rear Camera with your fingers. Place in COMPARTMENT C.


Step 11 — Removal 4 - Logic Board



- Picture 1: Release cables '1' and '2' just below the camera slot. Use the Black Spudger to gently lift the connectors up and out of the sockets.
- Picture 2: When you release cable '1', it will reveal a hidden power button cable, cable '3' - release it.

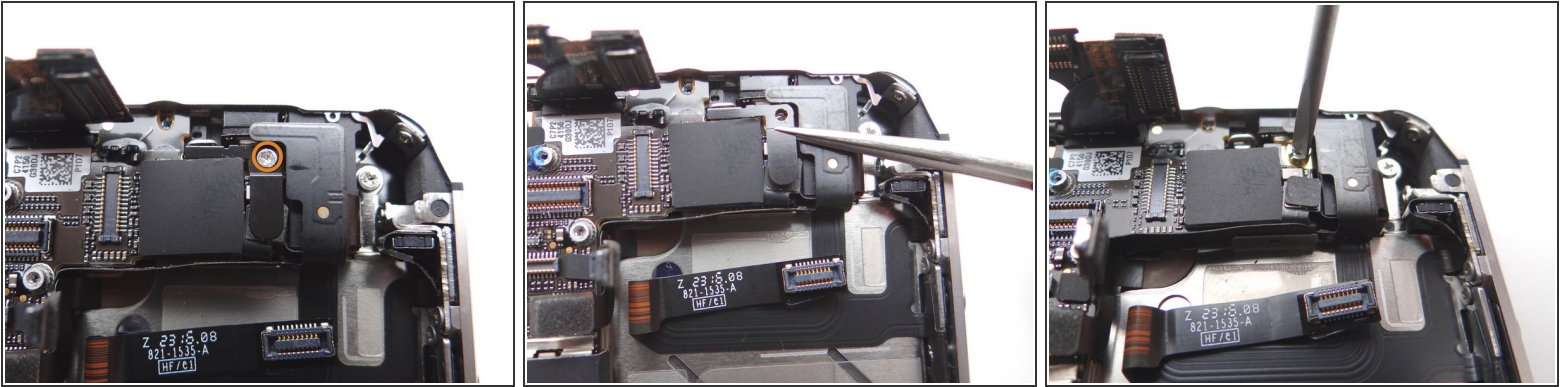
Step 12



-  Picture 1: There may be a small piece of black electrical tape covering the screw in Picture 2. If so, use curved tip tweezers to remove and discard it.
- Picture 2: Remove 2.6 mm Phillips screw securing Gold Grounding Clip to logic board near rear camera opening. Place screw in SLOT 8.
 - Picture 3: Remove Gold Grounding Clip with Curved Tip Tweezers. Place clip in SLOT 8 with Phillips screw.

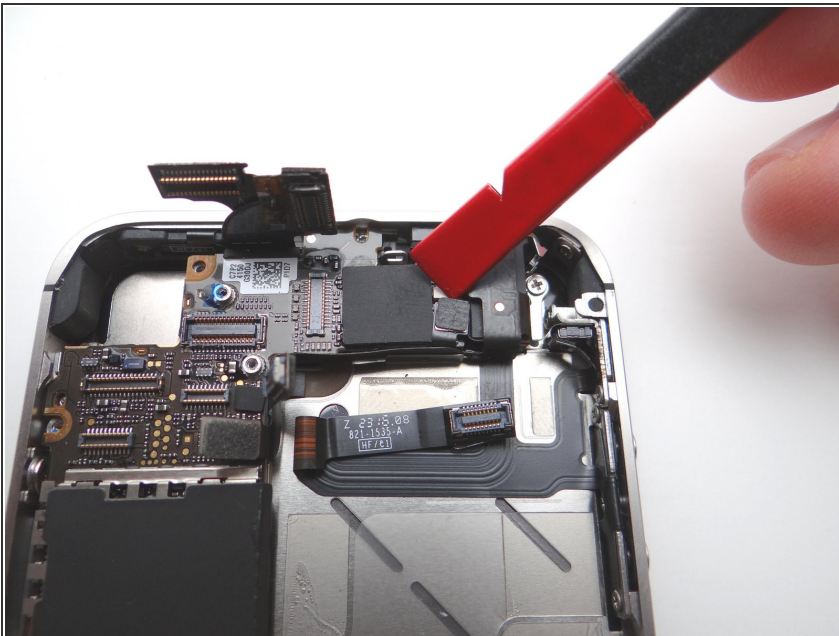
 Be careful not to scratch the logic board with the tweezers.

Step 13



- Picture 1: Remove the 1.5 mm Phillips screw securing the L-Shaped Antenna Shield to the logic board near the headphone jack. Place the screw in SLOT 9.
- Picture 2: Remove the shield with your fingers or Fine Point Tweezers, if needed. Place with the Phillips screw in SLOT 9.
- Picture 3: Use a small flathead screwdriver to remove the 4.8 mm standoff screw near the headphone jack. Place standoff in SLOT 9 with the Phillips screw and Antenna Shield.

Step 14



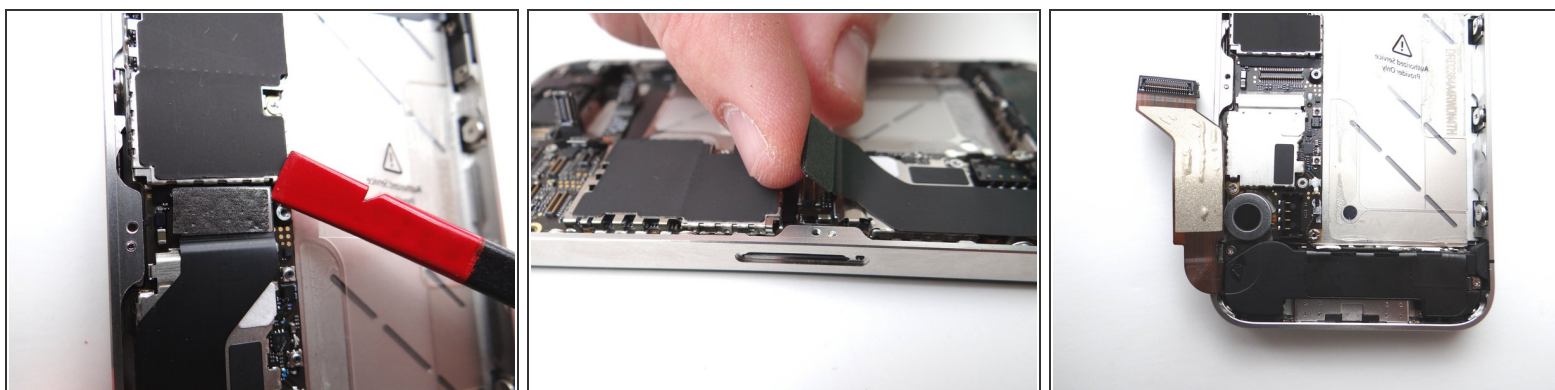
- Wedge the flat end of the black spudger under the wi-fi antenna connector and gently lift to release from logic board.

Step 15



- Picture 1: Remove 1.2 mm Phillips screw and place in SLOT 10.
- Picture 2: Remove 1.5 mm Phillips screw and place in SLOT 11.
- Picture 3: Lift the charging port assembly shield with your fingers (or tweezers, if necessary) and place with screw in SLOT 11.

Step 16

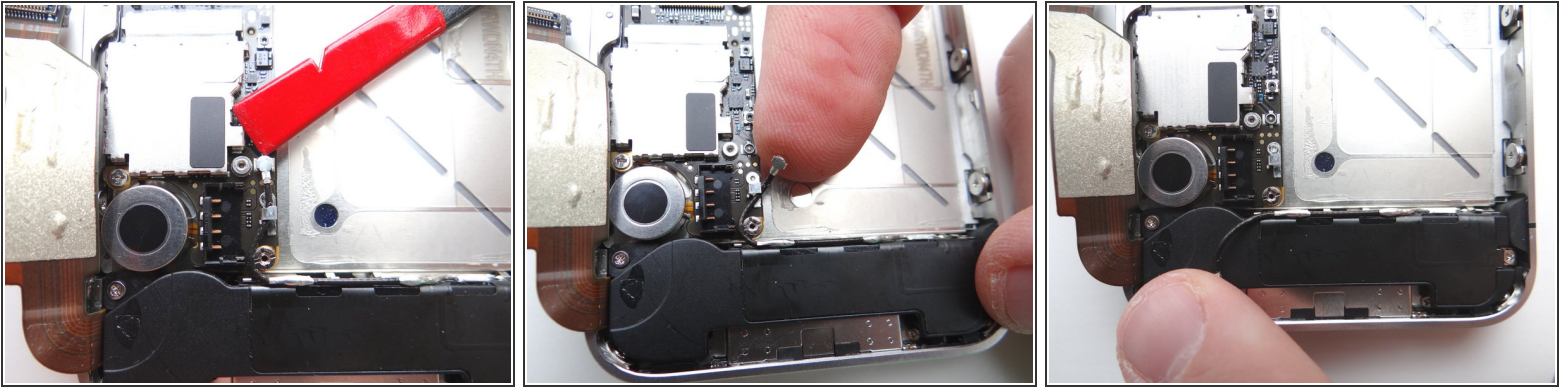


- Picture 1: Place flat end of spudger under upper-right corner of the charging port assembly cable. Gently twist your hand clockwise releasing the cable from its socket on the logic board.

⚠ Picture 2: The charging port assembly cable is adhered to the logic board – gently peel it free from the logic board, working top to bottom until cable is free of logic board. Be cautious as this cable is very fragile.

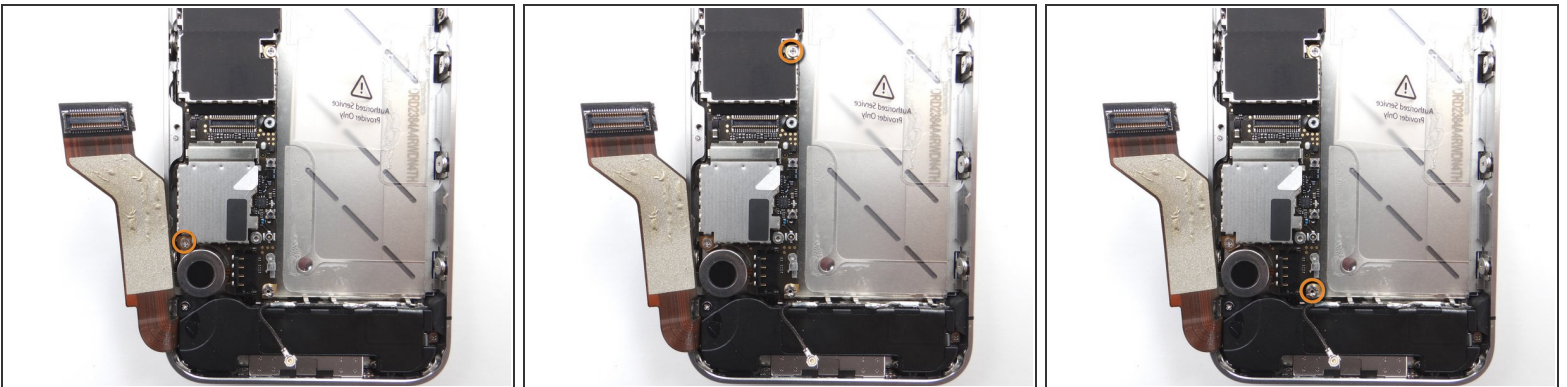
- Picture 3: Fold the cable to the left.

Step 17



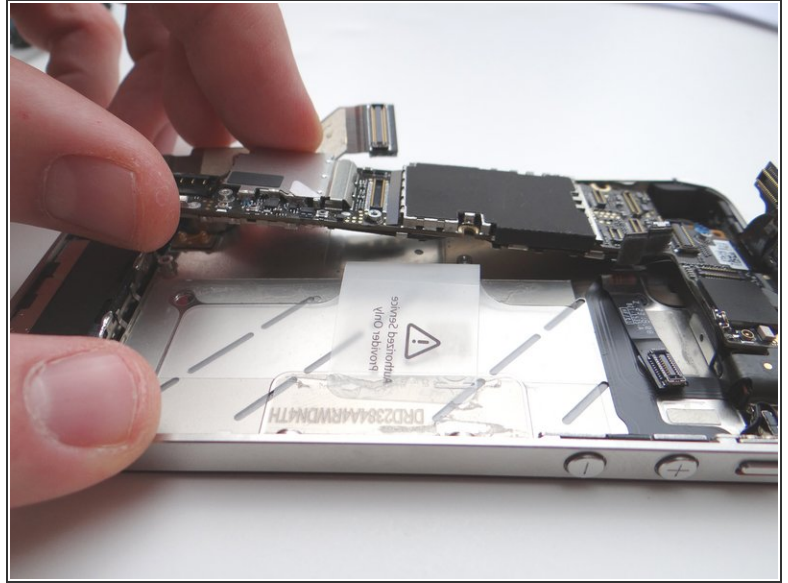
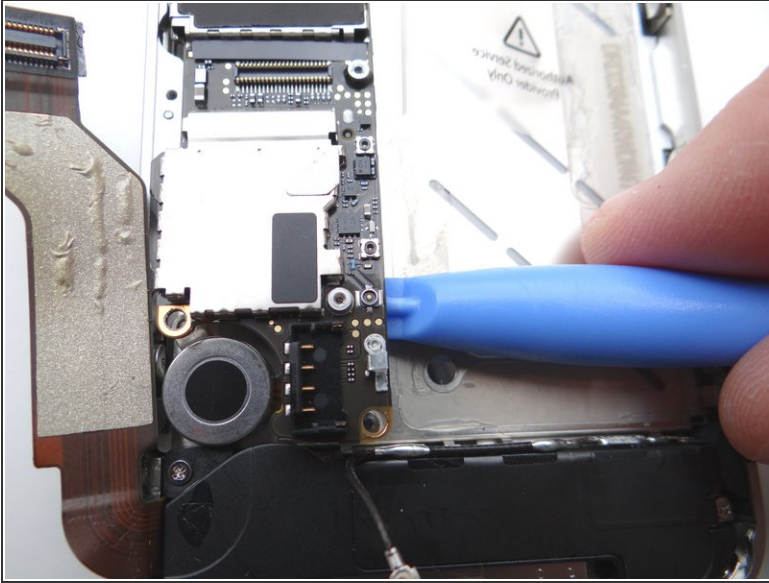
- Picture 1: Place Black Spudger under cellular antenna connector. Gently lift to release antenna from its socket on the logic board.
- Picture 2: Use your fingers to de-route the cellular antenna cable out from under the metal clips attached to the logic board. First pull cable right, then left.
- Picture 3: Fold the cable down so it's out of the way.

Step 18



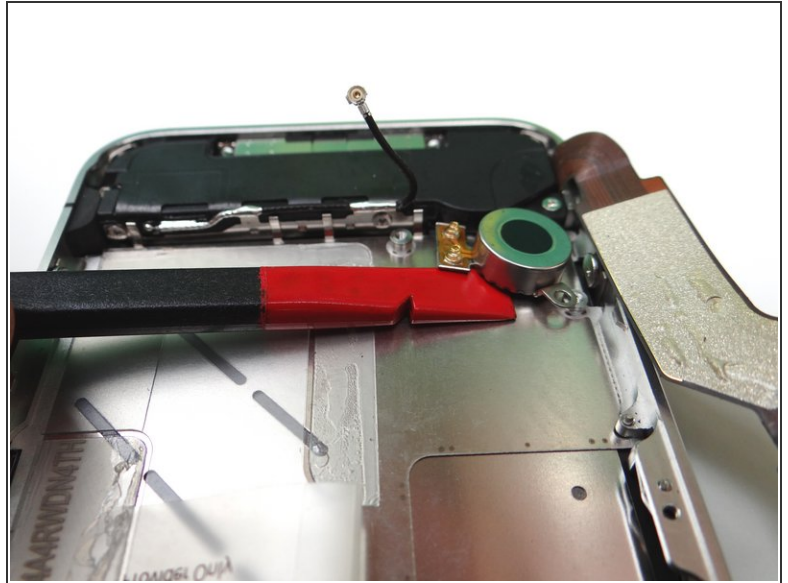
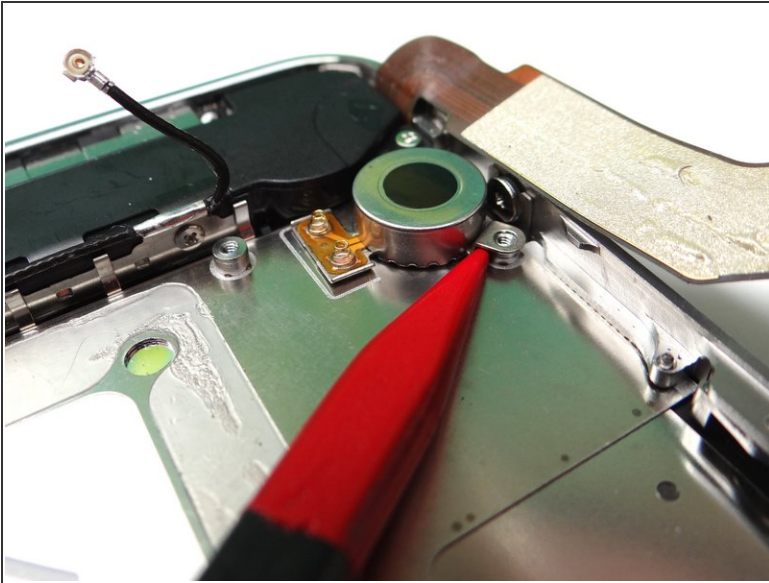
- Picture 1: Remove the 2.5 mm Phillips screw near the vibrator motor. Place in SLOT 12.
- Picture 2: Remove the 2.4 mm Phillips screw. Place in SLOT 13.
- Picture 3: Use a standard screwdriver to remove the 3.6 mm standoff screw. Place in SLOT 14.

Step 19



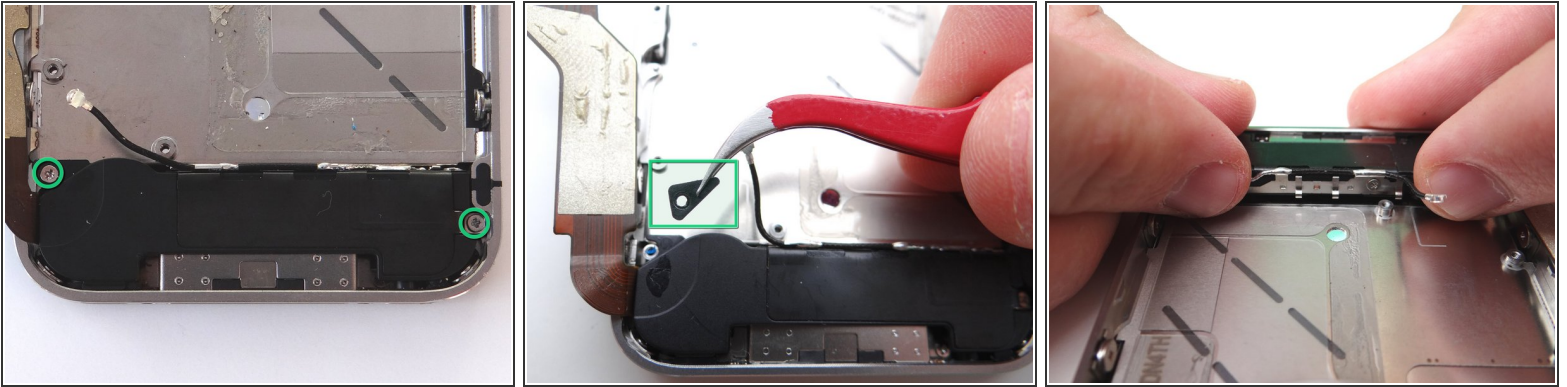
- Picture 1: Using the blue pry tool, carefully lift the logic board just high enough to pinch it with your left thumb and index finger.
- Picture 2: Once you have a good grip on the logic board, use your right hand to brush away cables near the top while pulling the logic board towards you until it is free from the mid-frame. Place in ZONE III.

Step 20 — Removal 5 - Vibrator



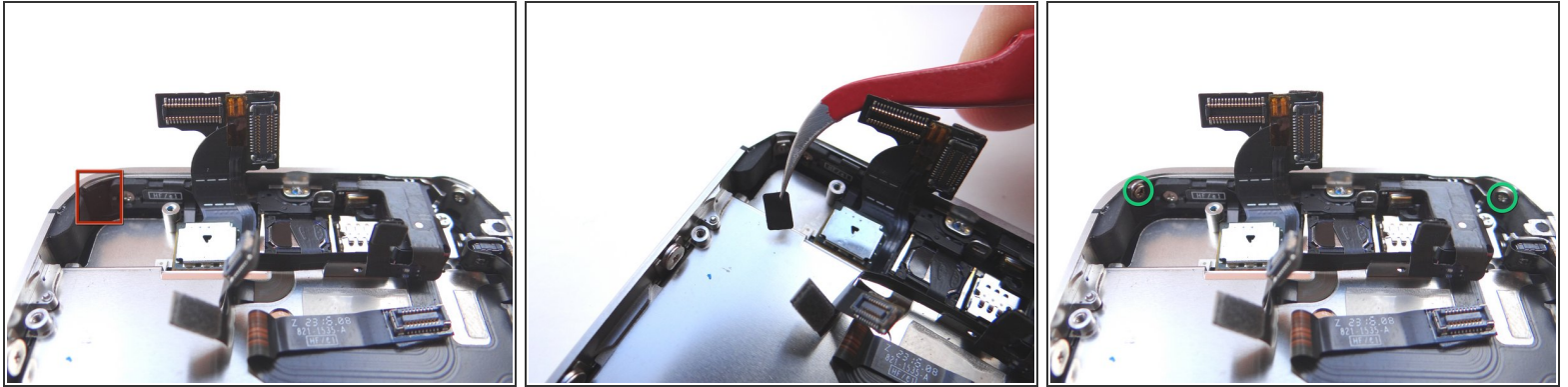
- Picture 1: Wedge the pointed tip of the Black Spudger under the lip of the vibrator. Gently lift to loosen the adhesive holding the vibrator to the mid-frame.
- Picture 2: Wedge the flat end of the spudger (you may prefer to use the iSesamo) under the vibrator until it's free. Place it in COMPARTMENT D.

Step 21 — Removal 6 - Loudspeaker Assembly



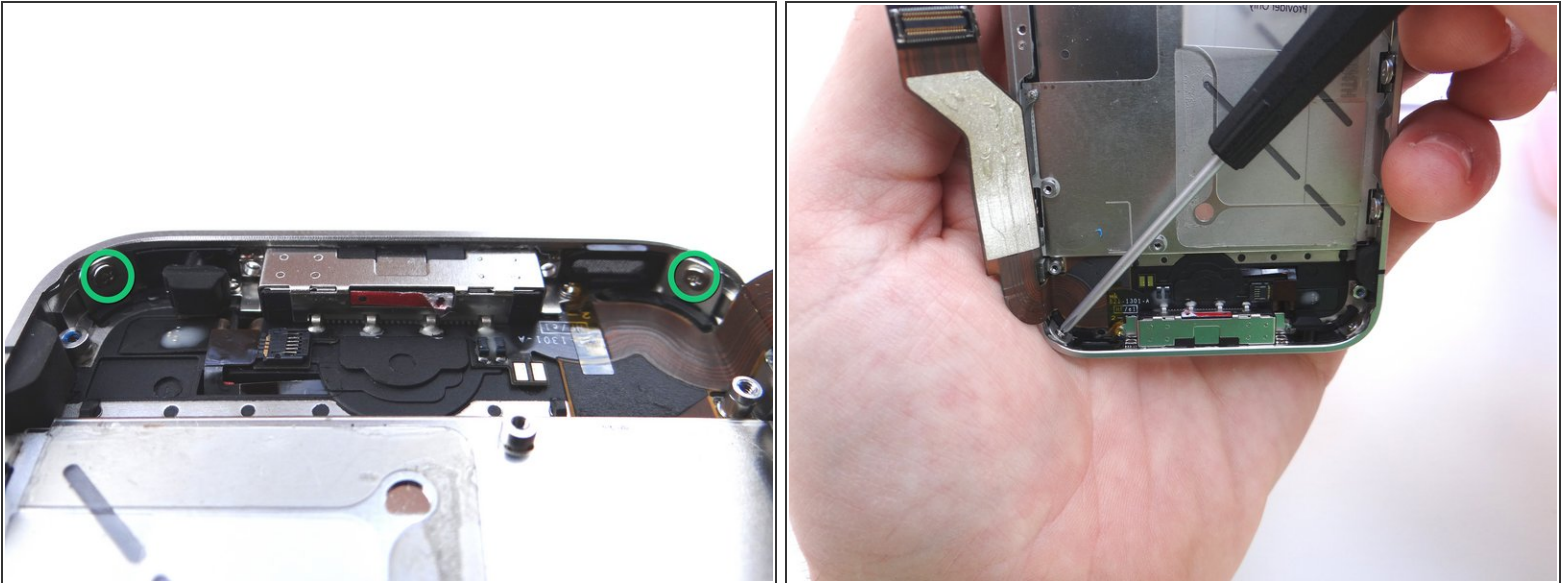
- Picture 1: Remove the two 2.4 mm Phillips screws from the sides of the loudspeaker assembly. Place in COMPARTMENT E.
- Picture 2: Remove the small plastic Triangular Bracket that was installed under the left-most screw. Place in COMPARTMENT E with the Phillips screws.
- Picture 3: Use your fingers to lift speaker assembly away from mid-frame and place it in COMPARTMENT E.

Step 22 — Removal 7 - Display Assembly



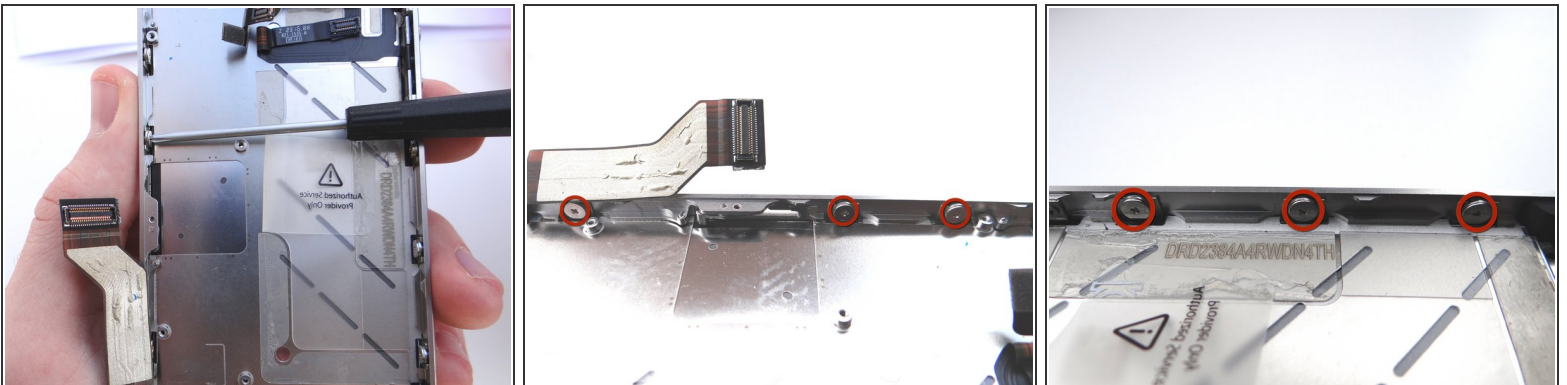
- Pictures 1 and 2: There may be a piece of electrical tape covering the display mounting tab in the upper-left hand corner of the phone. If so, remove and discard it.
- Picture 3: Remove the 1.5 mm Phillips screw behind the tape (upper left-hand corner) and place it in COMPARTMENT F.
- Picture 3: Remove the 1.5 mm Phillips screw in the upper right-hand corner and place it in COMPARTMENT F as well.

Step 23



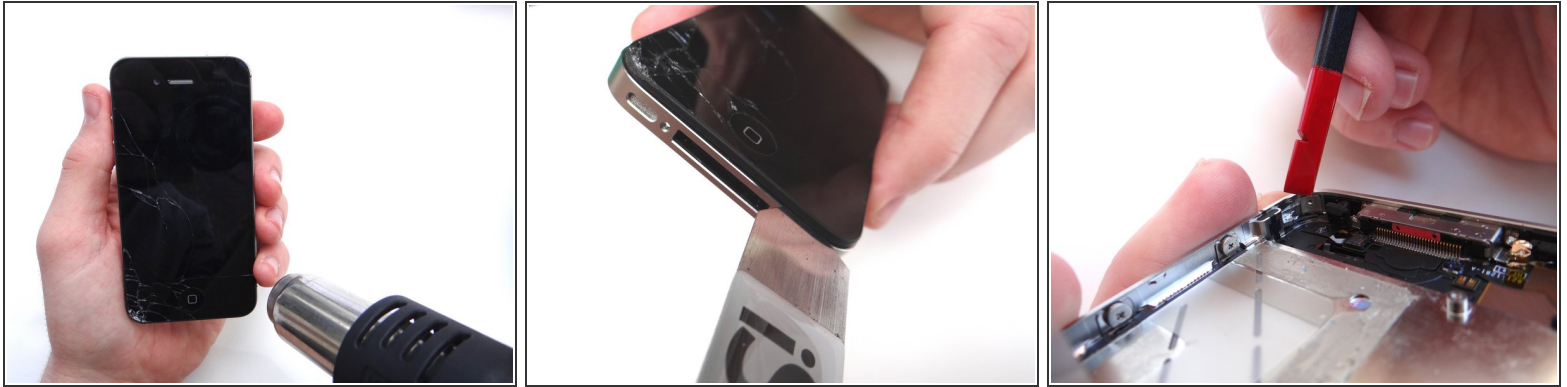
- Remove two 1.5 mm Phillips screws from the bottom-left and bottom-right of the phone. Place in COMPARTMENT F.
- Stabilize the phone while you're removing the screws by holding it as in Picture 2.

Step 24



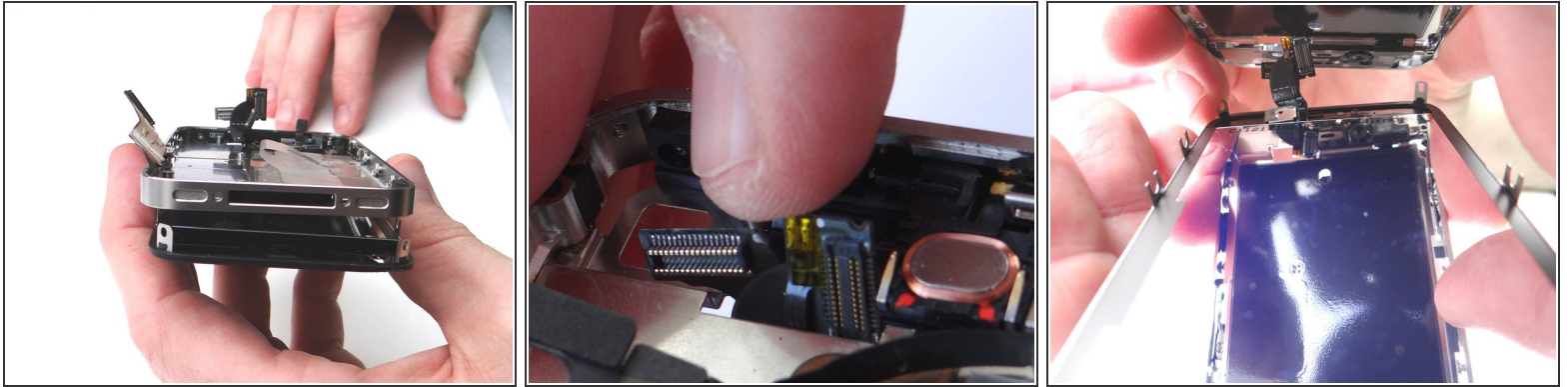
- Pictures 1 and 2: Loosen the three large-head Phillips screws along the left side of the iPhone about one half turn, taking care not to remove these screws.
- Picture 3: Loosen the three large-head Phillips screws along the right side of the iPhone about one half turn, taking care not to remove these screws.

Step 25



- Picture 1: Apply low heat (100 degrees celsius) to the top and bottom edges of the iPhone, sweeping back and forth to loosen adhesive. Continue for two minutes.
- ⓘ Perform the remainder of this step - and the next two steps - over a sheet of paper to collect shards of broken glass:
- Picture 2: Wedge the metal iSesamo between the display assembly and mid-frame at the bottom-right of the phone.
- ⚠ Insert the iSesamo half a centimeter deep or less (less than half the length of your thumbnail) to avoid slicing into internal components.
- Slowly move the wedged iSesamo up and around the entire perimeter of the phone to further loosen the adhesive.
- ⚠ Stop just after you round the lower left corner of the iPhone. Otherwise, you risk damaging the home button assembly.
- Picture 3: Turn the phone over and use the flat edge of the spudger to push down on the display mounting tabs in each corner.

Step 26



- Picture 1: With the iPhone face down, separate the bottom of the display assembly from the mid-frame.
- Pictures 2 and 3: guide the cables connected to the digitizer and LCD out through the slot on the mid-frame.
- Continue pulling the display assembly away from the mid-frame until separated. Keep the broken display assembly on the scrap paper and set it off to the side (you may need to harvest parts from it).

Step 27



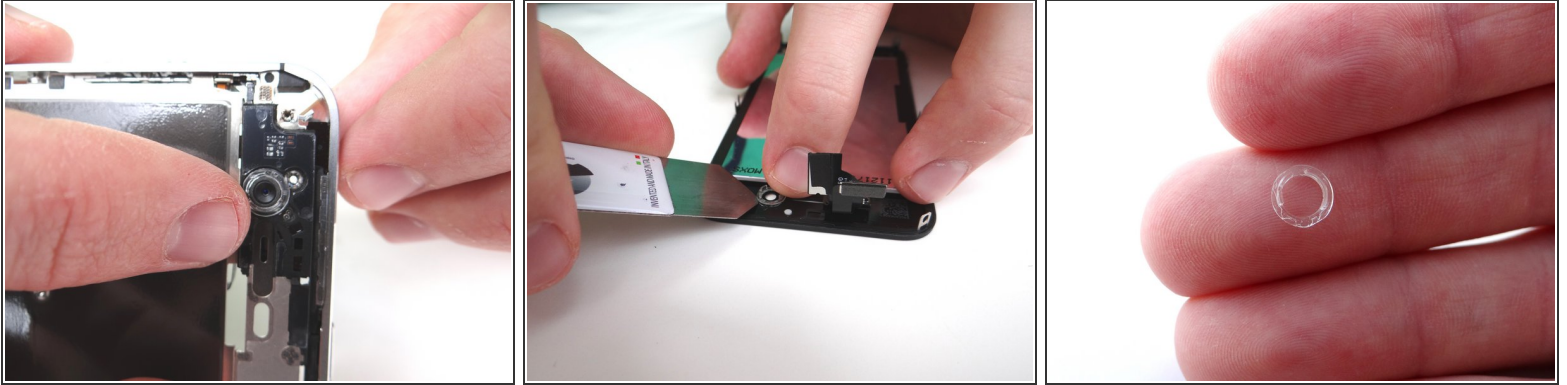
- Examine the top side of the mid-frame for glass shards and bits of adhesive. Use the iSesamo to scoop up and remove them.

⚠ Don't use your fingers to remove pieces of glass!

- ⓘ If you fail to remove all glass shards, the new LCD will appear to bleed when your customer presses down on the display (where glass shards are trapped beneath). Further, the display will be more susceptible to cracks.

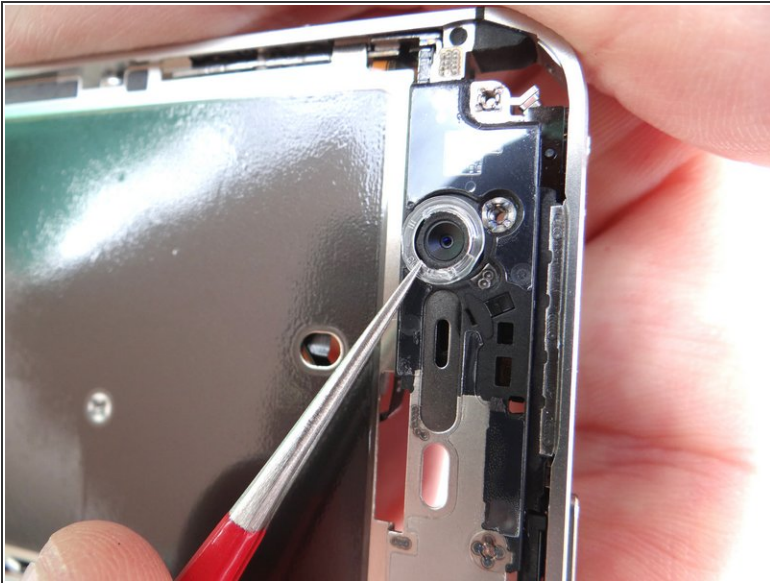
- Place the mid-frame in ZONE IV.

Step 28 — Replacement 7 - Display Assembly



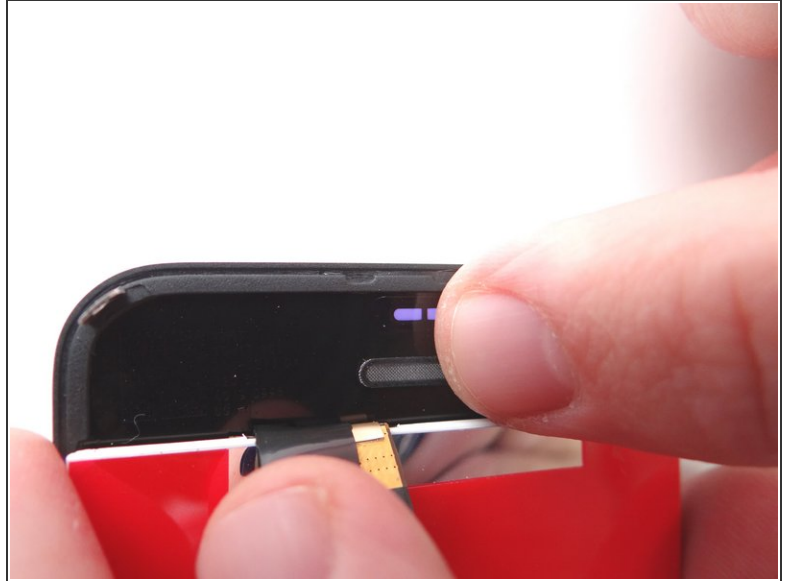
- Grab the mid-frame from ZONE IV.
- Picture 1: There should be a plastic ring covering the front-facing camera (on the mid-frame).
- Picture 2: However it may be attached to the broken display. If so, use the iSesamo to free it.
- ⓘ The plastic ring may come loose on it's own while you're freeing the display assembly from the mid-frame. Make sure you don't lose it - you have to re-attach it to the mid-frame in the next step!
- Picture 3: This is what it looks like free of the iPhone.


Step 29



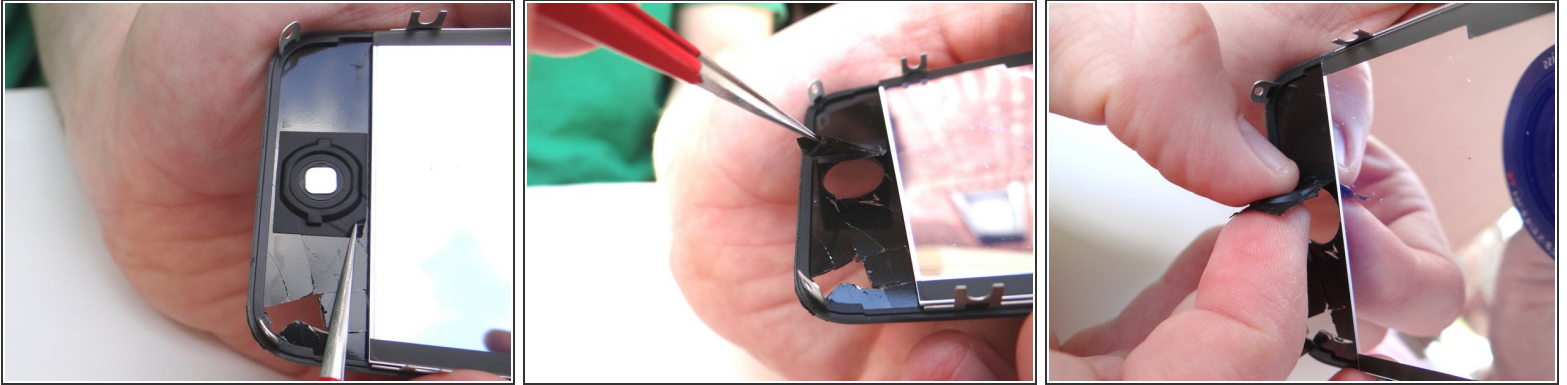
- If necessary, reattach the plastic ring to the front-facing camera. Use the Fine Point Tweezers to line tabs on the ring up with the slots on the frame.
- Use your fingers to push it snugly into place.

Step 30



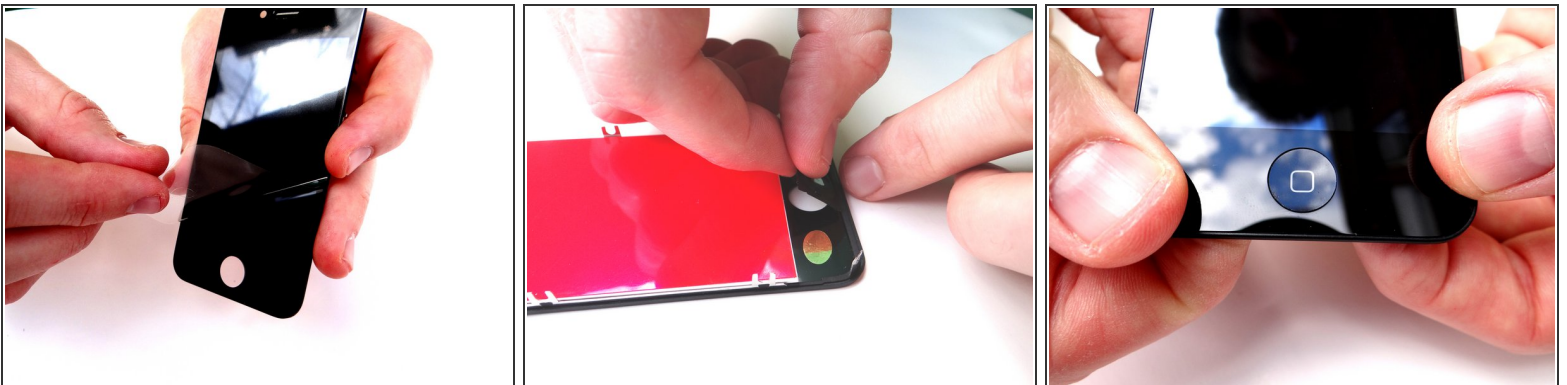
-  The replacement display may or may not come with the earpiece mesh installed.
- Picture 1: If not, you may be able to harvest one from the broken display using Curved Tip Tweezers. (Otherwise, you can use a brand new one).
 - Picture 2: If necessary, attach the earpiece mesh to the replacement display. Push it firmly into place with your fingers.

Step 31



- Picture 1: Use the fine point tweezers to pinch the edge of the tape holding the home button in place.
- Picture 2: Pull the home button up just enough that you can fit your index finger into the opening.
- Picture 3: Use your index finger and thumb to carefully remove the home button from the broken display.

Step 32



- Picture 1: Remove the screen protector on the replacement display.
- Picture 2: Install the home button on the replacement display.
- Picture 3: Double check to make sure the square in the home button is properly aligned. Make sure the tape surrounding the home button is secure.

Step 33



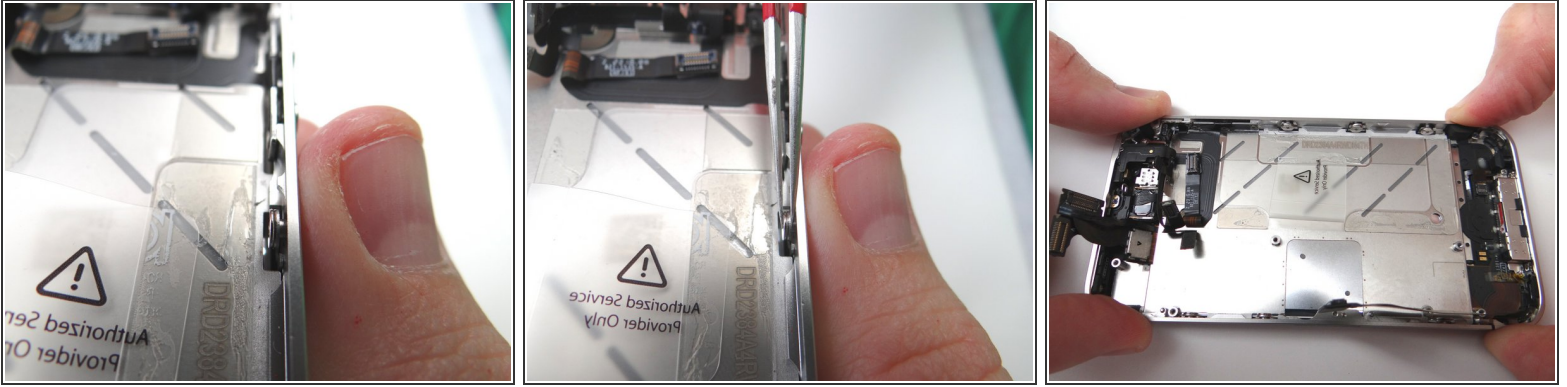
- Picture 1: This is what the replacement display should look like if the earpiece mesh and home button are properly aligned.
- Picture 2: Remove the protective covering from the back of the LCD.

Step 34



- Attach the new display to the mid-frame:
- Picture 1: With your left hand, gently pinch the digitizer and LCD cables (attached to the display assembly). With your right hand, align the mid-frame with the display assembly.
- Picture 2: Carefully guide the display cables back through the slot on the mid-frame while lowering the mid-frame onto the display assembly.
- **⚠ Picture 3: TAKE EXTRA CARE** to make sure the cables are pulled completely through the slot in the mid-frame before attaching the display assembly. The cables should be equal length and stick out far enough to reach their slots on the logic board, as in the picture.
- Make sure the mounting tabs in each corner of the display fit correctly into their slots on the mid-frame.

Step 35

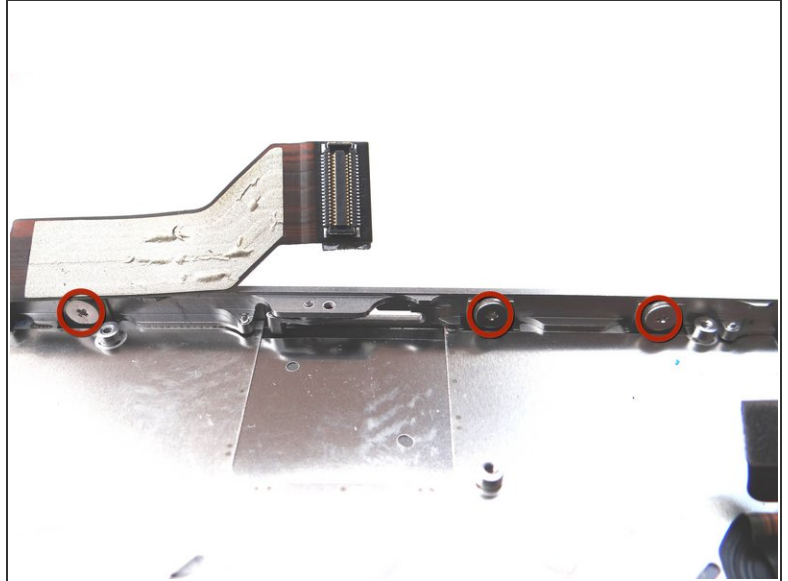
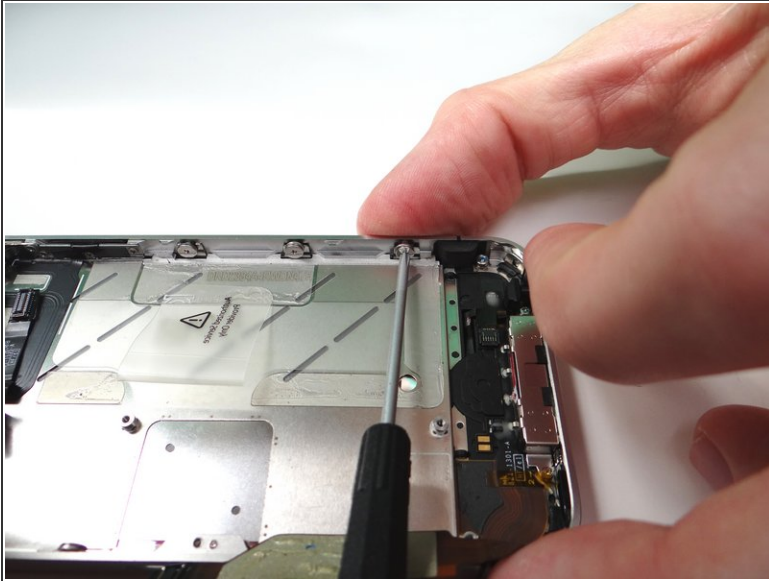


- Picture 1: Make sure the display mounting tabs along each side of the iPhone are situated behind the screw and washer used to hold them in place.
- Picture 2: If adjustments are needed, use the Fine Point Tweezers to hold the washer and screw in place while situating the display mounting tabs.

⚠ DOUBLED CHECK TO MAKE SURE THE LCD AND DIGITIZER CABLE ARE STILL PULLED COMPLETELY THROUGH THE MID-FRAME!

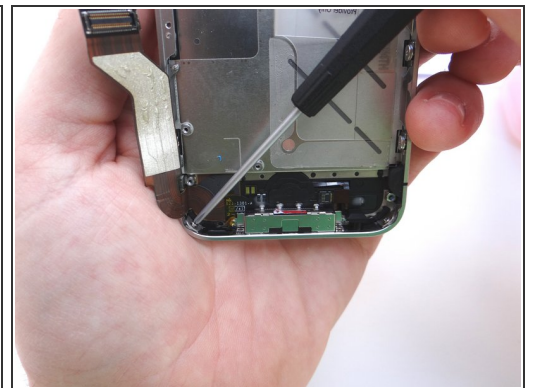
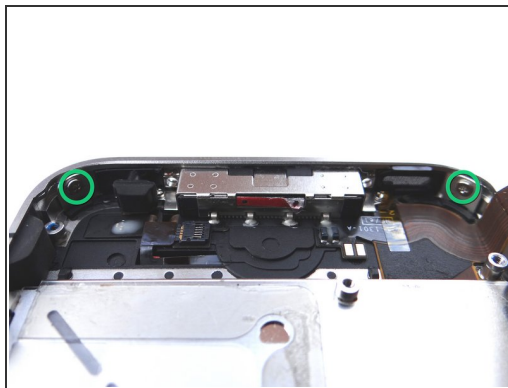
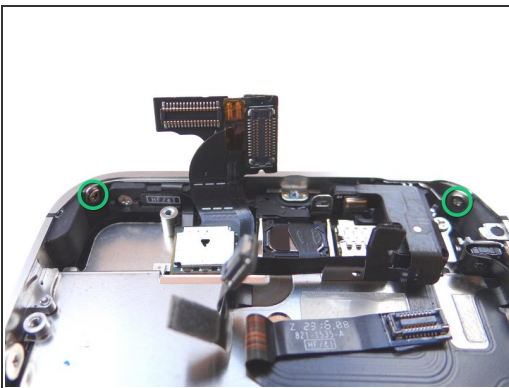
- Picture 3: Press the mid-frame firmly into place with the display.

Step 36



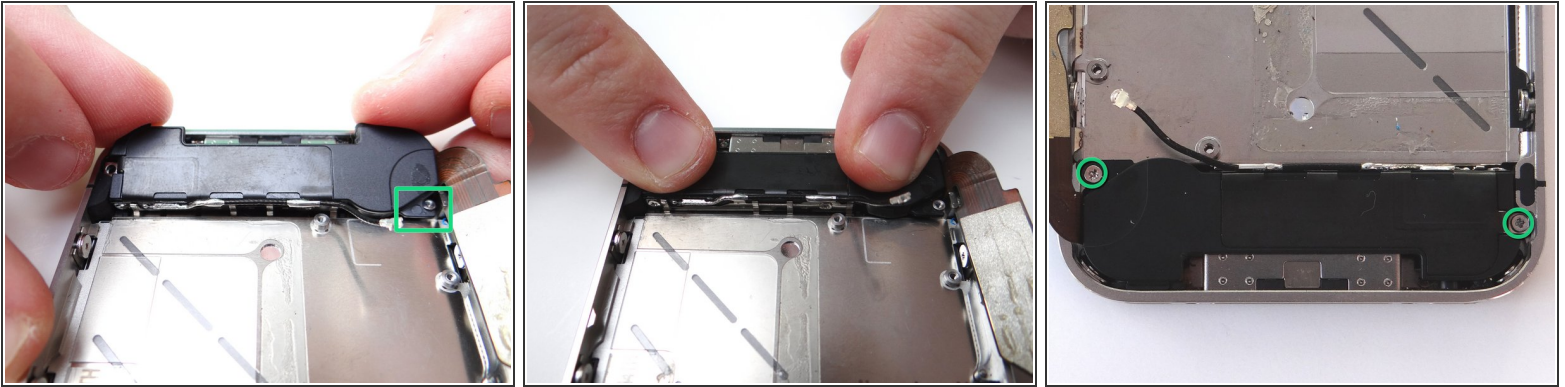
- Picture 1: tighten the three large-head Phillips screws along the right side of the iPhone.
- Picture 2: tighten the three large-head Phillips screws along the left side of the iPhone.

Step 37



- Picture 1: From Compartment F, replace two 1.5 mm Phillips screws in top corners of the phone.
- Picture 2: From Compartment F, replace two 1.5 mm Phillips screws in bottom corners of the phone.
- Stabilize the phone while you're replacing the screws by holding it as in Picture 3.

Step 38 — Replacement 6 - Loudspeaker Assembly



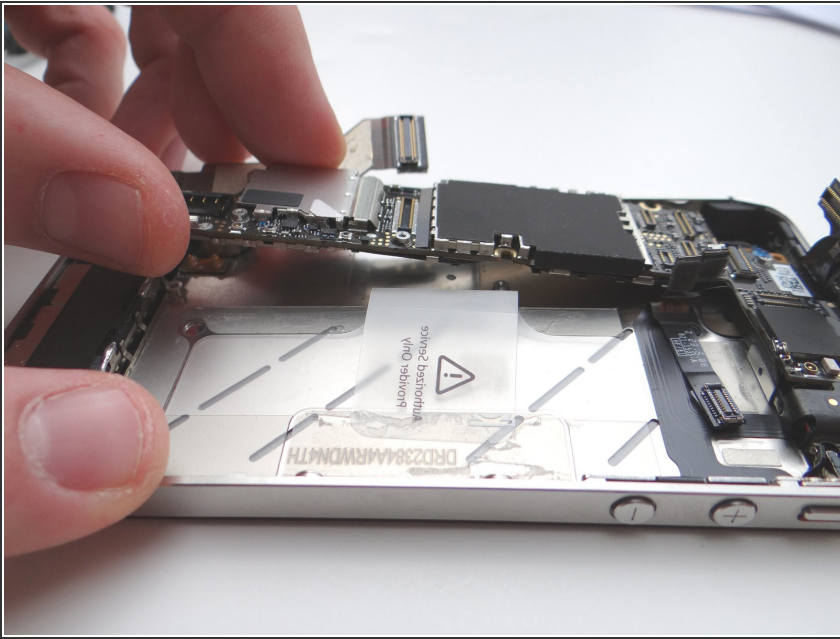
- Grab loudspeaker assembly from COMPARTMENT E (or replacement part) and place it inside mid-frame. Push the front of the assembly (with the clips) down first, then push the entire assembly into place.
- Replace the small triangular plastic bracket that was installed under the left-most screw in COMPARTMENT E.
- Replace the two 2.4 mm Phillips screws from the sides of the speaker enclosure assembly also in COMPARTMENT E.

Step 39 — Replacement 5 - Vibrator



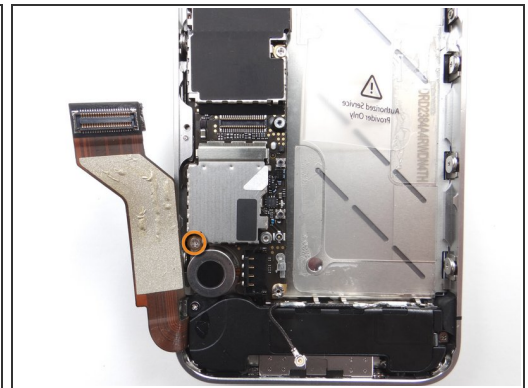
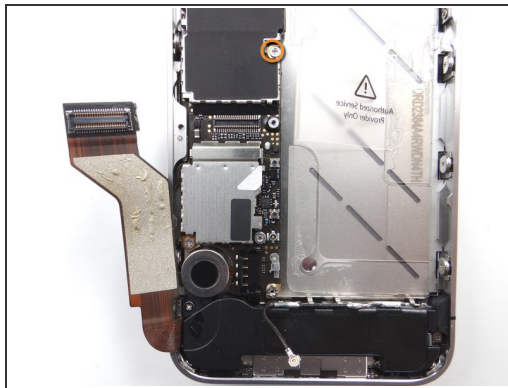
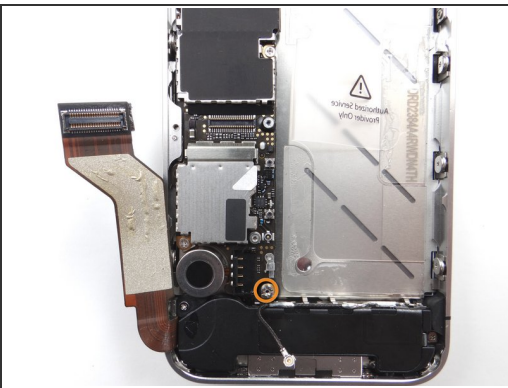
- Use your fingers to replace the vibrator from COMPARTMENT D (or replacement part).
- Make sure the mounting tab on the vibrator lines up with the screw slot on the mid-frame.

Step 40 — Replacement 4 - Logic Board



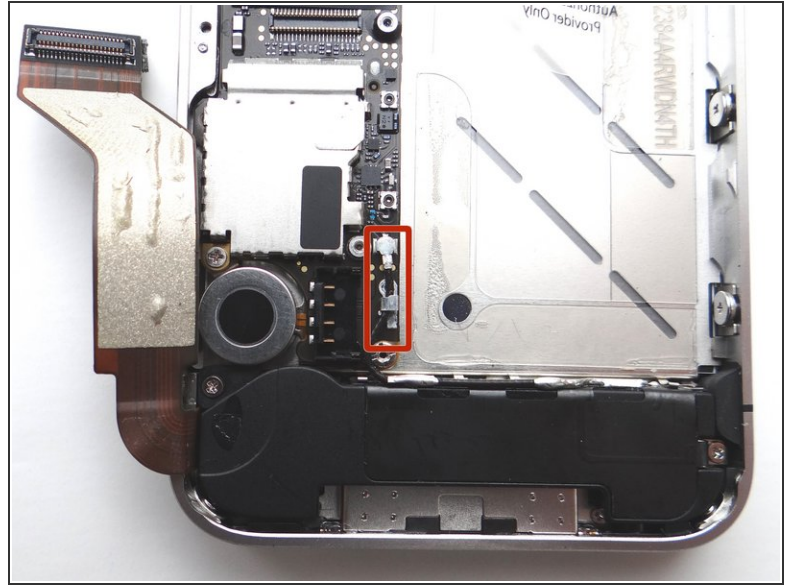
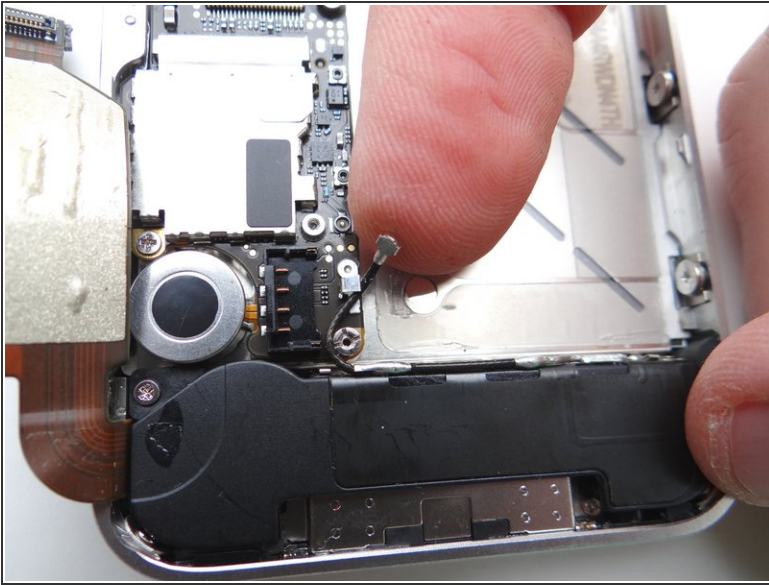
- Picture 1: Grab the logic board from ZONE III and carefully position the top edge into the mid-frame. Make sure the top edge is below the protruding tab on the mid-frame.
 - Push the logic board down into its position on the mid-frame.
- ⚠ Make sure no cables get trapped under the logic board while re-installing it.**

Step 41



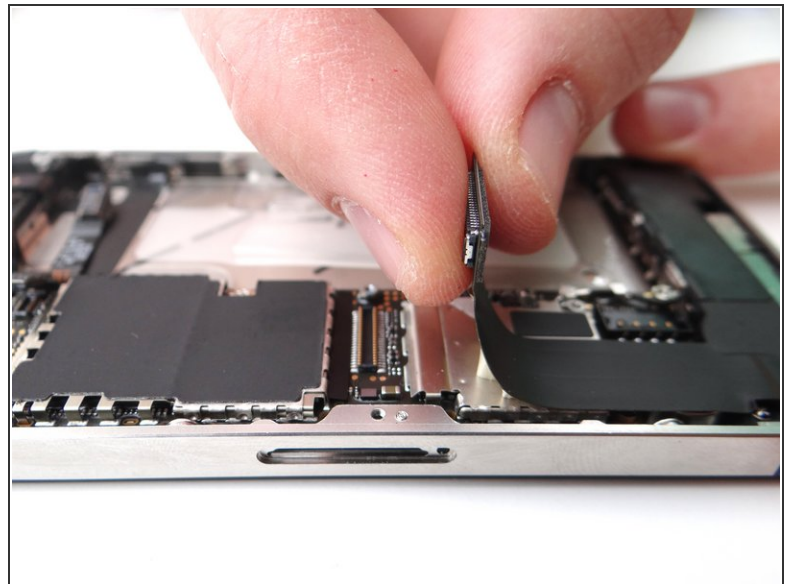
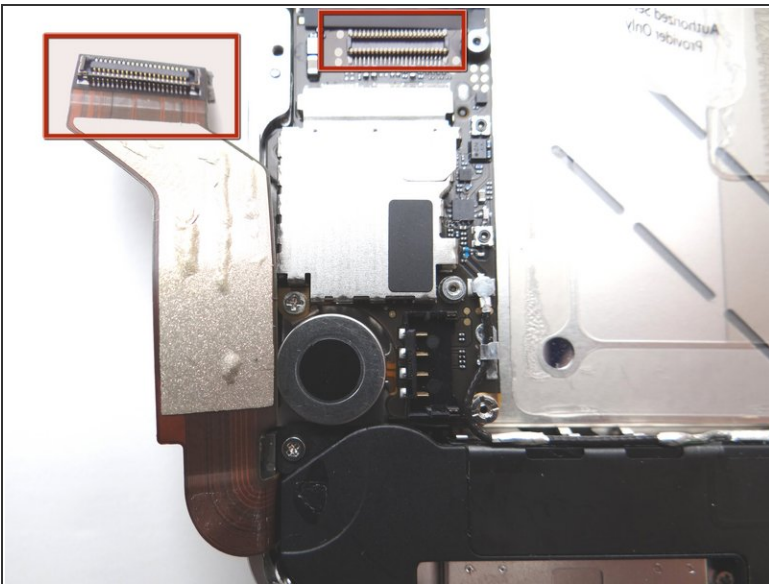
- Picture 1: Use a standard screwdriver to replace the 3.6 mm standoff screw from SLOT 14.
- Picture 2: Replace the 2.4 mm Phillips screw from SLOT 13.
- Picture 3: Replace the 2.5 mm Phillips screw near the vibrator motor from SLOT 12.

Step 42



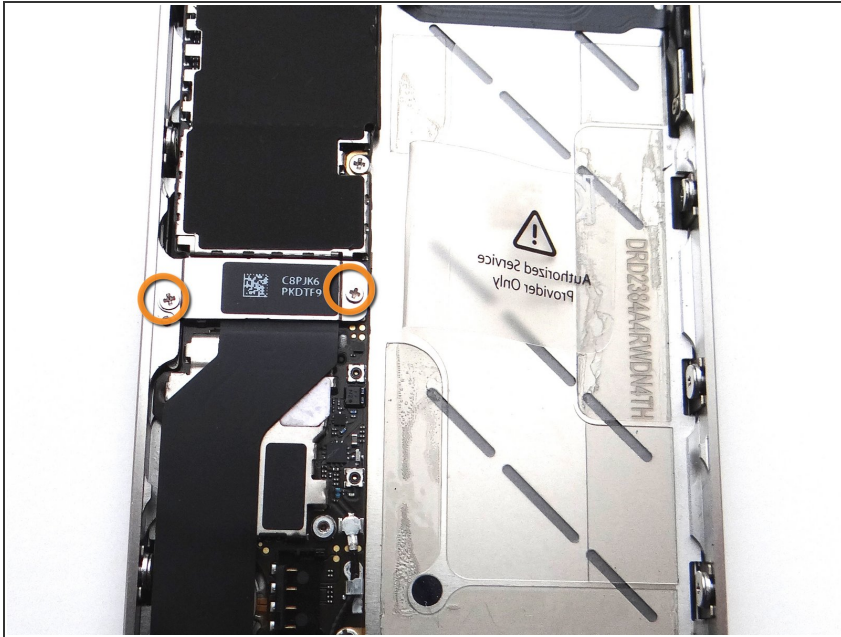
- Picture 1: Using your fingers, re-route the cellular antenna cable into the metal clips attached to the logic board, first pulling cable left, then right.
- Picture 2: Push the cellular antenna connector back into its slot on the logic board as in Picture 2.

Step 43



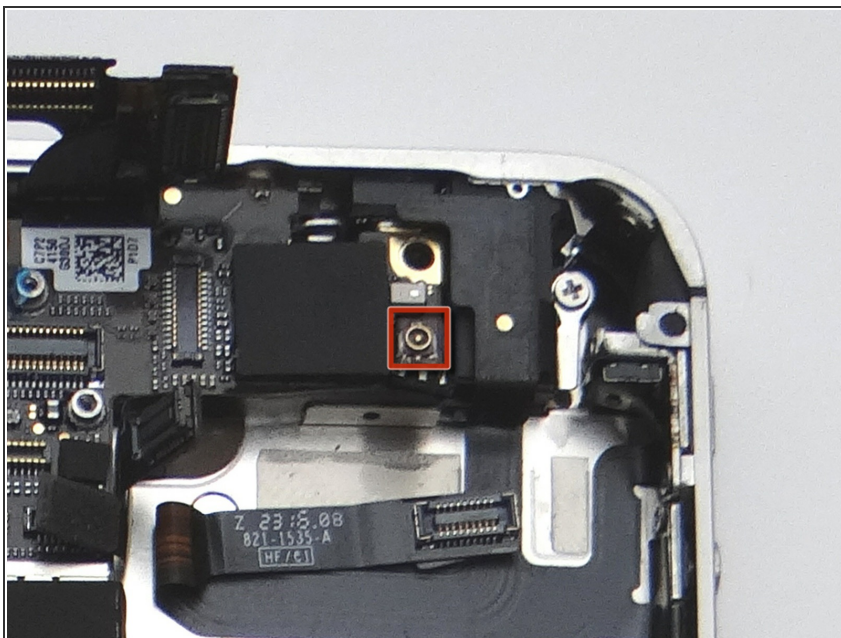
- Fold the charging port assembly cable back into position and reconnect it to its socket on the logic board.

Step 44



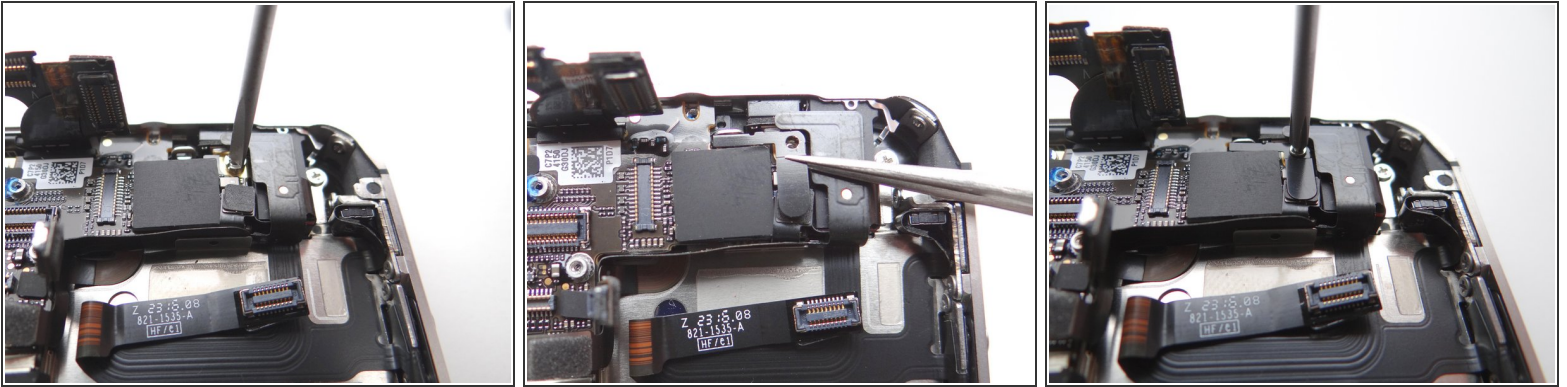
- Replace the charging port assembly shield from SLOT 11.
- Replace 1.5 mm Phillips screw on the right from SLOT 11.
- Replace 1.2 mm Phillips screw on the left from SLOT 10.

Step 45

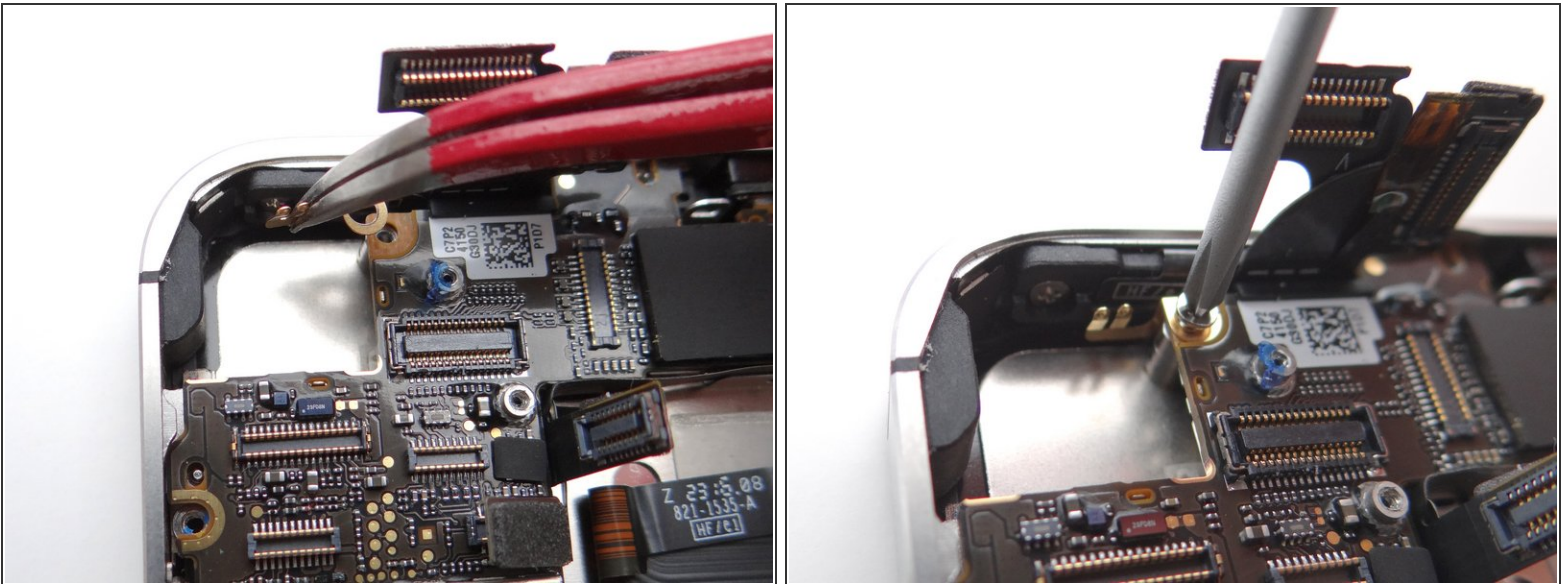


- Reconnect the wi-fi antenna.

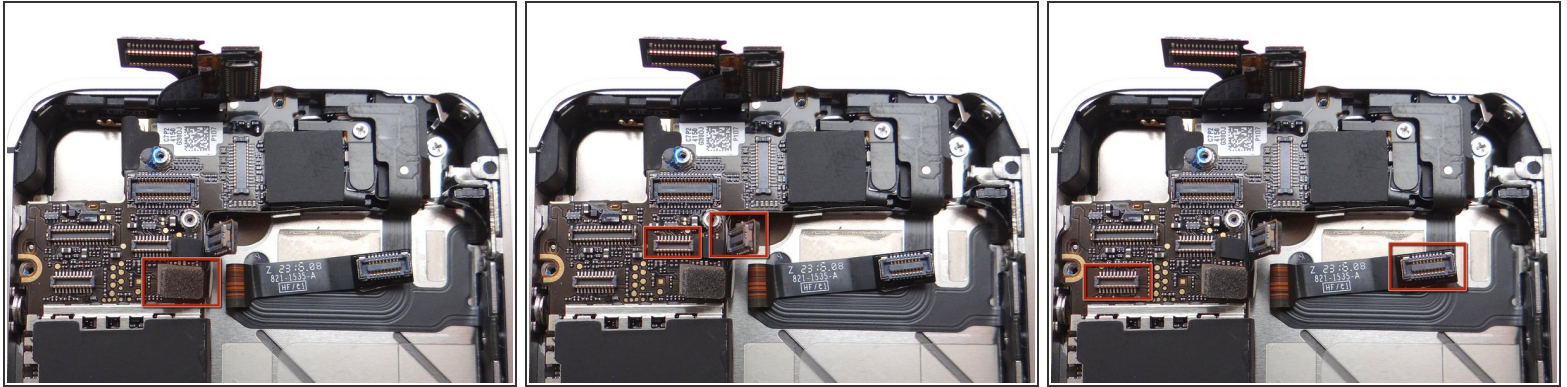
Step 46



Step 47

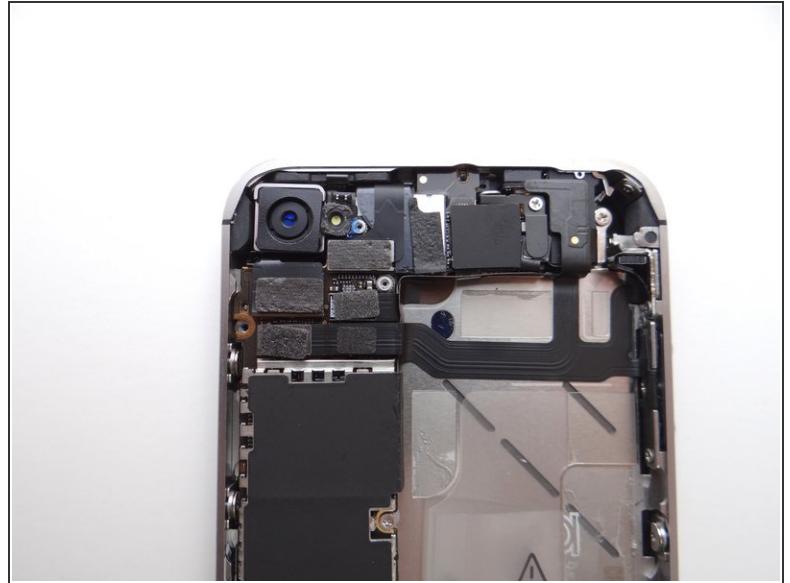


Step 48



- Picture 1: Reconnect the power button cable to its socket on the logic board. (Cable head is outlined in red - socket is directly beneath).
- Picture 2: Reconnect the top cable. (Cable head and socket are outlined in red).
- Picture 3: Reconnect the long cable: position the long cable (pinned to the mid-frame) over top of the power button cable. (Cable head and socket are outlined in red).

Step 49 — Replacement 3 - Rear Camera



- Picture 1: Replace Rear Camera from COMPARTMENT C (or replacement part). Push connector into socket on logic board.
- Also in Picture 1: Reconnect the digitizer and LCD cables sitting upright.
- Picture 2: This is what you should see after connecting the camera, digitizer and LCD cables.

Step 50



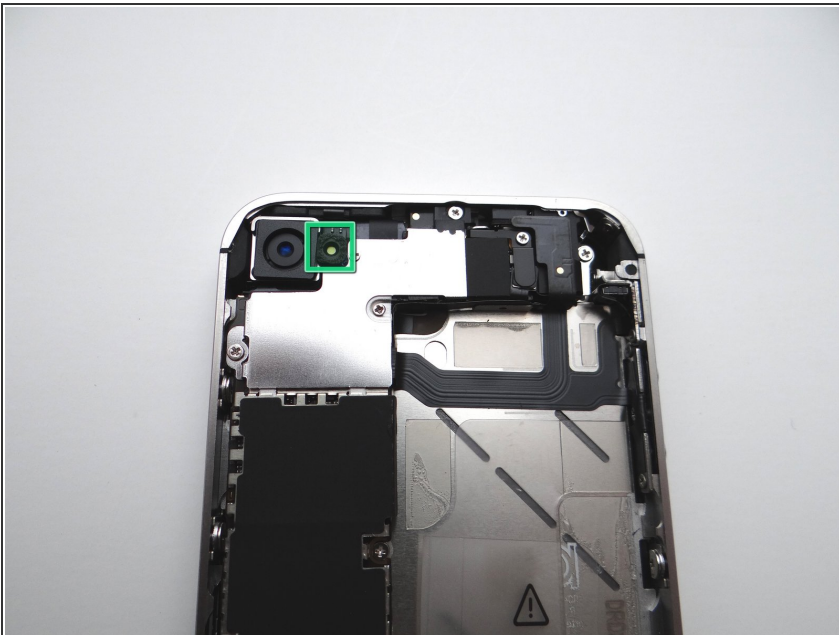
- Replace Cable Shield from COMPARTMENT B:
- Position the protruding tabs at the bottom of the Cable Shield into the slots on the EMI Shield (connected to the logic board) below.
- Push Cable Shield completely into place.

Step 51



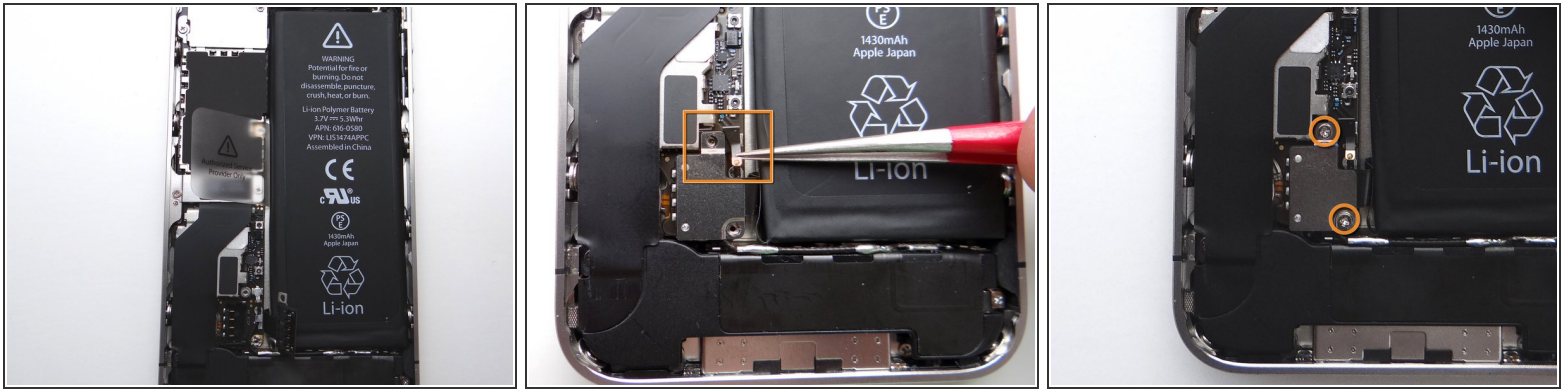
- Picture 1: Replace one 2.7 mm Phillips screw from SLOT 7.
- Picture 2: Replace one 1.2 mm Phillips screw from SLOT 6.
- Picture 2: Replace one 1.3 mm Phillips screw from SLOT 5.
- Picture 3: Replace one 2.6 mm Phillips screw from SLOT 4.


Step 52



- From COMPARTMENT B, if present, replace the outer plastic ring located on top of the rear camera's flash.

Step 53 — Replacement 2 - Battery



- Picture 1: Place the battery from ZONE II (or replacement part) in the mid-frame.
- Push battery connector into its socket on the logic board.
- Picture 2: With Fine Point Tweezers, place the L-Shaped Antenna Shield from SLOT 3 between the battery connector and its socket.
-  Make sure the screw slot on the battery connector lines up with the screw slot on the Antenna Shield, and that they both line up with the screw slot on the battery socket. If needed use tweezers to adjust its position.
- Picture 3: Use the 1.5 mm Phillips screw from SLOT 3 to secure the top of the battery connector.
- Picture 3: Use the 1.7 mm Phillips screw from SLOT 2 to secure the bottom of the battery connector.

Step 54 — Replacement 1 - Battery Cover



- Replace battery cover from ZONE I (or replacement part). Gently slide battery cover downward until it locks into place.
- Place the handset in your non-dominant hand, then replace two Pentalobe screws near charging port with special 5-point Pentalobe screwdriver. The screws are in SLOT 1.
- Replace the SIM card and SIM card tray from Sandbox COMPARTMENT A.