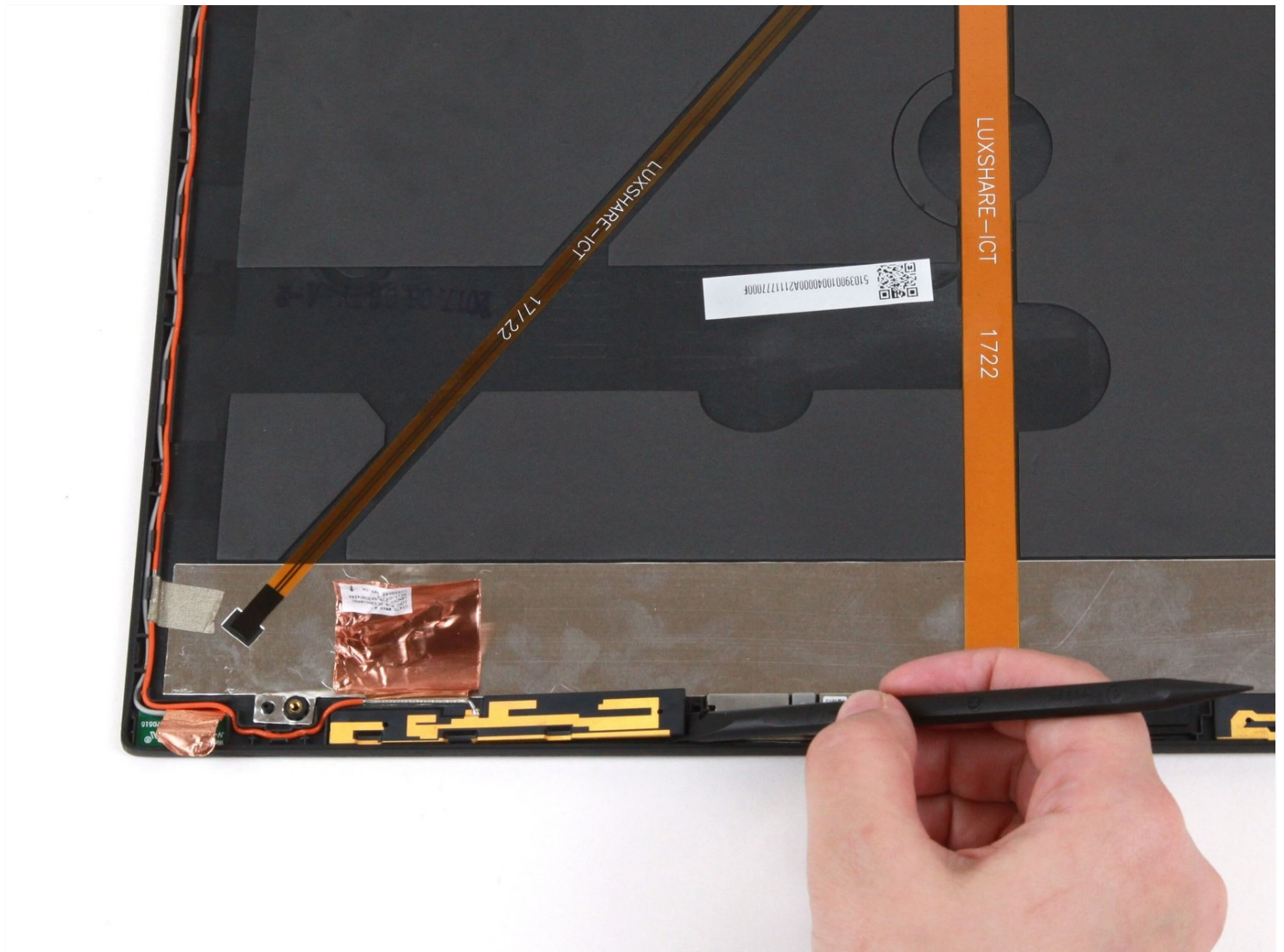




Lenovo ThinkPad T470 WWAN Antennas Replacement

Use this guide to replace the WWAN antennas in...

Written By: Kristen Gismondi



INTRODUCTION

Use this guide to replace the WWAN antennas in your Lenovo ThinkPad T470 laptop.

The WWAN (wireless wide area network) antennas allow you to connect to the internet without relying on a local Wi-Fi connection. If your computer has a WWAN card installed and you are having trouble using the internet without Wi-Fi, you may have a faulty WWAN card or antenna. Not every laptop is equipped with a WWAN card, but if you need to replace yours, follow [these instructions](#). If your laptop does not have a WWAN card, replacing the antenna won't do anything.

If you are having trouble accessing a local Wi-Fi connection, you may need to troubleshoot or replace the [Wi-Fi card](#) or [WLAN antennas](#).

Before attempting a replacement, make sure to [disable the internal battery](#), power down your device, and disconnect from any external power sources.



TOOLS:

Phillips #1 Screwdriver (1)
ESD Safe Blunt Nose Tweezers (1)
Spudger (1)
iFixit Opening Tool (1)



PARTS:

01AX748 - Lenovo Laptop Wireless Module - Genuine (1)

Step 1 — External Battery



⚠ Before you begin this guide, make sure to [disable the internal battery](#), power down your device, and disconnect from any external power sources.

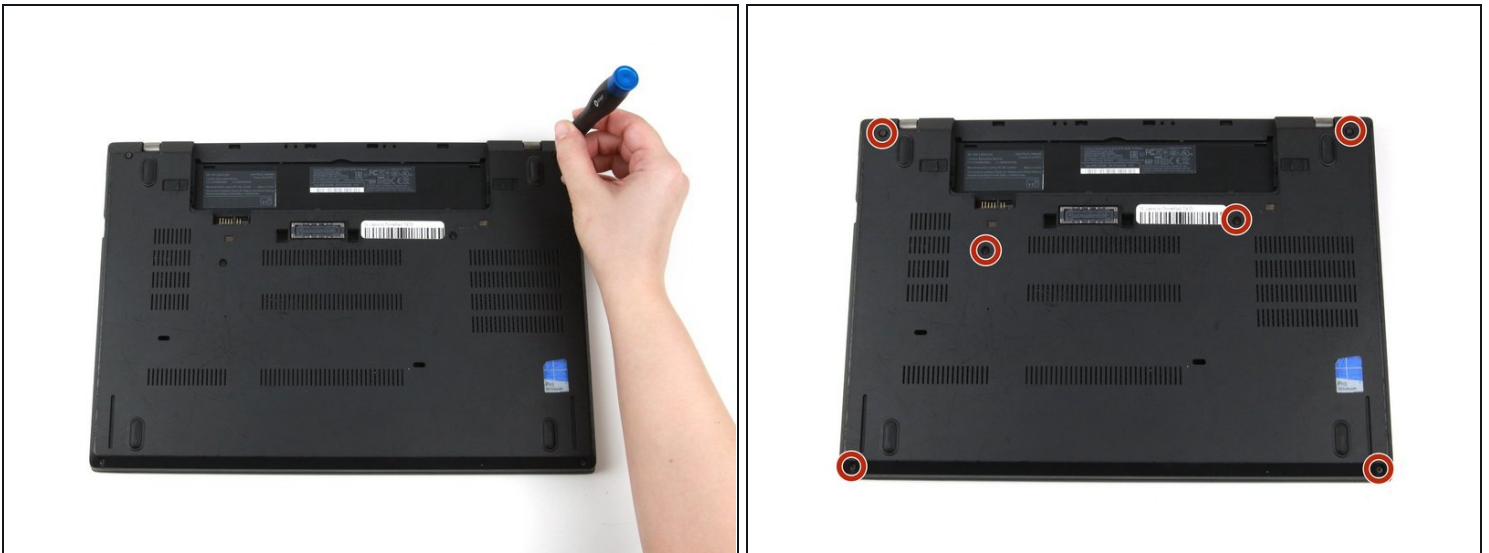
- Place the laptop so that the bottom is facing upwards.
- Slide the latch on the left side of the battery to the left until it clicks in place.

Step 2



- Slide the latch on the right side of the battery to the right and hold it in place with your thumb.
- Use your other hand to slide the battery towards the back of the laptop.
- Lift the battery up and away from the laptop.

Step 3 — Internal Components



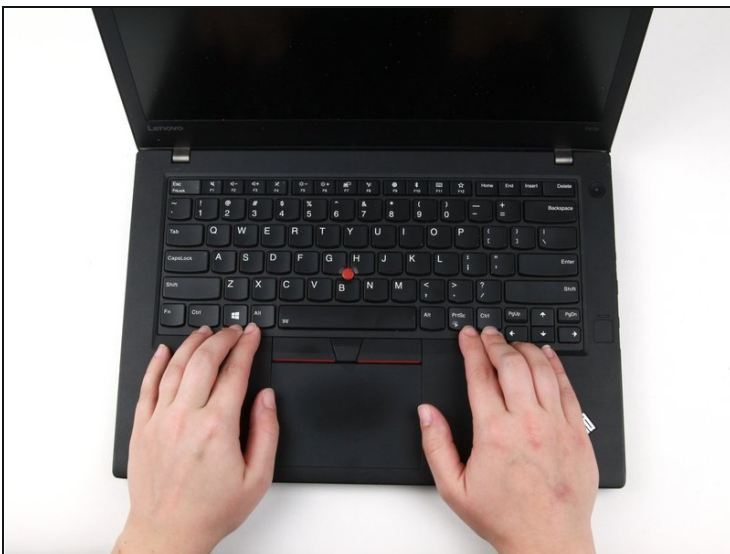
- Use a Phillips #1 screwdriver to loosen the six captive screws on the bottom cover of the laptop.

Step 4



- Place the laptop so that the top is facing upwards.
- Open the lid of the laptop.

Step 5



- Place your fingers on the bottom edge of the keyboard.
- Use a small amount of pressure to push the keyboard towards the screen.

Step 6



- Grab the bottom edge of the keyboard with your hands, and flip the keyboard upside-down, so it rests on the bottom of the laptop.

⚠ Potential for device damage: The keyboard is still attached to the rest of the laptop, so be gentle when flipping it over.

Step 7



- Use the flat end of a spudger to flip up the locking flaps securing each of the two ribbon cables.

Step 8



- Use your hands to lift the keyboard up and away from the laptop.

Step 9



- Close the laptop's lid and flip the laptop over so that the bottom is facing upwards.

Step 10



- Use your hands to pull up on the back cover and release the plastic clips starting on the bottom side of the battery compartment.

⚠ Potential for device damage: Be sure to detach the plastic clips in this area first. You risk cracking the bottom cover if you attempt to detach it from around the edges of the laptop first.

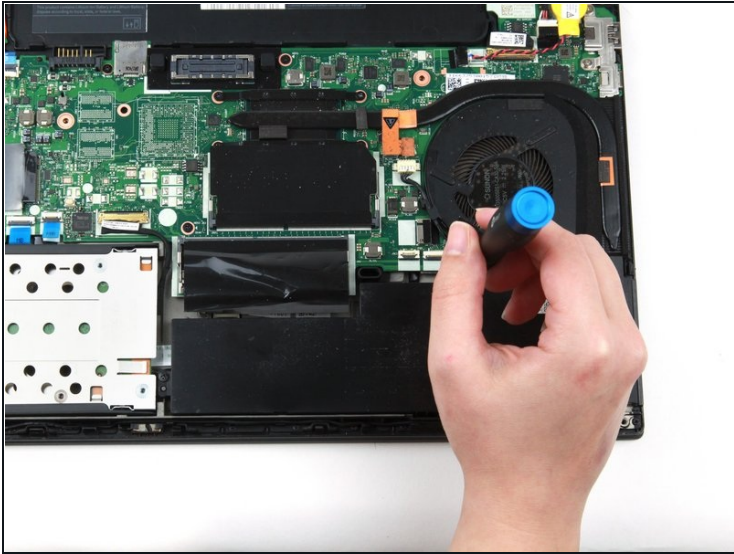
- Use your hands to pull up on the right side of the bottom cover to release the plastic clips.
- Use your hands to pull up on the left side of the bottom cover to release the plastic clips.

Step 11



- Remove the bottom cover from the laptop.

Step 12



- Use a Phillips #1 screwdriver to remove two 5 mm screws from the internal battery.

Step 13



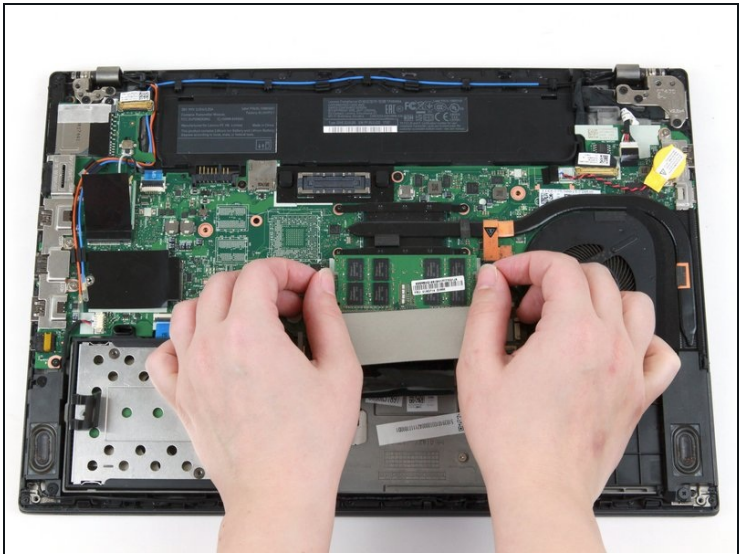
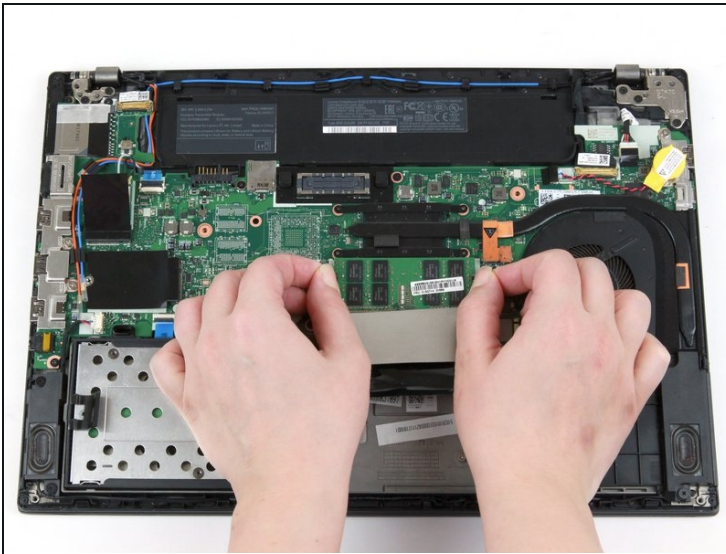
- Use your hands to lift the battery up and away from the laptop.

Step 14



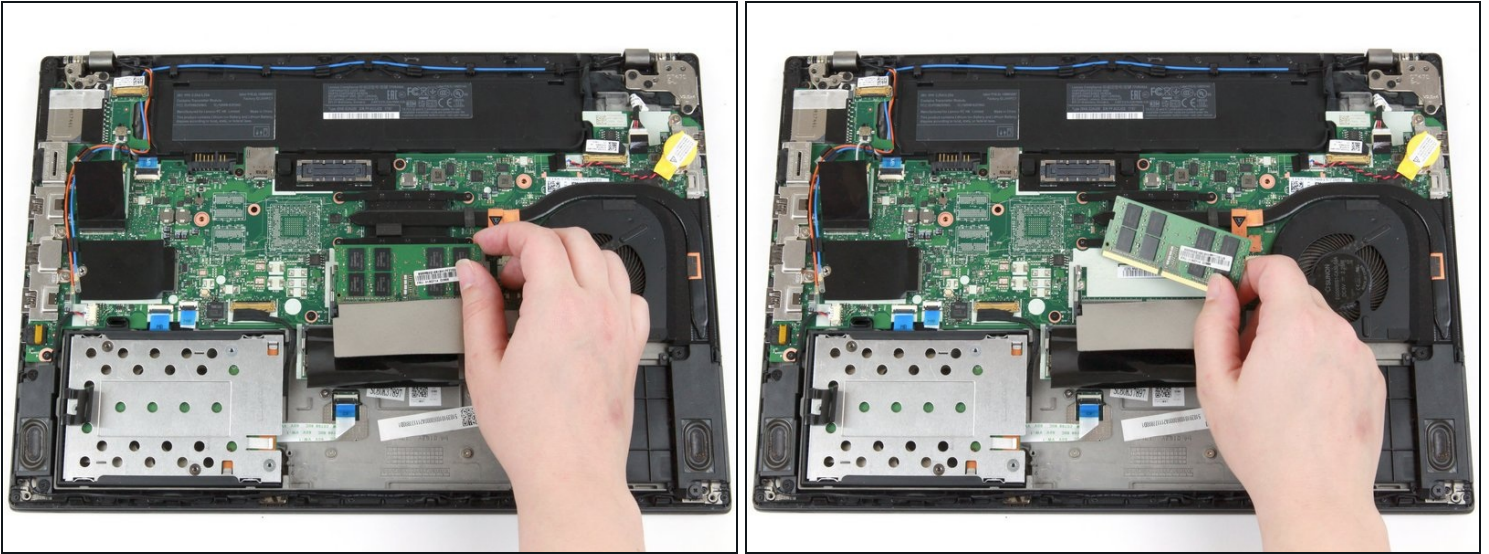
- Use your fingers to flip the black flap covering the top stick of RAM down.

Step 15



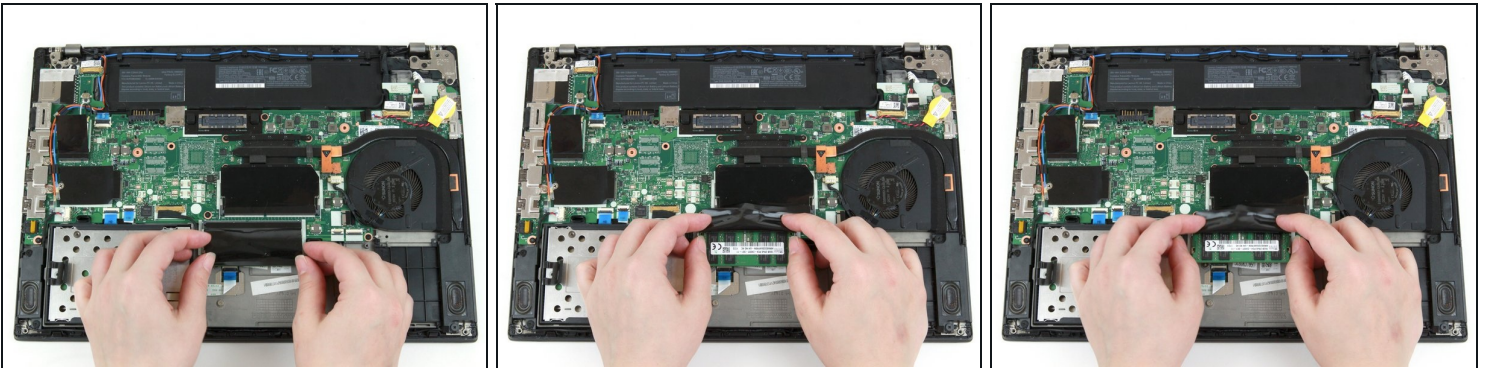
- Use your thumbs to push the metal clips on either end of the RAM outwards.
- ⓘ The RAM will pop up by a few millimeters.

Step 16



- Use your fingers to lift the RAM out of its socket and away from the laptop to remove it.

Step 17



- Use your fingers to flip the black flap covering the bottom stick of RAM up.
 - Use your thumbs to push the metal clips on either end of the RAM outwards.
- ❶ The RAM will pop up by a few millimeters.

Step 18



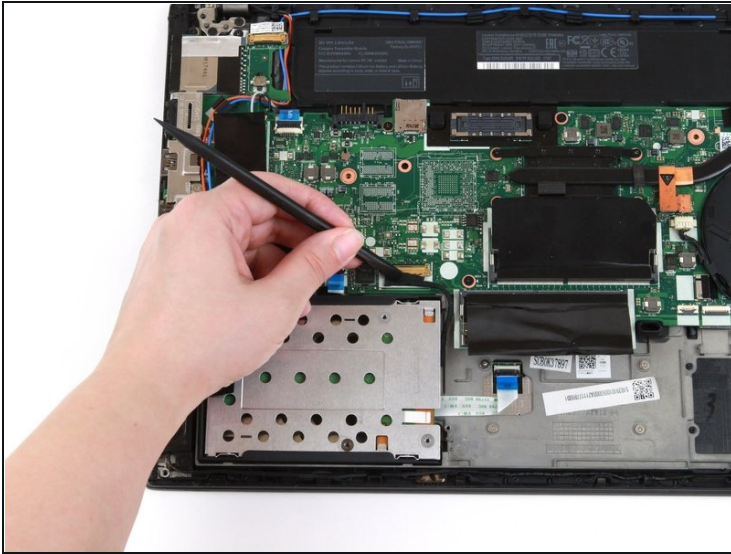
- Use your fingers to lift the RAM out of its socket and away from the laptop to remove it.

Step 19



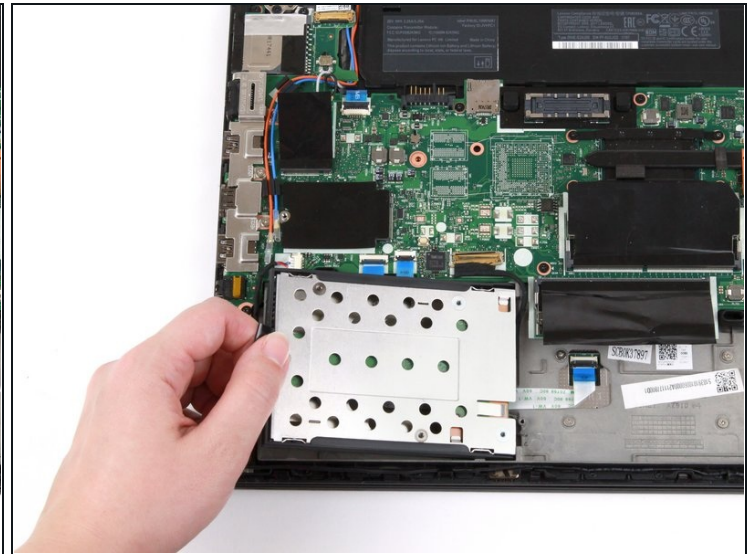
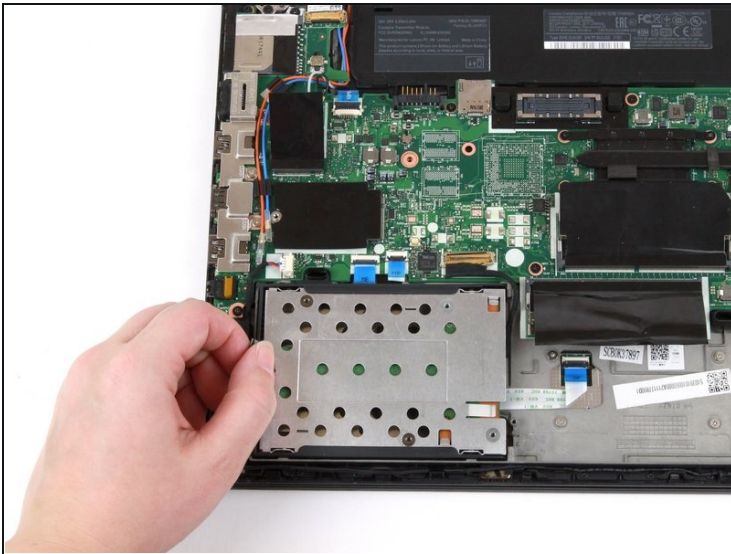
- Use the flat end of a spudger to flip up the metal clip securing the SSD connector to the motherboard.

Step 20



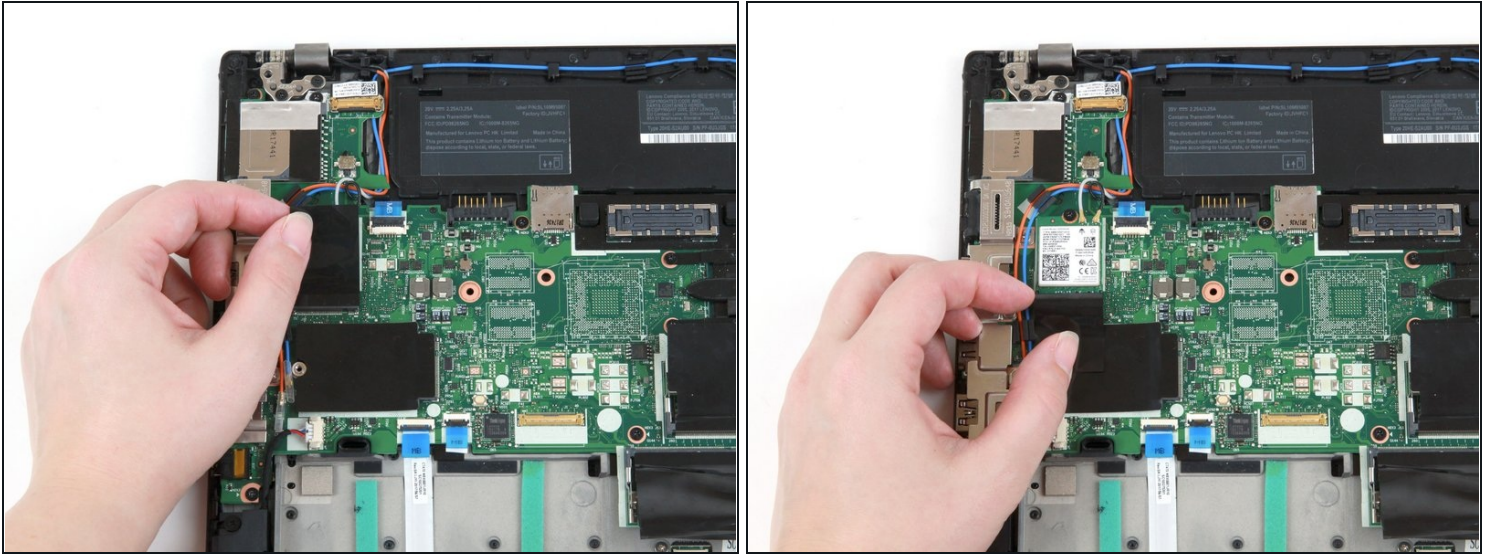
- Use the flat end of a spudger to separate the connector from its socket.

Step 21



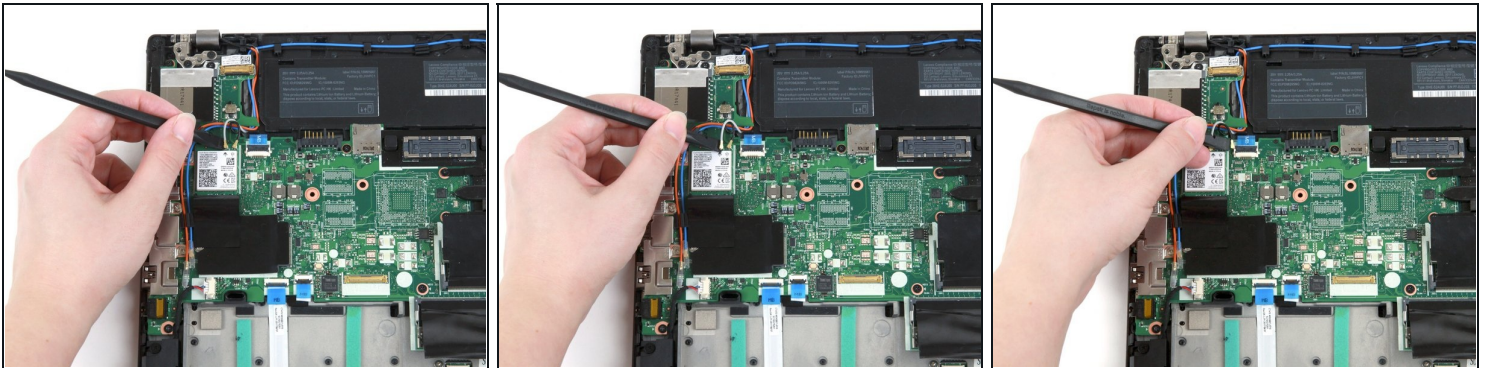
- Grab the tab on the left side of the hard drive, and pull up to remove it from the laptop.

Step 22



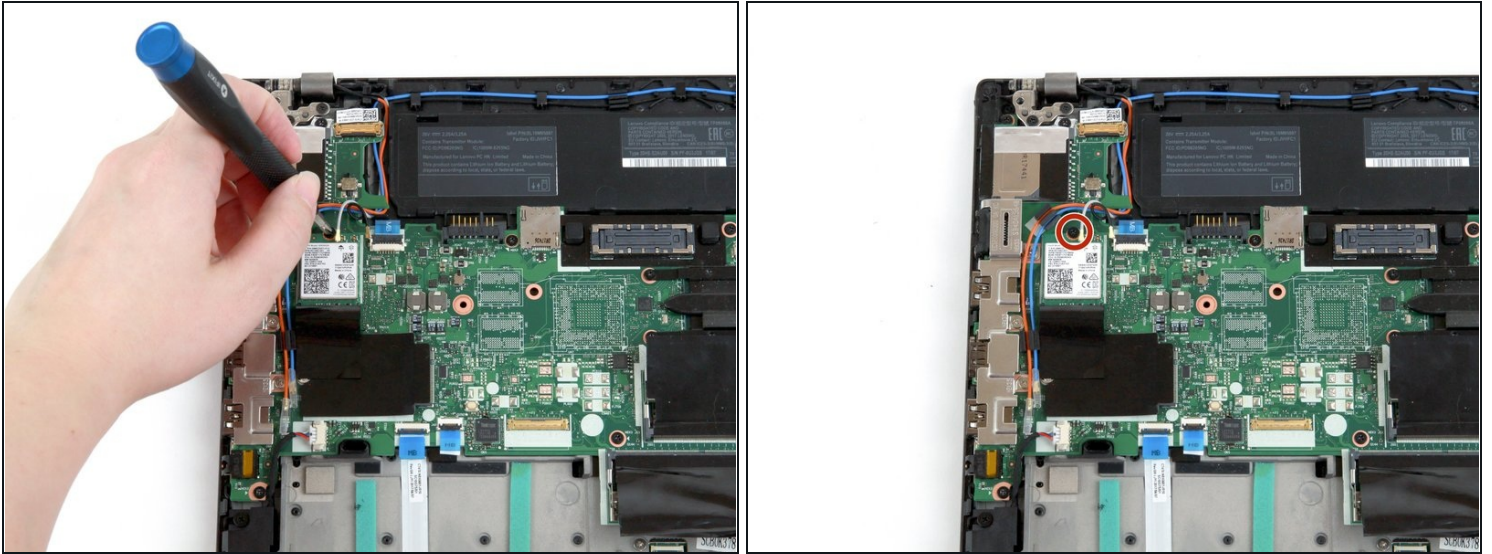
- Use a finger to press the black flap covering the Wi-Fi card down.

Step 23



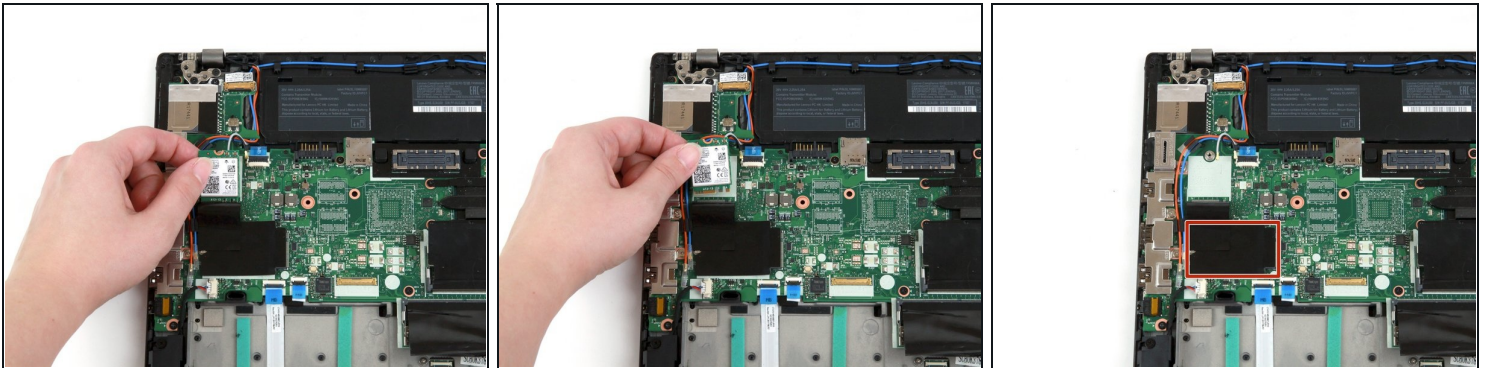
- Use the flat end of a spudger to disconnect the two coaxial wires from the Wi-Fi card.
- ☒ When reassembling, reattach the gray wire on the left and the black wire on the right.

Step 24



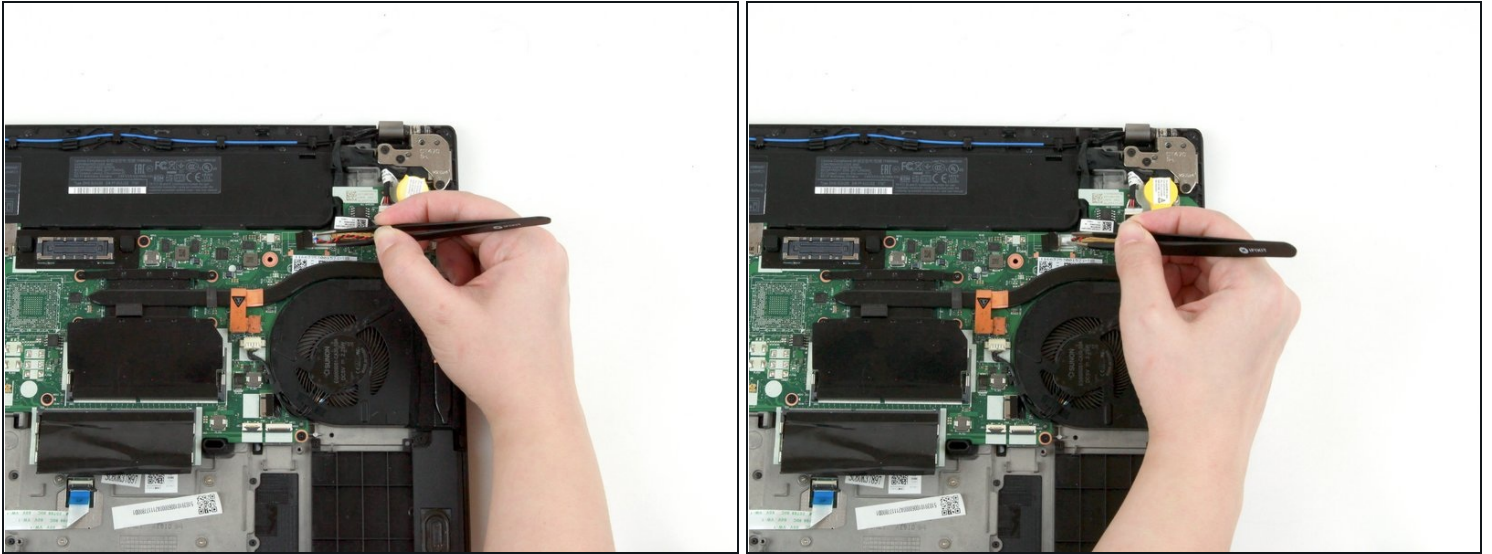
- Use a Phillips #1 screwdriver to remove the single 4 mm screw from the Wi-Fi card.

Step 25



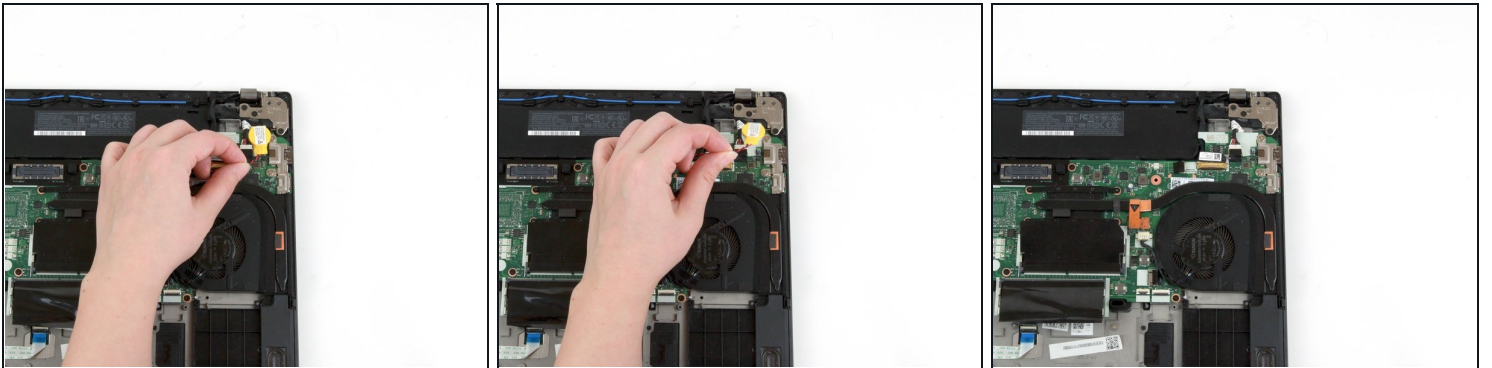
- Use your fingers to lift the Wi-Fi card up and out of its slot.
- This laptop does not include a WWAN card, but if yours does, follow the same procedure as Steps 9-12 to remove it.

Step 26



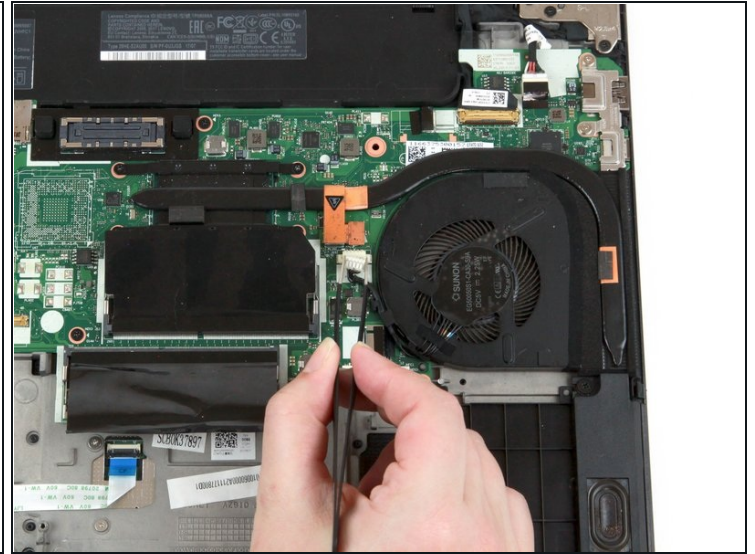
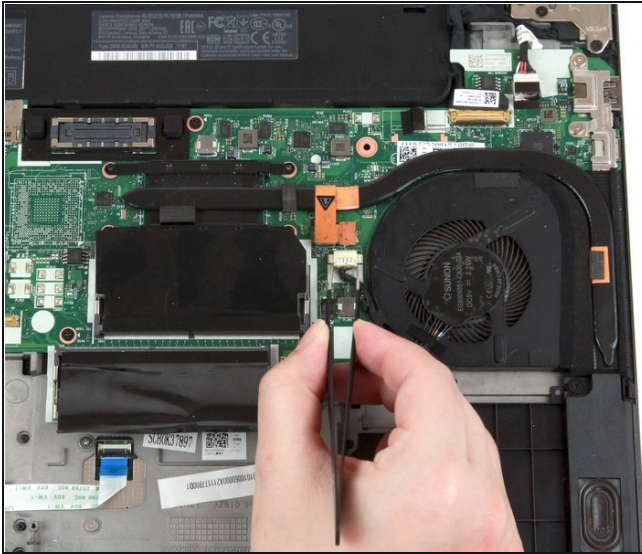
- Use a pair of blunt nose tweezers to pull the white connector out of its socket.

Step 27



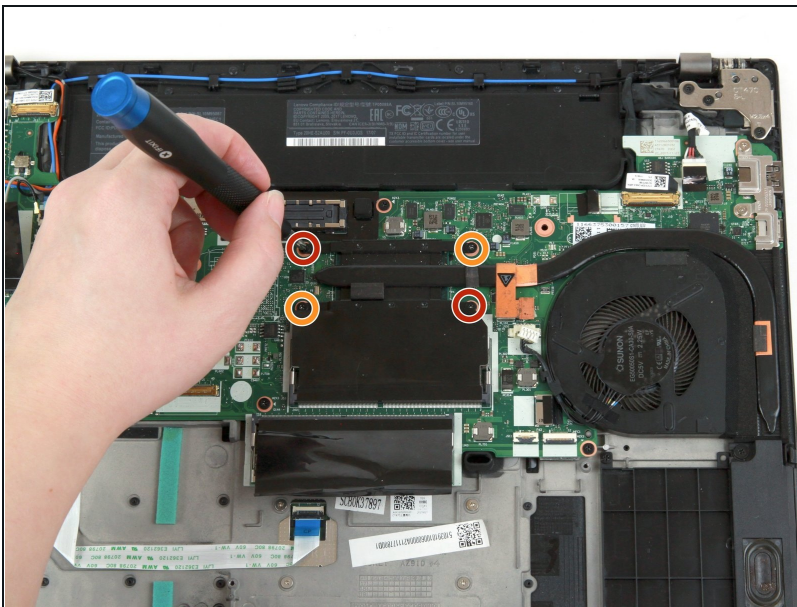
- Grab the wire attached to the coin cell battery, and lift it up and out of the laptop.

Step 28



- Use a pair of blunt nose tweezers to pull the white fan connector out of its socket on the motherboard.

Step 29



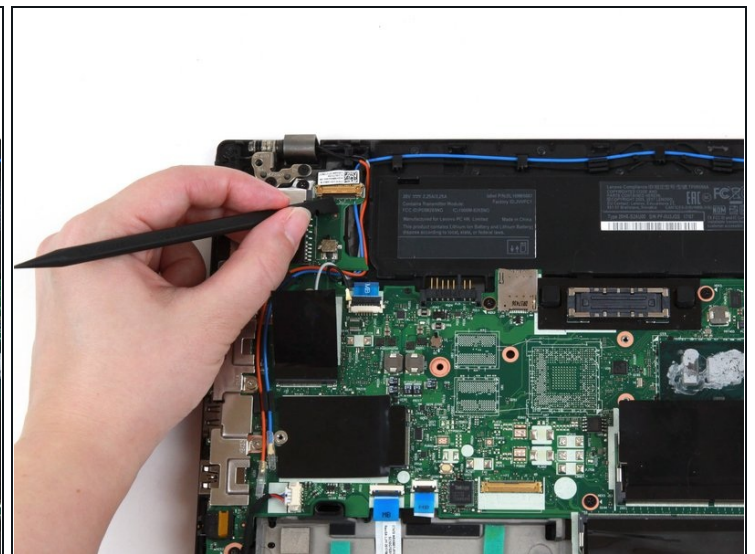
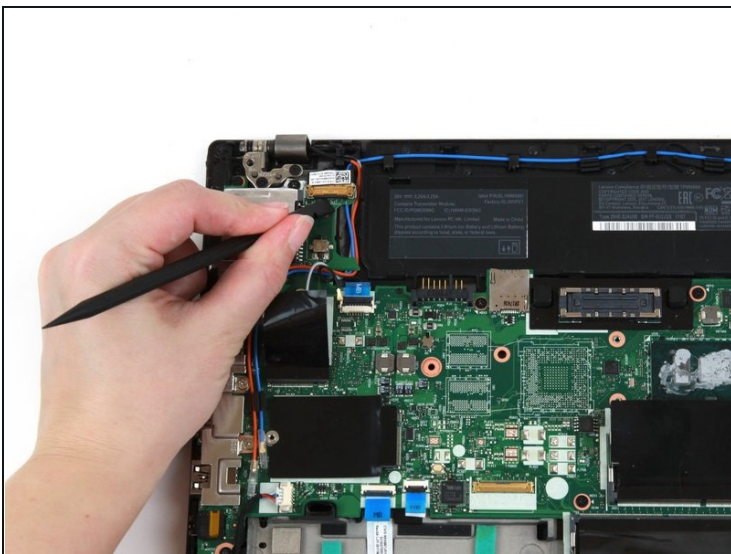
- Use a Phillips #1 screwdriver to loosen the first pair of captive screws on the fan and heat sink assembly in a crosswise pattern.
- Use a Phillips #1 screwdriver to loosen the second pair of captive screws on the fan and heat sink assembly in a crosswise pattern.

Step 30



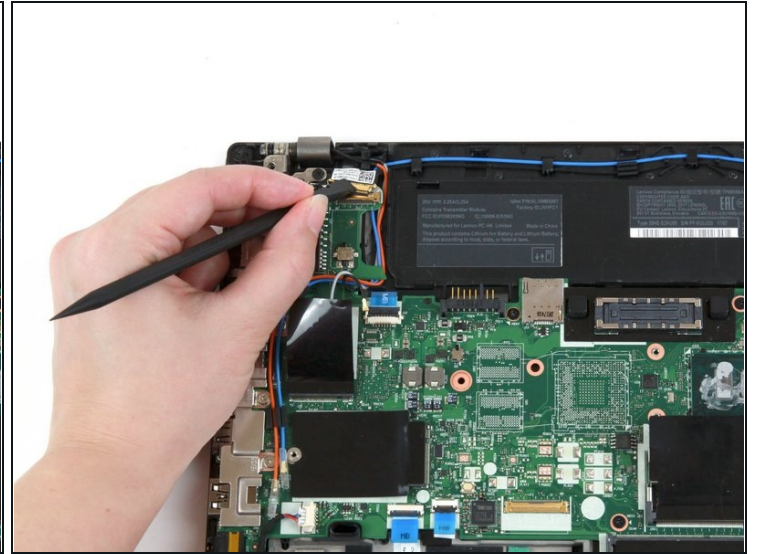
- Use your hand to pull the fan and heat sink assembly up and away from the laptop.
- ☑ Clean the thermal paste from the heatsink and CPU and [reapply fresh paste](#) before reassembling.

Step 31 — Motherboard



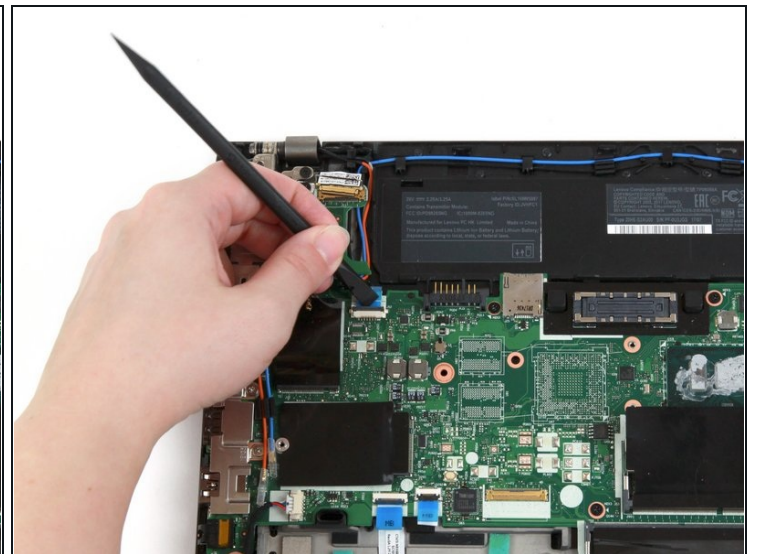
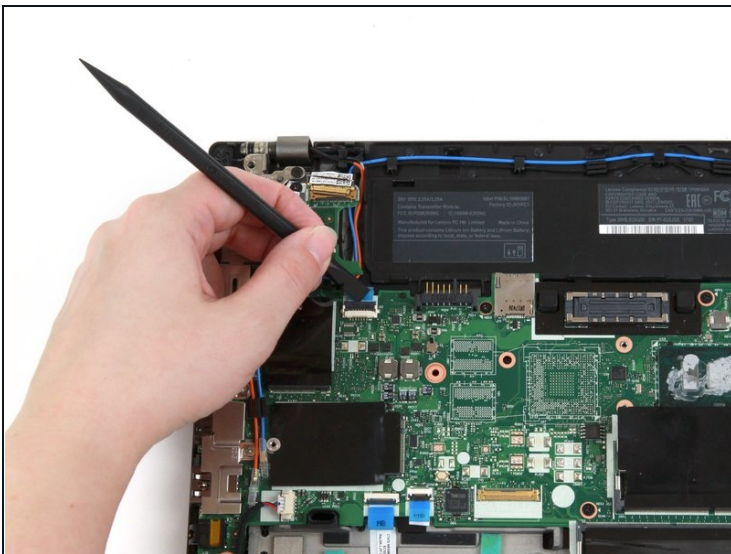
- Use the flat end of a spudger to flip up the metal clip securing the LCD cable to the motherboard.

Step 32



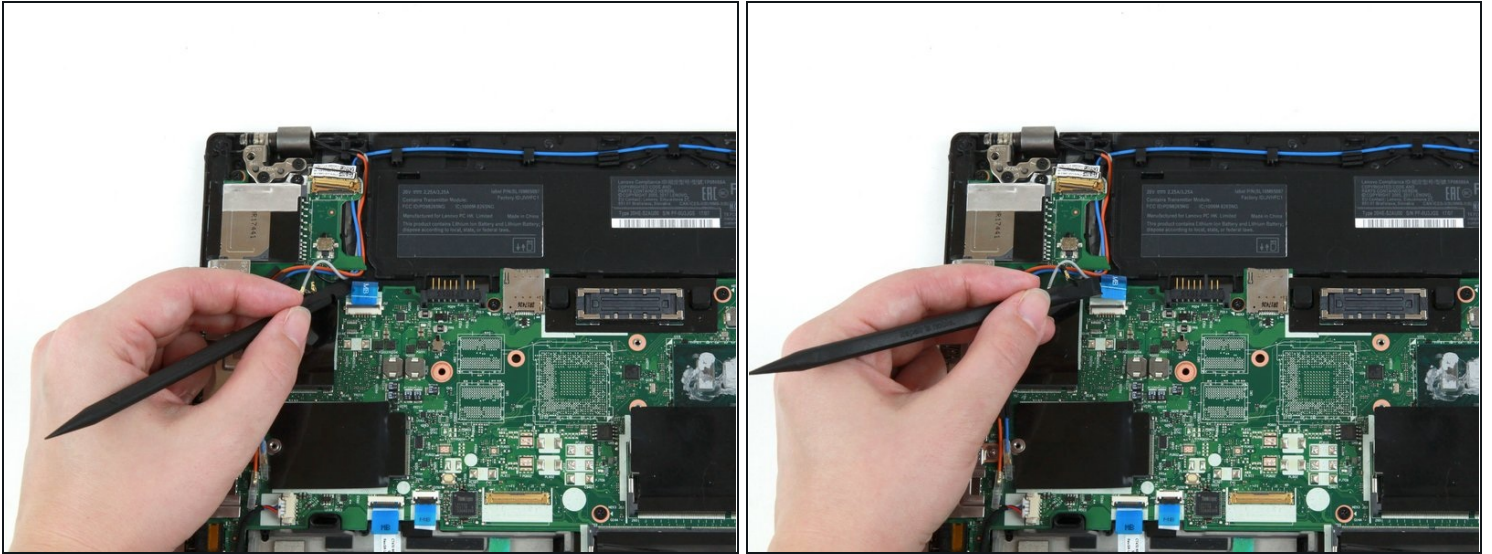
- Use the flat end of a spudger to disconnect the LCD cable from its socket on the motherboard.

Step 33



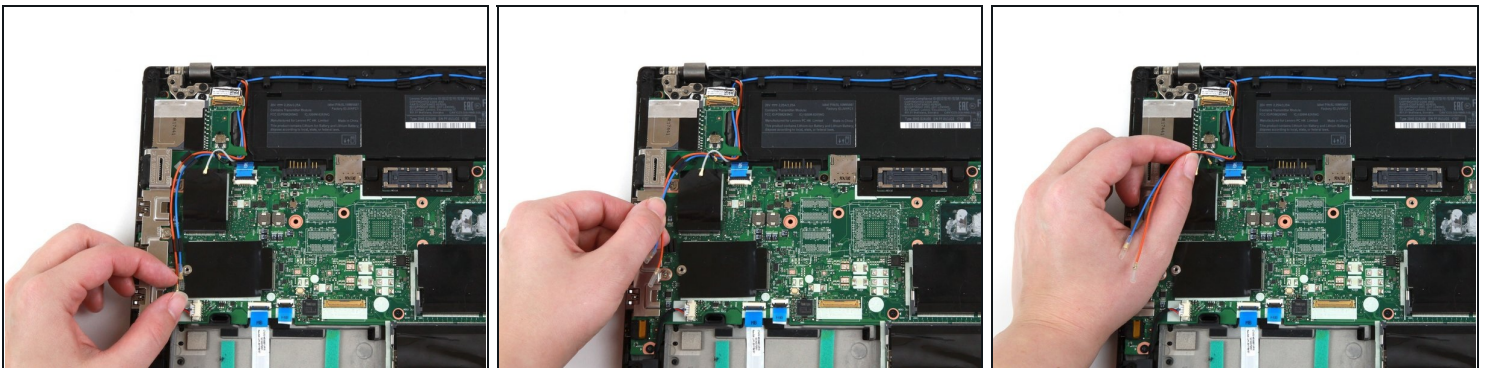
- Use the flat end of a spudger to flip the power button cable's black tab up.

Step 34



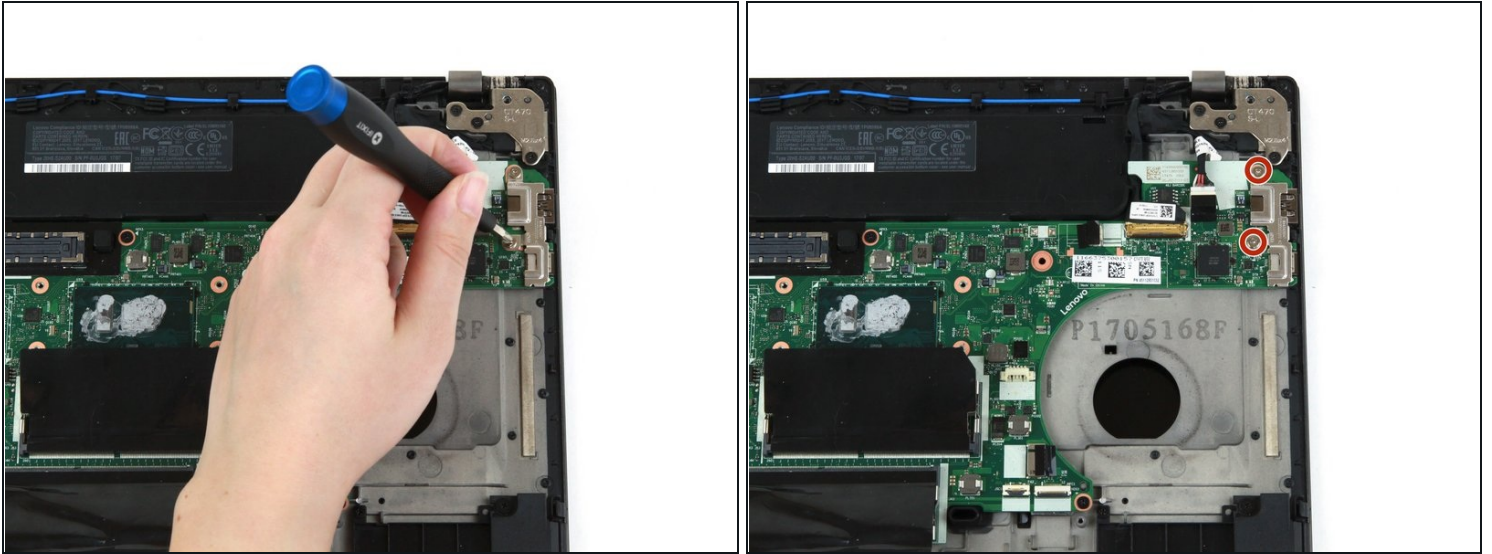
- Use the flat end of a spudger to slide the power button cable out of its connector on the motherboard.

Step 35



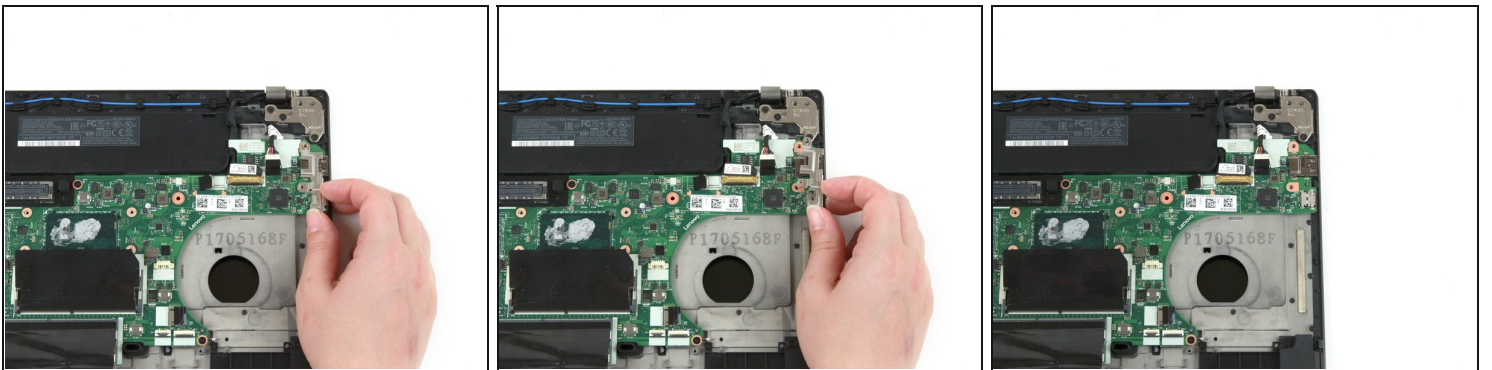
- Use your fingers to detach the red and blue antenna cables from their slots.

Step 36



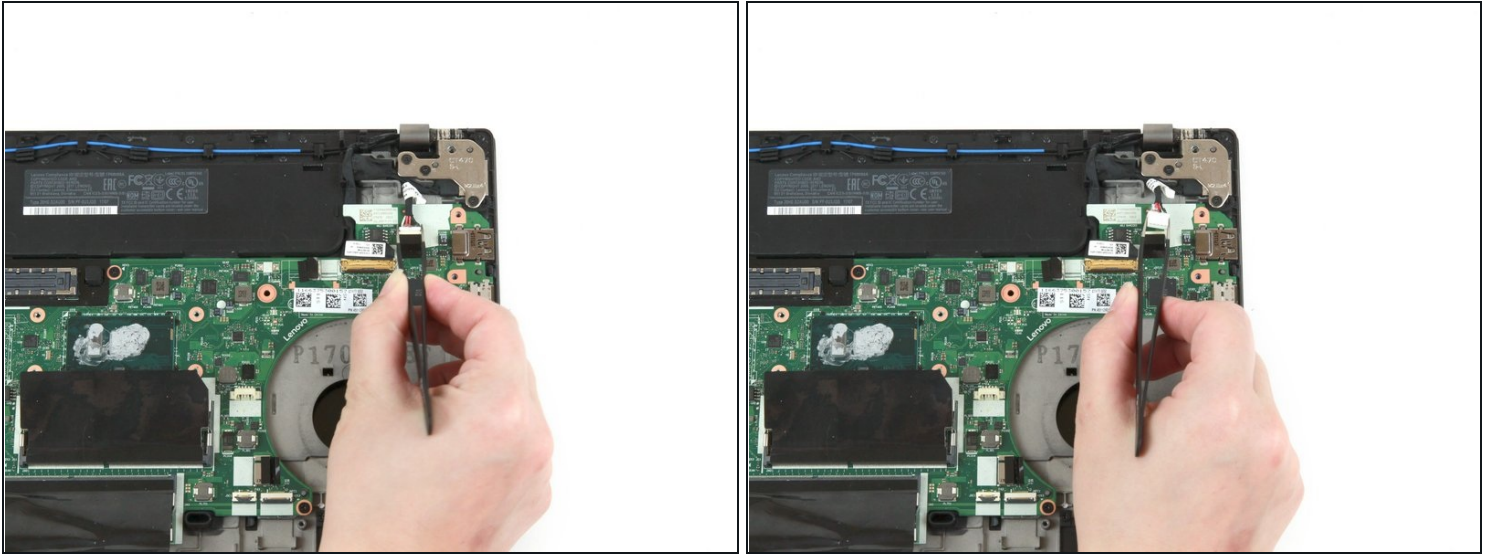
- Use a Phillips #1 screwdriver to remove the two 4 mm screws from the USB bracket.

Step 37



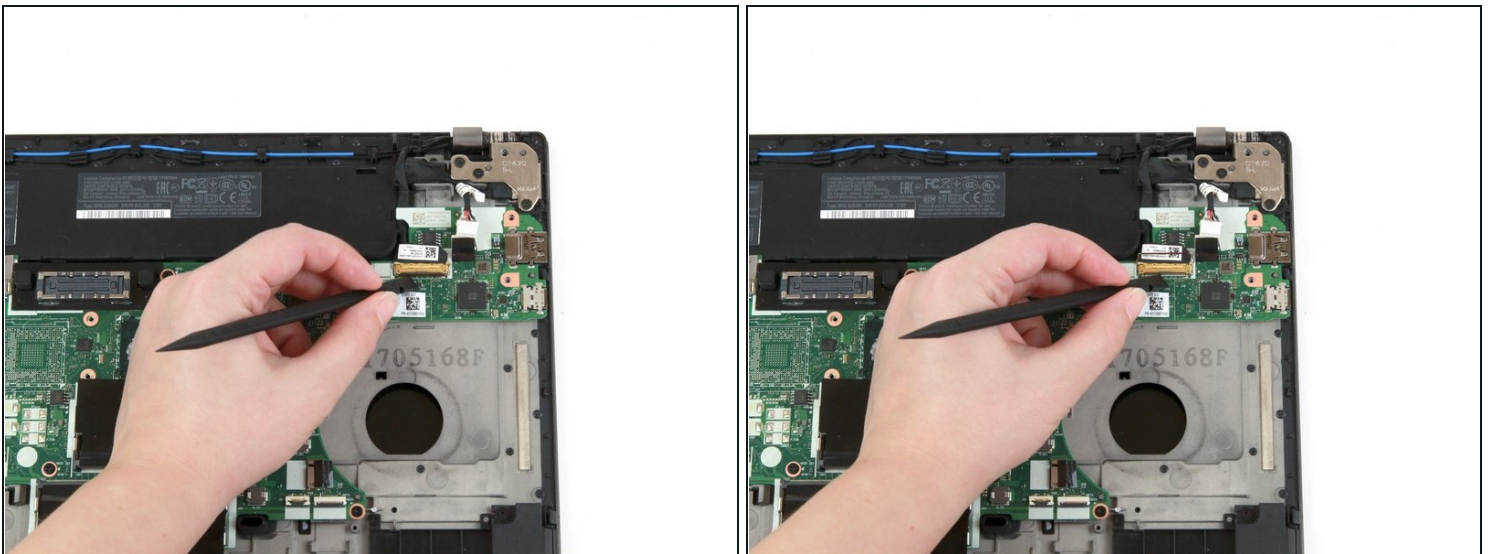
- Use your fingers to lift the USB bracket up and away from the laptop.

Step 38



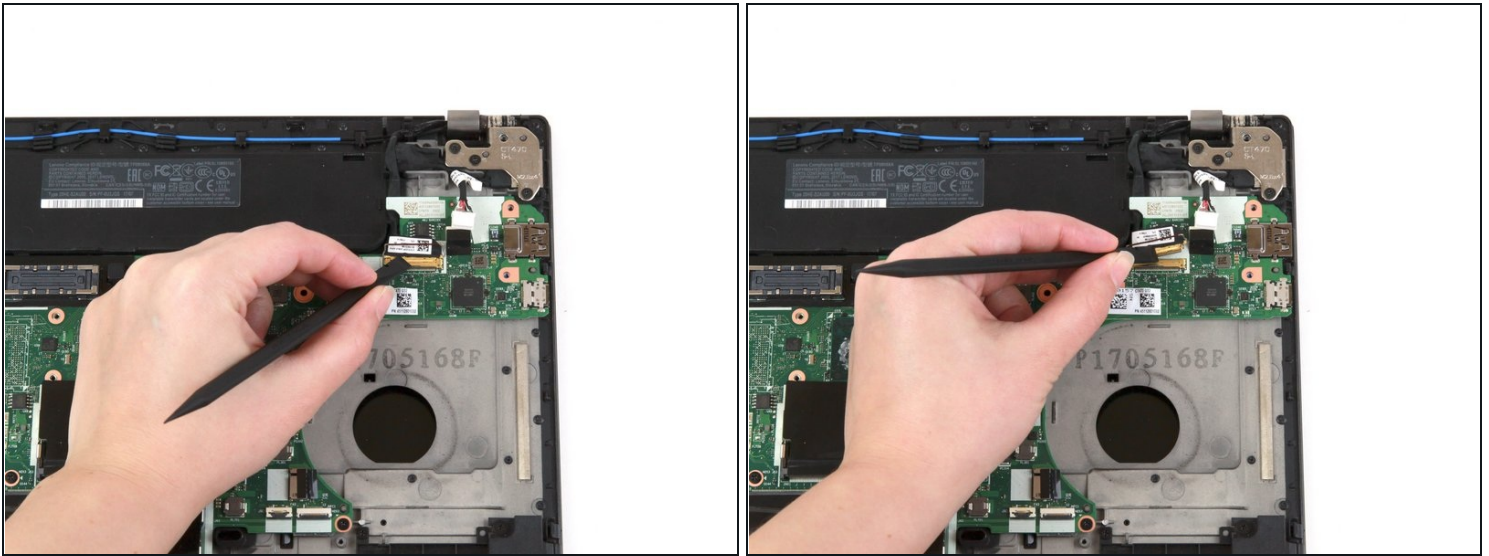
- Use a pair of blunt nose tweezers to disconnect the DC-in cable from its socket on the motherboard.

Step 39



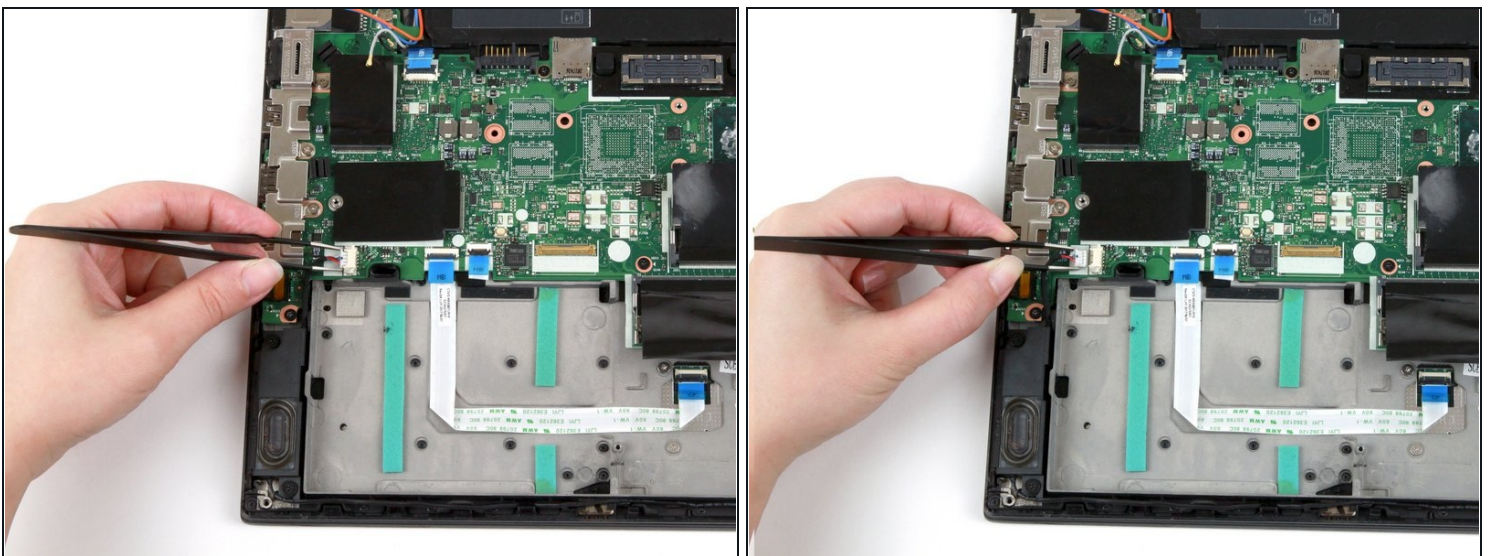
- Use the flat end of a spudger to flip up the metal bracket securing the camera cable to the motherboard.

Step 40



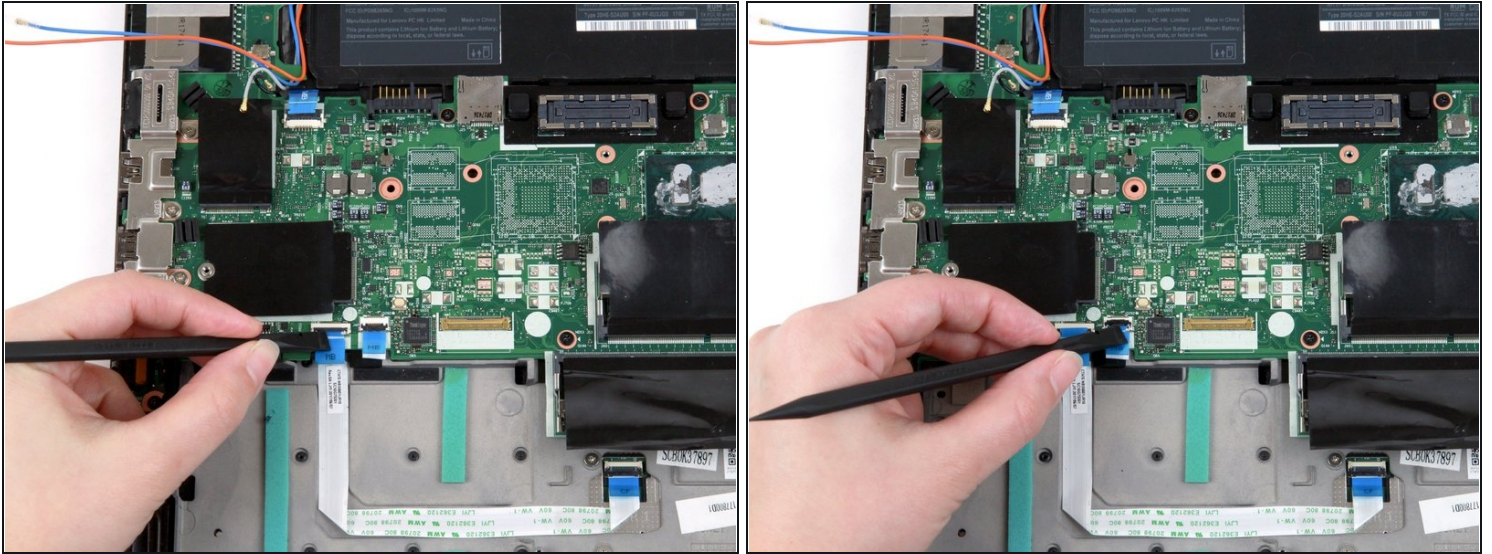
- Use the flat end of a spudger to disconnect the camera cable from its socket on the motherboard.

Step 41



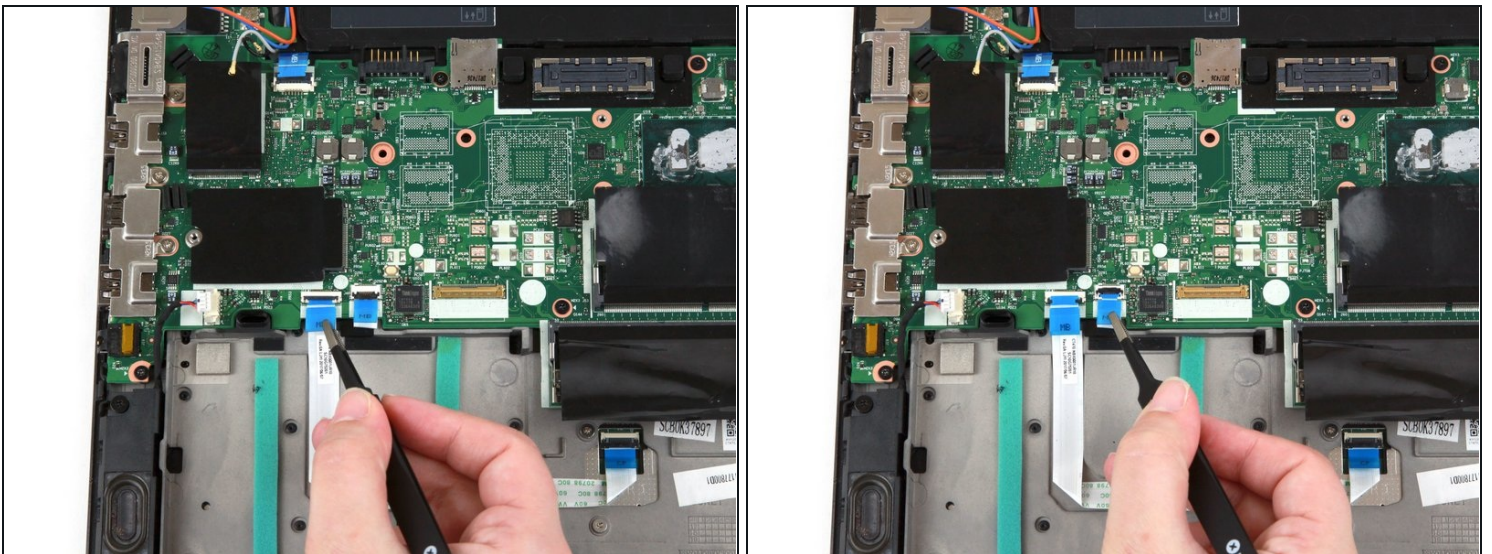
- Use a pair of blunt nose tweezers to disconnect the speaker cable from its socket on the motherboard.

Step 42



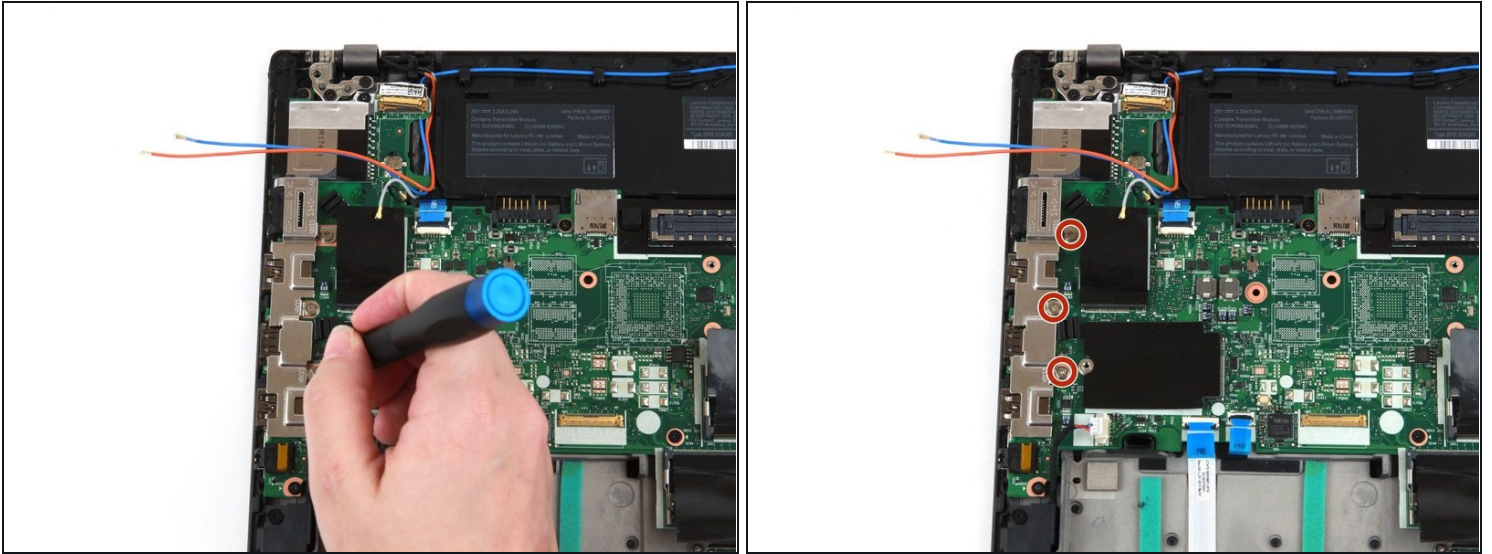
- Use the flat end of a spudger to flip up the black tabs on the trackpad and fingerprint reader cables.

Step 43



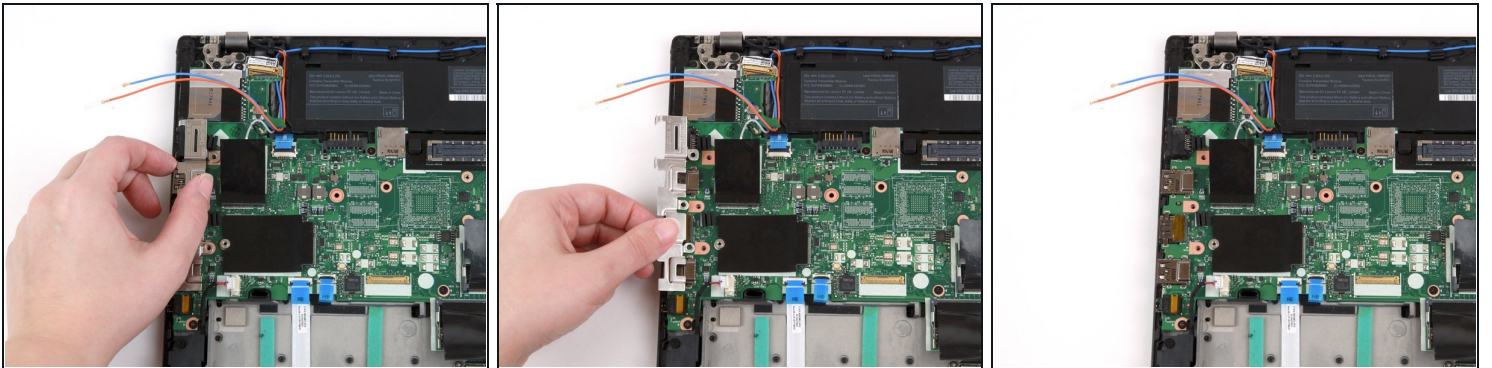
- Use a pair of blunt nose tweezers to slide the trackpad and fingerprint reader cables out of their connectors on the motherboard.

Step 44



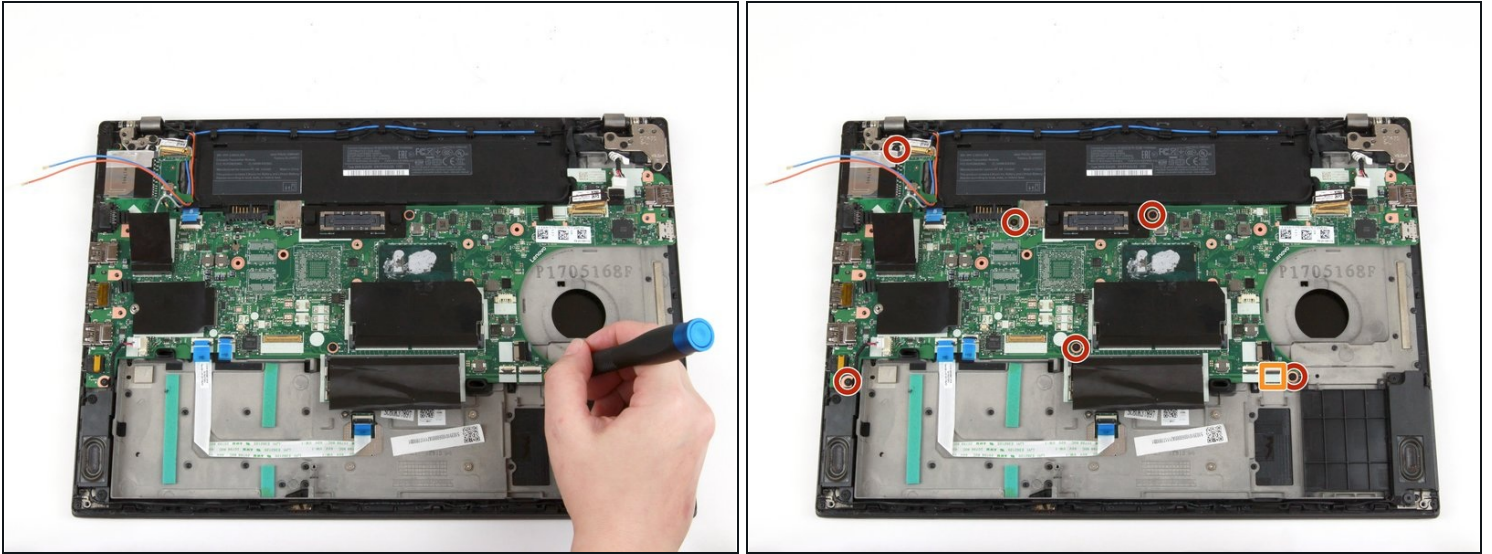
- Use a Phillips #1 screwdriver to remove the three 4 mm screws from the I/O bracket.

Step 45



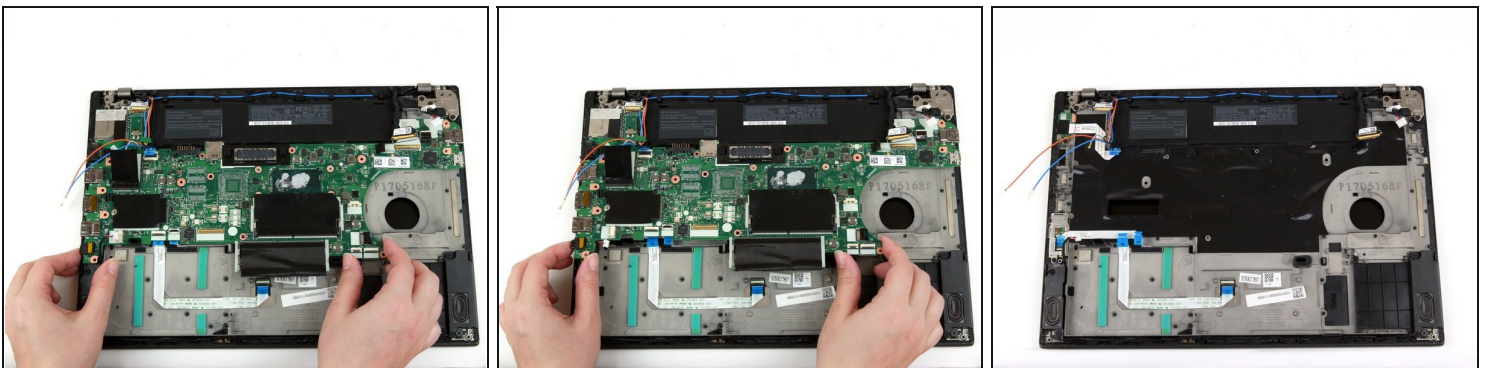
- Use your fingers to slide the I/O bracket to the left.
- Lift the I/O bracket up and away from the laptop.

Step 46



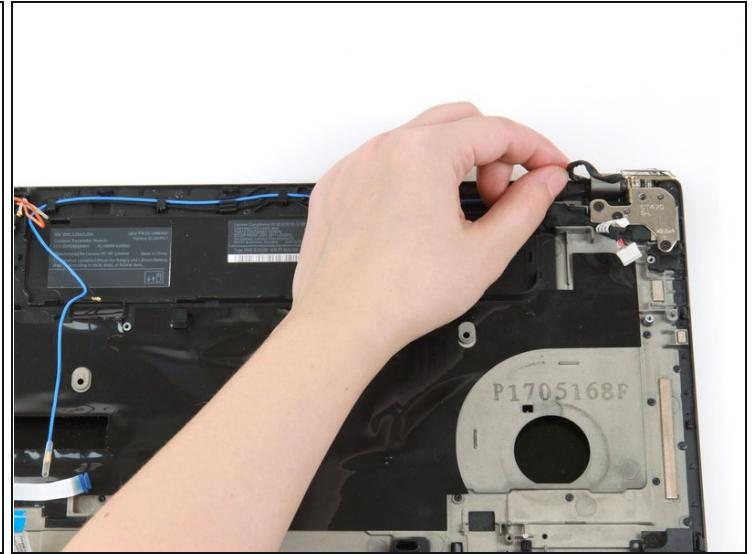
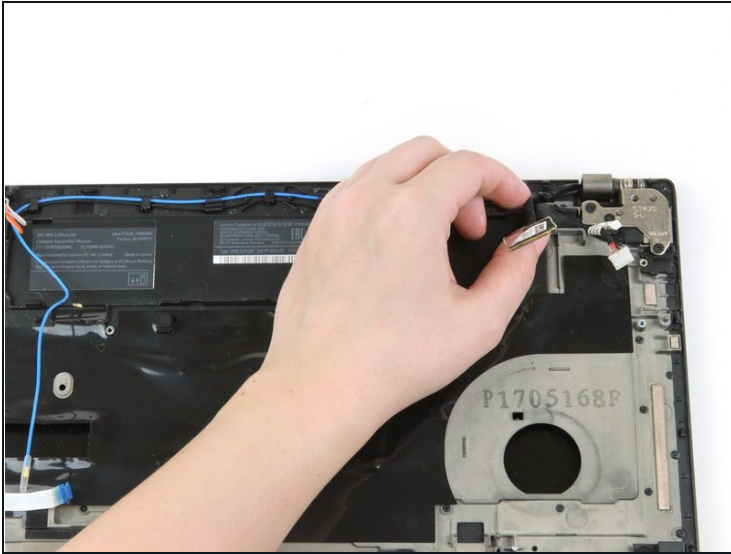
- Use a Phillips #1 screwdriver to remove the six 4 mm screws from the motherboard.
- This laptop does not have an NFC cable, but if yours does, use the flat end of a spudger to flip up the tab and slide the cable out of its connector.

Step 47



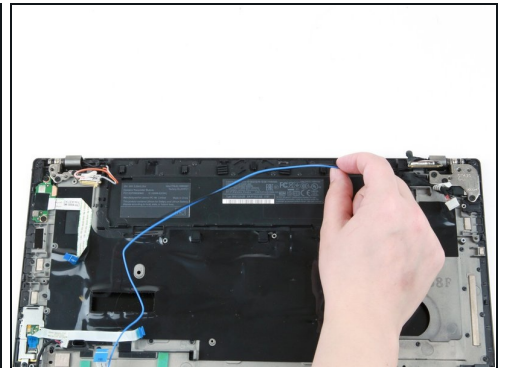
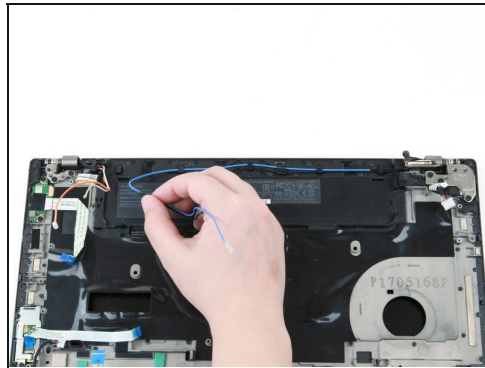
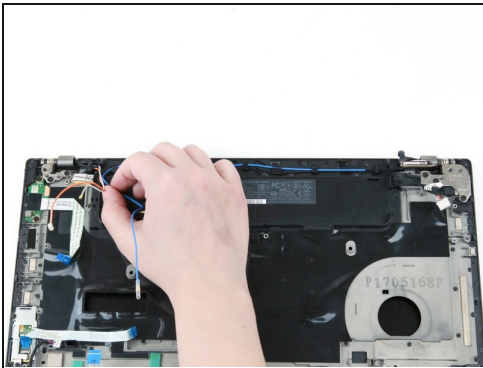
- Use both hands to lift the motherboard up and away from the laptop.

Step 48 — Display Assembly



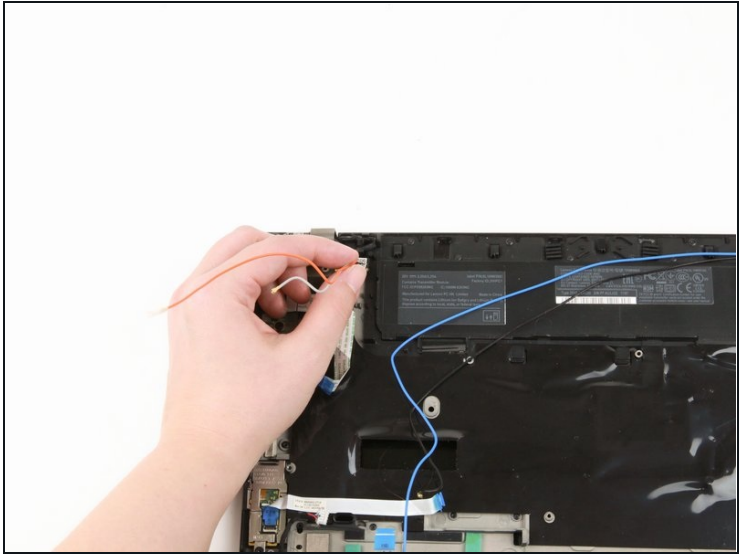
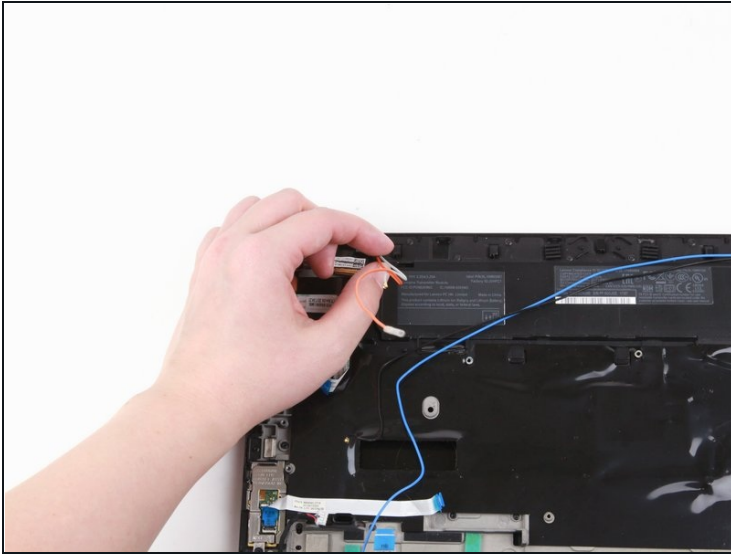
- Use your fingers to remove the camera cable from its slot.

Step 49



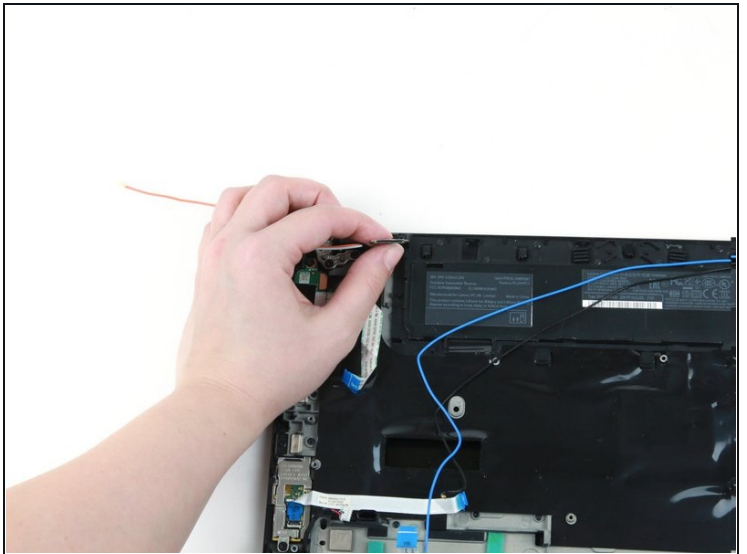
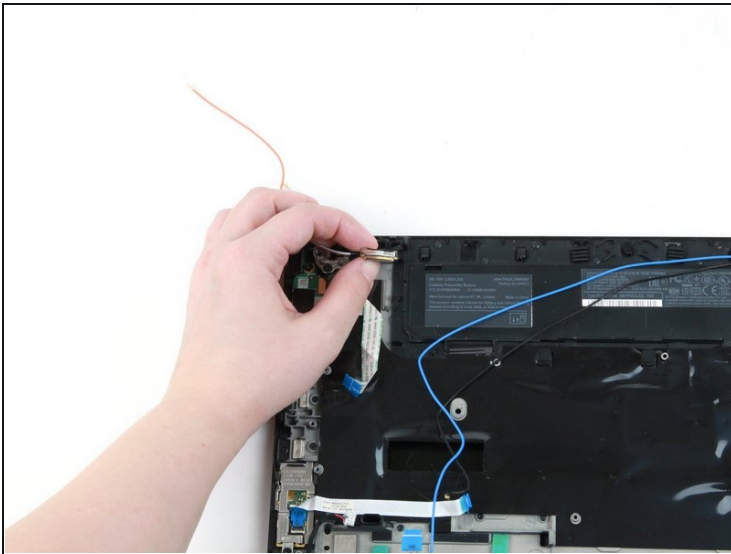
- Use your fingers to lift the black and blue wires out of their slots along the top of the laptop.

Step 50



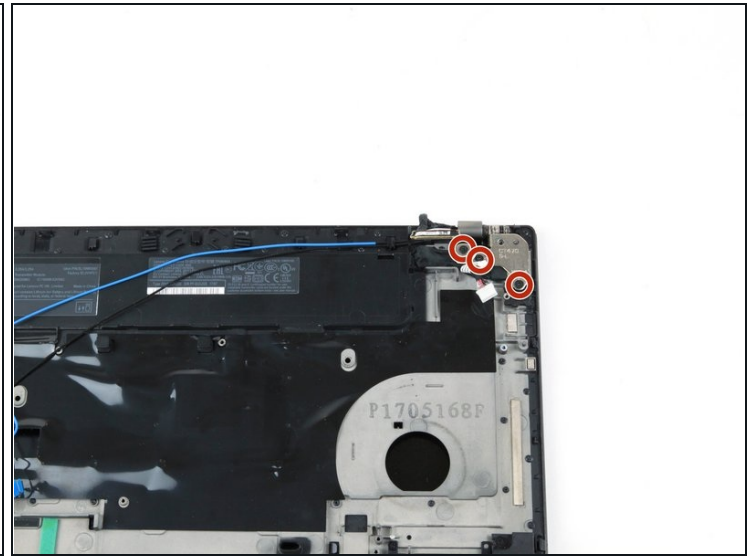
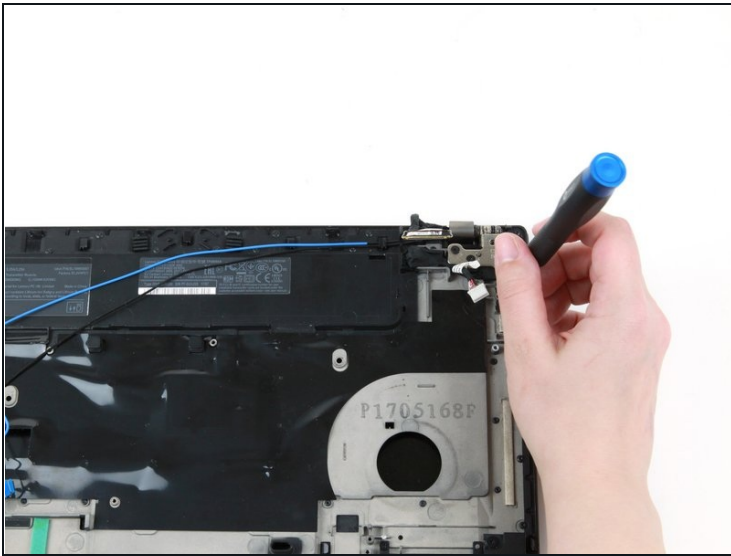
- Use your fingers to lift the red and gray wires out of their slots.

Step 51



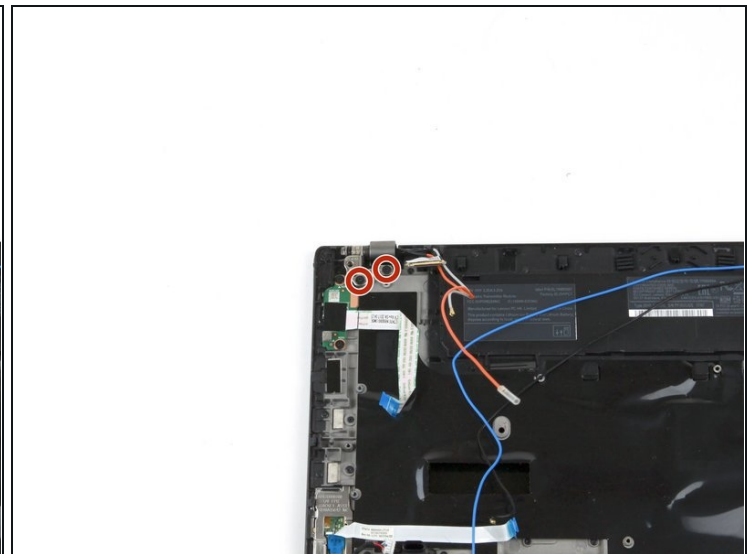
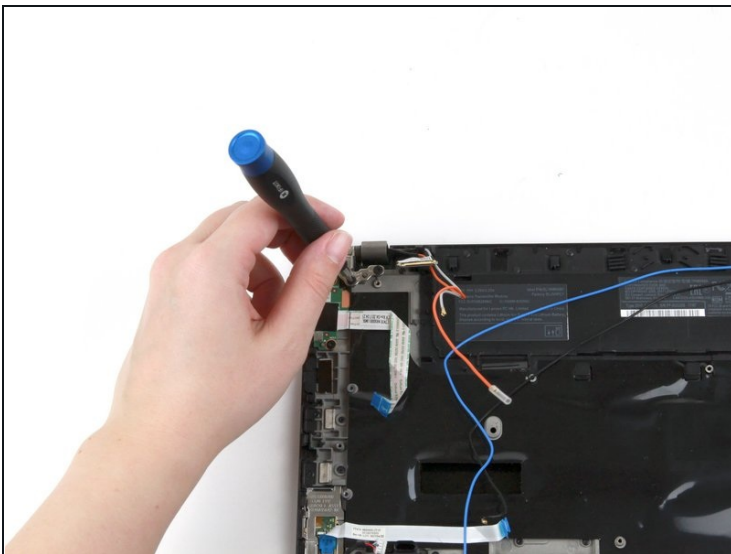
- Use your fingers to lift the LCD cable out of its slot.

Step 52



- Use a Phillips #1 screwdriver to remove three 4.5 mm screws from the hinge in the upper right corner.

Step 53



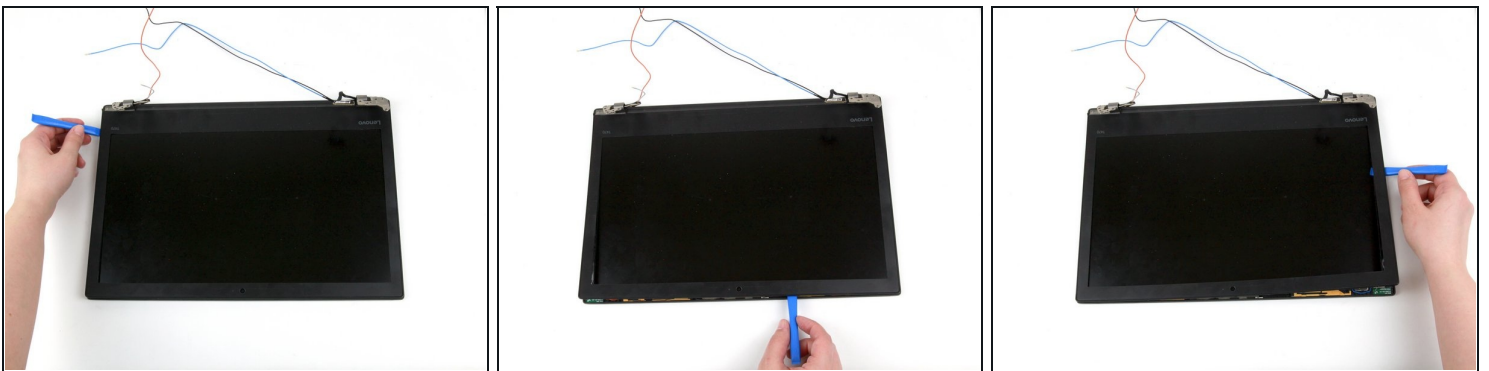
- Use a Phillips #1 screwdriver to remove two 4.5 mm screws from the hinge in the upper left corner.

Step 54



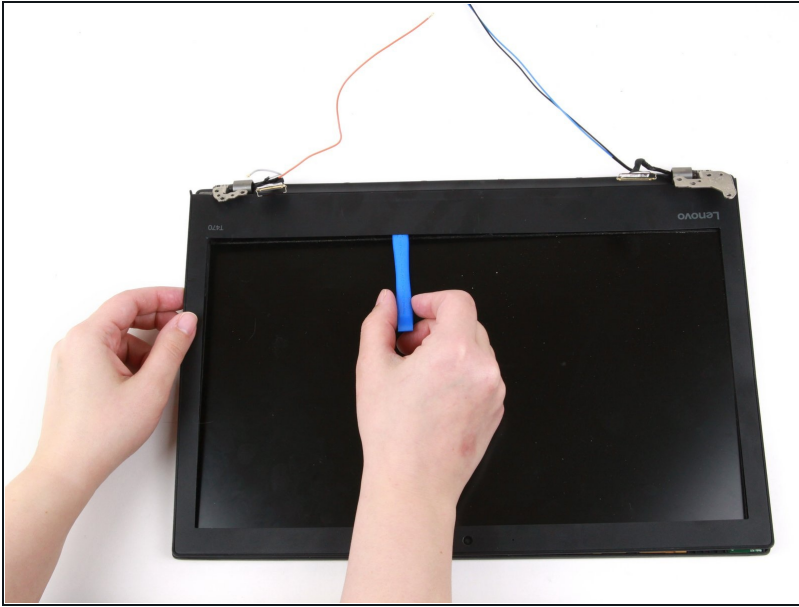
- Use both hands to lift the laptop body up and away from the display assembly.

Step 55 — Display Bezel



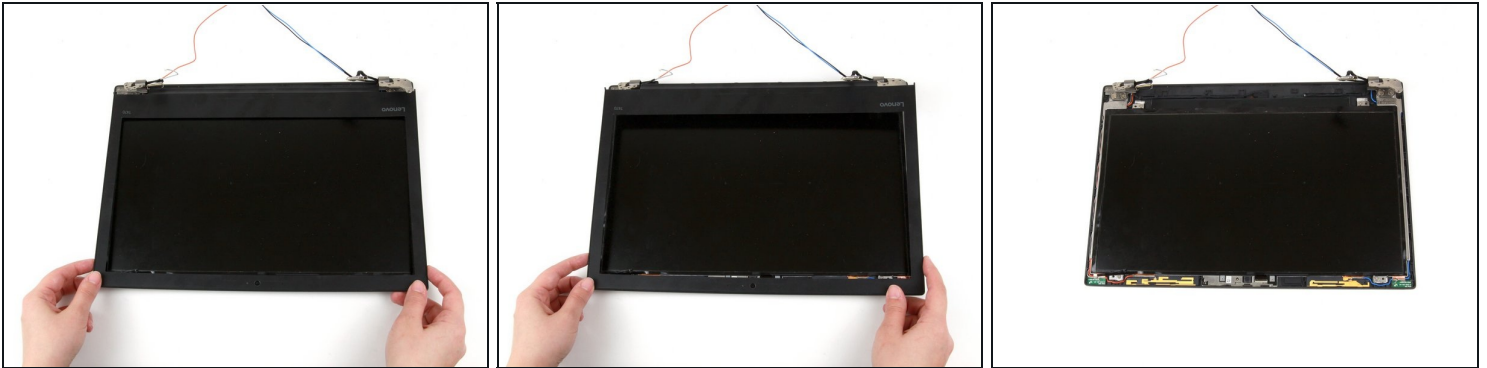
- Use the iFixit opening tool to create a gap between the bezel and the display, starting in the upper left corner.
 - Continue to use the iFixit opening tool around the left side, bottom, and right side of the laptop to detach the clips securing the bezel to the display.
- ⓘ You may hear loud snaps when detaching the clips; this is normal.

Step 56



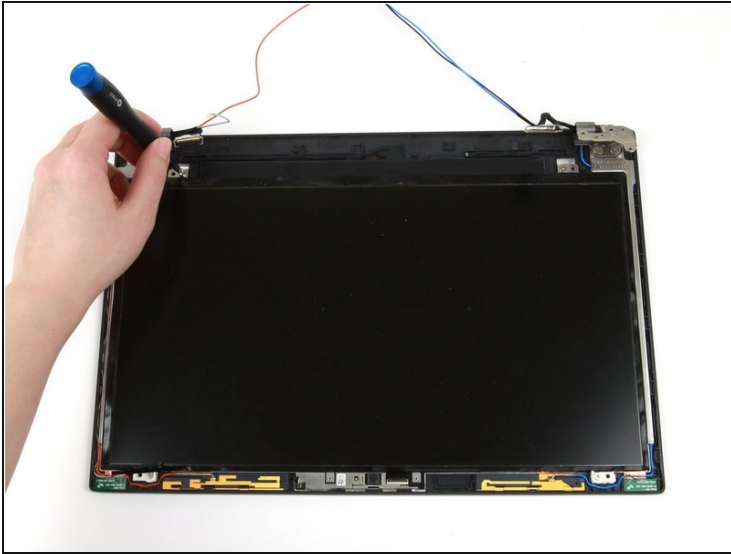
- Insert the iFixit opening tool between the bezel and display on the top side.
- ⓘ This part of the bezel is attached to the display with adhesive, so you may need to use your hands to gently peel the bezel away.

Step 57



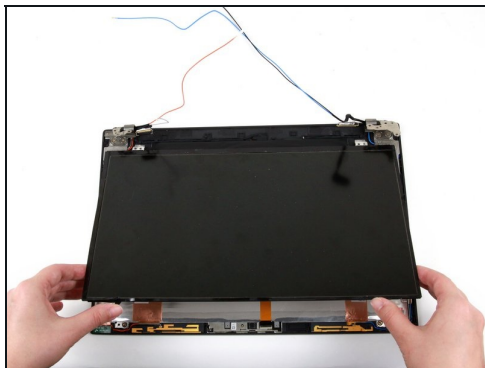
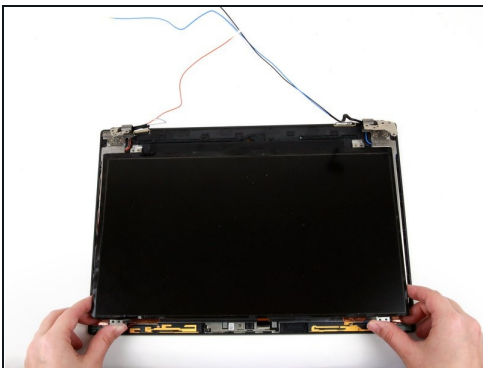
- Use both hands to lift the bezel up and away from the display assembly.

Step 58 — Display Panel



- Use a Phillips #1 screwdriver to remove the four 3 mm screws from each corner of the screen.

Step 59



- Use both hands to lift the bottom corners of the display panel
- Gently flip the display panel over.

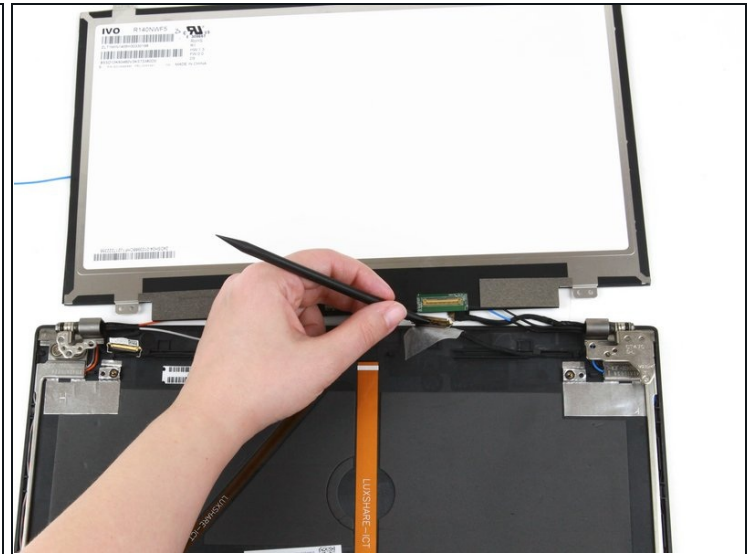
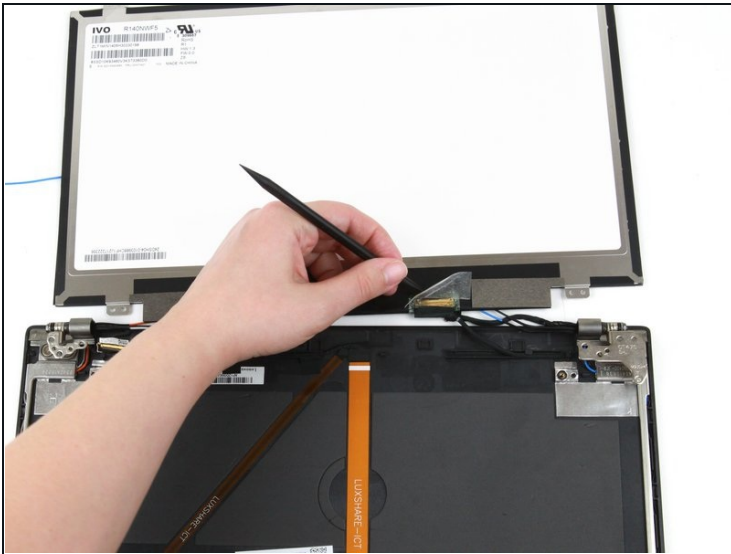
⚠ Potential for device damage: The display cable is still connecting the display panel to the rest of the display assembly, so be sure to flip the display panel over with caution.

Step 60



- Use a pair of blunt nose tweezers to remove the clear tape from the display cable.

Step 61



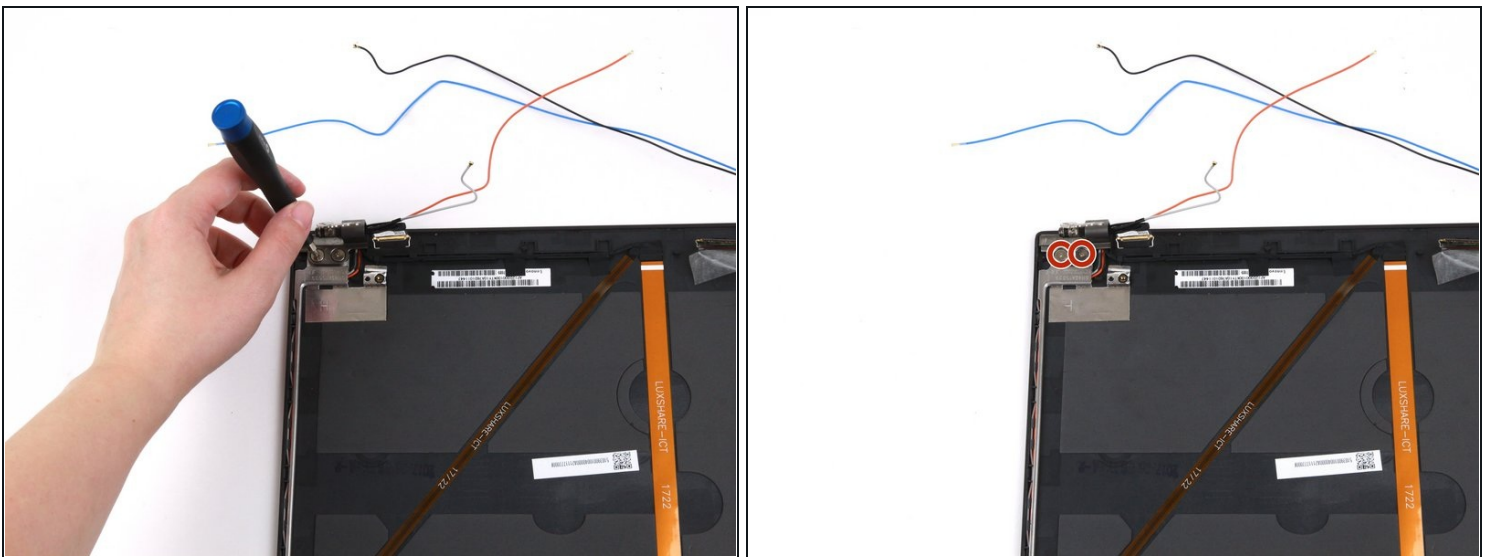
- Use the flat end of a spudger to flip up the metal bar securing the connector.
- Use the flat end of a spudger to disconnect the display cable from its socket.

Step 62



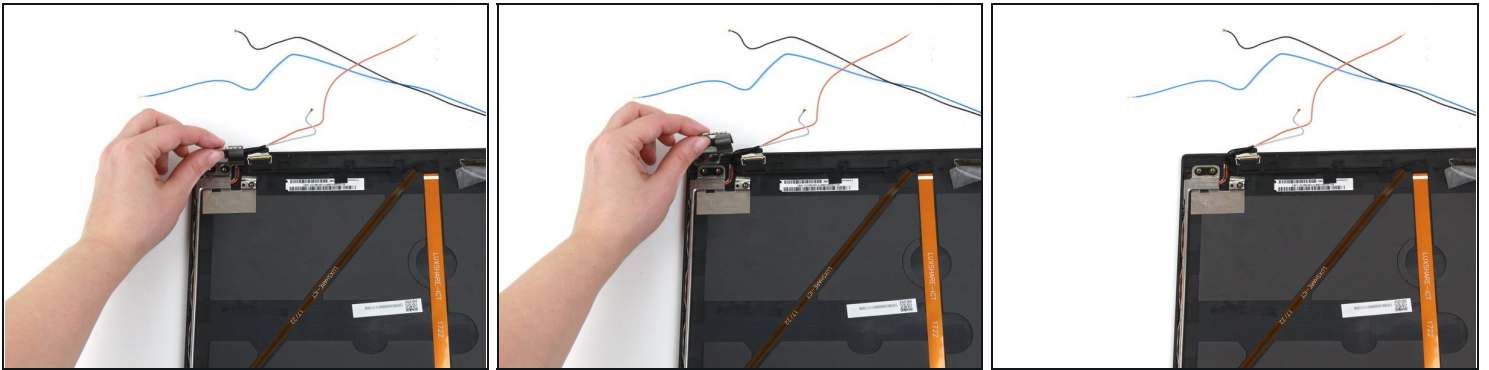
- Use your hands to remove the display panel from the rest of the display assembly.

Step 63 — Hinges



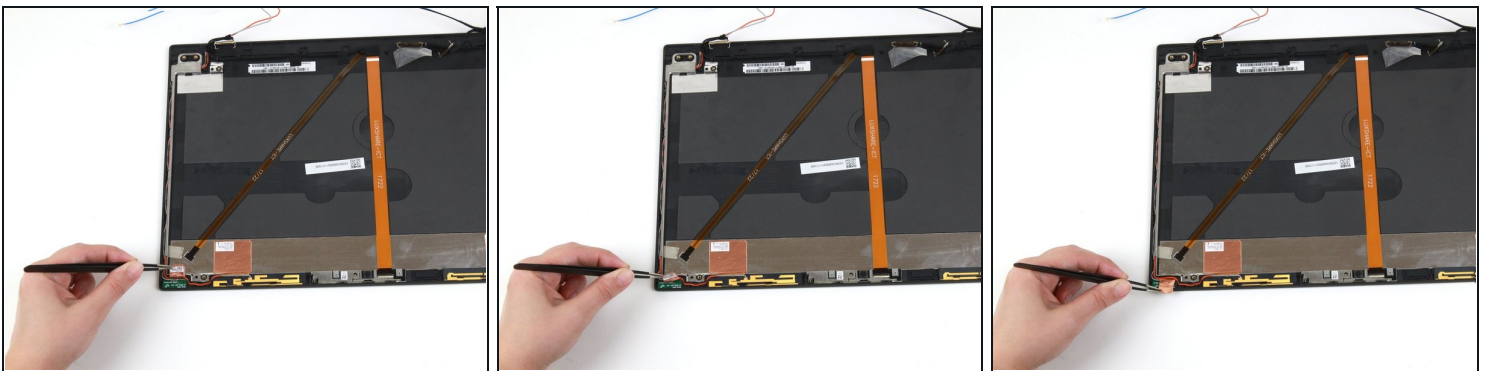
- Use a Phillips #1 screwdriver to remove the two 3 mm screws from the hinge in the upper left corner.

Step 64



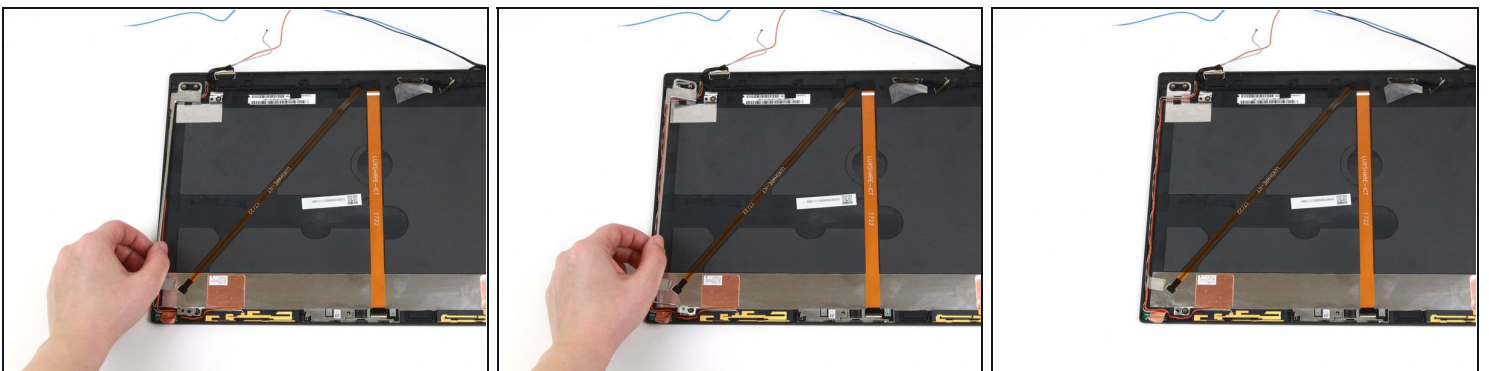
- Use your fingers to lift the hinge up and away from the laptop.

Step 65



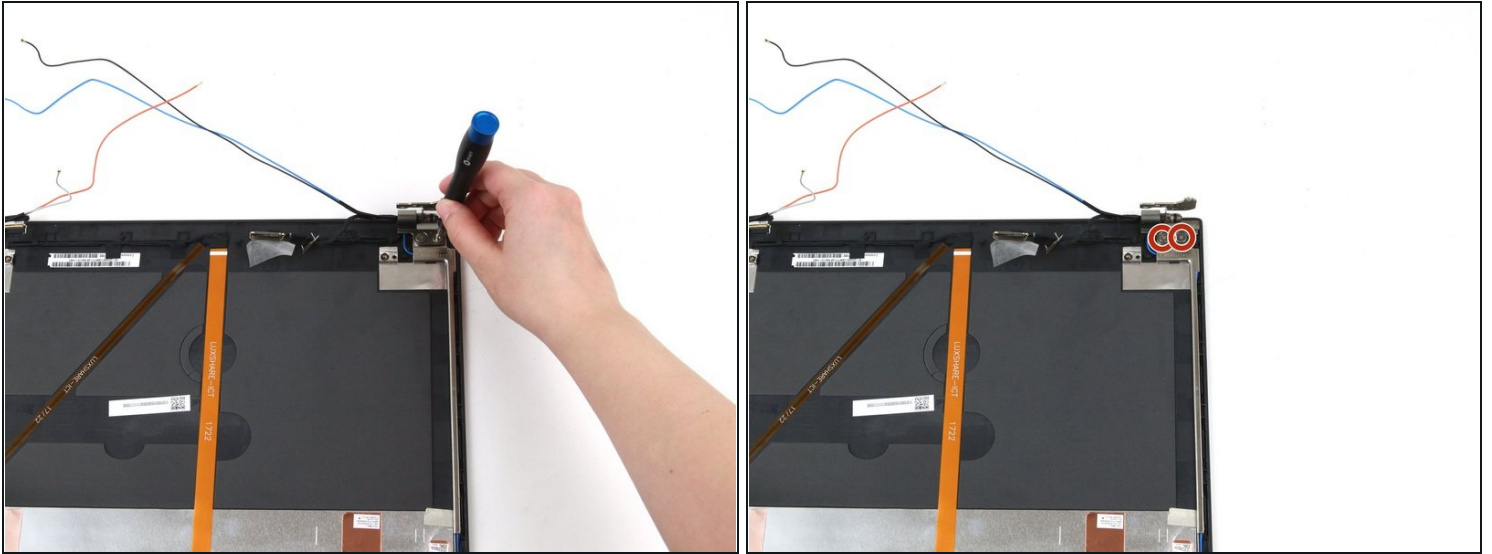
- Use a pair of blunt nose tweezers to peel the copper tape off of the hinge frame.

Step 66



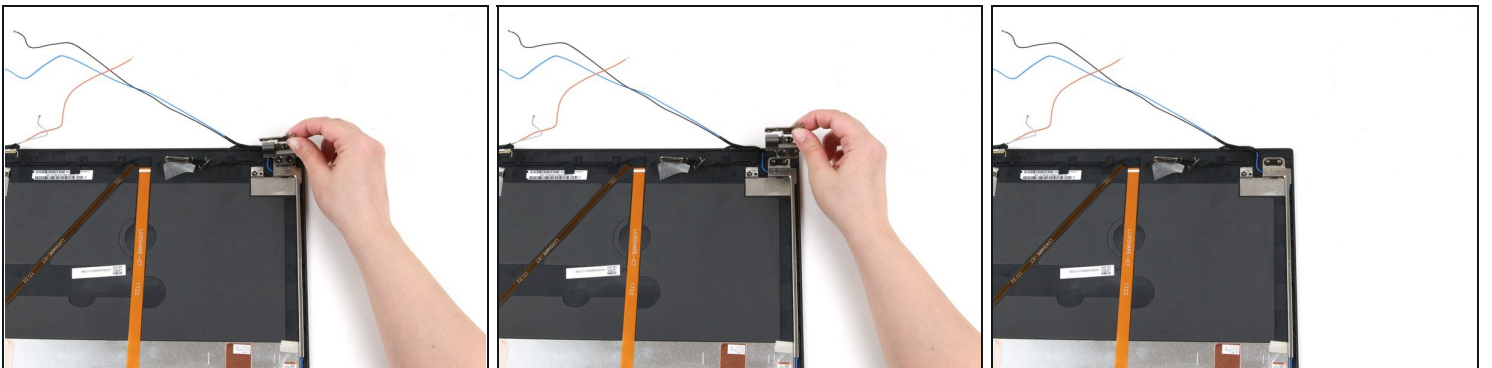
- Use your hand to lift the hinge frame up and away from the laptop.

Step 67



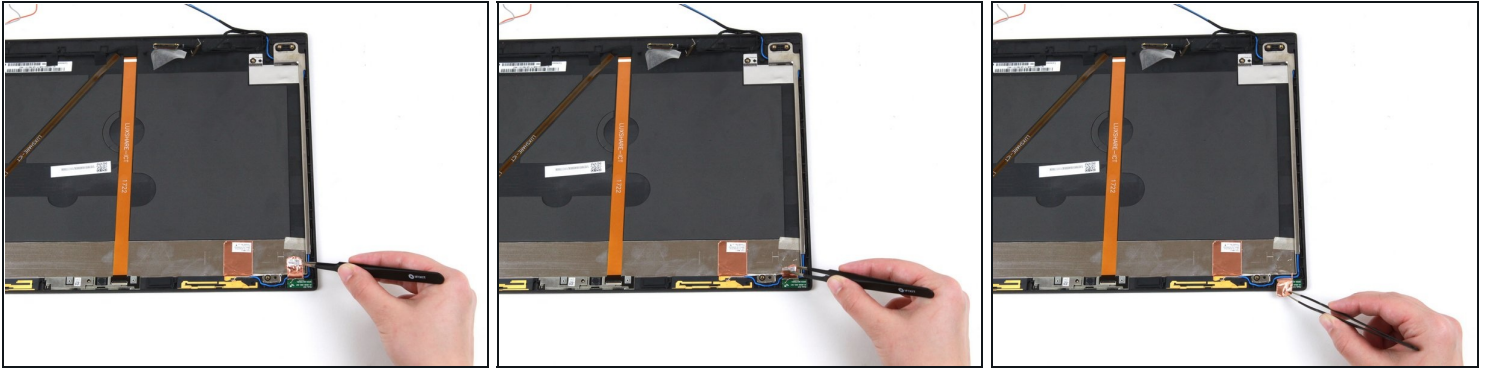
- Use a Phillips #1 screwdriver to remove the two 3 mm screws from the hinge in the upper right corner.

Step 68



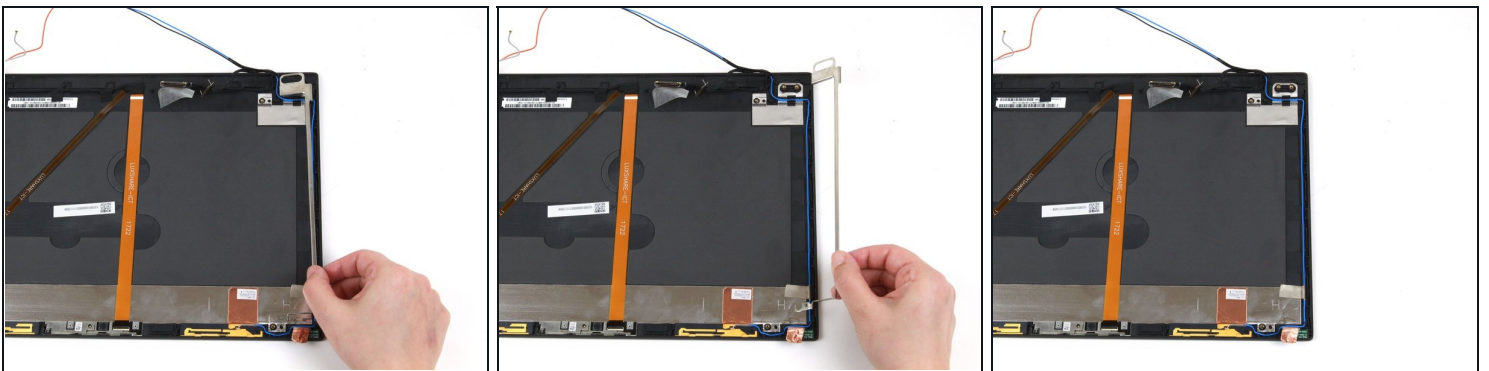
- Use your fingers to lift the hinge up and away from the laptop.

Step 69



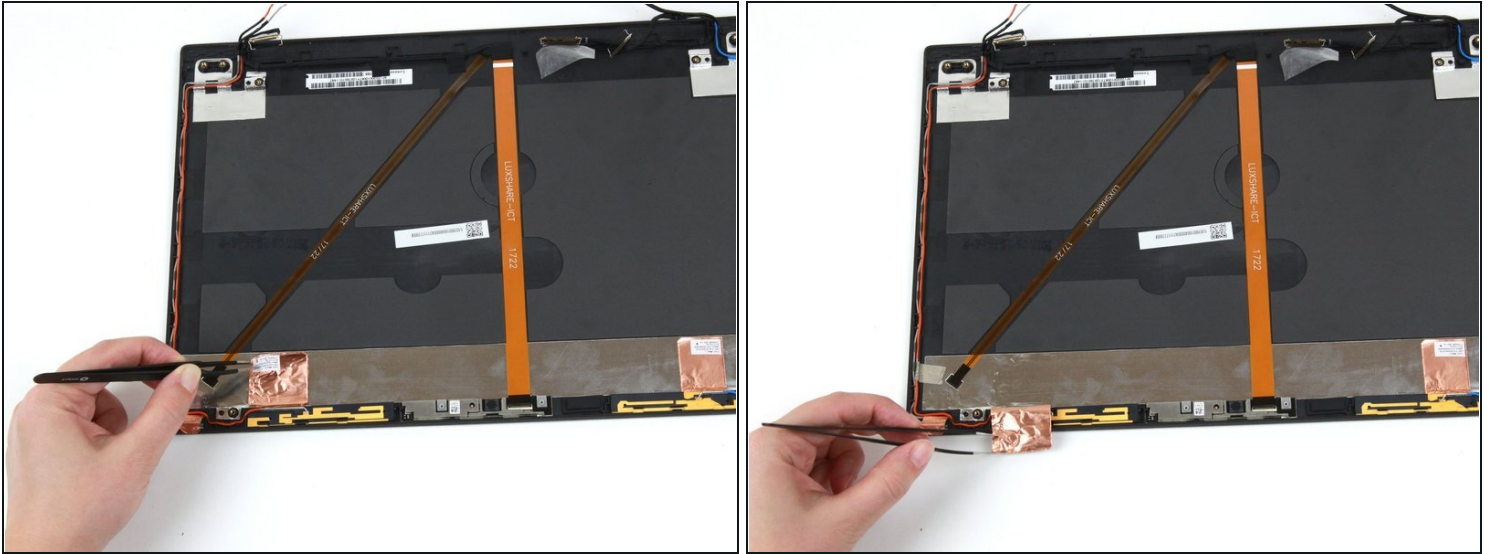
- Use a pair of blunt nose tweezers to peel the copper tape off of the hinge frame.

Step 70



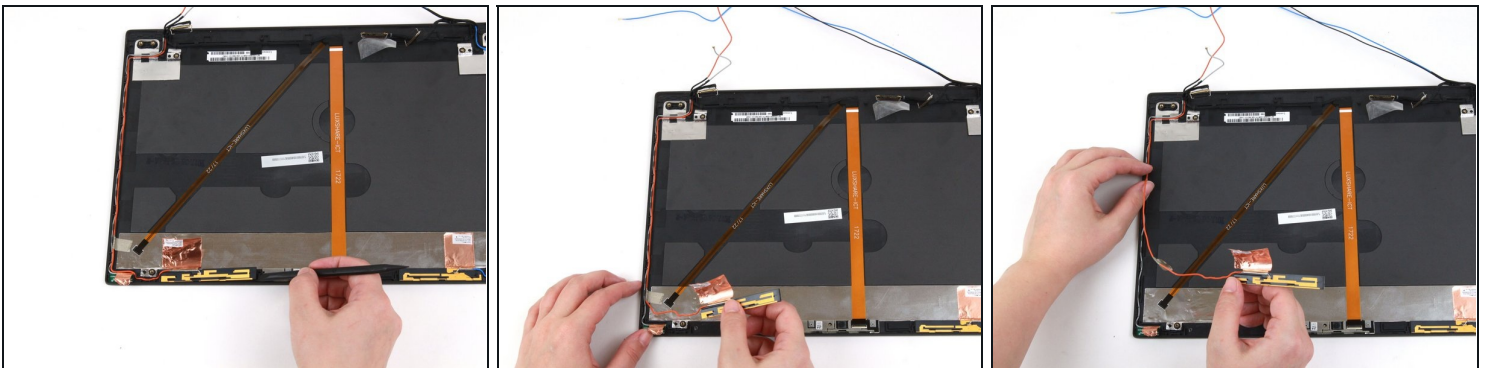
- Use your hand to lift the hinge frame up and away from the laptop.

Step 71 — WWAN Antennas



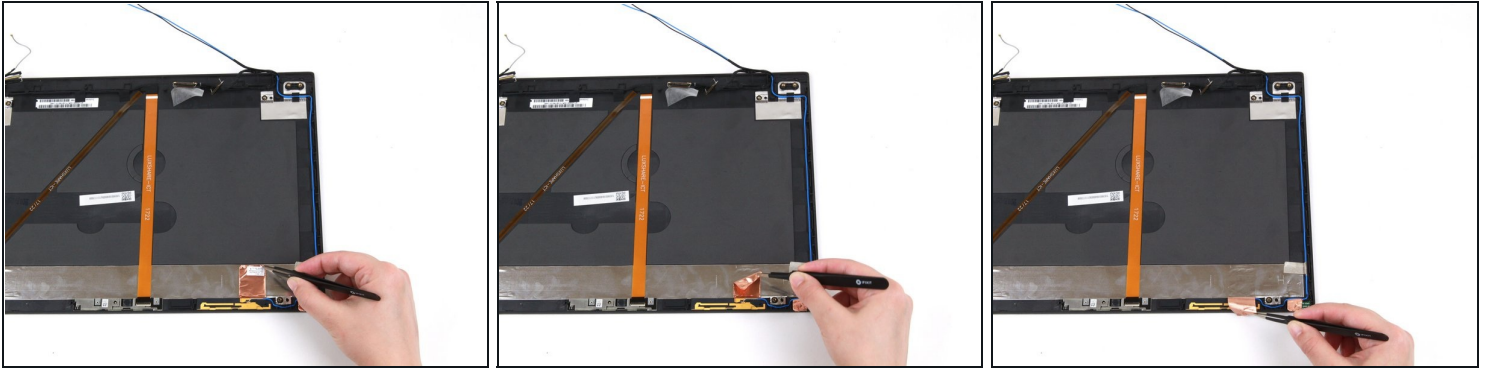
- Use a pair of blunt nose tweezers to peel the copper tape up from the display assembly in the bottom left-hand corner.

Step 72



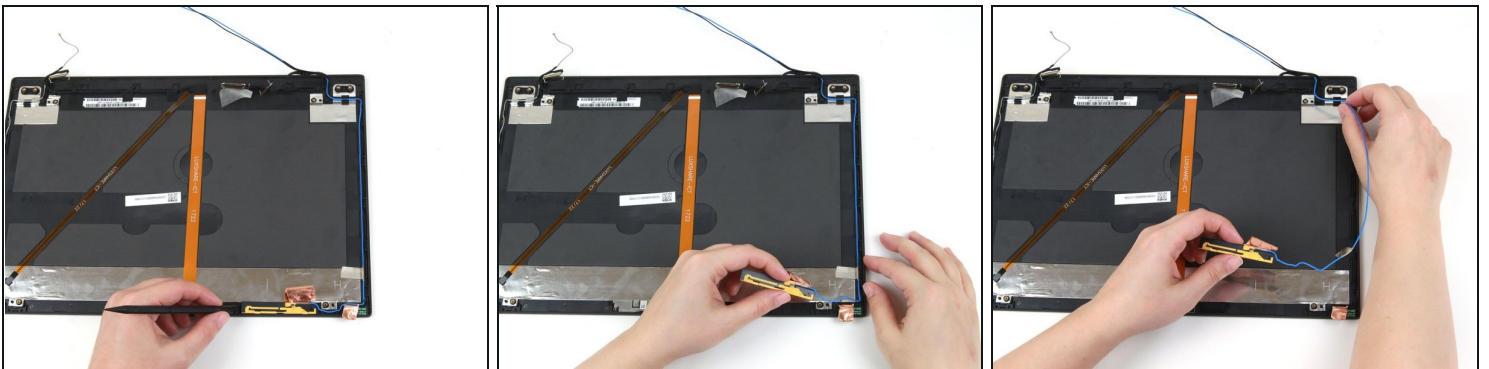
- Use a spudger to pry the WWAN antenna away from the rest of the display assembly.
- Use one hand to hold the WWAN antenna.
- Use your other hand to remove the red wire from its slots along the left side of the display assembly.

Step 73



- Use a pair of blunt nose tweezers to peel the copper tape up from the display assembly in the bottom right-hand corner.

Step 74



- Use a spudger to pry the WWAN antenna away from the rest of the display assembly.
- Use one hand to hold the WWAN antenna.
- Use your other hand to remove the blue wire from its slots along the right side of the display assembly.

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

Take your e-waste to an [R2 or e-Stewards certified recycler](#).

Repair didn't go as planned? Try some [basic troubleshooting](#), or ask our [Answers community](#) for help.