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## INTRODUCTION

If your laptop critically overheats despite cleaning out the heat sink fins, the cooling fan on the motherboard heat sink assembly may have died, and needs to be replaced in order for the device to function again.

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### TOOLS:

- [JIS #1](#) (1)
  - [Spudger](#) (1)
  - [iFixit Opening Tools](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
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## Step 1 — Battery

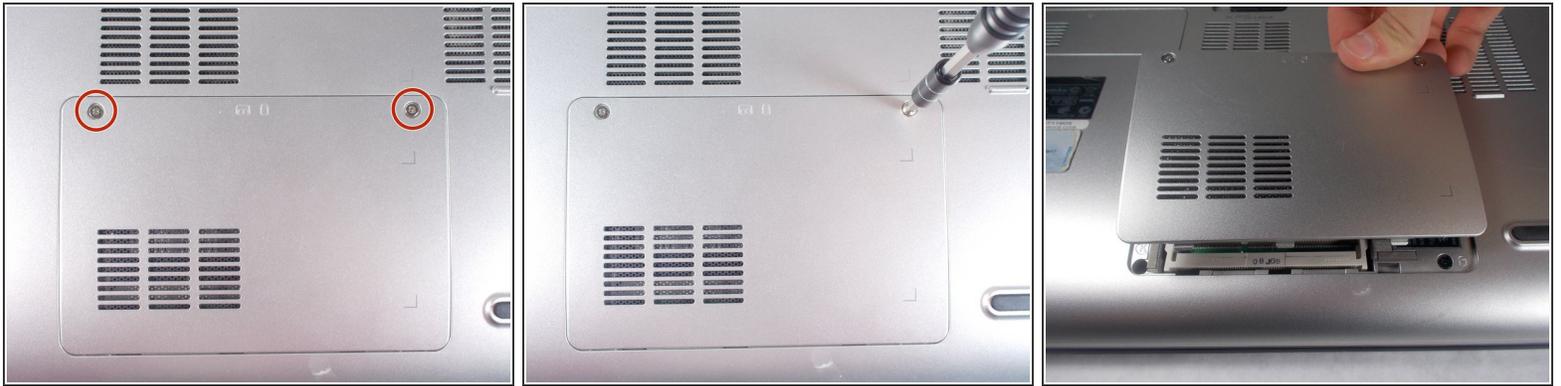


**!** Make sure that the laptop is shut off before attempting to remove any components from the device.

**i** The laptop in this example did not have a battery equipped.

- Locate the spring latch on the bottom of the device that will unlatch the battery.
- Hold the spring latch in the open position and pull the battery out of its recess.

## Step 2 — RAM



- Use a JIS 1 screwdriver to loosen the (2) captive screws from the panel.
- ⓘ The captive screws will not come off of the panel.
- Pull the panel upwards and towards the battery to remove.
- Put the panel to the side, exposing the RAM.

## Step 3



- The RAM is held by two spring clips. Pull at the two spring clips and the RAM will move upwards.
- ⓘ Keep your fingers on the edge of the chip.
- ⚠ Only handle the RAM by the sides! Do not touch the circuits or the terminals to avoid contamination!

## Step 4 — Optical Drive



- Locate and remove (1) 8.5mm JIS 1 screw at the top left corner of the RAM bay.

## Step 5



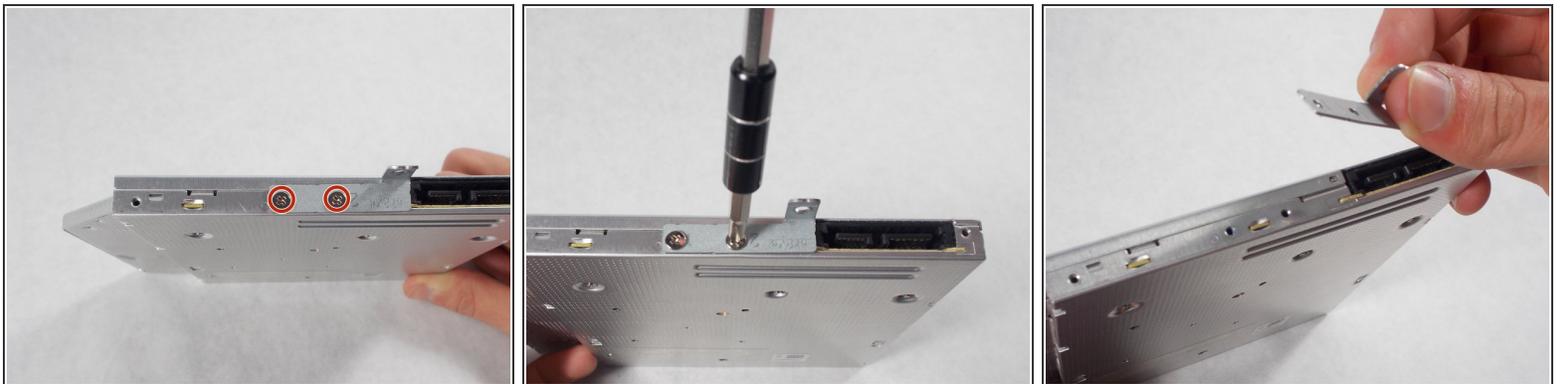
- Carefully pull out the optical drive from its bay.

## Step 6



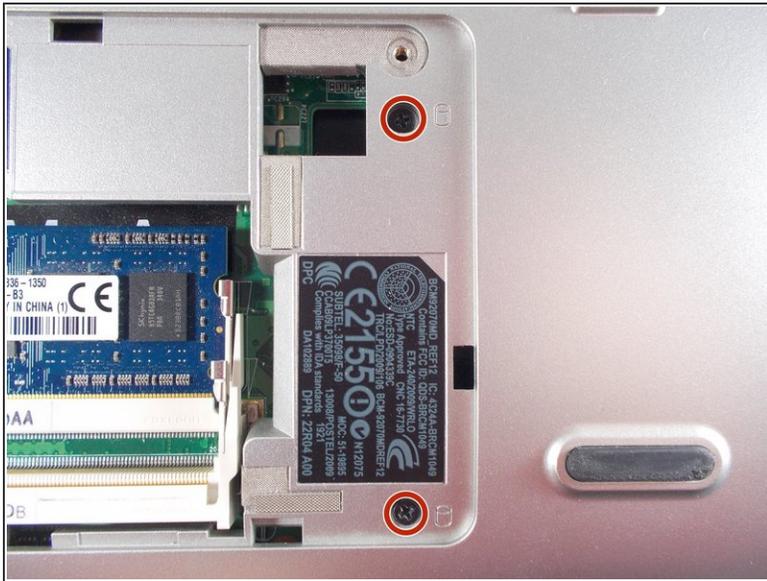
- Carefully pull off the decorative cover from the front of the optical drive.
- ⓘ This decorative cover will be transferred to the new optical drive.

## Step 7



- Use a JIS 1 screwdriver to remove (2) 2mm screws on the drive's anchoring bracket.
- ⓘ This bracket will be transferred to the new optical drive.

## Step 8 — Hard Drive



- Use a JIS 1 screwdriver to remove (2) 2.5mm screws located on the right side of the RAM bay.

## Step 9



- Push the hard drive to the right with a spudger to unseat it from its socket while pulling out the hard drive with your other hand.

## Step 10



- Use a JIS 1 screwdriver to remove (1) 2.5mm screw attaching the plastic cosmetic cover to the hard drive.
- Detach the plastic cosmetic cover from the hard drive.
- ⓘ This cosmetic cover will be transferred to the new hard drive.

## Step 11 — Mini Card



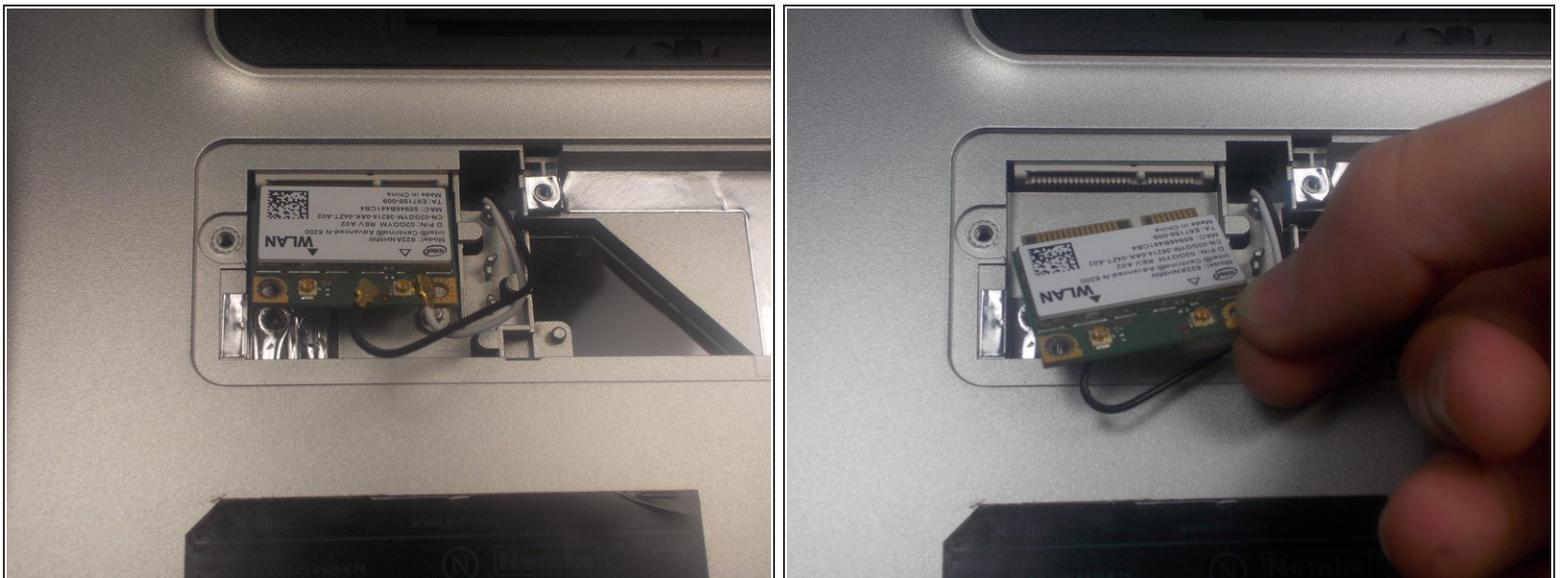
- Locate the mini card access panel marked with a radio tower emblem on the bottom of the laptop near the battery bay.
- Use a JIS 1 screwdriver to loosen the captive screw securing the panel to the device.
- ⓘ The captive screw will not come off of the panel.
- Carefully remove the panel by prying it upwards, unlocking it from the tabs that are securing it in place.

## Step 12



- Disconnect the two wires on the mini card by carefully plucking them upwards by the metal contact points at the terminals.
- ⚠ Do not pluck the contacts off of the terminals by pulling on the wires, this can damage the cables.
- Remove (1) 2mm screw from the bottom left corner of the mini card with a JIS 1 screwdriver.

## Step 13



- Remove the mini card as it flips upward.

## Step 14 — Palm Rest



- Remove two 4.5mm screws with JIS 1 screwdriver marked by the letter "K" in the optical drive bay.

## Step 15



- Remove (2) 4.5mm screws with JIS 1 screwdriver marked by the letter "K" in the hard drive bay.

## Step 16



- Remove (2) 4.5mm screws with JIS 1 screwdriver marked by the letter "K" near Battery

## Step 17



- Remove (1) 7.5mm screw with JIS 1 screwdriver marked by the letter "K" in the RAM bay.

## Step 18



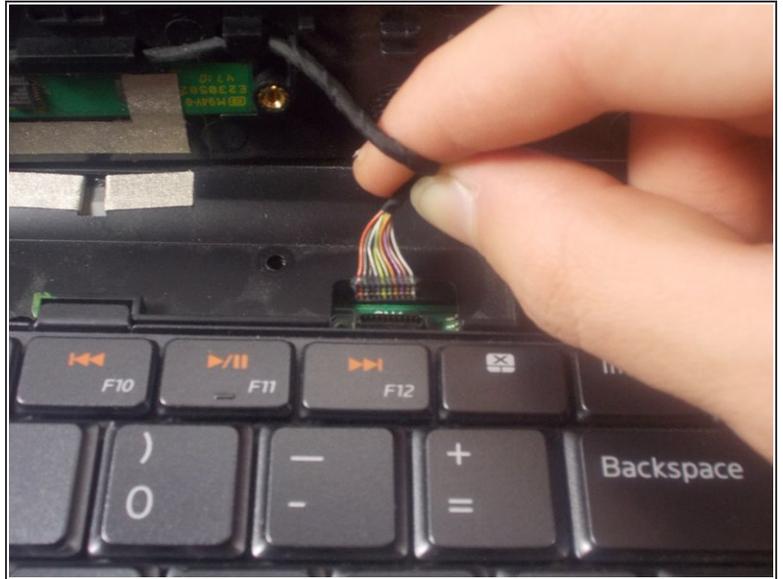
- Open the display to provide room for the palm rest to come out.
- In the hard drive bay, push the "push" pad to lift up the palm rest.

## Step 19



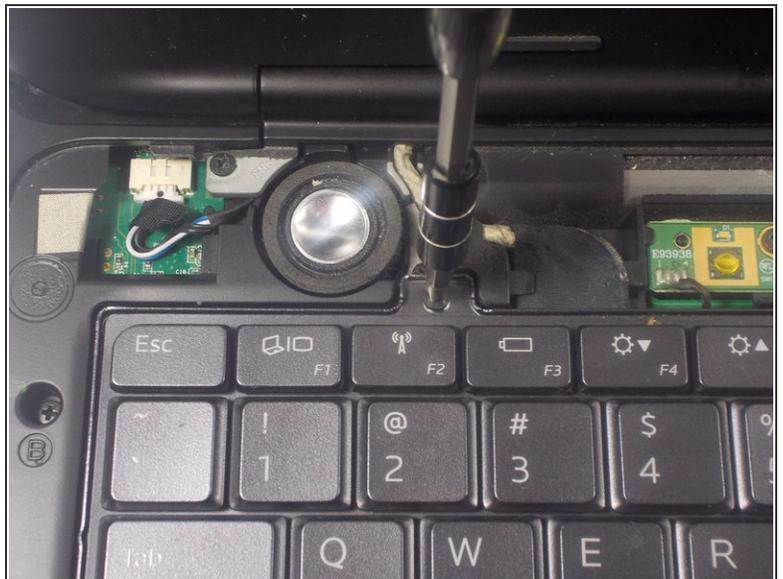
- Disconnect the track pad cable by flipping up the gray clamp and lifting the cable up.

## Step 20



- Disconnect the status bar cable by pulling the pin connector upward.
- Finish lifting up the palm rest.

## Step 21 — Keyboard



- Use a JIS 1 screwdriver to remove (2) 2.5mm screws located near the top of the keyboard.

## Step 22



- Disconnect the keyboard's ribbon cable marked "A" by pushing out the two black tabs towards the ribbon cable.
- Remove the cable from its connection terminal by sliding it out. Finish lifting up the keyboard and set it to the side.

## Step 23 — Display



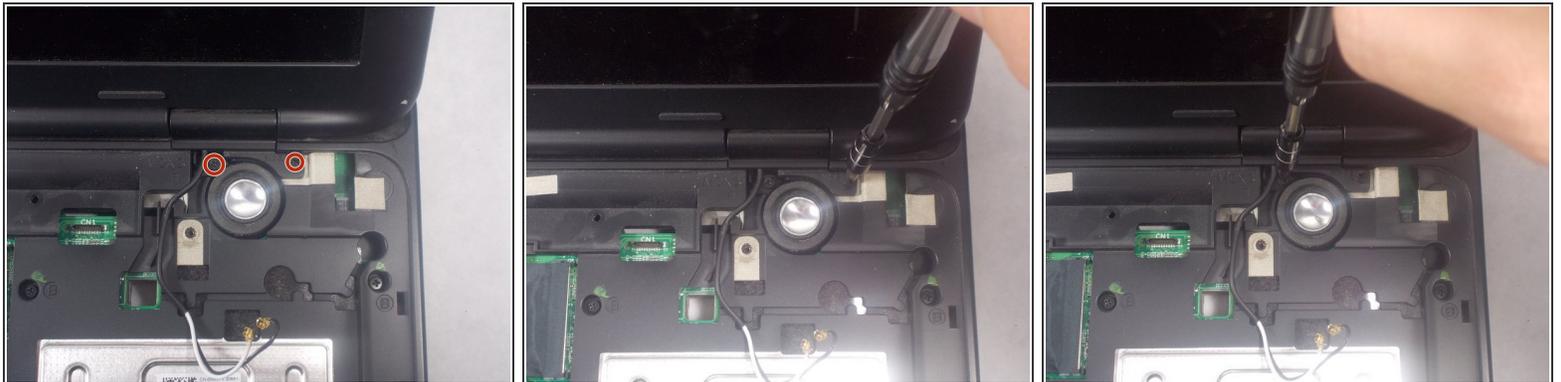
- Disconnect the display ribbon cable by pulling the cable to the right by its sheathed plastic connector.

## Step 24



- Use a JIS 1 screwdriver to remove (2) 7mm screws on the underside of the laptop near the battery bay.

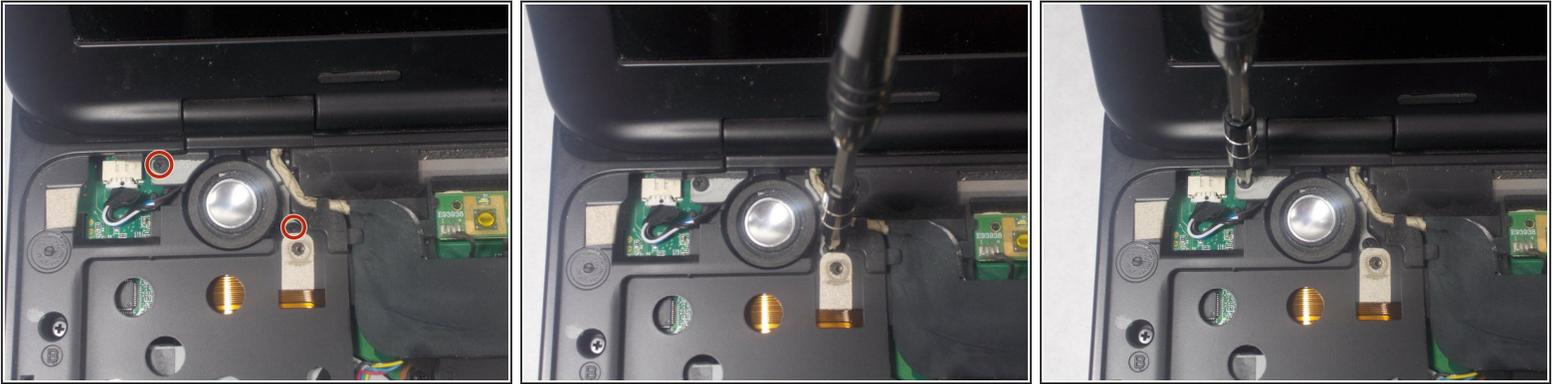
## Step 25



- Remove (2) 4mm screws with a JIS 1 screwdriver that are holding down the right side display anchor.

⚠ Be careful not to puncture the speaker membranes with the screwdriver.

## Step 26



- Remove (2) 4mm screws with a JIS 1 screwdriver that are holding down the left side display anchor.

## Step 27



- Lift the display assembly up and off of the main body of the laptop.

## Step 28 — Bottom Cover



- Disconnect the cooling fan cable.
- Disconnect the speaker power cable.

## Step 29



- Remove (2) 15 mm screws located on top left and right corners on either side of the battery bay using a JIS 1 screwdriver.
- Remove (2) 2mm screws located in the battery bay using a JIS 1 screwdriver.

## Step 30



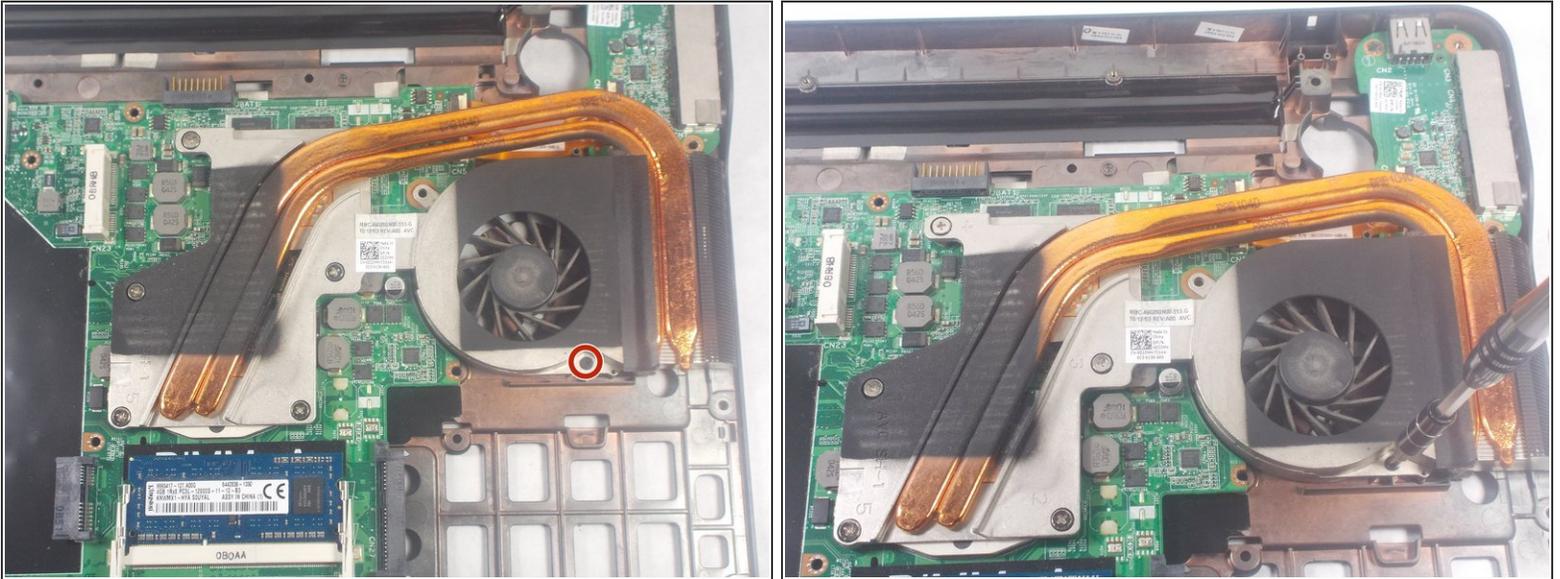
- Flip the laptop over.
- Remove (8) 4mm screws marked with the letter "B" with a JIS 1 screwdriver.
- Remove (1) 7mm screw marked with the letter "B" with a JIS 1 screwdriver.

## Step 31



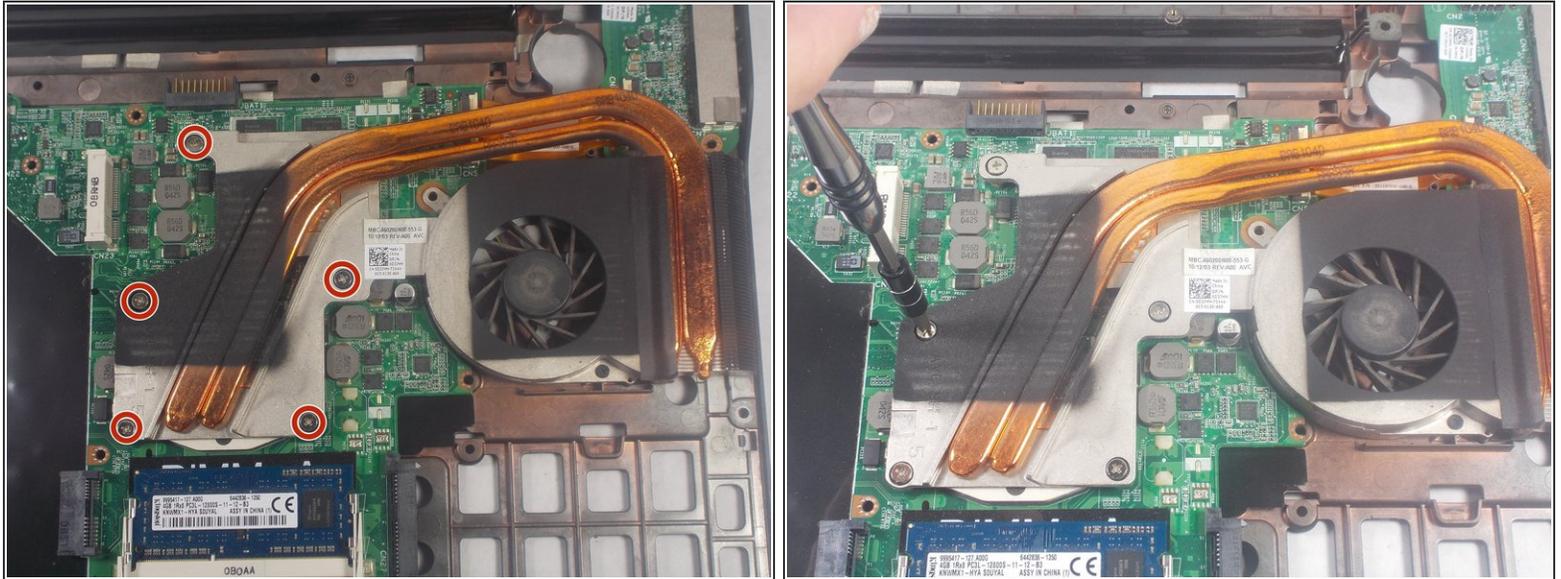
- Separate the bottom cover from the top cover with plastic prying tool and finish lifting the bottom cover off.

## Step 32 — Cooling Fan



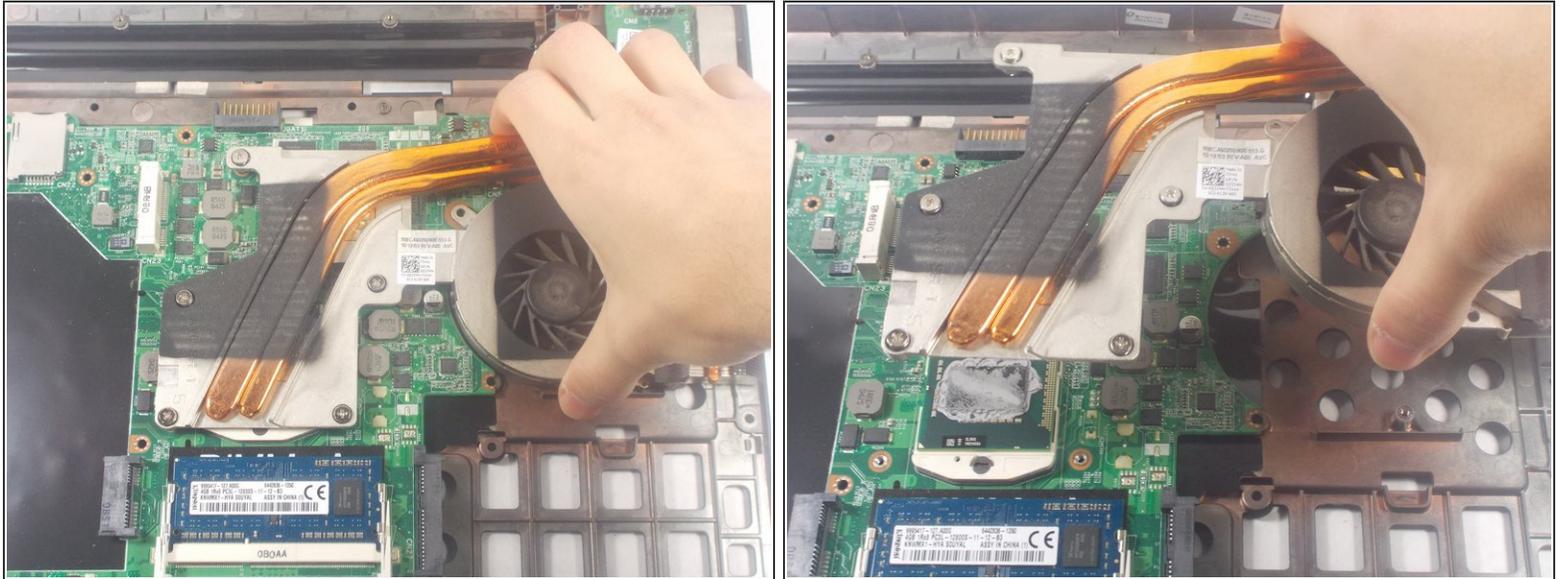
- Use a JIS 1 screwdriver to remove (1) 4mm screw on the cooling fan assembly.

## Step 33



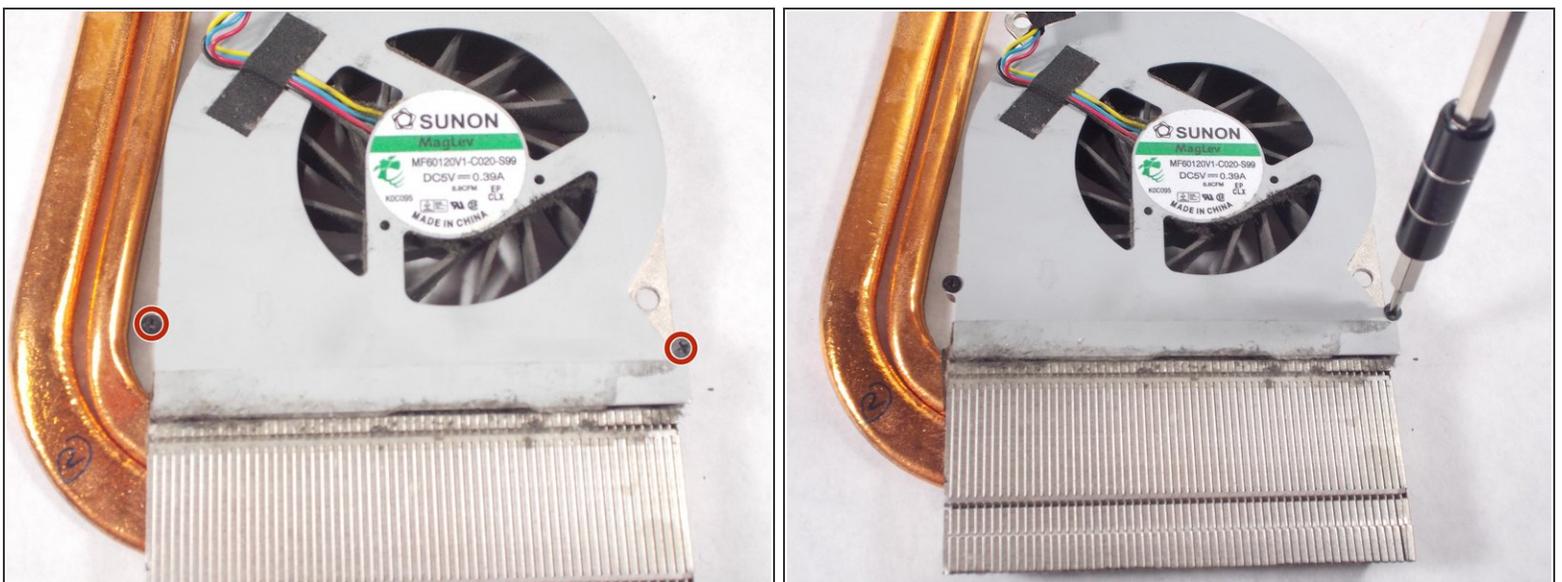
- Locate the (5) captive screws that hold down the heat sink assembly to the central processing unit and the graphics processing unit.
- ⓘ The captive screws are marked 1-5 in consecutive order, and they will not come off of the heat sink when loosened.
- Unscrew captive screw #1 with a JIS 1 screwdriver for one or two turns and move onto the next screw (#2) and so on, in consecutive order.
- Continue to slowly loop around the 5 captive screws in order, only loosening the screws one or two turns each time until all screws are completely retracted.
- ⚠ Do not loosen any captive screw fully without moving to the other screws first! This can bend the heat sink assembly and possibly damage the processors.

## Step 34



- Carefully pull the heat sink assembly upwards off of the motherboard after all the captive screws have been loosened fully.
- ⚠ Clean off any existing thermal paste from the mating surfaces (CPU, GPU, and the heat-sink itself) and apply new thermal paste, before putting the heat sink back on later.

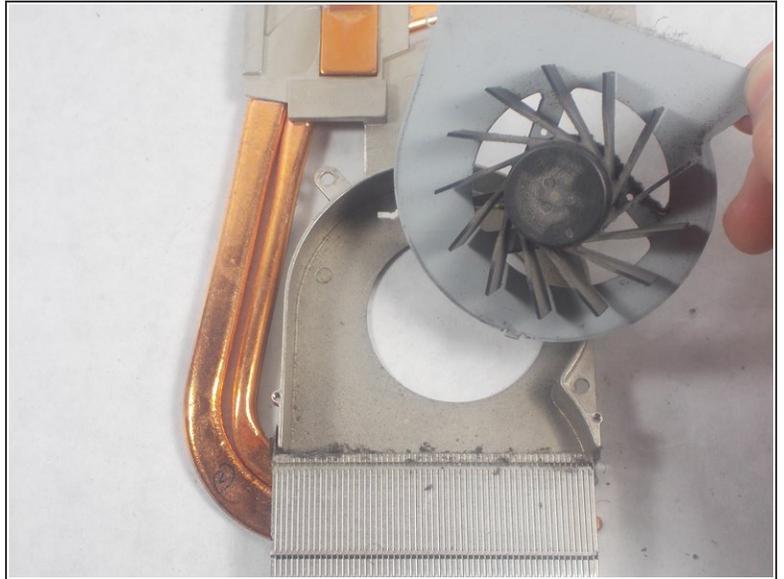
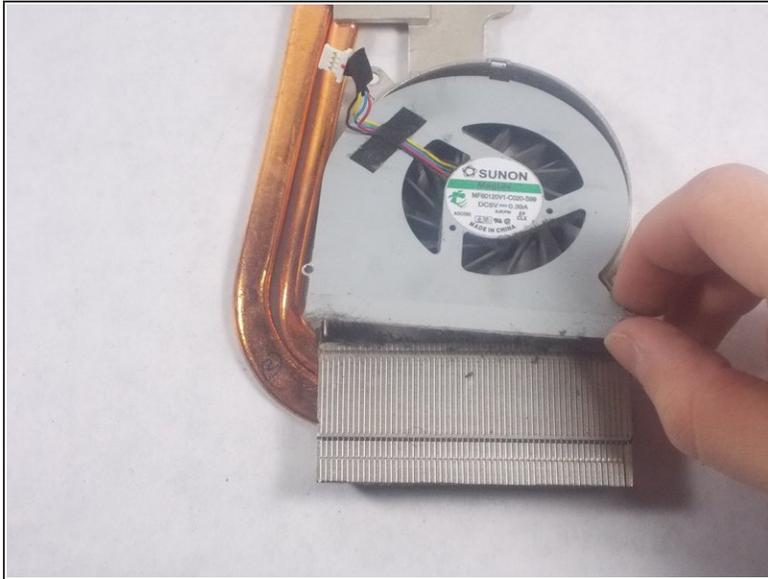
## Step 35



- Remove (2) 2mm screws on the sides of the cooling fan with a #00 Phillips screwdriver.

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## Step 36



- Remove the cooling fan from the heat sink assembly by pulling it upward.

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