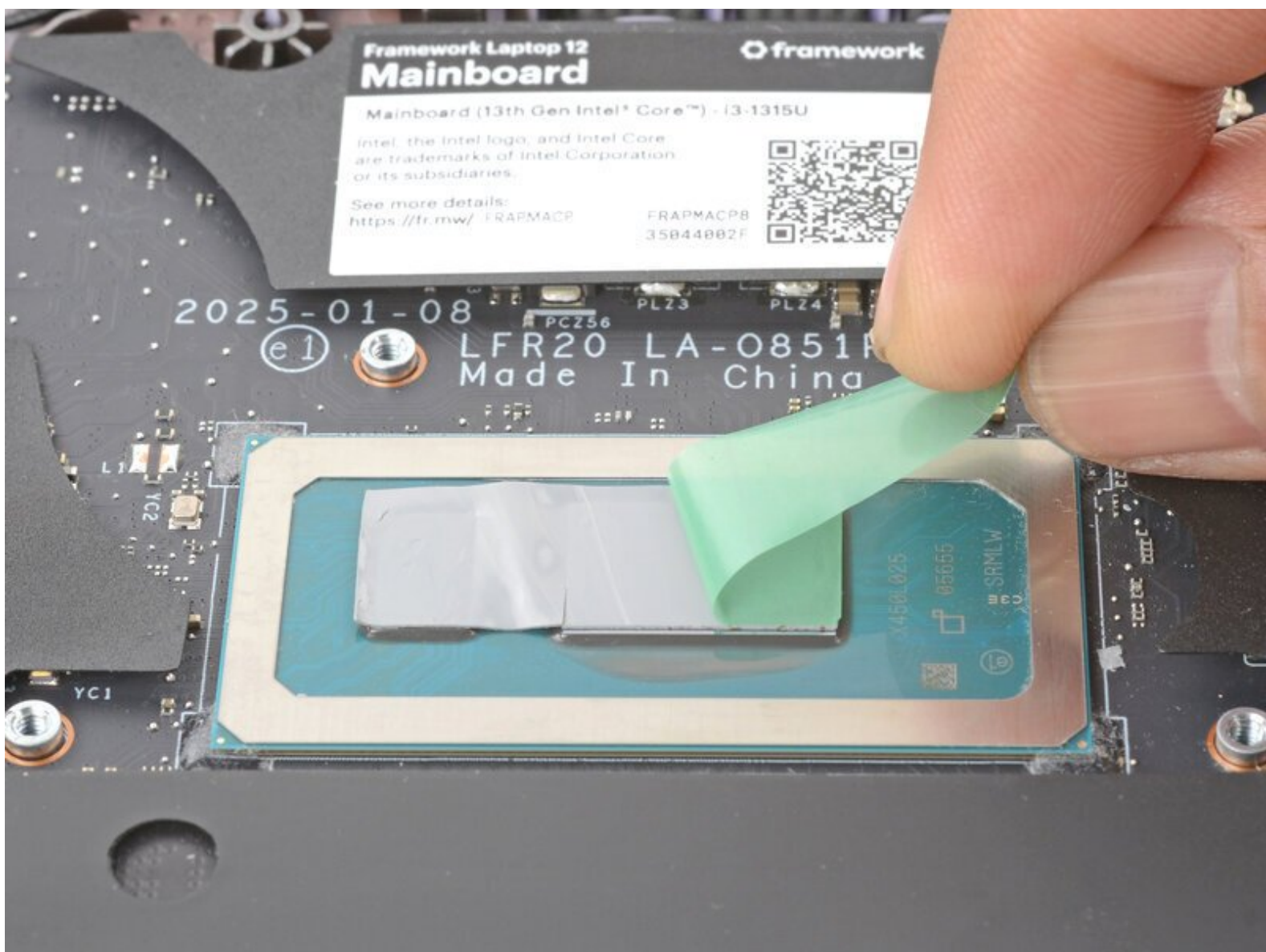




CPU Thermal Interface Material Replacement on Framework Laptop 12

Written By: Iroh



INTRODUCTION

Follow this guide to replace the thermal pad (aka thermal compound, thermal grease, or TIM—Thermal Interface Material) in your Framework Laptop 12.

If your laptop is a few years old and is running uncharacteristically hot, the thermal compound may no longer be transferring heat effectively. Replacing it may resolve the problem.

The Framework Laptop 12 comes with **Honeywell PTM7958 Size B** installed from the factory—replacements can be purchased from Framework. You can also replace it with a high quality thermal paste. This guide will show how to install either paste or pad.

You'll encounter some component terms in this guide:

- The **Input Cover** is the part that contains the Keyboard and Touchpad.



TOOLS:

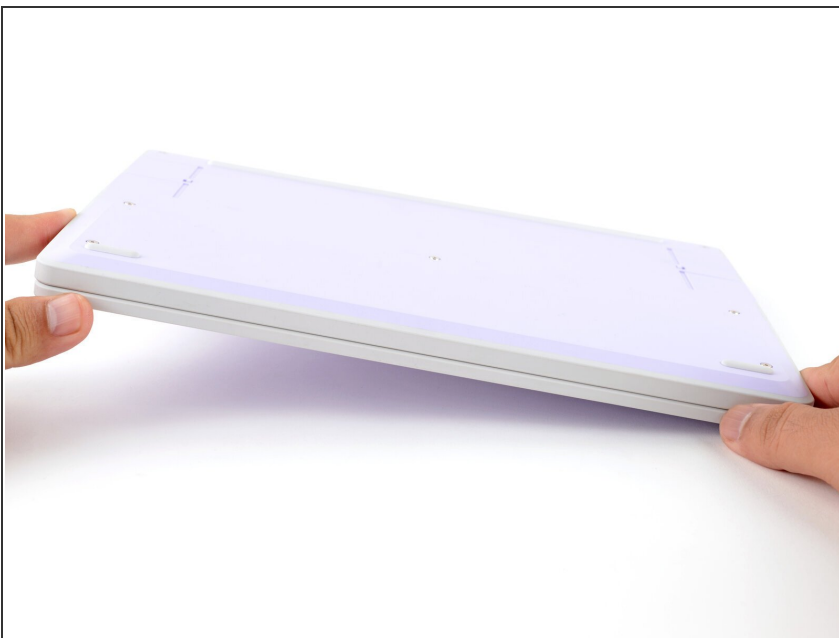
- [Framework Screwdriver](#) (1)
-

Step 1 — Power down your Laptop



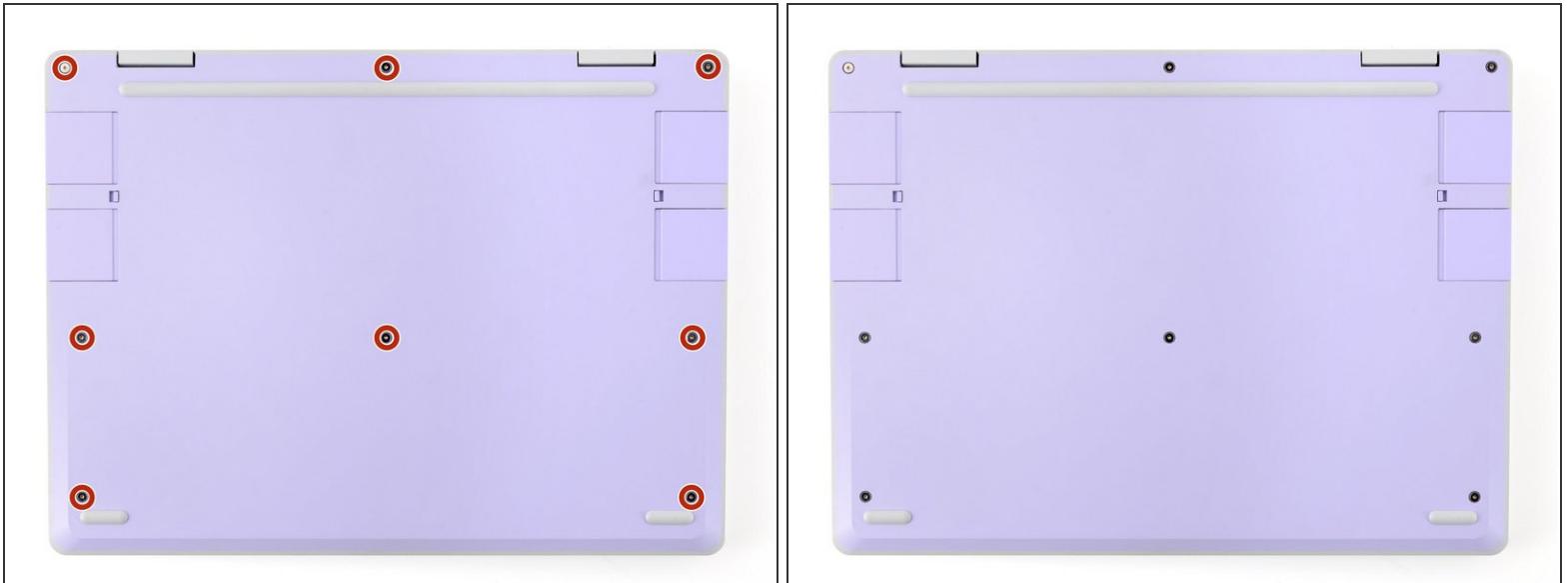
- Before you begin repairs, unplug your Laptop and **shut it down from the operating system**. This ensures that the Laptop isn't in standby/suspend mode.
 - ⓘ The indicator LEDs along the edges should be unlit. The Laptop should be silent.
 - ⓘ If you accidentally turn on the Laptop during repair, hold the power button down for 10 seconds to shut it down.
- Make sure your Framework Screwdriver has the T5 Torx bit (labeled as T-5) facing outwards. If it's not, pull the bit out and flip it.

Step 2 — Set your Laptop down



- Set your Framework Laptop face-down on a clean work surface.

Step 3 — Loosen the bottom screws



- Use your Framework Screwdriver to fully loosen the eight captive T5 Torx screws on the bottom of your Laptop.
 - ① Most screws in your Framework Laptop (including these) are captive—they're designed to stay in place after you loosen them.
 - ① Your Laptop comes with a spare set of screws [in the frame above the battery](#). Be careful—the replacement screws aren't captive.

Step 4 — Flip your Laptop over



- Flip your Laptop over so it's face-up on your work surface.

Step 5 — Open your Laptop



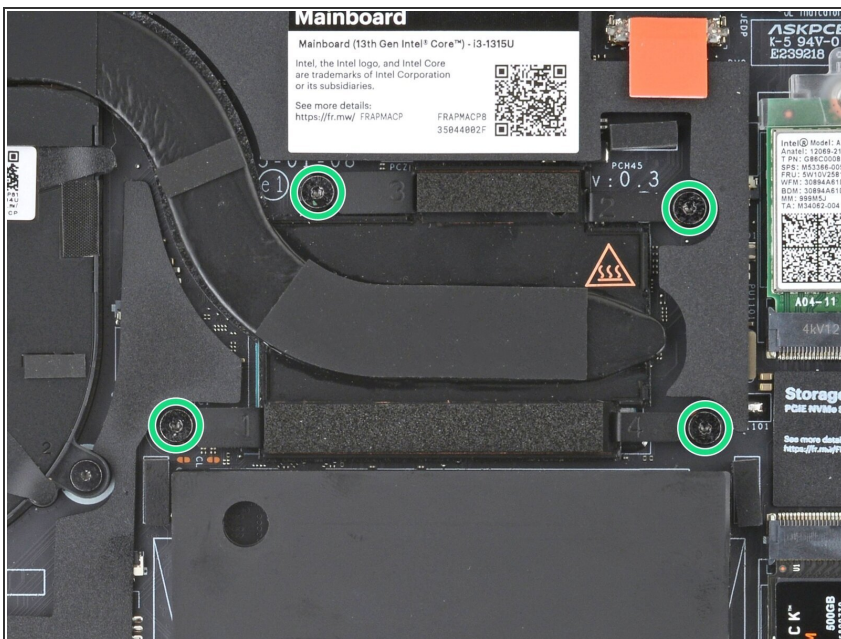
- Open the Laptop lid so that both the screen and the base lie flat on your work surface.

Step 6 — Remove the Input Cover



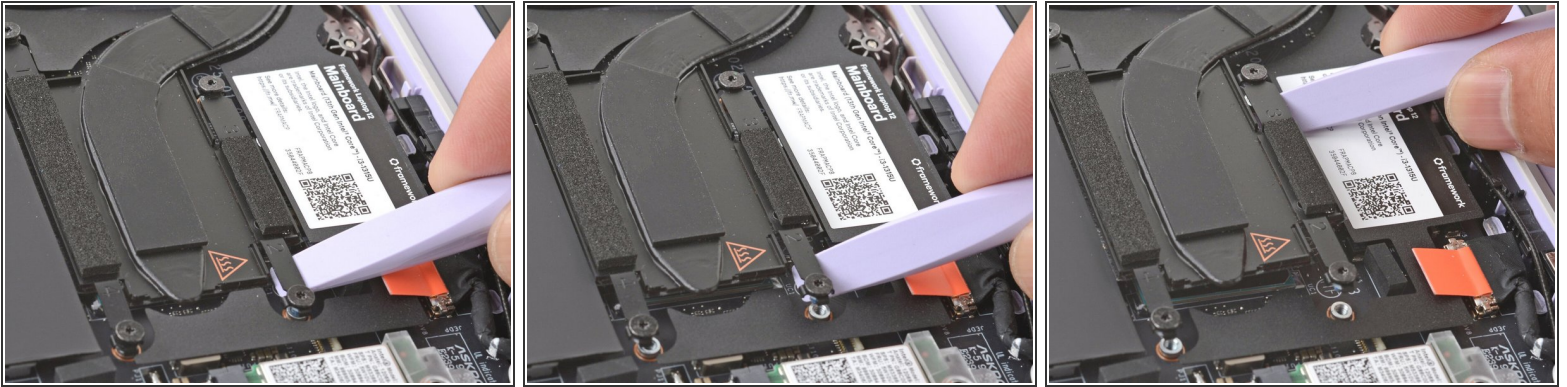
- Use your fingers to grip the Input Cover in the hinge cutouts.
- Lift upwards to swing the Input Cover up from the base of the Laptop.
 - ❗ There are magnets holding the Input Cover down, so you'll feel some resistance. If it feels like a lot of force is required, check that you've fully loosened all the screws on the bottom of your Laptop.
- Remove the Input Cover.

Step 7 — Loosen the Heatsink screws



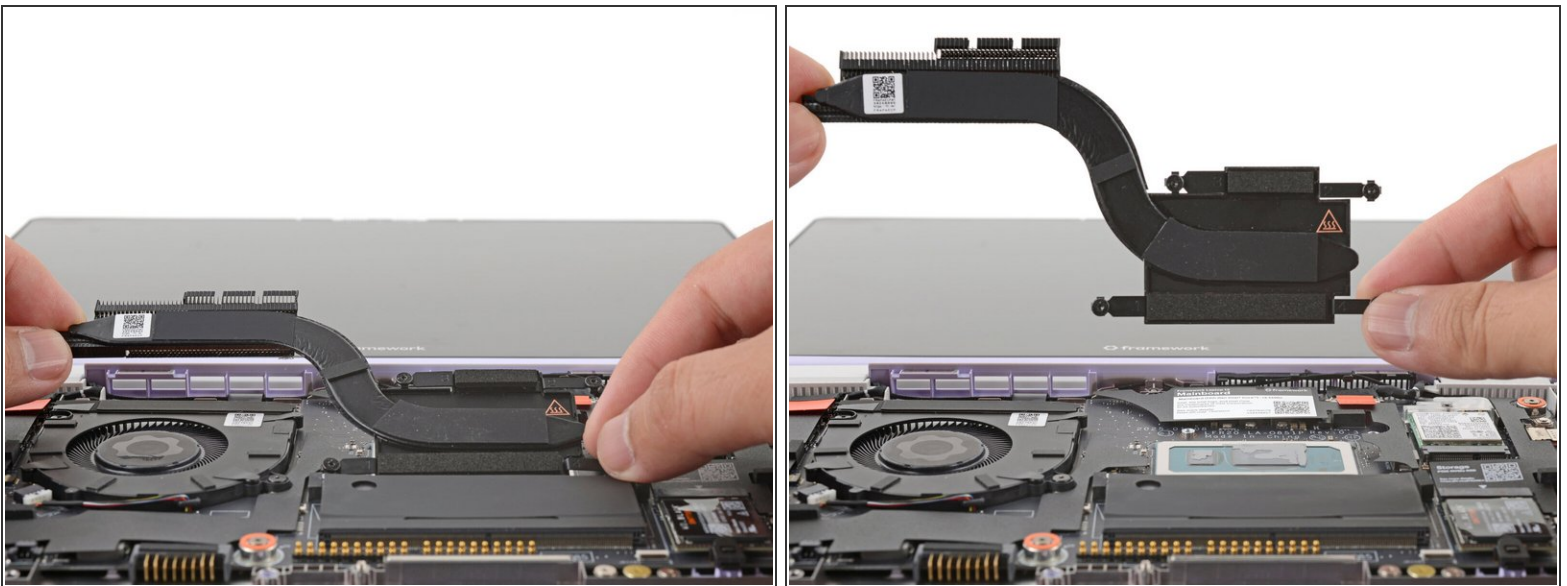
- Use your Framework Screwdriver to loosen the four captive Torx T5 screws securing the Heatsink.

Step 8 — Loosen the Heatsink



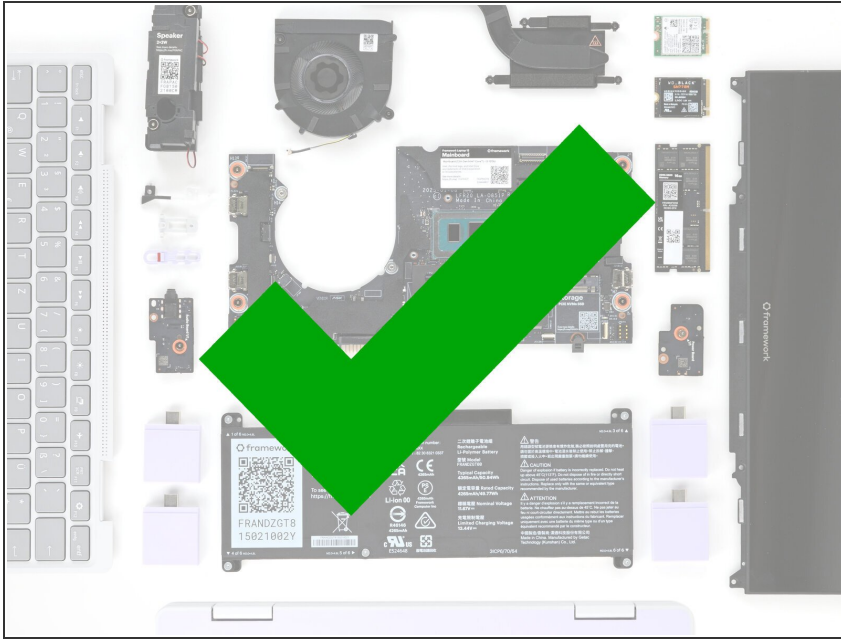
- Slide the flat end of your Framework Screwdriver under the Heatsink arm labeled "2".
- Twist the Framework Screwdriver to lift the Heatsink arm and loosen the Heatsink.
 - ⓘ You'll feel some resistance from the thermal compound holding the Heatsink in place.
 - ⓘ If the Heatsink won't budge, make sure you've fully loosened the four screws securing the Heatsink.
- Repeat the procedure with the Heatsink arm labeled "3".

Step 9 — Remove the Heatsink



- Lift and remove the Heatsink.

Step 10 — Disassembly complete



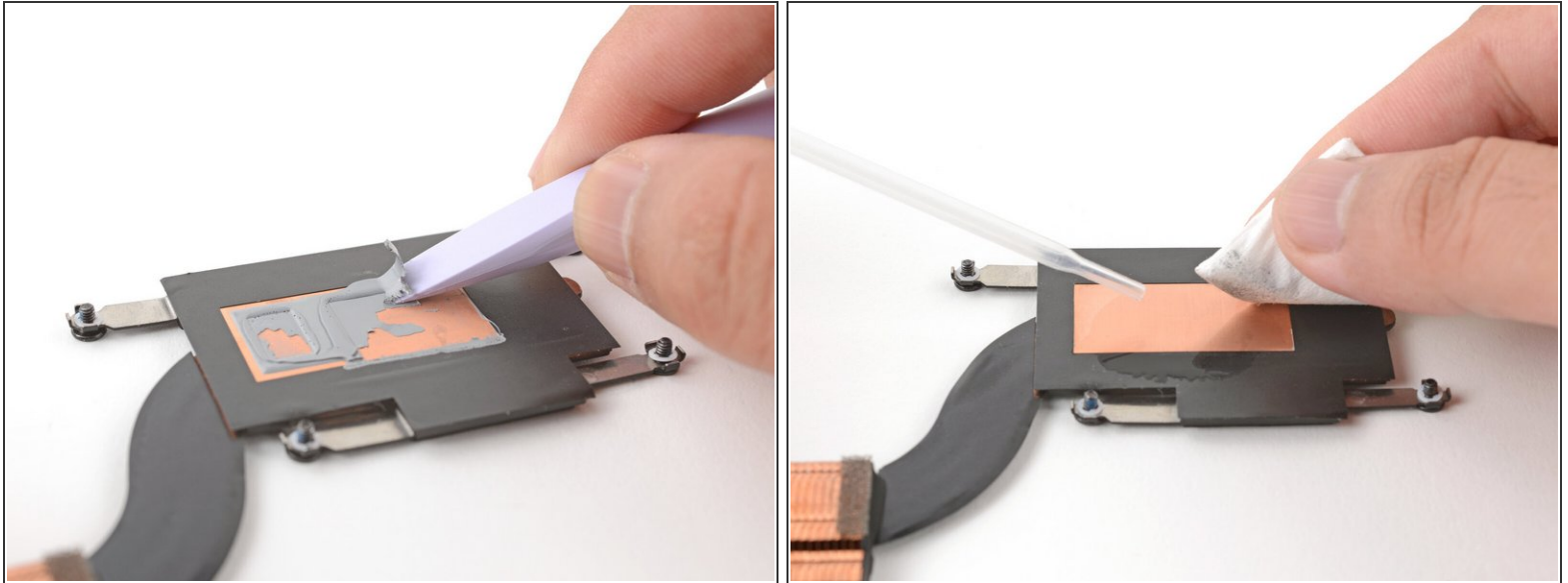
- i** Congratulations on completing disassembly! **The remaining steps will show how to reassemble your Framework Laptop.**

Step 11 — Remove the old thermal compound



- Use a few drops of high concentration (>90%) isopropyl alcohol and a lint-free cloth to wipe away the remaining residue.

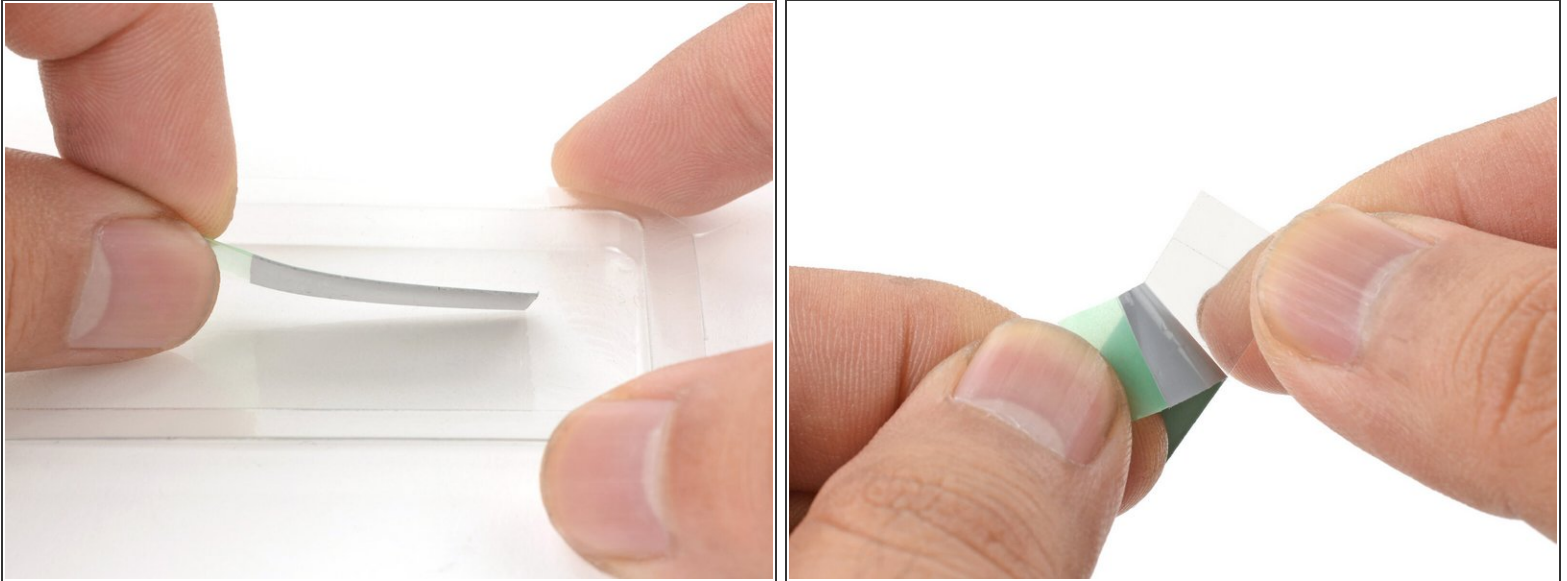
Step 12



① If you're reusing the heatsink:

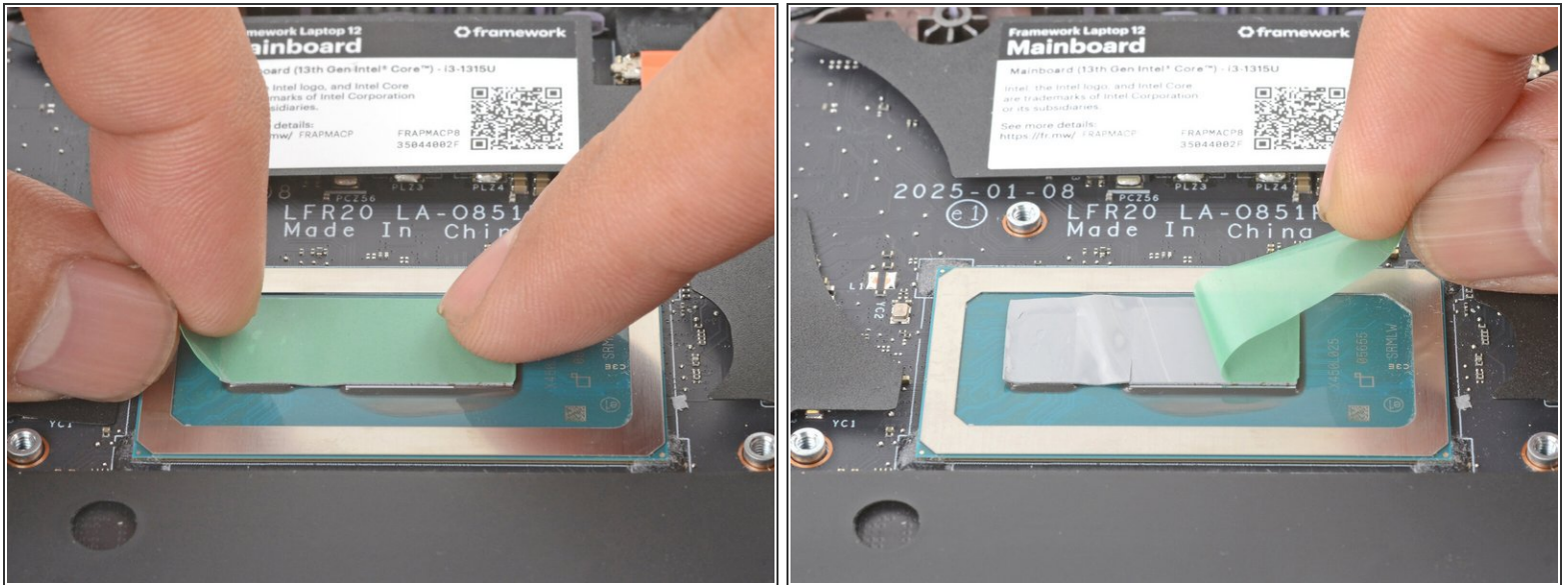
- Use the flat end of your Framework Screwdriver to scrape and remove the thermal compound residue from the Heatsink.
- Use a few drops of high concentration (>90%) isopropyl alcohol and a lint-free cloth to wipe away the remaining residue.

Step 13 — Install the Thermal Pad



- ① The next two steps show how to install a thermal pad. If you're using thermal paste instead, [skip down two steps](#).
- ① The thermal pad is covered with liners on both sides.
- Use your fingers to carefully remove the thermal pad and liners from its container.
- Peel the stiffer, clear liner away from the thermal pad.
- ① If you have trouble handling your thermal pad, place it in your fridge for a few minutes to make it more rigid.

Step 14 — Place the Thermal Pad on the CPU



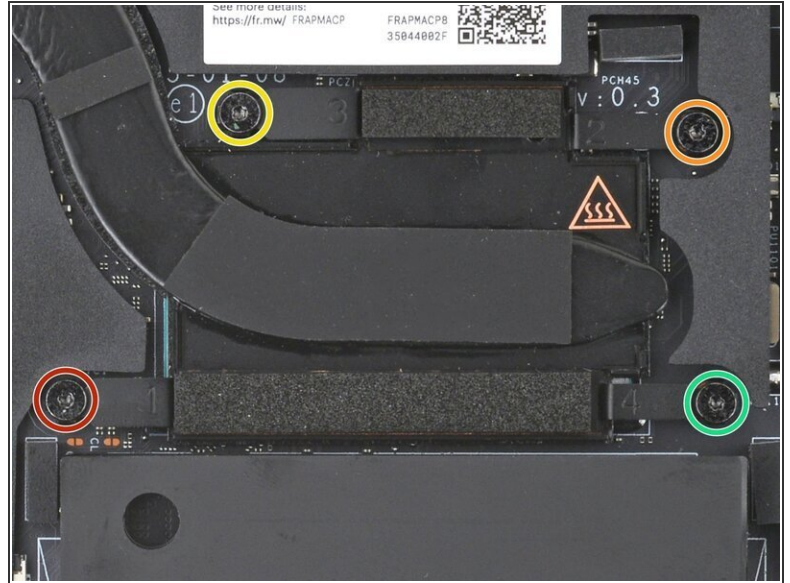
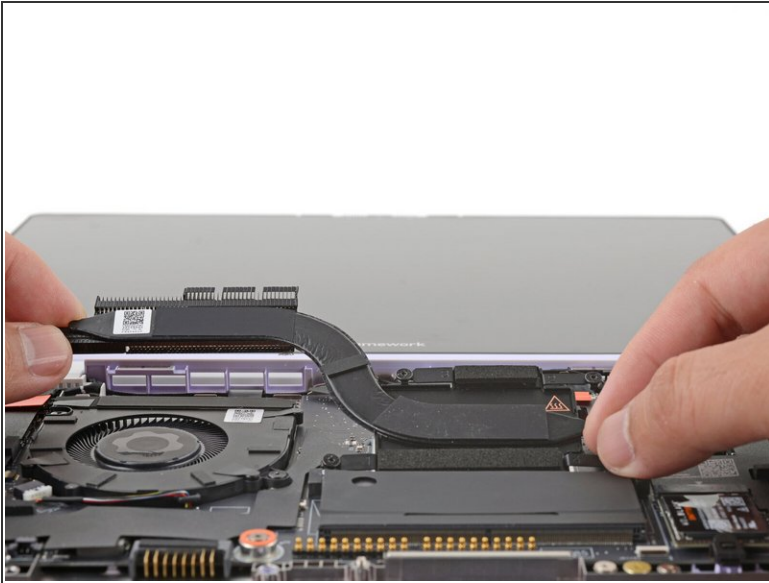
- Place the thermal pad over the processor, making sure it covers both raised blocks.
- Use your fingers to press the thermal pad onto the processor blocks.
- Peel the colored liner away from the thermal pad.
- **Skip the next step.**

Step 15 — Apply new thermal paste



- ① This step shows how to install thermal paste.
- Apply a small bead of thermal paste to the small processor rectangle.
- Apply a small line of thermal paste to the larger processor rectangle.
- ① Thermal paste is non-conductive, so don't worry if it spills over the rectangles.

Step 16 — Install the Heatsink



- Carefully align and lay the Heatsink over the processor.
- Use your Framework Screwdriver to gradually tighten the Heatsink screws in the marked order until they're snug:
 - First screw
 - Second screw
 - Third screw
 - Fourth screw, then back to the first
- ① This helps compress the thermal compound evenly under the Heatsink and apply even pressure over the processor.

Step 17 — Install the Input Cover



- Angle the bottom edge of the Input Cover towards the base of the Laptop.
- Align and insert the bottom edge of the Input Cover into the base of the Laptop.
 - ⓘ Make sure the [slots along the bottom edge of the Input Cover](#) slide into the tabs in the base.
- Lower the Input Cover's top edge onto the laptop until the magnets snap it in place.
 - ⓘ Make sure the Input Cover sits neatly within the laptop frame and no corners are popping up.

Step 18 — Close and flip your Laptop



- Close the Laptop lid.
- Flip your Laptop face-down on a clean work surface.

Step 19 — Tighten the bottom screws



- Use your Framework Screwdriver to tighten the eight captive T5 Torx screws on the bottom of your Laptop.
 - ⓘ Tighten the screws until they're snug. Don't over-tighten them, or you may strip the screws.

You finished fixing your Framework Laptop!

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

If you need help, [contact Framework support](#).