



# MacBook Pro 15" Touch Bar 2018 Cooling optimization

MacBook Pro gets too hot. Cooling optimization.

Written By: Pascal Keinath



## INTRODUCTION

Follow this guide to get a better handle on your MacBook's cooling problem.

"For your safety, discharge your MacBook Pro's battery below 25%" before you begin. A charged lithium-ion battery, if accidentally damaged, can start a dangerous and uncontrollable fire.

After the repair, my MacBook Pro's (2.2GHz 6-core i7 & Radeon Pro 555X 4GB) performance under full load improved from a falling 3.1GHz-2.6GHz at 100°C to a continuous 3.2GHz at 95°C.



### TOOLS:

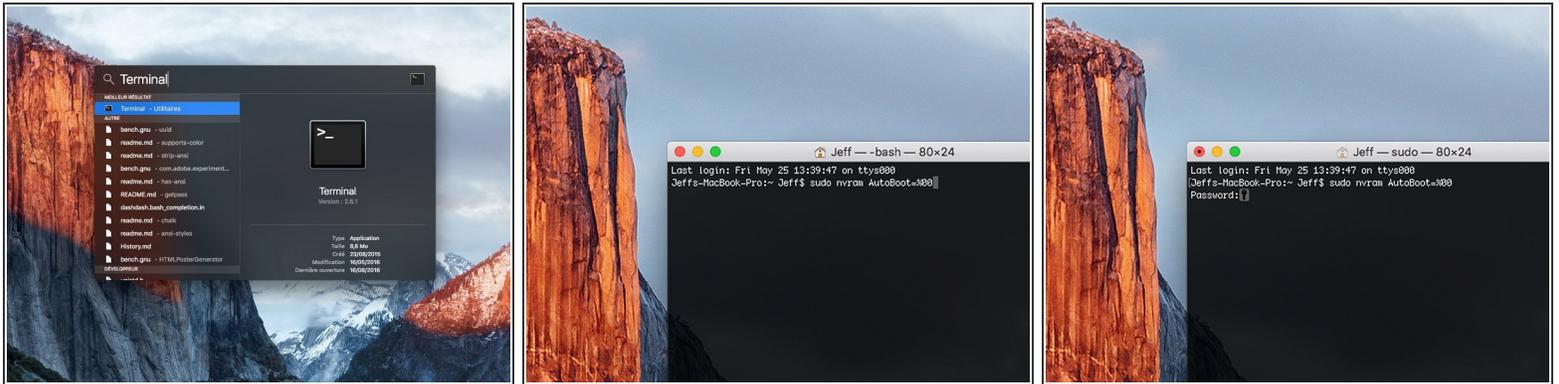
- [Suction Handle](#) (1)
- [P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
- [New Item](#) (1)
- [iFixit Opening Tool](#) (1)



### PARTS:

- [New Item](#) (1)

## Step 1 — Disable Auto Boot



- i** Before starting this procedure, you must disable your Mac's **Auto Boot** feature. Auto Boot powers on your Mac when you open the lid, and may be accidentally triggered during disassembly. [Use this guide](#) or follow the abbreviated instructions below to disable Auto Boot. *This command may not work on all Macs.*
- Power on your Mac and launch **Terminal**.
  - Copy and paste the following command (or type it exactly) into Terminal:
    - **sudo nvram AutoBoot=00**
  - Press **[return]**. If prompted, enter your administrator password and press **[return]** again. *Note: Your return key may also be labeled ↵ or "enter."*
- i** You can now safely power down your Mac and open the bottom case, without it accidentally powering on.
- ★** When your repair is complete and your Mac is successfully reassembled, re-enable Auto Boot with the following command:
- **sudo nvram AutoBoot=03**

## Step 2 — Lower Case



**⚠** Completely power off and unplug your MacBook Pro before you start. Close the display and flip the entire laptop upside-down.

- Use a P5 Pentalobe driver to remove six screws securing the lower case, of the following lengths:
  - Four 4.7 mm screws
  - Two 6.6 mm screws
- ☞ Note how the screws come out at a slight angle—you must reinstall them the same way.
- ☞ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your device.

### Step 3



- Press a suction handle into place near the front edge of the lower case, between the screw holes.
- Pull up on the suction handle just enough to open a small gap under the lower case.

### Step 4



- Slide the corner of an opening pick into the gap you just created underneath the lower case.
- Slide the opening pick around the nearest corner and then halfway up the side of the MacBook Pro.
- ⓘ This releases the first of the hidden clips securing the lower case. You should feel and hear the clip pop free.

## Step 5



- Repeat the previous step on the other side, using an opening pick to to release the second clip.

## Step 6



- Lift the front edge of the lower case (the side opposite the display hinge) enough to slide your fingertips underneath and get a good grip on it.

- ⓘ Two additional hidden clips near the middle of the cover should pop free at this point, if they haven't already.

**⚠ Don't lift more than an inch or so, and don't try to remove the lower case yet.**

## Step 7

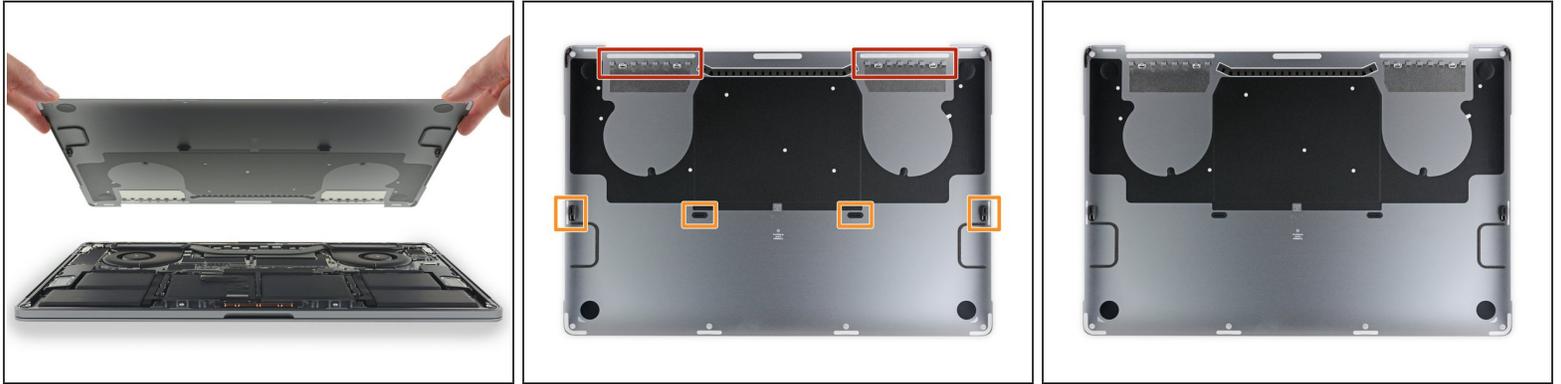


- Pull firmly to slide the lower case towards the front edge of the MacBook (away from the hinge area) to separate the last of the clips securing the lower case.
  - Pull first at one corner, then the other.

 **Pull to the side—not up.**

 This may require a lot of force.

## Step 8



- Remove the lower case.

To reinstall the lower case:

- [Set it in place](#) and align the sliding clips near the display hinge. Press down and slide the cover toward the hinge. It should stop sliding as the clips engage.
- When the sliding clips are fully engaged and the lower case looks correctly aligned, press down firmly on the lower case to engage the four hidden clips underneath. You should feel and hear them snap into place.

## Step 9 — Cooling optimization



- Cut the thermal pad to fit the CPU and GPU.
- Dimensions: 50 mm x 50mm x 0.8 - 1 mm
- Remove the first protective film from the pad and carefully place it on the two visible areas (CPU and GPU) and press it down lightly.
- After the pad is pressed down and fits snugly, remove the second side of the protective film.

Work through the steps in reverse order to reassemble your device.