



# MacBook Pro 13" Function Keys 2017 Won't Turn On Repair

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## INTRODUCTION

As the latest MacBook model in 2017, Macbook Pro 13" (A1708) is different from previous models in exterior design and interior logic board circuit construction. Which also increases difficulty of its replayability. This time we will share with you a complex MacBook won't turn on repair case caused by multiple faulty components like capacitors, inductors, etc..

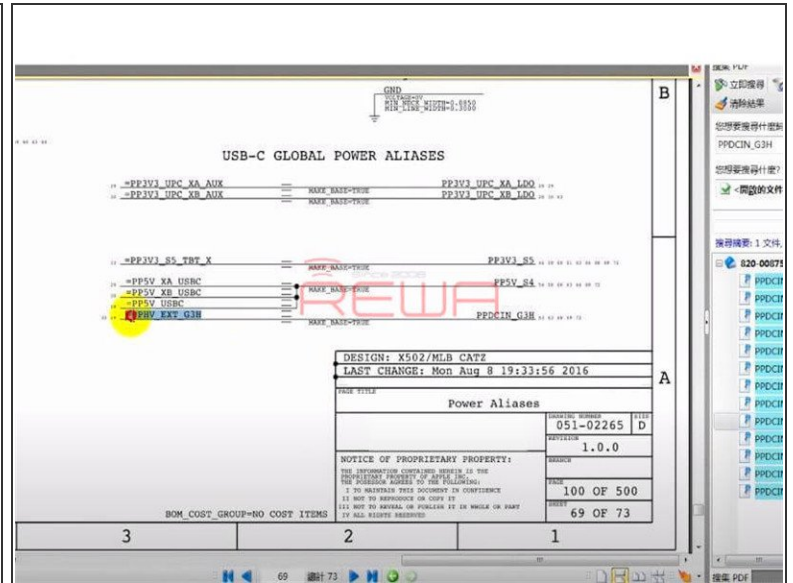
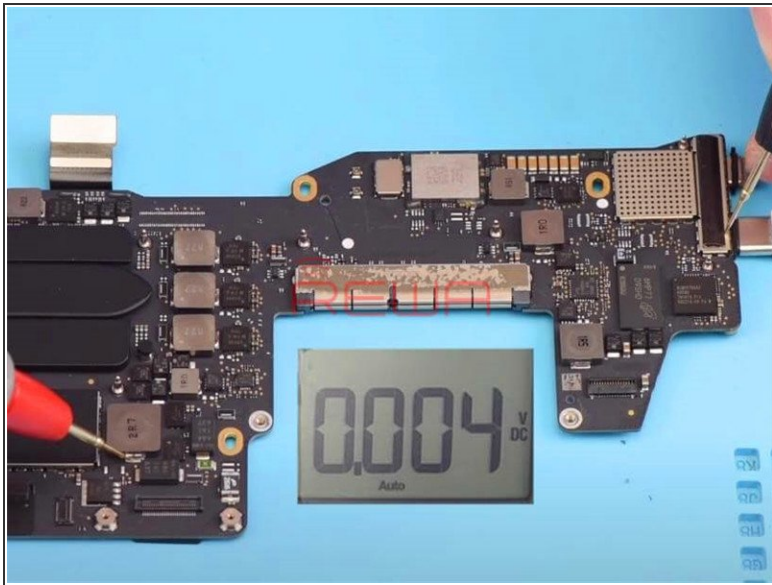
**WARNING!** This guide gets into micro-soldering, unless you are comfortable in using a soldering iron as well as a rework station (heated air) to properly solder SMT devices we would recommend leaving this to someone with the deeper skills and proper tools.

## Step 1 — Problem



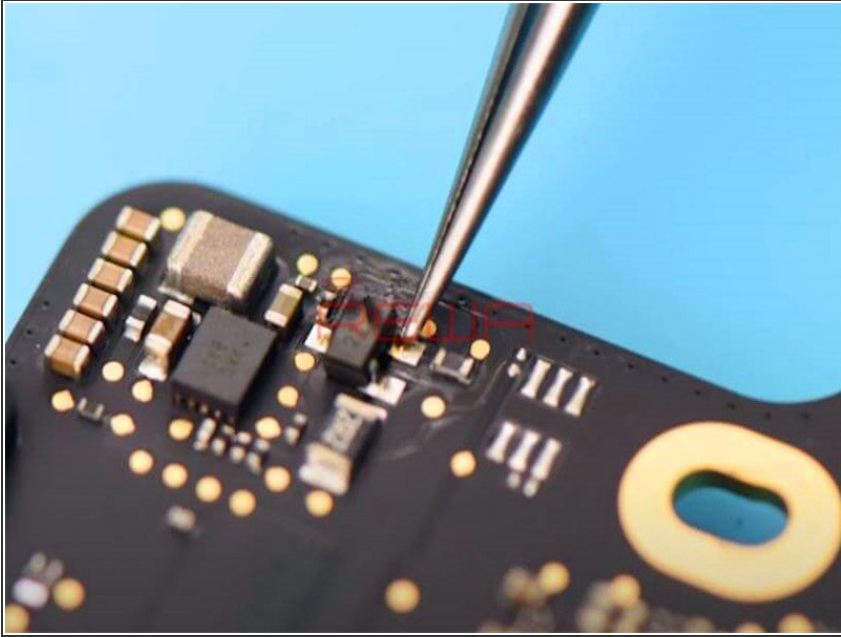
- Press power button, and the MacBook won't turn on. Confirm the serial number on the lower case first.
- Pop free the clips securing the lower case to the chassis. Pull the lower case away from the hinge area to separate. Then remove the lower case.
- Disconnect the battery and detach the logic board. Remove the SSD module. Then confirm the board number of logic board.

## Step 2 — Diagnosis



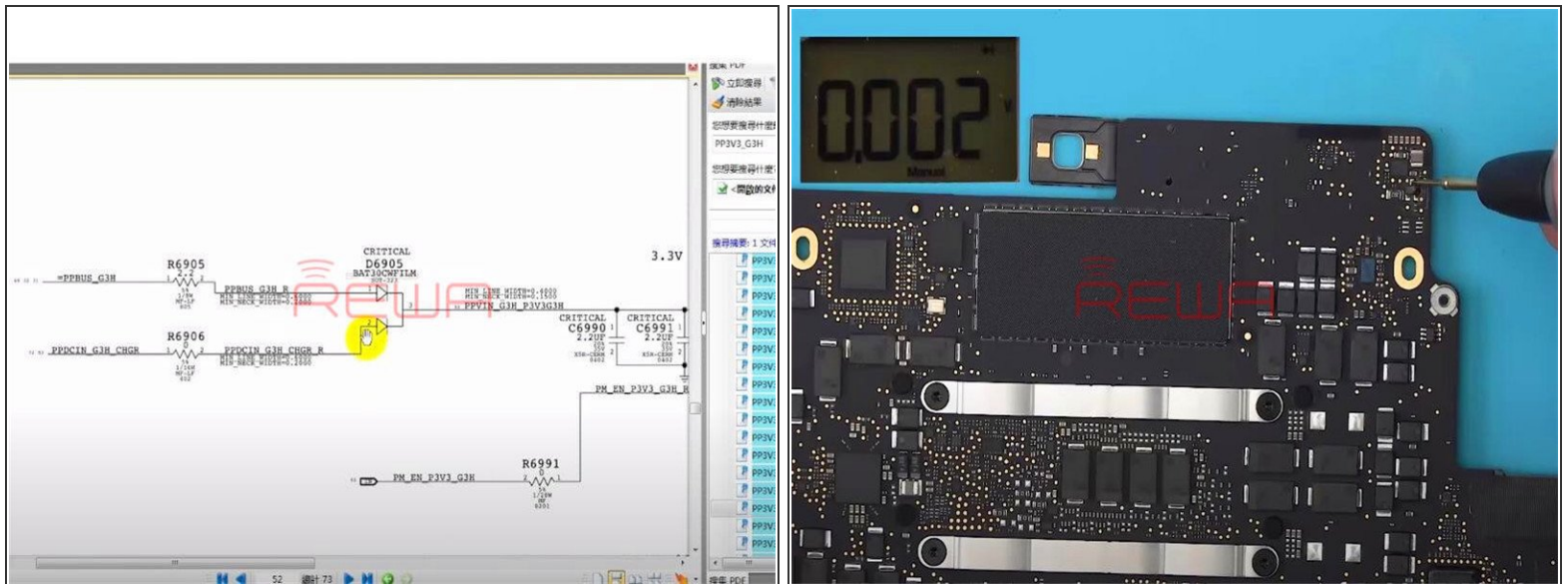
- Measure main power supply inductor L7030 first. The measured voltage value is 0V, which is abnormal.
- Confirm L7030 relevant circuit PPDCIN\_G3H (also known as =PPHV\_EXT\_G3H) on the schematic software.
- Confirm the working condition of U3100. Confirm U3100 main power supply Pin H1 VIN\_3V3 (also known as =PP3V3\_G3H\_UPC\_XA). =PP3V3\_G3H\_UPC\_XA is converted into PP3V3\_G3H via R3000.

## Step 3 — Diagnosis



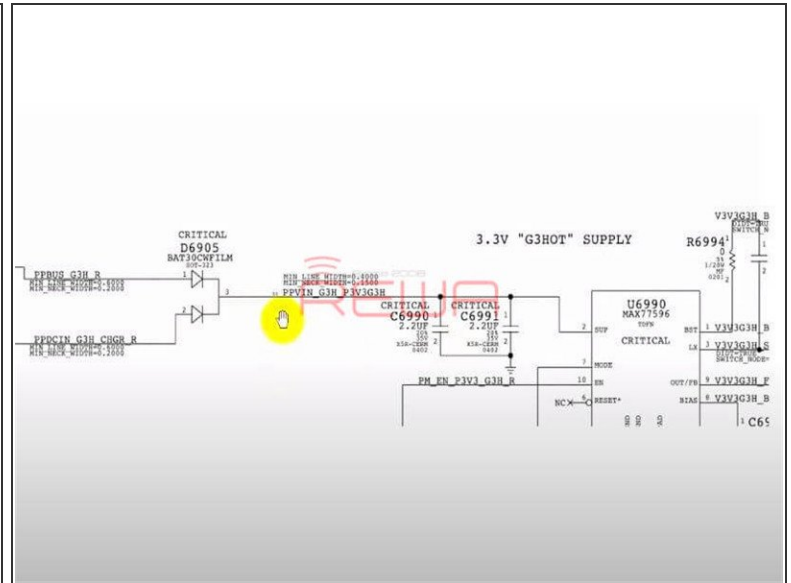
- Then confirm the power supply source of PP3V3\_G3H. PP3V3\_G3H is outputted from U6990 via L6995. Locate U6990 with bitmap. Then locate the corresponding position of U6990 on the logic board.
- Traces of damage can be found on chips around U6990. Confirm the working condition circuit of U6990 with drawing. Then locate L6995 with bitmap.
- Run diode mode measurement of L6995. The measured value is normal.

## Step 4 — Diagnosis



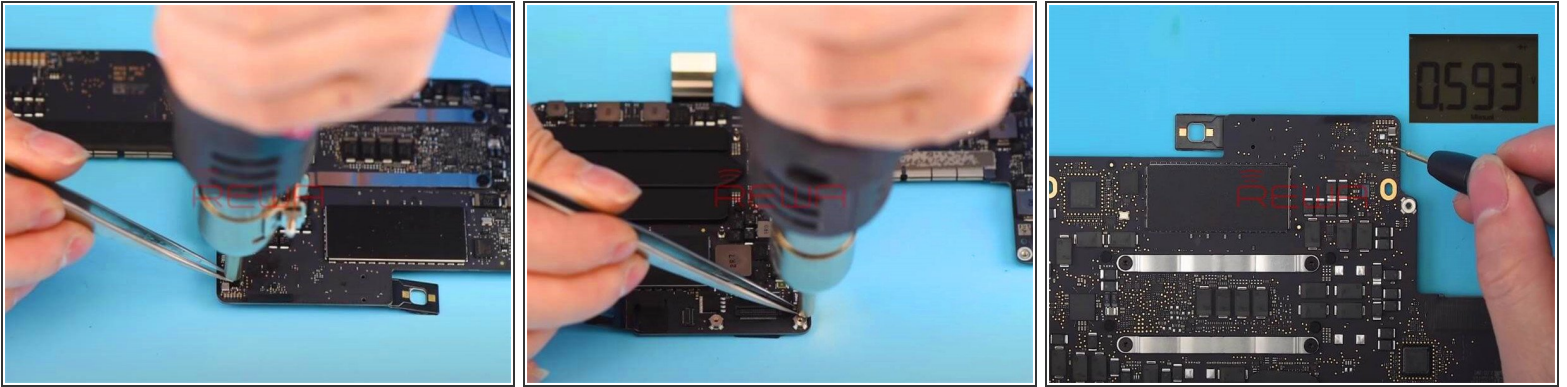
- Roll out the drawing and locate the Pin 2 SUP of U6990 main power supply (also known as PPVIN\_G3H\_P3V3G3H). PPVIN\_G3H\_P3V3G3H is converted from compound diode D6905.
- Run diode mode measurement of D6905. The measured value of Pin3 and Pin1 is abnormal. We can conclude that D6905 has been damaged.

## Step 5 — Troubleshooting



- Let's detach D6905 first. Then run diode mode measurement of its bonding pad. The measured value of Pin 3 is 0, which is abnormal.
- Confirm relevant circuit of D6905 Pin 3 power supply with drawing. The circuit consists of U6990, C6990 and C6991.

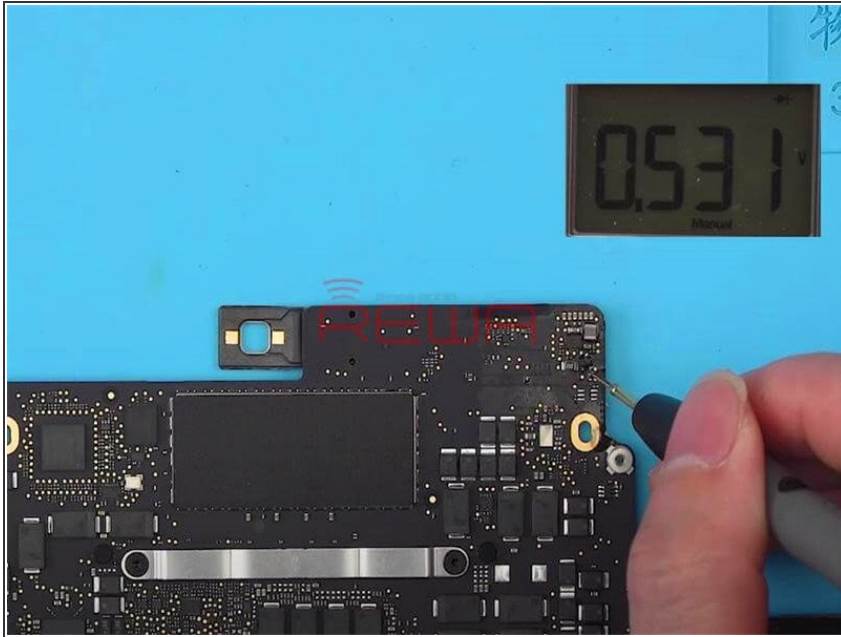
## Step 6 — Troubleshooting



- Detach U6990 first. Then run diode mode measurement of D6905 Pin 3 again. The measured value is 0, which indicates short-circuited condition.
- We can conclude that the faulty condition has nothing to do with U6990. Yet U6990 might have been damaged as well.
- Continue to detach C6990. Then run diode mode measurement of D6905 Pin 3 again. The measured value is 593, which is normal.
- We can conclude now that the faulty condition is related to C6990.

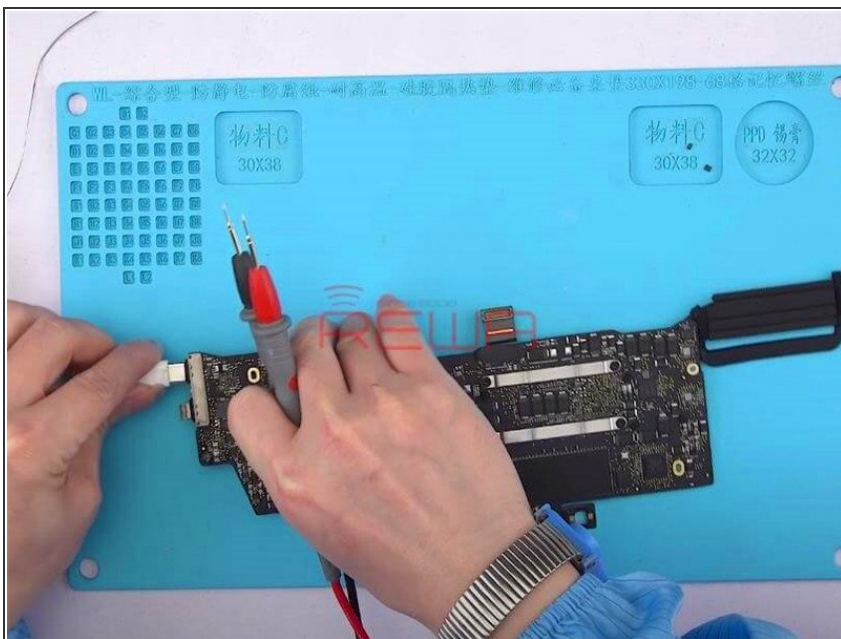


## Step 7 — Troubleshooting



- Also, we need to replace with a new U6990. Let's start with U6990 replacement.
- Apply some BGA Paste Flux and solder a new chip with Hot Air Gun. Then run diode mode measurement of D6905 Pin 3 again. The measured value is 531, which is normal.
- Next thing we do is to solder a new D6905. Then run diode mode measurement of three pins on D6905 one by one. The measured value is normal.

## Step 8 — Troubleshooting



- Next thing we do is to solder a new C6990. Once done, run diode mode measurement of D6905 Pin 3 again. The measured value is normal.
- Plug in AC adapter and measure the voltage of D6905 Pin 3, L6995 and L7030. All going well.
- Measure the voltage of U3100 main power supply Pin H11 VBUS and logic board power supply group by group. All going well.

## Step 9 — Reassemble And Test



- Get the logic board mounted. Plug in AC adapter and power on. The MacBook turns on normally. Disconnect the power supply and insert the SSD.
- Plug in AC adapter and power on. The MacBook turns on normally.
- Disconnect the power supply and get the MacBook full assembled. Plug in AC adapter and power on. The MacBook turns on normally.

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