

# REPAIR GUIDELINE

Blower\_LB7650E



*Update Date: 2022/05/20*

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# Troubleshooting

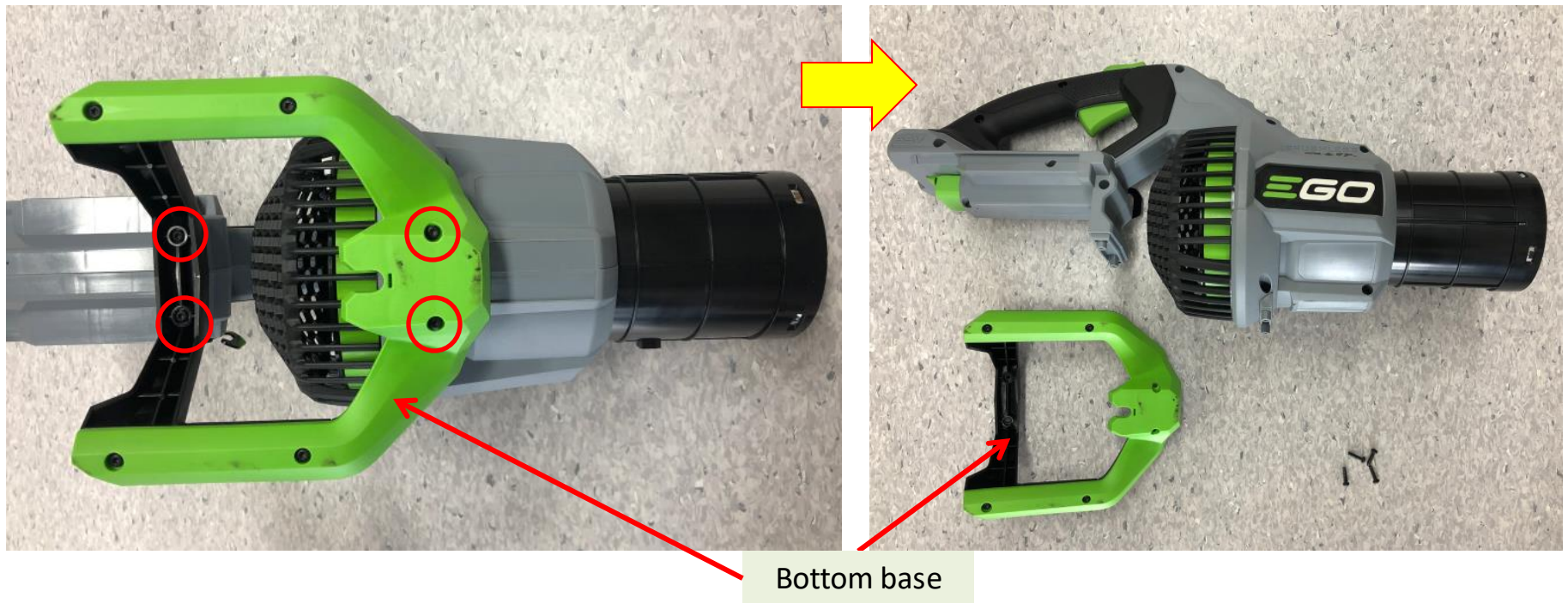
| Problem   | Possible Cause                    | Fault Position | Test & Solution  |
|---|-----------------------------------|----------------|--|
| Fail to start   | PCBA is damaged.                  | Handle housing | Replace PCBA in the handle.  |
|   | Motor is damaged.                 | Duct set       | <p>Measure the resistance between any two of the three cable terminals of the duct set using a Multimeter. If the resistance is infinite, the motor is open circuit, replace with a new duct set.</p> <p><b>NOTICE:</b> Judge if there is any burning smell of the motor before having diagnosis. If yes, the motor is burned. Replace it.</p> |
| Press the air velocity adjusting knob when the blower runs, the air velocity and the volume doesn't change. | Speed-adjustment PCBA is damaged. | Handle housing | Replace the whole PCBA (Speed-adjustment PCBA included) in the handle and verify.  |
| The air velocity and the volume are decreased compared with normal use.                                     | The fan in the duct is over-worn. | Duct set       | Open the handle housing, remove the fan baffle and visually check the fan inside the duct set. If the fan is over-worn, replace the whole duct set.  |

# Tool List For Repair

| NO. | Tool List               | SPEC     | Remark                          |
|-----|-------------------------|----------|---------------------------------|
| 1   | Phillips screwdriver    | PH1      |                                 |
| 2   | Torx screwdriver        | T10, T15 |                                 |
| 3   | Heat gun                |          |                                 |
| 4   | Heat-shrinkable sleeves |          |                                 |
| 5   | Scissors                |          | To remove the shrinkable sleeve |
| 6   | Multi-meter             |          |                                 |

# How to Disassemble the Blower

1. Remove the 4 screws on the blower bottom base to remove the bottom base.



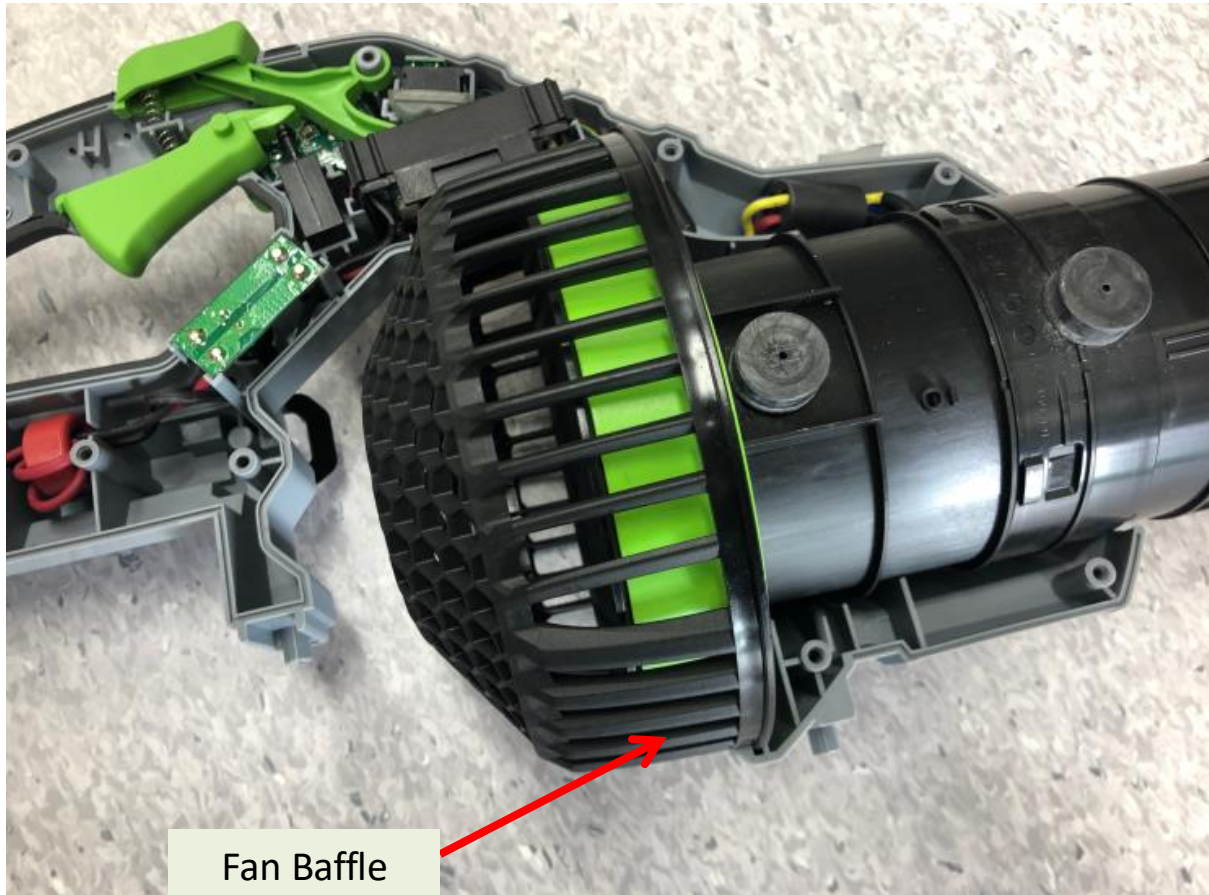
# How to Disassemble the Blower

2. Remove the 11 screws to open the blower housings to expose the PCBA and Duct set connectors.



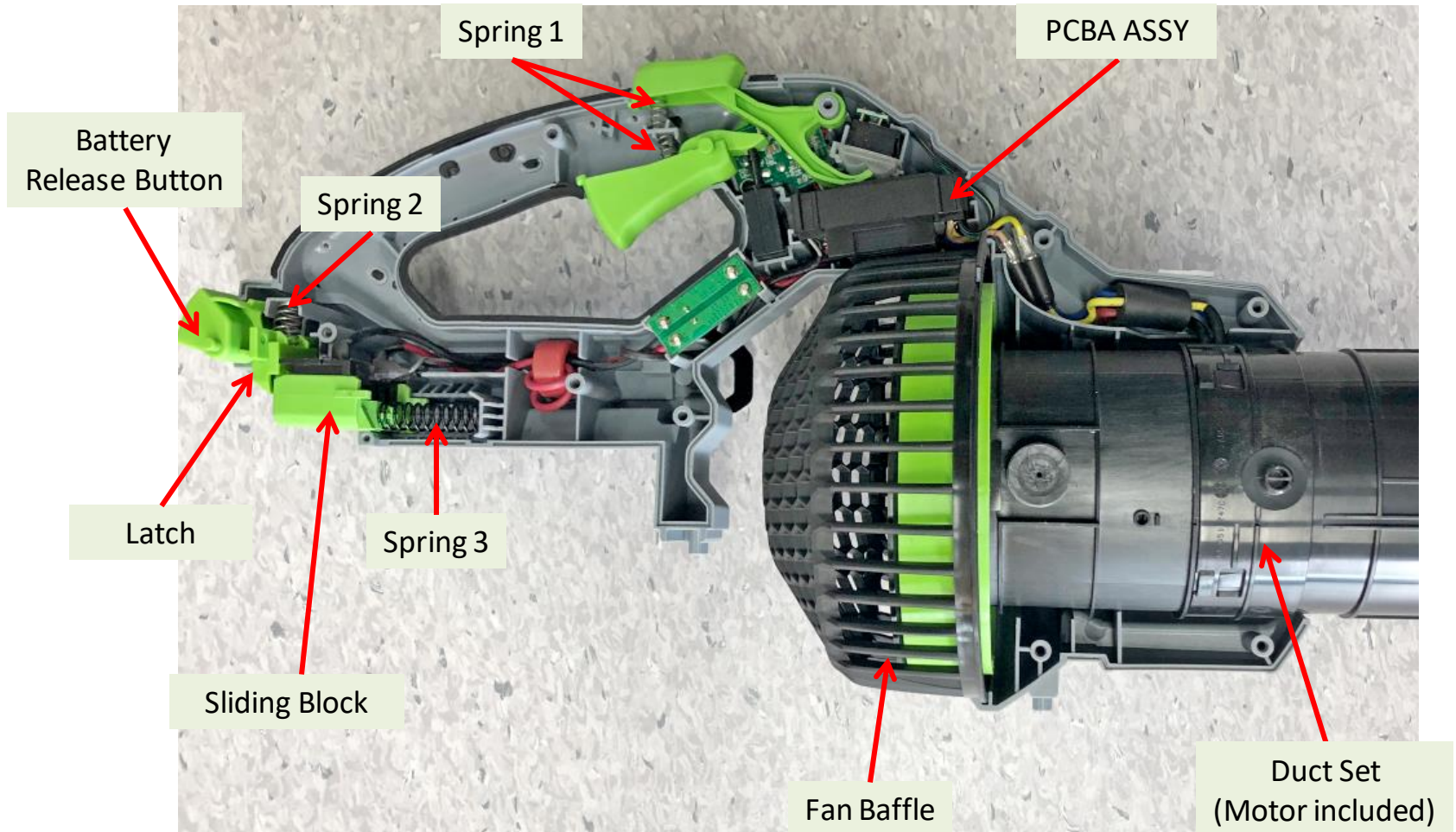
# How to Disassemble the Blower

3. Remove the fan baffle away from the housing. If the fan baffle is worn, replace it. Otherwise save it for reassembly.



# How to Disassemble the Blower

- ✓ The following parts can be replaced after opening the housings.





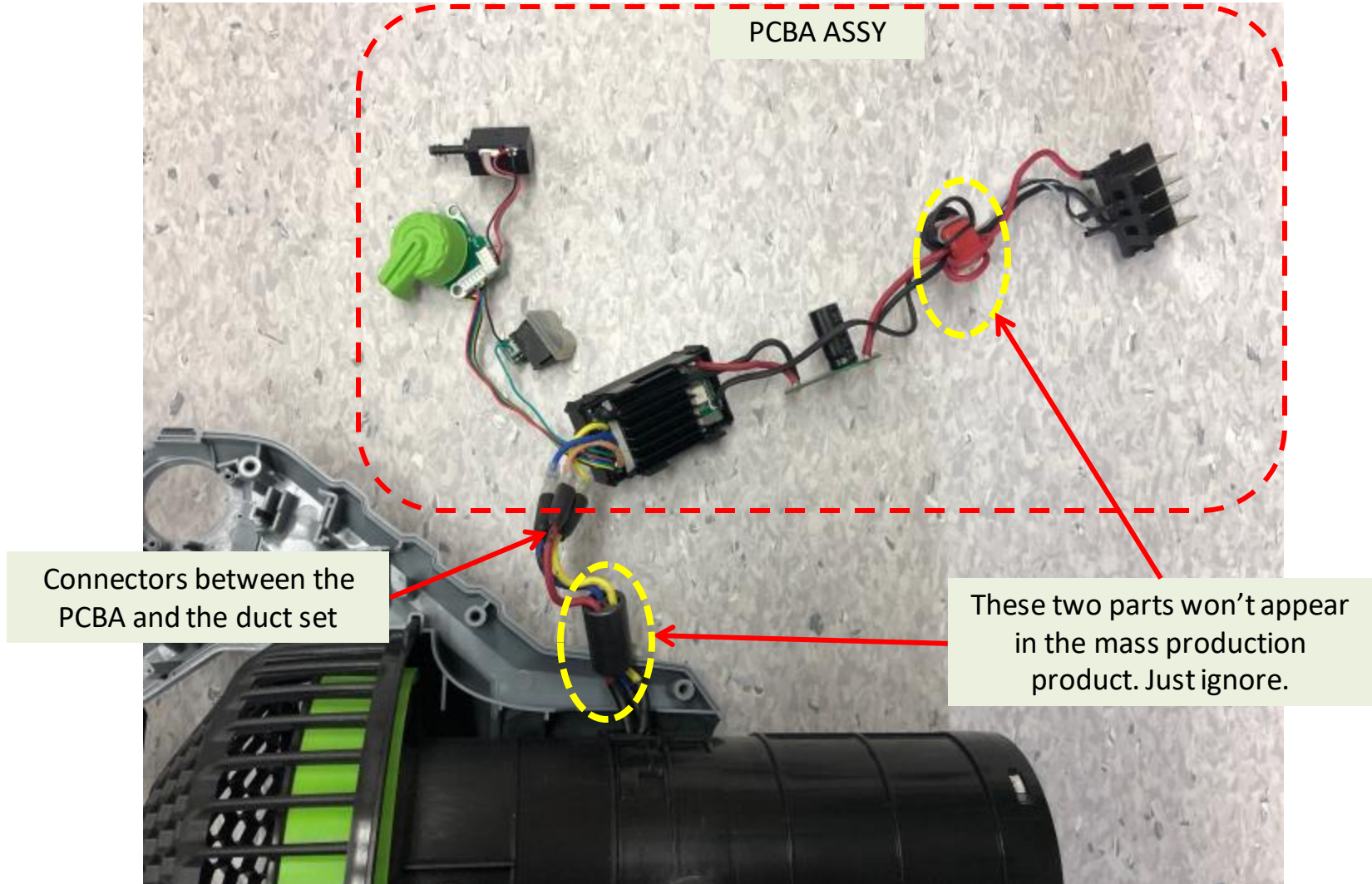
# How to Disassemble the Blower

4. Loosen the 2 screws to remove the speed-adjustment PCBA.



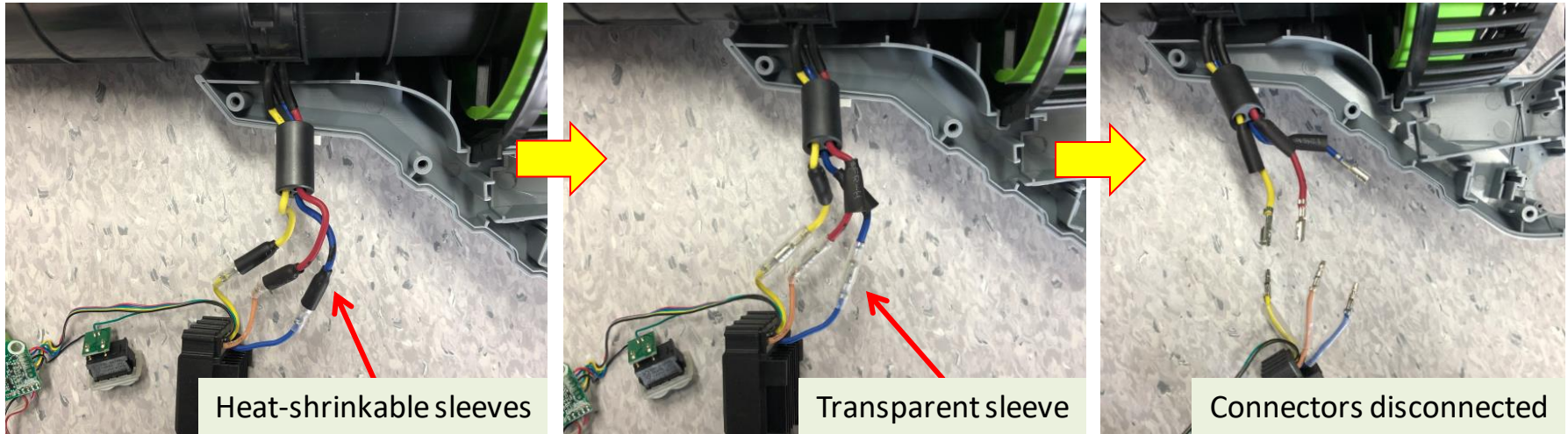
# How to Disassemble the Blower

5. Take out the PCBA ASSY from the handle housing.



# How to Disassemble the Blower

6. Use scissors to cut off the heat-shrinkable sleeves and remove the transparent sleeves aside to separate the three connectors between the PCBA ASSY and the duct set (motor included).



# How to Detect the PCBA and the Motor

1. Test the duct set (motor included) to judge if the motor is open-circuit.

**NOTICE:** Judge if there is any burning smell of the motor before having diagnosis. If yes, the motor is burned. Replace it. Otherwise, go on below detection.



Measure the resistance between any of the two connectors

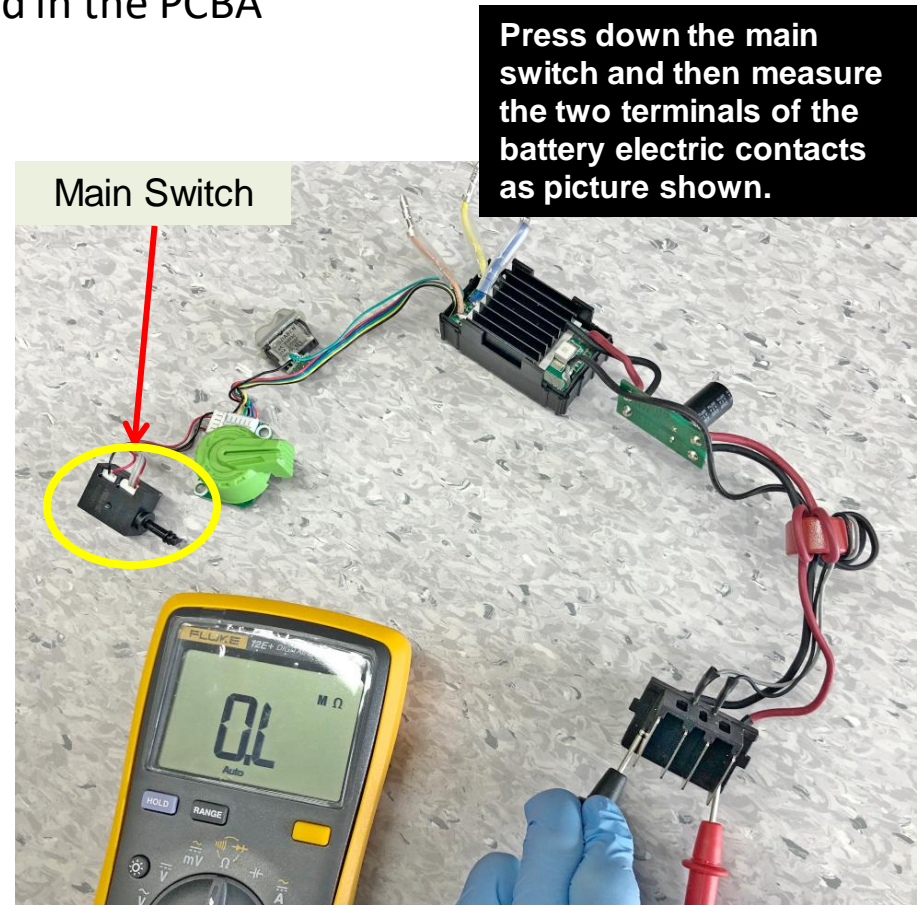
- a) Set the Multimeter function to “Resistance measuring” .
- b) Measure the resistance between any of the two connectors.
- c) If any of the measurements is infinite, means the circuit between the two connectors is open circuit, the motor is damaged. Replace with a new motor.
- d) **If the motor is shorted inside**, Multimeter is not applicable for detection. Directly test with a new motor after disconnecting the connectors.

# How to Detect the PCBA and the Motor

2. Test the PCBA to judge if it is broken.

① Discharge the capacitor that is connected in the PCBA

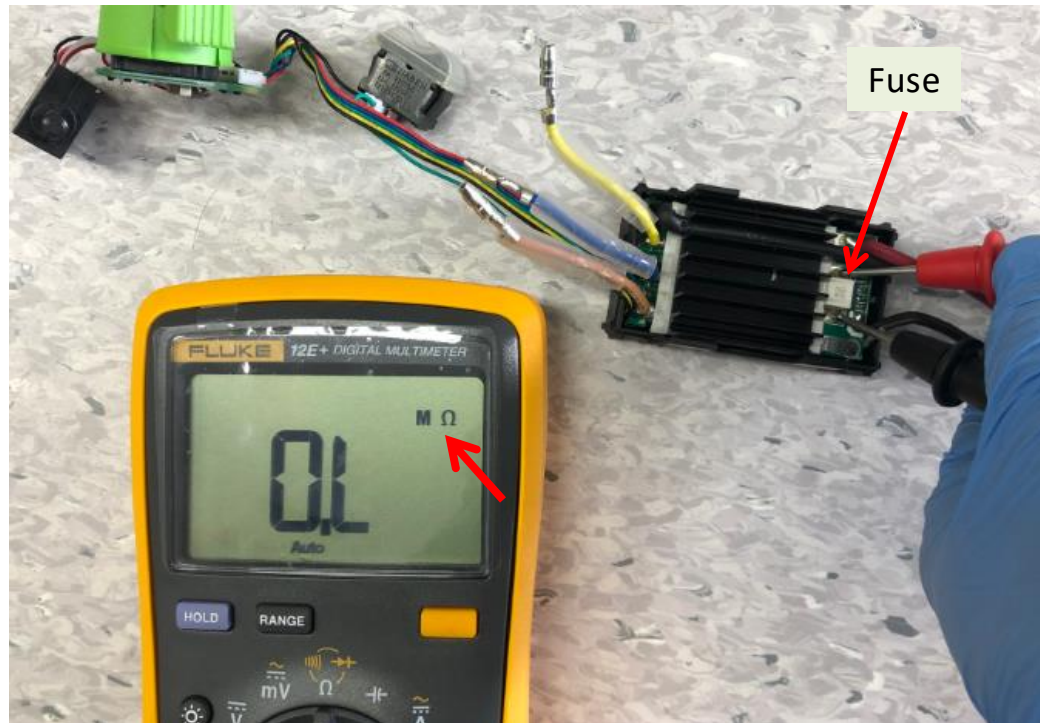
- a) Multimeter can be used for discharging.  
With the Multimeter function set to “ $\Omega$ ”, get through the two terminals of the battery electric contacts, with black pen pin contacted to the negative terminal(black wire) and red pen pin contacted to positive terminal(red wire), press down the main switch (Yellow circled indicated).
- b) When the value displayed is 0L., the discharging process is finished.



# How to Detect the PCBA and the Motor

## ② Measure the fuse in the PCBA.

- With the Multimeter function set to " $\Omega$ ", pierce one pen pin into the sealing glue and force the pin contacting onto one end of the fuse, then pierce the other pen pin into the sealing glue and contacting onto the other end of the fuse.
- If the value displayed is below  $1\Omega$ , the fuse is good. Go on next PCBA MOSFET testing, otherwise replace the whole PCBA ASSY directly. No separate fuse replacement is allowed.



# How to Detect the PCBA and the Motor

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## ③ Measure the MOSFET in the PCBA (Step 1)

- a) Set the Multimeter function to “Diode measuring”.
- b) Contact the red pen pin to the negative electric contact (the battery electric contact that connects to black wire).
- c) Contact the black pen pin to the three connectors separately and measure each voltage (see next slide).
- d) If the LCD displays 0.45~0.55V for each measurement, go to the next testing step, otherwise means the PCBA is broken (When LCD displays both around 0.1V or 0L., the MOSFET are broken).
- e) Follow the procedures in “***Replace the PCBA***” to replace a new PCBA.

# How to Detect the PCBA and the Motor

Figure showing how to measure the MOSFET in the PCBA (Step 1)





# How to Detect the PCBA and the Motor

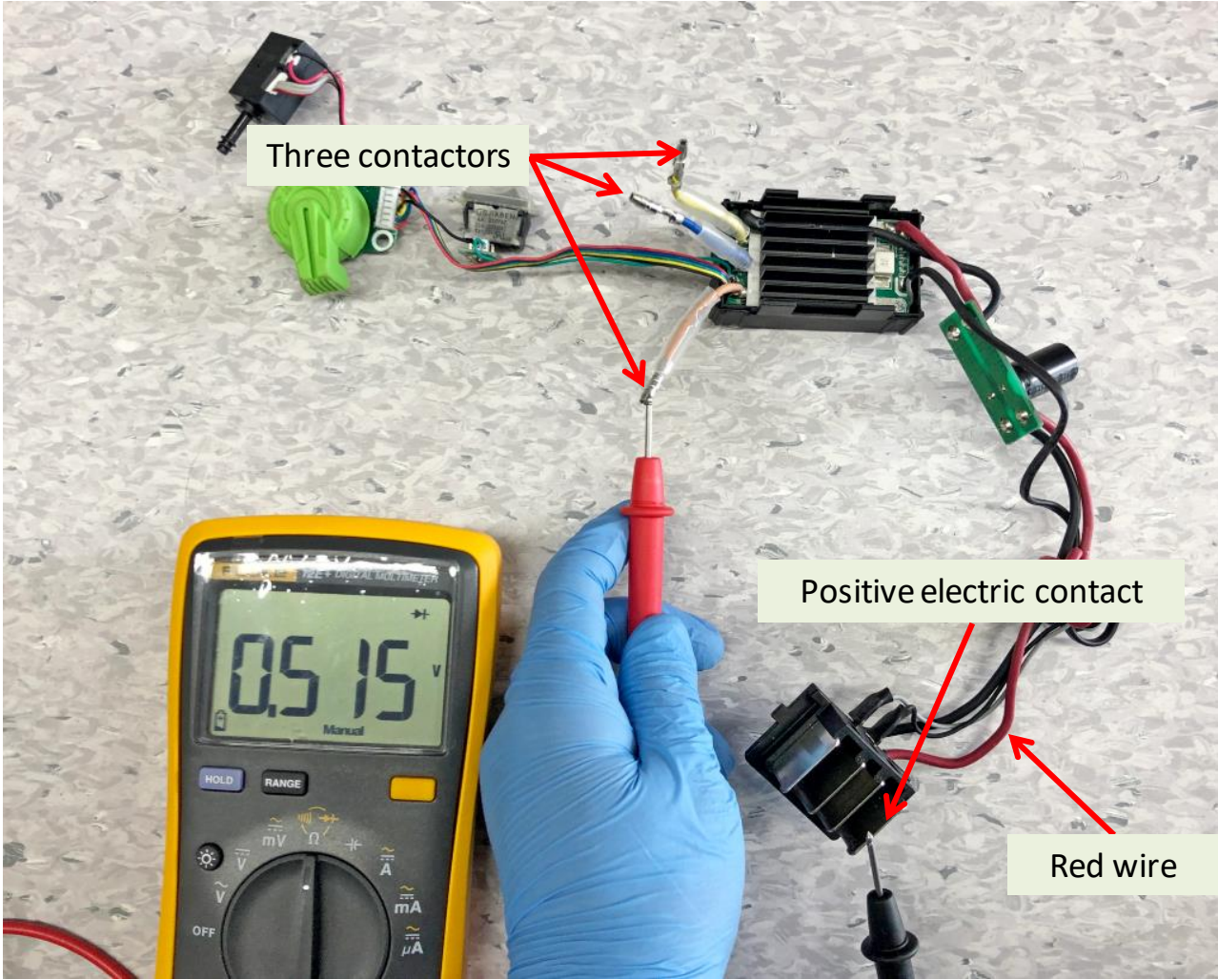
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## ④ Measure the MOSFET in the PCBA (Step 2)

- a) Keep the Multimeter function setting at “Diode measuring”.
- b) Contact the black pen pin to the positive electric contact (the battery electric contact that connects to red wire).
- c) Contact the red pen pin to the three connectors separately and measure each voltage (see next slide).
- d) If the LCD displays 0.45~0.55V for each measurement, all the MOSFETs in the PCBA are good, namely the whole PCBA is good, otherwise means the PCBA is broken.
- e) Follow the procedures in “**Replace the PCBA**” to replace a new PCBA.

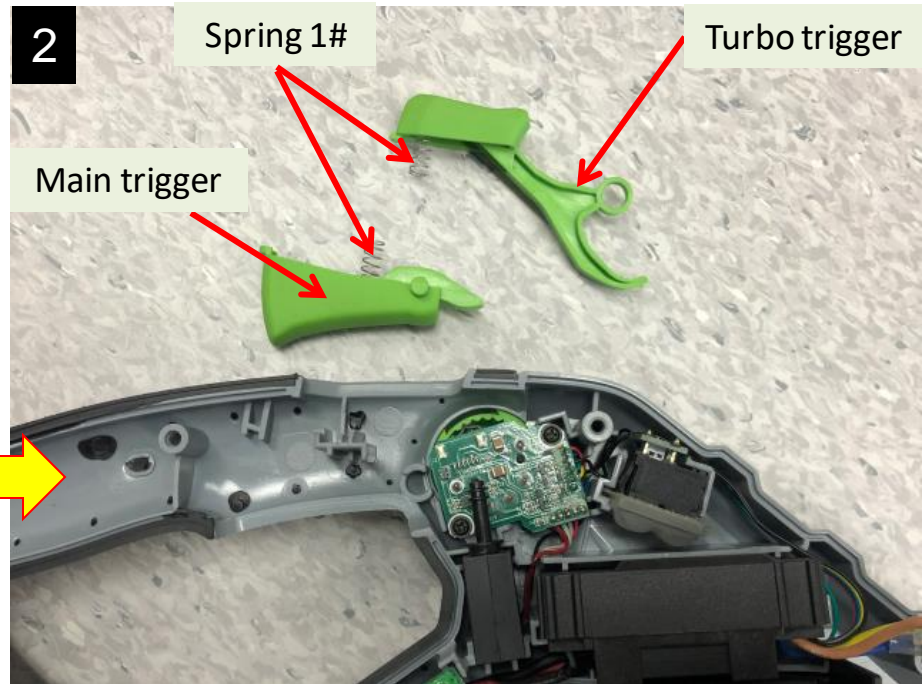
# How to Detect the PCBA and the Motor

Figure showing how to measure the MOSFET in the PCBA (Step 2)

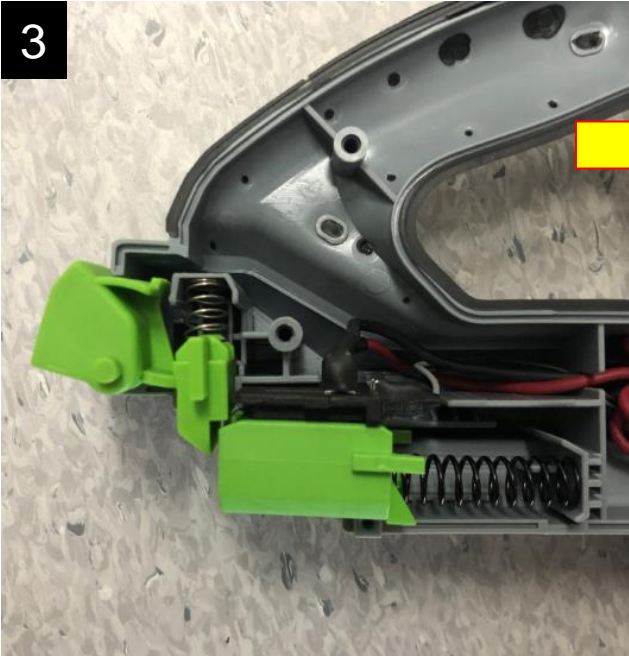


# How to Replace the PCBA

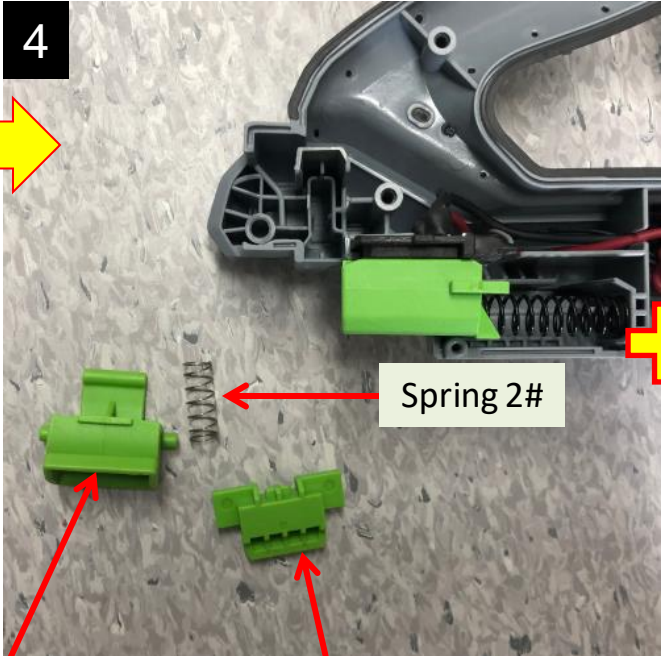
1. Follow the section “**How to Disassemble the Blower**” to open the handle housings and separate the connectors between the PCBA and the duct set to remove the PCBA.
2. Save all of the small parts except the PCBA for reassembly. If any of them needs replacement, replace it (Fig. 1-4).



# How to Replace the PCBA



Battery-release button



Latch

Spring 2#

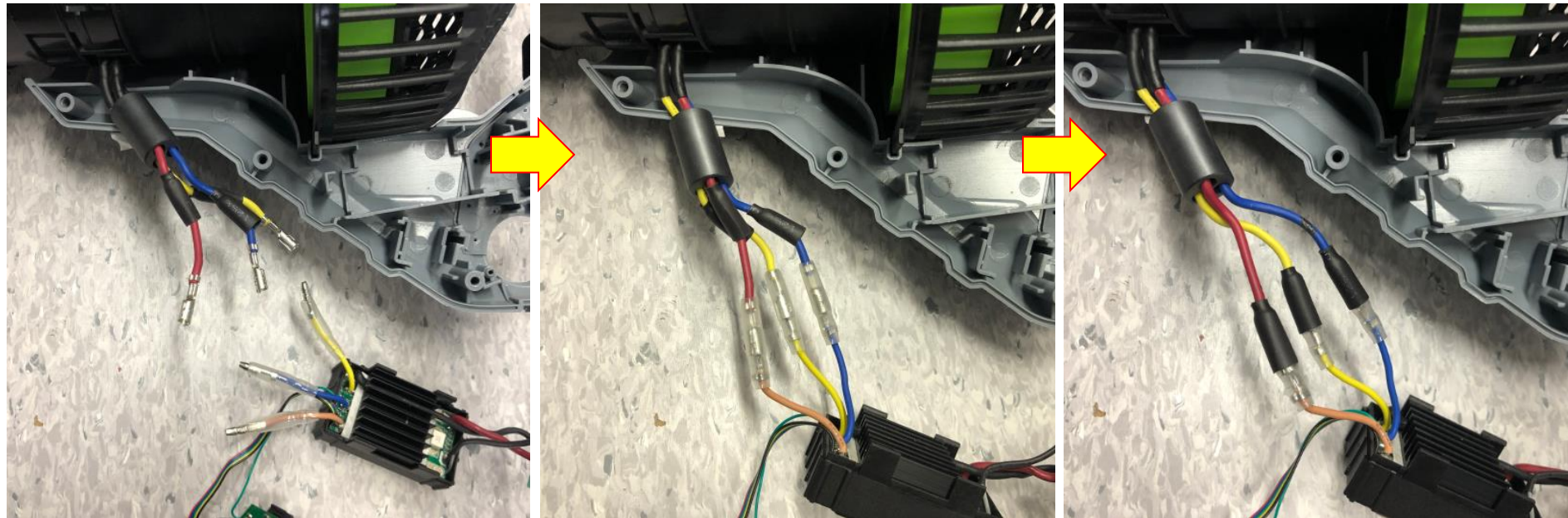


Sliding Block

Spring 3#

# How to Replace the PCBA

3. Reconnect the three connectors between the new PCBA and duct set as below instructed.

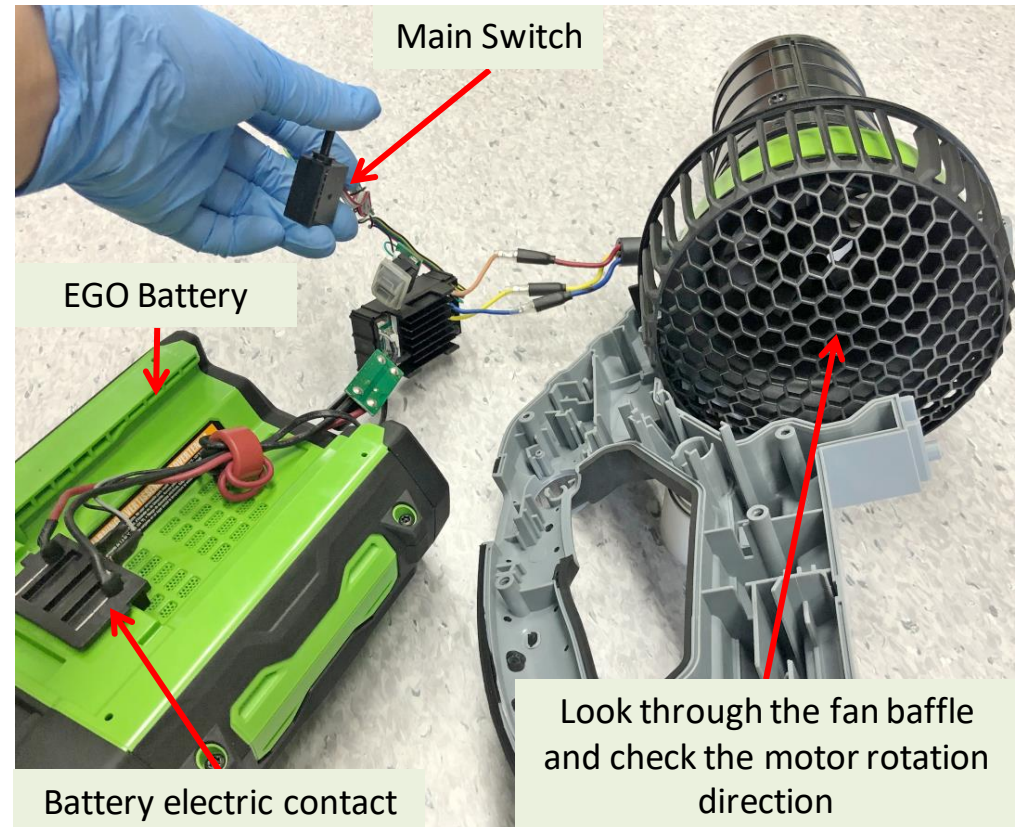


**Correct Connection: Brown to brown, yellow to yellow, blue to blue**

# How to Replace the PCBA

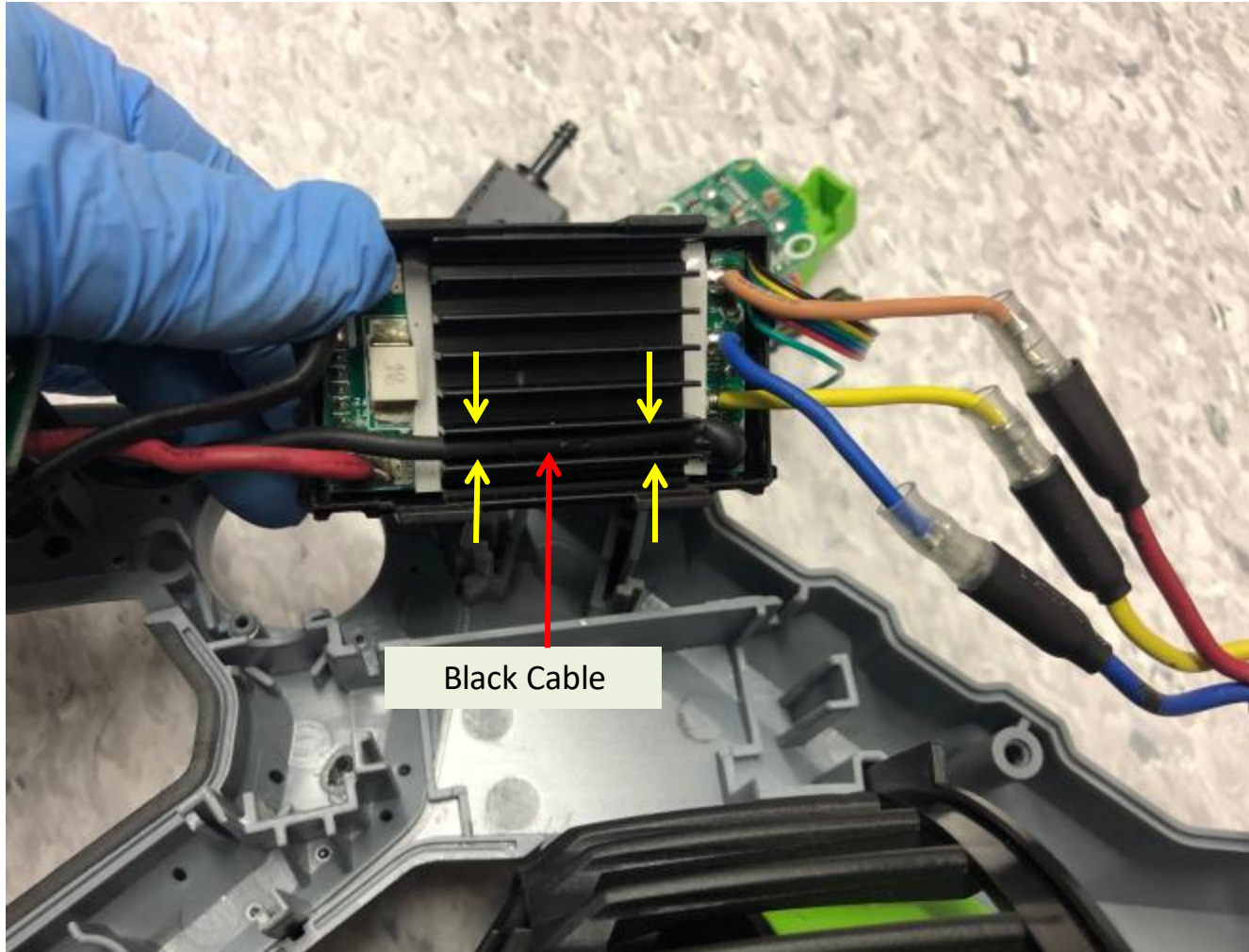
## 4. Test the blower

- a) Connect the battery electric contact of the new PCBA to a fully charged EGO battery.
- b) Press the **main switch** briefly and release it.
- c) Check the motor(inside the duct set) working status through the fan baffle. If the blower fan rotates counterclockwise, means the replacement is successful. Otherwise recheck the connection or replace a new duct set and test again.



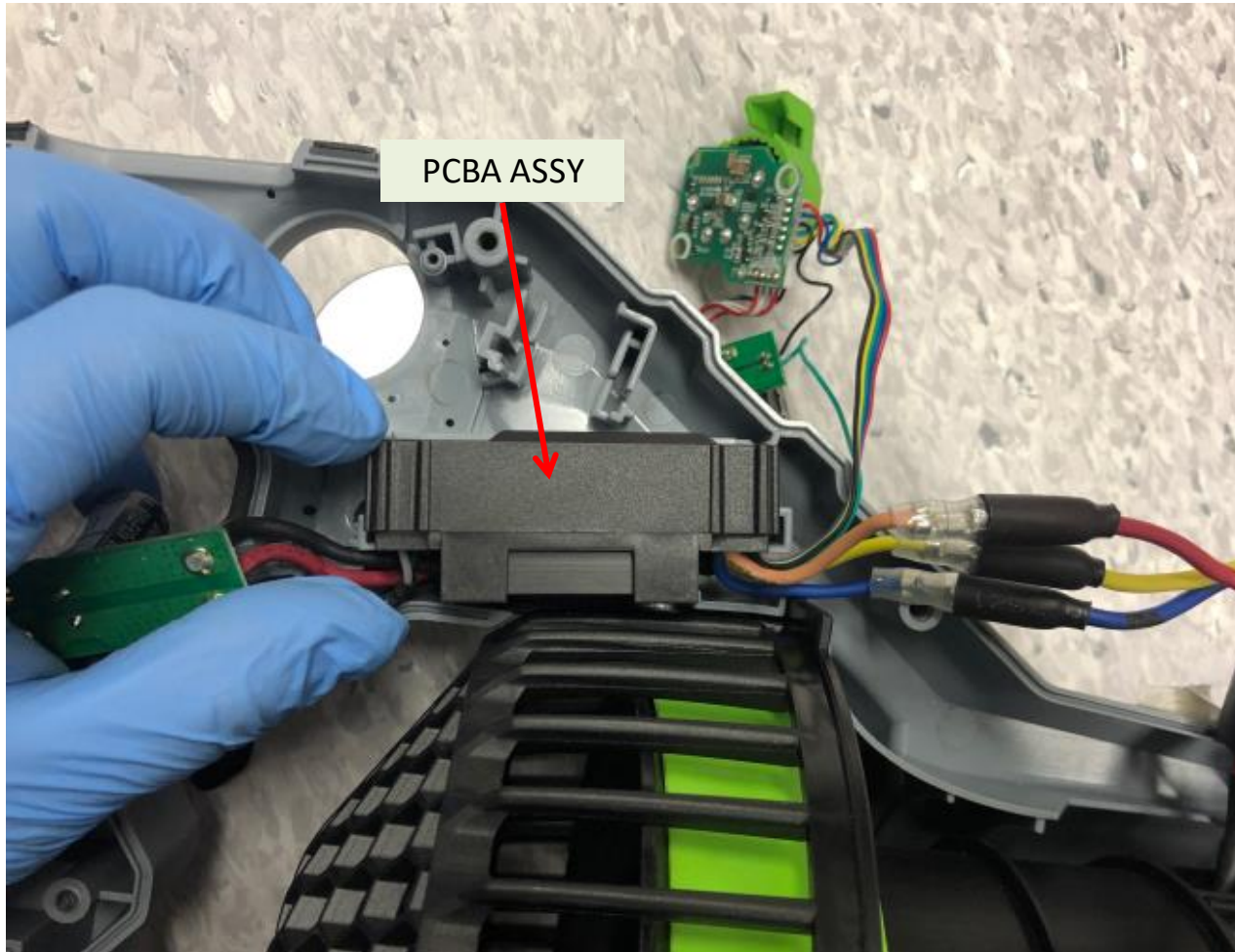
# How to Replace the PCBA

5. Align the black cable into the groove at the second edge of the PCBA.



# How to Replace the PCBA

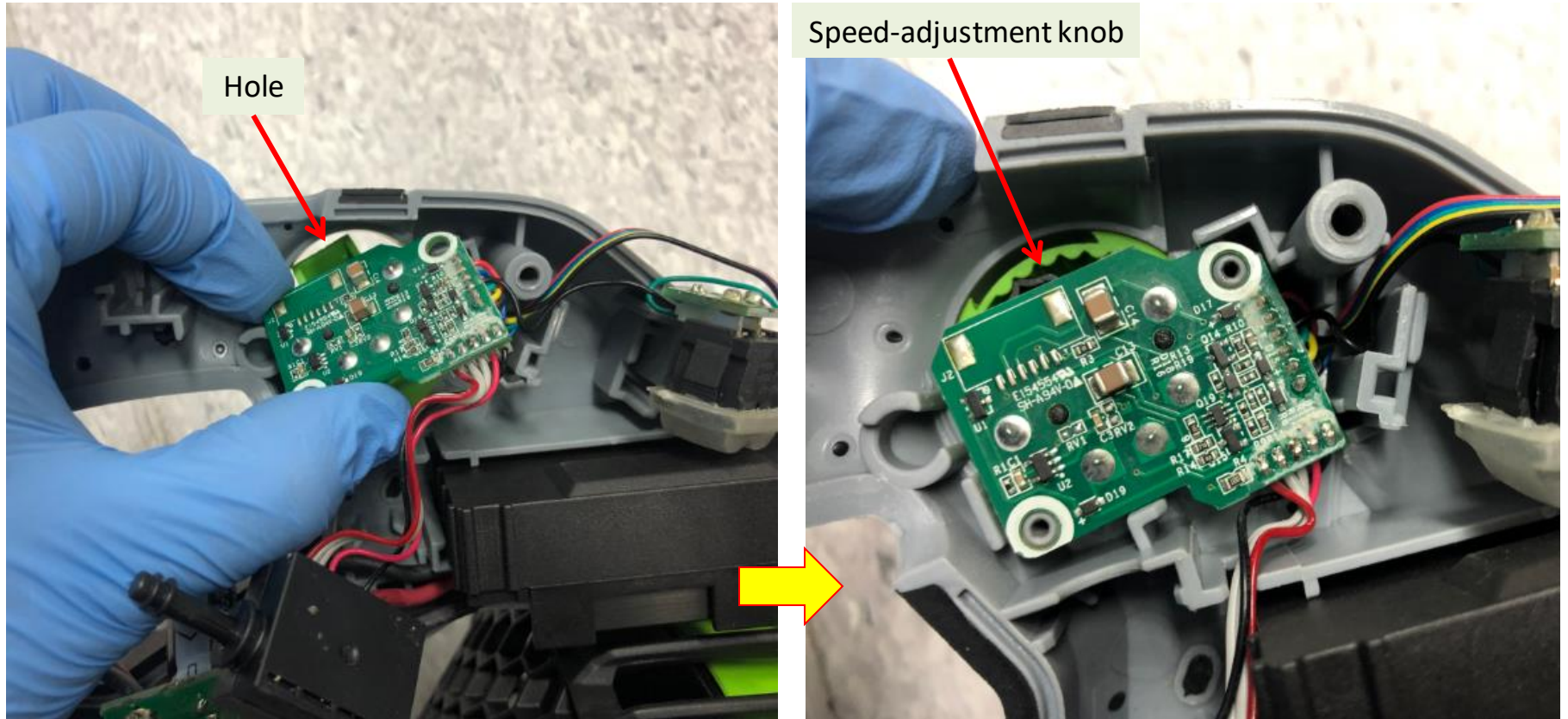
6. Firmly holding the black cable in place, and mount the PCBA ASSY into the groove in the left housing.





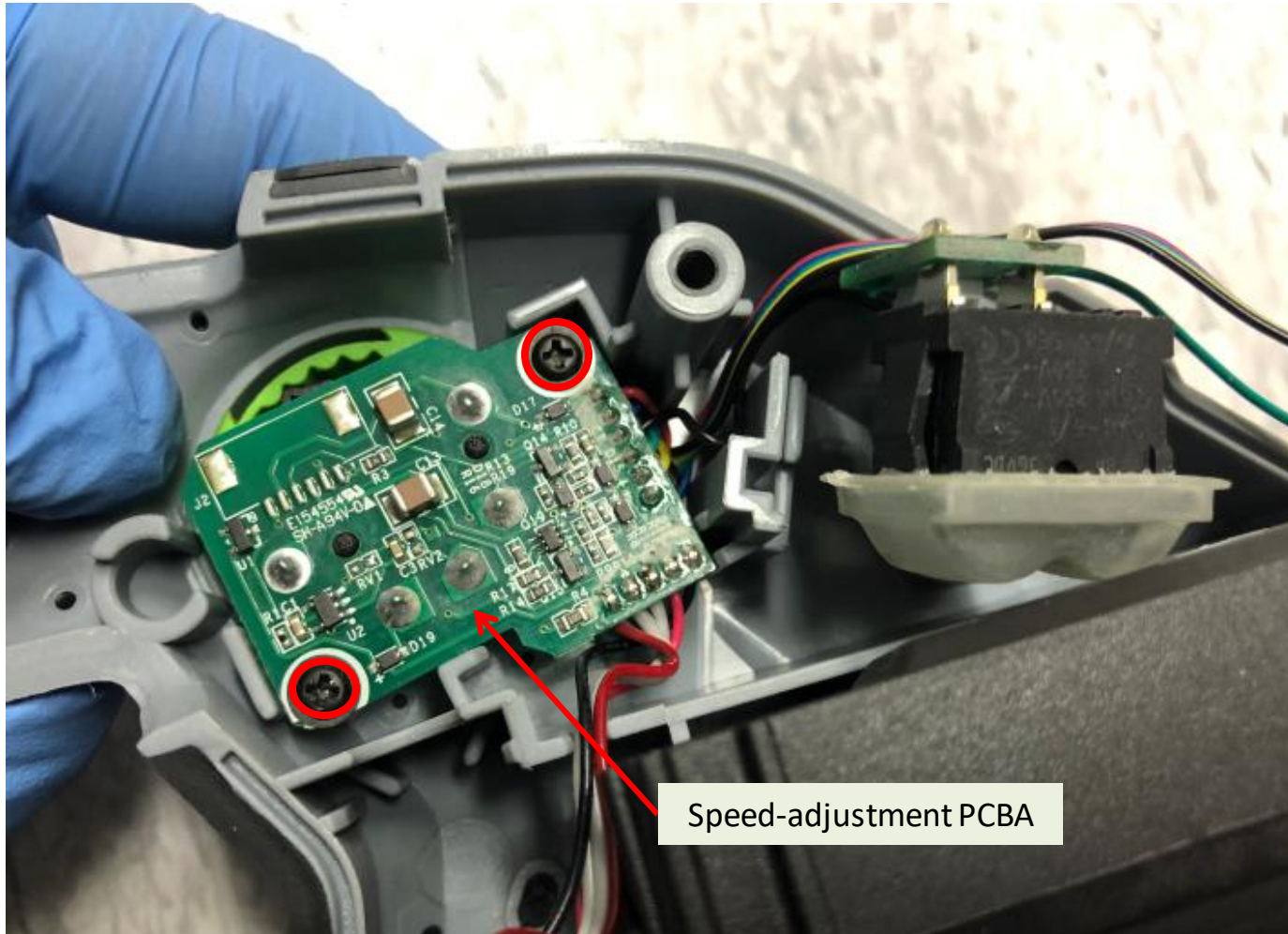
# How to Replace the PCBA

7. Mount the speed-adjustment knob into its corresponding hole in the left housing.



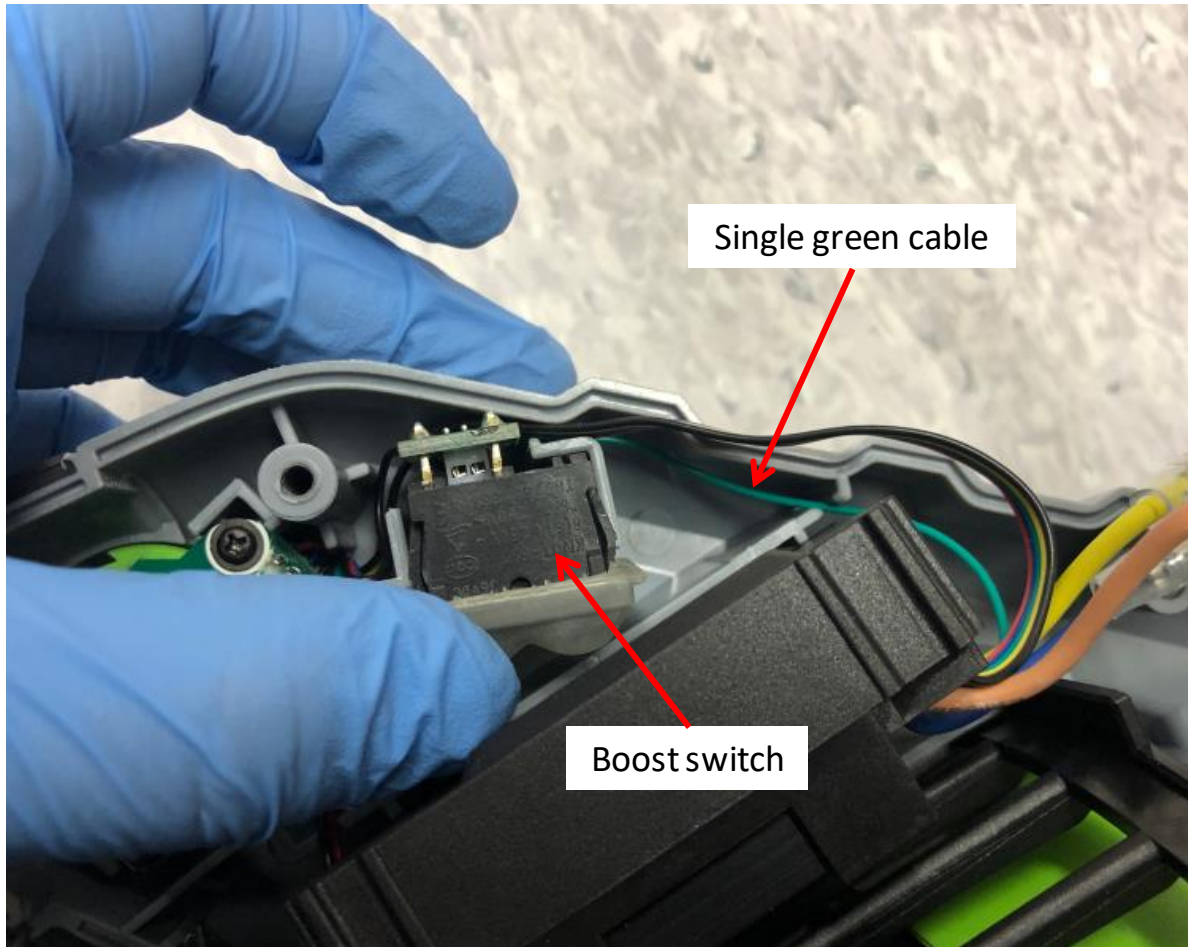
# How to Replace the PCBA

8. Tighten the speed-adjustment PCBA with the 2 screws.



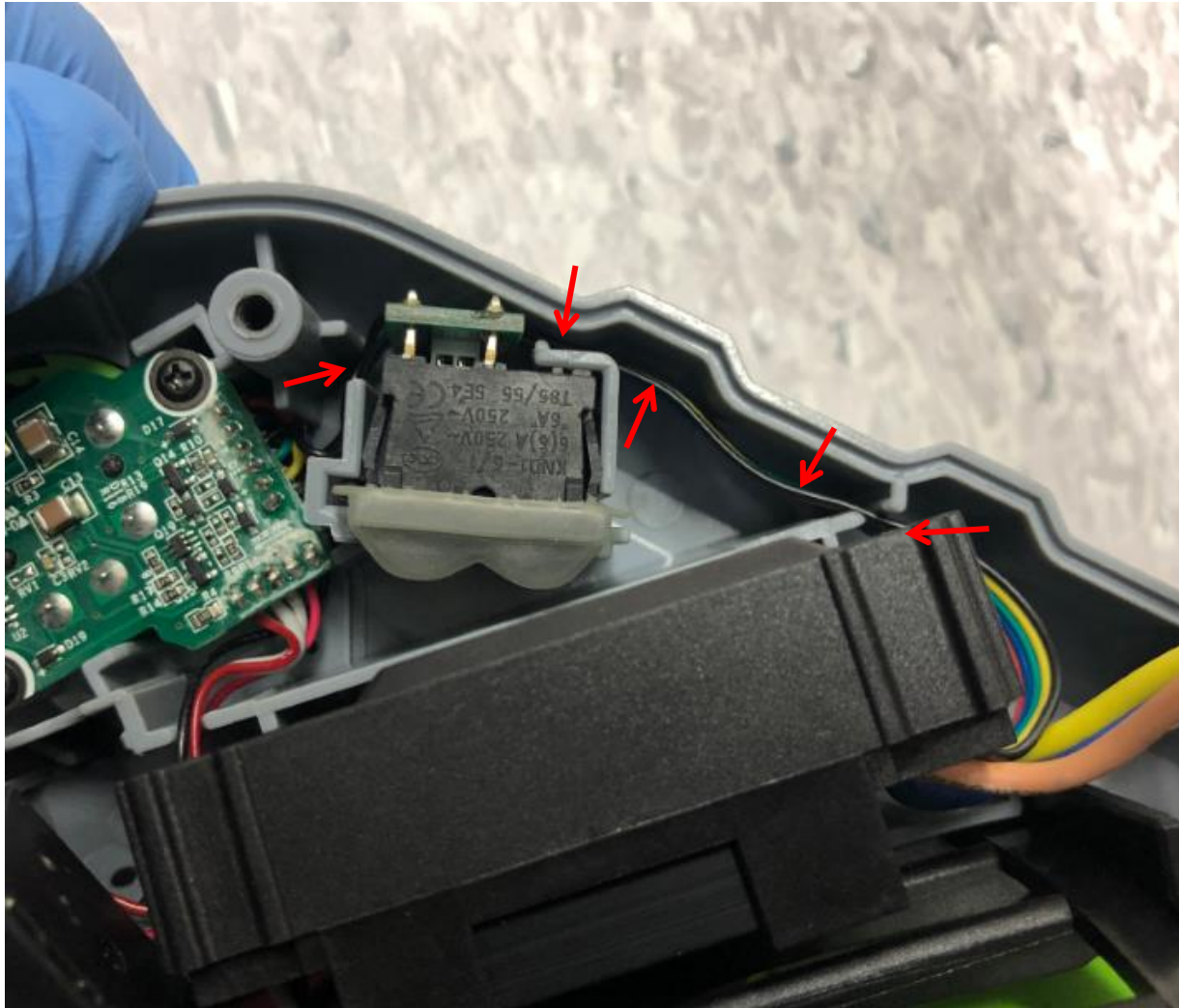
# How to Replace the PCBA

9. Align the single GREEN cable into the groove.
10. Place the boost switch into the housing groove.



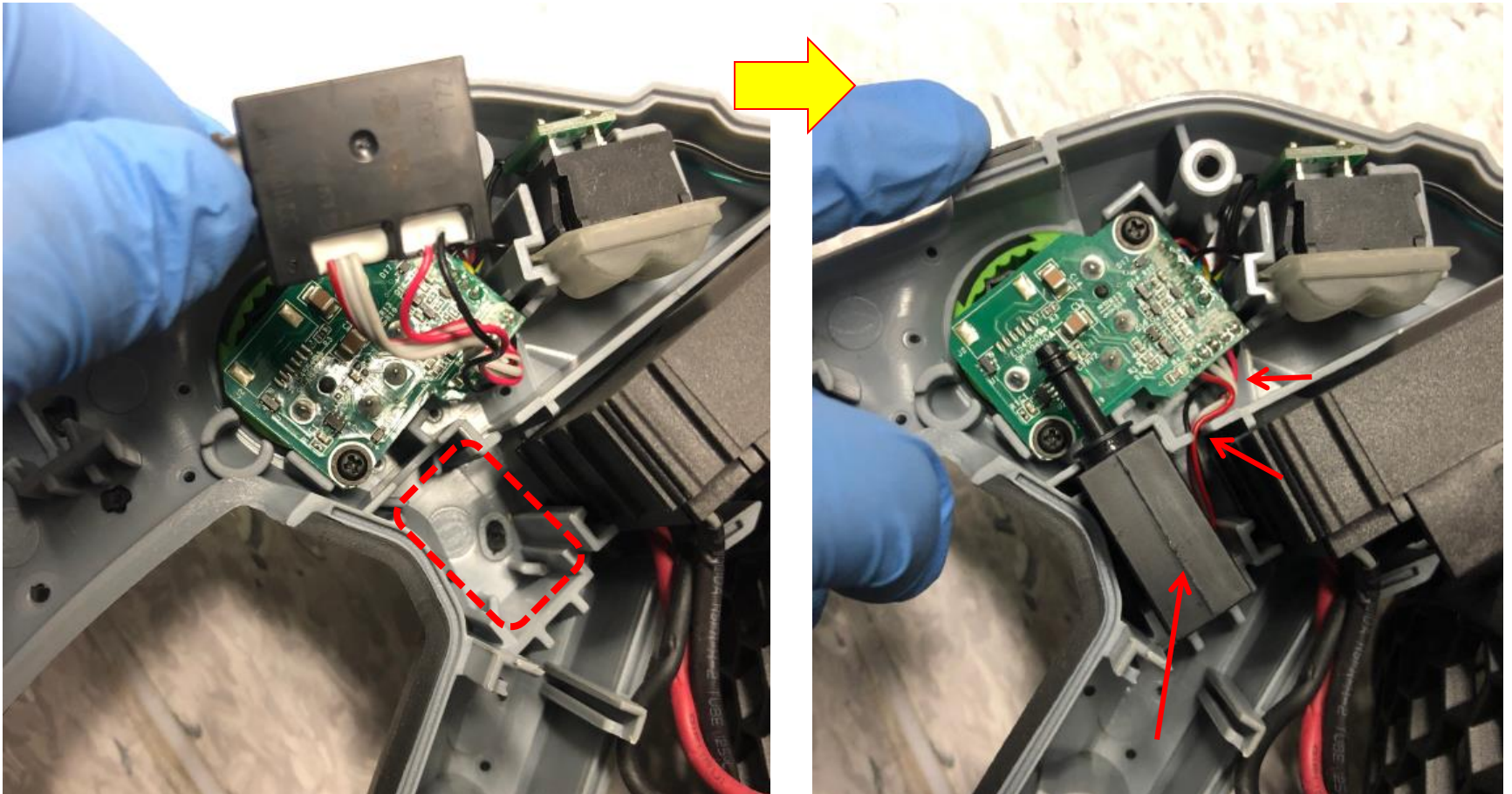
# How to Replace the PCBA

11. Align the flat cables into the groove.



# How to Replace the PCBA

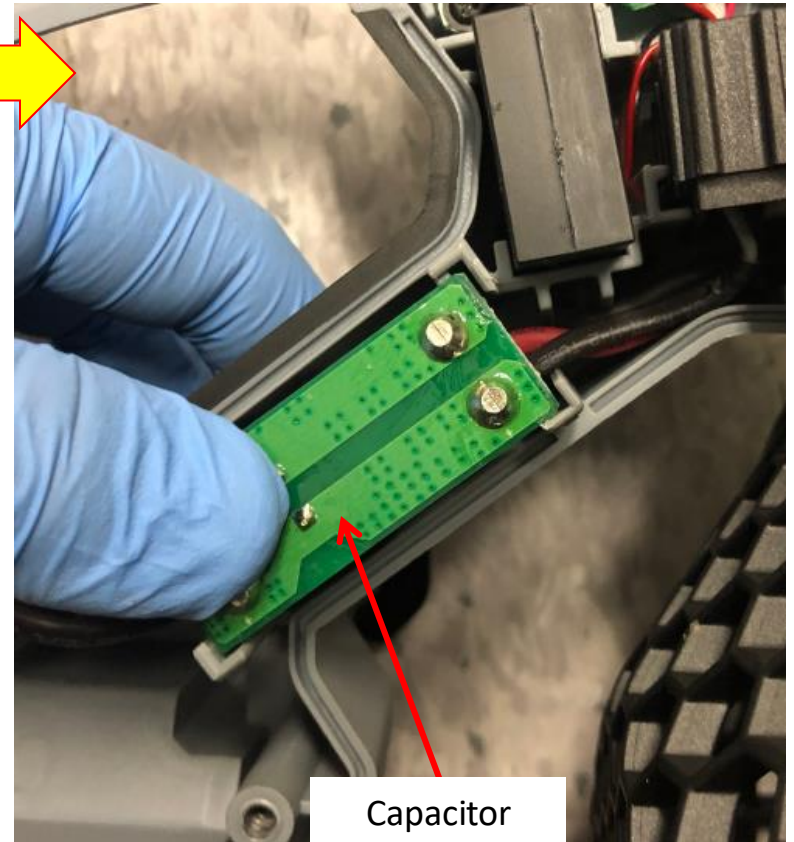
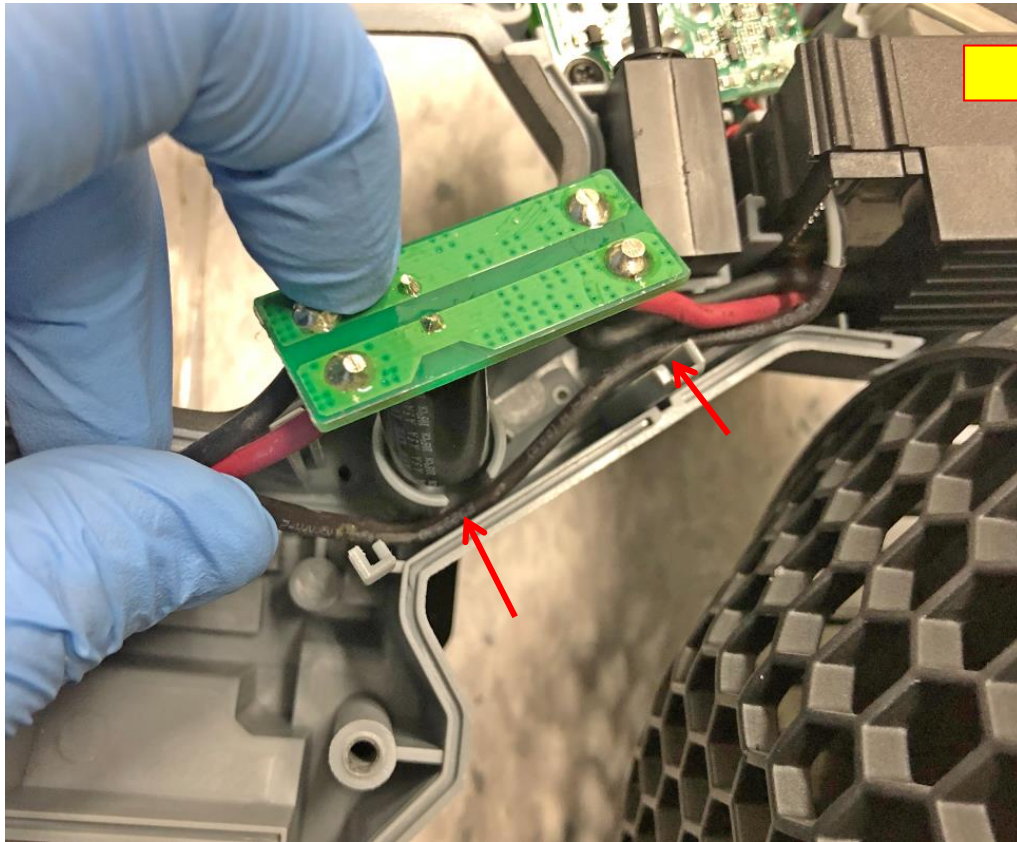
12. Align the other cables which link the main switch to the speed-adjustment PCBA into the groove first and then mount the main switch into the housing groove.



# How to Replace the PCBA

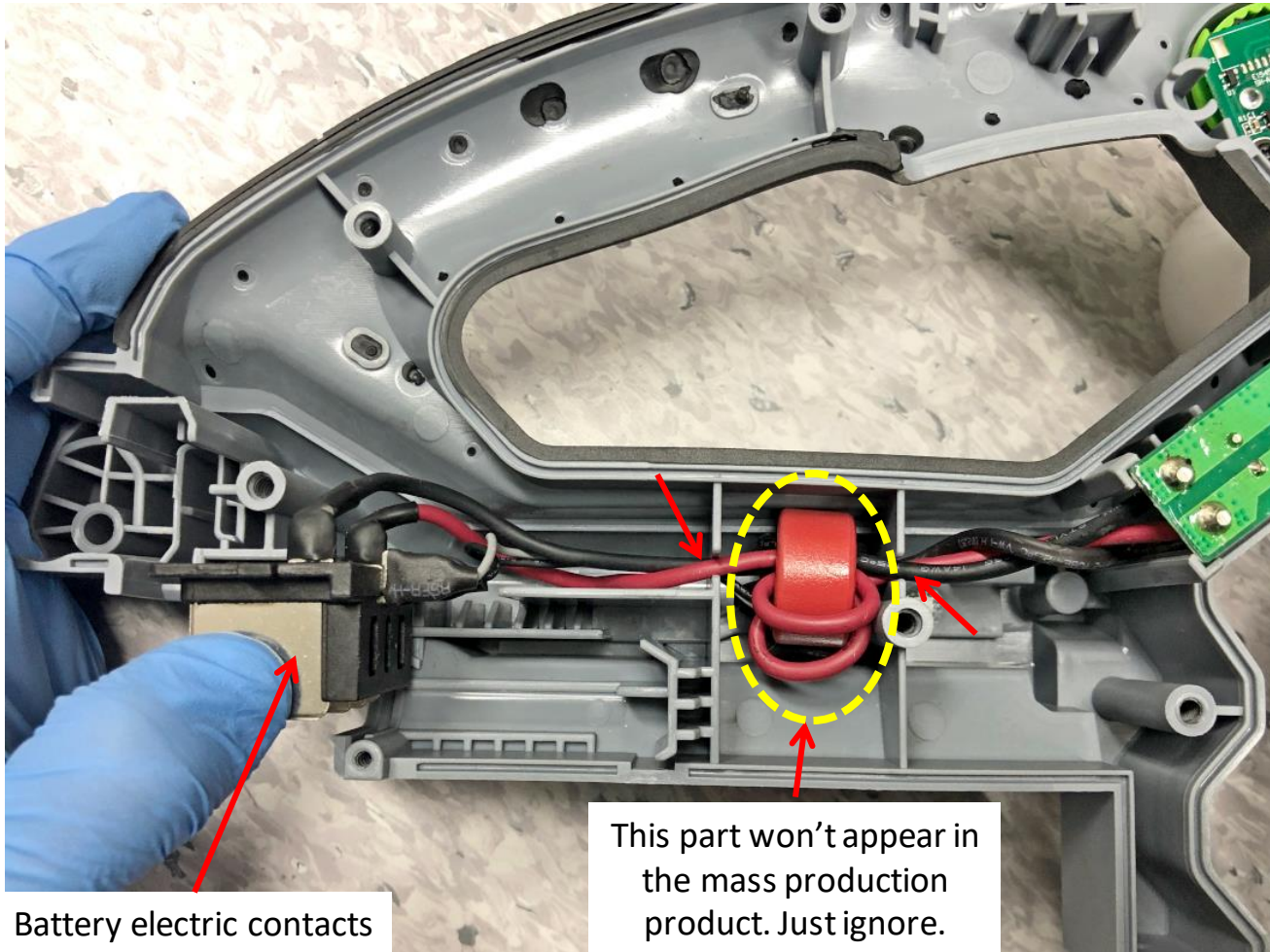
13. Align the black cable into the groove.

14. Place the capacitor into the housing groove.



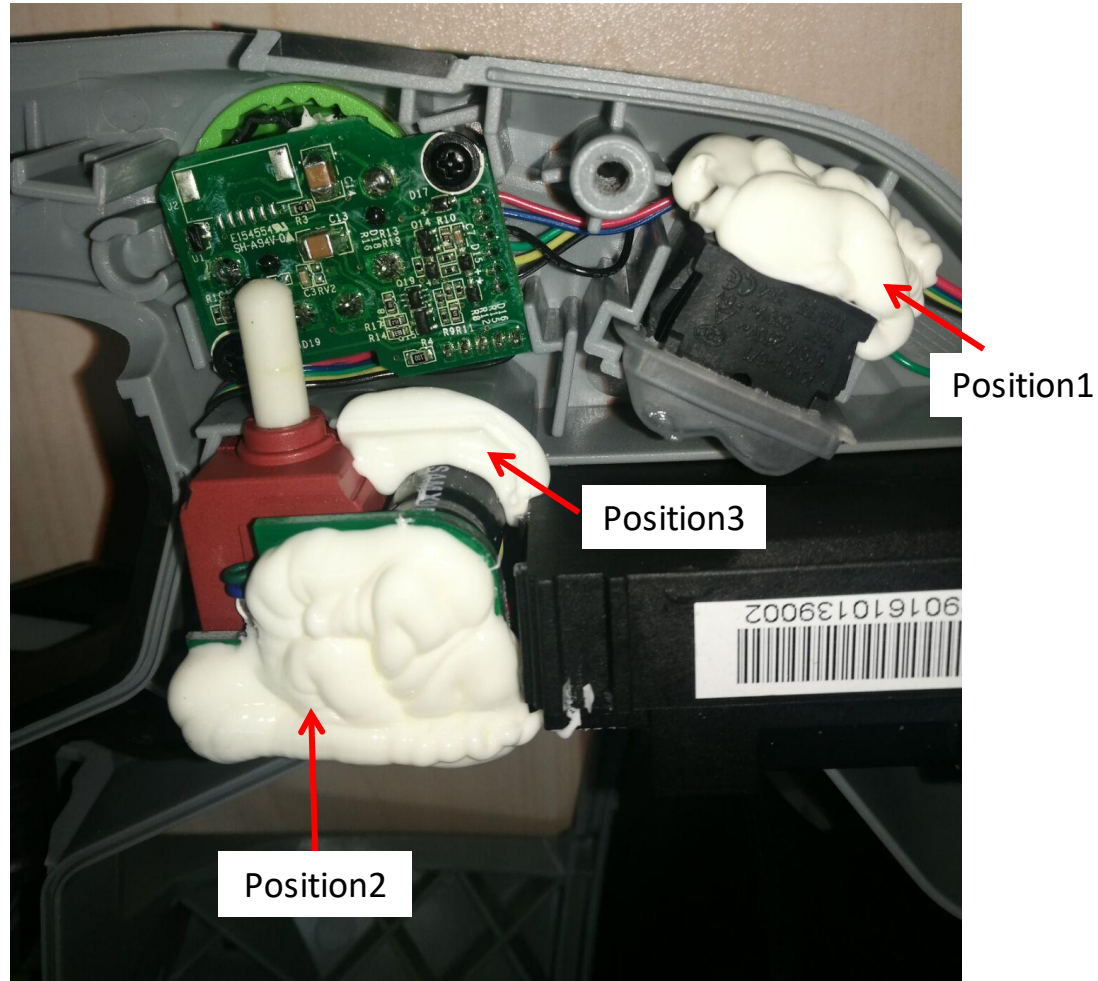
# How to Replace the PCBA

15. Mount the battery electric contacts into the left housing and align the cables into the groove.



# How to Replace the PCBA

16. Add some waterproof glue on position1 and position2 to protect the electric circuit board and position3.

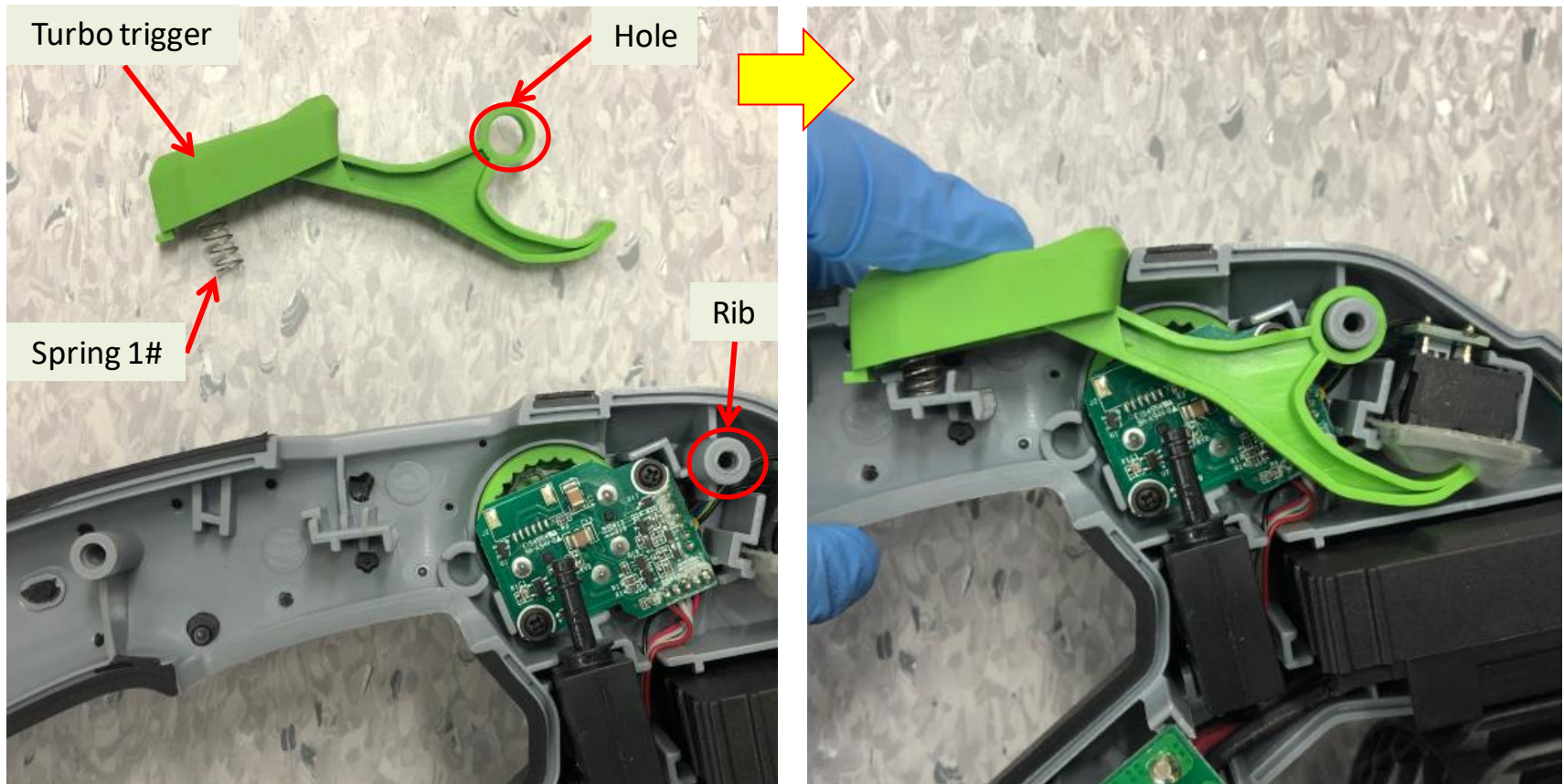




# How to Replace the PCBA

17. Place one spring 1# onto the turbo trigger first.

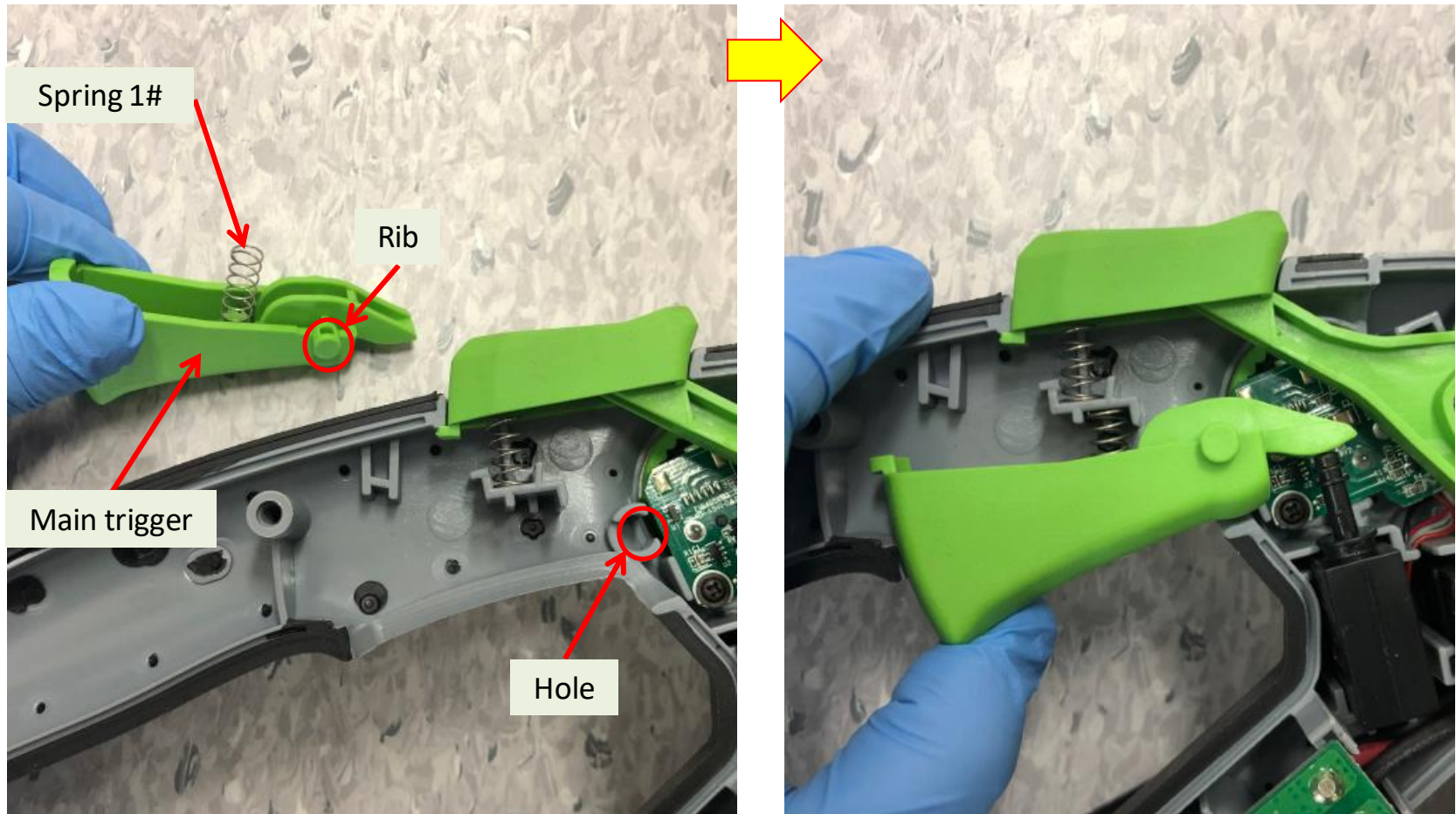
18. Align the hole on the turbo trigger with the rib on the left housing, then mount the trigger onto the rib.



# How to Replace the PCBA

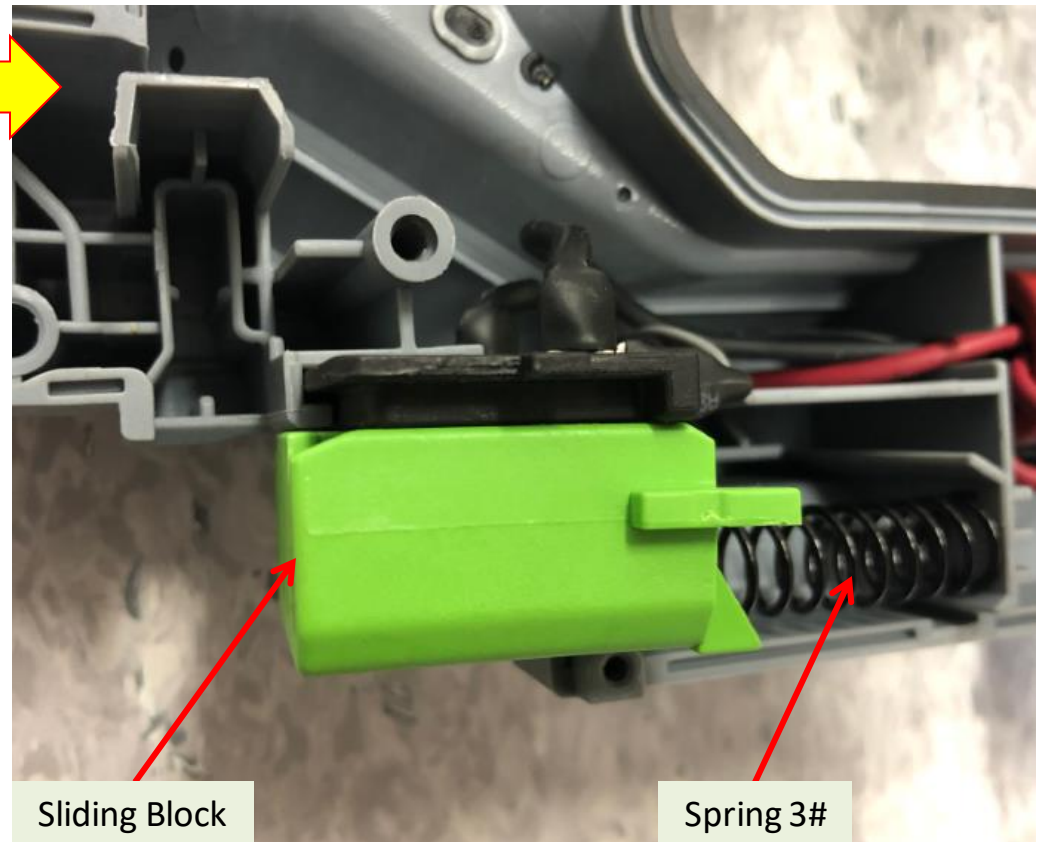
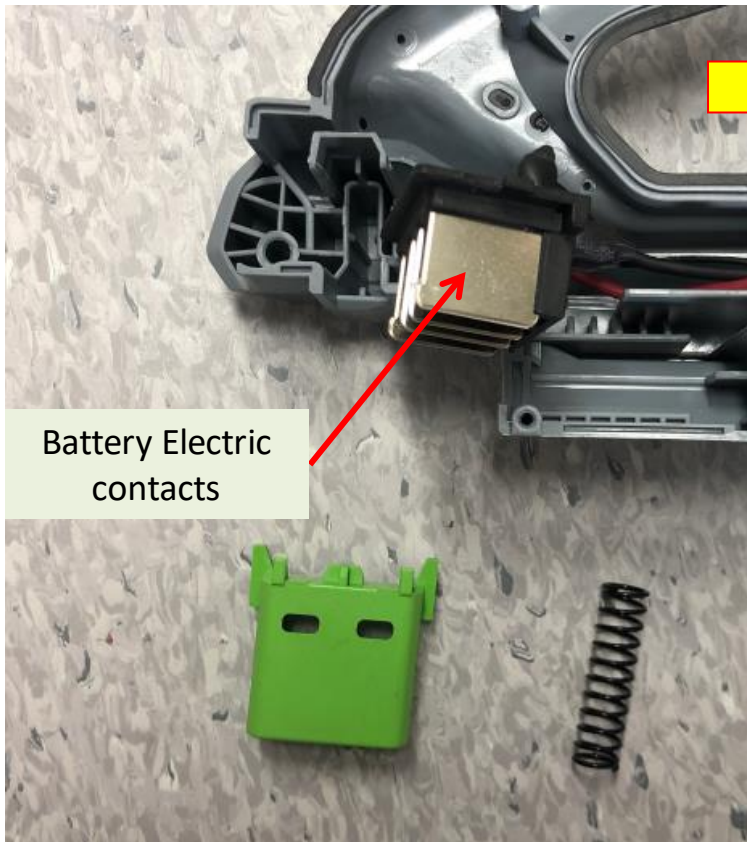
19. Assemble the other spring 1# onto the main trigger.

20. Align the rib on the main trigger with the hole on the left housing to mount the main trigger into its place.



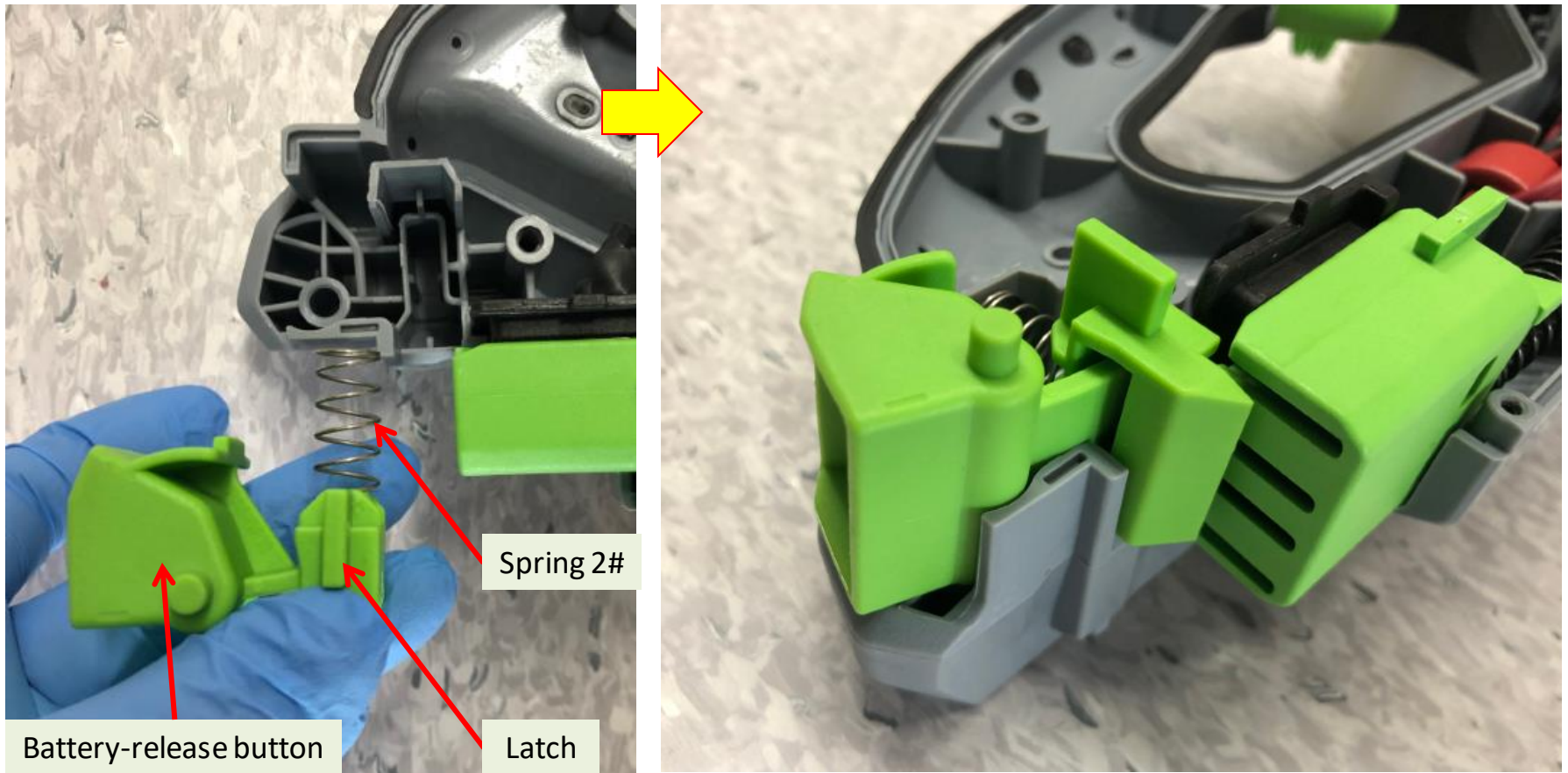
# How to Replace the PCBA

21. Mount the sliding block with the battery electric contacts and place the sliding block with the spring 3# into the groove of the left housing.



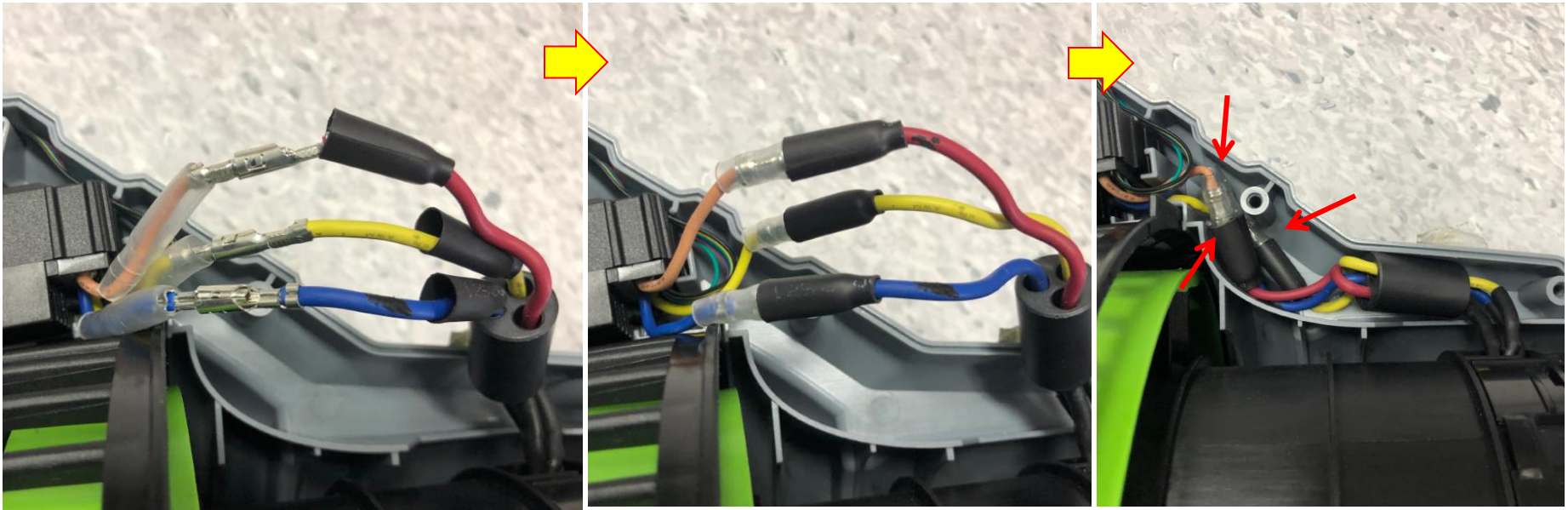
# How to Replace the PCBA

22. Assemble the battery-release button, latch and spring 2# first, and then mount them into the groove of the left housing.



# How to Replace the PCBA

23. Connect the connectors between the PCBA and the duct set.



# How to Replace the Duct Set (Motor included)

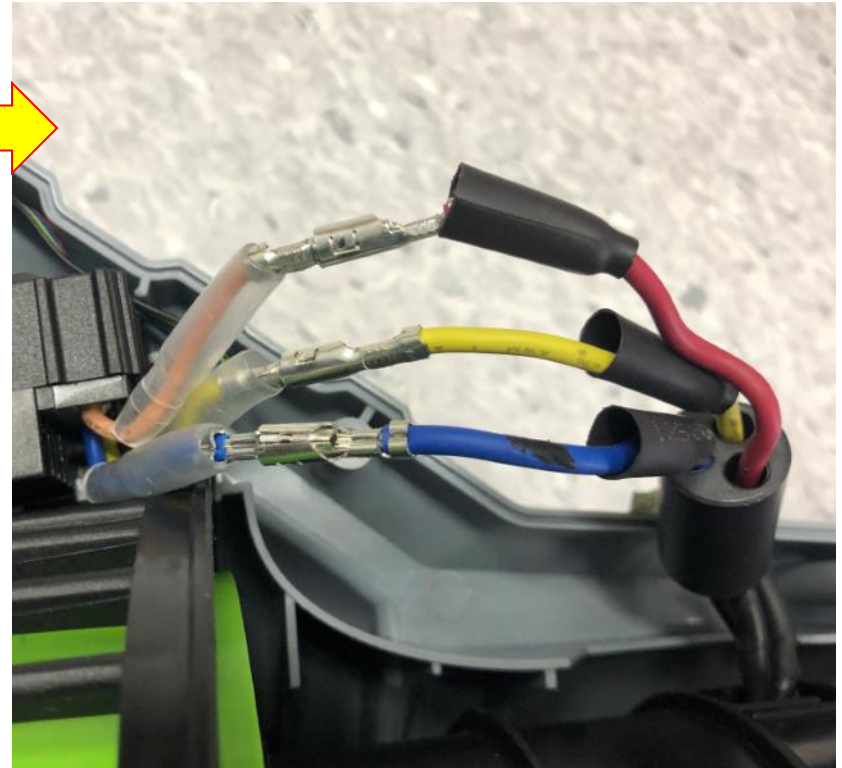
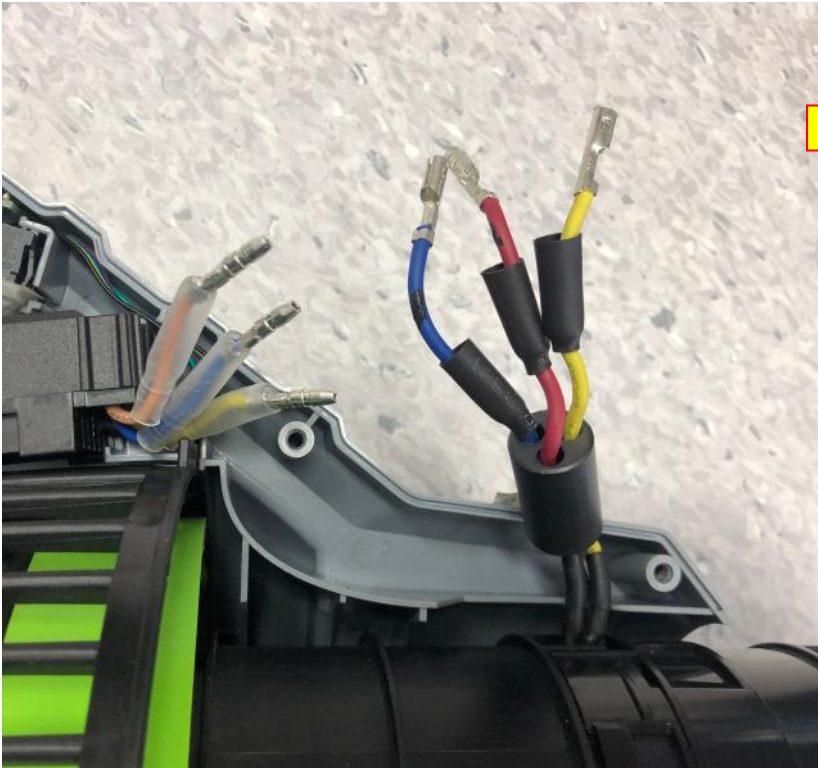
1. Follow the section **“How to Disassemble the Blower”** to open the handle housings and separate the connectors between the PCBA and the duct set to remove the duct set.
2. Replace with a new duct set.



# How to Replace the Duct Set (Motor included)

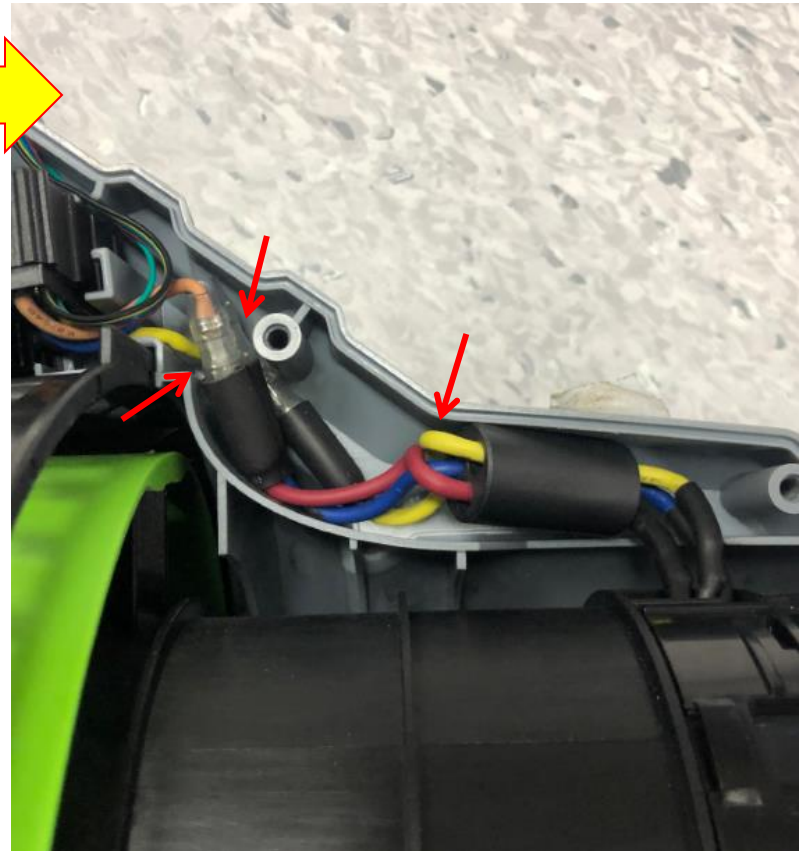
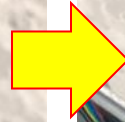
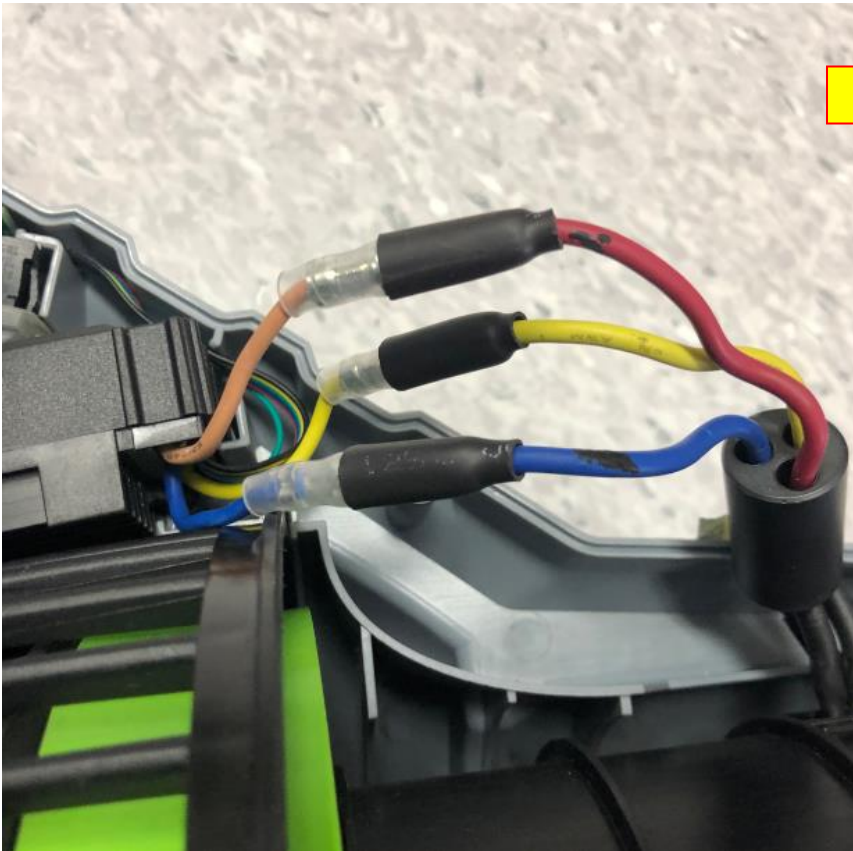
- Put on 3 new heat-shrinkable sleeves one by one onto each terminal, move the transparent sleeve aside before connecting the 3 connectors and then cover the connectors with the transparent sleeves.

**Correct Connection: Brown to brown, yellow to yellow, blue to blue**



# How to Replace the Duct Set (Motor included)

4. Cover the 3 connectors with the heat-shrinkable sleeves and use the heat gun to shrink them.
5. Align the connectors into the corresponding groove in the left housing.





# How to Replace the Duct Set (Motor included)

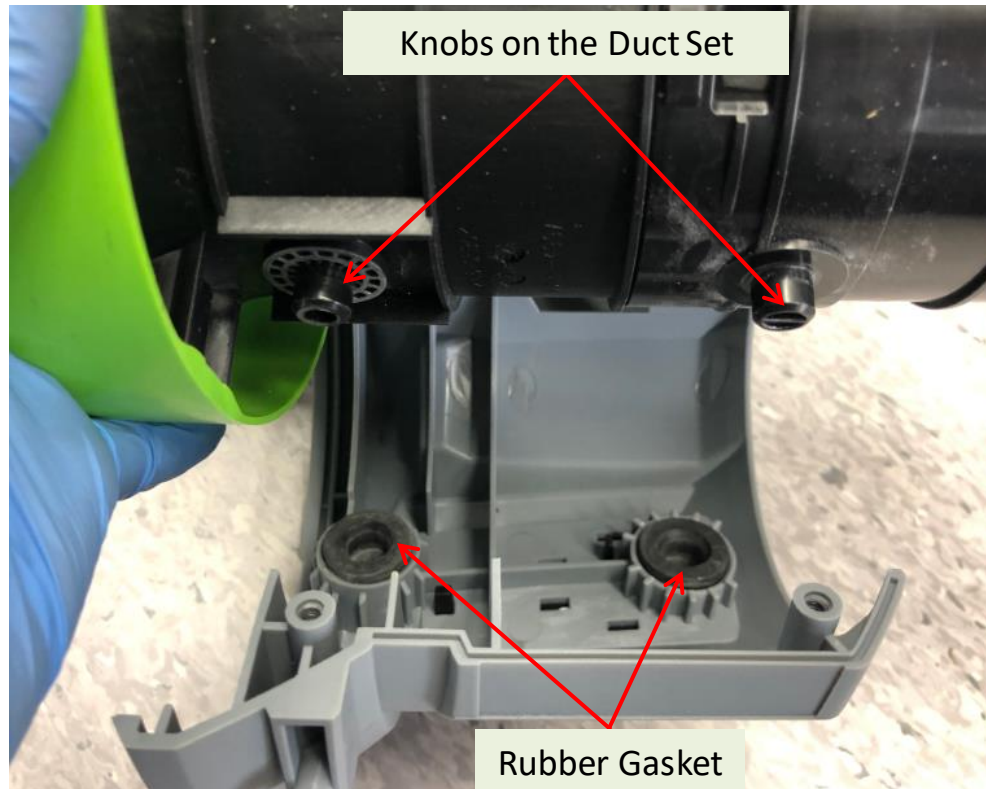
## 6. Test the blower

- a) Connect the battery electric contact of the PCBA to a fully charged EGO battery.
- b) Press the **main switch** briefly and release it.
- c) Check the motor(inside the duct set) working status through the fan baffle . If the blower fan rotates counterclockwise, means the replacement is successful. Otherwise recheck the connection or replace a new PCBA and test again.



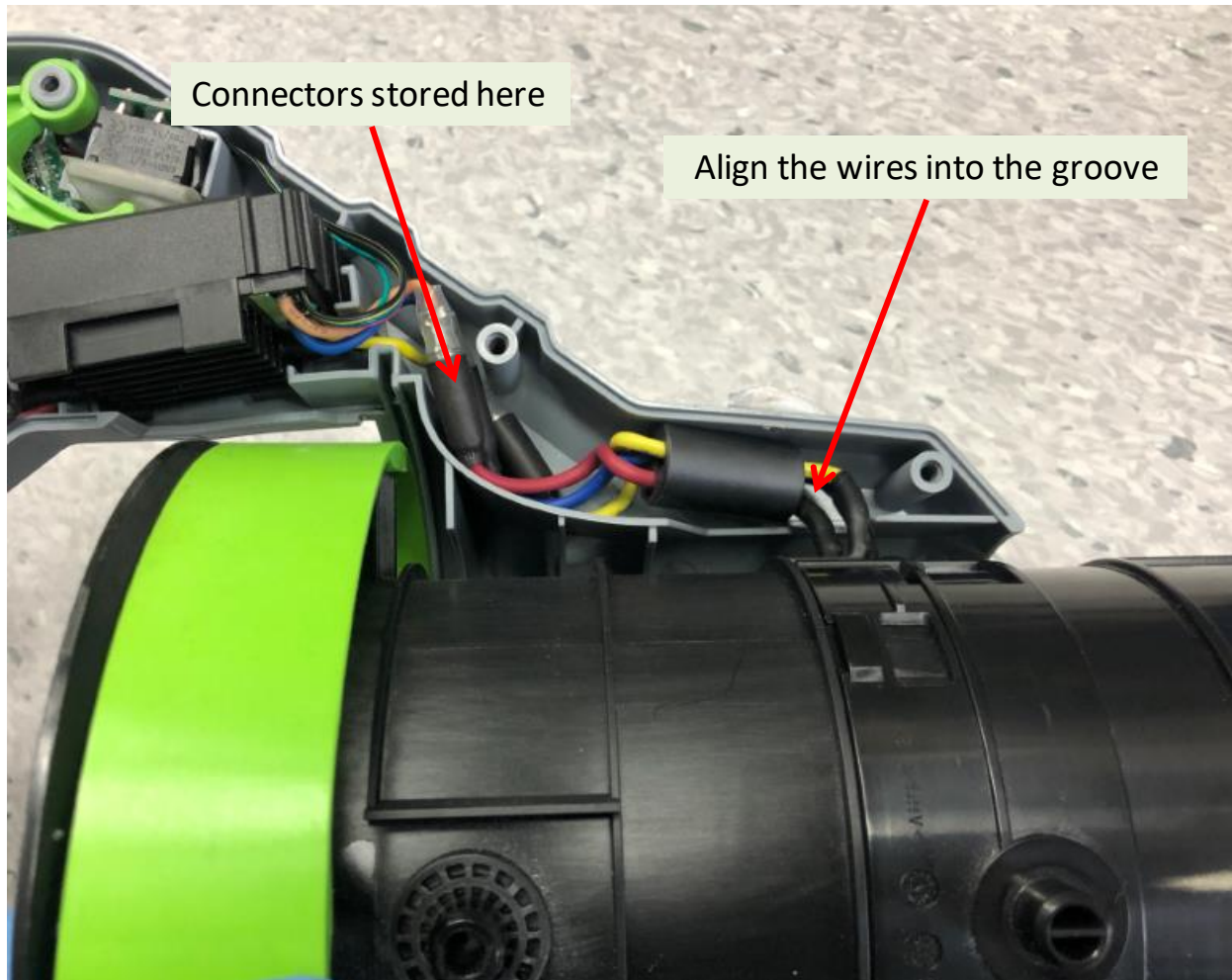
# How to Replace the Duct Set (Motor included)

7. Check to make sure the two rubber gaskets are located into the left handle housing. If they fell out during disassembly, re-place them.
8. Align the knobs on the duct set with the rubber gasket holes in the left handle housing and mount the duct set in the left housing.



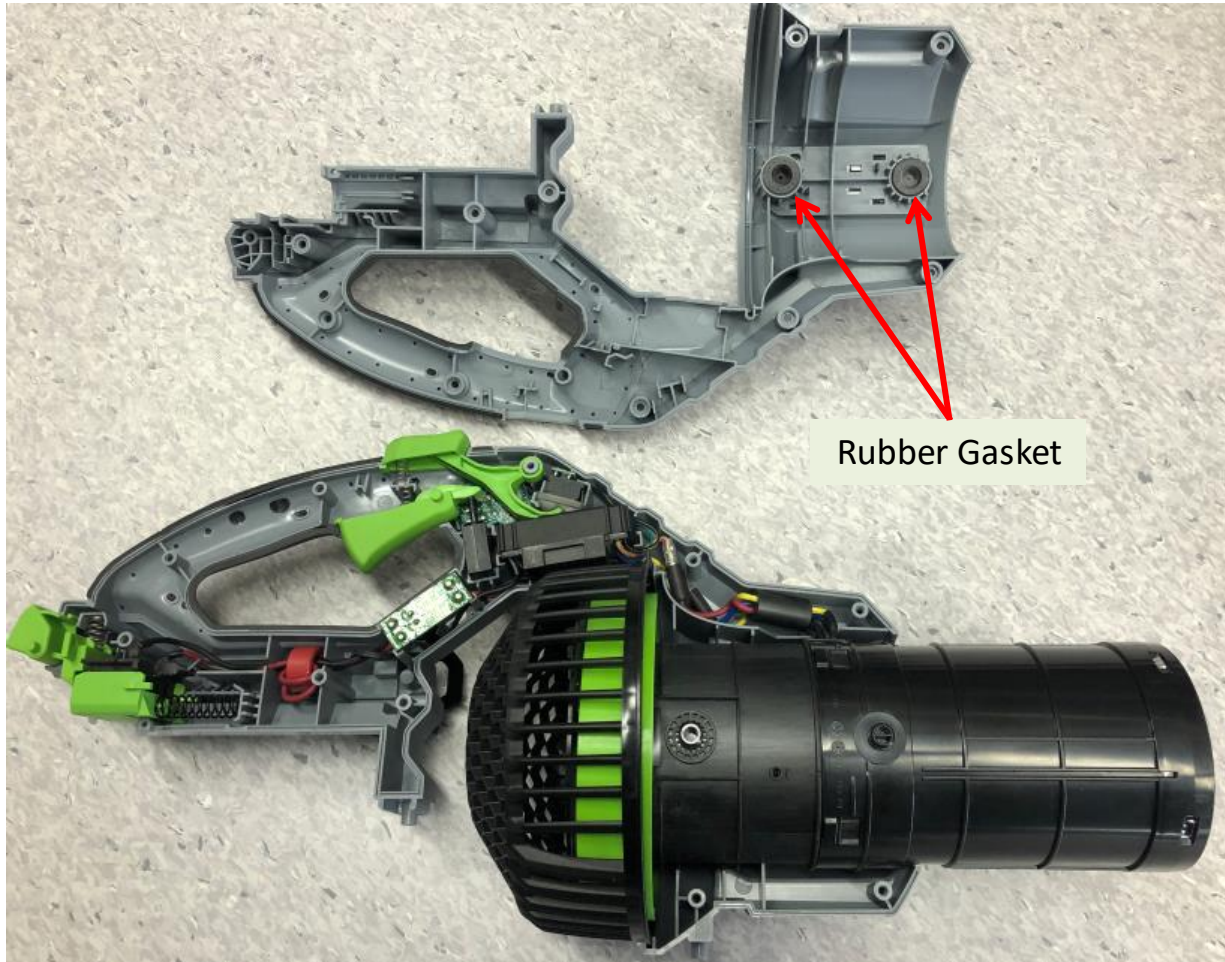
# How to Replace the Duct Set (Motor included)

9. Align the wires into the grooves.



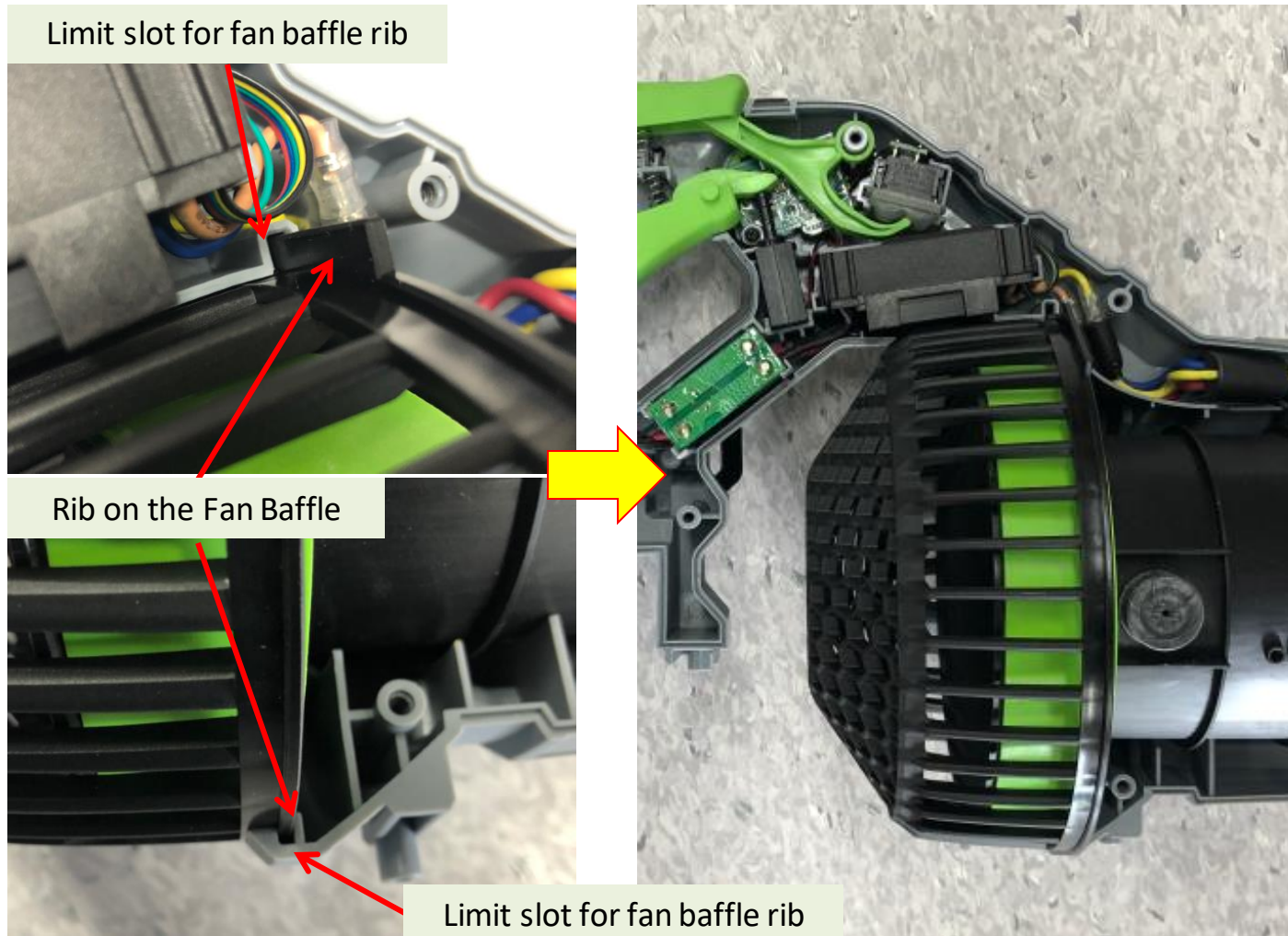
# How to Assemble the Blower

1. Before closing the right housing, make sure another two rubber gaskets are located into the right housing, if they fell out during disassembly, re-place them.



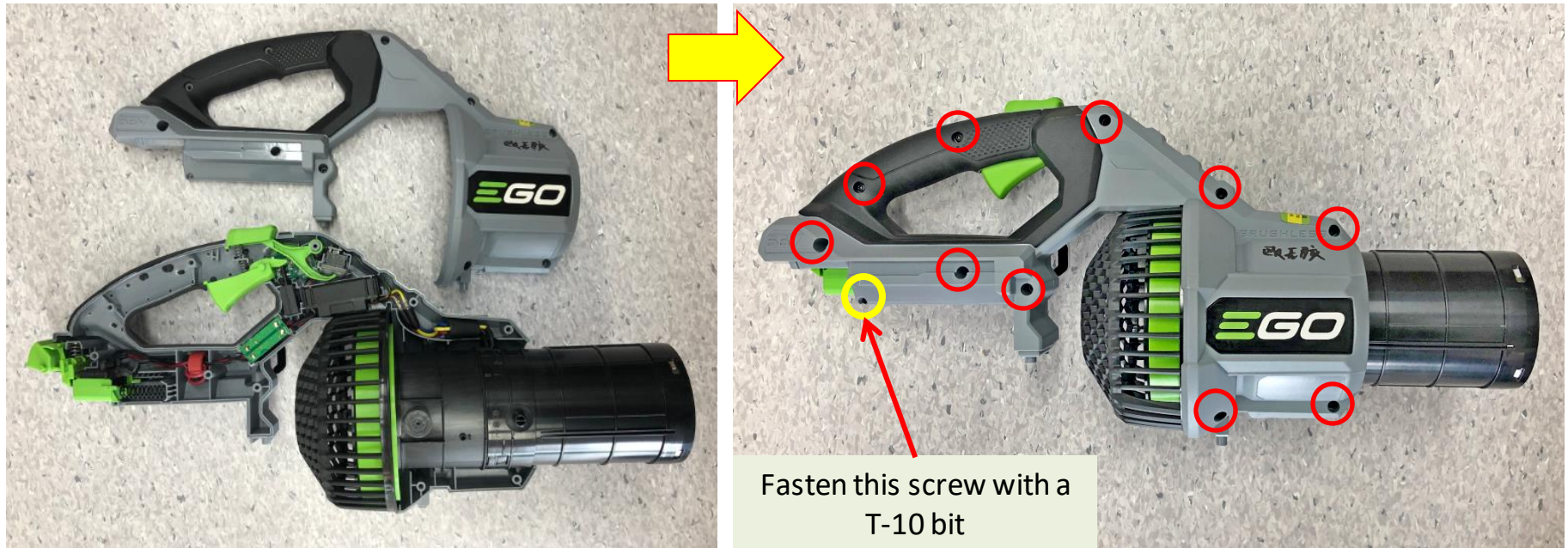
# How to Assemble the Blower

2. Align the rib on the fan baffle with the limit slot in handle housing, and mount the fan baffle into the outside groove in the left housing.



# How to Assemble the Blower

3. Check to make sure all the components are fixed in position, and wires are well aligned, then tighten the 11 screws to tighten the handle housings.
4. Install a fully charged battery onto the blower and test the blower.



THE END