

REPAIR GUIDELINE

String Trimmer_ST1400E-ST



Issue Date: 2021/01/12

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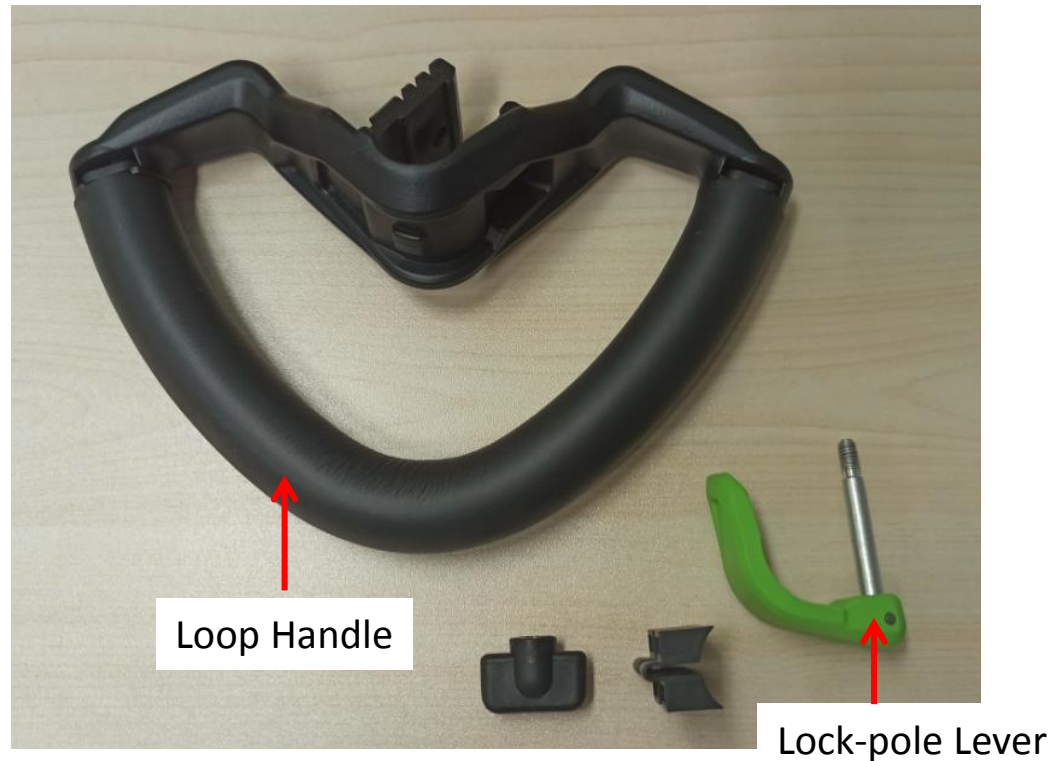
Tool List For Repair

NO.	Tool List	SPEC	Remark
1	Phillips screwdriver		
2	Socket/Impact wrench	13mm	
3	Torx screwdriver		
4	Hex wrench	5mm	
5	Electric soldering iron		
6	Heat gun		
7	Heat shrinkable sleeve		
8	Scissors		To remove the shrinkable sleeve

Part 1: How to Replace the PCBA

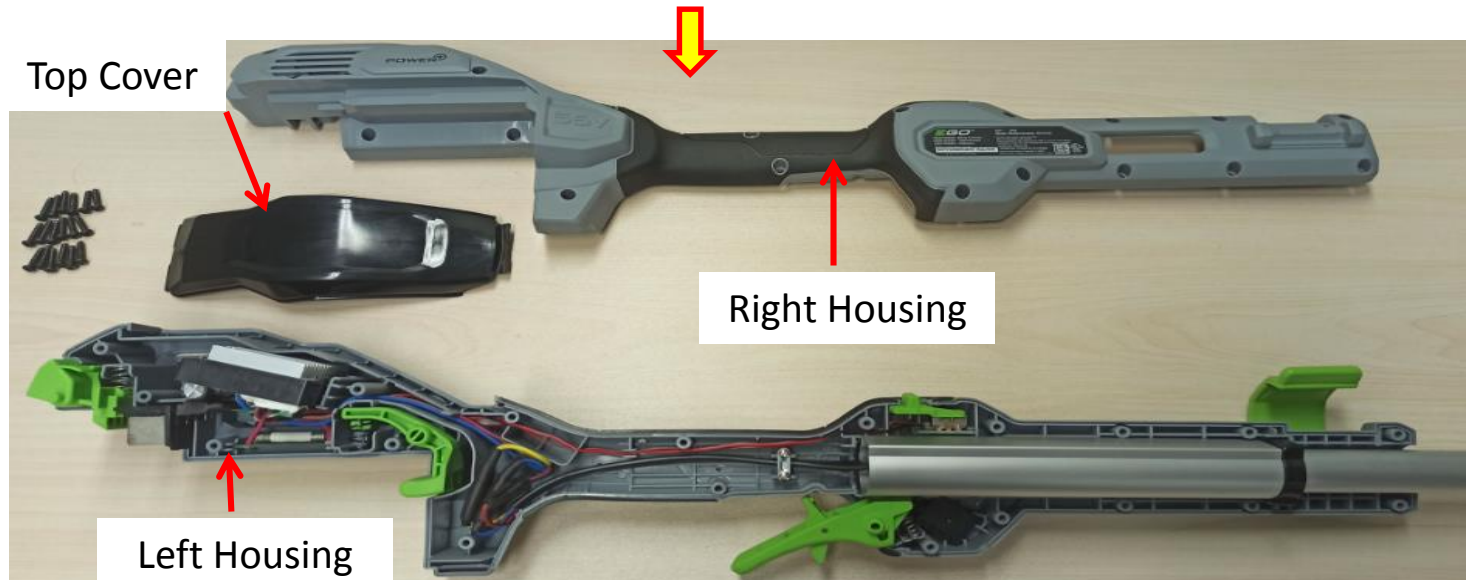
Replace the PCBA

1. Remove the loop handle and the lock-pole lever from the connecting tube, the related parts as below shown.



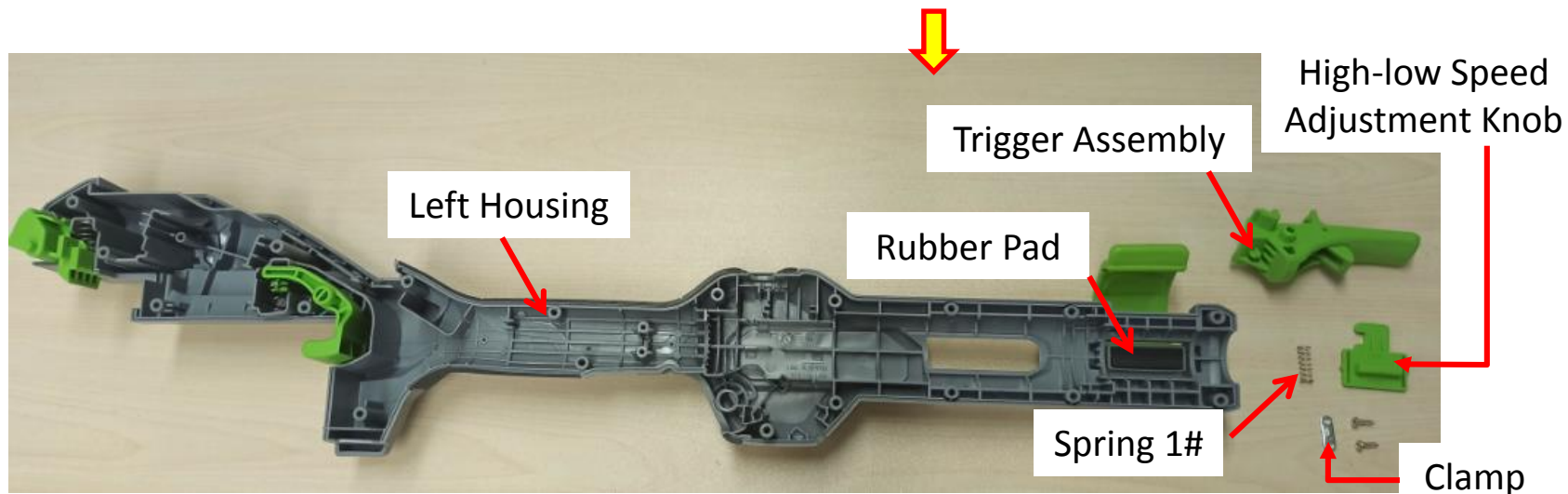
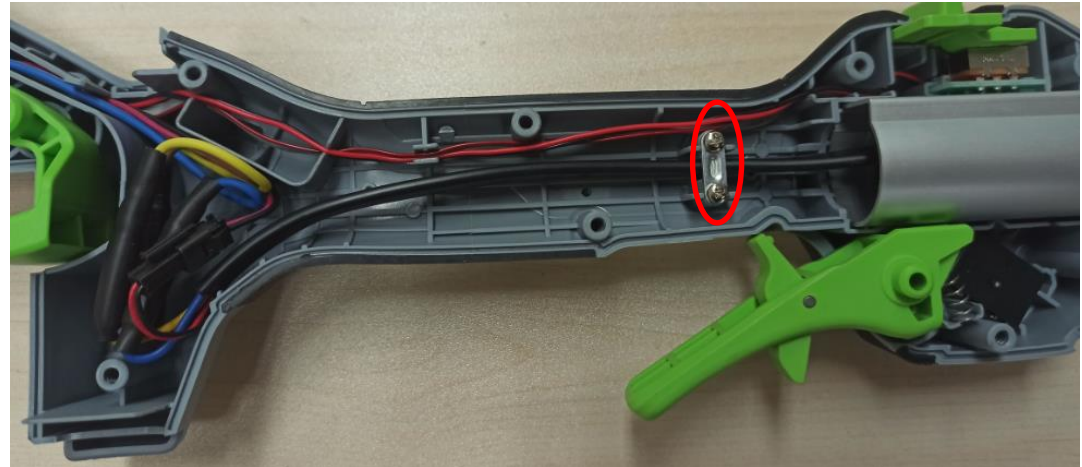
Replace the PCBA

2. Use a Torx screwdriver to loosen the 19 screws on the trimmer housing, and then separate the top cover and the right housing from the left housing.



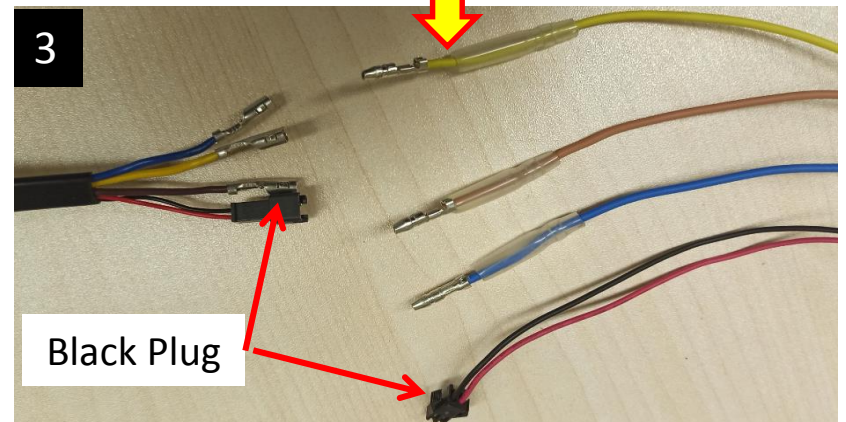
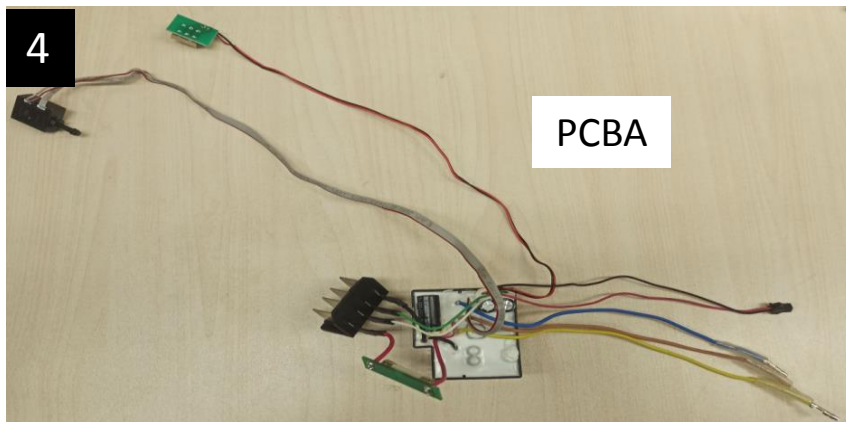
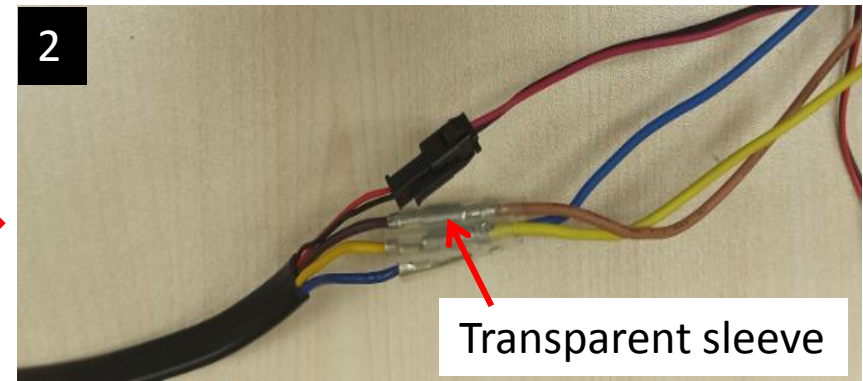
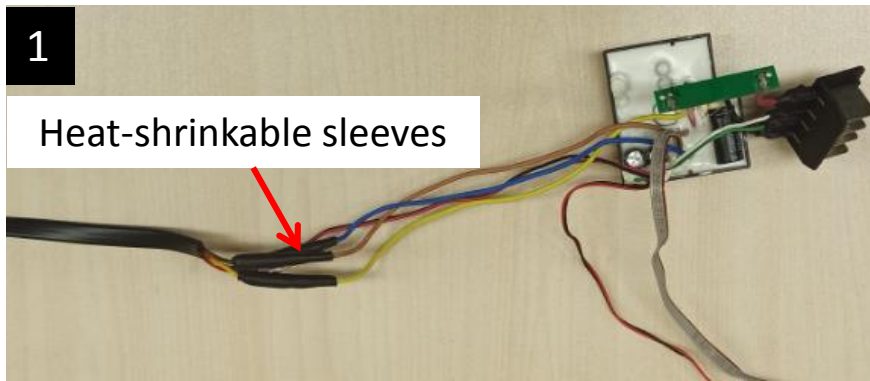
Replace the PCBA

3. Use a Phillips screwdriver to loosen the 2 inside screws on the clamp to release the internal wire harness away from the left housing.
4. Remove the PCBA, along with the connecting tube assembly from the left housing. The left housing is separated from the trimmer.
5. Save the trigger assembly, rubber pad, spring 1#, clamp and high/low-speed adjustment knob for reassembly. If any worn, replace them.



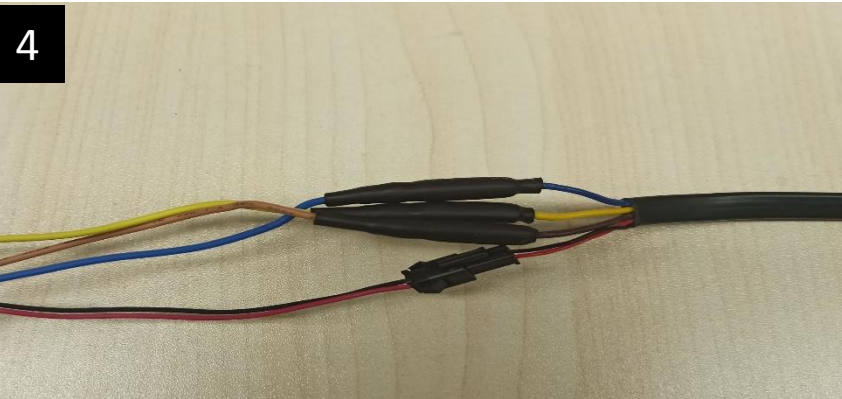
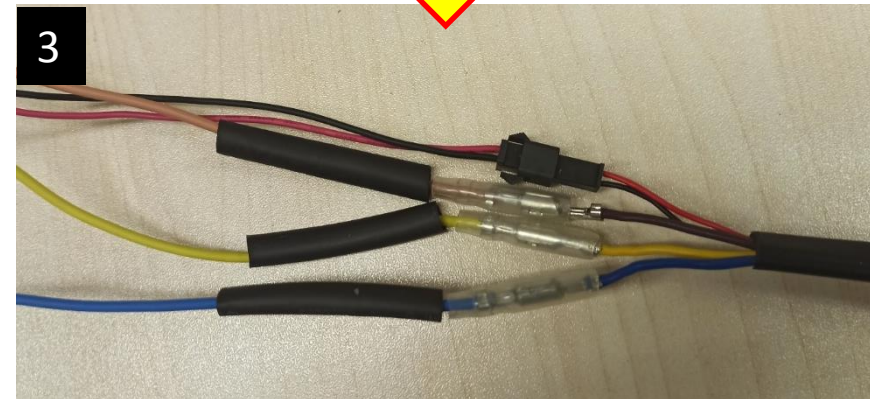
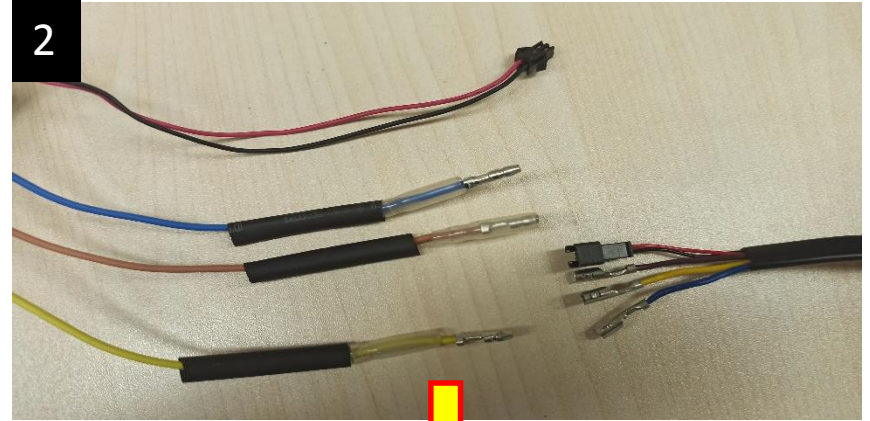
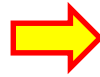
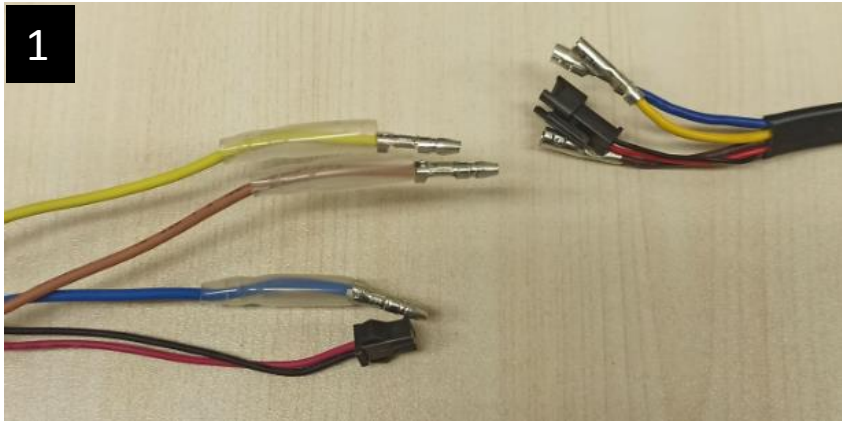
Replace the PCBA

6. To disconnect the PCBA from the wire harness, remove the heat-shrinkable sleeves first (Fig. 1), and then move the transparent sleeve aside (Fig. 2). Lastly separate the three connectors and the black plug (Fig. 3).
7. Remove the whole PCBA (Fig. 4) and have it replaced.



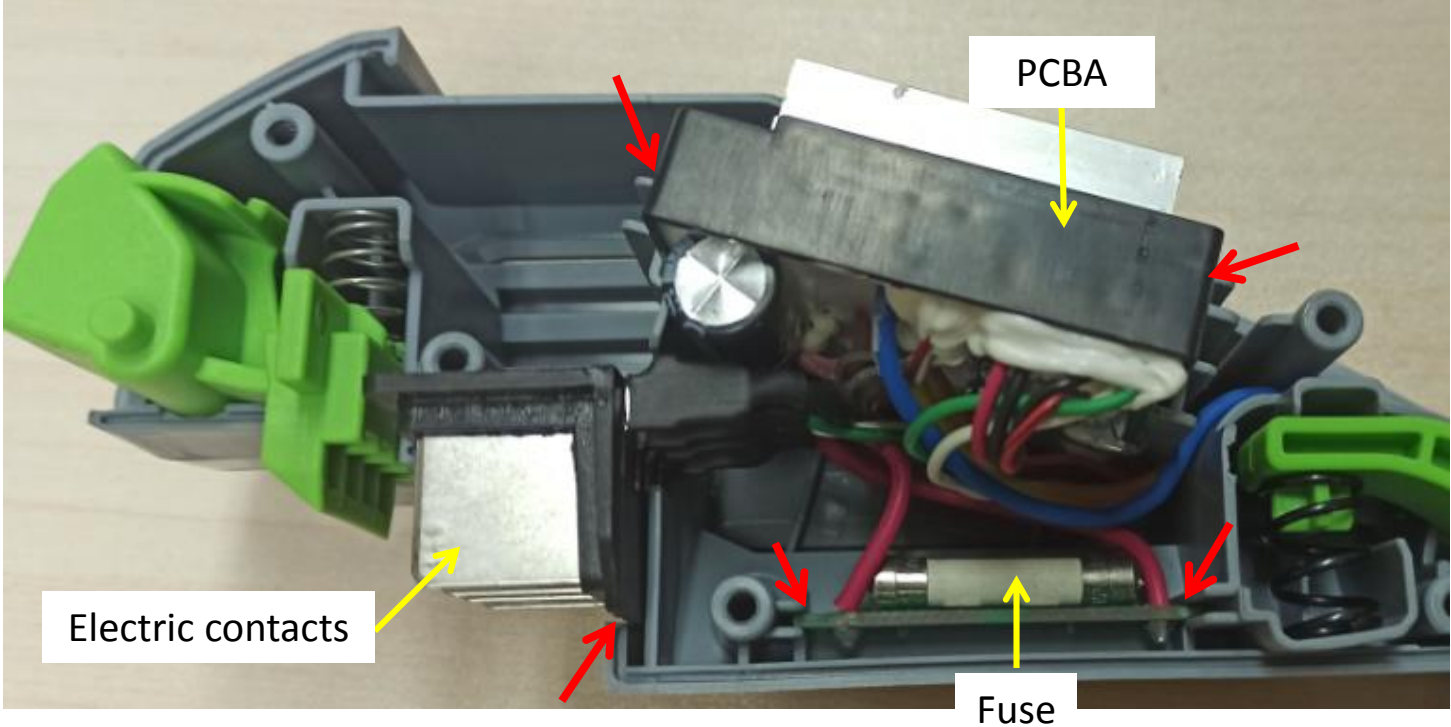
Replace the PCBA

- Put on 3 new heat-shrinkable sleeves one by one onto each terminal first (Fig. 2), move the transparent sleeve aside before connecting the 3 connectors and then cover the connectors with the transparent sleeves (Fig. 3). Connect the black plug as well.
- Finally cover the 3 connectors with the heat-shrinkable sleeves and use the heat gun to shrink them (Fig. 4).



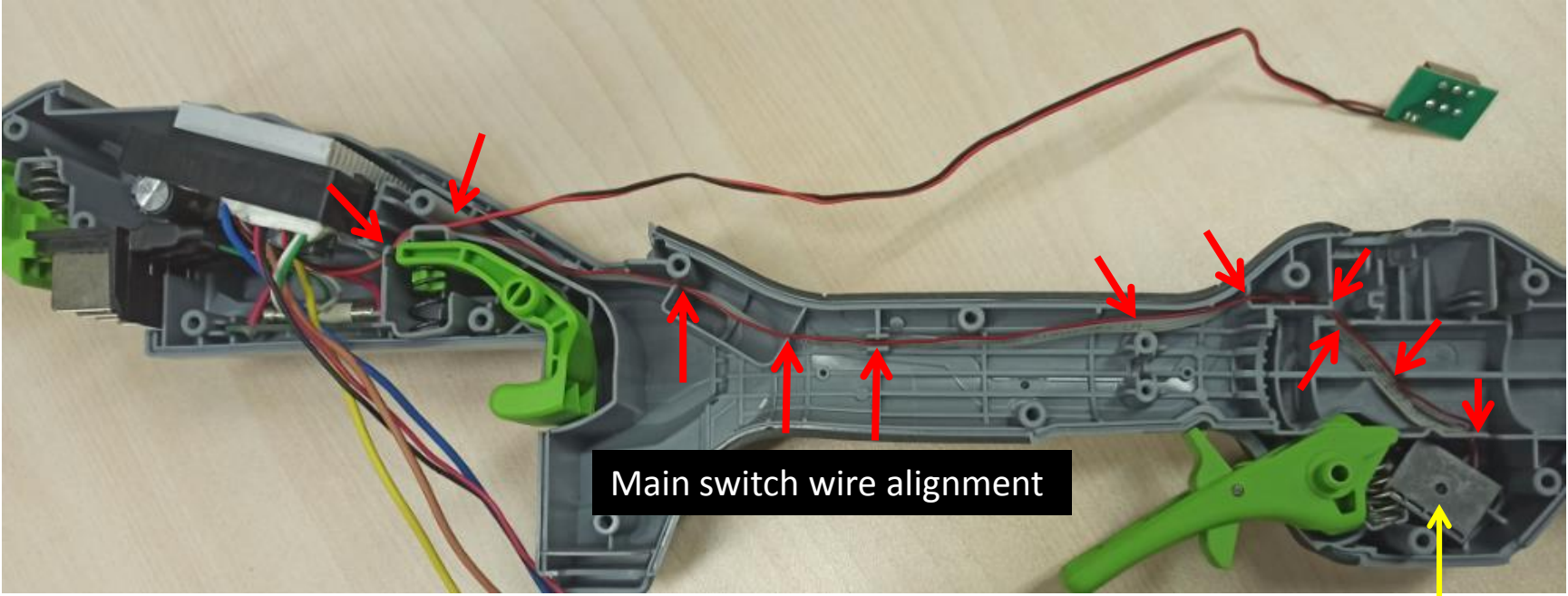
Replace the PCBA

10. Correctly put the new PCBA, as well as the connecting fuse, electric contacts into the left housing.



Replace the PCBA

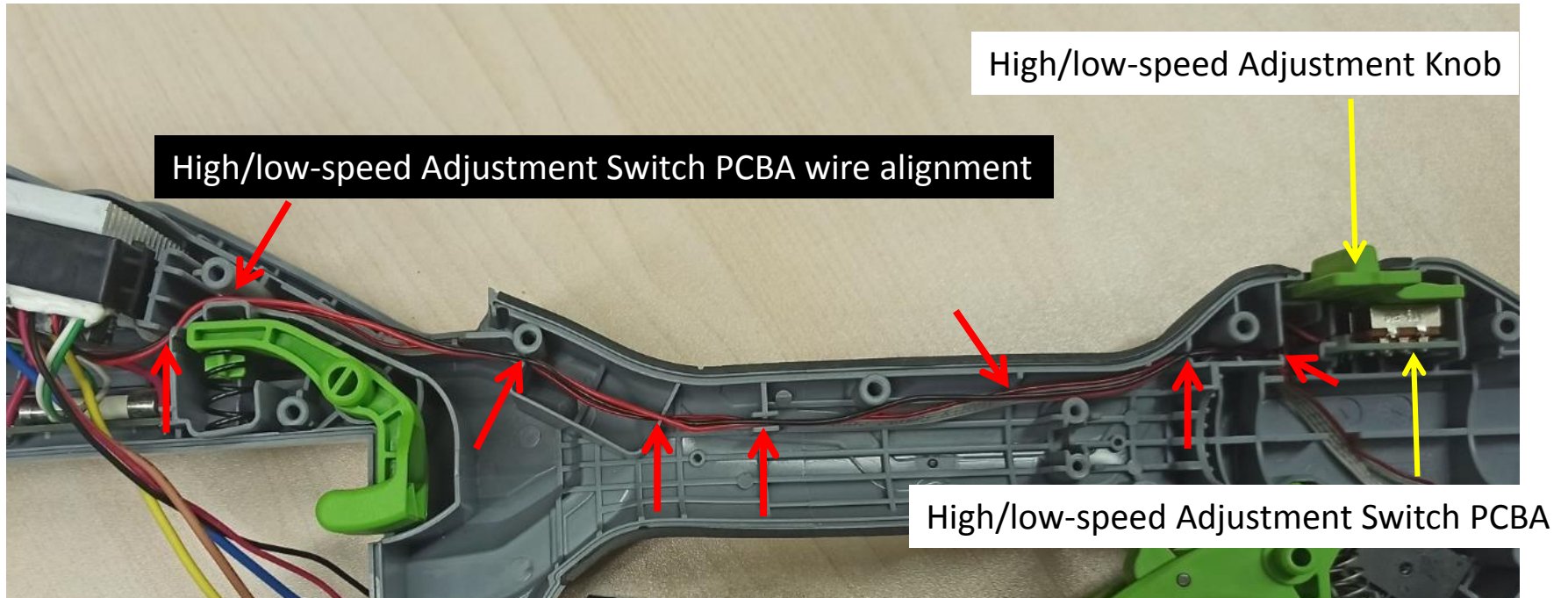
11. Align the main switch wire into the groove in the left housing.



Main Switch

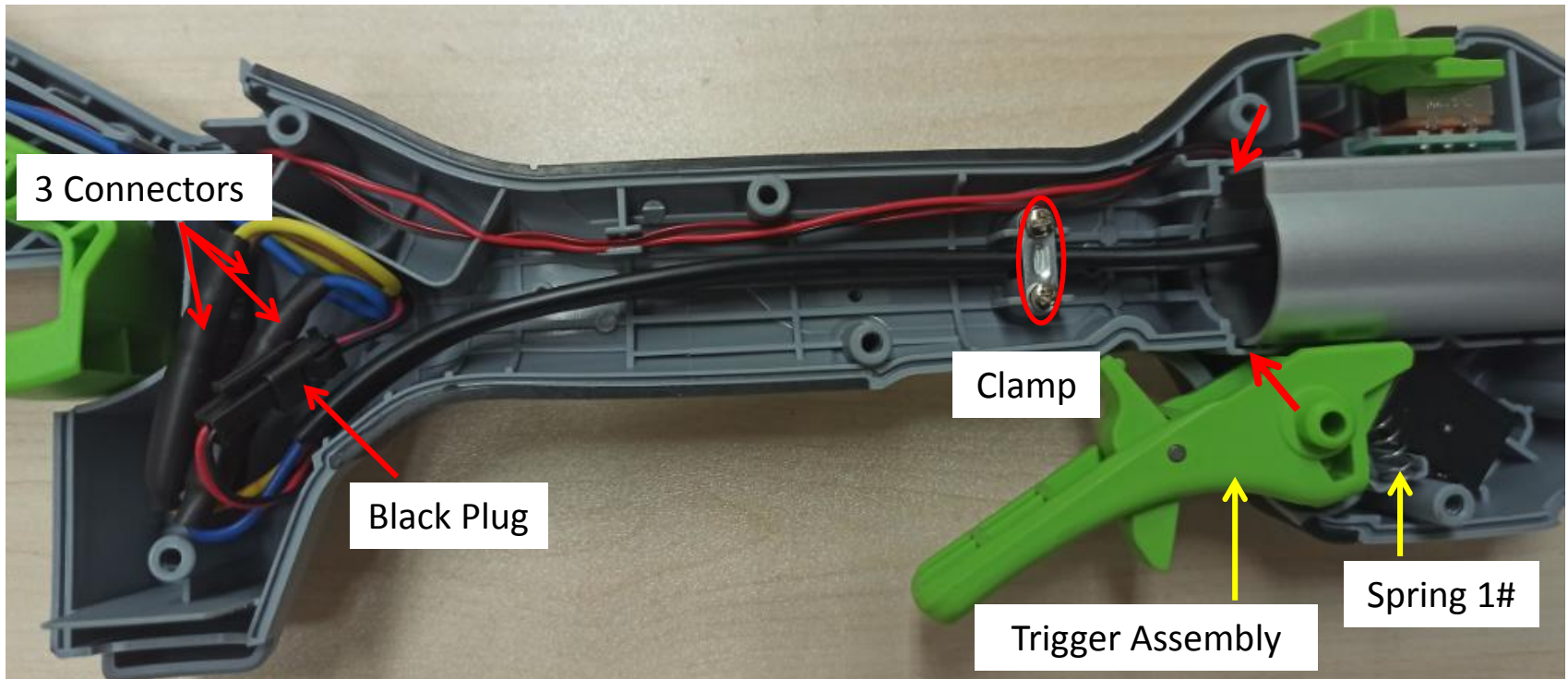
Replace the PCBA

12. Align the high/low-speed adjustment switch PCBA wire into the groove, above the main switch wire.
13. Place the high/low-speed adjustment knob into its position.



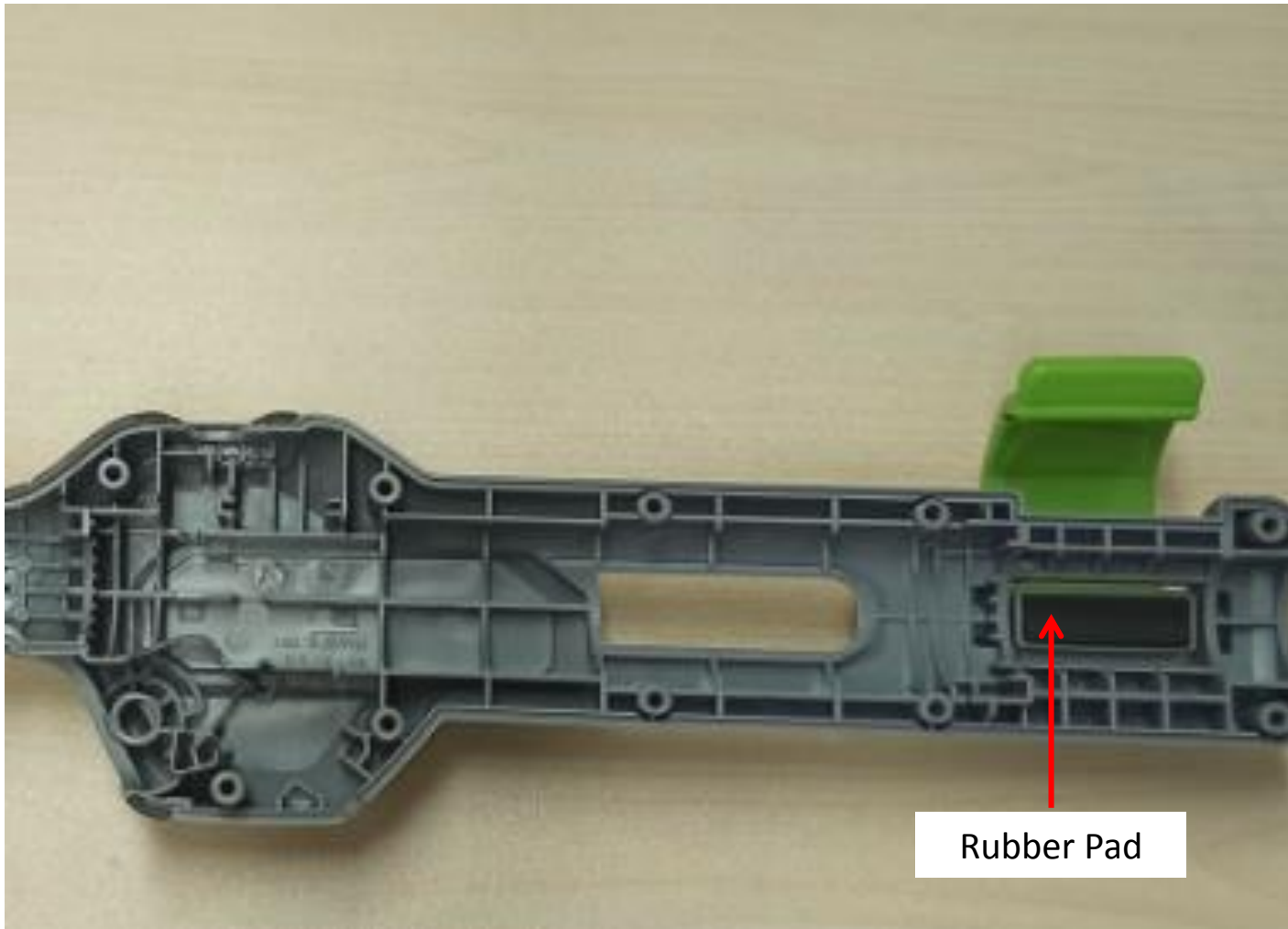
Replace the PCBA

14. Align the 3 connectors and the black plug into the vacant groove.
15. Place the connecting tube against the housing ribs and then fix the wire harness onto the left housing with the saved clamp and 2 screws (Phillips screwdriver needed).
16. Ensure that the trigger assembly, spring 1# and the rubber pad (Please see next slide for note) are in their positions. If any of them is out of their position during disassembly, re-place them.



Replace the PCBA

NOTE: there is a rubber pad inside the left housing. Before re-place the connecting tube onto the left housing, please pay attention for this rubber pad.



Replace the PCBA

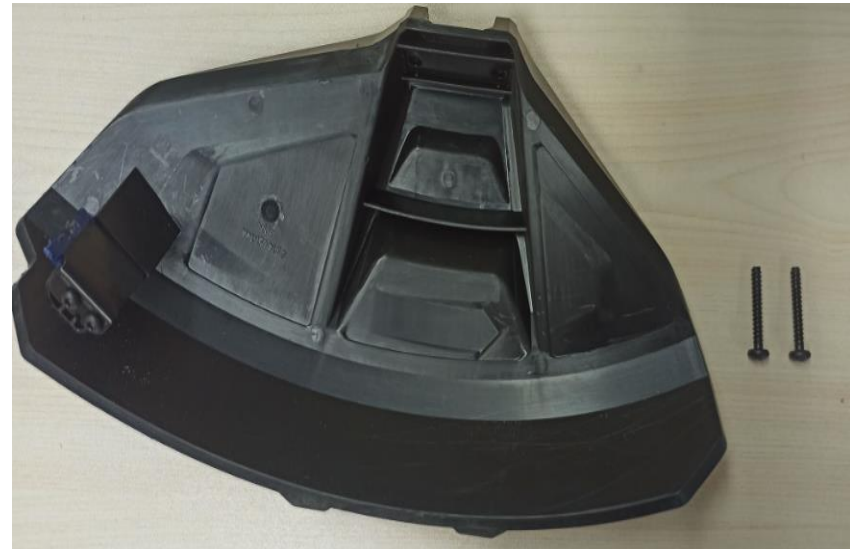
17. Mount the top cover into the left housing first and then close the housings and tighten them using a Torx screwdriver.



Part 2: How to Replace the Motor

Replace the Motor

1. Use a Phillips screwdriver to loose the 2 screws on the trimmer guard to remove the guard.

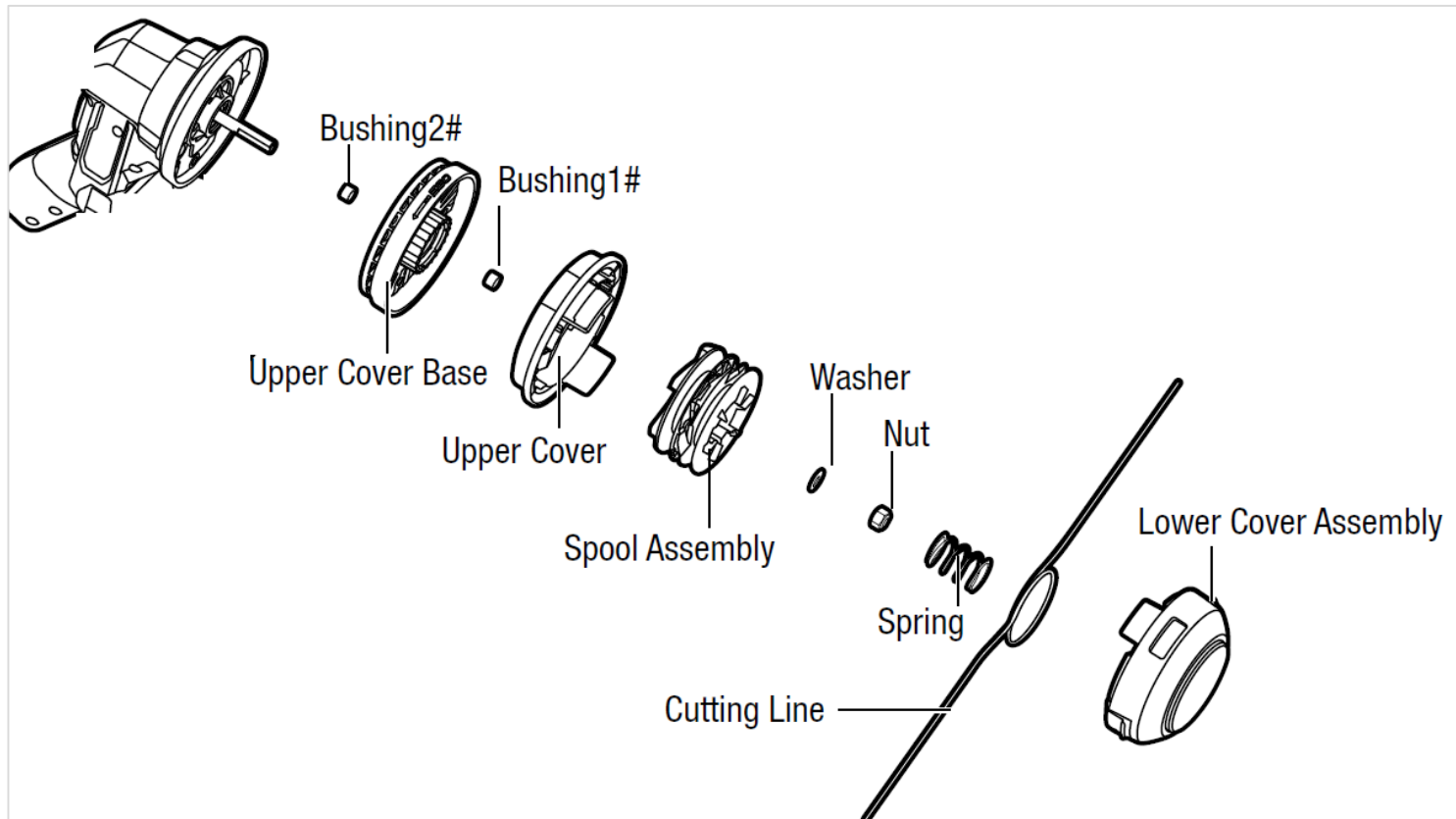


Replace the Motor

2. Follow the manual instruction, remove the trimmer head thoroughly from the trimmer.

NOTICE:

- During disassembly, 13mm socket is needed. Impact wrench is recommended for easier nut removing.
- There are **two bushings** inside the trimmer head. Take out of the bushings and save them for re-assembly (please see next slide for actual pictures).



Replace the Motor



Nut

Washer



Bushings

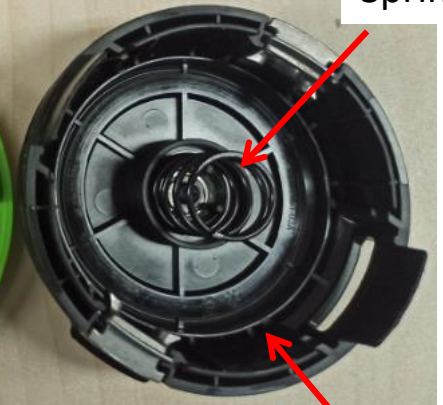
Upper Cover Base



Spool Assembly



Spring

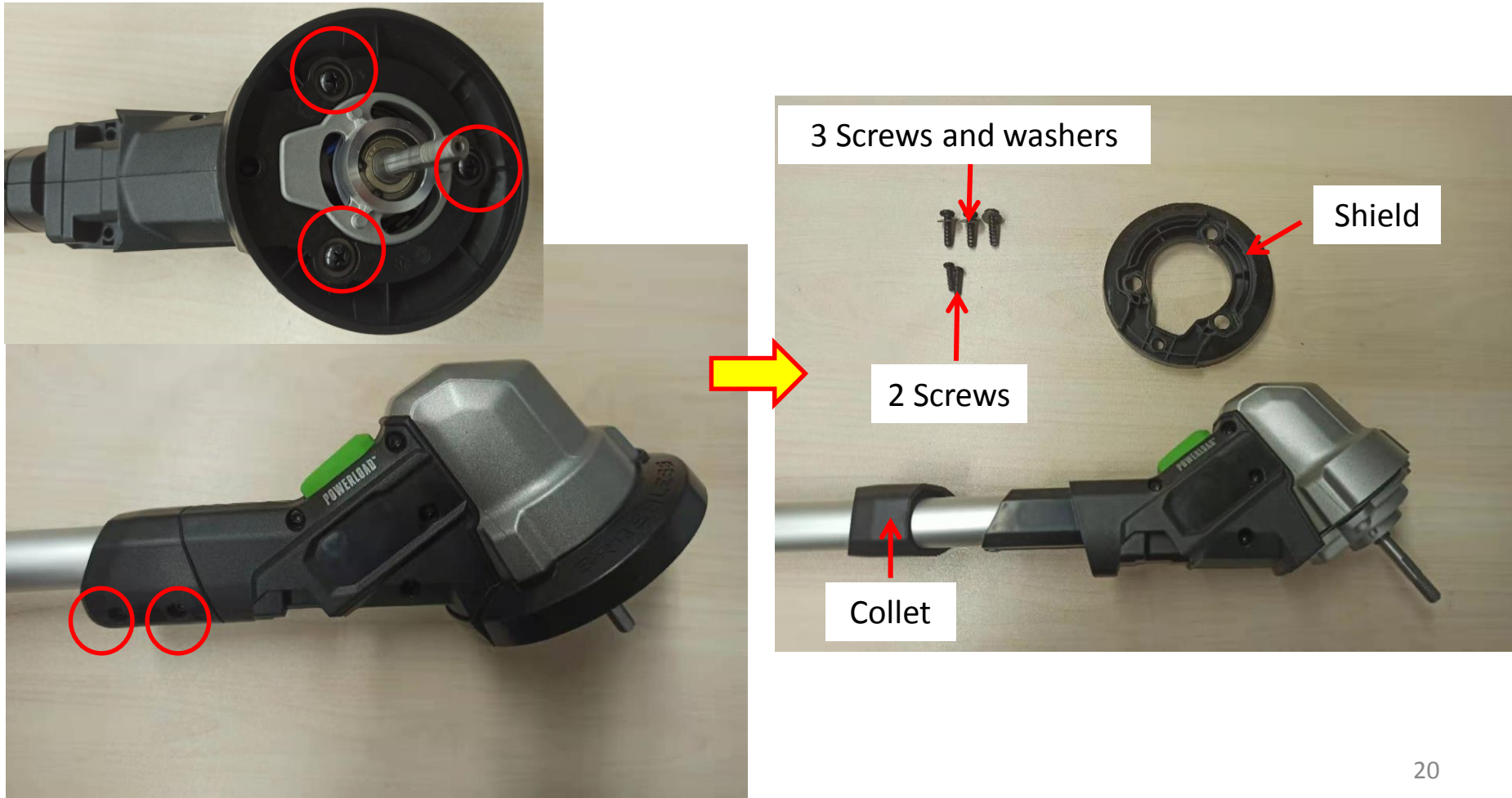


Upper Cover

Lower Cover Assembly

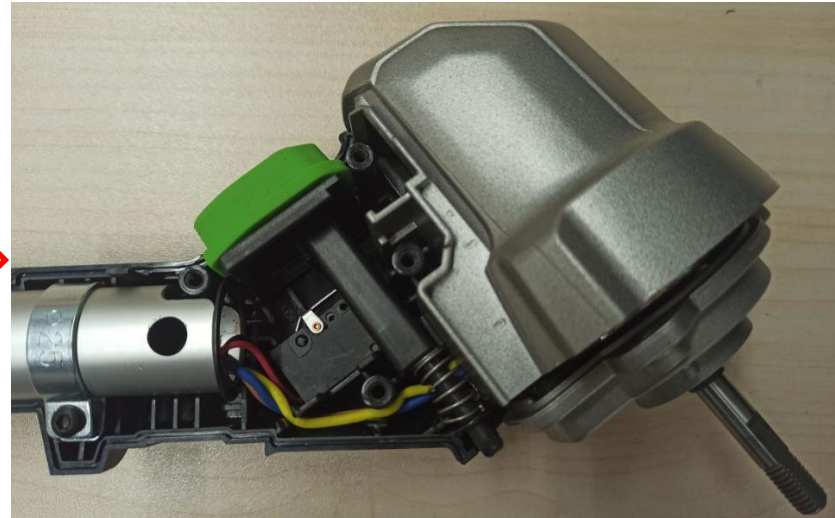
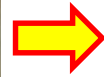
Replace the Motor

3. Use a Phillips screwdriver to loose the 3 screws and washers to remove the trimmer head shield from the motor.
4. Use a Torx screwdriver to loosen and remove the 2 screws on the collet and move the collet aside.



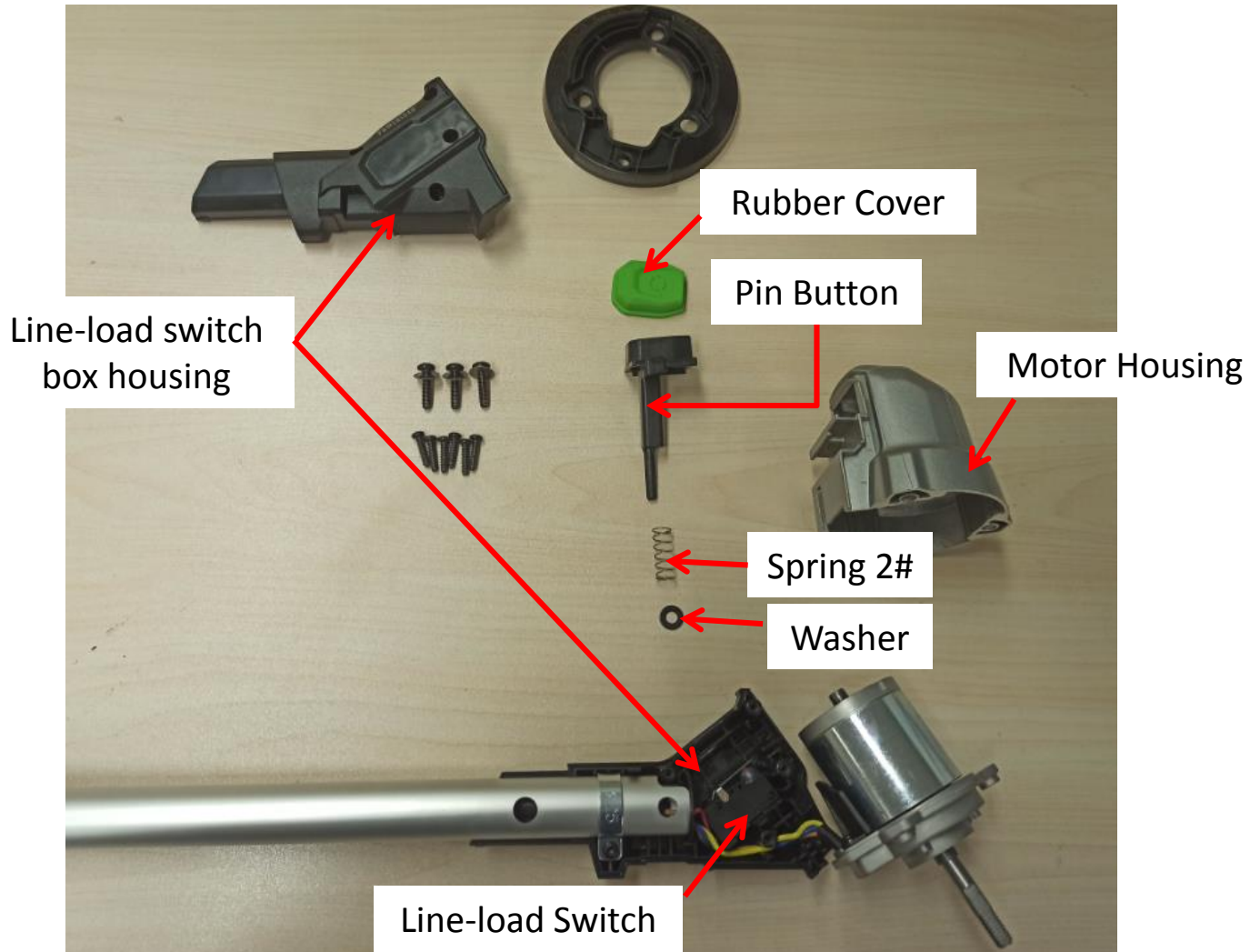
Replace the Motor

5. Use the same Torx screwdriver to loose the 4 screws to open the line-load switch box housings and remove the right switch box housing.



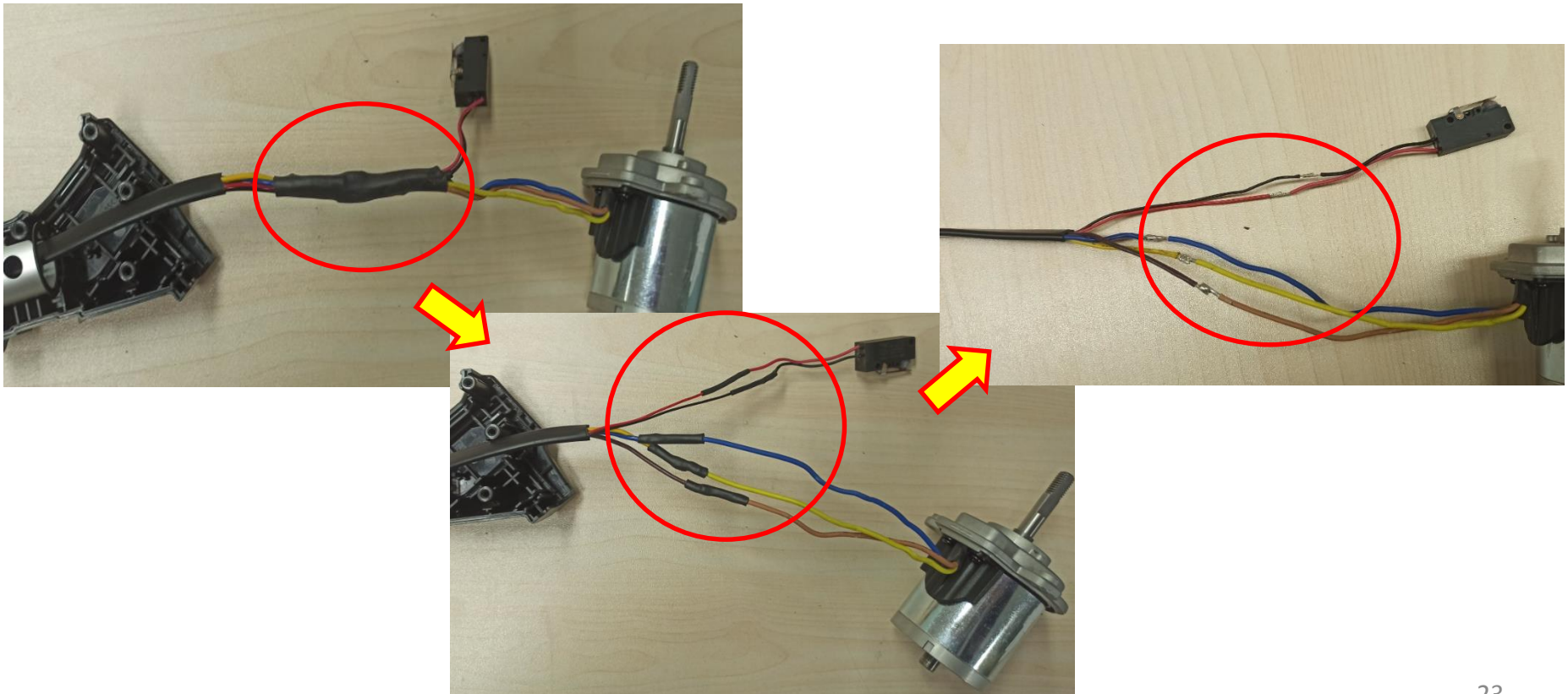
Replace the Motor

6. Remove the rubber cover, pin button, spring 2# and washer from the line-load switch box housing.
7. Remove the motor housing from the motor.



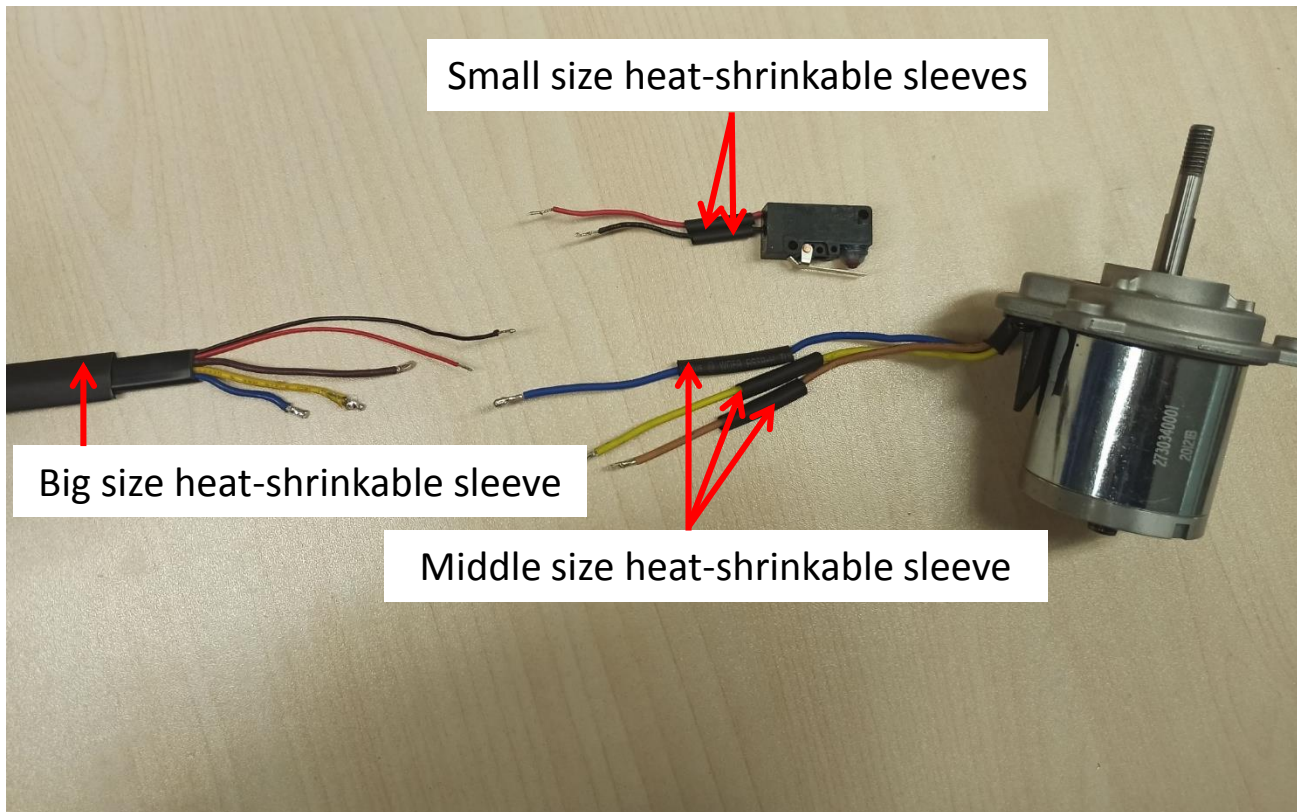
Replace the Motor

8. Take out the line-load switch from the housing and carefully slightly pull the wire harness out to expose the heat-shrinkable sleeves for next sleeves removing.
9. Use scissors to remove the outermost big heat-shrinkable sleeve first and then each smaller one on the single 5 wires (3 thicker wires for motor and 2 thinner wire for line-load switch).
10. Disconnect the wires using an electric soldering iron.



Replace the Motor

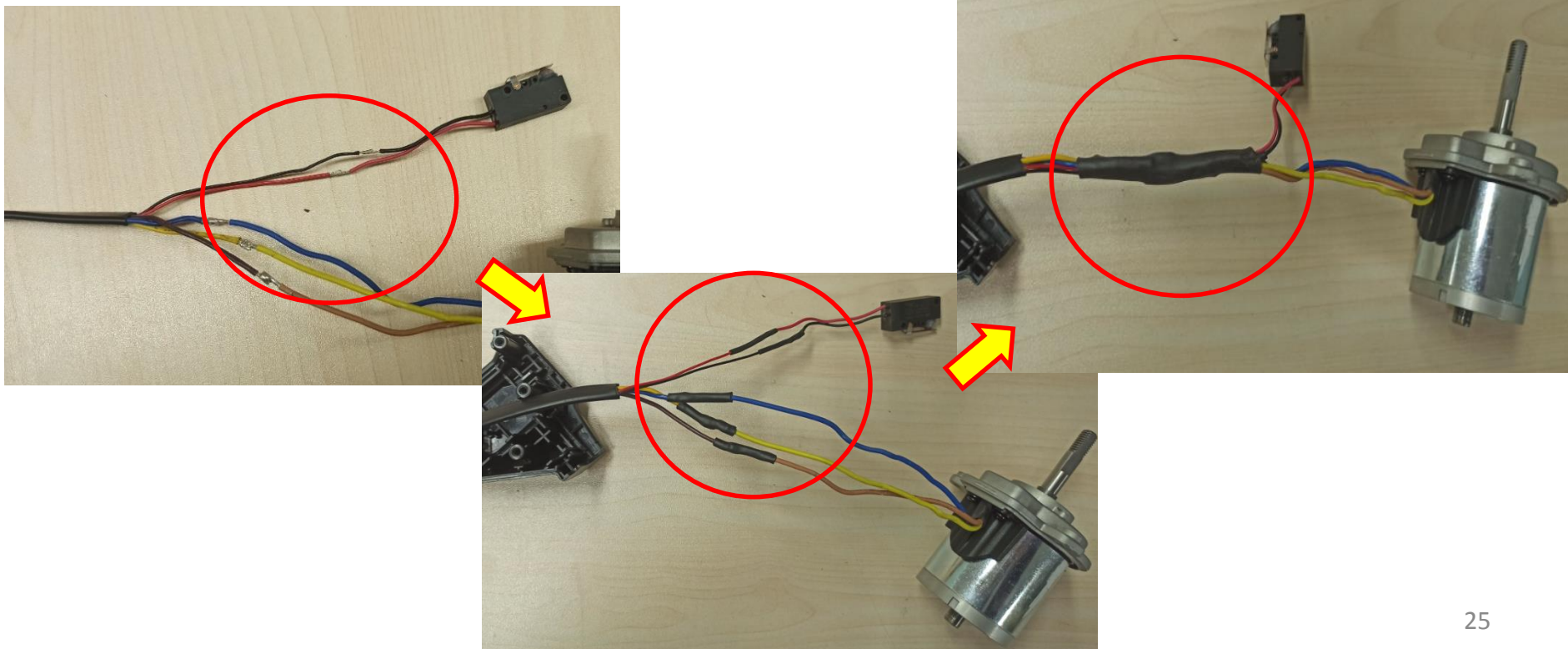
11. Replace with a new motor.
12. Put on 1 biggest heat-shrinkable sleeve onto the wire harness and 3 middle heat-shrinkable sleeves onto the 3 motor wires and 2 smaller heat-shrinkable sleeves onto the line-load switch wires before wire connecting.



Replace the Motor

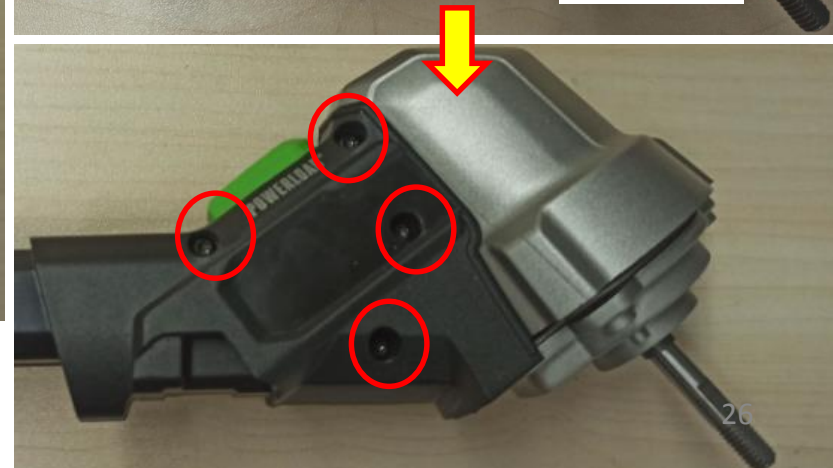
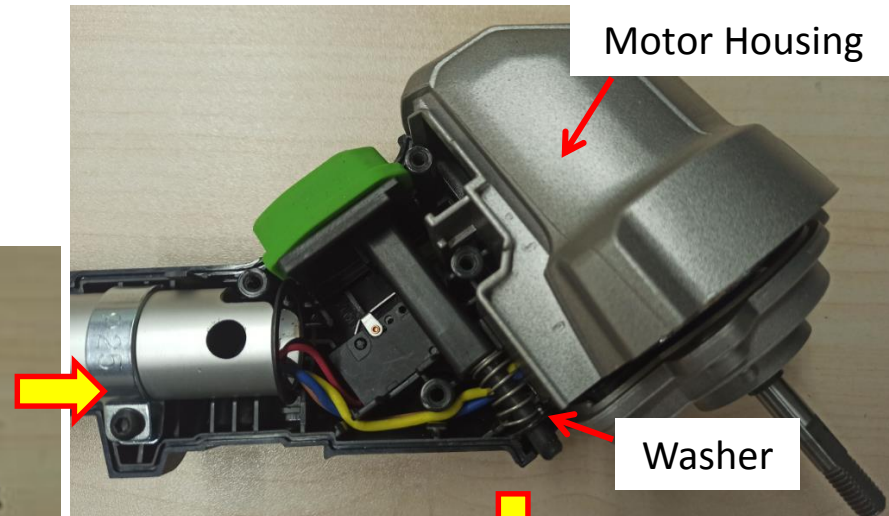
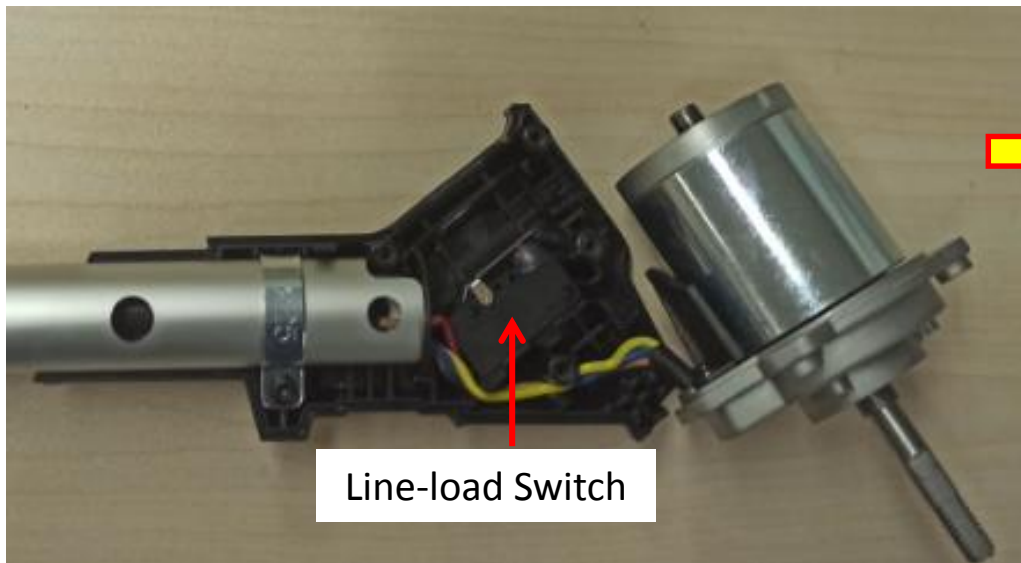
13. Use the electric soldering iron to connect the 5 single wires and then cover the connectors with each single pre-mounted heat-shrinkable sleeve.
14. Use a heat gun to shrink the 5 sleeves and finally cover them with the outermost big heat-shrinkable sleeve.
15. Shrink the big heat-shrinkable sleeve finally.

NOTICE: make sure all the wires connect to each other with the same color.



Replace the Motor

16. Carefully insert the soldered joints into the tube and leave suitable wire harness for aligning them into the line-load switch box housing and position the line-load switch into its place.
17. Re-place the motor housing and then put the rubber cover onto the pin button first and then hold them with the spring and washer into the line-load switch box housing.
18. Close the right line-load switch box housing and tighten them with the 4 screws using a Torx screwdriver.



Replace the Motor

19. Attach the trimmer head shield onto the motor and fix it with the 3 screws and washers.
20. Lastly move the collet onto the line-load switch box housings and tighten them with 2 screws using the Torx screwdriver.



Replace the Motor

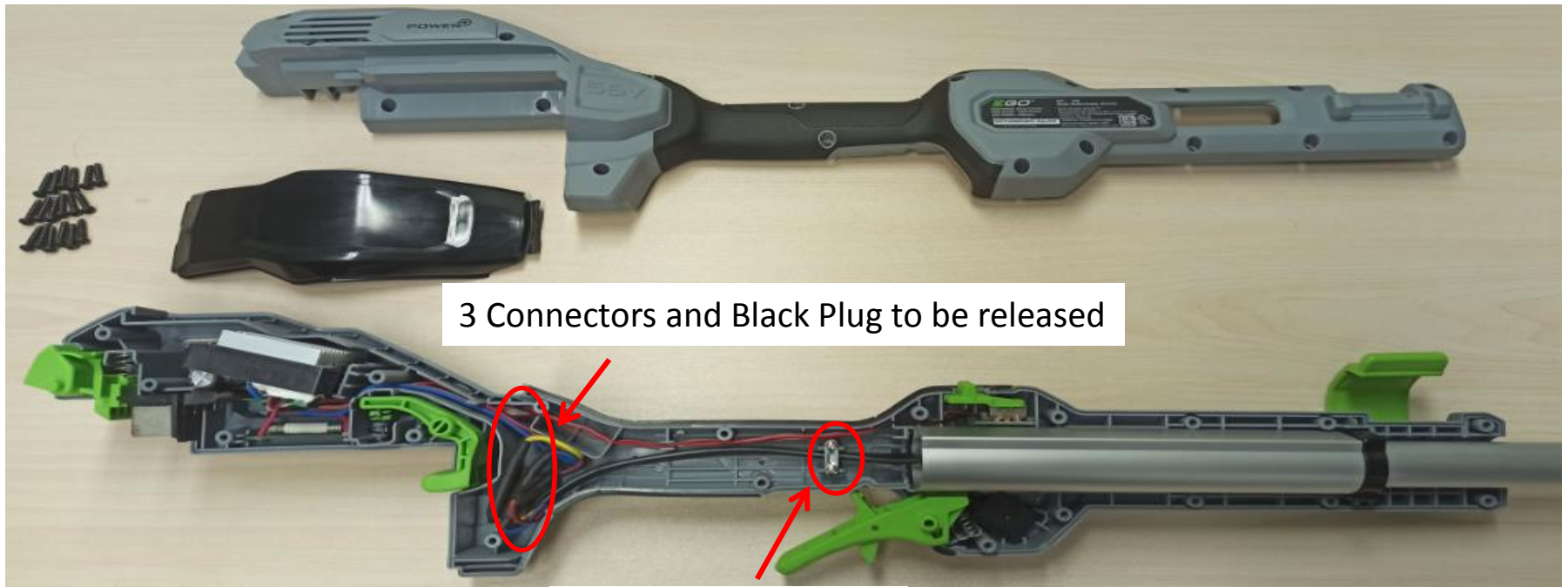
21. Reassemble the trimmer head and trimmer guard onto the tool.



Part 3 : How to Replace the Front/rear Connecting Tube/Wire Harness

Replace the Front/rear Connecting Tube/wire Harness

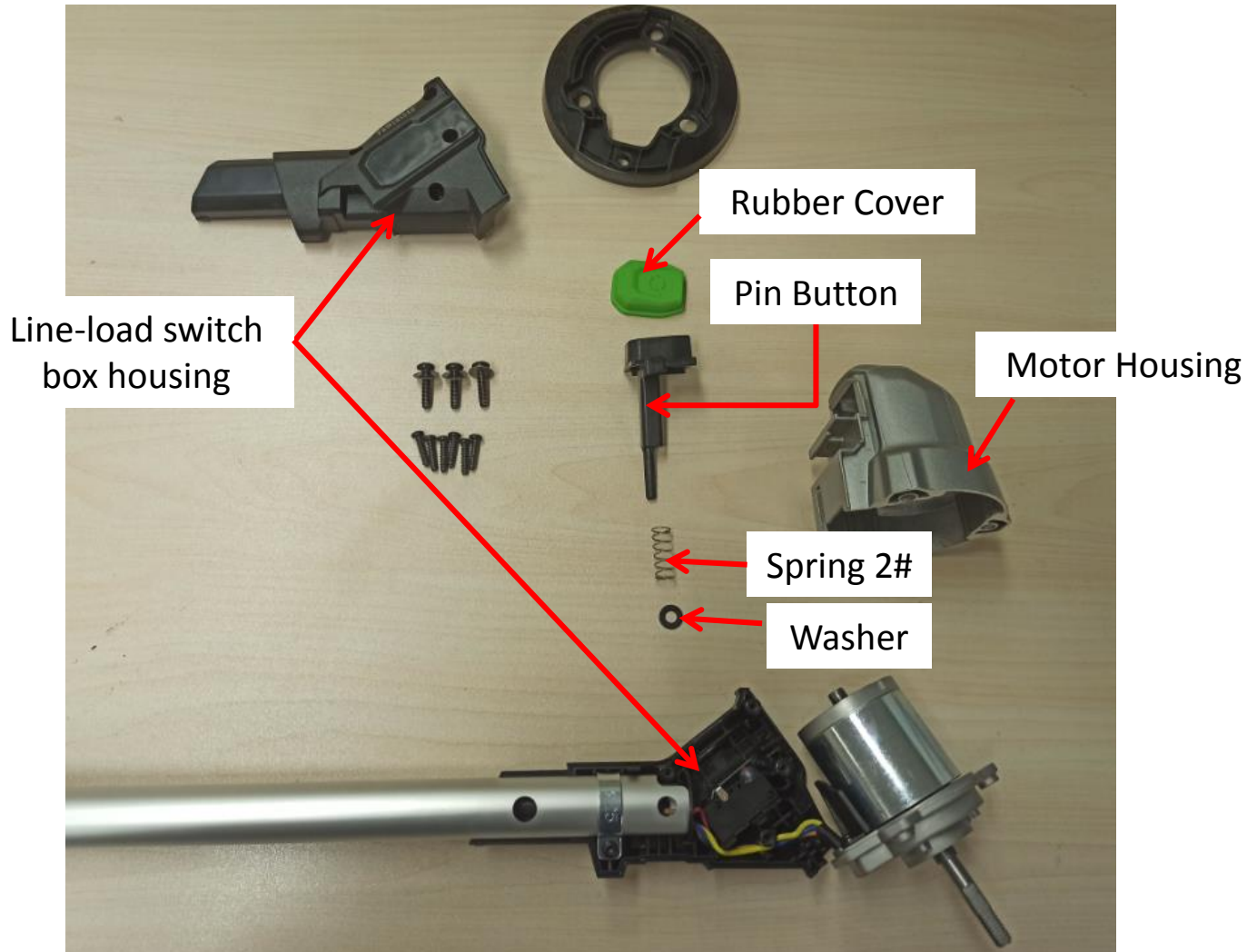
1. Remove the loop handle and open the housings to release the clamp on the wire harness and disconnect the PCBA from the wire harness as Slide 5-8 instructed in section “**Replace the PCBA**”.
2. The wire harness and connecting tube assembly can be removed from the trimmer rear part.



Clamp to be released

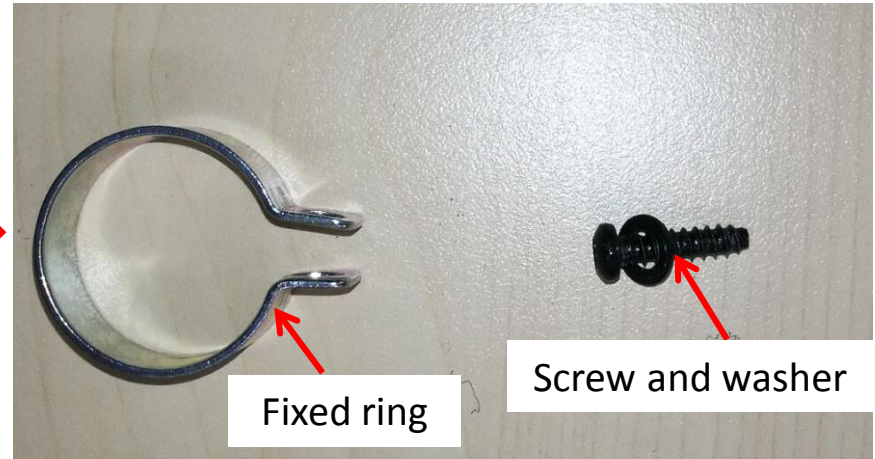
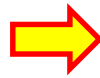
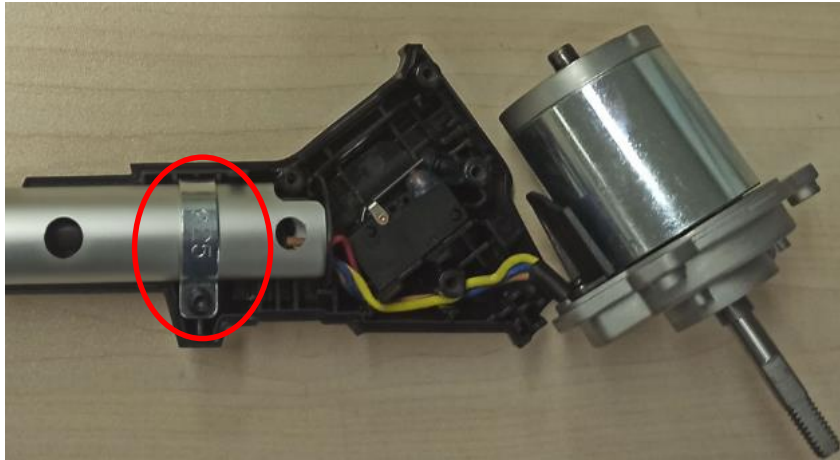
Replace the Front/rear Connecting Tube/wire Harness

3. Open the line-load switch box housing and remove rubber cover, pin button, spring 2#, washer and motor housing from the trimmer front part as Slide 17-22 instructed in section **“Replace the Motor”**.



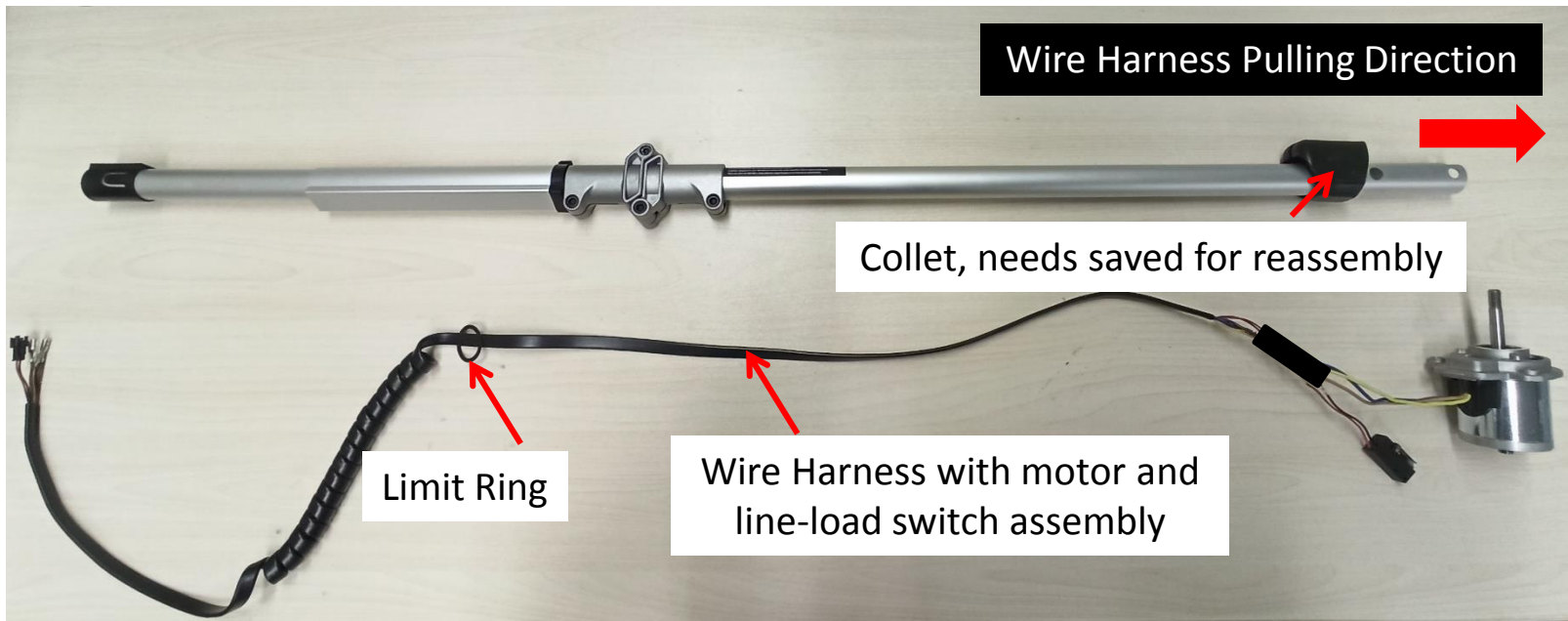
Replace the Front/rear Connecting Tube/wire Harness

4. Use a Torx screwdriver to loosen and remove the 1 screw on the fixing ring.
5. The wire harness (linked to the motor and line-load switch) and the connecting tube assembly is free from the housing now.



Replace the Front/rear Connecting Tube/wire Harness

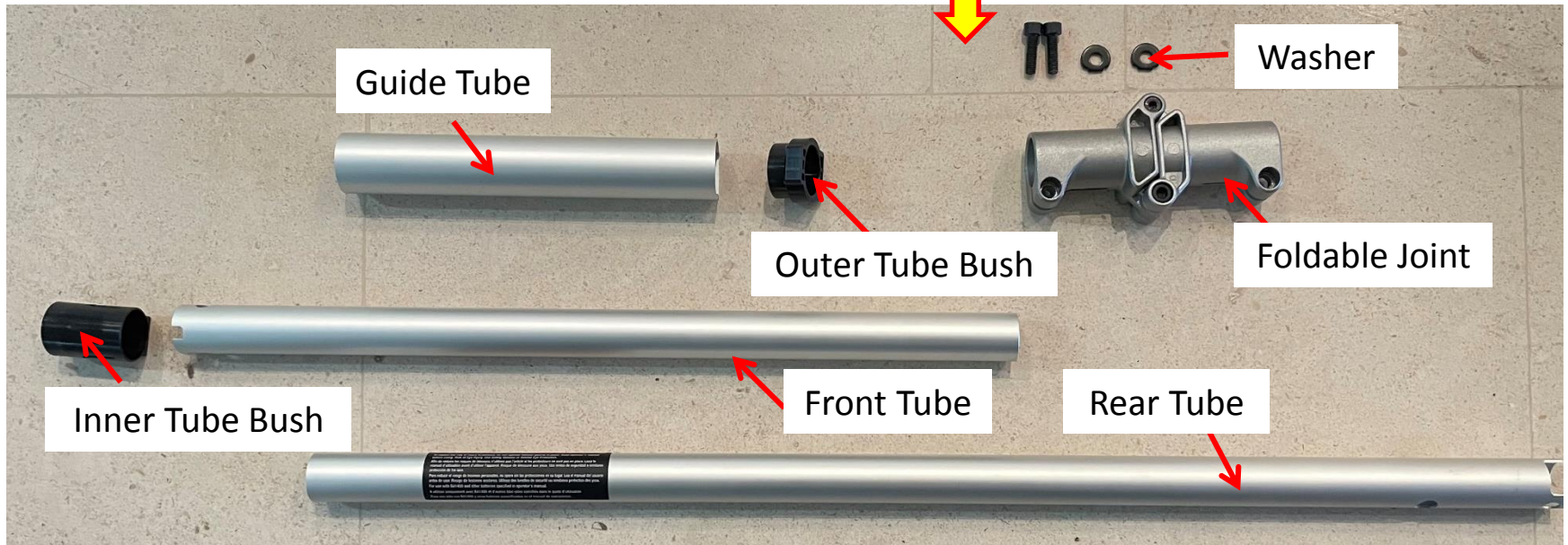
6. Pull the wire harness out of the connecting tube assembly. It is still linked to the motor and line-load switch.
7. If the wire harness is broken, and needs replacement. Follow the steps as Slide 23 instructed in section **“Replace the Motor”** to disconnect the motor and line-load switch from the wire harness.
8. Replace with a new defective wire harness and follow Slide 24-25 in section **“Replace the Motor”** to have wires re-connection. **Pay attention that the limit ring should be on the new wire harness.**
9. Skip to Slide 38 in this section for next reassembly.



Replace the Front/rear Connecting Tube/wire Harness

10. Use a 5mm hex wrench to loosen the 2 hex bolts on the foldable joint and remove the joint as well as the 2 washers from the front and rear tube.
11. Save the inner/outer tube bushes and guide tube for new front/rear tube reassembly. If any is worn or damaged, replace it.

NOTICE: Inner tube bush removing tips please see next slide. It's kind of difficult.



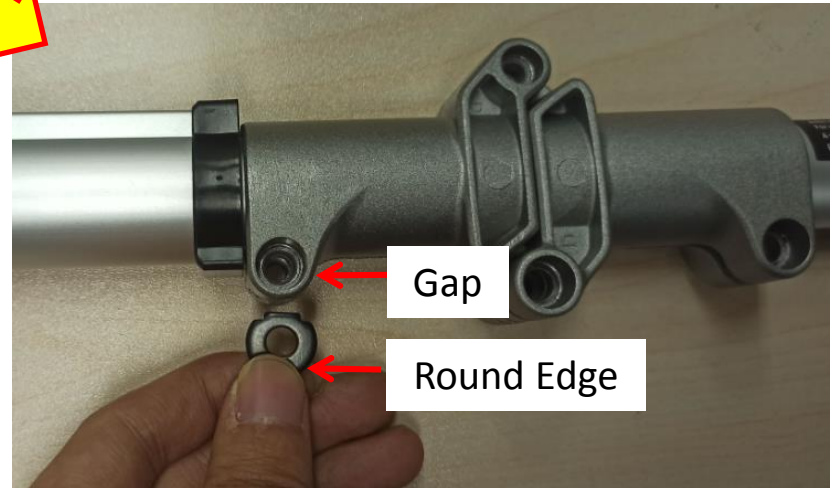
Replace the Front/rear Connecting Tube/wire Harness

Two smaller bits are recommended for helping removing the inner tube bush from the front tube, as below shown.



Replace the Front/rear Connecting Tube/wire Harness

12. Mount the front and rear tube onto the foldable joint.
13. Insert the washer, **with round edge facing outside**, into the joint gap on each side first and then tighten them using the 5mm hex wrench and the 2 hex bolts.



Replace the Front/rear Connecting Tube/wire Harness

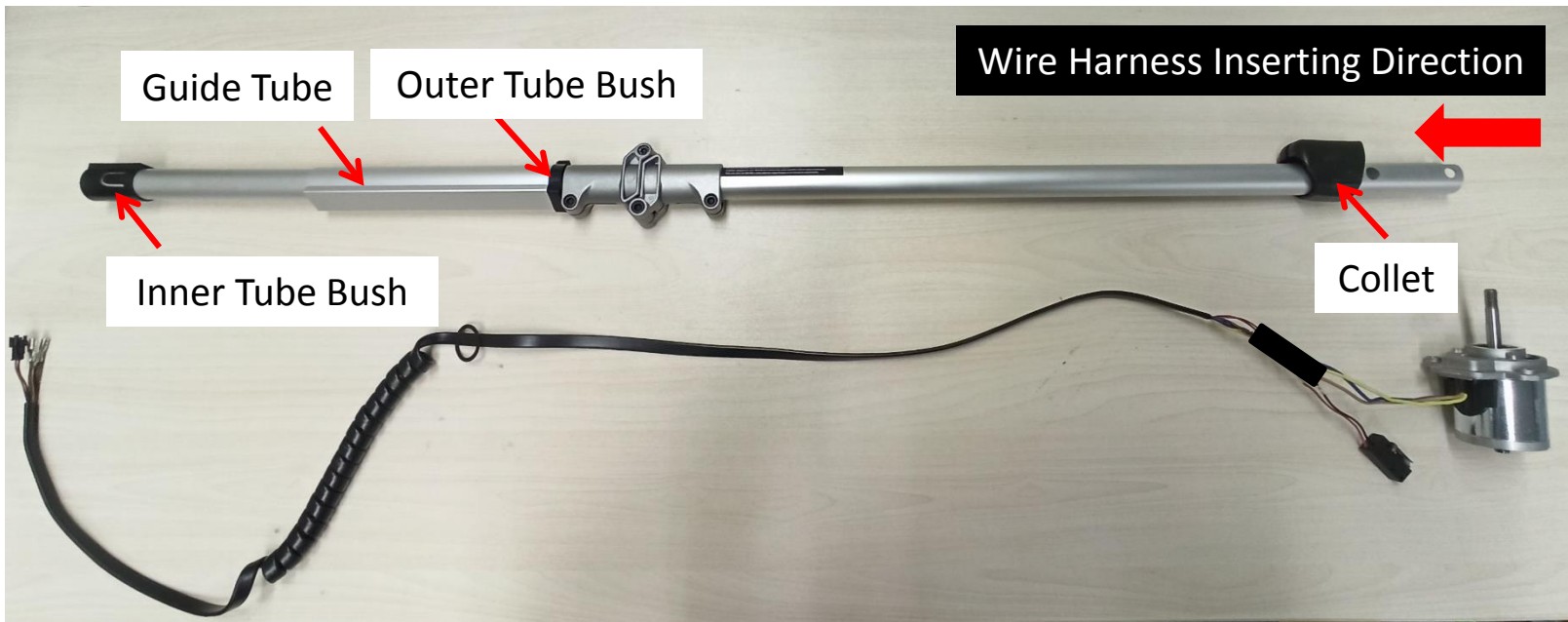
14. Mount the inner/outer tube bushes, guide tube and collet onto connecting tube assembly (see next slide).

NOTICE: The inner tube bush should be mounted following below steps. Removing tips please see Slide 35.



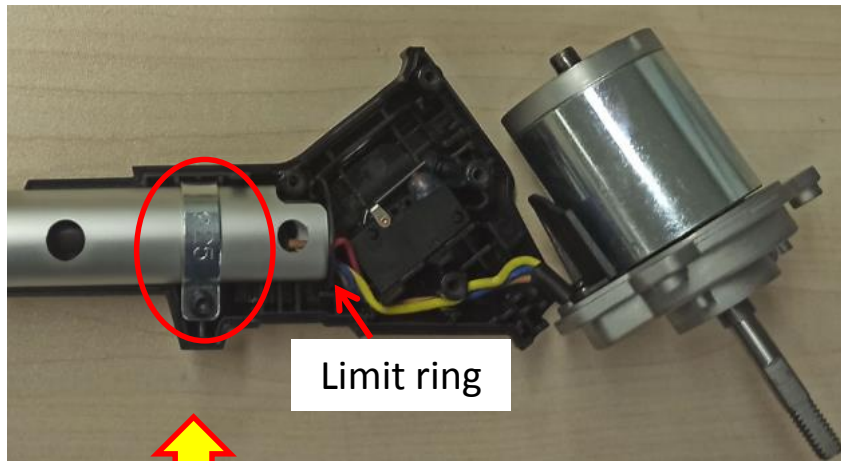
Replace the Front/rear Connecting Tube/wire Harness

15. Insert the wire harness through the connecting tube assembly.

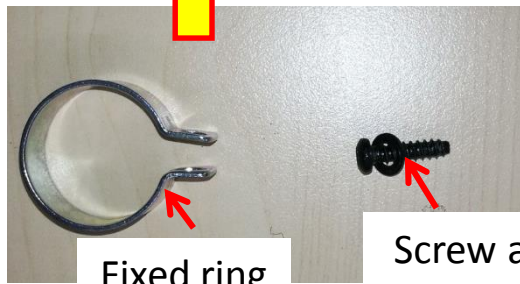


Replace the Front/rear Connecting Tube/wire Harness

16. Correctly fix the connecting tube onto the left housing with the limit ring in the most front of the tube and then tighten the tube with the fixing ring and the 1 screw and 1 washer using a Torx screwdriver.

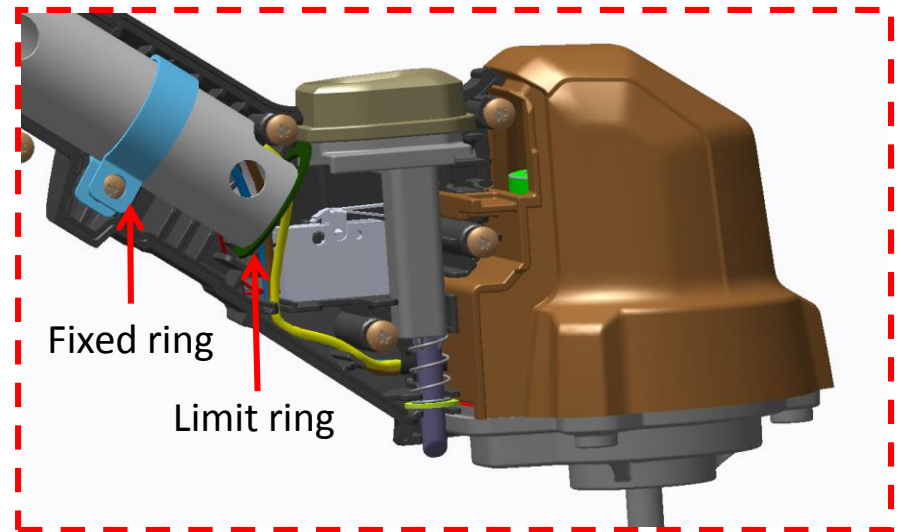


Limit ring



Fixed ring

Screw and washer

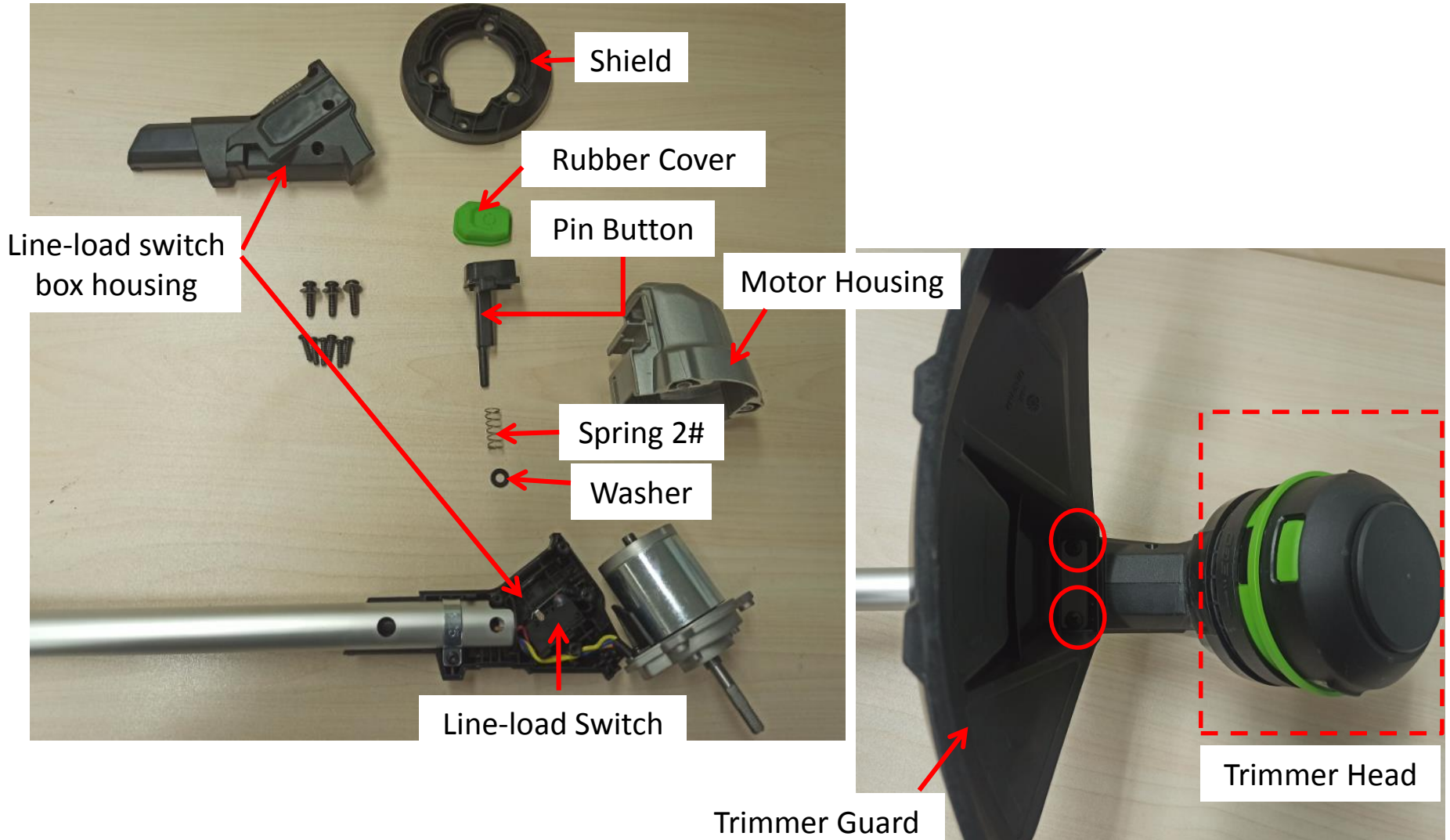


Fixed ring

Limit ring

Replace the Front/rear Connecting Tube/wire Harness

17. Follow Slide 26-28 in section “**Replace the Motor**” to reassemble below parts.



Replace the Front/rear Connecting Tube/wire Harness

18. Follow Slide 9-15 in section “**Replace the PCBA**” to reconnect the wires first and correctly have wire alignment and housing closing.



THE END