

REPAIR GUIDELINE

String Trimmer_ST1210E



Version: 1

Issue Date: 2015/03/04

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Troubleshooting

Problem	Possible Cause	Fault Position	Test & Solution
Not feed line	Poor cutting line	trimmer line	Replace the cutting line. (e.g. 2mm round nylon line or 2mm Hitachi twist line)
Lose 50% of the RPM when actually cutting	It's overload of the motor. It usually caused by the too long line (user did not mount the guard when operating the trimmer), or too heavy line (line diameter exceeding 2.0mm), or using as an edger by the user.	trimmer line	Mount the guard on the string trimmer, then release the line and test the speed. If thicker line was used, replace with 2.0mm line and test the speed.
Fail to start	The cables that connect to motor are loosed or fallen off from motor.	Motor	Open the motor housing, check the cable connection with motor.
	Motor is burned	Motor	If the cables are well connected, check the motor and test with a new motor.
	PCBA is broken	PCBA in rear housing	If the cables are well connected, and motor is functional, replace the PCBA in the rear housing.
The battery pack is not stayed/locked on the trimmer properly; or hard to remove from the trimmer.	The locking mechanism is worn.	Rear housing	Replace the rear housing set.

Troubleshooting

Problem	Possible Cause	Fault Position	Test & Solution
The motor speed varies up and down when the trimmer works.	Motor was burned due to overload	motor	Replace the motor
	The carbon brushes were short	Carbon brush	Replace the carbon brushes.

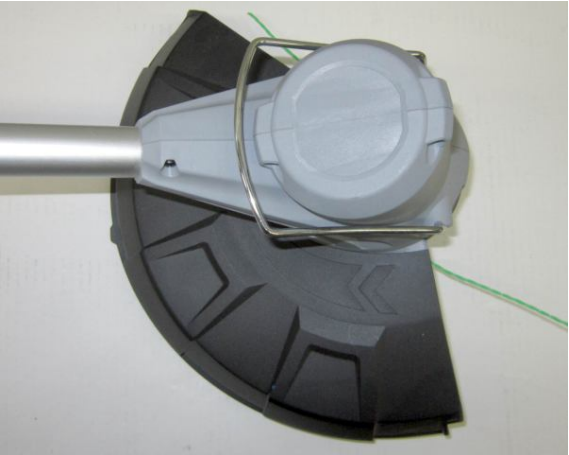
Tool List For Repair

NO.	Tool List	SPEC	Remark
1	Magnetic bits	#1 phillips	
2	Magnetic bits	#2 phillips	
3	Socket wrench	13mm	
4	Electric soldering iron		
5	Heat gun		
6	Heat shrinkable sleeves		
7	Scissors		To remove the shrinkable sleeve

Part 1: Replace the Motor

Replace the Motor

- 1. Remove the guard and bumper protector from the motor housing.



guard

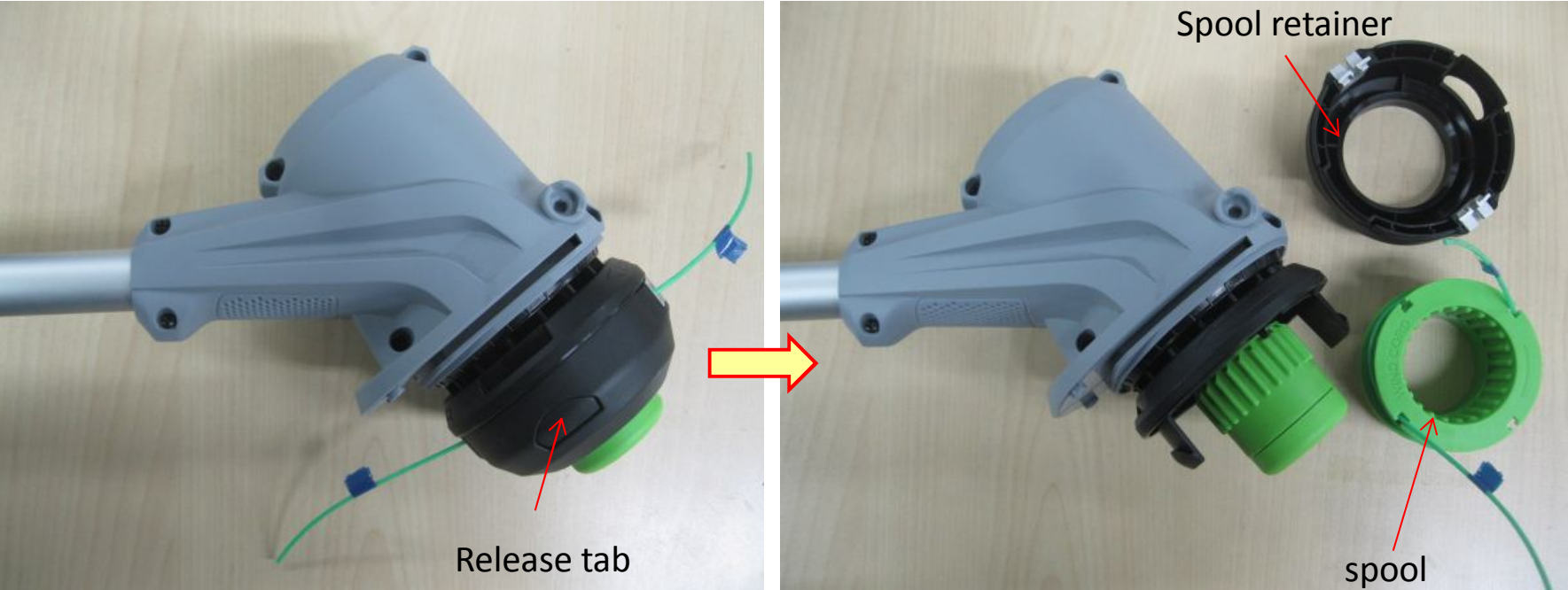


bumper protector

Description	Part Number	SPEC
Guard Assembly	2824054000	
Bumper protector	3650148000	

Replace the Motor

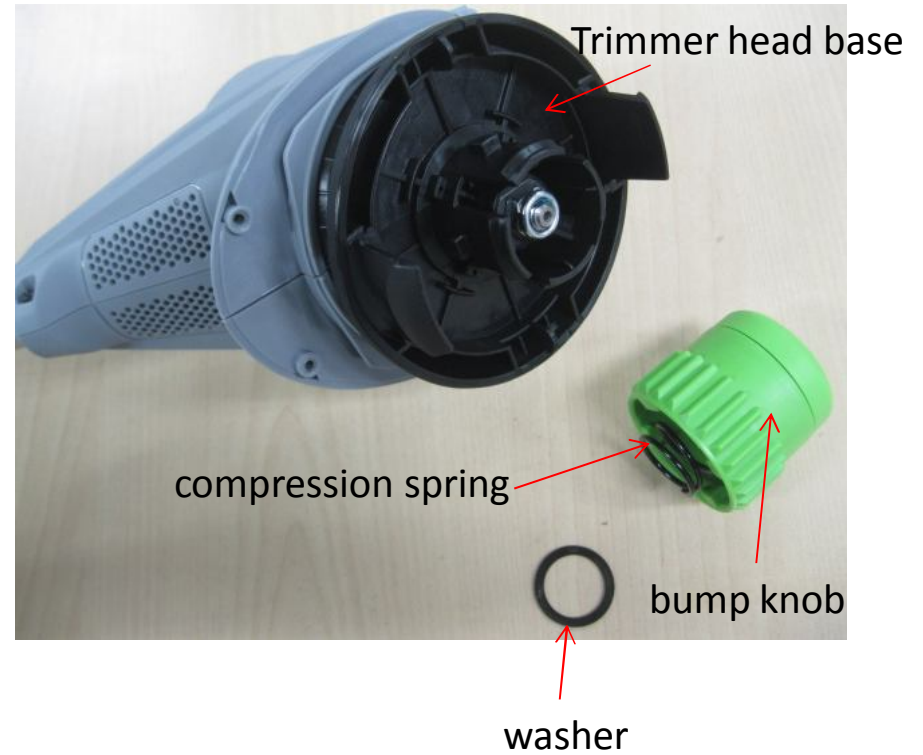
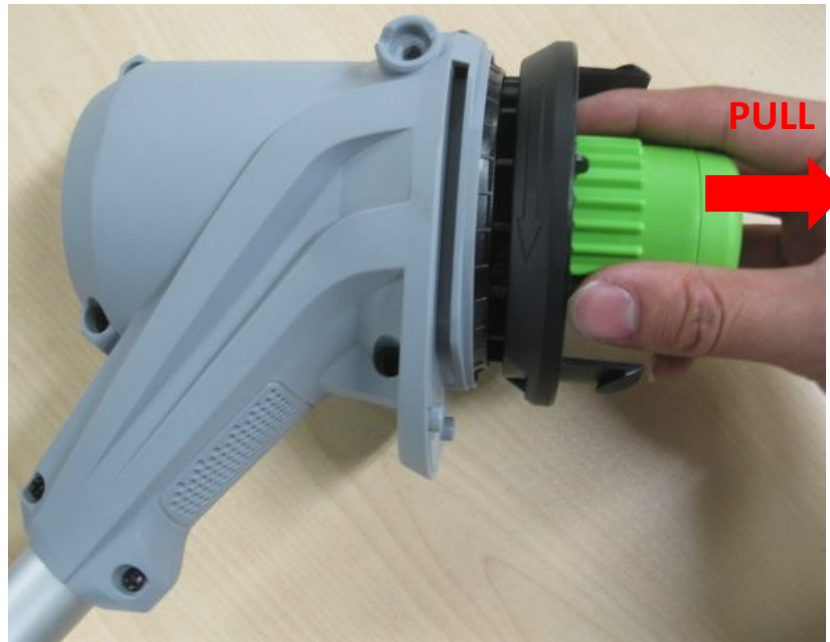
2. Press the release tabs to remove the spool and spool retainer.



Description	Part Number
Spool	3127635000
Spool retainer	2824019000

Replace the Motor

- 3. Hold the bump knob and pull it straight out, remove the bump knob, compression spring, washer from the trimmer head base.



Description	Part Number
Bump knob	2824022000
compression spring	3660582000

Replace the Motor

4. Wear gloves and hold the trimmer head base with one hand, use a 13mm manual socket wrench to turn the hexagon nut counterclockwise to loosen and remove it.

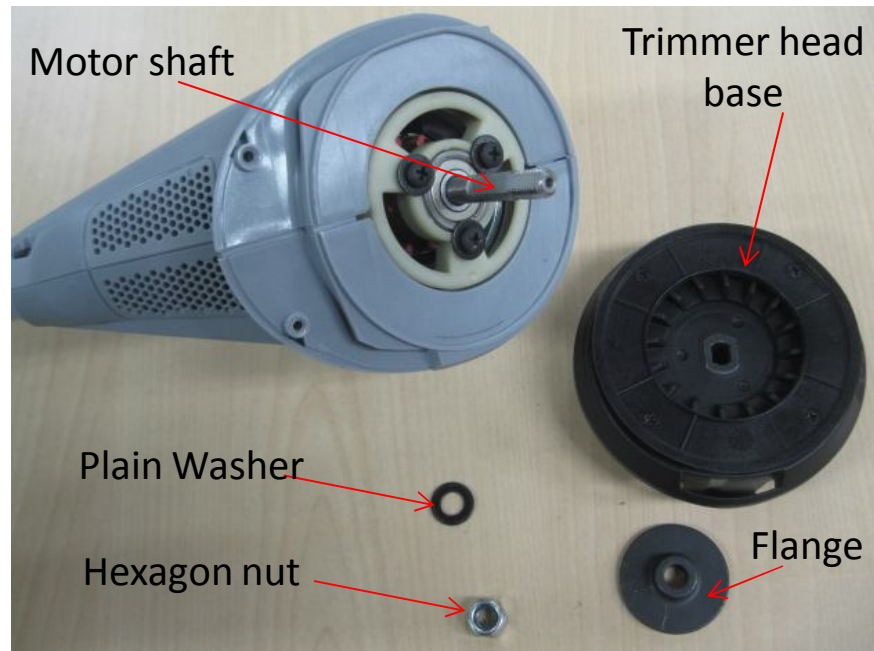
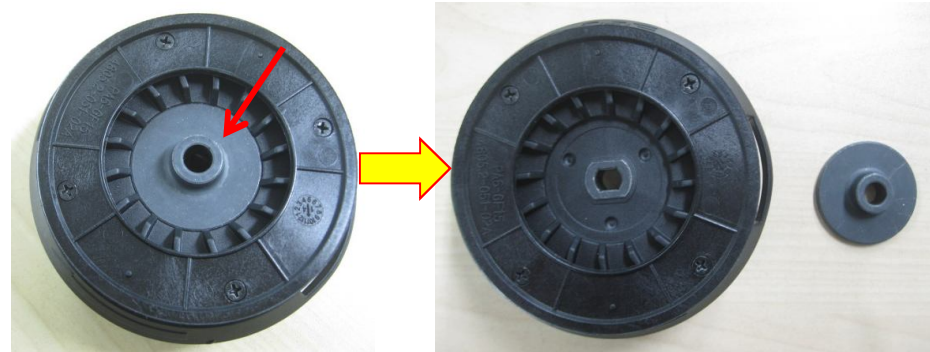


hexagon nut



Replace the Motor

5. Hold the trimmer head base and pull it straight out from the motor shaft. Remove the flange from the base. Take out the plain washer from the motor shaft.



Description	Part Number
Trimmer head base	2824082000
Flange	3520816000
Hexagon nut	5630271000
Plain Washer	5650025000

Replace the Motor

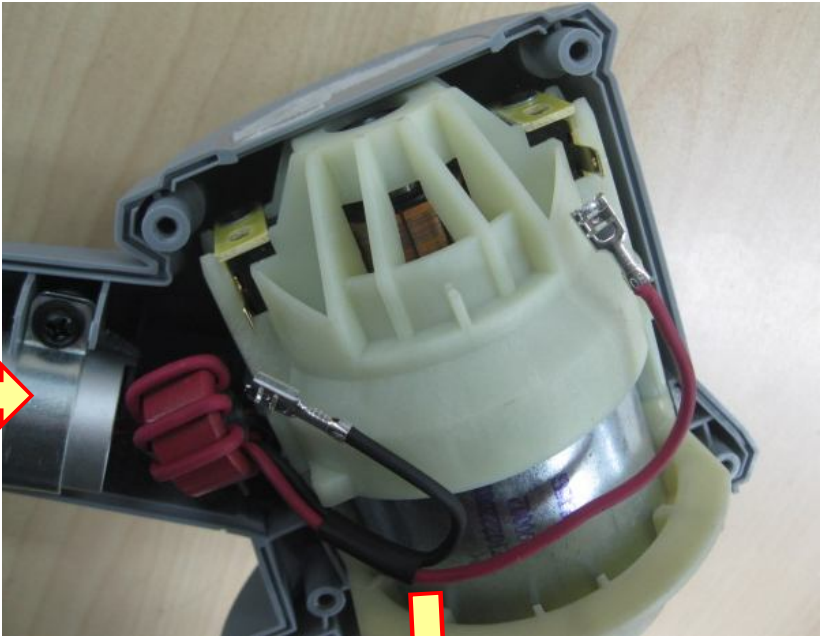
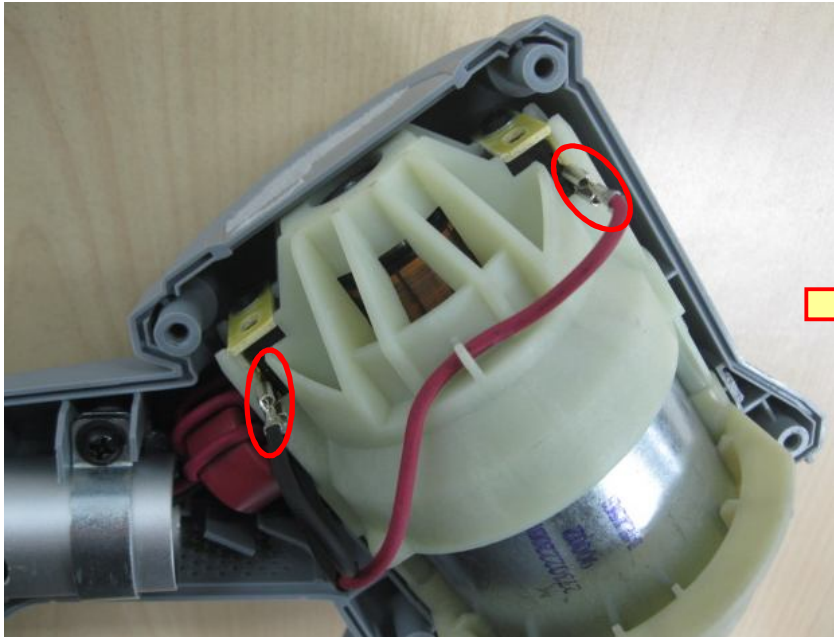
6. Remove the 6 screws in motor housing and open the housings.



Description	Part Number	SPEC
Tapping screw	5610032000	
Motor housings	2823769000	

Replace the Motor

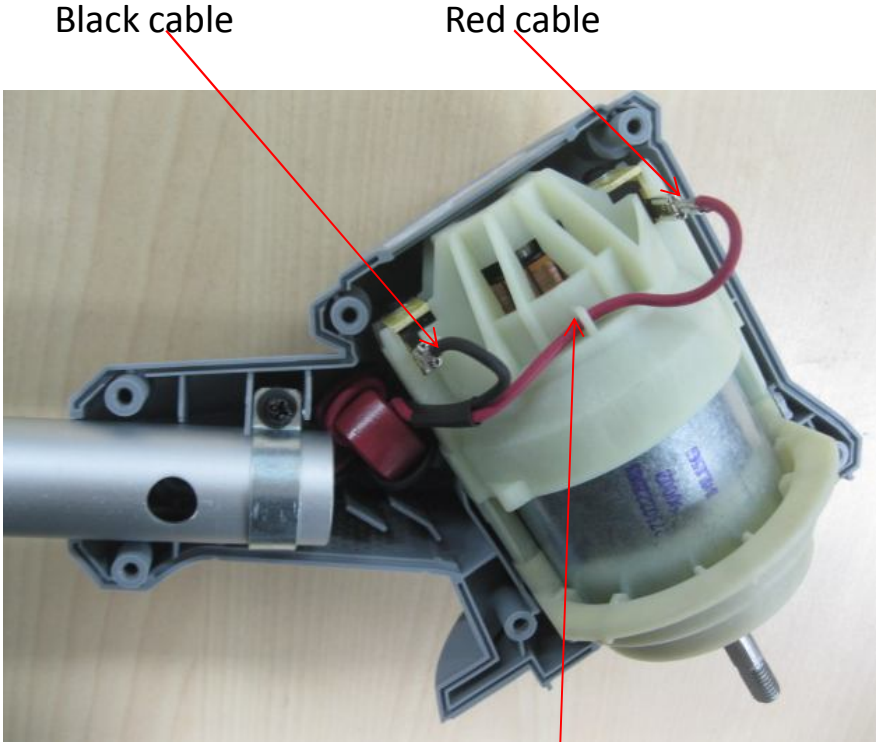
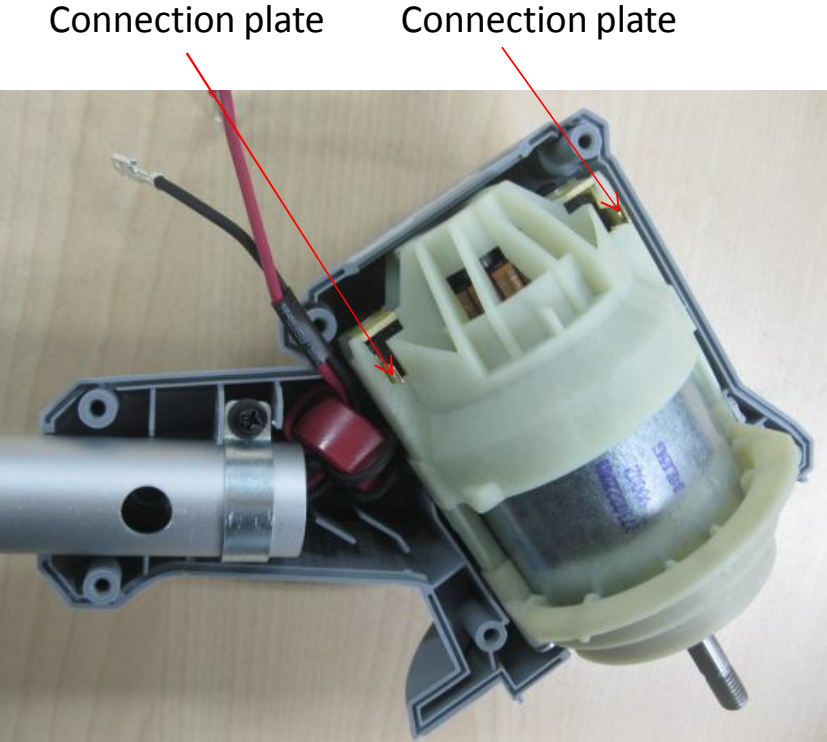
- 7. Remove the two connectors from the connection plates on the motor by pulling them straight out.
- 8. Replace the motor if it was burned.



Description	Part Number
DC Motor	2730222000

Replace the Motor

- 9. Position the new motor into motor housing, the two connection plates towards outside.
- 10. Mount two connectors to the connection plates on the motor. Align the cables in the grooves.



Align the red cable in the groove

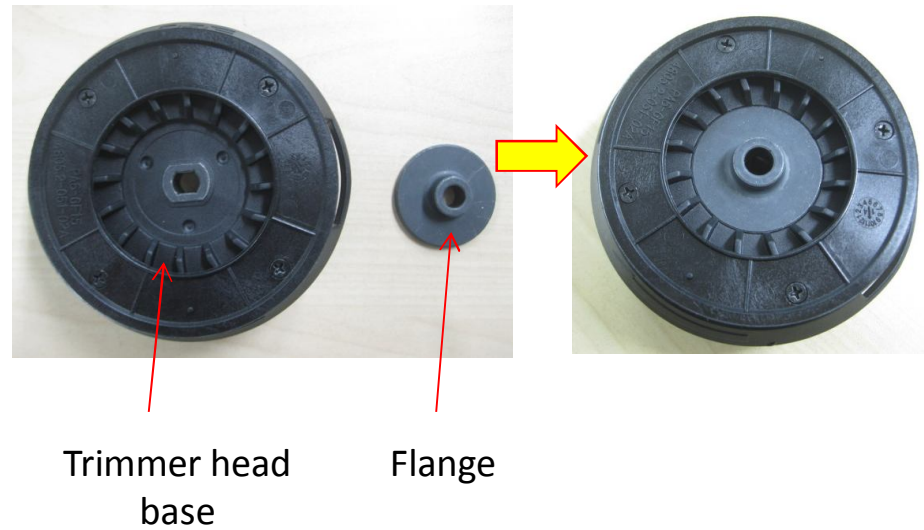
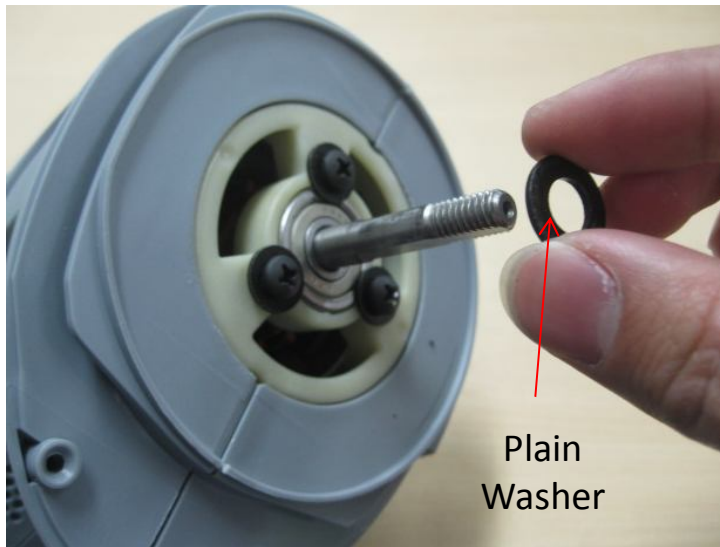
Replace the Motor

11. Close the housings and locked with 6 tapping screws.



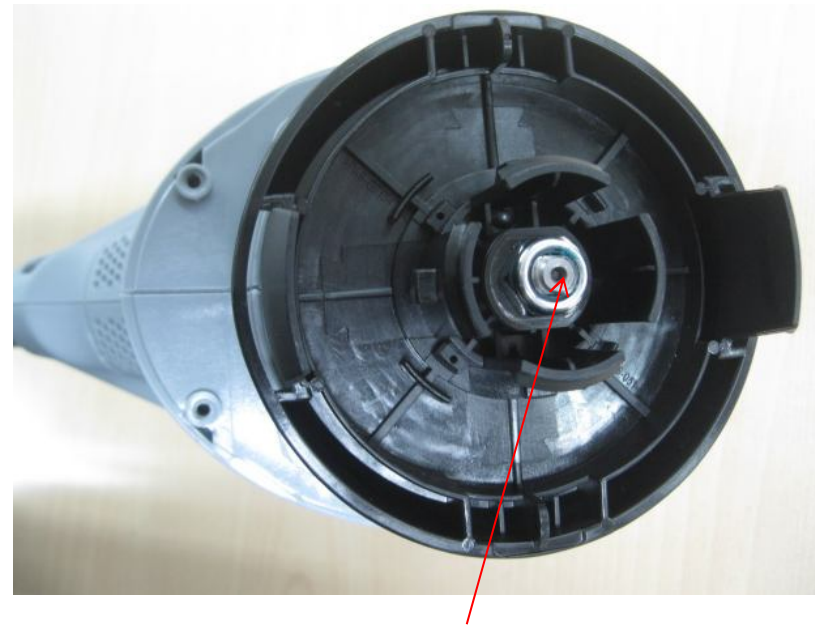
12. Assemble the trimmer head to the motor shaft.

- a) Mount the plain washer onto the motor shaft.
- b) Position the flange into the trimmer head base.



Replace the Motor

- c) Mount the trimmer head base together with the flange onto the motor shaft, lock the base with the hexagon nut.



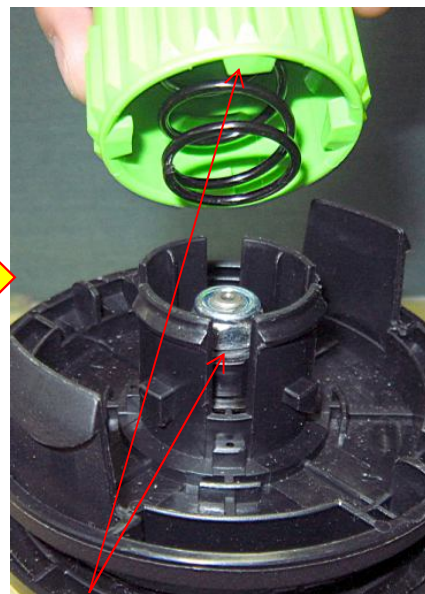
hexagon nut

Replace the Motor

- d) Fix the washer into the trimmer head base.
- e) Align the ribs in the bump knob with the slots in the trimmer head base, fix the bump knob onto the base.
- f) Press the bump knob until it is fully slid in position and locked by the base.



washer

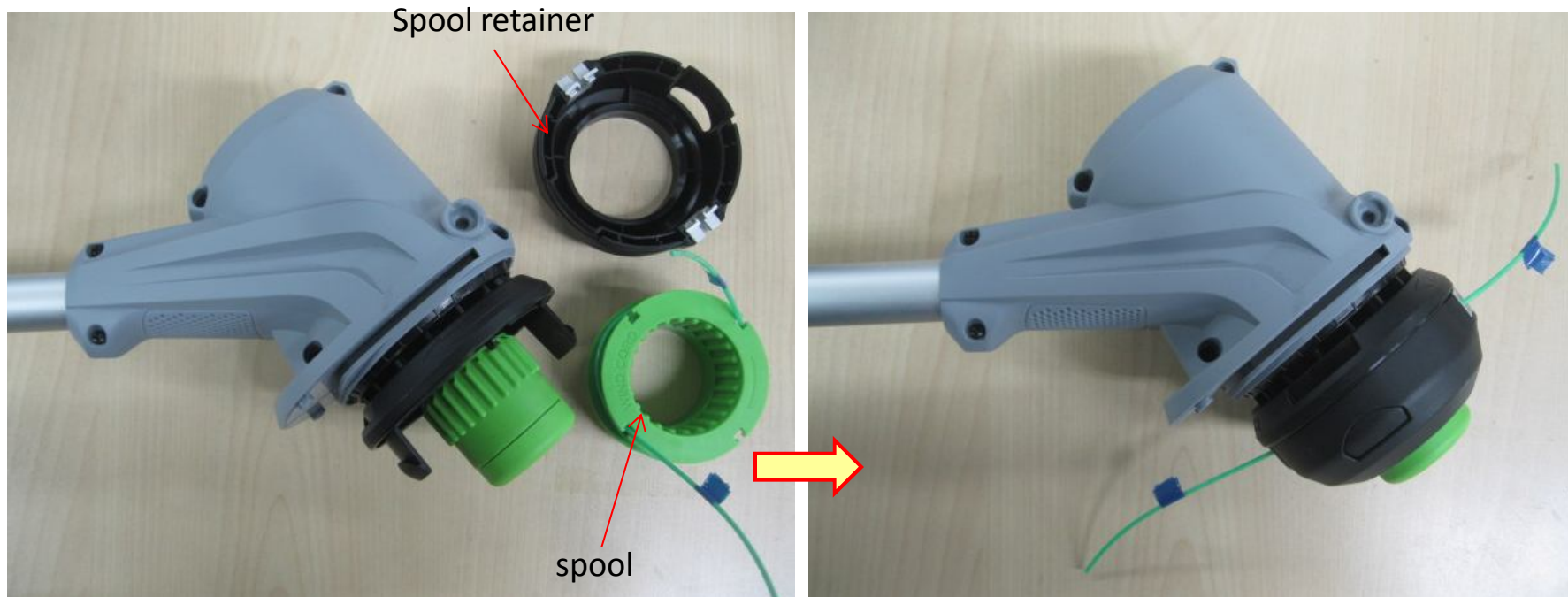


Align the ribs with slots
in the base



Replace the Motor

- g) Put the spool in the spool retainer and mount the spool retainer to the trimmer head base.



Replace the Motor

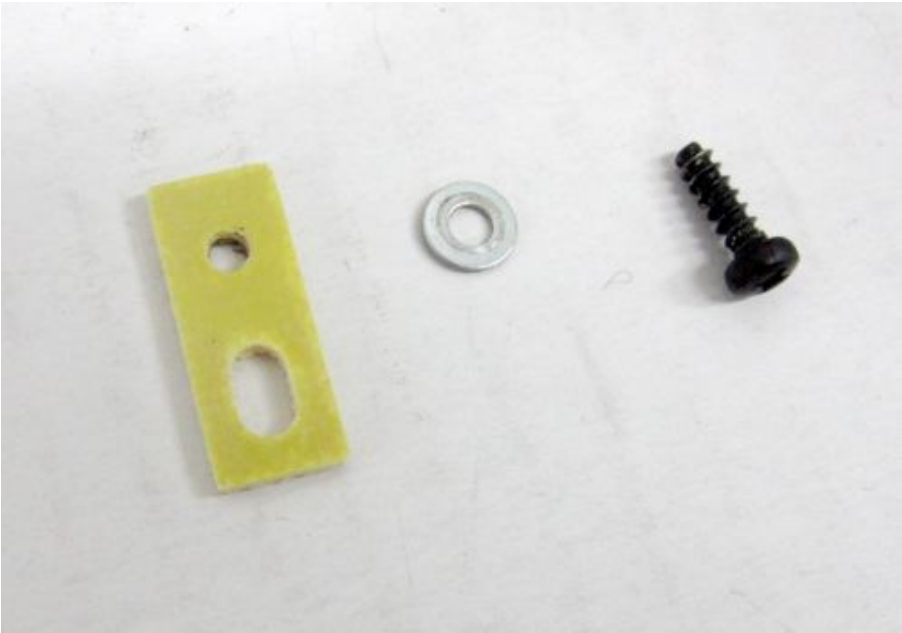
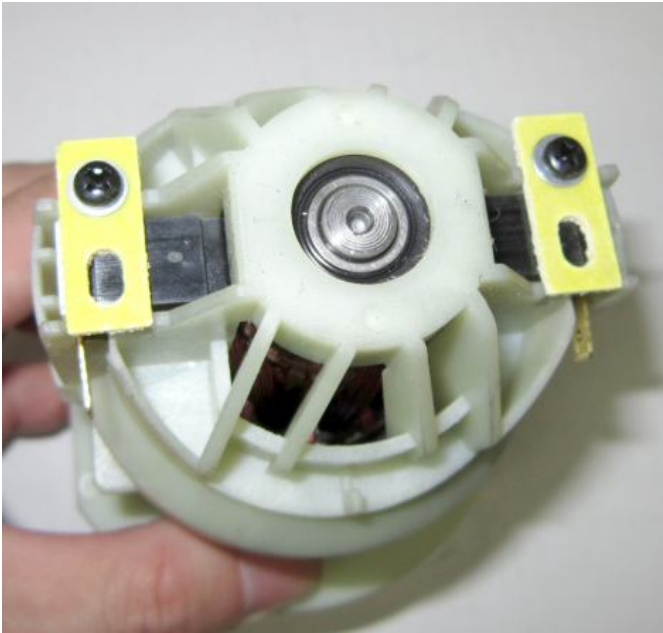
13. Fix the guard and the bumper protector on the motor housing.
14. Test the motor.



Part 2: Replace the Carbon Brushes

Replace the Carbon Brushes

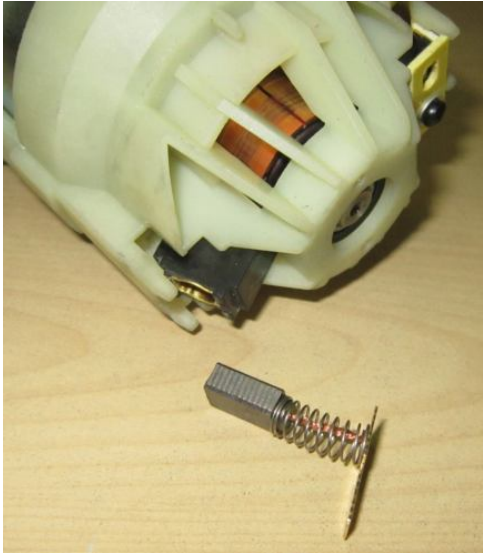
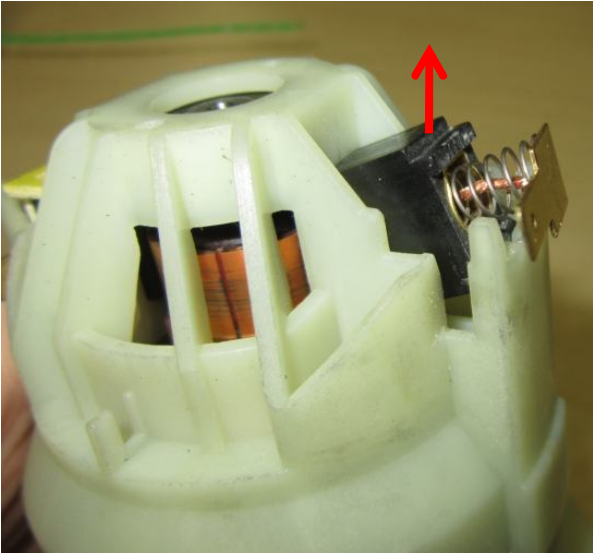
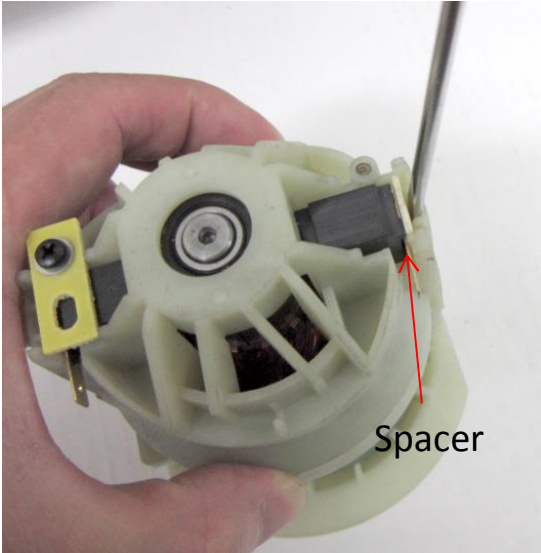
- 1. Remove the screw and clamp plate which is used for locking the brush holder.



Description	Part Number
Tapping Screw	5610011000
Plain Washer	5650001000

Replace the Carbon Brushes

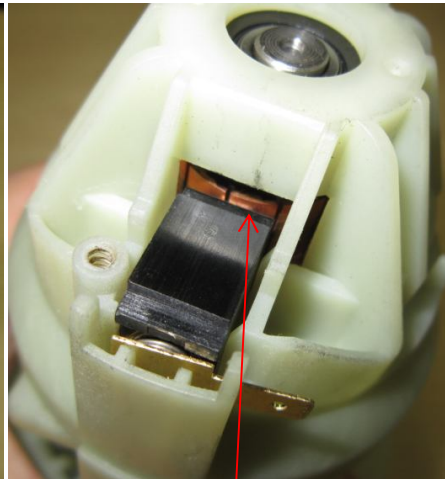
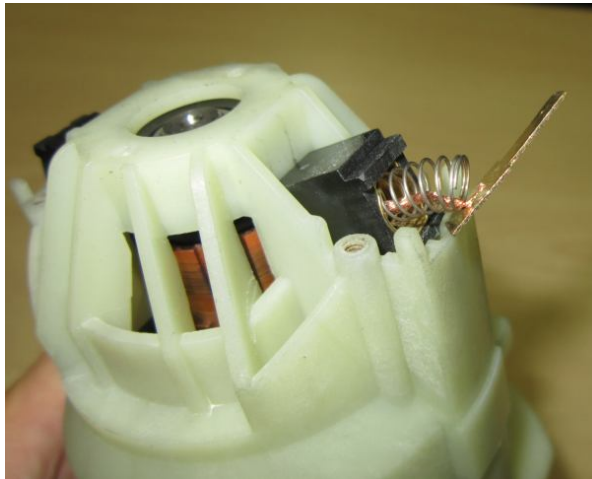
- 2. Use a flathead screwdriver to take out the spacer.
- 3. Lift up the outside of the brush holder and take out the carbon brush.
- 4. Replace with a new set carbon brush.



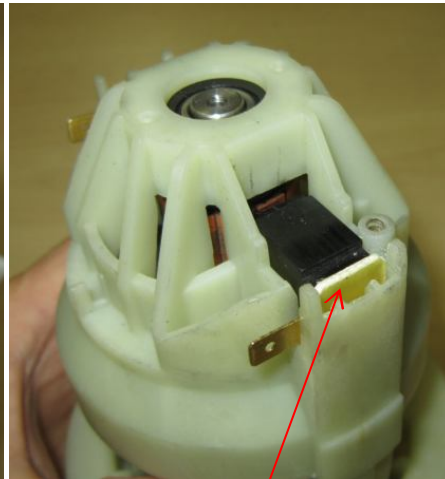
Description	Part Number	Qty.
Brush set	2823807000	1
Carbon Brush	4960015000	2

Replace the Carbon Brush

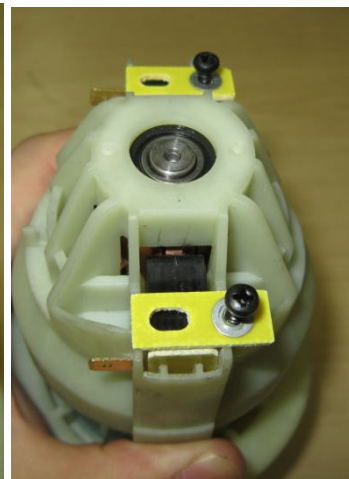
6. Insert new carbon brush into the brush holder, use a flathead screwdriver to pull the carbon brush onto the commutator of the motor.
7. Insert the spacer between the brush holder and motor housing bracket.
8. Lock the brush holder with tapping screw.



Pull the brushes on the commutator



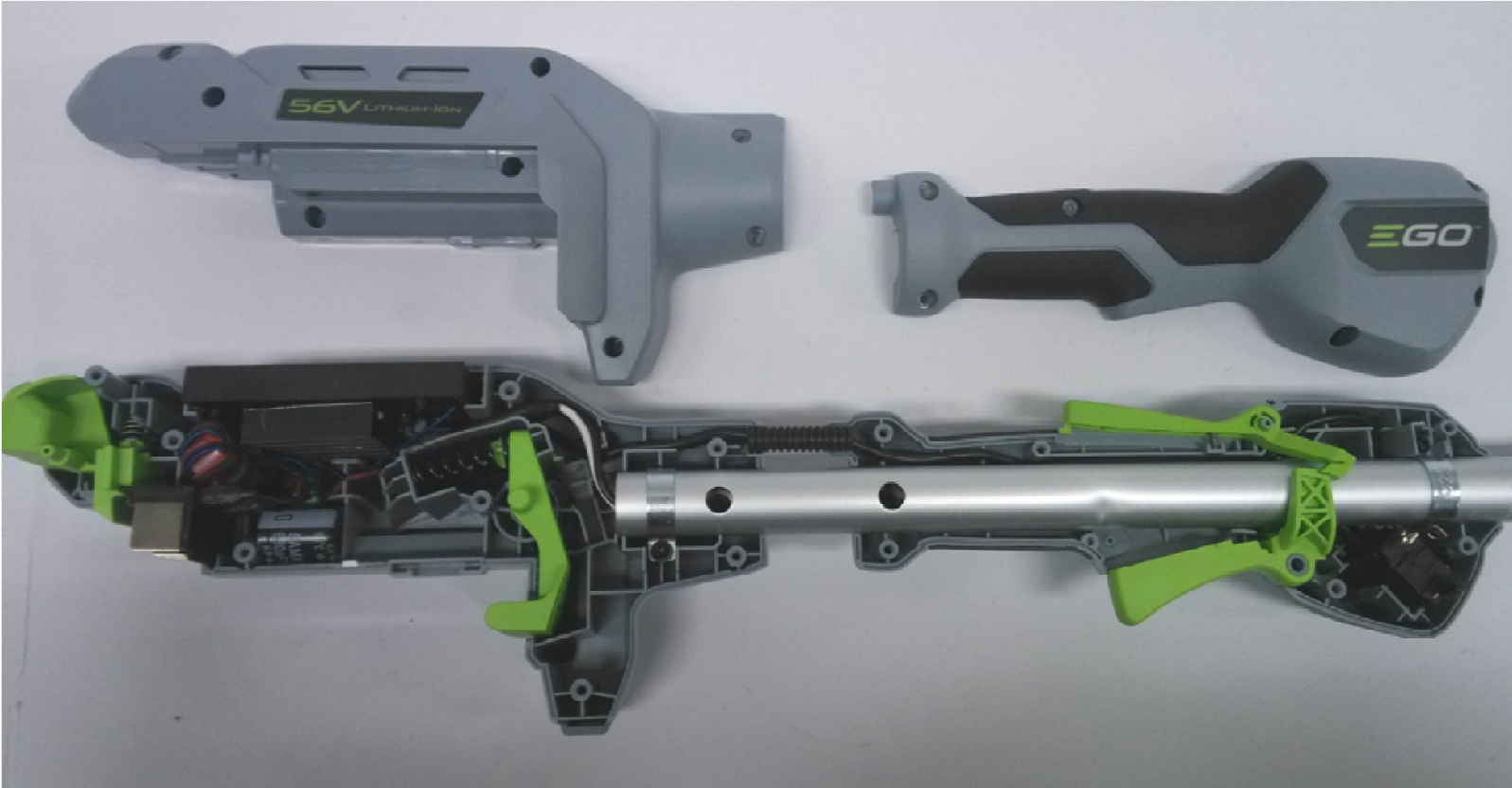
Insert the spacer



Part 3: Replace the PCBA

Replace the PCBA

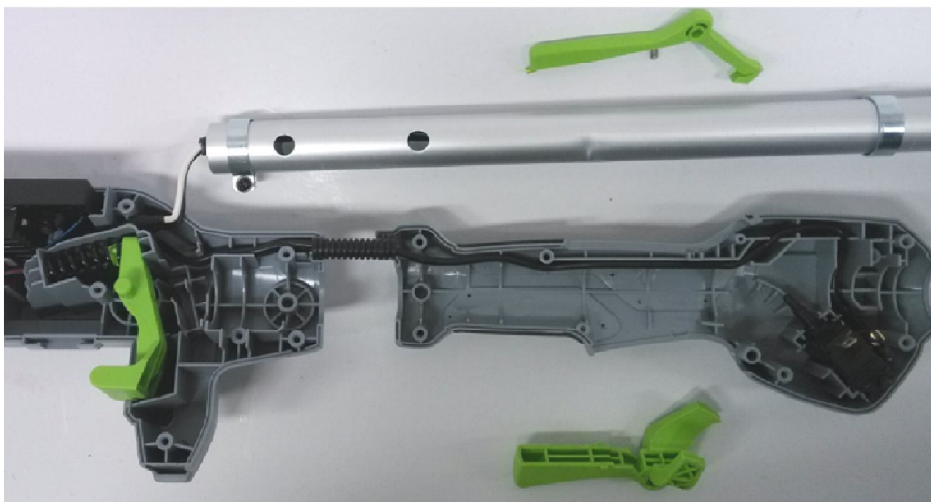
- 1. Loosen the screws in the rear housing (8 pcs) and handle (6 pcs), open the housings.



Description	Part Number	Qty.
Tapping Screw	5610032000	14

Replace the PCBA

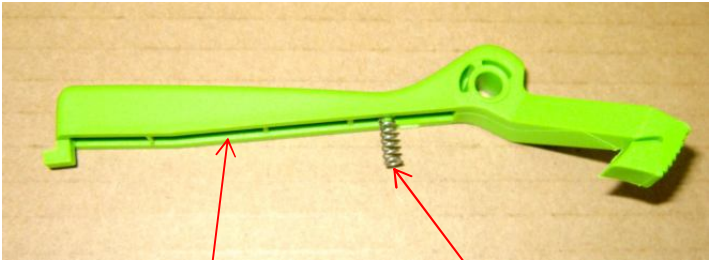
- 2. Loosen the two locking screws, take out the lock-off trigger, switch trigger and connecting Tube from the housings.



Description	Part Number	Qty.
Fixed Ring	3705178000	2
Plain Washer	5650005000	2
Tapping Screw	5610032000	14

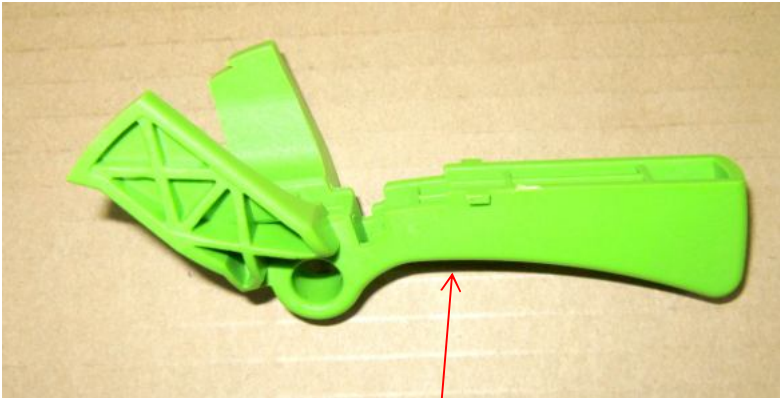
Replace the PCBA

3. Replace the lock-off trigger or switch trigger if they are broken.



Lock-off Trigger

Compression spring

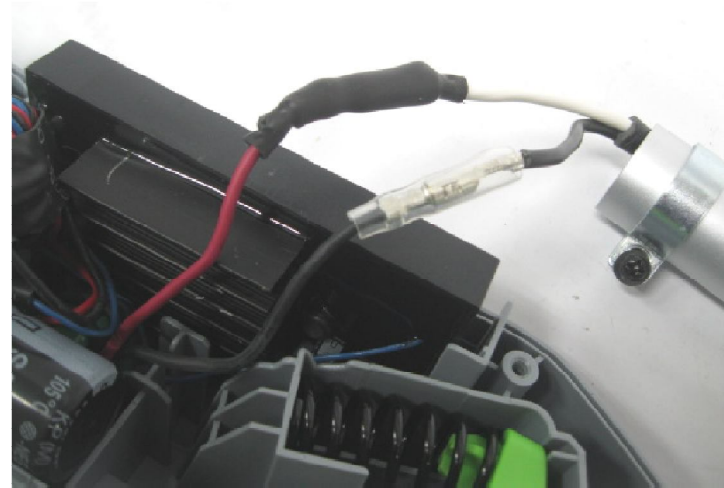
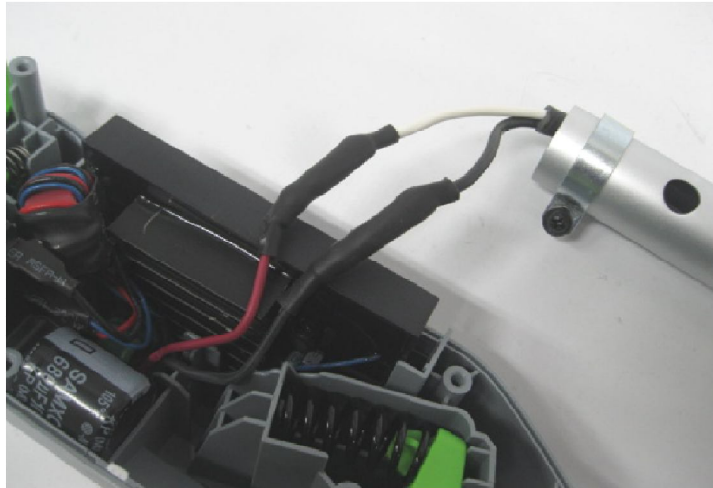


Switch Trigger

Description	Part Number	Qty.
Lock-off Trigger	3127332000	1
Compression Spring	3660453000	1
Switch Trigger	3127331000	1

Replace the PCBA

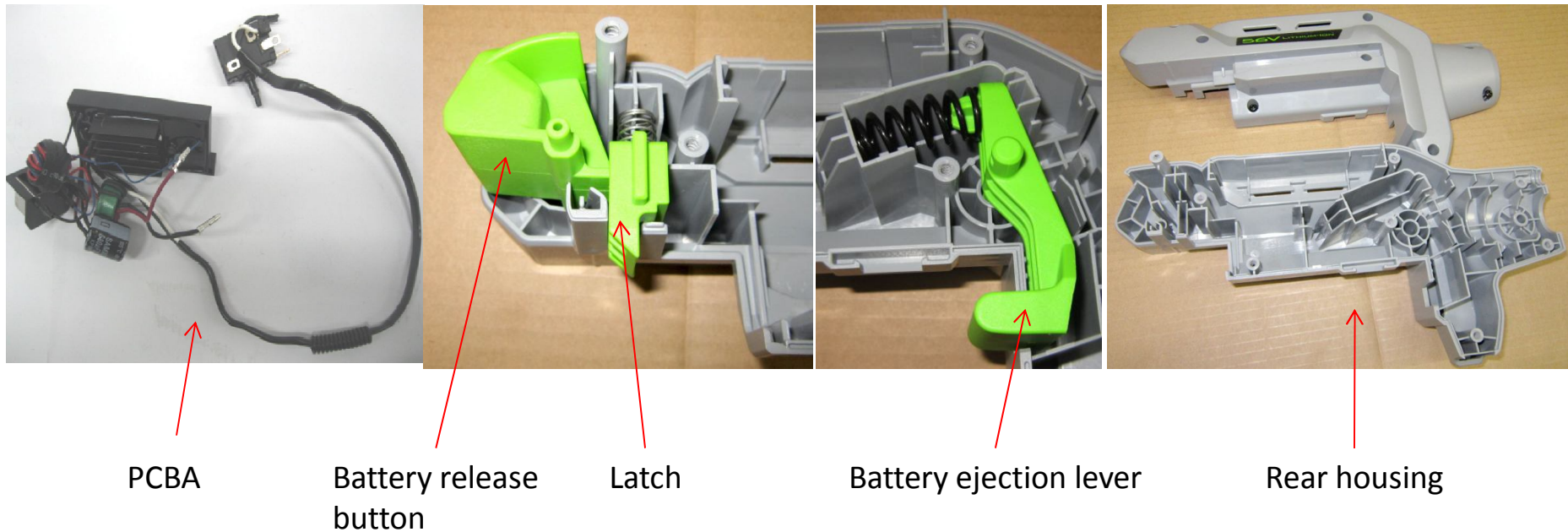
4. Remove the heat-shrinkable sleeves from the connectors with a scissors.
5. Move the transparent sleeve aside and pull the connectors to separate.



Replace the PCBA

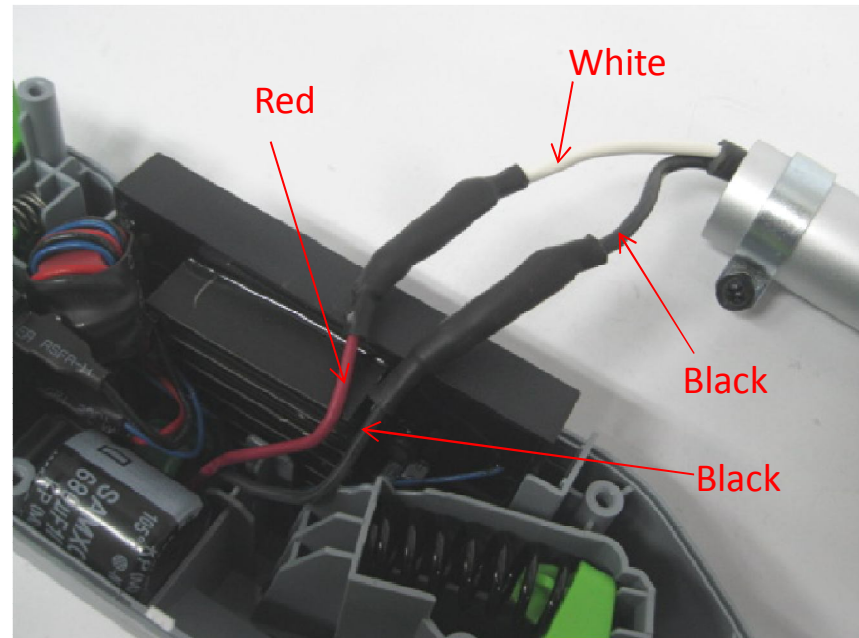
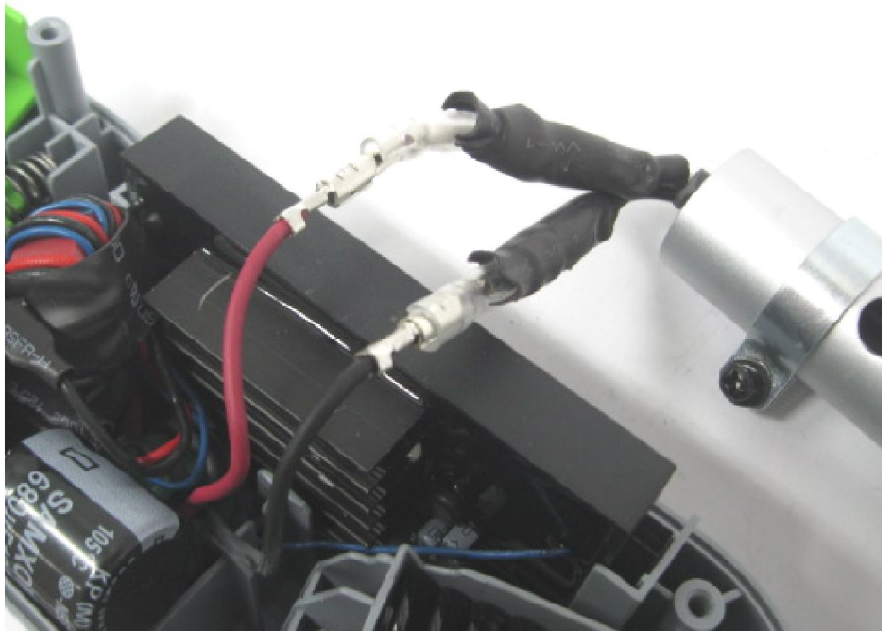
- 6. Take out the PCBA from the housing.
- 7. Replace with a new PCBA.
- 8. The battery release button, latch, battery ejection lever, housings can be replaced if they are broken or worn.

Description	Part Number	Qty.
PCBA	2830069000	1
Battery release button	3127201000	1
Latch	3127202000	1
Battery ejection lever	3127206000	1
Rear housing	2823768000	1



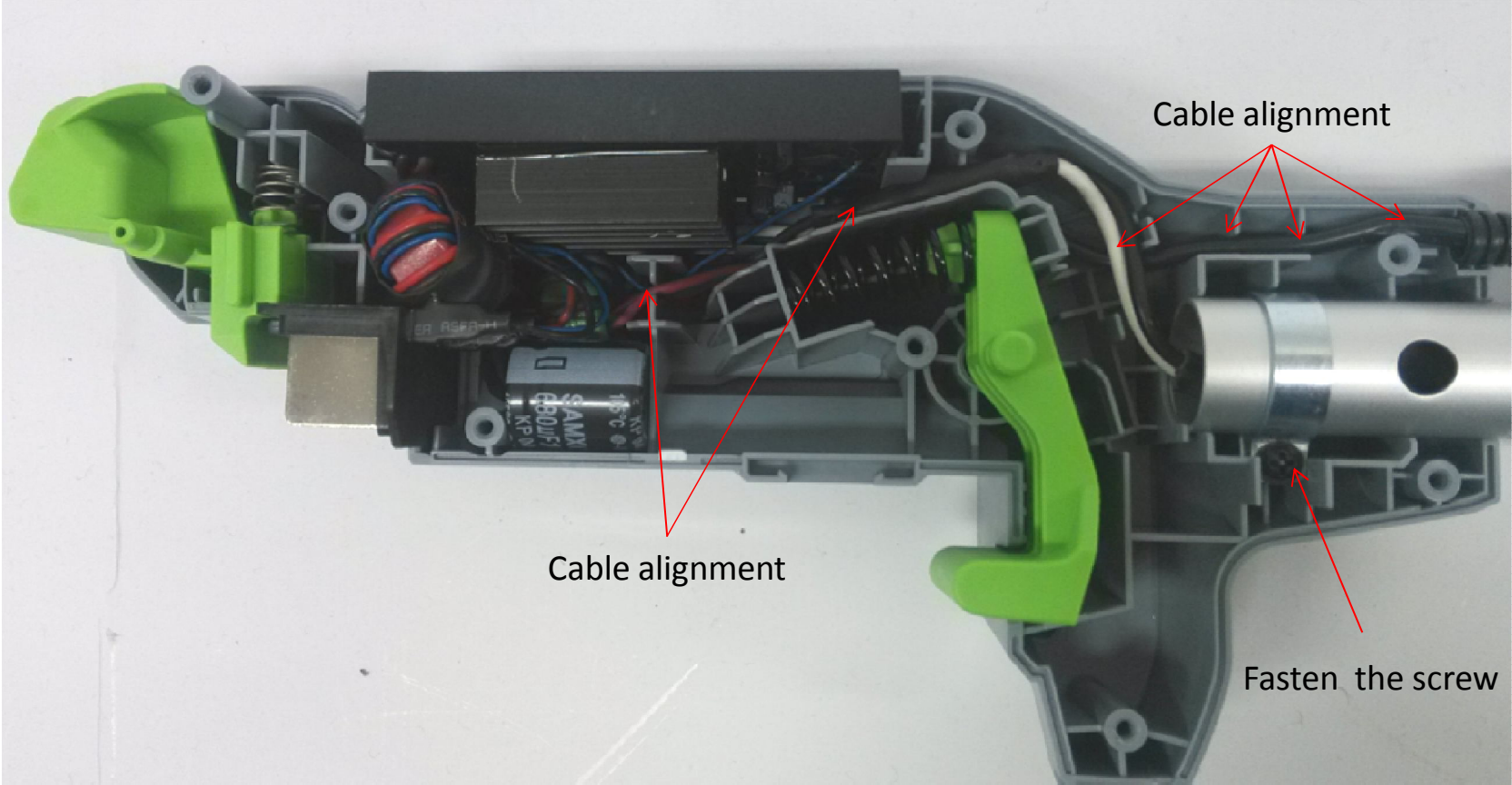
Replace the PCBA

9. Place new heat-shrinkable sleeve through the connectors.
10. Plug the two connectors and make sure they are fully insert in place.
Correct connection: Red to White, Black to Black.
11. Move the heat-shrinkable sleeves to cover the connectors and use a hot air gun to shrink the sleeves.



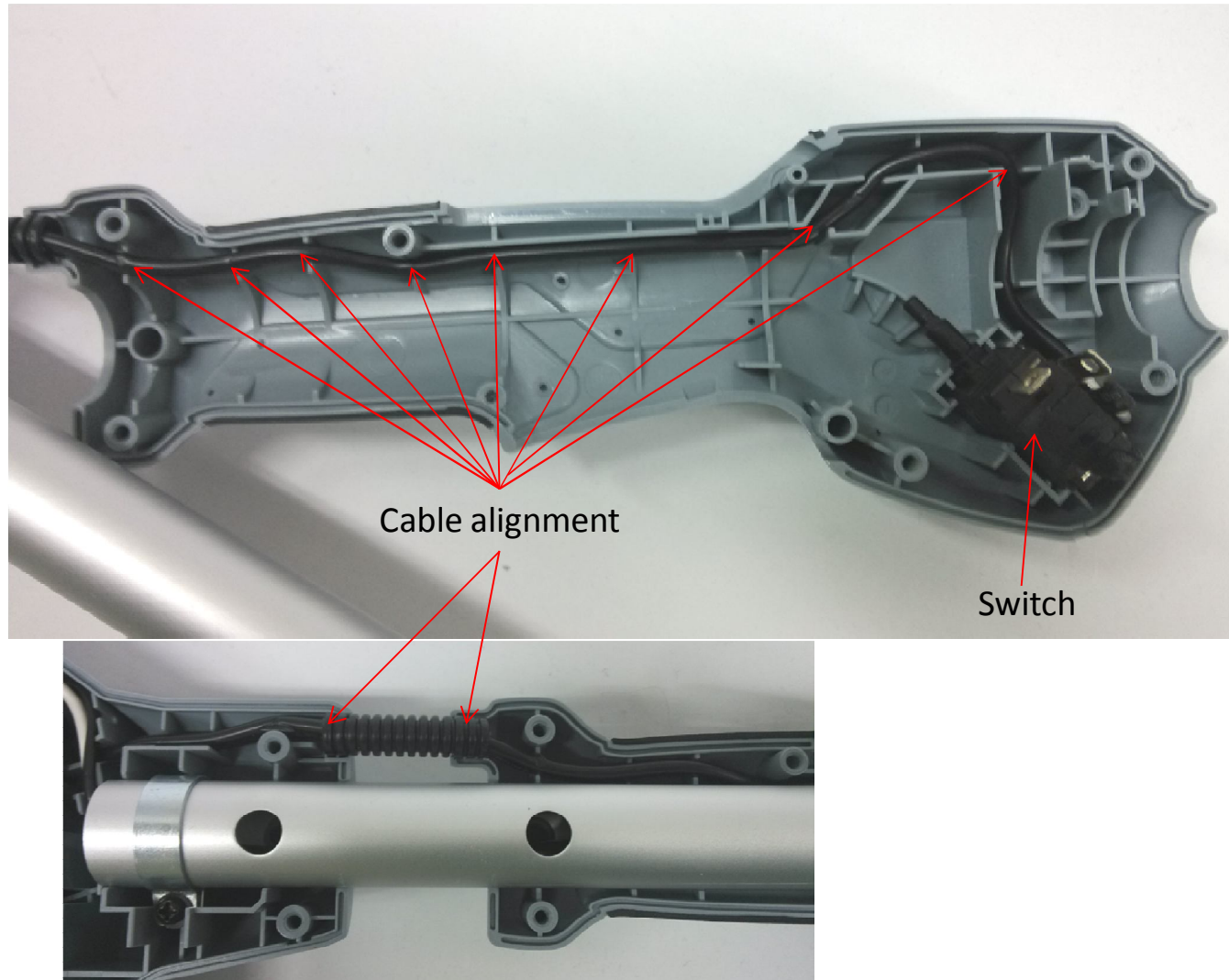
Replace the PCBA

- 12. Position the connecting tube in the rear housing, lock it with the tapping screw.
- 13. Position the PCBA in the housing, align the cables in the grooves of housing.



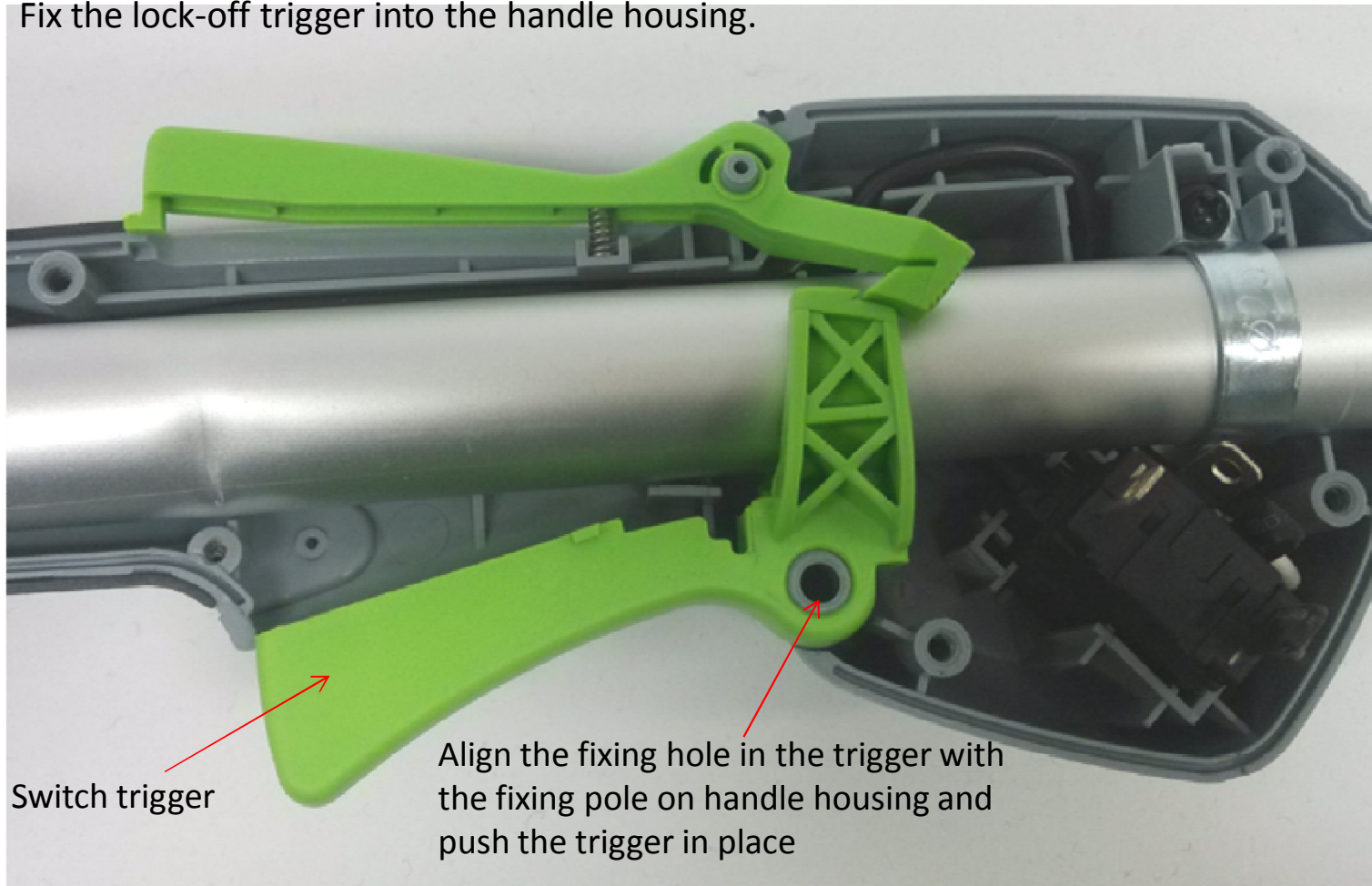
Replace the PCBA

14. Fix the switch in the handle housing, align the cables in the grooves.



Replace the PCBA

15. Mount the switch trigger on the connecting tube and put the shaft and switch trigger into the handle housing.
16. Fix the lock-off trigger into the handle housing.



Replace the PCBA

17. Close the rear housing and handle housing. Locked the housings with 14 tapping screws.

