

REPAIR GUIDELINE

Hedge Trimmer_HT2000E



Issue Date: 12/9/2020

Table of Contents

HT2000E Hedge trimmer

NO.	Contents	Page
1	Troubleshooting	3-4
2	Tool list	5
3	Part 1: PCBA and Motor Problems Detection	6-21
4	Part 2: Replace the Blade Assembly	22-34
5	Part3: Replace the PCBA	35-50
6	Part 4: Replace the Motor and Gear Assembly	51-77
7	Part 5: Assemble the housing set	78-85

Problem	Possible Cause	Fault Position	Test & Solution
Fail to start	Main PCB or its cables are broken	PCB Assembly	Replace the PCB Assembly.
	The blade is jammed when some obstruction stuck in the edge of the blade make the blade curved or deformed.	Blade Set	Clear the obstructions or replace the Blade Set
	Motor is jammed due to foreign objects stuck in the motor.	Motor	Replace the Motor And Gear Assembly.
	Gears are jammed due to broken tooth.	Gear Set	Replace the failure gears.
	Gear Case is broken.	Gear Case	Replace the Gear Case Assembly.
	Blade set disconnected from the eccentric block.	Blade set	Replace the blade set.
	Carrier is broken.	Carrier	Replace the Carrier.
	Malfunction of switch levers	Switch Levers	Replace the Switch Lever.
Soft Start Failure	Main PCB is broken.	PCB Assembly	Replace the PCB Assembly.

Problem	Possible Cause	Fault Position	Test & Solution
Excessive vibration	Motor is eccentric.	Motor	Replace the Motor And Gear Assembly.
	Worn out blade set.	blade set	Replace the blade set.
	Worn out eccentric Block	Eccentric Block	Replace the Eccentric Block.
The speed is decreased or less powerful compared with normal use.	Blade teeth are blunt	Blade set	Replace the blade set or sharpen the teeth.
	Motor is broken	Motor	Replace the Motor And Gear Assembly.
The switch lever doesn't return to the original position.	The switch or lock button is broken	Switch lever	Replace the broken one
	Dust build up in the switch.	Switch Lever	Clear the dust

Tool List For Repair


HT2000E Hedge trimmer

NO.	Tool List	SPEC	Remark
1	Torx bit	T15	
2	Hex Wrench	4mm	
3	Socket wrench	14mm	
4	Scissors		
5.	Nipper pliers		

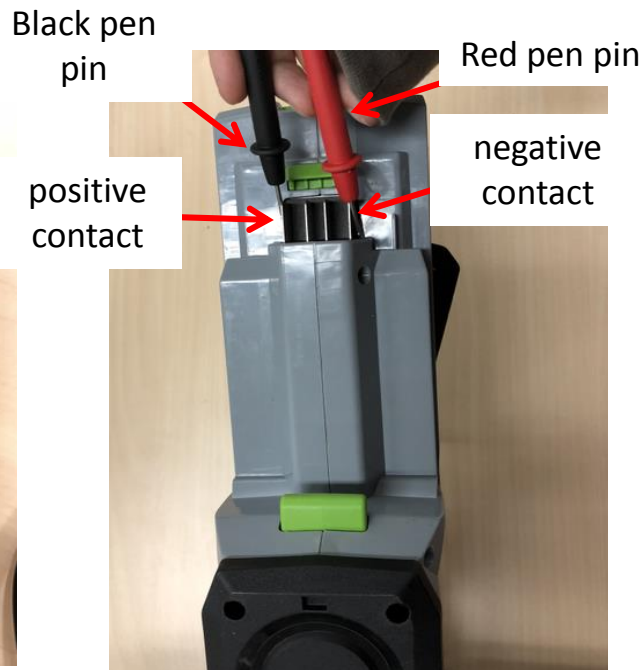
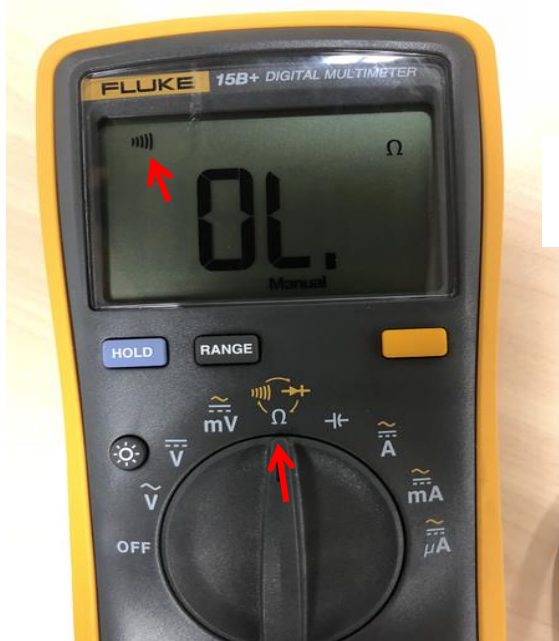
Part 1: PCBA and Motor Problems Detection

PCBA and motor problems detection

HT2000E Hedge trimmer

1. Remove the battery
2. Discharge the capacitor which is connected with the PCBA
 - a) Set the multimeter function  "
 - b) Push the red pen pin to the negative contact, push the black pen pin to the positive contact.
 - c) Press the switch trigger & rear handle switch and hold for about 10s to discharge the capacitor

Notice: If electric exists, the multimeter will beep until the discharging process ends, otherwise there will be no sound.



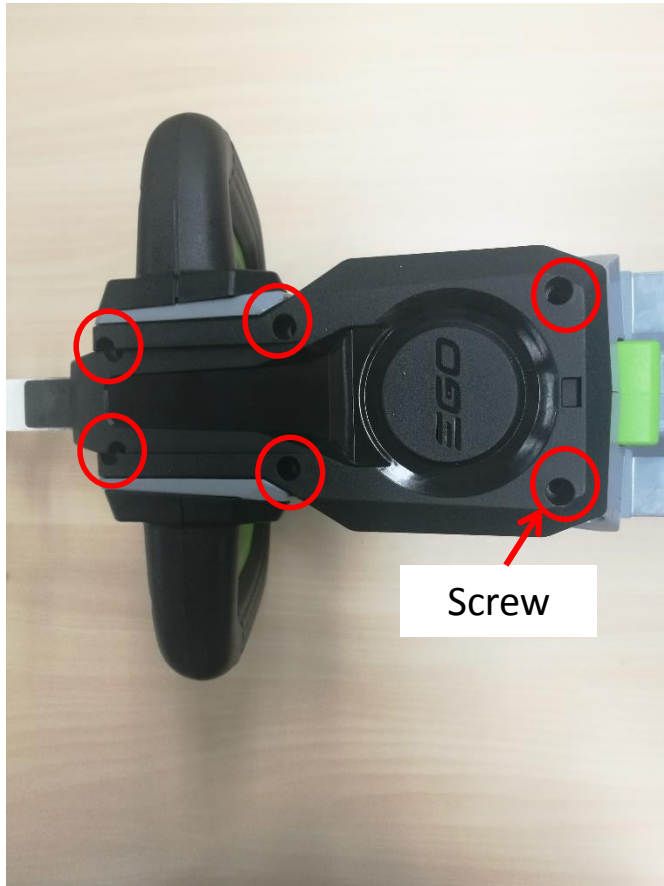
3. Loosen the screw on each side of the guard to remove the guard.

Notice: if the guard was broken, replace it with a new one.



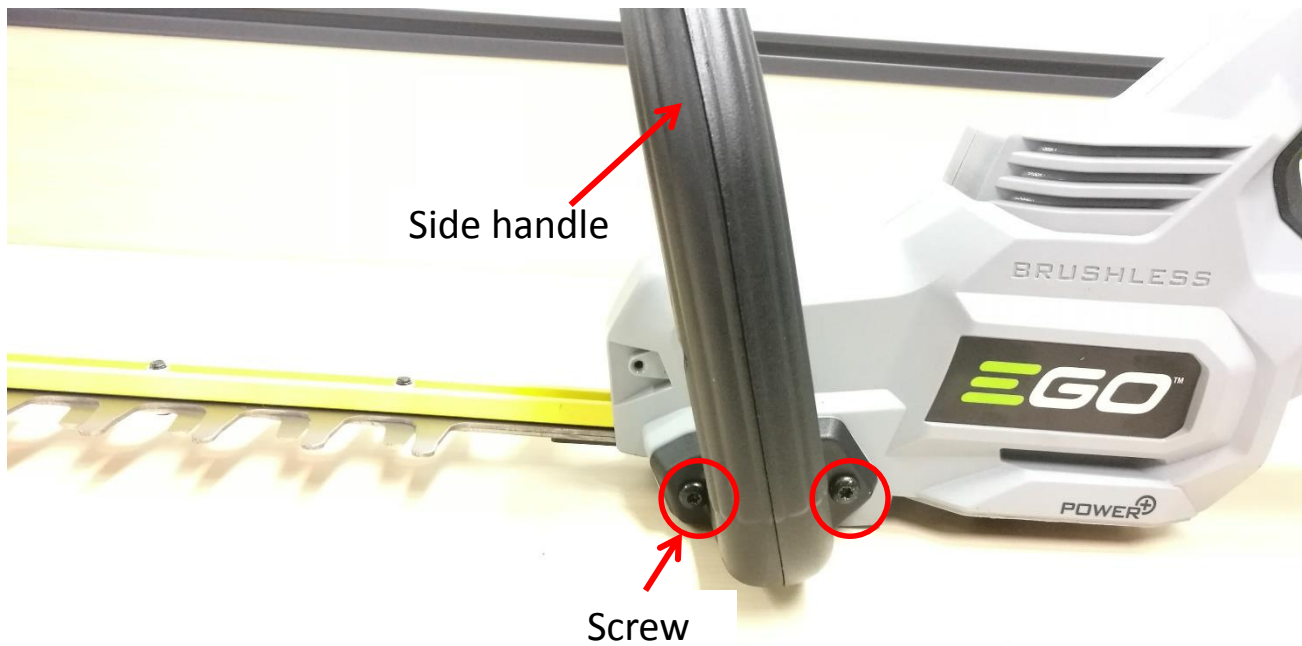
Description	Part Number	Qty.
Screw	5610264004	2
Guard	3128993001	1

4. Loosen 6 pcs screws to remove mounting cover.



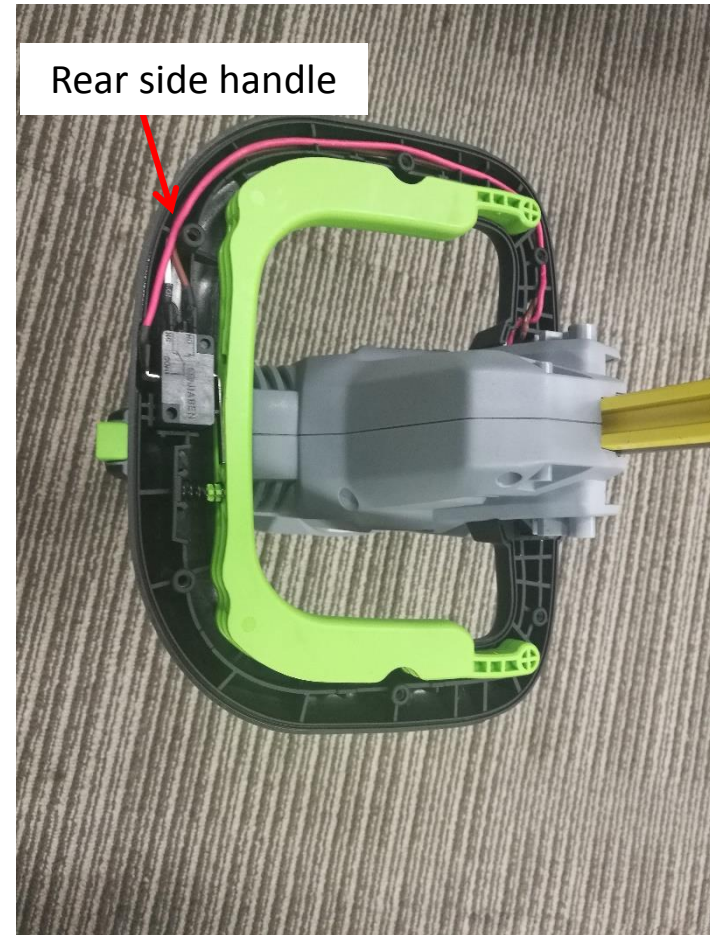
Description	Part Number	Qty.
Screw	5610294001	6
Mounting cover	3128704001	1

5. Loosen screws on each side of the side handle.



Description	Part Number	Qty.
Screw	5610291003	4

6. Loosen the 6 pcs screws to remove the front side handle.



Description	Part Number	Qty.
Screw	5610294001	6

7. Disassemble the rear side handle with the housing set and loosen the screw on each side of the housing set.



Description	Part Number	Qty.
Screw	5610294001	2

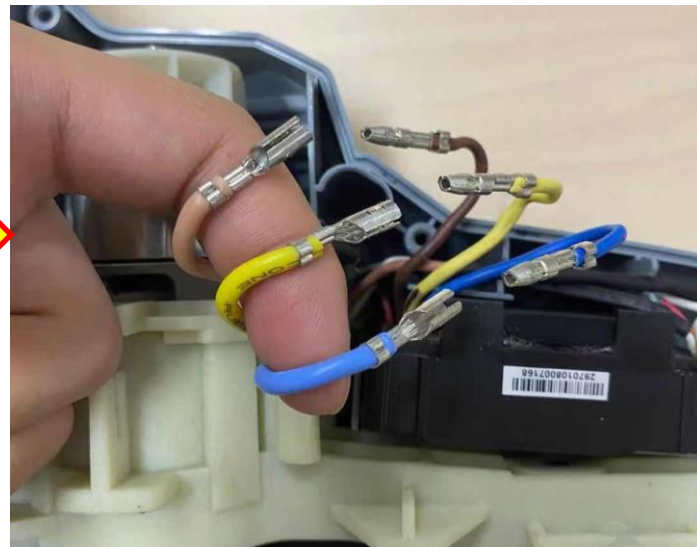
- Loosen 10 pcs screws to disassemble the housing set and remove the right housing set.



Description	Part Number	Qty.
Screw	5610294001	10

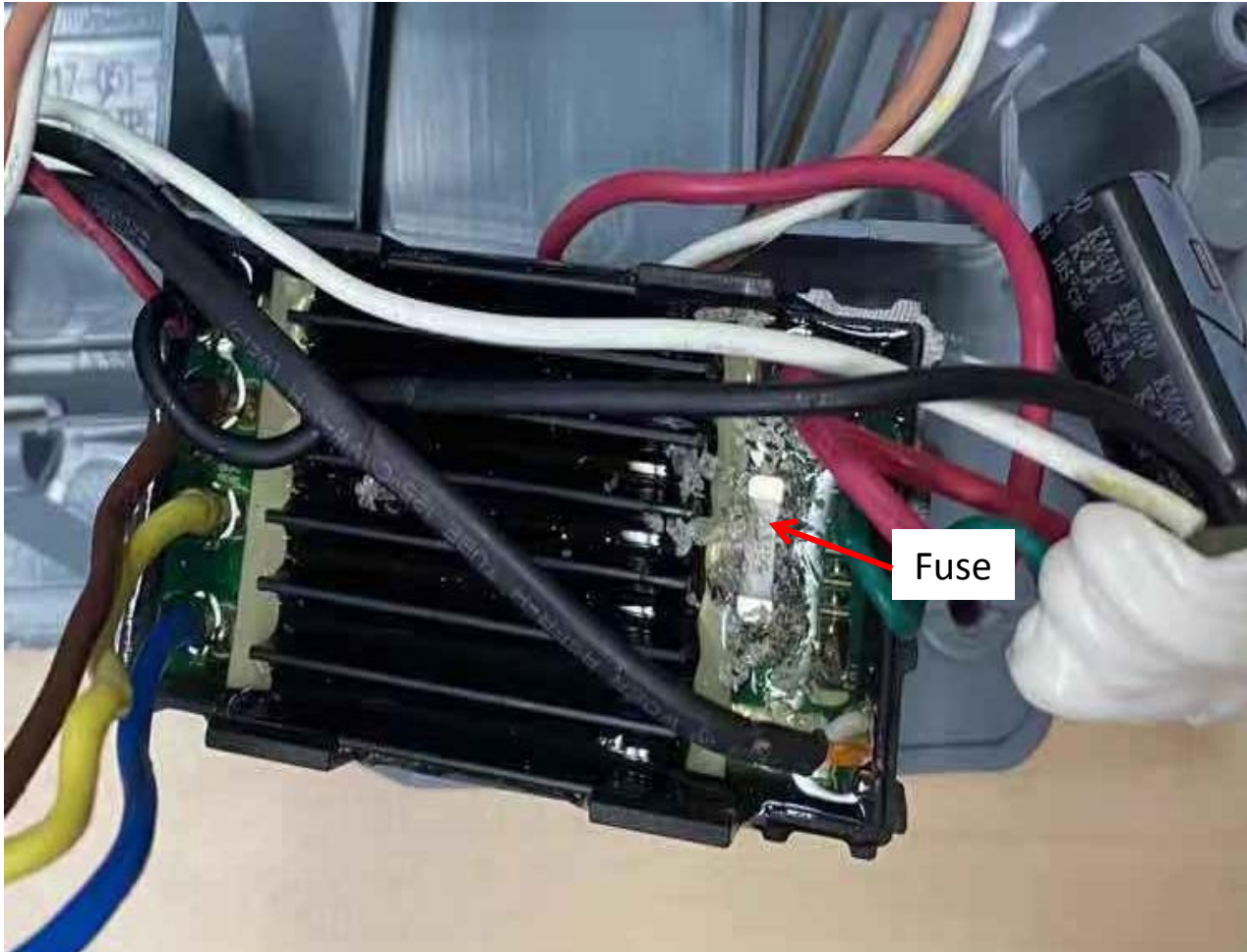


9. Take the connector out of the groove and remove the heat-shrinkable sleeves from the connectors with a scissor.
10. Pull the connectors to separate.

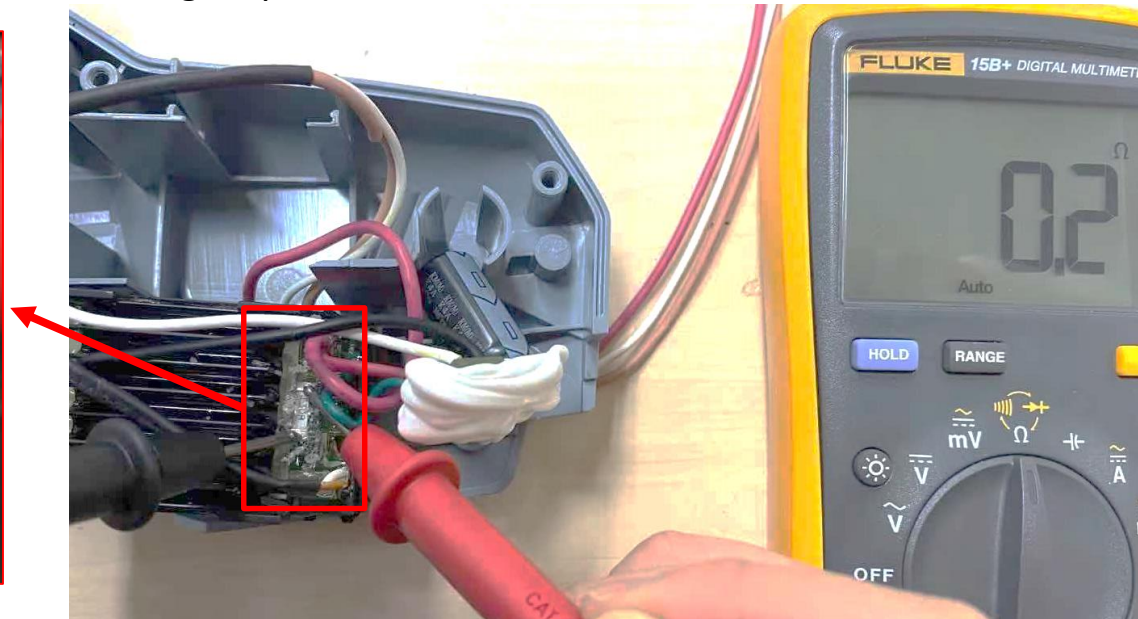


11. Take the PCBA out of the groove and measure the fuse in the PCBA.

Notice: Before measure the fuse, scrape the glue with a knife to expose the fuse.



- a) Set the multimeter function to “Resistance measuring”.
- b) Contact one pen pin of the multimeter to one end of the fuse and contact the other pen pin to the other end of the fuse.
- c) If the resistance is below $1\ \Omega$, means a good fuse, go to the next testing step; otherwise means a broken fuse.
- a) If the fuse is broken, follow the procedure “Replace the PCBA” to replace a new PCBA, Otherwise go to the next testing step.

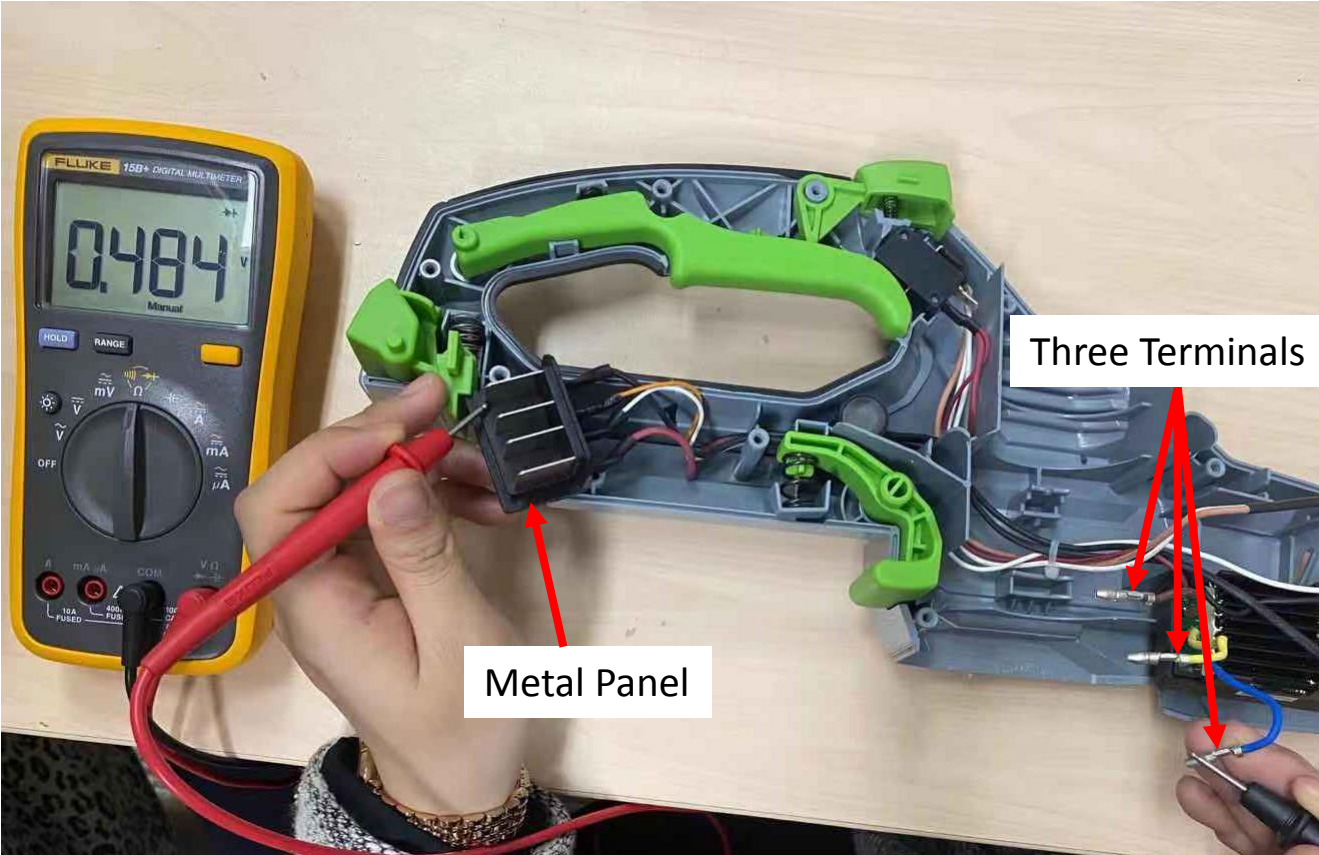


12. Measure the MOSTET in the PCBA. (Step 1)



- a) Set the multimeter function setting at “Diode measuring”.
- b) Contact the red pen pin to the metal panel connected with the black cable.
- c) Contact the black pen pin to each of the three terminals separately and measure the voltage.
- d) If the LCD displays 0.45~0.55V for each measurement, go to the next testing step, otherwise means the PCBA is broken. Follow the procedure “Replace the PCBA” to replace a new PCBA.

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

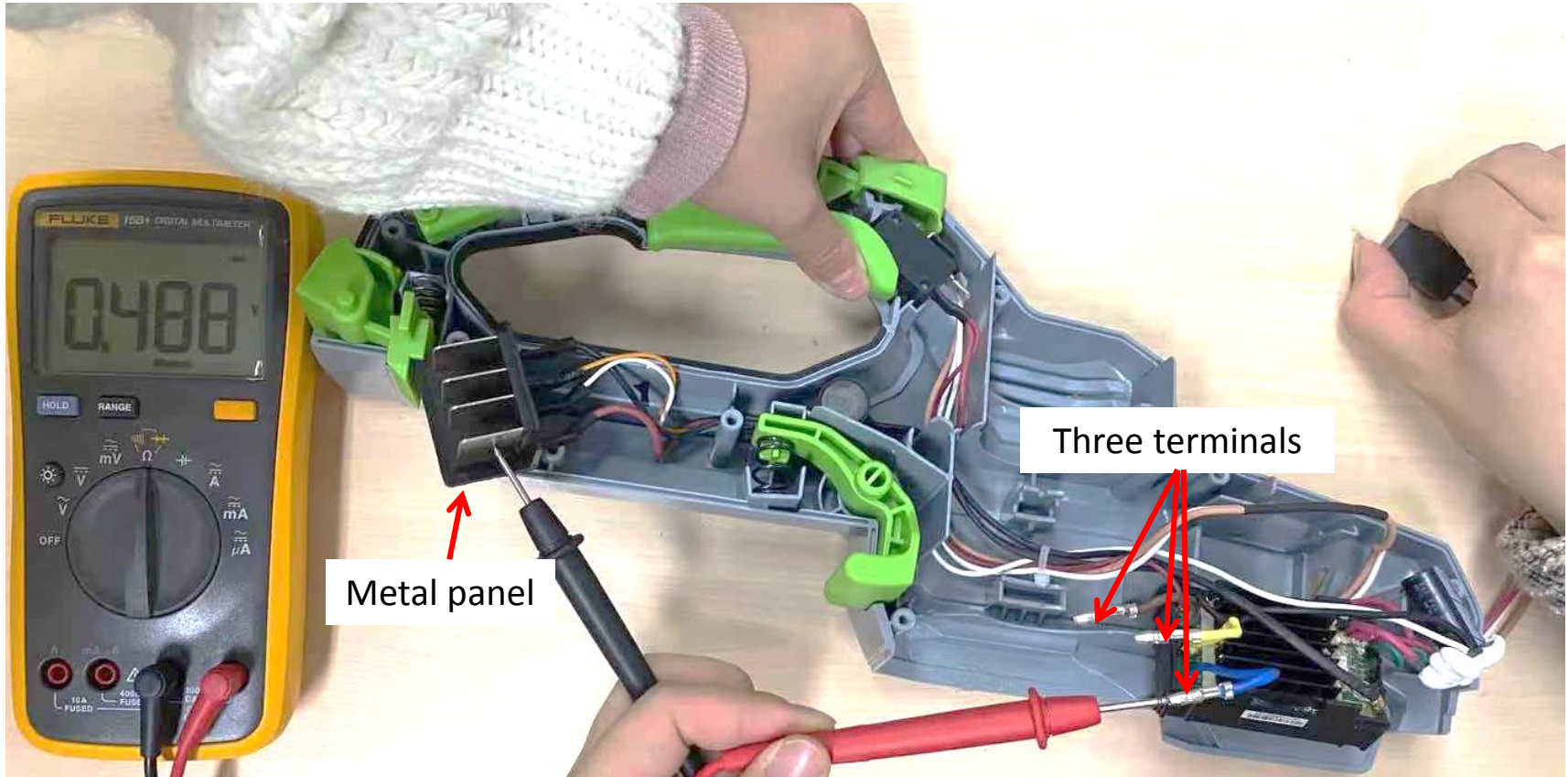


13. Measure the MOSTET in the PCBA. (Step 2)



- Keep the multimeter function setting at “Diode measuring”.
- Contact the black pen pin to the metal panel connected with the red cable.
- Contact the red pen pin to each of the three terminals separately and measure the voltage.
- Press the lock-off button, rear switch lever and front switch simultaneously.
- If the LCD displays 0.45~0.55V for each measurement, go to the next testing step, otherwise means the PCBA is broken. Follow the procedure “Replace the PCBA” to replace a new PCBA.

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



14. Test the motor assembly to judge if it is open-circuit.



Measure the resistance between any of the two terminals

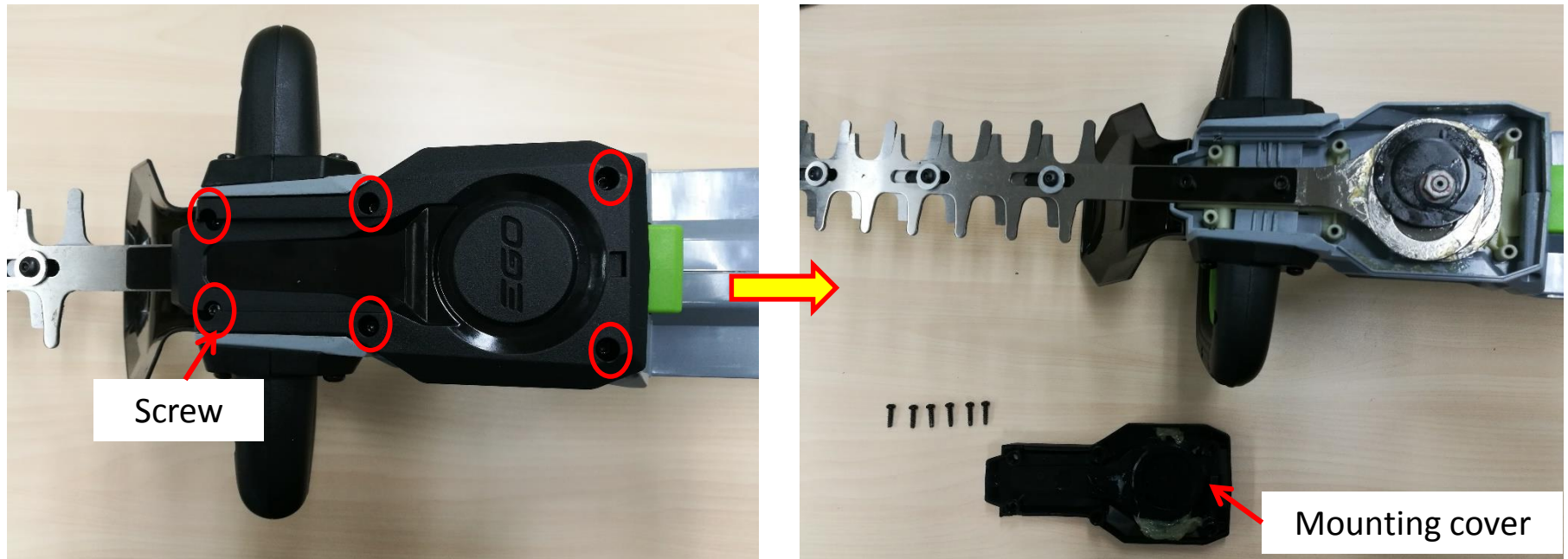
- a) Set the multimeter function to “Resistance measuring” .
- b) Measure the resistance between any of the two terminals.
- c) If any of the measurements is infinite, means the circuit between the two connectors is open circuit, the motor is damaged. Follow the procedure “Replace the Motor and Gear Assembly” to replace a new one.

Part 2: Replace the Blade Assembly

Replace the blade assembly

HT2000E Hedge trimmer

1. Loosen 6 pcs screws to remove the mounting cover.

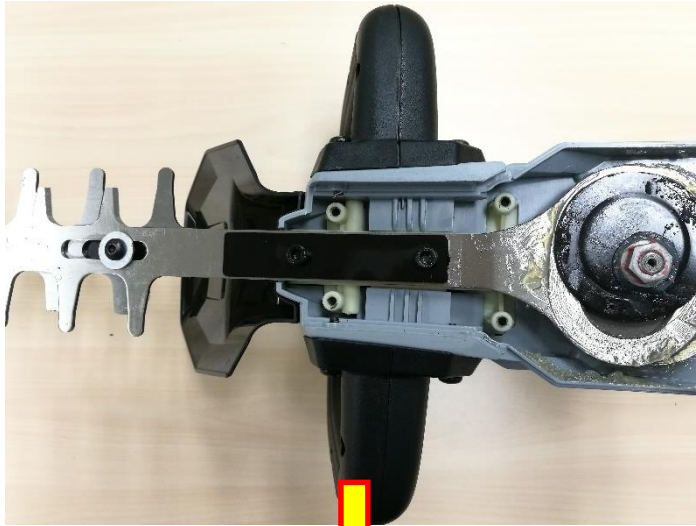


Description	Part Number	Qty.
Screw	5610294001	6
Mounting cover	3128704001	1

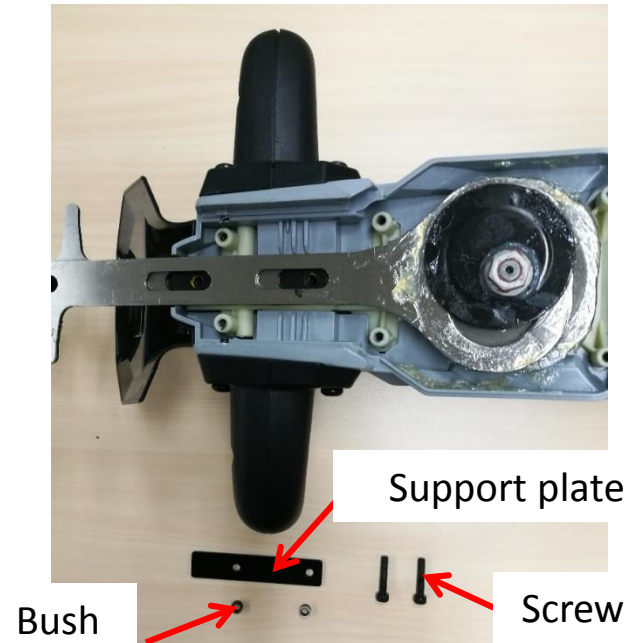
Replace the blade assembly

HT2000E Hedge trimmer

2. Loosen 2 pcs screws to remove the support plate and 2 pcs bushes.



Description	Part Number	Qty.
Support plate	3706209001	1
bush	5650196001	2
screw	5620216005	2



Replace the blade assembly

HT2000E Hedge trimmer

3. Lock the blade set to make it stand still and remove the flange nut with 14mm socket wrench.

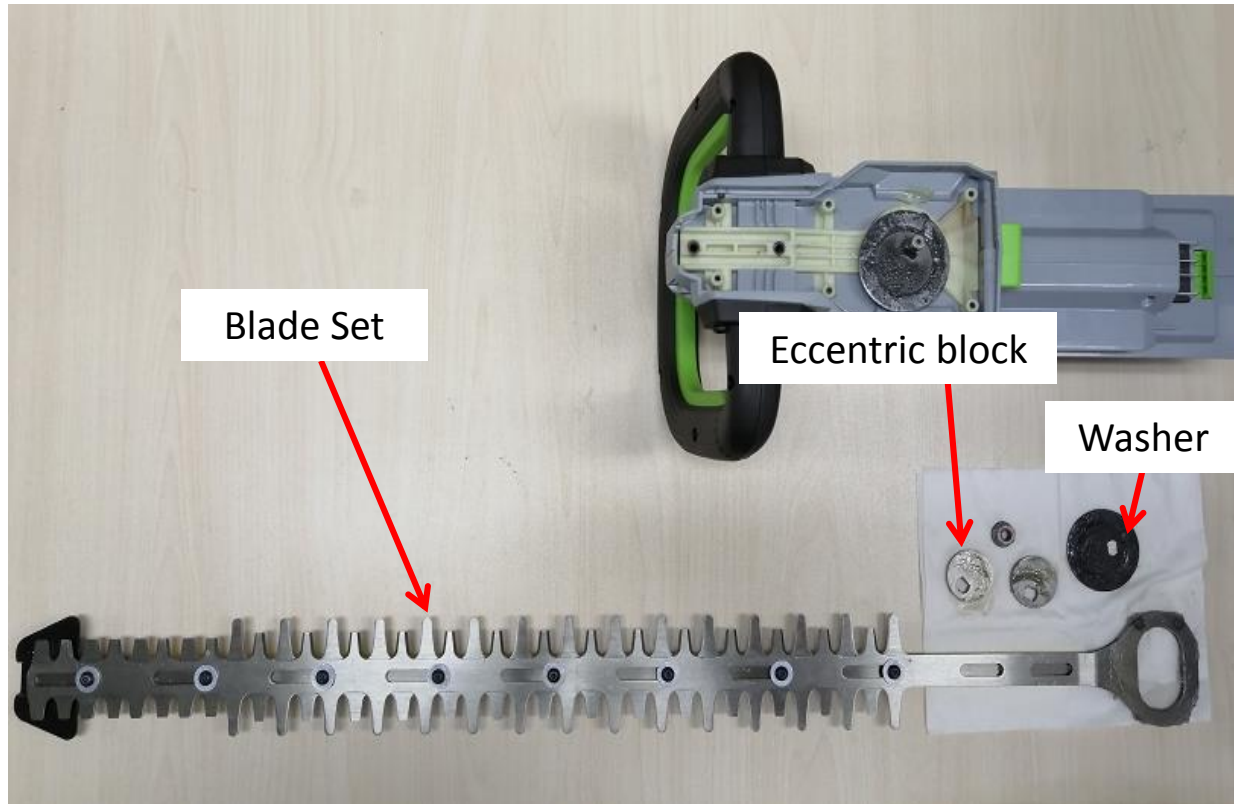


Description	Part Number	Qty.
Nut	5630325001	1

Replace the blade assembly

HT2000E Hedge trimmer

4. Remove the washer, blade assembly and eccentric block in sequence.



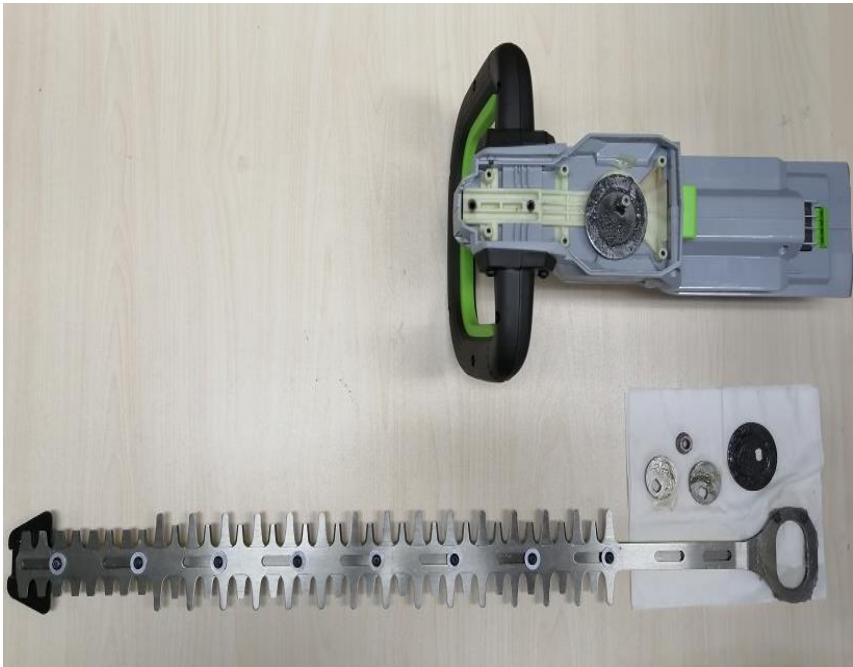
Description	Part Number	Qty.
Washer	5650494001	1
Eccentric Block	3706977001	2
Blade Set	2827717001	1

Replace the blade assembly

HT2000E Hedge trimmer

5. Mount the eccentric block into the new blade assembly the new blade assembly in sequence onto the gear shaft.

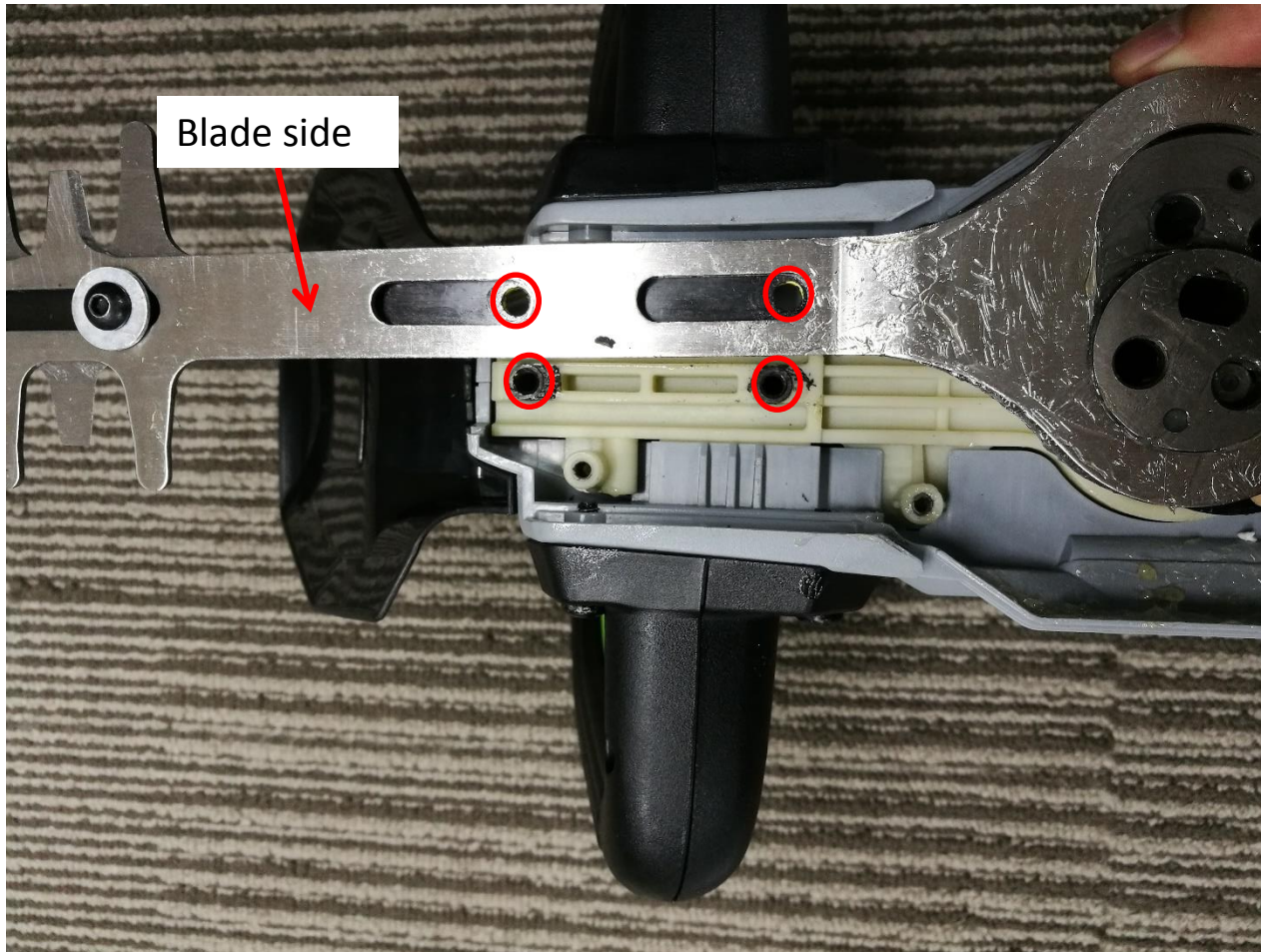
Notice: Make sure there is a layer of grease(D73) between the contact surface of the blade and the eccentricity block.



Replace the blade assembly

HT2000E Hedge trimmer

Notice: Blade side should face upwards and the holes of the support plate should be in alignment with the holes of the gear box.

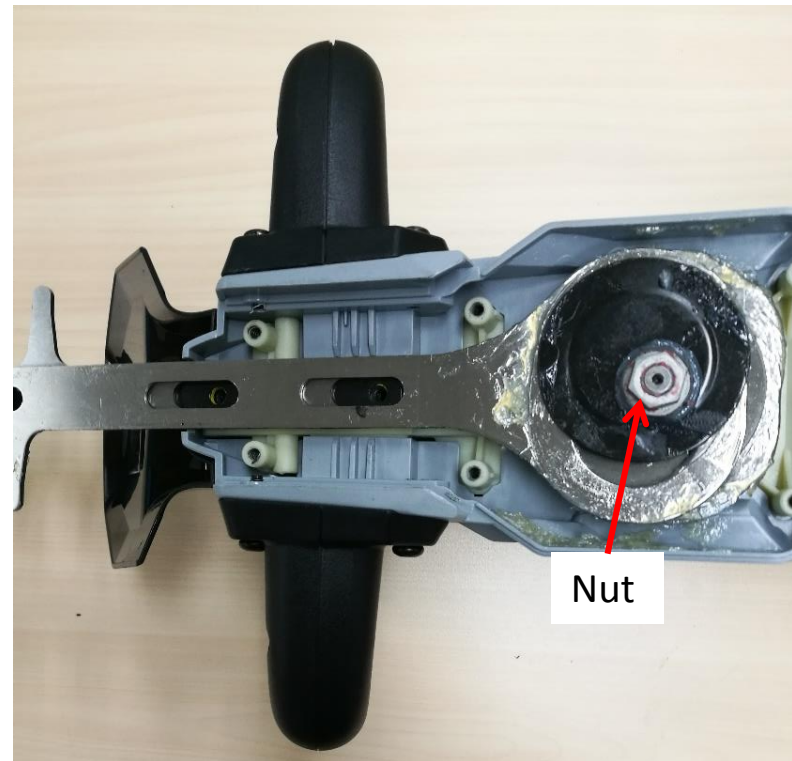
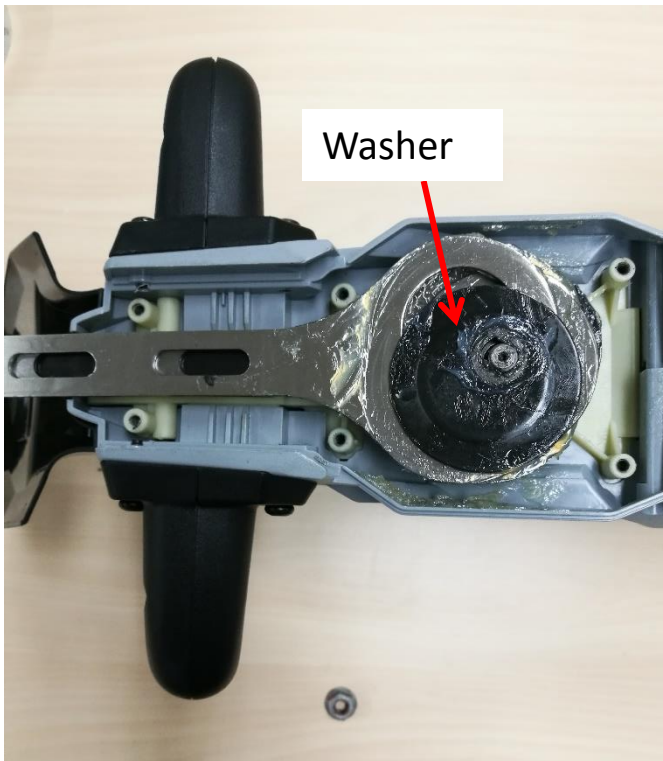


Replace the blade assembly

HT2000E Hedge trimmer

6. Mount the washer onto the shaft.
7. Mount the flange nut onto the shaft.
8. Lock the blade set and make it stand still, then tighten the nut with 14mm socket wrench.

Notice: When finishing mount the blade assembly onto the gear shaft, unlock the blade set and rotate the nut with socket wrench, the blade set should move front and back freely, if not, reassemble the blade assembly.

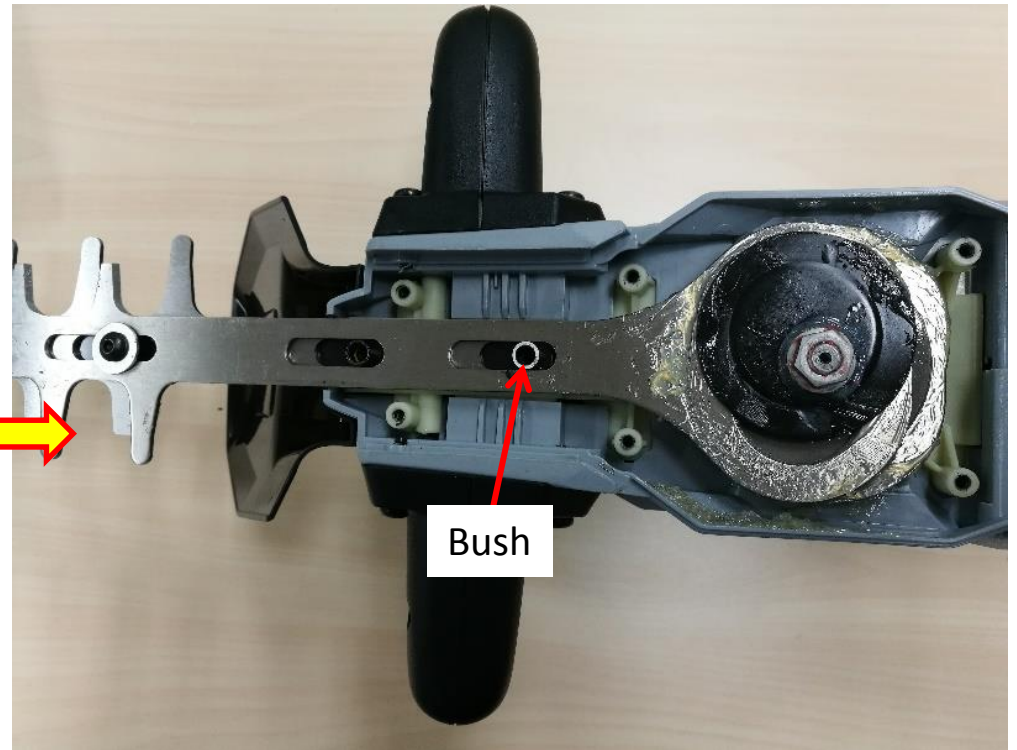
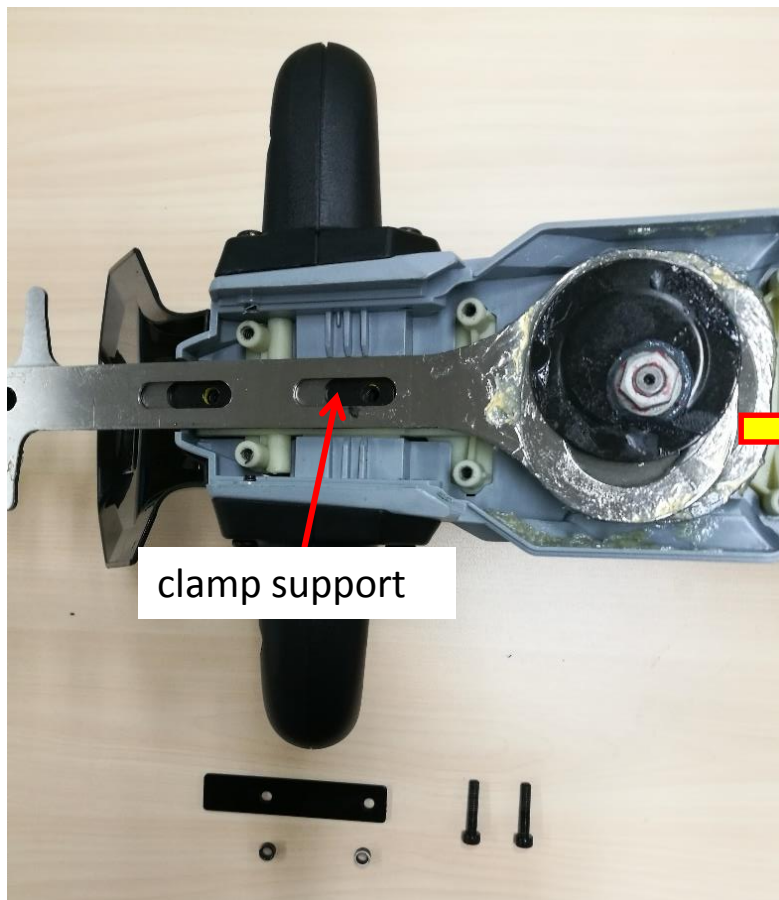


Replace the blade assembly

HT2000E Hedge trimmer

9. Mount the bushes into the blade assembly.

Notice: The holes of the nuts should be in alignment with the holes of clamp support.



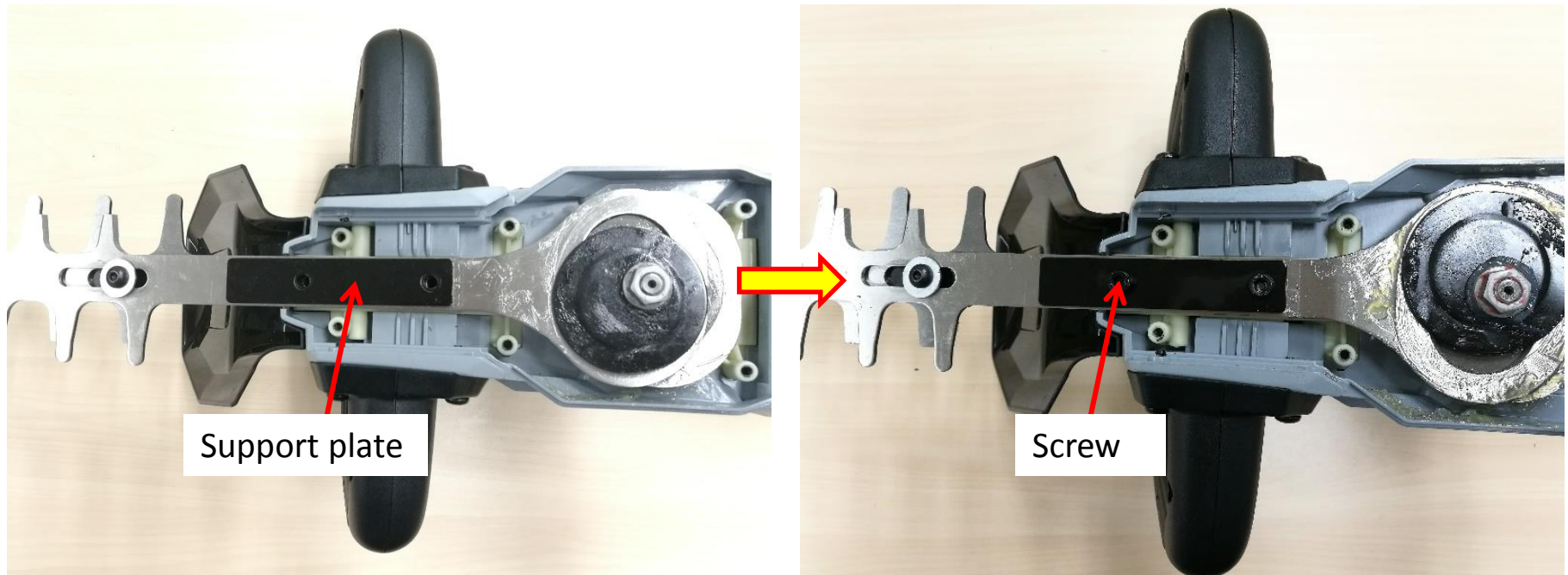
Description	Part Number	Qty.
clamp support	3552616002	1

Replace the blade assembly

HT2000E Hedge trimmer

10. Put the support plate on the blade assembly and tighten it with screw.

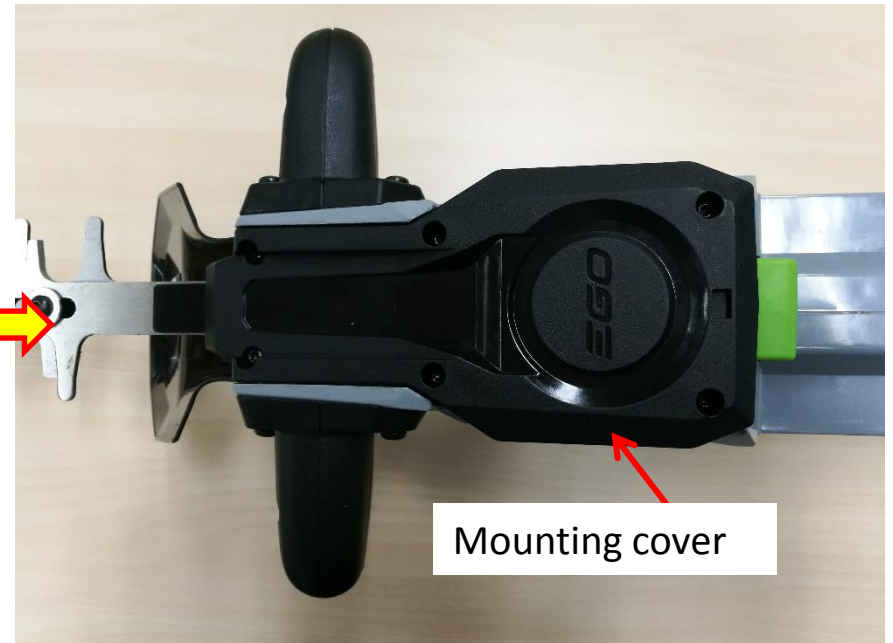
Notice: The holes of the support plate should be in alignment with the holes of the bushes.



Replace the blade assembly

HT2000E Hedge trimmer

11. Tighten 6 pcs screws to assemble the mounting cover.

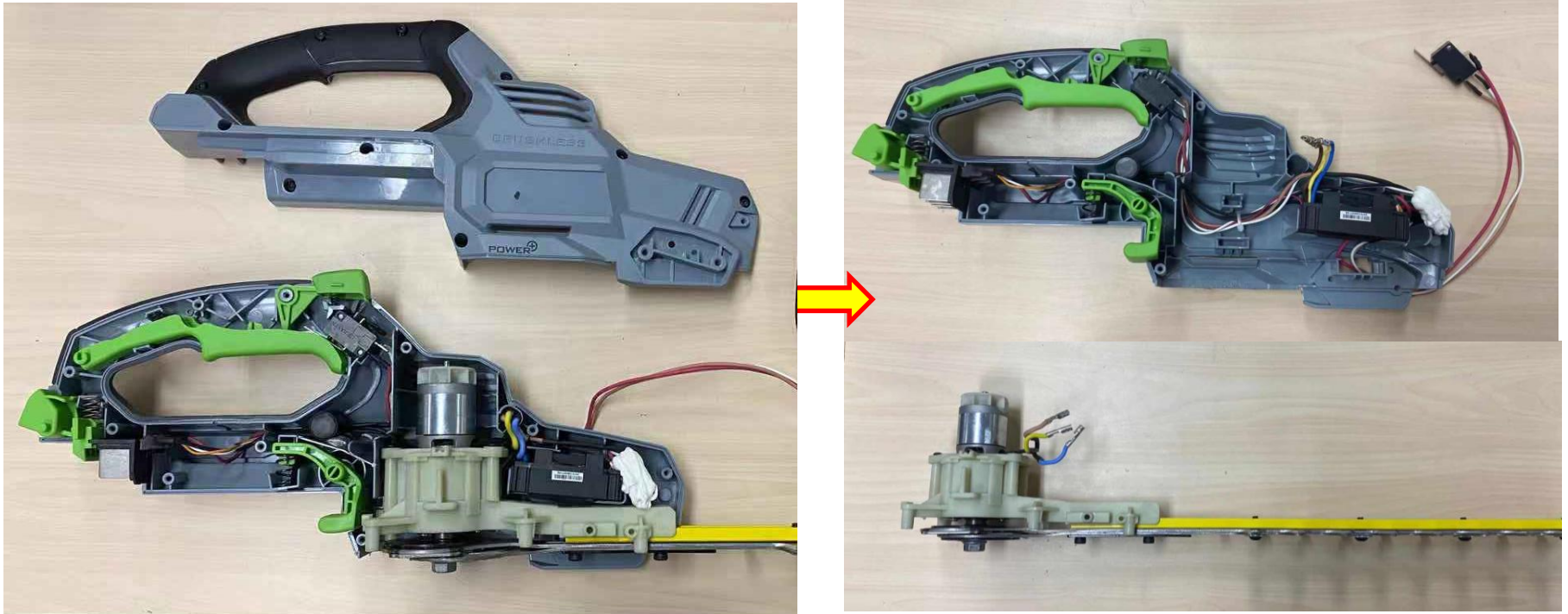


Part 3: Replace the PCBA

Replace the PCBA

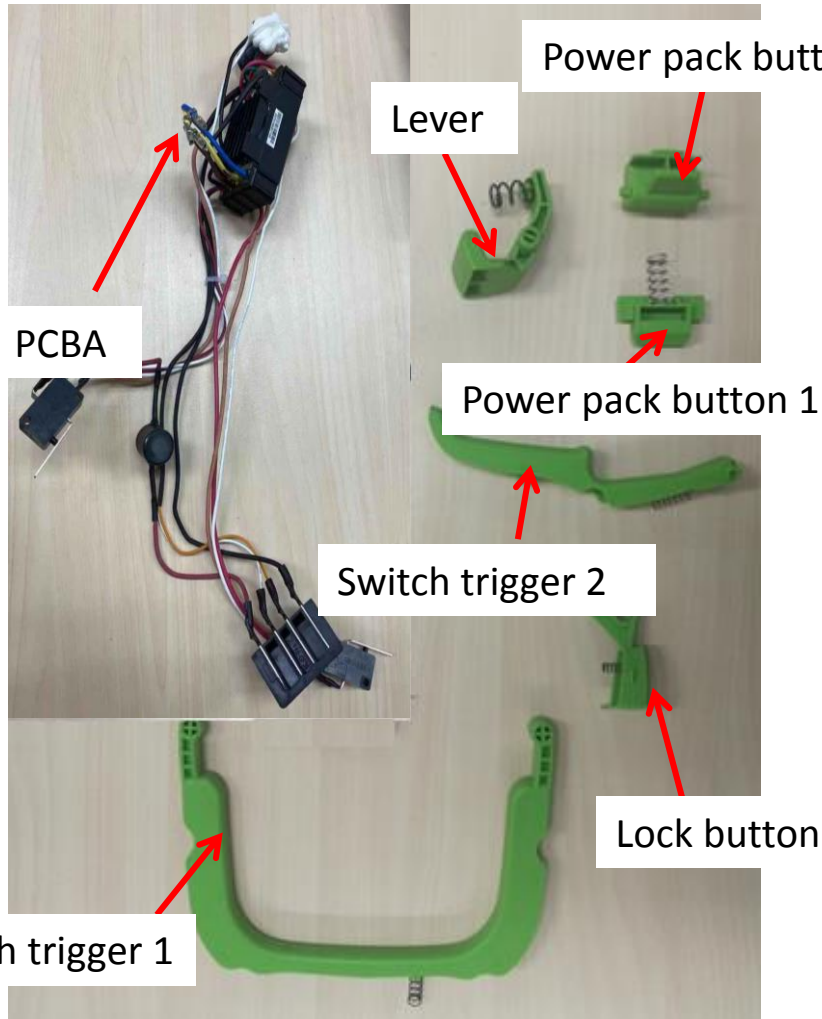
HT2000E Hedge trimmer

1. Disassemble the housing set as is shown in the “PCBA and Motor Problems Detection” section.
2. Take the motor assembly together with the blade assembly out of the left housing.



Replace the PCBA

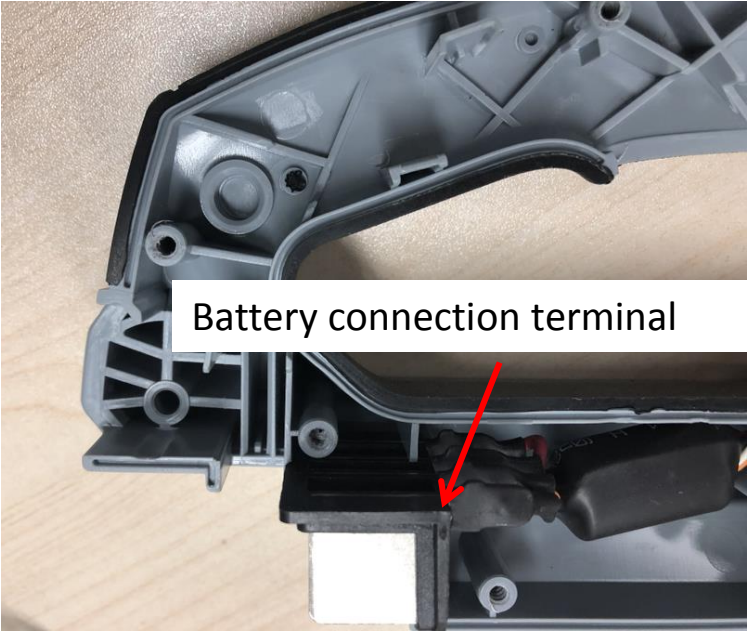
3. Remove the triggers and PCBA out of the left housing, replace the defective PCBA with a new one. If any trigger is broken, replace it with a new one accordingly.



Description	Part Number	Qty.
Lever	3128266001	1
Lock Button	3129010001	1
Switch Trigger 2	3128270001	1
Power Pack Button 1	3127497001	1
Power Pack Button 2	3127498001	1
Switch Trigger 1	3128269001	1
PCBA	2830561001	1

Replace the PCBA

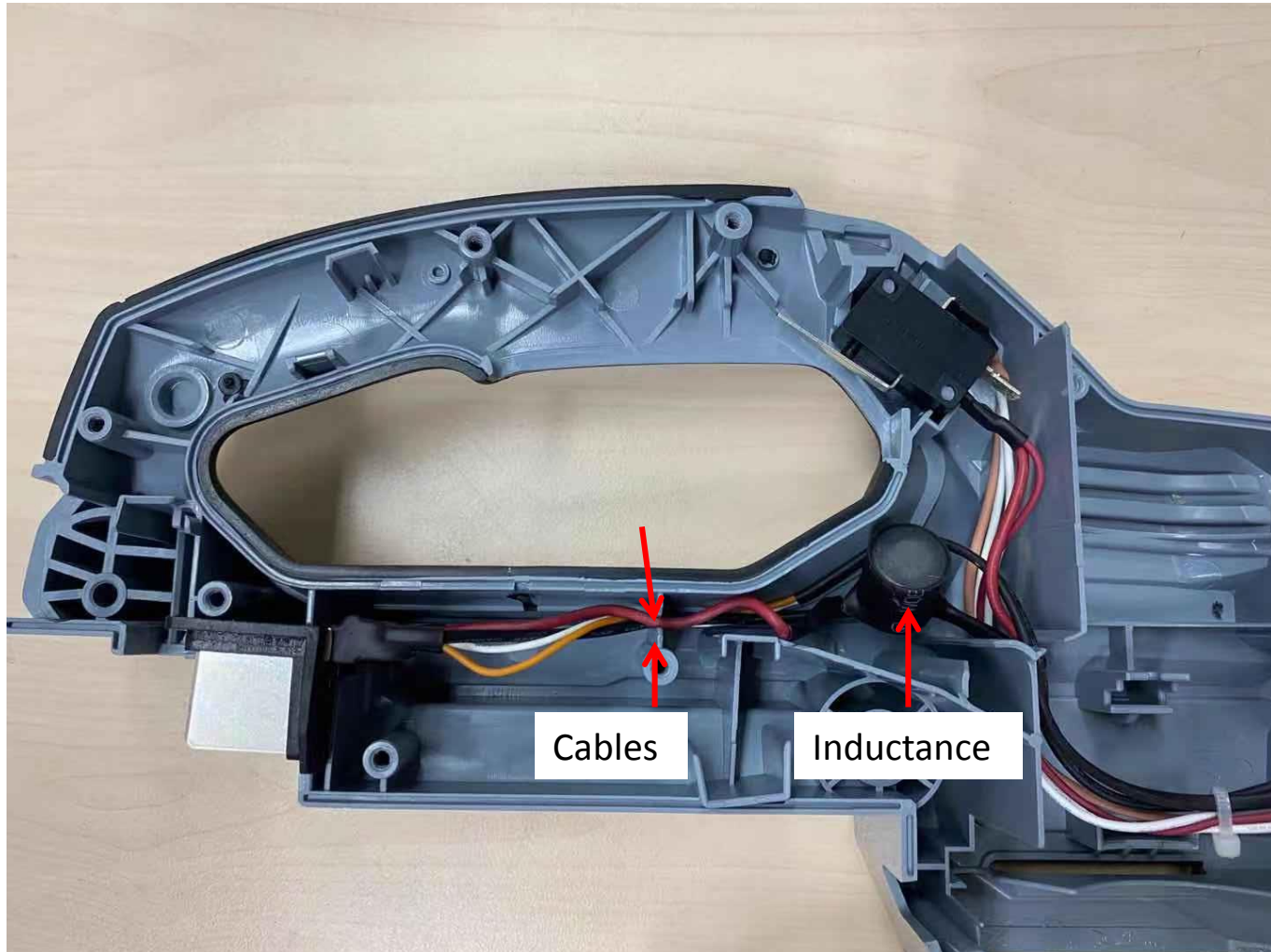
- 4. Position the battery connection terminal and rear switch in the left housing.



Replace the PCBA

HT2000E Hedge trimmer

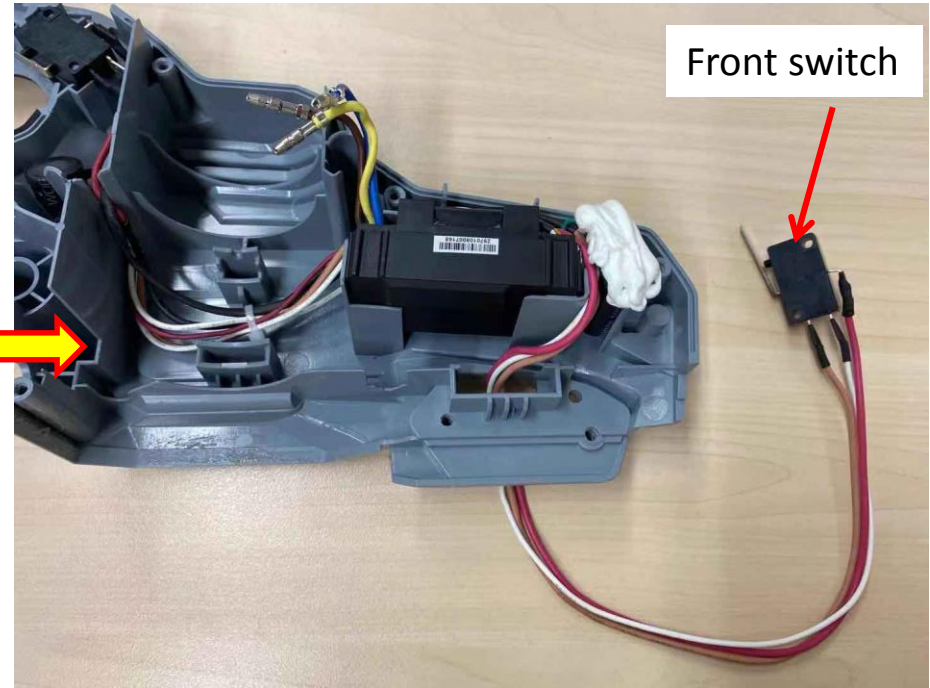
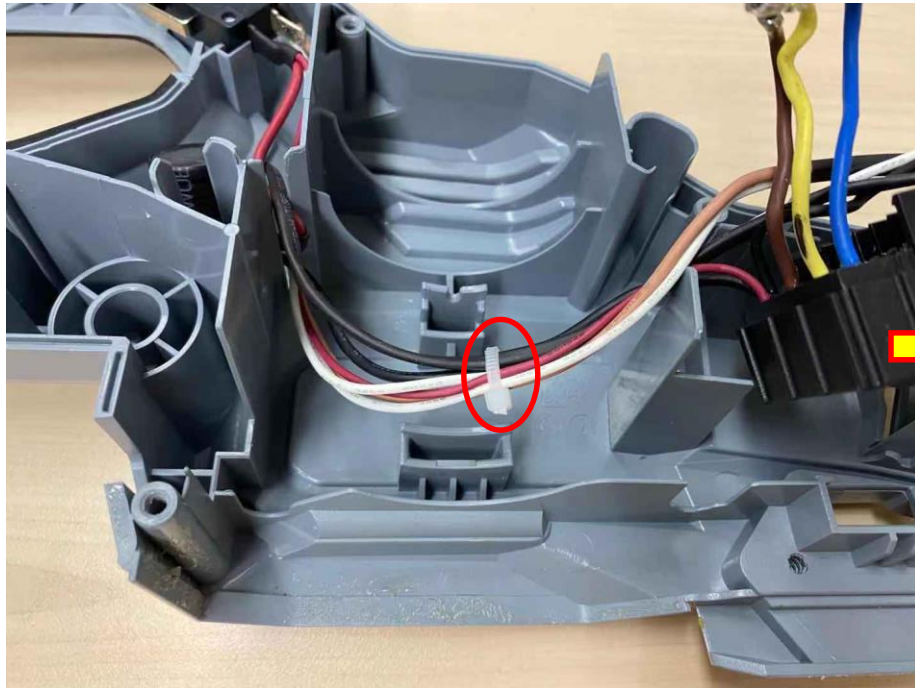
5. Position cables into the groove of the left housing and position the inductance in the left housing.



Replace the PCBA

HT2000E Hedge trimmer

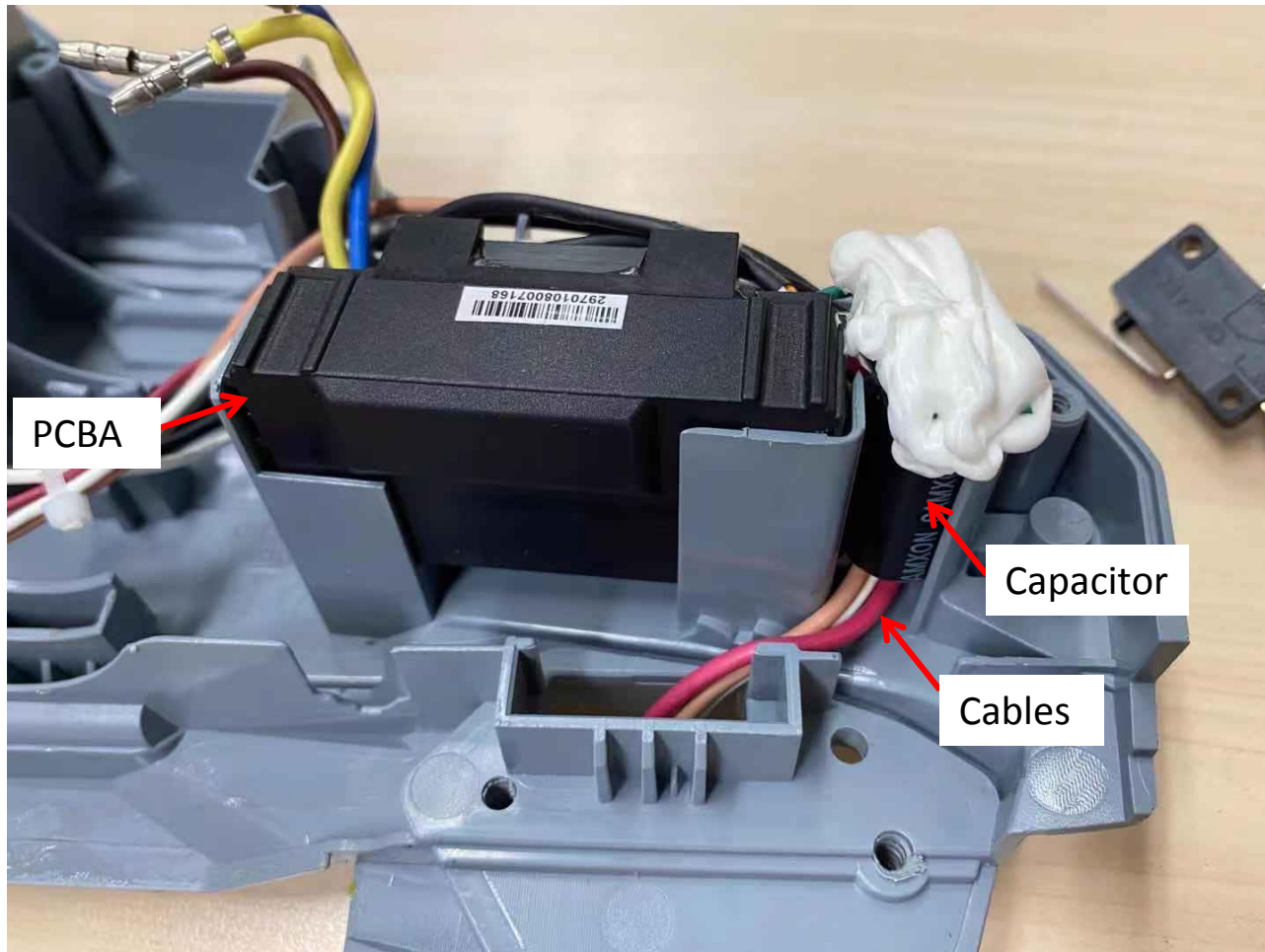
6. Bind the cables with cable tie and insert the front switch through the hole of the left housing.



Replace the PCBA

HT2000E Hedge trimmer

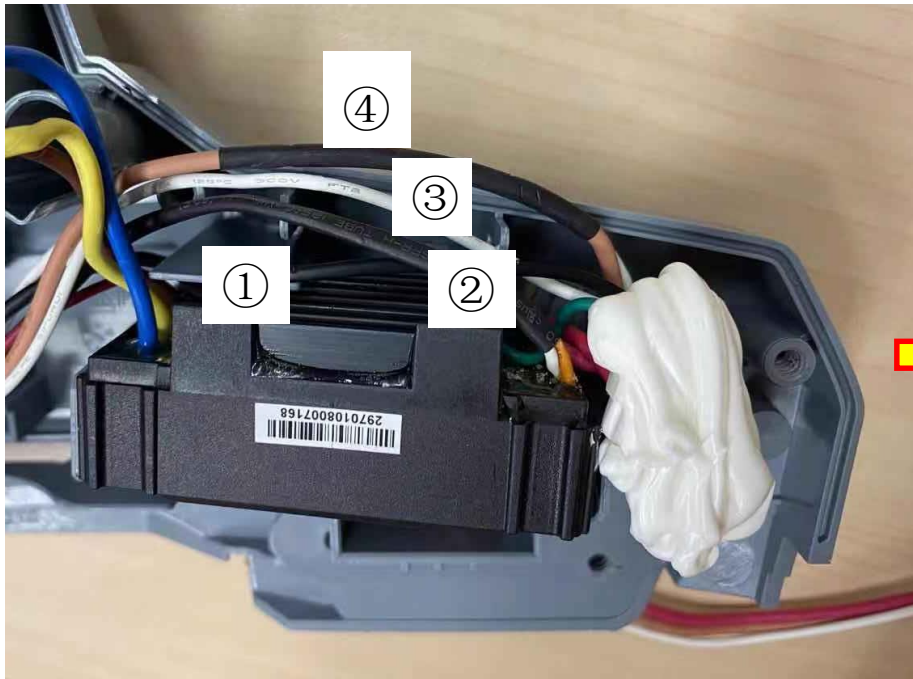
7. Position the PCBA in the groove of the left housing.
8. Put the cables connected with the front switch into the groove and insert the capacitor into the groove.



Replace the PCBA

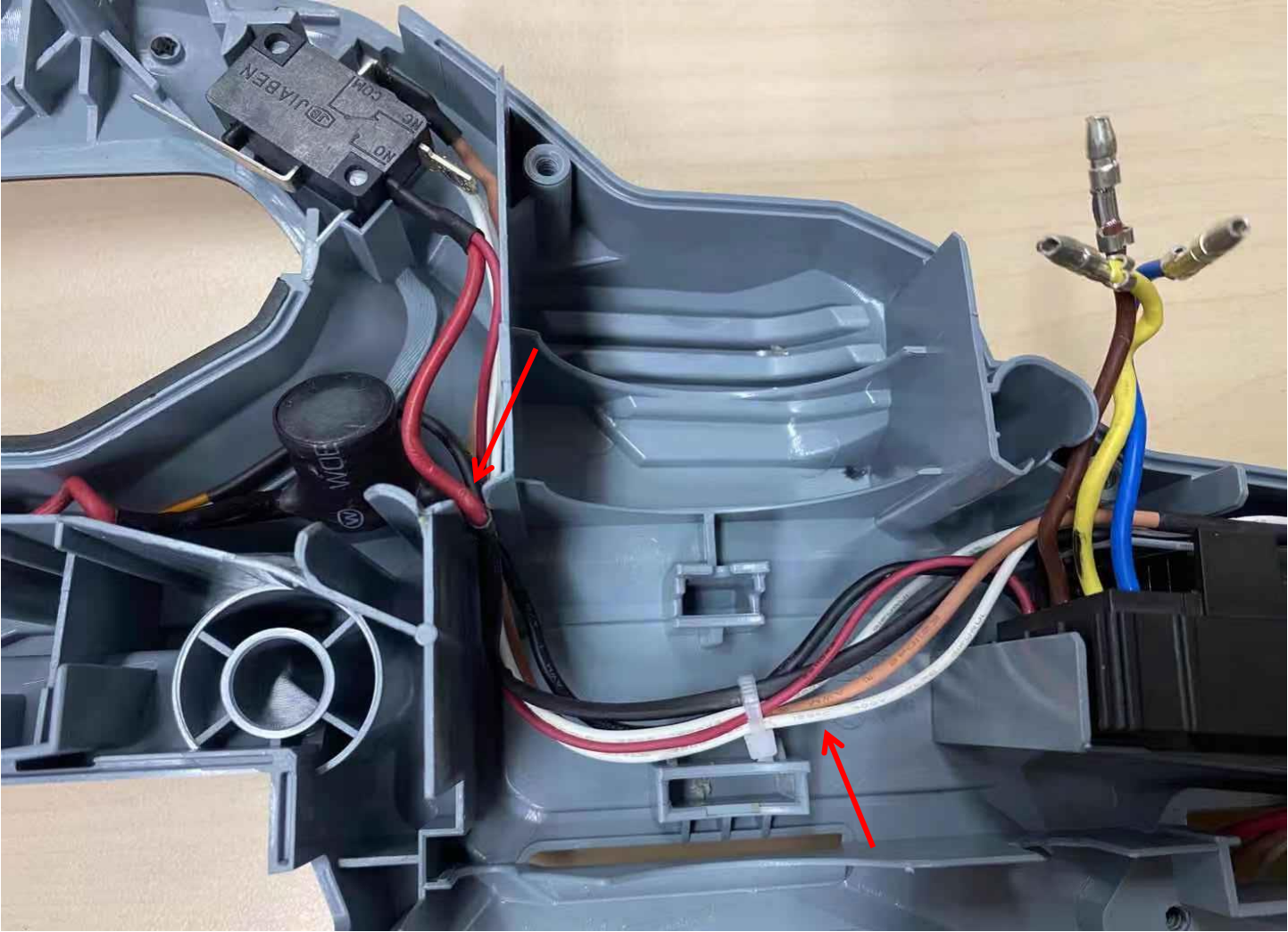
HT2000E Hedge trimmer

9. Position cables into the groove of the left housing, cable sequence should be as follows.



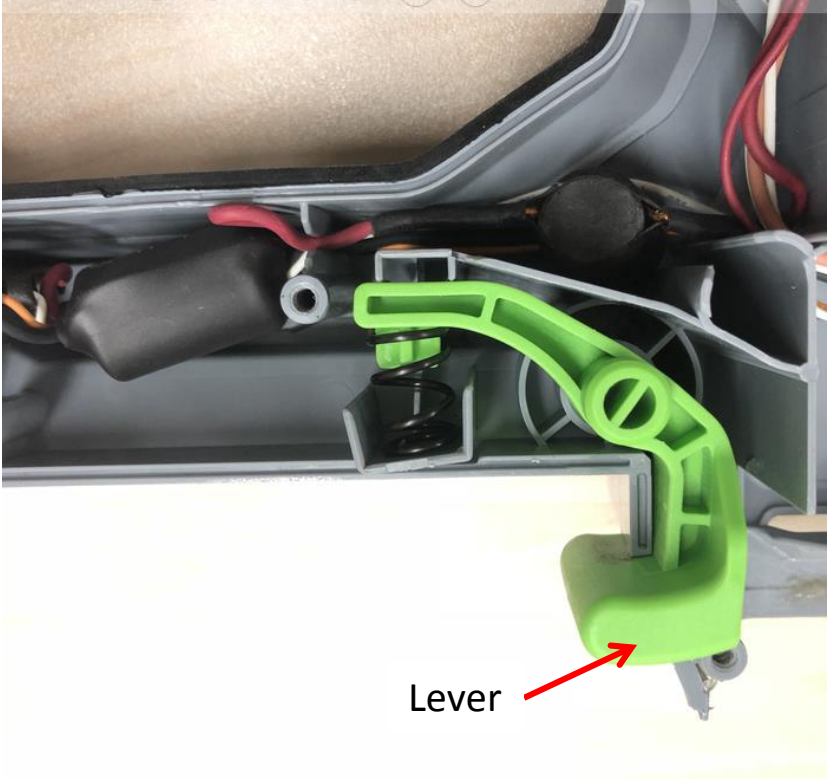
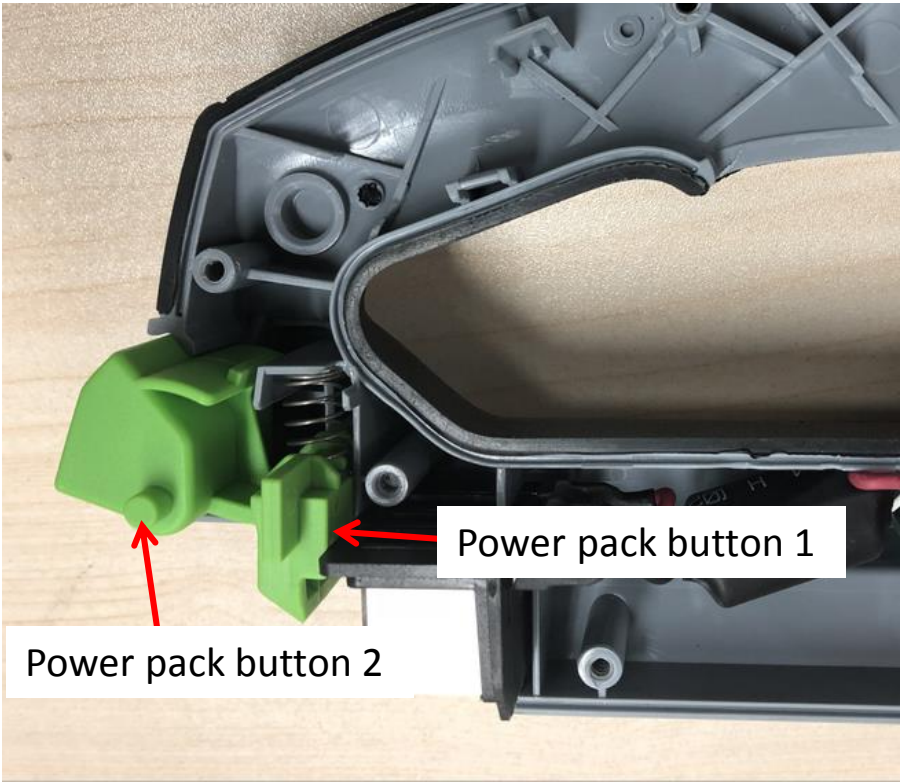
Replace the PCBA

10. Fix cables into the left housing as the following shows.



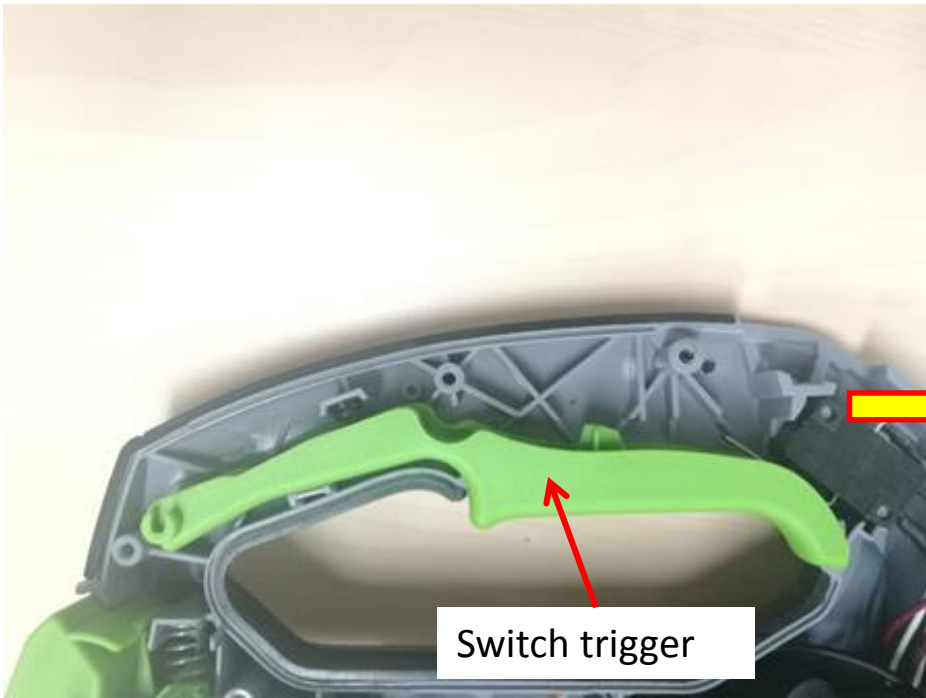
Replace the PCBA

11. Position the power pack buttons and the lever in the left housing.



Replace the PCBA

12. Position the switch trigger and lock button in the left housing.



Replace the PCBA

HT2000E Hedge trimmer

- Align the holes of front switch trigger with the ribs of the front side handle and position the front switch trigger in the front side handle.

Notice: If the side handle was broken, replace it with a new one.



Description	Part Number	Qty.
Side handle	2824552001	1

Replace the PCBA

HT2000E Hedge trimmer

14. Mount the cables connected with the front switch into the groove of the front side handle, cable sequence should be as follows.



Replace the PCBA

15. Position the front switch trigger in the front hand side.

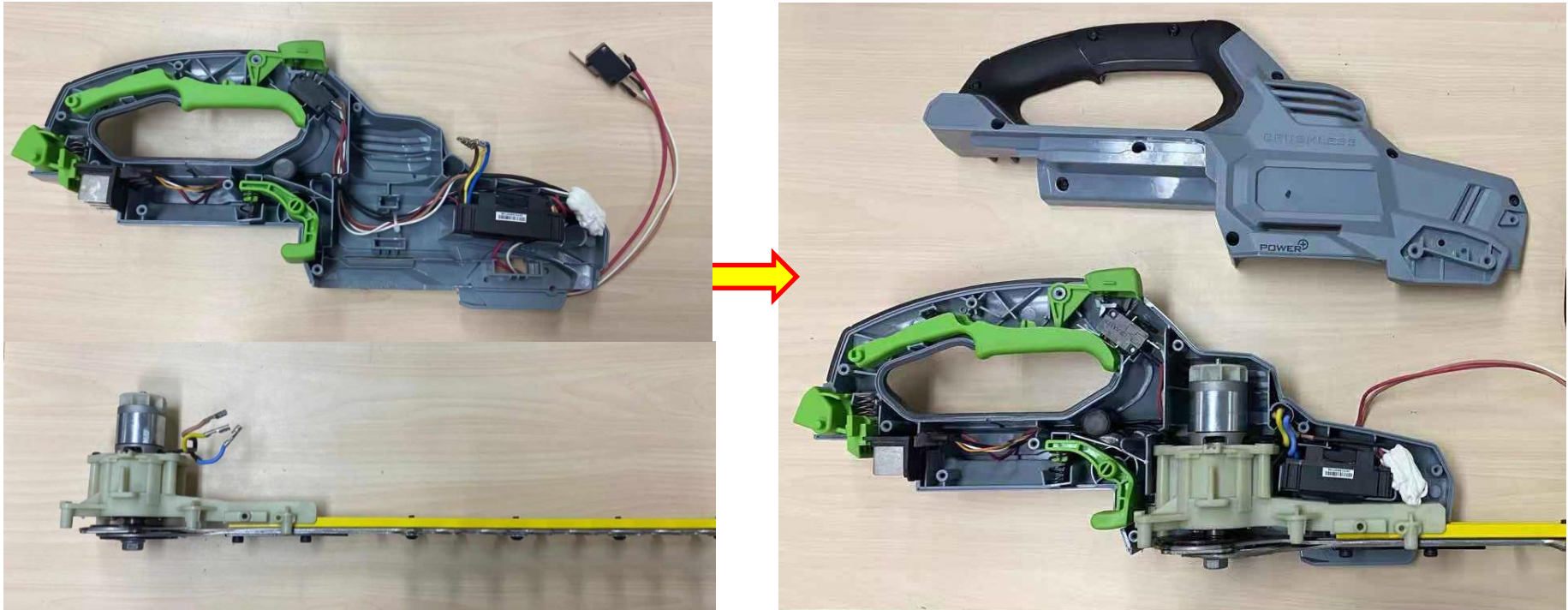
Front switch trigger



Replace the PCBA

HT2000E Hedge trimmer

16. Position the blade assembly together with the motor assembly into the left housing.

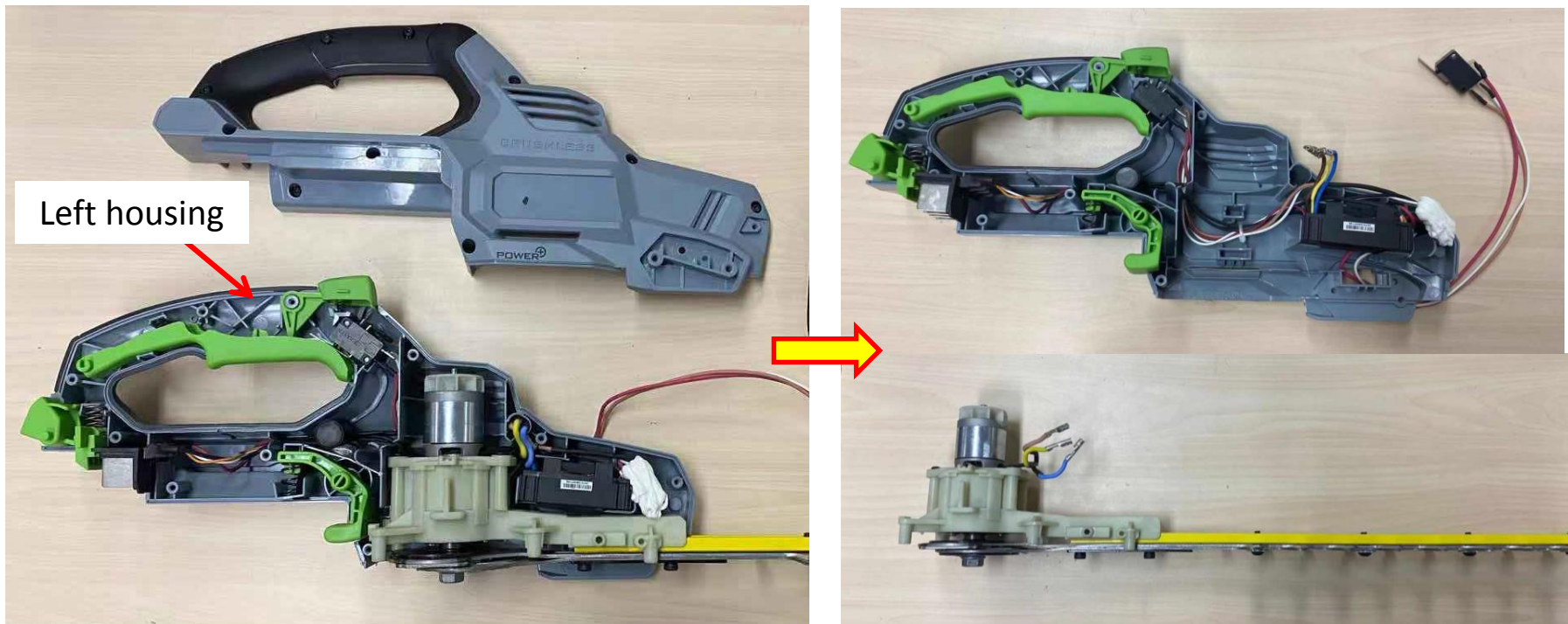


Part 4: Replace the Motor and Gear Assembly

Replace the motor and gear assembly

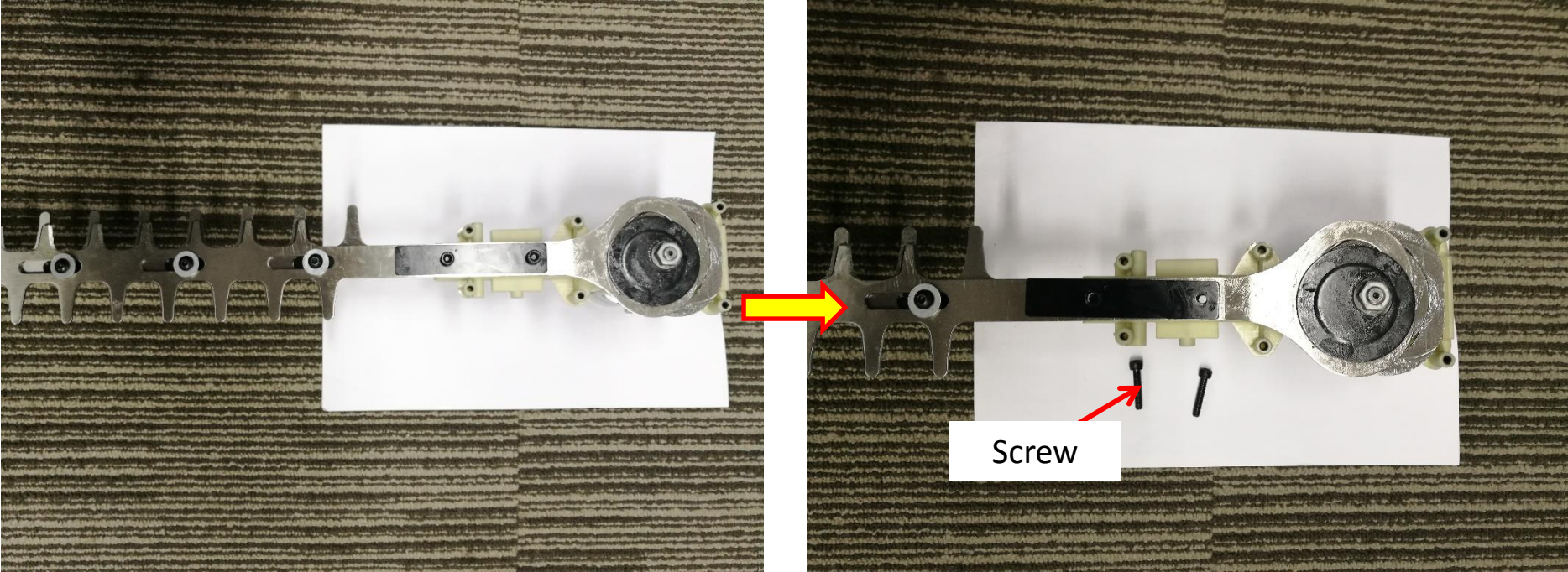
HT2000E Hedge trimmer

1. Disassemble the housing set as is shown in the “PCBA and Motor Problems Detection” section.
2. Take the motor assembly together with the blade assembly out of the left housing.



Replace the motor and gear assembly

3. Loosen 2 pcs screws on the support plate.

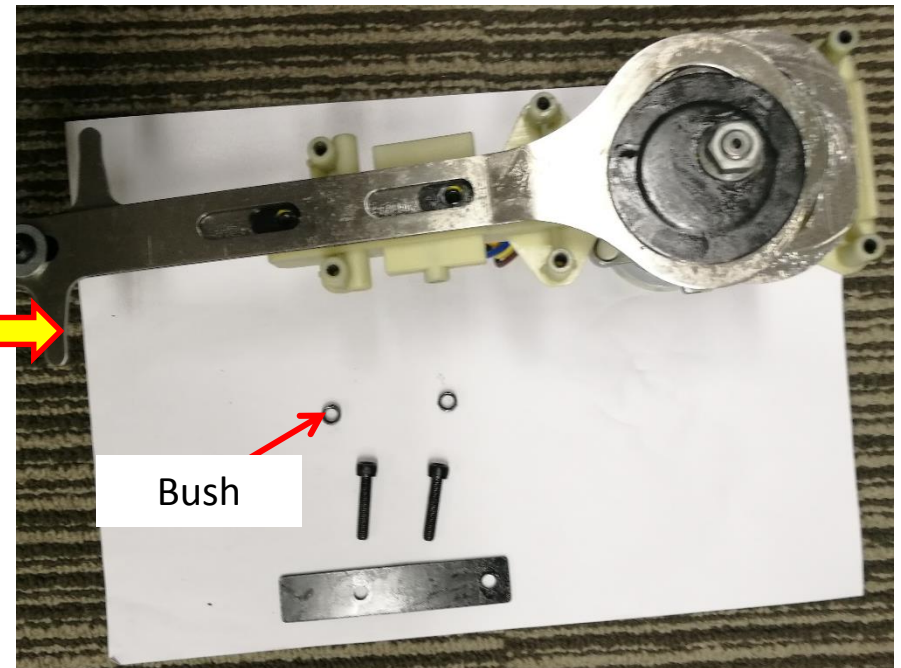
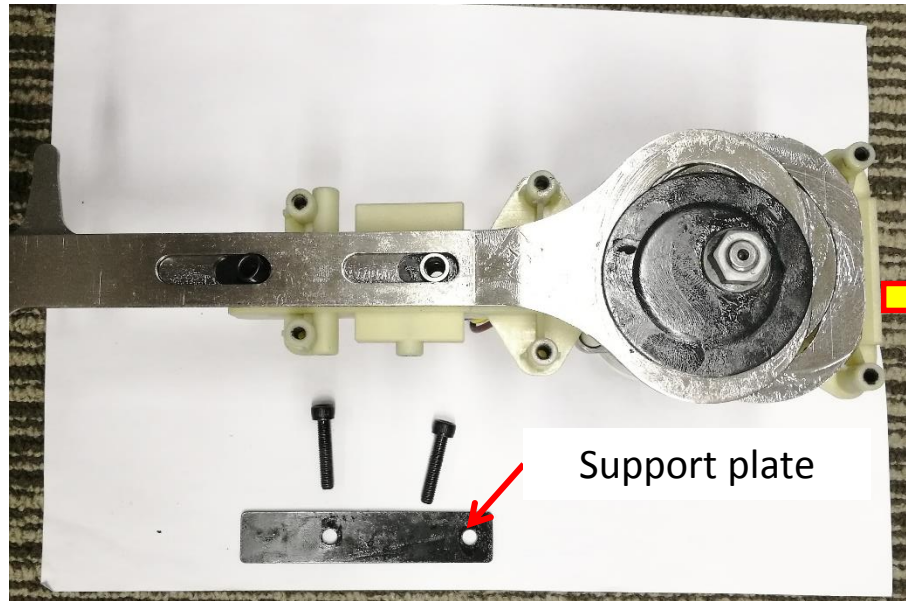


Description	Part Number	Qty.
screw	5620216005	2

Replace the motor and gear assembly

HT2000E Hedge trimmer

4. Remove the support plate and bushes.

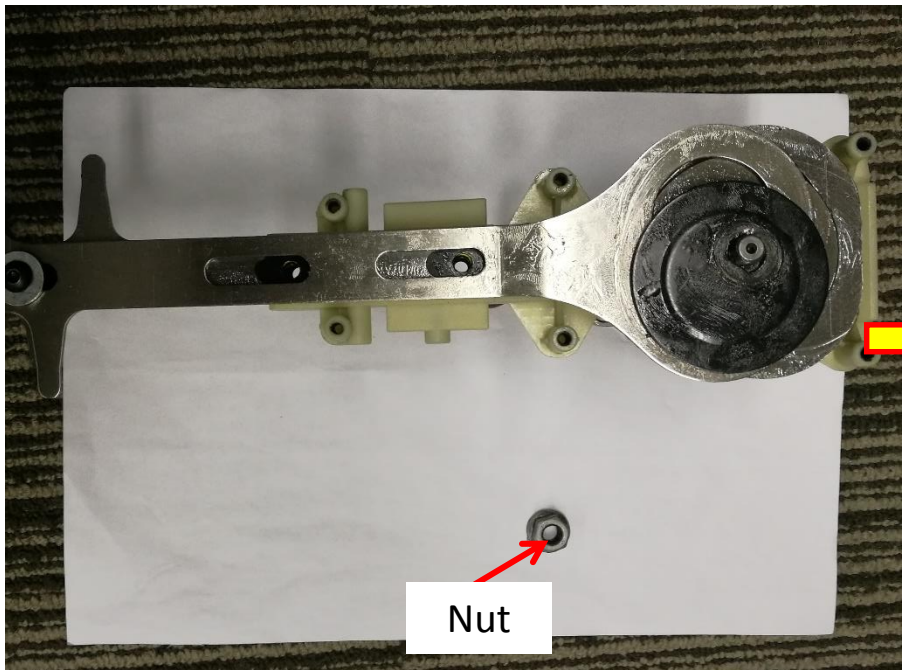


Description	Part Number	Qty.
Support plate	3706209001	1
bush	5650196001	2

Replace the motor and gear assembly

HT2000E Hedge trimmer

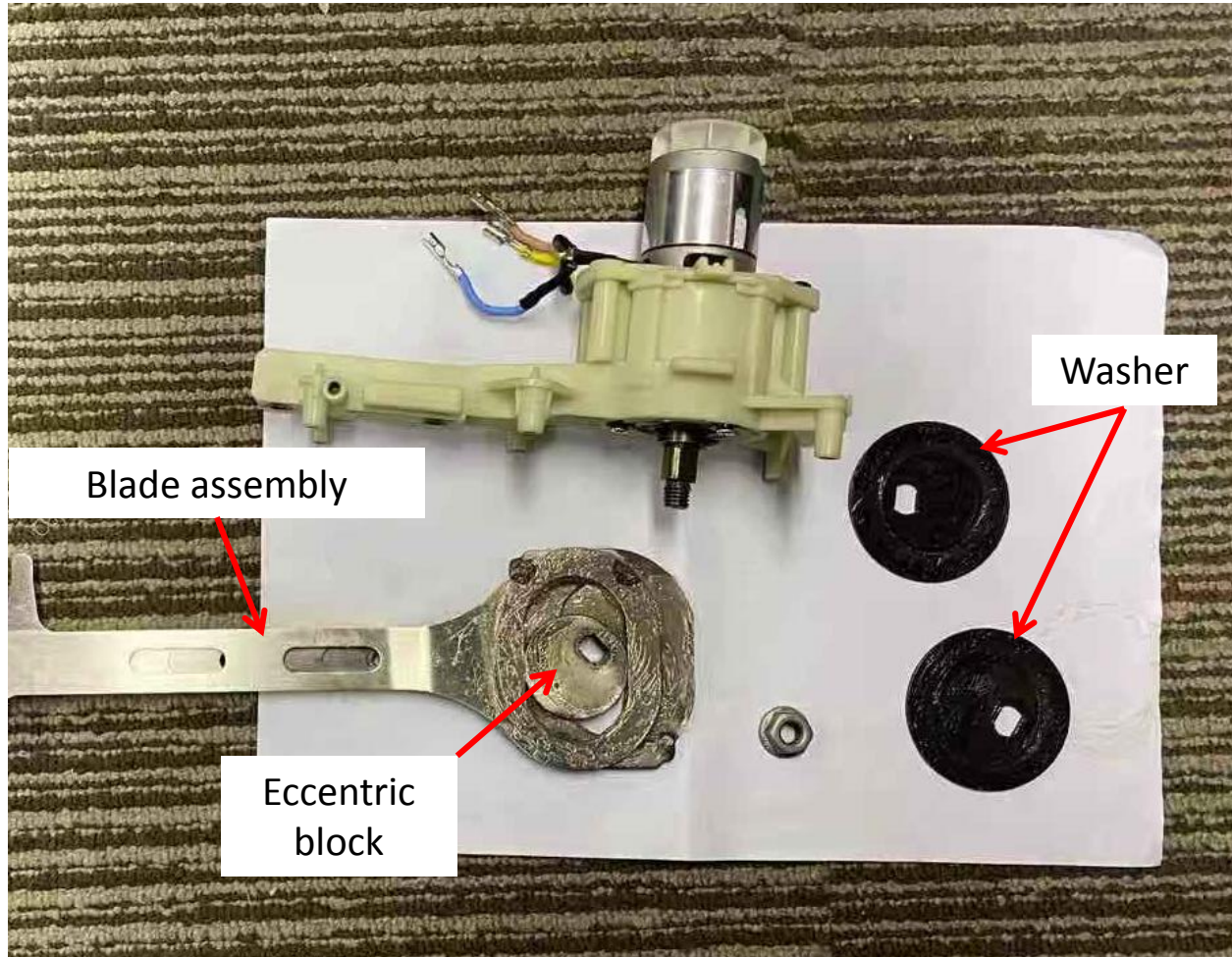
5. Lock the blade set to make it stand still, then loosen the nut on the shaft and remove it.
6. Remove the washer.



Replace the motor and gear assembly

HT2000E Hedge trimmer

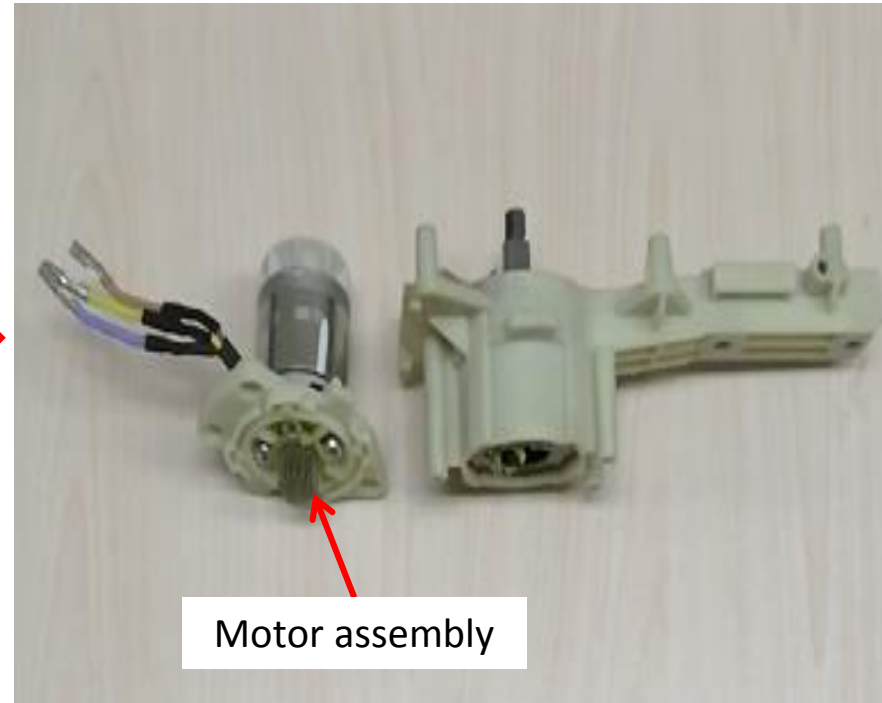
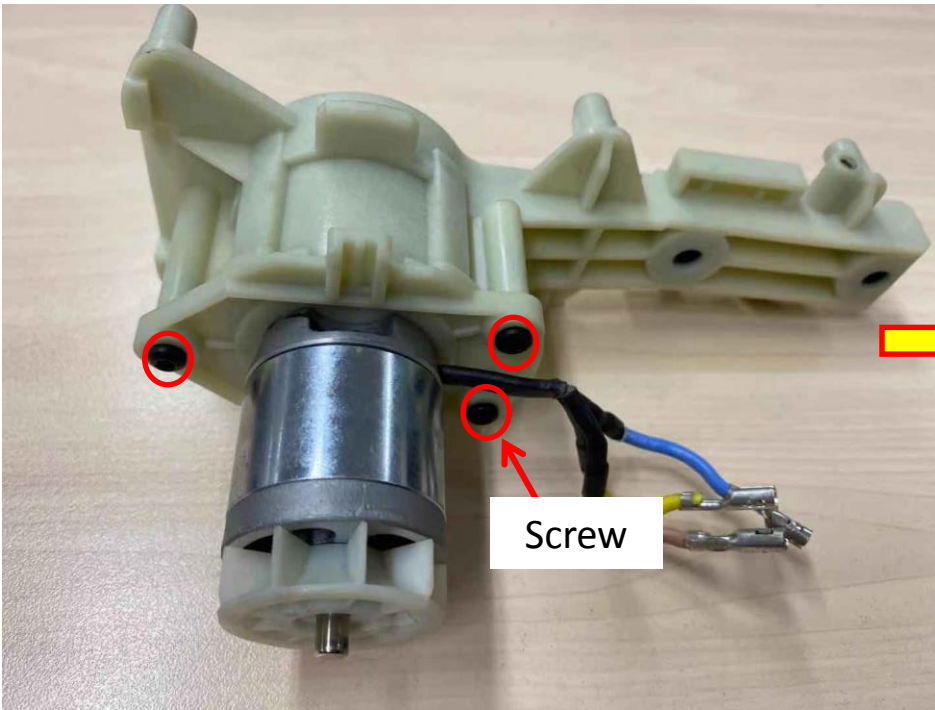
7. Remove the blade assembly together with the eccentric block.
8. Remove the washer.



Replace the motor and gear assembly

HT2000E Hedge trimmer

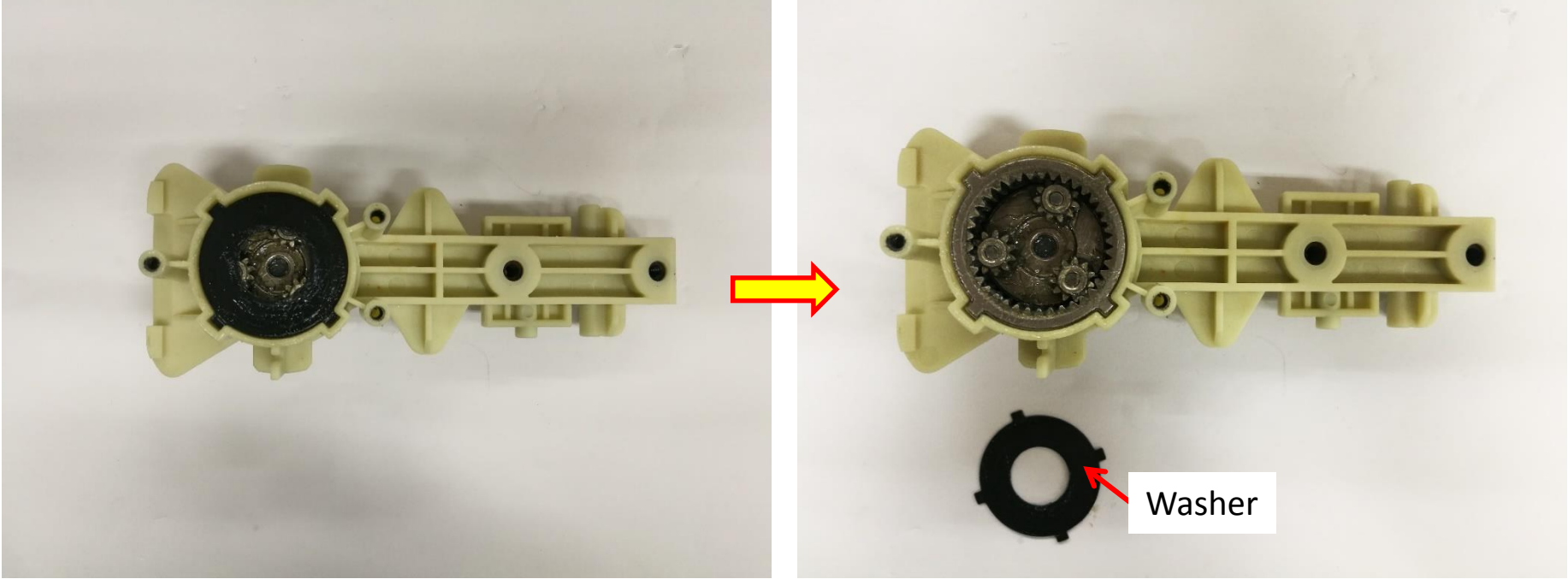
- Loosen 3 pcs screws to separate the motor assembly from the gear case assembly.



Description	Part Number	Qty.
Screw	5610294001	3
Motor assembly	2824923002	1

Replace the motor and gear assembly

10. Take the washer out of the gear case assembly.

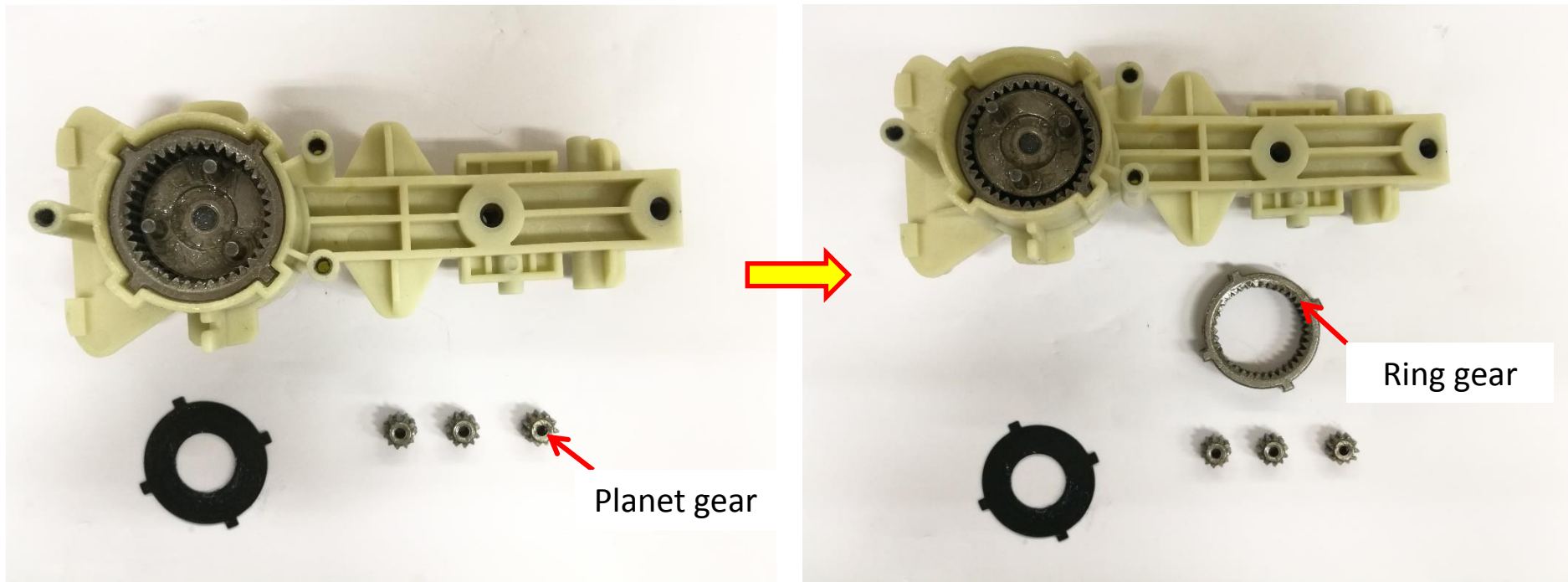


Description	Part Number	Qty.
Washer	5650576001	1

Replace the motor and gear assembly

HT2000E Hedge trimmer

11. Take the planet gears out of the gear case assembly.
12. Take the ring gear out of the gear case assembly.



Description	Part Number	Qty.
Planet Gear	3520965001	3
Ring Gear	3520964001	1

Replace the motor and gear assembly

13. Take the sun gear assembly out of the gear case assembly.

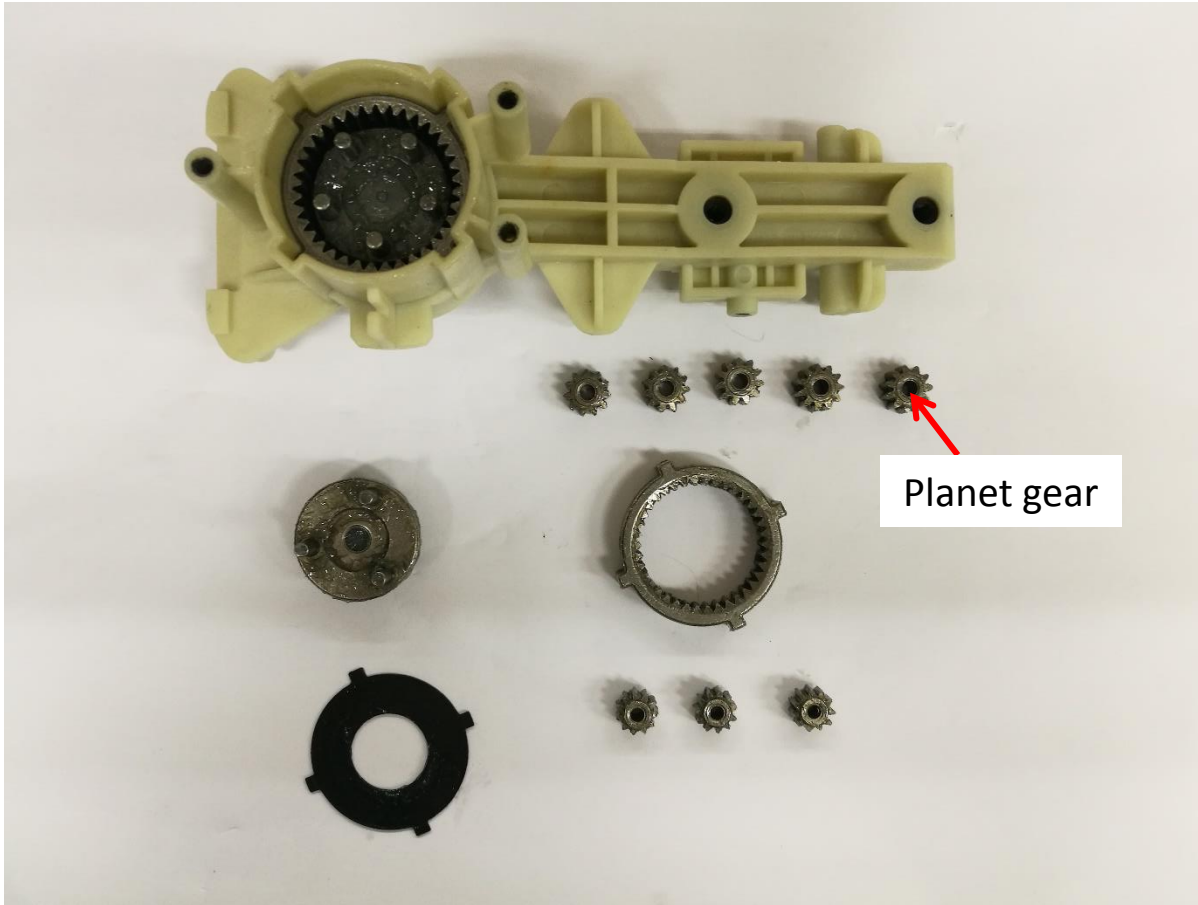


Description	Part Number	Qty.
Sun gear assembly	2824927001	1

Replace the motor and gear assembly

HT2000E Hedge trimmer

14. Take the planet gears out of the gear case assembly.

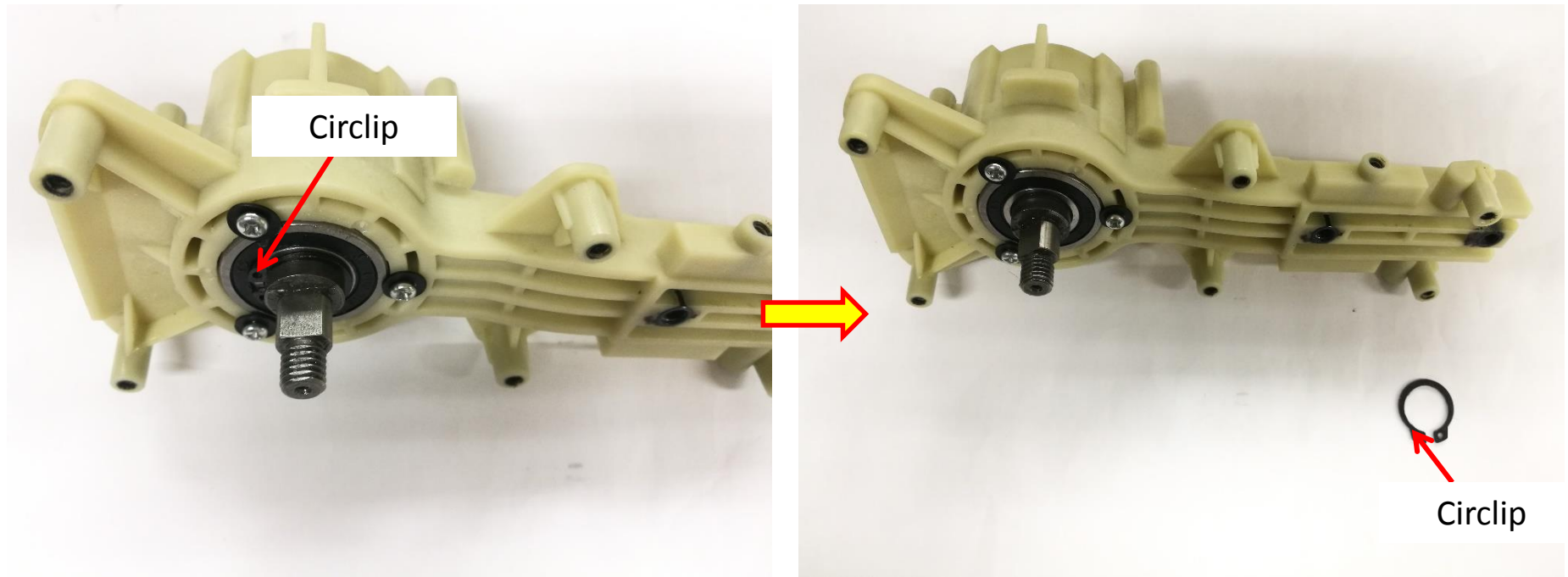


Description	Part Number	Qty.
Planet Gear	3520961001	1

Replace the motor and gear assembly

HT2000E Hedge trimmer

15. Remove the circlip with circlip pliers.

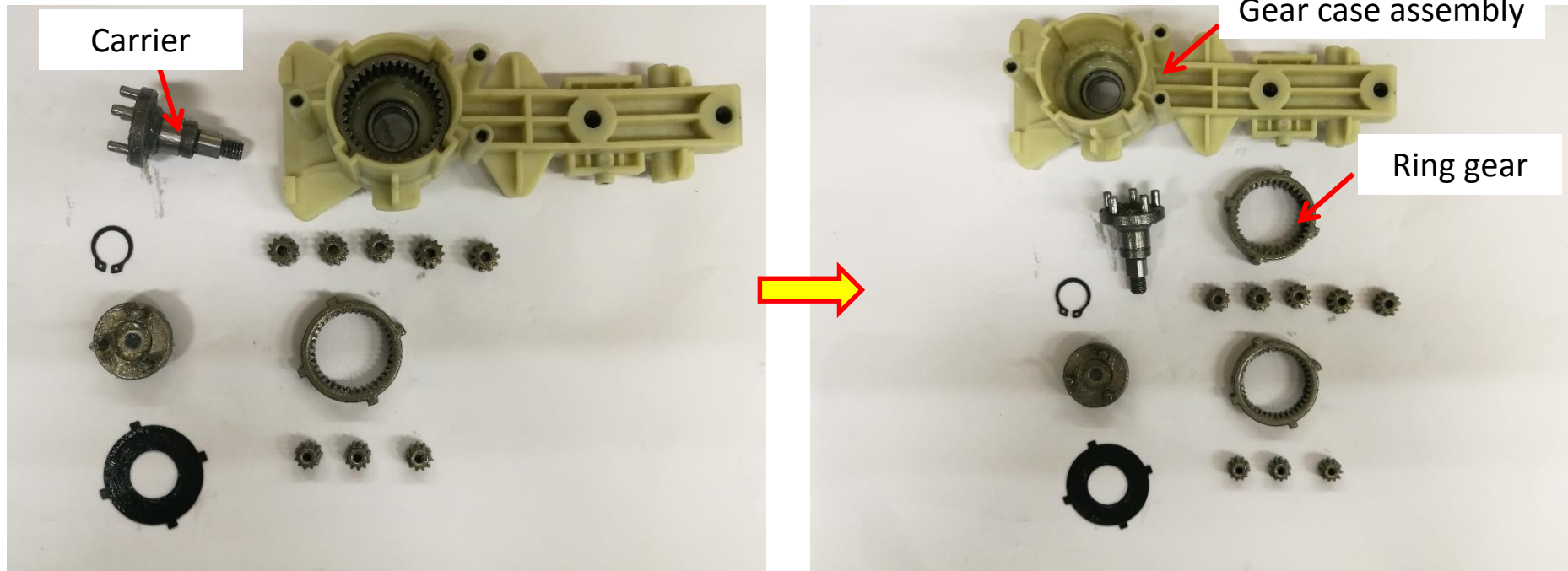


Description	Part Number	Qty.
Circlip	5660018001	1

Replace the motor and gear assembly

HT2000E Hedge trimmer

16. Take the carrier out of the gear case assembly. If the carrier is broken, replace it with a new one.
17. Take the ring gear out of the gear case assembly. If any part of the motor and gear assembly is broken, replace it with a new one.



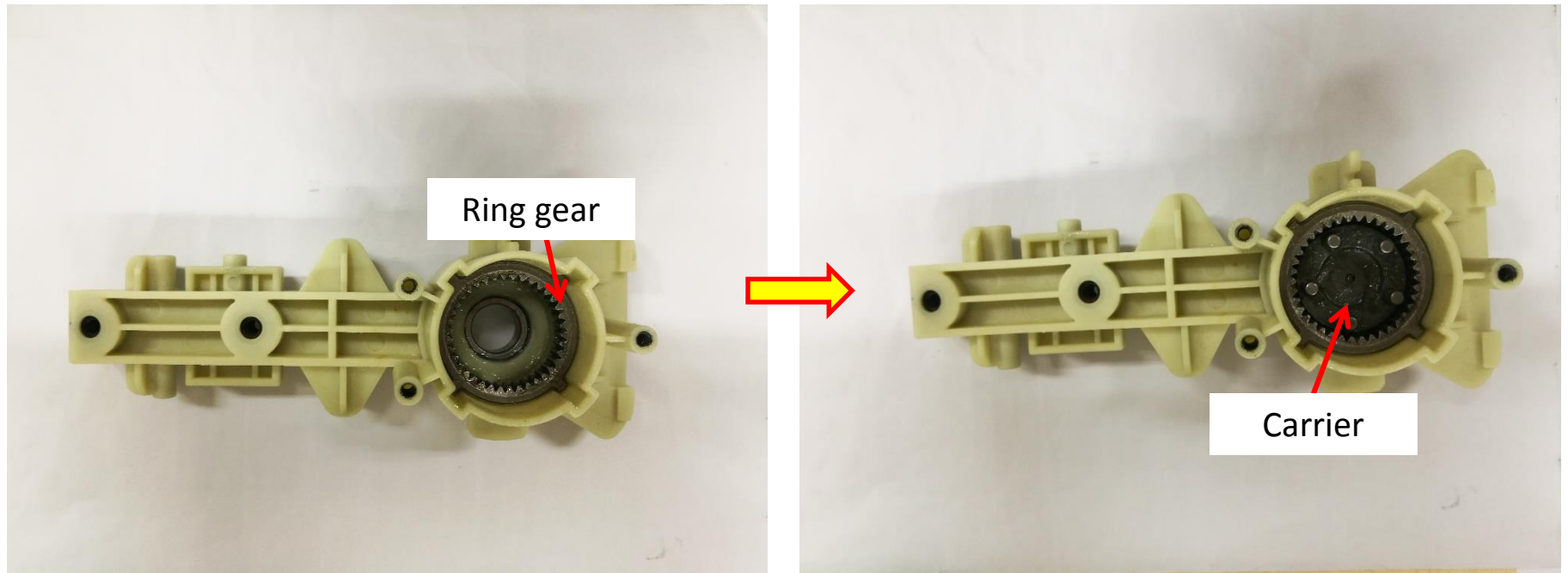
Description	Part Number	Qty.	Description	Part Number	Qty.
Carrier	2824926002	1	Gear case assembly	2824925002	1
Ring Gear	3520963001	1			

Replace the motor and gear assembly

HT2000E Hedge trimmer

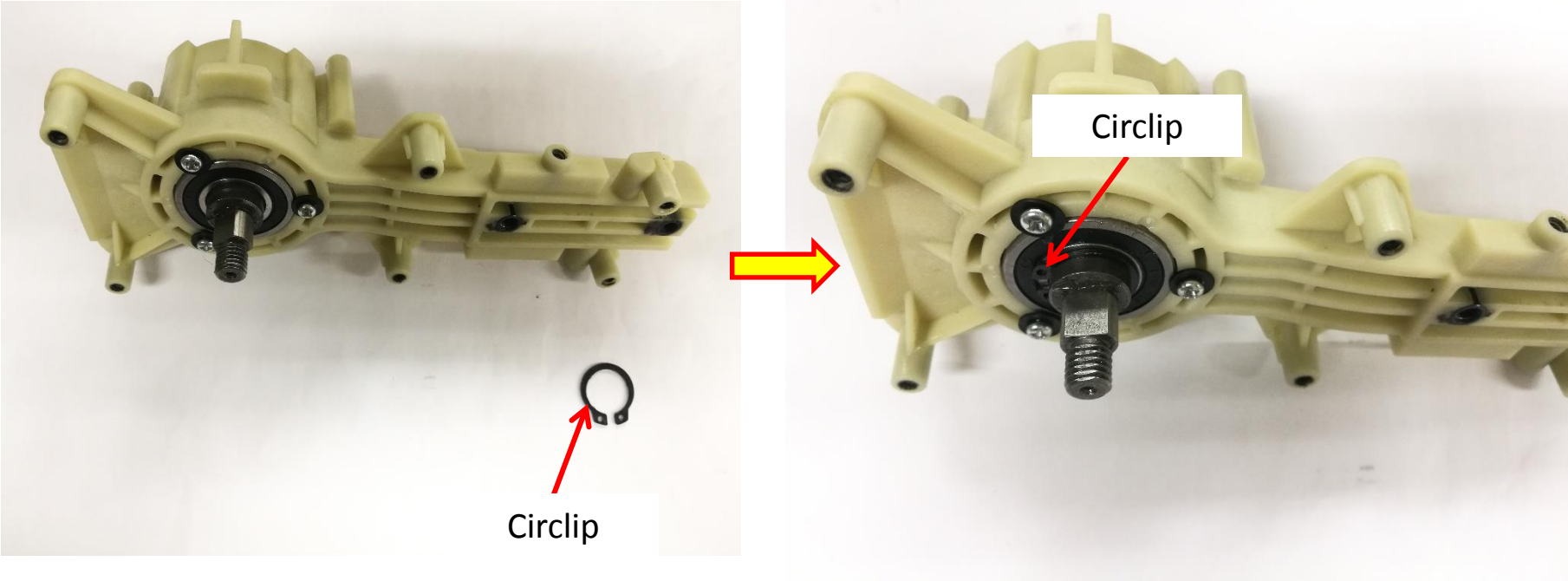
18. Mount the ring gear into the gear case assembly.

19. Mount the carrier into the gear case assembly.



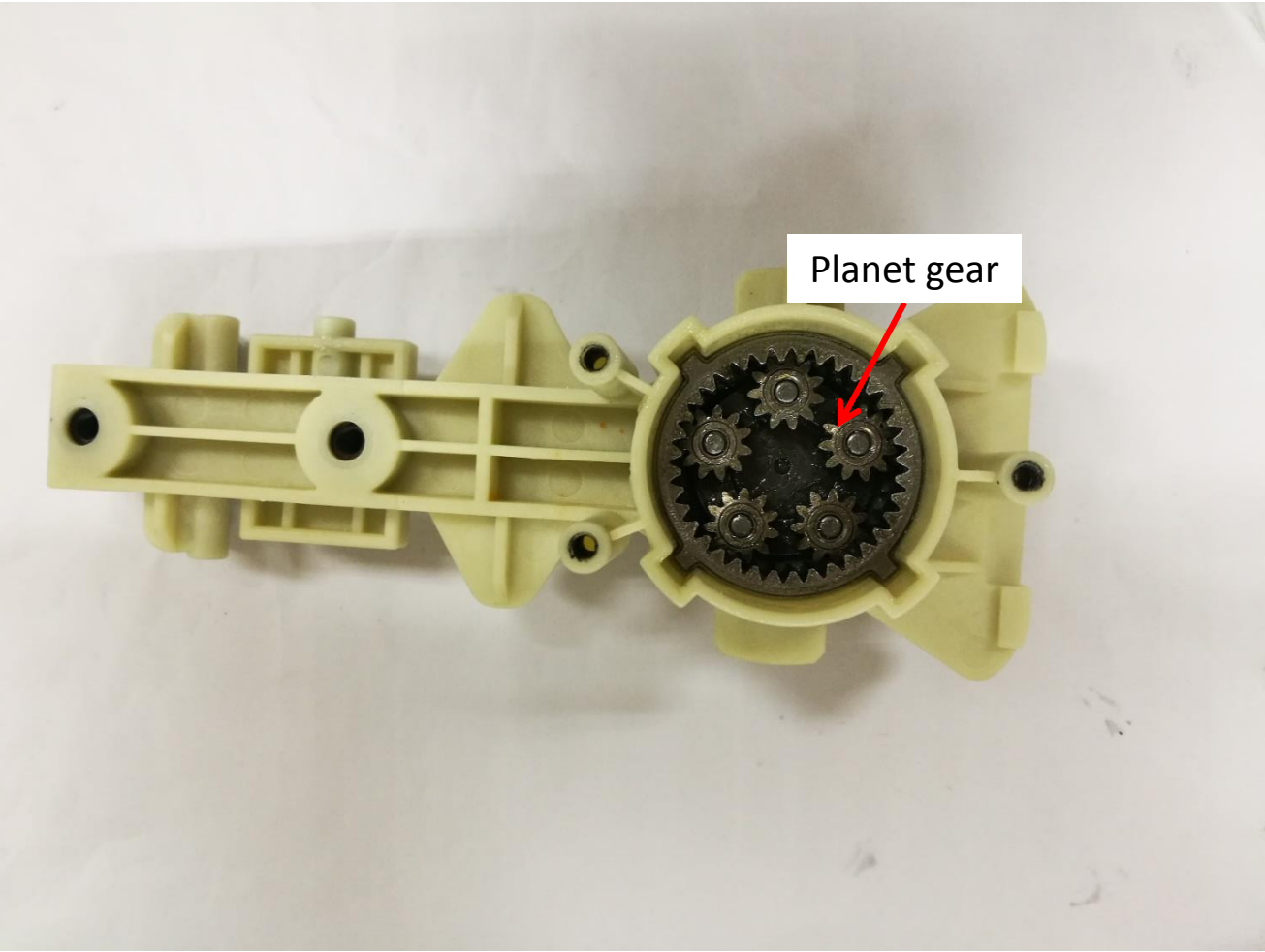
Replace the motor and gear assembly

20. Fix the carrier to the gear case assembly with circlip.



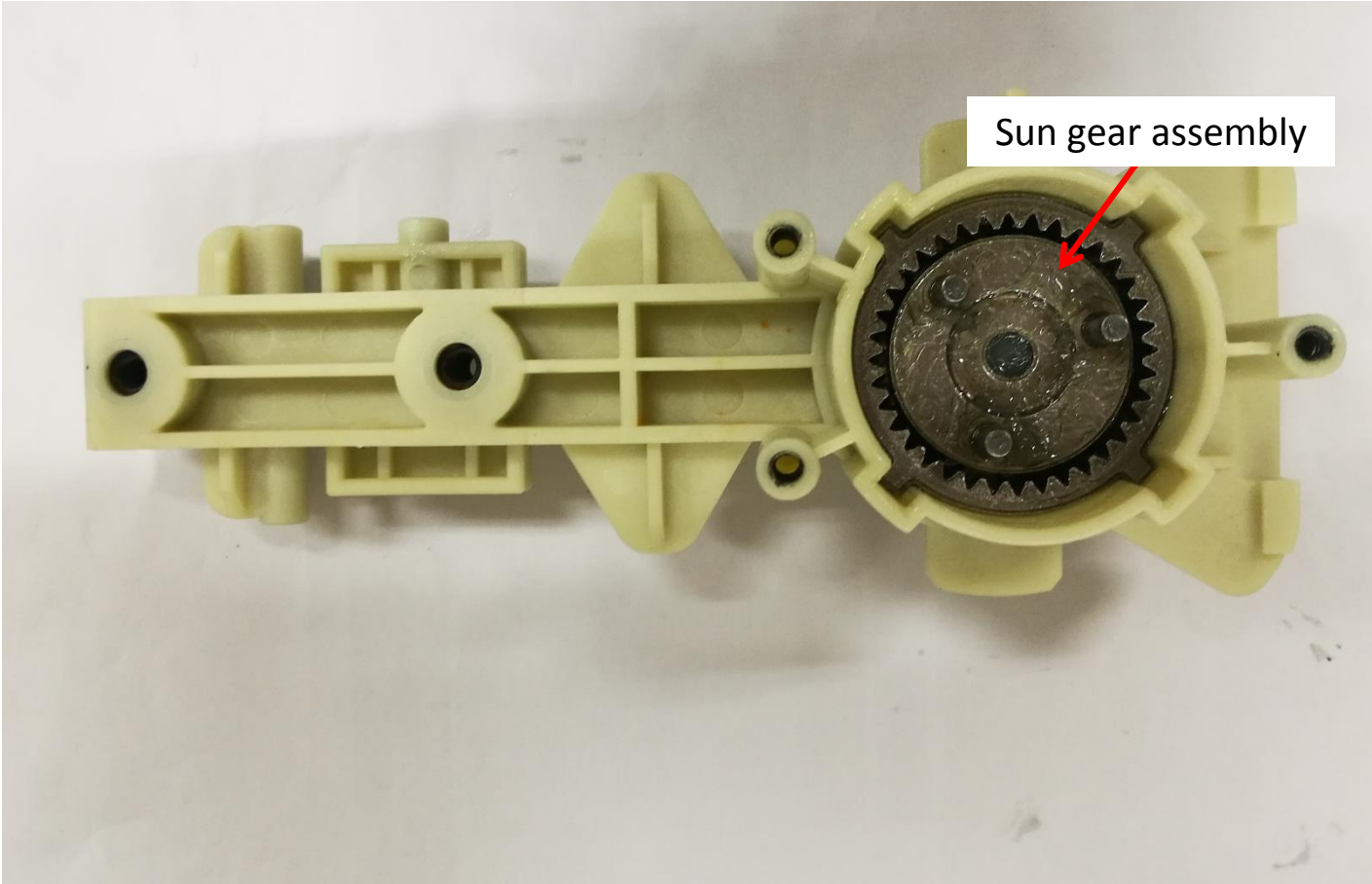
Replace the motor and gear assembly

21. Mount the planet gears into the gear case assembly.



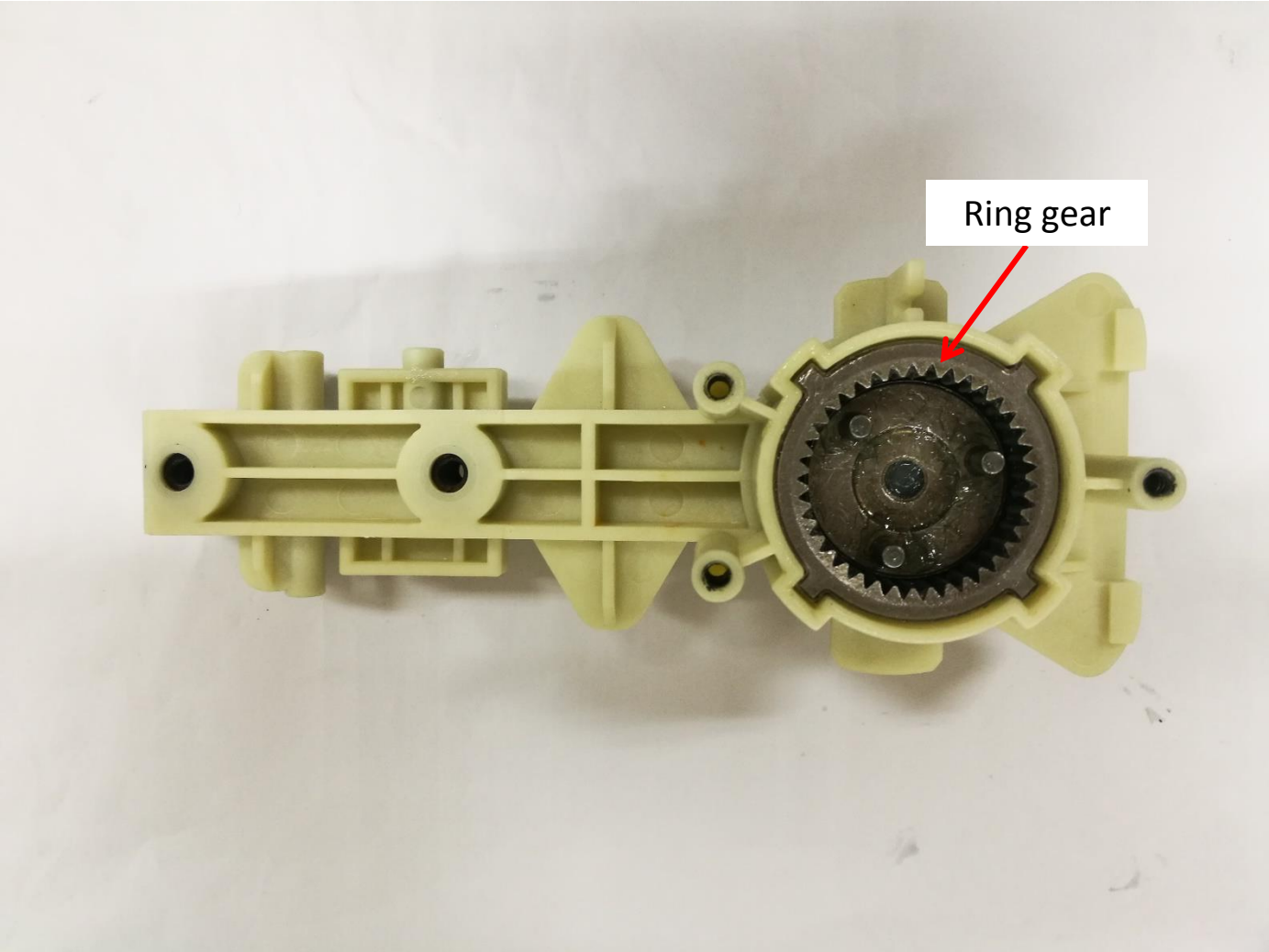
Replace the motor and gear assembly

22. Mount the sun gear assembly into the gear case assembly.



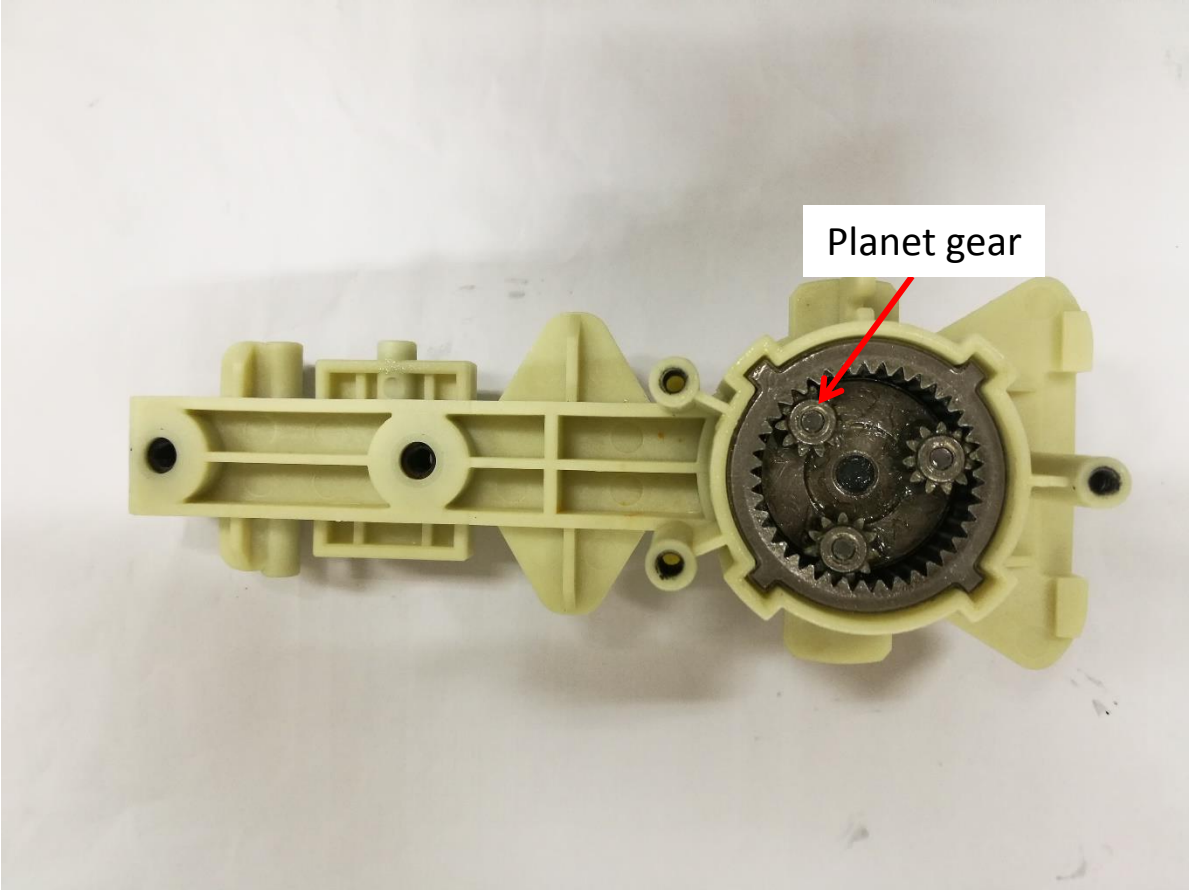
Replace the motor and gear assembly

23. Mount the ring gear into the gear case assembly.



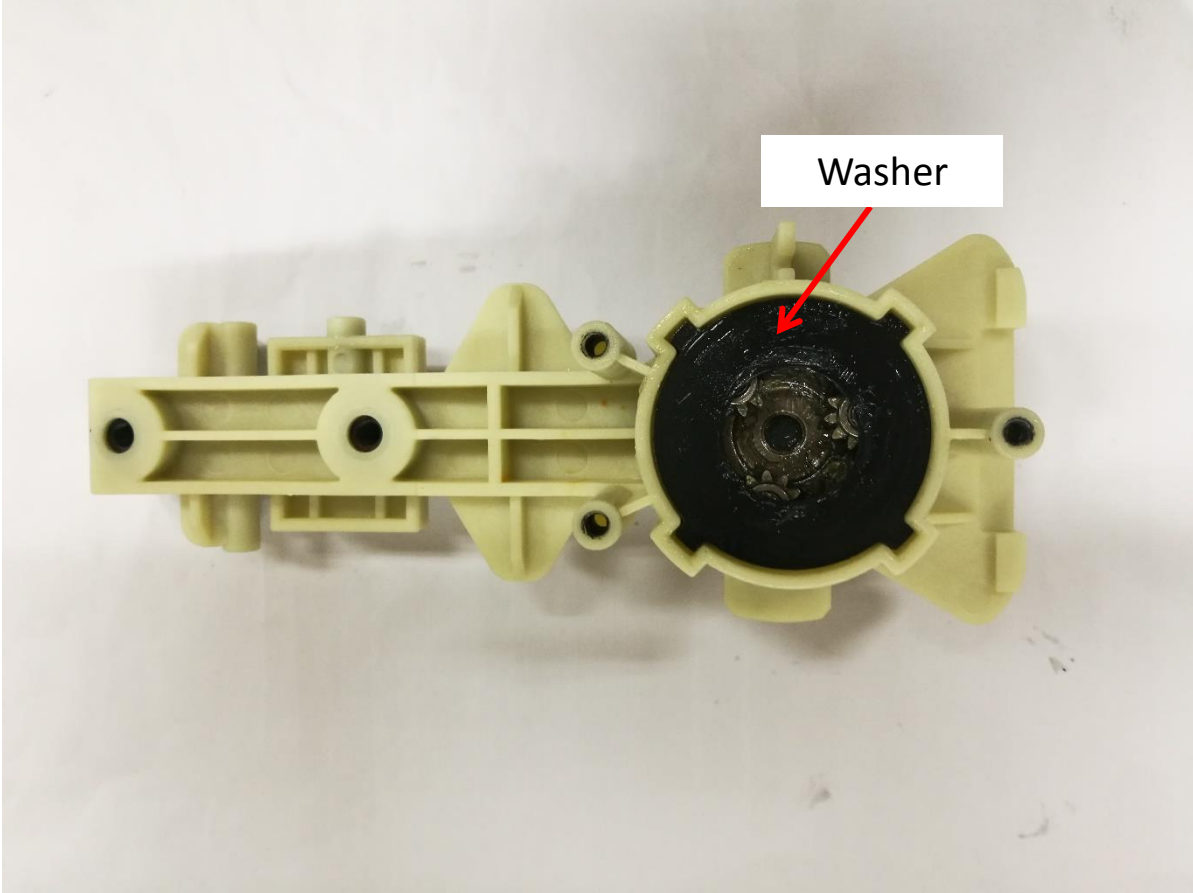
Replace the motor and gear assembly

24. Mount the planet gears into the gear case assembly.



Replace the motor and gear assembly

25. Mount the washer into the gear case assembly.



Replace the motor and gear assembly

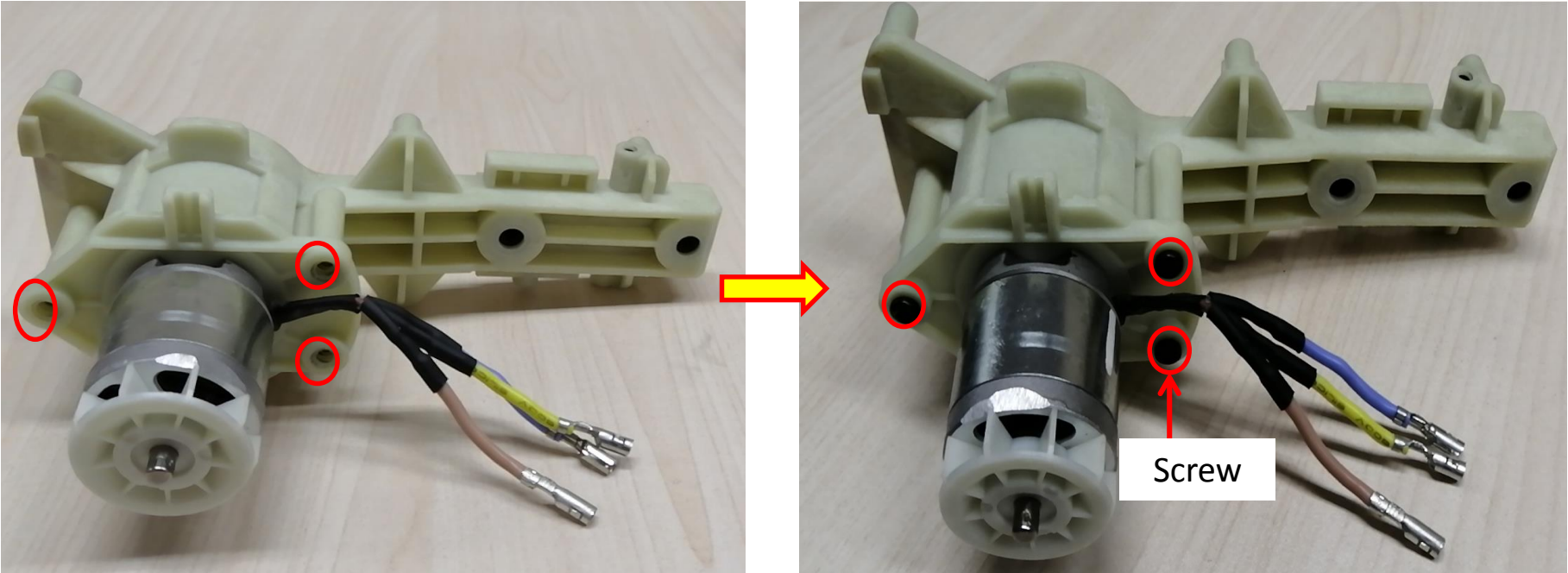
26. Assemble the gear case assembly with the motor assembly.

Motor assembly



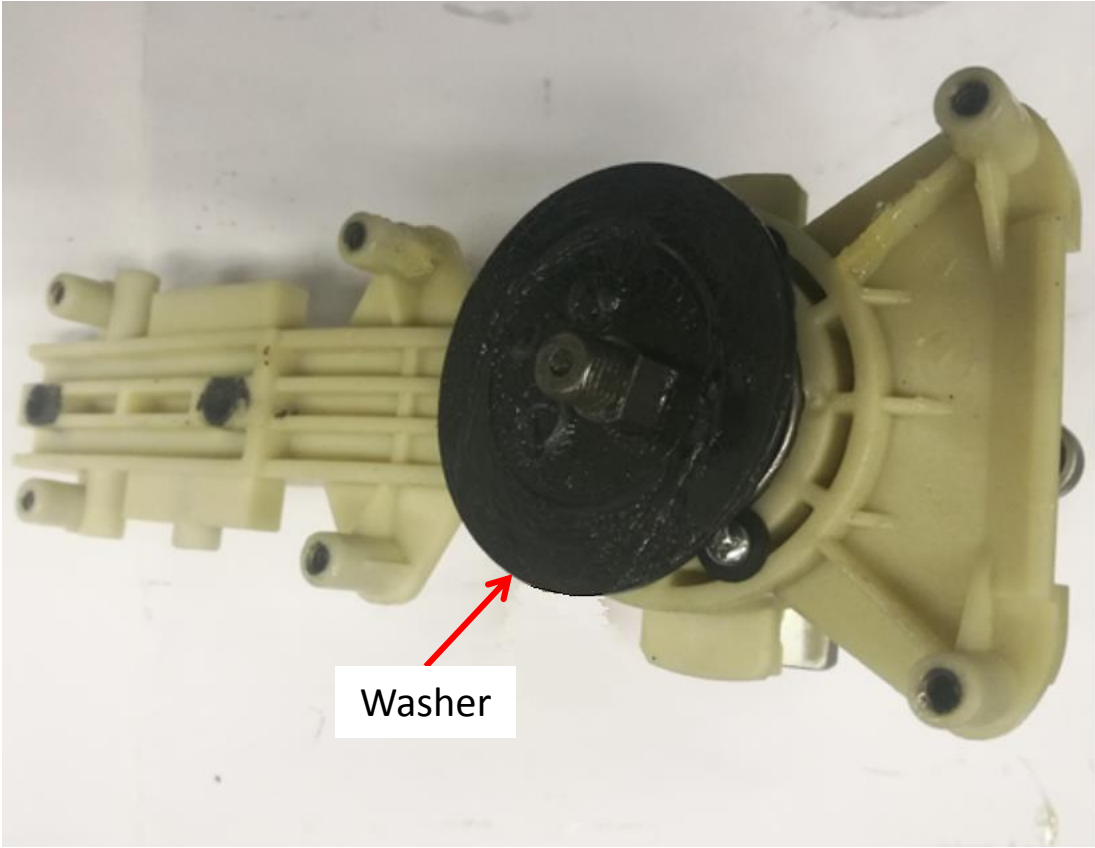
Replace the motor and gear assembly

27. Fix the motor assembly to the gear case assembly with screws.



Replace the motor and gear assembly

28. Mount the washer onto the shaft.

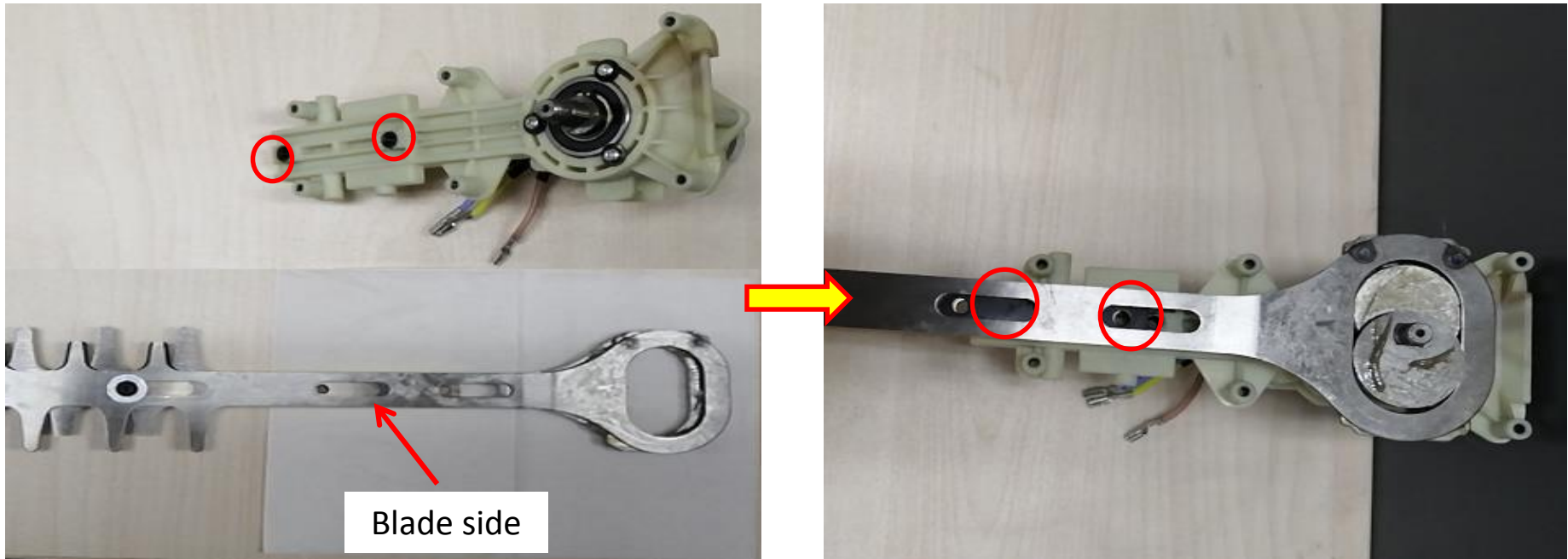


Replace the motor and gear assembly

HT2000E Hedge trimmer

29. Mount the blade assembly onto the shaft.

Notice: Blade side facing upwards. Holes on the plate support should be in alignment with holes on the gear case assembly.



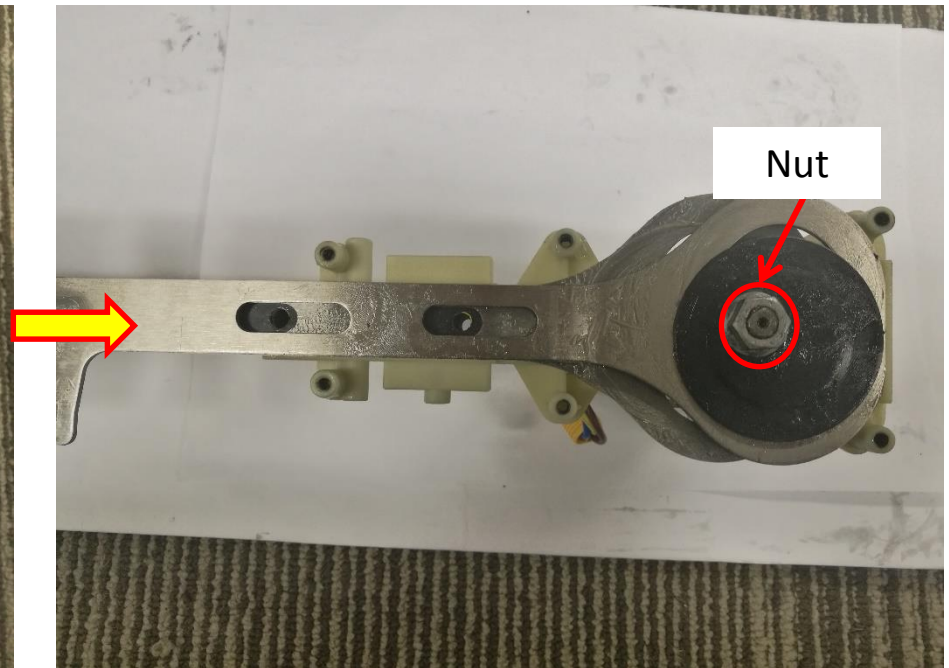
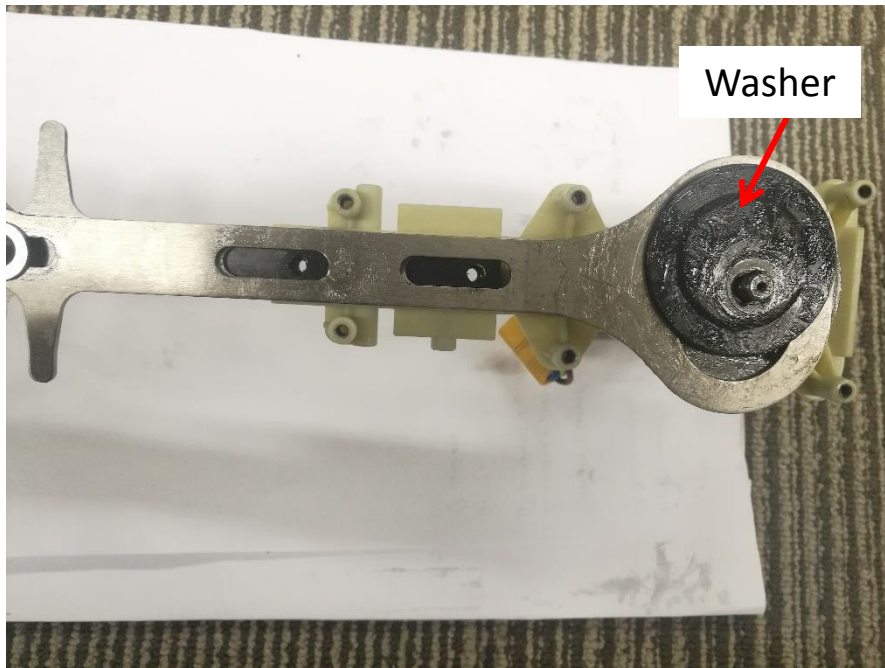
Replace the motor and gear assembly

HT2000E Hedge trimmer

30. Mount the washer onto the shaft.

31. Lock the blade set to make it stand still, then tighten the blade assembly with the motor assembly with nut.

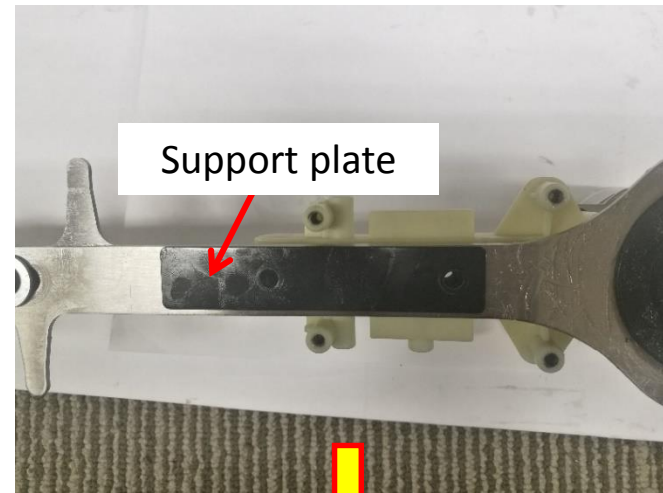
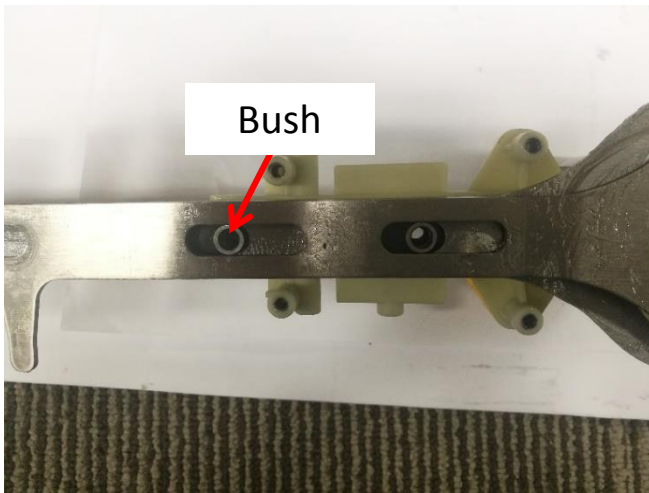
Notice: When finishing mount the blade assembly onto the gear shaft, unlock the blade set and rotate the nut with socket wrench, the blade set should move front and back freely, if not, reassemble the blade assembly.



Replace the motor and gear assembly

HT2000E Hedge trimmer

32. Mount the bushes into the blade assembly.
33. Put the support plate on the surface of the blade assembly.
34. Assemble the support plate with the blade assembly with screws.



Replace the motor and gear assembly

HT2000E Hedge trimmer

35. Mount the blade assembly together with the motor assembly into the left housing.

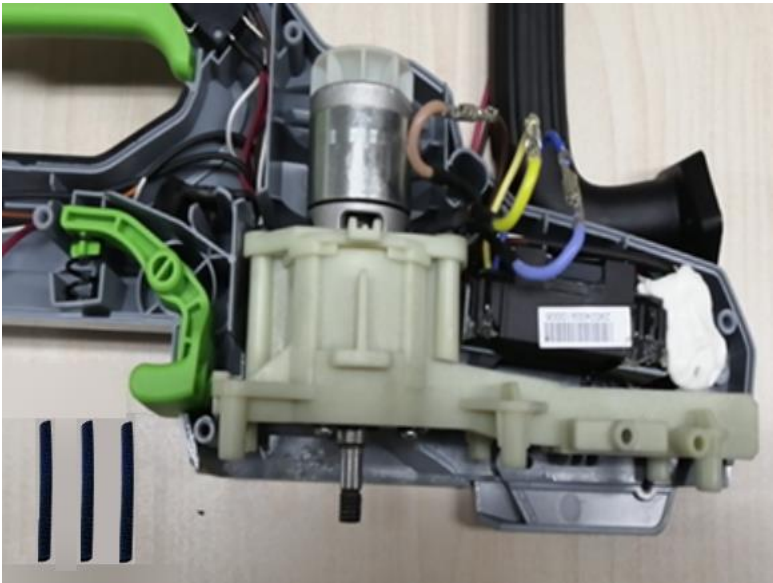


Part 5: Assemble the Housing Set

Assemble the housing set

HT2000E Hedge trimmer

- 1. Sleeve the new heat-shrinkable tube at the metal connectors and heat to make it shrink .



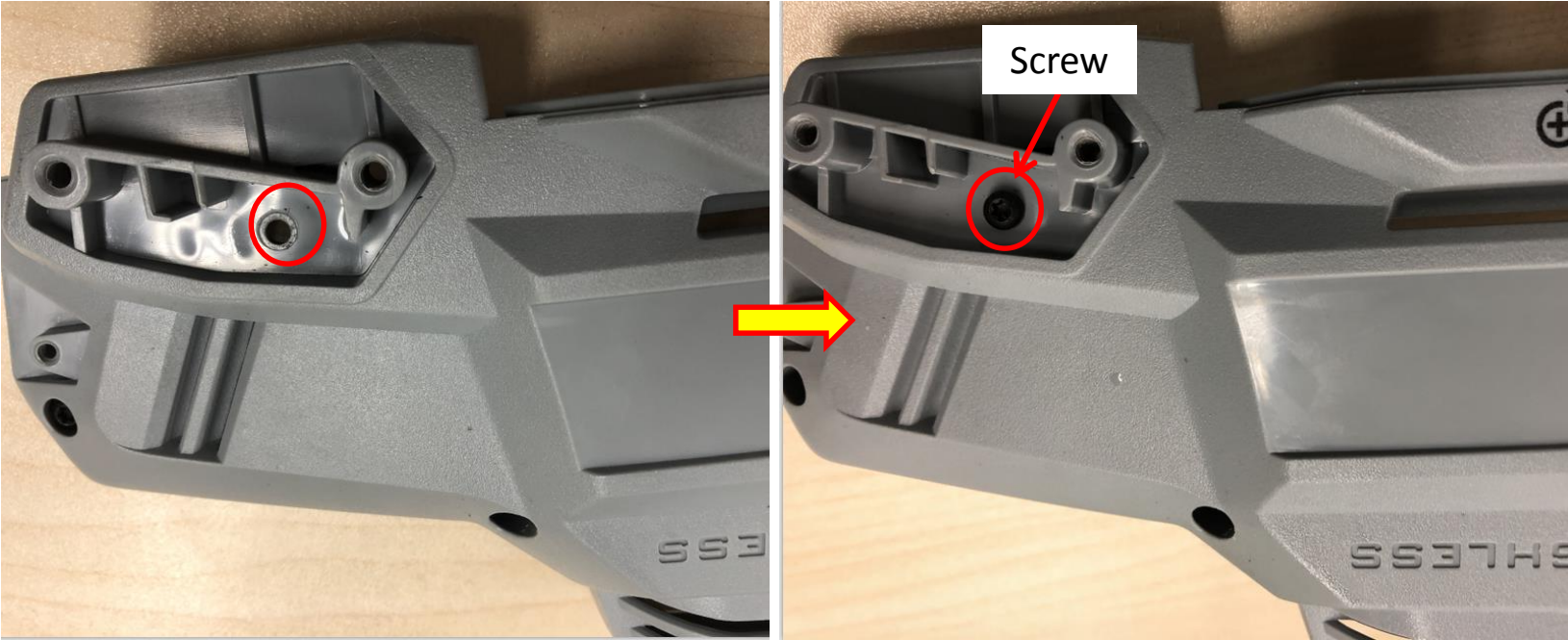
Assemble the housing set

2. Assemble the right housing with left housing with screws.



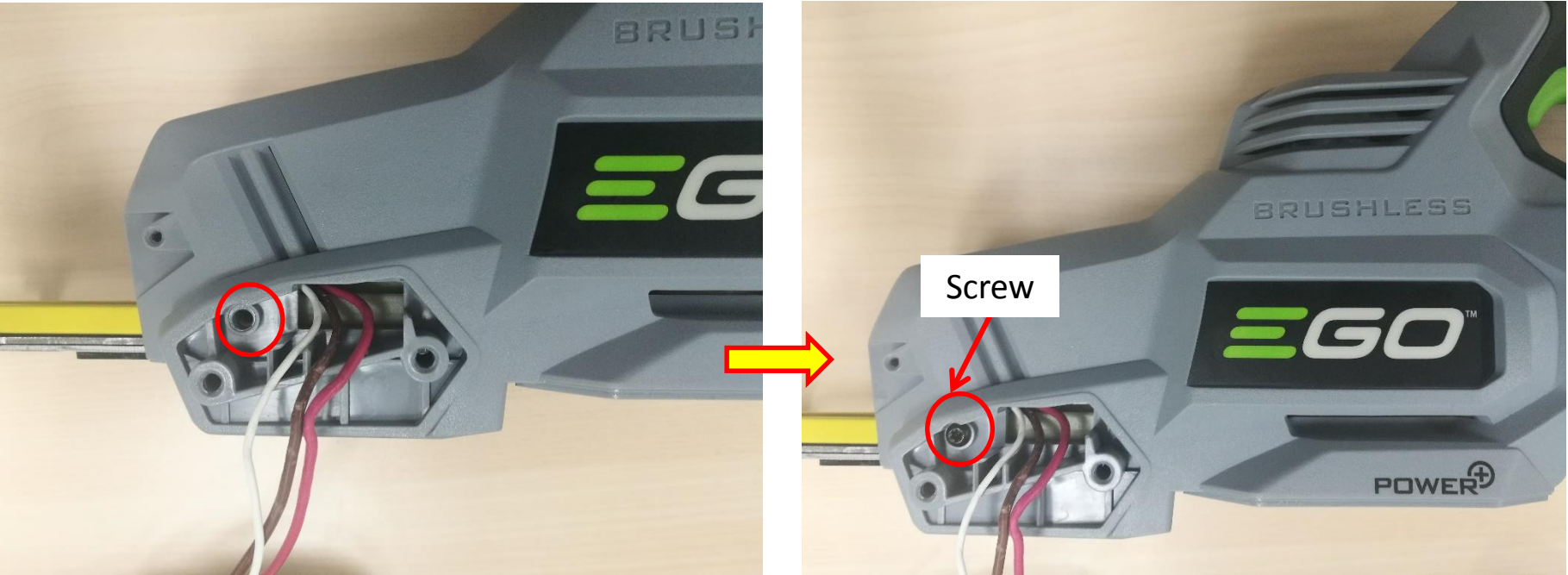
Assemble the housing set

3. Tighten the screw on the right housing side.



Assemble the housing set

4. Tighten the screw on the left housing side.



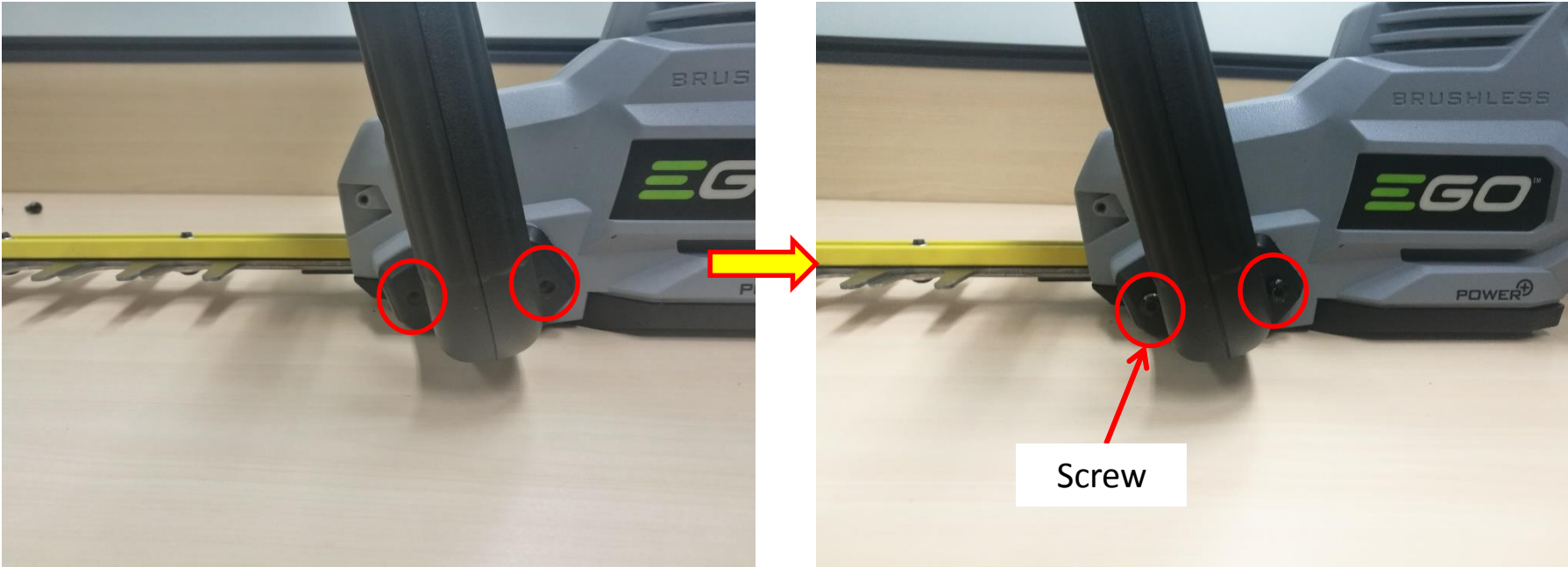
Assemble the housing set

- 5. Assemble the rear side handle with the housing set.
- 6. Mount the front side handle on the rear side handle and tighten them with screws.



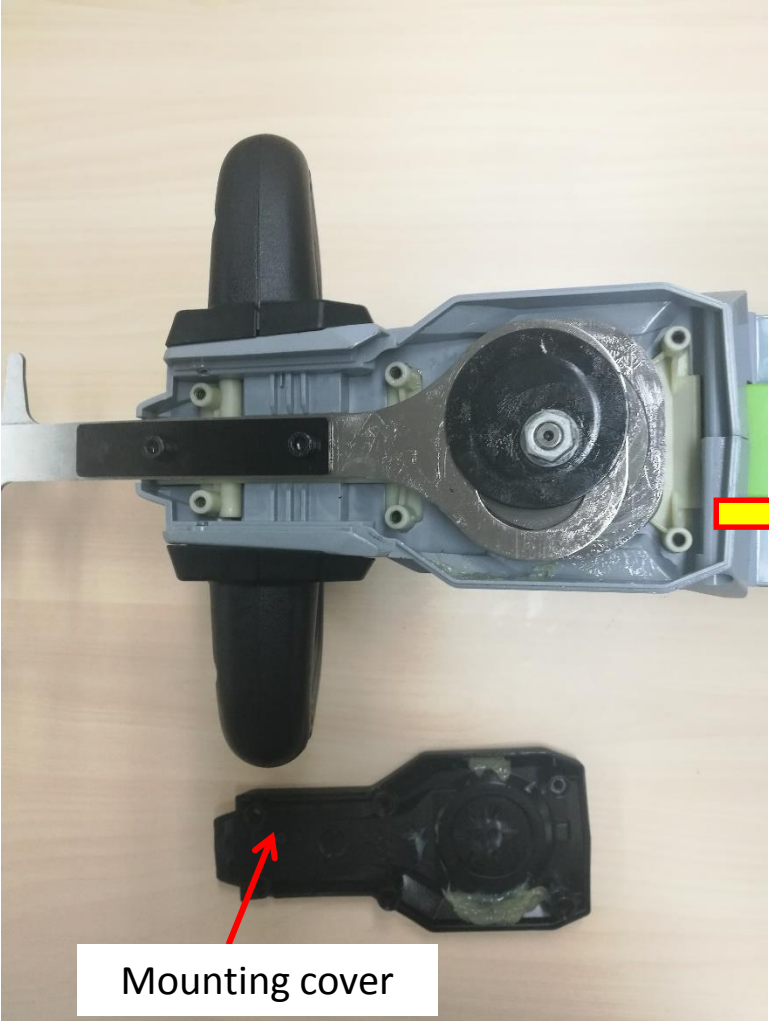
Assemble the housing set

- 7. Tighten the screws on each side of the housing set to firmly assemble the side handle with the housing set.



Assemble the housing set

8. Mount the cover with the housing set and tighten them with screws.



Assemble the housing set

9. Assemble the guard with housing set and tighten them with screws.



Guard



Screw