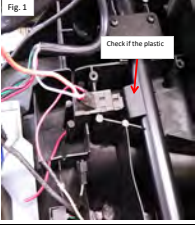


LM2100 LM2100SP Troubleshooting

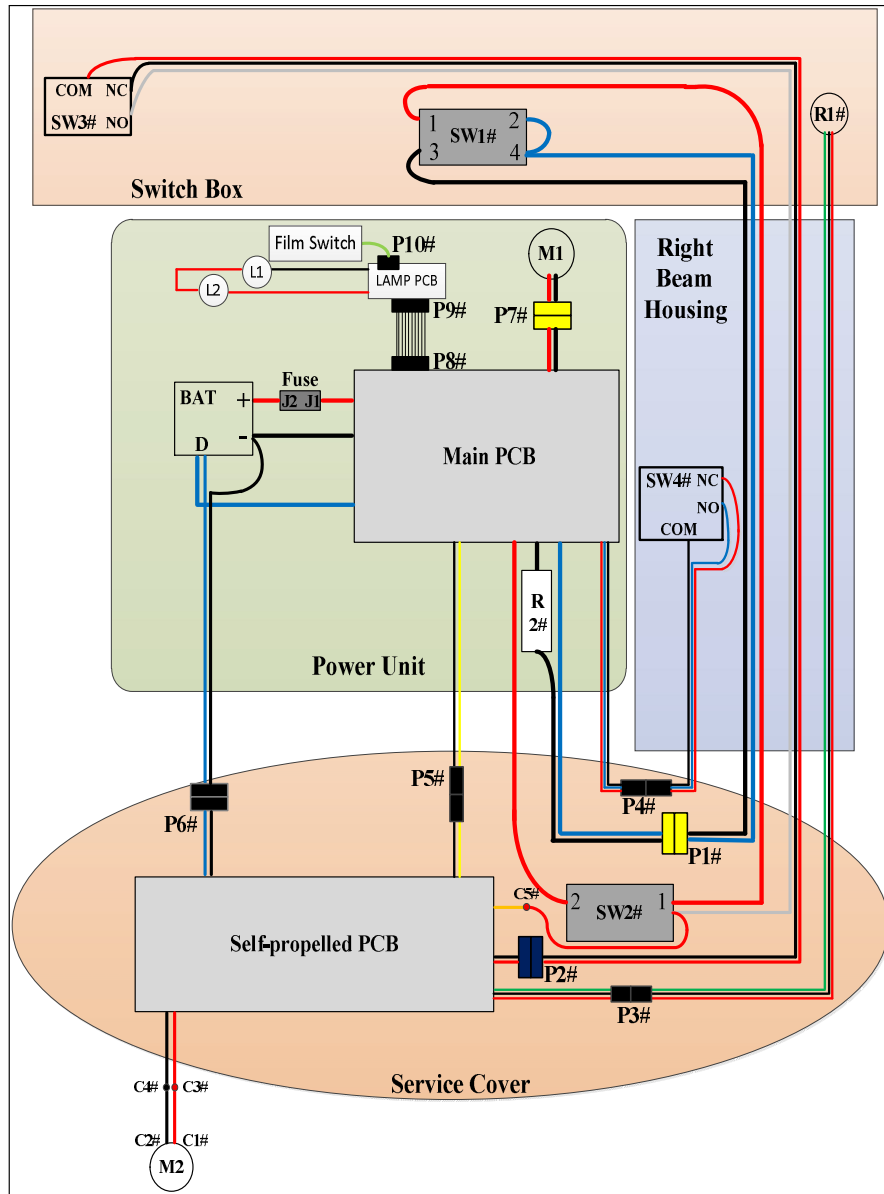
Problem	How to Locate the faulty position.				Problem Cause	Faulty Position	Testing Method
	LED on Battery	Power Indicator On Mower	Headlights	Conclusion			
Won't turn on	OFF	OFF	Can be turned on	The battery is installed and connected properly. The main circuit is open-circuit.	1. The main switch SW1# has a bad solder joint. 2. The main switch SW1# is broken. 3. Connector P1# has a loose connection.	SW1# in Switch Box; P1# in Service Cover	1. Open the switch box, check if the cables are disconnected from the main switch SW1#, resolder, if needed. 2. Check on/off function of the switch, replace it if damaged. 3. Open the service cover, check if the connector P1# is connected in position.
	Green	OFF	Can be turned on	The main circuit is OK but the signal control circuit is open.	1. Handle position switch SW2# has a bad solder joint. 2. Handle position switch SW2# is broken.	SW2# in Service Cover	1. Open the service cover, check if the cables are disconnected from the handle position switch SW2#, resolder, if needed. 2. Check on/off function of the switch, replace it if damaged.
	Green	Green	Can be turned on	Both the main circuit and signal control circuit are OK.	Main motor M1 is broken or connector P7# has a loose connection.	In Power Unit	1. Open the inner cover of the power unit, check if the connector P7# is connected in position. 2. Check the motor M1. Replace with a new one if M1 is broken.
	OFF	OFF	Can't be turned on	The electricity is disconnected from the main circuit, or the PCBA is broken.	Fuse is blown. Main PCBA is broken (internal short-circuit). Bad solder joint of the electric contact terminals.	In Power Unit	Use the Multimeter to test the Fuse and Main PCBA refer to the Measure guideline "LM2100 & LM2100SP Troubleshooting_How to diagnose the PCBA and motor".
	ON or OFF	ON or OFF	ON or OFF	-	Main PCB is broken.	In Power Unit	
	ON	flash green every 6 seconds	ON	-	-	The wire in the side aluminum tube (SW4 to P4) is broken or the 3-pin plug (P4) is disconnected	In side aluminum tube or under the service cover
Self-propelling speed is not adjustable (stuck in low or high) (only for LM2100SP)	Green	n/a	can be turned on	n/a	Self-propelling speed adjustment PCBA has a bad solder joint or is broken. The wire in the side aluminum tube (R1 to P3#) is broken	R1# in Switch Box In side aluminum tube	1. Open the switch box, check R1# to see whether there is any bad solder joint and use the Multimeter to test the wire (R1 to P3#). 2. Get the self-propelling speed control lever to adjust by lifting the mower so that the rear wheels are off the ground. And then set the mower back down the ground to see whether the self-propelling function returns normal. If this works, the self-propelling wire harness is proved to be in bad connection. 3. Replace the whole wire harness assembly if R1# or wire is damaged. Option: Have the whole handle assembly replaced. 4. Open the service cover, check if the connector P3# is connected in position.
	OFF	n/a	can be turned on	n/a	Disconnection of connector P3#	P3# in Service Cover	1. Open the switch box, check if the cables are disconnected from the switch SW3#, resolder them if needed. 3. Open the service cover, check if the connector P3# is connected in position.
Self-propelling function doesn't work (only for LM2100SP)	OFF	n/a	can be turned on	n/a	1. Self-propel switch SW3# has a bad solder joint. 2. SW3# is broken. 3. Connector P2# has a loose connection.	SW3# in Switch Box; P2# in Service Cover	1. Open the switch box, check if the cables are disconnected from the switch SW3#, resolder them if needed. 3. Open the service cover, check if the connector P2# is connected in position.
	OFF	n/a	can be turned on	n/a	Self-propelled trigger is worn.	In Switch Box	Press the self-propelling trigger and check if there is click sound in the switch box, replace with a new trigger if no click sound inside.
	OFF	n/a	can be turned on	The electric circuit for self-propelling is open-circuit.	1. Handle position switch SW2# has a bad solder joint. 2. Switch SW2# is broken. 3. The solder joint (CS) is disconnected. 4. The switch can't be activated properly due to the part wearing.	SW2# in Service Cover	1. Open the service cover, check if the cables are disconnected from the handle position switch SW2#, resolder if needed. 2. Check on/off function of the switch SW2#, replace it if damaged. 3. Check if the solder point (CS) is disconnected. If it's the point that the brown wire from the self-propelling PCBA connecting to red wire from SW2# pin 1) 4. Check if SW2# is mounted correctly in the position or is there any wearing of the plastic part (see Fig. 1) that is fixed on the shaft and used to activate SW2#. Replace the plastic part if it is worn. 
	ON	n/a	can be turned on	The electric circuit for self-propelling is ok. One of the motor gears, PCBA may be broken.	Self-propelled motor M2 is broken or connection between M2 and Self-propelled PCB has a bad solder joint.	Connectors C3# & C4# in Service Cover; M2 in Self-propelled Unit	1. Open the service cover to inspect the solder joints C3# & C4#. 2. Check M2. If there is any jam or alcoholic varnished wire or burned sign of M2, replace it with a new motor. Detailed diagnosis please see Measure guideline "LM2100 & LM2100SP Troubleshooting_How to diagnose the PCBA and motor".
	ON/OFF	n/a	can be turned on	n/a	Gears abrasion in rear wheels	In Rear Wheels	Disassemble the rear wheels for check if there are abrasion of the inside gears. If the gear is worn, replace the gear.
Too much noise when self-propelling works (only for LM2100SP)	ON/OFF	n/a	can be turned on	n/a	Self-propelled PCB is broken.	In Service Cover	Open the service cover and use the Multimeter to test the self-propelled PCBA refer to the Measure guideline "LM2100 & LM2100SP Troubleshooting_How to diagnose the PCBA and motor".
	OFF	n/a	can be turned on	n/a	1. Connector P6# has a loose connection. 2. Bad solder joint of the electric contact terminals ("D" & "+" terminals).	In Power Unit	1. Open the service cover, check if the connector P6# is connected in position. 2. Use a multimeter to test connection between "+" and P6# terminal of black wire and the connection between "D" and P6# terminal of blue wire. If there is any open circuit, disassemble the power unit, take out the PCBA and resolder the terminals.
	ON	n/a	can be turned on	n/a	The shaft of the self-propelled unit is bent or rear wheels are deformed.	In Self-propelled Unit	1. Check the rear wheels, if any of them is deformed, replace with new rear wheels. 2. Rotate the rear wheels without starting the machine. If there is any interference or pause during free rotation, replace with a new self-propelled unit. NOTICE: Self-propelled unit will be updated to new version. Please see "EGO SBOM Version Guideline".
Headlights can't be turned on.	n/a	n/a	Can't be turned on	n/a	1. The plug of the film switch is disconnected to the lamp PCBA. 2. The film switch is broken.	In Power Unit	1. Remove the film switch cover, re-plug the P10# and test the function. 2. Replace with a new film switch and test the function.
	n/a	n/a	Can't be turned on	n/a	Wire harness plug P8# or P9# is disconnected.	In Power Unit	Remove the film switch cover and the inner cover of the power unit, re-plug the P8# and test the function.
	n/a	n/a	Can't be turned on	n/a	LED headlight L1 or L2 is broken.	In Power Unit	Remove the decorative covers of the power unit, replace with a new set of LED headlights.
No brake after mower's bail switch is released.	n/a	n/a	Can't be turned on	n/a	Main PCBA is broken.	In Power Unit	Open the service cover and use the Multimeter to test the Main PCBA refer to the Measure guideline "LM2100 & LM2100SP Troubleshooting_How to diagnose the PCBA and motor".
	Green	Green	Can be turned on	The brake circuit is open-circuit.	The braking resistor R2# has a bad solder joint or is broken. 1. The black cable has a bad solder joint to the main switch SW1# 2. Main switch SW1# is broken. 3. Connector P1# has a loose connection.	A part of main PCBA SW1# in Switch Box; P1# in Service Cover	Disassemble the power unit and check R2# on the main PCBA. If R2# is broken, replace with a new main PCBA. 1. Open the switch box, check if the black cable is disconnected from the main switch SW1#, resolder it if needed. 2. Open the service cover, check if the connector P1# is connected in position.
Motor speed is unstable.	n/a	n/a	n/a	n/a	The carbon brushes surface is not smooth.	Motor in Power Unit	Run the mower for 30 min and allow the carbon brushes to get into smooth contact with the commutator. Check if the speed will vary in running after the aging test. Replace with a new motor if the problem still exists.
Battery pack is stuck in the battery compartment and not able to be removed.	n/a	n/a	n/a	n/a	Battery housing may meet with the battery compartment due to the abnormal vibration in use, especially when the blade is not balanced.	In Power Unit	Disassemble the power unit to take apart the motor, main PCBA and LED headlights. Force the battery from the battery compartment. Replace the battery compartment. If the battery housing is also damaged, replace the battery as well.

Rank as Possibility (High to Low)

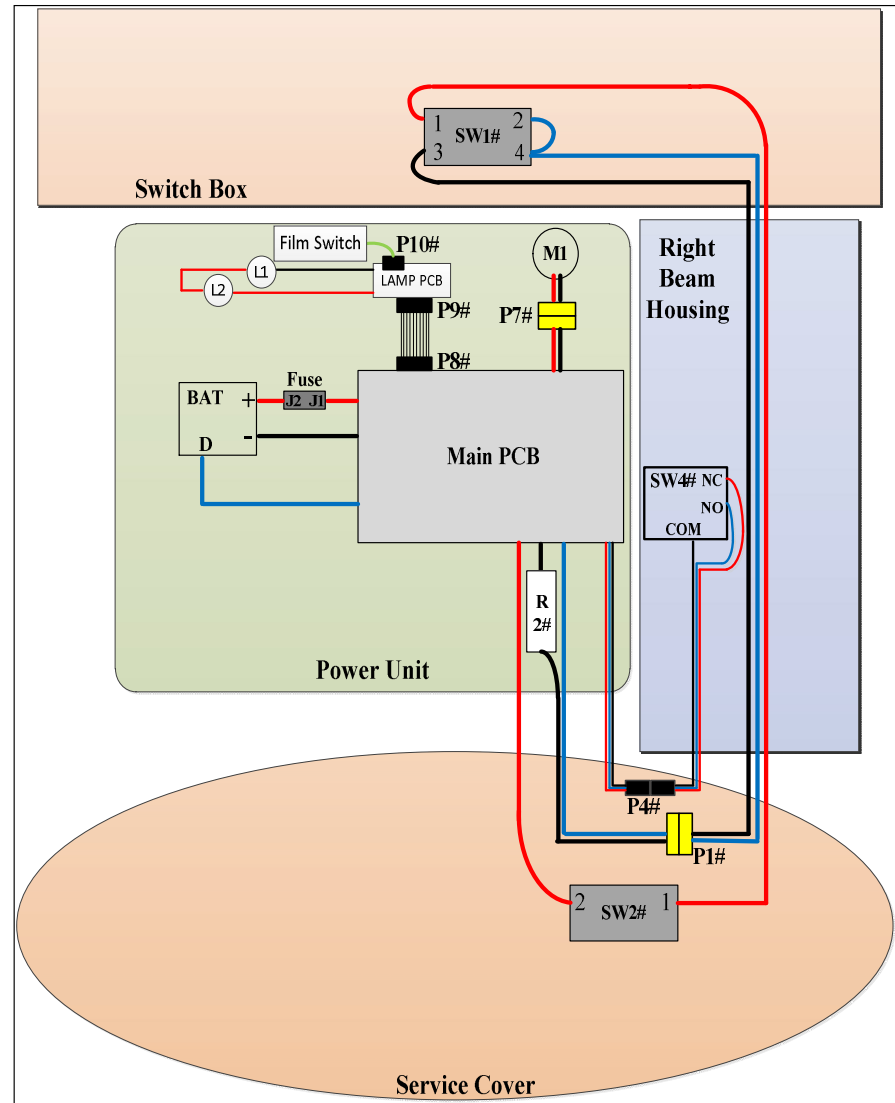
Top Six Failure_LM2100SP/LM2100	Problem and Phenomenon	Solution
The plugs are in bad connection.	n/a	Before any repair mentioned below, please make sure that all the corresponding plugs are in good connection.
The wire harness assembly is broken.	<p>1. The tool cannot be turned on. <u>The typical phenomenon is the power indicator on the mower flashes green (or slightly orange) every 6s when the user starts the mower correctly.</u></p> <p>2. <u>The mower blade can be turned on only when the handle is in the 90 degree position. When the handle is adjusted to other position, the blade will stop spinning.</u></p> <p>3. The self-propelled speed cannot be adjusted (LM2100SP).</p> <p>4. The self-propelled function cannot be turned on (LM2100SP).</p>	<p>Option 1: See RG_Part 12_Wire Harness Assembly Replacement_LM2100SP to replace the wire harness assembly;</p> <p>Option 2: See RG_Part 11_Handle Assembly Replacement_LM2100SP to replace the whole handle assembly.</p>
The main PCBA is broken.	<p>1. <u>Headlights cannot be turned on. Check the fuse on the PCBA is the first step.</u></p> <p>2. The tool cannot be turned on. The power indicator on the mower or battery indicator is ON or OFF, without typical phenomenon.</p>	See RG_Part 2.1_Parts in Power Unit Replacement_LM2100SP to replace the main PCBA.
The self-propelled PCB is broken.	The self-propelled function cannot be turned on (LM2100SP).	See RG_Part 8_Self-propelled Unit Replacement_LM2100SP to replace the self-propelled PCBA.
The Self-propelled motor/unit is broken.	The self-propelled function cannot be turned on (LM2100SP).	See RG_Part 8_Self-propelled Unit Replacement_LM2100SP to replace the self-propelled motor or self-propelled unit.
The main motor is defective.	The tool cannot be turned on, but both the power indicator on the mower and the battery indicator are Green when the user starts the mower correctly. <u>The headlights also can be turned on.</u>	See RG_Part 2.1_Parts in Power Unit Replacement_LM2100SP to replace the main motor.

NOTE: RG for LM2100 and LM2100SP are similar, just follow the specific section to have replacement.

LM2100SP Wiring Diagram



LM2100 Wiring Diagram



How to diagnose the PCBA and motor

NOTE:

1. Both the blade motor and the self-propelled motor (for LM2100SP) are brush motors, so the diagnostic procedure for the motor or the PCBA is different from the brushless tools, such as Blower and Chain Saw.
2. Blade motor and self-propelled motor share the same diagnosis.
3. The main PCBA and self-propelled PCBA are also in the similar diagnosis.

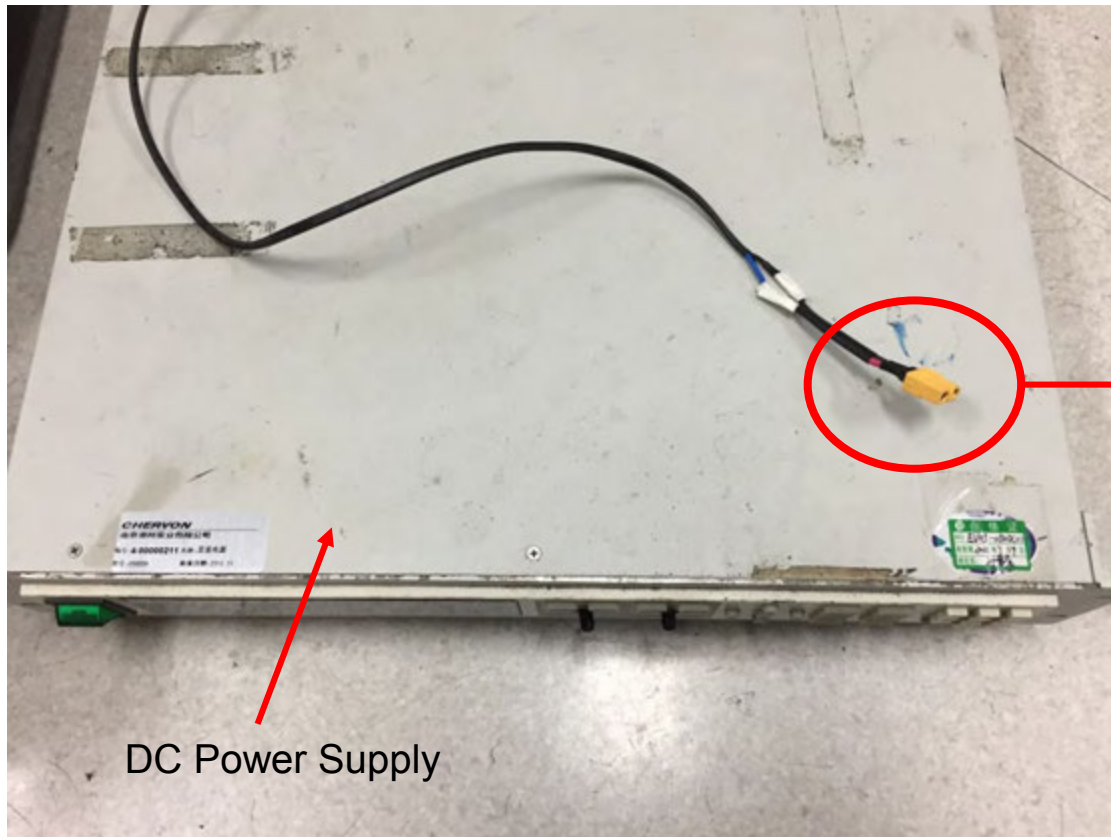
Draft by Aimin

Date 2020/09/17

Updated Slide 6 on 2021/09/29

How to diagnose the motor

1. Prepare a DC power supply. A free plug with wires is recommended to prepare for later easy connection with the blade motor plug.

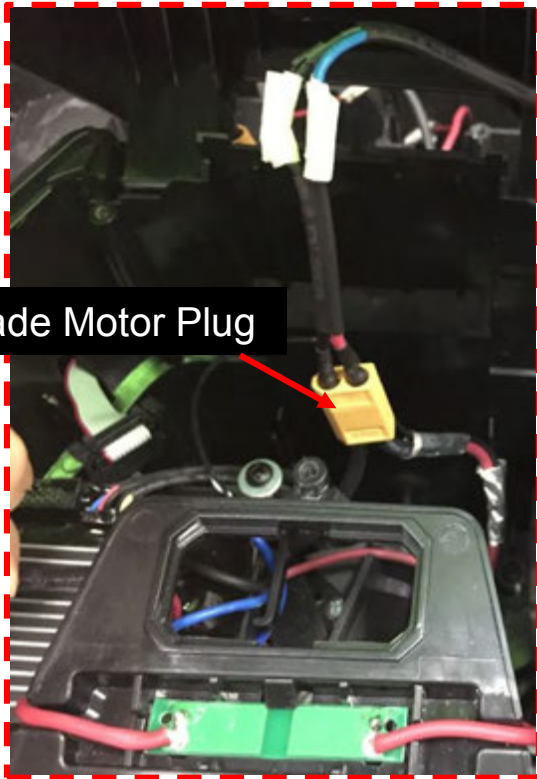


DC Power Supply

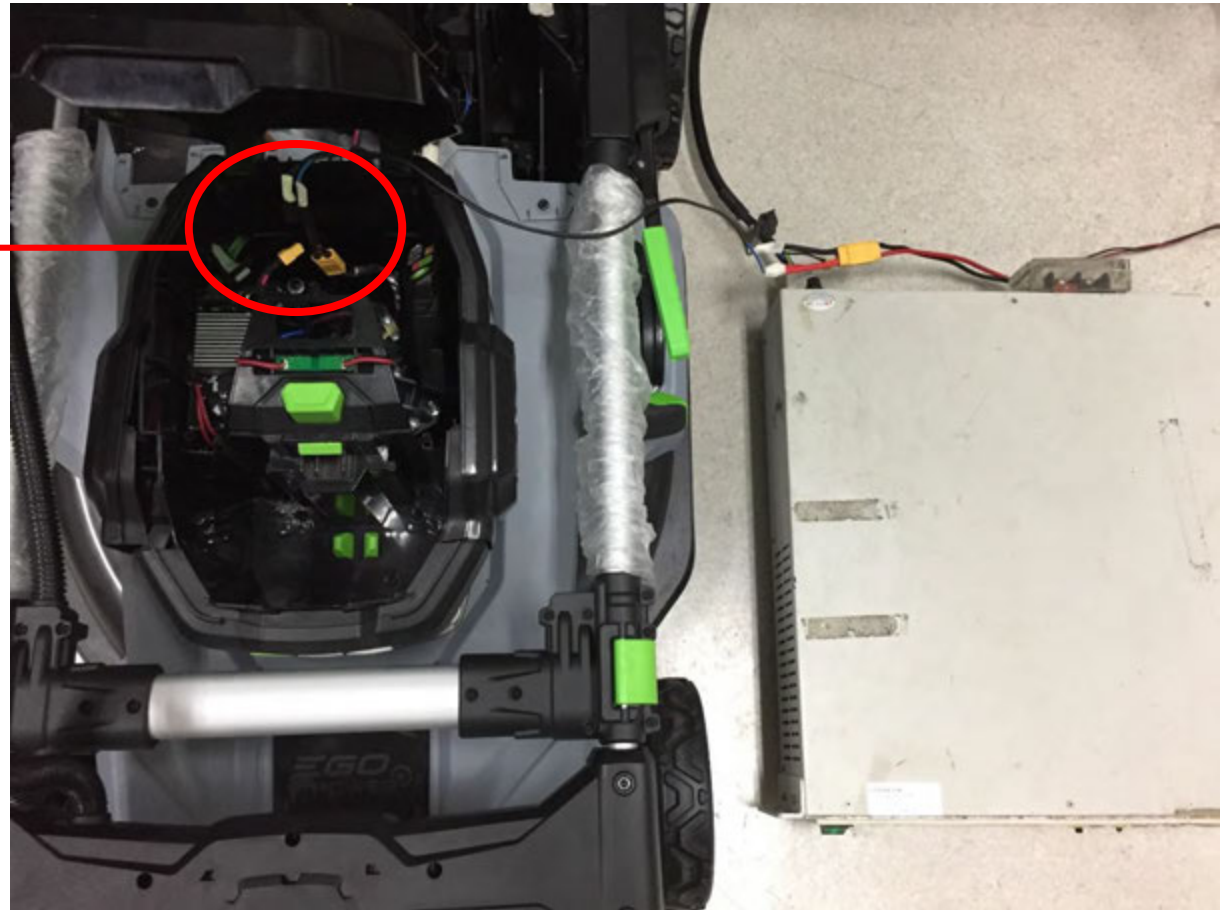


How to diagnose the motor

2. Connect the blade motor plug (yellow) with the power supply. No extreme high voltage for the supply is required. 5V indeed is enough to run the motor slightly.
3. If the motor doesn't run, the motor is defective, replace the blade motor directly.

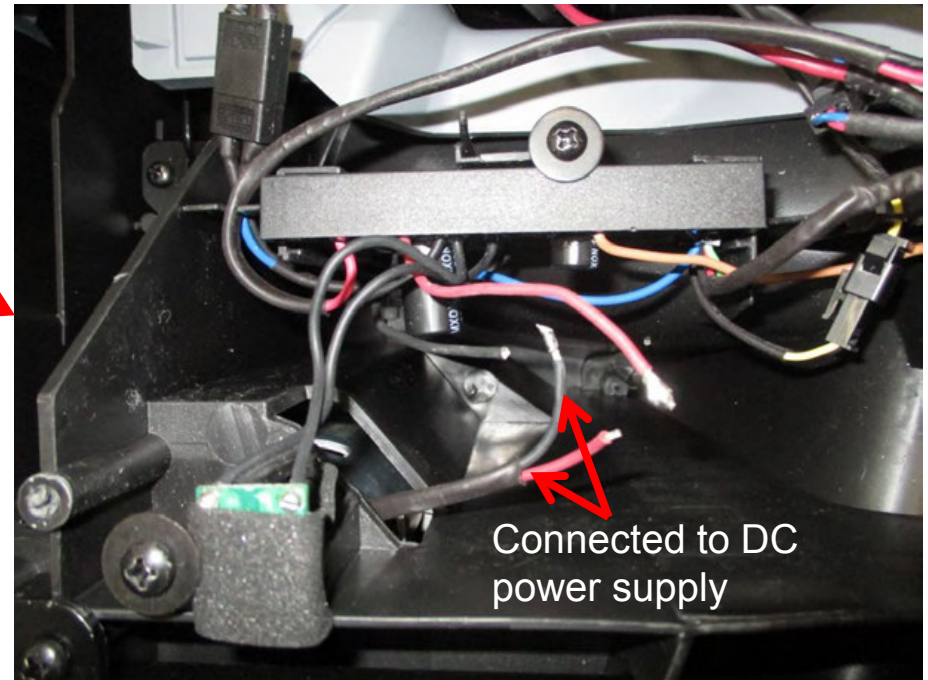


Blade Motor Plug



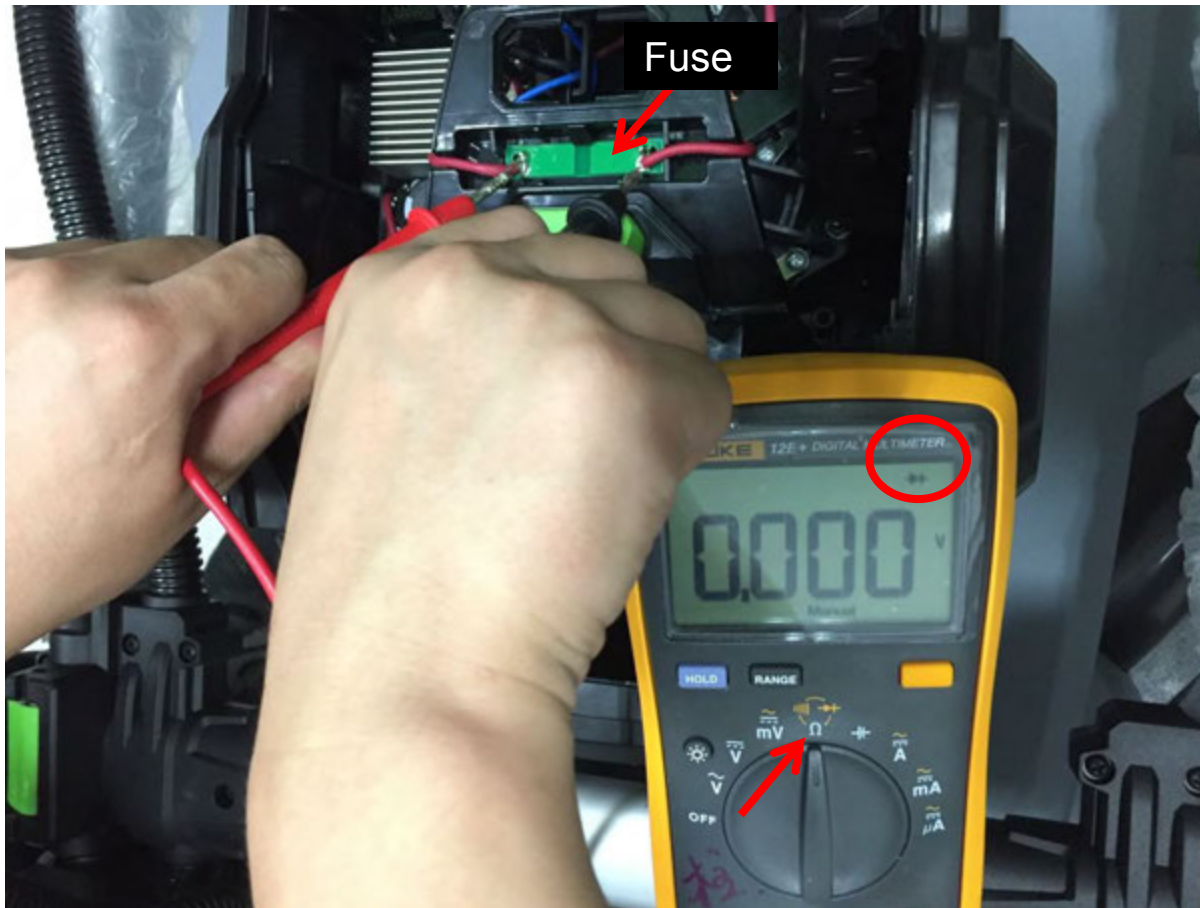
How to diagnose the motor

4. Open the service cover from the back of the mower and cut the two wires to disconnect the self-propelled motor from the self-propelled PCBA.
5. Test the self-propelled motor in the same way.



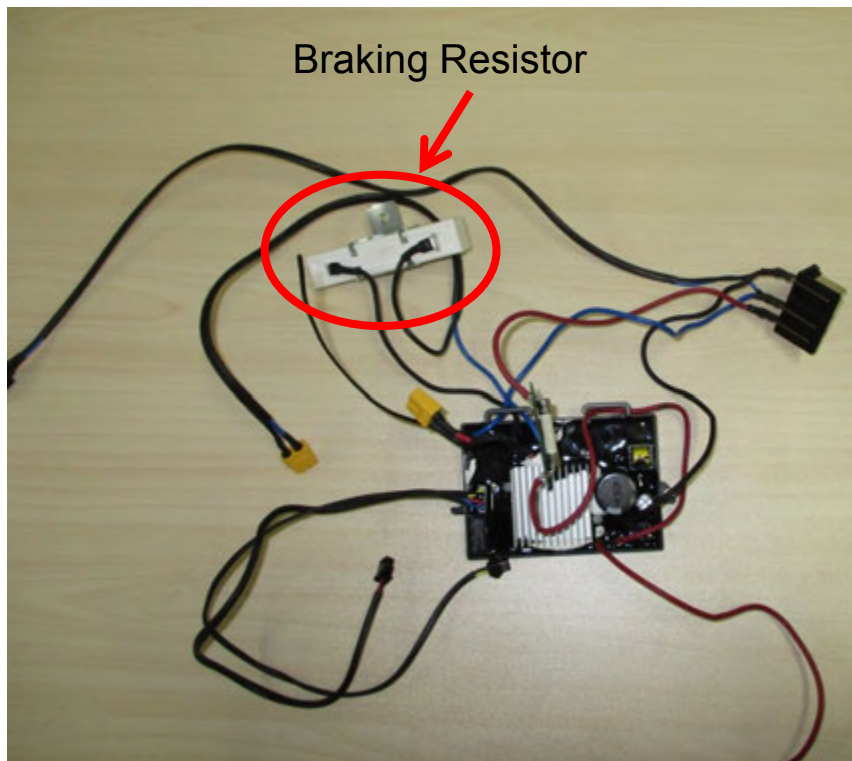
How to diagnose the main PCBA_Fuse

1. Prepare a Multimeter.
2. Set the Multimeter function to “Diode measuring”.
3. If the LCD displays 0 V, the fuse is good, go to next testing step. Otherwise replace the fuse first and then continue testing if the mower is still out of work.

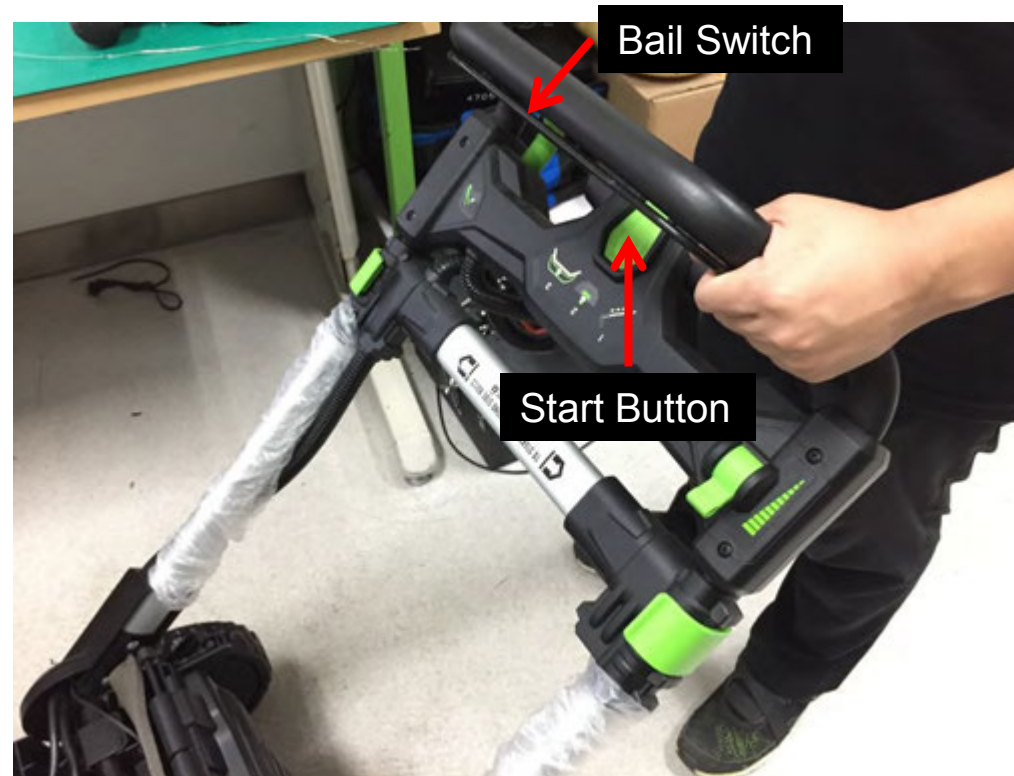


How to diagnose the main PCBA_MOSFET in the PCBA

4. Because there is a braking resistor within the main PCBA circuit, **press the start button and squeeze the bail switch at the same time during testing the main PCBA with a multimeter**. Otherwise, if the braking resistor is broken, you will also get the same result as the PCBA is good. Actually the PCBA is broken due to the defective braking resistor.



Main PCBA for your reference



How to diagnose the main PCBA_MOSFET in the PCBA

5. Measure the MOSFET in the PCBA (Step 1)



- Set the Multimeter function to “Diode measuring” .
- Contact the black pen pin to the red terminal of the yellow motor plug while the red pen pin contacting to the black terminal.
- If the LCD displays 0.40~0.55V (see next slide), 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).

How to diagnose the main PCBA_MOSFET in the PCBA



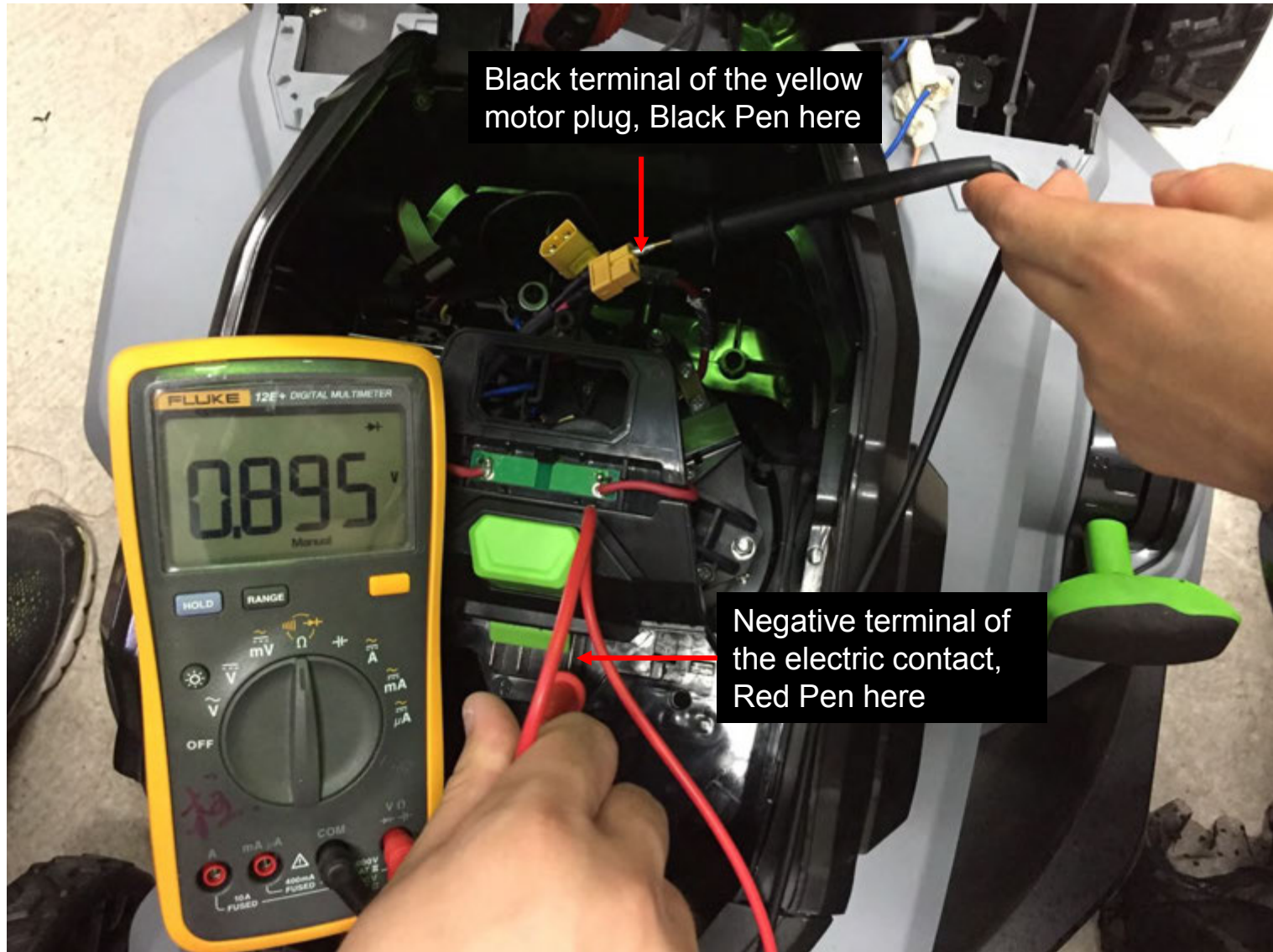
How to diagnose the main PCBA_MOSFET in the PCBA

6. Measure the MOSFET in the PCBA (Step 2)



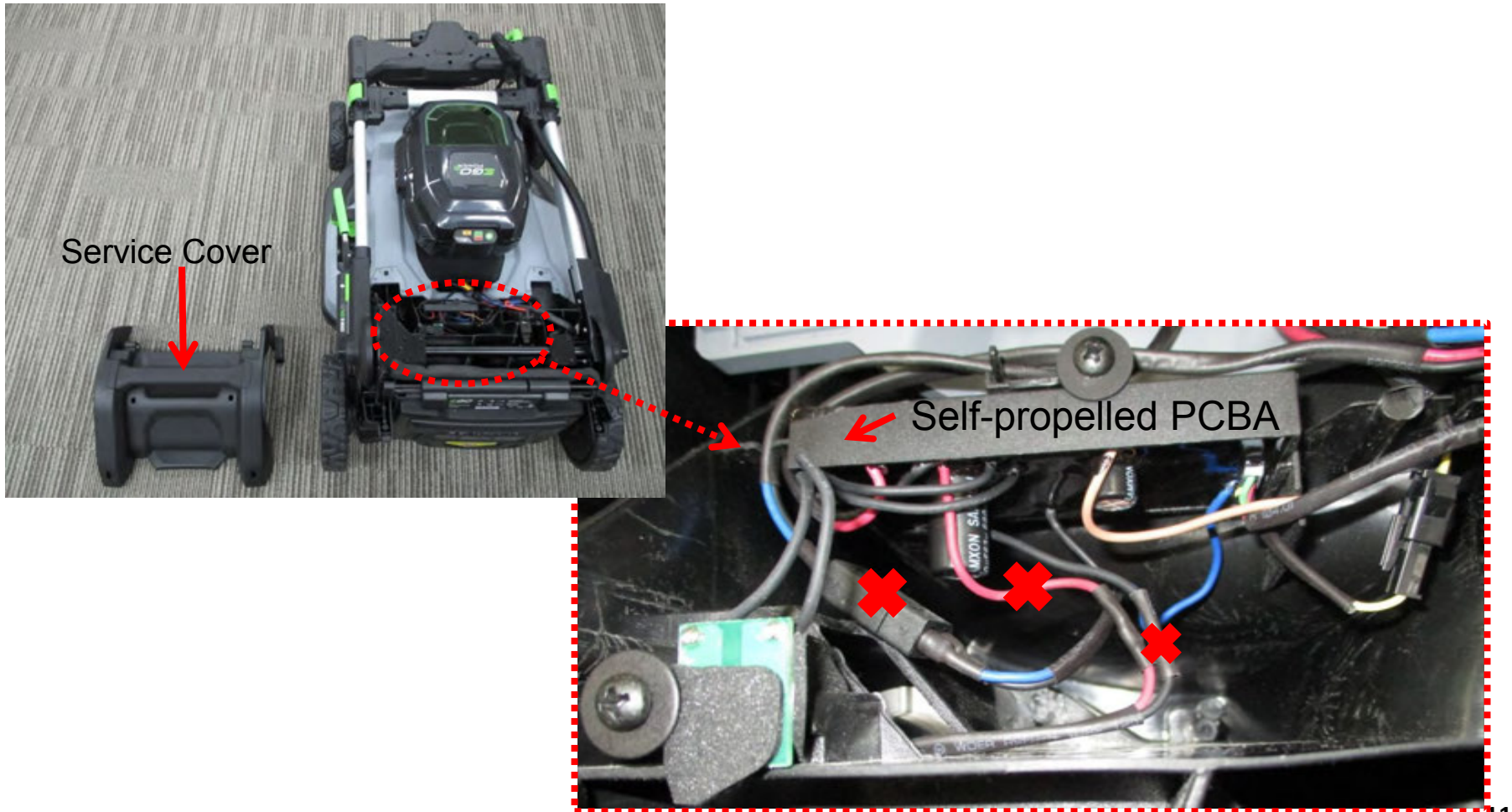
- Keep the Multimeter function setting at “Diode measuring”.
- Contact the red pen pin to the negative terminal of the electric contacts while the black pen pin contacting to the black terminal of the yellow motor plug.
- If the LCD displays 0.80~0.95V (see next slide), all the MOSFETs in the PCBA are good, otherwise means the PCBA is broken. Replace the PCBA with a new one. (When LCD displays both around 0.1V or 0L, the MOSFET are broken).

How to diagnose the main PCBA_MOSFET in the PCBA



How to diagnose the self-propelled PCBA

1. Open the service cover from the back of the mower and cut the two wires to disconnect the self-propelled PCBA from the self-propelled motor.
2. Separate the black plug to disconnect the self-propelled PCBA from the power unit.



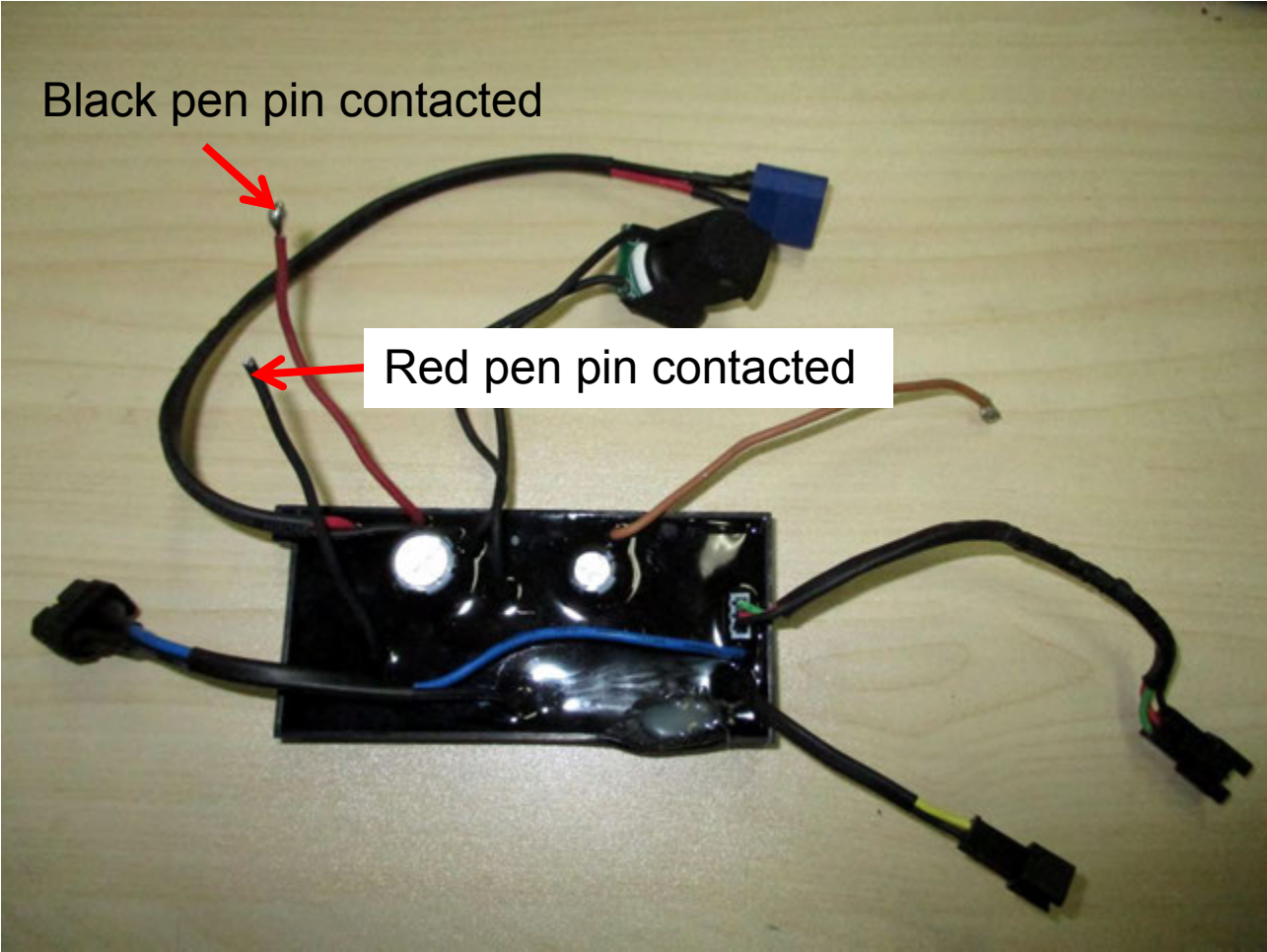
How to diagnose the self-propelled PCBA

3. Measure the MOSFET in the self-propelled PCBA (Step 1)



- Set the Multimeter function to “Diode measuring” .
- Contact the black pen pin to the red wire while the red pen pin contacting to the black wire (see next slide).
- If the LCD displays 0.40~0.55V, 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).

How to diagnose the self-propelled PCBA



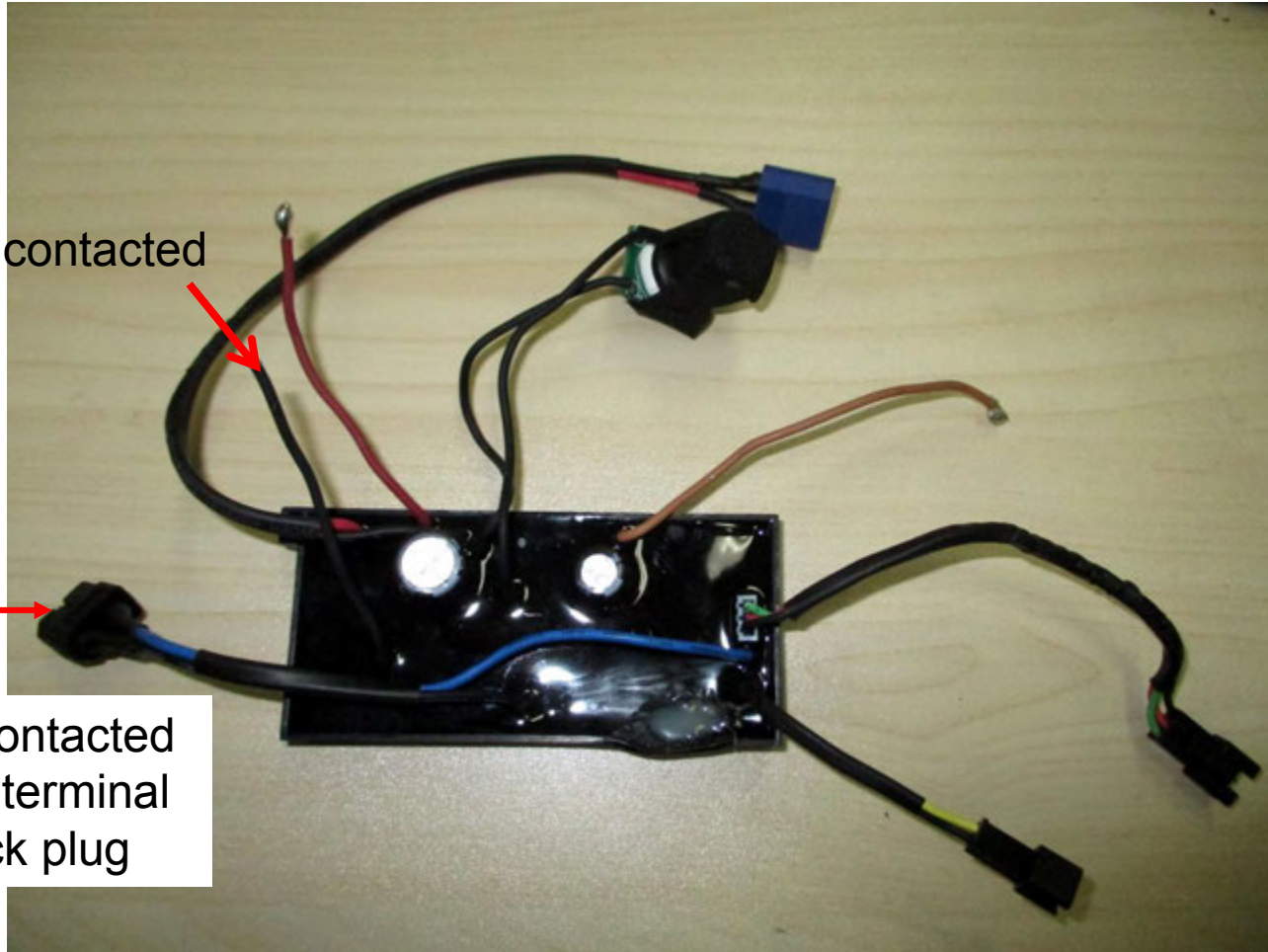
How to diagnose the self-propelled PCBA

4. Measure the MOSFET in the self-propelled PCBA (Step 2)



- Keep the Multimeter function setting at “Diode measuring”.
- Contact the red pen pin to the black terminal of the black plug while the black pen pin contacting to the black wire.
- If the LCD displays 0.40~0.55V (see next slide), all the MOSFETs in the PCBA are good, otherwise means the PCBA is broken. Replace the self-propelled PCBA with a new one. (When LCD displays both around 0.1V or 0L, the MOSFET are broken).

How to diagnose the self-propelled PCBA



Black pen pin contacted

Red pen pin contacted
with the black terminal
inside the black plug

REPAIR GUIDELINE

PART 1: BLADE REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/08

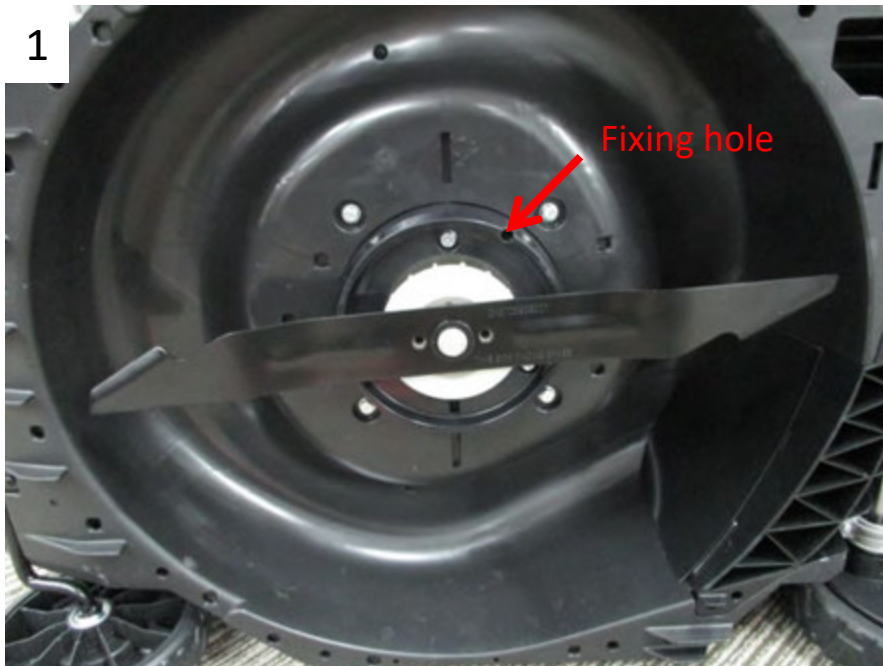
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Blade Removal

LM2100SP Lawn Mower

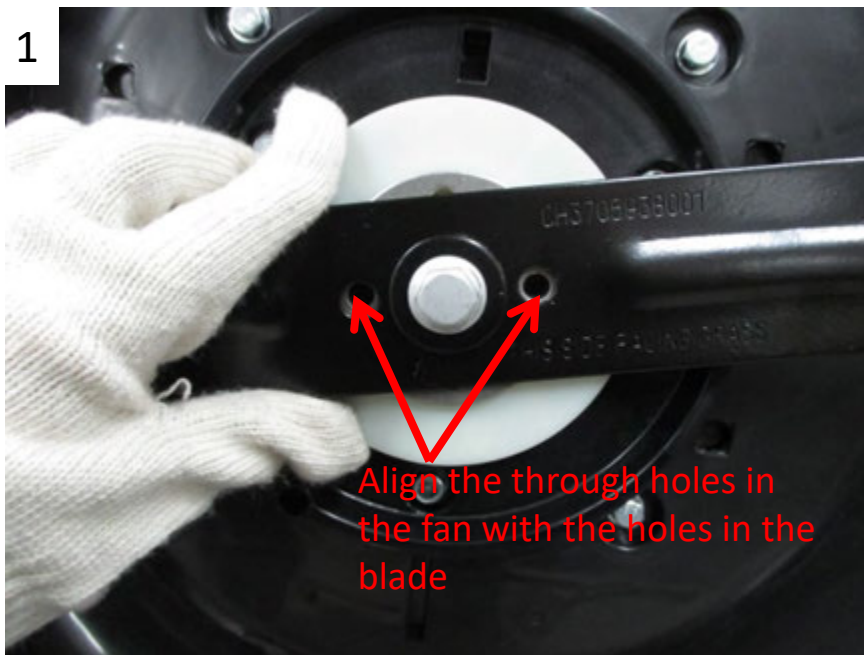
1. Stop the motor and remove the battery pack from the mower.
2. Turn the mower on its side(Fig. 1).
3. While wearing protective gloves, place a metal rod (e.g., a screwdriver) with diameter less than 7/16 inch (11mm) into the fixing hole to act as a stabilizer.
4. Use an adjustable wrench or a 9/16 inch (S=14mm) socket wrench to turn the blade bolt counterclockwise to loosen it(Fig. 2).



Blade Removal

LM2100SP Lawn Mower

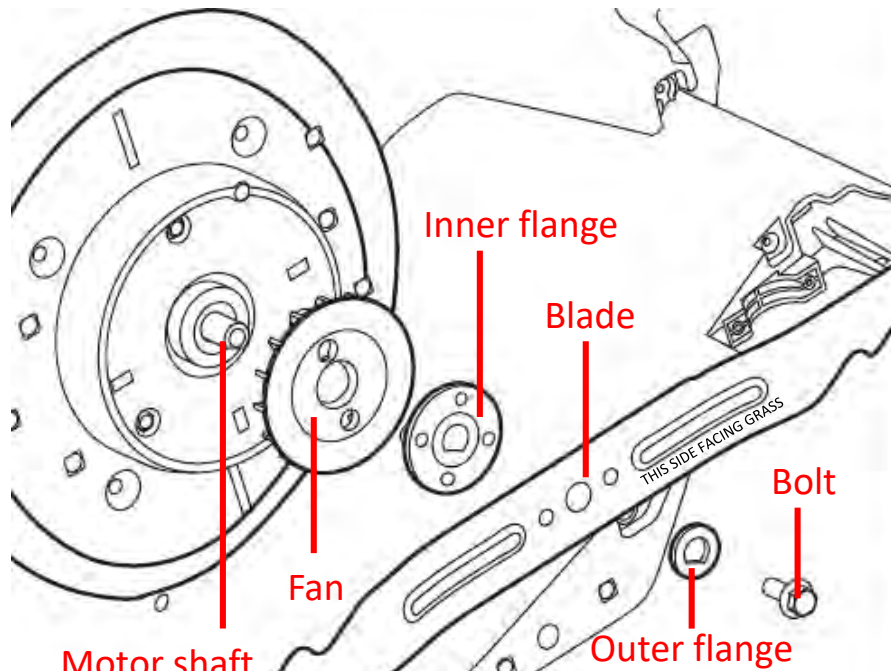
5. If the bolt rotates with the motor shaft when loosening the bolt, turn the fan by hand to align the through holes in the fan with the holes in the blade(Fig. 1), place another metal rod (e.g., a long bit) with diameter less than 1/4 inch (6.35mm) into the aligned holes to act as another stabilizer(Fig. 2).
6. Then, continue using the wrench to turn the blade bolt counterclockwise to loosen it completely.



Blade Removal

LM2100SP Lawn Mower

7. Remove the bolt, the outer flange and the blade. Replace any part, if broken or worn.
8. Take off the inner flange and fan from the motor shaft. Replace any part, if broken or worn.

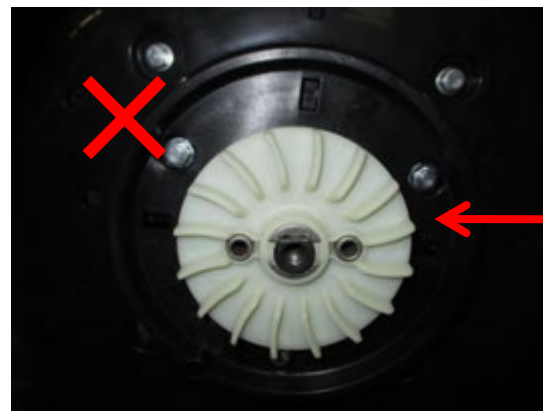
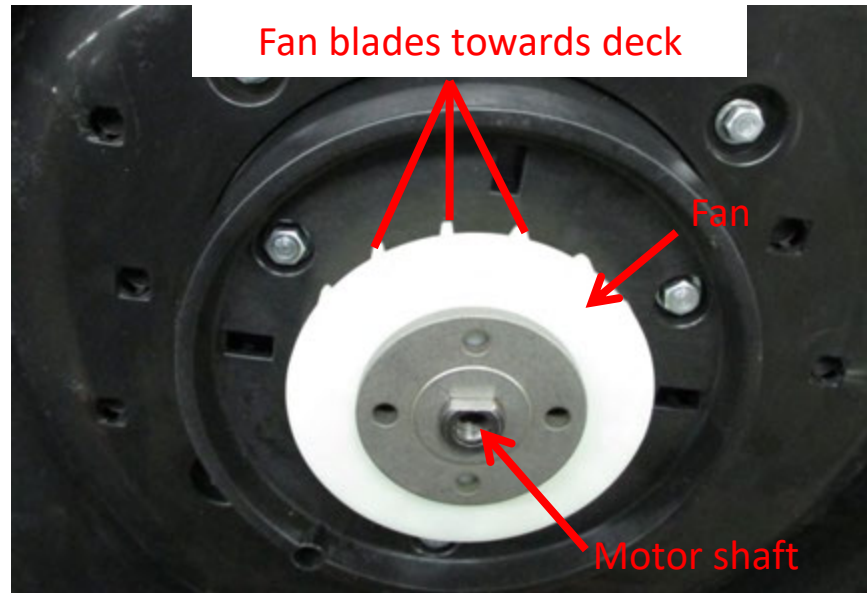
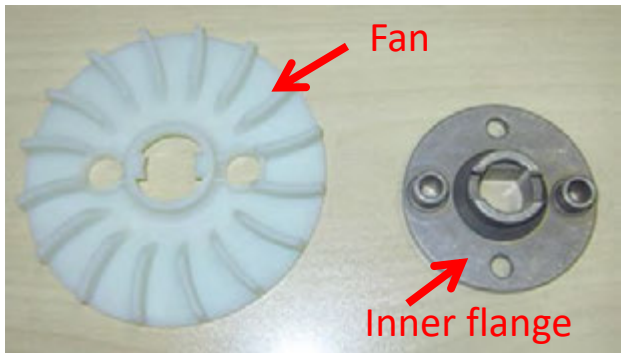


Description	Part Number
Bolt	5640226001
Outer flange	5650510001
Blade	3705938001 (no longer supplied as spare part, please order ACCESSORY AB2100 or AB2101 when having service)
Inner flange	3520852002
Fan	3127847001



Blade Installation

1. Install the inner flange into the fan.
2. Mount the fan and the inner flange onto the motor shaft with the fan blade towards the deck

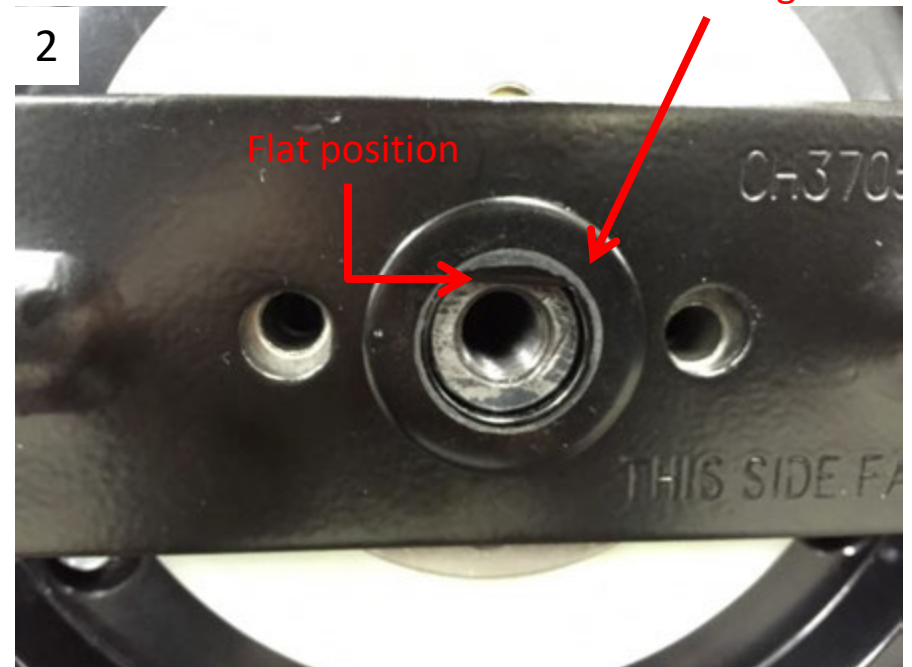


Wrong assembly of the fan

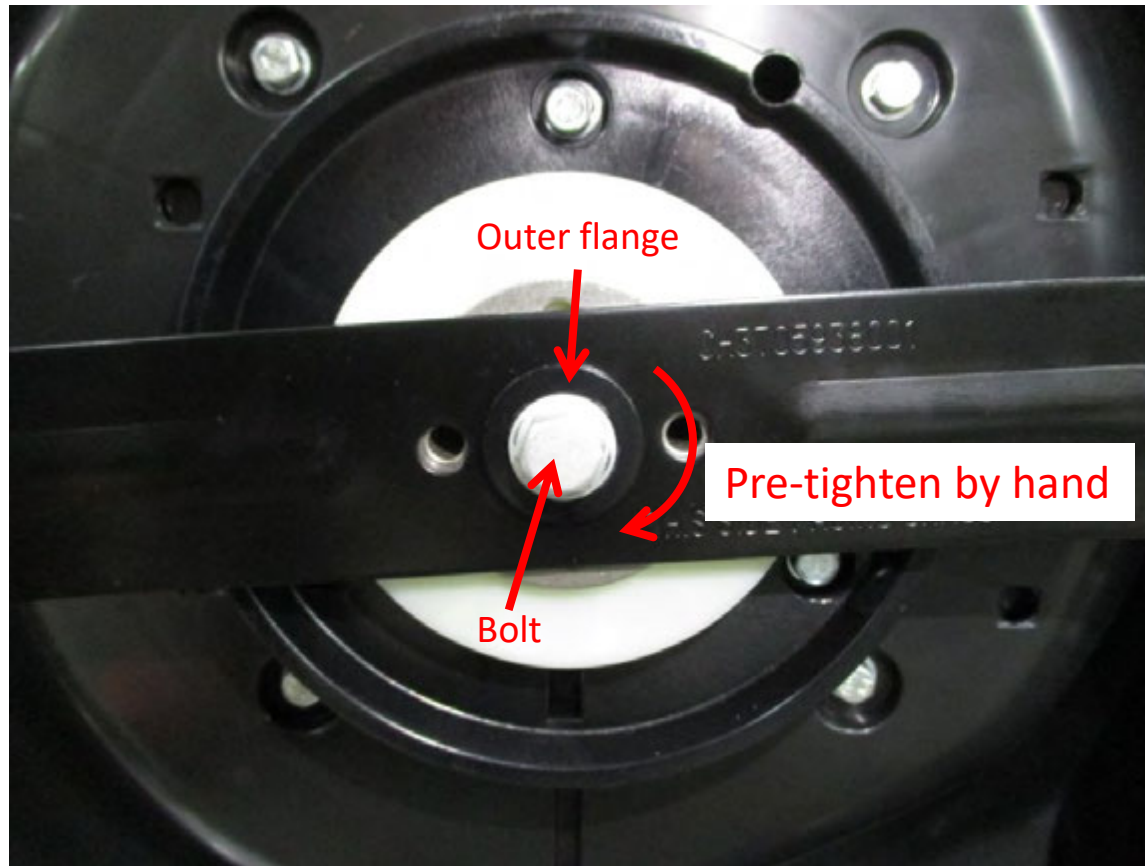
Blade Installation

LM2100SP Lawn Mower

3. Mount the blade onto the inner flange with the surface stating **"THIS SIDE FACING GRASS"** facing toward the outside(Fig. 1) .
4. Aligning the flat position of the outer flange with the corresponding flat position on the motor shaft, mount the outer flange into place(Fig. 2).



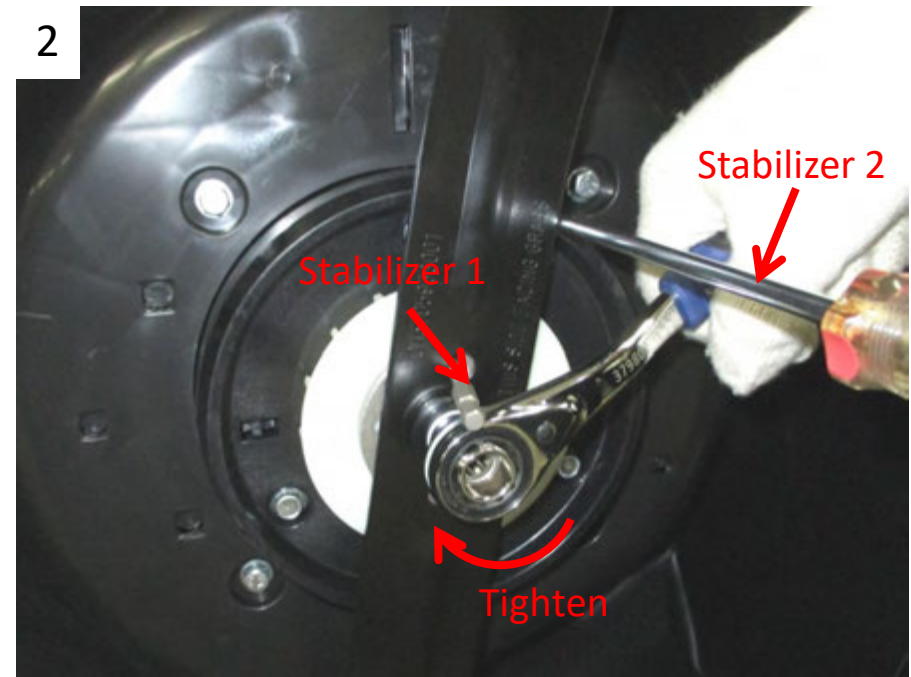
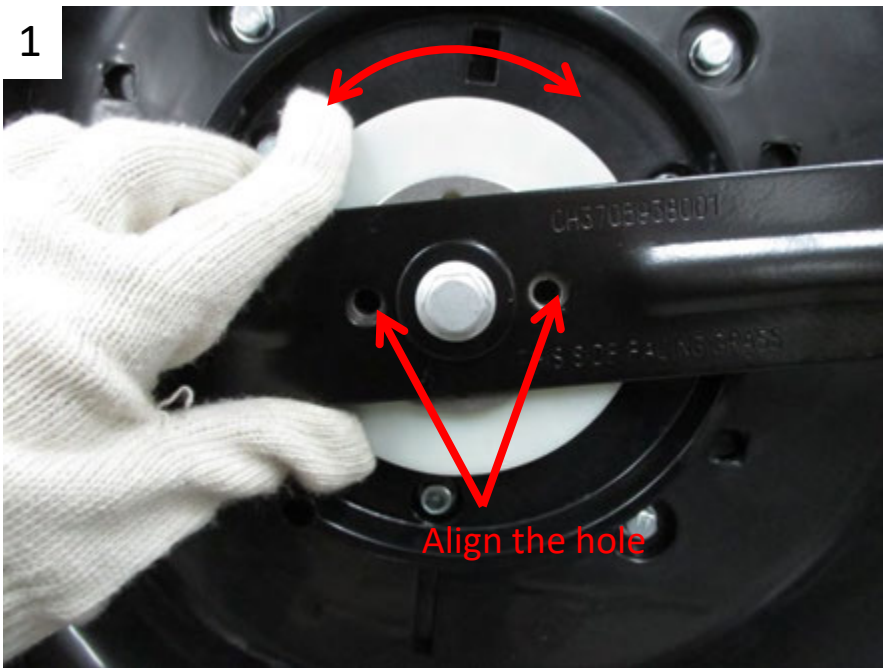
5. Mount the bolt into the shaft and pre-tighten it by hand.



Blade Installation

LM2100SP Lawn Mower

6. Turn the fan by hand to align the holes in the blade with the through holes in the inner flange(Fig. 1).
7. Place a metal rod (e.g., a long bit) with diameter less than 1/4 inch (6.35mm) into the aligned holes to act as a stabilizer. Place another metal rod (e.g., a screwdriver) with diameter less than 7/16 inch (11mm) into the fixing hole on the deck to act as another stabilizer(Fig. 2).
8. Use a 9/16 inch (S=14mm) torque wrench to tighten the bolt clockwise. The recommended torque for the blade bolt is 36-43 ft-lb (49-59Nm).



THE END

REPAIR GUIDELINE

PART 2.1: Parts in Power Unit Replacement_LM2100SP Lawn Mower



Updated on 2021/09/08

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4	Power Unit Assembly	36-43
5	Handle Position Switch Replacement	44-45

Power Unit Removal

LM2100SP Lawn Mower

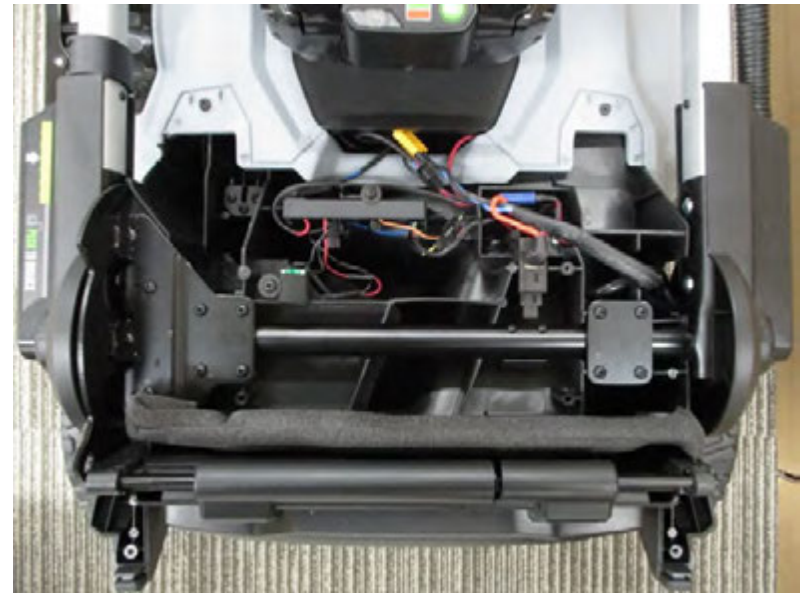
1. Before replacing or maintaining the parts in power unit or self-propelled unit, first fold the handle to the grass bag removal position to detach the service cover from the mower.



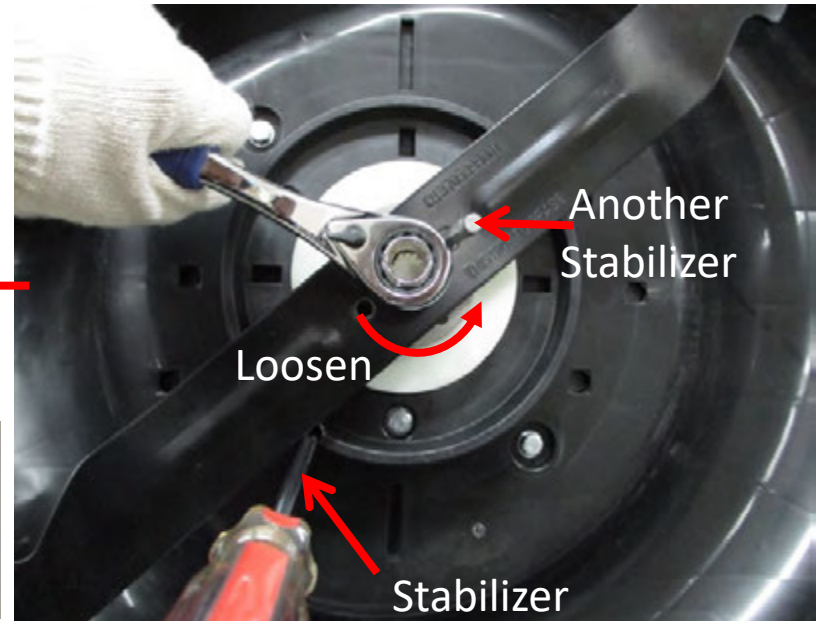
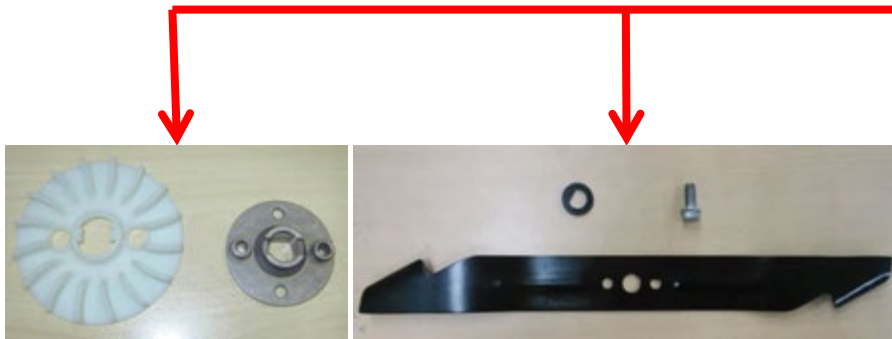
Service Cover

Power Unit Removal

LM2100SP Lawn Mower



2. Turn the mower on its side and remove the blade, fan together with the inner flange from the motor shaft as ***“RG_Part 1_Blade Replacement_LM2100SP.pptx”*** shown.



The following parts can be replaced only when the service cover is removed from the mower.

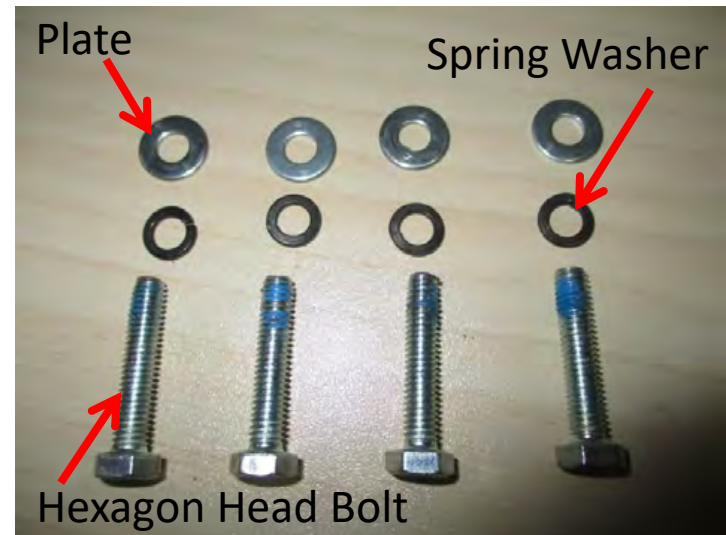
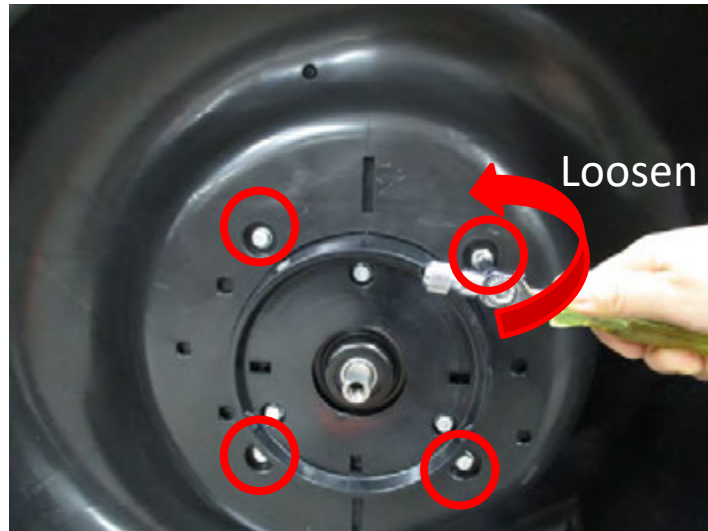
Description	Part Number	Note
Power Unit	2824248007	
Main Motor ASSY	2730233001	
Main PCBA	2830075001	
Self-propelled Motor	2824424001	LM2100SP_A
	2825265002	LM2100SP_B
Self-propelled PCBA	2830076006	LM2100SP_A
	2830076005	LM2100SP_B
Rear Cover	3126689003	
Rubber Gasket	3706018001	
Handle Position Switch	4870566002	

Power Unit Removal

LM2100SP Lawn Mower

- Loosen the 4 hexagon head bolts with a 3/8" (S=10mm) socket wrench.

WARNING: During this process, there is a risk of power unit dropping. It should be supported by someone or something.

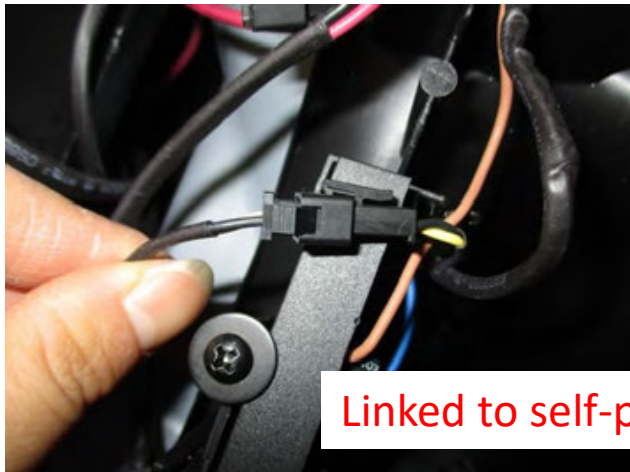
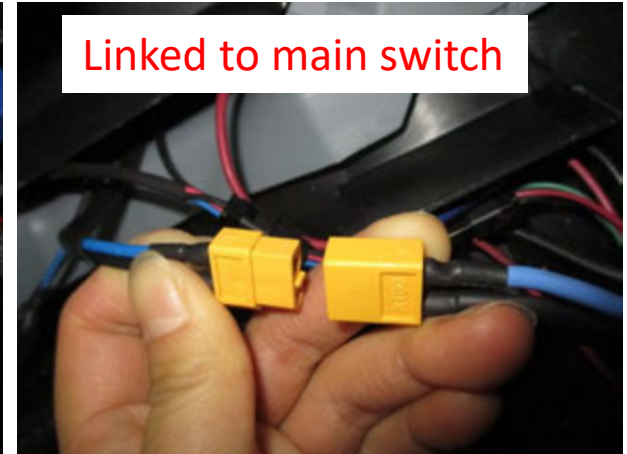
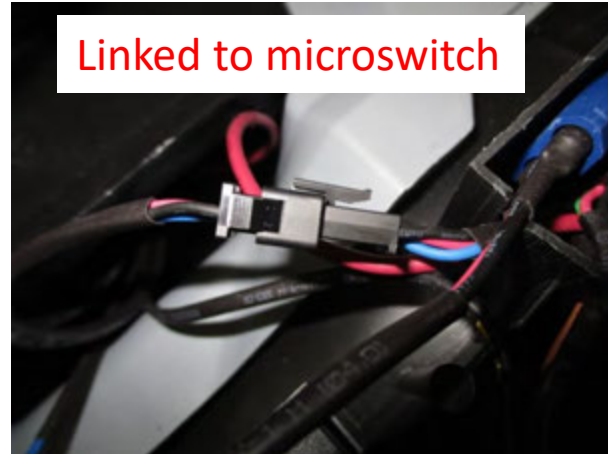
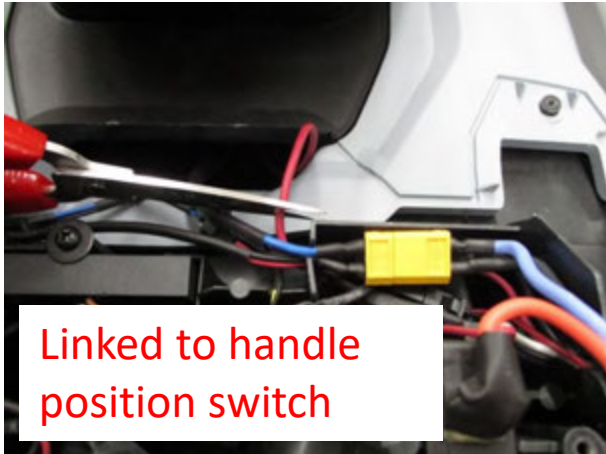


REMARK: The set of 1pc plate, 1pc spring washer and 1pc hex bolt will be replaced with 1pc combined bolt, supplied as one part#.

Power Unit Removal

LM2100SP Lawn Mower

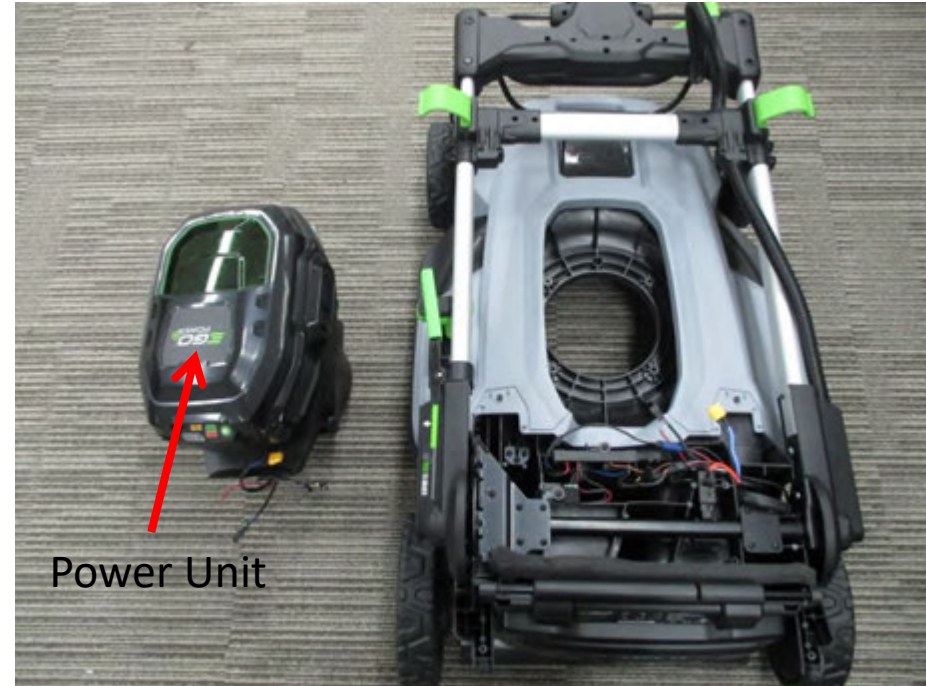
4. Separate the power unit from the mower by disconnecting the wires linking to the main switch, microswitch, handle position switch and self-propelled PCBA.



Power Unit Removal

LM2100SP Lawn Mower

5. Take the power unit apart from the mower.



Description	Part Number
Power Unit	2824248007

Motor ASSY Replacement

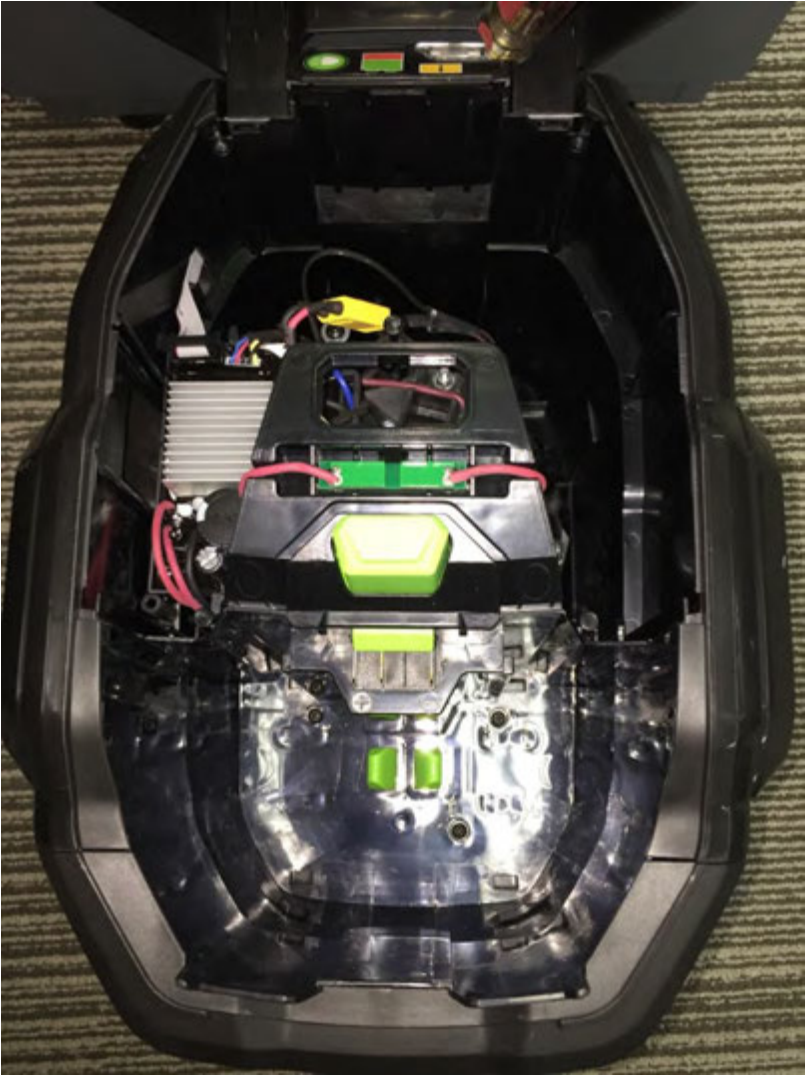
LM2100SP Lawn Mower

1. Open the battery cover and support it, such as a screwdriver, and loosen the 5 screws to remove the inner cover(Picture see next page) .



Motor ASSY Replacement

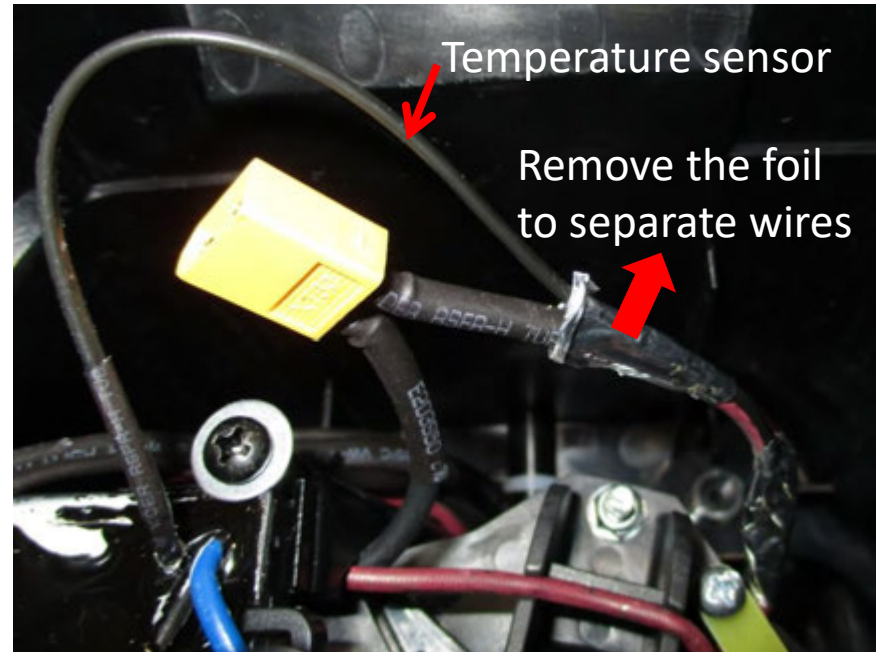
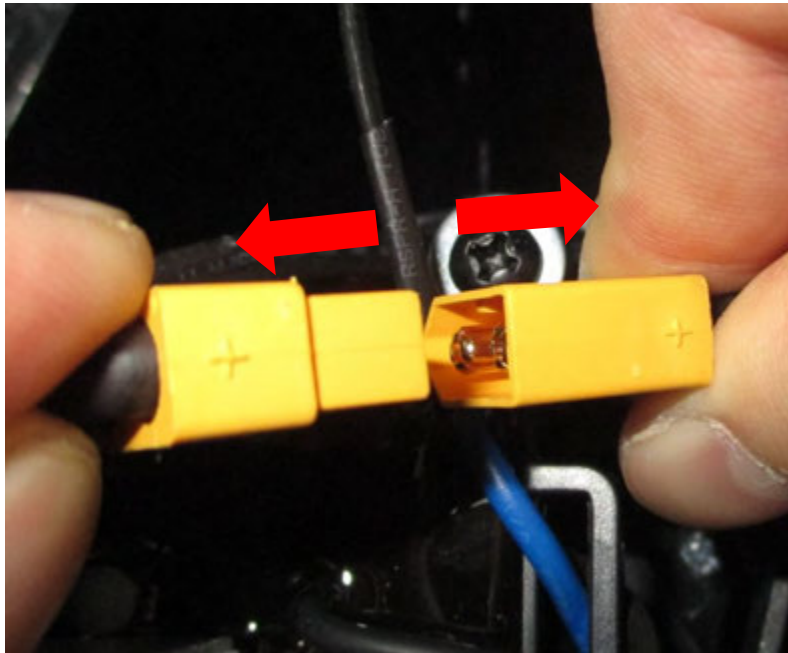
LM2100SP Lawn Mower



Motor ASSY Replacement

LM2100SP Lawn Mower

2. Disconnect the yellow plug.
3. Separate the temperature sensor from the red wire of the motor.



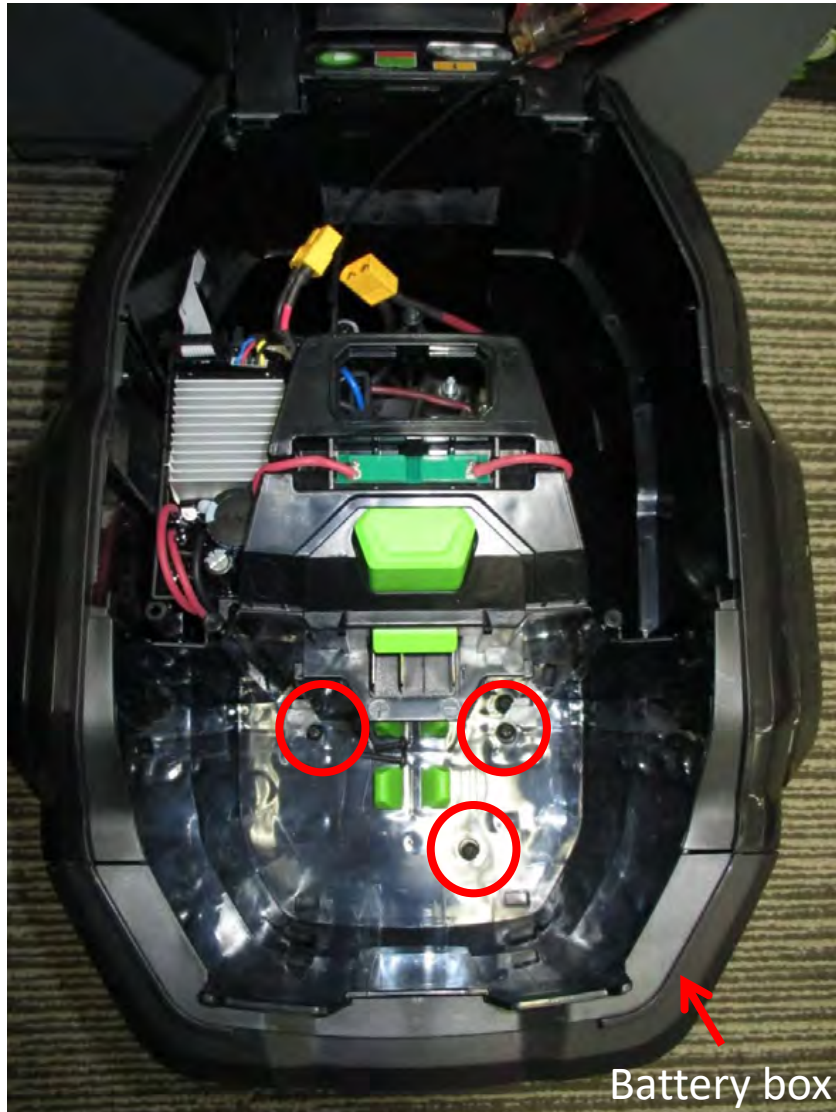
4. Test the motor by connecting the motor cables(The yellow plug) to a DC power supply. If the motor doesn't run, replace the motor. Otherwise check other possible cause, e.g. PCBA.

WARNING: Before turning on the motor, make sure the blade is removed. Failure to do so, can result in serious injuries.

Motor ASSY Replacement

LM2100SP Lawn Mower

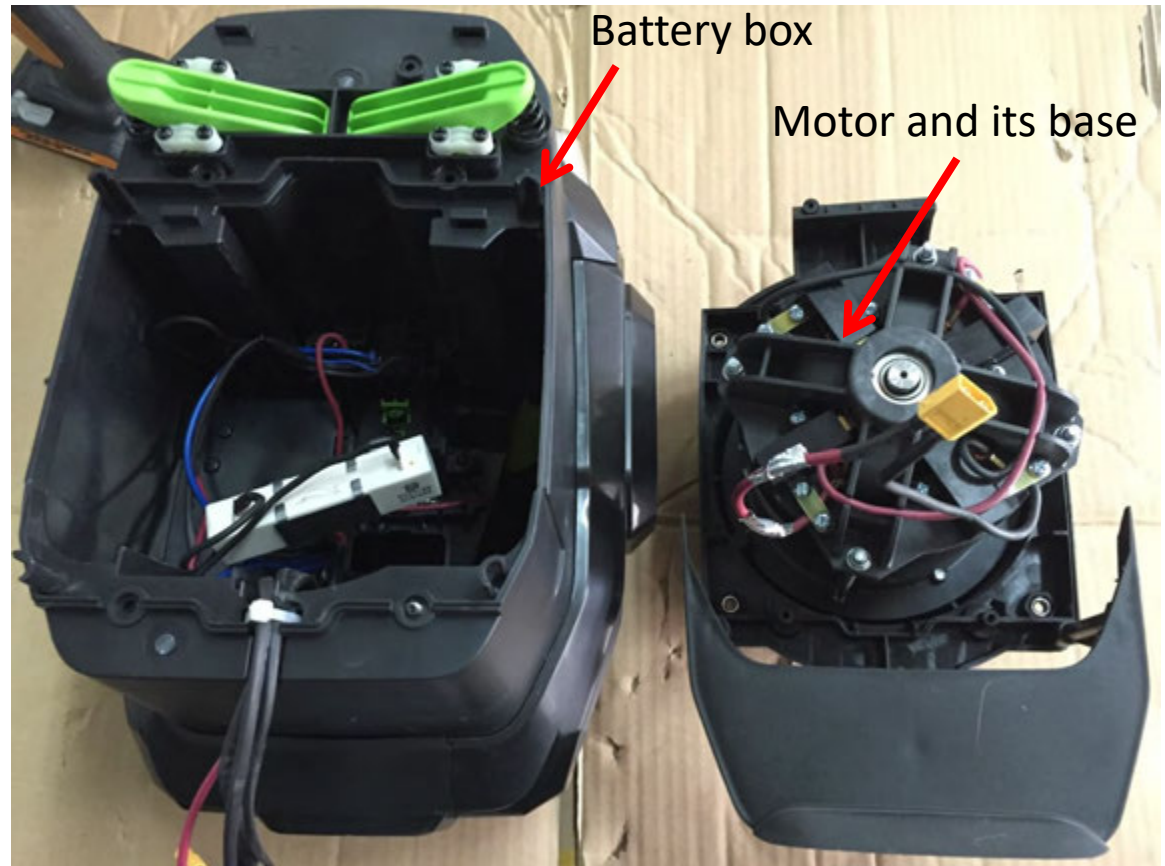
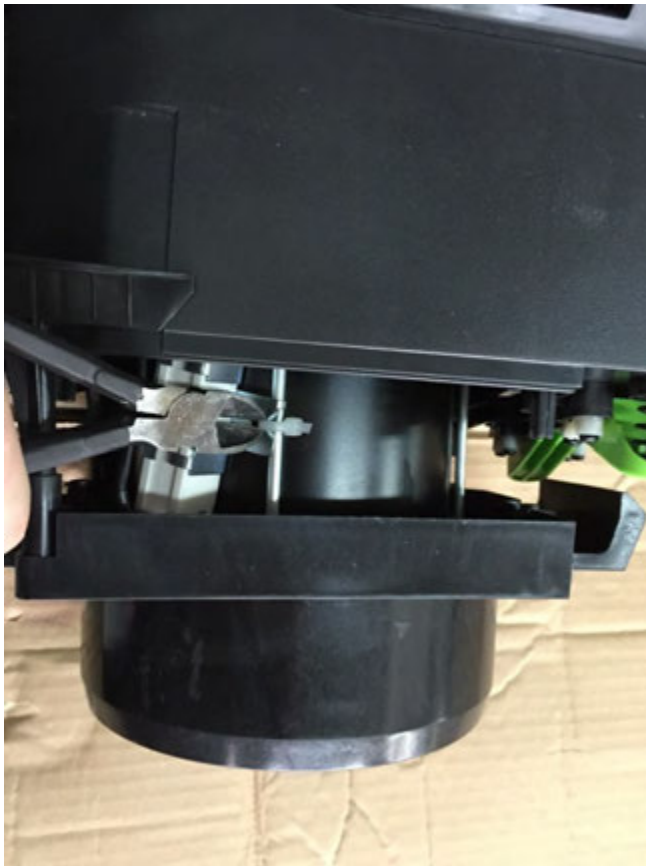
5. Remove the 5 screws to separate the motor and base from the battery box.



Motor ASSY Replacement

LM2100SP Lawn Mower

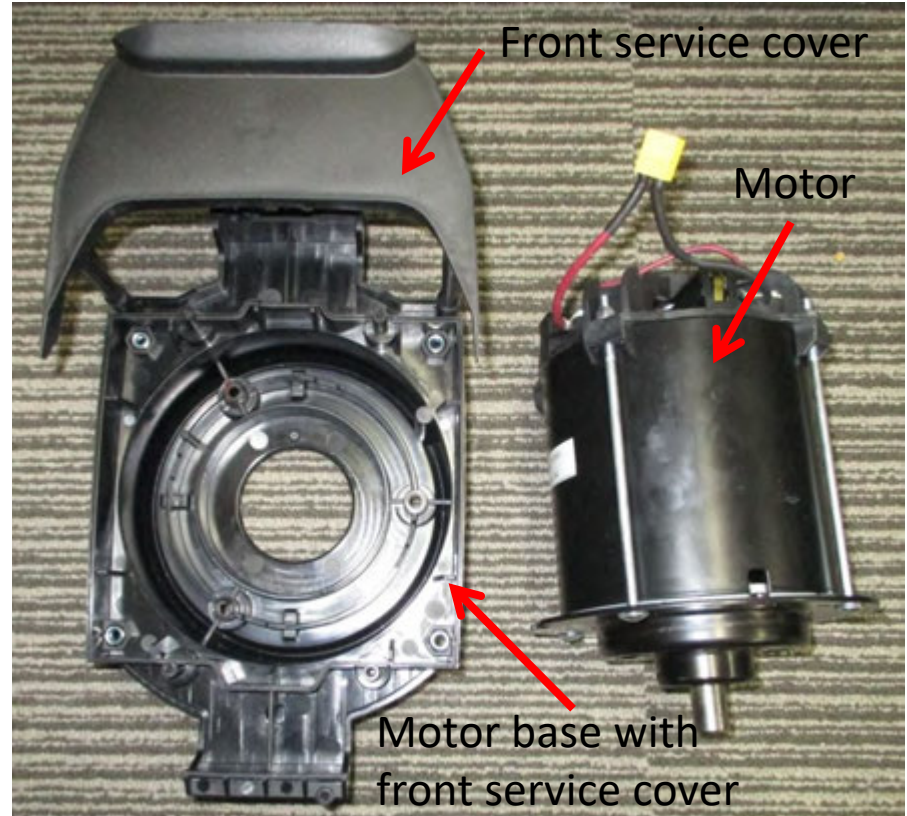
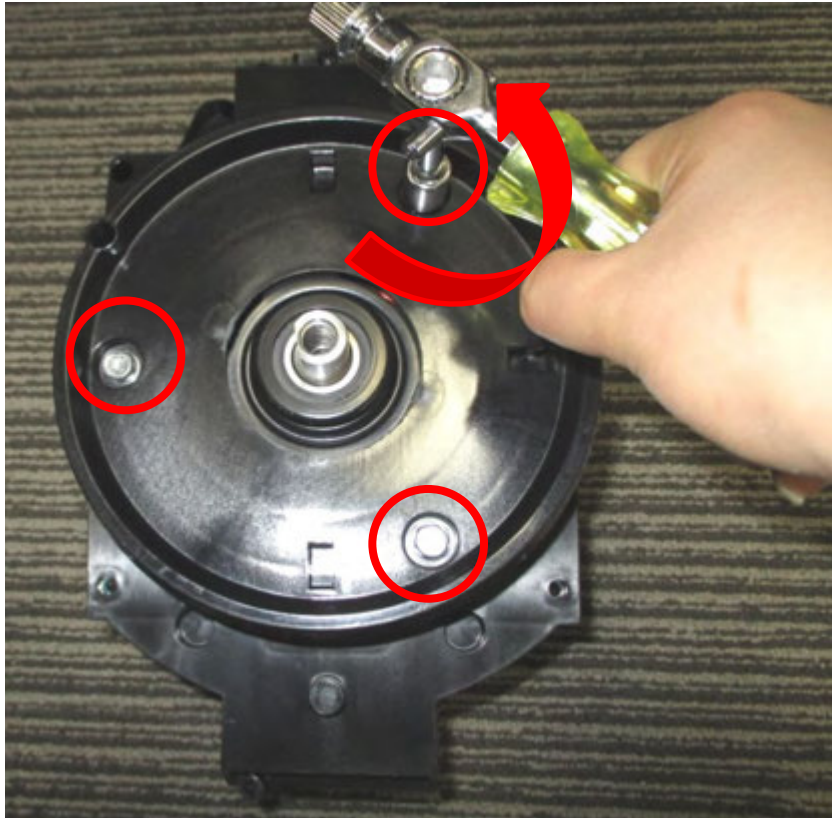
6. Cut off the white zip ties with Diagonal pliers to take out the motor and base from the battery box.



Motor ASSY Replacement

LM2100SP Lawn Mower

7. Remove the 3 hex bolts, spring washers and plates using a 3/8" (S=10mm) socket wrench to separate the motor from its base.



REMARK: The set of 1pc plate, 1pc spring washer and 1pc hex bolt will be replaced with 1pc combined bolt, supplied as one part#.



Combined bolt

Motor ASSY Replacement

LM2100SP Lawn Mower

8. If the base or the front service cover is damaged, remove the 3 screws to separate them and replace the damaged one.

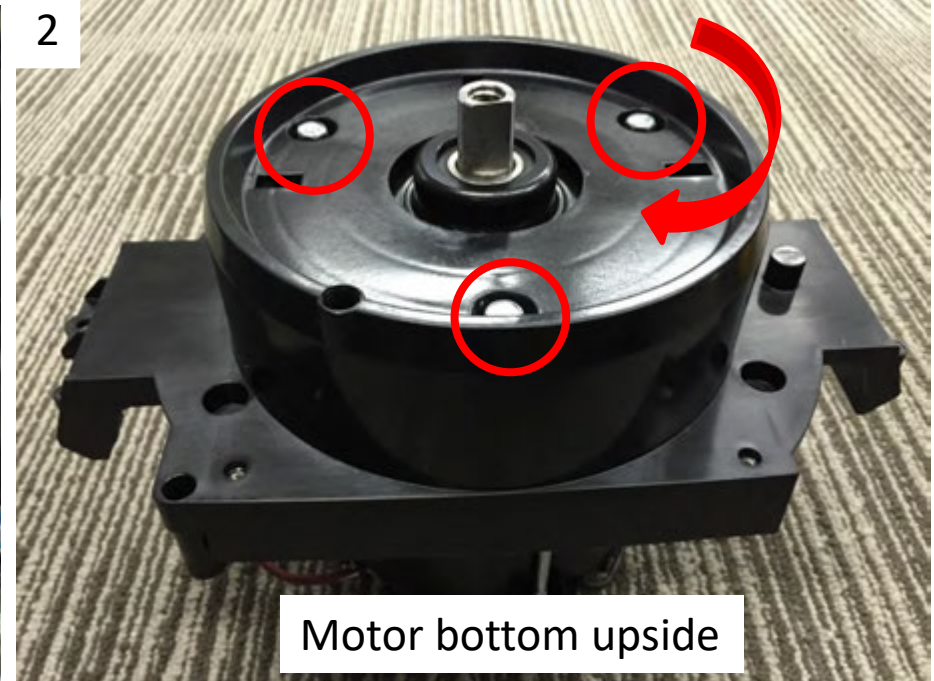
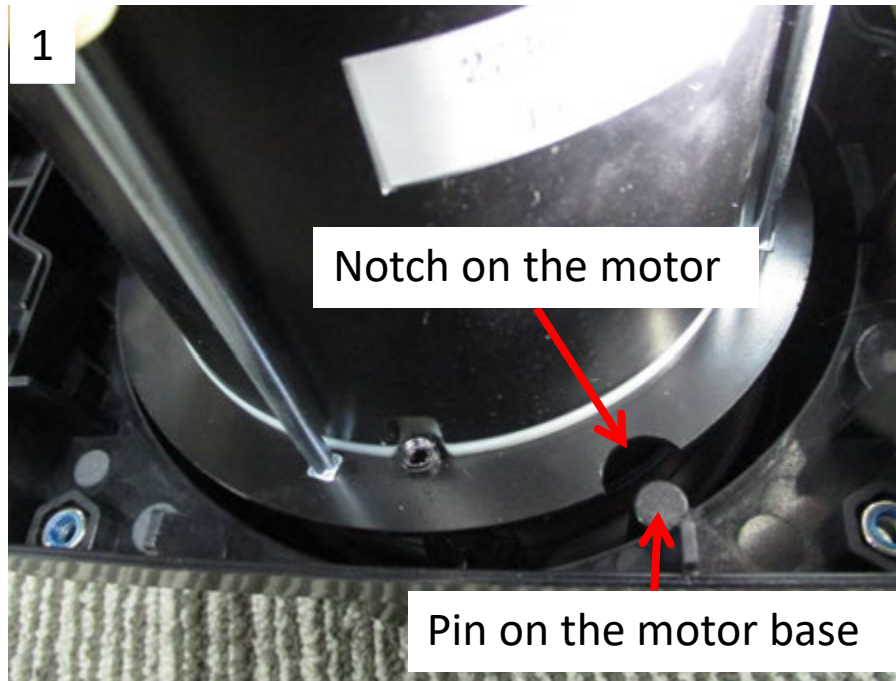


Motor ASSY Replacement

LM2100SP Lawn Mower

9. Replace with a new motor.
10. Align the locating notch on the motor with the locating pin on motor base to position the motor into place (Fig. 1).
11. Turn the motor shaft upside to fix the motor onto the motor base by tightening the 3 hex bolts (Fig. 2).

Description	Part Number
Main Motor ASSY	2730233001



Motor ASSY Replacement

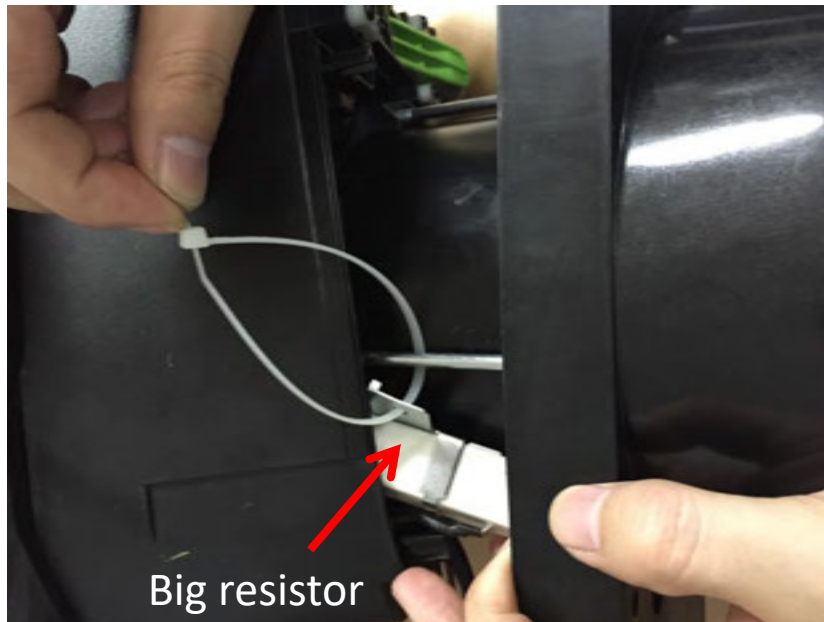
LM2100SP Lawn Mower

12. Lay the motor and the battery box on their side.

NOTICE: YELLOW LEVER SHOULD FACE THE MOTOR BASE WITH RIB.

13. Insert the motor into the battery box. When half of the motor is inserted, tie the big resistor to the motor body with a zip tie. Cut off the excess zip tie.

14. Continue inserting the motor into the battery box until it is completely in.



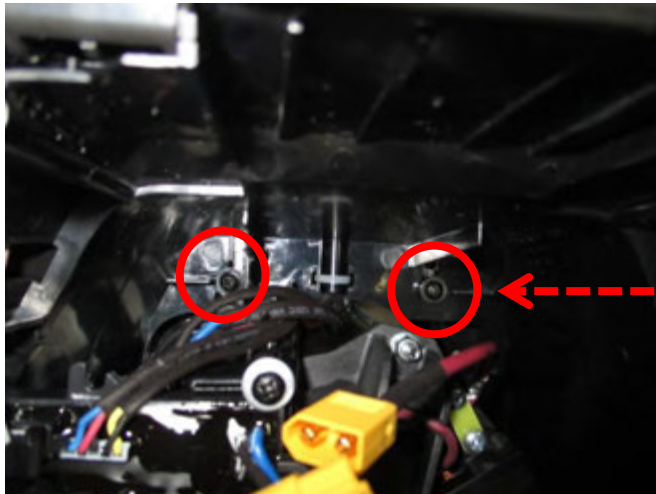
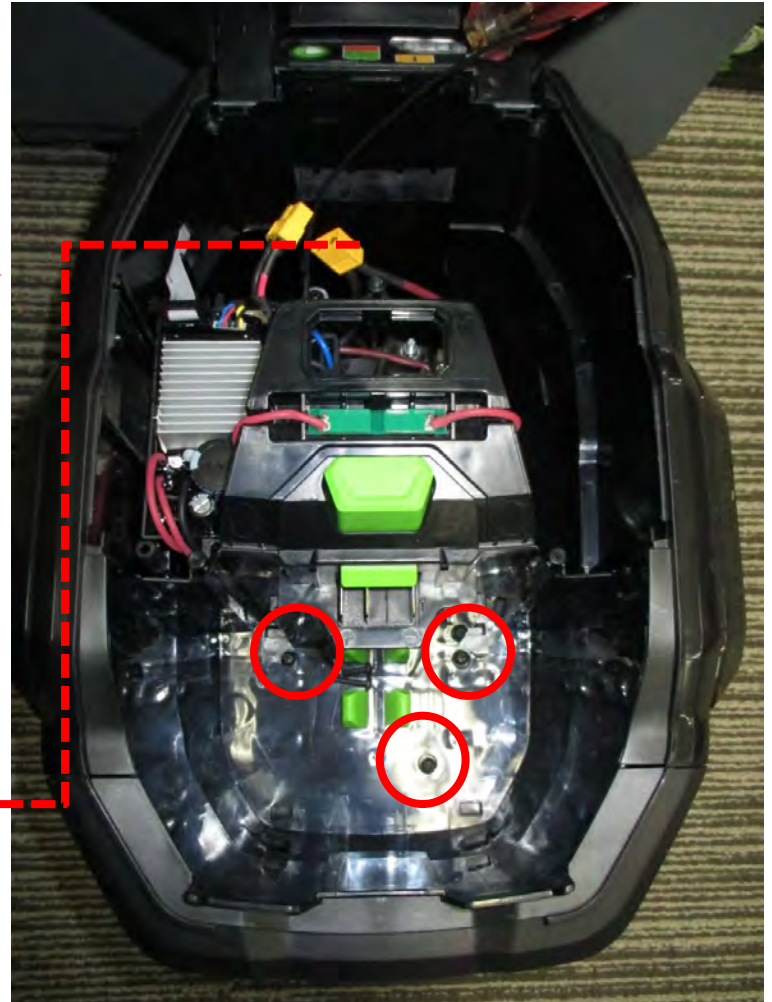
Motor ASSY Replacement

LM2100SP Lawn Mower

15. Insert the motor into the battery box with motor shaft upside, without mounting gap.
16. Fasten the motor using the inside 5 screws (2 screws deep in the battery box, in reverse order of disassembly).



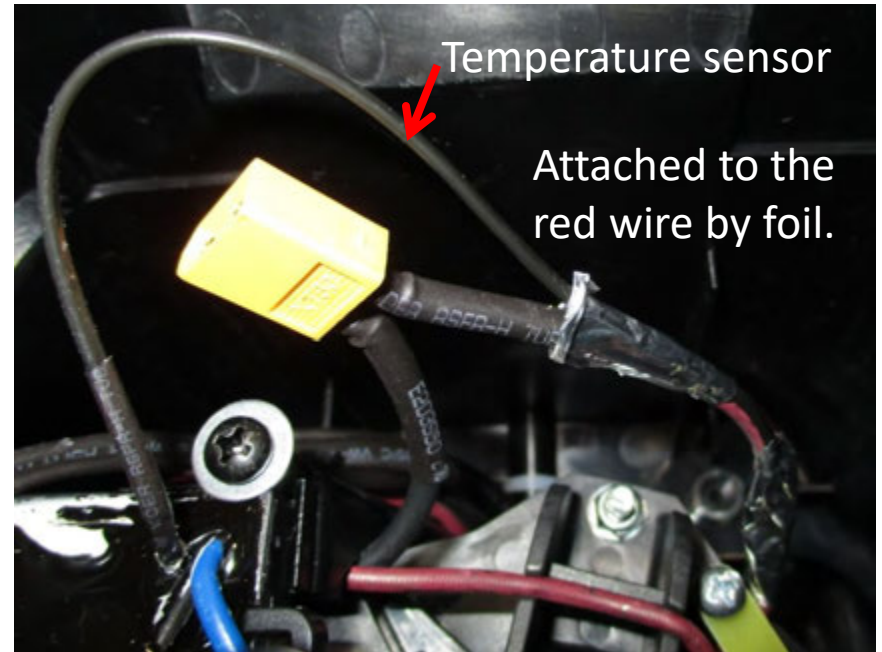
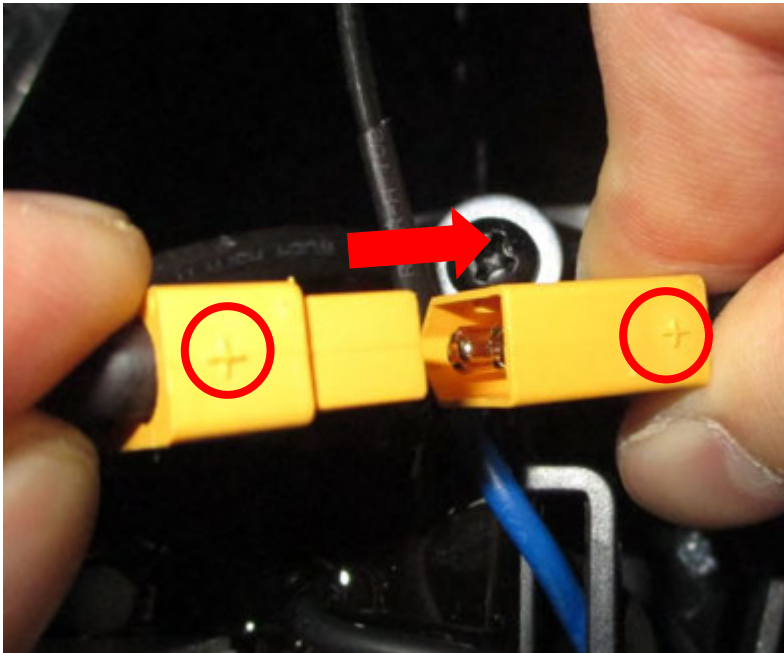
Reverse the
whole set



Motor ASSY Replacement

LM2100SP Lawn Mower

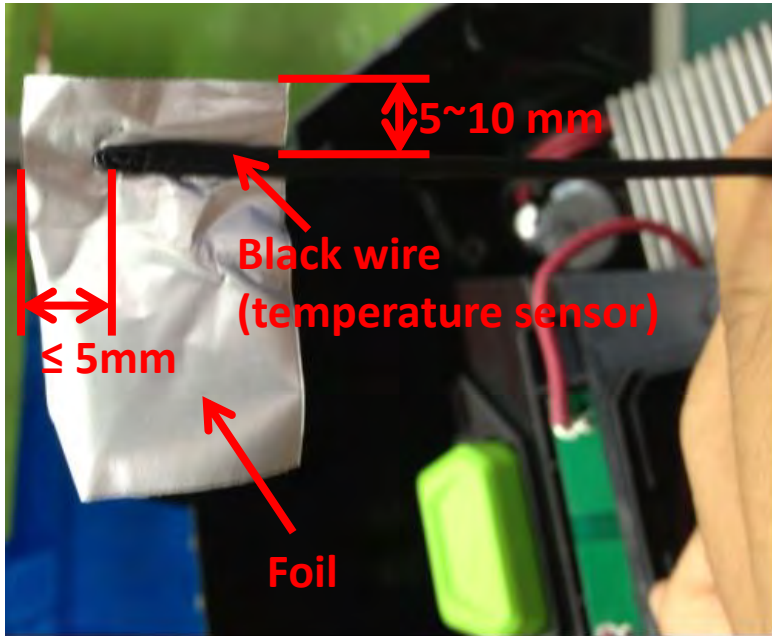
17. Connect the yellow plug. **Be sure to connect “+” to “+”.**
18. Tape the temperature sensor to the red wire (Detail requirements see next page).



Motor ASSY Replacement

LM2100SP Lawn Mower

Detail requirements for temperature sensor assembly:



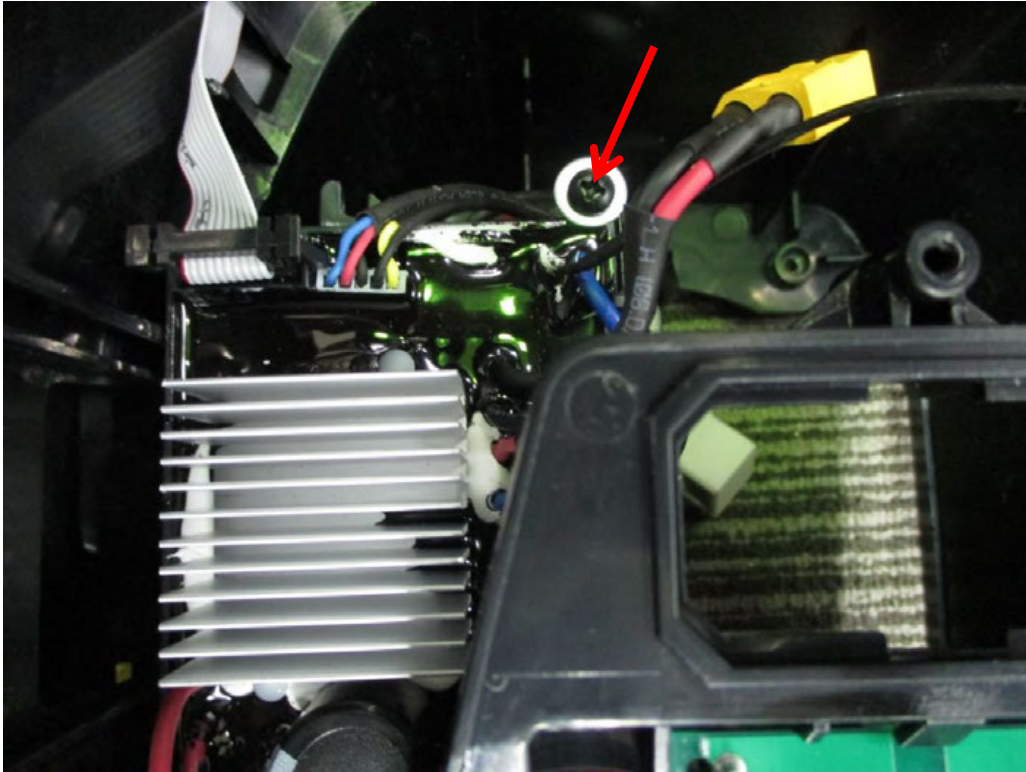
2 pcs foils.
The first one which is attached to the black sensor wire, should be taped from the root of the red wire;
The second one is to stabilize them.



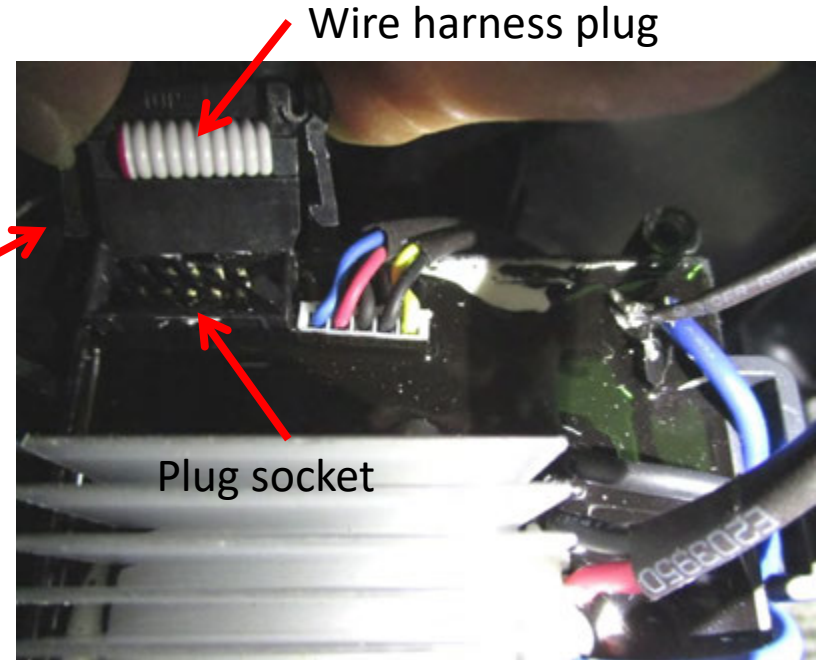
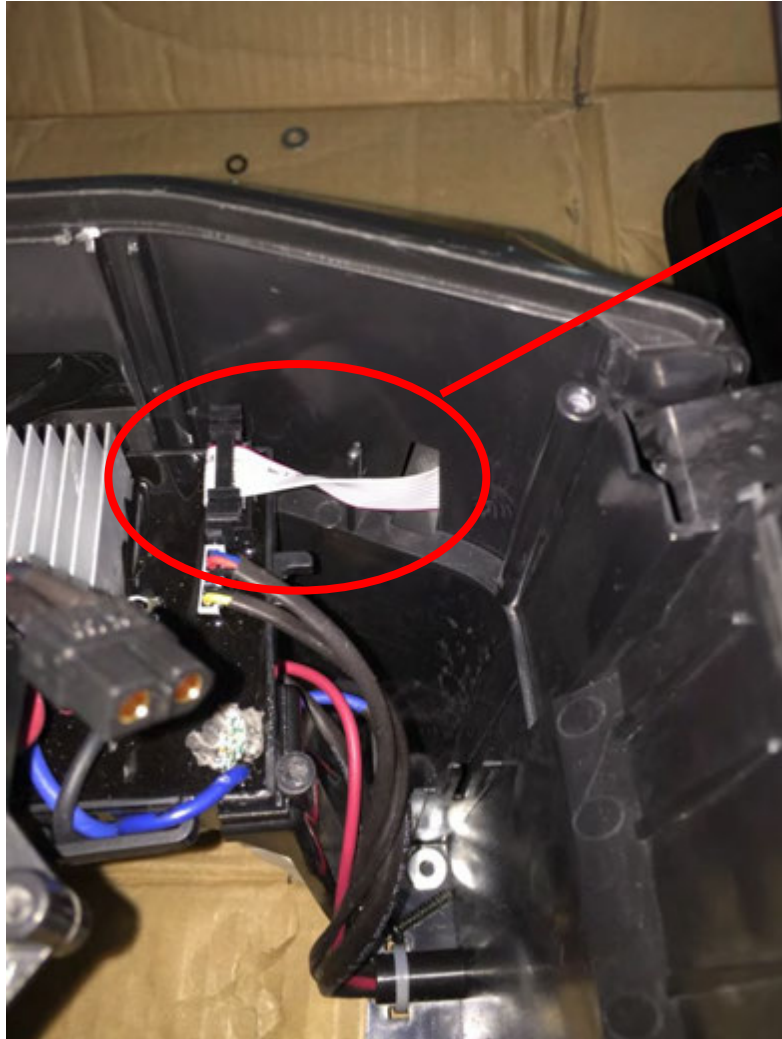
Main PCBA Replacement

LM2100SP Lawn Mower

1. Remove the motor as previous steps shown.
2. Remove the screw and plain washer.



3. Depress the wire harness plug to release it from the socket. Needle-nose pliers recommended.



Description	Part Number
Wire harness plug	4930490001

Main PCBA Replacement

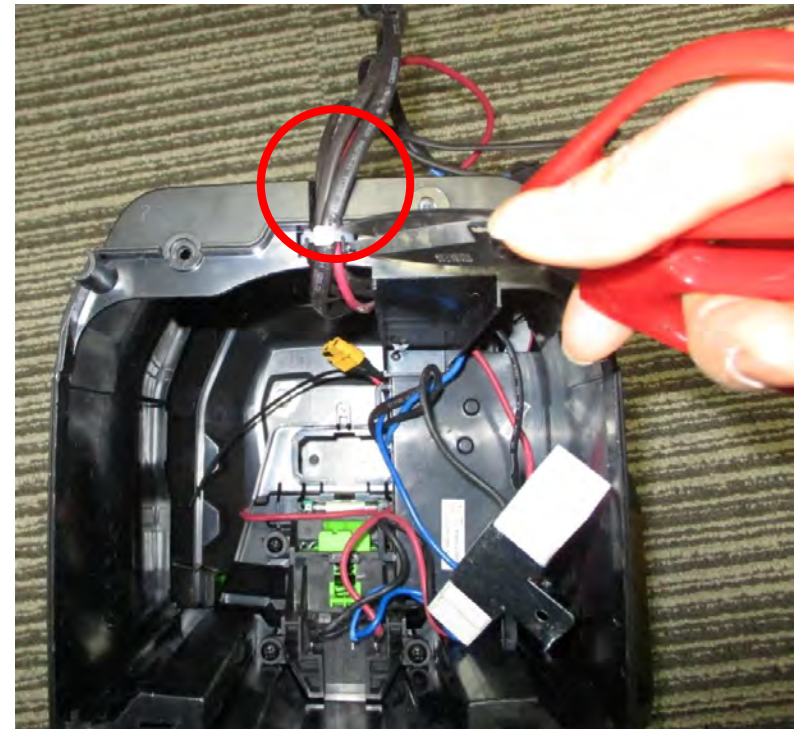
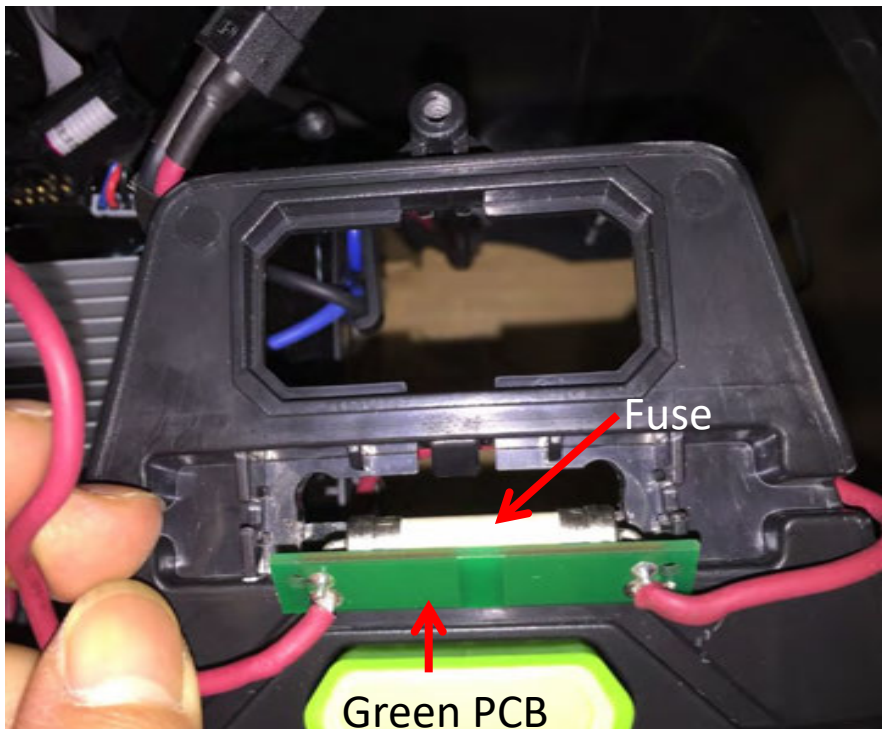
LM2100SP Lawn Mower

4. Remove the fuse set from the groove.
5. Measure the fuse with a multimeter. If it is open-circuit, namely the fuse is broken, replace with a new one by soldering wires.

NOTICE: Separate fuse is provided for easy serviceability, which is mounted onto the small green PCB. There are 2 wires for connection by simple soldering by service technician.

6. Reverse the battery box and cut the zip tie on the battery box back.

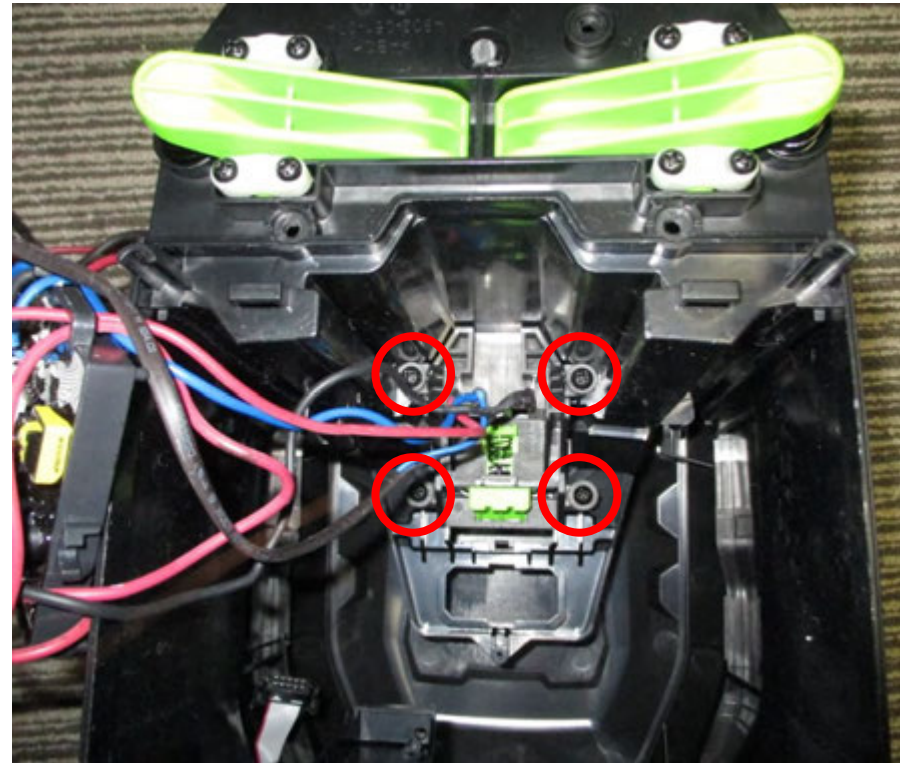
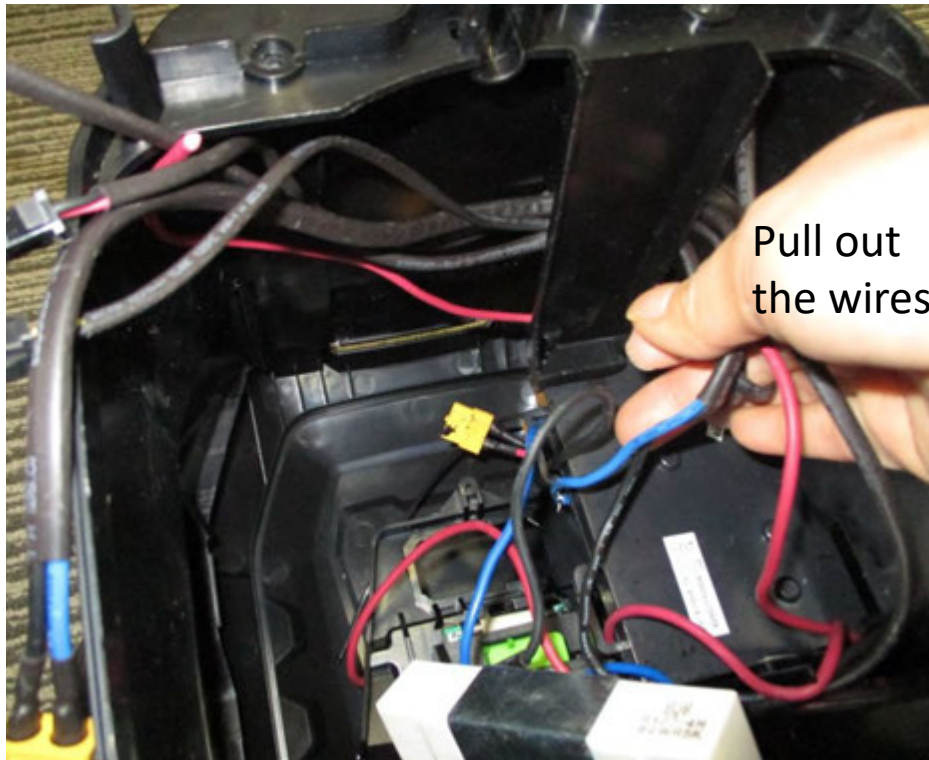
Description	Part Number
Fuse	4891202002



Main PCBA Replacement

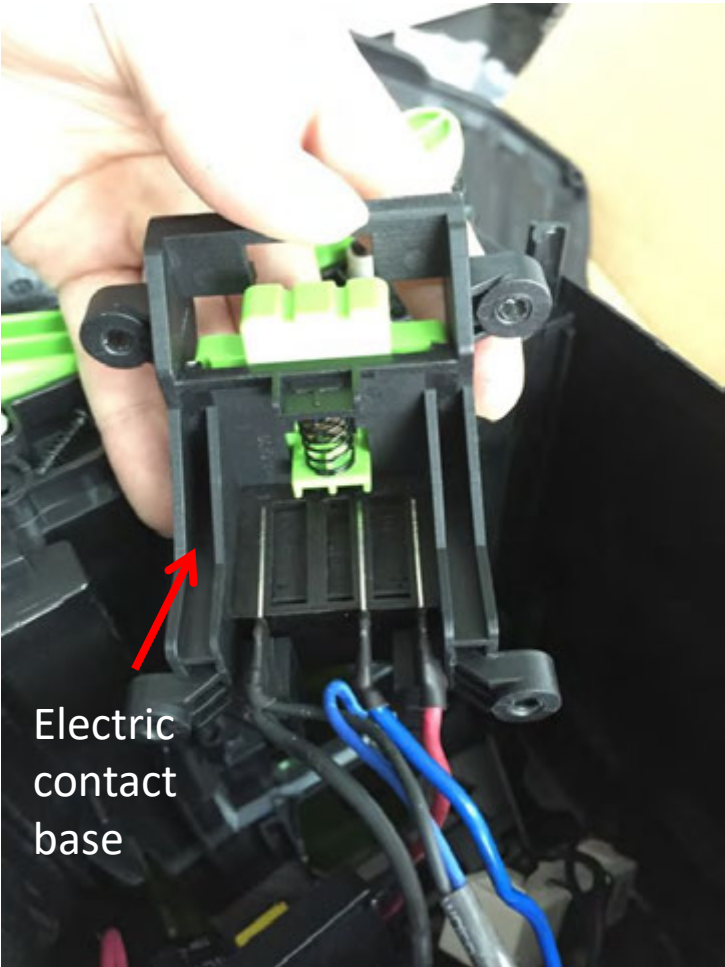
LM2100SP Lawn Mower

7. Pull the wires out from the battery box corner to take out the PCBA.
8. Remove the 4 screws to separate the electric contact base from the battery box.



Main PCBA Replacement

9. Separate the PCB assembly from the electric contact base.

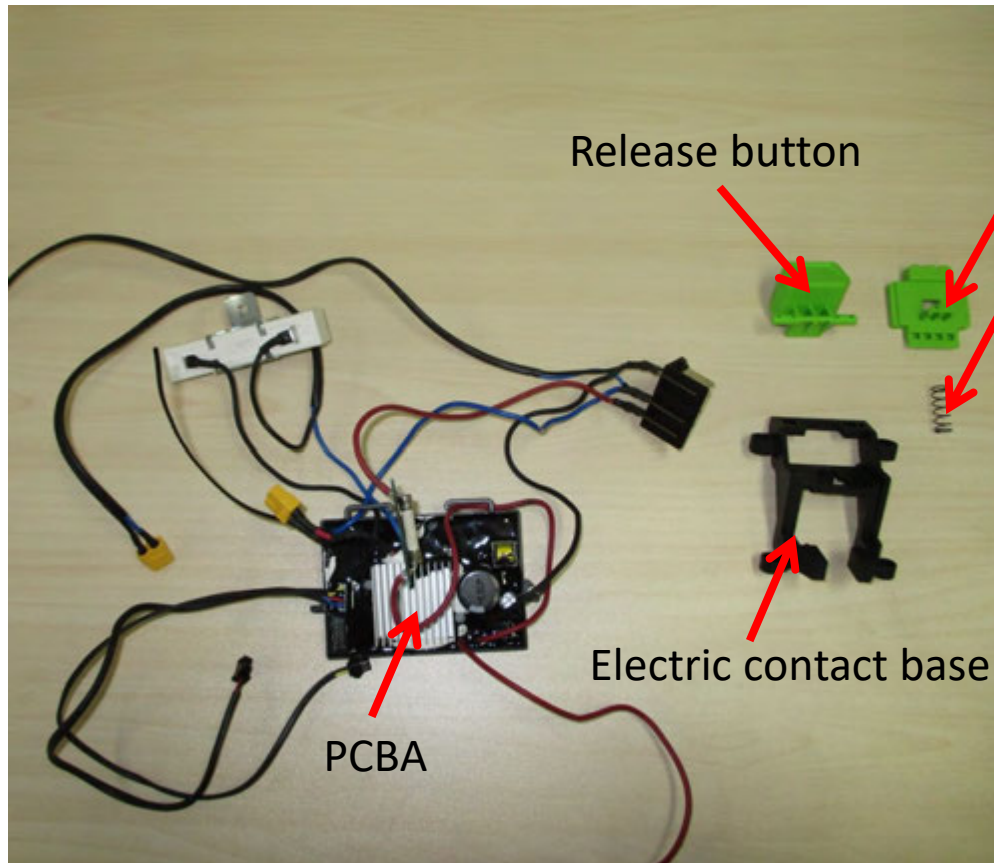


Main PCBA Replacement

LM2100SP Lawn Mower

10. PCB assembly and electric contact base are as following picture shown. Replace the damaged one.

NOTICE: The old stock for release button, sliding block and electric contact base can be used up before inactivating these old parts.



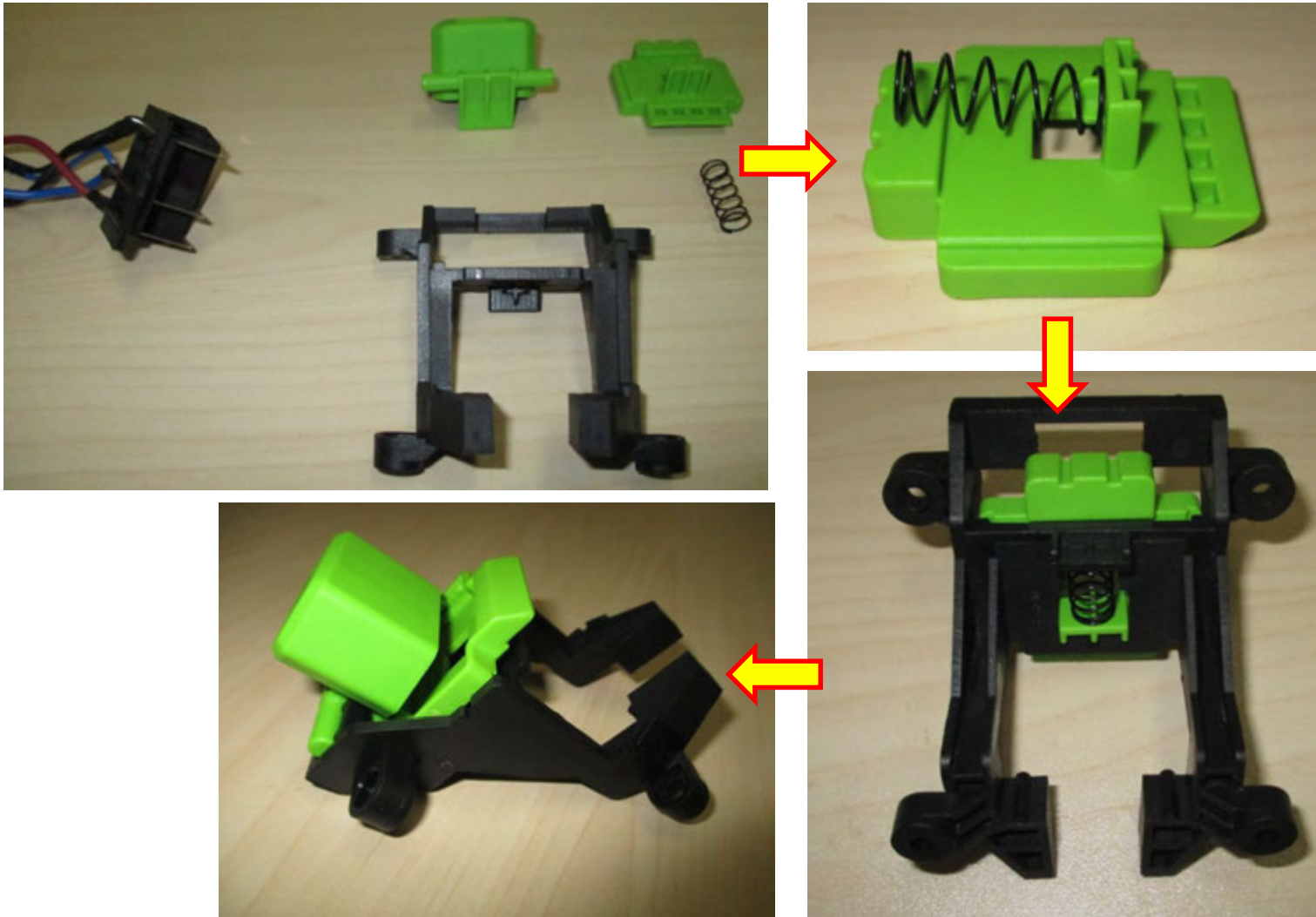
Description	Part Number
Release button	3126760001
Sliding block	3126772001
Spring	3660303002
Electric contact base	3126782001
Main PCBA	2830075001

Main PCBA Replacement

LM2100SP Lawn Mower

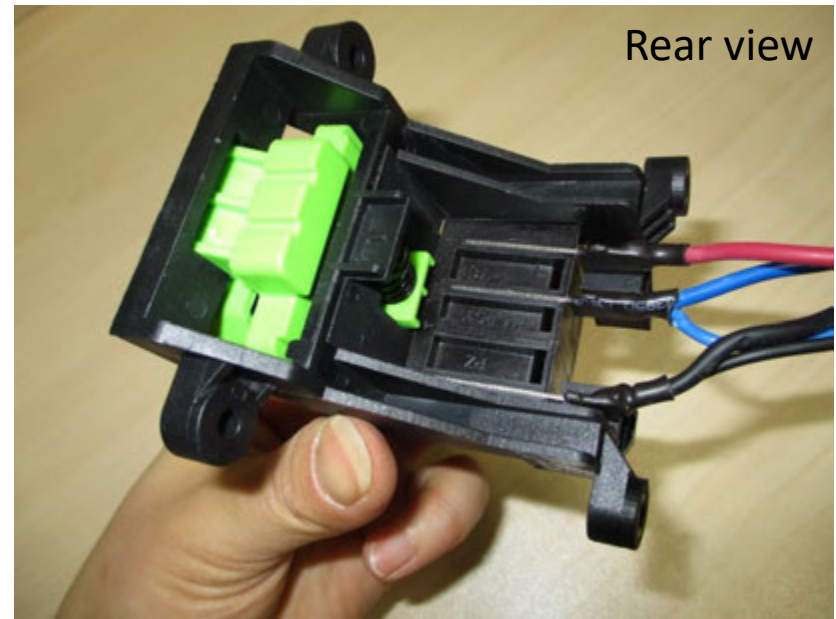
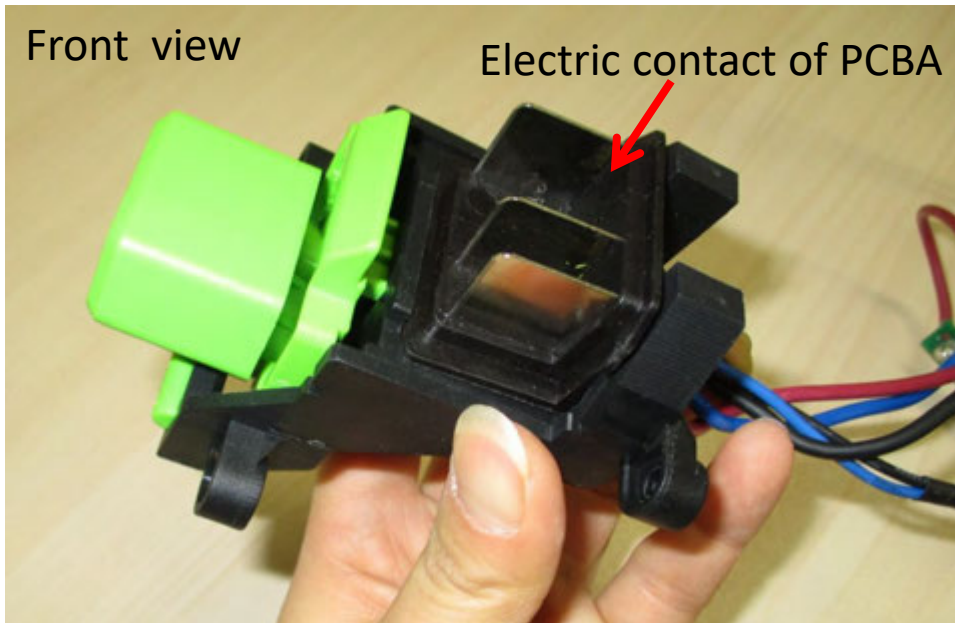
11. Replace with a new PCBA.

12. Assemble the release button, sliding block and spring onto the electric contact base.



13. Mount the electric contact of the PCBA onto the electric contact base .

NOTICE: Hold the 2 components tightly to insert them in the battery box .



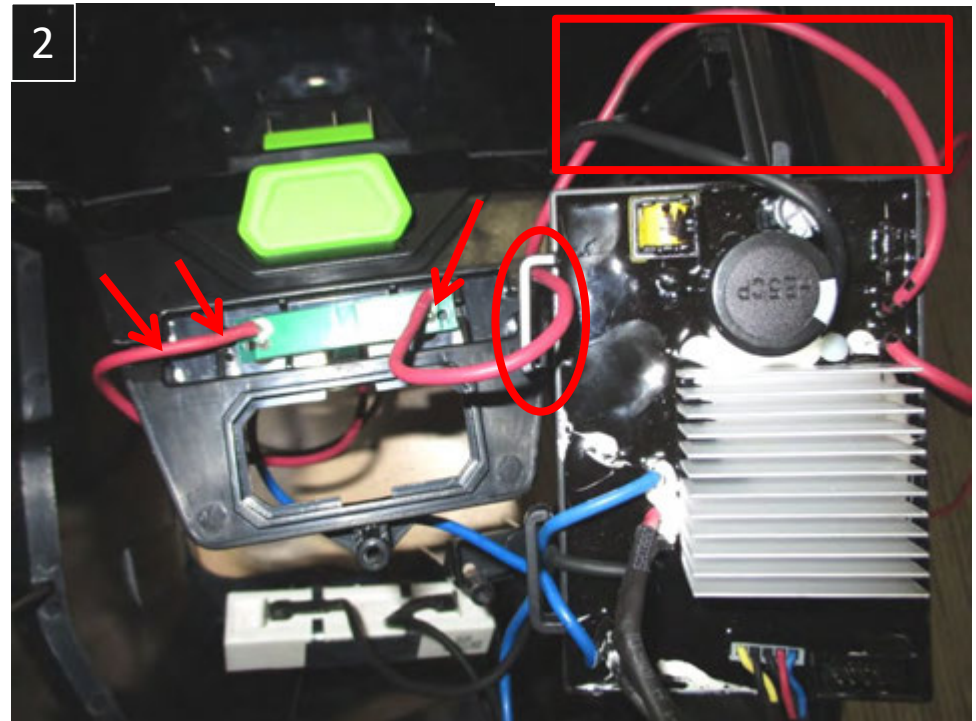
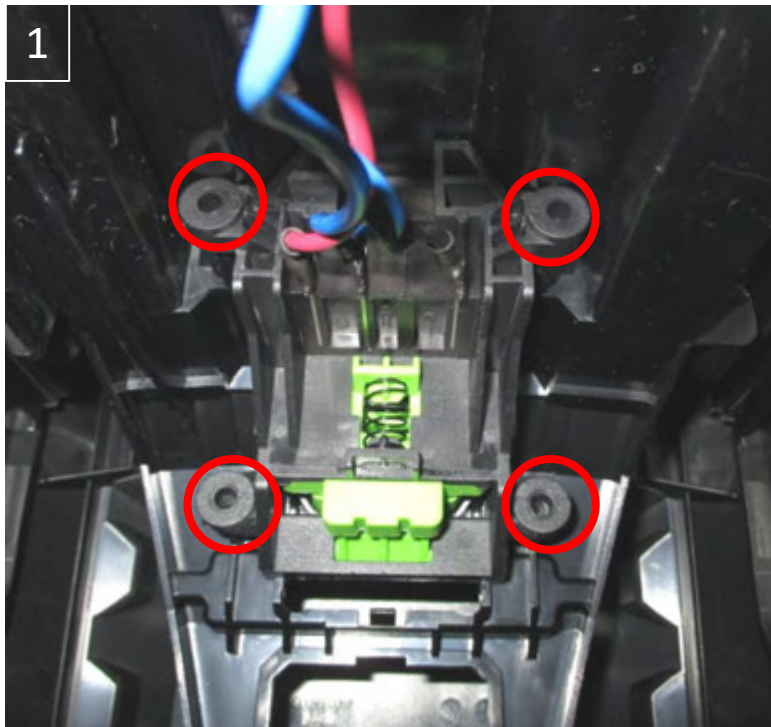
Main PCBA Replacement

LM2100SP Lawn Mower

14. Mount them into the battery box. Fix them by tightening the 4 screws(Fig. 1).
15. Invert the battery box to place the fuse into the groove with fuse downward(Fig. 2).

NOTICE: The red wire connecting the fuse should pass through the hook on the PCB board and the rest of the wire is hidden on the board's back.

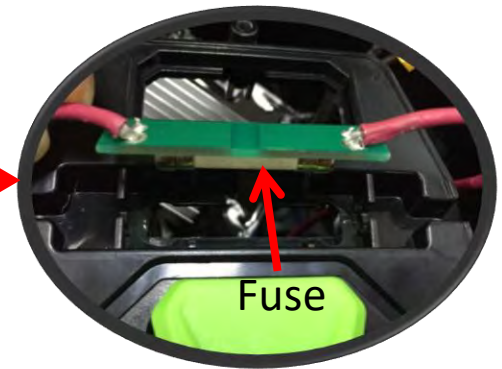
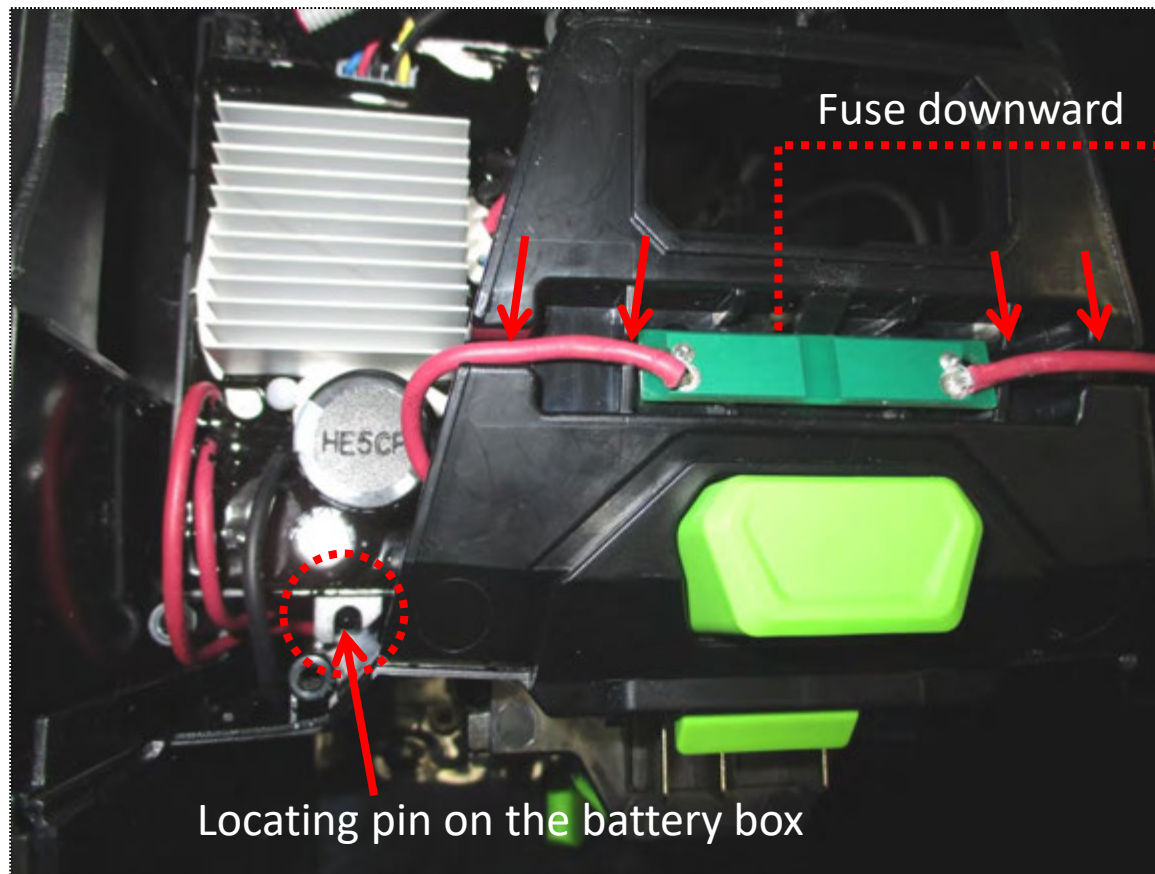
Hidden on board's back



Main PCBA Replacement

LM2100SP Lawn Mower

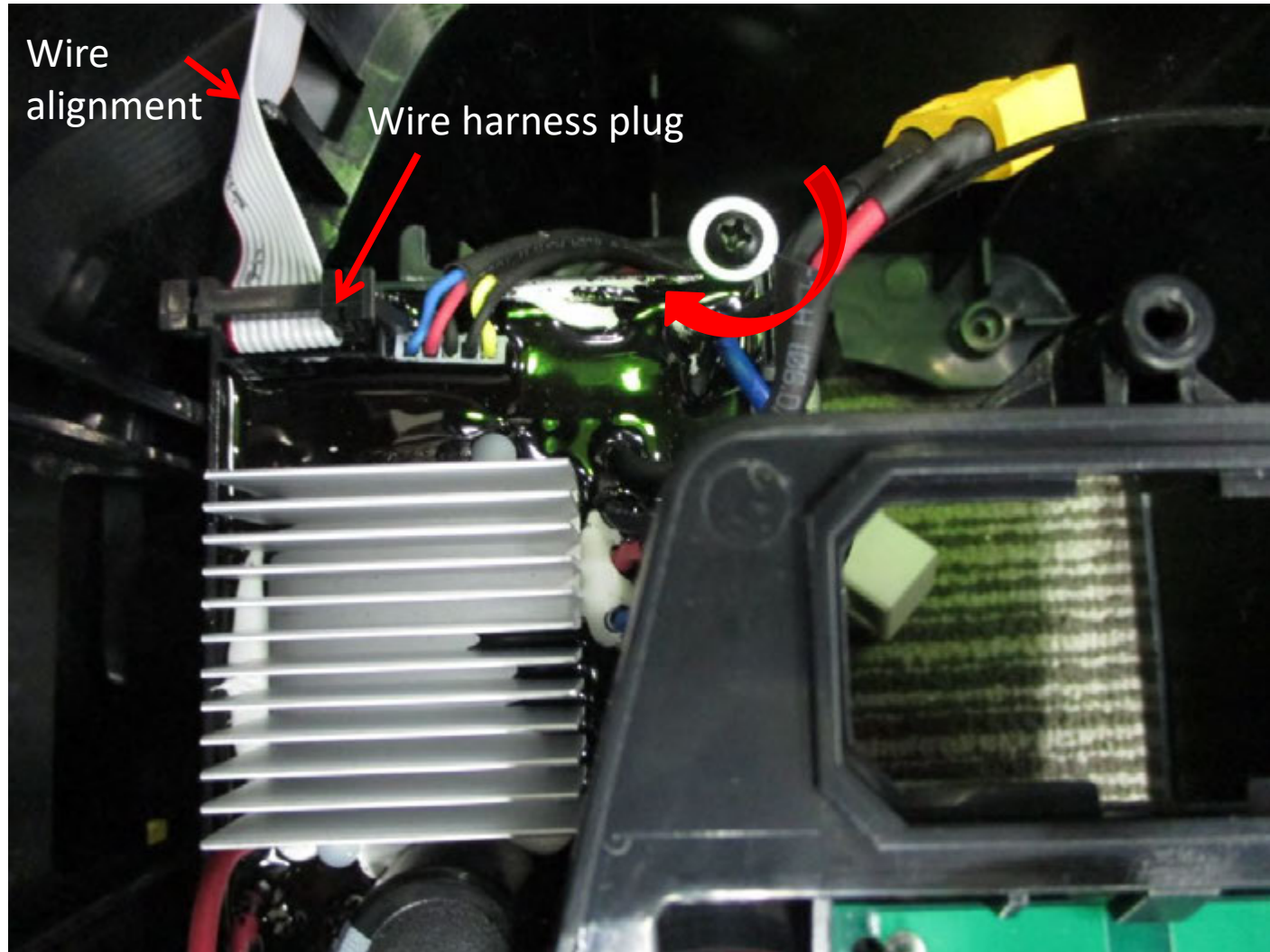
16. Align the wires on both sides of the fuse into their grooves.
17. Aligning the notch on the PCB board with the locating pin on the battery box, position the PCB board into the place.



Main PCBA Replacement

LM2100SP Lawn Mower

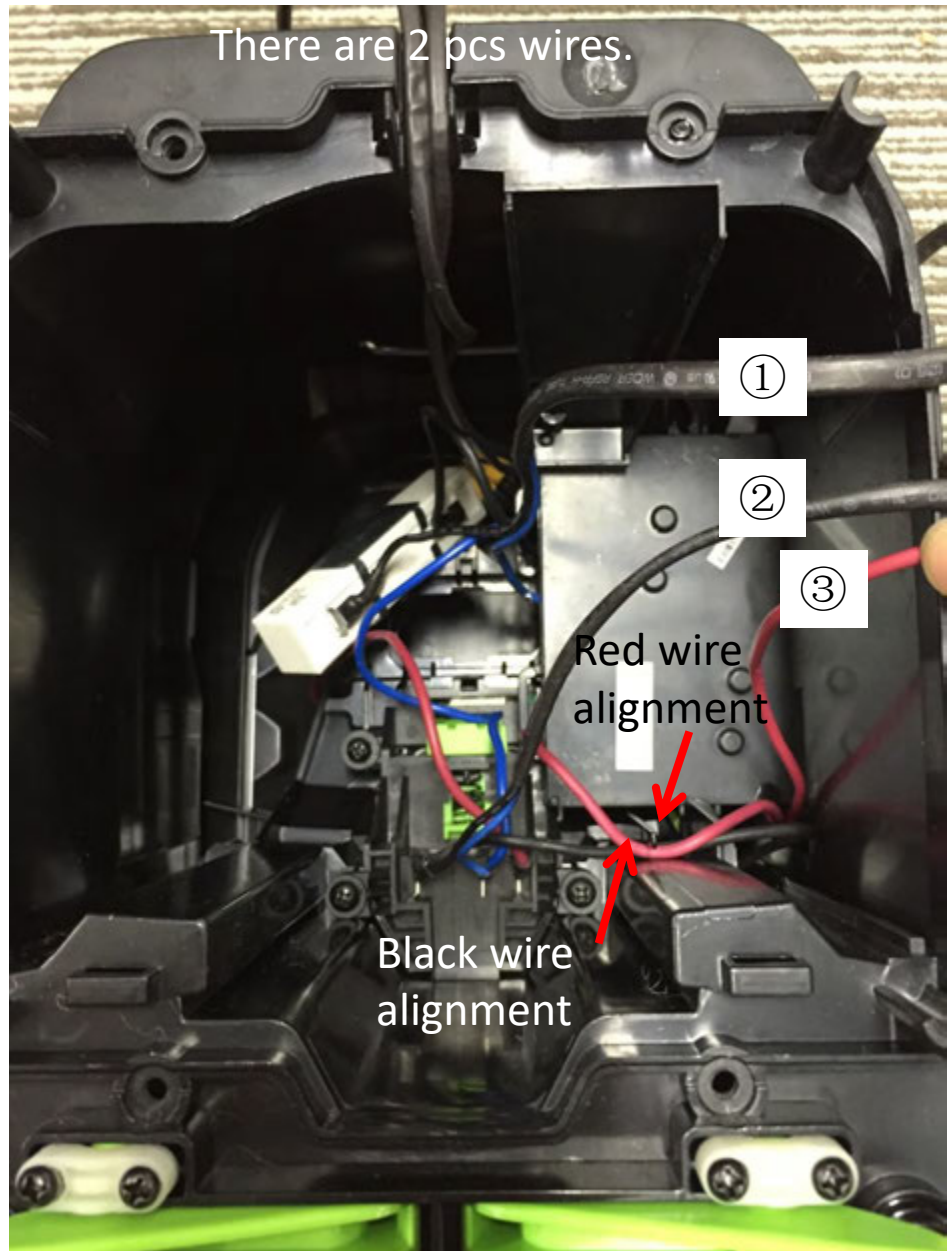
18. Fix the PCB board by tightening the screw with a plain washer.
19. Insert the wire harness plug into the socket.



Main PCBA Replacement

LM2100SP Lawn Mower

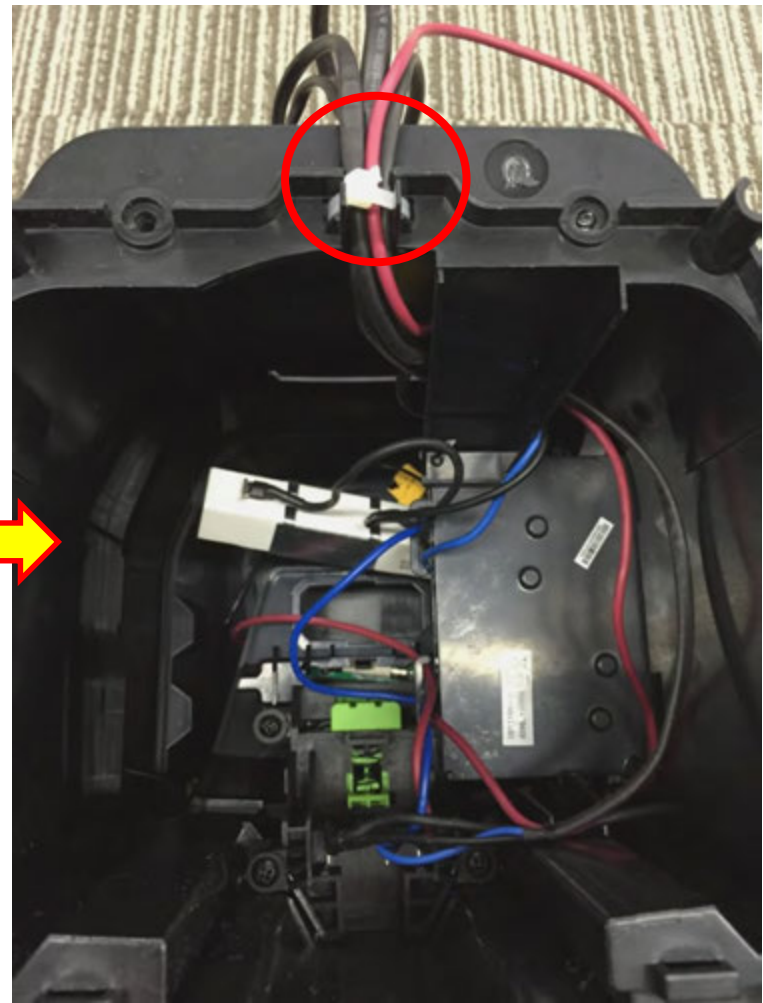
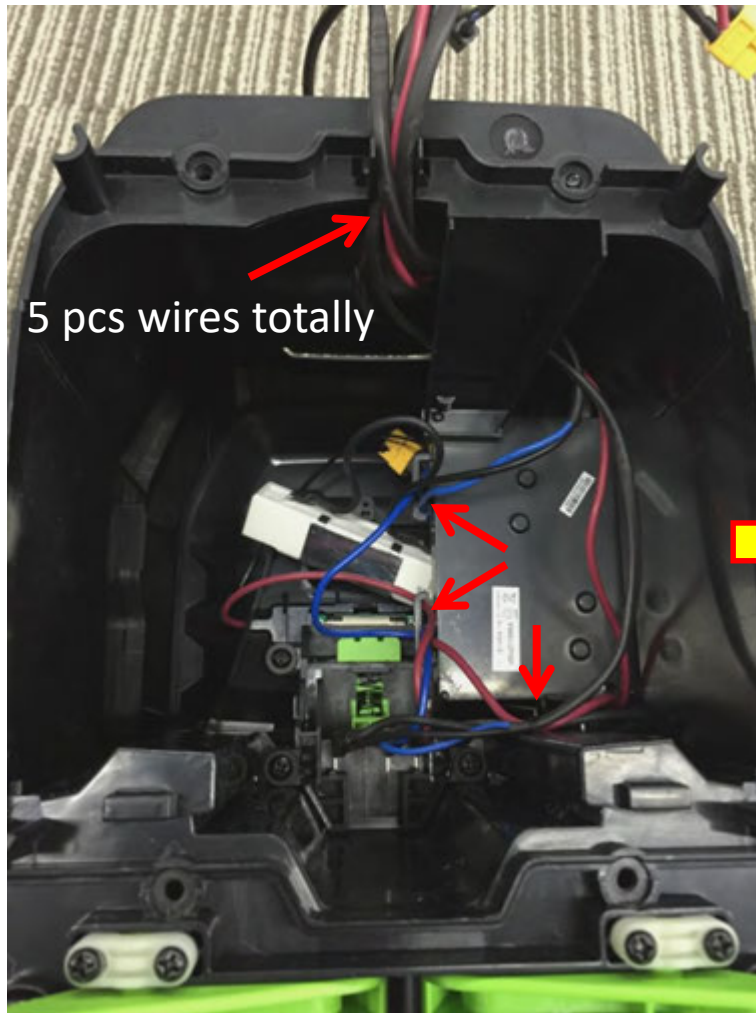
20. Turn the battery box on its back.
21. Arrange the wires:
 - a) The short black and red wires are hooked into the groove;
 - b) The 3 long wires (including the black thick one ① linked to the big resistor, the black thin wire ② and the red thin wire ③) should be pulled through the battery box corner(see next page).



Main PCBA Replacement

LM2100SP Lawn Mower

22. Pull the 3 long wires from the corner and tie them with the other 2 black wires by a zip tie.



23. Mount the motor into the battery box as **“Main Motor ASSY Replacement”** part shown.
24. Close the inner cover by locking the 5 screws.



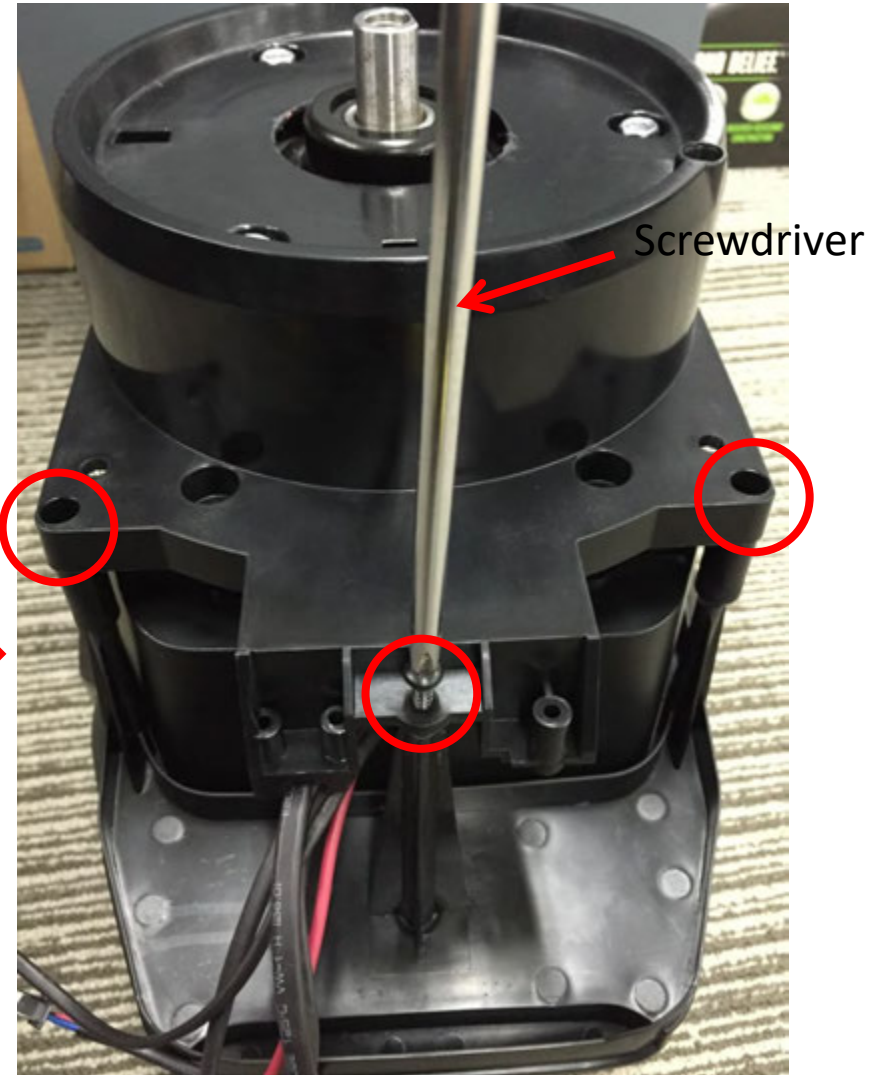
Power Unit Assembly

LM2100SP Lawn Mower

1. Mount the front service cover onto service box. Fix it by 3 screws.

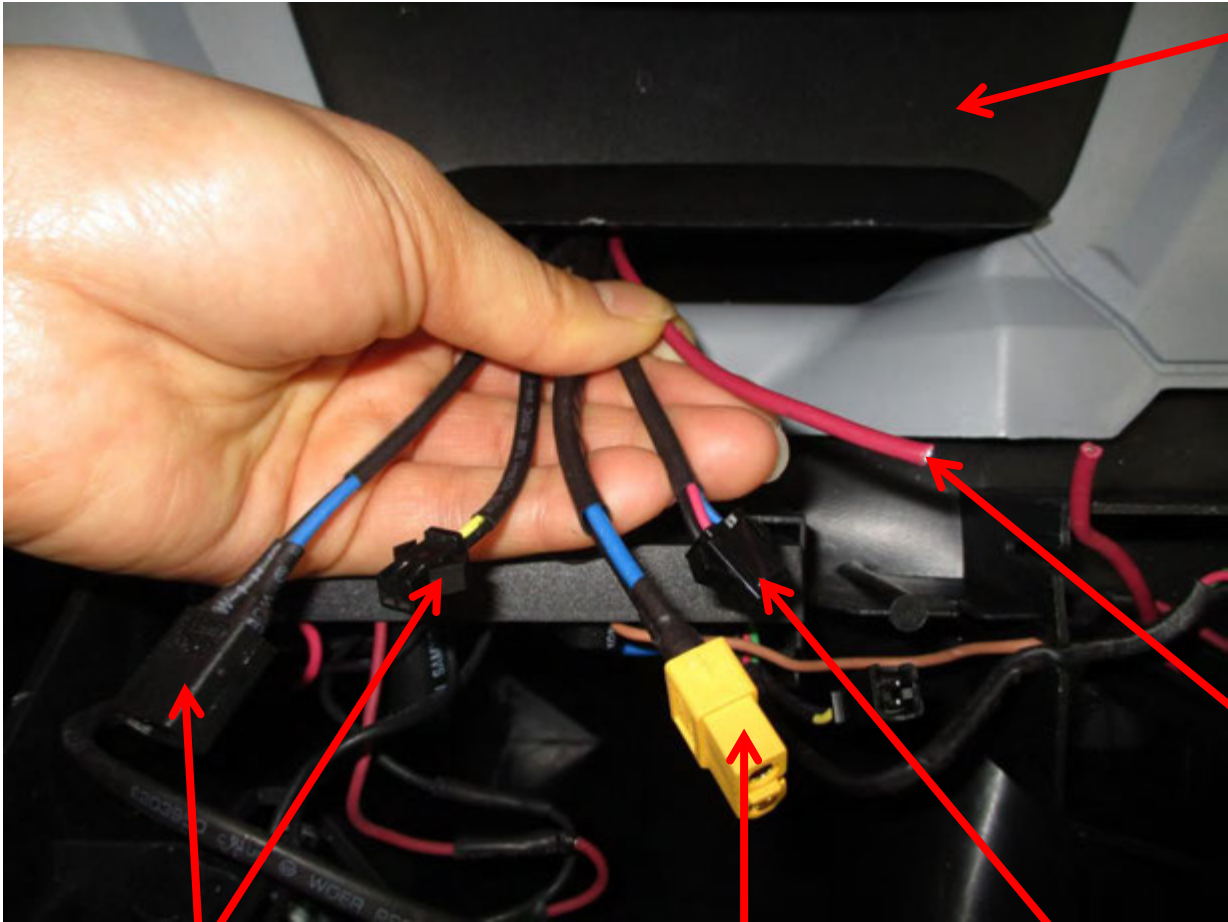


Front service cover



Power Unit Assembly

2. Mount the reassembled power unit onto the mower. 5 pcs wires should be exposed outside.



Power unit with front service cover

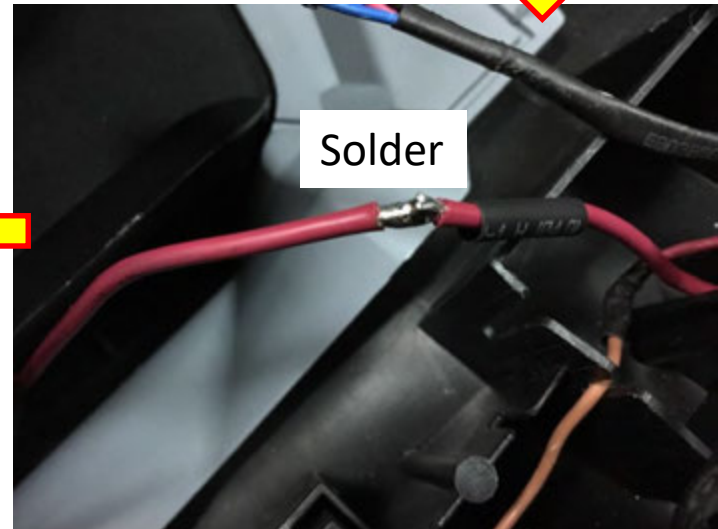
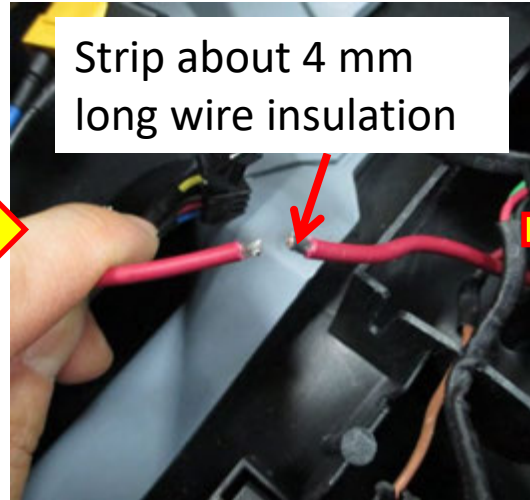
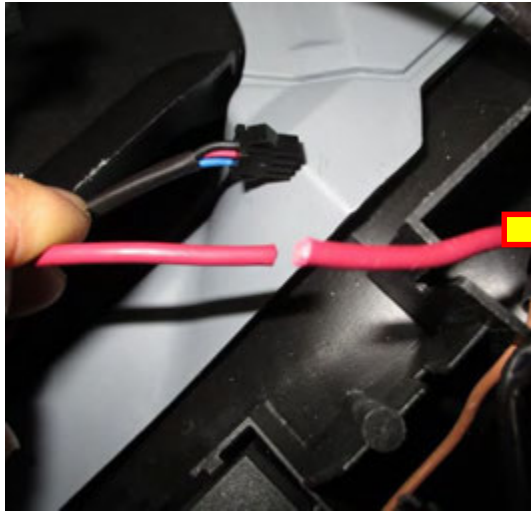
Linked to handle position switch

Linked to self-propelled PCB

Lined to main switch

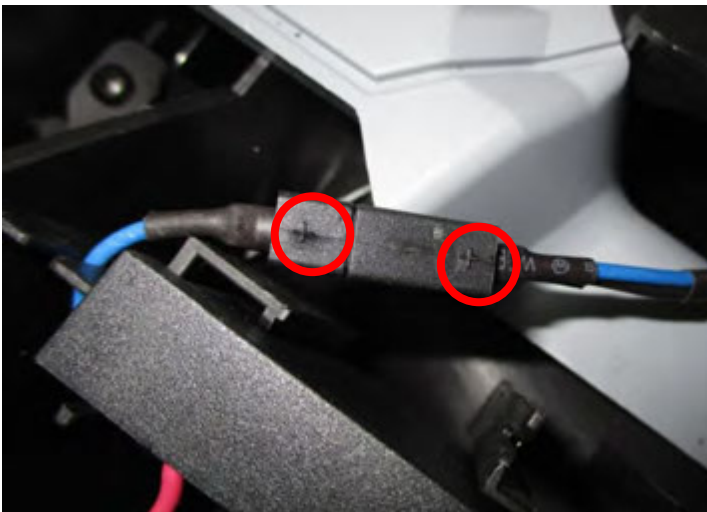
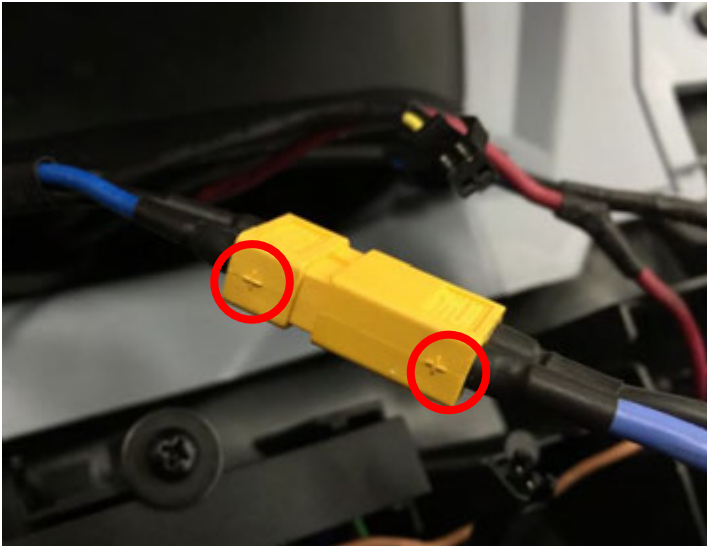
Linked to microswitch

3. Soldering the red wires as shown in the following steps.



4. Insert the plugs into the corresponding sockets.

NOTICE: The big yellow and black plugs should be both connected with “+” to “+”.

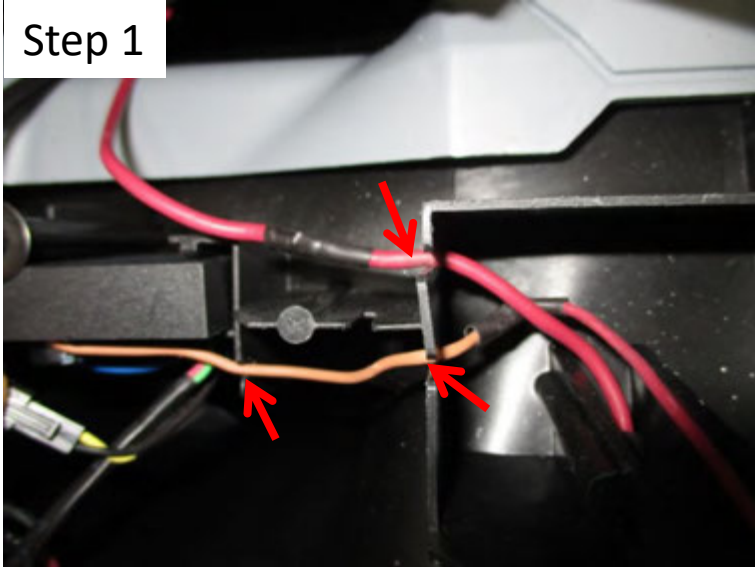


Power Unit Assembly

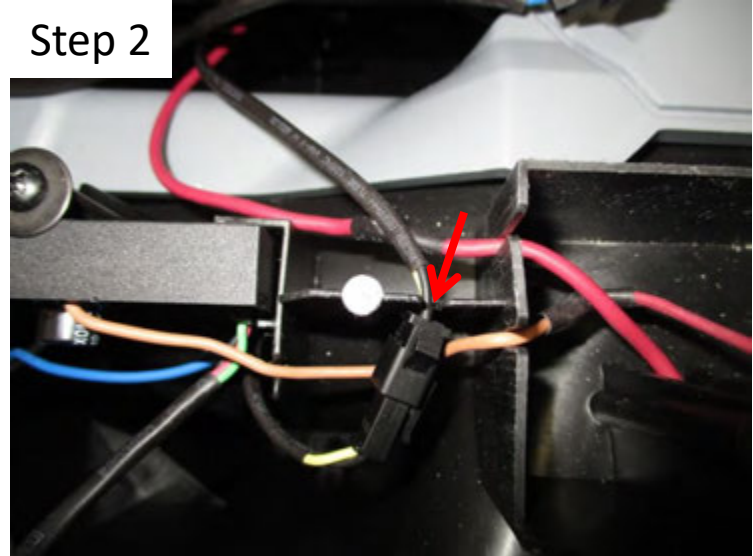
LM2100SP Lawn Mower

5. Align the wires into the grooves.

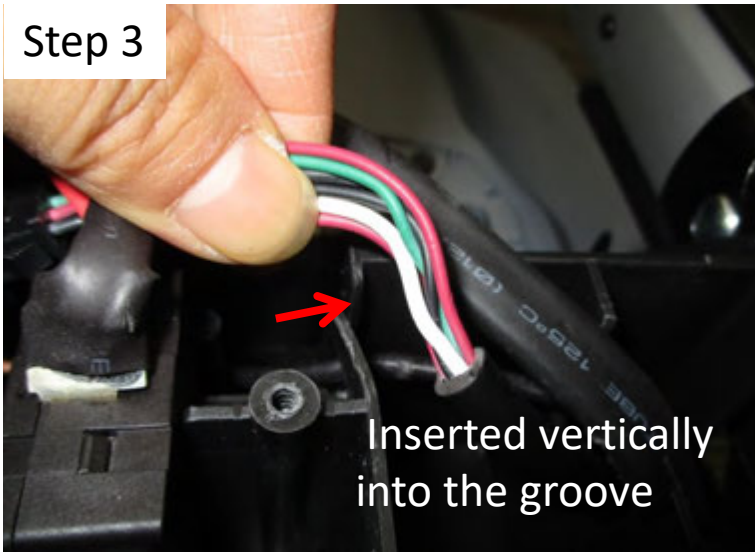
Step 1



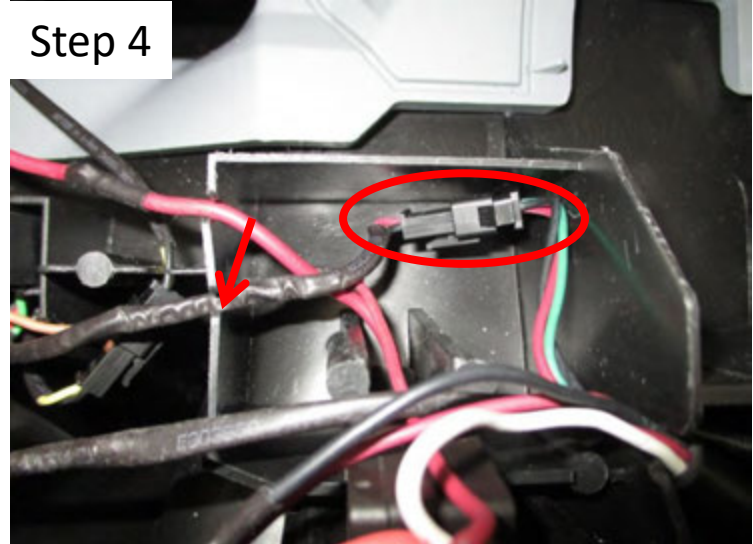
Step 2



Step 3



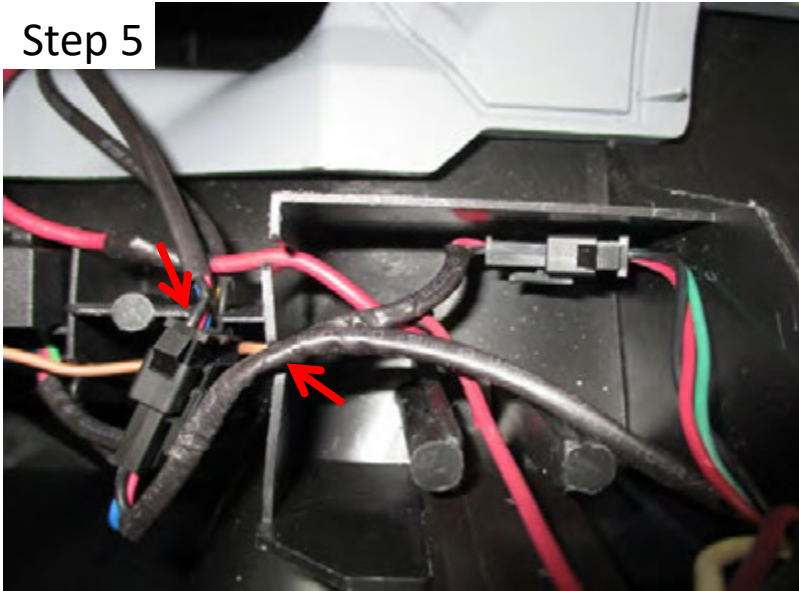
Step 4



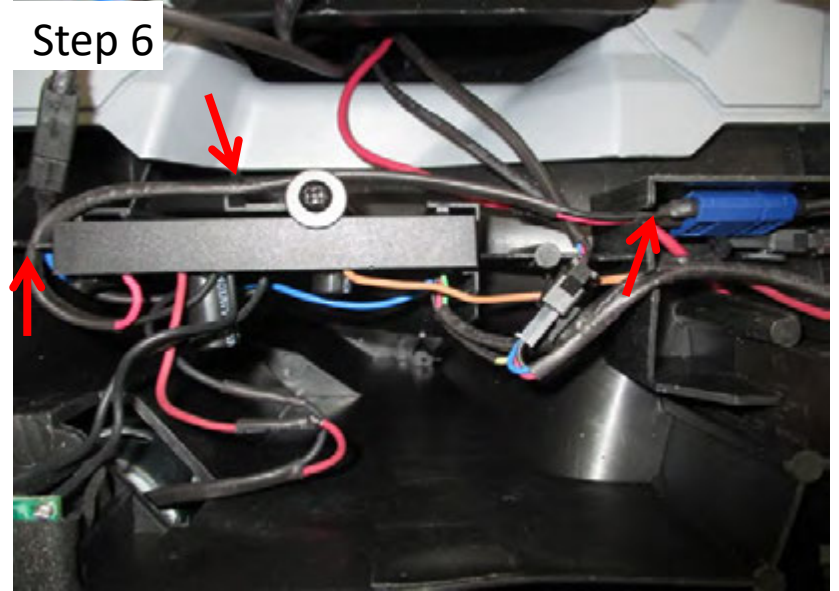
Power Unit Assembly

LM2100SP Lawn Mower

Step 5

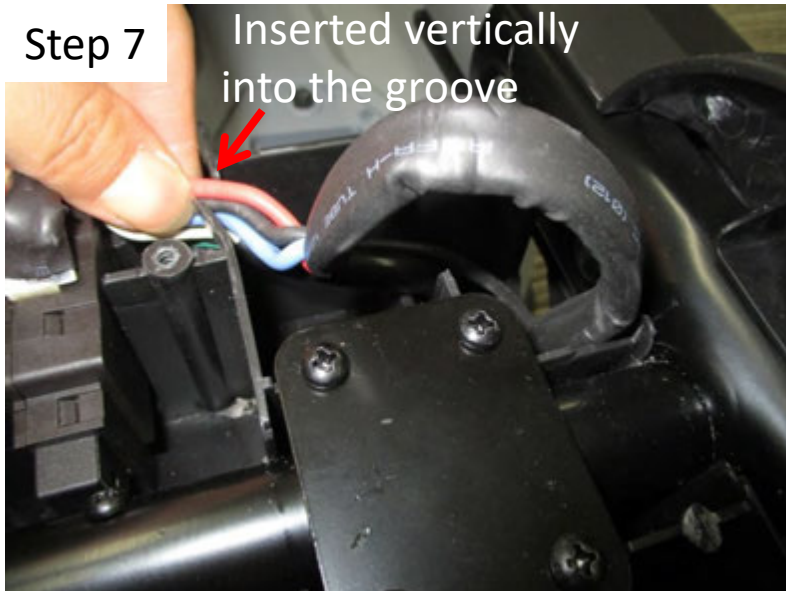


Step 6

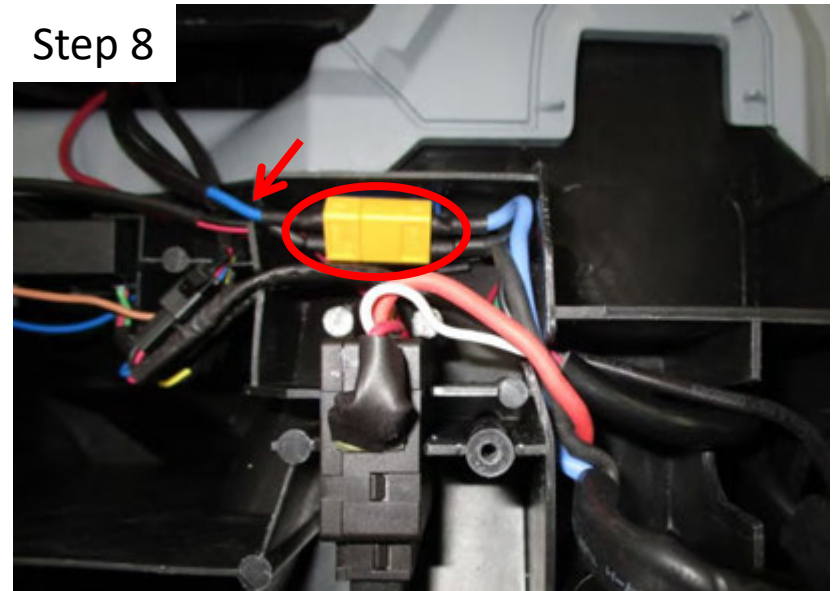


Step 7

Inserted vertically into the groove



Step 8

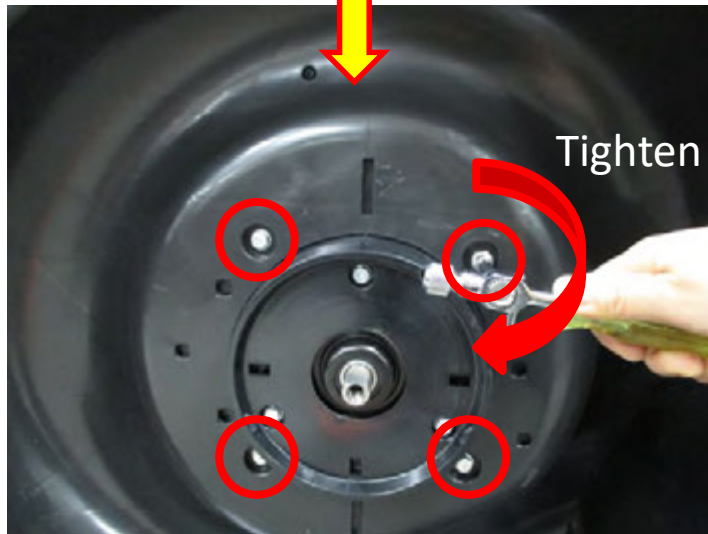
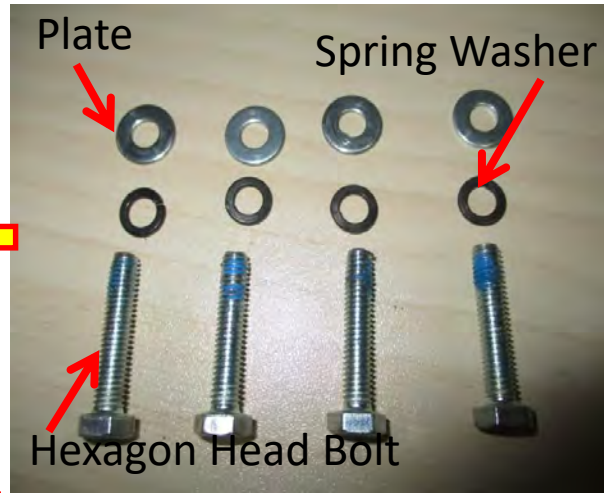


Power Unit Assembly

LM2100SP Lawn Mower

6. Turn the mower on its side.

7. Tighten the 4 hexagon head bolts with a 3/8" ($\phi 10\text{mm}$) socket wrench to fix the power unit.



REMARK: The set of 1pc plate, 1pc spring washer and 1pc hex bolt will be replaced with 1pc combined bolt, supplied as one part#.

8. Close the service cover.

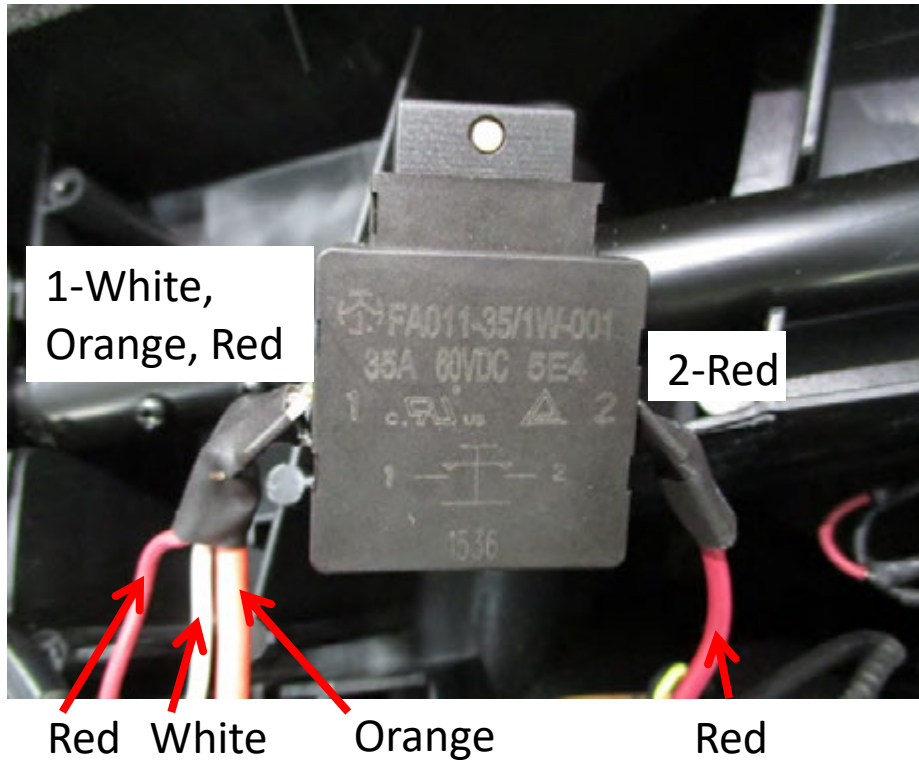


Service Cover

Handle Position Switch Replacement

LM2100SP Lawn Mower

1. After removing the service cover, you can see the handle position switch.
2. Pull the switch from the locating slot, and disconnect it from the wires (solder).
3. Replace it with a new one after the handle position switch is confirmed as defective.
4. Reconnect the switch with wires (solder) as below shown. **MIND THE CORRECT CONNETION.**

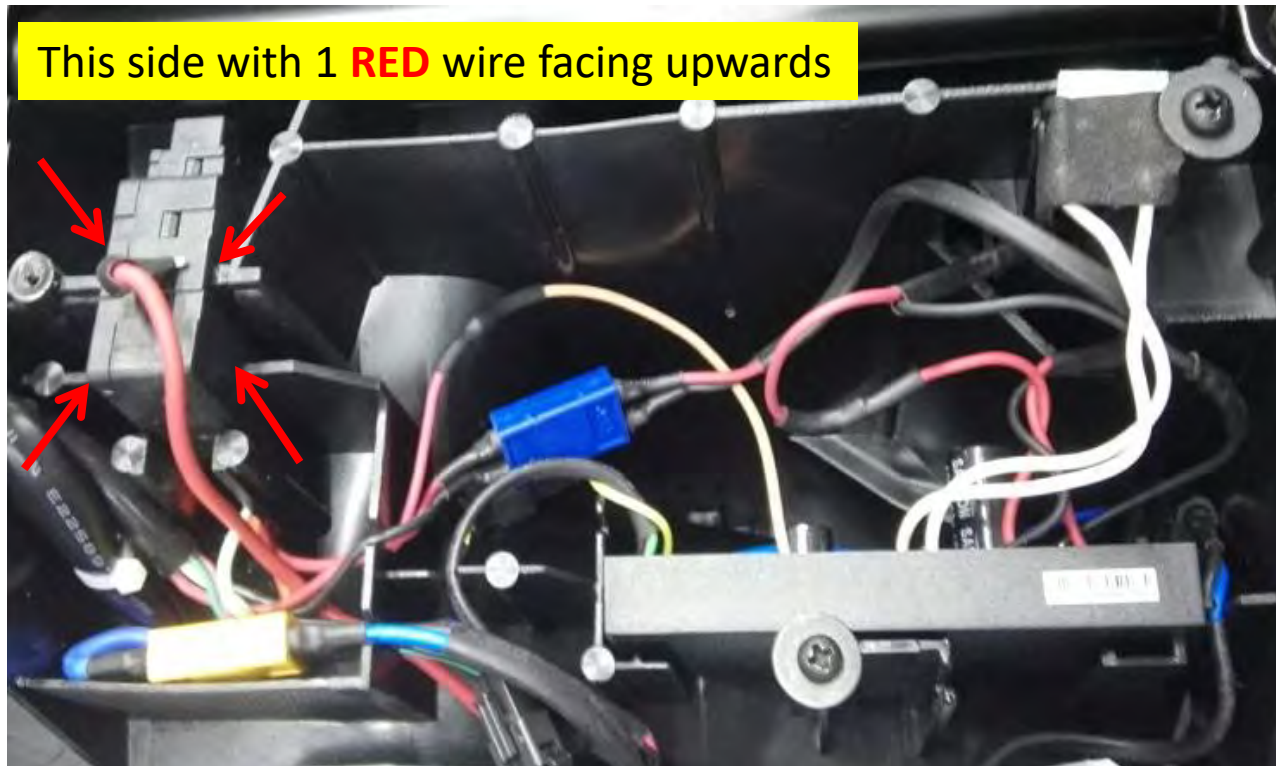


Description	Part Number
Handle Position Switch	4870566002

Handle Position Switch Replacement

LM2100SP Lawn Mower

5. Place the handle position switch into its position as below shown.
6. Align the wires as step 5 in “Power Unit Assembly” shown.



THE END

REPAIR GUIDELINE

PART 2.2: LED LIGHT REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/08

NO.	Contents	Page
1	LED Film Switch Replacement	3
2	LED Headlights Replacement	4-12

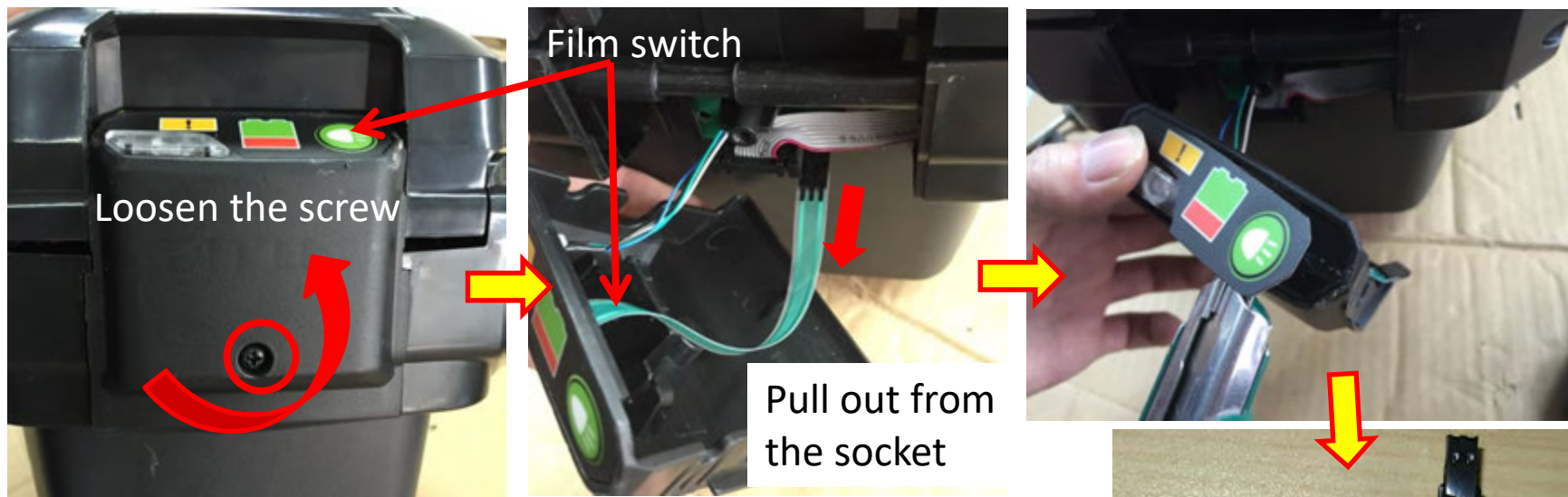
NOTICE: In the power unit, some parts with low failure risk of service, they are not available for placing the new order and for service, such the decorative covers, battery box housing, etc, the old stock can be used up before inactivating these old parts.

LED Film Switch Replacement

LM2100SP Lawn Mower

OLD: The LED Film switch can be replaced following the steps indicated in the the figures shown below.

NEW: Just loosen the screw and disconnect the film switch plug from the battery box and have the whole **LED Cover Assembly** for replacement.



Description	Part Number
Film switch	4870558001
LED Cover Assembly	2827419001

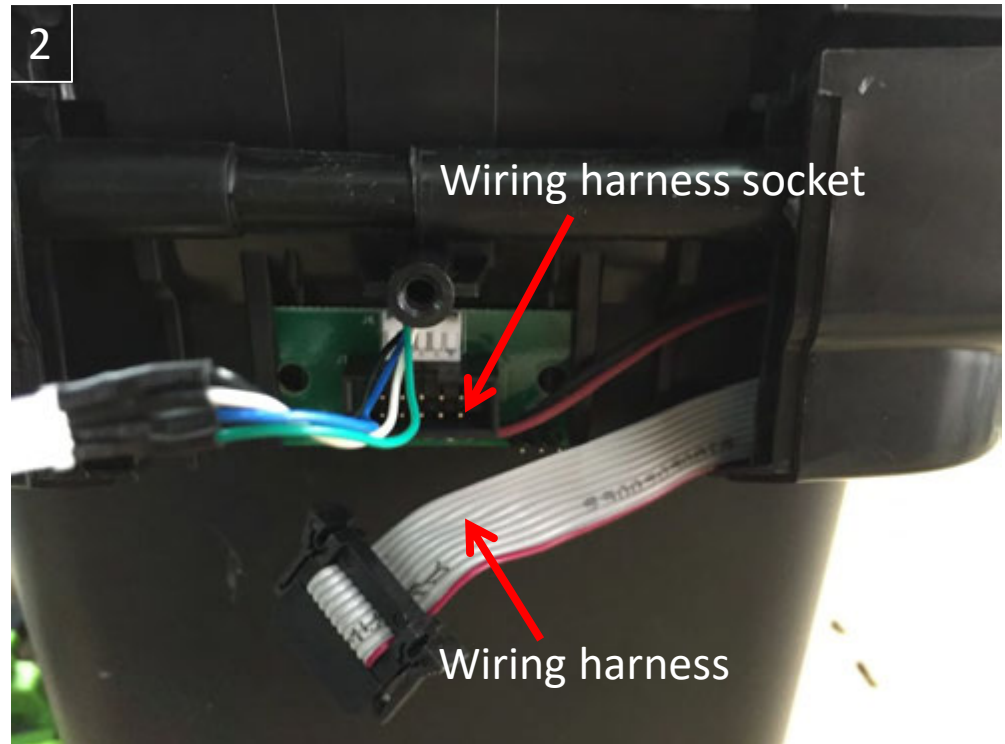
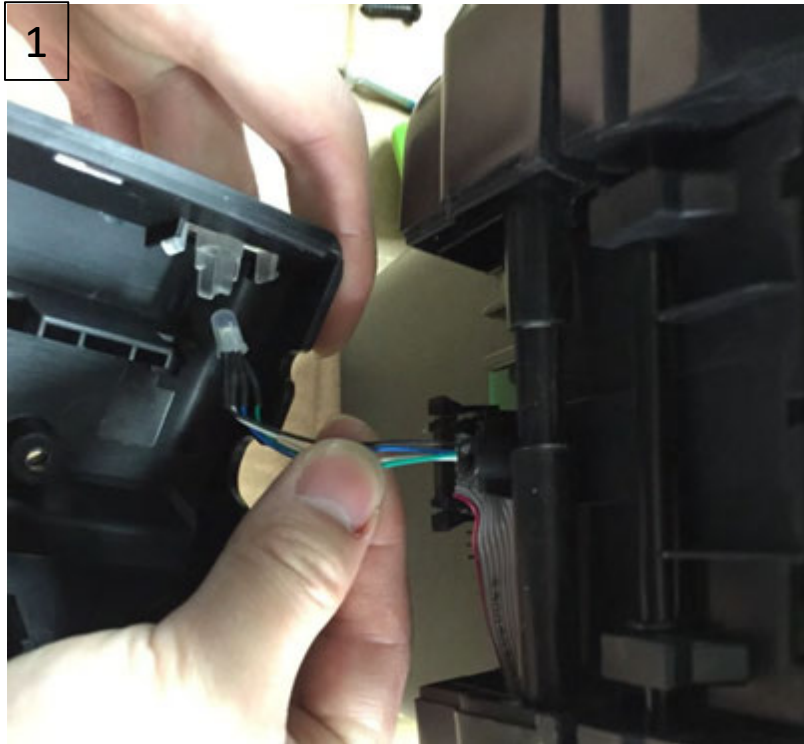
NOTICE: for more convenient service for the film switch, the separate film switch service is replaced by the LED Cover Assembly.



LED Headlights Replacement

LM2100SP Lawn Mower

1. Remove the cover of the LED Film switch as previous steps shown.
2. Pull the power indicator LED out from the cover(Fig. 1).
3. Separate the wiring harness from its socket(Fig. 2).



LED Headlights Replacement

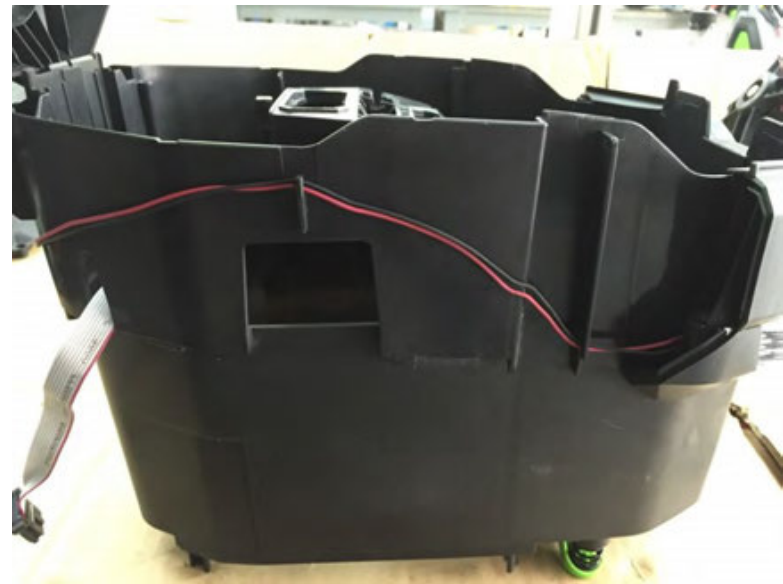
LM2100SP Lawn Mower

4. Remove the one screw on the right(indicated by the red circle) to separate the coupled decorative covers.
5. Pry the left and right decorative covers by a screwdriver. If the decorative covers are damaged, replace them.





Decorative covers

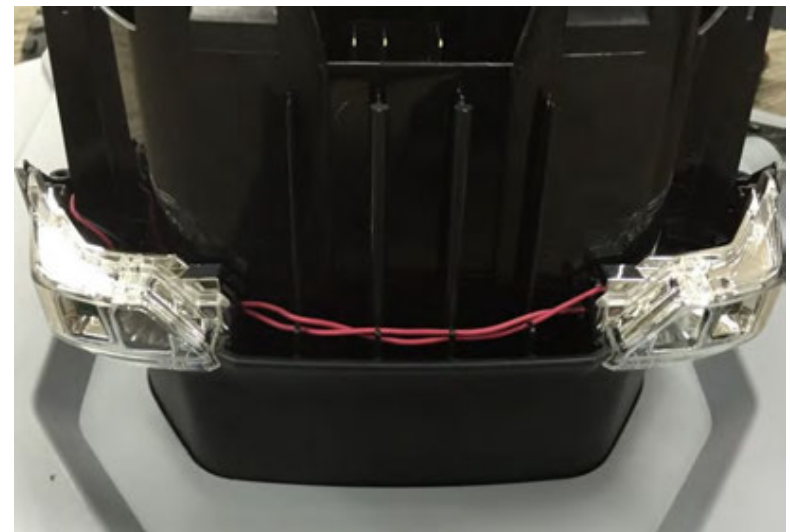
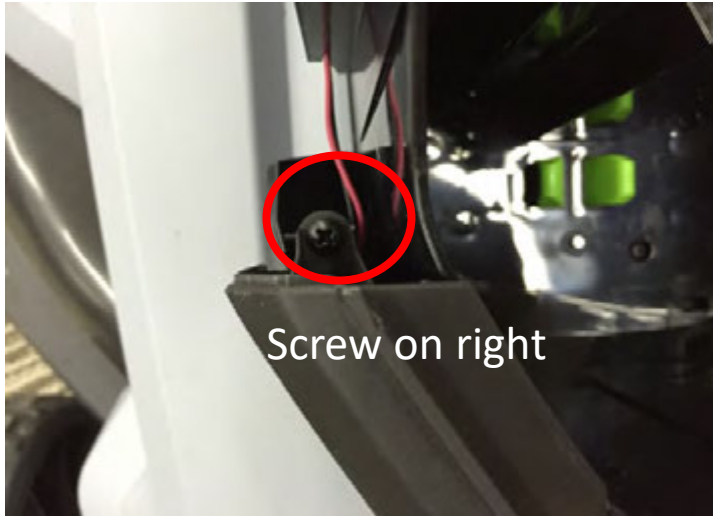


NOTICE: The old stock for decorative covers can be used up before inactivating these old parts.

LED Headlights Replacement

LM2100SP Lawn Mower

6. Remove the 2 screws to separate the front decorative cover.

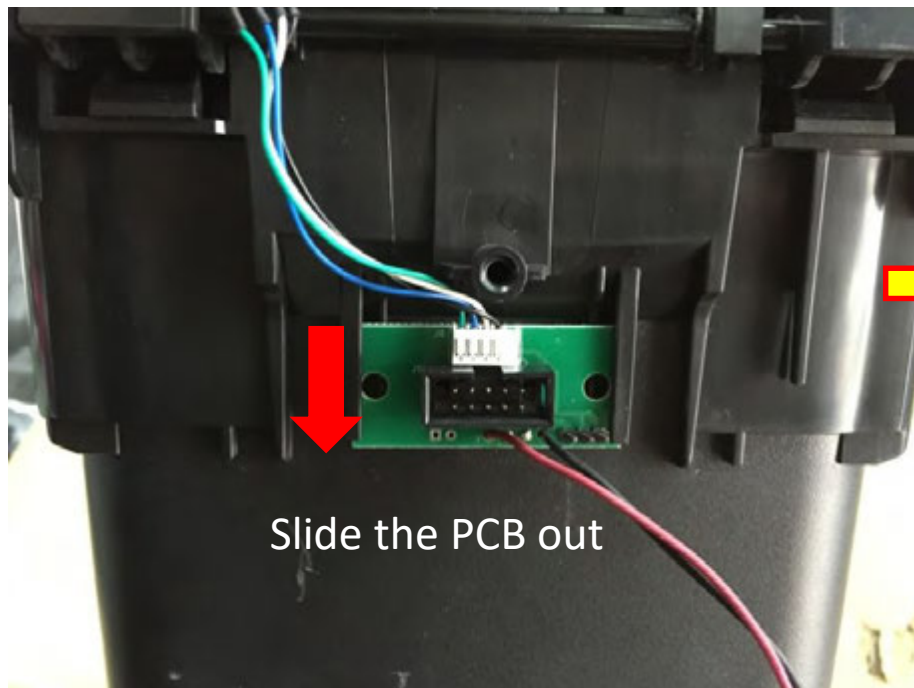


LED Headlights Replacement

LM2100SP Lawn Mower

7. Take the LED headlights apart from the battery box.

The LED headlights includes 1pc PCB ASSY(including 3 small PCBs), 2pcs reflectors and 2pcs transparent caps(see next slide).

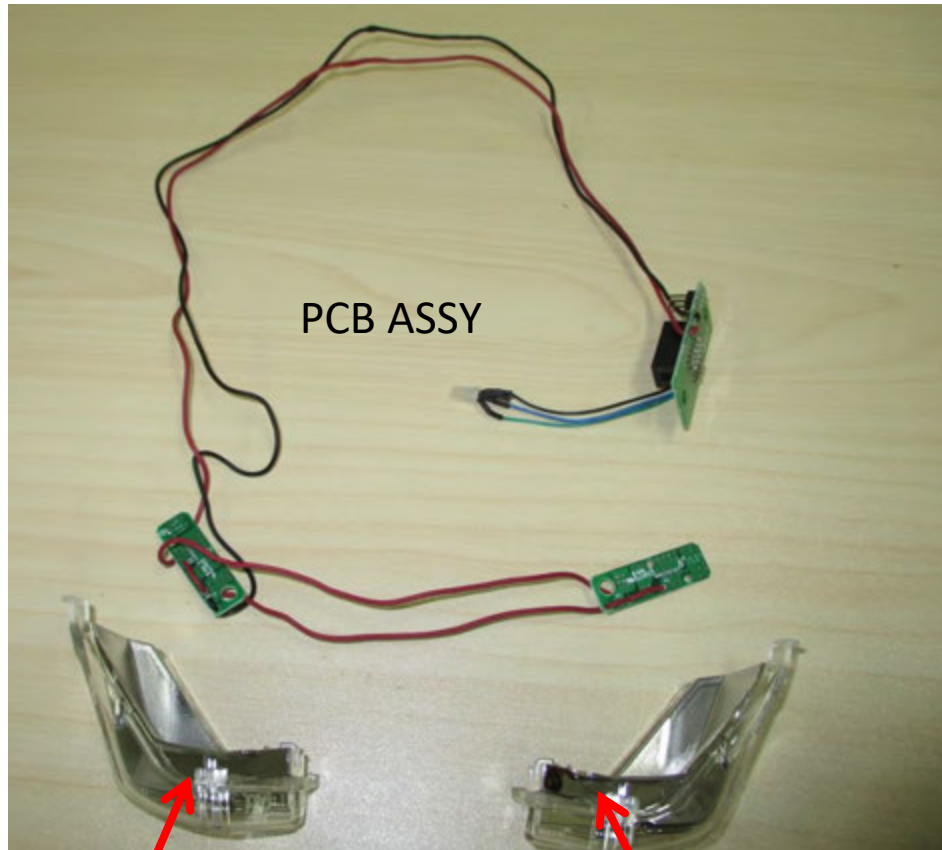


LED Headlights Replacement

LM2100SP Lawn Mower

8. Replace the broken parts included in the LED headlights.

NOTICE: The old stock for the front decorative cover and below four parts in grey be used up before inactivating these old parts.



Description	Part Number
PCB ASSY	2823604003
Right transparent cap	3127981001
Left transparent cap	3127982001
Right reflector	3127983001
Left reflector	3127984001

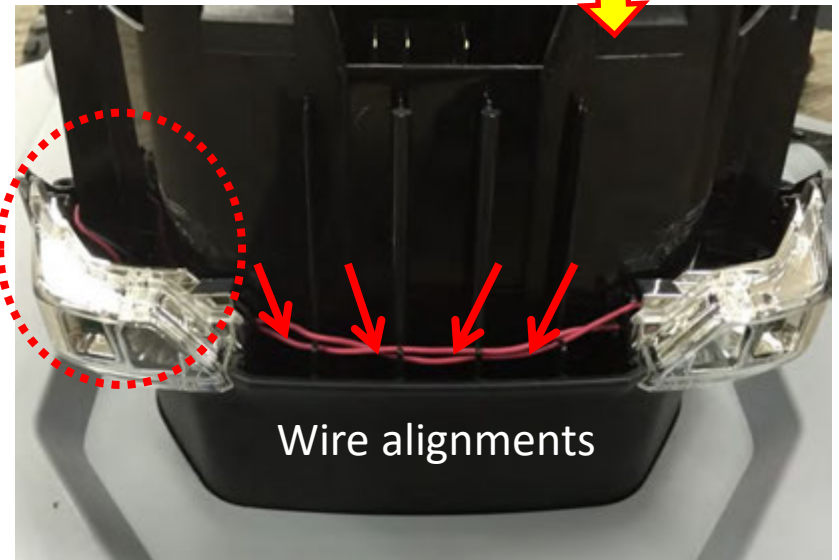
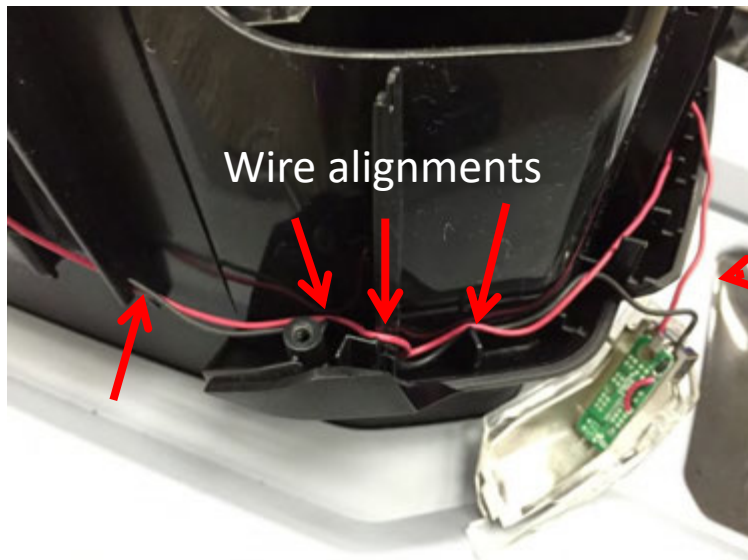
Right transparent cap
with reflector

Left transparent cap
with reflector

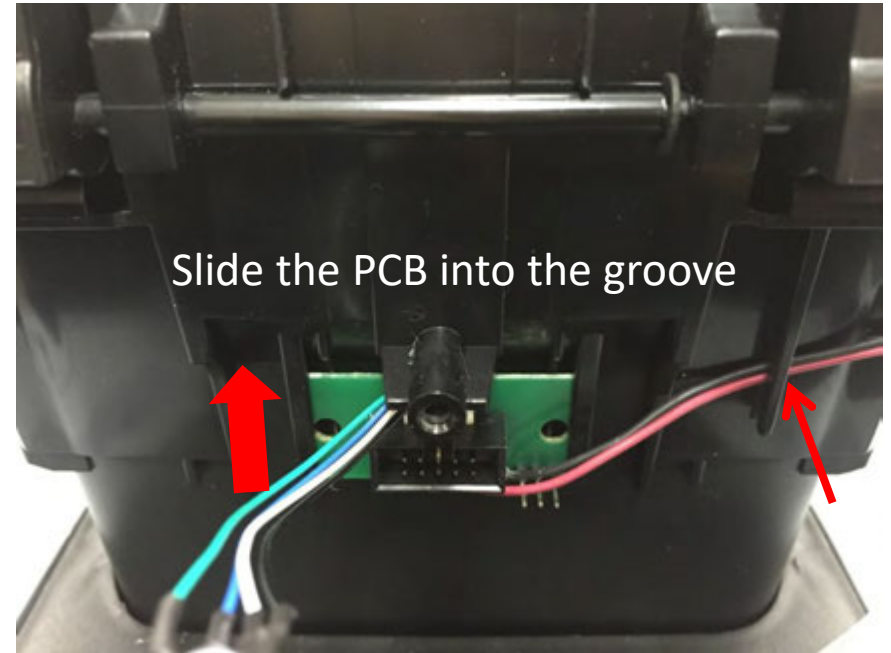
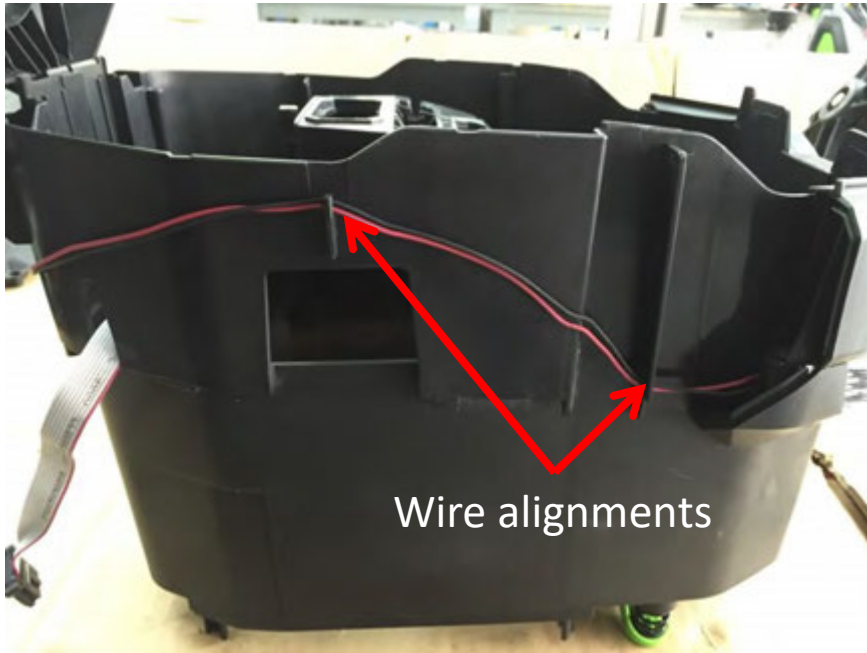
LED Headlights Replacement

LM2100SP Lawn Mower

9. Assemble the new LED headlights onto the battery box.

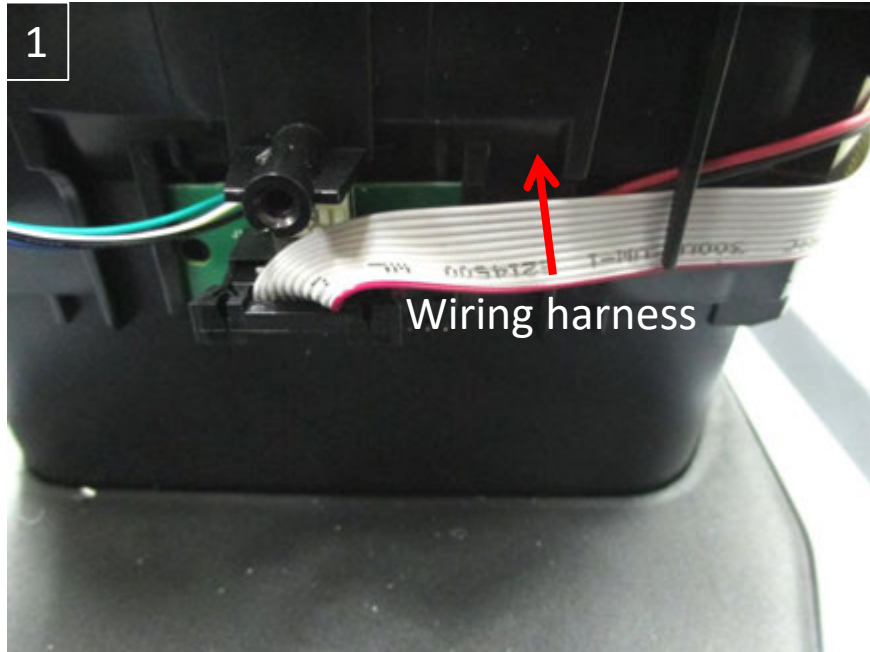


10. Align the wires into the groove as well as the PCB.



11. Plug the wire harness into its socket(Fig. 1).

12. Mount the decorative covers onto the battery box and lock them with the one screw(Fig. 2).



13. Assemble the LED film switch in reverse order of disassembly, as shown in previous steps.

REPAIR GUIDELINE

PART 2.3: Battery Cover of Power Unit Replacement_LM2100SP Lawn Mower



Updated on 2021/09/08

Battery Cover Replacement

LM2100SP Lawn Mower

The battery cover consists of the transparent guard, which is easy to drop off from the cover itself.



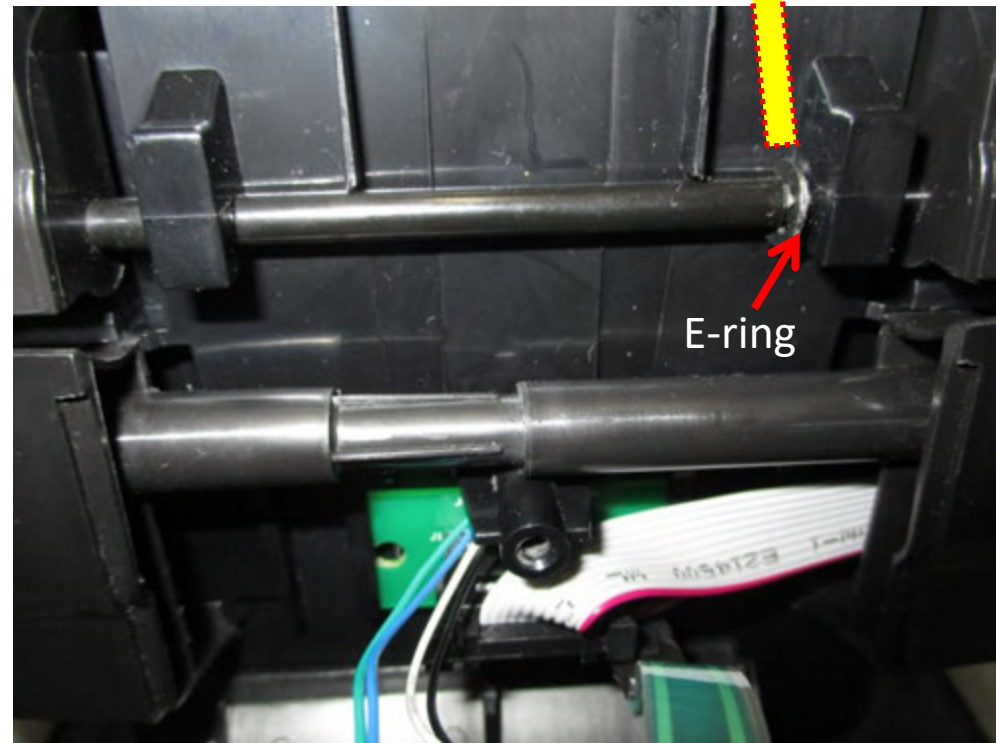
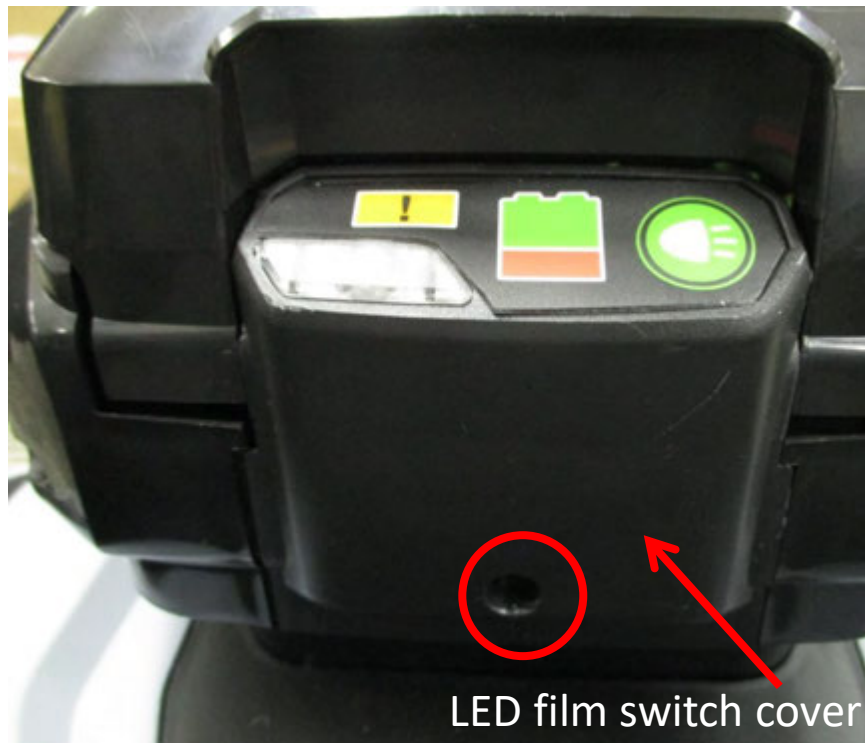
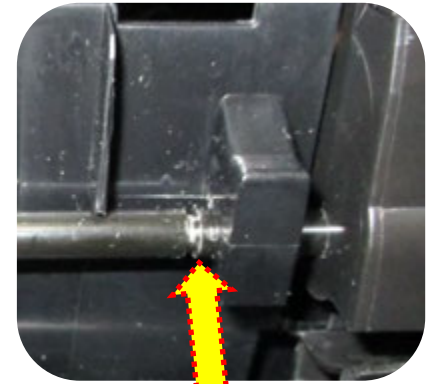
Description	Part Number
Battery cover	2824902001
Transparent guard	3127900001
Shaft	5670380001
E-ring	5660003003

NOTICE: The old stock for the shaft in grey be used up before inactivating these old parts.

Battery Cover Replacement

LM2100SP Lawn Mower

1. Remove the screw to open the LED film switch cover.
2. Remove the E-ring from the shaft.



Battery Cover Replacement

LM2100SP Lawn Mower

3. Draw the shaft out from the battery cover by gently taping with a thin rod.
4. Replace with a new battery cover. Install the new one to the battery box in reverse order.



Draw out the shaft
from the right

Shaft

THE END

REPAIR GUIDELINE

PART 3: REAR COVER REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/08

Rear Cover Replacement



Rear Cover

Description	Part Number
Rear Cover	3126689003

Rear Cover Replacement

LM2100SP Lawn Mower

1. Detach the service cover from the mower by loosening the 6 screws.



Rear Cover Replacement

LM2100SP Lawn Mower

2. Pull out the shaft from right side by hand (Fig. 1).
3. Take down the rear cover and shaft (Fig. 2).



Description	Part Number
Shaft	5670345001

NOTICE: The old stock for the shaft in grey be used up before inactivating these old parts.

Rear Cover Replacement

LM2100SP Lawn Mower

4. Remove the spring from the rear cover.
5. Replace with a new rear cover or torsion spring.

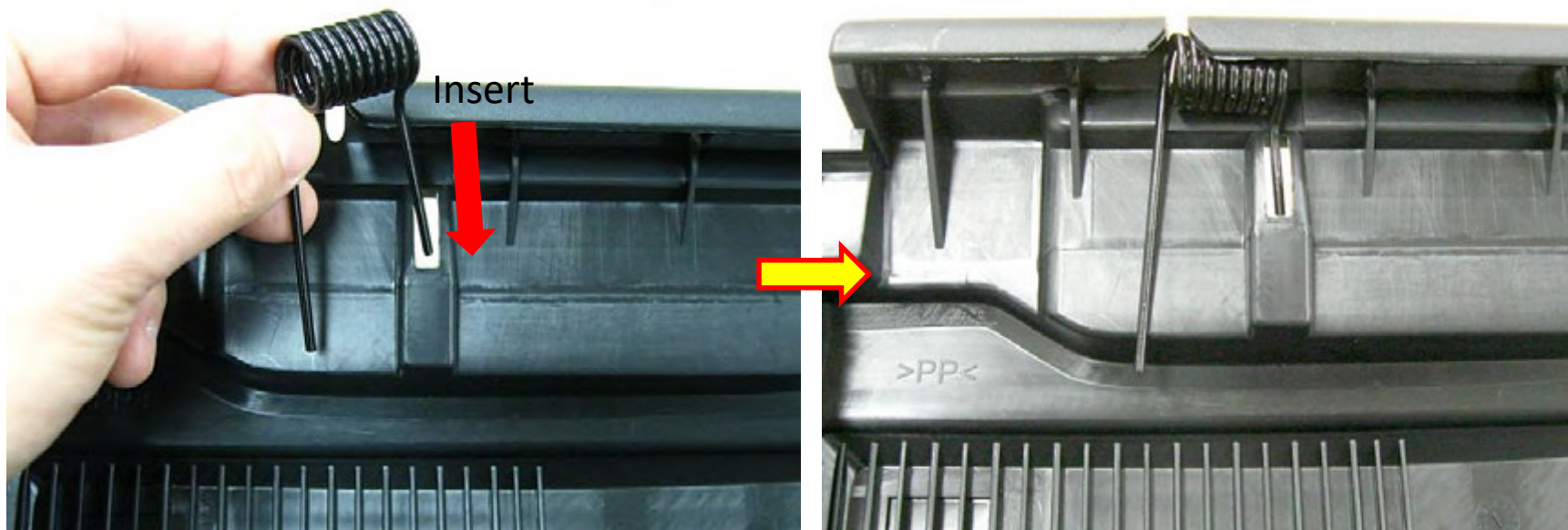


Description	Part Number
Torsion Spring	3660559001
Rear Cover	3126689003

Rear Cover Replacement

LM2100SP Lawn Mower

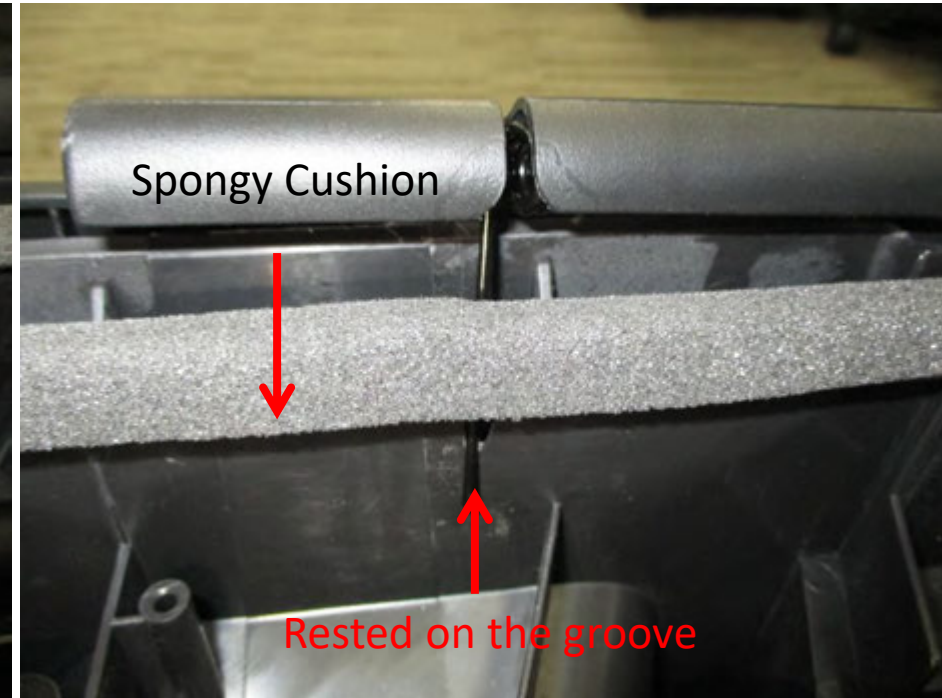
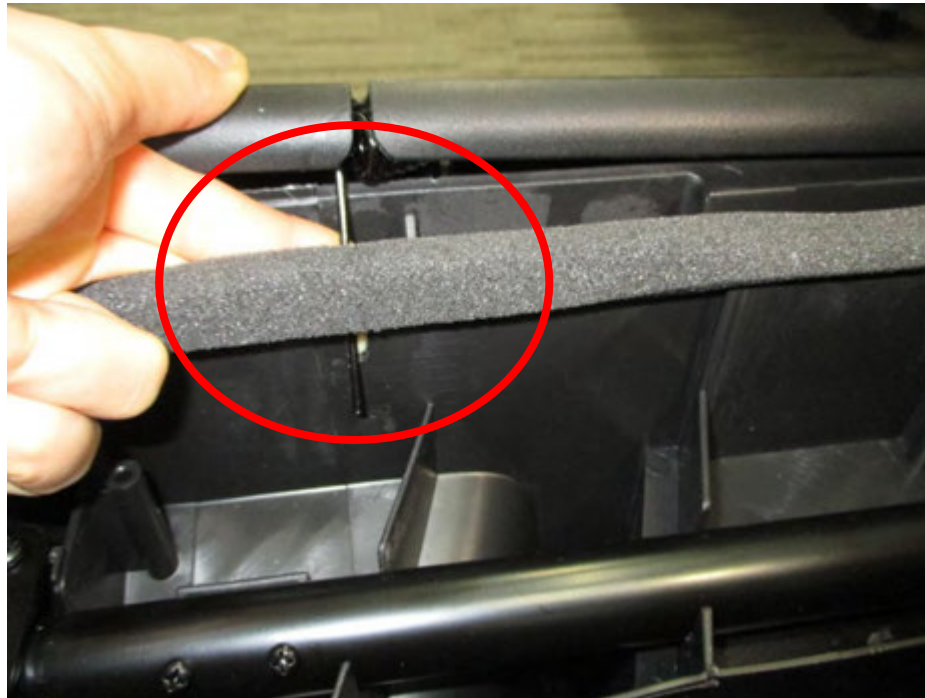
6. Insert the shorter foot of the torsion spring into the groove of rear cover.



Rear Cover Replacement

LM2100SP Lawn Mower

7. Position the rear cover and torsion spring assembly to the deck, get the spring foot through the deck groove and rest it on the groove.
8. Mind the sponge, if damaged during rear cover replacement, replace with a new one as needed.



Description	Part Number
Spongy Cushion	3706018001

NOTICE: The old stock for the spongy cushion in grey be used up before inactivating these old parts.

9. Insert the shaft both through the hole on the mower and the torsion spring, and push it into position.



10. Lift up the rear cover to check if it can rotate around the shaft smoothly. If it works well, mount the service cover onto the mower by tightening the 6 screws. Otherwise, reassemble it following above steps.

THE END

REPAIR GUIDELINE

PART 4: TOP HANDLE & SWITCH BOX COVER REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/08

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3	To Replace the Main Switch Set(Lever/Trigger)	12-14
4	To Replace the Top Handle	15
5	To Replace the Top & Bottom Switch Box Cover (updated)	16
6	To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)	17-22
7	To Align the Wire Harness into the Switch Box	23-29
8	Close the Switch Box Cover	30-32

TOP HANDLE & SWITCH BOX COVER REPLACEMENT

LM2100SP Lawn Mower

- When open the switch box covers, the following relevant parts can be replaced:

Description	Part Number
Main Switch	4870566001
Main Switch Lever	2824118001
Self-propel Lever	3127928001
Safety Button	3127929001
Switch Actuator	3127905001
Top Handle	2823782001
Self-propel Switch	4870563001
Self-propel Speed-adjusting PCB	4890439003
Self-propel Speed-adjusting Knob SET (new part# includes O ring)	3127930001 2828737001
Top & Bottom Switch Box Set (New set part# includes Safety Button, Switch Actuator and the corresponding parts for fixing them)	2824305001 2828738001



REMARK: The 1pc plain washer and 1pc spring, which are used to fix the switch actuator will be improved, combined into 1pc conical spring in order to avoid spring missing during mower operation(see P10).

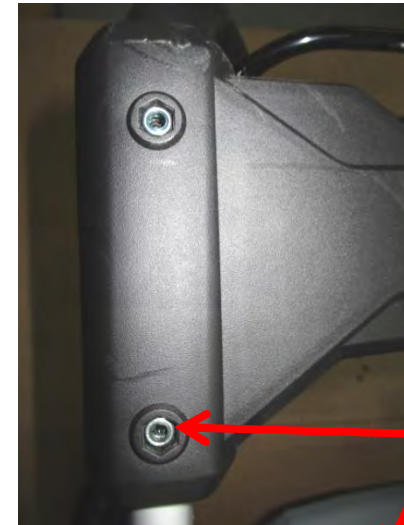
NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Open the Switch Box Cover

LM2100SP Lawn Mower

1. With the handle locked in the operating position, remove the 4 bolts. Each bolt has a corresponding hex nut.

NOTICE: The four nuts should be rested in the hole of the bottom cover . If it comes out, place it back.



Hexagon
Nut



Open the Switch Box Cover

LM2100SP Lawn Mower

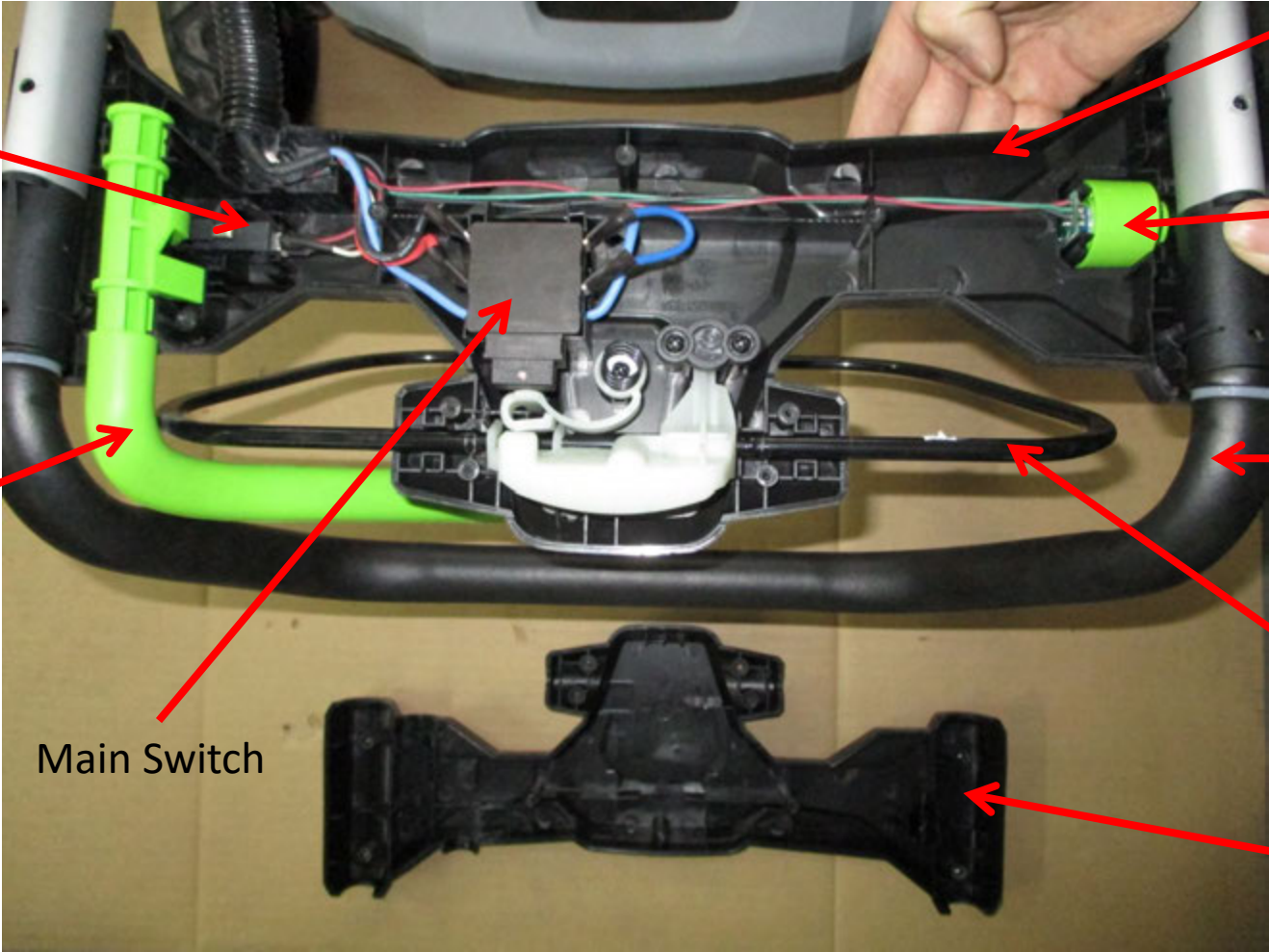
2. Fold the handle to the grass bag removal position(Fig. 1).
3. Remove the 8 screws from the housing(Fig. 2).

NOTICE: During this process, keep holding the top switch box cover with one hand.



Open the Switch Box Cover

- 4. Hold the top switch box cover with one hand and remove bottom switch box cover gently with the other hand. Replace any damaged parts accordingly.



Top Switch Box Cover

Self-propel Speed-adjusting Knob

Top Handle

Main Switch Lever

Bottom Switch Box Cover

Self-propel Switch

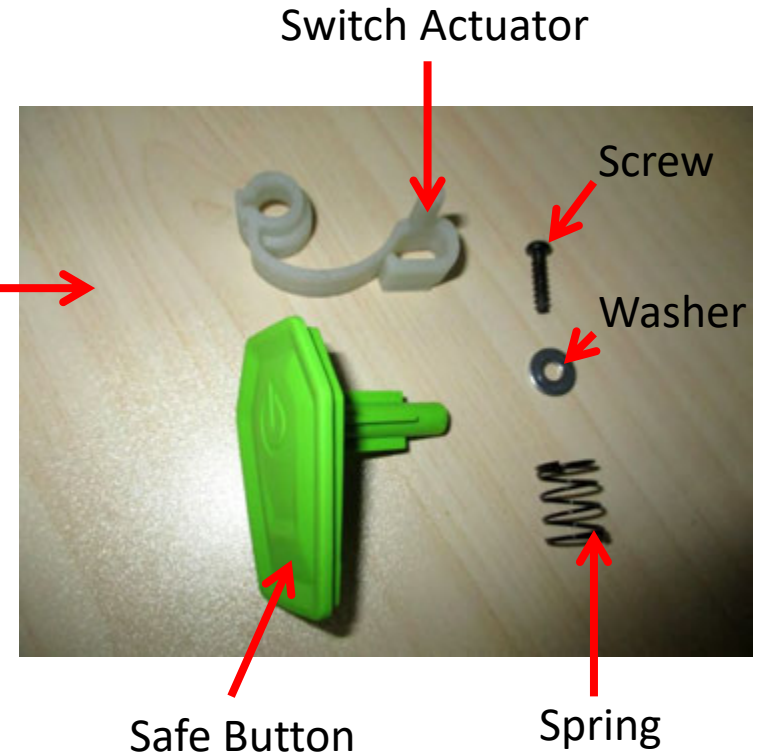
Self-propel Lever

Main Switch

To Replace the Safety Button/Switch Actuator (no longer for service when old parts are run out)

LM2100SP Lawn Mower

1. Take down the spring, remove the screw, plain washer, switch actuator and safety button.



Description	Part Number
Switch Actuator	3127905001
Safety Button	3127929001

REMARK: The 1pc plain washer and 1pc spring, which are used to fix the switch actuator will be improved, combined into 1pc conical spring in order to avoid spring missing during mower operation.

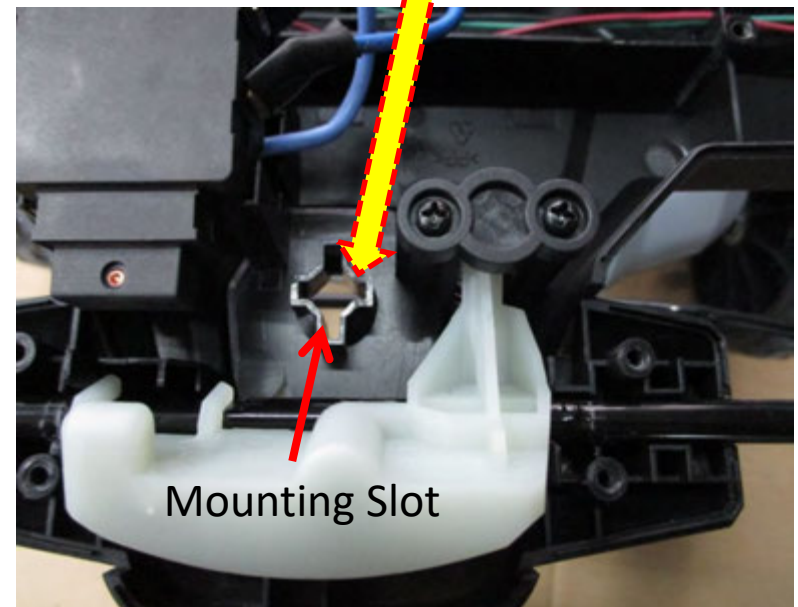
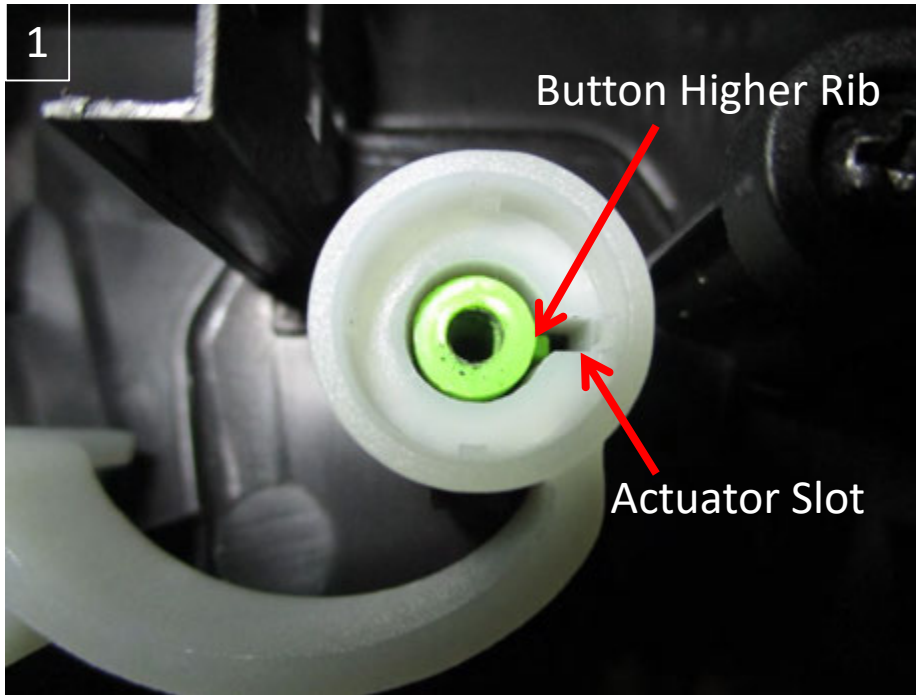
NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

To Replace the Safety Button/Switch Actuator

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

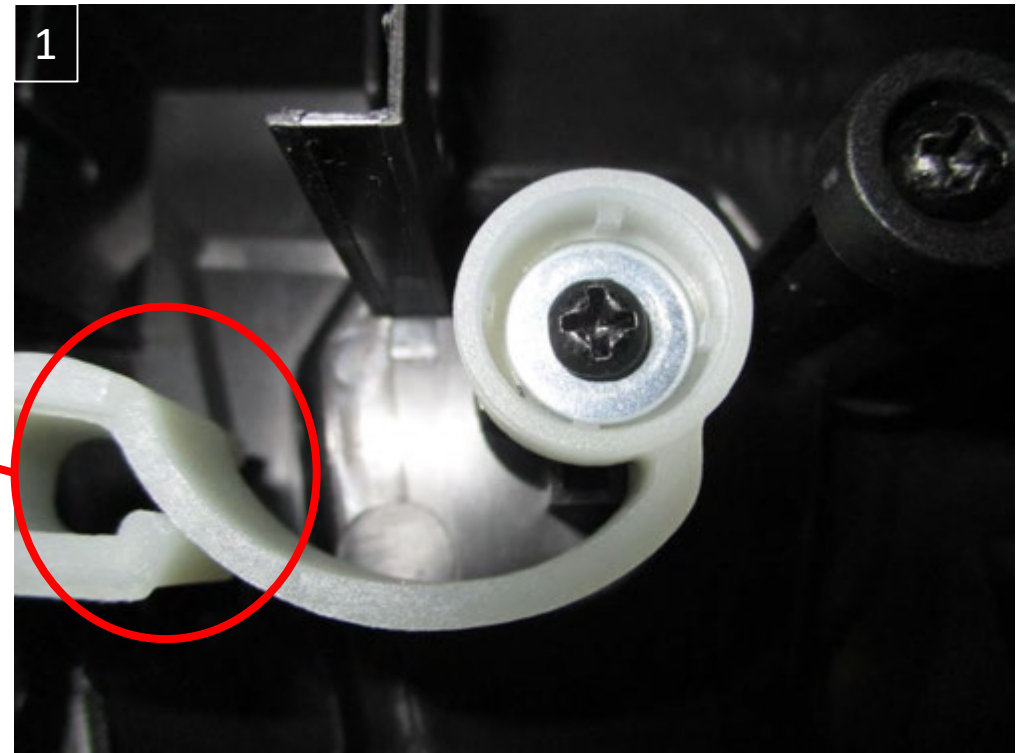
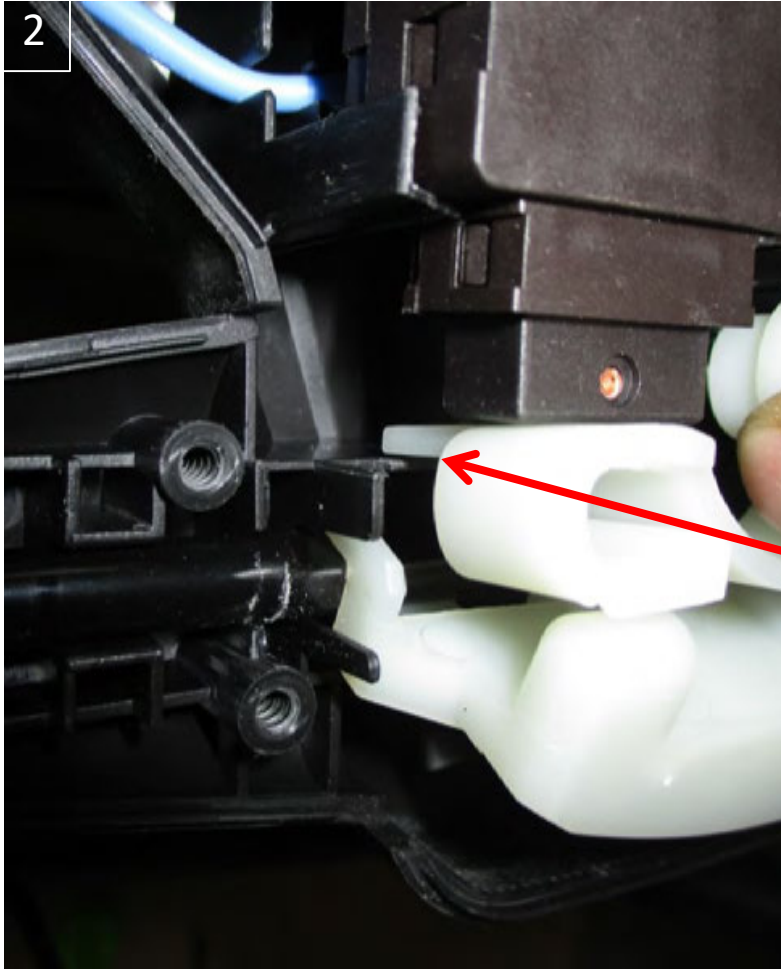
2. Place the new safety button into the mounting slot.
3. Align the actuator slot with the button higher rib(Fig. 1).



To Replace the Safety Button/Switch Actuator (no longer for service when old parts are run out)

LM2100SP Lawn Mower

4. Place the plain washer onto the actuator and tighten it by the screw(Fig. 1).
5. Locate the actuator between the main switch and the housing(Fig. 2) .



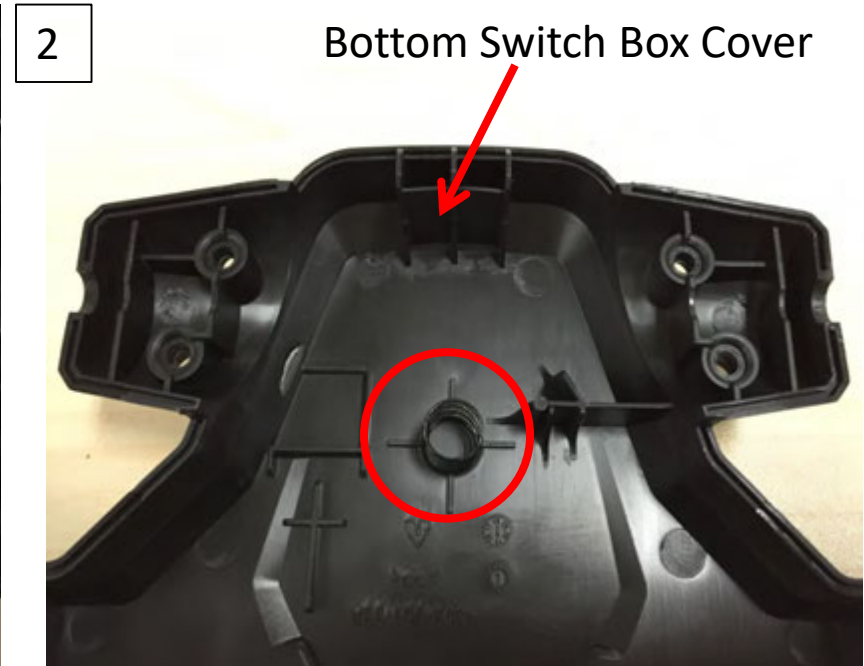
To Replace the Safety Button/Switch Actuator

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

6. Mount the spring onto the actuator and make sure it is securely located(Fig. 1).

NOTICE: In case that the spring remains located in the bottom switch box cover after opening the switch box cover(Fig. 2), just take down it firstly and save it for reassembly.



7. For improved conical spring, step 4 and step 6 will be replaced by tightening the conical spring with the screw directly after locating the conical spring into its place. See next slide for installation improvement.
8. Close the switch box cover as indicated in “**Close the Switch Box Cover**” part shown.

To Replace the Safety Button/Switch Actuator (no longer for service when old parts are run out)

LM2100SP Lawn Mower

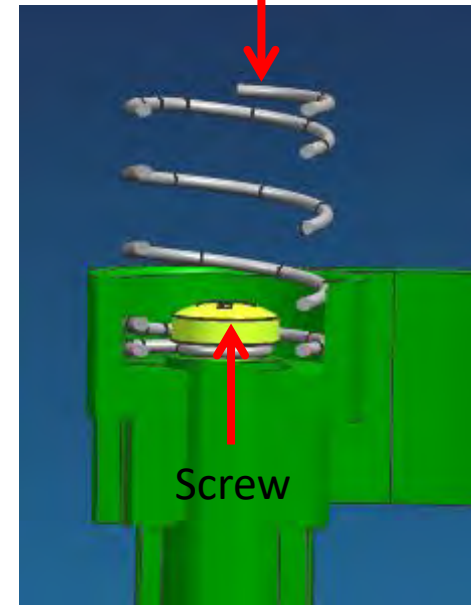
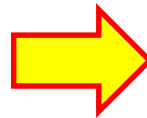
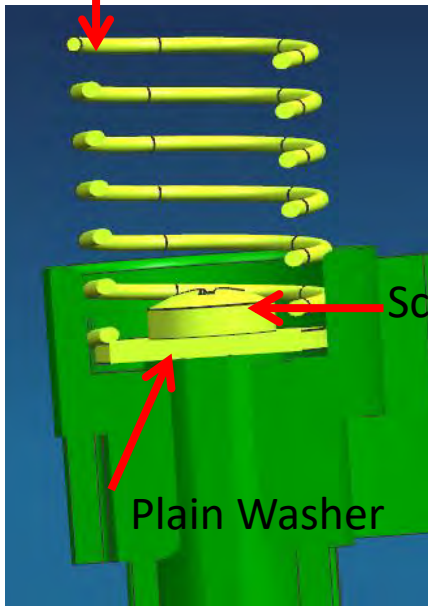
Installation improvement



Normal Spring



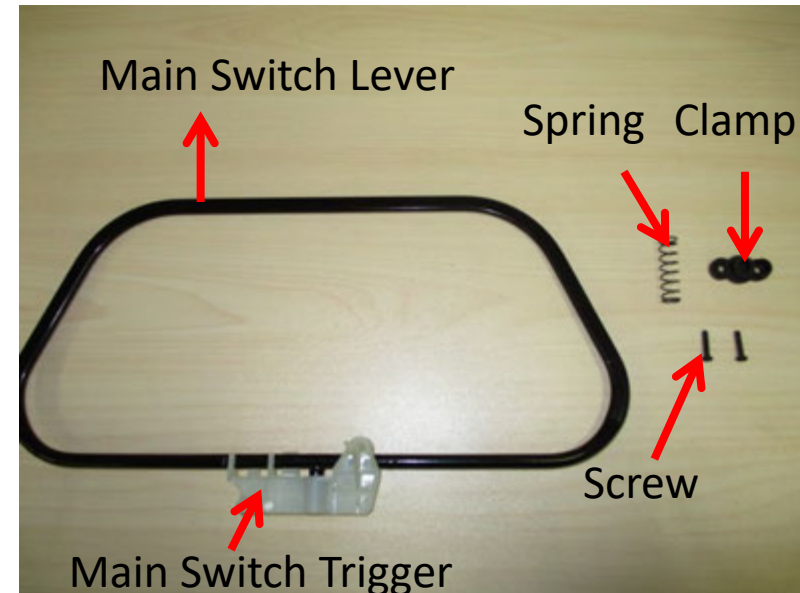
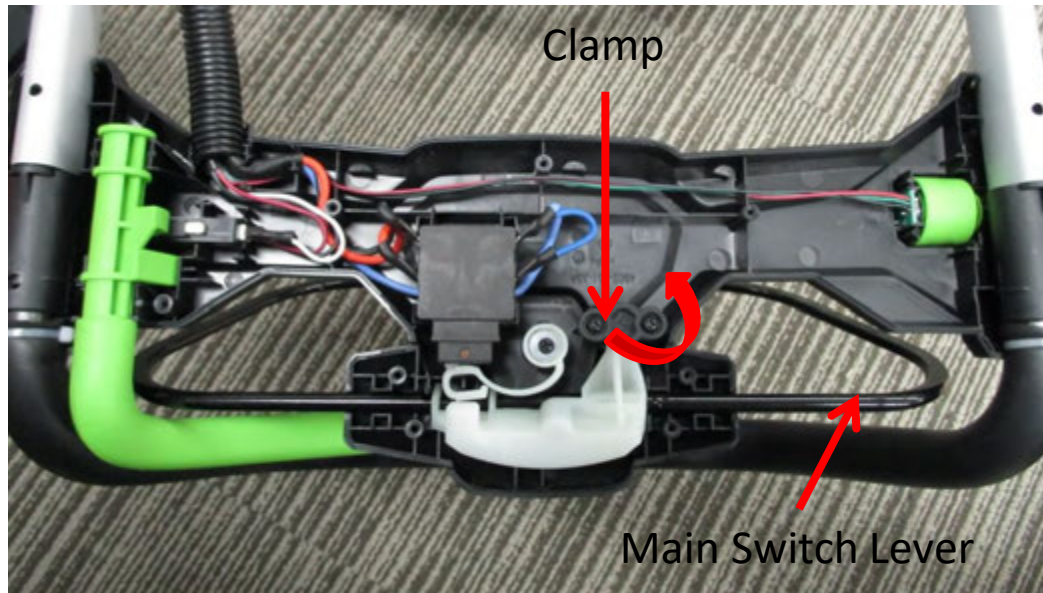
Conical Spring



To Replace the Main Switch Set(Lever/Trigger)

LM2100SP Lawn Mower

1. Loosen the 2 screws . Remove the clamp, spring and switch lever set.
2. Replace with a new switch lever or trigger if any distortion or malfunction appears.

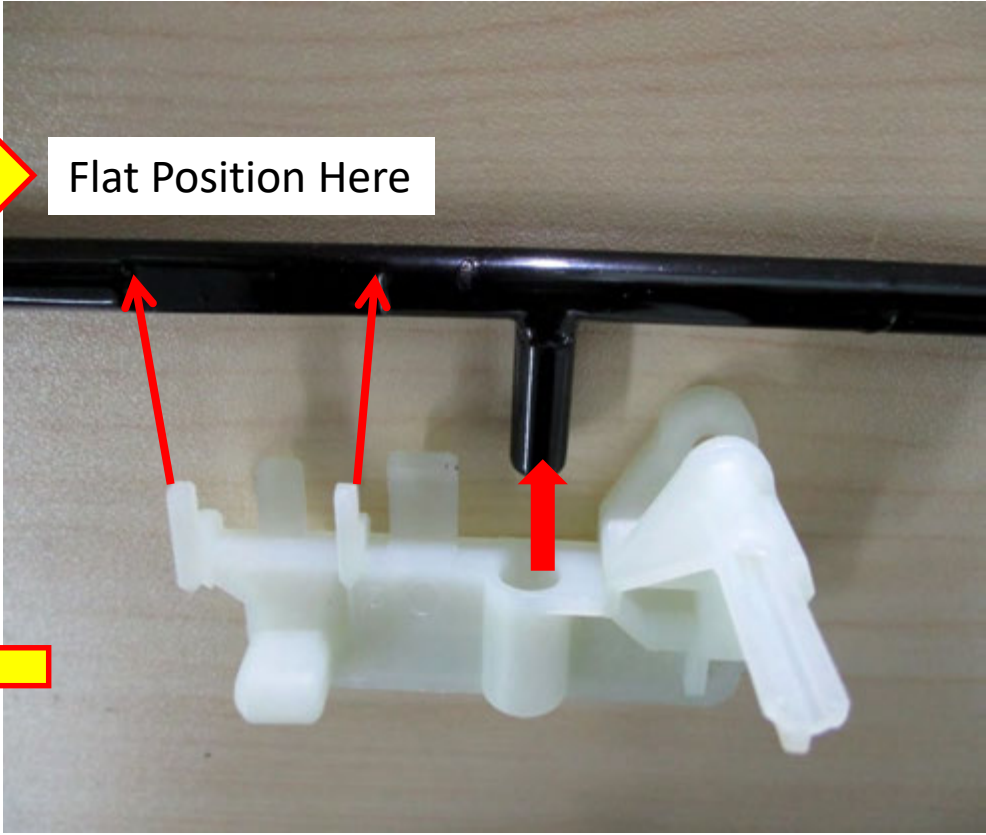


Description	Part Number
Main Switch Lever	2824118001
Main Switch Trigger	3127908001

To Replace the Main Switch Set(Lever/Trigger)

3. Mount the switch trigger to the switch lever.

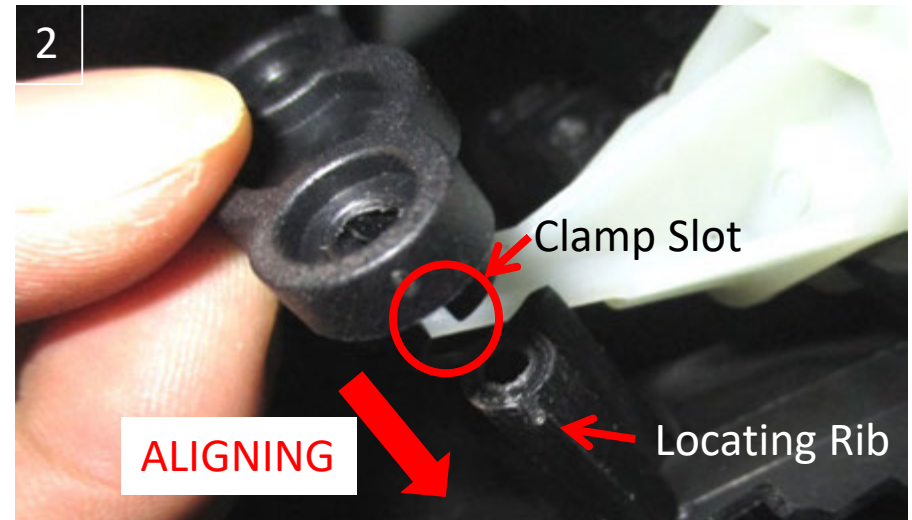
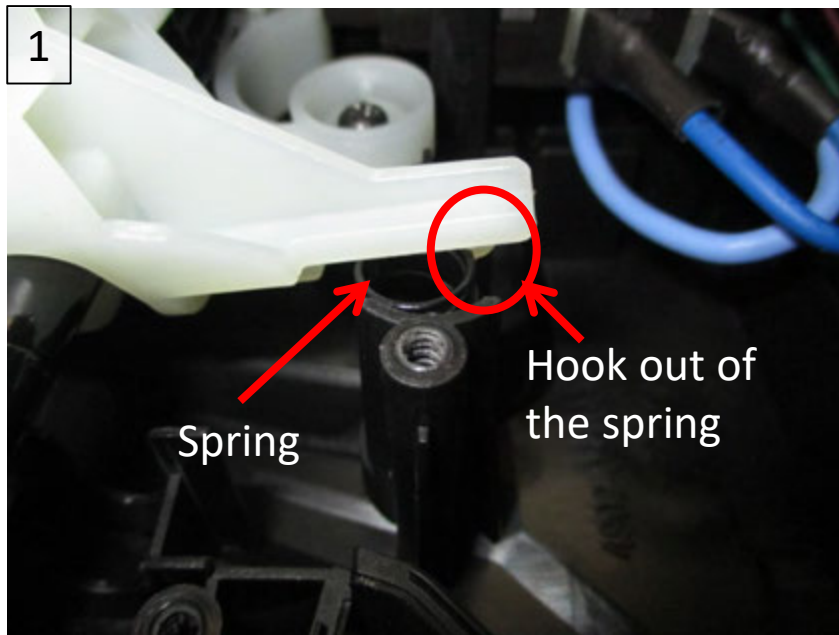
NOTICE: The flat position on the lever should be fixed by the 3 feet of the trigger.



To Replace the Main Switch Set(Lever/Trigger)

LM2100SP Lawn Mower

4. Put the spring into the hole. Mount the main switch set onto the spring with the hook outside the spring(Fig. 1).
5. Align the clamp slot with the locating rib on the housing(Fig. 2).
6. Lock the main switch set by tightening the clamp with the 2 screws(Fig. 3) .



To Replace the Top Handle

LM2100SP Lawn Mower

1. When the sheath on the top handle is worn, have it replacement as needed.
2. Pull the top handle and remove the handle from the plastic bushings in the two side aluminum tubes.
3. Replace with a new one if it appears worn or broken.
4. Insert the two sides into the plastic bushings and press them into place.



Description	Part Number
Top handle	2823782001

To Replace the Top & Bottom Switch Box Cover

LM2100SP Lawn Mower

1. Remove the wire harness from the slots in the top switch box cover;
2. Remove the main switch lever set(Lever/Trigger) and self-propelled lever (with one spring on it) from the top switch box cover;
3. Remove the safety button as well as the switch actuator as shown in section “**To Replace the Safety Button/Switch Actuator**”. **This step will be no longer needed when the new set part# is used.**
4. Replace with a new set of switch box cover;
5. Refer to the previous slides and to fix the parts into the top switch box cover.

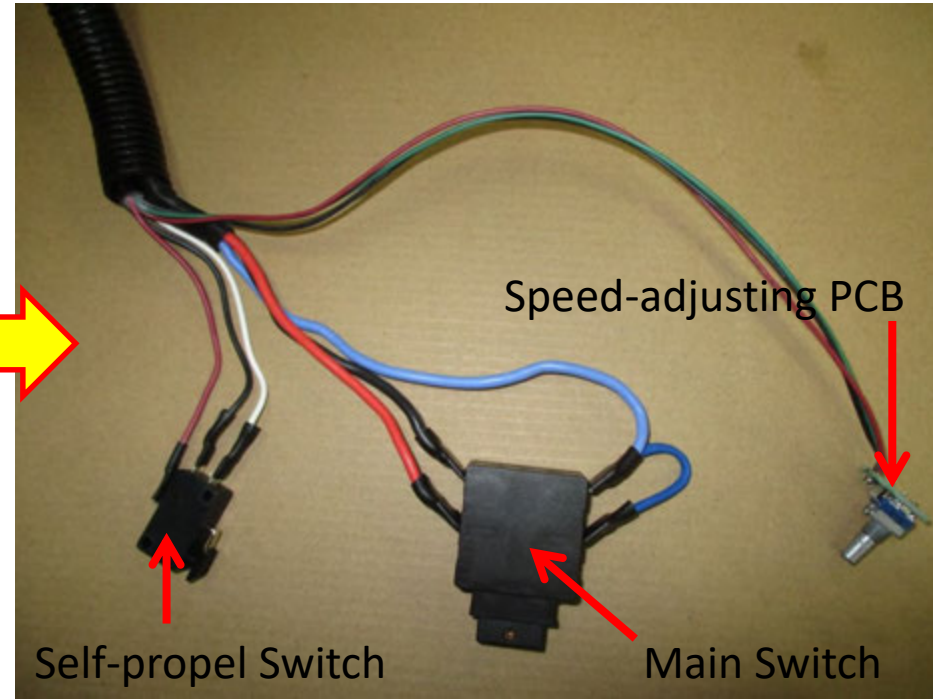
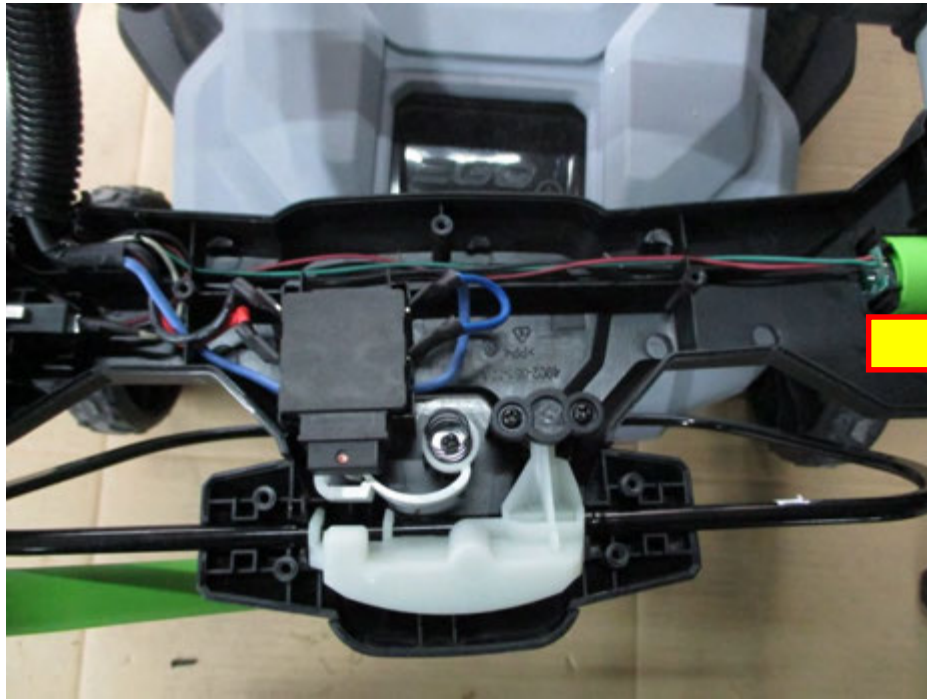


Description	Part Number
Top & Bottom Switch Box Set (New set part# includes Safety Button, Switch Actuator and the corresponding parts for fixing them)	2824305001 2828738001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)

1. Remove the main switch, self-propel switch and speed-adjusting PCB from the top switch box cover. Replace the damaged parts accordingly.



Description	Part Number
Main Switch	4870566001
Self-propel Switch	4870563001
Self-propel Speed-adjusting PCB	4890439003

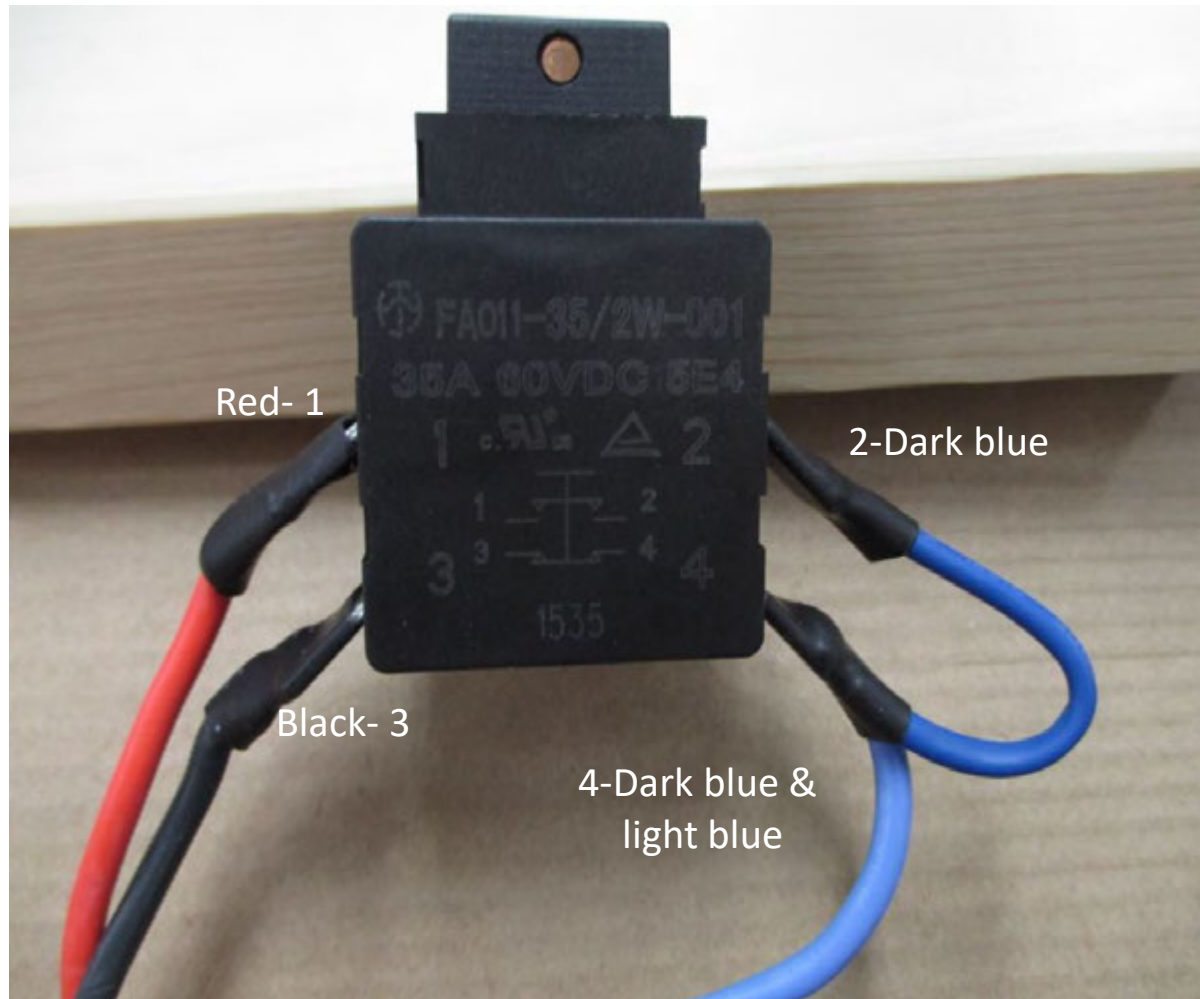
REMARK: The parts marked in red fonts will be cancelled, and either of them is broken, the self-propelled function doesn't work, replace the whole wire ASSY. New part# will be provided by then.

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)

- ① IF the main switch is broken, disconnect it from the wires and replace with a new one (solder).

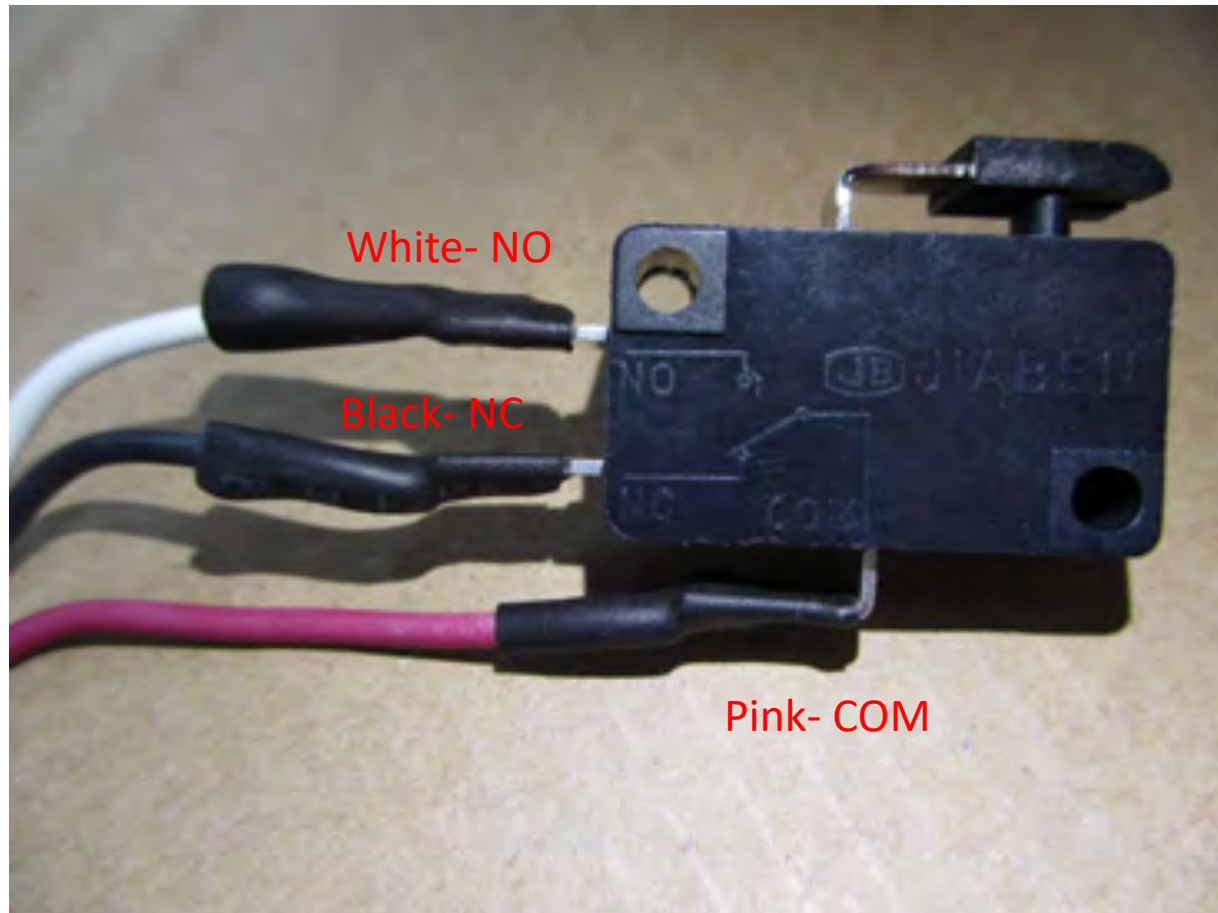
NOTICE: Mind soldering sequence as following picture shown.



To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)

- ② IF the self-propel switch is broken, disconnect it from the wires and replace with a new one (solder).

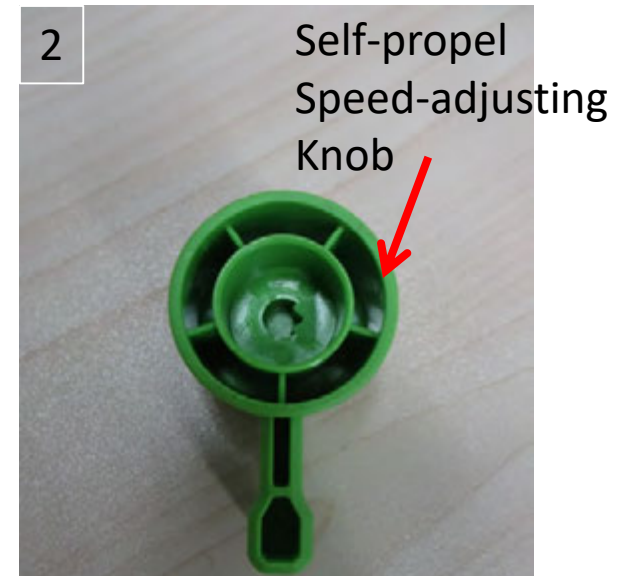
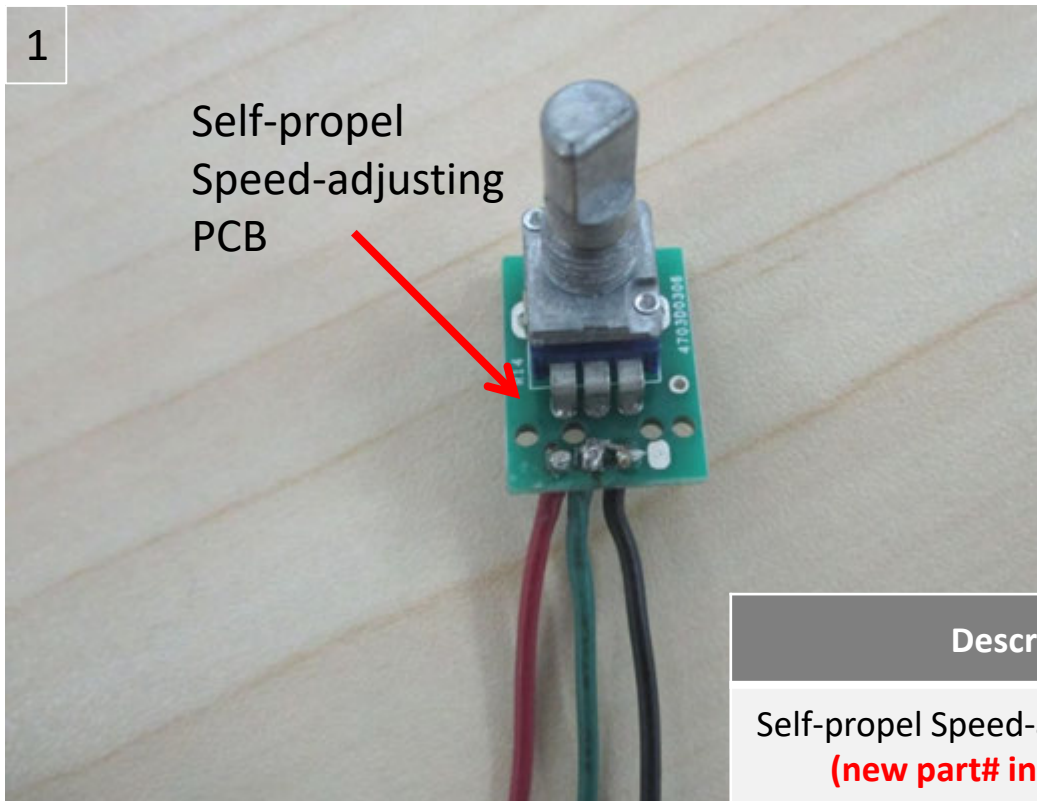
NOTICE: Mind soldering sequence as following picture shown.



To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)

- ③ IF the speed-adjusting PCB is broken, disconnect it from the wires and replace with a new one (solder).
- ④ If the speed-adjusting knob is broken as well, replace with a new **SET**. The new set includes the O ring.

NOTICE: Mind soldering sequence as Fig. 1 shown.



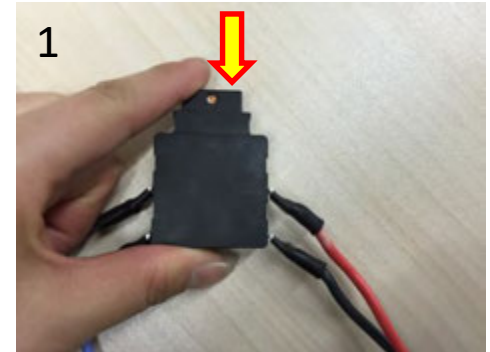
Description	Part Number
Self-propel Speed-adjusting Knob SET (new part# includes O ring)	3127930001 2828737001

To Replace the Main Switch/Self-propel Switch/Speed-adjusting PCB (no longer for service when old parts are run out)

2. Test

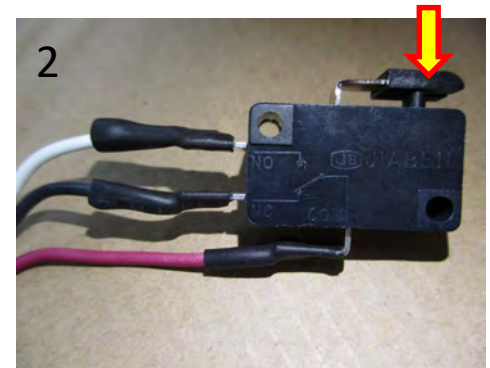
① Test the main switch:

- Insert a fully charged battery pack into the battery case.
- Adjust the handle to the operating position and fully extend the side rails and lock with the side clamps.
- Press the switch to check if the mower can be turned on properly(Fig. 1).



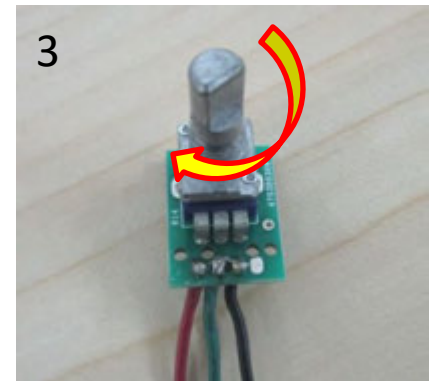
② Test the self-propel switch:

- Insert a fully charged battery pack into the battery case.
- Adjust the handle to the operating position and fully extend the side rails and lock with the side clamps.
- Press the self-propel switch to check if the mower can move on(Fig. 2).



③ Test the self-propel speed-adjusting PCB:

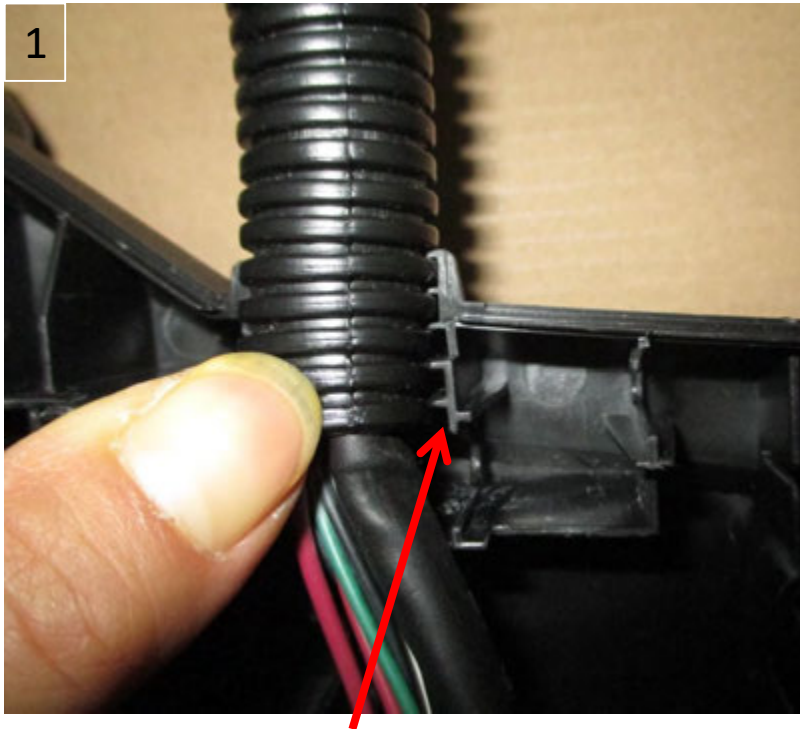
Turn on the mower as step ② instructed. Meanwhile turn the PCB knob to check if the mower's speed can be adjusted (Fig. 3).



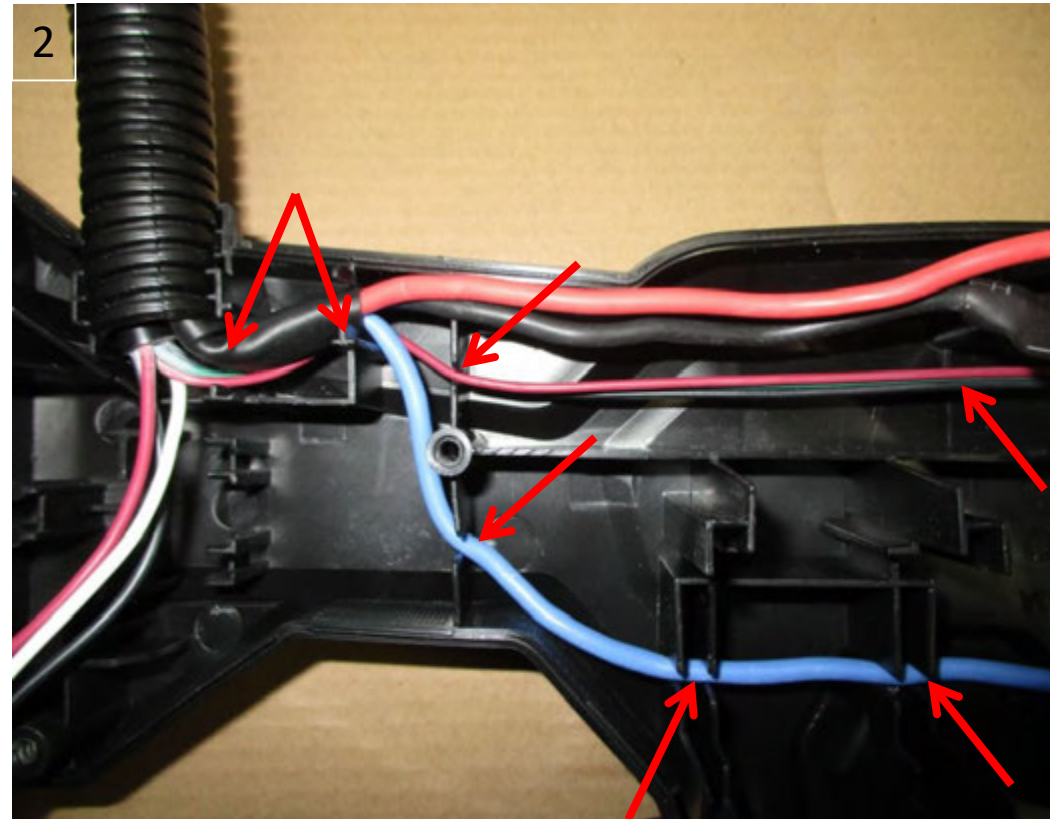
For the previous switch box or the top handle replacement, once the wire harness in the switch cover is removed, follow below instructions to have the wire re-alignment.

To Align the Wire Harness into the Switch Box

1. Align the flexible hose into the housing groove with at least five threads located in(Fig. 1) .
2. Align the self-propel speed-adjusting PCB wires into the grooves first, and then align the blue cable of the main switch(Fig. 2).

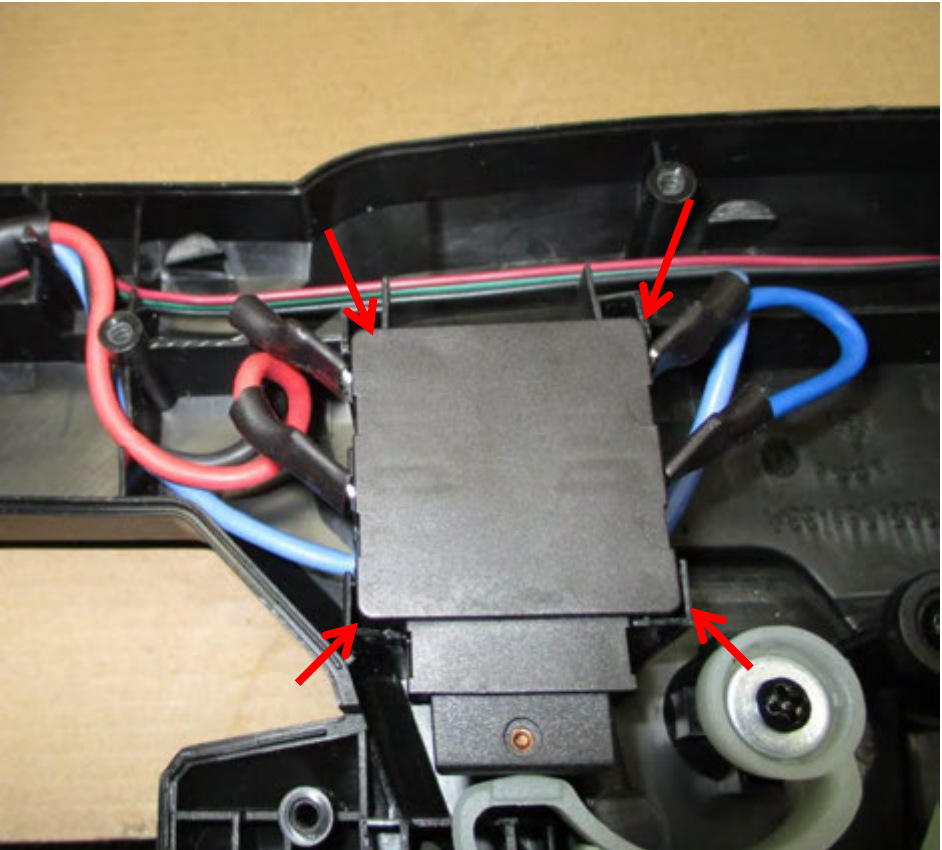
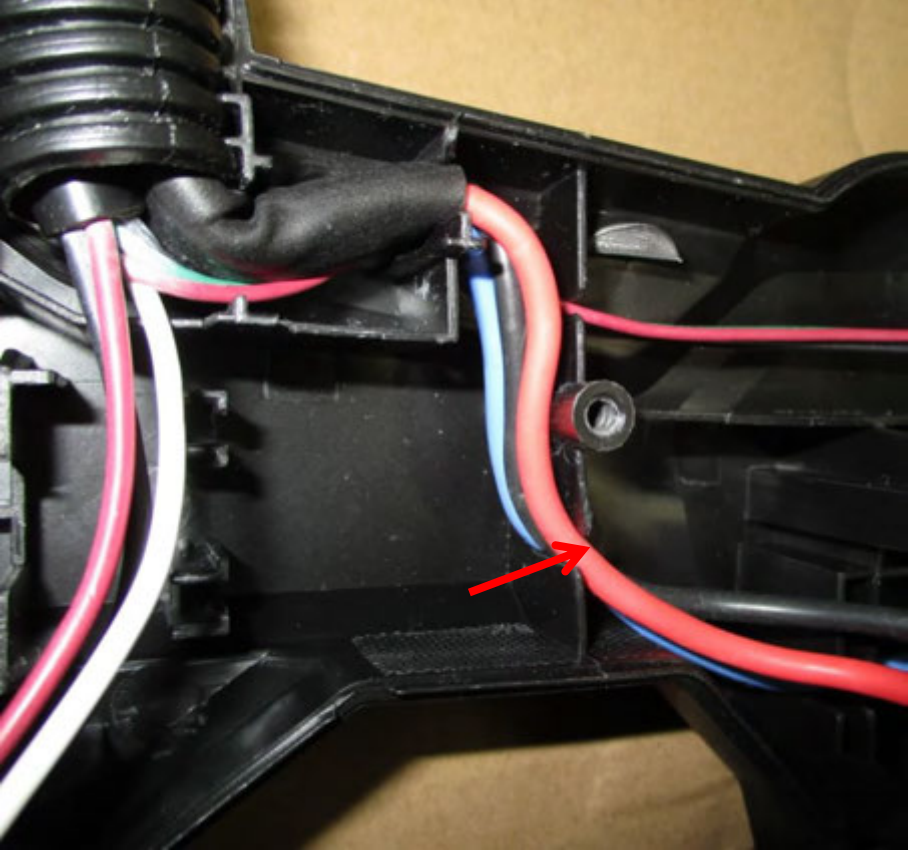


At least 5 threads of the flexible hose located in the housing groove



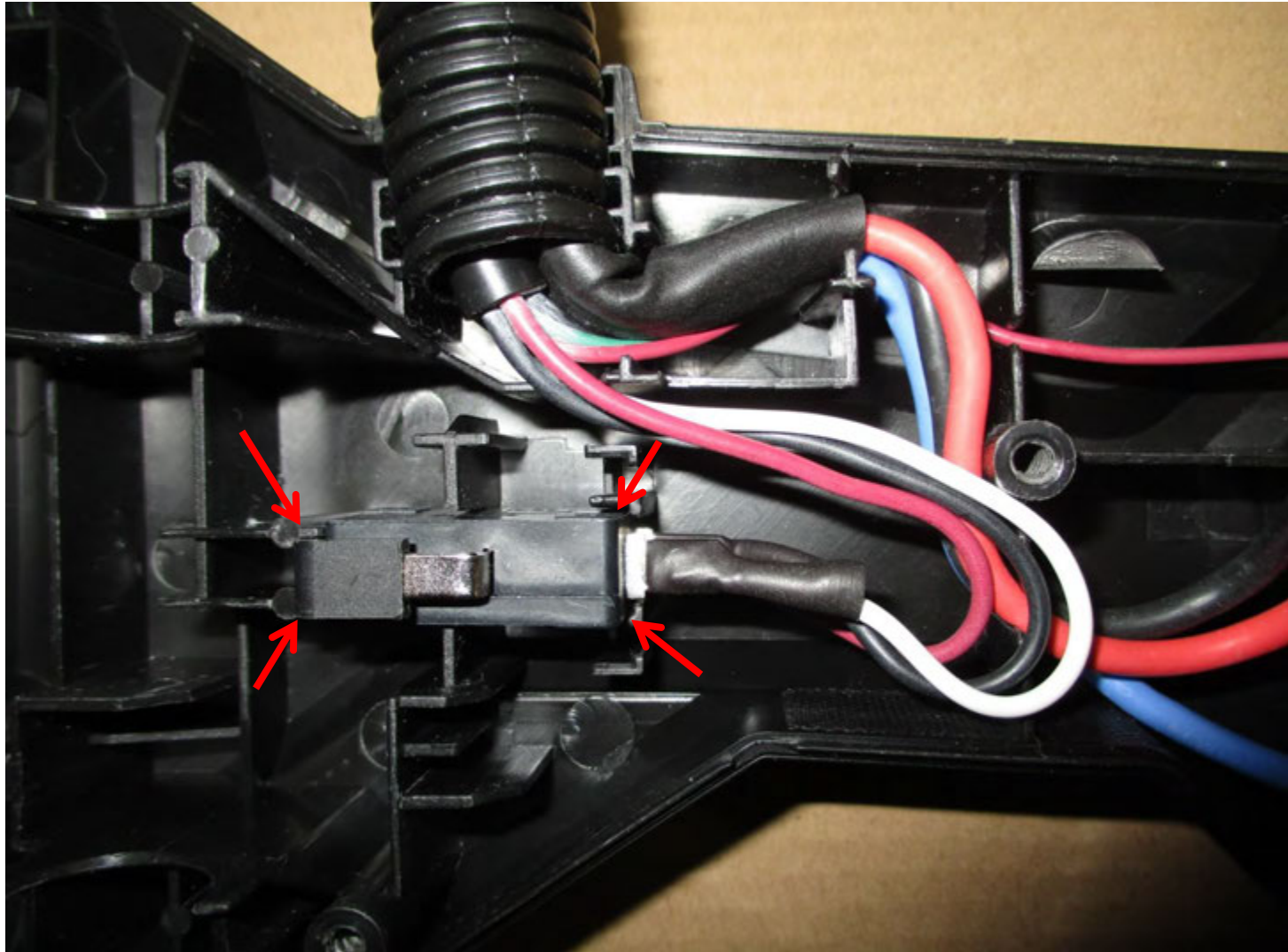
To Align the Wire Harness into the Switch Box

- 3. Align other wires of the main switch into the groove and put the main switch into the place correctly.



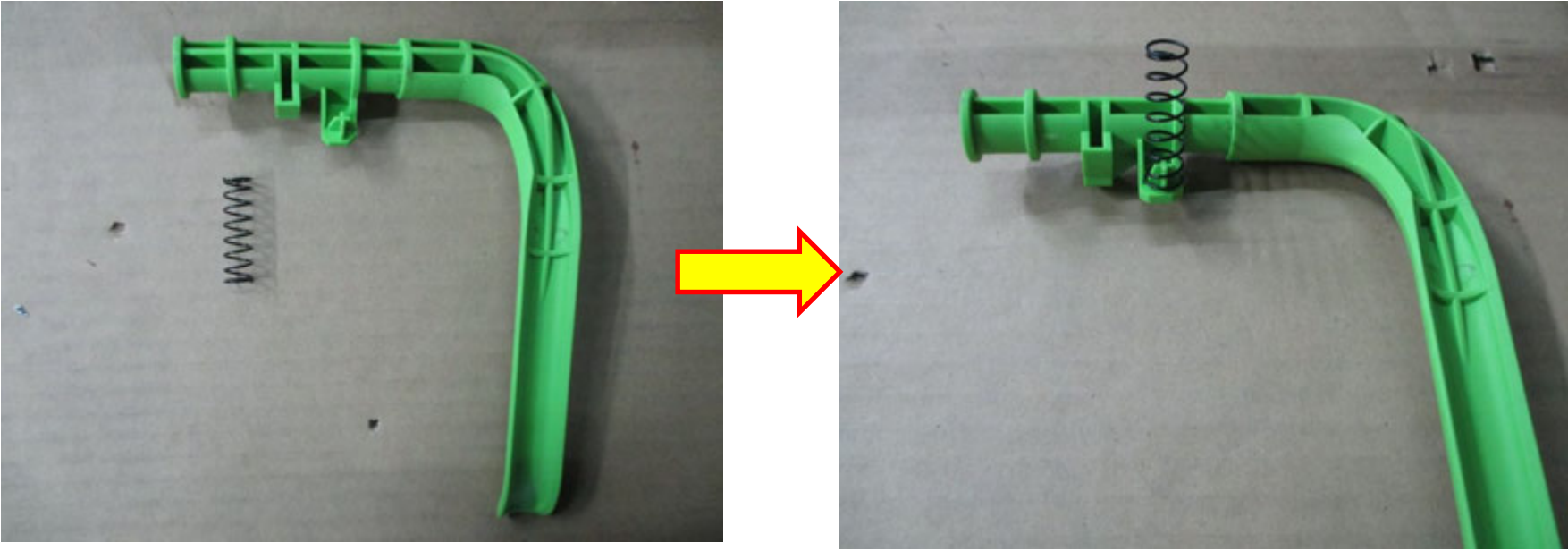
To Align the Wire Harness into the Switch Box

4. Align the self-propel switch into the place correctly.



To Align the Wire Harness into the Switch Box

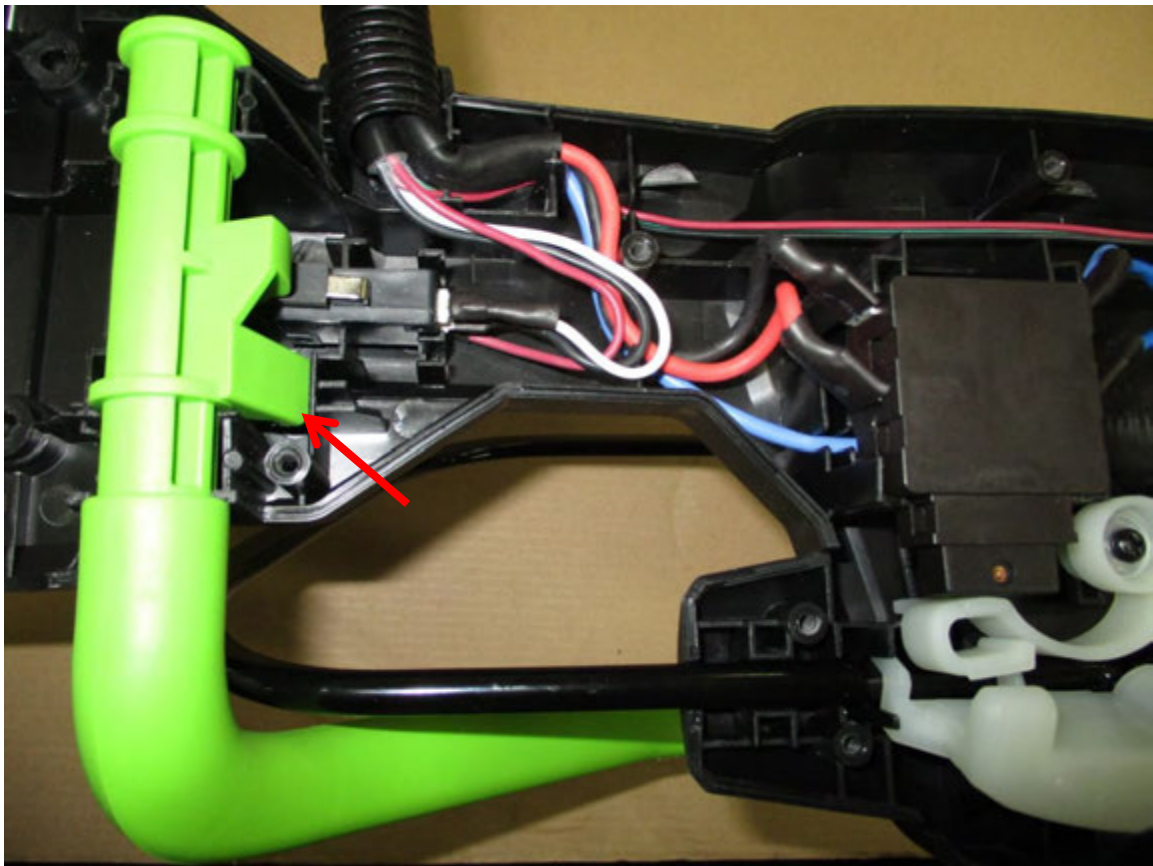
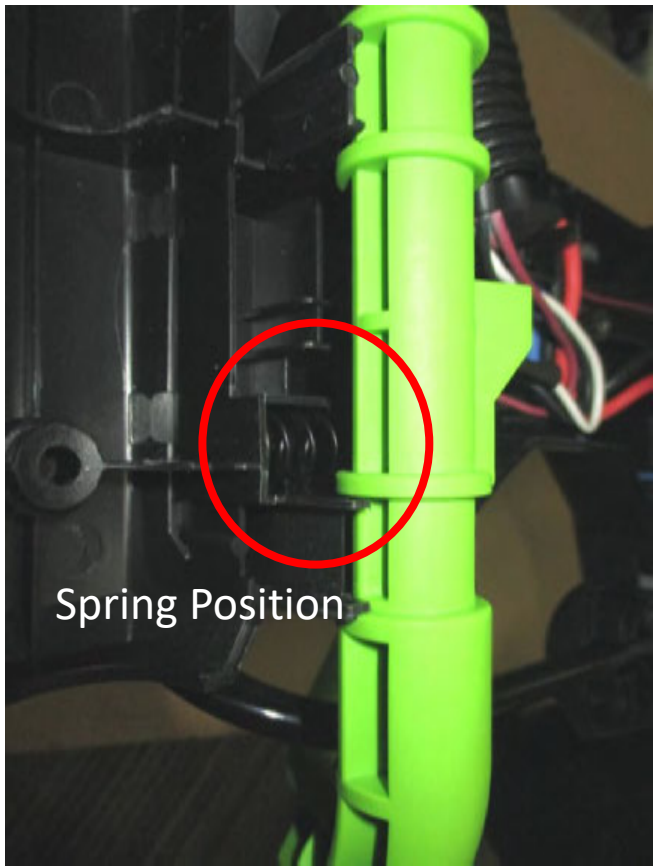
- 5. Align the self-propel lever into the top switch box cover.
 - ① Assemble the spring onto the self-propel lever first.



Description	Part Number
Spring	3660562001
Self-propel Switch Lever	3127928001

To Align the Wire Harness into the Switch Box

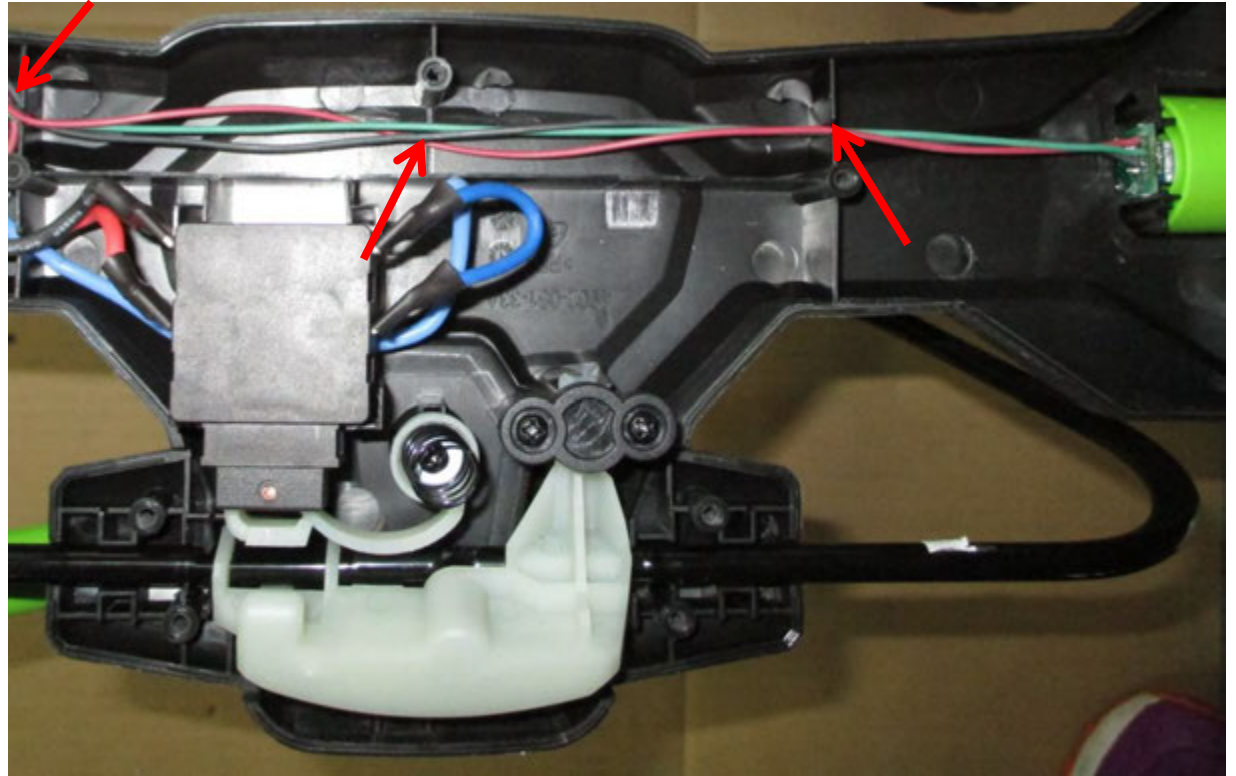
② Align the self-propel lever into the grooves on the top switch box cover.



To Align the Wire Harness into the Switch Box

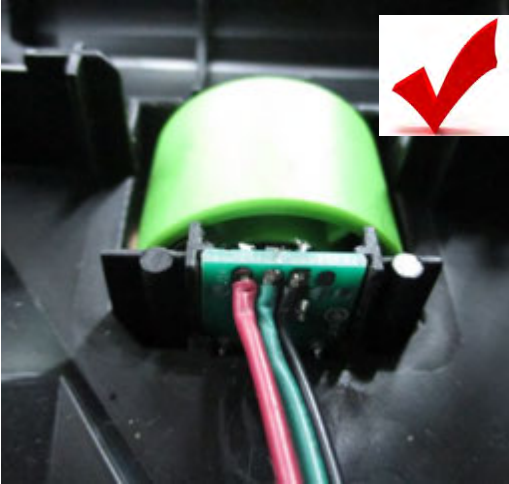
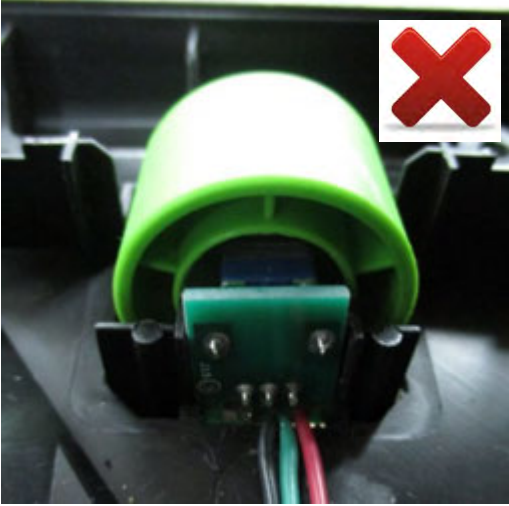
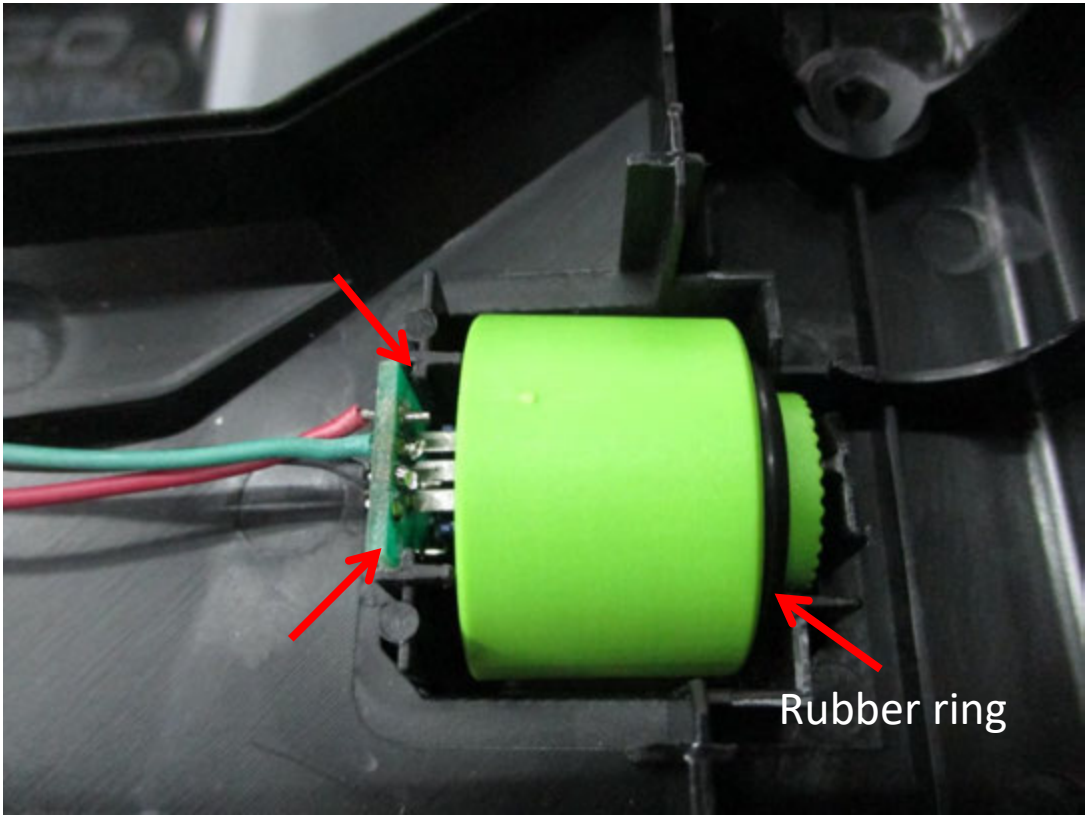
6. Align the self-propel speed-adjusting PCB and knob set into the housing hole correctly.

- ① Assemble the self-propel speed-adjusting knob to the PCB first.
- ② Mount the PCB and knob set into the place correctly.



To Align the Wire Harness into the Switch Box

NOTICE: If the self-propel speed-adjusting PCB is inserted into the groove reversely, the knob can't be put into the place which will cause the cover can't be closed.

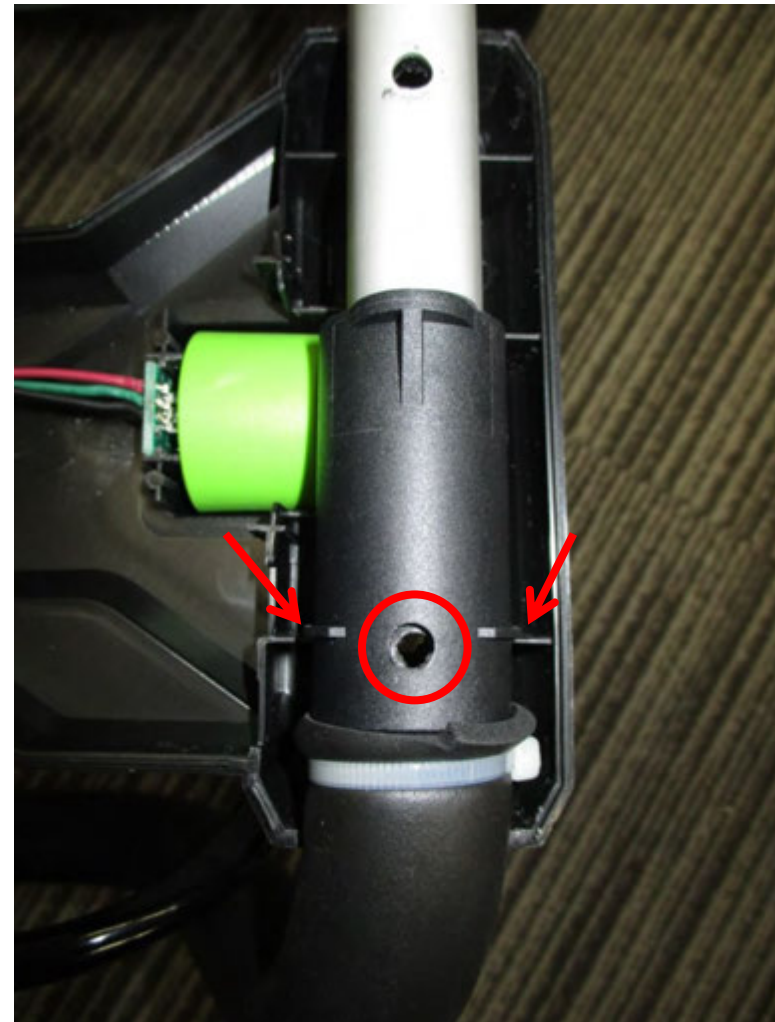


Correct Mounting !

Close the Switch Box Cover

LM2100SP Lawn Mower

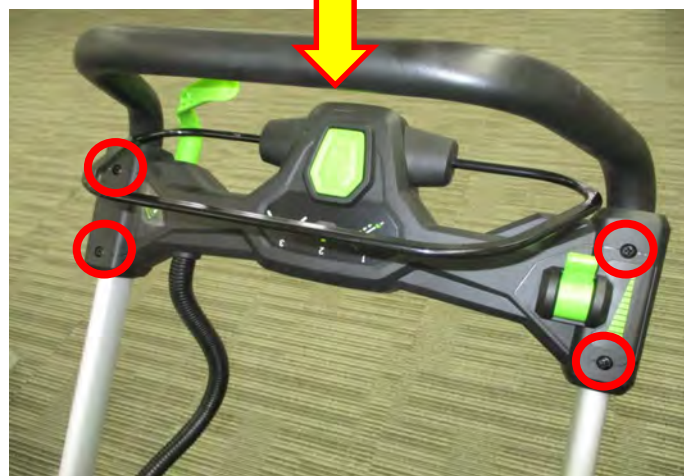
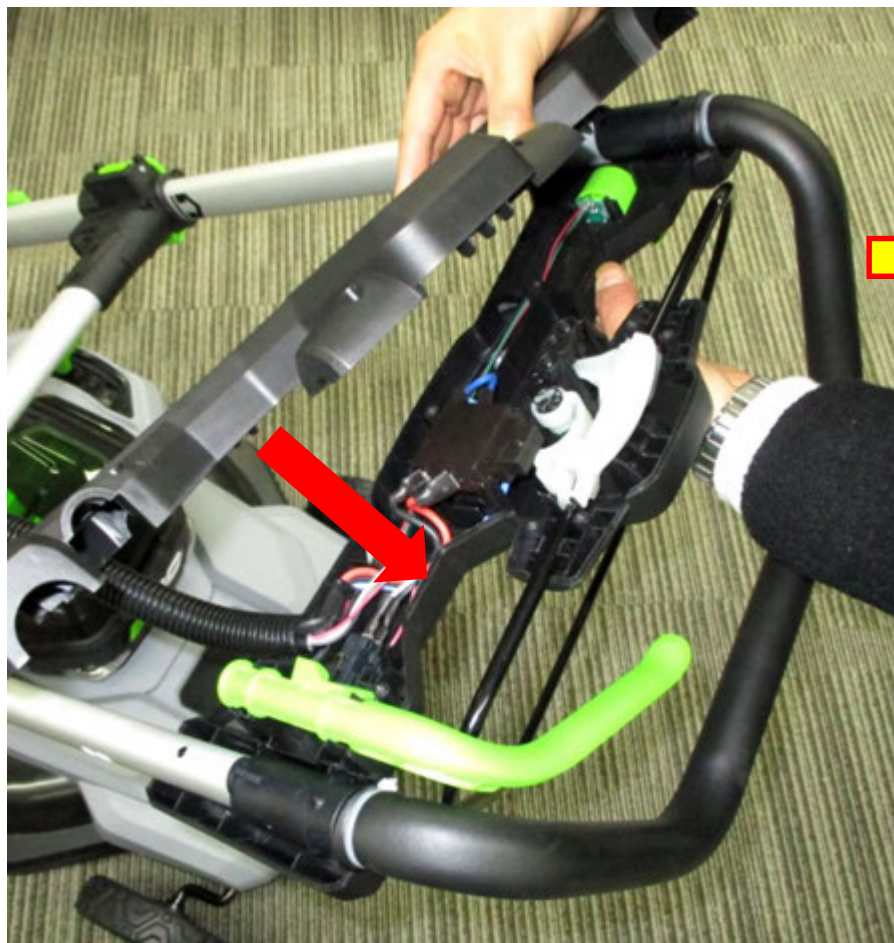
1. Fully extend the side rails to mount the top switch box cover to the handle, make sure the ribs on the handle locating between the ribs on the switch box cover and the through holes are aligned.



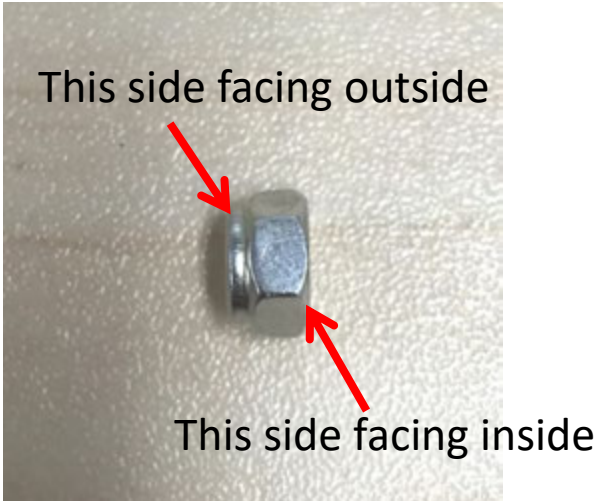
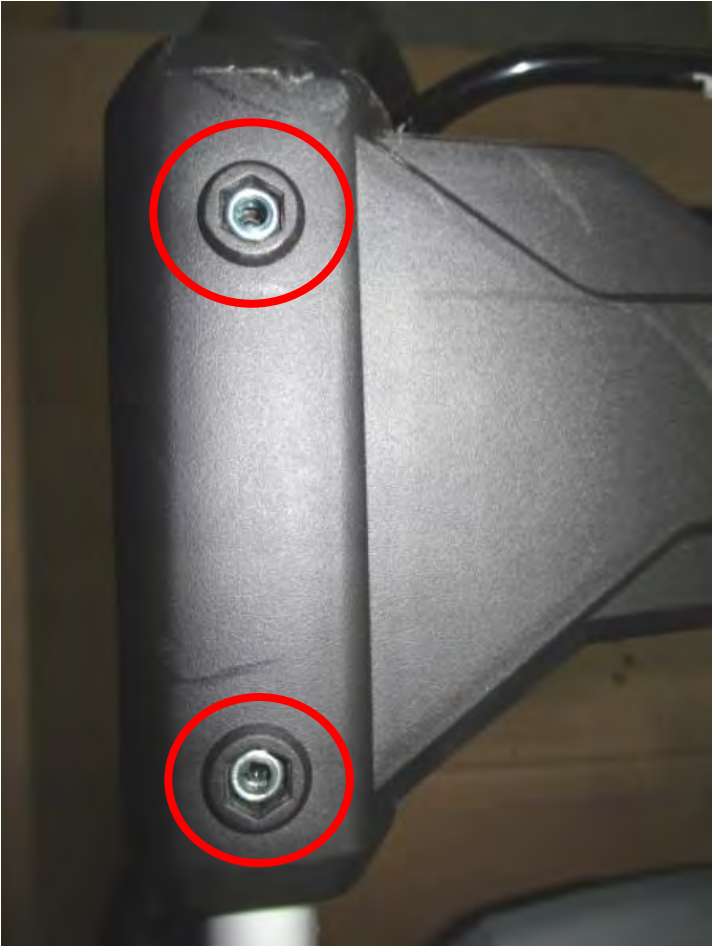
Close the Switch Box Cover

LM2100SP Lawn Mower

2. Close the switch box set and fix them by tightening the 8 screws on the bottom switch box cover first and the 4 bolts on the top switch box cover to lock the cover set. Make sure the 4 hexagon nuts are in their place, otherwise position them into place first (Fig. see next slide).



Close the Switch Box Cover



THE END

REPAIR GUIDELINE

PART 5: HANDLE LOCKING CLAMP REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/09

Handle Locking Clamp Replacement

LM2100SP Lawn Mower

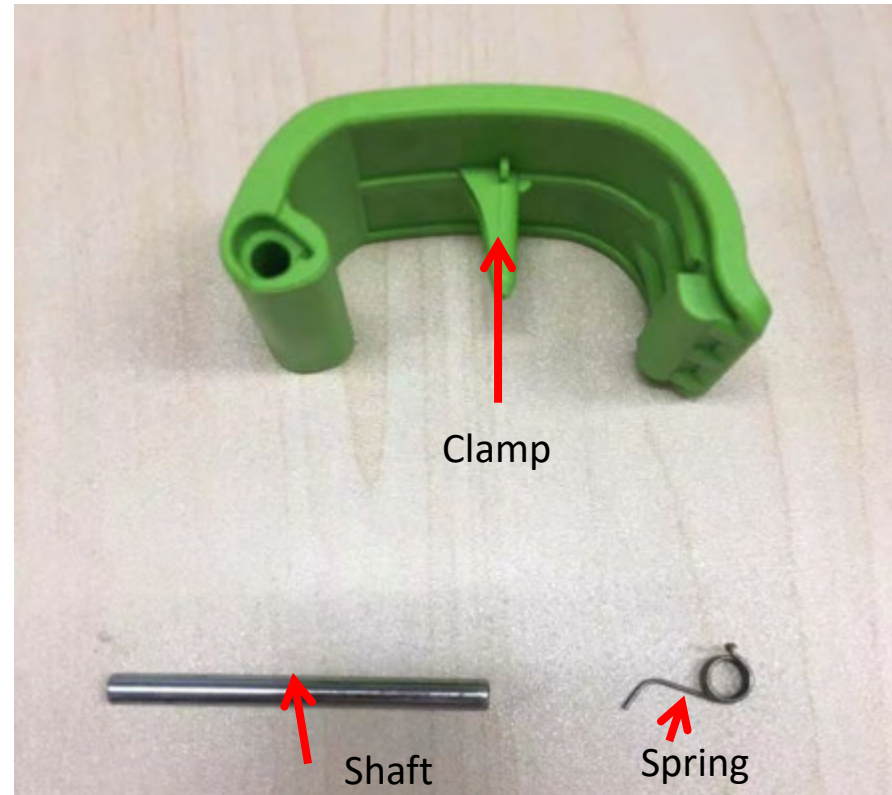


Description	Part Number	Picture
Handle Locking Clamp Set	2823714002	A photograph showing the disassembled components of the handle locking clamp set laid out on a light-colored wooden surface. The components include a long silver metal pin, a small green rectangular plastic piece, a black cylindrical rubber grip, a small metal spring, and the main green plastic clamp housing.

Handle Locking Clamp Replacement

LM2100SP Lawn Mower

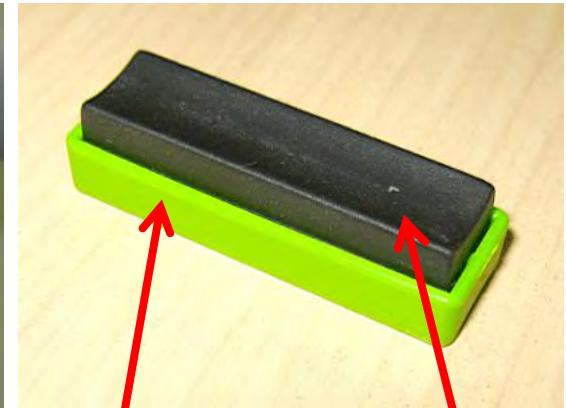
1. Use a metal rod and tap gently on the shaft, to take it out. Remove the clamp and the spring.



Handle Locking Clamp Replacement

LM2100SP Lawn Mower

2. Move the handle downward to take out the rubber pad and rubber base.
3. Replace the broken or worn parts.



Rubber base

Rubber pad

Description	Part Number
Rubber Base	3126761001
Rubber Pad	3126832001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Handle Locking Clamp Replacement

LM2100SP Lawn Mower

4. Put the rubber pad and rubber base into the recess with the rubber pad on the inside and the rubber base on the outside.



Handle Locking Clamp Replacement

LM2100SP Lawn Mower

5. Insert the short foot of the spring into the hole in the clamp, then mount the clamp to the joint.



Handle Locking Clamp Replacement

LM2100SP Lawn Mower

6. Insert the shaft and tap it gently with a hammer until the lower side is flush with the housing surface.
7. Test the clamp. The side rails should be firmly locked by the two clamps. They shall not retract when force is applied on the handle.



THE END

REPAIR GUIDELINE

PART 6: LEFT/RIGHT BEAM HOUSING REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/09

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NO.	Contents	Page
1	Open the Right Beam Housing	4-6
2	Close the Right Beam Housing	7-10
3	Open the Left Beam Housing	11-12
4	Close the Left Beam Housing	13-14
5	To Replace the Beam Tube (no longer for service when old parts are run out)	15-16

Left & Right Beam Housing Replacement

LM2100SP Lawn Mower

- When open the left/right beam housing, the following relevant parts can be replaced:



Description	Part Number
Micro switch	4870500001
Left beam housing set	2824427001
Right beam housing set	2824426001
Switch actuator	3126768001
Spring	3660287002
Beam tube	3705393001

Right beam housing set
(micro switch inside)

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Open the Right Beam Housing

LM2100SP Lawn Mower

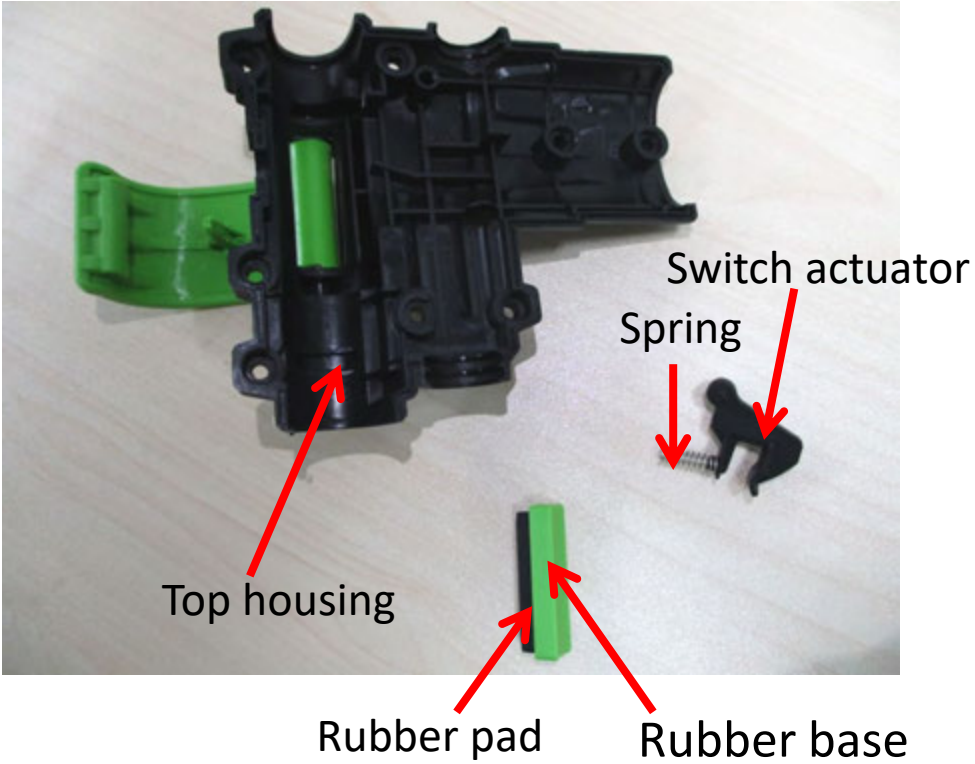
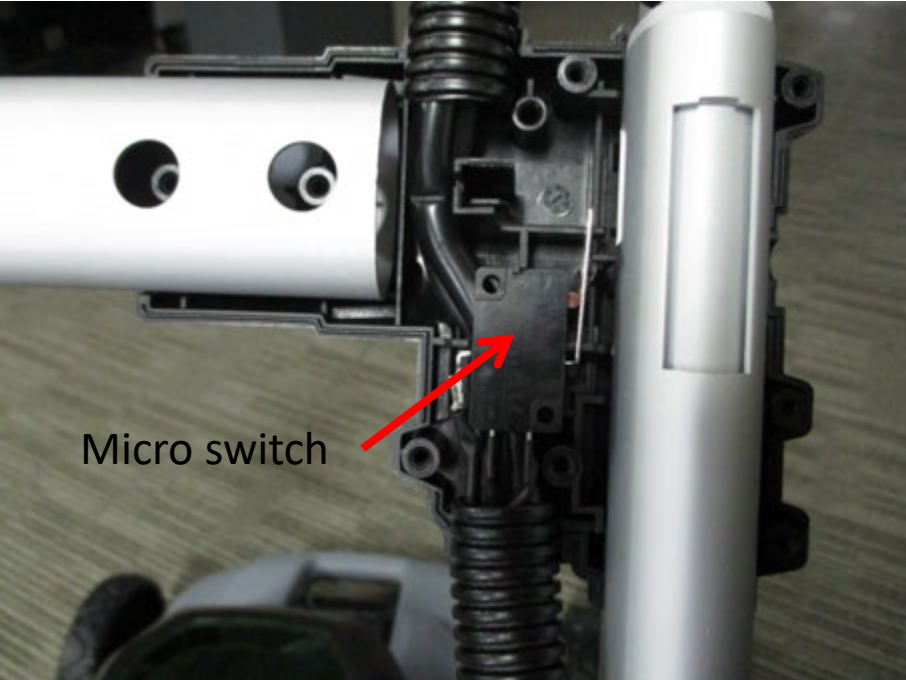
1. Remove the 8 screws to open the right beam housing.

NOTICE: The micro switch is located in the right beam housing.



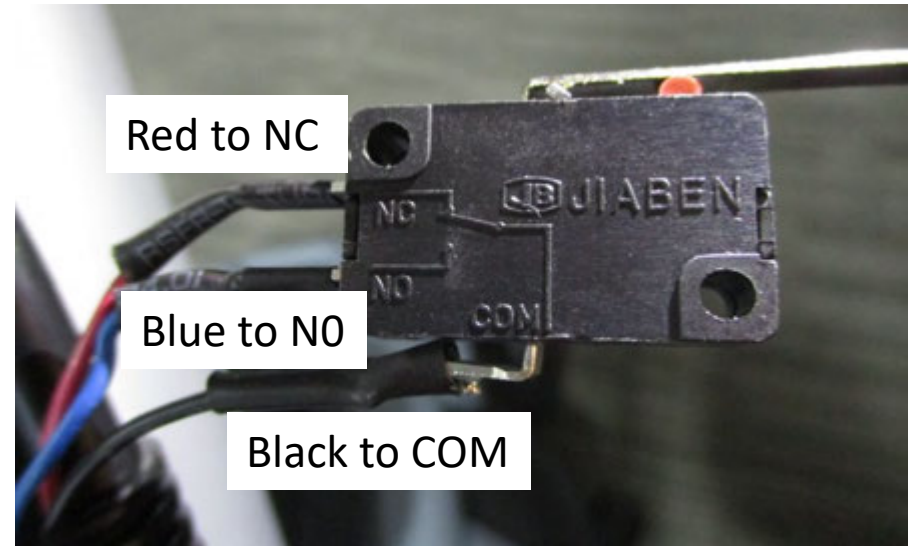
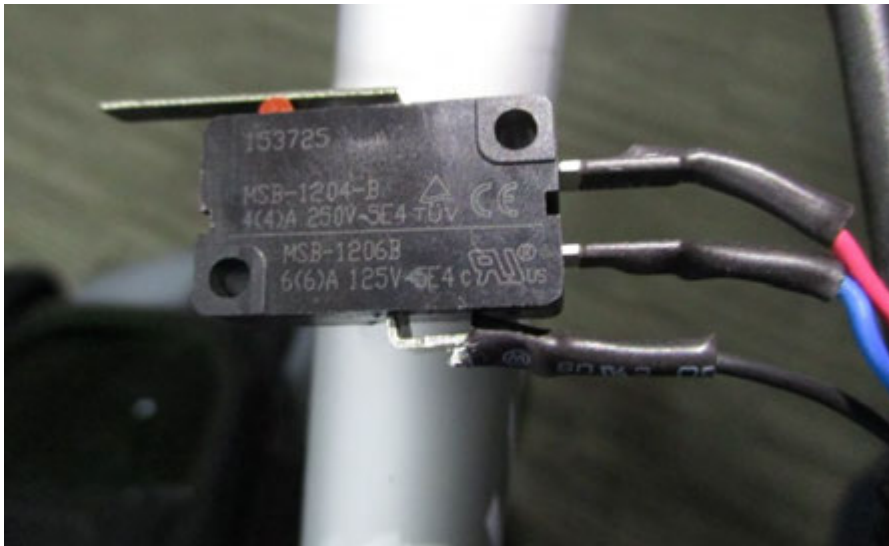
Open the Right Beam Housing

- 2. Take away the top housing, rubber pad and rubber base, switch actuator and spring(fixed on the switch actuator).



Open the Right Beam Housing

3. Take out the micro switch and cable from the bottom housing.
4. Replace with a new switch if it shows malfunction.
5. Test the micro switch.
 - Leave the trigger of the micro switch in its resting state (not depressed). Turn on the mower, the mower should be turned on properly.
 - Press the trigger, the mower should stop running.



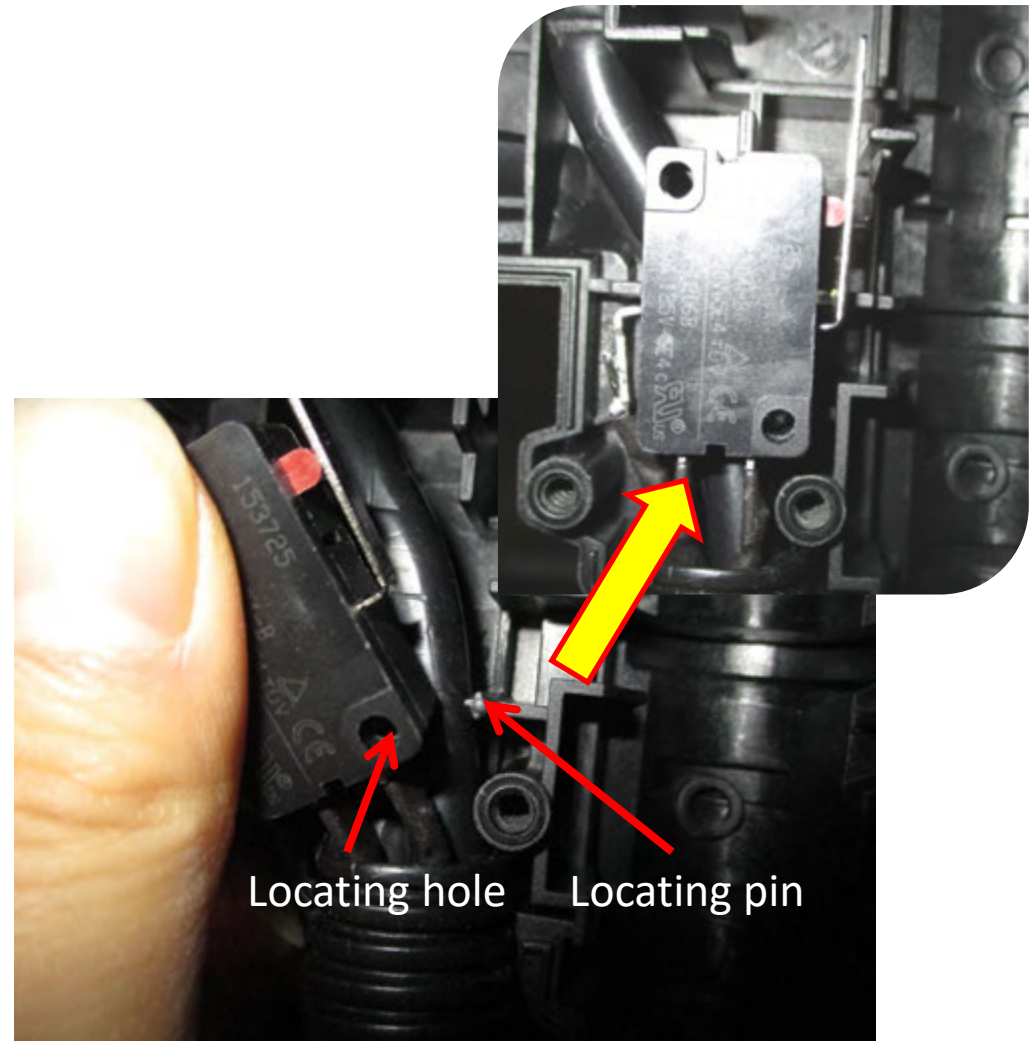
Description	Part Number
Micro Switch	4870500001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Close the Right Beam Housing

LM2100SP Lawn Mower

1. Align the cable in the bottom housing; press the cable into place.
2. Align the locating hole with the locating pin on bottom housing, position the switch into place.

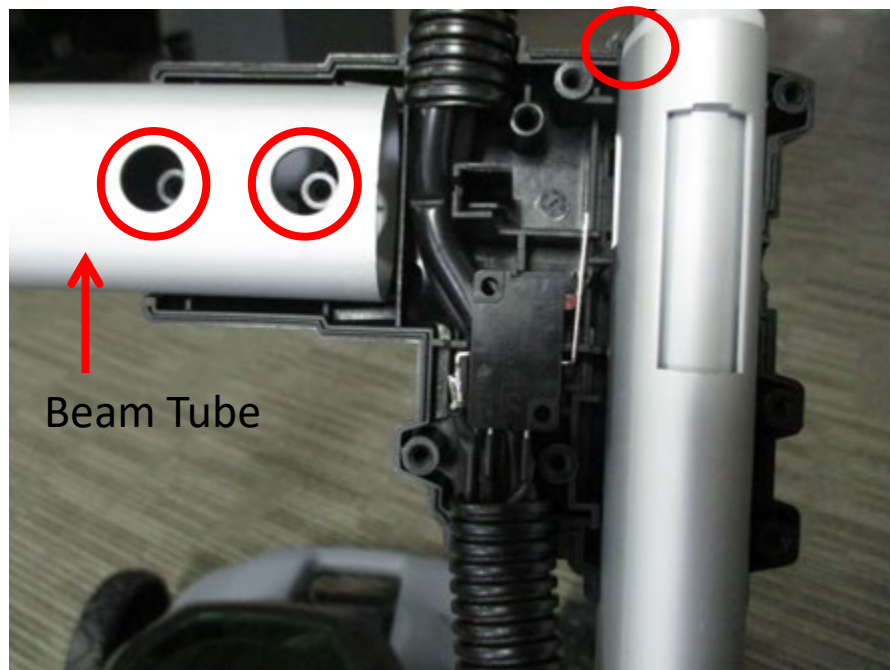


Close the Right Beam Housing

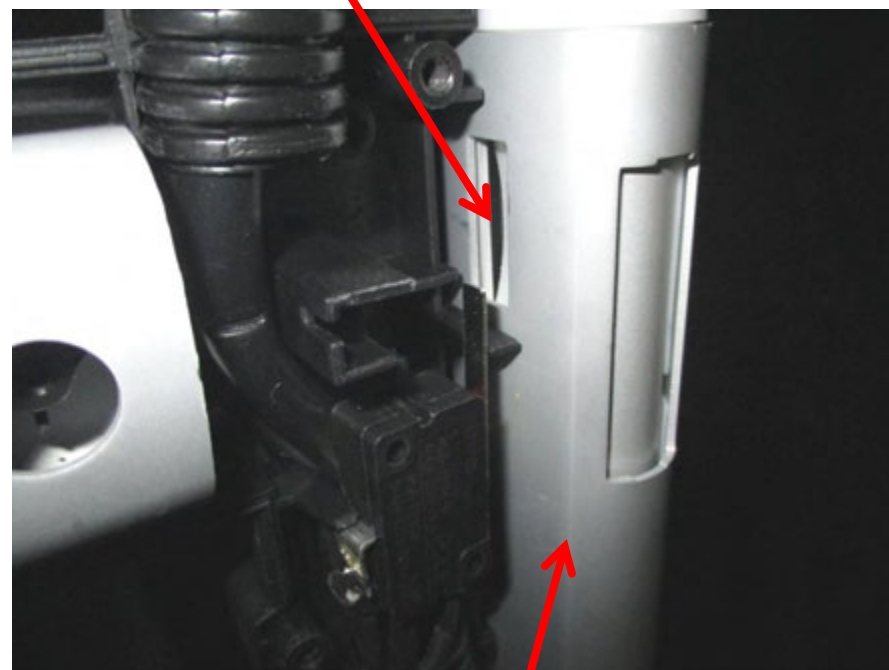
LM2100SP Lawn Mower

3. Mount the bottom housing onto the side rail and beam tube.
4. Fully extend the side rail to make sure the dent on the rail appears in the opening of the outer tube.

Plastic Bushing against the housing interior



Dent located in the opening



Close the Right Beam Housing

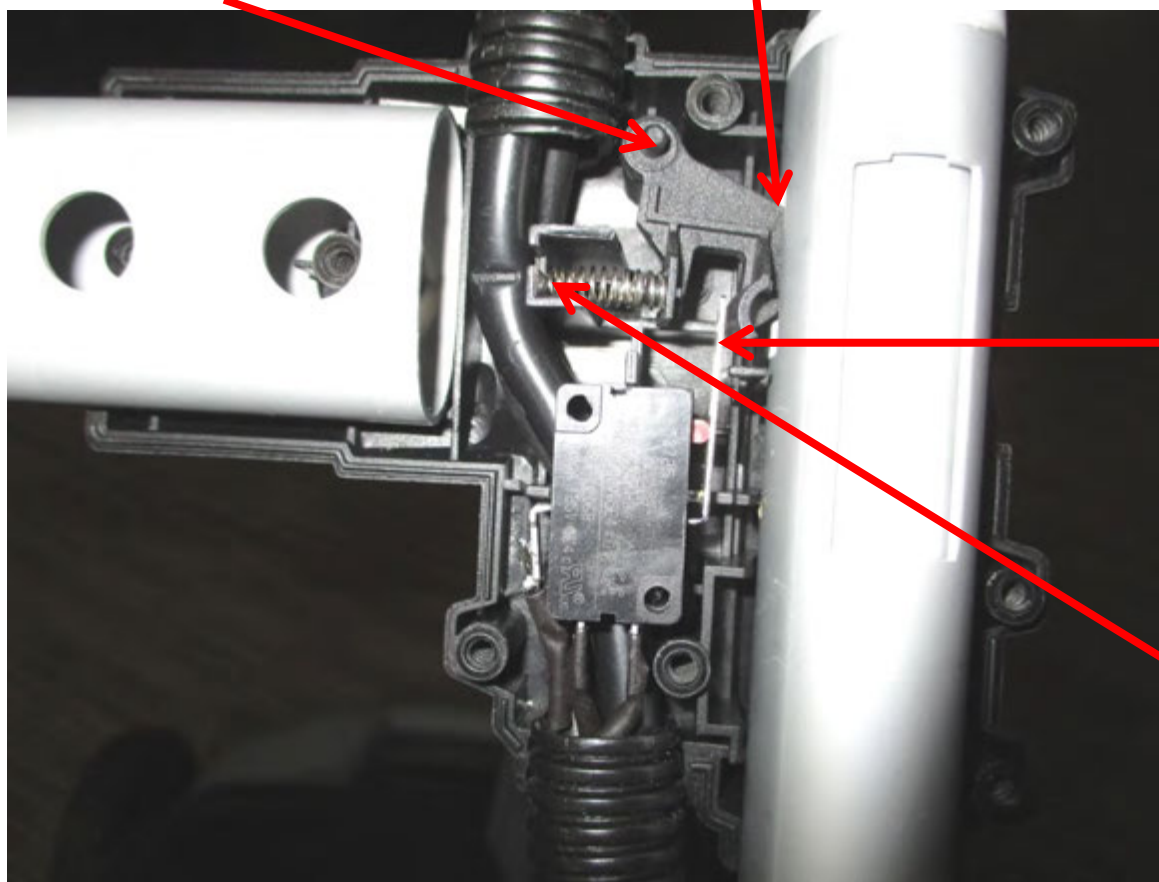
LM2100SP Lawn Mower

5. Fix the switch actuator into the bottom housing.

Locating pin into the locating hole in housing

This corner into the outer tube

Description	Part Number
Switch Actuator	3126768001
Spring	3660287002



Switch lever in the groove of the actuator

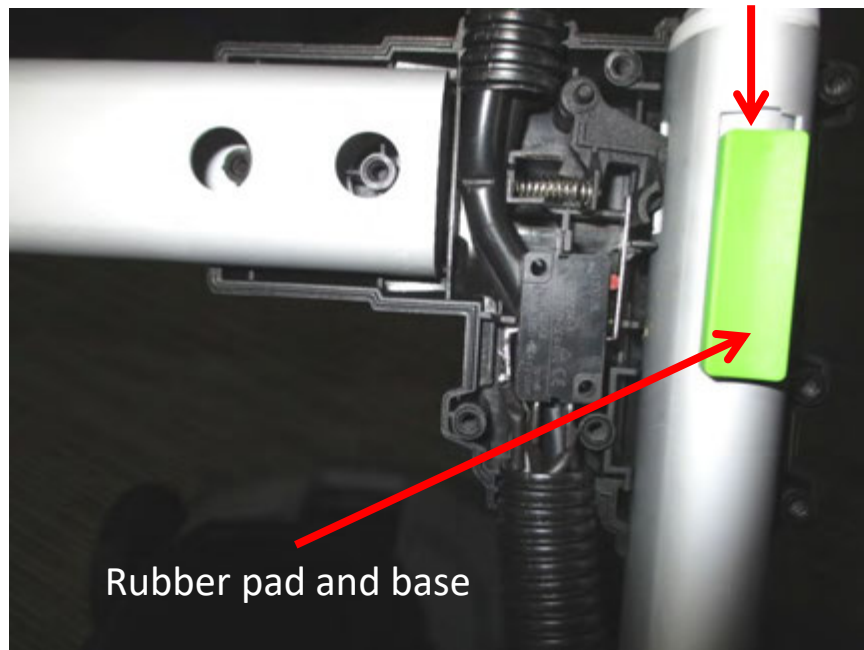
Position the spring in the locating groove

Close the Right Beam Housing

LM2100SP Lawn Mower

6. Attach the rubber pad and base onto the rectangle groove in the outer tube.
7. Close the top housing and locked with the 8 screws.

Rectangle groove

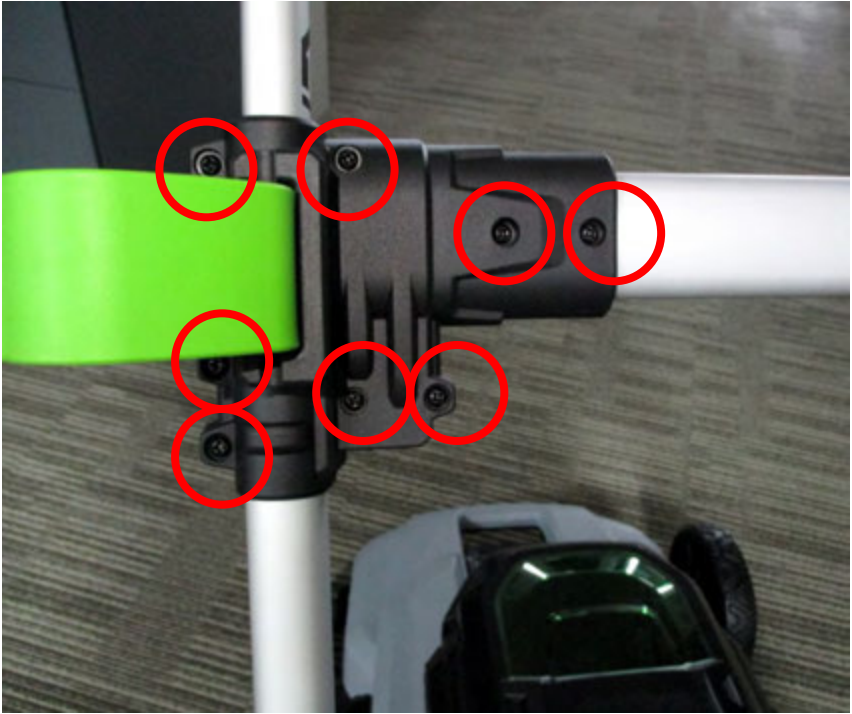


Description	Part Number
Rubber Base	3126761001
Rubber Pad	3126832001
Right Beam Housing Set	2824426001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Open the Left Beam Housing

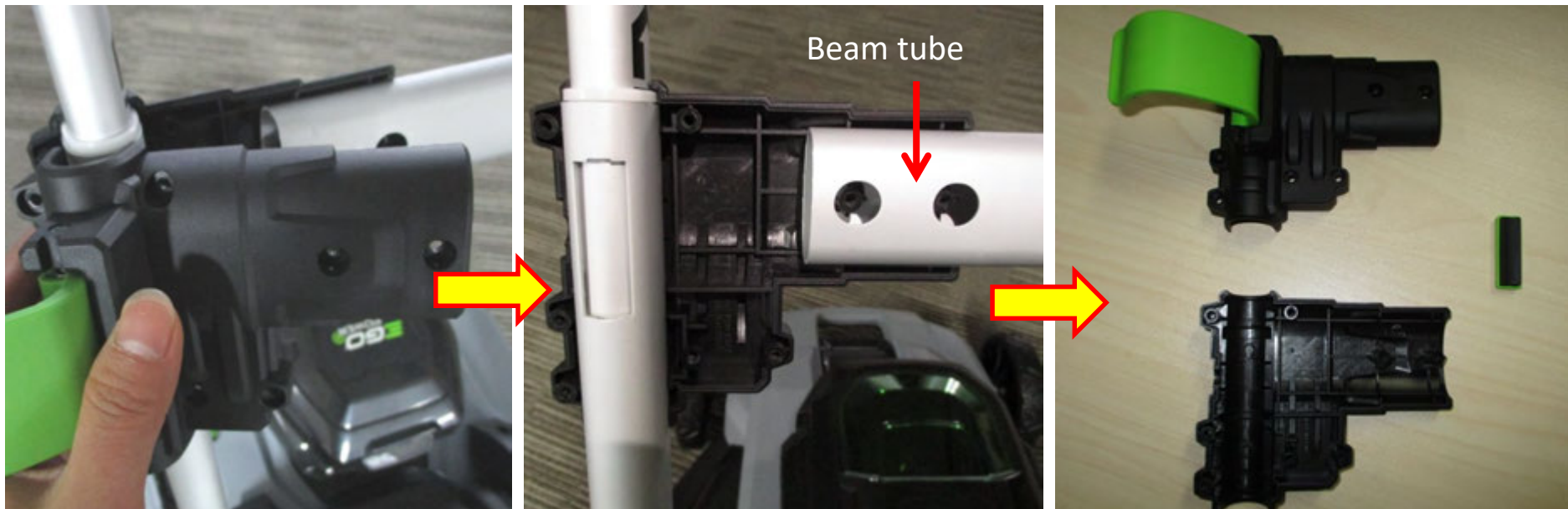
- 1. Remove the 8 screws to open the left beam housing.



Open the Left Beam Housing

LM2100SP Lawn Mower

2. Separate the top and bottom housing, remove the bottom housing from the side rail and beam tube.
3. Replace the left beam housing set if they appear any worn.
4. Assemble the handle locking clamp onto the new left beam housing as ***“RG_Part 5_Handle Locking Clamp Replacement_LM2100SP.pptx”*** shown.



Description	Part Number
Left Beam Housing Set	2824427001
Handle Locking Clamp Set	2823714002



Handle Locking Clamp Set

Close the Left Beam Housing

LM2100SP Lawn Mower

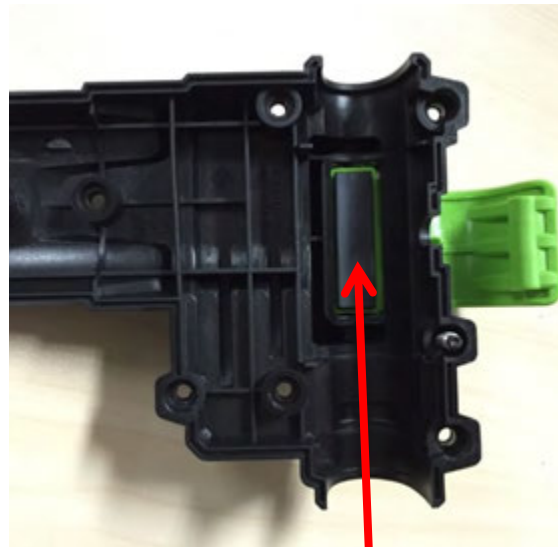
1. Mount the top housing onto the side rail and beam tube.
2. Turn the handle to make it locked at any of the operating positions.



Close the Left Beam Housing

LM2100SP Lawn Mower

3. Position the rubber pad and rubber base into the groove of bottom housing. Make sure the rubber pad pointing outside.
4. Close the bottom housing and locked with screws.



Rubber pad pointing outside



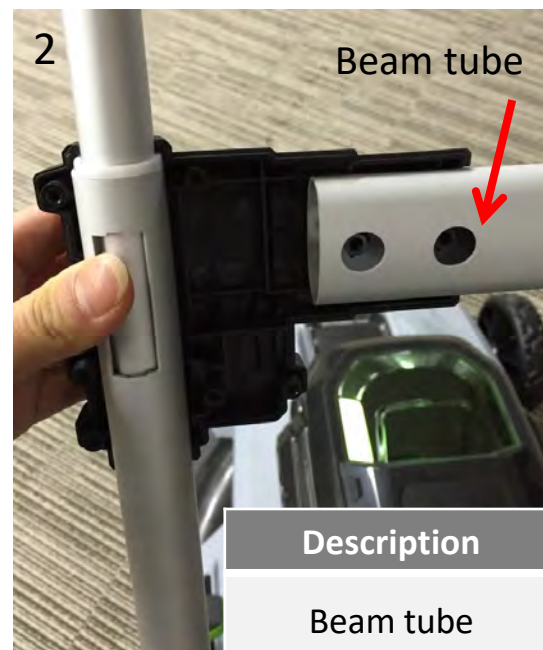
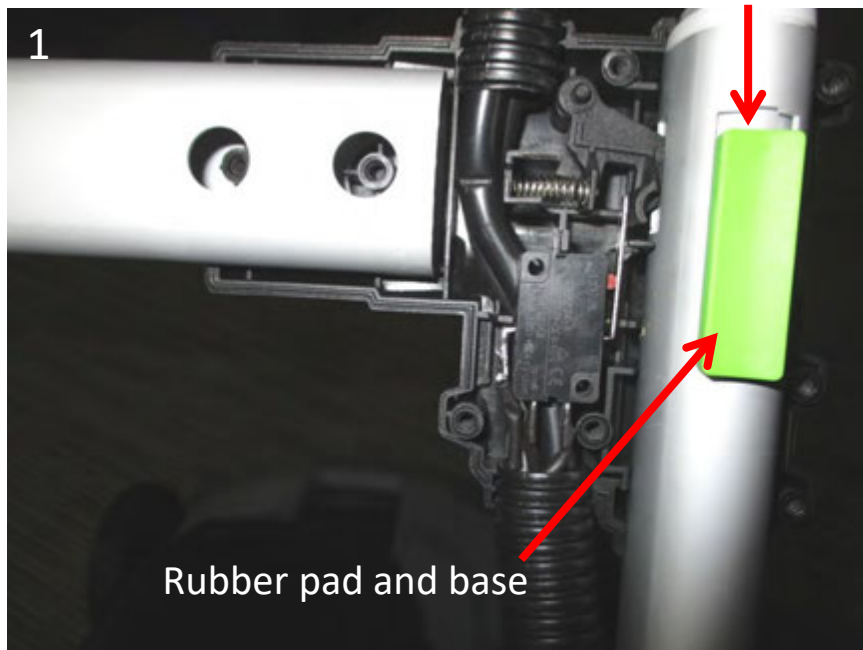
To Replace the Beam Tube

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

1. Remove the 8 screws to open the right beam housing.
2. Keep all the parts inside the bottom housing, such as micro switch, spring and switch actuator, located in their original position (Fig. 1). Rubber pad and rubber base will drop off from the rectangle groove during disassembly. Save them for reassembly.
3. Remove the 8 screws to open the left beam housing (Fig. 2).
4. Replace with a new beam tube. During this process, maybe one more person is needed to provide some help to support both the right and left beam housing to avoid dropping.

Rectangle groove



Description	Part Number
Beam tube	3705393001

To Replace the Beam Tube

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

5. Close the left/right beam housing (see previous corresponding section in this PPT).



6. Mount the top hand and switch box covers back (See *RG_Part 4_Top Handle & Switch Box Cover Replacement_LM2100SP.pptx*).

THE END

REPAIR GUIDELINE

PART 7: QUICK ADJUST LEVER REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/09

Quick Adjust Lever Replacement

LM2100SP Lawn Mower



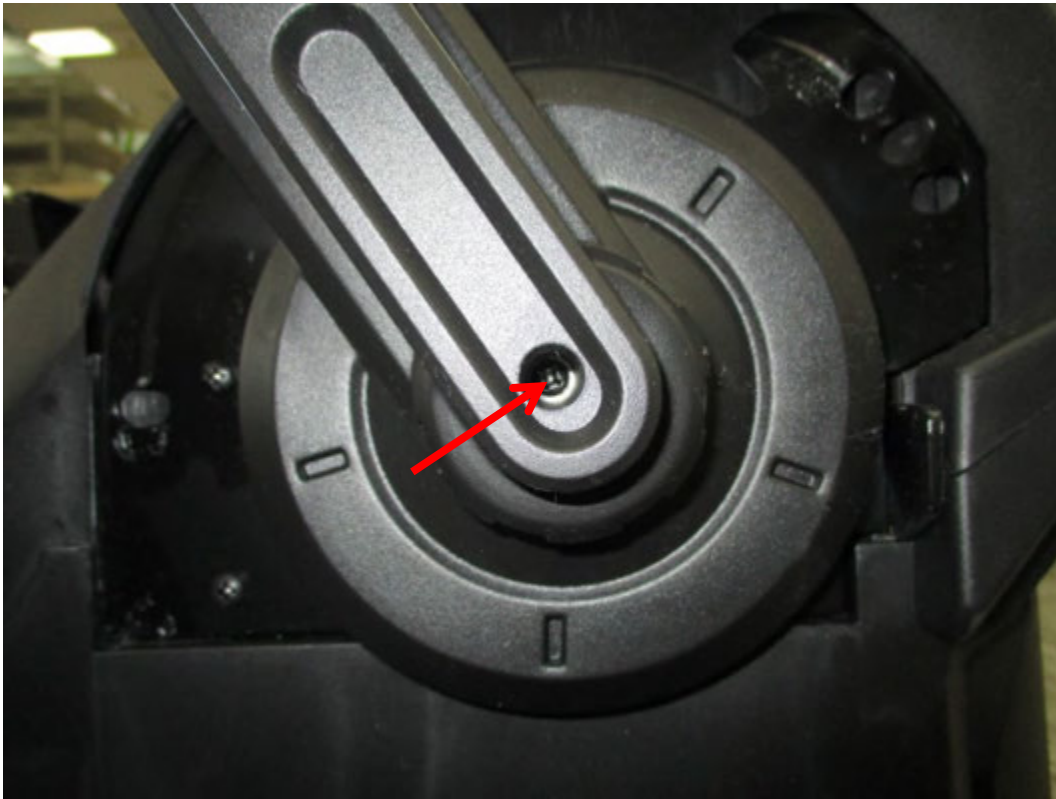
Description	Part Number
Quick Adjust Lever (New set part# includes lever, spring, pin and E ring)	2824250001 2828739001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Quick Adjust Lever Replacement

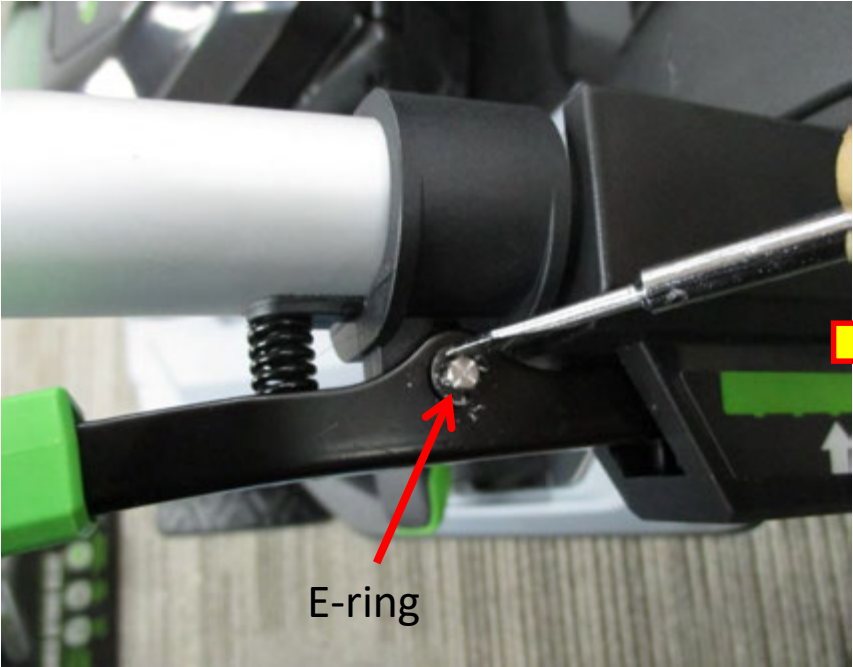
LM2100SP Lawn Mower

1. Remove the two screws (one in the decorative cover, another in the inner side of the side tube).



Quick Adjust Lever Replacement

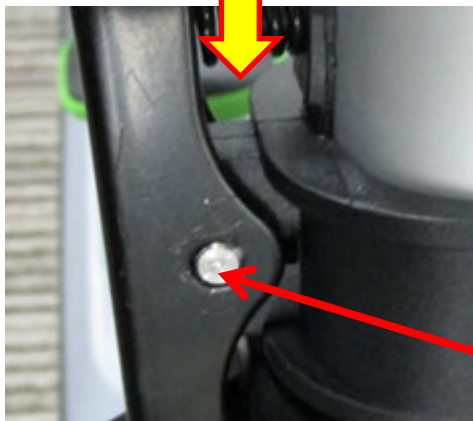
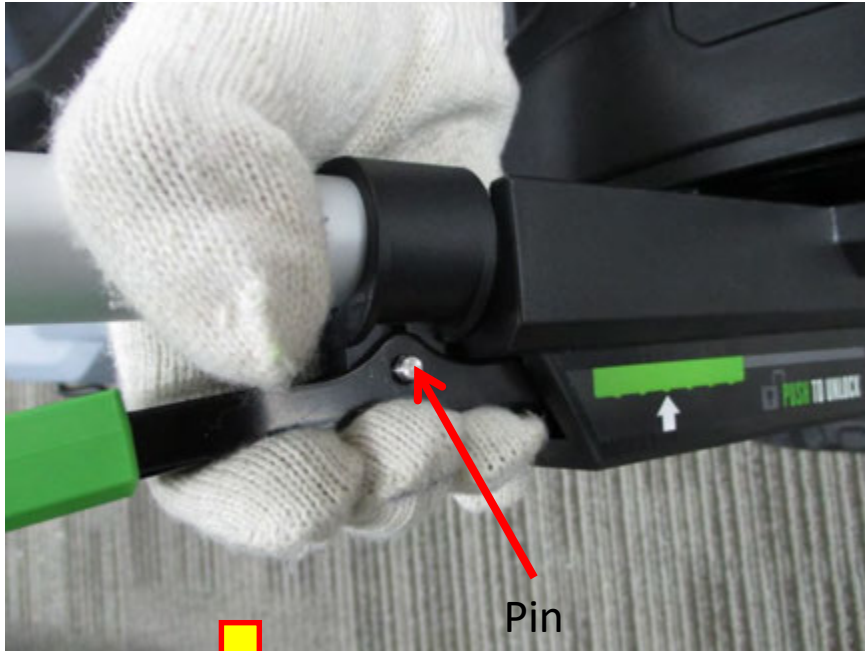
2. Remove the E-ring.



Description	Part Number
E-Ring	5660003003

Quick Adjust Lever Replacement

3. Press the lever to loosen the pin and then pull it out.



Press the pin from the ring side to make it protrude on the other side



Description	Part Number
Pin	3550048003

Quick Adjust Lever Replacement

LM2100SP Lawn Mower

4. Remove the spring, adjust lever and decorative cover from the side tube.
5. Replace the damaged parts accordingly.



Description	Part Number	Note
Decorative Cover	3126912001	
Quick Adjust Lever	2824250001	Replaced by new Handle Lever Set (2828739001)
Spring	3660565001	

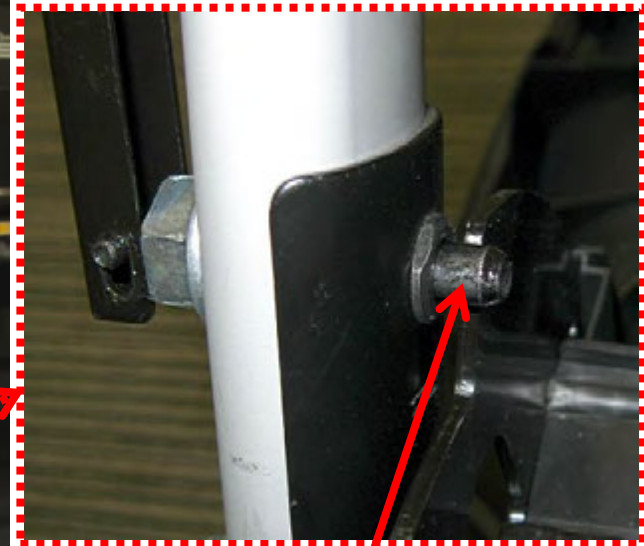
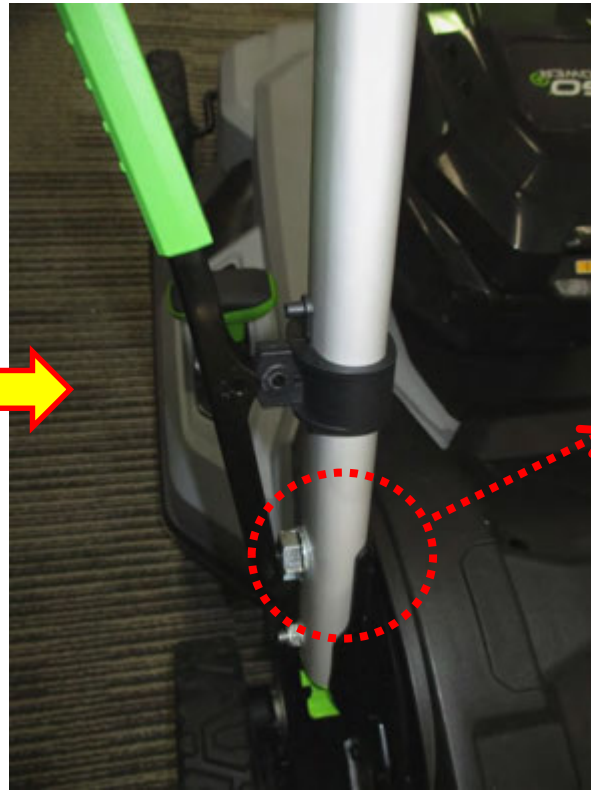
Quick Adjust Lever Replacement

LM2100SP Lawn Mower

6. Align the locking pin with the nut bushing.
7. Adjust the handle to "Grass bag removal position"; fully force the pin into the bushing and let the pin extend out of the side tube so that the handle can be locked at the position.



Locking pin Nut bushing

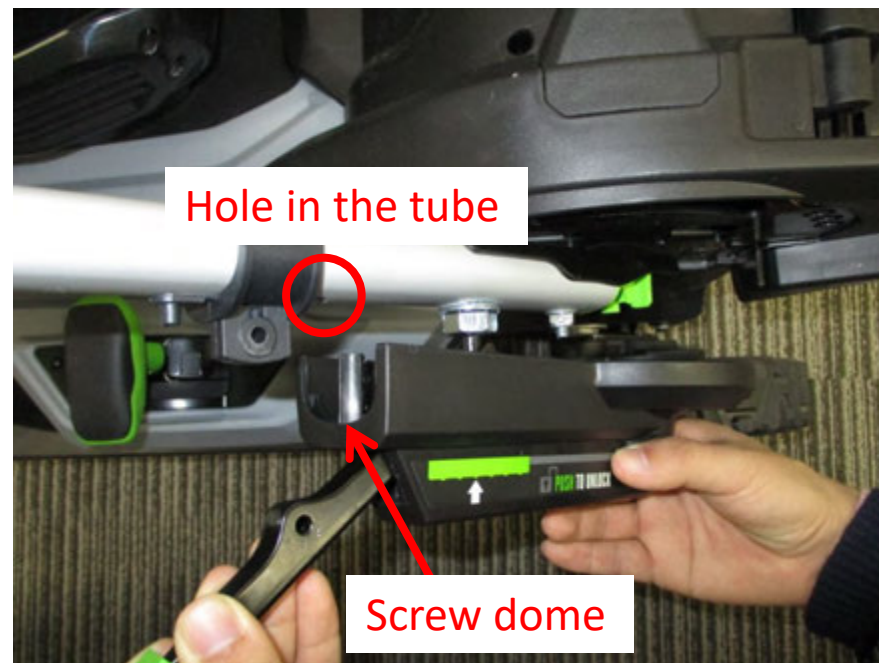


Extend the pin out of the side tube so that the handle can be locked at the grass bag removal position

Quick Adjust Lever Replacement

LM2100SP Lawn Mower

8. Pass the adjust lever through the decorative cover.
9. Align the screw dome with the hole in side tube and mount the decorative cover onto the side tube.



NOTICE:

During the decorative cover assembly, the handle lever should be turned 90° accordingly so that the lever can get through.

Quick Adjust Lever Replacement

LM2100SP Lawn Mower

10. Fix the spring between the adjusting lever and the side tube.
11. Hold the tube and lever, depress the lever to align the hole in the lever with the hole in the plastic part.
12. Fully insert the pin and lock the pin with the E-ring from the backside.



E-ring

Quick Adjust Lever Replacement

LM2100SP Lawn Mower

13. Lock the decorative cover with two screws.
14. Test the lever function to check if it can lock the handle at different positions.



THE END

REPAIR GUIDELINE

PART 8: Self-propelled PCBA and Unit Replacement_LM2100SP Lawn Mower



Updated on 2021/09/07

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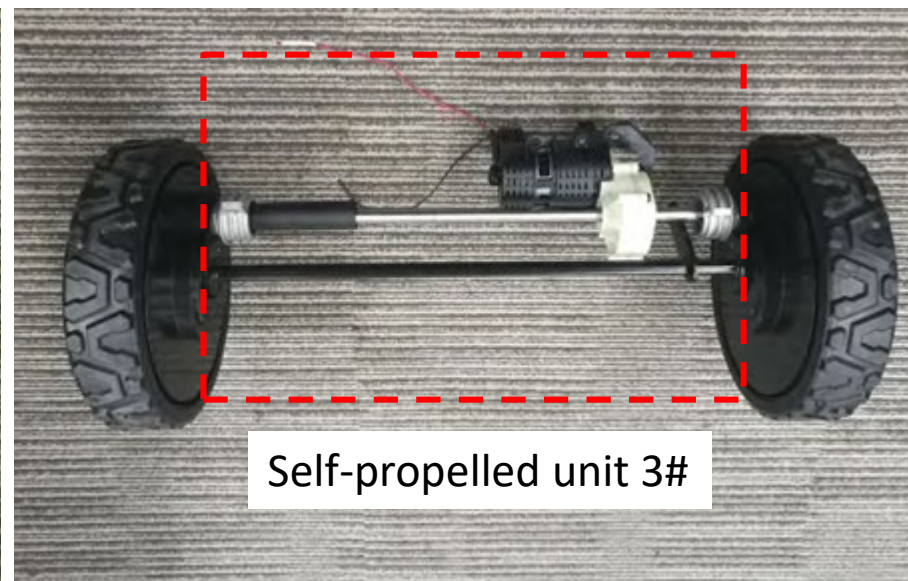
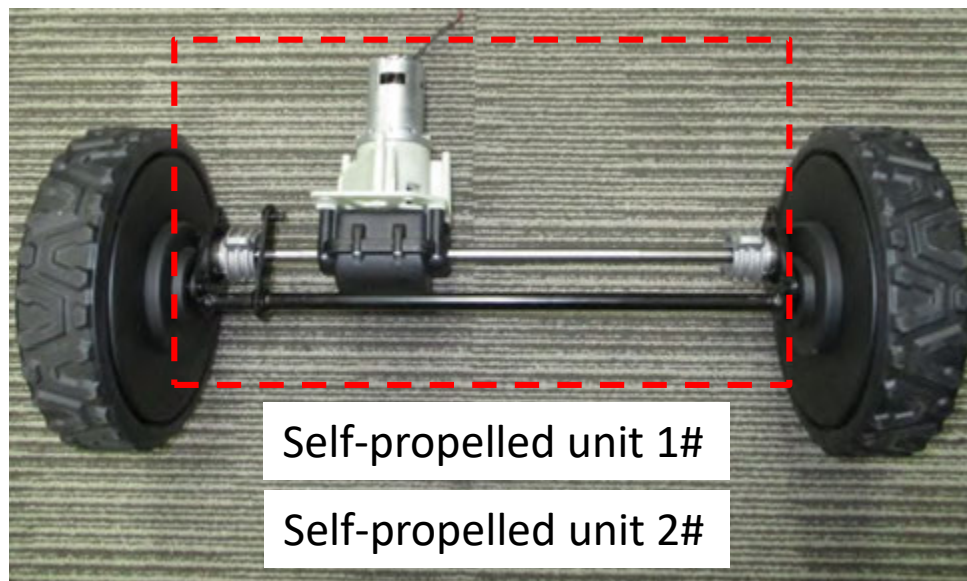
LM2100SP Lawn Mower

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1	Notice for Self-propelled Unit Replacement	3-5
3	Self-propelled PCBA Replacement	6-14
4	Motor in Self-propelled Unit Replacement_LM2100SP_A	15-25
5	Gear Box and Rear Axle Set in Self-propelled Unit Replacement_LM2100SP_A (no longer for service when old parts are run out)	26-29
6	Motor in Self-propelled Unit Replacement_LM2100SP_B	30-46

Notice for Self-propelled Unit Replacement

LM2100SP Lawn Mower

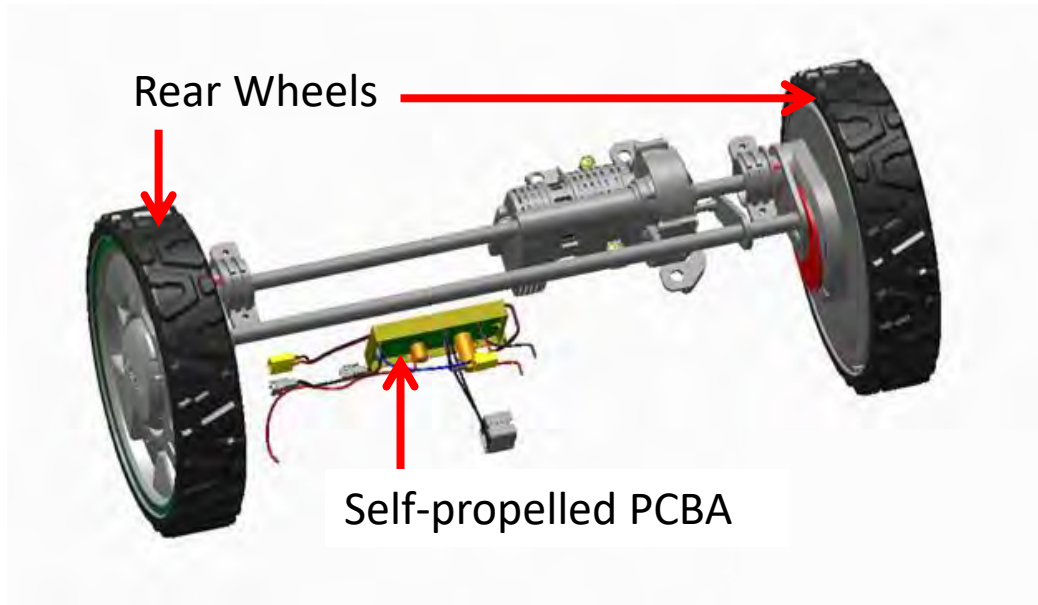
NOTICE: There are 2 different versions of self-propelled units for LM2100SP (LM2100SP_A & LM2100SP_B), see below. However considering the connection way (see next slides) between the rear axle and connection rod, there are 3 kinds of structure, we name as self-propelled unit 1# (snap ring connection, old self-propelled unit), self-propelled unit 2# (nut connection, old self-propelled unit) and self-propelled unit 3# (nut connection, new self-propelled unit).



Description	Part Number	Status Remark	Replacement Running Change
Self-propelled unit 1#	2824280001	LM2100SP_A	The old self-propelled unit 1# & 2# will not be available from 2020/11. New self-propelled unit SET (including the rear wheels and self-propelling PCBA of version B, see next slide) (2828353001) will be used for spare parts order and repair.
Self-propelled unit 2#	2824280003		
Self-propelled unit 3#	2825258001	LM2100SP_B	

Notice for Self-propelled Unit Replacement

New self-propelled unit **SET: 2828353001**
(w/ the rear wheels and self-propelling PCBA of version B)



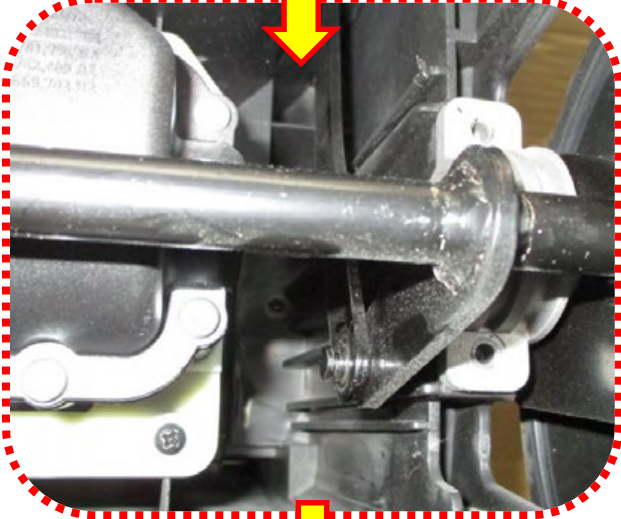
Self-propelled unit of version B: **2825258001**
(w/o the rear wheels and self-propelling PCBA)



Notice for Self-propelled Unit Replacement

LM2100SP Lawn Mower

Snap-ring
Connection:



Nut
connection:



Self-propelled PCBA Replacement

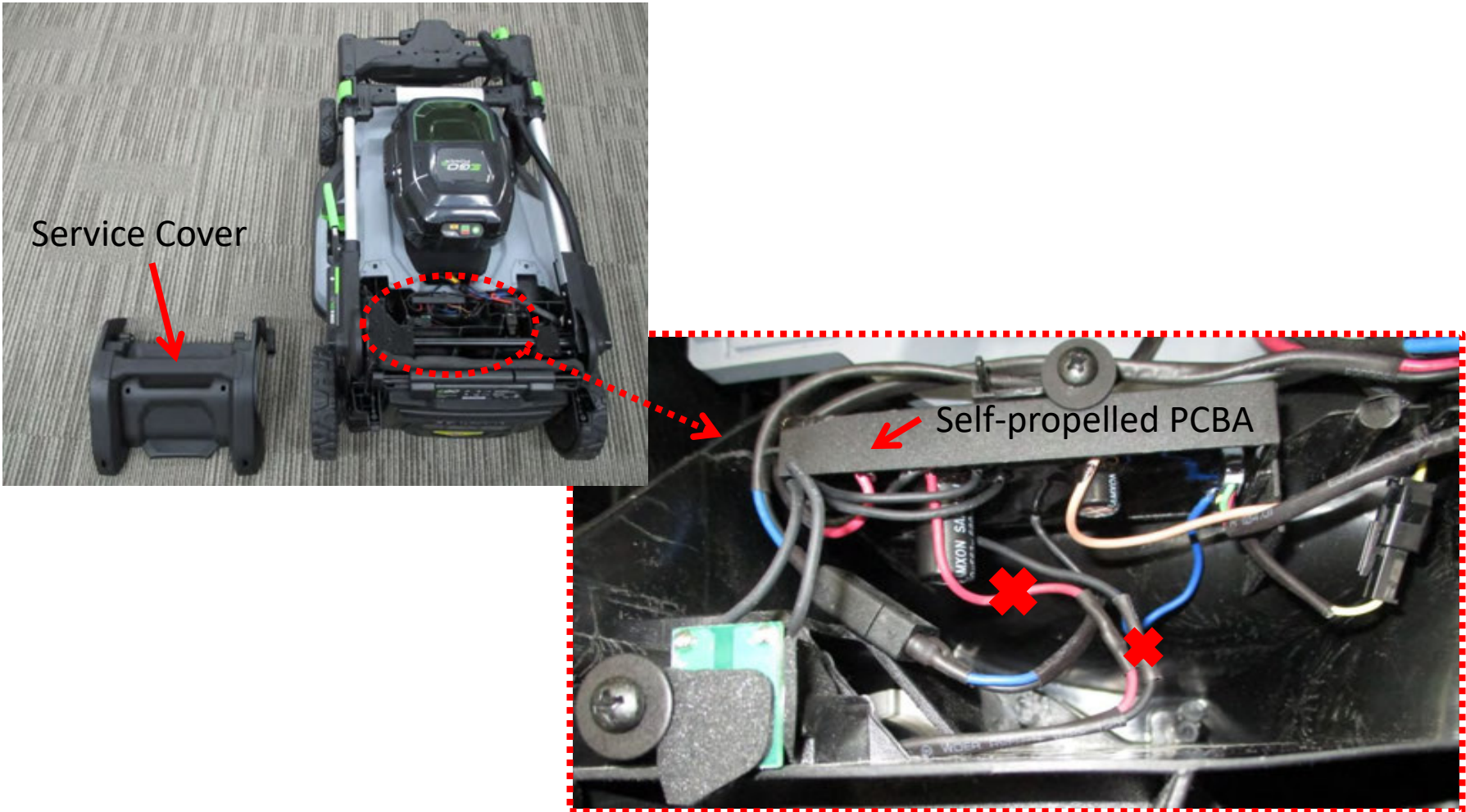
- 1. Before replacing or maintaining the PCBA or parts in self-propelled unit, first fold the handle to the grass bag removal position to detach the service cover from the mower.



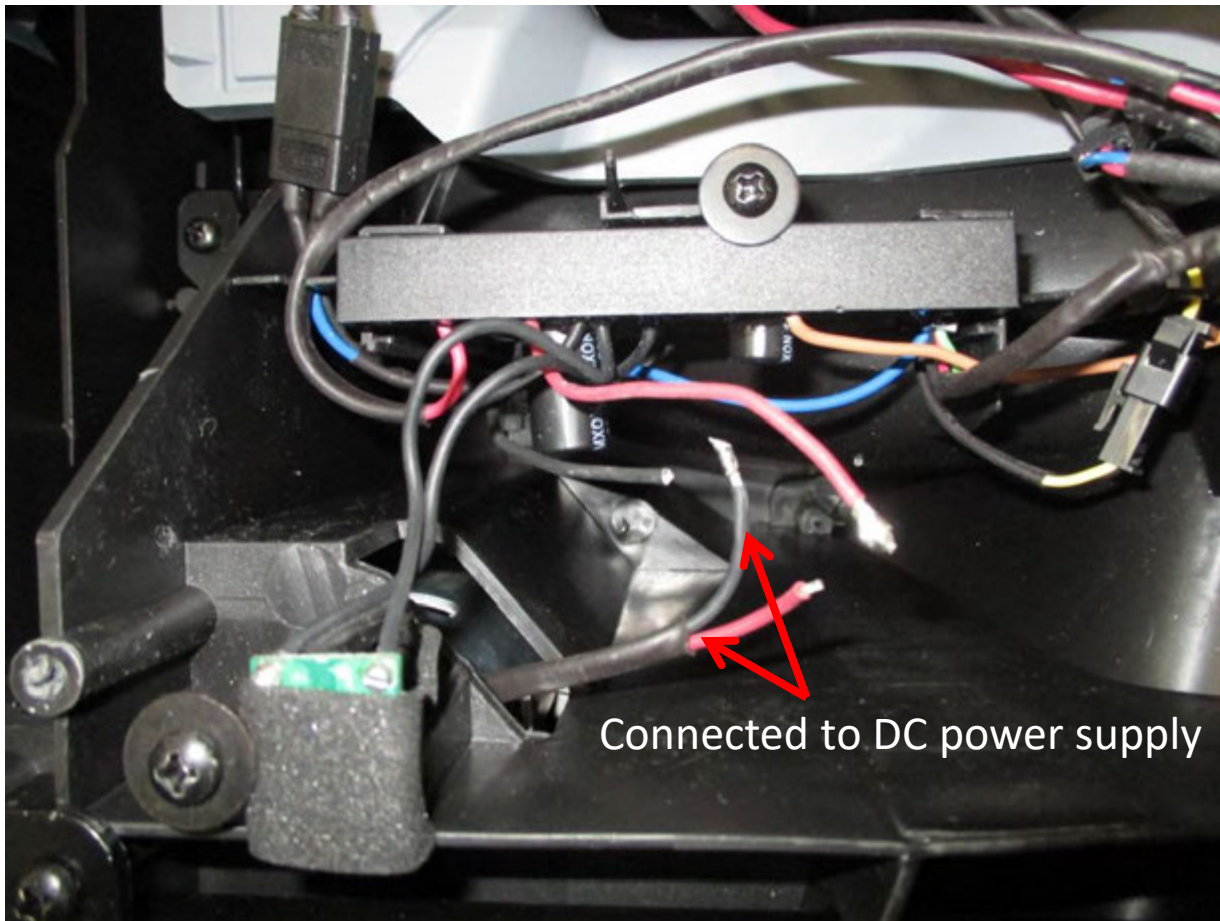
Service Cover

Self-propelled PCBA Replacement

- 2. Cut off the red and black thin wires by scissors. They are used for connecting the self-propelled PCBA to the self-propelled motor.

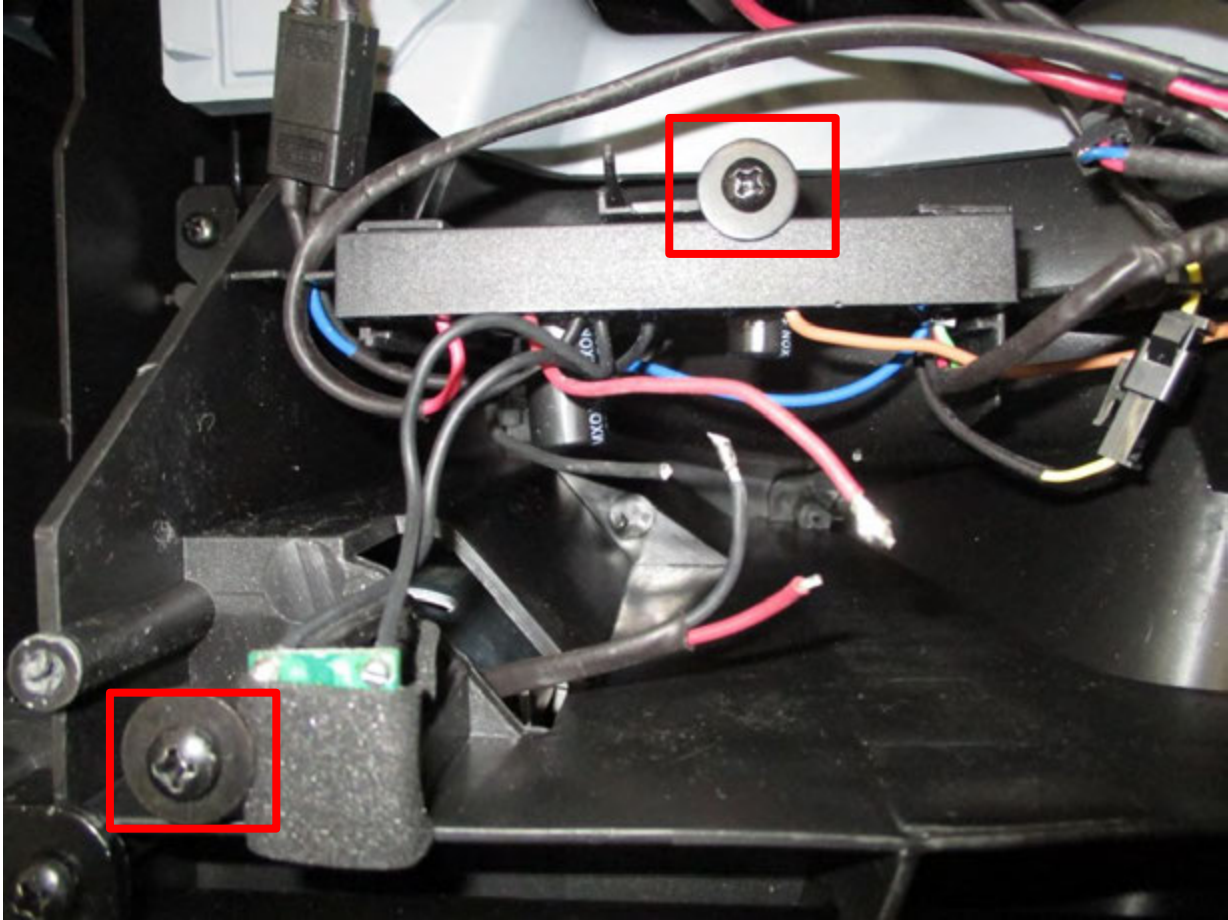


3. Test the self-propelled motor by connecting the motor cables to a DC power supply. If the motor doesn't run, disassemble the self-propelled unit and replace the motor. Otherwise replace the PCBA.



Self-propelled PCBA Replacement

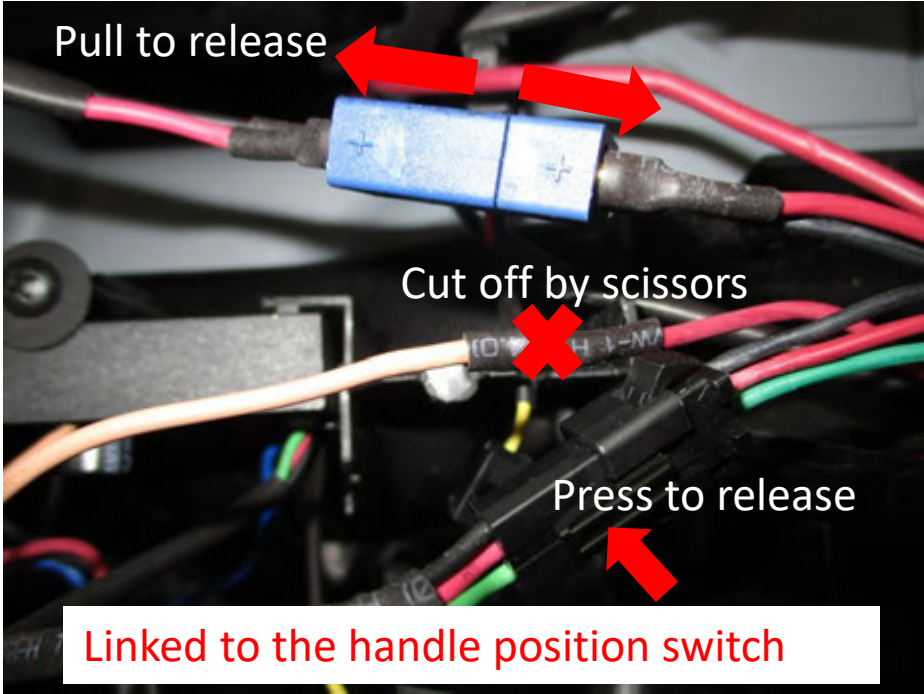
4. Remove the 2 screws with their washers.



Description	Part Number	STATUS REMARK
Self-propelled PCBA	2830076006	LM2100SP_A
	2830076005	LM2100SP_B

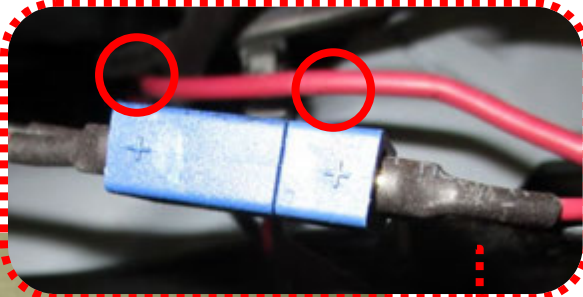
Self-propelled PCBA Replacement

5. Disconnect the self-propelled PCBA from the power unit and the handle position switch.



Self-propelled PCBA Replacement

- 6. Replace with a new PCBA.
- 7. Connect the new PCBA (solder and plug).



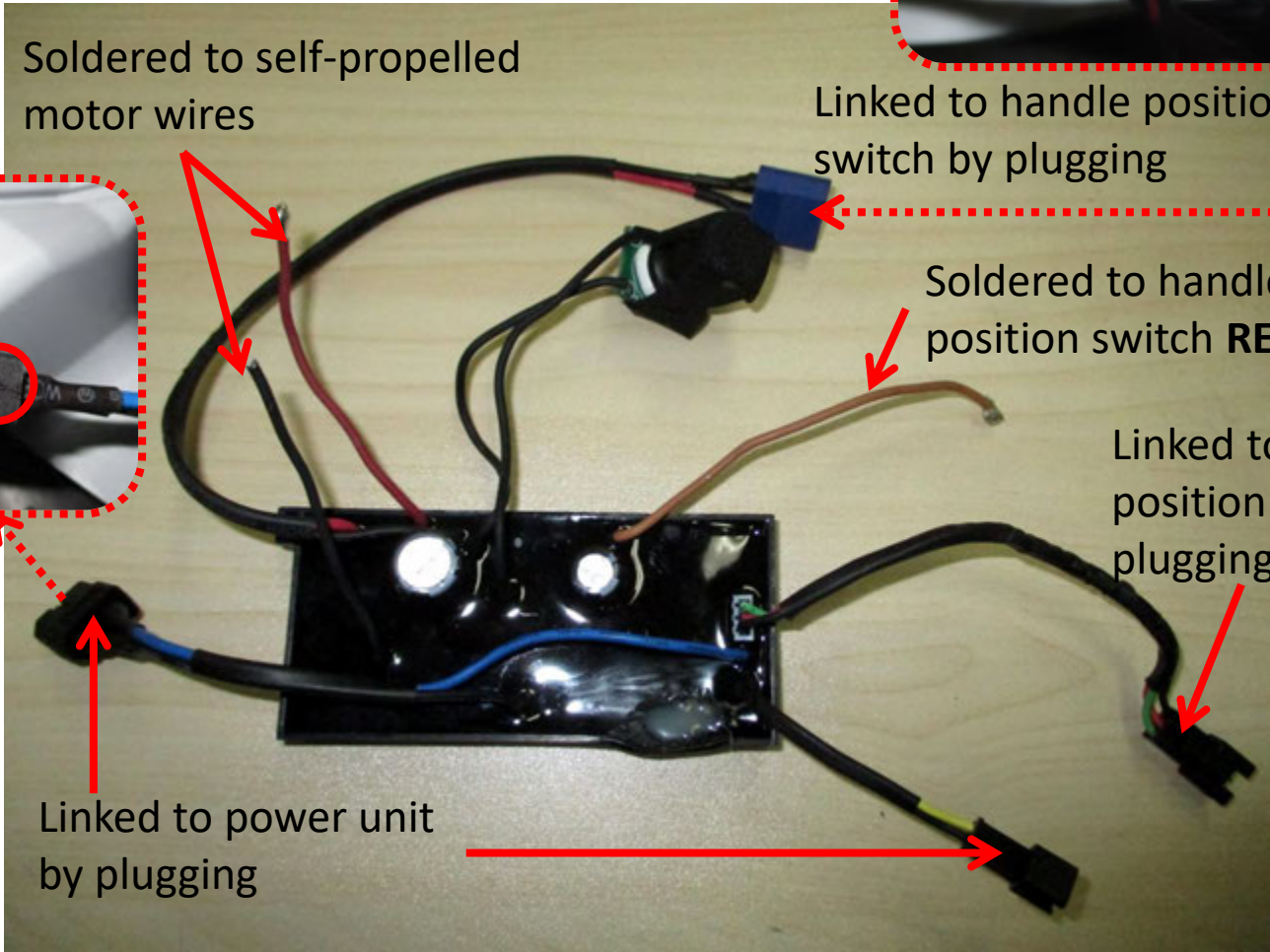
Soldered to self-propelled motor wires

Linked to handle position switch by plugging

Soldered to handle position switch **RED** wire

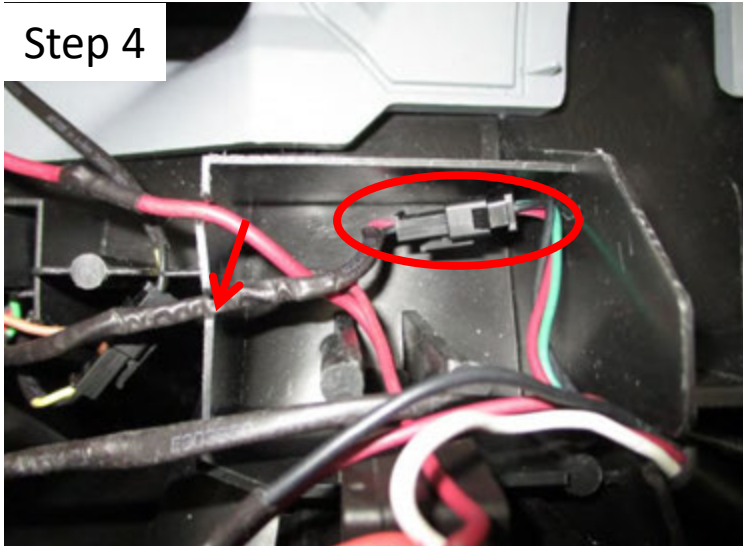
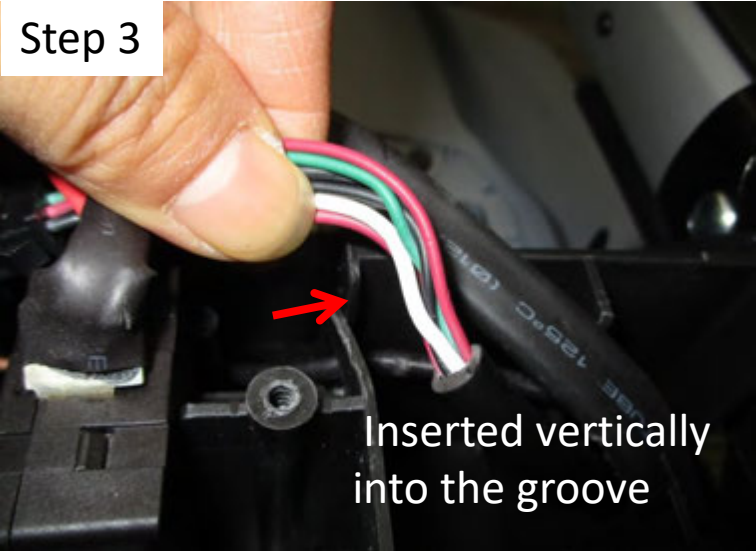
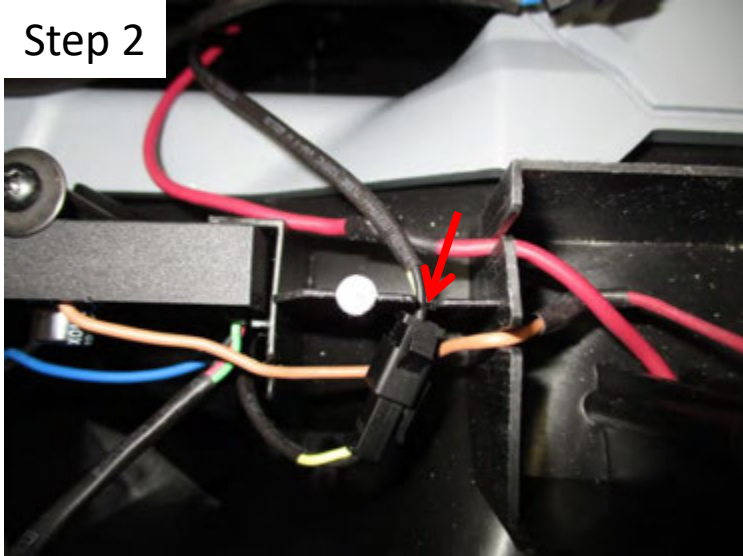
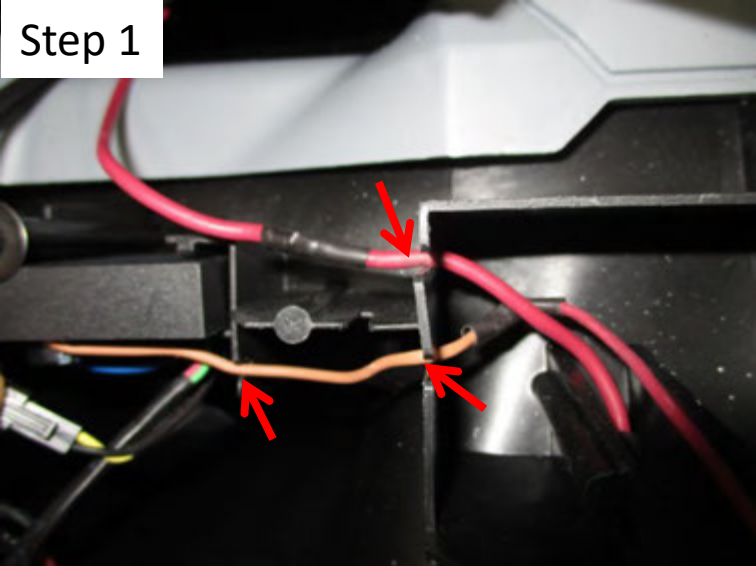
Linked to handle position switch by plugging

Linked to power unit by plugging

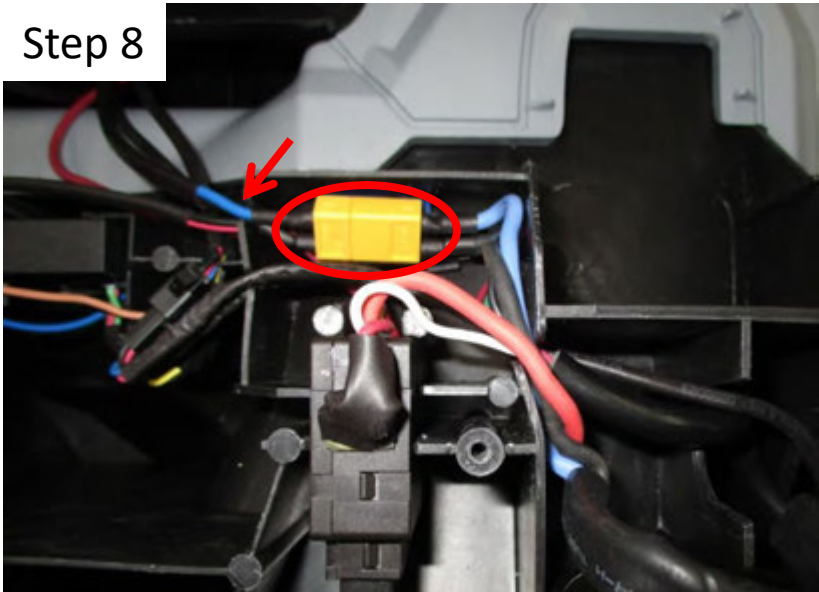
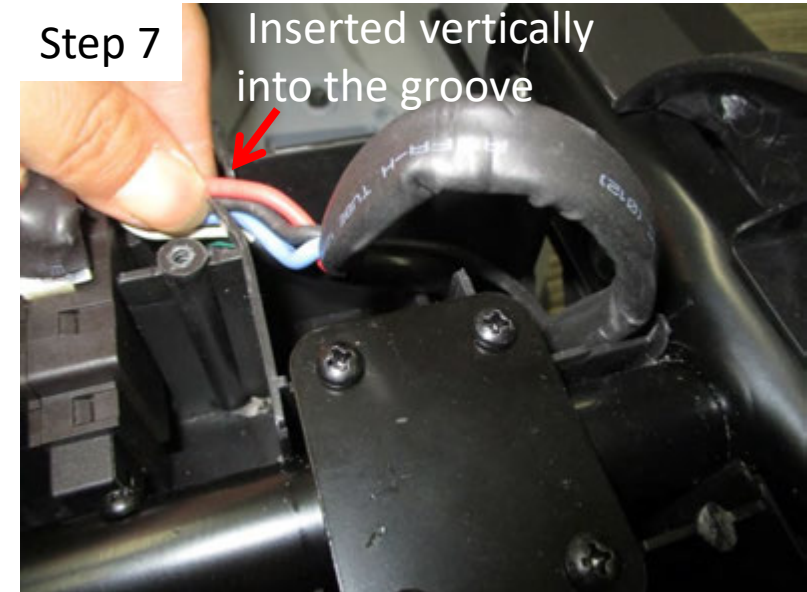
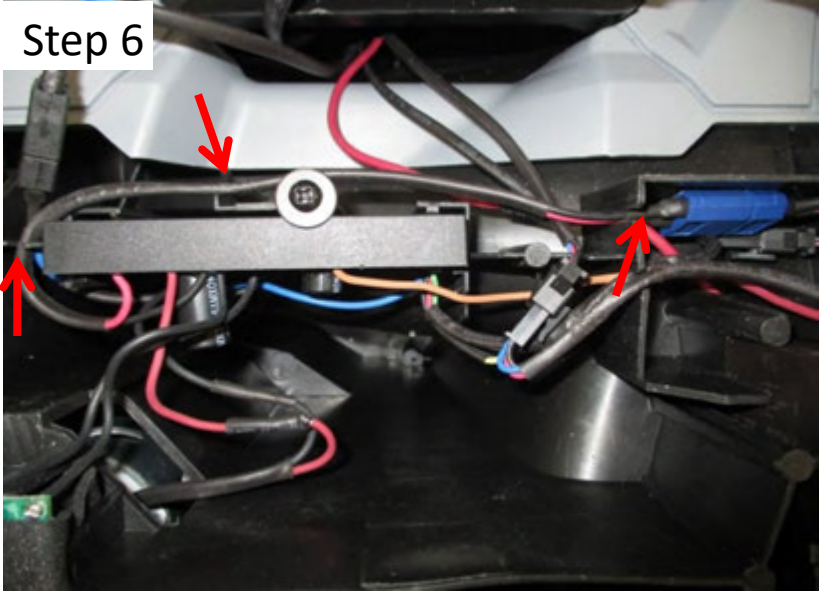
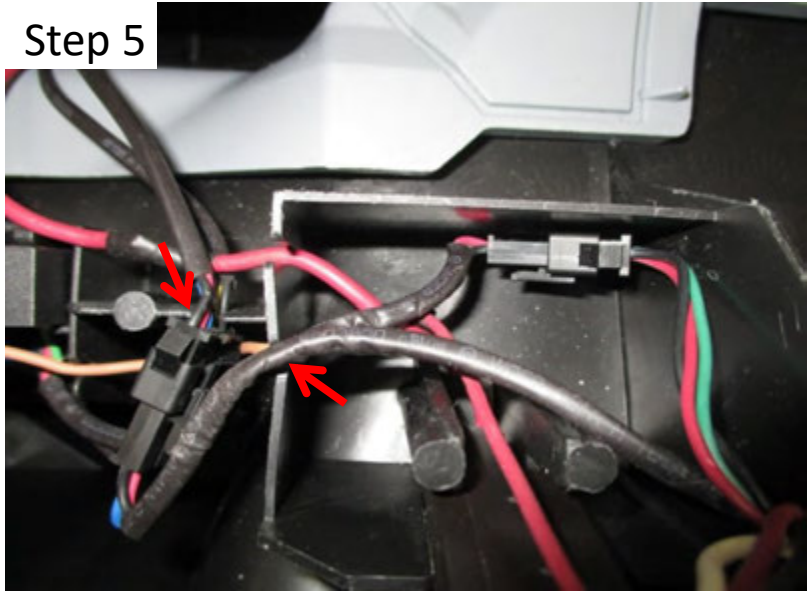


Self-propelled PCBA Replacement

8. Align the wires into the grooves.



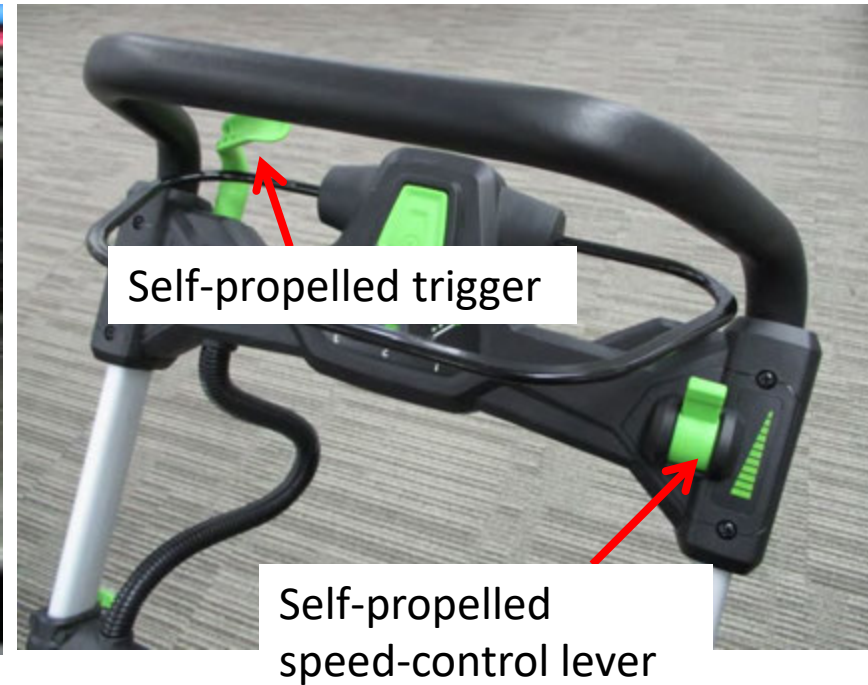
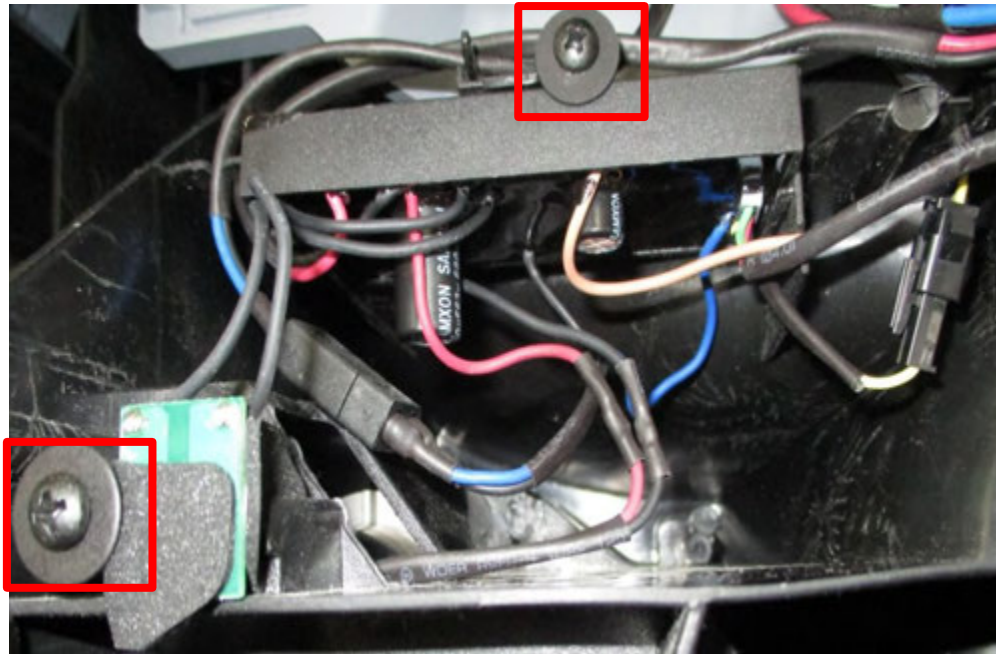
Self-propelled PCBA Replacement



Self-propelled PCBA Replacement

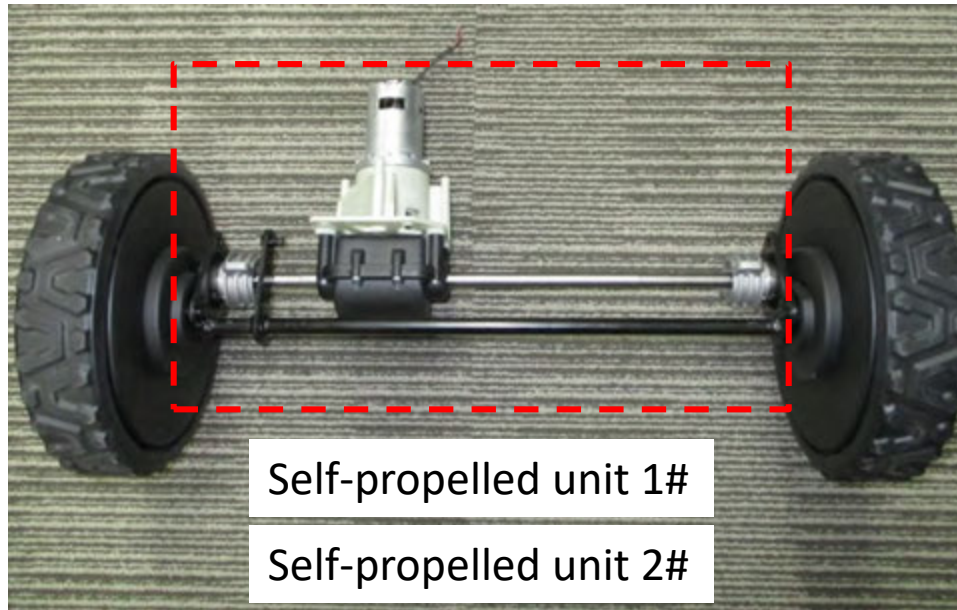
LM2100SP Lawn Mower

9. Tighten the 2 screws with the washers to fix the PCBA.
10. Turn on the self-propelled trigger by pressing it and adjust its speed-control lever to test whether the PCBA is assembled correctly.



Motor in Self-propelled Unit Replacement_LM2100SP_A

For LM2100SP_A self-propelled units, when the self-propelled motor is damaged, follow the steps from Slide P16-20, 22-25 to have self-propelled motor replaced. Otherwise, replace the unit with a new self-propelled unit **SET (2828353001)**. See Slide 21 for detailed instructions.



Description	Status Remark
Self-propelled unit 1#	Both are LM2100SP_A, different in connection between the rear axle and connection rod for Self-propelled unit 1# and 2#.
Self-propelled unit 2#	

Motor in Self-propelled Unit Replacement_LM2100SP_A

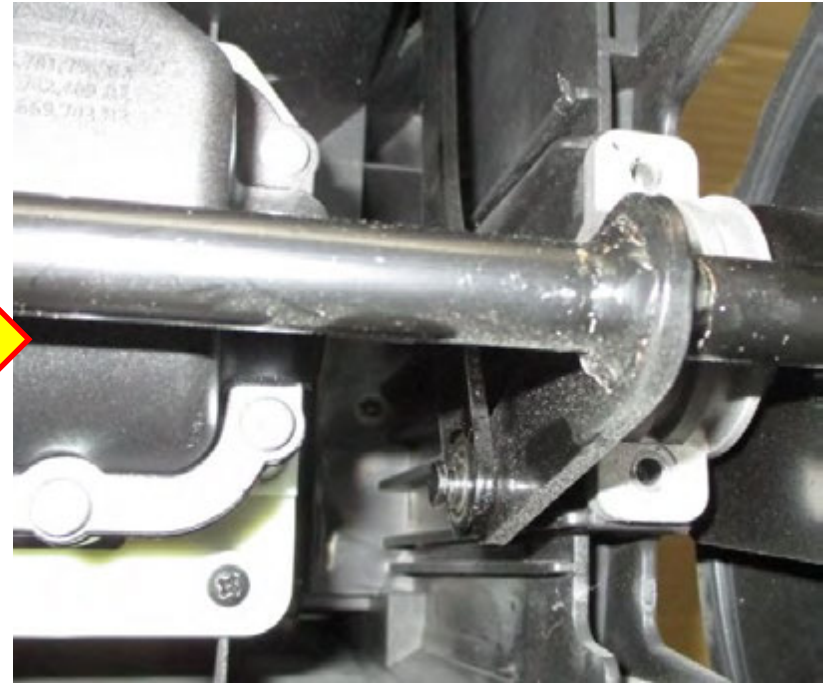
1. Adjust the mower to the highest cutting position and then turn the mower on its back.
2. Remove the snap-ring and plain washer on the joint (plain washer with snap-ring fixing, see P16) or remove the nut (nut fixing, see P17).

NOTICE: If the mower is set at other cutting position, it's really hard to separate the self-propelled unit from the mower after removing the snap-ring and plain washer or removing the nut.



Motor in Self-propelled Unit Replacement_LM2100SP_A

Self-propelled unit 1#: remove the snap-ring and plain washer on the joint.



Description	Part Number
Plain washer	5650025004
Snap-ring	5660139002



Motor in Self-propelled Unit Replacement_LM2100SP_A

Self-propelled unit 2#: remove the nut on the joint.

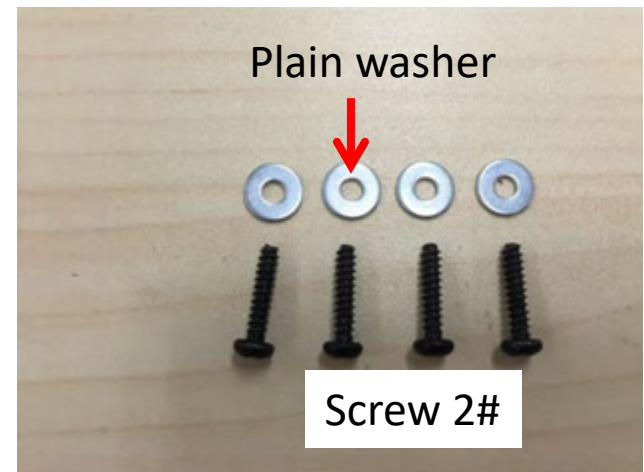
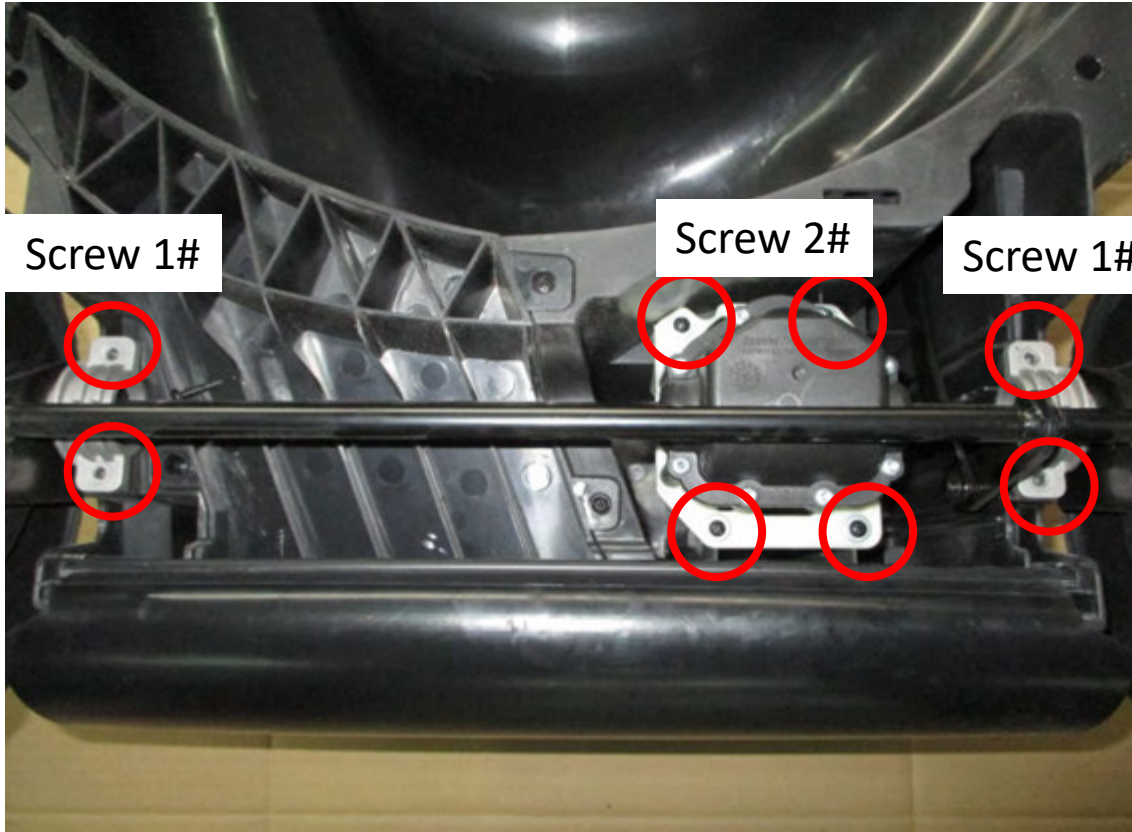


Description	Part Number
Nut	5630013003



Motor in Self-propelled Unit Replacement_LM2100SP_A

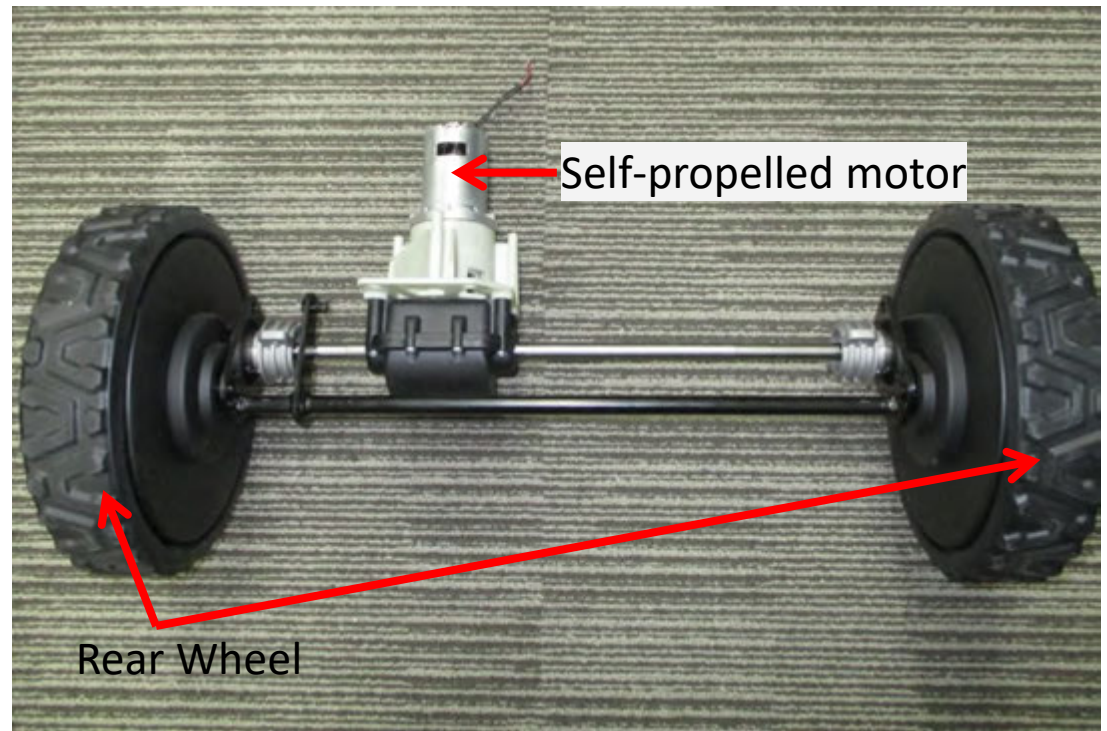
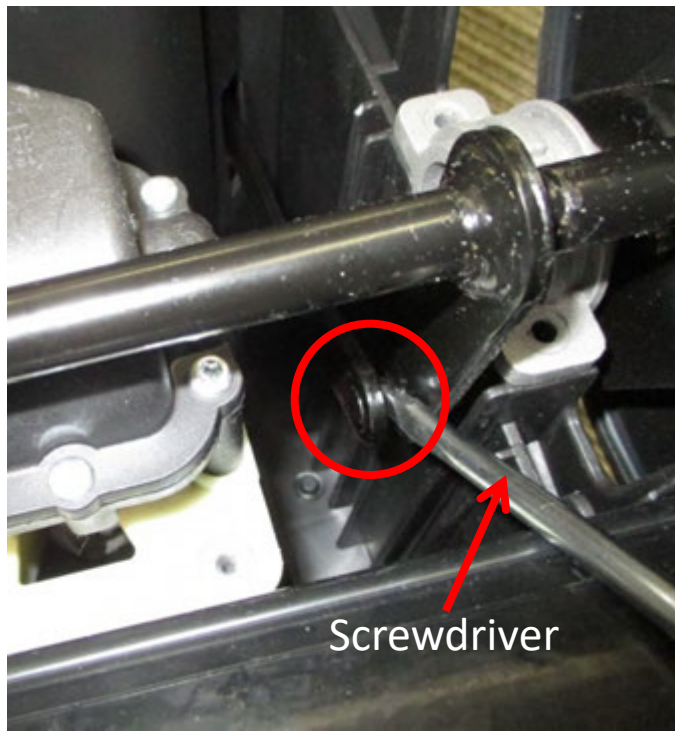
3. Remove the 4 screws 1# and 4 screws 2#. There are 4 plain washers under screw 2#.



Motor in Self-propelled Unit Replacement_LM2100SP_A

4. Separate the self-propelled unit with the two rear wheels from the mower by prying it with a flat head screwdriver at the joint.

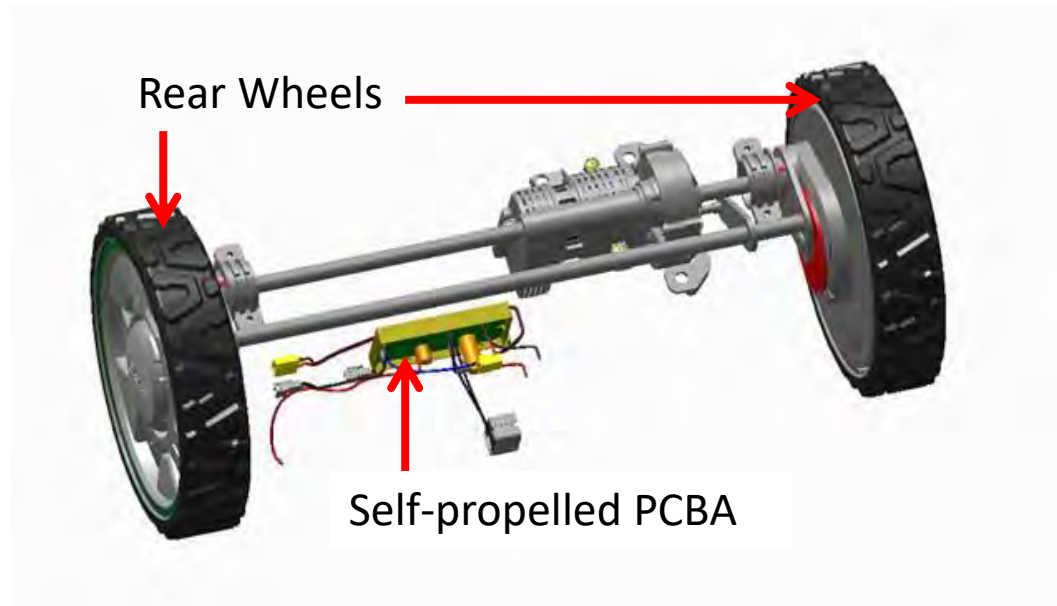
WARNING: This step may cause injuries. Slow down. Gloves recommended.



Motor in Self-propelled Unit Replacement_LM2100SP_A

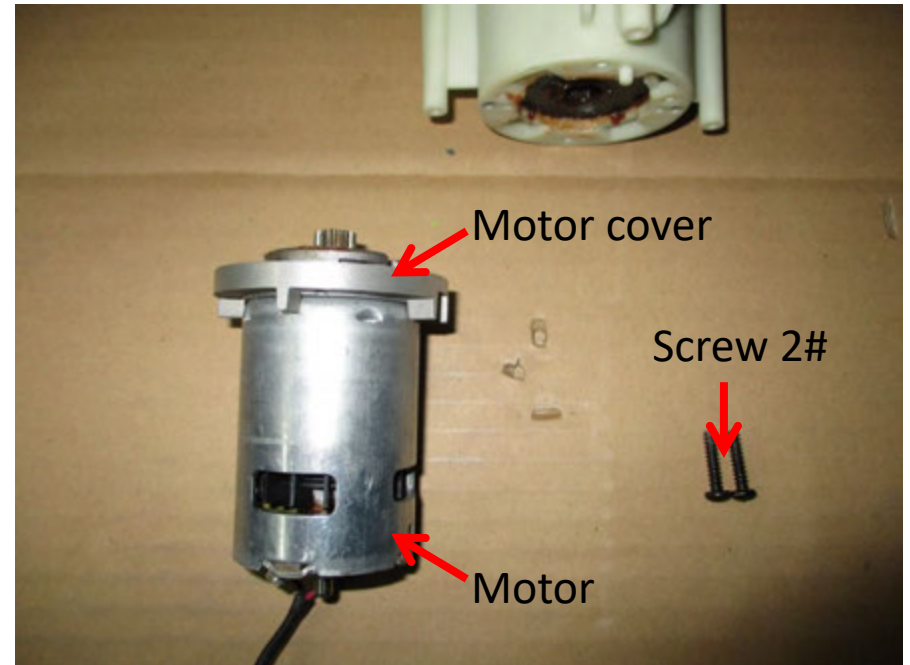
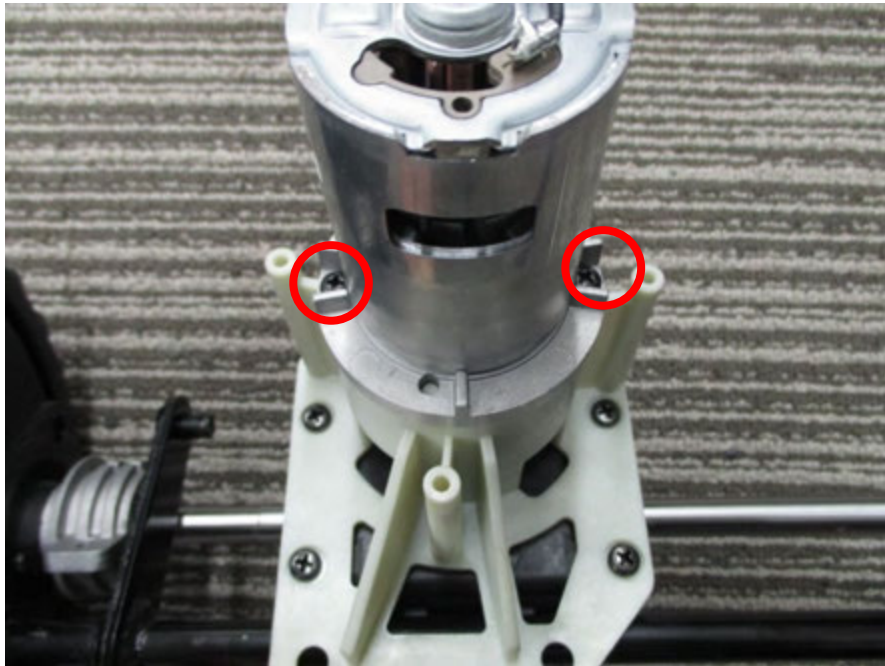
➤ If the gear box or the rear axle set in the self-propelled unit is diagnosed as defective, rather than the self-propelled motor, from this step, have the whole self-propelled unit replaced with a new self-propelled unit **SET (2828353001)**. See below.

- ① Reassemble the new self-propelled unit SET onto the mower in the reverse order.
- ② **Scrape the existing self-propelled PCBA of the failed mower** and then follow the instructions in “***Self-propelled PCBA Replacement***” section to reassemble the self-propelled PCBA.
- ③ Test the self-propelled function.



Motor in Self-propelled Unit Replacement_LM2100SP_A

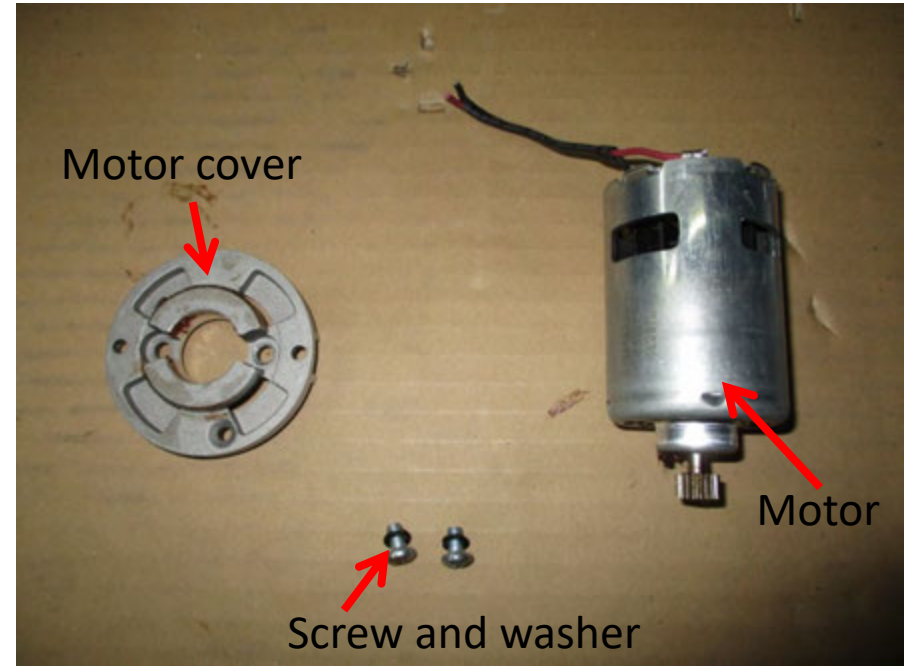
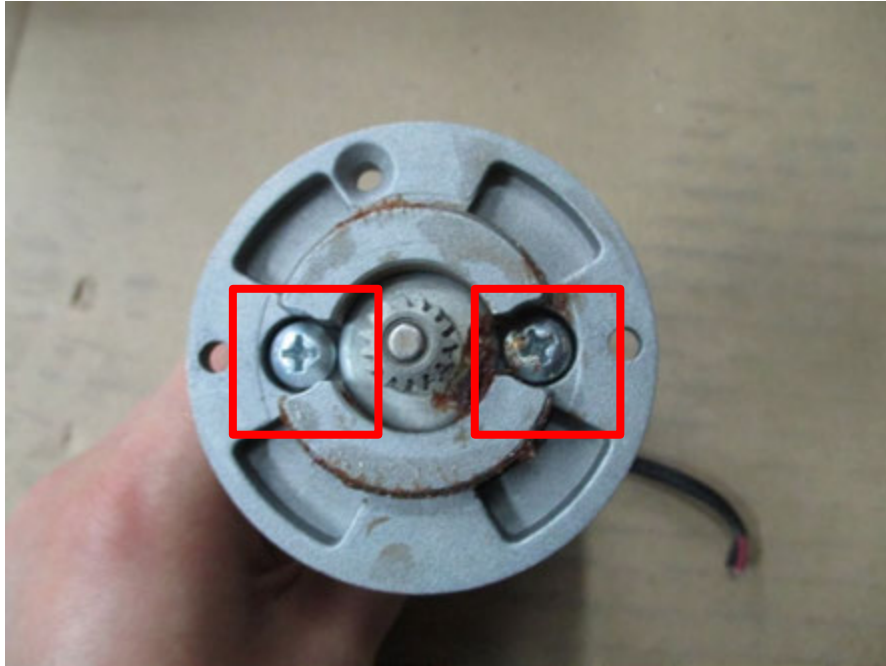
5. Remove the 2 screws 2# to detach the motor from the self-propelled unit. Save the 2 screws for reassembly.



Description	Part Number
Motor	2824424001

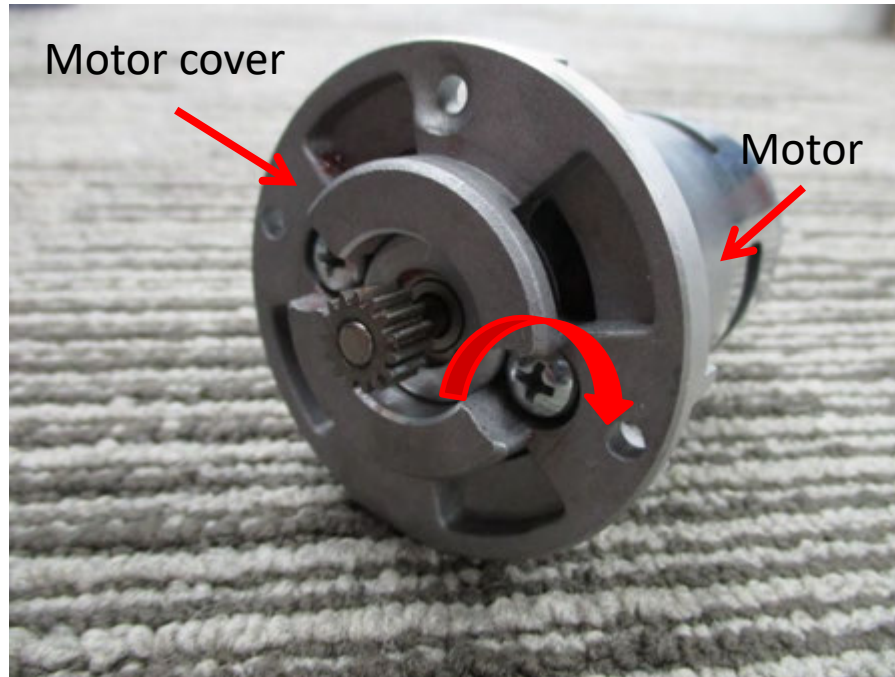
Motor in Self-propelled Unit Replacement_LM2100SP_A

6. Remove the 2 screws with washers on the motor cover to separate the motor from its cover. Save the motor cover and screws/washers for reassembly.



Motor in Self-propelled Unit Replacement_LM2100SP_A

7. Replace with a new motor.
8. Fix the motor cover onto the new motor by tightening the 2 screws with washers.

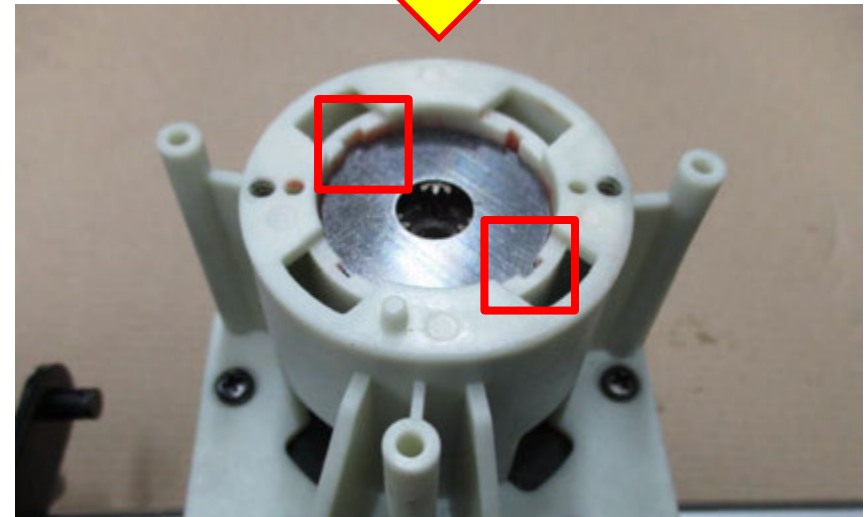
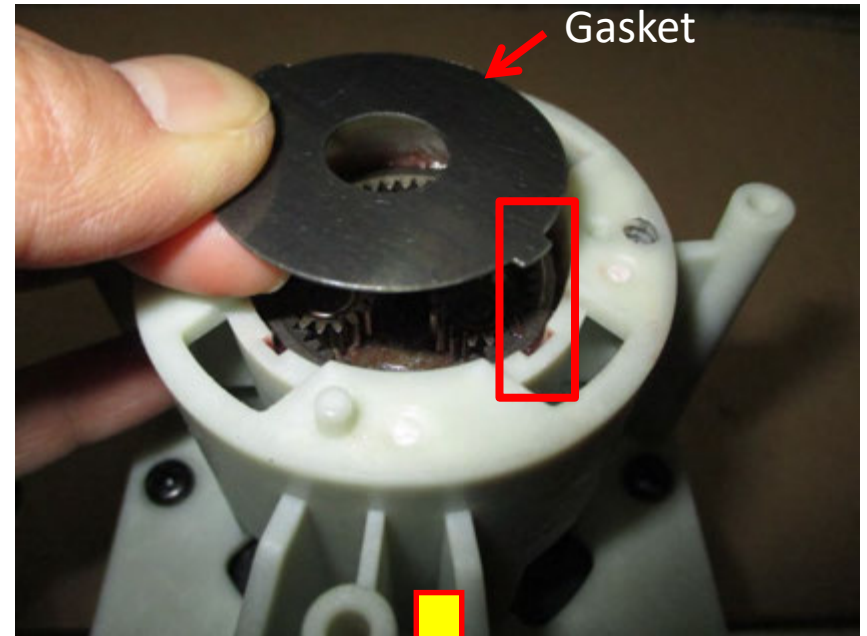
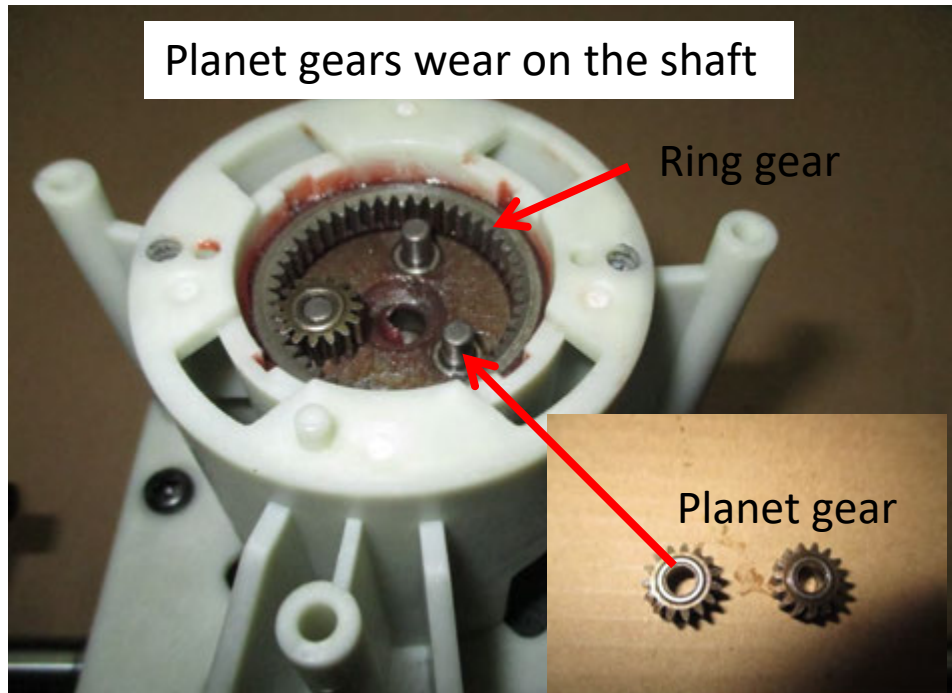


10. Fix the motor and cover assembly onto the self-propelled unit with the saved 2 screws 2# in step 5.

NOTICE: Before mounting the new motor, check whether the 3 planet gears are well against the ring gear in the gear box and whether the gasket is located in the slots. If not, put them in place(see next slide).

Motor in Self-propelled Unit Replacement_LM2100SP_A

How to assemble the ring gear, planet gears and gasket in the gear box correctly?

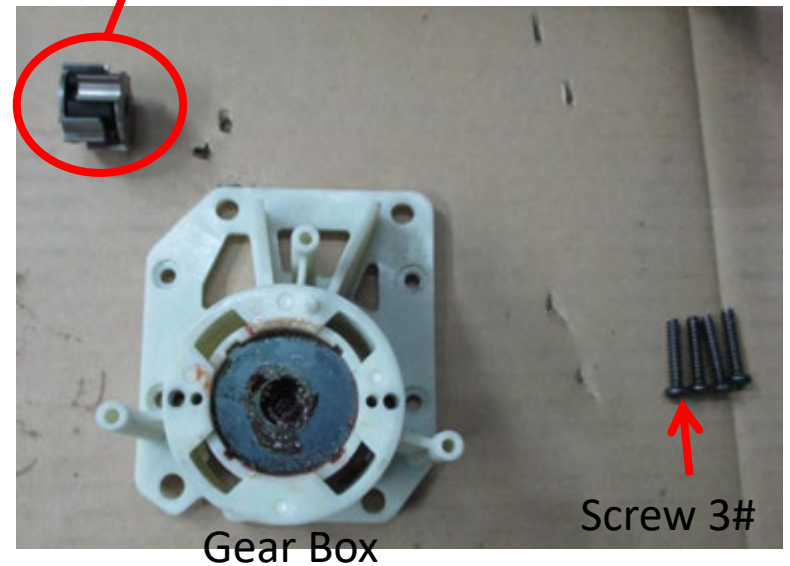
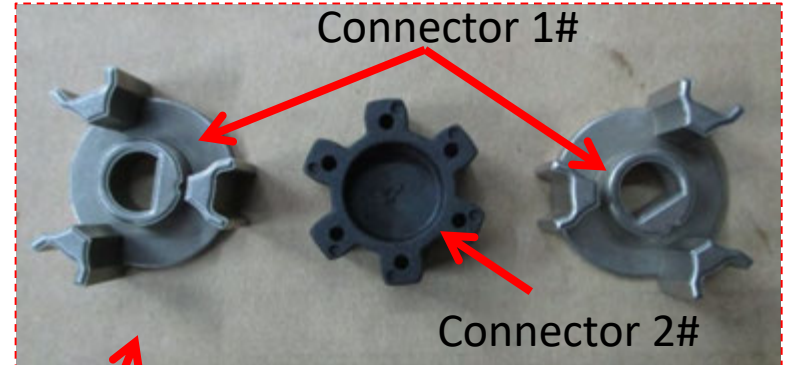
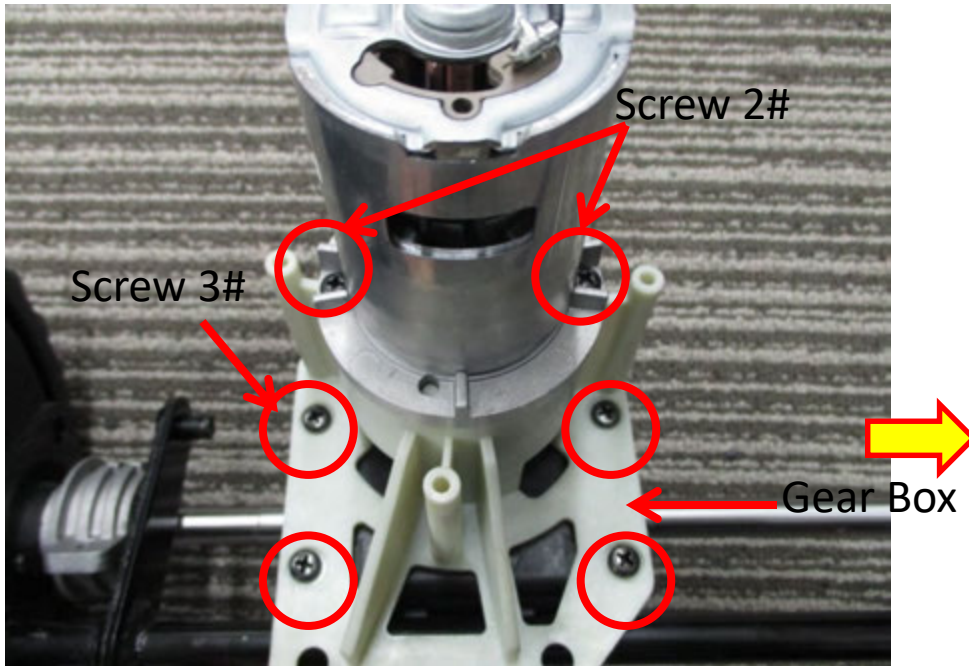


Gear Box and Rear Axle Set in Self-propelled Unit Replacement_LM2100SP_A (no longer for service when old parts are run out)

- For the spare parts which still have stock and can be used until they are out of stock, follow the next slides to have the separate gear box or the rear axle set replaced.
- When these spare parts are run out, no gear box and rear axle set is allowed for service. Once they are diagnosed as defective, have the whole self-propelled unit replaced with a new self-propelled unit **SET (2828353001)**. See Slide 21.

Gear Box and Rear Axle Set in Self-propelled Unit Replacement_LM2100SP_A (no longer for service when old parts are run out)

1. Remove the 4 screws 3# to detach the gear box from the rear axle set and 2 screws 2# to detach the motor ASSY from gear box.
2. Have the gear box replacement.



Description	Part Number
Gear box	2824425001

Gear Box and Rear Axle Set in Self-propelled Unit Replacement_ LM2100SP_A (no longer for service when old parts are run out)

3. Have the rear axle set replacement, if needed.
4. Mount the connectors set on the rear axle set.

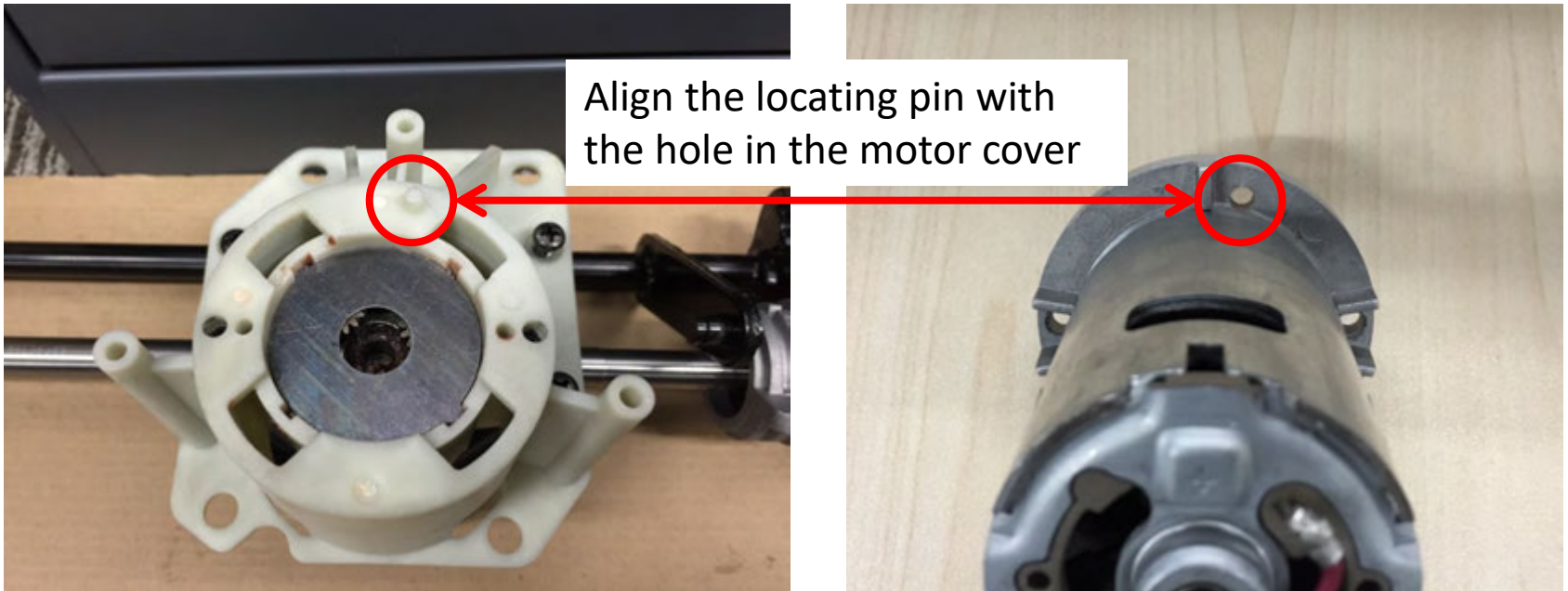


Description	Part Number	STATUS REMARK
Rear axle set	2824476001	Plain washer with snap-ring fixing
	2824476005	Nut fixing

Gear Box and Rear Axle Set in Self-propelled Unit Replacement_LM2100SP_A (no longer for service when old parts are run out)

5. Mount the gear box set onto the rear axle. Fix it by tightening the 4 screws 3#, saved in step 1.
6. Mount the motor ASSY onto the gear box and lock it with the 2 screws 2#, saved in step 1.

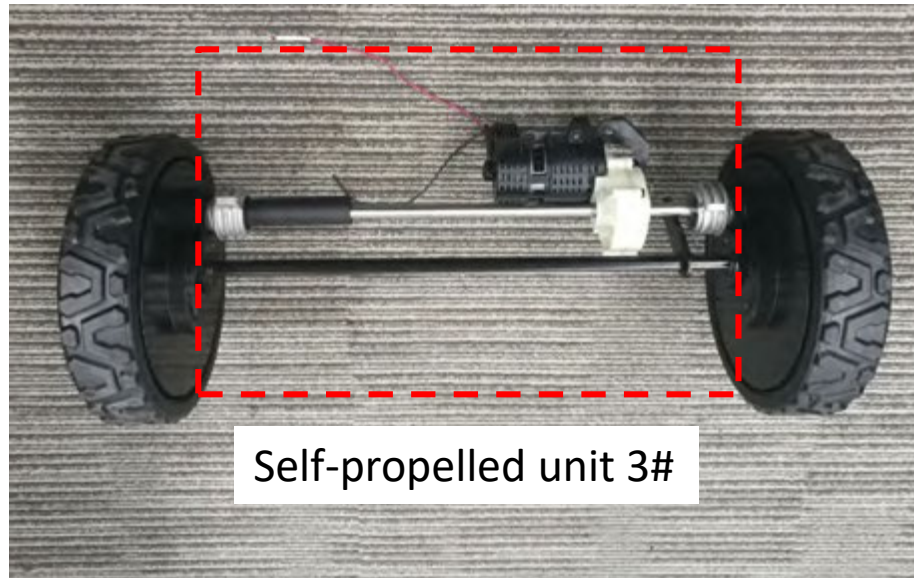
NOTICE: All the gears and gasket in the gear box requires assembling correctly ,see Slide P25.



7. Mount the self-propelled unit onto the mower in reverse order.
8. Connect the two motor cables with the self-propelled PCBA by soldering.
9. Turn on the self-propelled trigger by pressing it and adjust its speed-control lever to test whether the self-propelled unit is assembled correctly.

Motor in Self-propelled Unit Replacement_LM2100SP_B

For LM2100SP_B self-propelled unit: follow the steps from Slide P31 to 46 to have self-propelled motor replaced.

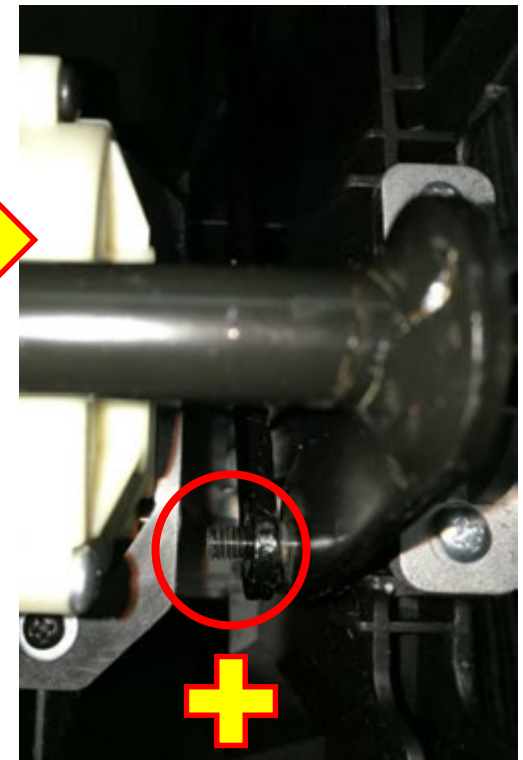
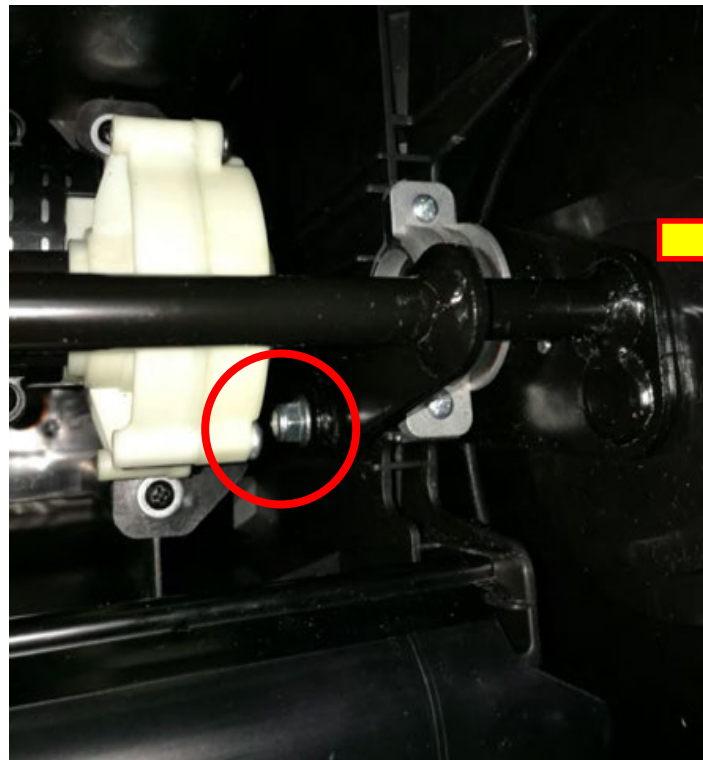


Description	Part Number	Status Remark
Self-propelled unit 3#	2825258001	LM2100SP_B

Motor in Self-propelled Unit Replacement_LM2100SP_B

1. Adjust the mower to the highest cutting position and then turn the mower on its back.
2. Remove the nut on the joint.

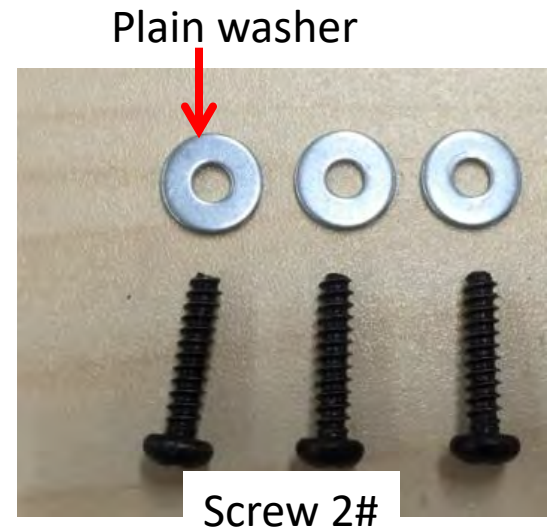
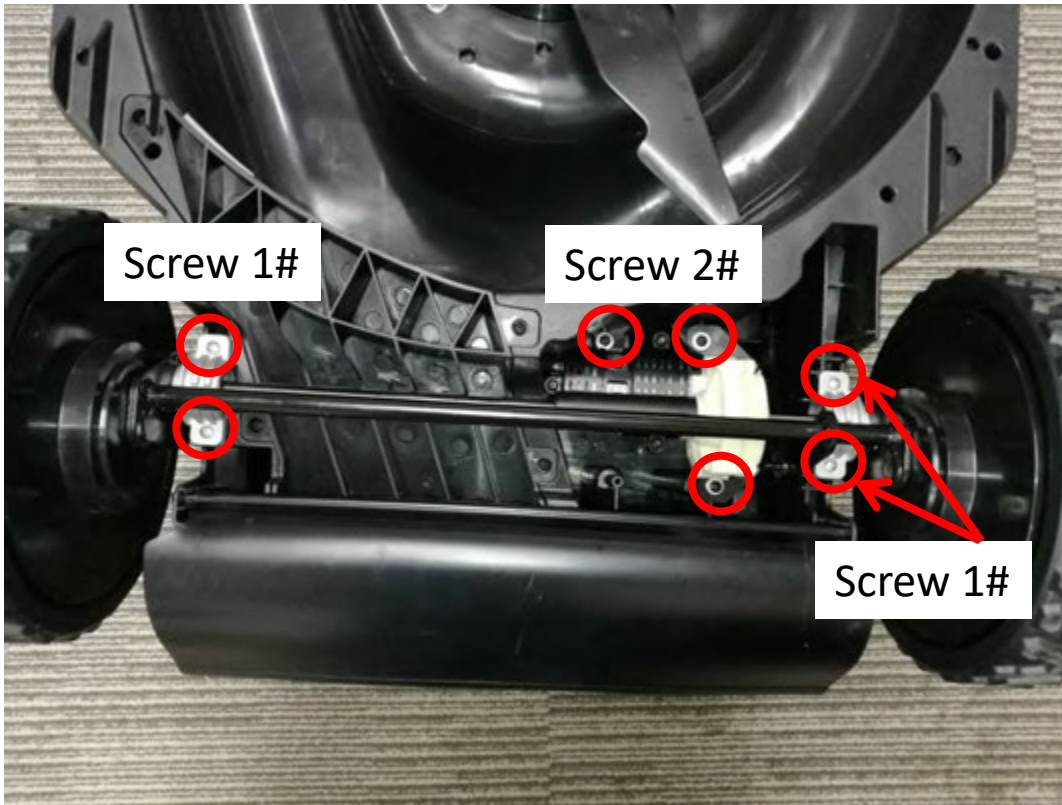
NOTICE: If the mower is set at other cutting position, it's really hard to separate the self-propelled unit from the mower after removing the snap-ring and plain washer or removing the nut.



Description	Part Number
Nut	5630013003

Motor in Self-propelled Unit Replacement_LM2100SP_B

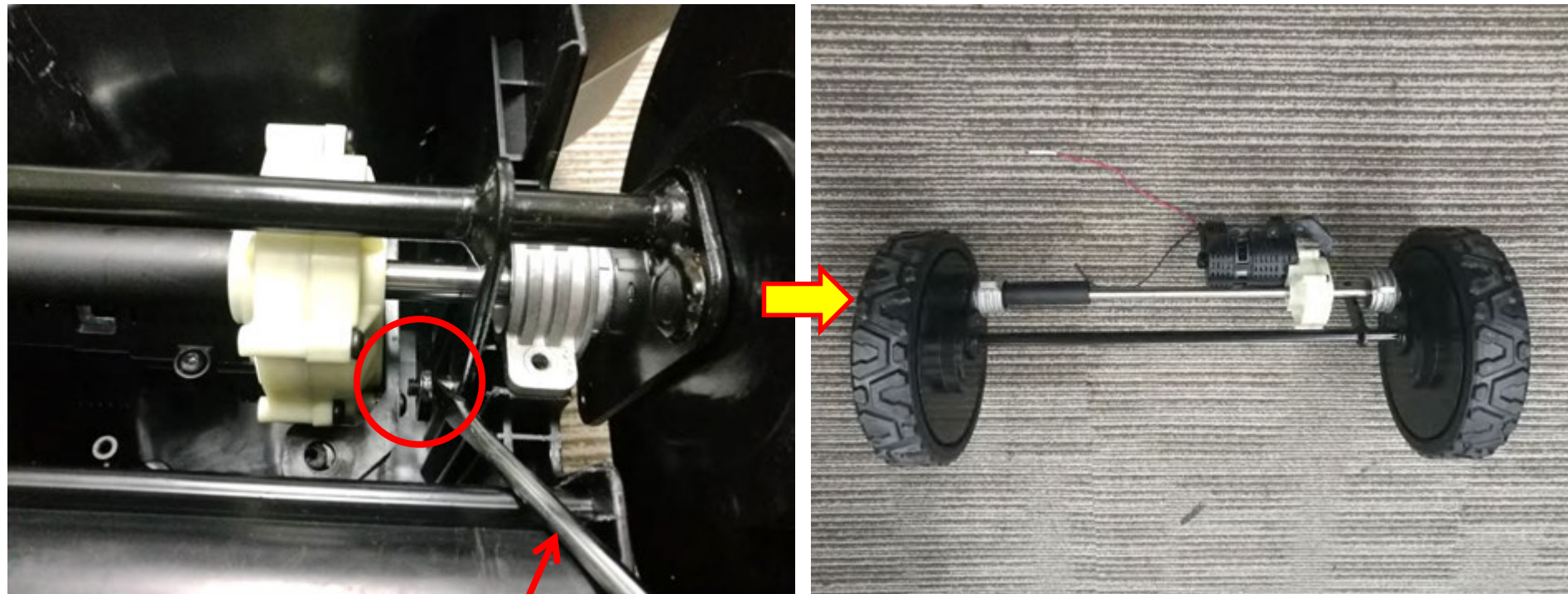
3. Remove the 4 screws 1# and 3 screws 2#. There are 3 plain washers under screw 2#.



Motor in Self-propelled Unit Replacement_LM2100SP_B

4. Separate the self-propelled unit, with rear wheels from the mower by prying it with a flat head screwdriver at the joint.

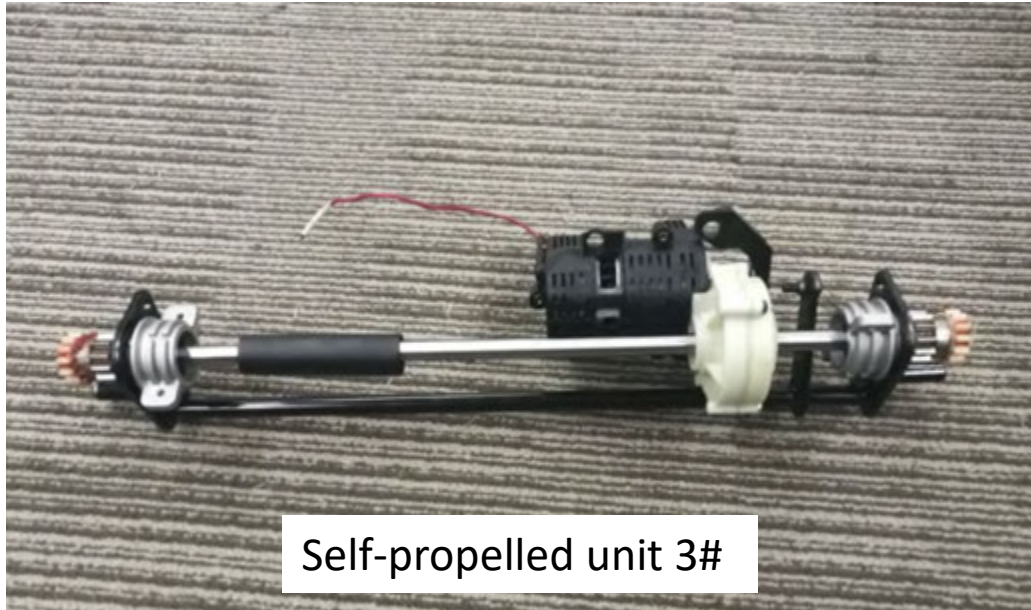
WARNING: This step may cause injuries. Slow down. Gloves recommended.



Screwdriver

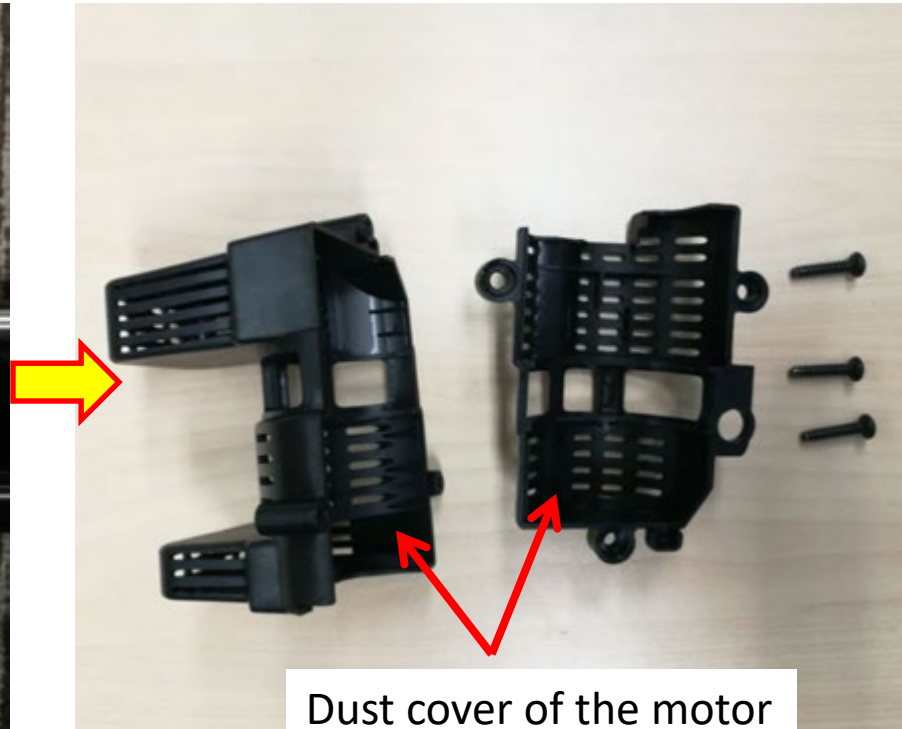
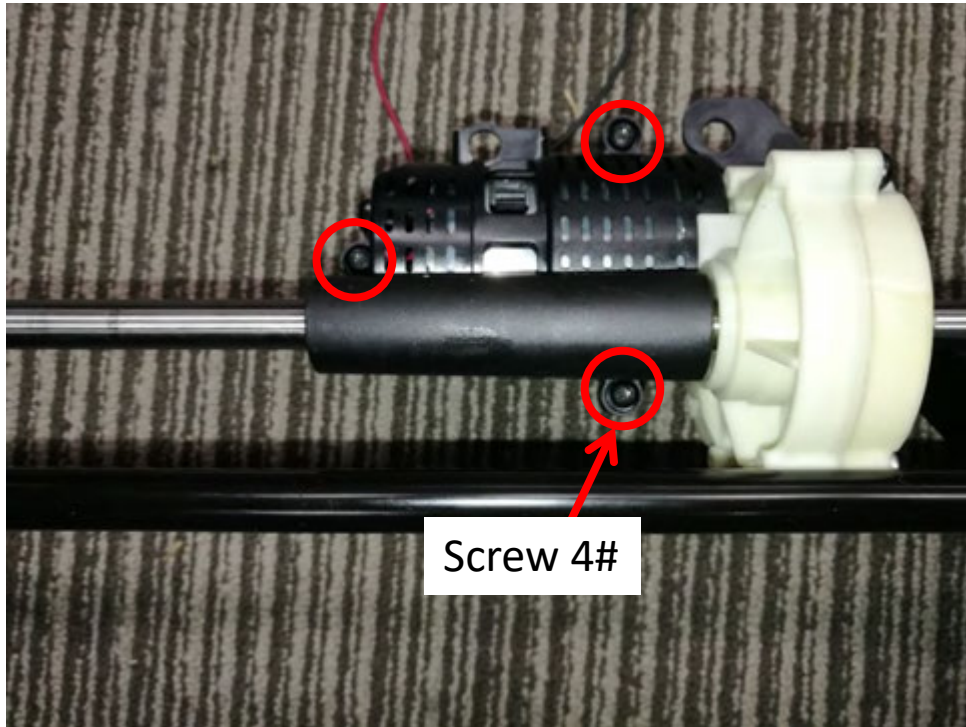
Motor in Self-propelled Unit Replacement_LM2100SP_B

5. If the mower's self-propelling function doesn't work, but the self-propelled motor runs OK, remove the 2 wheels (see ***RG_Part 9_Wheels Replacement_LM2100SP.pptx***) and replace the whole self-propelled unit.
6. If the motor is broken, go to the next step.



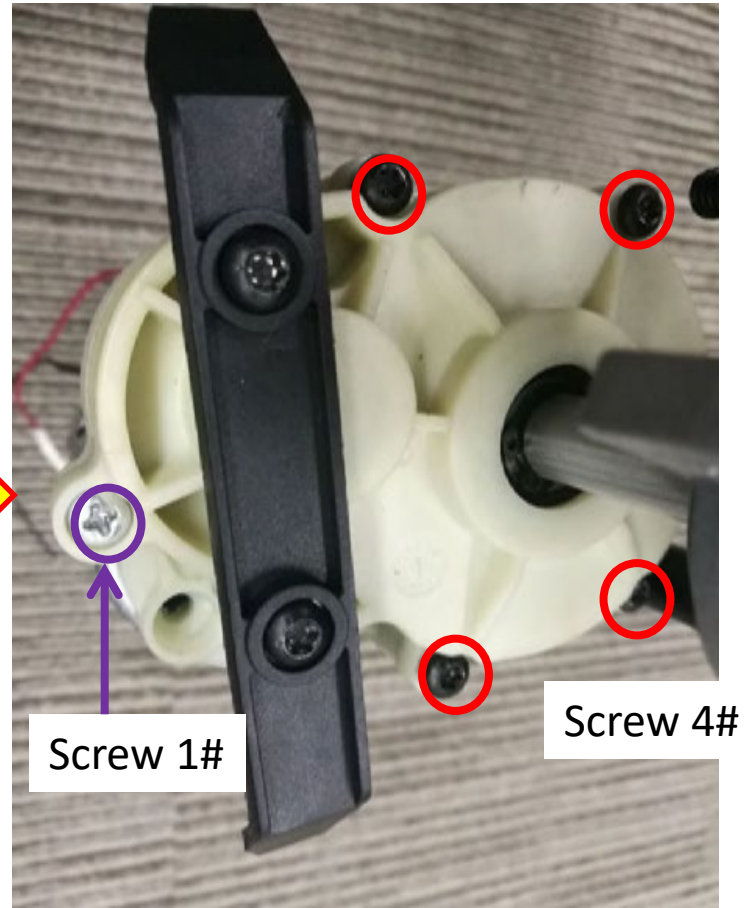
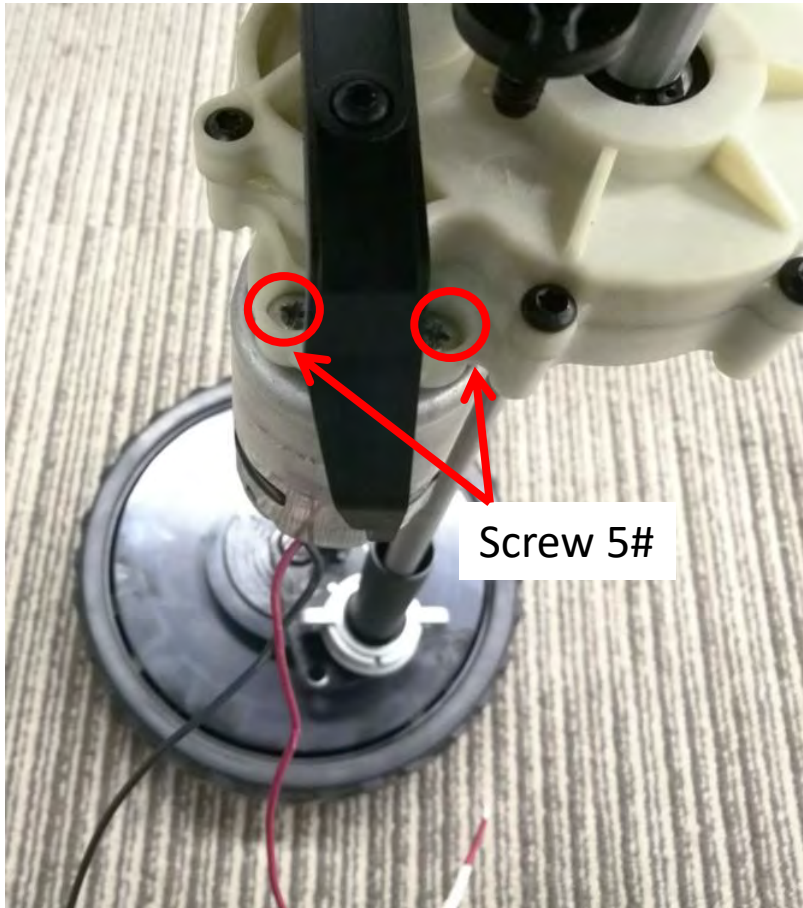
Motor in Self-propelled Unit Replacement_LM2100SP_B

7. Loosen 3 screws 4# to remove the dust cover from the motor.



Motor in Self-propelled Unit Replacement_LM2100SP_B

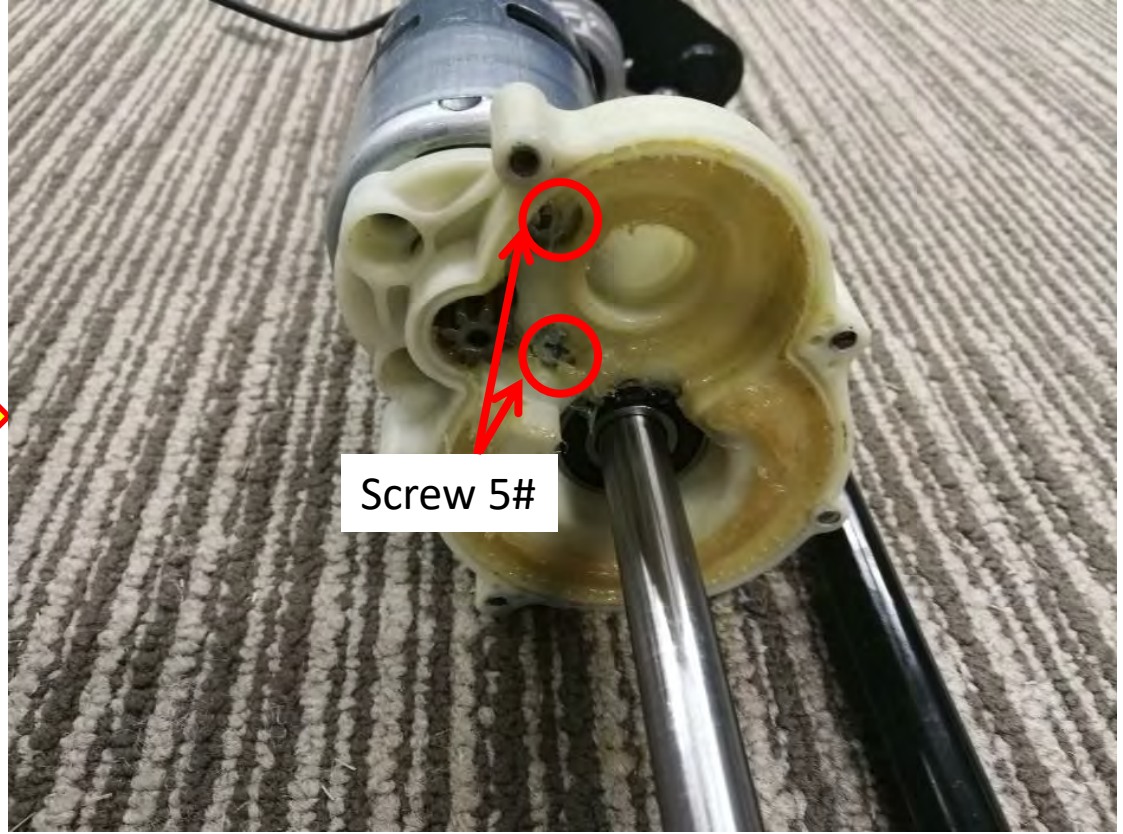
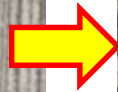
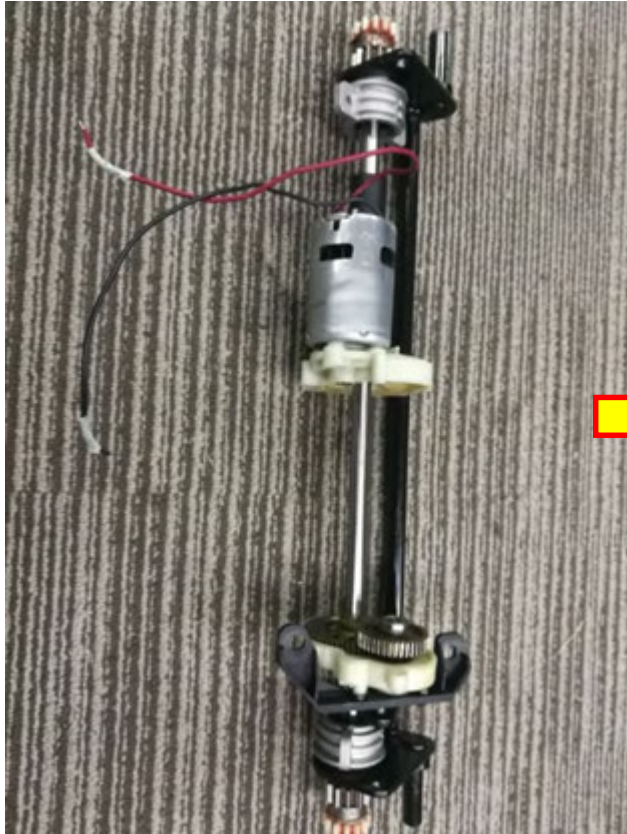
8. Remove the 2 screw 5#.
9. Remove the 4 screw 4# and 1 screw 1#.



Motor in Self-propelled Unit Replacement_LM2100SP_B

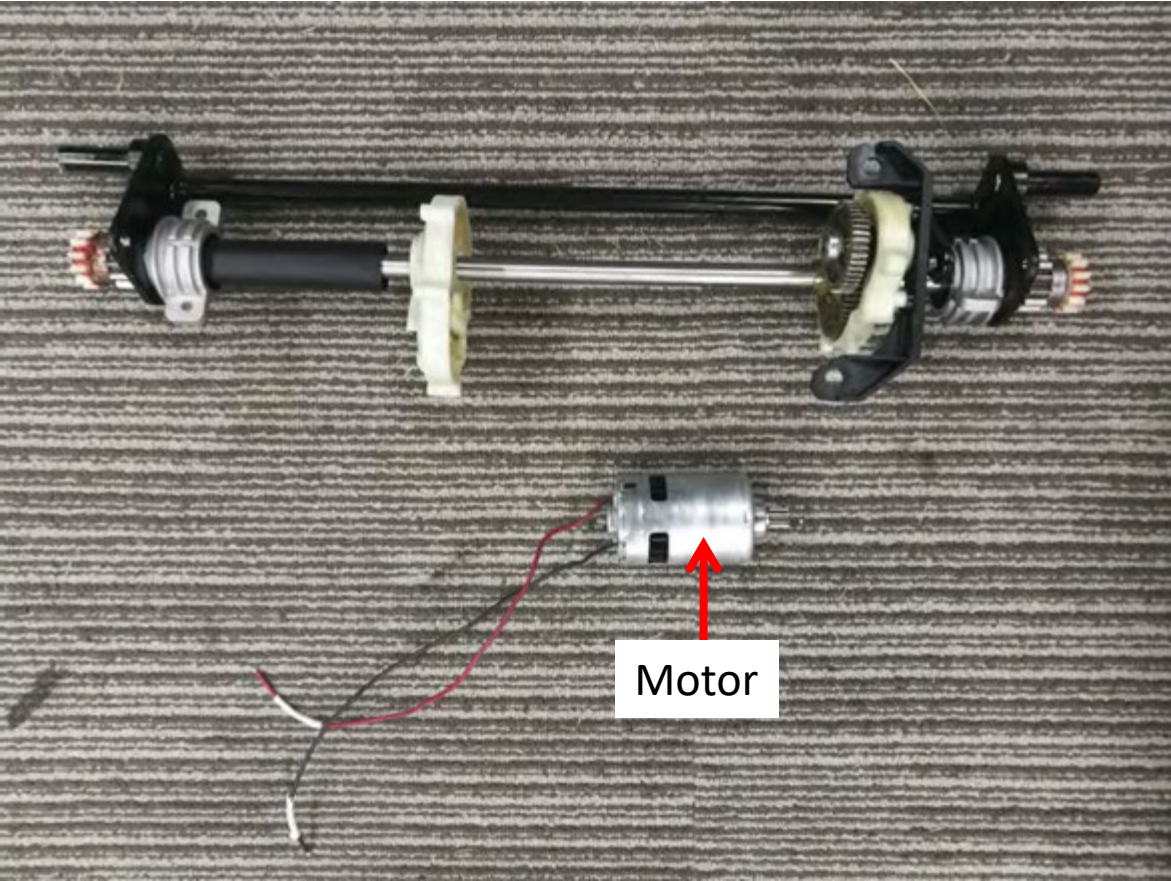
10. Separate the gear case.

11. Loosen the 2 screws 5# to remove the motor from the gear case.



Motor in Self-propelled Unit Replacement_LM2100SP_B

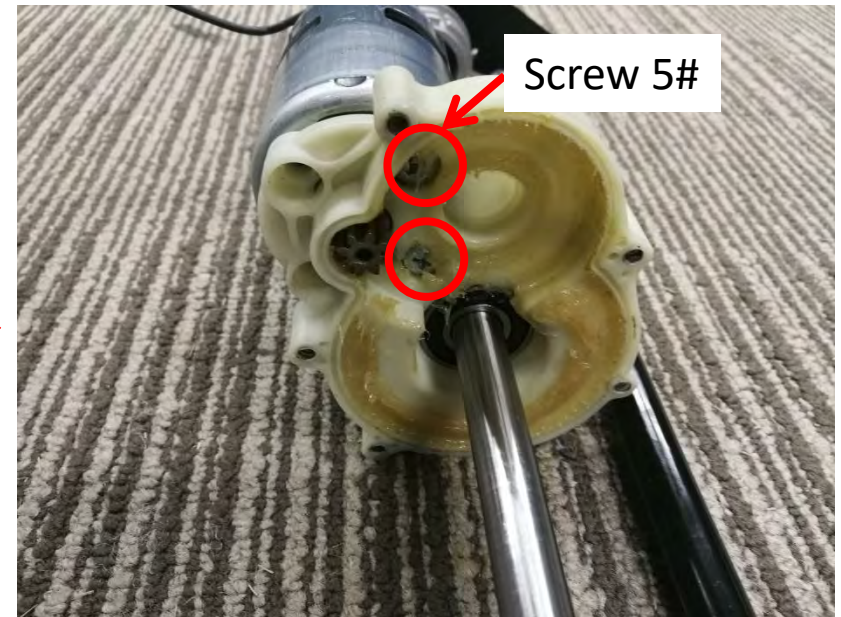
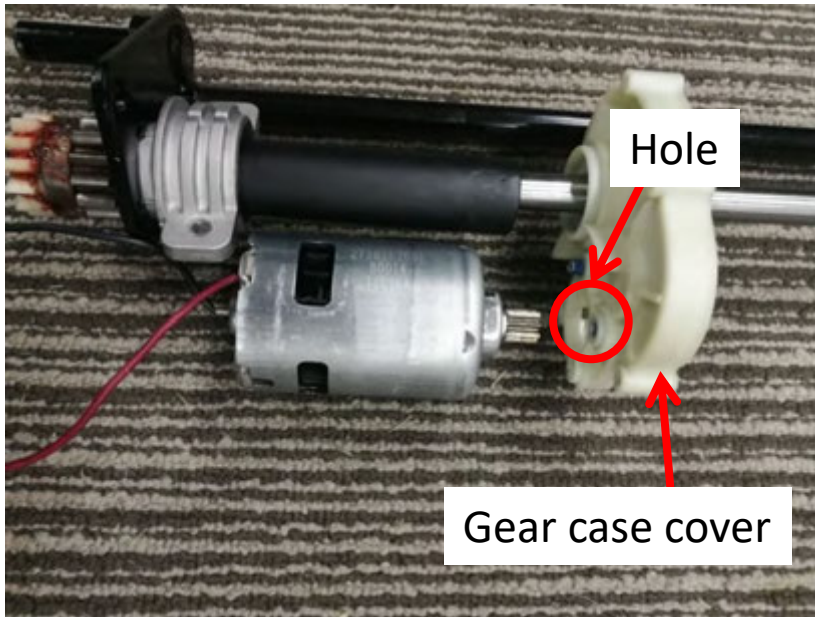
12. Replace the motor with a new one.



Description	Part Number
Motor	2825265002

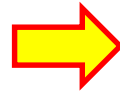
Motor in Self-propelled Unit Replacement_LM2100SP_B

13. Pass the motor shaft through the hole of the gear case cover.
14. Fix the motor onto the gear case cover with the 2 screws 5#.



Motor in Self-propelled Unit Replacement_LM2100SP_B

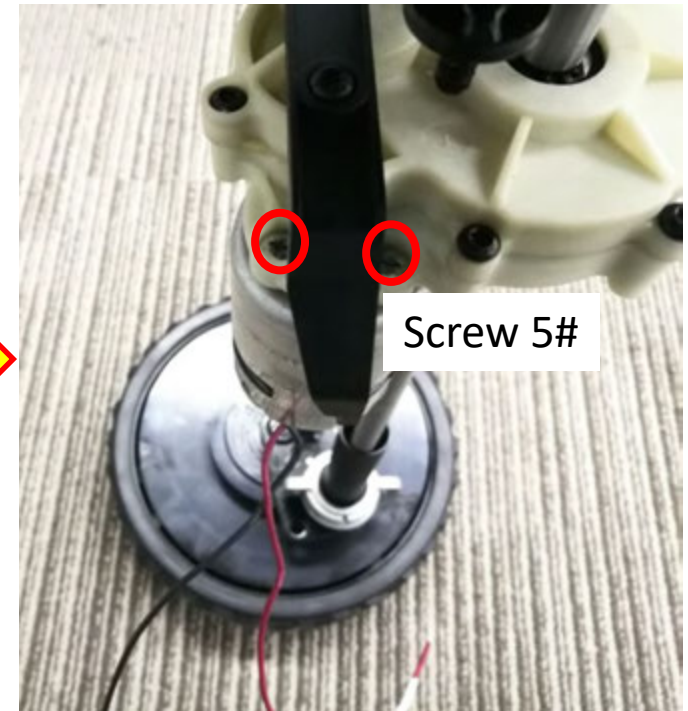
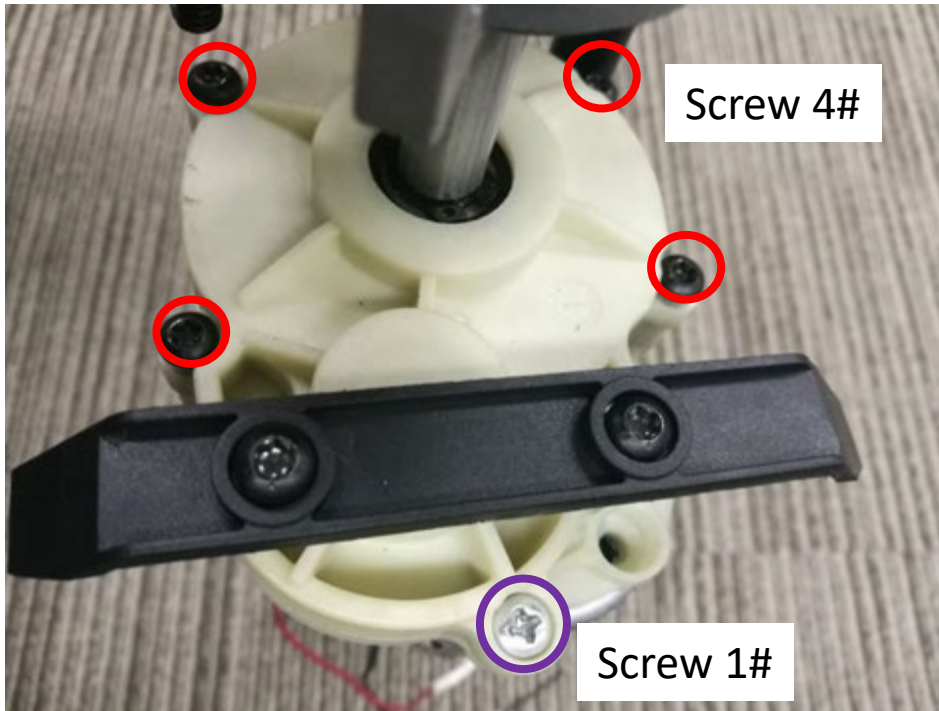
15. Assemble the gear case cover with the other half cover.



Motor in Self-propelled Unit Replacement_LM2100SP_B

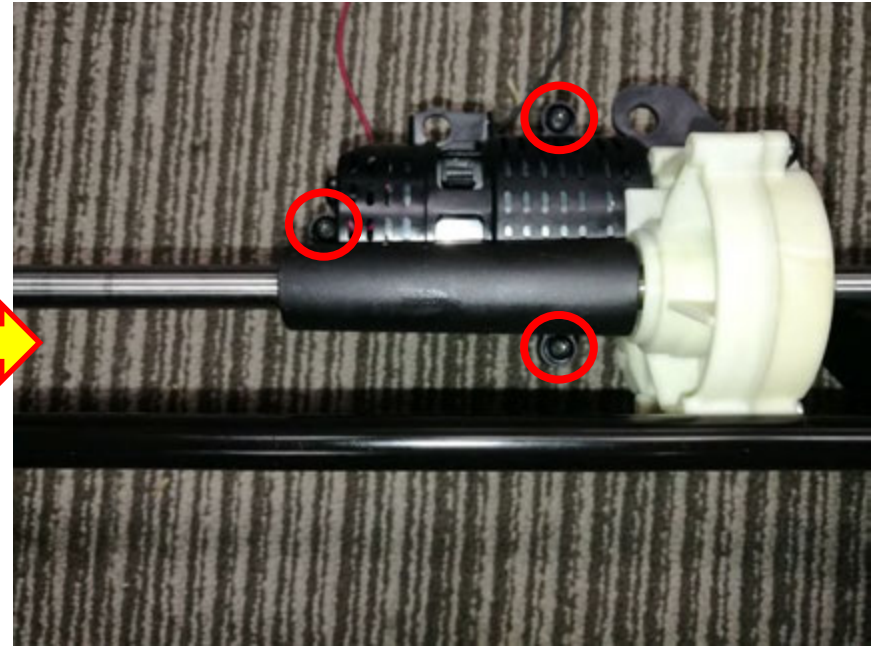
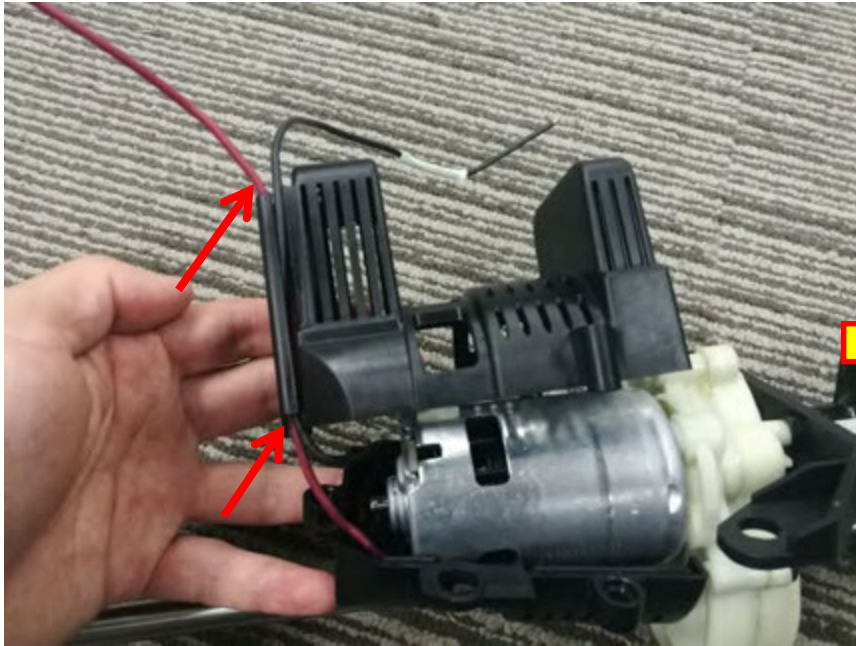
16. Tighten the gear case covers with the 4 screws 4# and 1 screw 1#.

17. Fasten the motor with the 2 screws 5#.



Motor in Self-propelled Unit Replacement_LM2100SP_B

- Align the red and black wires into the groove of the dust cover of the motor and then close the covers onto the motor and fasten them with the 3 screws 4#.

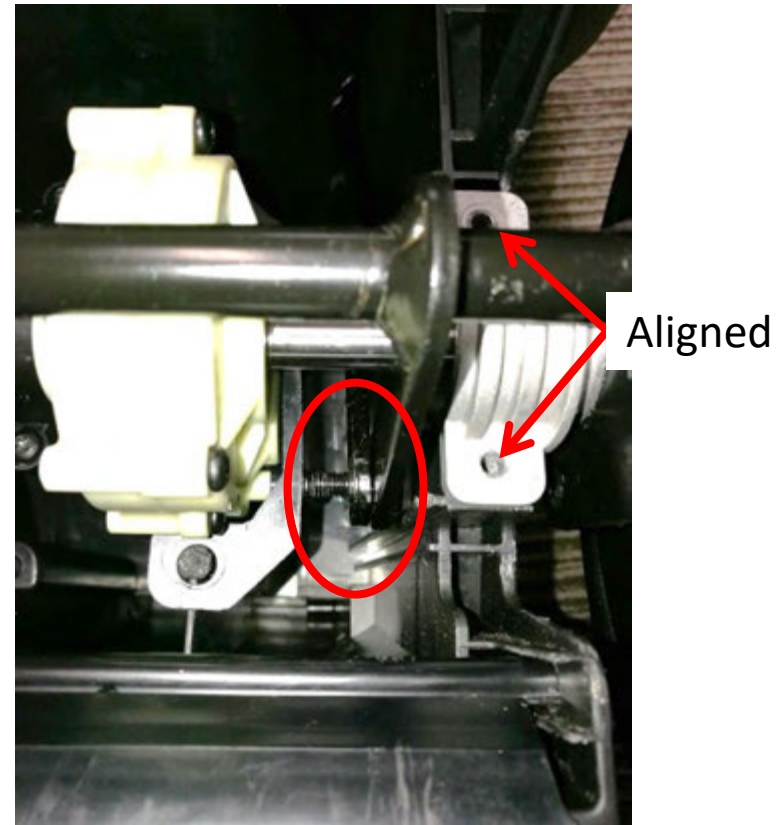
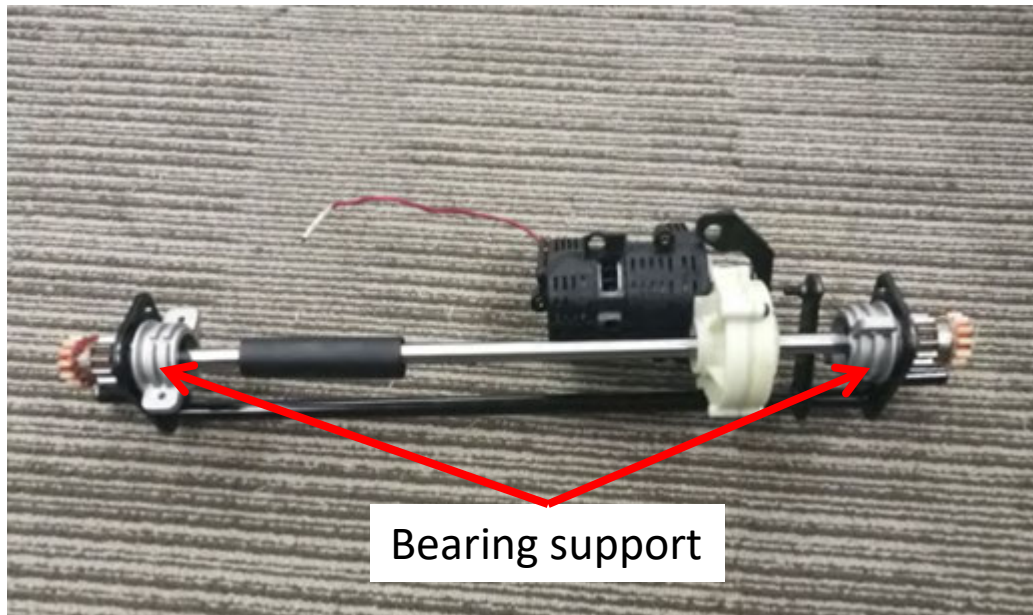


Motor in Self-propelled Unit Replacement_LM2100SP_B

19. Locate the bearing support of the self-propelled unit onto the corresponding position of the mower deck.
20. Reconnect the joint by hand.

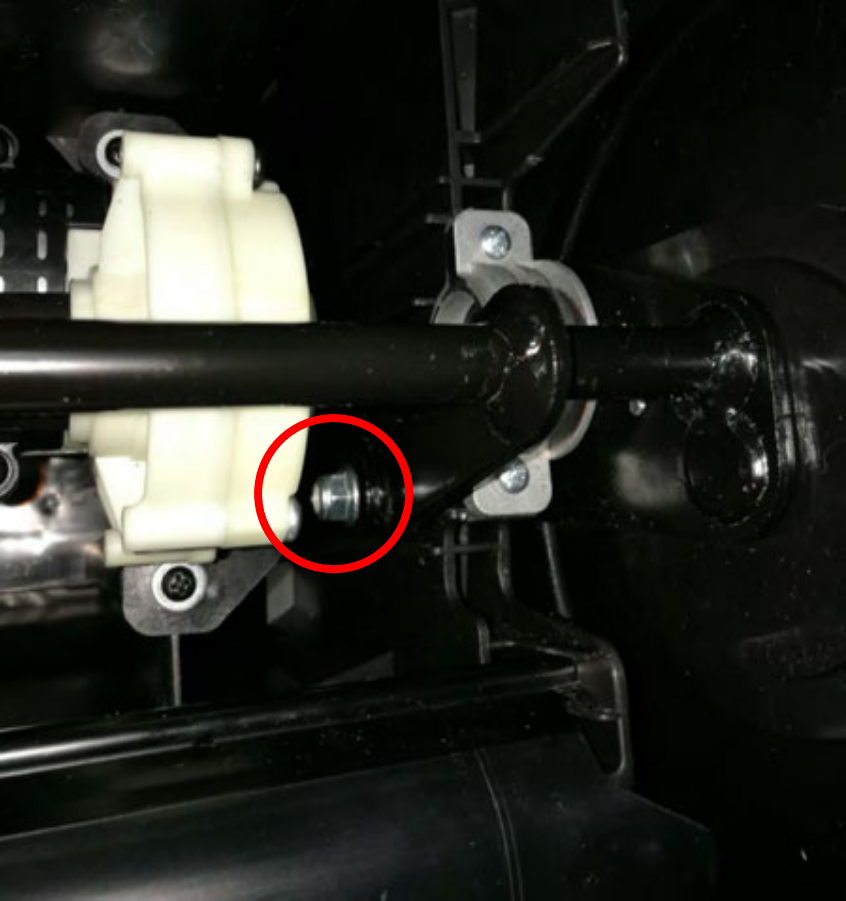
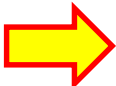
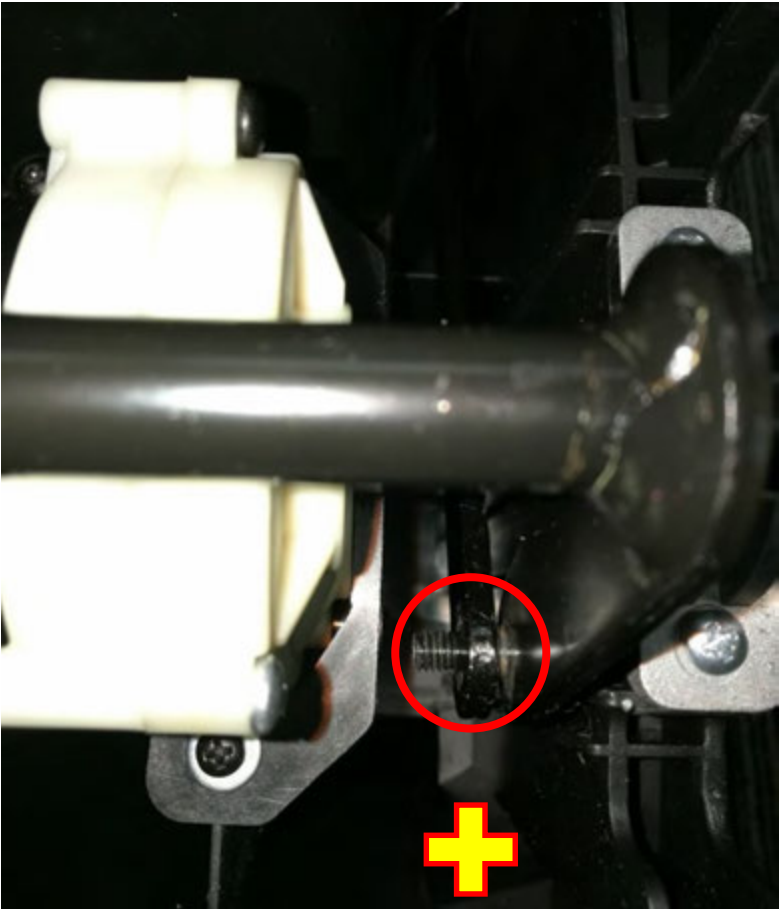
WARNING: This step may cause injuries. Slow down.

Gloves recommended.



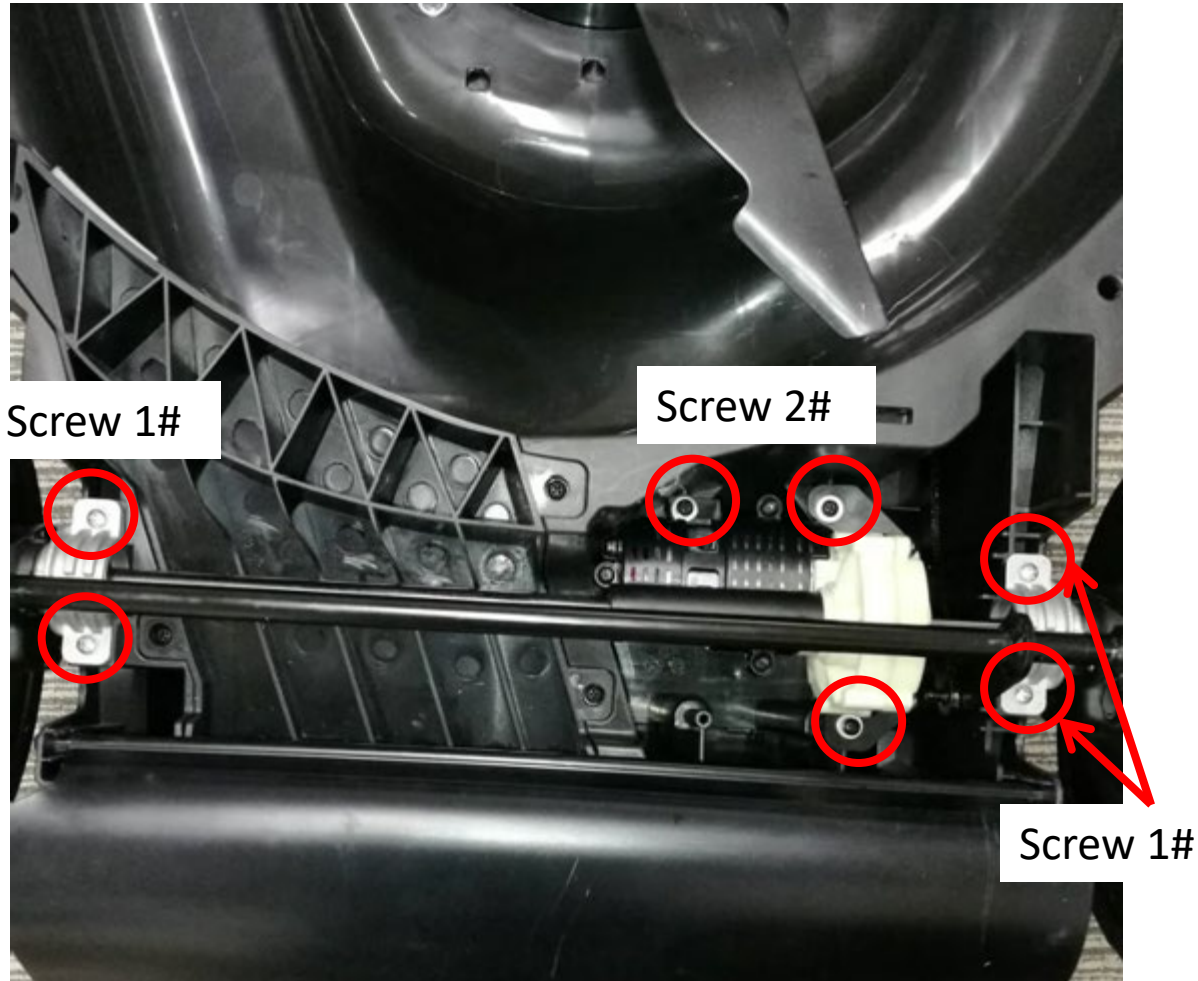
Motor in Self-propelled Unit Replacement_LM2100SP_B

21. Tighten the joint with the nut.



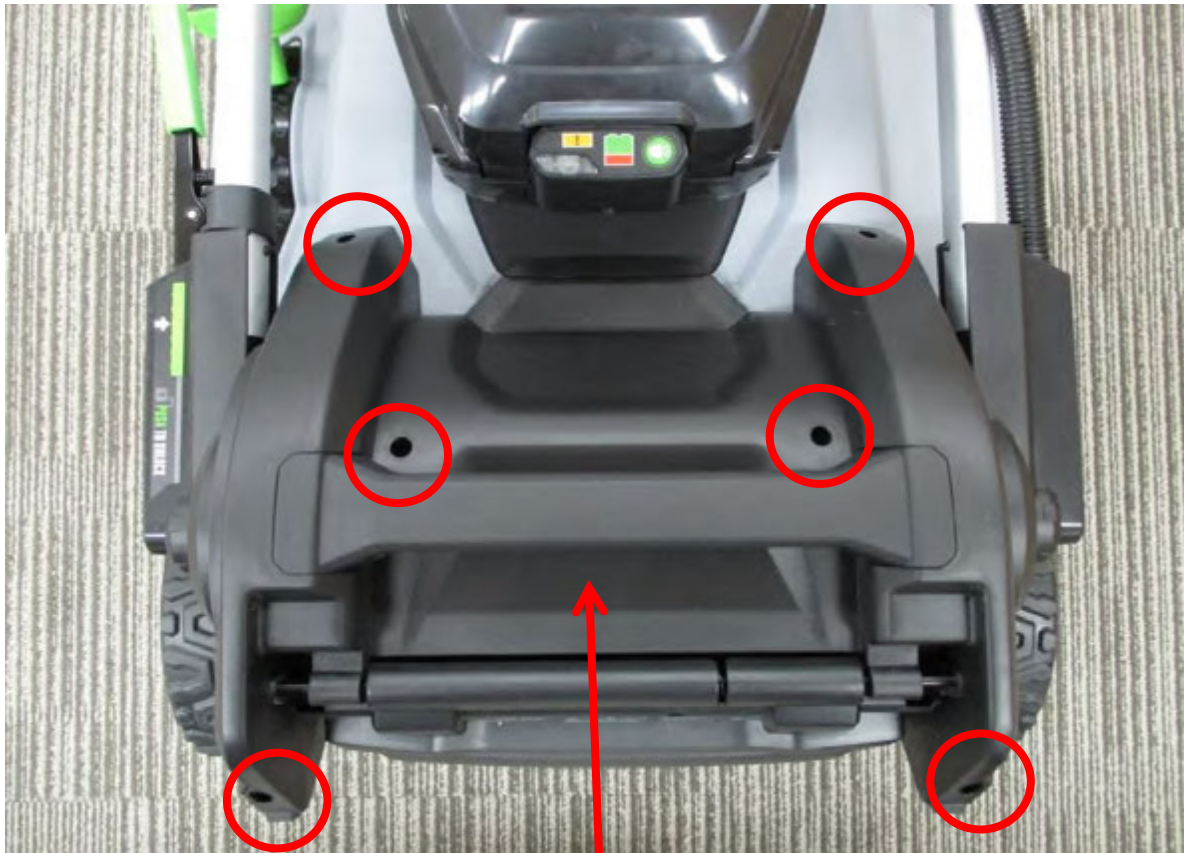
Motor in Self-propelled Unit Replacement_LM2100SP_B

22. Tighten the self-propelled unit with the deck by the screws that removed during disassembly.



Motor in Self-propelled Unit Replacement_LM2100SP_B

23. Assemble the rear wheels on the mower(see *RG_Part 9_Wheels Replacement_LM2100SP.pptx*).
24. Assemble the self-propelled PCBA as the “**Self-propelled PCBA Replacement**” section instructed.
25. Assemble the service cover with screws.



Service Cover

REPAIR GUIDELINE

PART 9: WHEELS REPLACEMENT_LM2100SP Lawn Mower



Updated on 2021/09/07

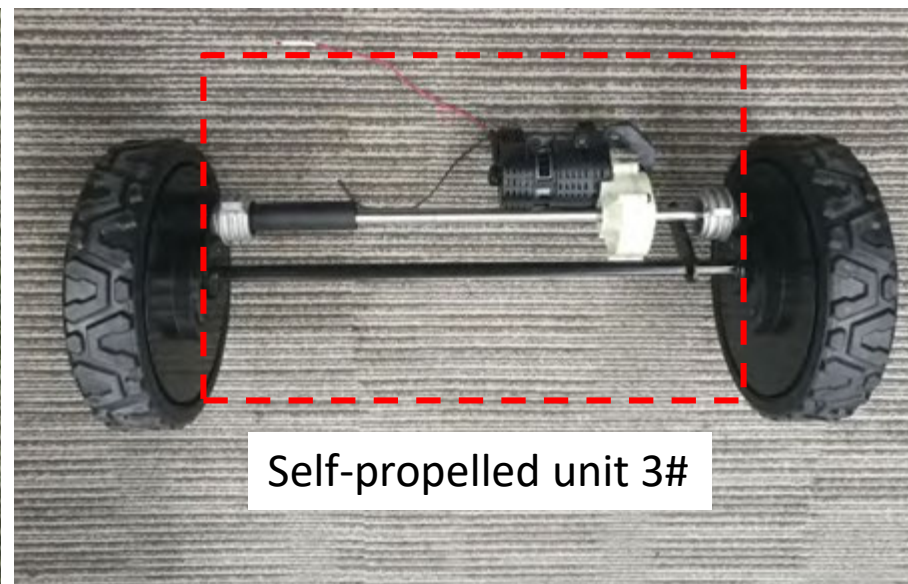
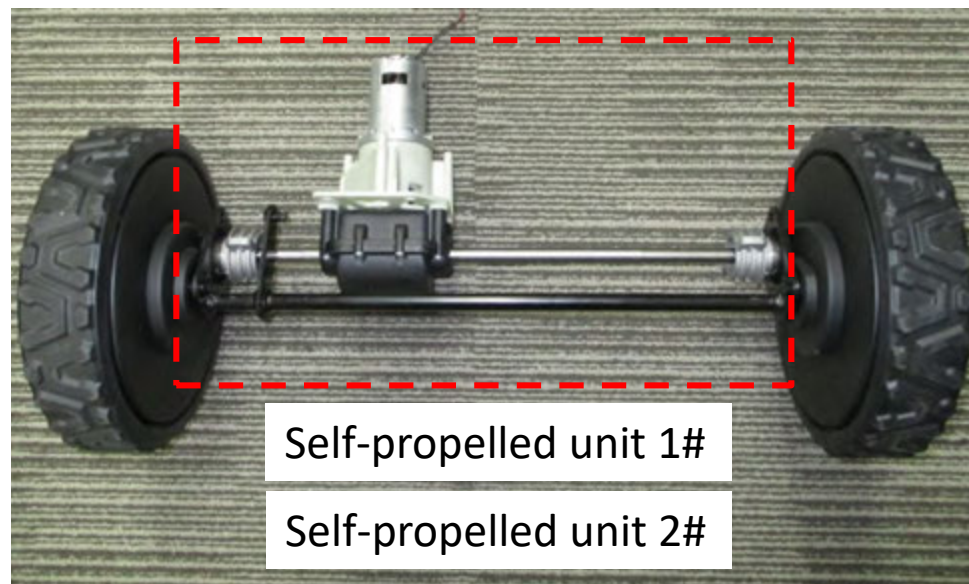
Table of Contents

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2	Front Wheels Replacement	5-6
3	Rear Wheels Replacement_LM2100SP_A	7-13
4	Rear Wheels Replacement_LM2100SP_B	14-20

Notice for Wheels Replacement

LM2100SP Lawn Mower

NOTICE: There are 2 different versions of self-propelled units for LM2100SP (LM2100SP_A & LM2100SP_B), see below. However considering the connection way (see next slides) between the rear axle and connection rod, there are 3 kinds of structure, we name as self-propelled unit 1# (snap ring connection, old self-propelled unit), self-propelled unit 2# (nut connection, old self-propelled unit) and self-propelled unit 3# (nut connection, new self-propelled unit). The rear wheels between version A and B are different.

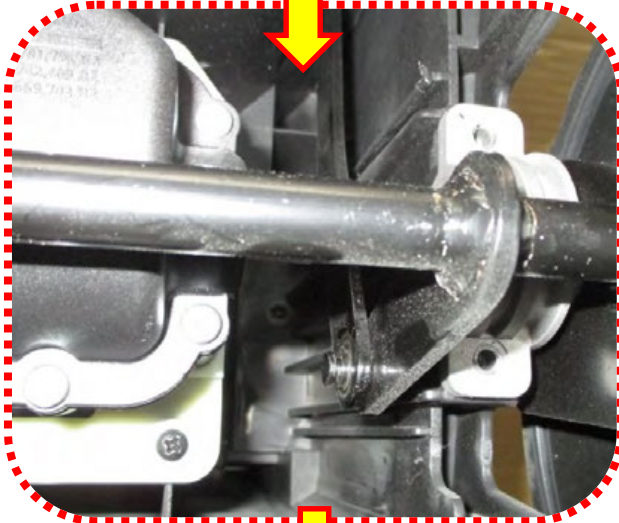
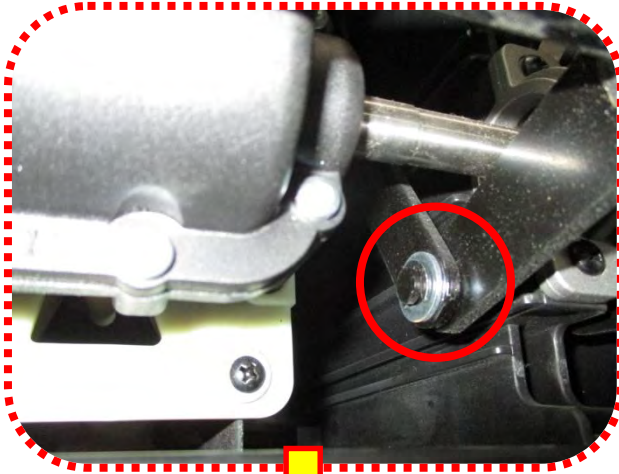


Description	Part Number	Status Remark	Replacement Running Change
Self-propelled unit 1#	2824280001	LM2100SP_A	The old self-propelled unit 1# & 2# will not be available from 2020/11. New self-propelled unit SET (including the rear wheels and self-propelling PCBA of version B, see next slide) (2828353001) will be used for spare parts order and repair.
Self-propelled unit 2#	2824280003		
Self-propelled unit 3#	2825258001	LM2100SP_B	

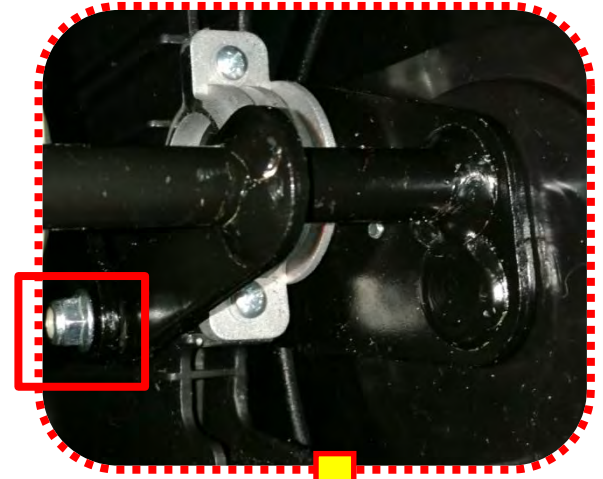
Notice for Wheels Replacement

LM2100SP Lawn Mower

Snap-ring
Connection:



Nut
connection:



Front Wheels Replacement

LM2100SP Lawn Mower

If the front wheels are damaged, replace them.

1. Turn the mower on the side, pry the hubcap on the wheel by a screwdriver and remove the hex bolt using an 1/2 inch electric socket wrench.



Description	Part Number
Hubcap	3126769001
Hex bolt	5640010003
Front Wheel	2824429001/ 2824429003
Wave washer	5650453001



Front Wheel

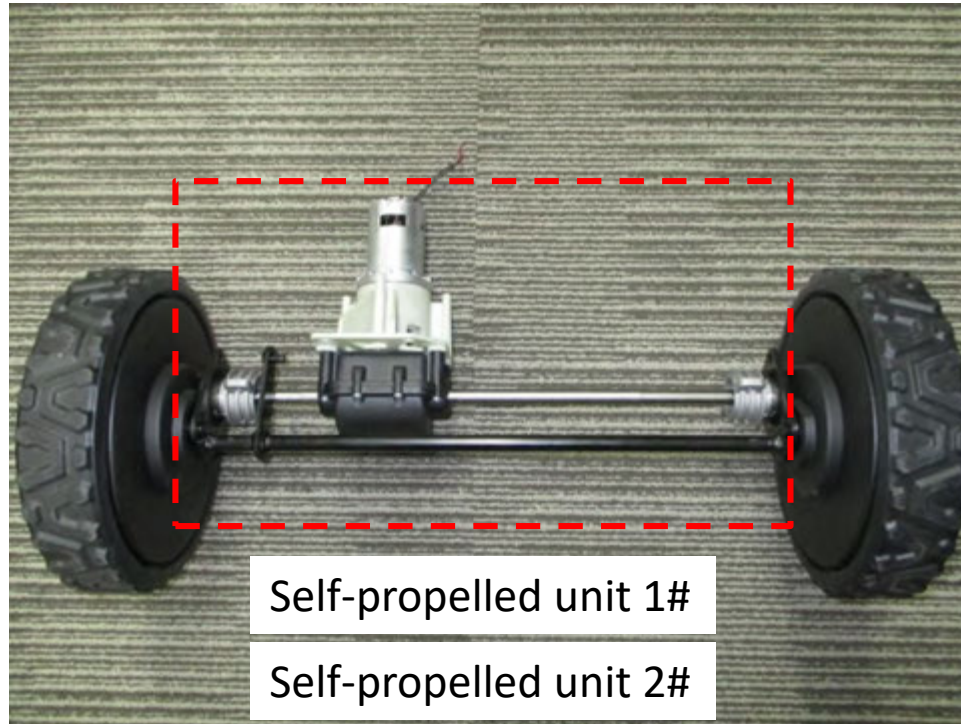
Front Wheels Replacement

LM2100SP Lawn Mower

2. Replace with a new front wheel.
3. Mount it onto the bent shaft with the wave washer beneath it.
4. If the bent shaft is broken, replace it too(see "*RG_Part 10_Housing Cover Replacement_LM2100SP.pptx*").



For LM2100SP_A self-propelled units, follow the steps from P8 to 13.



Description	Status Remark
Self-propelled unit 1#	Both are LM2100SP_A, different in connection between the rear axle and connection rod for Self-propelled unit 1# and 2#. The rear wheels are the same.
Self-propelled unit 2#	

If the rear wheels are damaged, replace them.

1. Turn the mower on the side, pry the hubcap by a screwdriver to remove it.

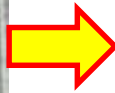


Description	Part Number
Hubcap	3126765001
Hex bolt	5640010003

2. Remove the hex bolt using a 1/2 inch (S=13mm) socket wrench to separate the wheel from its protective cap which is fixed on the self-propelled unit.



1/2 inch (S=13mm)
socket wrench

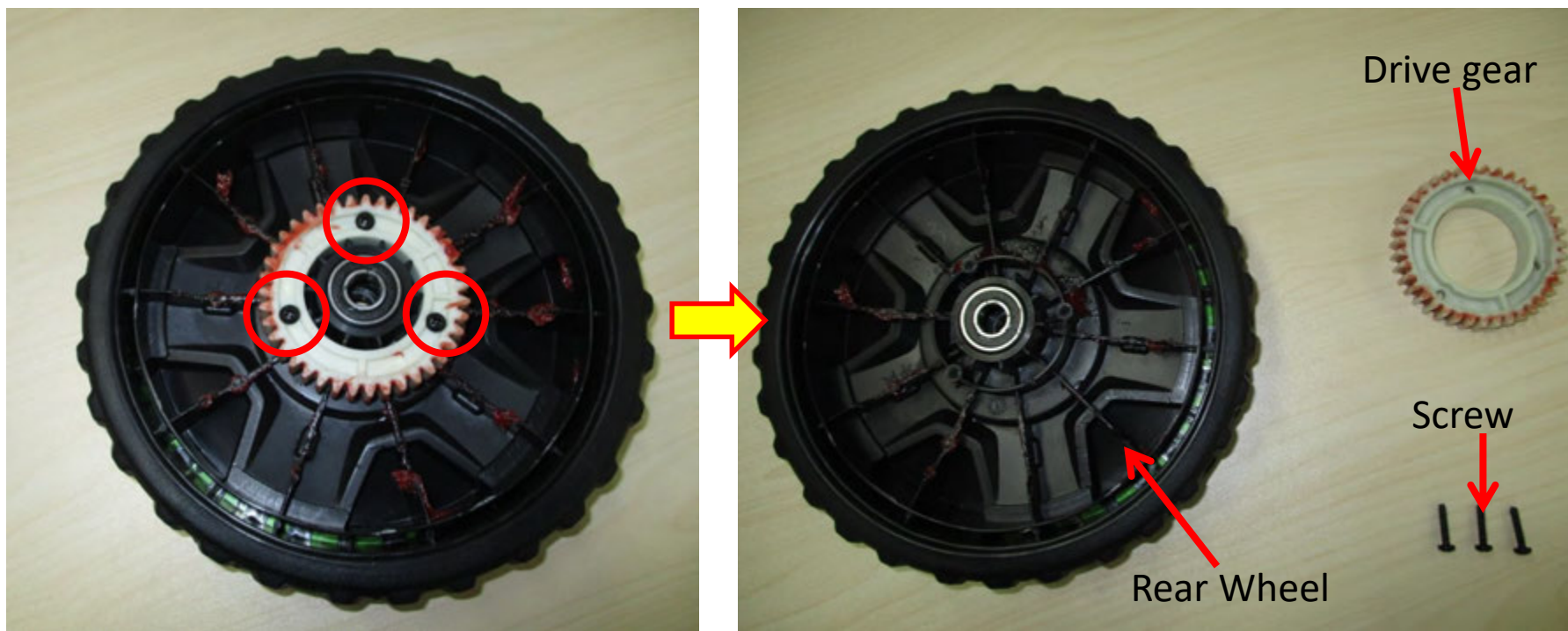


Wheel protective cap

Rear Wheels Replacement_LM2100SP_A

LM2100SP Lawn Mower

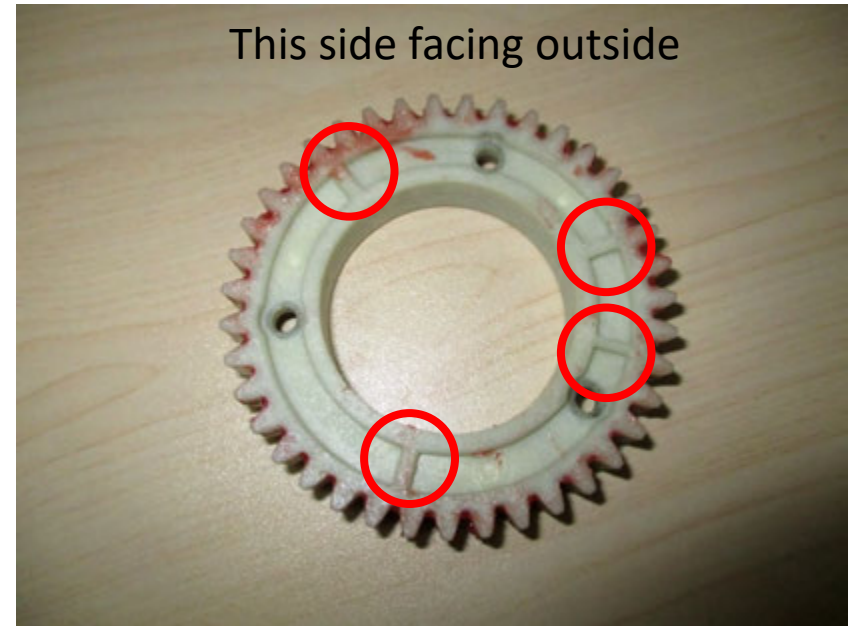
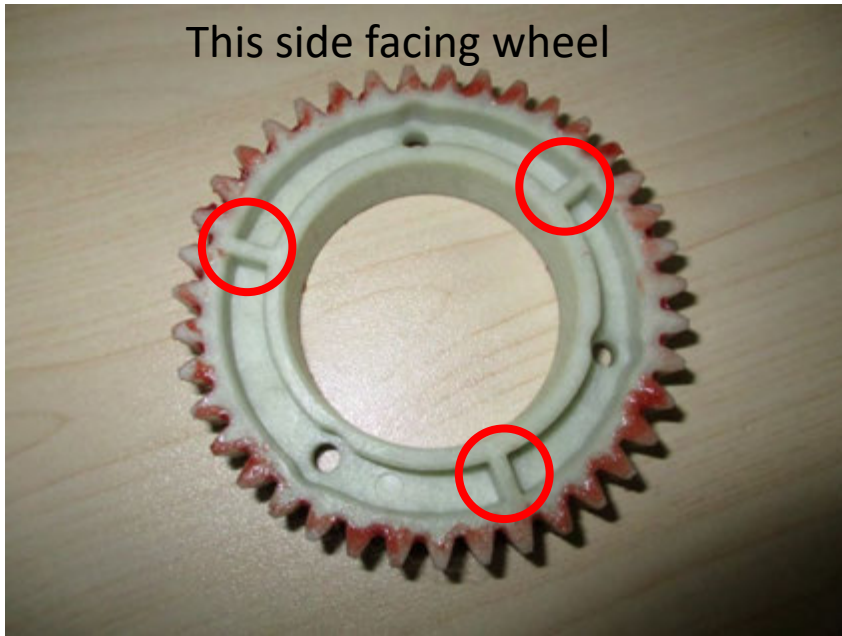
3. Remove the drive gear from the wheel by loosening the 3 screws.
4. Replace with a new wheel. Fix it onto the mower in reverse order (NOTICE see next slide).



Description	Part Number
Drive gear	3520933001 (Updated, new part made of metal; old part# is 3128057001, made of plastic, no longer being provided)
Rear Wheel	2824430001

NOTICE: During wheel reassembly, pay attention to which side of the gear should face the wheel.

➤ **For old gear, made of plastic:**



➤ **For new gear, made of metal:**

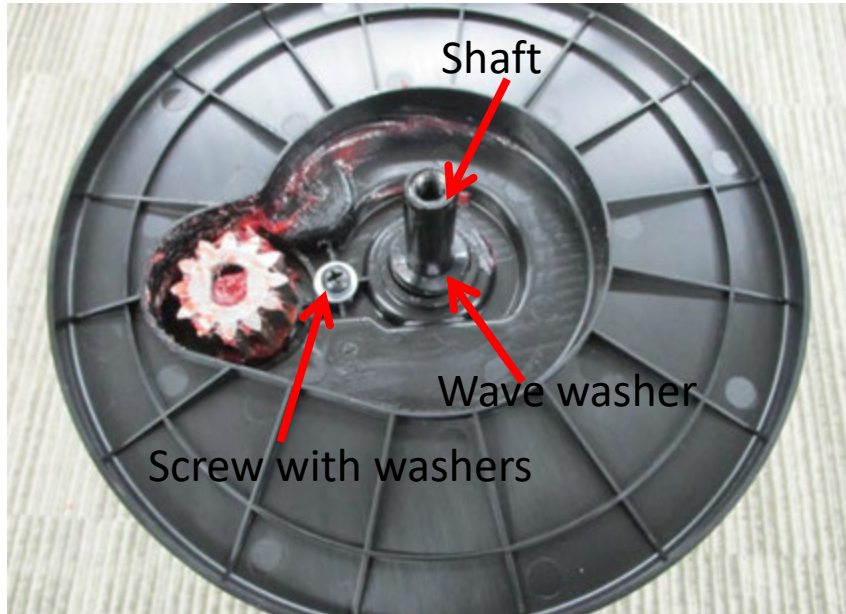
The surface stating “**OUT**” should face outward.



Rear Wheels Replacement_LM2100SP_A

LM2100SP Lawn Mower

5. If the wheel protective cap is broken, replace it with a new one.
6. Loosen the screw and remove it with its spring washer and plain washer. Detach the wheel protective cap from the shaft as well as the wave washer.



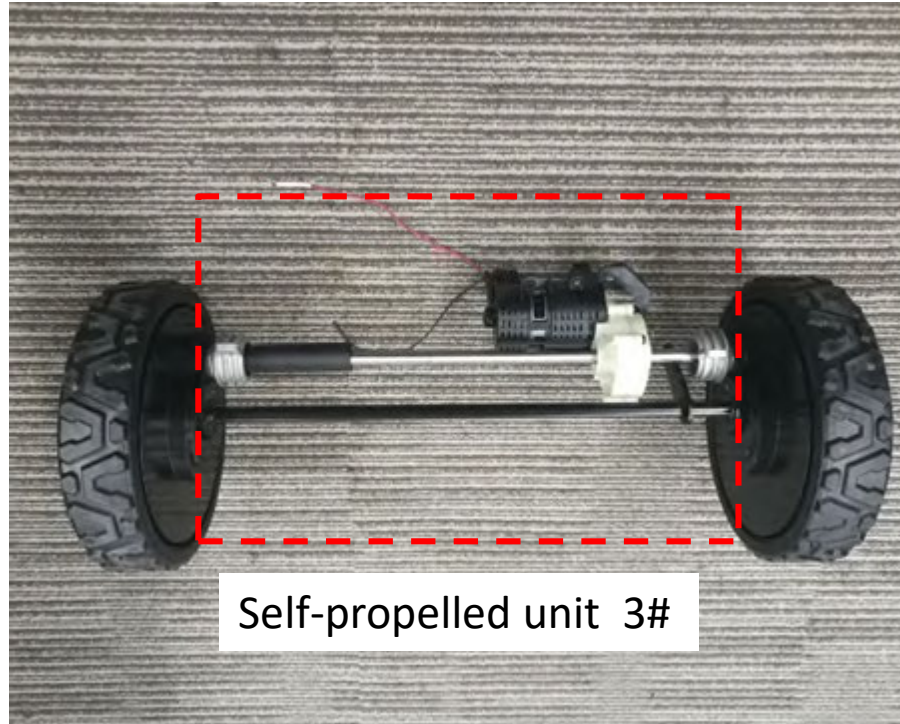
Description	Part Number
Wheel protective cap	3127923001
Screw	5620041006
Plain washer	5650004001
Spring washer	5650007001
Wave washer	5650453001

7. Mount a new protective cap onto the self-propelled unit shaft as well as the wave washer. Fix the cap by tightening the screw with spring washer and plain washer. The recommended torque is 1.3-1.8ft-lb(1.8-2.5Nm).

NOTICE: The wave washer mustn't be omitted in this step.

8. Mount the wheel and drive gear ASSY onto the mower and fix it by tightening the hex bolt. The recommended torque is 2.6-3.7ft-lb(3.5-5Nm).
9. Install the hubcap into the wheel.

For LM2100SP_B self-propelled unit, follow the steps from P15 to 21.



Description	Part Number	Status Remark
Self-propelled unit 3#	2825258001	LM2100SP_B

Rear Wheels Replacement_LM2100SP_B

LM2100SP Lawn Mower

If the rear wheels are damaged, replace them.

1. Turn the mower on its side, pry the hubcap by a screwdriver to remove it.

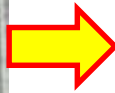


Description	Part Number
Hubcap	3126765001
Hex bolt	5640010003

2. Remove the hex bolt using a 1/2 inch (S=13mm) socket wrench to separate the wheel from its protective cap which is fixed on the self-propelled unit.



1/2 inch (S=13mm)
socket wrench



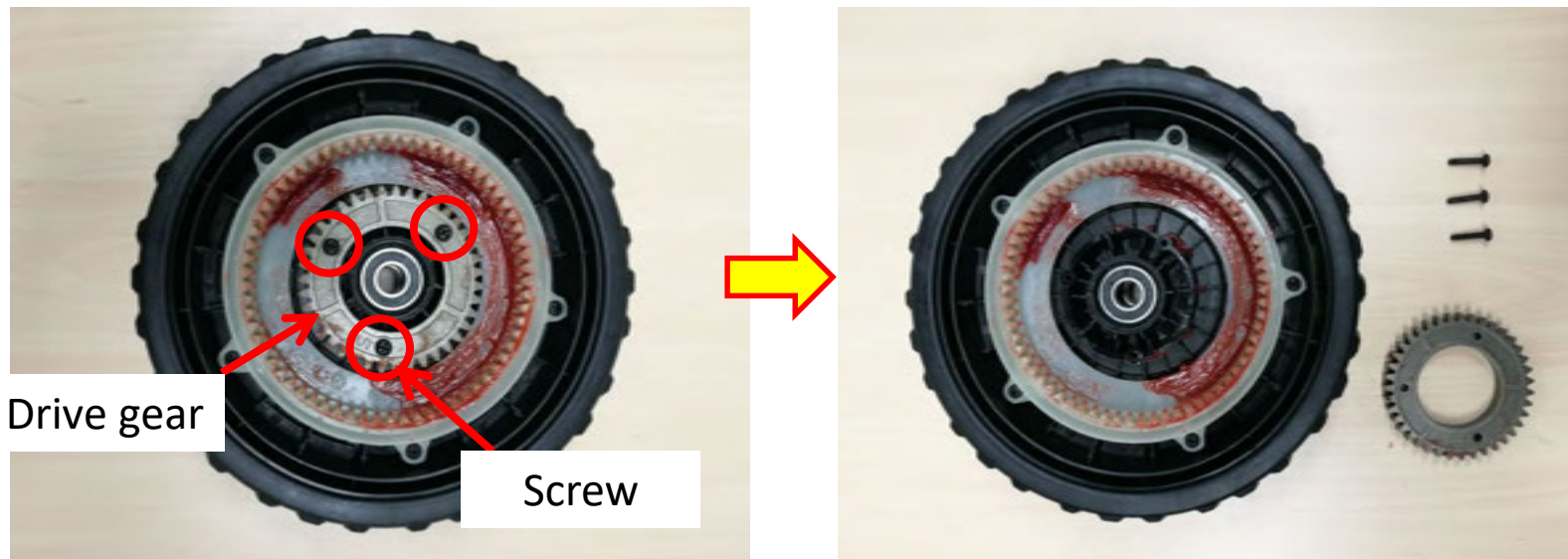
Hex bolt



Wheel protective cap

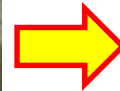
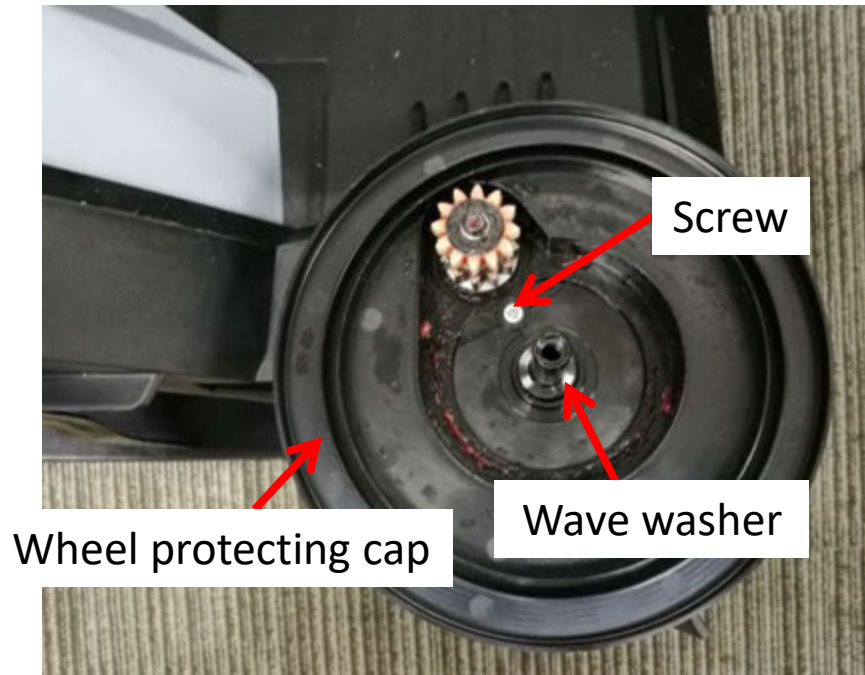
3. Loosen the 3 screws to remove the drive gear.
4. Replace with a new wheel. Fix the new wheels on the mower in reverse order.

NOTICE: During drive gear assembling, the surface of the gear stating "OUT" should face toward outward.



Description	Part Number
Drive gear	3520933001
Rear Wheel	2825267001

5. If the protective cap is broken, replace it with a new one.
6. Remove the wave washer.
7. Loosen the screw to remove the wheel protective cap.



Description	Part Number
Wheel protective cap	3128946001
Screw	5620067010
Wave washer	5650453001

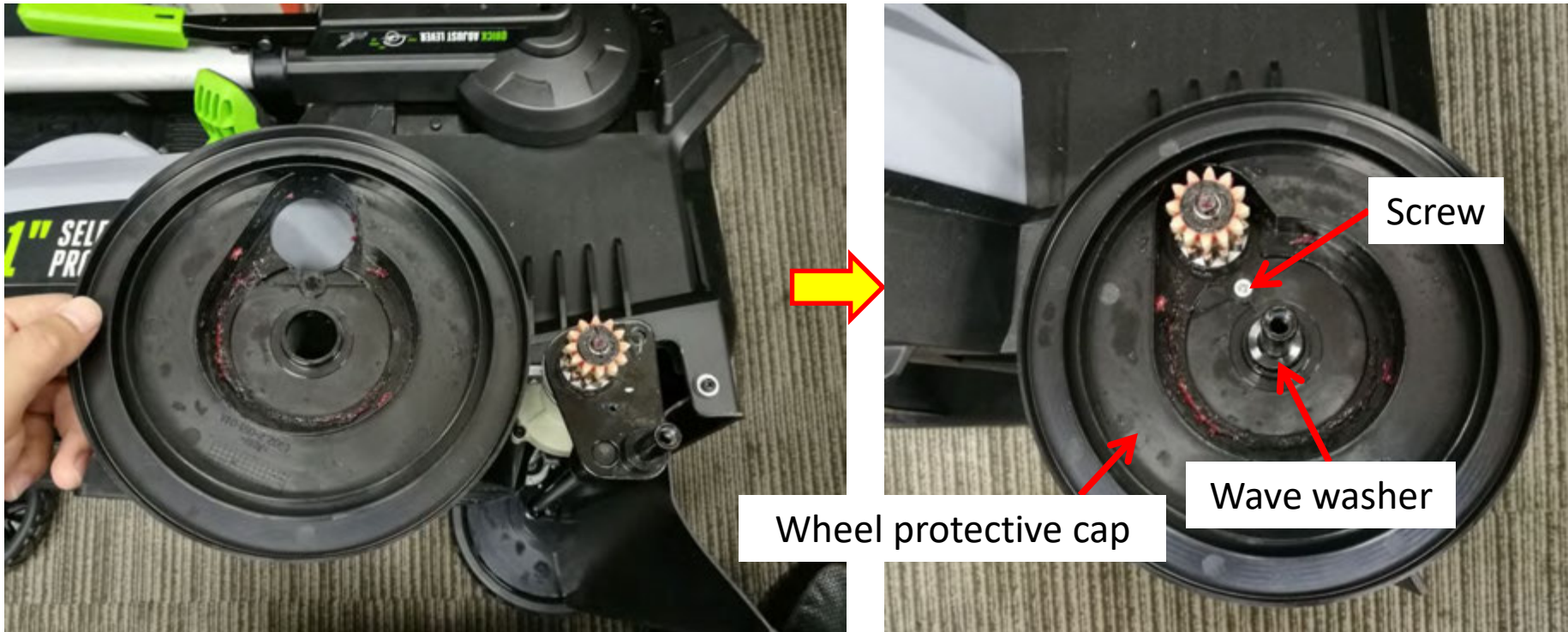
Rear Wheels Replacement_LM2100SP_B

LM2100SP Lawn Mower

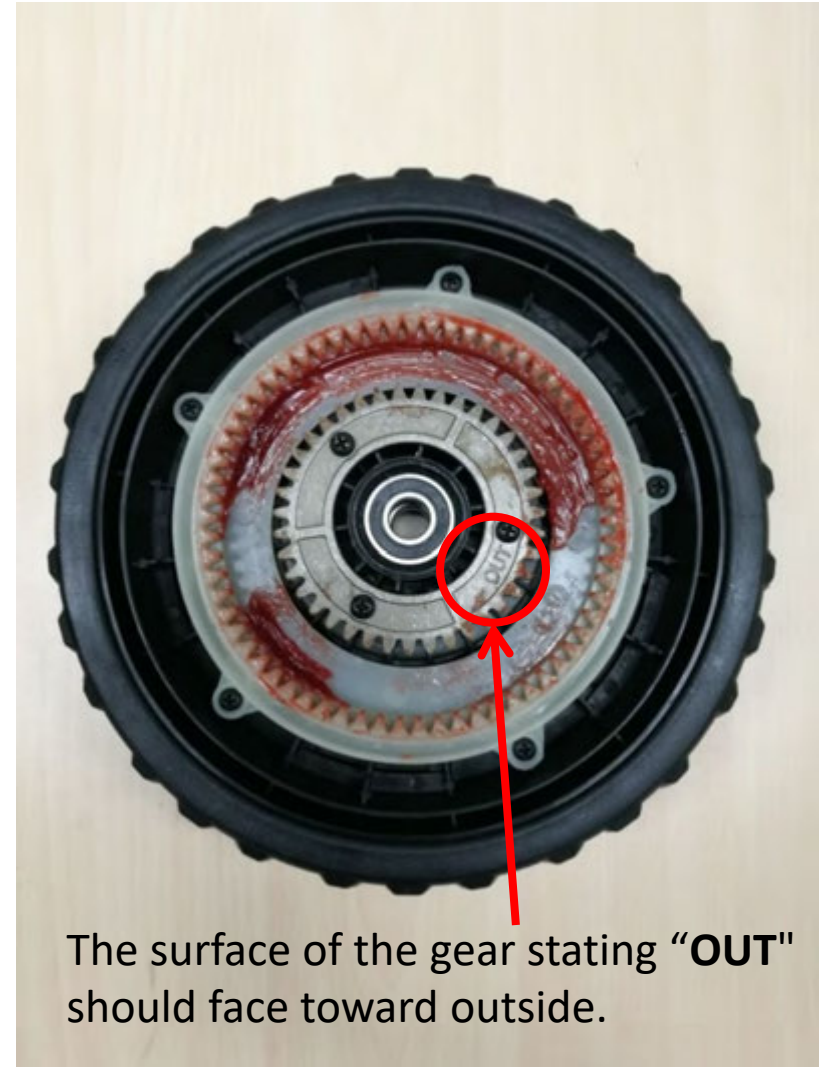
8. Mount the new wheel protective cap onto the self-propelled unit shaft.
9. Mount the wave washer onto the shaft.

NOTICE: The wave washer mustn't be omitted in this step.

10. Tighten the wheel protective cap with the screw. The recommended torque is 1.3-1.8ft-lb(1.8-2.5Nm).



11. Mount the wheel and gear ASSY (Gear with “OUT” facing outside) onto the self-propelled unit and fix it with the hex bolt. The recommended torque is 2.6-3.7ft-lb(3.5-5Nm).
12. Install the hubcap into the wheel.



The surface of the gear stating “OUT” should face toward outside.

THE END

REPAIR GUIDELINE

PART 10: Housing Cover and Front Axle Replacement_LM2100SP Lawn Mower



Updated on 2021/09/09

Table of Contents

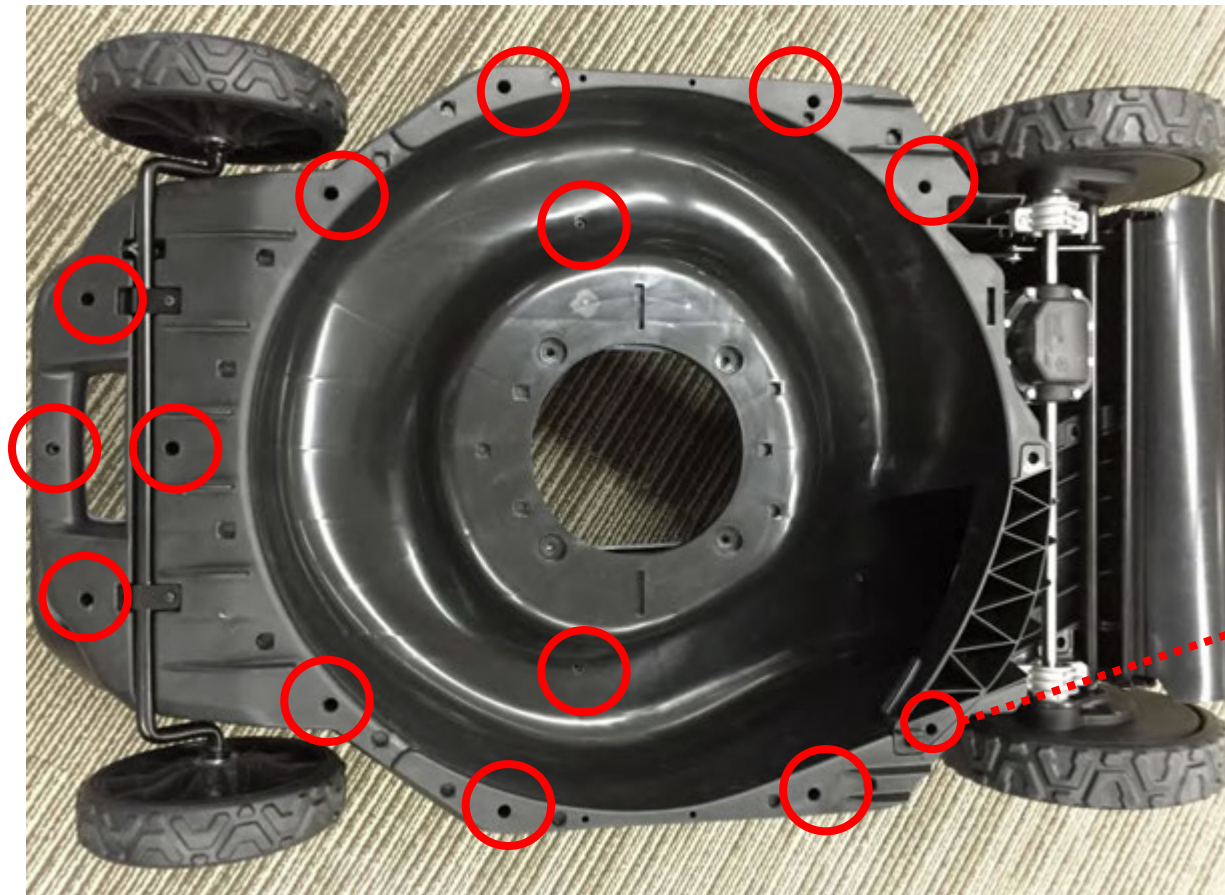
NO.	Contents	Page
1	Housing Cover Replacement (no longer for service when old parts are run out)	3-7
2	Height Adjusting Lever Replacement (no longer for service when old parts are run out)	8-9
3	Front Axle Replacement	10-19

Housing Cover Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

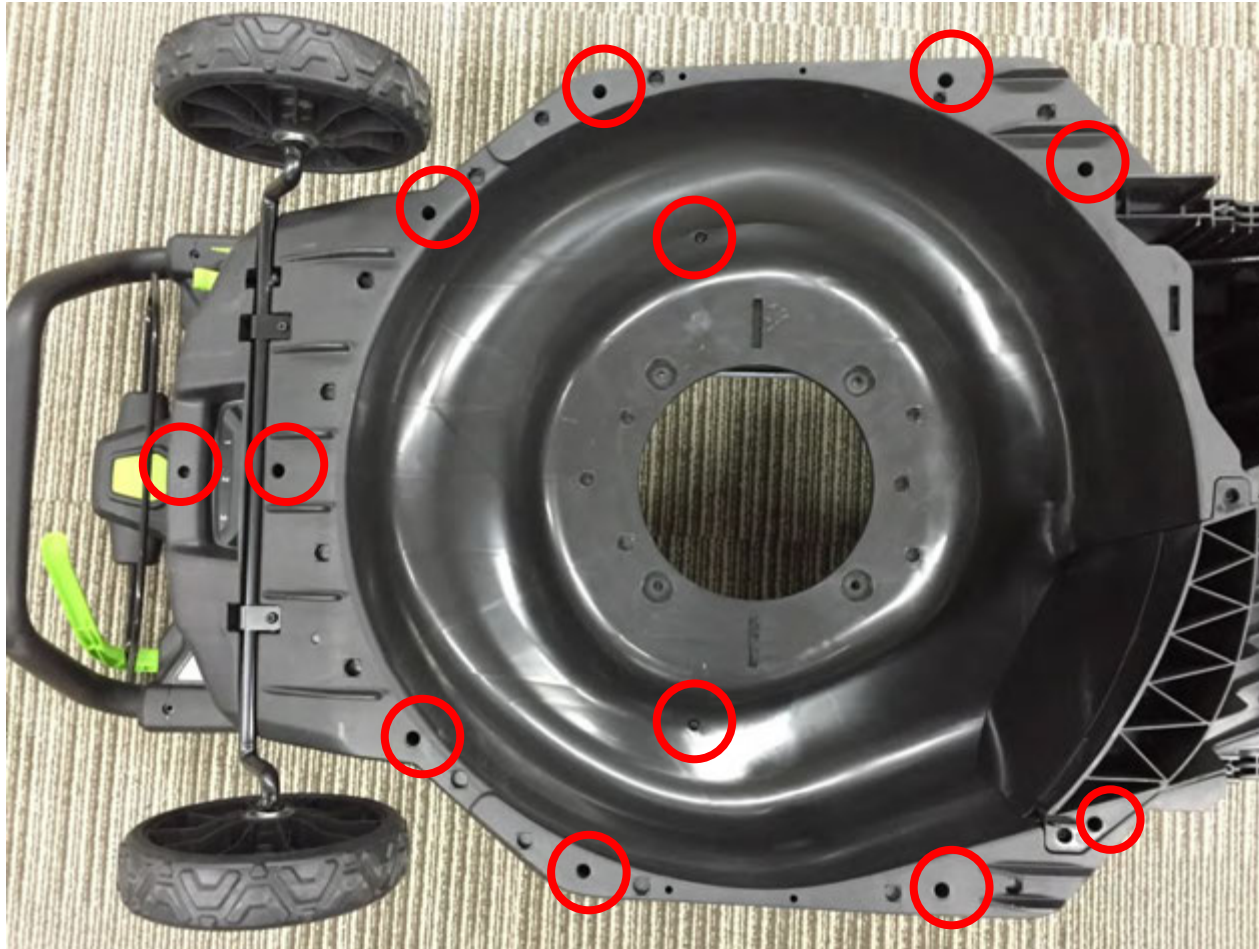
1. Remove the blade(see “*RG_Part 1_Blade Replacement_LM2100SP.pptx*”).
2. Remove the service cover and power unit(see “*RG_Part 2.1_Parts in Power Unit Replacement_LM2100SP.pptx*”)
3. Turn the mower on its back to remove the 14 screws on the poly deck. In case, there are only 12, just remove 12(see next slide).



Housing Cover Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

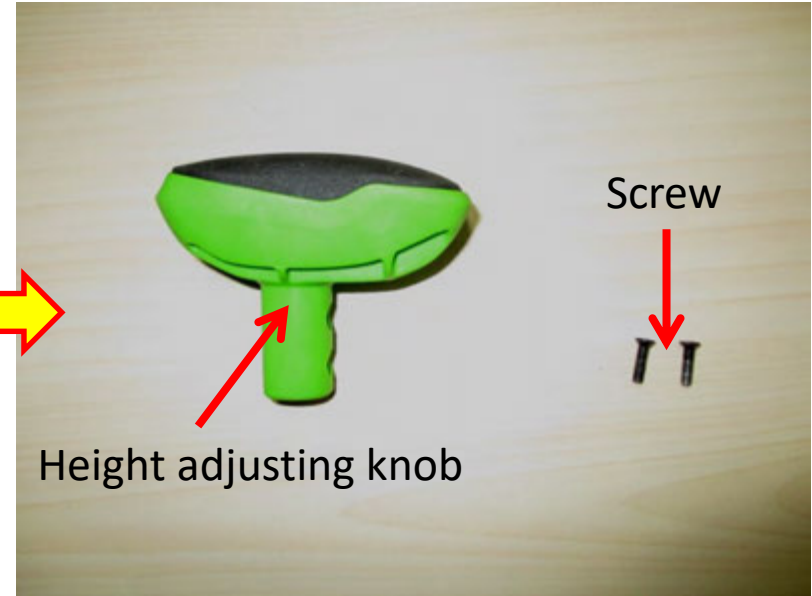


Housing Cover Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

4. Remove the 2 screws on the height adjusting knob to take down the height adjusting knob.



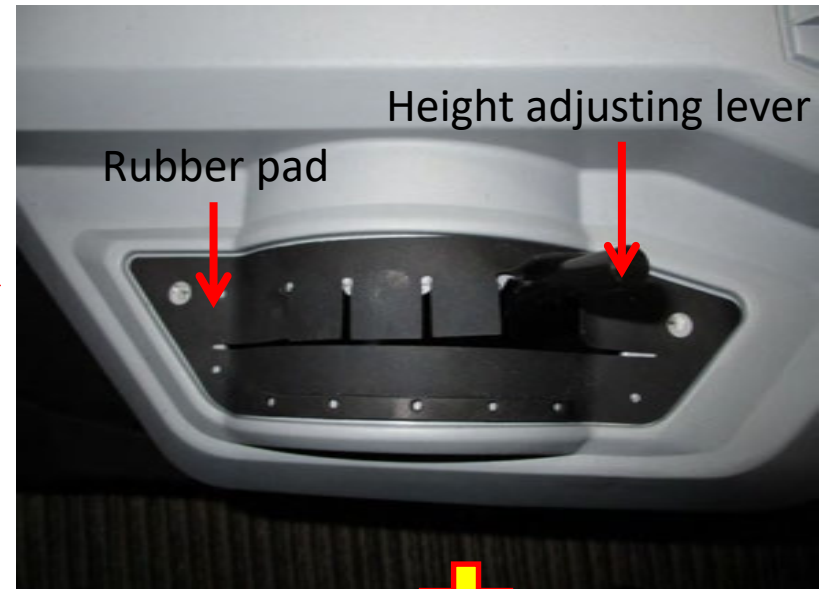
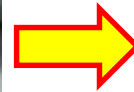
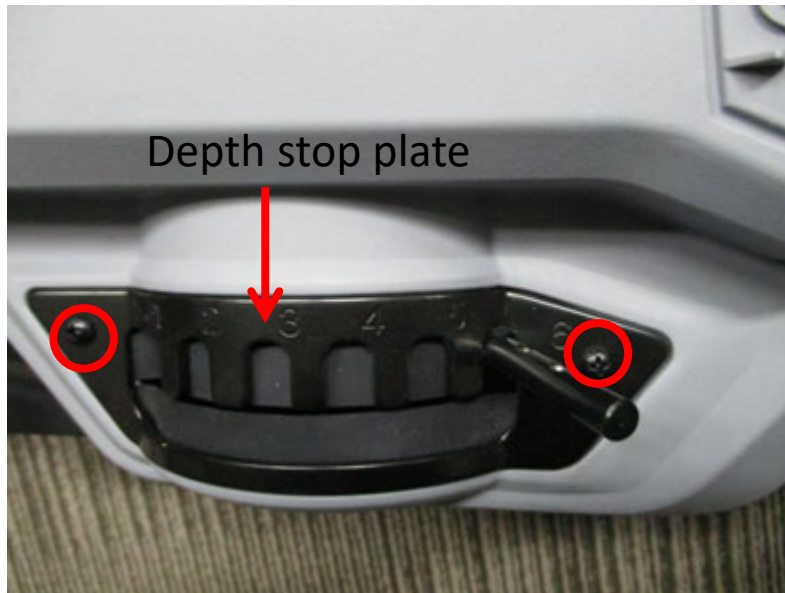
Description	Part Number
Height adjusting knob	3321478001

Housing Cover Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

5. Remove the 2 screws on the depth stop plate.
6. Move the height adjusting lever outwards to remove the depth stop plate and the rubber pad, if needed.



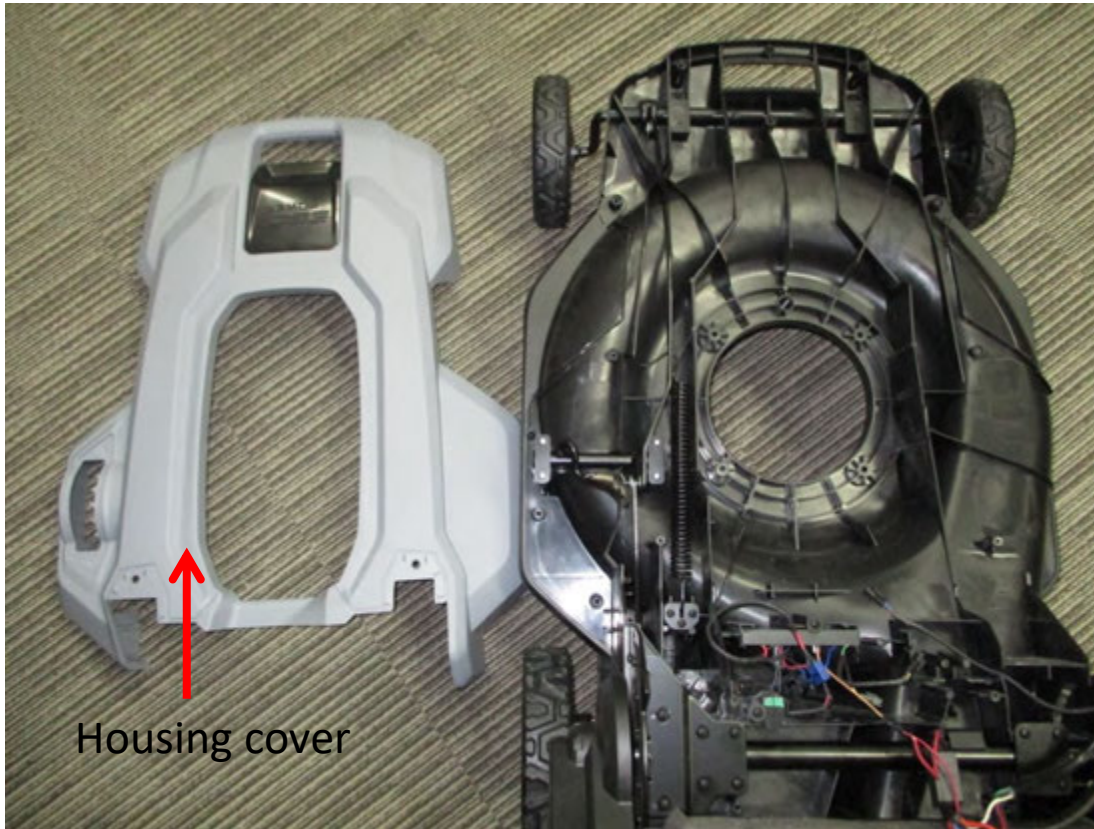
Description	Part Number
Depth stop plate	3705896001
Rubber pad	3128083001

Housing Cover Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

7. Remove the housing cover from the mower.
8. If the housing cover is damaged, replace it with a new one. Assemble it in reverse order.



Description	Part Number
Housing cover	2825825001

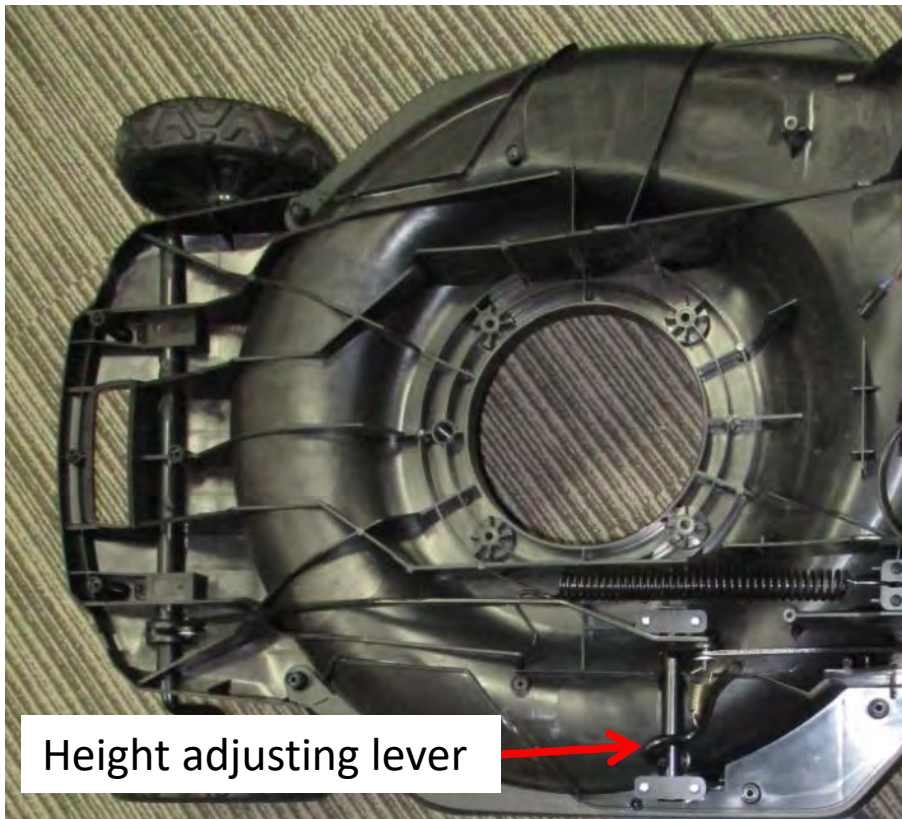
NOTICE: The old stock the part# in grey can be used up before inactivating these old parts. 7

Height Adjusting Lever Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

1. After removing the housing cover, if the height adjusting lever is bent or deformed, remove the spring first and then the snap-ring and plain washer to release the height adjusting lever from the mower deck and have replacement.



NOTICE: for the connecting rods between the front axle and back axle, height adjusting lever, etc, which are with extreme low failure risk of service, they are not available for placing the new order and for service. The old stock can be used up before inactivating these old parts.

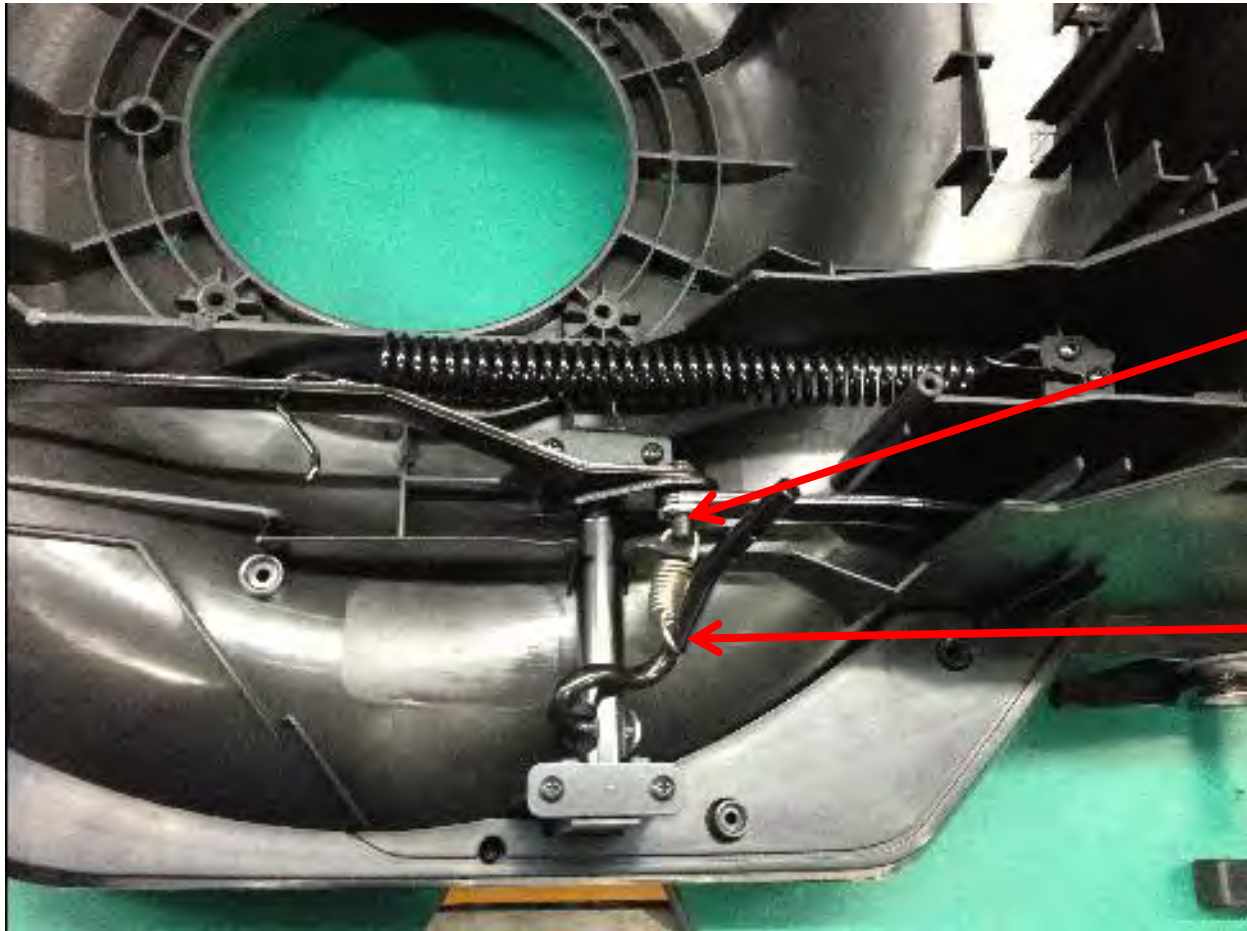
Description	Part Number
Height adjusting lever	2823295001
Spring	3660558001
Snap-ring	5660139002
Plain washer	5650025004

Height Adjusting Lever Replacement

(no longer for service when old parts are run out)

LM2100SP Lawn Mower

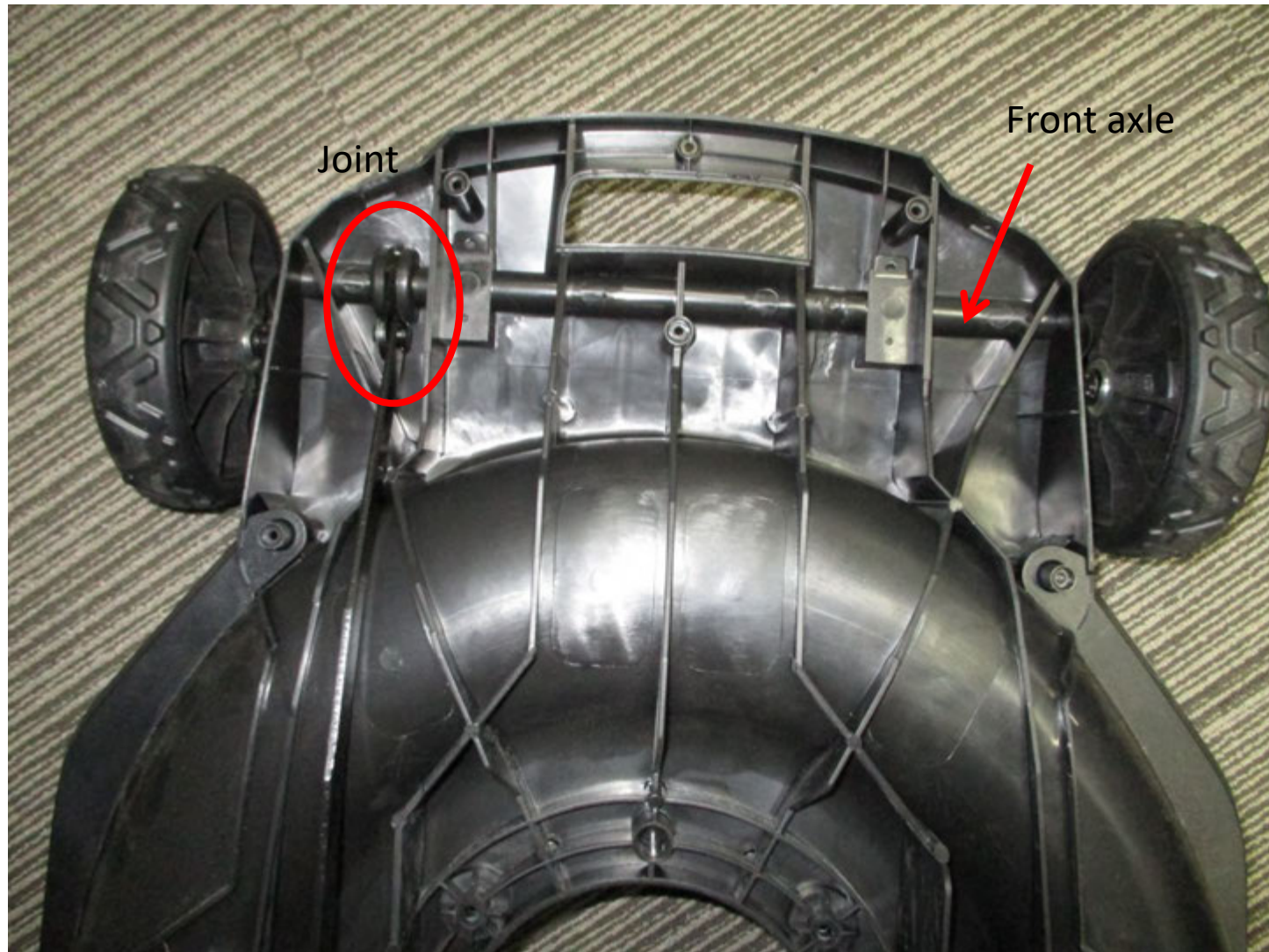
2. During height adjusting lever reassembly, hook the spring as below shown. Mind the spring opening. **Reverse installation is not allowed.**



Front Axle Replacement

LM2100SP Lawn Mower

1. If the front axle is damaged, remove the housing cover as previous steps shown.

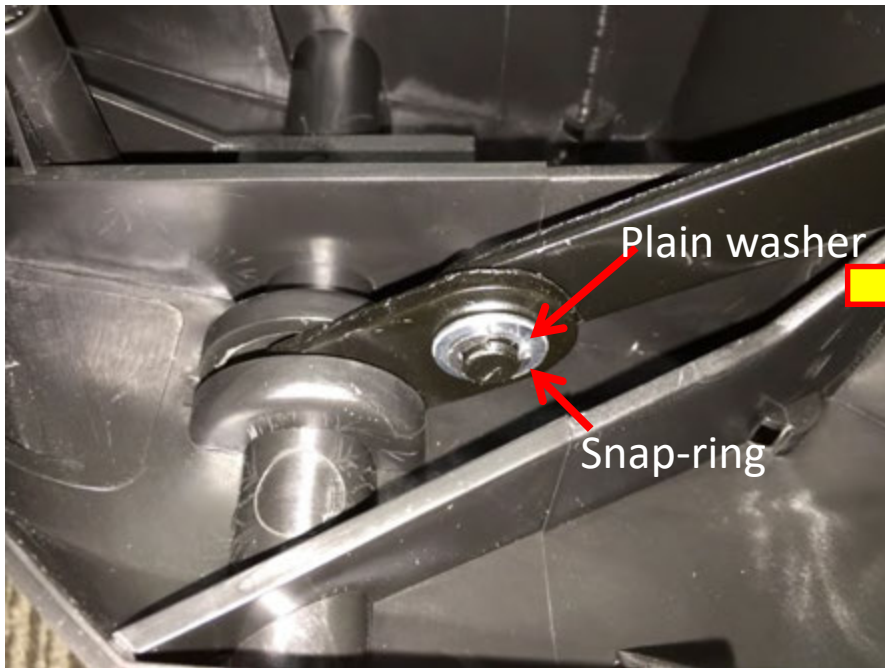


Front Axle Replacement

LM2100SP Lawn Mower

NOTICE: There are two structures for this joint, **plain washer with snap-ring fixing** or **nut fixing** .

2. Remove the snap-ring and plain washer on the joint (plain washer with snap-ring fixing) or remove the nut (nut fixing), see next slide.

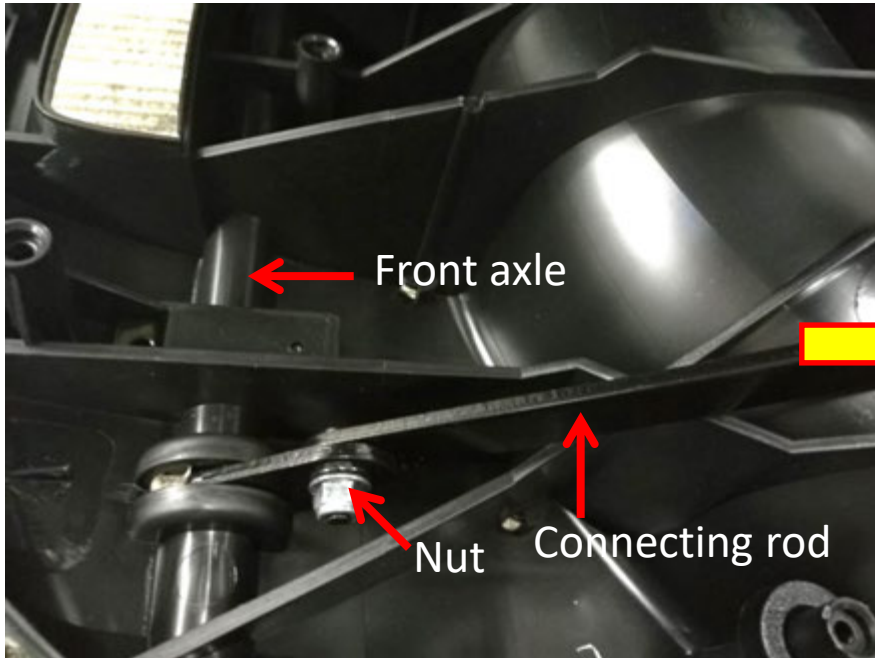


Description	Part Number
Snap-ring	5660139002
Plain washer	5650025004
Front axle	2824372001



Front Axle Replacement

LM2100SP Lawn Mower



Description	Part Number
Nut	5630013003



3. Separate the joint by hand.

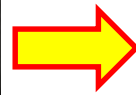
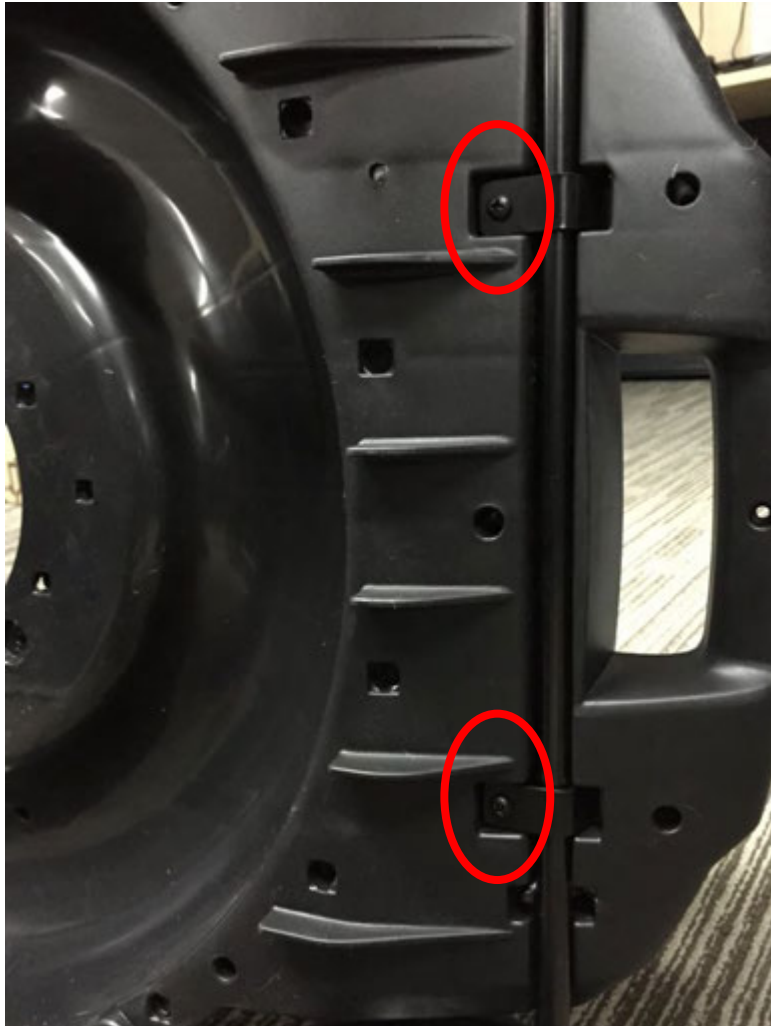
WARNING: This step may cause injuries. Slow down. Gloves recommended.



Front Axle Replacement

LM2100SP Lawn Mower

4. Turn the mower on its side.
5. Remove the 2 screws and take down the 2 mounting plates as well as the front axle with wheels.



Description	Part Number
Mounting plate	3705216001

NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Front Axle Replacement

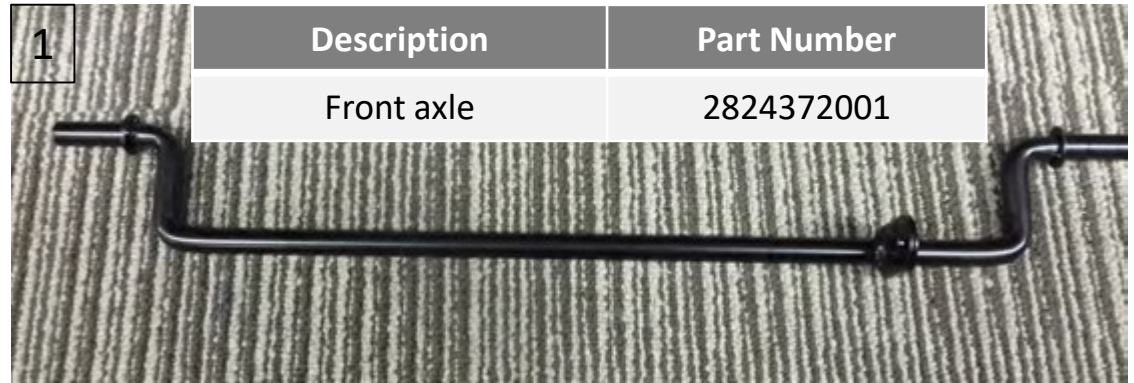
LM2100SP Lawn Mower

6. Disassemble the front wheels(see ***RG_Part 9_Wheels Replacement_LM2100SP.pptx***).

7. Replace the broken front axle with a new one.

8. Mount the wheels onto the new front axle(see ***RG_Part 9_Wheels Replacement_LM2100SP.pptx***).

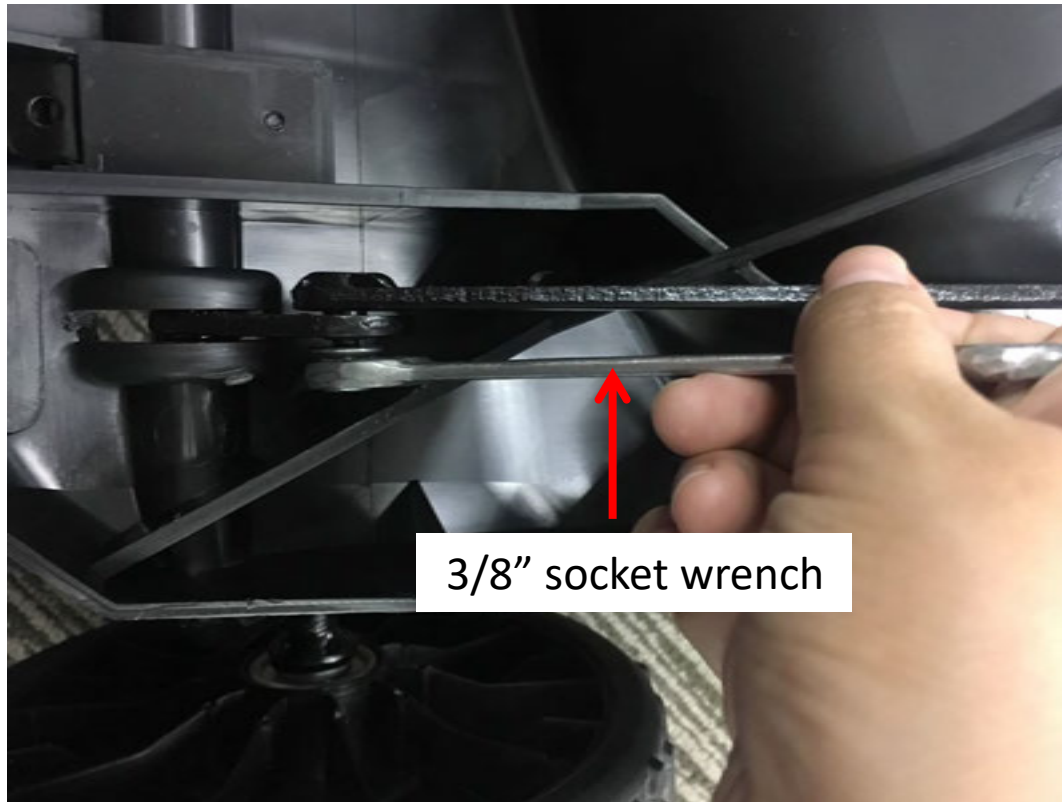
9. Mount the front axle into the mower deck groove and then insert the mounting plates into place. Lock them by tighten the 2 screws(Fig. 2 &3).



Front Axle Replacement

LM2100SP Lawn Mower

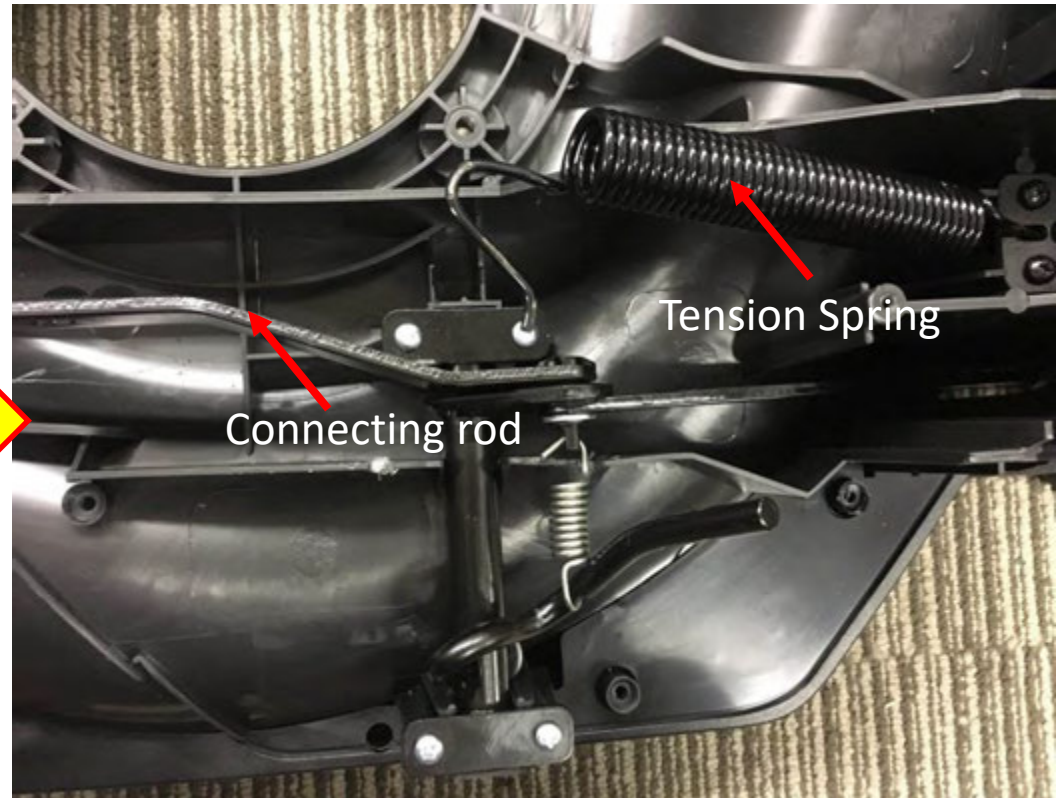
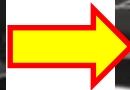
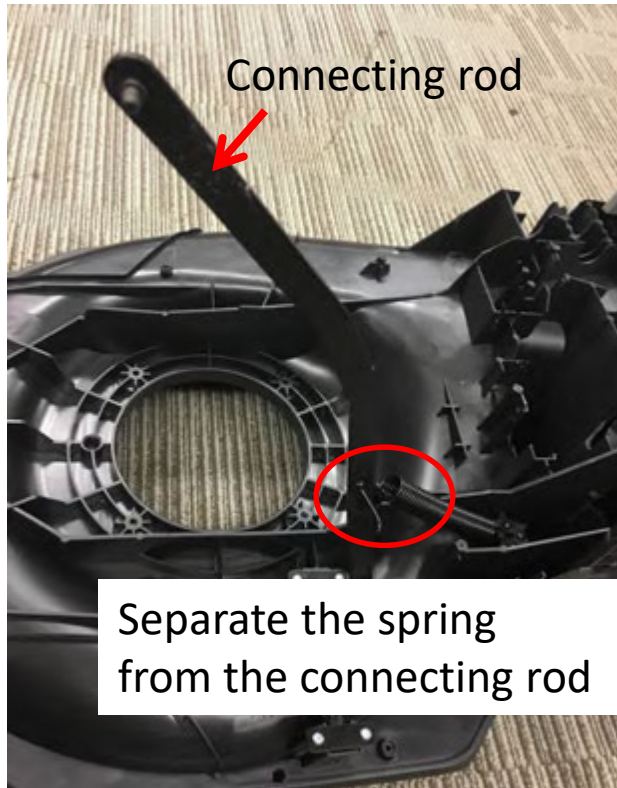
10. Connect the joint that links the front axle with the connecting rod by hand (NOTICE please see next slide).
11. Tighten the joint with the nut using an $3/8$ " socket wrench.



Front Axle Replacement

LM2100SP Lawn Mower

NOTICE: Before joint reconnecting and nut tightening, separate the tension spring from the connecting rod first.



Description	Part Number
Tension spring	3660557001

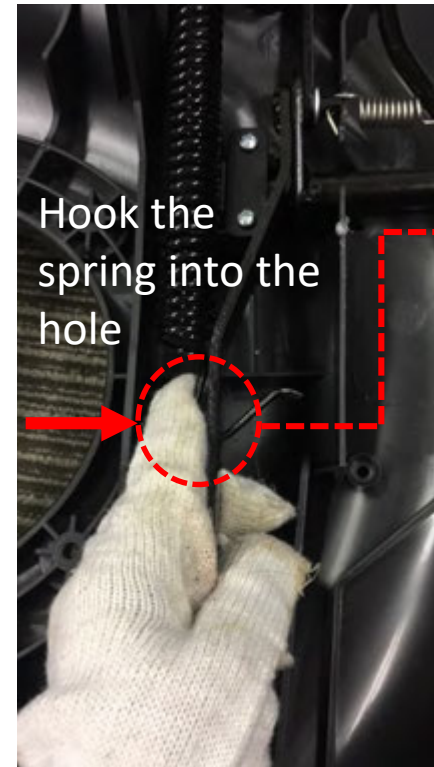
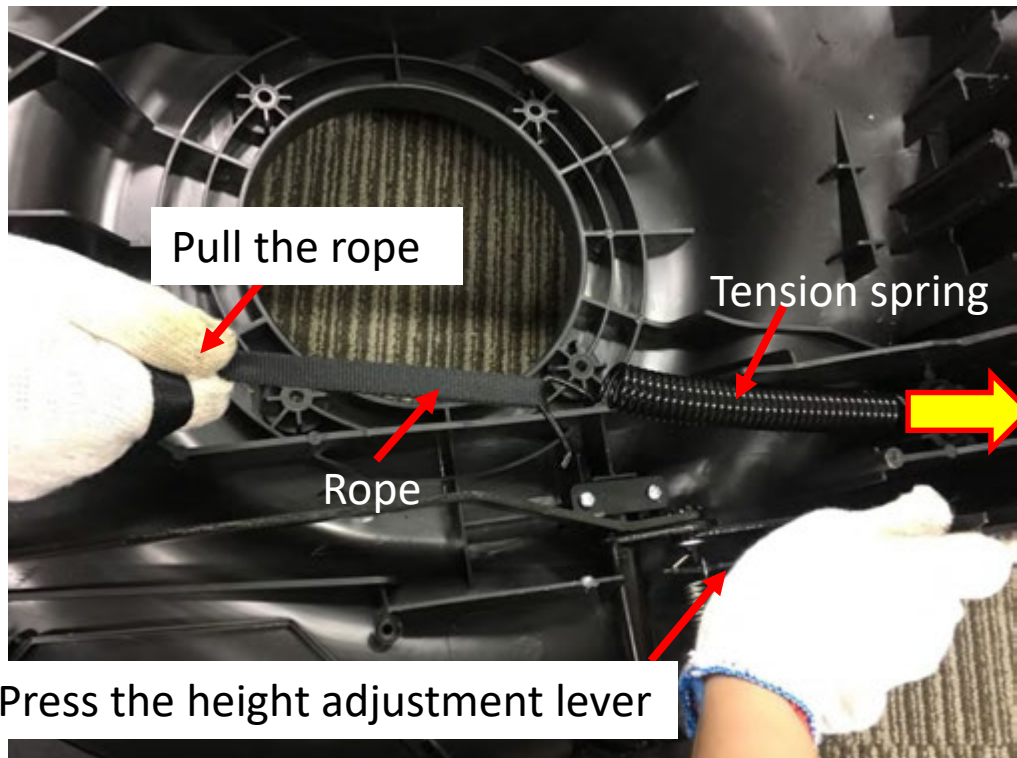
NOTICE: The old stock the part# in grey can be used up before inactivating these old parts.

Front Axle Replacement

LM2100SP Lawn Mower

12. Use a strong rope to pull the spring in the direction of mower back until the spring can hook into the hole in the connecting rod.

NOTICE: Always adjust the cutting height to 6 level to make the connecting rod as close as possible to the direction of the mower back.



13. Close the housing cover and remount the height adjusting knob onto the mower in the reverse order of disassembly.
14. Assemble the power unit onto the mower (see ***RG_Part 2.1_Parts in Power Unit Replacement_LM2100SP.pptx***).

REPAIR GUIDELINE

PART 11: Handle Assembly Replacement_LM2100SP Lawn Mower



Tools that required for replacement

	Tool	Remark
1	Philips	
2	Electric soldering iron	
3	Heat gun	
4	Heat shrink sleeves	
5	Scissors	To remove the shrink sleeves

Handle Assembly Replacement

- 1. Loosen the 6 screws to remove the service cover from the mower.



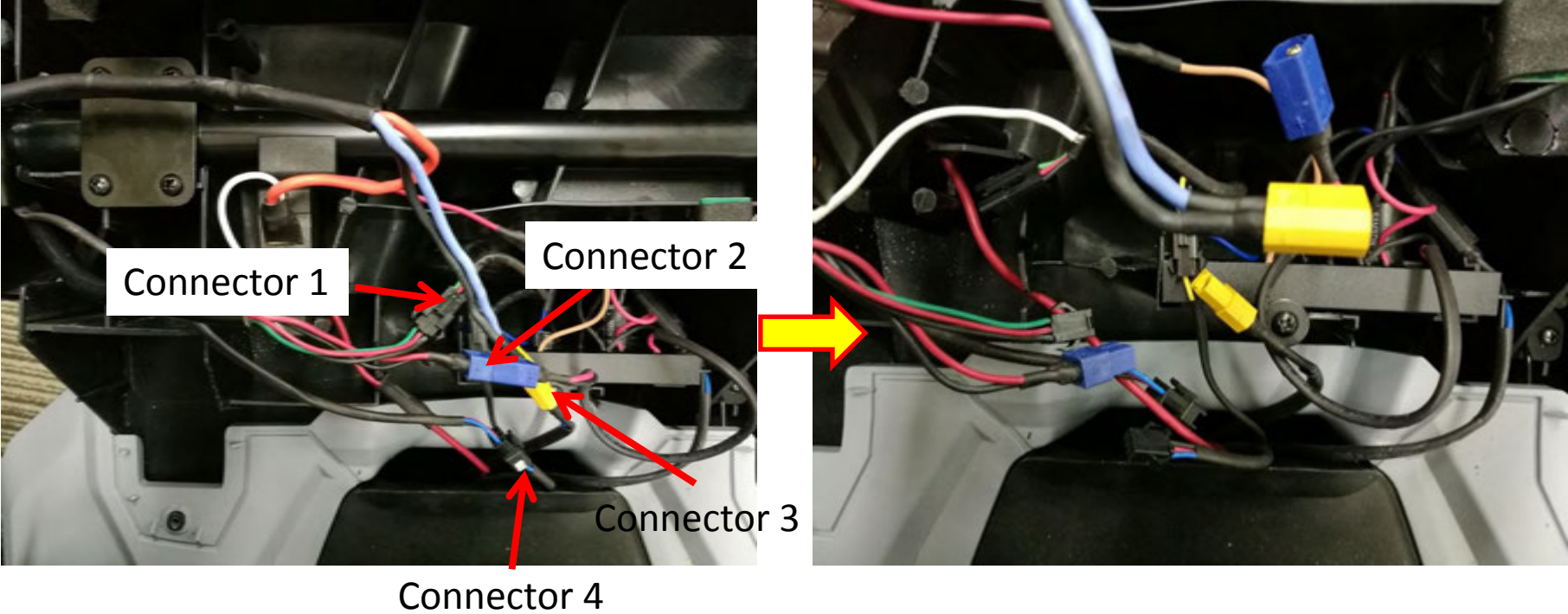
Service Cover



Service Cover

Handle Assembly Replacement

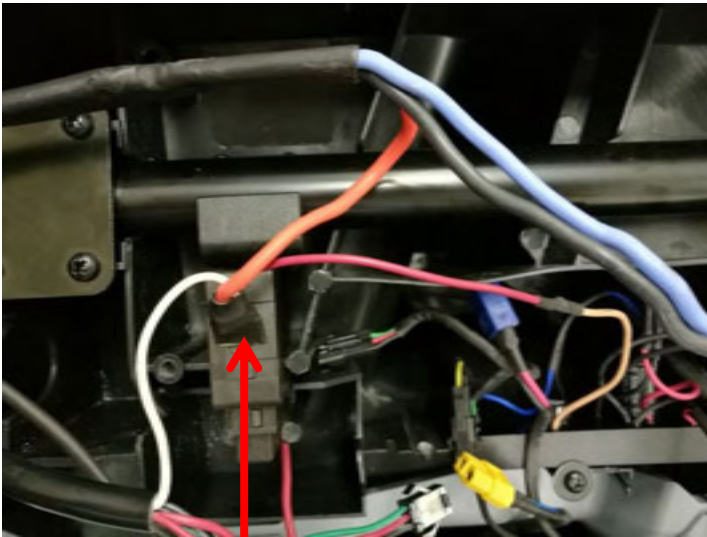
2. Disconnect the 4 connectors.



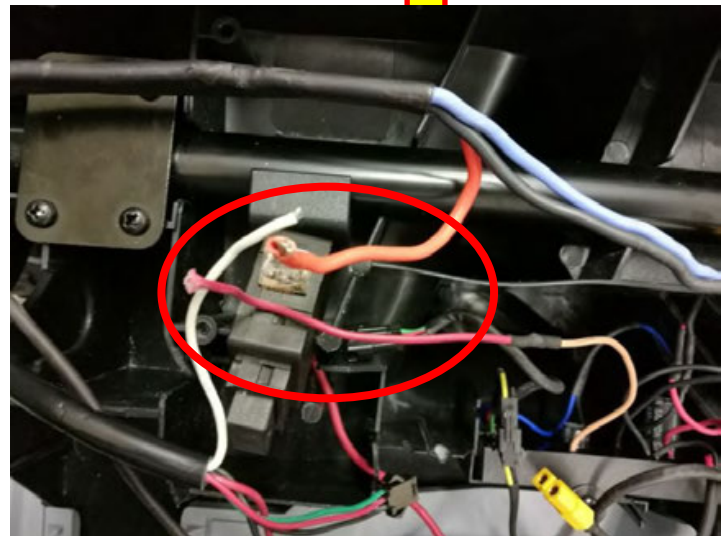
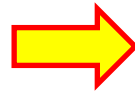
Handle Assembly Replacement

LM2100SP Lawn Mower

3. Remove the heat shrink sleeve from the cables using scissors and disconnect the cables from the handle position switch using an electric soldering iron.



Shrink sleeve



Handle Assembly Replacement

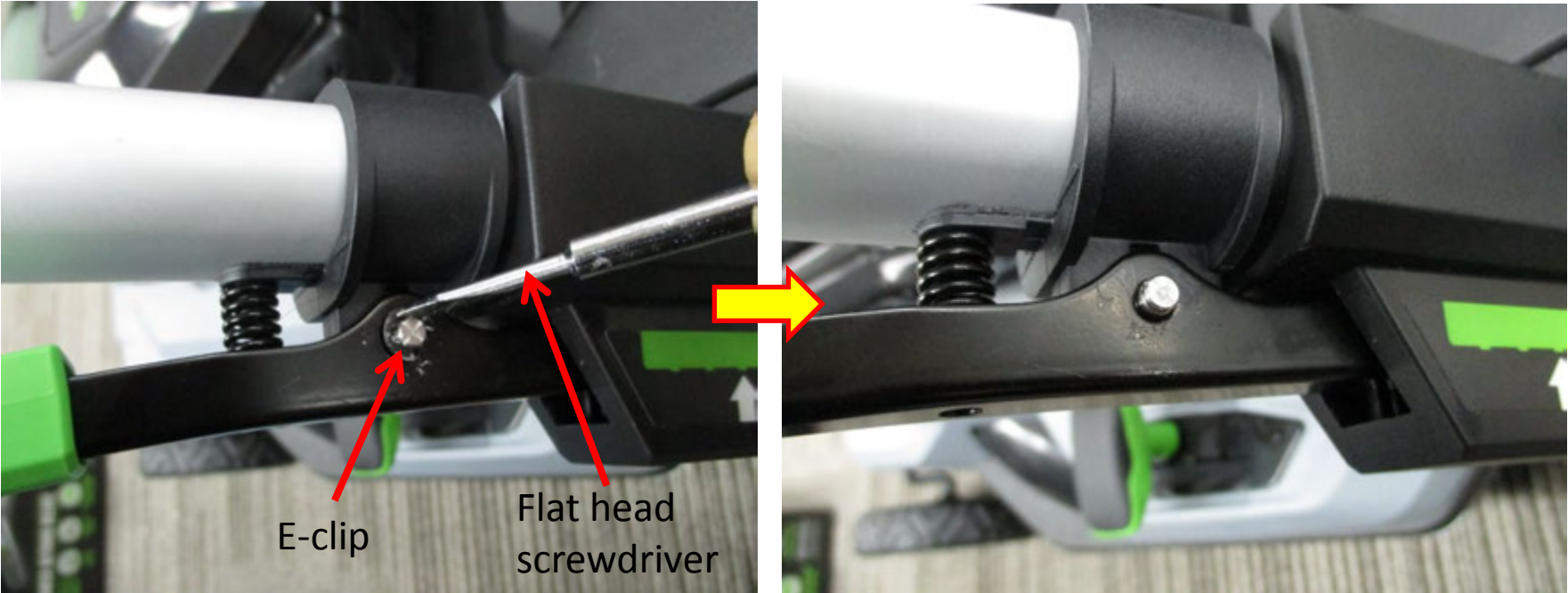
LM2100SP Lawn Mower

4. Remove the 2 screws (one in the decorative cover, another in the inner side of the side tube).



Handle Assembly Replacement

5. Remove the E-clip.

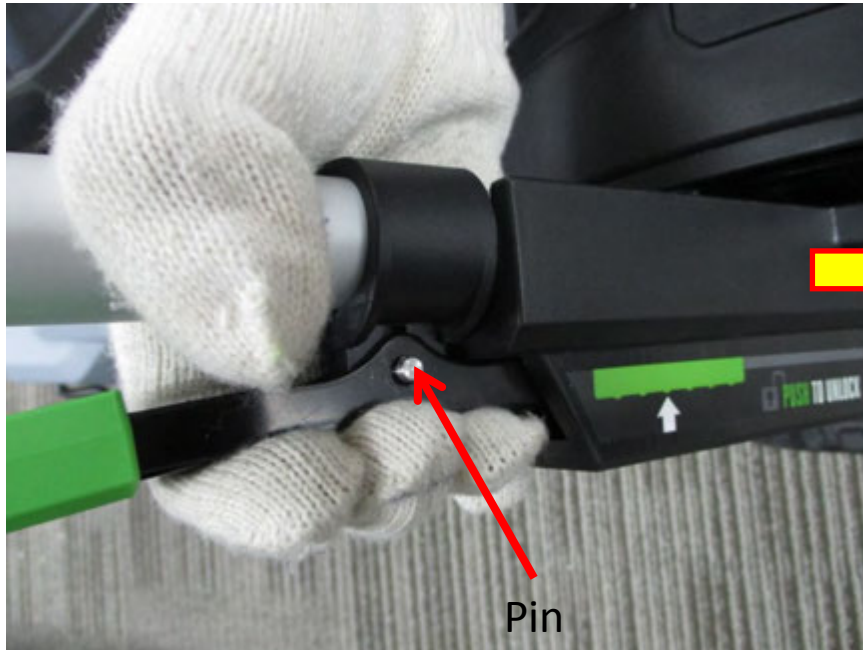


Description	Part Number
E-clip	5660003003

Handle Assembly Replacement

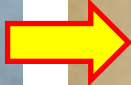
LM2100SP Lawn Mower

6. Use a metal pole and a hammer to tap the pin carefully. Pull it out from the other side.



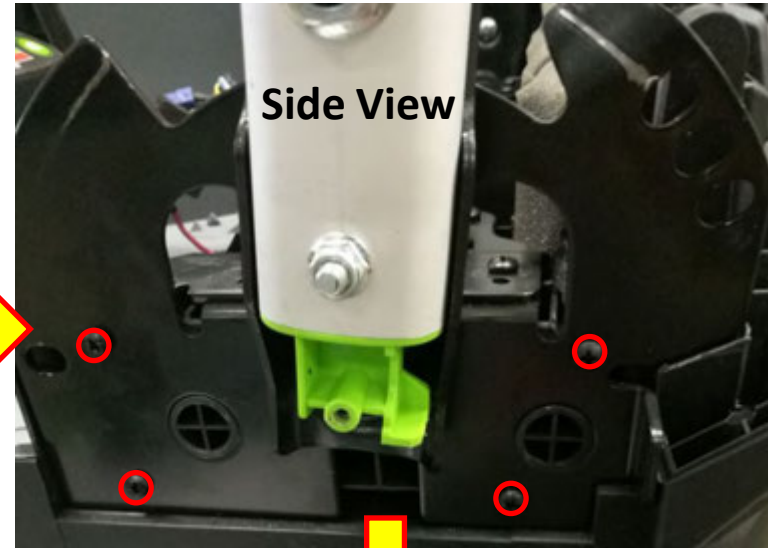
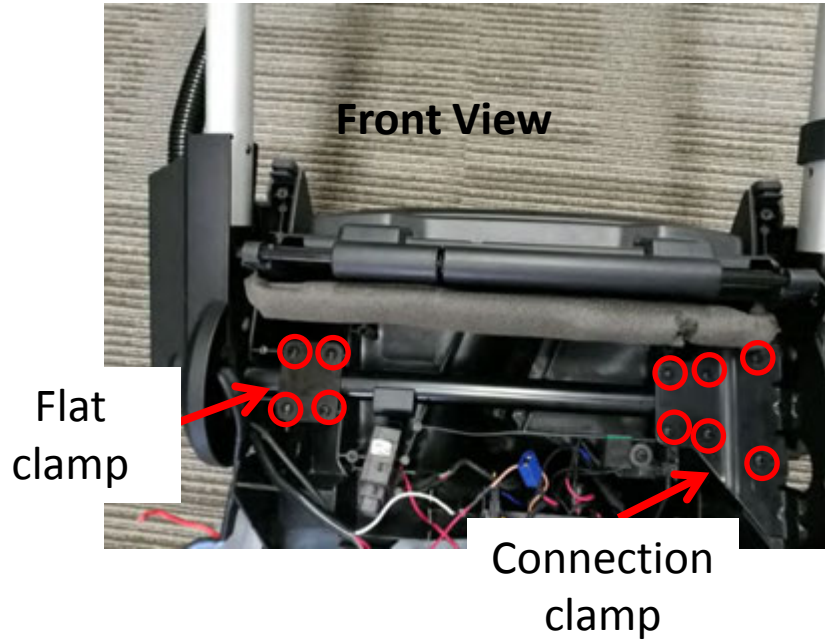
Handle Assembly Replacement

7. Remove the spring, handle lever set and decorative cover from the side tube.



Handle Assembly Replacement

8. Loosen the 4 screws on the flat clamp and 10 screws on the connection clamp to remove the handle assembly. Replace the defective handle assembly with a new one.

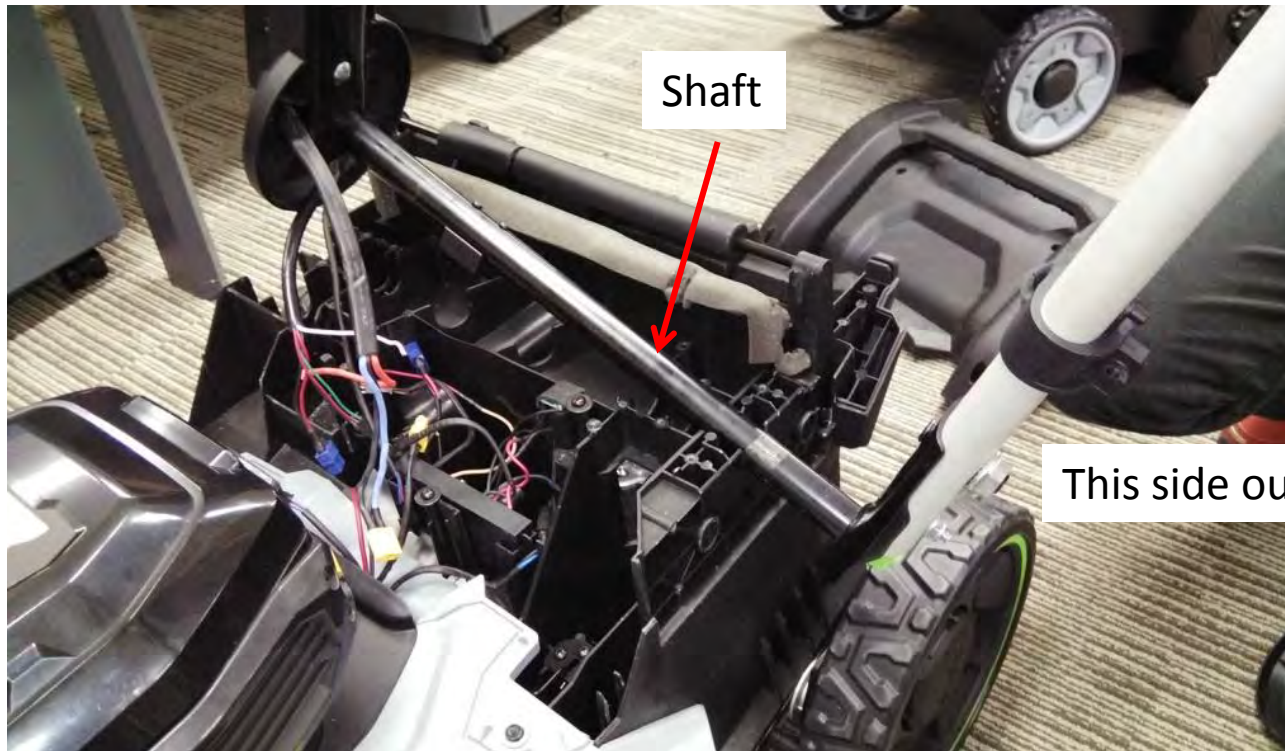


Description	Part Number
Handle Assembly	2824304001

Handle Assembly Replacement

LM2100SP Lawn Mower

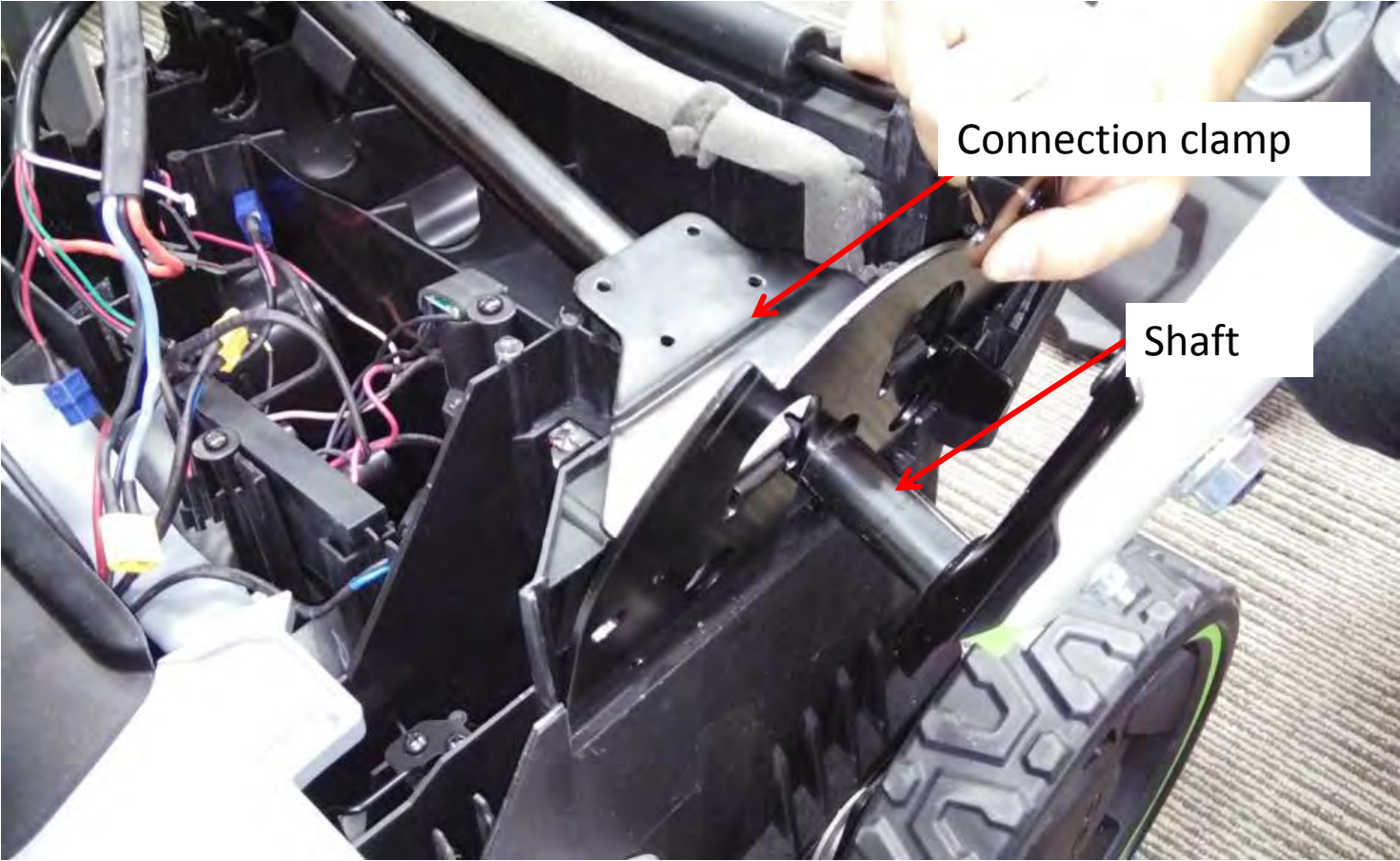
9. Place the shaft of the handle assembly onto the deck of the mower. Move one side of the shaft a bit out of the mower deck.



This side out of the deck

Handle Assembly Replacement

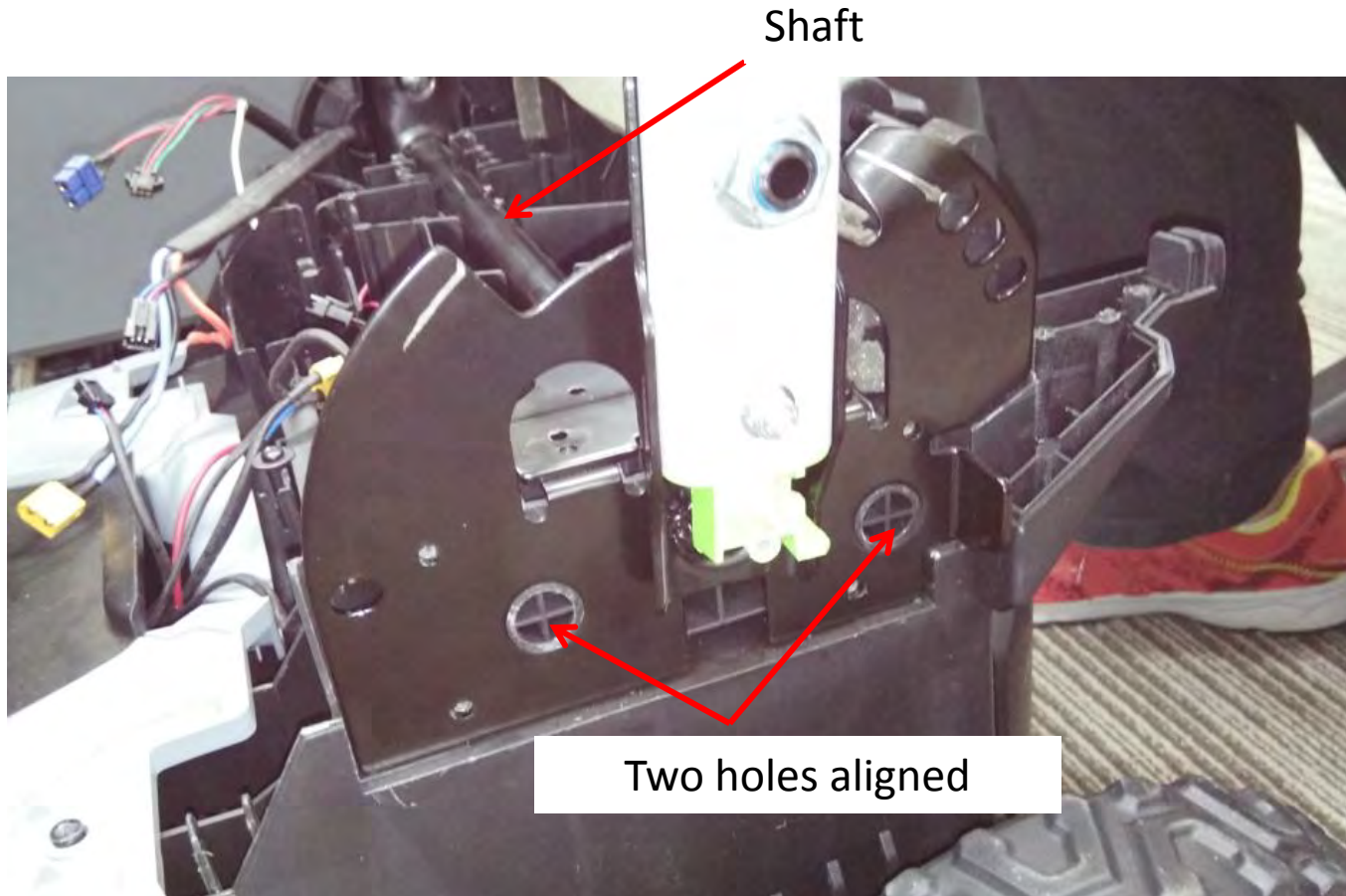
10. Mount the connection clamp onto the shaft.



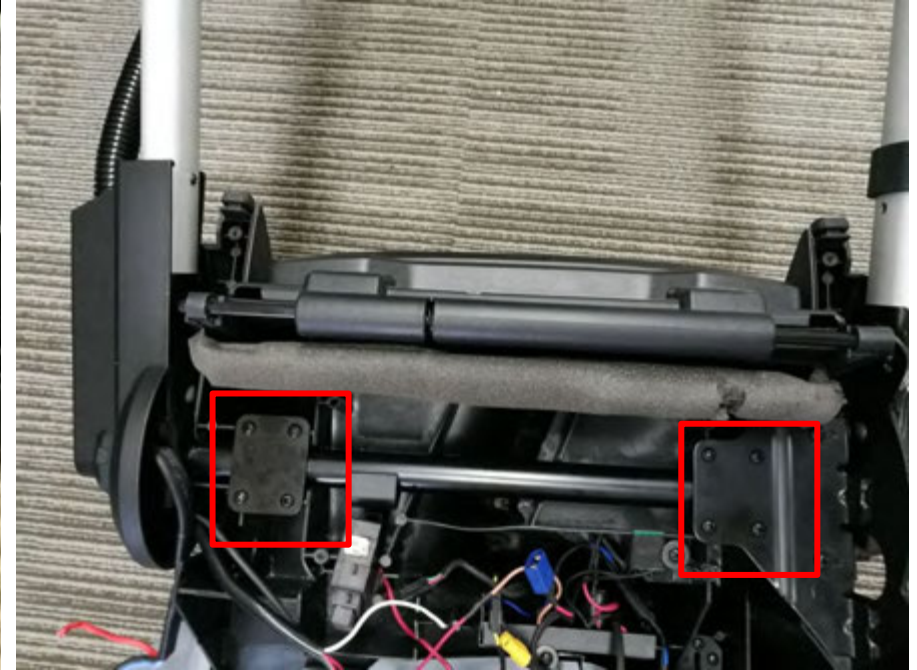
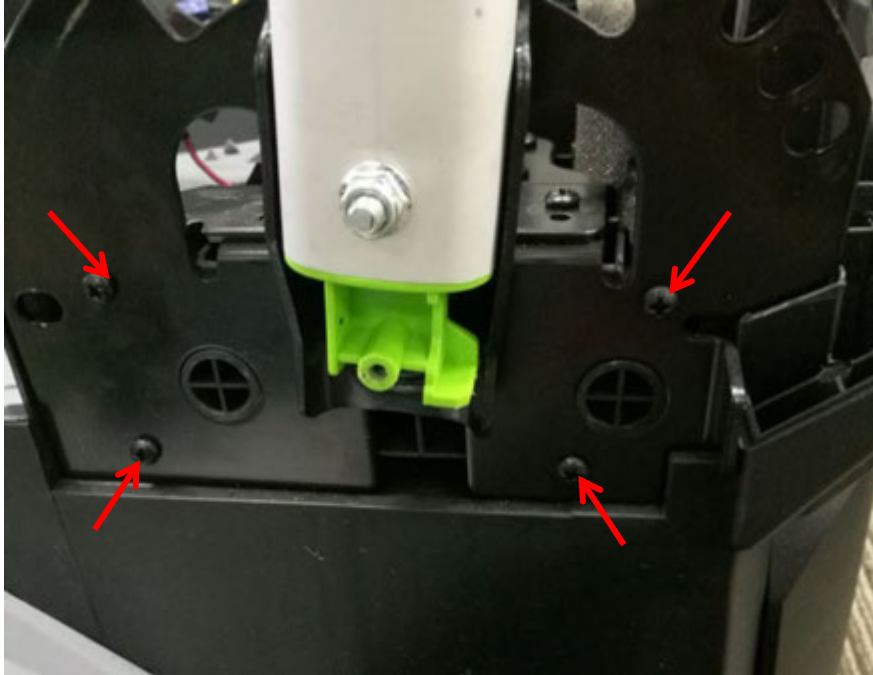
Handle Assembly Replacement

LM2100SP Lawn Mower

11. Align the two fixing round holes in the connection clamp with the round fixing protrusion on the deck and fix the clamp in position.
12. Position the entire shaft of the handle assembly into the groove .



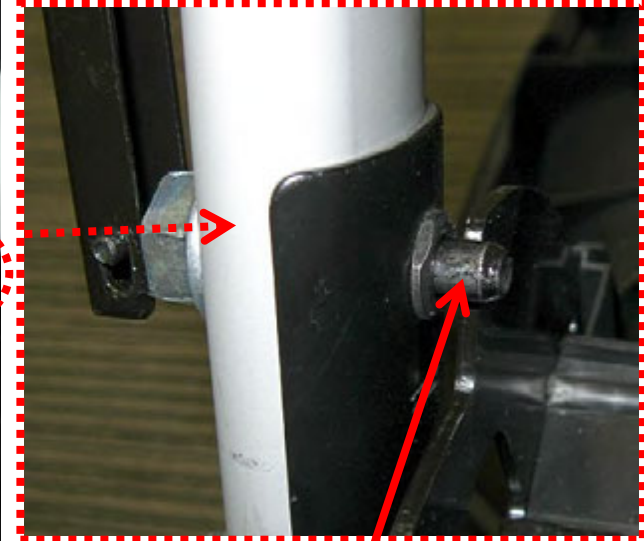
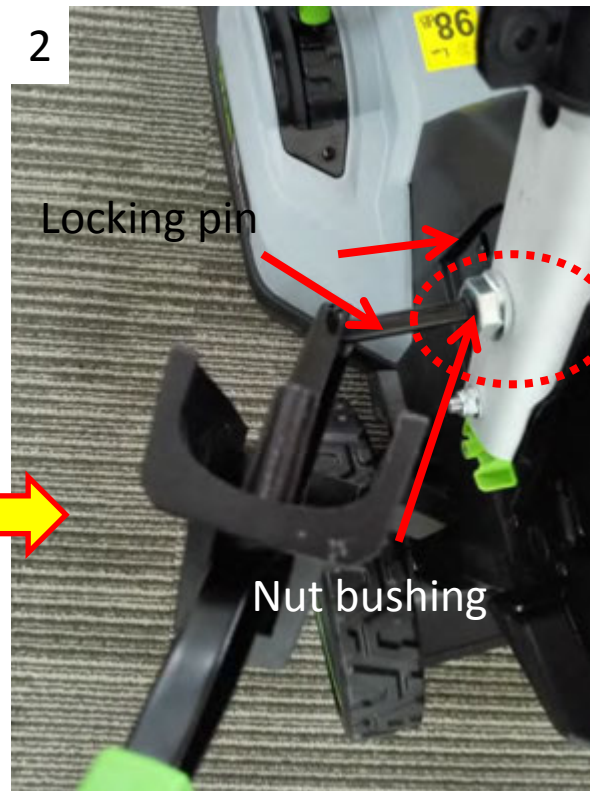
13. Lock the connection clamp and flat clamp with the removed screws to fix the shaft on the mower deck.



Handle Assembly Replacement

LM2100SP Lawn Mower

14. Pass the handle lever set through the decorative cover (Fig. 1).
15. Move the handle to grass bag removal position.
16. Align the locking pin with the nut bushing, fully force the pin into the bushing and let the pin extend out of the side tube so that the handle can be locked at the position (Fig. 2).

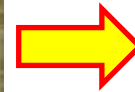
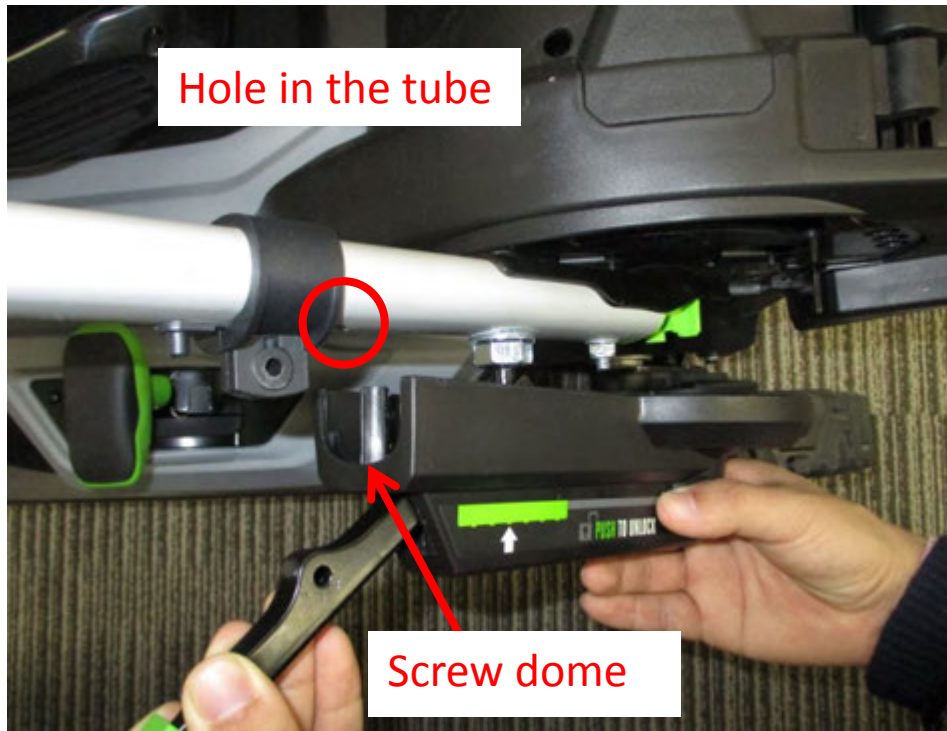


Extend the pin out of the side tube so that the handle can be locked at the grass bag removal position

Handle Assembly Replacement

LM2100SP Lawn Mower

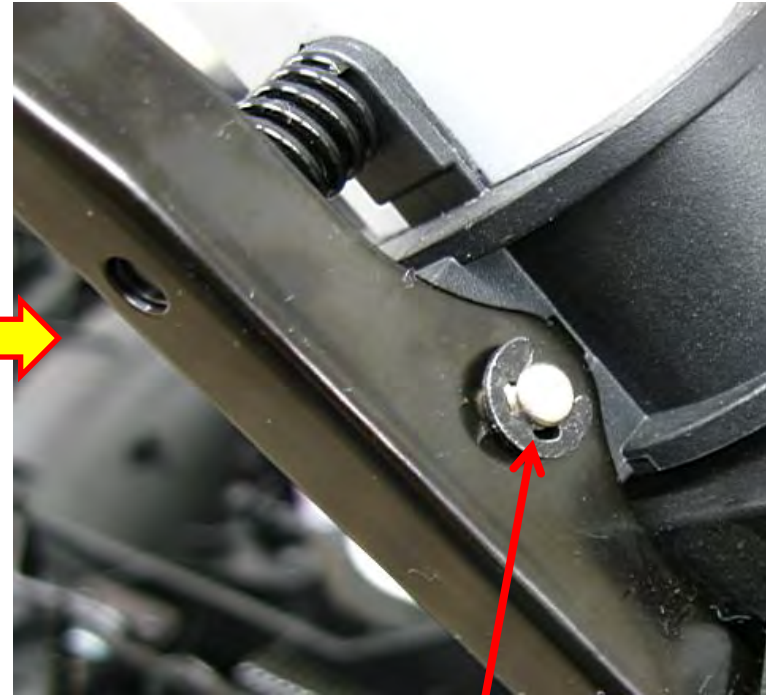
17. Align the screw dome with the hole in the side tube and mount the decorative cover onto side tube.
18. Fix the spring between the handle lever set and the side tube.



Handle Assembly Replacement

LM2100SP Lawn Mower

19. Hold the tube and lever, depress the lever to align the hole in the lever with the hole in the plastic part.
20. Fully insert the pin and lock the pin with the E-clip from the backside.



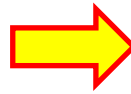
E-clip

Handle Assembly Replacement

LM2100SP Lawn Mower

21. Lock the decorative cover with 2 screws.

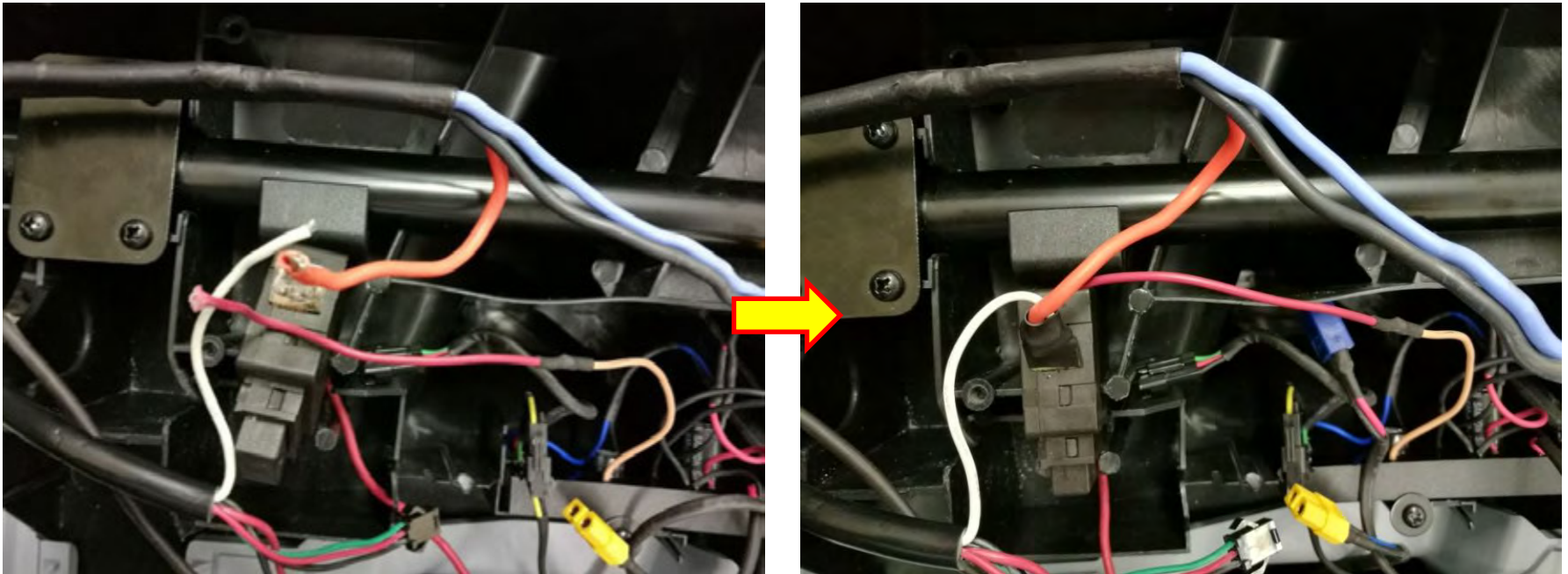
22. Test the lever function to check if it can lock the handle at different positions.



Handle Assembly Replacement

LM2100SP Lawn Mower

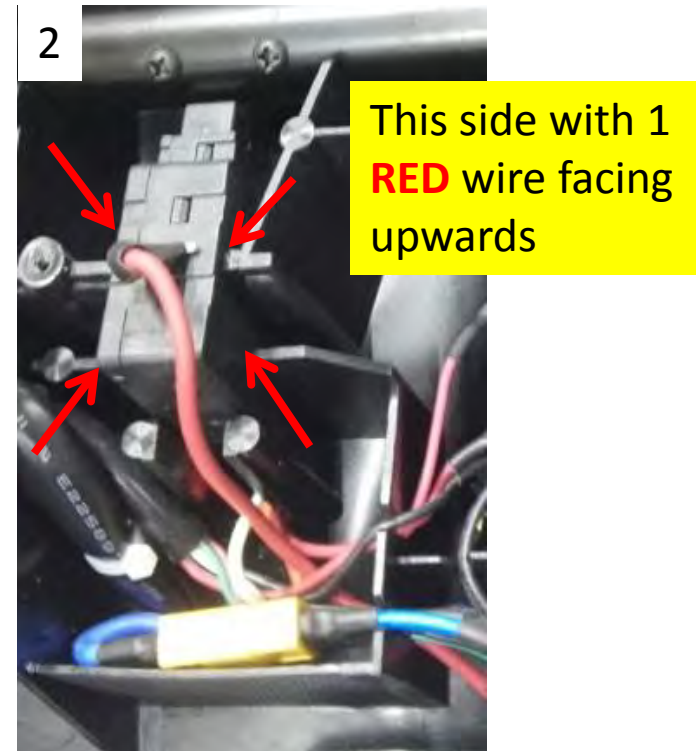
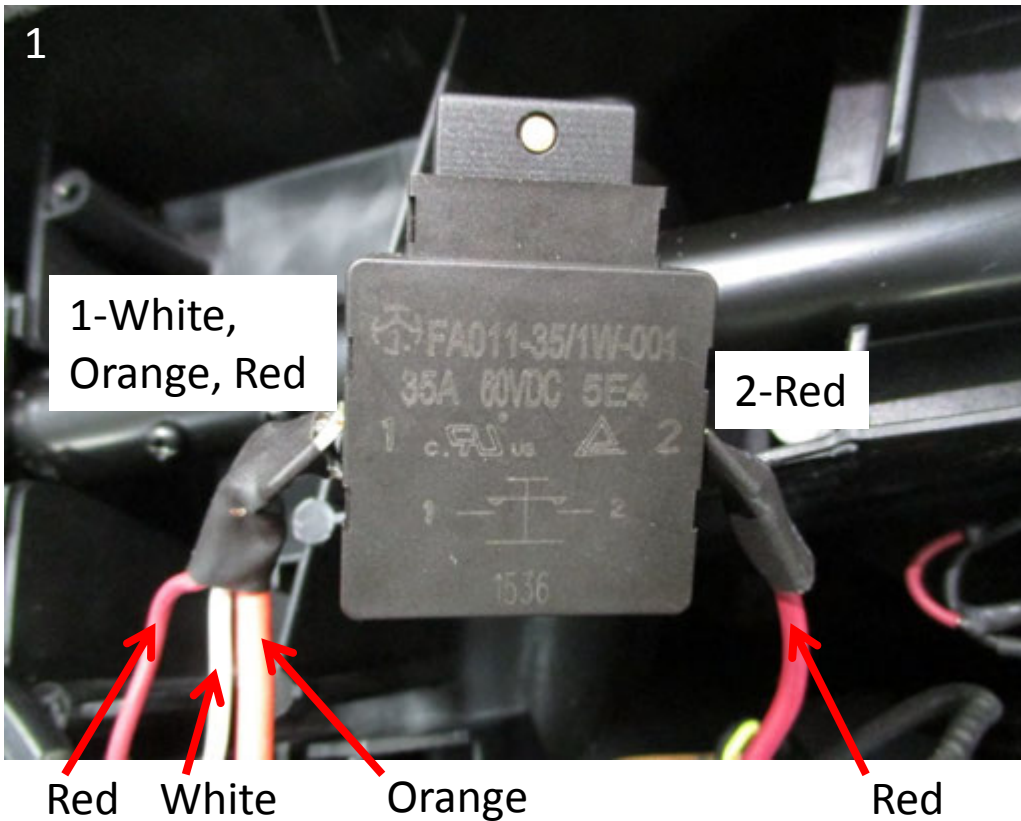
23. Put the new heat shrink sleeve one by one onto the cables and connect the cables with the handle position switch using the electric soldering iron.
24. Move the heat shrink sleeve onto the joint to cover the connecting point, finally shrink the sleeve with a heat gun.



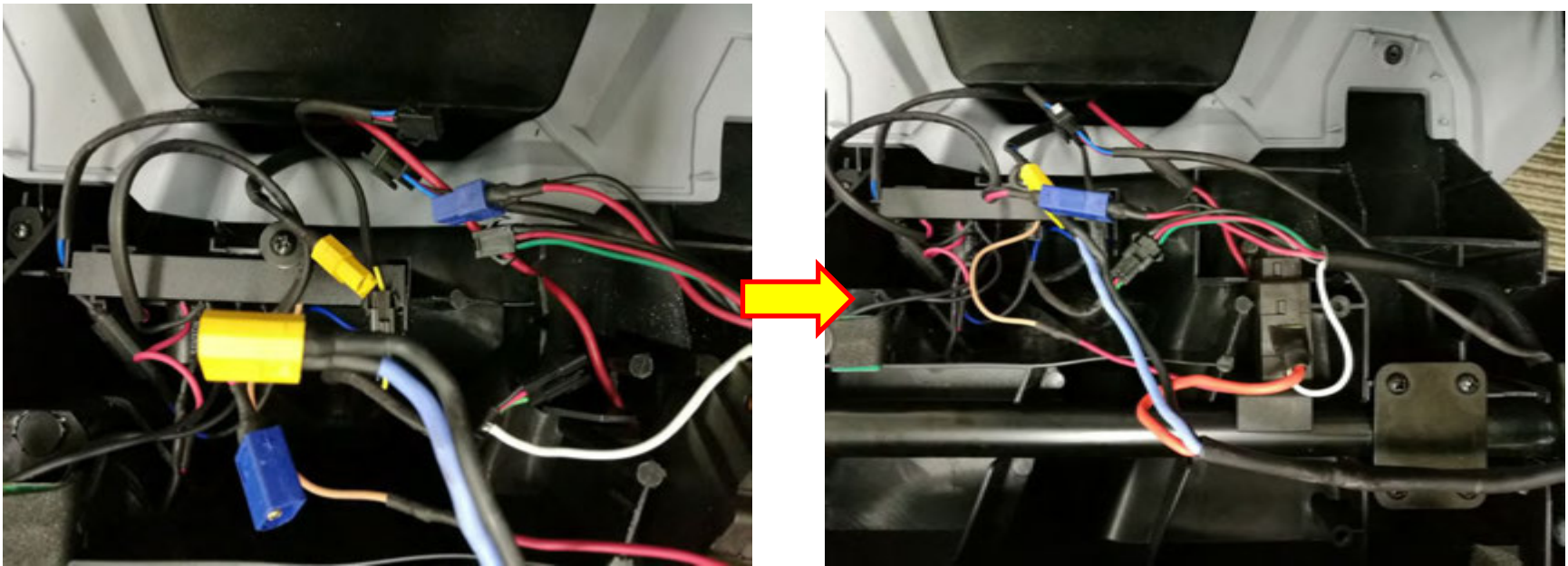
Handle Assembly Replacement

LM2100SP Lawn Mower

NOTICE: Cables connecting to the handle position switch must be correctly soldered as Fig. 1 shown and the side with 1 **RED** wire is facing upwards when the handle position switch is remounted (Fig. 2).



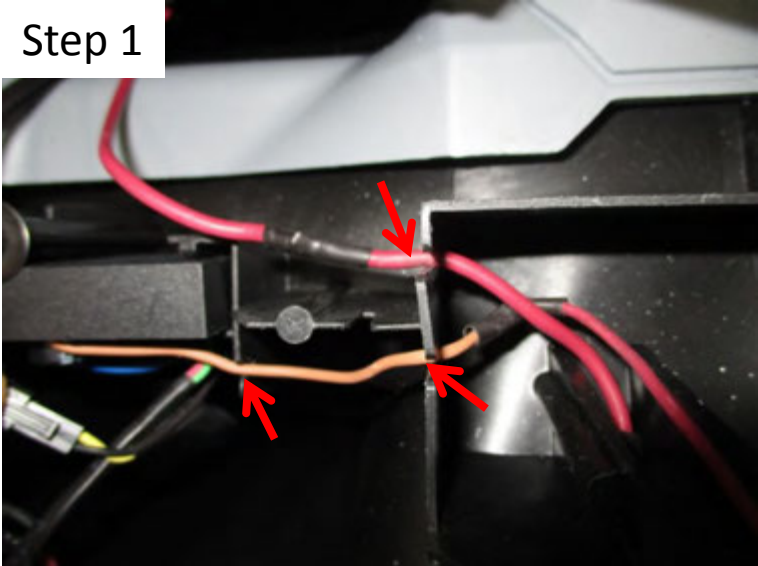
25. Connecting the 4 connectors that disconnected in step 2.



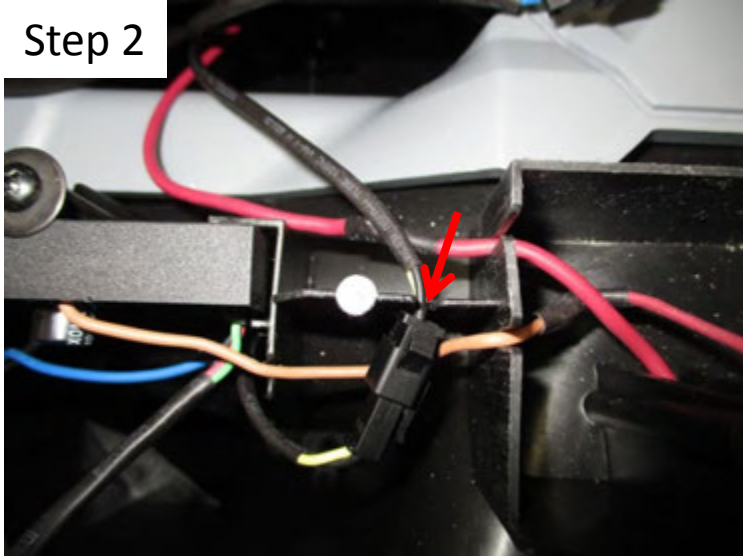
Handle Assembly Replacement

26. Align the wires into the grooves.

Step 1



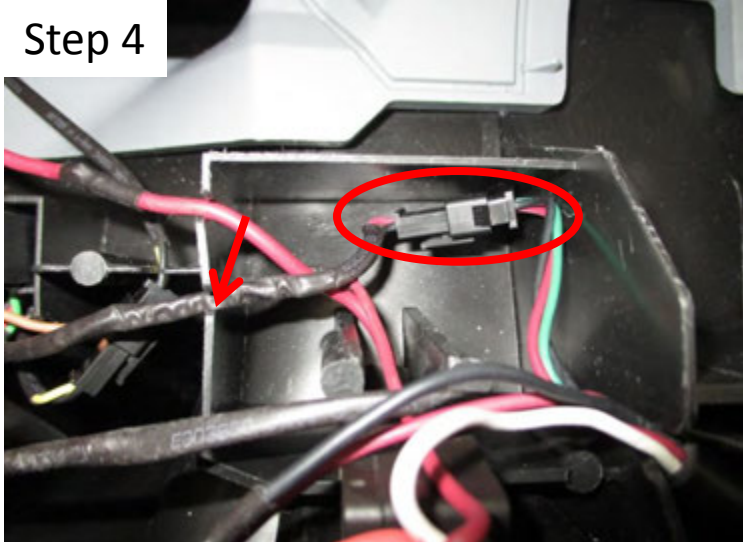
Step 2



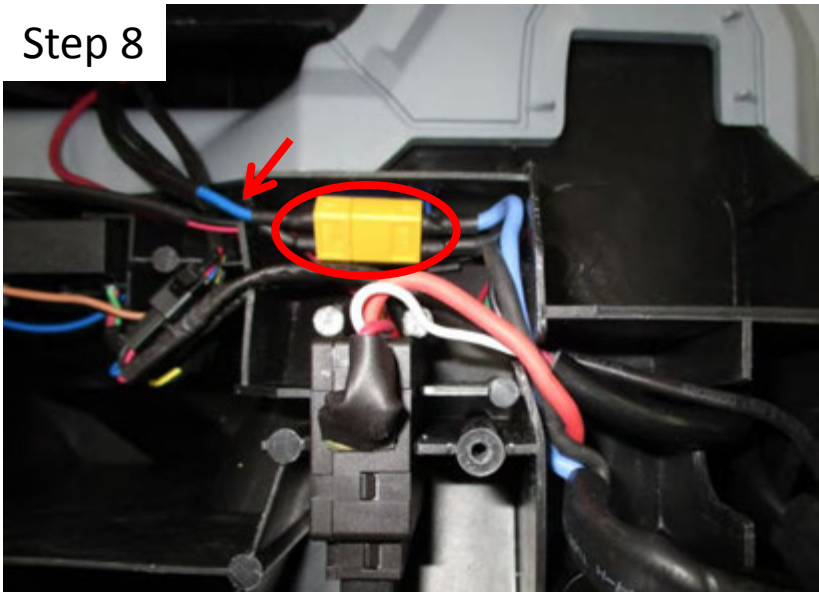
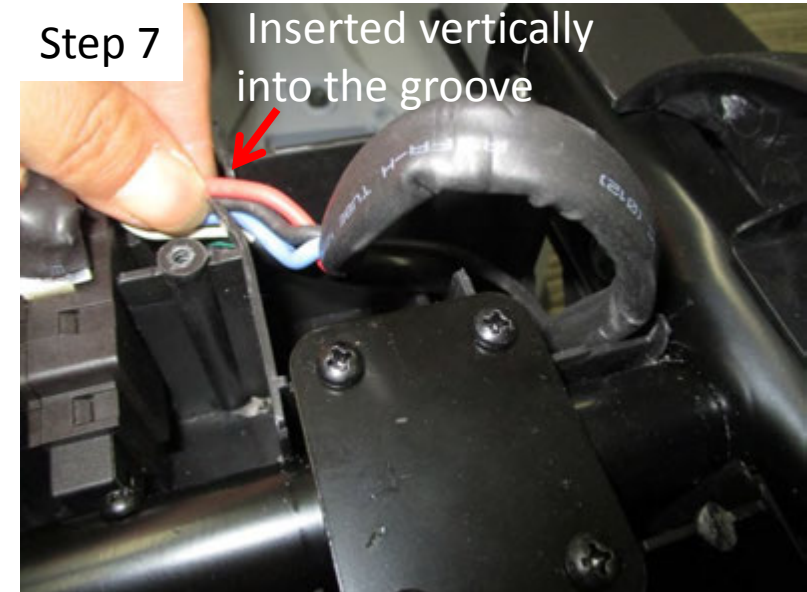
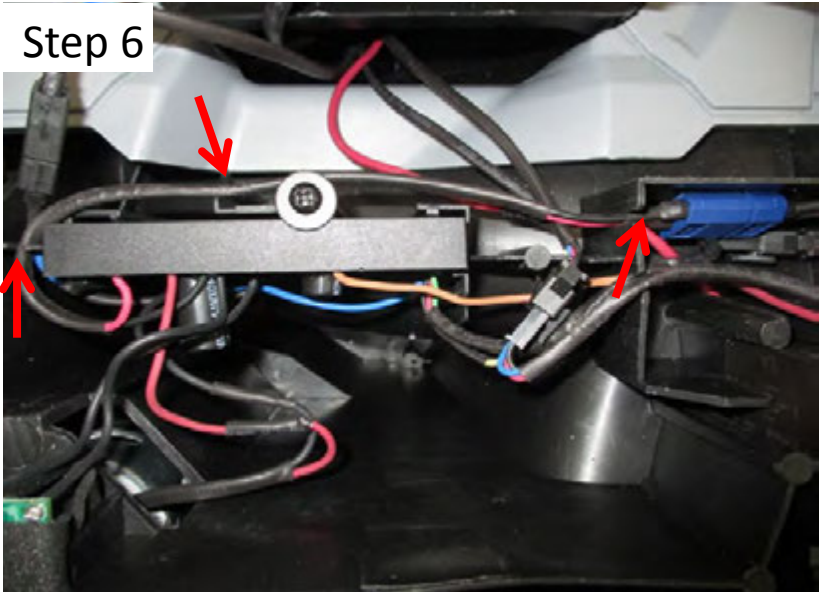
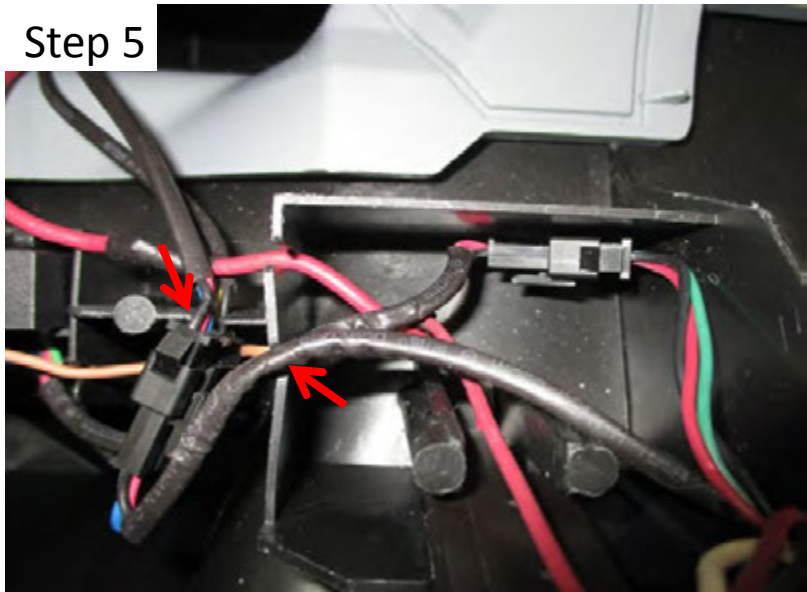
Step 3



Step 4



Handle Assembly Replacement



Handle Assembly Replacement

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27. Close the service cover and lock it with the 6pcs screws.



Service Cover

THE END