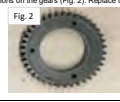
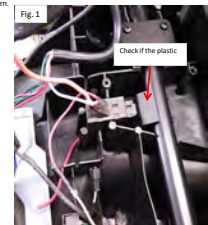


LM2100 LM2100SP Troubleshooting

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 P2# 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, replug 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, replug 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.	A part of main PCBA	Disassemble the power unit and check R2# on the main PCBA. If R2# is broken, replace with a new main PCBA.
Motor speed is unstable.	n/a	n/a	n/a	n/a	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.	SW1# in Switch Box; P1# in Service Cover	1. Open the switch box, check if the black cable is disconnected from the main switch SW1#, resolder it if needed. 2. Check the on/off function of SW1#, replace it if damaged. 2. Open the service cover, check if the connector P1# is connected in position.
Battery pack is stuck in the battery compartment and not able to be removed.	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.
	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.	<ol style="list-style-type: none"> 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> 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> 3. The self-propelled speed cannot be adjusted (LM2100SP). 4. The self-propelled function cannot be turned on (LM2100SP). 	<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.	<ol style="list-style-type: none"> 1. <u>Headlights cannot be turned on. Check the fuse on the PCBA is the first step.</u> 2. The tool cannot be turned on. The power indicator on the mower or battery indicator is ON or OFF, without typical phenomenon. 	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.

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.

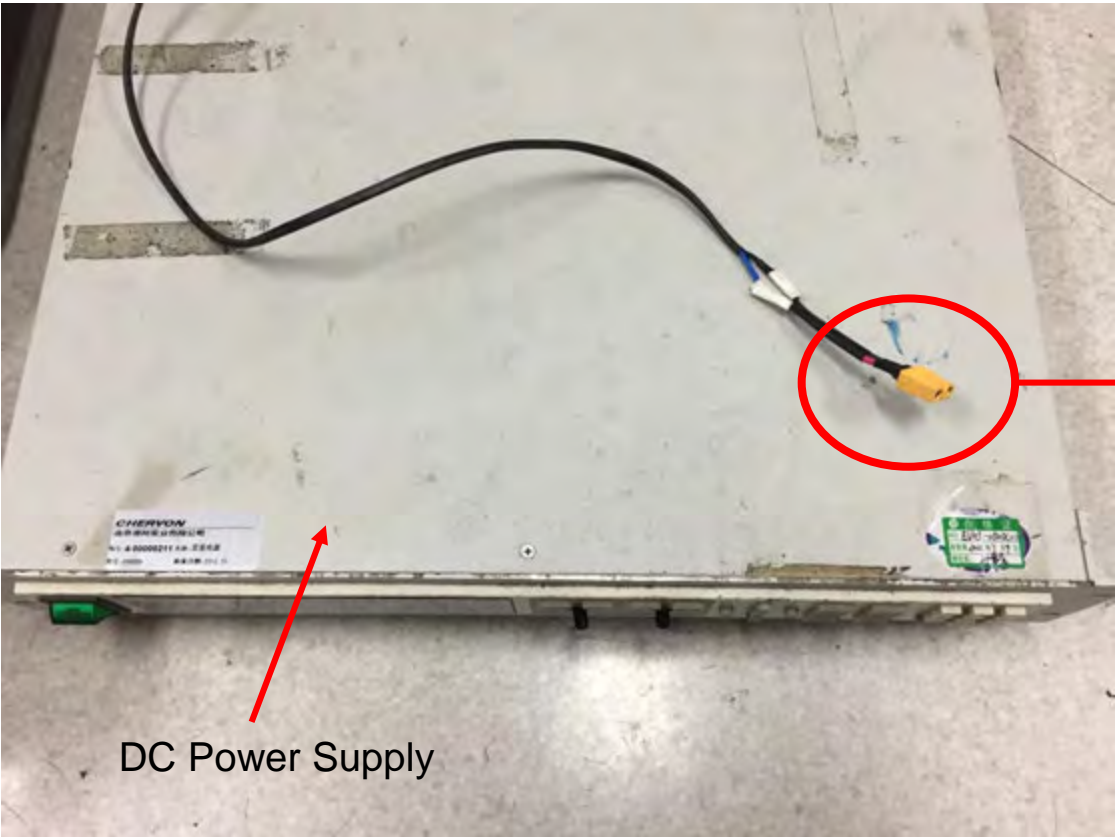
Draft by Aimin

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.

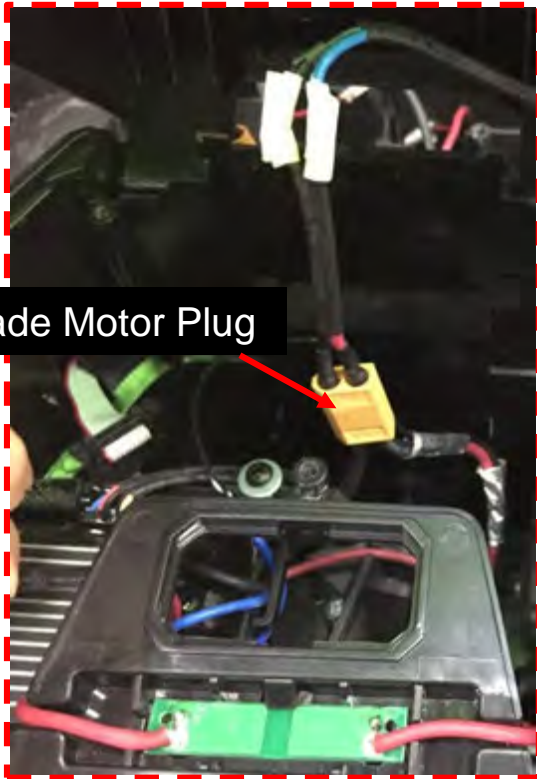


DC Power Supply

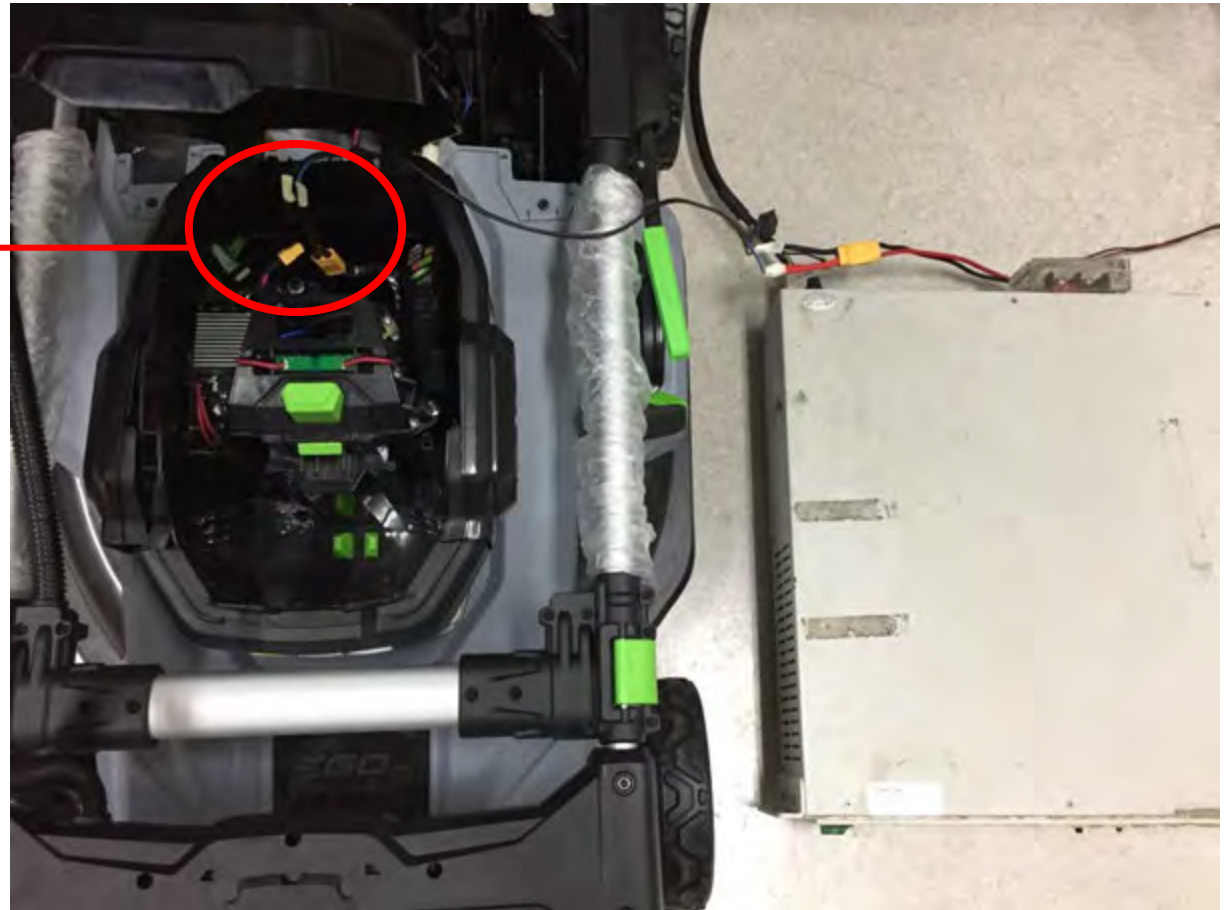


How to diagnose the motor

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.

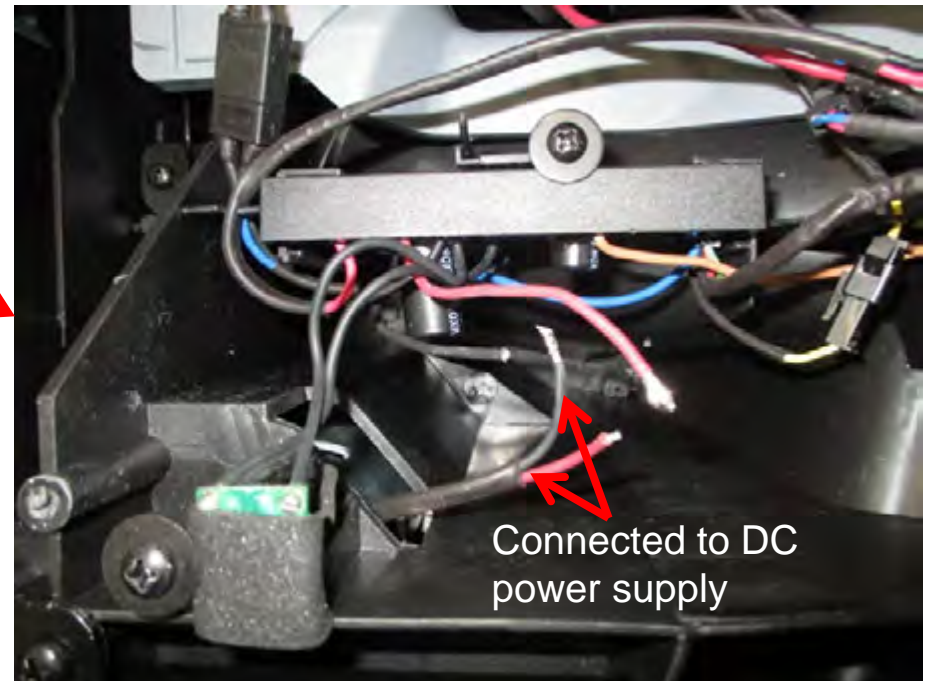


Blade Motor Plug



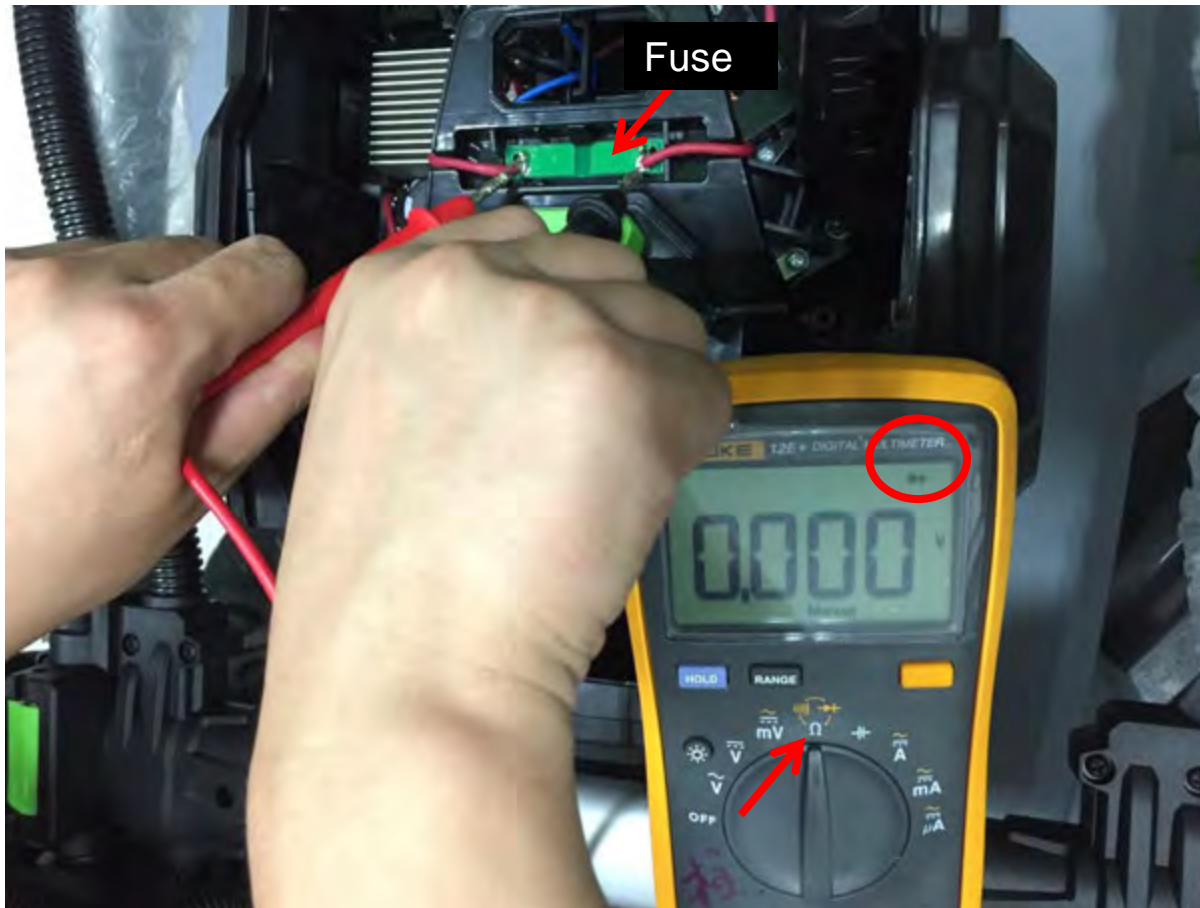
How to diagnose the motor

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.



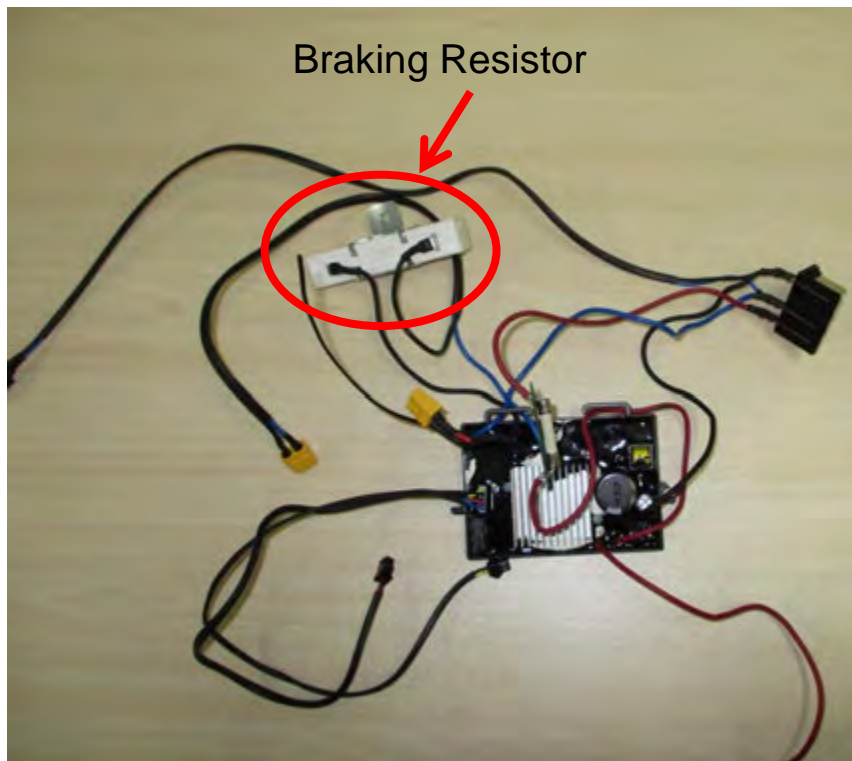
How to diagnose the main PCBA_Fuse

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.

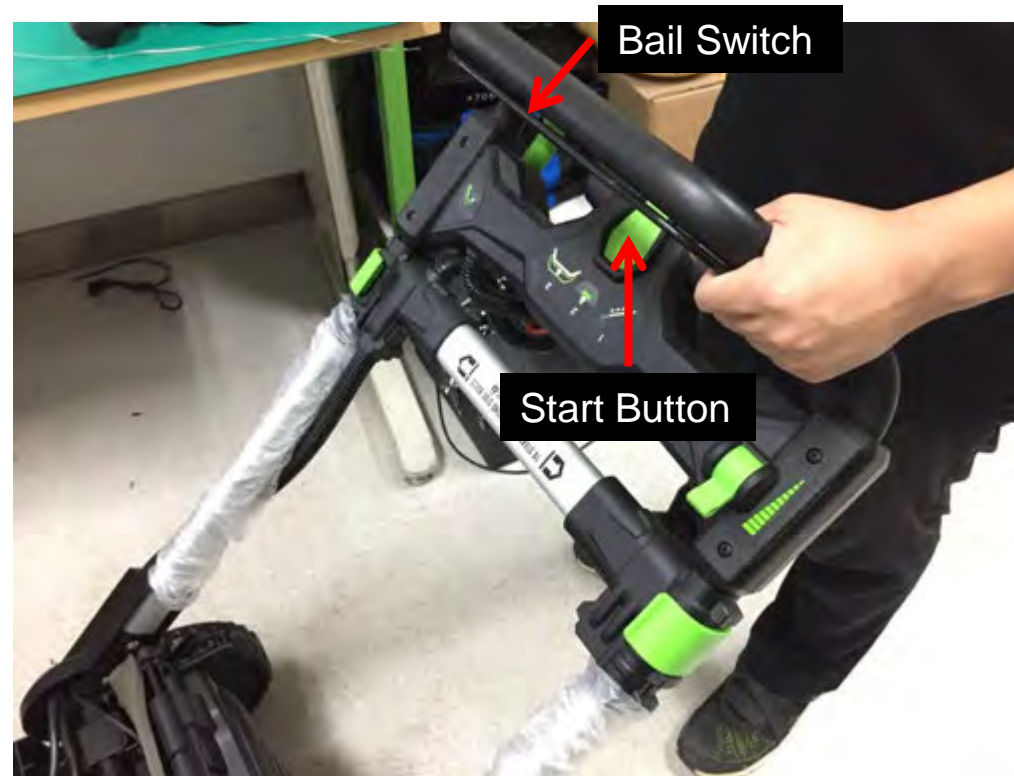


How to diagnose the main PCBA_MOSFET in the PCBA

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



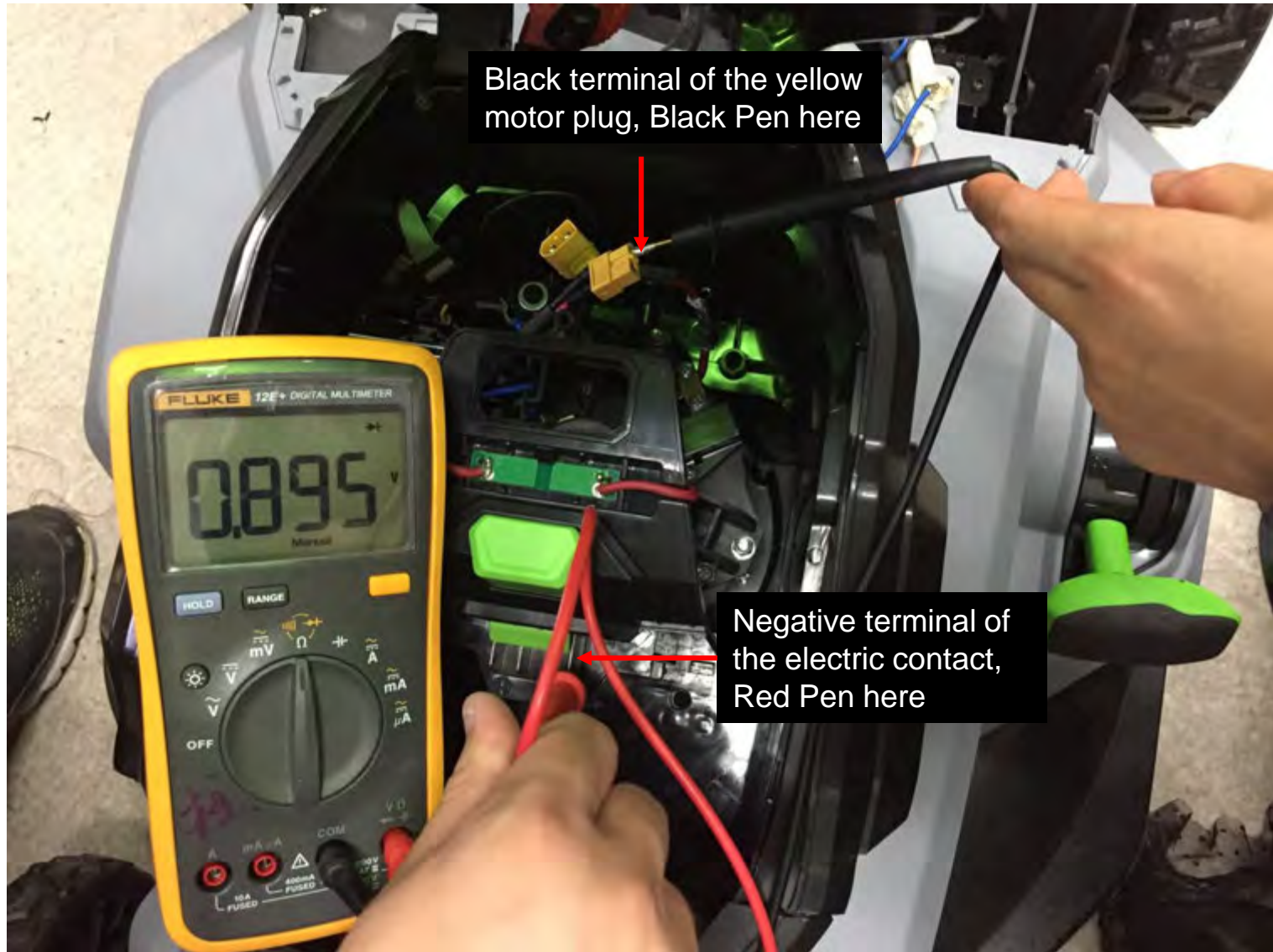
How to diagnose the main PCBA_MOSFET in the PCBA

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



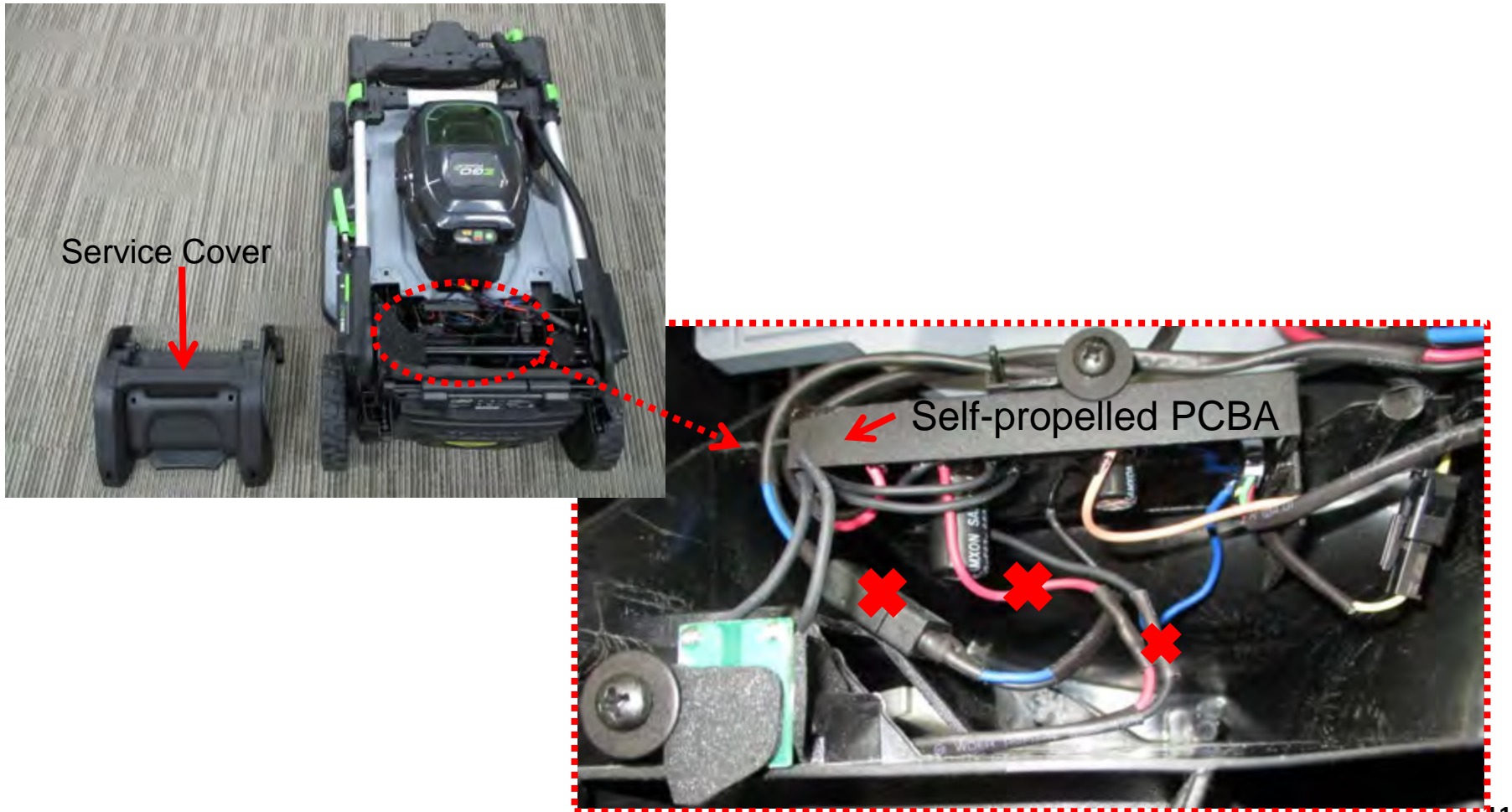
- a) Keep the Multimeter function setting at “Diode measuring”.
- b) Contact the red pen pin to the negative terminal of the electric contacts while the black pen pin contacting to the black terminal of the yellow motor plug.
- c) If the LCD displays 0.80~0.95V (see next slide), all the MOSFETs in the 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.



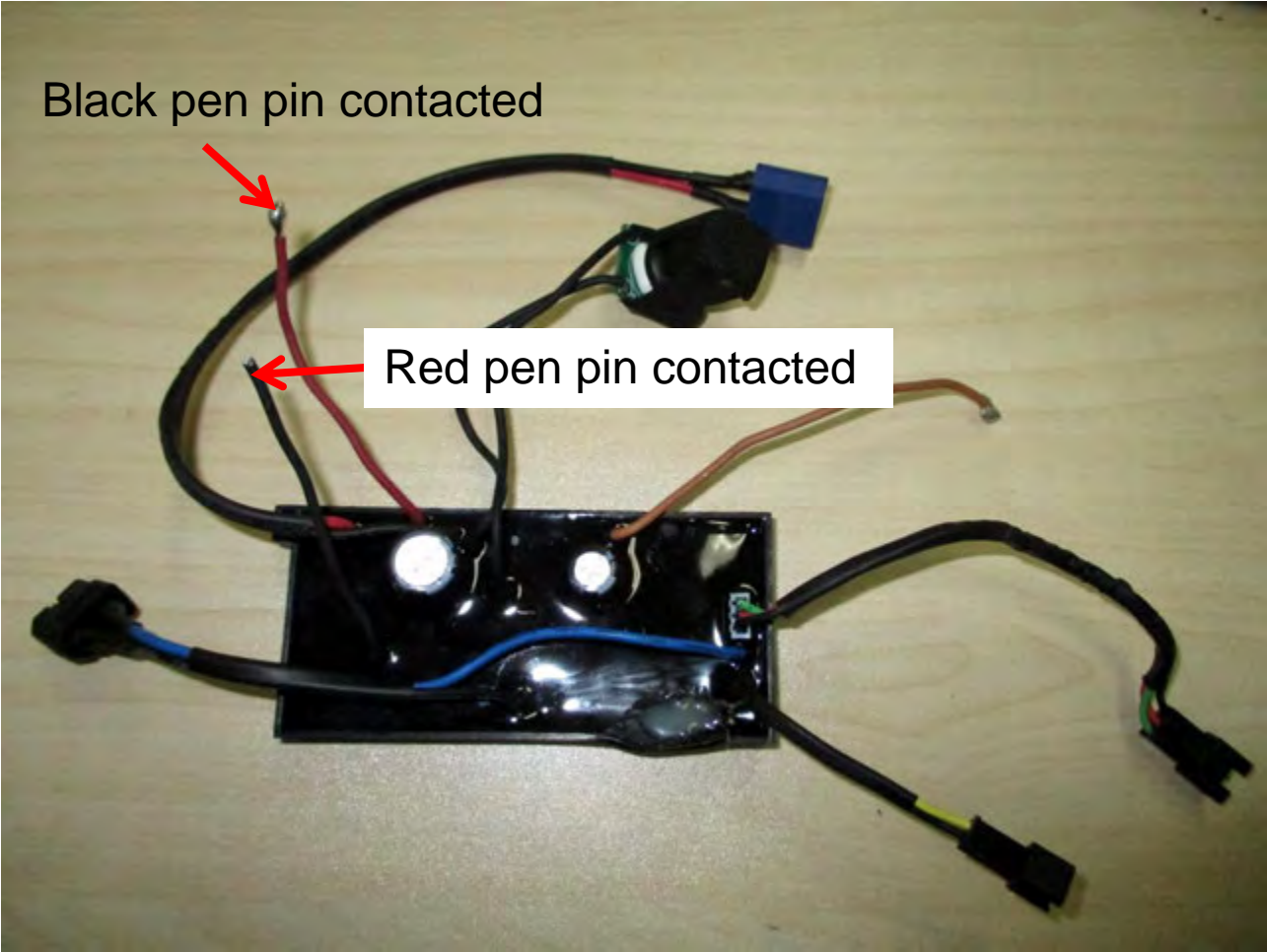
How to diagnose the self-propelled PCBA

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)

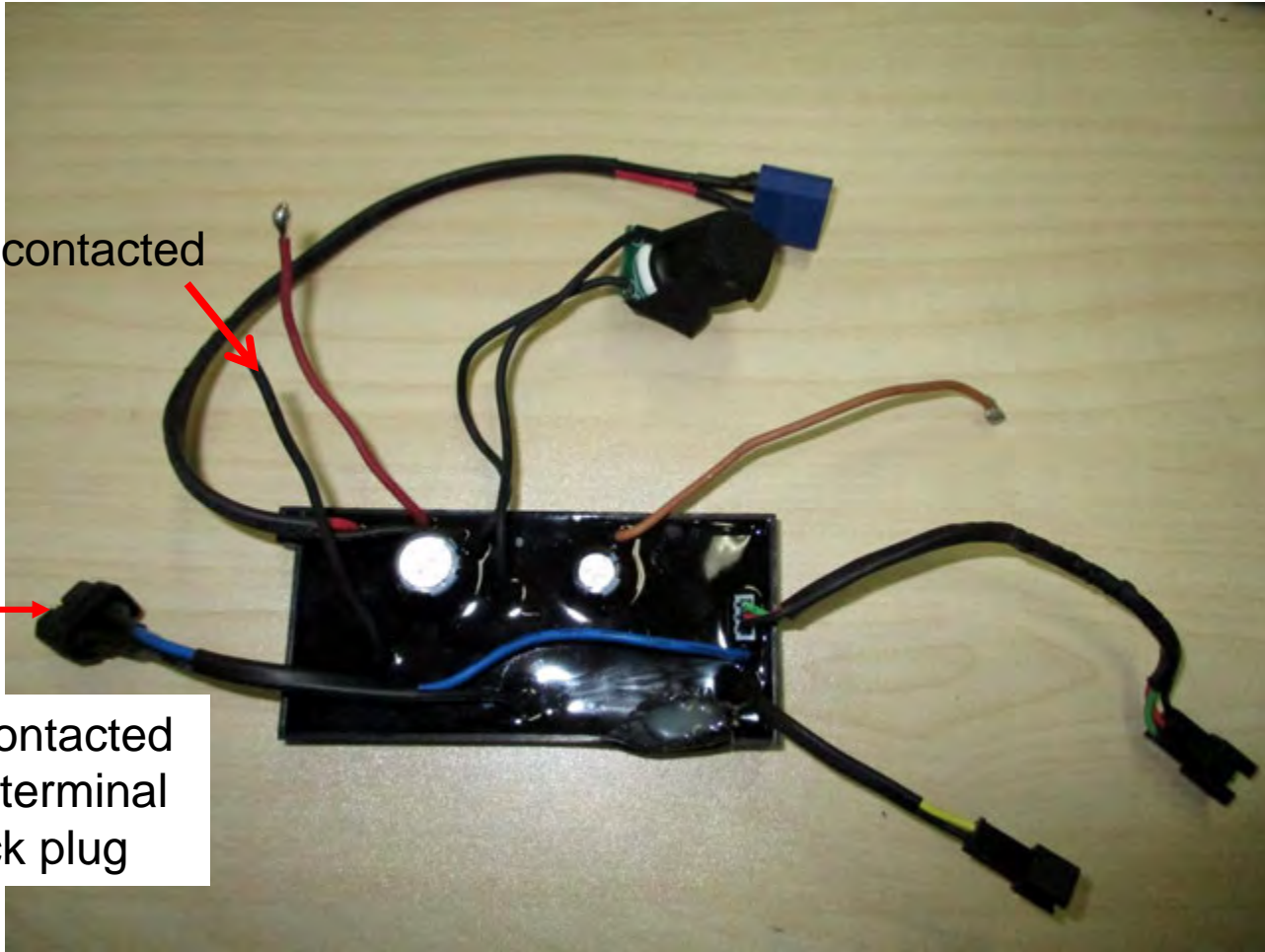


- Keep the Multimeter function setting at “Diode measuring”.
- Contact the red pen pin to the black terminal of the black plug while the black pen pin contacting to the black wire.
- If the LCD displays 0.40~0.55V (see next slide), all the MOSFETs in the PCBA are good, otherwise means the PCBA is broken.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

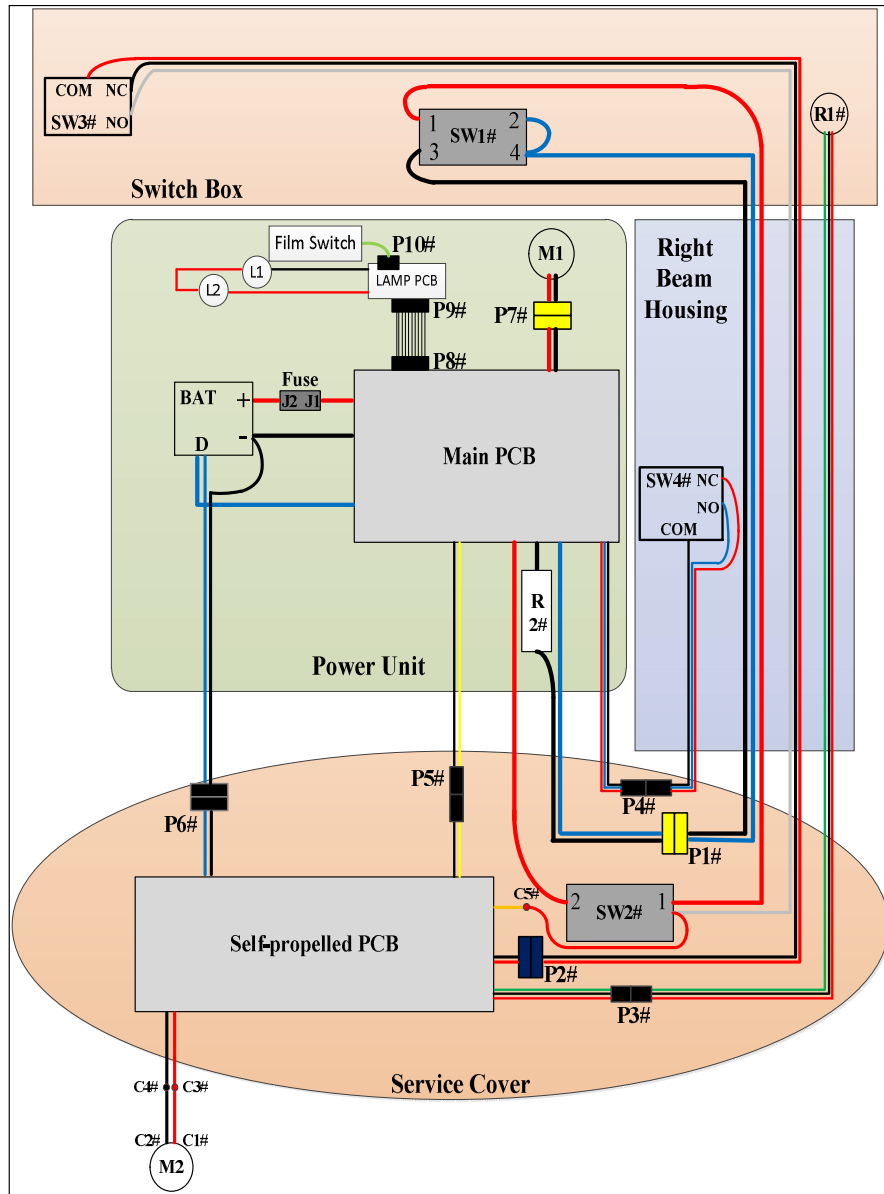
How to diagnose the self-propelled PCBA

Black pen pin contacted

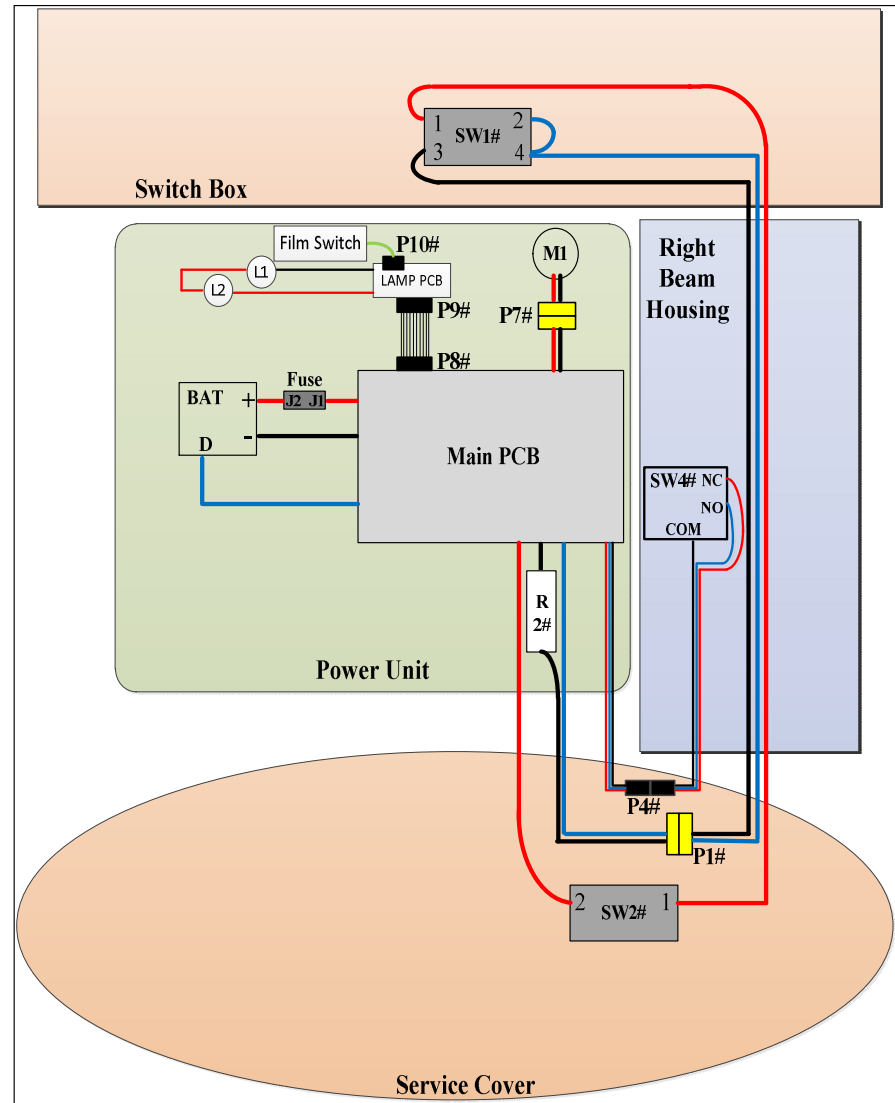
Red pen pin contacted
with the black terminal
inside the black plug



LM2100SP Wiring Diagram



LM2100 Wiring Diagram



REPAIR GUIDELINE

PART 1: BLADE REPLACEMENT_LM2100 Lawn Mower



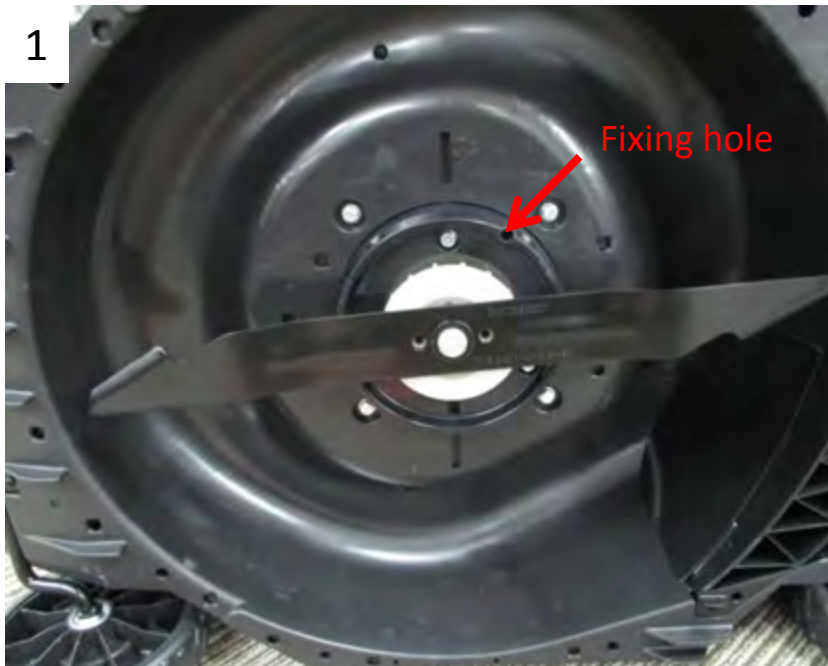
Table of Contents

NO.	Contents	Page
1	Blade Removal	3-5
2	Blade Installation	6-9

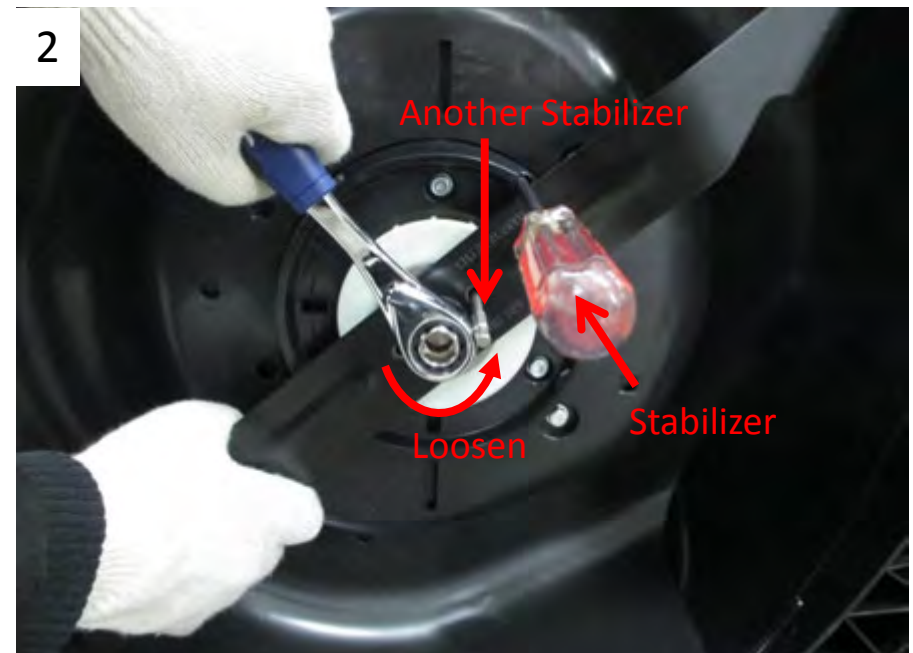
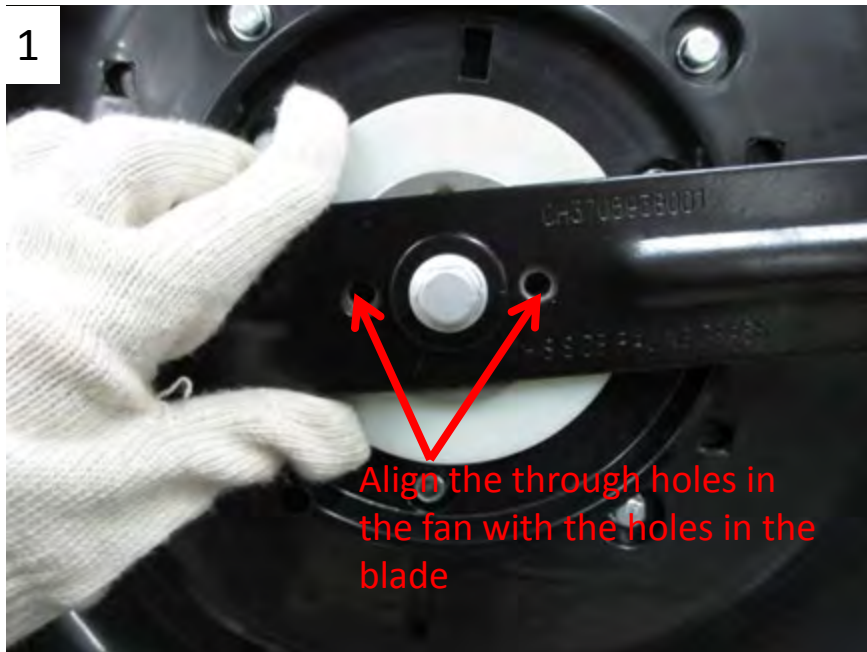
Blade Removal

LM2100 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).



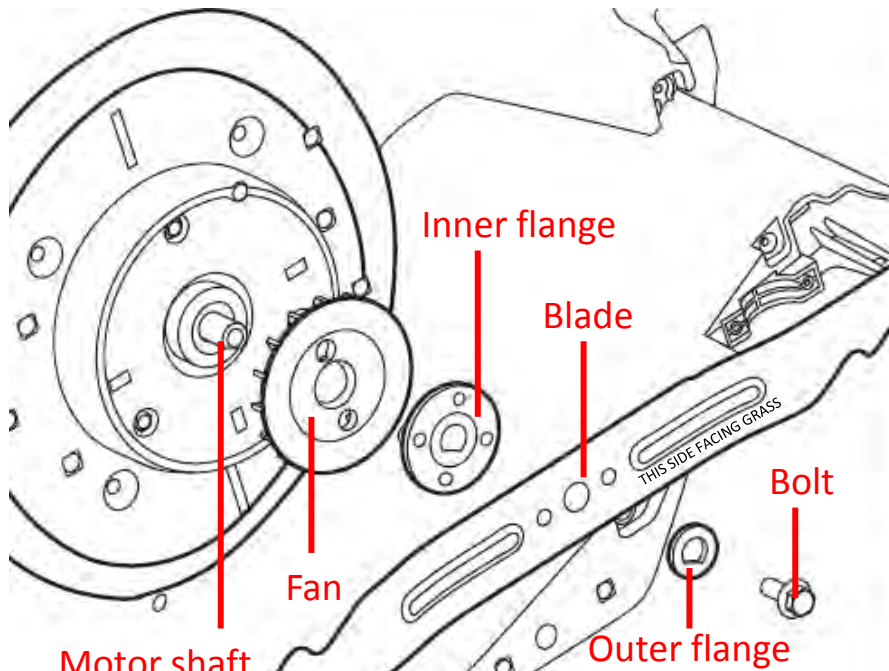
5. If the bolt rotates with the motor shaft when loosening the bolt, turn the fan by hand to align the through holes in the fan with the holes in the blade(Fig. 1), place another metal rod (e.g., a long bit) with diameter less than 1/4 inch (6.35mm) into the aligned holes to act as another stabilizer(Fig.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



Blade Removal

LM2100 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.

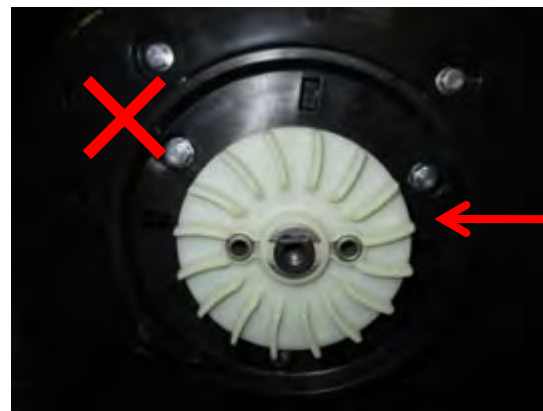
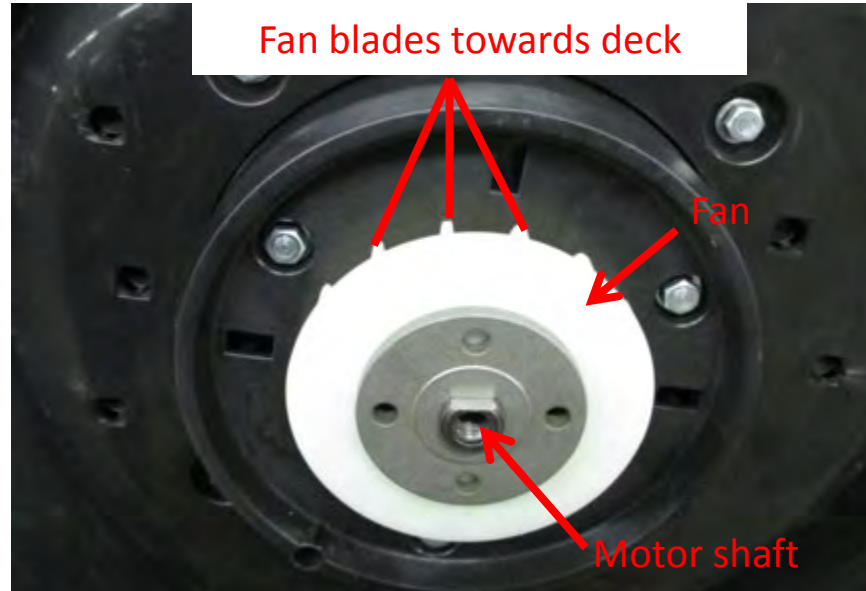
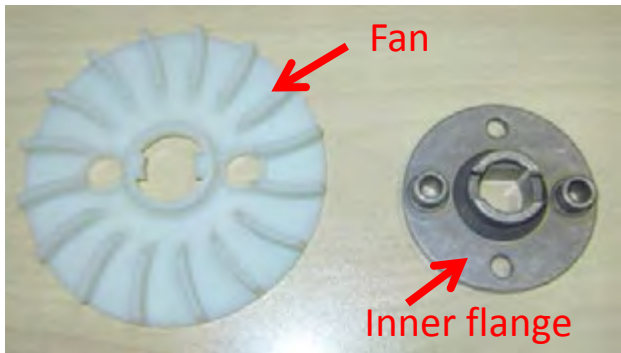


Description	Part Number
Bolt	5640226001
Outer flange	5650510001
Blade	3705938001
Inner flange	3520852002
Fan	3127847001



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.

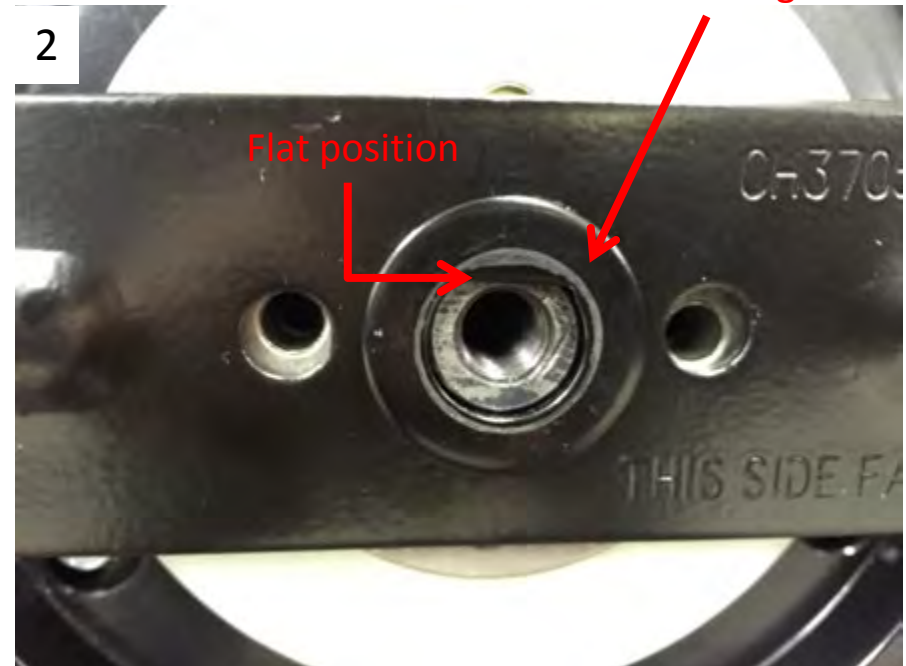


Wrong assembly of the fan

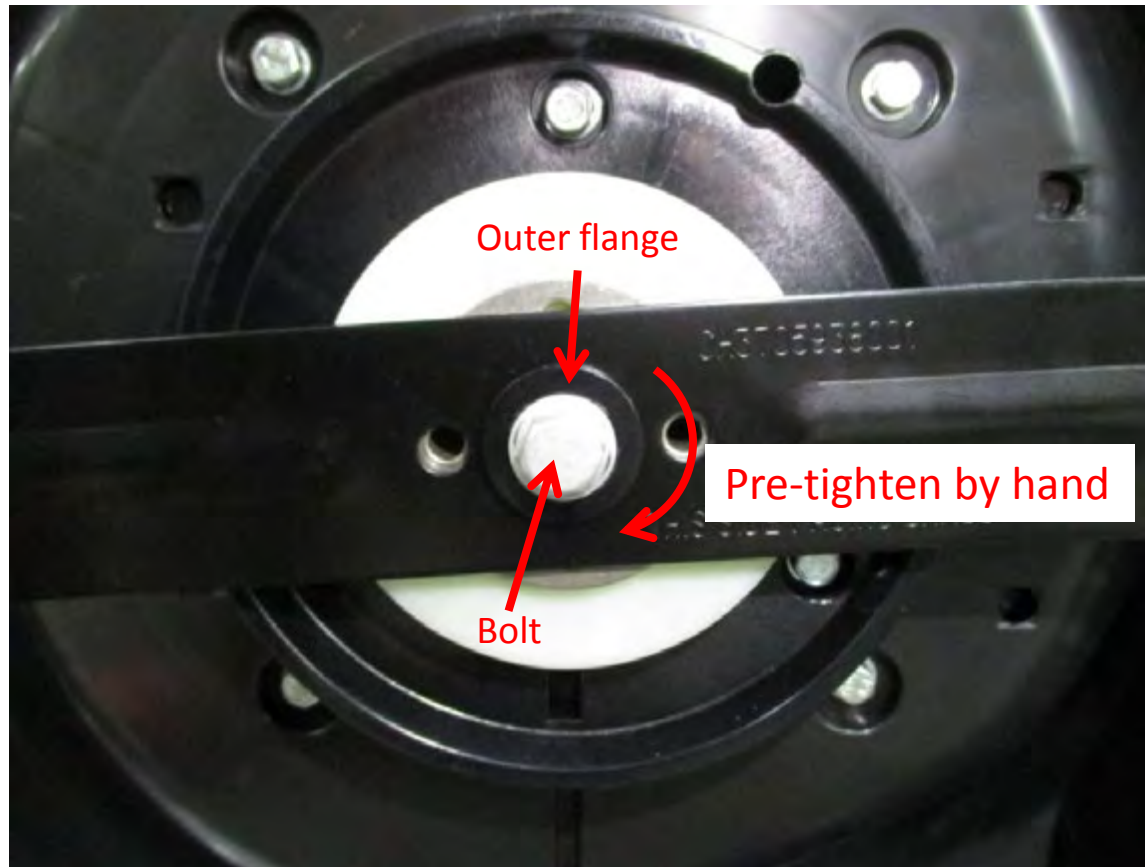
Blade Installation

LM2100 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).



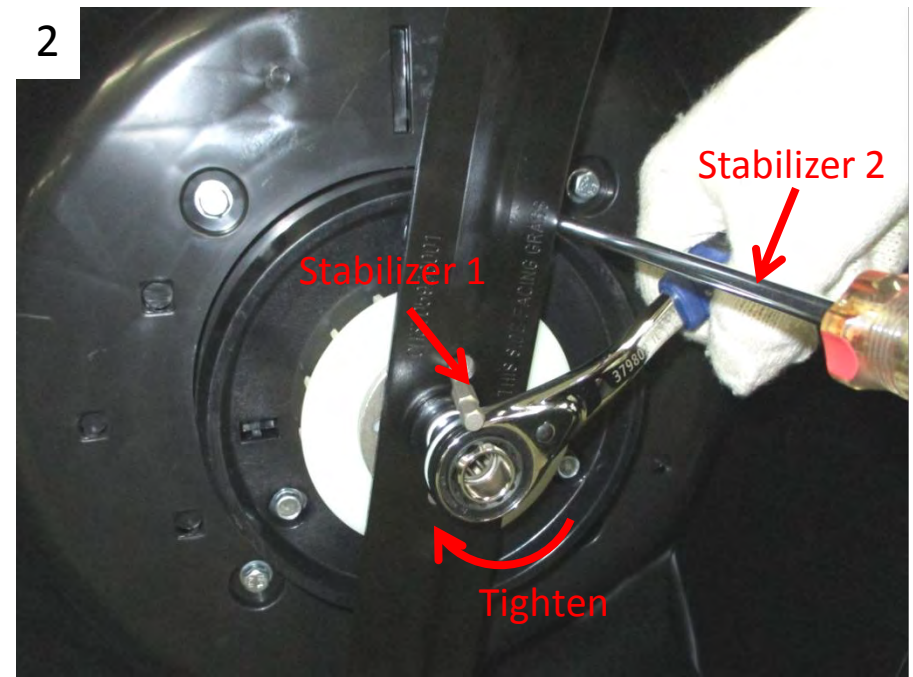
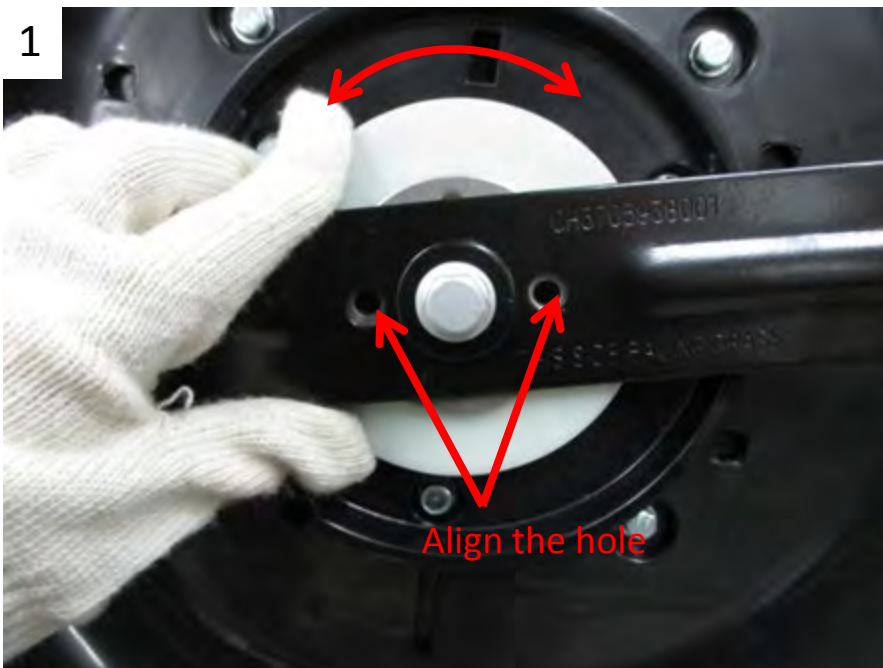
5. Mount the bolt into the shaft and pre-tighten it by hand.



Blade Installation

LM2100 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 manual 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_LM2100 Lawn Mower



Table of Contents

NO.	Contents	Page
1	Power Unit Removal	3-8
2	Motor ASSY Replacement	9-20
3	Main PCBA Replacement	21-32
4	Power Unit Assembly	33-39
5	Handle Position Switch Replacement	40

Power Unit Removal

LM2100 Lawn Mower

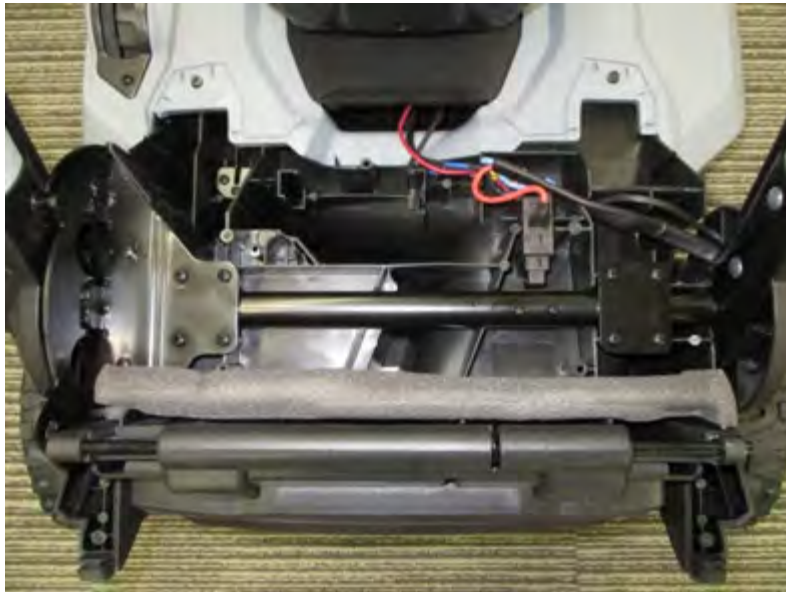
1. Before replacing or maintaining the parts in power unit or self-propelled unit, first fold the handle to the grass bag removal position to detach the service cover from the mower.



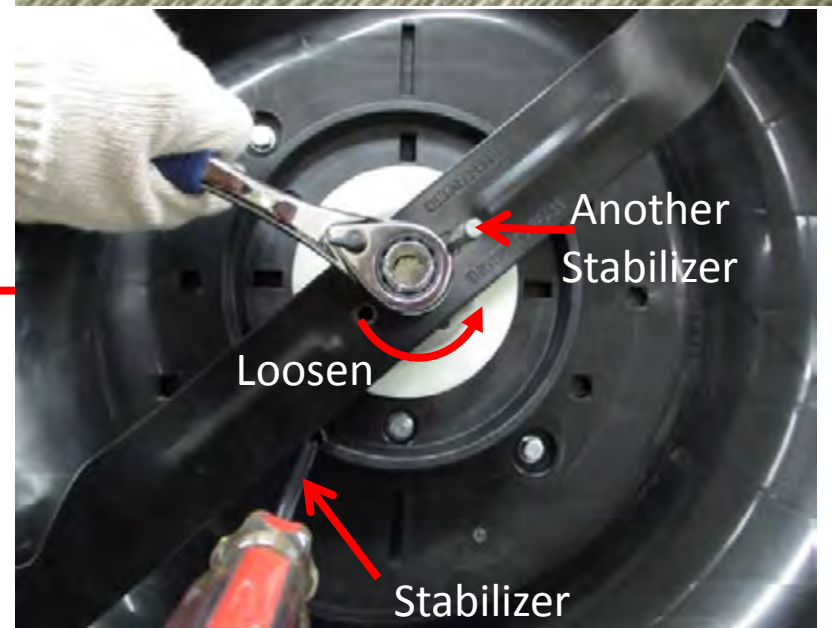
Service Cover

Power Unit Removal

LM2100 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_LM2100.pptx”*** shown.



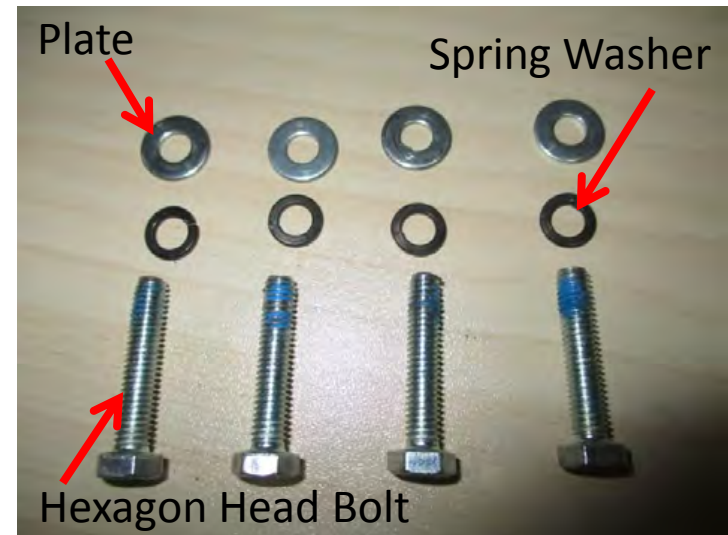
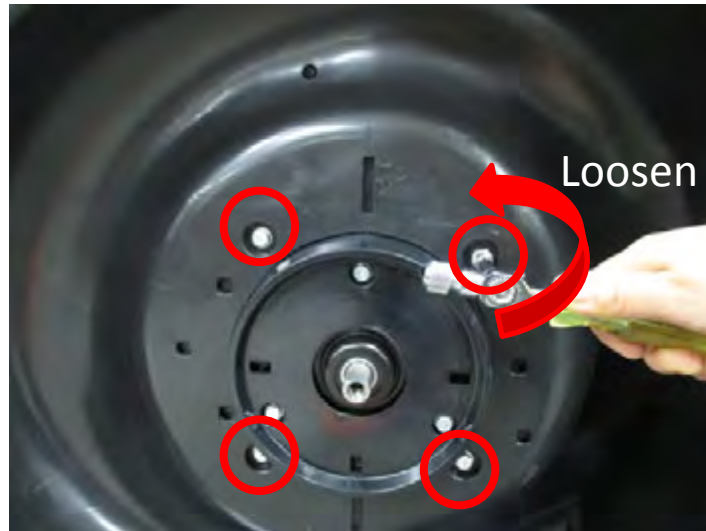
The following parts can be replaced only when the service cover is removed from the mower.

Description	Part Number
Power Unit	2824419001
Motor ASSY	2730232001
Main PCBA	2830119001
Rear Cover	3126689003
Rubber Gasket	3706018001
Handle Position Switch	4870566002

Power Unit Removal

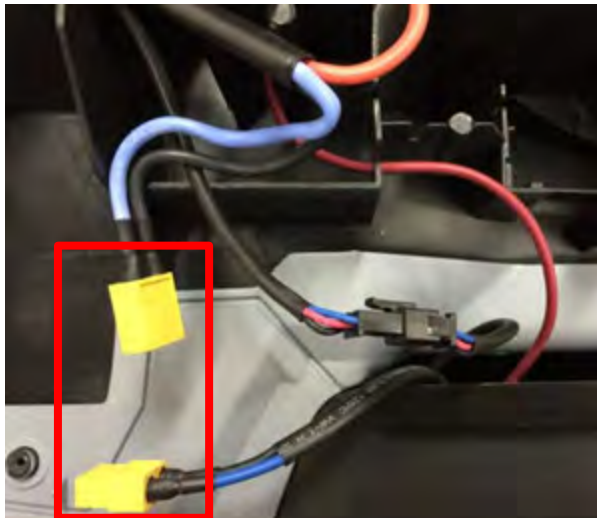
- Loosen the 4 hexagon head bolts with a 3/8" (S=10mm) socket wrench.

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

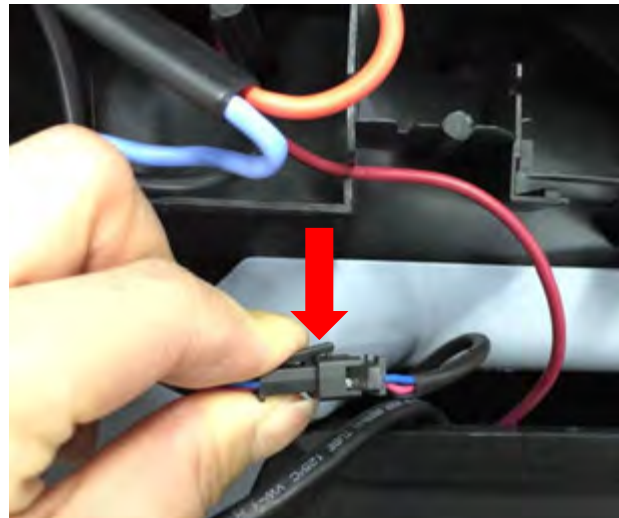


REMARK: The set of 1pc plate, 1pc spring washer and 1pc hex bolt will be replaced with 1pc combined bolt, supplied as one part#.

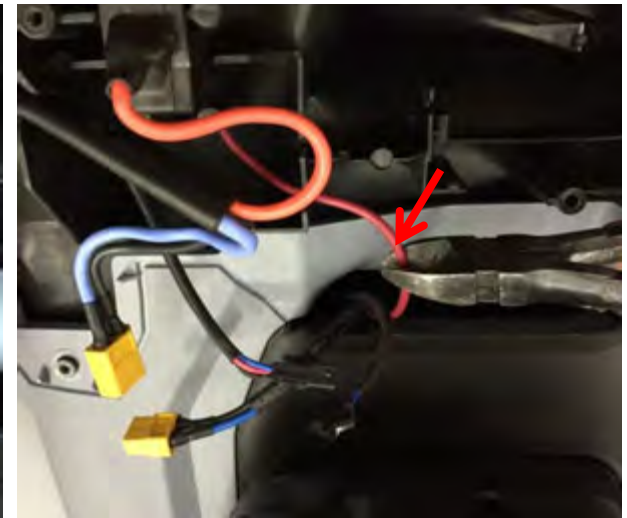
4. Separate the yellow plug and black plug and cut off the red wire to disconnect the power unit from the main switch, microswitch and handle position switch.



Yellow plug connecting with main switch



Black plug connecting with microswitch



Red wire connecting with handle position switch

Power Unit Removal

LM2100 Lawn Mower

5. Take the power unit apart from the mower.



Description	Part Number
Power Unit	2824419001

Motor ASSY Replacement

LM2100 Lawn Mower

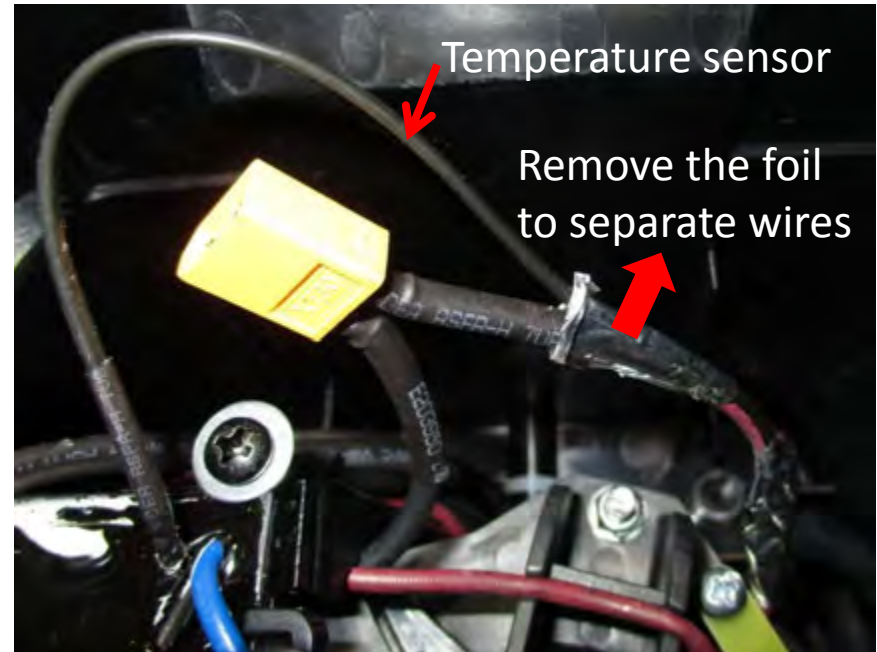
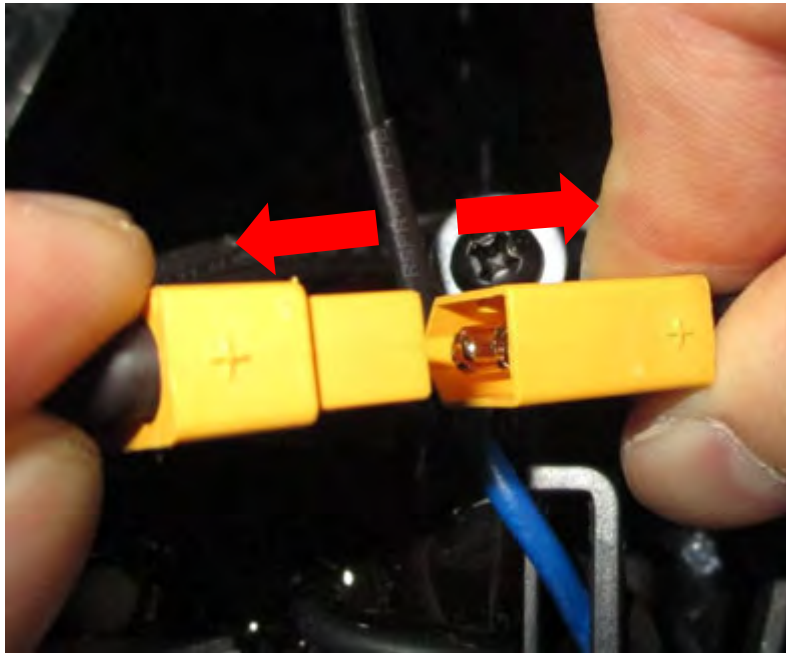
1. Open the battery cover and support it, such as a screwdriver, and loosen the 5 screws to remove the inner cover.



Motor ASSY Replacement

LM2100 Lawn Mower

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

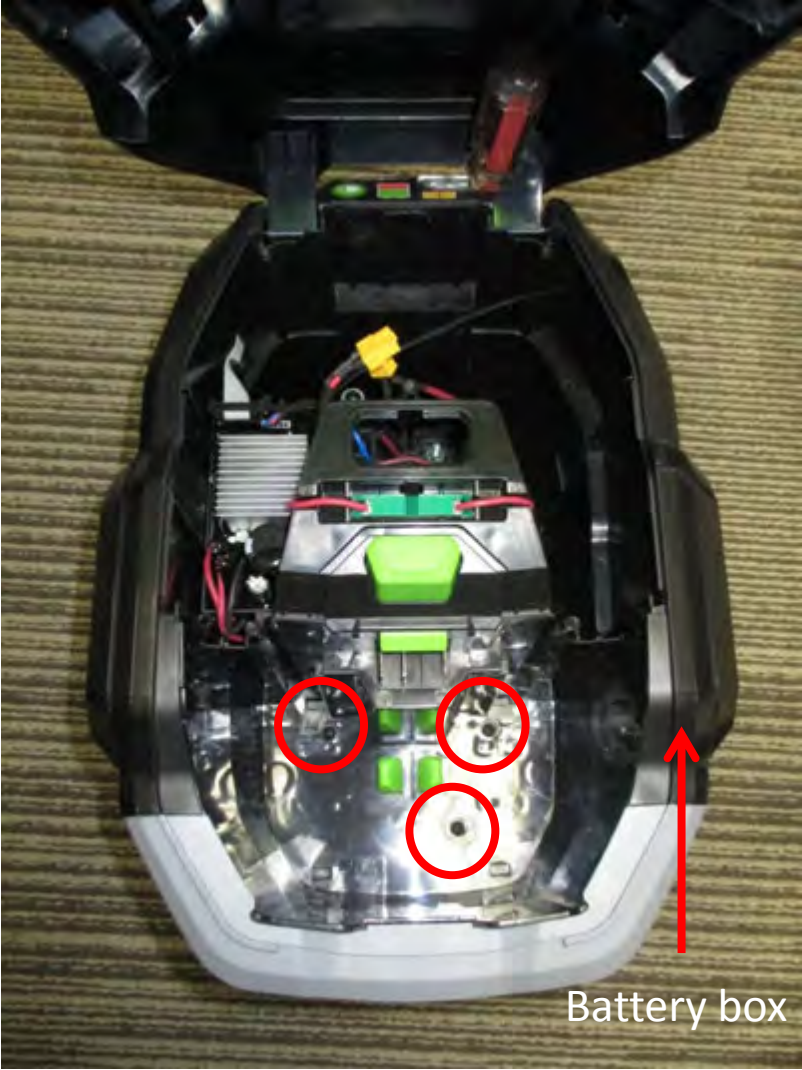


4. Test the motor by connecting the motor cables(The yellow plug) to a DC power supply (43VDC). If the motor doesn't run, replace the motor. Otherwise check other possible cause, e.g. PCBA.

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

Motor ASSY Replacement

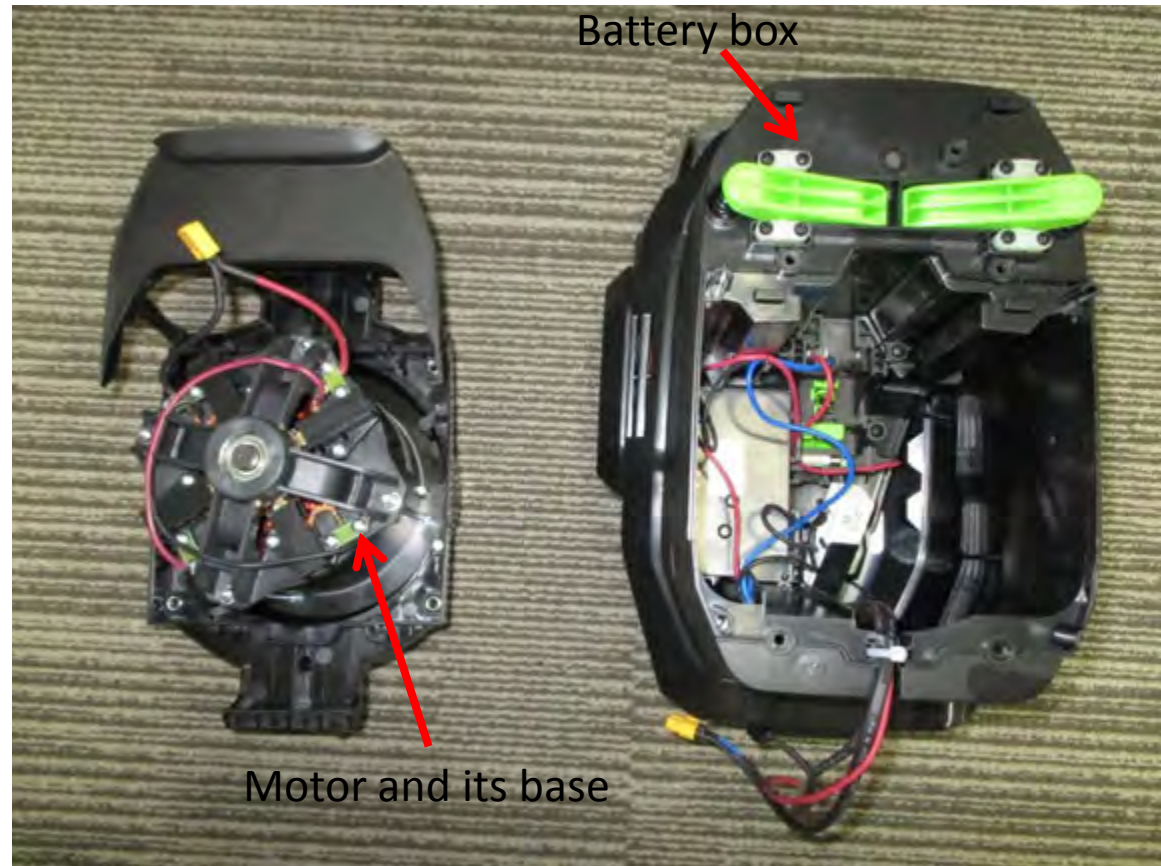
- 5. Remove the 5 screws to separate the motor and base from the battery box.



Motor ASSY Replacement

LM2100 Lawn Mower

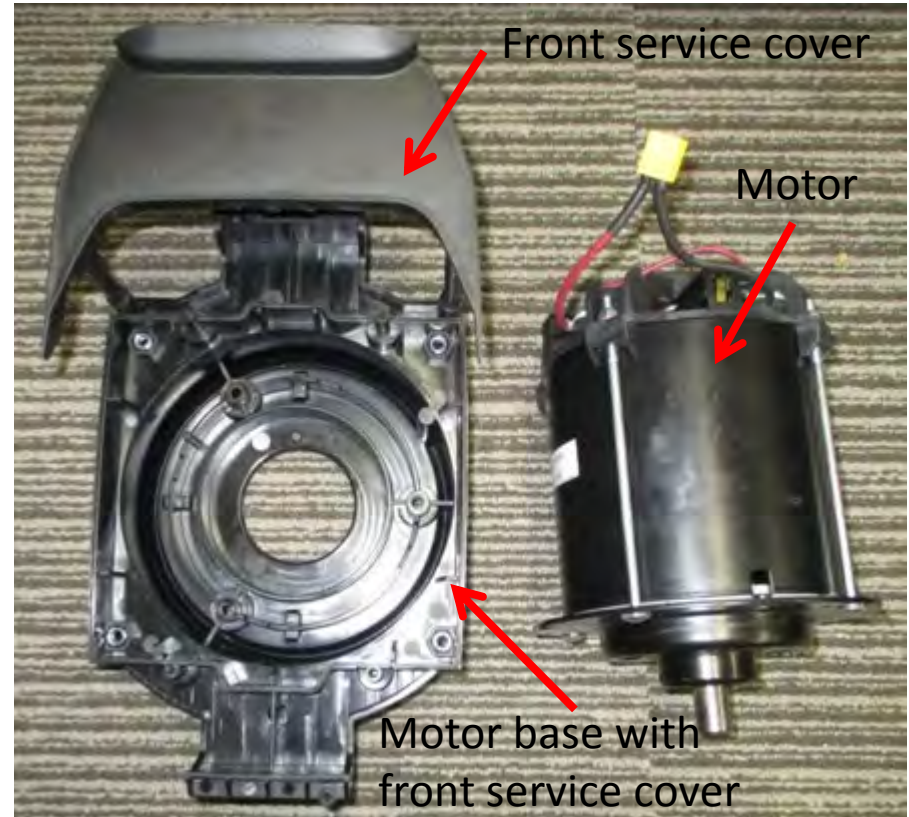
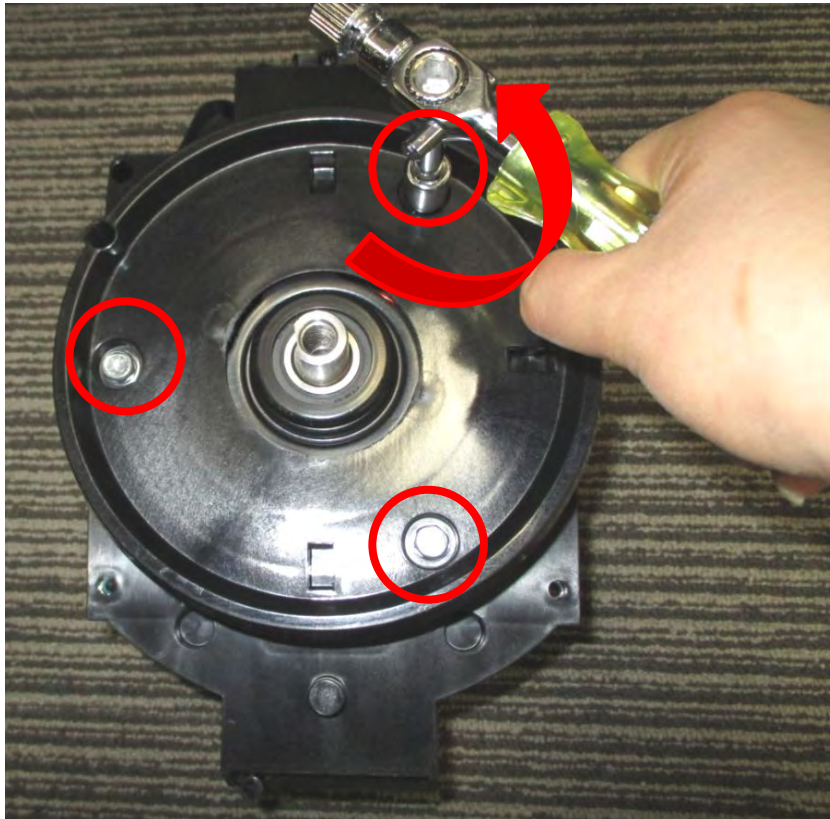
6. Cut off the white zip ties with a Diagonal Pliers to take out the motor and base from the battery box.



Motor ASSY Replacement

LM2100 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

LM2100 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.

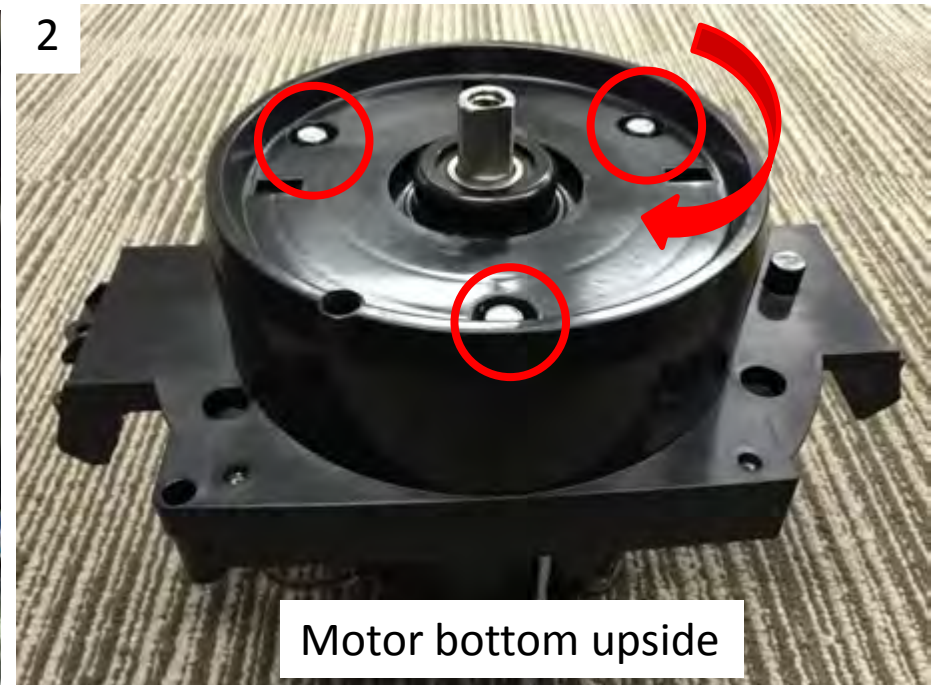
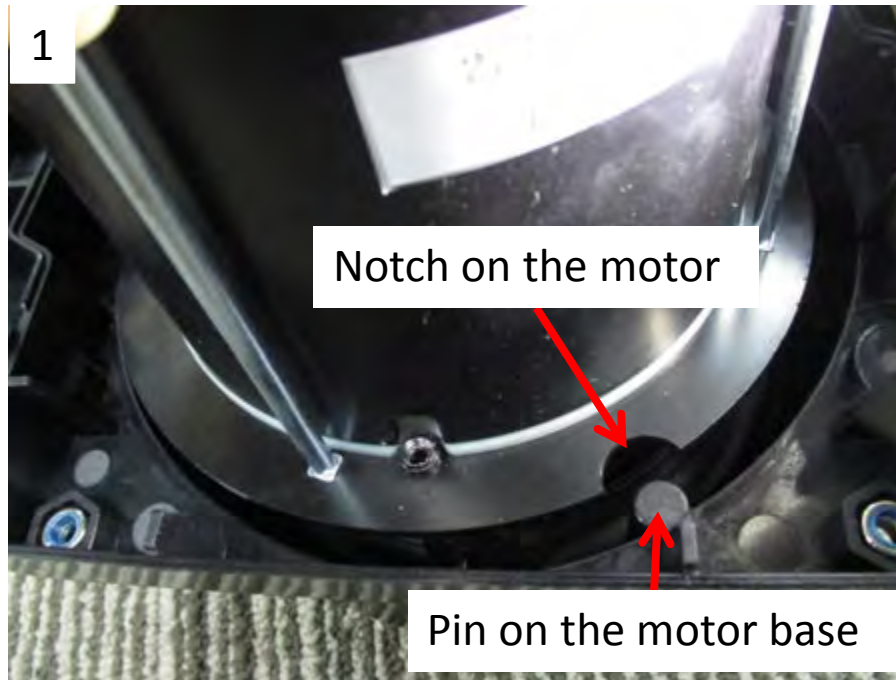


Motor ASSY Replacement

LM2100 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
Motor ASSY	2730232001



Motor ASSY Replacement

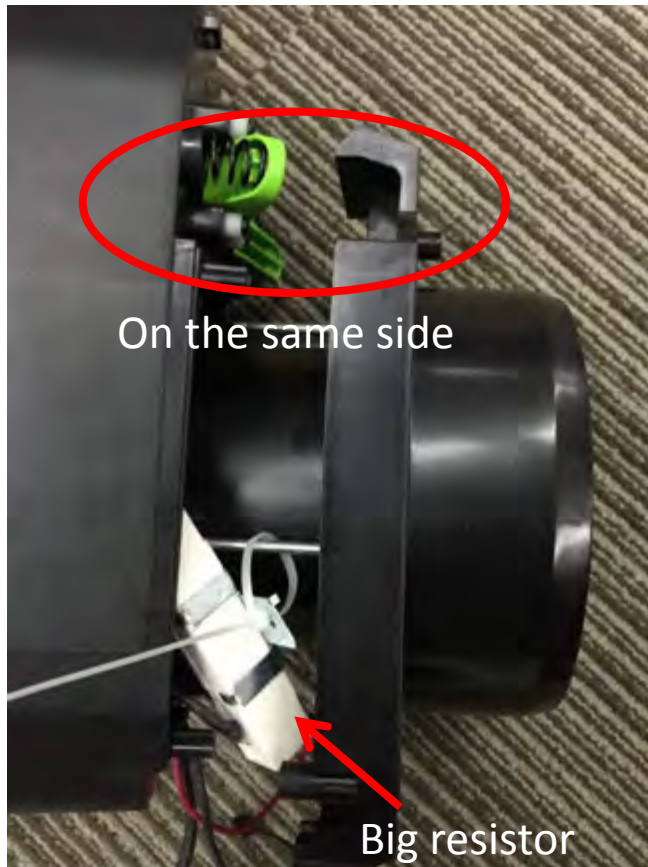
LM2100 Lawn Mower

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 tie.

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



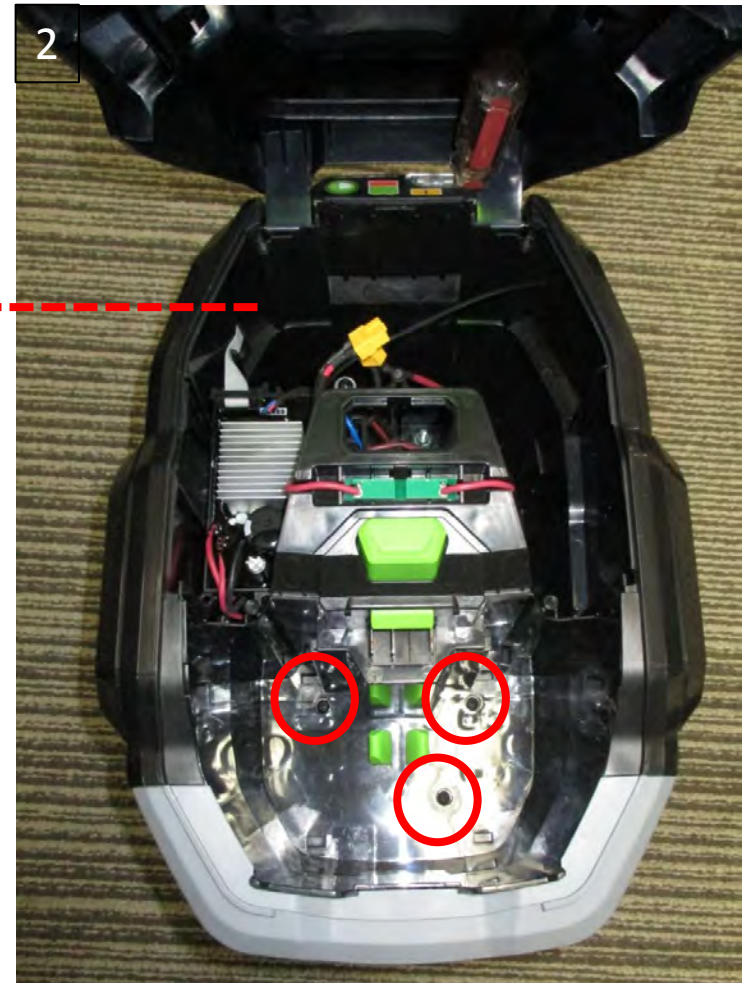
Motor ASSY Replacement

LM2100 Lawn Mower

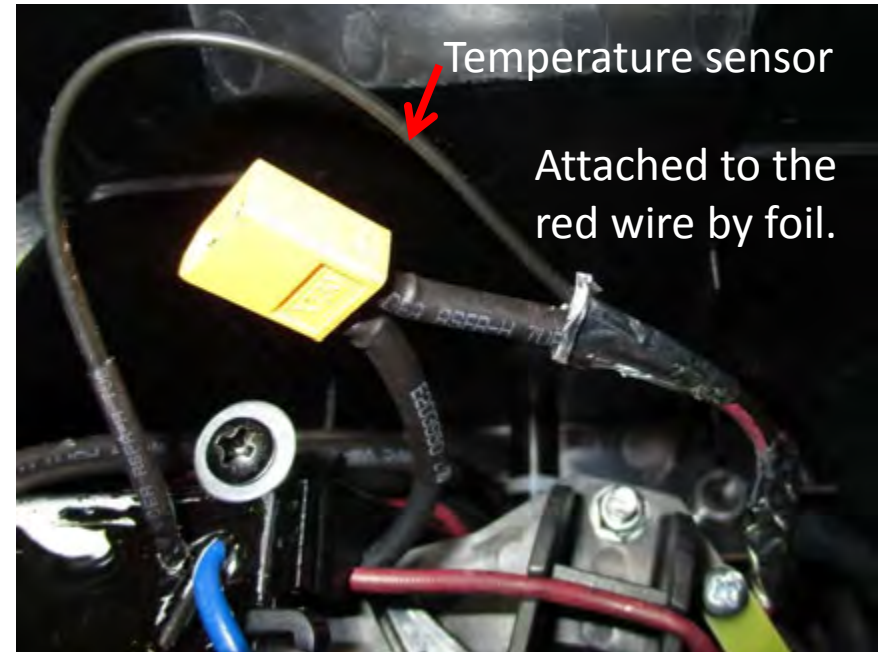
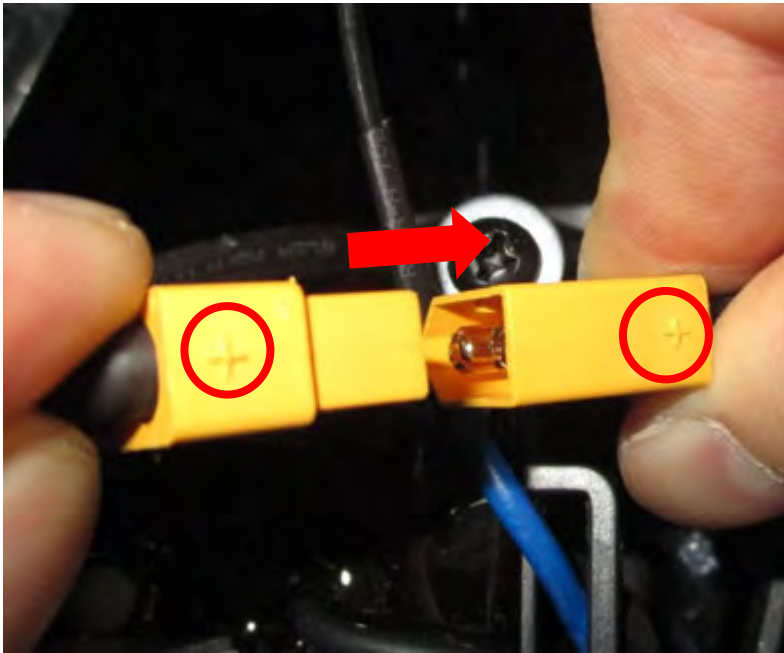
15. Insert the motor into the battery box with motor shaft upside, without mounting gap.
16. Fasten the motor using the inside 5 screws (2 screws deep in the battery box, in reverse order of disassembly).



Reverse the whole set



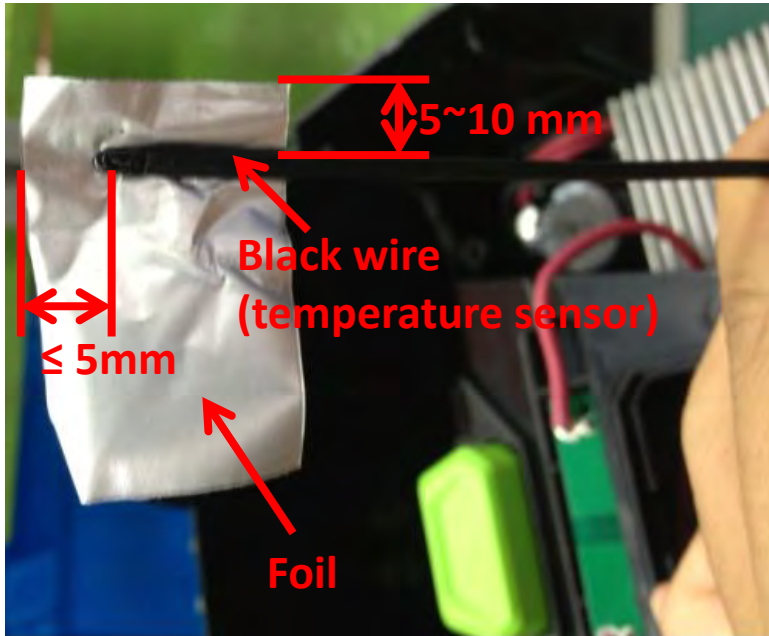
17. Connect the yellow plug. **Be sure to connect “+” to “+”.**
18. Tape the temperature sensor to the red wire (Detail requirements see next slide).



Motor ASSY Replacement

LM2100 Lawn Mower

Detail requirements for temperature sensor assembly:



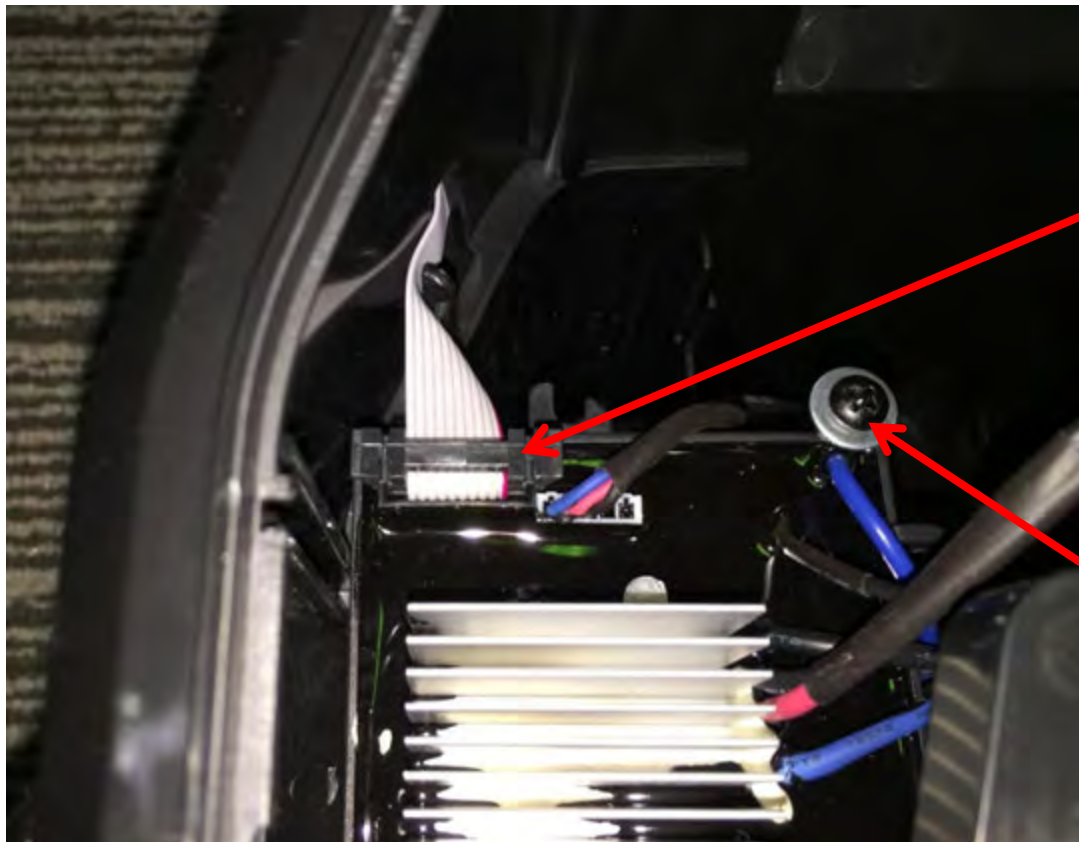
2 pcs foils.
The first one which is attached to the black sensor wire should be taped from the root of the red wire;
The second one is to stabilize them.



Main PCBA Replacement

LM2100 Lawn Mower

1. Remove the motor as previous steps shown.
2. Remove the screw and plain washer.
3. It's much easier to release the wire harness plug from its socket by using Needle-nose pliers to depress on its both sides.



Main PCBA Replacement

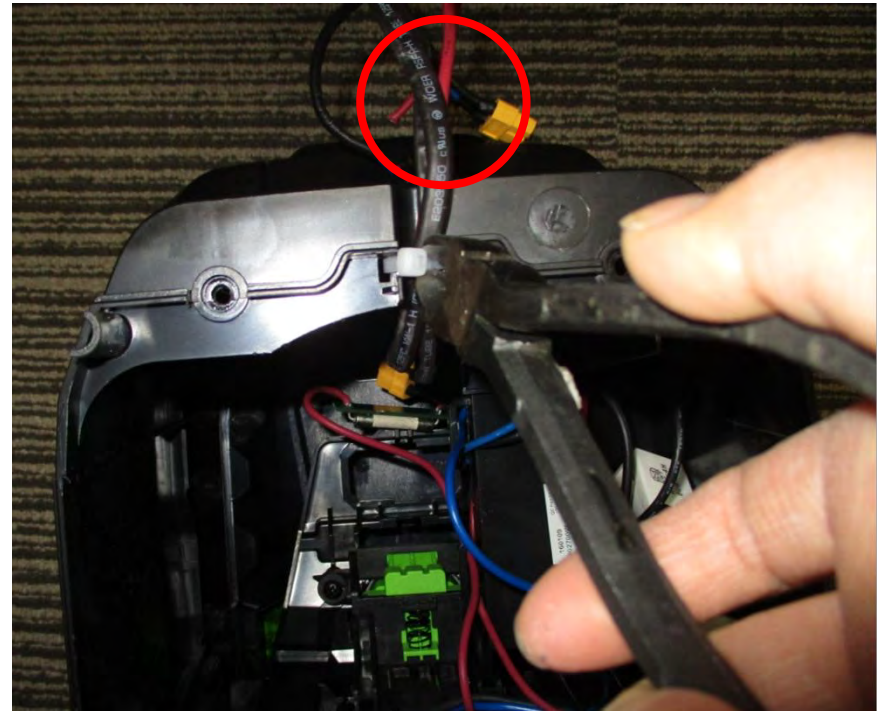
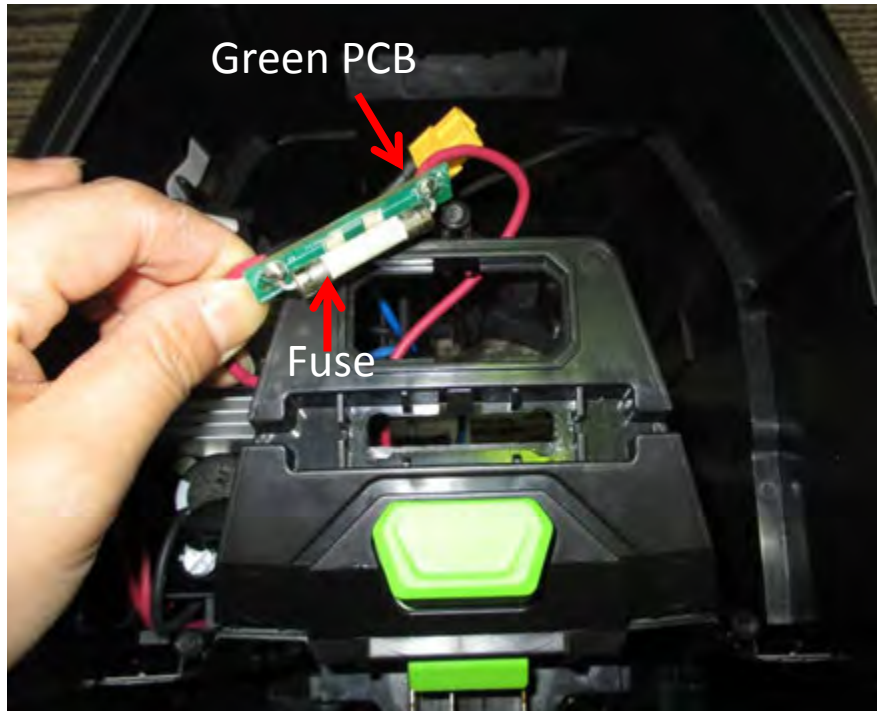
LM2100 Lawn Mower

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.

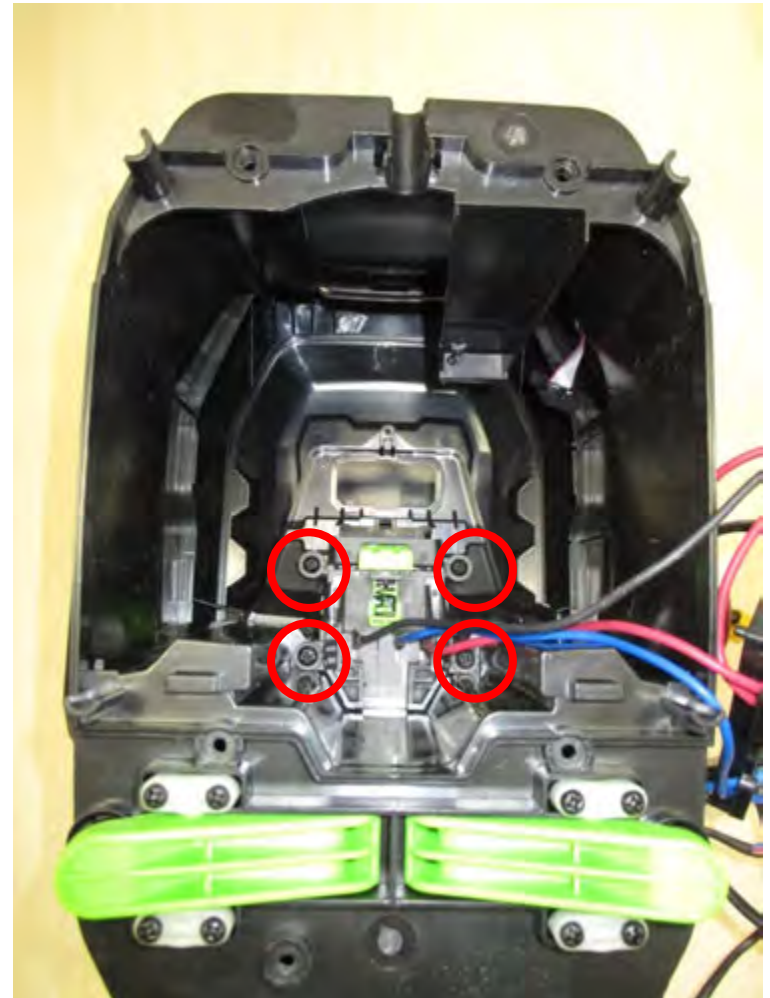
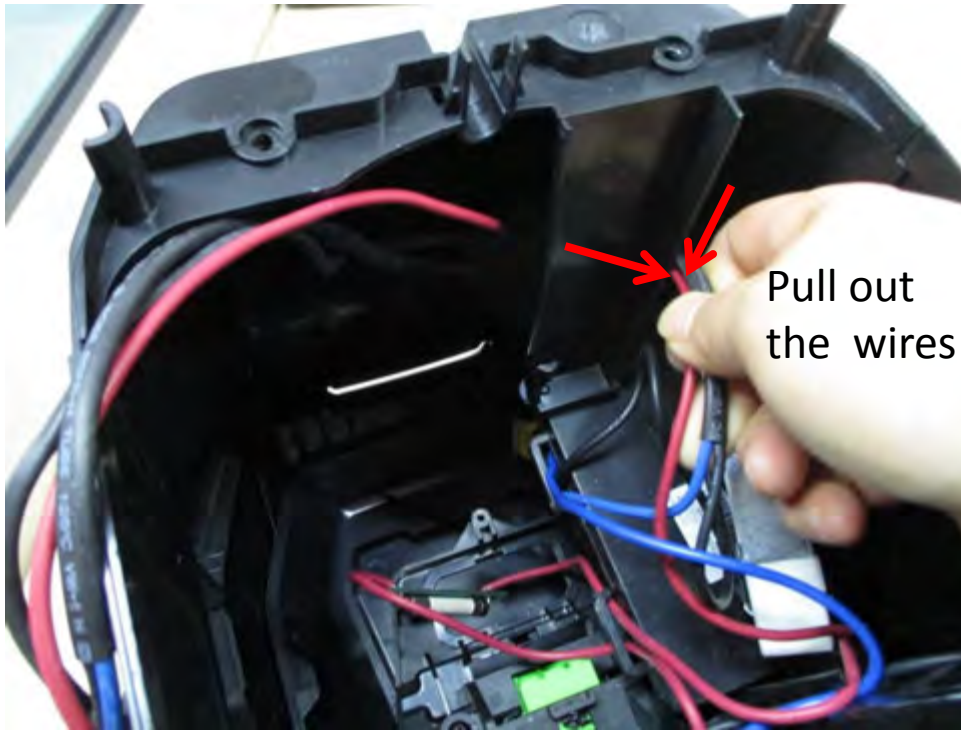
Description	Part Number
Fuse	4891202002



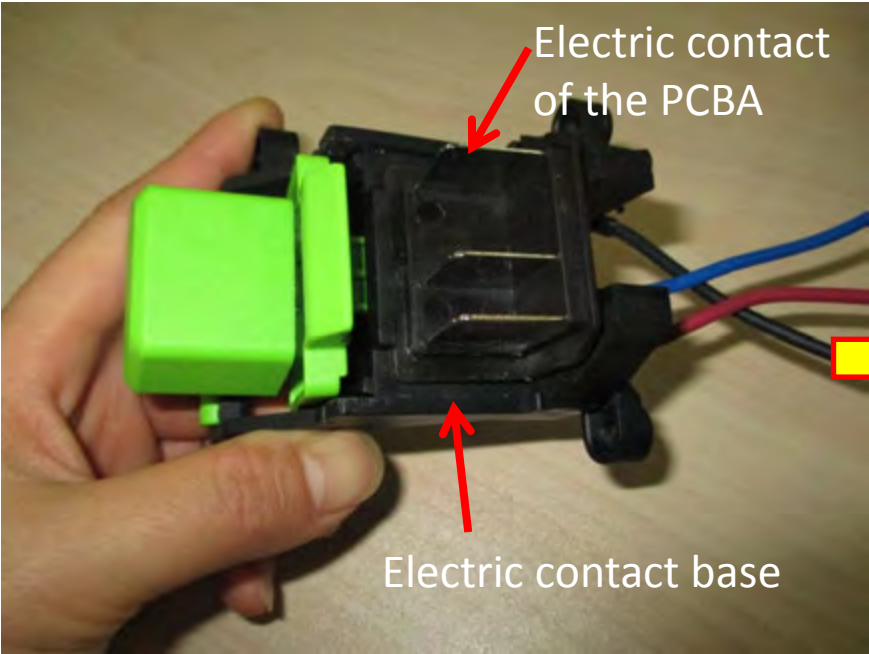
Main PCBA Replacement

LM2100 Lawn Mower

7. Pull the black thick wire and red wire 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.



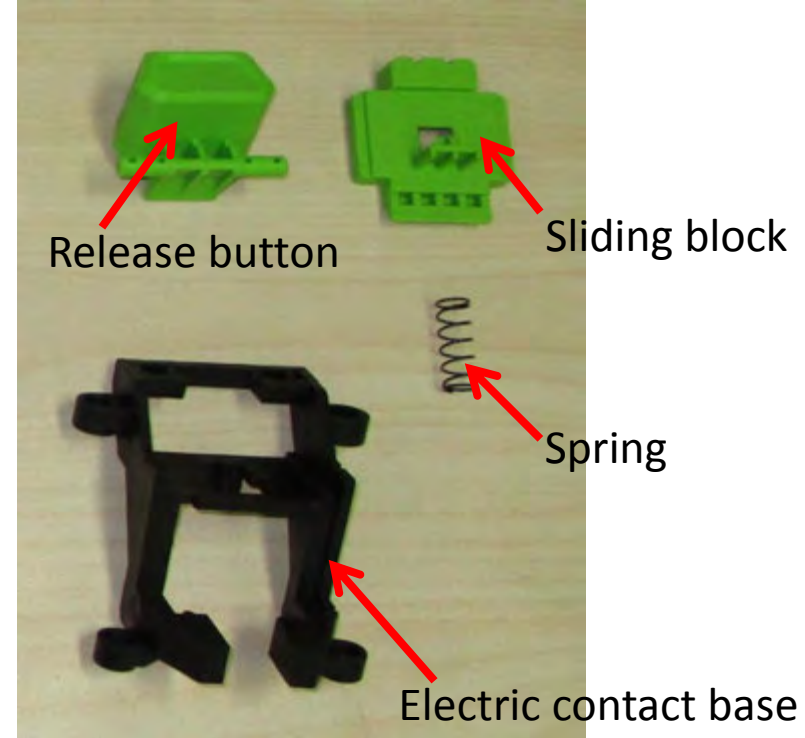
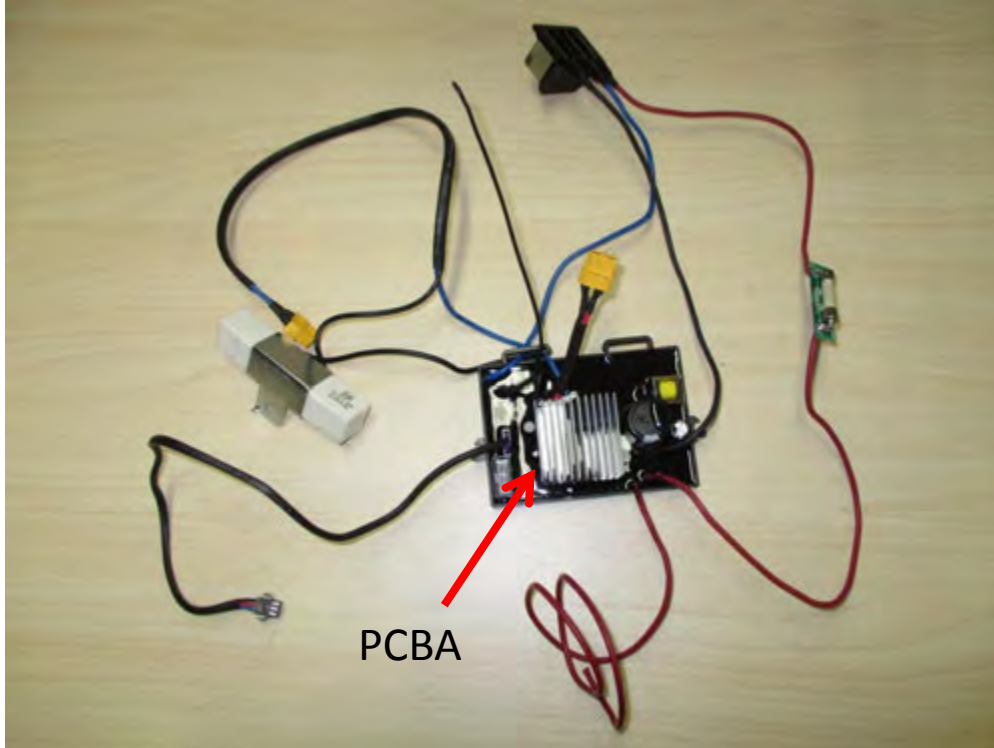
9. Separate the PCB assembly from the electric contact base.



Main PCBA Replacement

LM2100 Lawn Mower

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



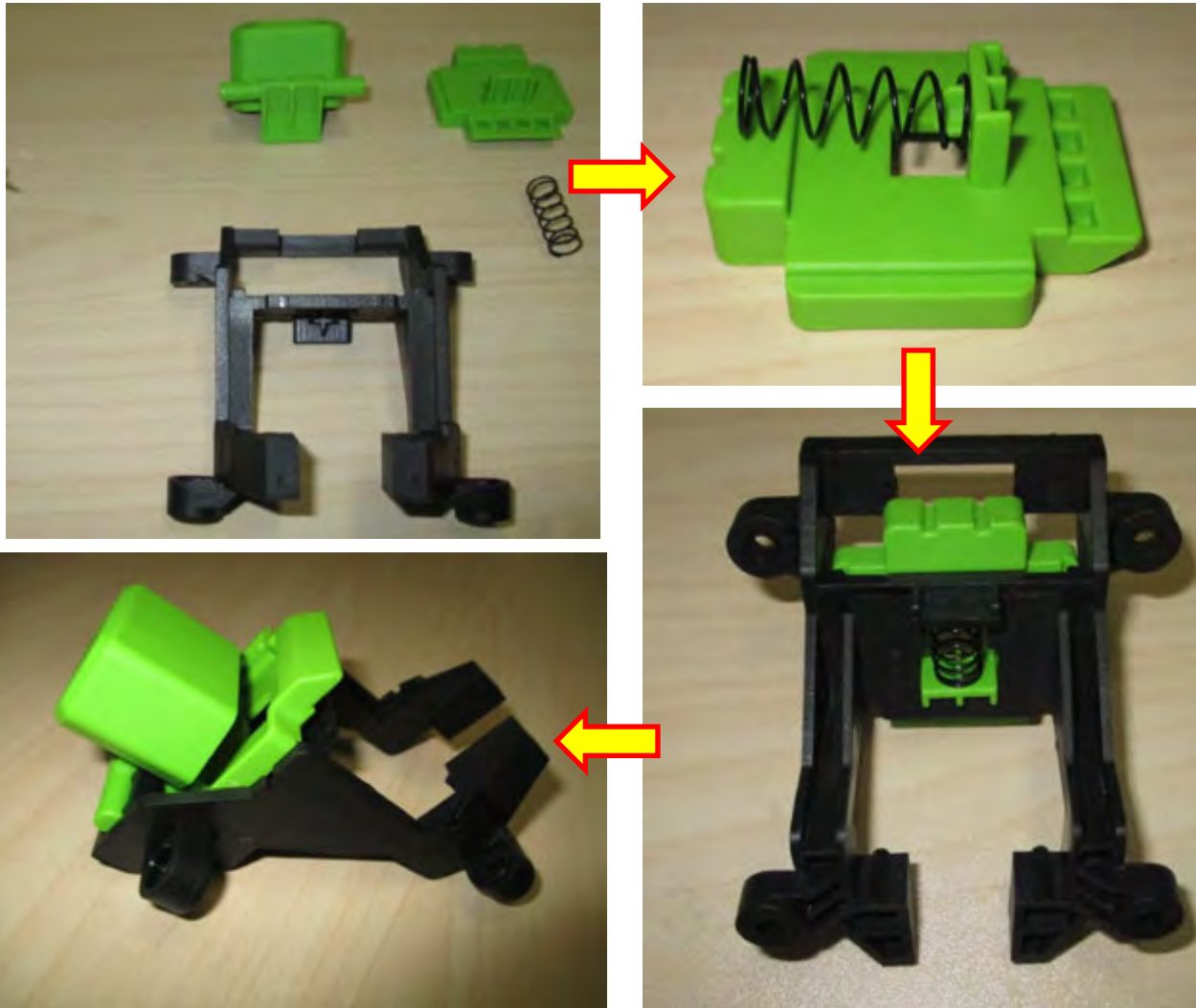
Description	Part Number	Description	Part Number
Release button	3126760001	Electric contact base	3126782001
Sliding block	3126772001	Spring	3660303002
Main PCBA	2830119001		

Main PCBA Replacement

LM2100 Lawn Mower

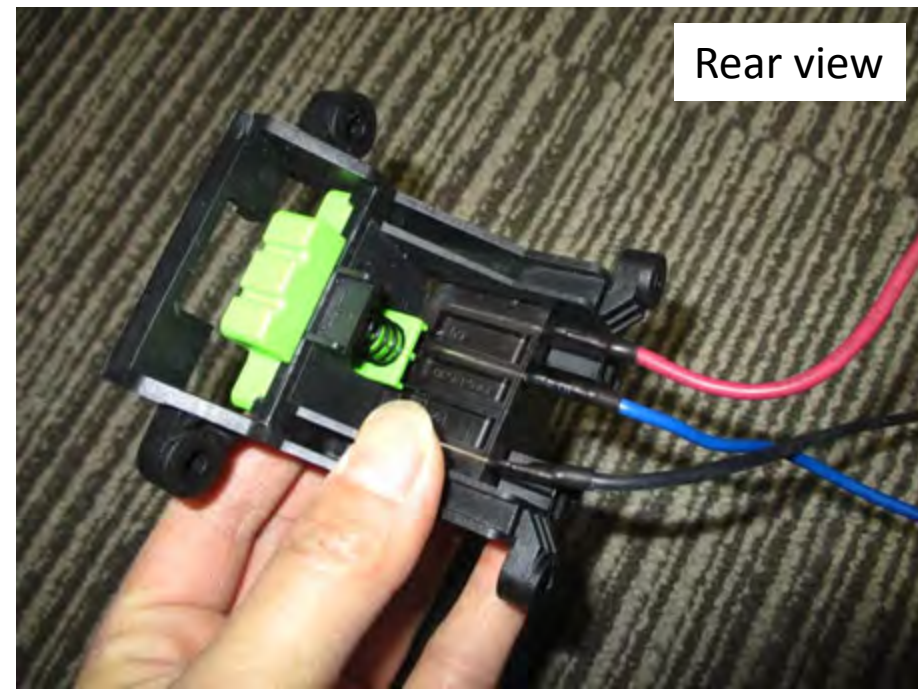
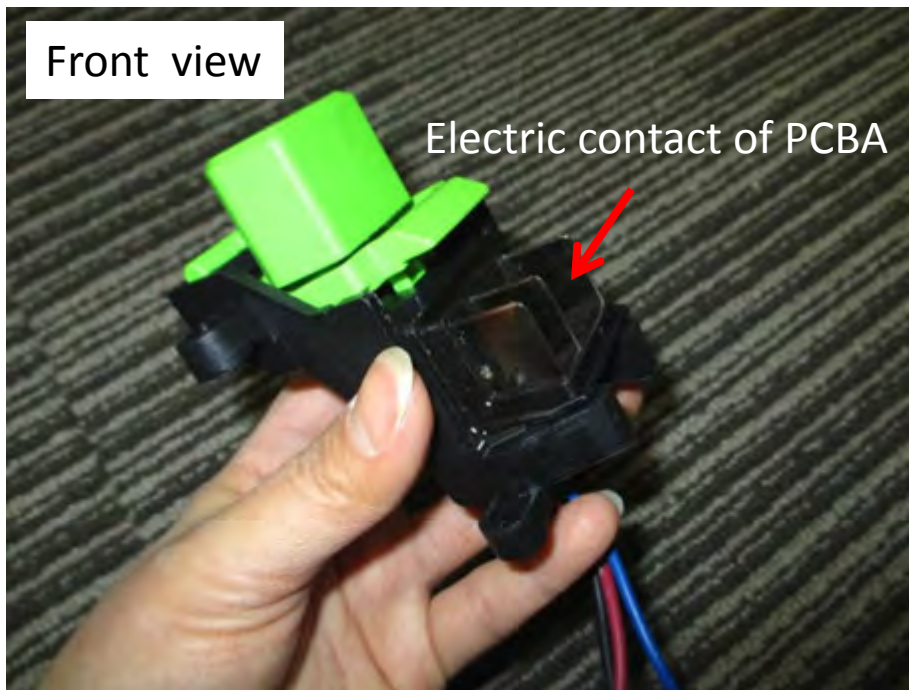
11. Replace with a new PCBA.

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 .

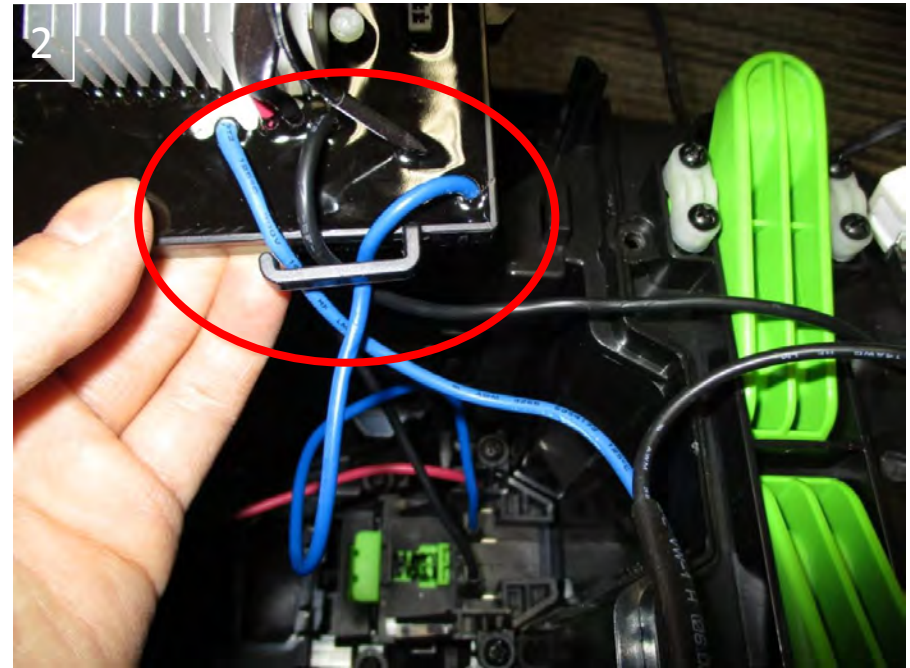
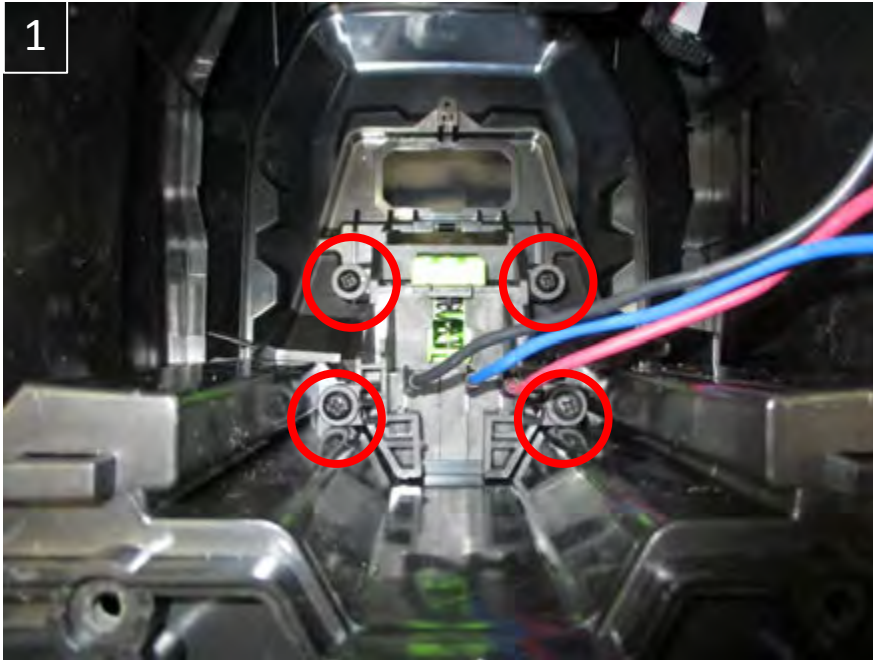
NOTICE: Hold the 2 components tightly to insert them in the battery box.



Main PCBA Replacement

LM2100 Lawn Mower

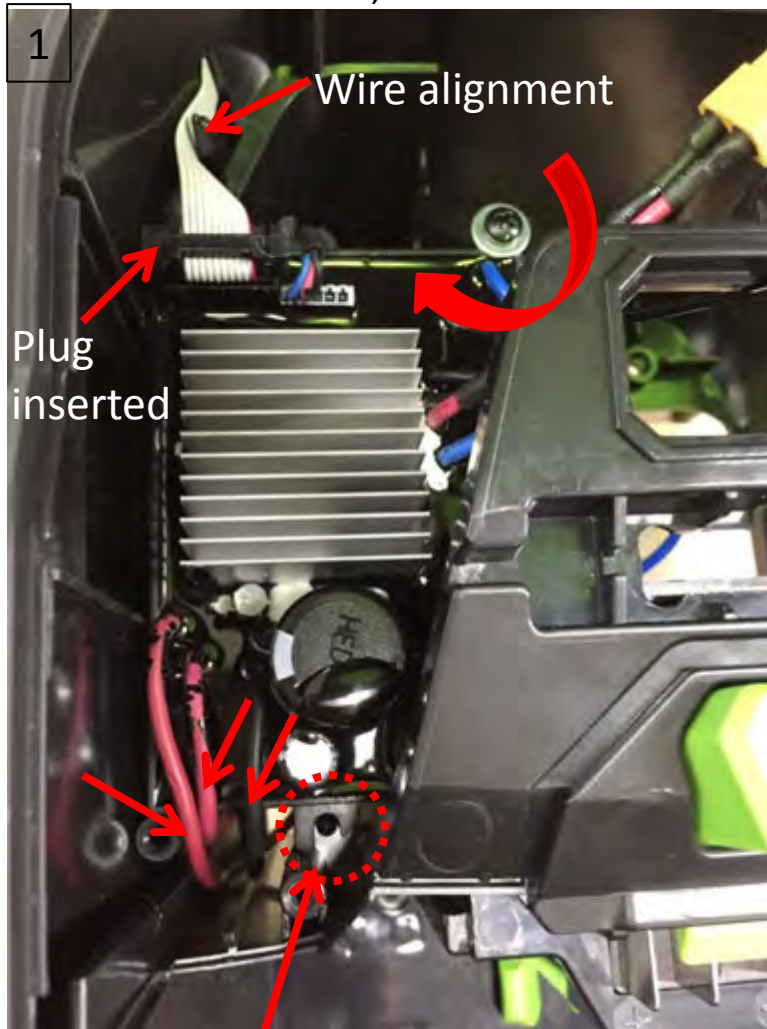
14. Mount them into the battery box. Fix them by tightening the 4 screws(Fig. 1).
15. Pass the three wires through the hook on the PCBA as Fig. 2 shown.



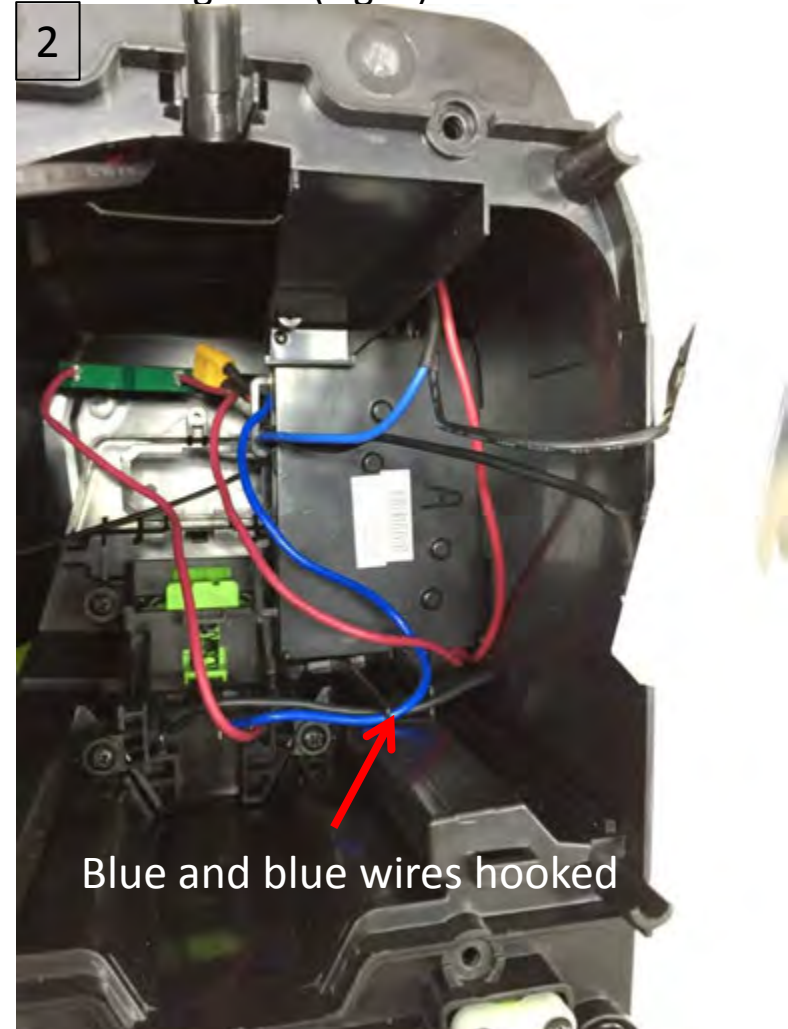
Main PCBA Replacement

LM2100 Lawn Mower

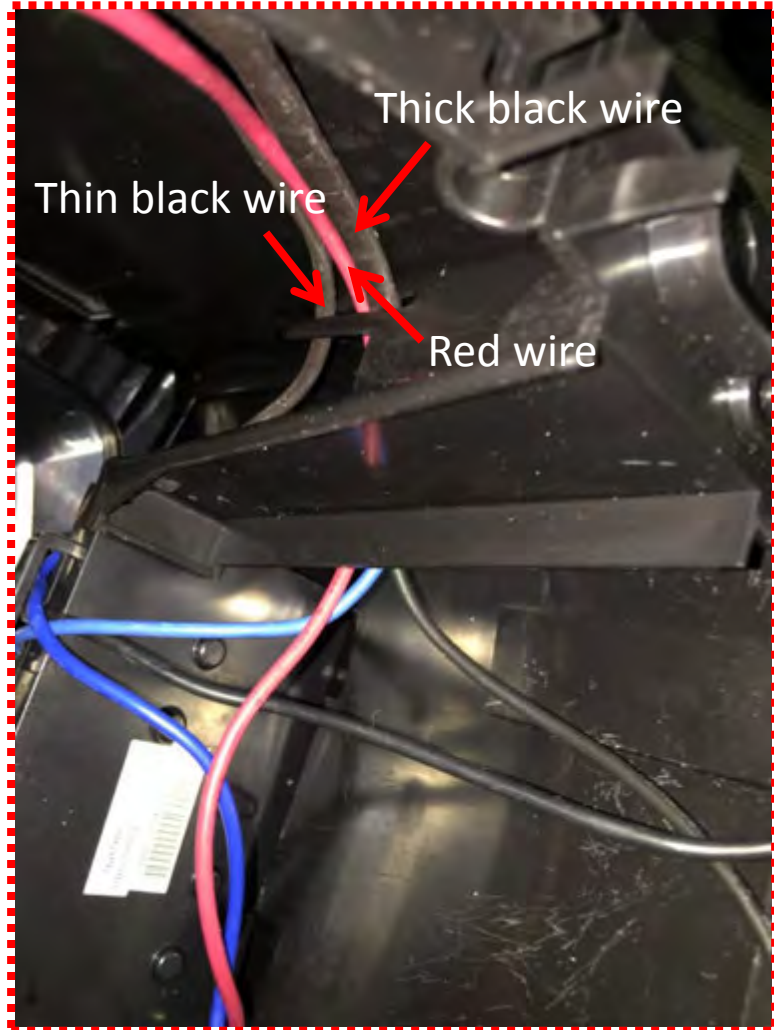
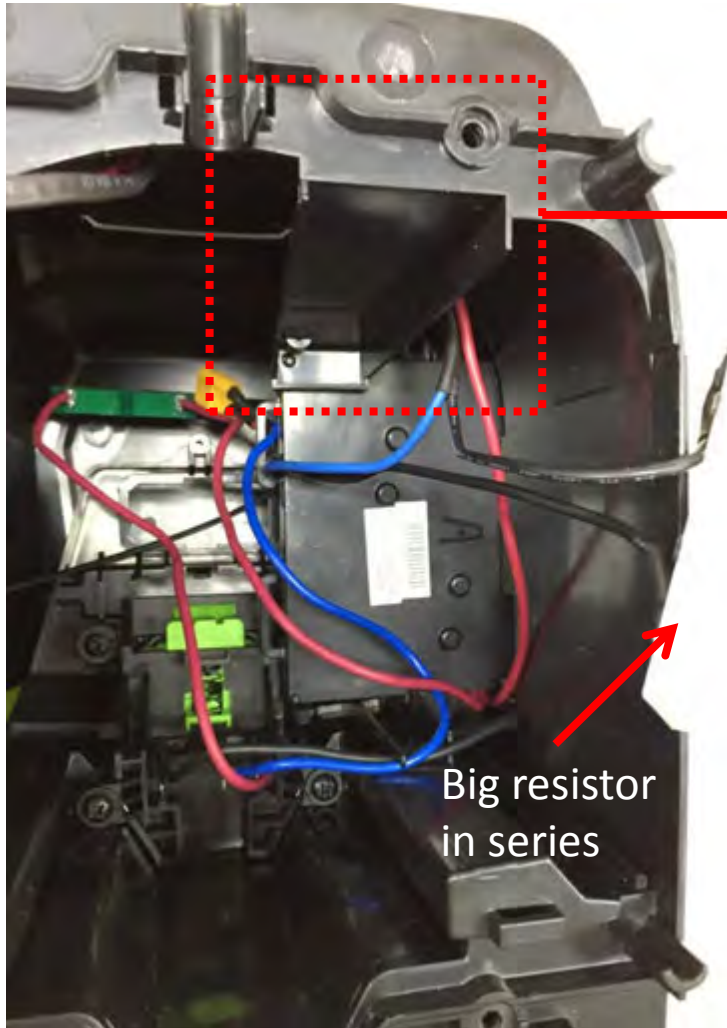
16. Aligning the notch on the PCB board with the locating pin on the battery box, fix the PCB board by tightening the screw with the plain washer(Fig. 1). Insert the plug and align its wire into the groove.
17. From the back side, hook the blue and black wires onto the groove(Fig. 2).



Align the notch with the locating pin



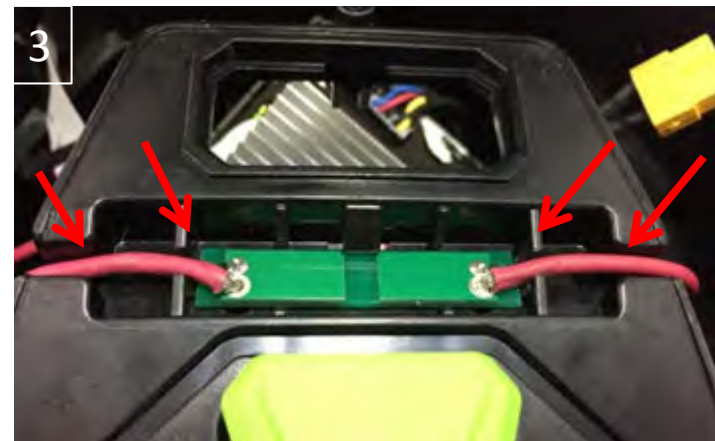
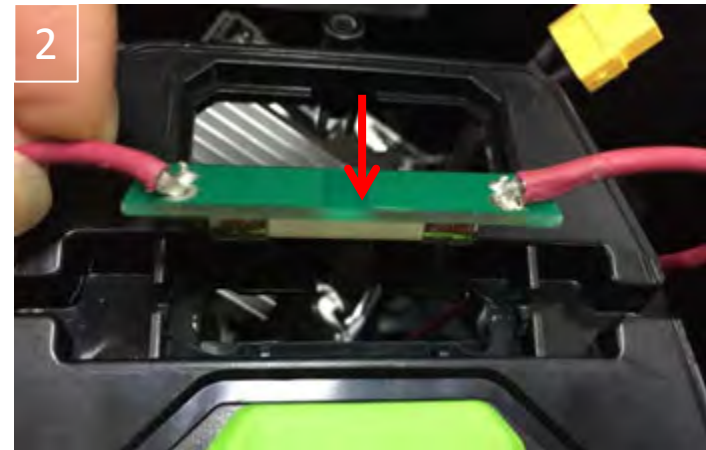
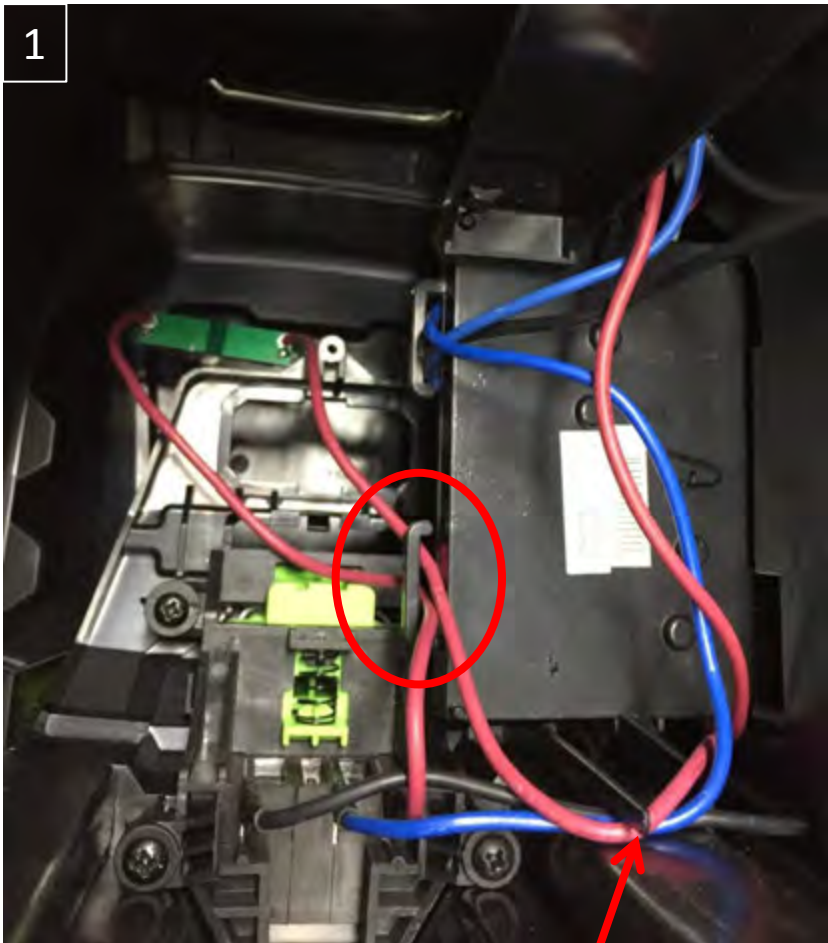
18. Pass the three wires through the corner and hook them into the groove in the corner. One big resistor is in series with the thick black wire.



Main PCBA Replacement

LM2100 Lawn Mower

19. Pass the two red wires, which connect the fuse, through the other hook on the PCBA and put the longer one into the groove on the box housing(Fig. 1).
20. Reverse the battery box and align the wires on both sides of the fuse into their grooves, with fuse downward(Fig. 2 & 3).



Main PCBA Replacement

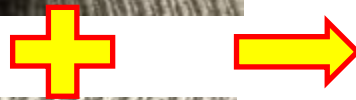
LM2100 Lawn Mower

21. Mount the motor into the battery box as “Motor ASSY Replacement” part shown.
22. Close the inner cover by locking the 5 screws.

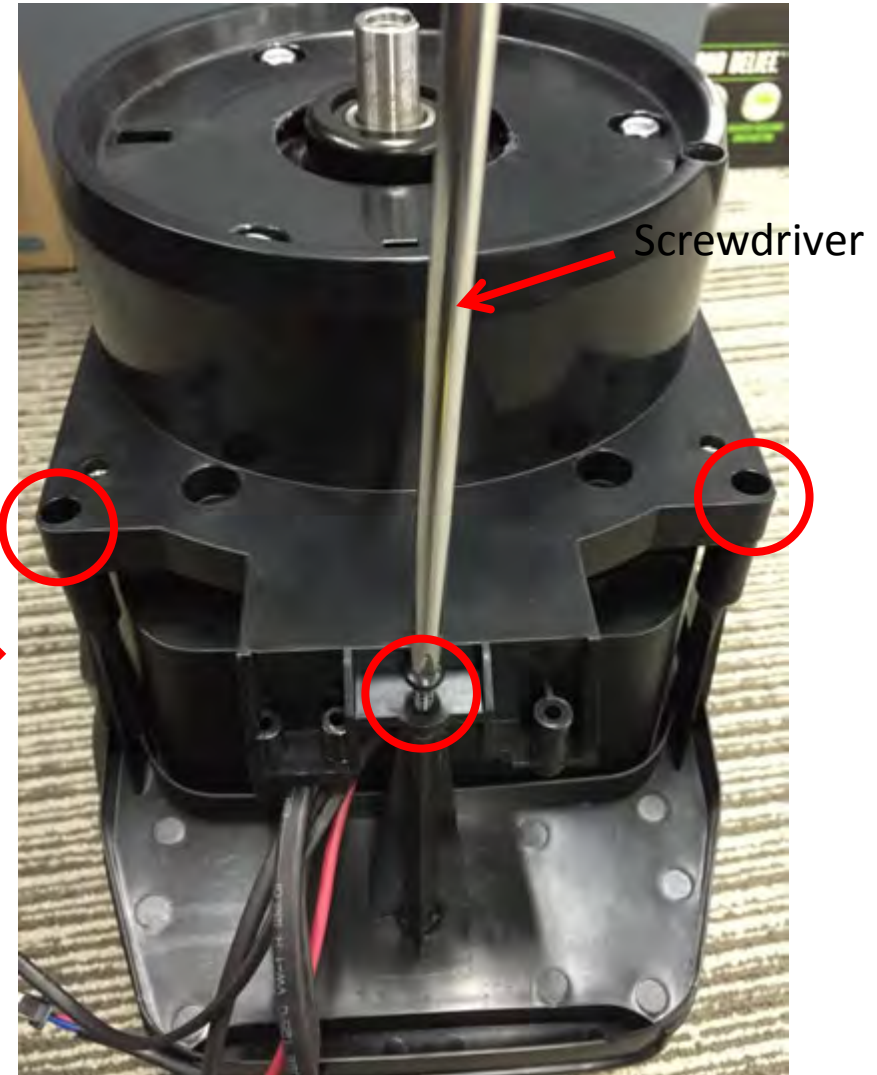


Power Unit Assembly

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

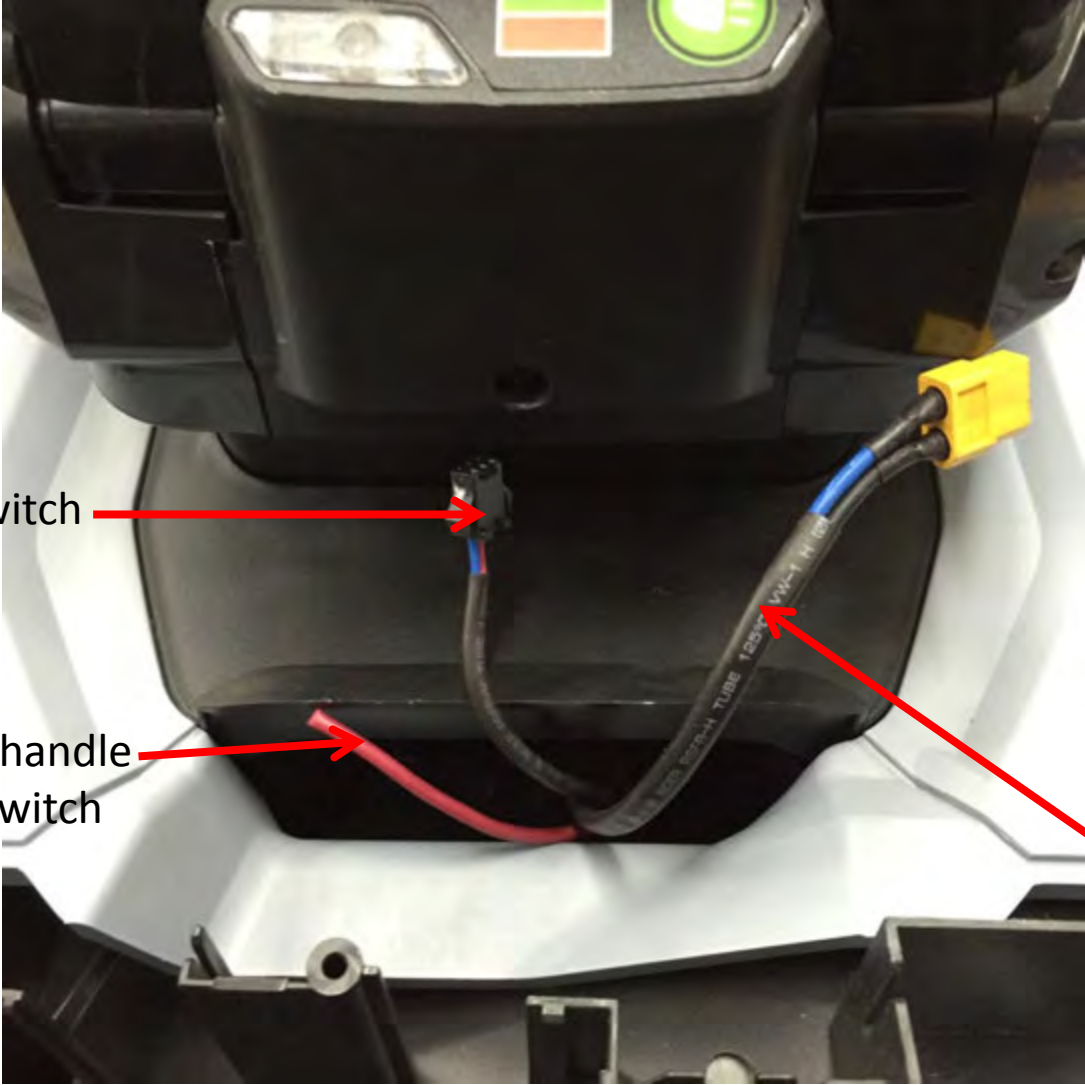


Front service cover



Power Unit Assembly

2. Mount the reassembled power unit with the front service cover onto the mower.

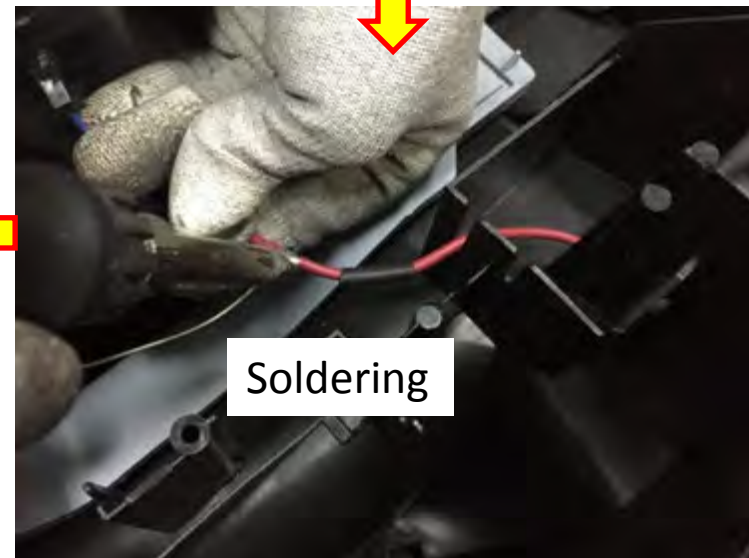
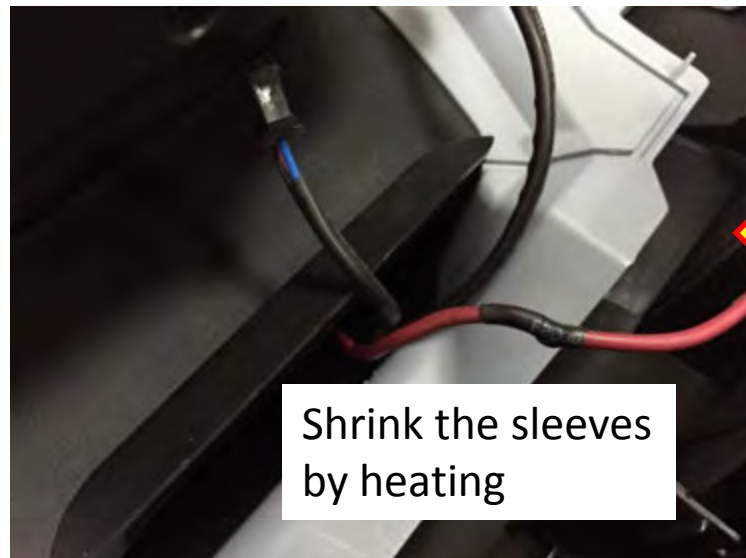
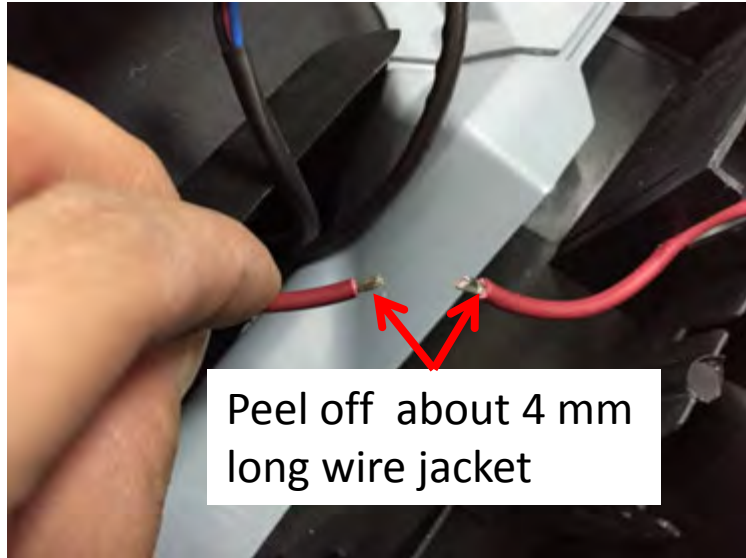


Linked to microswitch

Linked to handle position switch

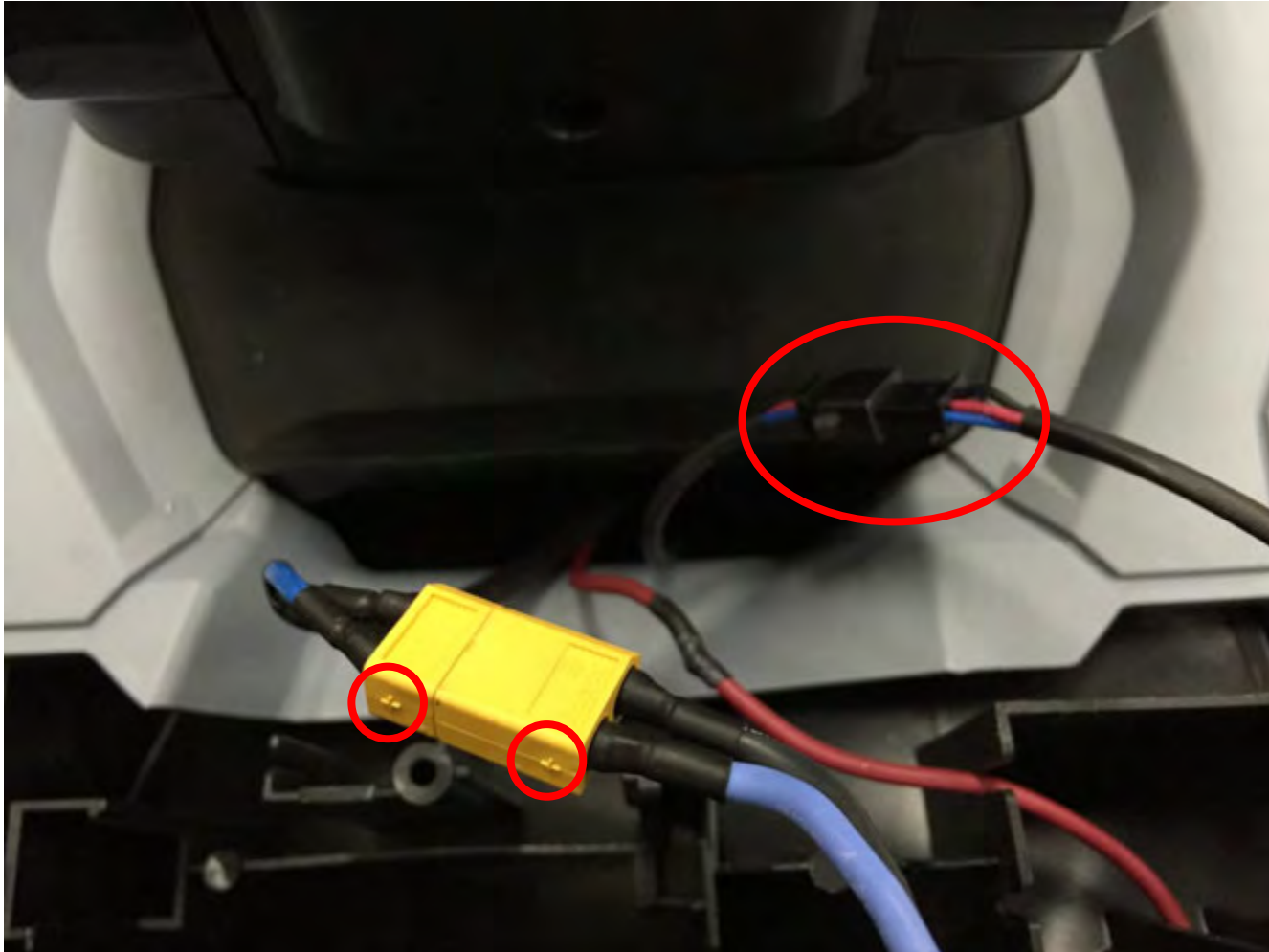
Linked to main switch

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



4. Insert the plugs into the corresponding sockets.

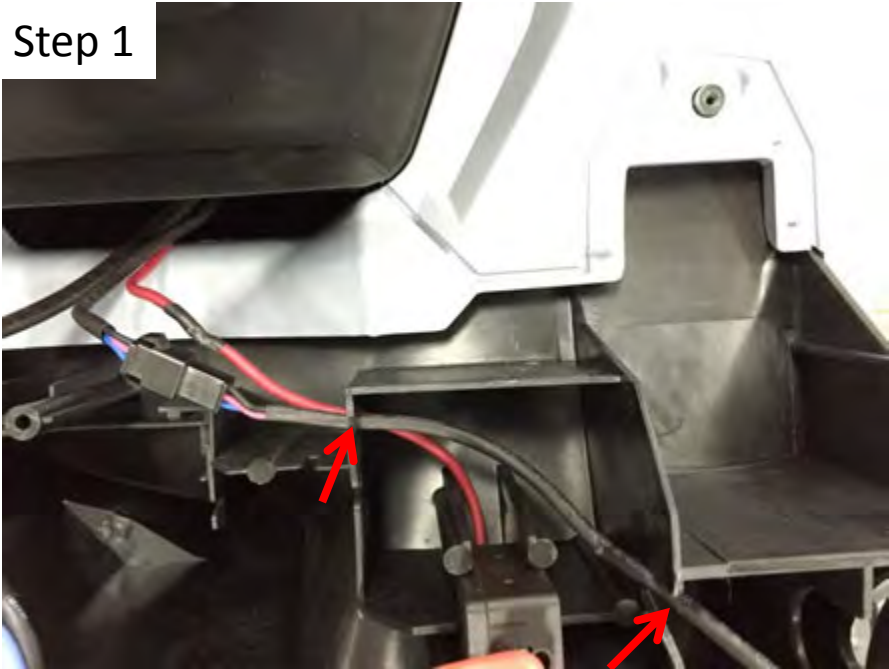
NOTICE: The yellow plug should be connected with “+” to “+”.



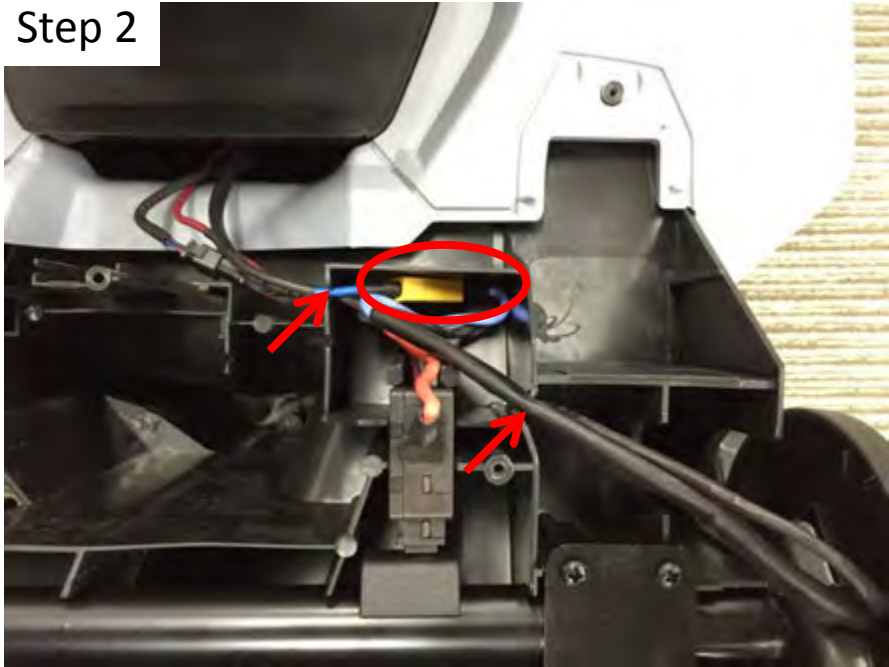
Power Unit Assembly

5. Align the wires into the grooves in following 2 steps.

Step 1



Step 2

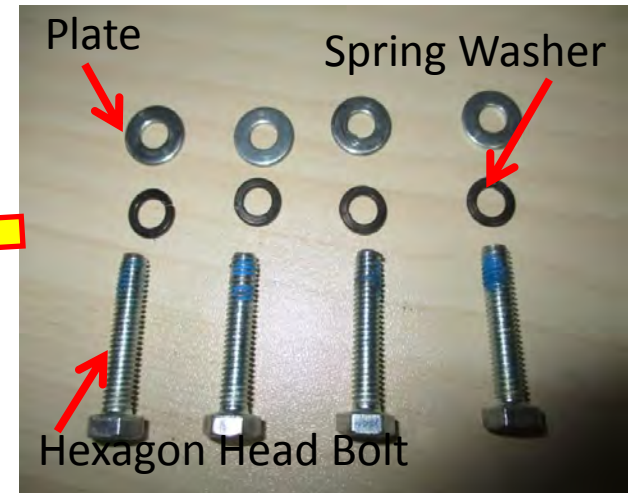


Power Unit Assembly

LM2100 Lawn Mower

6. Turn the mower on its side.

7. Tighten the 4 hexagon head bolts with a 3/8" (S=10mm) 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.

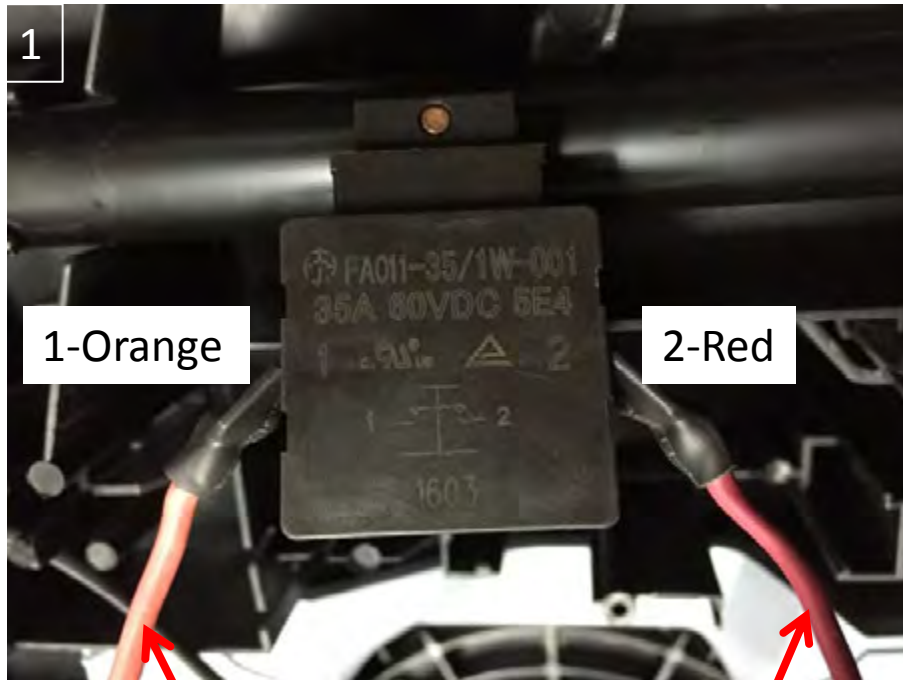


Service Cover

Handle Position Switch Replacement

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 Fig.1 shown. **MIND THE CORRECT CONNECTION.**
5. Align the wires as step 5 in “**Power Unit Assembly**” shown.

This side facing the rear cover.



Description	Part Number
Handle Position Switch	4870566002

THE END

REPAIR GUIDELINE

PART 2.2: LED LIGHT REPLACEMENT_LM2100 Lawn Mower



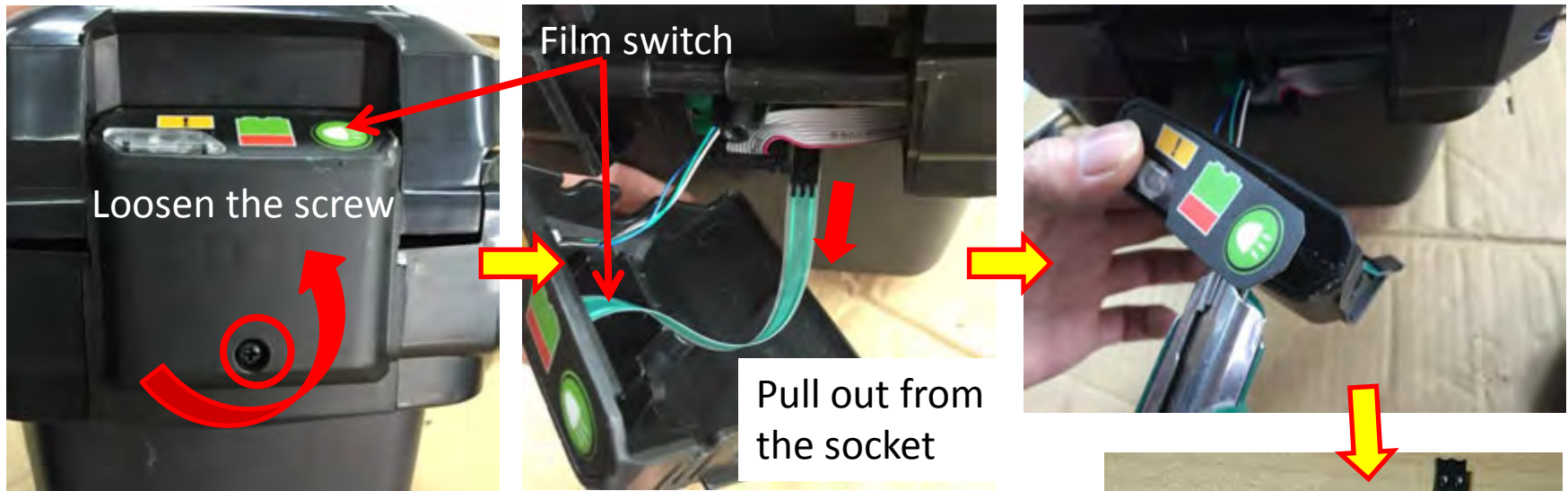
Table of Contents

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

Film Switch Replacement

LM2100 Lawn Mower

The LED film switch can be replaced following the steps indicated in the figure shown below.



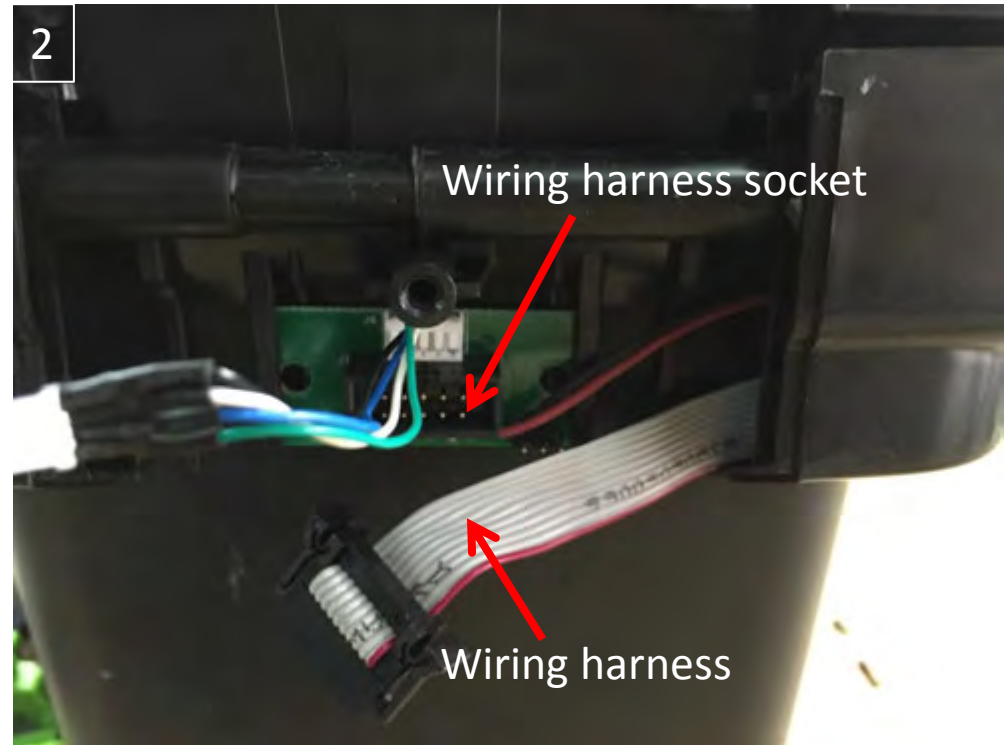
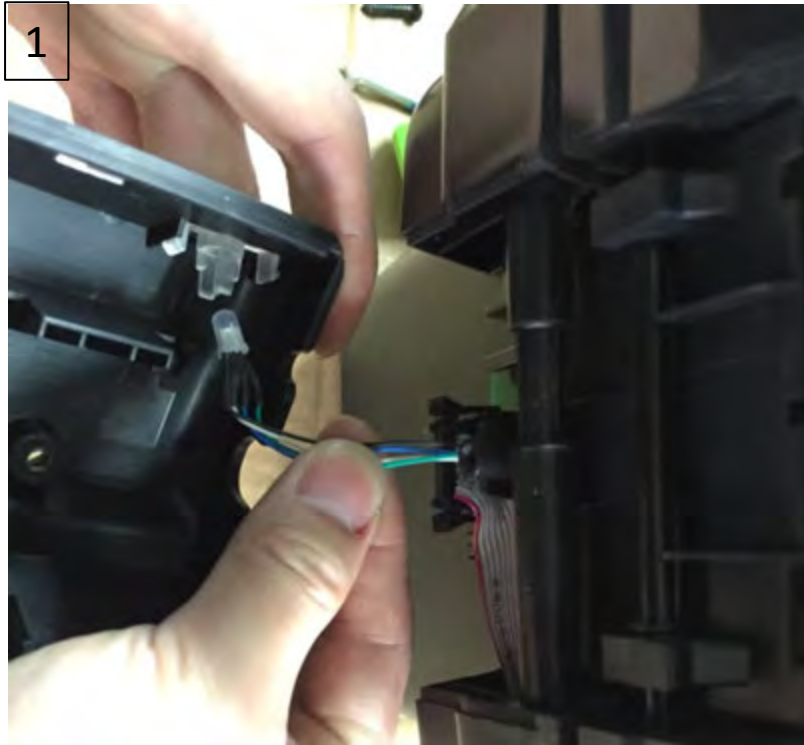
Description	Part Number
Film switch	4870558001



LED Headlights Replacement

LM2100 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).



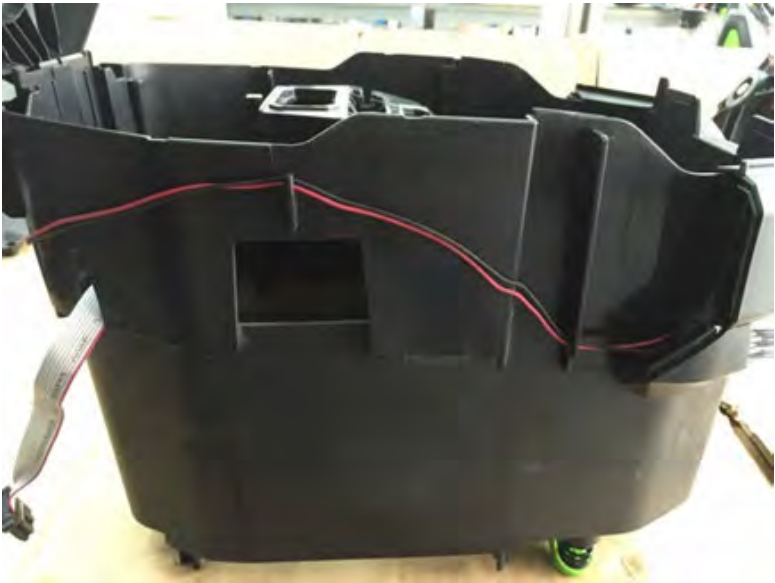
4. Remove the one screw on the right(indicated by the red circle) to separate the coupled decorative covers.
5. Pry the left and right decorative covers by a screwdriver. If the decorative covers are damaged, replace them.



LED Headlights Replacement



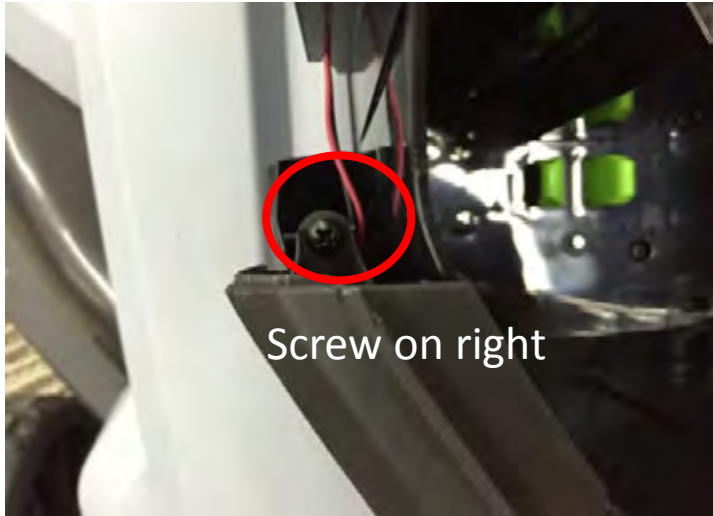
Decorative covers



LED Headlights Replacement

LM2100 Lawn Mower

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

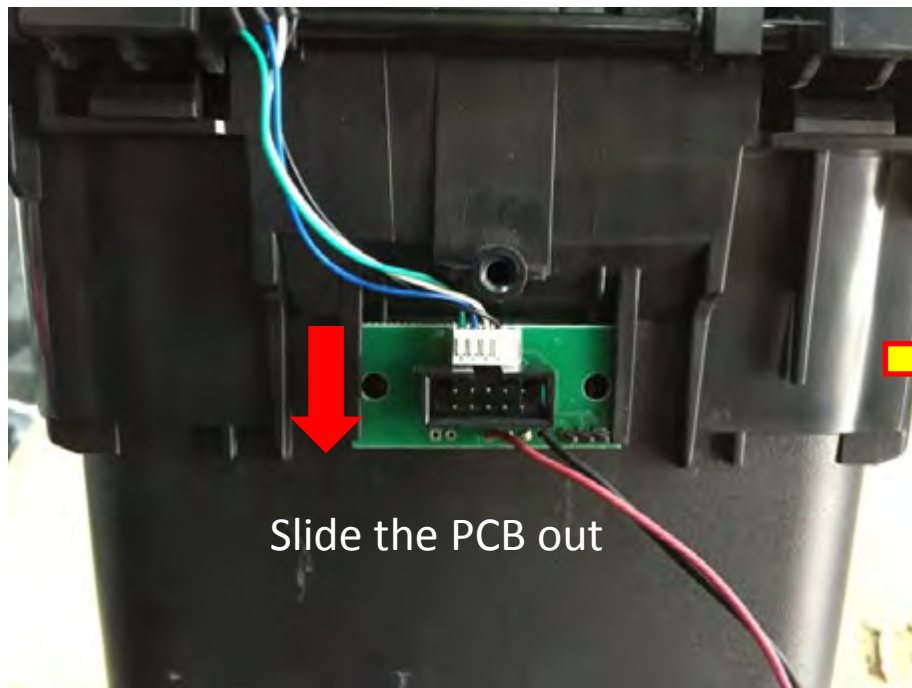


LED Headlights Replacement

LM2100 Lawn Mower

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

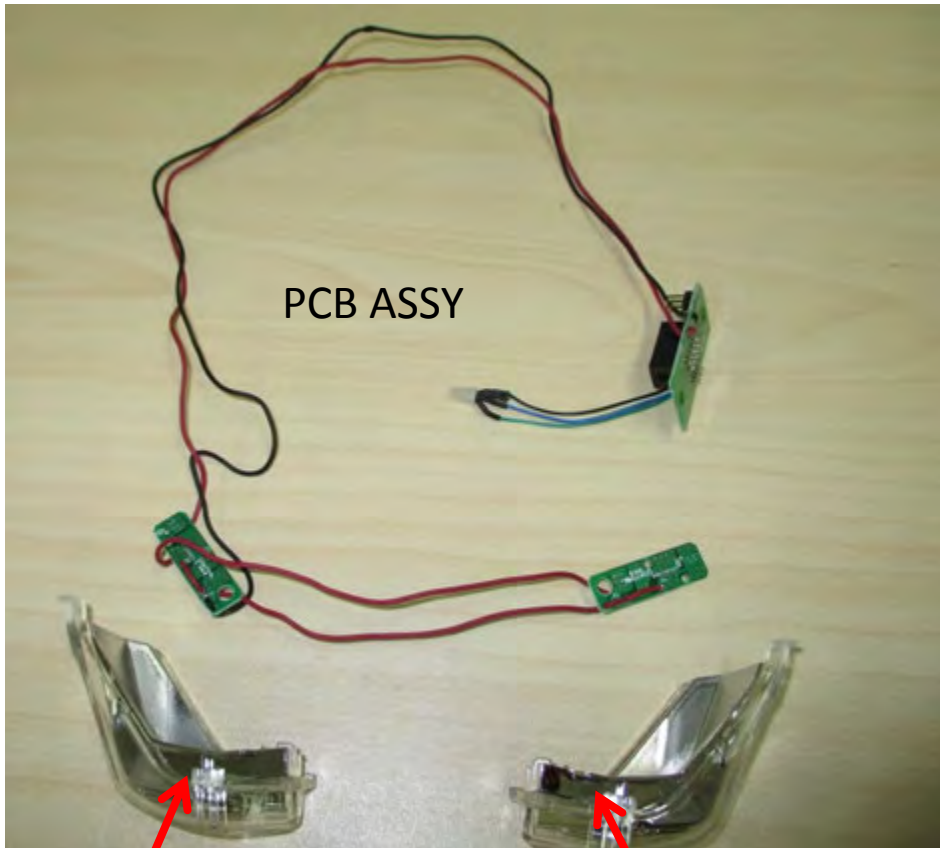
The LED headlights includes 1pc PCB ASSY(including 3 small PCBs), 2pcs reflectors and 2pcs transparent caps(see next slide).



LED Headlights Replacement

LM2100 Lawn Mower

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



Right transparent cap
with reflector

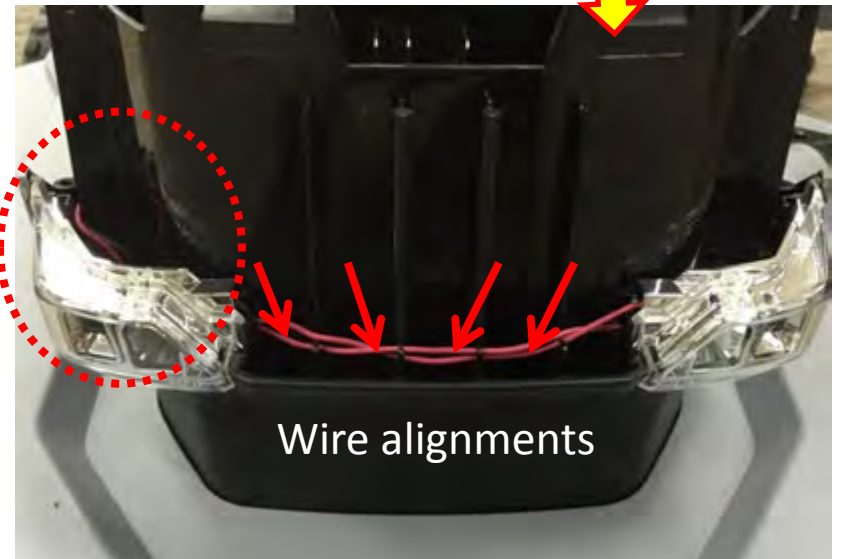
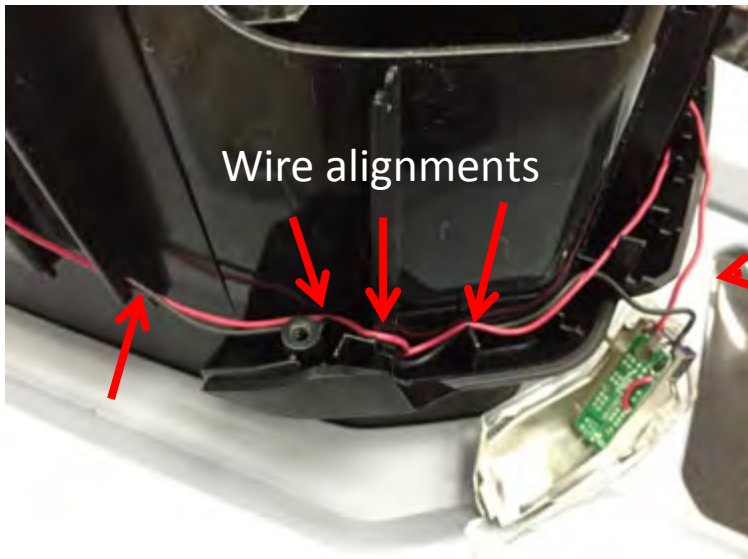
Left transparent cap
with reflector

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

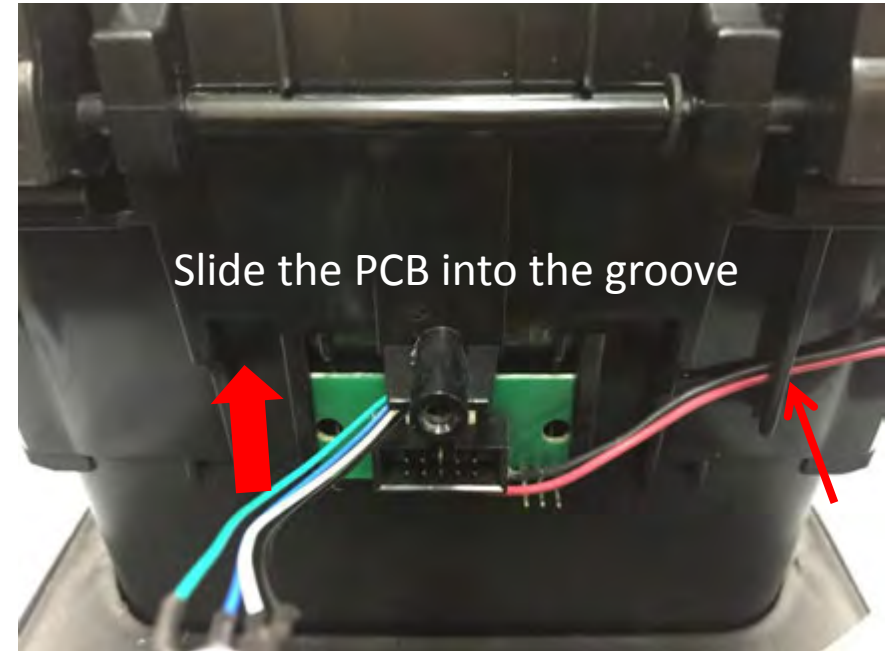
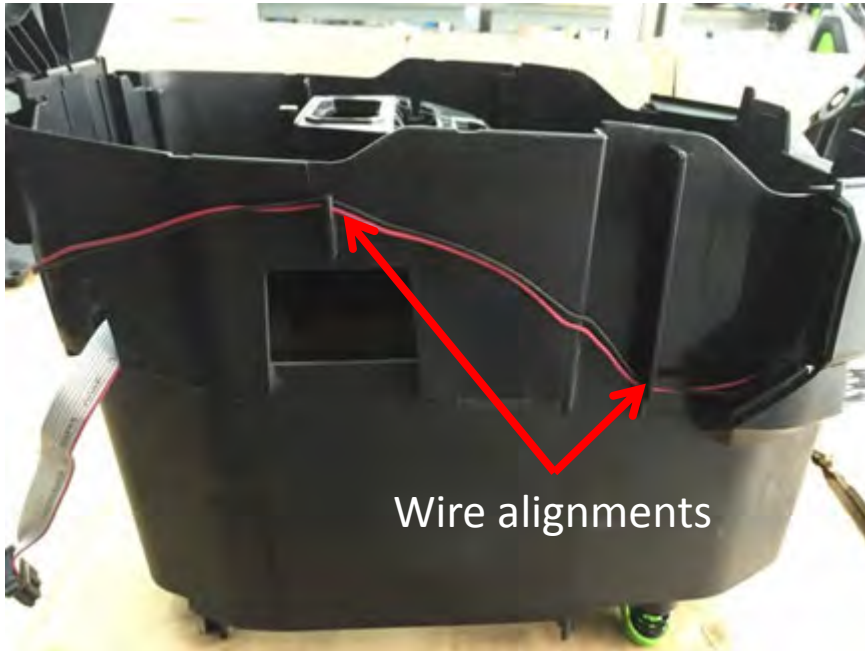
LED Headlights Replacement

LM2100 Lawn Mower

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

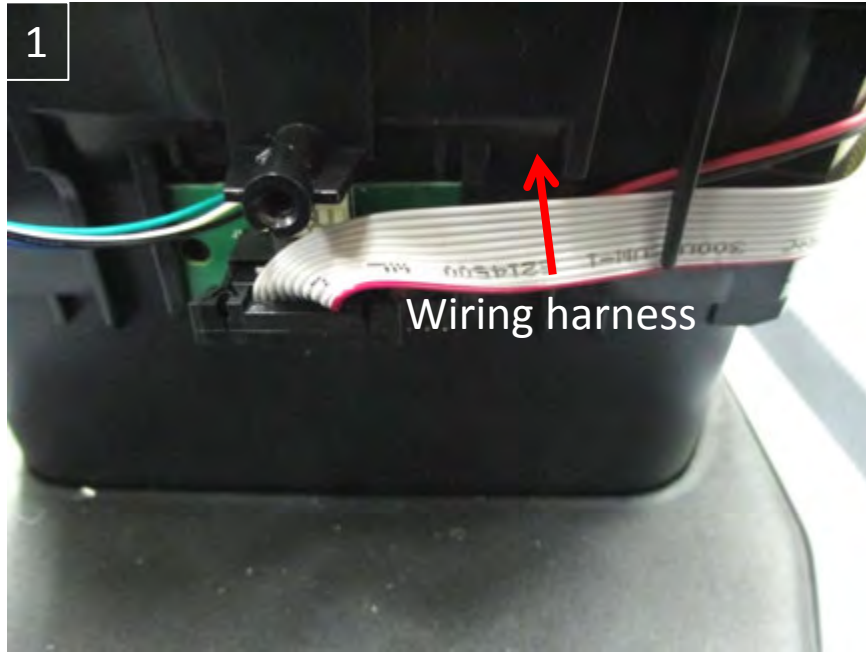


10. Align the wires into the groove as well as the PCB.



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 1: BLADE REPLACEMENT_LM2100 Lawn Mower



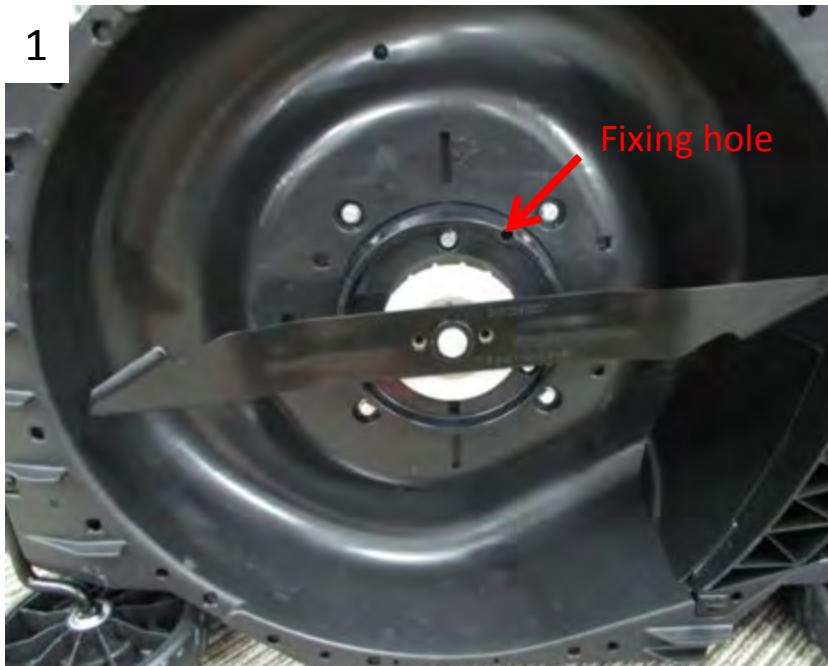
Table of Contents

NO.	Contents	Page
1	Blade Removal	3-5
2	Blade Installation	6-9

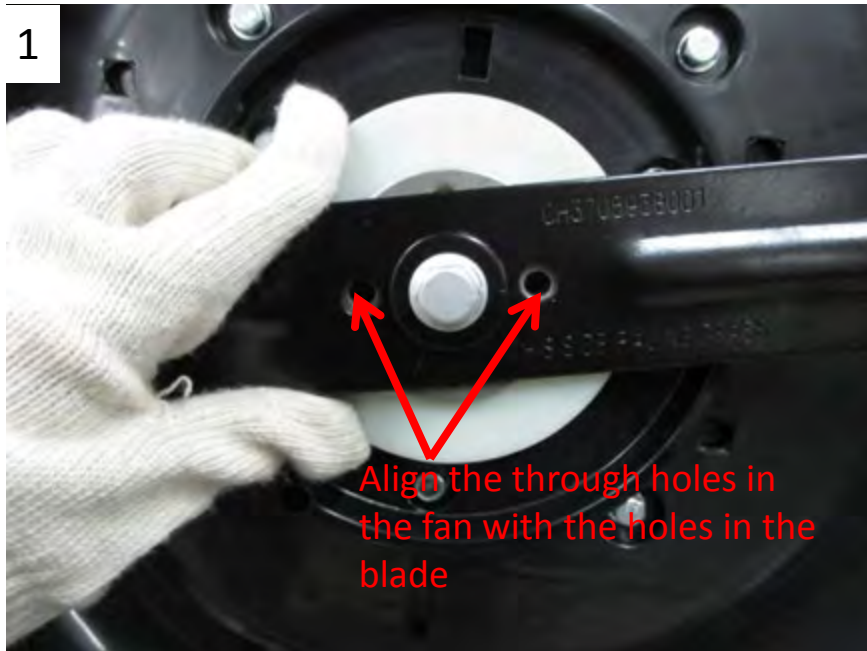
Blade Removal

LM2100 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).



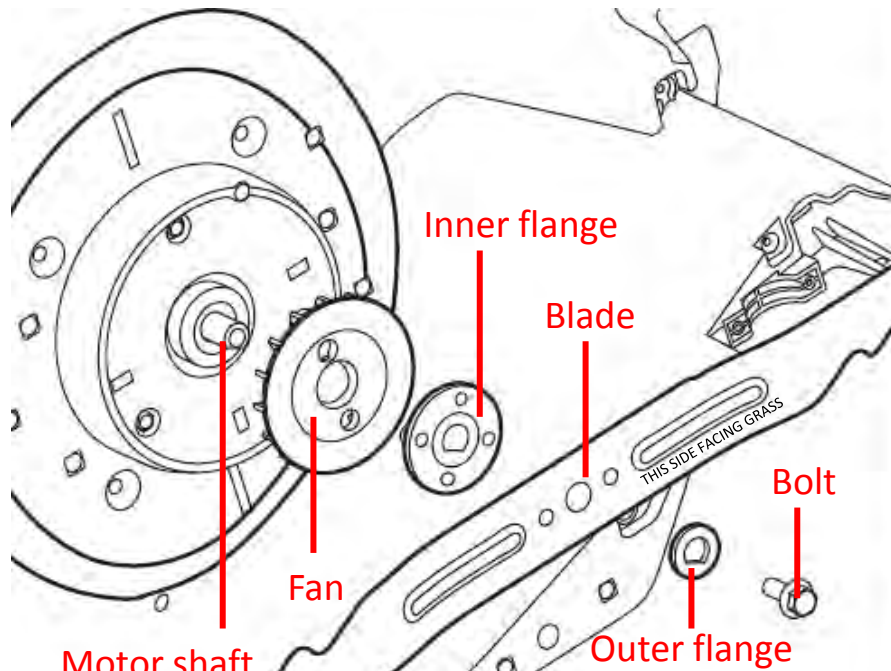
5. If the bolt rotates with the motor shaft when loosening the bolt, turn the fan by hand to align the through holes in the fan with the holes in the blade(Fig. 1), place another metal rod (e.g., a long bit) with diameter less than 1/4 inch (6.35mm) into the aligned holes to act as another stabilizer(Fig.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



Blade Removal

LM2100 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.

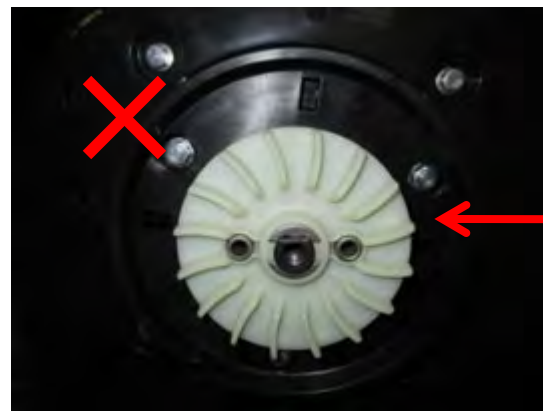
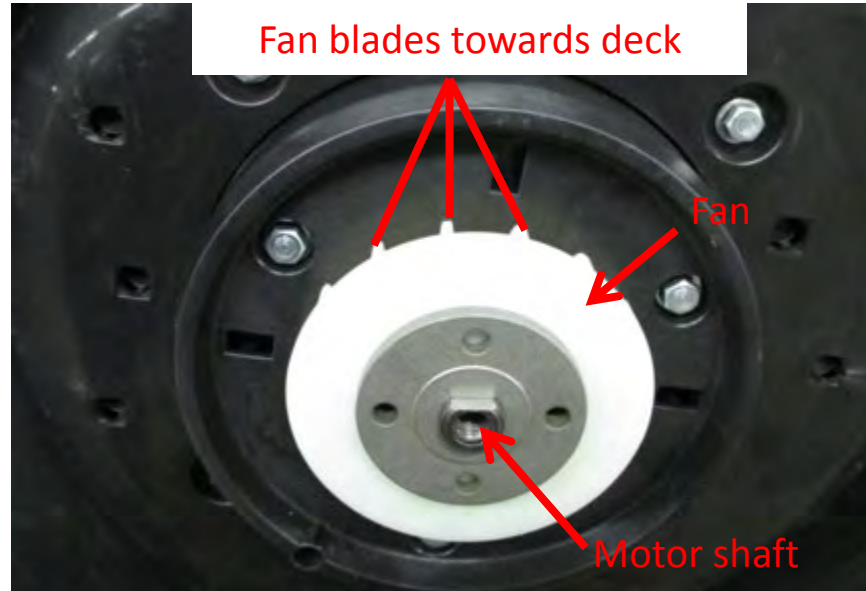
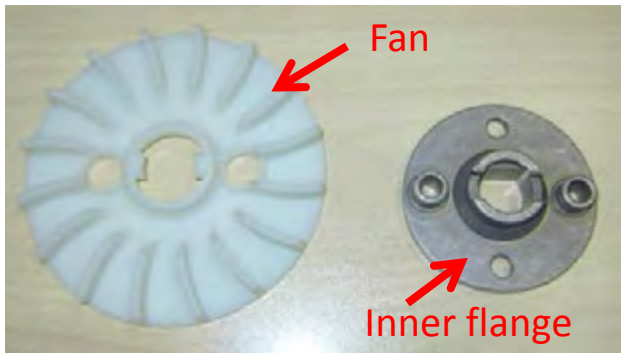


Description	Part Number
Bolt	5640226001
Outer flange	5650510001
Blade	3705938001
Inner flange	3520852002
Fan	3127847001



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.

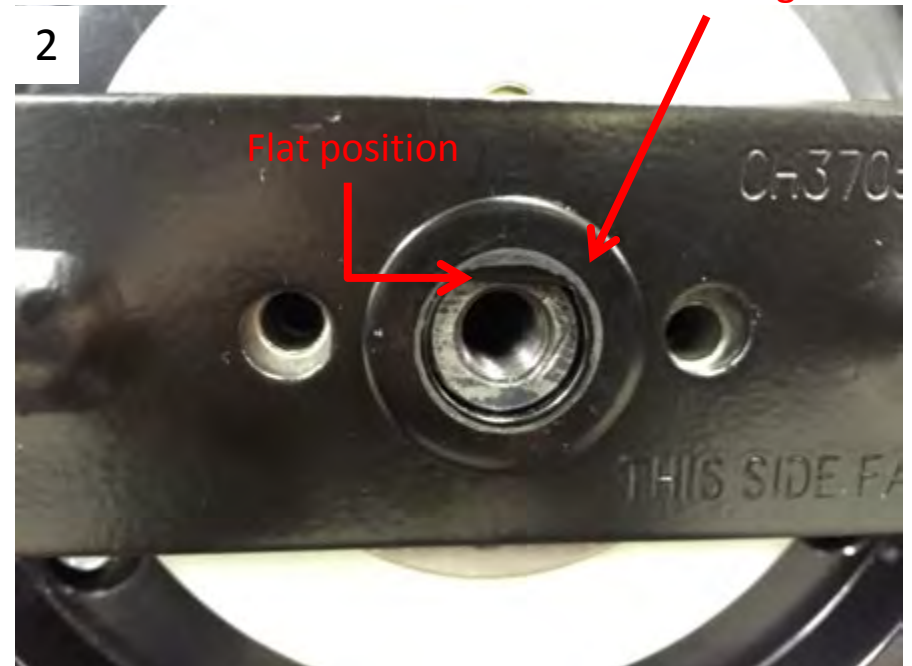


Wrong assembly of the fan

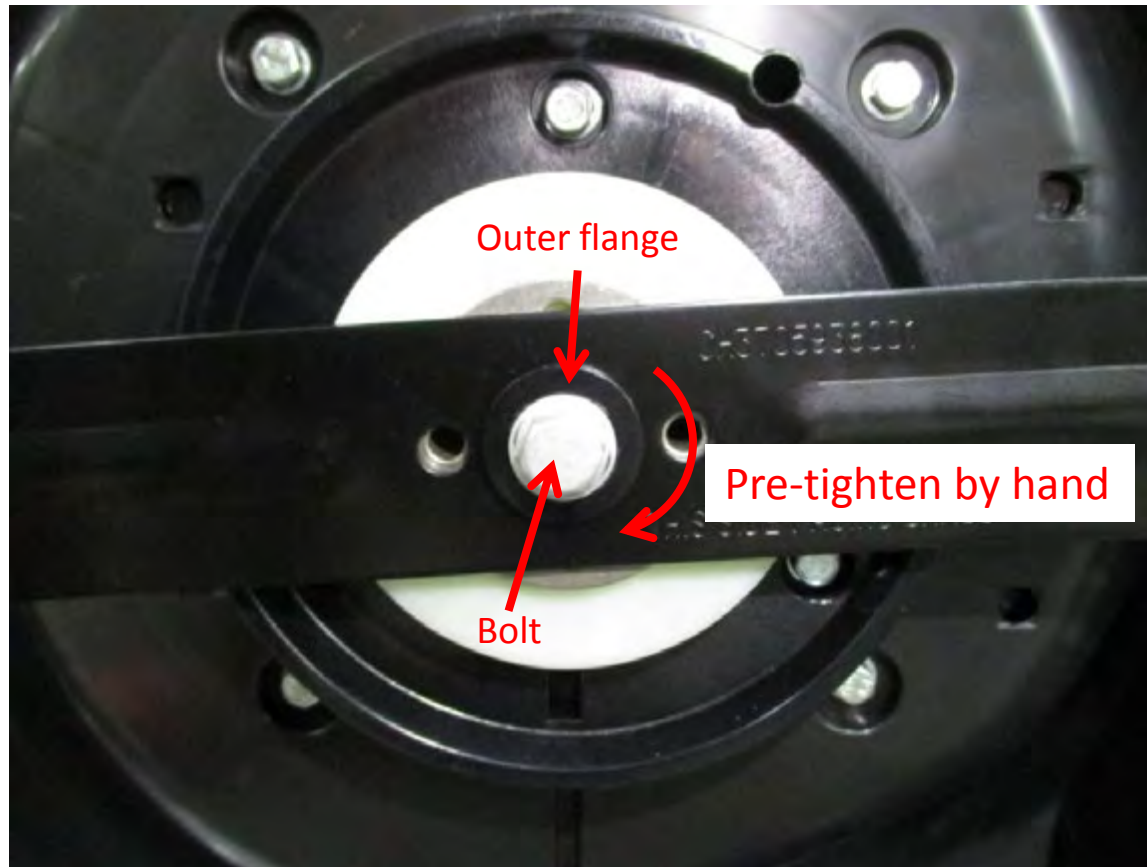
Blade Installation

LM2100 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).



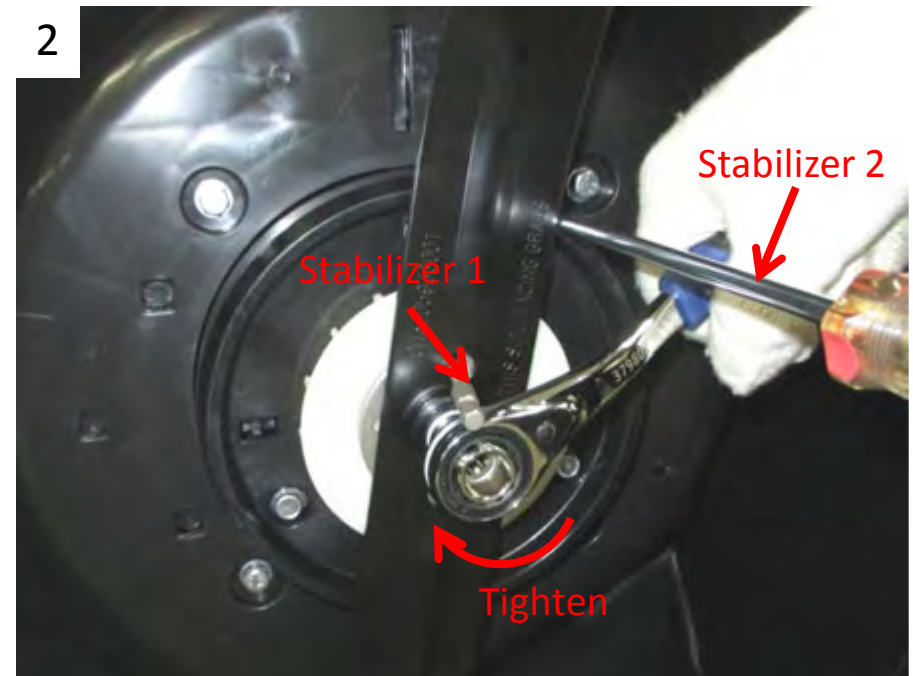
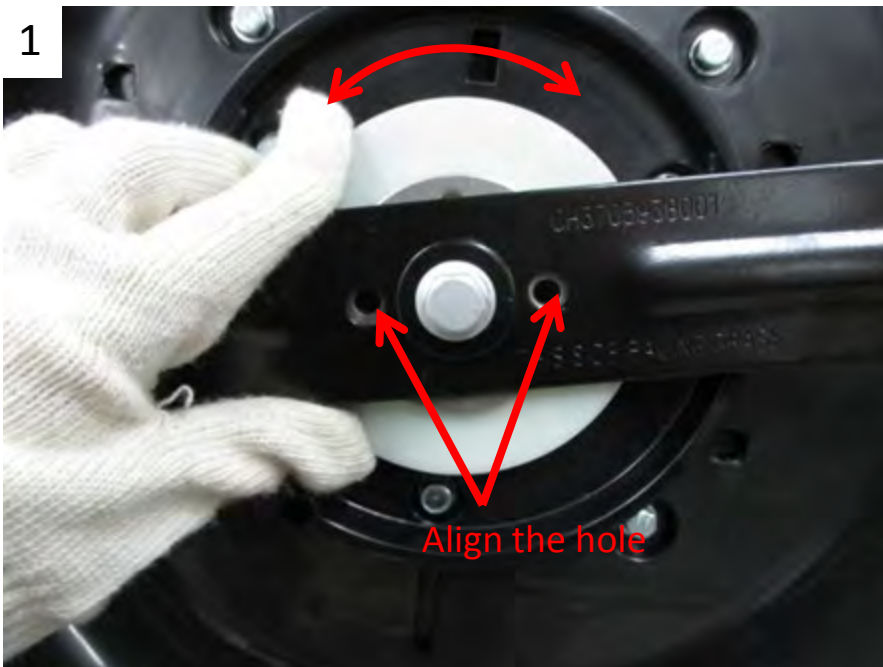
5. Mount the bolt into the shaft and pre-tighten it by hand.



Blade Installation

LM2100 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 manual 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 5: HANDLE LOCKING CLAMP REPLACEMENT_LM2100 Lawn Mower



Handle Locking Clamp Replacement

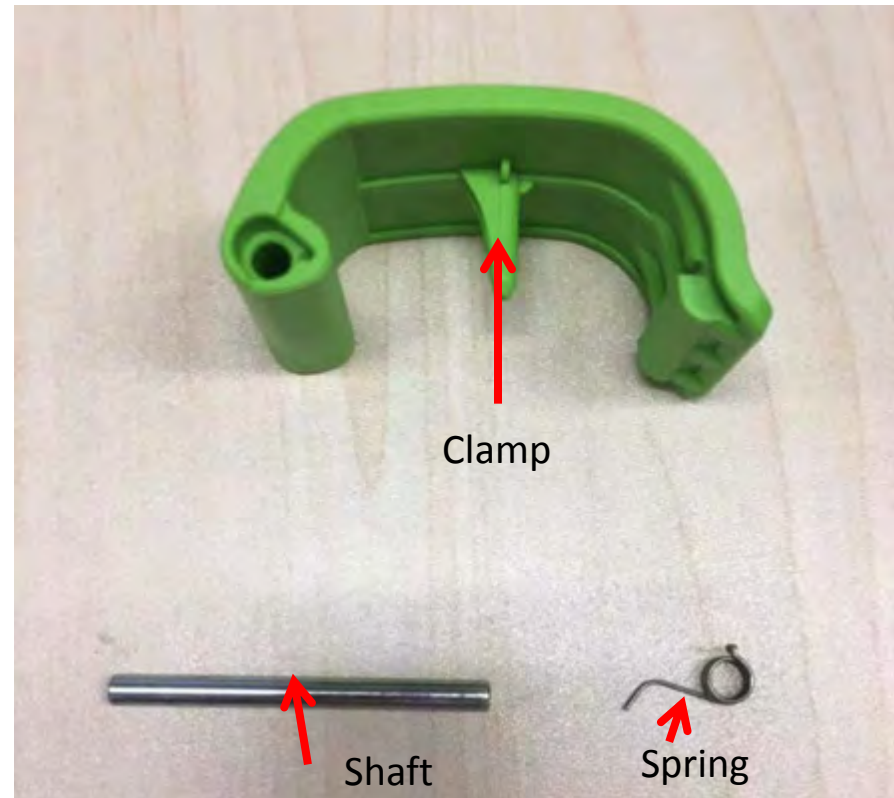


Description	Part Number	Picture
Handle Locking Clamp Set	2823714002	A photograph showing the individual components of the handle locking clamp set laid out on a light-colored wooden surface. The parts include a long silver metal pin, a small green rectangular plastic piece, a black cylindrical rubber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

Handle Locking Clamp Replacement

LM2100 Lawn Mower

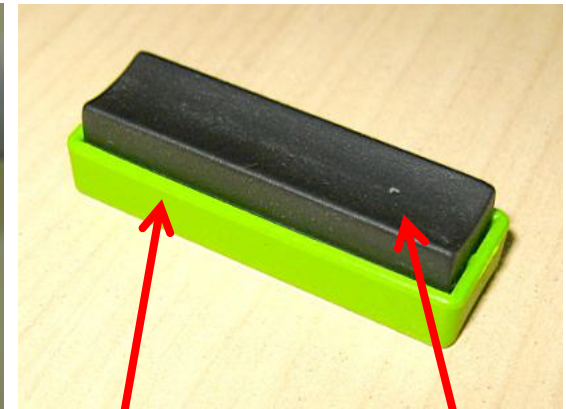
1. Use a metal rod and tap gently on the shaft, to take it out. Remove the clamp and the spring.



Handle Locking Clamp Replacement

LM2100 Lawn Mower

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



Rubber Base

Rubber Pad

Description	Part Number
Rubber Base	3126761001
Rubber Pad	3126832001

Handle Locking Clamp Replacement

LM2100 Lawn Mower

4. Put the rubber pad and rubber base into the corresponding opening, pay attention the rubber pad towards inside and the rubber base towards outside.



Handle Locking Clamp Replacement

LM2100 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

LM2100 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 9: WHEELS REPLACEMENT_LM2100 Lawn Mower



Table of Contents

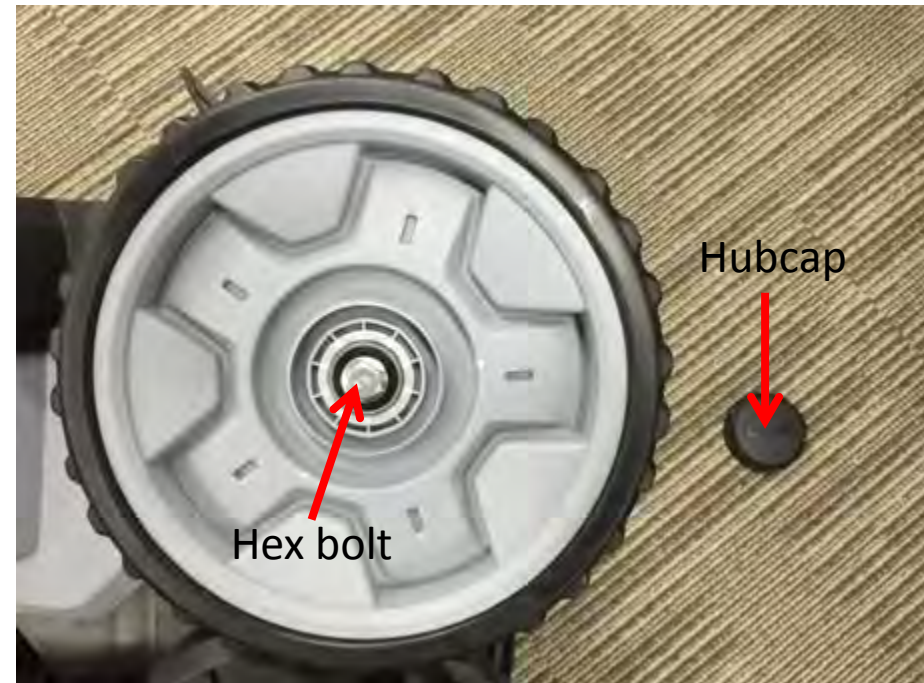
NO.	Contents	Page
1	Rear Wheels Replacement	3-5
2	Front Wheels Replacement	6

Rear Wheels Replacement

LM2100 Lawn Mower

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	Description	Part Number
Hubcap	3126765001	Rear Wheel	2824279001
Hex bolt	5640010003	Wave washer	5650453001

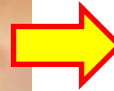
Rear Wheels Replacement

LM2100 Lawn Mower

2. Remove the hex bolt using a 1/2 inch (S=13mm) socket wrench to separate the wheel from the rear axle set.
3. Take down the damaged wheel as well as the wave washer and replace with a new wheel.



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



Rear Wheels Replacement

LM2100 Lawn Mower

4. Put the wave washer through the rear axle set shaft and then mount the wheel onto the shaft.

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

5. If the rear axle set shaft is bent or damaged, replace it(see ***RG_Part 10_Housing Cover Replacement_LM2100.pptx***).



6. Fix the wheel by tightening the hex bolt. The recommended torque is 2.6-3.7ft-lb(3.5-5Nm).
7. Mount the hubcap onto the wheel.

Front Wheels Replacement

LM2100 Lawn Mower

1. If the front wheels are damaged, replace them in the same way as replacing the rear wheels.
2. If the front axle set shaft is bent or damaged, replace it(see ***RG_Part 10_Housing Cover Replacement_LM2100.pptx***).



Description	Part Number
Hubcap	3126769001
Hex bolt	5640010003
Front Wheel	2823662001
Wave washer	5650453001



THE END

REPAIR GUIDELINE

PART 4: TOP HANDLE & SWITCH BOX COVER REPLACEMENT_LM2100 Lawn Mower



Table of Contents

NO.	Contents	Page
1	Open the Switch Box Cover	4-6
2	To Replace the Safety Button/Switch Actuator	7-11
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	16
6	To Replace the Main Switch	17-20
7	Close the Switch Box Cover	21-23

TOP HANDLE & SWITCH BOX COVER REPLACEMENT

LM2100 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
Top Handle	2823782001
Top & Bottom Switch Box Set	2824422001
Safety Button	3127929001
Switch Actuator	3127905001
Main Switch Trigger	3127908001



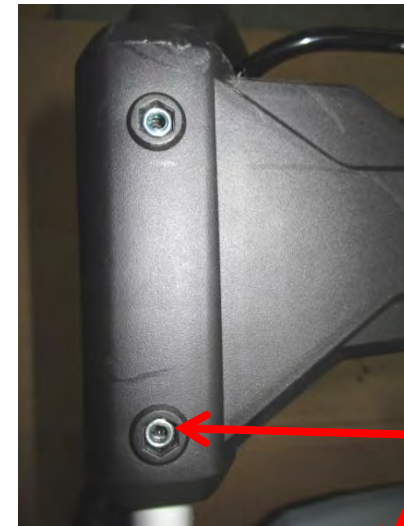
REMARK: The 1pc plain washer and 1pc spring, which are used to fix the switch actuator will be improved, combined into 1pc conical spring in order to avoid spring missing during mower operation (see P10).

Open the Switch Box Cover

LM2100 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

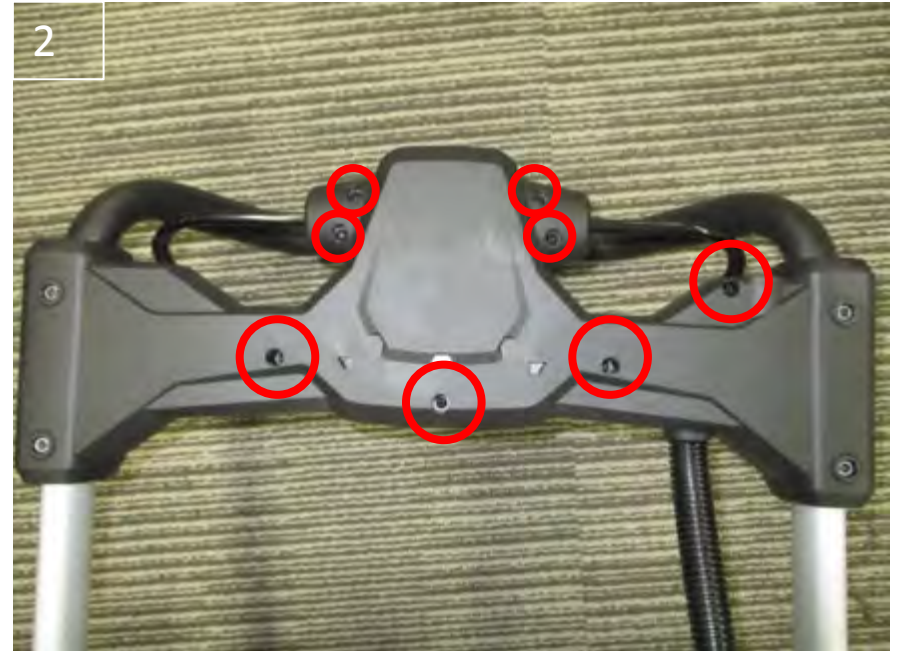


Open the Switch Box Cover

LM2100 Lawn Mower

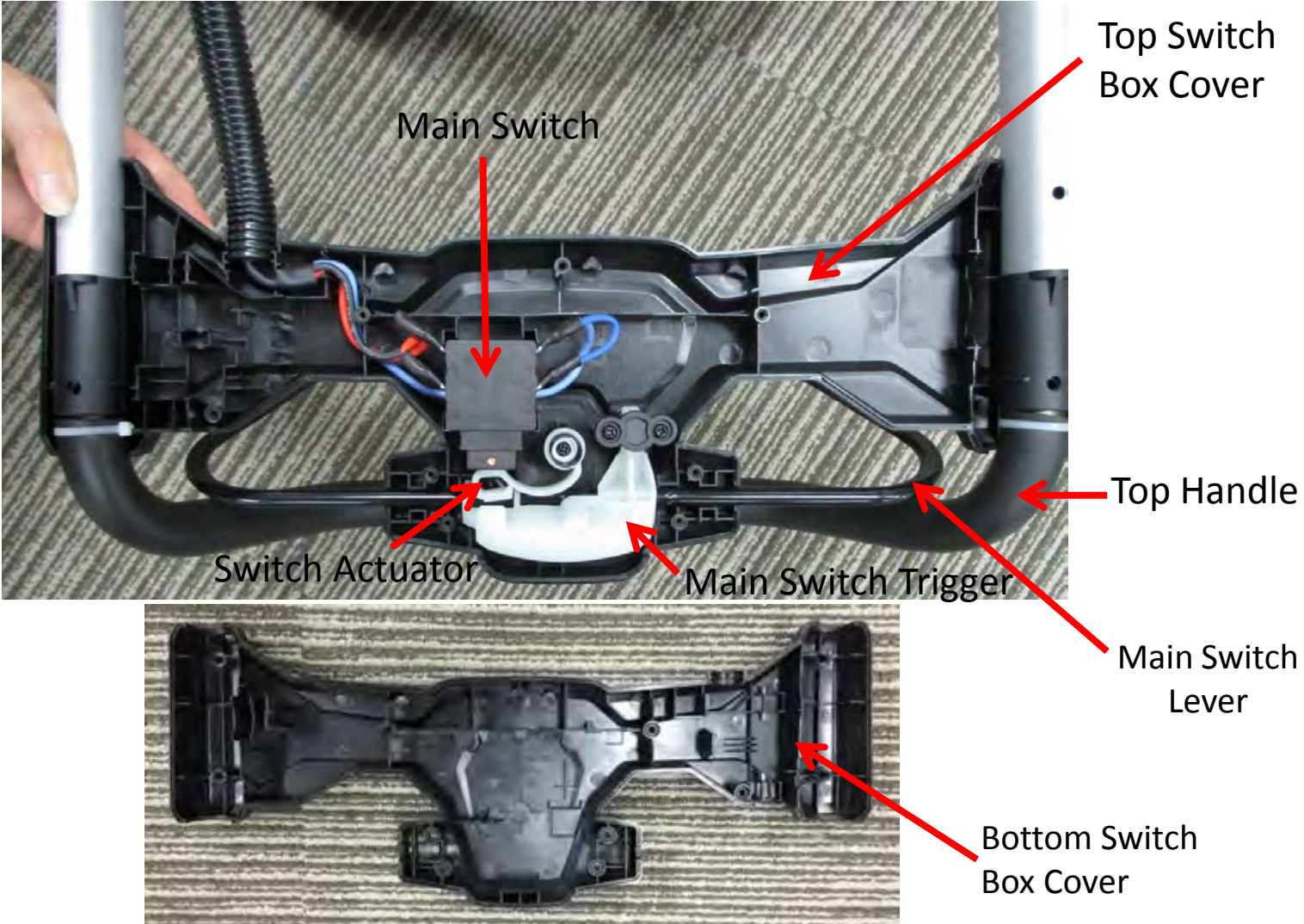
2. Fold the handle to the grass bag removal position(Fig. 1).
3. Remove the 8 screws from the housing(Fig. 2).

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.

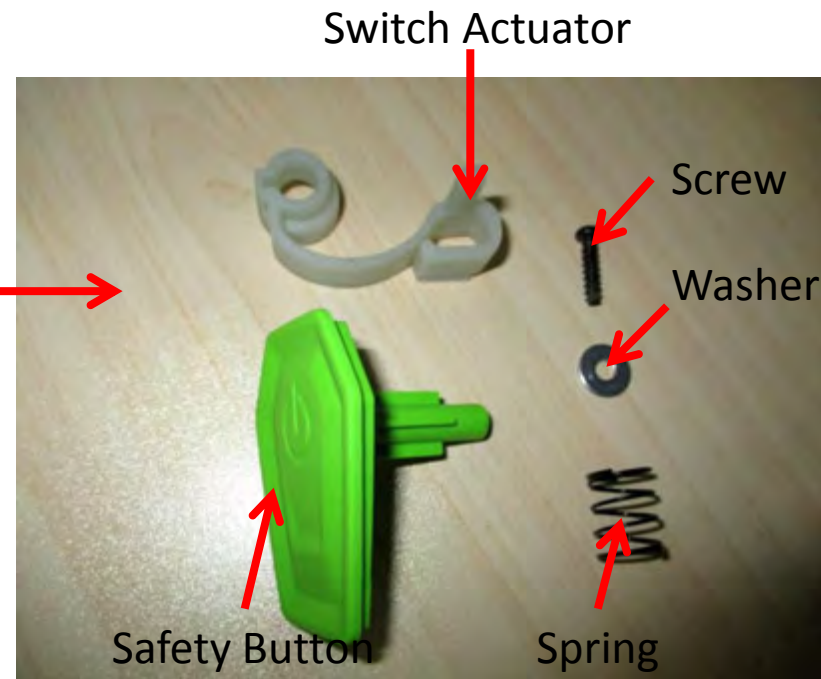


To Replace the Safety Button/Switch Actuator

LM2100 Lawn Mower

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

Replace the worn or damaged one.



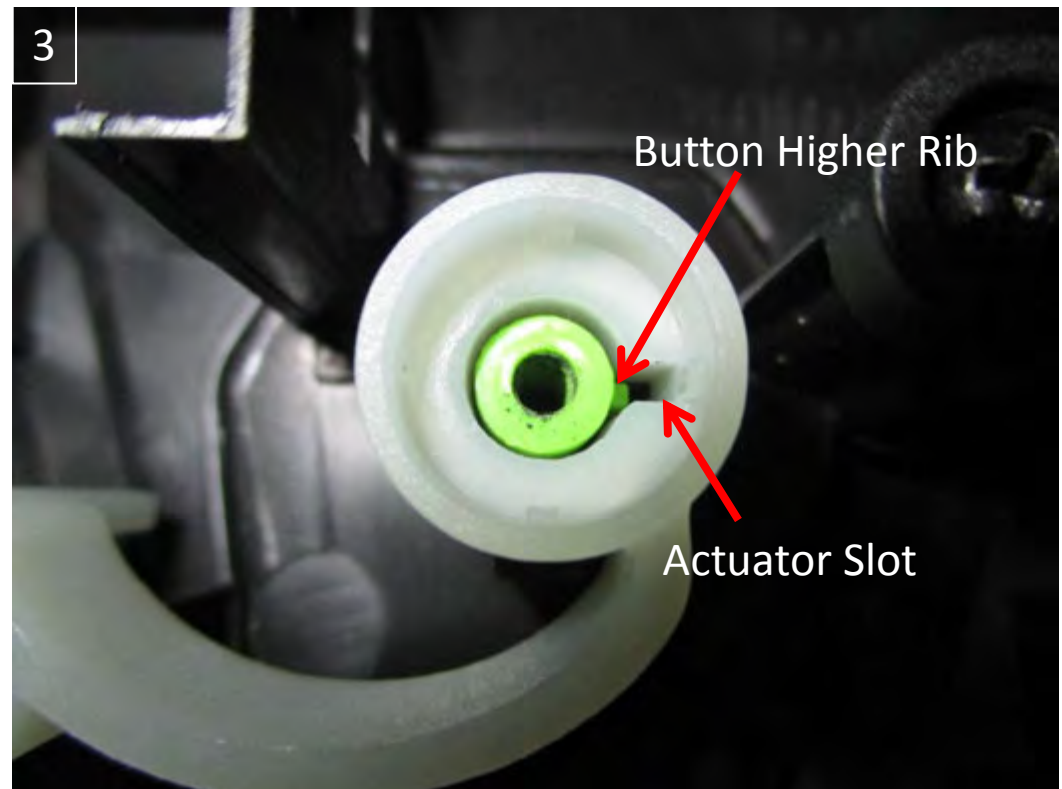
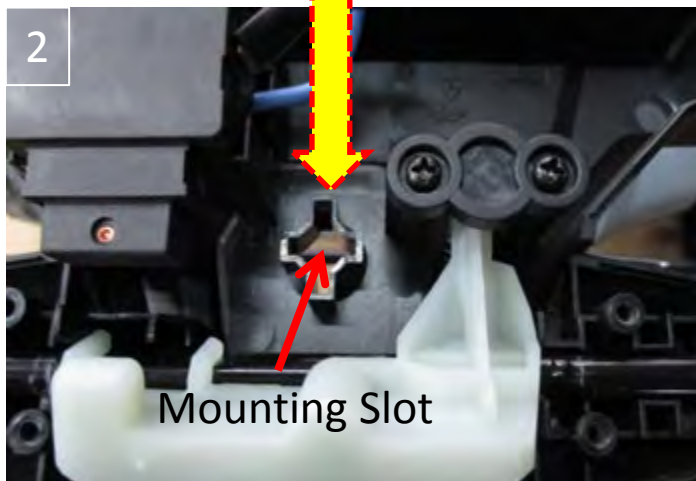
Description	Part Number
Switch Actuator	3127905001
Safety Button	3127929001

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.

To Replace the Safety Button/Switch Actuator

LM2100 Lawn Mower

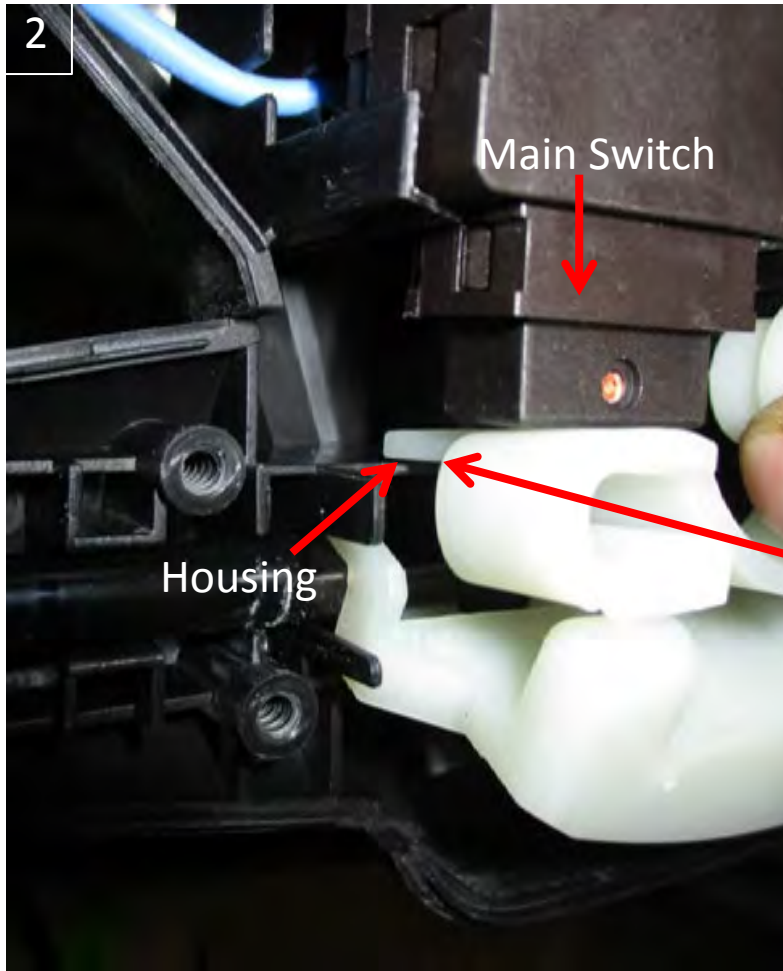
2. Place the new safety button into the mounting slot(Fig. 1 & 2).
3. Align the actuator slot with the button higher rib to mount the new switch actuator(Fig. 3).



To Replace the Safety Button/Switch Actuator

LM2100 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

LM2100 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 first 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.

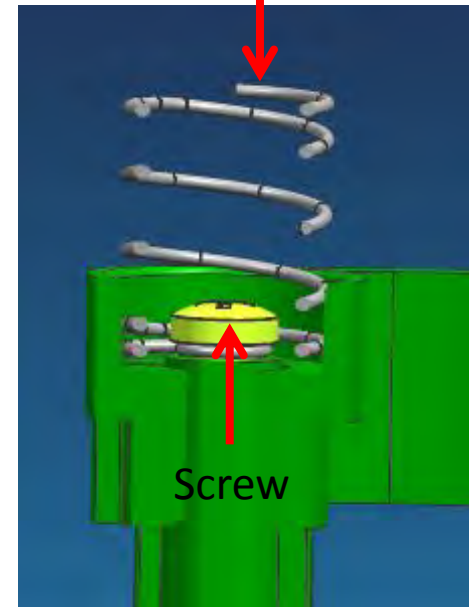
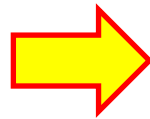
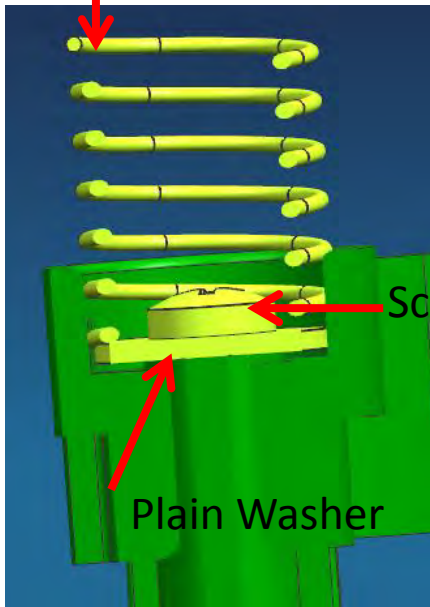
Installation improvement



Normal Spring

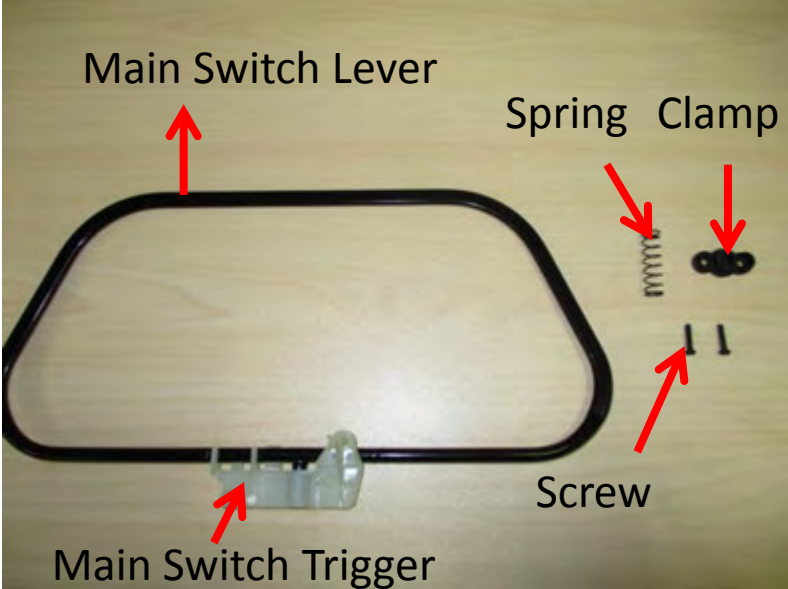
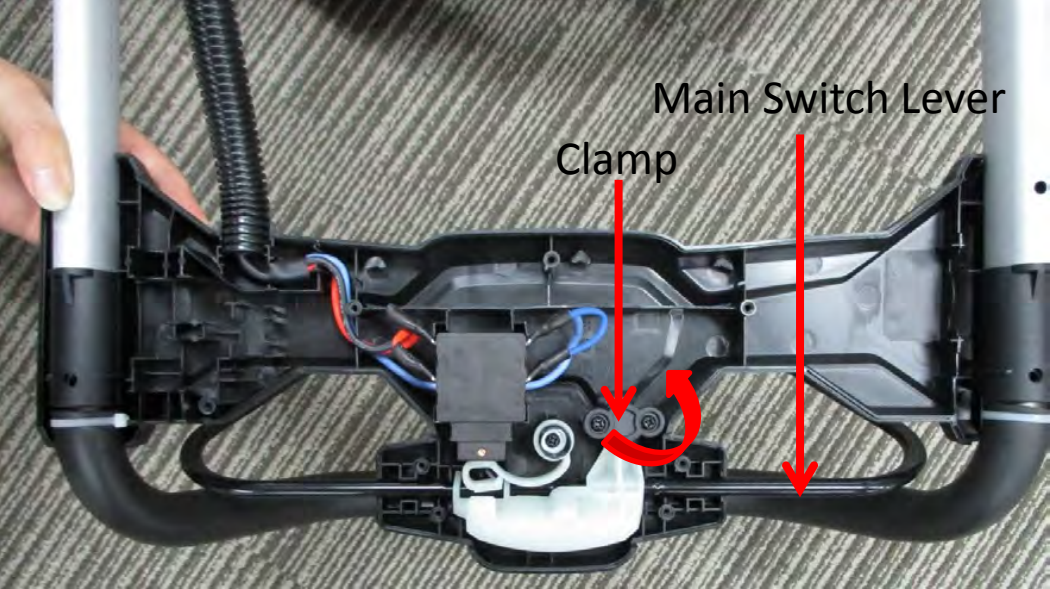


Conical Spring



To Replace the Main Switch Set(Lever/Trigger)

- 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.

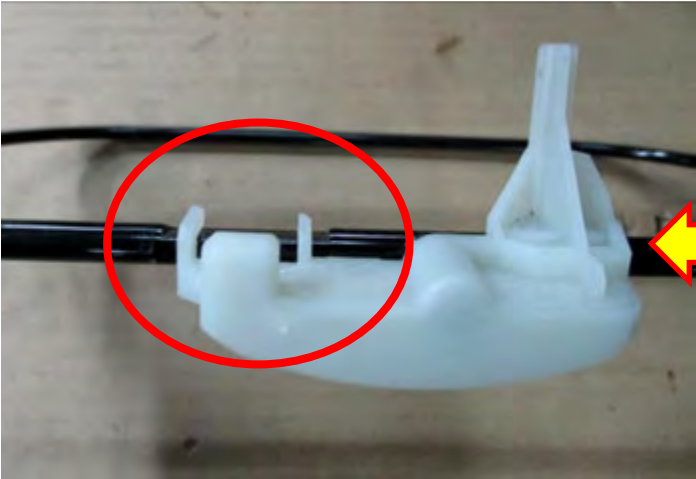
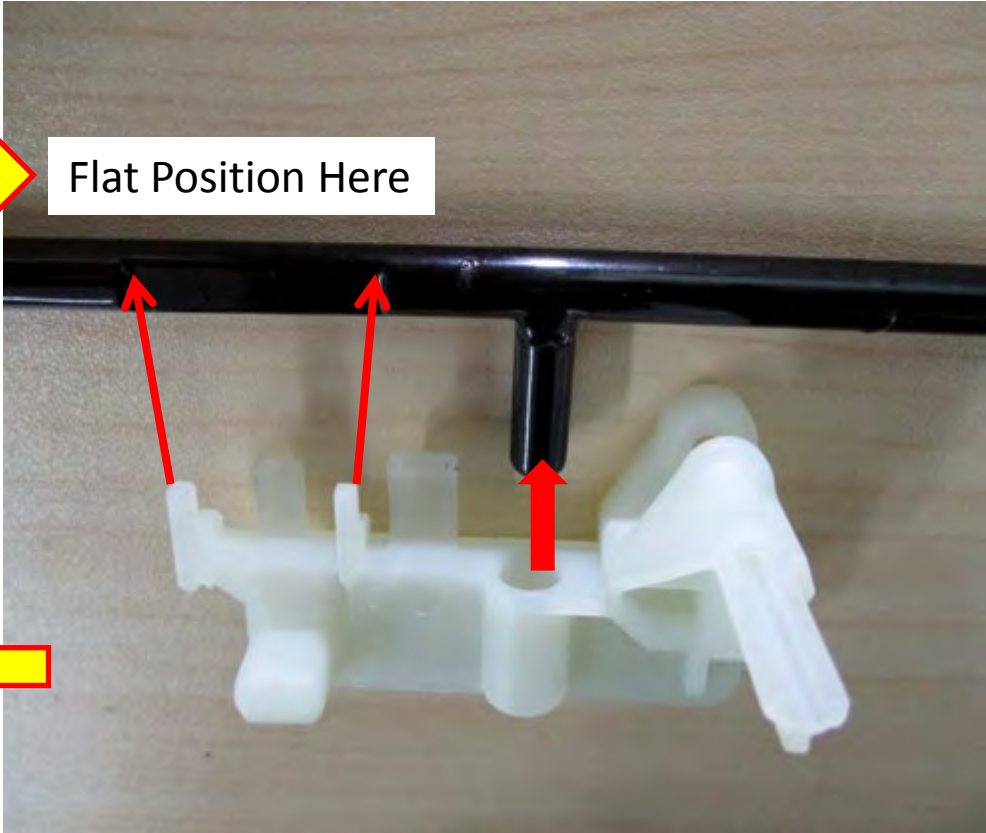


Description	Part Number
Main Switch Lever	2824118001
Main Switch Trigger	3127908001

To Replace the Main Switch Set(Lever/Trigger)

3. Mount the switch trigger to the switch lever.

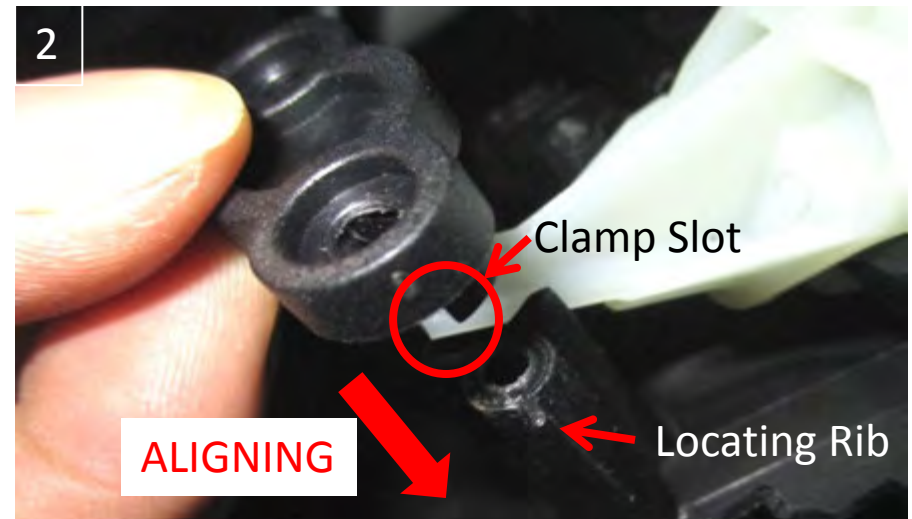
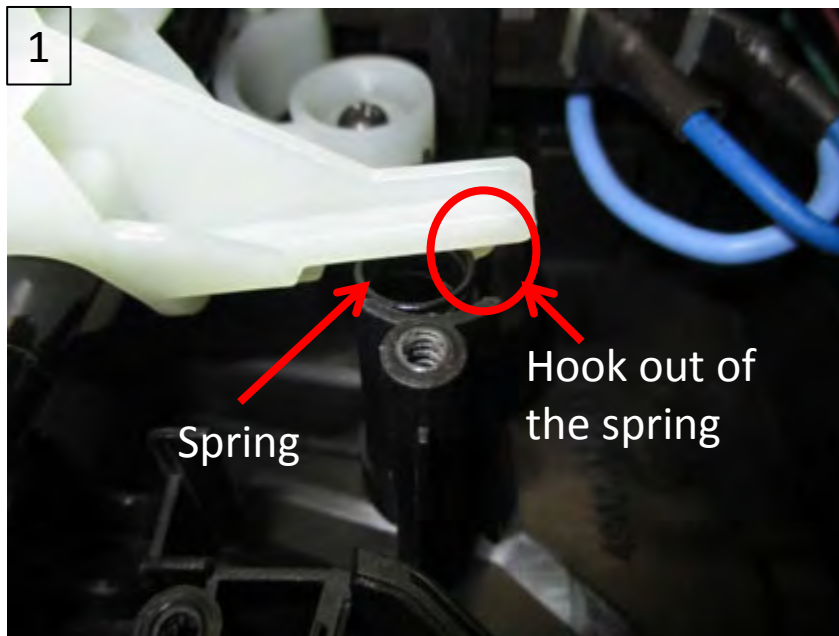
NOTICE: The flat position on the lever should be fixed by the 3 feet of the trigger.



To Replace the Main Switch Set(Lever/Trigger)

LM2100 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

LM2100 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

LM2100 Lawn Mower

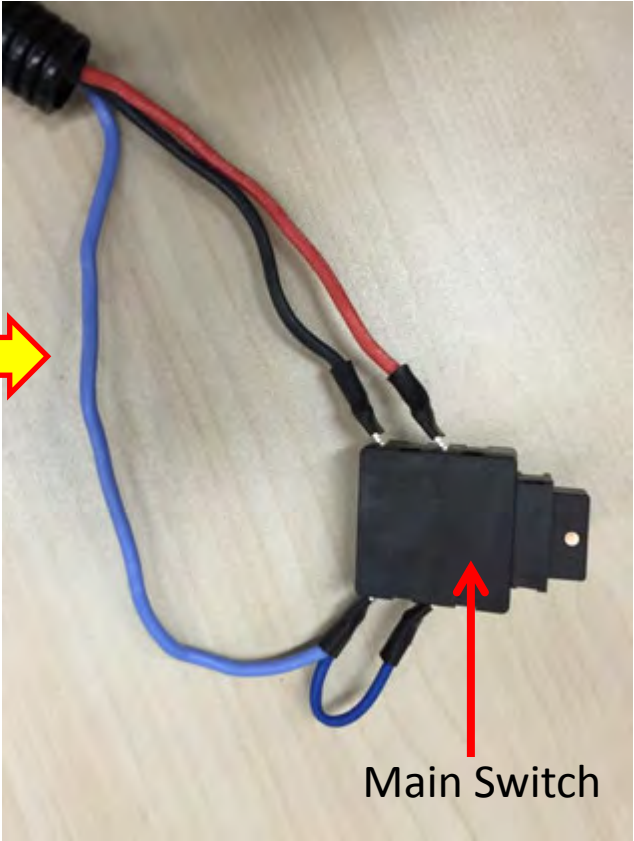
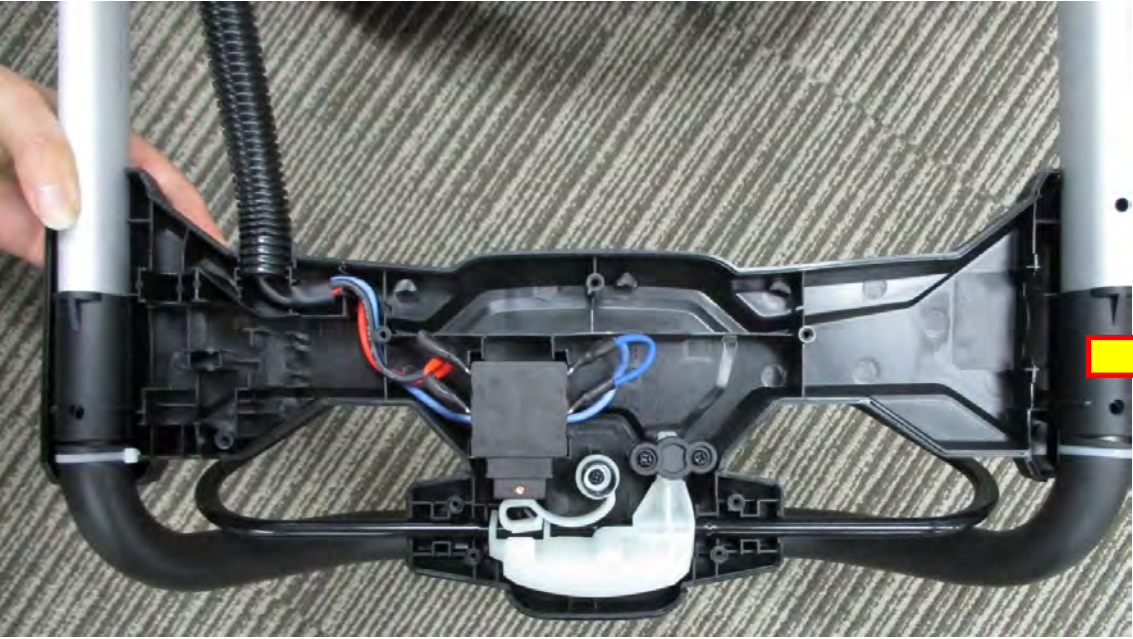
1. Remove the main switch as well as the cables from the top switch box cover;
2. Remove the main switch lever set(Lever/Trigger) from the top switch box cover;
3. Remove the safety button as well as the switch actuator;
4. Replace with a new set of switch box cover;
5. Refer to the previous slides to fix the according parts into the top switch box cover.



Description	Part Number
Top & Bottom Switch Box Set	2824422001

To Replace the Main Switch

- 1. Take out the main switch from the switch box.

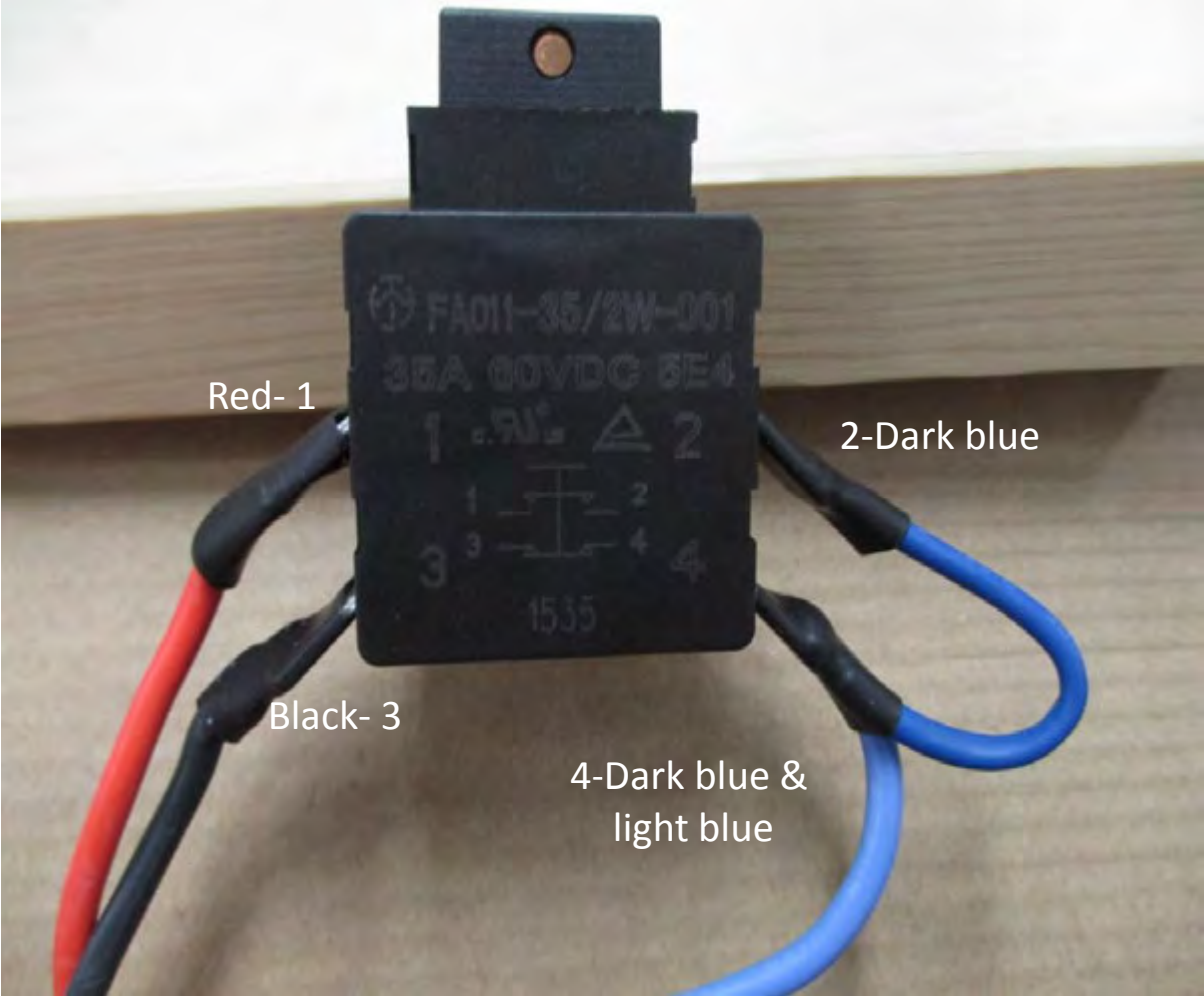


Description	Part Number
Main Switch	4870566001

To Replace the Main Switch

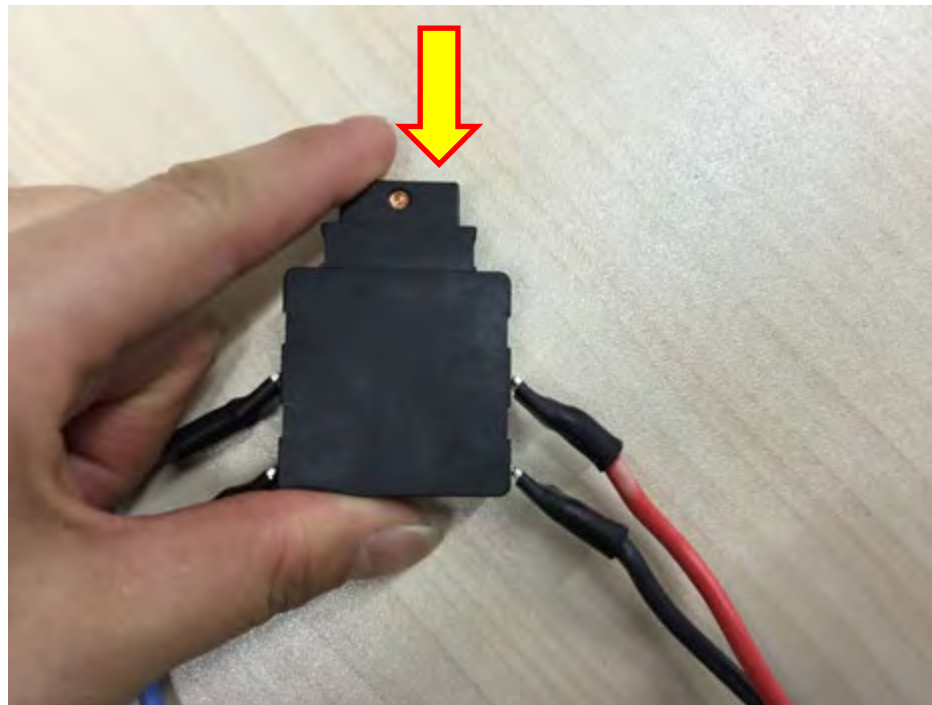
2. Disconnect it from the wires and replace with a new one (solder).

NOTICE: Mind soldering sequence as following picture shown.



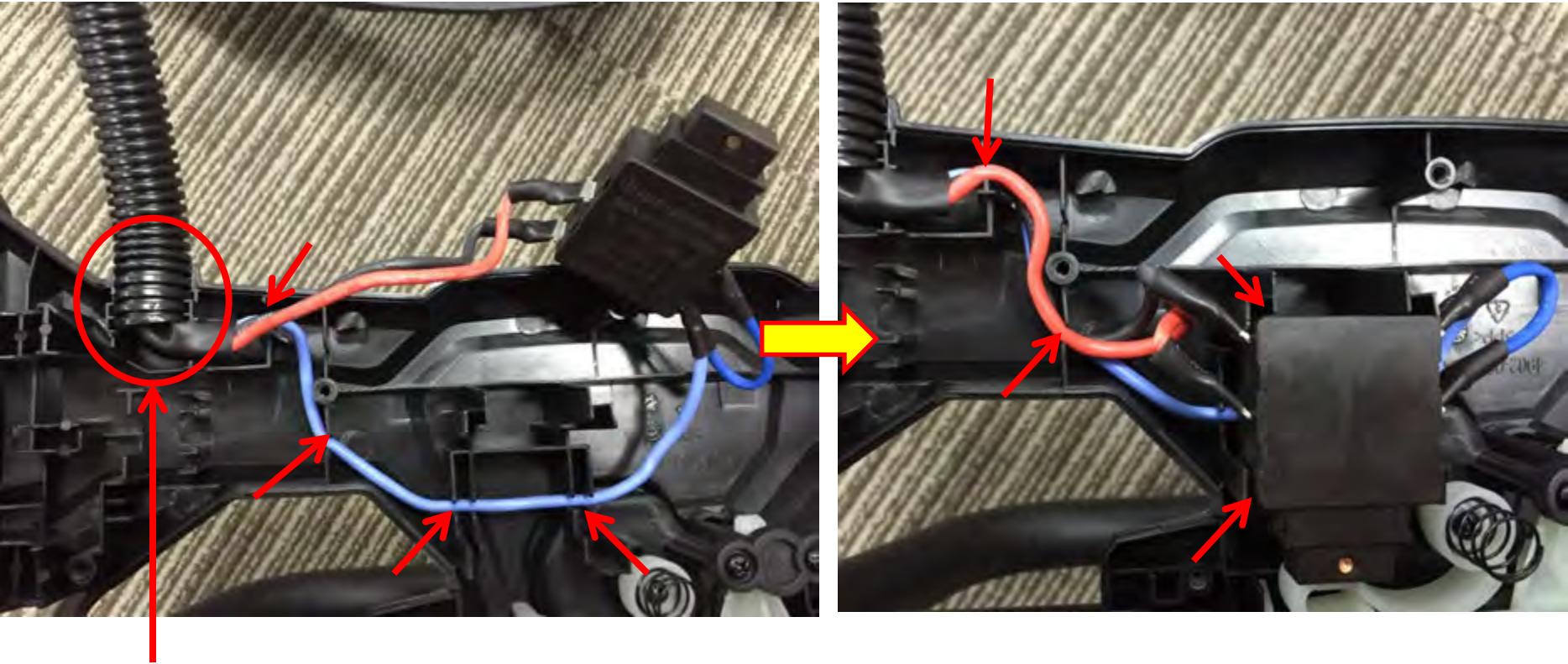
To Replace the Main Switch

3. Test the main switch.
 - Insert a full 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.



To Replace the Main Switch

- 4. Align the wires into the housing groove to put the switch into place.

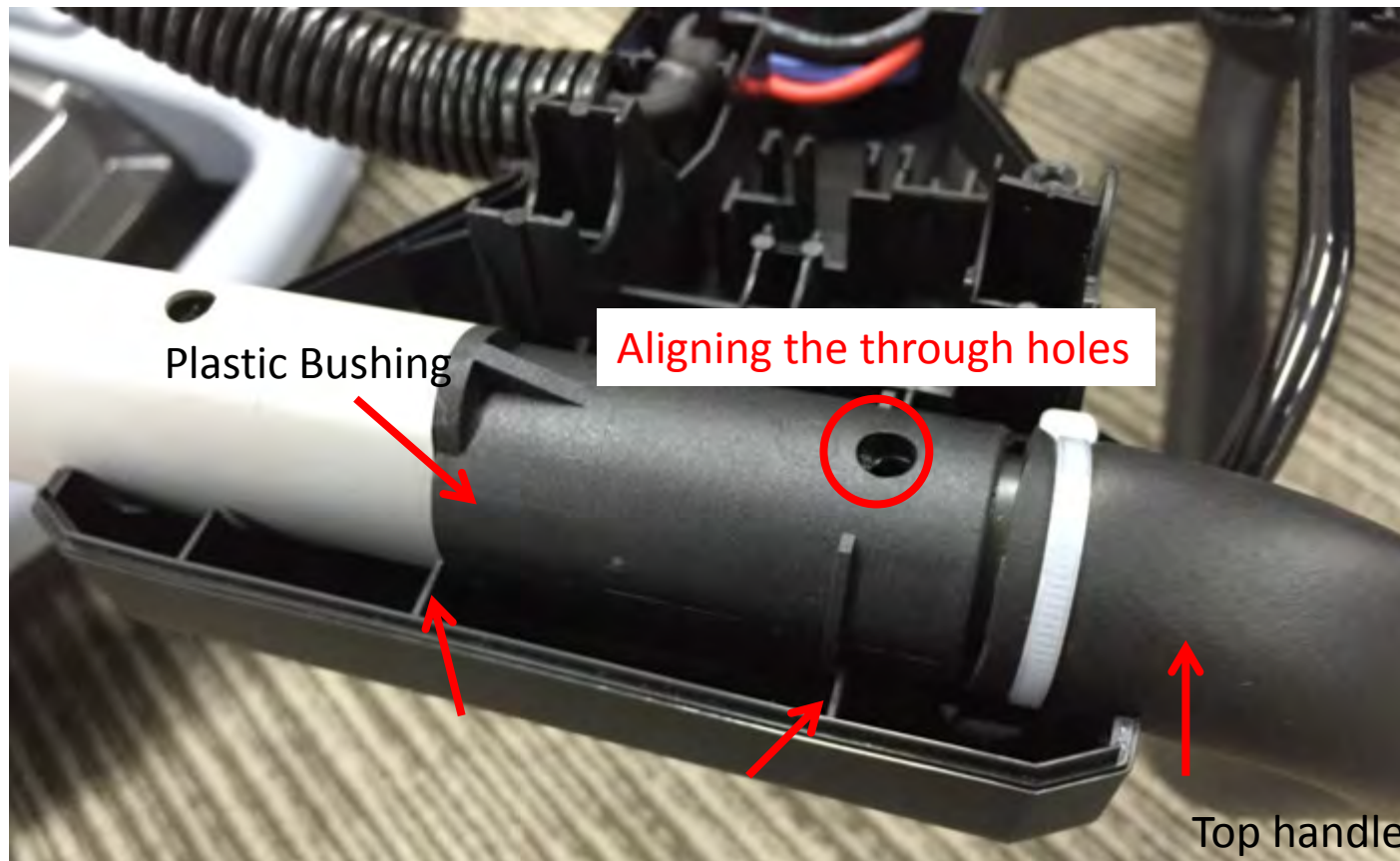


At least 5 threads of the flexible hose located in the housing groove

Close the Switch Box Cover

LM2100 Lawn Mower

1. Before mounting the bottom switch cover onto the handle, fully extend both side rails and make sure that the top handle is inserted into its place with the through holes aligned.
2. Mount the top switch box cover to the handle, ensuring the rib on the plastic bushing located between the ribs on the switch box cover.

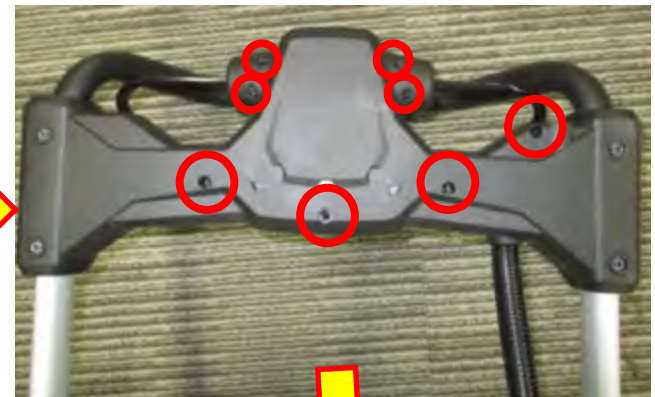


Close the Switch Box Cover

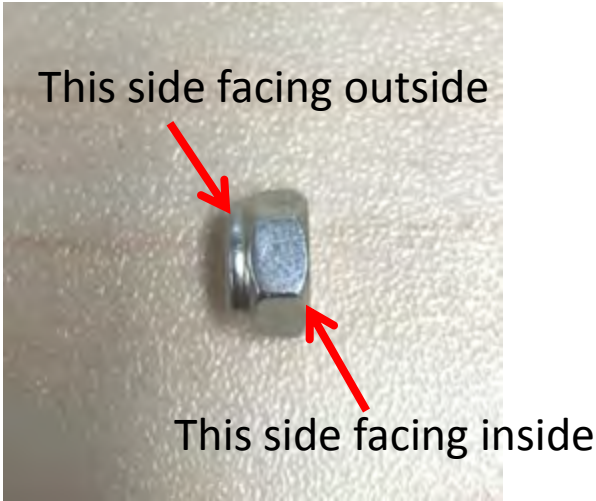
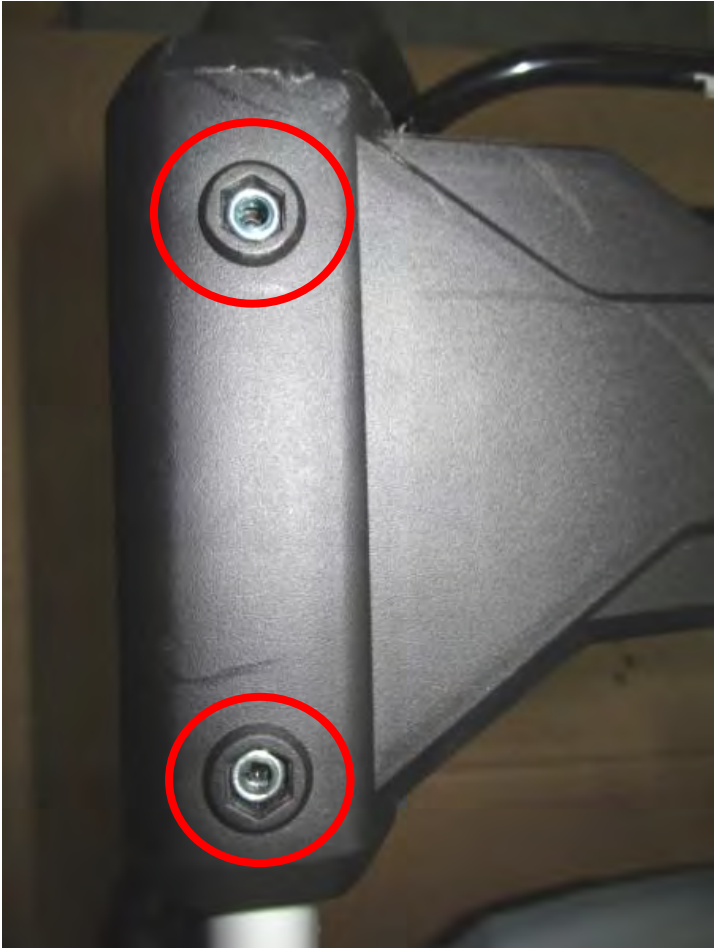
LM2100 Lawn Mower

3. Hold the top switch box cover with one hand and close it with the bottom switch box cover.
4. Fix them by tightening the 8 screws on the bottom switch box cover.
5. Fold the handle to the operating position, tighten the 4 bolts with their nuts.

NOTICE: Make sure the 4 nuts are in their place, otherwise position them into place first(see next slide).



Close the Switch Box Cover



THE END

REPAIR GUIDELINE

PART 6: LEFT/RIGHT BEAM HOUSING REPLACEMENT_LM2100 Lawn Mower



Table of Contents

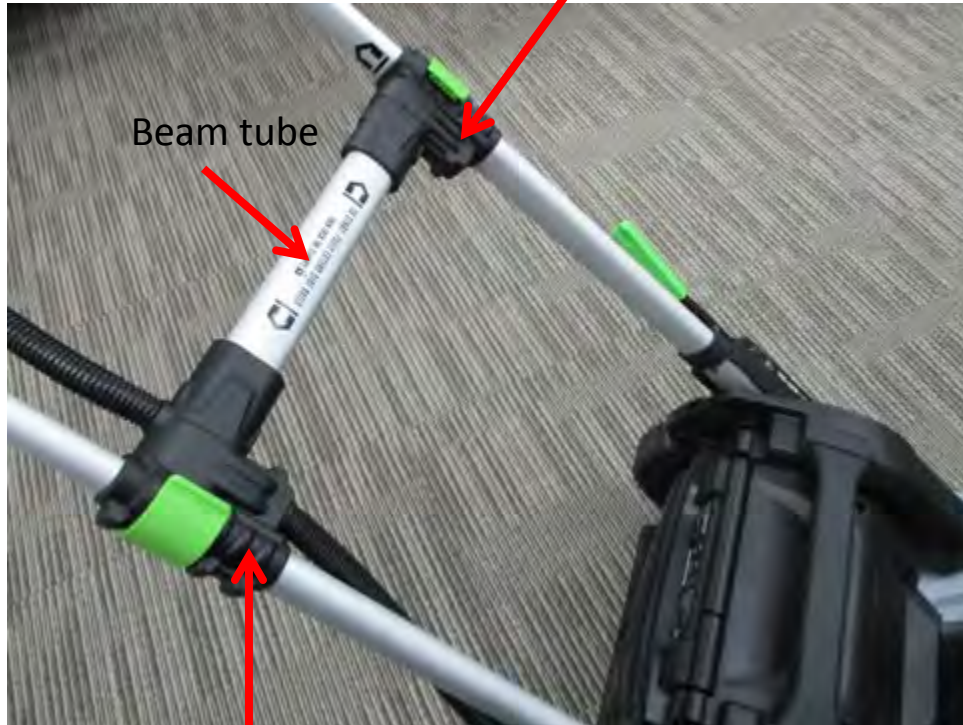
NO.	Contents	Page
1	Open the Right Beam Housing	4-6
2	Close the Right Beam Housing	7-10
3	Open the Left Beam Housing	11-12
4	Close the Left Beam Housing	13-14
5	To Replace the Beam Tube	15-16

Left & Right Beam Housing Replacement

LM2100 Lawn Mower

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

Left beam housing set



Right beam housing set
(micro switch inside)

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

Open the Right Beam Housing

LM2100 Lawn Mower

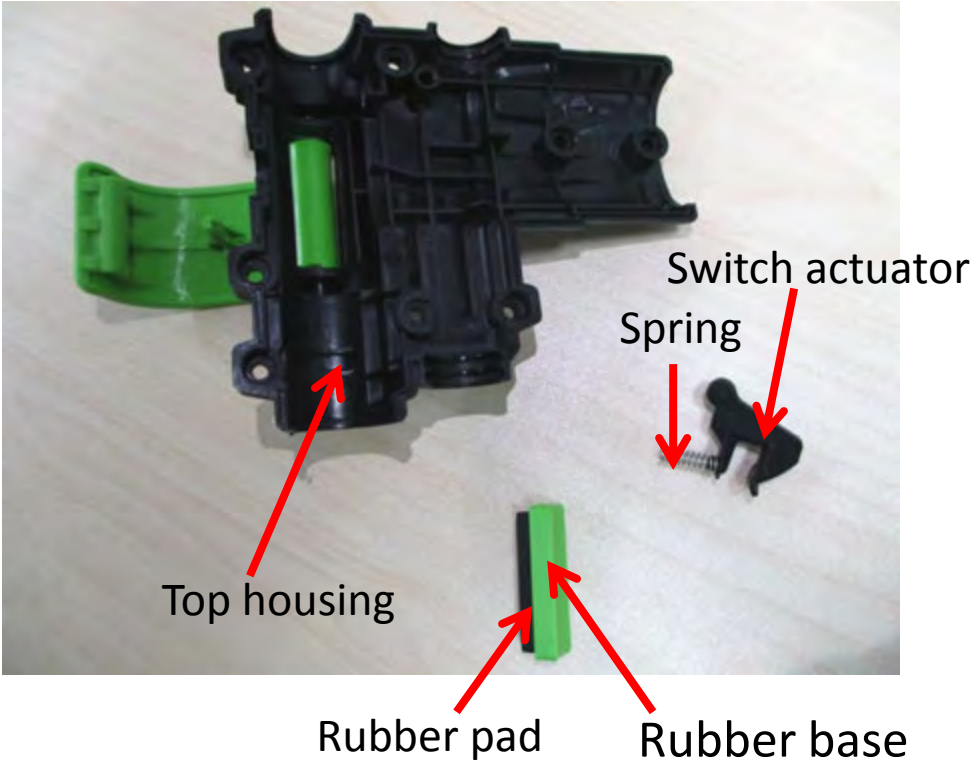
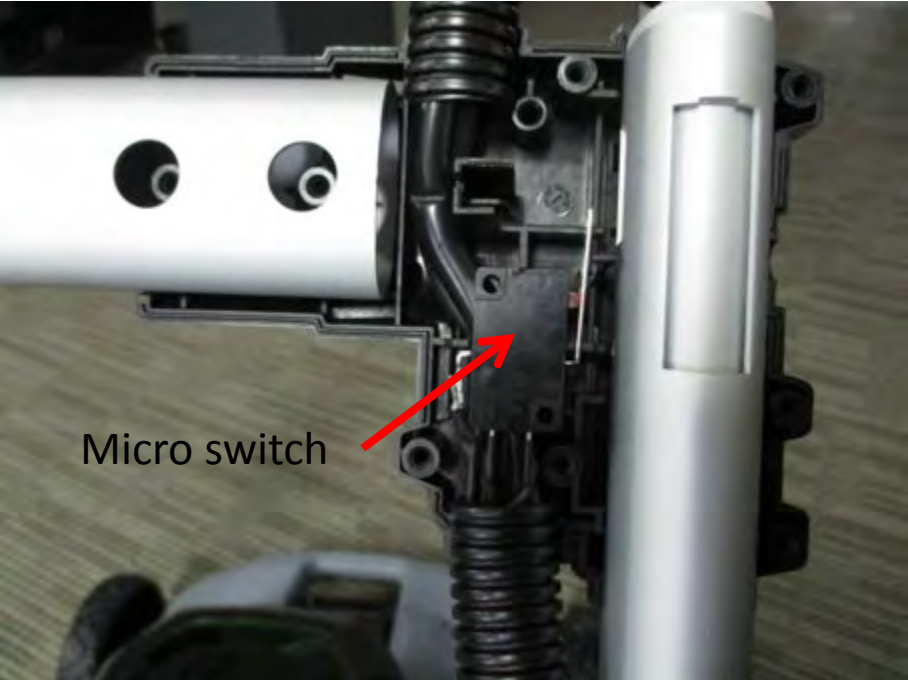
1. Remove the 8 screws to open the right beam housing.

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



Open the Right Beam Housing

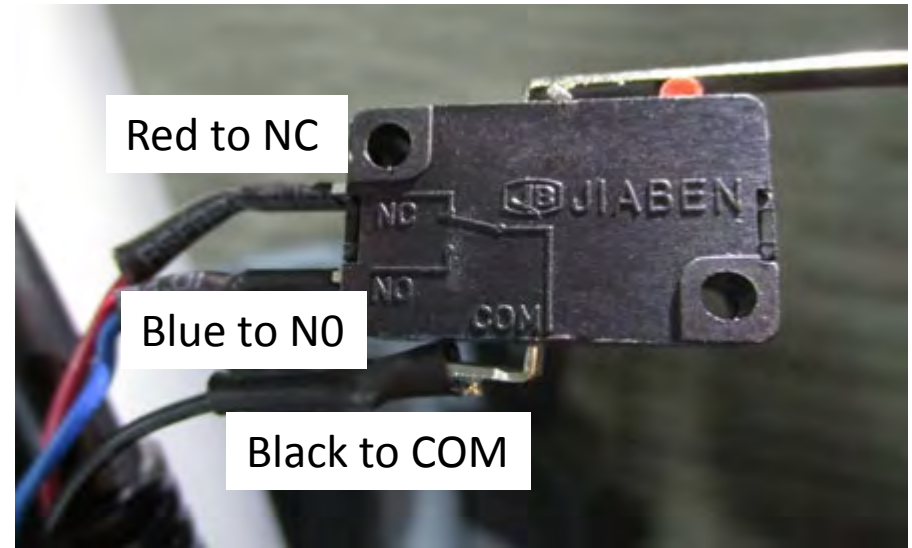
- 2. Take away the top housing, rubber pad and rubber base, switch actuator and spring(fixed on the switch actuator).



Open the Right Beam Housing

LM2100 Lawn Mower

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.

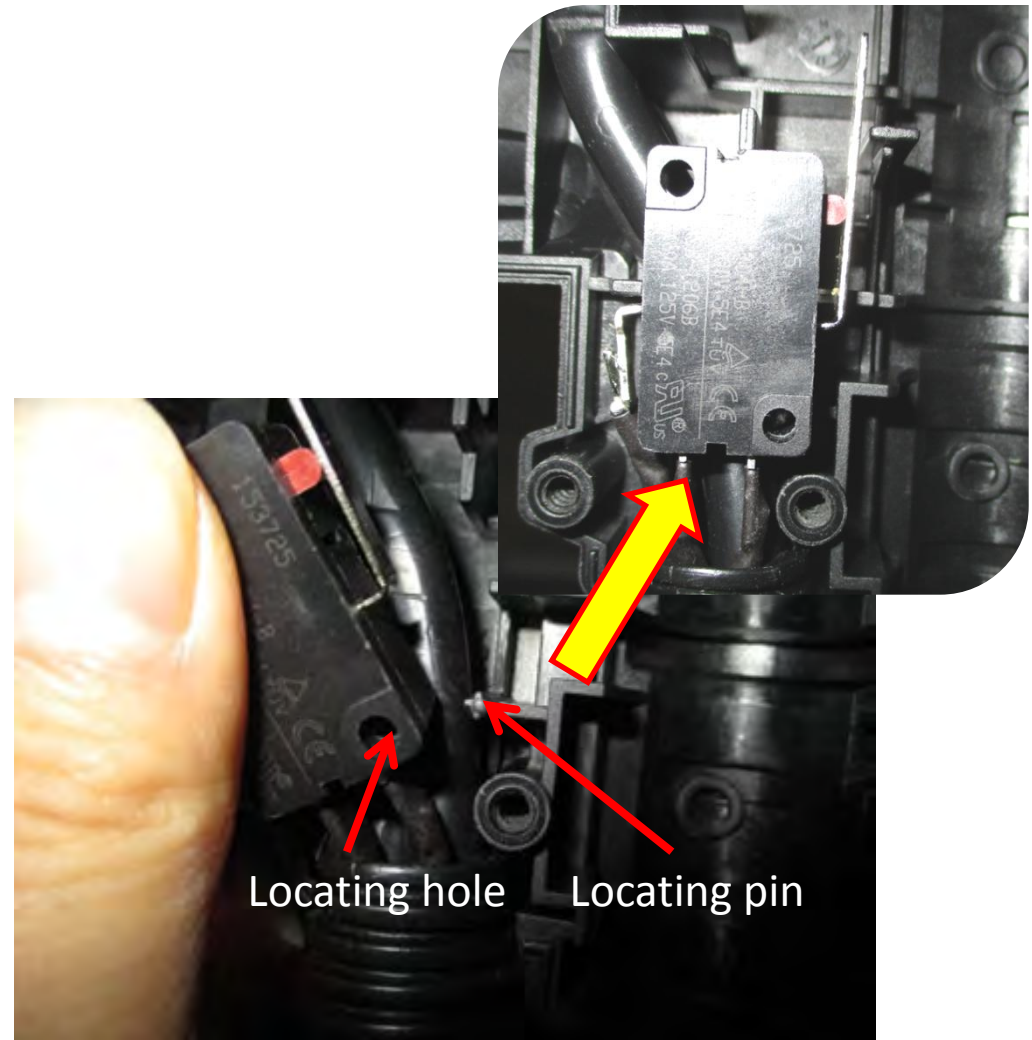


Description	Part Number
Micro Switch	4870500001

Close the Right Beam Housing

LM2100 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.

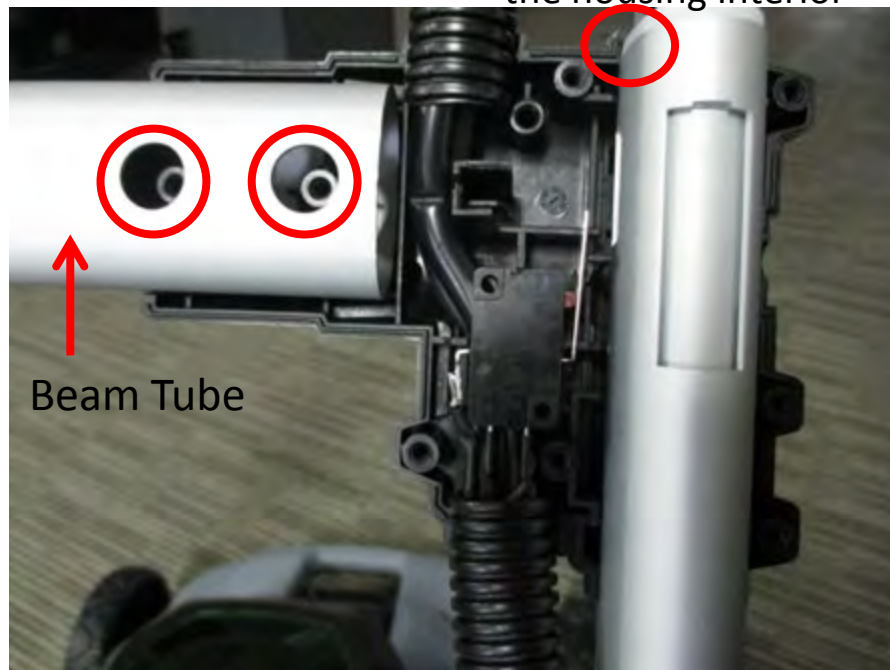


Close the Right Beam Housing

LM2100 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



Outer tube

Close the Right Beam Housing

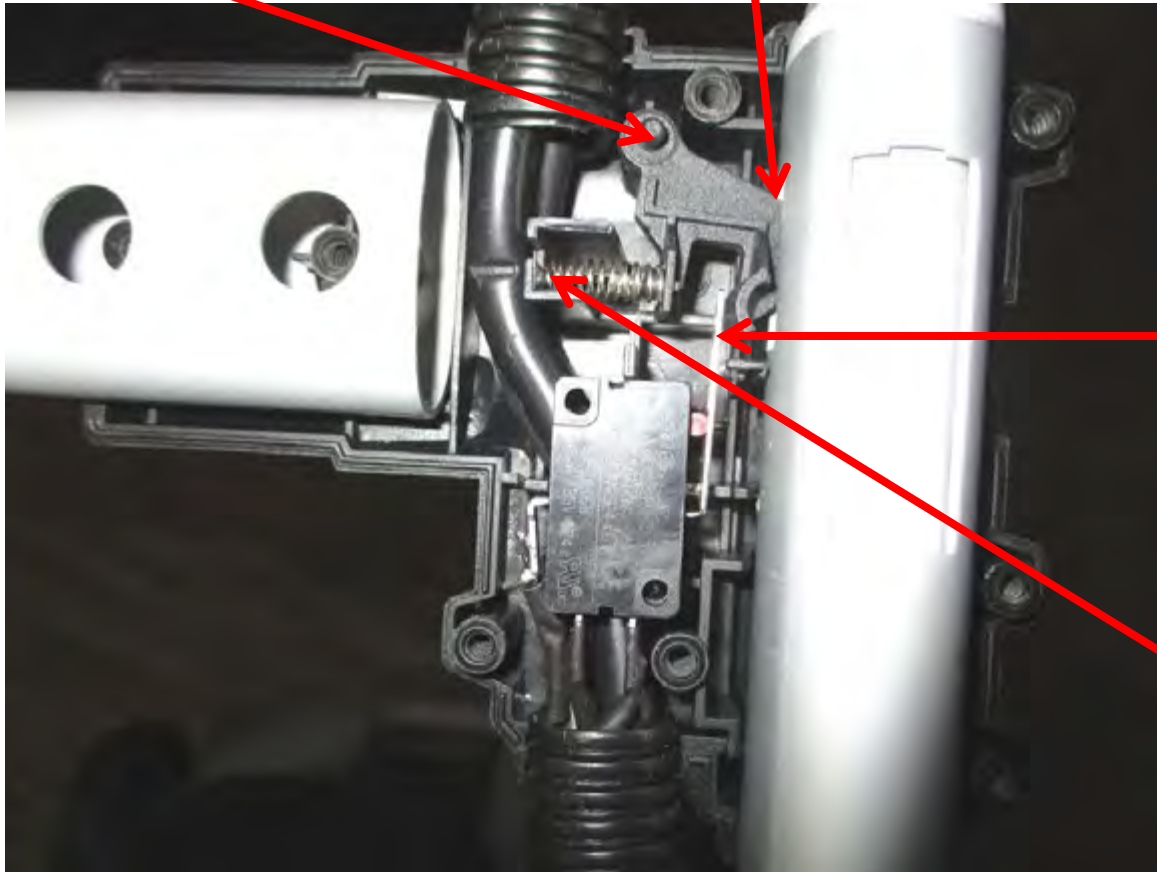
LM2100 Lawn Mower

5. Fix the switch actuator into the bottom housing.
If missing or damaged, replace them as needed.

Description	Part Number
Switch Actuator	3126768001
Spring	3660287002

Locating pin into the locating hole in housing

This corner into the outer tube



Switch lever in the groove of the actuator

Position the spring in the locating groove

Close the Right Beam Housing

LM2100 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.

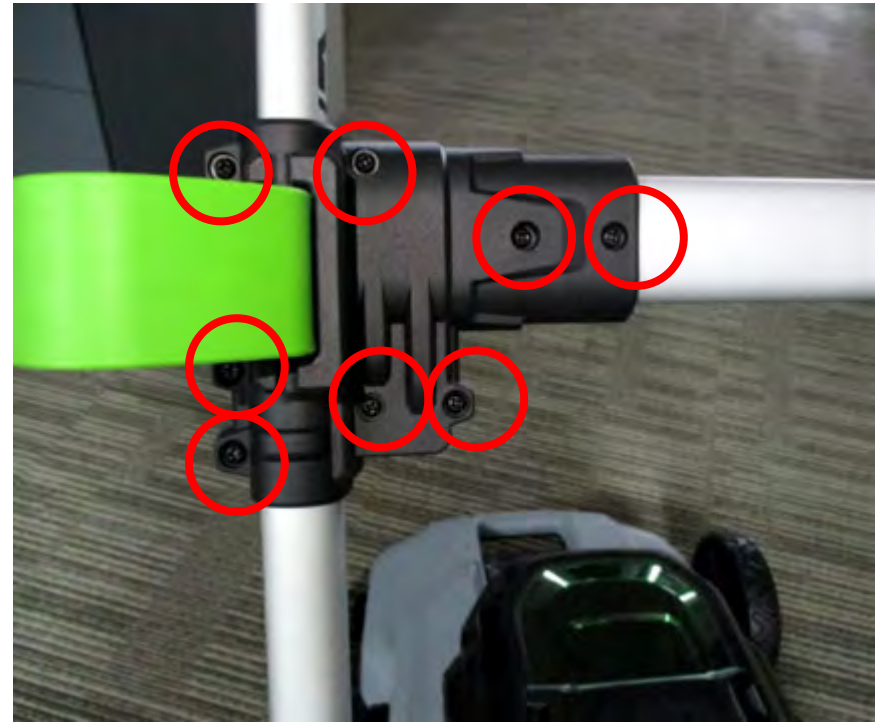
Rectangle groove



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

Open the Left Beam Housing

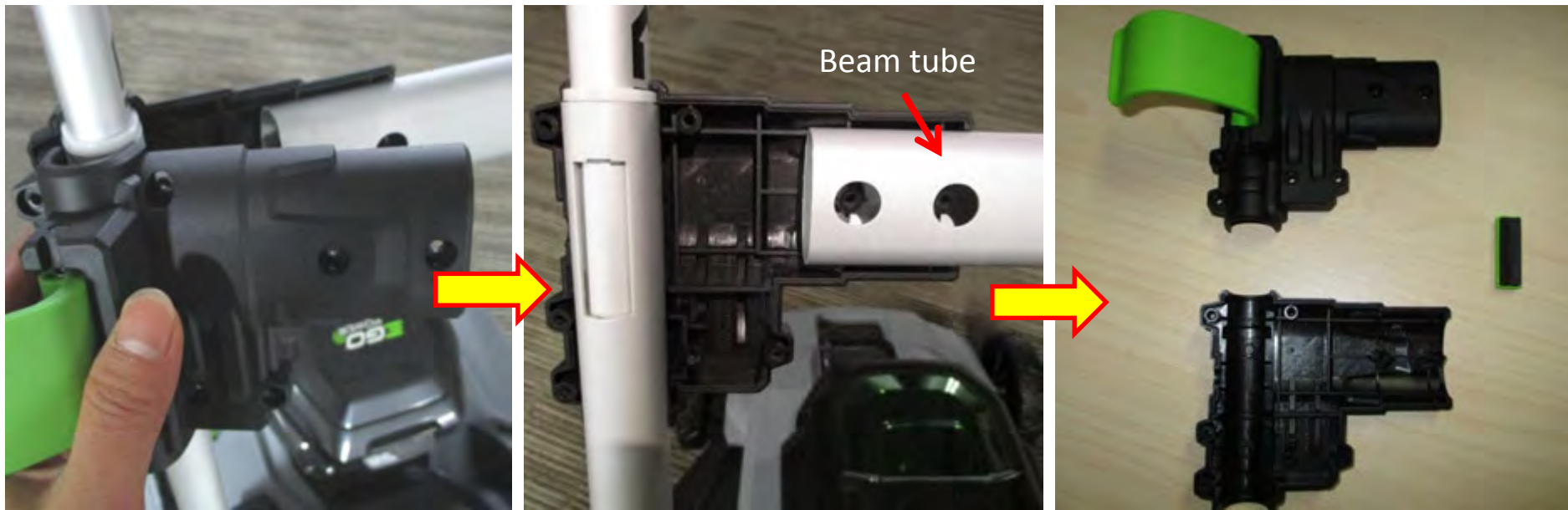
1. Remove the 8 screws to open the left beam housing.



Open the Left Beam Housing

LM2100 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_LM2100.pptx”*** shown.



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



Handle Locking Clamp Set

Close the Left Beam Housing

LM2100 Lawn Mower

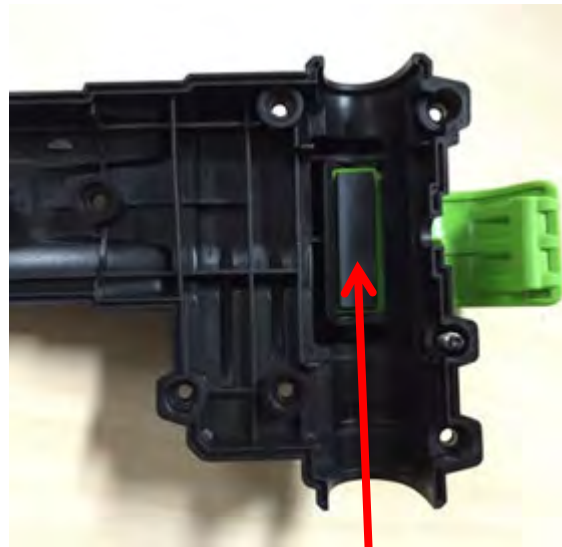
1. Mount the top housing onto the side rail and beam tube.
2. Turn the handle to make it locked at any of the operating positions.



Close the Left Beam Housing

LM2100 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.



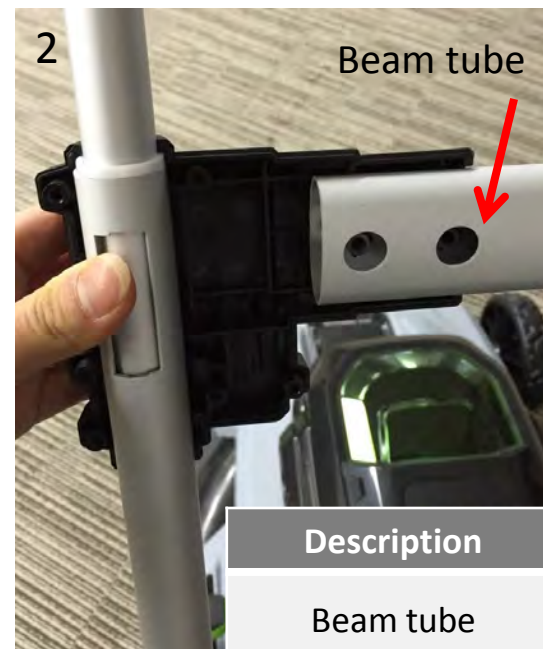
Rubber pad pointing outside



To Replace the Beam Tube

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 tapping 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 Left/Right Inner Tube ASSY

LM2100 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_LM2100.pptx*).

THE END

REPAIR GUIDELINE

PART 10: Housing Cover and Front Axle Replacement_LM2100 Lawn Mower



Table of Contents

LM2100 Lawn Mower

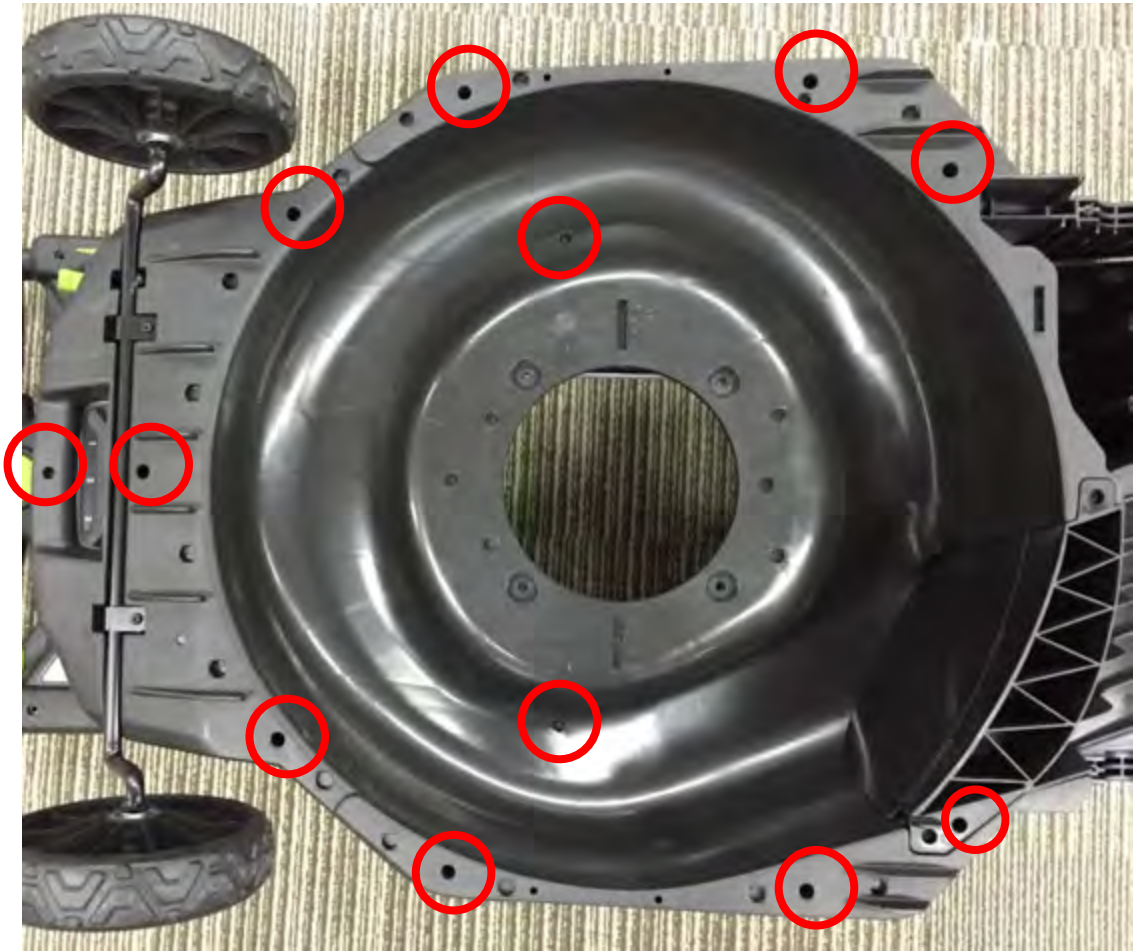
NO.	Contents	Page
1	Housing Cover Replacement	3-9
2	Front Axle Replacement	10-19

Housing Cover Replacement

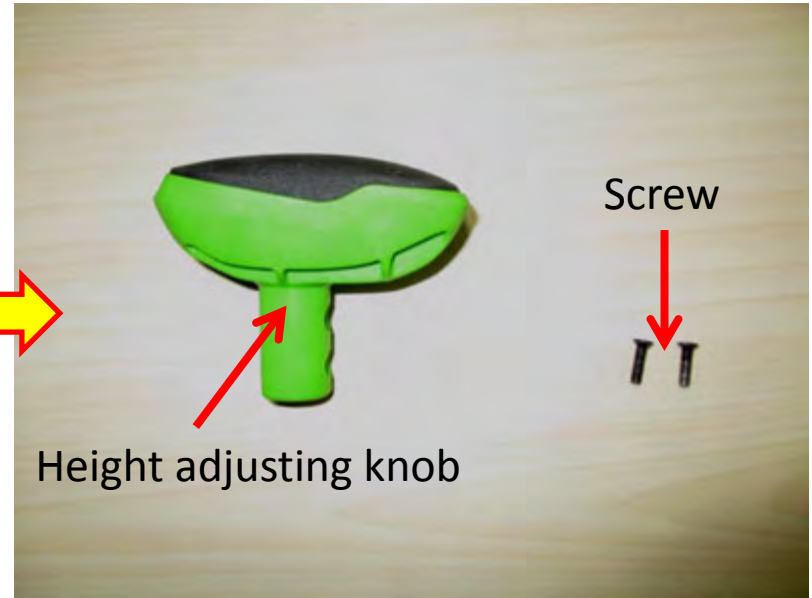
1. Remove the blade(see *RG_Part 1_Blade Replacement_LM2100.pptx*).
2. Remove the service cover and power unit(see *RG_Part 2.1_Parts in Power Unit Replacement_LM2100.pptx*)
3. Turn the mower on its back to remove the 14 screws on the poly deck. In case, there are only 12, just remove 12(see next slide).



Housing Cover Replacement



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

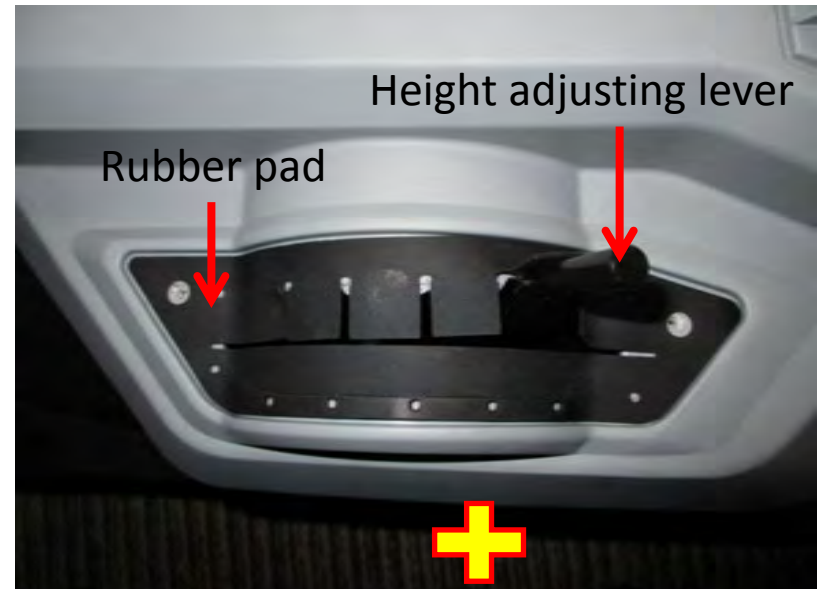
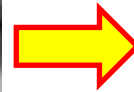
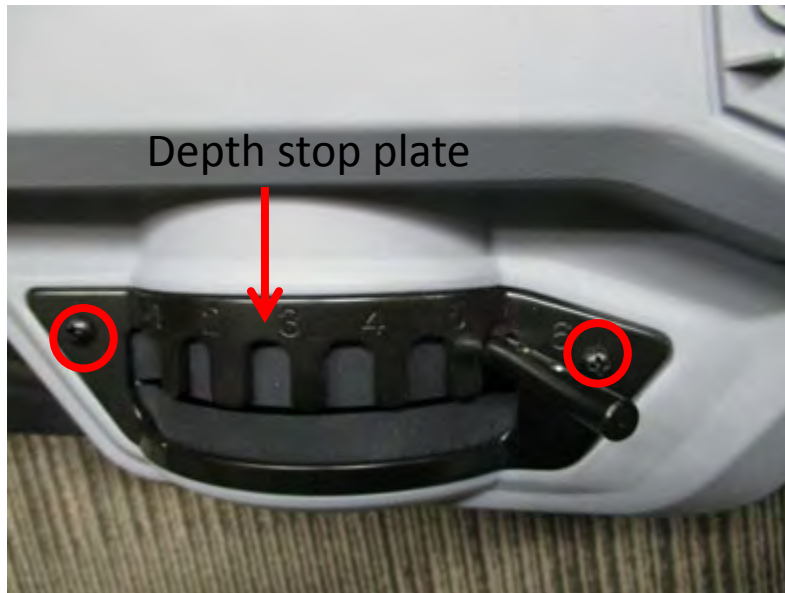


Description	Part Number
Height adjusting knob	3321478001

Housing Cover Replacement

LM2100 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

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.

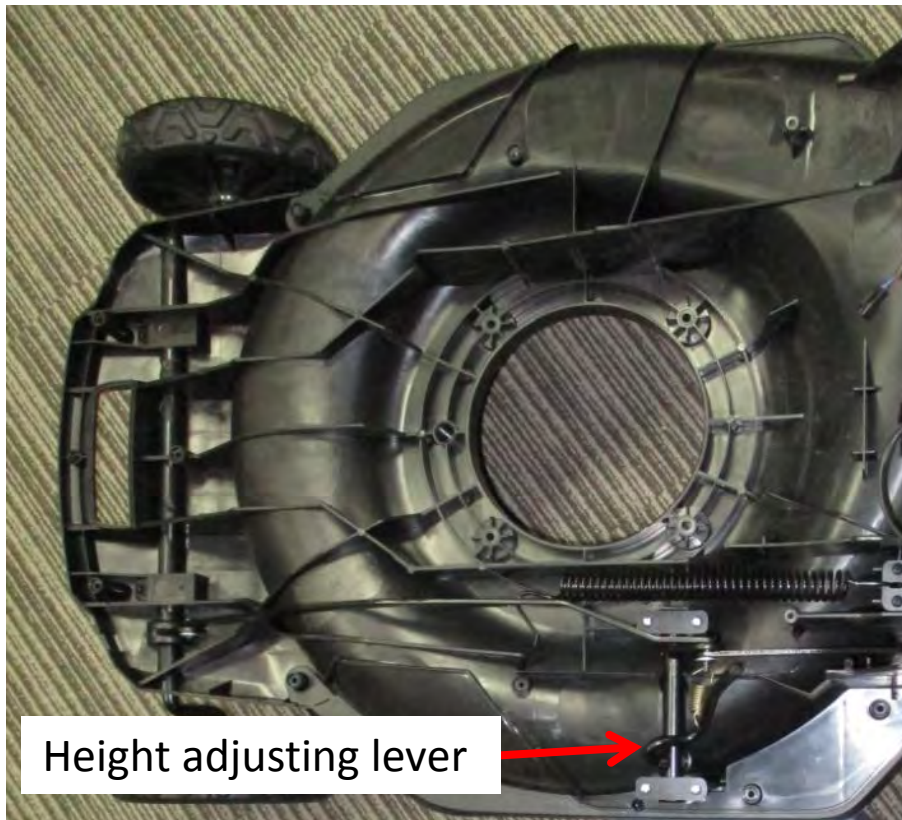


Description	Part Number
Housing cover	2825825001

Housing Cover Replacement

LM2100 Lawn Mower

9. After removing the housing cover, if the height adjusting lever is bent or deformed(in rear cases), 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.

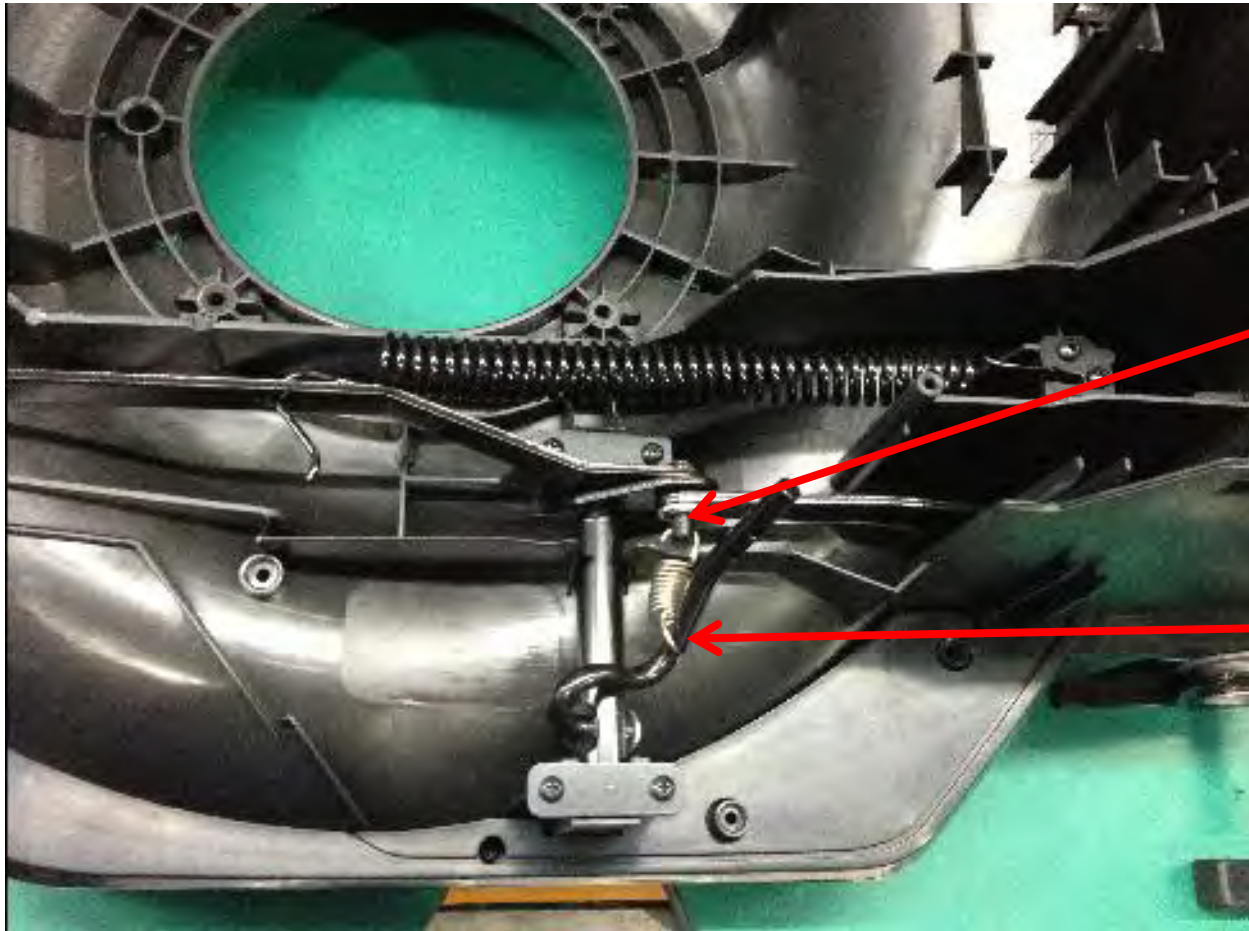


Description	Part Number
Height adjusting lever	2823295001
Spring	3660558001
Snap-ring	5660139002
Plain washer	5650025004

Housing Cover Replacement

LM2100 Lawn Mower

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



Front Axle Replacement

LM2100 Lawn Mower

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

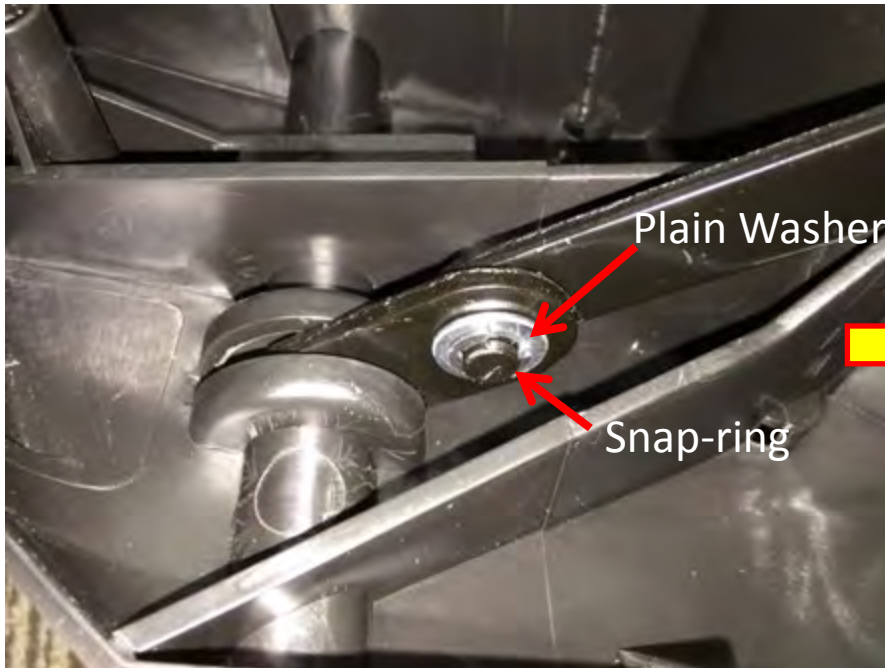


Front Axle Replacement

LM2100 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.

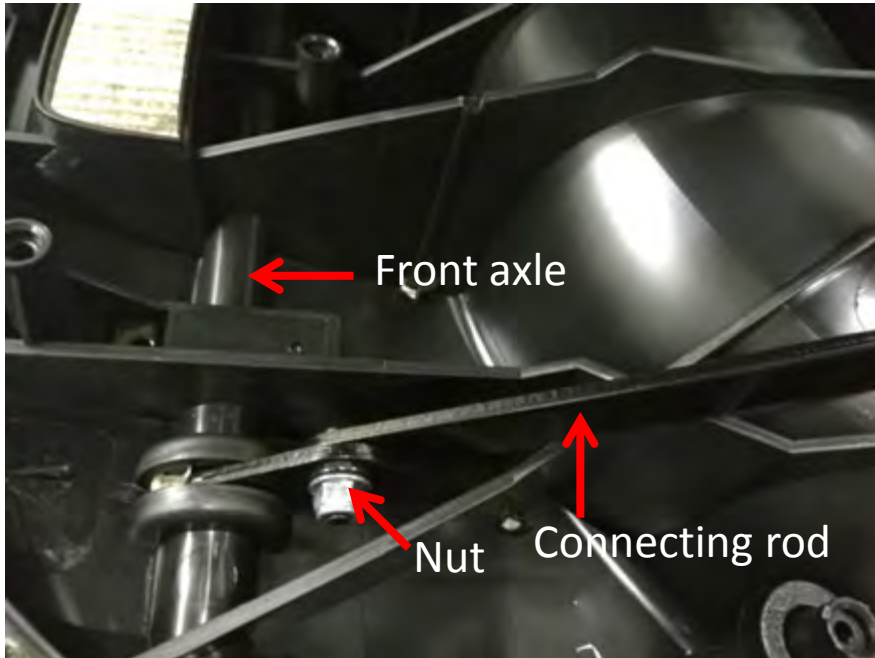


Description	Part Number
Snap-ring	5660139002
Plain washer	5650025004



Front Axle Replacement

LM2100 Lawn Mower



Description	Part Number
Nut	5630013003



3. Separate the joint by hand.

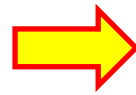
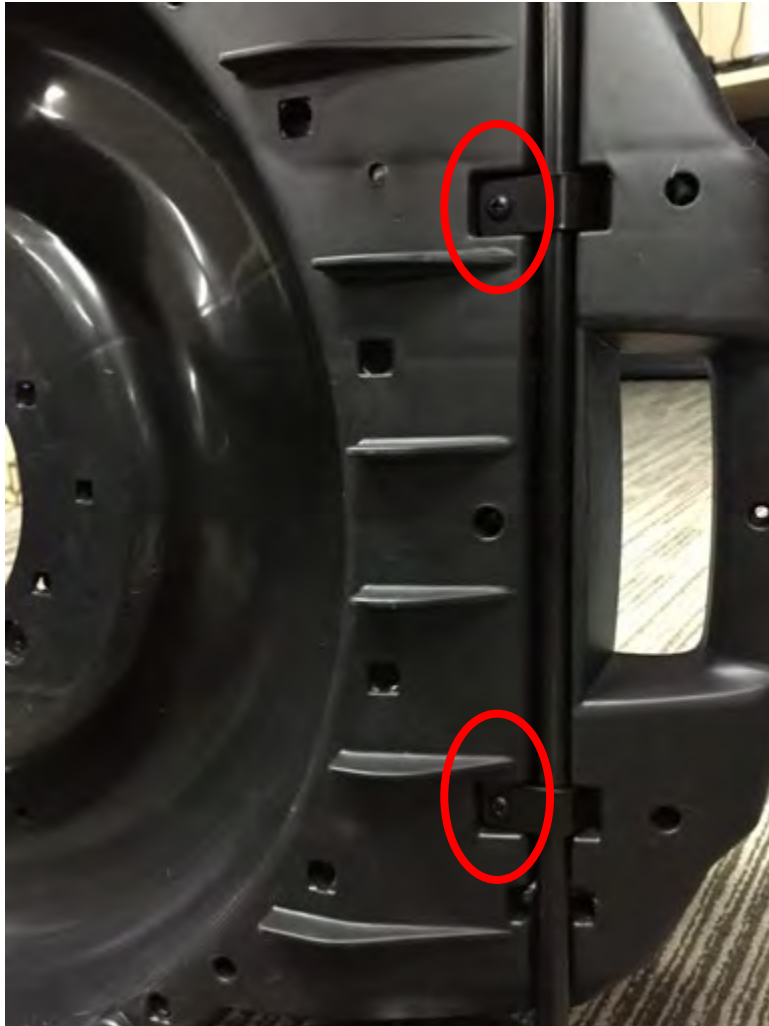
WARNING: This step may cause injuries. Slow down. Gloves recommended.



Front Axle Replacement

LM2100 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.

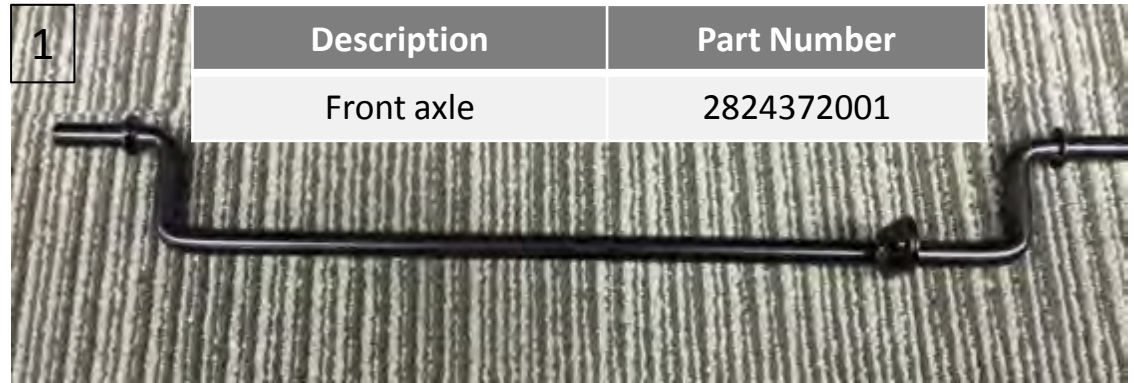


Description	Part Number
Mounting plate	3705216001

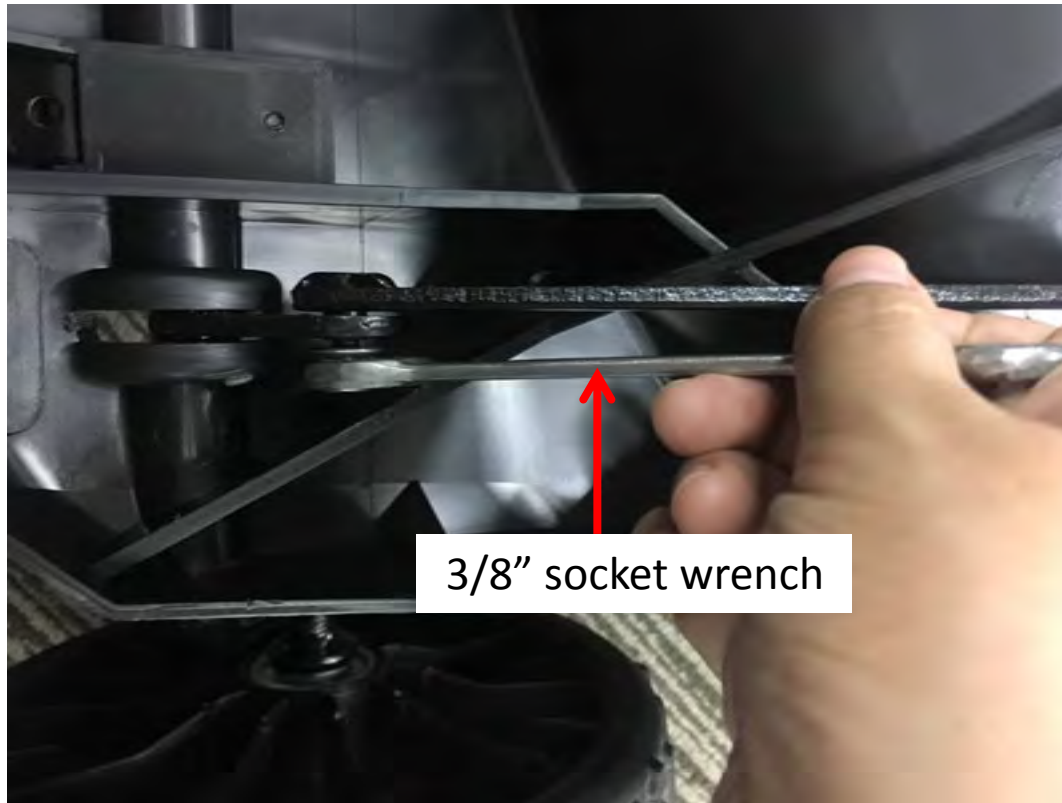
Front Axle Replacement

LM2100 Lawn Mower

6. Disassemble the front wheels(see *RG_Part 9_Wheels Replacement_LM2100.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_LM2100.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).



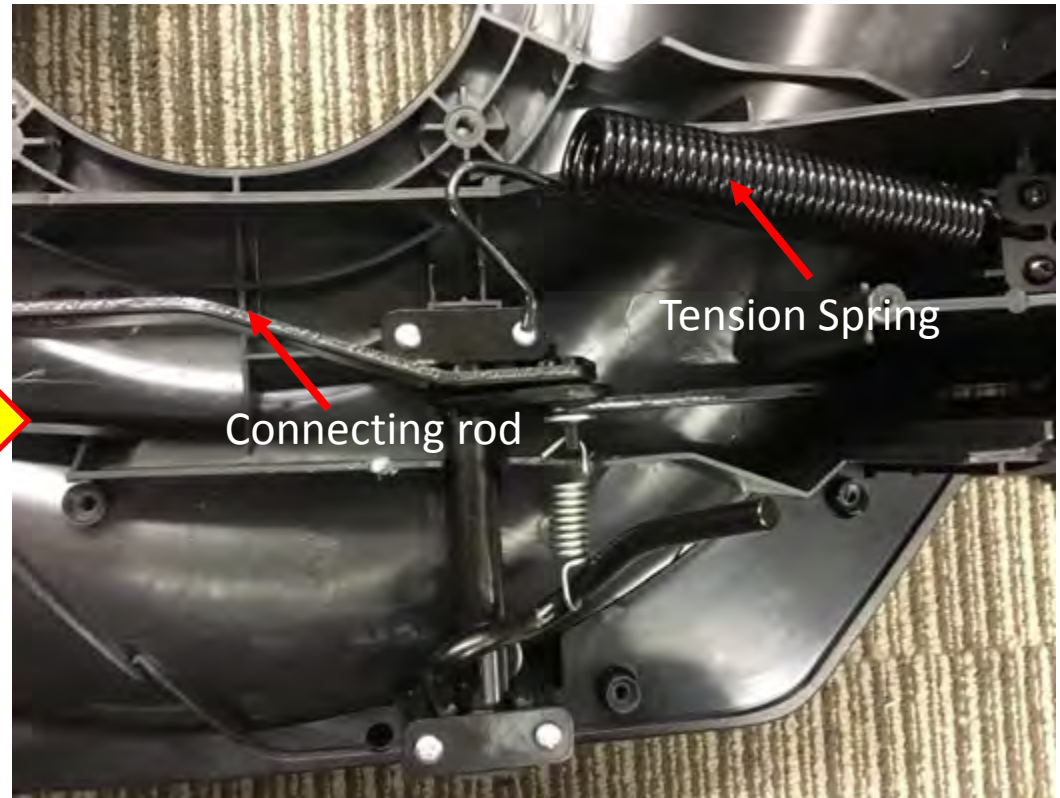
10. Connect the joint that links the front axle with the connecting rod by hand (NOTICE please see next slide).
11. Tighten the joint with the nut using an $3/8$ " socket wrench.



Front Axle Replacement

LM2100 Lawn Mower

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

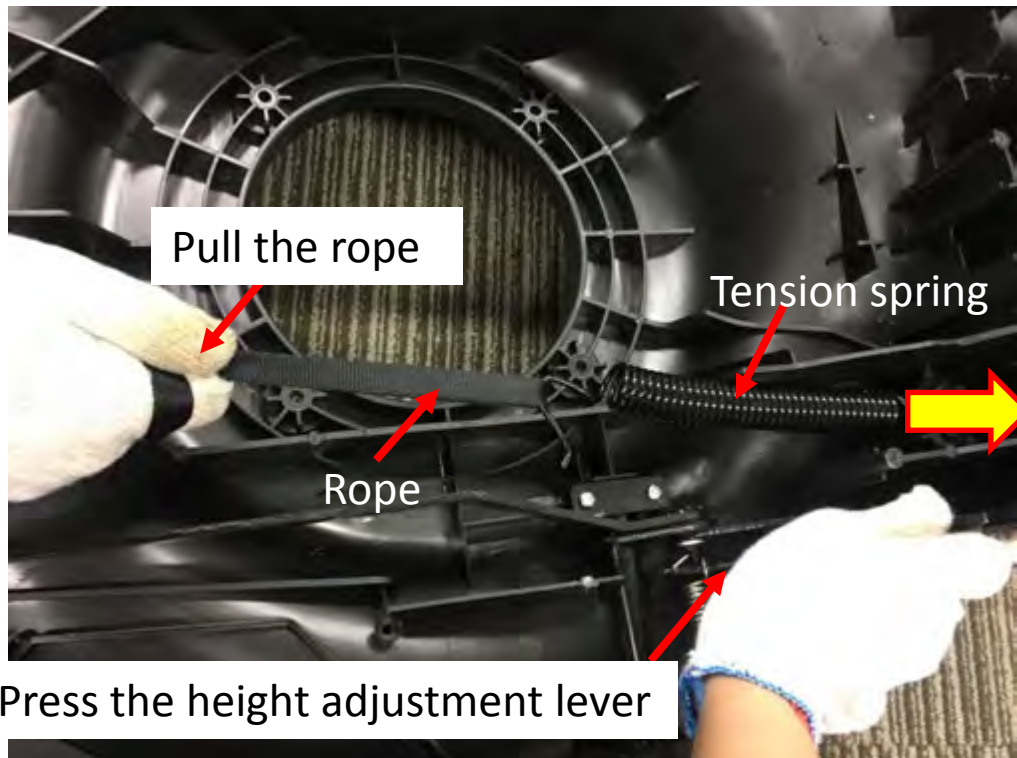


Description	Part Number
Tension spring	3660557001

Front Axle Replacement

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_LM2100.pptx***).

REPAIR GUIDELINE

PART 2.1: Parts in Power Unit Replacement_LM2100 Lawn Mower



Table of Contents

NO.	Contents	Page
1	Power Unit Removal	3-8
2	Motor ASSY Replacement	9-20
3	Main PCBA Replacement	21-32
4	Power Unit Assembly	33-39
5	Handle Position Switch Replacement	40

Power Unit Removal

LM2100 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.



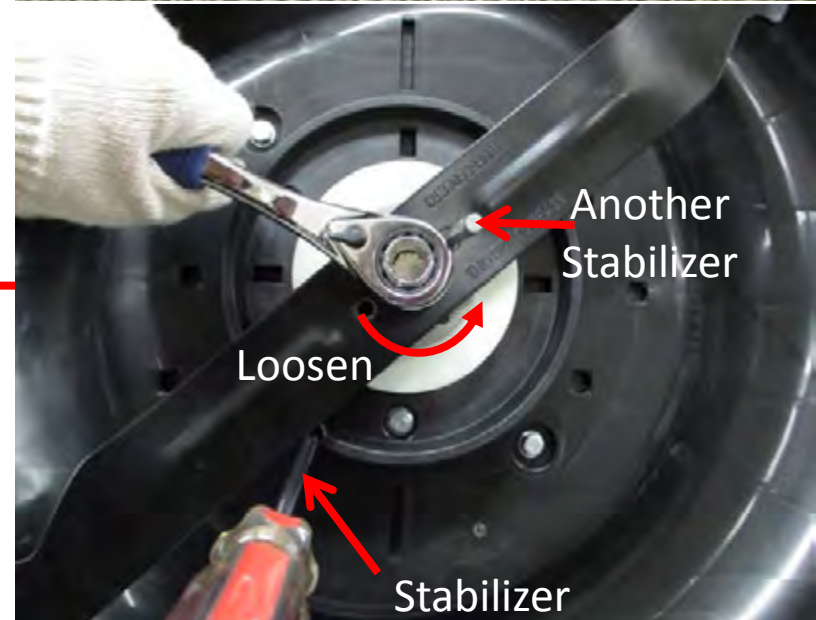
Service Cover

Power Unit Removal

LM2100 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_LM2100.pptx”*** shown.



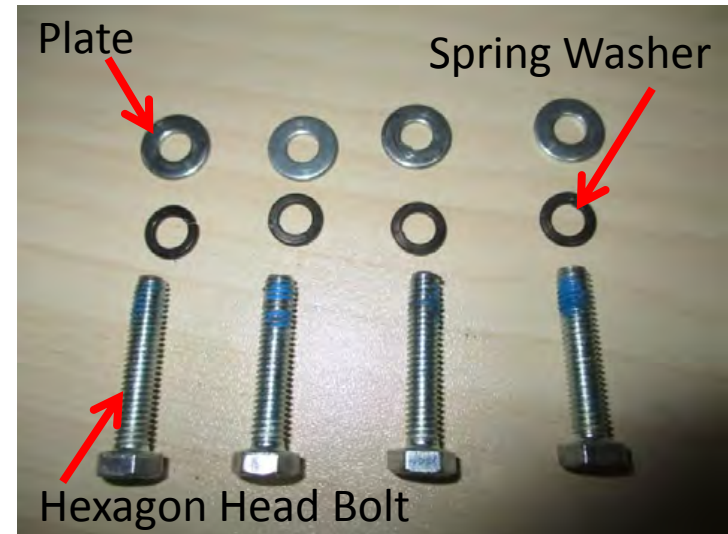
The following parts can be replaced only when the service cover is removed from the mower.

Description	Part Number
Power Unit	2824419001
Motor ASSY	2730232001
Main PCBA	2830119001
Rear Cover	3126689003
Rubber Gasket	3706018001
Handle Position Switch	4870566002

Power Unit Removal

- 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.

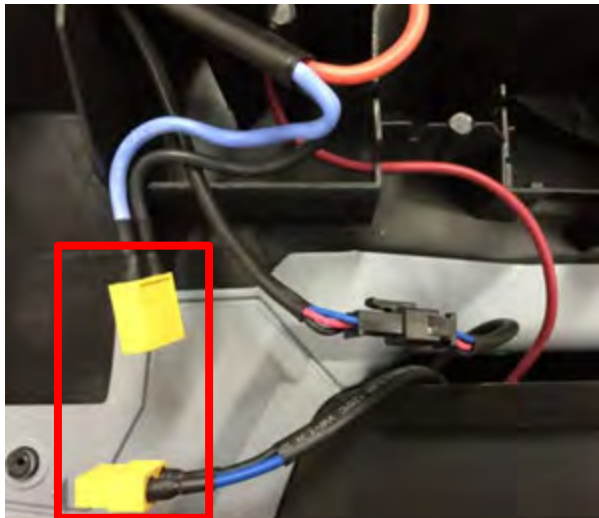


REMARK: The set of 1pc plate, 1pc spring washer and 1pc hex bolt will be replaced with 1pc combined bolt, supplied as one part#.

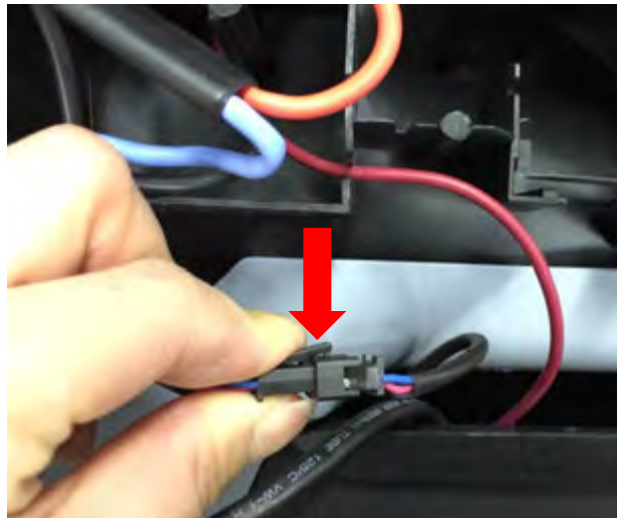
Power Unit Removal

LM2100 Lawn Mower

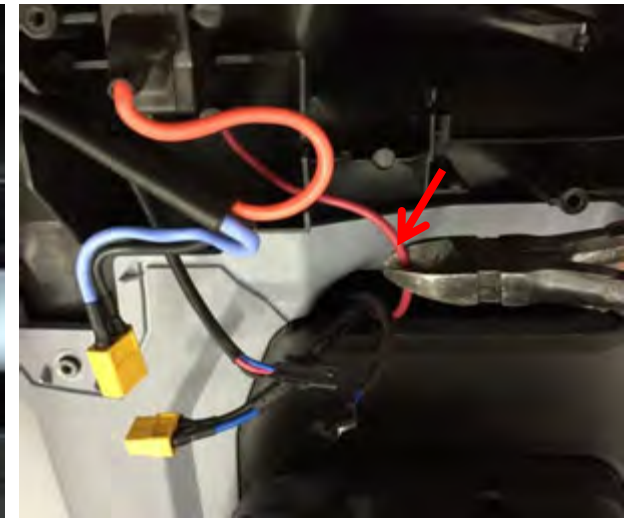
4. Separate the yellow plug and black plug and cut off the red wire to disconnect the power unit from the main switch, microswitch and handle position switch.



Yellow plug connecting with main switch



Black plug connecting with microswitch



Red wire connecting with handle position switch

Power Unit Removal

LM2100 Lawn Mower

5. Take the power unit apart from the mower.



Description	Part Number
Power Unit	2824419001

Motor ASSY Replacement

LM2100 Lawn Mower

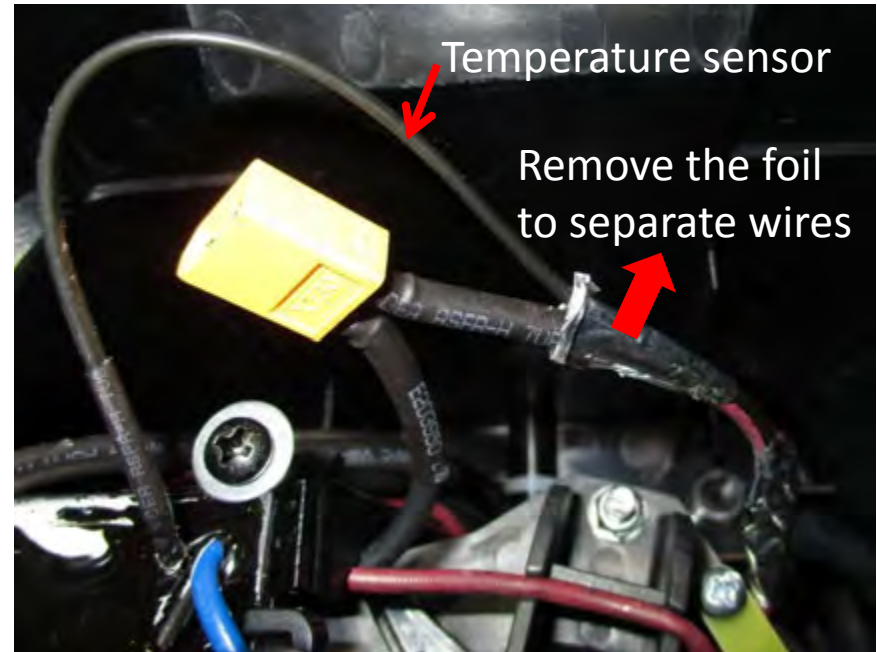
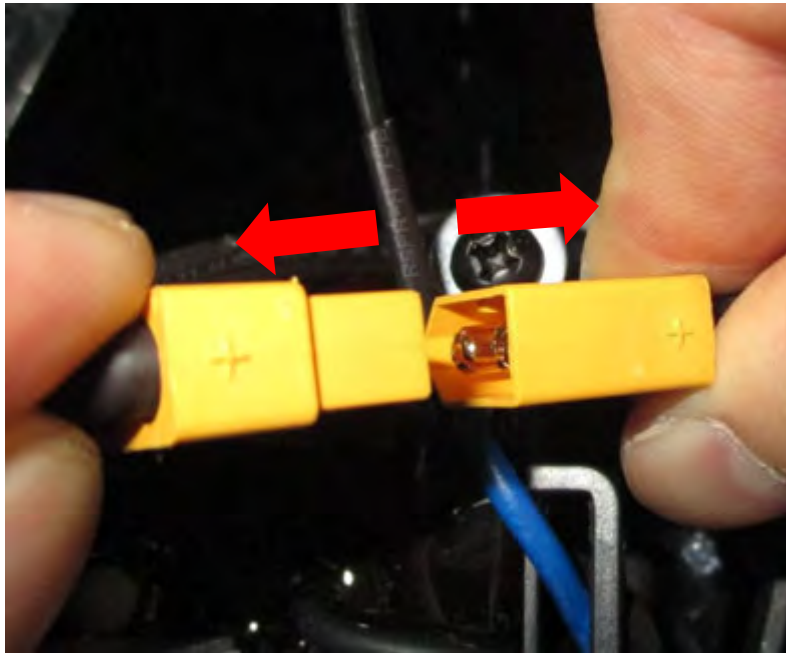
1. Open the battery cover and support it, such as a screwdriver, and loosen the 5 screws to remove the inner cover.



Motor ASSY Replacement

LM2100 Lawn Mower

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



Temperature sensor



Red wire of the motor

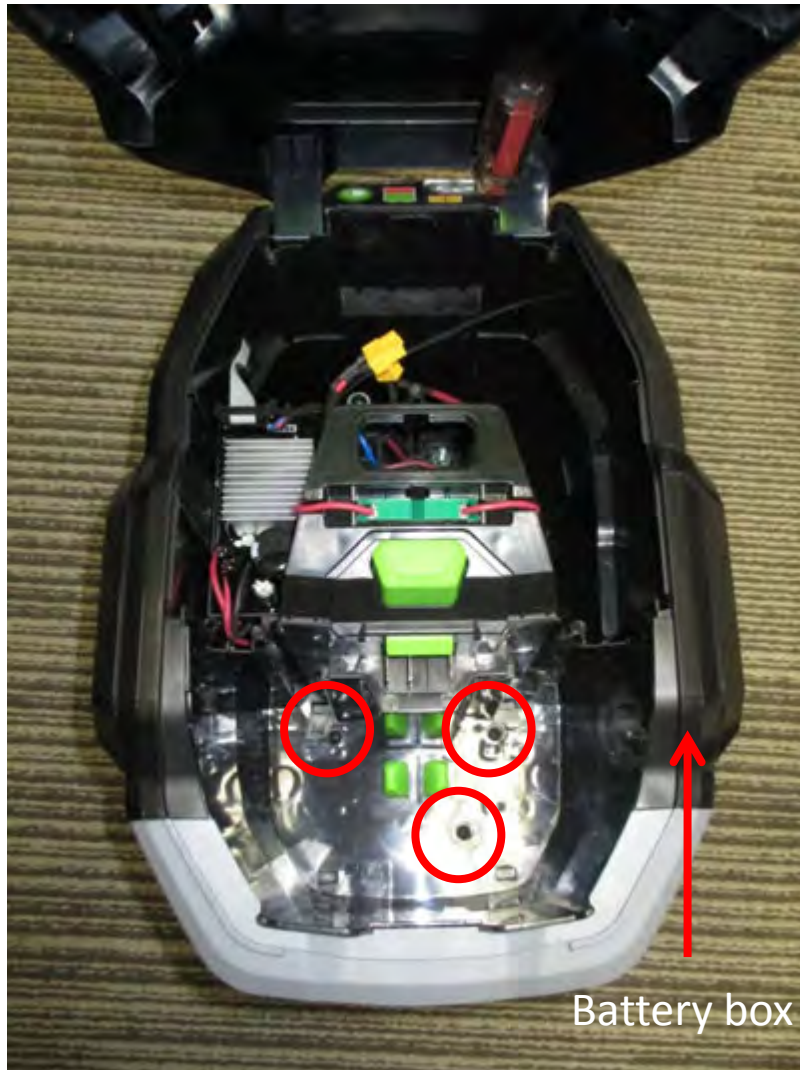
4. Test the motor by connecting the motor cables(The yellow plug) to a DC power supply (43VDC). If the motor doesn't run, replace the motor. Otherwise check other possible cause, e.g. PCBA.

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

Motor ASSY Replacement

LM2100 Lawn Mower

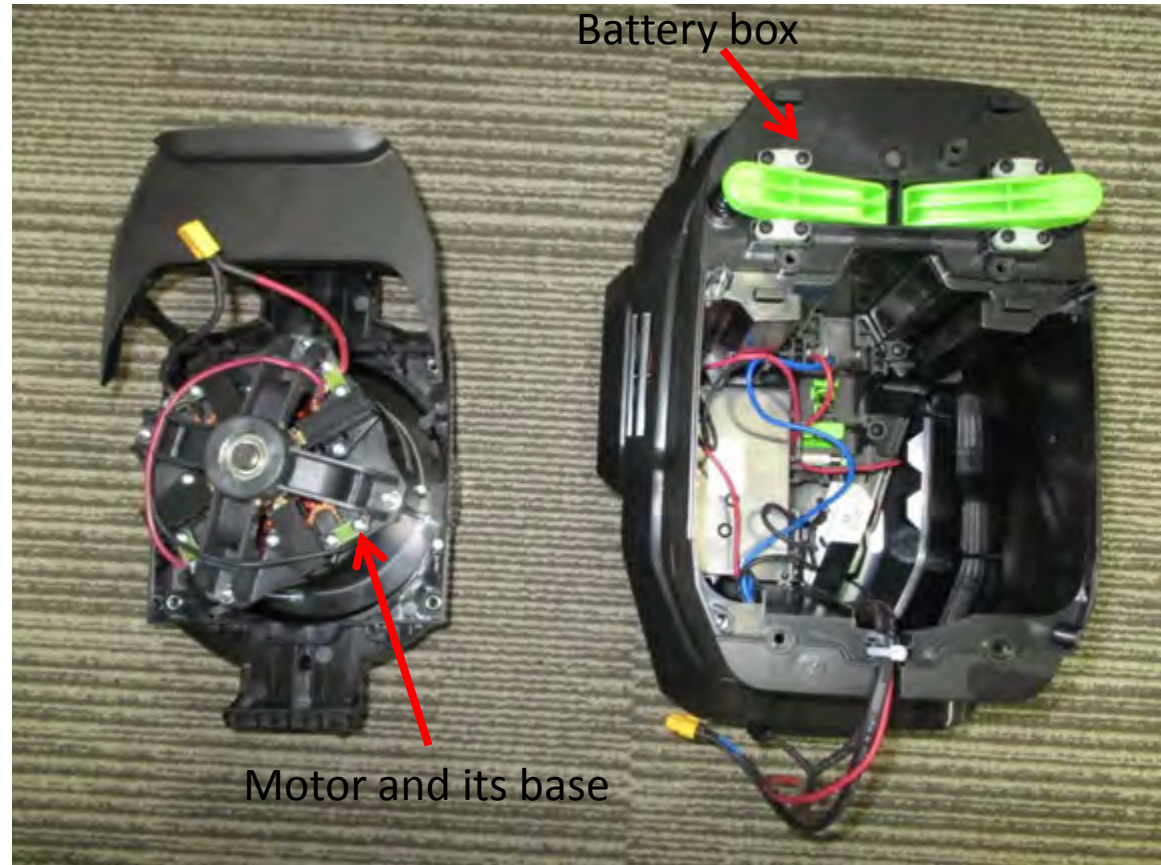
5. Remove the 5 screws to separate the motor and base from the battery box.



Motor ASSY Replacement

LM2100 Lawn Mower

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



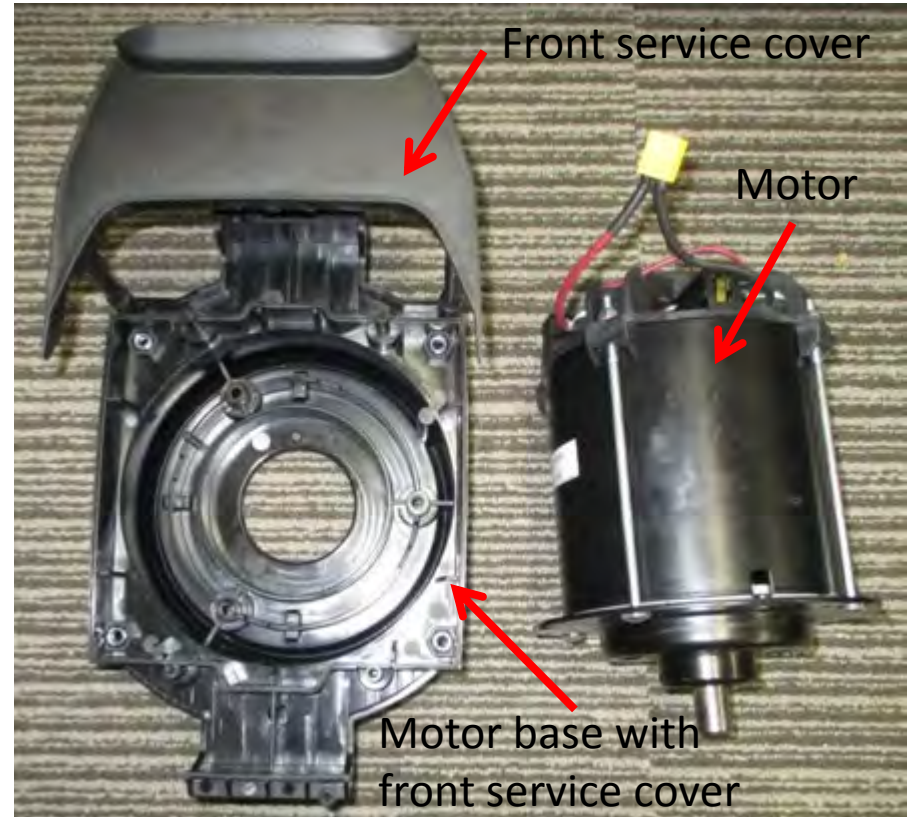
Battery box

Motor and its base

Motor ASSY Replacement

LM2100 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

LM2100 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.

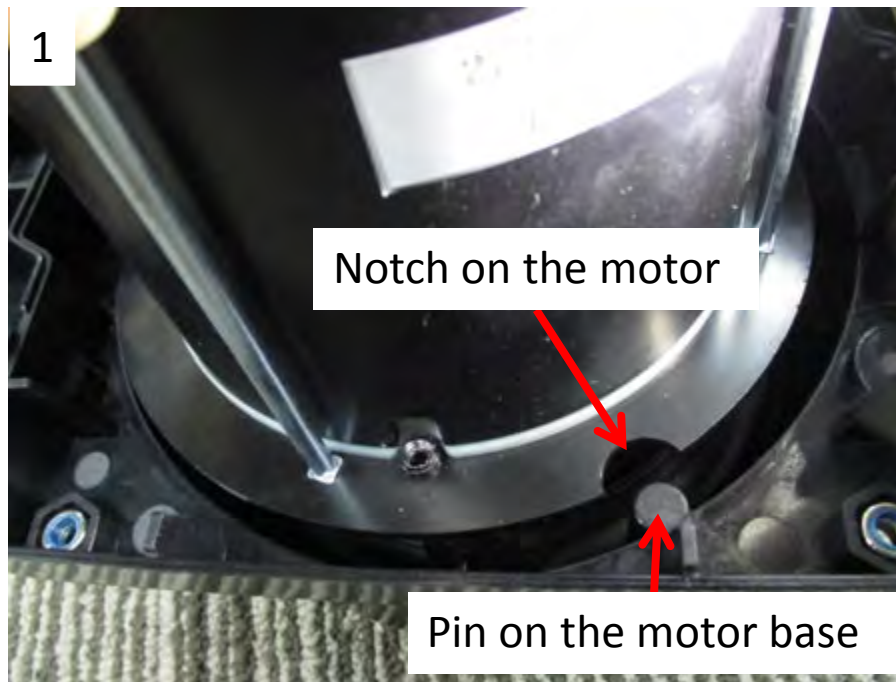


Motor ASSY Replacement

LM2100 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
Motor ASSY	2730232001



Motor ASSY Replacement

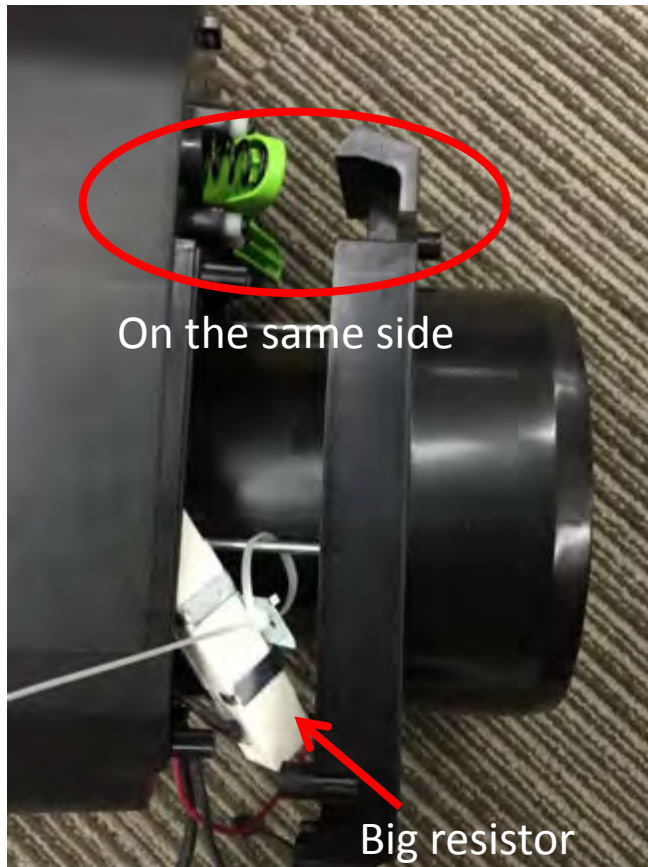
LM2100 Lawn Mower

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 tie.

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



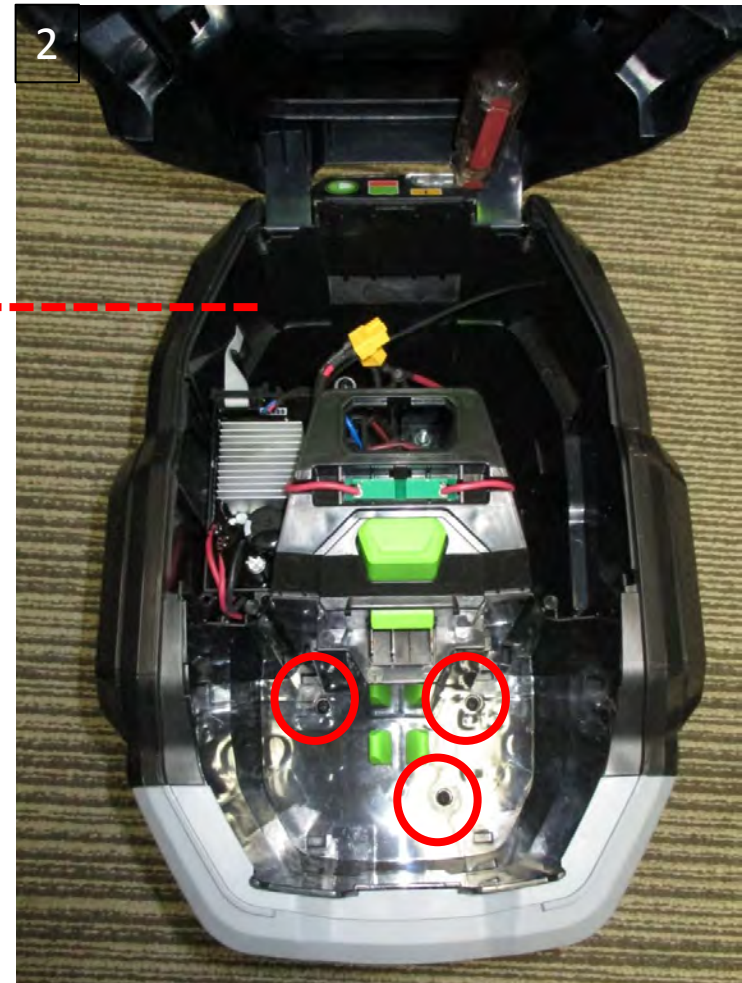
Motor ASSY Replacement

LM2100 Lawn Mower

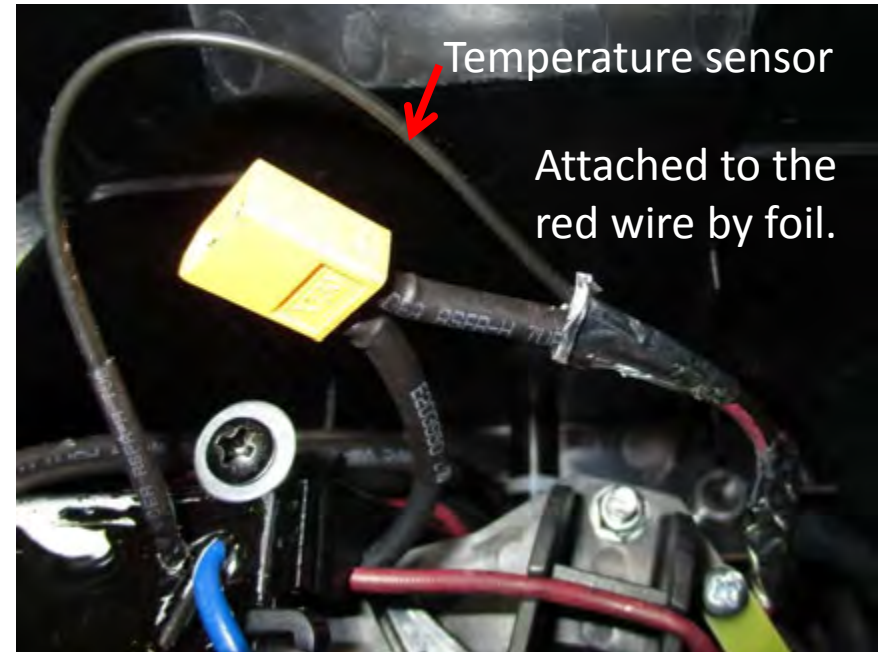
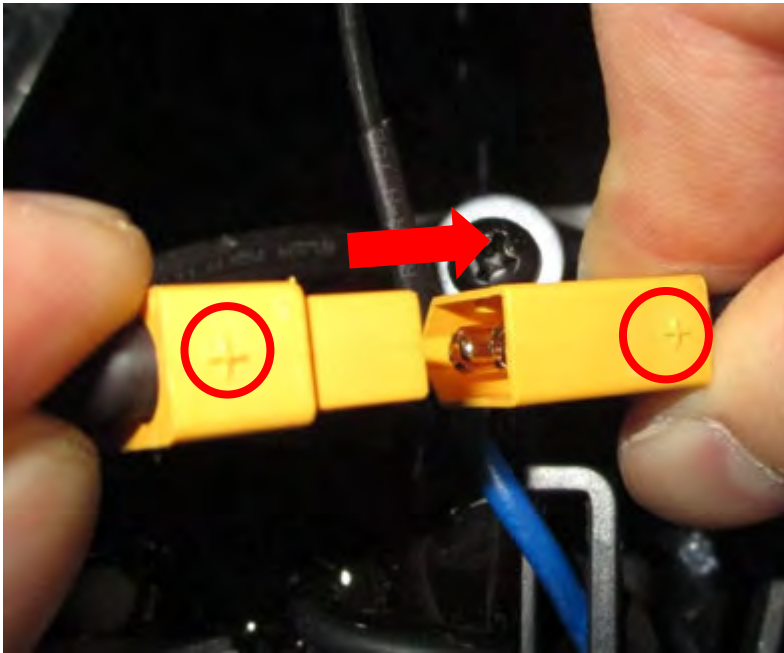
15. Insert the motor into the battery box with motor shaft upside, without mounting gap.
16. Fasten the motor using the inside 5 screws (2 screws deep in the battery box, in reverse order of disassembly).



Reverse the whole set



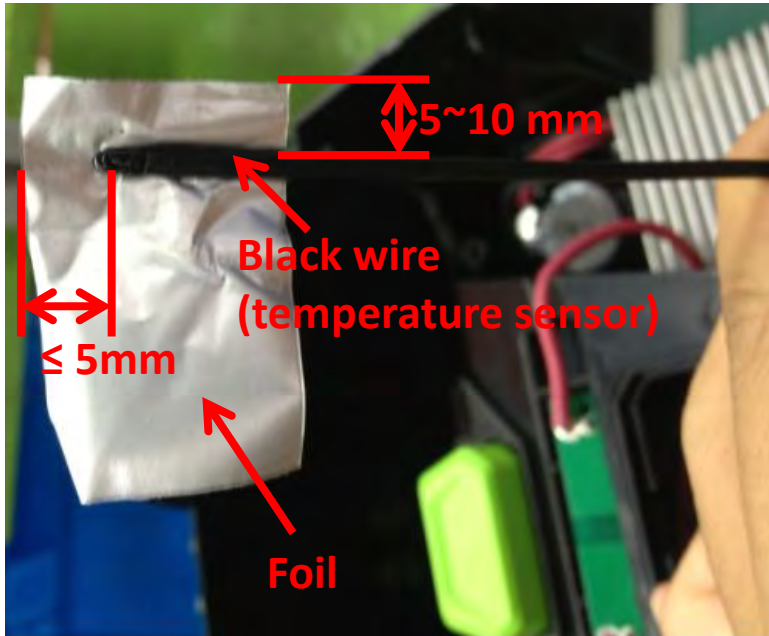
17. Connect the yellow plug. **Be sure to connect “+” to “+”.**
18. Tape the temperature sensor to the red wire (Detail requirements see next slide).



Motor ASSY Replacement

LM2100 Lawn Mower

Detail requirements for temperature sensor assembly:



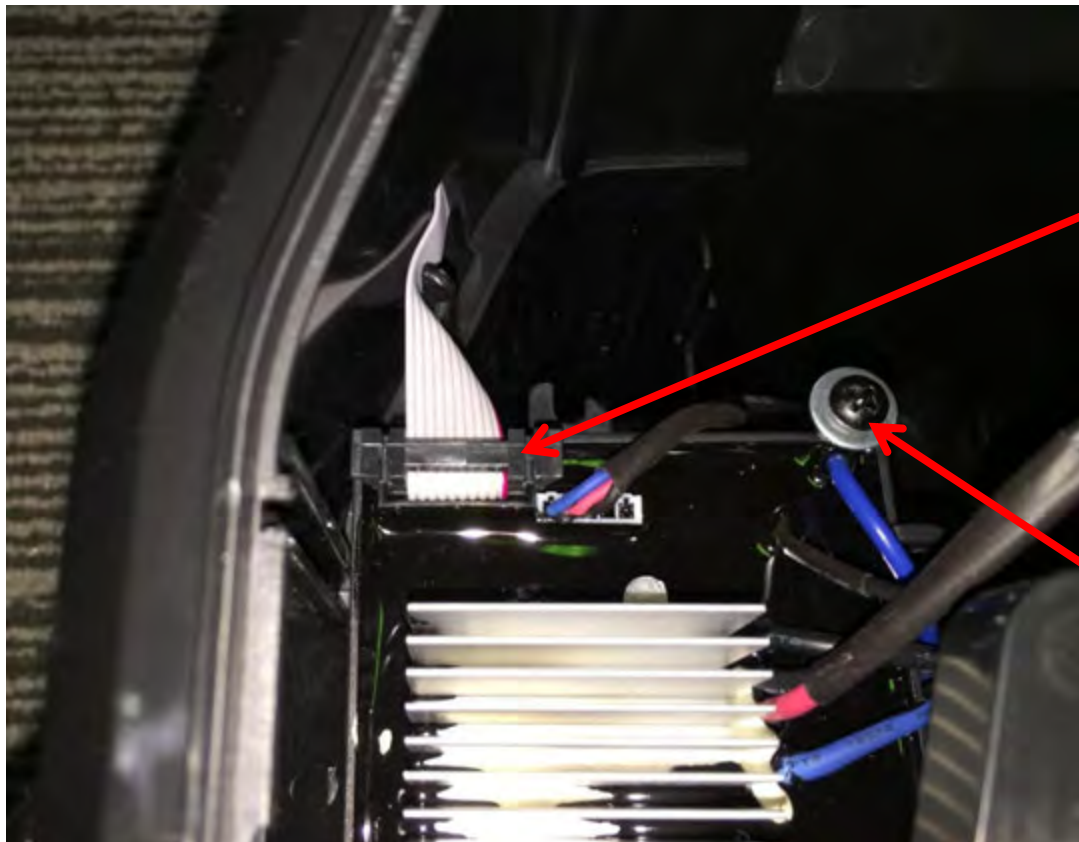
2 pcs foils.
The first one which is attached to the black sensor wire should be taped from the root of the red wire;
The second one is to stabilize them.



Main PCBA Replacement

LM2100 Lawn Mower

1. Remove the motor as previous steps shown.
2. Remove the screw and plain washer.
3. It's much easier to release the wire harness plug from its socket by using Needle-nose pliers to depress on its both sides.



Main PCBA Replacement

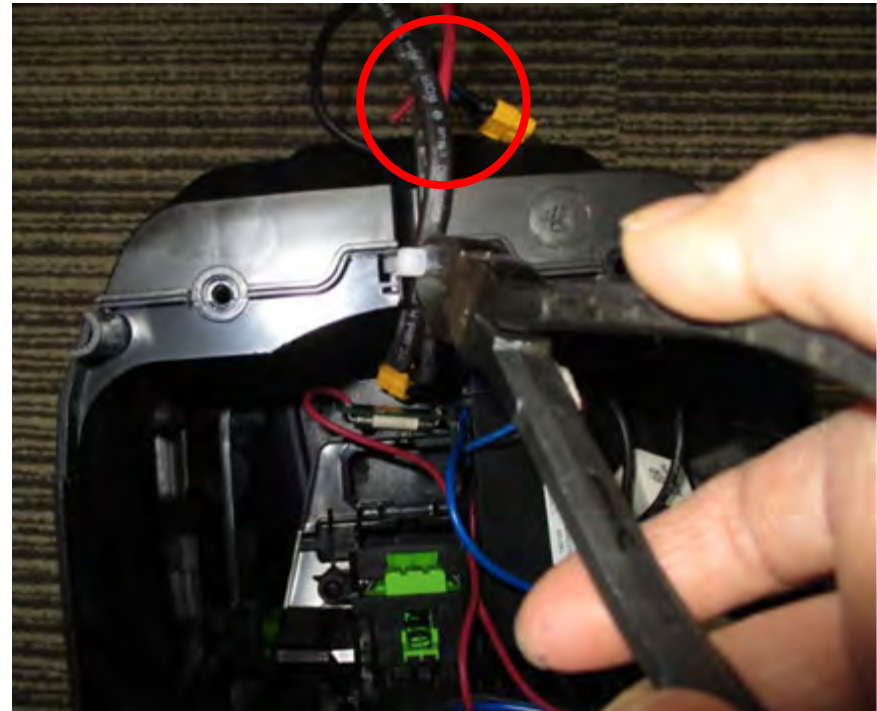
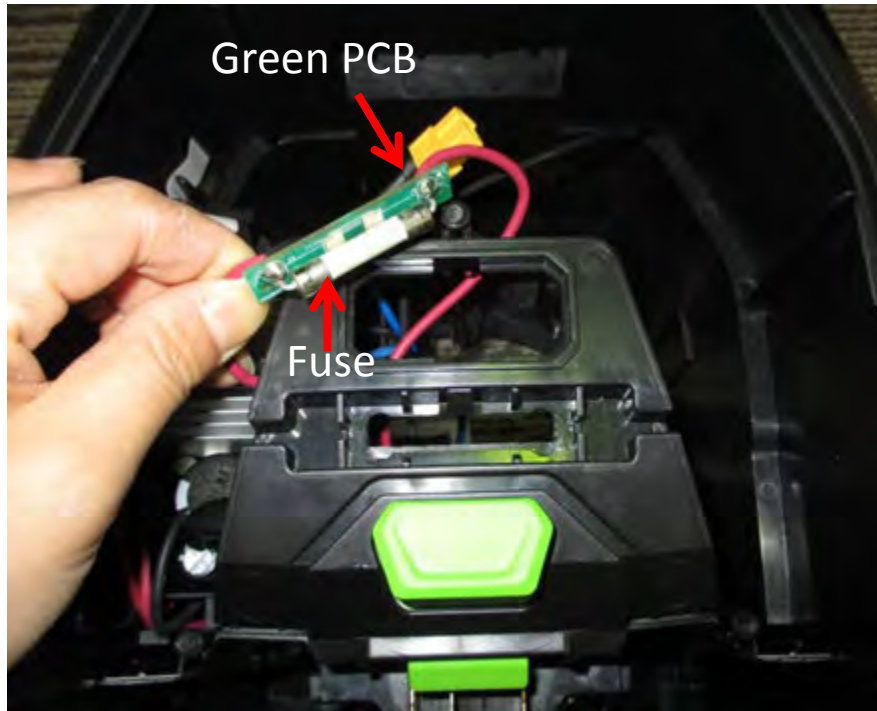
LM2100 Lawn Mower

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.

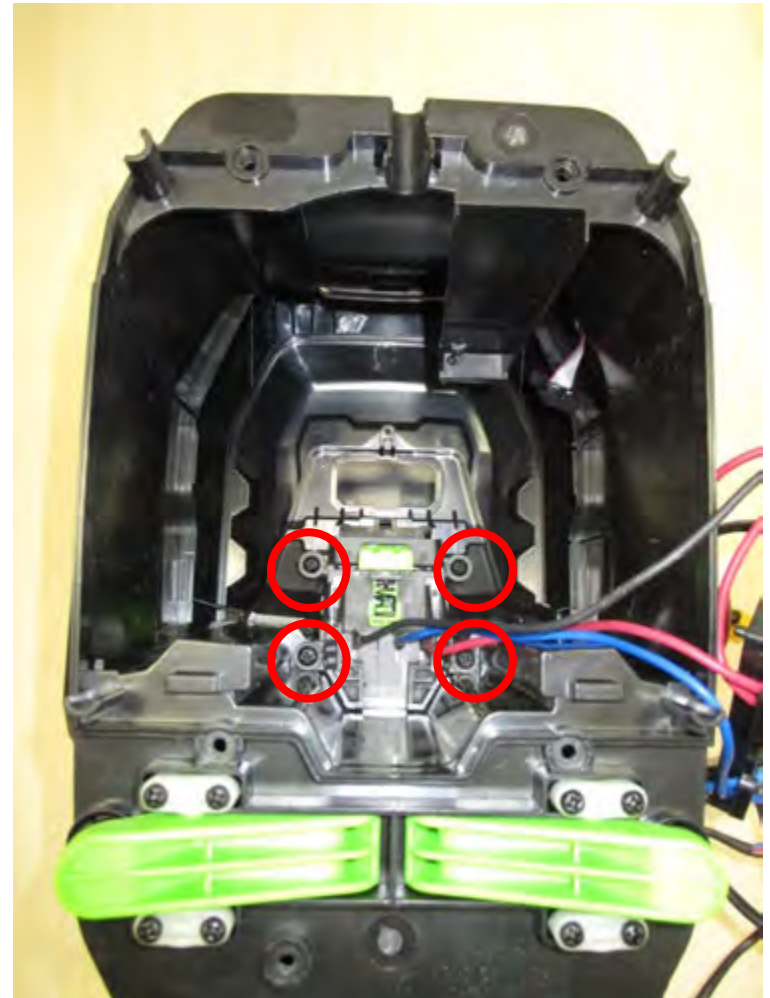
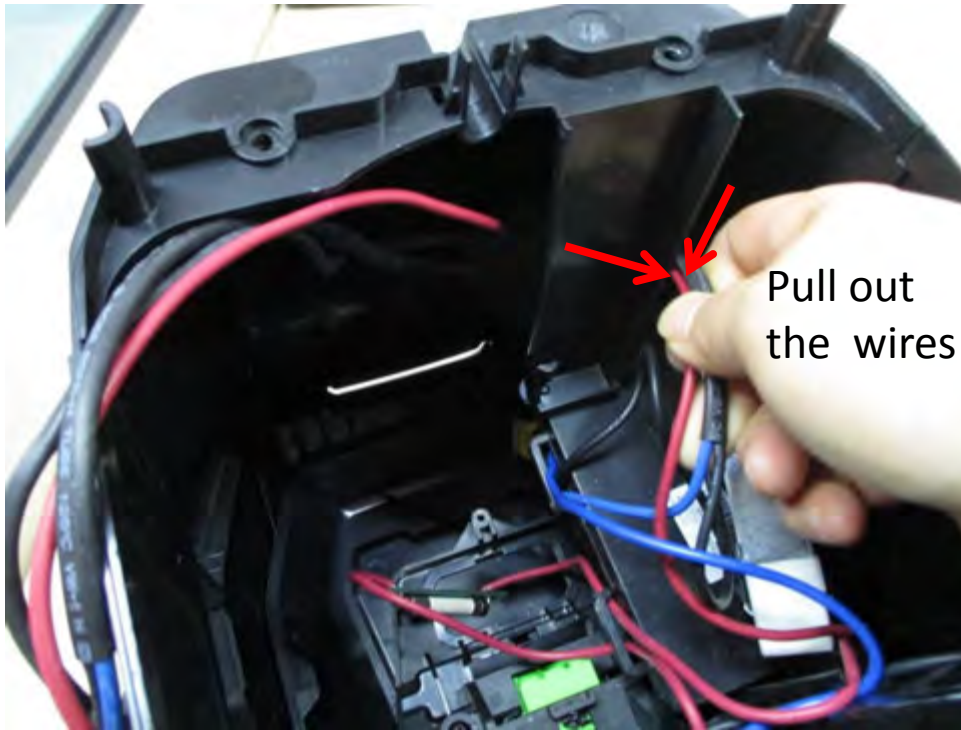
Description	Part Number
Fuse	4891202002



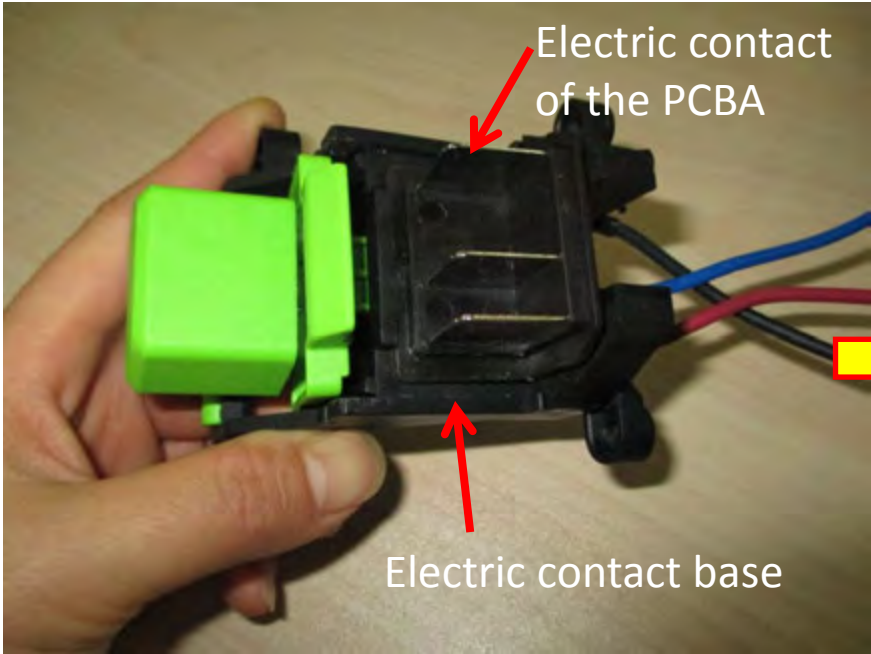
Main PCBA Replacement

LM2100 Lawn Mower

7. Pull the black thick wire and red wire 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.



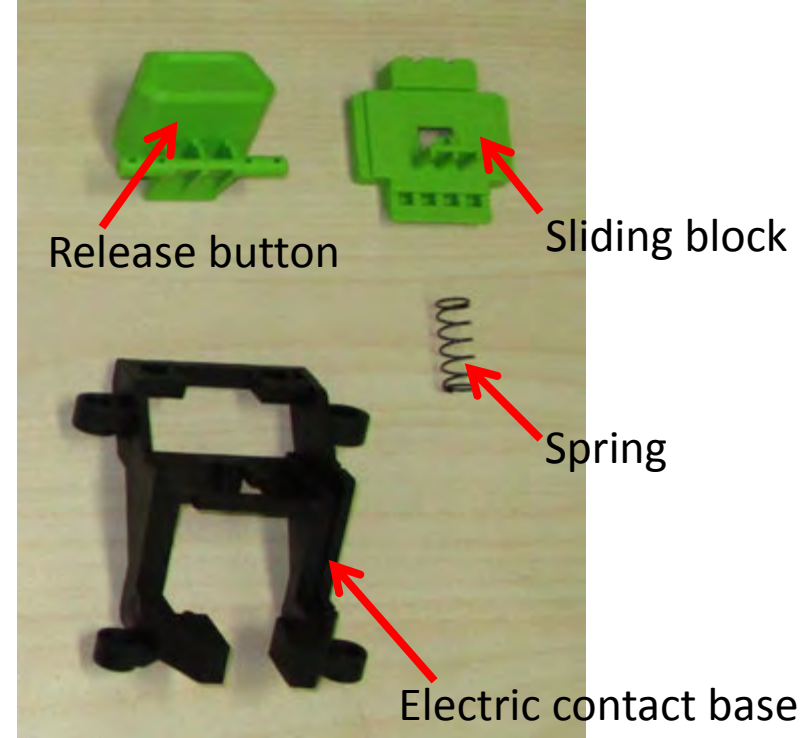
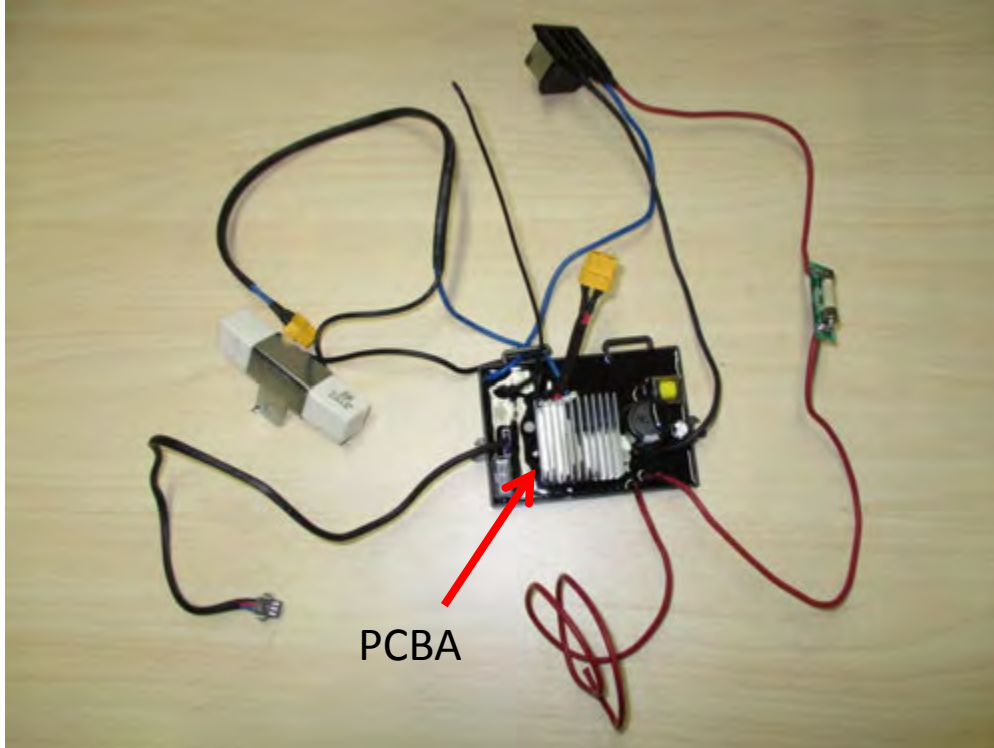
9. Separate the PCB assembly from the electric contact base.



Main PCBA Replacement

LM2100 Lawn Mower

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



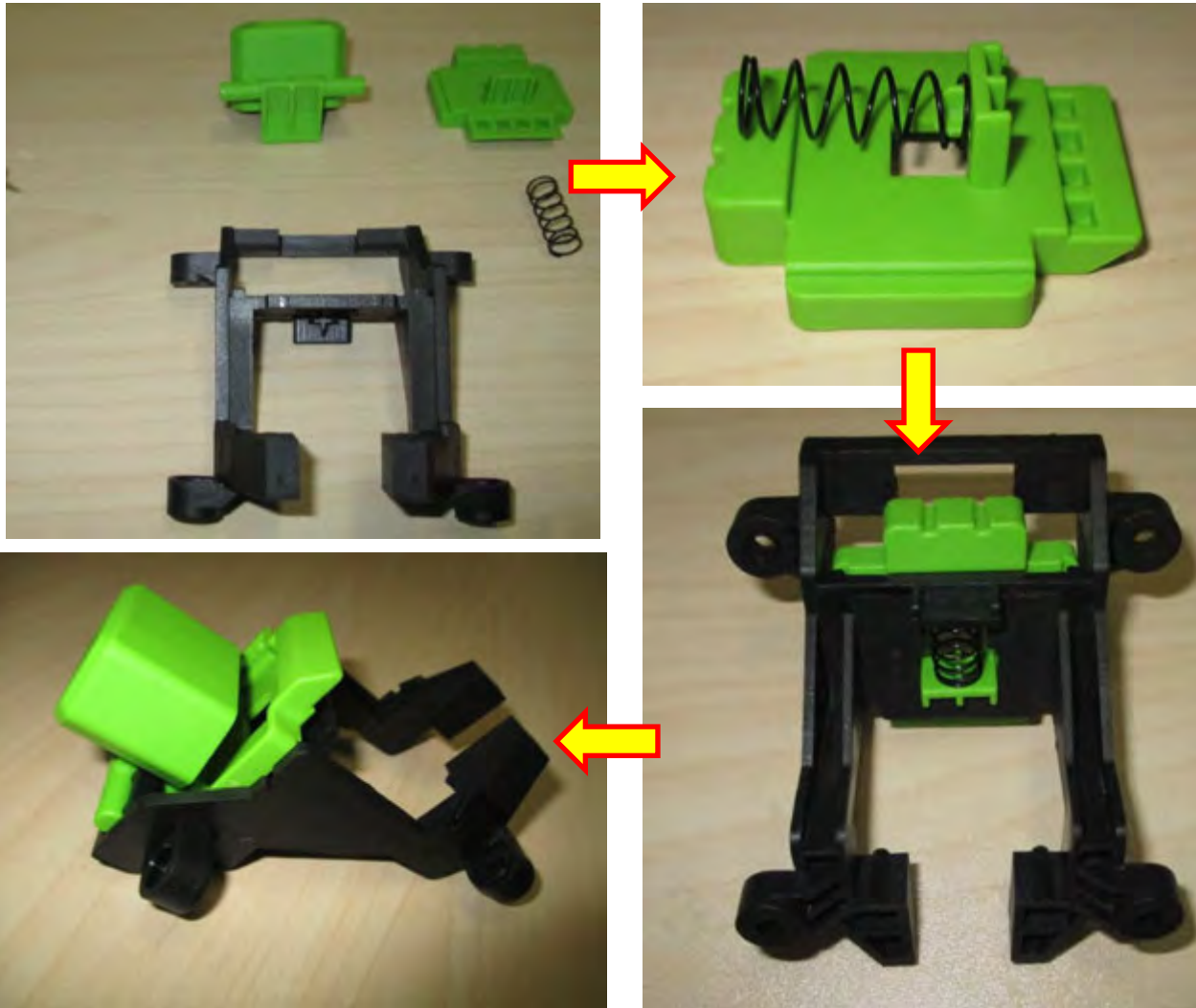
Description	Part Number	Description	Part Number
Release button	3126760001	Electric contact base	3126782001
Sliding block	3126772001	Spring	3660303002
Main PCBA	2830119001		

Main PCBA Replacement

LM2100 Lawn Mower

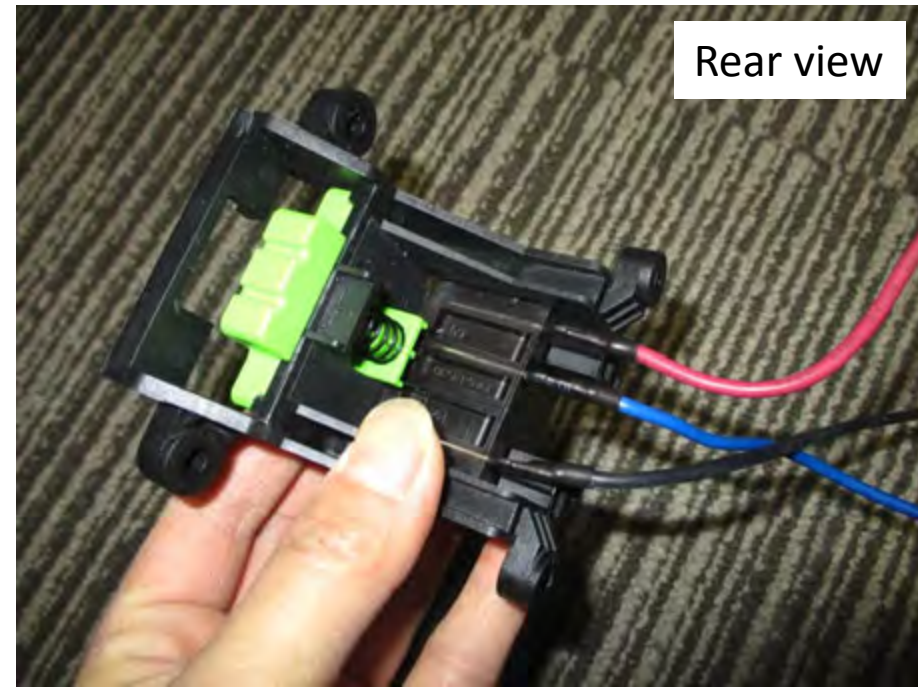
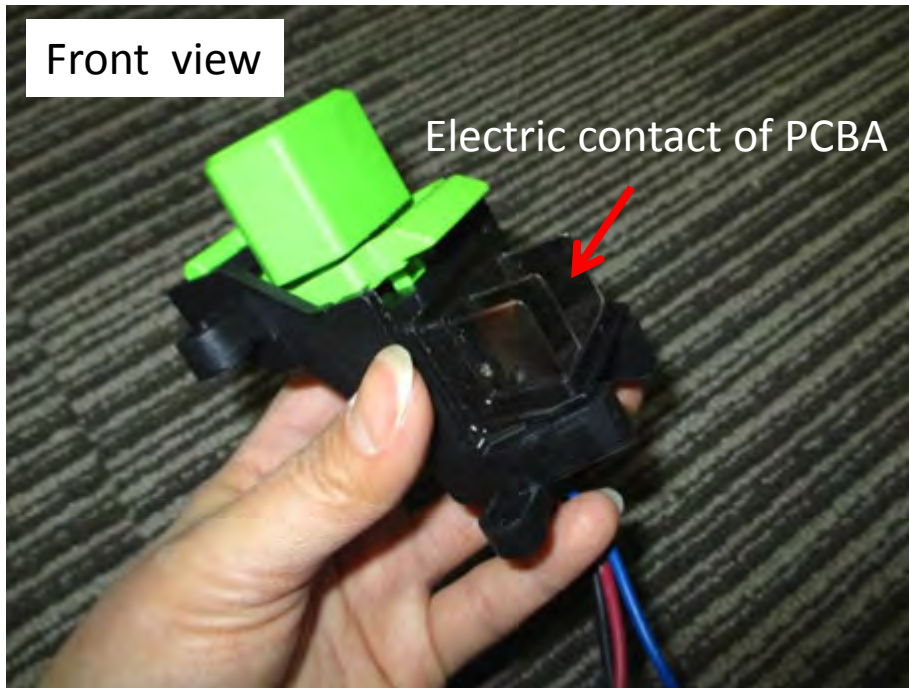
11. Replace with a new PCBA.

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 .

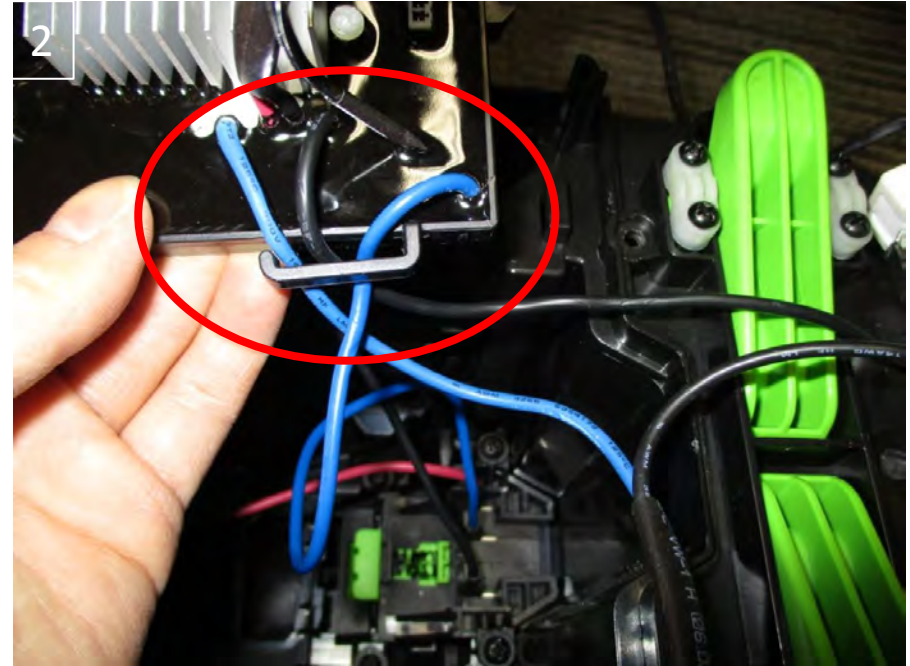
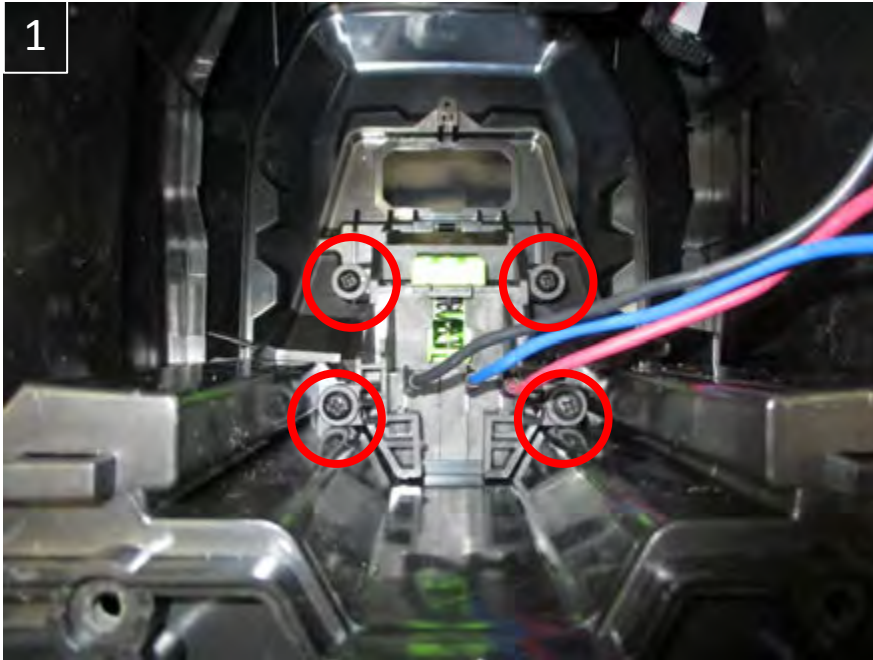
NOTICE: Hold the 2 components tightly to insert them in the battery box.



Main PCBA Replacement

LM2100 Lawn Mower

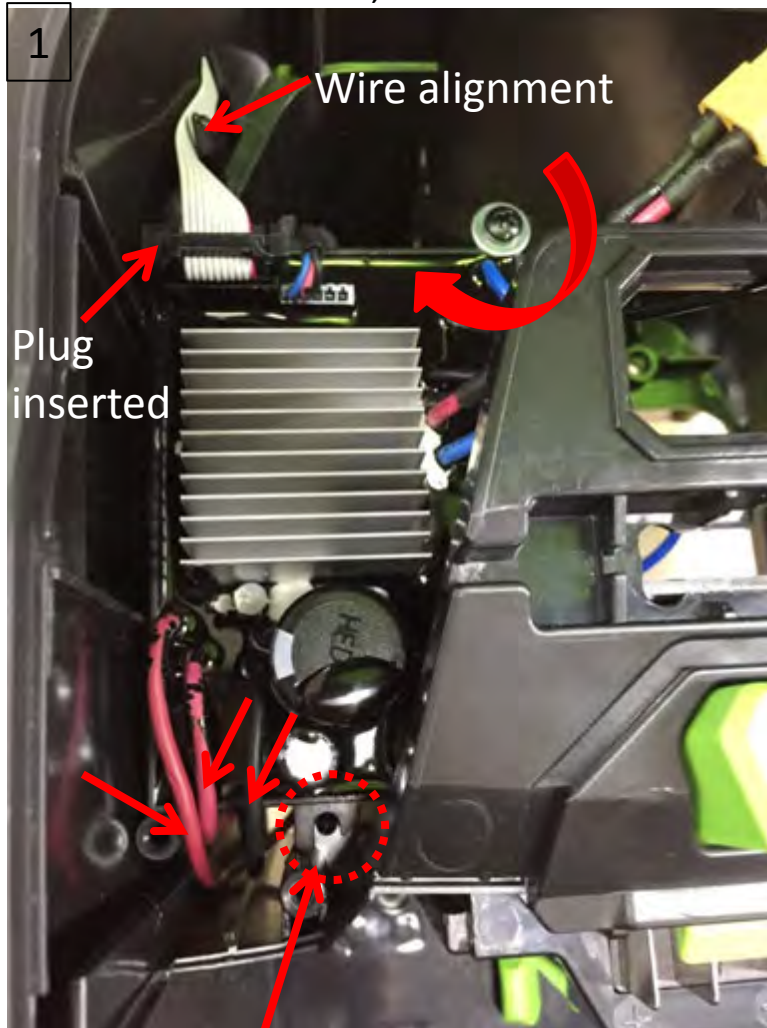
14. Mount them into the battery box. Fix them by tightening the 4 screws(Fig. 1).
15. Pass the three wires through the hook on the PCBA as Fig. 2 shown.



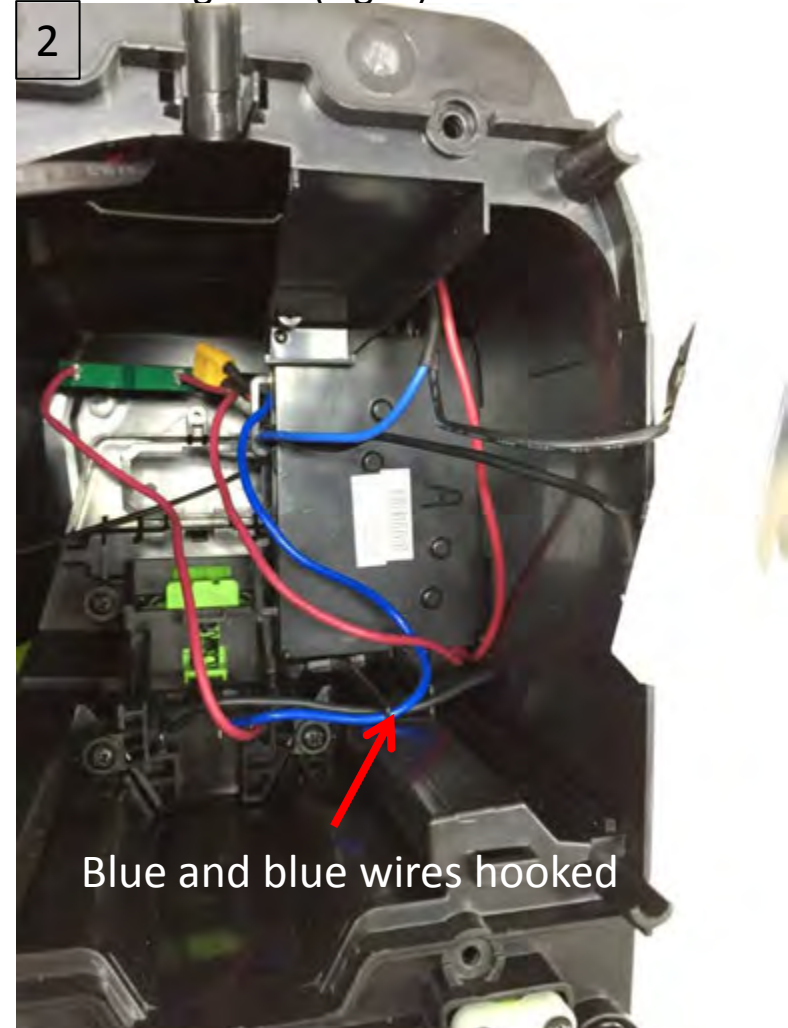
Main PCBA Replacement

LM2100 Lawn Mower

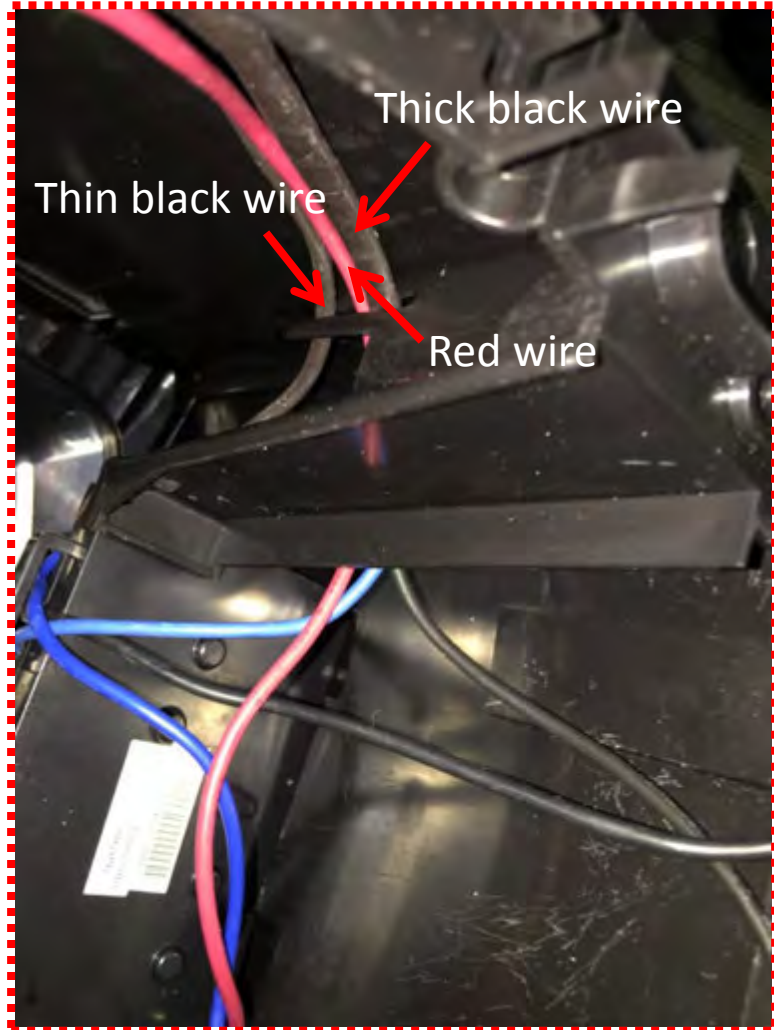
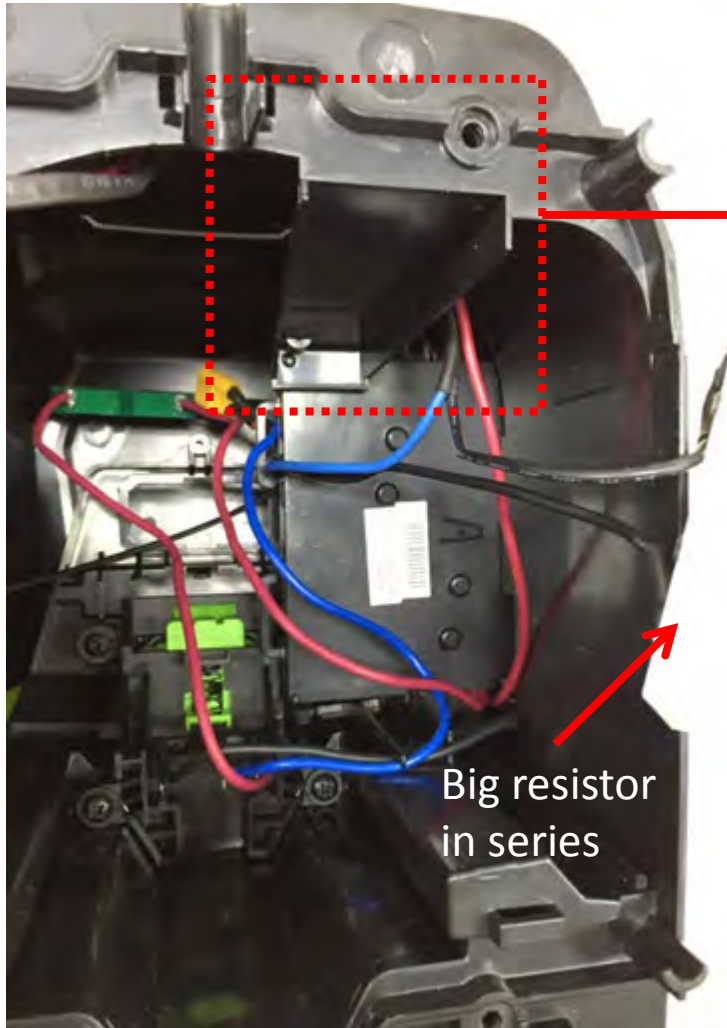
16. Aligning the notch on the PCB board with the locating pin on the battery box, fix the PCB board by tightening the screw with the plain washer(Fig. 1). Insert the plug and align its wire into the groove.
17. From the back side, hook the blue and black wires onto the groove(Fig. 2).



Align the notch with the locating pin



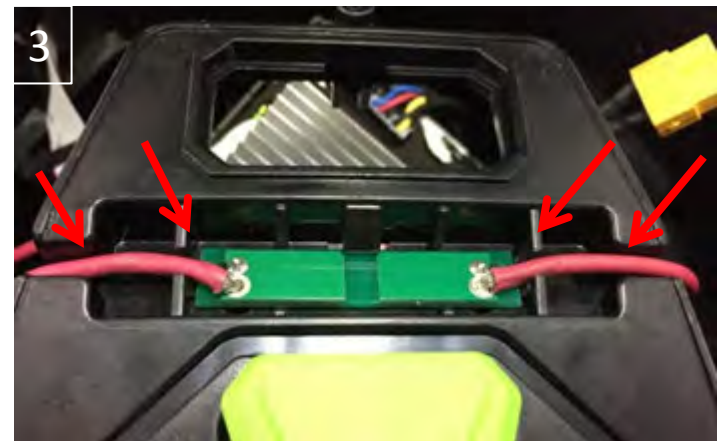
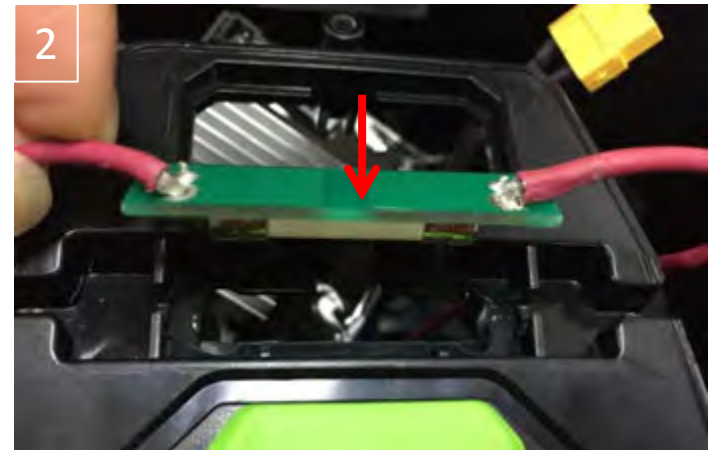
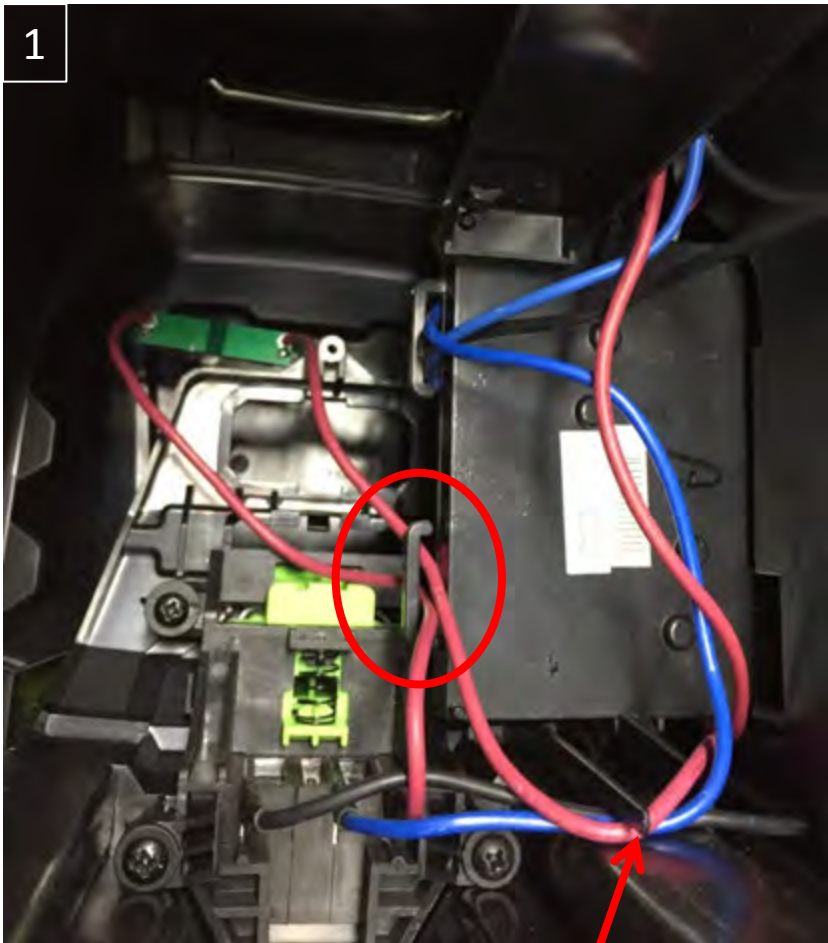
18. Pass the three wires through the corner and hook them into the groove in the corner. One big resistor is in series with the thick black wire.



Main PCBA Replacement

LM2100 Lawn Mower

19. Pass the two red wires, which connect the fuse, through the other hook on the PCBA and put the longer one into the groove on the box housing(Fig. 1).
20. Reverse the battery box and align the wires on both sides of the fuse into their grooves, with fuse downward(Fig. 2 & 3).



Main PCBA Replacement

LM2100 Lawn Mower

21. Mount the motor into the battery box as “Motor ASSY Replacement” part shown.
22. Close the inner cover by locking the 5 screws.

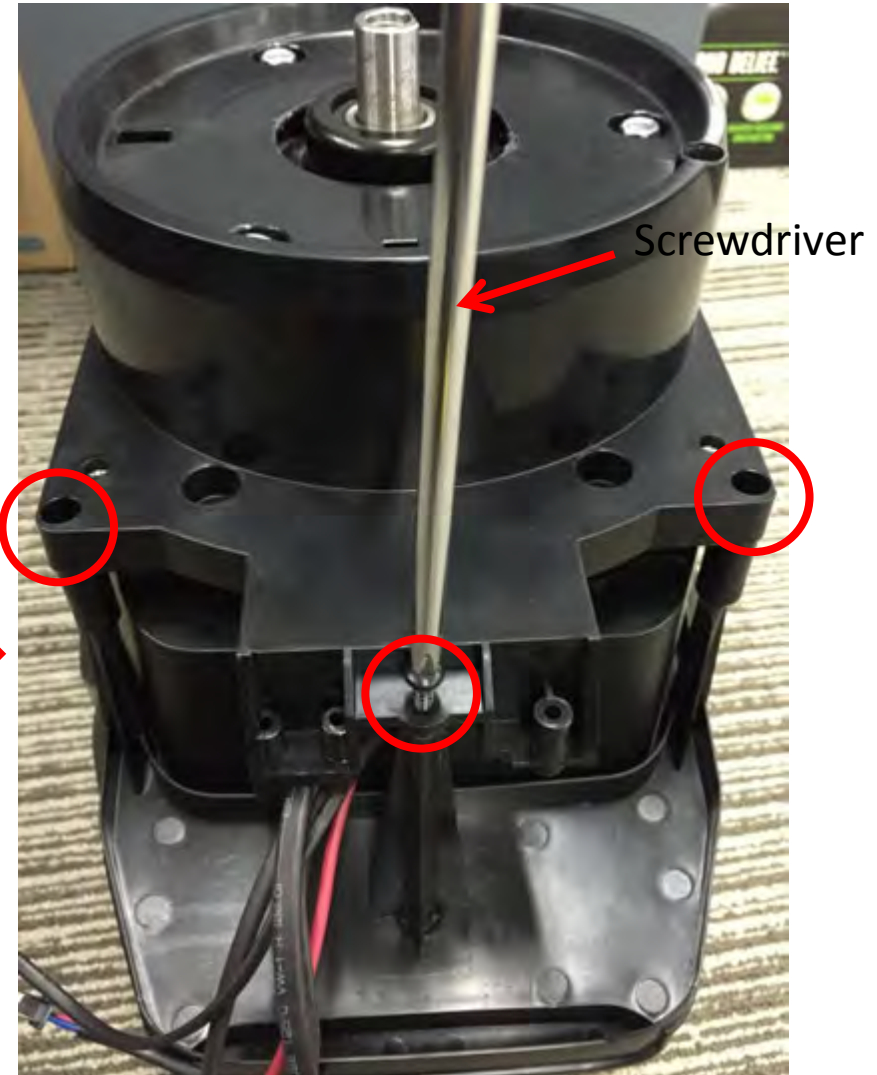


Power Unit Assembly

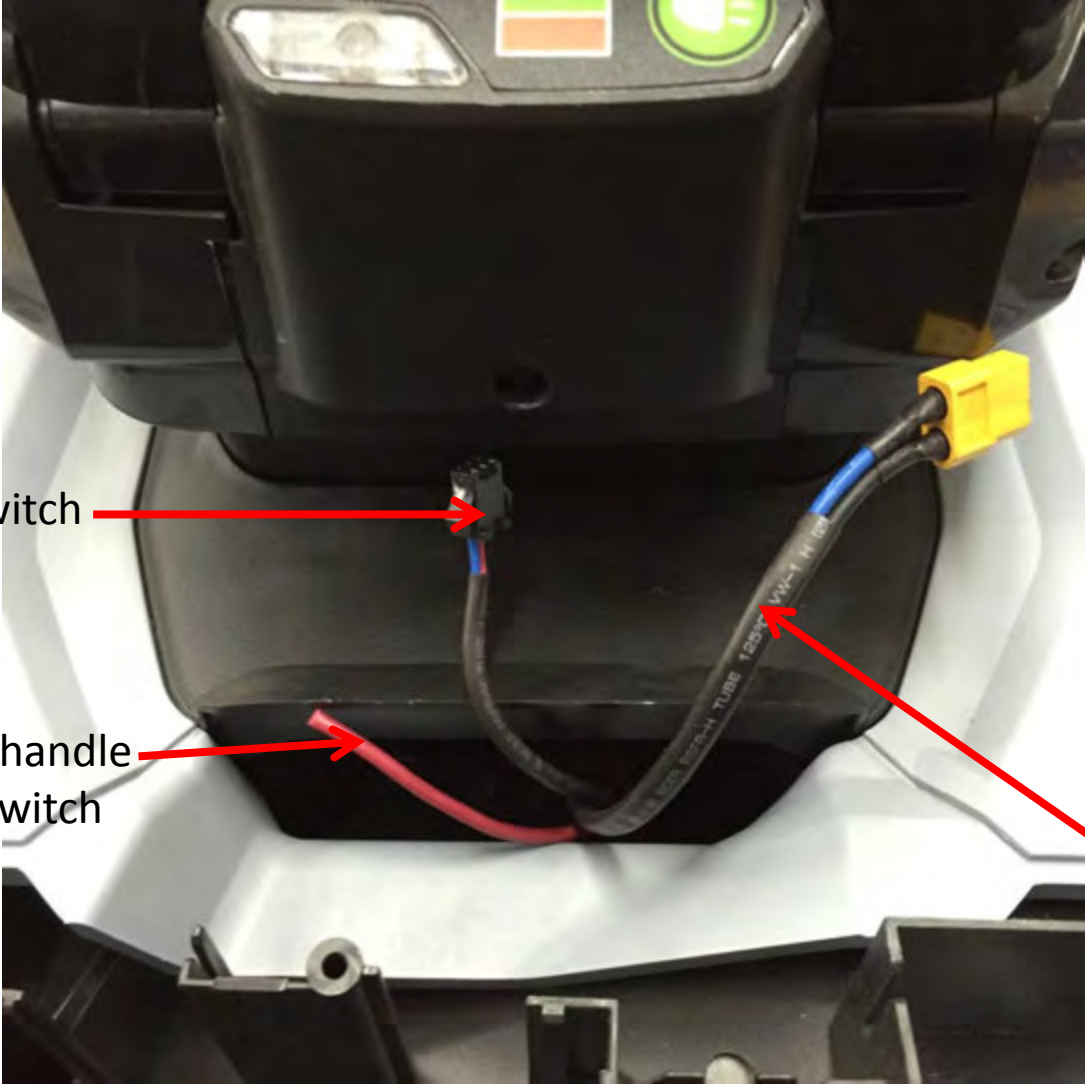
1. Mount the front service cover onto service box. Fix it by 3 screws.



Front service cover



2. Mount the reassembled power unit with the front service cover onto the mower.

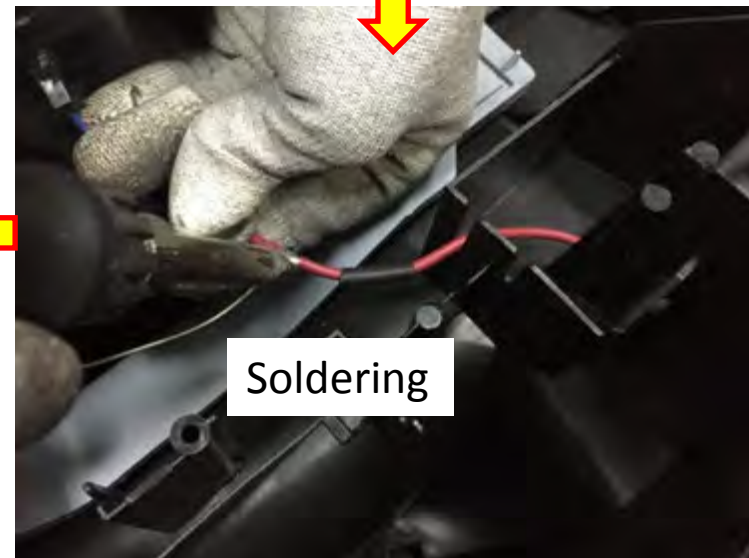
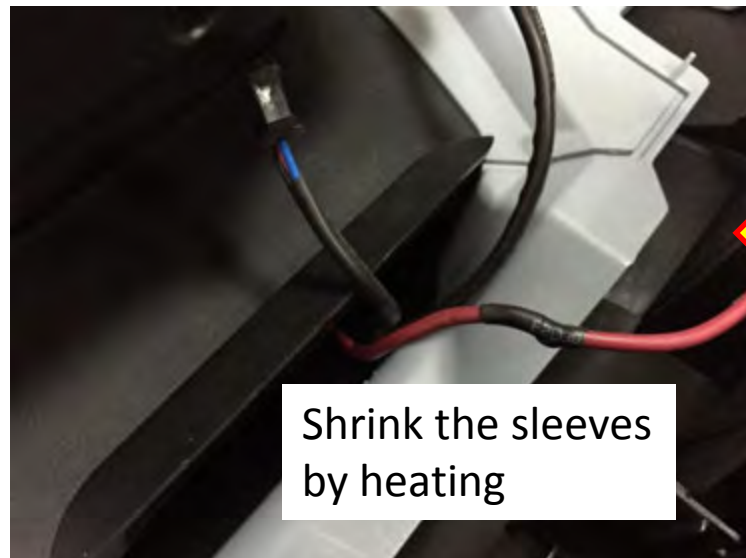
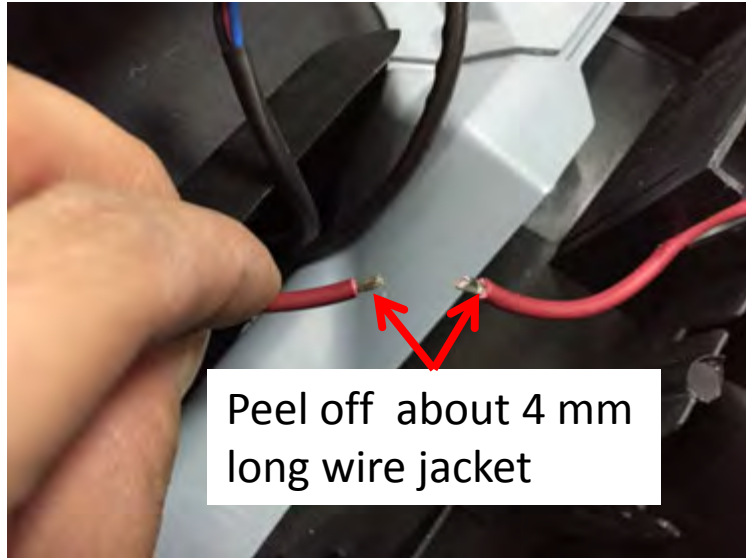


Linked to microswitch

Linked to handle position switch

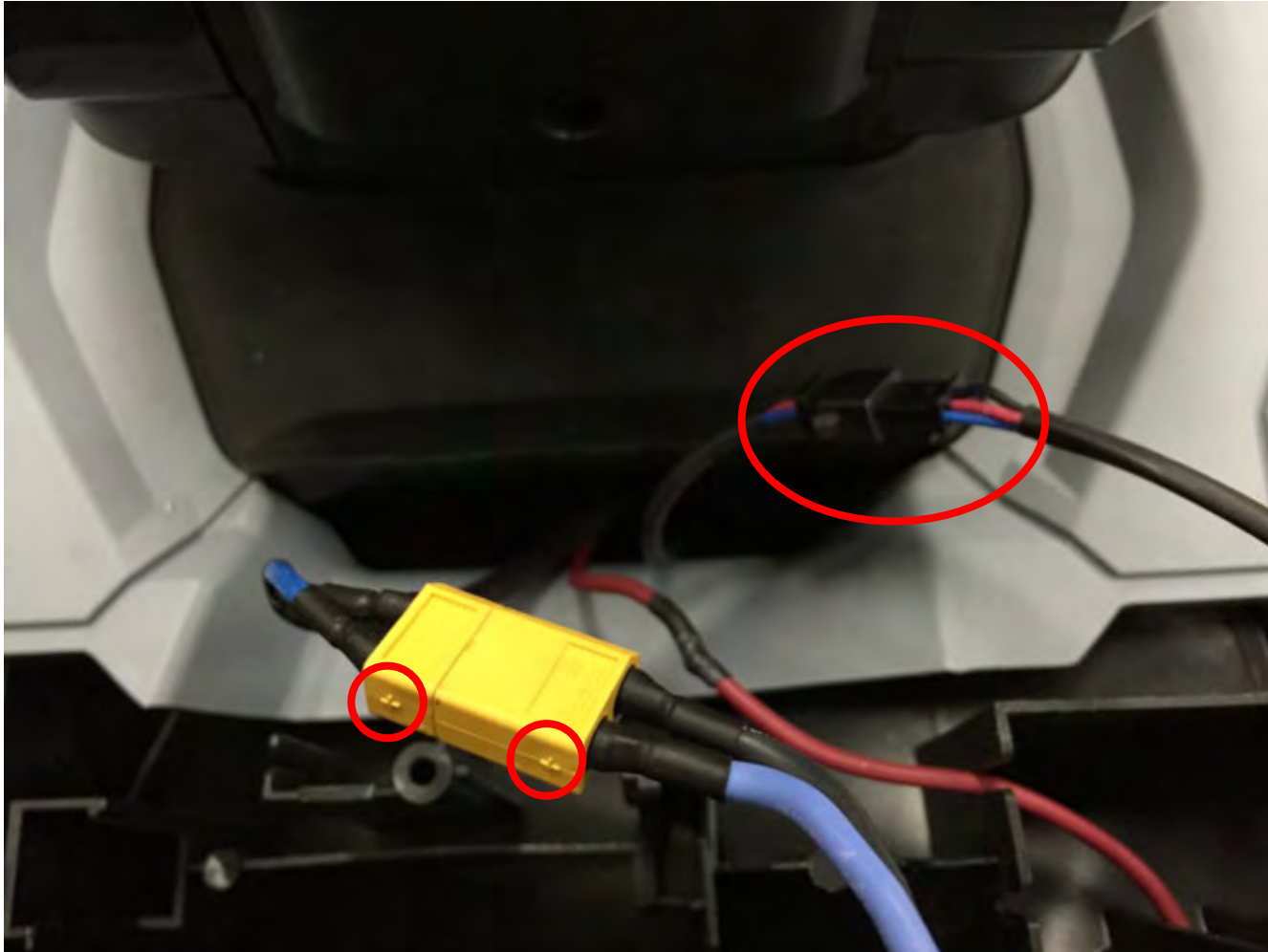
Linked to main switch

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



4. Insert the plugs into the corresponding sockets.

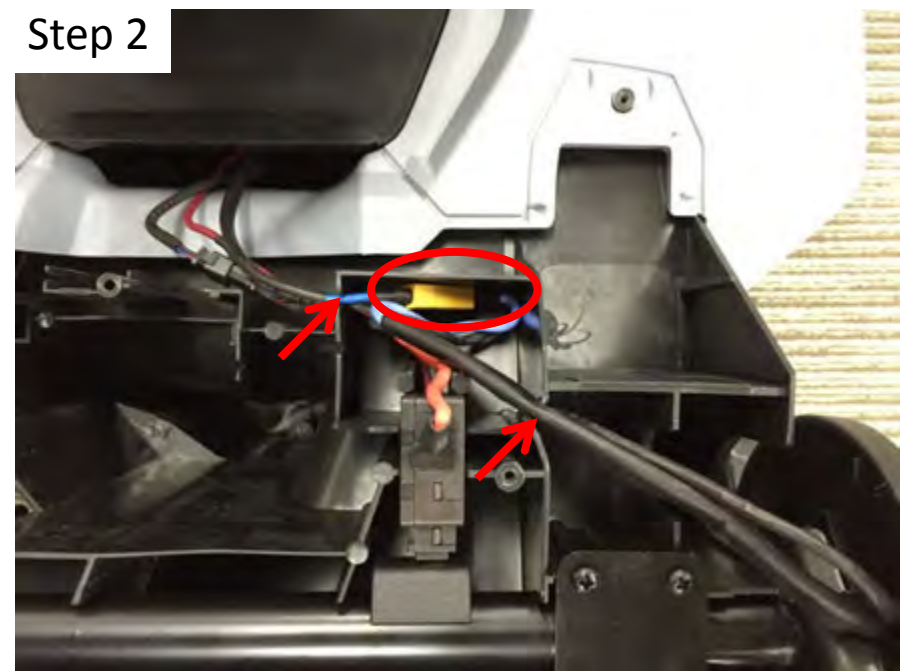
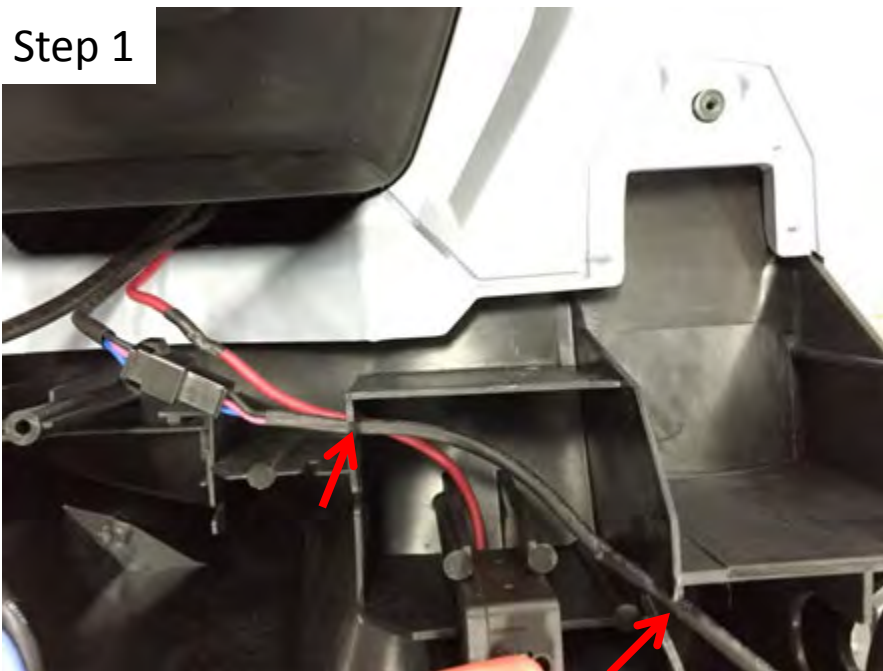
NOTICE: The yellow plug should be connected with “+” to “+”.



Power Unit Assembly

LM2100 Lawn Mower

5. Align the wires into the grooves in following 2 steps.

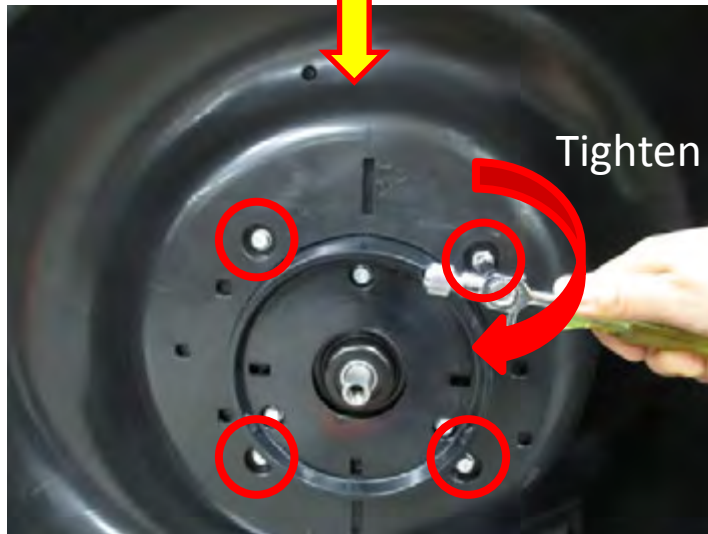
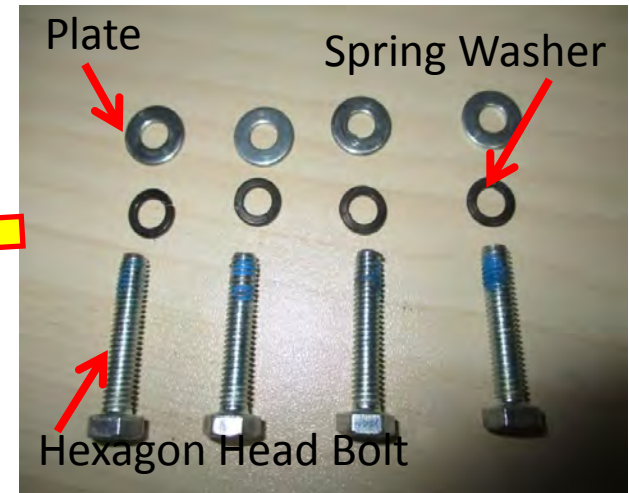


Power Unit Assembly

LM2100 Lawn Mower

6. Turn the mower on its side.

7. Tighten the 4 hexagon head bolts with a 3/8" (S=10mm) 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.

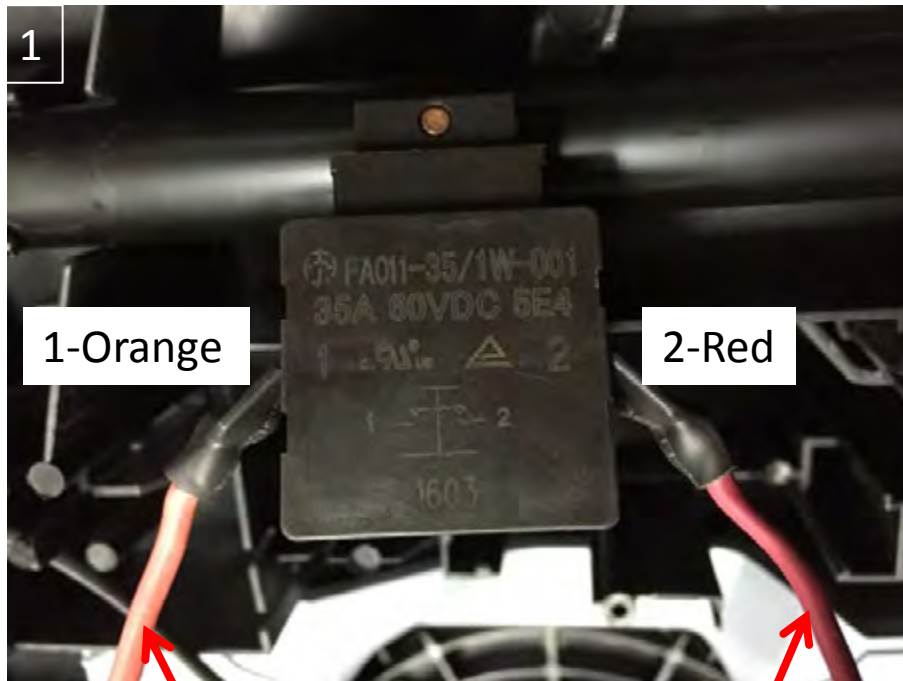


Service Cover

Handle Position Switch Replacement

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 Fig.1 shown. **MIND THE CORRECT CONNETION.**
5. Align the wires as step 5 in “**Power Unit Assembly**” shown.

This side facing the rear cover.



Description	Part Number
Handle Position Switch	4870566002

THE END

REPAIR GUIDELINE

PART 2.3: Battery Cover of Power Unit Replacement_LM2100 Lawn Mower



Battery Cover Replacement

LM2100 Lawn Mower

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

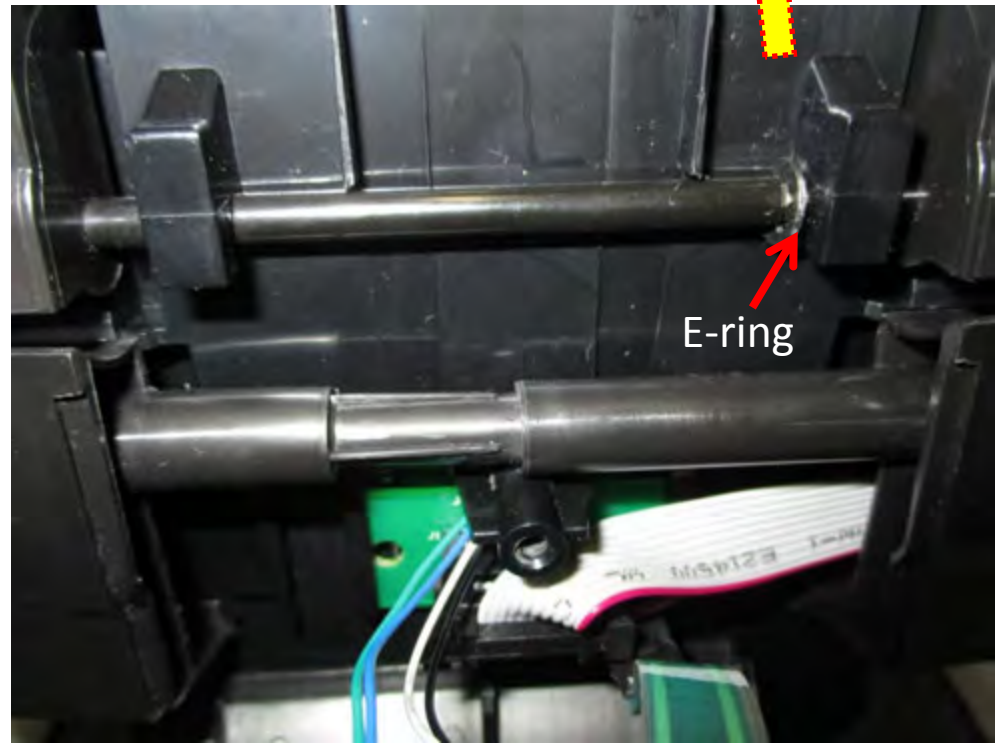
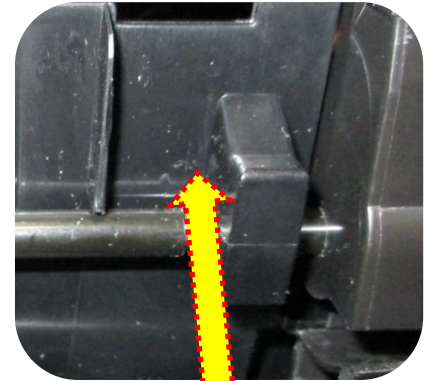


Description	Part Number
Battery cover	2824902001
Transparent guard	E-ring 3127900001
Shaft	5670380001
E-ring	5660003003

Battery Cover Replacement

LM2100 Lawn Mower

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



Battery Cover Replacement

LM2100 Lawn Mower

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



Draw out the shaft from the right

Shaft

THE END

REPAIR GUIDELINE

PART 8: Rear Axle Set Replacement_LM2100 Lawn Mower



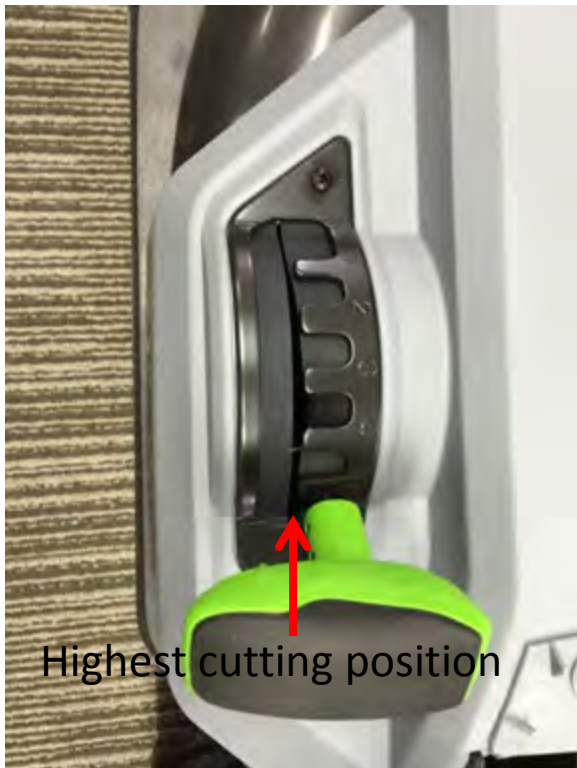
Rear Axle Set Replacement

LM2100 Lawn Mower

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 P3) or remove the nut (nut fixing, see P4).

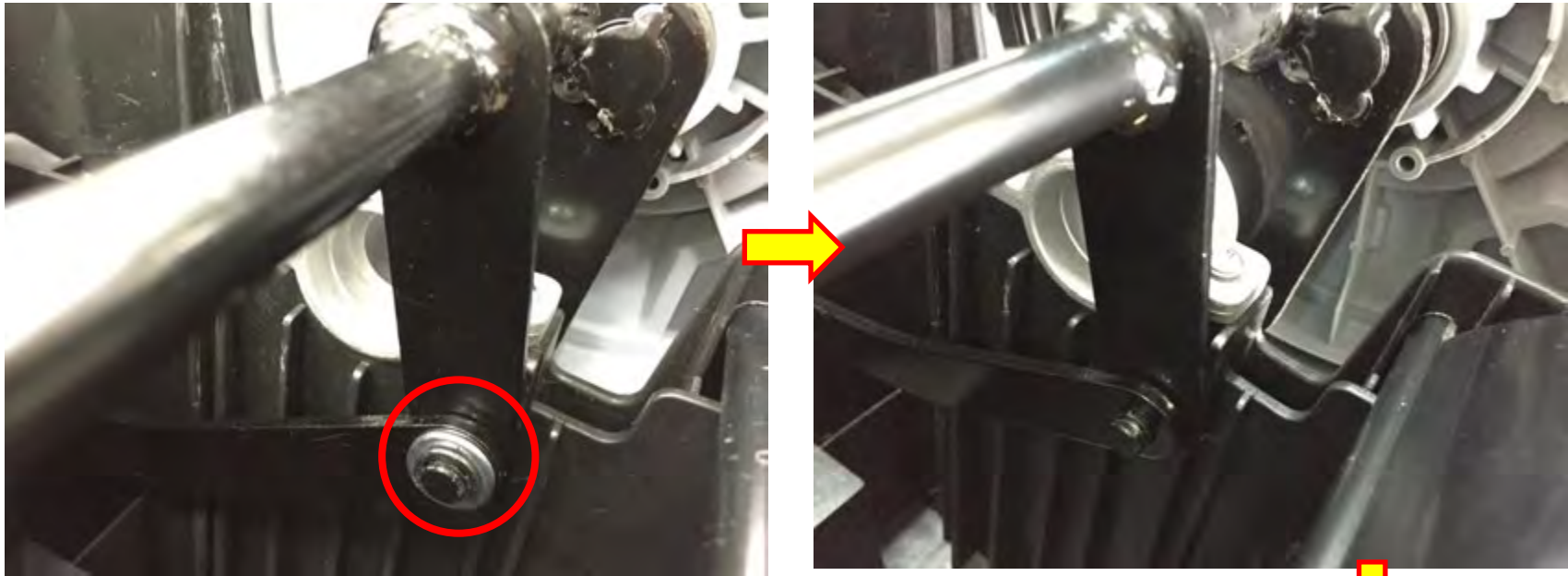
NOTICE:

- ① There are two structures for this joint, **plain washer with snap-ring fixing** or **nut fixing**.
- ② If the mower is set at other cutting position, it's really hard to separate the rear axle set shaft from the mower after removing the snap-ring and plain washer or removing the nut.



Rear Axle Set Replacement

LM2100 Lawn Mower

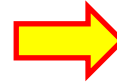


Description	Part Number
Plain washer	5650025004
Snap-ring	5660139002



Rear Axle Set Replacement

LM2100 Lawn Mower



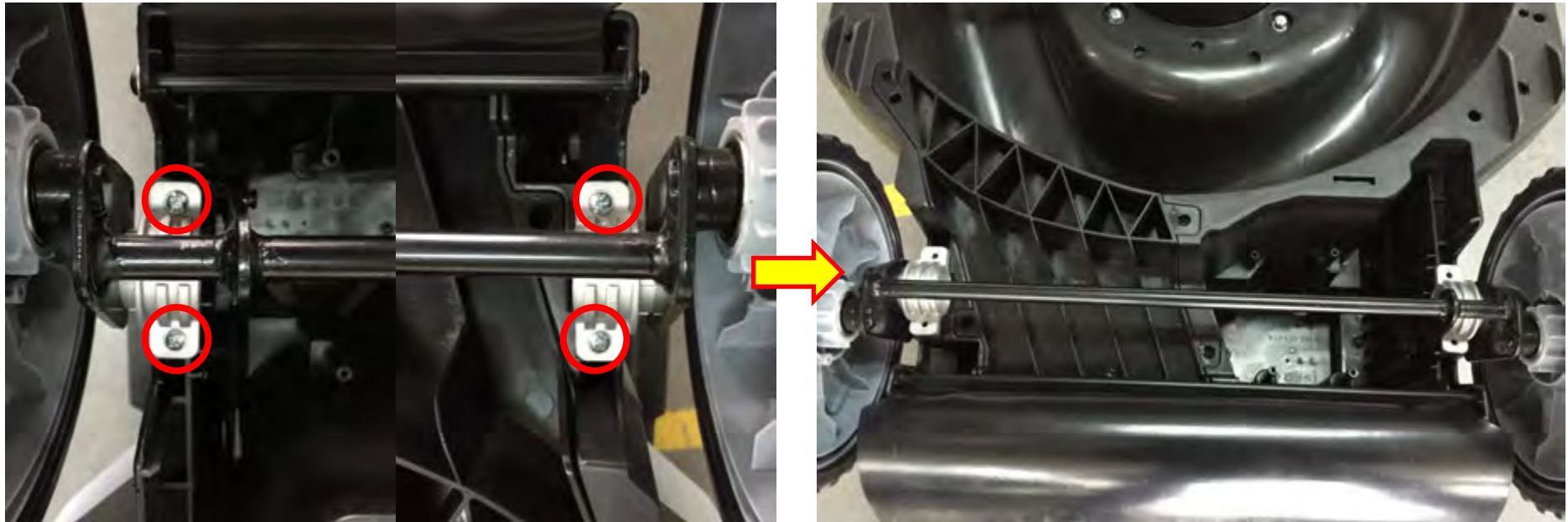
Description	Part Number
Nut	5630013003



Rear Axle Set Replacement

LM2100 Lawn Mower

3. Remove the 4 screws which are used to fix the left and right bearing supports.



4. Separate the joint by hand to take the rear axle set with the wheels apart from the mower.

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



5. Remove the 2 wheels(see *RG_Part 9_Wheels Replacement_LM2100.pptx*).

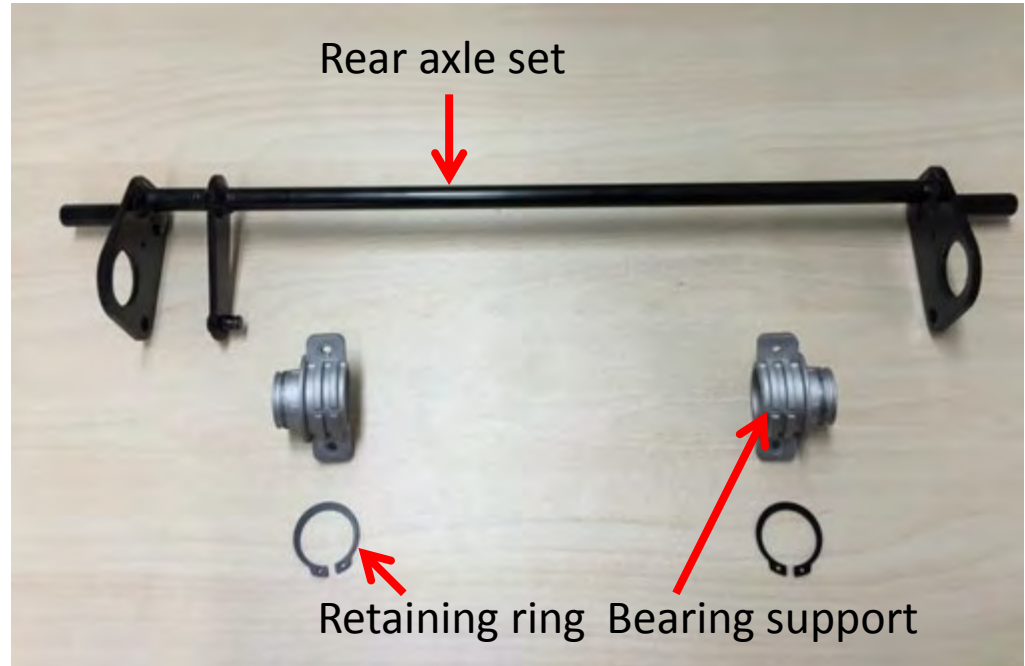
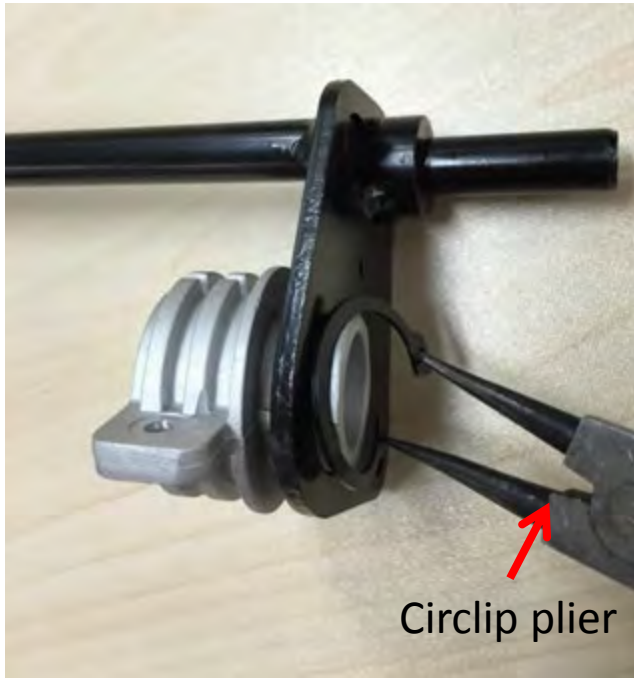
NOTICE: There is each 1pc wave washer beneath the right and left wheel passing through the shaft end of the rear axle set. When assembling the wheels, put the wave washers onto the shaft first.



Rear Axle Set Replacement

LM2100 Lawn Mower

6. Separate the retaining ring from the rear axle set by Circlip pliers.

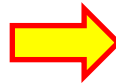


Description	Part Number	Remark
Retaining ring	5660152002	
Bearing support	3421670001	
Rear axle set	2824371001	Joint (plain washer with snap-ring fixing)
Rear axle set	2824667001	Joint (nut fixing)

Rear Axle Set Replacement

LM2100 Lawn Mower

7. Replace any damaged part of the rear axle set with a new one. Assemble them in reverse order.
8. Mount the wheels onto the shaft as ***“RG_Part 9_Wheels Replacement_LM2100.pptx”*** shown.
Remember to put the wave washer onto the shaft on each side firstly.



9. Mount the rear axle and wheels set onto the mower in reverse order.

THE END

REPAIR GUIDELINE

PART 7: QUICK ADJUSTING LEVER REPLACEMENT_LM2100 Lawn Mower



Quick Adjusting Lever Replacement



Description	Part Number
Quick Adjusting Lever	2824250001

Quick Adjusting Lever Replacement

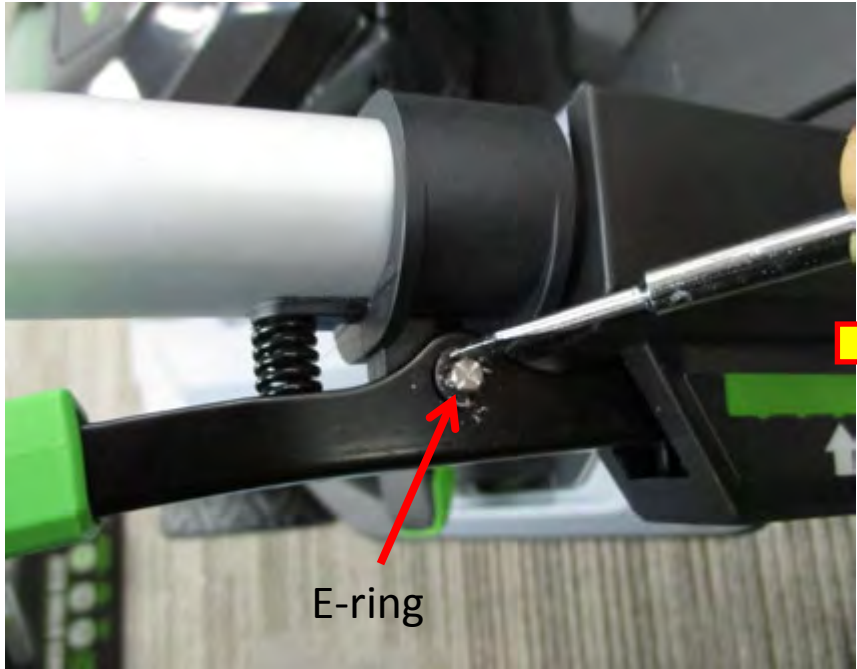
LM2100 Lawn Mower

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



Quick Adjusting Lever Replacement

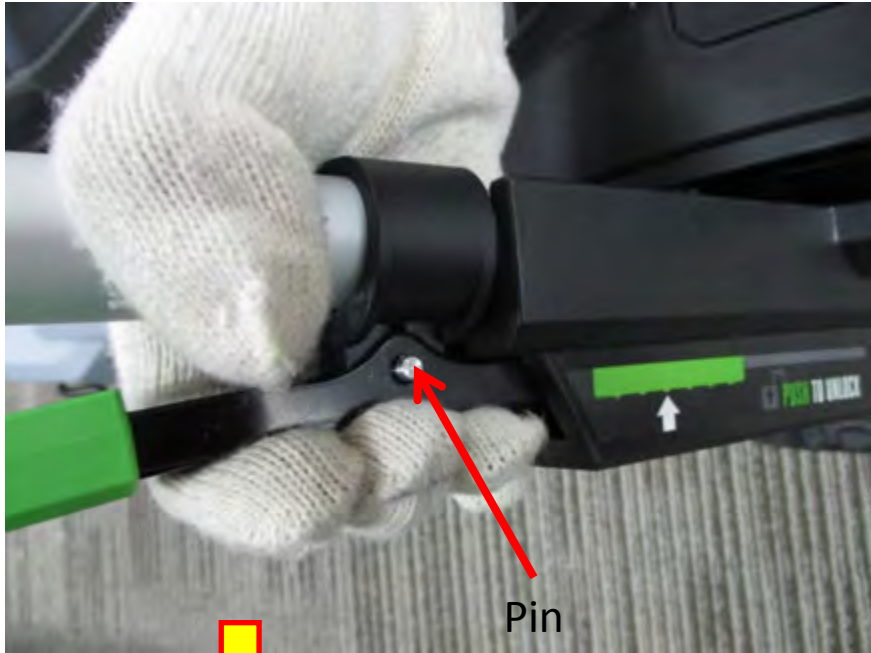
2. Remove the E-ring.



Description	Part Number
E-ring	5660003003

Quick Adjusting 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 Adjusting Lever Replacement

LM2100 Lawn Mower

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



Description	Part Number
Decorative Cover	3126912001
Quick Adjusting Lever	2824250001
Spring	3660565001

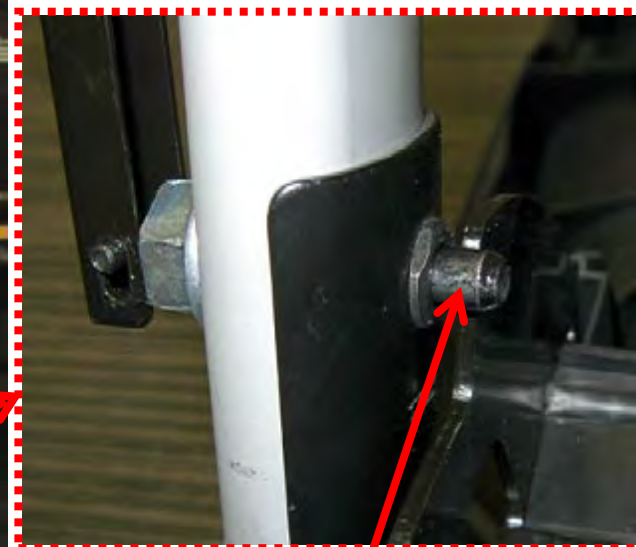
Quick Adjusting Lever Replacement

LM2100 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

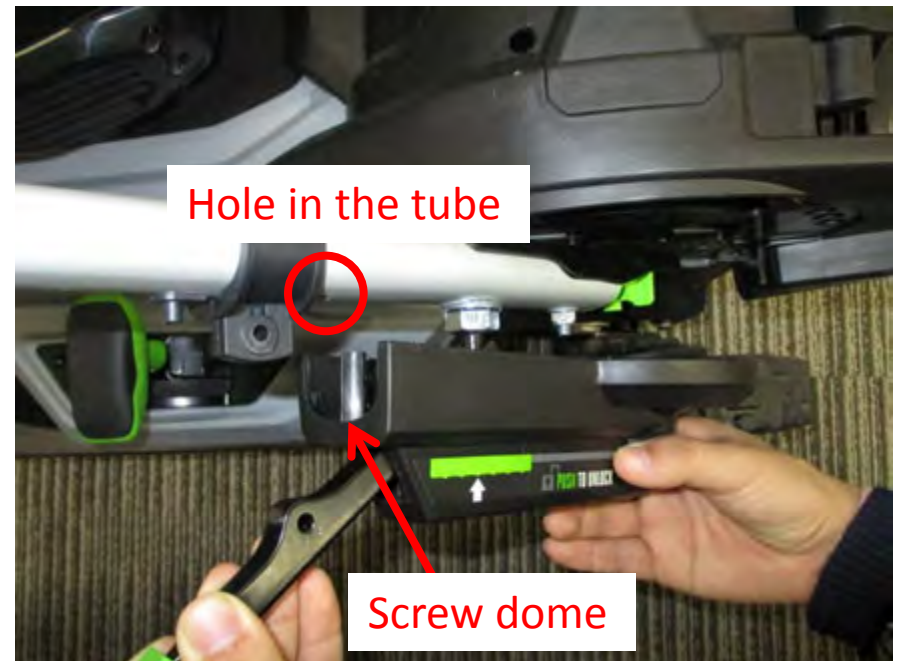


Extend the pin out of the side tube so that the handle can be locked at the grass bag removal position

Quick Adjusting Lever Replacement

LM2100 Lawn Mower

8. Pass the quick adjusting 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 Adjusting Lever Replacement

LM2100 Lawn Mower

10. Fix the spring between the quick 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 Adjusting Lever Replacement

LM2100 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 3: REAR COVER REPLACEMENT_LM2100 Lawn Mower



Rear Cover Replacement

LM2100 Lawn Mower



Rear Cover

Description	Part Number
Rear Cover	3126689003

Rear Cover Replacement

LM2100 Lawn Mower

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



Rear Cover Replacement

LM2100 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

Rear Cover Replacement

LM2100 Lawn Mower

4. Remove the spring from the rear cover.
5. Replace the rear cover. Replace the spring if needed.

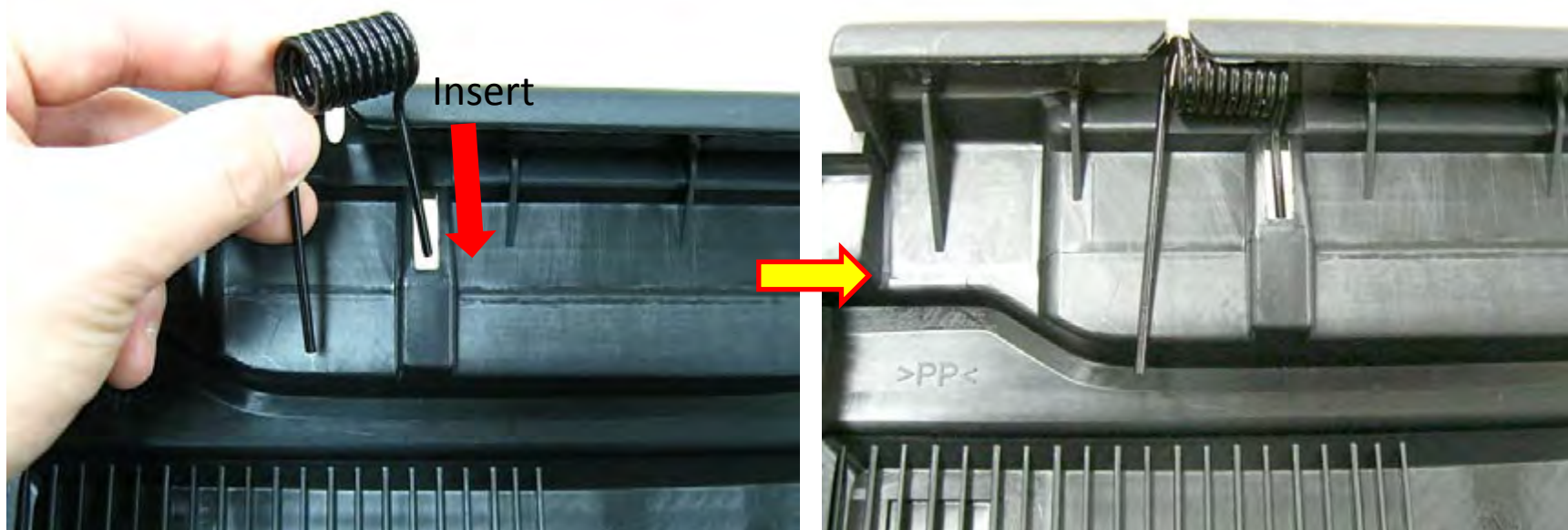


Description	Part Number
Torsion Spring	3660559001
Rear Cover	3126689003

Rear Cover Replacement

LM2100 Lawn Mower

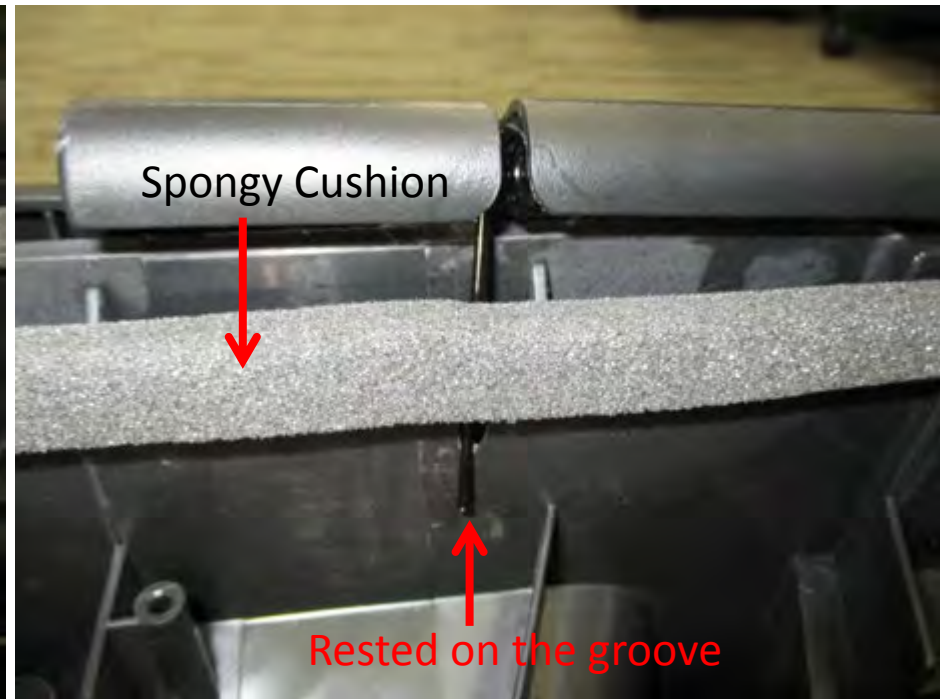
6. Insert the shorter foot of the torsion spring into the groove of rear cover.



Rear Cover Replacement

LM2100 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

Rear Cover Replacement

LM2100 Lawn Mower

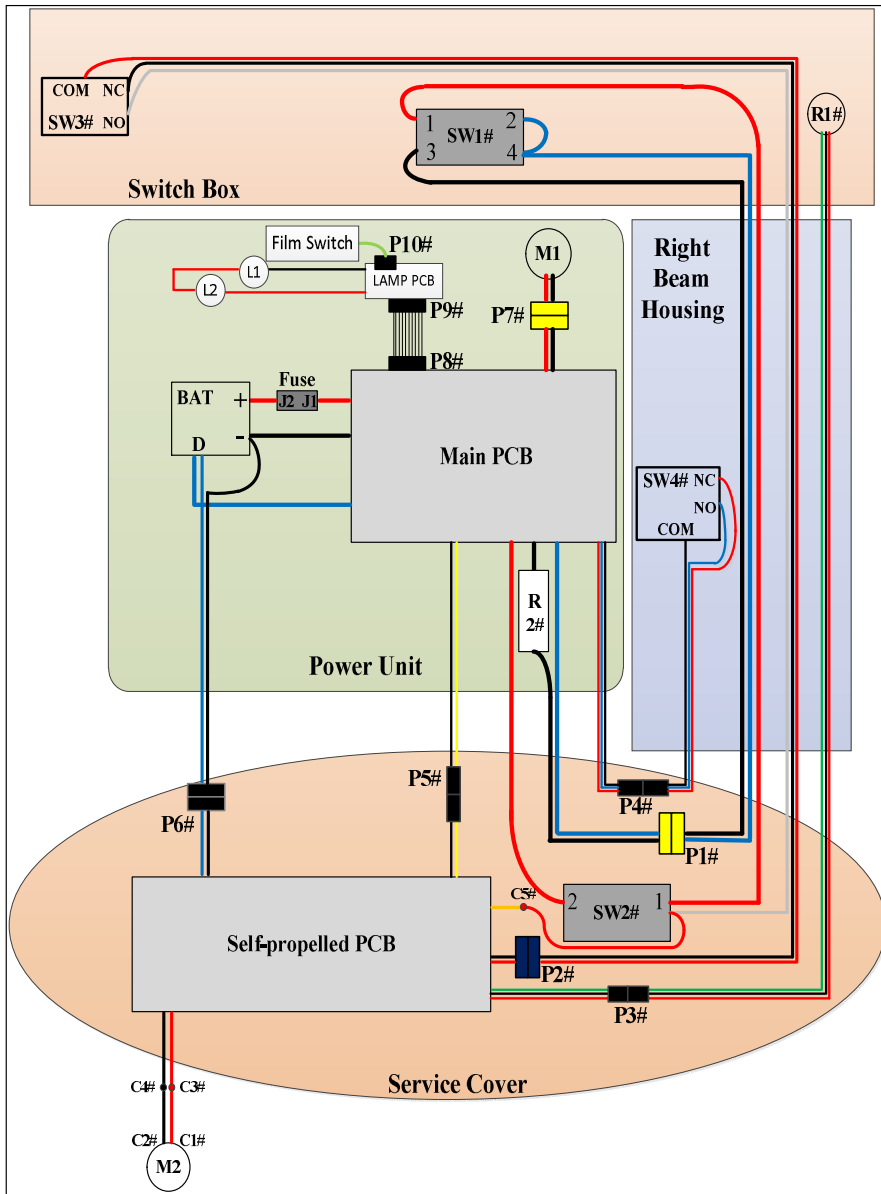
8. Insert the shaft both through the hole on the mower and the torsion spring, and push it into position.



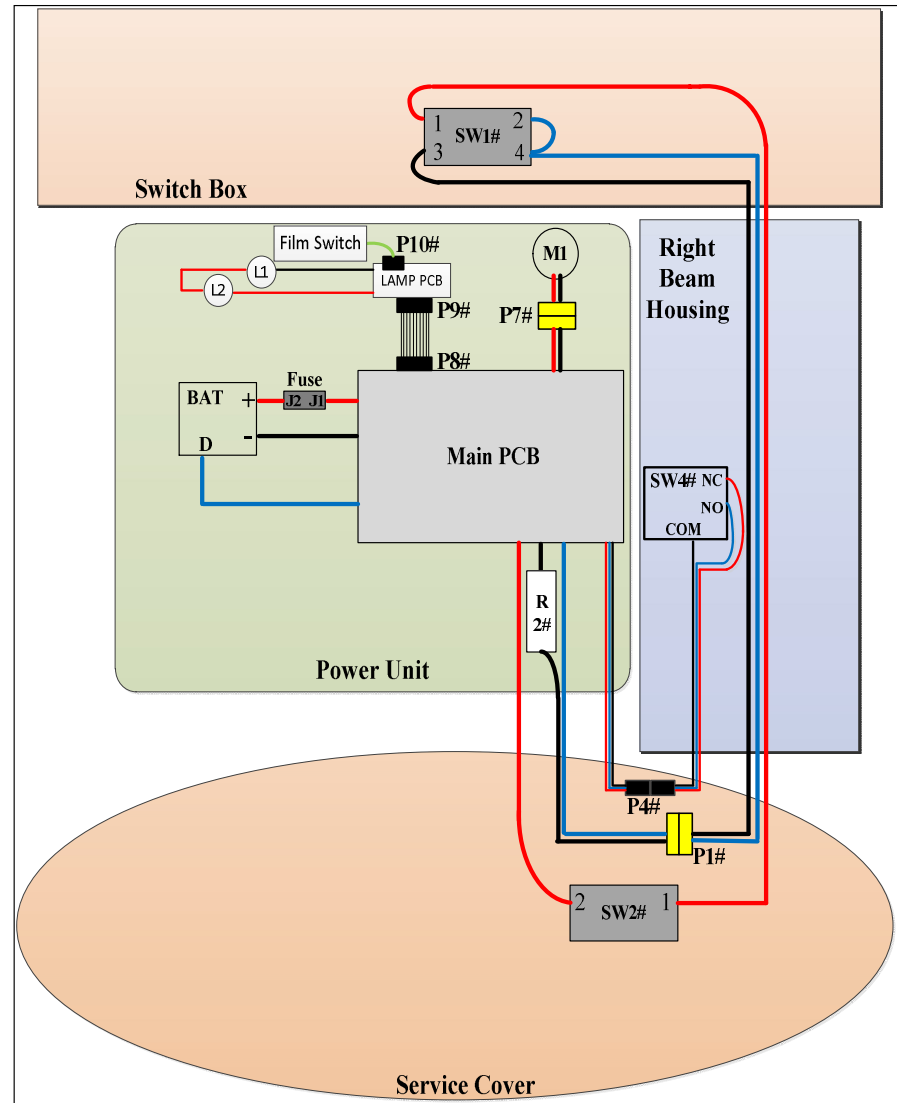
9. Lift up the rear cover to check if it can rotate around the shaft smoothly. If it works well, mount the service cover onto the mower by tightening the 6 screws. Otherwise, reassemble it following above steps.

THE END

LM2100SP Wiring Diagram

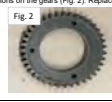
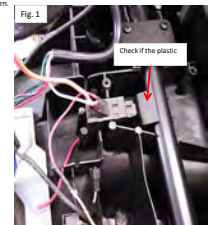


LM2100 Wiring Diagram



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	1. Mount a full charged battery in the mower, press the safety button and hold it, then pull the switch lever to turn on the mower. Continuously hold the switch lever for more than 20s and observe the power indicator on the mower. If the power indicator flashes green light every 6 seconds, indicating that the wire in the side aluminum tube is broken or the 3-pin plug (P4) is disconnected. 2. Lift the handle in the 90 degree position, and then turn on the mower as instructed above to see whether the mower can be turned on. Slightly shake the handle back and forth. If the mower can spin the blade only in the 90 degree position, the signal wire harness is damaged. Replace the whole wire harness assembly. Option: Have the whole handle assembly replaced. Single signal wire harness replacement is not recommended.
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 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. 2. Check on/off function of the switch SW3#, replace the switch SW3# 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 P9# and test the function.
No brake after mower's bail switch is released.	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.
	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".
No brake after mower's bail switch is released.	Green	Green	Can be turned on	The brake circuit is open-circuit.	The braking resistor R2# has a bad solder joint or is broken.	A part of main PCBA	Disassemble the power unit and check R2# on the main PCBA. If R2# is broken, replace with a new main PCBA.
	n/a	n/a	n/a	n/a	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.	SW1# in Switch Box; P1# in Service Cover	1. Open the switch box, check if the black cable is disconnected from the main switch SW1#, resolder it if needed. 2. Check the on/off function of SW1#, replace it if damaged. 3. 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 melt 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.	<ol style="list-style-type: none"> 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> 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> 3. The self-propelled speed cannot be adjusted (LM2100SP). 4. The self-propelled function cannot be turned on (LM2100SP). 	<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.	<ol style="list-style-type: none"> 1. Headlights cannot be turned on. <u>Check the fuse on the PCBA is the first step.</u> 2. The tool cannot be turned on. The power indicator on the mower or battery indicator is ON or OFF, without typical phenomenon. 	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.

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.

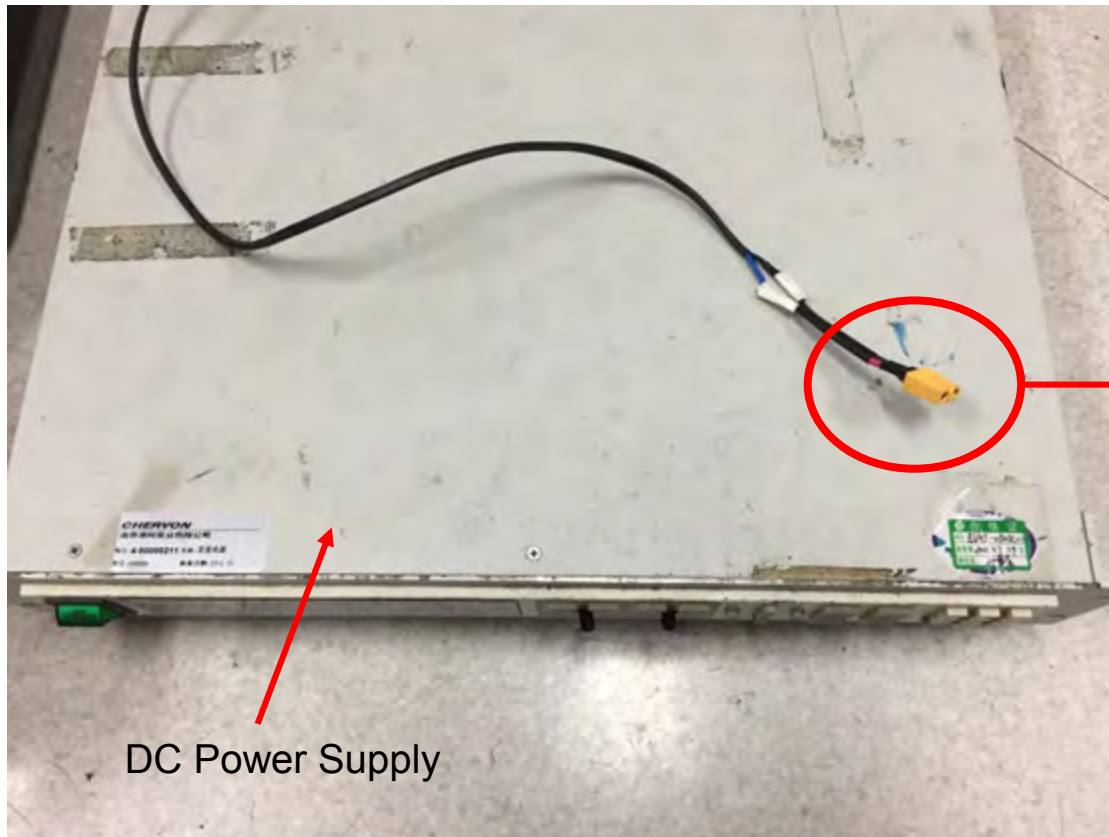
Draft by Aimin

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.

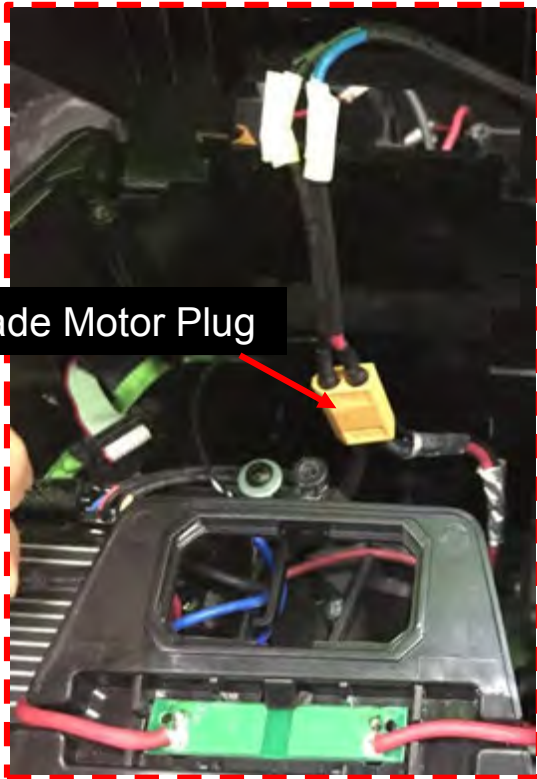


DC Power Supply

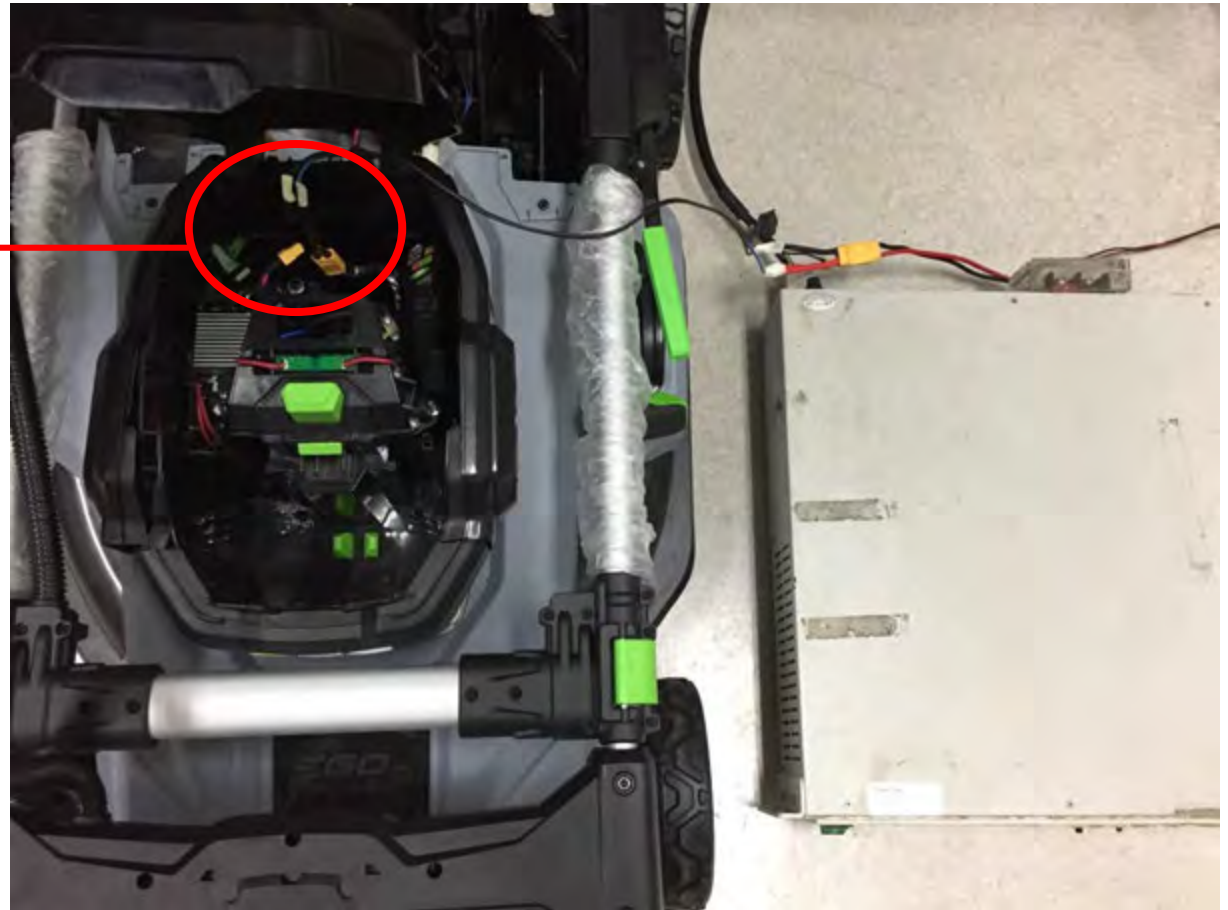


How to diagnose the motor

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.

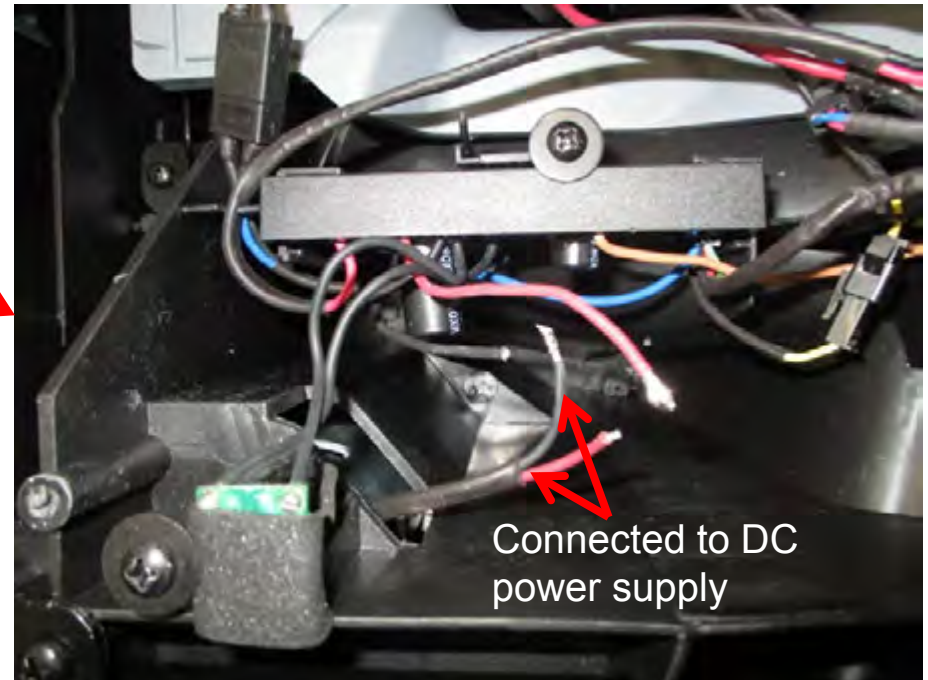


Blade Motor Plug



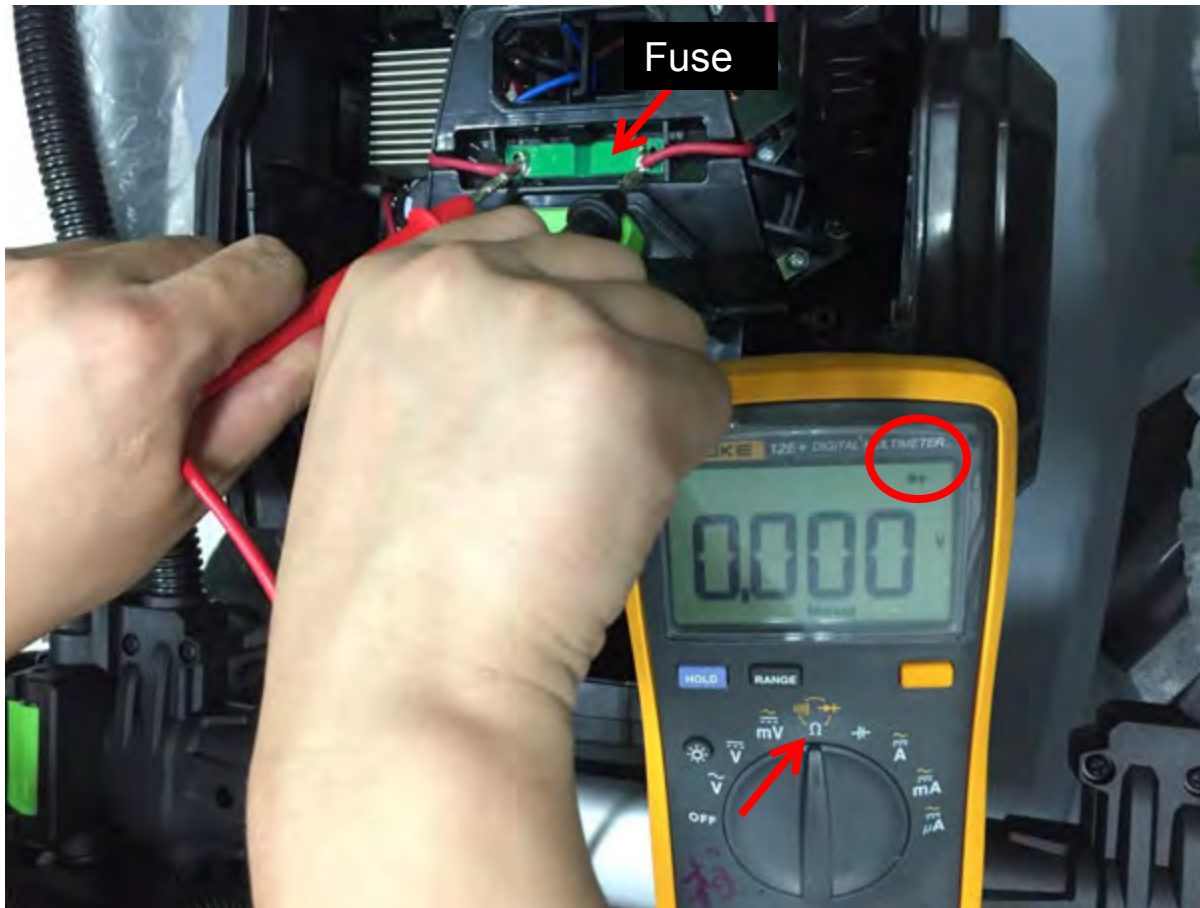
How to diagnose the motor

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.



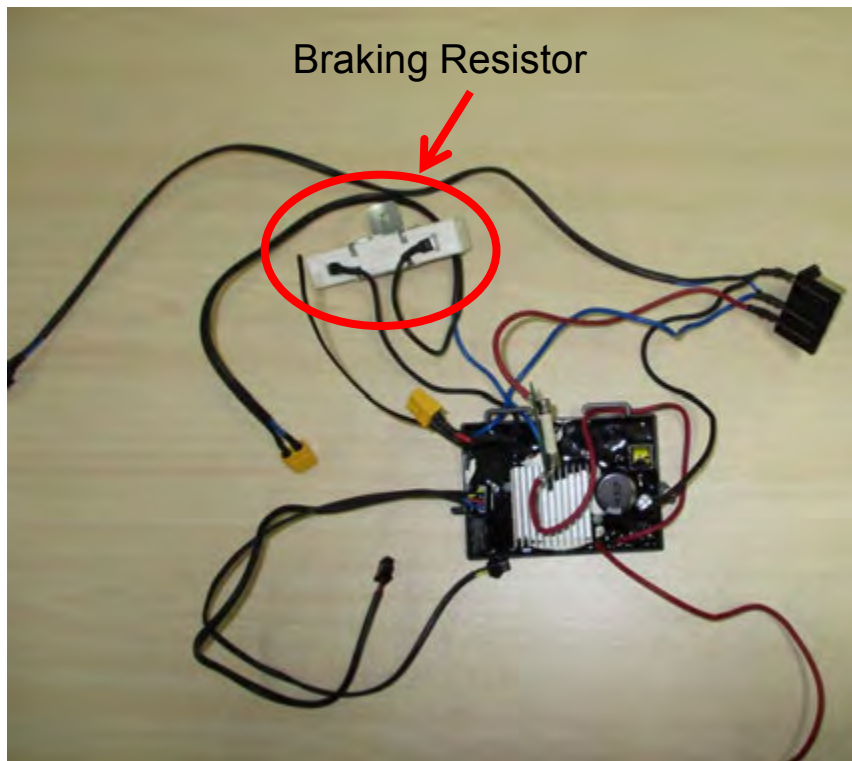
How to diagnose the main PCBA_Fuse

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.

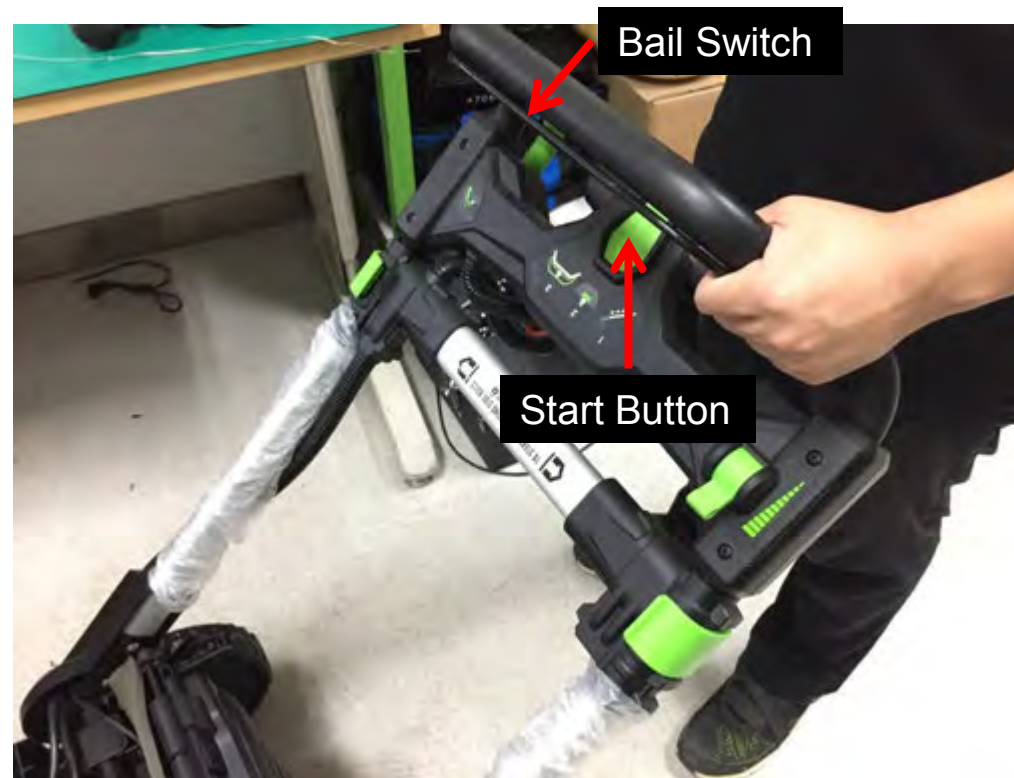


How to diagnose the main PCBA_MOSFET in the PCBA

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



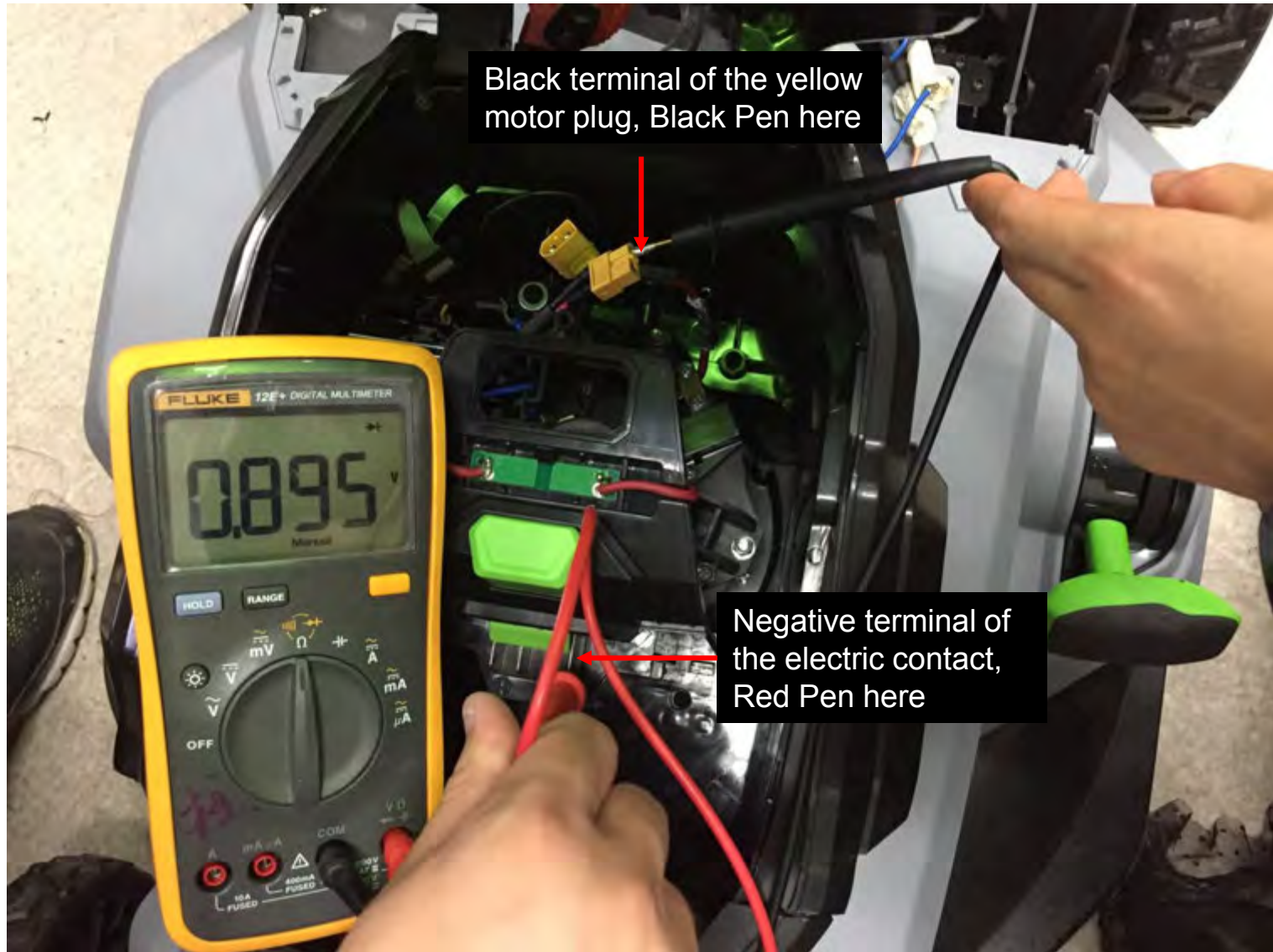
How to diagnose the main PCBA_MOSFET in the PCBA

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



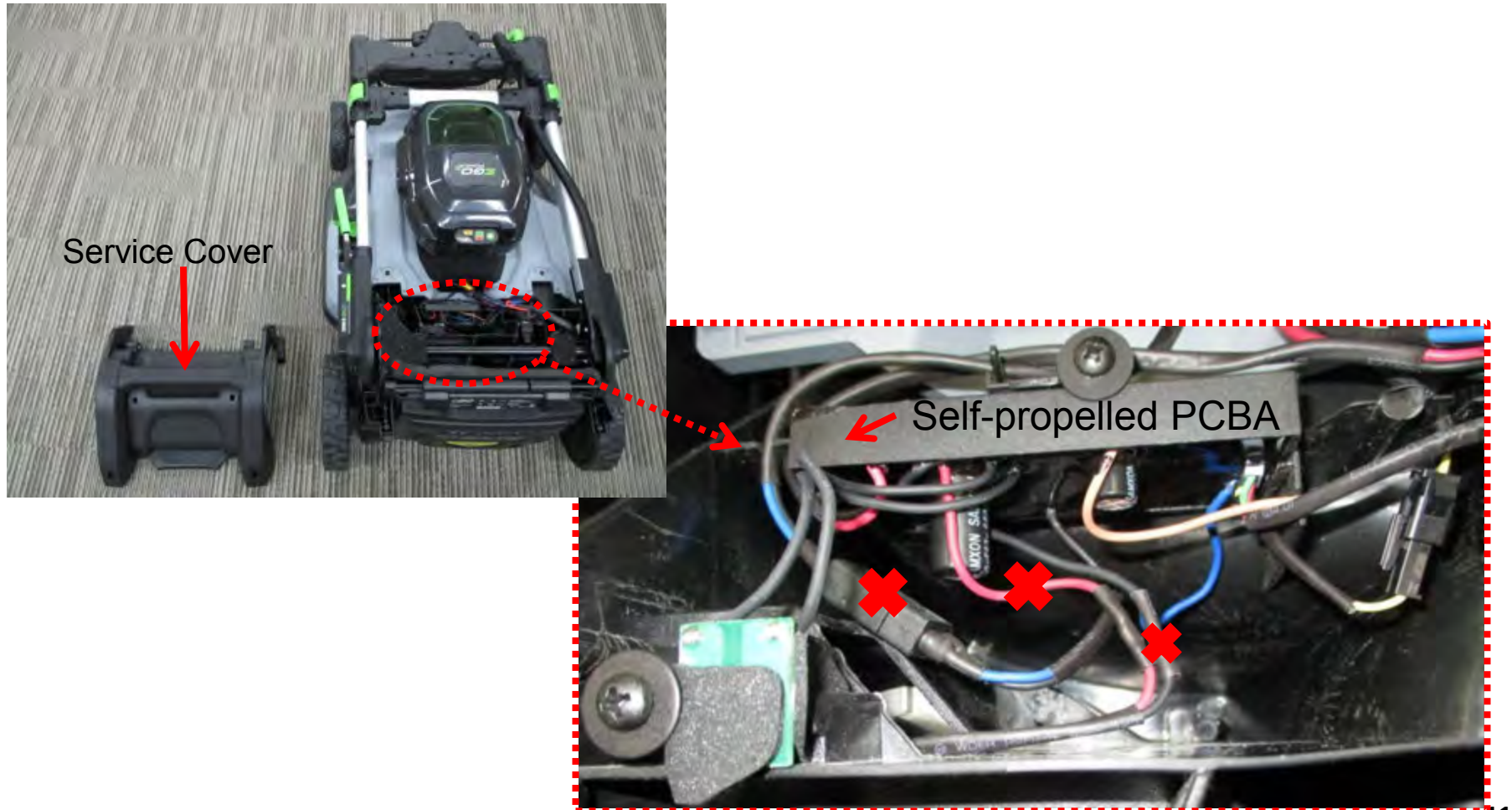
- Keep the Multimeter function setting at “Diode measuring”.
- Contact the red pen pin to the negative terminal of the electric contacts while the black pen pin contacting to the black terminal of the yellow motor plug.
- If the LCD displays 0.80~0.95V (see next slide), all the MOSFETs in the PCBA are 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.



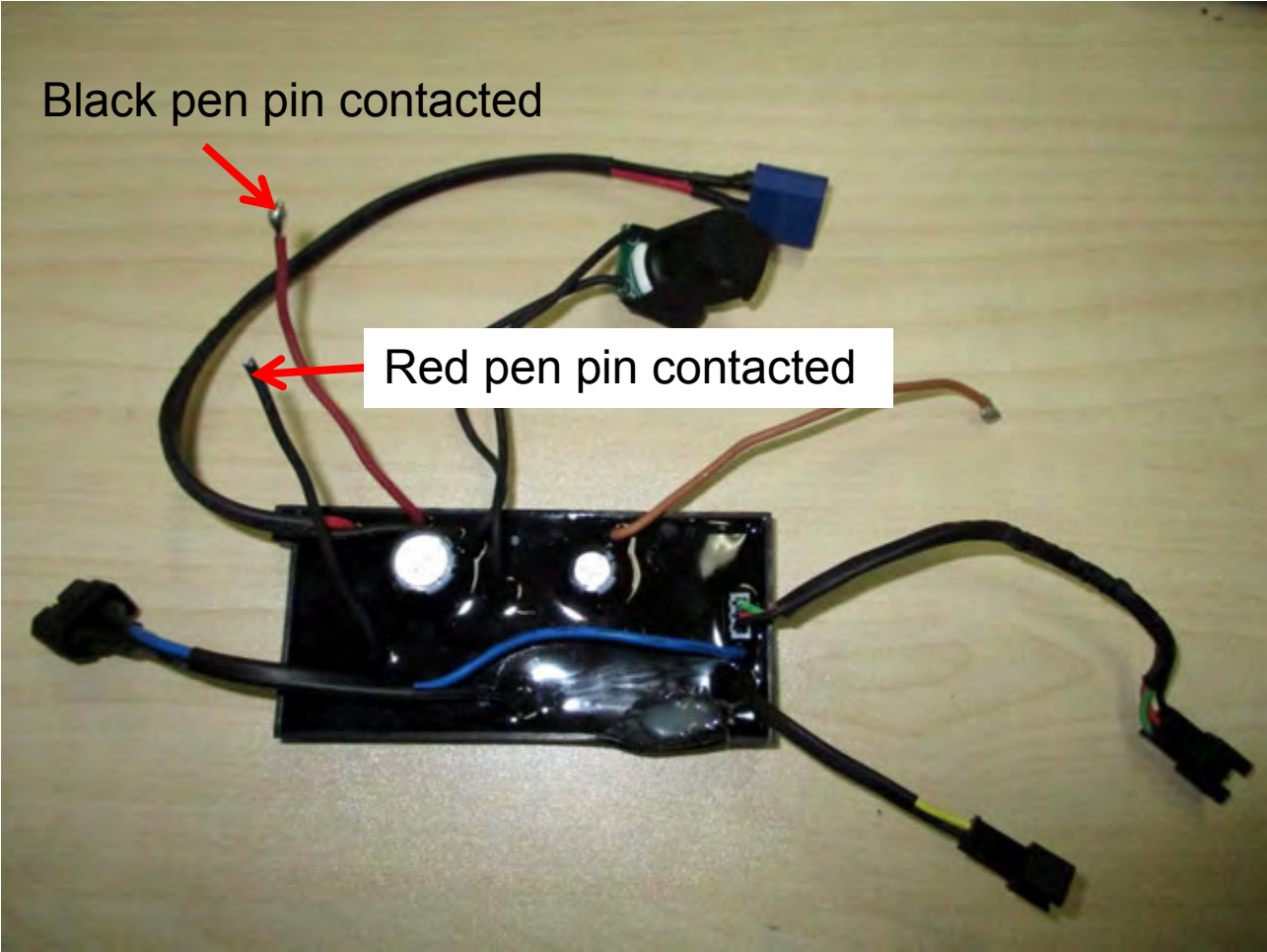
How to diagnose the self-propelled PCBA

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)

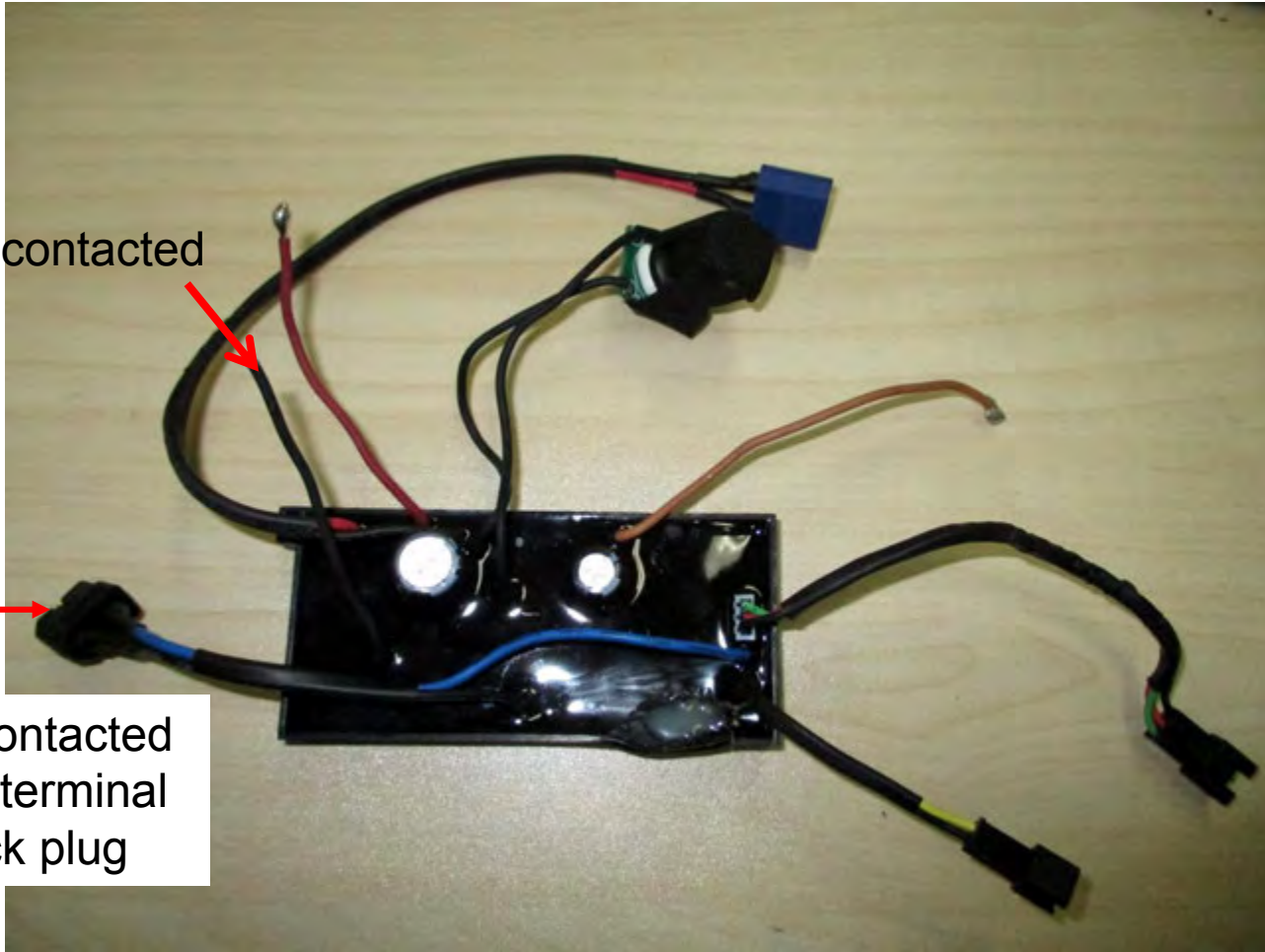


- Keep the Multimeter function setting at “Diode measuring”.
- Contact the red pen pin to the black terminal of the black plug while the black pen pin contacting to the black wire.
- If the LCD displays 0.40~0.55V (see next slide), all the MOSFETs in the PCBA are good, otherwise means the PCBA is broken. 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 2.2: LED LIGHT REPLACEMENT_LM2100 Lawn Mower

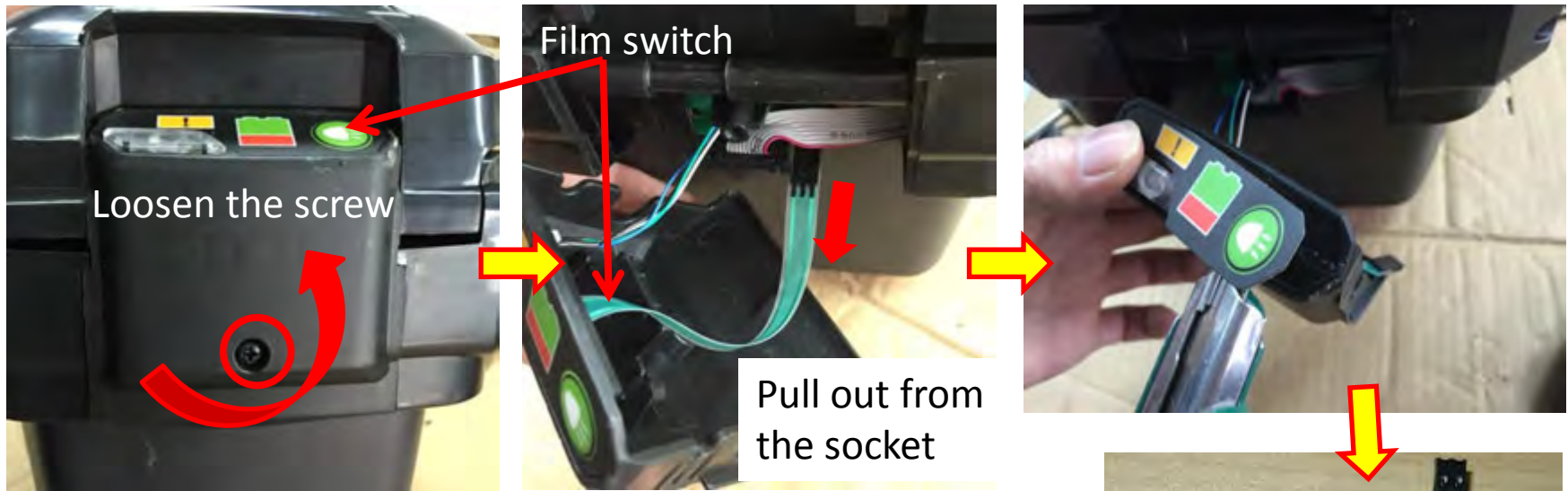


Table of Contents

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

Film Switch Replacement

The LED film switch can be replaced following the steps indicated in the figure shown below.



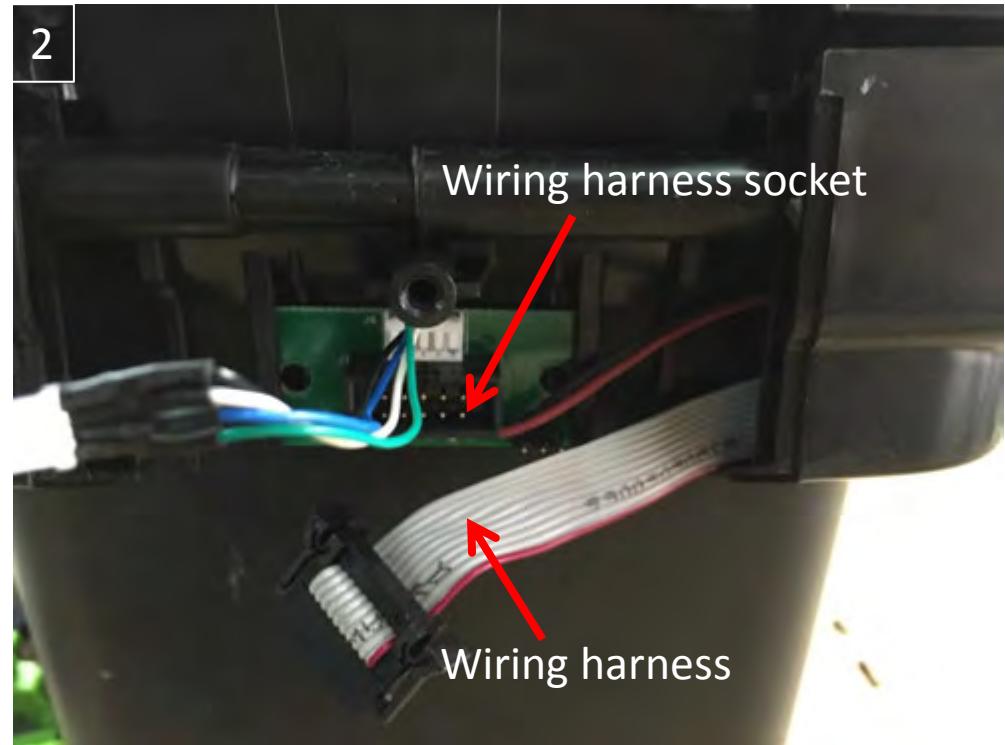
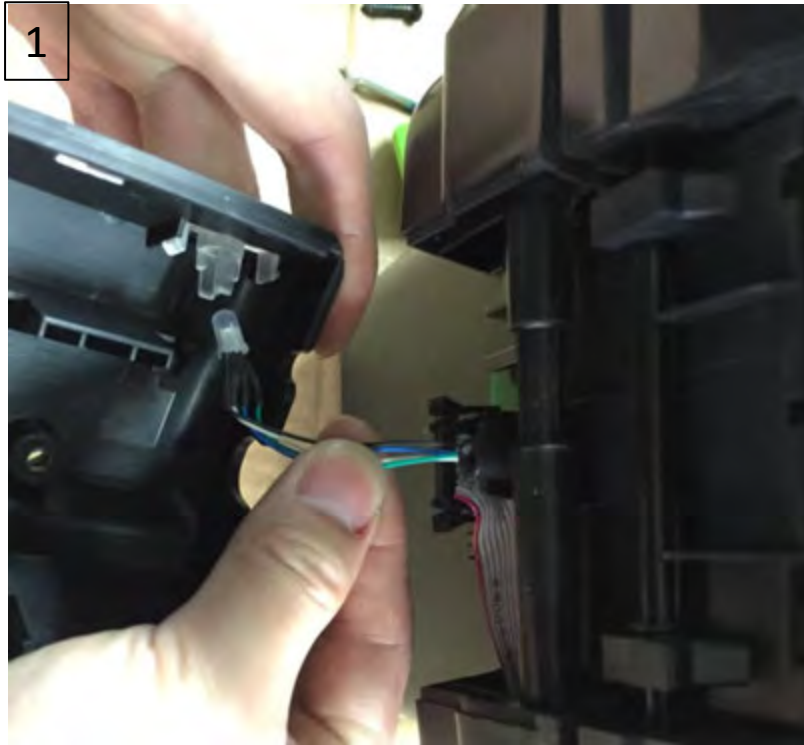
Description	Part Number
Film switch	4870558001



LED Headlights Replacement

LM2100 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

LM2100 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.



LED Headlights Replacement



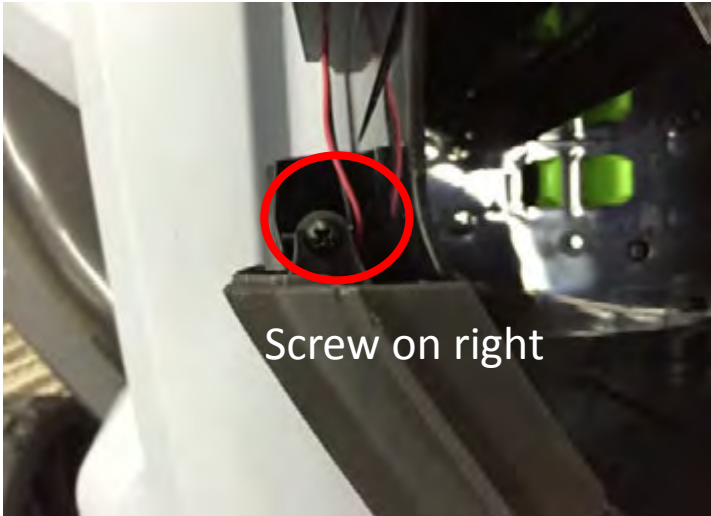
Decorative covers



LED Headlights Replacement

LM2100 Lawn Mower

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

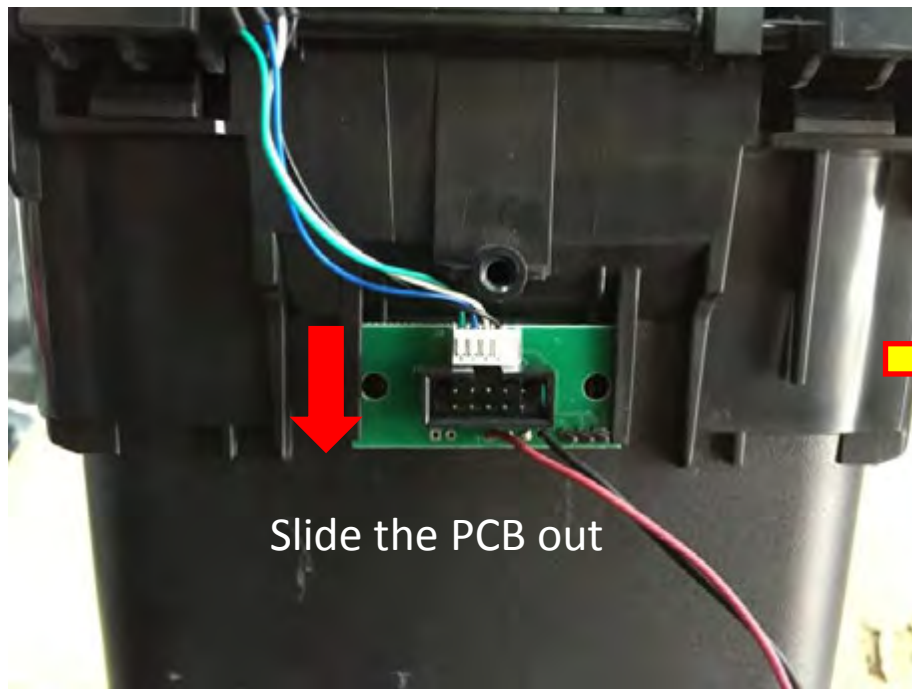


LED Headlights Replacement

LM2100 Lawn Mower

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

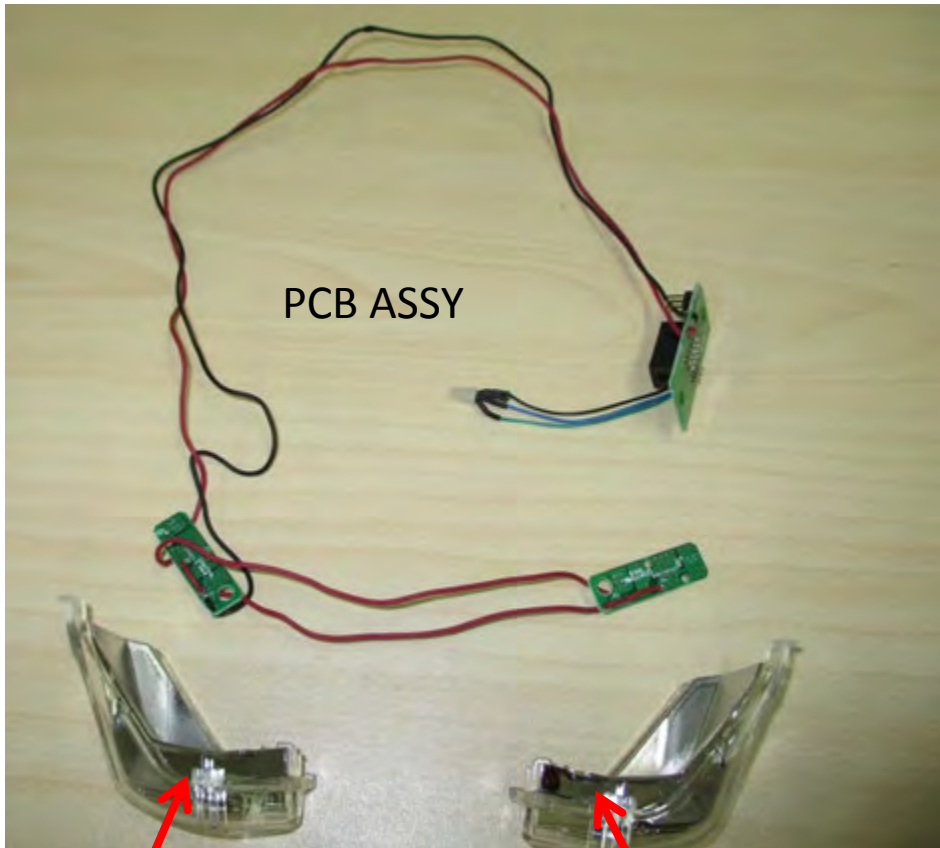
The LED headlights includes 1pc PCB ASSY(including 3 small PCBs), 2pcs reflectors and 2pcs transparent caps(see next slide).



LED Headlights Replacement

LM2100 Lawn Mower

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



Right transparent cap
with reflector

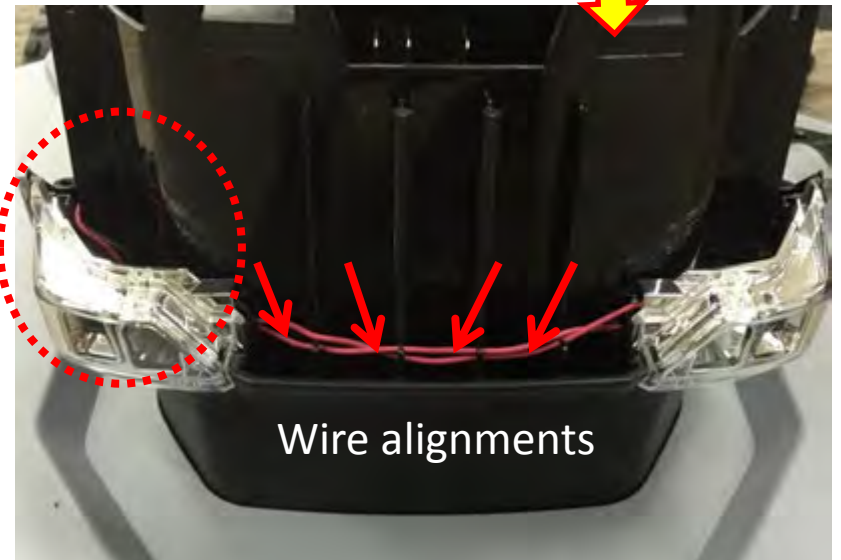
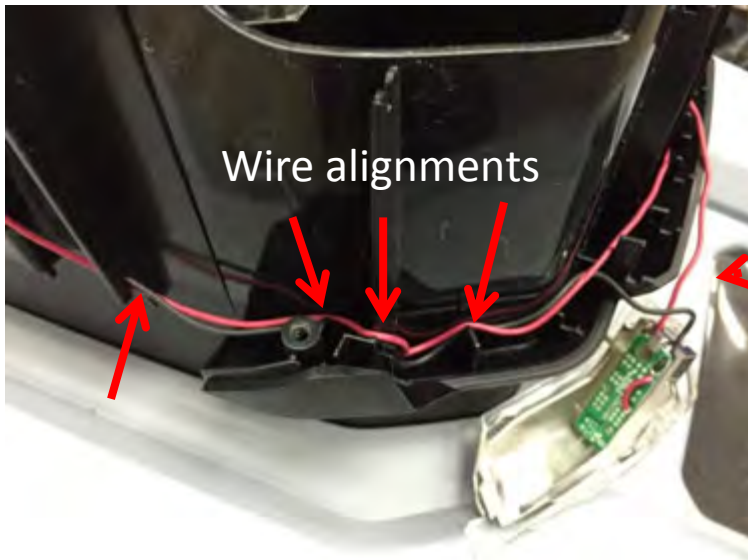
Left transparent cap
with reflector

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

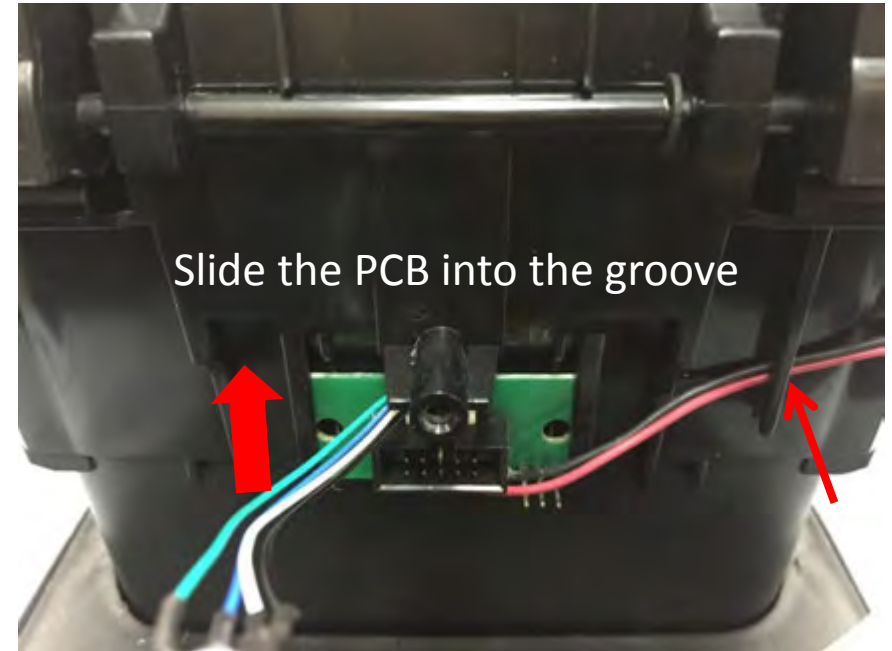
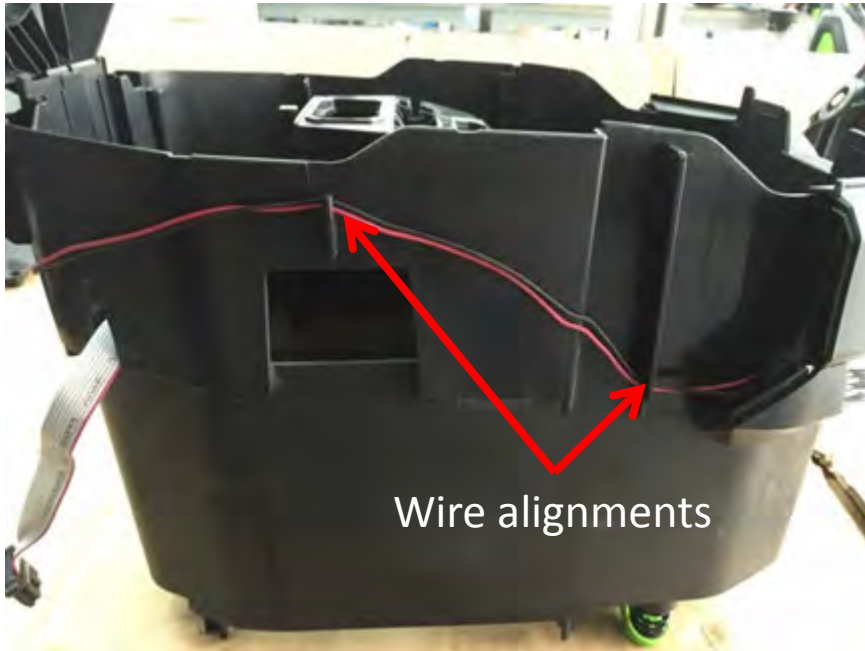
LED Headlights Replacement

LM2100 Lawn Mower

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

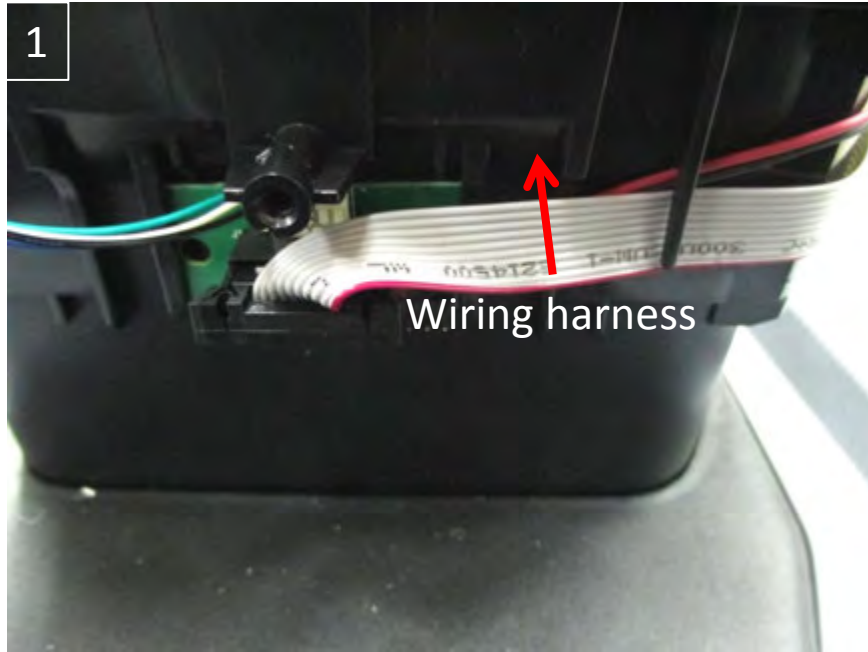


10. Align the wires into the groove as well as the PCB.



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_LM2100 Lawn Mower



Battery Cover Replacement

LM2100 Lawn Mower

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

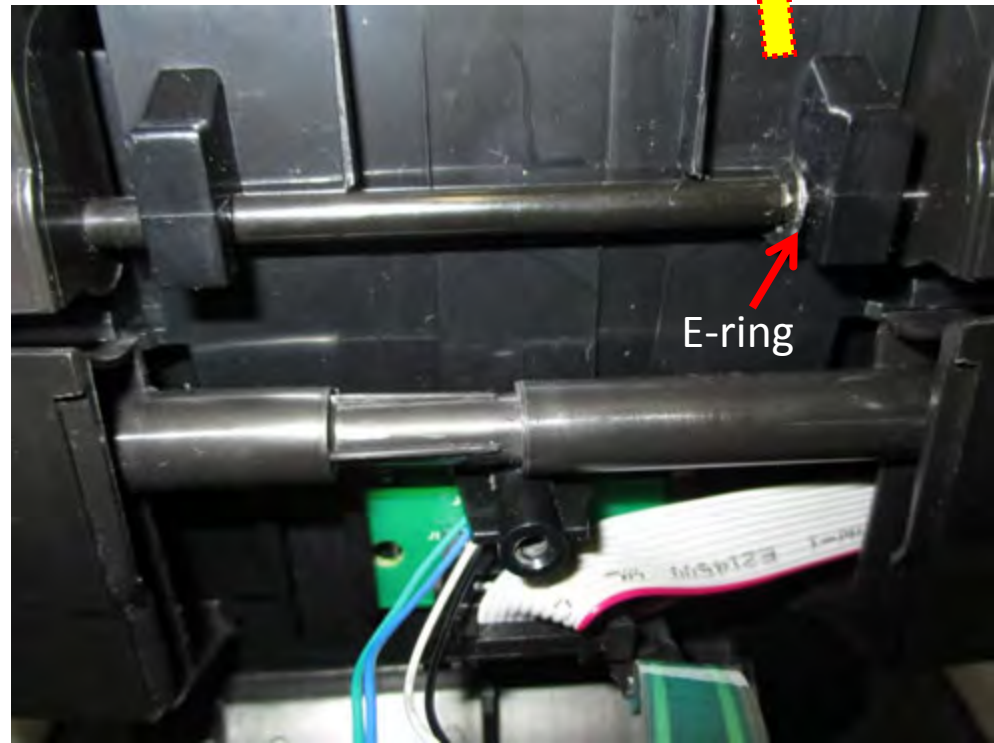
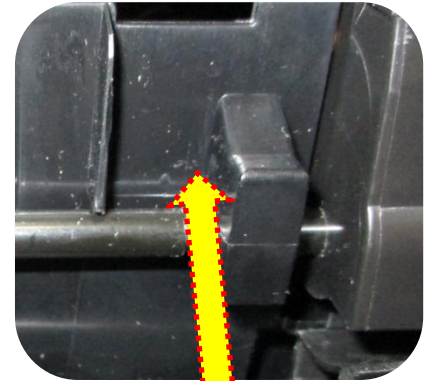


Description	Part Number
Battery cover	2824902001
Transparent guard	E-ring 3127900001
Shaft	5670380001
E-ring	5660003003

Battery Cover Replacement

LM2100 Lawn Mower

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



Battery Cover Replacement

LM2100 Lawn Mower

3. Draw the shaft out from the battery cover by gently tapping with a thin rod.
4. Replace with a new battery cover. Mount 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_LM2100 Lawn Mower



Rear Cover Replacement



Rear Cover

Description	Part Number
Rear Cover	3126689003

Rear Cover Replacement

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



Rear Cover Replacement

LM2100 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

Rear Cover Replacement

LM2100 Lawn Mower

4. Remove the spring from the rear cover.
5. Replace the rear cover. Replace the spring if needed.

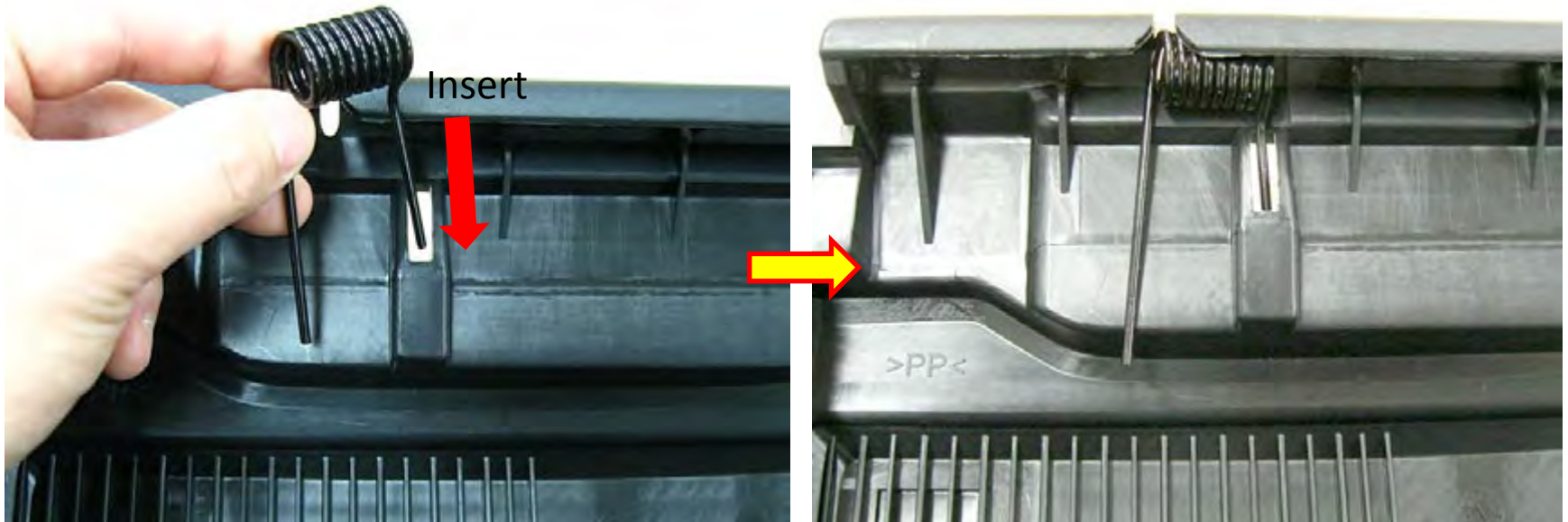


Description	Part Number
Torsion Spring	3660559001
Rear Cover	3126689003

Rear Cover Replacement

LM2100 Lawn Mower

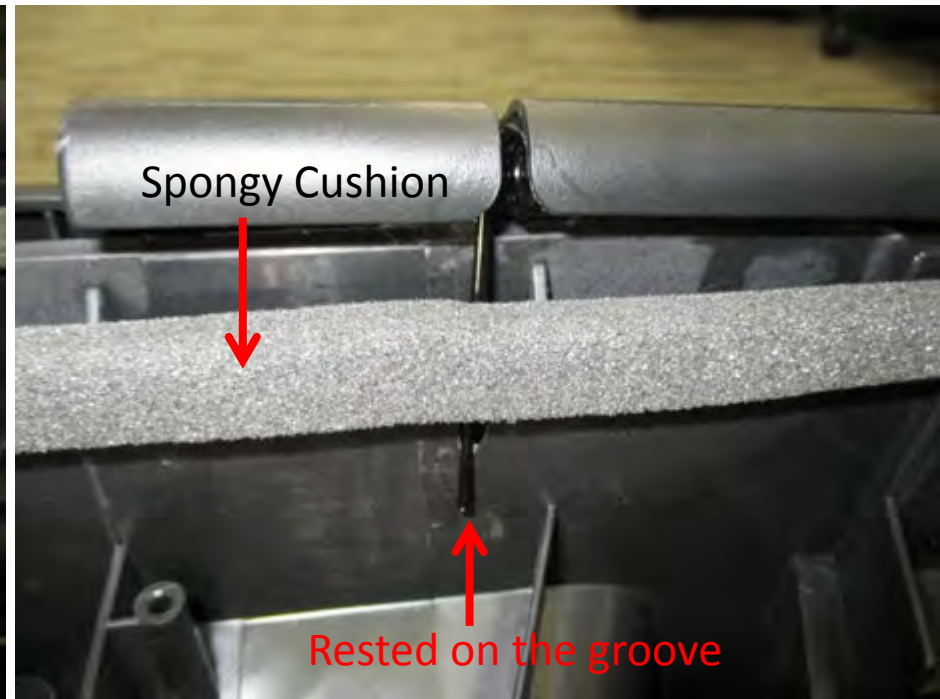
6. Insert the shorter foot of the torsion spring into the groove of rear cover.



Rear Cover Replacement

LM2100 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

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



9. 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_LM2100 Lawn Mower



Table of Contents

NO.	Contents	Page
1	Open the Switch Box Cover	4-6
2	To Replace the Safety Button/Switch Actuator	7-11
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	16
6	To Replace the Main Switch	17-20
7	Close the Switch Box Cover	21-23

TOP HANDLE & SWITCH BOX COVER REPLACEMENT

LM2100 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
Top Handle	2823782001
Top & Bottom Switch Box Set	2824422001
Safety Button	3127929001
Switch Actuator	3127905001
Main Switch Trigger	3127908001



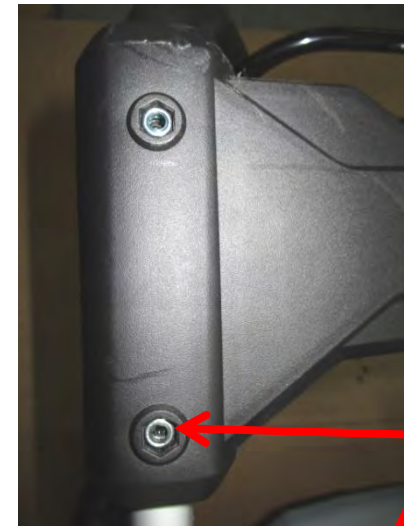
REMARK: The 1pc plain washer and 1pc spring, which are used to fix the switch actuator will be improved, combined into 1pc conical spring in order to avoid spring missing during mower operation (see P10).

Open the Switch Box Cover

LM2100 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

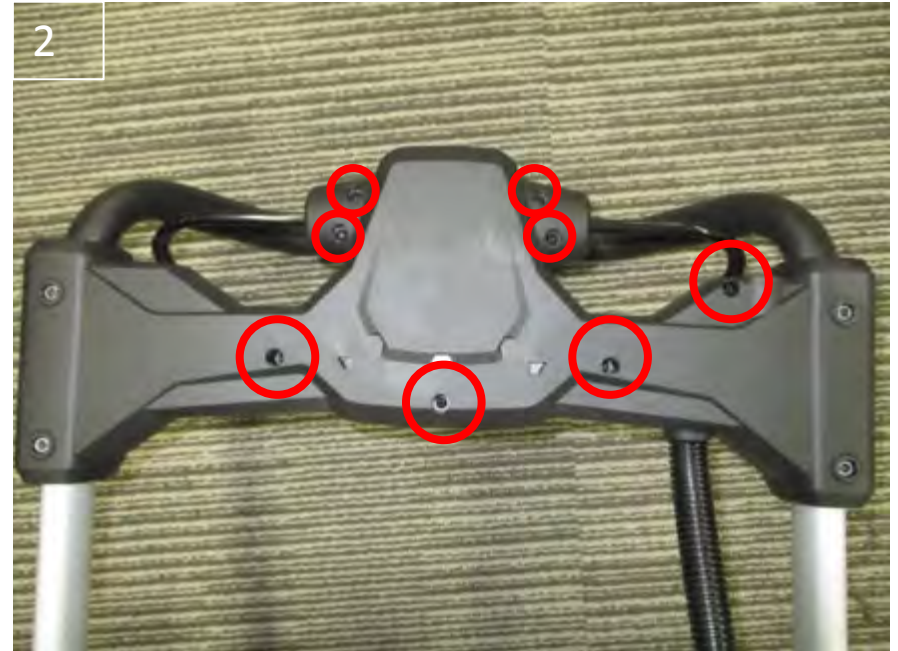


Open the Switch Box Cover

LM2100 Lawn Mower

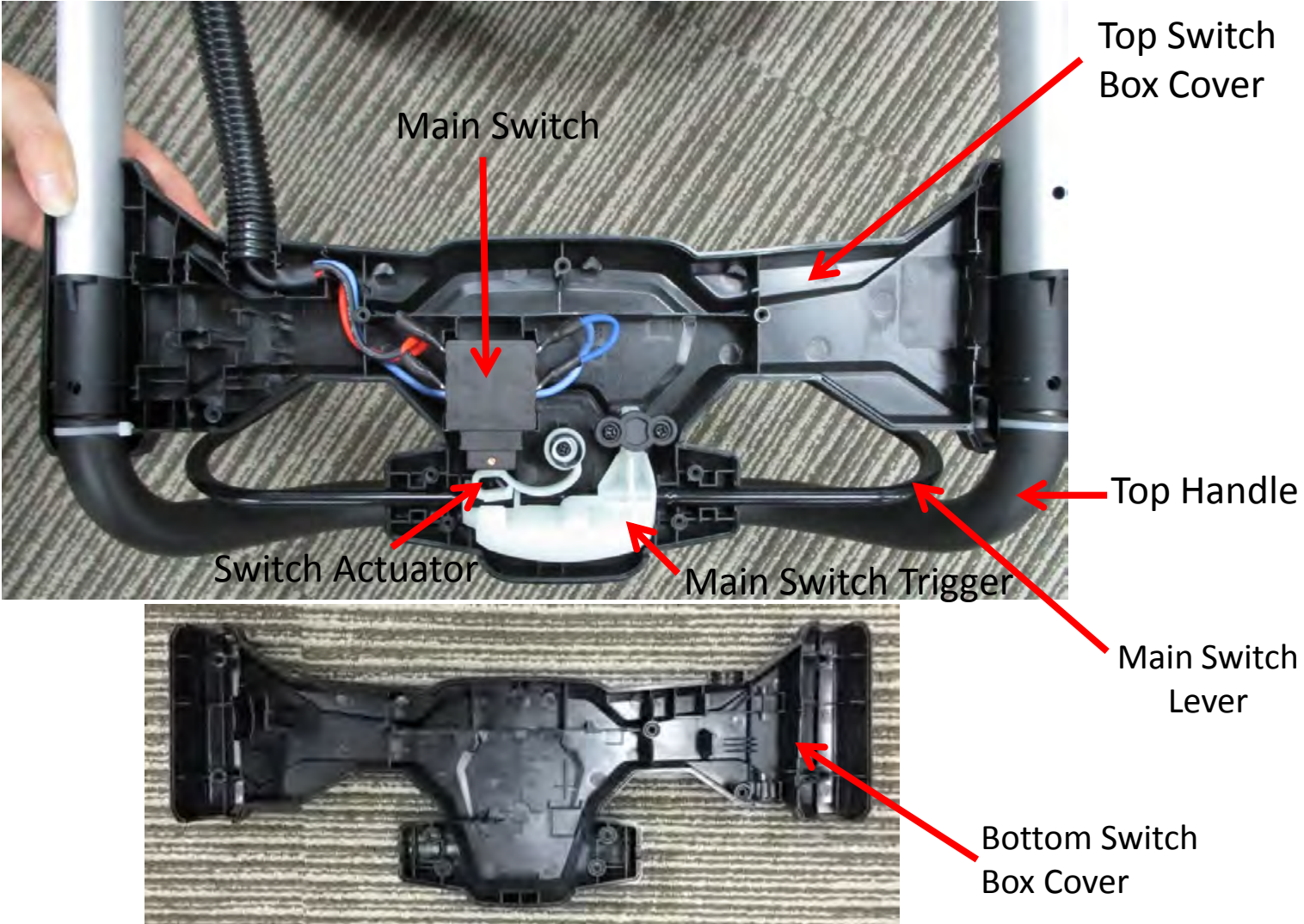
2. Fold the handle to the grass bag removal position(Fig. 1).
3. Remove the 8 screws from the housing(Fig. 2).

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



Open the Switch Box Cover

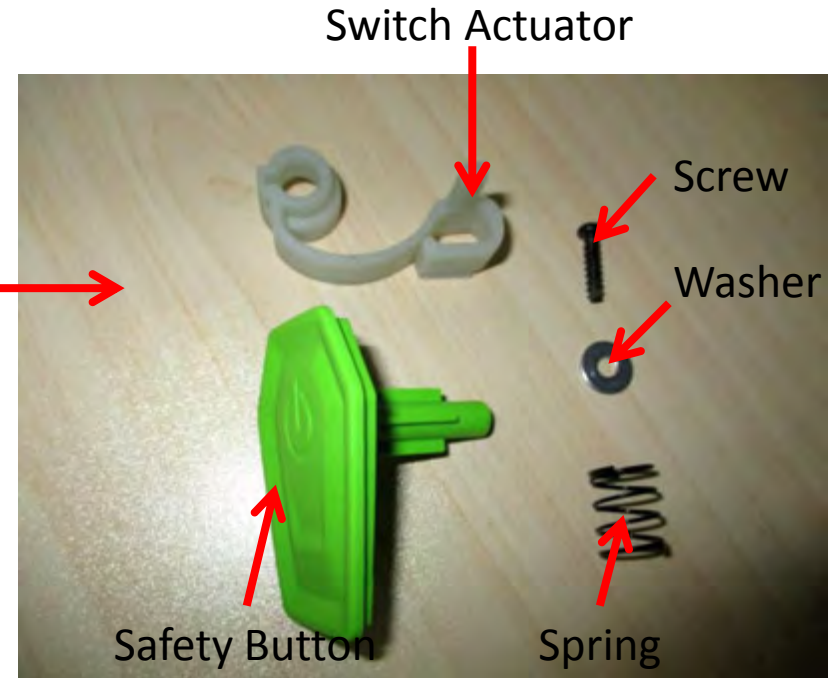
- 4. Hold the top switch box cover with one hand and remove bottom switch box cover gently with the other hand. Replace any damaged parts accordingly.



To Replace the Safety Button/Switch Actuator

LM2100 Lawn Mower

1. Take down the spring, remove the screw, plain washer, switch actuator and safety button.
Replace the worn or damaged one.



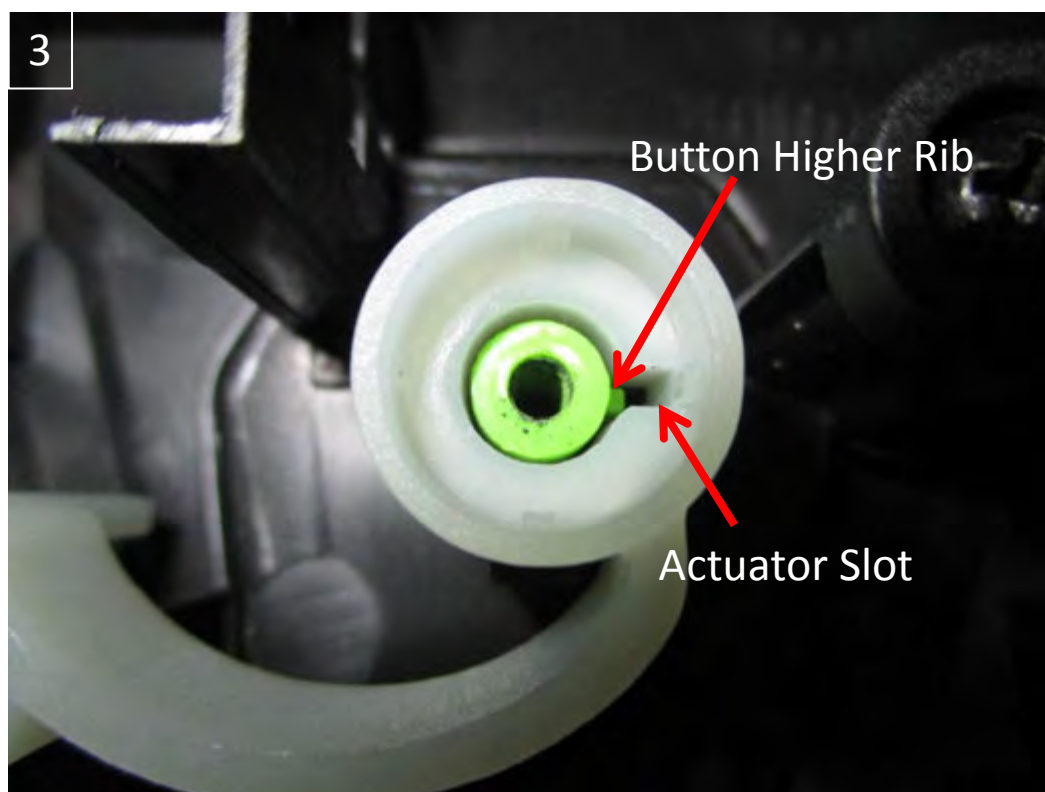
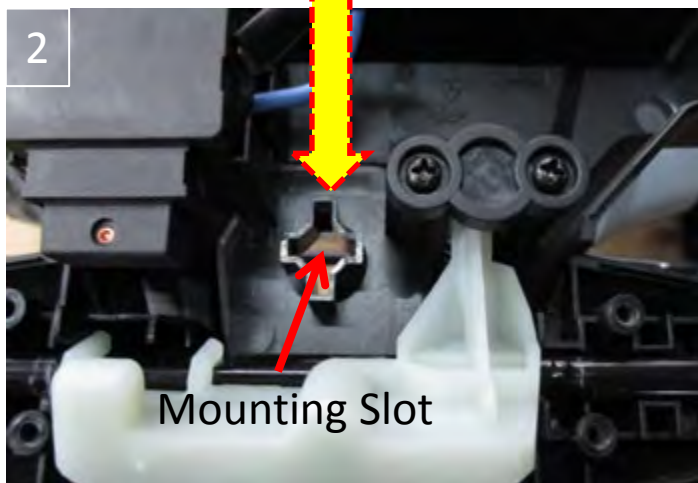
Description	Part Number
Switch Actuator	3127905001
Safety Button	3127929001

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.

To Replace the Safety Button/Switch Actuator

LM2100 Lawn Mower

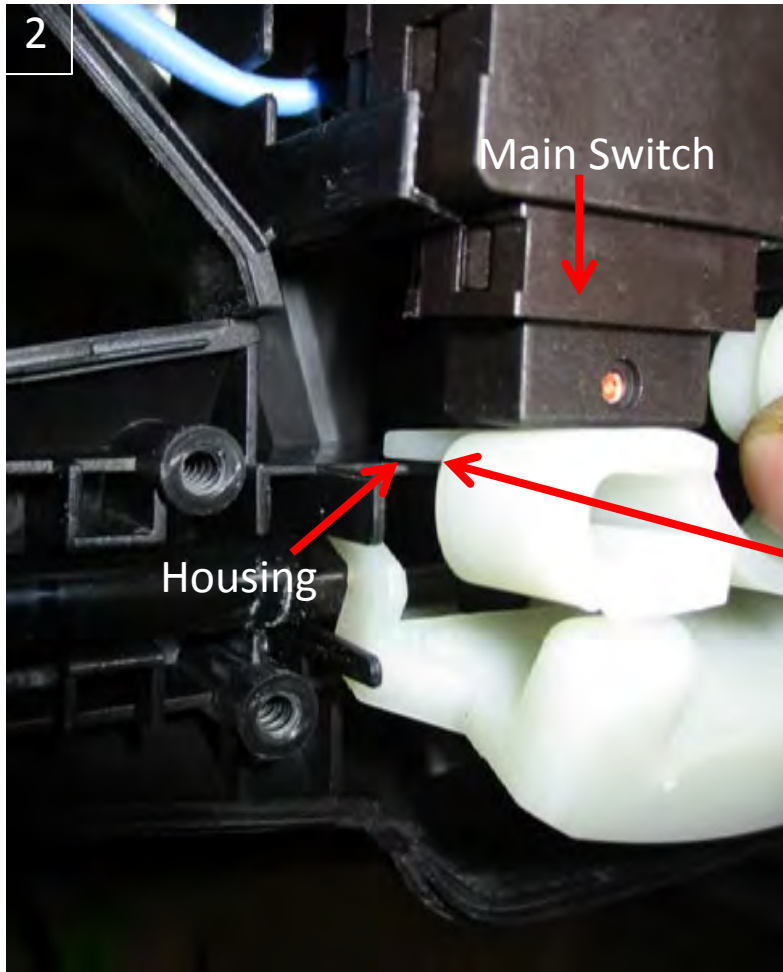
2. Place the new safety button into the mounting slot(Fig. 1 & 2).
3. Align the actuator slot with the button higher rib to mount the new switch actuator(Fig. 3).



To Replace the Safety Button/Switch Actuator

LM2100 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) .

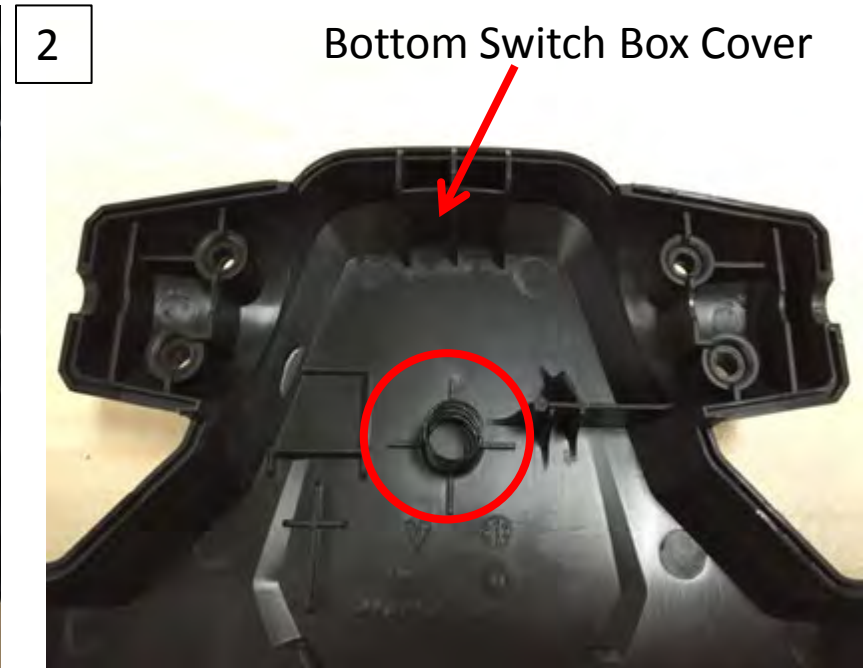


To Replace the Safety Button/Switch Actuator

LM2100 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 first 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.

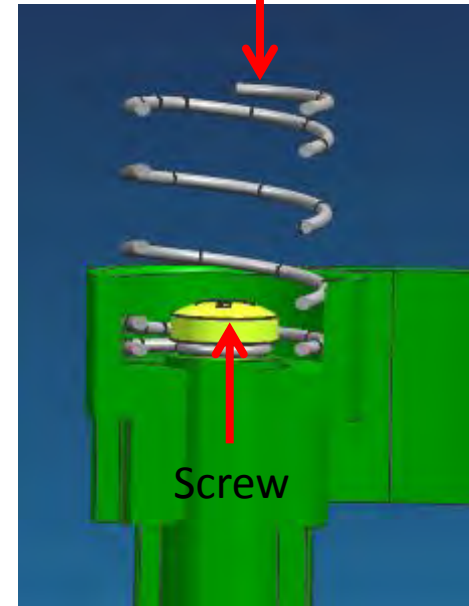
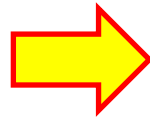
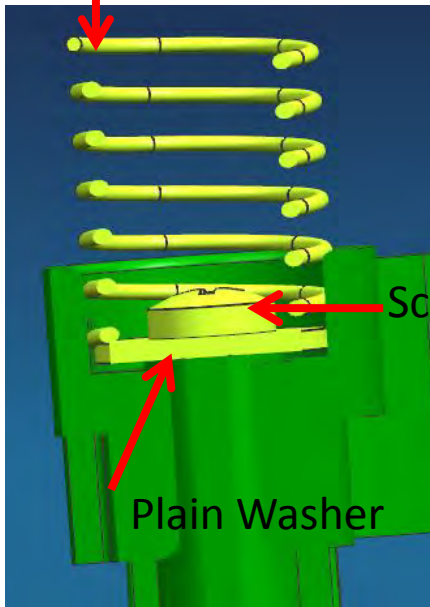
Installation improvement



Normal Spring

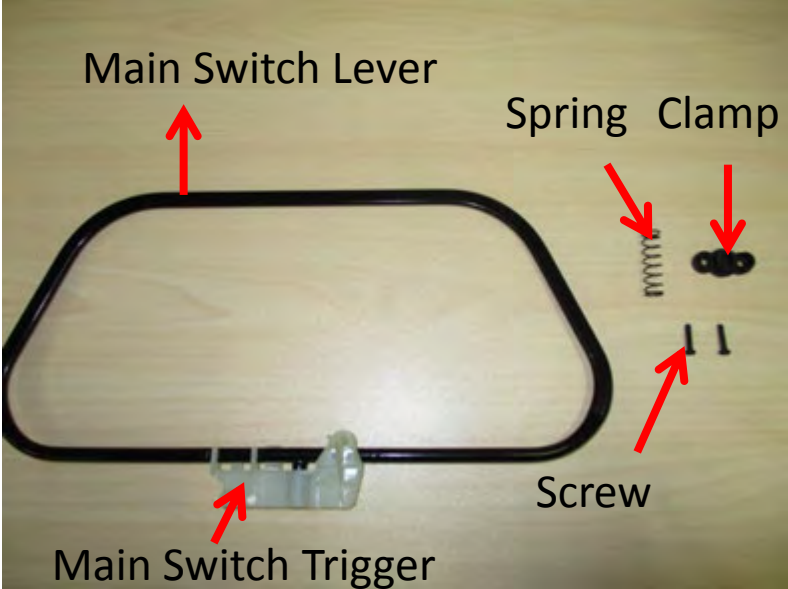
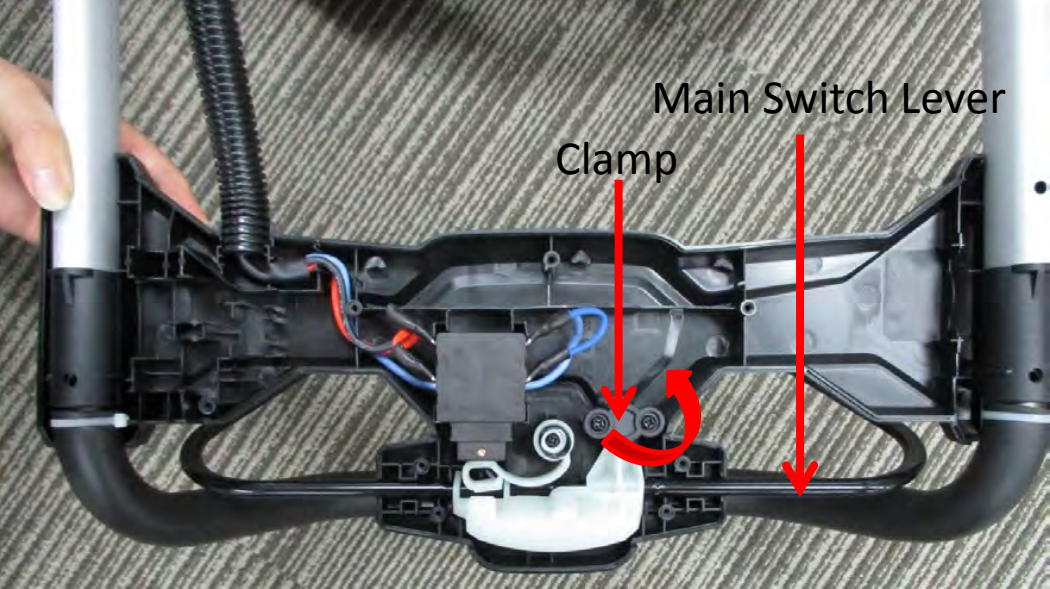


Conical Spring



To Replace the Main Switch Set(Lever/Trigger)

- 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.

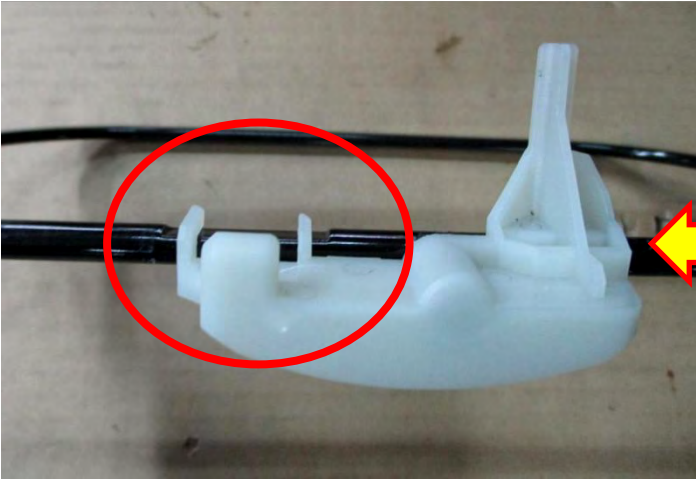
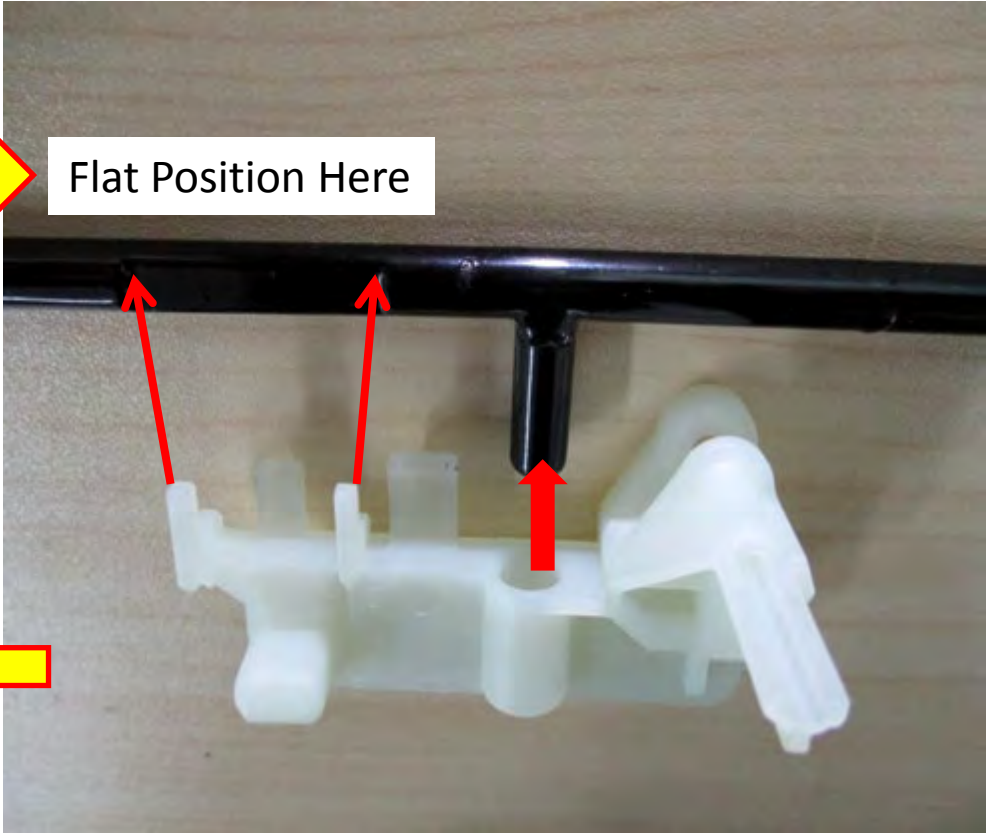


Description	Part Number
Main Switch Lever	2824118001
Main Switch Trigger	3127908001

To Replace the Main Switch Set(Lever/Trigger)

3. Mount the switch trigger to the switch lever.

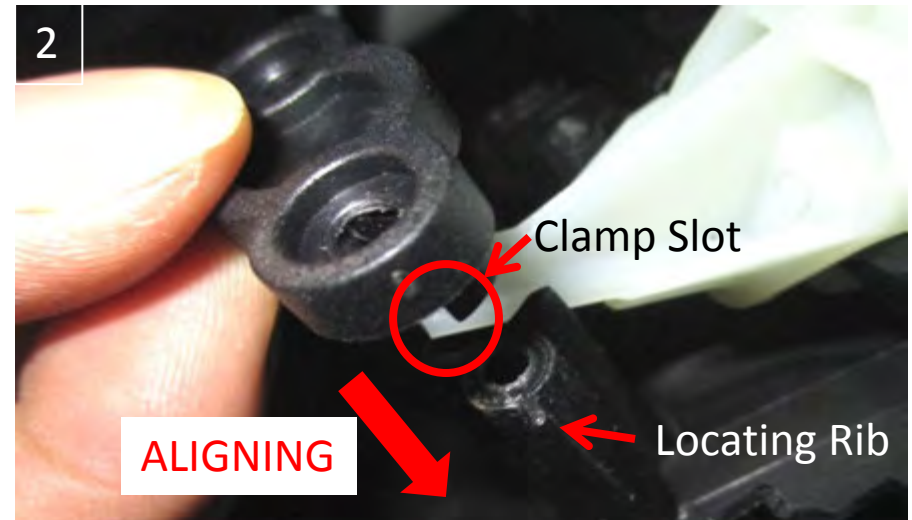
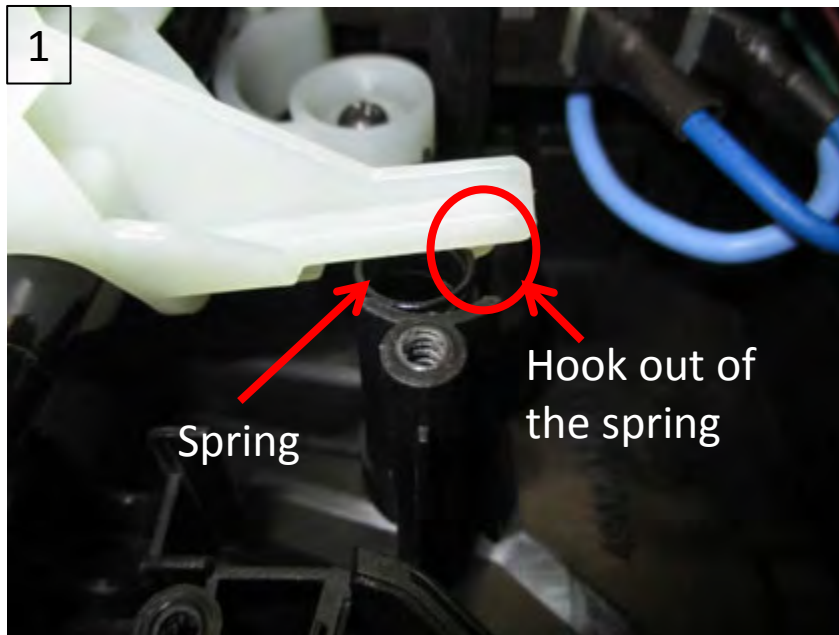
NOTICE: The flat position on the lever should be fixed by the 3 feet of the trigger.



To Replace the Main Switch Set(Lever/Trigger)

LM2100 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

LM2100 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

LM2100 Lawn Mower

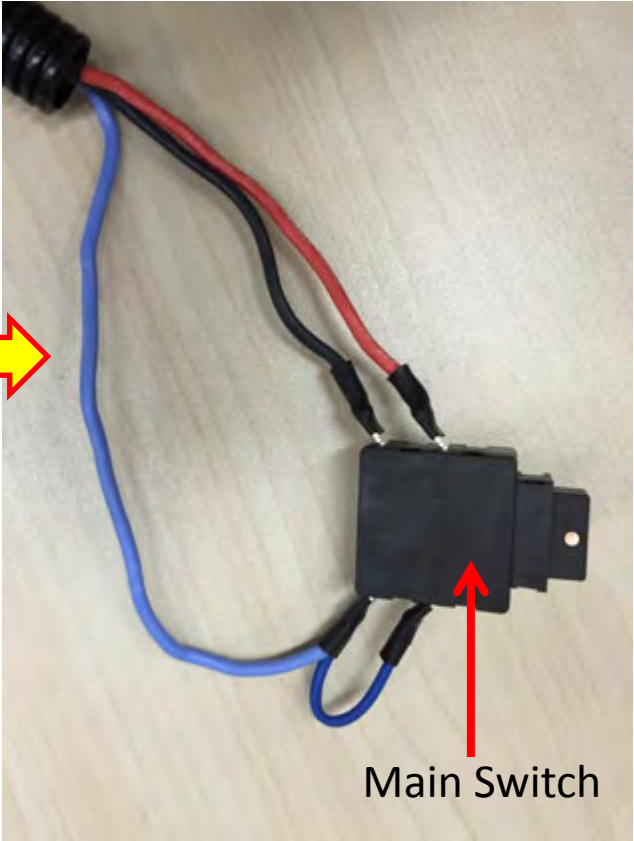
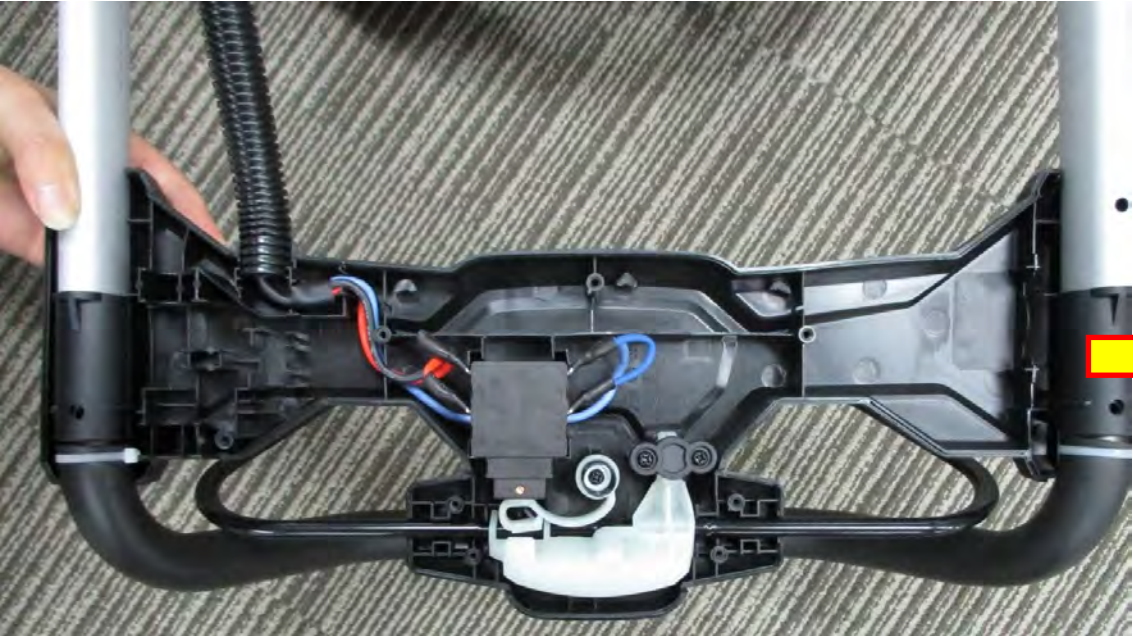
1. Remove the main switch as well as the cables from the top switch box cover;
2. Remove the main switch lever set(Lever/Trigger) from the top switch box cover;
3. Remove the safety button as well as the switch actuator;
4. Replace with a new set of switch box cover;
5. Refer to the previous slides to fix the according parts into the top switch box cover.



Description	Part Number
Top & Bottom Switch Box Set	2824422001

To Replace the Main Switch

- 1. Take out the main switch from the switch box.

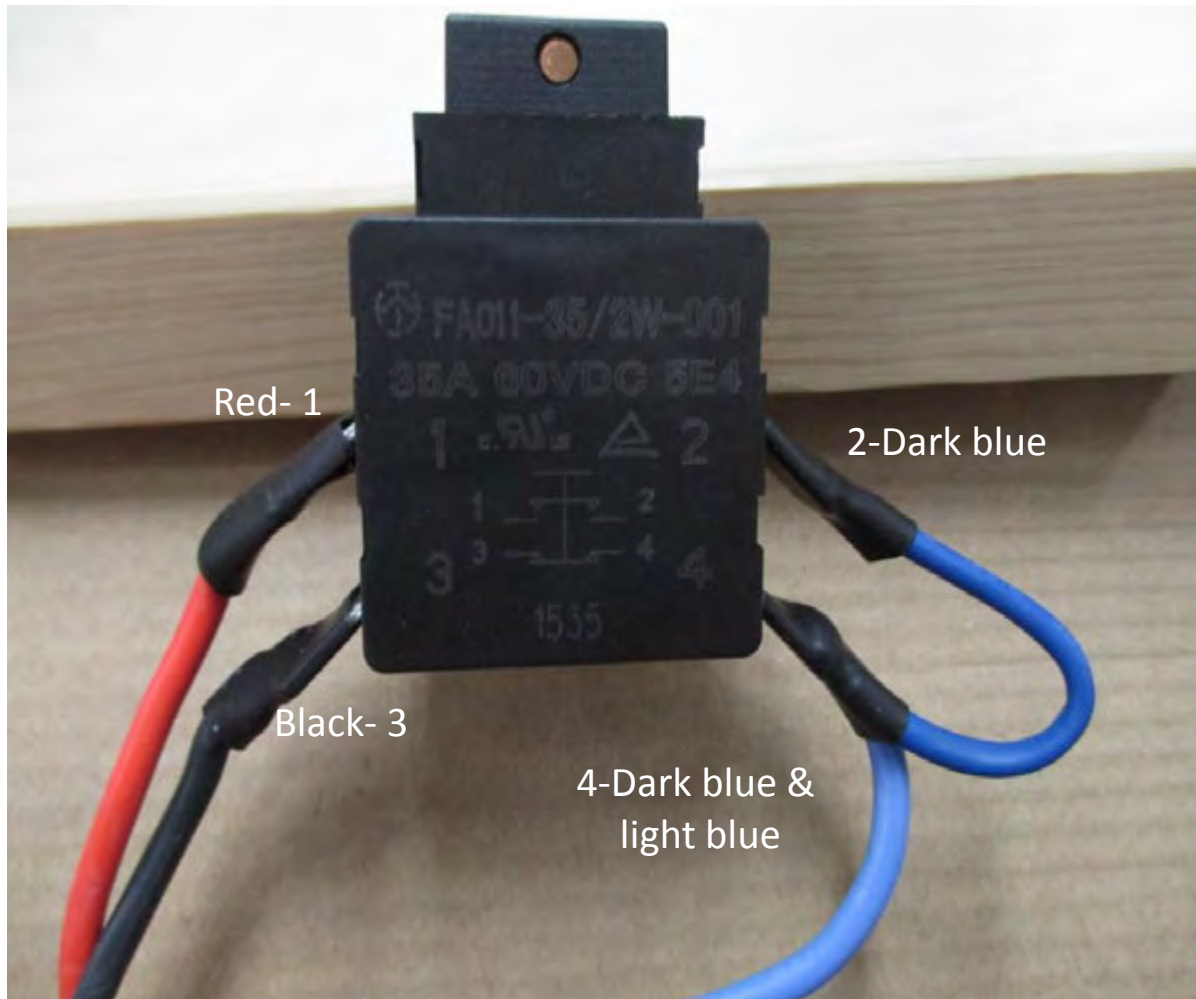


Description	Part Number
Main Switch	4870566001

To Replace the Main Switch

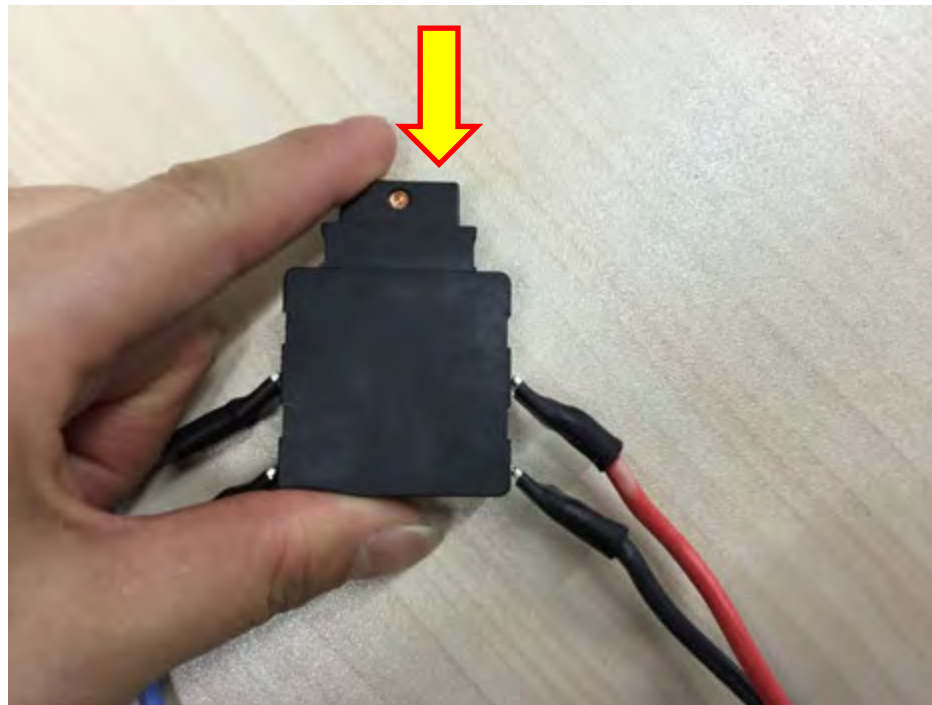
2. Disconnect it from the wires and replace with a new one (solder).

NOTICE: Mind soldering sequence as following picture shown.



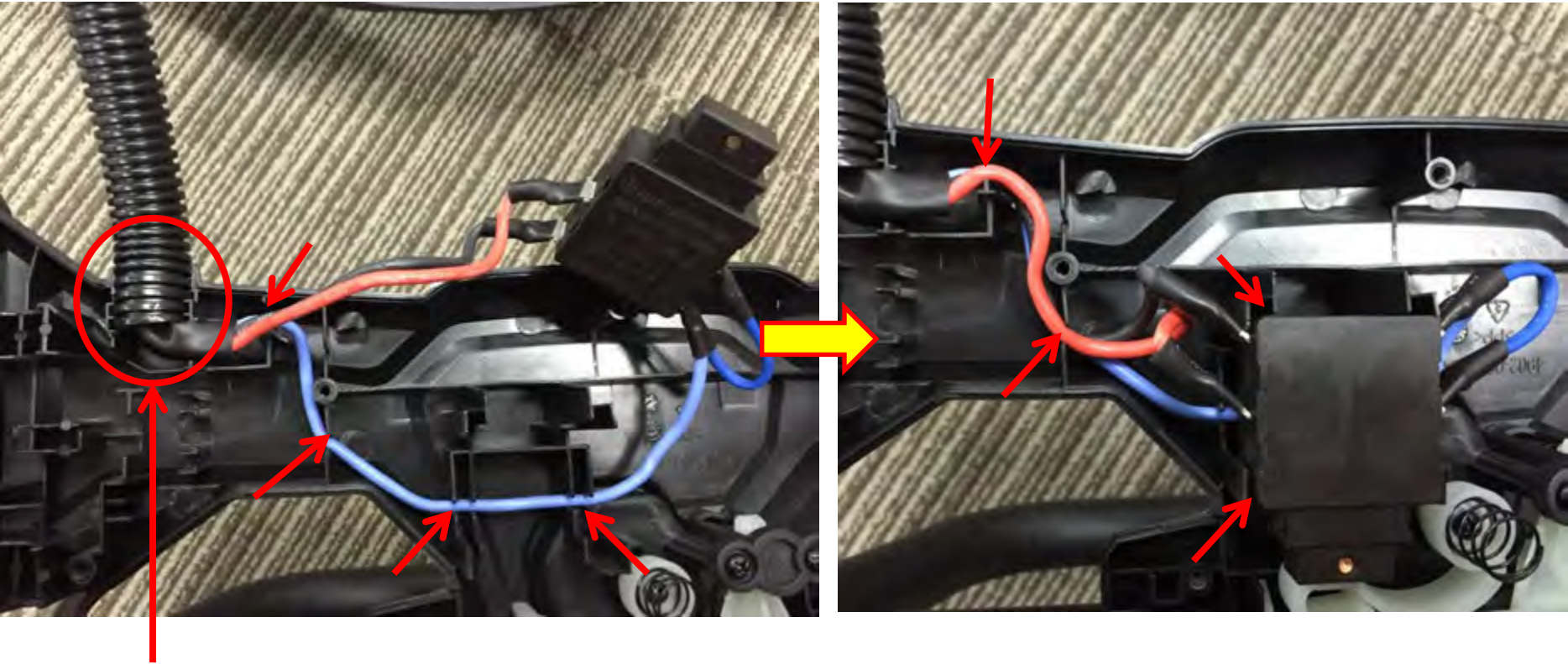
To Replace the Main Switch

3. Test the main switch.
 - Insert a full 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.



To Replace the Main Switch

- 4. Align the wires into the housing groove to put the switch into place.

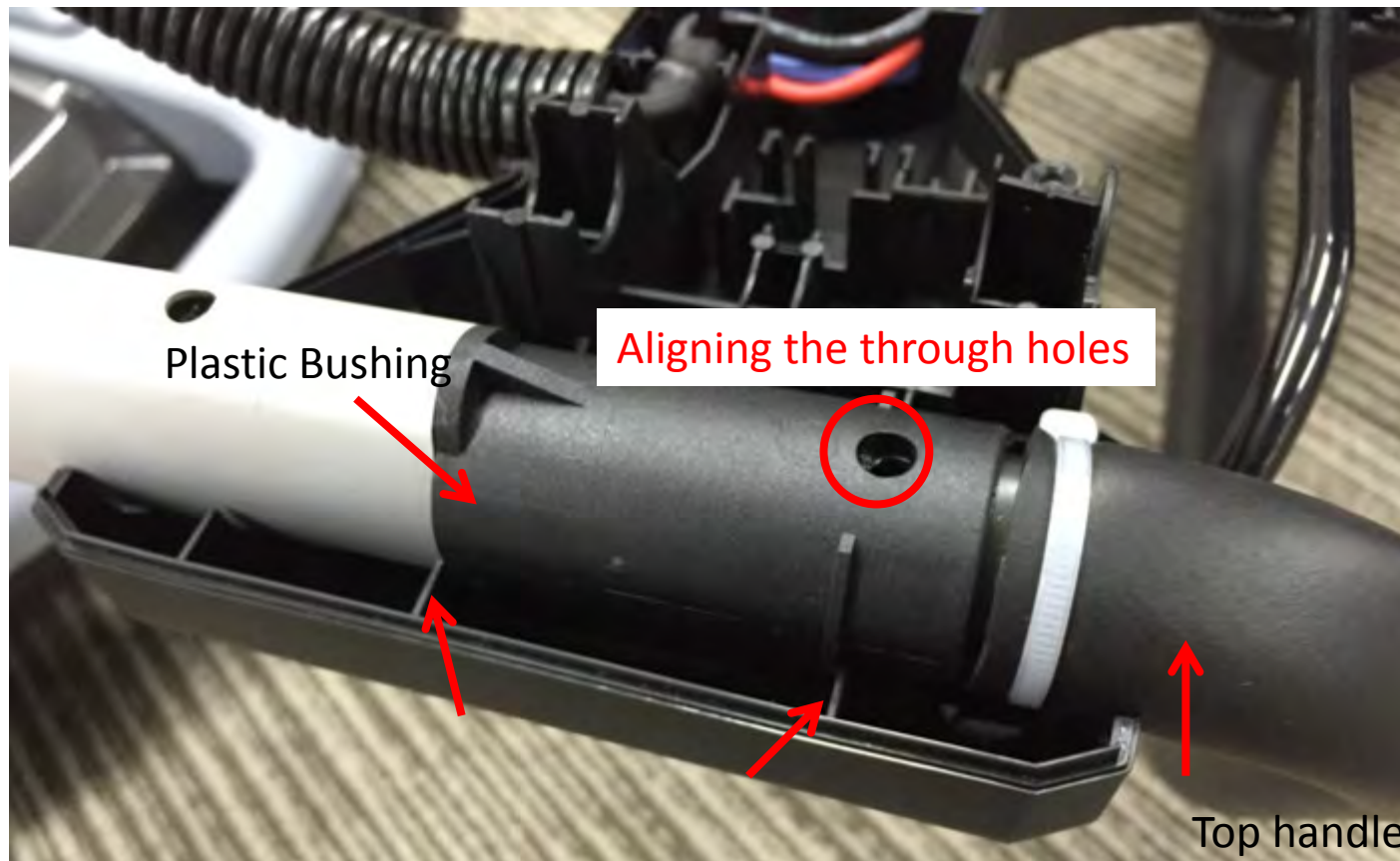


At least 5 threads of the flexible hose located in the housing groove

Close the Switch Box Cover

LM2100 Lawn Mower

1. Before mounting the bottom switch cover onto the handle, fully extend both side rails and make sure that the top handle is inserted into its place with the through holes aligned.
2. Mount the top switch box cover to the handle, ensuring the rib on the plastic bushing located between the ribs on the switch box cover.

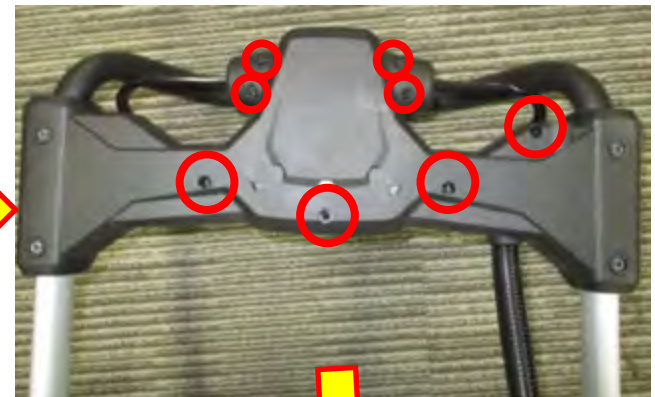


Close the Switch Box Cover

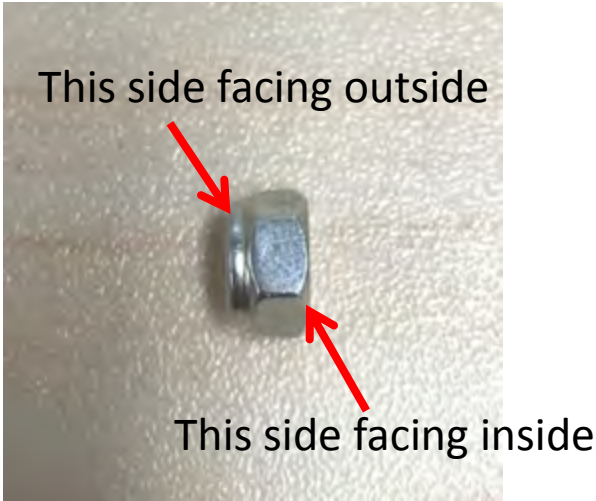
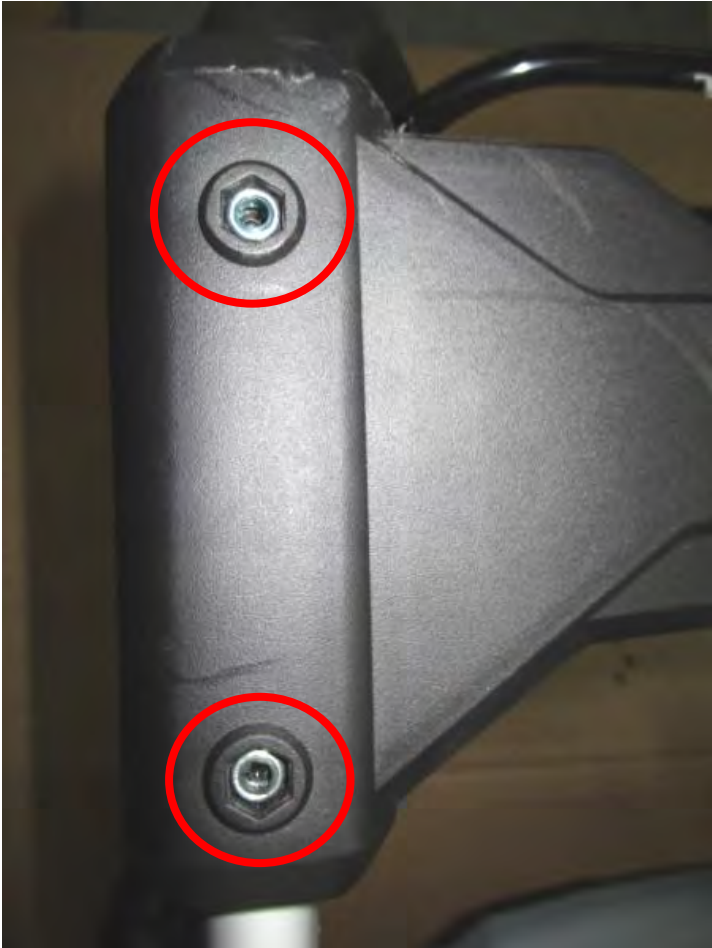
LM2100 Lawn Mower

3. Hold the top switch box cover with one hand and close it with the bottom switch box cover.
4. Fix them by tightening the 8 screws on the bottom switch box cover.
5. Fold the handle to the operating position, tighten the 4 bolts with their nuts.

NOTICE: Make sure the 4 nuts are in their place, otherwise position them into place first(see next slide).



Close the Switch Box Cover



THE END

REPAIR GUIDELINE

PART 5: HANDLE LOCKING CLAMP REPLACEMENT_LM2100 Lawn Mower



Handle Locking Clamp Replacement

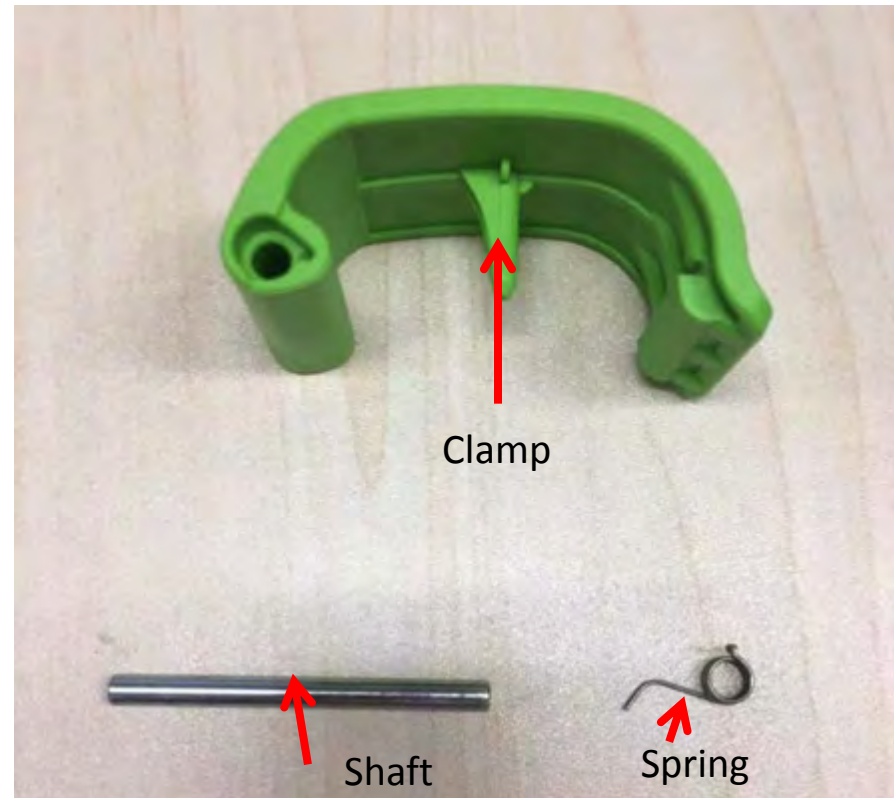


Description	Part Number	Picture
Handle Locking Clamp Set	2823714002	A photograph showing the disassembled components of the handle locking clamp set laid out on a light-colored wooden surface. The components include a long silver metal pin, a small green rectangular plastic piece, a black cylindrical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

Handle Locking Clamp Replacement

LM2100 Lawn Mower

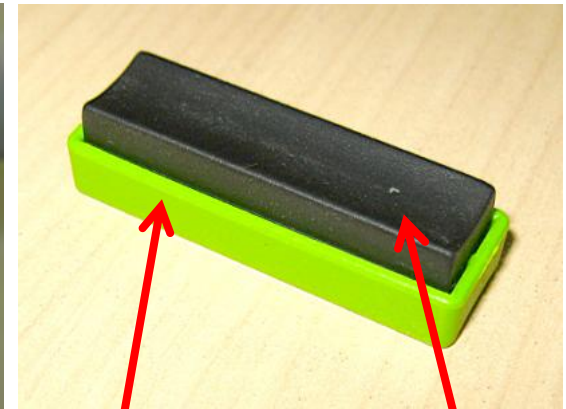
1. Use a metal rod and tap gently on the shaft, to take it out. Remove the clamp and the spring.



Handle Locking Clamp Replacement

LM2100 Lawn Mower

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



Rubber Base

Rubber Pad

Description	Part Number
Rubber Base	3126761001
Rubber Pad	3126832001

Handle Locking Clamp Replacement

LM2100 Lawn Mower

4. Put the rubber pad and rubber base into the corresponding opening, pay attention the rubber pad towards inside and the rubber base towards outside.



Handle Locking Clamp Replacement

LM2100 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

LM2100 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_LM2100 Lawn Mower



Table of Contents

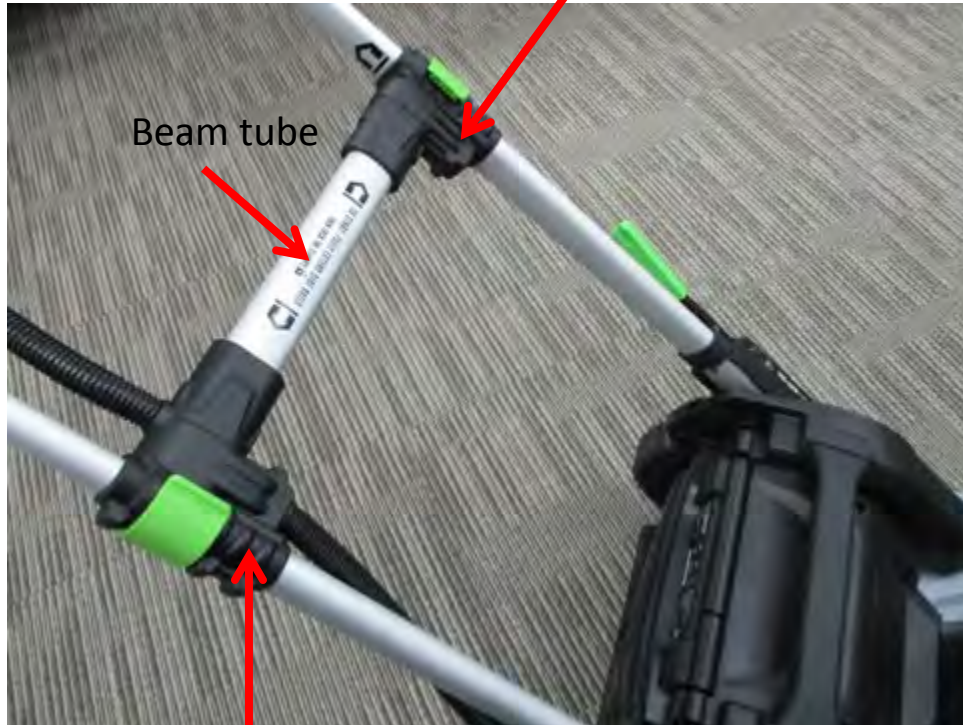
NO.	Contents	Page
1	Open the Right Beam Housing	4-6
2	Close the Right Beam Housing	7-10
3	Open the Left Beam Housing	11-12
4	Close the Left Beam Housing	13-14
5	To Replace the Beam Tube	15-16

Left & Right Beam Housing Replacement

LM2100 Lawn Mower

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

Left beam housing set



Right beam housing set
(micro switch inside)

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

Open the Right Beam Housing

LM2100 Lawn Mower

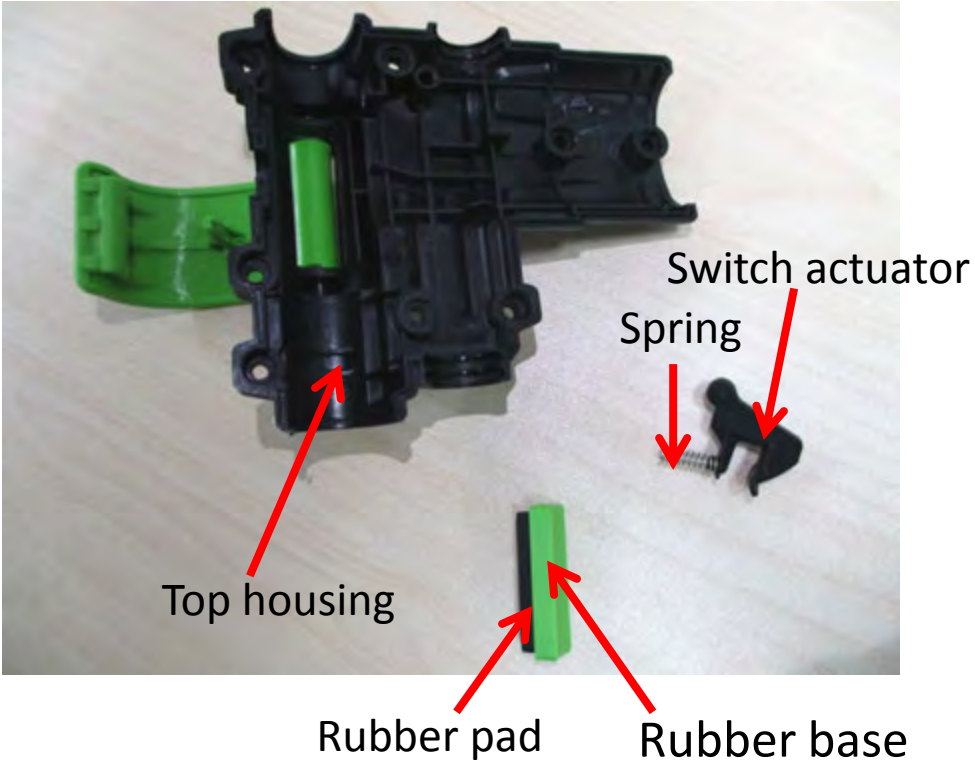
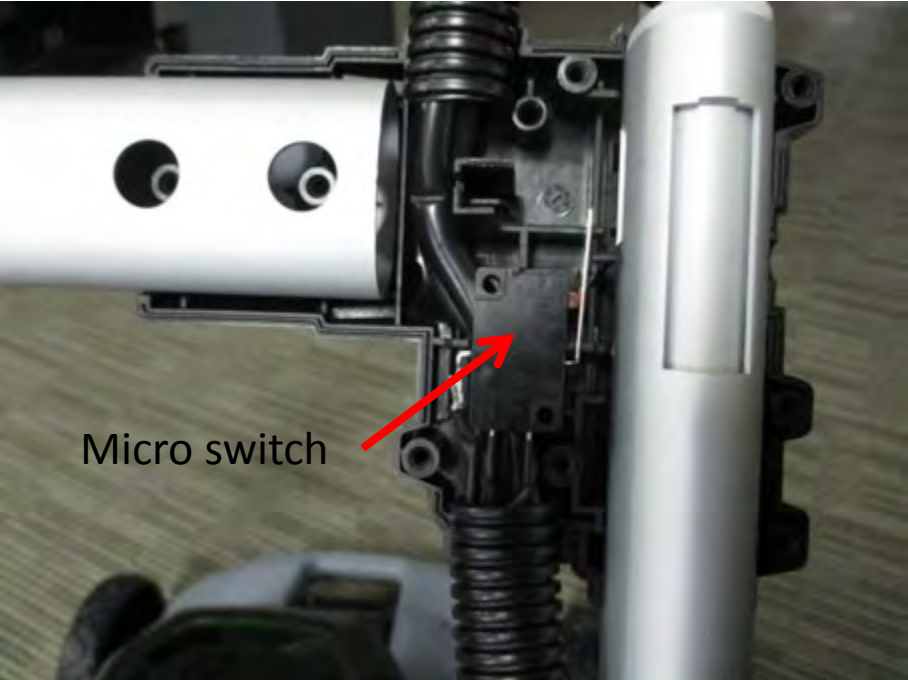
1. Remove the 8 screws to open the right beam housing.

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



Open the Right Beam Housing

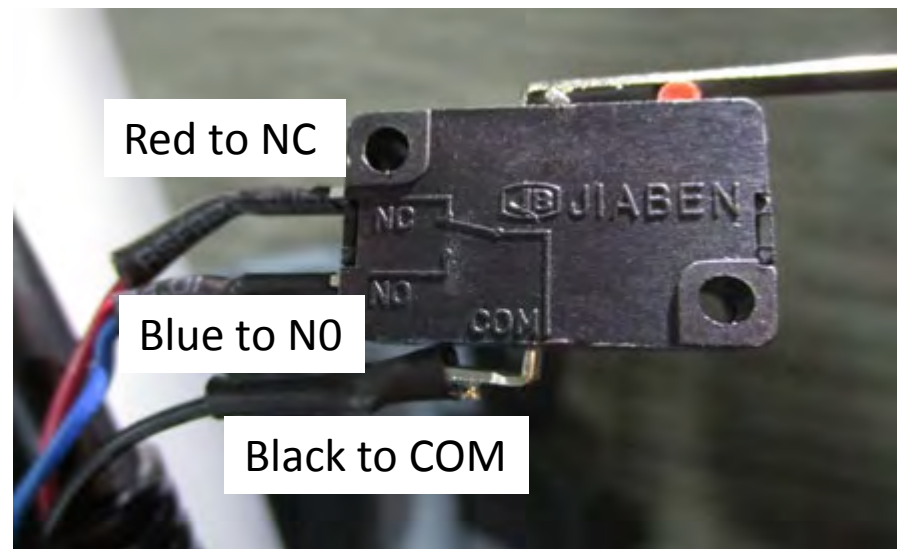
- 2. Take away the top housing, rubber pad and rubber base, switch actuator and spring(fixed on the switch actuator).



Open the Right Beam Housing

LM2100 Lawn Mower

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.

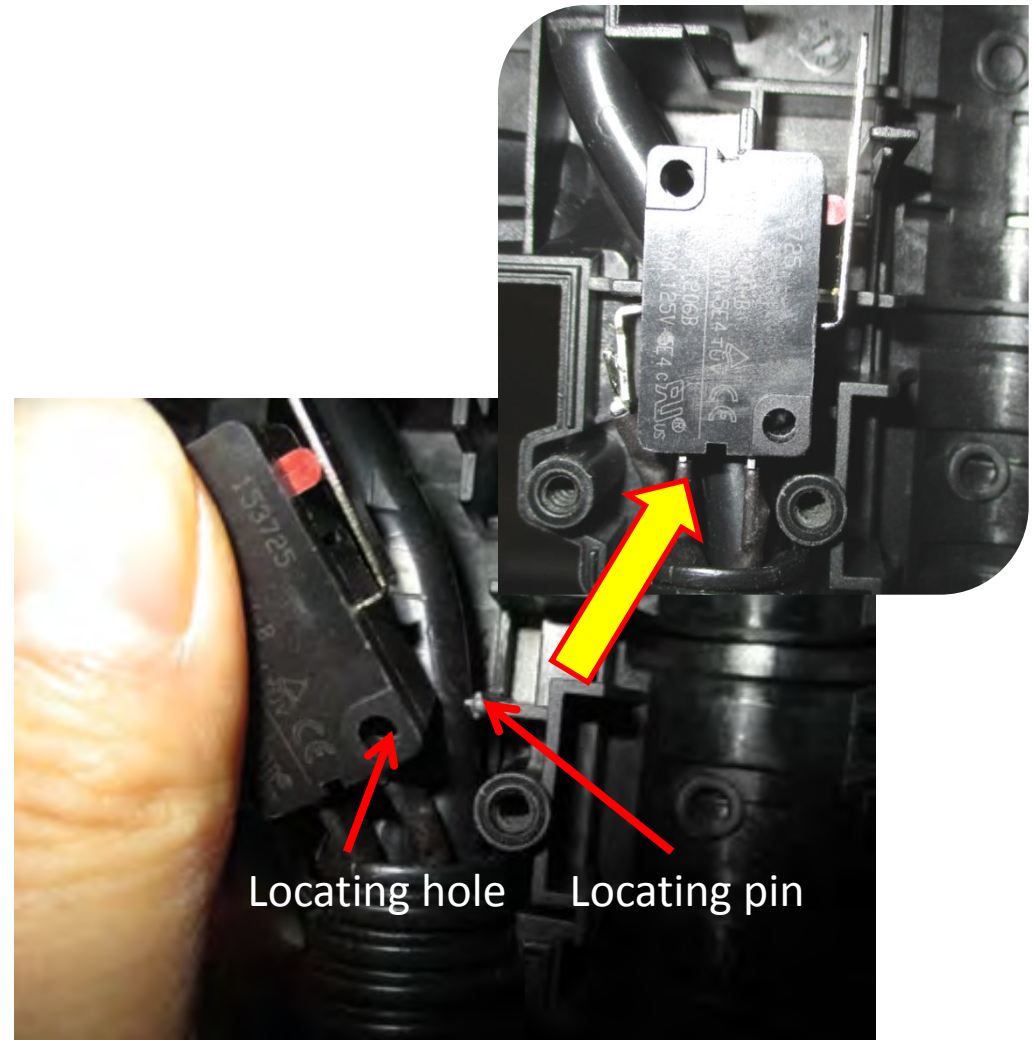


Description	Part Number
Micro Switch	4870500001

Close the Right Beam Housing

LM2100 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.

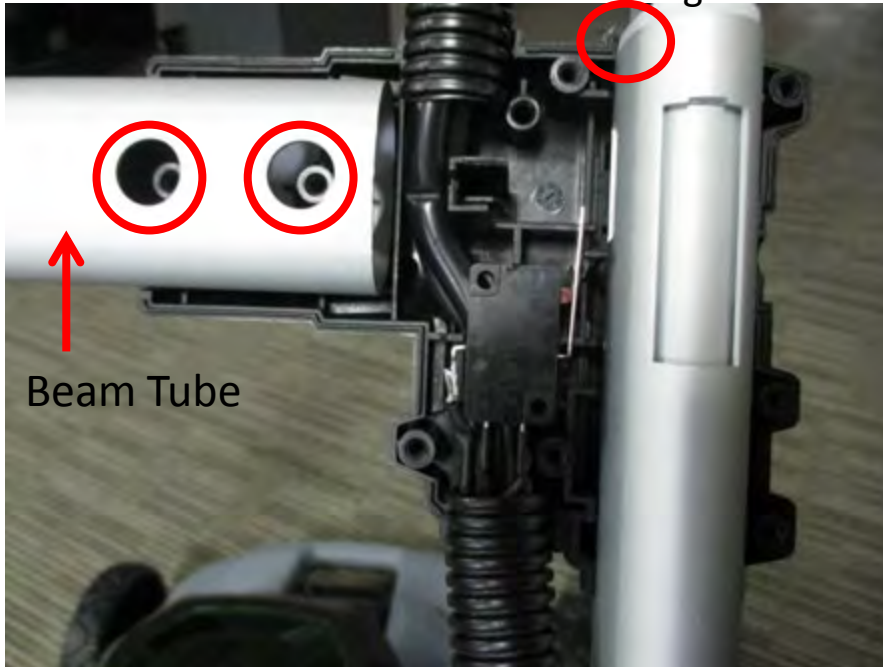


Close the Right Beam Housing

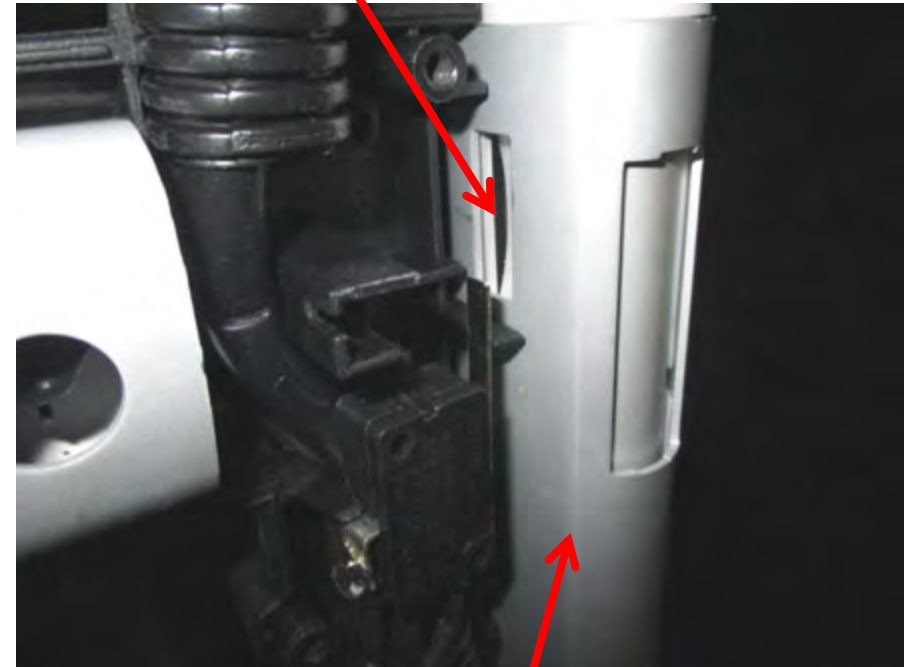
LM2100 Lawn Mower

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



Outer tube

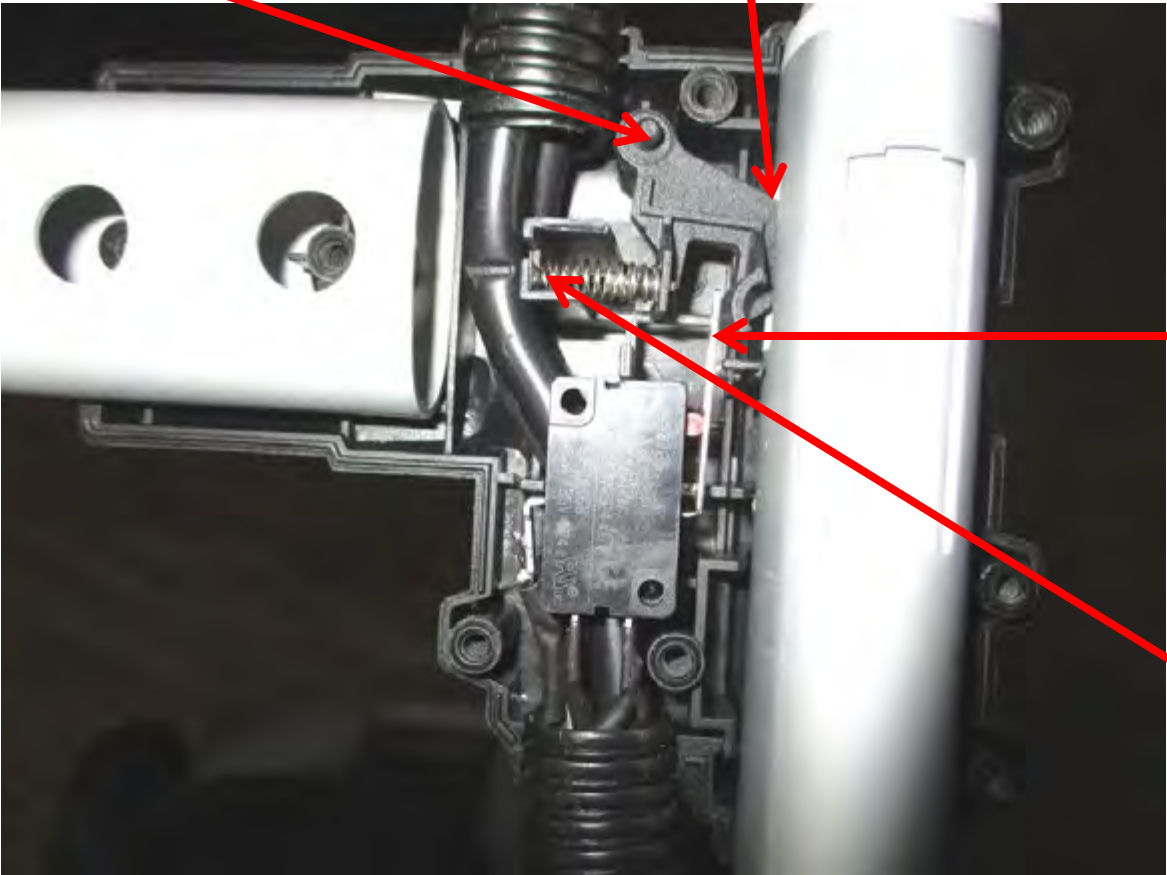
Close the Right Beam Housing

- 5. Fix the switch actuator into the bottom housing.
If missing or damaged, replace them as needed.

Description	Part Number
Switch Actuator	3126768001
Spring	3660287002

Locating pin into the locating hole in housing

This corner into the outer tube



Switch lever in the groove of the actuator

Position the spring in the locating groove

Close the Right Beam Housing

LM2100 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.

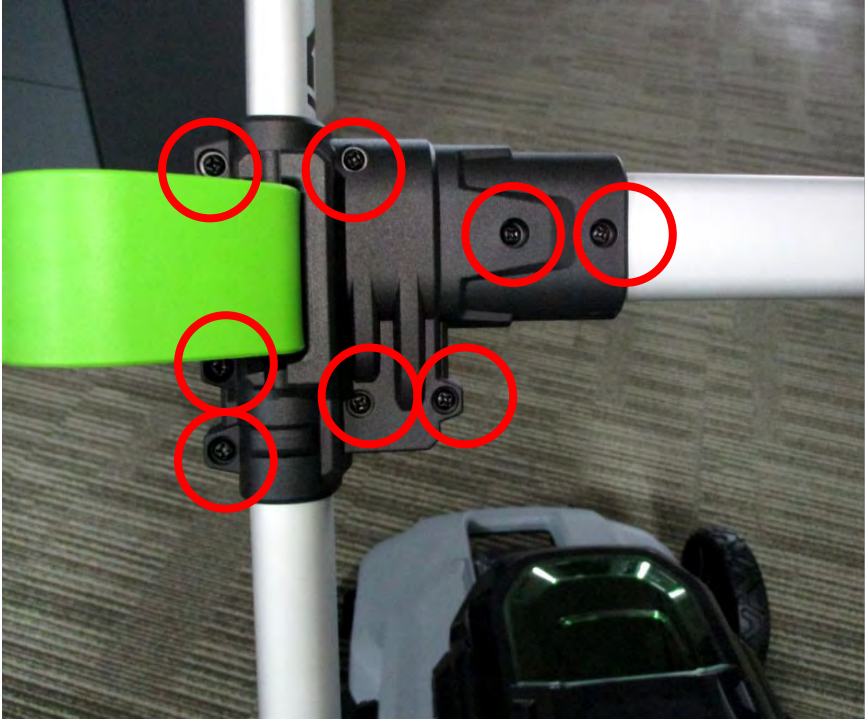
Rectangle groove



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

Open the Left Beam Housing

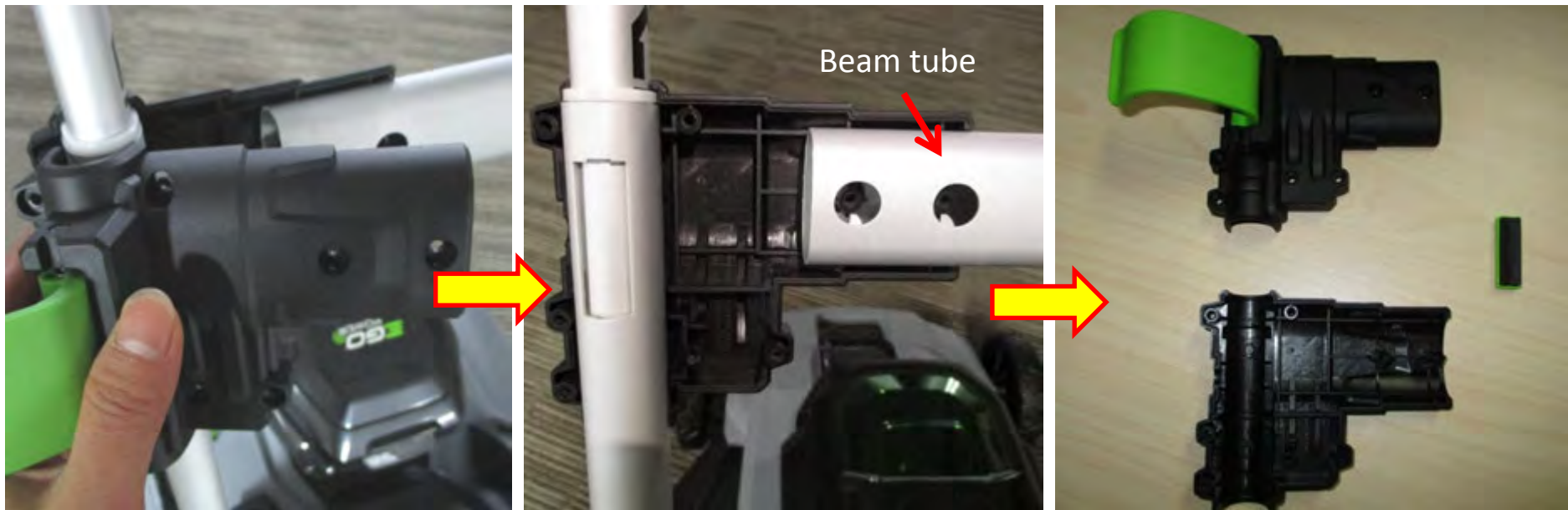
- 1. Remove the 8 screws to open the left beam housing.



Open the Left Beam Housing

LM2100 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_LM2100.pptx”*** shown.



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



Handle
Locking
Clamp Set

Close the Left Beam Housing

LM2100 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

LM2100 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

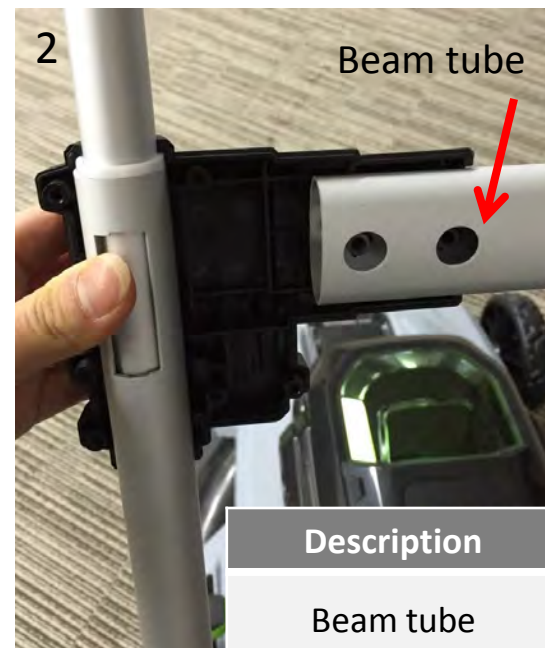


To Replace the Beam Tube

LM2100 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 tapping 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 Left/Right Inner Tube ASSY

LM2100 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_LM2100.pptx*).

THE END

REPAIR GUIDELINE

PART 7: QUICK ADJUSTING LEVER REPLACEMENT_LM2100 Lawn Mower



Quick Adjusting Lever Replacement



Description	Part Number
Quick Adjusting Lever	2824250001

Quick Adjusting Lever Replacement

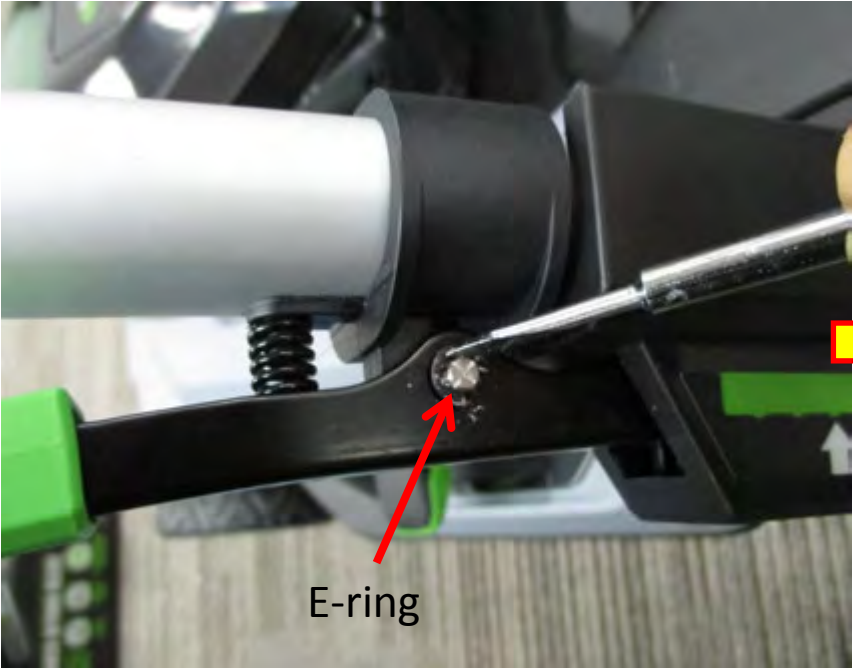
LM2100 Lawn Mower

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



Quick Adjusting Lever Replacement

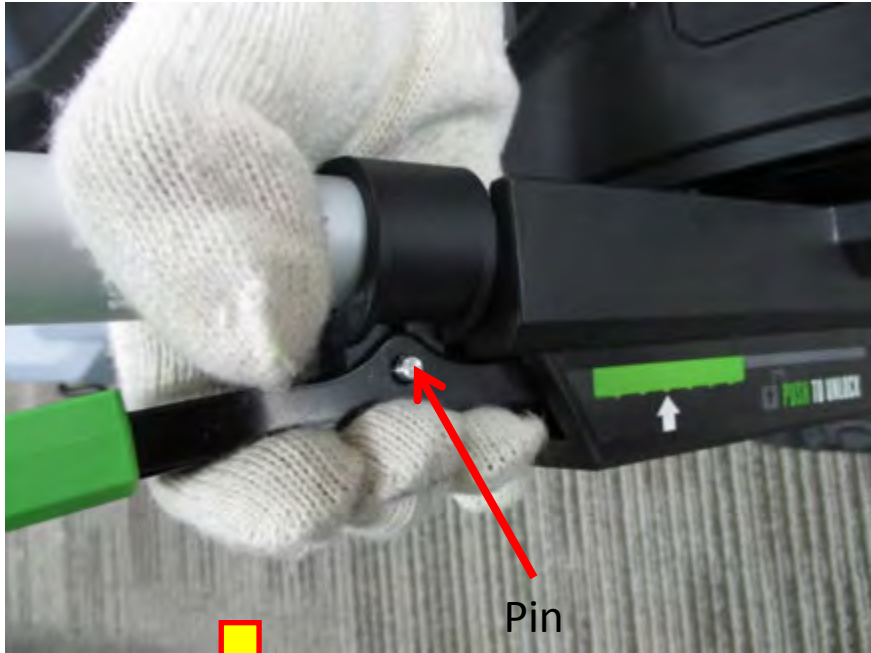
2. Remove the E-ring.



Description	Part Number
E-ring	5660003003

Quick Adjusting Lever Replacement

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



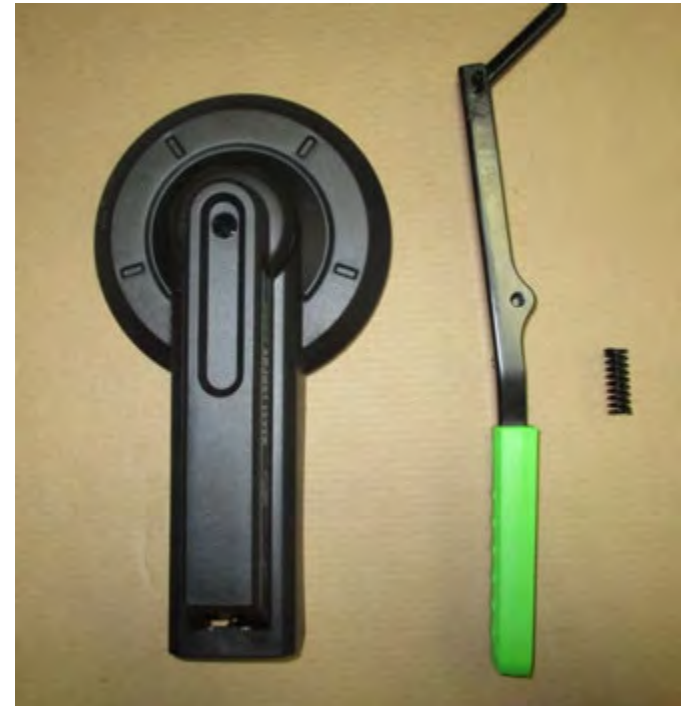
Press the pin from the ring side to make it protrude on the other side

Description	Part Number
Pin	3550048003

Quick Adjusting Lever Replacement

LM2100 Lawn Mower

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



Description	Part Number
Decorative Cover	3126912001
Quick Adjusting Lever	2824250001
Spring	3660565001

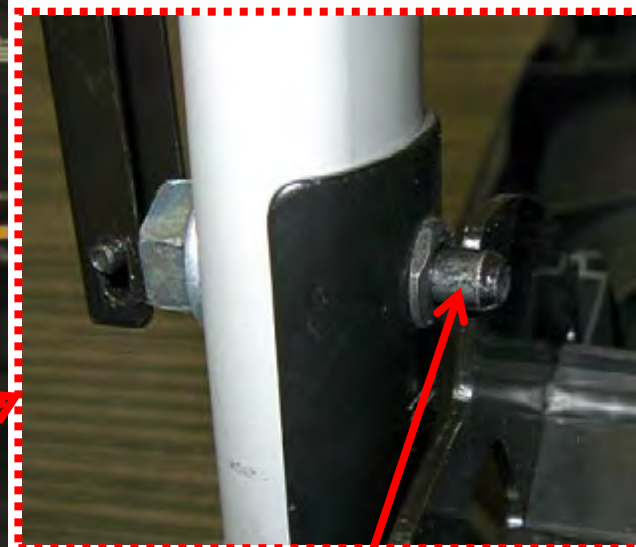
Quick Adjusting Lever Replacement

LM2100 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

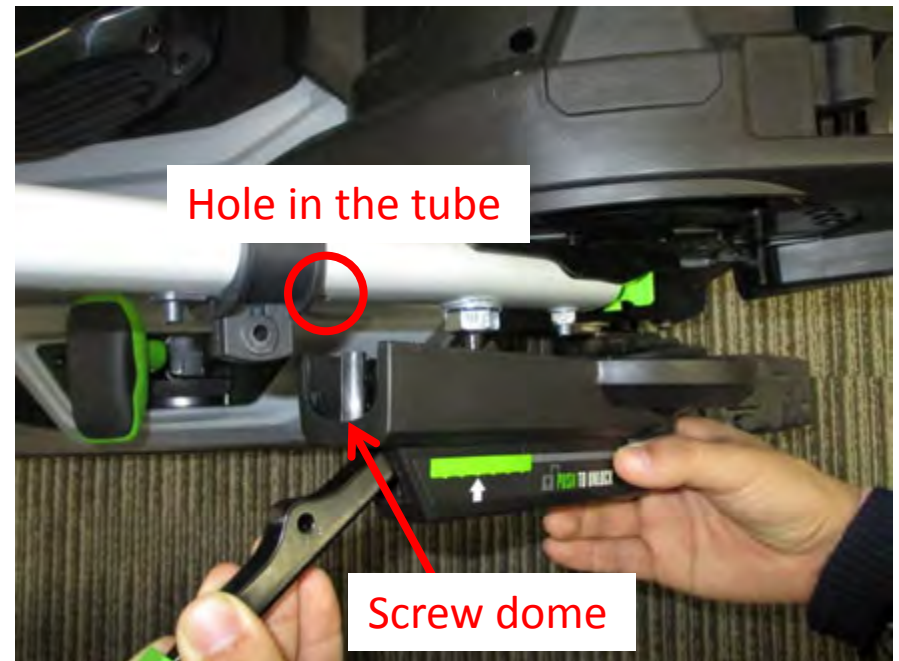


Extend the pin out of the side tube so that the handle can be locked at the grass bag removal position

Quick Adjusting Lever Replacement

LM2100 Lawn Mower

8. Pass the quick adjusting 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.



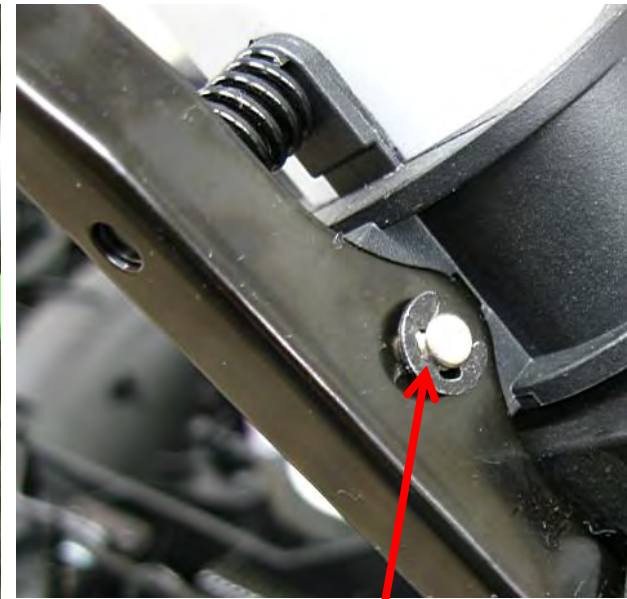
NOTICE:

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

Quick Adjusting Lever Replacement

LM2100 Lawn Mower

10. Fix the spring between the quick 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 Adjusting Lever Replacement

LM2100 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: Rear Axle Set Replacement_LM2100 Lawn Mower



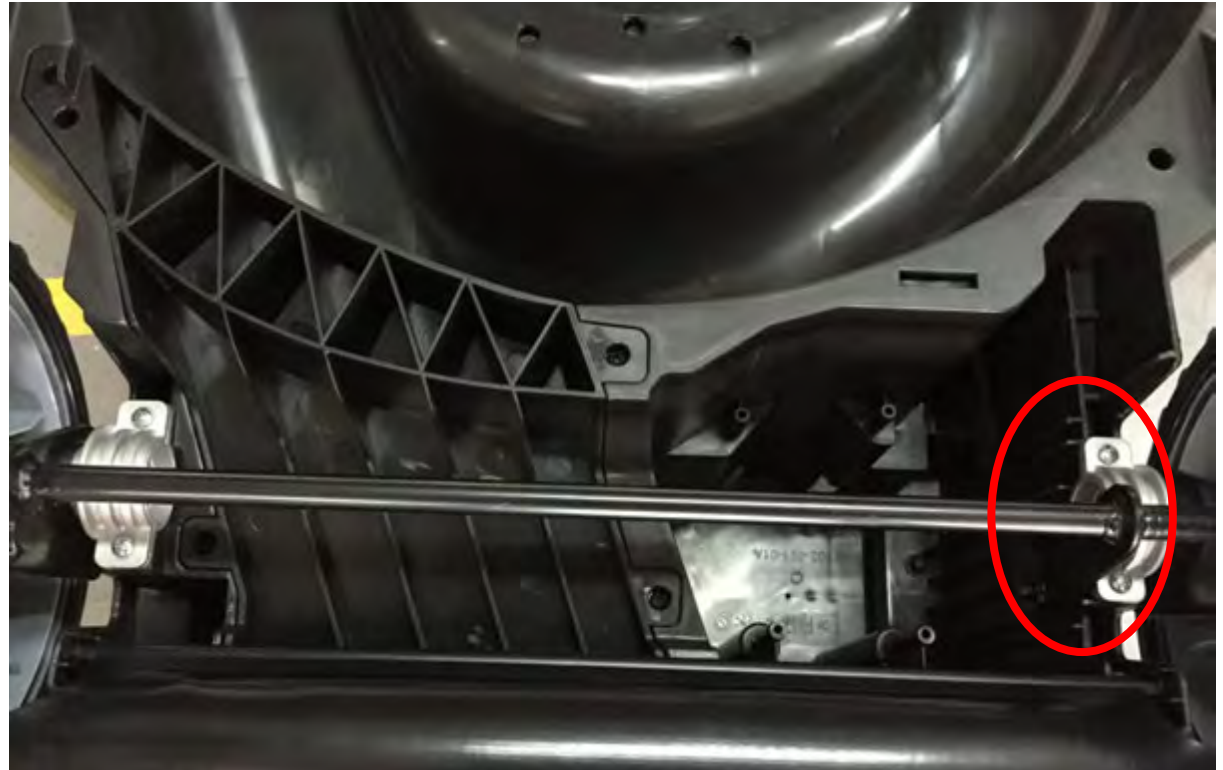
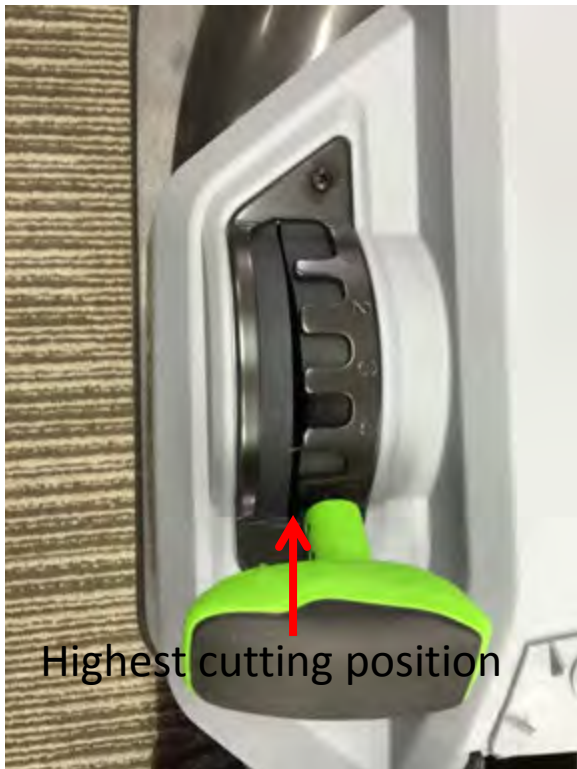
Rear Axle Set Replacement

LM2100 Lawn Mower

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 P3) or remove the nut (nut fixing, see P4).

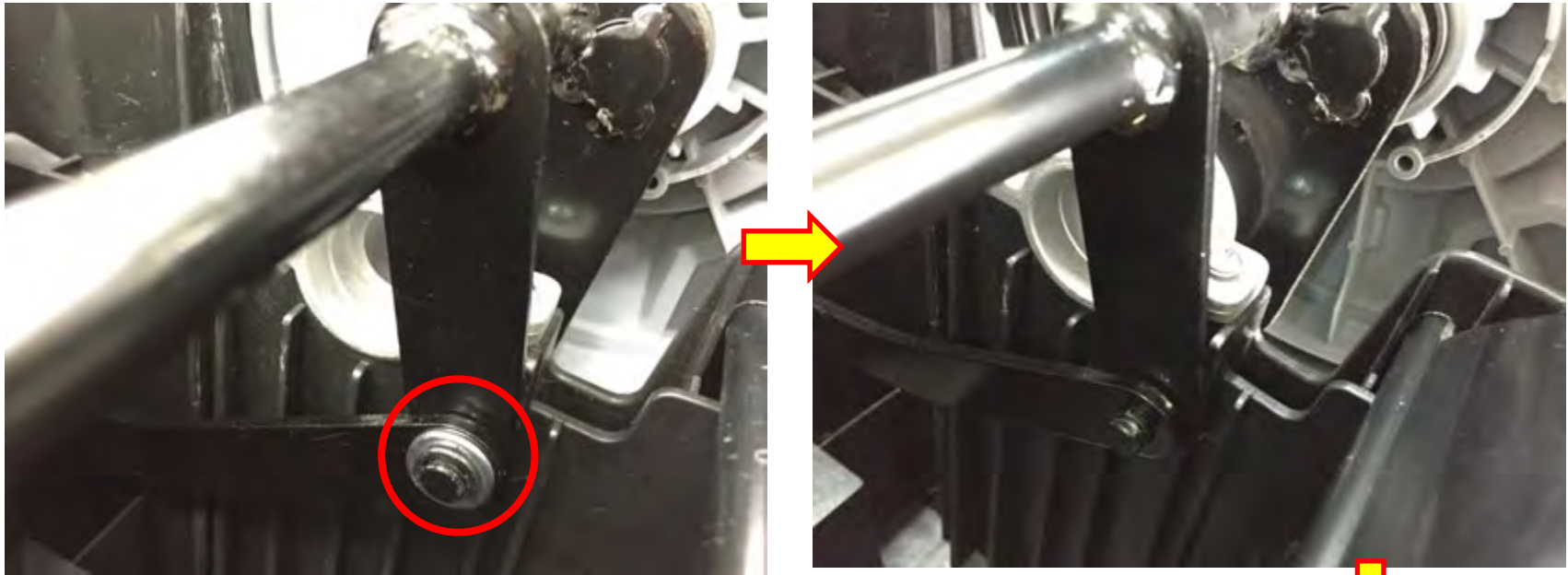
NOTICE:

- ① There are two structures for this joint, **plain washer with snap-ring fixing** or **nut fixing**.
- ② If the mower is set at other cutting position, it's really hard to separate the rear axle set shaft from the mower after removing the snap-ring and plain washer or removing the nut.



Rear Axle Set Replacement

LM2100 Lawn Mower

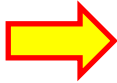


Description	Part Number
Plain washer	5650025004
Snap-ring	5660139002



Rear Axle Set Replacement

LM2100 Lawn Mower

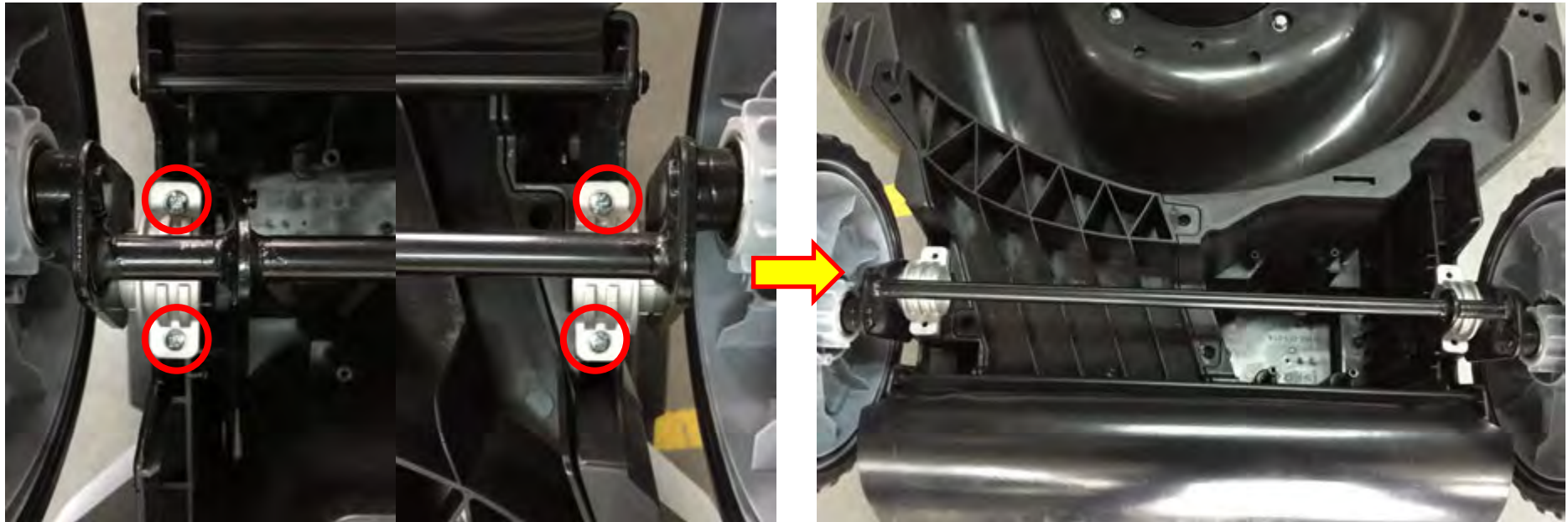


Description	Part Number
Nut	5630013003

Rear Axle Set Replacement

LM2100 Lawn Mower

3. Remove the 4 screws which are used to fix the left and right bearing supports.



4. Separate the joint by hand to take the rear axle set with the wheels apart from the mower.

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



5. Remove the 2 wheels(see *RG_Part 9_Wheels Replacement_LM2100.pptx*).

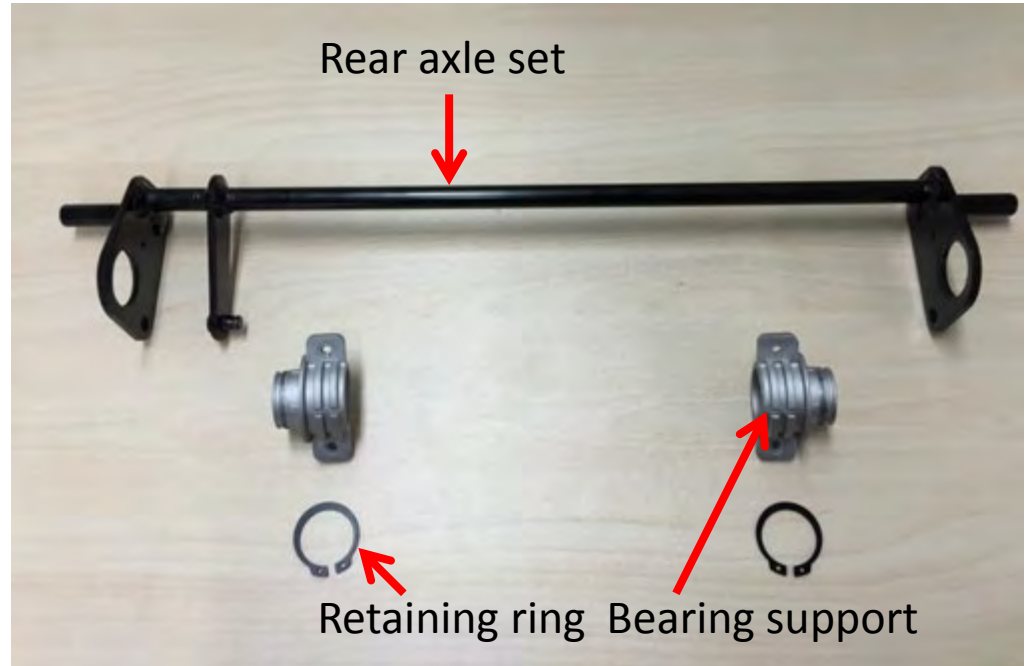
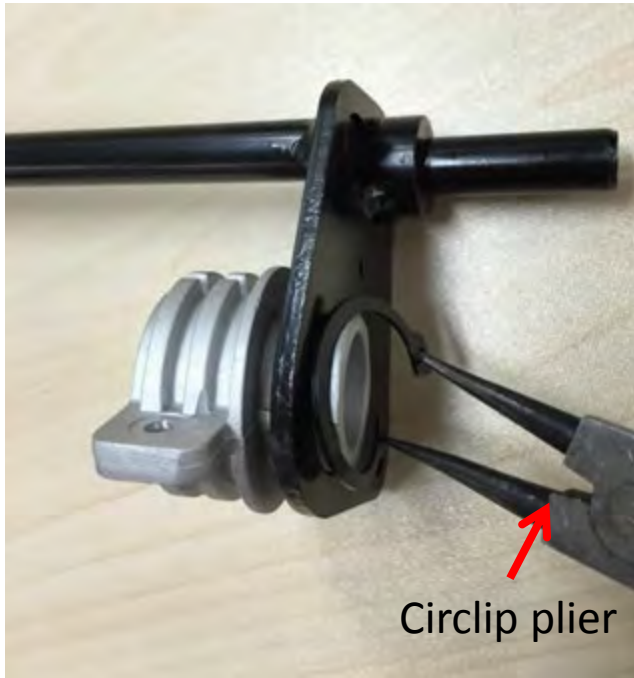
NOTICE: There is each 1pc wave washer beneath the right and left wheel passing through the shaft end of the rear axle set. When assembling the wheels, put the wave washers onto the shaft first.



Rear Axle Set Replacement

LM2100 Lawn Mower

6. Separate the retaining ring from the rear axle set by Circlip pliers.

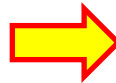


Description	Part Number	Remark
Retaining ring	5660152002	
Bearing support	3421670001	
Rear axle set	2824371001	Joint (plain washer with snap-ring fixing)
Rear axle set	2824667001	Joint (nut fixing)

Rear Axle Set Replacement

LM2100 Lawn Mower

7. Replace any damaged part of the rear axle set with a new one. Assemble them in reverse order.
8. Mount the wheels onto the shaft as ***“RG_Part 9_Wheels Replacement_LM2100.pptx”*** shown.
Remember to put the wave washer onto the shaft on each side firstly.



9. Mount the rear axle and wheels set onto the mower in reverse order.

THE END

REPAIR GUIDELINE

PART 9: WHEELS REPLACEMENT_LM2100 Lawn Mower



Table of Contents

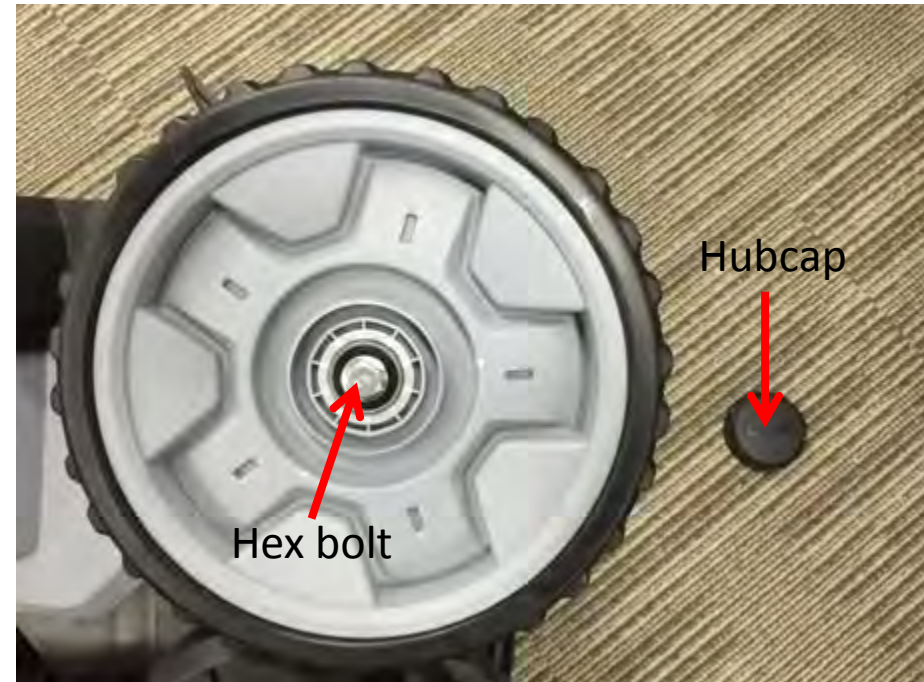
NO.	Contents	Page
1	Rear Wheels Replacement	3-5
2	Front Wheels Replacement	6

Rear Wheels Replacement

LM2100 Lawn Mower

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	Description	Part Number
Hubcap	3126765001	Rear Wheel	2824279001
Hex bolt	5640010003	Wave washer	5650453001

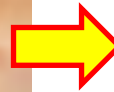
Rear Wheels Replacement

LM2100 Lawn Mower

2. Remove the hex bolt using a 1/2 inch (S=13mm) socket wrench to separate the wheel from the rear axle set.
3. Take down the damaged wheel as well as the wave washer and replace with a new wheel.



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



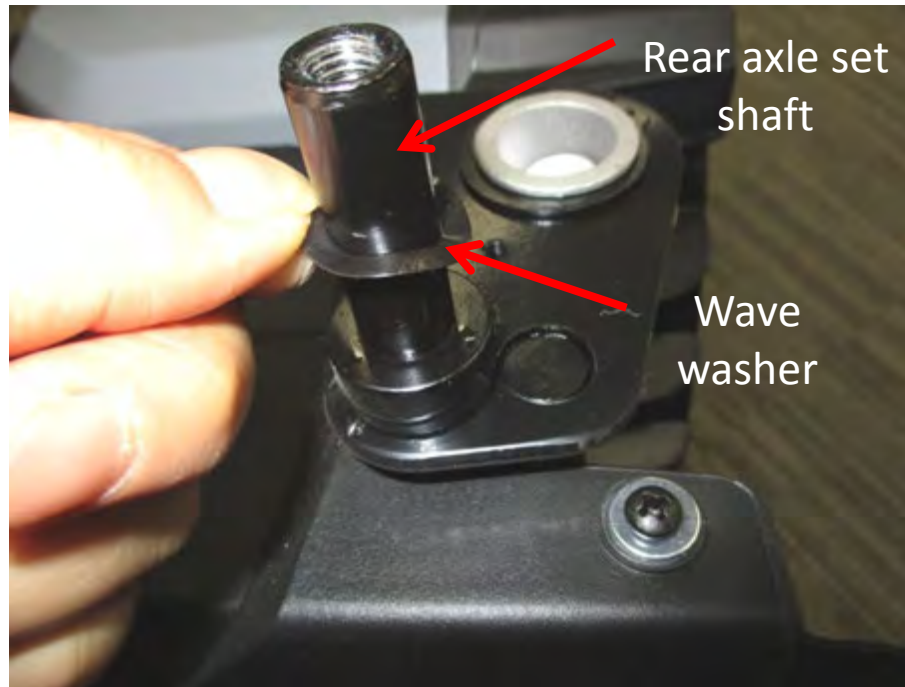
Rear Wheels Replacement

LM2100 Lawn Mower

- Put the wave washer through the rear axle set shaft and then mount the wheel onto the shaft.

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

- If the rear axle set shaft is bent or damaged, replace it(see ***RG_Part 10_Housing Cover Replacement_LM2100.pptx***).



- Fix the wheel by tightening the hex bolt. The recommended torque is 2.6-3.7ft-lb(3.5-5Nm).
- Mount the hubcap onto the wheel.

Front Wheels Replacement

LM2100 Lawn Mower

1. If the front wheels are damaged, replace them in the same way as replacing the rear wheels.
2. If the front axle set shaft is bent or damaged, replace it(see ***RG_Part 10_Housing Cover Replacement_LM2100.pptx***).



Description	Part Number
Hubcap	3126769001
Hex bolt	5640010003
Front Wheel	2823662001
Wave washer	5650453001



THE END

REPAIR GUIDELINE

PART 10: Housing Cover and Front Axle Replacement_LM2100 Lawn Mower



Table of Contents

LM2100 Lawn Mower

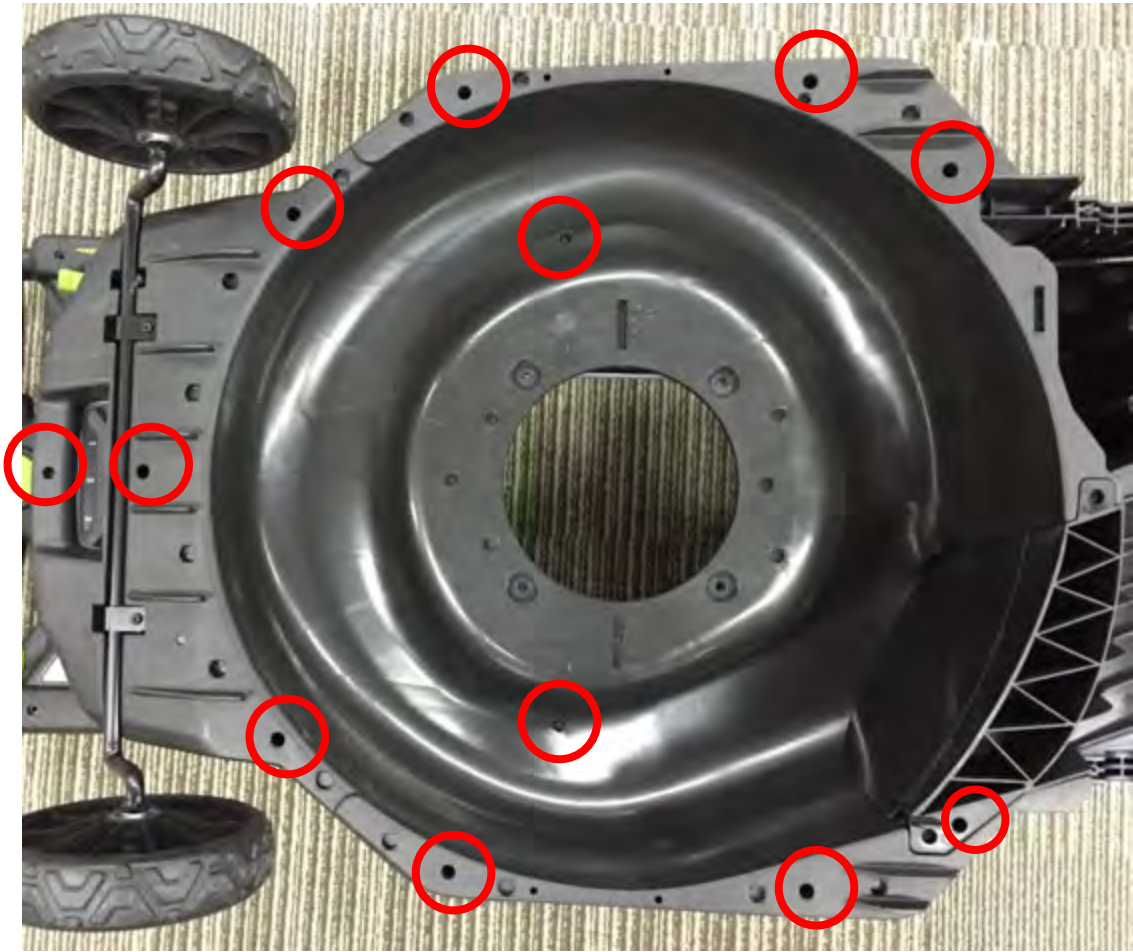
NO.	Contents	Page
1	Housing Cover Replacement	3-9
2	Front Axle Replacement	10-19

Housing Cover Replacement

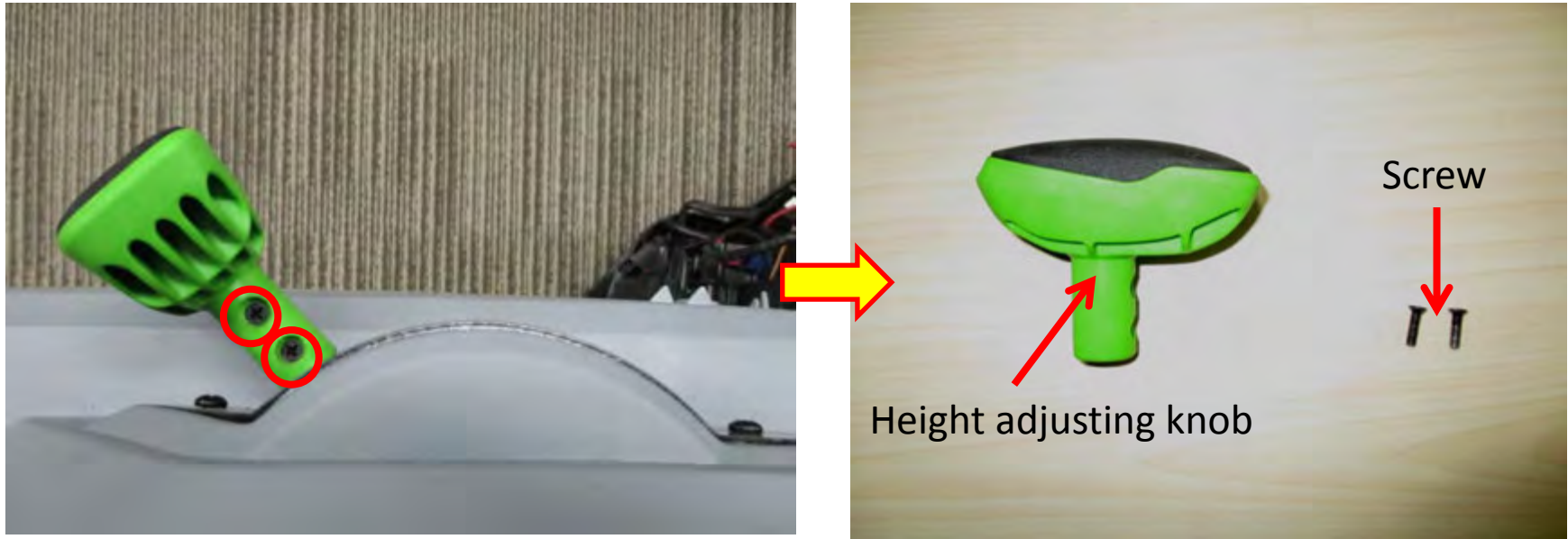
1. Remove the blade(see *RG_Part 1_Blade Replacement_LM2100.pptx*).
2. Remove the service cover and power unit(see *RG_Part 2.1_Parts in Power Unit Replacement_LM2100.pptx*)
3. Turn the mower on its back to remove the 14 screws on the poly deck. In case, there are only 12, just remove 12(see next slide).



Housing Cover Replacement



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

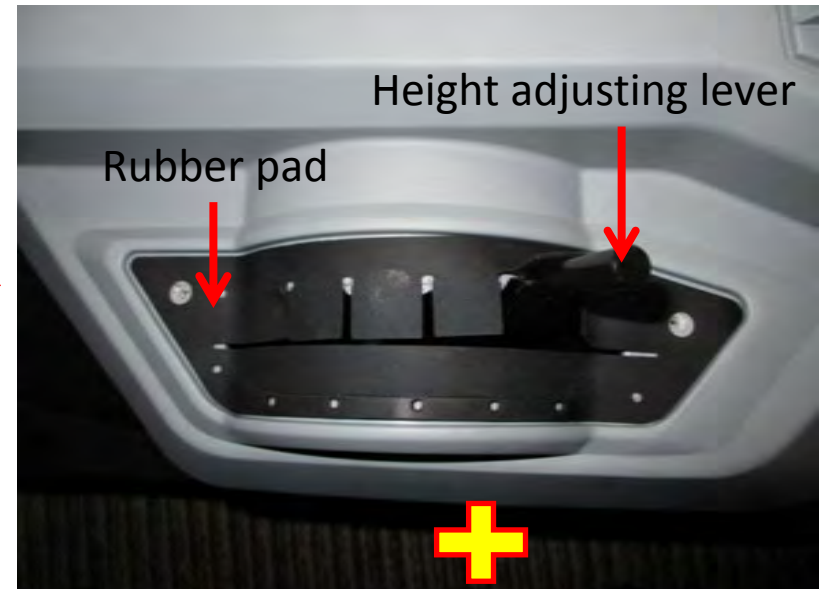
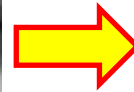
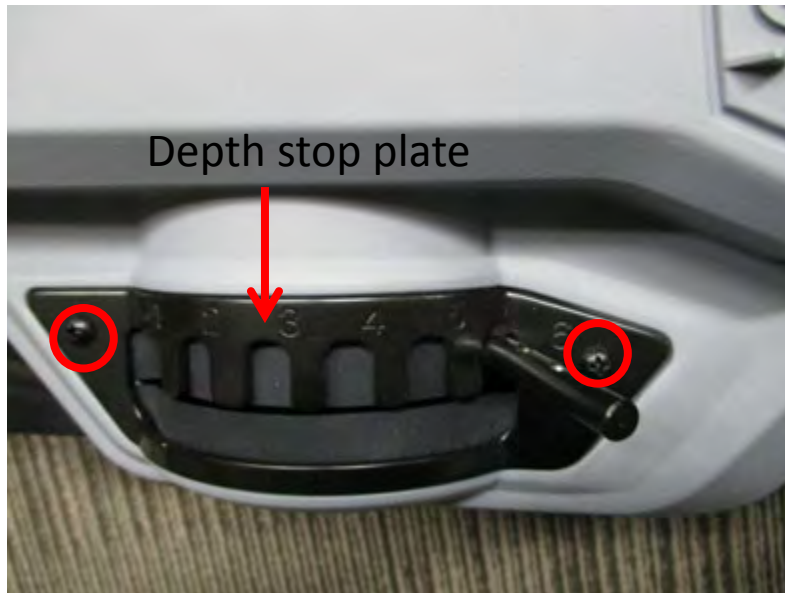


Description	Part Number
Height adjusting knob	3321478001

Housing Cover Replacement

LM2100 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

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.

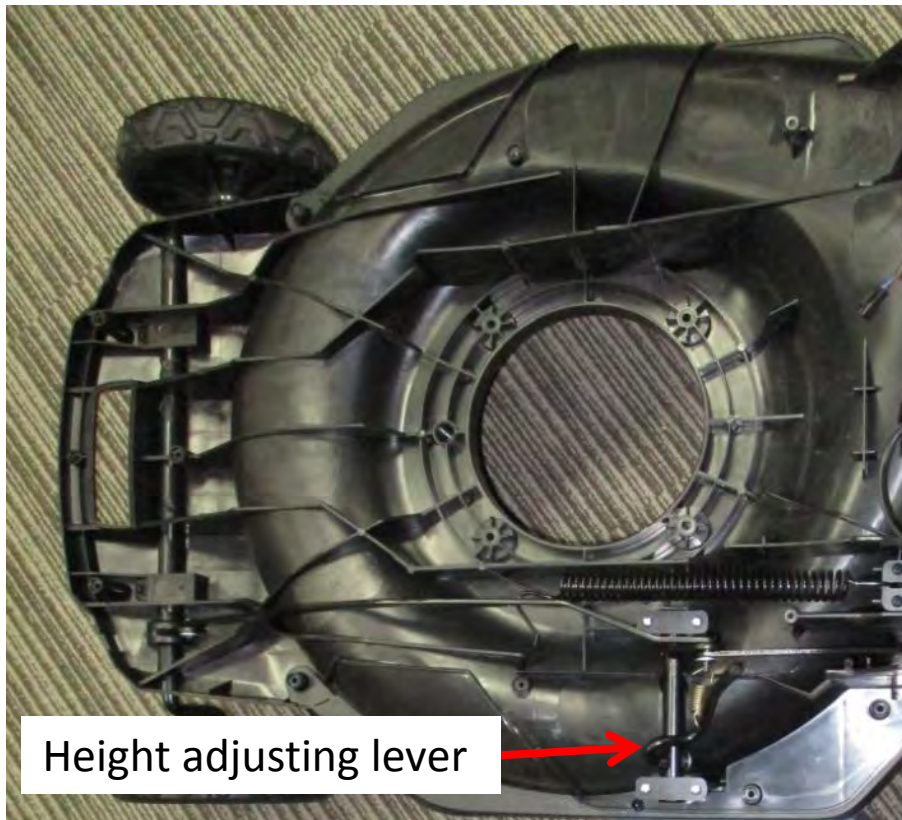


Description	Part Number
Housing cover	2825825001

Housing Cover Replacement

LM2100 Lawn Mower

9. After removing the housing cover, if the height adjusting lever is bent or deformed(in rear cases), 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.

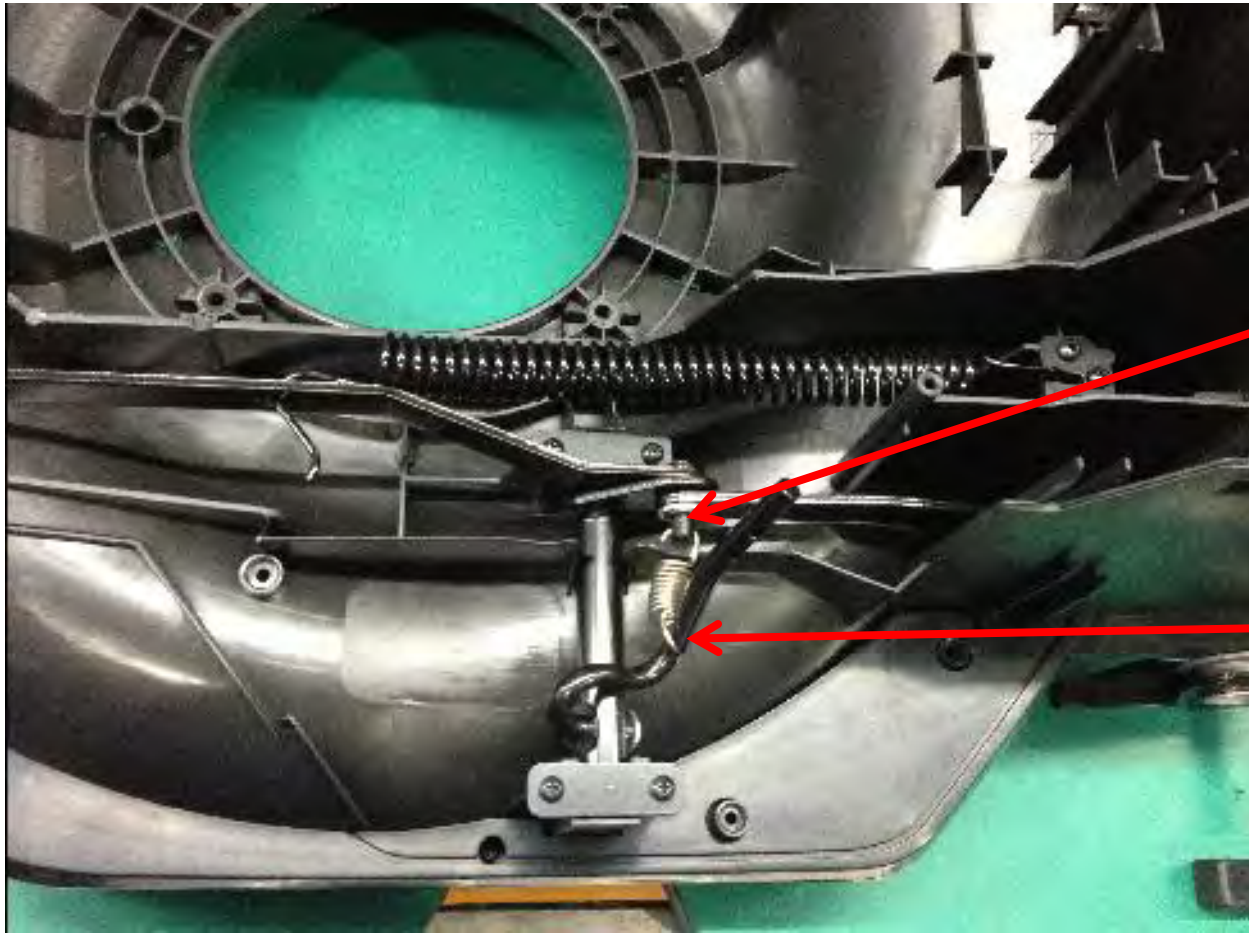


Description	Part Number
Height adjusting lever	2823295001
Spring	3660558001
Snap-ring	5660139002
Plain washer	5650025004

Housing Cover Replacement

LM2100 Lawn Mower

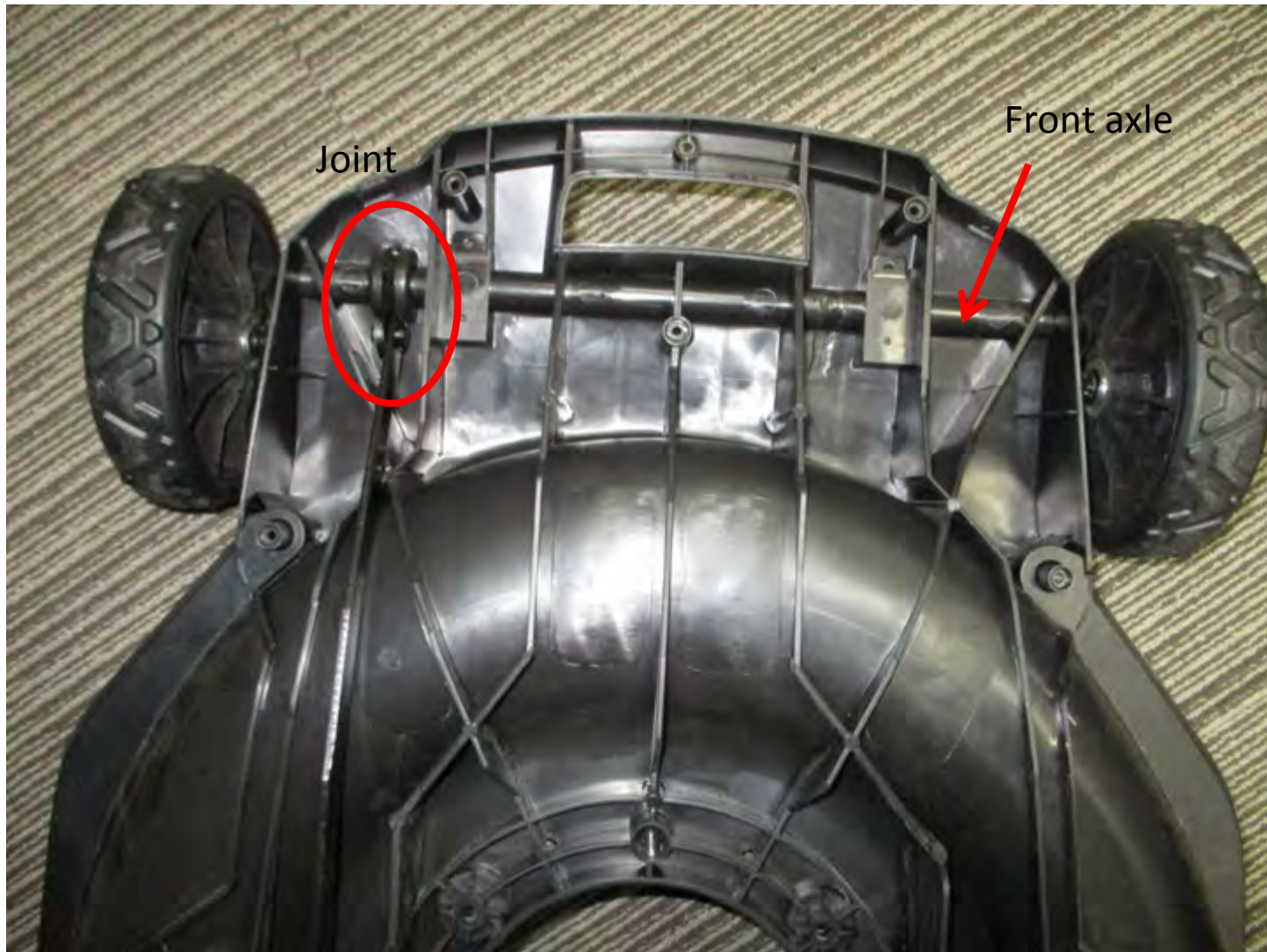
10. During height adjusting lever reassembly, hook the spring as below shown. Mind the spring opening. **Reverse installation is not allowed.**



Front Axle Replacement

LM2100 Lawn Mower

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

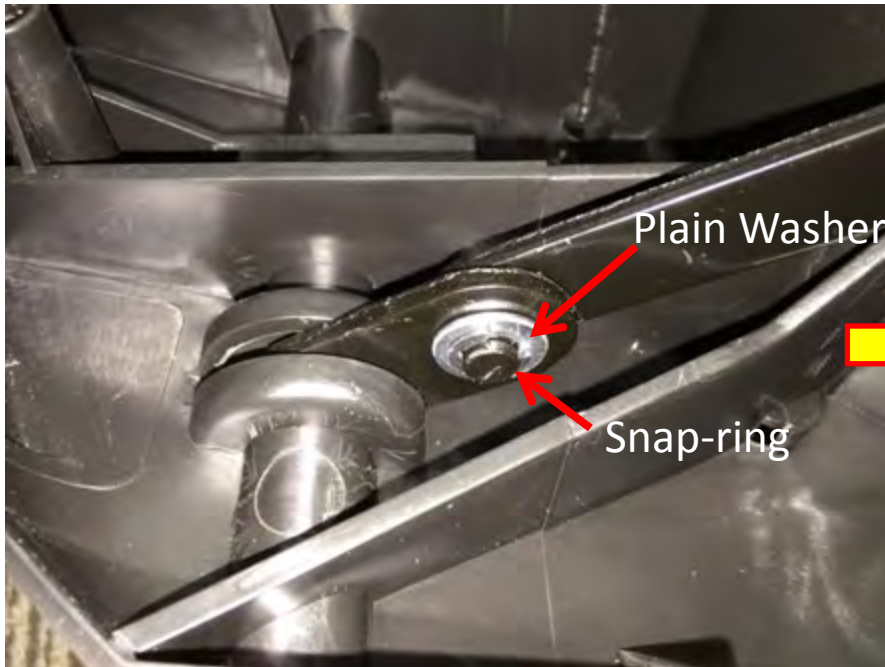


Front Axle Replacement

LM2100 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.

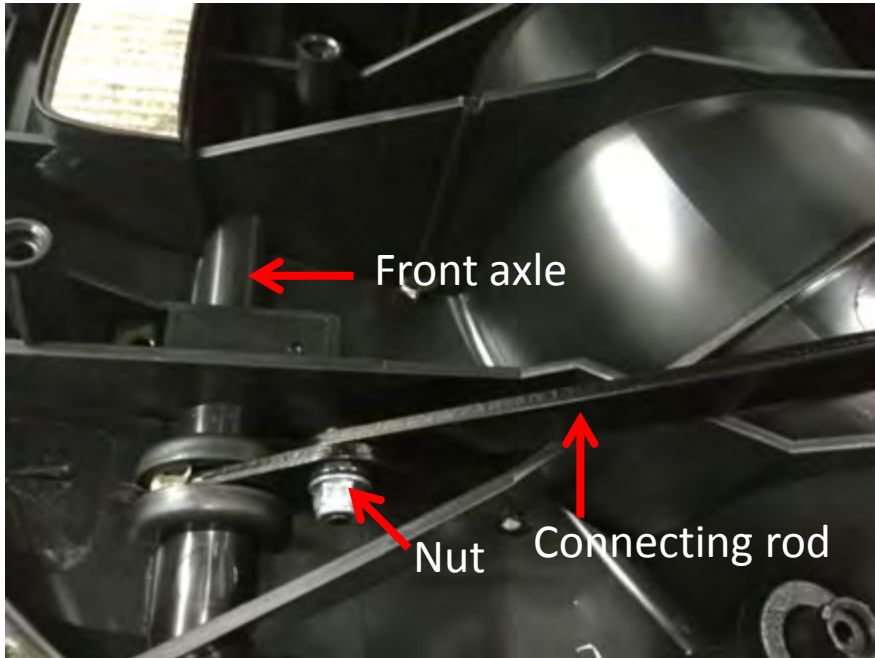


Description	Part Number
Snap-ring	5660139002
Plain washer	5650025004



Front Axle Replacement

LM2100 Lawn Mower



Description	Part Number
Nut	5630013003



3. Separate the joint by hand.

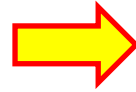
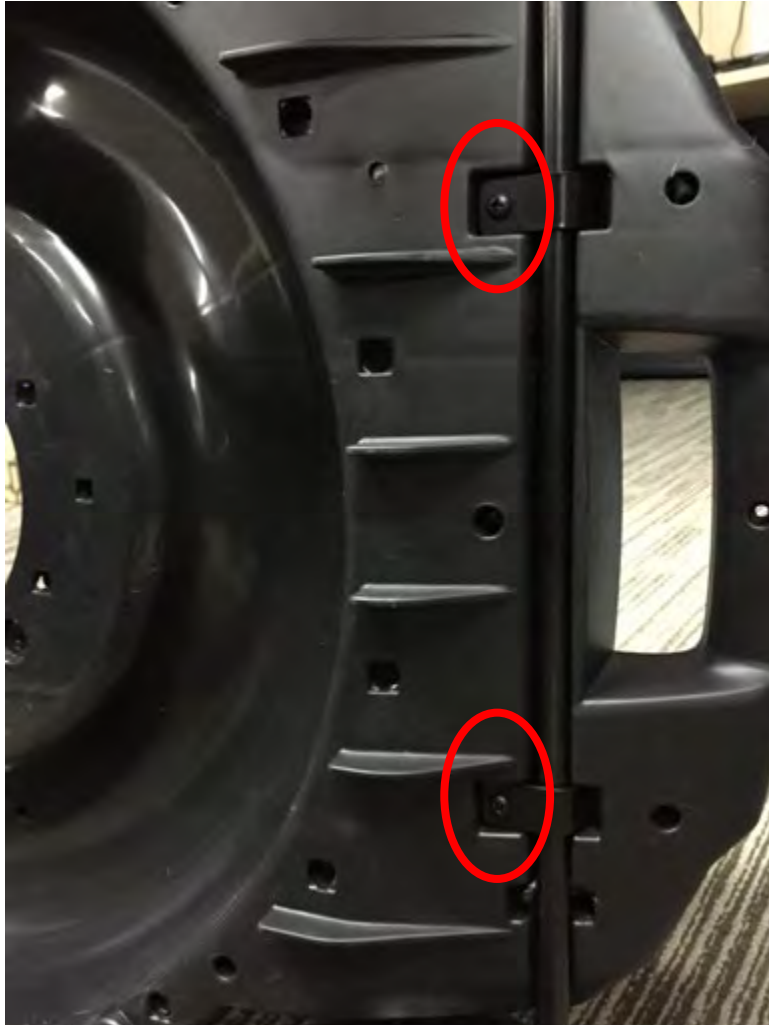
WARNING: This step may cause injuries. Slow down. Gloves recommended.



Front Axle Replacement

LM2100 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.

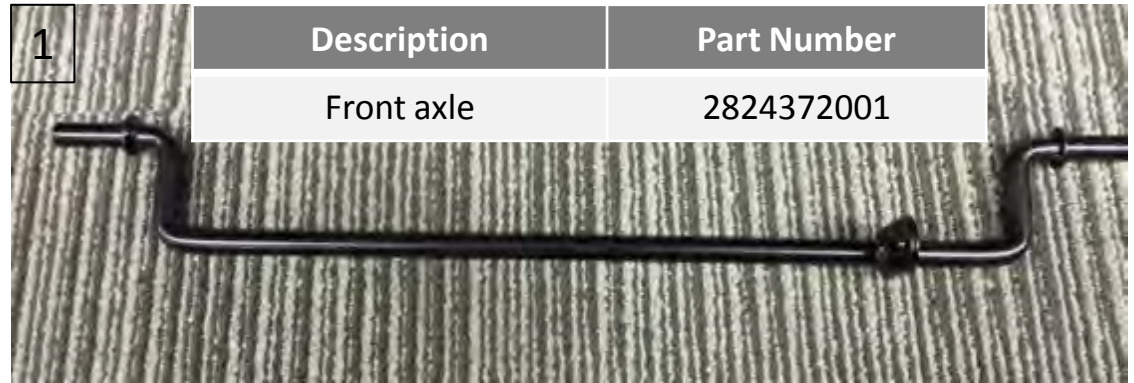


Description	Part Number
Mounting plate	3705216001

Front Axle Replacement

LM2100 Lawn Mower

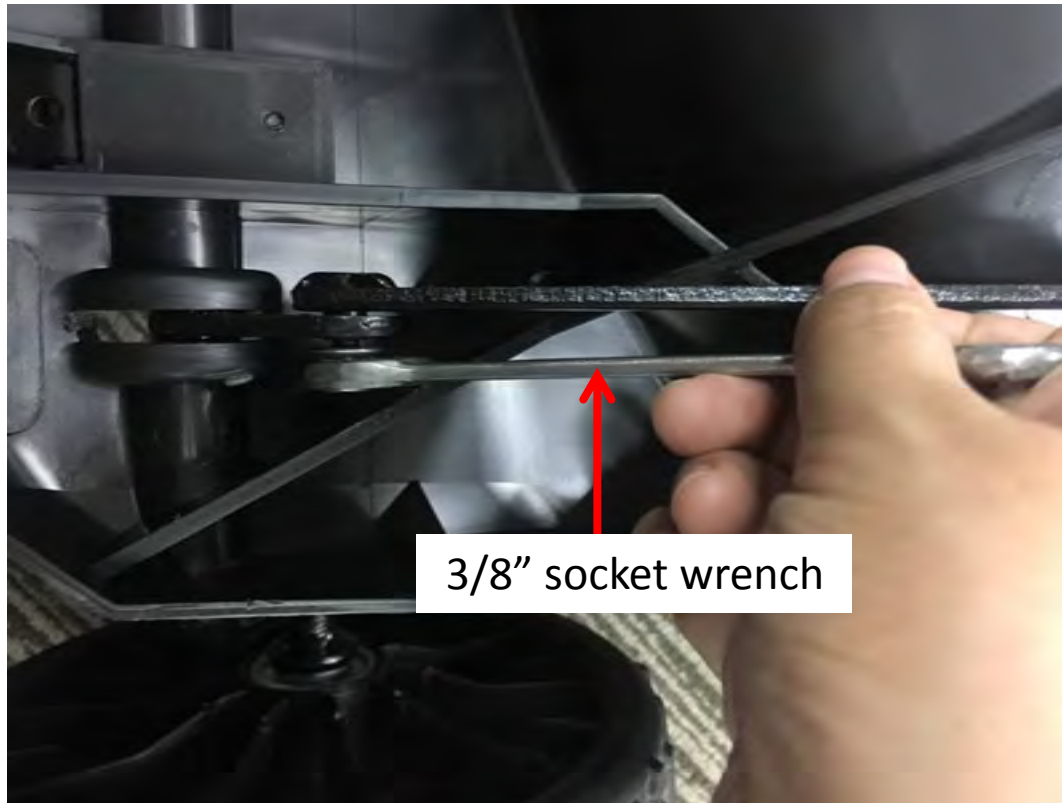
6. Disassemble the front wheels(see *RG_Part 9_Wheels Replacement_LM2100.pptx*).
7. Replace the broken front axle with a new one.
8. Mount the wheels onto the new front axle(see *RG_Part 9_Wheels Replacement_LM2100.pptx*).
9. Mount the front axle into the mower deck groove and then insert the mounting plates into place. Lock them by tighten the 2 screws(Fig. 2 &3).



Front Axle Replacement

LM2100 Lawn Mower

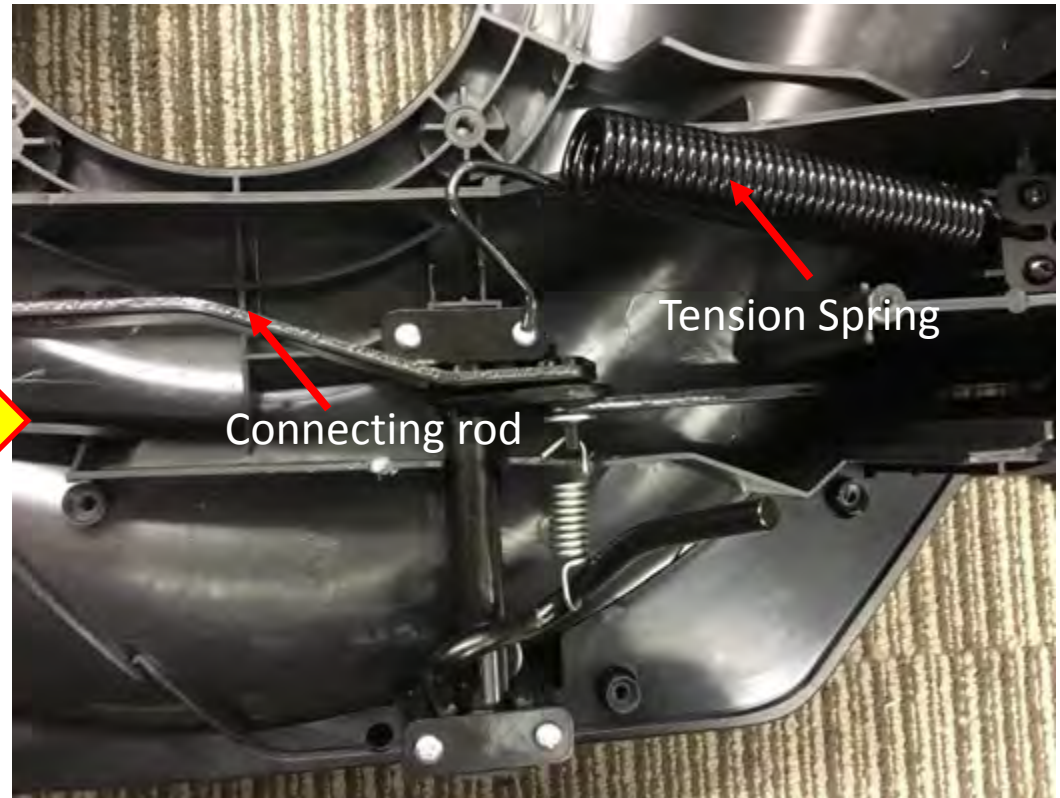
10. Connect the joint that links the front axle with the connecting rod by hand (NOTICE please see next slide).
11. Tighten the joint with the nut using an $3/8$ " socket wrench.



Front Axle Replacement

LM2100 Lawn Mower

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

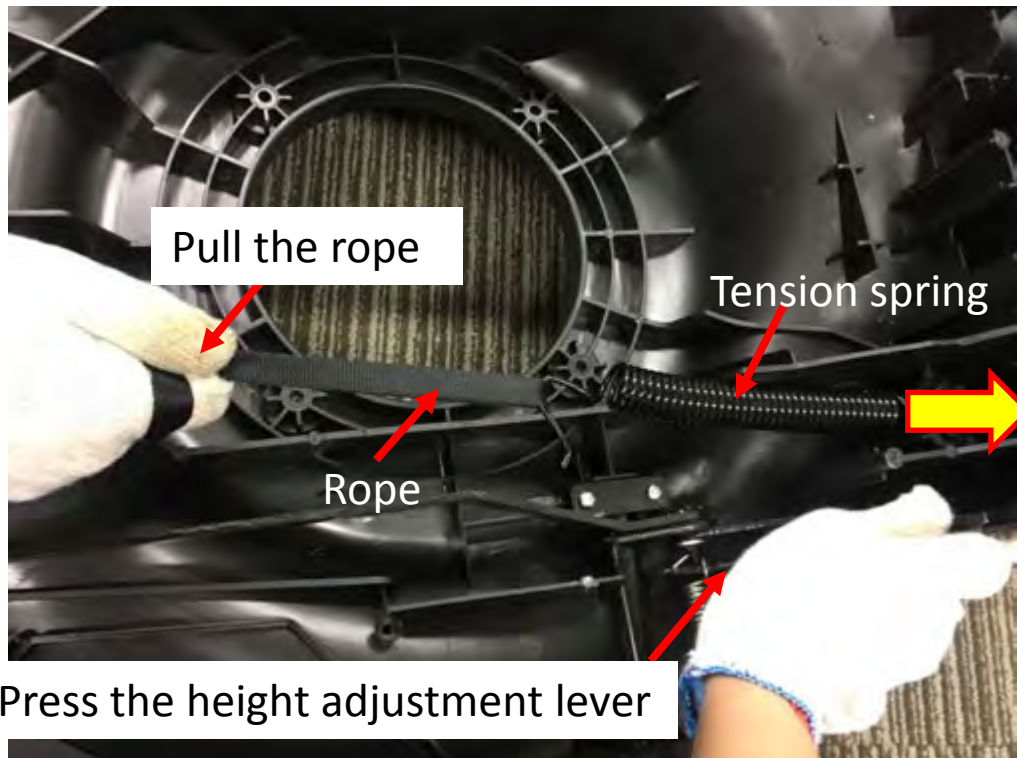


Description	Part Number
Tension spring	3660557001

Front Axle Replacement

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_LM2100.pptx***).