REPAIR GUIDELINE

SNOW BLOWER_SNT2400E



Version: 1

Issue date: 2020/9/10

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Tool List For Repair

NO.	Tool List	SPEC	Remark
1	Torx screwdriver	T20	
2	Philips screwdriver	PH2	
3	Socket wrench	10mm,12mm,13mm,14mm,15mm	
4	Hex bit	4mm,5mm,6mm	
5	Impact wrench		Use to loosen the hex bolt with hex bit.
6	Torque wrench	15mm,14mm	To tighten the nuts as the recommended torque.

1. Use a hex bit(5mm) to loosen the 1 screw to remove the top cover.



2. Use a socket wrench(10mm) to loosen and remove the upper nut(Nut 1#) and use another socket wrench(12mm) to gradually loosen the nut below(Nut 2#) from the screw thread to preliminarily separate the chute deflector controlling wire from the chute Assy.



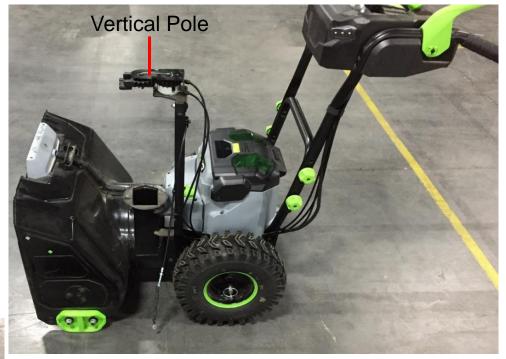
- 3. Use <u>a socket wrench(15mm)</u> to loosen and remove the Nut 3# as well as the corresponding square neck bolt to separate the chute Assy from the vertical pole.
- 4. Continue to use <u>a hex bit(5mm)</u> to loosen the 1 screw below and remove the screw and the steel plate to separate the chute deflector controlling wire thoroughly from the chute Assy.

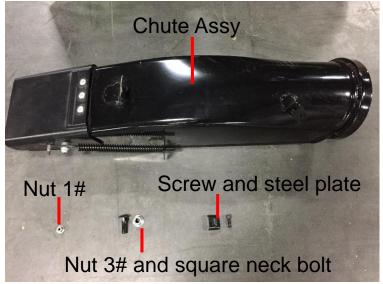


Nut 3# and square neck bolt

Screw and steel plate

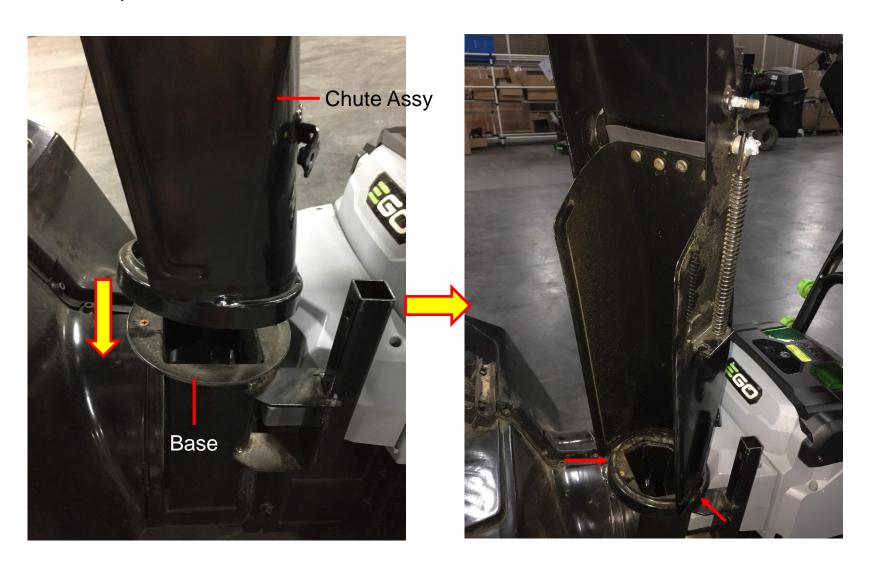
Remove the chute Assy from the snow blower and have replacement.



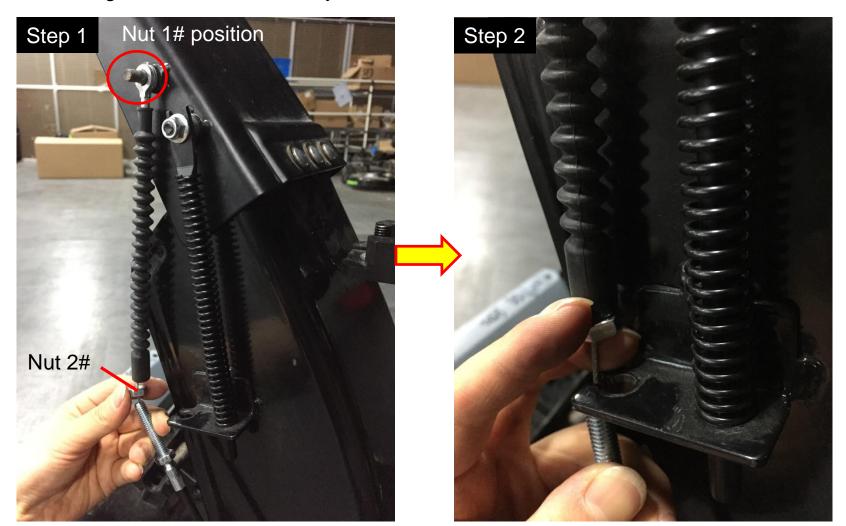


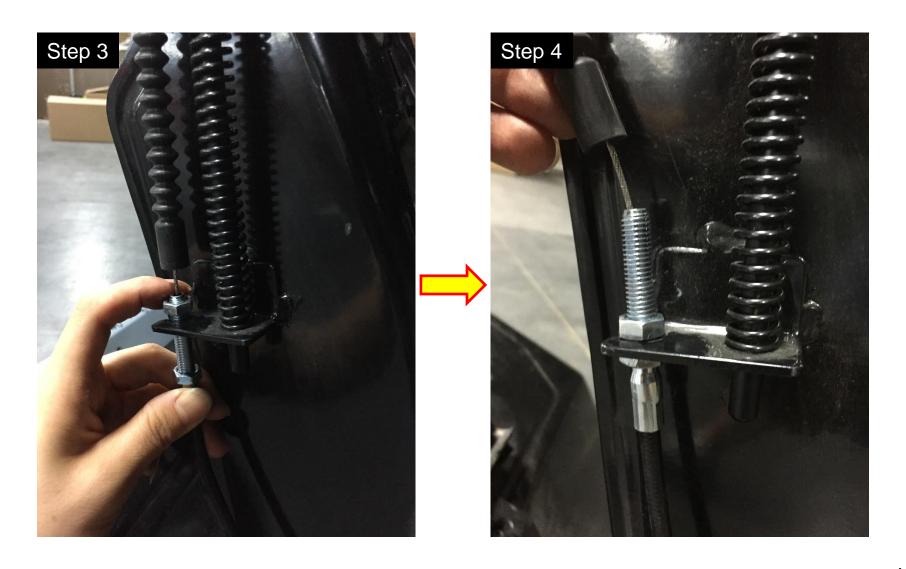
Description	Part Number
Chute Assy	2827178002
Nut 1#	5630013003
Nut 3#	5630267001
Square neck bolt	5640334001
Screw	5620340004
Steel plate	3707212001

6. With the bottom of the chute Assy aligned with the base, locate the new chute Assy onto its position.



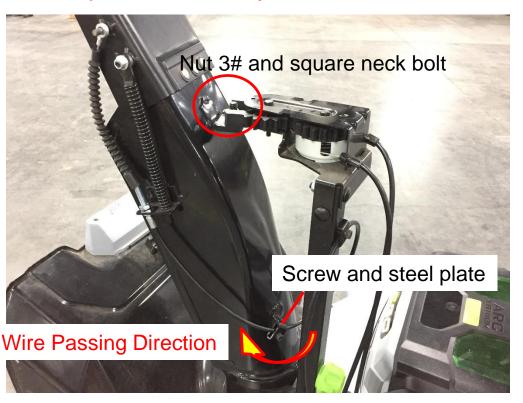
- 7. Hook the chute deflector controlling wire onto the chute Assy following the below step1-4.
- 8. Use a <u>socket wrench(12mm)</u> to tighten the Nut 2# in step 4 to fix the chute deflector controlling wire on the chute Assy.





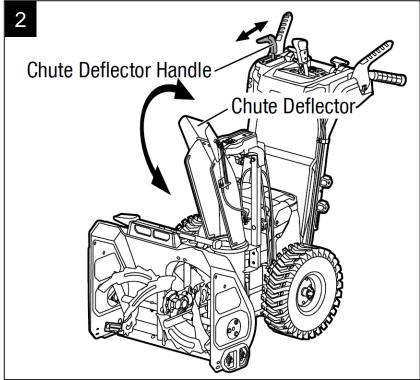
- 9. Use a torque wrench(15mm) to tighten the Nut 3# and the square neck bolt to link the chute Assy with the vertical pole. The recommended torque is 18-20 Nm.
- 10. Pass the wire through the hook on the chute Assy in the direction shown below and fix the wire by the screw and the steel plate using a hex bit(5mm).

NOTICE: Pay attention for the wire passing through direction. Once the direction is reversed, it will be extremely hard to adjust the chute Assy.



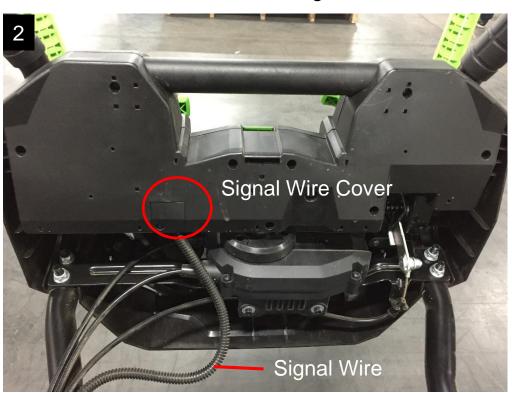
- 11. Use a socket wrench(10mm) to tighten the Nut 1# securely and use a hex bit(5mm) to close the top cover (Fig. 1).
- 12. Adjust the chute deflector handle back and forth to see whether the chute deflector can be adjust correctly (Fig. 2). If it does not works correctly, reassemble the chute Assy.

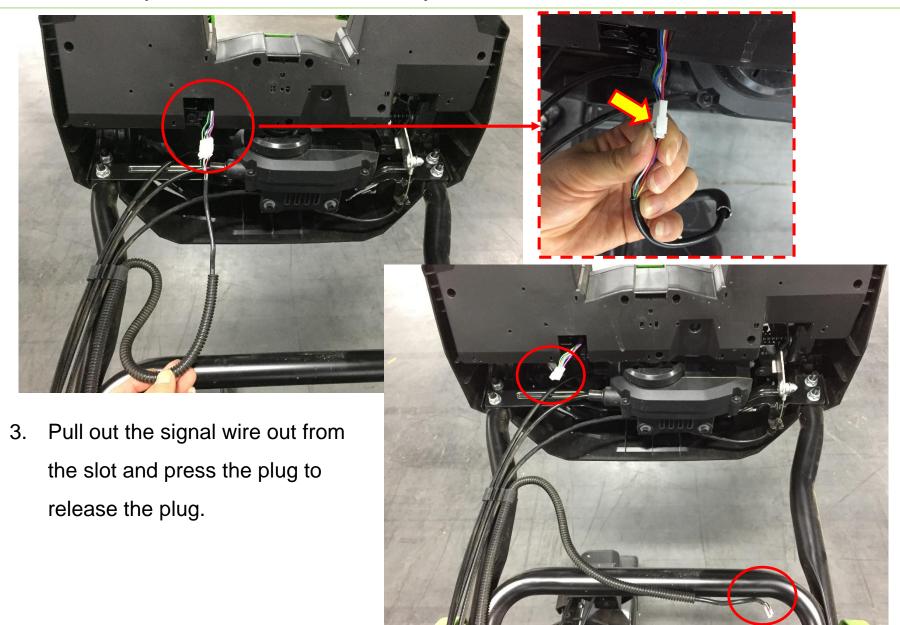




- 1. Lay the snow blower as Fig. 1 shown.
- 2. Use a Torx wrench with T20 bit to loosen the 1 screw to remove the signal wire cover.

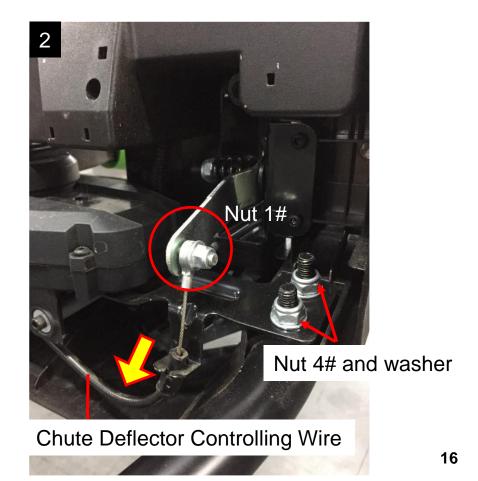




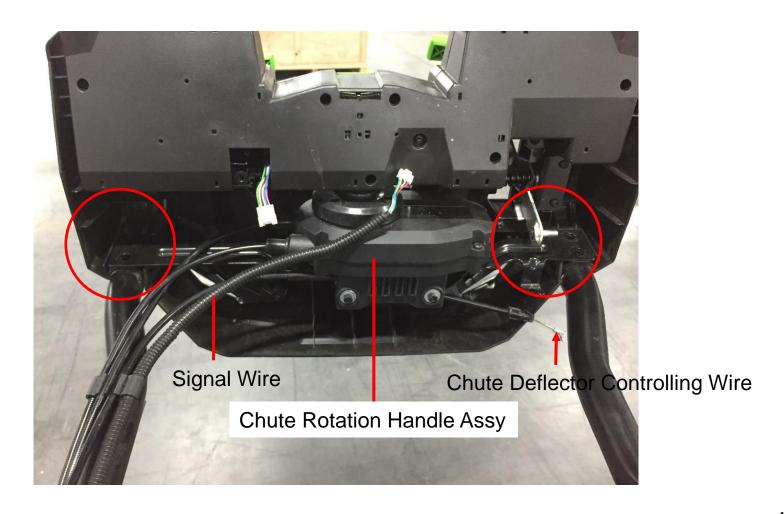


- 4. Use a socket wrench(13mm) to loosen and remove the 4 nuts(Nut 4#). Save them as well as the below plain washers.
- 5. Use a socket wrench(10mm) to loosen Nut 1# to release the chute deflector controlling wire from the handle Assy as Fig. 2 shown.





NOTICE: Chute rotation handle Assy cannot separate from the handle Assy in this step, please follow next slide to separate it from the handle Assy thoroughly.



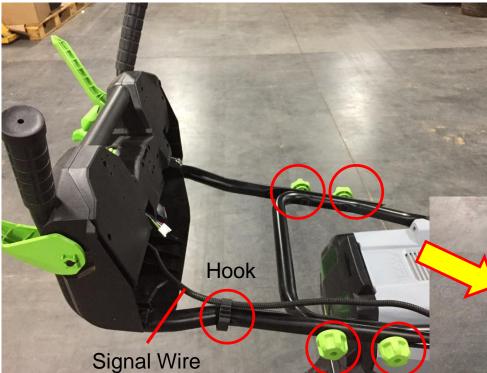


 Use a Torx wrench with T20 bit to loosen the 2 screws beneath the chute rotation handle (Fig. 1).

 Use the same Torx wrench to loosen the 2 screws on the chute rotation handle sheath.

8. Remove the chute rotation handle Assy from the handle Assy.





Description	Part Number
Handle Assy	2827408001
Hook	3130656001
Knob	3130766001

Loosen and remove the 4 knobs and release the signal wire from the hook.

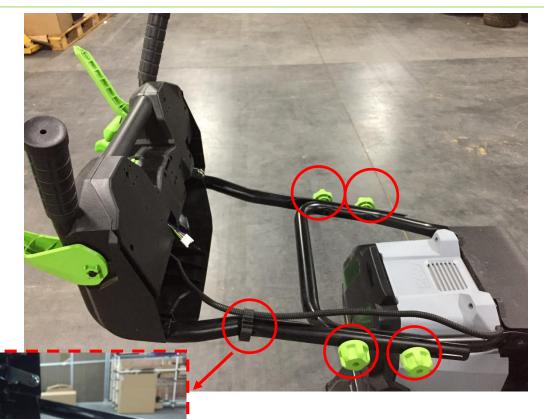
10. Separate the hook from the tube and save it as well as the 4 knobs for reassembly.



Handle Assy

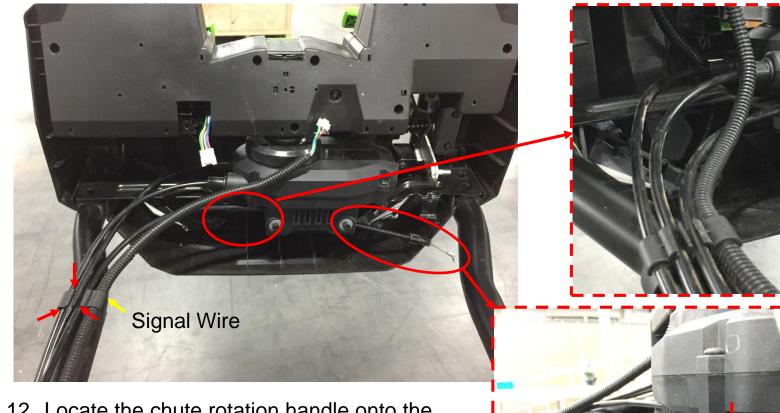
The disassembled parts during removing the handle Assy are shown as below. Save all of them for reassembly.



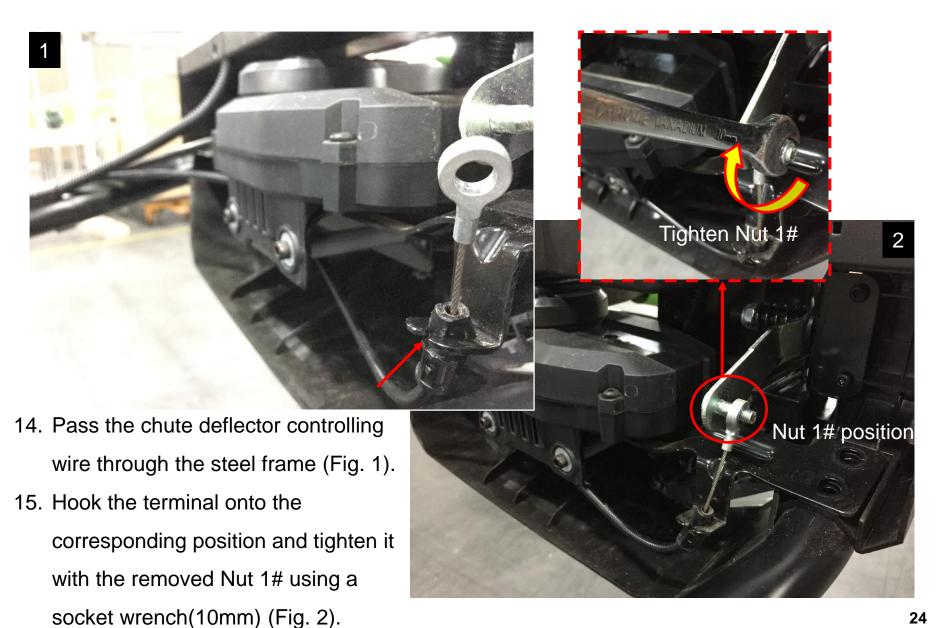


11. Mount the new handle Assy onto the snow blower in the reverse order.

NOTICE: Please pay attention that the hook is mounted with the rib aligned with the hole in the handle tube.

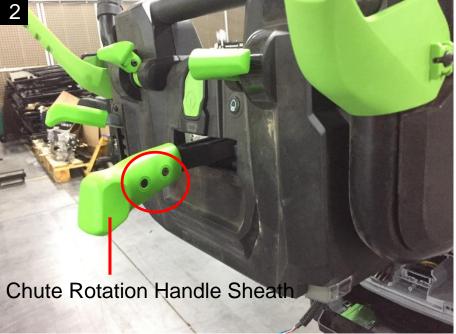


- 12. Locate the chute rotation handle onto the handle Assy and pass through the chute deflector controlling wire as the 2 detailed pictures shown.
- 13. Align the 3 pcs thin wires and the signal wire into the hook. The signal wire is on the edge.



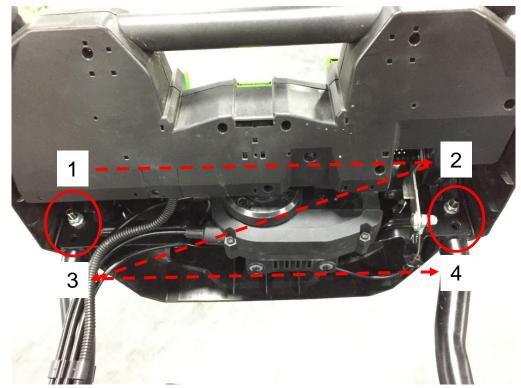
16. Use a Torx wrench with T20 bit to tighten the 2 screws beneath the chute rotation handle (Fig. 1) and the 2 screws on the chute rotation handle sheath on the back (Fig. 2).







17. Connect the plug of the signal wire first and then insert the joint into the slot as picture shown. Make sure that the signal cover can be closed correctly without wire pinching.



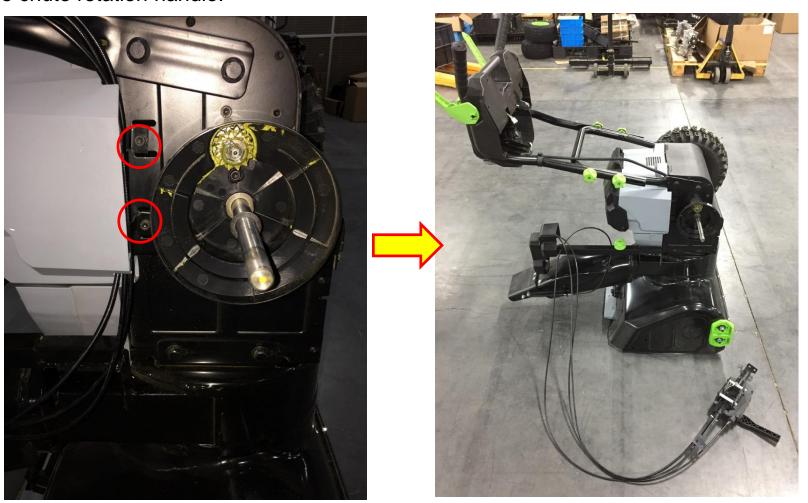
18. Mount the 4 nuts (Nut 4#), one on the left and then one on the right. Hand tighten them and continue mounting the 2 nuts in the same sequence for balance as the arrows indicated. Ensure that all the bolts are correctly inserted and then use a socket wrench(13mm) to tighten the plain washers and nuts.



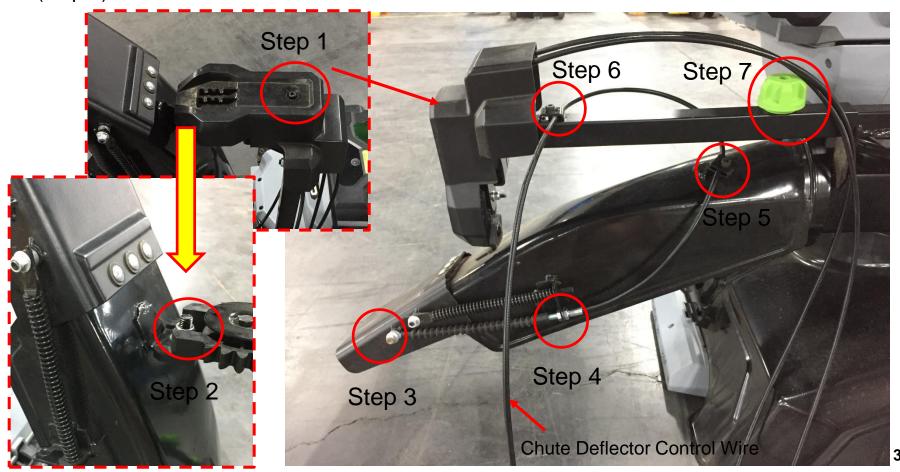
1. See the step 1-8 in section "**How to replace the handle Assy**" to remove the chute rotation handle from the snow blower handle Assy.



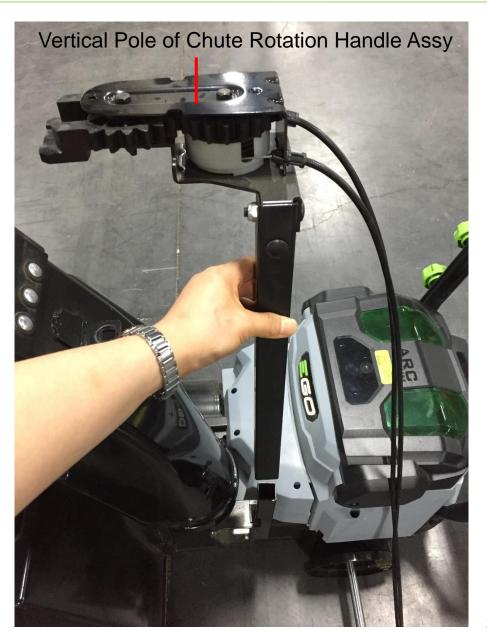
- 2. See the section "How to replace the wheel" to remove the left wheel from the snow blower.
- 3. Use a <u>hex bit(5mm)</u> to loosen and remove the two clamps to release the wires that are from the chute rotation handle.

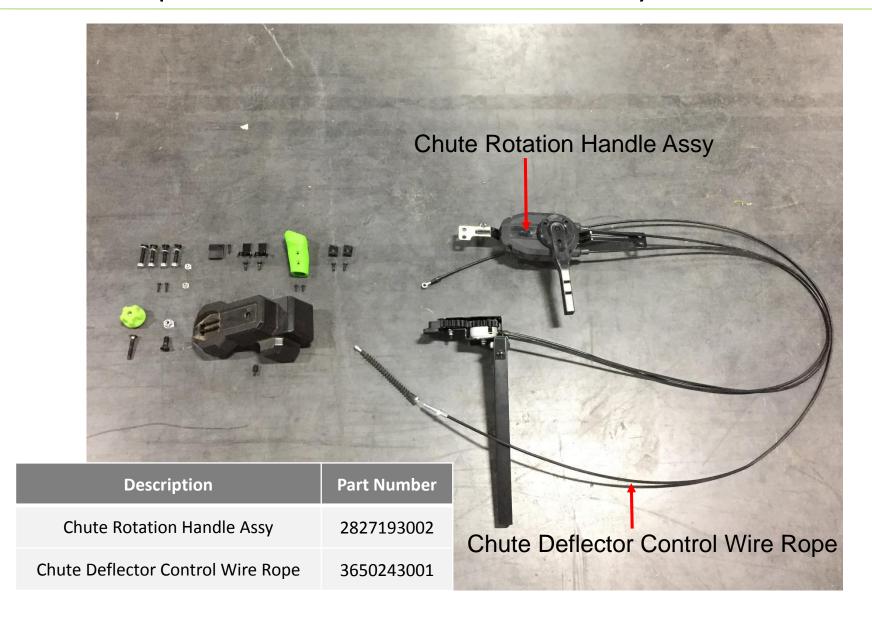


- 4. See the section "How to replace the chute Assy" to separate the chute Assy from the chute rotation handle (as below step 1-5 shown).
- 5. Use a hex bit(5mm) to loosen the screw and steel plate to separate the chute-deflector control wire from the vertical pole of the chute rotation handle Assy(step 6).
- Remove the knob to separate the chute rotation handle Assy from the snow mower deck (step 7).

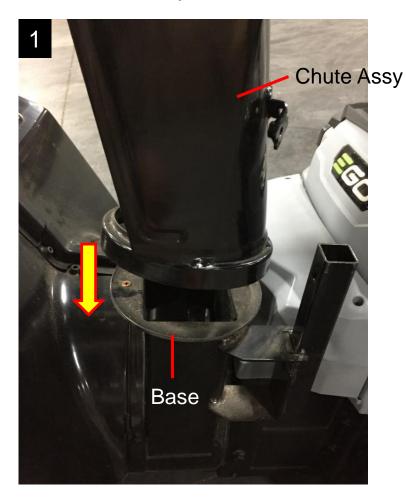


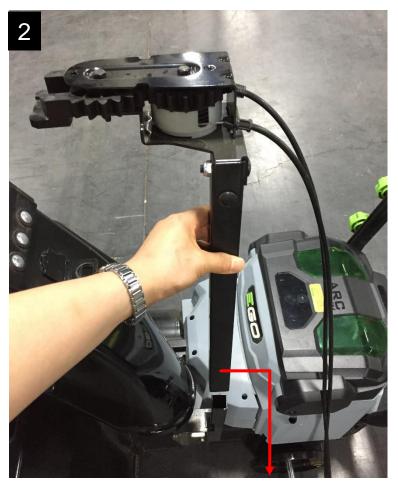
7. Lift the vertical pole of the chute rotation handle Assy from the snow blower. The parts are shown on next slide.





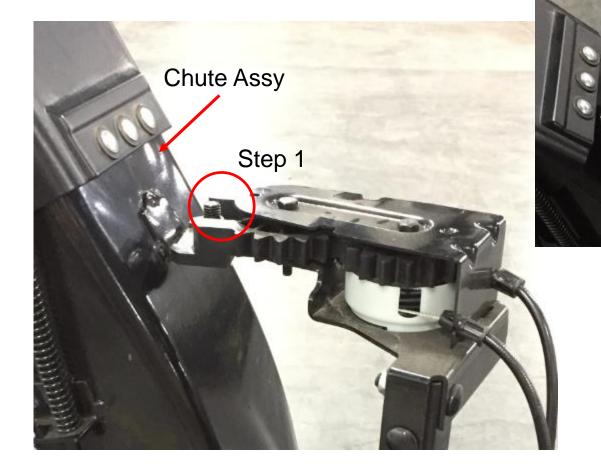
- 8. If the chute Assy is removed during this process, firstly with the bottom of the chute Assy aligned with the base, locate the chute Assy onto its position (Fig. 1).
- 9. Insert the vertical pole of the rotation handle into its position (Fig. 2).



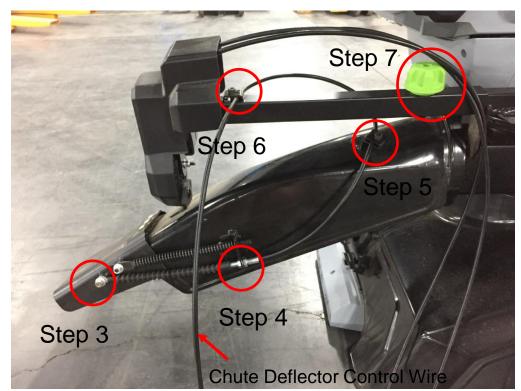


Vertical Pole of Chute Rotation Handle

10. Follow below steps 1- 7 to reconnect the chute Assy with the vertical pole of the chute rotation handle Assy. Detailed instructions see step 7-12 in section "**How to replace the chute Assy**".

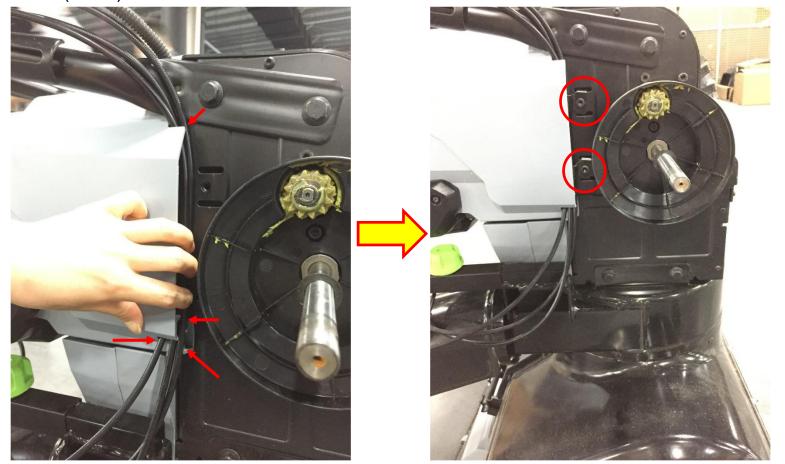


Step 2



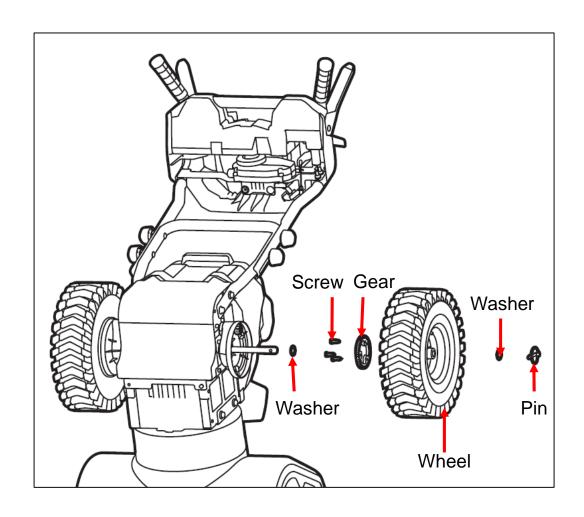


- 11. See the steps12-18 in section "**How to replace the handle Assy**" to mount the chute rotation handle onto the snow blower handle Assy.
- 12. Carefully align the three wires coming from the chute rotation handle into the groove beneath the battery box housing and lock them by the two clamps and screws using a hex bit(5mm).



How to replace the chute rotation handle Assy

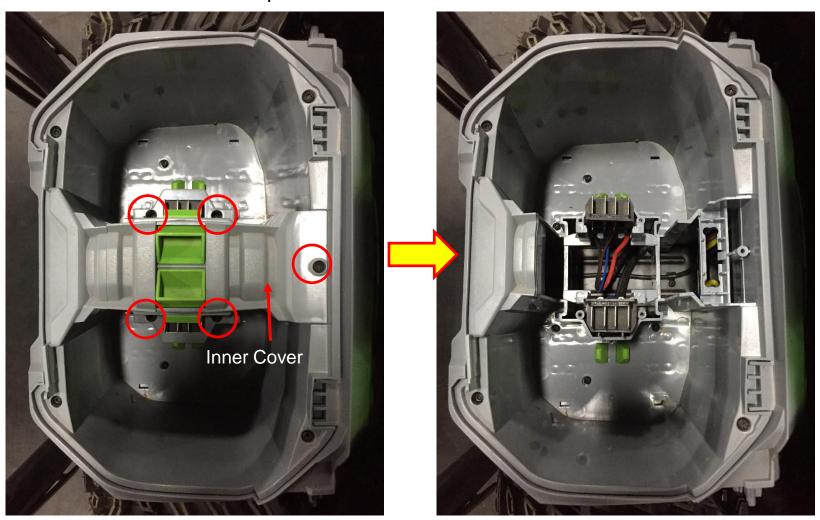
13. Mount the removed left wheel onto the snow blower as section "**How to replace the wheel**" instructed. For quick review, assembly sequence can refer to below picture.



1. Use a Torx Wrench with T20 bit to loosen the 4 screws to open the PCBA Box Cover.



2. Open the battery box cover to use a Torx Wrench with T20 bit to loosen the 5 screws to remove the inner cover to expose the two electric contacts.



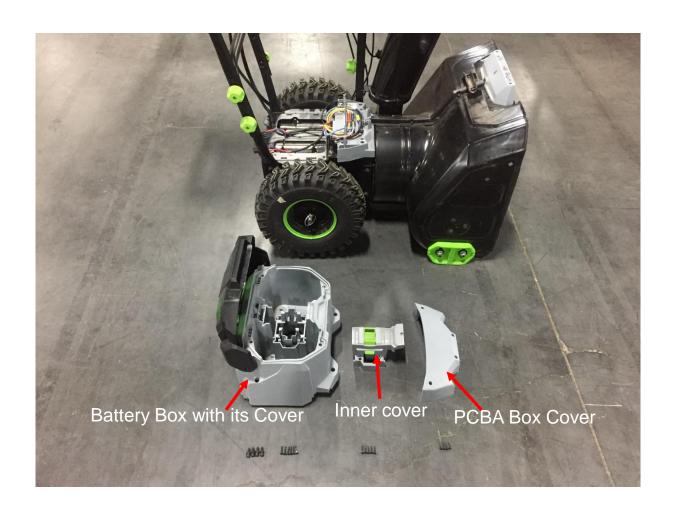


 Use a hex bit(5mm) to remove the 4 bolts from the battery box outside (Red circled).

3. Use the same Torx wrench (T20 bit) to remove the 6 screws inside the battery box (Yellow circled).

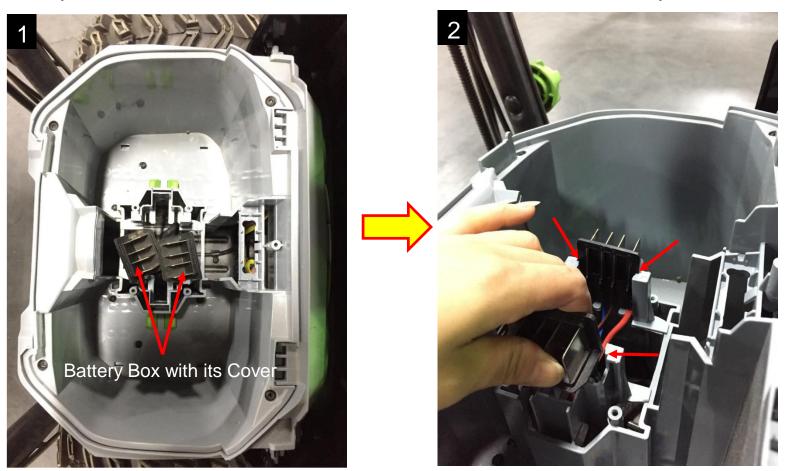


5. Remove the battery box with its cover from the snow blower.



How to install the battery box

- 1. Pass the two electric contacts through the battery box and then locate the battery box onto the deck correctly (Fig. 1).
- 2. Position the two electric contacts into their position (Fig. 2) and then close the inner cover, fixed by the 5 screws. Make sure that the electric contacts are correctly mounted.



How to install the battery box

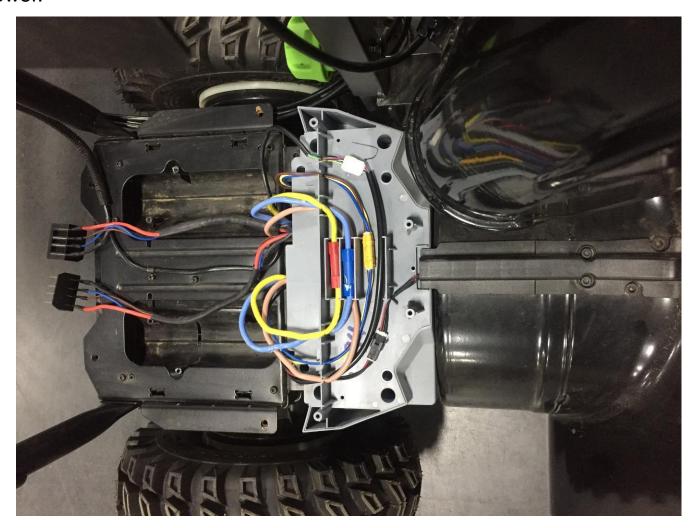


3. Use a Torx wrench (T20 bit) and hex bit(5mm) to tighten the 6 screws (Yellow circled) and 4 bolts(Red circled).



4. Close the PCBA Box Cover with the 4 screws using the Torx wrench.

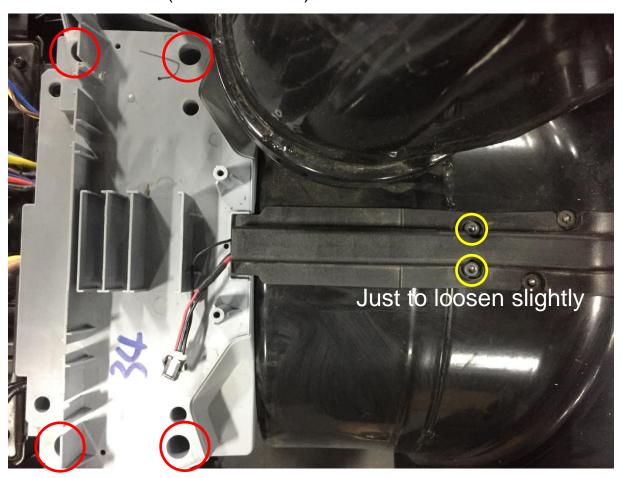
1. See the section "**How to remove the battery box**" to remove the battery box from the snow blower.

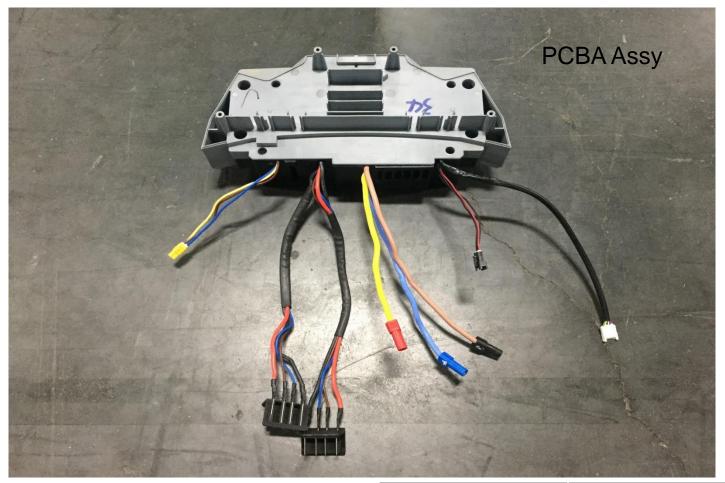


2. Disconnect all the plugs.



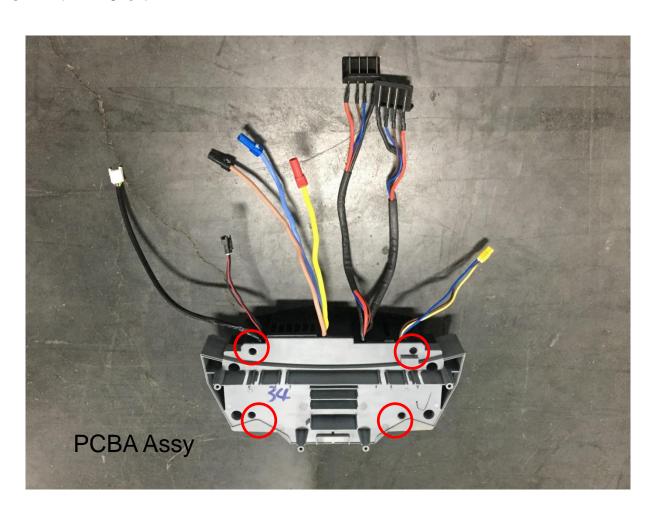
3. Use a hex bit(4mm) to just loosen the 2 bolts(Yellow circled) and another 5mm to loosen and remove the 4 blots deep inside the PCBA box(Red circled) to take away the PCBA Assy from the snow blower (see next slide).



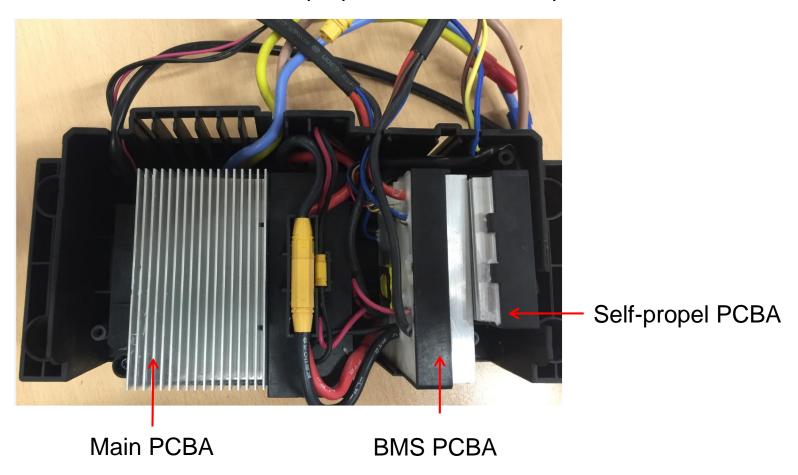


Description	Part Number
PCBA Assy	2830708002

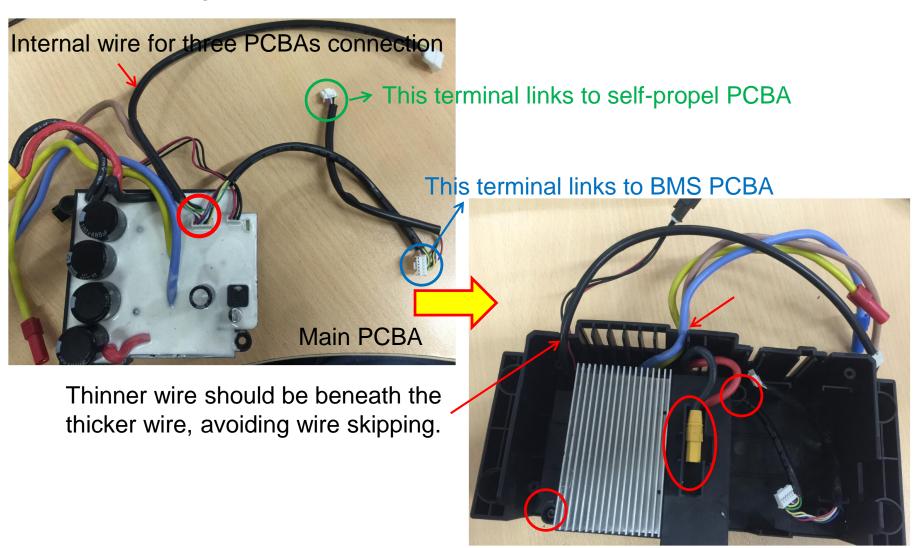
- 4. Main PCBA/BMS PCBA/Self-propel PCBA are included in the PCBA Assy.
- ➤ If your need to have the single one replaced, please open the PCBA Assy box using a Torx wrench with T20 bit.



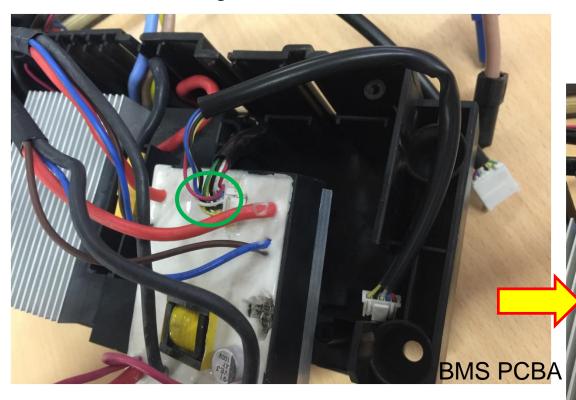
Main PCBA, BMS PCBA and Self-propel PCBA locations please see below:



① Main PCBA Alignment

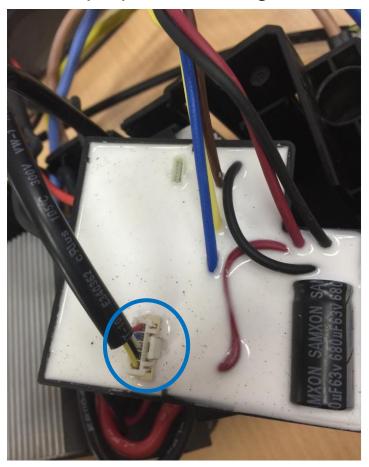


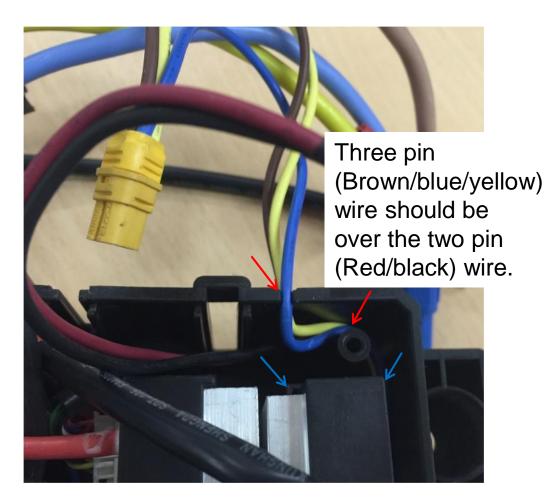
② BMS PCBA Alignment



Main PCBA + BMS PCBA

Self-propel PCBA Alignment





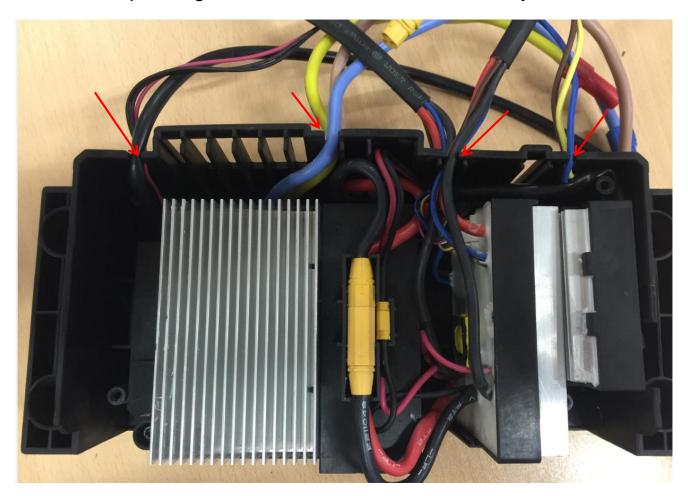
Self-propel PCBA Alignment

Electric contact terminal wire from the BMS PCBA

The black thicker wire is on the top, avoiding wire skipping.

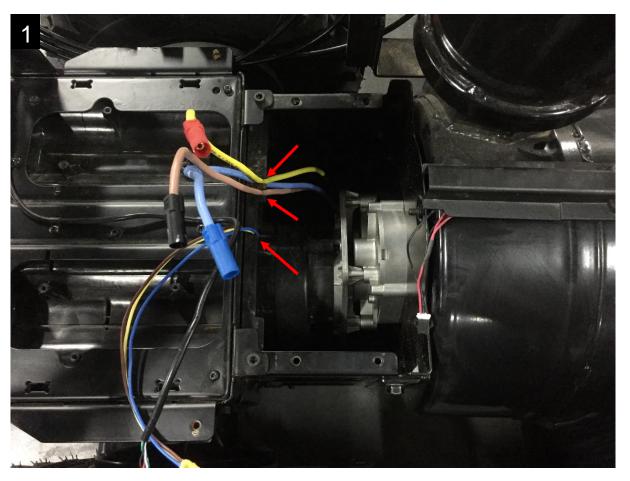
Self-propel PCBA - + BMS PCBA

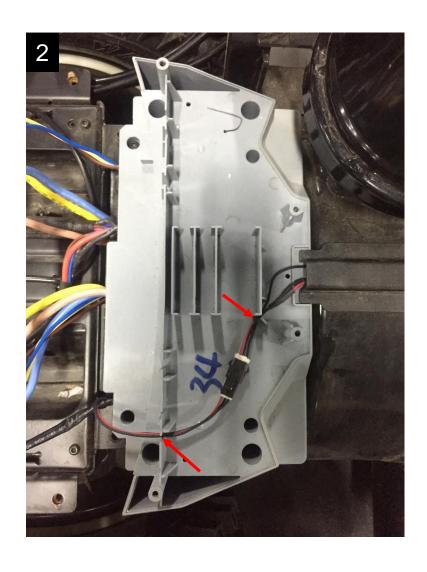
Before closing the PCBA Assy box top cover, please make sure that all the wires are aligned in the corresponding slots of the bottom cover correctly.

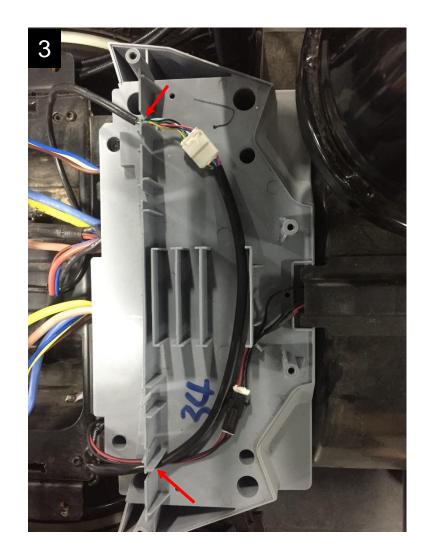


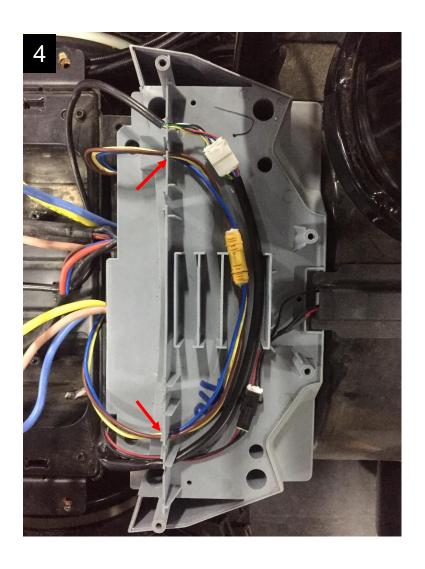
Replace with a new PCBA Assy.

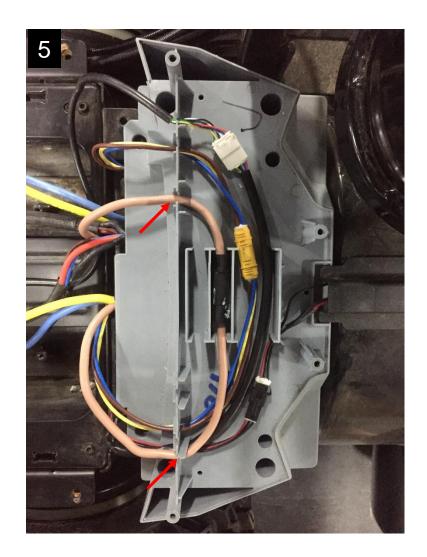
Align the wires as below step 1-8 instructed.

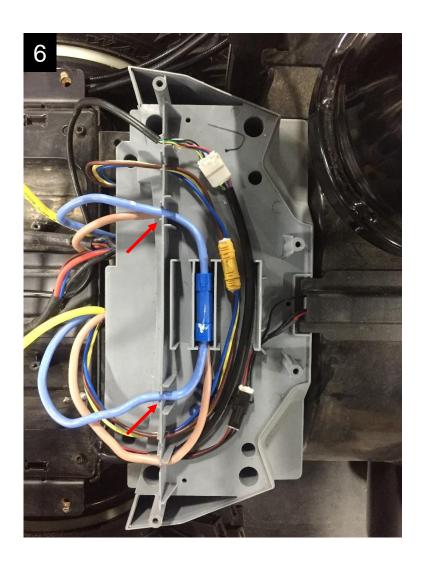


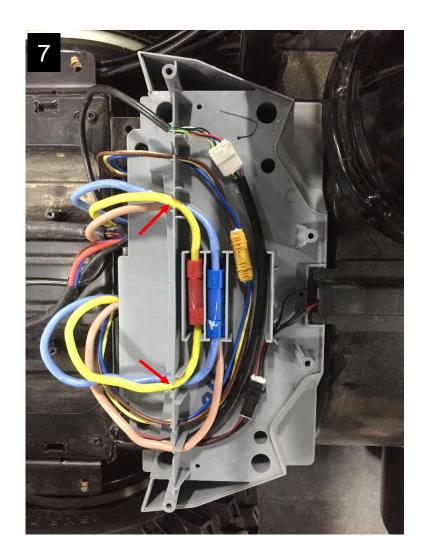




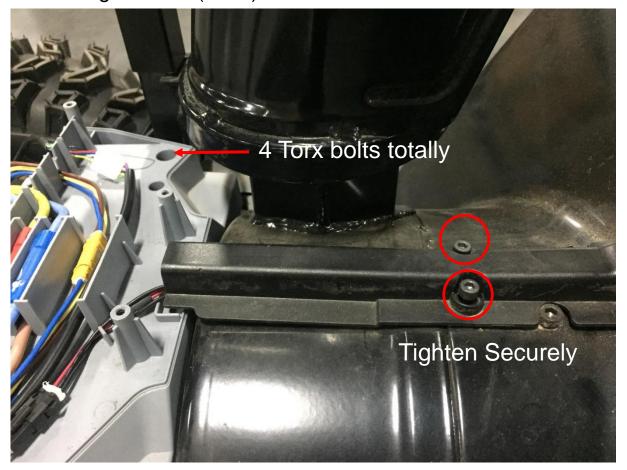








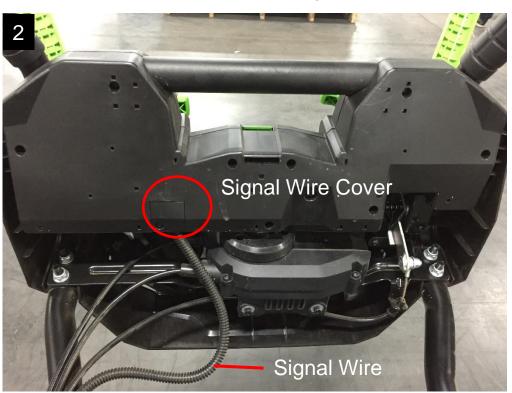
5. Use a hex bit(4mm) to tighten the 2 bolts and then fix the PCBA Assy on the snow blower with the 4 bolts using a hex bit(5mm).



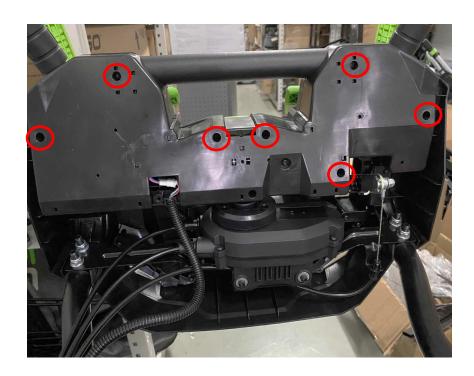
6. See the section "**How to install the battery box**" to install the battery box onto the snow blower.

- 1. Lay the snow blower as Fig. 1 shown.
- 2. Use a Torx wrench with T20 bit to loosen the 1 screw to remove the signal wire cover.



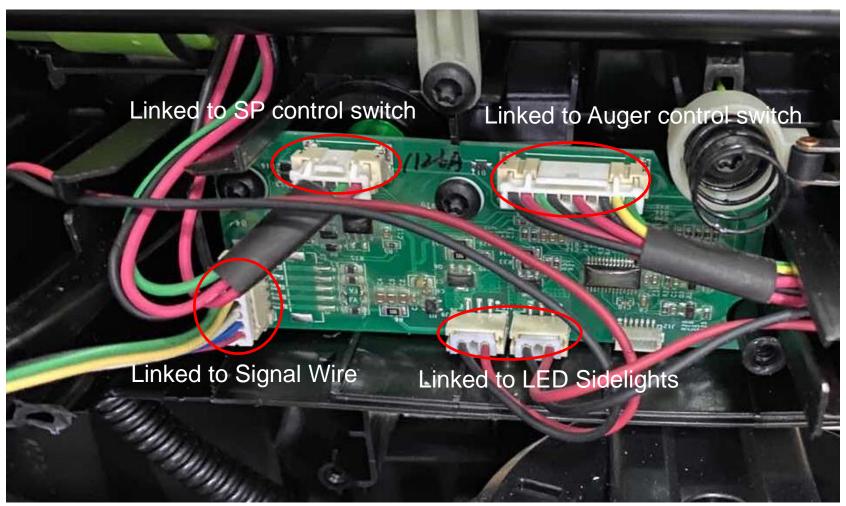


3. Use a Torx wrench with T20 bit to loosen the 7 screws to open the Handle ASSY.





4. Disconnect the plugs linked the Switch to Signal Wire, LED Sidelights, SP control switch and Auger control switch.





 Use <u>a Torx wrench with T20 bit</u> to loosen the 2 screws to remove the Switch PCBA from the Handle ASSY.

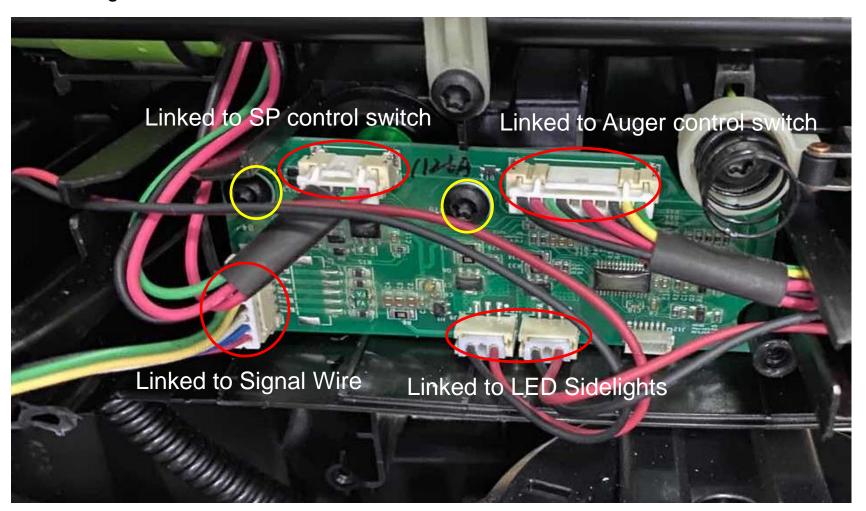


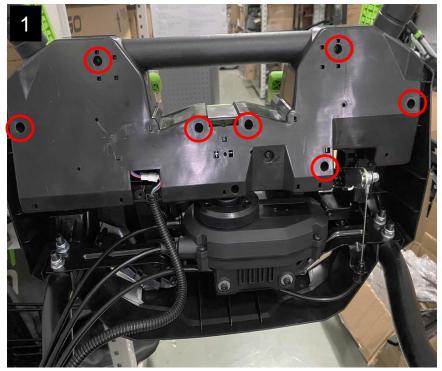
- 6. Disconnect the plugs linked the Switch PCBA to Signal Wire.
- 7. Replace the Switch PCBA and reassemble it in the reverse order.(See the next slides)



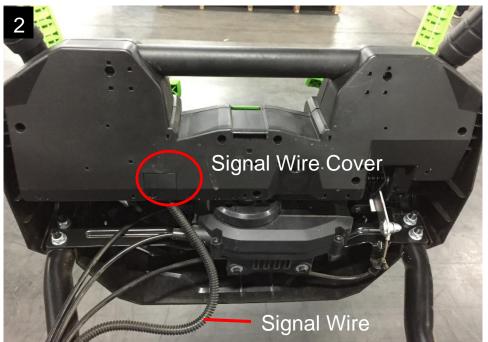
Description	Part Number
Switch PCBA	4891881002
Screw	5620157006

- 8. Tighten the 2 screws to fix the Switch PCBA on the Handle ASSY.
- 9. Disconnect the plugs linked the Switch to Signal Wire, LED Sidelights, SP control switch and Auger control switch.





- 10. Use a Torx wrench with T20 bit to tighten the 7 screws to close the Handle ASSY.
- 11. Fix the Signal Wire Cover with 1 screw by a Torx wrench with T20 bit.

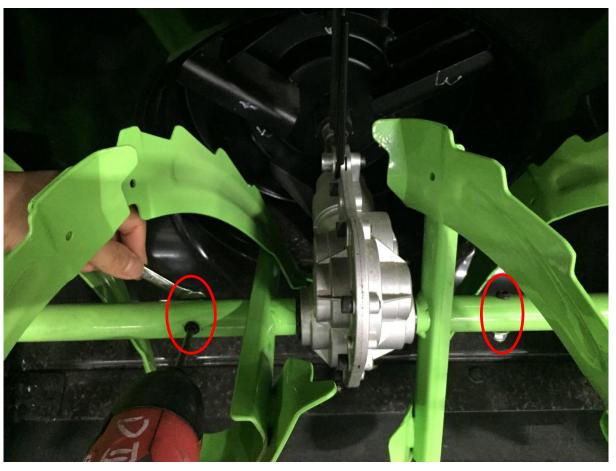


1. Use a hex bit(5mm) to loosen and remove the 2 bolts.



2. Use <u>an impact wrench with 4mm hex bit and an open wrench(10mm) cooperated to</u> loosen and remove the 2 shear pins from the auger shaft. The auger is free from the

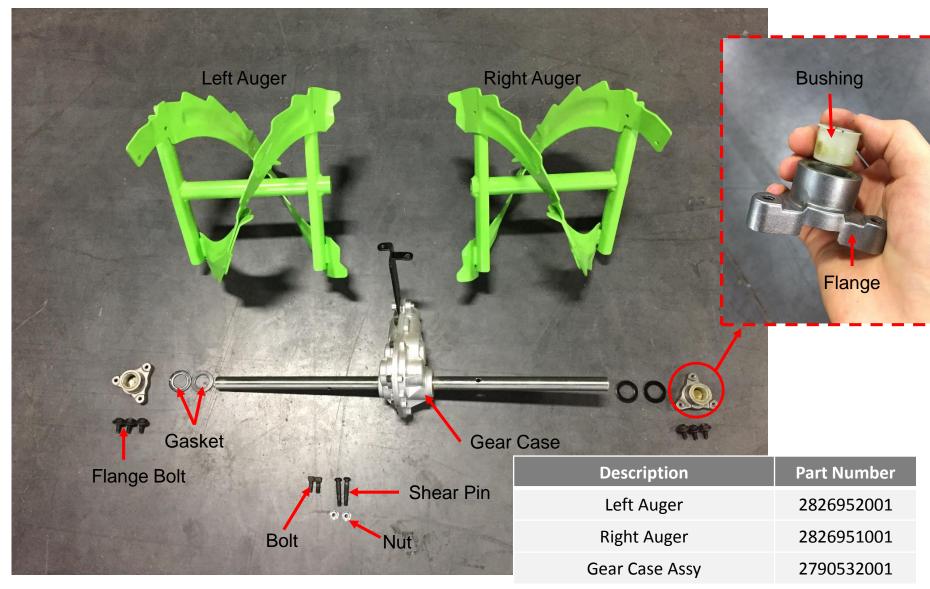




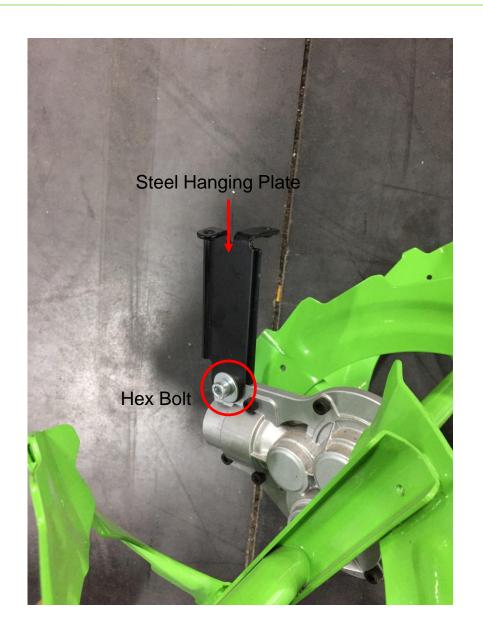
- 3. Use a hex bit(5mm)/a socket

 wrench (10mm) to loosen and
 remove the 3 flange bolts on each
 side.
- Remove the auger and gear case
 Assy together from the snow
 blower and separate them as next slide shown.
- 5. Any part worn, have it replaced.



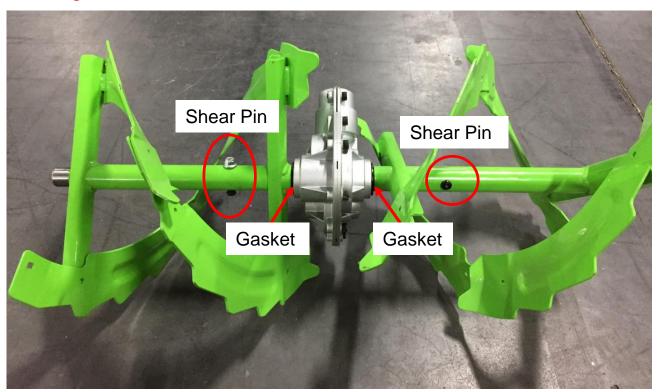


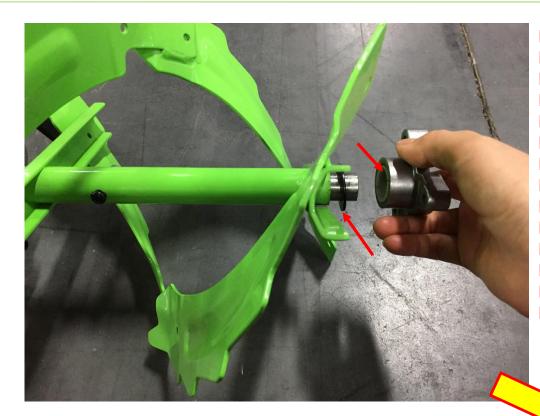
- 6. When the gear case need replaced, the steel hanging plate should be removed (using a 6mm hex bit) and reassemble it with the beneath washer onto the new gear case.
- 7. When have new auger or gear case Assy reassembled, use a hex bit(6mm) to slightly loosen the hex bolt, ensuring that the steel plate can rotate freely on the gear case. It will be needed for later adjusting.

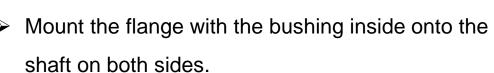


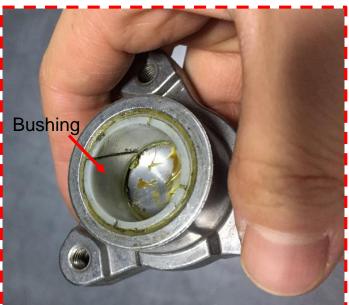
- 8. Follow the below steps to mount the auger/gear case Assy onto the snow blower.
- Mount one gasket onto the shaft on each side and then mount the left and right auger.
- Align the hole in the auger with the hole in the shaft, insert the shear pin into the aligned holes and fix them by nut.

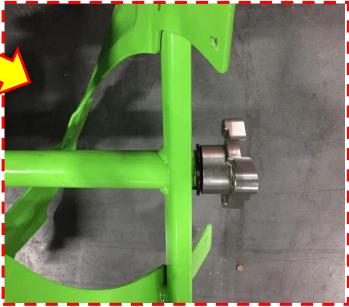
NOTICE: Once the holes can not be aligned correctly, the left and right auger is mounted reversely. Exchange them and reassemble.









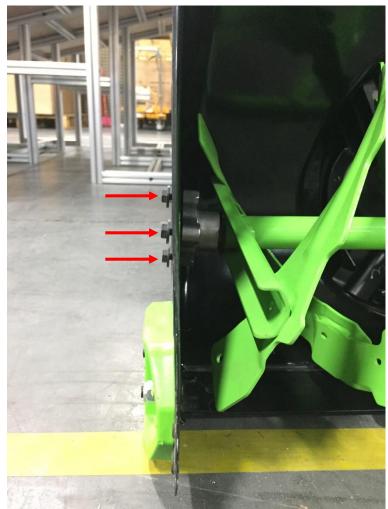


Lay the snow blower as below direction shown. It is kind of easy for auger and gear case Assy reassembly.

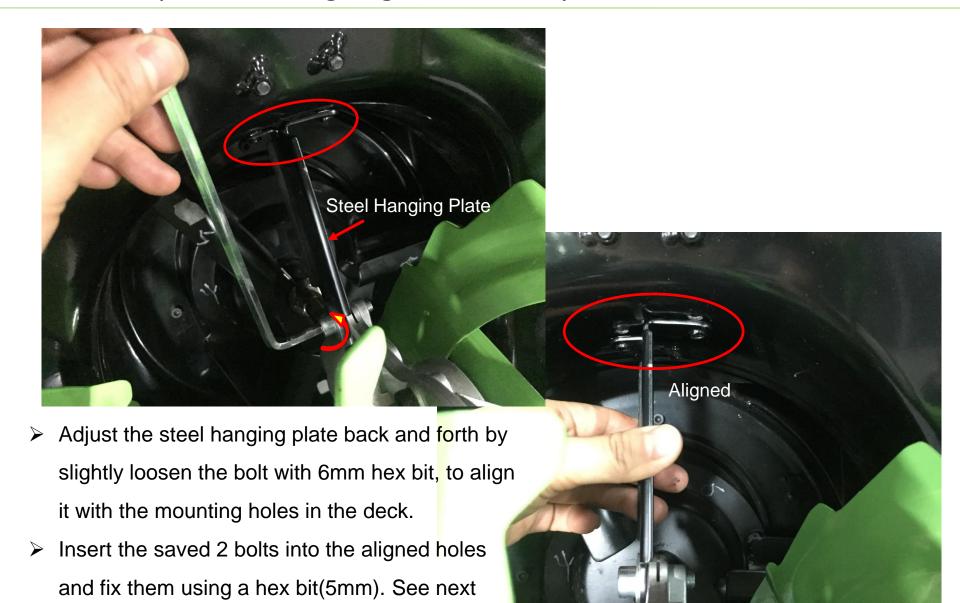




- Mount the auger and gear case Assy onto the snow blower. Please pay attention for aligning the flange slot with the bulge on the deck side.
- After correct aligning, <u>pre-tighten</u> them with the 3 flange bolts on both sides.

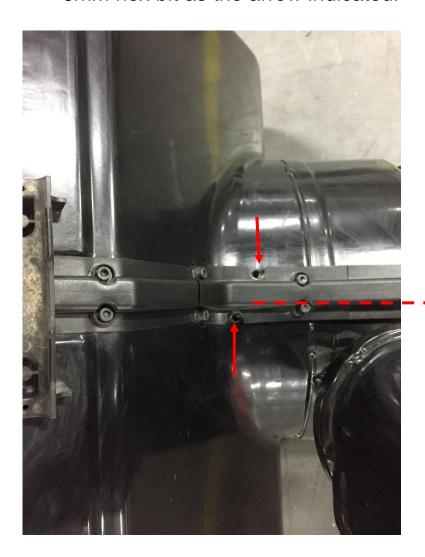


slide, red circled.



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> Tighten the hex bolt to fix the steel hanging plate with the gear case Assy using 6mm hex bit as the arrow indicated.



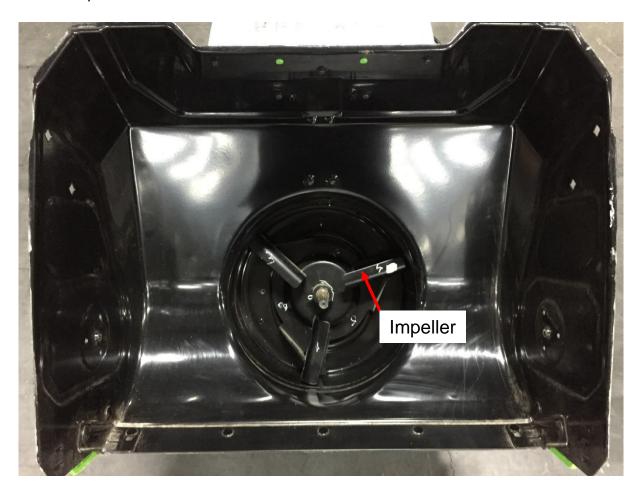


- Use a hex bit(5mm)/a socket wrench (10mm) to securely tighten the 3 flange bolts on each side.
- Carefully rotate the auger by hand to see whether the auger/gear case Assy can rotate freely. If any blocking or noise, please reassemble them.



How to replace the impeller

- 1. Follow the instructions in section "How to replace the auger/gear case Assy" to remove the auger and gear case Assy from the snow blower.
- 2. The impeller is locked by <u>one Circlip</u> and <u>one Split pin</u>. Remove them use the proper tool(see next slide).



How to replace the impeller



Use a <u>Circlip pliers</u> to remove the Circlip from the motor shaft.



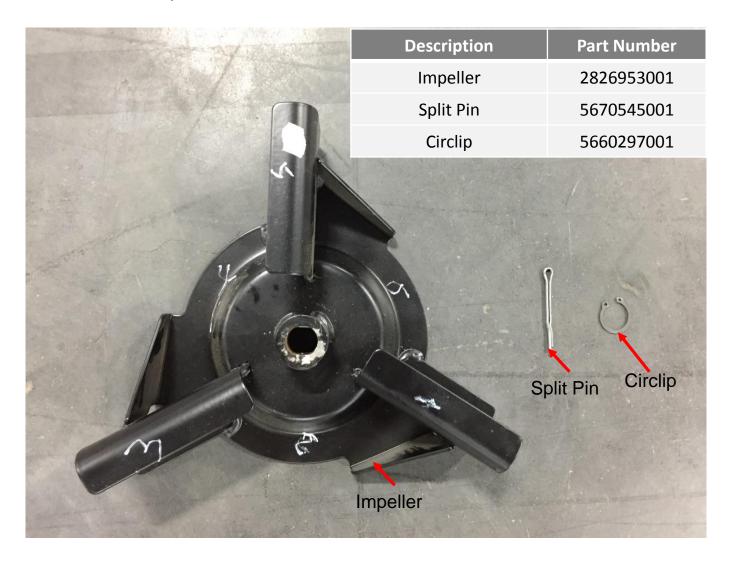
Use a <u>Pincer pliers</u> to straight the split pin first and then pull it from the motor shaft.



Split Pin (straight)

How to replace the impeller

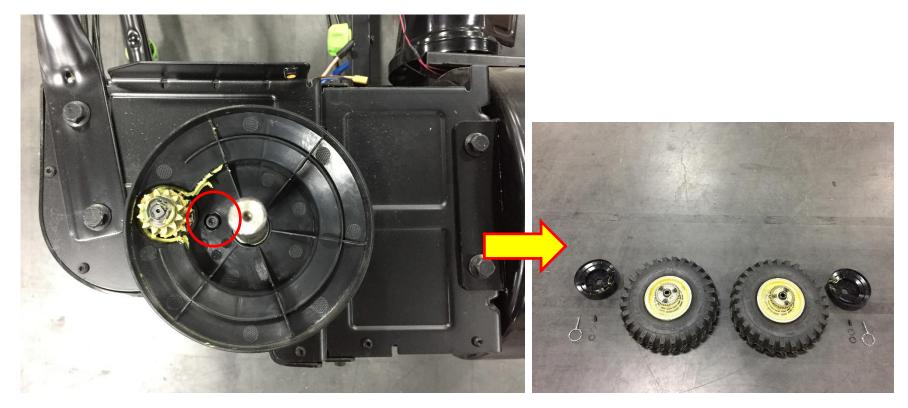
3. Reassemble a new impeller onto the snow blower in reverse order.

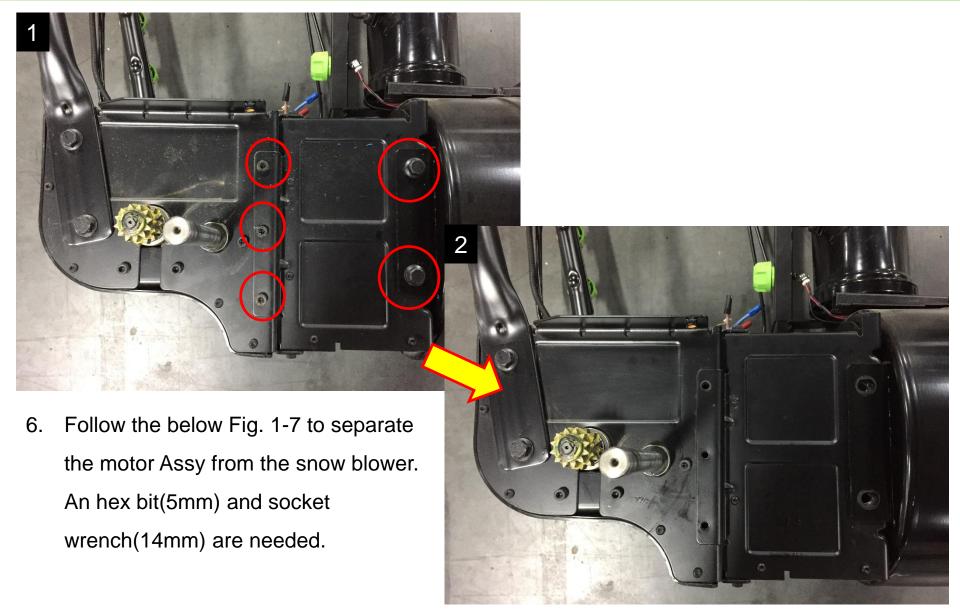


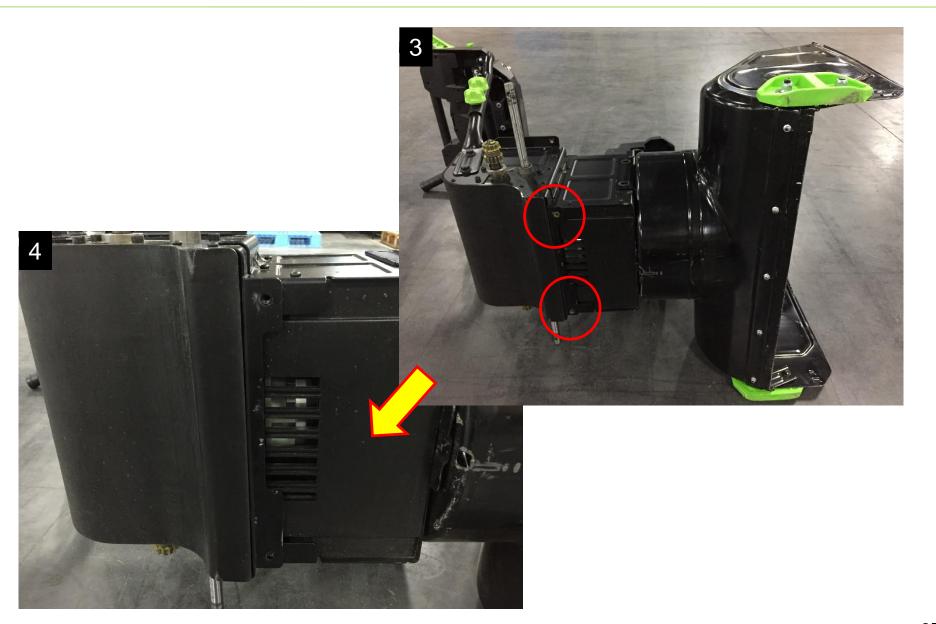
- 1. See the section "**How to replace the impeller**" to remove the auger, gear case Assy and impeller from the snow blower.
- 2. Remove the 8 screws on the deck to separate the deck from the motor Assy using a hex bit(5mm).

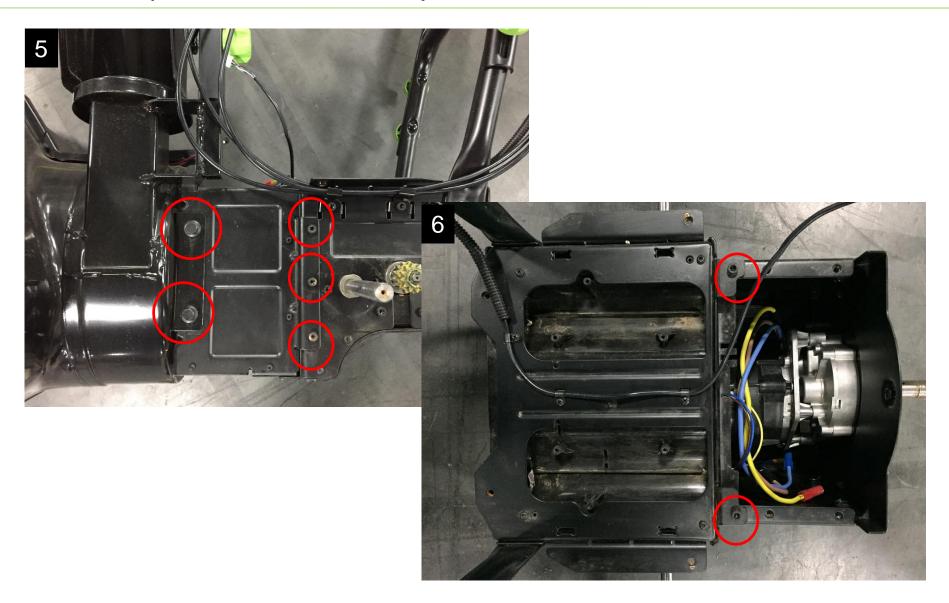


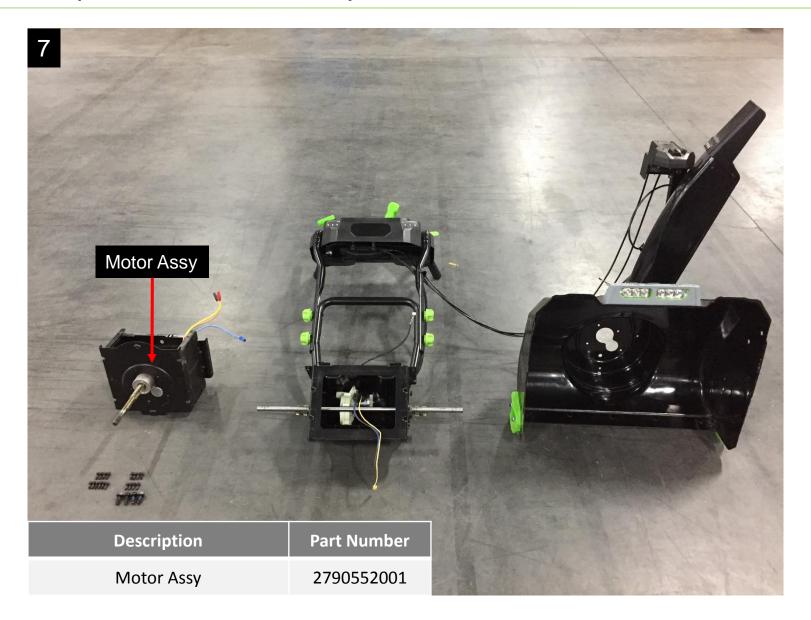
- 3. See the section "**How to remove the battery box**" to remove the battery box from the snow blower;
- 4. See the section "How to replace PCBA Assy/main PCBA/BMS PCBA/Self-propel PCBA" to remove the PCBA Assy from the mower.
- 5. See the section "**How to replace the wheel**" to remove both the left and right wheels from the snow blower.





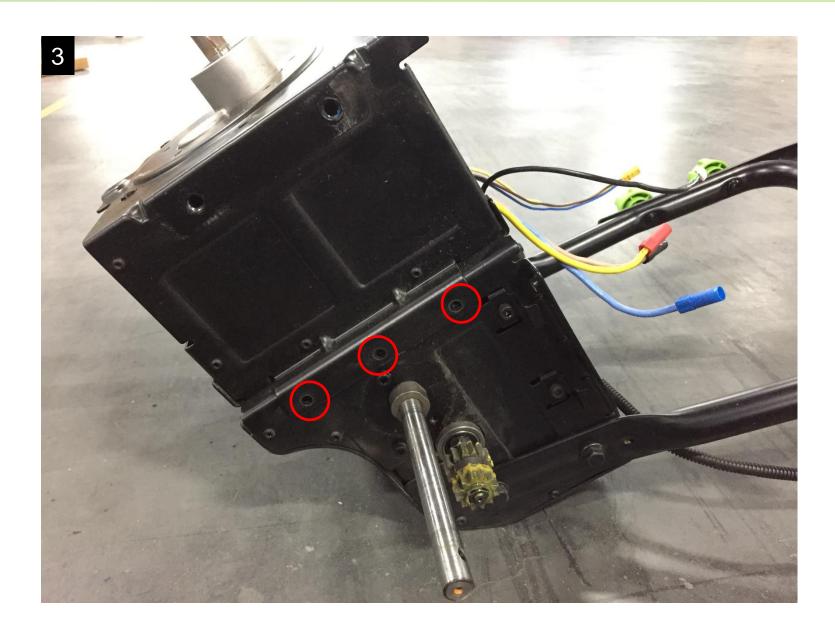


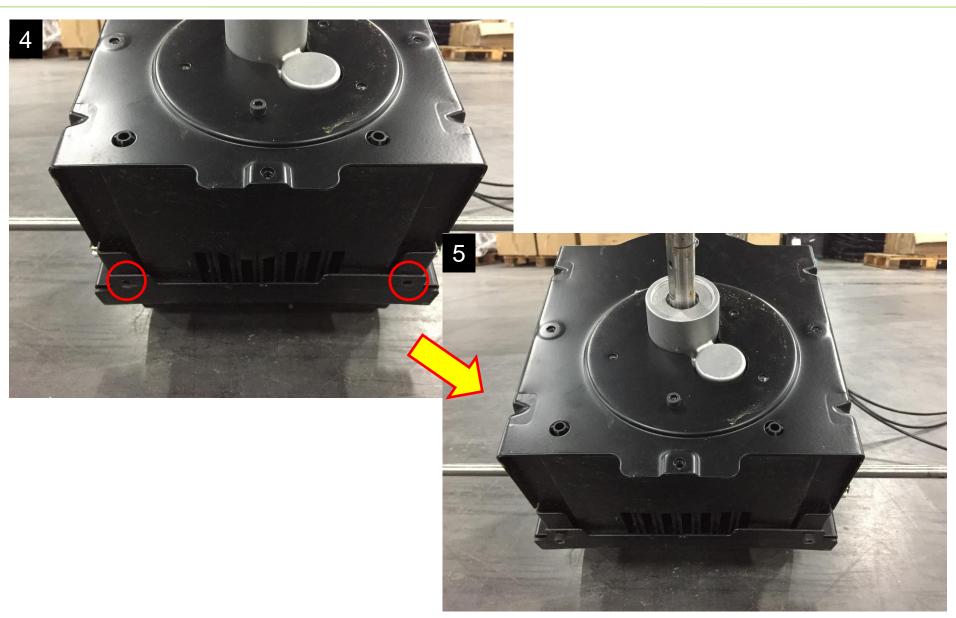




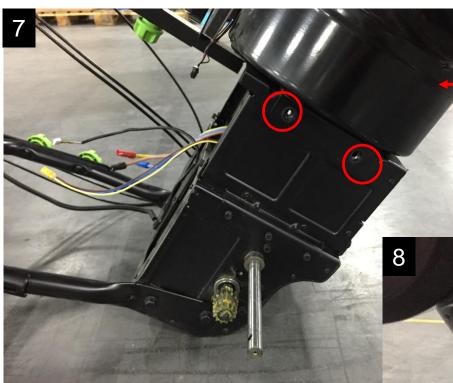
7. Replace with a new motor Assy and reassemble it in the reverse order.

8. Before screw fixing, pass the wire from the self-propel unit through the motor Assy housing (Fig.1) and then fix all of the screws or bolts (Fig. 2-9).





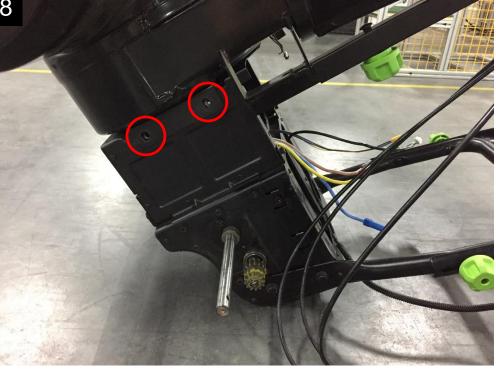




Deck of snow blower

NOTICE: The recommended torque for the 4 blots is 44-48 Nm.

- An torque wrench(14mm) are used to fasten the deck onto the motor Assy with 4 bolts.
- 8 Torx screws are tightened to securely fix the deck on the motor Assy (see next slide).

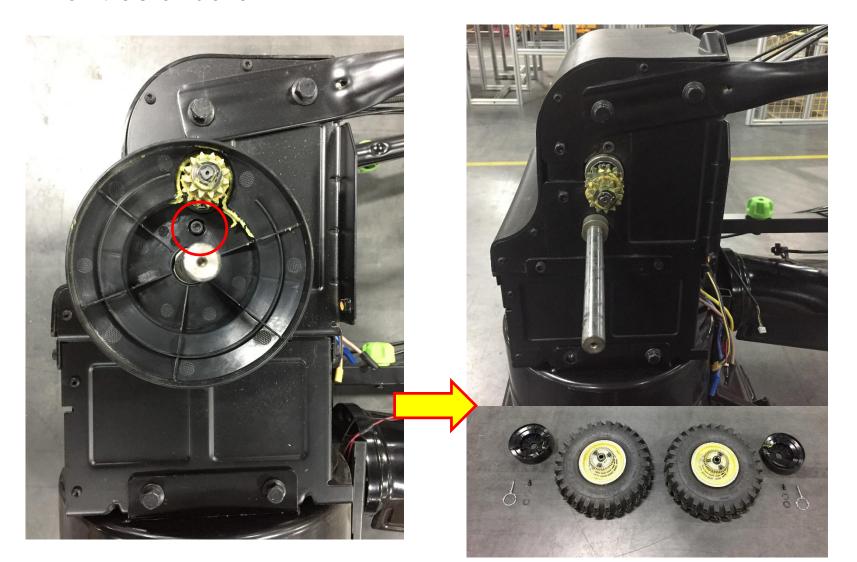


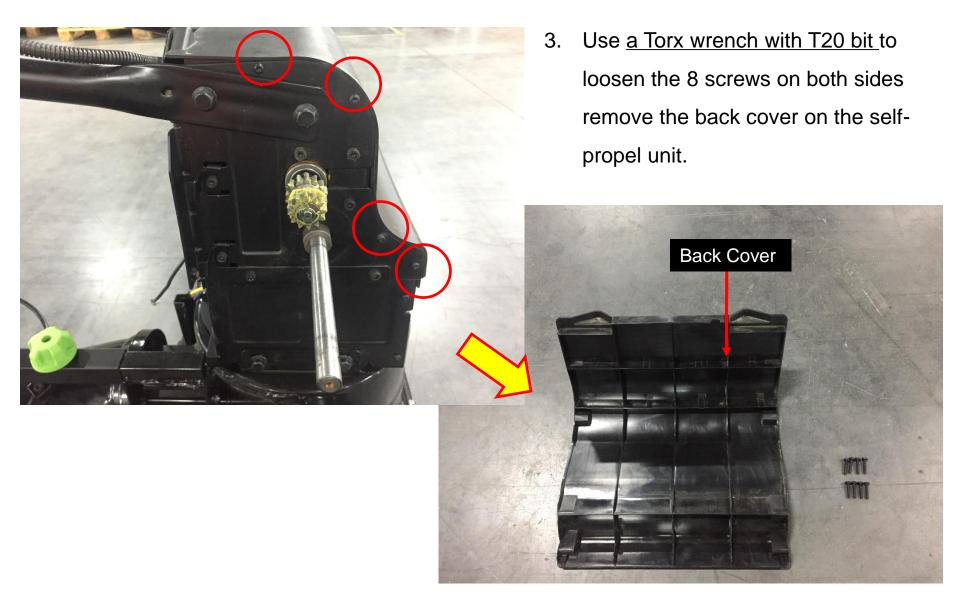


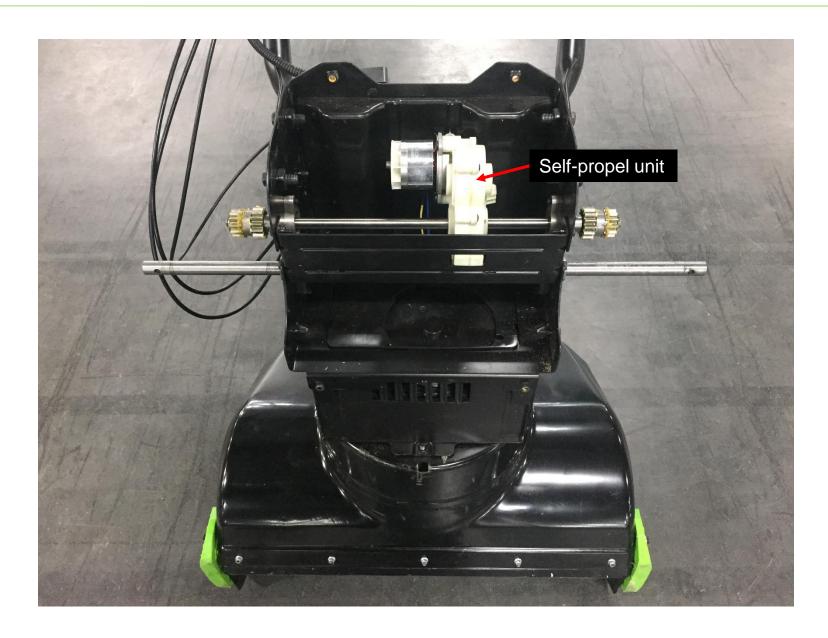
1. Lay the snow blower as picture shown.



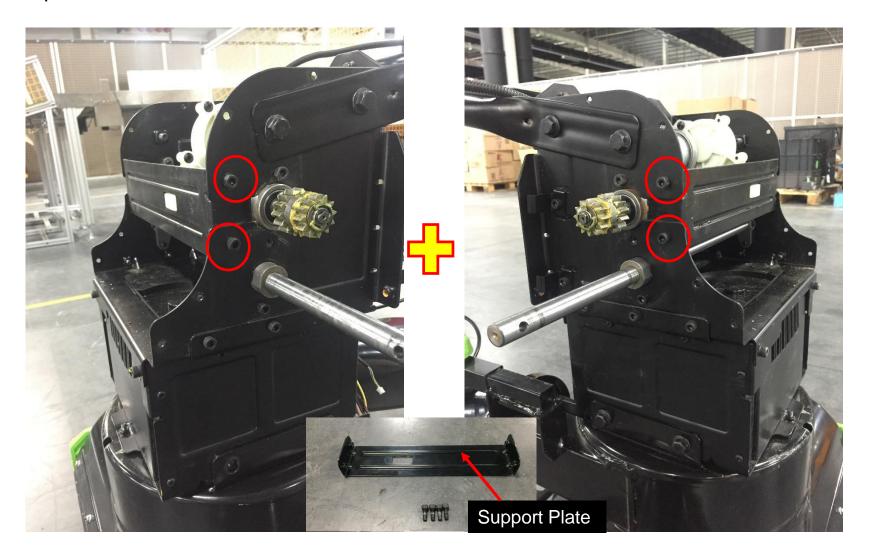
2. See the section "**How to replace the wheel**" to remove both the left and right wheels from the snow blower.



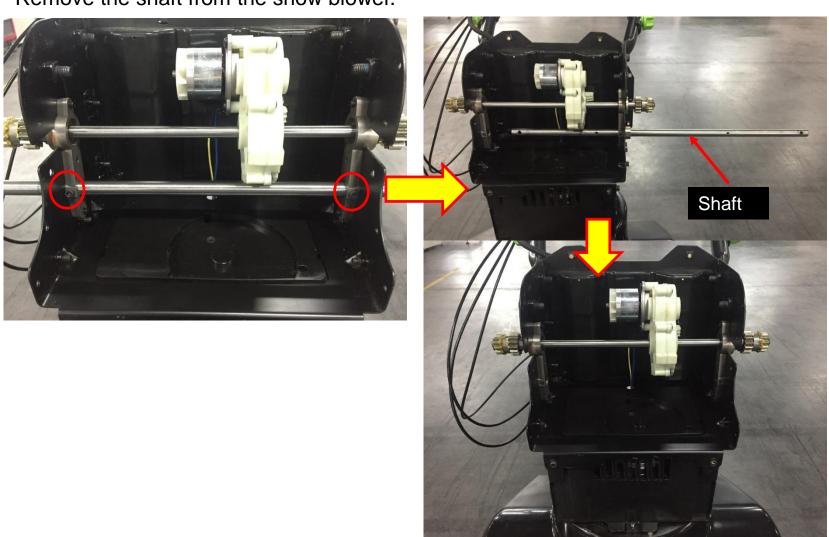




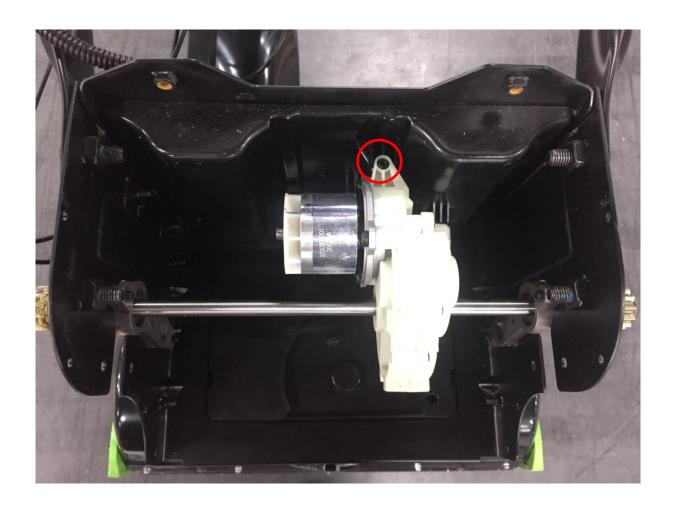
4. Use a hex bit(5mm) to loosen and remove the 4 screws which are used to fix the support plate.



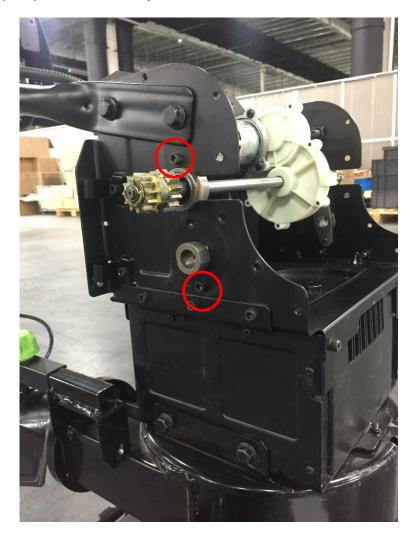
Use a hex bit(4mm) to loosen and remove the 2 screws which are used to fix the shaft.
 Remove the shaft from the snow blower.

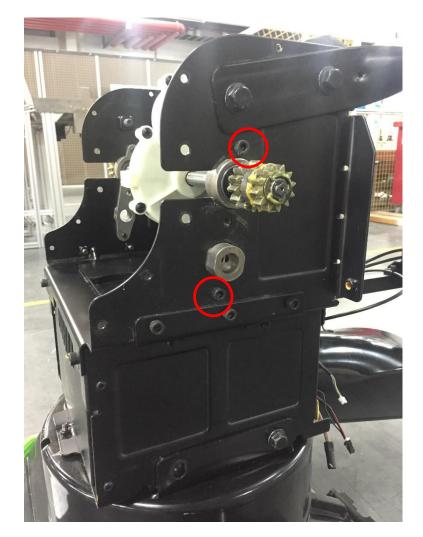


6. Use a Torx Wrench with T20 bit to loosen and remove the Torx screw that fixes the self-propelled unit with the plastic housing.



7. Use a hex bit(5mm) to loosen and remove the 4 screws to thoroughly release the selfpropel unit away from the steel frame.

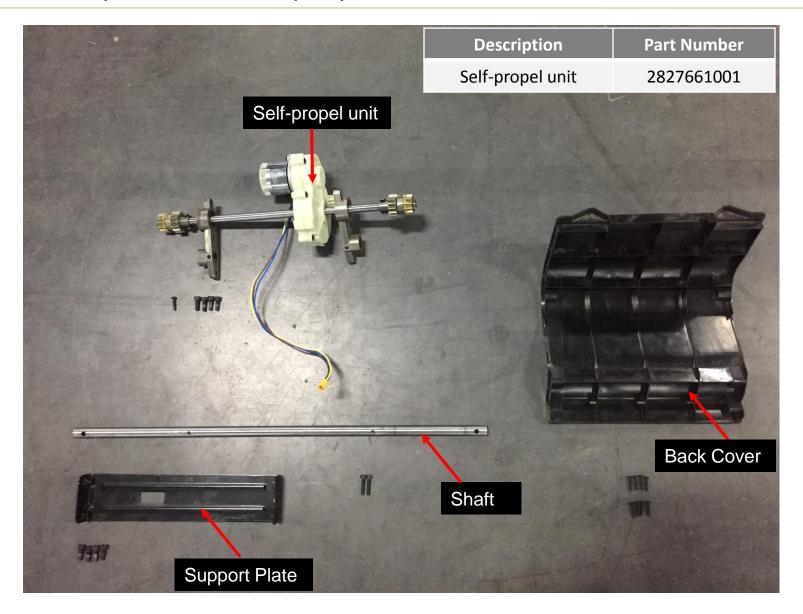




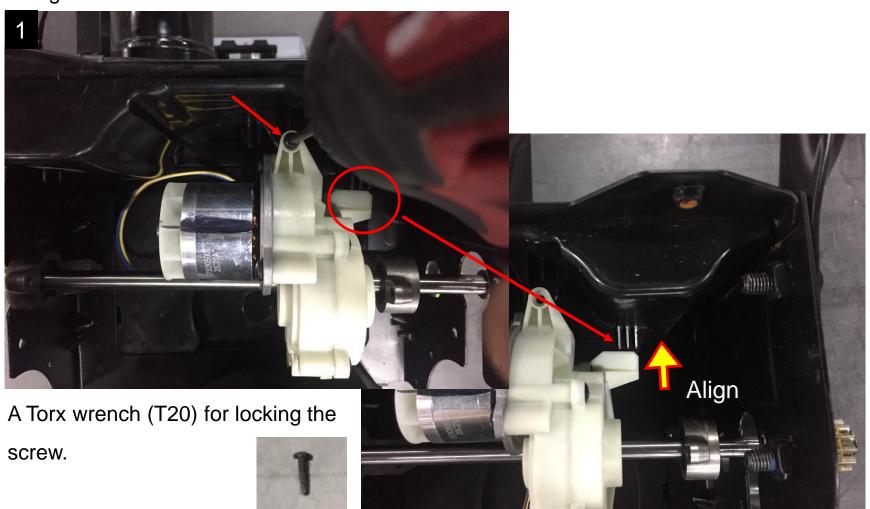


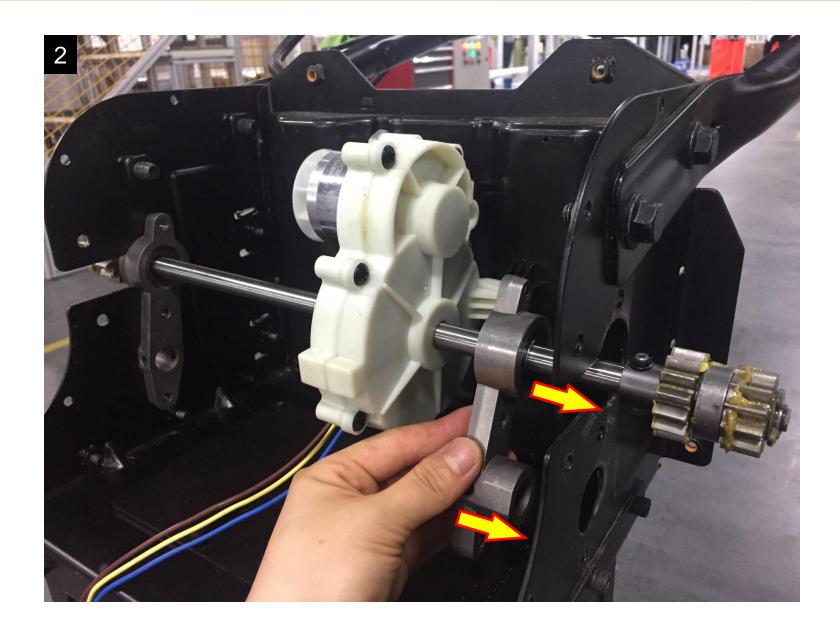
8. Pull the wire from the selfpropel unit motor from the hole.

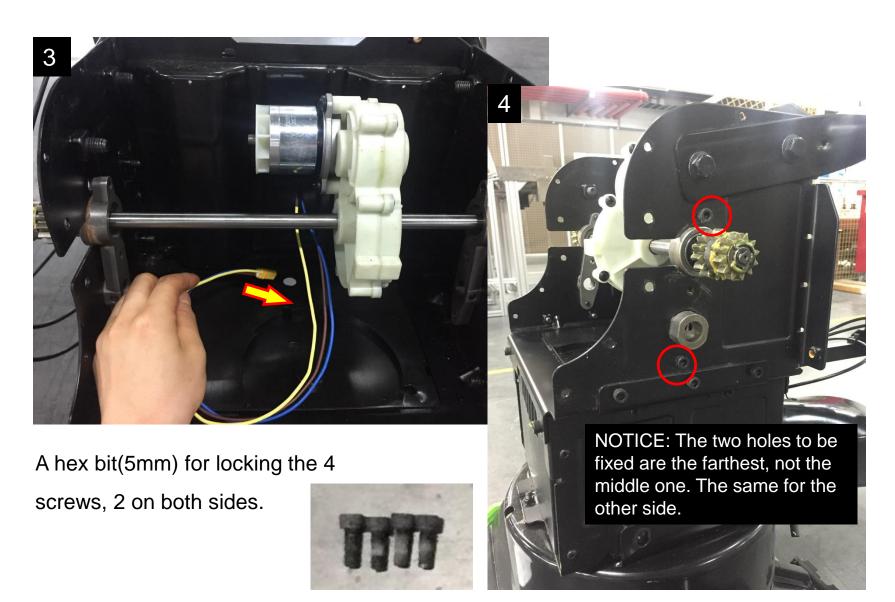
 The disassembled parts see next slide. Have the selfpropel unit replaced.

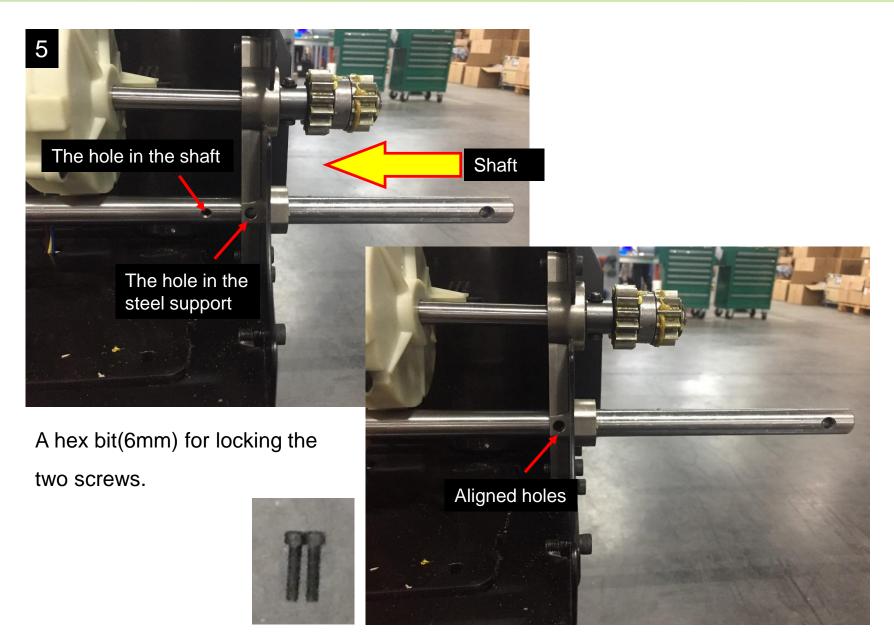


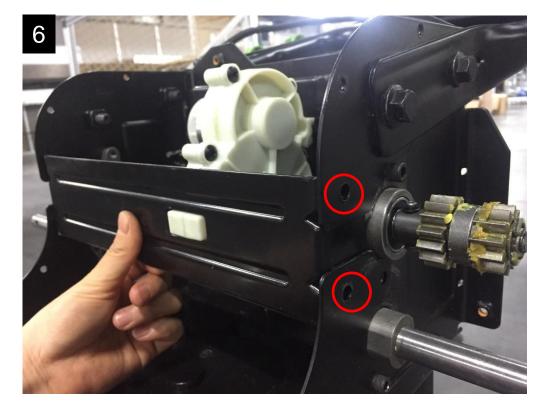
10. Assemble the new self-propel unit onto the snow blower in the reverse order, as below Fig.1-6.













A hex bit(5mm) for locking the 4 screws, 2 on both sides.

11. See the section "**How to replace the wheel**" to mount both the left and right wheels onto the snow blower.

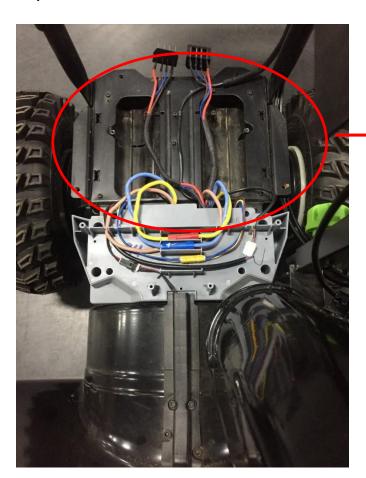
How to replace the self-propel unit

NOTICE: If the plastic cover, which is used to connect the self-propel unit to steel frame, needs replacement, you can continue to disassemble it as below steps shown.



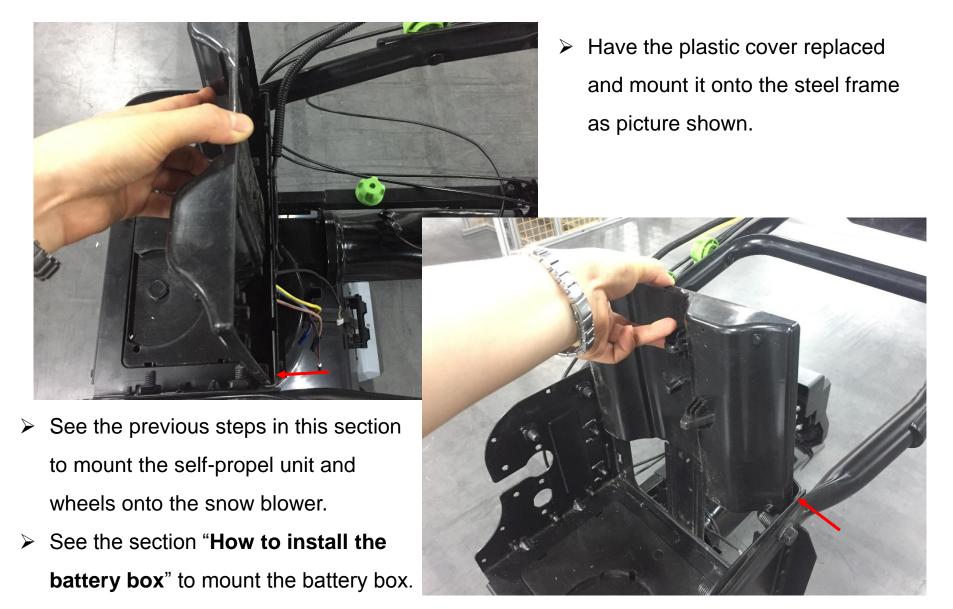
How to replace the self-propel unit

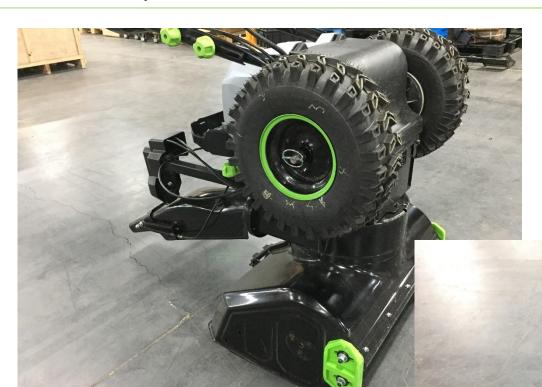
- > See the section "**How to remove the battery box**" to remove the battery box from the snow blower.
- ➤ Use a Torx wrench with T20 bit to loosen and remove the 5 torx screws to separate the plastic cover from the steel frame.





How to replace the self-propel unit





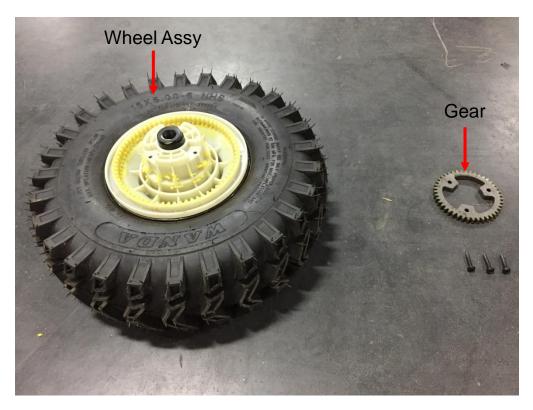
 Lay the snow blower on the ground with its deck.

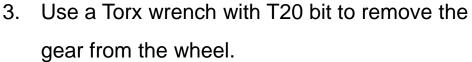
Manually remove the pin from the shaft first and then remove the washer and wheel.

Pinl

Washer

Description	Part Number
Left Wheel Assy	2827163004
Right Wheel Assy	2827164004
Locking Pin	5670546001
Washer	5650272002

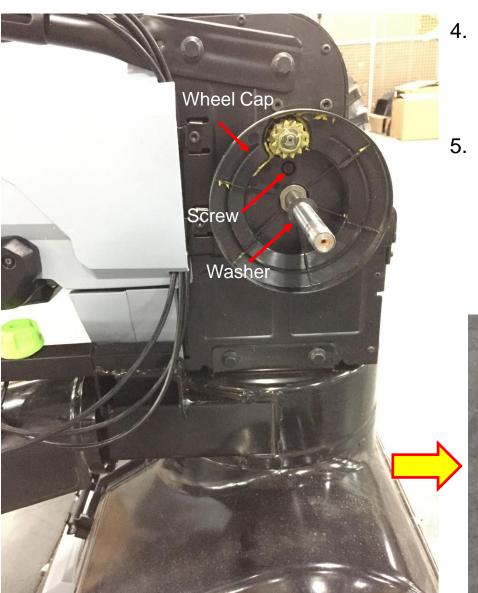




Description	Part Number
Gear	3570046001







- Take care of the other washer on the shaft when the wheel Assy is removed.
 Save it on the shaft.
- If the wheel cap needs replacement, use a hex bit(5mm) to loosen and remove the screw.



6. Assemble the gear onto the new wheel Assy with the 3 screws. Pay attention of the gear direction.



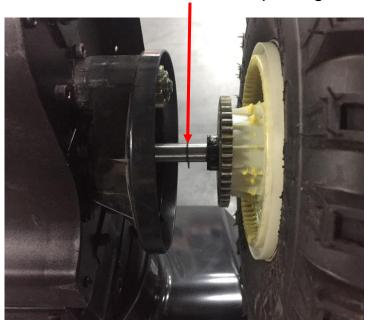


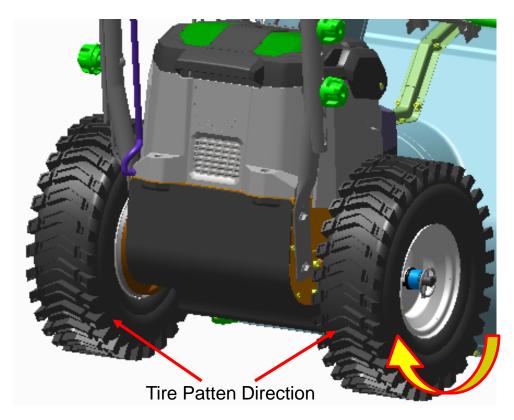


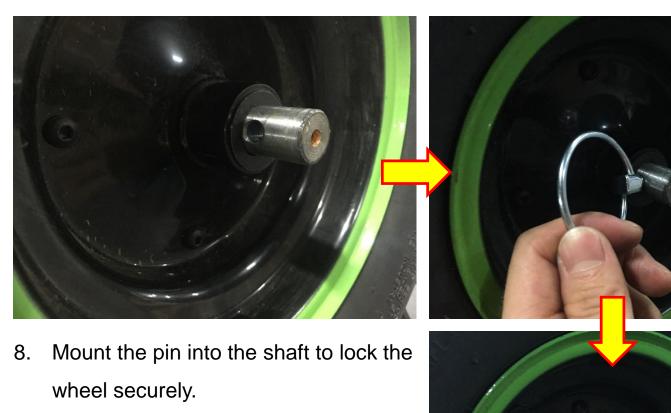


7. Mount them onto the shaft with the wheel tire pattern direction is forward. If the tire pattern is in reverse direction, the left wheel and right wheel is mixed. Reassemble them.

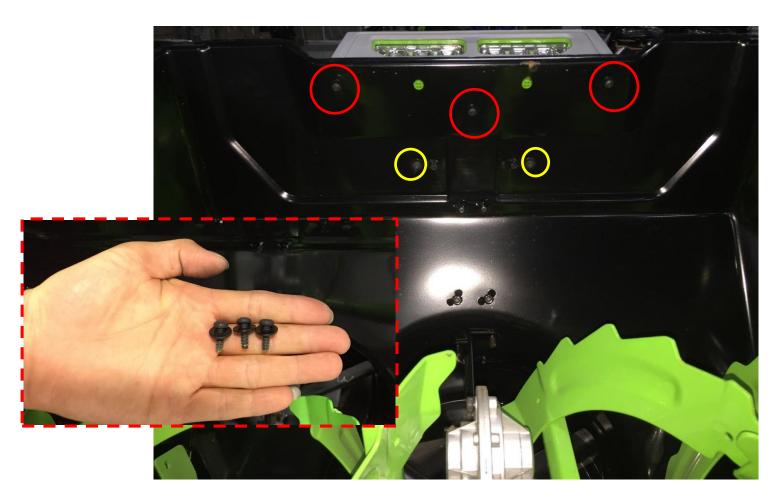
Washer between the wheel cap and gear.







1. Use a Torx wrench with T20 bit to loosen and remove the 5 screw with washer sets. 3 are used to fix the LED headlights (Red circled) and the 2 are used to fix the chute-clean-tool support (Yellow circled).



Chute-clean-tool Support

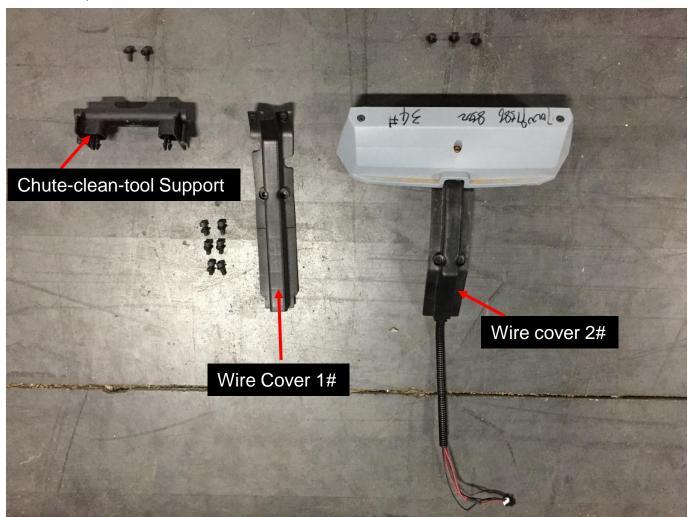
Remove the chute-clean-tool support from the deck (Fig. 1).

Wire Cover 2#

Wire Cover 1#

3. Use a hex bit (6mm) to remove the 2 wire covers from the deck (Fig. 2).

4. The disassembled parts are shown as below. The LED headlights are still in connection with the wire cover 2#. Continue separating the LED headlights from the wire cover 2# (see next slide).

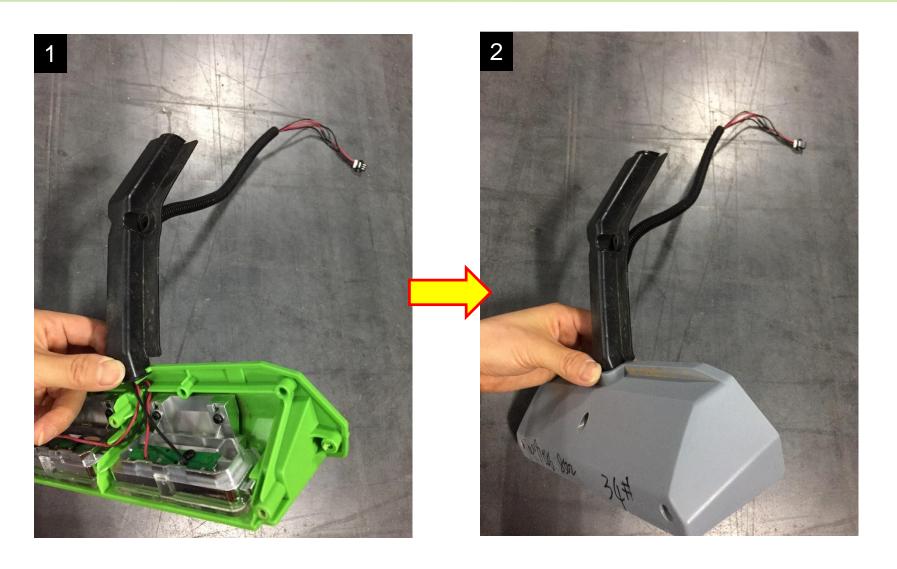


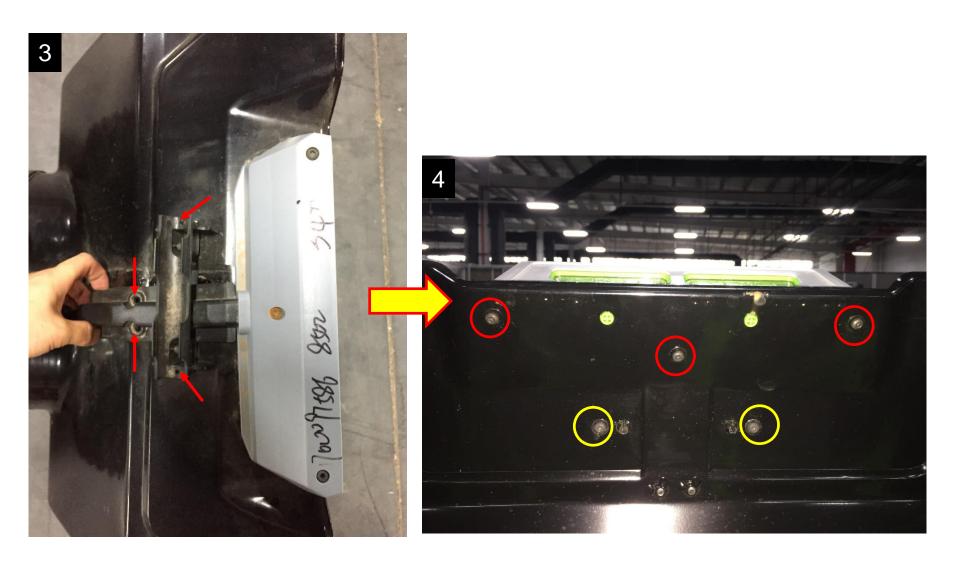
next slides, Fig.1-4).



LED Headlights

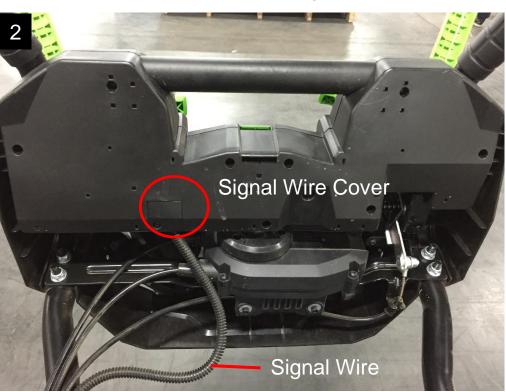
2827177002



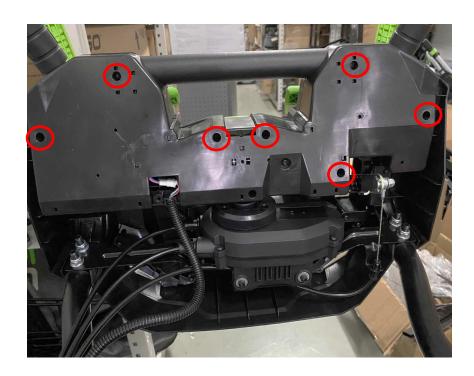


- 1. Lay the snow blower as Fig. 1 shown.
- 2. Use a Torx wrench with T20 bit to loosen the 1 screw to remove the signal wire cover.



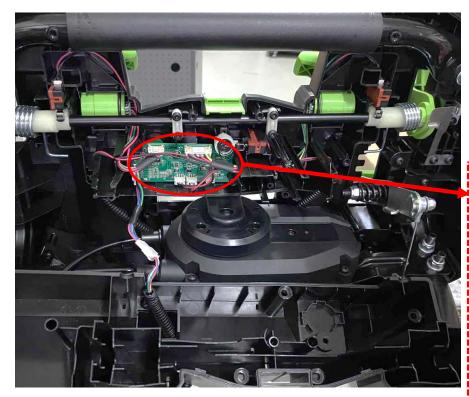


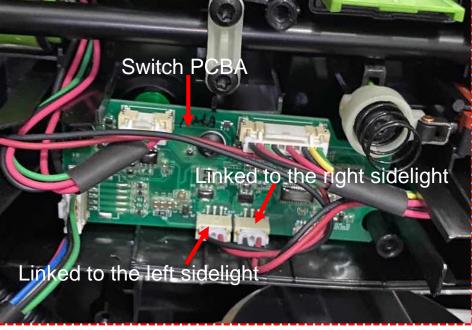
3. Use a Torx wrench with T20 bit to loosen the 7 screws to open the Handle ASSY.



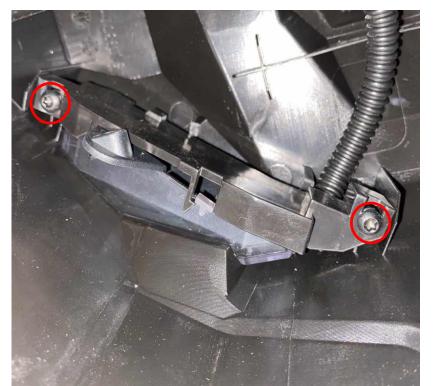


4. Disconnect the plugs linked with Switch PCBA and sidelights.





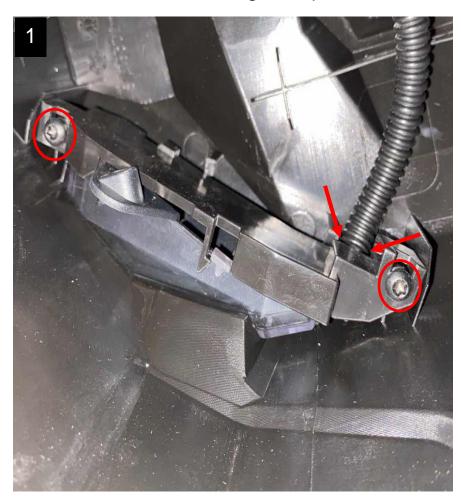
5. Loosen the 4 screws to remove the LED sidelights from the Handle ASSY.

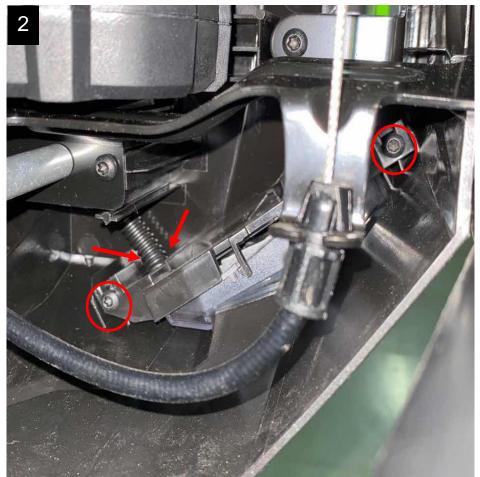


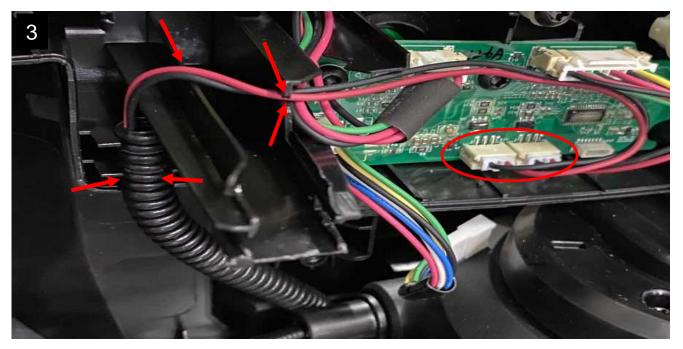


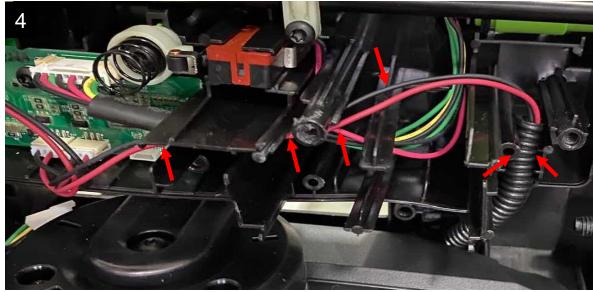


6. Have the LED sidelights replaced and reassemble it in the reverse order (Fig.1-4).





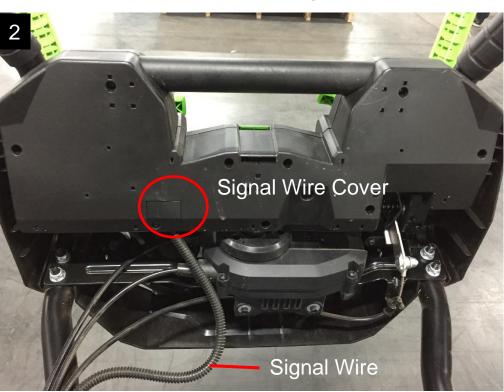


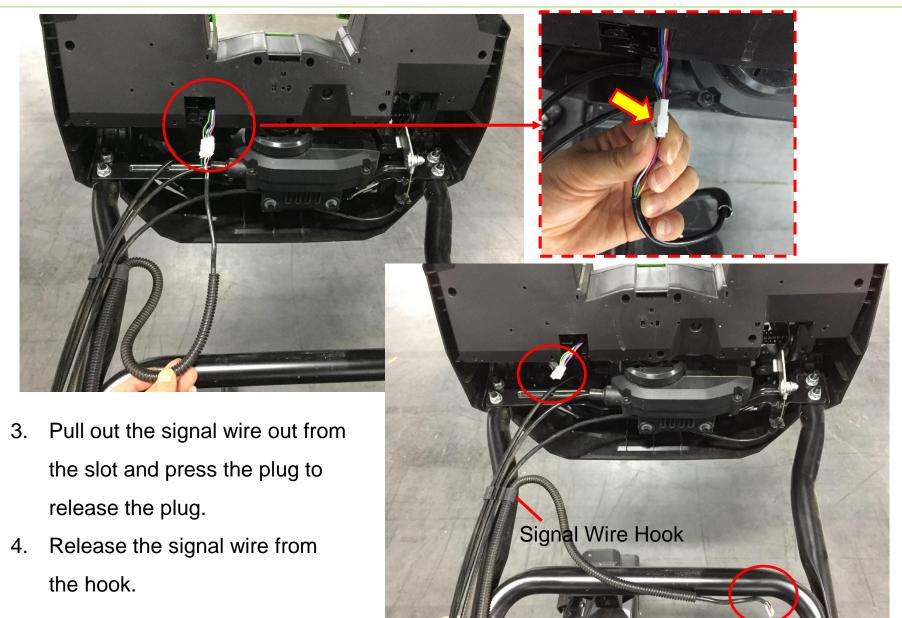




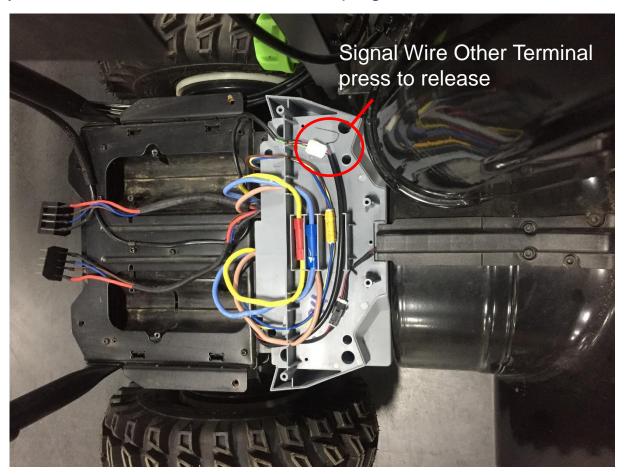
- 1. Lay the snow blower as Fig. 1 shown.
- 2. Use a Torx wrench with T20 bit to loosen the 1 screw to remove the signal wire cover.



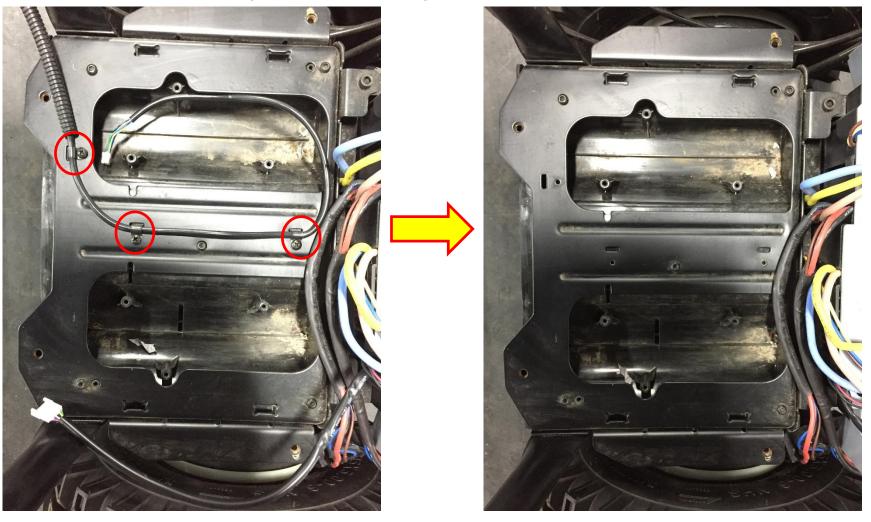




5. See the section "**How to remove the battery box**" to remove the battery box from the snow blower to expose the other terminal of the signal wire which is connected with the PCBA Assy. Press the terminal to release the plug.



6. Use a Philips screwdriver(PH2) to loosen the 3 screws and then remove them as well as the 3 clamps to thoroughly remove the signal wire from the snow blower (see next slide).

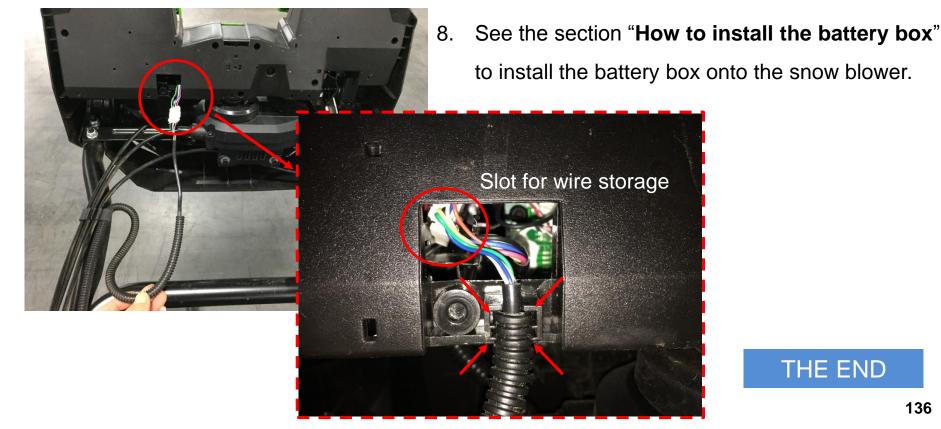




Replace with a new signal wire and reassemble it in the reverse order.

NOTICE:

- When reconnect the signal wire with the PCBA Assy, the wire alignment should be followed as the instruction in Slide 54-57 shown.
- When reconnect the signal wire with the handle Assy, wire alignment is required as below.



THE END