

56122707 DRIVE POSITION ENCODER KIT

For Liberty SC50 Models: ALL

CONTENTS OF KIT

Item	Part Number	Qty	Description
[]	56090377	1	Instruction Sheet
1		1	Rotary Encoder Assembly
2			Harness-Rotary Encoder
3		2	Scr-Soc Hd-SS-DIN 912-M3-0.5X6

[] = Not Shown

REQUIRED TOOLS

Completion of this procedure requires the Drive Position Encoder Calibration Cable p/n 56122727, as shown in **Figure 1**.

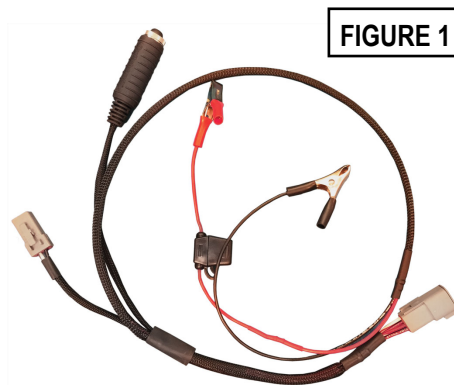
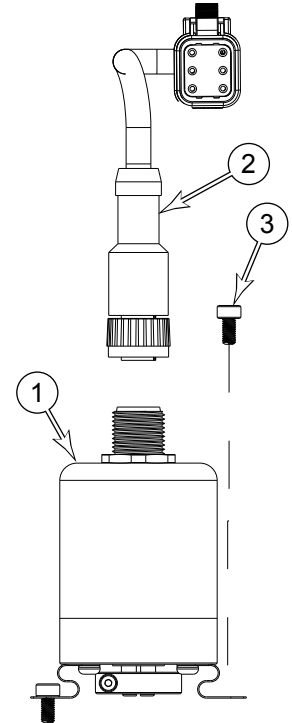


FIGURE 1



INSTALLATION INSTRUCTIONS

⚠ CAUTION!

When working on an SC50 and a battery disconnect is needed, ensure that the Autonomy Module is completely powered off before the power is pulled from the system. To verify that the Autonomy Module is completely powered down simply wait for both the safety LiDAR's and Dropoff lasers to power off, plus an additional 15 seconds after that. If this procedure is not followed when disconnecting the battery, there is a chance that the Autonomy Module could be permanently damaged and would need replacement.

⚠ WARNING! Disconnect battery before servicing.

1. Disconnect the main battery connector for safety, any time you are working near the drive system.
2. **See Figure 2.** Remove the 4 screws (B) and washers (C) that secure the front nose (A) to the recovery tank, and remove the front nose.

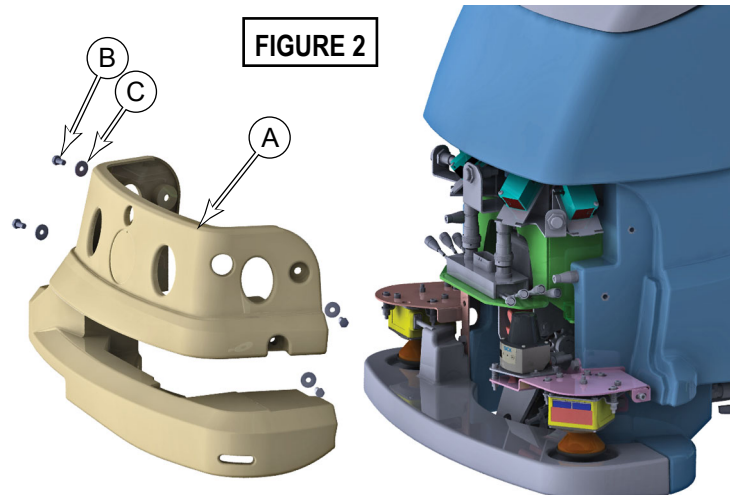
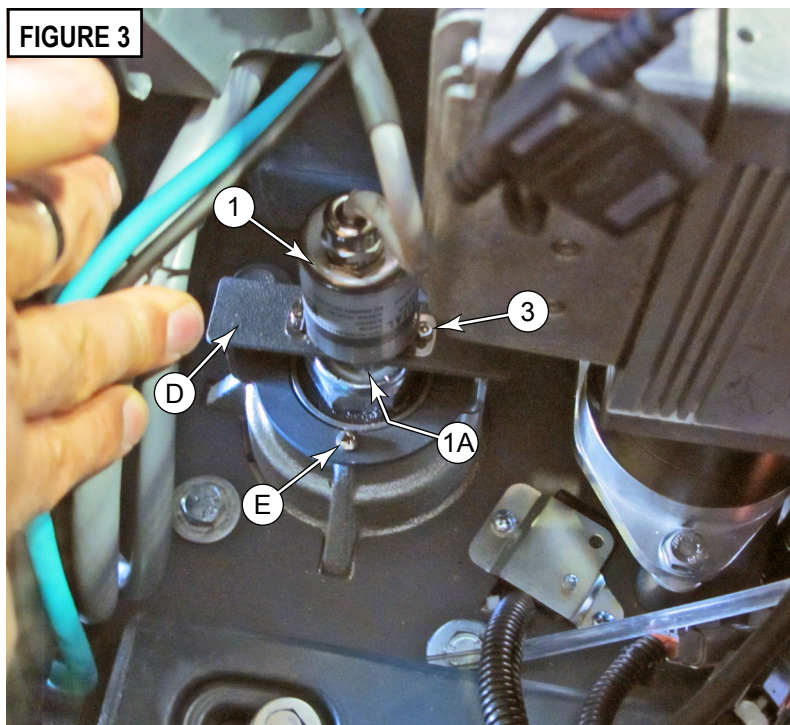


FIGURE 2

3. **See Figure 3.** From the front of the machine, turn the drive wheel side to side as necessary to locate the clamping collar screw **(1A)**, and loosen the screw. (1.5mm hex key).
4. Disconnect the drive position encoder electrical connector.
5. **Optional:** Depending on the accessibility of the screws, you may choose to remove the encoder and mounting bracket together, from the steering hub. To remove the encoder **(1)** and its mounting bracket **(D)**, remove the three screws **(E)**, and lift the bracket and encoder off the steering spindle.
6. Remove the two screws **(3)** that secure the encoder **(1)** to the mounting bracket **(D)**.



ENCODER REPLACEMENT

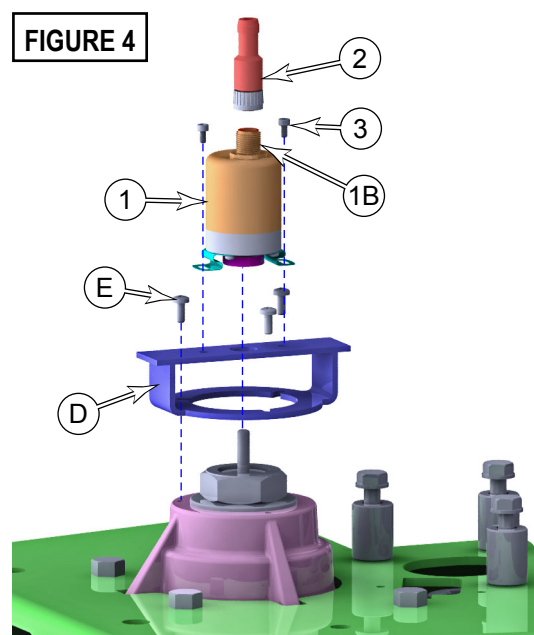
Install the new encoder by reversing the disassembly steps, and observing the following notations.

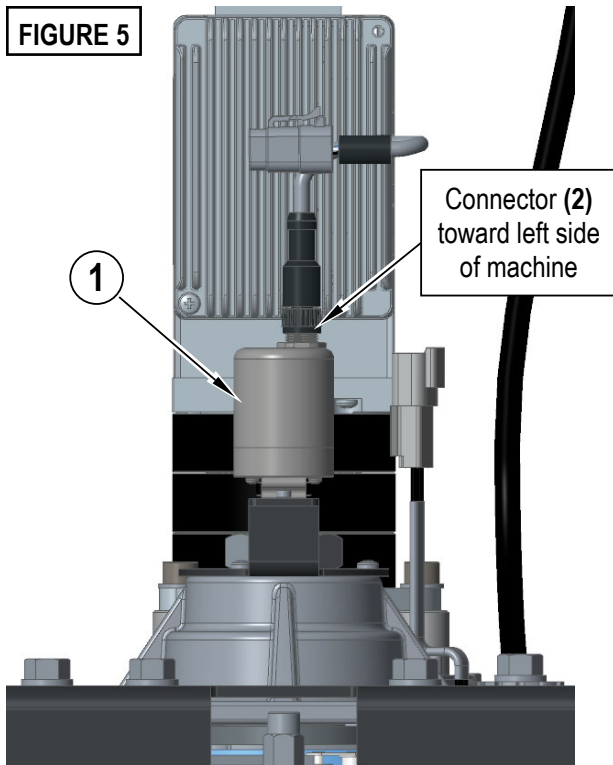
7. **See Figures 4, 5 & 6.** Connect the encoder harness **(2)** to the encoder **(1)** and securely tighten the connector.
8. Make sure the clamping collar screw **(1A)** is slightly loose.
9. Loosely secure the encoder to the mounting bracket **(D)**. Make sure that the cable connector **(2)** is toward the left side of the machine. Route harness as shown to keep it away from moving parts.
10. If the mounting bracket **(D)** was previously removed, reinstall the bracket (and the encoder) by sliding the encoder hub over the steering spindle.
11. With the encoder hub on the steering spindle, tight the clamping collar screw **(1A)** to 1.55 in-lbs (0.18 Nm).

⚠ Caution!

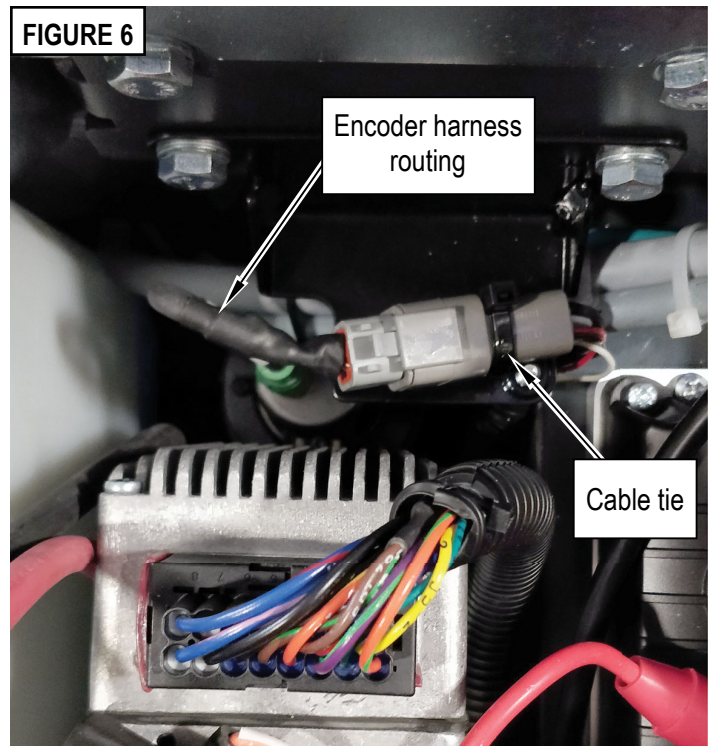
If mounting screws **(3)** are not properly tightened it may create an unsafe condition in which the machine is unable to properly steer.

12. Apply loctite 243 to 2 encoder mounting screws **(3)** then torque to 11 in-lbs (1.24 Nm).
13. Finish reassembling the machine, but leave the encoder disconnected to complete the centering process.





View from front of machine



View from top of machine

DRIVE POSITION ENCODER CENTERING

1. Power the machine with service mode access to force the steering controller to re-home the drive wheel, and detect the home position sensor.
 - a. Press and hold the Scrub and Vacuum buttons.
 - b. Press and release the Power button.
 - c. When the display illuminates and the machine begins its bootup process, you may release the Scrub and Vacuum buttons.
2. Navigate to the A4 Steering Controller menu, and observe the "Position Actual" entry.
3. Turn the steering wheel until the "Position Actual" entry reads 0.
4. Without moving the steering wheel, turn the machine off.
5. **See Figure 7.** Connect the Reset Cable (Part number 56122727) to battery power (**F2**). For convenience, you can use the main ground lug and K2 relay post in the electrical bay. Otherwise, directly to the machine battery.
6. Unplug the electrical connector to the Drive Position Encoder, and connect the Reset Cable (**F3**) to the encoder.
7. If you want confirmation of the reset, connect a voltmeter to the test port (**F4**) of the Reset cable.
8. Press and hold the reset button (**F1**) for about 2 seconds.
9. After the reset, the voltage from the test port should be equal (or very close, depending on your meter) to 2.6 volts.
10. Disconnect the Reset Cable, reconnect the encoder, and re-power the machine.

