

56104850 ELECTROMAGNETIC BRAKE

For Liberty SC50 Models: ALL

CONTENTS OF KIT

Item	Part Number	Qty	Description
[]	56090337	1	Instruction Sheet
1	56104849	1	Electromagnetic Brake

[] = Not Shown



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.

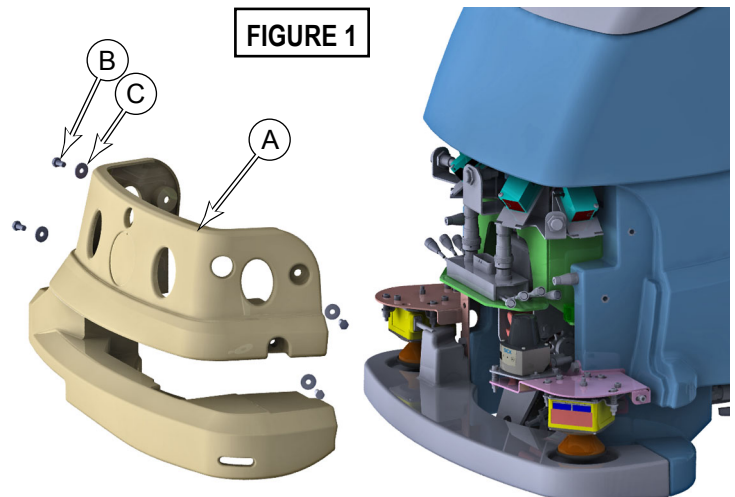
REMOVE THE DRIVE WHEEL (TRACTION) MOTOR

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

⚠ CAUTION!

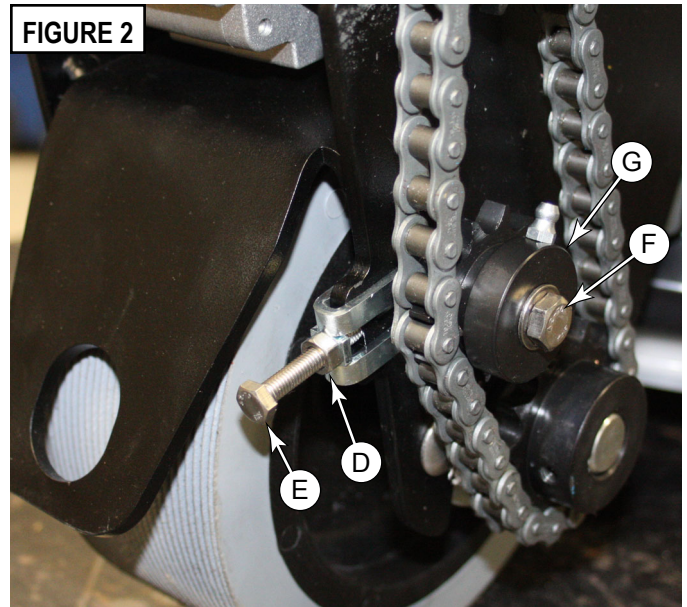
Once the drive chain is removed in the following steps, the machine will not have any braking.

4. Disconnect the wheel motor and electromagnetic brake electrical connectors. (Electromagnetic Brake = EM Brake).

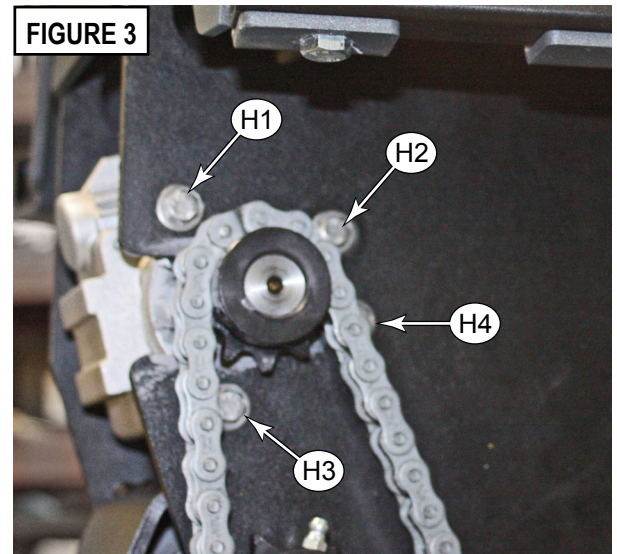


5. **See Figure 2.** Loosen the tension of the drive chain:

- a. Using a 10mm wrench, loosen the jam nut **(D)** from the adjuster screw **(E)**.
- b. Loosen the adjuster screw **(E)** several turns.
- c. Using two 13mm wrenches, loosen the axle bolt **(F)** of the idler sprocket **(G)**, enough for the sprocket to slide. (The bolt has a Nyloc nut on the back side.)
- d. Slide the sprocket inward until the chain is slightly slack.
 - Note that there probably is not enough slack to remove the chain. The chain will be removed later.

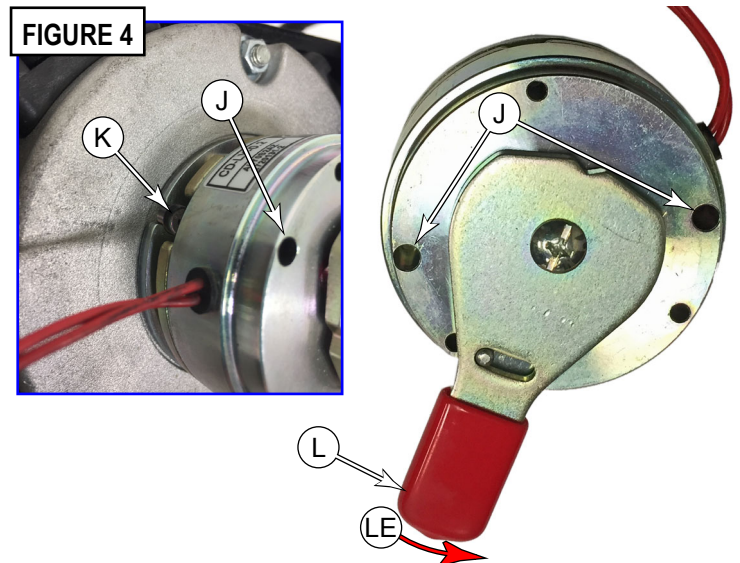


6. **See Figure 3.** Remove the first 3 screws **(H1, H2, H3)** that secure the drive motor (gearbox) to the wheel assembly, and loosen the 4th screw **(H4)**. This should permit the sprocket to lower enough to remove the drive chain.
7. Remove the drive chain.
8. Finish removing the drive motor, and slide it out the front of the wheel assembly.



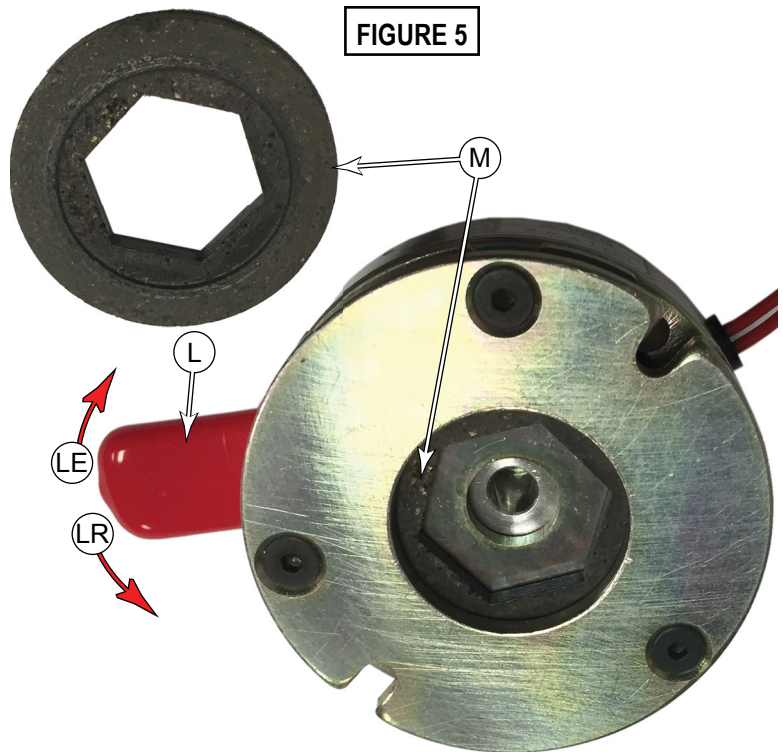
REMOVE THE EM BRAKE FROM THE MOTOR

1. **See Figure 4.** Make sure the brake release lever **(L)** is in the normal position **(LE)** (brake engaged).
2. Insert a 2.5mm hex key through the holes **(J)** in the back of the brake coil, and remove the two screws **(K)** that secure the coil to the back of the drive motor.
3. Remove the brake from the motor.

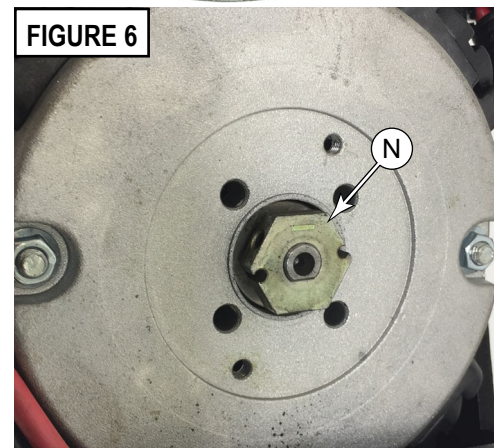


INSTALL THE NEW BRAKE ON THE MOTOR

1. **See Figure 5.** Make sure the friction disk (**M**) is reasonably centered in the brake housing. If repositioning the friction disk is necessary, do the following:
 - a. Move the brake release lever (**L**) to the released position (**LR**).
 - b. Center the friction disk in the housing.
 - c. Move the brake release lever to the engaged position (**LE**).

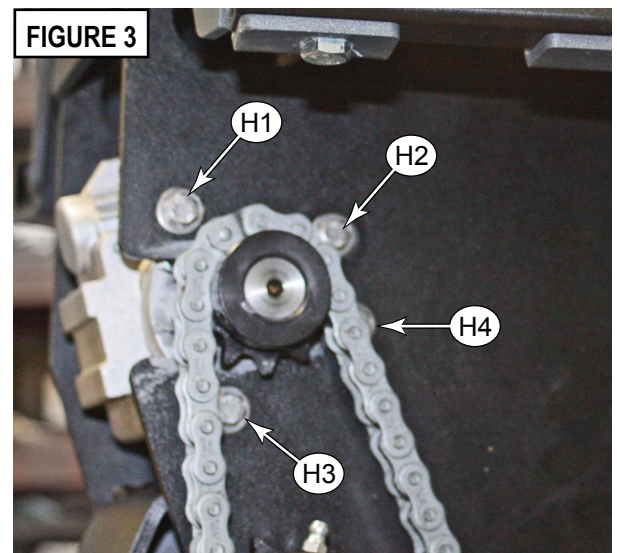


2. **See Figure 6.** Without worrying about orientation or positioning of the EM brake mounting holes, place the EM brake over the hex stub (**N**) on the drive motor, and rotate the brake as necessary for the two hex couplings (**M & N**) to engage.
3. While ensuring that the two hex couplings are engaged and held in position, move the brake release lever (**L**) to the released position (**LR**).
4. Without disengaging the hex couplings, position the EM brake to align the mounting screws with the holes on the back of the motor. Also, make sure the brake release lever is toward the top of the drive motor.
5. Move the brake release lever (**L**) back to the engaged position (**LE**) to keep the EM brake from moving while you finish installing it.
6. Install the screws (**K**) that secure the EM brake to the drive motor.

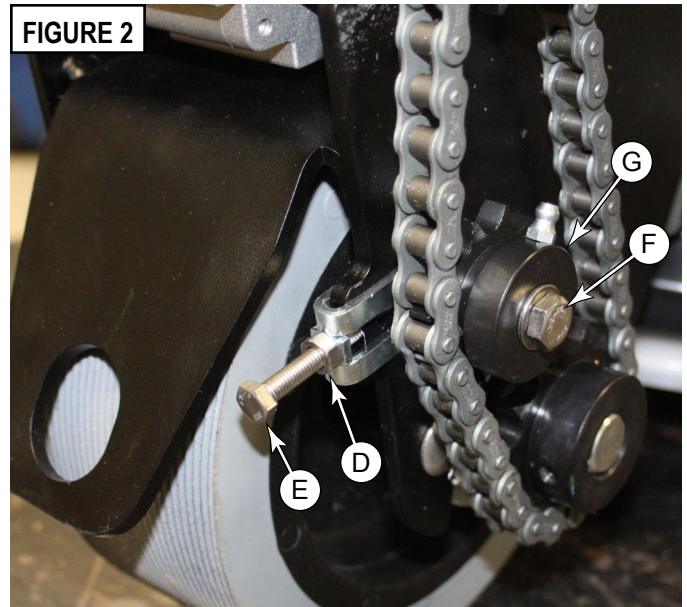


REINSTALL THE DRIVE MOTOR

1. Taking care to not damage the brake or motor wires, reinsert the drive motor back into the wheel assembly.
2. Loosely install the lower rear screw (**H4**) to partially hold the drive motor in position while you reinstall the drive chain.
 - Apply Loctite 243 to all 4 screws.
3. Reinstall the drive chain over the sprockets.
4. Install the remaining three screws (**H1**, **H2**, **H3**), and then tighten all four motor mounting screws to 96 In-Lbs (10.85 Nm).



5. Tighten the adjuster screw **(E)** to apply tension to the chain. Adjust the screw so the chain deflects approximately 0.06 - 0.25 inch (1.5 - 6.4 mm) at the midpoint when pressed with moderate force.
6. While holding the adjuster screw from turning, retighten the jam nut **(D)**.
7. Retighten the axle bolt **(F)** for the idler sprocket and torque to 96 In-Lbs (10.85 Nm).



SECURE THE WIRING

8. **See Figures 7, 8 & 9.** Reconnect EM brake electrical connector **(P)** and the wheel motor electrical connector **(O)** to the harness.
9. Tuck the EM brake electrical connector and motor electrical connector into the space below the motor, and secure the motor wires at points **(R)**.
10. **Important:** Inspect all wiring leading to the wheel assembly to ensure it cannot get caught on objects as the wheel assembly rotates.
11. Double check that the brake release lever is in the engaged position **(LE)**.
12. Finish reassembling the machine. Torque Screws **(B)** to 91 in/lb [10.3 N-m] $\pm 5\%$ (shown in Figure 1).

FIGURE 7

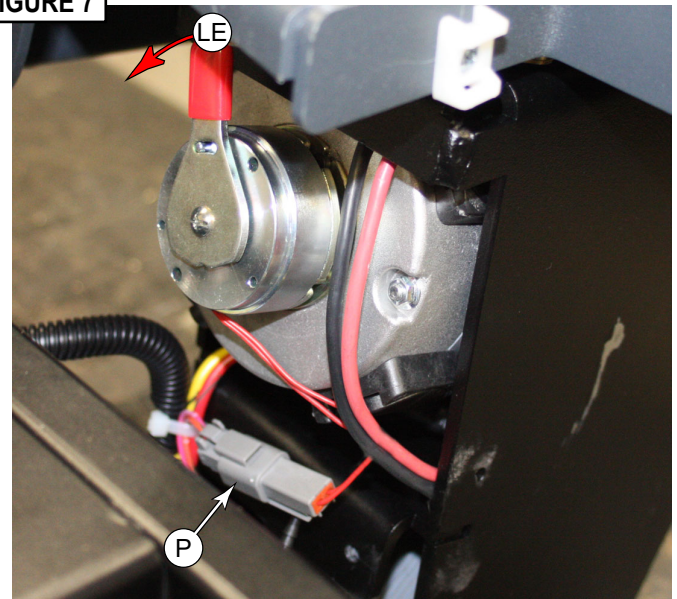


FIGURE 8

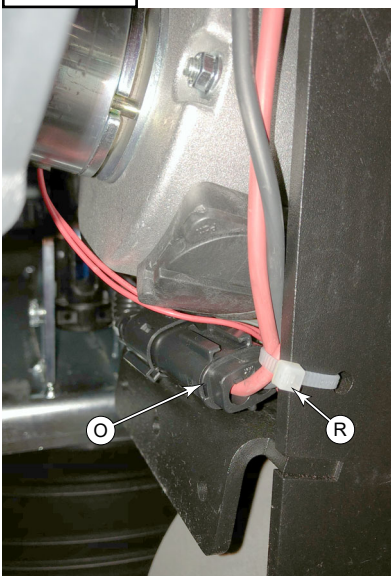


FIGURE 9

