

Power Unit, Motor, or Tank Replacement Instructions- 650 Series

The following instructions will aid you in replacing the power unit, motor, or tank on a 650 Series liftgate.

Removing the Power Unit

1. **Raise** and **Store** the platform in the latch.
2. **Actuate** the lowering function for five (5) seconds to relieve pressure in the system.
3. **Disconnect** the 4GA power cable from the positive side of the battery or manually **Trip** the circuit breaker (Figure 2).
4. **Remove** the pump box cover by loosening four (4) hex head screws or six (6) wing nuts (Figure 1).
5. **Go to *Replacing the Motor*** if replacing only the motor, otherwise proceed to next step.
6. **Place** a rag underneath the connection to absorb any hydraulic oil that leaks when hose is loosened.

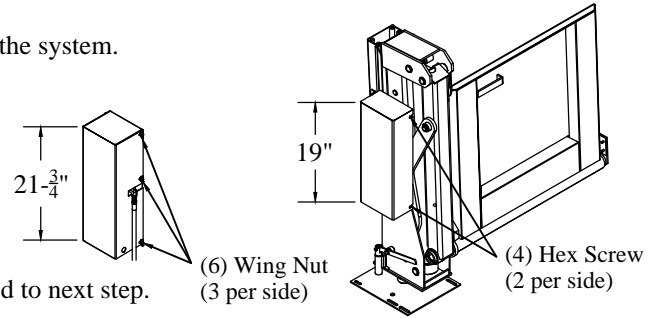


Figure 1: Pump box cover fastener locations.

Caution: If the steps 7 and 8 are not performed properly, warranty will not be awarded for pulled threads.

7. **Loosen** elbow jam nut. While attempting to loosen the jam nut with an open end wrench, hold the elbow in place using another open end wrench (Figure 3).
8. **Disconnect** hose to elbow connection. While attempting to loosen the hose with an open end wrench, hold the elbow in place with another open end wrench (Figure 4).
9. **Raise** the disconnected hose end above the cylinder as soon as possible to minimize oil leakage.
10. **Position** the disconnected hose end in a location that is above the cylinder until hose is reconnected.

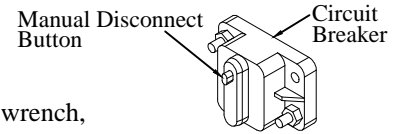


Figure 2: Circuit breaker.

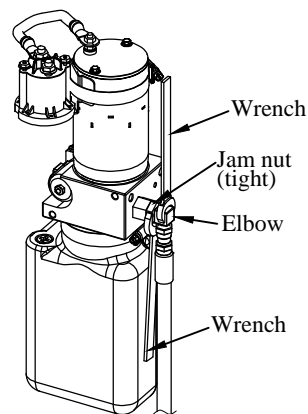


Figure 3: Jam nut.

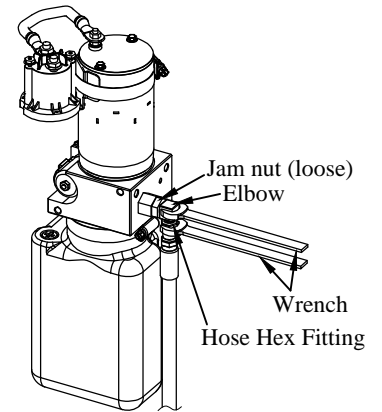


Figure 4: Hose connection.

Power Unit, Motor, or Tank Replacement Instructions- 650 Series

Removing the Power Unit (continued)

11. Remove the common ground bolt holding the 18GA black wire and the 4GA ground cable to the power unit housing (Figure 5).

Note: Keep the common ground bolt for use when installing the new power unit.

12. Disconnect the 18GA red wire and the 4GA power cable from the "raise" solenoid (Figure 5).

13. Disconnect the green wire from the "raise" solenoid (Figure 5).

14. Cut the brown wire connected to the red wire from the "lower" solenoid next to the butt connector.

15. Remove the power unit mounting bolts and flat washers from pump box.
Save these fasteners and flat washers for use when installing the new power unit.

16. Remove the power unit from the pump box.

17. Go to *Replacing the Tank* if replacing only the tank, otherwise
Go to *Reinstalling the Power Unit*.

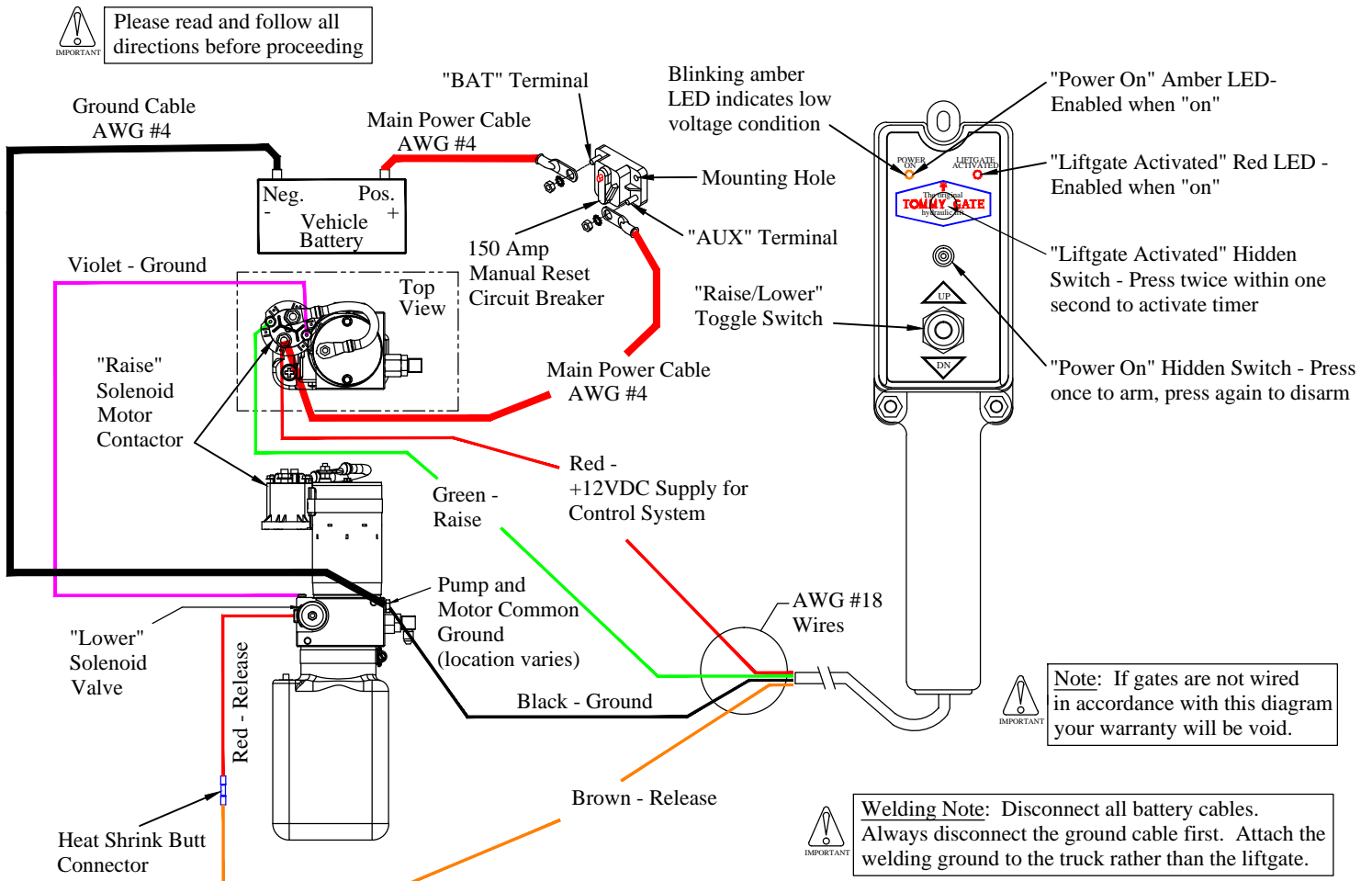


Figure 5: Wiring Diagram.

Power Unit, Motor, or Tank Replacement Instructions- 650 Series

Replacing the Motor

1. **Disconnect** the 4GA motor cable from the motor (Figure 6).
2. **Remove** the hose clamp and "raise" solenoid from the motor.
Leave the wires connected to the solenoid.
3. **Remove** the two (2) motor bolts (Figure 6).
4. Carefully **Pull** the motor free from the pump (Figure 6). Make sure the motor case and shaft stay together while separating the motor from the pump.
5. **Install** the new motor on the pump.
Be sure to align timing marks on motor and cap.
6. **Install** the motor bolts.
7. **Install** the "raise" solenoid on the motor. Position the solenoid and hose clamp as shown for your pump box design (Figure 7 or 8).
8. **Reinstall** the 4GA motor cable onto the stud on the motor.
9. **Reconnect** the liftgate's main power cable to the positive side of the battery or manually **Engage** the circuit breaker.
10. **Check** the liftgate for proper operation, loose wires, and hydraulic oil leaks.
11. **Reinstall** the box cover and fasteners on the pump box (repair is now complete).

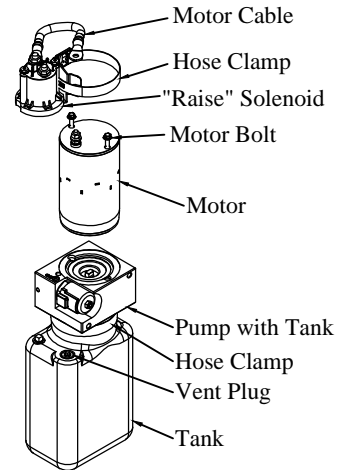


Figure 6: Power unit parts separated.

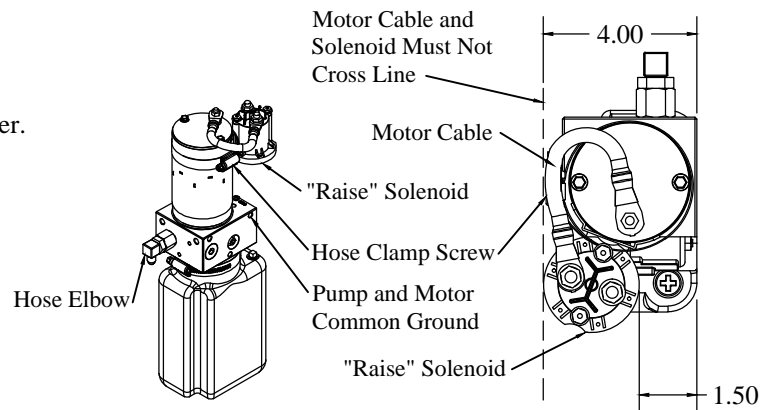


Figure 7: "Raise" solenoid position for 19" tall pump box.

Replacing the Tank

1. **Remove** the vent plug (Figure 6).
2. **Drain** the hydraulic oil from the tank.
3. **Loosen** the hose clamp holding the tank on the pump (Figure 6).
4. **Remove** the tank from the power unit.
5. **Replace** the O-ring with the one provided.
6. **Apply** a light coating of ISO grade 32 hydraulic oil to the O-ring
7. **Install** the new tank and hose clamp on the pump.
Position the hose clamp screw on the same side as the hose elbow.
8. **Tighten** the hose clamp.
9. **Fill** the tank 2/3 full with ISO grade 32 hydraulic oil.
10. **Install** the vent plug.
11. **Go to Reinstalling the Power Unit.**

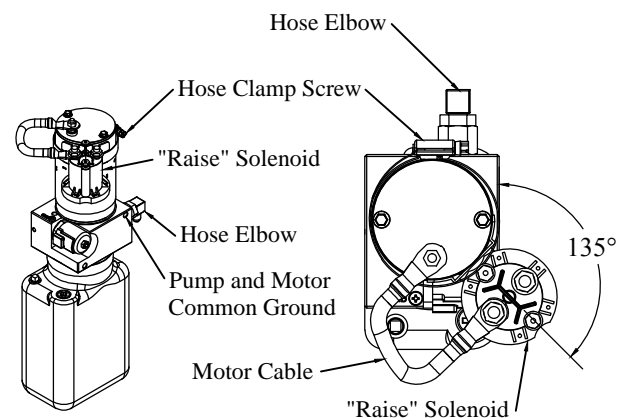


Figure 8: "Raise" solenoid position for 21-3/4" tall pump box.

Power Unit, Motor, or Tank Replacement Instructions- 650 Series

Reinstalling the Power Unit

1. **Position** the "raise" solenoid, hose clamp, and motor cable in the position indicated for your pump box design (Figure 7 or 8).
2. **Install** the power unit in the pump box with two 5/16" hex bolts.
Use washers between the power unit and pump box if they were removed.
3. **Install** the common ground bolt holding the 18GA black wire and the 4GA ground cable to the power unit housing (Figure 7 or 8).
4. **Connect** the 18GA red wire and the 4GA power cable to the "raise" solenoid (Figure 5).
5. **Connect** the green wire to the "raise" solenoid (Figure 5).
6. **Connect** the red wire from the "lower" solenoid to the brown wire with a butt connector.
7. **Remove** the plastic cap from the elbow on power unit.
8. **Apply** teflon tape or pipe sealant to the male threads on the hose.
If the hose has female (JIC) threads, no teflon tape or pipe sealant is needed.

Note: Do not over tighten the hose in the next step.

When an elbow with female threads is used, the hose is fully tight at three (3) full turns \pm one (1) turn.

9. **Connect** the hose to the elbow on the power unit housing (Figure 4).
While tightening the hoses with an open end wrench, hold the elbow in place using another open end wrench.
This step may require the provided (female JIC to female pipe thread) adaptor depending on your hose.
10. **Tighten** elbow jam nut (Figure 3). While attempting to tighten the jam nut with an open end wrench, hold the elbow in place using another open end wrench.
11. **Secure** the electrical wires in the pump box to avoid pinching, abrasion, or wear areas.
12. **Remove** the solid plastic plug from the tank, if not already done.
13. **Install** the vent plug provided, if not already done. The hydraulic system has already been filled with the proper amount of hydraulic oil so do not add any oil at this time.
14. **Reconnect** the liftgate's main power cable to the positive side of the battery or manually **Engage** the circuit breaker.
15. **Check** the liftgate for proper operation, loose wires, and hydraulic oil leaks.
16. **Reinstall** the pump box cover and fasteners on the pump box.