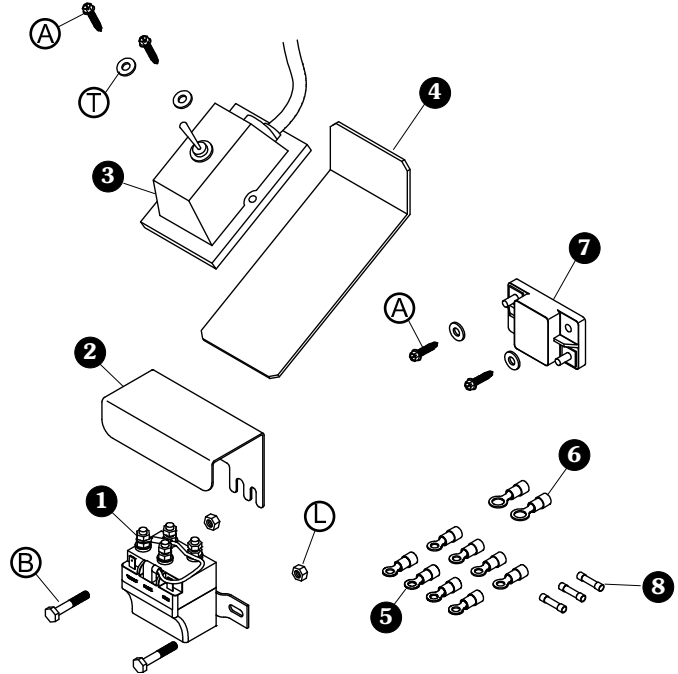
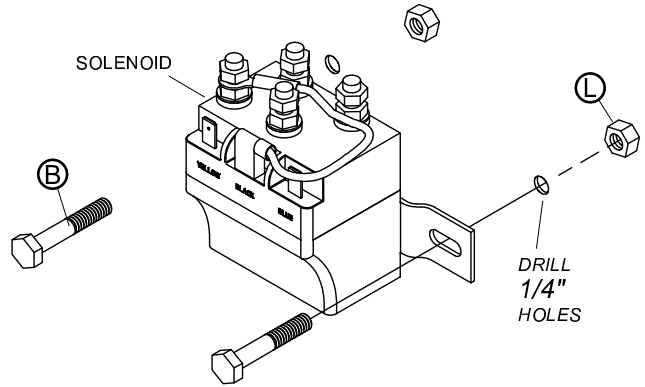


Item	Part #	Description
1.	1703845	Solenoid
2.	1703896	Solenoid Cover
3.	1801726	Toggle Switch
4.	1801265	Toggle Switch Plate
5.	1800430	Ring Terminal - 8 Ga. x 1/4"
6.	1801486	Ring Terminal - 8 Ga. x 3/8"
7.	1800417	Circuit Breaker - 60-Amp 12V
8.	1800441	Butt Connector - 18-22 Ga.
A.	1800802	Sheet Metal Screw - #10 x 1"
B.	1800783	Cap Screw - 1/4" x 1 1/2"
L.	1800699	Lock Nut - 1/4"
T.	1800784	Flat Washer - 1/4" SAE

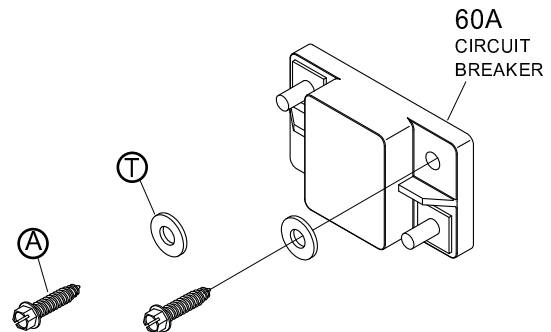


**NOTE:** New electric motor kits include dual-conductor wire. If not using new electric kit, use existing wire on truck.

**STEP 1:** Locate solenoid in sheltered location, such as battery box, cab or under cab. Using solenoid as guide, mark and drill 1/4" holes. Loosely fasten solenoid with screws **B** and nuts **L**.



**STEP 2:** Locate circuit breaker near battery. Fasten with screws **A** and washers **T**.



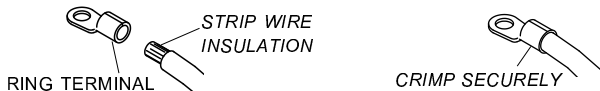
**CAUTION**

Do not spray electric components with pressure washer or hose.

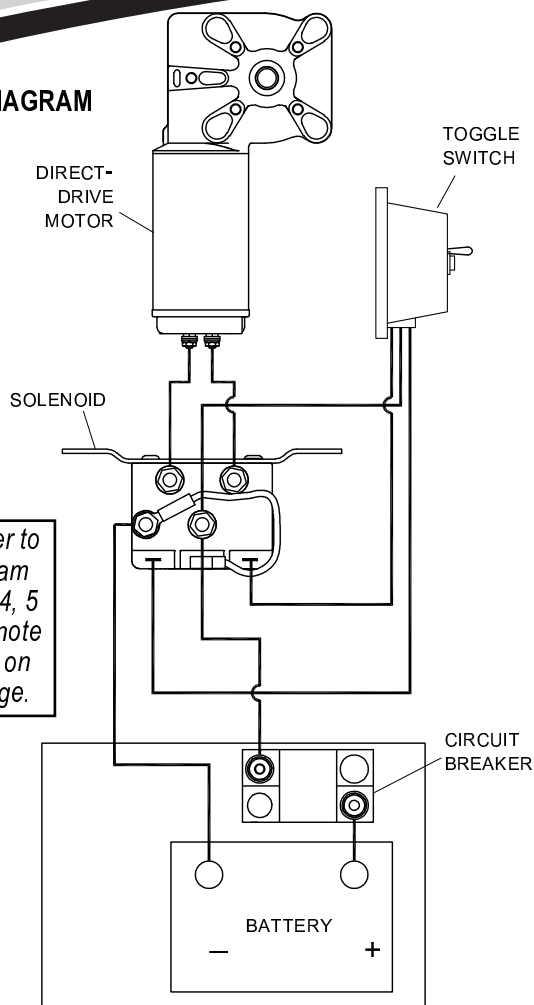
**CAUTION**

Do not pull dual-strand wires apart. To separate, carefully cut through insulation between wires with knife. Pulling wires apart could damage wire insulation and expose wire. This could result in equipment damage and/or personal injury.

**NOTE:** Cut wires to length and strip only enough wire insulation to install ring terminals. Insert bare wire into ring terminals and crimp securely.



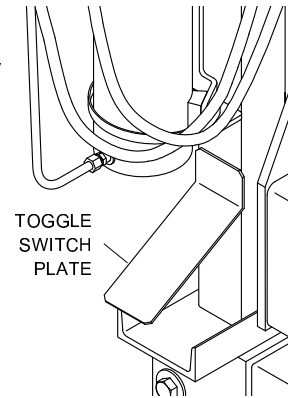
**WIRING DIAGRAM**



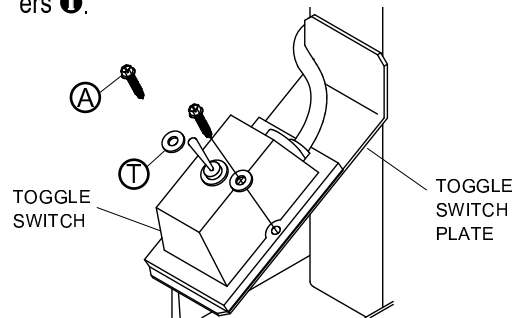
**NOTE:** Refer to wiring diagram for steps 3, 4, 5 and 8. See note and caution on previous page.

- STEP 3:** Cut section of dual-conductor wire to run from solenoid to electric motor. Crimp two 1/4" ring terminals ⑤ on one end of wire and two 1/4" ring terminals ⑥ on other end of wire. Connect 1/4" ring terminals to motor and 1/4" ring terminals to solenoid.
- STEP 4:** Cut section of dual-conductor wire to run from solenoid to battery. Crimp two 1/4" ring terminals ⑤ on one end of wire and connect terminals to posts on solenoid marked Batt+ and Batt-. Crimp one 1/4" ring terminal ⑤ and one 3/8" ring terminal ⑥ on other end of wire. Connect 1/4" ring terminal to circuit breaker post marked AUX and connect 3/8" ring terminal to negative battery post.
- STEP 5:** Divide portion of dual-conductor wire into two single-strand wires (see caution). Cut section of single-strand wire to run from positive terminal on battery to circuit breaker. Crimp 3/8" ring terminal ⑥ onto one end of wire and 1/4" ring terminal ⑤ onto other end. Connect 3/8" ring terminal to positive battery post and connect 1/4" ring terminal to post on circuit breaker marked BAT.

**STEP 6:** Locate toggle switch where switch can easily be accessed by system operator. Weld toggle switch plate in place.



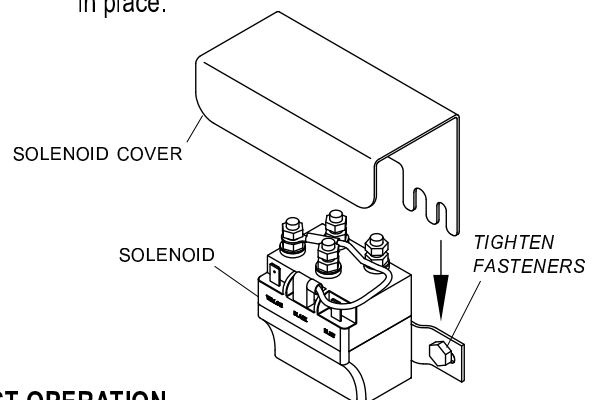
**STEP 7:** Fasten toggle switch to plate with screws ④ and washers ①.



**STEP 8:** Run three-strand jacketed toggle switch wire to solenoid and cut to length. Connect wire ends to solenoid, placing ring terminal ⑤ on post marked BATT+ and two quick disconnects to tabs.

**NOTE:** Kit includes three extra butt connectors. If excess switch wire cannot be coiled, connectors are provided to shorten switch wires to desired length.

**STEP 9:** Slide solenoid cover under bolt heads holding solenoid in place. Tighten fasteners to hold cover and solenoid in place.



**TEST OPERATION**

**STEP 10:** Operate toggle switch to verify tarp is moving in same direction as shown on toggle. If tarp is not moving in same direction as toggle, either swap two wires connected to tabs on solenoid or two wires connected to motor.



**IF DURABUILT™ MOTOR ONLY OPERATES IN ONE DIRECTION**

TRY THIS	RESULT
1. Switch wires connected to motor and operate motor.	If motor still runs only in same direction as before switching wires, replace motor.  If motor runs only in opposite direction, motor is good.
2. Remove wires with quick disconnects from terminals ⑤ and ⑥ on solenoid. Run jumper from positive battery post to terminal ⑤ on solenoid and observe motor. Move jumper to terminal ⑥ and observe motor.	If motor does not move at all, jumper is bad. Refasten jumper to battery and try again.  If motor only turns one direction, solenoid is bad. Replace solenoid.  If motor operates in both directions, solenoid is good. Refasten wires to tabs ⑤ and ⑥ on solenoid.
3. Remove wires on rocker switch posts ⑦ and ⑧. With voltmeter, fasten one lead to tab ③ on rocker switch (with wire still attached) and other lead to ground.	Verify voltage measures about 12 volts. If not 12 volts, reposition lead wires and verify ground is good.
4. Leave one lead wire on ground and, with voltmeter, place other lead wire on rocker switch tab ⑦. Operate switch in both directions while looking at voltmeter. Move lead wire from tab ⑦ to tab ⑧, operating switch in both directions while observing voltmeter.	If voltage measures 12 volts at any time during only one test, switch is faulty. Replace switch.  If voltage measures 12 volts at any time during both tests, replace wire from solenoid to switch.



**IF DURABUILT MOTOR DOES NOT OPERATE**

TRY THIS	RESULT
<p>1. Remove wires connected to motor. Connect jumper cables from battery to motor and use voltmeter to verify 12 volts at motor.</p>	<p>If there are not close to 12 volts at motor, jumper is bad. Reconnect jumper to battery and motor and repeat step 1.</p> <p>If there are about 12 volts at motor, motor is bad. Replace motor.</p> <p>If motor operates, motor is good. Reconnect wires to motor.</p>
<p>2. Remove wires connected to solenoid posts ❶ and ❷. Connect jumper cables from battery to wires. Use voltmeter to verify 12 volts at connection.</p>	<p>If there are not about 12 volts at meter, jumper is bad. Reconnect jumper and repeat step 2.</p> <p>If there are about 12 volts and motor does not run, wire from solenoid to motor are bad. Replace wire.</p> <p>If motor operates, wire from solenoid to motor is good. Reconnect wires to solenoid.</p>
<p>3. Switch wires connected to motor and operate motor.</p>	<p>If motor still only runs in same direction as before wires were switched, replace motor.</p> <p>If motor runs only in opposite direction from before wires were switched, motor is good.</p>
<p>4. Check circuit breaker. Place one lead on circuit breaker post where wires go to solenoid and other lead on negative post on battery.</p>	<p>If voltage measures zero volts, circuit breaker is bad. Replace circuit breaker.</p> <p>If voltage measures about 12 volts, circuit breaker is good.</p>
<p>5. Use voltmeter to check voltage at solenoid. Place one lead on terminal ❶ and other lead on terminal ❷. Operate rocker switch while watching voltage.</p>	<p>If there are about 12 volts initially and voltage goes to zero while operating toggle switch, either circuit breaker is bad, connection is loose or there is a ground. Check all electrical connections and wires. If no problem is found, replace circuit breaker.</p> <p>If there are consistently about 12 volts, all components up to solenoid are working correctly.</p>
<p>6. Remove wires with quick disconnects from solenoid ❸ and ❹. Run jumper cable from positive battery terminal to terminal ❸ on solenoid and observe motor. Move jumper to terminal ❹ and observe motor.</p>	<p>If motor does not move at all, solenoid is bad. Replace solenoid.</p> <p>If motor operates in both directions, solenoid is good. Reconnect wires to terminals ❸ and ❹ on solenoid.</p>
<p>7. Remove outer wires from blades ❺ and ❻ on rocker switch. Connect one lead to center blade ❼ on switch (with wire still connected) and second lead to ground.</p>	<p>Verify there are about 12 volts. If not, reposition leads and verify ground is good. Repeat step 3.</p>
<p>8. Test 1: Using voltmeter, leave one lead on ground and place other lead on rocker switch blade ❺. Operate switch in both directions while watching voltmeter. Test 2: Switch lead from blade ❺ to blade ❻ and operate switch in both directions while watching voltmeter.</p>	<p>If there are consistently 12 volts for only one test, switch is bad. Replace switch.</p> <p>If there are consistently 12 volts during both tests, wire from solenoid to rocker switch is bad. Replace wire.</p>

