INSTALLATION INSTRUCTIONS
ATV Electric Actuator Kit
Part Number: 85653
Application: Moose Bottom and Rapid Mount ATV Plows

Your safety, and the safety of others, is very important. To help you make informed decisions about safety, we have provided installation and operating instructions and other information on labels and in this guide. This information alerts you to potential hazards that could hurt you or others. It is not possible to warn you about all potential hazards associated with this product, you must use your own good judgment.

CARELESS INSTALLATION AND OPERATION CAN RESULT IN SERIOUS INJURY OR EQUIPMENT DAMAGE. READ AND UNDERSTAND ALL SAFETY PRECAUTIONS AND OPERATING INSTRUCTIONS BEFORE INSTALLING AND OPERATING THIS PRODUCT.

This guide identifies potential hazards and has important safety messages that help you and others avoid personal injury or death. **WARNING** and **CAUTION** are signal words that identify the level of hazard. These signal words mean:

⚠ WARNING signals a hazard that *could* cause serious injury or death, if you do not follow recommendations.

⚠CAUTION signals a hazard that *may* cause minor to moderate injury, if you do not follow recommendations.

This guide uses ***NOTICE*** to call attention to important mechanical information, and **Note**: to emphasize general information worthy of special attention.

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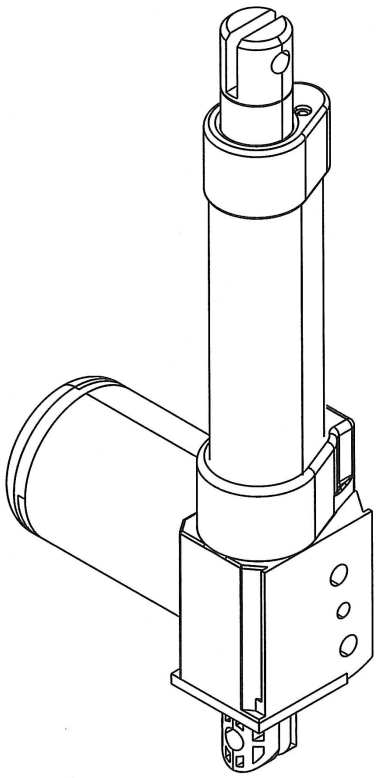
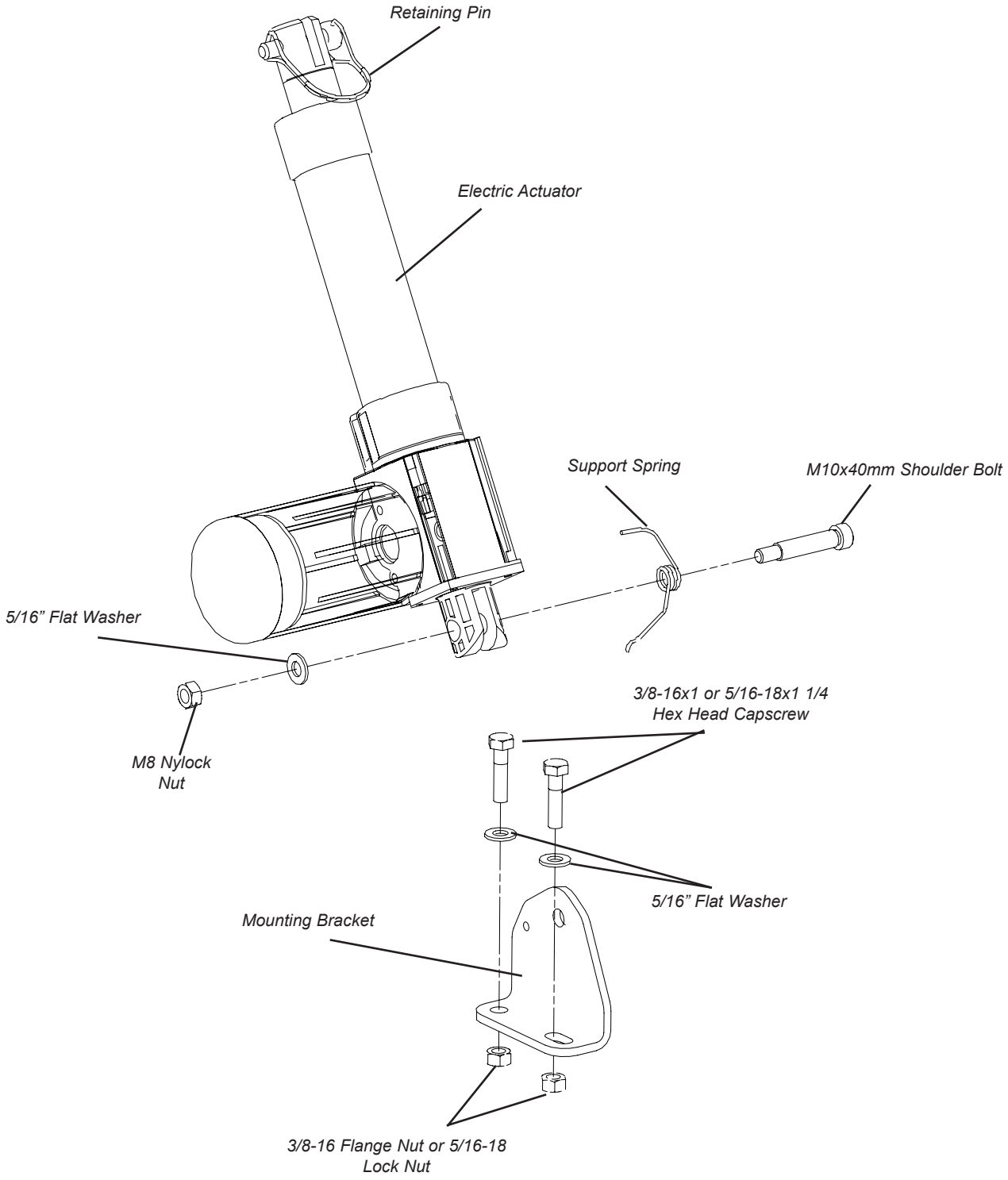


I. Tools Required

- Ratchet
- Sockets: 10mm, 11mm, 13mm, 14mm, 1/2”, 9/16”
- Box Wrenches: 8mm, 10mm, 11mm, 13mm, 14mm, 1/2”, 9/16”
- Allen Wrench: 3mm, 5mm, 6mm
- Philips Screwdriver
- Test Light (or similar device to detect electrical current)
- Electrical Tape


Retaining Pin
Electric Actuator
Support Spring
M10x40mm Shoulder Bolt
5/16" Flat Washer
M8 Nylock Nut
3/8-16x1 or 5/16-18x1 1/4 Hex Head Capscrew
5/16" Flat Washer
Mounting Bracket
3/8-16 Flange Nut or 5/16-18 Lock Nut

II. Parts List

Part #	Qty	Description
79632	1	Electric Actuator
39992	3.0ft	1/4” Plastic Conduit
69659	1	Switch and Wiring Assembly
67669	1	Relays and Wiring Assembly
80490	1	Brkt, Actuator, Bottom Mnt, Moose

Switch Hardware Kit (PN 74373)

63986	1	Switch Mount
62188	2	Handlebar Clamp
62192	1	Strap
70235	2	#6 x 1/4” Screw
74537	2	M5 x 35mm Button Head Screw
74515	2	M5 x 25mm Button Head Screw
74516	1	M5 x 16mm Button Head Screw
63244	2	#10 Lock Washer
74536	3	M5 Nylock Nut
21842	1	Electric Splice

Actuator Hardware Kit (PN 80836)

13231	12	Cable Tie
39791	1	Cable Tie, Removable
35136	1	Pin 3/8” Retaining
67659	1	Cable Termination Strap, Black
80472	1	M10 x 40mm Shoulder Bolt
1324	3	Flat Washer
22491	1	M8 Nylock Nut
79636	1	Spring Actuator Support
1827	2	3/8-16 Capscrew
80182	2	3/8-16 Flange Nut
13470	2	5/16-18 Capscrew
2002	2	5/165-18 Lock Nut

III. Installation

A. Installing the Electric Plow Lift

1. This electric plow lift kit has been designed to mount to the Moose bottom or rapid mount (front) style plows. Install supplied mounting bracket in orientation shown on plow base (see Figure 1). Use 3/8-16 capscrews and flange nuts with Moose bottom style plow mount base and use 5/16-18 capscrews, washers and lock nuts with the rapid mount (front) style plow base. Torque 3/8-16 hardware to 30lb. ft. (40.7N-m) or 5/16-18 hardware to 17lb. ft. (22.5N-m).

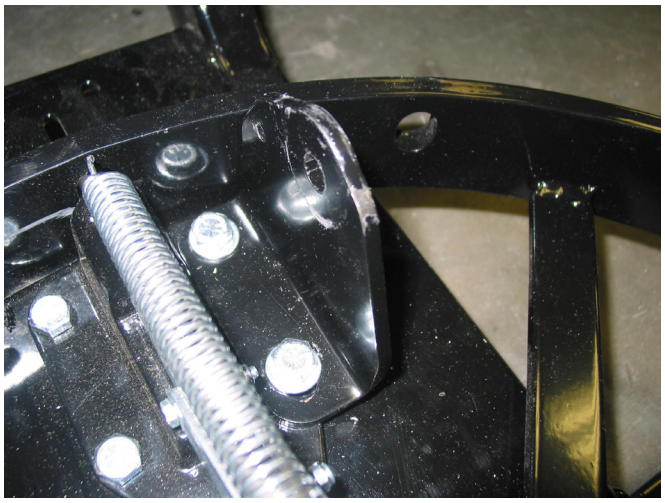


Figure 1

2. Remove Philips head screws on bottom mounting shackle, rotate 90 degrees into orientation shown in Figure 2 and reattach to electric actuator in preparation for mounting to plow base.

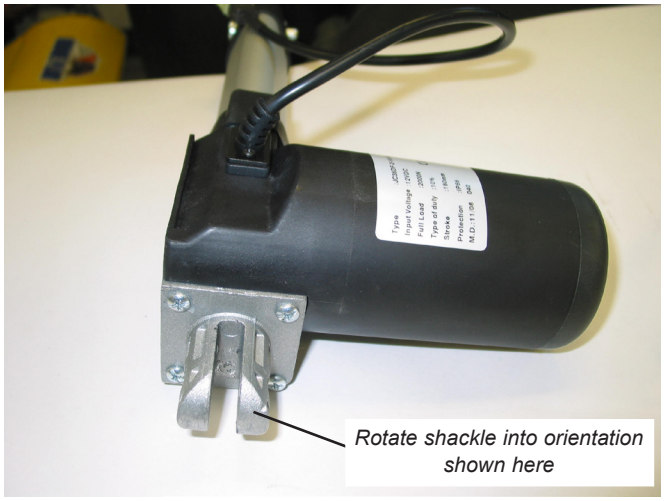


Figure 2

3. The actuator support spring, shown in Figure 3, is to be installed on the M10x40mm shoulder bolt. Hook one end of the spring into the mounting bracket with the actuator rotated forward. The other end will rest on the mounting shackle. The spring is used to push the plow lift away from the vehicle when plow is on the ground.

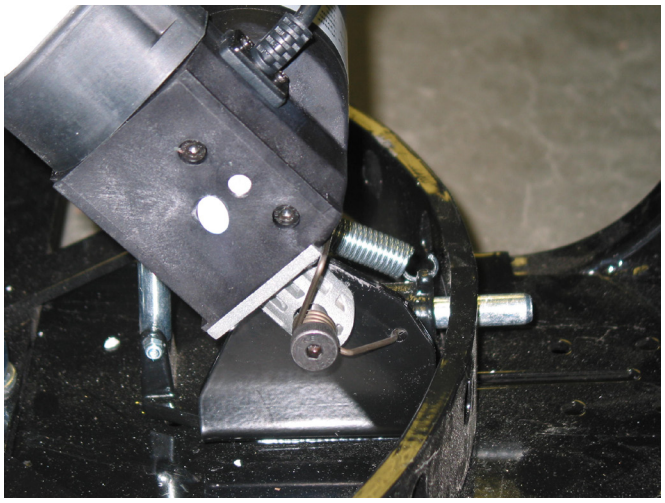


Figure 3

4. Secure the shoulder bolt with 5/16” flat washer and M8 lock nut as shown in Figure 4. Torque fastener to 14lb. ft. (19N-m). Note orientation of actuator support spring. When installed properly, the plowlift will automatically tip away from the vehicle.

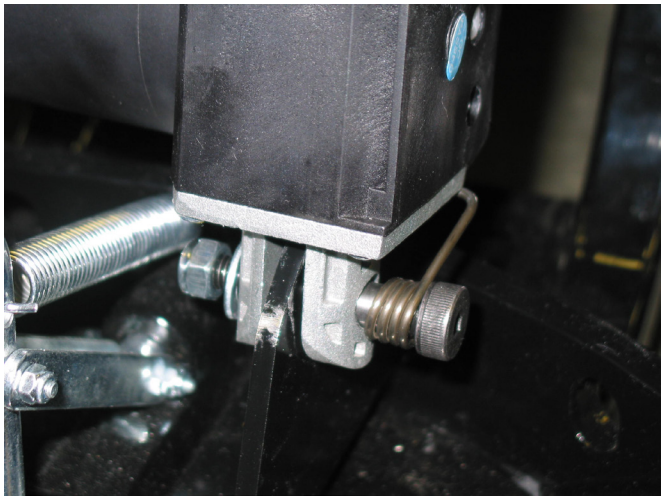


Figure 4

5. On Moose Rapid Mount systems, the plow base rotation lock handle, shown in Figure 5, can be reoriented, as shown in Figure 6, to allow more clearance as plow is being raised and lowered. The need to do this will vary by vehicle application.

Figure 5

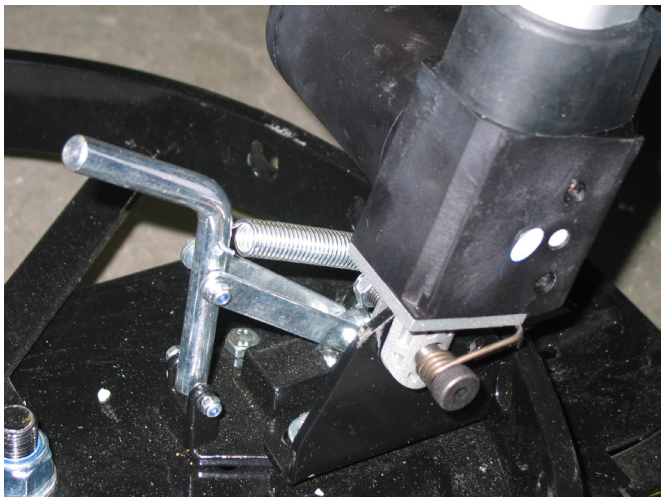


Figure 6

III. B. Wiring

NOTICE

This actuator must be installed with the control wire harness supplied in this kit. Never attempt to operate the actuator without the control harness. Operations of the actuator without control harness may damage product and will void warranty.

1. Carefully review Figure 7 that shows proper electical wiring installation. The relay wiring will need to be routed along vehicle frame from the battery to the actuator on plow. The PINK and GRAY wires have ring terminals for connection to battery. The PINK wire goes to the postivie (+) terminal and the GRAY goes to the negative (-) terminal of battery.

NOTE: The wire harness length has been designed to fit most vehicles. Additional wire may be required on some vehicles. Use 12 gauge multi-strand copper wire with quality splices if needed. Protect splice with electrical tape or heat shrink tubing.

2. Route the wires along the vehicle frame and position the relays in an area that they can be secured in upright position. Secure relays to frame with cable ties, as shown in Figure 8. Relay location must be as clean and dry as possible.

3. Install the control wire harness. This cable has four bullet connectores, on one end and a square plug on the other end. Connect the green and black wires from harness to the green and black wires from relay wire harness. Route this cable along the frame with the yellow and red wires installed in step 2. The plug at end of this harness must be next to plug at end of yellow and red wires at front of vehicle.

4. Install the 1/4” conduit on the RED and YELLOW wires going from the white electrical plug to the relays. Route the wires in the 1/4” conduit down to the actuator on the plow as shown Figure 15. Use the wire ties to secure the wires to the frame as needed. Use wire ties to secure the control wire harness to the wires in conduit. Be sure to leave enough wire slack at the front of the ATV to allow the plow to travel up and down without pulling on the wires.

5. A removable cable tie has been included for securing the actuator wires to the front of the ATV when the plow is not in use.

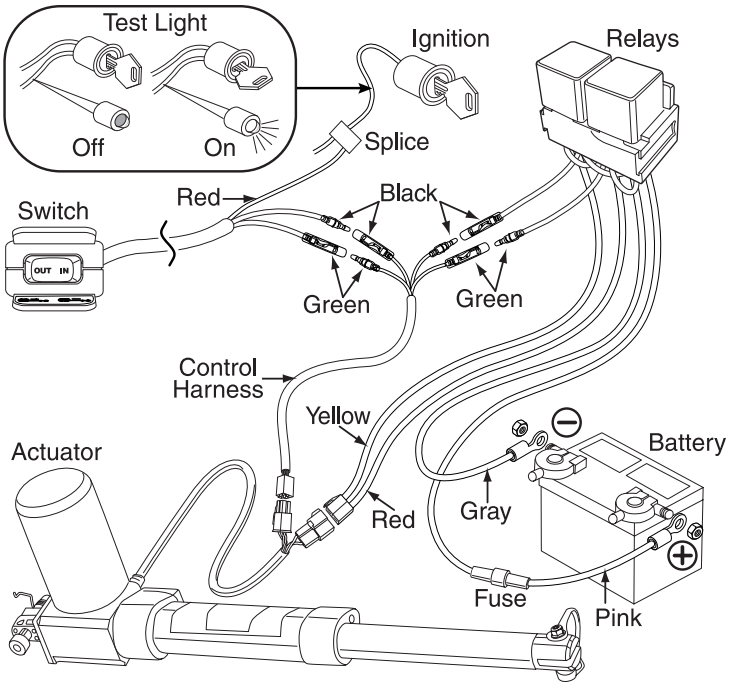


Figure 7 Electric Actuator Wiring

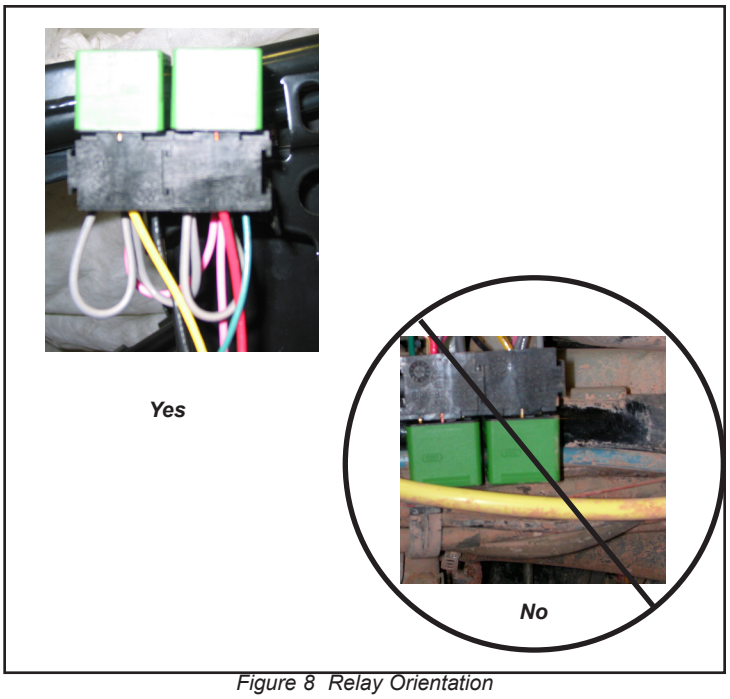


Figure 8 Relay Orientation

III. C. Installing the Switch

1. The actuator switch has been designed to fit on the handlebars of your vehicle. It is recommended to mount the switch on the left side just inboard of the light switch.

NOTE: All ATV's are different; therefore, mounting locations may vary

2. Find a place on the handlebars where the switch will be mounted. Wrap one or two layers of electrical tape around this location to improve clamping. Place a clamp on either side of the handlebar and assemble the switch and its mounting bracket, strap, and clamps as shown in Figure 9.

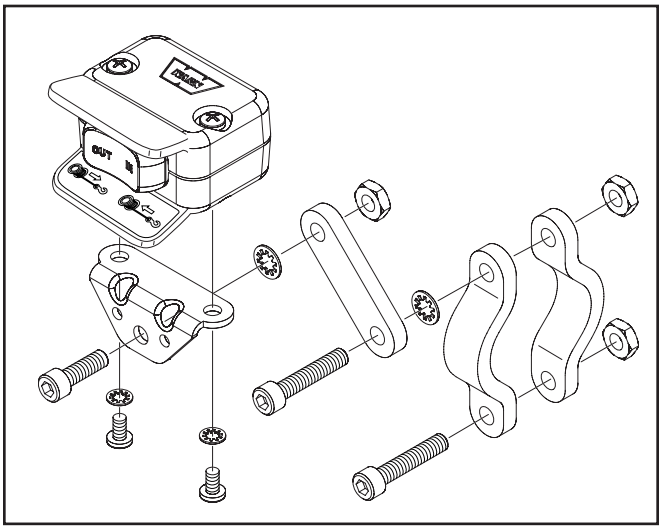


Figure 9 Switch Unassembled

NOTE: It is important that the star washers are placed between the strap and the mounting bracket, and the strap and the clamp. The star washers will keep the switch in position after installation is complete.

3. Position the switch such that it can be easily reached without interfering with other accessories on the handlebar. An example of a good location is just above and inboard of the light switch as shown in Figure 10. Tighten all the bolts and nuts securely such that the switch is firmly held into position.

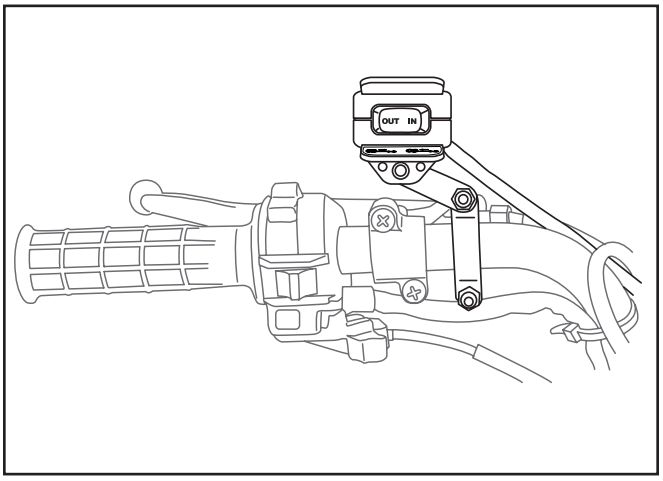


Figure 10 Switch Mounting Location

4. Route the GREEN and BLACK wire (enclosed in black sheathing) of the switch wire harness to the actuator wire harness by following the handlebar into the vehicle and routing it inside the vehicle to the GREEN and BLACK wires on the actuator wire harness. Wire tie the wiring as needed to keep the wiring from moving during vehicle operation.

5. Route the RED wire down inside the vehicle to a key controlled accessory circuit wire. This wire will only have power when the key is in the ON position.

6. Use the wire splice to connect the RED wire to the accessory circuit wire as shown in Figure 7 and 11.

7. Power the actuator out until it is fully extended.

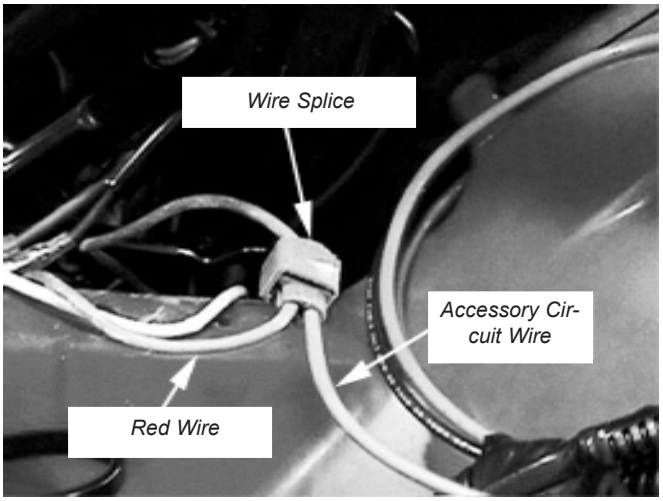


Figure 11 Splice Red Wire into Accessory Circuit Wire

III. D. Connecting to Termination Strap

1. This actuator has been designed to lift the plow with a direct line termination. It must be fully extended to determine termination point and strap length. With the actuator fastened to the plow, the shaft terminates to the D-ring in the termination strap via a 3/8” pin as shown in Figure 12.

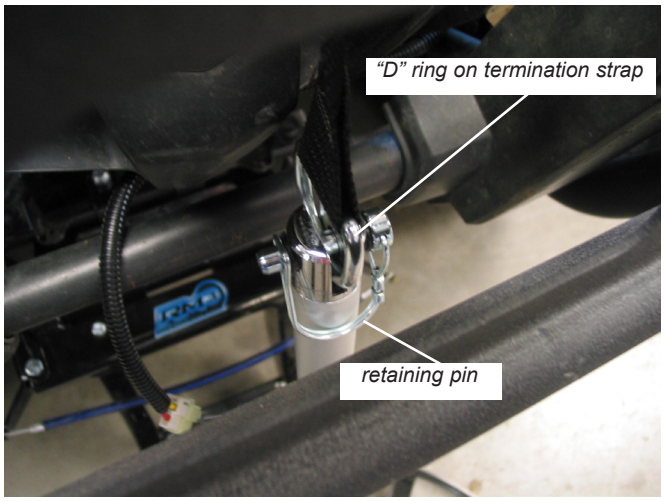


Figure 12

2. Attach the strap to a solid structure on the front of the ATV as shown in Figure 13. Front racks, bumpers, or brushguards are ideal candidates, depending on the make and model of the ATV. If at all possible, the strap should run directly between the attachment point on the ATV and the blade without touching any other part of the ATV. WARN PN 82012 rack extension kit is available if additional clearance from front of vehicle is required. Position the D-ring as high off the ground as practical, doing so will provide the maximum amount of lift. It is recommended that weight is placed on rack or front bumper of vehicle is pushed down for final strap adjustment.

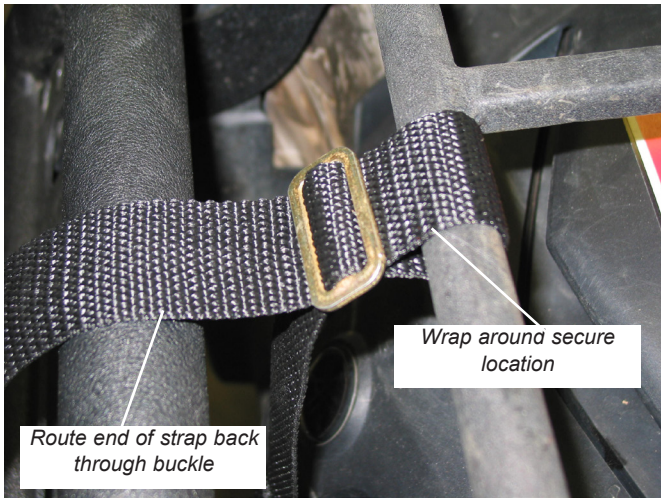


Figure 13

3. Once the strap is in place, loop back the excess strap through the top of the buckle as shown in Figure 14. Cut or securely wrap any excess strap out of the way of moving parts, parts that emit heat, or any place that may restrict airflow. If the strap is cut, be sure to sear the end to prevent unraveling.

Figure 14

III. E. Final Check

1. Check the operation of the plow and plow actuator after all the steps of the installation have been completed. All fasteners and wiring should be secure. Verify that the plow goes up with the “up arrow” and down with the “down arrow” and does not operate when the key switch is turned “OFF”.
2. Check the wiring at the battery and along the ATV at all points. Ensure that the wires are securely inside of the supplied conduit and they do not contact any sharp edges or moving parts. Secure loose ends with the supplied cable ties.
3. Check the actuator cable routing. The cable should not come in contact with any objects between the actuator and bumper or bumper and plow. Inspect the cable periodically and replace if damaged or worn.

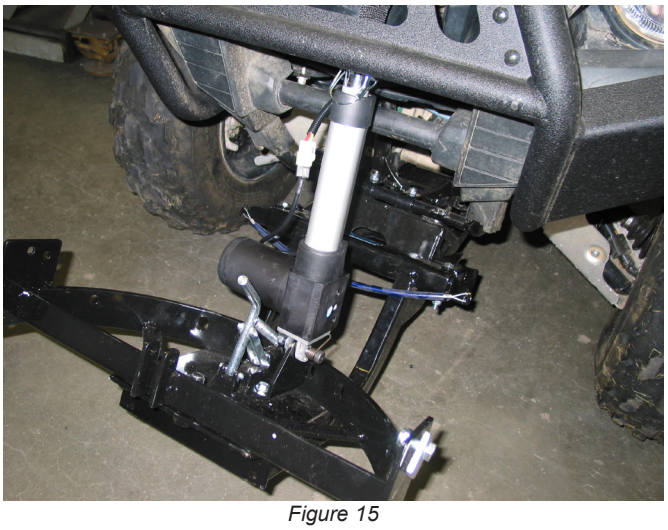


Figure 15

Installation is now complete and should look like Figure 15. Read the WARNING below before continuing.

⚠ WARNING

Failure to perform regular inspections and maintenance on the plow, plow mount, manual lift, and related hardware may result in vehicle damage and operator injury or death.

⚠ WARNING

Before using the ATV with the Electric Actuator, be sure you have completed the following rules below. Failure to do so can lead to serious injury or death from electrical fire, entanglement, or loss of vehicle control.

- **Be sure there is enough slack in the wiring to allow the handlebars to move freely. Check by moving the handlebars all the way to the left and right.**
- **Do not route electrical cables across sharp edges.**
- **Do not route electrical cables through or near moving parts.**
- **Do not route electrical cables on or near components that get hot during ATV operation.**
- **Read and follow all wiring instructions included in the operator's manual.**
- **Insulate and protect all exposed wiring and electrical terminals.**
- **Never allow the actuator wires or plug to drag on the ground when the plow is installed or removed.**
- **Never allow the actuator wires or plug to drag on the ground when the plow is installed or removed.**
- **Wiring from the ATV to the Actuator should not touch the plow as the plow is raised and lowered.**

IV. Maintenance/Care

- Inspect all metal parts on the plow, plow mount, actuator, and related hardware. Replace all parts that appears rusted or deformed prior to use.
- Inspect all nuts and bolts on the plow, plow mount, actuator, and related hardware prior to each use. Tighten all nuts and bolts that appear to be loose. Stripped, fractured, or bent bolts or nuts need to be replaced.
- Check all cables or straps prior to use. Replace cables or straps that are worn or frayed.
- Check all moving and rotating parts. Remove debris that may inhibit the part from moving freely.
- Check all bushings and spacers. Replace those that show excessive wear.
- Check all electrical wiring. Replace wiring that shows exposed wire or is severely crimped.

The following replacement parts are available for purchase:

Part #	Description	Notes
68194	Relay Wiring System	
69660	Switch Wiring System	69659, 64255, and 21842
66510	Relay	Quantity of 1
68192	Cable Termination Strap	67659and 39172
80986	Linear Actuator	Includes linear actuator and mounting bracket

Contact your nearest WARN dealer for ordering. To find a dealer nearest you, contact the WARN dealer locator line at 1-800-910-1122.

If you are having problem installing your electric actuator, please follow the steps below:

1. Reference the installation instructions for tips or notes.
2. Contact the dealer where you purchased the kit.
3. Call an authorized WARN Service Center from the warranty sheet included in the kit. Please have the following information available before calling; electric actuator part number (listed on front of instructions), date of purchase, what plow size you are trying to lift with, and make, model, and model year of ATV.
4. Contact WARN customer service at 1-800-543-9276 or www.warn.com. Again, please have the following information available before calling; electric actuator part number (listed on front of instructions), date of purchase, what plow size you are trying to lift, and make, model, and model year of ATV.