



# INSTALLATION INSTRUCTIONS

## PRO-PIVOT

Part Number: 88700

Application: WARN PLOW PUSH TUBE 92100, 78100

### GENERAL SAFETY PRECAUTIONS

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.

### ▲ WARNING

#### IMPACT AND MOVING PARTS ENTANGLEMENT HAZARD

Failure to observe these instructions could lead to severe injury or death

- Always Read the Plow Operator's Manual, the Winch Operator's Manual and all warning labels before operating.
- Always be aware of flammable situations. Drilling, grinding, arcing connections can be potential ignition sources for poorly ventilated areas with flammable gases and/or other combustibles.
- Always wear safety glasses when installing this kit. A drilling operation will cause flying metal chips. Flying chips can cause eye injury.
- Always remove jewelry and wear eye protection.
- Never lean over battery while making connections.
- Never route electrical cables:
  - Across any sharp edges.
  - Through or near moving parts.
  - Near parts that become hot.
- Always insulate and protect all exposed wiring and electrical terminals.
- Always install terminal boots as directed in installation instructions.
- Always use appropriate and adequate care in lifting components into place; edges may be sharp.
- Always insure components will remain secure during installation and operation.
- Always tighten all nuts and bolts securely, per the installation instructions.
- Always operate the vehicle at a walking speed with the blade installed. Never exceed 5 mph (8 km/h), even with blade up.
- Always plow cautiously, impact with hidden or stationary object may cause the vehicle to stop suddenly or go out of control.
- Never operate the vehicle on slopes greater than 10 degrees with the plow installed.
- Never stand or ride on the plow.
- Always perform regular inspections and maintenance on the plow mechanism, fasteners, cable and related hardware.
- Always replace all worn or damaged parts before operating.
- Never operate this WARN product with damaged or missing parts.
- Always drive slowly over bumpy and rough terrain. Driving at speeds that cause the plow to bounce while in the up position can cause the winch to back-drive, causing the plow to work its way down. This may result in the plow impacting a stationary object and cause damage to the vehicle and operator injury or death.
- Always drive at speeds such that the plow does not bounce and be aware of the plow position while driving at all times.
- Always be aware that the purpose of the j-bolt is to break the connection between the plow and the winch, to prevent serious damage to the ATV if the plow is raised too high. The plow blade will drop suddenly if the j-bolt breaks, so always be sure there are no bystanders when you raise and lower the plow.
- Never raise the top of the plow above the headlights of the ATV, as it may damage the vehicle and plow.
- Always replace a deformed or broken j-bolt with the spare j-bolt included in the kit.
- Always wear a helmet and appropriate clothing when operating the ATV.
- Always disconnect power connector from Pro-Pivot when manually adjusting as described in step 5 of section VII.

Read installation and operating instructions thoroughly.

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Clackamas, OR USA 97015-8903, 1-503-722-1200, FAX: 1-503-722-3000  
Customer Service: 1-800-543-9276  
Dealer Locator Service: 1-800-910-1122  
International Sales/ Customer Service: 1-503-722-3008  
International Fax: 1-503-722-3005

## **⚠ CAUTION**

### **MOVING PARTS ENTANGLEMENT HAZARD**

Failure to observe these instructions could lead to minor or moderate injury



- Always take time to fully read and understand the installation and operating instructions included with this product.
- Always stay clear of moving parts and joints. Always keep others away when operating or adjusting plow.
- Never operate this product if you are under 16 years of age.
- Never operate this product when under the influence of drugs, alcohol or medications.
- Always connect red switch wire to keyed power.
- Never manually adjust plow with key on.

Read installation and operating instructions thoroughly.

## **⚠ CAUTION**

### **PINCH POINTS**

Failure to observe these instructions could lead to minor or moderate injury



- Never operate unless Pro-Pivot is installed to plow tube base and swivel.

Read installation and operating instructions thoroughly.

## **⚠ CAUTION**

### **BURN HAZARD**

Failure to observe these instructions could lead to minor or moderate injury



- Always use caution when in contact with Pro-Pivot components. Surfaces may become hot after use.

Read installation and operating instructions thoroughly.

## **NOTICE**

### **EQUIPMENT DAMAGE**

- Always refer to the installation instructions, supplied in this kit, for all wiring schematics and specific details on how to wire this WARN product to your vehicle.
- Always release switch when Pro-Pivot reaches the end of travel or when subject to plowing loads. Stalling will cause overheating and reduce life of the unit.
- Always store this product out of the weather between use to protect against corrosion and freezing, and keep product operating smoothly.

Read installation and operating instructions thoroughly.

## **NOTES**

- The Pro-Pivot is actuated by a handlebar mounted switch that directs power to the Pro-Pivot motor. The motor outputs a torque that is multiplied through the gear train rotating the plow blade until the limit switch terminates rotation. The Pro-Pivot is capable of rotating the blade 28 degrees in each direction from center.
- Do not excessively load plow, bracket, and pivot.

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## PARTS LIST

Part Number	Qty	Description
71414	2	Capscrew, M6 Button Head
65970	2	Capscrew, M8 Hex Head
87166	4	Nut M10 x 1.50
22491	2	Nut Locking M8
7482	8	Washer Lock 10MM
74514	6	Capscrew, M10
86542	1	Cable-Tie
39987	1	Wire Conduit
88770	1	Bracket
88769	1	Harness
75954	1	Switch
66138	1	Contactor
88768	1	Switch Assembly
88767	1	Retainer
88700		ATV Pro-Pivot Assembly
89220	1	Kit Base Adapter
63247	2	6-32 x 7/8 Screw
69500	4	Cable Tie
89389	2	Washer M10 x 30
70119	2	M10 x 1.5 x 25 SHCS

## TOOLS REQUIRED

- 5mm, 6mm, 7mm hex wrench
- 13mm, 14mm, 15mm, 17mm, & 9mm end wrench
- 13mm, 14mm, 17mm & 24mm socket
- Ratchet
- 8 mm Allen Wrench

## TORQUE SPECIFICATIONS

Please use the recommended torque specifications when assembling this product unless otherwise specified in the instructions.

M8 12 lb. ft.	(17 N-m)
M10 31 lb. ft.	(42 N-m)
M12 60 lb. ft.	(81N-m)
M16 100 lb. ft	(135 N-m)

# INSTALLATION INSTRUCTIONS

## INSTALLATION PREPARATION (disassembly)

**NOTE:** Use this section if retro fitting an existing plow with the Pro-Pivot. If you are assembling the plow for the first time with the Pro-Pivot skip to INSTALLATION (Pro-Pivot Assembly)

**NOTE:** It is possible to install Pro-Pivot without removing plow blade from swivel assembly, however; installation of Pro-Pivot assembly will be easier if plow blade is removed.

1. Remove the two plow springs by removing the nuts and carriage bolts. See Figure 1.

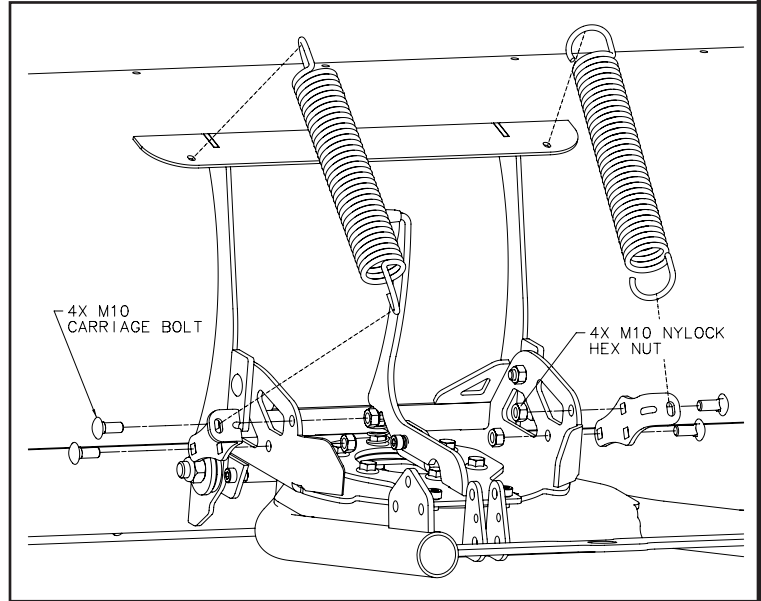


Figure 1

2. Remove the blade from the tube base by unscrewing the two bolts. See Figure 2.

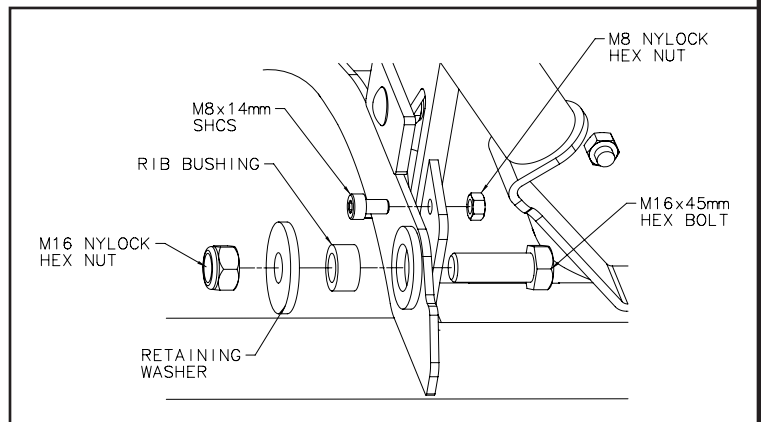


Figure 2

3. Remove shoulder screw to remove the plow lever as shown in Figure 3.

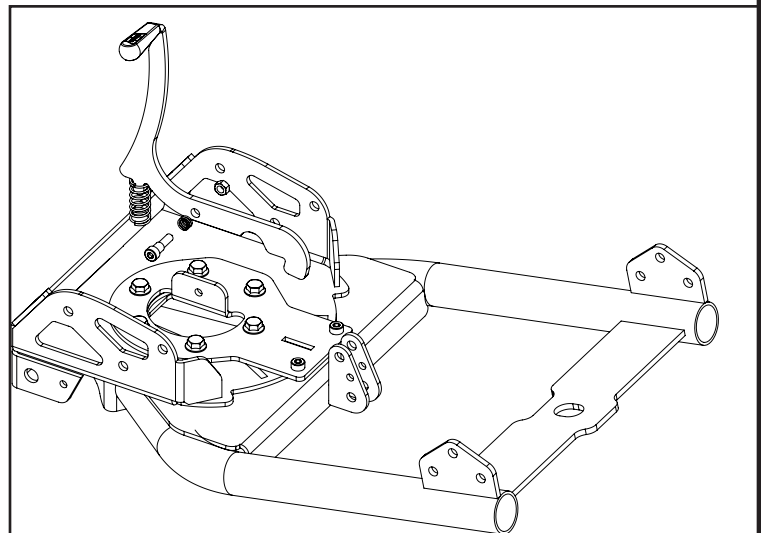


Figure 3

# INSTALLATION INSTRUCTIONS

## INSTALLATION (Pro-Pivot Assembly)

4. Figure 4 shows the Warn plow push tube assembly. The push tube assembly consists of the push tube weldment, the swivel base which a plow blade connects to, a bearing plate and a top retaining plate which constrains the swivel base.

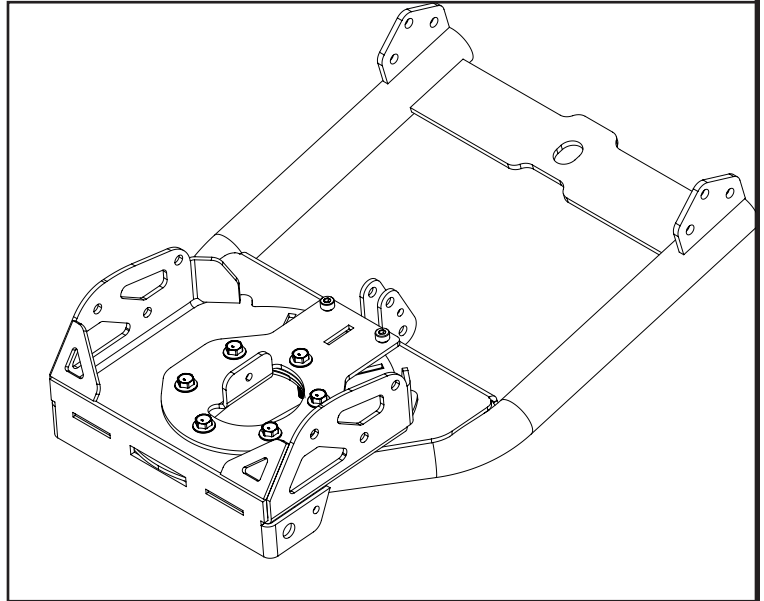


Figure 4

5. Figure 5 shows the removal of the retainer and bearing plate from the push tube assembly and ready to receive the Pro-Pivot.

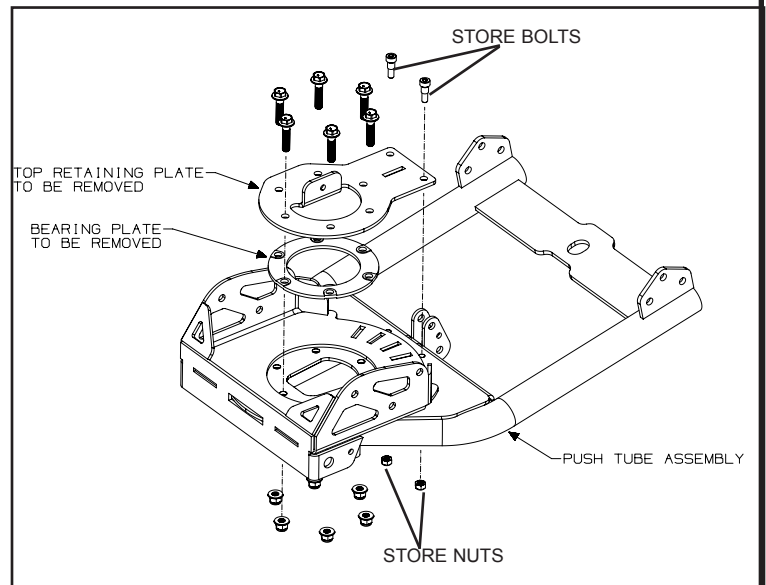


Figure 5

6. Figure 6 shows the current configuration of the WARN Pro-Pivot. The Pro-Pivot's major components are the motor, gear train assembly and the pivot bracket. The Pro-Pivot then mounts onto the push tube assembly, replacing top retaining plate and bearing plate.

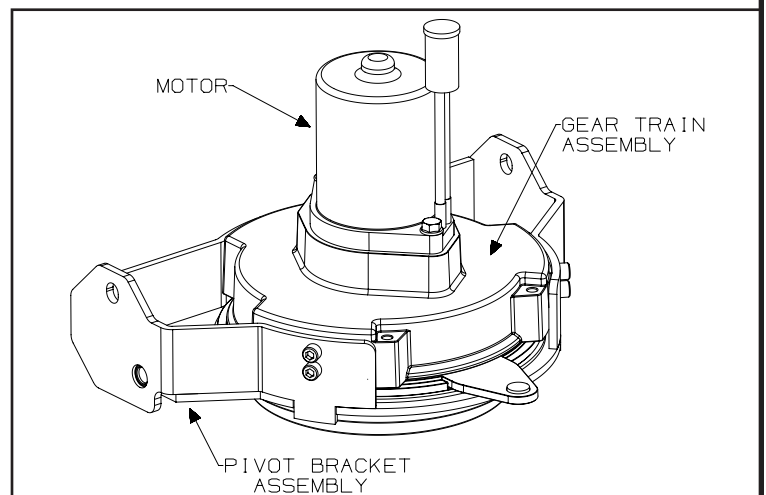


Figure 6

# INSTALLATION INSTRUCTIONS

## INSTALLATION (Pro-Pivot Assembly)

7. Figure 7 shows the Pro-Pivot assembly as being inserted in the plow tube assembly.

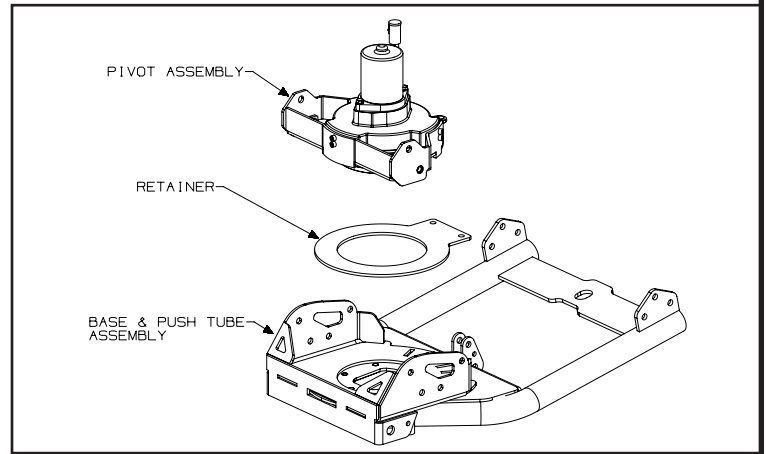


Figure 7

8. Installation is completed by securing the Pro-Pivot from the underside and sides with the hardware provided. See Figure 8

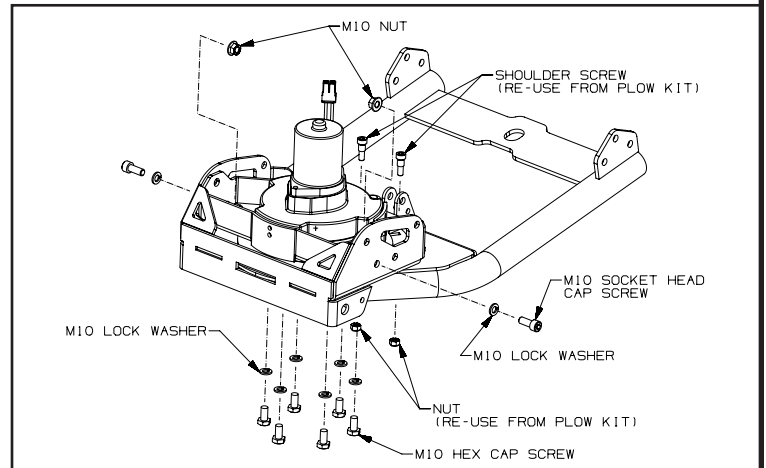


Figure 8

9. Use adapter kit (PN89220) if the base has a cutout, See Figure 9.

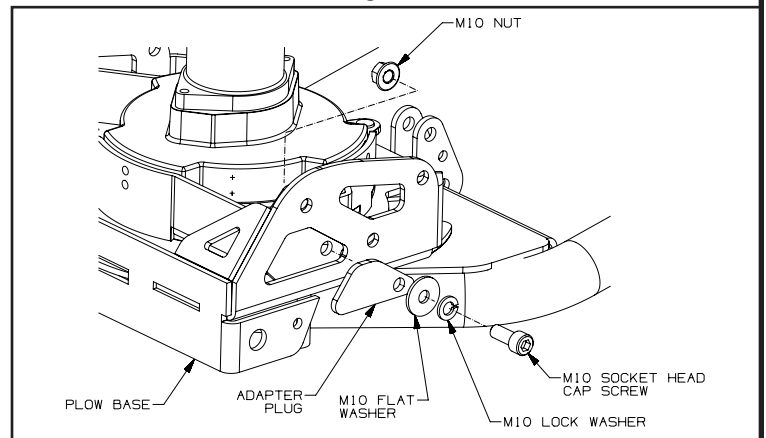


Figure 9

10. Insert motor wiring into conduit and install cable tie around motor in location shown in Figure 10.

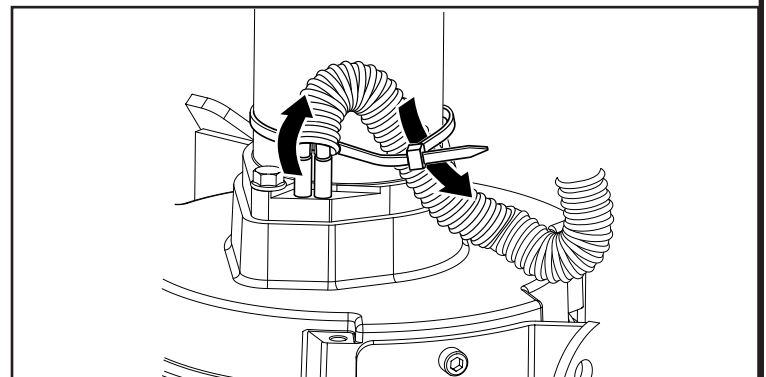


Figure 10

# INSTALLATION INSTRUCTIONS

## INSTALLATION (Pro-Pivot Assembly)

- The plow blade can now be reinstalled on the push tube assembly (reverse steps 1-2 and torque to specifications) and the push tube assembly reconnected to the vehicle.

## INSTALLATION cont. (Switch Mounting)

- The Power-Pivot switch is mounted to the top of the winch handlebar switch (mini rocker).
- Remove winch handlebar switch from mount. See Figure 12. Note: It may not be necessary to remove mounting bracket from handlebar.
- Reassemble winch handlebar switch with supplied #6 screws as shown in Figure 13. Screws extend through winch switch, fastening to threaded standoff of new Power-Pivot switch.
- Reattach winch handlebar switch to mounting bracket removed in step 13.

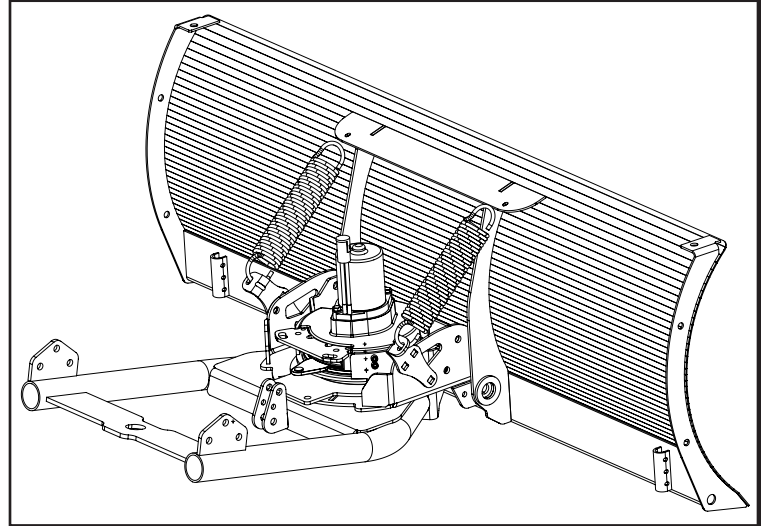


Figure 11

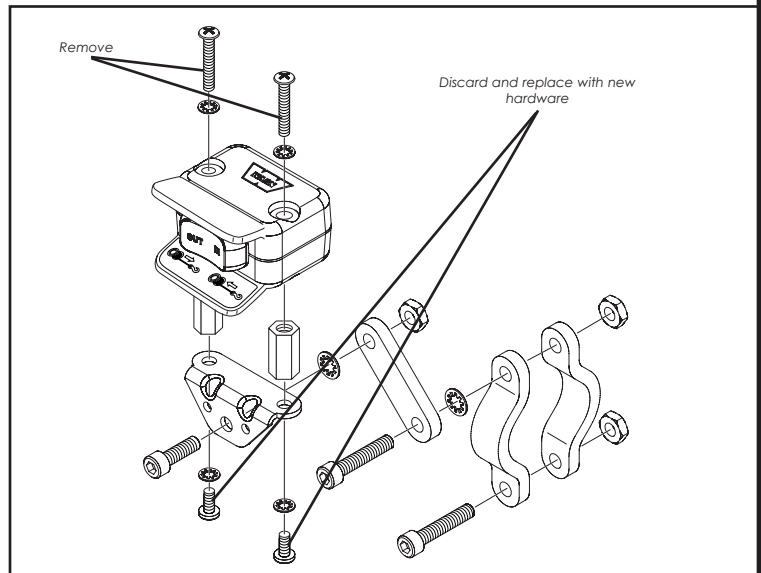


Figure 12

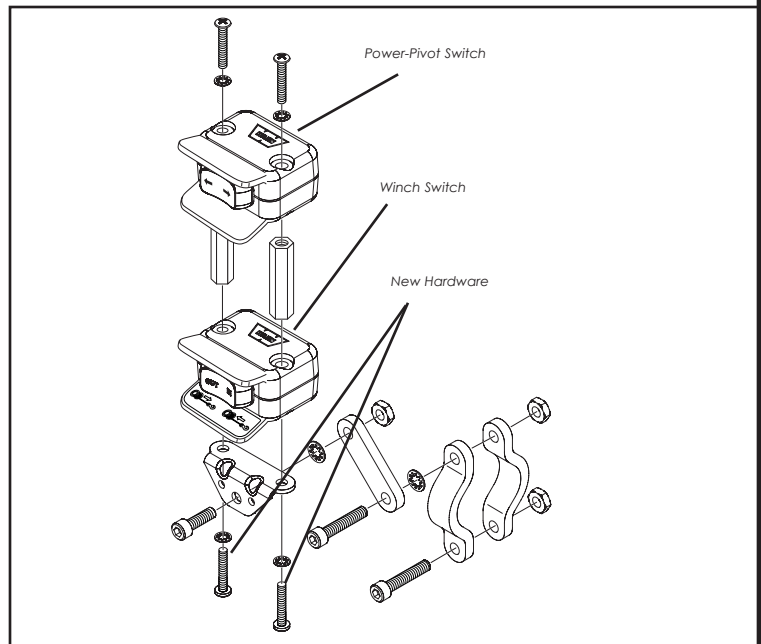
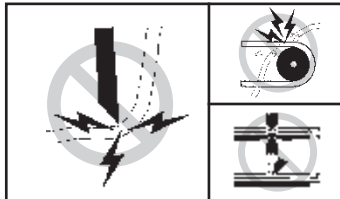


Figure 13

## ⚠ WARNING

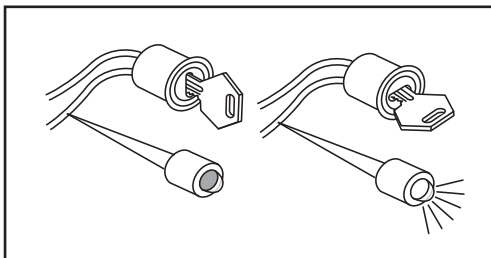
### TO PREVENT SERIOUS INJURY OR DEATH FROM ELECTRICAL FIRE:



- Do not route electrical cables across sharp edges.
- Do not route electrical cables through or near moving parts.
- Do not route electrical cables through or near any high heat parts.
- Avoid pinch and wear/abrasion points when installing all electrical cables.

### TO AVOID INJURY AND PROPERTY DAMAGE:

- Use caution when moving or repositioning any vehicle controls so as to not compromise the safe operation of the ATV. Select a mounting position that will provide clearance for all vehicle controls.
- Before securing the switch cable with tie wraps, make sure that the handlebars have full range of motion.



Use a test light to locate a suitable wire.



# INSTALLATION INSTRUCTIONS

16. Once the handle bar switch is mounted, route the two bullet terminal wires to where the contactor will be mounted (see Contactor Mounting). Splice the end of the red 20ga wire to a key controlled accessory circuit of the ATV (use the provided wire splice). Using a test light, locate a suitable wire from the ATV key switch. The wire should only have power when the key is in the "ON" position.

17. The completed Pro-Pivot switch mounting is shown in Figure 14.

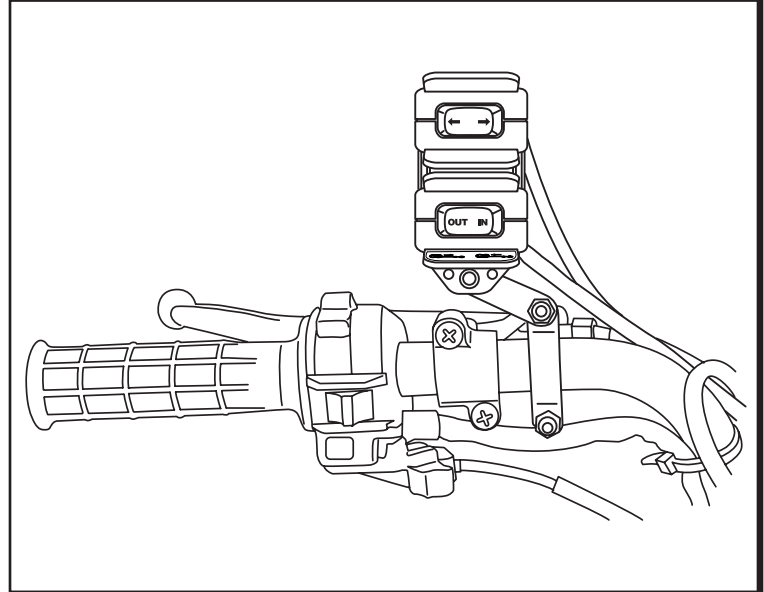


Figure 14

## INSTALLATION cont. (Limit Switch Mounting)

1. Attach the limit switch plate and limit switches to the pivot using the supplied hardware (Figure 15). Connect the limit switch marked with an "L" to the left side of the pivot.

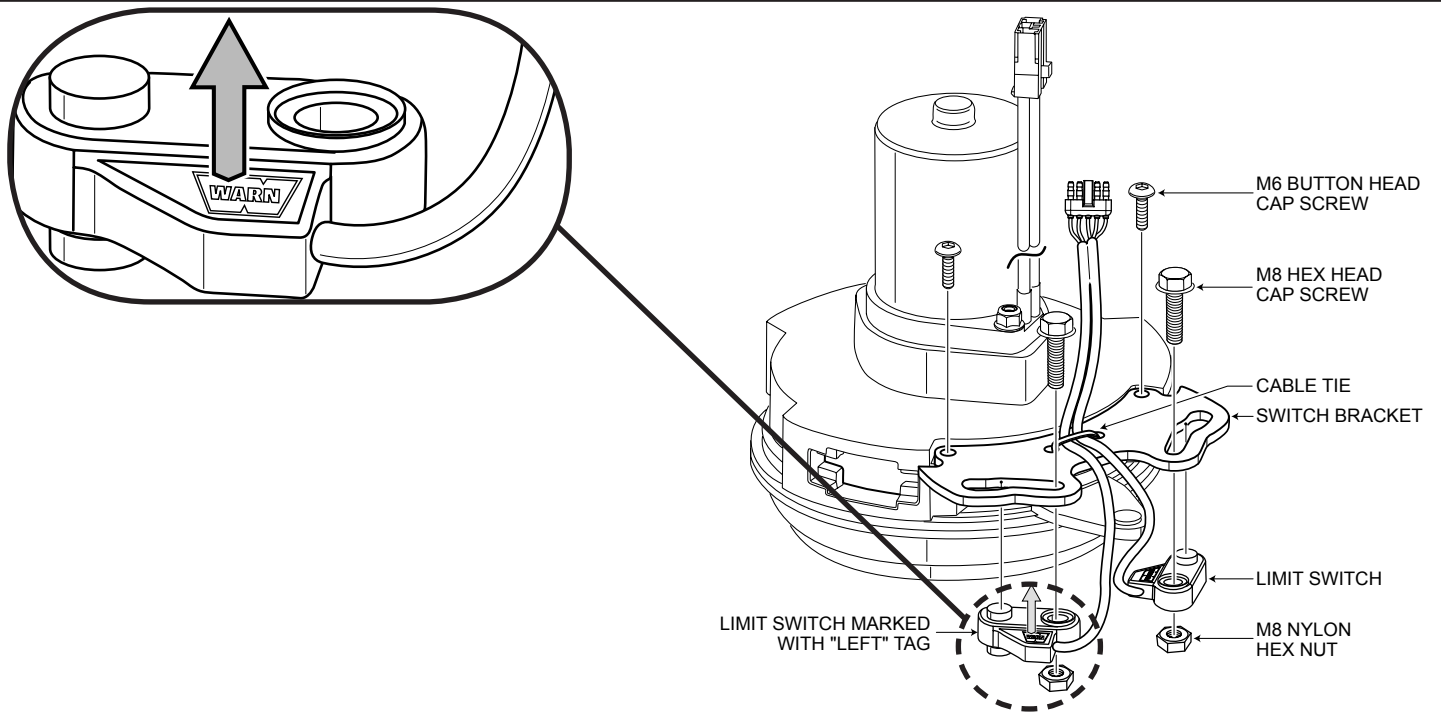


Figure 15



# INSTALLATION INSTRUCTIONS

## INSTALLATION cont. (Contactor Mounting)

1. The contactor is a primary safety feature in your Pro-Pivot system. It disconnects your Pro-Pivot from its power source when the ATV is not in use. The contactor must be correctly installed to work properly. It is recommended that the contactor be mounted in a location that is as clean and dry as possible. Exact location will vary, depending on the ATV. See figure 16.

Use cable ties to mount the contactor towards the front of the vehicle in a protected area of the vehicle. The contactor must be secured on both sides. Wires should not be pulled when the handle bars are turned or plow blade is lifted and lowered. Use a cable tie around the Pro-Pivot motor and motor leads to help support.

2. Connect the contactor wiring to the vehicle battery. When possible, route the winch kit power (red) and ground (black) wires along the ATV's existing wire routing path Figure 16 in the under seat and battery location areas. Ensure the wiring is not pinched when the seat is reinstalled.

Attach the terminals on the green and black handlebar switch wires directly to the terminals of the contactor.

Assure that cables do not cross sharp edges, moving parts, or contact items that may become hot. Secure loose wiring with cable ties or electrical tape prior to final ATV re-assembly.

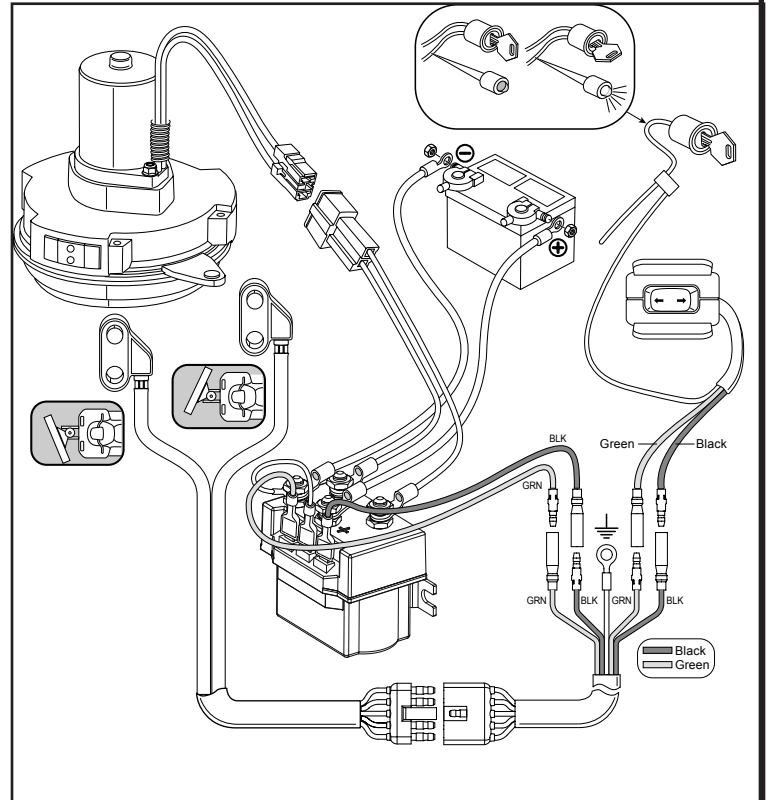


Figure 16

## INSTALLATION cont. - System Check

Before using the Pro-Pivot, verify the following:

- Wiring to all components is correct. All loose wires are secured.
- There are no exposed wiring or terminals. Cover any existing terminal exposures with terminal boots, heat shrink tubing or electricians tape.
- Turn ATV key switch to ON position. Check Pro-Pivot for proper operation. The Pro-Pivot should pivot back and forth in the direction indicated on the switch. Depressing the right side of the handle bar switch should result in the blade pivoting to the right.

## NOTICE

### OPTIONAL SWITCH OPERATION

- If desired, the Pro-Pivot switch assembly can be disassembled by removing screws shown in Figure 13 of switch installation section. Remove top case half of Pro-Pivot switch, and flip switch over. Flipping the switch over will result in the blade pivoting to the right while depressing the right side of the switch. Be careful not to pinch wires when reinstalling top case half. Reinstall and tighten screws.

## TROUBLE SHOOTING

- **No function:**
  - see *Slow Operation*
  - confirm limit switches are plugged into control harness
- **Will not go in opposite direction:**
  - limit switches installed incorrectly
  - confirm control harness is grounded
  - bullet connectors in wrong order

- **Slow Operation:**

- low battery - charge or replace battery
- bent or damaged component causing friction - remove Pro-Pivot assembly and inspect swivel base of push tube assembly for damage.
- bad electrical connections - inspect all electrical connections. Connections must be tight and free of corrosion.
- wrong bolts used to secure pivot to tubes. Use supplied.

- **Erratic/inconsistent function**

- bad electrical connections - inspect all electrical connections. Connections must be tight and free of corrosion.
- damaged internal latch components - contact WARN customer service.

## MAINTENANCE / CARE

### Before each use:

- Inspect all metal parts on the plow, plow mount, and related hardware. Replace all parts that appear rusted or deformed prior to use.
- Inspect all nuts and bolts on the plow, plow mount, 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 immediately.
- Check all cables. Replace cables that are worn or frayed.
- Check all moving and rotating parts. Remove debris that may inhibit the part from moving freely. Store out of the weather between use to protect against corrosion, freezing and to keep operating smoothly.

## SERVICE

Should you encounter a problem during installation or operation of your Pro-Pivot, please follow these steps toward resolving the problem:

1. Refer to these installation instructions for illustrations and detailed information on the installation, safe and proper operation, replacement parts lists and assembly diagrams of your Pro-Pivot. If you are unable to resolve the problem, then go to step 2.
2. Contact your dealer where you purchased your Pro-Pivot. If, after discussing the problem with their parts and service staff, you are still unable to resolve the problem then go to step 3.
3. Call an authorized WARN Service center from the list provided on the back of the warranty sheet included with the product. When calling, please have the following information available: Pro-Pivot model number and purchase date, make, model and year of ATV.
4. If you are unable to resolve the problem to your satisfaction, please call Warn Industries Customer Service at: 1-800-543-9276. When calling, please have the following information available: Pro-Pivot model number and purchase date, make, model and year of ATV. You may also contact Warn Industries by visiting our website: [www.warn.com](http://www.warn.com).

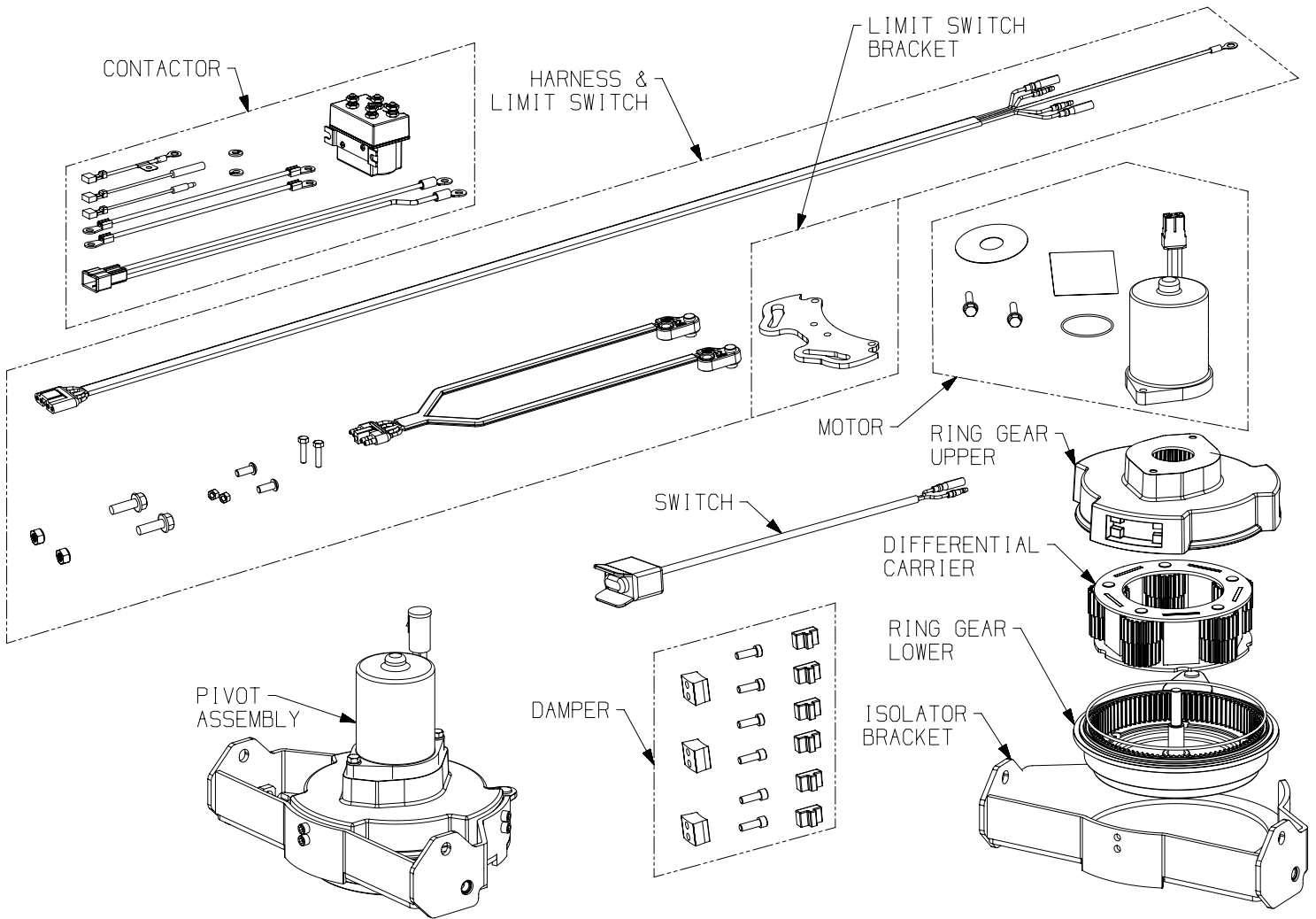
## WARRANTY

Please refer to the warranty sheet enclosed with your Pro-Pivot for details.

# SERVICE KITS

PN	DESCRIPTION
89149	MOTOR
89150	SWITCH
89151	CONTACTOR
89152	DAMPER
89153	ISOLATOR BRACKET
90899	LIMIT SWITCH BRACKET

PN	DESCRIPTION
89154	DIFFERENTIAL CARRIER
89155	RING GEAR UPPER
89156	PIVOT ASSEMBLY
89157	HARNESS & LIMIT SWITCH
89405	RING GEAR LOWER



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