

P.O. Box 787 Iron Mountain, MI 49801-0787 ISO 9001:2008 REGISTERED bossplow.com

# ATV/MID-SIZE UTV POWER-V XT INSTALLATION & OWNER'S MANUAL

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BOSS Products reserves the right under its continuous product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

This product is covered under one or more of the following patents: 2,137,853 4,074,448 4,658,519 5,568,694 6,035,944 6,108,946 6,134,814 6,170,178 Other Patents Pending

# WARNING

Serious injury or death can result if you do not follow these instructions and procedures which are outlined further within your owner's manual

- Read this manual and all labels carefully. Follow the operating procedures described.
- NEVER exceed Gross Vehicle Weight Ratings (GVWR). Overloading could result in an accident, vehicle damage or personal injury.
- Follow all Operator Safety instructions and age restrictions found in your ATV/UTV Owner's Manual.
- NEVER use Plow System for any other purpose than plowing snow.
- When transporting, position Plow System so as not to block vision
- NEVER change Plow System position when traveling
- ALWAYS use LOW RANGE and never exceed 5 mph when plowing.
- ALWAYS use LOW RANGE and never exceed 5 mph while transporting Plow System.
- ALWAYS use LOW RANGE and never exceed 5 mph while operating Plow System.
- ALWAYS lower Plow System when vehicle is not in use.
- Make sure Plow System is properly attached before moving vehicle.
- NEVER ride or lift persons on Plow System.
- NEVER get body parts between Plow System and vehicle while servicing or operating.
- NEVER operate vehicle with Plow System on steep inclines.
- Operators should ALWAYS wear a helmet, vehicle seatbelts and all other applicable personal Protective equipment while operating Plow System.
- Operators should ALWAYS keep both hands on the handlebars while operating vehicle and Plow System.
- NEVER operate vehicle with Plow System unless tire pressure and vehicle ballast requirements are satisfied.
- ALWAYS remove ignition key and unplug Plow System before servicing.
- Installation of Plow System may affect vehicle warranty.

# WARNING

POTENTIAL HAZARD

Operating Plow System without proper instruction

WHAT CAN HAPPEN

Loss of control, accident, or personal injury.

HOW TO AVOID THE HAZARD

The risk of an accident is greatly increased if the operator does not know how to operate the Plow System properly in different situations.

All operators must read and understand the Owner's manual and instruction labels before operating the system.

# WARNING

### POTENTIAL HAZARD

Operating the vehicle with the Plow System not properly attached. The coupler pins are not fully engaged.

WHAT CAN HAPPEN

Loss of control, accident, or personal injury.

HOW TO AVOID THE HAZARD

Never operate the vehicle when the Plow System is not properly attached.

## WARNING

POTENTIAL HAZARD

Operating the vehicle with the Plow System in a position that blocks your vision.

WHAT CAN HAPPEN

Collision with obstacle or another vehicle causing personal injury.

HOW TO AVOID THE HAZARD

Never operate the vehicle when the Plow System is in a position that blocks your vision.

## WARNING

### POTENTIAL HAZARD

Positioning body parts on or between Plow System while operating Plow System or the vehicle.

### WHAT CAN HAPPEN

Severe injury or death can occur if a person gets caught between moving parts or falls while vehicle is in motion.

HOW TO AVOID THE HAZARD

Never ride in, ride on, or stand next to Plow System while someone is operating it or the vehicle.

## WARNING

POTENTIAL HAZARD

Exceeding recommended speed limits set for operation types.

WHAT CAN HAPPEN

Loss of control, accident or personal injury.

HOW TO AVOID THE HAZARD

Do not exceed recommended speed limits. Always travel at proper speed for terrain, visibility, operating conditions, and your experience.

## WARNING

POTENTIAL HAZARD

Operating Plow System or vehicle with improper tire pressure or without recommended ballast.

WHAT CAN HAPPEN

Loss of control, accident or personal injury.

HOW TO AVOID THE HAZARD

Always maintain tire pressure and ballast requirements specified on www.bossplow.com for each application.

## WARNING

Hydraulic oil can be harmful if ingested. If oil is ingested, DO NOT INDUCE VOMITTING. If conscious, give two cups of water. Get medical attention immediately.

If hydraulic oil is spilled on skin, wash with soap and water. Get medical attention if irritation develops. Launder contaminated clothes before reuse.

If hydraulic oil is exposed to eyes, flush eyes with water for 15 minutes. Get medical attention.

If hydraulic oil fume inhalation causes adverse affects, remove exposed person to fresh air. Get medical attention.



### A REVOLUTION AGAINST SNOW

Congratulations on purchasing the finest snowplow made. The BOSS sets the standard for quality, reliability, craftsmanship, and performance. Our products are designed, built, and proven in Michigan's rugged Upper Peninsula, where winter is a way of life. And we back it all up with exceptional customer service and satisfaction. We're not just setting the standard. We're leading the way.

The BOSS SNOWPLOW has been carefully designed and built for years of carefree performance. With its simple attaching system, the BOSS can be attached or removed in seconds. For safety, the BOSS includes cross-over pressure relief to prevent damage by overstress. Where A-Frame and moldboard fatigue are a common problem on conventional plows, a BOSS PLOW will stand up to severe plowing conditions.

To keep your BOSS PLOW in top shape, take a few minutes to study this manual. It will show you how to use and service the BOSS, familiarize you with all of its parts, and give you helpful tips on plowing snow.

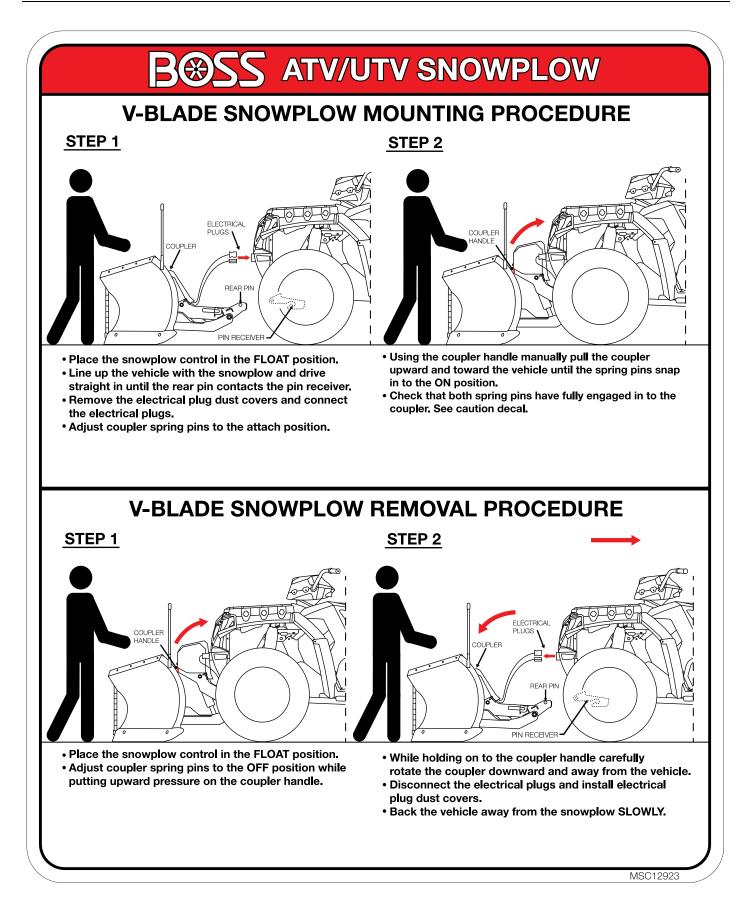
If you have further questions, your local BOSS DEALER is the person to talk to. They know your plow well and want your complete satisfaction.

## IMPORTANT

Keep this section for your record.

Date Purchased:	
Model Purchased:	
Plow Serial Number:	
	PURCHASED FROM
Dealer Name:	
Dealer Address:	
Dealer Phone No.:	

- Know the area you are plowing, hidden obstructions such as curbs, pipes, etc. can cause damage to your plow or vehicle.
- Do not let the snow accumulate; always plow with the storm.
- Always wear your helmet and seatbelt(s) when plowing snow.
- Occasionally, the Plow System may be in a position where it cuts off airflow to the radiator. While this is a rare occurrence, it can usually be corrected by raising or lowering the plow slightly.
- Always lower the Plow System blade when parking your vehicle. This reduces the load on your vehicle's suspension and guards against any potential mishap caused by a falling plow.
- Always remember to plow at a safe speed. The faster you plow the harder you will hit hidden obstructions.
- Do not get body parts between or under the plow and vehicle when servicing or operating the plow.
- When transporting, position plow so as not to block vision.
- Do not change blade positions while traveling.
- For more plowing tips please visit our website at www.bossplow.com.



### Maintenance

Your BOSS PLOW is designed for reliable service with minimal maintenance. To ensure that it gives you the same high performance year after year, please use it properly and observe the following maintenance precautions.

- Inspect the following on a regular basis:
- All fasteners, pins, retainers, nuts and bolts for tightness. See Recommended Bolt Torque located in this manual.
- All hydraulic lines and connections for wear and leakage.
- Hydraulic cylinders for leakage, rods for rust or pitting.
- Cutting edge wear.
- Hydraulic fluid level (CAUTION: DO NOT OVERFILL). Fill hydraulic pump reservoir using BOSS High Performance Hydraulic Fluid or equivalent. See Hydraulic Power Unit Fill Procedure located in this manual.
- Control Harness and Power/Ground Cable Connectors for corrosion. Apply dielectric grease at least once a month during the plow season.
- Apply grease to coupler spring pins and blade hinge bushings.

### Putting Plow into Storage

- 1. Drive the snowplow to a storage site. Follow the normal procedure for dismounting from the plow.
- 2. Disconnect all electrical plugs and coat each connection with dielectric grease (valve assembly, pump, pump solenoid, and battery). Install all dust caps and plugs provided.
- 3. Touch-up any rust spots or chipped paint.
- 4. Loosen the trip springs.
- 5. Grease the coupler spring pins and blade hinge bushings.
- 6. Lower the lift coupler until the lift cylinder is completely compressed. This will protect the lift cylinder from corrosion.
- 7. Grease the exposed chrome on the angle cylinder to protect from corrosion.

### Taking Plow out of Storage

- 1. Check all fasteners for tightness. See Recommended Bolt Torque located in this manual.
- 2. Check hydraulic hoses for cracks and leaks.
- 3. Check hydraulic oil level (CAUTION: DO NOT OVERFILL). Fill hydraulic pump reservoir using BOSS High Performance Hydraulic Fluid or equivalent. *See Hydraulic Power Unit Fill Procedure located in this manual.*
- 4. Tighten the trip springs.
- 5. Coat each electrical connection with dielectric grease (valve assembly, pump, pump solenoid and battery).
- 6. Grease the coupler spring pins and blade hinge bushings.

## **Snowplow Assembly Procedure**

**Note:** This procedure is used for the assembly of the BOSS ATV/UTV 5'6" V XT Plow. Part numbers for the BOSS ATV/UTV 5'6" V XT Plow are listed in the parts explosions in this manual.

- 1. Begin the assembly procedure by cutting down each corner of the plow box so that each wall of the box will lie flat on the floor. The box can be used as a mat and will help prevent damaging the blade halves during installation.
- 2. Remove Left Blade Half (5) and Right Blade Half (4) from the plow box. Lay each blade half flat on the plow box, face down.

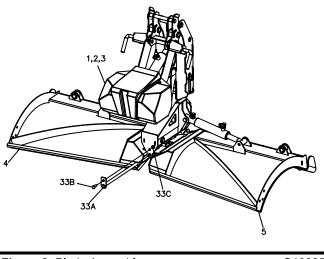


Figure 2. Blade Assembly

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- 3. Align the Left Blade Half (5) with Right Blade Half (4) so that the hinge bushings align and blade cutting edges are even.
- Position the Coupler / Push Frame / Center Section Assembly (1,2,3) on top of both blade halves so that all bushings align and center section hinge bushing is inserted between blade hinge bushings.
- 5. Insert the Center Hinge Pin (33A) through Left Blade Half (5), Right Blade Half (4) and Center Section (2) hinge bushings.
- Align and fasten Center Hinge Pin (33A) through the forward hole on top of the Center Section (2) using one 3/8"-16 x 1" Hex Head Cap Screw (33B), and one 3/8"-16 Self-Locking Nut (33C).

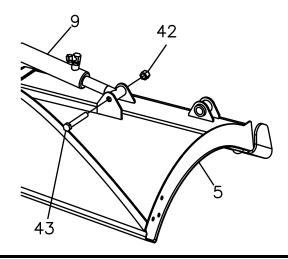


Figure 3. Angle Cylinder Assembly

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- Align and fasten the rod end of each Angle Cylinder (9) to the cylinder mounts located on the Left Blade Half (5) and Right Blade Half (4) using two ½"-13 x 3-1/2" Hex Head Cap Screws (43) and two ½"-13 Self-Locking Nuts (42).
- 8. Stand plow in the upright position with the blade halves in the V position.

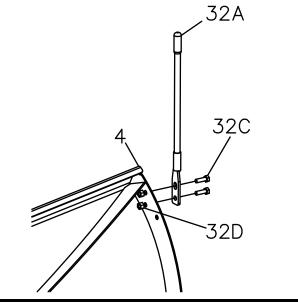


Figure 4. Blade Guide Assembly

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 Install Blade Guides (32A) on the outer rib of Left Blade Half (5) and Right Blade Half (4). Secure using four 5/16"-18 x 1 Hex Head Cap Screws (32C) and four 5/16"-18 Self-Locking Nuts (32D).

### **Switch Box Control Mounting Procedure**

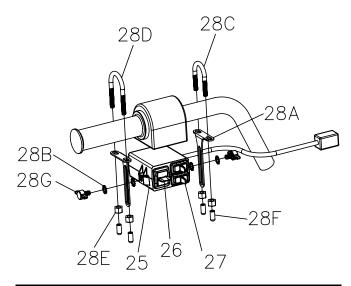


Figure 5. Switch Box Control Mounting Diagram G10904

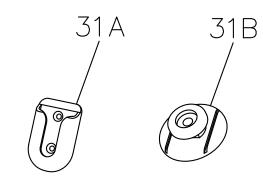
- Slide the ¼"-20, #06 U-Bolt (28D) over the left side vehicle handlebar grip as close to the control cluster as possible. Slide the ¼"-20, #04 U-Bolt (28C) over the vehicle handlebar on the opposite side of the control cluster.
- Loosely assemble the Switch Box Control Mounting Brackets (28A) to the U-bolts (28C & 28D) below the handlebar using four ¼"-20 Self-Locking Nuts (28E) as shown in Figure 5.
- 3. Align the Switch Box Control (25) with the Control Mounting Brackets (28A) under the control cluster. Assemble using four 1/4" Star Washers (28B) and two ¼'-20 x 7/16" Thumb Screws (28G).
- 4. Adjust Switch Box Control (25) to desired position. Tighten all mounting fasteners.

### NOTICE:

Switch Box Control should be positioned in such a manner such that the operator will not come in to contact with any part of it in the event of an accident.

- 5. Slide the four Rubber End Caps (28F) over the exposed ends of the U-bolts (28C & 28D) for added operator protection.
- 6. Route the Switch Box Control (25) wire and connector along the existing vehicle control wiring down the handlebar and steering stem, under the central cowl/fender area. Secure wire using supplied cable ties.

### SmartTouch<sup>™</sup> Control Mounting Procedure



**Figure 6.** SmartTouch<sup>™</sup> Mounting Hardware G10905

- 1. Remove the Swivel Mount (31A) and Tab (31B) from the Swivel Mount Kit (31).
- Use the enclosed alcohol wipe to clean a spot on the vehicle interior where you want to place the SmartTouch<sup>™</sup> Control. Wipe dry immediately with a cloth or paper towel.
- 3. Do not apply when the surface temperatures are lower than +60°F (Working temperature range of the adhesive is -40°F to +200°F).
- 4. Peel off the paper backing on one side of the adhesive and apply to Swivel Mount (31A). Apply maximum pressure to all areas.
- Apply the Swivel Mount (31A) onto the spot of the interior that was just cleaned. (MAKE SURE IT IS IN THE CORRECT PLACE) Once it is placed it cannot be removed without destroying the adhesive.
- 6. Clean the back of the SmartTouch<sup>™</sup> Control (30) with the alcohol wipe.
- 7. Peel off adhesive backing of tape, apply to Tab (31B), and press firmly.
- Remove remaining backing and apply the Tab (31B) to the back of the SmartTouch<sup>™</sup> Control (30). Apply pressure for 30 seconds.

### NOTICE:

After attaching the Swivel Mount, let it sit unused for 72 hours before attaching the SmartTouch<sup>™</sup> Control to allow the adhesive to bond to the surface and insure secure mounting.

9. Place SmartTouch<sup>™</sup> Control (30) on the Swivel Mount (31A).

### **Control Wiring Installation Procedure**

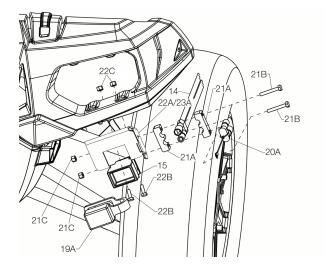


Figure 7. Control Harness Mounting Bracket Install G10906

- Locate an area under the left side front bumper fascia to mount the Control Harness Mounting Bracket (22A or 23A Two styles included) Verify that the bracket will not interfere with the vehicle suspension, tires, or headlights.
- 2. Transfer the mounting hole locations on to the bumper fascia and drill holes using a 9/32" drill bit.
- Attach Mounting Bracket (22A or 23A) to the vehicle using two ¼"-20 x ¾" Hex Head Cap Screws (22B) and two ¼"-20 Self Locking Nuts (22C) as shown in Figure 7.
- 4. Install plug end of Vehicle Side Power/Ground Cable (14) on to the Control Harness Mounting Bracket (22A or 23A) using the two Power/Ground Cable Mounting Brackets (21A), two 1/4"-20 x 1-3/4" Hex Head Cap Screws (21B), and two 1/4"-20 Self-Locking Nuts (21C). Attach lanyard of Power/Ground Dust Cap (20A) to lower Hex Head Cap Screw (21B) as shown in Figure 7.
- Install the Vehicle Side Control Harness Dust Cap (19A) on to the large plug end of the Vehicle Side Wiring Harness (15) and insert the harness in to the Control Harness Mounting Bracket (22A or 23A).

 Route the Vehicle Side Wiring Harness (15) and Vehicle Side Power/Ground Cable (14) together upward and along the vehicle frame toward the vehicle battery and Control connector. Secure wiring using supplied cable ties. Mount Control connector using supplied Dash Plug Bracket (23B) and hardware on UTV applications.

### **NOTICE:**

All wiring should be secured under fenders in a position that provides sufficient room so that hot or moving parts will not be contacted. Vehicle damage could occur if wires are not properly secured.

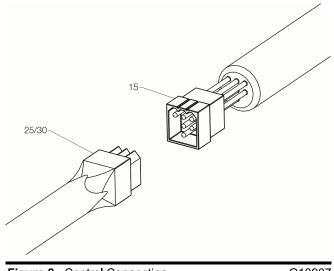
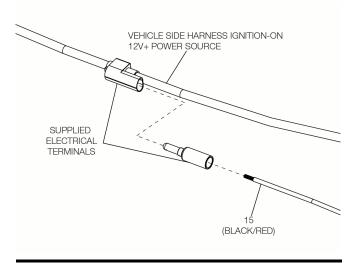
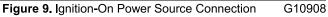


Figure 8. Control Connection

G10907

 Connect the Control connector to the mating Vehicle Side Wiring Harness (15) connector as shown in Figure 8.





**Note:** This 12V+ source should only be active when the vehicle ignition is in the ON position. Failure to connect to an ignition-on source can allow a condition to occur causing the battery to discharge.

### NOTICE:

Before splicing into any electrical circuit, identify the circuit with a test lamp. Failure to test circuits may result in vehicle damage.

 Connect the un-terminated BLACK/RED ignition-on power source wire of the Vehicle Side Wiring Harness (15) to an ignition-on 12V+ power source on the vehicle using the supplied electrical terminals as shown in Figure 9. Location and end termination type will vary depending on application.

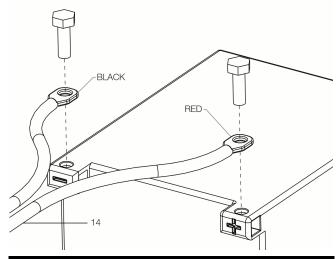


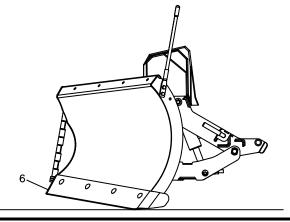
Figure 10. Battery Connections

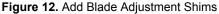
G10909

- 9. Connect the eyelet end of BLACK Vehicle Side Power/Ground Cable (14) to the NEGATIVE battery terminal.
- 10. Connect the eyelet end of RED Vehicle Side Power/Ground Cable (14) to the POSITIVE battery terminal.

## **Snowplow Blade Adjustment Procedure**

- **Note:** This procedure is used for the blade adjustment of the BOSS ATV/UTV 5'6" V XT Plow. Part numbers for the BOSS ATV/UTV 5'6" V XT Plow are listed in the parts explosions in this manual. If the plow blade cutting edges lay flat against the ground when the plow system is attached to the vehicle when lowered and in the vee position, no further adjustment is necessary. Due to variation in vehicle height, this adjustment must be completed to ensure proper alignment with the vehicle when mounting and removing the plow system, as well as for overall plow system performance. If the leading or trailing edges of the plow blade cutting edges are not touching the ground, refer to the adjustment procedure below.
- Assuming that the vehicle undercarriage and vehicle side electrical system have been installed (refer to the procedures in this manual and the vehicle specific undercarriage installation manual), align and attach the plow system to the vehicle. Refer to the "Snowplow Mounting & Removal Procedure" located in this manual.
- 2. Place the plow system blade in the fully lowered vee position on level ground. Refer to the "Control Operating Instructions" located in this manual for the installed control type.
- Figure 11. Remove Blade Adjustment Shims G10898





G10899

- **Note:** If the front most edges of the Blade Half Cutting Edges (6) (nearest the blade hinge) touch the ground and the rear most edges (furthest from the blade hinge) do not touch the ground (see Figure 11), Blade Adjustment Shims (50) must be removed from behind the Bumper Stop (49A) until the Blade Half Cutting Edges (6) lay flat against the ground from end to end. If the opposite situation is observed where the rear most edges (furthest from the blade hinge) touch the ground and the front most edges (nearest the blade hinge) do not touch the ground (see Figure 12), Blade Adjustment Shims (50) must be added behind the Bumper Stop (49A) until the Blade Half Cutting Edges lay flat against the ground from end to end.
- 3. Remove the plow system from the vehicle. Refer to the "Snowplow Mounting & Removal Procedure" located in this manual.

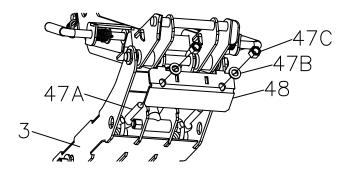


Figure 13. Remove Trip Spring Tension

G10900

 Loosen and remove Trip Spring Adjustment Nuts (47C), Washers (47B) and Spring Plate (48) from Pushframe (3). 5. Rotate Center Section (2) and Blade Halves (4 and 5) all the way forward in to a secure position.

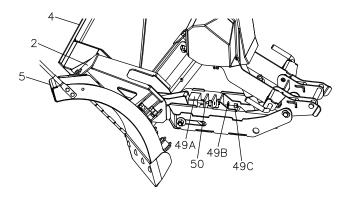


Figure 14. Bumper Stop Adjustment



- 6. Remove the Bumper Stop Nut (49C) and Washer (49B) from behind the Bumper Stop (49A) that secures it.
- 7. Remove the Bumper Stop (49A) and Blade Adjustment Shim Plates(50) behind it.
- 8. Add or remove Blade Adjustment Shims (50) one at a time as noted in this procedure.
- 9. Install Bumper Stop Nut (49C) and Washer (49B) that Secure Bumper Stop (49A) and Blade Adjustment Shim Plates (50).
- 10. Rotate Center Section (2) and Blade Halves (4 and 5) all the way backward in to their normal position.

11. Install Spring Plate (48) on to Pushframe (3) while aligning Trip Spring Eye Bolts (47A) through Spring Plate.

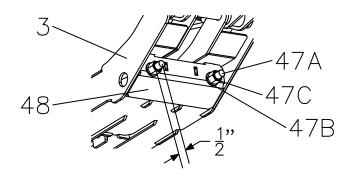


Figure 15. Trip Spring Adjustment

G10902

- 12. Install Trip Spring Adjustment Nuts (47C) and Washers (47B) and tighten nuts until approximately ½" of the Trip Spring Eye Bolts (47A) extend beyond the top of the adjustment nuts.
- 13. Attach the plow system to the vehicle. Refer to the "Snowplow Mounting & Removal Procedure" located in this manual.
- 14. Place the plow system blade in the fully lowered vee position on level ground. Refer to the "Control Operating Instructions" located in this manual for the installed control type.
- 15. Observe Blade Half Cutting Edges (6). Repeat procedure until Blade Half Cutting Edges (6) lay flat against the ground when the plow system is attached to the vehicle when lowered and in the vee position.

## **Hydraulic Power Unit Fill Procedure**

**Note:** The following hydraulic power unit fluid fill procedure is intended for a new plow system with an empty hydraulic system.

- 1. Remove the four Plastic Rivets (45A) holding the Coupler Cover (44) on to the coupler and remove the cover.
- 2. If not already attached, attach the plow to the vehicle on a level surface. Refer to the "Snowplow Mounting & Removal Procedure" located in this manual to properly attach the snowplow to the vehicle. The blade should be lowered and in the straight position.

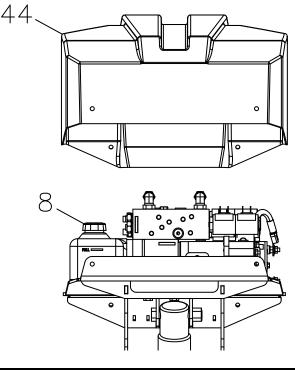


Figure 16. Hydraulic Fluid Fill Location

G10903

3. Locate and remove the Fill Cap from the Hydraulic Power Unit (8) reservoir shown in Figure 16.

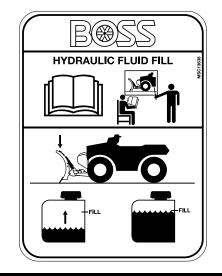


Figure 17. Hydraulic Fluid Fill Procedure

MSC13638

- Fill the Power Unit reservoir to the fill line with Boss High Performance Hydraulic Fluid or equivalent (MIL 5606) (Approx. 1 quart) as shown in Figure 17.
- 5. Re-install the Fill Cap in the Power Unit reservoir.
- 6. Operate the plow. Refer to the "Control Operating Instructions" section in this manual for operation instructions. Raise the blade, fully extend and retract both wings, and then lower in the vee position. Repeat this several times.
- 7. Refill the Power Unit reservoir to the fill line and re-install the fill cap.
- 8. Re-install the Coupler Cover (44) and Plastic Rivets (45A).

**Note:** When checking hydraulic power unit fluid level, be sure to park vehicle on a level surface with the plow blade lowered and in the vee position.



MAIN ASSEMBLIES

CUTTING EDGES

HYDRAULIC POWER UNIT

CYLINDERS

HOSES & FITTINGS

 IDUSES & FITTINGS

 11
 Kit, Hose Bundle
 HYD13893

 11A
 Includes: (1) Hydraulic Hose (Lift), 1/4" X 10-1/4", (1/4" MNPT X 1/4" MNPT)
 HYD13893

 11B
 (1) Hydraulic Hose (Angle), 1/4" X 10-1/4", (1/4" MNPT X 1/4" MNPT)
 HYD13895

 11C
 (1) Hydraulic Hose (Angle), 1/4" X 43", (1/4" MNPT X 1/4" MNPT)
 HYD13895

 11D
 (1) Hydraulic Hose (Angle), 1/4" X 43", (1/4" MNPT X 1/4" MNPT)
 HYD13896

 11D
 (1) Hydraulic Hose (Angle), 1/4" X 43", (1/4" MNPT X 1/4" MNPT)
 HYD13896

 11E
 (1) Hydraulic Hose (Angle), 1/4" X 51", (1/4" MNPT X 1/4" MNPT)
 HYD13896

 11F
 (1) Hydraulic Hose (Angle), 1/4" X 51", (1/4" MNPT X 1/4" MNPT)
 HYD13896

 11G
 (1) Hose Wrap, 1/2" D0 33"
 HYD13895
 HYD13895

 11G
 (1) Hose Wrap, 1/2" D0 34b
 Hose
 HYD13892

 12
 Hydraulic Hose
 HYD 1/4" MNPT
 HYD13895

 12
 Hydraulic Hose Wrap Lift M MPT
 HYD 1/4" MNPT
 HYD 1/4" MNPT

 12
 Hydraulic Hose
 HYD 1/4" MPT
 HYD 1/4" MNPT
 HYD 1/4" MNPT

CPA13560 CHA13430 TFR13420 BAR13480

BAL13470

BAR13481
 BAL13471
 BAX00034

HYD13630 HYD12245

- HYD13636 — HYD13635

HYD13656

- HYD13600 - HYD13600 - MSC13603 - MSC13788 - HYD13601 - MSC04294 - MSC04581

4SC05081

Coupler Assembly w/Pins-Center Section

Blade Assembly Right 5'6" w/Cutting Edge Blade Assembly Left 5'6" w/Cutting Edge

Hydraulic Pump & Manifold Includes: Hydraulic Pump Motor —

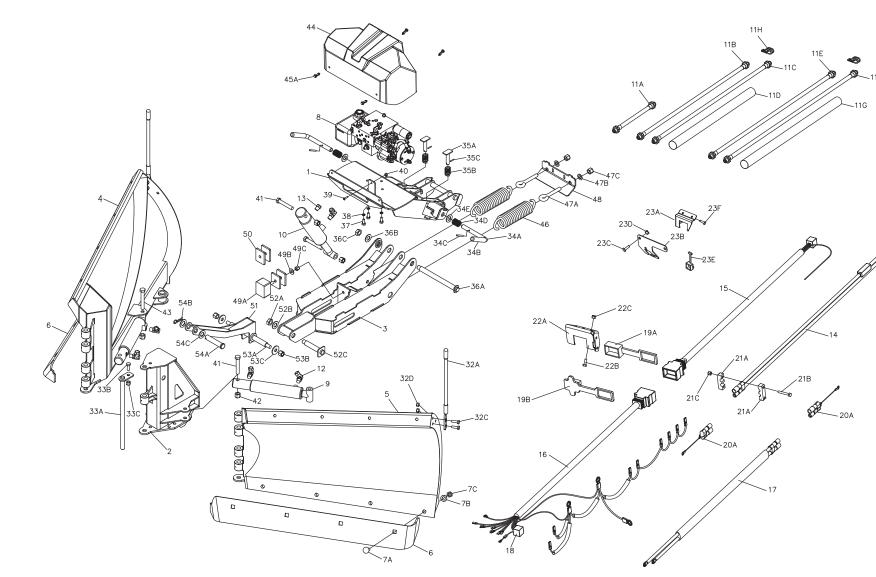
Hydraulic Angle Cylinder — Hydraulic Lift Cylinder —

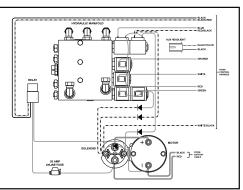
84

Cutting Edge Half, Formed, Right, 5%, V — Cutting Edge Half, Formed, Left, 5%, V — Cutting Edge Bolf Kit Includes: (10) Carriage Bolt 1/2" - 13 X 1-34" GR5 (10) Washer, 1/2" Hardened (10) Nut, Oval Top Lock 1/2"

# **ATV/MID-SIZE UTV POWER-V XT PLOWS** PARTS EXPLOSION

2015-2016

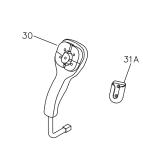




SLS13628

BOSS Products reserves the right under its continuous product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

Patent: www.ttcopats.com



ELECTRICAL

20A	Includes: (2) Dust Cap, Power/Ground	
21	Kit, Power/Ground Cable Mount Bracket w/Hardware	MSC09097
21A	Includes: (2) Mounting Bracket, Power/Ground Cable	
21B	(2) Hex Head Cap Screw, 1/4" - 20 X 1-3/4", GR5, YZN	
21C	(2) Nut, Nylon Locking, 1/4" - 20, YZN	
22	Kit, Control Harness Mounting Bracket w/Hardware	MSC13673
22A	Includes: (1) Mounting Bracket, Control Harness, Tube Mount	
22B	(2) Hex Head Cap Screw, 1/4" - 20 X 3/4", GR5, YZN	
22C	(2) Nut, Nylon Locking, 1/4" - 20, YZN	
23	Kit, Control Harness Mounting Bracket w/Hardware	— MSC13695
23A	Includes: (1) Mounting Bracket, Control Harness, Flush Mount	
23B	(1) Plug Bracket, Control Plug	MSC12634
23C	(2) Hex Head Cap Screw, 1/4" - 20 X 3/4", GR5, YZN	
23D	(2) Nut, Nylon Locking, 1/4" - 20, YZN	
23E	<ol> <li>Weather Cap, Control Plug</li> </ol>	
23F	(2) Screw, 1/4"	
	CONTROLLER	
24	Control Kit, ATV	MSC13818
	Includes	

25	Switch Box Control, ATV	MSC13812
26	Switch w/Gasket, Raise/Lower, ATV	MSC13718
27	Switch w/Gasket, Angle, ATV	MSC13446
28	Fastener Kit, Switch Box Control, ATV	HDW13710
28A	Includes: (2) Switch Box Control Mount Bracket	
28B	(4) Washer, 1/4" Star	
28C	<ol> <li>U-Bolt, 1/4" - 20, #04</li> </ol>	
28D	<ol> <li>U-Bolt, 1/4" - 20, #06</li> </ol>	
28E	(4) Nut, Nylon Locking, 1/4" - 20, YZN	
28F	(4) Rubber End Cap, 1/4"	
28G	(2) Thumb Screw, 1/4" - 20 X 7/16"	
29	Control Kit, ATV/UTV	MSC13789
30	Includes: V-Blade Hand Held Control,SmartTouch2	MSC09601
31	Swivel Mount Kit	MSC05058
31A	Includes: (1) Swivel Mount	
31B	(1) Tab	

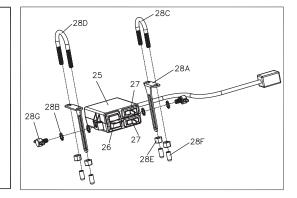


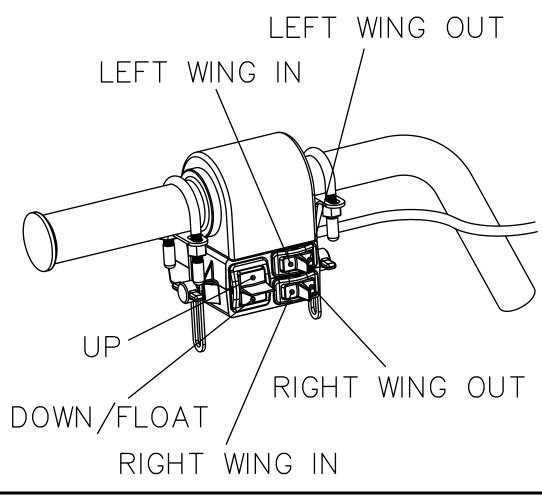
	HARDWARE	
32	Kit. Blade Guide w/Hardware	MSC12652
32 32A	Includes: (2) Blade Guide	- MISC15052
32B	(2) Hex Head Cap Screw, 5/16" - 18 X 1", Spinlock, Self Tap, GR5, YZN	
32C	(4) Hex Head Cap Screw, 5/16" - 18 X 1", GR5, YZN	
32D	(4) Nut. Nylon Locking, 5/16" - 18, YZN	
33	Kit, Center Hinge Pin Includes: (1) Center Hinge Pin	<ul> <li>MSC13447</li> </ul>
33A	Includes: (1) Center Hinge Pin	- MSC13465
33B	(1) Hex Head Can Screw, 3/8" - 16 X 1", GR5, YZN (Center Hinge Pin) ——	- HDW01717
33C	(1) Nut Nylon Locking,3/8" - 16,YZN (Center Hinge Pin)	<ul> <li>HDW01720</li> </ul>
34	<ul> <li>(1) Hex Head Cap Serew, 3/8" - 16 X 1", GR5, YZN (Center Hinge Pin) —         <ul> <li>(1) Nut Nylon Looking, 3/8" - 16, YZN (Center Hinge Pin) —             </li> <li>Kit, Coupler Attachment Pin —</li> </ul> </li> </ul>	<ul> <li>MSC13674</li> </ul>
34A	Includes: (1) Coupler Attach Pin	
34B	(1) Coupler Attach Pin Grip	
34C	(1) Roll Pin, 3/16" X 1-5/8"	
34D	(1) Spring, Attach Pin	
34E	(1) Washer, 5/8" Flat, YZN	
35	Kit, Coupler Plunger Pin	<ul> <li>MSC13675</li> </ul>
35A	Includes: (1) Coupler Plunger	
35B	<ol><li>Spring, Plunger Pin</li></ol>	
35C	(1) Roll Pin, 1/8" X 3/4" Kit, Pivot Pin (Coupler to Pushframe)	10012/2/
36		- MSC13676
36A	Includes: (1) Pivot Pin	
36B	<ol> <li>Washer, 5/8" Flat, YZN</li> <li>Nut, Jam, Oval Top Lock, 5/8" - 11, YZN</li> </ol>	
36C	(1) Nut, Jam, Oval Top Lock, 5/8" - 11, YZN	1101007007
37 38	Hex Head Cap Servey, 5/16° 18 X 3/4°, GRS, YZN (Power Unit to Coupler) — Washer, 5/16° Split Lock, YZN (Power Unit to Coupler) — Bolt, #10 - 32 X 3/4° Phillips Pan Head (Relay Tab to Coupler) —	- HDW07987
38 39	Bolt #10 32 X 3/4" Philling Pan Head (Palay Tab to Coupler)	- HDW07988
40	Nut Nylon Locking #10 - 32 (Relay Tab to Coupler)	- HDW14438
40	Hou, "Not Ocking, #10 - 32 (Relay Tab to Coupler) Mut, Nylon Locking, #10 - 32 (Relay Tab to Coupler) Hex Head Cap Serew, 1/2" - 13 X 3", GRS, YZN (Cylinders) Mut, Nylon Locking, 1/2" - 13 X 3-1/2", GRS, YZN (Cylinders) Hex Head Cap Serew, 1/2" - 13 X 3-1/2", GRS, YZN (Cylinders)	- HDW05808
42	Nut. Nylon Locking, 1/2" - 13, YZN (Cylinders)	- HDW01748
43	Hex Head Can Screw, 1/2" - 13 X 3-1/2", GR5, YZN (Cylinders)	- HDW01779
44	Coupler Cover	— MSC13647
45	Direction Direct Kita Treffeli	MSC12677
45A	Includes: (10) Plastic Rivet, Tuflok Spring, Trip Kit, Eye Bolt, Trip Sping	
46	Spring, Trip	<ul> <li>MSC13459</li> </ul>
47	Kit, Eye Bolt, Trip Sping	<ul> <li>HDW13448</li> </ul>
47A	Includes: (1) Eye Bolt, 1/2" X 4-1/4", YZN (Trip Spring)	
47B	<ol> <li>Washer, 1/2" Flat, YZN (Trip Spring)</li> </ol>	
47C	(1) Nut, Nylon Locking, 1/2" - 13, YZN (Trip Spring and Cylinder)	
48	Spring Plate, Trip Spring	<ul> <li>MSC13458</li> </ul>
49	Spring Plate, Trip Spring. Kit, Bumper Stop, with Mounting Hardware Includes: (1) Bumper Stop (1) Wacher 3.8" VZN	<ul> <li>MSC13449</li> </ul>
49A 49B	Includes: (1) Bumper Stop	<ul> <li>MSC13044</li> </ul>
49B 49C		
50	(1) Nut, Self-Locking 5/8 - 10 YZN Shim Plata Rummer Stop	MSC12042
51	(1) Nut, Self-Locking 3/8 - 16 YZ/N Shim Plate, Bumper Stop	- MSC13045
52	Kit, Horizontal Hinge Pin —	- MSC13445
52A	Includes: (1) Jam Nut, 5/8"-11 YZN	- MSC15450
52B	(1) Washer, 11/16"ID X 1-3/4" OD, YZN	
52C	(1) Big Hardwoodd Higgs Through I	
53	Kit, Spring Pin, with Mounting Hardware	- MSC13451
53A	Includes: (1) Spring Pin, Threaded	- 100010401
53B	(2) Nut, Nylon Locking, 1/2" - 13, YZN	
53C	(2) Nylon Washer 521 X 1 40 X 12 Black	
54	Kit, Clevis Pin, with Mounting Hardware	<ul> <li>HDW13452</li> </ul>
54A	Includes: (1) Clevis Pin, 3/4" X 3-1/2"	
54B	<ol> <li>Cotter Hairpin,#16, YZN</li> </ol>	
54C	(2) Washer, 3/4" Flat, YZN	

#### OPTIONS & ACCESSORIES

Dielectric Grease (1 oz.)	<ul> <li>MSC03423</li> </ul>
Boss High Performance Hydraulic Fluid - 1 Quart	<ul> <li>HYD01835</li> </ul>
Boss High Performance Hydraulic Fluid - Case (12 Quarts per)	• HYD01704

31B Ø





**Switch Box Control Operating Instructions** 

Figure 18. Switch Box Control Operation

G10910

**RAISE:** To raise the blade of the plow, press upward on the left toggle switch paddle until the blade is fully raised.

**LOWER/FLOAT:** To lower/float the blade of the plow, press downward on the left toggle switch paddle until the blade is fully lowered. This will also activate the float function.

**"WHAT IS FLOAT?":** The FLOAT feature allows the plow blade to follow the contour of the ground. Press upward on the left toggle switch paddle to turn the float function off.

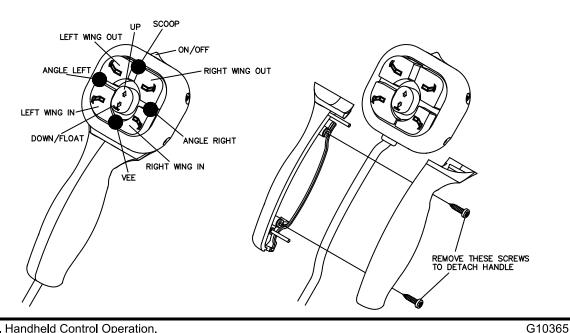
**NOTE:** The control MUST be in FLOAT to attach or detach the snowplow.

**ANGLE LEFT:** To plow snow to the Left, press Leftward on the upper Right toggle switch paddle and, Press Rightward on the lower Right toggle switch paddle.

**ANGLE RIGHT:** To plow snow to the Right, press Rightward on the upper right toggle switch paddle and, press Leftward on the lower Right toggle switch paddle.

**VEE:** To create the Vee shape with the plow blades, press Leftward on the upper Right toggle switch paddle, and Press Leftward on the lower Right toggle switch paddle, until the blades are fully retracted.

**SCOOP:** To create the Scoop shape with the plow blades, press Rightward on the upper Right toggle switch paddle, and Press Rightward on the lower Right toggle switch paddle, until the blades are fully extended.



Smart Touch Control Operating Instructions

Figure 19, Handheld Control Operation.

**ON/OFF:** Push the ON/OFF switch to the left ON position to turn the control on. Green LED indicators will light up on the control. Push the ON/OFF switch to the right OFF position to turn the control off.

**RAISE:** To raise the blade of the plow, quickly press the center button upward twice. You can also press and hold the center button upward until the blade is fully raised.

LOWER: To lower the blade of the plow, quickly push the center button downward twice. You can also press and hold the center button downward until the blade is fully lowered.

FLOAT: The plow will automatically activate the FLOAT feature when the center button is guickly pressed downward twice. (The center LED indicator will turn RED). You can also press and hold the center button downward for 2 seconds. (The center LED indicator will turn RED). Press the raise button to turn the FLOAT function off.

"What Is FLOAT?": The FLOAT feature allows the plow blade to follow the contour of the ground. Press the raise button to turn FLOAT function off.

Note: The control MUST be in FLOAT to attach or detach the snowplow.

ANGLE LEFT: To plow snow to the left, press and hold the left wing out and left wing in buttons simultaneously until the blades are fully angled.

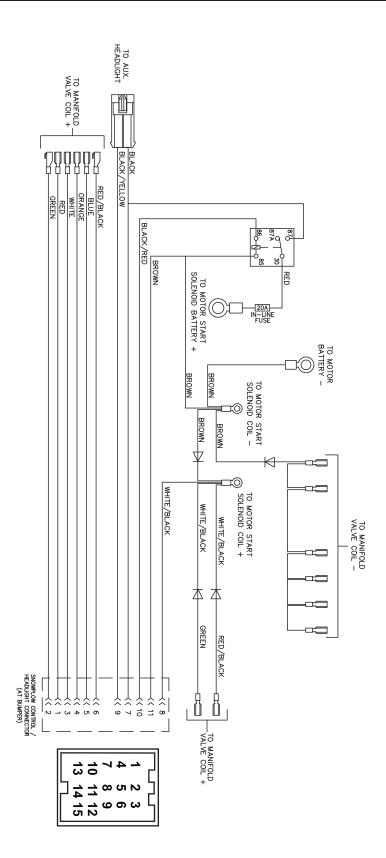
**ANGLE RIGHT:** To plow snow to the right, press and hold the right wing out and right wing in buttons simultaneously until the blades are fully angled.

VEE: To create the Vee shape with the plow blades, press both the left wing in and right wing in buttons simultaneously until the blades are fully retracted.

**SCOOP:** To create the Scoop shape with the plow, press both the left wing out and right wing out buttons simultaneously until the blades are fully extended.

Note: The control should be turned off when not in use. It can then be unplugged and stored.

SLEEP mode: If the controller is ON but not used for 20 minutes, the automatic SLEEP mode will be activated. The controller LED lights will flash green and red when the controller is in SLEEP mode. Turn the controller OFF to deactivate SLEEP mode.



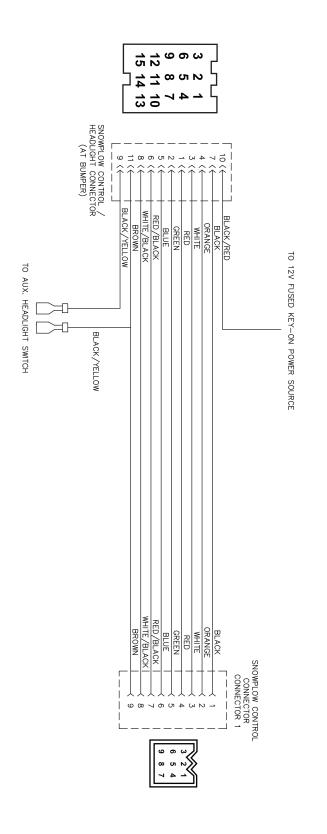


Figure 21. Electrical System Wiring Schematic (Vehicle Side)

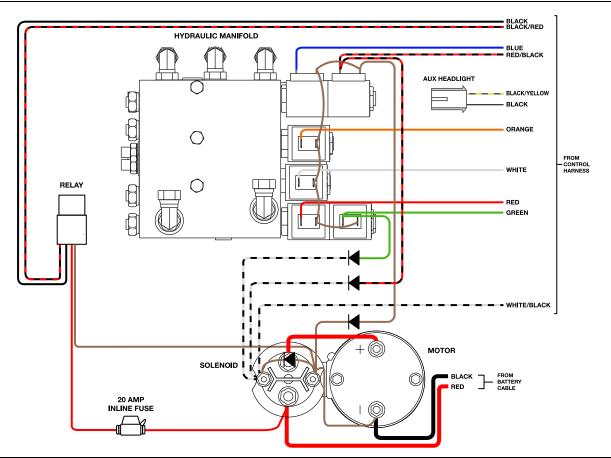


Figure 22. Wiring Diagram

G10912

Control Harness Wire Color	Wire Function
Black	12V+ to Control
Black/Red	12V+ from Ignition-On Power Source
Brown	Ground
Green	Right Wing In
Blue	Left Wing Out
Red/Black	Left Wing In
Red	Right Wing Out
Orange	Lower
White	Raise
White/Black	Motor Start Solenoid
Black/Yellow	Aux Headlight Ground

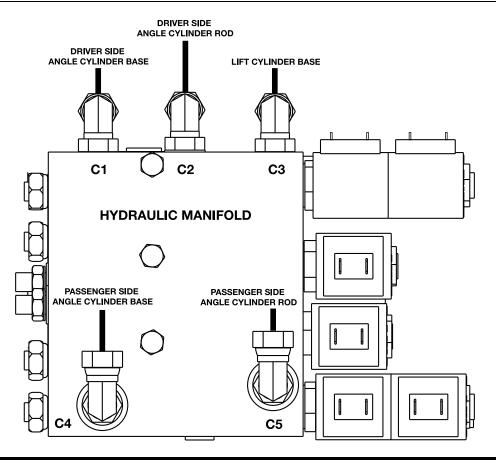


Figure 23. Hydraulic Hose Routing

G10913

lydraulic Manifold Port Location   Hydraulic Cylinder Port Locat	
C1	Driver Side Angle Cylinder Base
C2	Driver Side Angle Cylinder Rod
C3	Lift Cylinder Base
C4	Passenger Side Angle Cylinder Base
C5	Passenger Side Angle Cylinder Rod

## **Troubleshooting Guide**

Glossary of Problems:

- 1. Hydraulic pump motor does not run
- 2. Hydraulic pump continues to run with control switches in neutral.
- 3. Plow blade will not lower.
- 4. Plow blade will not raise or raises slowly (hydraulic pump motor runs).
- 5. Plow blade wing(s) drift back when extended or retract too easily while plowing.
- 6. Plow blade wing(s) will not extend/retract or move slowly (hydraulic pump motor runs).
- 7. Hydraulic fluid leaks from hydraulic cylinders.
- 8. Vehicle battery discharges with all control switches in neutral.
- 9. Plow blade cutting edges do not lay flat against the ground.
- 10. Plow blade trips too easily.
- 11. Plow does not clean up snow from low areas.
- 12. Hydraulic fluid running out of hydraulic power unit fluid fill cap.

13. Hydraulic power unit or hydraulic pump motor start solenoid chatters when raising or extending/retracting plow blade wings.

PROBLEM	DIAGNOSTIC CHECK	RESULT
1. Hydraulic pump motor does not run.	Check power/ground cables and control cables are connected properly.	Connect cables.
	Check for voltage at hydraulic pump motor while vehicle ignition switch is on and control switch is in the RAISE position.	If voltage is present, hydraulic pump motor has failed or pump has seized. Motor may be replaced, otherwise replace hydraulic power unit assembly.
	Check for voltage to the hydraulic pump motor start solenoid by testing for voltage between both large terminals and ground.	If voltage is not present between one large terminal and ground, the cable between the battery and solenoid is disconnected or broken. Connect or replace.
	Check for voltage between the other large terminal of the hydraulic pump motor start solenoid and ground while jumping 12V+ battery power to the small terminal with the white/black wire.	If no voltage is present, solenoid has failed or brown wire from small terminal of solenoid to ground may be disconnected or broken. If voltage is present, white/black wire from small terminal of solenoid to control may be disconnected or broken. Connect, repair or replace wiring.

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check for voltage to the control between the black wire and ground at the white 9-pin control connector of the vehicle side harness with the vehicle ignition switch on and the plow electrically connected to vehicle.	If no voltage is present, power from ignition-on 12V+source (from vehicle) on black/red wire has become disconnected or relay on plow side harness has failed. If voltage is present, check wiring and control. Connect, repair or replace wiring.
2. Hydraulic pump continues to run with control switches in neutral.	Disconnect controller with vehicle ignition on.	If the hydraulic pump continues to run, pump motor start solenoid has failed in the closed position. Quickly remove power to the plow by disconnecting the power/ground cables to the plow. Replace solenoid.
		If the hydraulic pump stops running, check control wiring for short between black and white/black wire, or a failed control switch. Connect, repair or replace wiring or switch.
3. Plow blade will not lower.	Check power/ground cables and control cables are connected properly.	Connect cables.
	Check wiring on hydraulic valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual. Make proper connections.
	Check for voltage between lower solenoid valve terminal on orange wire and ground with vehicle ignition switch on and control switch in LOWER/FLOAT position.	If voltage is present, lower solenoid valve or valve coil has failed. Replace solenoid valve.
	Check for voltage to the control between the black wire and ground at the white 9-pin control connector of the vehicle side harness with the vehicle ignition switch on and the plow electrically connected to vehicle.	If no voltage is present, power from ignition-on 12V+source (from vehicle) on black/red wire has become disconnected or relay on plow side harness has failed. If voltage is present, check wiring and control. Connect, repair or replace wiring.
4. Plow blade will not raise or raises slowly (hydraulic pump motor runs).	Check fluid level in hydraulic power unit.	Hydraulic fluid level should be filled to fill line of reservoir. See Hydraulic Fluid Fill Procedure located in this manual. Fill to proper level.

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check power/ground cables and control cables are connected properly.	Connect cables.
	Check wiring on hydraulic valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual. Make proper connections.
	Load test vehicle battery	Replace battery if weak or defective.
	Check pressure at hydraulic lift cylinder port of hydraulic power unit.	If pressure is less than 1200 psi (at end of lift), hydraulic pump motor may be defective, main pump pressure relief valve may be contaminated, damaged, set lower than 1200 psi, or pump may be worn. See an authorized BOSS dealer for adjustment or replace hydraulic power unit assembly.
	Check for fluid leaks in hydraulic system.	If hydraulic fluid leak is present at hydraulic hose end or fitting, tighten fitting. If fluid leak is present is present at hydraulic power unit or cylinder, component replacement may be necessary.
	Check for voltage between raise solenoid valve terminal on white wire and ground with vehicle ignition switch on and control switch in RAISE position.	If voltage is present, raise solenoid valve or valve coil has failed. Replace solenoid valve.
5. Plow blade wing(s) drift back when extended or retract too easily while plowing.	Check wing return solenoid valve on hydraulic valve manifold.	If wing return solenoid valve is contaminated. Clean or replace solenoid valve.
	Check wiring on hydraulic valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual. Make proper connections.
	Check for voltage between wing return solenoid valves terminal on green or red/black wires and ground with vehicle ignition switch on and control switches in neutral position.	If voltage is present, check control wiring for short between black and green or red/black wire, or a failed control switch.

PROBLEM	DIAGNOSTIC CHECK	RESULT
6. Plow blade wing(s) will not extend/retract or move slowly	Hydraulic pressure relief valves in manifold for wing circuits adjusted too low. Check fluid level in hydraulic power unit.	See an authorized BOSS Dealer for pressure relief valve adjustment. Hydraulic fluid level should be filled to fill line of reservoir.
(hydraulic pump motor runs).		See Hydraulic Fluid Fill Procedure located in this manual. Fill to proper level.
	Check power/ground cables and control cables are connected properly.	Connect cables.
	Check wiring on hydraulic valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual. Make proper connections.
	Load test vehicle battery	Replace battery if weak or defective.
	Check pressure at hydraulic lift cylinder port of hydraulic power unit.	If pressure is less than 1200 psi (at end of lift), hydraulic pump motor may be defective, main pump pressure relief valve may be contaminated, damaged, set lower than 1200 psi, or pump may be worn. See an authorized BOSS dealer for adjustment or replace hydraulic power unit assembly.
	Check for fluid leaks in hydraulic system.	If hydraulic fluid leak is present at hydraulic hose end or fitting, tighten fitting. If fluid leak is present is present at hydraulic power unit or cylinder, component replacement may be necessary.
	Check hydraulic hose routing for proper connections.	Hydraulic valve manifold and hydraulic cylinder port routing locations are printed on ends of hoses. Verify and connect hose ends to proper locations.

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check for voltage between wing extend/return solenoid valve terminal (green, blue, red/black or red wires) and ground with vehicle ignition switch on and control switch in the corresponding function position.	Refer to Wiring Diagram located in this manual for proper test locations for each function. If voltage is not present, wing extend/return solenoid valve or valve coil has failed. Replace solenoid valve.
7. Hydraulic fluid leaks from hydraulic cylinders.	Check hydraulic cylinder rod condition.	If cylinder rod is pitted or rough, polish with copus cloth or extra fine steel wool.
	Check for leaking cylinder breather vent on lift cylinder.	If hydraulic fluid leaks from breather vent, replace lift cylinder.
8. Vehicle battery discharges with all control switches in neutral.	Check control wiring and harness for possible short or failed control switch.	Refer to the Wiring Diagram located in this manual. Inspect and repair or replace damaged wiring or control switch.
	Check wiring on hydraulic valve manifold and hydraulic pump motor start solenoid for proper connections.	Refer to the Wiring Diagram located in this manual. Make proper connections.
	Check for voltage to the control between the black wire and ground at the white 9-pin control connector of the vehicle side harness with the vehicle ignition switch off and the plow electrically connected to vehicle.	If voltage is present, power from ignition-on 12V+source (from vehicle) on the black/red has been improperly connected to constant-on 12V+ battery power on vehicle allowing plow system to continuously draw power. Connect black/red wire of vehicle side harness to ignition-on 12V+ source only.
9. Plow blade cutting edges do not lay flat against the ground.	Attach plow system to vehicle and lower plow in the vee position on level ground. Observe condition of cutting edges in relation to ground.	Refer to the Snowplow Adjustment Procedure located in this manual. Make proper adjustment
10. Plow blade trips too easily.	Check trip spring adjustment for proper tension.	Refer to the Snowplow Adjustment Procedure located in this manual. Make proper adjustment. Replace springs or eye bolts if permanently deformed or damaged.

PROBLEM	DIAGNOSTIC CHECK	RESULT	
11. Plow does not clean up snow from low areas.	Verify that control switch is in the FLOAT position while plowing.	Place control switch in the FLOAT position.	
12. Hydraulic fluid running out of hydraulic power unit fluid fill cap.	Check that hydraulic fluid level is not over filled.	Hydraulic fluid level should be filled to fill line of reservoir. See Hydraulic Fluid Fill Procedure located in this manual. Fill to proper level.	
	Check that operator is not plowing recklessly and hitting snowbanks too hard.	Do not plow recklessly.	
13. Hydraulic power unit or hydraulic pump motor start solenoid chatters when raising or extending/retracting plow blade wings.	Check fluid level in hydraulic power unit.	Hydraulic fluid level should be filled to fill line of reservoir. See Hydraulic Fluid Fill Procedure located in this manual. Fill to proper level.	
	Check power/ground cables and control cables are connected properly.	Clean and re-connect power/ground cable connection and connections at vehicle battery.	
	Load test vehicle battery	Replace battery if weak or defective.	

### **GUIDE TO RECOMMENDED ASSEMBLY TORQUE**



DIAMETER / PITCH	GRADE 5	GRADE 8	GRADE 8.8	GRADE 10.9
1/4-20	6	9		
5/16-18	14	19		
3/8-16	23	33		
7/16-14	38	53		
1/2-13	56	80		
9/16-12	82	116		
5/8-11	113	159		
3/4-10	201	283		
M10 X 1.25			36	
M10 X 1.5				49
M12 X 1.75				71
M14 X 2.0				80

ALL TORQUE VALUES ARE IN FOOT-POUNDS (FT.-LB.)

Figure 21. Recommended Bolt Torque

**NOTE:** The torque values listed above are based on dry, coated bolts, variables such as oil, or other lubrications may appreciably alter these values and must be taken into consideration.

NOTICE:

It is important that all fasteners be properly torqued to assure a safe operating plow. Re-tighten all fasteners after 2 hours of plowing.

G10410

### BOSS SNOWPLOW COMMERCIAL WARRANTY

#### What this warranty covers:

This warranty covers defects in material and workmanship except as set forth below.

#### Who is covered:

The original purchaser from an authorized dealer.

#### For how long:

Parts: 2 years from the date of purchase.Labor: 2 years from the date of purchase.

#### What BOSS PRODUCTS will do:

BOSS PRODUCTS will, at its sole option, repair or replace defective parts at no charge.

#### What you must do to for warranty service:

To obtain warranty service, purchaser must return the defective snowplow to any authorized BOSS PRODUCTS dealer (preferably the one from whom the snowplow was purchased) within the warranty period. Purchaser must be able to verify the original purchase date. All transportation costs to and from the dealer will be the responsibility of the purchaser. To locate the authorized BOSS dealer nearest to you, call toll free: (800) 286-4155.

#### What is not covered:

This warranty does not cover:

- 1. Expendable parts such as hoses, plow shoes, cutting edges, pins, nuts, bolts, blade guides, etc.
- 2. Snowplows or parts repaired or altered by anyone other than an authorized BOSS PRODUCTS dealer.
- 3. Snowplows or parts which have been subject to misuse, negligence, accident, improper installation, maintenance, care or storage.
- 4. Snowplows mounted on vehicles other than those listed in the BOSS SNOWPLOW APPLICATION CHART AND SELECTION GUIDE.
- 5. BOSS PRODUCTS does not assume liability for damage to your motor vehicle resulting from the attachment or use of a BOSS PRODUCTS snowplow. Vehicle risk is the sole responsibility of the purchaser.

#### Limits of BOSS Products Liability are:

BOSS PRODUCT'S LIABILITY IS EXPRESSLY LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. BOSS PRODUCTS SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY THE NEGLIGENCE OR FAULT OF BOSS PRODUCTS.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This warranty does not apply if you purchased your snowplow for personal, family, or household use. In this case, refer to the BOSS Snowplow Limited Consumer Warranty.

BOSS PRODUCTS PO Box 787 North U.S. Hwy 2 Iron Mountain, MI 49801 (2015-2016)

### BOSS SNOWPLOW LIMITED CONSUMER WARRANTY

### What the warranty covers:

BOSS PRODUCTS warrants to the original retail purchaser of a BOSS snowplow who purchases it for personal, family or household use, that the snowplow will be free from defects in material and workmanship except as set forth below.

### Warranty period:

**Parts:** 2 years from the date of purchase.

Labor: 2 years from the date of purchase.

### What BOSS PRODUCTS will do:

If, within the warranty period, the snowplow is found to be defective, BOSS PRODUCTS will repair or replace, at its sole option, the defective parts at no charge to the original purchaser.

### What you must do for warranty service:

To obtain service under this warranty, purchaser must return the defective snowplow to an authorized BOSS PRODUCTS dealer (preferably the one from whom the snowplow was purchased). The purchaser must establish the warranty period by verifying the original purchased date. All transportation costs to and from the dealer will be the responsibility of the purchaser. To locate the authorized BOSS dealer nearest to you, call toll free: (800) 286-4155.

### What is not covered:

This limited warranty does not cover the following:

- 1. Expendable parts such as hoses, plow shoes, cutting edges, pins, nuts, bolts, blade guides, etc.
- 2. Snowplows or parts repaired or altered by anyone other than an authorized BOSS PRODUCTS dealer.
- 3. Snowplows or parts which have been subject to misuse or service, negligence, accident, improper installation, maintenance, care or storage.
- 4. Snowplows mounted on vehicles other than those listed in the BOSS SNOWPLOW APPLICATION CHART AND SELECTION GUIDE.
- 5. BOSS PRODUCTS does not assume any liability for motor vehicle damage resulting from the attachment or use of a BOSS PRODUCTS snowplow. Vehicle risk is the sole responsibility of the purchaser.

#### Warranty limitations:

THIS WÅRRANTY IS OFFERED IN LIEU OF ANY OTHER EXPRESS WARRANTY.

THE DURATION OF ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY.

BOSS PRODUCTS LIABILITY IS EXPRESSLY LIMITED TO THE REPAIR OF THE SNOWPLOW, INCLUDING LABOR AND REPLACEMENT OF DEFECTIVE PARTS. BOSS PRODUCTS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY BOSS PRODUCTS NEGLIGENCE OR FAULT.

#### State laws:

Some states do not allow exclusion of incidental or consequential damages or the limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have the other rights which vary from state to state.

This warranty does not apply if you purchased your snowplow for other than personal, family, or household use. If so, refer to the BOSS Snowplow Commercial Warranty.

BOSS PRODUCTS PO Box 787 North U.S. Hwy 2 Iron Mountain, MI 49801 (2015-2016)