

BOSS PRODUCTS  
A Division of Northern Star Industries, Inc.  
P.O. Box 787 Iron Mountain MI 49801-0787  
www.bosspow.com

# UTV RT3 POWER-V BLADE INSTALLATION & OWNER'S MANUAL

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This product is covered under patent: 6,170,178

**DRIVEN TO BE THE BEST**

MSC13025 - 1



### **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

- NEVER exceed the vehicle's Gross Vehicle Weight Rating or the Front or Rear Gross Axle Weight Ratings. Overloading could result in an accident or damage.
- Read this manual and all labels carefully. Follow the operating procedures described.
- Follow all Operator Safety instructions found in your UTV Owner's Manual.
- Follow all age restrictions found in your UTV Owner's Manual.
- When transporting, position plow so as not to block vision.
- NEVER change blade position when traveling.
- ALWAYS use LOW RANGE and never exceed 14 mph when plowing.
- ALWAYS use LOW RANGE and never exceed 24 mph while transporting plow.
- ALWAYS use LOW RANGE and never exceed 5 mph while operating plow.
- Always lower blade when vehicle is not in use.
- Make sure plow is properly attached before moving vehicle.
- The 6'6" Power-V Blade Plow is intended for personal, non-commercial use. Any use of the plow in a commercial setting will void the plow warranty.
- NEVER ride on Plow System
- NEVER lift persons on Plow System.
- NEVER get body parts between Plow System and vehicle while servicing or operating.
- NEVER operate on steep inclines.
- Operators should always use vehicle seat belts and all other applicable personal protective equipment while operating plow.
- NEVER operate vehicle or plow unless Tire Pressure and Vehicle Ballast Requirements are satisfied.
- Always remove ignition key and unplug Plow System before servicing.

** WARNING**

**POTENTIAL HAZARD**

Operating Plow System without proper instruction

**WHAT CAN HAPPEN**

Loss of control, accident

**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 pins are not fully engaged.

**WHAT CAN HAPPEN**

Loss of control, accident

**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

**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

**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

**HOW TO AVOID THE HAZARD**

Always maintain tire pressure and ballast requirements specified on [www.bossplov.com](http://www.bossplov.com) for each UTV application.

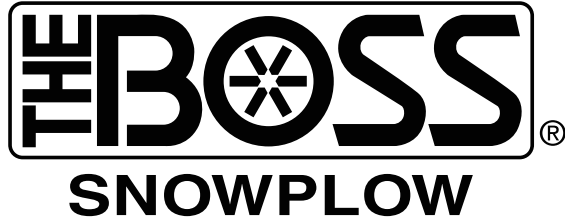
** WARNING**

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.: \_\_\_\_\_

## ***Tips on Plowing Snow***

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- Know the area you are plowing, hidden obstructions such as curbs, sidewalks, pipes, etc. can cause damage to your plow or vehicle.
- Do not let the snow accumulate; always plow with the storm.
- Always wear your seatbelts when plowing snow.
- Occasionally, the plow blade 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 blade when parking your vehicle. This reduces the load on your vehicle's springs 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](http://www.bossplow.com).

### SNOWPLOW MOUNTING

**STEP 1**

- Place the snowplow control in the FLOAT position.
- Line up the vehicle with the snowplow and drive straight in until the lower pin contacts the push beam pin receiver.
- Remove the electrical plug dust covers. Connect the electrical plugs, turn levers to the ON position.

**STEP 2**

- Push the SmartHitch2 switch upward to raise the coupler tower until the spring pins snap in. (For plows without SmartHitch2, manually push the coupler tower toward the vehicle until the spring pins snap in.)
- Check that both spring pins have fully engaged the coupler. SEE CAUTION INSERT. Move the coupler tower to align spring pins with the pin receiver holes until both pins engage completely.
- Release the SmartHitch2 switch to stop movement of the coupler tower.

# THE BOSS

## SNOWPLOW

# RT3 POWER V

**MOUNTING INSTRUCTIONS**

### CAUTION

**BOTH COUPLER SPRING PINS MUST BE FULLY ENGAGED. FAILURE TO COMPLETELY ENGAGE BOTH SPRING PINS MAY RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE.**

### SNOWPLOW REMOVAL

**STEP 1**

- Place the snowplow control in the FLOAT position.
- Turn the levers to the OFF position.
- Push the SmartHitch2 switch upward to raise the coupler tower and release the coupler spring pins.
- (For plows without SmartHitch2, manually push the coupler tower toward the vehicle until the spring pins release.)

**STEP 2**

- Push the SmartHitch2 switch downward until the coupler tower completely lowers to the plow.
- (For plows without SmartHitch2, manually push the coupler tower forward until the lower pins clear the push beam receiver holes.)
- Disconnect electrical plugs and install electrical plug dust covers.
- Back the vehicle away from the snowplow slowly.

MSC12820

Figure 1. Mounting Procedures



## **Maintenance**

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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.
- Plow shoe wear.
- Hydraulic oil level (CAUTION: DO NOT OVERFILL). Fill hydraulic pump reservoir as shown on page 20 using Boss High Performance Hydraulic Fluid or equivalent.
- 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.

## **Putting the Plow into Storage**

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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 (lights, 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.
6. Power the lift tower forward until the lift cylinder is completely compressed. This will protect the lift cylinder from corrosion.
7. Grease the exposed chrome on the angling cylinders to protect from corrosion.

## **Taking the Plow out of storage**

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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 as shown on page 20 using BOSS High Performance Hydraulic Fluid or equivalent.
4. Tighten the trip springs.
5. Coat each electrical connection with dielectric grease (lights, valve assembly, pump, pump solenoid and battery).
6. Grease the coupler spring pins. (Fig. 1).

## Power-V XT Plow Assembly Procedure

1. Begin by removing all components from box.
2. Cut box down and lay it on the ground so that it can be used as a work mat to prevent plow components from being scratched or damaged.
3. Lay driver side Blade Half (5) and passenger side Blade Half (4) face down on box.
4. Position blade halves so that hinge bushings interlock and cutting edges are even.
5. Place Center Section (2) & Pushframe (3) Assembly on blade halves so that Center Section (2) hinge bushing is inserted between blade bushings.
9. Place body end of Angle Cylinder (19) in driver side cylinder mounts located on Center Section (2). The fitting ports on Angle Cylinder (19) should be on the top side of the cylinder. Secure with one 1/2" X 3-1/2" Hex Head Cap Screw (49) and one 1/2" Top Lock Nut (72).
10. Place rod end of Angle Cylinder (19) in driver side cylinder mounts located on driver side Blade Half (5). Secure with one 1/2" X 3" Hex Head Cap Screw (48) and one 1/2" Top Lock Nut (72).
11. Repeat for passenger side Angle Cylinder (19).

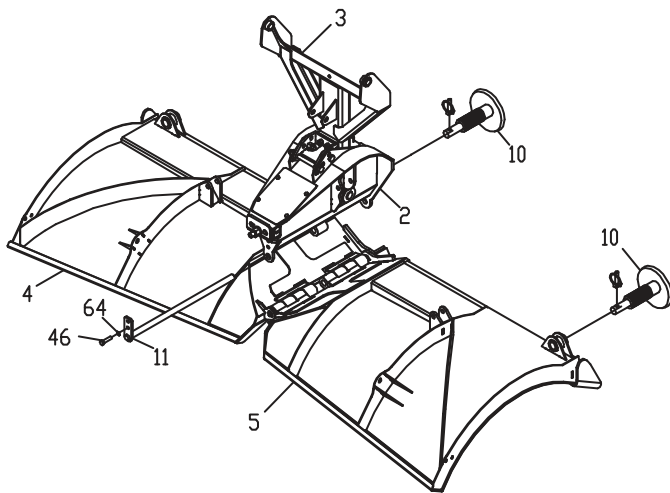


Figure 2. Blade, Center, & Shoe Assembly G10626

6. Insert Center Hinge Pin (11) through driver side Blade Half (5), passenger side Blade Half (4), and Center Section (2) hinge bushings.
7. Secure Center Hinge Pin (11) through the forward hole on Center Section (2) using one 3/8" -16 X 1-1/4" Hex Head Cap Screw w/ Nylon Lock Patch (46) and one 3/8" Split Lock Washer (64).
8. Stand blade assembly upright with blade halves in the V position.

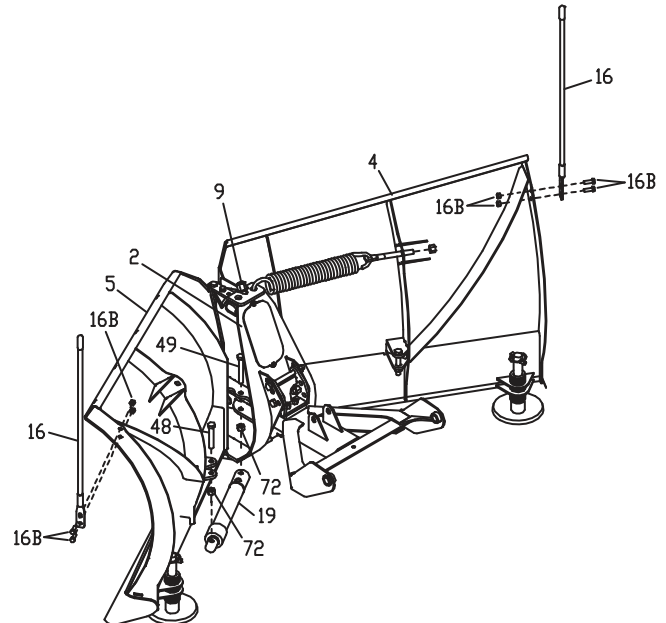


Figure 3. Cylinder & Blade Guide Assembly G10627

**Note:** Plow shoes are optional. If added they should be mounted flush with the bottom of the cutting edge when the plow is mounted on the vehicle. When plowing on a solid level area (parking lots, roads, and driveways) plow shoes can be raised up to increase cutting edge contact on the plowed surface. When plowing dirt, gravel, or grass plow shoes should be lowered below the cutting edge surface to prevent the plow from digging into the plowed surface.

## Power-V XT Assembly Procedure

12. Hook one end of **MSC01509** Return Spring to the top hole on Center Section (2). Hook the opposite end of Return spring through 1/2" hole in closest rib to the center using 1/2" Spadebolt, 1/2" Flat Washer, and 1/2" Self-Locking Nut (**See Figure 3**). Tighten Spring until there is a 1/32" space between spring coils. Repeat this process for Return Spring on the opposite side of the plow.
13. Install one Push Nut Retainer on each end of the Return Spring.
14. Tighten Trip Spring Yoke (9) until 1-1/2" of thread is above the top of Center Section (2), or until desired spring tension is achieved.
15. Install Blade Guide (16) on outer rib of driver side Blade Half (5). Fasten using two 5/16" X 1" Hex Head Cap Screws (16B) and two 5/16" Nylon Lock Nuts (16B).
16. Repeat for passenger side Blade Guide (16).
17. Align pivot holes of Coupler Assembly (1) and pivot holes of Push Frame (3).
18. Insert 3/4" X 2" **HDW09556** Pivot Pin (57A) through Coupler Assembly (1) and Push Frame (3). Secure with **HDW01722** 3/4" Flat Washer (57B), and **HDW01881** Cotter Pin (57C).
19. Remove the plug from the top end of Lift Cylinder (20).
20. Install Breather Vent (66) into top end of Lift Cylinder (20).

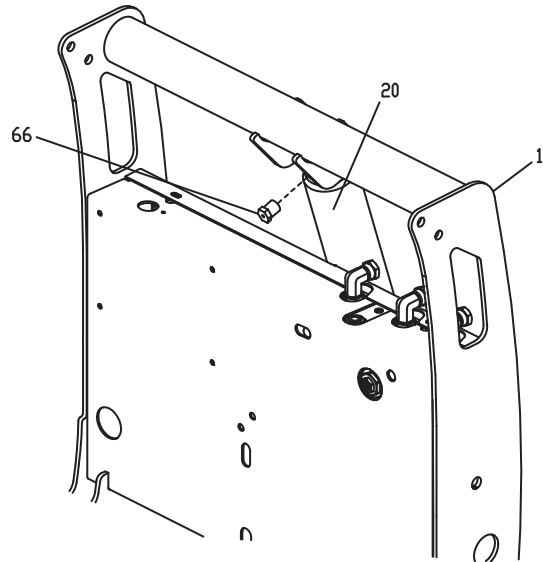


Figure 5. Assembly of Lift Cylinder Breather Vent G10631

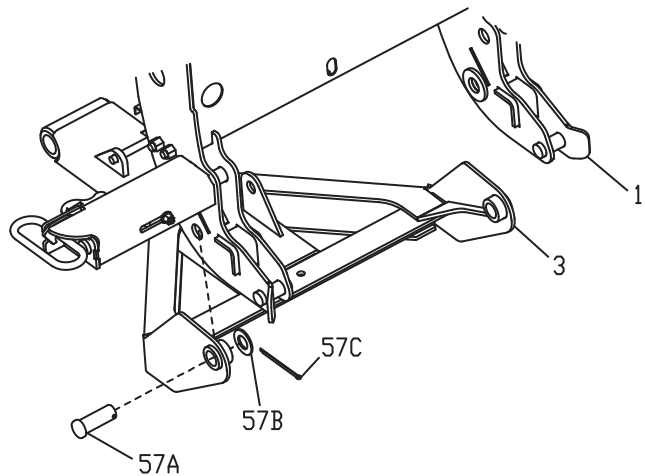
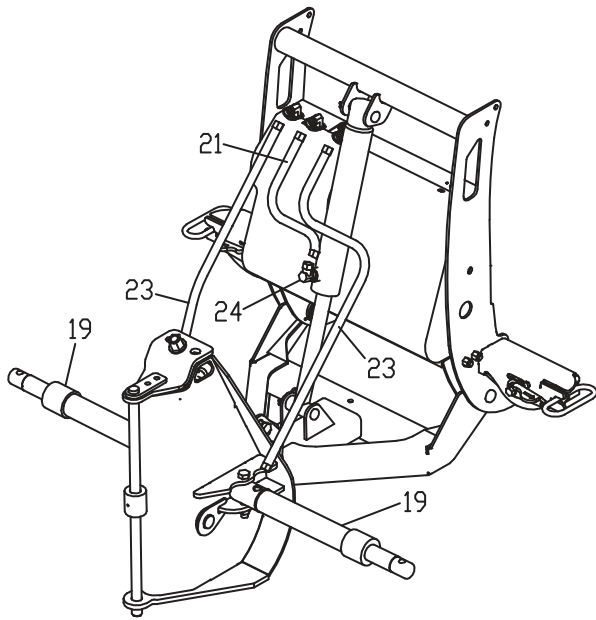
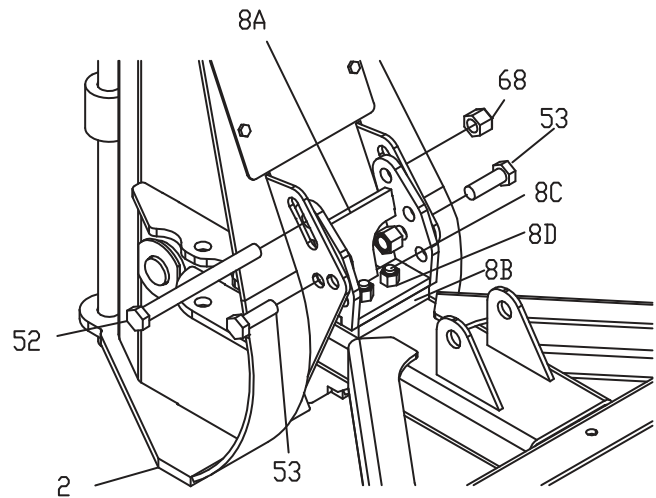


Figure 4. Coupler Assembly to Push Frame. G10628



**Figure 6.** Assembly of Hydraulic Connections. G10633

21. Attach one end of Hydraulic Hose (21) to the lower port of Lift Cylinder (20) using Hydraulic Swivel Fitting (24). Attach the opposite end of Hydraulic Hose (21) to the center fitting of the Hydraulic Manifold. Tighten connection securely.
22. Insert the 3/8" MOR end of **HYD07575** Hydraulic Hose (23) into the port on Angle Cylinder (19) and tighten securely.
23. Attach the loose end of **HYD07575** Hydraulic Angle Hose (23) to the corresponding fitting on the Hydraulic Manifold. Tighten all hydraulic connections securely.
24. After installing the plow by following the procedures in this manual, it may require adjustment.
25. Raise and lower the plow in the V-Position. The cutting edges must sit level with the ground. If the blade digs into the ground in the V Position, the center adjustment is too low.



**Figure 7.** Plow Adjustment G10632

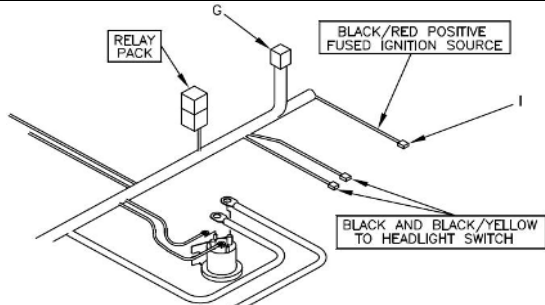
26. Loosen 1/2" X 5-1/2" Hex Cap Screw (52) from 1/2"-13 Nut (69). Remove 1/2" X 1-1/2" Hex Cap Screws (53) from 1/2"-13 Nut (69).
27. Raise the Bumper Stop Bracket (8) to desired location on Center Section Assembly (2). Reinstall hardware.
28. If the plow does not lay flat against the ground in the scoop position, the center adjustment is too high.
29. Repeat step 24, and lower the Bumper Stop Bracket to desired location on Center Section Assembly (2). Reinstall hardware.
30. If plow is still not level after adjusting, change the height of the pushbeam on the vehicle for further adjustment.
31. After adjustment is complete, secure all hardware by following proper torque specifications.

## Electrical System

### NOTICE:

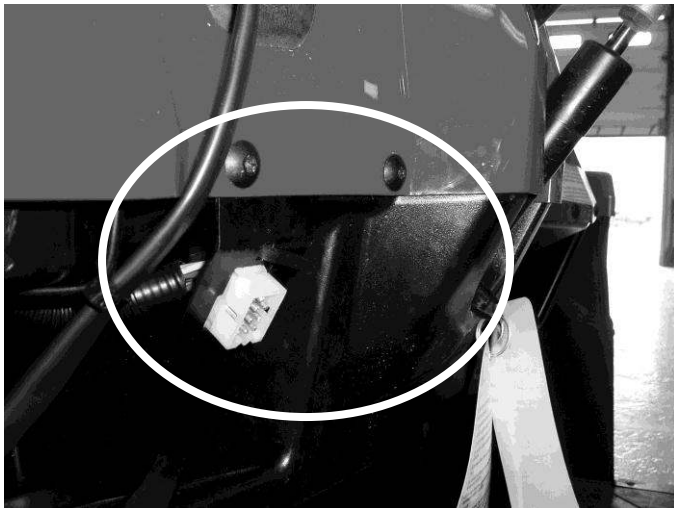
Before splicing into any electrical circuit, identify the circuit with a test lamp. Failure to test circuits may result in vehicle damage.

Be sure the wire loom does not interfere with the operation of the vehicle's pedals.



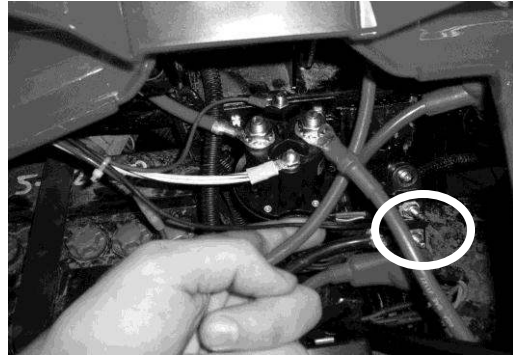
**Figure 8.** Internal Cab Wires G10495

1. Pull the 9 Pin Molex connector (G) from under the hood, into the cab.
2. Secure the 9 Pin Molex Connector (G) to the left of the steering wheel using two self tapping bolts and provided dash bracket. (Some vehicles use existing hardware. See figure 9)

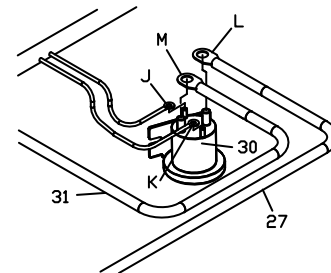


**Figure 9.** Dash Bracket w/ Molex Plug & Cap G10526

3. Plug the controller into the 9 Pin Molex Connector (G).
4. Mount the plow control in a location that is comfortable for the operator to reach, and where the operator will not contact the control in the event of a crash. (See "V-Blade Controller Mounting Instructions" located in this manual.)
5. Connect the BLACK/RED wire (I) to a "keyed" 12V+ ignition source on the vehicle. An example is pictured in Figure 10.



**Figure 10.** Keyed fuse source location G10525



**Note:** This 12V+ source should only be active when the key is in the ON position. Failure to wire to a "keyed" source can allow a condition to occur causing the battery to drain.

**Figure 11.** Solenoid Connections. G10635

6. Connect the WHITE/BLACK wire (J) of Wiring Harness (28) to the small terminal on Pump Solenoid (30).
7. Connect the BROWN wire (K) of Wiring Harness (28) to the other small terminal on Pump Solenoid (30).

**Note:** Location of the wires on the small terminals does not matter.

8. Attach Power Unit Solenoid (30) securely inside the under hood compartment. The Power Unit Solenoid should be mounted in the upright position as illustrated above. (See Figure 11)

**Note:** The solenoid must be installed so that the solenoid posts do not contact the body or any other conductive material on the vehicle.

9. Attach the eyelet end of RED Power/Ground Cable (27) to the large post of Pump Solenoid (30). (See Figure 11)
10. Connect Battery Cable (31) to the other large post of Pump Solenoid (30). (See Figure 11)

**Note:** Location of the wires on the large terminals does not matter.

**Note:** Kubota, John Deere, and Kawasaki vehicles will require Battery Cable Extension Kit. (MSC13171)

## Electrical System Installation Procedure

### NOTICE:

All plow wiring should be secured under the hood 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.

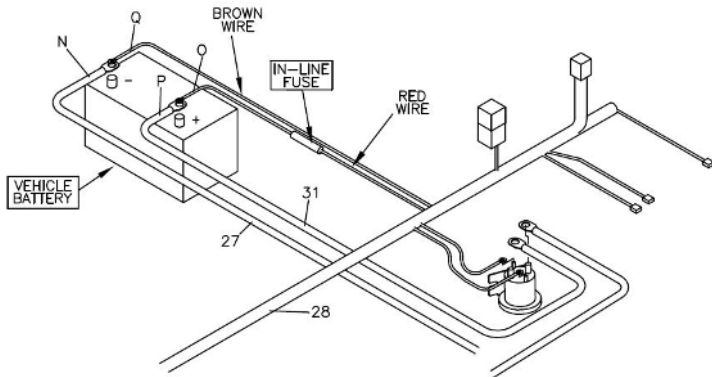


Figure 12. Battery Connections

G10636

11. Attach the eyelet end (N) of BLACK Power/Ground Cable (27) to the negative battery terminal.
12. Connect the BROWN wire (Q) to the negative battery terminal.
13. Connect the unattached end (P) of Battery Cable (31) to the positive battery terminal.
14. Connect the RED Fused wire (O) to the positive battery terminal.

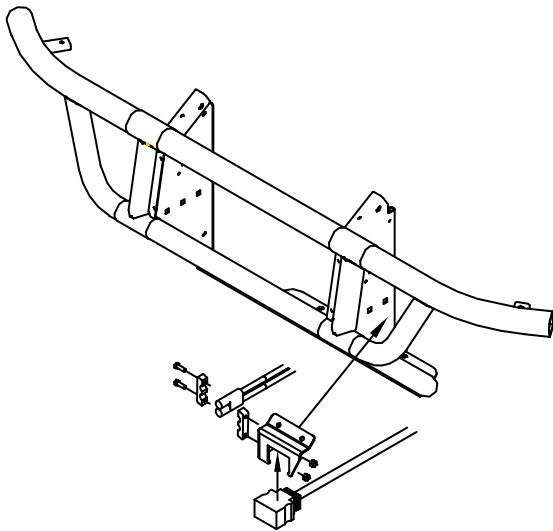


Figure 13. Vehicle Connections

G10148

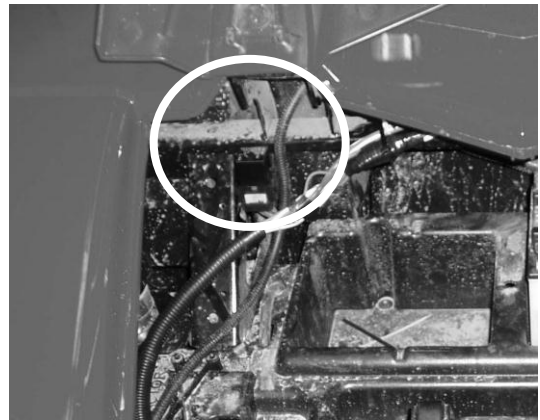
15. Mount the Black 13 Pin Control Harness Connector to the top tube of the bumper on the Driver's Side using self-tapping bolts and **MSC12815** Control Harness Mounting Bracket. (See Figure 13 for an example) Drilling is required.



14. Plug Location

G10626

16. Mount the BLACK and RED 2 Pin Power Ground Connector to the **MSC12815** Bracket using **MSC03491** Power Ground Mounting Bracket.
17. Attach the Relay Pack securely under the hood using one **HDW01766** Sheet Metal Screws. The relay should be positioned upright as illustrated in Figure 15.



15. Relay Mounting

G10627

18. Secure all plow harness wiring using provided tie straps.
19. Attach the snowplow to the vehicle. Use the "Snowplow Mounting Procedure" that is located in this manual to properly attach the snowplow to the vehicle.



# Electrical System Wiring Diagram

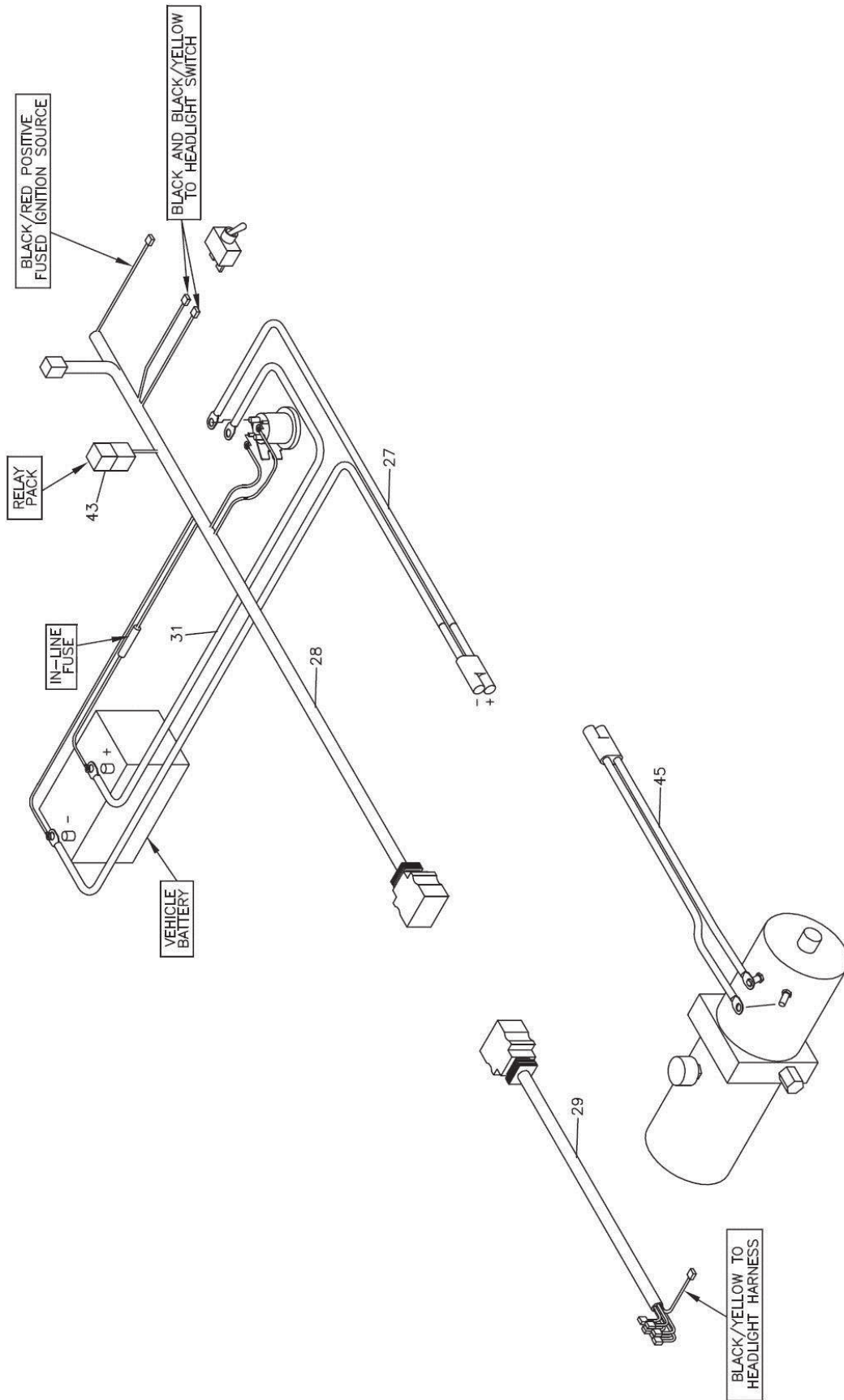
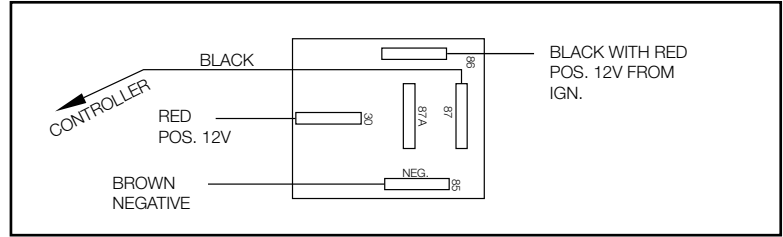


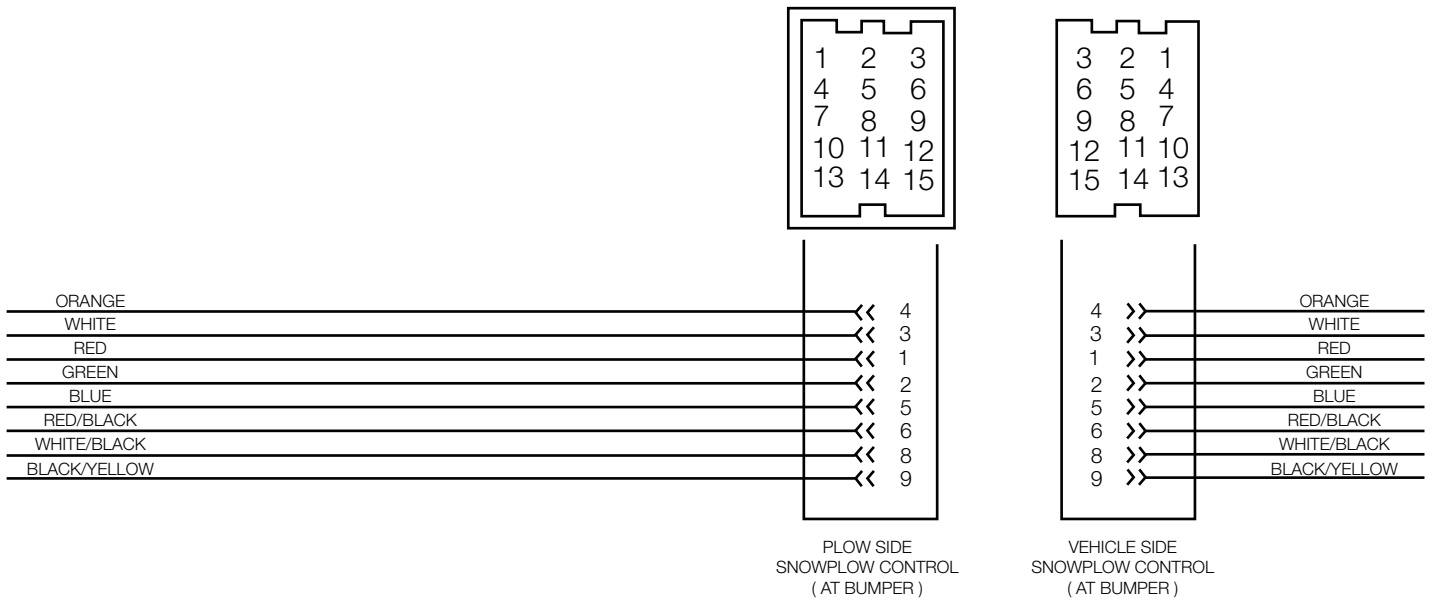
Figure 16. Electrical System Wiring Diagram

G10637

**Electrical System Wiring Schematic (Plow Side)**



RELAY DETAIL

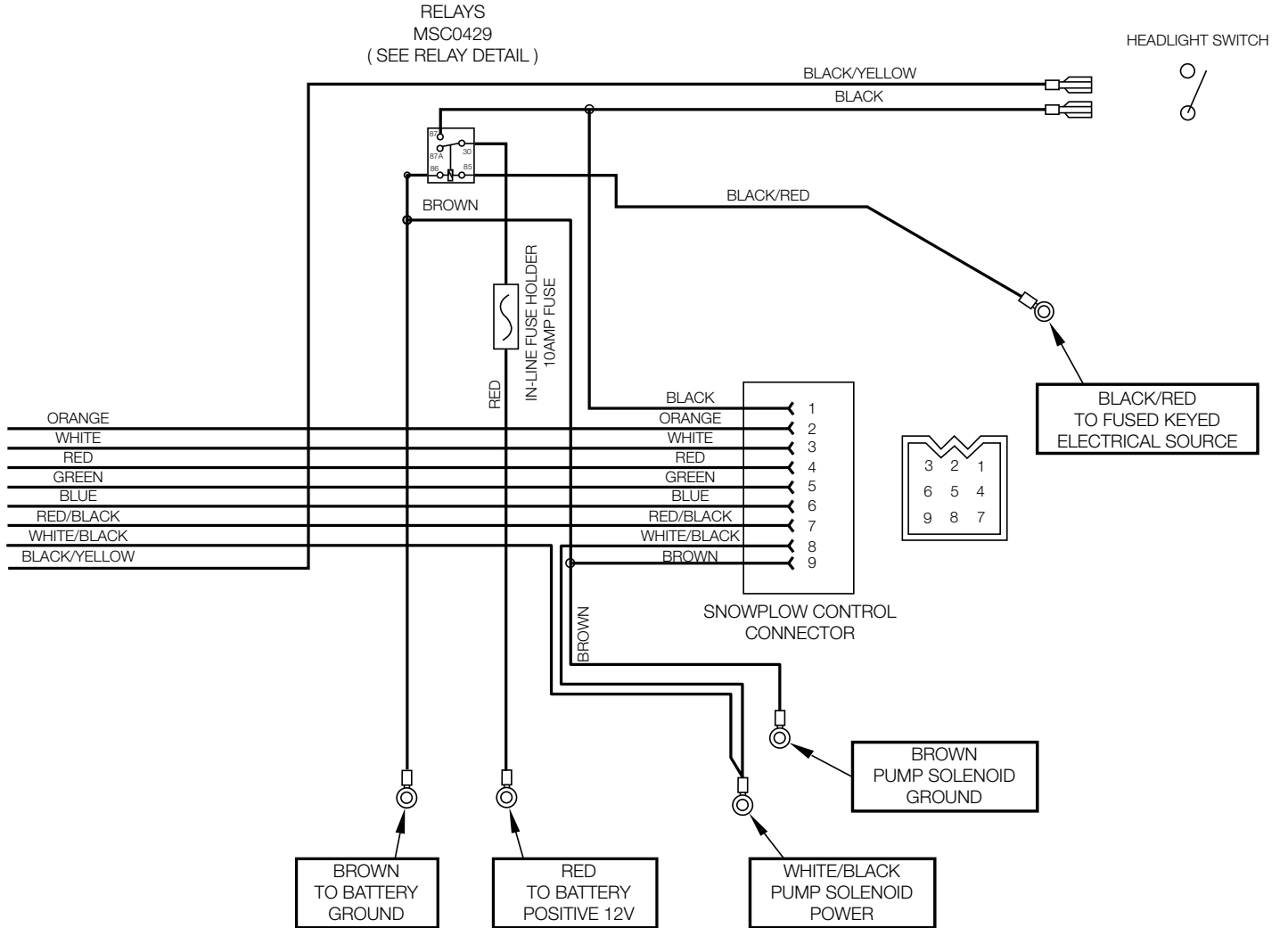


**Figure 17.** Electrical System Wiring Schematic (Plow Side)

G10497



**Electrical System Wiring Schematic (Vehicle Side)**



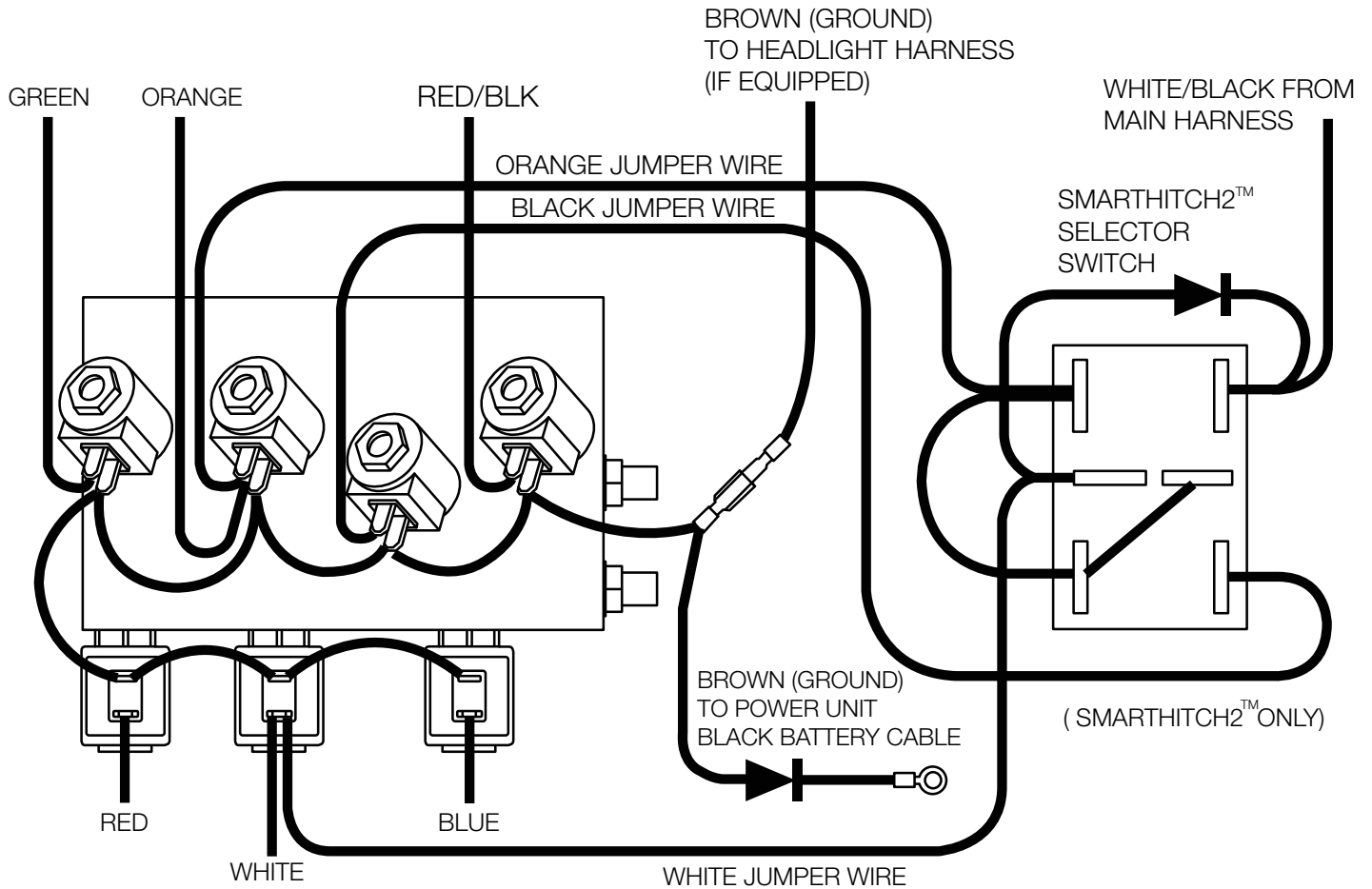
**Figure 18.** Electrical System Wiring Schematic (Vehicle Side)

G10498

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***-poster page-***

**RT3 V-Blade Manifold Wiring Diagrams**



**Figure 19.** HYD12280 UTV V-Blade Manifold Wiring Diagram

G10629

| Wire Color   | Wire Function                   |
|--------------|---------------------------------|
| Green        | Right Wing In                   |
| Red          | Right Wing Out                  |
| White        | Lift                            |
| Orange       | Lower                           |
| Red/Black    | Left Wing In                    |
| Blue         | Left Wing Out                   |
| Black        | SmartHitch2™ (12V) (Optional)   |
| White/Black  | Pump Solenoid                   |
| Brown        | Ground                          |
| Black/Yellow | Headlight Harness (If equipped) |

## Hydraulic Power Unit Fill Procedure

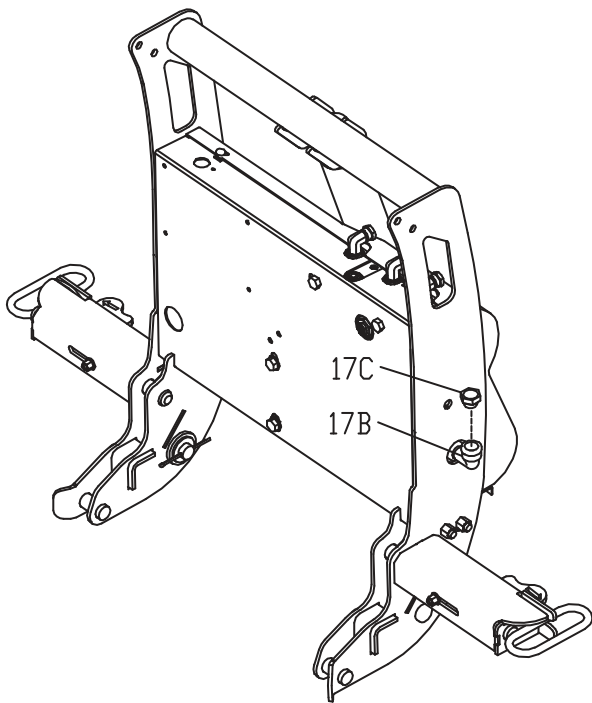


Figure 20. External Fill – Backside View

G10625

Step 1 of the following fill procedure is intended for a new plow with an empty hydraulic system.

**Initial Plow Position:** Start with the plow un-attached from the vehicle and the lift cylinder completely collapsed. The light tower will be tilted forward.

1. Remove **HYD04810** Fill Cap (17C) from **HYD04809** Street Elbow (17D) and fill with BOSS High Performance Hydraulic Fluid. Continue to fill Street Elbow (17D) until no more fluid will be accepted. (Approx. 2 quarts.)
2. Attach the plow to the vehicle.

**Note:** If your plow is equipped with SmartHitch2™ you must hydraulically power the light tower up. Do not manually push the tower up. Failure to hydraulically power the light tower up will create an air pocket in the hydraulic system. Oil will spill out of your internal filler cap.

3. Raise the plow.

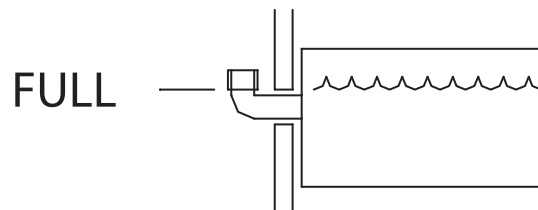


Figure 21. Oil Full Level

G00000

4. With the plow in the raised position, cycle through both angle functions several times.
5. Lower the plow to the ground.

**Plow Position to Check Oil:** The plow should be attached to the vehicle, sitting flat on the ground, with the blade in the Vee position.

6. With the blade in the Vee position and the plow lowered to the ground, check the fluid level. Fluid should be visible in the external fill port. If fluid is not visible, fill until visible. Your reservoir should now be properly filled.

## Hydraulic Valve Assembly Parts List

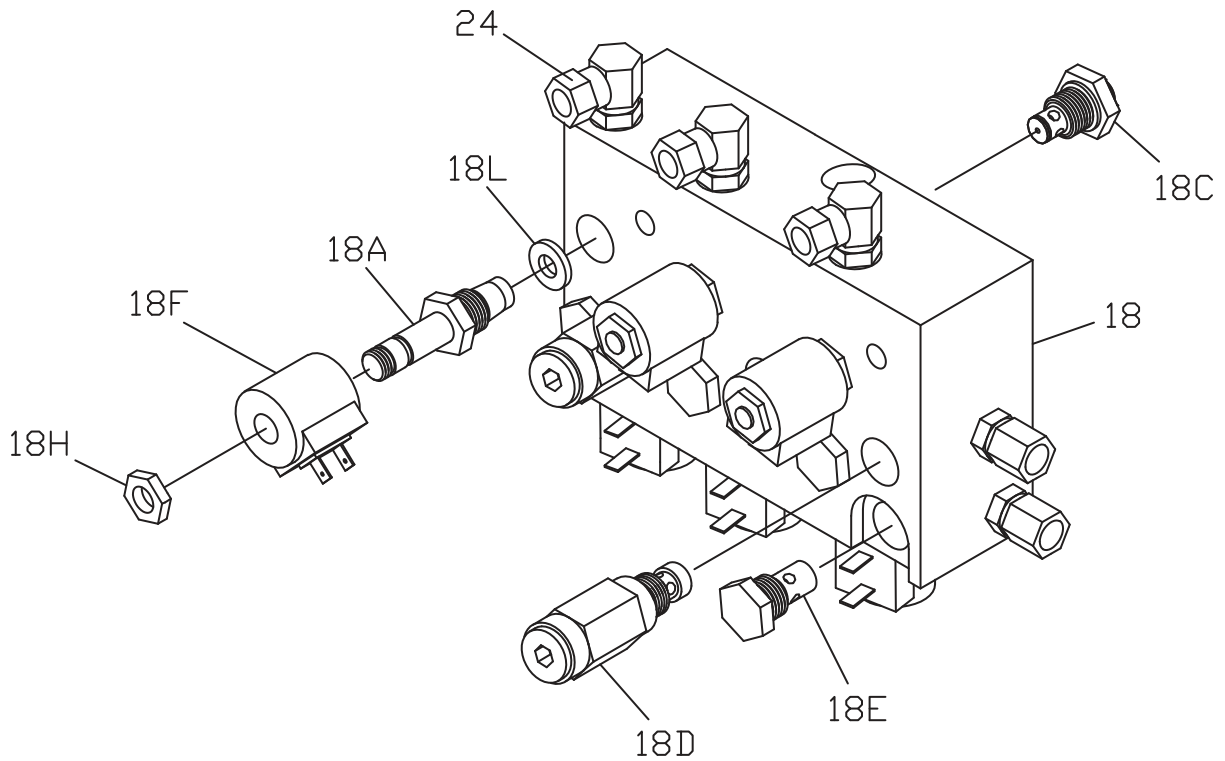


Figure 22. V-Blade UTV Manifold (SmartHitch2™ Ready) Parts Diagram

G10630

| Ref. | Description   | Part Number | Qty |
|------|---|-------------|-----|
| 18   | Hydraulic Valve Assembly,V-Blade, SmartHitch2™ Ready (Blue) | HYD12280    | 1   |
| 18A  | Valve, Lift/ Angle  | HYD01637    | 6   |
| 18B  | Valve, SmartHitch2™ Attach (Optional, Not Pictured)         | HYD07047    | 1   |
| 18C  | Valve, Flow Control   | HYD07048    | 1   |
| 18D  | Valve, Relief V-Blade (2800psi)                             | HYD01639    | 2   |
| 18E  | Check Valve   | HYD01640    | 4   |
| 18F  | Valve Coil  | HYD01638    | 7   |
| 18H  | Coil Nut  | HYD07059    | 6   |
| 18K  | Coil Nut (SmartHitch2™ Valve) (Optional, Not Pictured)      | HYD07060    | 1   |
| 18L  | Orifice Disc (.050" ID)                                     | HYD07110    | 2   |
| 24   | Hydraulic Swivel Fitting                                    | HYD01620    | 4   |

## SmartTouch<sup>2</sup> Control Operating Instructions

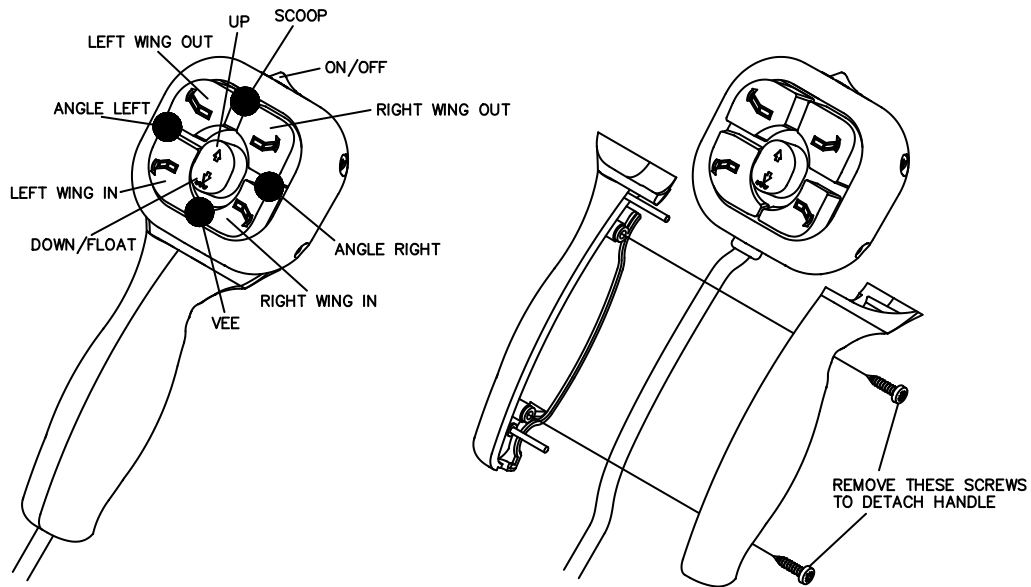


Figure 23. V-Blade Control Instructions

G10365

**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 quickly 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 use SmartHitch2<sup>TM</sup> 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.

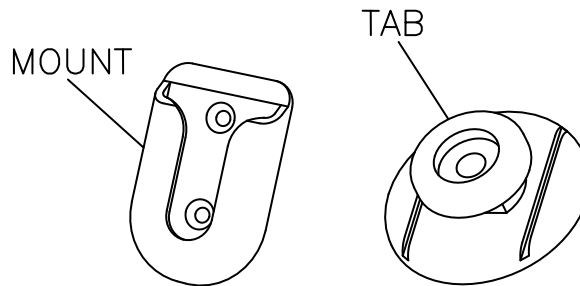
**VEE:** To create the Vee shape with the plow blades, press both the left wing in and right wing in buttons simultaneously until the blades are fully retracted.

**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.

**BOSS**  
**SmartTouch2™ Control**  
**Mounting Instructions**



**Figure 24.** SmartTouch2™ Mounting Hardware

G10311

1. Remove the Swivel Mount and Tab from the **MSC05058** Swivel Mount Kit.
2. Use the enclosed alcohol wipe to clean a spot on the vehicle interior where you want to place the SmartTouch2™ 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. Apply maximum pressure to all areas.
5. Apply the Swivel Mount 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 SmartTouch2™ Control with the alcohol wipe.
7. Peel off adhesive backing of tape, apply to Tab, and press firmly.
8. Remove remaining backing and apply the Tab to the back of the SmartTouch2™ Control. Apply pressure for 30 seconds.
9. Place SmartTouch2™ Control on the Swivel Mount.

**“NOTICE”**

After attaching the Swivel Mount, let it sit unused for 72 hours before attaching the SmartTouch2™ Control to allow the adhesive to bond to the surface and ensure secure mounting.

**Note:** Other mounting options are available. Contact your BOSS Snowplow



## Troubleshooting Guide

Glossary of Problems:

1. Pump motor does not run.
2. Pump continues to run with switch in neutral.
3. Pump will not lower.
4. Plow will not raise or raises slowly, motor runs.
5. While trying to raise the plow, blades extend and wings will not retract.
6. Wings drift back when extended.
7. Plow lowers too fast.
8. Wing(s) will not extend, but motor runs.
9. Wing(s) will extend, but will not retract or retract slowly.
10. Wing(s) retract too easily while plowing.
11. Oil leaks from cylinders.
12. Battery goes dead with all switches in neutral.
13. Blade digs into the ground in the V position.
14. Blade does not lay flat against the ground in the scoop position.
15. Blade trips too easily.
16. Plow does not clean-up snow from low areas.
17. Oil runs out of fill cap of hydraulic pump.
18. Pump chatters when raising the plow or extending wings.
19. SmartHitch2™ will not attach plow.

| PROBLEM                     | DIAGNOSTIC CHECK  | RESULT   |
|-----------------------------|---|--|
| 1. Pump motor does not run. | Check that power/ground cables and control cables are connected properly.                       | Connect.   |
|                             | Check for voltage at pump motor while ignition switch is on and LIFT control button is pushed.  | If voltage is present, pump motor has failed or pump has seized. Motor brushes may be replaced, otherwise replace pump/motor assembly. |
|                             | Check for power to the 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. |

## Troubleshooting Guide

| PROBLEM  | DIAGNOSTIC CHECK  | RESULT   |
|--|---|--|
|  | Check for voltage between the other large terminal of the solenoid and ground while jumping power to the small terminals with the white wire. | If NO voltage is present, solenoid has failed and must be replaced. If voltage is present, wire from small terminal of solenoid to ground may be disconnected or broken.       |
|  | Test power to the control box by checking voltage between black wire and ground at the white 9-pin connector.                                 | If NO voltage is present, power from relay has become disconnected. If voltage is present check wiring and controller switches.  |
| 2. Pump continues to run with switch in neutral.           | Disconnect control box, ignition ON.  | If pump continues to run, solenoid has failed in the closed position. Quickly remove power to the pump by disconnecting the power/ground cables to the plow. Replace solenoid. |
|  |   | If pump stops running, check wiring of controller for short between black and white/black wire in controller, or failed switch.  |
| 3. Plow will not lower.                                    | Check power/ground cables and control cables are connected properly.  | Connect.   |
|  | Check flow control valve.   | If flow control valve is completely closed, place RAISE/LOWER switch in NEUTRAL, then open the flow control valve.   |
|  | Check wiring on valve block for proper connections.   | Refer to the wiring diagram in this manual.  |
|  | Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in FLOAT position.                    | If voltage is present solenoid valve or valve coil has failed. Replace valve.  |
|  | Test power to the control box by checking voltage between black wire and ground at the white 9-pin connector.                                 | If NO voltage is present, power from relays has become disconnected. If voltage is present, check wiring and switch of controller.   |
| 4. Plow will not raise or raises slowly (pump motor runs). | Check hydraulic fluid level.  | Hydraulic fluid level should be within $\frac{3}{4}$ " from top of reservoir when lowered and in the V-position.   |

## Troubleshooting Guide

| PROBLEM   | DIAGNOSTIC CHECK  | RESULT  |
|---|---|---|
|   | Check power/ground cables and control cable are connected properly. | Connect.  |
|   | Check wiring on valve block for proper connections.                 | Refer to the manifold wiring diagram in this manual.  |
|   | Load test battery.  | Replace battery if weak or defective.   |
|   | Check pressure at pressure port of pump.                            | If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn. |
|   | Check LIFT Solenoid Valve.  | Lift solenoid valve not opening completely. Replace.  |
|   |   | Check wiring and switch box control.  |
| 5. While trying to raise plow, wing(s) extend prior to raising plow and will not retract. | Check the pressure and return line routing.                         | Pressure line MUST be connected from P on pump to P on valve manifold. Return line MUST be connected from R on pump to T on valve manifold.   |
| 6. Wings drift back when extended.  | Check wing return solenoid valve on manifold<br>Check pressure      | If solenoid valve is contaminated, clean or replace. If pressure relief valve is contaminated, clean or replace.  |
| 7. Plow lowers too fast.  | Check flow control valve.   | Close flow control valve to desired drop speed.   |
| 8. Wing(s) will not extend or extend slowly, motor runs.                                  | Check hydraulic fluid level.  | Hydraulic fluid level should be within 3/4" from top of reservoir when lowered and in the V-position.   |
|   | Check power/ground cables and control cable are connected properly. | Connect.  |
|   | Check wiring on valve block for proper connections.                 | Refer to the wiring diagram in this manual.   |
|   | Load test battery.  | Replace battery if weak or defective.   |

## Troubleshooting Guide

| PROBLEM  | DIAGNOSTIC CHECK   | RESULT  |
|--|--|---|
|  | Check pressure at pressure port of pump.   | If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn. |
|  | Check WING OUT solenoid valve.   | WING OUT solenoid valve not opening completely. Replace.  |
|  |  | Check wiring and control box.   |
| 9. Wing(s) extend, but will not retract or retract slowly. | Check power/ground cables and control cables are connected properly.   | Connect.  |
|  | Check wiring on valve block for proper connections.  | Refer to the wiring diagram in this manual.   |
|  | Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in WING IN position. | If voltage is present, solenoid valve or valve coil has failed. Replace valve. If NO voltage is present, check wiring and switch box control.   |
| 10. Wing(s) retract too easily while plowing.              | Pressure relief valve pressure set too low.  | See an Authorized BOSS Dealer for pressure relief valve adjustment.   |
| 11. Oil leaks from cylinders.                              | Check seals and fitting connections.   | Replace seals and tighten loose fittings.   |
|  | Check rod condition.   | If rods are pitted or rough, polish with copus cloth or extra fine steel wool.  |
| 12. Battery goes dead with all switches in neutral.        | Possible short in switches.  | Inspect wiring of control box switches, replace switch(es).   |
|  | Possible short in wiring harness.  | Repair damaged wire.  |
|  | Possible short in valve coils.   | Replace coils.  |

## Troubleshooting Guide

| PROBLEM   | DIAGNOSTIC CHECK  | RESULT   |
|---|---|--|
| 13. Blade digs into the ground in the V-position.                     | Bumper stop bracket adjusted too low.                             | Raise the Bumper Stop.   |
|   | Push beam installed too high.                                     | Lower the push beam.   |
| 14. Blade does not lay flat against the ground in the scoop position. | Bumper Stop bracket adjusted too high.                            | Lower the Bumper Stop.   |
|   | Push beam installed too low.                                      | Raise the push beam. If push beam is at highest setting, Adjust the Bumper Stop higher.      |
| 15. Blade trips too easily.   | Check trip spring adjustment.                                     | Tighten springs. Replace springs if permanently deformed or damaged.                         |
| 16. Plow does not clean-up snow from low areas.                       | UP/DOWN switch not in FLOAT position.                             | Place switch in FLOAT position.  |
| 17. Oil running out of fill cap of hydraulic pump.                    | Plowing on steeply inclined terrain.                              | Avoid too steeply sloped areas.  |
|   | Pump reservoir over filled.                                       | Reservoir should be filled to $\frac{3}{4}$ " from top.                                      |
|   | Hitting snowbanks too hard.                                       | Do not plow recklessly. Place plow in V-position and break up hard snowbanks.                |
| 18. Pump chatters when raising plow or extending wing(s).             | Hydraulic fluid low.  | Add hydraulic fluid. Reservoir should be filled to $\frac{3}{4}$ " from top.                 |
| 19. SmartHitch2™ will not attach plow.                                | Make sure key is on and controller is in FLOAT.                   | Turn key on and put controller in FLOAT.   |
|   | Make sure controller is staying in the Float position             | If controller comes out of Float when using the SmartHitch2™ switch, replace the controller. |
|   | Check valve block and SmartHitch2™ switch for proper connections. | Refer to manifold wiring diagram located within this manual.                                 |

## RECOMMENDED PUSHBEAM HEIGHT

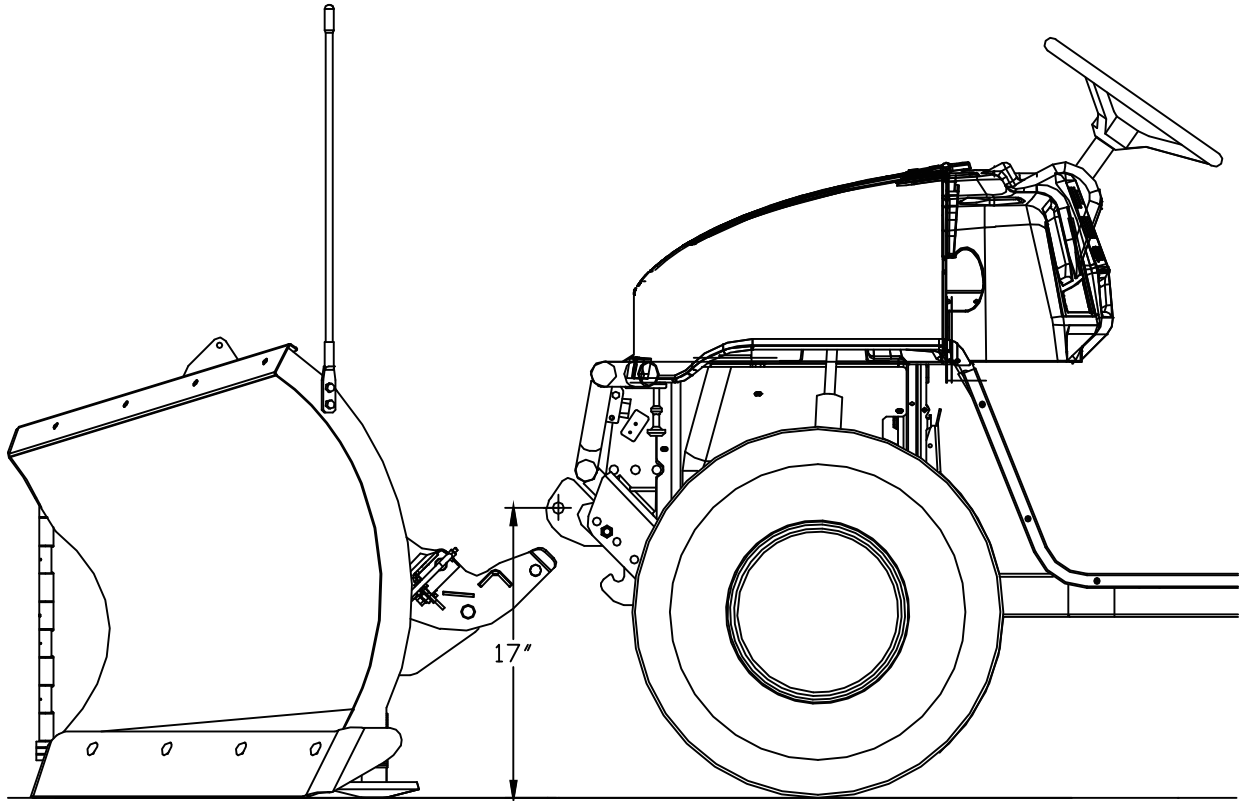


Figure 25. Recommended Pushbeam Height

G10634

## 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 25. Recommended Bolt Torque

G10410

**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.

# 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 is a division of  
Northern Star Industries, Inc.  
PO Box 787 North U.S. Hwy 2  
Iron Mountain, MI 49801  
(2013 - 2014)

# 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 WARRANTY 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.

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