



BOSS PRODUCTS
A Division of Northern Star Industries, Inc.
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ATV STRAIGHT BLADE INSTALLATION & OWNER'S MANUAL

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BOSS Products / Northern Star Industries, Inc. 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

DRIVEN TO BE THE BEST

MSC13654

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. Overloading could result in an accident, vehicle damage or personal injury.
- Follow all Operator Safety instructions and age restrictions found in your ATV Owner's Manual.
- NEVER use Plow System for any other purpose than plowing snow.
- When transporting, position plow so as not to block vision.
- NEVER change blade 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.
- ALWAYS use LOW RANGE and never exceed 5 mph while operating plow.
- ALWAYS lower blade 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 on steep inclines.
- Operators should ALWAYS wear a helmet and all other applicable personal protective equipment while operating plow.
- Operators should ALWAYS keep both hands on the handlebars while operating vehicle and Plow System.
- NEVER operate vehicle or plow 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 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 ATV 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

- 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 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.bosspow.com.

BOSS FTV

STRAIGHT BLADE MOUNTING INSTRUCTIONS

A CAUTION

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

A CAUTION

ROTATE AND LOCK THE KICKSTAND IN TO THE UP POSITION WHEN PLOW IS IN USE. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE.

A CAUTION

WHILE HOLDING ON TO THE COUPLER HANDLE CAREFULLY ROTATE THE COUPLER DOWNWARD AND AWAY FROM THE VEHICLE. DISCONNECT THE ELECTRICAL PLUGS AND INSTALL ELECTRICAL PLUG DUST COVERS. BACK THE VEHICLE AWAY FROM THE SNOWPLOW SLOWLY.

STEP 1

PLACE THE SNOWPLOW CONTROL IN THE FLOAT POSITION. LINE UP THE VEHICLE WITH THE SNOWPLOW AND DRIVE STRAIGHT IN UNTIL THE REAR PIN CONTACTS THE PIN RECEIVER. REMOVE THE ELECTRICAL PLUG DUST COVERS AND CONNECT THE ELECTRICAL PLUGS.

ADJUST COUPLER SPRING PINS TO THE ATTACH POSITION.

STEP 1

PLACE THE SNOWPLOW CONTROL IN THE FLOAT POSITION. ROTATE AND LOCK THE KICKSTAND IN TO THE DOWN POSITION. ADJUST COUPLER SPRING PINS TO THE OFF POSITION WHILE PUTTING UPWARD PRESSURE ON THE COUPLER HANDLE.

STEP 2

USING THE COUPLER HANDLE MANUALLY PULL THE COUPLER UPWARD AND TOWARD THE VEHICLE UNTIL THE SPRING PINS SNAP IN TO THE ON POSITION. CHECK THAT BOTH SPRING PINS HAVE FULLY ENGAGED IN TO THE COUPLER. SEE CAUTION INSERT. ROTATE AND LOCK THE KICKSTAND IN TO THE UP POSITION.

STEP 2

WHILE HOLDING ON TO THE COUPLER HANDLE CAREFULLY ROTATE THE COUPLER DOWNWARD AND AWAY FROM THE VEHICLE. DISCONNECT THE ELECTRICAL PLUGS AND INSTALL ELECTRICAL PLUG DUST COVERS. BACK THE VEHICLE AWAY FROM THE SNOWPLOW SLOWLY.

Figure 1. Snowplow Mounting & Removal Procedure

Maintenance & Storage

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 as shown on page 13 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 and kickstand pivot.

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 kickstand pivot pin.
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 as shown on page 13 using BOSS High Performance Hydraulic Fluid or equivalent.
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 kickstand pivot.

Snowplow Assembly Procedure

Note: This procedure is used for the assembly of the BOSS ATV Straight Blade Plow. Part numbers for the BOSS ATV Straight Blade Plow are listed on the parts explosions in this manual.

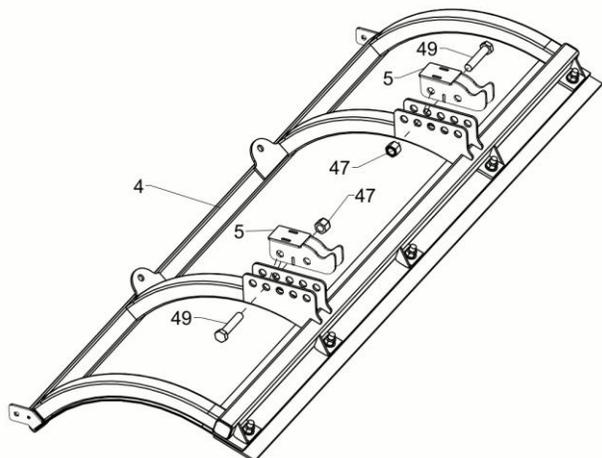


Figure 2. Adjustable Blade Mount Assembly G10749

1. Align both Blade Mounting Brackets (5) with Blade Assembly (4). Assemble them in to the centermost position as shown in Figure 2 (this position may need to be adjusted depending on vehicle height).
2. Loosely attach using two 5/8"-11 x 3" Hex Head Cap Screws (49) and two 5/8"-11 Self-Locking Nuts (47).

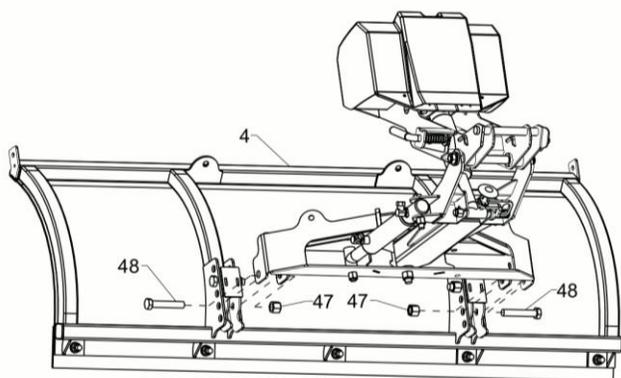


Figure 3. Blade Assembly Attachment G10750

3. Attach Blade Assembly (4) to Coupler / Push Frame / Push Frame Attachment Bar / Cylinder Assembly using two 5/8"-11 x 3 1/2" Hex Head Cap Screws (48) and two 5/8"-11 Self-Locking Nuts (47).
4. Tighten all four 5/8" -11 Self-Locking Nuts (47).

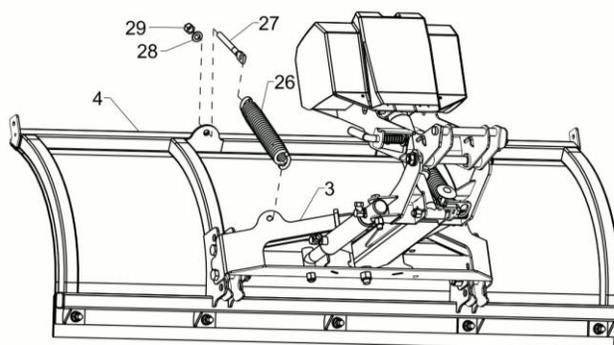


Figure 4. Trip Spring Assembly G10751

5. Insert Trip Springs (26) through the holes provided on Push Frame Attachment Bar (3) as shown in Figure 4.
6. Attach 1/2"-13 x 5-1/4" Spade Bolt (27) around the loose end of Trip Springs (26).
7. Insert the threaded end of Spade Bolt (27) through the hole in the spring mount brackets on the back of Blade Assembly (4). Secure each Spade Bolt (27) with one 1/2" Flat Washer (28) and one 1/2"-13 Self-Locking Nut (29).
8. Tighten 1/2"-13 Self-Locking Nuts (29) until the coils on Trip Springs (26) are approximately 1/32" apart.

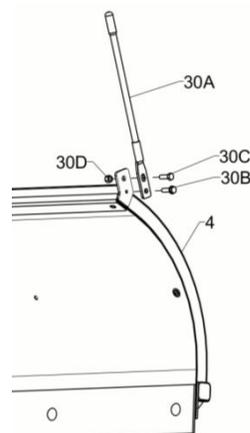


Figure 5. Blade Guide Assembly G10752

9. Attach Blade Guides (30A) to Blade Assembly (4) using 5/16"-18 x 1" Self-Tapping Hex Head Cap Screws (30B), 5/16"-18 x 1" Hex Head Cap Screws (30C), and 5/16"-18 Self-Locking Nuts (30D) as shown in Figure 5.

Switch Box Control Mounting Procedure

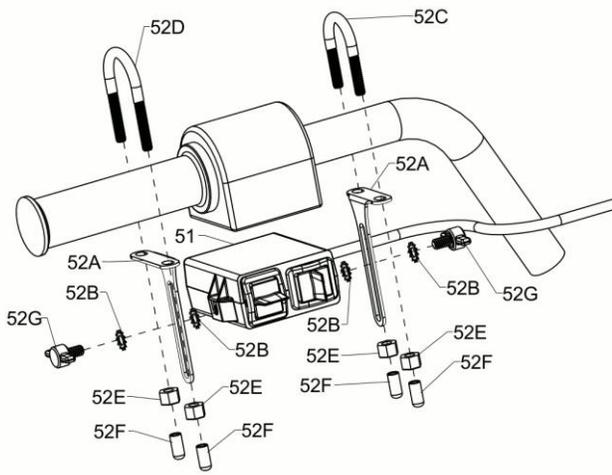


Figure 6. Switch Box Control Mounting Diagram G10753

1. Slide the 1/4"-20, #06 U-Bolt (52D) over the left side vehicle handlebar grip as close to the control cluster as possible. Slide the 1/4"-20, #04 U-Bolt (52C) over the vehicle handlebar on the opposite side of the control cluster.
2. Loosely assemble the Switch Box Control Mounting Brackets (52A) to the U-bolts (52C & 52D) below the handlebar using four 1/4"-20 Self-Locking Nuts (52E) as shown in Figure 6.
3. Align the Switch Box Control (51) with the Control Mounting Brackets (52A) under the control cluster. Assemble using four 1/4" Star Washers (52B) and two 1/4"-20 x 1/2" Thumb Screws (52G).
4. Adjust Switch Box Control (51) 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 (52F) over the exposed ends of the U-bolts (52C & 52D) for added operator protection.
6. Route the Switch Box Control (51) 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.

Control Wiring Installation Procedure

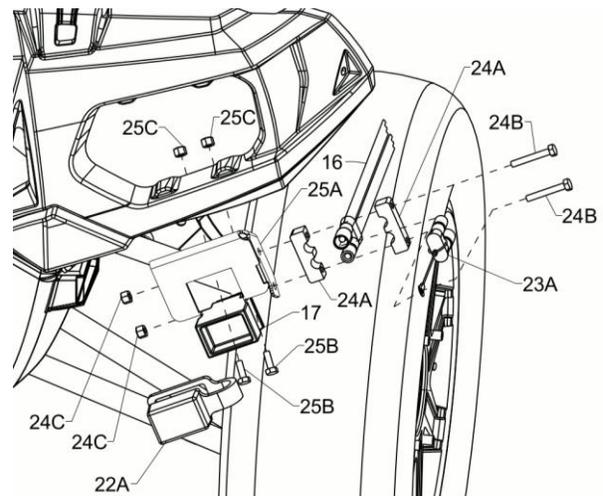


Figure 7. Control Harness Mounting Bracket Install G10754

1. Locate an area under the left side front bumper fascia to mount the Control Harness Mounting Bracket (25A). 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.
3. Attach Mounting Bracket (25A) to the vehicle using two 1/4"-20 x 3/4" Hex Head Cap Screws (25B) and two 1/4"-20 Self Locking Nuts (25C) as shown in Figure 7.
4. Install plug end of Vehicle Side Power/Ground Cable (16) on to the Control Harness Mounting Bracket (25A) using the two Power/Ground Cable Mounting Brackets (24A), two 1/4"-20 x 1-3/4" Hex Head Cap Screws (24B), and two 1/4"-20 Self Locking Nuts (24C). Attach lanyard of Power/Ground Dust Cap (23A) to lower Hex Head Cap Screw (24B) as shown in Figure 7. (Install optional 8ft long Vehicle Side Power/Ground Cable (16) on vehicles with rear mounted battery).
5. Install the Vehicle Side Control Harness Dust Cap (22A) on to the large plug end of the Vehicle Side Wiring Harness (17) and insert the harness in to the Control Harness Mounting Bracket (25A).

Electrical System Installation Procedure

- Route the Vehicle Side Wiring Harness (17) and Vehicle Side Power/Ground Cable (16) together upward and along the vehicle frame toward the vehicle battery and Switch Box Control (51) connector. Secure wiring using supplied cable ties.

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.

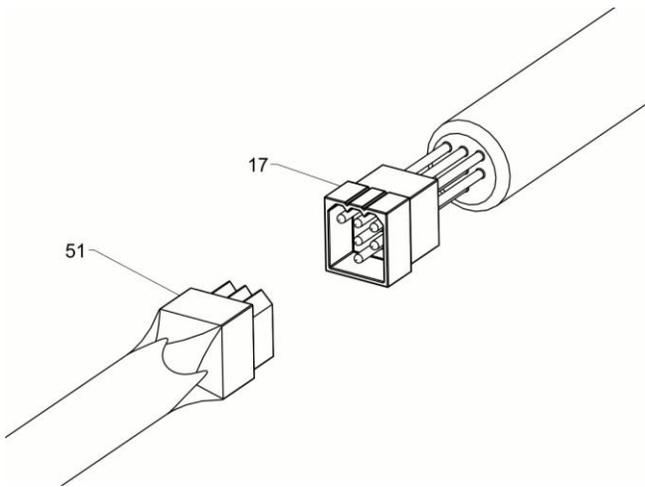


Figure 8. Switch Box Control Connection G10755

- Connect the Switch Box Control (51) connector to the mating Vehicle Side Wiring Harness (17) connector as shown in Figure 8.

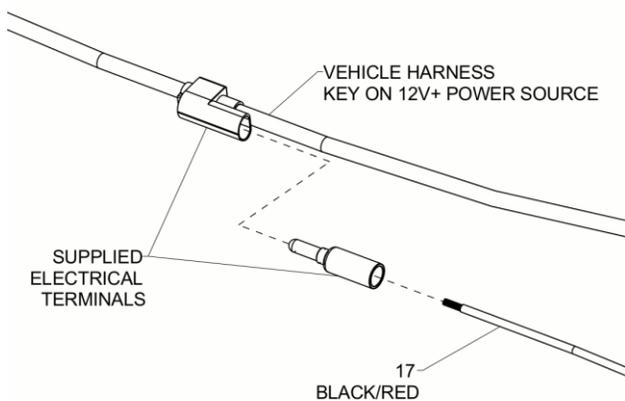


Figure 9. Key-On Power Source Connection G10756

Note: This 12V+ source should only be active when the vehicle key is in the ON position. Failure to wire to a "key-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 key-on power source wire of the Vehicle Side Wiring Harness (17) to a key-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.

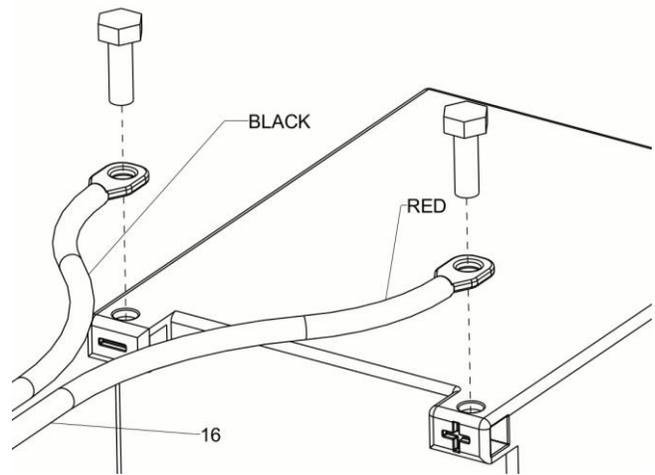


Figure 10. Battery Connections G10757

- Connect the eyelet end of BLACK Vehicle Side Power/Ground Cable (16) to the NEGATIVE battery terminal.
- Connect the eyelet end of RED Vehicle Side Power/Ground Cable (16) to the POSITIVE battery terminal.

Kickstand Adjustment Procedure

Note: The following kickstand adjustment procedure is intended for a new plow system that has not yet been attached to the vehicle. Due to variation in vehicle height, this one-time adjustment must be completed to ensure proper alignment with the vehicle when mounting and removing the plow.

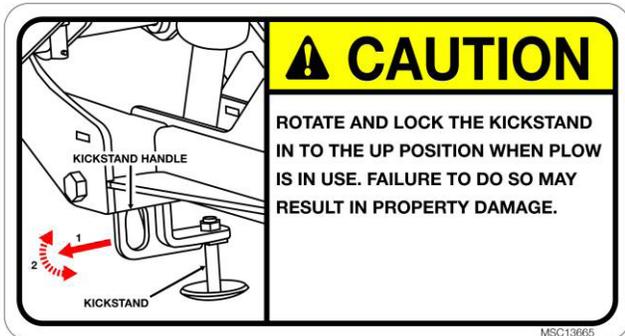


Figure 11. Kickstand Operation MSC13665

1. Locate and adjust the plow Kickstand to the lowered position by pulling the Kickstand Handle straight outward while rotating the Kickstand counter-clockwise, downward until it locks. See Figure 11.
2. Assuming that the vehicle Undercarriage has been installed (refer to vehicle specific Undercarriage installation manual), align the vehicle to the plow as if mounting the plow. Refer to the "Snowplow Mounting & Removal Procedure" located in this manual.

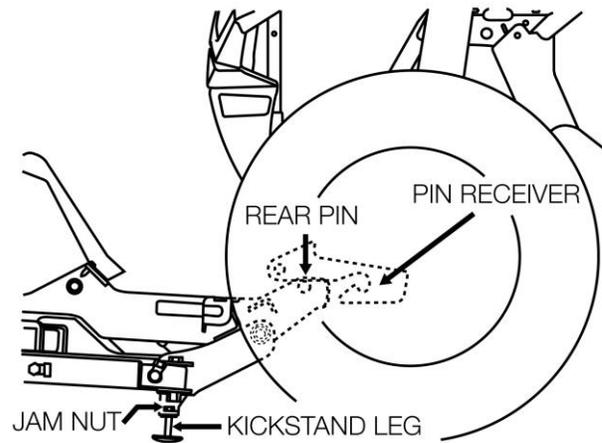


Figure 12. Kickstand Adjustment

G10766

3. Loosen the 3/8"-16 Jam Nut (9C) on the Kickstand.
4. Rotate the Kickstand Leg (9A/B) to adjust the height of the plow system up or down until the Rear Pin of the Coupler contacts the bottom flat portion of the Pin Receiver of the Undercarriage as shown in Figure 12. (If additional height is required, install the longer Kickstand Leg included with the Plow System).
5. Tighten the 3/8"-16 Jam Nut (9C) on the Kickstand.
6. Attach the snowplow to the vehicle. Use the "Snowplow Mounting & Removal Procedure" located in this manual to properly attach the snowplow to the vehicle.

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 (43A) holding the Coupler Cover (42) 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.

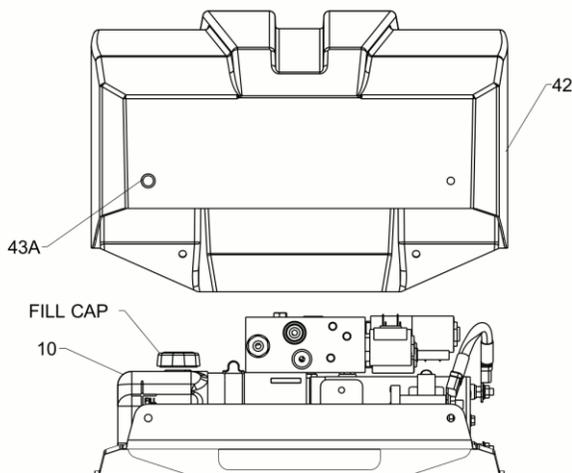


Figure 13. Hydraulic Fluid Fill Location

G10759

3. Locate and remove the Fill Cap from the Hydraulic Power Unit (10) reservoir shown in Figure 13.

4. Fill the Power Unit reservoir to the fill line with Boss High Performance Hydraulic Fluid or equivalent (MIL 5606) (Approx. ½ quart) as shown in Figure 14.
5. Re-install the Fill Cap in the Power Unit reservoir.
6. Operate the plow. Refer to the "ATV Straight Blade Switch Box Control" section in this manual for operation instructions. Raise the blade, angle to the left, angle to the right, and then lower in the straight 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 (42) and Plastic Rivets (43A).

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

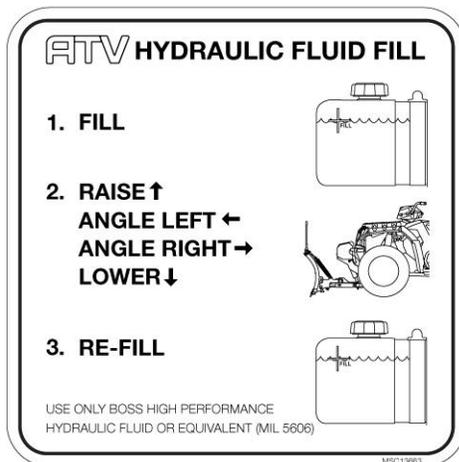


Figure 14. Hydraulic Fluid Fill Procedure

MSC13663

ATV Straight Blade Switch Box Control Operating Instructions

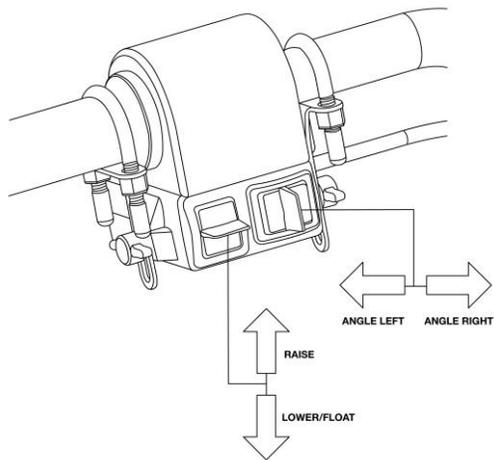


Figure 15. ATV Switch Box Control Operation G10760

1. To RAISE the blade of the plow, press upward on the left toggle switch paddle.
2. To LOWER the blade of the plow, press downward on the left toggle switch paddle. This will also activate the "FLOAT" function.

Note: The FLOAT function allows the plow blade to mirror the contour of the ground.

Note: Press upward on the left toggle switch paddle returning it to the neutral position to turn the FLOAT function off.

3. To ANGLE the blade of the plow to the LEFT, press leftward on the right toggle switch paddle. This will push snow to the left.
4. To ANGLE the blade of the plow to the RIGHT, press rightward on the right toggle switch paddle. This will push snow to the right.

Electrical System Wiring Schematic (Plow Side)

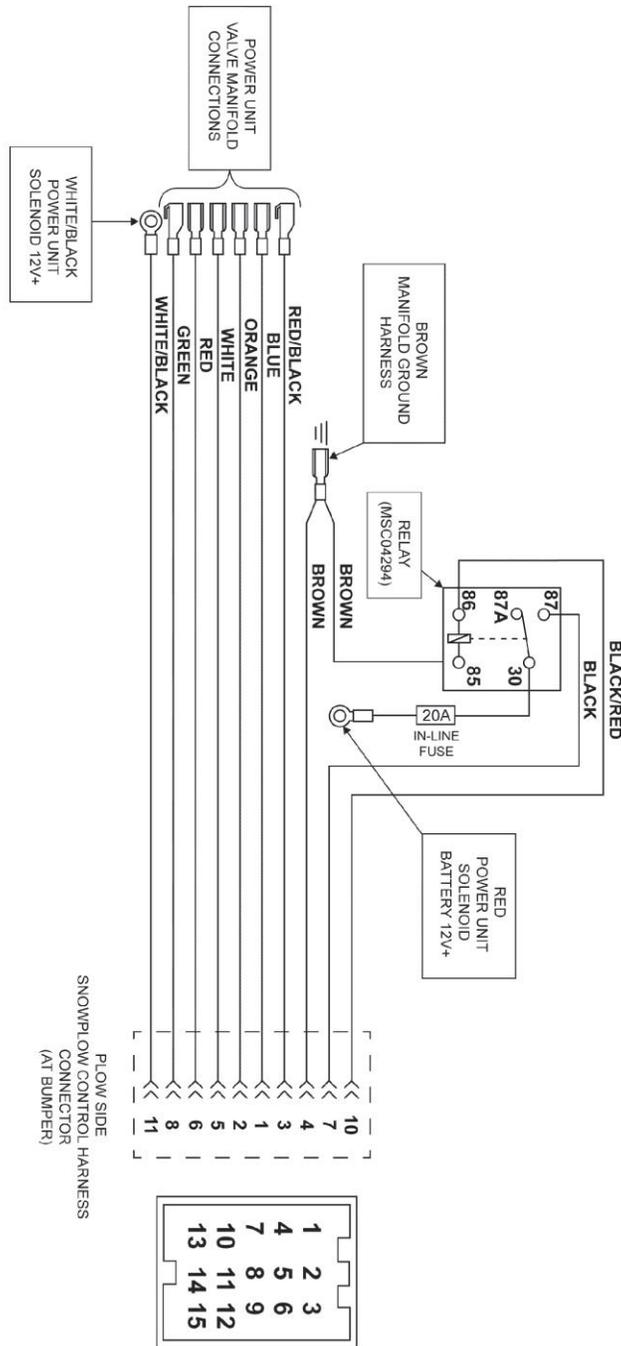


Figure 16. Electrical System Wiring Schematic (Plow Side)

Electrical System Wiring Schematic (Vehicle Side)

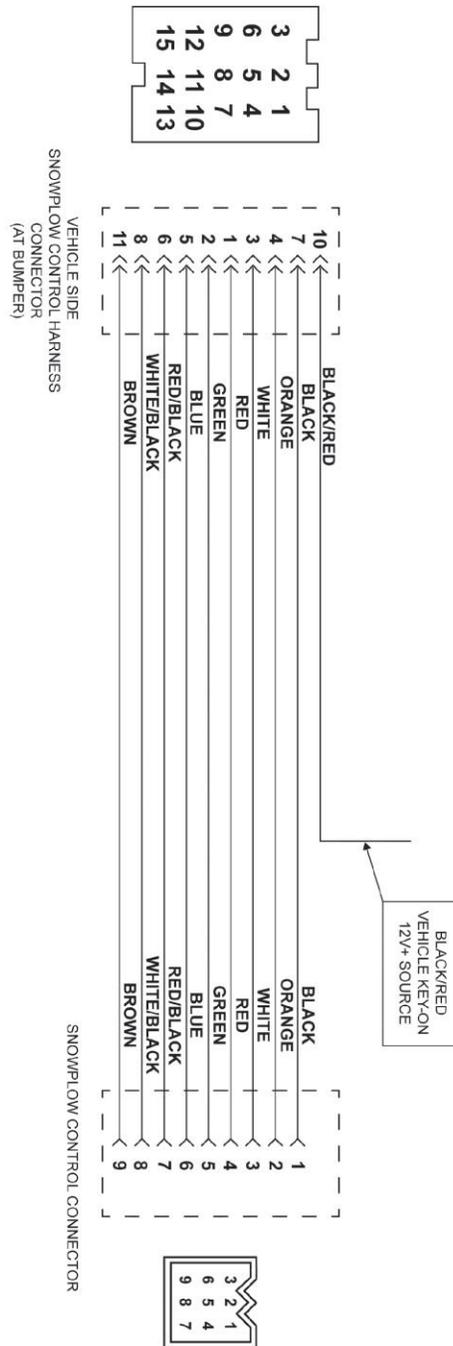


Figure 17. Electrical System Wiring Schematic (Vehicle Side)

ATV Straight Blade Wiring Diagram

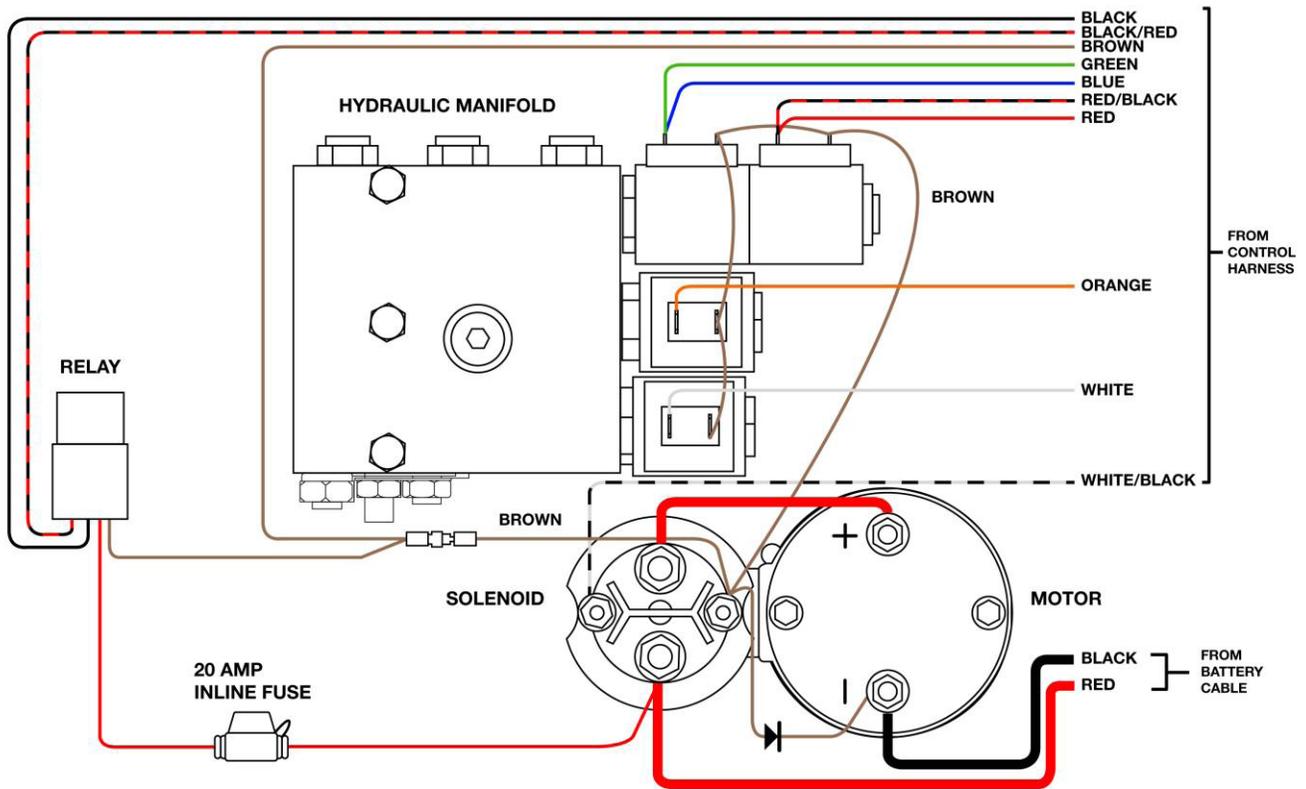


Figure 18. ATV Straight Blade Wiring Diagram

G10758

Control Harness Wire Color	Wire Function
Black	12V+ to Control
Black/Red	12V+ from Key-On Power Source
Brown	Ground
Green	Blade Left
Blue	Blade Left
Red/Black	Blade Right
Red	Blade Right
Orange	Lower
White	Raise
White/Black	Hydraulic Power Unit Solenoid

Troubleshooting Guide

Glossary of Problems:

1. Pump motor does not run.
2. Pump continues to run with control switches in neutral.
3. Plow blade will not lower.
4. Plow blade will not raise or raises slowly (pump motor runs).
5. Plow blade angles while plowing snow
6. Plow blade will not angle or angles slowly (pump motor runs).
7. Plow blade angles while plowing snow.
8. Oil leaks from cylinders.
9. Battery goes dead with all switches in neutral.
10. Plow does not clean-up snow from low areas.
11. Oil running out of fill cap of hydraulic pump.
12. Pump chatters when raising or angling blade.

PROBLEM	DIAGNOSTIC CHECK	RESULT
1. Pump motor does not run.	Check power/ground cables and control cables are connected properly.	Connect.
	Check for voltage at pump motor while ignition switch is on and control switch in the RAISE position.	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.
	Check for voltage between the other large terminal of the solenoid and ground while jumping power to the small terminal with the white/black 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.

Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Test power to the control box by checking voltage between black wire and ground at the white 9-pin control connector of the vehicle side harness with the ignition switch on.	If NO voltage is present, power from key-on 12V+ source has become disconnected. If voltage is present, check wiring and switch of control box.
2. Pump continues to run with control switches in neutral.	Disconnect controller, 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 switch box control for short between black and white/black wire or a failed switch.
3. Plow blade will not lower.	Check power/ground cables and control cables are connected properly.	Connect.
	Check wiring on valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual.
	Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in LOWER/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 control connector of the vehicle side harness with the ignition switch on.	If NO voltage is present, power from key-on 12V+ source has become disconnected. If voltage is present, check wiring and switch of control box.
4. Plow blade will not raise or raises slowly (pump motor runs).	Check hydraulic fluid level.	Hydraulic fluid level should be filled to fill line. See Hydraulic Fluid Fill Procedure located in this manual.

Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check that power/ground cables and control cable are connected properly.	Connect.
	Check wiring on valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual.
	Load test vehicle battery.	Replace battery if weak or defective.
	Check pressure at lift cylinder port of hydraulic power unit.	If pressure is less than 1200 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 1200 psi, pump may be worn.
	Check LIFT Solenoid Valve	Lift solenoid valve not opening completely. Replace.
		Check wiring and controller.
5. Plow blade angles while plowing snow.	Check angle solenoid valve on manifold Check pressure	If solenoid valve is contaminated, clean or replace. If pressure relief valve is contaminated, clean or replace.
6. Plow blade will not angle or angles slowly (pump motor runs).	Check hydraulic fluid level.	Hydraulic fluid level should be filled to fill line. See Hydraulic Fluid Fill Procedure located in this manual.
	Check power/ground cables and control cable are connected properly.	Connect.
	Check wiring on valve manifold for proper connections.	Refer to the Wiring Diagram located in this manual.
	Load test vehicle battery.	Replace battery if weak or defective.

Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check Angle solenoid valve.	Angle solenoid valve not opening completely. Replace.
		Check wiring and controller.
7. Plow blade angles while plowing snow.	Pressure relief valve pressure set too low.	See an Authorized BOSS Dealer for pressure relief valve adjustment.
8. Oil leaks from cylinders.	Check rod condition.	If rods are pitted or rough, polish with copus cloth or extra fine steel wool.
9. Battery goes dead with all switches in neutral.	Possible short in switches.	Inspect wiring of controller.
	Possible short in wiring harness.	Repair damaged wire.
	Possible short in valve coils.	Replace coils.
10. Plow does not clean-up snow from low areas.	RAISE/LOWER switch in incorrect position while plowing.	Place switch in LOWER/FLOAT position.
11. Oil running out of fill cap of hydraulic pump.	Watch customer mount and remove plow for proper procedure.	See Snowplow Mounting & Removal Procedure located in this manual.
	Hydraulic fluid level over filled.	Reservoir should be filled to fill line. See Hydraulic Fluid Fill Procedure located in this manual.
	Hitting snow banks too hard.	Do not plow recklessly.
12. Pump chatters when raising or angling blade.	Hydraulic fluid level low.	Add hydraulic fluid. Reservoir should be filled to fill line. See Hydraulic Fluid Fill Procedure located in this manual.

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 19. 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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