



BOSS PRODUCTS
A Division of Northern Star Industries, Inc.
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SKID STEER STRAIGHT PLOW

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 used herein.

This product is covered under one or more of the following patents:

6,035,944
6,108,946

DRIVEN TO BE THE BEST

VHD06198-2

Safety Precautions

Warning: Accidents involving machine operation can be avoided by following basic rules and precautions. All warnings and precautions cited in your skid steer owner's manual should be carefully observed. In addition, be sure to adhere to the following precautions.

- 1) Follow all warnings and cautions on the skid steer and in the skid steer user documentation.
- 2) Do not perform any maintenance or make any adjustments while the skid steer is in motion, the engine is running, or the plow is raised.
- 3) Do not attempt to repair or tighten hydraulic hoses when under pressure, when the engine is running, or when the plow is raised.
- 4) Do not enter or exit from the skid steer with the plow raised.
- 5) Do not get under the plow when it is raised.
- 6) When parking, make sure that the plow is completely lowered and the parking brake is set.
- 7) Exercise extreme caution when operating the skid steer with the plow on the sides of a hill.
- 8) Do not exceed 6 miles per hour when plowing. Contacting fixed objects at greater speeds may cause damage to the skid steer and plow, and personal injury may occur.
- 9) When transporting the plow, keep it as close to the ground as possible without touching.
- 10) Wear eye protection when operating the plow. Debris may be thrown back toward the operator.

Operation

Correct operation of the plow involves using only the tilt function. There is no need to raise the arms of the skid steer, and doing so will adversely affect the attack angle of the blade.

Assembly Procedure

Note: The T-frame, rear mount, and blades each weigh between 150 and 250 lbs. Mechanical assistance and special care must be used to avoid injury when lifting or moving these assemblies.

1.) Open and Inspect Plow Box

- a. Remove the Plow Box assembly, Pushframe Attachment Bar, bags and other parts from the plow box and organize their contents by referencing the packing list. The plow box assembly should look similar to that shown in figure 1.

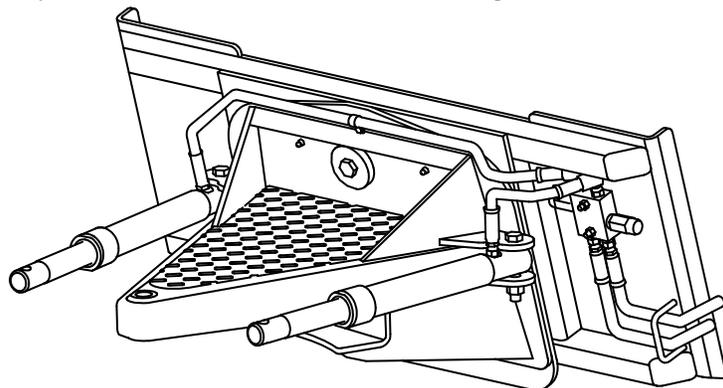


Figure 1. Plow Box Assembly

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Note: The adapter plate to pushframe is adjustable from 0" to 2". This is to provide flexibility for installation on different types of vehicles. The preferred height adjustment is 0" but vehicles with an enclosed cab or tracks may require a greater offset so that the vehicle's arms can be completely lowered. To adjust from the 0" factory setting, remove the (4) 3/4" inch bolts, top lock nuts (**THE NUTS MUST BE REPLACED IF REMOVED**), bushings and washers connecting the pushframe to the adapter plate and reinstall in the alternate positions.

2.) Install Pushframe Attachment Bar to Plow Box Assembly

- a. Assemble the pushframe attachment bar to the pushframe using (1) 1"-8x7 HHCS and (1) 1"-8 Locking Nut.
- b. Assemble cylinders into pushframe attachment bar using (2) 5/8"-13x4" HHCS and (2) 5/8"-13 Locking Nuts.

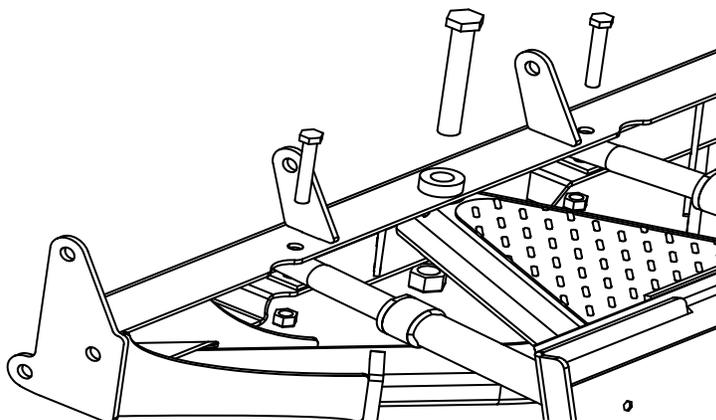


Figure 2. Assemble Pushframe Attachment Bar

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Assembly Procedure

3.) Assemble springs to blade.

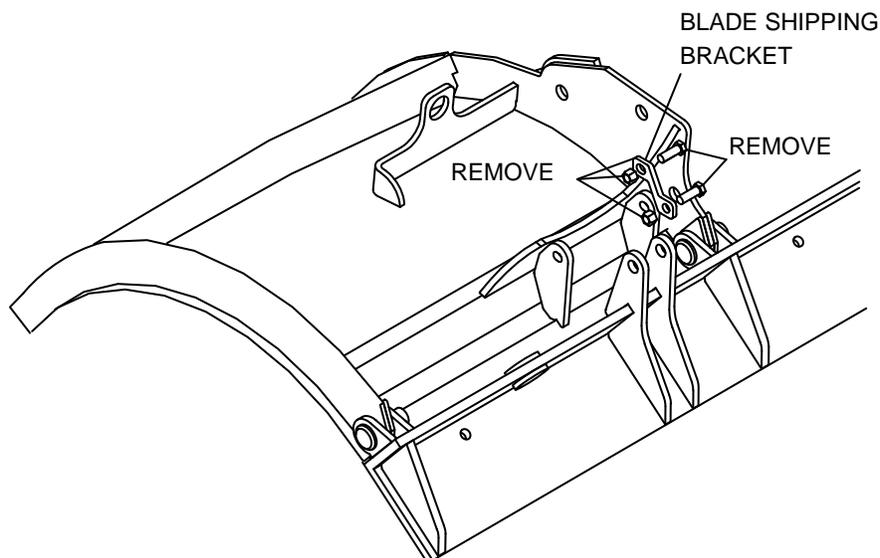


Figure 3. Remove Blade Shipping Brackets

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- a) Place Plow Blade on the ground face down.
- b) Remove and discard the blade shipping bracket from one side.

Note: Removing one blade shipping bracket at a time will simplify the spring mounting procedure.

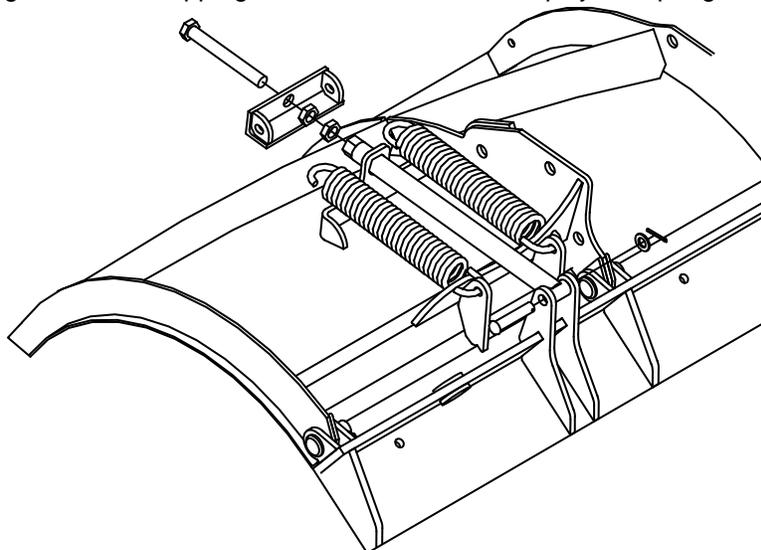


Figure 4. Install Trip Springs

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- c) Attach TRP07807 Lower T-Lever to Base Angle Trip Bracket using $\frac{3}{4}$ "x3" Clevis Pin, $\frac{3}{4}$ " Flat Washer, & $\frac{1}{8}$ "x1- $\frac{1}{2}$ " Cotter Pin.
- d) Install (2) MSC01509 Extension Spring and TRP07804 Upper T-Lever using $\frac{3}{4}$ "-10x6 Hex Head Cap Screw and (2) $\frac{3}{4}$ "-10 Jam Nuts.

Note: The open side of the lower Extension Spring hook should be facing away from the Lower T-Lever

Note: The two jam nuts need to be positioned between the upper and lower T-Levers as illustrated in figure 4.

Assembly Procedure

- e) Adjust Extension Spring using Hex Head Cap Screw and Jam Nut. Approximately 1-1/4" of threads should be showing between the jam nuts on the hex head cap screw.
- f) Tighten Upper Jam nut against Upper T-Lever.
- g) Tighten Lower Jam nut against Lower T-Lever.
- h) Repeat steps b thru g for mounting the trip springs on the opposite side.

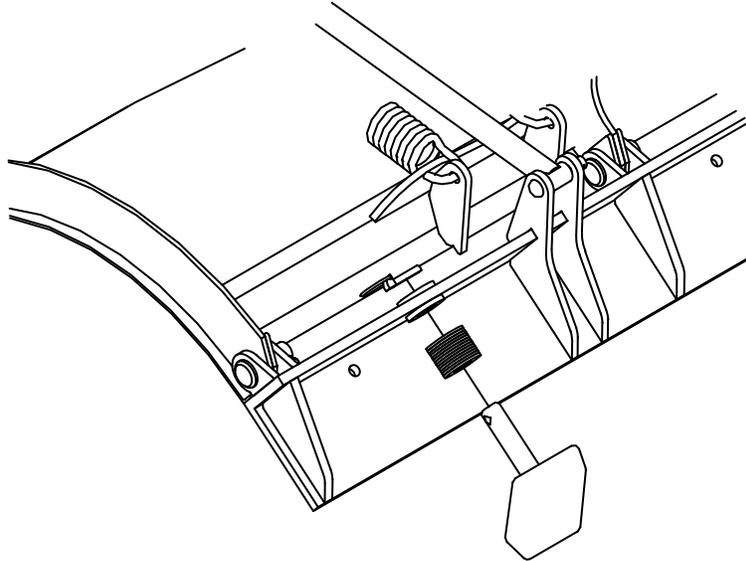


Figure 5. Install Shoe Assembly

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- i) Install TRP07880 Plow Shoe Assembly. Mount plow shoes on blade assembly using (15) 1" Flat Washers below the base angle and secure with 7/16" Quick Pins.

Note: Adjustment of Plow Shoe may be necessary after mounting the plow to the vehicle.

4.) Assemble Blade to Plow Box assembly

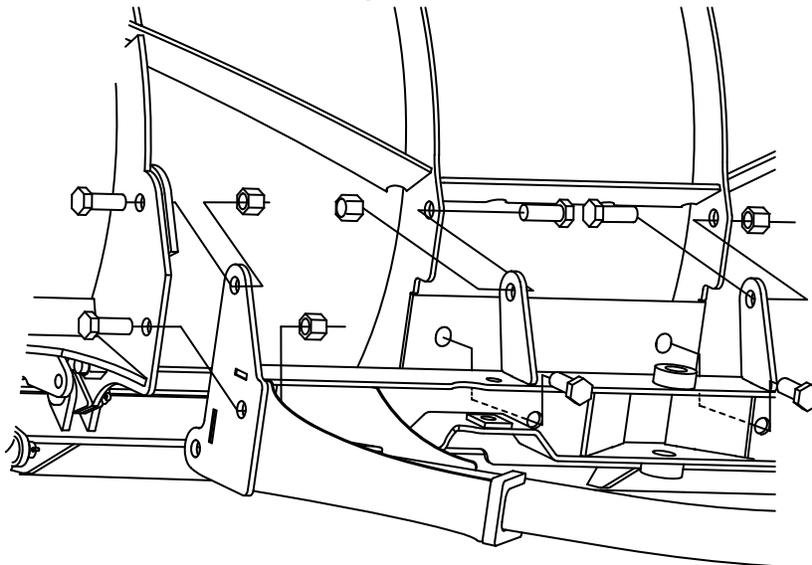


Figure 6. Install Quad assembly to Blade Assembly

G10442

- a) Install Quad into the pockets on the Blade assembly using (10) 3/4"-10x2" Hex Head Cap Screws & (10) 3/4" Lock Nuts
- b) **Note:** These two assemblies are very heavy. Do not attempt to move without a sufficient mechanical lifting device.

5.) Install Blade Guides to Blade

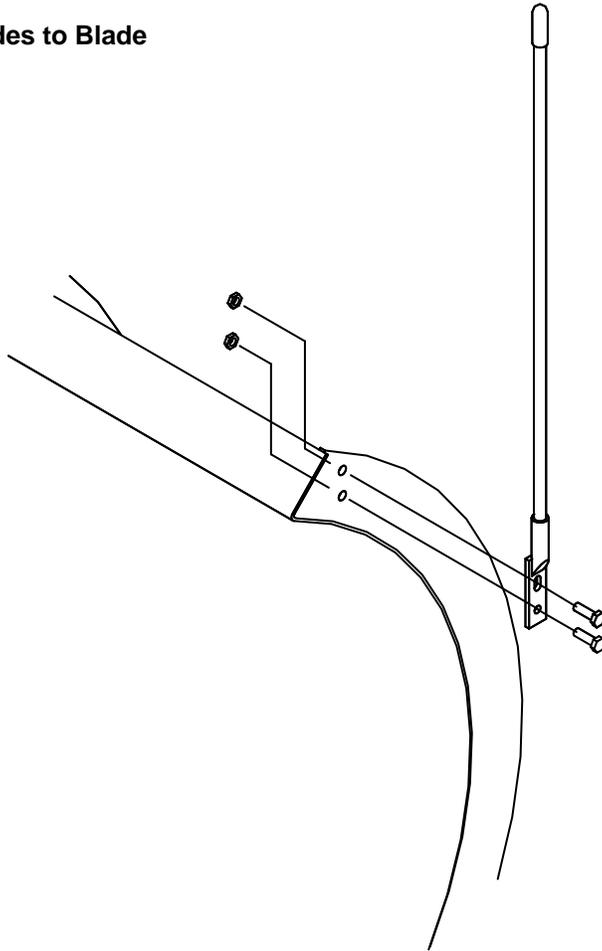


Figure 7. Install Blade Guides

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- a) Attach Blade Guides to Blade Assembly using (2) 5/16"-18x1" Hex Head Cap Screws and (2) 5/16"-18 Locking Nuts.

Hydraulic Relief Manifold Diagram

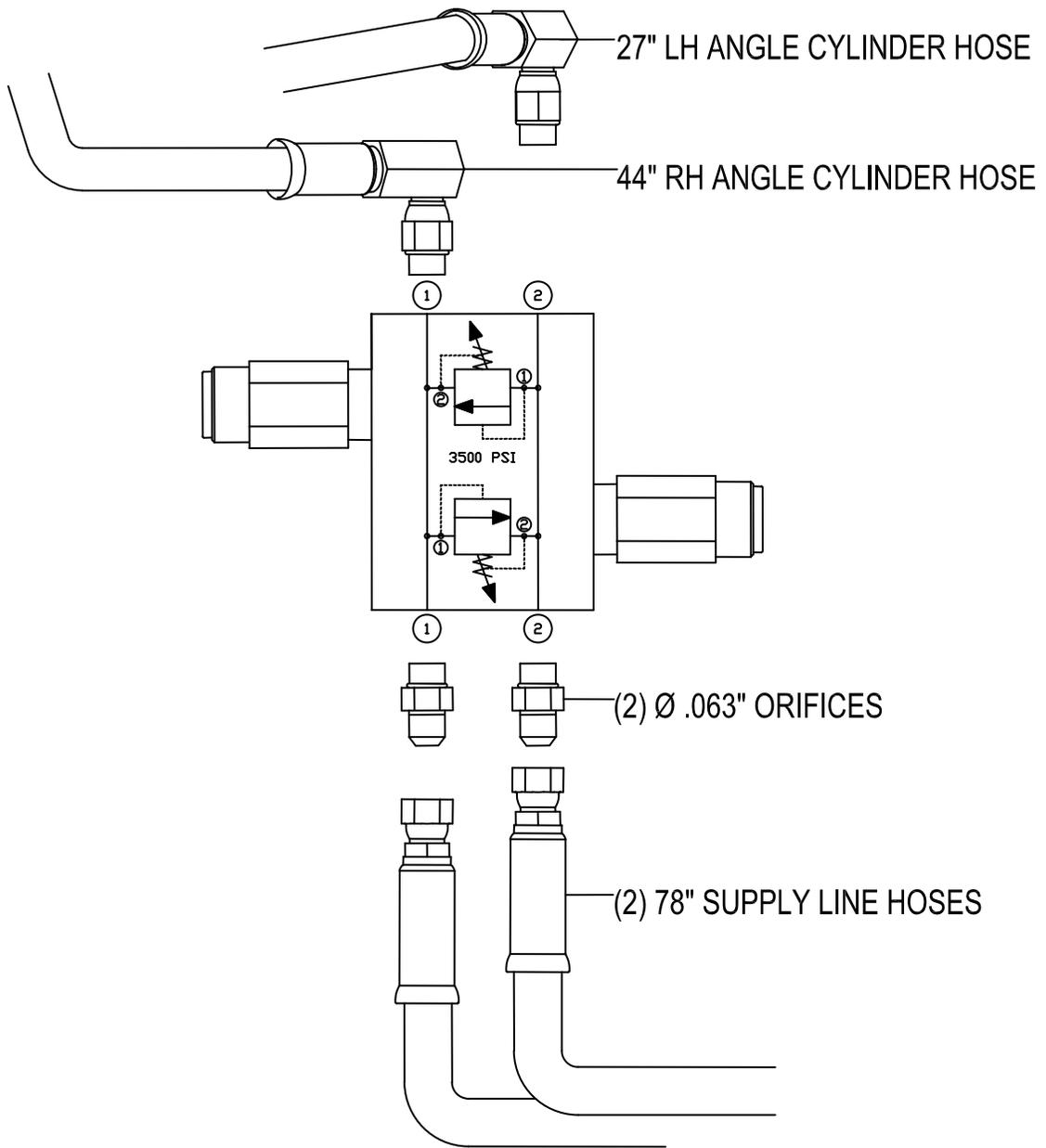


Figure 8. Hydraulic Relief manifold shown with hoses and orifices

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Pre - Operation Procedure

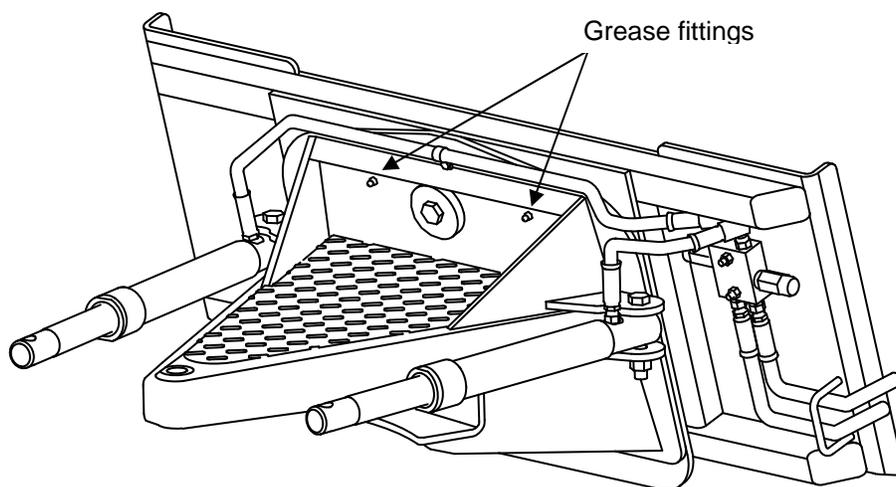


Figure 9. Lubrication Points

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- 1) Apply grease to the (2) fittings on the pushframe back plate. Add grease until you can see it begin to seep out of seam between the plates.
- 2) Attach the plow using the procedure recommended in the skid steer owner's manual.
- 3) Connect the hydraulic quick disconnects.

Maintenance and Repair

- 1) The grease fittings should be lubricated frequently.
- 2) Repair hydraulic oil leaks promptly to avoid contamination to the hydraulic system.
- 3) Check all bolts periodically and tighten if necessary.
- 4) Regularly inspect the plow and repair or replace any worn or damaged parts.

Operation

Correct operation of the plow involves using only the tilt function. There is no need to raise the arms of the skid steer, and doing so will adversely affect the attack angle of the blade.

Recommended Bolt 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.)

Parts List

Description Part Number

Weldments

Universal Adapter, Straight Blade Skid Steer VHD06200
Pushframe, Straight Blade Skid Steer VHD06210
Pushframe Attachment Bar, Super Duty, Trip-Edge TRP07810

Blades (Moldboards with Base Angles)

Blade, 7'6" Straight Blade, Skid Steer TRP07870
Blade, 8'0" Straight Blade, Skid Steer TRP07800
Blade, 9'0" Straight Blade, Skid Steer TRP07899

Base Angles only

Base Angle, 7'6" Super Duty Trip-Edge TRP07862
Base Angle, 8'0" Super Duty Trip-Edge TRP07811
Base Angle, 9'0" Super Duty Trip-Edge TRP07884
Base Angle Pivot Pin Set TRP07879
Includes: (8) Clevis Pin, 1" x 2-1/2"
(8) Cotter Pin, 1/8" x 1-1/2"

Cutting Edges, Optional Equipment

Cutting Edge, 7'6" Super Duty STB03002
Cutting Edge, 8'0" Super Duty STB03003
Cutting Edge, 9'0" Super Duty STB03242
Cutting Edge Bolt Set BAX00034
Includes: (10) Carriage Bolt, 1/2"-13x1-3/4", GR5, Black
(10) Washer, 1/2" Hardened
(10) Nut, 1/2"-13, Oval Top Lock, GRB

Plow Components

Plow Shoe Assembly, Trip-Edge, Cast Iron TRP07880
Includes: (1) Quick Pin, 7/16"
(1) Plow Shoe, Trip-Edge, Cast Iron
(16) Washer, 1" PLT
Spring, Trip MSC01509
Blade Guide, one BAX00005
Includes the following commonly ordered parts:
(2) Blade Guide Tip, Set of Two MSC01562
Upper T-Lever Assembly, Trip-Edge TRP07804
Lower T-Lever Assembly, Trip-Edge TRP07807

Hydraulic Valve Assembly

Relief Manifold Assembly, Cross Over, Straight Blade, Skid Steer VHD06230
Includes the following commonly ordered parts:
(1) Relief Valve VHD06231

Parts List

Cylinders & Seal Kits

Hydraulic Angle Cylinder	HYD09731
Seal Kit for Hydraulic Angle Cylinder HYD08830, HYD09731	HYD08842

Hoses & Fittings

Hydraulic Hose (to Skid Steer) 3/8"x78" (3/8"FJIC X 1/2"MNPT)	VHD06234
Hydraulic Hose (RH Angle Cyl) 3/8"x44" (3/8"MNPT X 3/8"MOR90)	VHD06235
Hydraulic Hose (LH Angle Cyl) 3/8"x27" (3/8"MNPT X 3/8"MOR90)	VHD06236
Fitting (Relief Manifold) 3/8"MORX3/8"MJIC, 0.063 Orifice	VHD06233
Fitting (Angle Cylinder) ,STRT SWVL, 3/8"MP X 3/8"FPS	HYD01711

Bolts

Hex Head Cap Screw, 5/8"-11x4" GR5 YZN (Angle Cylinder Mount)	HDW01706
Hex Head Cap Screw, 1"-8x7" GR5 YZN (Center Pivot Pin)	HDW07735
Hex Head Cap Screw, 3/4"-10x6" Full Thread GR5 SN (T-Lever)	HDW05616
Hex Head Cap Screw, 3/4"-10x2" GR5 YZN (Blade to PFAB)	HDW01756
Hex Head Cap Screw, 5/16"-18x1" GR5 YZN (Blade Guide to Blade)	HDW01713
Hex Head Cap Screw, 5/16"-18x2" GR5 YZN (Manifold to Adapter)	HDW07747
Hex Head Cap Screw, 3/4"-8x3" GR5 YZN (Pushframe to Adapter)	HDW05626
Hex Head Cap Screw, 1/4"-20x3/8" GR5 ZN (Hose Clamp to Adapter)	HDW05630

Pins, Nuts, Washers, and other Hardware

Hairpin Cotter #16	HDW05544
Nut, Nylon Lock, 3/4"-10 GR5 YZN	HDW03037
Nut, Top Lock, 3/4"-10 GRB YZN	HDW01716
Nut, Locking, 1"-8 GR5 YZN	HDW05627
Nut, Locking, 5/8"-11 GR5 YZN	HDW05619
Nut, Locking, 5/16"-18 GR5 YZN	HDW01714
Nut, Jam, 3/4" - 10 GR5 YZN	HDW05617
T-Lever Pivot Pin Kit	TRP07876
Includes: (1) Clevis Pin, 3/4" - 3"	
(1) Washer, 3/4" Flat YZN	
(1) Cotter Pin, 1/8" - 1-1/2"	
Clamp, Hose, 3/4" SD w/1/4" hole	MSC05631
Fitting, Grease, 3/8" Barbed	HDW05629
Washer, 3"OD X 13/16"ID X 3/8"	VHD08992
Bushing, 1"OD X 3/4" ID X 13/16"	VHD08998

Optional Equipment

Rubber Snow Deflector (all models)	MSC01565
Curb Guard Kit, LH (Driver's side) (Straight Blade Skid Steer only)	STB03395
Curb Guard Kit, RH (Passenger Side) (Straight Blade Skid Steer only)	STB03394
Paint, Black, Touch Up	MSC04036

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

(2006-2007)

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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