

A DIV. OF NORTHERN STAR INDUSTRIES, INC.  
P.O. BOX 788 IRON MOUNTAIN, MICHIGAN 49801

# SKID STEER COMBO PLOW

## INSTALLATION & OWNER'S MANUAL

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

6,035,944  
6,108,946

## **Safety Precautions**

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**Note:** 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.

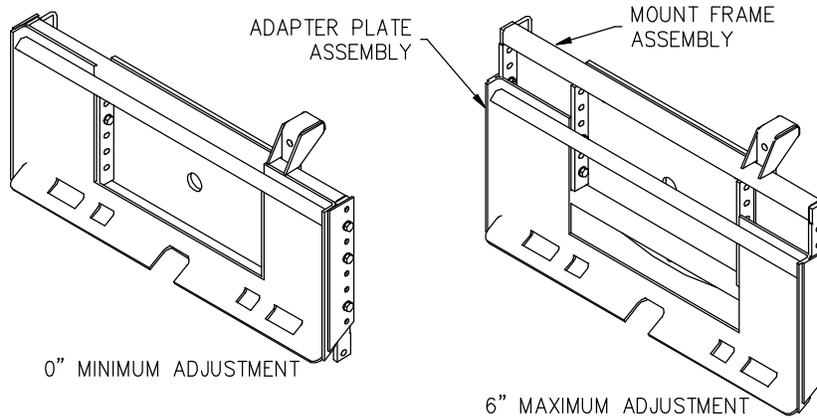
- 1) Do not attempt to start the skid steer engine while standing beside the skid steer. Always start the engine while sitting in the operator's seat.
- 2) Always stop the engine when leaving the skid steer.
- 3) Do not allow anyone but the operator to ride on the skid steer.
- 4) Do not perform any maintenance or make any adjustments while the skid steer is in motion, the engine is running, or the plow is raised.
- 5) Do not attempt to repair or tighten hydraulic hoses when under pressure, when the engine is running, or when the plow is raised.
- 6) Do not dismount from the skid steer and leave the plow raised.
- 7) Do not get under the plow when it is raised.
- 8) When parking, assure that the plow is fully lowered and the parking brake is set.
- 9) Exercise extreme caution when operating the skid steer with the plow on the sides of a hill.
- 10) 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.
- 11) When transporting the plow, keep it as close to the ground as possible without touching and put the wings back in the vee position.
- 12) Wear eye protection when operating the plow. Debris may be thrown back toward the operator.
- 13) Do not use tilt locking pin with power tilt option.
- 14) Your skid steer should have a relief valve installed in one of the working ports. This will allow an extended cylinder to collapse when an impact causes excessive pressure in the cylinder's base end.

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.

## Skid Steer Combo Plow Assembly

**Note:** The T-frame, T-center, 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.

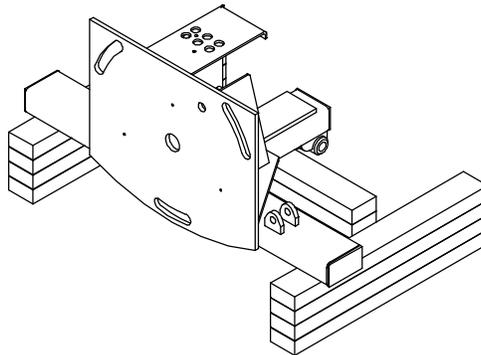
- 1) Unpack
  - a) Remove the blades and cutting edges from the blade crate.
  - b) Remove the T-frame, T-center, rear mount, bags and other parts from the plow box and organize their contents by referencing the packing list.
- 2) Assemble rear mount



**Figure 1**

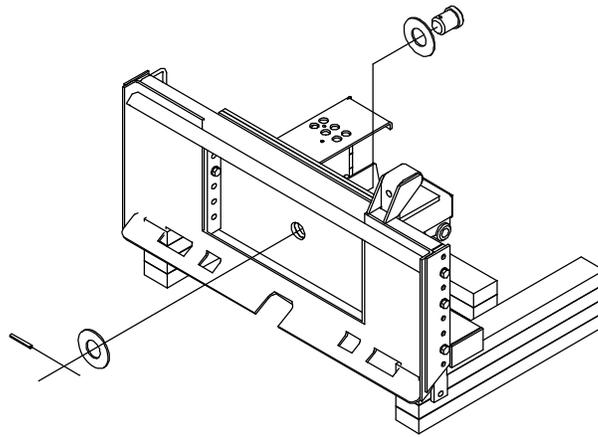
**Note:** The rear mount is adjustable from 0" to 6" in 2" increments (see Fig. 1). This is to provide flexibility for installation on different types of vehicles. The preferred height adjustment is 0" but vehicles with an enclosed cab may require a greater offset so that the vehicle's arms can be completely lowered.

- a) Assemble the adapter plate assembly to the mount frame assembly using the  $\frac{1}{2}$  x  $1 \frac{1}{2}$ " bolts,  $\frac{1}{2}$ " nuts and  $\frac{1}{2}$ " washers provided.
- 3) Assemble T-frame to rear mount.



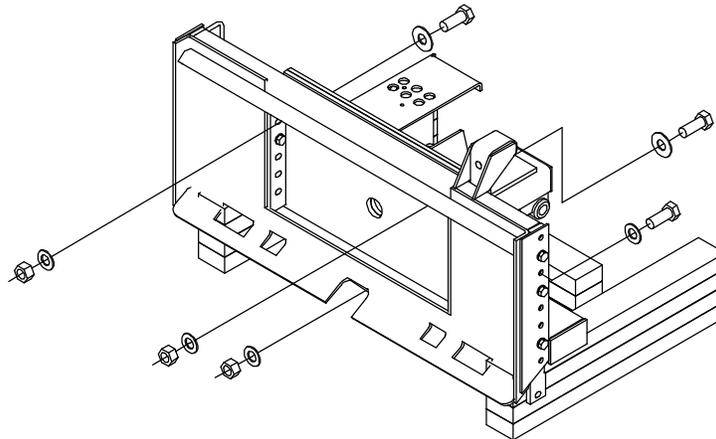
**Figure 2**

- a) Support the rear of the T-frame with blocks so that the T-frame is level. The blocks must be sturdy and stable because they will also be supporting the rear mount when this step is complete.



**Figure 3**

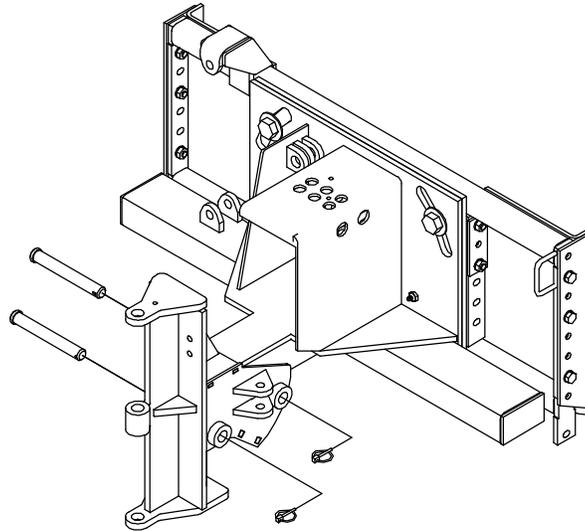
- b) Put a 4"OD washer on the clevis pin, and slide the clevis pin through from front to back.
- c) Lift the rear mount onto the clevis pin and slide it into contact with the T-frame.
- d) Put another 4" OD washer on the backside and secure it with the 3" roll pin.



**Figure 4**

- e) Raise one side of the rear mount until the hole in the rear mount is aligned with the slot of the T-frame plate. Insert a 1"-8 x 2-1/2" long bolt through a 2-1/2" OD washer, through the slot of the T-frame plate, and through the hole in the rear mount.
- f) Put a 2"OD washer and a 1"-8 locknut on the bolt and hand-tighten the nut.
- g) Repeat steps "e" and "f" for the other hole near the top of the plate.
- h) Repeat steps "e" and "f" with a 2" OD washer on the front (instead of a 2 1/2"OD washer) for the hole near the bottom of the plate.
- i) Torque all three nuts to 30 ft-lbs. The plates should be snug but able to turn against each other. Do not over-tighten because the power tilt or float will be impaired.

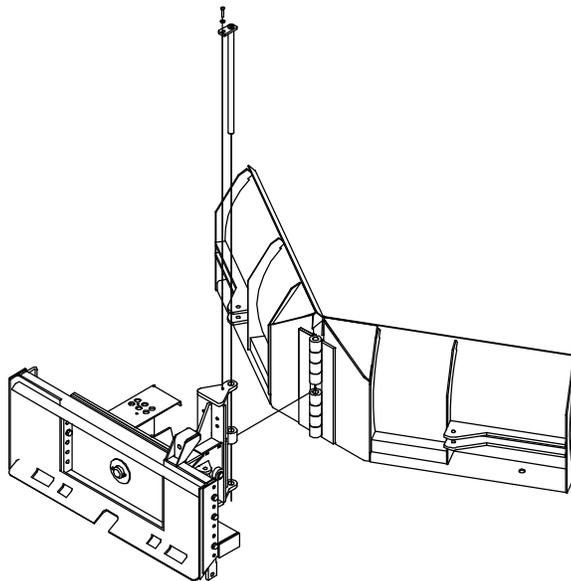
4) Assemble T-center to T-frame



**Figure 5**

- a) Position the T-center pivot bushings in line with the T-frame pivot bushing. Connect the two with a horizontal pin and secure with a 1/4" quick pin.
- a) Rotate the T-center to meet the T-frame stop plate and insert a horizontal pin. Secure the pin with a 1/4" quick pin. Locking out the trip function of the plow during assembly will prevent accidental rotation of the T-center and possible injury.

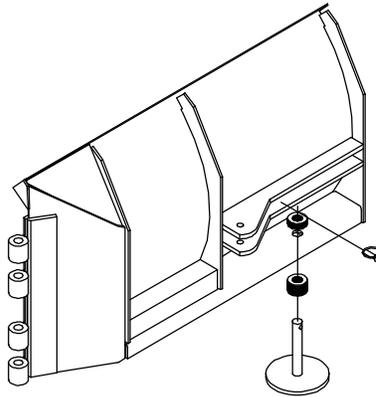
5) Attach Blades to T-frame



**Figure 6**

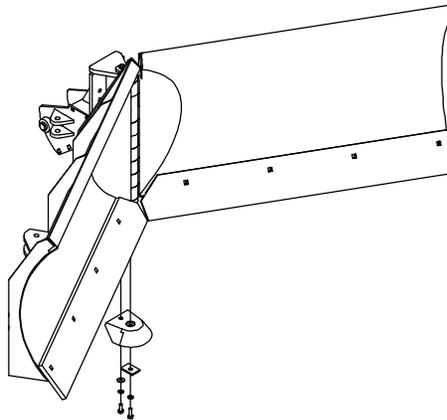
- a) Remove the grease fitting from the center hinge pin.
- b) Stand the right and left blade assemblies on their cutting edges oriented as they will be mounted.
- c) Raise the front of the T-frame assembly using some mechanical means (e.g. a floor jack) so that the top of the bottom plate is just beneath the bottom bushing on the right blade assembly.

- d) Slide the right blade assembly onto the T-frame until the holes are lined up.
- e) Slide the left blade assembly on top of the right blade assembly, again being careful to align the holes.
- f) Being sure that the holes are aligned, drive the center hinge pin through the bushings. If the bushings are properly aligned, it won't take much effort to position the pin. A block of wood or a brass pin should be placed over the hinge pin when pounding to protect the internal threads for the grease fitting.
- g) Secure the pin with a 3/8" lock washer and 3/8" x 3/4" hex head cap screw.
- h) Replace the grease fitting onto the center hinge pin.



**Figure 7**

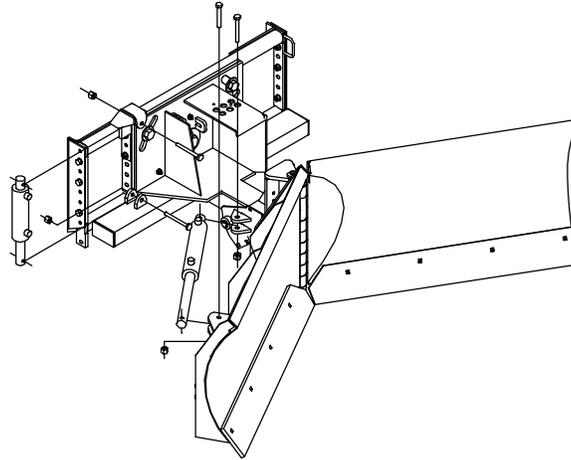
- i) Mount the adjustable blade shoe assemblies on each blade assembly. Use the 1" flat washers to achieve the desired blade height relative to the cutting edges, and secure with the quick pins.
- j) Mount the adjustable center shoe assembly onto the center hinge assembly. Use the 1" flat washers to achieve the desired height relative to the cutting edges, and secure with a quick pin.



**Figure 8**

- k) Mount snow catcher to the center hinge pin using the snow catcher mounting plate, 3/8" lock washer, and 3/8"-16 x 1 1/4" hex head cap screw. Line up the rear hole in the snow catcher with the threaded hole in the bottom plate of the T-center assembly and attach using the 3/8"-16 x 3/4" spin-lock head screw and 3/8" flat washer provided.

## 6) Mount Cylinders



**Figure 9**

- a) Position the base end of the angle cylinders into the T-frame mount, and fasten securely with a 5/8" x 4" hex head bolt and self-locking nut.
- b) Position the rod end of the angle cylinders into the blade assemblies, and fasten securely with a 5/8" x 4" hex head bolt and self-locking nut.

## 7) Install Optional Tilt Package

- a) Position the base end of the tilt cylinder in the upper tilt cylinder bracket, and fasten securely with a 5/8" x 5" hex head bolt and self-locking nut.
- b) Position the rod end of the tilt cylinder into the lower tilt cylinder bracket, and fasten securely with a 5/8" x 3 1/2" hex head bolt and self-locking nut.
- c) The hydraulic manifold should already be installed underneath the cover. Remove it.
- d) Remove the three hex head o-ring plugs.
- e) Install a .035" orifice, valve spool, and solenoid into the spool cavity. Tighten the cartridge to 30-40 ft-lbs of torque and the coil nut to 4-6 ft-lbs of torque.
- f) Replace the manifold.

## 8) Install trip springs

- a) Hook one end of the spring through an anchor on the swivel plate and the other end through a u-bolt on the T-center.
- b) Tightening the nuts on the u-bolt will increase the tension in the spring.

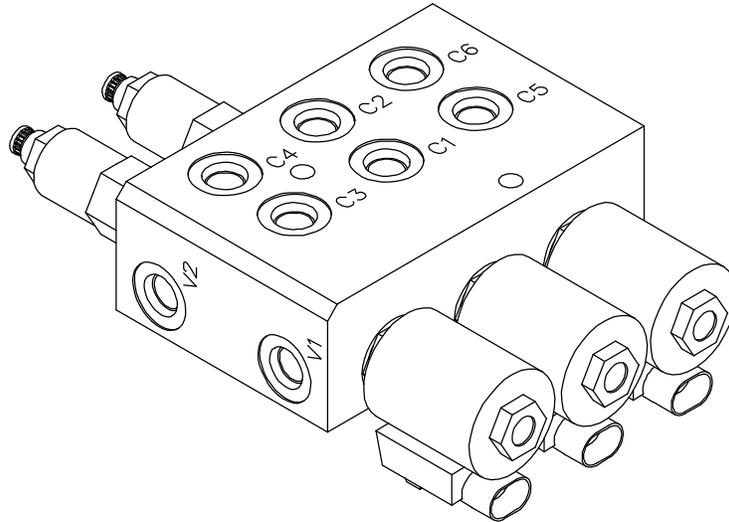


Figure 10

**Note:** All of the cylinder and manifold fittings use o-rings to provide a reliable seal. The quick disconnects use pipe thread. Use a paste type sealer on the pipe threads. Do not use Teflon tape. Do not over-tighten the fittings. The fittings merely need to be tight enough to prevent leaks. Refer to Figure 10 for steps a through h.

- a) Connect the 90°-swivel end of a 43" hose to C1 on the manifold and to the rod end of the right cylinder.
- b) Connect the 90°-swivel end of a 43" hose to C3 on the manifold and to the rod end of the left cylinder.
- c) Connect the 90°-swivel end of a 27" hose to C2 on the manifold and to the base end of the right cylinder.
- d) Connect the 90°-swivel end of a 27" hose to C4 on the manifold and to the base end of the left cylinder.
- e) If you are not using the power tilt option, clamp the 43" hose that is attached to the rod end of the right cylinder to the top plate on the T-Frame. Use the cushioned hose clamp and self-tapping screw as shown in Figure 11. A pilot hole is provided in the top plate for the self-tapping screw.

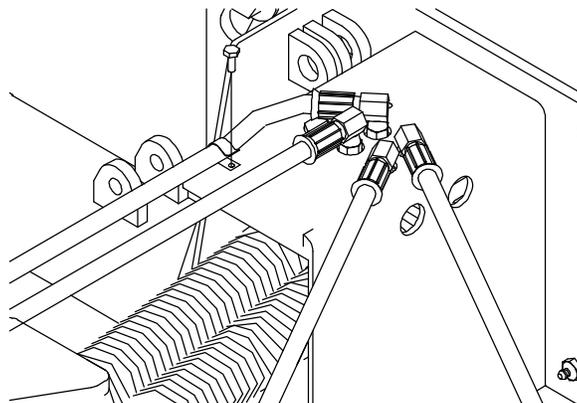
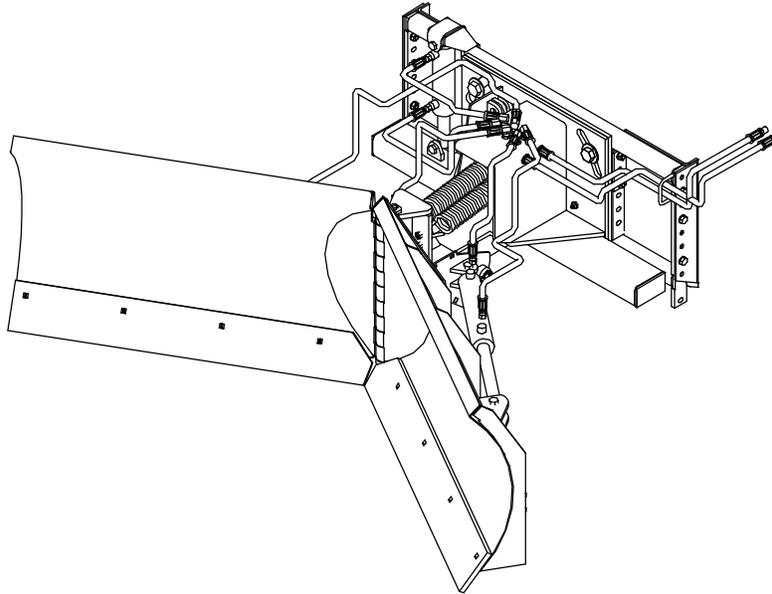


Figure 11

**Note:** Steps f and g apply only to plows with power tilt option. O-ring plugs should be left in ports C5 and C6 if power tilt is not used.



**Figure 12**

- f) Connect the 90°-swivel end of a 27" hose to C5 on the manifold and to the base end of the tilt cylinder. Run this hose over the 43" hose that is attached to the rod end of the right cylinder.
- g) Connect the 90°-swivel end of a 27" hose to C6 on the manifold and to the rod end of the tilt cylinder.
- h) Connect 60" hoses to both of the side ports on the manifold, V1 and V2.
- i) Attach the quick disconnects (not supplied) to the 3/8" Male NPT coupling at the end of the 60" hoses. The V2 port on the manifold should be connected to the working port on the skid steer that has a relief valve installed.

## Connect Electrical – Power

- a) Mount the control box (Ref. 1, Fig. 15) within the vehicle cab. The most appropriate location for the control will depend on the vehicle, personal preference, and intended use. In general, be aware of the swing of the seat crash bar and the travel of the vehicle's arms and tilt of the tool holder. Assure that there are no interferences, and that the cable won't be damaged during operation. Enough cable is provided to run it out of the cab and along the arm. Be sure to leave enough slack in the cable at the arm's pivot point. For normal operation, this is the most desirable arrangement, however, be careful when tilting the cab during maintenance procedures to avoid damaging the cable or connections. Tie-wraps are provided so that the slack cable can be kept out of the way.
- b) Locate the intermediate connector (Ref. 2, Fig. 15) by the vehicle's hydraulic disconnects.
- c) Various terminals, a fuse holder and fuse are included for making the power connection (See Fig. 14). The red power wire must be fused to protect the wiring in the event of a short or overload. Never use fuses larger than 20 AMP's. If a fuse blows, this indicates a problem. Check for a wiring error or damaged wiring before replacing the fuse.
- d) Before installation, check that your electrical system is 12 volts, negative ground. Damage resulting from improper voltage or ground polarity could be extensive and is not covered under the warranty.
- e) The black power wire is connected to ground. This connection is usually made to the frame of the vehicle using a ring terminal under a bolt or screw. Scrape the paint off the contact surface, metal to metal contact is needed to insure a proper ground. The engine block or battery ground terminal are also good locations for a ground connection.
- f) The red power wire connects to the 12-volt power supply. This connection should be made in a location that is controlled by the ignition key to prevent the battery from being drained in the event the switch is left on. Look on the fuse panel for a terminal marked IGN or use a test light to find a fuse that has power only when the key is on. Connect the red wire to the IGN terminal or use one of the fuse tap terminals (See Fig. 14) to connect to the hot end of a fuse that is controlled by the ignition key. This should be a 20 AMP or larger fuse. Remove the fuse and use the test light to determine which end of the fuse holder is hot with the fuse removed and connect to this end. Use a female blade terminal on the end of the red wire to connect to the fuse tab. Another way to obtain power is to use the "half-tap" connector (this looks like a half of an in-line fuse holder shown in Figure 14), which snaps around a hot wire. Use a male blade terminal on the red wire to connect to the "half-tap".
- g) After making the power connection, cut the red wire a short distance from the power connection and reconnect the ends together using the fuse holder. Insert the two ends of the wire into the fuse holder snapping it closed, and then insert the fuse.

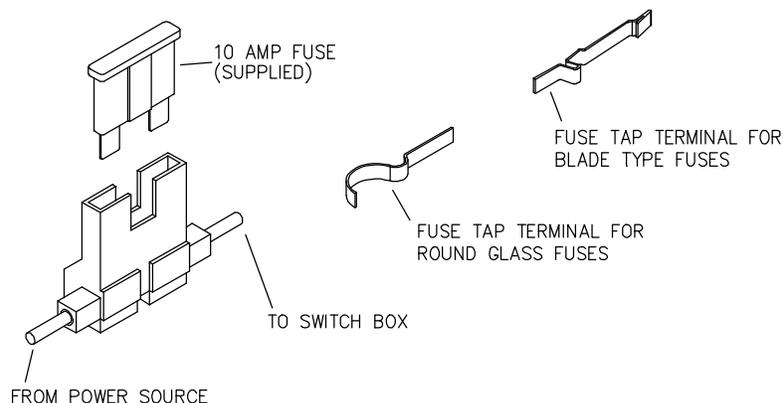


Figure 13

## Connect Electrical – Control

- a) Snap the male connectors (Ref. 3, Fig. 15) at the end of the control box wiring harness into the female connectors located on the manifold solenoids. The wires on the male connectors are color-coded and should be connected to the corresponding female connector (as shown in Figure 18). Depending on how you've mounted the control box (Ref. 1, Fig. 15) and how you make the connections, you may want to adjust these connections after testing them. In order from left to right, the toggle switches usually correspond to left wing, tilt, and right wing.
- b) Use the tie wraps to fix the wire in place. The wire should be secured so that the leads going into the connector are protected from accidental tightening of the wire harness. Enough wire is provided to allow the plow to be tilted or to float fully in both directions. Be sure to consider this before cutting the wire and installing the intermediate connector (Ref. 2, Fig. 15).

ITEM NO.	QUANTITY	PART NO.	DESCRIPTION
1	1	VHD06947	CONTROL BOX
2	1	VHD06948	INTERMEDIATE CONNECTOR
3	3	VHD06949	MALE SOLENOID CONNECTORS
FIG. 14	1	VHD06946	CONTROL KIT

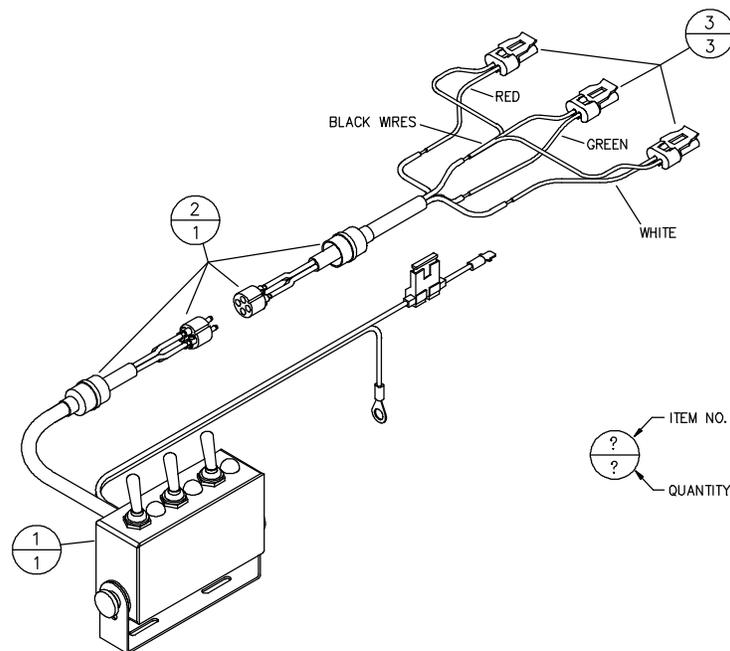
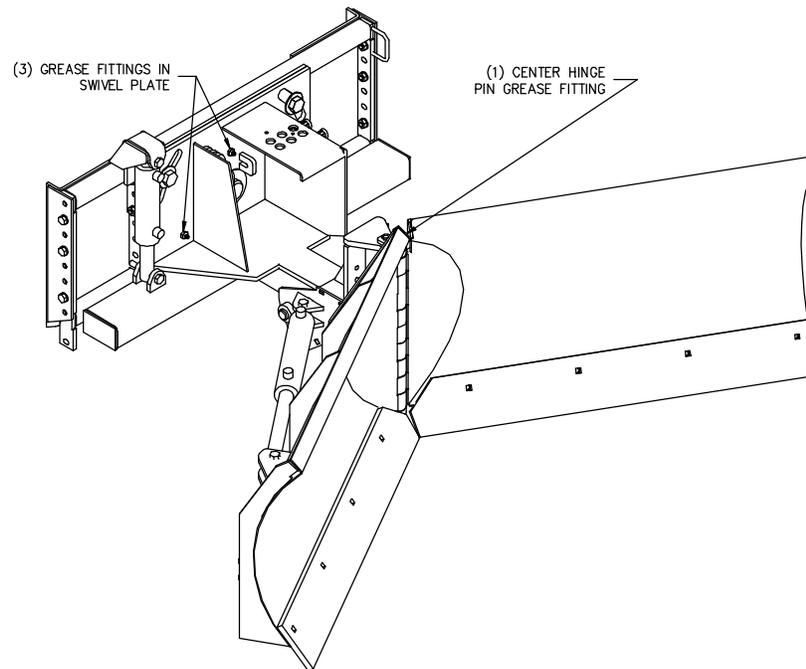


Figure 14

## Before Operating

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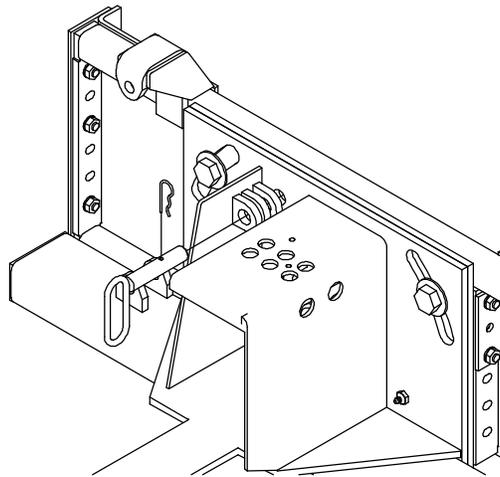
### 1) Lubrication



**Figure 15**

- a) Apply grease to the fitting at the top of the center hinge pin. The grease must travel all of the way to the bottom of the pin to be completely effective. Be sure that you continue to add grease until you see it escaping near the bottom bushing.
  - b) Apply grease to the three fittings on the T-Frame back plate. Be sure to add grease until you can see it begin to seep out of the seam between the two plates.
- 2) Attach the plow using the procedure recommended by your skid steer owner's manual.
  - 3) Connect the hydraulic quick disconnects.

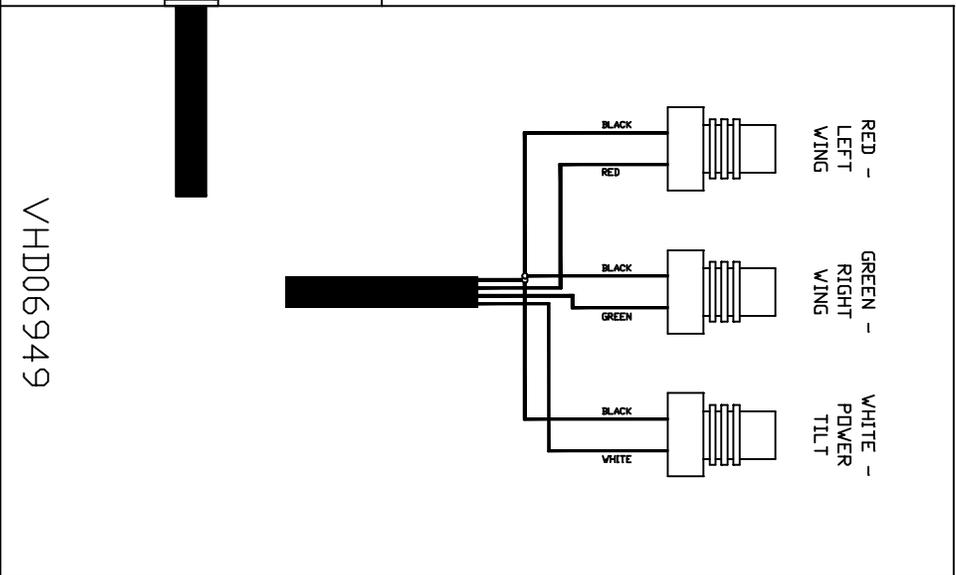
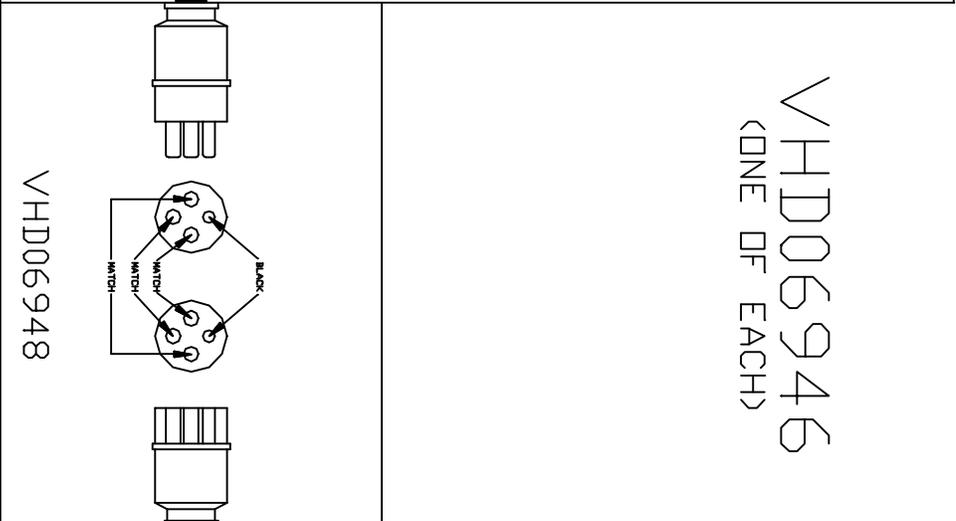
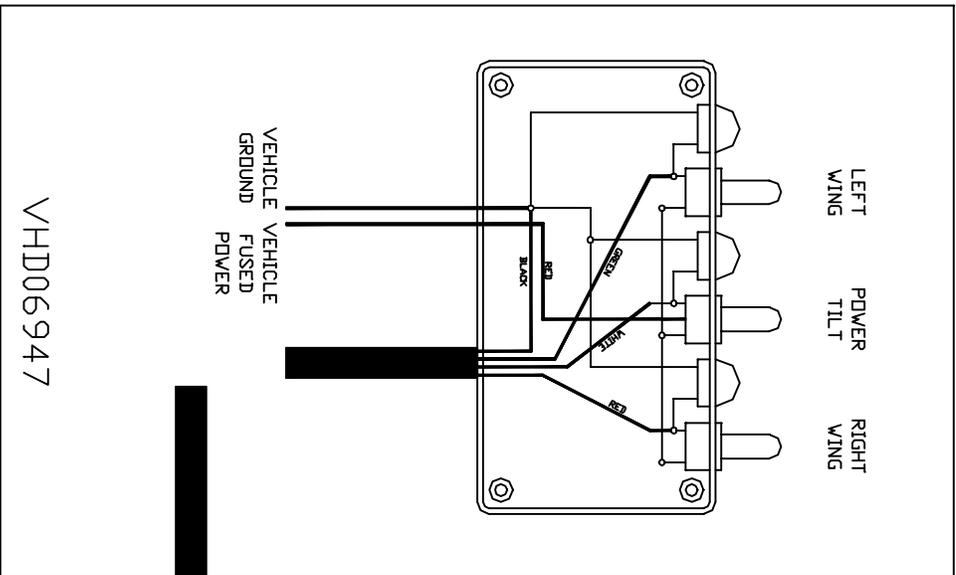
#### 4) Tilt Lock



**Figure 16**

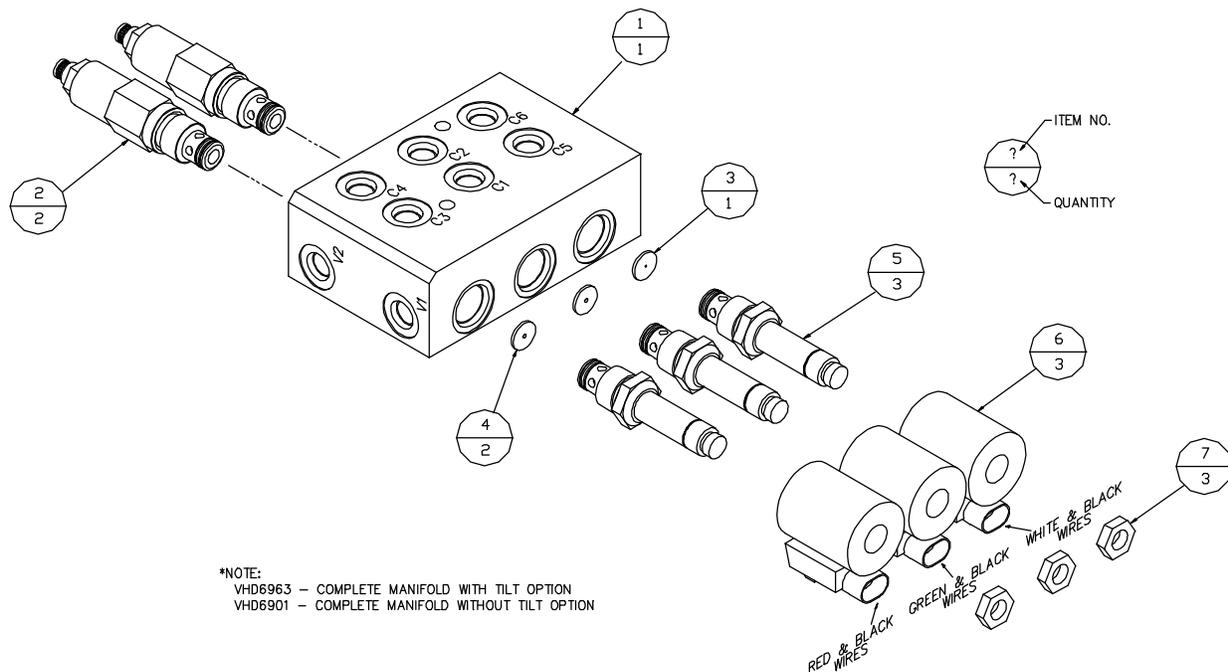
- a) The coupler spring pin is provided to lock out the tilt action on plows without the power tilt option. When plowing snow, the free-floating tilt action of the plow is desirable. However, certain applications may require the plow to be locked into a horizontal position. Also, locking out the tilt during plow assembly or service will prevent accidental rotation of the plow or rear mount.
- b) To lock out the tilt, insert the coupler spring pin through the 3 ears on the T-Frame until it fully engages the swivel plate on the rear mount. Lock the pin in place with the #9 hairpin cotter provided. The hairpin should be between the 2 rear-most ears on the T-Frame. To unlock the tilt, remove the hairpin and pull out the coupler spring pin until its hole is visible between the 2 front-most ears on the T-Frame. Replace the hairpin.

# SKID STEER CONTROL SYSTEM DIAGRAM



**Skid Steer Combo Plow Valve Manifold**

ITEM NO.	QUANTITY	PART NO.	DESCRIPTION
1	1	*	MANIFOLD BLOCK
2	2	VHD06995	RELIEF VALVE
3	1	VHD06996	ORIFICE DISK WITH .035" DIA. HOLE
4	2	VHD06997	ORIFICE DISK WITH .086" DIA. HOLE
5	3	VHD06994	VALVE SPOOL
6	3	VHD06993	SOLENOID WITH DELPHI CONNECTOR
7	3	NA	1/2 - 20 UNF NUT



**Figure 17**

**Skid Steer Combo Plow Parts List**

REF. NO.	PART NO.	DESCRIPTION
1	VHD06700	7' 6" SKID STEER RIGHT BLADE ASSEMBLY
1	VHD06613	5' 5" SKID STEER RIGHT BLADE ASSEMBLY
2	VHD06600	7' 6" SKID STEER LEFT BLADE ASSEMBLY
2	VHD06612	5' 5" SKID STEER LEFT BLADE ASSEMBLY
3	VHD06110	COMBO T-CENTER ASSEMBLY

4	VHD06980	COMBO T-FRAME ADAPTER ASSEMBLY
5	VHD06870	MOUNT FRAME ASSEMBLY
6	VHD06661	CUTTING EDGE 5/8" x 6" FOR 7'-6" BLADE
6	VHD06662	CUTTING EDGE 5/8" x 6" FOR 5'-5" BLADE
7	VHD06128	CARRIAGE BOLTS WITH NUTS (SET OF 10)
8	VHD06963	HYDRAULIC MANIFOLD WITH TILT CARTRIDGE
8	VHD06901	HYDRAULIC MANIFOLD NO TILT CARTRIDGE
9	VHD06966	5/16" x 2 3/4" HEX HEAD BOLT
10	VHD06967	5/16" FLAT WASHER
11	VHD06139	5/16" NYLON SELF LOCKING NUT
12	VHD06502	CENTER HINGE PIN
13	VHD06992	3/8" x 3/4" HEX HEAD CAP SCREW
14	VHD01718	3/8" LOCK WASHER
15	VHD06511	1/8" NPT GREASE FITTING
16	VHD06111	TRIP SPRING
17	VHD06112	1/2" SST U-BOLT
18	VHD06125	1/2" NYLON LOCK NUT
21	VHD06953	HORIZONTAL PIN
22	VHD06148	1/4" QUICK PIN
23	VHD06814	CLEVIS PIN
24	VHD07232	CLEVIS PIN WASHER
25	VHD06510	3/8" x 3" LONG ROLL PIN
26-27-20	VHD06149	PLOW SHOE (1" SHAFT) (20) 1" FLAT WASHERS 7/16" QUICK PIN
28-27-20	VHD06150	CAST IRON PLOW SHOE (1" SHAFT) (20) 1" FLAT WASHERS 7/16" QUICK PIN
29	VHD06507	1" x 2 1/2" HEX HEAD BOLT
30	VHD06509	1"ID x 2"OD FLAT WASHER
31	VHD06822	1"ID x 2 1/2"OD FLAT WASHER
32	VHD06508	1" OVAL TOP LOCK NUT
33	VHD06130	5/8" x 4" HEX HEAD BOLT
34	VHD06133	5/8" SELF LOCKING NUT
35	VHD06153	5/8" x 5" HEX HEAD BOLT
36	VHD06902	2 1/4" x 10" DOUBLE ACTING CYLINDER
37	VHD06962	2 1/4" x 6 1/4" DOUBLE ACTING CYLINDER
38	VHD06998	06RC x 06RC90 3/8" x 27" HOSE
39	VHD06906	06RC x 06RC90 3/8" x 43" HOSE
40	VHD06905	06RC x 08MP 3/8" x 60" HOSE
--	VHD06946	CONTROL KIT
--	VHD06947	CONTROL BOX
--	VHD06948	INTERMEDIATE CONNECTOR
--	VHD06949	SOLENOID CONNECTOR
41	VHD06152	SNOW CATCHER
42	VHD06141	3/8 - 16 x 1" HEX HEAD CAP SCREW
43	VHD06144	3/8" FLAT WASHER
44	VHD06146	3/8 - 16 x 1 1/4" HEX HEAD CAP SCREW
45	VHD06151	SNOW CATCHER MOUNTING PLATE
46	VHD06869	ADAPTER PLATE ASSEMBLY
47	VHD06143	1/2 - 13 x 1 1/2" HEX HEAD BOLT
48	VHD06147	1/2" FLAT WASHER
49	VHD06145	1/2" -13 SELF LOCKING NUT
50	VHD06142	3/8" LOCK WASHER
51	VHD06129	COUPLER SPRING PIN
52	VHD06512	#9 HAIRPIN COTTER
53	VHD06154	HOSE CLAMP, 5/8" W/RUBBER CUSHION
54	VHD06155	SELF TAPPING SCREW, 1/4" - 20 x 3/4"

Skid Steer Combo Plow Assembly Drawing

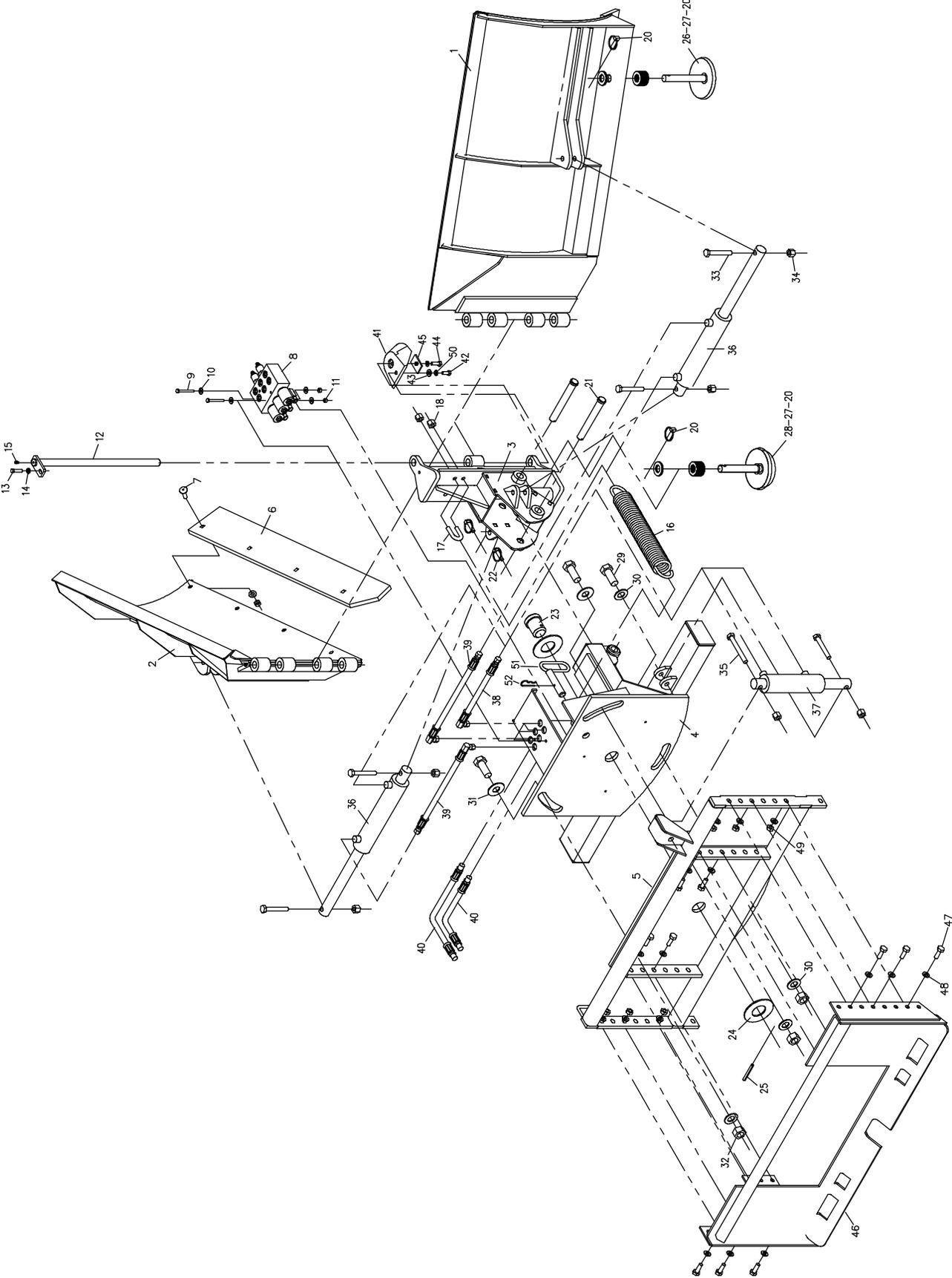


Figure 17

## Operation

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Refer to the owner's manual supplied by your skid steer manufacturer for instructions on how to operate the vehicle's auxiliary hydraulics. In general, the auxiliary hydraulics should be on but not locked. The skid steer controls can then be used to intermittently control the presence and direction of the flow. The supplied toggle-switch control selects the circuit within the plow through which the oil will pass.

- 1) To actuate one of the plow cylinders, simply move its toggle switch on the control box until the indicator light comes on.
- 2) That cylinder can now be extended or retracted by using your vehicle's auxiliary hydraulics control as described in your vehicle owner's manual.
- 3) **Plowing Tips**  
The following table illustrates the preferred toggle switch settings for various plowing situations.

<b>LEFT WING</b>	<b>TILT</b>	<b>RIGHT WING</b>	<b>OPERATION</b>	<b>SUGGESTED USE</b>
ON	OFF	OFF	MOVE LEFT WING ONLY	USE FOR PLOWING
NA	ON	NA	TILT BLADE	USE FOR PLOWING
OFF	OFF	ON	MOVE RIGHT WING ONLY	USE FOR PLOWING
ON	OFF	ON	MOVE BOTH WINGS IN THE SAME DIRECTION	NOT RECOMMENDED FOR PLOWING UNLESS IN EITHER THE SCOOP OR VEE POSITION

When tilting the plow, neither of the wing circuits should be active. Therefore, those circuits are disabled when the tilt circuit is activated. If plowing is performed with more than one circuit active, the plowing force may cause a cylinder to retract, and the displaced oil will cause another cylinder to extend. This inadvertent cylinder movement will not occur if the plow is in either the scoop or vee positions. In addition, it won't occur if only one circuit is active.

The power tilt is primarily intended for light grading operations. When plowing snow, the free-floating action of the plow without the tilt cylinder is more desirable. To achieve this it is recommended that the tilt circuit be removed completely and the manifold ports be plugged.

### **CAUTION**

**Exercise caution when tilting the skid steer tool carrier. The plow supply hoses and electrical wire are sufficiently long for any plowing configuration, but they may be damaged if the tool carrier is moved to an extreme forward tilt position.**

## Maintenance and Repair

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- 1) The grease fittings should be lubricated frequently, especially when working in dirt.
- 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.

# 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:** One year from the date of purchase.

**Labor:** One year 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.

BOSS PRODUCTS is a division of

Northern Star Industries, Inc.  
PO Box 788  
North U.S. Hwy 2  
Iron Mountain, MI 49801

# **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:** One year from the date of purchase.

**Labor:** One year 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 788  
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