



SNOW PLOW SET UP AND INSTALLATION INSTRUCTIONS

HTV SERIES SNOW PLOW
FOR PLOW SERIAL NUMBERS AFTER
HTV200000
HTVG100000

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INTRODUCTION

This manual was written for the assembly, installation and set up of your new Sno-Way plow. Most importantly, this manual provides an operating plan for safe use. Refer to the Table of Contents for an outline of this manual.

Please keep this manual with your machine at all times as reference material and so it can be passed on to the next owner if the machine is sold.

We require that you read and understand the contents of this manual COMPLETELY, especially the chapter on SAFETY, before attempting any procedure contained in this manual.



The Society of Automotive Engineers has adopted this **SAFETY ALERT SYMBOL** to pinpoint characteristics that, if **NOT** carefully followed, can create a safety hazard. When you see this symbol in this manual or on the machine itself, **BE ALERT!**, your personal safety and the safety of others, is involved.

- Defined in the next column, are the SAFETY ALERT messages and how they will appear in this manual.



WARNING

FAILURE TO HEED CAN RESULT IN SERIOUS INJURY OR DEATH.



CAUTION

Information, that if not carefully followed, can cause minor injury or damage to equipment!

NOTE: Additional information concerning the equipment or the procedure that may or may not be contained elsewhere in this manual.

BE AWARE! It is illegal to remove, deface or otherwise alter the safety decals mounted on this equipment.

We reserve the right to make changes or improve the design or construction of any part(s) without incurring the obligation to install such parts or make any changes on any unit previously delivered.

REMEMBER after the snow plow is installed on the vehicle, the **Pre-Delivery Check List** and **Delivery Check List** (on the outside back cover of this manual)

TOOL LIST

Safety Goggles

Wrenches 3/8" - 15/16"

Impact Wrench

Wire Crimp Tool

Utility knife

12 Volt Test Light

Impact Sockets 3/8" - 15/16"

Two (2) 6" C-Clamps

Drill

Drill Bit 9/32", 5/16"



SAFETY



BEFORE ATTEMPTING ANY PROCEDURE IN THIS BOOK, READ AND UNDERSTAND ALL THE SAFETY INFORMATION CONTAINED IN THIS SECTION. IN ADDITION, ENSURE ALL INDIVIDUALS WORKING WITH YOU ARE ALSO FAMILIAR WITH THESE SAFETY PRECAUTIONS.

For your safety Warning and Information Decals have been placed on this product to remind the operator to take safety precautions. It is important that these decals are in place and are legible before operation begins. New decals can be obtained from Sno-Way or your local dealer.

REMEMBER The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of injury to operator or bystanders and/or damage to equipment.

NEVER operate plow when under the influence of alcohol, drugs or other medications that could hamper your judgement and reactions. An accident may result in serious injury or death to other persons or yourself.

ALWAYS operate vehicle in a well-ventilated area. The carbon monoxide in exhaust gas is highly toxic and can cause serious injury or death.

NEVER allow hands, hair or clothing to get near any moving parts such as fan blades, belts and pulleys. Never wear neckties or loose clothing when working on the vehicle.

NEVER wear wrist watches, rings or other jewelry when working on the vehicle or individual equipment. These things can catch on moving parts or cause an electrical short circuit that could result in serious personal injury.

ALWAYS wear safety goggles when working on the vehicle to protect your eyes from battery acid, gasoline, and dust or dirt from flying off of moving engine parts.

ALWAYS be aware of and avoid contact with hot surfaces such as engine, radiator, and hoses.

ALWAYS wear safety glasses with side shields when striking metal against metal! In addition, it is recommended that a softer (non-chipable) metal material be used to cushion the blow. Failure to heed could result in serious injury to the eye(s) or other parts of the body.

NEVER allow children or unauthorized person to operate this unit.

NEVER exceed 45 m.p.h. when snow plow is attached to vehicle. Braking distances may be reduced and handling characteristics may be impaired at speeds above 45 m.p.h.

ALWAYS lock the vehicle when unattended to prevent unauthorized operation of the plow.

ALWAYS check the job site for terrain hazards, obstructions and people.

NEVER exceed 10 m.p.h. when plowing. Excessive speed may cause serious injury and damage of equipment and property if an unseen obstacle is encountered while plowing.

ALWAYS position blade so it does not block path of headlamps beam. Do not change blade positions while traveling. An incorrect plow position blocking headlamp beam may result in an accident.

ALWAYS check surrounding area for hazardous obstacles before operating this unit.

ALWAYS inspect the unit periodically for defects. Parts that are broken, missing or plainly worn must be replaced immediately. The unit, or any part of it should not be altered without prior written approval of the manufacturer.

ALWAYS insert the cylinder lock when plow is not in use. If the cylinder lock is not installed, the plow blade could inadvertently drop and cause serious injury.

ALWAYS shut off the vehicle engine, place the transmission in Neutral or Park, turn the ignition switch to the "OFF" position, firmly apply the parking brake of the vehicle and turn "OFF" the plow controller before attaching or detaching the blade from the vehicle or when making adjustments to the blade.

ALWAYS inspect lift system bolts and pins whenever attaching or detaching the plow, and before traveling. Worn or damaged components could result in the plow dropping to the pavement while driving, causing an accident.

ALWAYS keep hands and feet clear of blade and A-Frame when attaching or detaching plow.

NEVER place fingers in A-frame or mount lug holes to check alignment when attaching snow plow. Sudden motion of the plow could severely injure a finger.

NEVER stand between the vehicle and blade or directly in front of blade when it is being raised, lowered or angled. Clearance between vehicle and blade decreases as blade is operated and serious injury or death can result from blade striking a body or dropping on hands or feet.

NEVER work on the vehicle without having a fully serviced fire extinguisher available. A 5 lb or larger CO² or dry chemical unit specified for gasoline, chemical or electrical fires, is recommended.

NEVER smoke while working on the vehicle. Gasoline and battery acid vapors are extremely flammable and explosive.

NEVER use your hands to search for hydraulic fluid leaks; escaping fluid under pressure can be invisible and can penetrate the skin and cause a serious injury! If any fluid is injected into the skin, see a doctor at once! Injected fluid **MUST BE** surgically removed by a doctor familiar with this type of injury or gangrene may result.

REMEMBER it is the owner's responsibility for communicating information on the safe use and proper maintenance of this machine.

INSTALLATION INSTRUCTIONS

General

Install the sub-frame on the vehicle using the instructions supplied with the sub-frame package.

Electrical Installation

1. Remove the power harness, power wire, circuit breaker and related hardware from the harness bag in the power pack carton.

NOTE: Take the extra time needed to plan the routing of the wiring harness before drilling any holes or fastening the harness or circuit breaker in place. Read all the instructions carefully to ensure all the required conditions are met for a safe and professional installation.

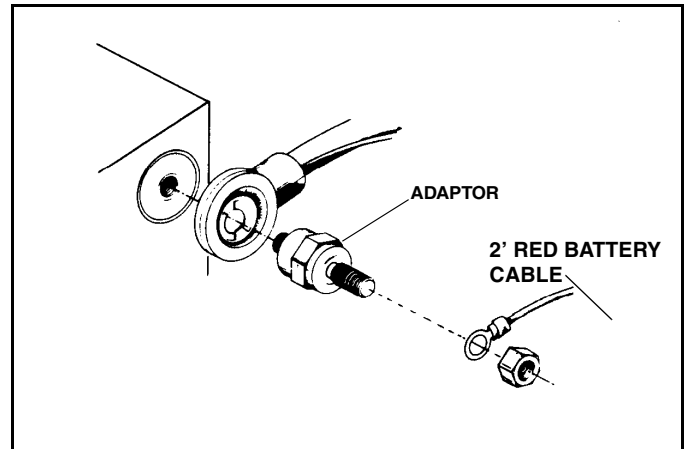


Figure 1-1

NOTE: If the vehicle has a 'side post' battery, it is recommended that adaptors be purchased to make connection at the battery easier. (See Figure 1-1) Adaptors can be purchased locally or are available from your Sno-Way dealer, Part #96100773.



WARNING

Disconnect the vehicle NEG. (-) battery cable while performing steps 2 and 3 to avoid serious bodily injury from electrical shock, fire or explosion. Do not re-connect the NEG. (-) battery cable until indicated in step 4

FAILURE TO HEED CAN RESULT IN SERIOUS INJURY OR DEATH.

2. Attach the 2ft. long power wire to the battery terminal of the circuit breaker and to the POS. (+) terminal of the battery. Attach the power harness red wire to the circuit breaker. Attach the power harness black wire to the NEG. (-) terminal of the battery. Be sure that all terminal connections are tightened properly and spray all terminal connections with a battery terminal protective coating.

IMPORTANT: The circuit breaker must be placed in a location that will not be subject to excessive heat. DO NOT locate the circuit breaker near the exhaust manifold. A preferred location is one that will receive good air flow from the radiator fan, but will be protected from excessive engine heat. Also, the circuit breaker should, if possible, be mounted with the base of the circuit breaker horizontal.

3. Mount the circuit breaker with two (2) #10 x 1" self-tapping screws.

4. Route the vehicle power harness down to the front of the vehicle in a position to allow connection later to the plow power harness (when the plow is mounted to the vehicle). Be sure that the harness routing does not interfere with, or contact, any moving parts in the engine compartment. In addition, proper routing will keep the harness clear of any areas subject to excessive heat. When the harness routing is satisfactory, fasten the harness in place using plastic tie straps.

5. At this time, remove the control package components from the control package and install the control system components using the instructions included with the package.

6. Install the light wiring in the vehicle using the instructions included with the lighting system.

7. Apply a small amount of dielectric grease to all electrical connectors.

Mechanical Installation

Wing Assembly

1. Remove the center blade assembly from shipping container.

2. Remove the cap screws from the hold down plates at the top of each of the two wing pivot shafts and then remove the pivot shafts from the center blade assembly. (See Figure 1-2)

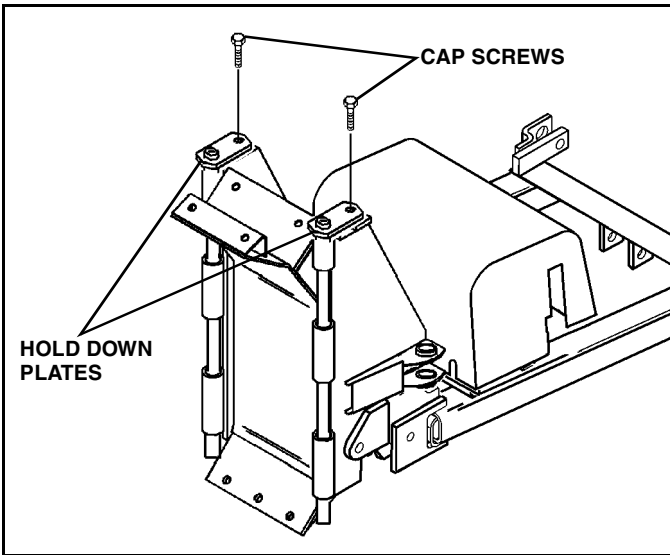


Figure 1-2

3. Swing the wing cylinders out to the side so they will be out of the way for installing the wings. (See Figure 1-3)

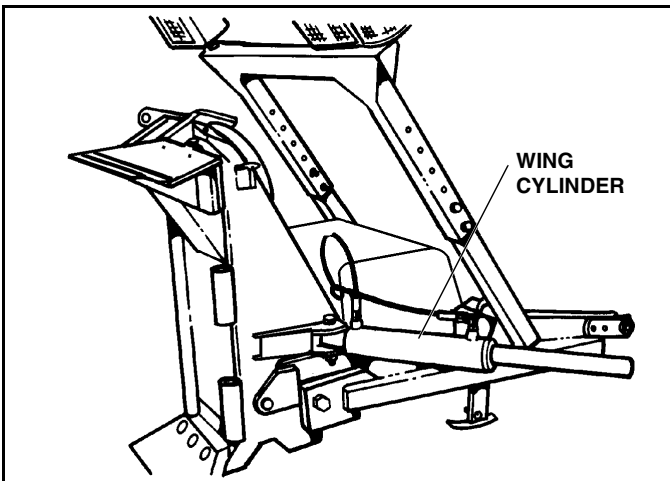



Figure 1-3



CAUTION

Wings weigh 125 lbs. Use proper lifting device and methods to lift and support wings during installation.

4. Place the right wing next to the right side of the center blade assembly and position it so that the hinge tubes on the center blade assembly and the hinge tubes on the wing assembly are lined up. Insert one wing pivot shaft down through the hinge tubes on the center blade and wing assemblies.



WARNING

Once wing pivot shafts are installed, wings are free to rotate and may create pinch points between wings and center blade assembly or floor. Remember, wings are heavy and will be hard to stop once they start moving.

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NOTE: Oiling the pivot shaft and pivot tubes will aid in shaft installation.

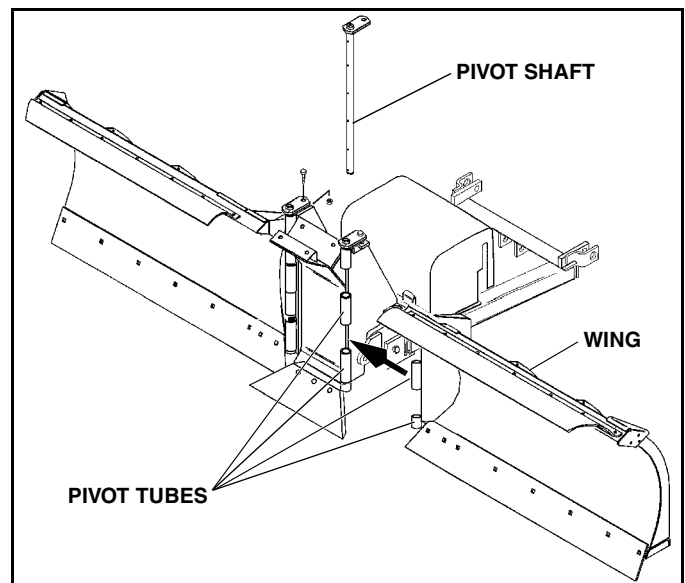


Figure 1-4

5. Repeat this procedure for the left wing assembly.

6. Line up the hole in the pivot shaft hold down plates and the retainer brackets on the center wing assembly. Do not re-install the cap screws and nuts at this time. This hardware will be re-installed after the center deflector is installed.

7. Lubricate both pivot shafts with a good quality EP lithium base grease.

NOTE: For extremely cold weather plowing, continuous sub zero operation, an alternative is to remove the grease fittings and fill the grease cavity with SAE 140 gear oil, and then replace the grease fitting.

8. Remove the 5/8" x 4" cap screw and locknut from the rod end of the two wing cylinders. Swing the rod end of the cylinders towards the wings until the hole in the rod end of the cylinder lines up with the holes in the cylinder mounting brackets on each wing. Secure with cap screw removed earlier and torque to 25-30 Lb-ft.

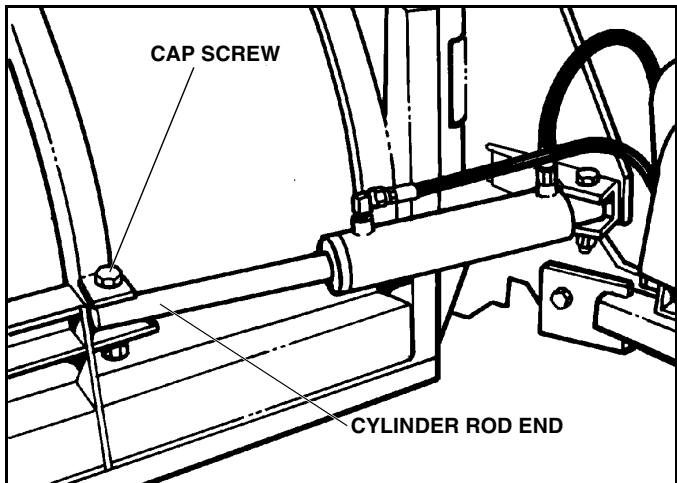


Figure 1-5

9. Center deflector mounting holes on top of plow blade.

NOTE: Install deflectors with beveled end of deflector at outer end of plow wing.

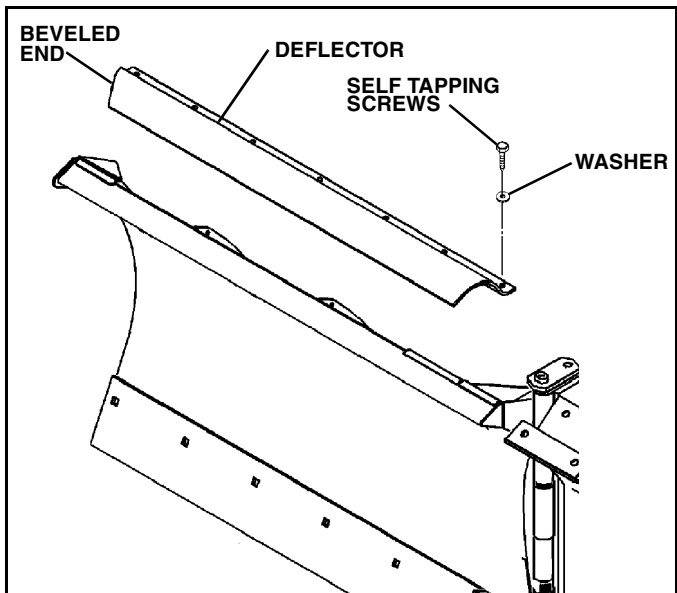


Figure 1-6

10. Use holes in deflector as template to center punch and drill 9/32" holes for self tapping screws.

NOTE: It is recommended that **LOCTITE®** or similar thread lock be used on these self tapping screws.

11. Install 5/16" X 1" self tapping screws (#98019176) and flat washers in every hole in deflector. Do not tighten until all screws are installed.

12. After all screws are installed, torque to 15 lb.-ft.

13. Remove the two (2) 5/16x2" cap screws, flat washers, and the two (2) spacers (#96102938) from the parts bag. Install the center deflector (shipped loose in the Power

Pack carton) using the two (2) spacers, 5/16x2" cap screws and flat washers removed earlier. Torque to 15 lb.-ft.

14. Install the 1/2" cap screws and nylock nuts, removed in step #2, into the holes in the pivot shaft hold down plates and the retainer brackets on the center wing assembly with a flat washer on top of the center deflector, and torque the nylock nut to 25-30 lb.-ft.

15. Install the light bar and lights at this time using the instructions included in the light and light mounting package.

16. Install blade guides (blade side markers) to holes in outside blade ribs, secure using hardware supplied with Blade Guide Kit. (See Figure 1-7)

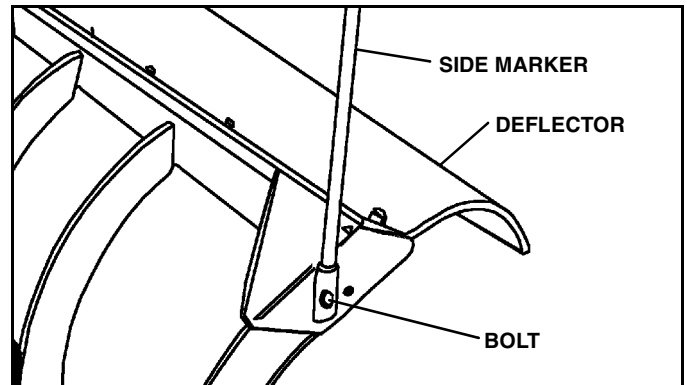
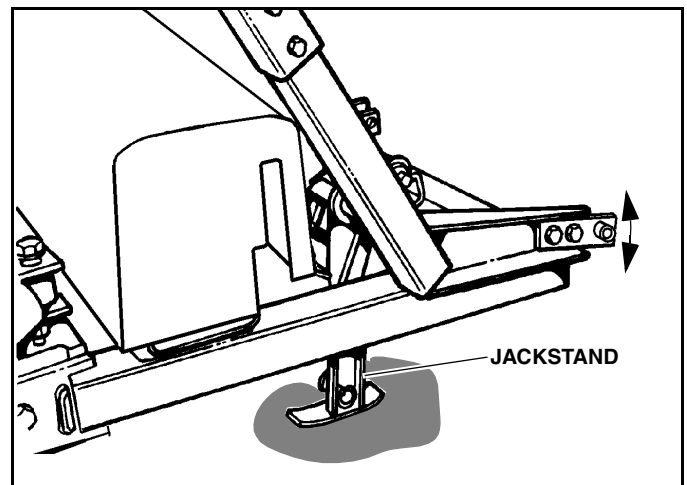


Figure 1-7

17. Pull the transport storage pin on the jackstand assembly and let the stand swing down. Lift the rear of the plow A-Frame assembly high enough to allow the jackstand to swing down until the base (foot) of the jackstand is flat on the ground.



Mounting Snow Plow To Vehicle

1. Plow must be on a level surface, supported by the jack stand. Drive truck towards plow and align lugs on plow to fit inside the lugs on each side of the truck sub-frame. Continue to pull forward towards plow until the plow lugs ride up into position on the sub-frame inserts located between the sub-frame lugs.



WARNING

Be sure all plow functions are OFF on ALL plow controls in the vehicle cab before making ANY electrical connections.

FAILURE TO HEED CAN RESULT IN SERIOUS INJURY OR DEATH.



WARNING

- **Ensure engine is OFF and set parking brake before mounting snow plow to vehicle. Vehicle movement, equipment failure, or inadvertent operation of the control switches during installation could result in serious injury.**

- **NEVER place fingers in A-frame or mount lug holes to check alignment. Sudden motion of the plow could severely injure a finger.**

FAILURE TO HEED CAN RESULT IN SERIOUS INJURY OR DEATH.

2. Remove the protective plastic covers from the snow plow and vehicle harnesses and store them inside the vehicle for installation when the plow is removed.



WARNING

The power cable on the front of the truck is wired directly to the battery. The power cable is always energized, even if the truck is turned off. Always replace the protective cap after disconnecting the plow power cable. Allowing an unprotected plug to contact metal parts of the truck may cause electrical component damage. Never use a metal object to clean the plug contacts.

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3. Connect the plow end of the power harness to the vehicle end of the power harness.

4. Remove the hand-held controller from the vehicle to use it near the plow while mounting the plow to the vehicle. Disconnect the hand-held controller from the harness at the connector inside the vehicle. Connect it to the connector at the end of the plow control harness. Turn the hand-held controller on after connecting it to the plow control harness.



WARNING

When using the hand-held controller to raise or lower the plow A-frame for mounting the plow to the vehicle, be especially careful of the movement of the light bar, if so equipped. This movement will occur when raising or lowering the A-frame on the jackstand.

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5. If needed, the hand-held controller can be used to raise or lower the A-frame to precisely align the pinholes. To raise the plow, press the 'UP' function on the controller. To lower the plow, turn on down pressure and press the 'LOWER' function. The 'UP' function must be pressed to stop the downward motion once it begins. To lower plows without down pressure, place the plow in float and push up on the light bar (Pulling down on the light bar raises the A-frame), or push down on the A-frame if no light bar is used.



WARNING

Pressing the blade angle functions will result in the A-frame swinging if it is not secured to the truck. Do not press the angle function during plow installation.

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6. Place the plow in float (turn off the down pressure) and insert the lower hitch pins on each side of the plow. Secure the hitch pins with lynch pins.



CAUTION

NEVER move the vehicle while plow electrical harnesses are connected and the plow is not fully attached to the vehicle.

NOTE: If the plow and vehicle are not level with each other, install one lower hitch pin and then, using the 'Raise' or 'Lower' switch on the hand-held controller, adjust the A-frame height to allow installation of the second lower hitch pin.

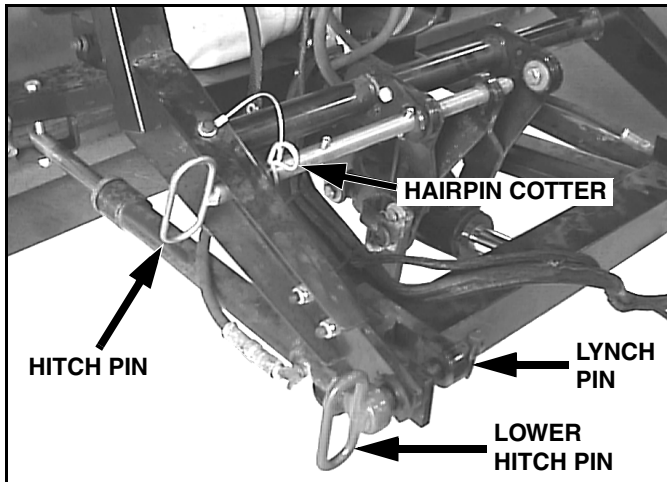


Figure 1-1

7. After the lower hitch pins and lynch pins have been installed, turn on the down pressure function (if the plow is equipped with down pressure hydraulics) and use the 'Lower' switch on the hand-held controller to raise the lift link and light bar. If the plow is not equipped with down pressure hydraulics, press the 'Lower' button to put the plow in float mode and raise the lift link and light bar manually. Raise the lift link and light bar until it contacts the nose piece.

8. Set the hand-held controller to float (turn off the down pressure). Slide the hitch pin through the mounting lugs. You may need to move the light bar back and forth to precisely align the holes. After installing the hitch pin, lock it in place by inserting the hairpin cotter into the hole in the hitch pin just to the inside of the left arm of the light bar.

9. Unlatch the jackstand from its lowered position and rotate the jackstand forward and upward, then latch it in transport position with the spring loaded pin.

IMPORTANT: The end of the spring-loaded latch pin fits into a short tube on the side of the bellcrank assembly. If the pin is not retained in this tube, the jackstand may become loose and fall down during plowing or transport.

10. Disconnect the hand-held controller from the plow control harness, and connect the plow control harness to the vehicle control harness. Re-connect the hand-held controller to the control harness, inside the vehicle.

11. Raise plow to the full up position. Check to make sure that the snow plow head lamp beam is not being impaired by the top of the blade assembly. If the head lamp beam is being impaired, adjust the upper light bar to a higher position. To prevent the headlights from interfering with driver visibility, **DO NOT** raise the upper light bar higher than necessary to avoid impairment of the headlight beam when the plow is fully raised.

Installing The Cylinder Lock Clamp



WARNING

- Always install the cylinder lock clamp when the plow blade is raised and the operator is not engaged in plowing operations. Equipment failure or inadvertent operation of the control switches while driving could allow the plow blade to fall, resulting in serious injury.

- Ensure engine is OFF and set parking brake before installing the cylinder lock clamp. Vehicle movement, equipment failure, or inadvertent operation of the control switches during installation could allow the plow blade to fall, resulting in serious injury.

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1. Raise the plow to the full UP position and fully extend left wing.

2. Turn ignition switch OFF and apply the emergency brake. Turn hand-held controller off.

3. Remove the pin from the cylinder lock clamp.

4. Insert the cylinder lock clamp over the exposed (chrome) portion of the lift cylinder.

5. Insert the snap safety pin into the cylinder lock clamp and secure with the attached wire spring.

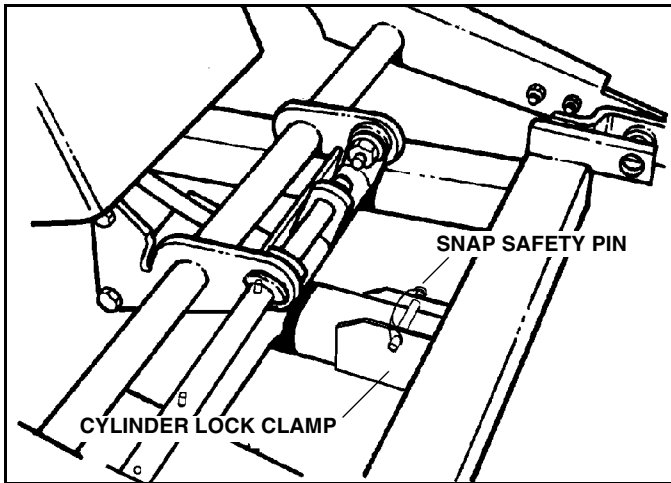


Figure 1-2

Operation Check and Inspection

1. Raise plow to the full up position. Check to make sure snowplow headlamp beam is not being impaired by the top of the blade assembly. If the headlamp beam is being impaired, adjust the light bar. (See instructions in Light Kit)
2. Raise and lower the plow while inspecting the routing of the wiring harness on the plow to insure that it does not come in contact with any sharp edges or moving parts. If necessary, revise the harness routing to obtain clearance and tape or tie the harness to maintain clearance.
3. Extend and retract each wing assembly and inspect for proper clearances of all moving parts.
4. Check oil level.

Disk Shoe Adjustment

IMPORTANT: This plow is equipped with three (3) disk shoes. Two disk shoes are located at the outboard end of each wing. The third disk shoe is located under the trip springs on the center plow assembly. All three disk shoes must be adjusted equally.

IMPORTANT: To ensure the best function of this snow plow, it is a requirement that all three disk shoes be used at ALL times.

1. Drive the vehicle, with snow plow mounted, onto a smooth, level surface. Park the vehicle, move the plow wings until the wings are straight out on each side and lower the plow to the ground.

2. Turn ignition switch OFF and apply the emergency brake. Turn hand-held controller off.

3. Inspect both float limiter screws and be sure that the hex head of the screws are not contacting the wear plate underneath the hex head of the screw. If necessary, adjust each screw upward so that the screw head is not contacting the wear plate when the pivot tubes are vertical.

NOTE: After disk shoe adjustment is completed, the float limiter adjustment must be made. (See "Float Limiter Adjustment" on page 11)

4. Place a level against the front of the wing pivot tubes and pull or push the top of the center section until the level indicates that the pivot tubes are vertical (Not tipped either forward or rearward).

5. Determine whether the center disk shoe or the center wearstrip is off the ground and measure the amount that it is off the ground. (See Figure 1-8)

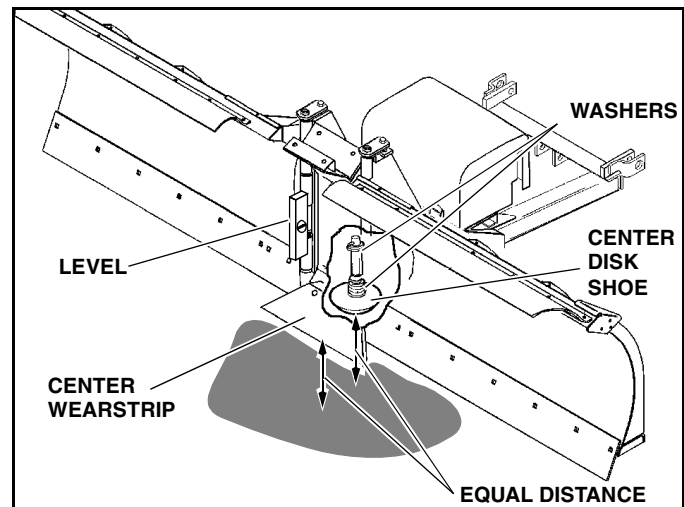


Figure 1-8


NOTE: Gap may be measured by sliding shims or washers between the ground and/or the center disk shoe or the center wearstrip, then measuring the shim/washer stack. The center disk shoe will need to be adjusted until the disk shoe and center wearstrip both contact the ground at the same time.

- If the center disk shoe was off the ground - Washers must be ADDED below the disk shoe mounting tube.
If the center wearstrip was off the ground - Washers must be REMOVED from below the disk shoe mounting tube.

IMPORTANT: If washers must be added, add one washer LESS than the amount the disk shoe was off the ground. If washers must be removed, remove one washer MORE than the amount the wearstrip was off the ground.

6. Raise plow and place suitable blocking under the plow to allow at least eight inches (8") of clearance from the bottom of the center disk shoe to the ground.

7. Lower plow onto blocking.

**WARNING**

Keep hands and feet clear of wings and center section when setting blocking and lowering plow. Moving or falling assemblies could result in serious injury.

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8. Adjust center disk shoe assembly by removing the disk shoe mounting pin and adding or subtracting washers on the top or bottom of the disk shoe mounting bracket as required according to measurements taken in step #4.

9. After the center disk shoe position is properly adjusted, place washers on the disk shoe stem - above the disk shoe mounting bracket, and below the retaining pin - to remove all up and down movement of the disk shoe in the bracket. Failure to do this will result in excessive wear of the holes in the disk shoe mounting bracket and will also result in bending the disk shoe stem.

10. After the center disk shoe adjustment is completed, lower the plow to the ground. If this disk shoe adjustment is correct, the center disk shoe and the center wearstrip will both be on the ground and the wing tubes will be vertical (Recheck the wing tubes with a level). If wing tubes are not vertical, repeat steps #3 to #9 until wing tubes are vertical.

NOTE: If assembling and mounting a snow plow for the first time, the adjustment of the center disk shoe can be done with just the center section mounted on the vehicle, prior to assembling the wings onto the center section of the plow.

11. With each wing extended straight out to each side, measure the amount the wing shoes are off the ground, or if they are on the ground, measure the amount that the wearstrip is off the ground (measured in front of the disk shoe bracket).

12. Raise plow and place suitable blocking under the plow to allow at least six inches (6") of clearance from the bottom of the wing disk shoes to the ground.

13. Lower plow onto blocking.

**WARNING**

Keep hands and feet clear of wings and center section when setting blocking and lowering plow. Moving or falling assemblies could result in serious injury.

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14. Adjust each disk shoe assembly by removing disk shoe mounting pin and adding or subtracting washers on the top or bottom of the disk shoe mounting bracket as required according to measurements taken in step #11 (See Figure 1-9)

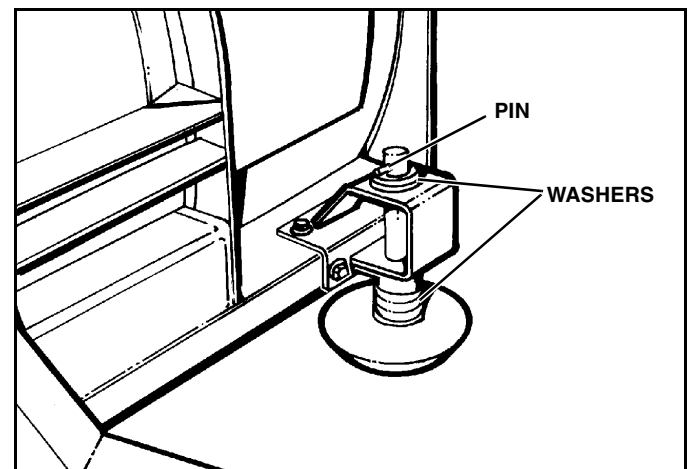


Figure 1-9

15. After the disk shoe position is properly adjusted, place washers on the disk shoe stem - above the disk shoe mounting bracket, and below the retaining pin - to remove all up and down movement of the disk shoe in the bracket. Failure to do this will result in excessive wear of the holes in the disk shoe mounting bracket and will also result in bending the stem of the disk shoe.

16. After the wing disk shoe adjustment is complete, lower the plow to the ground. If this disk shoe adjustment is correct, the shoes and the wearstrips will all be on the ground at the same time, if not, repeat steps #11 to #15.

17. Move the wings forward and rearward, if the wing wearstrips and the center wearstrips are not on the ground at all times recheck the position of the wing pivot tubes. The tubes must be vertical, if they are not vertical, the center disk shoe will need to be adjusted.


Trip Spring Adjustment

NOTE: The trip springs are factory installed and adjusted, but adjustment should be checked during plow set-up and installation.

Springs are properly adjusted when two or more coils allow a 0.010" feeler gauge to just pass between the separated coils. (A 3 x 5 post card is approximately the same thickness.)

If readjustment is required:

1. Raise the plow to transport position and install transport lock under the plow to prevent the plow from inadvertently dropping.
2. Turn off the vehicle ignition, apply the parking brake and remove the vehicle ignition key. Turn hand-held controller off.
3. Check to make sure that the spring is installed as illustrated with open end of top loop facing vehicle. (See Figure 1-10)
4. Using a 15/16" socket wrench through the holes in the bottom plate of the main frame, loosen the two (2) 5/8" nuts on the trip spring eyebolts. (See Figure 1-10)



CAUTION

- Do not overtighten springs. If more than 0.015" (1/64") gap appears between coil with plow at rest damage could occur to equipment during plowing.
- Spring must be installed with open end of top loop facing vehicle. Bottom loop position will vary.

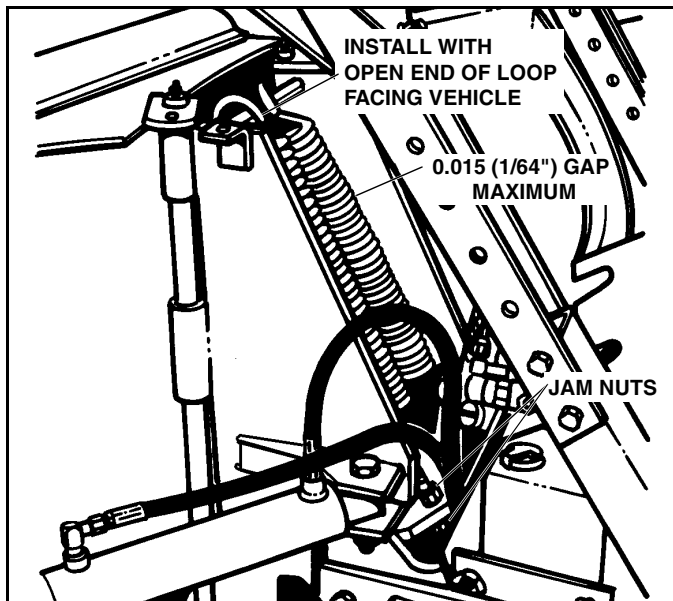


Figure 1-10

5. After the two lower nuts have been loosened, the two upper nuts can be rotated on the eye bolts to allow the trip springs to be shortened or lengthened.

6. While holding the two upper nuts, re-tighten the two lower nuts and then re-check the spring adjustment.

Float Limiter Adjustment

IMPORTANT: The disk shoes must be properly adjusted prior to adjusting the float limiter. If the shoes are not properly adjusted, the float limiter adjustment cannot be properly made.

1. With the vehicle and snow plow on a smooth, level surface move the wings forward into the "Scoop" position and lower the plow to the ground.

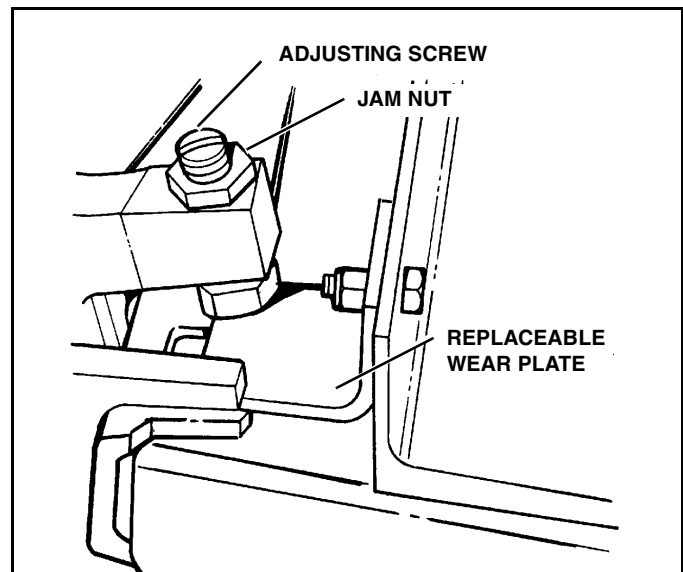








Figure 1-11

2. Loosen the 5/8" jam nut on the top of the float limiter adjusting screw.
3. Using the screwdriver slot in the top of the float limiter adjusting screw, turn the adjusting screw down until the hex head of the adjusting screw touches the surface of the replaceable wear plate.
4. Turn the adjusting screw up two turns to provide a gap between the wear plate and the head of the adjusting screw for proper float allowance.
5. While holding the adjusting screw driver slot, to prevent turning of the adjusting screw, tighten the 5/8" jam nut to lock the adjusting screw and prevent turning of the adjusting screw during operation.

TORQUE SPECIFICATIONS

SAE Grade and Head Markings	1 or 2 No Marks 	5 5.1 5.2 	8 8.2 
SAE Grade and Nut Markings	2 No Marks 	5 	8 

	Grade 1		Grade 2		Grade 5, 5.1 or 5.2		Grade 8 or 8.2	
	Lubricated ^a	Dry ^b	Lubricated ^a	Dry ^b	Lubricated ^a	Dry ^b	Lubricated ^a	Dry ^b
SIZE	lb-ft	lb-ft	lb-ft	lb-ft	lb-ft	lb-ft	lb-ft	lb-ft
8-32			14*	19*	22*	30*	31*	42*
10-24			21*	27*	32*	43*	45*	60*
1/4	2.8	3.5	4.5	5.5	7	9	10	12.5
5/16	5.5	7	9	11	15	18	21	26
3/8	10	13	16	20	26	33	36	46
7/16	16	20	26	32	41	52	58	75
1/2	25	31	39	50	63	80	90	115
9/16	36	45	56	70	90	115	130	160
5/8	50	62	78	100	125	160	160	225
3/4	87	110	140	175	225	280	310	400
7/8	140	175	140	175	360	450	500	650
1	210	270	210	270	540	675	750	975

DO NOT use these values if a different torque value or tightening procedure is given for a specific application.

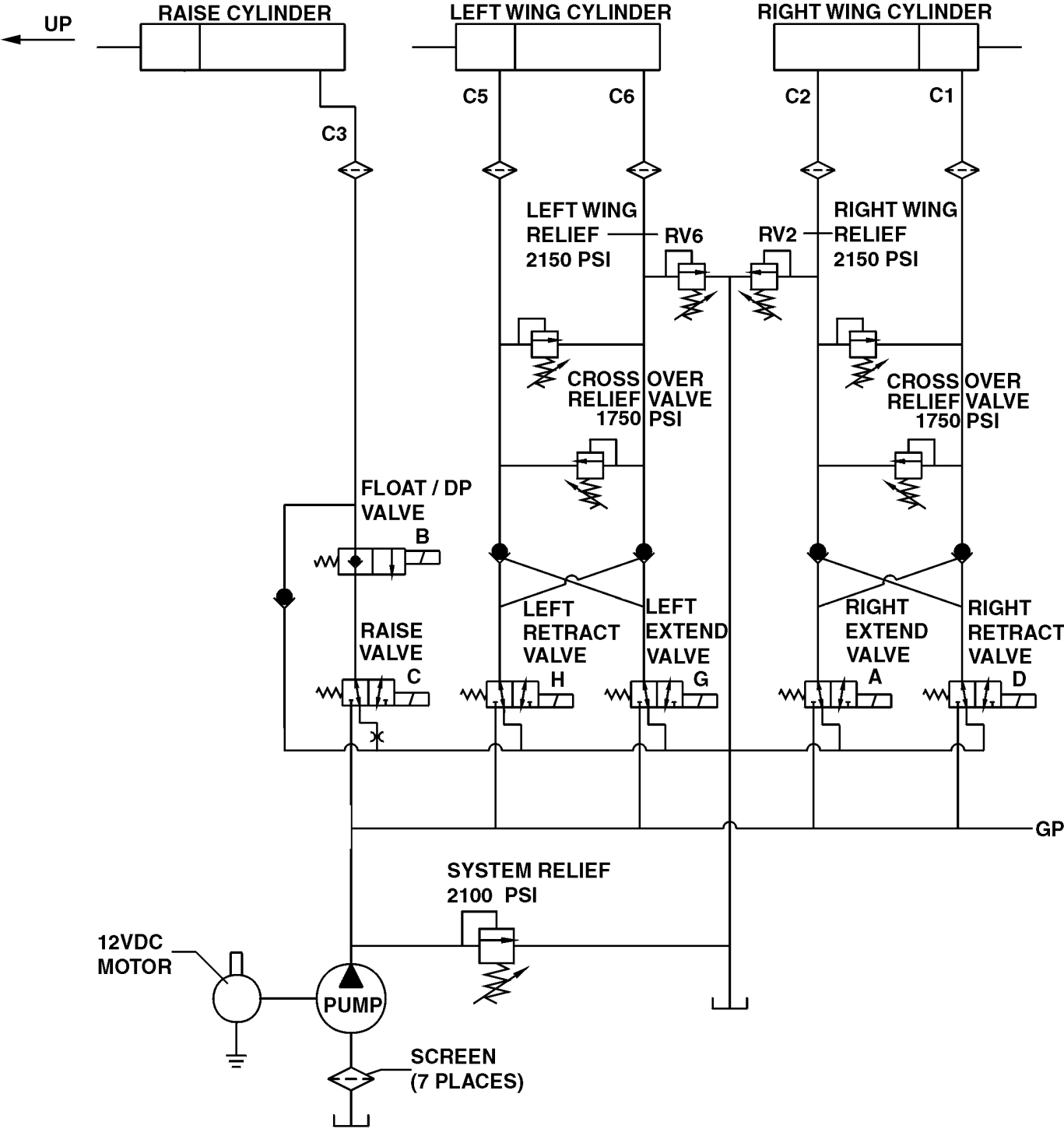
Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

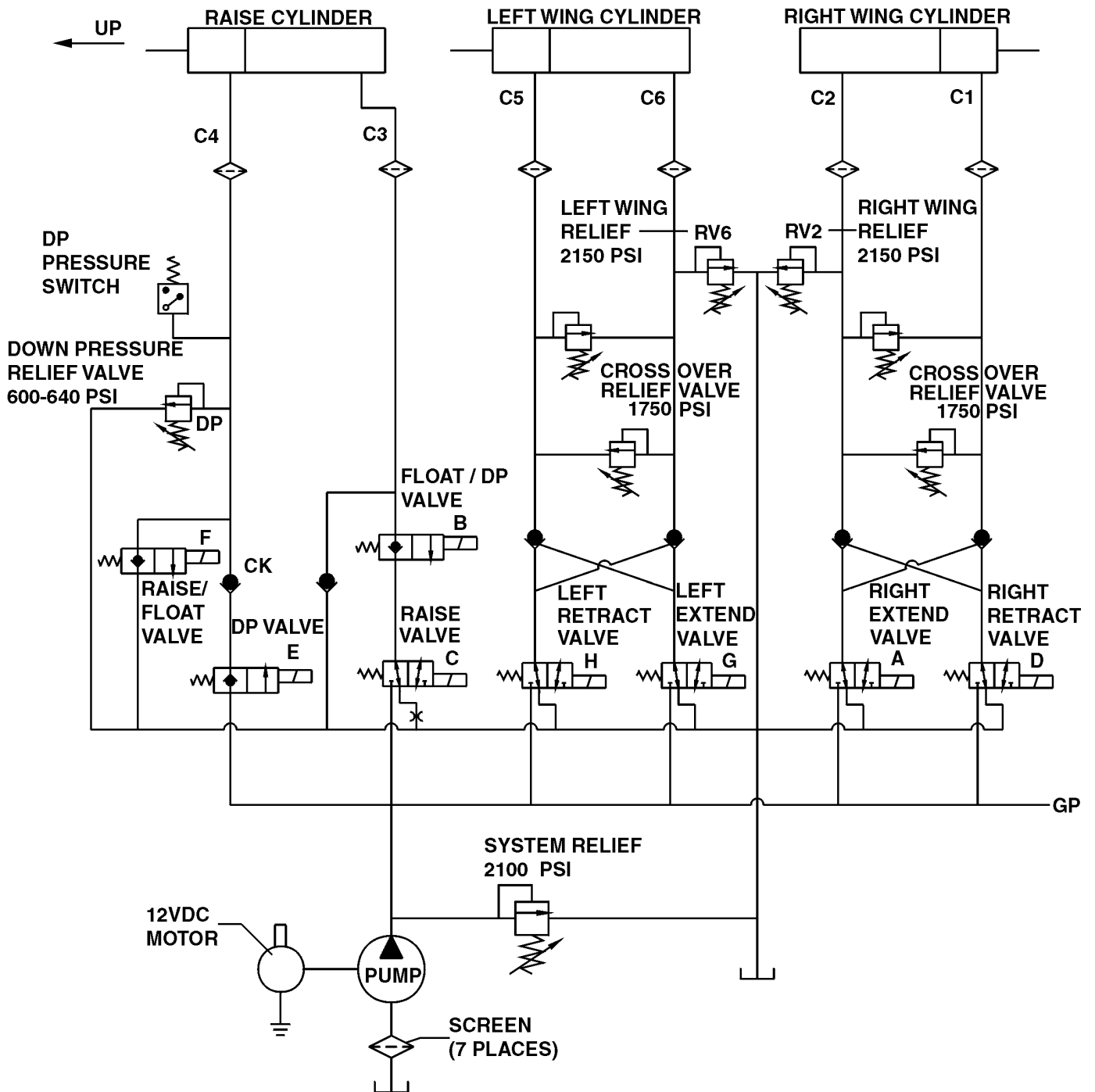
^b "Dry" means plain or zinc plated without any lubrication

* Values with asterisk are in lb-in.

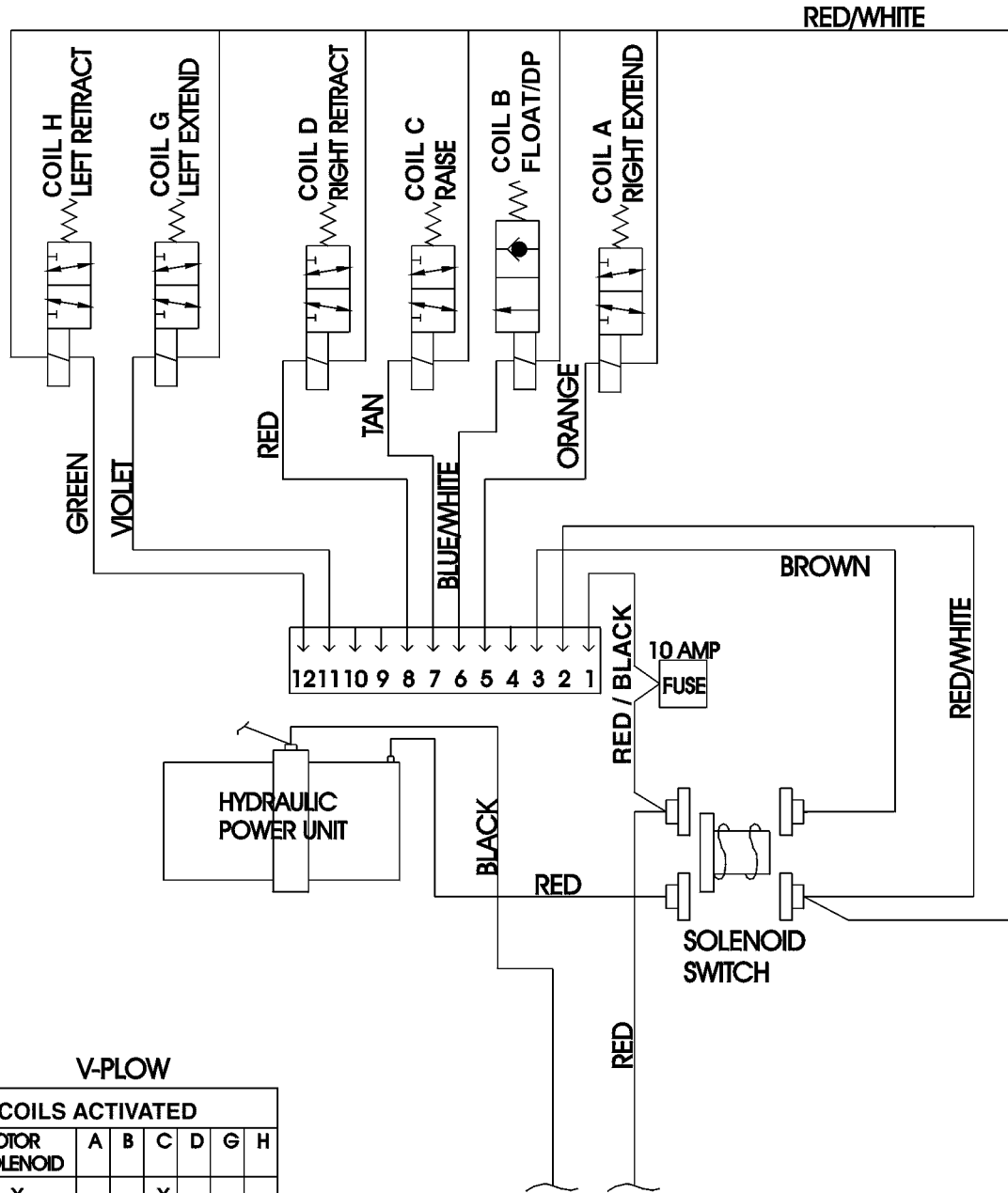
HYDRAULIC SCHEMATIC (GRAVITY)



HYDRAULIC SCHEMATIC (DOWN PRESSURE)



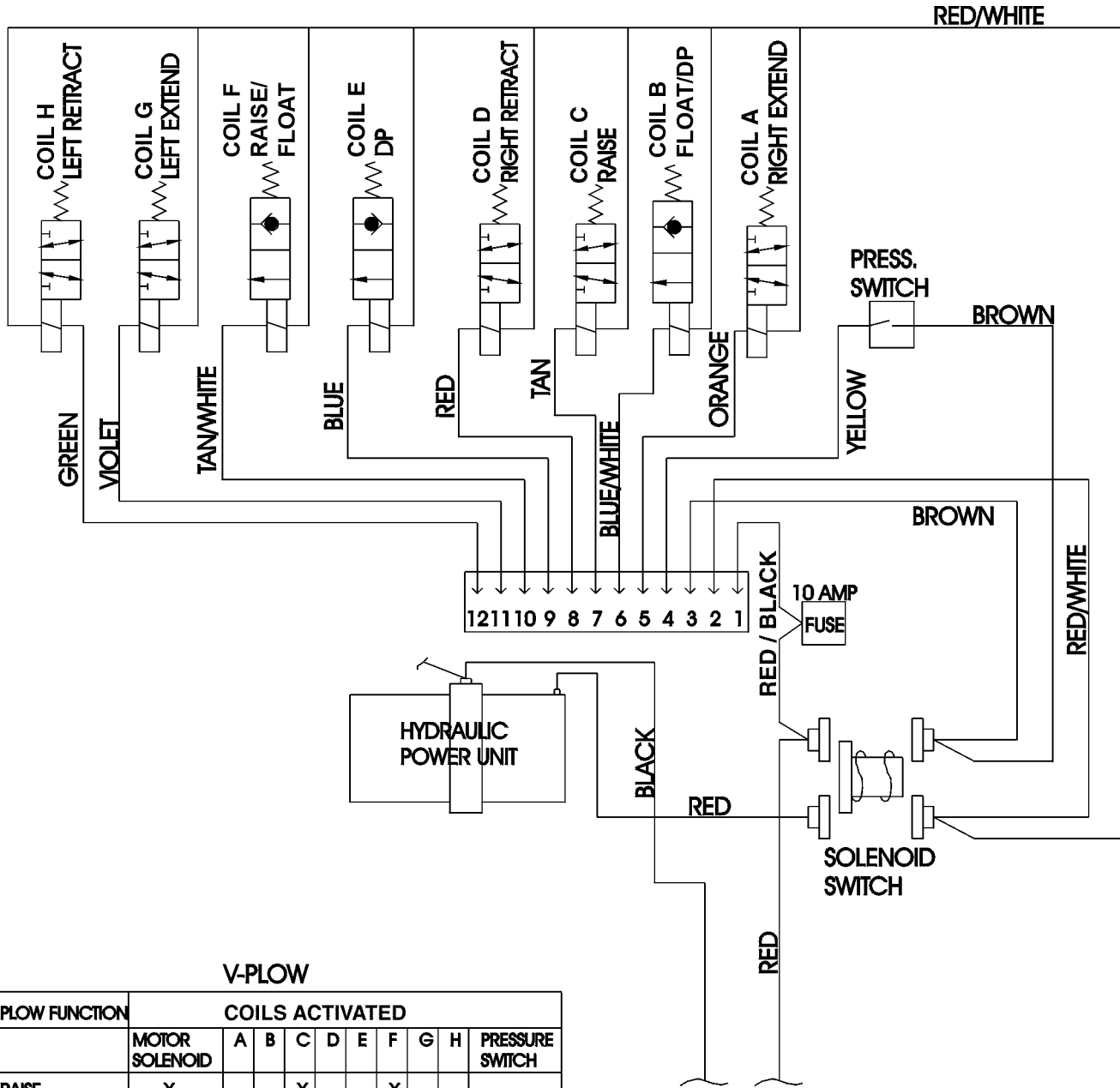
WIRING SCHEMATIC (GRAVITY)



V-PLOW

FLOW FUNCTION	COILS ACTIVATED						
	MOTOR SOLENOID	A	B	C	D	G	H
RAISE	X			X			
DOWN (FLOAT)			X				
LEFT EXTEND	X					X	
LEFT RETRACT	X						X
RIGHT EXTEND	X	X					
RIGHT RETRACT	X				X		

WIRING SCHEMATIC (DOWN PRESSURE)



V-PLOW

FLOW FUNCTION	COILS ACTIVATED								PRESSURE SWITCH	
	MOTOR SOLENOID	A	B	C	D	E	F	G		H
RAISE	X			X			X			
DOWN (FLOAT)			X				X			
DOWN PRESSURE	X		X			X				X
LEFT EXTEND	X							X		
LEFT RETRACT	X								X	
RIGHT EXTEND	X	X								
RIGHT RETRACT	X			X						

NOTE: COIL E MUST BE DEACTIVATED FOR WING ANGLE FUNCTIONS

DEALER PRE DELIVERY CHECKLIST

The following inspections **MUST** be accomplished prior to delivering the snowplow to the customer. Place an X in the box after accomplishing each item on the checklist.

CHECK THAT

- Parts have not been damaged in shipment. Repair or replace items that are loose, dented or missing.
- All covers, guards and decals are in place and attached securely.
- All pivot pins and cotters are installed and secure.
- Trip springs are adjusted.
- Disk Shoe assemblies are installed and adjusted.
- Float Limiters are properly adjusted.
- Snow plow headlamps are adjusted properly.
- Snow plow headlamps are functional.
 - High Beam Low Beam Park Lamps
 - Left Turn Right Turn Headlamp Beam Aimed Correctly
- Cylinder lock clamp is installed.

Start the vehicle engine and place an X in the box after accomplishing each item on the checklist.

CHECK THAT

- ALL** blade functions work properly.
- Cylinders, hoses and fittings **DO NOT** leak.
- Listen for abnormal noises or vibrations; Repair or replace as necessary.
- The Power Unit is properly filled.

DELIVERY CHECKLIST

The following checklist is to be accomplished with the customer present, Place an X in the box after accomplishing each item on the checklist.

- After giving the Customer his Owner's Manual, instruct him to read it **PRIOR** to operating the Snow Plow. If he has any questions or does not understand part(s) of the Manual, ask him to contact the Dealer for answers or explanations **BEFORE** operating the unit.
- Record the Serial Numbers, Date of Purchase, Purchaser's Name and Address, and the Dealers Name, Address and Phone Number in the space provided on Page 1 of the Owner's Manual.
- Explain connect and disconnect procedures.
- Explain the necessity of Disk Shoe usage at all times to ensure optimum plow performance.
- Explain the necessity of proper Float Limiter adjustment to ensure optimum plow performance.
- Demonstrate power Jackstand function and operation.
- Demonstrate cylinder Lock Clamp installation.
- Demonstrate Down Pressure hydraulic system function and operation.
- Fill out Warranty Registration Card and mail COPY 1 to the factory to validate Warranty. NO Warranty claims can be honored if the Warranty Card is not on file at the factory.**

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