



DEFENDERTM

DEFENDERTM Compact Plow

Blade Assembly 85270/85275

Big Box Assembly 85260

Installation Instructions

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your WESTERN[®] outlet/website for specific vehicle application recommendations before installation. The Quick Match selection system has specific vehicle and snowplow requirements.

SAFETY

SAFETY DEFINITIONS

⚠ WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

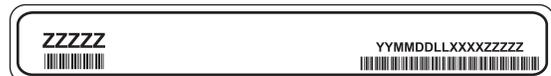
NOTE: Indicates a situation or action that can lead to damage to your snowplow and vehicle or other property. Other useful information can also be described.

WARNING/CAUTION AND INSTRUCTION LABELS

Become familiar with and inform users about the warning/caution, serial number and instruction labels on the back of the blade.

NOTE: If labels are missing or cannot be read, see your sales outlet.

Serial Number Label



Serial No. Code	Definition
YY	2-Digit Year
MM	2-Digit Month
DD	2-Digit Day
LL	2-Digit Location Code
XXXX	4-Digit Sequential Number
ZZZZZZ	5- to 7-Digit Blade Assembly PN

Warning/Caution Label

⚠ WARNING

Lower blade when vehicle is parked.

Do not exceed GVWR or GAWR including blade and ballast.

⚠ CAUTION

Read Owner's Manual before operating or servicing snowplow.

Transport speed should not exceed 45 mph (72 km/h). Further reduce speed under adverse travel conditions.

Plowing speed should not exceed 10 mph (16 km/h).

See your sales outlet/Web site for specific vehicle application recommendations.

Instruction Label

ATTACH

- Verify both connecting pins are pulled out and locked into the receiver notch.
- Slowly drive vehicle forward to engage rear receiver pins completely into headgear slots. Apply vehicle parking brake.
- Rotate and unlock connecting pins on receivers.
- Plug in electrical harness.
- Turn plow control in vehicle ON and activate FLOAT.
- Stand in front of blade. Push top of headgear toward vehicle to allow connecting pins to fully engage connecting pin holes.
- Verify that both connecting pins are engaged through all holes on the headgear and receivers.
- While holding stand lock pin out, use stand handle to raise stand. Release stand lock pin into locking hole and verify stand is secure.

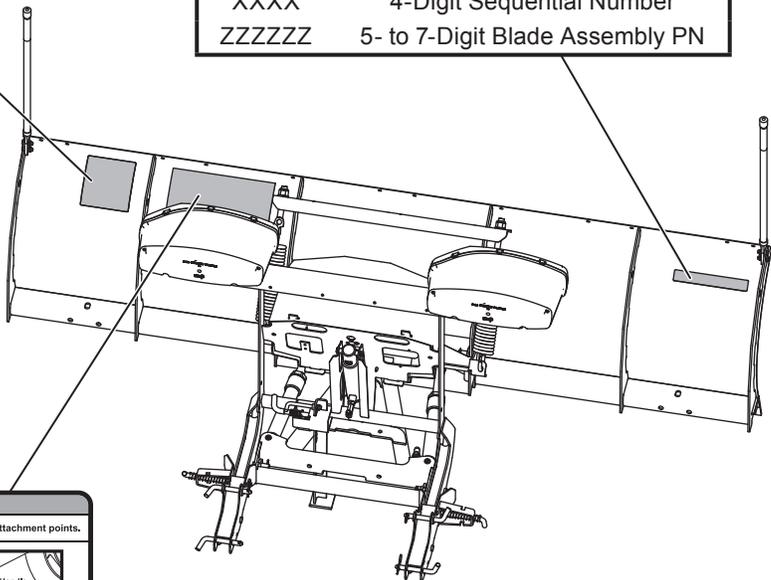
⚠ WARNING

Keep fingers away from snowplow and vehicle attachment points.

ATTACH – Steps 1, 2, 3, 6, 7, & 8

DETACH – Steps 3, & 4

US patents 7,400,056; 7,337,576; and other patents pending.
Read Owner's Manual for complete instructions.



SAFETY

SAFETY PRECAUTIONS

Improper installation and operation could cause personal injury and/or equipment and property damage. Read and understand labels and the Owner's Manual before installing, operating or making adjustments.

⚠ WARNING

Lower the blade when vehicle is parked. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this could result in serious personal injury.

⚠ WARNING

The driver shall keep bystanders clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and the blade or within 8 feet of a moving blade. A moving or falling blade could cause personal injury.

⚠ WARNING

Keep hands and feet clear of the blade and A-frame when mounting or removing the snowplow. Moving or falling assemblies could cause personal injury.

⚠ WARNING

Do not exceed GVWR, GAWR, or maximum vehicle load capacity, including the blade and ballast.

⚠ WARNING

To prevent accidental movement of the blade, always turn the control OFF whenever the snowplow is not in use. The power indicator light will turn OFF.

⚠ WARNING

Remove blade assembly before placing vehicle on hoist.

⚠ CAUTION

Refer to the current online selection system for minimum vehicle recommendations and ballast requirements.

HYDRAULIC SAFETY

⚠ WARNING

Hydraulic fluid under pressure can cause skin injection injury. If you are injured by hydraulic fluid, get medical attention immediately.

- Always inspect hydraulic components and hoses before using. Replace any damaged or worn parts immediately.
- If you suspect a hose leak, DO NOT use your hand to locate it. Use a piece of cardboard or wood.

FUSES

The electrical and hydraulic systems contain several blade-style automotive fuses. If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire. Fuse Replacement, including fuse ratings and locations, is located in the Maintenance section of the Owner's Manual.

PERSONAL SAFETY

- Remove ignition key and put the vehicle in park or in gear to prevent others from starting the vehicle during installation or service.
- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

SAFETY

FIRE AND EXPLOSION

⚠ WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

CELL PHONES

A driver's first responsibility is the safe operation of the vehicle. The most important thing you can do to prevent a crash is to avoid distractions and pay attention to the road. Wait until it is safe to operate Mobile Communication Equipment such as cell phones, text messaging devices, pagers or two-way radios.

VENTILATION

⚠ WARNING

Vehicle exhaust contains lethal fumes. Breathing these fumes, even in low concentrations, can cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

BATTERY SAFETY

⚠ CAUTION

Batteries normally produce explosive gases, which can cause personal injury. Therefore, do not allow flames, sparks or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

- **Batteries contain sulfuric acid, which burns skin, eyes and clothing.**
- **Disconnect the battery before removing or replacing any electrical components.**

NOISE

Airborne noise emission during use is 70 dB(A) for the snowplow operator.

VIBRATION

Operating snowplow vibration does not exceed 2.5 m/s² to the hand-arm or 0.5 m/s² to the whole body.

TORQUE CHART

⚠ CAUTION

Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to torque chart. Use standard methods and practices when attaching snowplow, including proper personal protective safety equipment.

Recommended Fastener Torque Chart					
Inch Fasteners Grade 5 and Grade 8					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Grade 5	 Grade 8		 Grade 5	 Grade 8
1/4-20	8.4	11.9	9/16-12	109	154
1/4-28	9.7	13.7	9/16-18	121	171
5/16-18	17.4	24.6	5/8-11	150	212
5/16-24	19.2	27.3	5/8-18	170	240
3/8-16	30.8	43.6	3/4-10	269	376
3/8-24	35.0	49.4	3/4-16	297	420
7/16-14	49.4	69.8	7/8-9	429	606
7/16-20	55.2	77.9	7/8-14	474	669
1/2-13	75.3	106.4	1-8	644	909
1/2-20	85.0	120.0	1-12	704	995
Metric Fasteners Class 8.8 and 10.9					
Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Class 8.8	 Class 10.9		 Class 8.8	 Class 10.9
M6 x 1.00	7.7	11.1	M20 x 2.50	325	450
M8 x 1.25	19.5	26.9	M22 x 2.50	428	613
M10 x 1.50	38.5	53.3	M24 x 3.00	562	778
M12 x 1.75	67	93	M27 x 3.00	796	1139
M14 x 2.00	107	148	M30 x 3.50	1117	1545
M16 x 2.00	167	231	M33 x 3.50	1468	2101
M18 x 2.50	222	318	M36 x 4.00	1952	2701
These torque values apply to fasteners except those noted in the instructions.					

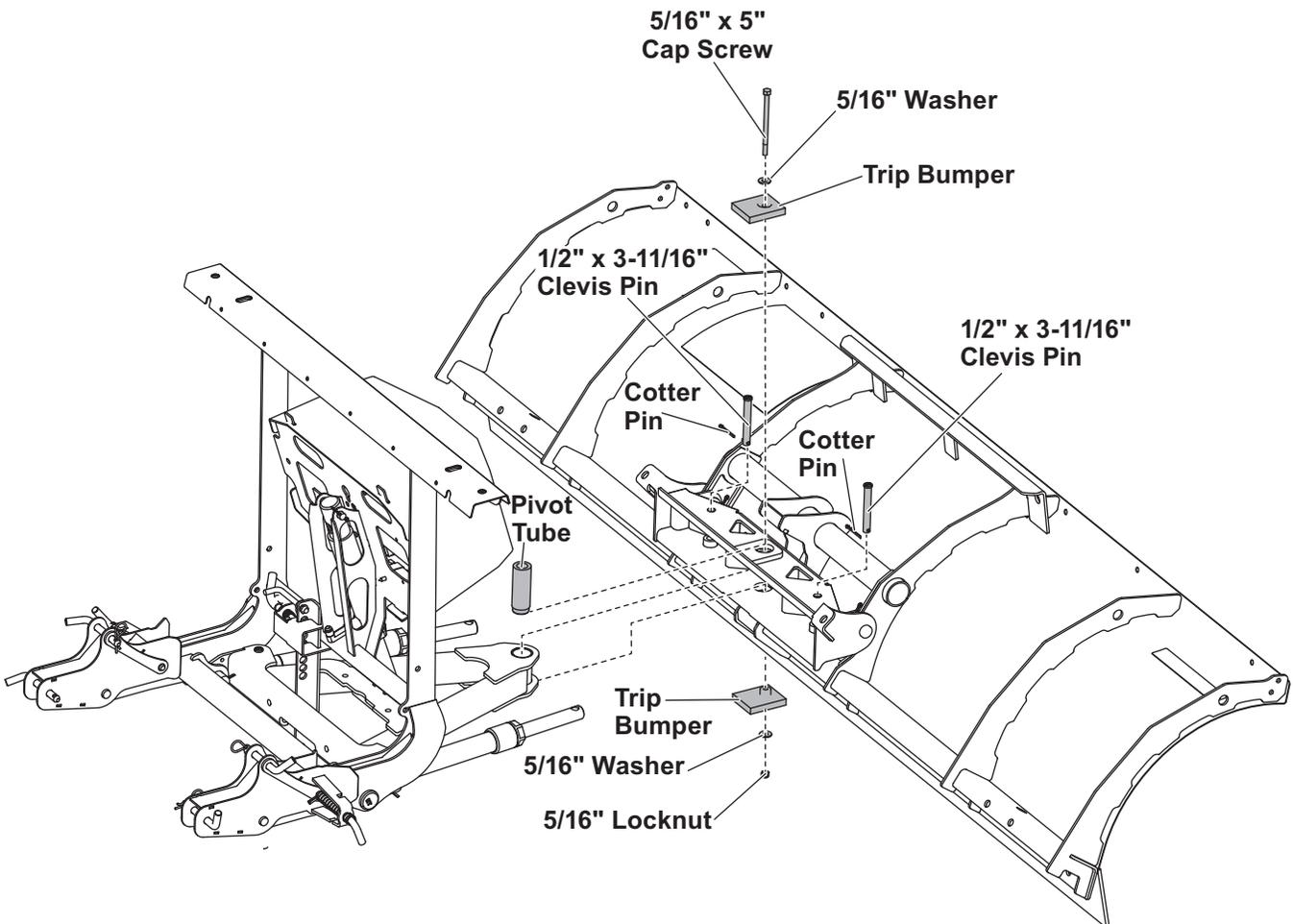
INSTALLATION INSTRUCTIONS

UNPACKING

1. Set aside the blade guides, parts bag, and headlamp bag. Remove the receivers by pulling out the connecting pin and rotating the connecting pin to lock into the notch on the receiver. Remove and set aside.
2. Remove the cable ties that are holding the assembly to the pallet.
3. Remove the fasteners and strapping that secures the A-frame to the pallet.

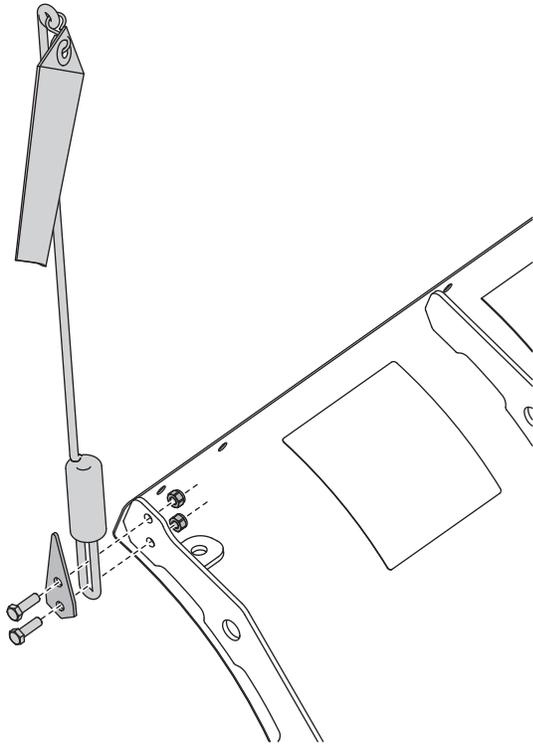
A-FRAME TO BLADE ASSEMBLY

1. Insert the nose of the A-frame into the quadrant and align the pivot bolt hole on the A-frame with the pivot bolt hole on the quadrant. Loosen and remove both trip springs and tip the blade forward. Insert the pivot tube through the quadrant into the A-frame, tapered end first.
2. Install a trip bumper to each end of the pivot tube and under the blade stop as shown below. The round boss on the bumper will fit into the pivot tube, and the long bumper leg will butt up against the upward bend of the quadrant.

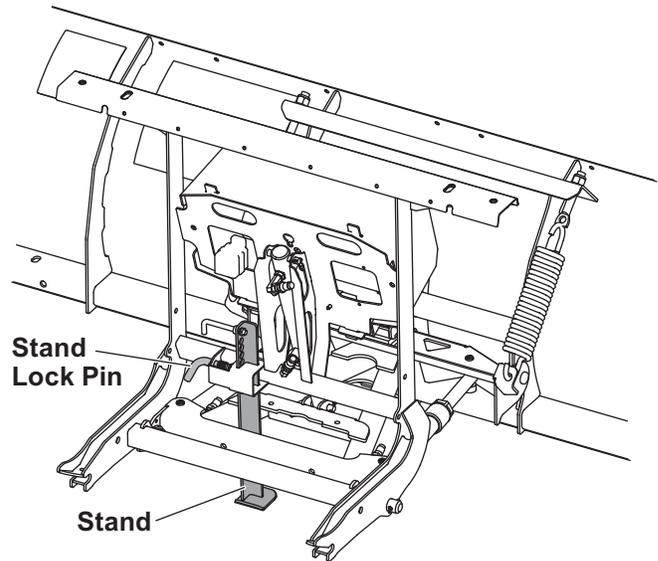


INSTALLATION INSTRUCTIONS

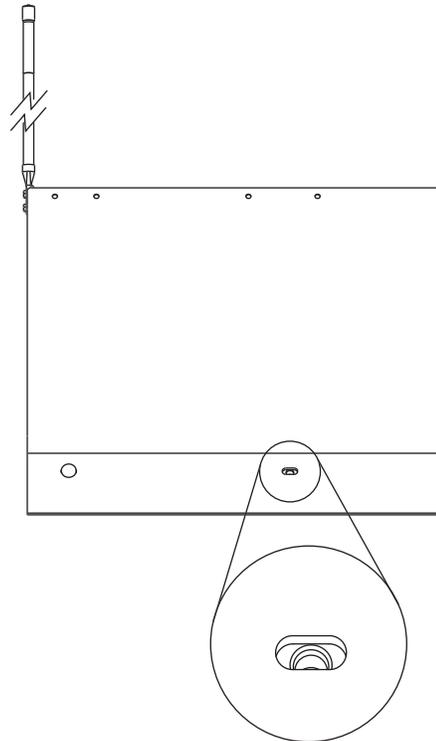
- Place a 5/16" flat washer on a 5/16" x 5" cap screw, and slide the cap screw from the top down through the bumpers. Attach a 5/16" flat washer and a 5/16" locknut to the cap screw, and tighten until the rubber on the bumpers begins to dimple.
- Rotate the blade back to an upright position.
- Reinstall the trip springs.
- Adjust the trip springs by tightening the top nuts until the coils of the springs begin to separate (a piece of paper such as this instruction sheet should pass between the second and third coils).
- Remove the protective packaging from the angle rams. Align the holes in the rod end of the angle ram with the corresponding holes on the back of the quadrant.
- Install a 1/2" x 3-11/16" clevis pin from the top down to attach each rod. Secure the clevis pins with cotter pins from the parts bag.
- Install the blade guides.



- With the A-frame parallel to the ground, secure the stand by pulling the stand lock pin out and letting the stand drop to the ground. Release the stand lock pin and verify that the stand is secure by pulling up on the stand.



- Finish securing the cutting edge with two carriage bolts and locknuts (included in the parts bag).



- Install the receivers into the truck mount pockets using the pins provided in the receivers.

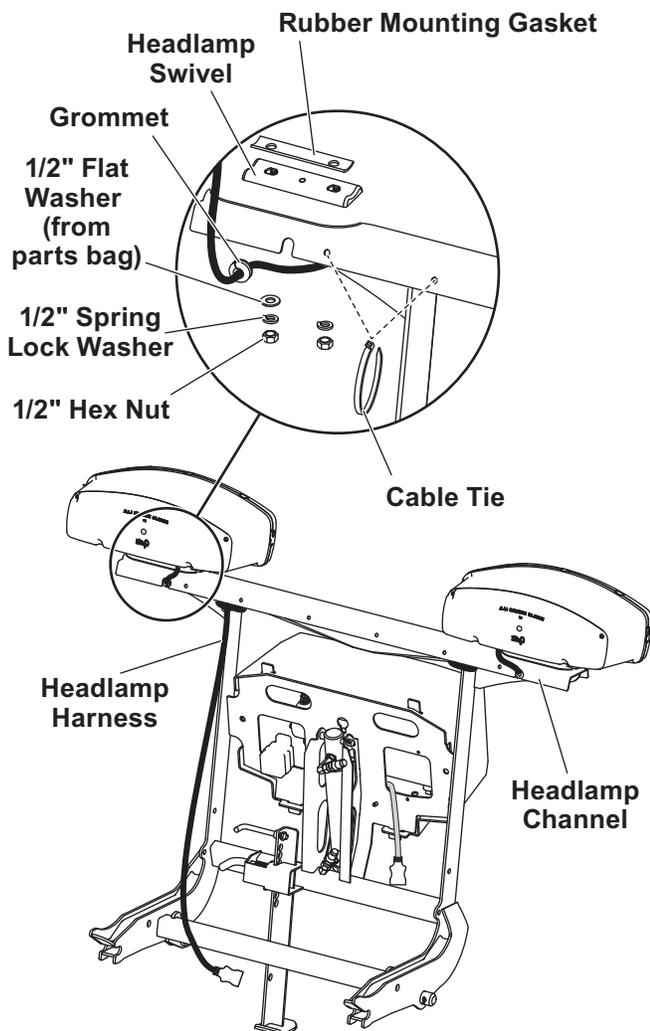
HEADLAMPS

⚠ WARNING

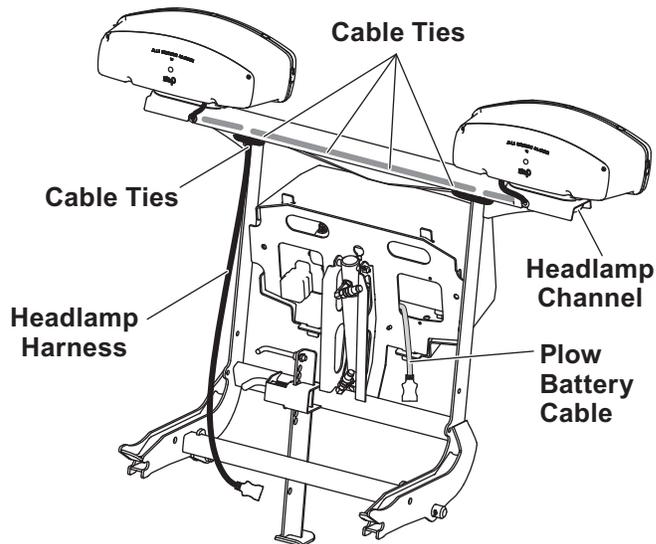
Your vehicle must be equipped with snowplow headlamps and directional lights.

Headlamps, hardware and instructions are found in the headlamp box. Additional hardware (two 1/2" flat washers) can be found in the parts bag.

1. Remove the cable ties that secure the light channel to the lift frame.
2. Attach the headlamps and the headlamp channel according to the instructions provided in the headlamps box, substituting the 1/2" flat washer from the parts bag for the 1/2" flat washer packed in the headlamps box.



3. Install a split rubber grommet on each headlamp wire 3" from the headlamp and insert the grommet and wire into the slot on the rear of the channel.
4. Route the wires underneath the channel, in back of the vertical supports, and down along the inside of the driver-side vertical support.



5. Cable tie the harness to the lift frame as shown in illustration.

INSTALLATION INSTRUCTIONS

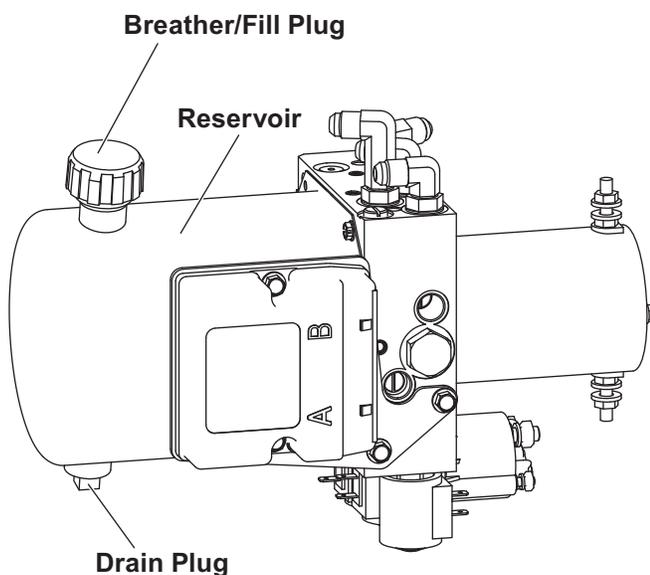
HYDRAULIC UNIT

⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

The hydraulic system comes from the factory preassembled, partially filled and fully tested.

1. Attach the snowplow to the vehicle according to the instructions on the back of the blade.
2. Remove the cover from the hydraulic unit. Remove and discard the factory-installed pipe plug from the top of the reservoir and install the breather.



⚠ WARNING

To prevent accidental movement of the blade, always turn the control OFF whenever the snowplow is not in use. The power indicator light will turn OFF.

3. Turn the control ON and raise and lower the snowplow several times. With the snowplow in the raised position, fully angle the plow from right to left several times. Activate the control FLOAT function and make sure the blade is lowered completely to the ground. Turn the control OFF.

⚠ CAUTION

Do not mix different types of hydraulic fluid. Some fluids are not compatible and may cause performance problems and product damage.

4. Remove the breather and check the fluid level. The fluid level should be 1-1/2"–2" below the fill hole. If additional fluid is needed, add hydraulic fluid rated to –40°F (–40°C), or other fluid conforming to Military Specification MIL-H-5606 A, such as Mobil Aero HFA or Shell AeroShell® Fluid.

NOTE: Loosen the breather slowly to relieve any pressure in the reservoir.

NOTE: Add fluid only when the blade is resting fully on the ground.

5. Replace and tighten the breather.

INSTALLATION INSTRUCTIONS

BLADE DROP SPEED ADJUSTMENT

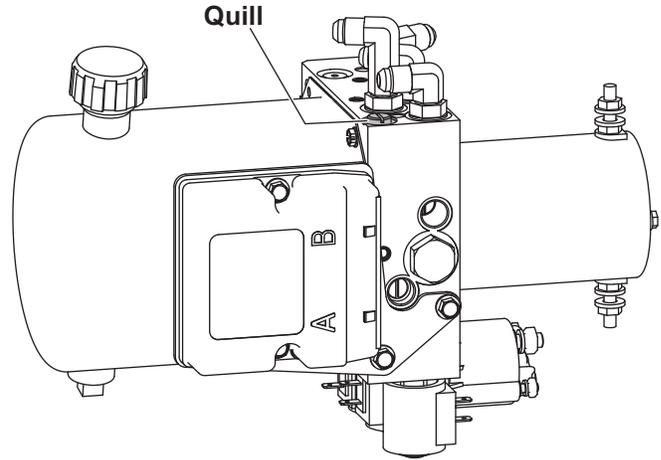
⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

The quill in the valve manifold adjusts the blade drop speed.

NOTE: The blade will not drop when quill is fully tightened (clockwise). Turn OFF the plow control, turn the quill 1/8 turn outward (counterclockwise), then proceed with blade drop speed adjustment.

1. Lower the blade to the ground before making any adjustment.
2. Remove the hydraulic unit cover.
3. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.
4. Stand 8 feet clear of the blade when checking adjustment.
5. Replace the cover.



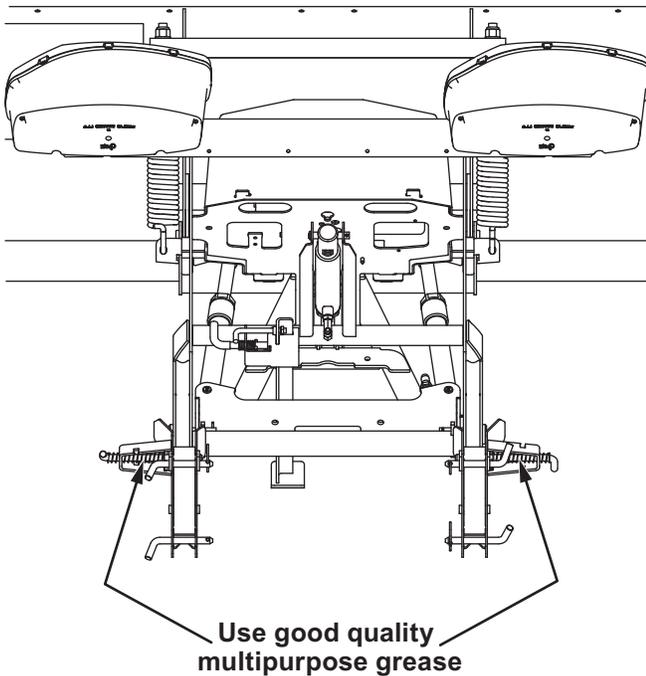
OPERATIONAL TEST AND FINAL ADJUSTMENTS

FINAL INSPECTION AND ADJUSTMENT

⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

1. Fully angle the blade in both directions in raised and lowered positions. Adjust hose fittings, wraps and clamps so hoses do not contact vehicle bumper, have no sharp bends and are wrapped at contact points, and do not become pinched between the lift frame and A-frame.
2. Add grease to the two hitch pins.



PLUG COVERS

⚠ CAUTION

Plug covers shall be used whenever snowplow is disconnected. Vehicle Battery Cable is 12-Volt unfused source.

When the snowplow is removed from the vehicle, install plug covers on the vehicle battery cable. Insert the snowplow battery cable into the cable boot on the snowplow.

OWNER'S MANUAL PACKET

If the completed snowplow will be delivered immediately, the Owner's Manual should be reviewed with and given to the purchaser.

If the snowplow is completed prior to delivery to the purchaser, attach the Owner's Manual Packet to the electrical cable of the cab control for safekeeping.



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