



## MVP 3™ Snowplow

74475, 74485, 74495, 74575, 74585, 74595  
74300, 74310

### Installation Instructions

**⚠ CAUTION**

Read this document before installing the snowplow.

**⚠ CAUTION**

See your WESTERN® outlet/Web site for specific vehicle application recommendations before installation. The Selection List 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.

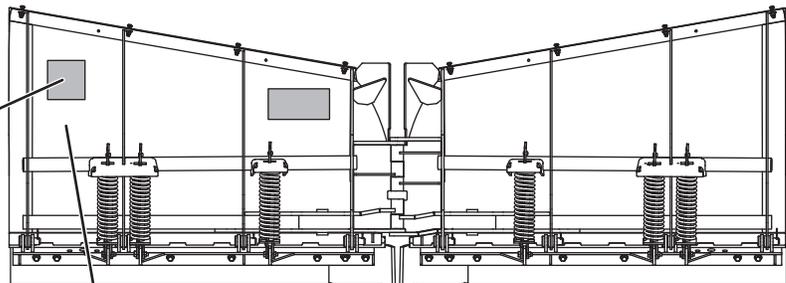
## WARNING/CAUTION AND INSTRUCTION LABELS

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

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

### Warning and Caution Label

<b>⚠ WARNING</b>	
	Lower blade when vehicle is parked.
	Do not exceed GVWR or GAWR including blade and ballast.
<b>⚠ CAUTION</b>	
	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. 99999



### Instruction Label

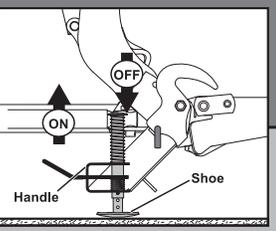
UltraMount<sup>2</sup> SYSTEM INSTRUCTIONS

#### MOUNTING PLOW (ON)

 Read Owner's Manual for complete instructions.

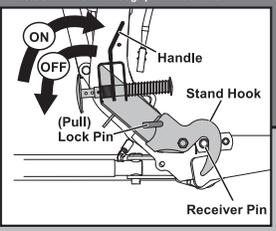
**STEP 1**

After seating plow horns in receiver brackets, pull Handle up; Shoe will lift off the ground.



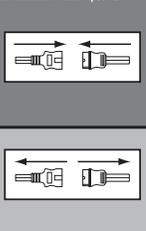
**STEP 2**

Pull and hold Lock Pin out; then rotate Handle UP and release Lock Pin. It must lock into UPPER hole. Stand Hook must grip Receiver Pin.



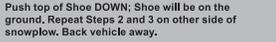
**STEP 3**

Plug in electrical connections. Repeat Steps 1 and 2 on other side of snowplow.



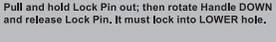
**STEP 3**

Push top of Shoe DOWN; Shoe will be on the ground. Repeat Steps 2 and 3 on other side of snowplow. Back vehicle away.



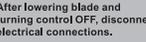
**STEP 2**

Pull and hold Lock Pin out; then rotate Handle DOWN and release Lock Pin. It must lock into LOWER hole.



**STEP 1**

After lowering blade and turning control OFF, disconnect electrical connections.



#### REMOVING PLOW (OFF)

 Read Owner's Manual for complete instructions.

US patents 5,638,618; 5,899,007; 6,145,222; 6,209,231; 6,253,470; 6,408,549; 6,412,199; 6,526,677; 6,711,837; 6,928,757; 6,941,685; 7,134,227; 7,400,058; 7,430,821; 7,737,576. CAN patents 2,184,922; 2,229,783; 2,354,257; 2,358,145; 2,358,534; 2,639,052; and other patents pending. 43360

# 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 T-frame when mounting or removing the snowplow. Moving or falling assemblies could cause personal injury.**

### **⚠ WARNING**

**Do not exceed GVWR or GAWR including blade and ballast. The rating label is found on driver-side vehicle door cornerpost.**

### **⚠ 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 Selection List 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 WESTERN® 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 below 70 dB(A) for the snowplow operator.

## VIBRATION

Operating snowplow vibration does not exceed 2.5 m/s<sup>2</sup> to the hand-arm or 0.5 m/s<sup>2</sup> 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 (ft-lb)			
Size	Torque		
	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	150	378	591
1-8	220	583	893
Metric Grade 8.8 (ft-lb)			
Size	Torque	Size	Torque
M 6	7	M 12	60
M 8	17	M 14	95
M 10	35	M 16	155
These torque values apply to fasteners except those noted in the instruction.			

# INSTALLATION INSTRUCTIONS

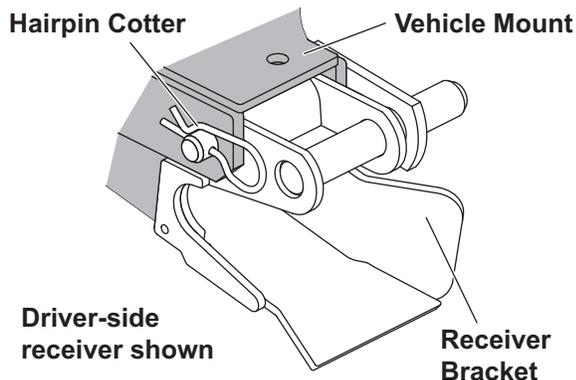
## LIFT FRAME TO T-FRAME ASSEMBLY

1. Set aside the blade guides and parts bags. The vehicle electrical harnesses and Owner's Manual packet are in the bag with the headlamp box.
2. Remove the lag bolts and wood blocks securing the headlamp channel to the lift frame and set the headlamp channel aside.
3. Remove the packaging hardware securing the lift frame to the T-frame, except for the clevis pins and the red shipping brackets.
4. Remove the fasteners and blocking securing the A-frame to the pallet.
5. While supporting the lift frame, remove the clevis pins and discard the red shipping brackets.
6. Set aside the stacking stops. They will be installed, if required, after the snowplow is installed on the vehicle and the T-frame position has been adjusted.

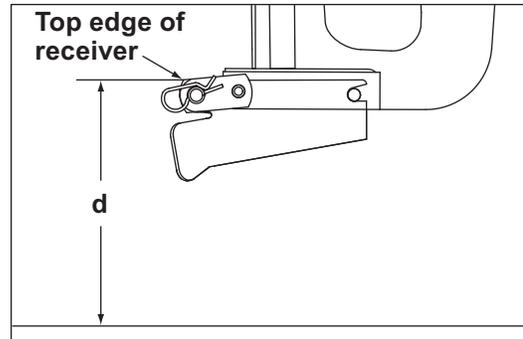
## Pivot Plate Hole Position

**IMPORTANT!** Before assembling the lift frame to the T-frame, the pivot plate hole position must be determined using the following procedure. (If the truck is not available, use hole position 2. Adjustments can be made later.)

Before measuring the vehicle mount height, the vehicle mount and receiver brackets must be installed, ballast must be installed, if required, and the vehicle must be parked on a level surface.

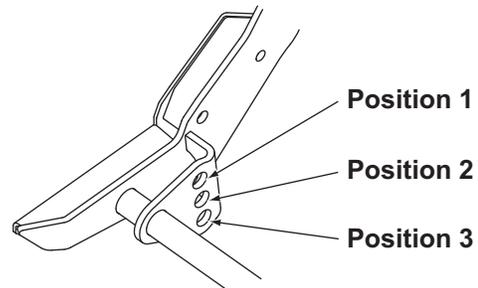


1. Measure the distance "d" from the ground to the top edge of the receiver bracket. Measure both sides and determine average value for "d."



2. Use distance "d" from Step 1 and the following chart to determine the proper pivot plate hole position.

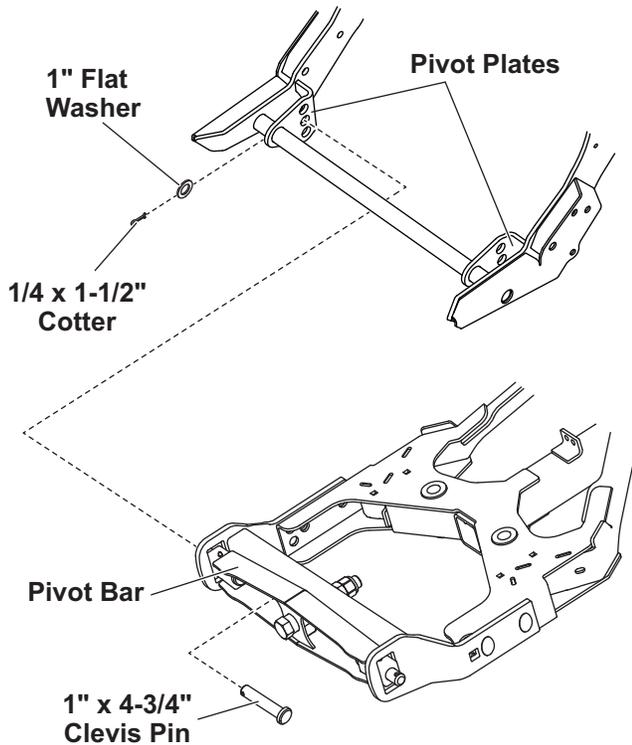
Pivot Plate Hole Position Chart	
Distance "d"	Hole Position
13.0" – 14.5"	1
14.5" – 16.0"	2
16.0" – 19.0"	3



# INSTALLATION INSTRUCTIONS

## Pivot Bar to Pivot Plates

1. Position the T-frame and pivot bar between the pivot plates, aligning the hole at each end of the pivot bar with the appropriate hole in the pivot plate as determined by distance "d."
2. On each side, insert 1" x 4-3/4" clevis pins from the inside of the pivot bar through the correct pivot plate holes. Secure the clevis pins with 1" flat washers and 1/4" x 1-1/2" cotter pins.



## STAND SHOE

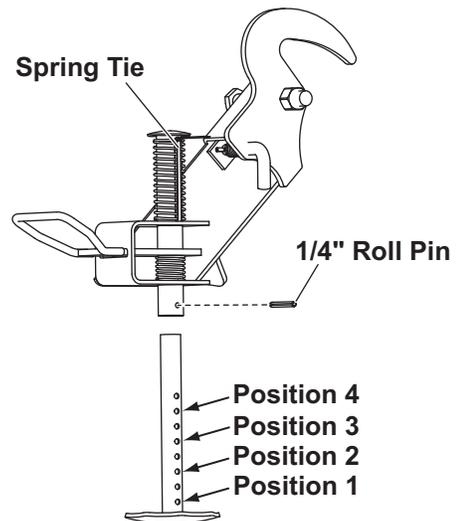
### ⚠ WARNING

The stand plunger spring is shipped compressed and tied. Do not cut the spring tie until final stand shoe adjustment is complete and the roll pin is installed.

Initial stand shoe height adjustment is based on the receiver height measurement (distance "d") determined in Step 1 under "Pivot Plate Hole Position." A final adjustment of the stand shoe will be made after attaching the snowplow to the vehicle.

1. Slide the stand shoe into the stand tube and align the 1/4" hole in the stand tube with the 1/4" hole in the stand shoe as determined from the chart and illustration below.

Stand Shoe Position Chart	
Distance "d"	Position
13.0" – 14.5"	1
14.5" – 16.0"	2
16.0" – 17.5"	3
17.5" – 19.0"	4

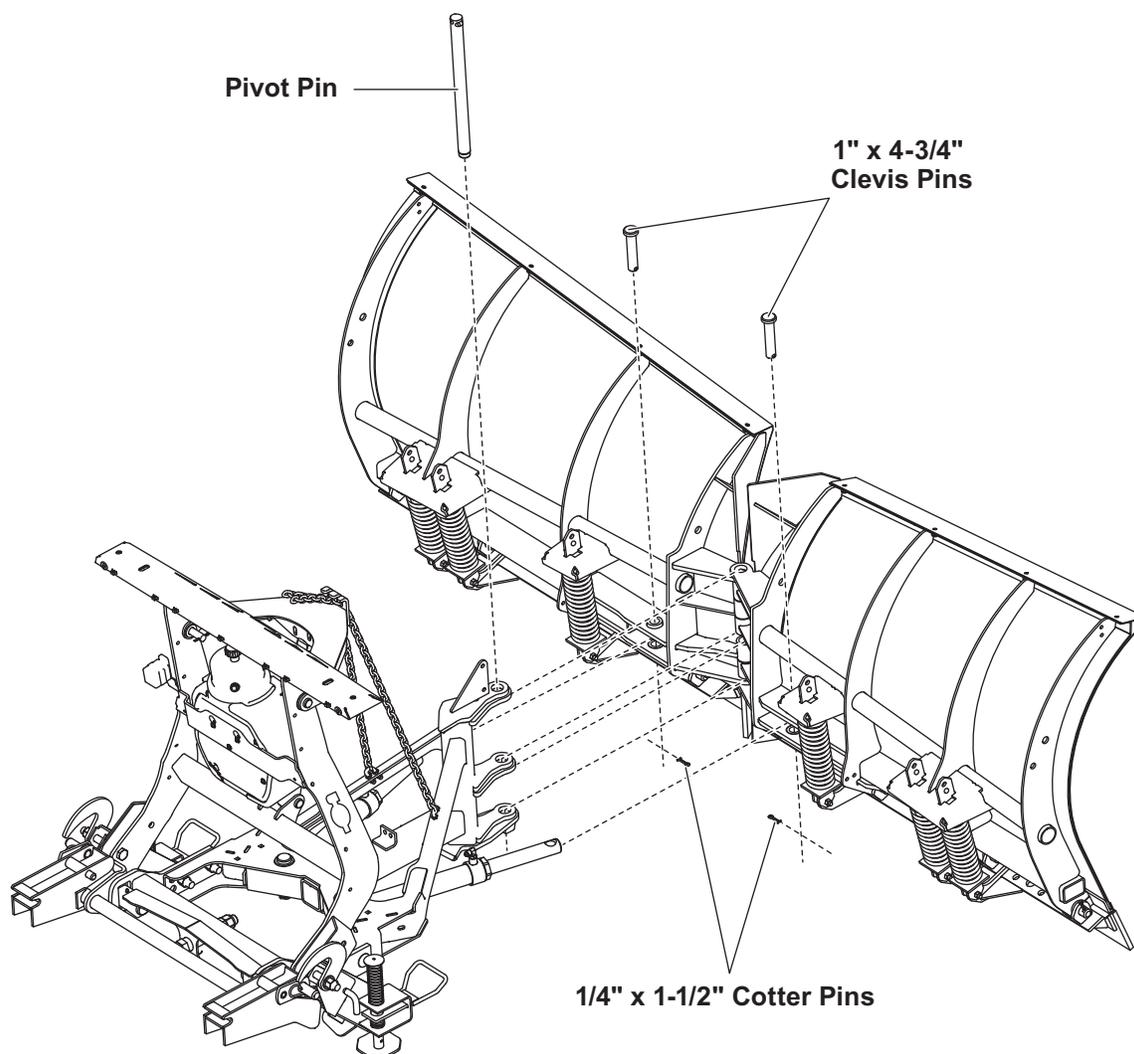


2. Insert a 1/4" roll pin.
3. Do not cut the spring tie until after the final stand shoe adjustment.

# INSTALLATION INSTRUCTIONS

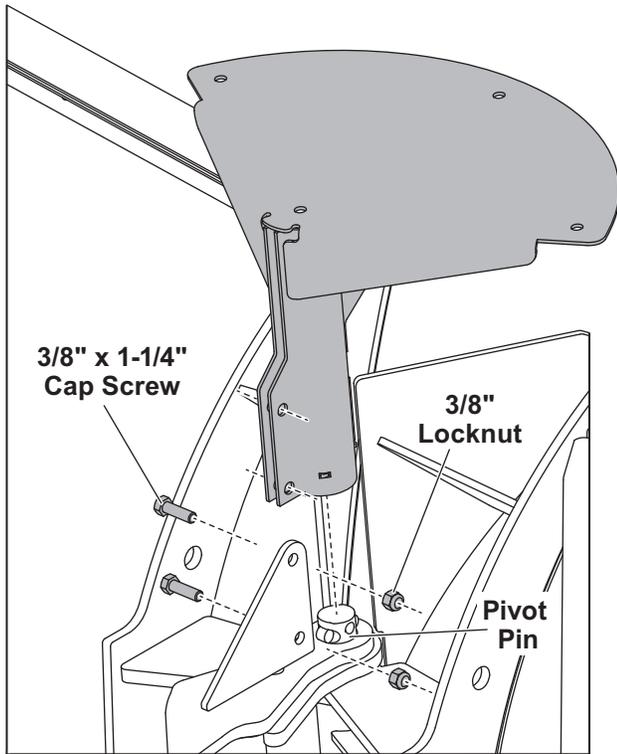
## T-FRAME TO BLADE ASSEMBLY

1. Align the hinges of each wing. Position the T-frame assembly between the blade wings so the holes in the T-frame are aligned with the holes in wing hinges.
2. Insert the pivot pin from top to bottom through all hinges as shown.
3. Move the snowplow into a normal operating position.
4. Remove the protective packaging from the angle rams.
5. Align the holes in the rod end of the angle ram with the corresponding holes on the back of the blade.
6. Install a 1" x 4-3/4" clevis pin from the top down to attach each rod. Secure the clevis pins with 1/4" x 1-1/2" cotter pins.

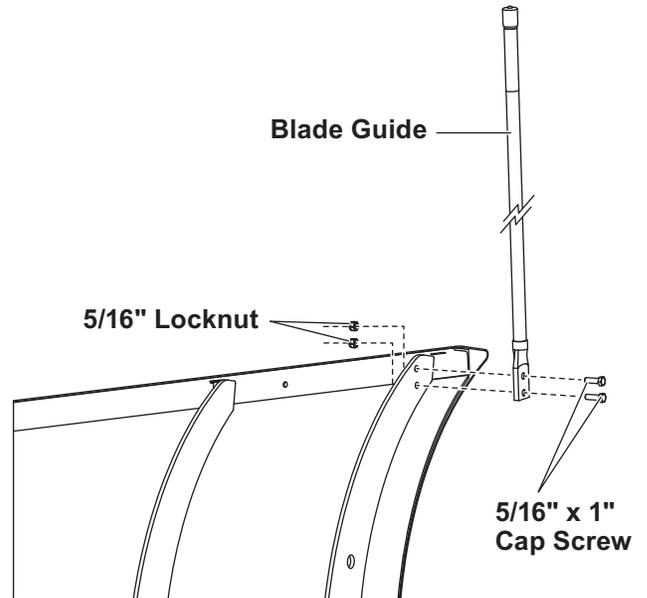


# INSTALLATION INSTRUCTIONS

7. Install the center snow deflector using two 3/8" x 1-1/4" cap screws and 3/8" locknuts.



8. Install the blade guides with 5/16" x 1" cap screws and 5/16" locknuts, as shown.



# INSTALLATION INSTRUCTIONS

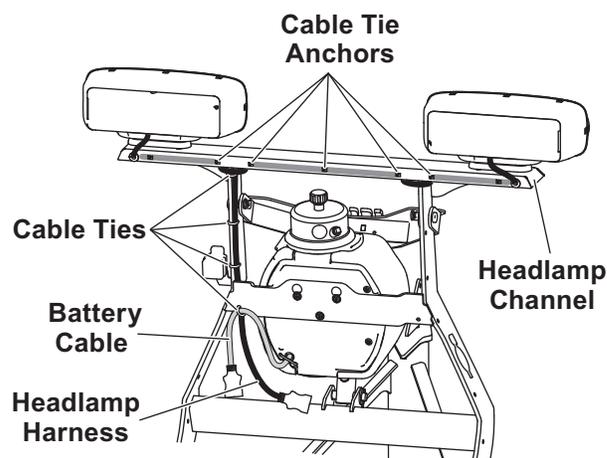
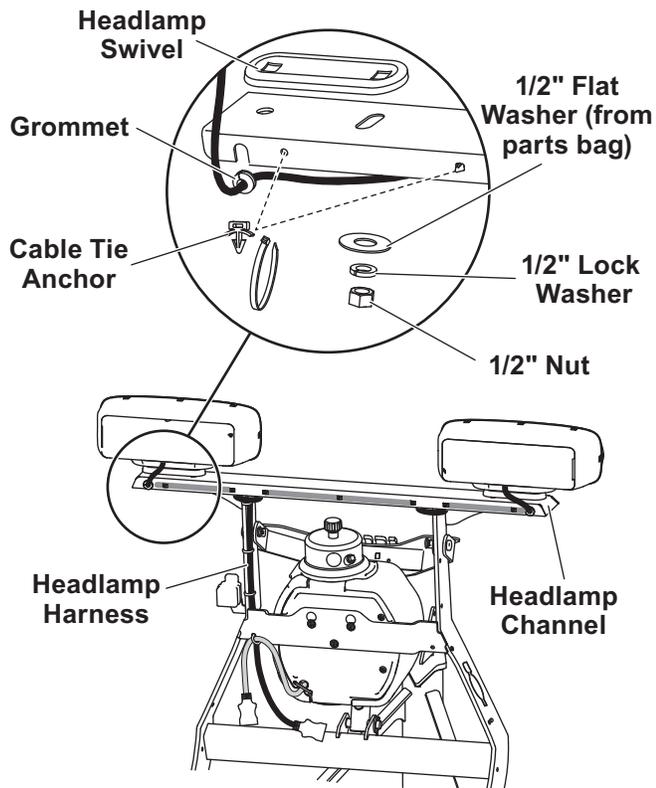
## HEADLAMPS

### **⚠ 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. 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.



2. Insert seven cable tie anchors into the 1/4" holes on the rear of the headlamp channel, from inside the channel, with the locking tabs horizontal.
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, securing the wires to the anchors with cable ties.
5. Attach the harness to the front of the hydraulic unit cross member at the driver-side vertical support with a cable tie through the hole in the cross member.
6. Cable tie the harnesses and battery cable to the lift frame as shown in illustration.

# OPERATIONAL TEST AND FINAL ADJUSTMENTS

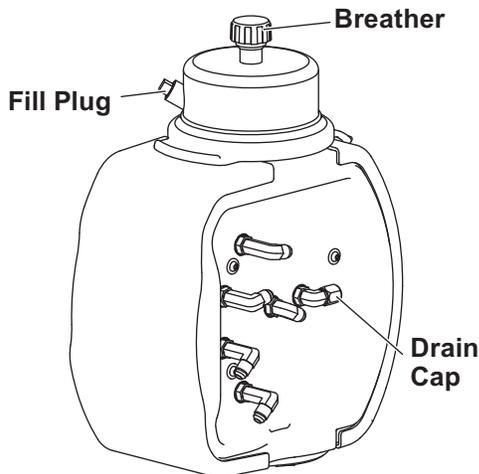
## HYDRAULIC UNIT

### ⚠ WARNING

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

The MVP 3™ snowplow hydraulic system comes from the factory pre-assembled, partially filled and fully tested.

1. Attach the snowplow to the vehicle according to the instructions on the back of the blade.
2. 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 completely extend and retract the driver-side wing several times. Repeat for the passenger-side wing. With both wings fully retracted, raise and lower the snowplow several times. Activate the control FLOAT function and manually collapse the lift ram all the way. 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 fill plug and check the fluid level. With the snowplow wings and lift ram fully retracted, the fluid level should reach the fill hole. If additional fluid is needed, fill the reservoir with WESTERN® High Performance Hydraulic Fluid 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 4.

**NOTE: Loosen fill plug slowly to relieve any pressure in the reservoir.**

**NOTE: Add fluid only when all rams are retracted.**

5. Replace and tighten the fill plug.

### FLUID CAPACITY

- FloStat® Unit Reservoir 1-3/4 quarts
- FloStat System Total 2-3/8 to 2-3/4 quarts

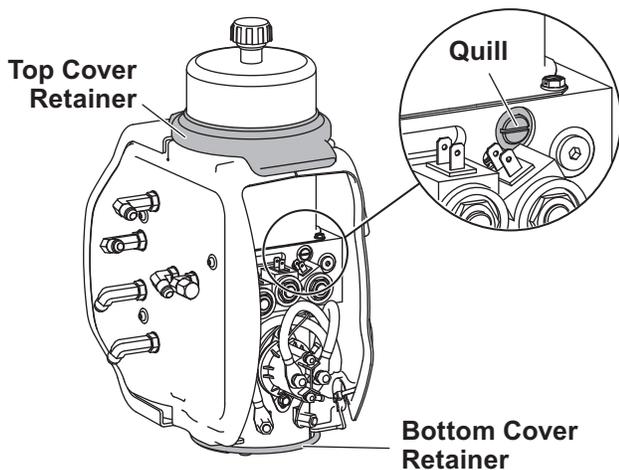
# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## BLADE DROP SPEED ADJUSTMENT

### **⚠ WARNING**

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

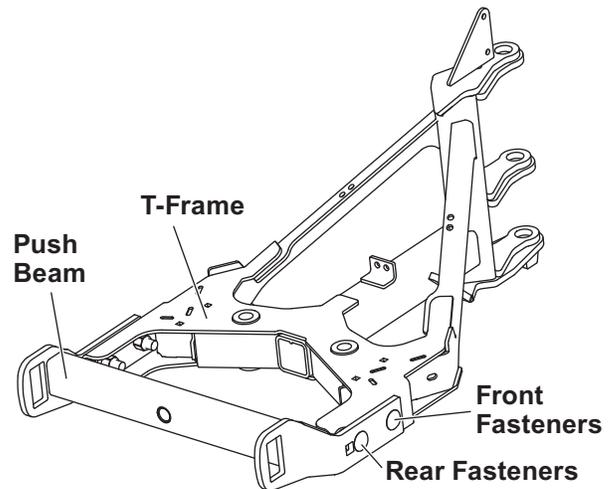
The quill in the top of the valve manifold adjusts the blade drop speed.



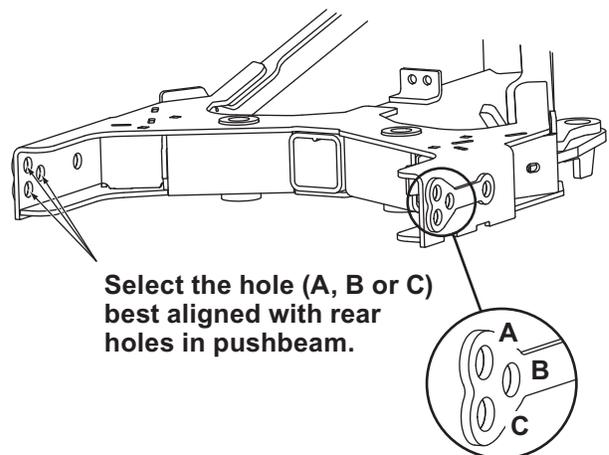
1. Lower the blade to the ground before making adjustment.
2. On the hydraulic unit, raise the top cover retainer, remove the bottom cover retainer and remove the side cover.
3. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.
4. Stand 8 feet clear of the blade when checking adjustment.
5. Replace the cover and reinstall the O-ring and top cover seal.

## LEVEL T-FRAME

1. With snowplow attached to the properly ballasted vehicle and blade lowered to ground, the T-frame should be parallel with the ground. If not, place the snowplow in the scoop position.
2. Loosen the front fasteners for the pushbeam to T-frame connection, but do not remove them. Next remove the rear fasteners from the pushbeam to T-frame connection. Level the T-frame.



3. Select the hole in the rear of the T-frame that is aligned closest to the rear hole in the pushbeam. Lubricate and reassemble the previously removed fasteners into the rear holes. Tighten the fasteners according to the torque chart.



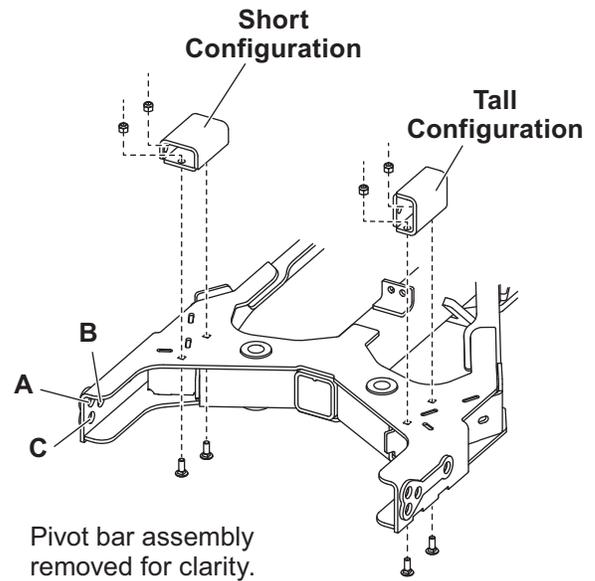
# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## STACKING STOPS

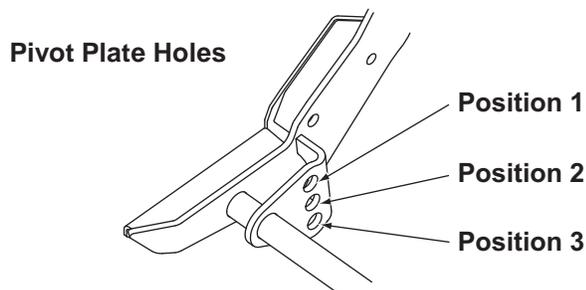
Refer to the specifications table below to determine whether the snowplow installation requires stacking stops to be added on the T-frame.

If stacking stops are required:

1. Ensure that both stacking stops are installed in either the short or tall configuration, as determined by the specifications table.
2. Attach the stacking stops using the supplied 3/8" x 1-1/2" carriage bolts and 3/8" locknuts, installing the carriage bolts through the T-frame from below.



Configuration	T-Frame Leveling Adjustment	Snowplow WITHOUT Headlamp Extension Brackets	Snowplow WITH Headlamp Extension Brackets
Tall Truck Pivot Plate Hole Position 3	Upward – Hole A	Short Stacking Stop	Tall Stacking Stop
	Level – Hole B		Short Stacking Stop
	Down – Hole C	No Stacking Stop Needed	
Medium Truck Pivot Plate Hole Position 2	Upward – Hole A	Short Stacking Stop	Short Stacking Stop
	Level – Hole B	No Stacking Stop Needed	No Stacking Stop Needed
	Down – Hole C		
Low Truck Pivot Plate Hole Position 1	Upward – Hole A	No Stacking Stop Needed	Short Stacking Stop
	Level – Hole B		No Stacking Stop Needed
	Down – Hole C		

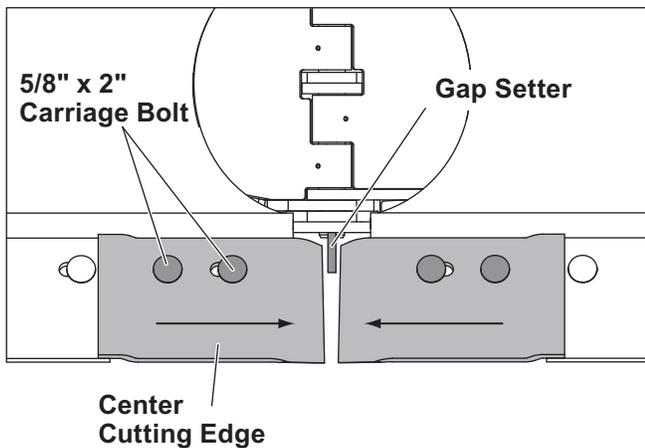


# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## CENTER CUTTING EDGES

The center cutting edge spacer plate is located on the T-frame below the pivot pin hinges.

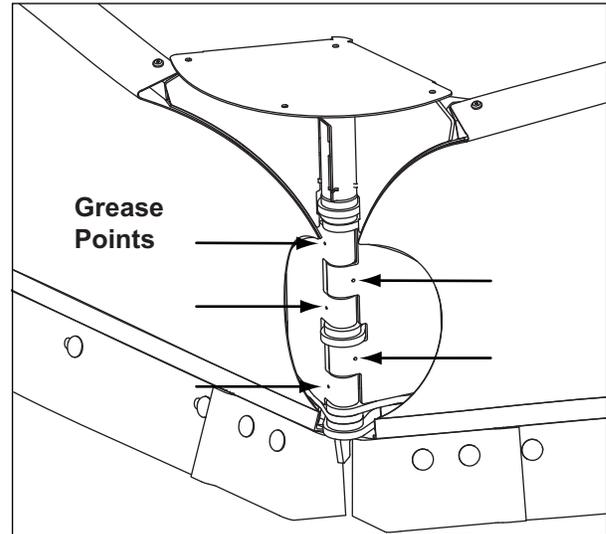
1. With the blade wings in straight position, the center cutting edges should touch the center cutting edge spacer plate. If they do not touch the spacer plate, adjust the center cutting edges as follows.
2. Loosen the four 5/8" x 2" center cutting edge carriage bolts, but do not remove them.



3. Slide the center cutting edges inward until they contact the spacer plate.
4. Re-tighten the center cutting edge carriage bolts according to the torque chart.

## Lubricating the Pivot Pin Hinge

Using a rubber-tipped seal-off coupler tip, apply a good quality multipurpose grease at the five grease points along the center pivot pin hinge.



# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## FINAL INSPECTION AND ADJUSTMENT

### **⚠ WARNING**

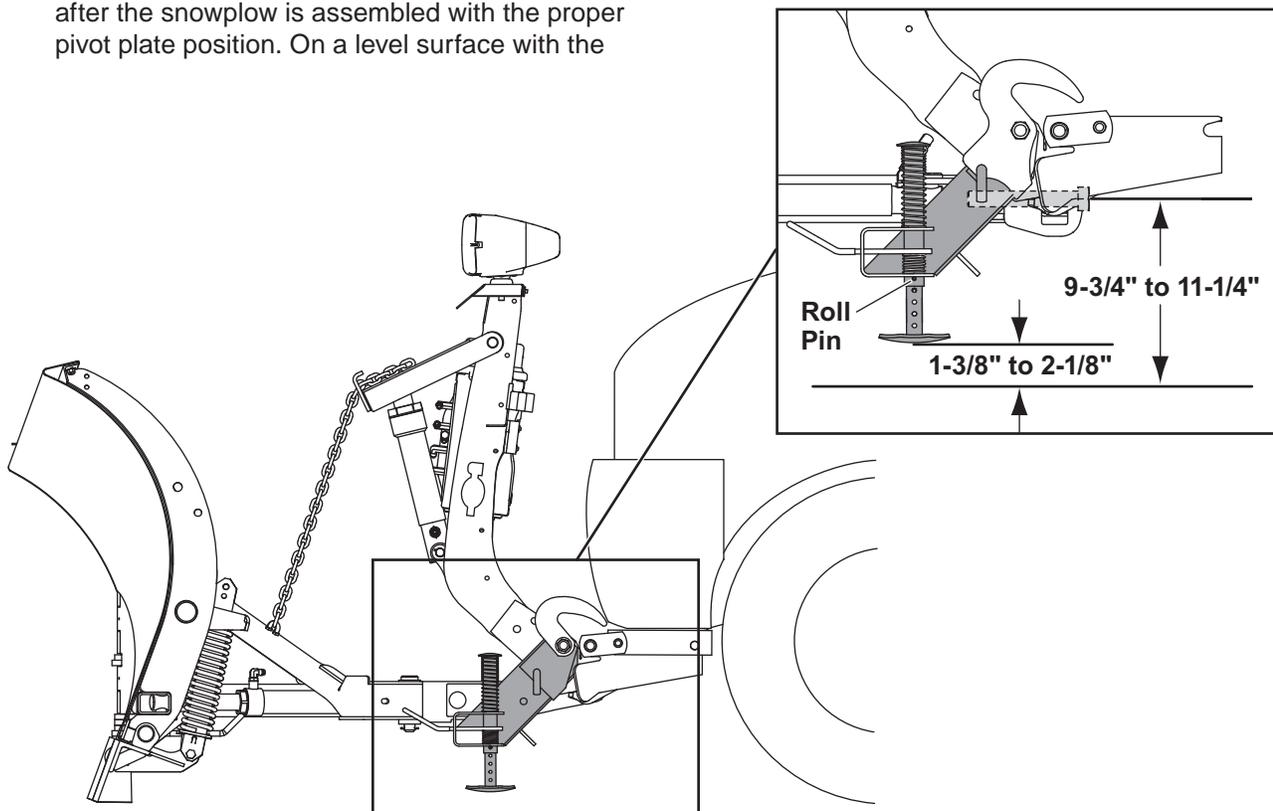
**Keep 8' clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.**

1. Attach snowplow to the vehicle mount. With snowplow lowered to the ground and on level pavement, measure the dimension from the ground to the center of the pivot bar cap screw. This dimension must be 9-3/4" to 11-1/4".
2. With the snowplow attached and on the ground, place the stand arm in the lower position with the lock pin engaged and with the stand shoe fully retracted in the "UP" position. Measure the distance from the ground to the bottom of the stand shoe. This distance should be 1-3/8" to 2-1/8". The stand can be adjusted to achieve this dimension by removing the roll pin and selecting the proper hole in the stand stem. When the stand height is correct, cut and remove the spring tie.
3. Final lift chain link adjustment must be made after the snowplow is assembled with the proper pivot plate position. On a level surface with the

snowplow on the ground and the lift ram fully collapsed, attach the chains to the lift arm hooks in the tightest possible link. This adjustment will provide for optimum transport height, blade float, and stacking stop clearance. When chain tension is correct, the T-frame will not contact the lift frame when the blade is fully raised.

4. Fully raise the blade and verify that it does not block the headlamp beams. If the blade blocks the headlamp beams, lower the blade to the ground, collapse the lift ram and lengthen each chain by one link. Repeat this process, lengthening the chains by one link each time, until the blade does not block the headlamp beams.
5. Raise and lower the snowplow in "Retract" (vee) position to verify that the hydraulic hoses bow outward and do not interfere with snowplow components.

**NOTE: Ensure that the base-end angle ram hoses are wrapped over the diagonal brace. Adjust hoses, fittings and wraps as necessary to prevent any hoses from being pinched.**



# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## VEHICLE LIGHTING CHECK

1. Verify the operation of all vehicle front lighting prior to connecting the snowplow harness.
2. Check the operation of the snowplow lights with snowplow mounted to vehicle and all harnesses connected.

### Turn signals and parking lamps

#### Parking lamps ON:

- Both vehicle and snowplow parking lamps should be ON at the same time.

#### Driver-side turn signal ON:

- Both vehicle and snowplow driver-side turn signal lamps should flash at the same time.

#### Passenger-side turn signal ON:

- Both vehicle and snowplow passenger-side turn signal lamps should flash at the same time.

### Headlamps

Move vehicle headlamp switch to the "ON" position. Connecting and disconnecting the snowplow lighting harness plug should switch the lights between vehicle and snowplow as follows:

#### Snowplow lighting harness DISCONNECTED:

- Vehicle headlamps should be ON.
- Snowplow headlamps should be OFF.

#### Snowplow lighting harness CONNECTED:

- Snowplow headlamps should be ON.
- Vehicle headlamps should be OFF.

Dimmer switch should toggle headlamps between high and low beams. The high beam indicator on the dash should light when headlamps are placed in high beam.

### Daytime Running Lamps (DRLs)

An operational check of the vehicle and snowplow DRLs will depend on the vehicle model and DRL system and the type of Isolation Module installed. Due to variations in OEM DRL systems and the different Isolation Module options available, checking functionality of the snowplow DRLs will depend on the type of module installed on the vehicle.

With headlamp switch OFF, activate the vehicle DRLs.

#### Snowplow lighting harness DISCONNECTED:

- Vehicle DRLs should be ON.
- Snowplow headlamps should be OFF.

#### Snowplow lighting harness CONNECTED and vehicle in DRL mode:

- Check snowplow DRL function per the type of Isolation Module installed.

Refer to the Mechanic's Guide for information on the Isolation Module DRL functions.

### Joystick or Hand-Held Control

The snowplow plugs **do** need to be connected to the vehicle harness connectors. The control power indicator light should light whenever the control ON/OFF switch and the ignition (key) switch are both in the "ON" position.

3. Connect all snowplow and vehicle harnesses. Raise the snowplow and aim the snowplow headlamps according to the Snowplow Headlamp Beam Aiming instructions included with the headlamps, and any state or local regulations.
4. Check the aim of the vehicle headlamps with the snowplow removed.

### **⚠ CAUTION**

**On 2-plug electrical systems, plug covers shall be used whenever snowplow is disconnected. Vehicle Battery Cable is 12-volt unfused source.**

5. When the snowplow is removed from the vehicle, install plug covers on the vehicle battery cable and lighting harness. Insert the snowplow battery cable and lighting harness 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 according to the snowplow checklist.

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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