



MVP PLUS™ Snowplow

44475-1, 44485-1, 44495-1, 44575-1,
44585-1, 44595-1, 74225

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.

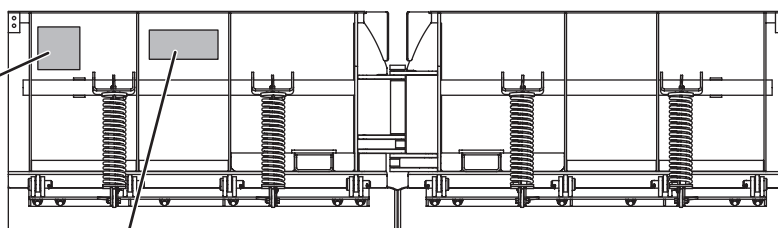
WARNING/CAUTION AND INSTRUCTION LABELS

Become familiar with and inform users about the warning/caution 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

⚠ 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.

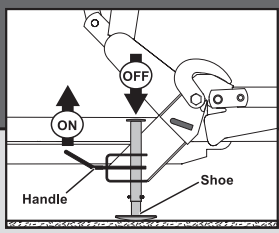


Instruction Label

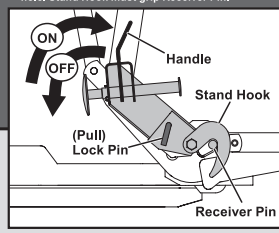
UltraMount[®] SYSTEM INSTRUCTIONS

MOUNTING PLOW (ON) Read Owner's Manual for complete instructions.

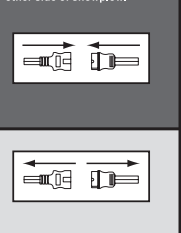
STEP 1
After seating plow horns in receiver brackets, pull Handle up; Shoe will lift off the ground.



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.

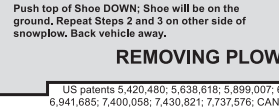


STEP 3
Plug in electrical connections. Repeat Steps 1 and 2 on other side of snowplow.

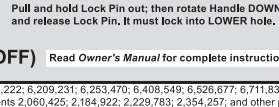


REMOVING PLOW (OFF) Read Owner's Manual for complete instructions.


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.



US patents 5,420,480; 5,638,618; 5,899,007; 6,145,222; 6,209,231; 6,253,470; 6,408,549; 6,526,677; 6,711,837; 6,928,757; 6,941,685; 7,400,058; 7,430,821; 7,737,576; CAN patents 2,060,425; 2,184,922; 2,229,783; 2,354,257; and other patents pending.

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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 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 Quick Match 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 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/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

LIFT FRAME TO T-FRAME

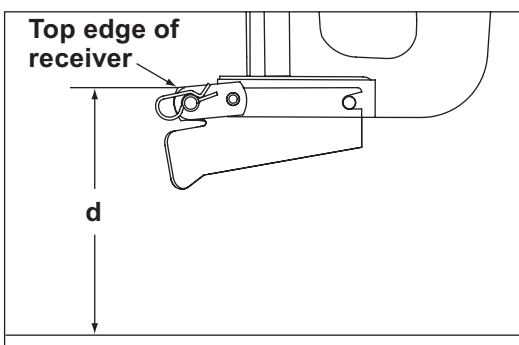
1. Set aside the blade guides and parts bags. The vehicle electrical harnesses and Owner's Manual packet are in the bag with the headlamp box.
2. Remove the packaging hardware securing the lift frame to the T-frame, except for the clevis pins and the shipping brackets.
3. Remove the fasteners and blocking securing the T-frame to the pallet.
4. While supporting the lift frame, remove the clevis pins and discard the shipping brackets.

Pivot Plate Configuration

IMPORTANT! Before assembling the pivot plates to the ends of the pivot bar, pivot plate orientation and pivot hole position must be determined using the following procedure.

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 the average value "d".

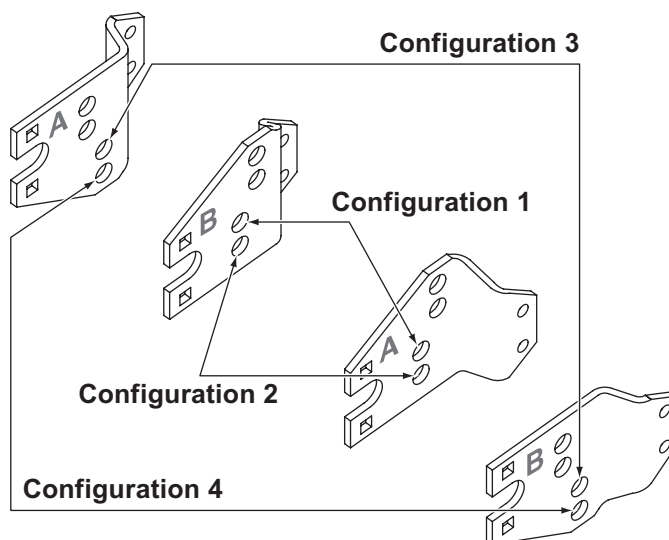


2. If the vehicle is unavailable, use configuration 2 and reposition the plates later, as necessary.

3. Use dimension "d" from Step 1 and the following chart to determine the proper pivot plate mounting position and pivot hole selection.

Pivot Plate Configuration Chart		
Dimension "d"	Configuration	Stacking Stop
13.0" – 14.5"	1	No
14.5" – 16.0"	2	No
16.0" – 17.5"	3	No
17.5" – 19.0"	4	Yes

4. The two pivot plates, A and B, are mirror images of each other. They may be turned over and switched from one side of the pivot bar to the other to provide two different mounting positions.



In each pivot plate mounting position, the pivot bar pins may be installed through either of the **lower** holes in the pivot plates, providing four different height adjustment positions. **The pivot bar pins are never installed in either of the two upper holes in the pivot plates.**

INSTALLATION INSTRUCTIONS

Pivot Plates to Lift Frame

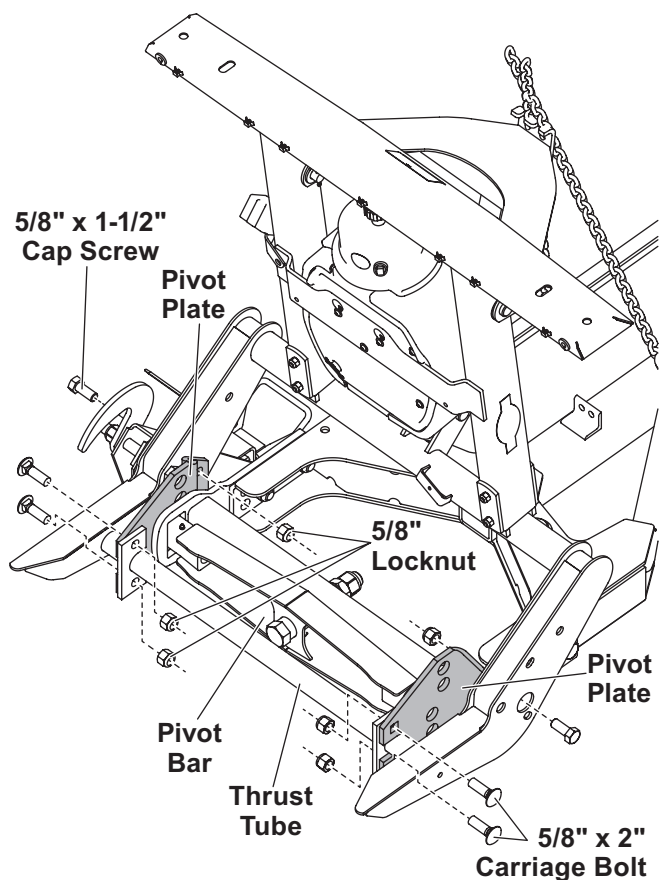
Configuration 1 or 2

The snowplow is pre-assembled for configuration 1 or 2. If the lift frame to T-frame assembly needs to be in either of these configurations, the pivot plates do not need to be repositioned. Skip to Step 6.

Configuration 3 or 4

If the lift frame to T-frame assembly needs to be in configuration 3 or 4, the pivot plates must be removed and repositioned before the T-frame is assembled to the lift frame.

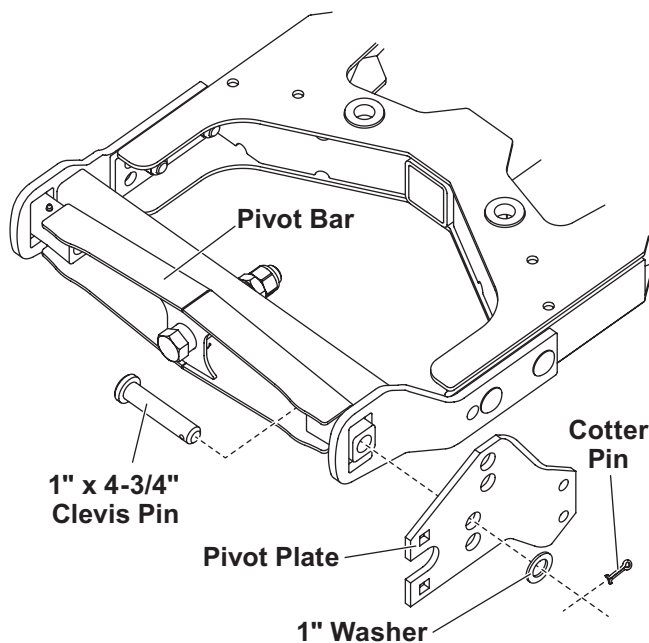
1. With the lift frame supported, remove and retain the two 5/8" x 2" carriage bolts and locknuts near the thrust tube on both sides.
2. Rotate the stand downward and out of the way until the clearance hole is visible. Remove the 5/8" x 1-1/2" cap screw through the clearance hole. Retain the cap screw and locknut. Repeat on the other side.



3. Reposition the pivot plates by turning them over and switching them from one side of the lift frame to the other.
4. Secure the pivot plates to the lower lift frame using the fasteners removed in Step 1.
5. Tighten all fasteners according to the torque chart.

Pivot Plates to Pivot Bar

6. 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.
7. Insert 1" x 4-3/4" clevis pins from the inside of the pivot bar through the correct pivot plate holes for the configuration. Secure the pins with washers and cotter pins.

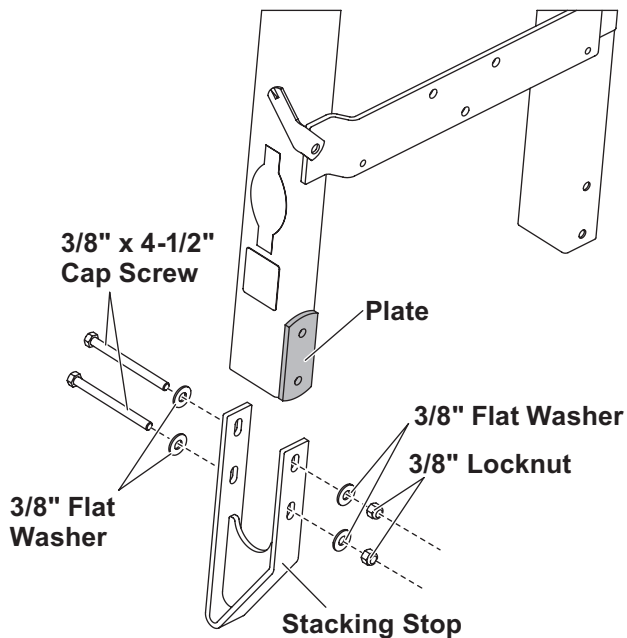


INSTALLATION INSTRUCTIONS

Stacking Stops

If the snowplow is going to be assembled using configuration 4, the stacking stops must be installed onto the lift frame. The 3/8" x 4" cap screws must be replaced with the 3/8" x 4-1/2" cap screws located in the parts kit.

8. Remove the plates from the front of the upper lift frame and discard.



9. Position the plate on the back of the lift frame and slide the stacking stop over the plate and align the holes.
10. Install a 3/8" flat washer onto a 3/8" x 4-1/2" cap screw, inserting it from the front. Secure with a 3/8" flat washer and locknut.
11. Tighten the bottom nut first to 31 ft-lb torque, then tighten the top nut to 31 ft-lb. Verify that the rectangular tubing of the upper lift frame has collapsed, as indicated by the 3" sides of the rectangular tubing bulging outward.

STAND SHOE

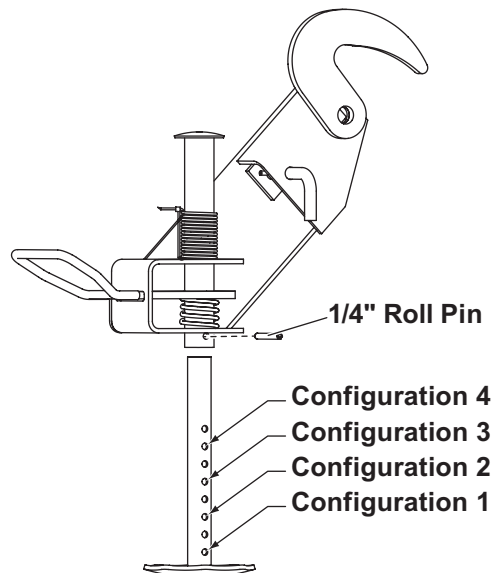
⚠ WARNING

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.

The initial stand shoe height adjustment is based on the pivot plate configuration chart. 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 (determined from the pivot plate configuration chart and illustration below).

Pivot Plate Configuration Chart		
Dimension "d"	Configuration	Stacking Stop
13.0" – 14.5"	1	No
14.5" – 16.0"	2	No
16.0" – 17.5"	3	No
17.5" – 19.0"	4	Yes

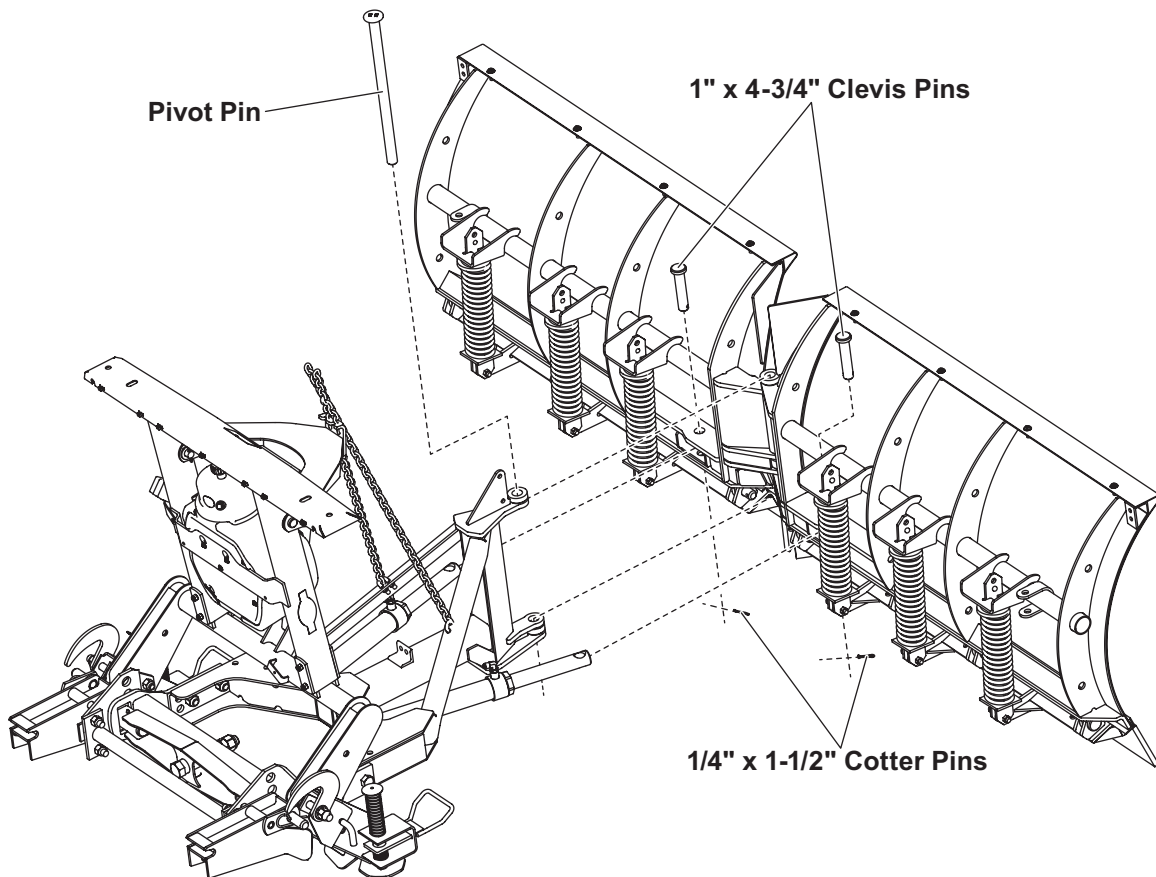


2. Insert the 1/4" roll pin.
3. Do not cut the spring tie until after the final stand shoe adjustment.

INSTALLATION INSTRUCTIONS

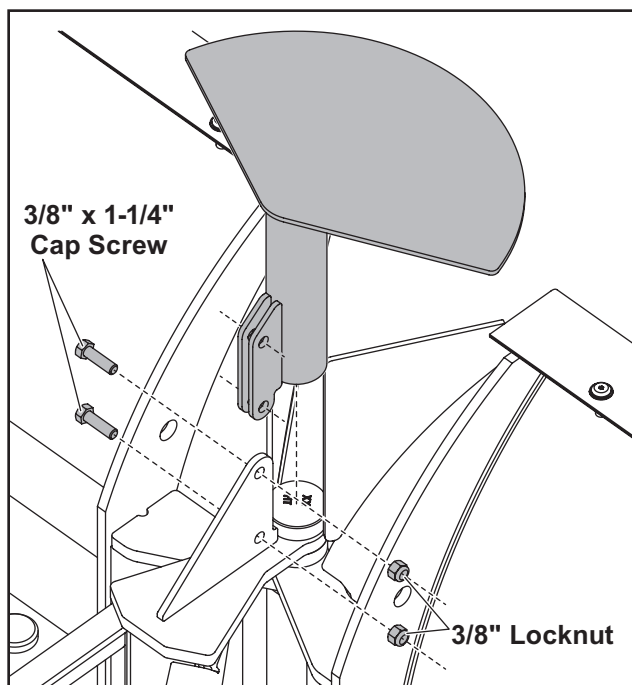
T-FRAME TO BLADE ASSEMBLY

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.

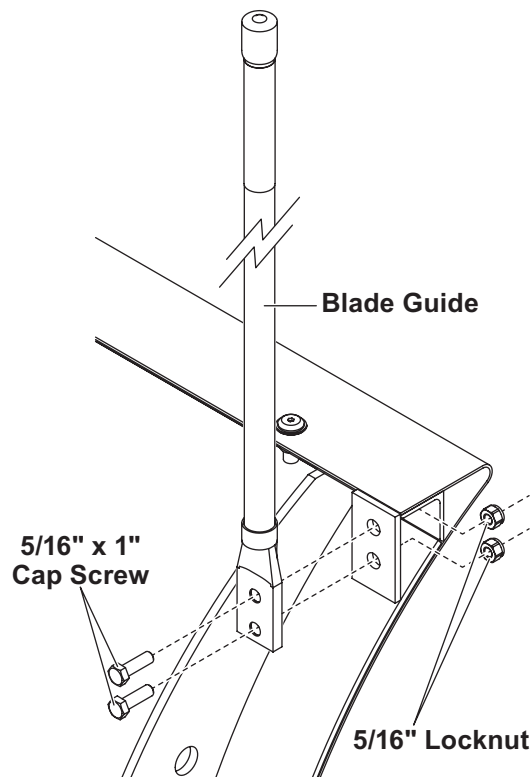


INSTALLATION INSTRUCTIONS

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.



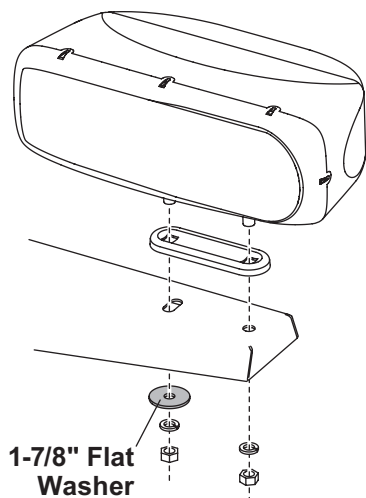
INSTALLATION INSTRUCTIONS

HEADLAMPS

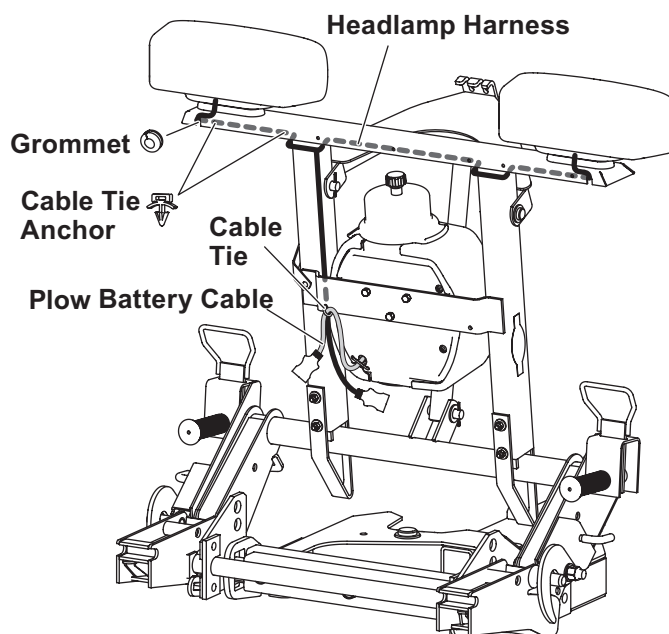
⚠ WARNING

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

Headlamps, hardware and instructions are found in the headlamp box. Additional hardware (two 1-7/8" flat washers) can be found in the parts bag.



1. Attach the headlamps to the headlamp channel according to the instructions provided in the headlamps box, substituting the 1-7/8" flat washer from the parts bag for the 1/2" flat washer packed in the headlamps box.



Refer to the figure above for the following instructions.

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

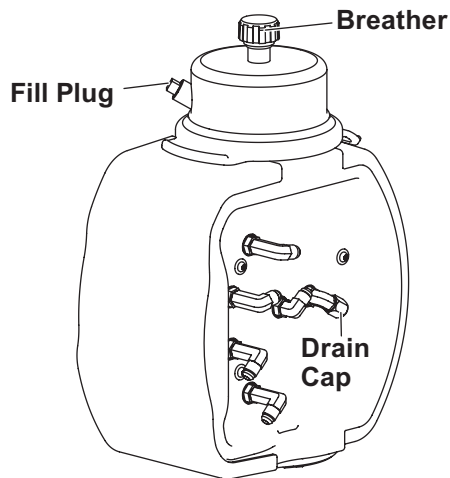
HYDRAULIC UNIT

⚠ 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 PLUS™ 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

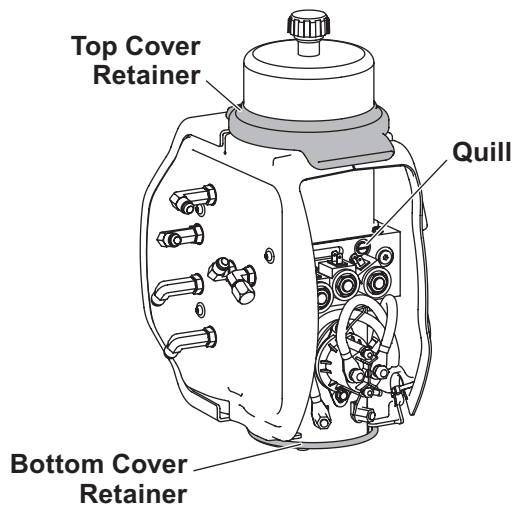
OPERATIONAL TEST AND FINAL ADJUSTMENTS

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.

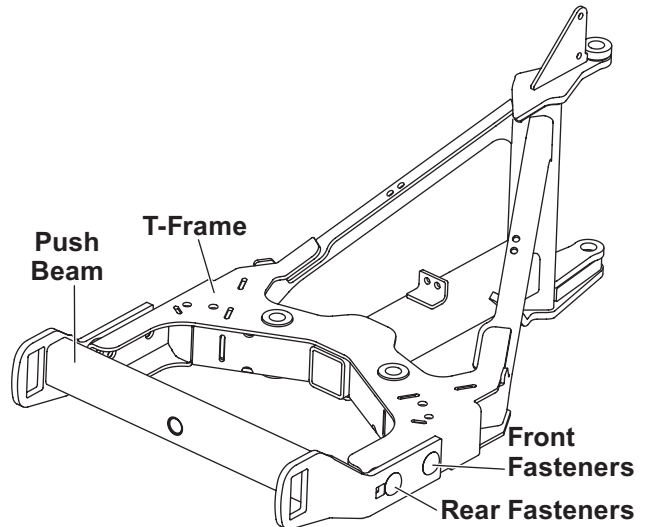
The quill in the top of the valve manifold adjusts the blade drop speed.



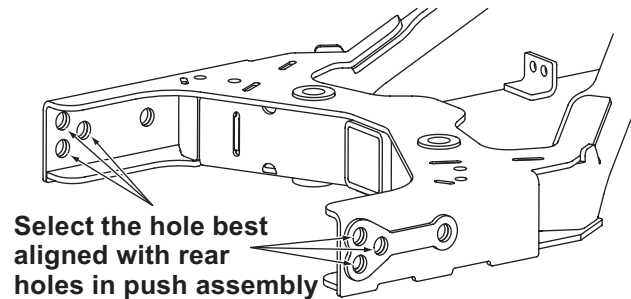
1. Lower the blade to the ground before making adjustment.
2. On the hydraulic unit, raise the top cover retainer, remove the bottom cover retainer and remove the side cover.
3. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.
4. Stand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

LEVELING ADJUSTMENT PROCEDURE

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. Reassemble the previously removed fasteners into the rear holes and tighten all fasteners.



OPERATIONAL TEST AND FINAL ADJUSTMENTS

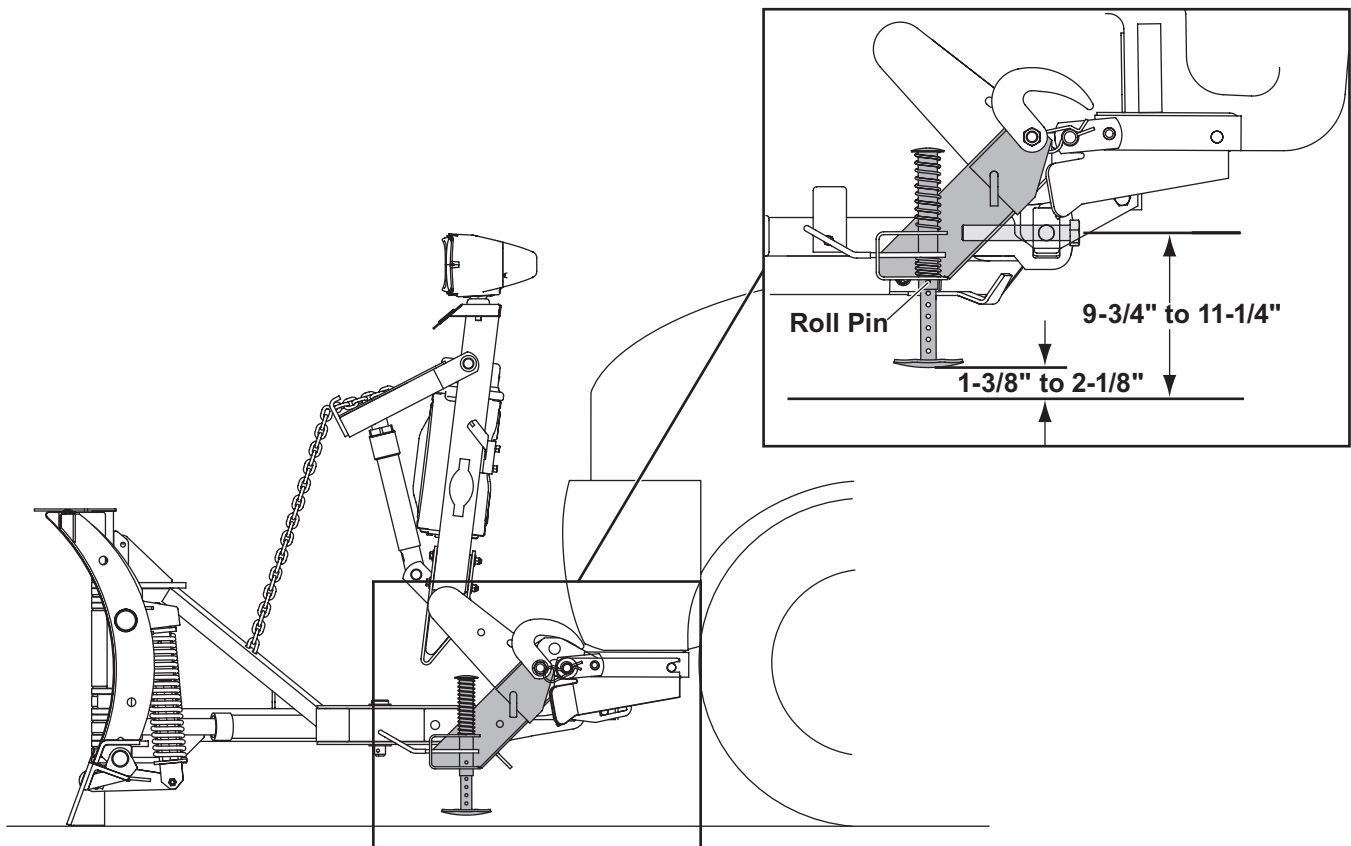
FINAL INSPECTION AND ADJUSTMENT

⚠ 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 hydraulic hoses bow outward and do not interfere with snowplow components.

NOTE: Ensure base-end angle ram hoses are wrapped over the diagonal brace. Adjust hoses, fittings and wraps as necessary.



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, vehicle DRL system and type of Isolation Module installed. Due to the variations in the OEM DRL systems and the different Isolation Module

options available, checking the 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 snowplow headlamps according to the Snowplow Headlamp Beam Aiming instructions included with the headlamps and any state or local regulations.
4. Check aim of vehicle headlamps with 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.

OPERATIONAL TEST AND FINAL ADJUSTMENTS

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.



Western Products
PO Box 245038
Milwaukee, WI 53224-9538
www.westernplows.com

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