

July 15, 2022  
Lit. No. 74912, Rev. 04



# RDV™ Snowplow

77790, 77795, 77890-3

Installation Instructions



**⚠ CAUTION**

Read this document before installing the snowplow.

**⚠ CAUTION**

See your SnowEx® outlet/website for specific vehicle application recommendations before installation. The Power Match selection system has specific vehicle and snowplow requirements.

### WARNING

### **⚠ CAUTION**

July 15, 2022

# 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 Power 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 SnowEx® electrical and hydraulic systems contain several automotive-style 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

#### 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.

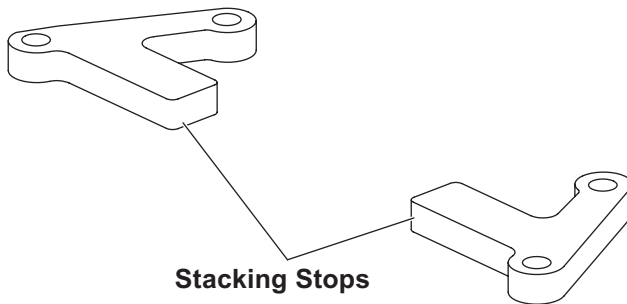
# INSTALLATION INSTRUCTIONS

## UNPACKING AND REMOVING SHIPPING BRACKETS

1. Set aside the blade guides and parts bags. The vehicle electrical harnesses are in the headlamp box. Move the attach/detach lever to unpin the receivers and set the receivers aside.

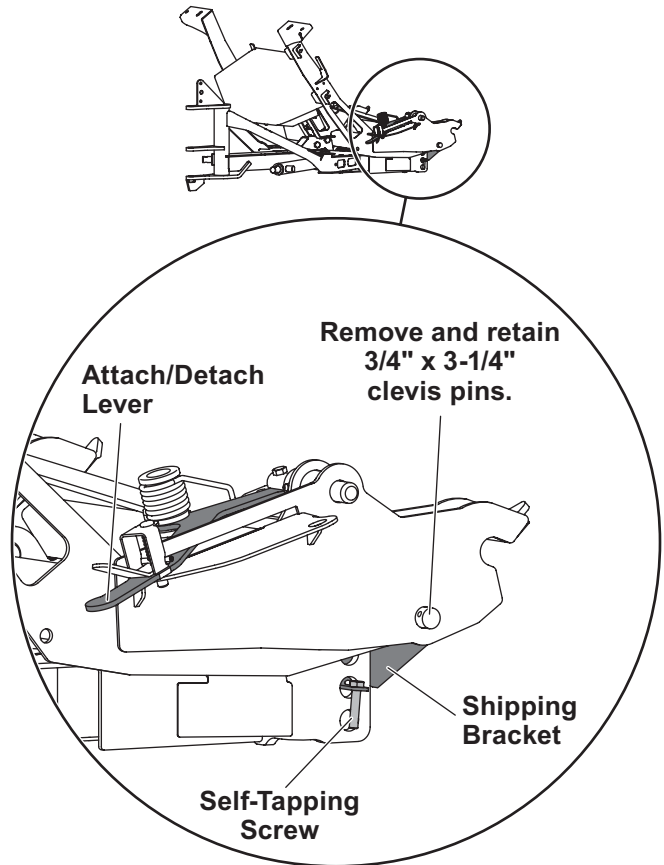
**NOTE: Leave handle in the "detach" position during entire assembly process.**

2. Remove the lag screws and wood blocks that secure the headlamp channel to the headgear and set the headlamp channel aside.
3. Remove the fasteners and stacking stops from the pallet. Retain the stacking stops and discard the fasteners.

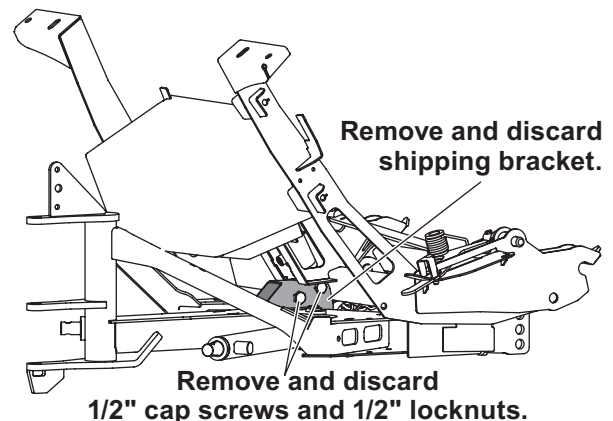


4. Remove the packaging hardware that secures the headgear to the T-frame, except for the clevis pins and the shipping brackets.
5. Remove the fasteners and blocking that secures the T-frame to the pallet.

6. While supporting the headgear, remove and discard the self-tapping screw from each side.
7. Remove the cable ties and discard. Remove and retain the 3/4" x 3-1/4" clevis pins. Discard the shipping brackets.



8. Remove and discard the two 1/2" cap screws and 1/2" locknuts from the shipping bracket and the lift cylinder. Remove and discard the shipping bracket.



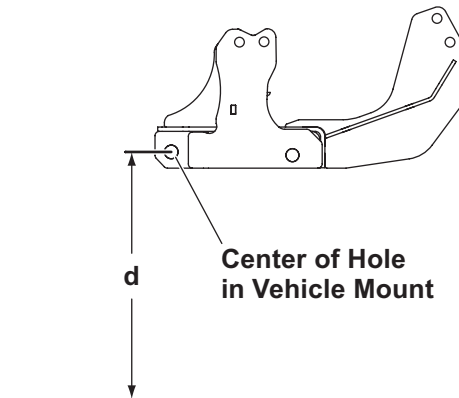
# INSTALLATION INSTRUCTIONS

## T-FRAME HOLE POSITION

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

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

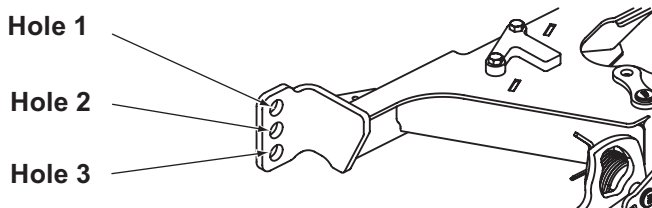
1. Measure the distance "d" from the ground to the center of the hole in the vehicle mount. Measure the distance on both sides of the vehicle and determine average value for "d."



2. Use distance "d" from Step 1 and the following chart to determine the proper T-frame hole.

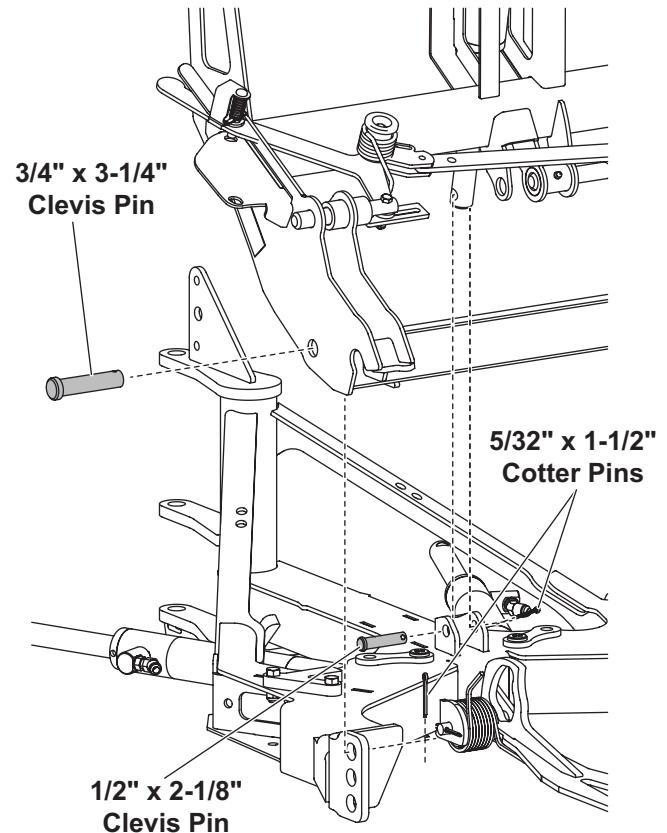
T-Frame Hole Chart	
Distance "d"	Hole
16.75" – 18.0"	1*
15.5" – 16.75"	2*
14.25" – 15.5"	1
13.0" – 14.25"	2
11.75" – 13.0"	3

\* Adjustment plate kit (PN 85395) is required in addition to standard receivers.



## T-FRAME TO HEADGEAR

1. Position the T-frame between the headgear strut and inner ear, aligned with the appropriate T-frame hole.
2. On each side, insert a 3/4" x 3-1/4" clevis pin (from the shipping bracket) from the outside of the headgear through the correct T-frame hole. Secure the clevis pins with 5/32" x 1-1/2" cotter pins found in the parts bag.

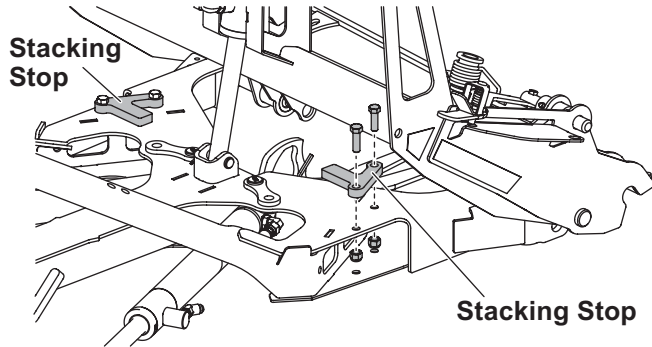


3. Fold the headgear forward and pin the lift cylinder to the T-frame using a 1/2" x 2-1/8" clevis pin and 5/32" x 1-1/2" cotter pin from the parts bag.
4. If the T-frame was installed into hole 15, install the stacking stops using the 3/8" x 1-1/4" cap screws and 3/8" locknuts from the parts bag.

**NOTE:** Failure to install stacking stops when required will result in blade, lift arm, or headgear damage.

## INSTALLATION INSTRUCTIONS

5. If the T-frame was installed into hole 2 or hole 3, do not install the stacking stops. Retain the stacking stops in case the snowplow is installed on a different vehicle.

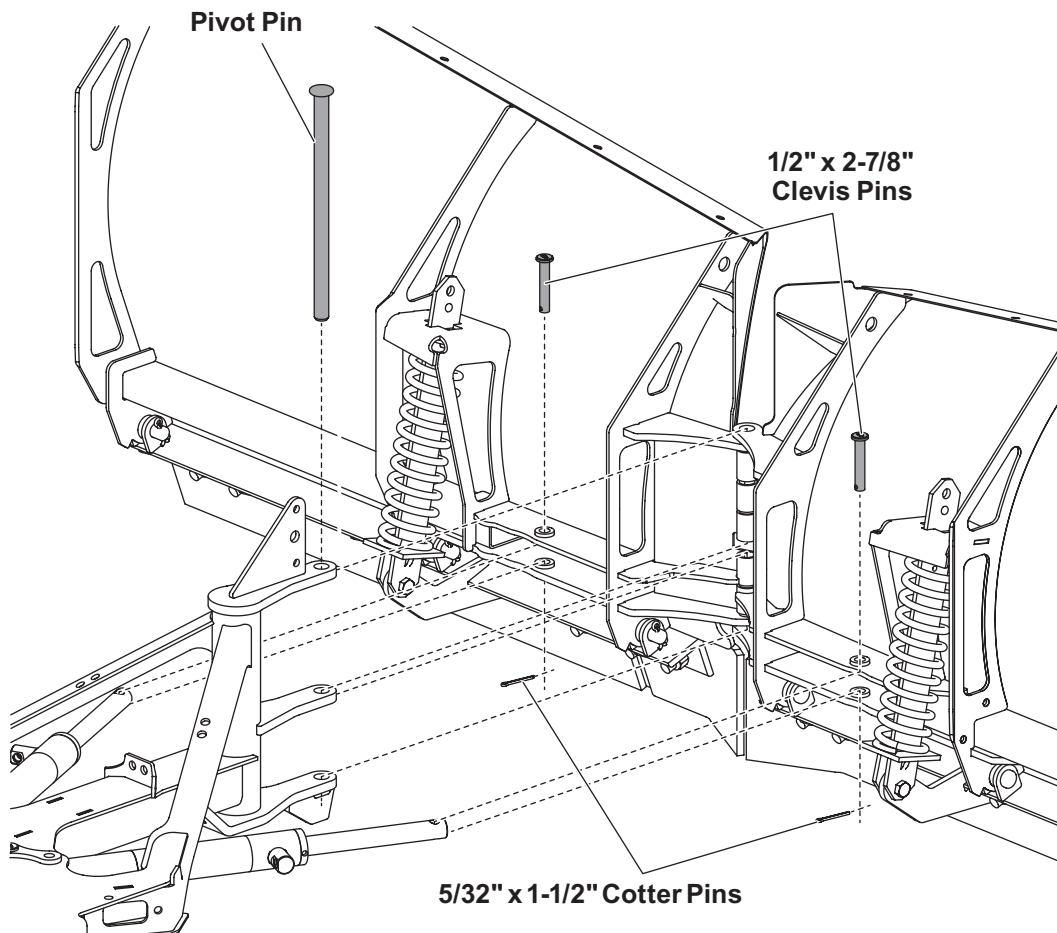


2. Align the hinges of each wing. Position the T-frame assembly between the blade wings so the holes in the T-frame are aligned with the holes in wing hinges.
3. Insert the pivot pin from top to bottom through all hinges as shown.
4. Move the snowplow into a normal operating position.
5. Remove the protective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

### T-FRAME TO BLADE ASSEMBLY

1. Remove the blade wings from the crate. Remove the four shipping straps, then replace the cutting edge hardware.

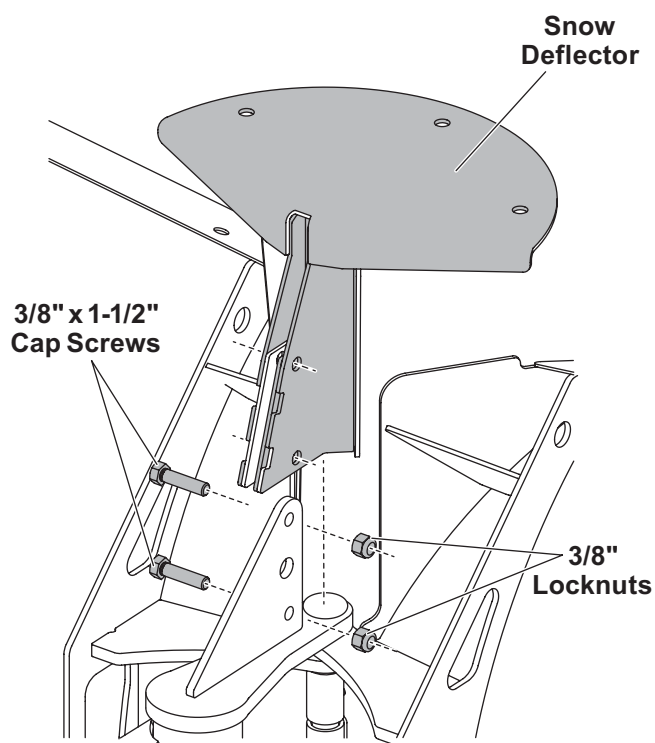
7. Install a 1/2" x 2-7/8" clevis pin (from the shipping bracket) from the top down to attach each rod. Secure the clevis pins with 5/32" x 1-1/2" cotter pins from the parts bag.



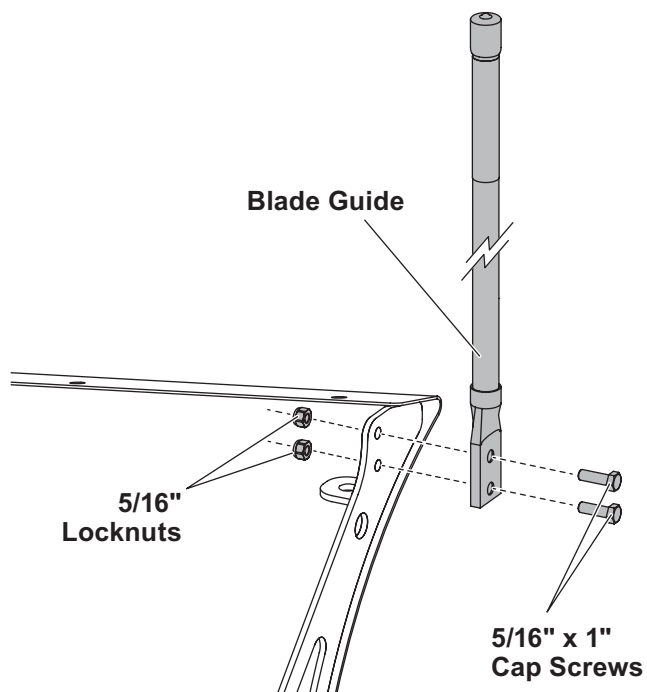
## INSTALLATION INSTRUCTIONS

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8. Install the center snow deflector using two 3/8" x 1-1/2" cap screws and 3/8" locknuts.



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



# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## HEADLAMPS

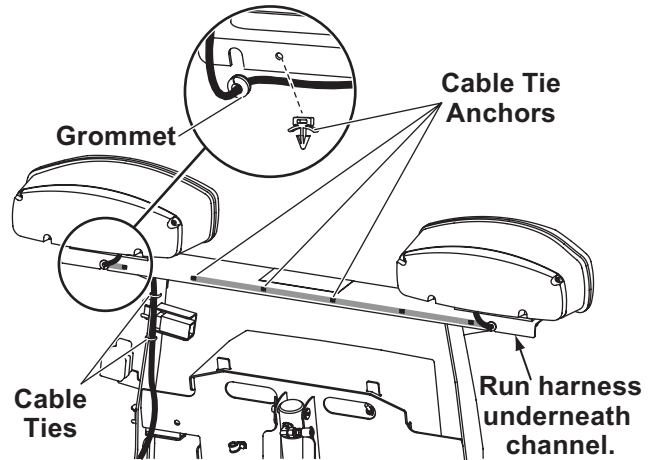
### **⚠ WARNING**

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

Headlamps, hardware, and instructions are found in the headlamp box.

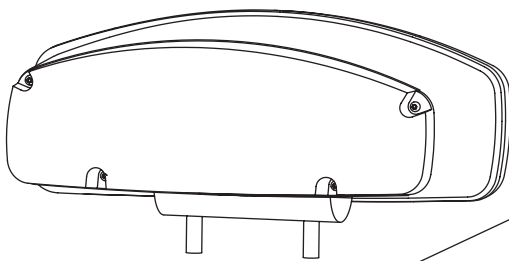
1. Install the vehicle wiring according to the instructions provided.
2. Set the headlamp channel on the headgear, label to the front, with the holes aligned.
3. With the correct headlamp on the correct side, set each headlamp and swivel into place as shown.
4. Secure the headlamps with the correct hardware for the application as shown. Inner and outer posts require different hardware. On LED headlamps, a rubber washer must be installed under the slotted holes. Hand tighten.
5. Connect the headlamp wires to the headlamps.
6. Aim the headlamps according to the Snowplow Headlamp Beam Aiming Instructions (Lit. No. 27769). For LED headlamps, tighten the fasteners to 22 ft-lb (30 N·m). For halogen headlamps, tighten the fasteners to 50 ft-lb (68 N·m).

7. From inside the headlamp channel, insert the cable tie anchors into the holes as shown. The anchor locking tabs should be horizontal.



8. For halogen headlamps only, install a split rubber grommet on each headlamp wire 3" from the headlamp. Insert the grommet and wire into the slot on the rear of the channel.
9. Route the wires under the channel and down the back of the driver-side vertical support. Secure the wires to the anchors and the vertical support with cable ties.

### Halogen Headlamps



Headlamp Swivel

Headlamp Channel

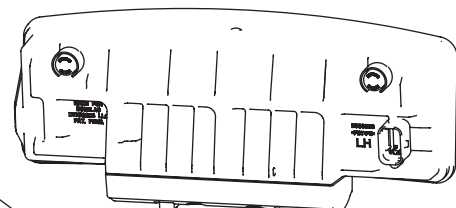
Lift Frame

1/2" Flat Washers

1/2" Lock Washers

1/2" Hex Nuts

### LED Headlamps



Slotted Hole

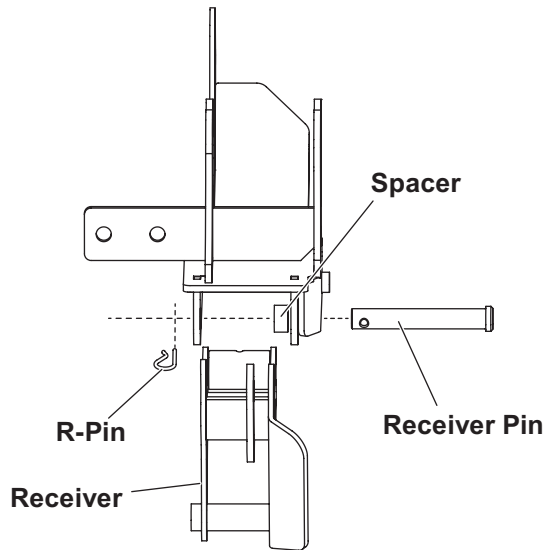
1/2" Rubber Washer

## OPERATIONAL TEST AND FINAL ADJUSTMENTS

### HEIGHT ADJUSTMENT AND T-FRAME BLOCKING

1. **If the adjustment plate kit is not required:**

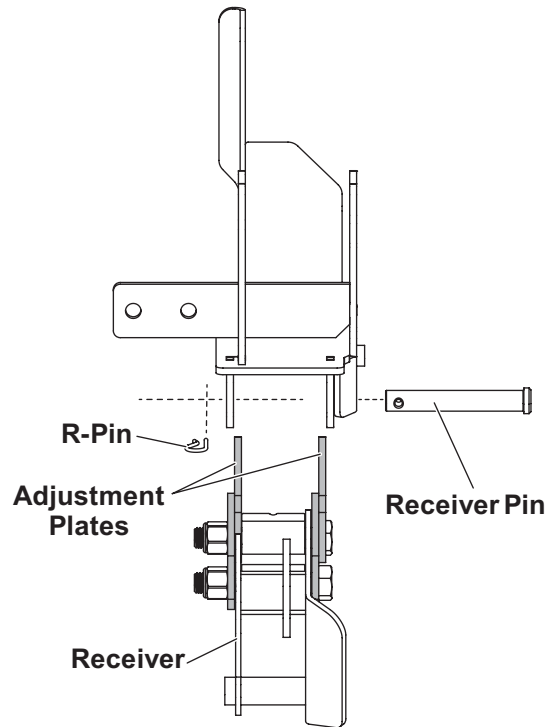
Park the vehicle on a flat, level surface. Install the receivers into the mount pockets with the spacer between the receiver and the mount pocket, so that the receiver is positioned towards the center of the vehicle. Measure the distance from the ground to the center of the hitch pin hole (height "X" below).



Driver's Side Shown

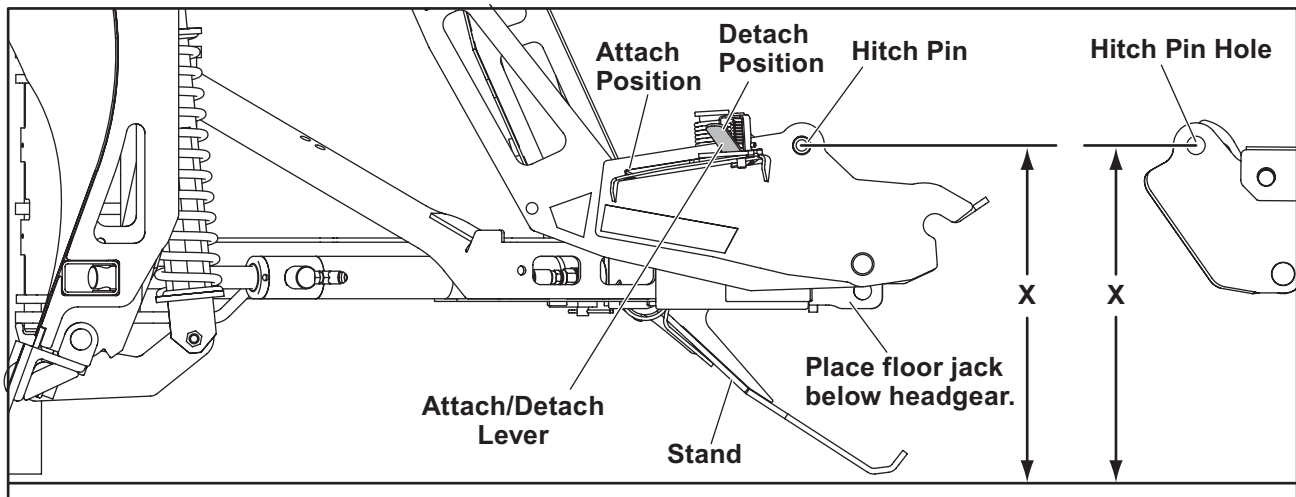
**If using the adjustment plate kit:**

Park the vehicle on a flat, level surface. Install the receivers into the mount pockets with the adjustment plates between the receiver and the mount pocket, so that both plates position the receiver toward the center of the vehicle. Measure the distance from the ground to the center of the hitch pin hole (height "X" below).



Driver's Side Shown

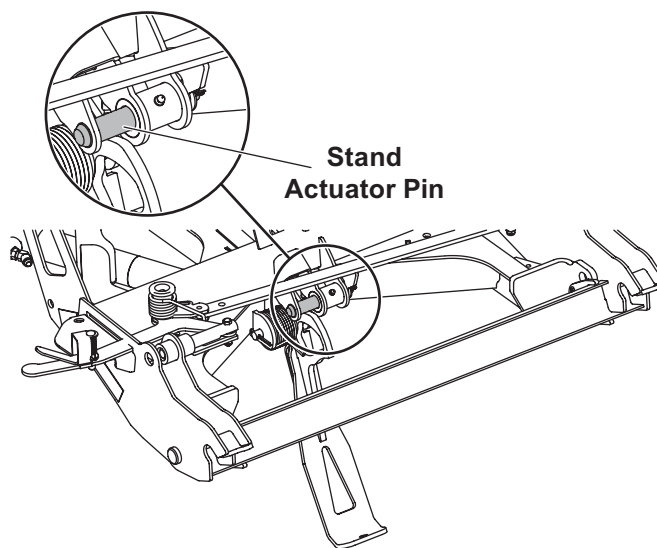
2. Position a floor jack under the rear of the headgear (see below). Raise the headgear so that the hitch pin is at the same height as the hitch pin hole (height "X").



## OPERATIONAL TEST AND FINAL ADJUSTMENTS

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3. While depressing the stand, move the attach/detach lever rearward into the detach position to lock the stand into the down position.
4. Verify that the stand actuator pin is on top of the stand.
5. Block the T-frame so that the jack can be safely removed while maintaining the correct height.
6. Attach the snowplow to the vehicle, following the instructions on the attach/detach label located on the back of the blade.



# OPERATIONAL TEST AND FINAL ADJUSTMENTS

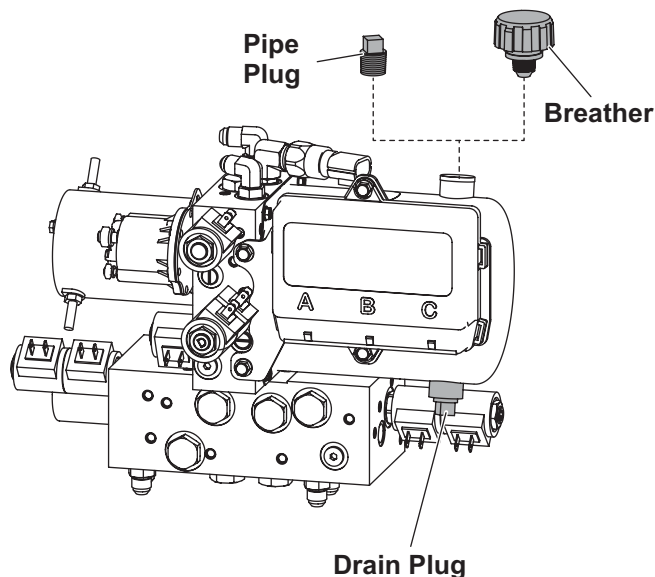
## HYDRAULIC UNIT

### ⚠ WARNING

Keep 8' clear of the blade when it is being raised, lowered, or angled. Do not stand between 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 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 make sure that the blade is fully lowered 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. With the snowplow wings and lift ram fully retracted, the fluid level should be 1-1/2"–2" below the fill hole. If additional fluid is needed, add SnowEx® Rapid Action 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 4 until fluid is 1-1/2"–2" below the fill hole.

**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.

## OPERATIONAL TEST AND FINAL ADJUSTMENTS

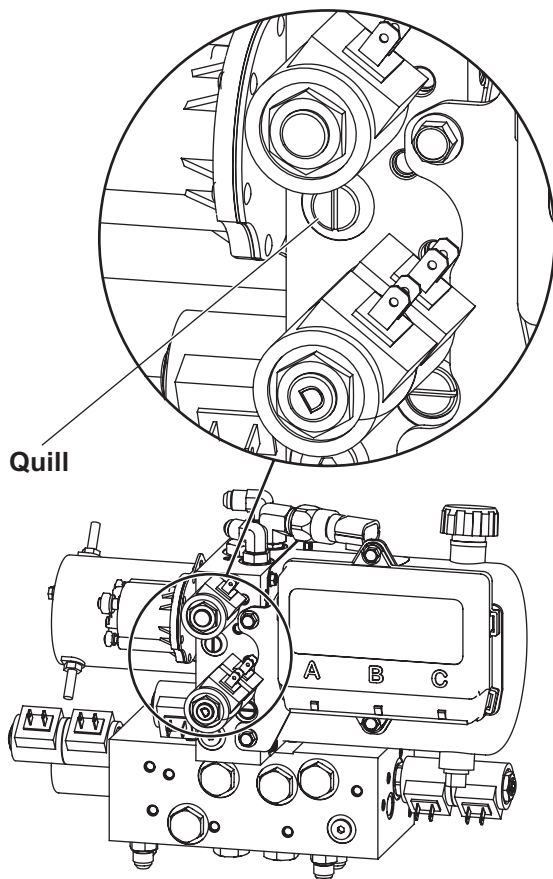
### BLADE DROP SPEED ADJUSTMENT

#### **⚠ WARNING**

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

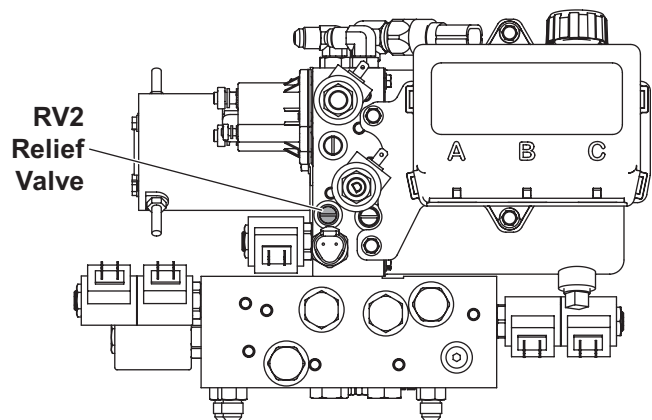
The quill in the valve manifold adjusts the blade drop speed.

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. With the vehicle ignition ON and the control ON, press and hold the LOWER button (hand-held control) or hold the lever in the "LOWER" position (joystick control) until the green FLOAT light flashes twice to indicate that the Scrape Maxx™ mode is activated.
6. The hydraulic unit will activate briefly, then shut off.
7. The hydraulic unit should not activate again for a minimum of five seconds. If the hydraulic unit activates sooner, adjust the RV2 relief valve, located on the bottom of the hydraulic unit.



8. Turn the RV2 relief valve in 1/8 turn at a time until the hydraulic unit remains off for at least five seconds. DO NOT turn the relief valve in more than 1/4 turn total.
9. Deactivate the Scrape Maxx down-force feature by pressing the RAISE button once or holding the joystick lever in the "RAISE" position.
10. Replace the hydraulic unit cover.

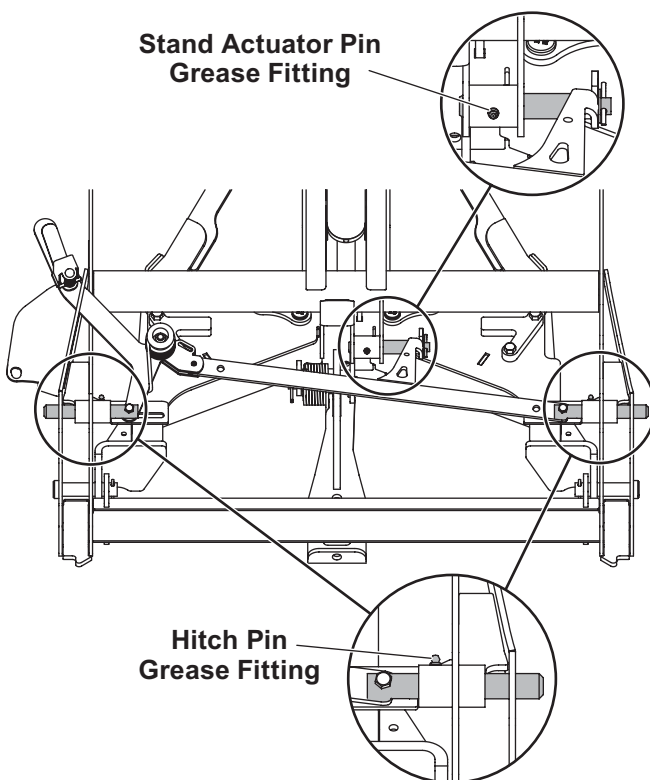
# OPERATIONAL TEST AND FINAL ADJUSTMENTS

## 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.**

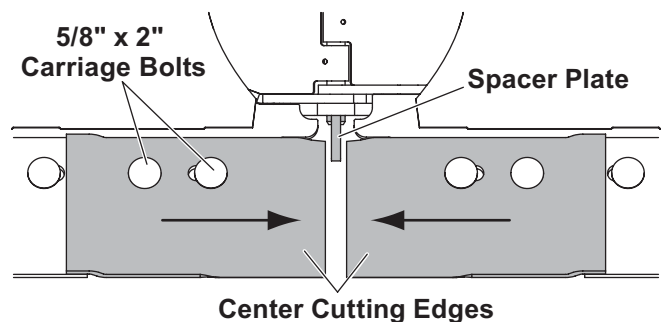
1. Fully angle the blade in both directions in raised and lowered positions. Adjust hose fittings, wraps, and clamps so hoses do not contact vehicle bumper, have no sharp bends, and are wrapped at contact points with, and do not become pinched between the headgear and T-frame.
2. Apply grease to the two hitch pin grease fittings and the stand actuator pin grease fitting.



## CENTER CUTTING EDGES

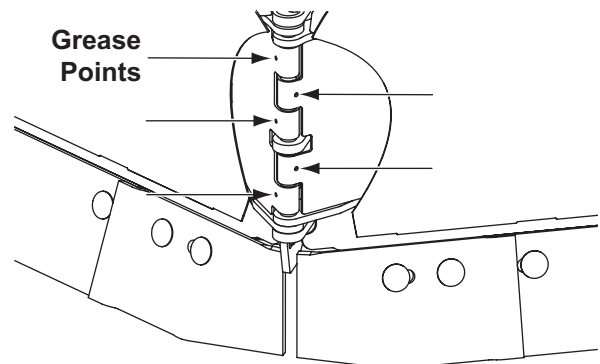
The center cutting edge spacer plate is located on the T-frame below the pivot pin hinges.

1. With the blade wings in the "vee" 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.



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## 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 the 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 the 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 the aim of the vehicle headlamps with the snowplow removed.

### CAUTION

**Plug covers shall be used whenever snowplow is disconnected. Vehicle battery cable is 12V 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.



TrynEx International, LLC  
531 Ajax Drive  
Madison Heights, MI 48071-2429  
[www.snowexproducts.com](http://www.snowexproducts.com)

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