



SPEEDWING™ Snowplow

Model 8600SW

Blade Crate Assembly 57520-1

Big Box Assembly 57525

Installation Instructions

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your BLIZZARD® outlet/Web site for specific vehicle application recommendations before installation. The Undercarriage Selection Guide has specific vehicle and snowplow requirements.

These Installation Instructions are for BLIZZARD® SPEEDWING snowplows with serial numbers beginning with 081007–120101.

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 & INSTRUCTION LABELS

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

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

Instruction Label

ATTACH

- Steadily drive vehicle forward to engage mount adapter into A-frame.
- Move power switch to center or "OFF" position.
- Plug in electrical harnesses.
- Push and hold power switch RIGHT and push UP and hold arm/blade operation switch. Arm will engage mount adapter and pull snowplow toward vehicle.
- Rotate and release hitch pin. Hitch pin is fully engaged when pin handle is against the pin guide plate.
- Repeat Step 5 on passenger's side. Rotate and release hitch pin. Hitch pin is fully engaged when pin handle is against the pin guide plate.
- While holding power switch RIGHT, push DOWN and hold arm/blade operation switch. Arm will disengage mount adapter to relieve tension on the stand.
- Pull stand handle up. Stand will lift off ground. Pull stand pin out. Rotate stand up until stand pin seats into upper hole. Pin must lock into upper A-frame hole.
- Repeat Step 8 on passenger's side. Pull stand handle up. Stand will lift off ground. Pull stand pin out. Rotate stand up until stand pin seats into upper hole. Pin must lock into upper A-frame hole.
- Move power switch to left or "Thawing" position.

DETACH

- Lower snowplow onto ground with blade raised. Turn snowplow control to "OFF".
- Move power switch to center or "OFF" position.
- While holding the power switch RIGHT, push DOWN and hold the arm/blade operation switch. Arm will disengage mount adapter to relieve tension on the stand.
- Pull stand pin out. Rotate stand down until stand pin seats into lower A-frame hole. Push down on top of shoe. Shoe will be on the ground.
- Repeat Step 4 on passenger's side. Pull stand pin out. Rotate stand down until stand pin seats into lower A-frame hole. Push down on top of shoe. Shoe will be on the ground.
- Push and hold power switch RIGHT and push UP the arm/blade operation switch. Arm will engage mount adapter and pull snowplow tightly to stand.
- Rotate and pull hitch pin. Rotate hitch pin into retracted position.
- Repeat Step 7 on passenger's side. Rotate and pull hitch pin. Rotate hitch pin into retracted position.
- While holding power switch RIGHT, push DOWN and hold arm/blade operation switch to fully lower arm.
- Unplug electrical harnesses.

Read Owner's Manual for complete instructions.

U.S. patents 5,420,460; 5,638,616; 5,990,107; 6,176,969; 6,226,474; 6,276,076; 6,503,707; 6,403,549; 6,412,109; 6,442,077; 6,515,513; 7,134,227; 7,400,058; 7,430,821; 7,737,576. CAN. patents 2,069,425; 2,184,922; 2,229,783; 2,259,508; 2,306,145; 2,308,354; 2,592,833; and other patents pending.

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.

Crush Hazard Label

WARNING

Crush hazard

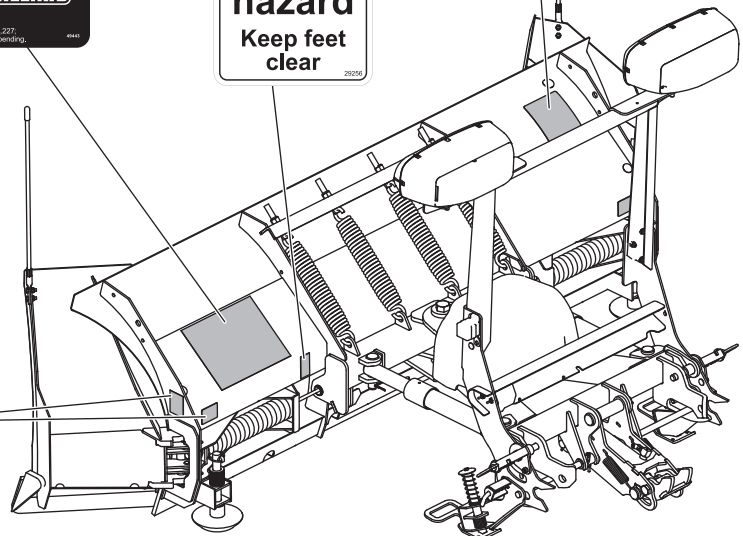
Keep feet clear

Multiple Pinch Points Label

WARNING

Multiple Pinch Points

POWER PLOW™ & SPEEDWING™ Blades Only (both sides)



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 the 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 or GAWR including the blade and ballast. The rating label is found on the 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

Overtightening springs will not increase blade trip force and can damage the springs.

⚠ CAUTION

Refer to the Undercarriage Selection Guide 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 BLIZZARD® 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 the torque chart. Use standard methods and practices when attaching snowplow including proper personal protective safety equipment.

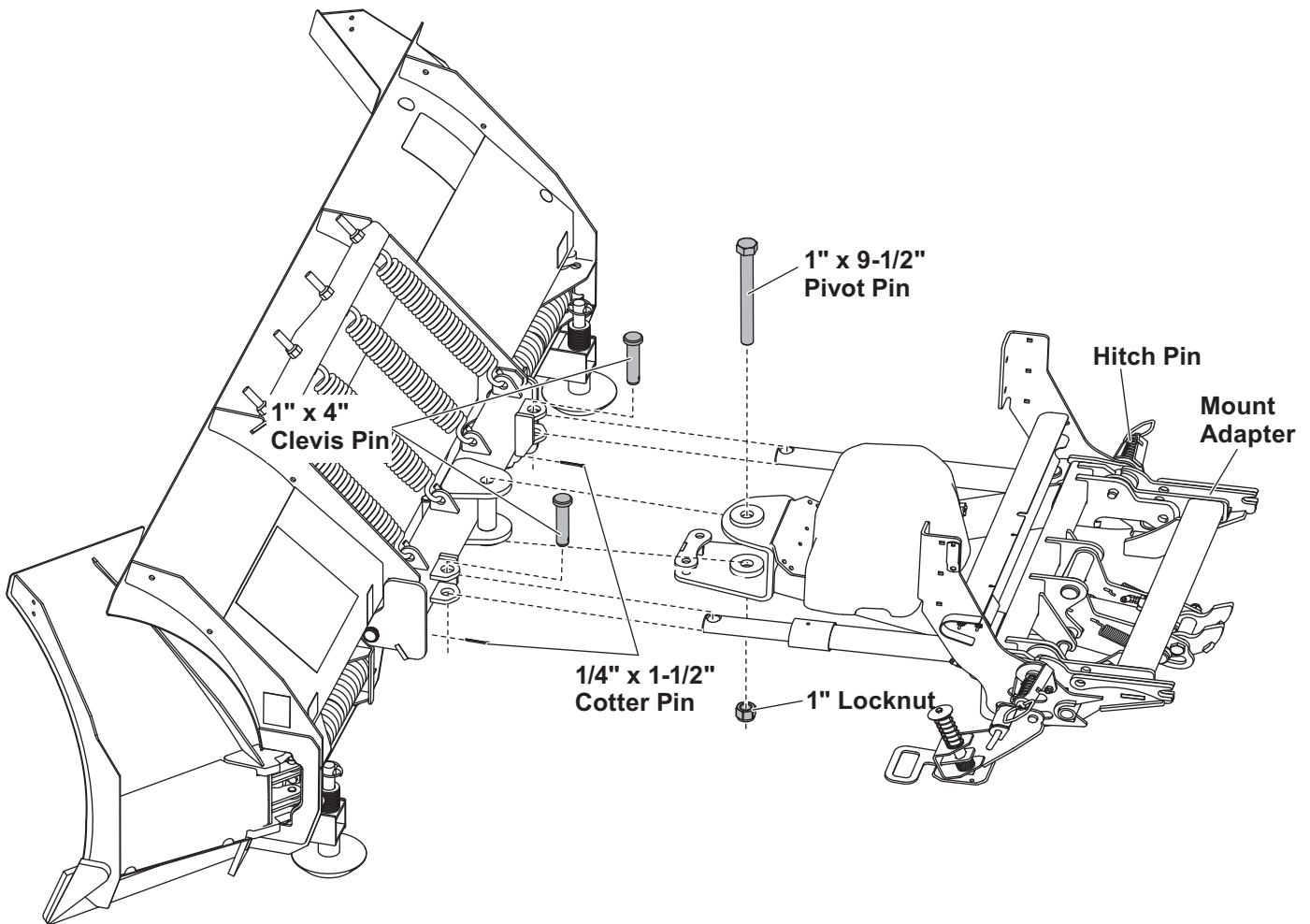
Recommended Fastener Torque Chart (ft-lb)			
Size	Torque		
	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	150	378	591
1-8	220	583	893
Metric Grade 8.8 (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

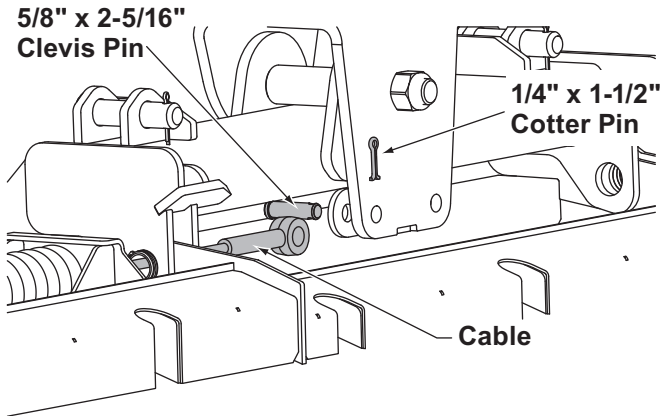
BLADE TO A-FRAME

1. Pull the hitch pins and remove the mount adapter from the A-frame assembly and set aside.
2. Position the A-frame over the pivot beam, aligning the angle ram rods with the brackets. Install the 1" x 9-1/2" pivot pin from the top. Secure with a 1" locknut and tighten. Attach the angle ram rods to the brackets with the 1" x 4" clevis pins installed from top. Secure with 1/4" x 1-1/2" cotter pins.

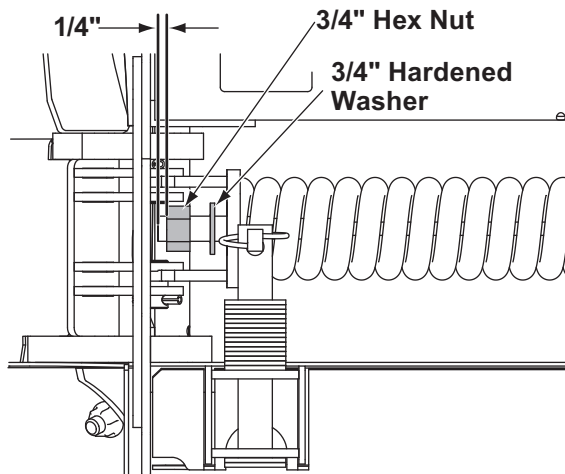


INSTALLATION INSTRUCTIONS

3. Insert the threaded end of the cable through the driver-side pivot bushing from the center out. Slide the cable through the spring until the eyelet hole lines up with the driver-side mounting clevis on the A-frame. Insert the eyelet into the clevis and secure with a $5/8"$ x $2-5/16"$ clevis pin and $1/4"$ x $1-1/2"$ cotter. Repeat on the passenger's side.



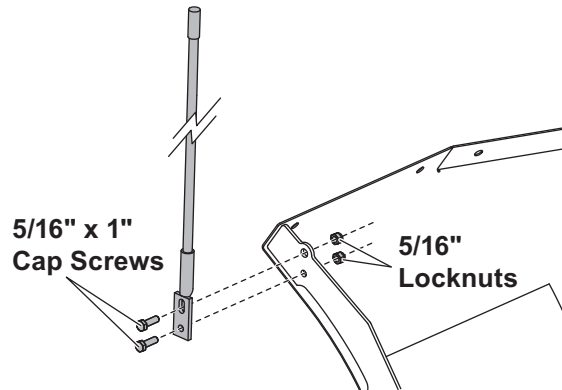
4. Insert a $3/4"$ hardened washer and $3/4"$ nut onto the threaded end of the driver-side cable. Thread the nut on until there is $1/4"$ of thread exposed past the end of the nut. Repeat on the passenger's side.



NOTE: Installation of jam nut and final adjustment of the cables will take place in the Operational Test and Final Adjustments section of this document.

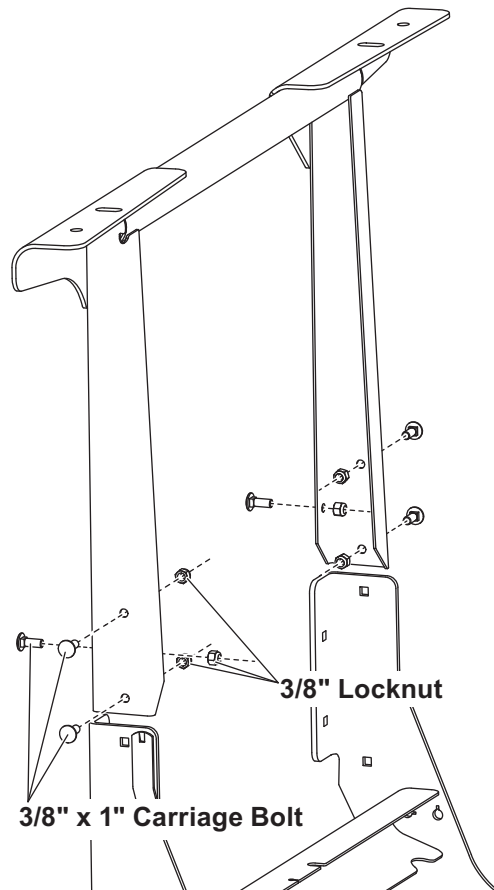
5. Stand the blade and A-frame assembly upright and support it in a level position using a block under the main A-frame tube. Install the

blade guides using $5/16"$ x $1"$ cap screws and $5/16"$ locknuts.



UPPER TO LOWER LIGHT TOWER ASSEMBLY

1. Position the upper light tower between the lower light tower side plates and align the holes.

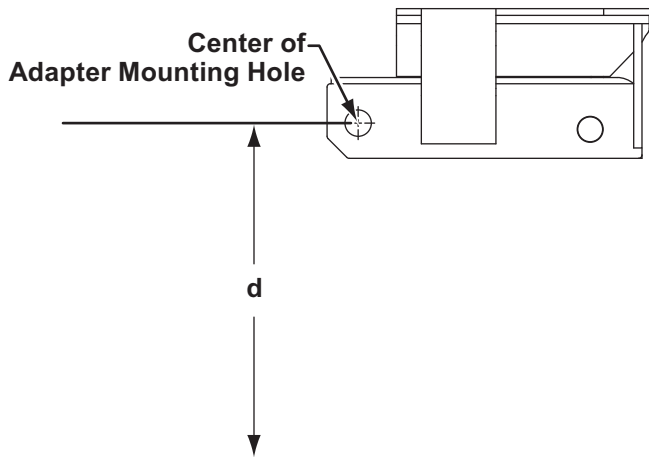


2. Secure with six $3/8"$ x $1"$ carriage bolts and locknuts assembled from the outside in.

INSTALLATION INSTRUCTIONS

MOUNT ADAPTER INSTALLATION

1. Before assembling the mount adapter to the vehicle undercarriage, determine whether the height adjustment plates are needed.
2. Prior to measuring the vehicle undercarriage height, the undercarriage must be installed, and ballast must be installed if required. Park the vehicle on a level surface. Measure the distance from the ground to the center of the adapter mounting hole on the undercarriage.



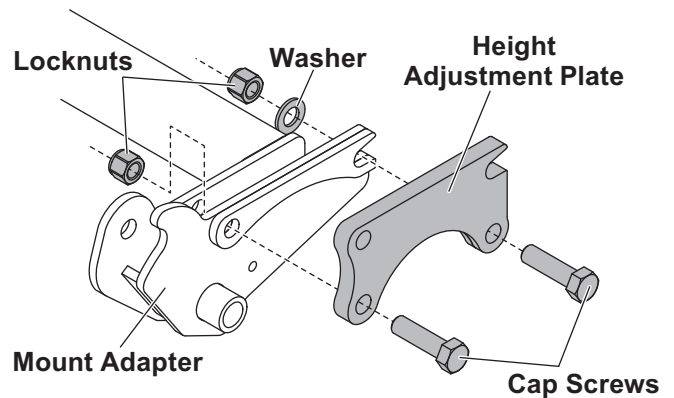
3. Use distance "d" from Step 2 and follow the chart below to determine which height adjustment plates, if any, are required.

Height Adjustment Plate Selection Chart	
Distance "d"	Height Adjustment Plate Required
12.5" – 14.0"	None
14.0" – 15.5"	Height Adjustment Plate (Short)
15.5" – 17.0"	Height Adjustment Plate (Tall)

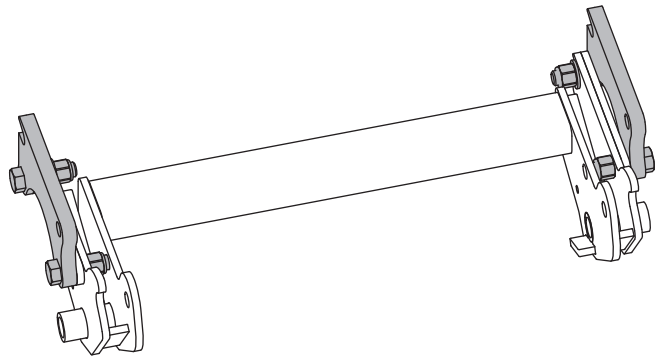
4. If height adjustment plates are required, install as follows:

Position the height adjustment plate against the driver's side portion of the mount adapter as shown. Insert a 3/4" x 2-3/4" cap screw through the lower front height adjustment plate hole and through the appropriate hole on the mount adapter. Secure with a locknut.

Insert a cap screw through the rear height adjustment plate hole, through the slot on the mount adapter and through a washer. Secure with a locknut.



Repeat for the passenger's side. Tighten all four fasteners according to torque chart.

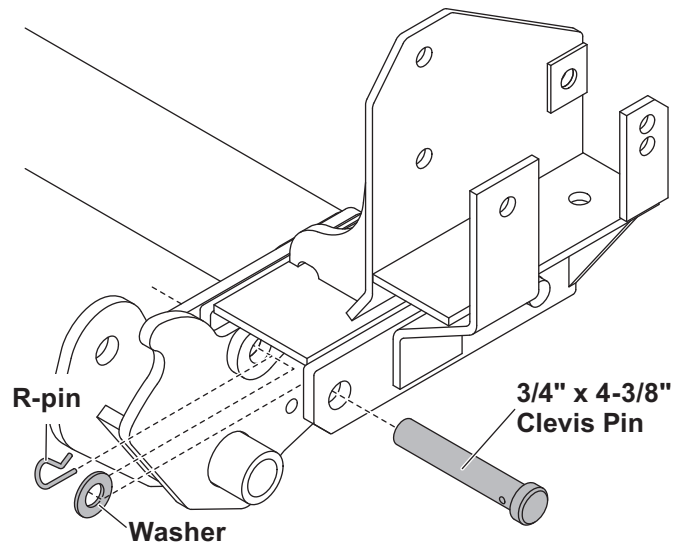


INSTALLATION INSTRUCTIONS

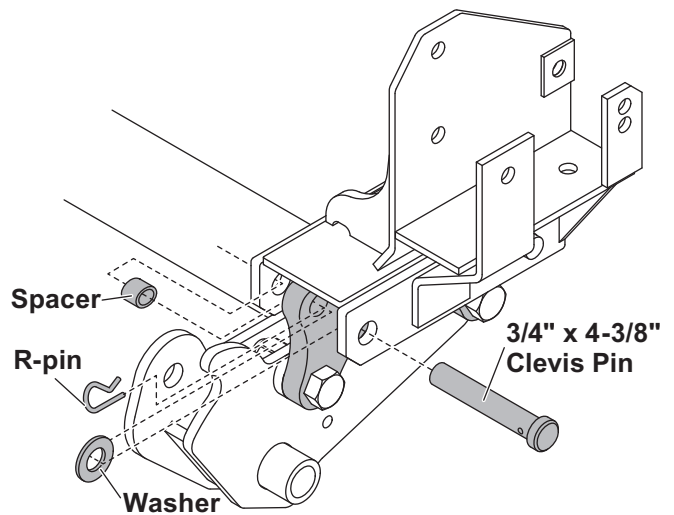
- Position the mount adapter between the undercarriage brackets on each side. Align the notches in the rear of the mount adapter with the pins in the vehicle undercarriage. Insert a 3/4" x 4-3/8" clevis pin through the outer mount hole, then through a 3/4" washer. Rotate the mount adapter into place and insert the clevis pin fully, securing with the R-pin. Repeat for the opposite side.

If height adjustment plates are used, insert a spacer between the height adjustment plate and the inner side plate of the undercarriage when inserting the clevis pin.

NOTE: If the mount adapter does not rotate into position, loosen the mount hardware, secure the mount adapter into position and retighten the mount hardware.



Shown without height adjustment plate

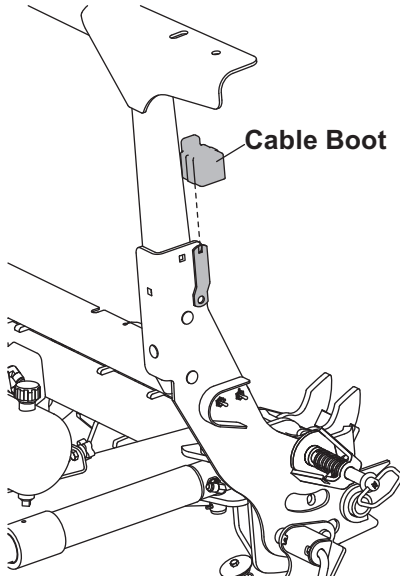


Shown with height adjustment plate installed

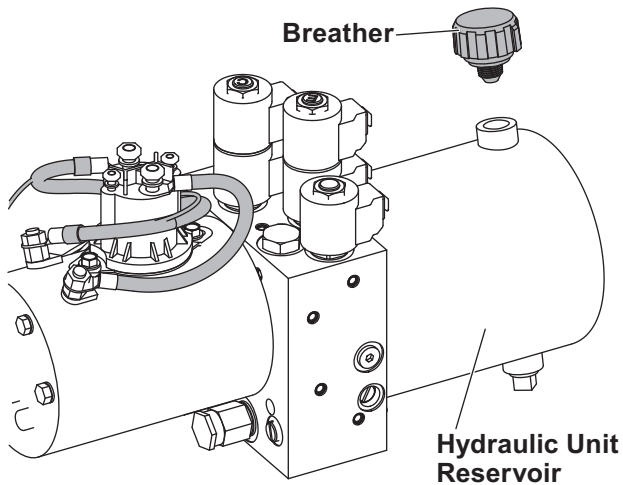
INSTALLATION INSTRUCTIONS

HYDRAULIC UNIT PREPARATION

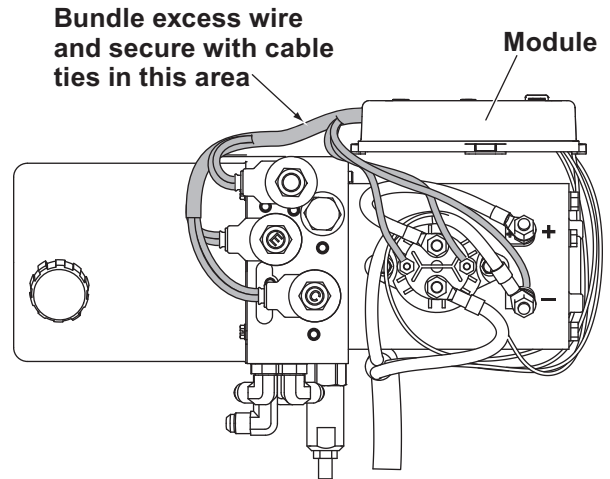
1. Install the cable boot on the driver-side light tower upright.



2. Remove the hydraulic unit cover.
3. Uncoil the plow harness and route it under the lower light tower support and up to the cable boot.
4. Locate the bagged breather assembly. The hydraulic system is supplied with the correct amount of fluid. Slowly loosen the pipe plug on the top of the reservoir to relieve any pressure, then discard it. Install the breather into the reservoir.



5. Bundle the loose wires at the hydraulic unit.



INSTALLATION INSTRUCTIONS

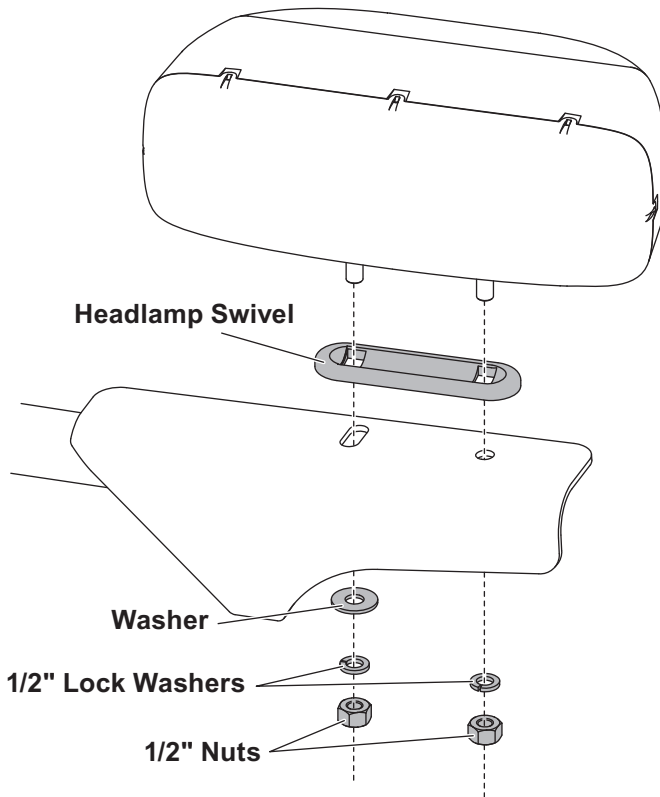
HEADLAMP INSTALLATION

⚠ WARNING

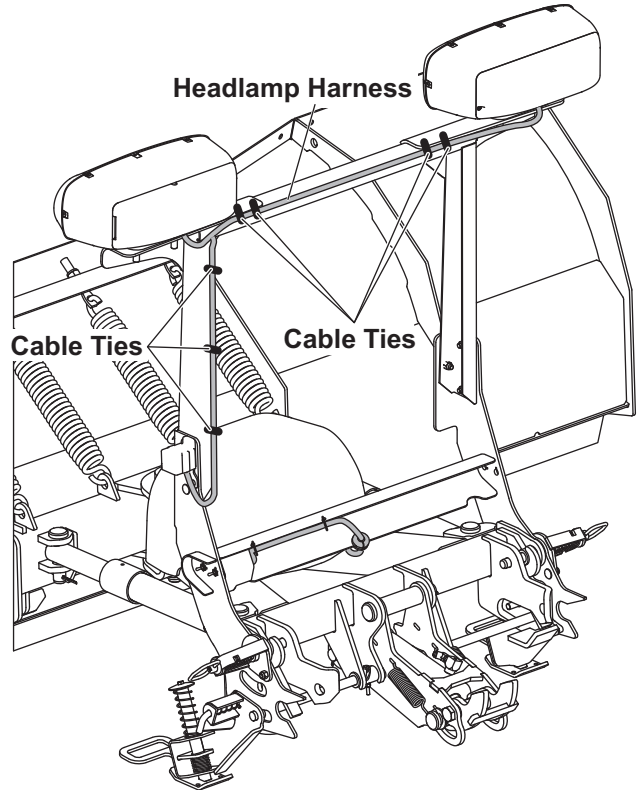
Your vehicle must be equipped with snowplow headlamps and directional lights.

The headlamps and hardware are found in the headlamp box.

1. With the wire harness behind the light tower, attach the headlamps to the holes in the headlamp bracket with the headlamp swivel on top and the washer, lock washer and nuts underneath as shown. The plain washer should be aligned with the slot in the bracket.



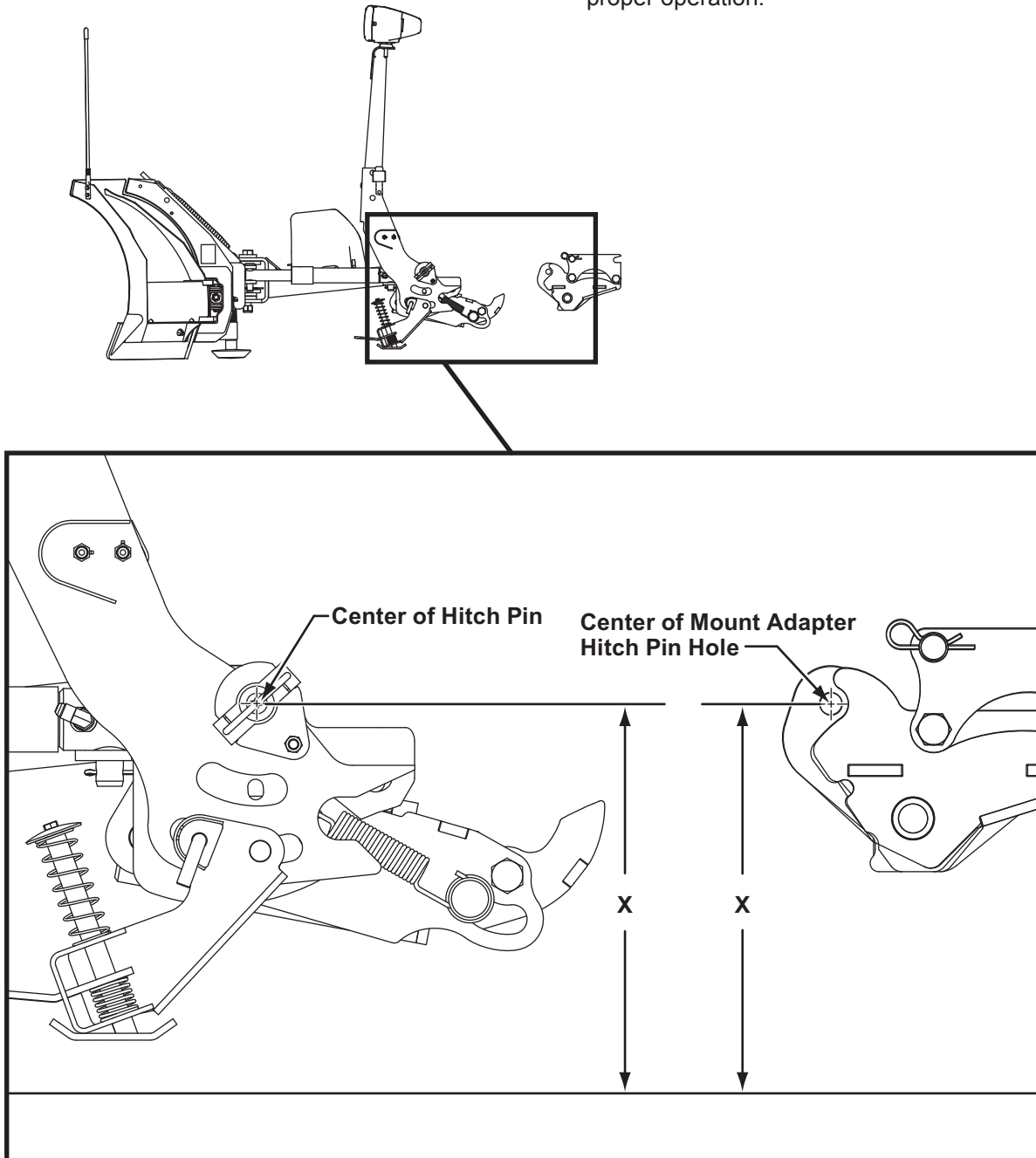
2. Reinstall the cover.
3. Use cable ties to retain the headlamp harness and the vehicle power cables.



OPERATIONAL TEST AND FINAL ADJUSTMENTS

FINAL INSPECTION AND ADJUSTMENT

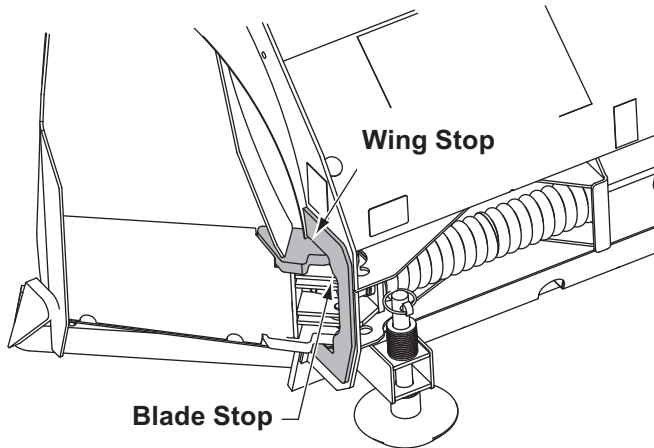
1. Measure the height at the center of the mount adapter hitch pin hole.
2. Position a floor jack under the rear of the A-frame. With the stand in the lowered, locked position, elevate the rear of the snowplow until the center of hitch pin height equals the measurement from Step 1 (see illustration below).
3. Push stand shoe down until it contacts the ground. Repeat on the other side.
4. Lower the snowplow onto the stands and remove the floor jack.
5. Attach the snowplow to the vehicle, following the system instructions located on the back of the blade.
6. Run the blade through all functions to verify proper operation.



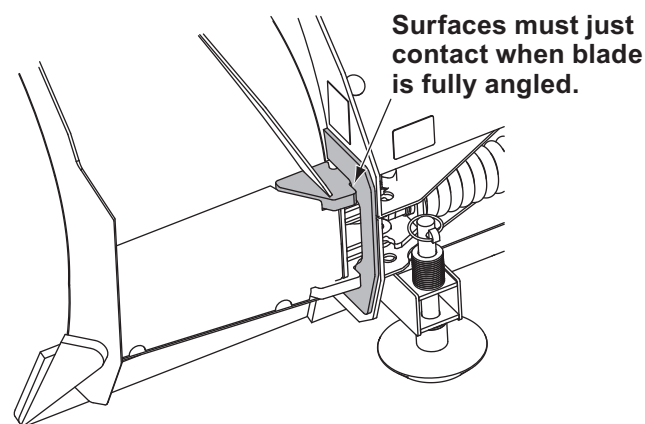
OPERATIONAL TEST AND FINAL ADJUSTMENTS

CABLE ADJUSTMENT

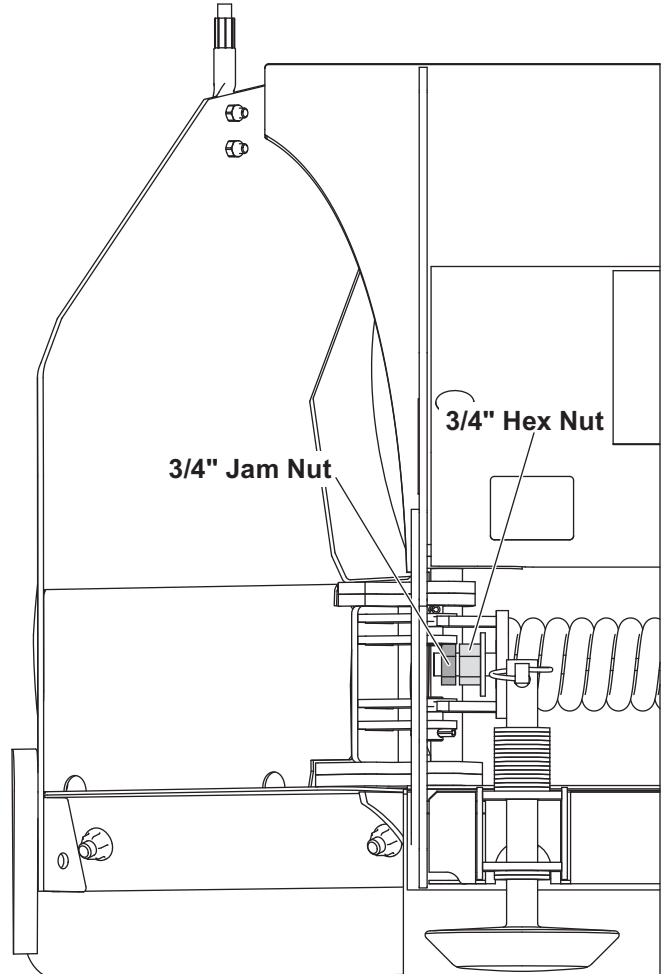
1. Angle the blade fully left and inspect the area between the driver-side wing stop and the driver-side blade stop.



2. If there is no gap between the stops, return the blade to the straight position and loosen the hex nut on the end of the cable 1/4 turn. Repeat this adjustment until a gap can be seen.
3. If there is a gap, return the blade to the straight position and adjust the 3/4" hex nut on the end of the cable 1/4 turn clockwise. Angle the blade fully left and inspect the area between the wing stop and the blade again.
4. Continue making this adjustment until the wing stop just contacts the blade stop.



5. Once the stops are making contact, angle the blade fully in the opposite direction and install the 3/4" jam nut onto the threaded end of the cable. Lock the 3/4" hex nut into position with the 3/4" jam nut.



6. Repeat on the passenger's side of the blade assembly, this time angling the blade fully to the right.

NOTE: Adjusting the 3/4" hex nut inward too far will cause the wing stop and the blade stop to make contact before the blade is angled fully. This condition can stretch the cables and shorten their service life.

OPERATIONAL TEST AND FINAL ADJUSTMENTS

BLADE DROP SPEED ADJUSTMENT

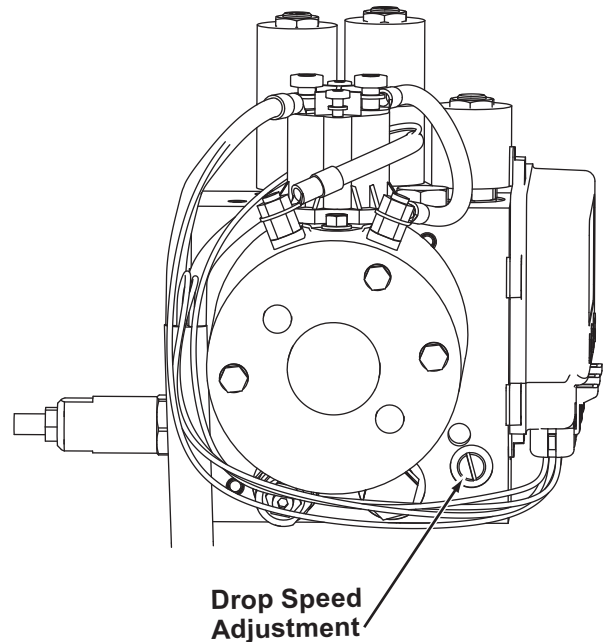
⚠ WARNING

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.

1. The blade drop speed may be adjusted by turning the needle valve.

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

2. Lower the blade to the ground before making the adjustment.
3. Turn the needle valve inward (clockwise) to decrease the drop speed. Turn the needle valve outward (counterclockwise) to increase the drop speed.
4. Stand 8 feet clear of the blade when checking the drop speed adjustment.



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.

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) switches 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.

⚠ CAUTION

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

4. Check aim of vehicle headlamps with snowplow removed.
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.



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