



# Suburbanite™ Personal Plow

Owner's Manual  
*Original Instructions*

**This snowplow is for personal/homeowner use only.**

**⚠ CAUTION**

Read this document before operating or servicing snowplow.

This manual supersedes all editions with an earlier date.

## OWNER INFORMATION

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***Register your snowplow online at [www.westernplows.com](http://www.westernplows.com)***

Owner Name: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Dealer Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

Vehicle Model/Year: \_\_\_\_\_

Snowplow Model/Year: \_\_\_\_\_

Snowplow Type/Size: \_\_\_\_\_ Weight: \_\_\_\_\_ lb/kg

Ballast: No \_\_\_ Yes \_\_\_ Amount: \_\_\_\_\_ lb/kg

Hydraulic Unit Serial Number: \_\_\_\_\_

Blade Serial Number: \_\_\_\_\_

# CHECKLIST

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## SNOWPLOW USAGE CHECKLIST

### Before Plowing

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## PREFACE

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This manual has been prepared to acquaint you with the safety information, operation and maintenance of your new snowplow. Please read this manual carefully and follow all recommendations.

Before installing a snowplow, make sure your vehicle is equipped with our recommended options for plowing snow. This will help ensure trouble-free operation of your snowplow. Keep this manual accessible. It is a handy reference in case minor service is required.

When service is necessary, bring your snowplow to your local outlet. They know your snowplow best and are interested in your complete satisfaction.

The illustrations found in this manual represent typical components. They may not match your exact installation.

# SAFETY

## SAFETY DEFINITIONS

### ⚠ WARNING

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

### ⚠ CAUTION

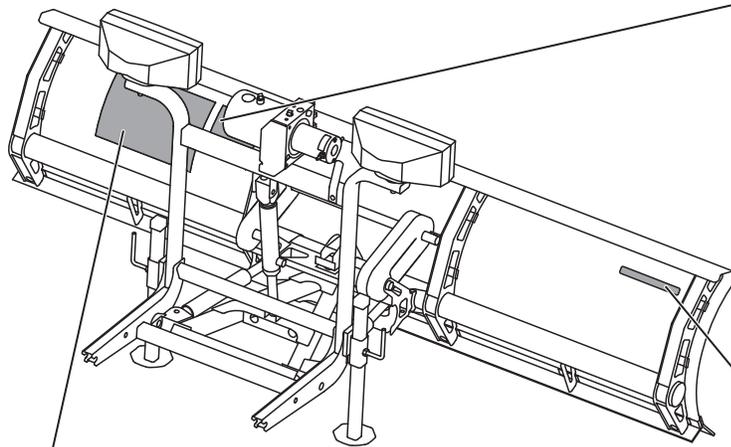
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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

## WARNING/CAUTION AND INSTRUCTION LABELS

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

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



Warning/Caution Label

**⚠ WARNING**



Lower blade when vehicle is parked.



Do not exceed GVWR or GAWR including blade and ballast.

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**⚠ 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. 59901

Serial Number Label

ZZZZZ



YYMMDDLLXXXZZZZ

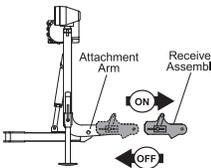


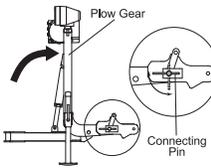
Instruction Label

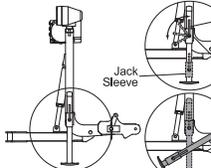
**This snowplow is for personal/homeowner use only.**

ATTACH INSTRUCTIONS

1. Make certain both **connecting pins** are fully retracted.
2. Drive vehicle slowly to completely insert **attachment arms** into **receiver assembly** slots.
3. Twist both **connecting pins** to release spring tension, then push **plow gear** toward vehicle so **connecting pins** fully engage holes in **attachment arms**.
4. Loosen one **jack handle** and slide **jack sleeve** down below **jack retainer**. Remove **jack** and retighten **jack handle**. Repeat for other **jack** and store them.
5. Connect all electrical cables from vehicle to snowplow.







U.S. patents 5,420,480; 6,253,470; 6,941,685; 7,400,058; 7,737,576; CAN patent 2,060,425; and other patents pending.

DETACH INSTRUCTIONS

5. Back vehicle away from snowplow.
6. See Owner's Manual for proper snowplow storage.
7. While pushing **plow gear** toward vehicle to release **connecting pin** tension, pull **connecting pin** out on one side and twist pin handle to keep pin retracted. Repeat procedure for other **connecting pin**.
8. Disconnect all electrical cables.
9. Put blade on ground using **LOWER/FLOAT** on snowplow control. Leave control **ON** and in **FLOAT**.
10. Attach **jacks**. Loosen **jack handle**, put **jack** on ground, and raise **jack sleeve** until fully engaging **jack retainer**. Tighten **jack handle**. Repeat for other **jack**.

Read Owner's Manual for complete instructions.

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

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May 15, 2012

# 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

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 this Owner's Manual.

# SAFETY

## PERSONAL SAFETY

- Remove the 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.

## 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.

## SNOWPLOW WEIGHT

Size	Blade Assembly	Wt (lb)	Wt (kg)
6'-8"	Suburbanite™	239	108.4
7'-4"	Suburbanite	257	116.5

# VEHICLE APPLICATION INFORMATION

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## VEHICLE APPLICATION RECOMMENDATIONS

### **⚠ CAUTION**

**See your WESTERN® outlet/Web site for specific vehicle application recommendations before installation. The Selection List has specific vehicle and snowplow requirements.**

Vehicle application recommendations are based on the following:

- The vehicle with the snowplow installed must comply with applicable Federal Motor Vehicle Safety Standards (FMVSS).
- The vehicle with the snowplow installed must comply with the vehicle manufacturer's stated gross vehicle and axle weight ratings (found on the driver-side door cornerpost of the vehicle) and the front and rear weight distribution ratio. In some cases, rear ballast may be required to comply with these requirements. See Ballast Requirements section.
- WESTERN Selection List/Quick Match is based on available vehicle capacity for snowplow equipment on a representative vehicle equipped with options commonly used for plowing and with 300 lb of front seat occupant weight.
- Weights of front seat occupants can be adjusted above 300 lb but vehicle with snowplow must not exceed vehicle GVWR or GAWR.
- In some cases there may be additional limitations and requirements.
- Installation, modification and addition of accessories must comply with published WESTERN recommendations and instructions. Available capacity decreases as the vehicle is loaded with cargo or other truck equipment, or snowplow accessories are installed.
- If there is uncertainty as to whether available capacity exists, the actual vehicle as configured must be weighed.

## BALLAST REQUIREMENTS

Ballast (additional weight) is an important part of qualifying vehicles for snowplow eligibility. Rear ballast must be used when necessary to remain in compliance with axle ratings and ratios as specified by the vehicle manufacturer.

If ballast is required, it is important that it be secured properly behind the rear axle. A ballast retainer kit is available from your WESTERN outlet (PN 62849).

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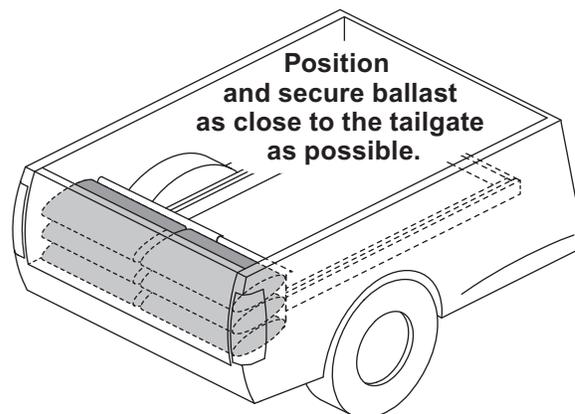
**NOTE: The ballast retainer kit is for snowplow vehicles requiring ballast. See your WESTERN outlet for the correct amount of ballast required. Include the weight of the retainer as part of the ballast requirement. Sand bags are recommended for use as ballast.**

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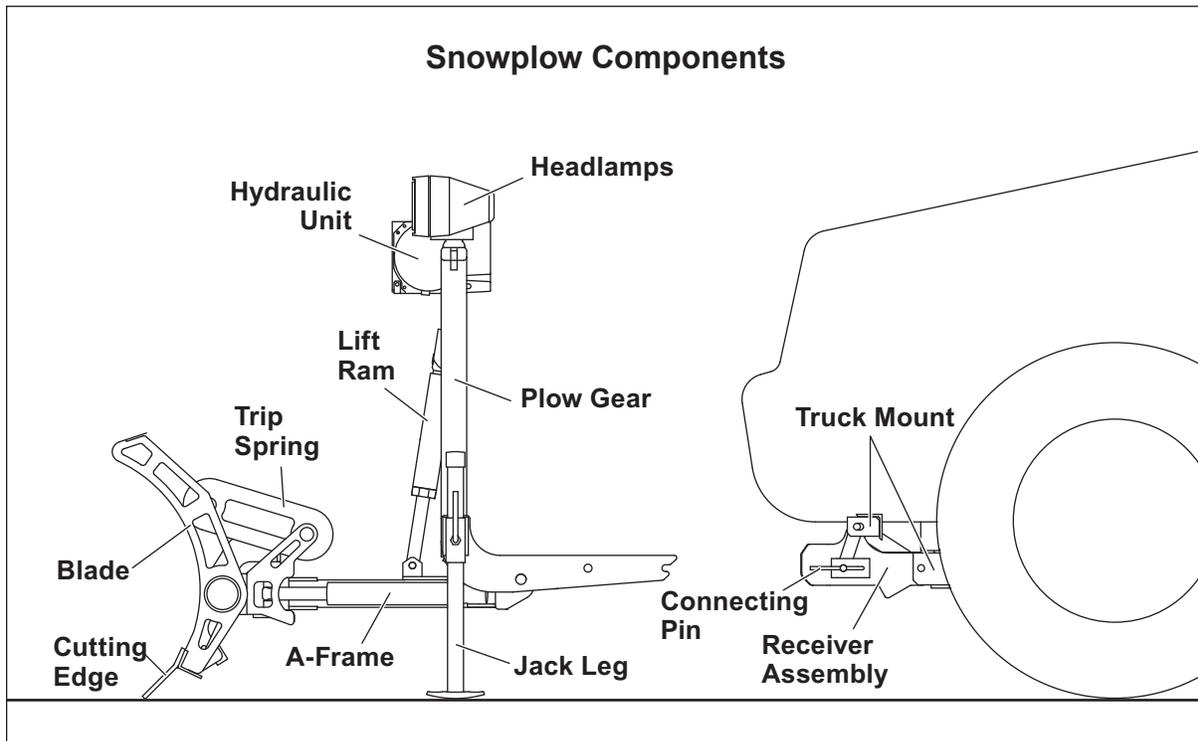
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**NOTE: The ballast recommended and its weight calculations assume the entire width of the bed is filled as close to the tailgate as possible.**

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# GETTING TO KNOW YOUR SNOWPLOW



## SNOWPLOW COMPONENTS

A snowplow consists of all the components that are readily removable from the vehicle as a unit. This includes the blade, A-frame, plow gear, hydraulic unit and snowplow headlamps. The snowplow is ready and easy to mount when you need to plow snow. When plowing is completed, remove the snowplow.

## SNOWPLOW HEADLAMPS

### **⚠ WARNING**

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

The snowplow headlamps include a set of rectangular, dual-beam halogen headlamps with combination park and turn signals. A patented pre-wired harness with a plug-in module requires no headlamp wire splicing. These headlamps conform to Federal Motor Vehicle Safety Standards (FMVSS).

When the snowplow plugs are connected, the vehicle headlamps, when turned ON, automatically switch to the snowplow headlamps. When the electrical plugs are disconnected during snowplow removal, the snowplow headlamps automatically switch back to the vehicle headlamps.

## TRUCK MOUNT KIT

Truck mount kits have been designed for most vehicles. Due to the differences among vehicle models, the kits are not interchangeable.

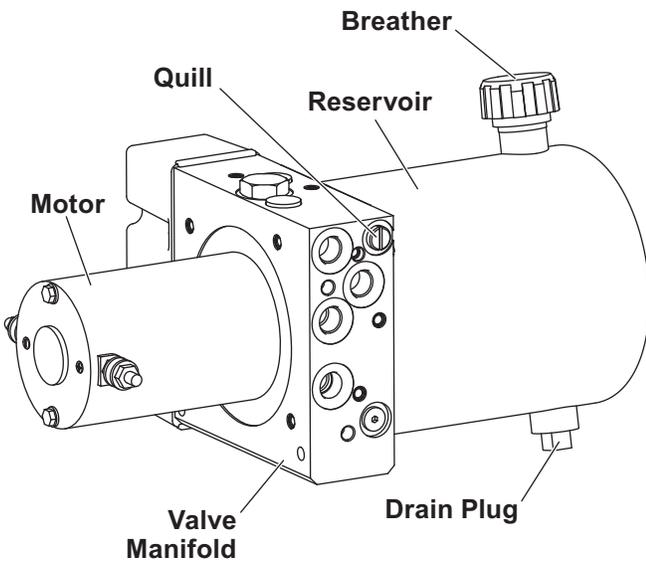
The truck mount is bolted to the underside of the vehicle frame, and the receiver assembly is attached to the truck mount. It is engineered to provide the primary connecting points between the snowplow assembly and the vehicle. The weight of the snowplow system is distributed to the frame of your vehicle by the truck mount.

# GETTING TO KNOW YOUR SNOWPLOW

## HYDRAULIC UNIT

The hydraulic unit's angling action gives you full control of the snowplow from within the cab. Two single-acting hydraulic rams hold the blade at the desired angle.

The hydraulic unit's manifold has blade scrape lock circuitry built into it. This feature resists the tendency of a snowplow to "float up" as large amounts of snow build up in front of the blade while plowing deep snow or stacking snow into piles. This feature is factory set. See your sales outlet for adjustment.



## System Capacity

- Unit Reservoir ..... 1-3/4 quarts
- System Total ..... 2-1/8 quarts

12V DC with +/- Connection
1750 psi Pump Relief Valve
4000 psi Angling Relief Valve
3.0" dia 2.8 kW Motor (1.39 hp)
0.000208 gal/rev Pump
Hydraulic Hose SAE 100R1

## CONTROLS

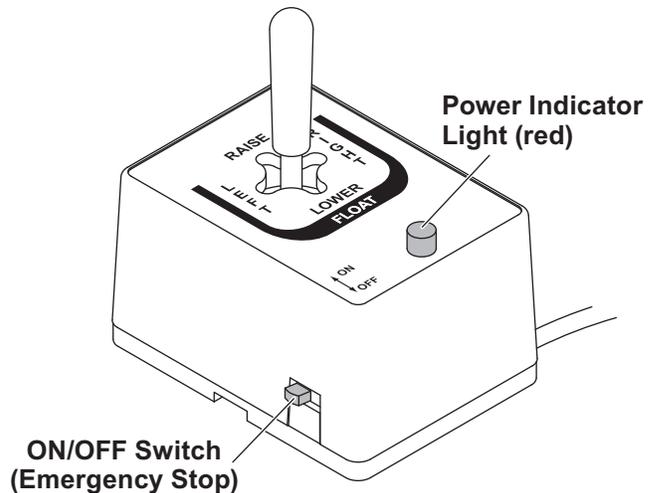
**⚠ WARNING**

**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.**

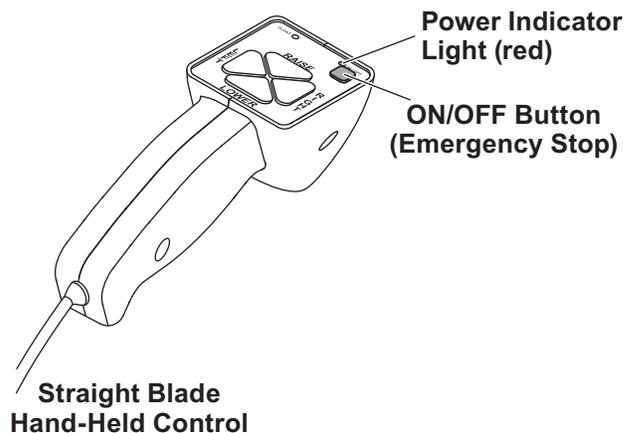
The controls are electrically powered through the ignition (key) switch of your vehicle and are protected by a replaceable in-line fuse. The ON/OFF switch allows you to turn OFF the control and prevent blade movement even when the ignition is ON.

The ON/OFF switch serves as an emergency stop when required.

### Joystick Solenoid Control



### Hand-Held Control



# MOUNTING SNOWPLOW TO VEHICLE

## ATTACHING THE SNOWPLOW

### ⚠ 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.

### ⚠ WARNING

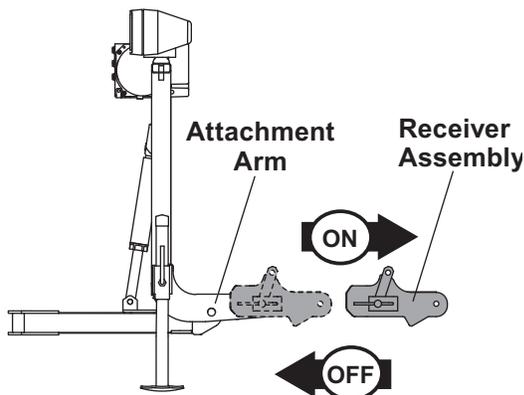
Inspect snowplow components and fasteners for wear or damage whenever attaching or detaching the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

**NOTE:** The blade must be in the straight position when attaching or detaching the snowplow.

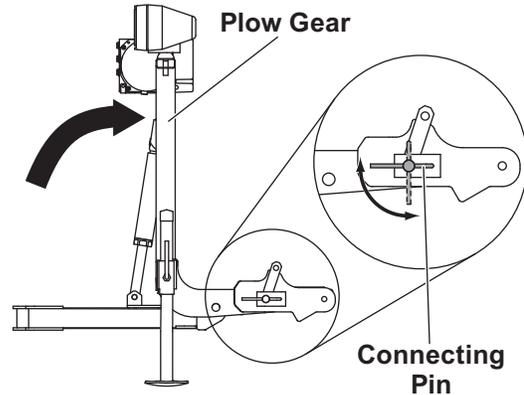
**NOTE:** Use dielectric grease to prevent corrosion on all connections.

**NOTE:** Use lubricant on connecting pins to ensure ease of attach/detach.

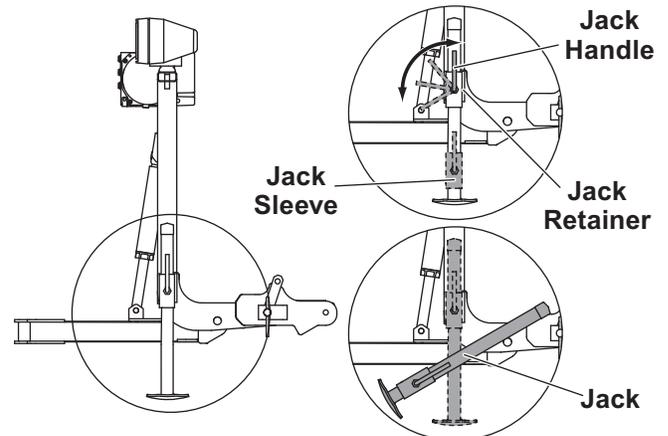
1. Make certain that both connecting pins are fully retracted.
2. Drive the vehicle ahead slowly to completely insert the attachment arms into the receiver assembly slots.



3. Twist both connecting pins to release spring tension, then push the snowplow gear toward the vehicle so the connecting pins fully engage the holes in the attachment arms.



4. Loosen one jack handle and slide the jack sleeve down below the jack retainer. Remove the jack and retighten the handle. Repeat for the other jack. Store the jacks for future use.



5. Connect all electrical cables from the vehicle to the snowplow.

# OPERATING YOUR SNOWPLOW

## JOYSTICK SOLENOID CONTROL

### ⚠ WARNING

To prevent accidental movement of the blade, always move the ON/OFF switch to OFF whenever the snowplow is not in use. The power indicator light will turn OFF.

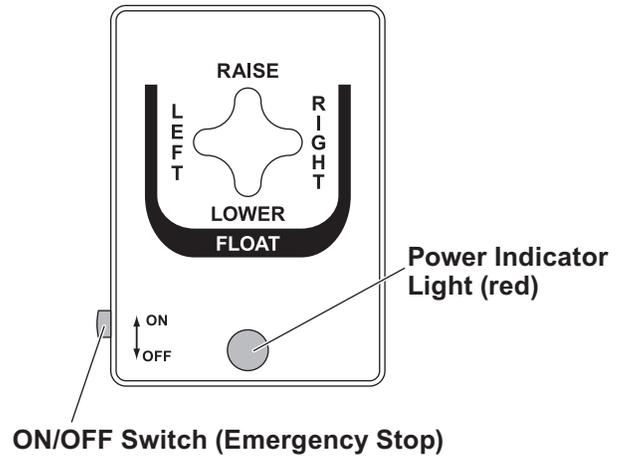
### ⚠ CAUTION

DO NOT hold the control lever in the RAISE, ANGLE LEFT or ANGLE RIGHT position after the blade has reached the desired position. To do so will use excess current and overheat components.

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.
2. Move the slide switch on the side of the control to the "ON" position. The power indicator light glows red, indicating that the control is ON. The

indicator light glows red whenever the control and the vehicle ignition switch are both ON and the electrical connections to the snowplow are completed.

The ON/OFF switch operates as an emergency stop if required.



Function	Description of Operation
ON/OFF	Move the control power switch ON to activate the hydraulic system. Turn the control OFF to lock the blade in place. This prevents accidental movement of the blade.
RAISE	Move the control lever toward the top of the control body to raise the snowplow and cancel the FLOAT mode.
LOWER	Move the control lever toward the bottom of the control body to lower the snowplow. Release the lever to stop the blade at desired height.
FLOAT	Move the control lever to the <b>LOWER</b> position and hold 3/4 second to activate this mode. The blade will lower to the ground surface and follow the contour of the surface as it dips or raises. This function does not time out, but the control will shut down after 20 minutes of nonuse. Move lever to the <b>RAISE</b> position momentarily to cancel FLOAT. Angling left or right will not interrupt (stop) the FLOAT function.
L (Angle Left)	Move the control lever straight to the left to angle the blade left.
R (Angle Right)	Move the control lever straight to the right to angle the blade right.

# OPERATING YOUR SNOWPLOW

## HAND-HELD CONTROL

### **⚠ WARNING**

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

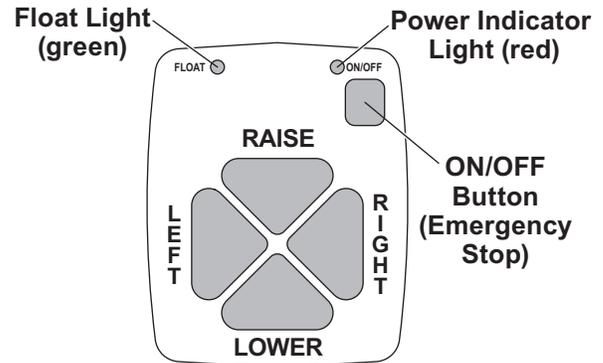
1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.
2. Press the ON/OFF button on the control. The power indicator light glows red, indicating that the control is ON. The power indicator light glows red whenever the control and the vehicle ignition switch are both ON and the electrical connections to the snowplow are completed.

The ON/OFF button operates as an emergency stop if required.

### Function Time-Outs

All control functions, except LOWER/FLOAT, time out (stop) automatically after a period of time. This is to limit the amount of electrical energy required from the vehicle.

**NOTE: If a control function times out before the desired blade movement is complete, release the button and press again.**



### Automatic Shutdown

The control will automatically turn OFF after being idle for 20 minutes. To reactivate the control after a shutdown, press the ON/OFF button.

### Smooth Stop

The control automatically allows the blade to coast to a stop when the button is released. This results in smoother operation, reduces the shock to the hydraulic system and increases hose and valve life.

### Control Functions

#### Raise, Lower, Float, Angle

The four triangle-shaped buttons in the center of the control face, when pressed, will result in the blade movements described in the table.

Button	Description of Operation
ON/OFF	Press this button to turn the control ON and OFF. Turn the control OFF (power indicator light OFF) to lock the blade in place. This prevents accidental movement of the blade.
<b>RAISE</b>	Press this button to raise the snowplow and cancel the FLOAT mode. Function times out after 3 seconds.
<b>LOWER</b>	Press this button to lower the snowplow. Release the button to stop the blade at desired height.
FLOAT	Press the <b>LOWER</b> button and hold 3/4 second to activate this mode. The FLOAT light in the upper left corner of the control face will illuminate. The blade will lower to the ground surface and follow the contour of the surface as it dips or raises. This function does not time out, but the control will shut down after 20 minutes of nonuse. Press the <b>RAISE</b> button momentarily to cancel FLOAT. Angling left or right will interrupt (stop) the FLOAT function, but FLOAT will resume when angling is complete.
<b>L</b> (Angle Left)	Press this button to angle the blade to the left. Function times out after 5.5 seconds.
<b>R</b> (Angle Right)	Press this button to angle the blade to the right. Function times out after 5.5 seconds.

# OPERATING YOUR SNOWPLOW

## SNOWPLOW HEADLAMP CHECK

With all electrical plugs connected, check the operation of vehicle and snowplow headlamps.

Lights	Results
Parking Lamps	Both vehicle and snowplow lamps should be ON.
Right Turn Signal	Both vehicle and snowplow lamps should be ON.
Left Turn Signal	Both vehicle and snowplow lamps should be ON.

Connecting and disconnecting the electrical plugs should switch between the vehicle and snowplow headlamps as follows:

- Electrical plugs DISCONNECTED – Vehicle headlamps function normally.
- Electrical plugs CONNECTED – Vehicle headlamp functions transfer to the snowplow headlamps. On some DRL systems, both the vehicle and snowplow headlamps will function.

## Aiming the Headlamps

- Aim the snowplow headlamps with the snowplow mounted and raised in the transport position. See "Aiming the Headlamp Beams" in the Maintenance section for instructions.
- Aim the vehicle headlamps with the snowplow removed from the vehicle.

## BLADE DROP SPEED ADJUSTMENT

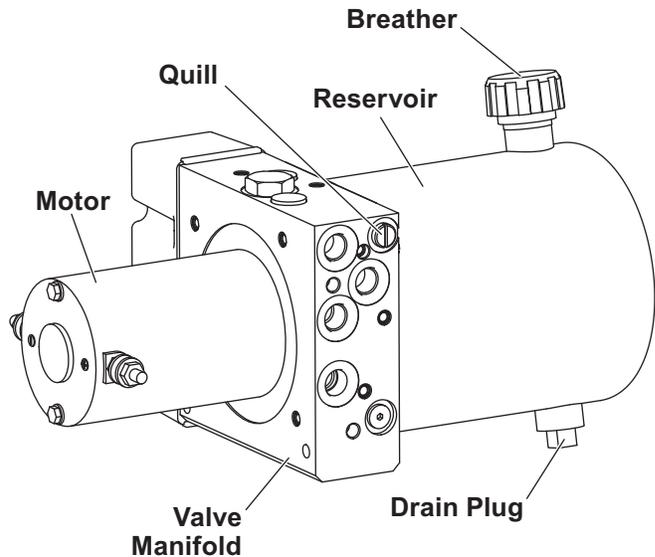
### ⚠ WARNING

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 front of the valve manifold adjusts the blade drop speed.

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

1. Lower the blade to the ground before making adjustment.
2. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.



3. Stand 8 feet clear of the blade when checking adjustment.

# OPERATING YOUR SNOWPLOW

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## TRANSPORTING THE SNOWPLOW

### **⚠ WARNING**

Position the blade so it does not block the headlamp beam.

Do not change blade position while traveling. You could suddenly lower the blade accidentally.

### **⚠ CAUTION**

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

These instructions are for driving short distances. Remove the snowplow from the vehicle for long trips.

1. Completely raise the blade.
2. Adjust the blade height for maximum headlamp illumination.
3. Adjust the blade to the straight position.
4. Move the control ON/OFF switch to OFF to lock the blade in place.

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**NOTE: Overheating is unlikely under normal driving conditions, but occasionally the snowplow may be positioned so it deflects air away from the radiator. If this occurs, stop the vehicle and raise, lower or angle the snowplow slightly to correct overheating.**

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**NOTE: Only the driver should be in the vehicle cab when the snowplow is attached.**

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## DRIVING AND PLOWING ON SNOW AND ICE

### **⚠ CAUTION**

Drinking then driving or plowing is very dangerous. Your reflexes, perceptions, attentiveness and judgement can be affected by even a small amount of alcohol. You can have a serious or even fatal collision if you drive after drinking. Please do not drink and then drive or plow.

Refer to the vehicle owner's manual instructions for driving in snow and ice conditions. Remember, when you drive on snow or ice, your wheels will not get good traction. You cannot accelerate as quickly, turning is more difficult, and you will need longer braking distance.

Wet and hard-packed snow or ice offers the worst tire traction. It is very easy to lose control. You will have difficulty accelerating. If you do get moving, you may have poor steering and difficult braking, which can cause you to slide out of control.

Here are some tips for driving in these conditions:

- Drive defensively.
- Do not drink, then drive or plow snow.
- Plow or drive only when you have good visibility for operating a vehicle.
- If you cannot see well due to snow or icy conditions, you will need to slow down and keep more space between you and other vehicles.
- Slow down, especially on higher-speed roads. Your headlamps can light up only so much road ahead.
- If you are tired, pull off in a safe place and rest.
- Keep your windshield and all glass on your vehicle clean to see around you.
- Dress properly for the weather. Wear layers of clothing. As you get warm, you can take off layers.

# OPERATING YOUR SNOWPLOW

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## PLOWING SNOW

### **⚠ WARNING**

Never plow snow with head out the vehicle window. Sudden stops or protruding objects could cause personal injury.

### **⚠ CAUTION**

Wear a seat belt when plowing snow. Hidden obstructions could cause the vehicle to stop suddenly, resulting in personal injury.

### **⚠ CAUTION**

Flag any obstructions that are hard to locate under snow, to prevent damage to product or property.

### **⚠ CAUTION**

Never stack snow with the blade angled. This could damage the snowplow or the vehicle bumper.

### **⚠ CAUTION**

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

**NOTE:** Only the driver should be in the vehicle cab when the snowplow is attached.

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## General Instructions

1. Before plowing, make sure you know of any obstructions hidden beneath the snow, such as curbs, sidewalk, shrubs, fences or pipes sticking up from the ground. If you are unfamiliar with the area to be plowed, have someone familiar with the area point out obstacles.
2. If possible and you have good visibility, plow during the storm rather than letting snow accumulate.
3. Do not exceed 10 mph (16 km/h) when plowing snow.
4. When you are stacking snow, begin raising the blade as you come close to the stack. This will let the blade ride up the stack.

## Hard-Packed Snow

1. On blades equipped with a shoe kit, raise the antiwear shoes so that the cutting edge comes into direct contact with the pavement.
2. Use lowest gear to place maximum power behind cutting edge.
3. An angled blade is more effective for removing hard-packed snow.

## Deep Snow

1. Shear off top layers by plowing with the blade raised 3 to 4 inches for the initial pass.
2. Bite into the edges using only partial blade width until job is cut down to size for full-blade plowing.

Rule of thumb:

- 3" of snow — plow with entire blade width
- 6" of snow — plow with 3/4 blade width
- 9" of snow — plow with 1/2 blade width

Experience and "feel" are the best guides.

3. When plowing deep snow, be sure to keep the vehicle moving.
4. Ballast is suggested for maximum traction. Secure ballast behind the rear wheels. Do not exceed the vehicle's GVWR and GAWR.
5. For increased traction, use tire chains where legal.

## Clearing Driveways

1. Head into the driveway with the blade angled and plow the snow away from any buildings. Widen the driveway by rolling the snow away from buildings.
2. If a building is at the end of the driveway, plow to within a vehicle length of the building. Push as much snow as possible off the driveway.
3. With a raised blade, drive through the remaining snow to the building. Drop the blade and "back drag" snow away from the building at least one vehicle length. Repeat if necessary.
4. Back the vehicle to the building and plow forward, removing the remaining snow. Check municipal ordinances for proper disposal of snow.

# OPERATING YOUR SNOWPLOW

## PARKING WITH SNOWPLOW ATTACHED

### **⚠ WARNING**

Lower the blade when the vehicle is parked. Keep 8' clear of the blade. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.

Whenever you park your vehicle, completely lower the blade to the ground.

## TOWING DISABLED OR STUCK VEHICLES

Do not use any snowplow components as an attaching point when retrieving, towing or winching a disabled or stuck vehicle.

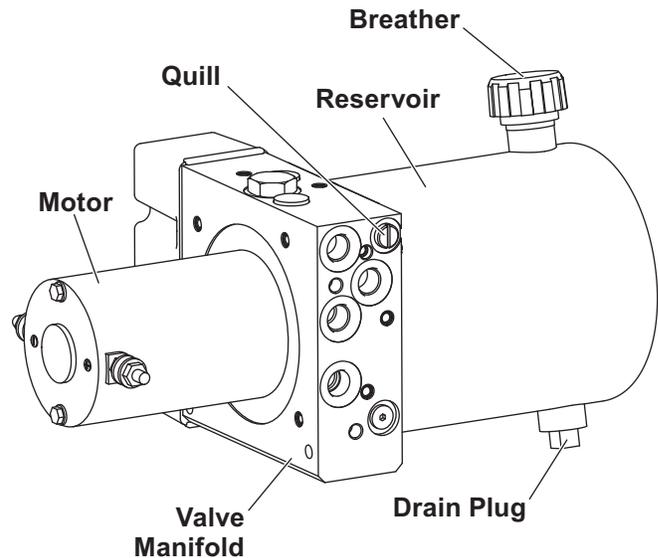
## CHECKING HYDRAULIC FLUID LEVEL

### **⚠ CAUTION**

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

Lower the blade to the ground. The fluid level should be 1-1/2" to 2" below the top of the reservoir. Add the recommended hydraulic fluid if necessary. For hydraulic fluid type and filling instructions, see "Annual Fluid Change" in the Hydraulic System section of this Owner's Manual.

Do not overfill. Reinstall the breather.



# REMOVING SNOWPLOW FROM VEHICLE & STORAGE

## DETACHING THE SNOWPLOW

### ⚠ WARNING

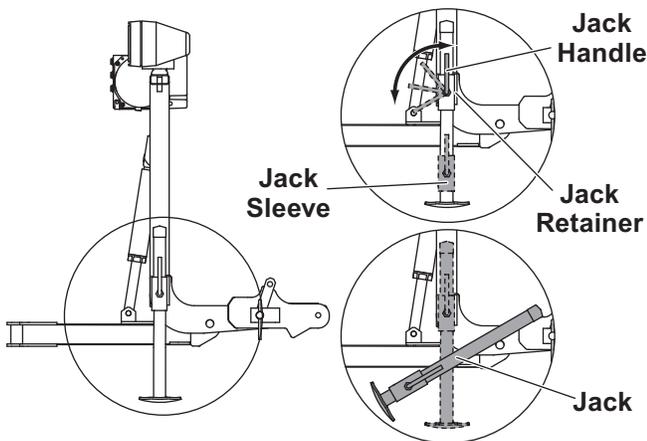
Keep 8' clear of the blade when it is being raised, lowered or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

### ⚠ WARNING

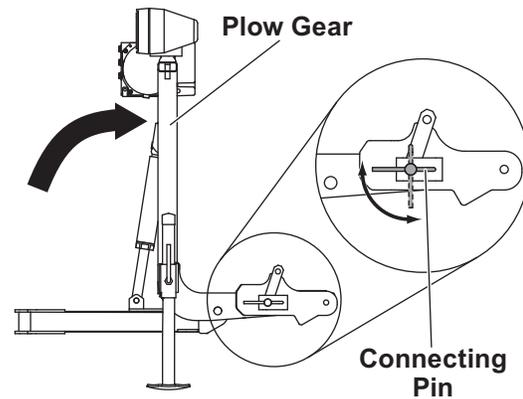
Inspect snowplow components and bolts for wear or damage whenever attaching or detaching the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

**NOTE:** The blade must be in the straight position when attaching or detaching the snowplow.

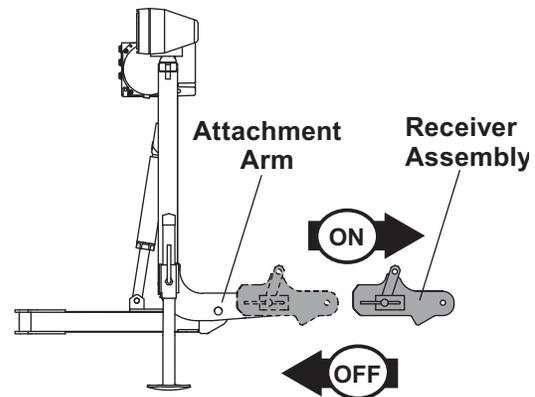
1. Put the blade on the ground using LOWER/FLOAT on the snowplow control. Leave the control ON and in FLOAT.
2. Attach the jacks. Loosen one jack handle, put the jack on ground and raise the jack sleeve until fully engaging the jack retainer. Tighten the jack handle. Repeat for the other jack.



3. While pushing the plow gear toward the vehicle to release connecting pin tension, pull the connecting pin out on one side and twist the pin handle to keep the pin retracted. Repeat the procedure for the other connecting pin.



4. Disconnect all electrical cables.



**NOTE:** After each disconnection of the snowplow, reapply dielectric grease to the electrical plugs to maintain the protective coating on the terminals.

5. Back the vehicle away from the snowplow.
6. Place the electrical plugs in storage position on the snowplow and connect the control and lighting electrical plugs together. Insert the battery cable into the boot. On the vehicle, connect the control and lighting electrical plugs together. Cover the battery cable with the attached boot.

See the Postseason Maintenance section of this manual for proper snowplow storage.

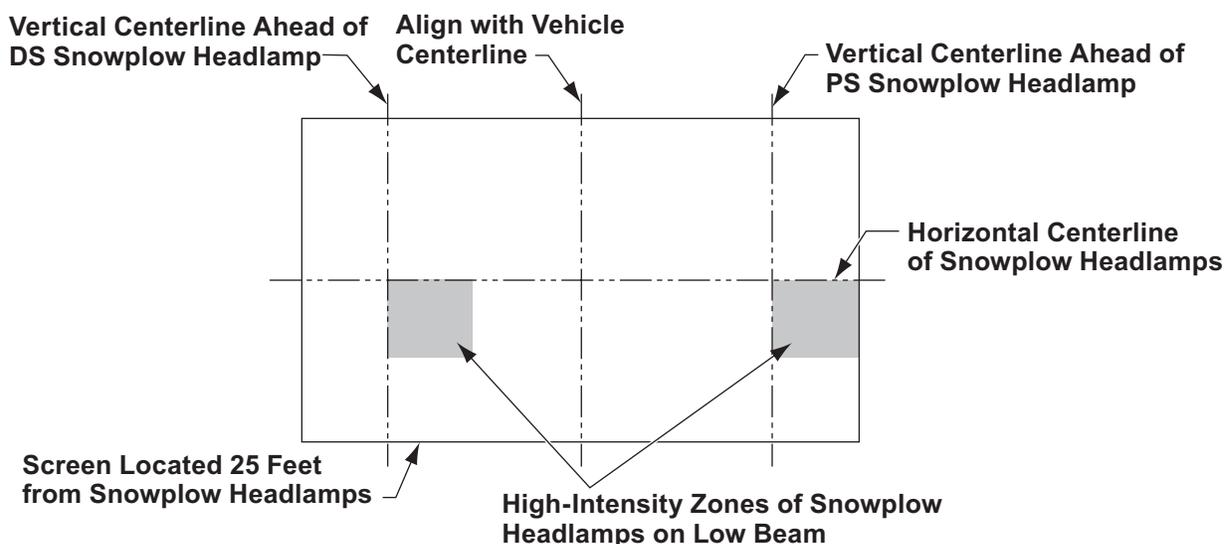
The receiver assembly and control can be removed for off-season storage. The receiver assembly is removed by removing the two pins on each receiver. Disconnect the control connector in the cab and store the control in the glove box of the vehicle.

# MAINTENANCE

## AIMING THE HEADLAMP BEAMS

Torque the headlamp fasteners to 45 ft-lb once correct visual aim is achieved.

1. Place the vehicle on a level surface 25 feet in front of a matte-white screen, such as a garage door. The screen should be perpendicular both to the ground and to the vehicle centerline.
  2. The vehicle should be equipped for normal operation. The snowplow blade should be in place and in raised position. Below are the steps listed by the Society of Automotive Engineers (SAE) pertinent to headlamp aiming in specification #SAE J599d.
  3. Prepare the vehicle for headlamp aim or inspection. Before checking beam aim, the inspector will:
    - a. Remove ice or mud from under fenders.
    - b. Set tire inflation pressures to the values specified on vehicle information label.
    - c. Check the springs for sag or broken leaves.
    - d. See that there is no load in the vehicle other than the driver and ballast as specified in the Selection List.
  - e. Check the functioning of any automatic vehicle leveling systems and specific manufacturer's instructions pertaining to vehicle preparation for headlamp aiming.
  - f. Clean the lenses.
  - g. Check for bulb burnout and proper beam switching.
  - h. Stabilize the suspension by rocking the vehicle sideways.
4. Mark (or tape) the vertical centerline of the snowplow headlamps and the vertical centerline of the vehicle on the screen. Mark the horizontal centerline of the snowplow headlamps on the screen (distance from the ground to the snowplow headlamp centers).
  5. Align the top edge of the high-intensity zone of the snowplow lower beam below the horizontal centerline and the left edge of the high-intensity zone on the vertical centerline for each snowplow headlamp. (Refer to the diagram below.)



# MAINTENANCE

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## PRESEASON CHECK

### **⚠ WARNING**

**Lower the blade when the vehicle is parked. Keep 8' clear of the blade. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.**

Before the snow season, check your equipment to make sure it's in working condition. Here are some tips for getting your equipment ready:

- Clean and tighten all electrical connections and coat with dielectric grease to prevent corrosion.
- Check the hydraulic system for leaks and cracked or damaged hoses.
- Drain the hydraulic system and refill it with recommended hydraulic fluid. For hydraulic fluid type and filling instructions, see "Annual Fluid Change" in the Hydraulic System section of this Owner's Manual.
- Replace worn or defective parts.
- Check all mounting points and tighten fasteners on both the snowplow and the vehicle.
- Repaint the blade assembly and attachments, as necessary, to protect the metal.
- Install auxiliary and flashing lights for compliance and visibility in accordance with local regulations.
- Check the headlamps, auxiliary lights, heater and windshield wipers for proper operation.
- Inspect and test your battery. Recharge or replace it as necessary.
- Ballast may be necessary, or beneficial, on some vehicles to provide maximum traction, braking and handling.
- Any ballast material (such as sand and blocks) must be solidly secured to the vehicle, preventing it from moving under harsh plowing conditions.

## POSTSEASON MAINTENANCE

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**NOTE: Coat all electrical connections with dielectric grease to maintain the protective coating on the terminals.**

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- Clean and paint blade and attachments as needed.
- Coat ram rods with general purpose petroleum grease.
- Lubricate all pivot points (for example, the connecting pin assembly) with general purpose petroleum grease.
- The receiver assemblies can be removed by pulling the 1/8" cotter pins out of each receiver mounting pin, then removing the mounting pins. To reattach receivers, slide the receivers into the truck mount with the connecting pins toward the outside, and secure with the receiver mounting pins and cotter pins.

### **⚠ WARNING**

**Lower the blade when the vehicle is parked. Keep 8' clear of the blade. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.**

## MAINTENANCE AND ADJUSTMENT

Your snowplow is designed for rugged, dependable service. However, like the vehicle on which it is mounted, it needs regular care and maintenance.

Before each storm and frequently throughout season, check that all fasteners, mounting bolts, and hydraulic and electrical connections are tight. Also check all plugs and seals for leaks. Repair as necessary.

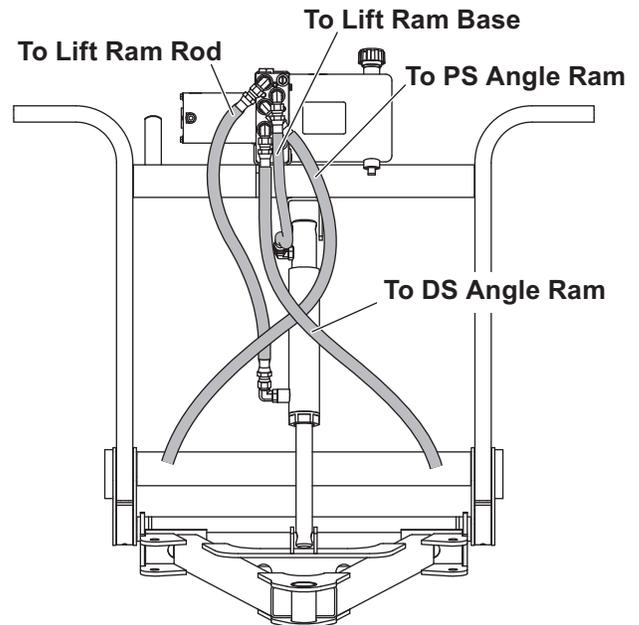
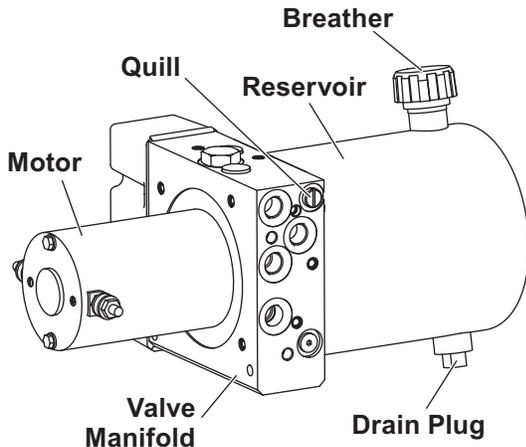
Lubricate all moving parts for ease of operation.

## LIFTING

The preferred method for moving the snowplow is to use your vehicle and mount. When the vehicle and mount are not available, the snowplow gear can be used as an attaching point to lift and move this snowplow, following recommended mechanical lifting cautions and procedures.

# MAINTENANCE

## HYDRAULIC SYSTEM



### Annual Fluid Change

#### ⚠ CAUTION

Change the fluid at the beginning of each plowing season. Failure to do this could result in condensation buildup during the non-plowing season.

#### ⚠ CAUTION

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

1. Perform this operation with the snowplow attached to the vehicle. Park the vehicle on a hard, level surface.
2. Lower the blade to the ground.
3. Remove the drain plug.
4. Completely drain the reservoir and reinstall the drain plug.

5. Remove the angle ram hoses from the fittings on the hydraulic unit and place them in a drain pan or other suitable container. (See illustration above and "Hose or Fitting Replacement" instructions on following page.)
6. Manually angle the blade fully in each direction to remove fluid from the angle rams. Do not allow the hose from the extending ram to take fluid back in.
7. Reconnect the angle ram hoses to the proper fittings.
8. Remove the breather. Fill the reservoir to 1-1/2" to 2" from the top with WESTERN® High Performance Fluid to -40°F (-40°C), or other fluid conforming to Military Specification MIL-H-5606A, such as Mobil Aero HFA or Shell AeroShell® Fluid 4.
9. Reinstall the breather.

#### ⚠ 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.

10. Activate the control and angle the blade fully to the left and right several times to remove air from the angle rams.

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# MAINTENANCE

11. Turn the control OFF. Remove the breather and refill the reservoir to 1-1/2" to 2" below the top of the reservoir. Reinstall the breather.
12. Activate the control and raise and lower the blade several times to remove air from the lift ram.
13. Lower the blade to the ground. The fluid level should be 1-1/2" to 2" below the top of the reservoir. Do not overfill. Reinstall 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.**

## Hose or Fitting Replacement

## **⚠ WARNING**

**Lower the blade when the vehicle is parked. Keep 8' clear of the blade. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.**

**DO NOT** use thread sealant/tape on hoses or fittings. These materials could damage the product. Follow recommended replacement procedures for fittings and hoses.

1. Turn the control OFF.
2. Loosen the hoses or fittings slowly to bleed off any residual pressure.
3. To remove a hose, loosen and unscrew the hose flare nut from the fitting.
4. To remove a fitting, loosen the jam nut and unscrew the fitting from the port.

## Procedure for Installing Hydraulic Fittings and Hoses

**NOTE: Overtightening the JIC hose fitting ends will result in a fractured fitting.**

**DO NOT** use thread sealant/tape on hoses or fittings. These materials could damage the product. Always use two wrenches to ensure proper tightening of fittings and hoses.

**Use the following procedure to install SAE O-ring fittings in the valve block and rams:**

1. Turn the jam nut on the fitting as far back as possible.
2. Lubricate the O-ring with clean hydraulic fluid.
3. Screw the fitting into the port by hand until the washer contacts the port face and the shoulder of the jam nut threads.
4. Unscrew the fitting to its proper position; no more than one full turn.
5. Using two wrenches, hold the fitting body in position and tighten the jam nut until the washer again contacts port face, then tighten an additional 1/8 to 1/4 turn to lock the fitting in place. Final torque on the jam nut should be approximately 20 ft-lb.

**Use the following procedure to install hydraulic hoses:**

1. Screw the flare nut onto the fitting flare and hand tighten it.
2. Align the hose so there are no twists or sharp bends and so it will not be pinched or pulled by moving parts.
3. Using two wrenches, hold the hose in position and tighten the flare nut 1/8 to 1/4 turn beyond hand tight. Final torque on the flare nut should be approximately 20 ft-lb.

# MAINTENANCE

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## VEHICLE

The snowplow operating vehicle shall be maintained according to manufacturer's recommendations. Tire pressure shall be maintained according to manufacturer's recommendation.

## RECYCLE

When your snowplow has performed its useful life, the majority of its components can be recycled as steel or aluminum. Hydraulic fluid shall be disposed of according to local regulations. Balance of parts made from plastic shall be disposed of in customary manner.

## EMERGENCY PARTS/TOOLS

- 10" adjustable wrench
- Medium screwdriver
- Pliers
- #20 TORX® driver
- 7.5 and 15 amp automotive blade-style fuses
- Funnel
- 12V DC test light
- Flashlight
- 1/8" Allen wrench
- 11/16" and 3/4" open-end wrenches
- 1/4" ratchet, 6" extension, 5/16" socket
- Electrical tape
- 1 quart WESTERN® High Performance Hydraulic Fluid

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# MAINTENANCE

## TROUBLESHOOTING

Some of the corrections listed here are complicated. Unless you are very experienced in electrical and

hydraulic repair, let your sales outlet service personnel do the repairs. If your problem does not appear in this guide, contact your sales outlet.

Condition	Possible Cause	Correction
Control power indicator not ON.	Control not turned ON.	Turn ON control.
	No power to control.	Blown fuse. Part of the vehicle control harness. Replace fuse.
	Plow/vehicle lighting harness not connected.	Properly connect both harnesses.
Motor does not run.	Plow/vehicle control harnesses not connected.	Properly connect both harnesses.
	Blown fuse in vehicle control harness.	Replace blown fuse in control harness.
Snowplow won't raise or raises slowly or partially.	Excess weight on blade.	Remove snow and/or ice buildup or aftermarket accessories (excess weight).
	Hydraulic fluid level is low or wrong fluid is used.	Fill reservoir to proper level with recommended fluid. Do not mix different hydraulic fluid types.
	Vehicle battery is weak or charging system is defective.	Replace battery and check charging system.
Snowplow angles slowly or partially.	Hydraulic fluid level is low or wrong fluid is used.	Fill reservoir to proper level with recommended fluid. Do not mix different hydraulic fluid types.
	Vehicle battery is weak or charging system is defective.	Replace battery and check charging system.
	Air trapped in angle rams.	Cycle per procedure to remove air from rams. See Annual Fluid Change instructions.
Snowplow won't lower, lowers slowly, or won't float.	Hydraulic fluid not correct for outside temperature.	Use recommended fluid.
	Blown fuse in vehicle control harness.	Replace blown fuse.
Snowplow lowers by itself or won't stay in raised position.	Hydraulic fittings or hoses loose or damaged.	Tighten or replace components or see sales outlet for repair information.
Fluid leaks from hydraulic system.	Reservoir is overfilled.	Do not fill reservoir beyond filler plug.
	Failed seal or O-ring.	See sales outlet for repair information.
	Loose or damaged hydraulic fittings, hoses, plugs, or hardware.	Tighten loose components. See sales outlet for repair information.
Fluid leaks from angle or lift ram.	Hydraulic fittings or hoses loose or damaged.	Tighten or replace components or see sales outlet for repair information.
Excessive load on vehicle electrical system while using snowplow.	Hydraulic fluid not correct for outside temperature.	Use recommended fluid.
	Vehicle battery is weak or charging system is defective.	Replace battery and check charging system.
	Vehicle electrical system is inadequate.	Check vehicle specifications and recommendations.
Vehicle battery loses charge when snowplow is not being used.	Vehicle battery is weak.	Replace battery.
Snowplow headlamps operate irregularly or not at all (snowplow attached).	Snowplow and vehicle lighting harnesses are not mated correctly.	Properly connect both harnesses.
	Burned-out bulbs or corroded sockets.	Replace bulbs, clean contacts.
Vehicle headlamps operate irregularly or not at all (snowplow removed).	Burned-out bulbs.	Replace bulbs.
	Defective vehicle fuse.	Replace fuse.
Plow park/turn lamps not operating.	Blown fuse. Part of the vehicle control harness.	Replace fuse.





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