

WESTERN[®]

DEFENDER[™]

DEFENDER[™] Compact Plow

Owner's Manual
Original Instructions

⚠ CAUTION

Read this document before operating or
servicing snowplow.

This manual supersedes all editions with an earlier date.

OWNER INFORMATION

Register your snowplow online at 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: _____

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PREFACE

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.

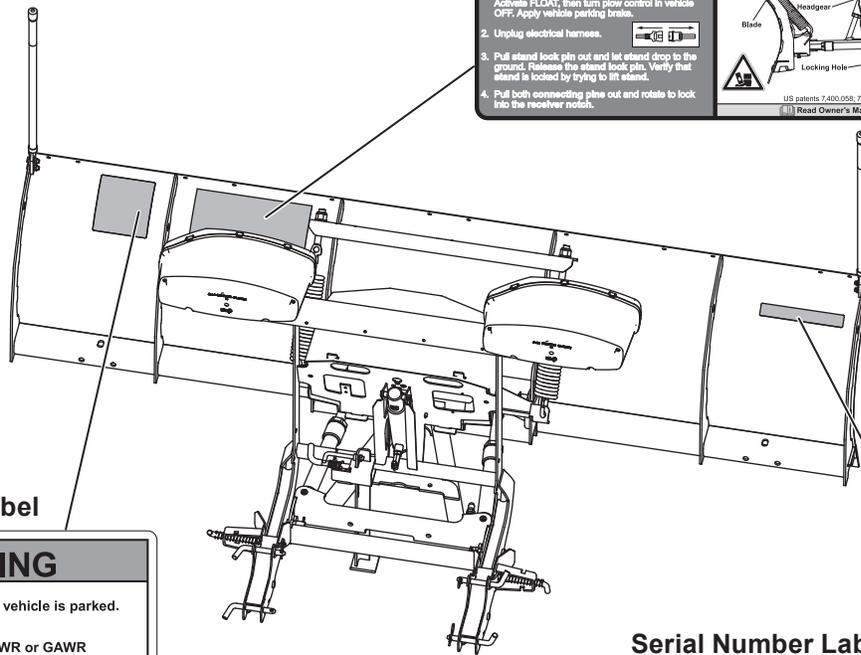
WARNING/CAUTION AND INSTRUCTION LABELS

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.

Instruction Label

<p style="text-align: center;">ATTACH</p> <ol style="list-style-type: none"> 1. Verify both connecting pins are pulled out and locked into the receiver notch. 2. Slowly drive vehicle forward to engage rear receiver pins completely into headgear slots. Apply vehicle parking brake. 3. Rotate and unlock connecting pins on receivers. 4. Plug in electrical harness. 5. Turn plow control in vehicle ON and activate FLOAT. 6. Stand in front of blade. Push top of headgear toward vehicle to allow connecting pins to fully engage connecting pin holes. 7. Verify that both connecting pins are engaged through all holes on the headgear and receivers. 8. While holding stand lock pin out, use stand handle to raise stand. Release stand lock pin into locking hole and verify stand is secure. <p style="text-align: center;">DETACH</p> <ol style="list-style-type: none"> 1. With blade straight, lower snowplow to the ground. Activate FLOAT, then turn plow control in vehicle OFF. Apply vehicle parking brake. 2. Unplug electrical harness. 3. Pull stand lock pin out and let stand drop to the ground. Release the stand lock pin. Verify that stand is locked by trying to lift stand. 4. Pull both connecting pins out and rotate to lock into the receiver notch. 	<p style="text-align: center;">⚠ WARNING</p> <p>Keep fingers away from snowplow and vehicle attachment points.</p> <p style="font-size: small; text-align: center;">US patents 7,400,058; 7,737,676; and other patents pending. Read Owner's Manual for complete instructions.</p>
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Warning/Caution Label

⚠ WARNING	<p> Lower blade when vehicle is parked.</p> <p> Do not exceed GVWR or GAWR including blade and ballast.</p>
⚠ CAUTION	<p> Read Owner's Manual before operating or servicing snowplow.</p> <p> Transport speed should not exceed 45 mph (72 km/h). Further reduce speed under adverse travel conditions.</p> <p> Plowing speed should not exceed 10 mph (16 km/h).</p> <p> See your sales outlet/Web site for specific vehicle application recommendations.</p>

Serial Number Label

ZZZZZ	YYMMDDLXXXZZZZ
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
ZZZZZZ	5- to 7-Digit Blade Assembly PN

SAFETY

SAFETY PRECAUTIONS

Follow all safety and operating instructions in your truck's Owner's Manual.

Improper installation and operation could cause personal injury, and/or equipment and property damage. Read and understand labels and this 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, GAWR, or maximum vehicle load capacity, including the blade and ballast.

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.

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 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.
- Wear hearing protection such as earmuffs or earplugs as appropriate or required.
- 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 surroundings. 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.

SNOWPLOW WEIGHT

Size	Blade Assembly	Wt (lb)	Wt (kg)
6' 8"	DEFENDER™ Compact Plow	290	132
7' 2"	DEFENDER Compact Plow	297	135

GETTING TO KNOW YOUR SNOWPLOW

⚠ CAUTION

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

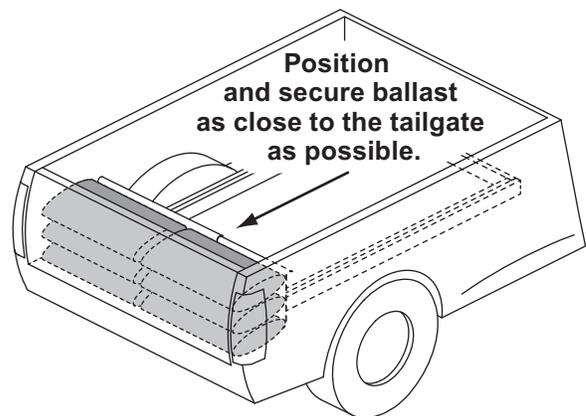
Vehicle application recommendations are based on the following:

- 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" later in this section.
- WESTERN Quick Match selection system/ 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).

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.



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

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, lift frame, 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.

NIGHTHAWK™ SNOWPLOW HEADLAMPS

⚠ WARNING

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

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

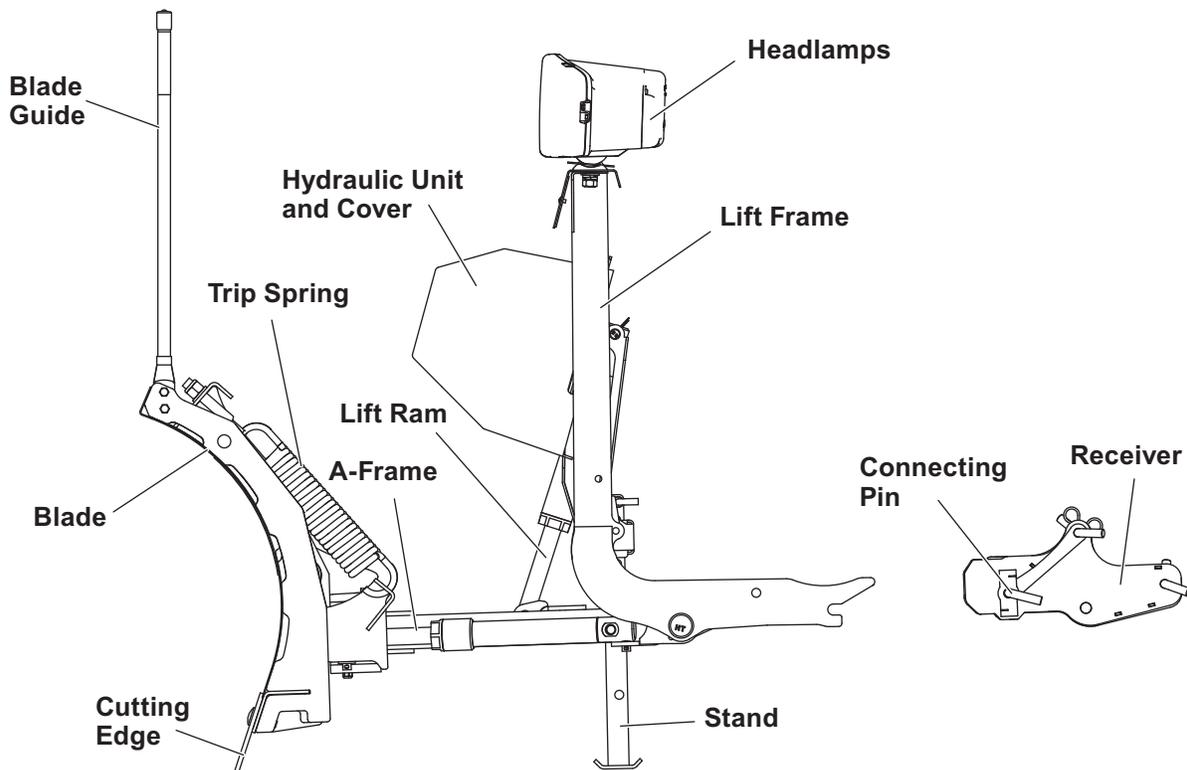
When the electrical plugs are connected, the vehicle headlamps will automatically switch to the snowplow headlamps when they are turned ON. When the electrical plugs are disconnected, the headlamps will automatically switch to vehicle headlamps when they are turned ON.

Replacement parts are available through your local WESTERN® outlet.

VEHICLE MOUNT KIT

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

The vehicle mount assembly is bolted to the underside of the vehicle frame, and the receiver assembly is attached to the vehicle 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 mount assembly.



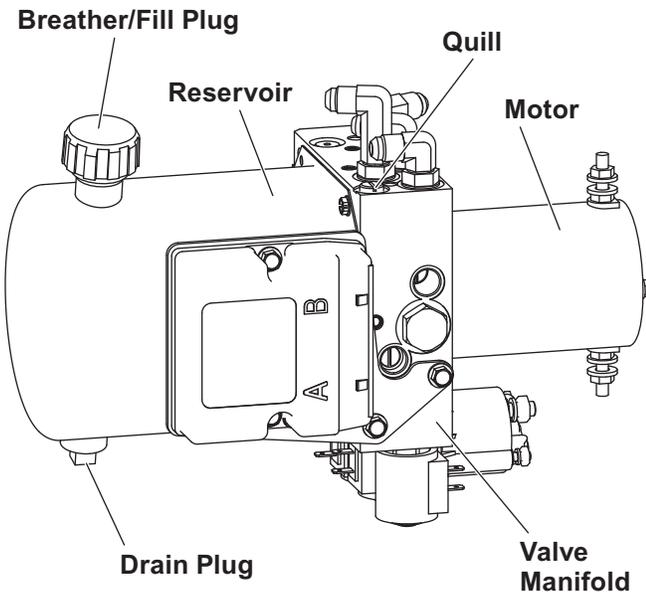
GETTING TO KNOW YOUR SNOWPLOW

HYDRAULIC UNIT

The hydraulic system gives you full control of the snowplow from the driver's seat. Two single-acting hydraulic rams hold the blade at the desired angle.

The hydraulic unit's manifold has built-in blade scrape lock circuitry. This feature resists the tendency of a snowplow to "float up" when large amounts of snow build up in front of the blade while plowing deep snow or stacking snow into piles.

The scrape lock 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 Angle Relief
3.0" dia 2.8 kW Motor (1.39 hp)
0.000476 gal/rev Pump
Hydraulic Hose SAE 100R1

CONTROLS

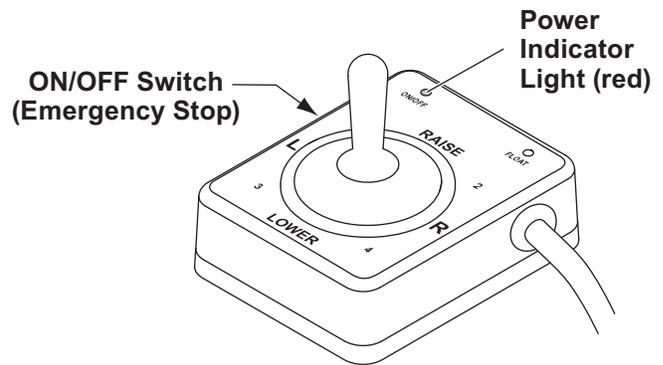
⚠ WARNING

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.

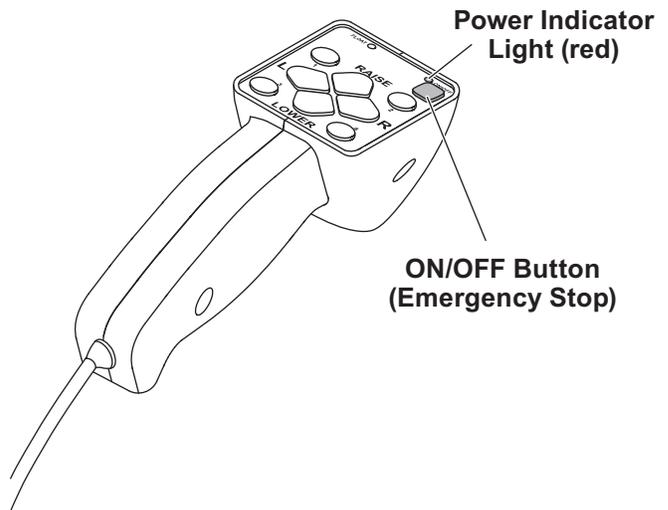
The controls are electrically powered through the ignition (key) switch of your vehicle and are protected by a replaceable in-line fuse. The ON/OFF switch allows you to turn OFF the control and prevent blade movement even when the ignition is ON.

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

Joystick 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.

⚠ WARNING

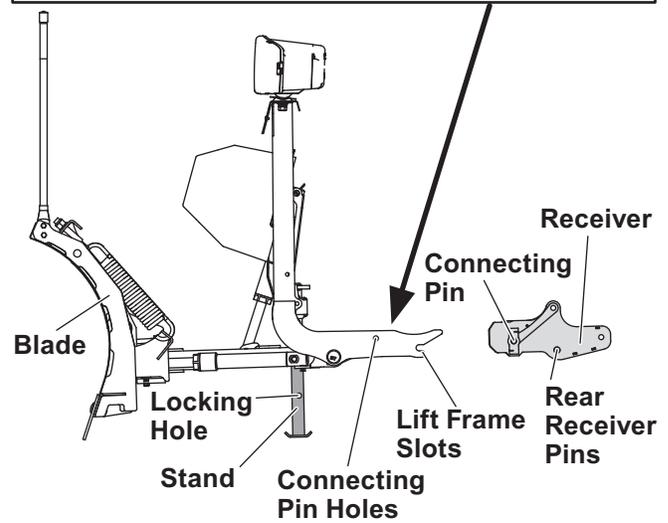
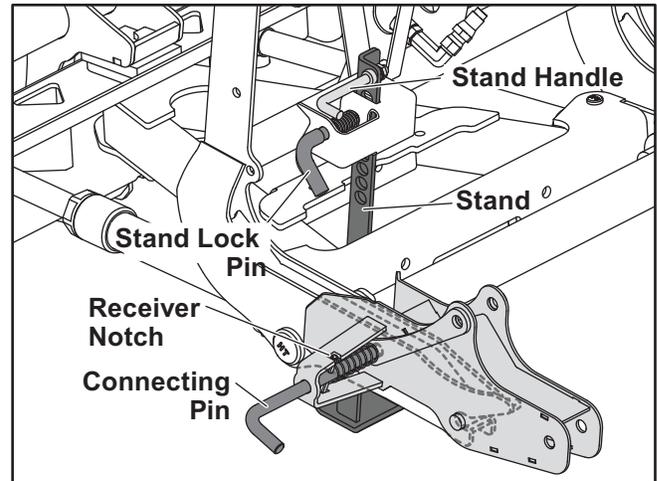
Keep fingers away from snowplow and truck attachment points.

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

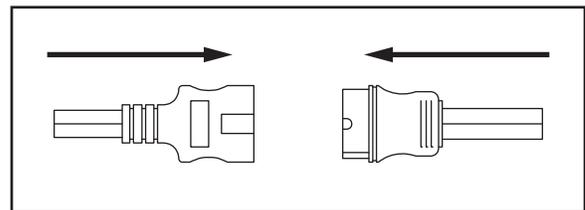
NOTE: Use dielectric grease to prevent corrosion on all connections.

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

1. Verify both connecting pins are pulled out and locked into the receiver notch.
2. Slowly drive the vehicle forward to engage the rear receiver pins into the lift frame slots. Apply the vehicle parking brake.
3. Rotate and unlock the connecting pins on the receivers.



4. Plug in the electrical harness.



5. Turn the plow control ON and activate FLOAT.
6. Stand in front of the blade. Push the top of the lift frame toward the vehicle to allow the connecting pins to fully engage the connecting pin holes.
7. Verify that both connecting pins are engaged through all holes on the lift frame and receivers.
8. While holding the stand lock pin out, use the stand handle to raise the stand. Release the stand lock pin into the locking hole and verify the stand is secure.

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.

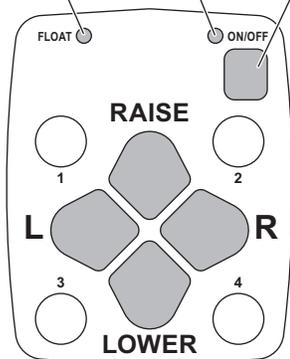
1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.
2. Press the ON/OFF button on the control. The power indicator light glows red, indicating that the control is ON. The power indicator light glows red whenever the control and vehicle ignition switch are both ON and the electrical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

The ON/OFF button operates as an emergency

Power Indicator Light (red)

FLOAT Light (green)

ON/OFF Button
(Emergency Stop)



Ultra Lightweight Blade
Hand-Held Control

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 it 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 a control button is released. This results in smoother operation, reduces the shock to the hydraulic system and increases hose and valve life. See "Smooth Stop" later in this section for more information.

Hand-Held Control Functions

Raise, Lower, Float, Angle

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

Function	Description of Operation
RAISE	Press this button to raise the blade and cancel the FLOAT mode. Function times out after 4.0 seconds.
LOWER	Press this button to lower the blade. Release the button to stop blade at the desired height.
FLOAT†	Press the LOWER 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 rises. This function does not time out, but the control will shut down after 20 minutes of nonuse. Press the RAISE button momentarily to cancel FLOAT. Angling left or right will not interrupt (pause) the FLOAT function.
L (Angle Left)	With wings in a straight line, press the L button to move both wings to the angle left position. The left wing retracts while the right wing extends. Function times out after 3.0 seconds.
R (Angle Right)	With wings in a straight line, press the R button to move both wings to the angle right position. The right wing retracts while the left wing extends. Function times out after 3.0 seconds.

† FLOAT mode activates immediately when the one-touch FLOAT feature is enabled. See "One-Touch FLOAT" later in this section for more information.

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

OPERATING YOUR SNOWPLOW

JOYSTICK CONTROL

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.

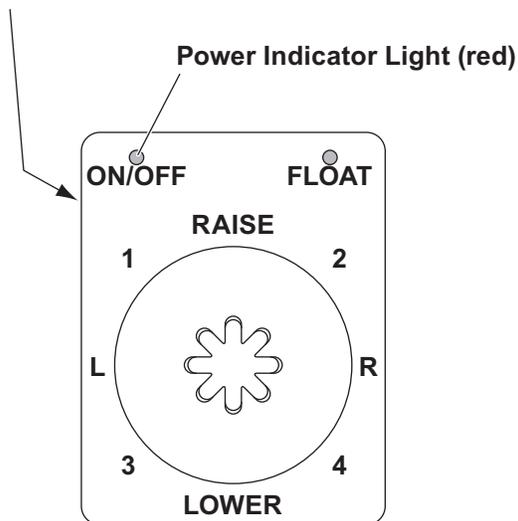
⚠ WARNING

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.

2. Move the ON/OFF 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.

**ON/OFF Switch
(Emergency Stop)**



**Ultra Lightweight Blade
Joystick Control**

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 lever to the center position, then move it back into the desired function.

Automatic Shutdown

The control will automatically turn OFF after being idle for 20 minutes. To reactivate the control after a shutdown, move the ON/OFF switch to OFF, then back to ON.

Smooth Stop

The control automatically allows the blade to coast to a stop when the lever returns to center position. This results in smoother operation, reduces the shock to the hydraulic system and increases hose and valve life. See "Smooth Stop" later in this section for more information.

Control Lever Movement

From the center position, the control lever can be moved in one of eight directions to control various movements of the snowplow blade. To change from one movement of the blade to another, the control lever must be moved back to the center position before selecting the desired function. Whenever the lever is released, it should spring back into the center position to stop any blade movement.

OPERATING YOUR SNOWPLOW

SECURITY GUARD™ SYSTEM OPERATION

Activation & Establishing a 4-Digit Security Code

NOTE: The snowplow must be attached to the vehicle, and all the electrical connections must be connected prior to activating the security code function.

The SECURITY GUARD feature was developed as an electrical anti-theft system. The system provides a deterrent against theft and/or non-permitted use by allowing you to electronically lock the snowplow's hydraulic functions.

All multiplex snowplow controls come equipped with the SECURITY GUARD system. To use this function, you must complete the activation process.

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. (It is not necessary to start the vehicle.)
2. Verify that the control power indicator is OFF. If the power indicator light is red, the control is ON. Move the ON/OFF switch to "OFF" or push the ON/OFF button to turn the control OFF.
3. To activate the SECURITY GUARD mode, move the control lever to the #1 position or press the #1 button four consecutive times, and then move the lever to the #4 position or press the #4 button four consecutive times (sequence: 1, 1, 1, 1, 4, 4, 4, 4). The green FLOAT light will flash quickly and the red power indicator light will turn ON, indicating that the system is ready to accept your 4-digit security code.

Enter your 4-digit security code by moving the control lever to (or pressing the button for) any 4 of the 8 following positions: UP, DOWN, LEFT, RIGHT, 2, 3 or 4.

Once you have entered your 4-digit security code, the FLOAT light will stop flashing and The power indicator light will turn OFF. This indicates that your 4-digit security code is entered and stored in the SECURITY GUARD™ system.

4. Once a 4-digit security code is established and the plow/vehicle electrical connection is lost/disconnected, the SECURITY GUARD system will recognize any control that has been programmed with the same 4-digit security code. Any control not programmed with the correct 4-digit security code will require the user to enter the established security code before activating the snowplow (see the Manual Unlock procedure below).

NOTE: If the control is turned ON prior to completing the programming procedure, your 4-digit security code will be cancelled.

Manual Unlock

If the SECURITY GUARD system is activated and you are using a control with a different 4-digit code than the established security code, you will be required to manually enter the 4-digit security code before operating a locked snowplow.

1. Turn the vehicle ignition to the "ON" or "ACCESSORY" position.
2. Move the ON/OFF switch to the "ON" position or push the ON/OFF button to switch the control ON.
3. The power indicator light will flash rapidly, indicating that the snowplow is locked.
4. Enter the 4-digit security code.
5. After the correct security code is entered, the power indicator light will change from flashing rapidly to a solid light to indicate that the snowplow has been successfully unlocked.

NOTE: If the plow/vehicle electrical connection is lost or disconnected, the SECURITY GUARD™ system will reset, requiring any control that is not programmed with the established 4-digit security code to manually re-enter the security code to activate the snowplow.

OPERATING YOUR SNOWPLOW

Clearing an Established 4-Digit Security Code

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.
2. If the snowplow is locked (the control power indicator light will be flashing rapidly), unlock the snowplow by following the Manual Unlock procedure described above.
3. Move the ON/OFF switch to the "OFF" position or push the ON/OFF button to switch the control OFF. Verify that the power indicator light is OFF.
4. With the control OFF, move the control lever to the #2 position or press the #2 button four consecutive times, then move the lever to the #3 position or press the #3 button four consecutive times. This sequence (2, 2, 2, 2, 3, 3, 3, 3) will clear the 4-digit security code from the SECURITY GUARD system. The FLOAT light will flash to indicate that the 4-digit security code was cleared.

NOTE: To enter a new 4-digit security code, see "Activation & Establishing a 4-Digit Security Code."

Light Flash Indicators

POWER – Red	Function
OFF	Control is OFF
Solid ON	Control is ON and active
Slow Flash	No communication
Fast Flash	Snowplow is locked—enter 4-digit security code to unlock

FLOAT – Green	Function
Solid ON	FLOAT function is active
Fast Flash	Security code activation in progress

Additional Notes

- The SECURITY GUARD™ system requires any control (other than the one with the assigned 4-digit security code) to enter the security code before the snowplow can be activated. Once the security code is established, the SECURITY GUARD system recognizes that a control with the same security code is attached, and does not require a manual unlock to activate the snowplow. The system will recognize the control as "safe" and will automatically unlock.
- In the event that a snowplow is locked and cannot be manually unlocked or reset, contact your Authorized Dealer.
- REMINDER: Record your security code for future reference.

OPERATING YOUR SNOWPLOW

SMOOTH STOP

Smooth stop, or "soft" stop, allows the blade to coast to a stop when the button/lever is released. The result is smoother operation, reduction in shock to the hydraulic system, and longer hose and valve life.

While there are advantages to having this feature, there are also advantages to temporarily disabling it. For example, disabling smooth stop allows for more precise movements of the blade while operating close to buildings and other obstacles.

All controls come standard with this feature ENABLED. To enable/disable this feature, perform the following steps. Performing the sequence multiple times will toggle the feature between enabled and disabled.

Enable/Disable Procedure

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. (It is not necessary to start the vehicle.)
2. Verify that the control power indicator is OFF. If the power indicator light is red, the control is ON. Move the ON/OFF switch to "OFF" or push the ON/OFF button to turn the control OFF.
3. Move and hold the control lever to the R position or press and hold the R button while turning the control ON. The power indicator light will turn ON and the FLOAT light will flash, indicating the status of the feature.

Light Flash Indicators

Light	Description
POWER – Red	Solid ON = Control is ON
FLOAT – Green	1 Flash = Smooth Stop Enabled 2 Flashes = Smooth Stop Disabled

ONE-TOUCH FLOAT

One-touch FLOAT immediately activates the FLOAT mode and releases the blade to the ground, without having to hold the button or lever in LOWER. This can improve transition time when backing up to plow forward again, eliminating the time spent holding the control and waiting for the blade to fully drop.

All controls come standard with this feature DISABLED. To enable/disable this feature, perform the following steps. Performing the sequence multiple times will toggle the feature between enabled and disabled.

Enable/Disable Procedure

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. (It is not necessary to start the vehicle.)
2. Verify that the control power indicator is OFF. If the power indicator light is red, the control is ON. Move the ON/OFF switch to "OFF" or push the ON/OFF button to turn the control OFF.
3. Move and hold the control lever to the LOWER position or press and hold the LOWER button while turning the control ON. The power indicator light will turn ON and the FLOAT light will flash, indicating the status of the feature.

Light Flash Indicators

Light	Description
POWER – Red	Solid ON = Control is ON
FLOAT – Green	1 Flash = One-touch FLOAT Disabled 2 Flashes = One-touch FLOAT Enabled

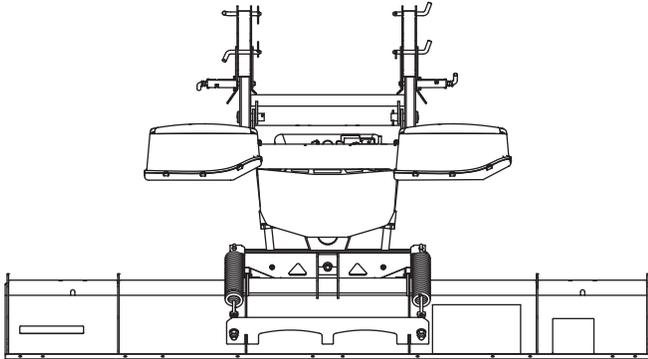
OPERATING YOUR SNOWPLOW

BLADE POSITIONS

The Compact Plow can be used in these plowing positions.

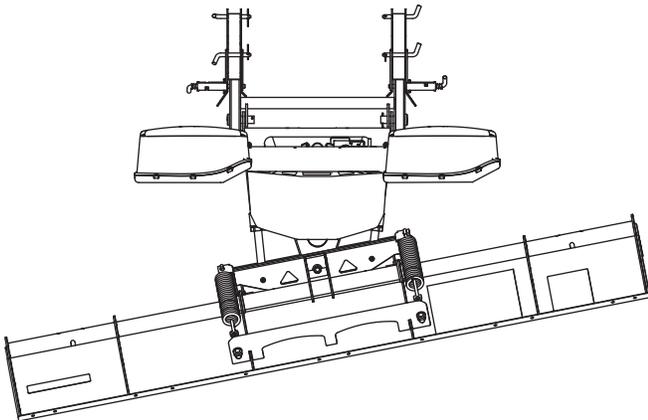
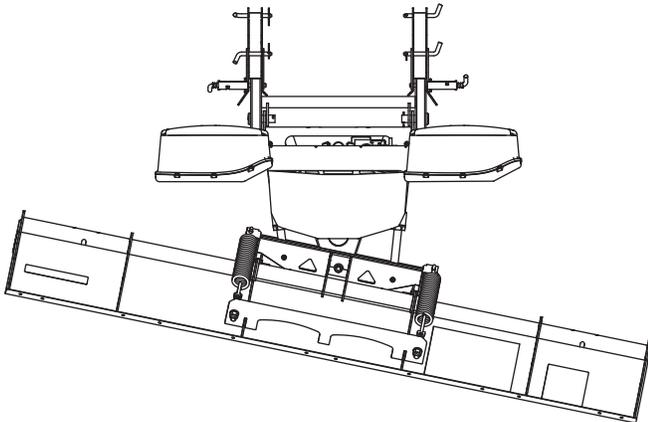
Straight Blade

Use straight blade for wide-path plowing or stacking snow.



Angled Blade

Move blade in either direction for general plowing and widening.



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 Headlamp Beams" in the Maintenance section for instructions.
- Aim the vehicle headlamps with the snowplow removed from the vehicle.

OPERATING YOUR SNOWPLOW

BLADE DROP SPEED ADJUSTMENT

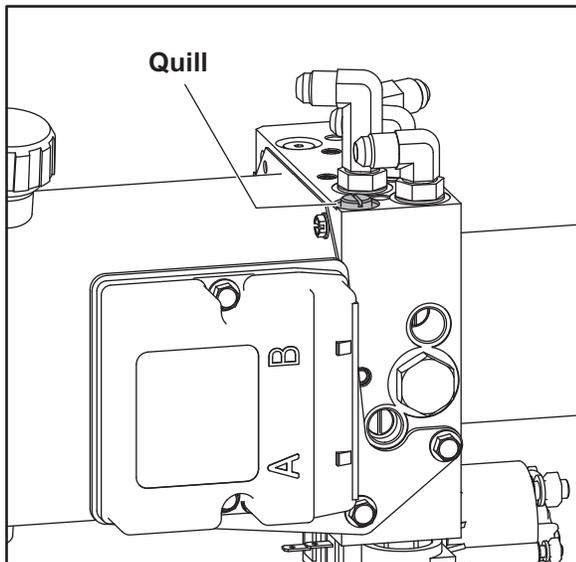
⚠ WARNING

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. Remove the hydraulic unit cover.
3. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.



TRANSPORTING THE SNOWPLOW

⚠ WARNING

Position the blade so it does not block the vehicle headlamp beams.

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).

1. Completely raise the blade.
2. Adjust the blade height for maximum vehicle 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.

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.

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

OPERATING YOUR SNOWPLOW

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.
- If you are tired, move indoors 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.

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.

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 when 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.

OPERATING YOUR SNOWPLOW

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.

Clearing Parking Lots

1. Clear areas in front of buildings first. With the blade raised, drive up to the building. Drop the blade and "back drag" the snow away from the building. When the snow is clear of the buildings, turn the vehicle around and push the snow away from the buildings toward the outer edges of the lot. Back drag edges are available as an accessory for select snowplow models.
2. Plow a single path down the center in the lengthwise direction.
3. With the blade in the scoop, angle or dogleg position, plow successive strips lengthwise until the area is cleared and snow is stacked around the outer edges.
4. If the snow is too deep to clear in the above manner, clear the main traffic lanes as much as possible.

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.

OPERATING YOUR SNOWPLOW

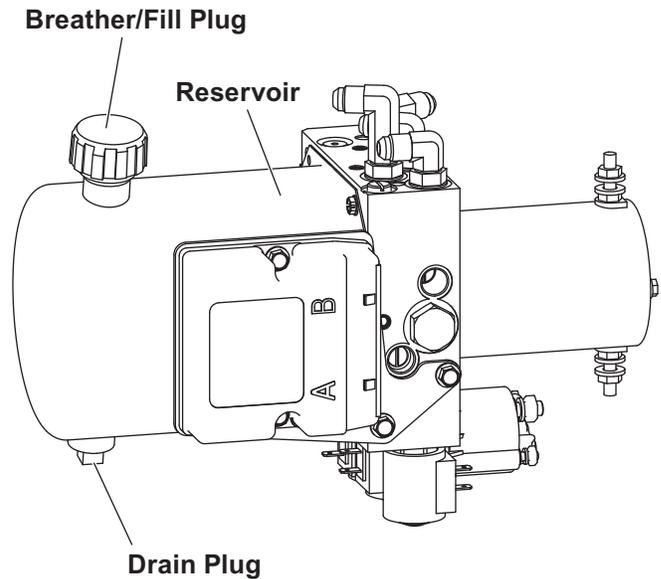
CHECKING HYDRAULIC FLUID LEVEL

⚠ CAUTION

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

1. Park the vehicle on a hard, level surface and lower the blade to the ground.
2. Remove the fill plug.

NOTE: Remove fill plug slowly to relieve any pressure in reservoir



3. Check the fluid level in the reservoir. The fluid level should be 1-1/2" to 2" below the top of the reservoir. Add the recommended hydraulic fluid, if necessary. Do not overfill.
4. Reinstall the fill plug.

For hydraulic fluid type and filling instructions, see the fluid change instructions under "Hydraulic System" in the Maintenance section of this manual.

DETACHING SNOWPLOW FROM VEHICLE

DETACHING THE SNOWPLOW

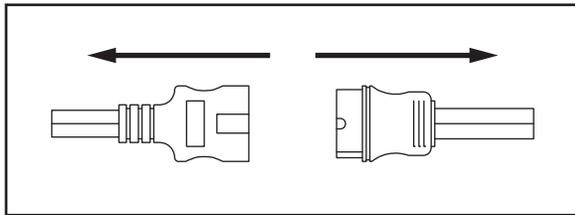
⚠ WARNING

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

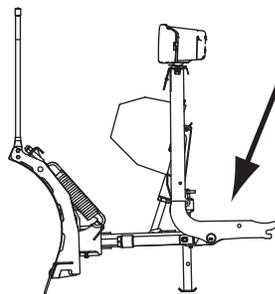
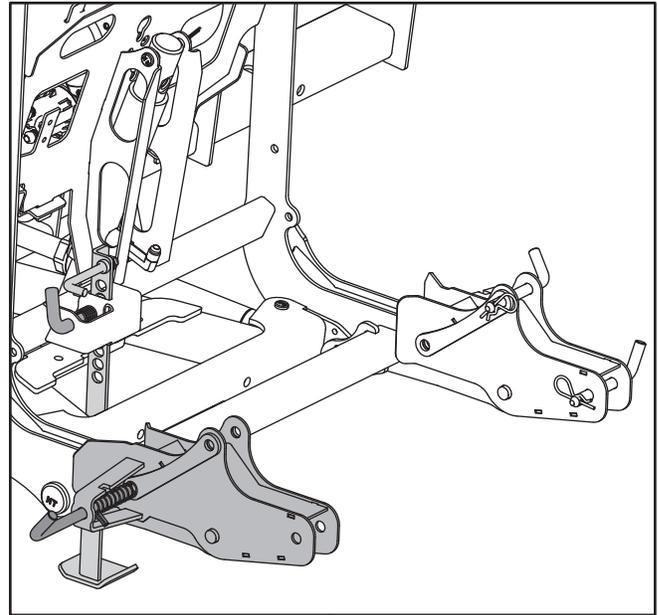
Inspect snowplow components and bolts for wear or damage whenever attaching or detaching the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

1. With the blade straight, lower the snowplow to the ground. Activate FLOAT, then turn the plow control in the vehicle OFF. Apply the vehicle parking brake.
2. Unplug the electrical harness.



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

3. Pull the stand lock pin out and let the stand drop to the ground. Release the stand lock pin. Verify that the stand is locked by trying to lift the stand.
4. Pull both connecting pins out and rotate to lock into the receiver notch.



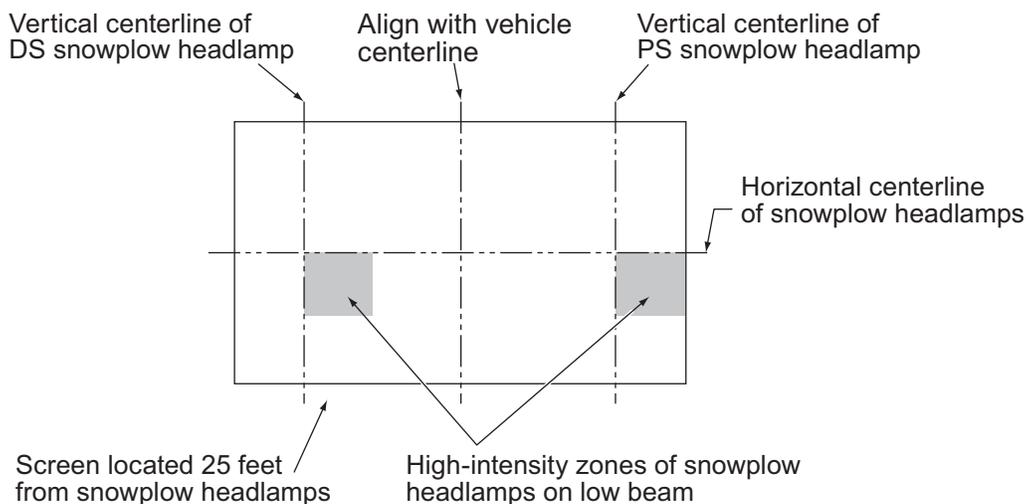
5. Back the vehicle away from the snowplow.
6. Place the electrical plugs in the storage boot on the snowplow.
7. The receiver assemblies can be detached by removing the two pins from each receiver.

MAINTENANCE

AIMING HEADLAMP BEAMS

Tighten headlamp fasteners to 22 ft-lb or 30 N·m with rubber gasket, once correct visual aim is achieved.

1. 1. Park 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 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 Quick Match selection system.
 - 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 headlamp lenses.
 - g. Check for bulb burnout and proper beam switching.
 - h. Stabilize the vehicle 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 ground to 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 diagram below.)



MAINTENANCE

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

⚠ 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.

PRESEASON CHECK

Before the snow season, check your equipment to make sure it's in working condition.

- 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 damaged 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 vehicle 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.

IN-SEASON MAINTENANCE

- Apply dielectric grease to the joystick or hand-held control connector monthly.
- Store the control in a protected location when it is not in use. Do not leave it in the vehicle. The control can fail prematurely if it is exposed to the elements when not in use.
- 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.

MAINTENANCE

POSTSEASON MAINTENANCE

- 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.

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

STORAGE

Your snowplow is designed to be moved into a storage location using your vehicle and plow attachment system. For easier reattachment, store the snowplow on a hard, level surface.

MAINTENANCE

HYDRAULIC SYSTEM

Annual Fluid Change

⚠ CAUTION

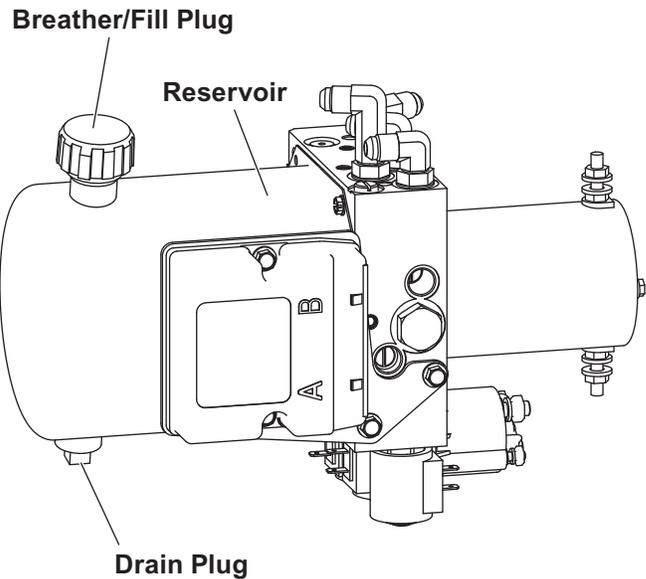
Change the fluid at the beginning of each plowing season. Failure to do this could result in condensation buildup during the non-plowing season.

⚠ 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. Turn the control OFF.
3. Remove the fill plug.

NOTE: Remove fill plug slowly to relieve any pressure in reservoir.



4. Remove the drain plug.
5. Completely drain the reservoir and reinstall the drain plug.
6. Fill the reservoir to 1-1/2" to 2" from the top with high-performance 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.
7. Reinstall the fill plug.

AeroShell® is a registered (®) trademark of Shell Oil Company.

MAINTENANCE

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 hydraulic hoses or fittings. These materials could damage the product. Follow recommended replacement procedures for fittings and hoses.

1. Lower the blade completely. Turn the control OFF.
2. Remove the fill plug.

NOTE: Remove fill plug slowly to relieve any pressure in reservoir.

3. Loosen the hoses or fittings slowly to bleed off any residual pressure.
4. Carefully note hose routings and the location of any protective hose wraps, for proper reassembly.
5. To remove a hose, loosen and unscrew the hose flare nut from the fitting.
6. To remove a fitting, loosen the jam nut and unscrew the fitting from the port.

Procedure for Installing Fittings and Hoses

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

DO NOT use thread sealant/tape on hydraulic 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 a pair of adjustable pliers, hold the hose in position, and use a wrench to 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.
4. Reinstall any protective hose wraps in their original positions.

MAINTENANCE

NOTE: To view video demonstrations of several maintenance tasks, visit www.westernplows.com.

FUSE REPLACEMENT

The vehicle control harness contains one 2 amp blade-style mini fuse and the hydraulic unit contains two 4 amp blade-style mini fuses.

The control fuse is "hot" when the vehicle ignition switch is ON.

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.

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.

MAINTENANCE

EMERGENCY PARTS/TOOLS

- 10" adjustable wrench
- Medium screwdriver
- Pliers
- 4 amp and 2 amp automotive blade-style fuses
- Funnel
- 12V DC test light
- Flashlight
- 11/16" and 3/4" open-end wrenches
- 1/4" ratchet, 6" extension, 5/16" socket
- Electrical tape
- 1 quart high-performance hydraulic fluid rated to -40°F (-40°C)



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