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OWNER'S MANUAL

Original Instructions

⚠ CAUTION

Read this manual before operating or servicing snowplow.

This document supersedes all editions with an earlier date.

FLEET FLEX
ELECTRICAL SYSTEM

SNOWPLOW OWNER DATA SHEET

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

FloStat® Hydraulic Unit Serial Number: _____

Blade Serial Number: _____

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Most of the information in this Owner's Manual applies to all UltraMount® applications. Differences among MVP PLUS and WIDE-OUT applications are called out in the text or under separate headings, as applicable. Pages that apply only to one or another are called out as  or  on the outside corner of the page heading.

PREFACE

PREFACE

Welcome to the growing family of WESTERN® snowplow owners.

This manual provides safety, operation, and maintenance information for your new WESTERN snowplow. To keep your snowplow in good condition, read and understand this manual and follow its recommendations. Failure to do so may affect your warranty coverage.

When service is necessary, your local WESTERN outlet knows your snowplow best. Contact your snowplow outlet for maintenance, service, or any other assistance you may require.

Your WESTERN snowplow FloStat® hydraulic unit has a serial number. Record this serial number on the Snowplow Owner Data Sheet at the front of this manual.

Before using your WESTERN snowplow, make sure that your vehicle is equipped with all the vehicle manufacturer's and our required options for plowing.

FACTORY ORIGINAL PRODUCTS

Your WESTERN snowplow is a valuable investment. The best way to assure original equipment reliability and efficiency is to purchase only genuine **Factory Original parts and accessories**. "Will-fit" parts and accessories can alter your snowplow's performance characteristics and may affect your product warranty.

Protect your investment by staying with the best—original WESTERN parts and accessories from your local WESTERN outlet.



SAFETY

SAFETY DEFINITIONS

WARNING

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

CAUTION

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

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

WARNING/CAUTION & INSTRUCTION LABELS

Become familiar with and inform users about the warning/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.

SAFETY

Warning/Caution Label

⚠ WARNING

Blade could drop unexpectedly, crushing or trapping limbs. Lower blade when vehicle is parked.

Overloading could negatively affect vehicle handling. To avoid serious injury or death, do not exceed GVWR or GAWR including blade and ballast.

⚠ CAUTION

Read Owner's Manual before operating or servicing snowplow.

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

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

See your sales outlet/website for specific vehicle application recommendations.

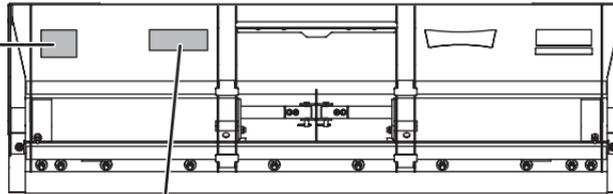
www.

Multiple Pinch Points Label

⚠ WARNING



Multiple Pinch Points



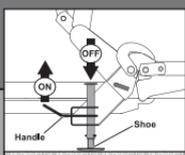
WIDE-OUT™ Blades Only (both sides)

Instruction Label

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

STEP 1

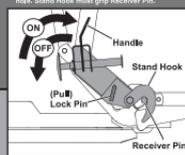
After seating shoe bolts in receiver brackets, pull Handle up; Shoe will lift off the ground.



Handle Shoe

STEP 2

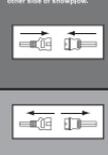
Pull and hold Lock Pin out, then rotate Handle UP and release Lock Pin. It must lock into UPPER hole. Stand Hook must grip Receiver Pin.



Handle Stand Hook (Pull) Lock Pin Receiver Pin

STEP 3

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



STEP 3

Push top of Shoe DOWN. Shoe will be on the ground. Repeat Steps 2 and 3 on other side of snowplow. Back vehicle away.



Handle Shoe

STEP 2

Pull and hold Lock Pin out, then rotate Handle DOWN and release Lock Pin. It must lock into LOWER hole.



Handle Lock Pin Receiver Pin

STEP 1

After lowering blade and turning control OFF, disconnect electrical connections.

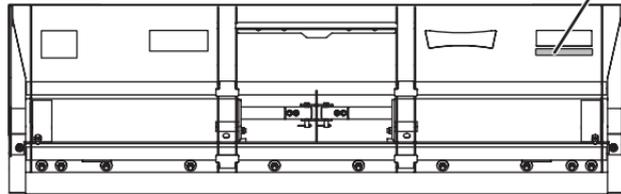
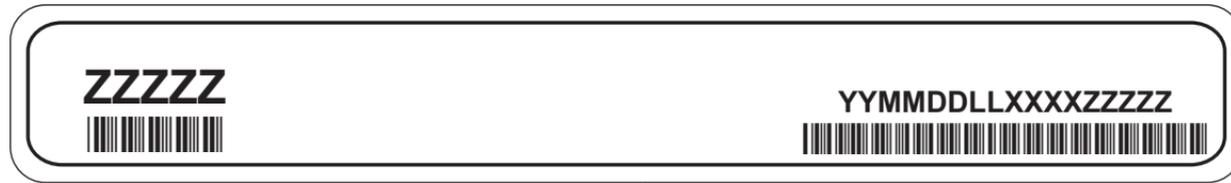


REMOVING PLOW (OFF) Read Owner's Manual for complete instructions.

US patents 6,941,680; 7,134,227; 7,400,058; 7,430,821; 7,737,576; 8,320,418; 9,822,563; 10,793,056.
CAN patents 2,354,207; 2,388,140; 2,395,354; 2,466,195; 2,630,002; 2,843,990; and other patents pending. 47196.11

SAFETY

Serial Number Label



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

Improper installation and operation could cause personal injury, and/or equipment and property damage. Read and understand labels and the Owner's Manual before installing, operating, or making adjustments.

WARNING

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

WARNING



Do not exceed GVWR or GAWR including the blade and ballast. The rating label is found on the driver-side vehicle door cornerpost.

WARNING

Remove blade assembly before placing vehicle on hoist.

CAUTION

Read Owner's Manual before operating or servicing snowplow.

CAUTION

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

CAUTION

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

CAUTION

See your WESTERN® outlet for application recommendations.

SAFETY

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 automotive-style fuses. If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the

original. Installing a fuse with a higher rating can damage the system and could start a fire. Fuse Replacement, including fuse ratings and locations, is located in the Maintenance section of this Owner's Manual.

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.

SAFETY

FIRE AND EXPLOSION

WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

CELL PHONES

A driver's first responsibility is the safe operation of the vehicle. The most important thing you can do to prevent a crash is to avoid distractions and pay attention to the road. Wait until it is safe to operate mobile communication equipment such as cell phones, text messaging devices, pagers, or two-way radios.

VENTILATION

WARNING

Vehicle exhaust contains lethal fumes. Breathing these fumes, even in low concentrations, can cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

SAFETY

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.

VEHICLE APPLICATION INFORMATION

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 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.

VEHICLE APPLICATION INFORMATION

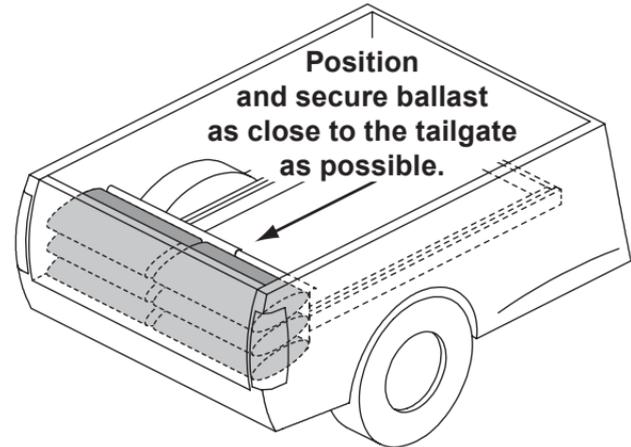
BALLAST REQUIREMENTS

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 (PN 62849) is available from your WESTERN® outlet.

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

The snowplow shall be installed according to instructions supplied. WESTERN® outlets are trained to provide this service and other services for this snowplow.

There is no need to unhook the chains or the hydraulic hoses. When the lift frame is pinned to the stands and locked in place (see blade label or snowplow removal section of this manual), the complete UltraMount® snowplow can be easily moved around on most hard surfaces.

BLADES

WESTERN® snowplows with steel blades are constructed of heavy-gauge steel. To increase rigidity and strength, the blades are reinforced with several vertical ribs. The top edges are formed for added strength and improved appearance.

WESTERN snowplows with poly blades are constructed of a high molecular weight polyethylene sheet that is supported with structural steel.

WESTERN blades have replaceable high-carbon steel cutting edges bolted to the bottom. Straight blade and WIDE-OUT™ cutting edges should be replaced when worn to the bottom edge of the blade. MVP PLUS™ cutting edges should be replaced when they are worn within 1" (2.5 cm) of the carriage bolts. (See Maintenance section in this manual.)

Your new blade's steel components are protected with a baked-on ULTRAFINISH™ powder coat over a base primer coat that resists cracking, corrosion, scratching, and rust. This coating—many times thicker than paint—will maintain its luster and glossy good looks. It can be touched up when necessary.

Blade guides are included with your complete snowplow. These help the operator to visualize the edges of the blade and aid in blade positioning.

GETTING TO KNOW YOUR SNOWPLOW

A-FRAME/T-FRAME, QUADRANT, AND LIFT FRAME

Straight and WIDE-OUT™ Blades

The quadrant is attached to the back of the blade with heavy-duty trip springs and either cap screws with locknuts or clevis pins with cotters. The trip springs allow the blade to trip forward and ride over obstacles such as low curbs, manhole covers, etc., without damaging the blade or the vehicle, or injuring the driver. See the Maintenance section for Trip Spring Adjustment.

The quadrant is attached to the triangular A-frame with a pivot bolt. The pivot bolt allows the quadrant and blade to swing right or left.

The hydraulic unit is mounted on the front of the lift frame. The hoses remain connected to the hydraulic unit and the rams. The snowplow headlamps are also attached to the lift frame.

MVP PLUS™ Blades

The wings are attached to the T-frame with a hinge pin, which allows the wings to extend and retract.

The hydraulic unit is mounted on the front of the lift frame. The hoses remain connected to the hydraulic unit and the rams. The snowplow headlamps are also attached to the lift frame.

GETTING TO KNOW YOUR 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.

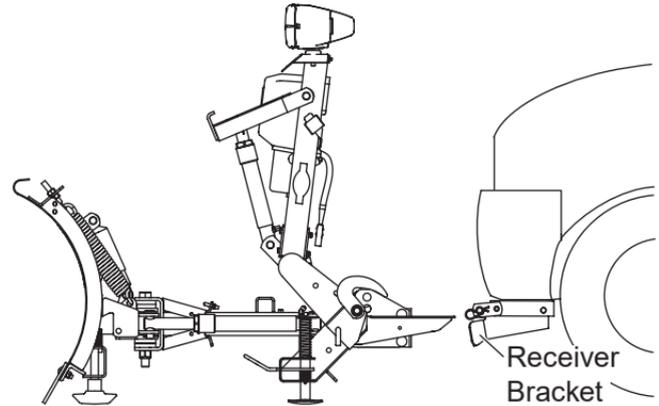
GETTING TO KNOW YOUR SNOWPLOW

VEHICLE MOUNT

Western Products has designed custom mounts for most vehicles. Due to differences among vehicle models, mounts are generally not interchangeable.

The mount is fastened to the underside of the vehicle frame and provides the primary connecting point between the snowplow and the vehicle.

Attached to the mount are two removable receiver brackets. The receiver brackets are attached to the mount using pins and hairpin cotters. The receiver brackets are easily removed to provide even more road clearance during the non-plowing months of the year.



GETTING TO KNOW YOUR SNOWPLOW

CAB 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.

WESTERN® snowplows come equipped with one of two special controls: the CabCommand hand-held control or a joystick-style control.

The MVP PLUS™ controls allow you to go from a V-plow, to a scoop, to a standard straight-blade snowplow, all at the touch of a button or single-lever movement.

The WIDE-OUT™ controls allow you to go from a retracted position to a scoop position, in addition to all the standard straight-blade positions, at the touch of a button.

The vehicle ignition (key) switch controls a fused circuit that powers your cab control directly from the battery. The control is backlit, which will illuminate when the vehicle is turned to ACC or ON. The ON/OFF button on the cab control allows you to turn OFF the control and prevent snowplow movement even when the ignition switch is ON.

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

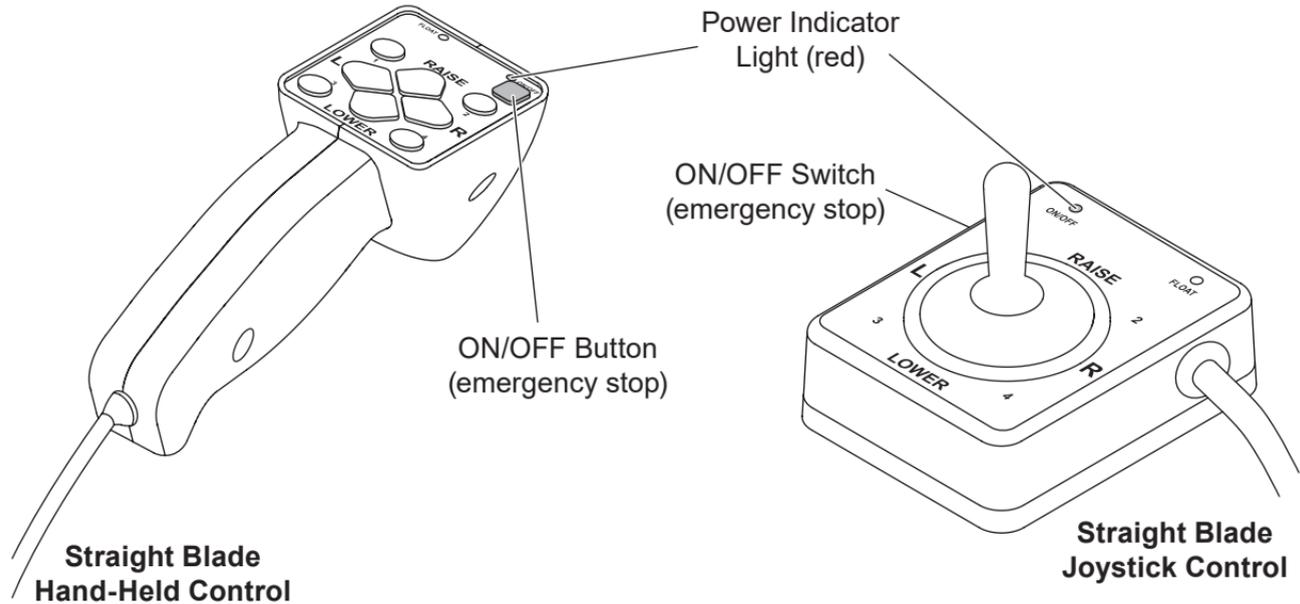
Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. The control backlight will illuminate.

Press the ON/OFF button on the control. The power indicator light glows red, indicating 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.

All controls are protected by a replaceable fuse located in the under hood snowplow electrical system. See "Fuse Replacement" in the Maintenance section of this manual.

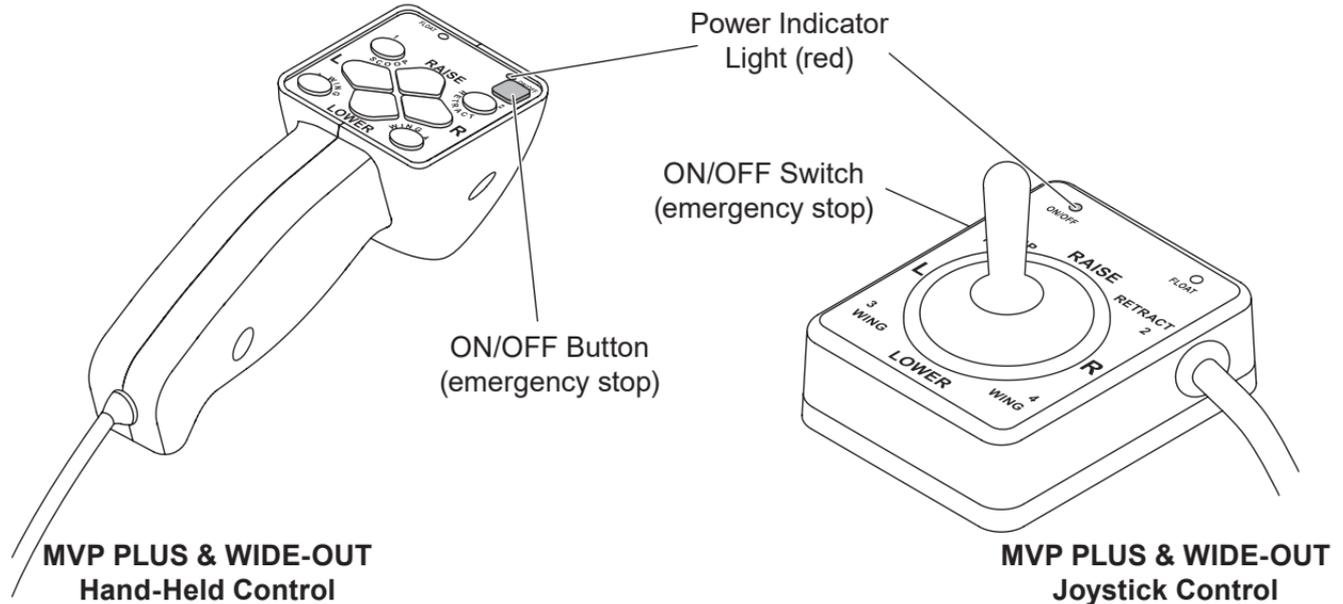
GETTING TO KNOW YOUR SNOWPLOW

Straight Blade Controls with FLEET FLEX System



GETTING TO KNOW YOUR SNOWPLOW

MVP PLUS™ & WIDE-OUT™ Blade Controls with FLEET FLEX System



ACCESSORIES AND OPTIONS

SNOW DEFLECTOR

The optional snow deflector, available in poly (straight blades only) or reinforced rubber, helps keep snow off the windshield and away from the radiator. The deflector improves the Roll-Action™ feature and increases snowplow efficiency.

STRAIGHT BLADE RUBBER CUTTING EDGE

The rubber cutting edge is available for certain straight blade models only. It is made of resilient rubber compounds that allow for a longer lasting cutting edge. It adjusts easily to road surface irregularities without gouging and removes all types of snow, quickly and cleanly.

CURB GUARD KIT

Designed to fit on the ends of the cutting edges, these guards protect against scraping the bottom edge of the blade against curbs and sidewalks.

The kit is available for straight blades and all MVP PLUS™ blades.

WING EXTENSION KIT

These optional wings add up to 30 percent more carrying capacity to your blade. The single-pin design allows for quick and easy attach/detach; no installation required. Available for the MVP PLUS 8'6" (2.59 m) and 9'6" (2.90 m) models only and PRO PLUS® blades.

DIELECTRIC GREASE

Specially formulated dielectric grease protects electrical connections in severe winter conditions. Western Products recommends that snowplow owners apply dielectric grease to all electrical connections on a regular basis.

For a complete listing of available options and accessories for your snowplow model, please visit www.westernplows.com.

MOUNTING SNOWPLOW TO VEHICLE

MOUNTING SNOWPLOW (ON)

⚠ WARNING

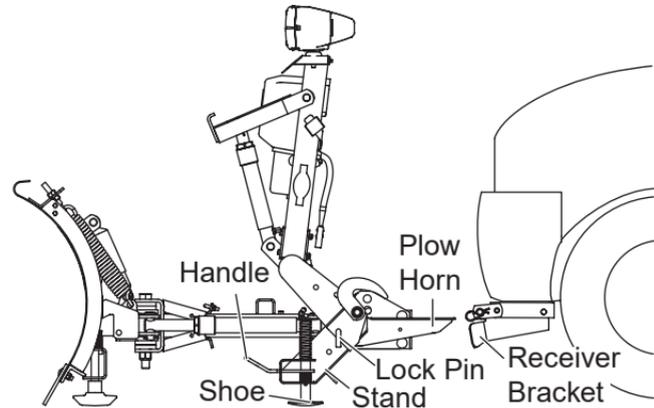
Keep 8' (2.4 m) clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

⚠ 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.

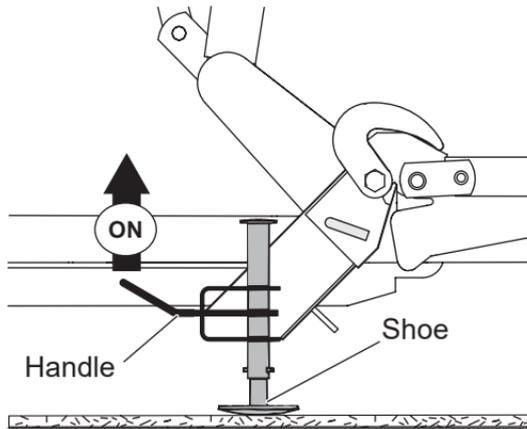
NOTE: Use dielectric grease to prevent corrosion on all connections.

- Remove the electrical plug and disconnect electrical plugs from storage position.
- Align the vehicle receiver brackets with the snowplow horns and drive the vehicle slowly forward until the snowplow horns fully seat inside the receiver brackets.
- Turn the vehicle ignition to the "OFF" position.

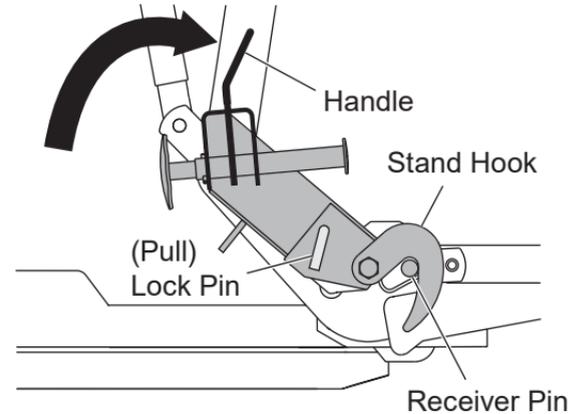


MOUNTING SNOWPLOW TO VEHICLE

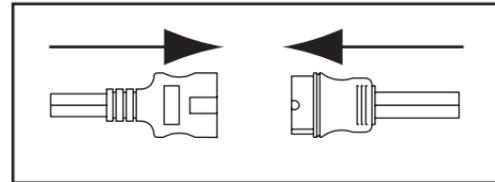
1. After seating the snowplow horns in the receiver brackets, pull the handle up; the shoe will lift off the ground.



2. Pull and hold the lock pin out; then rotate the handle UP and release the lock pin. It must lock into the UPPER hole. The stand hook must grip the receiver pin.



3. Repeat Steps 1 and 2 on other side of snowplow. (Not required for HTS™ blades.)
4. Connect the electrical plugs.



OPERATING YOUR SNOWPLOW

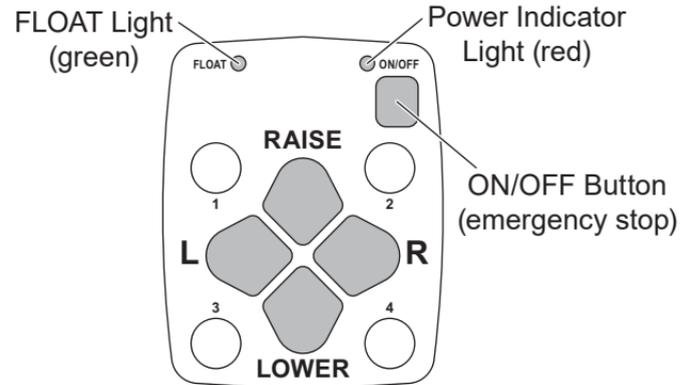
STRAIGHT BLADE CabCommand HAND-HELD CONTROL

⚠ 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. The control backlight will illuminate.
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 stop, if required.



Function Time-Outs

To limit the amount of electrical energy required from the vehicle, all control functions, except LOWER/FLOAT, time out (stop) automatically after a period of time. The blade will coast to a stop. The time-outs are written into the programming and vary by snowplow model.

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

OPERATING YOUR SNOWPLOW

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.

Optional Control Features

The control ships from the factory with the Smooth Stop feature enabled and the one-touch FLOAT feature disabled. To change these default settings, see "Smooth Stop" and "One-Touch FLOAT" later in this section of the Owner's Manual.

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 table.

Function	Description of Operation
RAISE	Press this button to raise the snowplow and cancel the FLOAT mode.
LOWER	Press this button to lower the snowplow. Release the button to stop blade at desired height.
FLOAT [†]	Press the LOWER button and hold $\frac{3}{4}$ 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 (stop) the FLOAT function.

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

OPERATING YOUR SNOWPLOW

Function	Description of Operation
L (Angle Left)	Press this button to angle the blade to the left.
R (Angle Right)	Press this button to angle the blade to the right.

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

SECURITY GUARD™ System (1, 2, 3, 4)

The four round buttons located to the left and right of the LOWER and RAISE buttons will operate the SECURITY GUARD system. See "SECURITY GUARD System" in this section for more information.

OPERATING YOUR SNOWPLOW

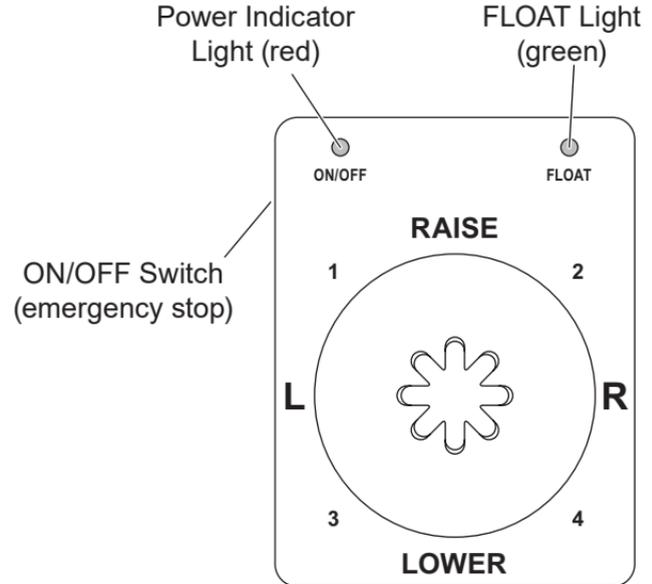
STRAIGHT BLADE JOYSTICK CONTROL

⚠ 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.

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. The control backlight will illuminate.
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.



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.

OPERATING YOUR SNOWPLOW

Function Time-Outs

To limit the amount of electrical energy required from the vehicle, all control functions, except LOWER/FLOAT, time out (stop) automatically after a period of time. The blade will coast to a stop. The time-outs are written into the programming and vary by snowplow model.

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.

Optional Control Features

The control ships from the factory with the Smooth Stop feature enabled and the One-Touch FLOAT feature disabled. To change these default settings, see "Smooth Stop" and "One-Touch FLOAT" later in this section of the Owner's Manual.

Control Lever Movement

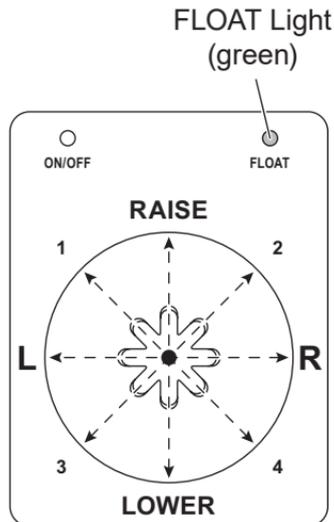
From the center position, the control lever can be moved in one of eight directions to control various movements of the snowplow blade. To change from one movement of the blade to another, the control lever must be moved back to the center position before selecting the desired function. Whenever the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

OPERATING YOUR SNOWPLOW

Control Functions

RAISE, LOWER, FLOAT, Angle

Moving the control lever straight up and down or from side to side on the control body will result in the blade movements described in the following tables.



Function	Description of Operation
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 blade at desired height.
FLOAT†	Move the control lever to the LOWER position and hold $\frac{3}{4}$ second to activate this mode. The FLOAT light in the upper right 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. Move the lever to the RAISE position momentarily to cancel FLOAT. Angling left or right will not interrupt (stop) the FLOAT function.

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

OPERATING YOUR SNOWPLOW

Function	Description of Operation
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.

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.

SECURITY GUARD™ System (1, 2, 3, 4)

Moving the control lever diagonally from the center position toward any of the four digits on the face of the control body will operate the SECURITY GUARD system. See "SECURITY GUARD System" in this section for more information.

OPERATING YOUR SNOWPLOW

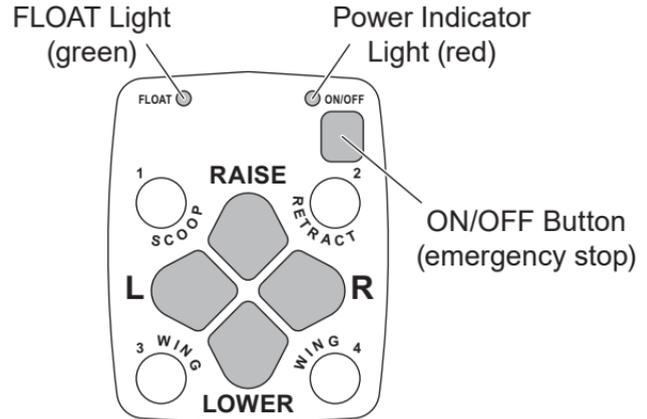
MVP PLUS™ & WIDE-OUT™ CabCommand HAND-HELD CONTROL

⚠ 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. The control backlight will illuminate.
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 stop, if required.



Function Time-Outs

To limit the amount of electrical energy required from the vehicle, all control functions, except LOWER/FLOAT, time out (stop) automatically after a period of time. The blade will coast to a stop. The time-outs are written into the programming and vary by snowplow model.

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

OPERATING YOUR SNOWPLOW

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.

Optional Control Features

The control ships from the factory with the Smooth Stop feature enabled and the One-Touch FLOAT feature disabled. To change these default settings, see "Smooth Stop" and "One-Touch FLOAT" later in this section of the Owner's Manual.

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 table.

Function	Description of Operation
RAISE	Press this button to raise the snowplow and cancel the FLOAT mode.
LOWER	Press this button to lower the snowplow. Release the button to stop blade at desired height.
FLOAT [†]	Press the LOWER button and hold $\frac{3}{4}$ 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 (stop) the FLOAT function.

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

OPERATING YOUR SNOWPLOW

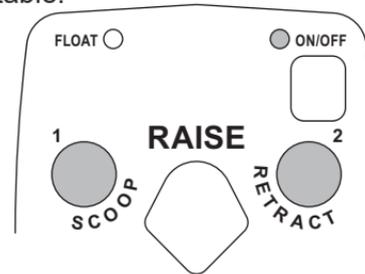
Function	Description of Operation
L (Angle Left)	With wings in a straight line, press the L button to move both wings to the angle left position to cast snow to the driver's left side. The left wing retracts while the right wing extends (MVP PLUS™).
R (Angle Right)	With wings in a straight line, press the R button to move both wings to the angle right position to cast snow to the driver's right side. The right wing retracts while the left wing extends (MVP PLUS).

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

Scoop/Retract Blade Position

The two round buttons located to the left and right of the RAISE button move both wings at the same

time into the blade positions described in the following table.



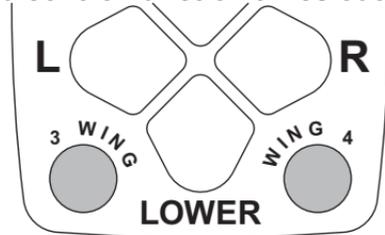
Function	Description of Operation
SCOOP	Press this button to extend both wings forward into the scoop position.
RETRACT	Press this button to draw both wings into the fully retracted (vee) position.

Wing Positions

The two round buttons located to the left and right of the LOWER button move either wing independently of the other as described in the following table.

OPERATING YOUR SNOWPLOW

NOTE: If a control function times out before



the desired blade movement is complete, release the button and press it again.

SECURITY GUARD™ System (1, 2, 3, 4)

The four round buttons located to the left and right of the LOWER and RAISE buttons will also operate the SECURITY GUARD system. See "SECURITY GUARD System" in this section for more information.

Function	Description of Operation
L WING	Press this button on the left side of the control to move the left wing. The first time the button is pressed after the control is turned ON or another function is used, the wing will extend. Repeated use of the same button, without using another function, results in movement in the opposite direction from the previous movement.
R WING	Press this button on the right side of the control to move the right wing. The first time the button is pressed after the control is turned ON or another function is used, the wing will extend. Repeated use of the same button, without using another function, results in movement in the opposite direction from the previous movement.

OPERATING YOUR SNOWPLOW

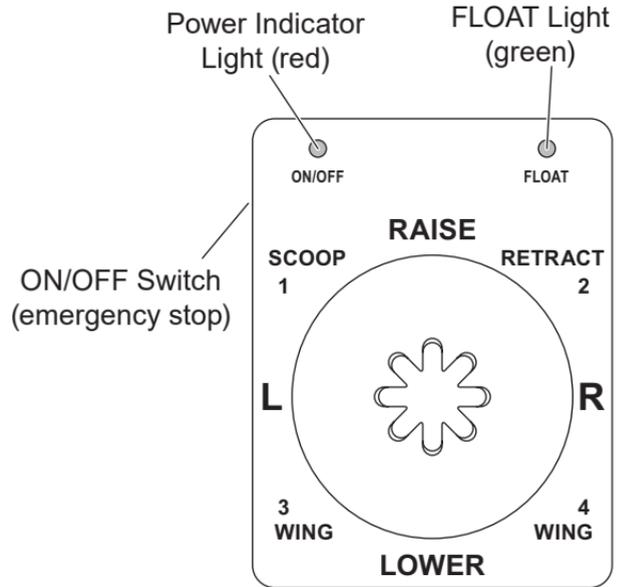
MVP PLUS™ & WIDE-OUT™ JOYSTICK CONTROL

⚠ 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.

1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position. The control backlight will illuminate.
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.



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.

OPERATING YOUR SNOWPLOW

Function Time-Outs

To limit the amount of electrical energy required from the vehicle, all control functions, except LOWER/FLOAT, time out (stop) automatically after a period of time. The blade will coast to a stop. The time-outs are written into the programming and vary by snowplow model.

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.

Optional Control Features

The control ships from the factory with the Smooth Stop feature enabled and the one-touch FLOAT feature disabled. To change these default settings, see "Smooth Stop" and "One-Touch FLOAT" later in this section of the Owner's Manual.

Control Lever Movement

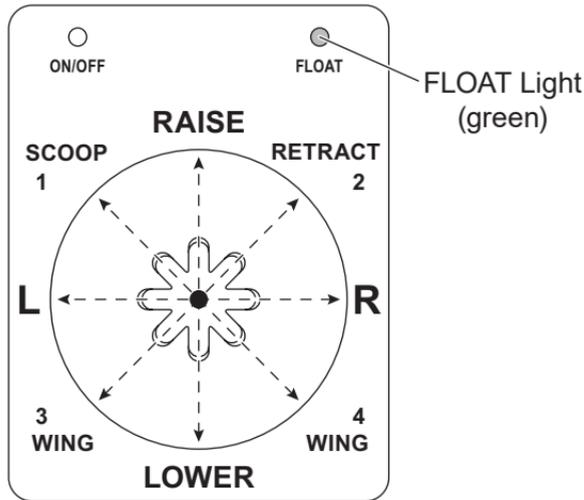
From the center position, the control lever can be moved in one of eight directions to control various movements of the snowplow blade. To change from one movement of the blade to another, the control lever must be moved back to the center position before selecting the desired function. Whenever the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

OPERATING YOUR SNOWPLOW

Control Functions

RAISE, LOWER, FLOAT, Angle

Moving the control lever straight up and down or from side to side on the control body will result in the blade movements described in the following tables.



Function	Description of Operation
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 blade at desired height.
FLOAT [†]	Move the control lever to the LOWER position and hold $\frac{3}{4}$ second to activate this mode. The FLOAT light in the upper right 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. Move the lever to the RAISE position momentarily to cancel FLOAT. Angling left or right will not interrupt (stop) the FLOAT function.

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

OPERATING YOUR SNOWPLOW

Function	Description of Operation
L (Angle Left)	With wings in a straight line, move the control lever straight to the left to move both wings to the angle left position to cast snow to the driver's left side. The left wing retracts while the right wing extends.
R (Angle Right)	With wings in a straight line, move the control lever straight to the right to move both wings to the angle right position to cast snow to the driver's right side. The right wing retracts while the left wing extends.

Scoop/Retract Blade Position

Moving the control lever from the center position toward the word SCOOP or RETRACT on the face of the control body will cause both wings to move at the same time into the following blade positions.

Function	Description of Operation
SCOOP	Move the control lever toward the word SCOOP on the control face to extend both wings forward into the scoop position.
RETRACT	Move the control lever toward the word RETRACT on the control face to draw both wings into the fully retracted (vee) position.

OPERATING YOUR SNOWPLOW

Wing Positions

Moving the control lever from the center position toward the word WING on either side of the face of the control body will cause either wing to move independently of the other, as described in the following table.

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.

SECURITY GUARD™ System (1, 2, 3, 4)

Moving the control lever from the center position toward any of the four digits on the face of the control will also operate the SECURITY GUARD system. See "SECURITY GUARD System" in this section for more information.

Function	Description of Operation
L WING	Move the control lever to the left of LOWER on the control face to move the left wing. The first time the lever is moved into the slot after the control is turned ON or another function is used, the wing will extend. Repeated use of the lever in the same slot, without using another function, results in movement in the opposite direction from the previous movement.
R WING	Move the control lever to the right of LOWER on the control face to move the right wing. The first time the lever is moved into the slot after the control is turned ON or another function is used, the wing will extend. Repeated use of the lever in the same slot, without using another function, results in movement in the opposite direction from the previous movement.

FLEET FLEX ELECTRICAL SYSTEM

Your UltraMount® system snowplow comes standard with user-controlled programmable features. These include:

- SECURITY GUARD™ electrical anti-theft system
- Smooth stop
- One-touch FLOAT

This section provides more information about each feature, as well as instructions on how to enable or disable them. These features are offered to give you the ability to secure your snowplow and customize your plowing experience.

SECURITY GUARD™ System

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 from 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 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 times, and then to the #4 position or the #4 button four 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 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 of the eight following positions: UP, DOWN, LEFT, RIGHT, 1, 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.

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

4. Once a 4-digit security code is established, the SECURITY GUARD system will recognize any control that has been programmed with the same 4-digit security code. If a control not programmed with the correct 4-digit security code is connected to the system, the established security code will have to be entered manually before the snowplow can be activated (see the Manual Unlock procedure).

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 entering the correct security code, the power indicator light will change from flashing rapidly to a solid light to indicate 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.

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 at a fast rate), unlock the snowplow by following the Manual Unlock procedure.

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 times, and then to the #3 position or the #3 button four 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.
- The SECURITY GUARD system is only fully functional with joystick controls PN 96800 & 96700 and hand-held controls PN 96900 & 96600.
- 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.

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 an increase in hose and valve life.

While there are advantages to having this feature, there are also advantages to temporarily disabling this feature. For example, to allow for more precise movements of the blade while operating in close distances 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

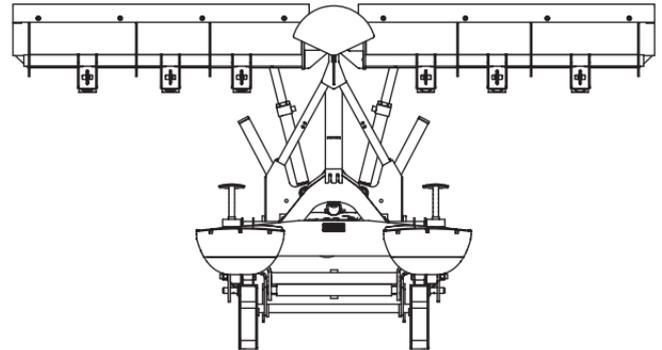
MVP PLUS™ BLADE POSITIONS

NOTE: For best road clearance during transport, place the blade halfway between the straight and retracted (vee) positions. The scoop position is NOT RECOMMENDED during transport.

The MVP PLUS snowplow can be used in five basic plowing positions.

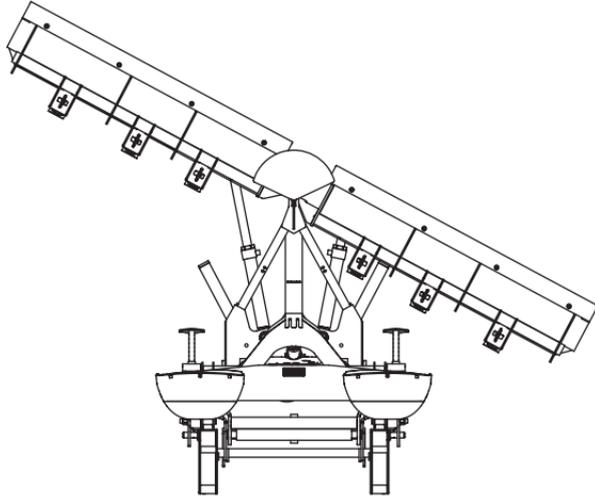
Straight Blade

Move both wings to form a straight blade for wide-path plowing or stacking snow.



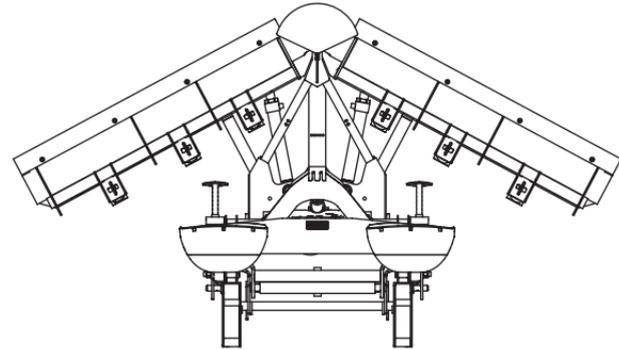
Angled Blade

Move one wing "OUT" and the other wing "IN" to form an angled blade in either direction for general plowing and widening.



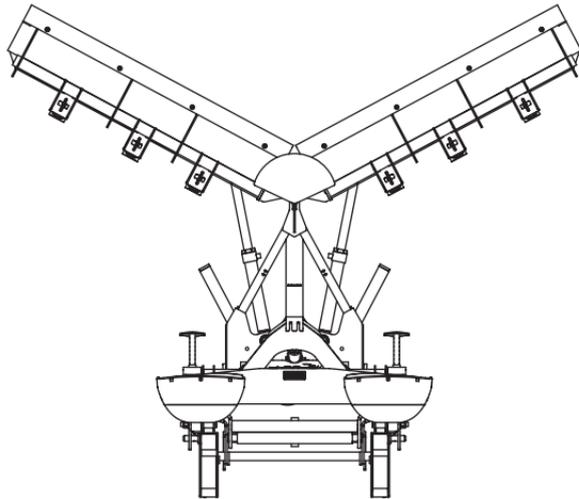
Retracted (vee) Blade

Move both wings "IN" toward the vehicle for initial break-through plowing and plowing paths or walkways.



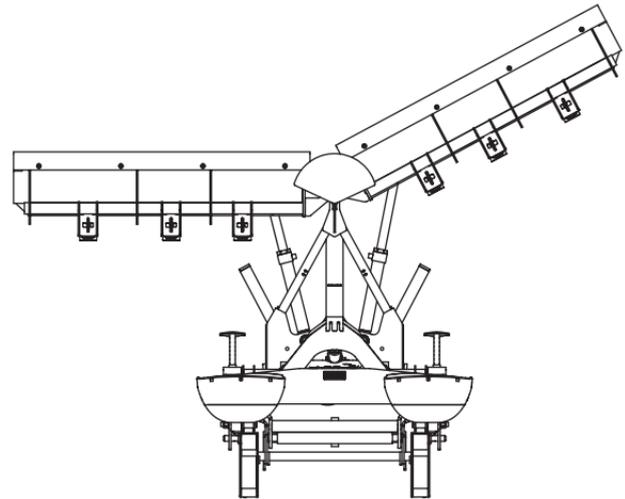
Scoop Blade

Move both wings "OUT" away from the vehicle to form a scoop to carry snow with minimum spilloff.



Dogleg Blade

Move one wing to straight blade position and the other "OUT" to scoop blade position for clean-up of windrows.





OPERATING YOUR SNOWPLOW

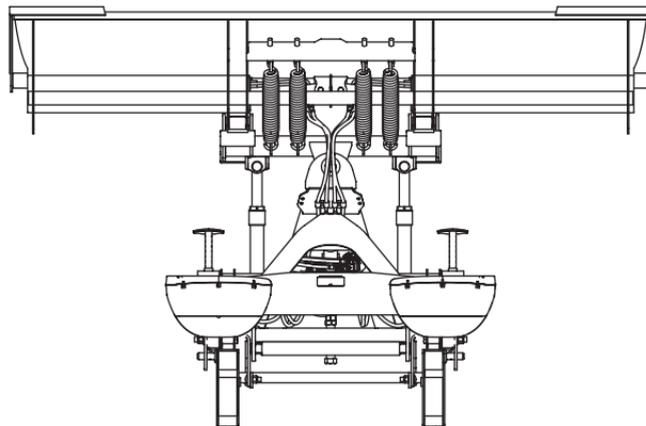
WIDE-OUT™ BLADE POSITIONS

The WIDE-OUT snowplow can be used in four basic plowing positions.

NOTE: Always transport the WIDE-OUT snowplow with both wings fully retracted.

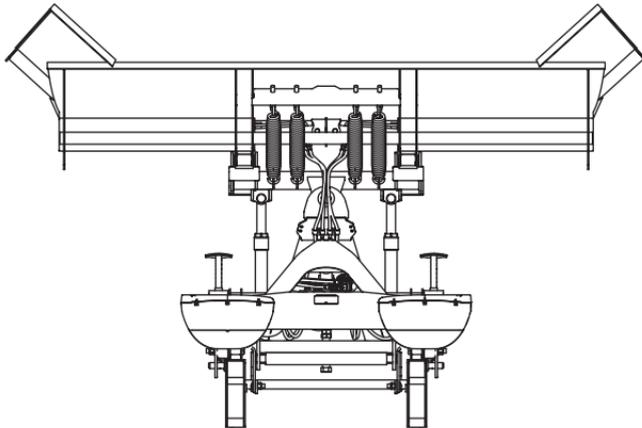
Retracted Blade

Move both wings "IN" to form a straight blade.



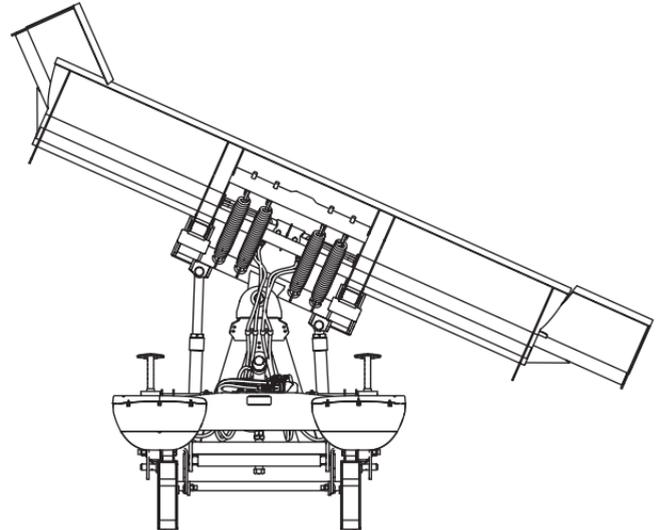
Scoop Blade

Move both wings "OUT" and ahead of the vehicle to form a scoop to carry snow with minimum spilloff.



Dogleg Blade

Move one wing to extended position and the other "OUT" to scoop blade position for clean up of windrows.

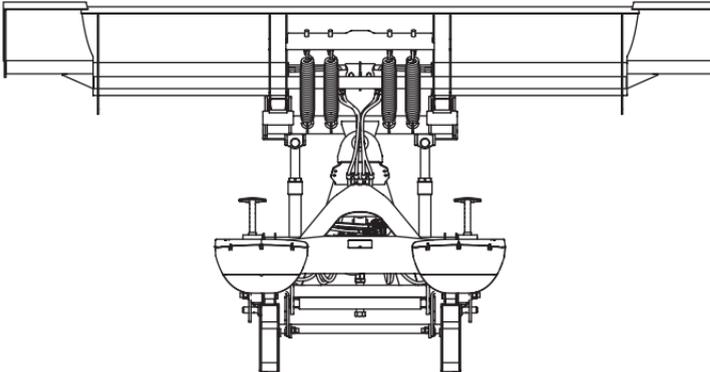




OPERATING YOUR SNOWPLOW

Extended Blade

Move both wings "OUT" straight for an extra-wide blade for clearing large areas.



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

OPERATING YOUR SNOWPLOW

SHOE ADJUSTMENT

WARNING

Blade can drop unexpectedly. Place blade on jack stands. Failure to do so could result in serious personal injury.

Recommended Shoe Adjustments

For gravel surfaces: The bottom surface of the shoe should be $\frac{1}{4}$ "– $\frac{1}{2}$ " (0.6–1.3 cm) below the cutting edge.

For hard surfaces (concrete or asphalt): The bottom surface of the shoe should be even with the cutting edge.

Adjustment Procedure

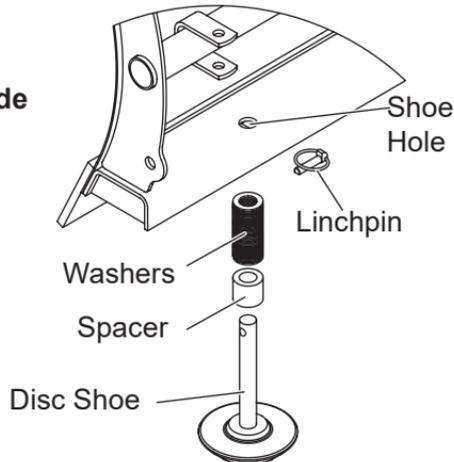
1. Raise the blade one foot (30 cm) off the road surface, turn the control OFF, and from in front of the blade, place jack stands under the cutting edge.
2. Turn the control ON and lower the blade onto the jack stands. Turn the control and vehicle ignition OFF.
3. Remove the linchpin and slide the shoe down and out of the shoe hole (straight blades) or shoe holder (MVP PLUS™ and WIDE-OUT™ blades).
4. Remove one or more washers from the shoe stem and reinstall the shoe into the shoe hole/holder.
5. Place the removed washers onto the shoe stem above the shoe hole/holder.

OPERATING YOUR SNOWPLOW

- Reinstall the linchpin.
- Turn the vehicle ignition to the "ON" position, and turn the control ON. Raise the blade slightly from the jack stands. Turn the control OFF, and remove the jack stands.
- Stand 8 feet (2.4 m) clear of the blade when checking the height adjustment of the cutting edge to the road surface.

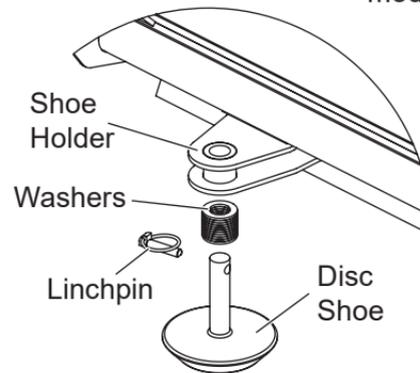
Straight Blade

Actual configuration varies by model.



Optional MVP PLUS™ & WIDE-OUT™ Disc Shoe Kit

Actual configuration varies by model.



OPERATING YOUR SNOWPLOW

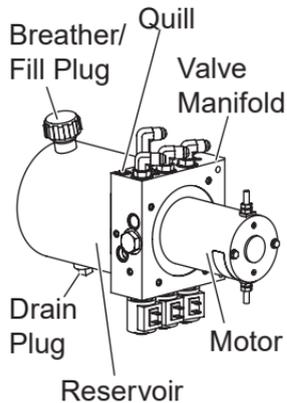
HYDRAULIC SYSTEM

The FloStat® hydraulic unit's valve manifold includes relief valves to prevent damage to the blade or vehicle if an obstacle is hit at either end of the blade. The valves are preset at the factory and do not need any adjustments unless the valve manifold is serviced. When force against the

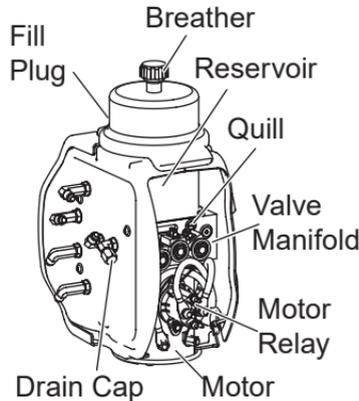
blade causes the pressure in an extended ram to exceed set limits, the relief valve opens, allowing fluid to escape and the ram retracts.

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

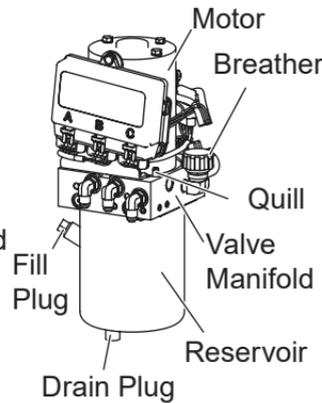
HTS™ Blades



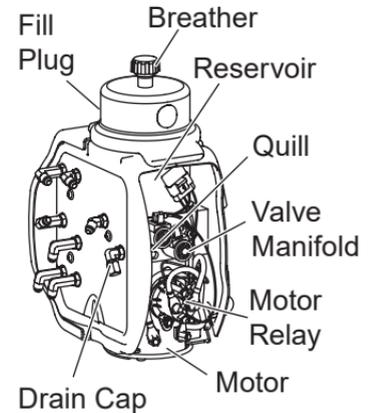
MVP PLUS™ Blades



Straight Blades



WIDE-OUT™ Blades



OPERATING YOUR SNOWPLOW

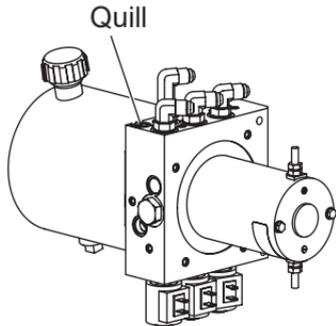
BLADE DROP SPEED ADJUSTMENT

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

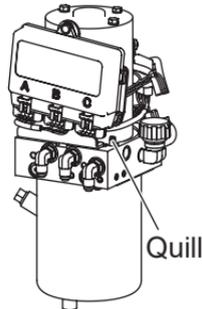
⚠ WARNING

Keep 8' (2.4 m) 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.

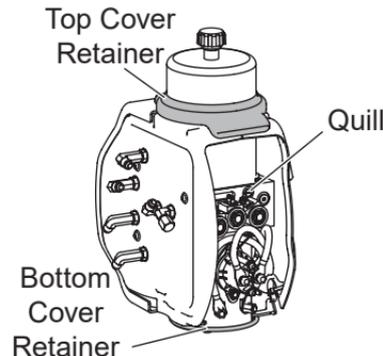
HTS™ Blades



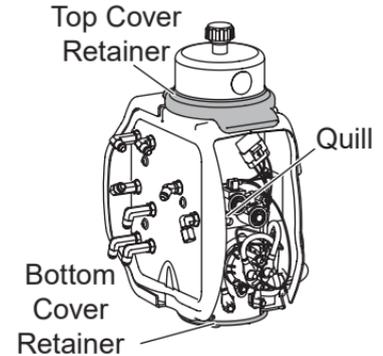
Straight Blades



MVP PLUS™ Blades



WIDE-OUT™ Blades



OPERATING YOUR SNOWPLOW

Adjustment Procedure

1. Lower the blade to the ground before making any adjustment.
2. Remove the hydraulic unit cover according to the instructions for your blade:

HTS™ Blades: Remove the hydraulic unit cover.

Straight Blades: Follow the "Straight Blade Hydraulic Unit Cover – Remove and Replace" procedure in the Maintenance section of this manual.

MVP PLUS™ and WIDE-OUT™ Blades: Lift the hydraulic unit top cover retainer, remove the bottom cover retainer and remove the side cover.

Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.

3. Stand 8' (2.4 m) clear of the blade when checking adjustment.
4. Repeat Step 2 to reinstall the cover.

OPERATING YOUR SNOWPLOW

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.

NOTE: For MVP PLUS™ blades, use care when driving or entering driveways with the snowplow in the retracted (vee) position. The outer ends of the cutting edges could contact the ground.

NOTE: Always transport the WIDE-OUT™ snowplow with both wings fully retracted.

1. Completely raise the blade.
2. Adjust the blade height for maximum snowplow headlamp illumination.
3. Adjust the blade to the straight position.
4. Turn the control OFF to lock the blade in place.

NOTE: Overheating is unlikely under normal driving conditions, but occasionally the snowplow may be positioned where 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

WARNING

Drinking then driving or plowing is very dangerous. Your reflexes, perceptions, attentiveness, and judgment 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 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.

OPERATING YOUR SNOWPLOW

- 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.

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.

OPERATING YOUR SNOWPLOW

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 that you know of any obstructions hidden beneath the snow, such as bumper stops in parking lots, curbs, sidewalk edges, 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.

OPERATING YOUR SNOWPLOW

Hard-Packed Snow

1. Raise the disc shoes so that the cutting edge comes into direct contact with the pavement.
2. Use lowest gear to place maximum power behind the cutting edge.
3. An angled blade is more effective for removing hard-packed snow.

Deep Snow

1. For straight blades, shear off top layers by plowing with the blade raised 3"–4" (8–10 cm) for the initial pass. For MVP PLUS™ blades, move the blade into the fully retracted (vee) position and make an initial pass.
2. Bite into the edges using only partial blade width until the job is cut down to size for full-blade plowing.

Rule of thumb:

6" (15 cm) of snow – plow with entire blade width;
9" (23 cm) of snow – plow with $\frac{3}{4}$ blade width;
12" (30 cm) of snow – plow with $\frac{1}{2}$ of the blade.

For WIDE-OUT™ blades in "Scoop" position, plow all depths with entire 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.

OPERATING YOUR SNOWPLOW

Clearing Driveways

1. Head into the driveway with the blade angled and plow the snow away from any buildings. Widen the driveway by rolling snow away from any 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 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 from the driveway. 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.

OPERATING YOUR SNOWPLOW

PARKING WITH SNOWPLOW ATTACHED

WARNING

Lower the blade when the vehicle is parked. Keep 8' (2.4 m) clear of the blade. 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.

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

TOWING A DISABLED OR STUCK VEHICLE

CAUTION

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

REMOVING SNOWPLOW FROM VEHICLE & STORAGE

REMOVING SNOWPLOW (OFF)

WARNING

Keep 8' (2.4 m) clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of 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 mounting or removing the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

CAUTION

Store PRO PLUS®, PRO-PLOW® Series 2, and MIDWEIGHT™ A-frame in a horizontal position. This will prevent water from collecting and freezing in shock absorber.

During the off-season, the control can be removed. Disconnect the connector in the cab and store the control in the glove box of the vehicle.

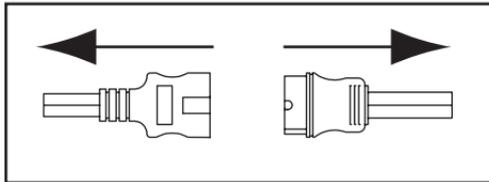
1. Drive the vehicle to the desired snowplow storage location on firm, level surface.
2. Adjust straight and WIDE-OUT™ blades to the straight position, or MVP PLUS™ blades to the fully retracted (vee) position.
3. Lower the blade to the ground.
4. Turn the vehicle ignition to the "OFF" position.

REMOVING SNOWPLOW FROM VEHICLE & STORAGE

⚠ CAUTION

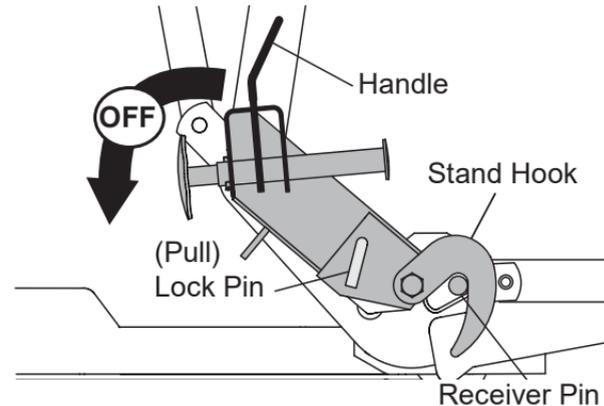
On 2-plug electrical systems, plug covers shall be used whenever snowplow is disconnected. Vehicle battery cable is 12V unfused source.

5. After lowering the blade and turning the control OFF, disconnect the electrical plugs.



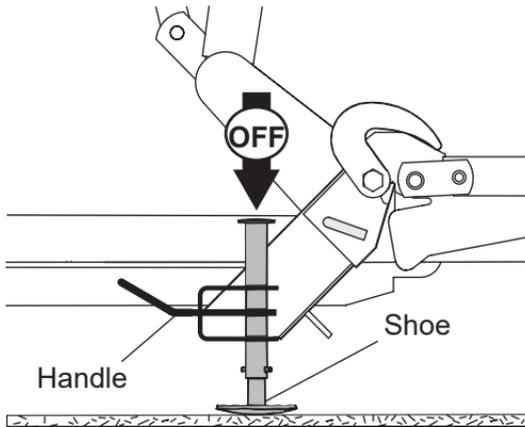
NOTE: After each use of the snowplow, reapply dielectric grease to the electrical plugs to maintain the protective coating on the terminals.

6. Pull and hold the lock pin out, then rotate the handle DOWN and release the lock pin. It must lock into the LOWER hole.



REMOVING SNOWPLOW FROM VEHICLE & STORAGE

7. Push down on the top of the shoe; the shoe will be on the ground. Repeat Steps 2 and 3 on the other side of the snowplow (not required for HTS™ blades). Back the vehicle away.



8. Place electrical plugs in storage position. Insert the plow cable and headlamp harness into the cable boot on the lift frame. Install plug covers on the vehicle cable and headlamp harness.

STORAGE

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

MAINTENANCE

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

MAINTENANCE VIDEOS

Video demonstrations of several snowplow maintenance tasks, including "Preseason Plow Maintenance" and "Annual Fluid Change," are available under the *Support* heading at www.westernplows.com.

PRESEASON CHECK

WARNING

Lower the blade when the vehicle is parked. Keep 8' (2.4 m) clear of the blade. 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.

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

- Clean and tighten all electrical connections and coat with dielectric grease.
- Check hydraulic system for leaks and cracked or damaged hoses.
- Drain the hydraulic system and refill with recommended hydraulic fluid. For hydraulic fluid type and filling instructions, see "Annual Fluid Change" under "Hydraulic System" in the Maintenance section of this manual.
- Replace worn or damaged parts.
- Check all mounting points and tighten fasteners, on both snowplow and vehicle. Verify that all cotter pins are in place.
- Repaint blade assembly and attachments, as necessary, to protect the metal.
- Install auxiliary and flashing lights for compliance and visibility in accordance with local regulations.

MAINTENANCE

- Check headlamps, auxiliary lights, heater, and windshield wipers for proper operation.
- Inspect and test your battery. Recharge or replace 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 to prevent it from moving under harsh plowing conditions.
- Coat all electrical connections with dielectric grease.
- Clean and paint blade and components as needed.
- Always store MVP PLUS snowplows with blades in retracted (vee) position. This exposes the minimum amount of angle ram rod, and captures the least amount of hydraulic fluid in the system.
- Be sure the lift ram is fully collapsed so the rod is not exposed. (Not required for HTS™ blades.)

POSTSEASON MAINTENANCE

CAUTION

Servicing the MVP PLUS™ trip springs without special tools and knowledge could result in personal injury. See your authorized WESTERN® outlet for service.

- Apply general purpose petroleum grease to exposed chrome surfaces of the rams to prevent rust.
- Lubricate all pivot points (for example, the stand lock pin assembly and lower spring anchor) with general purpose petroleum grease.

MAINTENANCE

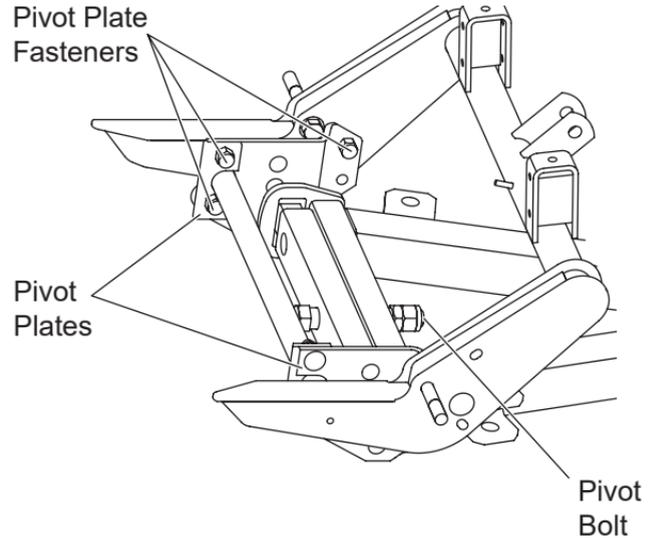
MAINTENANCE AND ADJUSTMENT

⚠ WARNING

Lower the blade when the vehicle is parked. Keep 8' (2.4 m) clear of the blade. 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.

Check the following before and frequently during the plowing season:

1. Make sure that all fasteners, mounting bolts, and hydraulic connections are tight. Pay particular attention to the pivot plate fasteners and the 1" (2.5 cm) pivot bolt.



2. Make sure that all electrical connections, including grounds, are clean, tight, free of rust or corrosion, and coated with dielectric grease.
3. Check all plugs and seals for hydraulic fluid leaks. Repair as necessary.

MAINTENANCE

4. Replace the cutting edge when it is worn to the bottom of the blade.

MVP PLUS™ Cutting Edge: To equalize wear, refer to the leveling adjustment procedure in the following cutting edge section.

5. **Straight Blade and WIDE-OUT™ Trip Spring Adjustment:** To adjust trip spring tension, adjust the eyebolts located at the top of the blade. Loosen the locknut (nut closest to the spring), and tighten the adjusting nut (nut farthest from the spring) until the coils begin to separate. When tension is properly adjusted, a sheet of paper should pass between the second and third coils. When the proper tension is reached, tighten the locknut.

6. **Blade Finish:** If the powder-coat finish is nicked or scratched, repair the surface and paint with WESTERN® red or black paint in aerosol or quart can.

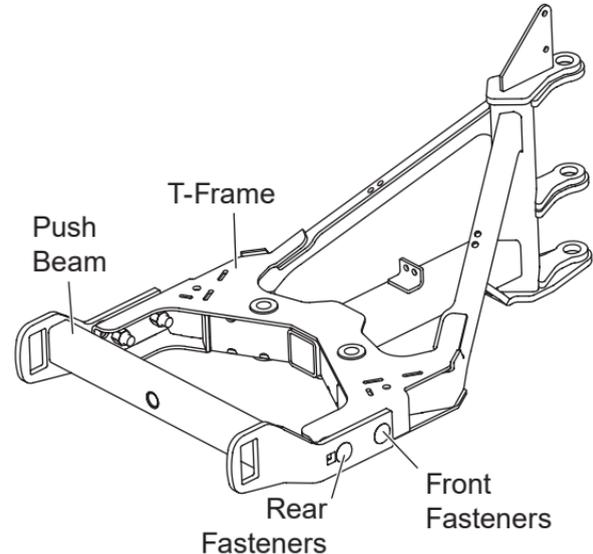
MAINTENANCE

MVP PLUS™ CUTTING EDGE WEAR AND LEVELING ADJUSTMENT

After the snowplow has been installed on the vehicle in the correct configuration, a fine adjustment can be made to bring the cutting edges of the snowplow in full contact with the ground across the entire cutting edge. This adjustment feature should be used as the cutting edges begin to wear in order to maintain an even wear pattern across both cutting edges and provide good scraping action.

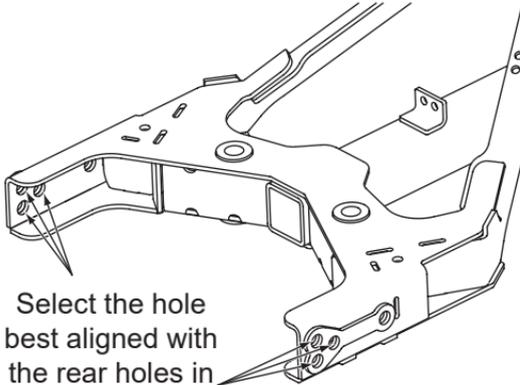
1. Snowplow must be installed on a properly ballasted vehicle, in the correct configuration.
2. Vehicle and snowplow must be on a level surface.
3. If the optional shoe kit has been installed on the blade, remove the shoes during this adjustment procedure.

4. Place the blade wings in scoop position on the ground with no tension on the lift chains.
5. Remove the rear fasteners holding pushbeam to T-frame. Loosen the front fasteners and allow the blade to find a level position.



MAINTENANCE

6. Select the hole in the rear of the T-frame that is best aligned with the rear hole in the push beam and reinstall the rear fasteners. Tighten all four fasteners to 250 ft-lb.



Select the hole best aligned with the rear holes in the push assembly.

7. Raise and lower the blade several times. The cutting edge should be contacting the level surface across the full length of the cutting edge.
8. Verify that the cutting edges remain in full contact with the ground while the wings are shifted from the scoop position to the retracted (vee) position. Reinstall the blade shoes if they were removed in Step 3.

Complete this procedure as often as required to provide even cutting edge wear. Replace the cutting edge(s) on your MVP PLUS™ blade when they are worn to within 1" (2.5 cm) of the carriage bolts.

MAINTENANCE

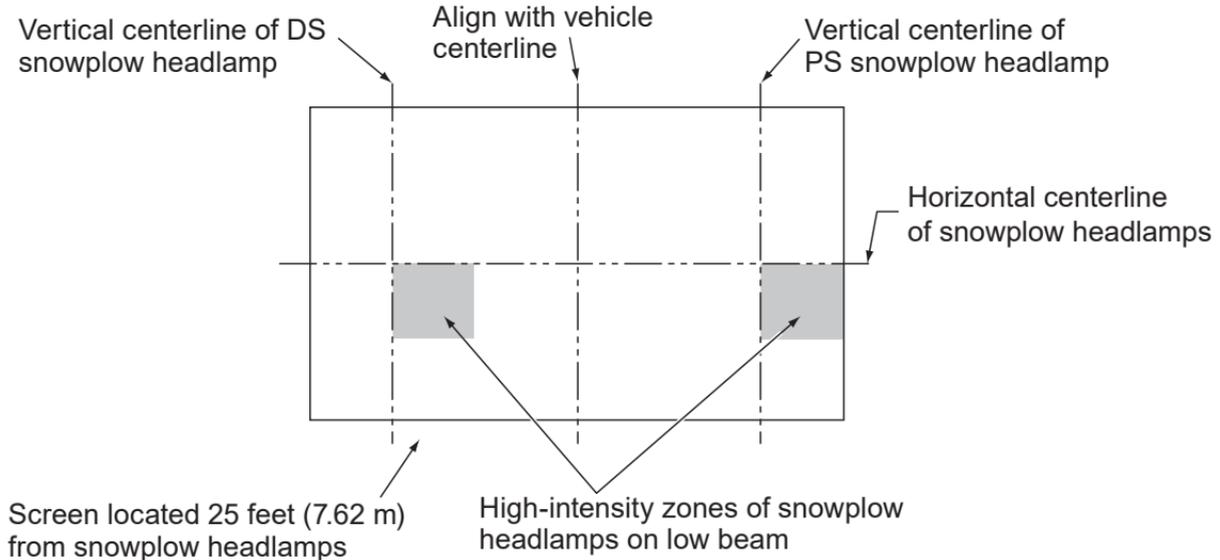
AIMING HEADLAMP BEAMS

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

1. Park the vehicle on a level surface 25 feet (7.62 m) 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 lenses.
 - g. Check for bulb burnout and proper beam switching.
 - h. Stabilize the suspension by rocking the vehicle sideways.

MAINTENANCE

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.)

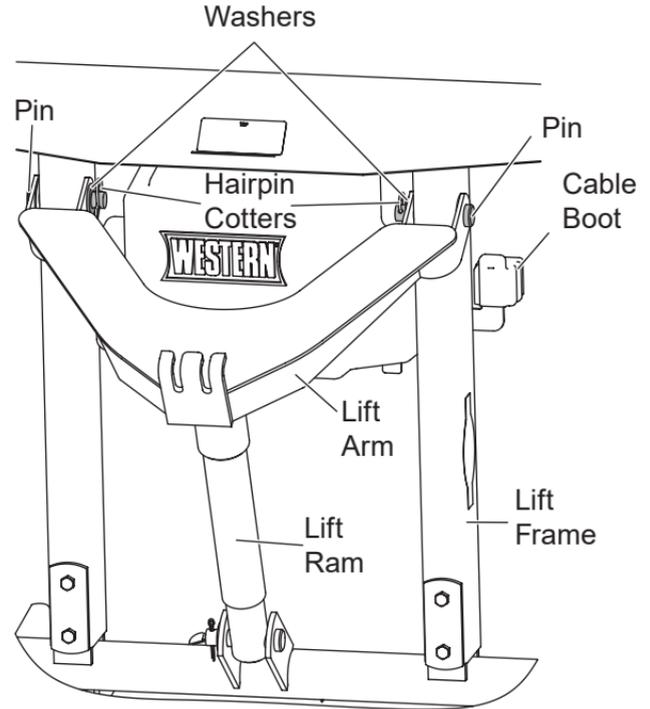


MAINTENANCE

STRAIGHT BLADE HYDRAULIC UNIT COVER – REMOVE AND REPLACE

Snowplow Attached to Vehicle

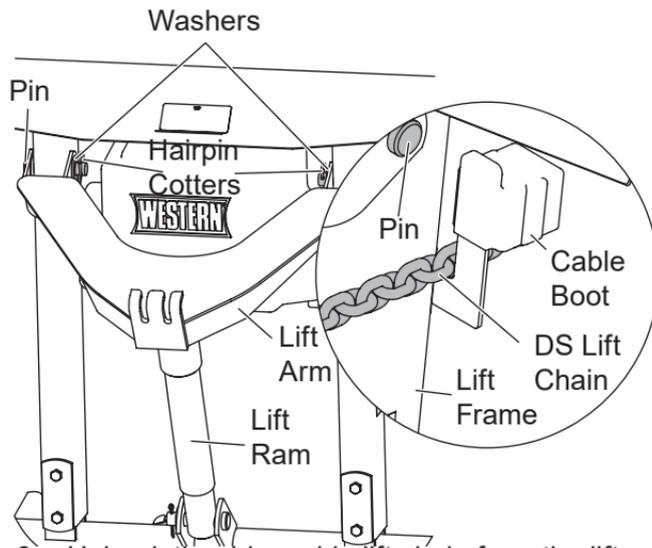
1. Lower the blade to the ground. Place the control in FLOAT, fully collapsing lift ram. Turn the control OFF.
2. Remove the two hairpin cotters, washers, and pins attaching the lift arm to the lift frame.
3. Pivot the lift arm and lift ram forward and remove or replace the cover.
4. Reassemble the lift arm to the lift frame with the pins, washers, and hairpin cotters removed in Step 2.



MAINTENANCE

Snowplow Not Attached to Vehicle

1. Tilt the lift frame forward to create slack in the lift chains. On the driver-side lift chain, mark the link attaching it to the lift arm.
2. Unhook the driver-side lift chain from the lift arm, remove the slack, and hook the chain in the slot between the cable boot and the driver's side of the lift frame.
3. Remove the two hairpin cotters, washers, and pins attaching the lift arm to the lift frame.
4. Pivot the lift arm and lift ram forward and remove or replace the cover.
5. Reassemble the lift arm to the lift frame with the pins, washers, and hairpin cotters removed in Step 3.



6. Unhook the driver-side lift chain from the lift frame and hook the marked chain link onto the lift arm.

MAINTENANCE

HYDRAULIC SYSTEM

Fluid Level

⚠ CAUTION

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

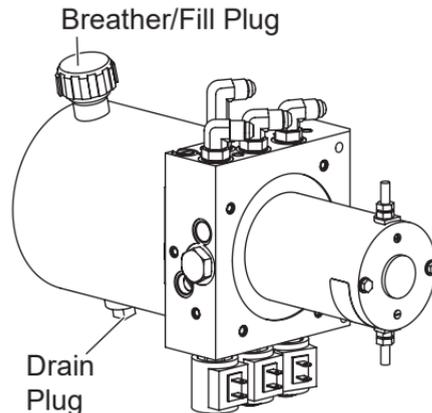
NOTE: On MVP PLUS™ and WIDE-OUT™ blades, add fluid only when all rams are retracted.

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

1. With the UltraMount® system attached to the vehicle, activate the control.

2. For straight blades any angle will do, but for MVP PLUS and WIDE-OUT blades, move the blade wings to the fully retracted (vee) position.
3. Activate the control FLOAT function and manually collapse the lift ram all the way.

HTS™ Blades



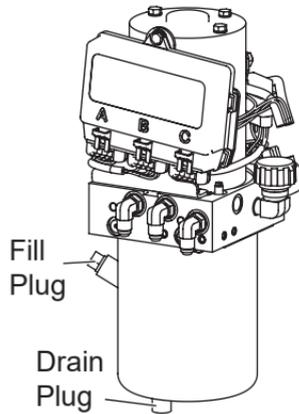
MAINTENANCE

4. Turn the control OFF.
5. Remove the fill plug.
6. **HTS™ Blades:** Fill the reservoir to within 2½" (6 cm) from the top of the fill hole and replace the fill plug.

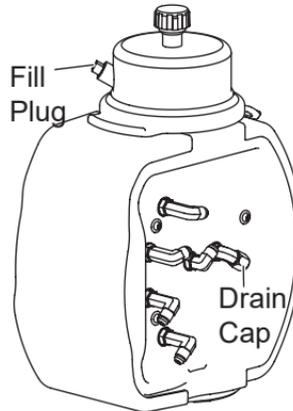
Straight Blades, MVP PLUS™ and WIDE-OUT™ Blades: Fill the reservoir to the top of the fill hole and replace the fill plug.

For fluid recommendations see the following "Annual Fluid Change" section.

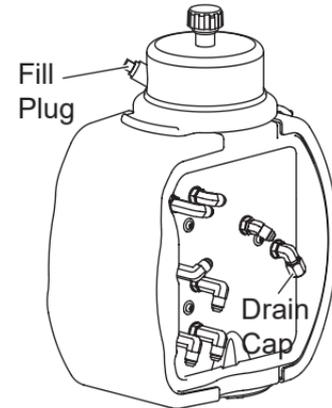
Straight Blades



MVP PLUS Blades



WIDE-OUT Blades



MAINTENANCE

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 kinds of hydraulic fluid. Some fluids are not compatible and may cause performance problems and product damage.

Perform this operation with the snowplow attached to the vehicle on a hard, level surface.

1. Lower the blade to the ground.
2. Activate the control FLOAT function and manually collapse the lift ram all the way (not required for HTS™ blades). Turn the control OFF.

3. **HTS Blades and Straight Blades:** Remove the hydraulic unit cover as described in the Blade Drop Speed Adjustment procedure in the Operating Your Snowplow section.

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

4. Remove the drain plug located in the bottom of the hydraulic reservoir for straight blades, or the drain cap located on the fitting side of the hydraulic unit for MVP PLUS™ and WIDE-OUT™ snowplows. (See the illustrations on the previous page.)
5. Completely drain the reservoir and replace the drain plug/cap.
6. Carefully note hose routing and position of any protective hose wraps for proper reassembly.
7. Remove the angle ram hoses from the fittings on the hydraulic unit and place them in a drain pan or suitable container. **(See the following**

MAINTENANCE

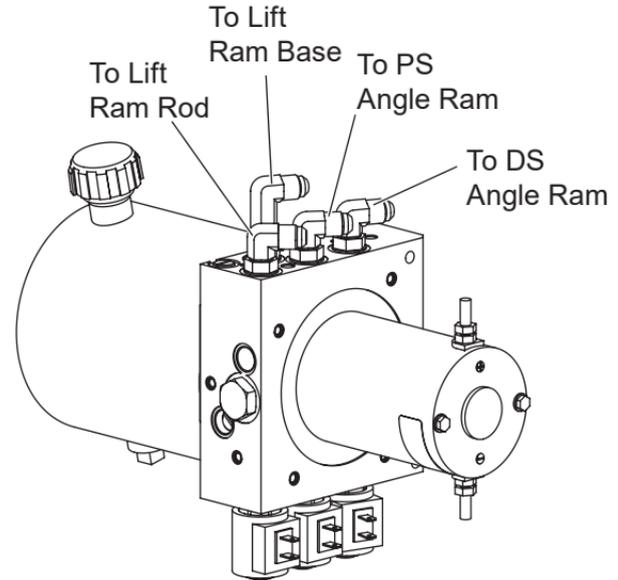
Hose Routing illustrations and the Hose or Fitting Replacement instructions later in this section.)

8. Manually angle the blade fully in each direction to remove fluid from the angle rams. Do not allow the hose(s) from the extending ram or the opposite side of the ram (MVP PLUS™ blades only) to take fluid back in.
9. Reconnect the angle ram hoses to the proper fittings. Reinstall all protective hose wraps in their original positions. (See the following illustrations for your snowplow type and the Hose or Fitting Replacement instructions later in this section.)

⚠ WARNING

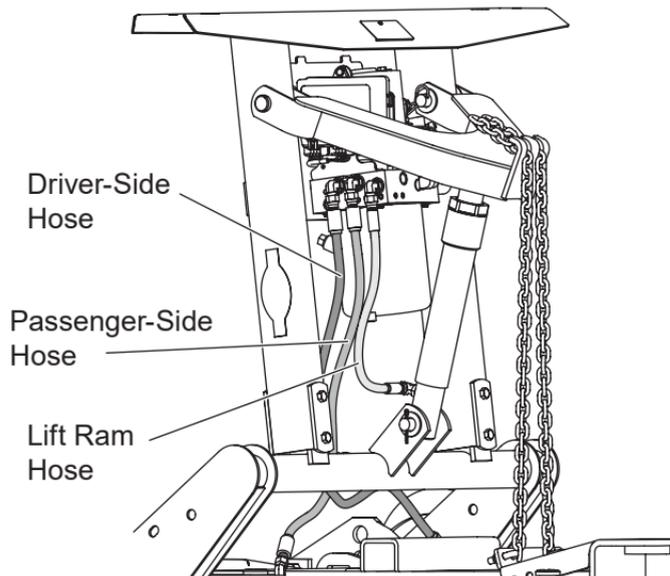
Keep 8' (2.4 m) clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

Hose Routing for HTS™ Blades

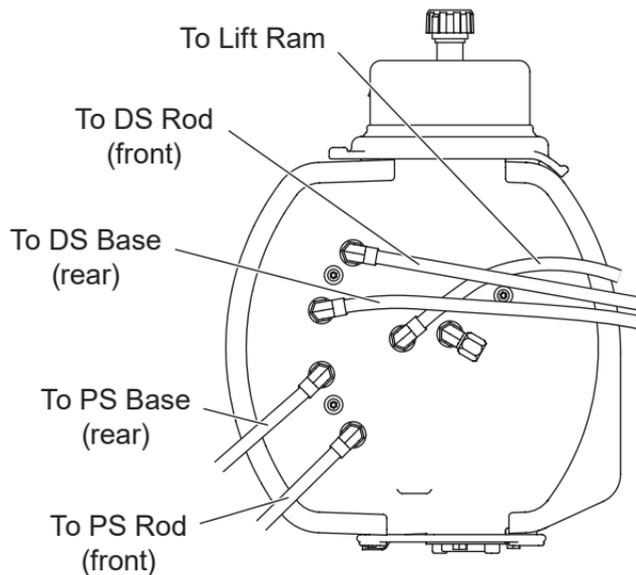


MAINTENANCE

Hose Routing for Straight Blades

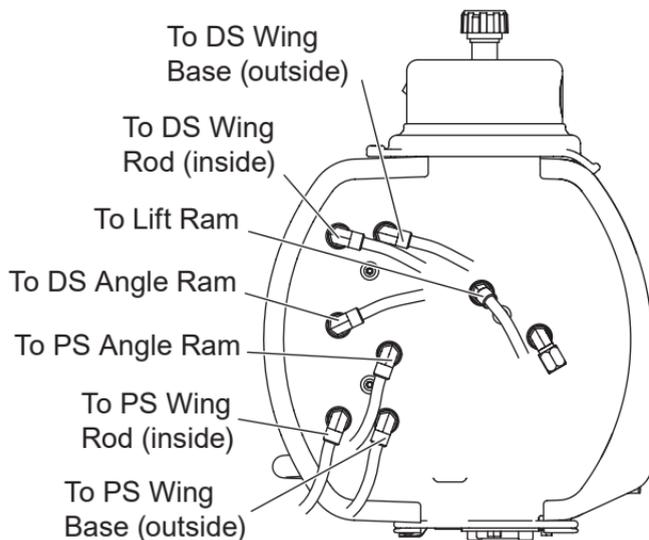


Hose Routing for MVP PLUS™ Blades



MAINTENANCE

Hose Routing for WIDE-OUT™ Blades



⚠ CAUTION

Do not raise the blade during the fill process as this may cause pump cavitation.

10. For straight blades, any angle will do, but MVP PLUS™ and WIDE-OUT blades must be in the fully retracted (vee) position. With the lift ram fully retracted, fill the reservoir with WESTERN® High Performance Hydraulic Fluid rated 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. Replace the fill plug.

NOTE: On MVP PLUS and WIDE-OUT blades, add fluid only when all rams are retracted.

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

MAINTENANCE

Air Removal – HTS™ & Straight Blades

11. Turn the control ON and completely angle blade to the left and right several times. Turn the control OFF.
12. Fill the reservoir to the top of the fill hole and replace the fill plug.

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

13. Turn the control ON and raise and lower the snowplow several times. Activate the control FLOAT function and manually collapse the lift ram all the way after each lowering of the blade. Turn the control OFF.

14. **Straight Blades:** Fill the reservoir to the top of the fill hole and replace the fill plug.

HTS Blades: Fill to within 2½" (6 cm) from the top of the fill hole and replace the plug.

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.

MAINTENANCE

Air Removal – MVP PLUS™ Blades

11. Turn the control ON and completely extend and retract the driver-side wing several times. With all rams fully retracted, turn the control OFF.
12. Fill the reservoir to the top of the fill hole and replace the fill plug.
13. Repeat Steps 11 and 12 for the passenger-side wing.
14. Turn the control ON and raise and lower the snowplow several times. Activate the control FLOAT function and manually collapse the lift ram all the way after each lowering of the blade. With all rams fully retracted, turn the control OFF.
15. Fill the reservoir to the top of the fill hole and replace the fill plug.

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

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.

MAINTENANCE

Air Removal – WIDE-OUT™ Blades

11. Turn the control ON and completely extend and retract the driver-side wing several times. Repeat for the passenger-side wing. With the wing and lift rams fully retracted, turn the control OFF.
12. Fill the reservoir to the top of the fill hole and replace the fill plug.

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

13. Turn the control ON. Angle blade fully left and right and raise and lower the snowplow several times. Activate the control FLOAT function and manually collapse the lift ram all the way after each lowering of the blade. With all rams fully retracted, turn the control OFF.
14. Fill the reservoir to the top of the fill hole and replace the fill plug.

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.

MAINTENANCE

Hose or Fitting Replacement

WARNING

Lower the blade when the vehicle is parked. Keep 8' (2.4 m) clear of the blade. 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.

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

1. Lower the snowplow completely, and turn the control OFF.

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

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

Procedure for Installing Hydraulic Fittings and Hoses

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

DO NOT use any type of sealant or tape on the fittings or hoses. This could damage product. Always use two wrenches to ensure proper tightening of fittings and hoses.

MAINTENANCE

Use the following procedure to install SAE O-ring fittings in 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 shoulder of the jam nut threads.
4. Unscrew the fitting to the 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 the port face, then tighten an additional $\frac{1}{8}$ – $\frac{1}{4}$ 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.
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 $\frac{1}{8}$ – $\frac{1}{4}$ 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

FUSE REPLACEMENT

The vehicle control harness contains two automotive-style fuses. The snowplow park/turn power and control power are covered by individual 10A fuses. The control fuse is "hot" when the vehicle ignition switch is ON and the electrical connections to the snowplow are completed.

See the Harness Diagram at the end of this manual for fuse locations.

The MVP PLUS™ hydraulic unit harness system contains four automotive-style mini fuses. The 3-solenoid harness (to port B on the hydraulic unit module) and 8-solenoid harness (to port C) each contain two 4A mini fuses.

The WIDE-OUT™ hydraulic unit harness system contains four automotive-style mini fuses. The 2-solenoid harness (to port B on the hydraulic unit module) and 6-solenoid harness (to port C) each contain two 4A mini fuses.

The straight blade and HTS™ hydraulic unit harness systems contain two 4A automotive-style mini fuses in the 3-solenoid harness (to port B on the hydraulic unit module).

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.

MAINTENANCE

SNOWPLOW VEHICLE BATTERY BEST PRACTICES

- Keep all battery connections tight and clean. Poor connections cause higher power consumption.
- Before the snow season, confirm that the battery is fully charged: 12.7V to 12.8V with the engine OFF. Beginning the plowing season with a weak battery results in deep-cycle depletion of the battery charge.
- If the battery charge level is low or questionable, hook up a battery charger when the vehicle is not in use. If the battery cannot achieve or maintain a full charge, replace it. (On dual-battery vehicles, always replace both batteries even if only one of them is bad.)
- Avoid leaving the snowplow vehicle parked (unused) for 3 weeks or longer.
- Parking a vehicle with the battery in a discharged state can result in permanent battery damage.
- Avoid operating the snowplow without the vehicle engine running.

MAINTENANCE

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 according to local regulations. The balance of parts made of plastic shall be disposed of in a customary manner.

BLADE FINISH

If the powder-coat finish is nicked or scratched, repair the blade surface with WESTERN® red or black paint in aerosol or quart cans from your WESTERN outlet. Clean and repaint parts as necessary.

MAINTENANCE

EMERGENCY PARTS/TOOLS

We suggest that you keep an Emergency Parts Kit for HTS™ blades (PN 69600) or UltraMount® blades with the FLEET FLEX system (PN 99100) in your vehicle. This kit contains WESTERN® hydraulic fluid, common hoses, pins, fittings, fasteners, and a motor relay.

Also keep the following items in your vehicle for emergency use:

- 10" (25 cm) adjustable wrench
- Pliers
- Medium screwdriver
- Miscellaneous fasteners

Always use WESTERN designed and tested replacement parts.

TROUBLESHOOTING

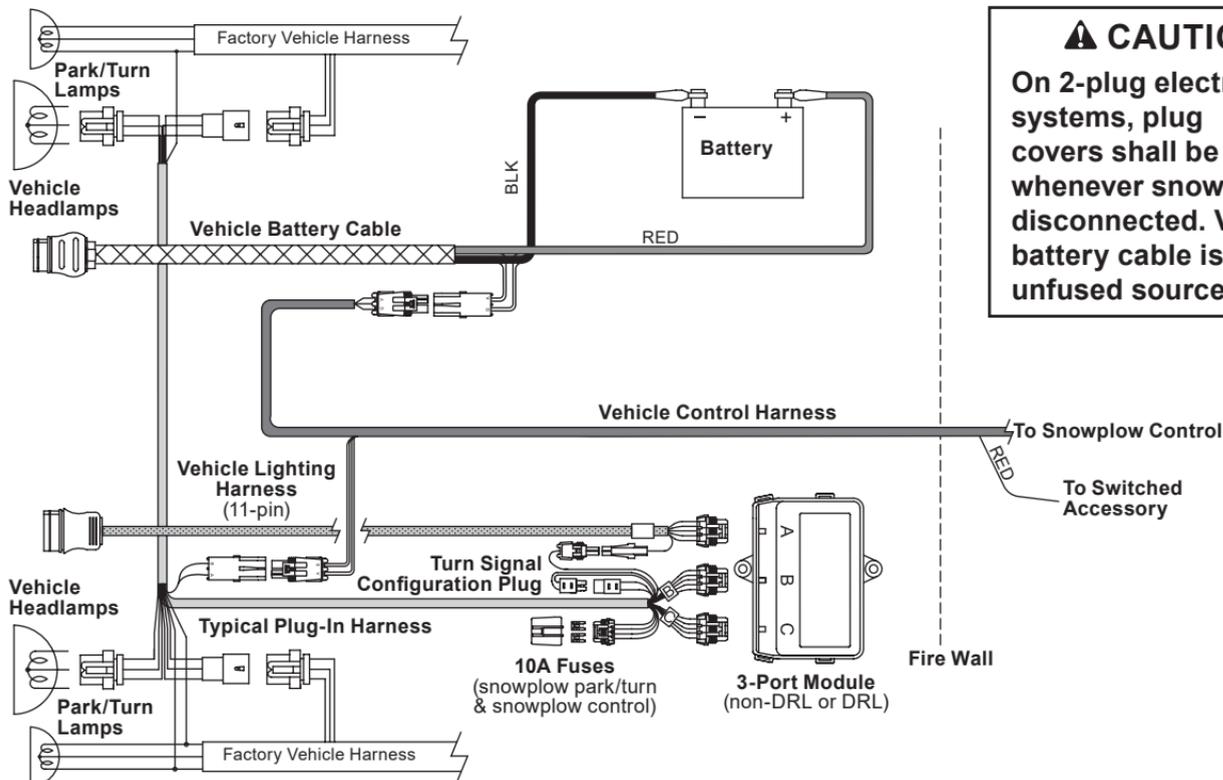
If you have followed all of the guidelines in the Maintenance section of this manual and cannot resolve issues with the operation of your WESTERN snowplow, contact one of our authorized outlets for repair information, or visit us online at www.westernplows.com. Our website has a complete listing of authorized outlets in your area as well as a complete library of Parts Lists, Mechanic's Guides, and service information to assist the qualified mechanic with repair.

Western Products does not recommend repairs by other than our factory-trained outlets. Failure to use an authorized outlet could affect the warranty coverage on your snowplow.



HARNES DIAGRAM

3-PORT, 2-PLUG SYSTEM – ALL BLADES



⚠ CAUTION

On 2-plug electrical systems, plug covers shall be used whenever snowplow is disconnected. Vehicle battery cable is 12V unfused source.

SNOWPLOW SPECIFICATIONS & ACCESSORIES

Snowplow Weights							
Size	Blade Assembly	Wt (lb)	Wt (kg)	Size	Blade Assembly	Wt (lb)	Wt (kg)
7'6"	HTS™ Snowplow	412	187	7'6"	PRO PLUS® Snowplow	789	358
7'6"	MIDWEIGHT™ Snowplow	540	245	8'	PRO PLUS Snowplow	805	365
7'6"	MIDWEIGHT Snowplow (poly)	532	241	8'6"	PRO PLUS Snowplow	821	372
7'6"	PRO-PLOW® Series 2 Snowplow	653	296	9'	PRO PLUS Snowplow	837	380
7'6"	POLY PRO-PLOW® Series 2 Snowplow	677	307	7'6"	MVP PLUS™ Snowplow	827	375
8'	PRO-PLOW Series 2 Snowplow	668	303	7'6"	MVP PLUS Snowplow (poly)	799	362
8'	POLY PRO-PLOW Series 2 Snowplow	690	313	8'6"	MVP PLUS Snowplow	880	399
8'6"	PRO-PLOW Series 2 Snowplow	686	311	8'6"	MVP PLUS Snowplow (poly)	847	384
				9'6"	MVP PLUS Snowplow	988	448
				9'6"	MVP PLUS Snowplow (poly)	946	429
				8'-10'	WIDE-OUT™ Snowplow	940	426

SNOWPLOW SPECIFICATIONS & ACCESSORIES

Snowplow	HTS™	MIDWEIGHT™	PRO-PLOW® Series 2	PRO PLUS®
Vehicle	½-Ton 4WD	½-Ton 4WD, SUV	Midsized, ½-Ton, ¾-Ton, 1-Ton, 4WD, SUV, Superduty	¾-Ton, 1-Ton, 4WD
Blade Widths	7'6" (2.29 m)	7'6" (2.29 m)	7'6" (2.29 m) 8' (2.44 m) 8'6" (2.59 m)	8' (2.44 m) 8'6" (2.59 m) 9' (2.74 m)
Accessories				
Cutting Edges	¾" Steel ½" Steel 1" Poly	1" Poly	Steel	Steel
Deflector	Rubber	–	Rubber or Steel	Rubber or Steel
Deflector Assembly	✓	–	✓	✓
Curb Guards	✓	✓	✓	✓
Anti-Wear Shoes	✓	✓	✓	✓
Blade Wing Kit	–	–	✓	✓
Back Drag Edges	–	–	✓	✓
Heavy-Duty Lift Ram	–	–	✓	✓
Commercial Blade Guides	–	–	✓	✓

SNOWPLOW SPECIFICATIONS & ACCESSORIES

Snowplow	MVP PLUS™	WIDE-OUT™
Blade Widths	7'6" (2.29 m) 8'6" (2.59 m) 9'6" (2.9 m)	8' (2.44 m) retracted; 10' (3.05 m) expanded straight blade; 9' (2.74 m) scoop
Cutting Edges	–	Standard
Accessories		
Cutting Edges	–	✓
Deflector	Rubber	Rubber
Curb Guards	–	–
Anti-Wear Shoes	✓	✓
Blade Stops	✓	–
Wing Extensions	✓	–
Back Drag Edge	✓	✓

SNOWPLOW SPECIFICATIONS & ACCESSORIES

HYDRAULIC UNITS: PUMP MOTOR SPECIFICATIONS

BLADE	Straight Blades	HTS™	MVP PLUS™	WIDE-OUT™
FloStat® Unit Reservoir	1¾ qt (1.66 L)			
FloStat System Total	2¾ to 2¾ qt (2.25 L to 2.6 L)			
Pump Motor	12V DC with ± Connection			
Pump Relief Valve	1700–1800 psi	1600–1700 psi	2200–2300 psi	2200–2300 psi
Angling Relief Valve	4000 psi	4000 psi	–	–
Plowing Relief Valve	–	–	4550–4650 psi	4000 psi
Back Dragging Relief Valve	–	–	3650–3750 psi	–
Wing Plowing Relief Valves	–	–	–	1500 & 1700 psi
Motor Diameter	4.5" (11.4 cm)	3" (8 cm)	4.5" (11.4 cm)	4.5" (11.4 cm)
Motor	1.5 kW	0.8 kW	1.5 kW	1.5 kW
Pump (gal/rev)	0.000477	0.000477	0.000652	0.000652
Hydraulic Hose	¼ SAE 100R1 ¾ SAE 100R17	SAE 100R1	¼ SAE 100R1 ¾ SAE 100R17	¼ SAE 100R1 ¾ SAE 100R17
Raise	2 seconds	4 seconds	2 seconds	2 seconds
Angle Side-to-Side	4 seconds	3 seconds	2 seconds	2 seconds
Wing Extends	–	–	–	2 seconds
Wing Retracts	–	–	–	2 seconds
Both Wings Extend	–	–	–	4 seconds
Both Wings Retract	–	–	–	3 seconds
Scrape Lock Feature	–	✓	–	–



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This product conforms to EU Machinery Directive 2006/42/EC and Directive 2011/65/EC (RoHS2).



This product conforms to UK Supply of Machinery (Safety) Regulations 2008 and 2012 (RoHS2).

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