



**UTV V-Plow &  
UTV Straight Blade Snowplow**  
**Owner's Manual**  
*Original Instructions*

**⚠ CAUTION**

Read this document before operating or  
servicing snowplow.

This manual supersedes all editions with an earlier date.



## OWNER INFORMATION

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

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

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

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

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

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

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

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

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

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

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



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## PREFACE

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

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

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

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

# SAFETY

## SAFETY DEFINITIONS

### ⚠ WARNING

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

### ⚠ CAUTION

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

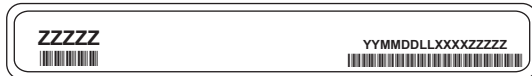
**NOTE:** Indicates a situation or action that can lead to damage to your snowplow and vehicle or other property. Other useful information can also be described.

## WARNING/CAUTION & INSTRUCTION LABELS FOR UTV V-PLOW SNOWPLOW

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.


### Serial Number Label




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

### Warning/Caution Label

**⚠ WARNING**




Lower blade when vehicle is parked.




Do not exceed GVWR or GAWR including blade and ballast.

---


**⚠ CAUTION**



Read Owner's Manual before operating or servicing snowplow.



Transport speed should not exceed 20 mph (32 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.

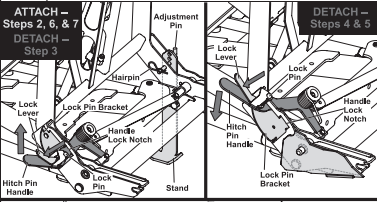
### Instruction Label

#### ATTACH

1. Slowly drive vehicle forward to engage rear receiver pins into headgear slots. Apply vehicle parking brake.
2. Hold down lock lever and move hitch pin handle out of the handle lock notch, allowing spring to move the hitch pin handle forward.
3. Plug in electrical harness.
4. Turn plow control in vehicle ON and activate FLOAT.
5. Stand in front of blade. Push top of headgear toward vehicle to allow hitch pins to fully engage hitch pin holes.
6. Verify the lock pin is engaged in the forward hole in the lock pin bracket.
7. Remove hairpin, adjustment pin, & stand.

#### ⚠ WARNING

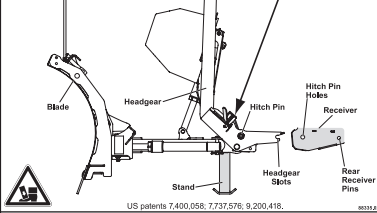
Keep fingers away from snowplow and UTV attachment points.



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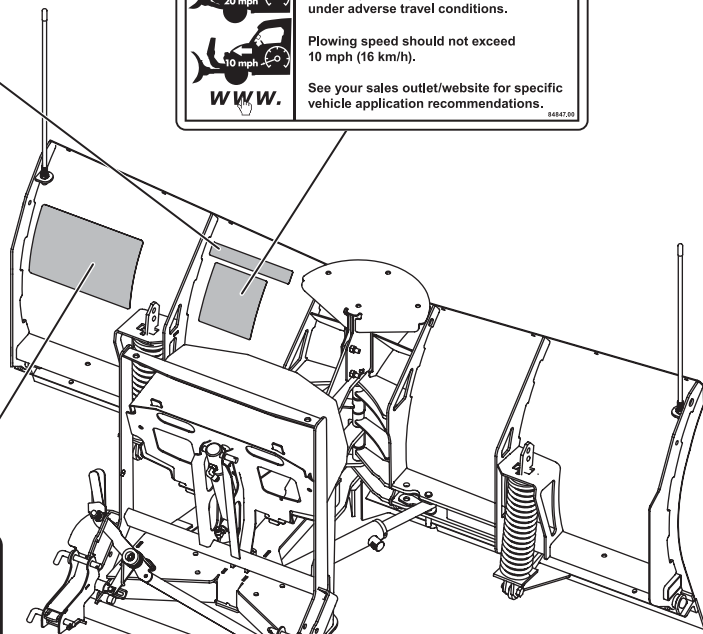
#### DETACH

1. With blade straight, lower snowplow to the ground. Activate FLOAT, then turn plow control in vehicle OFF. Apply vehicle parking brake.
2. Unplug electrical harness.
3. Insert stand through slot in the passenger side headgear horn. Adjust stand as far down as possible, install adjustment pin, and secure with a hairpin.
4. Hold down lock lever to disengage the lock pin and move the hitch pin handle rearward to fully disengage hitch pins from receivers.
5. Move hitch pin handle into handle lock notch.



US patents 7,400,058; 7,737,576; 9,200,418. 000122

Read Owner's Manual for complete instructions.

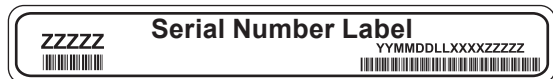


# SAFETY

## WARNING/CAUTION & INSTRUCTION LABELS FOR UTV STRAIGHT BLADE SNOWPLOW

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.**



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

**Warning/Caution Label**

**WARNING**

Lower blade when vehicle is parked.

Do not exceed GVWR or GAWR including blade and ballast.

---

**CAUTION**

Read Owner's Manual before operating or servicing snowplow.

Transport speed should not exceed 20 mph (32 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.

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**Instruction Label**

**ATTACH**

- Slowly drive vehicle forward to engage rear receiver pins into headgear slots. Apply vehicle parking brake.
- Hold down **lock lever** and move **hitch pin handle** out of the **handle lock notch**, allowing spring to move the **hitch pin handle** forward.
- Plug in electrical harness.
- Turn plow control in vehicle ON and activate FLOAT.
- Stand in front of **blade**. Push top of **headgear** toward vehicle to allow **hitch pins** to fully engage **hitch pin holes**.
- Verify the **lock pin** is engaged in the forward hole in the **lock pin bracket**.
- Remove **hairpin**, **adjustment pin**, & **stand**.

**WARNING**

Keep fingers away from snowplow and UTV attachment points.

**ATTACH – Steps 2, 6, & 7**

**DETACH – Step 3**

**DETACH – Steps 4 & 5**

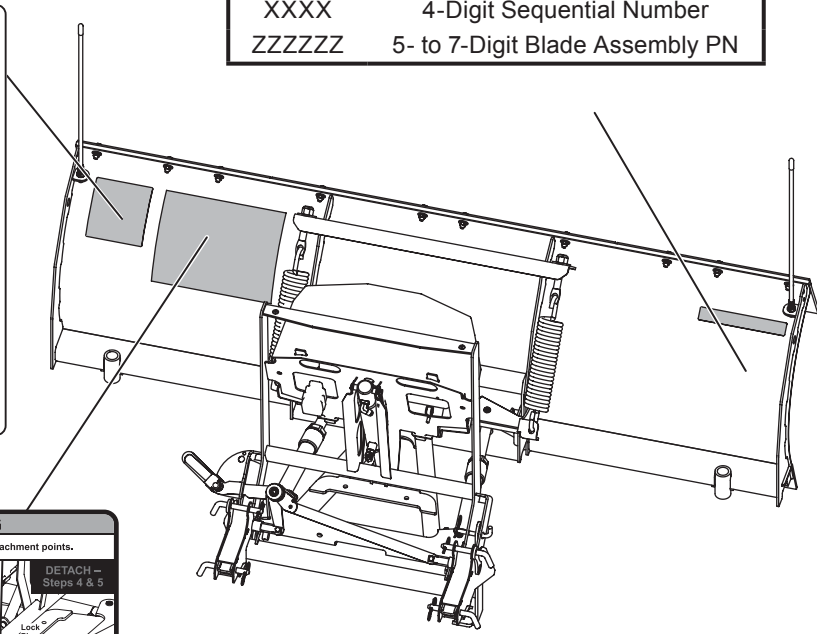
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**DETACH**

- With **blade** straight, lower snowplow to the ground. Activate **FLOAT**, then turn plow control in vehicle **OFF**. Apply vehicle parking brake.
- Unplug electrical harness.
- Insert **stand** through slot in the **passenger side headgear horn**. Adjust stand as far down as possible, install **adjustment pin**, and secure with a **hairpin**.
- Hold down **lock lever** to disengage the **lock pin** and move the **hitch pin handle** rearward to fully disengage **hitch pins** from **receivers**.
- Move **hitch pin handle** into **handle lock notch**.

US patents 7,400,056; 7,737,676; 9,200,418.

Read Owner's Manual for complete instructions.





# SAFETY

## SAFETY PRECAUTIONS

Follow all safety and operating instructions in your UTV owner's manual.

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

### ⚠ WARNING

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

### ⚠ WARNING

The driver shall keep bystanders clear of the blade when it is being raised, lowered, or angled. Do not stand between the vehicle and the blade or within 8 feet of a moving blade. A moving or falling blade could cause personal injury.

### ⚠ WARNING

Keep hands and feet clear of the blade and T-frame when mounting or removing the snowplow. Moving or falling assemblies could cause personal injury.

### ⚠ WARNING



Do not exceed GVWR, GAWR, or maximum vehicle load capacity, including the blade and ballast.

### ⚠ WARNING

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

### ⚠ WARNING

Remove blade assembly before placing vehicle on hoist.

### ⚠ WARNING

Vehicle mount reduces ground clearance. Use additional caution when driving vehicle with mount installed. Remove vehicle mount to restore original vehicle ground clearance at the end of the plowing season.

## HYDRAULIC SAFETY

### ⚠ WARNING



Hydraulic fluid under pressure can cause skin injection injury. If you are injured by hydraulic fluid, get medical attention immediately.

- Always inspect hydraulic components and hoses before using. Replace any damaged or worn parts immediately.
- If you suspect a hose leak, DO NOT use your hand to locate it. Use a piece of cardboard or wood.

## FUSES

The electrical and hydraulic systems contain several 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 information, including fuse ratings and locations, is located in the Maintenance section of this Owner's Manual.

# SAFETY

## PERSONAL SAFETY

- Remove the ignition key and put the vehicle in park or in gear to prevent others from starting the vehicle during installation or service.
- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt, and dust.
- Wear hearing protection such as earmuffs or earplugs as appropriate or required.
- Avoid touching hot surfaces such as the engine, radiator, hoses, and exhaust pipes.
- Always have a fire extinguisher rated BC handy for flammable liquids and electrical fires.

## FIRE AND EXPLOSION

### **⚠ WARNING**

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

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

## CELL PHONES

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

## VENTILATION

### **⚠ WARNING**

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

## BATTERY SAFETY

### **⚠ CAUTION**

**Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks, or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.**

- Batteries contain sulfuric acid, which burns skin, eyes, and clothing.
- Disconnect the battery before removing or replacing any electrical components.

## NOISE

Airborne noise emission during use is below 95 dB(A) for the snowplow operator.

## VIBRATION

Operating snowplow vibration does not exceed 2.5 m/s<sup>2</sup> to the hand-arm or 0.5 m/s<sup>2</sup> to the whole body.

## SNOWPLOW WEIGHT

Size	Blade Assembly	Wt (lb)	Wt (kg)
6'	UTV V-Plow Snowplow	354	161
6'	UTV Straight Blade Snowplow	261	118

# GETTING TO KNOW YOUR SNOWPLOW

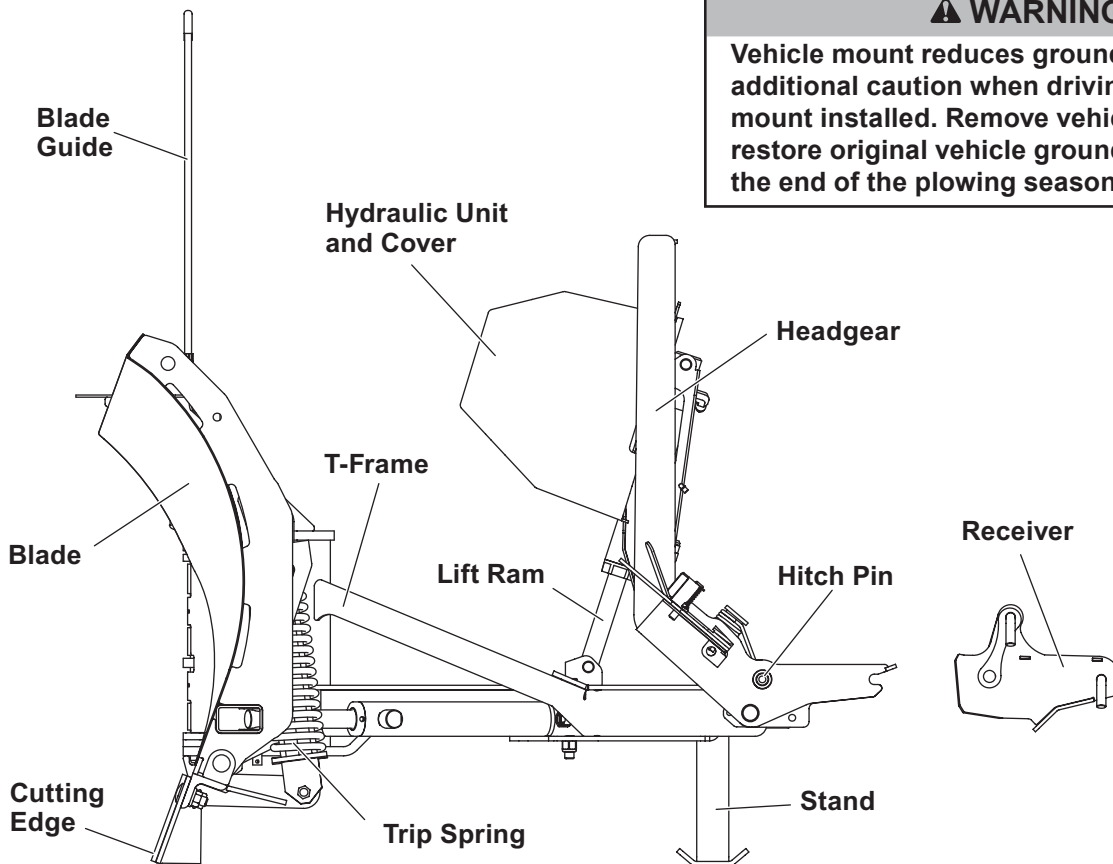
## SNOWPLOW COMPONENTS

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

## VEHICLE MOUNT KIT

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

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



# GETTING TO KNOW YOUR SNOWPLOW

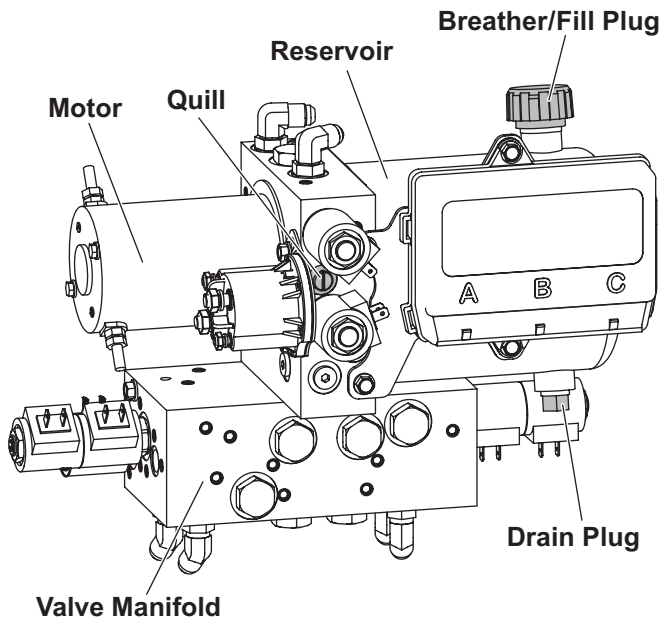
## UTV V-PLOW SNOWPLOW

### Hydraulic Unit

The hydraulic system gives you full control of the snowplow from the driver's seat. Two double-acting hydraulic rams hold the wings at the desired angles.

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

The scrape lock feature is factory set. See your sales outlet for adjustment.



### System Capacity

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

12V DC with +/- Connection
2000 psi Pump Relief Valve
1150 psi Wing Relief Valve Back Dragging
3000 psi Wing Relief Valve Plowing
3.0" dia 2.8 kW Motor (1.39 hp)
0.000476 gal/rev Pump
Hydraulic Hose SAE 100R1

### Controls

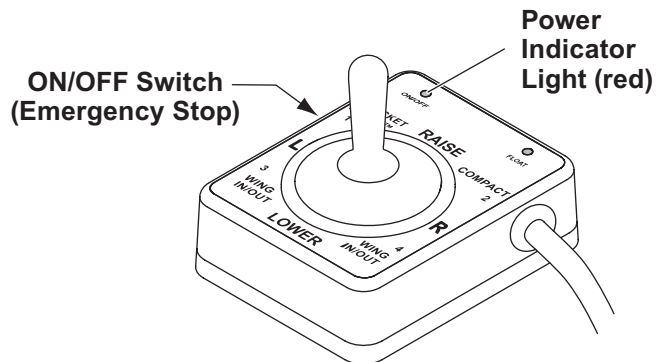
**⚠ WARNING**

**To prevent accidental movement of the blade, always turn the control OFF whenever the snowplow is not in use. The power indicator light will turn OFF.**

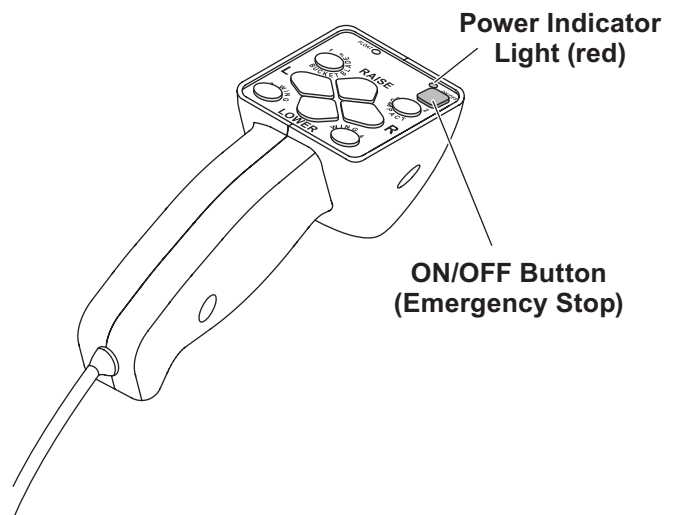
The controls are electrically powered through the ignition (key) switch of your vehicle and are protected by a replaceable in-line fuse. The ON/OFF switch allows you to turn OFF the control and prevent blade movement even when the ignition is ON.

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

#### Joystick Control



#### Hand-Held Control



# GETTING TO KNOW YOUR SNOWPLOW

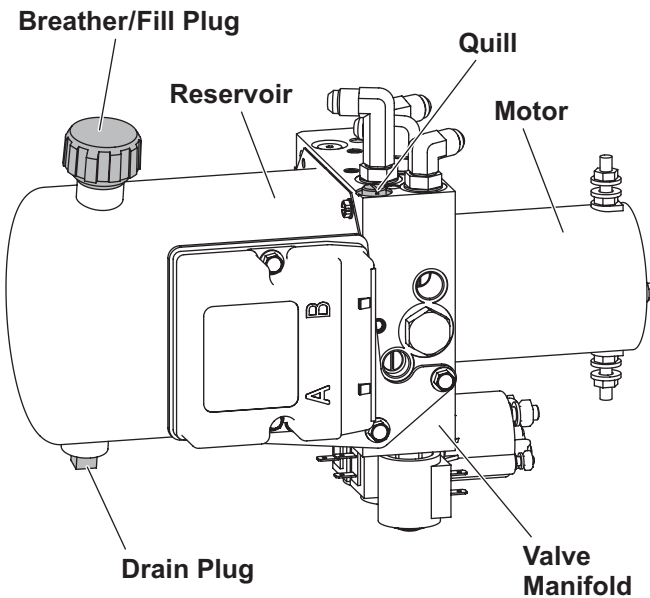
## UTV STRAIGHT BLADE SNOWPLOW

### Hydraulic Unit

The hydraulic system gives you full control of the snowplow from the driver's seat.

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

The scrape lock feature is factory set. See your sales outlet for adjustment.



### System Capacity

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

12V DC with +/- Connection
1700 psi Pump Relief Valve
4000 psi Angle Relief
3.0" dia 2.8 kW Motor (1.39 hp)
0.000208 gal/rev Pump
Hydraulic Hose SAE 100R1

### Controls

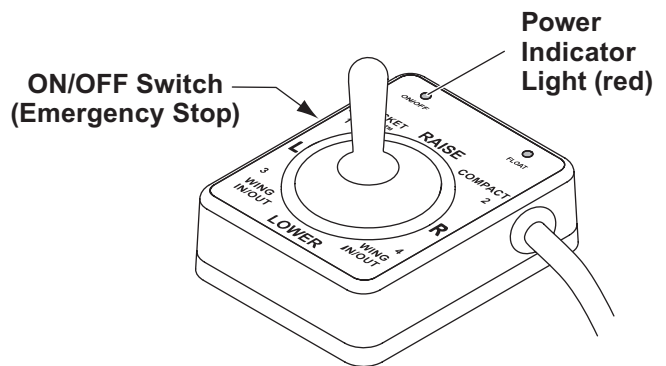
**⚠ WARNING**

**To prevent accidental movement of the blade, always turn the control OFF whenever the snowplow is not in use. The power indicator light will turn OFF.**

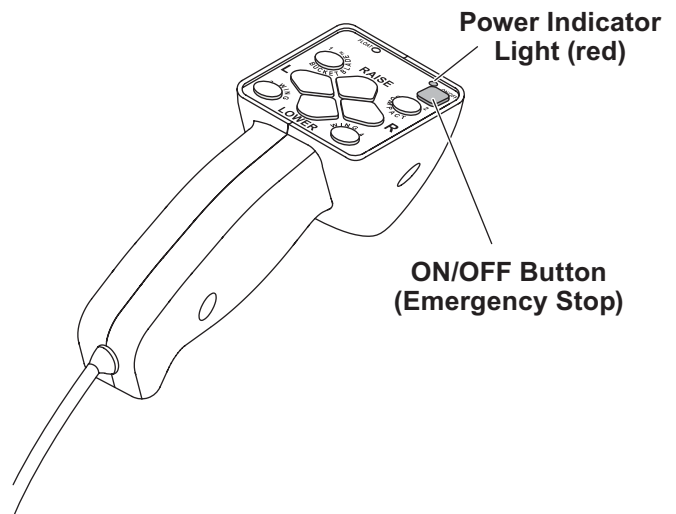
The controls are electrically powered through the ignition (key) switch of your vehicle and are protected by a replaceable in-line fuse. The ON/OFF switch allows you to turn OFF the control and prevent blade movement even when the ignition is ON.

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

#### Joystick Control



#### Hand-Held Control



# MOUNTING SNOWPLOW TO VEHICLE

## ATTACHING THE SNOWPLOW

### ⚠ WARNING

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

### ⚠ WARNING

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

### ⚠ WARNING

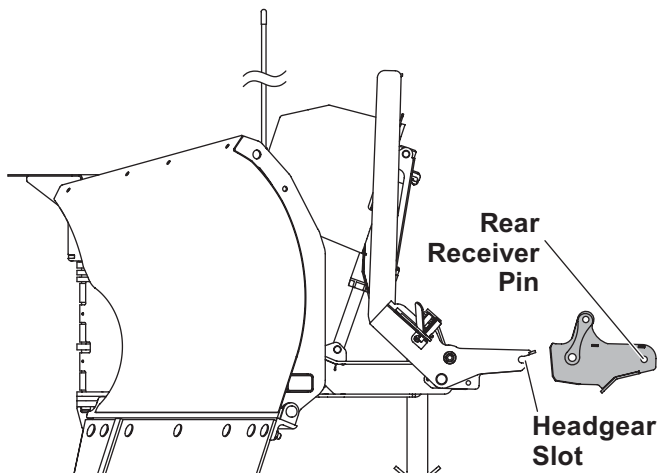
Keep fingers away from snowplow and UTV attachment points.

**NOTE:** For V-plow snowplows, the blade must be in the retracted (vee) position when attaching or detaching the snowplow.

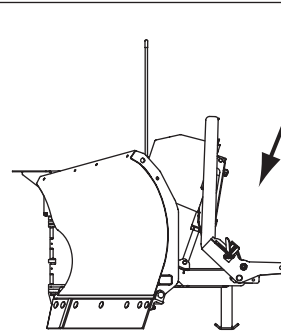
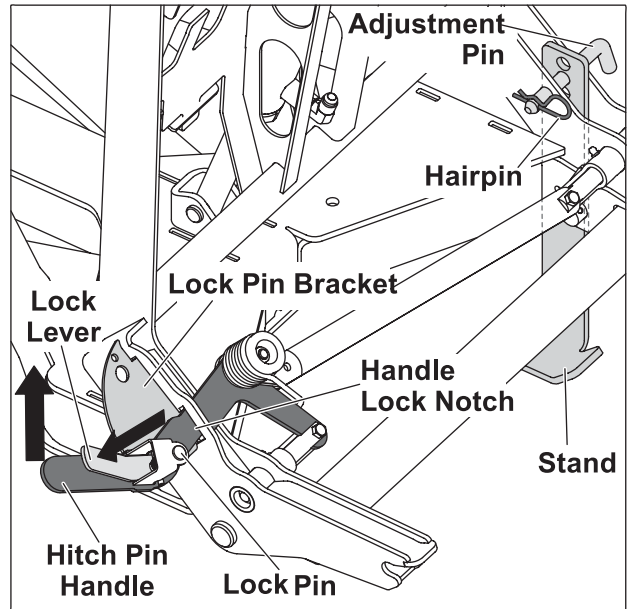
**NOTE:** Use dielectric grease to prevent corrosion on all connections.

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

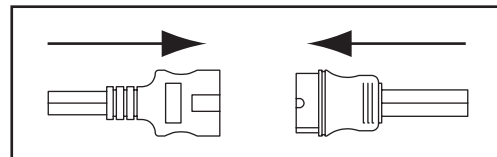
1. Slowly drive the vehicle forward to engage the rear receiver pins into the headgear slots. Apply the vehicle parking brake.



2. Hold down the lock lever and move the hitch pin handle out of the handle lock notch, allowing the spring to move the hitch pin handle forward.



3. Plug in the electrical harness.



4. Turn the snowplow control ON and activate FLOAT.
5. Stand in front of the blade. Push the top of the headgear toward the vehicle to allow the hitch pins to fully engage the hitch pin holes.
6. Verify that the lock pin is engaged in the forward hole in the lock pin bracket.
7. Remove the hairpin, adjustment pin, and stand.

# OPERATING YOUR SNOWPLOW

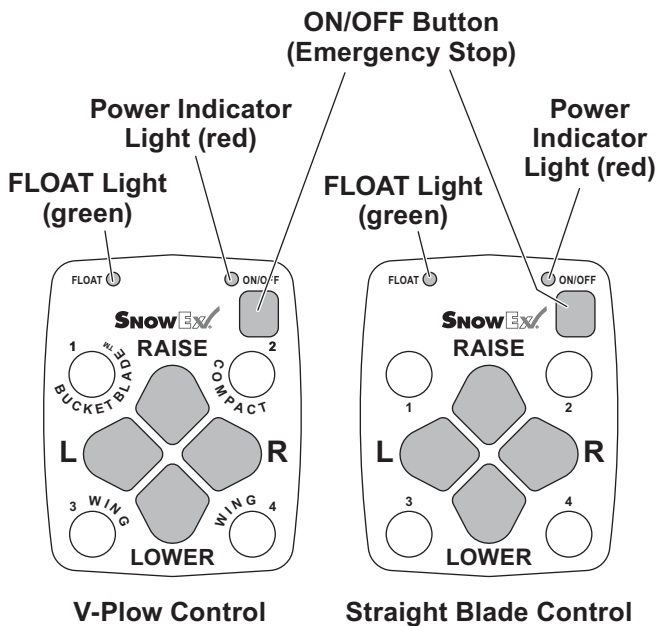
## HAND-HELD CONTROL

### ⚠ WARNING

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

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

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



## Function Time-Outs

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

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

## Automatic Shutdown

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

## Smooth Stop

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

## Hand-Held Control Functions

### Raise, Lower, Float, Angle

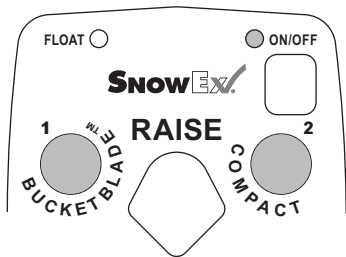
The four diamond-shaped buttons in the center of the control face, when pressed, will result in the blade movements described in the following table.

Function	Description of Operation
<b>RAISE</b>	Press this button to raise the blade and cancel the FLOAT mode. Function times out after 4.0 seconds.
<b>LOWER</b>	Press this button to lower the blade. Release the button to stop blade at the desired height.
<b>FLOAT†</b>	Press the <b>LOWER</b> button and hold 3/4 second to activate this mode. The FLOAT light in the upper left corner of the control face will illuminate. The blade will lower to the ground surface and follow the contour of the surface as it dips or rises. This function does not time out, but the control will shut down after 20 minutes of nonuse. Press the <b>RAISE</b> button momentarily to cancel FLOAT. Angling left or right will not interrupt (pause) the FLOAT function.
<b>L</b> (Angle Left)	With wings in a straight line, press the <b>L</b> button to move both wings to the angle left position. The left wing retracts while the right wing extends. Function times out after 3.0 seconds.
<b>R</b> (Angle Right)	With wings in a straight line, press the <b>R</b> button to move both wings to the angle right position. The right wing retracts while the left wing extends. Function times out after 3.0 seconds.

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

# OPERATING YOUR SNOWPLOW

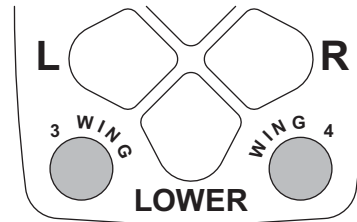
## BUCKET BLADE™/COMPACT Blade Position: UTV V-Plow Snowplow Only



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
<b>BUCKET BLADE</b>	Press this button to extend both wings forward into the BUCKET BLADE/scoop position. Function times out after 5.0 seconds.
<b>COMPACT</b>	Press this button to retract both wings into the compact/vee position. Function times out after 3.0 seconds.

## Wing Positions: UTV V-Plow Snowplow Only



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.

Function	Description of Operation
<b>L WING</b>	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. Function times out after 3.0 seconds.
<b>R WING</b>	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. Function times out after 3.0 seconds.

**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" later in this section for more information.



# OPERATING YOUR SNOWPLOW

## JOYSTICK CONTROL

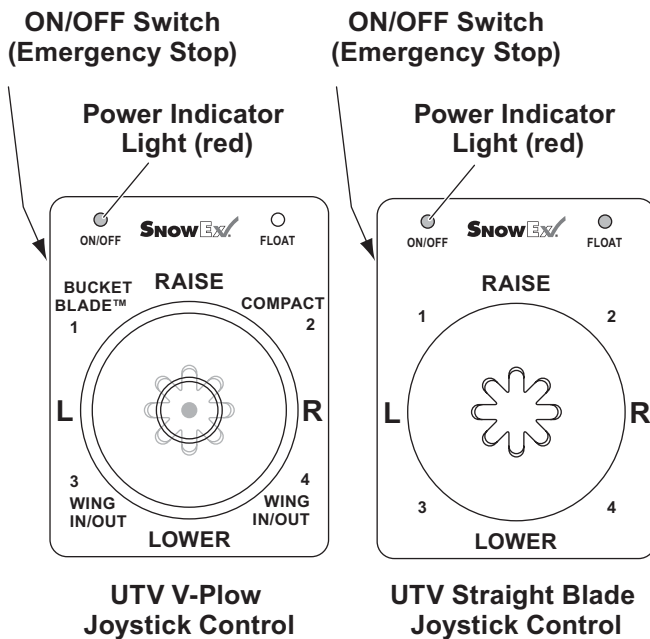
1. Turn the vehicle ignition switch to the "ON" or "ACCESSORY" position.

### **⚠ WARNING**

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

2. Move the ON/OFF switch on the side of the control to the "ON" position. The power indicator light glows red, indicating that the control is ON. The indicator light glows red whenever the control and the vehicle ignition switch are both ON and the electrical connections to the snowplow are completed.

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



## Function Time-Outs

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

**NOTE: If a control function times out before the desired blade movement is complete, release the lever to the center position, then move it back into the desired function.**

## Automatic Shutdown

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

## Smooth Stop

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

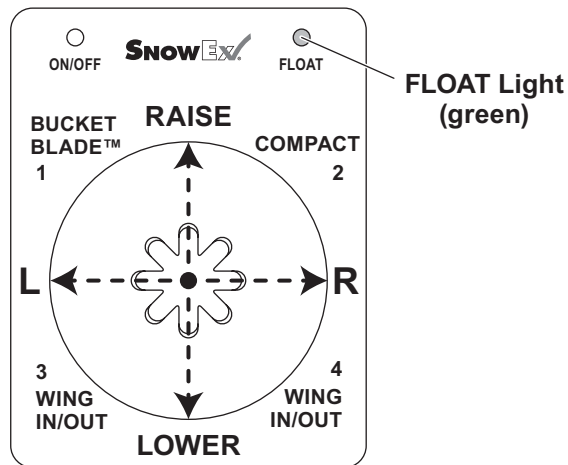
## Control Lever Movement

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

# OPERATING YOUR SNOWPLOW

## Joystick Control Functions

### Raise, Lower, Float, Angle



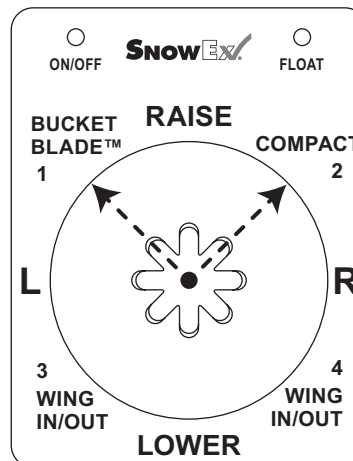
Moving the control lever straight up and down or from side to side on the control body will result in the blade movements described in the following tables.

Function	Description of Operation
<b>RAISE</b>	Move the control lever toward the top of the control body to raise the blade and cancel FLOAT mode. Function times out after 4.0 seconds.
<b>LOWER</b>	Move the control lever toward the bottom of the control body to lower the snowplow. Release the lever to stop blade at desired height.
<b>FLOAT†</b>	Move the control lever to the <b>LOWER</b> position and hold 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 <b>RAISE</b> position momentarily to cancel FLOAT. Angling left or right will not interrupt (pause) the FLOAT function.

Function	Description of Operation
<b>L</b> (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. The left wing retracts while the right wing extends. Function times out after 3.0 seconds.
<b>R</b> (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. The right wing retracts while the left wing extends. Function times out after 3.0 seconds.

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

### BUCKET BLADE™/COMPACT Blade Position: UTV V-Plow Snowplow Only

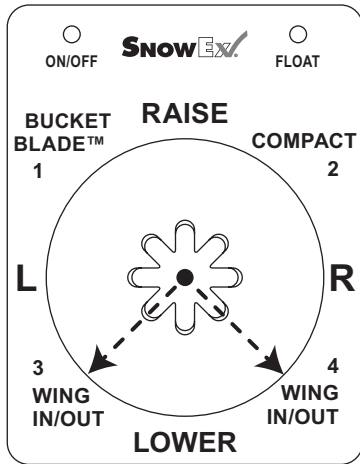


Moving the control lever from the center position toward the words BUCKET BLADE or COMPACT on the face of the control body will cause both wings to move at the same time into the following blade positions.

Function	Description of Operation
<b>BUCKET BLADE</b>	Move the control lever toward the words BUCKET BLADE on the control face to extend both wings forward into a scoop position. Function times out after 5.0 seconds.
<b>COMPACT</b>	Move the control lever toward the word COMPACT on the control face to retract both wings into the compact/vee position. Function times out after 3.0 seconds.

# OPERATING YOUR SNOWPLOW

## Wing Positions: UTV V-Plow Snowplow Only



**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 Operation" later in this section for more information.

Moving the control lever from the center position toward the words WING IN/OUT 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.

Function	Description of Operation
<b>WING IN/OUT</b>	Move the control lever toward the <i>left</i> side of <b>LOWER</b> 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. Function times out after 3.0 seconds.
<b>WING IN/OUT</b>	Move the control lever toward the <i>right</i> side of <b>LOWER</b> 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. Function times out after 3.0 seconds.

# OPERATING YOUR SNOWPLOW

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## SECURITY GUARD™ SYSTEM OPERATION

### Activation & Establishing a 4-Digit Security Code

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

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

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

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

Enter your 4-digit security code by moving the control lever to (or pressing the button for) any four 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.

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. Any control not programmed with the correct 4-digit security code will require the user to enter the established security code before activating the snowplow (see the Manual Unlock procedure below).

---

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

---

### Manual Unlock

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

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

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**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.**

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# OPERATING YOUR SNOWPLOW

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## Clearing an Established 4-Digit Security Code

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

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

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## Light Flash Indicators

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

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

## Additional Notes

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

# OPERATING YOUR SNOWPLOW

## SMOOTH STOP

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

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

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

### Enable/Disable Procedure

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

### Light Flash Indicators

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

## ONE-TOUCH FLOAT

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

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

### Enable/Disable Procedure

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

### Light Flash Indicators

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

# OPERATING YOUR SNOWPLOW

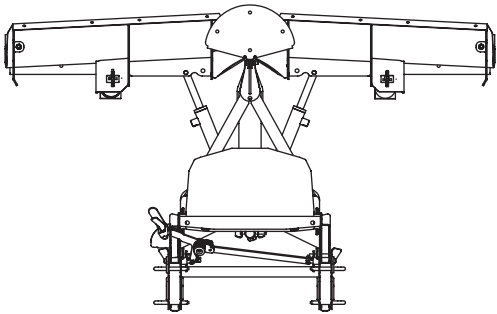
## BLADE POSITIONS: V-PLOW SNOWPLOW

**NOTE:** For best ground clearance during transport, place the blade halfway between the straight and compact (vee) positions. The **BUCKET BLADE™** (scoop) position is **NOT RECOMMENDED** during transport.

The UTV V-plow snowplow can be used in five basic plowing positions.

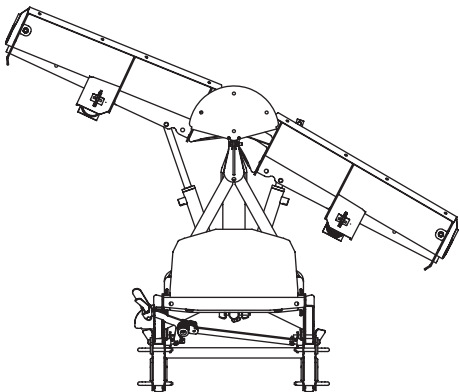
### Straight Blade

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



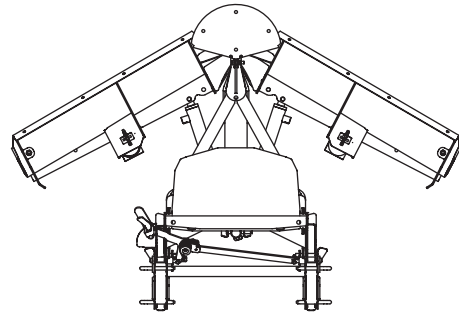
### Angled Blade

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



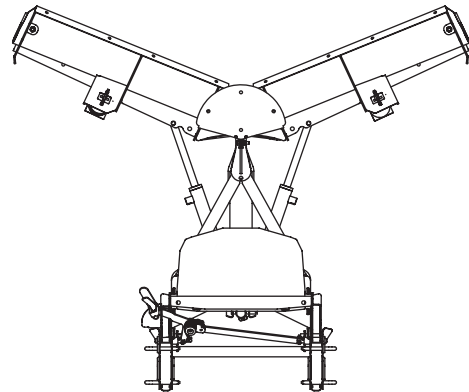
### Compact (Vee) Blade

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



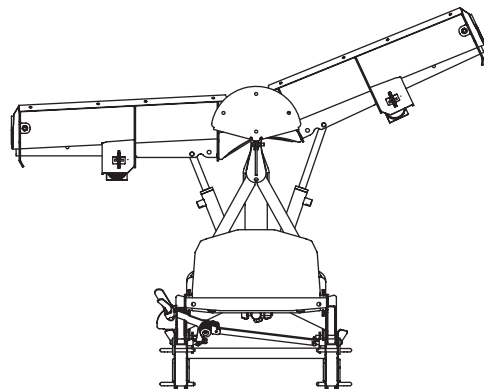
### BUCKET BLADE (Scoop)

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

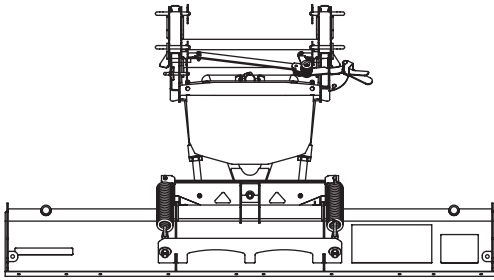
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## BLADE POSITIONS: STRAIGHT BLADE SNOWPLOW

The UTV straight blade snowplow can be used in these plowing positions.

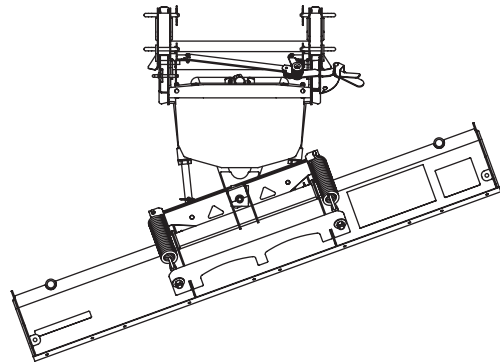
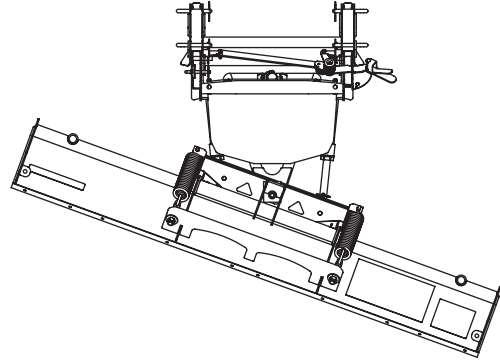
### Straight Blade

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



### Angled Blade

Move blade in either direction for general plowing and widening.





# OPERATING YOUR SNOWPLOW

## BLADE DROP SPEED ADJUSTMENT

### **⚠ WARNING**

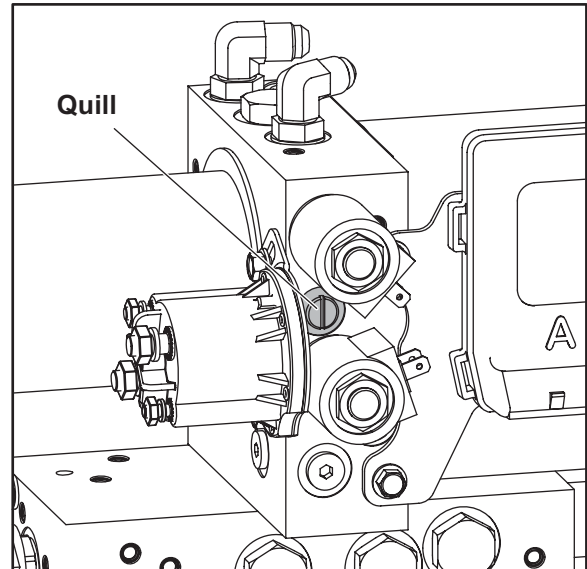
Keep 8' clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

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

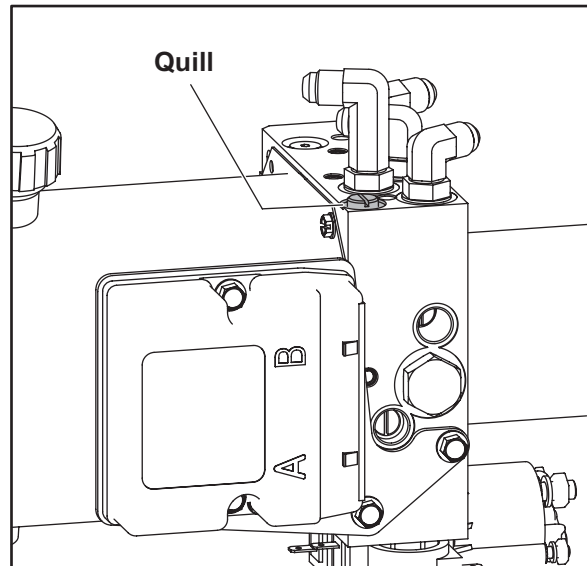
**NOTE:** The blade will not drop when quill is fully tightened (clockwise). Turn OFF the plow control, turn the quill 1/8 turn outward (counterclockwise), then proceed with blade drop speed adjustment.

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

## UTV V-Plow Snowplow



## UTV Straight Blade Snowplow



# OPERATING YOUR SNOWPLOW

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## TRANSPORTING THE SNOWPLOW

### **⚠ WARNING**

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

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

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

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**NOTE: For best ground clearance during transport of V-plow snowplows, place the blade halfway between the straight and retracted (vee) positions. The BUCKET BLADE™ (scoop) position is NOT RECOMMENDED during transport.**

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

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

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## DRIVING AND PLOWING ON SNOW AND ICE

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

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

Here are some tips for driving in these conditions:

- Drive defensively.
- Do not drink, then drive or plow snow.
- Plow or drive only when you have good visibility for operating a vehicle.
- If you cannot see well due to snow or icy conditions, you will need to slow down.
- If you are tired, move indoors and rest.
- Keep your windshield and all glass on your vehicle clean to see around you.
- Dress properly for the weather. Wear layers of clothing. As you get warm, you can take off layers.

# OPERATING YOUR SNOWPLOW

## PLOWING SNOW

### **⚠ WARNING**

Never plow snow with head outside of the vehicle window or rollover protection system. Sudden stops or protruding objects could cause personal injury.

### **⚠ CAUTION**

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

### **⚠ CAUTION**

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

### **⚠ CAUTION**

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

### **⚠ CAUTION**

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

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

## General Instructions

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

## Hard-Packed Snow

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

## Deep Snow

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

Rule of thumb:

3" of snow — plow with entire blade width

6" of snow — plow with 3/4 blade width

9" of snow — plow with 1/2 blade width

Experience and "feel" are the best guides.

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

## Clearing Driveways

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

# OPERATING YOUR SNOWPLOW

## PARKING WITH SNOWPLOW ATTACHED

### **⚠ WARNING**

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

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

## TOWING DISABLED OR STUCK VEHICLES

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

## CHECKING HYDRAULIC FLUID LEVEL

1. Park the vehicle on a hard, level surface. For V-plow snowplows, position the wings in the compact (vee) configuration. Lower the blade to the ground.

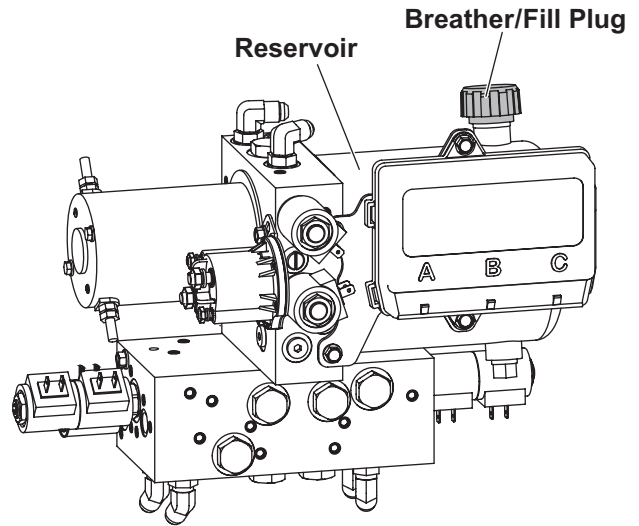
### **⚠ CAUTION**

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

2. Remove the fill plug.

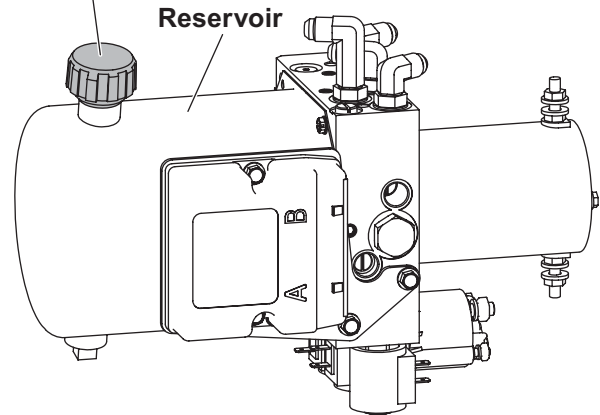
**NOTE: Remove fill plug slowly to relieve any pressure in reservoir.**

## V-Plow Snowplow



## Straight Blade Snowplow

### **Breather/Fill Plug**



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

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

# DETACHING SNOWPLOW FROM VEHICLE

## DETACHING THE SNOWPLOW

### ⚠ WARNING

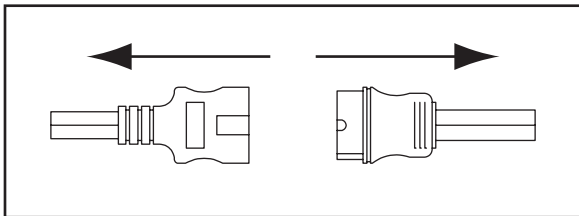
Keep 8' clear of the blade when it is being raised, lowered, or angled. Do not stand between vehicle and blade or directly in front of the blade. If the blade hits or drops on you, you could be seriously injured.

### ⚠ WARNING

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

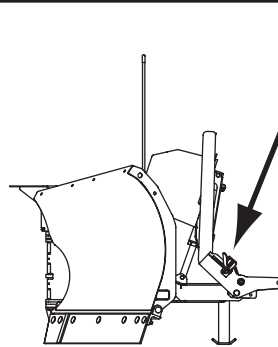
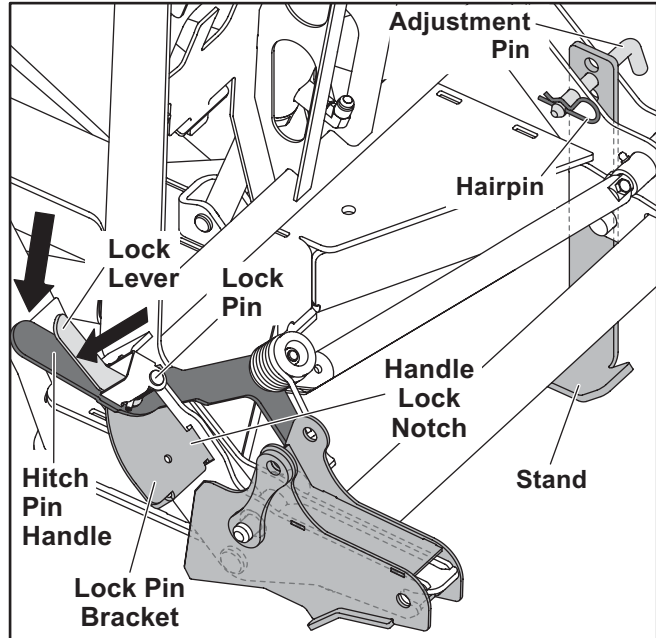
**NOTE:** For V-plow snowplows, the blade must be in the retracted (vee) position when attaching or detaching the snowplow.

1. For V-plow snowplows, fully retract blade wings in the compact (vee) position. Lower the snowplow to the ground. Activate FLOAT, then turn the plow control in the vehicle OFF. Apply the vehicle parking brake.
2. Insert the stand through the slot in the passenger-side headgear horn. Adjust the stand as far down as possible, install the adjustment pin, and secure with a hairpin.
3. Unplug the electrical harness.



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

4. Hold down the lock lever to disengage the lock pin and move the hitch pin handle rearward to fully disengage the hitch pins from the receivers.



5. Move the hitch pin handle into the handle lock notch.
6. Back the vehicle away from the snowplow.
7. Place the electrical plugs in the storage boot on the snowplow.

The receiver assemblies can be detached by removing the two pins from each receiver.

# MAINTENANCE

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

## **⚠ WARNING**

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

## PRESEASON CHECK

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

- Clean and tighten all electrical connections and coat with dielectric grease to prevent corrosion.
- Check the hydraulic system for leaks and cracked or damaged hoses.
- Drain the hydraulic system and refill it with recommended hydraulic fluid. For hydraulic fluid type and filling instructions, see "Annual Fluid Change" in the Hydraulic System section of this Owner's Manual.
- Replace worn or damaged parts.
- Check all mounting points and tighten fasteners on both the snowplow and the vehicle.
- Repaint the blade assembly and attachments, as necessary, to protect the metal.

- Install auxiliary and flashing lights for compliance and visibility in accordance with local regulations.
- Check the vehicle for proper operation.
- Inspect and test your battery. Recharge or replace it as necessary.
- Ballast may be necessary, or beneficial, on some vehicles to provide maximum traction, braking, and handling.
- Any ballast material (such as sand and blocks) must be solidly secured to the vehicle, preventing it from moving under harsh plowing conditions.

## IN-SEASON MAINTENANCE

- Apply dielectric grease to the joystick or hand-held control connector monthly.
- Store the control in a protected location when it is not in use. Do not leave it in the vehicle. The control can fail prematurely if it is exposed to the elements when not in use.
- Before each storm and frequently throughout season, check that all fasteners, mounting bolts, and hydraulic and electrical connections are tight. Also check all plugs and seals for leaks. Repair as necessary.
- Lubricate all moving parts for ease of operation.

# MAINTENANCE

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## POSTSEASON MAINTENANCE

### **⚠ WARNING**

**Vehicle mount reduces ground clearance. Use additional caution when driving vehicle with mount installed. Remove vehicle mount to restore original vehicle ground clearance at the end of the plowing season.**

- Clean and paint blade and attachments as needed.
- Coat ram rods with general purpose petroleum grease.
- Lubricate all pivot points (for example, the connecting pin assembly) with general purpose petroleum grease.

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

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## STORAGE

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

# MAINTENANCE

## HYDRAULIC SYSTEM

### Annual Fluid Change

#### ⚠ CAUTION

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

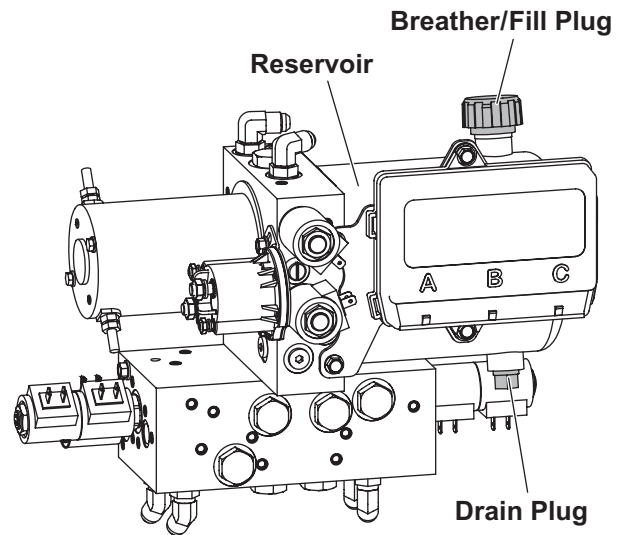
#### ⚠ CAUTION

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

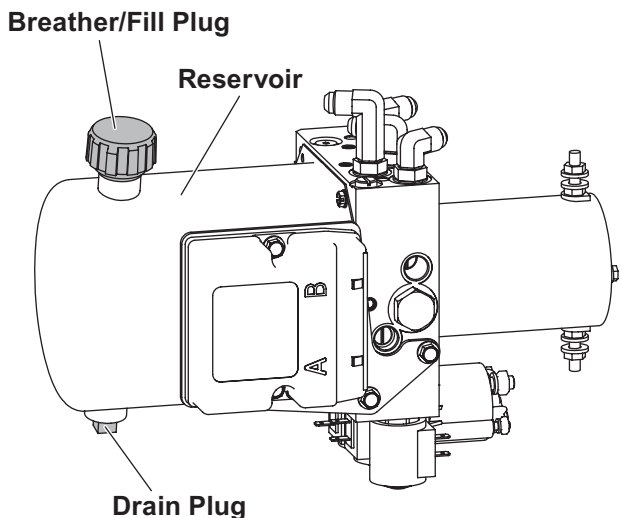
1. Perform this operation with the snowplow attached to the vehicle. Park the vehicle on a hard, level surface.
2. For V-plow snowplows, position the wings in the compact (vee) configuration. Lower the blade to the ground. Turn the control OFF.
3. Remove the fill plug.

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

### V-Plow Snowplow



### Straight Blade Snowplow



4. Remove the drain plug.
5. Completely drain the reservoir and reinstall the drain plug.
6. Fill the reservoir to 1-1/2" to 2" from the top with high-performance hydraulic fluid rated to  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ), or other fluid conforming to Military Specification MIL-H-5606 A, such as Mobil Aero HFA or Shell AeroShell® Fluid 4.
7. Reinstall the fill plug.

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# MAINTENANCE

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## Hose or Fitting Replacement

### **⚠ WARNING**

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

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

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

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

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

## Procedure for Installing Fittings and Hoses

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

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

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

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

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

1. Screw the flare nut onto the fitting flare and hand tighten it.
2. Align the hose so there are no twists or sharp bends and so it will not be pinched or pulled by moving parts.
3. Using a pair of adjustable pliers, hold the hose in position, and use a wrench to tighten the flare nut 1/8 to 1/4 turn beyond hand tight. Final torque on the flare nut should be approximately 20 ft-lb.
4. Reinstall any protective hose wraps in their original positions.

# MAINTENANCE

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## FUSE REPLACEMENT

The vehicle control harness contains one 2A automotive-style mini fuse and the hydraulic unit contains three 5A automotive-style mini fuses.

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

If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire.

## VEHICLE

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

## RECYCLE

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

# MAINTENANCE

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## EMERGENCY PARTS/TOOLS

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



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