



## PILE DRIVER™ XL Snowplow

31108-1, 31708-1, 31110-1, 31710-1, 31712-1, 32618-1,  
31718-1, 31716-1

Pusher Plow with TRACE™ Carbide Trip Edge  
and Rotating Wings

Owner's Manual and Installation Instructions  
*Original Instructions*

**⚠ CAUTION**

Read this document before operating or  
servicing the snowplow.

**⚠ CAUTION**

Read this document before installing the  
snowplow.

**⚠ CAUTION**

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

This document supersedes all editions with an earlier date.



## OWNER INFORMATION

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

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

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

Outlet Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Outlet Address: \_\_\_\_\_

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

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

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

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## PREFACE

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Welcome to the growing family of WESTERN® pusher plow owners.

This manual provides safety, operation, and maintenance information for your new WESTERN pusher plow. To keep your pusher plow 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 pusher plow best. Contact your pusher plow outlet for maintenance, service, or any other assistance you may require.

Keep this manual accessible. It is a handy reference in case minor service is required.

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

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

## FACTORY ORIGINAL PRODUCTS

Your WESTERN pusher plow 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 pusher plow'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.

## Safety Precautions

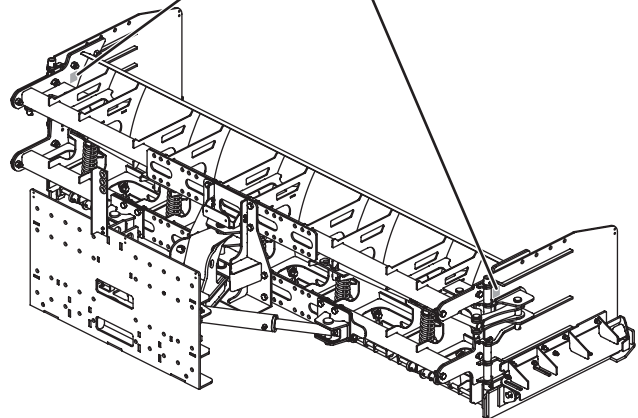
Improper installation and operation could cause personal injury and/or equipment and property damage. Read and understand this Owner's Manual before installing, operating, or making adjustments.

- NEVER get under the unit during maintenance procedures without properly securing the unit.
- ALWAYS take a few minutes to properly secure your pusher plow using dunnage or jack stands to ensure safety during maintenance.
- DO NOT rely solely upon the hydraulics of your machine to secure the pusher plow during maintenance.
- NEVER get between the bucket of the machine and the plow box while attaching the unit.
- ALWAYS be sure to keep hands and feet away from designated pinch points.
- DO NOT place hands or feet under the unit or your bucket.
- NEVER stand in front of a pusher plow while machine is in operation.

## WARNING LABELS

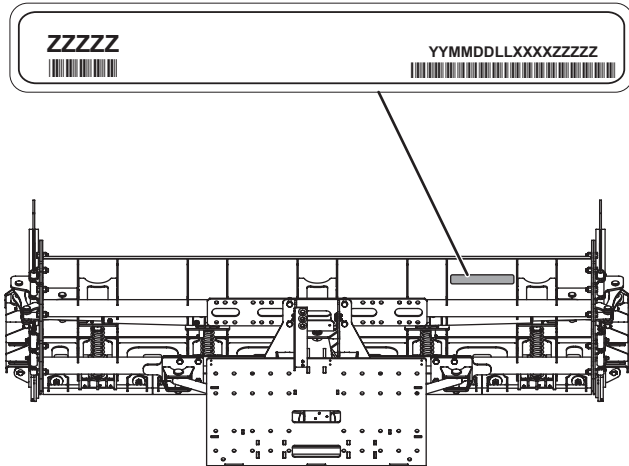
Become familiar with and inform users about the warning and serial number labels on the back of the blade

**NOTE:** Translated safety labels are available. Please contact your sales outlet.



# SAFETY

## Blade 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- or 6-Digit Blade Assembly PN |

## 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 blade-style automotive fuses. If a problem should occur and fuse replacement is necessary, the replacement fuse must be of the same type and amperage rating as the original. Installing a fuse with a higher rating can damage the system and could start a fire. Fuse Replacement, including fuse ratings and locations, is located in the Maintenance section of the Owner's Manual.



# SAFETY

## PERSONAL SAFETY

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

## 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.

## NOISE

Airborne noise emission during use is below 70 dB(A) for the snowplow operator.

## VIBRATION

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





## TORQUE CHART

### ⚠ CAUTION





**Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to torque chart. Use standard methods and practices when attaching snowplow, including proper personal protective safety equipment.**

### Recommended Fastener Torque Chart

#### Inch Fasteners Grade 5 and Grade 8

| Size    | Torque (ft-lb)  |   | Size    | Torque (ft-lb)  |   |
|---------|---|---|---------|---|---|
|         |  Grade 5 |  Grade 8 |         |  Grade 5 |  Grade 8 |
| 1/4-20  | 8.4   | 11.9  | 9/16-12 | 109   | 154   |
| 1/4-28  | 9.7   | 13.7  | 9/16-18 | 121   | 171   |
| 5/16-18 | 17.4  | 24.6  | 5/8-11  | 150   | 212   |
| 5/16-24 | 19.2  | 27.3  | 5/8-18  | 170   | 240   |
| 3/8-16  | 30.8  | 43.6  | 3/4-10  | 269   | 376   |
| 3/8-24  | 35.0  | 49.4  | 3/4-16  | 297   | 420   |
| 7/16-14 | 49.4  | 69.8  | 7/8-9   | 429   | 606   |
| 7/16-20 | 55.2  | 77.9  | 7/8-14  | 474   | 669   |
| 1/2-13  | 75.3  | 106.4   | 1-8     | 644   | 909   |
| 1/2-20  | 85.0  | 120.0   | 1-12    | 704   | 995   |

#### Metric Fasteners Class 8.8 and 10.9

| Size       | Torque (ft-lb)  |  | Size       | Torque (ft-lb)  |  |
|------------|---|--|------------|---|--|
|            |  Class 8.8 |  Class 10.9 |            |  Class 8.8 |  Class 10.9 |
| M6 x 1.00  | 7.7   | 11.1   | M20 x 2.50 | 325   | 450  |
| M8 x 1.25  | 19.5  | 26.9   | M22 x 2.50 | 428   | 613  |
| M10 x 1.50 | 38.5  | 53.3   | M24 x 3.00 | 562   | 778  |
| M12 x 1.75 | 67  | 93   | M27 x 3.00 | 796   | 1139   |
| M14 x 2.00 | 107   | 148  | M30 x 3.50 | 1117  | 1545   |
| M16 x 2.00 | 167   | 231  | M33 x 3.50 | 1468  | 2101   |
| M18 x 2.50 | 222   | 318  | M36 x 4.00 | 1952  | 2701   |

These torque values apply to fasteners except those noted in the instructions.

## SAFETY

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### SNOWPLOW BLADE WEIGHTS

Weights are of snowplow only without mounts.

| Size | Blade Assembly       | Wt (lb) | Wt (kg) |
|------|----------------------|---------|---------|
| 8'   | 30" Tall Pusher Plow | 2533    | 1149    |
| 8'   | 36" Tall Pusher Plow | 2628    | 1192    |
| 10'  | 30" Tall Pusher Plow | 2770    | 1256    |
| 10'  | 36" Tall Pusher Plow | 2822    | 1280    |
| 10'  | 42" Tall Pusher Plow | 3288    | 1491    |
| 12'  | 42" Tall Pusher Plow | 3477    | 1577    |
| 14'  | 42" Tall Pusher Plow | 3666    | 1662    |
| 16'  | 42" Tall Pusher Plow | 3855    | 1749    |

#### CAUTION

See your WESTERN® outlet/website  
for specific vehicle application  
recommendations before installation.

### EQUIPMENT APPLICATIONS

Vehicle application recommendations are based on the following:

- 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 equipment, or snowplow accessories are installed.
- If there is uncertainty as to whether available capacity exists, the actual vehicle as configured must be weighed.

# GETTING TO KNOW YOUR SNOWPLOW

Your pusher plow is designed with several exclusive features to ensure safe and efficient snow removal.

Hydraulically movable wings can rotate up to 180°. These adjustable wings make it possible to clear more snow from tighter spaces than with other snowplows.

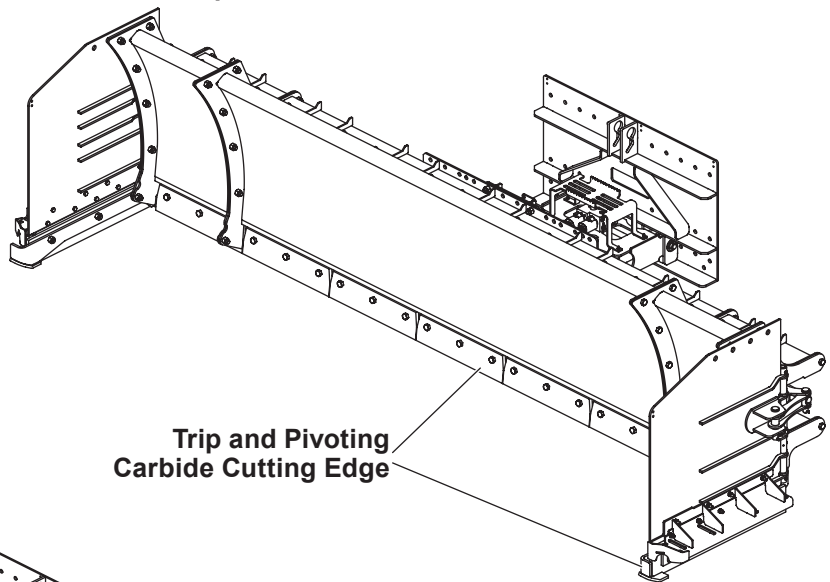
Floating carbide cutting edges are combined with front- and rear-angled wear shoes. The cutting edges feature a trip and pivoting mechanism that minimizes potential damage to your machine by enabling the snowplow to move over raised manhole covers, low curbs, and other obstructions.

Curb guards feature trip and pivoting mechanisms that minimize potential damage to your machine by enabling the snowplow to move over curbs and other obstructions.

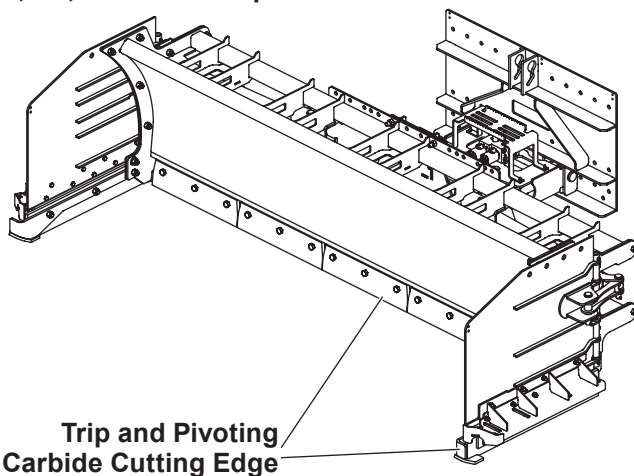
**To ensure that your pusher plow will provide years of service with minimal maintenance, follow these simple guidelines:**

- Once the plow is properly attached to your machine it **MUST** be leveled **BEFORE** plowing.
- To level the blade, set it down and adjust the curl of your bucket, making sure that **BOTH** wear shoes are resting squarely on the plowing surface.
- **DO NOT** apply down force to the blade while plowing. This will considerably shorten the life of your wear shoes and is **NOT** necessary for effective snow removal.

**14' and 16' Snowplows**



**8', 10', and 12' Snowplows**



# OPERATING YOUR SNOWPLOW

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## PUSHER PLOW BLADE POSITIONS

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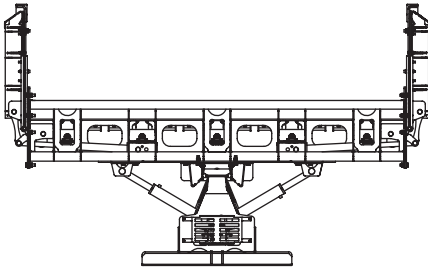
**NOTE:** For best road clearance during transport, place the blade in the straight position.

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The PILE DRIVER™ XL snowplow can be used in six basic plowing positions.

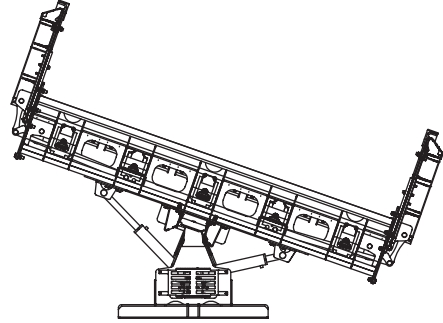
### Straight Blade – Wings Forward

For wide-path plowing or stacking snow.



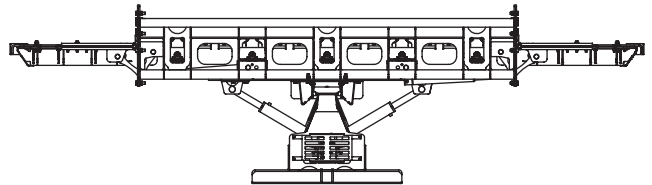
### Angled Blade – Wings Forward

Angle the blade left or right for general plowing and widening.



### Straight Blade – Wings Straight

Move both wings to the straight position for wide path plowing or stacking snow.

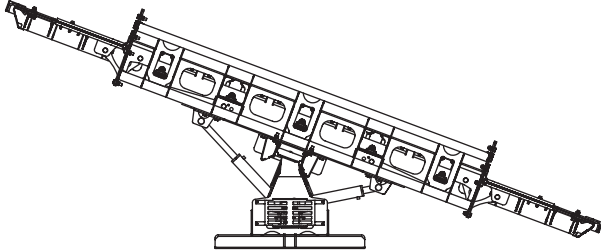


# OPERATING YOUR SNOWPLOW

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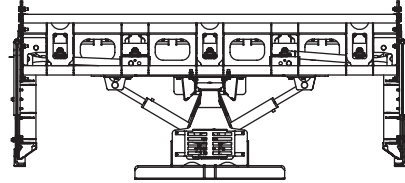
## Angled Straight Blade – Wings Straight

Angle the blade left or right for general plowing, widening, and stacking.



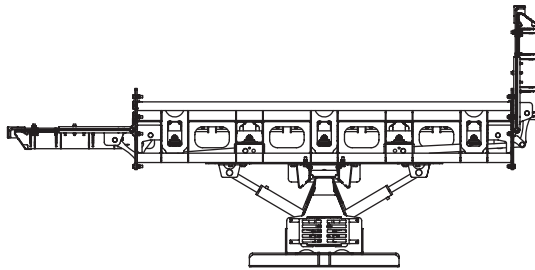
## Back Drag Blade

Move both wings to the rearward position for back drag plowing with the vehicle in reverse.



## Dogleg Blade

Move one wing into the straight position and the other into the forward position to clean close to buildings and paths.



# OPERATING YOUR SNOWPLOW

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## TRANSPORTING THE SNOWPLOW

### **WARNING**

**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.**

1. Completely raise the blade.
2. Adjust the blade to the straight position.

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**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.**

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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

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 are tired, pull off in a safe place and rest.
- Keep your windshield and all glass on your vehicle clean to see around you.
- Dress properly for the weather. Wear layers of clothing. As you get warm you can take off layers.

# OPERATING YOUR SNOWPLOW

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## PLOWING SNOW

### **WARNING**

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

### **CAUTION**

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

### **CAUTION**

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

### **CAUTION**

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

### **CAUTION**

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

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

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## General Instructions

1. Before plowing, make sure 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.

## 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.
2. Plow a single path down the center of the parking lot in the lengthwise direction.
3. With the blade in the straight, 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

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## 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.

## REMOVING SNOWPLOW

### 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.

## HYDRAULIC SYSTEM

### Hydraulic Fluid

For hydraulic fluid type and filling instructions, see your vehicle's service manual.

### Relief Valves

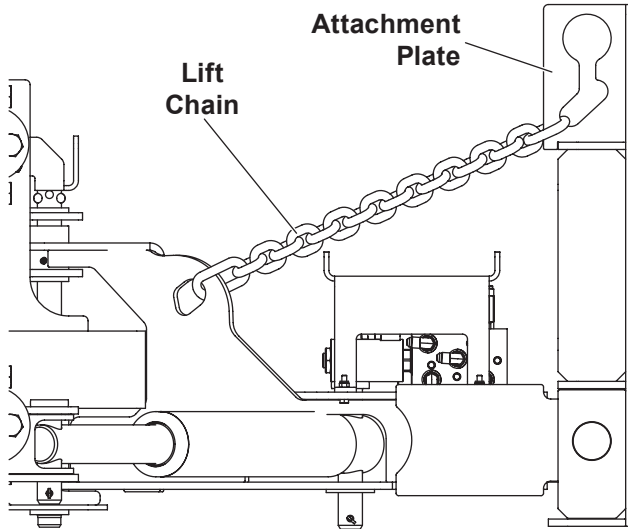
The hydraulic unit's valve manifold includes relief valves to prevent damage to the blade or vehicle if an obstacle is hit at either end of the blade. When force against the blade causes the pressure **in an extended ram** to exceed set limits, the relief valve opens, allowing fluid to escape, and the ram retracts.



# OPERATING YOUR SNOWPLOW

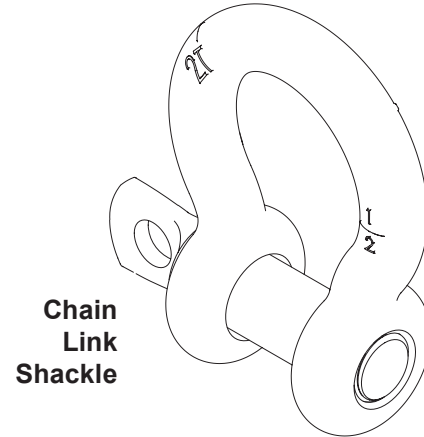
## LIFT CHAIN

Adjust the length of the lift chain on the driver's side so that the attachment plate is vertical when the blade is in use.



## Adjusting the Lift Chain

With the snowplow attached to a properly ballasted vehicle, make one of the following adjustments:



**If there is not enough slack in the lift chain:**

Adjust the connecting chain link shackle and chain up one link from the factory setting.

**If there is too much slack in the lift chain:**

Adjust the connecting chain link shackle and chain down one link from the factory setting.

## MAINTENANCE

Your pusher plow requires only minimal service to remain in top condition. Follow these simple procedures to ensure proper plowing and long life.

### LONG LASTING CUTTING EDGES

The carbide cutting edge segments may be replaced individually when worn. Refer to the instructions included with the replacement service parts.

### CURB GUARD

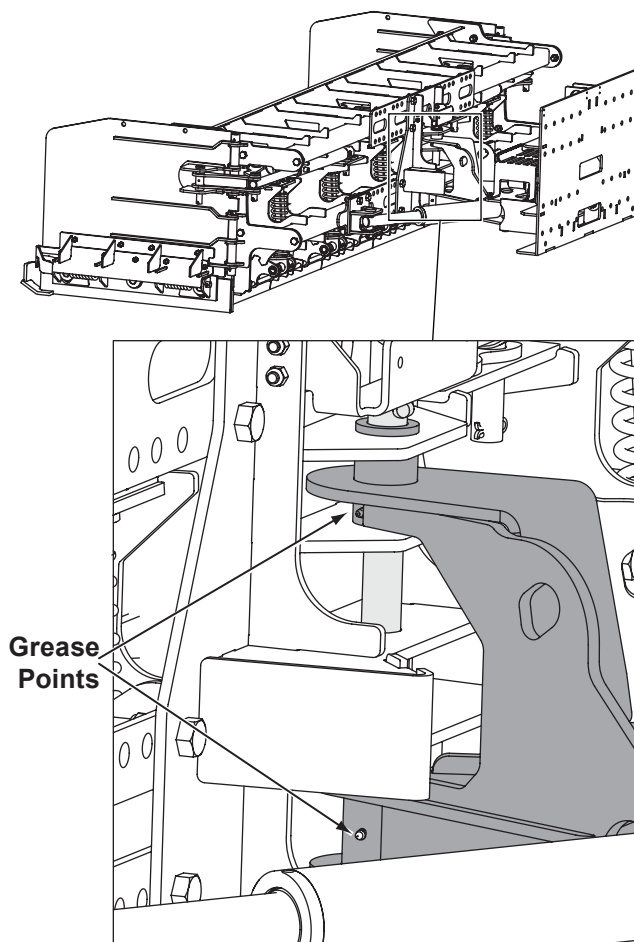
The pusher plow is equipped with replaceable curb guards to offer continuous protection from obstacles. Refer to the instructions included with the replacement service parts.

### PUSHER PLOW GREASE POINTS

Apply grease to each pusher plow pivot at the beginning of the snowplow season. Reapply as needed during the season and before putting the pusher plow in storage.

#### Greasing Pivot Pin

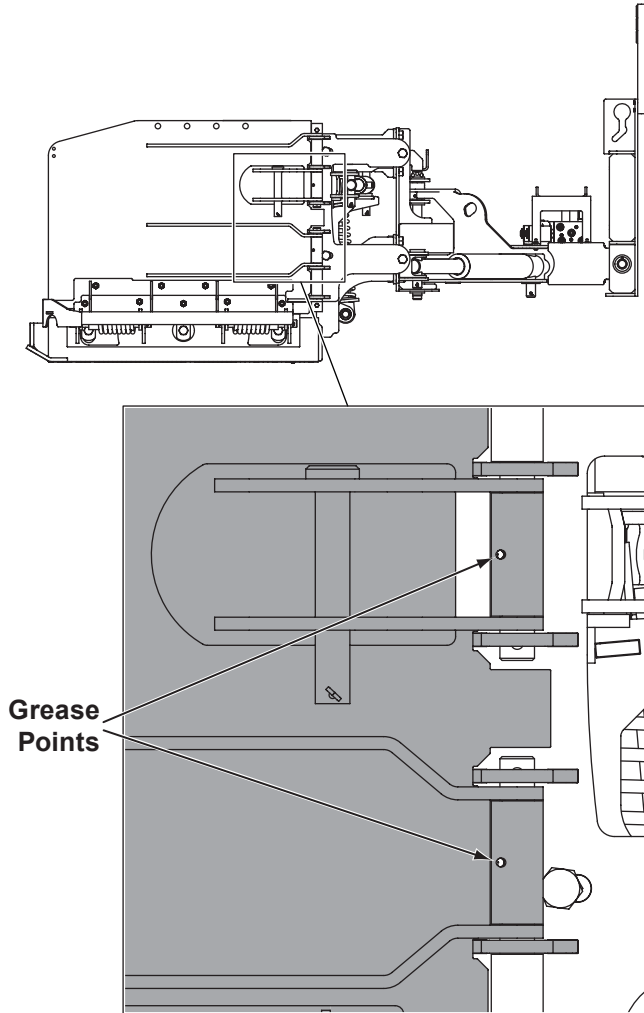
Using a rubber-tipped seal-off coupler, apply a good quality multipurpose grease at the two grease points on the center pivot pin.



## MAINTENANCE

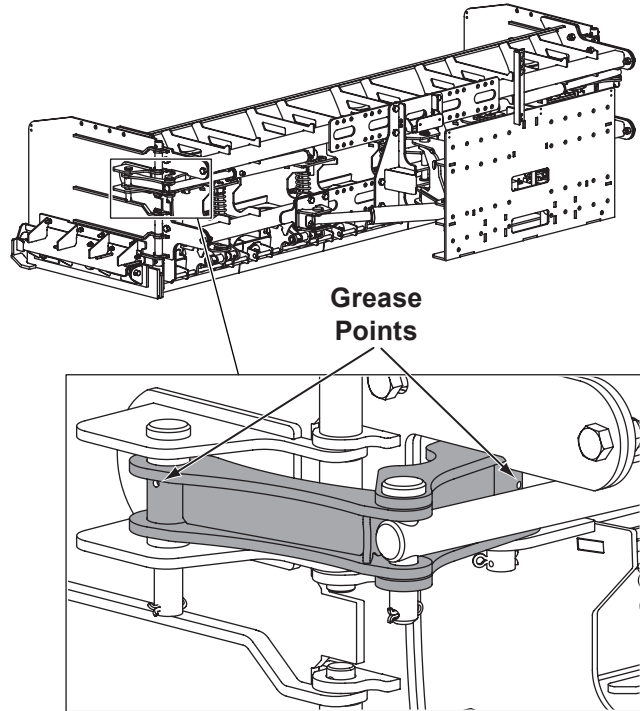
### Greasing Wing Pivot Pins

Using a rubber-tipped seal-off coupler, apply a good quality multipurpose grease at the two grease points on each wing pivot pin.



### Greasing Wing Pivot Linkage

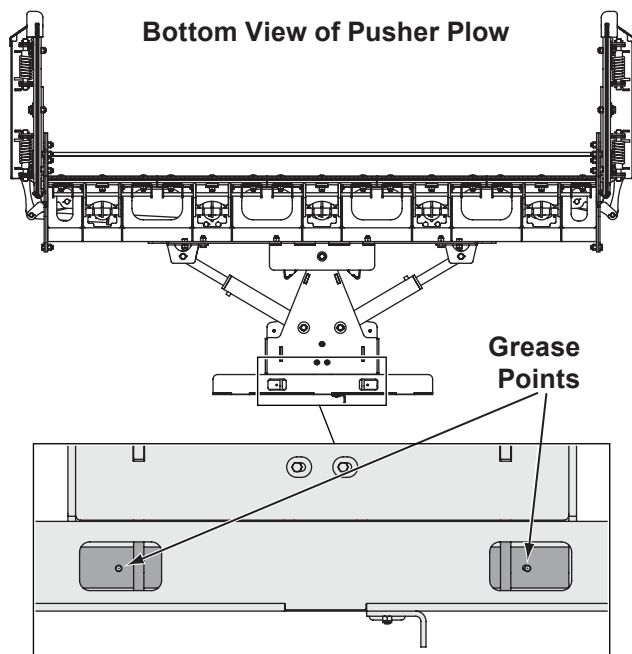
Using a rubber-tipped seal-off coupler, apply a good quality multipurpose grease at the two grease points on each wing pivot linkage.



## MAINTENANCE

### Greasing A-Frame Pivot

Using a rubber-tipped seal-off coupler, apply a good quality multipurpose grease at the two A-frame pivot grease points.



### ⚠ CAUTION

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

### PRESEASON CHECKS

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

- 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 strobe lights for compliance and visibility in accordance with local regulations.
- Check vehicle headlamps, auxiliary lights, heater, and windshield wipers for proper operation.
- Inspect and test your battery. Recharge or replace as necessary.

### POSTSEASON MAINTENANCE

- Coat all electrical connections with dielectric grease.
- Clean and paint blade and components as needed.
- Apply general purpose petroleum grease to exposed chrome surfaces of the rams to prevent rust.

# MAINTENANCE

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## 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.

## 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](http://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.



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*This product conforms to EU Machinery Directive 2006/42/EC, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment - Directive 2011/65/EU (RoHS2), and UNECE R10.05.*



*This product conforms to the UK Supply of Machinery (Safety) Regulations 2008, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS2), and UNECE R10.05.*

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