

OWNER'S MANUAL
with
FloStat™ Hydraulic System



Read this document before operating the snowplow.
This document supersedes all editions with an earlier date.

Owner's Name: _____

Date Purchased: _____

Outlet Name: _____

Vehicle Model/Year: _____

Snowplow Type/Size: _____

Required Ballast: _____

FloStat™ Serial Number: _____

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PREFACE

Welcome to the growing family of WESTERN® snowplow owners.

This manual provides safety, operation, maintenance, and troubleshooting 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.

When service is necessary, your local Western Products outlet knows your snowplow best. Return your snowplow to the outlet for maintenance service or any other assistance you may require. We have enclosed a "Report Card" in your owner's manual packet for your use.

Your FloStat™ hydraulic unit has a serial number on the reservoir. Record this serial number in the front of the manual. Before using your WESTERN snowplow, make sure your vehicle is equipped with all vehicle manufacturer's and Western's recommended options for snowplowing.

SAFETY INFORMATION

WARNING

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

CAUTION

Indicates a situation that, if not avoided, could result in minor personal injury and/or damage to product or property.

NOTE: Identifies tips, helpful hints and maintenance information the owner/operator should know.

BEFORE YOU BEGIN

- Park the vehicle on a level surface, place shift lever in PARK or NEUTRAL and set parking brake.

WARNING

Remove blade assembly before placing vehicle on hoist.

- Leave the snowplow mounted on the vehicle and lowered for most service procedures, unless told otherwise.

PERSONAL SAFETY

- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Be especially careful near moving parts such as fan blades, pulleys and belts.
- 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, for flammable liquids and electrical fires, handy.

WARNING

Do not exceed GVWR or GAWR (including blade and ballast) as found on the driver-side door cornerpost of the vehicle.

VENTILATION

WARNING

Vehicle exhaust contains deadly carbon monoxide (CO) gas. Breathing this gas, even in low concentrations, could cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

If you work on the vehicle or snowplow in a garage or other enclosed area, be sure vent exhaust gas directly to the outside through a leakproof exhaust hose.

FIRE AND EXPLOSION

WARNING

Gasoline is highly inflammable 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.

SAFETY INFORMATION

HYDRAULIC SAFETY

WARNING

Hydraulic oil under pressure could cause skin injection injury. If you are injured by hydraulic oil, get medical treatment 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.

BATTERY SAFETY

CAUTION

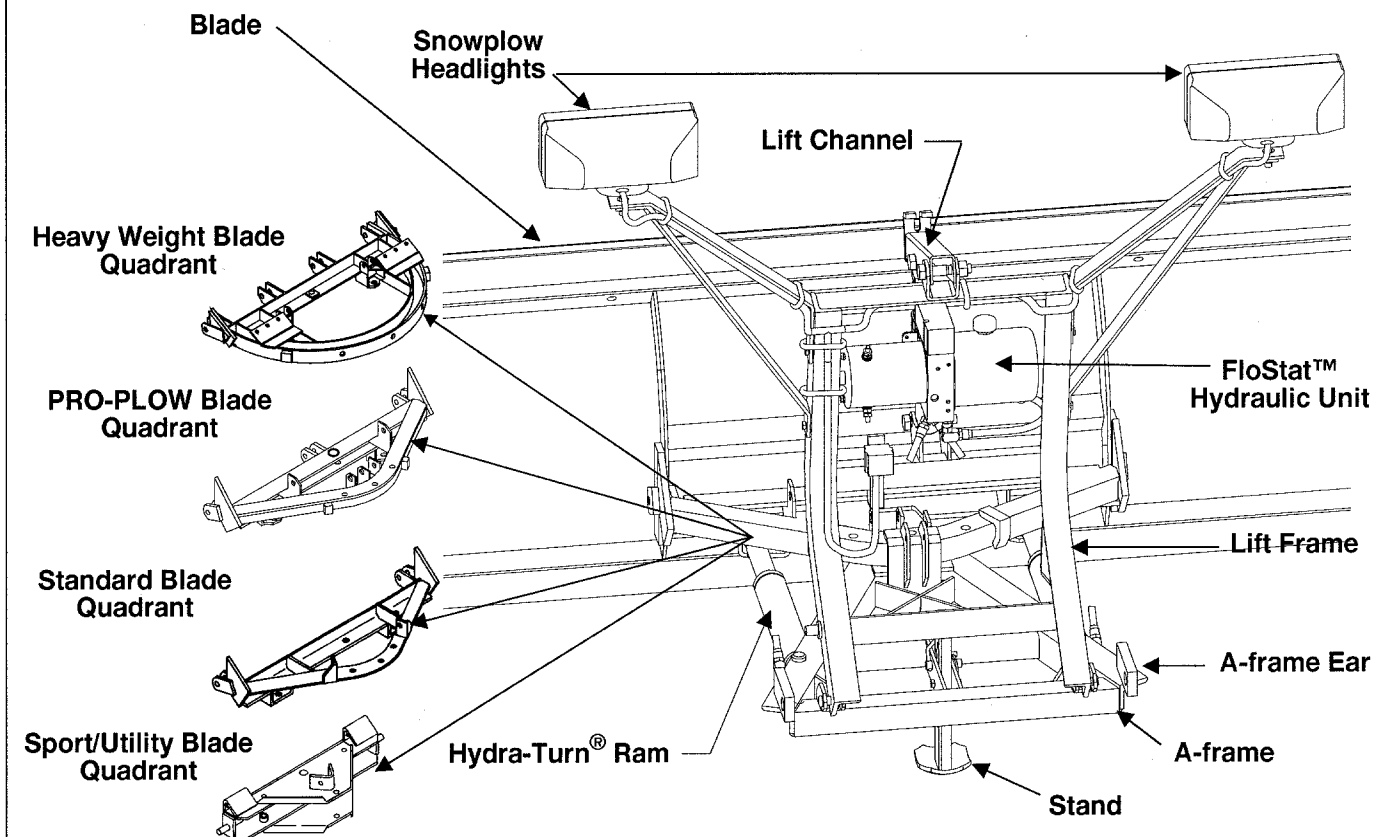
Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

Batteries contain sulfuric acid which burns skin, eyes and clothing.

Disconnect the battery before removing or replacing any electrical components.

GETTING TO KNOW YOUR SNOWPLOW

UniMount[®] Snowplow



UniMount Snowplow

A UniMount snowplow consists of all the components that are readily removable from the vehicle as a unit. This includes the blade, quadrant, A-frame, lift frame, stand, hydraulic unit, and snowplow headlights.

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

Blade

WESTERN[®] snowplows with steel blades are constructed of heavy gauge steel. To increase rigidity and strength, the blade is reinforced with several vertical ribs. The top edge is 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. The blade comes equipped with a rubber snow deflector.

The exclusive Roll-Action[™] blade is designed to roll snow ahead and to the side instead of just pushing snow. This action means you can move more snow and move it faster using less power, saving fuel and reducing wear and tear on both the vehicle and the snowplow.

The blade has a replaceable high-carbon steel cutting edge bolted to the bottom. This cutting edge is reversible, side-to-side, to equalize wear (except sport/utility snowplows). Replace when it is worn to the bottom edge of the blade. (See the Maintenance section.)

GETTING TO KNOW YOUR SNOWPLOW

The blade also features large, adjustable disc-type skid shoes. These rotate 360° for longer wear and better blade flotation over all surfaces. For severe service, heavy-duty disc shoes are available from your local Western Products outlet. Heavy-duty disc shoes are standard on PRO-PLOW and Heavy Weight snowplows.

Your new blade's steel components are protected with a PRO-GUARD™ coating—a baked-on powder finish.

Blade guides with replaceable flags are furnished with your complete snowplow. These help improve operator visibility and blade control.

A-Frame, Quadrant and Lift Frame

The quadrant is attached to the back of the blade with bolts, locknuts, and heavy-duty trip springs. 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 Regular Maintenance and Adjustments 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. Heavy 1" diameter hitch pins secure the A-frame ears to the vehicle mount. These hitch pins cannot be bent and will not shear in normal operation. This provides a solid connection.

The lift frame is hinged to the rear angle of the A-frame with clevis pins. The hydraulic unit is mounted on the front of the lift frame. The hoses remain connected to the hydraulic unit and the Hydra-Turn® rams. The snowplow headlights are also attached to the lift frame.

Snowplow Headlights

The headlights include a set of rectangular, dual-beam, halogen headlamps plus combination park and turn signals.

A patented pre-wired harness with plug-in connectors requires no headlamp wire splicing. The headlights conform to federal safety standards.

Connecting the snowplow plugs when mounting the snowplow will automatically switch the vehicle headlights to the snowplow headlights when they are in the ON position.

Disconnecting the snowplow plugs when removing the snowplow will automatically switch the snowplow headlights to vehicle headlights when they are in the ON position.

▲ WARNING

Before traveling, position the blade so it does not block headlight beam. Do not change the blade position while traveling.

Replacement 2E1 sealed beam headlamps are available through your local Western Products outlet.

Blade Accessories—Optional

Snow Deflector

The optional snow deflector, available in poly or reinforced rubber, keeps snow off the windshield and away from the radiator. The deflector improves the Roll-Action™ feature and increases snowplow efficiency. The snow deflector is standard on poly snowplows, but is not available for sport/utility blades.

Dolly Wheels

The optional dolly wheels provide easy snowplow maneuvering on any hard surface and simplify snowplow positioning for hook-up. Dolly wheels are standard for the heavy weight blade and are available as an accessory for the PRO-PLOW and Poly PRO-PLOW snowplows.

Continued on next page.

GETTING TO KNOW YOUR SNOWPLOW

Rubber Cutting Edge

The rubber cutting edge 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. The rubber cutting edge is available for all snowplows, except the sport/utility blade.

Vehicle Mount

Western has designed custom mounts for most vehicles. Due to differences between 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.

It has two pinned link arms (normally attached to the mount). The link arms attach to two studs on the lift frame when the snowplow assembly is attached to the vehicle. See Figure 1.

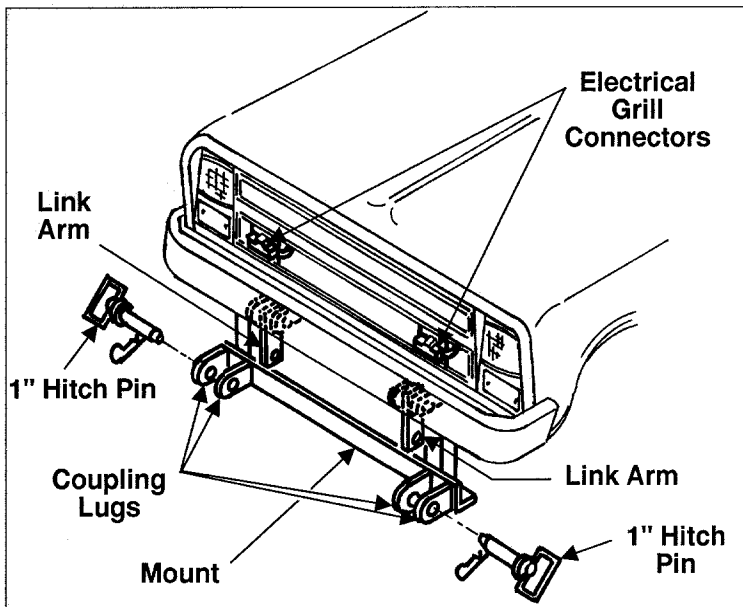


Figure 1

Hydraulic Power

Western's Solenoid FloStat™ system provides a fast and uniform speed for lifting and angling. See Figure 2.

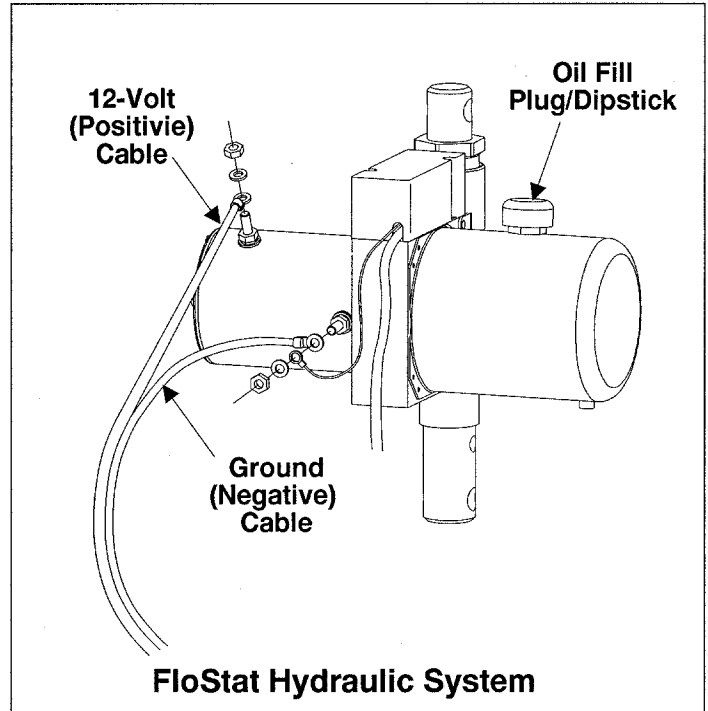


Figure 2

The system raises the blade in 2 seconds and angles side to side in less than 4 seconds. The heavy weight system angles side to side in 8 seconds.

For fluid type and filling instructions, see System Capacity.

GETTING TO KNOW YOUR SNOWPLOW

Solenoid Control

The solenoid control is electrically powered through the ignition (key) switch of your vehicle and is protected by a replaceable 6-amp in-line fuse. The ON/OFF switch allows you to turn off the control and prevent blade movement even when the ignition is on. See Figure 3.

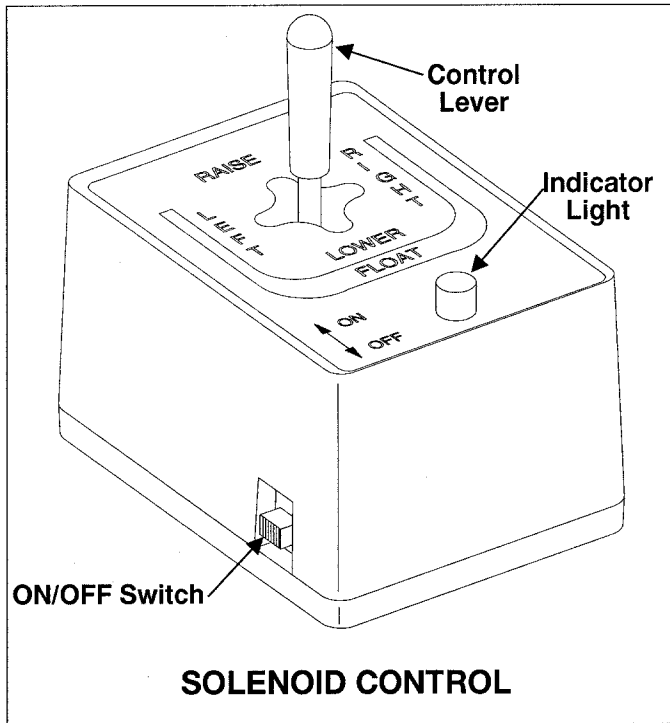


Figure 3

Hydra-Turn® Angling

Hydra-Turn angling gives you full control of the snowplow from within the cab of the vehicle—you will never have to get out in the snow to change the angle of the blade. Two single-acting hydraulic rams hold the blade at the desired angle. The rams are operated by the solenoid control.

The solenoid FloStat™ valve manifold has two relief valves built in to prevent damage to the blade or vehicle if obstacles are hit. When the force against the blade causes pressure in an extended ram to exceed set limits, the cushion valve opens allowing oil to escape and the ram plunger retracts. See Figure 4.

⚠ 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.

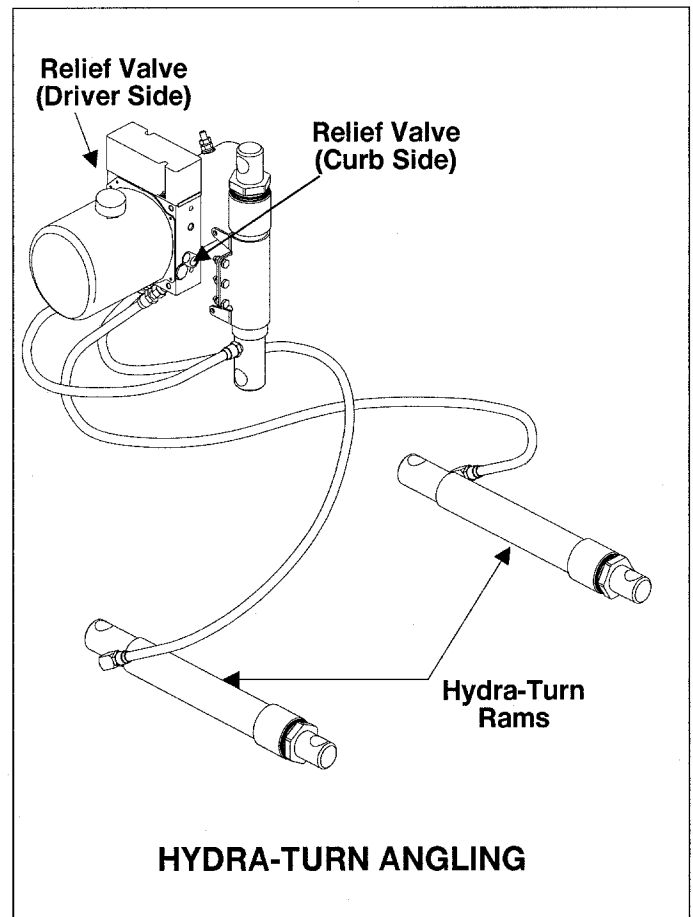


Figure 4

VEHICLE APPLICATION INFORMATION

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 front and rear weight distribution ratio. In some cases, rear ballast may be required to comply with these requirements. See Ballast Requirements section.
- Available capacity for the snowplow equipment is based on a representative vehicle equipped with options commonly used for snowplowing and with 300 lb. of front seat occupant weight.
- In some cases there may be additional limitations and requirements such as special vehicle options and recommendations, or airbags/lift kits.
- Installation, modification, and addition of accessories must comply with published Western Products recommendations and instructions. Available capacity decreases as the vehicle is loaded with cargo or other truck equipment or snowplow accessories are installed.
- If there is uncertainty as to whether available capacity exists, the actual vehicle as configured must be weighed.

Ballast Requirements

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

If ballast is required, it is important that it be secured properly behind the rear axle. A ballast retainer kit is available from Western Products, PN 62849.

NOTE: The ballast retainer kit is for plow vehicles requiring ballast in the bed of the truck. See your Western Products outlet for the correct amount of ballast requirement. With this retainer, subtract 50 lb. for the weight of the retainer. Sand bags are recommended for ballast weight. See Figure 5 for ballast retainer example.

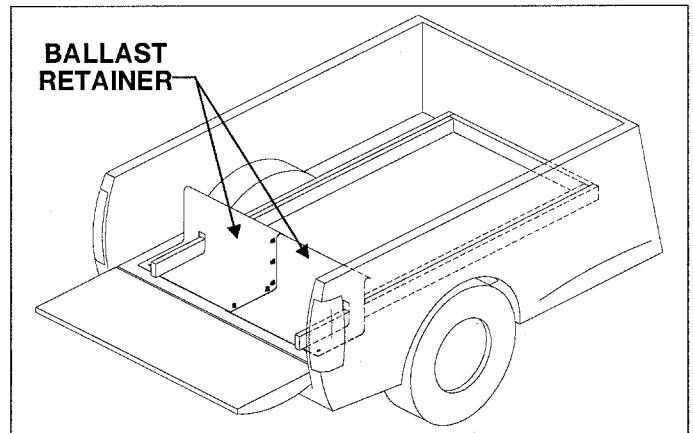


Figure 5

CAUTION

For more information, see your Western outlet for any questions on snowplow applications or recommendations.

MOUNTING SNOWPLOW TO VEHICLE

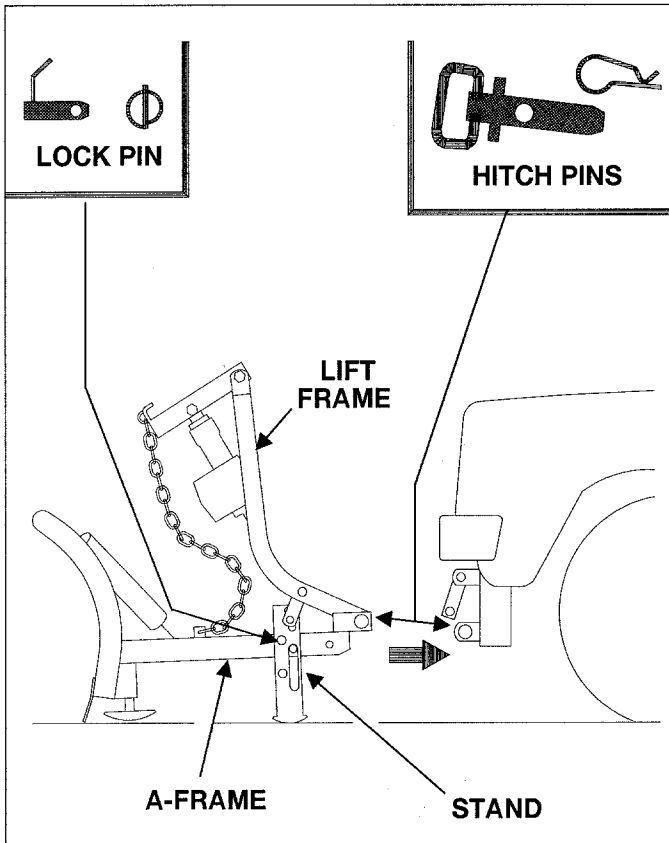


Figure 6

⚠ WARNING

To avoid personal injury, follow steps in sequence.

⚠ WARNING

Inspect snowplow components and bolts for wear or damage when mounting or removing the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

⚠ WARNING

Do not put finger(s) in A-frame ear or coupling lug holes to check alignment. Personal injury could occur if the snowplow moves.

See Figure 6 for the steps below.

1. Remove the electrical covers.
2. Position the snowplow close to the vehicle.

3. Pull the lock pin to unlock the stand from the A-frame.
4. Rotate the lift frame toward the vehicle to align the hitch pin holes.

NOTE: Adequate chain slack is necessary for connecting pin hole alignment.

5. Attach the A-frame to the vehicle using two hitch pins.

See Figure 7 for the steps below.

1. Rotate the lift frame towards the vehicle and swing the link arm up to position the link arm hole over the lift frame stud.

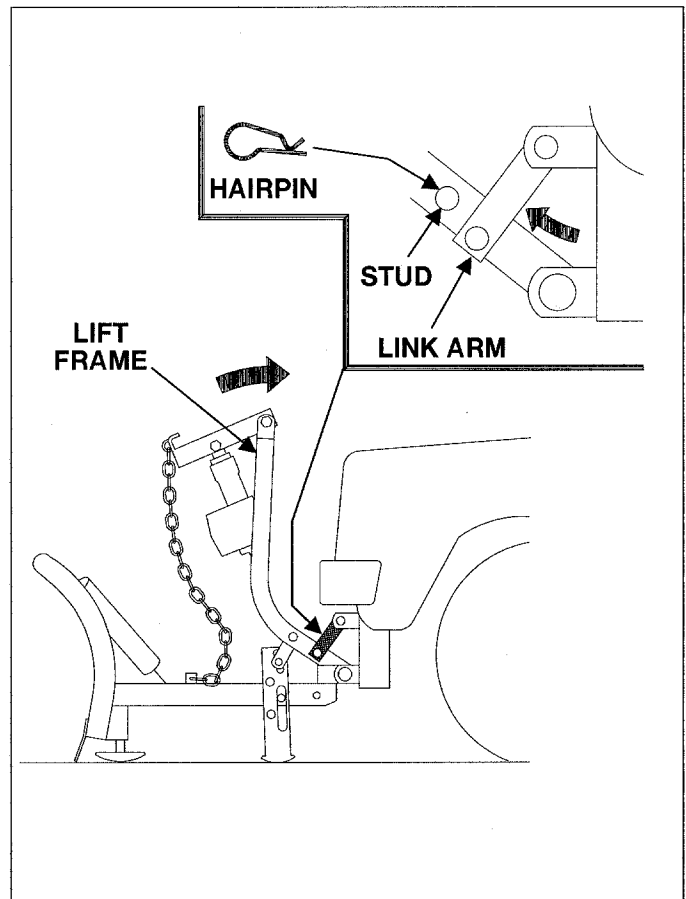


Figure 7

2. Slide the link arm onto the stud.
3. Install the hairpin onto the stud.
4. Repeat steps 1-3 to the other side.

Continued on next page.

MOUNTING SNOWPLOW TO VEHICLE

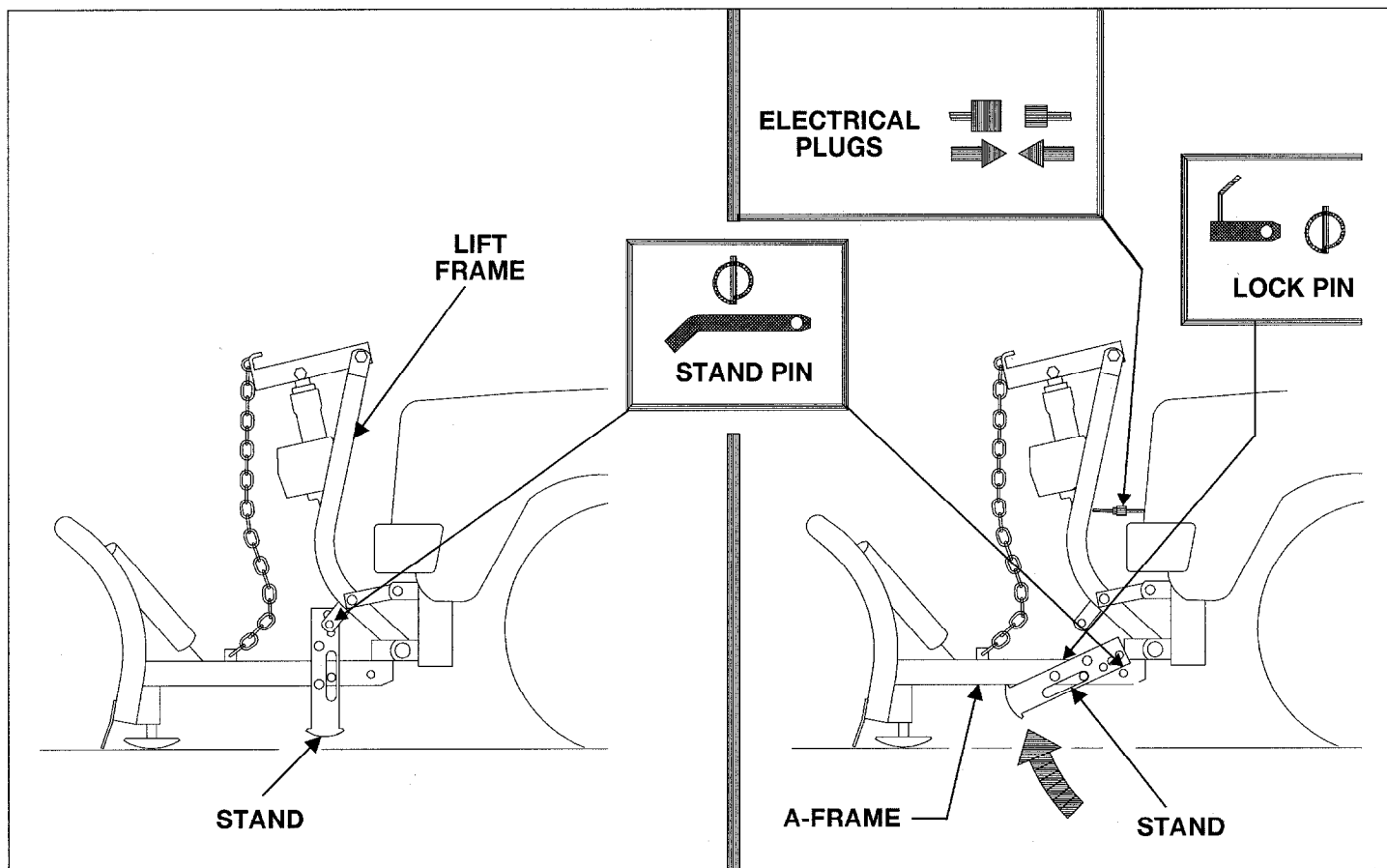


Figure 8

Figure 9

⚠ WARNING

Keep 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.

See Figure 8 for the step below.

Pull the stand pin to release the stand from the lift frame.

NOTE: Use dielectric grease to prevent corrosion on all electrical connections. Fill receptacles and lightly coat ring terminals and blades before assembly.

See Figure 9 for the steps below.

1. Rotate the stand to the storage position.
2. Use the stand pin and the lock pin to attach the stand to the A-frame.
3. Connect the electrical plugs.

OPERATION

Snowplow Control

Turn the vehicle ignition (key) switch to the ON or the ACCESSORY position.

Move the control ON/OFF switch to the ON position. The control indicator light (red) should light whenever the control ON/OFF switch and the ignition (key) switch are both turned on. See Figure 10.

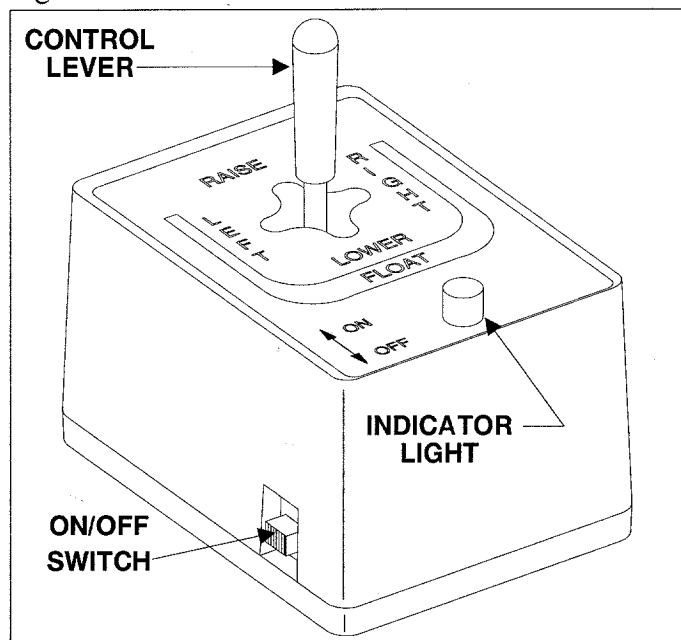


Figure 10

RAISE

Move the control lever forward to raise the blade.

LOWER (Float)

Move the control lever backward to lower the blade.

Blade FLOAT

Blade float allows the blade to move up and down to follow the contour of the surface being plowed.

Moving the control lever to LOWER will automatically set control to FLOAT position (even when the lever returns to the neutral position). To cancel float, move the control lever to RAISE.

Turning off the control ON/OFF switch or the vehicle ignition (key) switch will also cancel float. Angling LEFT or RIGHT does not cancel float.

Angle LEFT

Move the control lever to LEFT to angle the blade to the left. Hold the control lever here until the blade has reached the desired position.

Angle RIGHT

Move the control lever to RIGHT to angle the blade to the right. Hold the control lever here until the blade has reached the desired position.

Lock Blade in Position

With the control lever in the neutral position, turn the control ON/OFF switch to OFF. The blade is now locked and cannot be accidentally moved.

⚠ WARNING

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

⚠ CAUTION

DO NOT hold solenoid control lever in RAISE, angle LEFT or angle RIGHT position for more than 2 seconds after blade has reached desired position. To do so increases battery drain and could result in motor burn-out.

OPERATION

Headlight Check

With both snowplow plugs connected, check the operation of vehicle and snowplow headlights. See below:

- Parking Lights—Both vehicle and snowplow parking lights should be on.
- Right Turn Signal—Both vehicle and snowplow right turn signal lights should flash.
- Left Turn Signal—Both vehicle and snowplow left turn signal lights should flash.

With the vehicle headlight switch in the ON position, connecting and disconnecting either snowplow plug should switch between the vehicle and the snowplow headlights as follows:

- Snowplow plug is DISCONNECTED—Vehicle headlights should light; snowplow headlights should not light.
- Snowplow plug is CONNECTED—Snowplow headlights should light; vehicle headlights should not light.

Aim the snowplow headlights with the snowplow mounted and raised in the travel position. Aim the vehicle headlights with the snowplow removed from the vehicle.

Parking with Snowplow Attached

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

WARNING

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

Towing Disabled or Stuck Vehicles

DO NOT use any part of the snowplow assembly as an attachment point when retrieving, towing, or winching a disabled or stuck vehicle.

Transporting the Snowplow

NOTE: These instructions are for driving short distances to and from plowing jobs. For long trips, remove the snowplow from the front of the vehicle.

CAUTION

Rear ballast may be required to comply with vehicle GVWR and GAWR. See Vehicle Application Information.

1. Raise the blade.
2. Adjust the blade height for maximum snowplow light illumination.

WARNING

Your vehicle must be equipped with snowplow headlamps and directional lights. Verify the snowplow headlamps are operating properly before traveling.

3. Adjust the blade to the straight position.

CAUTION

Before traveling, position the blade so it does not block the headlight beams. Do not change the blade position while traveling.

4. Move the solenoid control ON/OFF switch to OFF to lock the blade in place.

CAUTION

Transport speeds should not exceed 45 MPH. Reduce speed under adverse travel conditions.

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

OPERATION

Plowing Snow

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

General Instructions

- Before plowing, make sure 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.

CAUTION

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

WARNING

Always wear a seatbelt when plowing snow. Hidden obstructions could cause the vehicle to stop suddenly resulting in personal injury.

Plow during the storm rather than letting snow accumulate.

- Do not exceed 10 mph (16 kph) when plowing snow.
- When stacking snow, begin raising the blade as you come close to the stack. This will let the blade and its load ride up onto the stack

CAUTION

Never pile snow with the blade angled more than halfway. This could damage the snowplow or the vehicle bumper.

Special Snow Conditions

Hard-Packed Snow

- Raise the disc shoes until the cutting edge comes into direct contact with the pavement. See Regular Maintenance and Adjustments.
- Use the lowest gear to place maximum power behind the cutting edge.

NOTE: An angled blade is more effective to remove hard-packed snow.

Deep Snow

- Shear off top layers by plowing with the blade raised 3 to 4 inches for the initial pass.
- 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" snow—plow with entire blade width;

9" snow—plow with 3/4 blade; and

12" snow—plow with 1/2 blade.

Experience and “feel” are the best guides.

- When plowing deep snow, be sure to keep vehicle moving.
- Secure ballast behind rear wheels for better traction. (See Ballast Requirements) Do not exceed vehicle's GVWR and GAWR.
- Use tire chains, where legal, for increased traction.

OPERATION

Clearing Driveways

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

NOTE: If the building is at the end of the driveway, plow up to within a vehicle length of the building. Then push as much snow as possible off driveway.

3. With a raised, straight blade, drive through remaining snow to building.
4. Drop blade and “backdrag” snow away from building door at least one vehicle length.
5. Repeat if necessary.
6. Back the vehicle to the building door and plow forward toward the street removing the remaining snow from the driveway. Check municipal ordinances for disposal of snow.

Clearing Parking Lots

Clear areas in front of the buildings first. With the blade raised, drive up to the building. Drop the blade and “backdrag” snow away from the building. When snow is clear of the buildings, turn the vehicle around and push snow away from the buildings towards the outer edges of the lot.

Plow a single path down the center in the lengthwise direction.

Angle the snowplow towards the long sides, and plow successive strips lengthwise until the area is cleared and snow is “stacked” around the outer edges.

If snow is too deep to clear in the above manner, clear main traffic lanes as much as possible.

SNOWPLOW REMOVAL

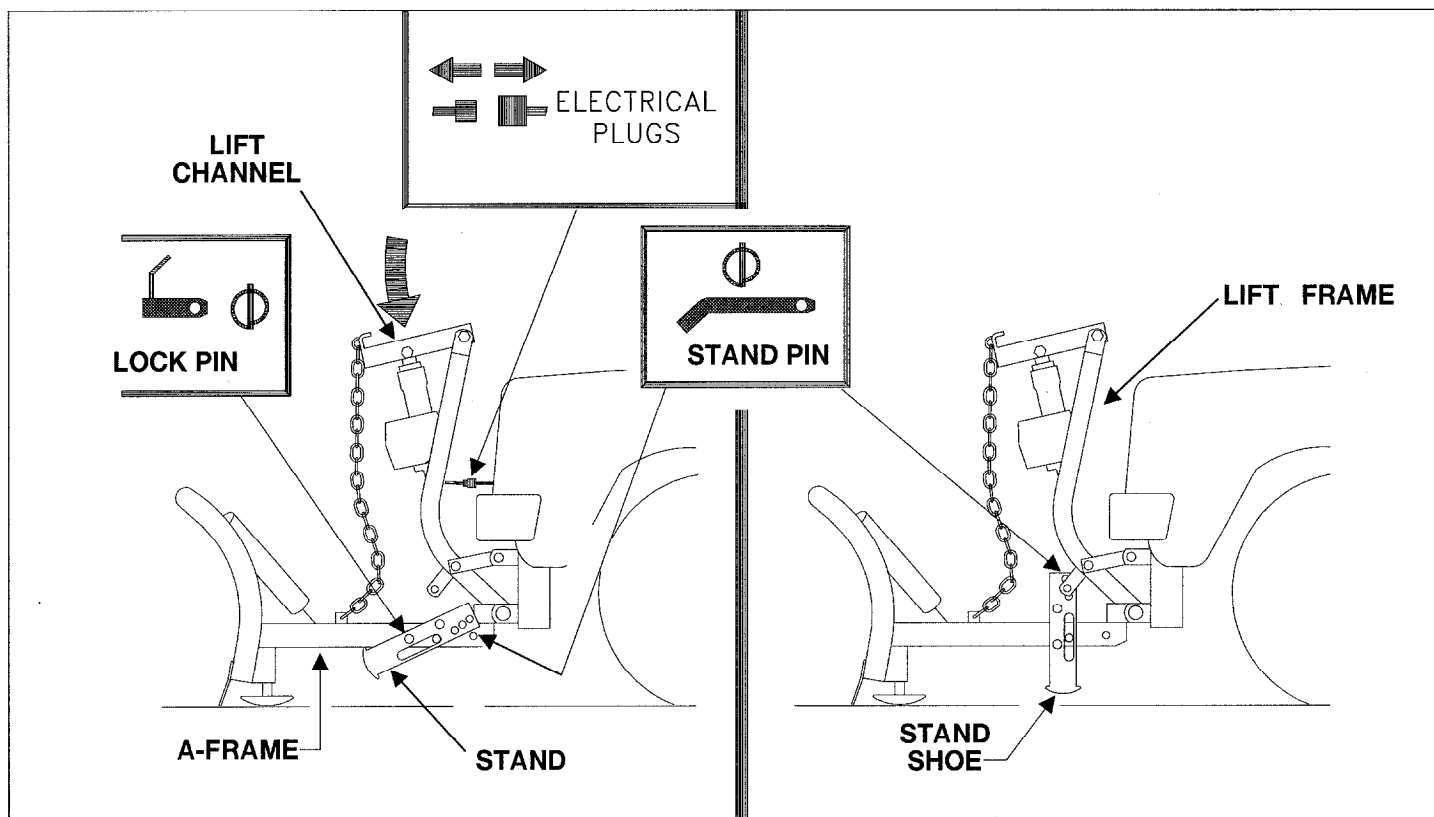


Figure 11

Figure 12

⚠ WARNING

To avoid personal injury, follow steps in sequence.

⚠ WARNING

Stand must be lowered and pinned to the lift frame before removing link arms. Moving or falling assemblies could cause personal injury.

⚠ WARNING

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

⚠ WARNING

Inspect snowplow components and bolts for wear or damage when mounting or removing the snowplow. Worn or damaged components could allow the snowplow to drop unexpectedly.

See Figure 11 for the steps below.

1. Adjust blade to straight position.
2. Move the control lever to LOWER.
3. Push the lift channel down.
4. Disconnect the electrical plugs.
5. Pull the stand pin and the lock pin to release the stand from the A-frame.

During the off season, the solenoid control and bracket can be removed from the dash/floor bracket. Disconnect the molded connector in the cab and remove the four mounting screws. Store the control and the bracket in the glovebox of the vehicle.

See Figure 12 for the step below.

Place the stand shoe on the ground. If necessary, raise the stand slightly to align one of the holes in the stand with the hole in the lift frame. Insert the stand pin to attach the stand to the lift frame.

SNOWPLOW REMOVAL

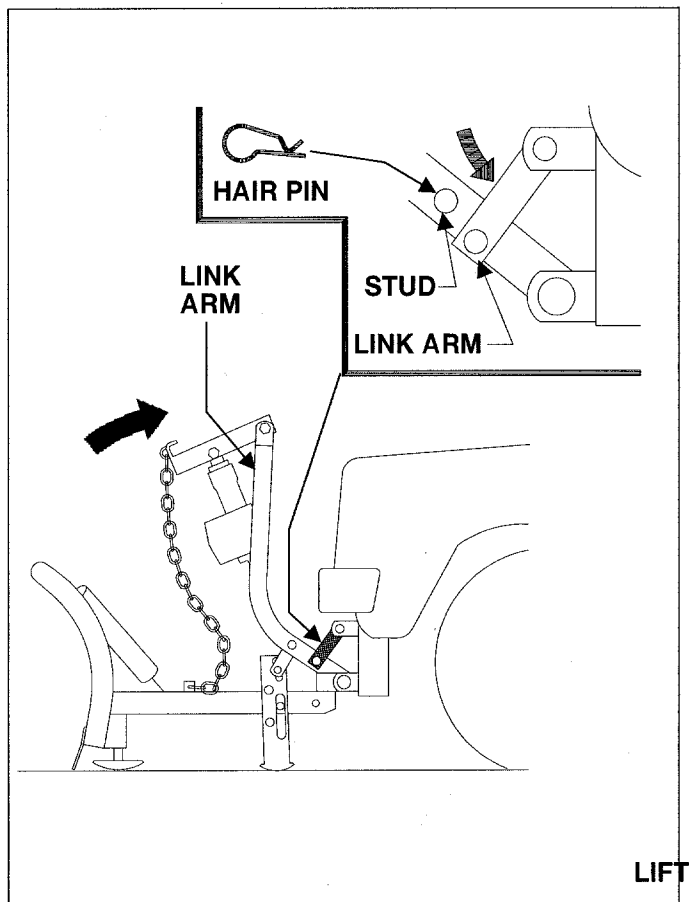


Figure 13

See Figure 13 for the steps below.

1. Remove the hairpin from the lift frame stud.
2. Push the lift frame towards the vehicle to relieve tension on the link arm and slide the link arm off the stud.
3. Repeat steps 1 and 2 to the other side.

See Figure 14 for the steps below.

NOTE: Move the lift frame to relieve hitch pin tension.

1. Pull both hitch pins to release the A-frame from the vehicle.
2. Rotate the lift frame towards the blade.
3. Use the lock pin to lock the stand to the A-frame.
4. Move the snowplow away from the vehicle.
5. Install the electrical covers.

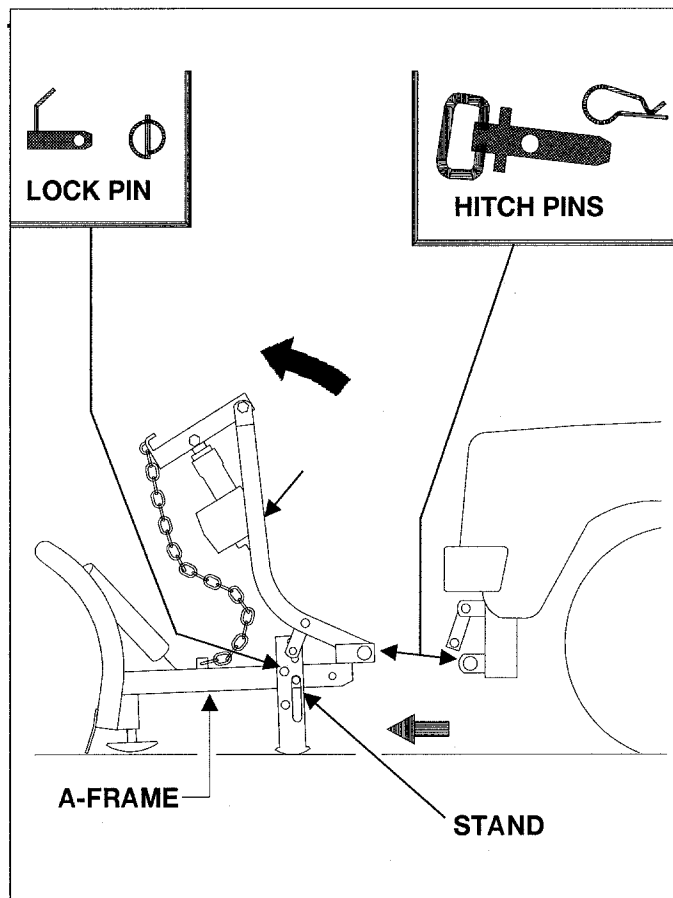


Figure 14

6. Insert the snowplow plugs into the boot.

NOTE: Use dielectric grease to prevent corrosion on all electrical connections. Fill receptacles and lightly coat ring terminals and blades before assembly.

NOTE: For long-term storage, grease exposed chrome surfaces of the Hydra-Turn® rams to prevent rust.

CAUTION

To prevent the shock absorber of the PRO-PLOW A-frame from collecting water, store snowplow with A-frame in a horizontal position.

MAINTENANCE

Off-Season Storage

⚠ WARNING

Always lower the snowplow to the ground when parked to prevent personal injuries.

⚠ WARNING

Remove blade assembly before placing the vehicle on a hoist. Failure to do this could result in personal injury.

Before storing, use this checklist to ensure your equipment is ready for the next plowing season.

- ☐ Inspect hydraulic system for leaks and cracked or damaged hoses. Change the oil. (See Annual Fluid Change)
- ☐ Inspect all parts of the snowplow and the vehicle mount system for worn or broken parts. Replace as necessary.
- ☐ Disassemble, clean, and apply dielectric grease to all electrical connections, especially grounds. Lubricate grill connectors and snowplow plugs with dielectric grease (P.N. 56099 or 49326).
- ☐ Plug plow harness and cable assembly into cable boot. Install plug cover on vehicle harness and cable assembly.
- ☐ Check the snowplow vehicle mount and tighten any loose fasteners.
- ☐ Repaint mountings with rust resistant, high-grade enamel. Touch up the blade with WESTERN® red paint available in aerosol or quart can.
- ☐ Check the snowplow headlights for proper operation.
- ☐ Store snowplow in a building or cover with a waterproof tarp.

NOTE: Change fluid at the end of each plowing season. Failure to do this could result in condensation build-up.

NOTE: For long-term storage, grease exposed chrome surfaces of the Hydra-Turn® rams to prevent rust.

Regular Maintenance and Adjustments

Your WESTERN snowplow is designed for rugged, dependable service however, it needs a certain amount of regular care and maintenance. Check the following, before and frequently, during the plowing season:

NOTE: Use dielectric grease to prevent corrosion on all electrical connections. Fill receptacles and lightly coat ring terminals and blades before assembly.

- Make sure all fasteners, mounting bolts, and hydraulic connections are tight.
- Make sure all electrical connections including grounds are clean, tight, free of rust or corrosion, and are coated with dielectric grease.
- Check all plugs and seals for oil leaks. Repair as necessary.
- Disc Shoe Adjustment
Recommended shoe adjustments:
 - *Gravel surfaces*—bottom surface of shoe should be 1/4" to 1/2" below cutting edge.
 - *Hard surfaces* (concrete or asphalt) bottom surface of shoe should be even with cutting edge.

Continued on next page.

MAINTENANCE

Adjustment Procedure

- Raise the blade and place on blocking.
- Remove the linchpin and slide the shoe down out of the bracket.
- Remove one or more washers from the shoe stem and reinstall the shoe into the bracket.
- Place the removed washers onto the shoe stem above the bracket.
- Install the linchpin.
- **Cutting Edge**
To equalize wear, the cutting edge can be reversed. The sport/utility cutting edge is not reversible. Replace the cutting edge when it is worn to the bottom of the blade.
 - Raise the blade and place blocking under the A-frame.
 - Remove the cutting edge and turn end for end.
 - Reinstall.
- **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).
 - Tighten the adjusting nut (nut furthest 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.
 - Tighten locknut.

CAUTION

Overtightening springs will not increase blade trip force and can damage the springs.

- **PRO-GUARD™ Blade Finish**

If the PRO-GUARD powder-coated finish is nicked or scratched, repair the blade surface with WESTERN® red paint in aerosol or quart can.

- **Black Iron Mount Parts—Powder Coated or Painted**

Clean and repaint parts as necessary.

Hydraulic System

Oil Level

With the snowplow assembly mounted to the vehicle and the lift channel pushed all the way down, remove the reservoir fill plug on top of the reservoir. (See Figure 15.) Fill the reservoir through the reservoir fill hole until the fluid reaches the full mark on the fill plug dipstick. Replace plug. For fluid recommendations, see step 3 of Annual Fluid Change.

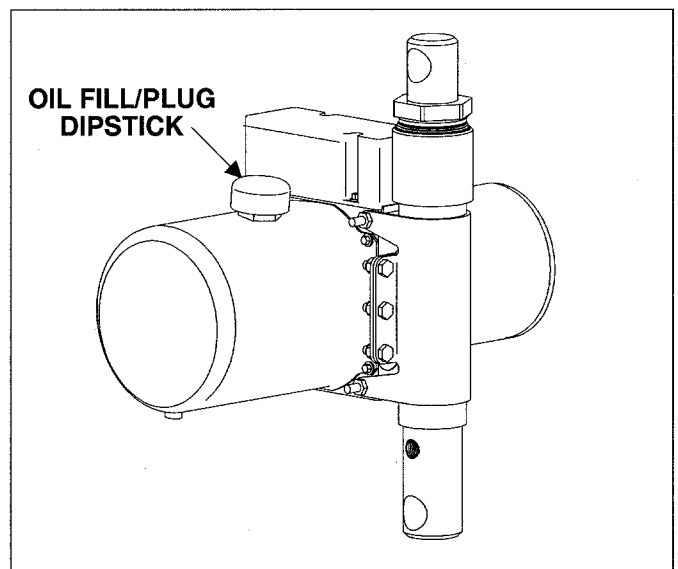


Figure 15

MAINTENANCE

Annual Fluid Change

1. Remove the drain plug located at the bottom of the reservoir. See Figure 15.
2. Completely drain the hydraulic reservoir.
3. Refill through the fill hole with new fluid:
 - WESTERN® High Performance Fluid to -25° F (-32° C) (P.N. 49311—quart and P.N. 49330—gallon)
 - Automatic transmission fluid (ATF) Dexron III to -10° F (-23° C)
 - Texaco 1537 Aircraft Hydraulic Oil for temperatures below -25° F (-32° C).

CAUTION

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

System Capacity

Flostat™ Hydraulic Unit

Reservoir — 1-5/8 quarts.

FloStat Hydraulic Unit Reservoir (1-1/2" Ram)
with 6" Hydra-Turn Rams®—2-1/8 quarts.

FloStat Hydraulic Unit Reservoir (1-1/2" Ram)
with 10" Hydra-Turn Rams—2-1/2 quarts.

Flostat Hydraulic Unit Reservoir (1-1/2" Ram) with
16" Hydra-Turn Rams—2-3/4 quarts.

Packing Nut Adjustment

Periodically verify the lift ram and the Hydra-Turn ram packing nuts are tight. See Figure 16.

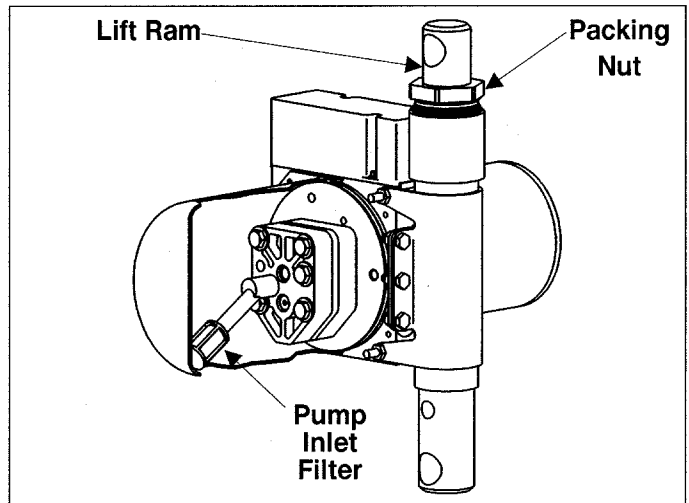


Figure 16

If packing nuts are loose or leakage appears while lifting or angling the snowplow, tighten 1/4 turn maximum after you feel the packing nut contact the packing. It is necessary that a light film of oil be present on the rod of the cylinders to properly lubricate the packing set.

CAUTION

Do not overtighten the packing nut. Overtightening affects operation and the life of the packing.

Packings not used for a period of time may show signs of oil weep. This will usually stop after use.

Pump Inlet Filter Screen

Clean the pump inlet filter screen whenever the pump is removed. See Figure 16.

If the screen is damaged, replace it. Torque die-cast pump mounting cap screws to 150-160 in-lb.

MAINTENANCE

Blade Drop Speed Adjustment

The quill in the top of the valve manifold adjusts the blade drop speed. See Figure 17.

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.

NOTE: Turning the quill in too far will slow the raise time.

3. Stand clear of the blade when checking adjustment.

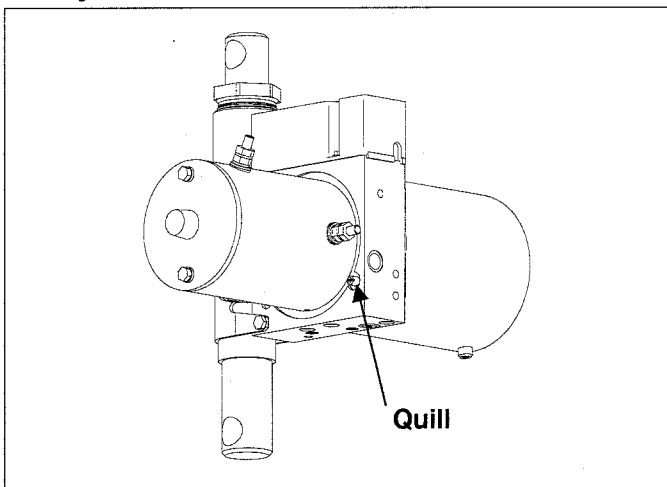


Figure 17

Emergency Parts

We suggest that you keep a WESTERN® Emergency Parts Kit (PN 49300) for UniMount® systems, and keep the following items in your vehicle for emergency use.

- 1 – 56134K Relay - Solenoid Hydraulic System
- 1 – Chain Fastener - See parts diagrams for the correct fastener for the type of snowplow and mount system on your vehicle. (Emergency Parts Kit contains PRO-PLOW chain bolt and locknut.)
- 1 – 93034K Stand Lock Pin 5/8" X 2" (Link Arm Style Only)
- 1 – 10" Adjustable Wrench
- 1 – Medium Screwdriver
- 1 – Pair of Pliers
- 1 – Quart of type of oil in your system

Always use Western Products designed and tested replacement parts.

TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTION
Motor does not run.	<ol style="list-style-type: none"> 1. No power to the motor relay. 2. No ground to the motor relay. 3. Motor relay does not operate. 4. Poor connections in main power cable. 5. Motor is worn or damaged. 6. Pump is seized. 	<ol style="list-style-type: none"> 1. Repair or replace wiring, cab control or harness fuse. 2. Repair wiring or connections. 3. Replace motor relay. 4. Clean and verify cable connections. 5. Repair or replace motor. 6. Replace pump.
Motor will not shut off.	<ol style="list-style-type: none"> 1. Motor relay is shorted. 2. Vehicle wiring harness has a short. 3. Cab control is malfunctioning. 	<ol style="list-style-type: none"> 1. Replace motor relay. 2. Repair the wiring. 3. Repair or replace cab control.
Motor operates, but plow raises slowly, partially, not at all, and/or angles instead.	<ol style="list-style-type: none"> 1. There is excess weight on the A-frame and quadrant. 2. Hydraulic fluid level is incorrect. 3. Lift ram packing nut is not adjusted properly. 4. Pump filter is clogged. 5. Pump relief pressure is low. 6. Pump and/or pump O-ring are damaged. 7. Motor rpm is low. 8. Vehicle battery is weak. 9. Cartridge valve coils are not activating properly. 10. Cartridge valves are contaminated or are sticking. 11. Cartridge valves are damaged. 	<ol style="list-style-type: none"> 1. Remove built-up snow and ice or after-market accessories (excess weight). 2. Fill with recommended fluid. 3. Adjust lift ram packing nut. 4. Clean or replace filter and flush and refill the system. 5. Adjust the pump relief screw. 6. Replace pump and/or pump O-ring. 7. Repair motor, electrical connections, or wiring. 8. Replace battery and check charging system. 9. Repair or replace coils, wiring, or cab control. 10. Clean or replace valve; Find the cause of contamination; Flush and refill system. 11. Replace cartridge valves.
Snowplow will not stay in RAISED position or lowers by itself.	<ol style="list-style-type: none"> 1. Cartridge valves are contaminated or are sticking. 2. Cartridge valves are damaged. 3. There are shorts or open connections in the wiring. 	<ol style="list-style-type: none"> 1. Clean or replace valves; Find the cause of contamination; Flush and refill system. 2. Replace cartridge valves. 3. Repair wiring.
Snowplow will not lower, lowers slowly, or will not float.	<ol style="list-style-type: none"> 1. Incorrect hydraulic fluid for the temperature. 2. Quill is adjusted in too far. 3. Lift ram packing nut is not adjusted properly. 4. Cartridge valve coils are not activating properly. 5. Cartridge valves are contaminated and are sticking. 6. Cartridge valves are damaged. 	<ol style="list-style-type: none"> 1. Use recommended oil. See Annual Fluid Change. 2. Turn quill out. 3. Loosen lift ram packing nut. 4. Repair or replace coils, wiring or cab control. 5. Clean or replace valves; Find the cause of contamination; Flush and refill system. 6. Replace cartridge valves.

TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTION
Motor operates properly, but blade will not angle or angles slowly.	<ol style="list-style-type: none"> 1. Incorrect hydraulic fluid for the temperature. 2. There is binding between A-frame and quadrant. 3. Angle cylinder packing nut is not adjusted properly. 4. Pump filter is clogged. 5. Pump relief pressure is low. 6. Pump and/or pump O-ring are damaged. 7. Motor rpm is low. 8. Cartridge valve coils are not activating properly. 9. Cartridge valves are contaminated or sticking. 	<ol style="list-style-type: none"> 1. Use recommended oil. See Annual Fluid Change. 2. Repair or replace damaged parts. 3. Loosen angle cylinder packing nut. 4. Clean or replace filter and flush and refill the system. 5. Adjust the pump relief screw. 6. Replace pump and/or pump O-ring. 7. Repair motor, electrical connections, or wiring. 8. Repair or replace coils, wiring, or cab control. 9. Clean or replace valves. Find the cause of contamination. Flush and refill system.
Motor operates properly, but plow angles wrong way, one way only, or raises instead.	<ol style="list-style-type: none"> 1. Angle cylinder hoses are reversed. 2. Cartridge valve coils are not activating properly. 3. Cartridge valves are contaminated or sticking. 	<ol style="list-style-type: none"> 1. Correct hose installation. 2. Repair or replace coils, wiring, or cab control. 3. Clean or replace valves. Find the cause of contamination. Flush and refill system.
Blade will not hold side-to-side position.	<ol style="list-style-type: none"> 1. Spool poppet valve is worn, damaged, or contaminated. 2. Angle cylinder relief valves are contaminated. 3. Angle cylinder relief valves are damaged, missing parts, or out of adjustment. 	<ol style="list-style-type: none"> 1. Clean or replace worn or damaged parts; Find the cause of contamination; Flush and refill system. 2. Clean and adjust cushion valves; Find cause of contamination; Flush and refill system. 3. Replace damaged or missing parts, or adjust cushion valves.
Oil leaks from hydraulic power unit.	<ol style="list-style-type: none"> 1. There is external damage to reservoir. 2. There are loose or damaged hoses or fittings. 3. Reservoir O-ring is damaged. 4. Lift ram packing nut is loose. 5. Lift ram packing is worn or damaged. 6. Motor seal is damaged. 7. Leaking seals or O-rings on valve 	<ol style="list-style-type: none"> 1. Repair or replace housing. 2. Tighten or replace hoses or fittings. 3. Replace base lug O-ring. 4. Tighten lift ram packing nut. 5. Replace packing. 6. Replace motor seal. 7. Replace leaking O-rings or seals.

TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTION
Oil leaks from angle cylinders.	<ol style="list-style-type: none"> 1. Angle ram packing nut is loose. 2. Angle ram packing is worn or damaged. 3. Hydraulic fittings or hoses are loose or damaged. 	<ol style="list-style-type: none"> 1. Tighten angle ram packing nut. 2. Replace packing. 3. Repair or replace hydraulic fittings or hoses.
Snowplow wire harness fuse blows.	<ol style="list-style-type: none"> 1. Motor relay is shorted. 2. There are shorts in the wiring. 	<ol style="list-style-type: none"> 1. Replace motor relay. 2. Repair the wiring.
Vehicle fuse blows.	<ol style="list-style-type: none"> 1. Circuit is overloaded. 2. There are shorts in the wiring. 	<ol style="list-style-type: none"> 1. Refer to vehicle's owner's manual for recommended after-market electrical application. 2. Repair the wiring.
There is excessive load on vehicle electrical system while using snowplow.	<ol style="list-style-type: none"> 1. Lift or angle cylinder packing nuts are not adjusted properly. 2. Quill is adjusted in too far. 3. Motor is worn or damaged. 4. Pump is binding or damaged. 5. Vehicle battery is weak. 6. Battery charging system is inefficient. 	<ol style="list-style-type: none"> 1. Tighten lift or angle cylinder packing nuts. 2. Adjust quill out. 3. Repair or replace motor. 4. Replace pump. 5. Install recommended battery. 6. Repair vehicle charging system.
Vehicle battery loses charge when snowplow is not being used.	<ol style="list-style-type: none"> 1. Battery is weak or worn out. 2. Electrical wiring installation is incorrect. 3. Wires are shorted or grounded. 	<ol style="list-style-type: none"> 1. Install recommended battery. 2. Review and correct wiring installation. 3. Check and repair the wiring.
Snowplow headlamps operate irregularly or not at all.	<ol style="list-style-type: none"> 1. Bulbs are burned out or corroded. 2. Wiring is incorrect and electrical connections are corroded. 3. Light relay(s) do not operate. 4. There are shorts or open wiring. 	<ol style="list-style-type: none"> 1. Replace bulbs. Clean the contacts. 2. Check and repair wiring. If electrical connections are corroded, clean connections. 3. Replace relay(s). 4. Check and repair wiring.
Vehicle headlights operate irregularly or not at all.	<ol style="list-style-type: none"> 1. Wiring is incorrect and electrical connections are corroded. 2. Light relay(s) do not operate. 3. There are shorts or open wiring. 4. DRL's Only: Parking brake is on. 5. DRL's Only: Power is interrupted. 	<ol style="list-style-type: none"> 1. Check and repair wiring. If electrical connections are corroded, clean connections. 2. Replace relay(s). 3. Check and repair wiring. 4. Release parking brake. 5. Turn light and/or ignition switch on and off to cycle the circuitry.

For further information regarding diagnosis and repair of your WESTERN® snowplow, refer to the UniMount® Mechanic's Guide (PN 62987) available from your Western Products outlet.



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