



Fisher Engineering

P.O. Box 529 Rockland, Maine 04841

**9825-1
9835
9840-2**

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Insta-Act® Hydraulic Unit Installation Instructions

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▲ CAUTION

Read this document before installing the snowplow.

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 damage to product or property.

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

SAFETY PRECAUTIONS

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

⚠ WARNING

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

⚠ WARNING

Remove blade assembly before placing vehicle on hoist.

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

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

⚠ CAUTION

Refer to the Kit Selection Guide for minimum vehicle recommendations and ballast requirements.

⚠ CAUTION

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.

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.
- 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.

FIRE AND EXPLOSION

⚠ WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on a vehicle. Keep all open flames away from gasoline tanks 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.

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.

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.

HYDRAULIC SAFETY

⚠ WARNING




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

TORQUE CHART

⚠ CAUTION

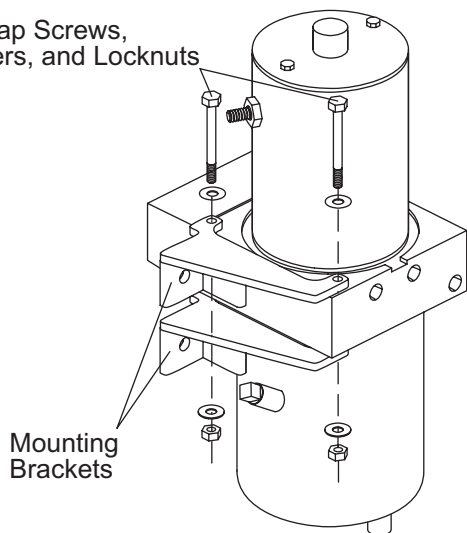
Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow including wearing proper safety equipment.

Recommended Fastener Torque Chart (Ft.-Lb.)			
Size	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	150	378	591
1-8	220	583	893
Metric Grade 8.8 (Ft.-Lb.)			
Size	Torque	Size	Torque
M 6	7	M 12	60
M 8	17	M 14	95
M 10	35	M 16	155
These torque values apply to fasteners except those noted in the instruction.			

ATTACH MOUNTING BRACKETS TO HYDRAULIC UNIT

1. Attach the mounting brackets to the valve block with two 1/4" x 3" cap screws, flat washers, and locknuts.

1/4" x 3" Cap Screws,
Flat Washers, and Locknuts

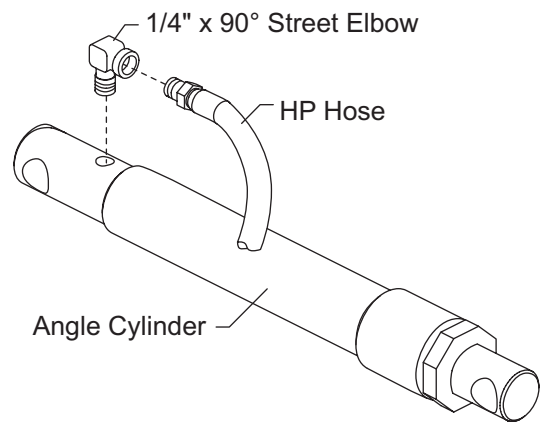
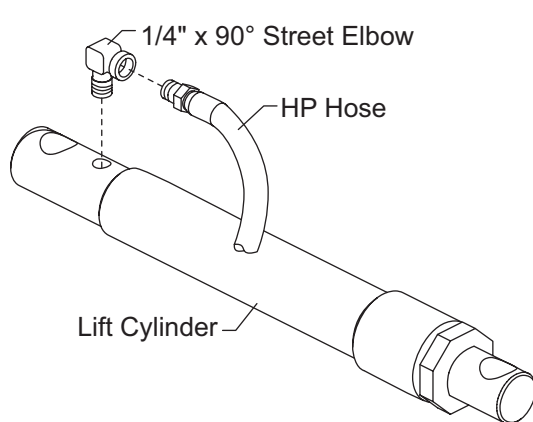
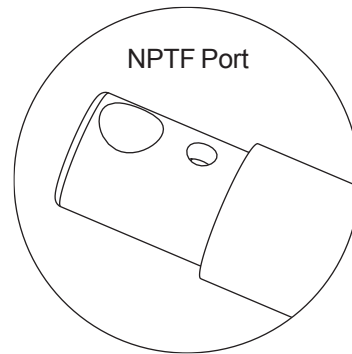
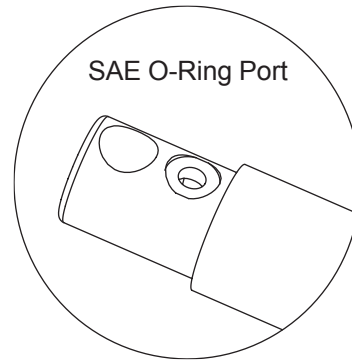


ATTACH HYDRAULIC FITTINGS TO CYLINDERS

Cylinders with NPTF Ports

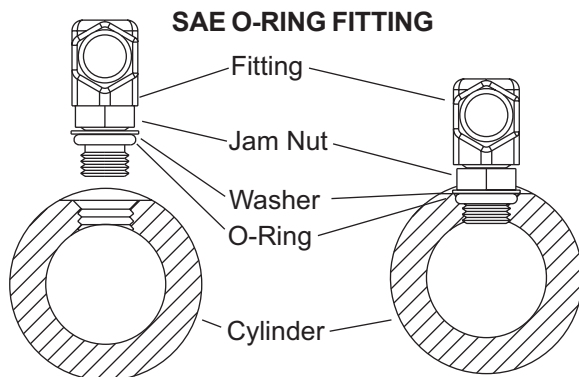
Do not use thread sealant/tape on hoses or fittings. This could damage product.

1. Before installing hydraulic fittings, identify whether the cylinder is equipped with NPTF or SAE O-ring ports. SAE O-ring ports can be easily identified by the flat machined area around the port. See illustration.
2. Remove the plugs from the angle cylinder ports. Install a 1/4" x 90° NPTF street elbow into each port so when the cylinders are mounted to the A-frame, the fittings face inward, forward, and point up slightly when using 1-1/2" x 12" and 2" x 16" cylinders and on top facing forward when using 1-1/2" x 10" cylinders.
3. Attach a 32" or 36" HP hose to the passenger-side cylinder and a 42" HP hose to the driver-side cylinder.
4. Remove the plug from the lift cylinder port. Install a 1/4" x 90° NPTF street elbow in the port.
5. Attach the 22" HP hose to the lift cylinder elbow.



Cylinders with SAE O-Ring Ports (9840-2 and 9825-1 Kits)

1. Turn the jam nut on the fitting as far back as possible.
2. Lubricate the O-ring with clean hydraulic oil. Remove the plug from the cylinder port.
3. Screw fitting into port by hand as far as it will go. The washer should contact port face and shoulder of the jam nut threads.
4. Unscrew fitting to proper position, no more than one full turn.
5. Use one wrench to hold the fitting body in position and tighten the jam nut with another wrench until the washer again contacts port face. Tighten 1/8 to 1/4 turn to lock fitting in place.



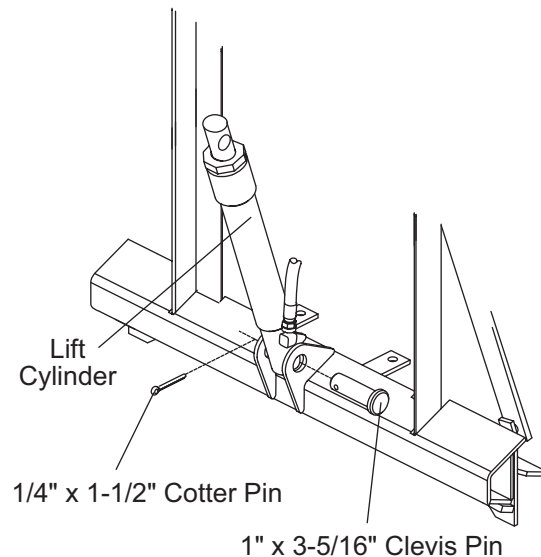
6. Attach the 22" HP hose to the lift cylinder elbow.
7. Attach 32" or 36" HP hose to the passenger-side cylinder. Attach the 42" hose to the driver-side cylinder.
8. Tighten hose on to the fitting until finger tight.

⚠ CAUTION
Overtightening the swivel nut will damage the hydraulic hose.

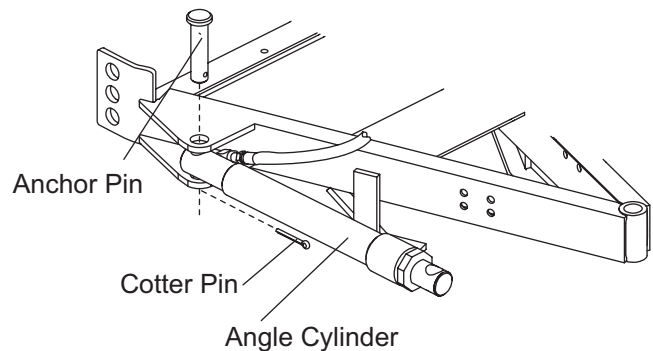
9. Hold the hose from turning and tighten the hose swivel nut 1/4 turn.

ATTACHING LIFT AND ANGLE CYLINDERS

1. Attach the lift cylinder to the headgear with a 1" x 3-5/16" clevis pin and 1/4" x 1-1/2" cotter pin.

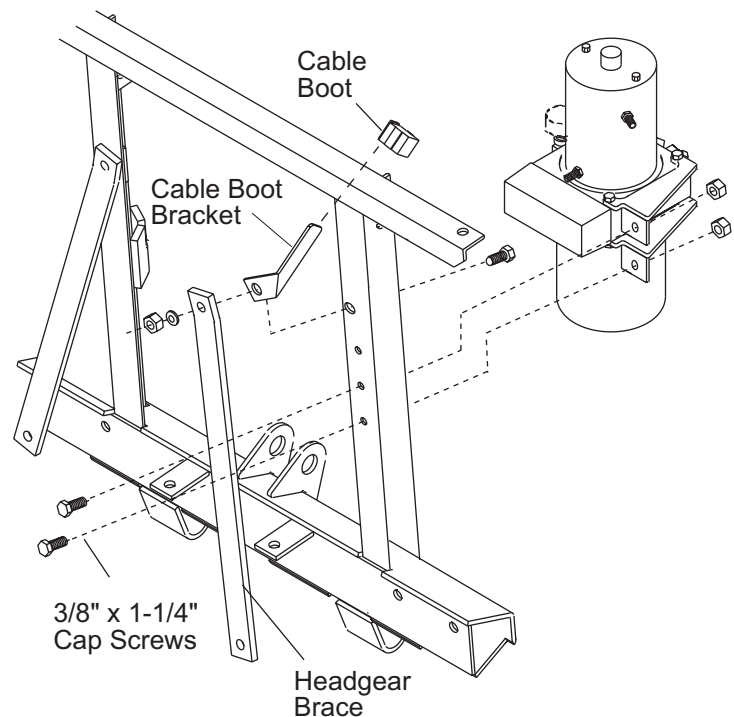


2. Attach the angle cylinders to the A-frame with the two anchor pins and cotter pins.



MOUNTING HYDRAULIC UNIT

1. Remove the top bolt from the passenger-side headgear brace and swing out of the way.
2. Bolt the Insta-Act® hydraulic unit to the headgear using two 3/8" x 1-1/4" cap screws and locknuts. Use the bottom two holes if three holes are available.
3. Install the cable boot bracket and cable boot as shown.
4. Attach and tighten the headgear brace.
5. Remove the plugs from the angle ports, lift port and the 3/8" NPTF plug from the breather port. Screw 45° elbows into the angle ports. Screw a 90° elbow into the lift port and a 3/8" x 90° street elbow into the breather port as shown.

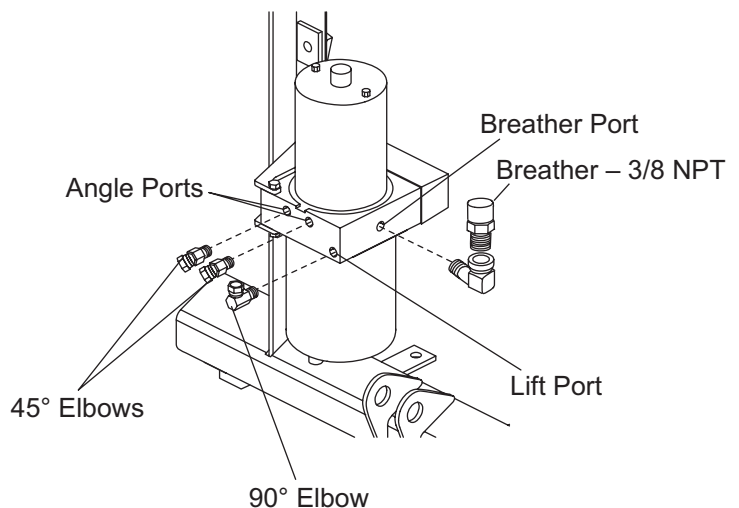


For units with SAE O-Ring Ports only (steps 5–9):

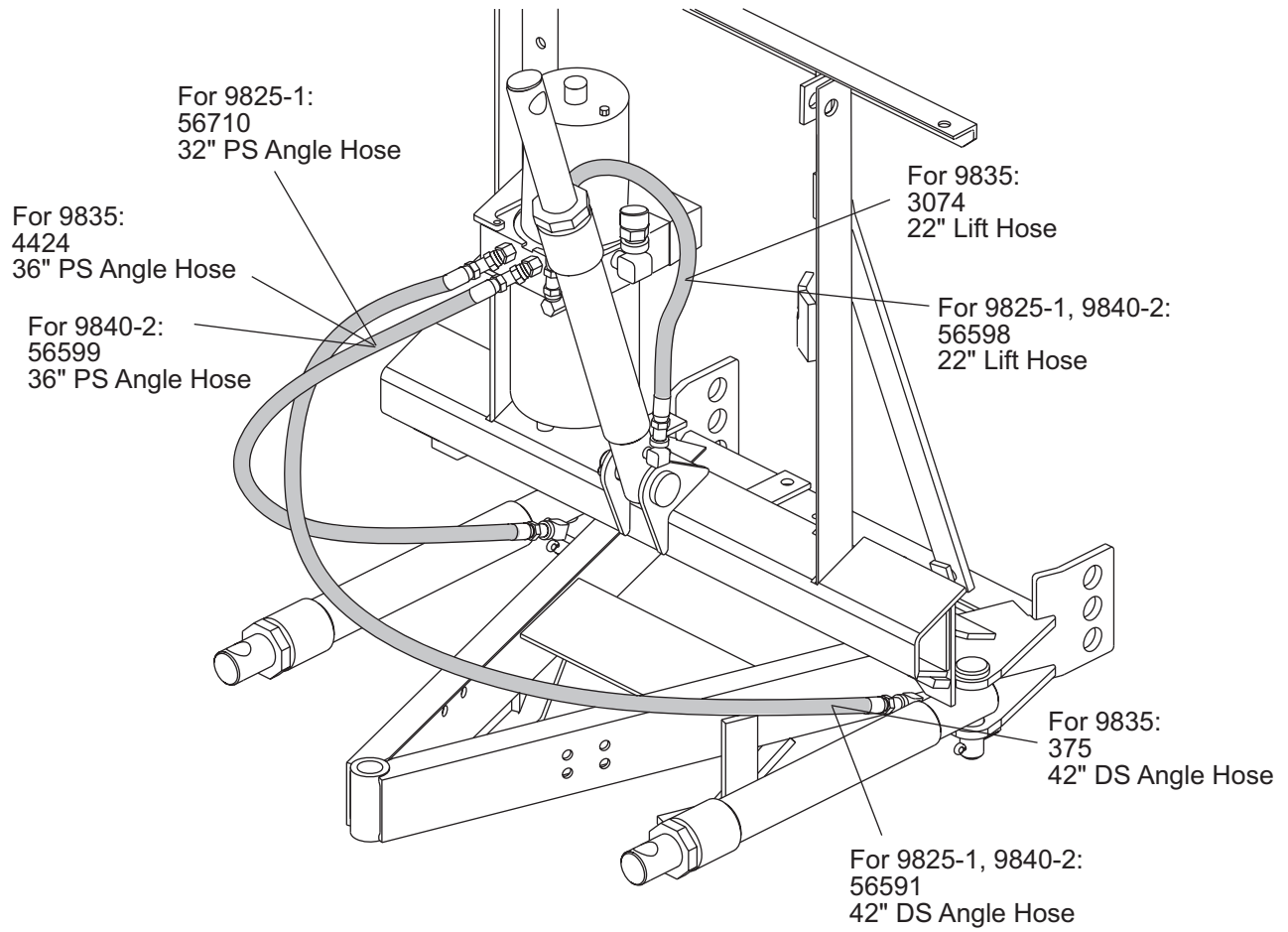
6. Turn the jam nut on the fitting as far back as possible.
7. Lubricate the O-ring with clean hydraulic oil.
8. Screw fitting into port by hand as far as it will go. The washer should contact port face and shoulder of the jam nut threads.
9. Unscrew fitting to proper position, no more than one full turn.
10. Use one wrench to hold the fitting body in position and tighten the jam nut with another wrench until the washer again contacts port face. Tighten 1/8 to 1/4 turn to lock fitting in place.

All units:

11. Looking at the front of the vehicle, the 45° elbows in the angle ports should be at 8 o'clock and the 90° elbow in the lift port should be at 12 o'clock. The 3/8" x 90° street elbow in the breather port should point straight up. Screw the breather into the street elbow.



ROUTING HYDRAULIC HOSES TO FITTINGS IN VALVE BLOCK



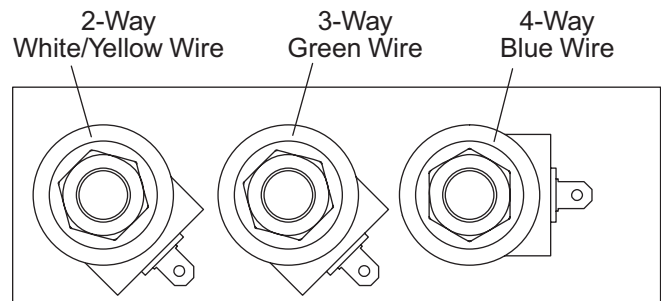
SNOWPLOW CONTROL HARNESS AND CABLE INSTALLATION

1. Connect the snowplow control harness to the valve block according to the instructions inside the solenoid cover.

NOTE: The strain relief must be inside the cover to prevent unnecessary strain on the solenoid connectors.

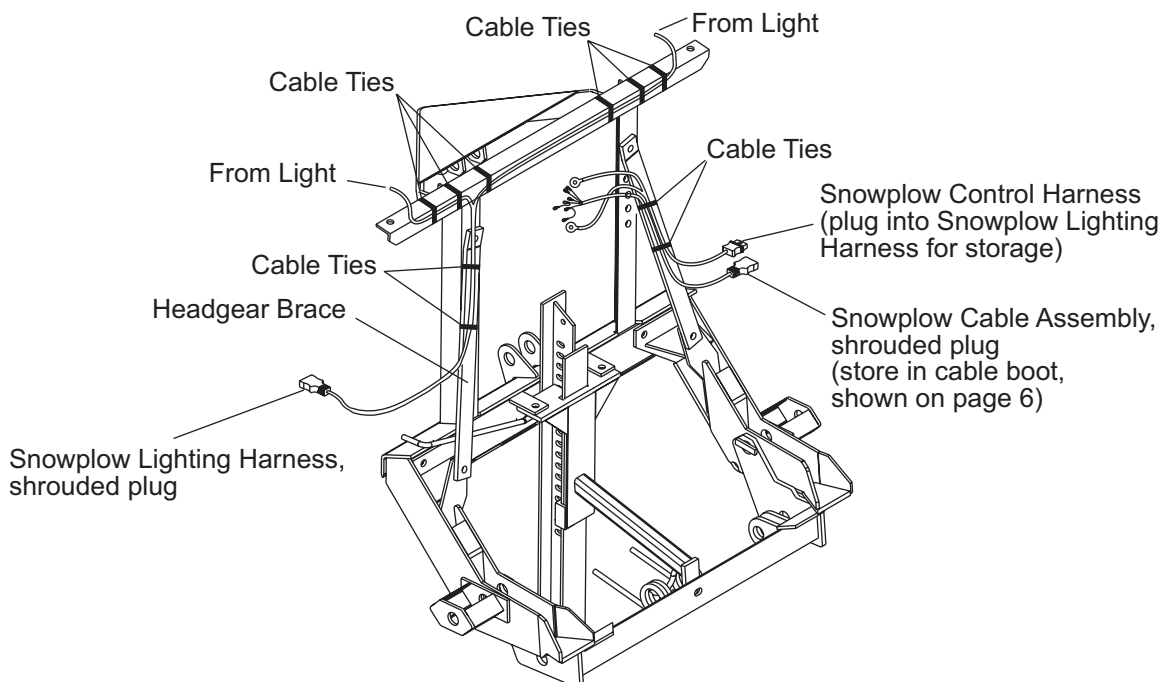
2. Attach the snowplow cable assembly to the motor terminals. Connect the black and red striped wire to the positive terminal. Connect the black wire to the negative terminal.

NOTE: Connect the smaller black wire with the orange stripe to the negative terminal of the motor.



3. Cable tie harnesses and cable assembly to the headgear braces as shown.

NOTE: Snowplow lighting and control harnesses plug into one another for storage.



FINAL ADJUSTMENTS

⚠ WARNING

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

⚠ CAUTION

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

⚠ CAUTION

DO NOT raise the blade during fill process as this may cause pump cavitation.

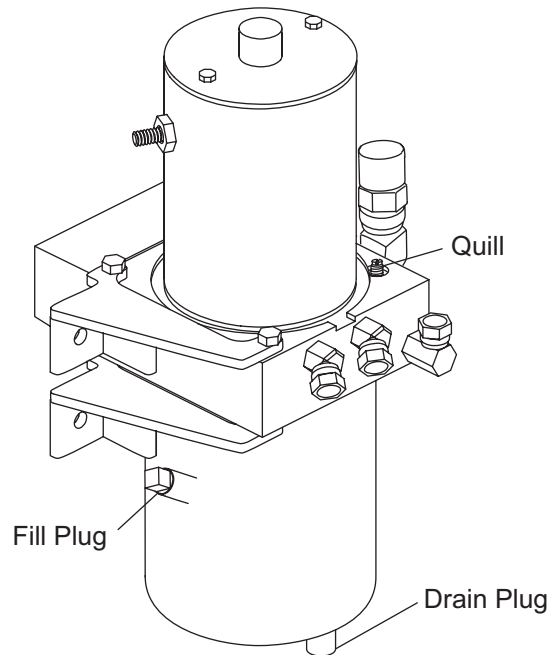
1. Fill the hydraulic unit to top of fill hole with hydraulic fluid.

System Capacity:

Reservoir – 1-3/4 quart

Complete System – 2-3/8 to 2-3/4 quarts

2. Raise and lower the snowplow several times. Return to the lower position, retracting the lift cylinder completely.
3. With the blade lowered, add more hydraulic fluid to the reservoir. Angle the blade several times in each direction.
4. With the blade in the straight position and the lift cylinder fully retracted, add enough additional hydraulic fluid to bring fluid level to top of fill hole.
5. Adjust the length of the lift chain so the A-frame hits the lower cross member (9825-1/9835) or stops (9840-2) when the lift cylinder is fully raised. Cylinder rod extends 6" for LD applications and 10" for RD/HD/Commercial applications. **Tighten both U-bolts.**



BLADE DROP SPEED ADJUSTMENT

The quill in the top of the valve manifold on the passenger side front corner adjusts the blade drop speed.

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.
3. Stand clear of the blade when checking adjustment.

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