



Insta-Act[®] HYDRAULIC UNIT

MC Series Snowplows

Installation Instructions

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your FISHER[®] outlet/Web site for specific vehicle application recommendations before installation. The Kit Selection Guide has specific vehicle and snowplow requirements.

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 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
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.

⚠ 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.

⚠ WARNING
Remove blade assembly before placing vehicle on hoist.

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

PERSONAL SAFETY

- Remove 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.

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 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.

TORQUE CHART**⚠ CAUTION**

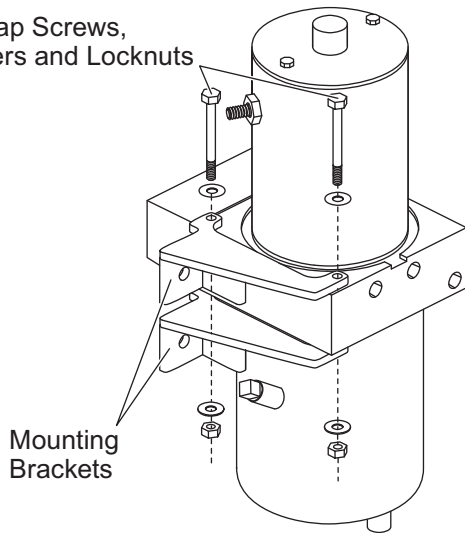
Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow including proper personal protective safety equipment.

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.			

ATTACHING 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.

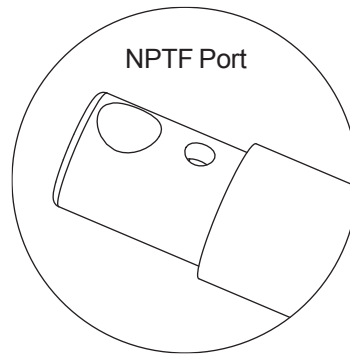
1/4" x 3" Cap Screws,
Flat Washers and Locknuts



ATTACHING HYDRAULIC FITTINGS TO RAMS

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

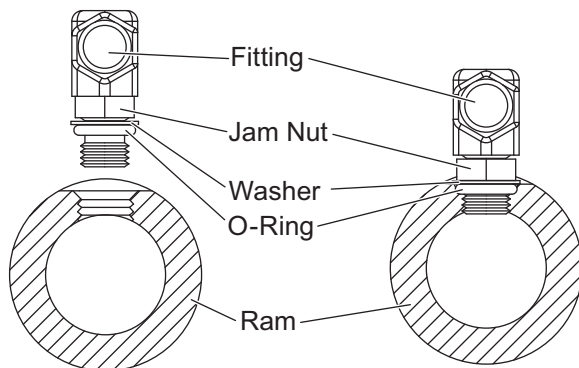
1. Remove the plugs from the angle and lift ram ports.
2. Before installing hydraulic fittings, identify whether the ram is equipped with NPTF or SAE O-ring ports. SAE O-ring ports can be easily identified by the flat machined area around the port. See illustrations below.



Rams with SAE O-Ring Ports

3. Turn the jam nut on the fitting as far back as possible.
4. Lubricate the O-ring with clean hydraulic fluid.
5. 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.
6. Unscrew fitting to proper position, no more than one full turn.
7. 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 1/8–1/4 turn to lock fitting in place.

SAE O-RING FITTING



8. Attach the 22" HP hose to the lift ram elbow.
9. Attach 32" or 36" HP hose to the passenger-side ram. Attach the 42" hose to the driver-side ram. (See page 8.)
10. Tighten hose onto the fitting until finger tight.

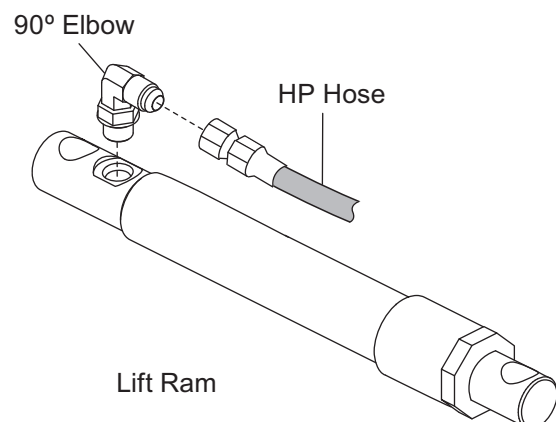
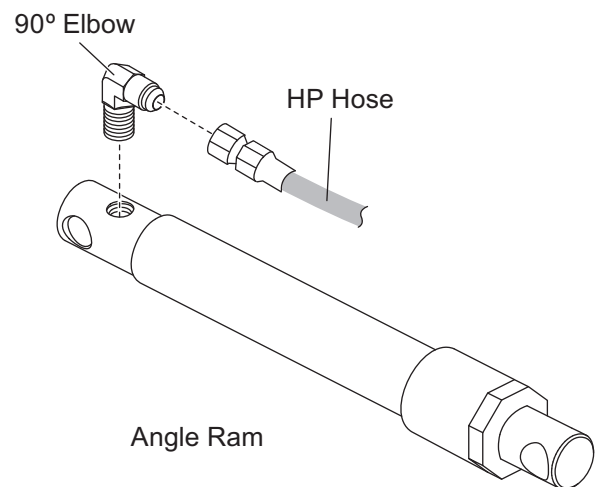
⚠ CAUTION

Overtightening the swivel nut will damage the hydraulic hose.

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

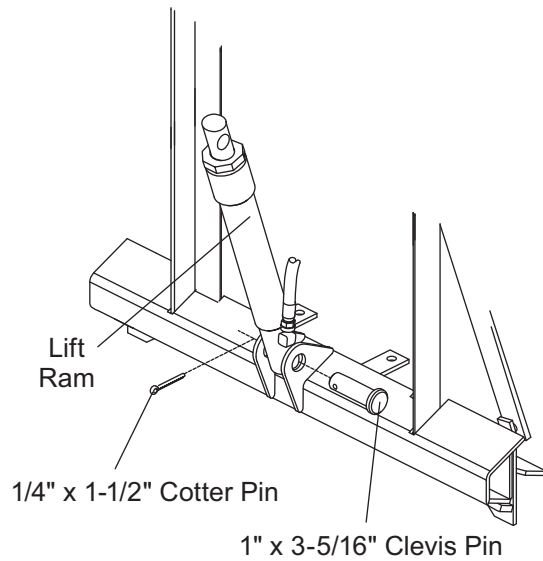
Rams with NPTF Ports

3. Install a 1/4" x 90° NPTF street elbow into each port so when the rams 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" rams and on top facing forward when using 1-1/2" x 10" and 2" x 10" rams.
4. Attach a 32" or 36" HP hose to the passenger-side ram and a 42" HP hose to the driver-side ram. (See page 8.)
5. Install a 1/4" x 90° NPTF street elbow in the lift ram port.
6. Attach the 22" HP hose to the lift ram elbow.

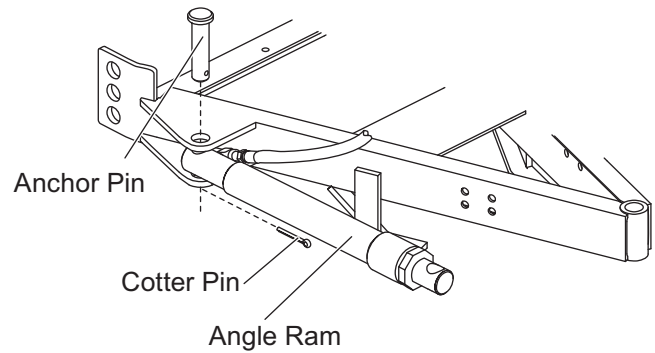


ATTACHING LIFT AND ANGLE RAMS

1. Attach the lift ram to the headgear with a 1" x 3-5/16" clevis pin and 1/4" x 1-1/2" cotter pin, oriented as shown in the diagram below.

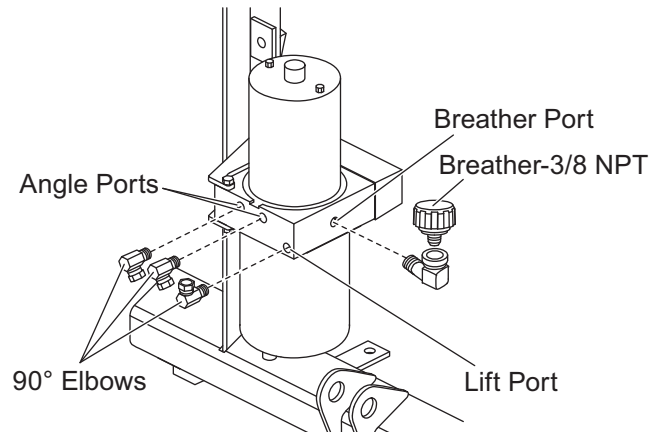
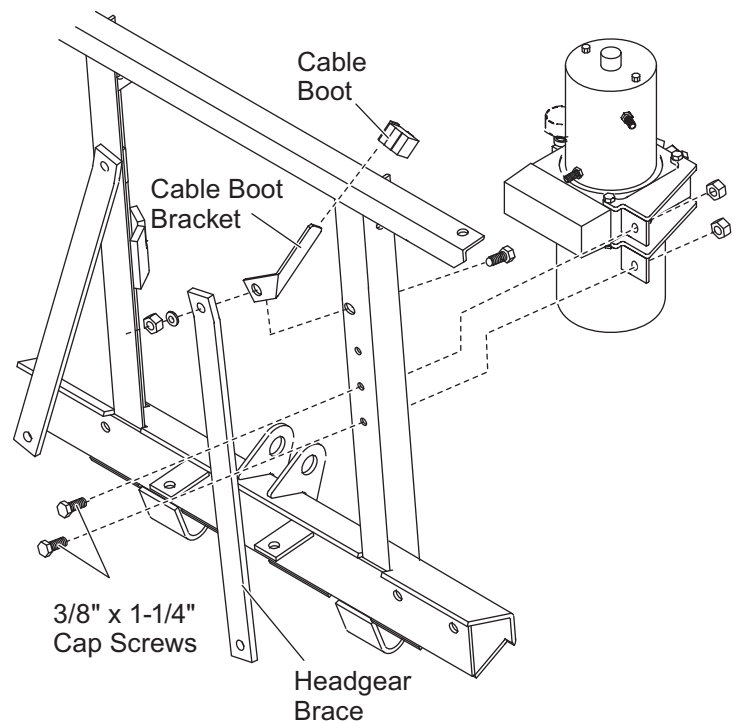


2. Attach the angle rams to the A-frame and blade with the anchor pins and cotter pins.

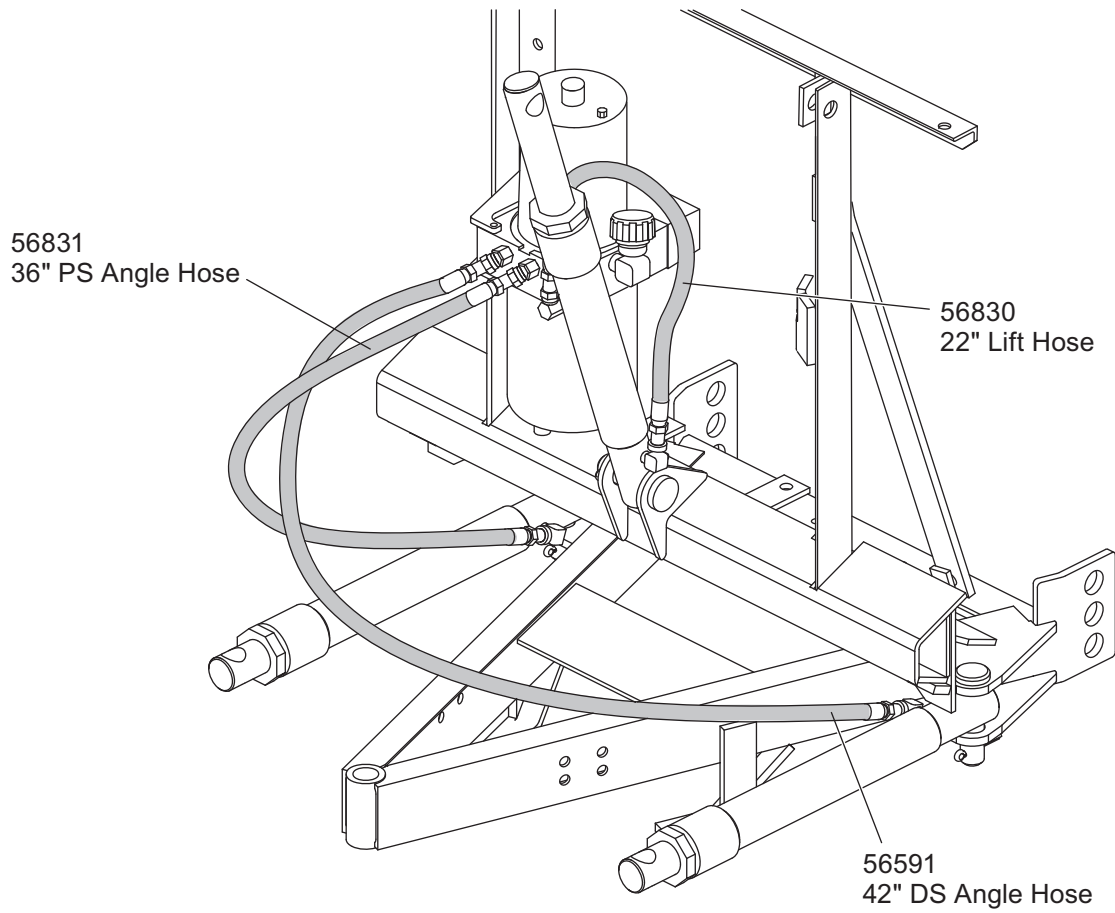


MOUNTING HYDRAULIC UNIT

1. Remove the top fastener 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 and lift port, and remove the 3/8" NPTF plug from the breather port. Screw 90° elbows into the angle ports and the lift port and a 3/8" x 90° street elbow into the breather port as shown.
6. Turn the jam nut on the fitting as far back as possible.
7. Lubricate the O-ring with clean hydraulic fluid.
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 1/8–1/4 turn to lock fitting in place.
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 BATTERY CABLE INSTALLATION

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

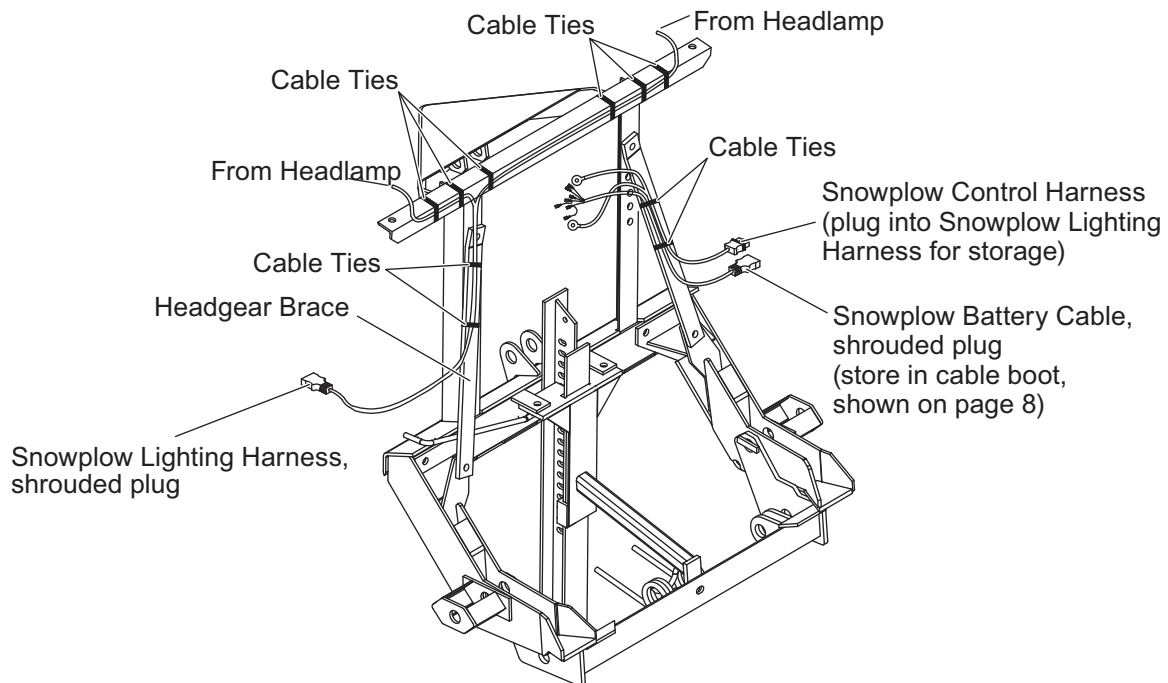
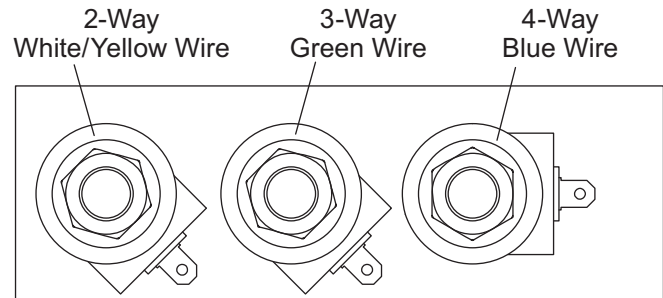
NOTE: The strain relief must be inside the cover to prevent unnecessary strain on the solenoid connectors.

2. Attach the snowplow battery cable 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 snowplow battery cable to the headgear braces as shown.

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



FINAL ADJUSTMENTS

⚠ WARNING

Keep 8' clear of the blade drop zone 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 at this time as this may cause pump cavitation.

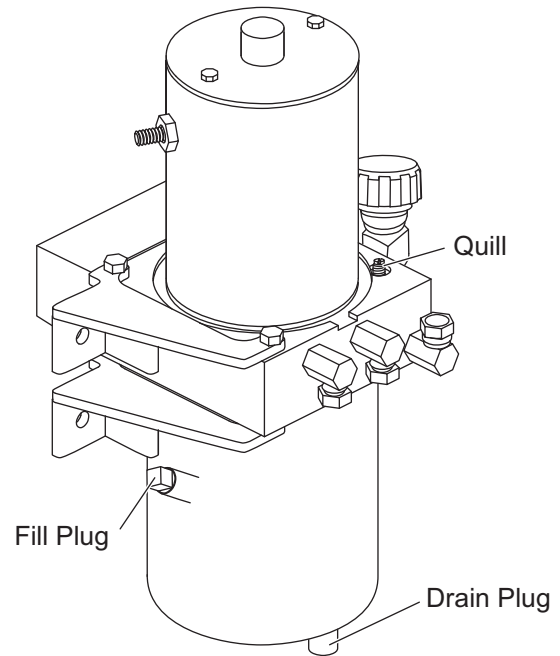
1. Fill the hydraulic unit to top of fill hole with hydraulic fluid.

FLUID CAPACITY

- Insta-Act® Unit Reservoir 1-3/4 quarts
- Insta-Act System Total 2-3/8 to 2-3/4 quarts

2. Raise and lower the snowplow several times. Return to the lower position, retracting the lift ram 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 ram 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 when the lift ram is fully raised. Ram rod extends 6" for LD and SD applications and 10" for 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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