



**Fisher Engineering**

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**44600-1, 44650-1  
44675-1, 44685-1, 44695-1  
44775-1, 44785-1, 44795-1**

June 1, 2008  
Lit. No. 44227, Rev. 10



# **XtremeV™ SNOWPLOW**

## **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.



A SUBSIDIARY OF DOUGLAS DYNAMICS, L.L.C.

## SAFETY DEFINITIONS

### WARNING

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

### CAUTION

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

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

## WARNING/CAUTION AND INSTRUCTION LABELS

Become familiar with and inform users about the warning labels on the back of the blade and the instruction label on the headgear.

**NOTE:** If labels are missing or cannot be read, see your sales outlet.

### Warning/Caution Label



### WARNING

LOWER BLADE WHEN VEHICLE IS PARKED.

DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.

REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.



### CAUTION

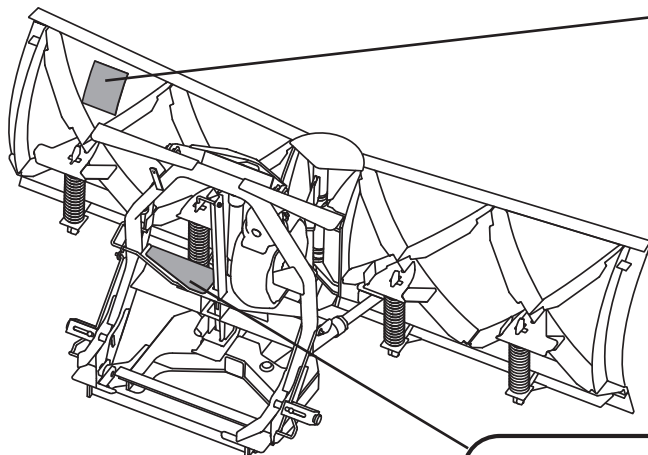
READ *OWNER'S MANUAL* BEFORE OPERATING OR SERVICING SNOWPLOW.

TRANSPORT SPEED SHOULD NOT EXCEED 45 MPH. FURTHER REDUCE SPEED UNDER ADVERSE TRAVEL CONDITIONS.

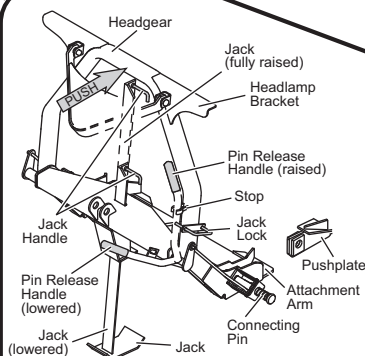
PLOWING SPEED SHOULD NOT EXCEED 10 MPH.

SEE YOUR SALES OUTLET/WEB SITE FOR SPECIFIC VEHICLE APPLICATION RECOMMENDATIONS.

59800



### Instruction Label



U.S. Patents 4,999,935; 5,353,530; 5,420,480; 6,253,470; 6,944,978; RE 35,700; CAN Patent 2,060,425; and other patents pending.

Read Owner's Manual For Complete Instructions

1. Place control in Lower/Float to put blade down.
2. Pull and hold Jack Lock out. Jack will drop to ground. Then pull Pin Release Handle away from Stop and Jack Lock. Release Jack Lock. Verify Jack is locked by trying to lift Jack.

1. Push Pin Release Handle down to pull out Connecting Pins.
2. Drive vehicle slowly to engage Pushplates into Attachment Arms.
3. Stand in front of blade. Fully raise Pin Release Handle to release Connecting Pins.
4. Push Headgear toward vehicle to allow Connecting Pins to fully engage Pushplates. If unable to push Headgear from in front of blade, stand in front of Headgear on driver side and push Headlamp Bracket.
5. Pull out Jack Lock. Push Pin Release Handle into Stop.
6. While holding Jack Lock out, use Jack Handle to raise Jack fully. Release Jack Lock.
7. Attach all electrical connectors.

ATTACH

DETACH

27451

## 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 T-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 current Kit Selection Guide for minimum vehicle recommendations and ballast requirements.

## 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 FISHER® electrical and hydraulic systems contain several 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.

## 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 vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.**

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

## CELL PHONES

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

## VENTILATION

### WARNING

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

## BATTERY SAFETY

### CAUTION

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




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

**Disconnect the battery before removing or replacing any electrical components.**

## TORQUE CHART

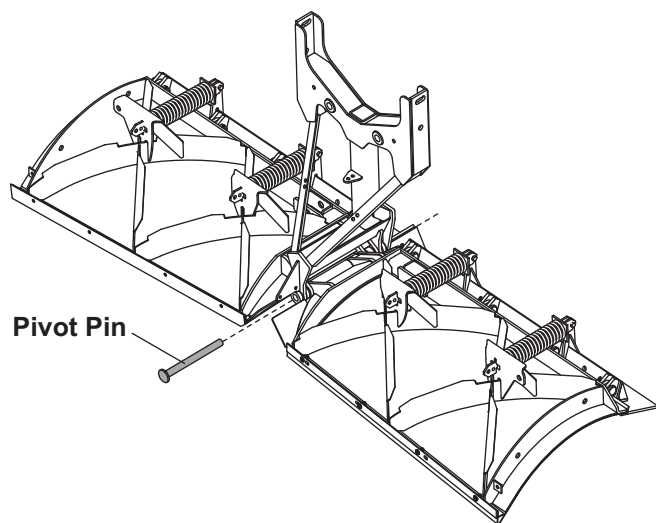
### CAUTION

**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.**

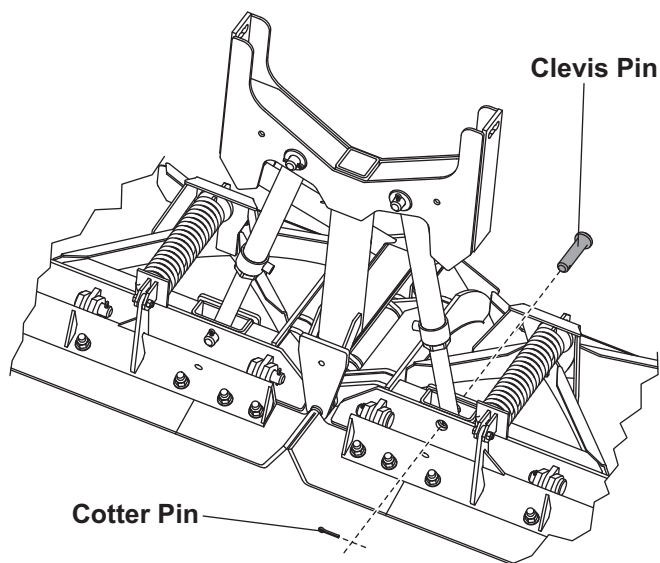
Recommended Fastener Torque Chart (ft-lb)			
Size	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	150	378	591
1-8	220	583	893
Metric Grade 8.8 (ft-lb)			
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.			

## **BLADE, T-FRAME AND HEADGEAR**

1. Remove the headlight box and small parts box from the carton. Remove the carton wall sleeve by sliding it up and over the box contents. Remove and discard the four corner tubes and place the sleeve flat on the floor. Remove the headgear and power unit assembly from the box and place it on the carton sleeve. Remove the T-frame assembly and place it on the carton sleeve.
2. Place some cardboard or wood on the floor where the blade will be assembled. Remove the blade wings from the pallet and place them face down with the hinges facing each other. Push the blade wings together so that the holes in the hinges are aligned. Position the T-frame assembly between the blade wings so that the holes in the T-frame hinges are aligned with the holes in the wings. Insert the pivot pin (from top to bottom) through all hinges.

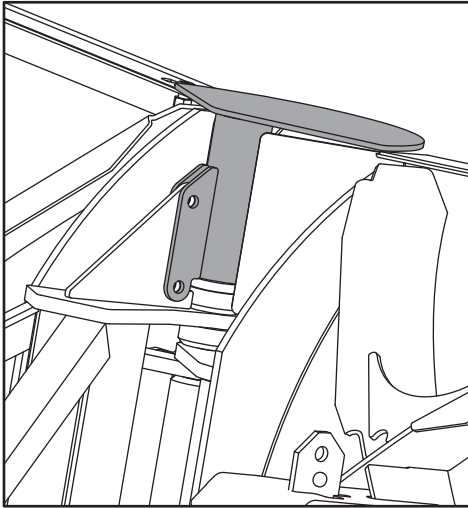


3. Cut the tie holding the angle rams to the T-frame. Remove the protective caps on the angle rams. Swing the T-frame to one side so that the holes in the rod end of the angle ram and the blade are aligned.
4. Install a 1" x 4-3/4" clevis pin from the top down. Swing the T-frame to the other side and secure the second angle ram in the same manner. Secure the angle rams by installing 1/4" x 1-1/2" cotter pins in the two clevis pins.

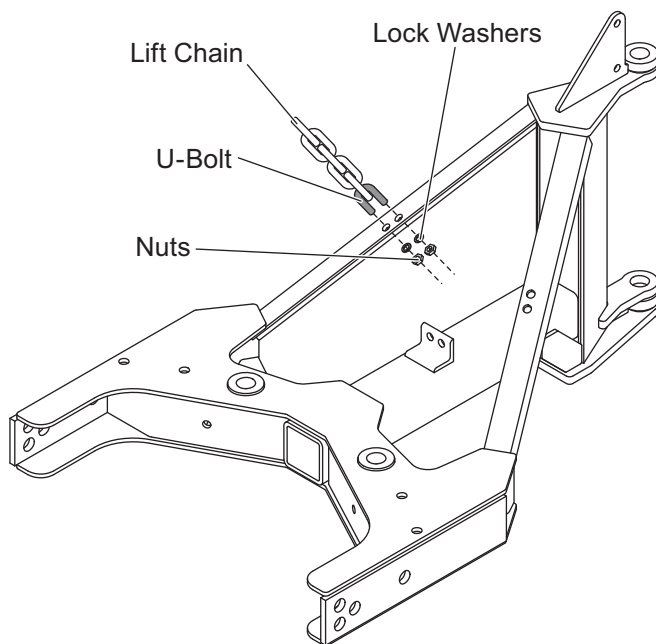


5. Stand the blade and T-frame upright and support in a level position using block under the main T-frame tube. Install the blade guides.

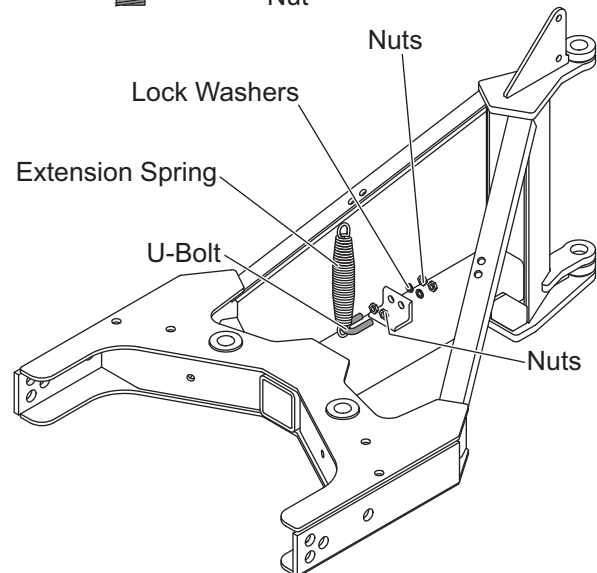
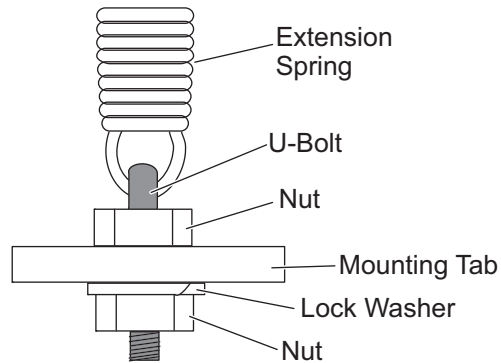
6. Install the center snow deflector using two 3/8" x 1-1/4" cap screws, and 3/8" locknuts.



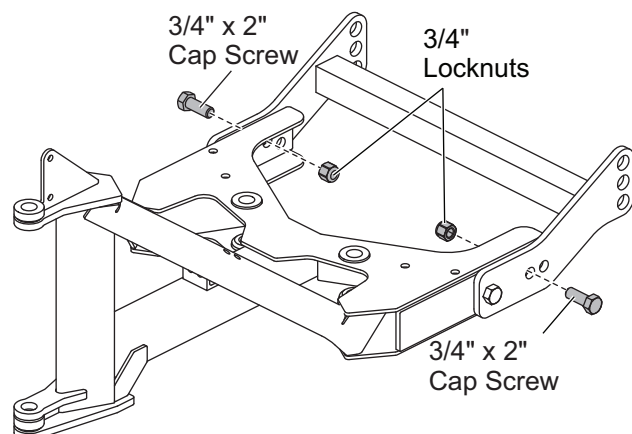
7. Install a 3/8" U-bolt through a link in one end of the lift chain. Attach U-bolt and chain to the holes on the driver-side T-frame brace with 3/8" lock washers and nuts. Tighten.



8. Place U-bolt on extension spring. Place 3/8" nut on each side of U-bolt. Place U-bolt through mounting tab on T-frame. Place lock washers and 3/8" nuts on U-bolt and tighten.

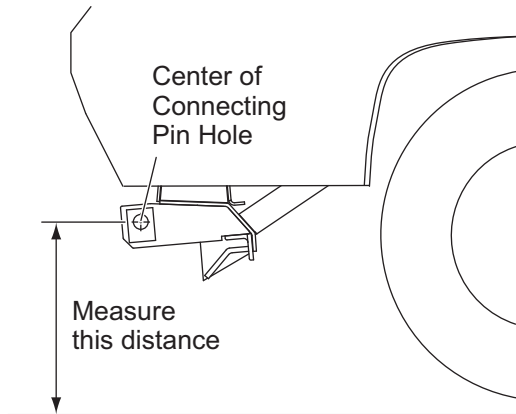


9. Rotate the push assembly and fasten in the middle position using two 3/4" x 2" cap screws and 3/4" locknuts. Tighten until assembly is secure, but do not torque at this time.



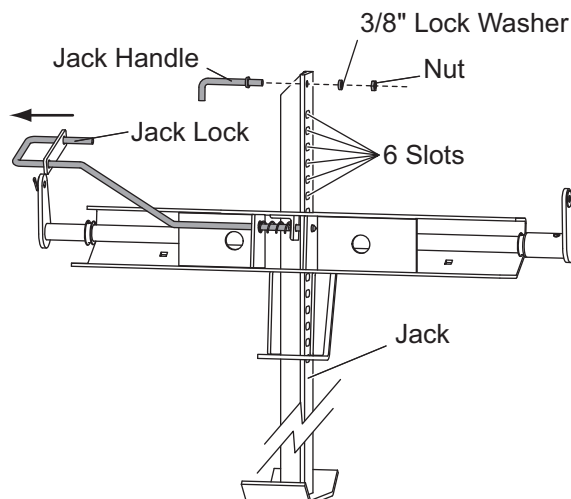


10. Remove support block from under T-frame and lower T-frame to the ground, again placing it on the carton sleeve.
11. With the vehicle parked on a solid level surface, measure the distance from the center of the connecting pin hole to the ground. Using this measurement refer to the hole selection chart and determine which hole should be used to attach the headgear to the T-frame.

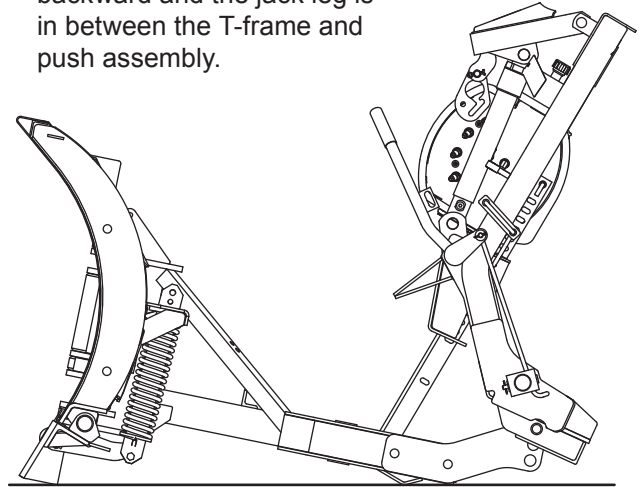


Push Plate Height (hole center to ground)	Rear Hole
17" to 19"	Top
15" to 17" (typical)	Middle
13" to 15"	Bottom

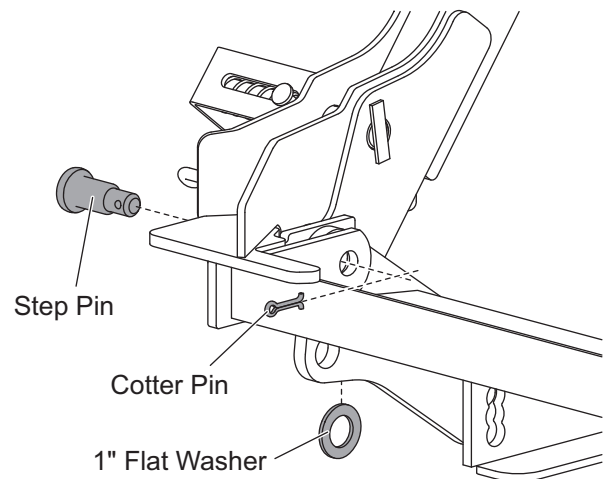
12. Lower the jack leg in the headgear assembly so that six complete slots are showing through the top of the headgear cross bar. Release the jack lock to hold the jack in place. Attach the jack handle to the jack with a 3/8" lock washer and nut.



13. Place the headgear assembly on top of the T-frame assembly so the headgear is tipped backward and the jack leg is in between the T-frame and push assembly.



14. Position the headgear so that the holes in the headgear are aligned with the previously selected holes in the push assembly. Attach the T-frame to the headgear assembly with two step pins, 1" flat washers and 1/4" x 1-1/2" cotter pins. Insert the step pins from the outside of headgear. Insert 1" flat washer between the headgear T-frame ear and the outside of the push assembly.

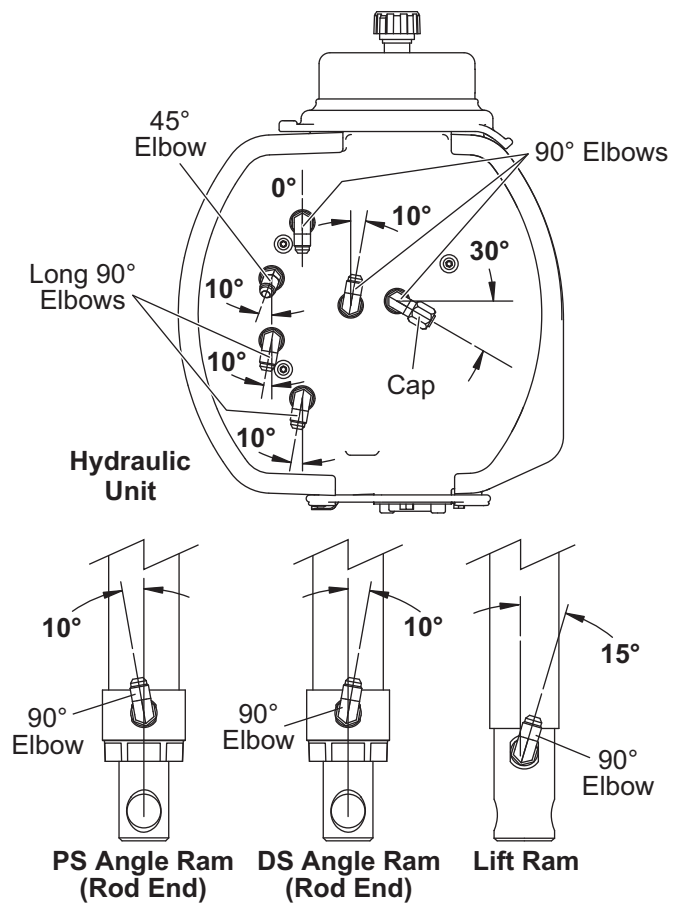


15. If the lowest set of holes in the push assembly are used, the stacking stops attached to the lift frame can be removed and replaced with the shorter set of stacking stops that are located in the loose parts kit.
16. Push the headgear forward until it is sitting upright. Verification of proper T-frame position will be made during Final Adjustments at the end of these instructions.

## HYDRAULIC FITTINGS

Do not use thread sealant/tape on hoses and fittings. This could damage the product. Install all fittings into rams and hydraulic unit using the following procedure and fitting orientation illustrations:

1. Remove plug from ram or manifold port. Use a rag to catch residual fluid when removing manifold plugs.
2. Turn the jam nut on the fitting as far back as possible.
3. Lubricate the O-ring with clean hydraulic fluid.
4. 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.
5. Unscrew fitting to proper position, no more than one full turn.
6. 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.

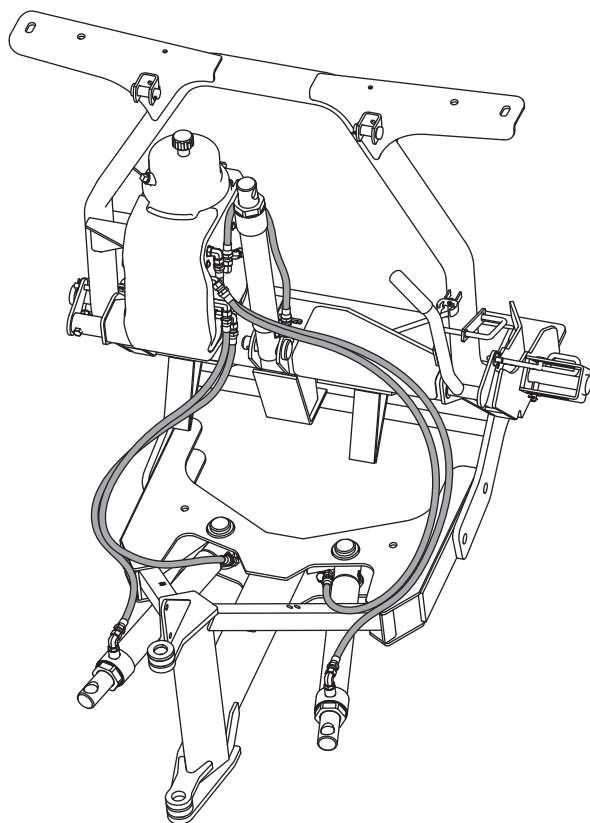
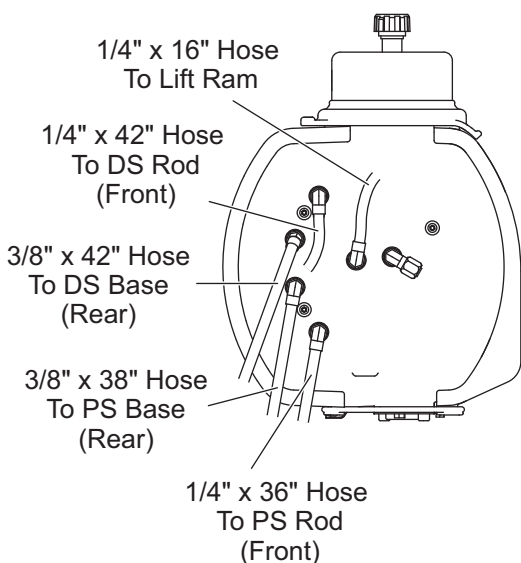




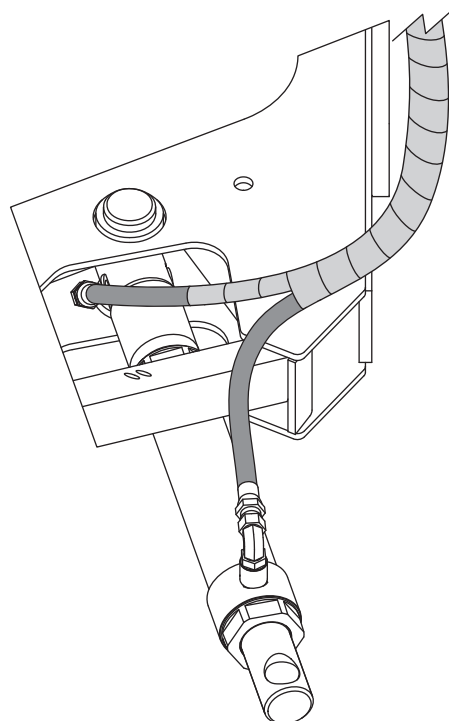
## HYDRAULIC HOSES

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

1. Attach all hoses to fittings, routing hoses as shown. Leave hoses finger tight at this time.



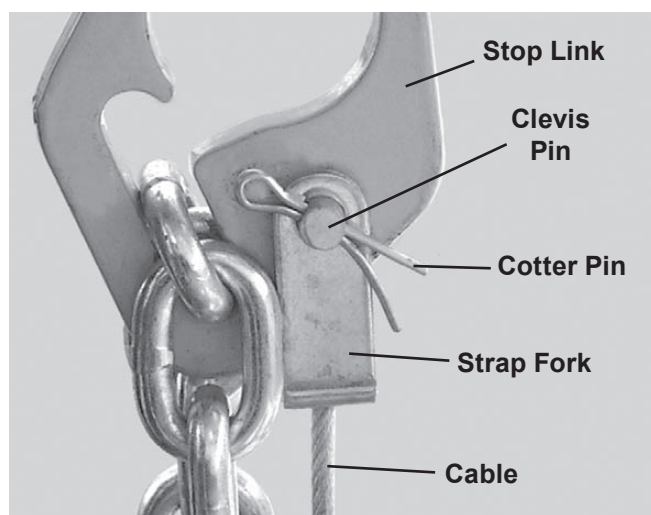
2. Wrap angle ram hoses with protective hose wrap as shown. Start wrap on base-end hose so wrap covers diagonal brace. Group hoses away from brace and continue wrapping, forming a smooth outward loop to the hydraulic unit.



3. Using a wrench to hold the hose end in position, tighten all hose fittings 1/8–1/4 turn past finger tight.

## LIFT CHAIN AND CABLE

1. Complete installation of lift chain by inserting loose end of lift chain through stop link on the lift arm. Fasten to opposite holes in the T-frame brace using a 3/8" U-bolt, lock washers and nuts. Hand tighten.
2. Insert the cable down through the hole in the strap fork. Attach the strap fork to the hole in the stop link on the lift arm with a 3/8" x 1" clevis pin and 1/8" x 1" cotter pin. Slip the cable thimble onto the top loop in the spring previously installed in the front of the T-frame.



**NOTE:** The slotted end of the thimble may need to be opened to slip it onto the loop. Fully close the slot after attaching the thimble to the spring.

3. Loop the end of the cable around the thimble. Pull the cable up against the thimble until the slack is removed. Attach the end of the cable back onto itself with two cable clamps loosely installed close to the thimble as shown.



Due to varying vehicle heights, the length of the cable must be adjusted for the vehicle in the Final Adjustments section at the end of these instructions.

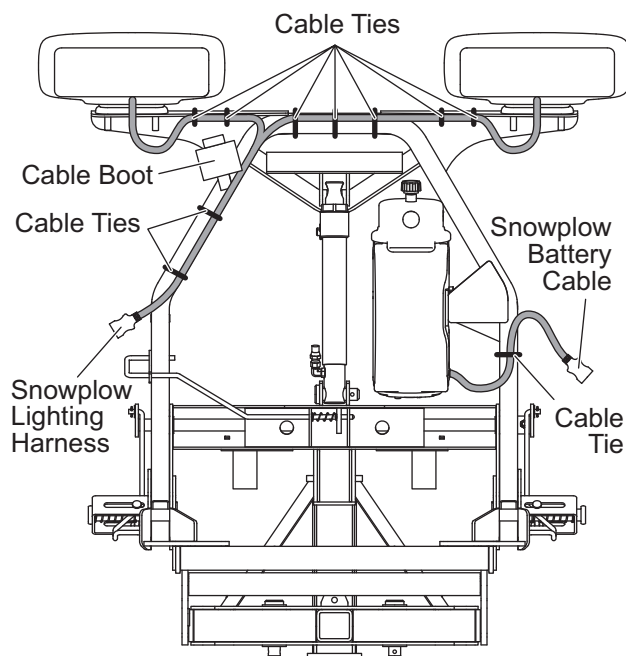
## HEADLAMPS

### ⚠ WARNING

**Your vehicle must be equipped with snowplow headlamps and directional lights.**

Headlamps, hardware and instructions are found in the headlamp box.

1. Attach headlamps to the hole and slot in the headgear light bracket by following the instructions included with the headlamps.
2. Secure the snowplow harnesses and cables to the headgear as shown.



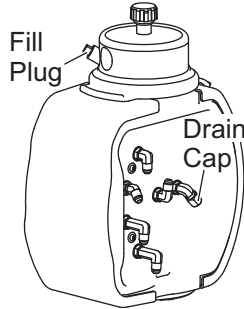
3. Install cable boot onto the headgear.

## FILLING HYDRAULIC UNIT

### ⚠ 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.

1. Attach the snowplow to the vehicle according to the instructions on the headgear.
2. With snowplow in retract (vee) position and lift ram fully retracted, fill the reservoir with FISHER® EZ Flow Hydraulic Fluid to -40°F (-40°C), or other fluid conforming to Military Specification MIL-H-5606A, such as Mobil Aero HFA or Shell AeroShell® Fluid 4. Replace fill plug.



**NOTE: Add fluid only when all rams are retracted.**

### ⚠ 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** raise blade at this time as this may cause pump cavitation.

### ⚠ CAUTION

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

3. Turn control ON and completely extend and retract the driver-side wing several times. With all rams fully retracted, turn control OFF.
4. With the lift ram fully retracted, fill the reservoir with hydraulic fluid. Replace fill plug.

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

5. Repeat steps 3 and 4 for the passenger-side wing.
6. Turn control ON and raise and lower snowplow several times. Activate control FLOAT function and manually collapse lift ram all the way after each lowering of blade. With all rams fully retracted, turn control OFF.
7. Fill reservoir to top of fill hole and replace fill plug.

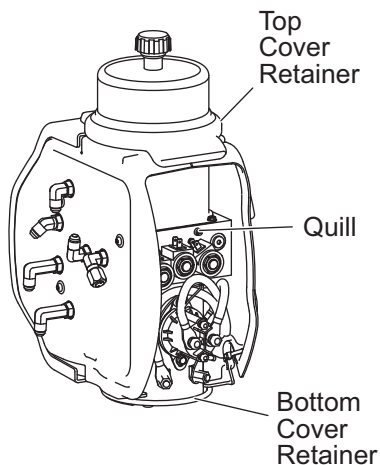
## FLUID CAPACITY

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

## BLADE DROP SPEED ADJUSTMENT

### **⚠ 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.



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

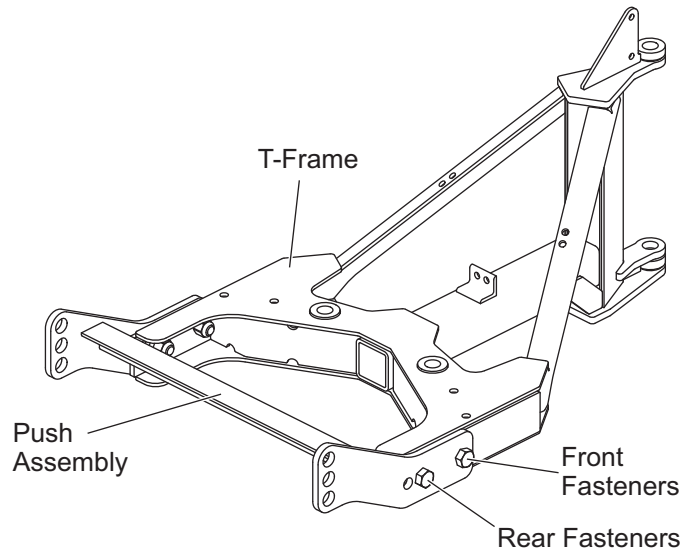
1. Lower the blade to the ground before making adjustment.
2. Turn the quill IN (clockwise) to decrease drop speed. Turn the quill OUT (counterclockwise) to increase drop speed.

**NOTE:** To access the quill on the XtremeV™ hydraulic unit, raise top cover retainer, remove bottom cover retainer and remove rear cover.

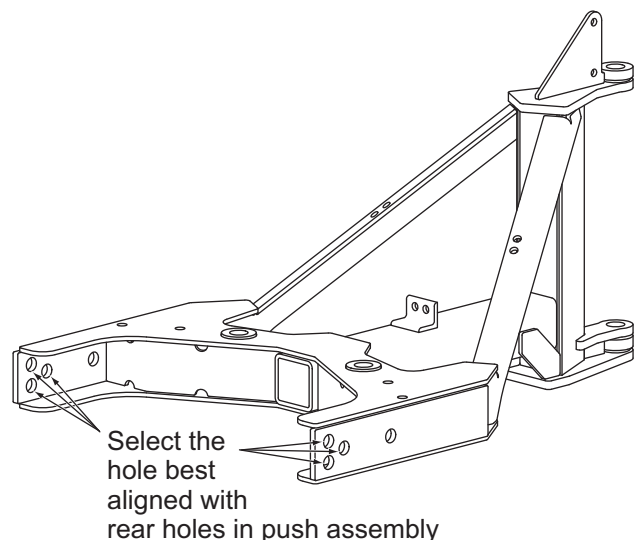
3. Stand 8' clear of the blade drop zone when checking adjustment.
4. On the XtremeV unit, replace cover and reinstall the top and bottom cover retainers.

## FINAL ADJUSTMENTS

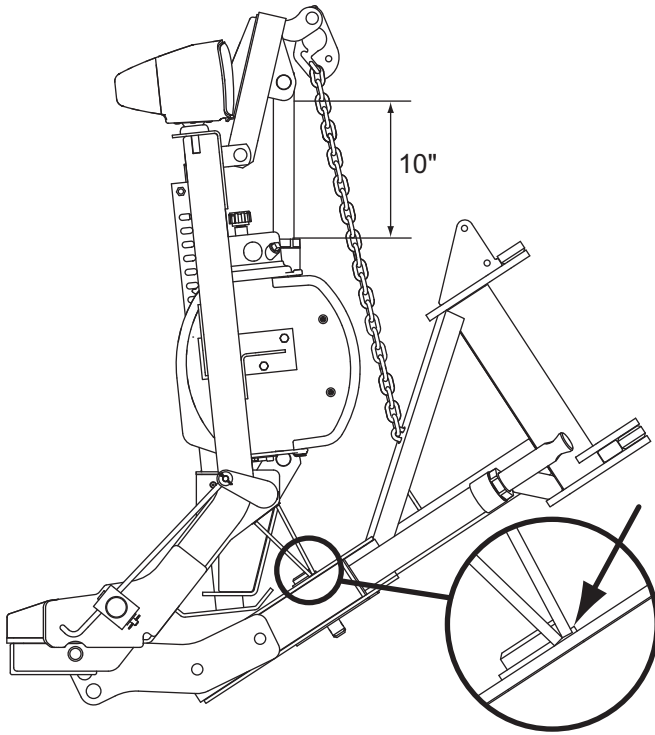
1. With snowplow attached to the properly ballasted vehicle and blade lowered to ground, the T-frame should be parallel with the ground. If not, place the snowplow in the scoop position.



2. Loosen the front fasteners for the push assembly to T-frame connection, but do not remove them. Next, remove the rear fasteners from the push beam to T-frame connection. Level the T-frame.
3. Select the hole in the rear of the T-frame that is aligned closest to the rear holes in the push assembly. Reassemble the previously removed fasteners into the rear holes and tighten all fasteners.



4. Adjust the length of the lift chain so the T-frame hits the T-frame stop when the lift ram is fully raised (10"). Tighten U-bolts.

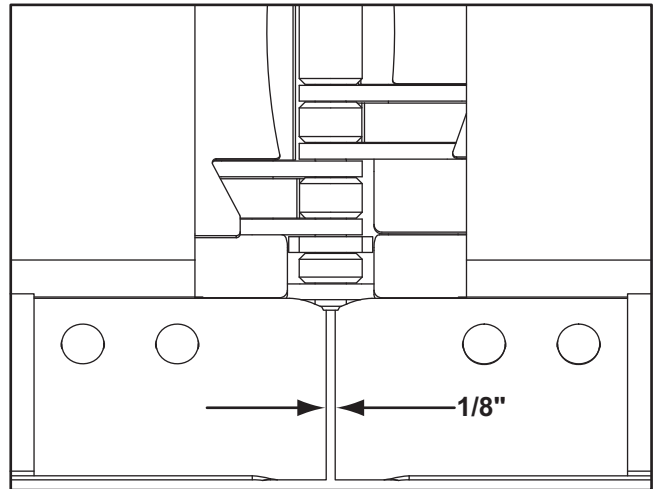


5. For reliable operation and prevent damage to the 6-1/2" lift arm extension spring, the length of the cable must be adjusted when attached to the vehicle it will be used on. With the lift ram fully collapsed, wrap the cable tightly around the thimble, shorten/lengthen the cable to remove all slack from the cable, then tighten the cable clamps.

6. After adjustment, excess cable should be trimmed off close to the second cable clamp. Cover cut end of cable with electrical tape. Excessive spring tension will make attaching/detaching difficult and overextend the spring.
7. Raise and lower the snowplow in retract (vee) position to verify hydraulic hoses bow outward and do not interfere with snowplow components.

**NOTE: Ensure base-end angle ram hoses are wrapped over the diagonal brace. Adjust hoses, fittings and wraps as necessary.**

8. With the wings in the straight position, measure the gap between the center cutting edges.



9. If the gap between the cutting edges is not 1/8" (centered on main pivot pin), raise the blade and support it safely on a solid block. Loosen the fasteners and slide the center cutting edges to obtain the proper dimension.
10. Once the measurement is correct, fully tighten cutting edge fasteners according to the torque chart.

## **VEHICLE LIGHTING CHECK**

1. Verify the operation of all vehicle front lighting prior to connecting the snowplow harness.
2. Check the operation of the snowplow lights with snowplow mounted to vehicle and all harnesses connected.

### **Turn signals and parking lamps**

Parking lamps ON:

- Both vehicle and snowplow parking lamps should be ON at the same time.

Driver-side turn signal ON:

- Both vehicle and snowplow driver-side turn signal lamps should flash at the same time.

Passenger-side turn signal ON:

- Both vehicle and snowplow passenger-side turn signal lamps should flash at the same time.

### **Headlamps**

Move vehicle headlamp switch to the ON position. Connecting and disconnecting the snowplow lighting harness plug should switch the lights between vehicle and snowplow as follows:

Snowplow lighting harness DISCONNECTED:

- Vehicle headlamps should be ON.
- Snowplow headlamps should be OFF.

Snowplow lighting harness CONNECTED:

- Snowplow headlamps should be ON.
- Vehicle headlamps should be OFF.

Dimmer switch should toggle headlamps between high and low beams. The high beam indicator on the dash should light when headlamps are placed in high beam.

### **Daytime Running Lamps (DRLs)**

An operational check of the vehicle and snowplow DRLs will depend on the vehicle model, vehicle DRL system and type of Isolation Module installed. Due to the variations in the OEM DRL systems and the different Isolation Module

options available, checking the functionality of the snowplow DRLs will depend on the type of module installed on the vehicle.

With headlamp switch OFF, activate the vehicle DRLs.

Snowplow lighting harness DISCONNECTED:

- Vehicle DRLs should be ON.
- Snowplow headlamps should be OFF.

Snowplow lighting harness CONNECTED and vehicle in DRL mode:

- Check snowplow DRL function per the type of Isolation Module installed.

Refer to the Mechanic's Guide for information on the Isolation Module DRL functions.

### **Hand-Held Control**

The snowplow plugs **do** need to be connected to the vehicle harness connectors. The control indicator light should light whenever the control ON/OFF switch and the ignition (key) switches are both in the ON position.

3. Connect all snowplow and vehicle harnesses. Raise the snowplow and aim snowplow headlamps according to the Snowplow Headlamp Beam Aiming instructions included with the headlamps and any state or local regulations.

### **⚠ CAUTION**

**On 2-plug electrical systems, plug covers shall be used whenever snowplow is disconnected. Cable is 12-volt unfused source.**

4. Check aim of vehicle headlamps with snowplow removed.
5. When the snowplow is removed from the vehicle, install plug covers on the vehicle battery cable and lighting harness. Insert the snowplow battery cable and lighting harness into the cable boot on the snowplow.

## **OWNER'S MANUAL PACKET**

If the completed snowplow will be delivered immediately, the Owner's Manual should be reviewed with and given to the purchaser.

If the snowplow is completed prior to delivery to the purchaser, attach the Owner's Manual Packet to the electrical cable of the cab control for safekeeping.



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