

**Fisher Engineering**

P.O. Box 529 Rockland, Maine 04841

**9825**

**9835**

**9840**

February 10, 2000

Lit. No. 21842

# **Insta-Act® Hydraulic Unit Installation Instructions**

## **Table of Contents**

<b>Safety Information .....</b>	<b>2</b>
<b>Preparation .....</b>	<b>3</b>
<b>Drill Headgear .....</b>	<b>3</b>
<b>Attach Mounting Brackets to Hydraulic Unit .....</b>	<b>4</b>
<b>Attach Hydraulic Fittings to Cylinders .....</b>	<b>4</b>
<b>Attaching Lift and Angle Cylinders .....</b>	<b>5</b>
<b>Mounting Hydraulic Unit .....</b>	<b>5</b>
<b>Routing Hydraulic Hoses to Valve Fittings .....</b>	<b>7</b>
<b>Snowplow Control Harness and Cable Installation .....</b>	<b>8</b>
<b>Final Adjustments .....</b>	<b>9</b>

**SAFETY INFORMATION**

**⚠ WARNING**

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

**⚠ CAUTION**




Indicates a potentially hazardous situation that may result in minor or moderate injury and/or property damage if not avoided.

---

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

---

Torque all fasteners according to the torque chart. For proper fit, do not tighten fasteners until instructed to do so.

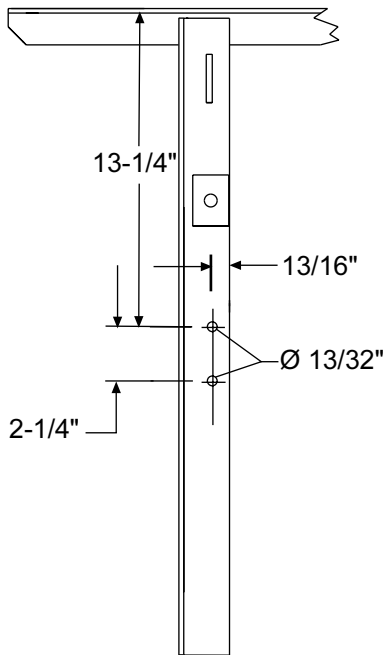
DIAMETER- THREADS PER INCH	NC FASTENER TORQUE (FT-LB)		
	GRADE		
			
	G2	G5	G8
1/4 - 20	6	9	13
5/16 - 18	11	18	28
3/8 - 16	19	31	46
7/16 - 14	30	50	75
1/2 - 13	45	75	115
9/16 - 12	66	110	165
5/8 - 11	93	150	225
3/4 - 10	150	250	370
7/8 - 9	150	378	591
1 - 8	220	583	893

**PREPARATION**

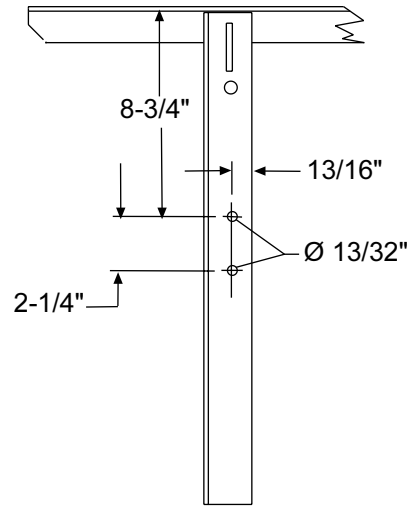
**Drill Headgear (if needed)**

1. Drill two holes in the passenger side of the headgear member as shown. Use the dimensions which correspond to your headgear.

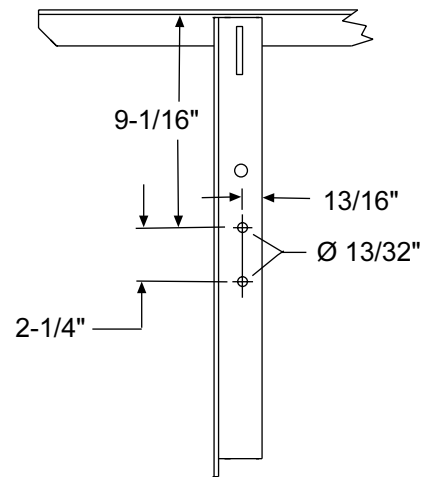
**Commercial Headgear 20758  
Commercial Headgear Kit 8445  
HD Headgear 8480  
HD Headgear Kit 22250  
RD Headgear 8580  
RD Headgear Kit 22240**  
(front view)



**LD Headgear 22090  
LD Headgear Kit 22135**  
(front view)

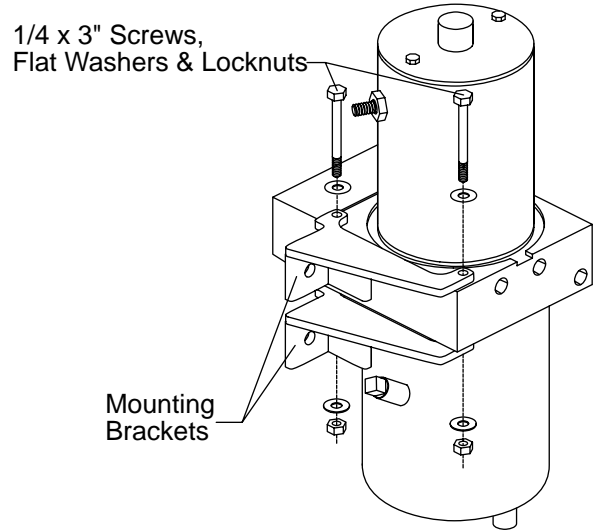


**Compact Headgear 22341  
Compact Headgear Kit 22230**  
(front view)



### 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.

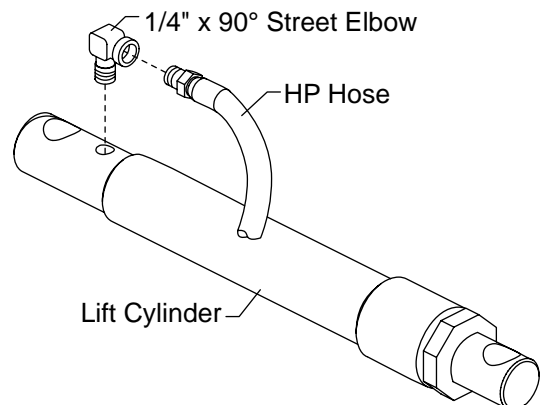
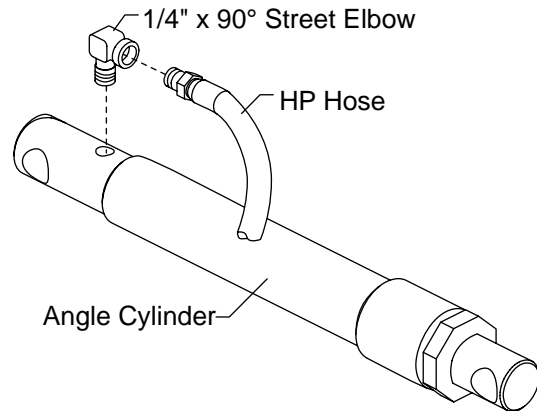


### Attach Hydraulic Fittings to Cylinders

**⚠ CAUTION**

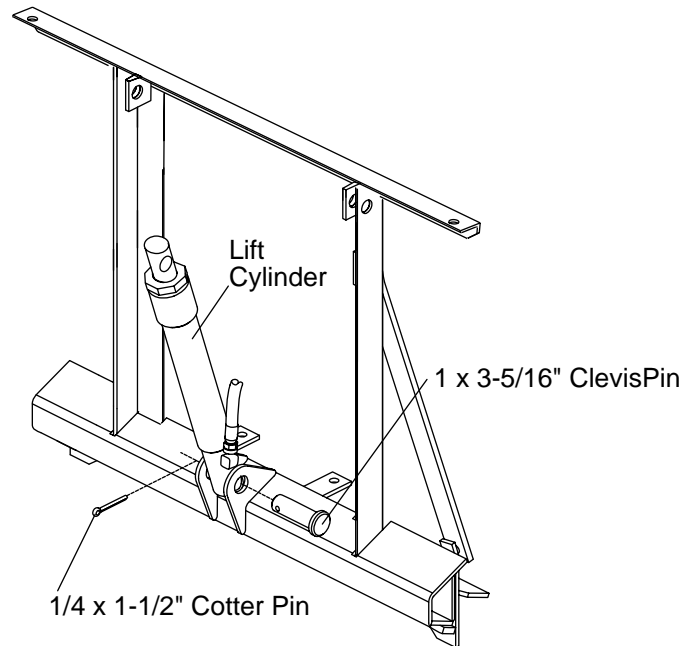
Do not use thread sealant/tape on hoses or fittings. This could damage product.

1. 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" cylinder and on top facing forward when using 1-1/2 x 10" cylinder.
2. Attach a 32" or 36" HP hose to the passenger-side cylinder and a 42" HP hose to the driver-side cylinder.
3. Remove the plug from the lift cylinder port. Install a 1/4" x 90° NPTF street elbow in the port.
4. Attach the 22" HP hose to the elbow.

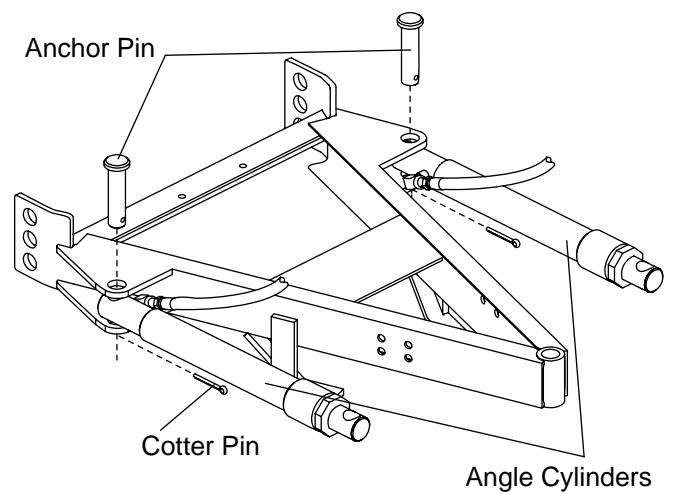


## ATTACHING LIFT AND ANGLE CYLINDERS

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.

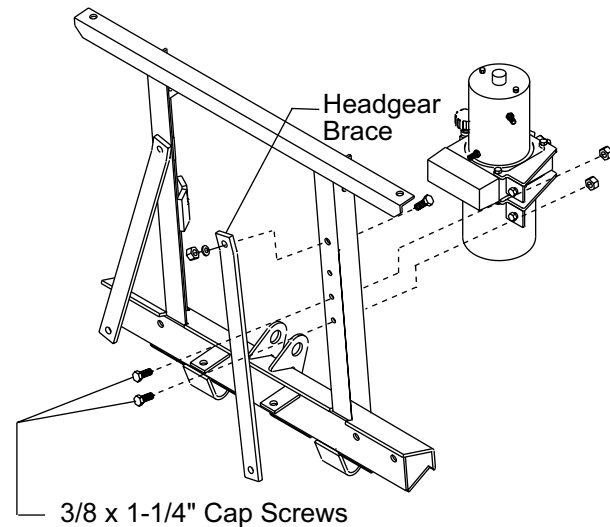


2. Attach the angle cylinders to the A-frame with the two anchor pins and cotter pins.

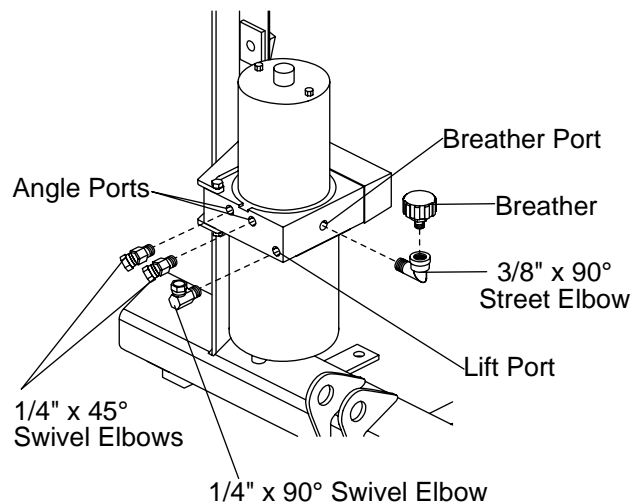


## MOUNTING HYDRAULIC UNIT

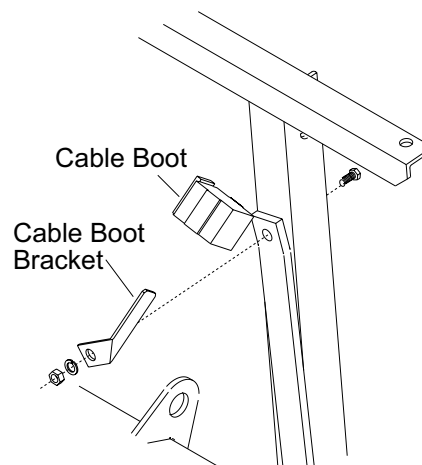
1. Remove the top bolt from the passenger-side headgear brace and swing out of the way.
2. Bolt the Insta-Act® hydraulic unit to the headgear using two 3/8 x 1-1/4" cap screws and locknuts. Use the bottom two holes if three holes are available.
3. Reattach and tighten the headgear brace.



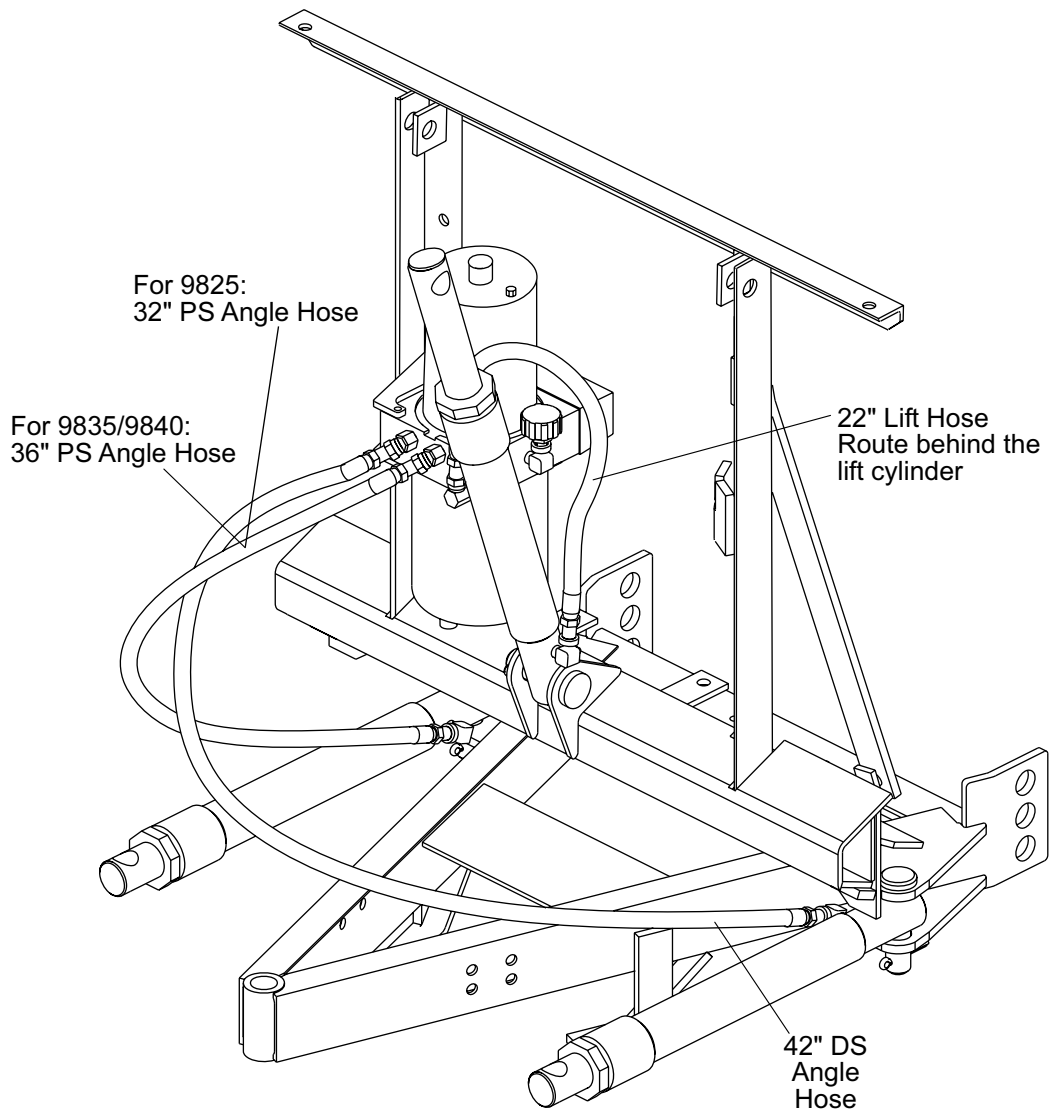
4. Remove the 1/4" NPTF plugs from the angle ports, lift port and the 3/8" NPTF plug from the breather port. Screw 1/4" x 45° swivel elbows into the angle ports. Screw a 1/4" x 90° swivel elbow into the lift port and a 3/8" x 90° street elbow into the breather port as shown.
5. Looking at the front of the vehicle, the 1/4" x 45° swivel elbows in the angle ports should be at 8 o'clock and the 1/4" x 90° swivel 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.



6. Install the cable boot and cable boot bracket as shown.



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.**

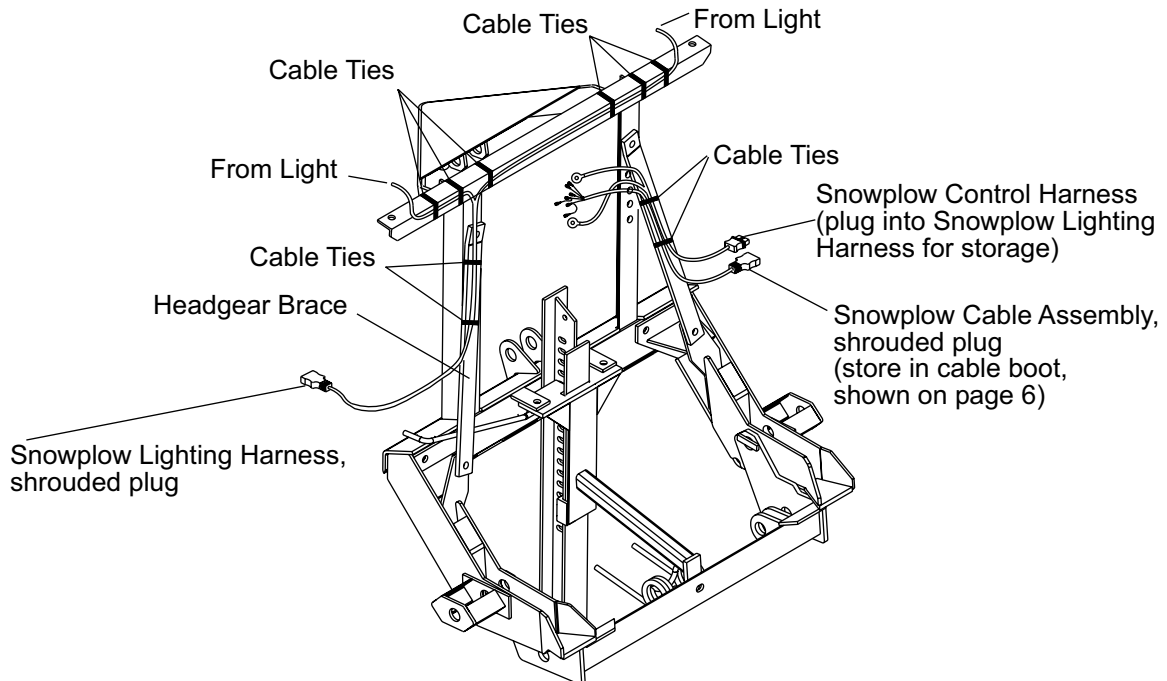
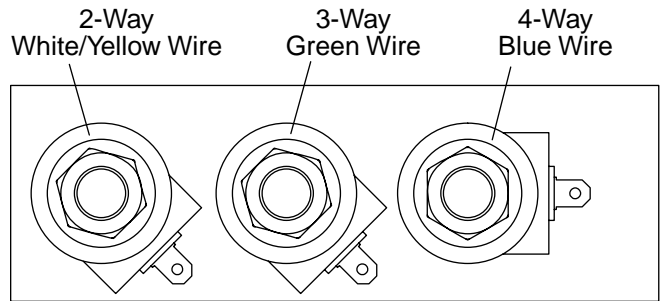
---

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**

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.

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

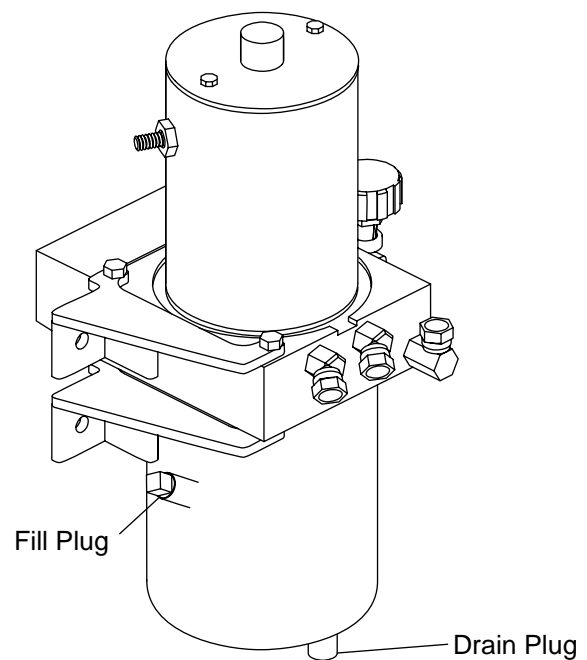
System Capacity:

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 crossmember (9825/9835) or stops (9840) 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.**



Fisher Engineering reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein. Fisher Engineering and the vehicle manufacturer may require and/or recommend optional equipment for snow removal. This product is manufactured under the following patents: 4,280,062, 4,999,935, 5,353,530, and 5,420,480 and other patents pending. Fisher Engineering offers a one-year limited warranty on all snowplows and accessories. See separately printed page for this important information. The following are registered (®) trademarks of Douglas Dynamics, L.L.C.: FISHER®, Insta-Act®

**Printed in USA**