

 <p style="margin: 0;">JAWS OF LIFE. Rescue Systems</p> <p style="margin: 0;">HURST EMERGENCY PRODUCTS</p>	<p style="margin: 0;">Instruction Sheet</p> <hr/> <p style="margin: 0;">Hydraulic Hand Pump</p>
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L2181 Rev. 0 09/96

IMPORTANT RECEIVING INSTRUCTIONS:

Visually inspect all components for shipping damage. Please contact Hurst Emergency Products if damage has occurred.

SPECIFICATIONS

Hand Pump Specifications						
Model	Type (Speed)	Maximum Pressure Rating psi [bar]		Oil Volume per Stroke in ³ [cm ³]		Usable Oil Capacity in ³ [cm ³]
		Stage 1	Stage 2	Stage 1	Stage 2	
355R039	2	350 [25]	5,000 [350]	.99 [16.23]	.15 [2.46]	110 [1800]

SAFETY

INFORMATION

Hurst Jaws of Life® products are designed and manufactured to provide excellent service when used for their intended purpose. Operator safety is a major consideration in the product design and operator manuals are provided to promote their safe use. Additionally, operator training programs are offered by all authorized Distributors and Hurst Emergency Products. The company urges all users to read the Instruction Manual and to seek operating instructions from qualified instructors before attempting to use the products.

Although most safety precautions are addressed in factory authorized training programs as well as throughout this manual, pay particular attention to the following:

- Power units and tools should be operated by qualified personnel only.
- Be sure to follow all maintenance procedures and to use only factory authorized service parts.
- Return your warranty registration card.



WARNING

This pump is operated with a non-vented reservoir. If the reservoir is subjected to high pressure, the casing may rupture, causing personal injury and/or equipment damage. NEVER attempt to return more fluid to the reservoir than it is capable of holding. Inspect equipment for broken or missing parts, or damaged hoses before and after use.

- Keep clear of all moving parts when lifting or pulling.
- Always use cribbing to shore and stabilize objects being lifted.
- Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/ or personal injury.
- Wear proper protective gear, including bunker gear, gloves, helmets, face shields, etc.



- Always use the handle to carry the pump. Carrying the pump by the hose may damage the hose and/or the pump.
- Check hydraulic fluid level prior to pump operation. Add fluid when necessary.
- Use only Jaws of Life® approved hydraulic fluid. Do not use other brands because characteristics may differ. Brake or transmission fluid will not work and will damage the equipment used in the hydraulic system.
- Jaws of Life® fire resistant fluid is a custom blended phosphate ester fluid. In case of contact with the skin, wash off with soap and water. In case of eye contact, flush generously with water. If discomfort persists, see a physician.
- DO NOT OPERATE EQUIPMENT WHEN TIRED. STAY ALERT.

DESCRIPTION

The figure and the corresponding table below show the main components of the pump.

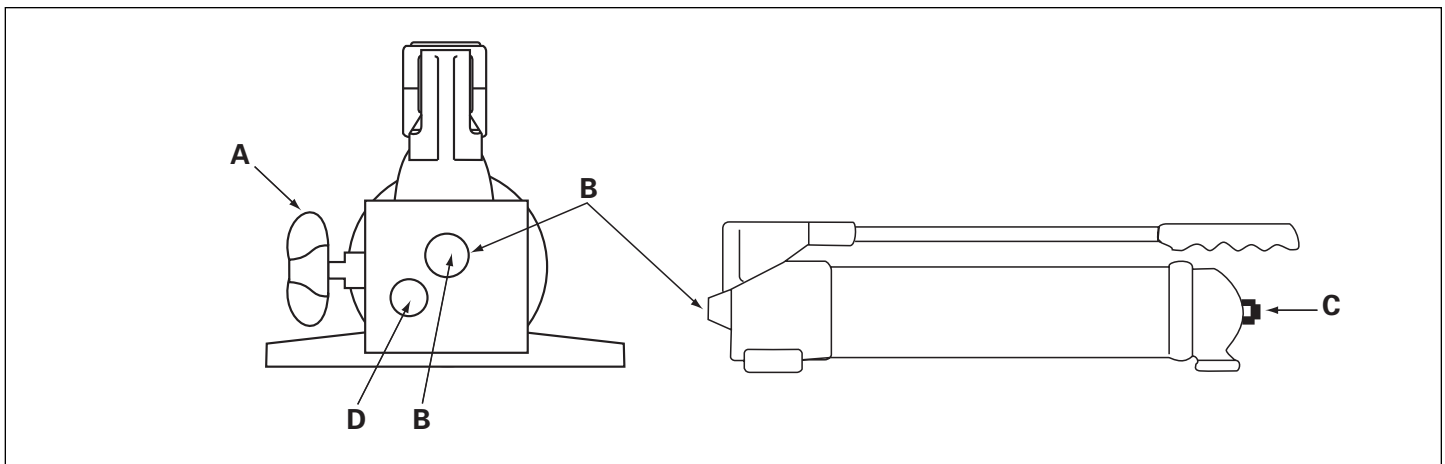


Figure 1

Figure 1	
A	Release Valve
B	3/8 NPTF Outlet Ports
C	Fill Plug
D	3/8 NPTF Return-to-Tank Port

INSTALLATION

Adding Fluid to the Pump

IMPORTANT: Always add fluid with the tool fully retracted or the system will contain more fluid than the reservoir can hold.

1. Remove fill plug from reservoir.
2. Fill reservoir only to level mark shown on pump. Use only Jaws of Life® approved hydraulic fluid.
3. Replace fill plug.

Note: This pump requires air in the reservoir to function properly. If the reservoir is completely filled, a vacuum will form preventing fluid from flowing out of the pump.

Connecting the Pump

1. Thread hose into pump outlet. Use 1-1/2 wraps of Teflon tape (or suitable thread sealant) on hose fitting, leaving the first complete thread free of tape to ensure that tape does not shed into hydraulic system, causing damage. Trim loose ends.
2. Install a pressure gauge in-line from the pump for added safety and better control.
3. Connect the hose(s) to your cylinder or tool. (Refer to the appropriate rescue tool instruction manual.)

Pump Position

The pump may be operated in either a horizontal or vertical position. When operating the pump in the vertical position, the hose end must be pointed down, or the pump will pick up air and will not build pressure properly.

OPERATION

Before Using the Pump

1. Check all system fittings and connections to be sure they are tight and leak free.
2. Check oil level in reservoir before operating pump. See "Adding Oil to the Pump" on page 5.



WARNING

In certain situations the pump handle can "kick back". Always keep your body to the side of the pump, away from the line of force of the handle.



CAUTION

NEVER add extensions to pump handle. Extensions cause unstable pump operation.

NOTE: To reduce handle effort at high pressure, take short strokes. Maximum leverage is obtained in the last 5 degrees of stroke.

Using Two-Speed Pumps

These pumps provide 2-stage flow. Under no-load, the pump operates in the high flow first stage for rapid advance. When the load is contacted, the pump automatically shifts to the second stage for building pressure.

NOTE: For best performance, operate pump handle at moderate speed during the high flow first stage. Rapid handle speed in the first stage will prevent the pump from delivering full volume of oil.

Single-Acting Applications with Release Valve

1. Close release valve by turning clockwise, as shown in Figure 2.

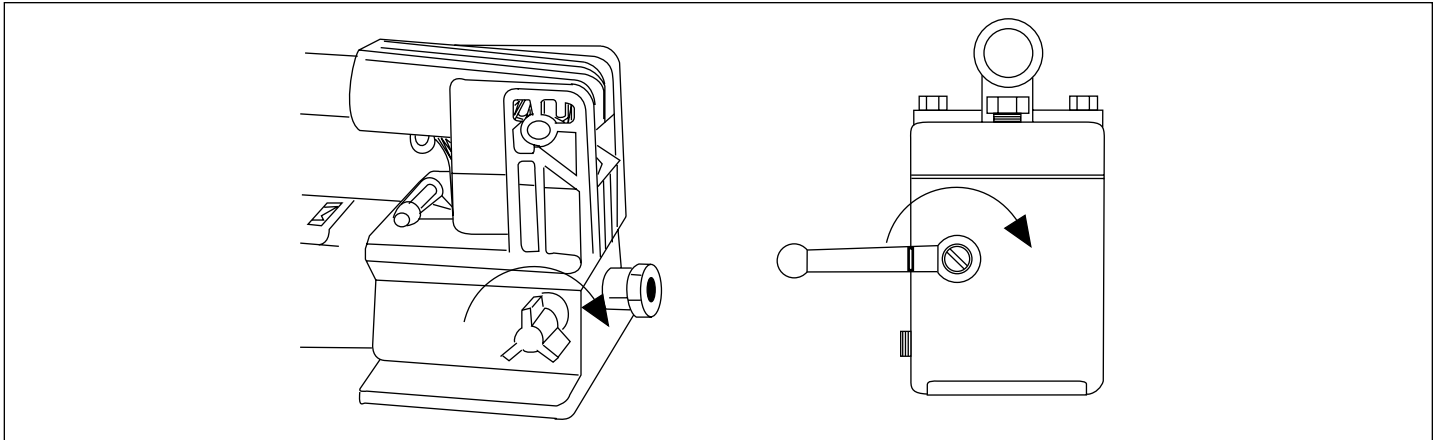


Figure 2



WARNING

Close release valve finger tight **ONLY**. Using tools on release valve can damage it and cause the pump to malfunction.

2. Operate pump handle to deliver hydraulic power to system. Pressure will be maintained until release valve is opened.
3. Open release valve (turn counter-clockwise) to release pressure, allowing oil to flow back to the reservoir.

Air Removal

Removing air from the hydraulic system will help the cylinder to advance and retract smoothly.

1. Vent pump reservoir (for vented pumps only) and close release valve.
2. Position pump at higher elevation than cylinder.
3. Position cylinder with the plunger end down (up if using pull cylinder). See Figure 3.
4. Operate pump to fully extend the cylinder (retract if using pull cylinder).
5. Open release valve to retract cylinder (extend if a pull cylinder). This will force the trapped air to move up to the pump reservoir.
6. Repeat the above steps as necessary.
7. Add oil if necessary. See page 5.
8. Return vent/fill cap to operating position.

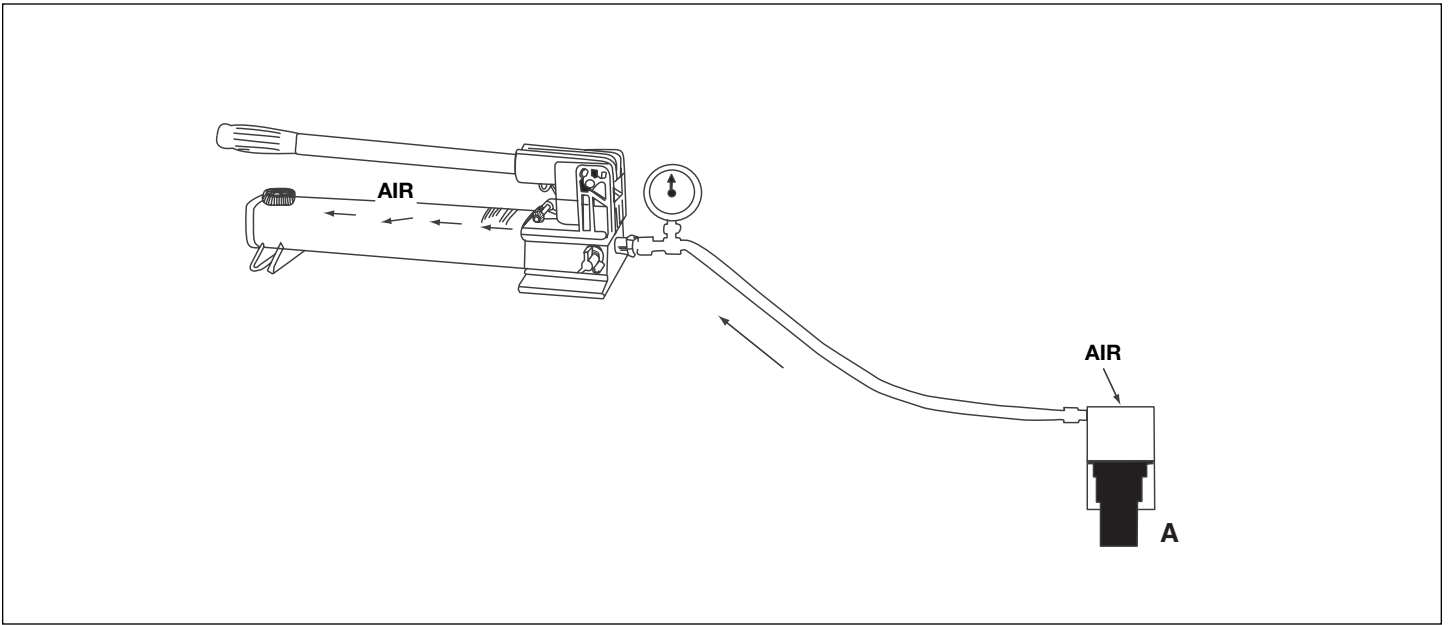


Figure 3

MAINTENANCE

Use only Jaws of Life® approved hydraulic oil with these pumps to promote long pump life and to protect your warranty.

Adding Oil to the Pump

Check oil level regularly.



WARNING

Always add oil with cylinders fully retracted (extended if pull cylinders) or the system will contain more oil than the reservoir can hold.

1. Remove vent/fill cap from reservoir.
2. Fill reservoir only to level mark shown on pump.
3. Remove air from system if necessary. See page 4. Recheck oil level after removing air.
4. Return vent/fill cap to proper position.

NOTE: This pump is a non-vented hand pump and requires air in the reservoir to function properly. If the reservoir is completely filled, a vacuum will form preventing oil from flowing out of the pump.

Keeping Oil Lines Clean

When coupler halves are disconnected, always screw on dust caps. Use every precaution to guard unit against entrance of dirt because foreign matter may cause pump, cylinder, or valve failure.

Lubricating the Pump

To extend pump life and improve performance, lubricate the beam pin (A), cross pin (B), and piston head (C) regularly, using roller bearing grease. See Figure 4 below.

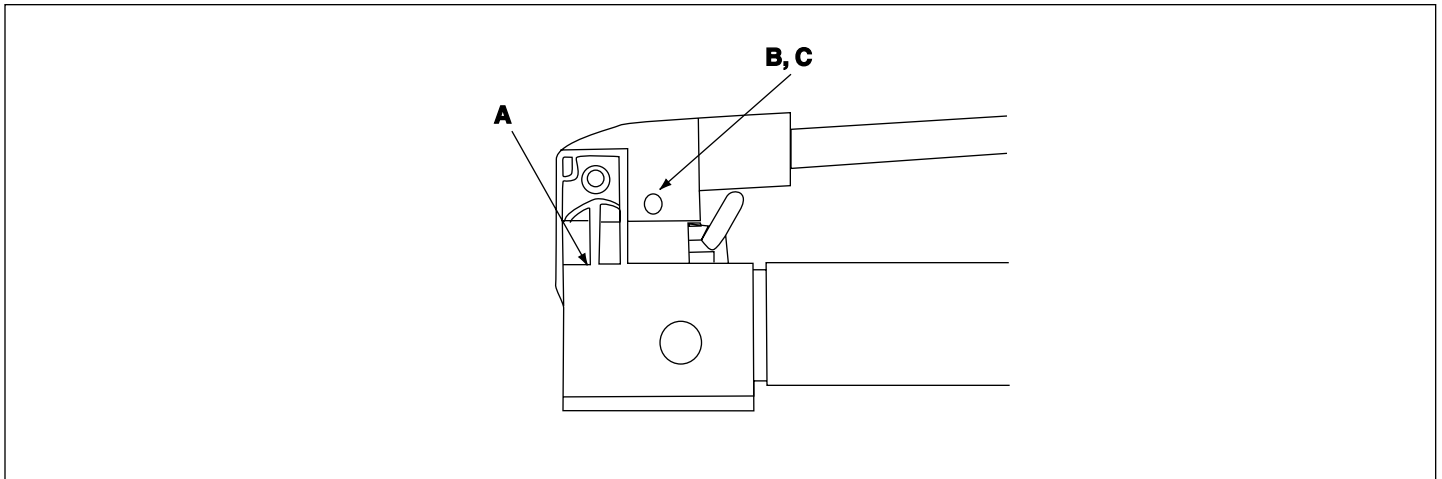


Figure 4

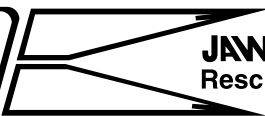
Changing the Oil

1. Drain all oil and refill with clean hydraulic oil every 12 months. If pump is used in dirty environments, change the oil more often.
2. Remove vent/fill cap or plug from reservoir.
3. Tilt pump to drain out old oil.
4. Fill reservoir only to level mark shown on pump.
5. Replace the vent/fill cap or plug.

Dispose of used oil properly.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Cylinder does not advance, advances slowly, or advances in spurts.	<ol style="list-style-type: none"> 1. Oil level in pump reservoir is low. 2. Release valve open. 3. Loose hydraulic coupler. 4. Load is too heavy. 5. Air trapped in system. 6. Cylinder plunger binding. 	<ol style="list-style-type: none"> 1. Add oil according to the Maintenance instructions on page 5. 2. Close the release valve. 3. Check that all couplers are fully tightened. 4. Do not attempt to lift more than rated tonnage. 5. Remove air according to the instructions on page 4. 6. Check for damage to cylinder. Have cylinder serviced by a qualified hydraulic technician.
Cylinder advances, but does not hold pressure.	<ol style="list-style-type: none"> 1. Leaking connection. 2. Leaking seals. 3. Internal leakage in pump. 	<ol style="list-style-type: none"> 1. Check that all connections are tight and leak free. 2. Locate leak(s) and have equipment serviced by a qualified hydraulic technician. 3. Have pump serviced by a qualified hydraulic technician.
Cylinder does not retract, retracts part way, or retracts more slowly than normal.	<ol style="list-style-type: none"> 1. Release valve closed. 2. Pump reservoir is over-filled. 3. Loose hydraulic coupler. 4. Air trapped in system. 5. Hose I.D. too narrow. 6. Cylinder retraction spring broken or other cylinder damage. 	<ol style="list-style-type: none"> 1. Open release valve. 2. Drain oil level to full mark. See page 5 instructions for adding oil. 3. Check that all couplers are fully tightened. 4. Remove air according to the instructions on page 4. 5. Use larger diameter hydraulic hose. 6. Have cylinder serviced by a qualified hydraulic technician.



JAWS OF LIFE.
Rescue Systems

HURST EMERGENCY PRODUCTS

SALES

700 Spring Mill Avenue
Conshohocken, PA 19428
TEL: (215) 825-6300
FAX: (215) 825-6440

MANUFACTURING

711 N. Post Road
Shelby, NC 28150
TEL: (704) 487-6961
FAX: (704) 487-7271

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