867-7UF Pressure Relief Valve

HANG THESE INSTRUCTIONS ON THE INSTALLED VALVE FOR FUTURE REFERENCE





ictaulic I-867-7UF

TABLE OF CONTENTS

| Hazard Identification | ļ |
|----------------------------------|---|
| Safety Instructions | ļ |
| Introduction | ļ |
| Optional Equipment. | ļ |
| Valve Position-Flow Indicator | 1 |
| Large Control Filter | 1 |
| Installation | 5 |
| Operation | 7 |
| Start Up | 7 |
| Readjusting | 7 |
| Maintenance And Inspection Tests | 3 |
| Weekly Inspection | 3 |
| Monthly Inspection And Test | 3 |
| Troubleshooting | 3 |



HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below.



This safety alert symbol indicates important safety messages. When you see this symbol, be alert to the possibility of personal injury. Carefully read and fully understand the message that follows.

DANGER

• The use of the word "DANGER" identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.

 The use of the word "WARNING" identifies the presence of hazards or unsafe practices that could result in death or serious personal injury if instructions, including recommended precautions, are not followed.

 The use of the word "CAUTION" identifies possible hazards or unsafe practices that could result in personal injury and product or property damage if instructions, including recommended precautions, are not followed.

NOTICE

• The use of the word "NOTICE" identifies special instructions that are important but not related to hazards.

SAFETY INSTRUCTIONS



1. Read and understand all instructions before proceeding with the installation, operation, and maintenance of this valve. For proper operation and approval, the 867-7UF valve and accessories must be installed in accordance with the specific instructions included with the shipment.

2. Use only recommended accessories. Accessories and equipment that are not approved for use with this valve may cause improper system operation.

3. Wear safety glasses, hardhat, foot protection, and hearing

protection. Wear hearing protection if you are exposed to long periods of noisy jobsite operations.

4. Prevent back injury. Large and pre-trimmed valves are heavy and require more than one person (or mechanical lifting equipment) to position and install the assembly. Always practice proper lifting techniques.

5. Avoid using electrically powered tools in dangerous environments. When using electrically powered tools for installation, ensure that the area is moisture-free. Keep the work area well lit, and allow enough space to accommodate proper installation of the valve, trim, and accessories.

6. Watch for pinch points. Do not place fingers under the valve body where they could be pinched by the weight of the valve. Use caution around spring-loaded components.

7. Keep work areas clean. Cluttered areas, benches, and slippery floors can create hazardous working conditions.

INTRODUCTION

NOTICE

- Drawings and/or pictures in this manual may be exaggerated for clarity.
- The valve, along with this operating and maintenance instructions manual, contains trademarks, copyrights, and/or patented features that are the exclusive property of Victaulic.

The 867-7UF valve is a pilot-operated, diaphragm-type pressure relief valve. It maintains a constant preset system pressure regardless of changing demands. This valve relieves excess system pressure to sump or atmosphere.

According to the inlet pressure, the pilot valve regulates the main valve throttling. This valve requires only existing line pressure to operate.

OPTIONAL EQUIPMENT

VALVE POSITION-FLOW INDICATOR

This option provides the means for detecting motion of water through the valve, according to requirements of NFPA 20. This item can be retro-fit in the field.

LARGE CONTROL FILTER

This upgrade from the standard filter provides extra capacity for filtering of the water supplied to the control loop to achieve the essential level of debris-free water. This feature is recommended for cases in which there is uncertainty regarding the level of particulate matter in the water.



INSTALLATION

- 1. Before the valve is installed, flush the pipeline to remove any dirt, scale, or debris. Failure to flush the line before installation may cause the valve to become inoperable.
- 2. When the valve is used for individual pump pressure relief, place the relief valve between the pump and the pump discharge check valve. This must be attached in a way that allows for easy removal for repairs without disturbing the piping.
- 3. Allow enough room around the valve assembly for any adjustments and future maintenance/disassembly work.
- 4. Install the valve in the pipeline with the valve flow arrow on the body casting pointing away from the pump. Use the lifting eye provided on the main valve cover for lifting and lowering the valve.
- 5. For best performance, install the valve horizontally with the cover facing up. Other positions are acceptable, but care must be taken to fully prime and purge air from the diaphragm chamber, and to ensure that the actuator can be easily removed for future maintenance.
- 6. After installation, carefully inspect/correct any damaged accessories, piping, tubing, or fittings. Ensure that there are no leaks.



Discharge Chart

Set Pressure





Figure 1 Installation Drawing

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OPERATION

The pressure relief pilot (Figure 2, call out 1) senses inlet pressure and modulates the upper control chamber, causing the main valve to throttle, thus sustaining constant inlet pressure. When the inlet pressure rises above the pilot setting, the pilot opens, pressure in the upper control chamber decreases, and the main valve modulates open to relieve inlet pressure and sustain pilot setting.

The pressure relief valve is equipped with an adjusting screw (Figure 2, call out 4) to preset the desired inlet pressure and an adjustable needle valve (Figure 2, call out 5) to control the main valve closing speed.

START UP

- 1. Provide pump shut-off pressure to the 867-7UF valve inlet, allowing no system demand.
- **2.** Create sufficient pressure (higher than the pilot set pressure) to allow flow through the relief valve.
- **3.** While the relief valve is operating, wait for the valve inlet pressure to stabilize. The pressure on the inlet side of the relief valve should be according to the factory pre-set adjusted pressure.
- 4. Slowly allow system flow so that system pressure falls below the pressure relief valve adjusted pressure. The valve should slowly shut to drip-tight.

READJUSTING

- Tools required:
- Flat head screwdriver
- Adjustable wrench

The pressure relief valve is factory pre-set. The pre-set is clearly indicated on the valve data plate. If readjustment to either the pressure or the valve response is required, complete the following steps.

- 1. Ensure that there is nominal flow through the valve.
- **2.** Release the tension between the adjusting screw on the valve and the fastening nut by turning the fastening nut counterclockwise.
- **3.** By alternately turning the adjusting screw (Figure 2, call out 4) on the pressure relief pilot (Figure 2, call out 1) by one-half turn and then reading the outlet pressure, gradually adjust the pressure counterclockwise to decrease the inlet pressure or clockwise to increase the inlet pressure.
- **NOTE:** Valve response adjustment affects pre-set pressure. Any adjustment to valve response requires rechecking pre-set pressure. See Start Up, steps 1–4.
- 4. Repeat the start up procedure in the previous section.
- 5. To adjust the valve response time, turn the adjustable needle valve (Figure 2, call out 5) on the bottom of the pilot. Turn clockwise (while facing the screw) to decrease the closing speed of the main valve or counterclockwise to increase the closing speed of the main valve.
- 6. Repeat the start-up procedure in the previous section.



Valve Closed



Valve Open (pressure relief)





MAINTENANCE AND INSPECTION TESTS

NOTICE

- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Consideration of a fire patrol should be given for the affected areas.
- Before servicing or testing the system, notify the authority having jurisdiction.

Prior to turning off any valves or activating any alarms, notify local security guards and the central alarm station, if used, so that a false alarm will not be signaled.

In any of the following inspections or testing procedures, if an abnormal condition exists, see the troubleshooting section for possible cause and corrective action.

The 867-7UF valve is to be inspected, tested, and maintained in accordance with this manual and with NFPA 25.

WEEKLY INSPECTION

- 1. The system should be inspected under flow conditions.
- 2. Check that the main valve, pilot system, accessories, tubing, and fittings are all in good condition, are free of damage, and are not leaking.
- **3.** The fastening nut of the pilot valve adjusting screw (Figure 2, call out 4) should be fastened tightly.
- **4.** For circulation-type installations, verify that sufficient water is flowing through the valve when fire pump is operating at shut-off pressure (churn) to prevent the pump from overheating.
- **5.** Verify that the pressure upstream of the relief valve fittings in the fire pump discharge piping does not exceed the pressure for which the system components are rated.

MONTHLY INSPECTION AND TEST

- 1. Complete weekly inspection.
- 2. During the monthly fire pump flow test, verify that the pressure relief valve is correctly set to relieve at the appropriate pressure and to close below the pressure setting.

TROUBLESHOOTING

| Problem | Possible Cause | Solution |
|-------------------------------------|--------------------------------------|--|
| Valve fails to regulate. | Needle valve not properly adjusted. | Factory set at ½ or 1½ open. Adjust. |
| | Pulsates or hunts. | Slowly adjust needle valve until pulsation stops. |
| | Air trapped in main valve cover. | Loosen cover tube fitting at the highest point, allow the air to escape, and re-tighten. |
| | Filter screen blocked. | Remove filter's cap and screen to clean. Filter might be insufficient. See note below. |
| Valve fails to open. | Insufficient inlet pressure. | Check/create inlet pressure. |
| | Pilot is adjusted too high. | Turn adjusting screw CCW on pilot. |
| Valve fails to seal inlet pressure. | Filter screen blocked. | Remove filter's cap and screen to clean. Filter might be insufficient. See note below. |
| | Debris trapped in main valve. | Remove and inspect actuator assembly. Check seat. Check for foreign bodies. Rinse at high flow rate. |
| | Diaphragm in main valve is leaking. | Open the valve cover and inspect diaphragm. If damaged, replace. |
| | Diaphragm in pilot valve is leaking. | |

NOTE: Mark "F" - Large Filter

In cases where the filter screen frequently becomes blocked, install a filter with filtration capacity of at least 80 mesh / 250 µm.

DIFFICULTY IN PERFORMANCE

Where difficulty in performance is experienced, the manufacturer or an authorized representative should be contacted to determine if any field adjustment is to be made.



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