



JAECOFRAM I

INSTALLATION AND OPERATION

Reference drawings 50129, 50130 and 50131

WARNING: To prevent personal injury, all moving parts must be protected. Protective guards for all exposed moving parts are available.

A. Preliminary

1. Refer to motor nameplate and note voltage, phase, and frequency and current requirements of motor. Make certain your power supply matches the motor requirements.
2. Remove the pin from red fill plug (207) on top of the gear reducer. This allows venting of the gear reducer. Failure to remove this pin may result in oil seal failure. Check oil level to be certain it is at the level of the uppermost 1/8" pipe plug on the end of the reducer opposite the input shaft. If the oil level is low, add EP-150 oil until oil flows from the plug hole.
3. Remove the solid caplugs (535) on top of the pump housing (501) so that the two cavities are exposed. Save these solid plugs for servicing the pump in the future. Check oil level to be certain that it is within 1" of the top of the pump. Add EP-50 if needed. Install the vented caplugs (536) supplied with the pump.

B. Operating

1. Connect the suction (bottom) valve of the pump to your suction supply line. Provide a strainer and a shutoff valve in your suction line for routine maintenance. Suction piping should be at least one size larger than the suction valve connection. Connect discharge (top) valve of the pump to discharge pipe. Discharge piping may be the same size as the discharge valve. Make certain that the piping does not apply stress to the pump connections. Use flexible tubing to connect pipelines to pump, if possible.
2. Allow liquid to flow into pump. The discharge pipe should be vented to atmospheric pressure. Do not attempt to start up a new pump under full line pressure conditions.
3. Adjust the capacity control knob (515) to zero capacity.
4. Apply electrical power to the pump motor. Allow pump to run for several minutes. Recheck the oil level in the pump housing while the pump is running, add oil if necessary to maintain the level to within 1" from the top.
5. Adjust the capacity to 100% capacity. Observe the discharge line. Flow should start. Adjust the capacity from 0% to 100% and back to 0% several times. This will help to bleed the air trapped in the oil cavity of the pump.
6. Proceed with any necessary calibration or testing of the pump.
7. Connect discharge piping to system. Pump may now be subjected to full line of pressure.
8. For proper operation, the differential pressure of the system should be at least 25 to 30 psi. For operating pressures lower than this, a back pressure valve may be necessary to insure metering accuracy and to prevent siphoning through the pump.

C. The Internal Relief Valve

General

1. The internal relief valve is an adjustable spring-loaded poppet valve. Its purpose is to protect the pump from over-pressurization. **ON CLOSED LOOP SYSTEMS WHERE THE METERING PUMP IS NOT THE ONLY PRESSURE PRODUCING DEVICE IN THE SYSTEM, ADDITIONAL RELIEF VALVE (S) MAY BE NECESSARY.**
2. If the working pressure of the pump was specified when the pump was ordered, the internal relief valve was factory set at 10% above this pressure. If the working pressure was not supplied at the time of order, then the relief valve was factory set at 10% above the pump's maximum rated pressure. This pressure is listed on the nameplate, which can be found on the top of the pump's gear reducer.



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3. THE FACTORY SET PRESSURE MAY BE TOO HIGH FOR PROPER PROTECTION. For example, a pump is ordered which has a rated maximum discharge pressure of 1000 psi. The pump is installed in a closed loop system using plastic pipe fittings (since the working pressure in the system may be only 50 psi). If a valve in the discharge line is shut off a potentially hazardous situation exists, since pressure reaches 1100 psi (1000 + 10%). This is well past the burst pressure of the plastic fittings in the line. In this case, the internal relief valve in the pumps should be reset to 10% above the operating pressure of 50 psi, or 55 psi.

Setting The Relief Valve

1. Remove the left threaded plastic cap (535) on top of the pump housing, as viewed facing the diaphragm head, to expose the internal relief valve.
2. Install a shutoff valve in discharge line. Install a pressure gauge in the line between the shutoff valve and the pump.
3. Start the metering pump. When the pump is up to operating pressure, slowly close the shutoff valve in the discharge line. Observe the pressure gauge. The pressure indicated on the gauge is the current internal relief valve set pressure.
4. On the top of the relief valve there is a slotted adjusting screw. Adjust the set pressure with a screwdriver by turning the adjusting screw clockwise to increase the set pressure and counter-clockwise to decrease the set pressure.

D. Routine Maintenance

1. Every six months drain oil from gear reducer housing (216) and replace with fresh EP-150. EP-150 is available from Jaeco Fluid Systems (part no. 50076-P040). Fill until oil flows from the upper plug hole.
2. Every six months drain oil from the pump housing (501) and replace with fresh EP-50 oil. EP-50 oil is available from Jaeco Fluid Systems (part no. 50076-P-020). Fill to within 1" of top of pump housing.
3. Make certain that the diaphragm head bolts (544 and 545, or 560) are tight. Replace suction and discharge valves as required.

E. Replacing the Diaphragm

Disassembly

1. To prevent personnel from being exposed to fluid being pumped, pipe lines should be flushed and appropriate measures should be taken to render the process fluid safe to handle before opening pipe lines or attempting to remove diaphragm head assembly.
2. Close the suction valve. Start pump and allow to run for 30 to 60 seconds to remove as much fluid from diaphragm head and valves as possible. Disconnect the suction and discharge lines. The fluid remaining in the diaphragm head can be drained by removing the suction valve. Drain the oil from the pump housing (501) by removing the drain plug (524).
3. Remove the eight diaphragm head bolts. Remove the diaphragm head and the diaphragm (543). Clean the surfaces of the pump housing and the diaphragm head, paying particular attention to the grooves.

Re-assembly

1. Place a new diaphragm in the recess of the pump housing. While holding the diaphragm in place with one hand, slide the diaphragm head into place across the pump housing and the diaphragm. Make sure that the diaphragm does not slip out of its recess while doing this. If in doubt, remove the head and start over. Failure to have the diaphragm properly seated in its groove will cause leakage and possibly pump failure.



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2. Insert the eight diaphragm head bolts and, starting at the bottom, tighten them evenly alternating from side to side. The objective is to tighten the bolts without cocking the diaphragm head and without allowing the diaphragm to slip from its recess. The bolts should be tightened to 20 to 25 ft. lbs.
3. Replace the drain plug (524) with EP-50 oil (Jaeco Fluid Systems part no. 50076-P020).

F. Replacing adjuster o-ring

Disassembly

1. Remove the adjuster assembly by unscrewing the guide (513) and lifting the entire assembly straight up and out of the pump housing.
2. Remove the o-ring (529) and examine adjuster (511) for wear. Replace if required.
3. Install new o-ring on liberally greased adjuster.

Re-Assembly

1. Adjust the capacity knob to 0% and reinstall the adjuster assembly, taking care that the o-ring is not nicked or damaged when entering bore. Use an anti-seize compound on the threads of the guide.
2. While pump is running. Slowly rotate capacity control from 0% to 100% at least three (3) times and then set control to the desired output.