



# SERIES 'WT' FILTER CHAMBER

OPERATION AND  
SERVICE GUIDE  
O-850E  
APRIL 2001

ABSOLUTE (SOE) MODELS:	PRICE CODE NUMBERS	NOMINAL (DOE) MODELS:	PRICE CODE NUMBERS
PL70S-2-2	78-1150A-2	PL70S-2	78-1150A
PL140S-2-2	78-1151A-2	PL140S-2	78-1151A
PL210S-2-2	78-1152A-2	PL210S-2	78-1152A
PL280S-2-2	78-1153A-2	PL280S-2	78-1153A

Refer to Bulletin C-103  
and Parts List P-7050.

## ⚠ SAFETY PRECAUTIONS BEFORE STARTING PUMP

1. Read operating instructions and instructions supplied with chemicals to be used.
2. Refer to a chemical resistance data chart for compatibility of materials in filter with solution to be used. Filter chamber is PVC, standard gasket is EPDM, optional gasket Viton.
3. Note pressure and temperature limitations. Refer to table on page 2.
4. Personnel operating filter should always wear suitable protective clothing: face mask or goggles, apron and gloves.
5. All piping must be supported and aligned independently of the filter.
6. Always close valves slowly to avoid hydraulic shock (water-hammer).
7. Ensure that all fittings and connections are properly tightened.

## ⚠ BEFORE CHANGING APPLICATION OR PERFORMING MAINTENANCE

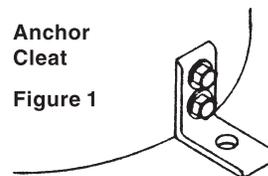
1. Wear protective clothing as described in Item 4 above.
2. Flush filter thoroughly with a neutralizing solution to prevent possible harm to personnel.
3. Verify compatibility of materials as stated in Item 2 of Safety Precautions above.

## CHAMBER INSTALLATION

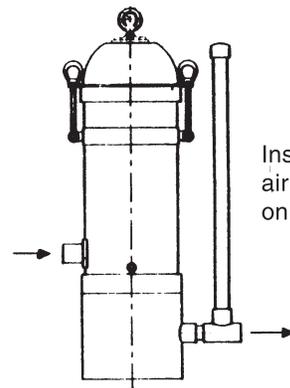
Filter chamber is free standing and stable when the inlet and the outlet piping are installed. Optional deck anchor cleats with 18-8 SS fasteners are available for securing to a platform, deck, or floor if required. Drill holes through the skirt of the filter chamber approximately 120° apart to attach cleats. Refer to Figure 1.

If unit is to be used on a constant incoming supply line such as a water main controlled by a valve on the discharge side of the unit, installation of an air cushion column must be installed on the outlet of the chamber. This will prevent water hammering that will cause excess pressure and fracture the piping or the filter chamber, which could result in bodily injury. A 2" diameter pipe that reaches the top of the chamber is recommended. Refer to Figure 2.

Valves installed on the inlet, outlet and the drain will facilitate cartridge replacement. Install valve on outlet side of chamber after the air cushion column. Inlet and outlet piping should be 2" diameter pipe. Install cover flange ring with bevel against 45° fillet on dome cover.



Anchor  
Cleat  
Figure 1



Install 2" diameter  
air cushion column  
on filter discharge.

Figure 2



Fill chamber with outlet valve partially closed with vent open so that entering liquid forces otherwise entrapped air to escape through vent. DO NOT close vent until chamber has been purged of all air and liquid appears at vent.

Tighten swing bolts to prevent leakage during operation of filter. If dome cover does not have fillet, invert flange ring. Refer to Figure 3. As the filter cartridge removes contaminants, the pressure drop across the unit will slowly rise. This can be observed by installing a SERFILCO gauge guard and vent valve assembly (optional) onto the filter chamber cover. In normal operation, it is desirable to change cartridges when a rise of 25 PSI above initial pressure has been reached and should never exceed 35 PSI differential pressure. A drop in flow will reflect a rise in pressure. When flow drops below an acceptable point, filter cartridges should be changed.

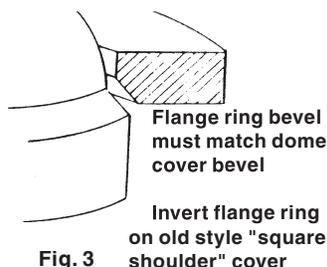


Fig. 3

**!** Do not exceed maximum recommended pressure for operating temperature.

OPERATING TEMPERATURE		MAXIMUM PRESSURE	
°F	°C	PSI	BAR
75	24	125	8.5
80	27	105	7.1
90	32	90	6.1
100	38	75	5.1
110	43	60	4.1
120	49	50	3.4
130	54	45	3.1

### A. CARTRIDGE INSTALLATION: GENERAL

1. Close inlet and outlet valves.
2. Open vent and open drain.
3. While solution is draining, loosen eye nuts at cover, or optional 316 lock nuts, and "drop" swing bolts.
4. Remove cover and lock ring by lifting straight up.
5. Unscrew hand nut and remove seat plate to replace filter cartridges. Refer to subsequent instructions for installations of various types of cartridges.
6. Replace cover, tighten eye nuts and close drain. Refer to Figure 2 for proper position of bevel.
7. Open inlet valve, then open outlet valve.
8. As solution enters filter air will escape from vent. When solution appears at vent, close vent.

9. Depending upon flow rate, cartridge style and other factors, it may be necessary to partially close outlet valve to force liquid to remain in chamber and displace air through vent. When chamber has been purged of all air, open outlet valve and close vent.

### B. CARTRIDGE INSTALLATION

SEVEN MULTI-LENGTH DEPTH CARTRIDGES or SEVEN MULTI-LENGTH PLEATED MEMBRANE CARTRIDGES WITH FLAT END GASKETS or SEVEN MULTI-LENGTH CARBON CARTRIDGES

1. Place six cartridges (10", 20", 30" or 40" long) over the six cartridge guides at bottom of filter. Place the 7th cartridge over threaded post column in center of filter chamber.
2. Install seat plate on top of cartridges. Verify that compression seats engage all cartridges and threaded column extends above plate.
3. Thread plastic cap onto center post and tighten until all cartridges are securely sealed.
4. Refer to Step 6, Cartridge Installation - General, for closing chamber and start-up.

### C. CARTRIDGE INSTALLATION

SEVEN DOUBLE 222 'O'-RING STYLE CARTRIDGES WITH TOP END CLOSED

1. Unthread center post from bottom plate using a suitable wrench.
2. Place seven cartridges (10", 20", 30", or 40" length) over cartridge guide and firmly press downward until double 'O'-ring seals at **inside diameter** of seat collar. Moistening the 'O'-rings will facilitate proper seating of the cartridge. Use solution being filtered or compatible lubricant which will not contaminate the process.
3. The 'O'-ring seal is designed for absolute sealing and bypass free filtration. However, under some circumstances when filter outlet valve is closed or throttled, the cartridge can receive a hydraulic shock which could upset the seal. Under these conditions we recommend a top seat spacer assembly.

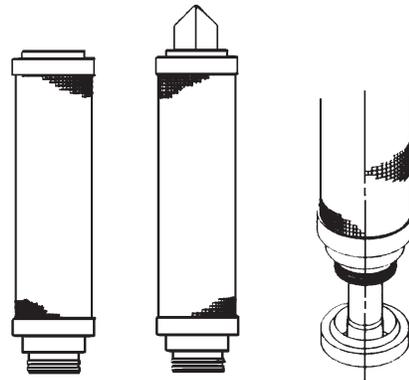
### TOP SEAT SPACER INSTRUCTIONS

- a. Invert top seat plate and press the top seat stud into the center hole. Install over cartridge. If fin style cartridge, fin should be fitted to machined cone in plate.
- b. Press top seat spacer onto top seat nut and thread on top seat stud until it stops. Cut spacer groove nearest but not over 3" from top of housing. Spacer should be adjusted to engage inside top of domed cover.
- c. Replace cover and tighten swing bolts.

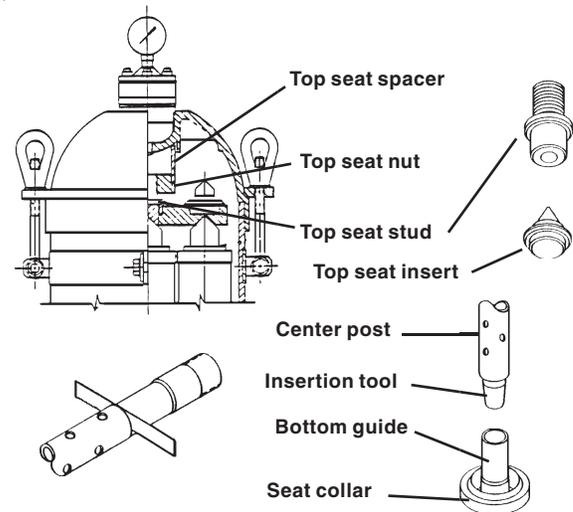
#### D. CARTRIDGE INSTALLATION

##### SEVEN SINGLE 120 'O'-RING STYLE CARTRIDGES WITH TOP END CLOSED

1. Unthread center post column from bottom plate using a suitable wrench.
2. Saw center post column at shoulder near bottom. Sandpaper or file to remove burrs from cut edge of bottom portion.
3. Replace bottom portion into bottom plate, use TFE tape on thread and tighten securely.
4. **IMPORTANT** For Model PL280S-2, it is necessary to force bottom guide into insertion tool at end of center post. This will serve as a tool to reach bottom of chamber to install the guide.
5. Place seven cartridges (10", 20", 30", or 40" length) over cartridge guide and firmly press downward until bottom of cartridge is firmly on seat collar. The single internal 'O'-ring will seal on the **outside diameter** of the cartridge guide. Moistening the 'O'-ring will facilitate proper seating of the cartridge.
6. The 'O'-ring seal is designed for absolute sealing and by-pass free filtration. However, under some circumstances when filter outlet valve is closed or throttled, the cartridge can receive a hydraulic shock which could upset the seal. Under these conditions we recommend a top seat spacer assembly.
7. Refer to Step 6, Cartridge Installation -General, for procedure on closing chamber and start-up.



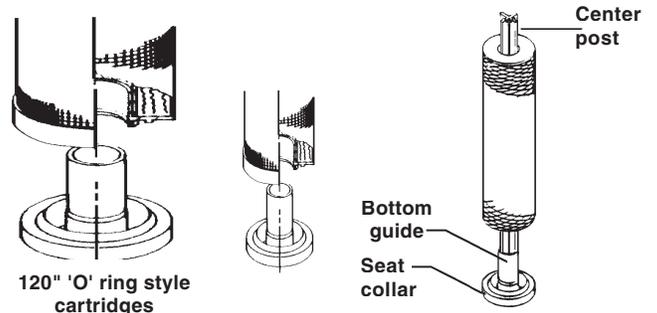
222 'O' ring style cartridges



#### E. CARTRIDGE INSTALLATION

##### 10" LENGTH DEPTH AND CARBON CARTRIDGES, OR COMBINATIONS OF 10", 20" & 30".

1. For stacking 10" cartridges into 2, 3 and 4 deck high chamber: cross post (optional) is required. **IMPORTANT:** 10" high efficiency pleated membrane cartridges with flat end gaskets **should not** be stacked, use only as multiple length.
2. Place cross post set (6) into six cartridge guides.
3. Install 10" cartridges, or combination of 10", 20" and 30" length, over cross posts and over center post column. Place gasket spacers between each cartridge for proper seal.
4. Either depth type cartridges or carbon cartridges may be installed per the above.
5. Refer to Step 6, Cartridge Installation - General, for procedure on closing chamber and start-up.



**⚠ CAUTION: Do not use air or gas as the operating or testing medium.**



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