

ZERO PRESSURE REGULATOR MODEL PR-1000A

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The Model PR-1000A Zero Pressure Regulator offers an entirely new approach to chemical metering into pumping systems using pressurized water supplies. The use of this regulator eliminates the need for troublesome float tanks with their inherent problems of corrosion, leakage, stuck float valves, clogged filterscreens, and excessive space requirements. Overall equipment costs are also less with the use of this regulator. Major construction materials used are brass and stainless steel.

Unlike any other conventional water supply regulator, the PR-1000A uses a "demand" principle of operation. This regulator is normally in a closed position. When the pump is turned on a negative pressure, or vacuum, is instantly produced in the pump suction line. This vacuum pressure acts upon the regulator diaphragm and begins to open the regulator and allow water to enter the pump. As this vacuum reaches approximately 5" Hg (mercury), the regulator will balance and hold this negative suction line pressure. Even if the main water supply pressure changes or bounces up and down, the PR-1000A will maintain a precise vacuum which is used to draw chemical into the system. Chemical metering into the pumping system is more exact than with any other method except a precision metering pump. A built-in return check valve allows the suction line to balance out at the normal water supply pressure.

ROUTINE MAINTENANCE OF THE PR-1000A ZERO PRESSURE REGULATOR

Air entering the pump suction line is the most common cause of regulator problems. All fitting connections must be sealed tightly to prevent air from entering the pump suction line. Air may also be ingested into the system from the chemical metering valve. Always operate the system with the chemical supply hose completely submerged in chemical to prevent air from being drawn into the system. If chemical is not being used, be certain that the metering valve is "OFF" in order to prevent air from entering the system. The MV-350 metering valve is equipped with double "O-Ring" seals to prevent leakage.

The regulator operates at a pump inlet vacuum of approximately 5" of mercury with the chemical control valve open, and as high as 8" when the metering valve is closed. Any time the unit appears not to operate properly, a standard

vacuum gauge should be attached to the chemical inlet port to establish whether the unit is experiencing too little, or too much vacuum. Too little vacuum is 2" or less, and too much is 8" or more with the machine running and the operating gun open.

If the regulator is operating with low vacuum and system pressure cannot be obtained, it is an indication that air is getting into the system through bad fittings connections, or bad suction seals in the pump. A leading cause for this condition on new applications where long water hoses are attached to the machine is the failure to bleed all the air from the supply water hose prior to turning the machine on, or failure to remove or open the operating gun before the unit is started to purge air from the system.

If the regulator is operating with low vacuum, but the operating pressure is normal, it is an indication that the metering piston inside the regulator is stuck open, or there is foreign material under the rubber ball check valve. To correct this problem, unscrew the knurled cap from the regulator body and gently remove the operating piston. Remove all foreign material and replace any O-Ring that appears to be damaged or worn. Relubricate the piston with a good quality silicone type grease and reassemble the valve.

If this does not eliminate the problem, inspect the rubber ball check valve located inside the valve body (see drawing).

INSTRUCTIONS FOR DISASSEMBLY

Remove the eight screws located on top of the regulator. Lift the diaphragm out of the valve body. Remove the hex retaining nut located inside of the lower diaphragm plate. The entire center valve assembly can now be removed from the regulator body by pushing the exposed threaded portion of the valve assembly. The valve assembly may have to be gently forced past the reverse flow rubber check ball located in the lower part of the regulator body.

Remove any foreign material found in the check valve and inspect the ball for damage. Replace if necessary.

REASSEMBLE THE UNIT TAKING SPECIAL CARE TO ALIGN THE SLOTS IN THE VALVE BODY FACING THE INLET WATER PORT.

A coat of silicone grease applied to the rubber check ball will prevent it from falling out during reassembly. Also be sure to lubricate the O-Ring located on the valve body knurled nut before reassembly.

Too much vacuum indicates that the inlet water pressure is too low for proper operation, or that the operating piston is binding and should be cleared and relubricated.

The PR-1000A is designed to operate at a maximum of 6 GPM flow with sustained operating inlet water pressure of 30 psi. Capacity is reduced with less water pressure, but

