



EVAPORATOR PRESSURE REGULATING VALVES

Installation & Service Instructions

ORIT-6 & ORIT-10

Installation Instructions

To ensure best performance, evaporator pressure regulating valves must be selected and applied correctly. This is covered thoroughly in Bulletin 90-20. However, proper installation procedures are equally as important. All of the information in the Application Section should be reviewed before installing ORIT valves.

VALVE LOCATION – ORIT's must be installed upstream of any other suction line controls or accessories. These valves may be installed in any position . . . whichever best suits the application and permits easy adjustment and accessibility. However, consideration should be given to locating these valves so that they don't act as an oil trap or that solder cannot run into the internal parts during brazing in the suction line. Since these valves are hermetic, there is no way to disassemble them to clean out any solder that gets trapped in the internal parts.

STRAINER – Catch-All Filter-Drier® – See-All® Moisture and Liquid Indicator – Just as with any refrigerant flow control device, the need for an inlet strainer is a function of system cleanliness and proper installation procedures. To install the strainer, the tubing is inserted in the valve connection until the tubing and the strainer flange ring are up against the tubing stop, thus locking the strainer in place. See Figure 1. Moisture and particles too small for the inlet strainer are harmful to the system and must be removed. Therefore, it is recommended that a Catch-All Filter-Drier be installed according to the application recommendations in Bulletin 40-10.

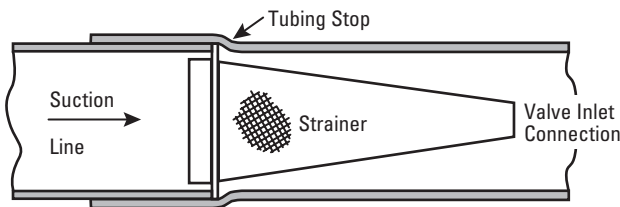


Figure 1

Further system protection is easily and inexpensively provided with the installation of a See-All Moisture and Liquid Indicator on every system. Complete information is given in Bulletin 70-10.

BRAZING PROCEDURES – When installing ORIT's with solder connections, the internal parts must be protected by wrapping the valve with a wet cloth to keep the body temperature below 250°F. The tip of the torch should be

large enough to avoid prolonged heating of the connections. Overheating can also be minimized by directing the flame away from the valve body.

Any of the commonly used solders may be used with these copper connections. The key points to remember are: avoid overheating the valve and avoid running solder into the internal parts of the valve.

The valve core of the access valve is shipped in an envelope attached to the access valve. If the access valve connection is to be used as a reusable pressure tap to check the valve setting, the ORIT must be brazed in before the core is installed to protect the synthetic material of the core. If the access valve is to be used as a permanent pressure tap for any reason, the core and access valve cap may be discarded.

TEST and OPERATING PRESSURES – Inert dry gases such as nitrogen, CO₂ or helium are often used for leak detection. Excessive leak testing or operating pressures may damage these valves by reducing the life of the bellows.

CAUTION: Inert gases must be added to the system carefully through a pressure regulator. Unregulated gas pressure can seriously damage the system and endanger human life. Never use oxygen or explosive gases. The table below lists the maximum rated pressure (MRP) each valve can withstand without damage.

VALVE TYPE	MAXIMUM RATED PRESSURE (MRP) – psig
ORIT-6	300
ORIT-10	200

VALVE SETTING and ADJUSTMENT – The standard factory setting for the 0/50 psig range is 30 psig and for the 30/100 psig range it is 60 psig. Since these valves are adjustable, the setting may be altered to suit the specific system requirements.

The main function of an ORIT valve is to keep the evaporator pressure above some given point at minimum load conditions. Therefore, even though the valves are selected on the basis of the pressure drop at full load conditions, they should be adjusted to maintain the minimum allowable evaporator pressure under the actual minimum load conditions.

FOR USE ON REFRIGERATION and/or AIR CONDITIONING SYSTEMS ONLY

When adjusting both evaporator pressure regulators and thermostatic expansion valves, the following procedure is recommended:

With the expansion valve at the Sporlan factory setting or at a manufacturer's predetermined set point, and under the actual minimum load condition, the evaporator pressure regulator should be adjusted to the desired setting. Finally, if necessary, the thermostatic expansion valve or valves can be adjusted to the desired superheat setting while under the design condition.

To adjust these valves, remove the cap and turn the adjustment screw with the proper size hex wrench (1/4" for ORIT-6; and 5/16" for ORIT-10). A clockwise rotation increases the valve setting while a counterclockwise rotation decreases the setting. To obtain the desired setting, a pressure gauge should be utilized on the inlet side of the valve so the effects of any adjustments can be observed. The ORIT has an access valve on the inlet fitting for this purpose. Small adjustments

and adequate time between adjustments are recommended to allow the system to balance at the new setting.

When ORIT's are installed in parallel, each should be adjusted the same amount. If one valve has been adjusted more than the other, best performance will occur if both are adjusted all the way in before resetting them an equal amount.

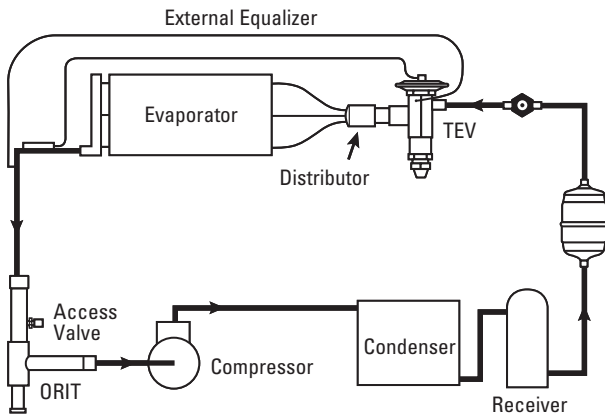
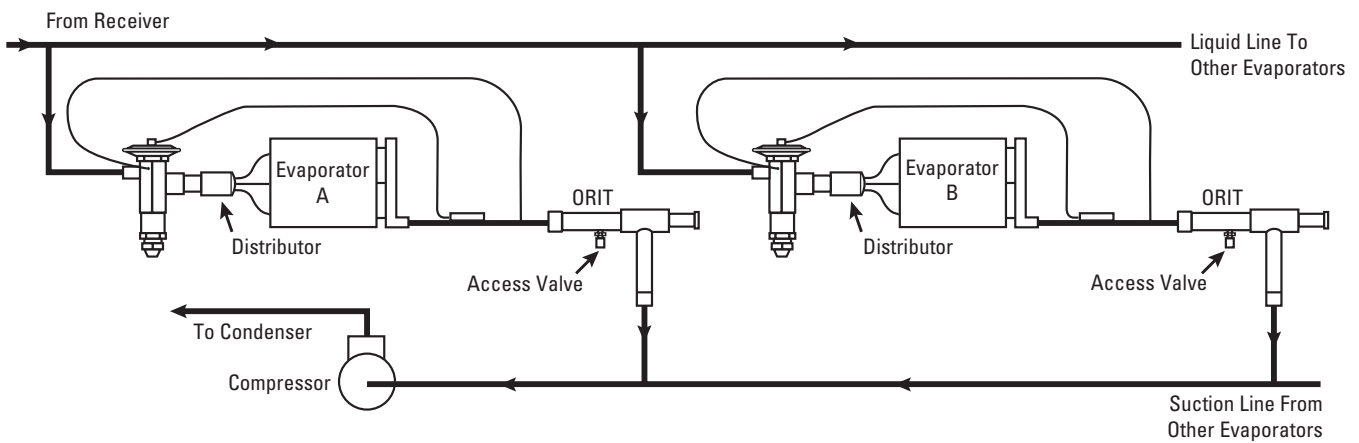
Service Instructions

Since these valves are hermetic and cannot be disassembled for inspection and cleaning, they usually must be replaced if they become inoperative. However, if an ORIT **fails to open, close properly, or won't adjust**, it is probably due to solder or other foreign materials lodged in the port. It is sometimes possible to dislodge these materials by turning the adjustment nut all the way out with the system running.

If the ORIT develops a refrigerant leak around the spring housing, it probably has been overheated during installation or the bellows has failed due to severe compressor pulsations. The valve should be cut out of the line to allow it to be tested without further damage. In either case the valve must be replaced. When this occurs, the ORIT will close until the inlet pressure becomes greater than the outlet and spring pressures. Then the valve will open and close like a pressure differential valve.

VALVE TYPE	AVERAGE psi CHANGE PER TURN	
	0/50 Adj. Range	30/100 Adj. Range
ORIT-6	6	13
ORIT-10	2.5	5.5

TYPICAL INSTALLATIONS



⚠ WARNING - USER RESPONSIBILITY FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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