

An oil supply line from the manifold at SB-2 is piped to the capacity control directional valve at Port P. The 4-way capacity control solenoid (directional) valve directs oil pressure against one side or the other of the slide valve piston. The opposite side of the slide valve is relieved to suction pressure at compressor port SC-11. The differential pressure between the P port and the suction pressure (Port SC-11) loads or unloads the slide valve to provide capacity control.

2.7 Oil Eductor

Oil eductors are fitted to automatically recover any oil that may migrate to the evaporator and return it to the compressor. The oil eductor circuit manages the amount of oil in the refrigerant charge. A small amount of oil is normal in the refrigerant charge and will be found in the evaporator. If not properly managed the oil will accumulate and have an adverse affect on unit performance.

The oil eductor circuit consists of three refrigerant and oil filter driers, two “jet pump” eductors and the interconnecting piping.

The eductors operate using the “jet pump” principle. Discharge pressure gas and oil flows through a filter dryer located at the bottom of the oil separator to a regulating orifice and nozzle located in the eductor block. The reduced pressure (pumping action) is created by the velocity of the discharge pressure gas and oil flowing through the orifice and nozzle. This creates a reduced pressure area that allows the oil-rich refrigerant and oil to flow from the evaporator into the compressor.

Oil-rich refrigerant flows into the eductor block through the filter drier from the evaporator. The oil rich refrigerant mixes with the discharge pressure gas and flows into the compressor suction line.

A second eductor flows oil, collected in the evaporator trough through the second filter drier located on the eductor block. This oil mixes with the discharge gas in the eductor block and flows to the compressor at port SC-5.

2.8 Heat Exchangers

Shells

Evaporator and condenser shells are fabricated from rolled carbon steel plates and have fusion welded seams. Carbon steel tube sheets, drilled to accommodate the tubes, are welded to the ends of each shell. Intermediate tube supports are fabricated of 12.7 mm thick carbon steel plates, no more than 1220 mm apart. The refrigerant side of each shell has a design working pressure of 20.6 bar and is tested at 31.0 bar. Each vessel has a single or dual refrigerant relief device set at 20.6 bar.

Tubes

Heat exchanger tubes are each 19 mm OD, 0.71 mm wall copper alloy with a high efficiency, internally and externally enhanced design to provide optimum performance. Each tube is roller expanded into the tube sheets to provide a leak-proof seal. Each tube is individually replaceable.

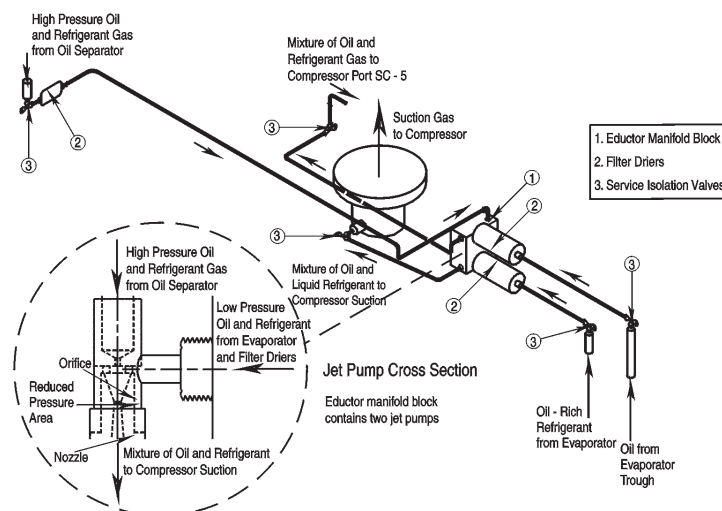


Figure 2.5 Oil Eductor