oil separator and the condenser, allows all of the refrigerant charge to be stored in the condenser.

A ½ inch liquid refrigerant supply is piped from the bottom of the liquid line to the refrigerant cooled oil cooler. The refrigerant gas from the oil cooler is piped directly into the evaporator.

A liquid refrigerant-charging valve is piped into the liquid line between the evaporator and the metering orifice. A ¾ inch male flare connection is provided for connecting hoses or transfer lines.

CAPACITY CONTROL

Refer to the Capacity Control Piping Schematic piping, Fig. 26.

Capacity control is accomplished by using differential pressure to move the slide valve. As the slide valve is moved axially between the compressor rotors the volume of gas pumped by the compressor is changed to match the system requirements.

Leaving evaporator fluid temperature is continuously monitored by the microprocessor. The Leaving Evaporator fluid temperature is compared to the Leaving Evaporator fluid Set Point. When the leaving evaporator fluid temperature is beyond the range of the set point value a signal is sent to the relay output board. A signal is sent from the relay output board to energize the 4-way valve directional solenoid valves.

When Solenoid Valve B is energized the slide valve begins to move in the load direction. The 4-way directional valve opens Port P to Port B and Port A to Port T. Oil pressure from the oil circuit flows into the 4-way solenoid valve sub-plate manifold at Port P. Oil pressure flows through the sub-plate manifold block and out Port B to Compressor Port SC-2. Simultaneously, oil flows out of Compressor Port SC-1 into Port A on the sub-plate manifold, through the sub-plate manifold block and out of the sub-plate manifold block at Port T to suction pressure.

When the Solenoid Valve A is energized, the slide valve will move in the unload direction. The 4-way directional valve opens Port P to Port A and Port B to Port T. See Figure 24. High pressure oil flows into Compressor Port SC-1 and oil is relieved out of Compressor Port SC-2 to suction pressure.

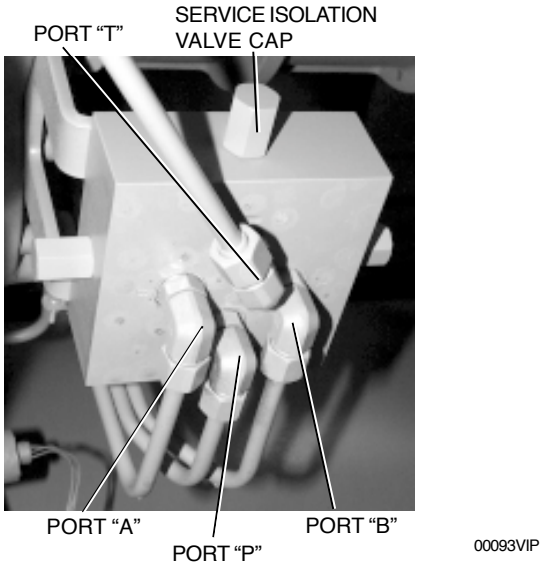

FIG. 24 – 4-WAY DIRECTIONAL VALVE SUBPLATE

A slide valve potentiometer is used to provide feedback to the microprocessor to display slide valve position as a percentage of full load. See Fig. 25.

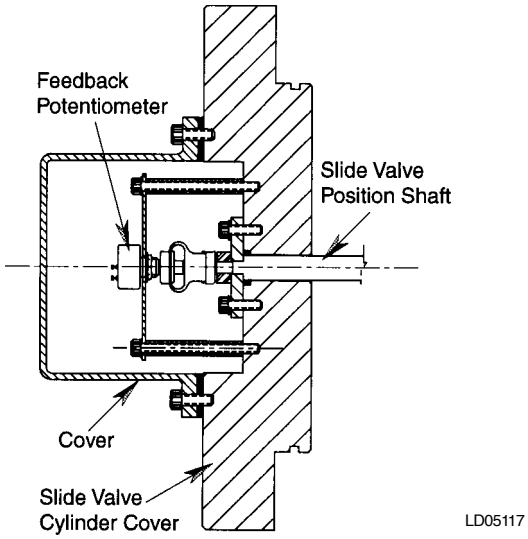

FIG. 25 – SLIDE VALVE POTENTIOMETER

Four manual isolation valves are incorporated into the 4-way solenoid sub-plate to isolate the 4-way directional valve for service. Remove the steel hexagonal caps to gain access to the service valve stem. Use a refrigeration service valve wrench to close or open the valves.