THIS SHEET HAS BEEN REPLACED

ABSTRACT:

A single-fluid two-phase turbine expander (19) is employed in a compression-expansion refrigeration system. The turbine (19) has nozzles of fixed, predetermined orifice and is designed for optimal operation in steady-state normal conditions. A main float valve (17) governs the refrigerant flow to the turbine expander (19). In order to accommodate off-design conditions, a bypass conduit (23) carries liquid refrigerant around the turbine expander (19) directly to the evaporator (21). In this case a bypass float valve (24) opens the bypass conduit (23) when the liquid level in the condenser sump reaches a predetermined high level. Alternatively, a float switch and a bypass solenoid can be employed.

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