

## SEQUENCE OF OPERATION ARMEX EXPANSION SYSTEMS

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The purpose of the Armex unit is to maintain the HVAC system pressure within the design pressure limits. The unit replaces pre-charged expansion tanks using an intelligent, active approach to expansion control rather than a passive one.

As the contents of the HVAC system heat up and expand, the pressure in the system increases. A pressure switch on the system side of the Armex system (PS1) opens the solenoid valve in the bypass line allowing the HVAC system contents to enter the SAFE tank. Once the HVAC system pressure returns to normal conditions, the solenoid valve closes based on the differential setting on the pressure switch (PS1). The water on the SAFE tank side of the Armex system is kept at atmospheric pressure.

As the contents of the HVAC system cool down and contract, the pressure in the system decreases. A pressure switch on the system side of the Armex system (PS2) starts the pump, returning pressurized fluid to the HVAC system. Once the HVAC system pressure returns to normal operating conditions, the pump stops based on the differential setting on the pressure switch (PS2).

Due to normal leakage in the HVAC system, there are times during the operation of the Armex System that makeup water needs to be added to the system. As the SAFE tank empties, the SAFE tank becomes lighter. A load cell mounted on one leg of the tank is preset to open the solenoid valve in the makeup water line when the SAFE tank is empty. Once the system pressure is satisfied and the SAFE tank begins to fill, the solenoid valve closes allowing the system to operate under the above "normal" conditions.

The Armex System is equipped with an automatic alternator to equalize wear on the pumps. If the primary pump fails, the standby pump is started automatically.

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