Principles of Operation

FIG. -1

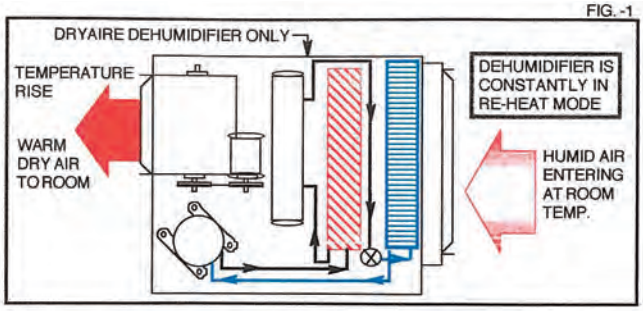


FIG. -2

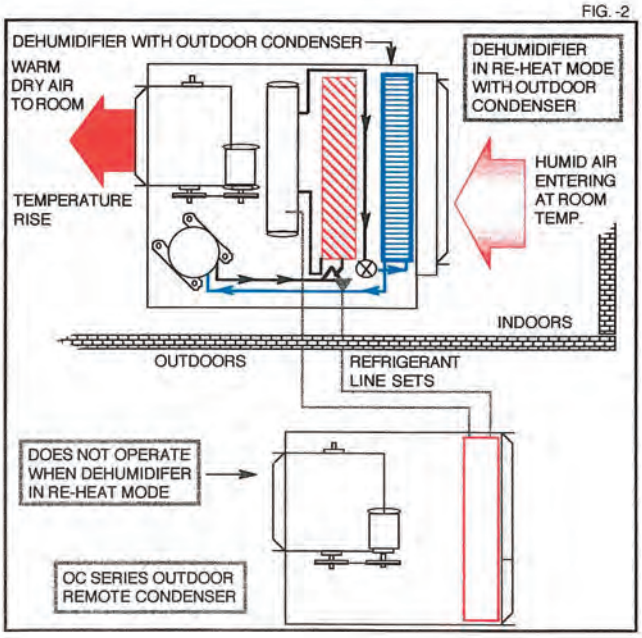
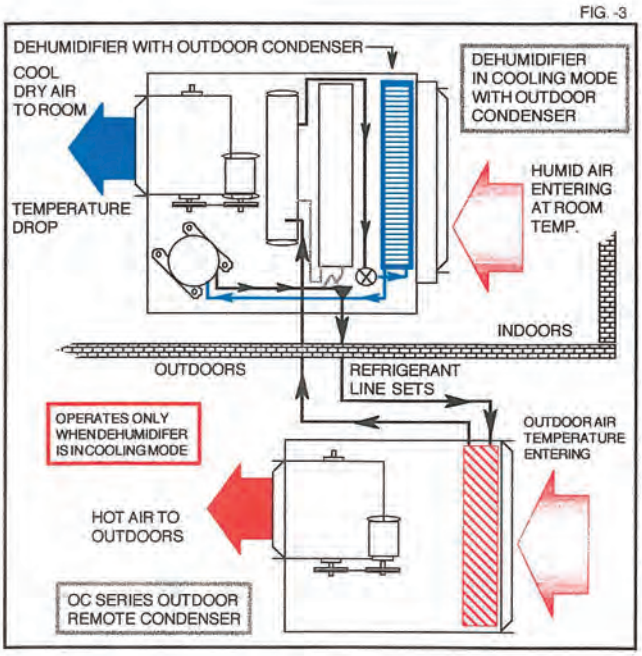


FIG. -3



DEHUMIDIFIER ONLY [Fig. 1]

The DryAire dehumidifier installed by itself will always discharge warm dry air back to the room. The discharge air temperature will be approximately 10°F to 20°F above the inlet air temperature. The moisture content of the air will also contribute to the temperature rise.

If the discharge of warm supply air becomes a concern, especially during summer months, we recommend an optional Remote Outdoor Condenser that properly matches the system.

OPTIONAL REMOTE OUTDOOR AIR-COOLED CONDENSER [Fig. 2-3]

The addition of a DryAire remote outdoor condenser will transform the dehumidifier into an air conditioner and allow cool dry air to discharge back into the room. The cool dry discharge air temp will be approximately 10°F to 20°F below the inlet air temperature. This function is controlled by an automatic change over thermostat.

SYSTEM DESIGN

When the DryAire de-humidistat control calls for dehumidification, the thermostat monitors the room temperature; if the temperature is above the setpoint, the changeover thermostat will automatically switch to cooling mode.

An electronically operated solenoid valve will divert the flow of refrigerant from the internal condenser in the dehumidifier to the outdoor remote condenser, allowing the dehumidifier to discharge cool dry air into the room.

When the thermostat is satisfied and the room temperature falls below the heating setpoint, the thermostat will automatically call for heat and the solenoid valve will divert the refrigerant back to the internal condenser located in the dehumidifier and discharge warm dry air.

DryAire dehumidifiers are engineered to maximize energy recovery by recycling heat produced by the operation of the system. In most cases, if correctly sized, a conditioned enclosure can be heated or cooled by the dehumidification system alone.