

# Engineered Systems

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## One control is as good as two

The Turbo Power and Marine Division, United Technologies Corp., found that one control was as good as two.

Its facility had two separate CAD rooms containing computer equipment, and personnel who required individual, constant, temperature- and humidity-controlled air conditioning systems.

Although three contractors proposed using two separate systems with electric reheat, Gary Heck, president of H&L Mechanical Inc., proposed using a single APR control to enhance a 5-ton Carrier system. He said the single control would reduce installation and operating costs.

The proposal used a single-circuit, 5-ton air-cooled condensing unit with a refrigeration piping loop to separate two 3-ton evaporators, each located in a CAD room. Each evaporator was to be controlled by a solenoid valve connected to a thermostat, for independent operation.

The patented "APR-2" control by Rawal Devices Inc., Waterbury, CT, was used to provide 4 tons of capacity modulation to the nominal 5-ton refrigeration circuit. Capacity modulation permits the system to match changing load conditions in the two zones by responding to changes in temperature and pressure in the refrigeration suction lines.

Installed with simple piping conditions, the control forces the evaporator coils to operate in a continuous dehumidifying mode. Thus, the system provides constant latent

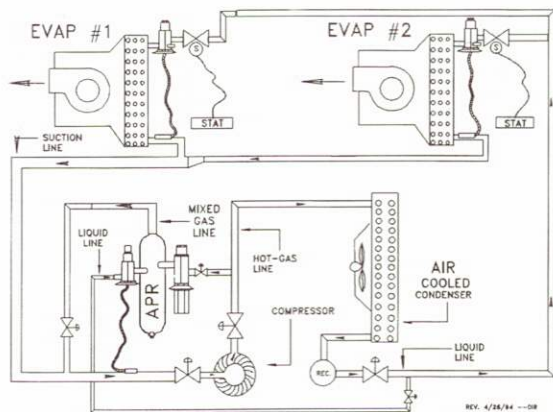
heat removal even when operating at partial load conditions.

Electric reheat was initially included on each of the evaporators as a safety measure, to supplement the load fluctuations and ensure proper system dehumidification.

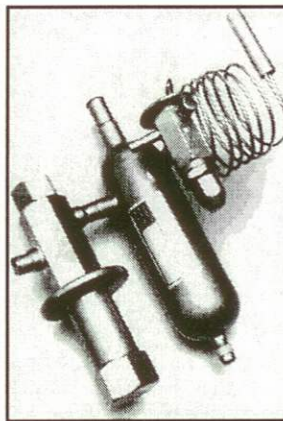
The system has been effective and electric reheat was found to be unnecessary. In fact, the system has been so successful, Heck was invited to submit the only proposal for air conditioning two other CAD rooms built the following year.

Turbo Power and Marine specifically requested use of the control and agreed to eliminate electric reheat coils from the system to reduce installed costs.

A/C Piping Schematic for CAD Rooms  
Turbo Power & Marine, Farmington, CT



### The APR Control gives you continuous dehumidification & maintains constant temp on A/C systems.



USA PAT. #5240651

The APR Control maintains the evaporator coil in a latent heat removal mode while modulating system capacity.

By responding to return air temperature, the APR Control manages refrigerant flow, providing far more accurate temperature control than is available with standard thermostats.

Installed complete in the condensing section, the APR control can be used on A/C, heat pump or commercial refrigeration systems.

THE APR CONTROL IS AVAILABLE IN FIVE DIFFERENT SIZES FROM 1-1/2 TO 19 TONS TO SOLVE YOUR CAPACITY CONTROL PROBLEMS.

**RAWAL** DEVICES, INC.

Tel. (800)727-6447 • Fax. (203) 596-1313