PENN PRODUCTS DIVISION PENN CONTROLS, INC.

INSTALLATION AND OPERATION INSTRUCTIONS

SERIES T28

FORM 997-721-1

FAN COIL THERMOSTATS

APPLICATION

These thermostats control line voltage fan coil or heating zone valves on heating, cooling and heating-cooling systems. Thermostats can control one or two water valves directly. Models are available for automatic changeover by the thermostat or from a remote changeover control. May be ordered with or without fan switches. A built-in thermometer is available for all models.

OPERATION

Thermostats control space temperature by automatically cycling a valve. Models may be supplied with manually adjusted fan speed control. Heating contacts make on a drop in temperature, opening a fan coil valve to permit flow of hot water. Cooling contacts make on a rise in temperature, opening a fan coil valve to permit flow of cold water. Air circulation across the coil may be controlled manually with fan switch models.

NOTE: Series T28 thermostats with fan switch keep the cooling valve closed when the switch is in the "OFF" position.

INSTALLATION

Select a location where the thermostat will sense average temperatures. The recommended location is on an inside wall approximately four to five feet above the floor. Do not mount where it may be affected by heat or cold from registers, hot or cold water pipes, windows, doors, lamps, fireplaces, sunlight, etc.

Thermostats with fan switches require a two-gang switch box at least 2½" deep, or a 4" x 4" or larger junction box with two-fixture plaster ring. For example, use Raco No. 230 or Appleton No. 4SD½ two-gang switch box, plus plaster ring.

Thermostats less fan switches require a 2" deep single vertical switch box, or a larger box with single-fixture plaster ring. For example, use Raco No. 420 or Appleton No. 111 single switch box.

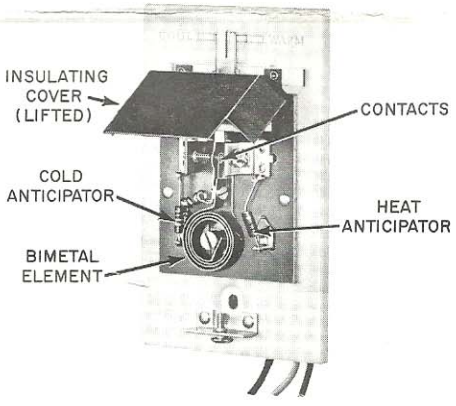

Fig. 2 — Interior of Type T28CA thermostat.

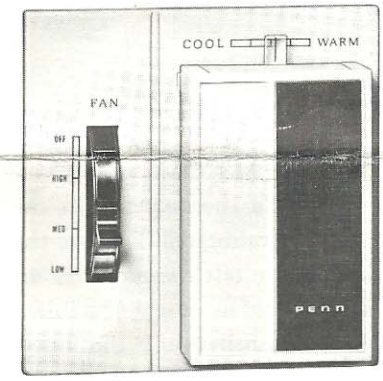

Fig. 1 — Series T28 thermostat with fan switch.

NOTE: The boxes and plaster rings are not included with the thermostats.

Install the thermostat as follows:

1. Disconnect power.
2. Install the switch box and plaster ring (if required).
3. Make wiring connections using solderless connectors or other approved connectors. See Wiring Diagrams for proper hook-up. Wire leads are color coded for ease of wiring.
4. Loosen cover screw at bottom of cover, swing the cover bottom out and lift up to remove.
5. Fasten thermostat to switch box with the two captive screws in baseplate.
6. On 208/240 V. A.C. installations, remove the cooling anticipator to prevent over-anticipation. Carefully clip left-hand resistor leads with diagonal cutters. See Fig. 4.
7. Remove contact protector carefully. Move temperature setting lever from Cold to Warm to be sure contact arm is free.
8. Replace cover and tighten cover screw.
9. Connect power supply.
10. Check the thermostat operation.

CHECKOUT PROCEDURE

Before leaving installation, a complete operation should be observed to be sure system is operating properly.

1. Move lever toward "Warm" to raise the temperature setting to check the heating cycle.
2. Move the lever toward "Cool" to lower the temperature setting to check the cooling cycle. The center of the scale is approximately 75° F.

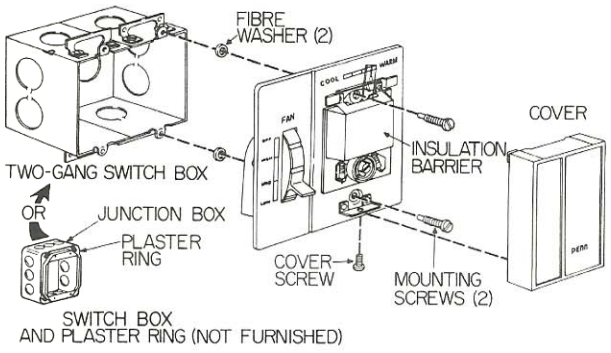

Fig. 3 — Drawing showing mounting procedure.

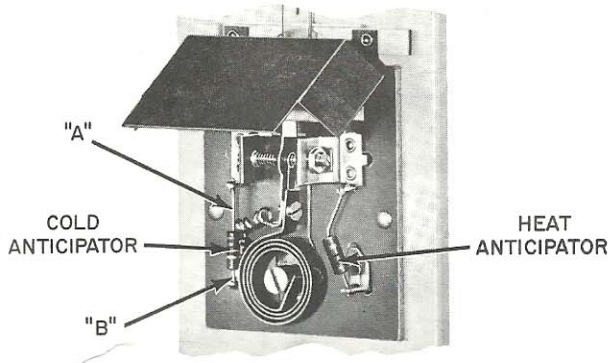

Fig. 4 — Remove the cold anticipator resistor for 208/240 V. service by clipping the leads at point "A" and "B."

SERVICE

If the thermostat has a thermometer in the cover, the thermometer can be recalibrated. Remove the thermostat cover. Place an accurate test thermometer and the cover side by side and allow to reach a stable temperature before adjusting. Carefully turn the hex nut behind insulator with a thin wrench until the pointer corresponds to the test thermometer.

REPLACEMENT PARTS

Field repairs are not recommended. Thermostats requiring service should be returned to the factory or nearest Penn-Baso Counterline Wholesaler for repair or replacement.

TYPICAL APPLICATION DIAGRAMS

HEATING

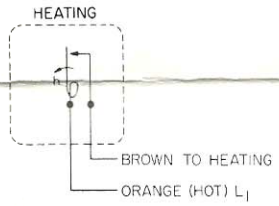

Fig. 5 — Type T28AA heating thermostat.

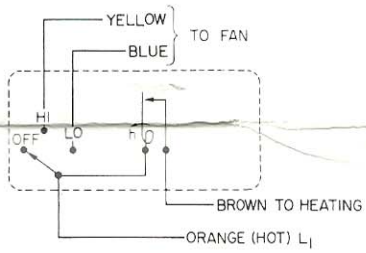

Fig. 6 — Type T28AC heating thermostat with "Off-Hi-Lo" fan switch.

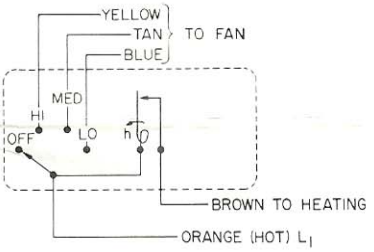

Fig. 7 — Type T28AD heating thermostat with "Off-Hi-Med-Lo" fan switch.

COOLING

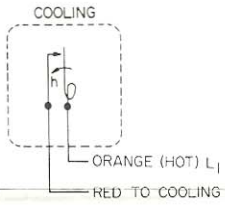

Fig. 8 — Type T28BA cooling thermostat.

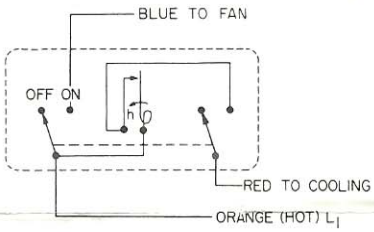

Fig. 9 — Type T28BB cooling thermostat with "Off-On" fan switch.

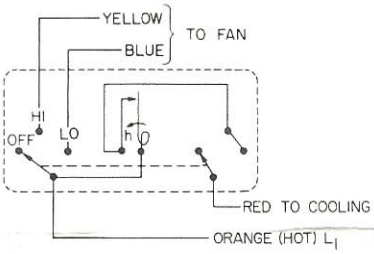

Fig. 10 — Type T28BC cooling thermostat with "Off-Hi-Lo" fan switch.

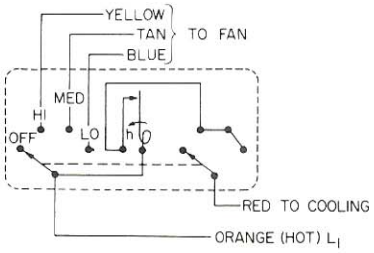

Fig. 11 — Type T28BD cooling thermostat with "Off-Hi-Med-Lo" fan switch.

SEQUENCED HEATING-COOLING

NOTE: Sequenced heating-cooling models have a deadband allowing automatic changeover on three-pipe or four-pipe systems.

NO FAN SELECTOR

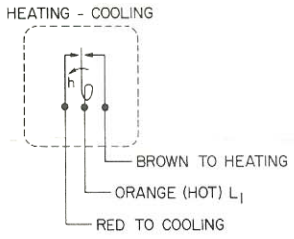

Fig. 16 — Type T28DA sequenced heating-cooling thermostat.

FAN "OFF"
Closes Cooling Valve

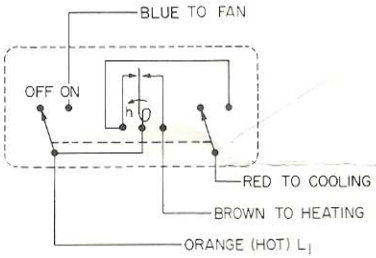

Fig. 17 — Type T28DB sequenced heating-cooling thermostat with "Off-On" fan switch.

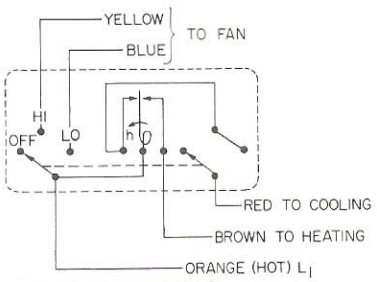

Fig. 18 — Type T28DC sequenced heating-cooling thermostat with "Off-Hi-Lo" fan switch.

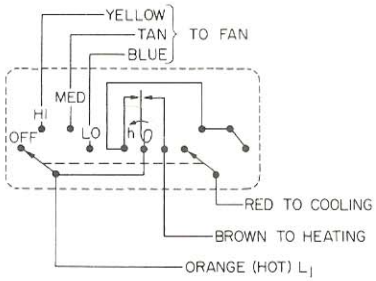

Fig. 19 — Type T28DD sequenced heating-cooling thermostat with "Off-Hi-Med-Lo" fan switch.

FAN "OFF"
Closes Heating and Cooling Valves

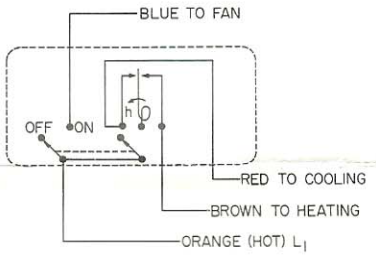

Fig. 20 — Type T28DE sequenced heating-cooling thermostat with "Off-On" fan switch.

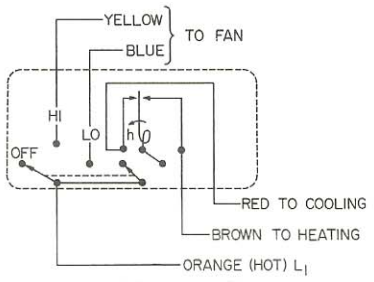

Fig. 21 — Type T28DF sequenced heating-cooling thermostat with "Off-Hi-Lo" fan switch.

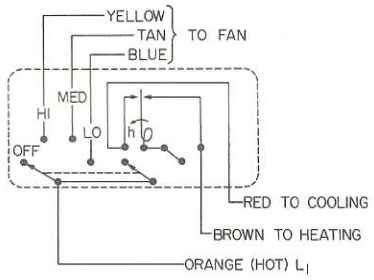

Fig. 22 — Type T28DG sequenced heating-Cooling thermostat with "Off-Hi-Med-Lo" fan switch.

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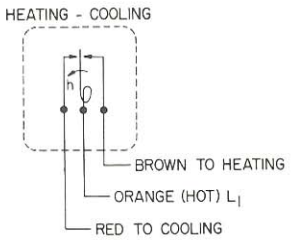

Fig. 12 — Type T28CA heating-cooling thermostat.

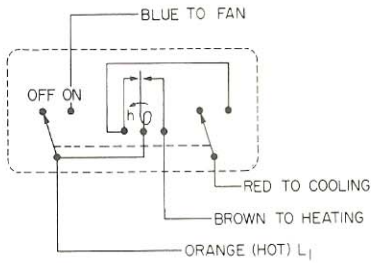

Fig. 13 — Type T28CB heating-cooling thermostat with "Off-On" fan switch.

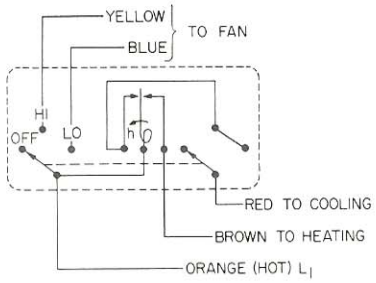

Fig. 14 — Type T28CC heating-cooling thermostat with "Off-Hi-Lo" fan switch.

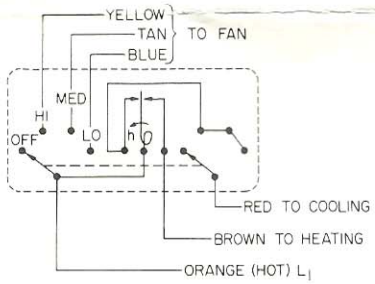

Fig. 15 — Type T28CD heating-cooling thermostat with "Off-Hi-Med-Lo" fan switch.

SEE PAGE 4 FOR SEQUENCED HEATING-COOLING DIAGRAMS