



# WHITE-RODGERS AUTOMATIC CONTROLS

## - INSTRUCTIONS - ASTRO\*STAT THREE-WIRE ROOM THERMOSTAT For Low Voltage Valves and Damper Motors

These thermostats have SPDT switch action and are specially designed for use with low voltage motorized controls such as White-Rodgers THREE-WIRE water valves, damper motors, and globe valves. They are heat-anticipated type thermostats which will produce scientific frequency of operation to assure a more uniform room temperature.

Both horizontal and vertical models are available, with either open (snap-action) or sealed (mercury) contacts, and with or without wall mounting plate.

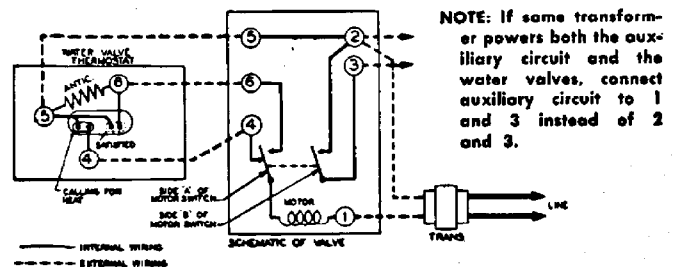
Primarily used on heating applications, they may also be used on zoned cooling applications by reversing wires 4 and 6 on the thermostat, or on water valve or damper motor. They may also be used on zoned heating-cooling applications by using White-Rodgers special zoning sub-base, or by using reversing relays.

### PRINCIPLE OF OPERATION

This schematic shows the valve in the closed position. As the thermostat calls for heat, the valve motor is energized and begins to open the valve. Just before the valve reaches the full-open position, side "B" of motor switch closes (providing a low voltage auxiliary circuit for starting burner and/or circulator), and side "A" of motor switch makes with contact 6 (completing a circuit through the thermostat anticipator).

A hold-in circuit (not shown) prevents valve from stopping halfway through opening cycle if thermostat is suddenly changed to satisfied position.

When the thermostat is satisfied, the valve motor is again energized. Just after the valve starts to close, side "B" of motor switch opens (breaking auxiliary circuit), while side "A" of motor switch makes with contact 4 just before valve fully closes.



The hold-in circuit already mentioned also prevents valve from stopping halfway through closing cycle if thermostat is suddenly changed to unsatisfied position.

The valve draws current only when it is opening and closing.

NOTE: To check motor operation without thermostat connected, jumper 4 to 5 to open valve; 5 to 6 to close valve.

### SELECTING LOCATION

The proper location of the room thermostat is most important to insure that it will provide a comfortable home temperature. Observe the following general rules when selecting a location:

1. Locate it about 5 ft. above the floor.
2. Install it on a partitioning wall, not on an outside wall.
3. Never expose it to direct light from lamps, sun, fireplaces, etc.

4. Avoid locations close to doors that lead outside, windows, or adjoining outside walls.
5. Avoid locations close to radiators, warm air registers, or in the direct path of heat from them.
6. Make sure there are no pipes or duct work in that part of the wall chosen for the thermostat location.

### ROUTING WIRES TO LOCATION

1. Before drilling hole in wall at selected location, take up quarter round and drill a small guide hole for sighting. From basement, drill 3/4" hole in partition floor next to guide hole. (On basementless houses, drill 1/2" hole through ceiling above partition.)
2. Probe for obstructions in the partition. Then drill 1/2" hole through wall at selected location.

3. Through this hole in wall drop a light chain, or 6" chain attached to a strong cord, and snag cord with hooked wire from basement. (On basementless houses, drop cord from ceiling and snag it at the thermostat location.)
4. Attach thermostat cable to cord and pull cable through hole in wall so that 6" of cable protrudes.



WHITE-RODGERS DIVISION  
EMERSON ELECTRIC CO.  
9797 REAVIS ROAD  
ST. LOUIS, MISSOURI 63123

Printed in U.S.A.

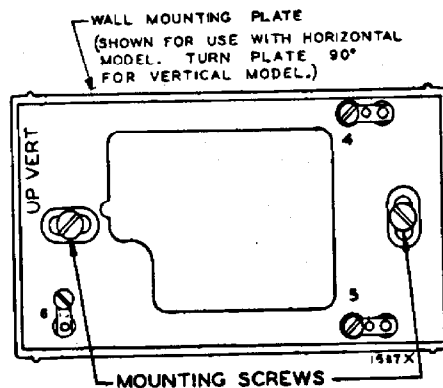
PART No. 37-1215-2  
Replaces 37-1215-1

## MOUNTING THERMOSTAT

These thermostats are available with or without wall mounting plate. Instructions for mounting and wiring either type are given below:

### WITH WALL MOUNTING PLATE

1. Pull thermostat wires through large holes in center of wall mounting plate and fasten wires to terminal screws.
2. Push excess wire into wall or switch box and plug up hole to prevent drafts from affecting thermostat operation.
3. Thermostat must be level to assure optimum performance. Place level on top of wall mounting plate and mark hole locations for mounting screws. Attach plate loosely to wall with the two screws provided. Again place level on top of plate to be sure it is level. Then tighten mounting screws.
4. Remove cover from thermostat by pulling outward. Remove and discard pad (shipping protection for switch). Place thermostat base onto wall mounting plate and tighten all three screws securely. Then snap on thermostat cover.

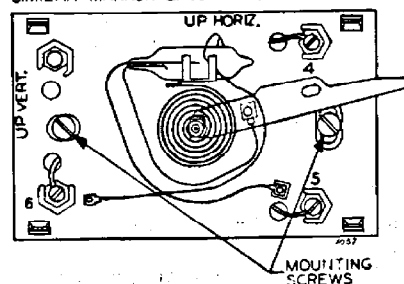


Wall Mounting Plate

### WITHOUT WALL MOUNTING PLATE

1. Remove cover from thermostat by pulling outward. Remove and discard pad (shipping protection for switch). Pull thermostat wires through small holes beside terminal screws on thermostat base and connect wires to terminal screws.
2. The thermostat must be level to assure optimum performance. Place level on top of thermostat base and mark hole locations for mounting screws. Push excess wire into wall or switch box and plug up hole to prevent drafts from affecting thermostat operation. Then attach thermostat base loosely to wall with the two screws provided.
3. Again place level on top of thermostat base to be sure it is level. Then tighten mounting screws securely and snap on thermostat cover.

THERMOSTAT BASE FOR HORIZONTAL MODEL. VERTICAL MODEL MOUNTS IN SIMILAR MANNER EXCEPT ROTATED 90°:



Thermostat Base

## WIRING

All wiring should be done according to local and national electrical codes and ordinances.

If the heating equipment manufacturer recommends a wiring diagram, follow his instructions. If none are available, the diagrams given on the next page should be helpful. Additional diagrams may be found on the sheet packed with the water valve, globe valve, or damper motor.

The first four diagrams show typical water valve installations. The bottom diagram is for damper motor installations.

# WIRING - Continued

Diagram for Gas Fired System using 842A-16

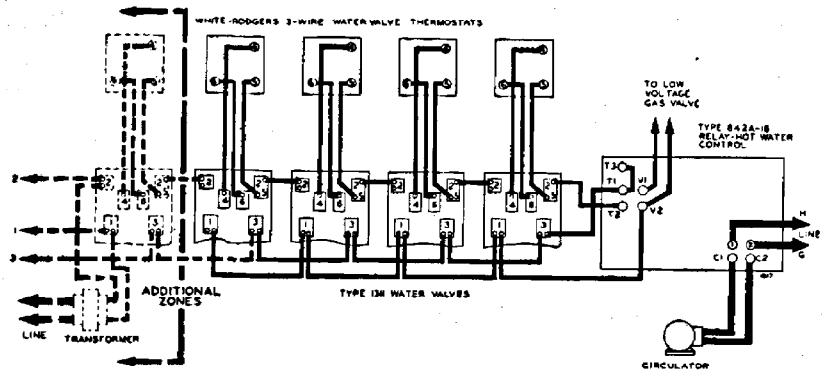


Diagram for system using 809A-3 relay

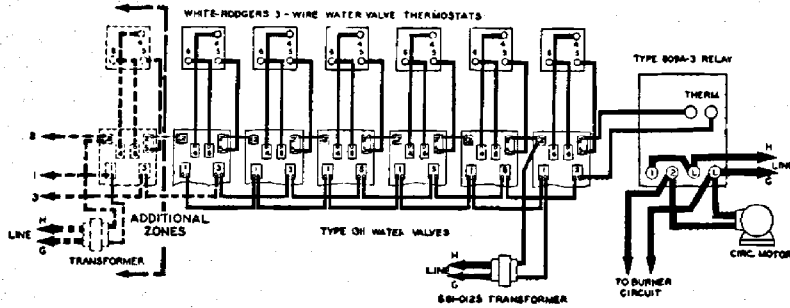


Diagram for system using 842A-1 or 843A-1 and Line Voltage Primary control

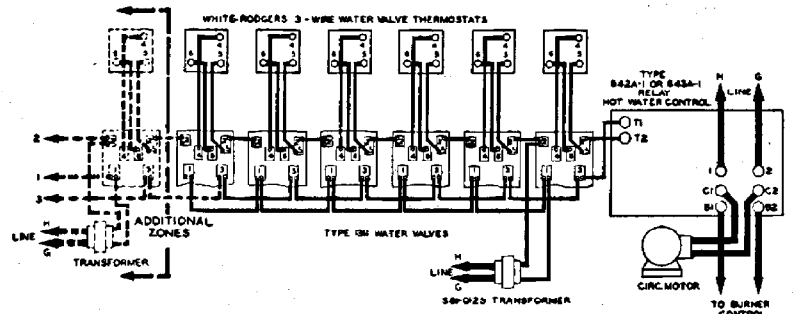
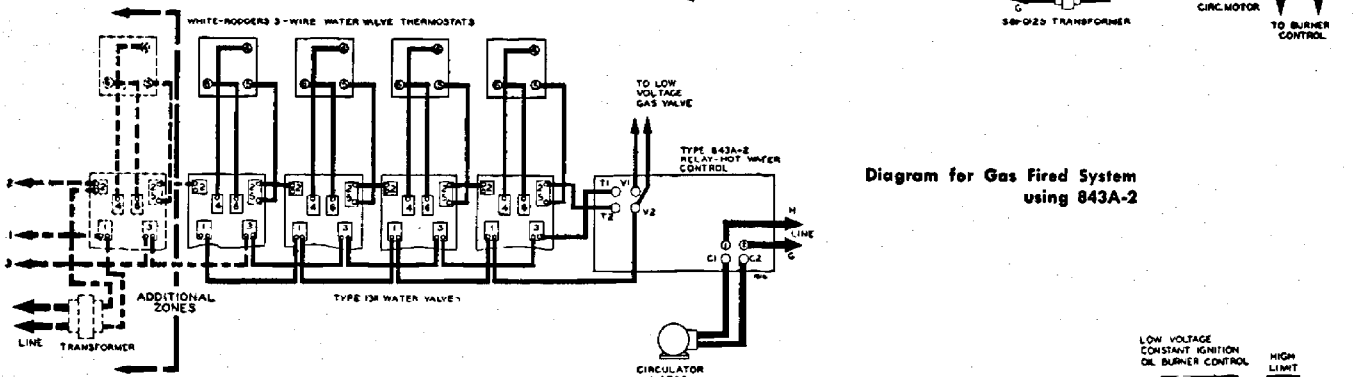
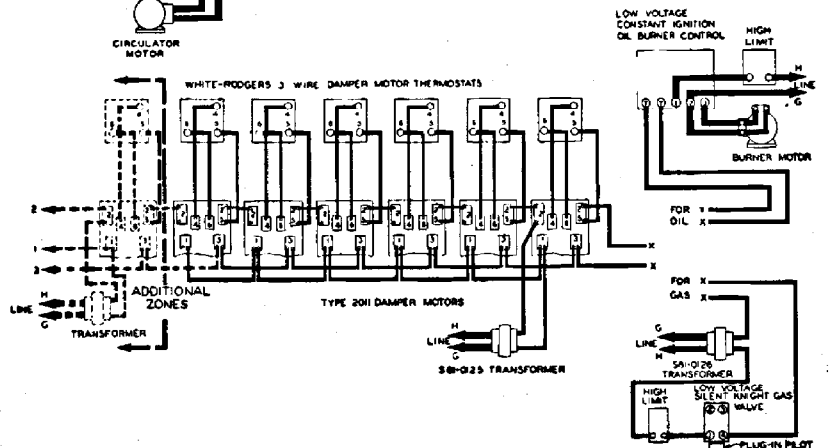


Diagram for Gas Fired System using 843A-2



Gas or Oil Fired System using Type 2011 Damper Motors



## CALIBRATION ADJUSTMENT

These thermostats have been carefully adjusted at the factory and should not require re-calibration.

A few degrees difference between the indicator setting of the thermostat and actual room temperature is not considered important. If the disagreement is appreciable, however, first make sure that the thermostat is properly located and leveled. Then, if re-calibration still seems necessary, proceed as follows:

These instructions apply for models with either sealed mercury or snap-action contacts.

1. Disconnect wire from terminal 5 on thermostat (or shut off power supply to thermostat). This will prevent the heat-anticipator from affecting bimetal during re-calibration. Then move temperature adjustment lever to a setting about 5° above room temperature.
2. Remove thermostat cover. Slip standard 7/32" wrench onto hex nut beneath bimetal, and, holding temperature adjustment lever stationary, turn hex nut **clockwise** until mercury shifts to right end of tube (or until movable contact moves off of magnet on snap-action types).
3. Move temperature adjustment lever to lowest setting.
4. Replace thermostat cover. Wait 10 minutes for bimetal temperature to stabilize. Don't stand near the thermostat during this period as your breath and body heat will affect temperature of bimetal.
5. Move temperature adjustment lever to correspond to actual room temperature. Then remove thermostat cover.
6. Slip 7/32" wrench onto hex nut, holding temperature adjustment lever stationary, turn hex nut **counterclockwise** until mercury just barely shifts to **left** end of tube (or until movable contact just closes against magnet on snap-action types). Then replace cover and set thermostat to desired temperature.
7. Replace wire to terminal 5 on thermostat if it was removed in step 1.

