

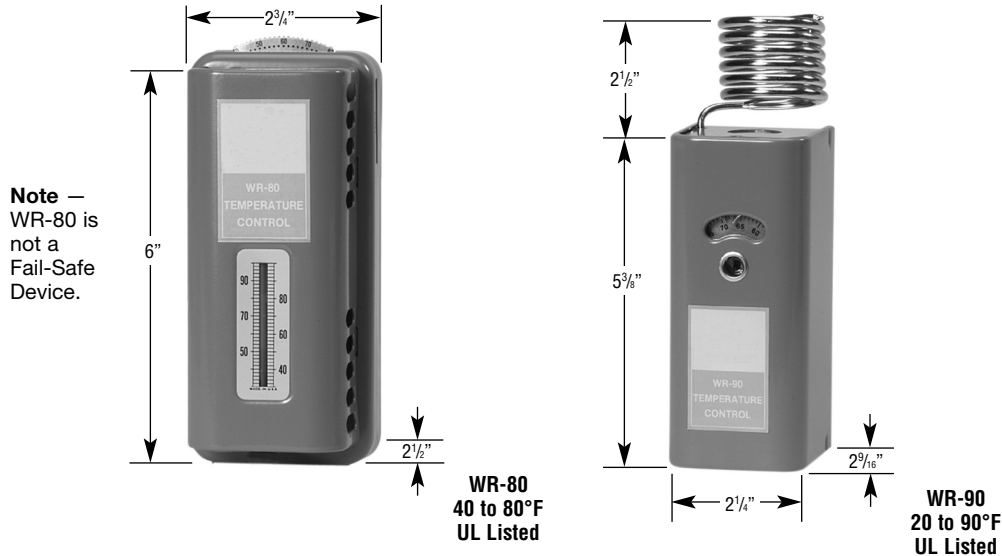
# Chromalox®

## Installation Instructions

### SERVICE REFERENCE

DIVISION 4	SECTION WR
SALES REFERENCE (Supersedes PK410)	PK410-1
161-048634-001	
DATE	JUNE, 1989

## Type WR Room Thermostat



Specifications – Table A

Model	Range (°F)	Maximum Rating					
		120Vac	† 115Vac	240Vac	† 230Vac	277Vac	480Vac
WR-80	40-80	25 amps or 3000 total watts	125va pilot duty (use with d-c contactor)	22 amps or 5280 total watts	125va pilot duty (use with d-c contactor)	18 amps or 5000 total watts	125va pilot duty (use with a-c contactor)
WR-90	20-90						

† d-c ratings not UL listed

### GENERAL

Positive accuracy, long and reliable service, 3° differential. Heavy-duty, single stage, SPST line voltage snap-acting switch. Patented hydraulic element. WR-80 has internal sensing element and thermometer on cover; WR-90 has external, coiled sensing element but no thermometer. Both have a low position which drops control point to keep heater off. WR-80 and WR-90 finished in tough metallic gray with chrome trim; mounting plate fits outlet or conduit box.

**Uses** – Automatically controls room temperature by turning electric air heaters on and off. Can be used to control the air heaters directly, within thermostat rating. For higher ratings use thermostat with magnetic contactor. Place thermostat on inside wall, away from undue heating or cooling influences, about 4 feet above the floor. WR-90 is especially useful in holding lower temperatures, for example, in garages, warehouses, factories, etc.

**NOTICE:** Type WR thermostats are designed for temperature control service only. Because they do not fail safe, they should not be used for temperature limiting duty.

**CAUTION:** Users should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.

**Principle of Operation** – Control action of these thermostats is provided through the principle of liquid volume change. With a variation in temperature, the liquid in the sensing element expands or contracts, causing a bellows to actuate the switching mechanism.

**CAUTION: Not for use in hazardous environments as described in National Electrical Code. Failure to comply can result in explosion or fire.**

## MOUNTING

**Note:** Do not mount control where it will be subject to vibration, shock, grease, dust, lint or corrosive vapors. Do not mount adjacent to a large magnetic contactor, as vibration and shock will cause thermostat to interact erratically – resulting in chattering of the contactor.

**CAUTION:** Do not twist or uncoil the coiled element on top of the case of the WR-90.

The proper location of a heavy duty room thermostat is important to assure good performance.

1. Locate where air circulates freely.
2. Never install on or near outside wall.
3. Keep away from windows or doors.
4. Do not locate too close to strong light or other false source of heat, such as sunlight, steam lines, etc.
5. If electrical conduit leads into cooler or warmer room, plug up space around wires in the conduit with rock wool.

## WIRING

**CAUTION: Hazard of Electric Shock. Disconnect all power before wiring or servicing this control.**

1. Electric wiring to heater must be installed in accordance with National Electrical Code and with local codes. **WARNING: Use copper conductors only.**

Connect wires according to wiring diagrams (Figures 1 and 2). **Note:** Electrical connections should be made with generous loops of wire – approximately 6" per lead.

**Note:** If load amperage or voltage rating exceeds switch rating, a contactor must be used. Contactor and wiring to be supplied by customer. (See Figure 2)

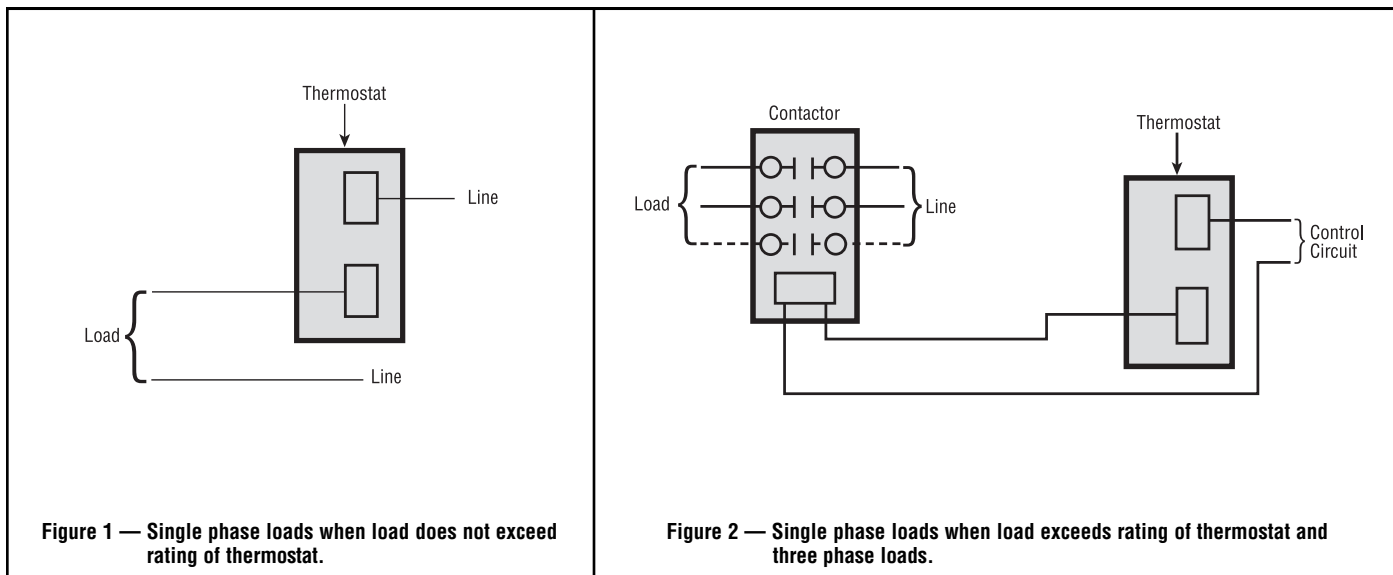


Figure 1 — Single phase loads when load does not exceed rating of thermostat.

Figure 2 — Single phase loads when load exceeds rating of thermostat and three phase loads.

## CALIBRATION

**CAUTION: Hazard of Electric Shock. Extreme care should be exercised during calibration adjustments because of shock hazard due to exposed electrical terminals.**

WR-80 thermostats are accurately calibrated at the factory so the dial setting correctly indicates the temperature at which the contacts open on temperature rise. If, as a result of damage in transit or for other reasons the room temperature differs appreciably from the dial setting, the calibration may be adjusted as follows:

1. Note temperature on thermometer.
2. Set dial at highest temperature.
3. Turn dial slowly to lower temperature and stop when thermostat contacts open.
4. Loosen screw at bottom of thermostat and remove thermostat from mounting plate.

5. On back of thermostat, loosen two dial screws (Figure 3). Carefully turn the dial only to correct temperature setting as indicated by thermometer. Be sure the thermostat shaft is not moved during this operation.
6. Tighten the dial screws and replace thermostat.

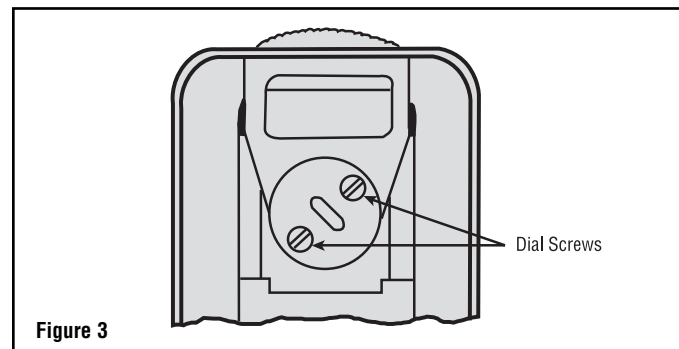


Figure 3

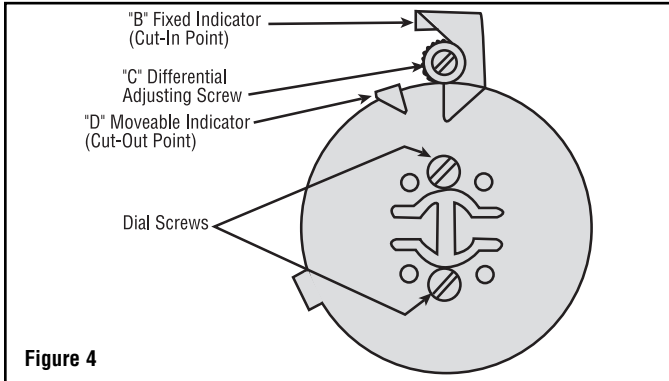
## CALIBRATION

### SETTING

WR-90 controls have an adjustable differential. The movable indicator points to the temperature at which the contacts open. The fixed indicator points to the temperature at which the contacts close. The difference between these two indicators is the differential.

#### To set the control, proceed as follows:

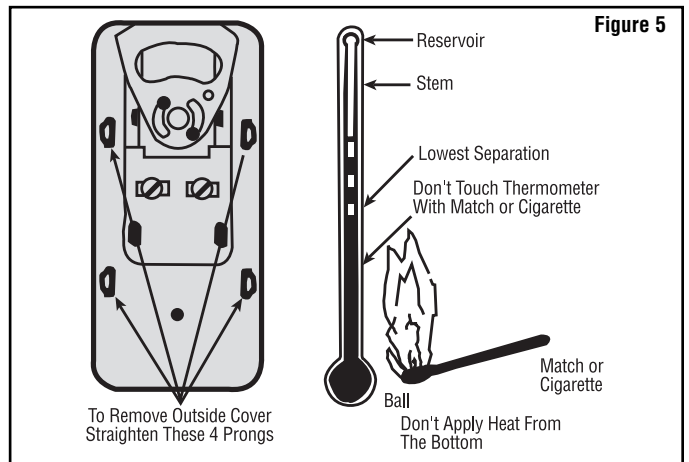
1. Use screwdriver in slot and turn the dial so the fixed indicator "B" points to the temperature at which heating is to start.
2. Turn the differential adjusting screw "C" until the movable indicator "D" points to the temperature at which the heating is to stop.



### UNITING LIQUID IN THERMOMETER

Sometimes the red liquid inside the thermometer on the WR-80 becomes separated during shipment. The thermometer will not read correctly when this red liquid is separated at any point. If the red liquid in the thermometer of this thermostat has become separated it may be reunited as follows:

1. Remove the thermostat from the wall, and straighten out the four prongs so the cover can be removed to expose the ball of the thermometer.
2. Hold the lighted end of a cigarette or a match at such a distance from the SIDE of the ball of the thermometer so the red liquid rises SLOWLY in the stem of the thermometer.
3. When the lowest separation goes into the reservoir, immediately remove the heat and blow on the thermometer.



**CAUTION:** If there is more red liquid in the stem of the thermometer above the lowest separation than there is below it, it is best to replace the thermometer.

**Limited Warranty:**  
Please refer to the Chromalox limited warranty applicable to this product at  
<http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

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