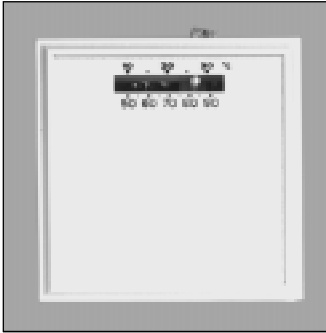


## Room Thermostats

# Installation Instructions

## Model CM65 Series

24 Volt Convertible Heating Thermostat/24 Volt Heating/Cooling Thermostat with Sub-base



CM65 Convertible



CM65A Heating/Cooling Thermostat  
with Sub-base

### Overview

The CM65 series of room thermostats are 24V wall-mounted controls. These thermostats sense room temperature and automatically close ("ON") or open ("OFF") an electric circuit in the appliance. The Model CM65 thermostat controls a heating system and is easily converted to control a heating and cooling system by simply adding the optional SB-6A-5ABO or SB-6A-5JBO heating/cooling sub-base. The Model CM65A thermostat is factory-equipped with either an SB-6A-5ABO sub-base or an SB-6A-5JBO sub-base.

CM65 and CM65A thermostats have adjustable heat anticipators (0.20 to 1.0 amps). A nonadjustable cooling anticipator (4700 ohms) is included on the SB-6A sub-base.

The CM65 thermostat includes a cover and a mounting body. The CM65A thermostat includes a cover, mounting body, and heating/cooling sub-base. A manual temperature-setting lever and Fahrenheit/Celsius temperature scales are provided. Precise leveling is not required.

### Specifications

Wiring must conform to local codes and ordinances for Class II low-voltage circuits. Other specifications are as follows:

- Class II circuit (30VAC, 1.0 amps maximum): 24V nominal (four or five-wire circuit required for optional air conditioning)

- Sensor: Bi-metal coil with dust-protected open-contact switches
- Anticipator
  - Heating: 0.20-1.0 amps; adjustable
  - Cooling: 4700 ohms; fixed resistor
- Temperature range: 50°F to 90°F; 10°C to 30°C
- Temperature differential: 2°F; 1°C
- Size: 3" x 3-1/2" x 1-1/2" (76m x 89mm x 38mm)



### WARNING:

**This is a precision instrument. Handle carefully. Only the procedures outlined in this bulletin are approved by the manufacturer. Replace thermostat if other service is required.**



### WARNING:

**Always disconnect electricity to the appliance before installation or service.**

## Location

Temperature-sensing controls are sensitive to surrounding temperature and should not be exposed to unusual temperature conditions or poor air circulation. Carefully consider the following location factors before installing the thermostat.

### Locate Thermostat:

- In an area easily accessible to wiring, service, and adjustment
- In a frequently used room, such as a living room or family room.
- On an inside wall about four or five feet above the floor.

### Do Not Locate Thermostat:

- In an area of unusual heating conditions, such as in direct sunlight or near heat producing sources (lamps, TV sets, radiators, heat registers, etc.).
- In a humid area. Humidity reduces its life expectancy.
- In an area of unusual cooling conditions, such as on an outside wall (or one separating an unheated room) or in drafts from stairwells, doors, windows, etc.
- Where air circulation is poor, such as behind normally open doors or room dividers, in corners or alcoves, over or near large furniture.
- On a wall subject to frequent vibration, such as near frequently used doors.

## INSTALLING MODEL CM65

1. Disconnect electrical power to appliance.
2. Grip thermostat cover at top and bottom. Remove cover from thermostat body.
3. Hold thermostat body level and against wall. With a pencil, mark wall where screws will attach thermostat body to wall.  
**NOTE:** Use designated mounting holes only (see Figure 1).
4. Lay thermostat body to one side. Drill mounting holes with 3/32" drill bit.
5. Pull three inches of five-conductor wire through wall opening and strip 3/8" at ends.  
**NOTE:** Tape ends of three wires for future installation of optional heating/cooling sub-base.
6. Connect wires to screw terminals (see Figure 2) and tighten securely. Bend wires to prevent possible interference with temperature selector.
7. Push wires back through wall opening,

leaving some slack. Close wall opening with noncombustible insulating material.

8. Mount thermostat body to wall with screws. (Precise leveling is not required.)
9. Replace thermostat cover.
10. Check low-voltage (24V) circuit(s) to appliance and make appropriate wiring connections (see Figure 4). Also refer to wiring diagram on appliance.
11. Restore electrical power to appliance.

## INSTALLING MODEL CM65A OR ADDING OPTIONAL SB-6A-5ABO OR SB-6A-5JBO HEAT/COOL SUB-BASE TO MODEL CM65

1. Disconnect electrical power to appliance.
2. Grip thermostat cover at top and bottom and remove from thermostat body.
3. Remove mounting screws and pull thermostat body (CM65) away from wall. Disconnect low-voltage wires from screw terminals.
4. Unwrap taped wires.  
**NOTE:** If five-conductor circuit was not previously provided, install additional wires as needed and strip ends 3/8".
5. Insert wires through wire entry of sub-base (see Figure 3) and connect to respective screw terminals. Tighten all screws securely.  
**NOTE:** Add or remove red jumper between RH and RC as needed. See Figures 6, 7, 10, 11, 12 and 13.
6. Push wires back through wall opening, leaving some slack. Close wall opening with noncombustible insulating material.
7. Mount sub-base to wall with screws. (Precise leveling is not required.)
8. Mount thermostat body to sub-base. Secure by tightening captive screws (see Figure 1).
9. Replace thermostat cover.
10. Check low-voltage (24V) circuit(s) to appliance(s) and make appropriate wiring connections (see Figure 5,6,7, or 8). Also refer to wiring diagram on appliance(s).
11. Restore electrical power to furnace.

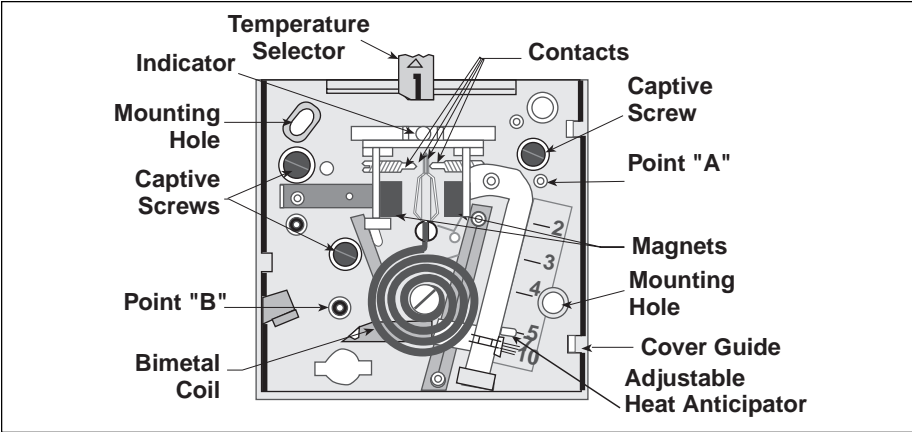


Figure 1. T'stat Body/Front View

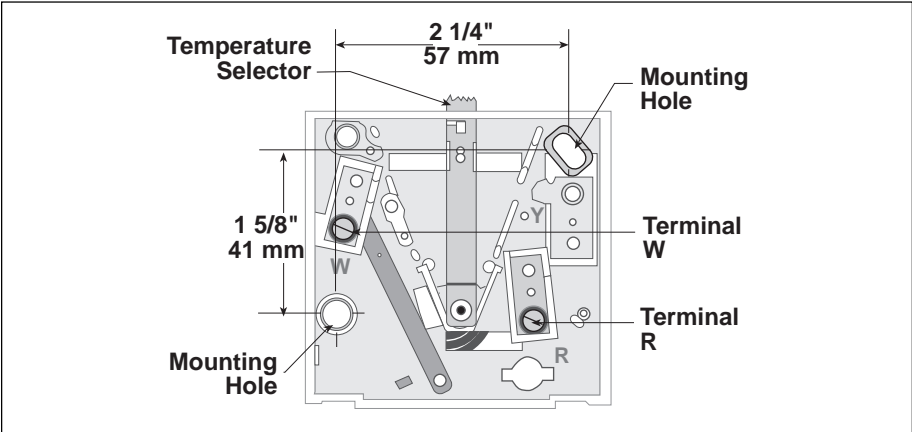


Figure 2. T'stat Body/Rear View

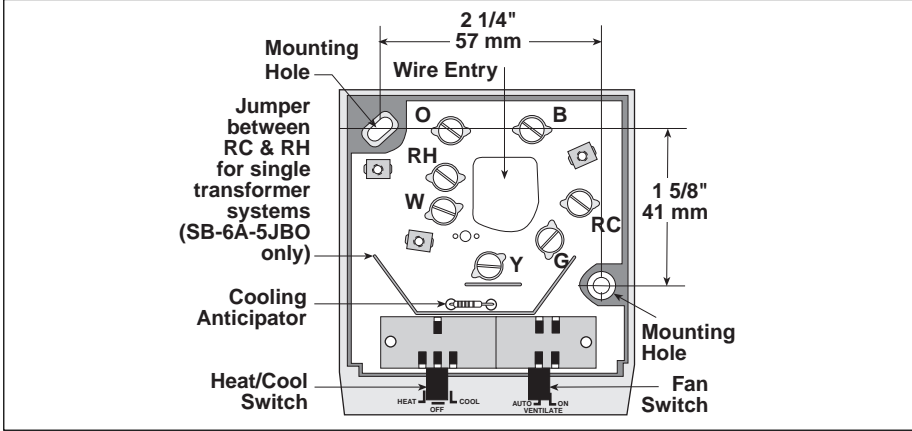


Figure 3. T'stat Sub-base/Front View

## SEQUENCE OF OPERATION

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### **CAUTION:**

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**Do not short control terminals at appliance to test system. Room thermostat will be damaged and warranty will be VOIDED.**

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**NOTE:** If appliance(s) is equipped with time delay control, the system operation will lag behind the thermostat.

### **For Heating**

1. Turn on electrical power to appliance.
2. With thermostat cover off, move temperature-setting lever until right-hand (heating) contacts close. For CM65A-5ABO, CM65A-5JBO or CM65 with optional sub-base, set heat/cool switch to "HEAT" and set ventilate switch to "AUTO." Heating system and air circulator blower should turn on.
3. Check air temperature at supply duct registers.
4. Move temperature-setting lever until right-hand (heating) contacts open. Heating system and air circulator blower should turn off.
5. Replace thermostat cover.

### **For Cooling**

1. Turn on electrical power to the appliance.
2. With the thermostat cover off, move temperature-setting lever until left-hand (cooling) contacts close. For CM65A-5ABO, CM65A-5JBO or CM65 with optional sub-base, set heat/cool switch to "COOL" and set ventilate switch to "AUTO." Cooling system and air circulator blower should turn on.
3. Check air temperature at supply duct registers.
4. Move temperature-setting lever until left-hand (cooling) contacts open. Cooling system and air circulator blower should turn off.
5. Replace thermostat cover.

### **For Continuous Air Circulation and Ventilation**

**NOTE:** For CM65, see furnace owner's manual on independent blower operation. For CM65A-

5ABO, CM65A-5JBO or CM65 with optional sub-base, follow the steps below.

1. Set thermostat heat/cool switch to "OFF" and set ventilate switch to "ON." Air circulator blower only should turn on.
2. Set thermostat heat/cool switch to "HEAT." Air circulator blower should operate continuously with on and off heat cycles.
3. Set thermostat heat/cool switch to "COOL." Air circulator blower should operate continuously with on and off cooling cycles.

### **For System Shutoff**

1. With electrical power to appliance turned on, move temperature-setting lever to turn on heating or cooling system.
2. Set ventilate switch to "AUTO" and set heat/cool switch to "OFF." All system operations should turn off.

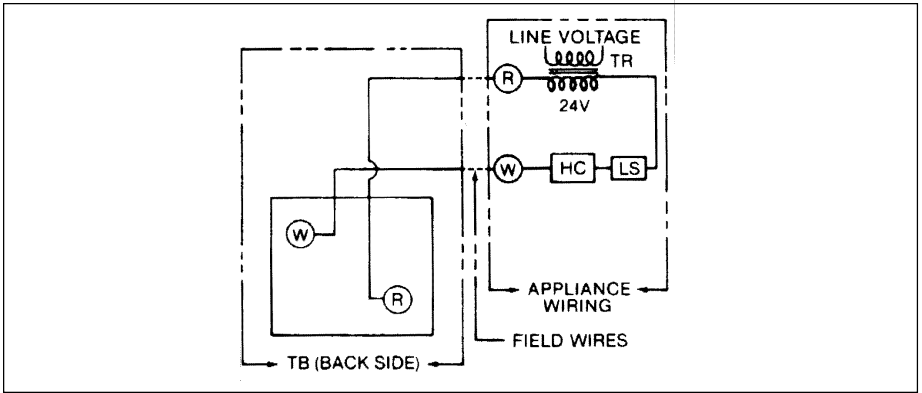


Figure 4. CM65 (Heating Only) No Sub-base

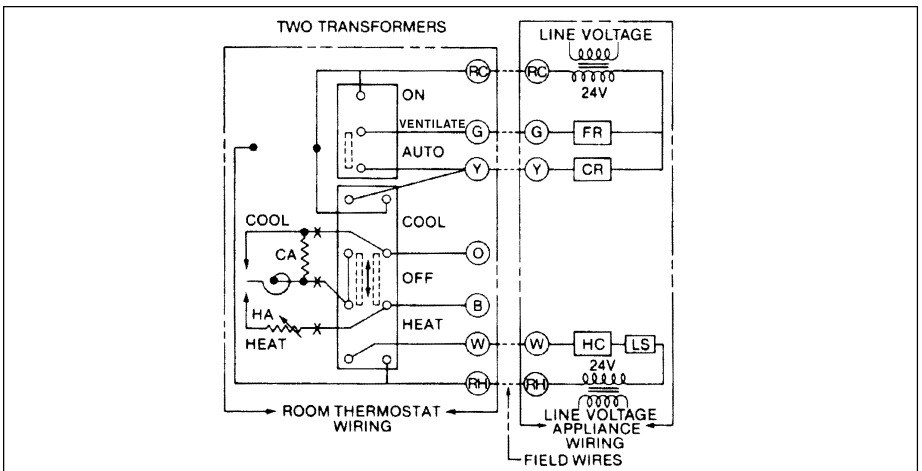


Figure 5. Sub-base SB-6A-5ABO Two Transformers

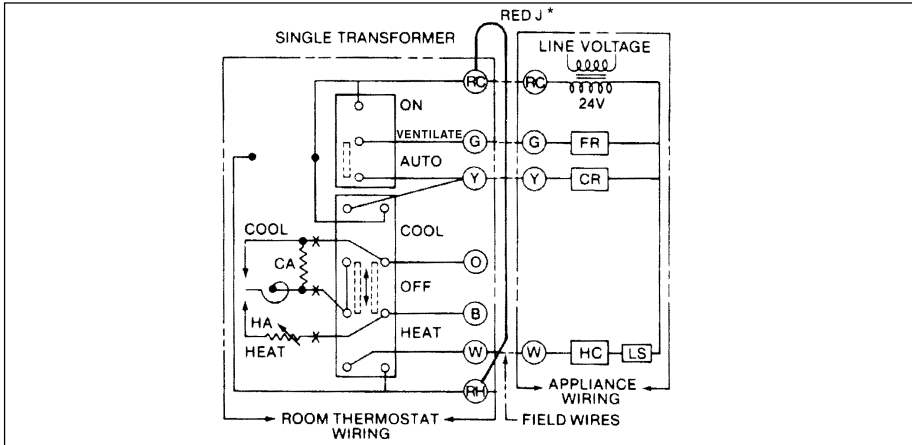
\* For Sub-base SB-6A-5ABO Only: for Single Transformer, add Jumper (provided on back of sub-base) as shown.

\*\* For Sub-base SB-6A-5JBO Only: for two transformers, remove jumper wire (see Figure 3) for independent circuit operation.

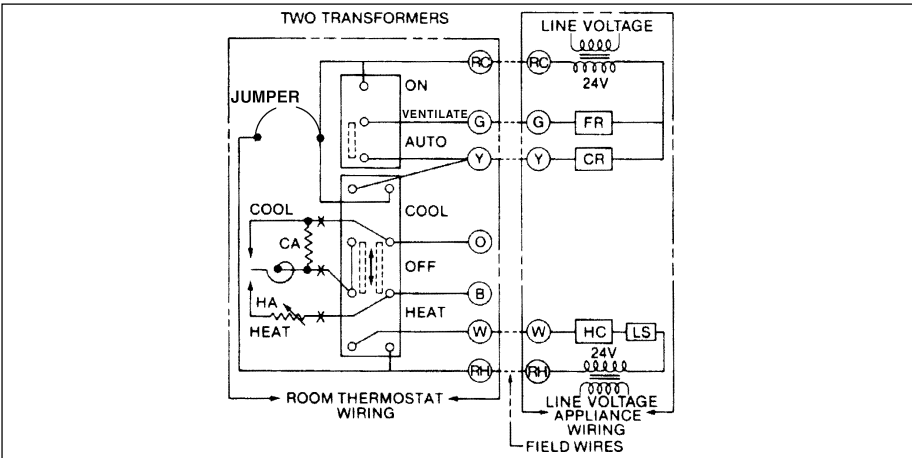
NOTE: A suitable Limit Control is required in the Low-Voltage or line-Voltage side of the transformer. All RC and RH terminals were previously R and A respectively.

**Legend:**

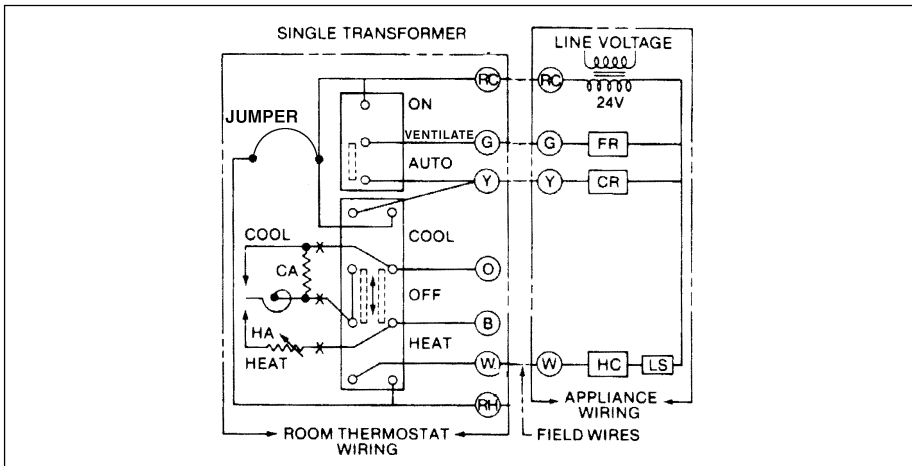
- |                          |                      |
|--------------------------|----------------------|
| CA - Cooling Anticipator | TB - Thermostat Base |
| CR - Cooling Relay       | TR - Transformer     |
| FR - Fan Relay           |                      |
| FS - Fan Switch          |                      |
| HA - Heating Anticipator |                      |
| HC - Heating Control     |                      |
| J - Jumper Wire          |                      |
| LS - Limit Switch        |                      |
| RC - Cooling Transformer |                      |
| RH - Heating Transformer |                      |



**Figure 6. Sub-base SB-6A-5ABO Single Transformer**



**Figure 7. Sub-base SB-6A-5JBO Two Transformers**



**Figure 8. Sub-base SB-6A-5JBO Single Transformer**

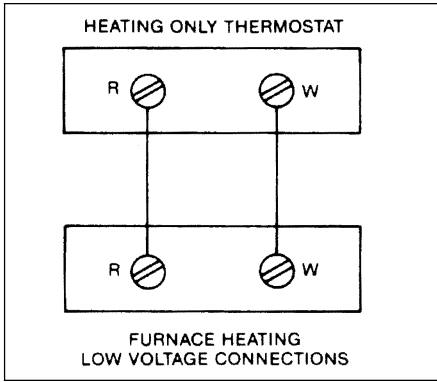


Figure 9. Heating Only

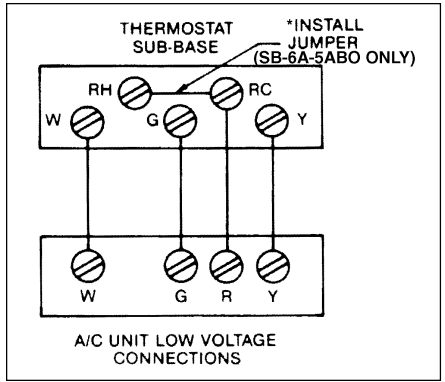


Figure 10. Sub-base SB-6A-5ABO or SB-6A-5JBO Single Transformer Self-contained A/C with integral Heater

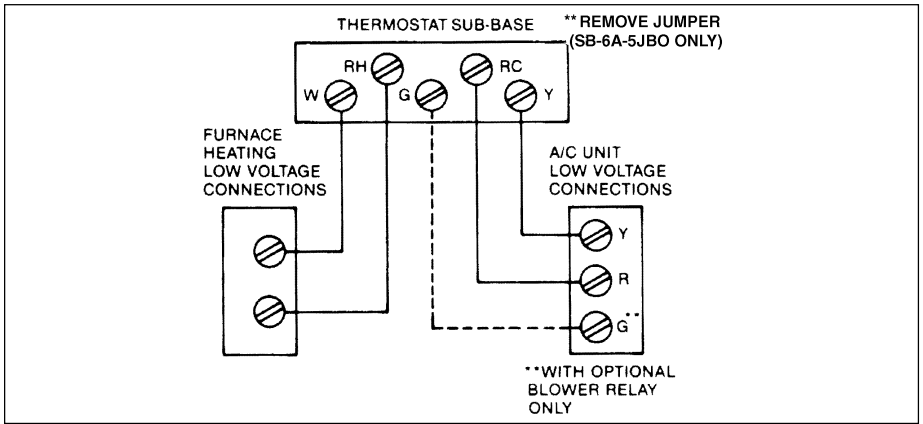


Figure 11. Sub-base SB-6A-5ABO or SB-6A-5JBO Two Transformers Self-contained A/C and Furnace

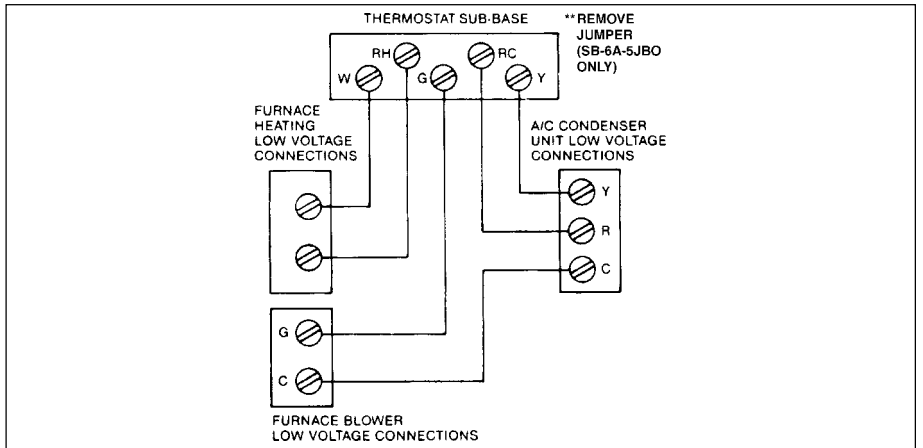
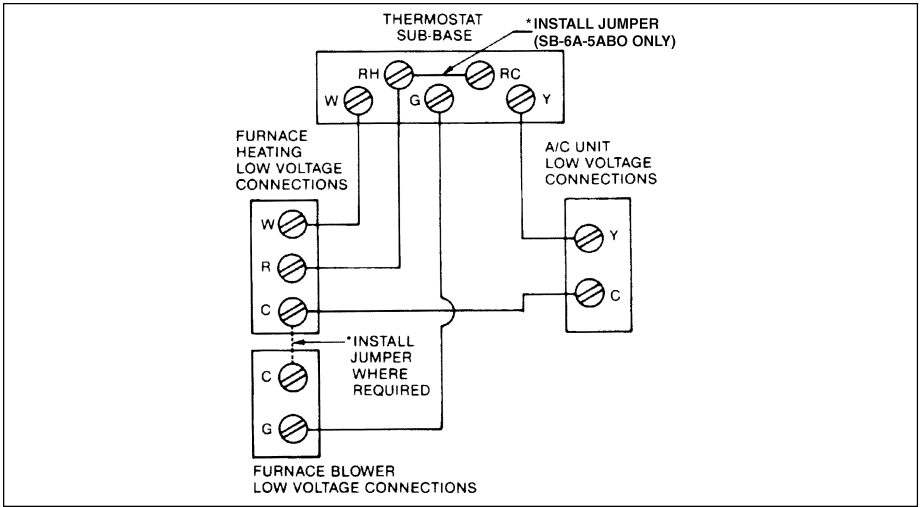


Figure 12. Sub-base SB-6A-5ABO or SB-6A-5JBO Two Transformers, Split-system A/C with Furnace



**Figure 13.**  
**Sub-base SB-6A-5ABO or SB-6A-5JBO Single Transformer, Split-system A/C with Furnace**

**INSTALLER: Do Not Discard These Instructions.** After completing the installation, return these instructions to the Homeowner's Package for owner-user's future reference. **Complies with H.U.D. Manufactured Home Construction & Safety Standards.**



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