

# T8090T Zone Thermostat and 191108AQ Wallplate; T8090T Zone Thermostat and Q682B Subbase

## Application

The T8090T Zone Thermostat provides 24 to 30 Vac temperature control in conventional single-stage heating and heating-cooling zone systems. The Mastertrol® MABS II Multizone Automatic Balancing System Panel or the Mastertrol® Minizone Two-Zone Automatic Balancing System Panel operates the heating or cooling systems and

zone dampers in response to the T8090T Zone Thermostats. The T8090T is used with the 191108AQ Wallplate or Q682B Subbase, depending on application. Refer to Table 1 below for thermostat/wallplate and subbase applications and specifications. For complete Honeywell Trol-A-Temp® Zone System specification and application information, refer to the system specification (Honeywell form 68-0101).

TABLE 1—THERMOSTAT AND SYSTEM COMPATIBILITY.

Thermostat/ Wallplate or Subbase	Application	Switching		Comments
		System	Fan	
T8090T1003/ Q682B1185	For control of zone 1 in heating or heating/cooling systems	HEAT-OFF-COOL	ON-AUTO	Subbase included with thermostat.
T8090T1011/ 191108AQ	For control of zones other than zone 1 in heating or heating/cooling systems.	None	None	Wallplate included with thermostat.



## Recycling Notice

This control contains mercury in a sealed tube. Do *not* place control in the trash at the end of its useful life.

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control, or of an old control containing mercury in a sealed tube.

If you have questions, call Honeywell Inc. at 1-800-468-1502.

## Installation

### WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.



## CAUTION

1. Disconnect power supply to prevent electrical shock or equipment damage.
2. To prevent interference with thermostat linkage, keep wire length to a minimum and run wires as close as possible to the subbase.
3. Do not overtighten thermostat captive mounting screws because damage to subbase threads can result.
4. Do not short across coil terminals on relay. This can burn out the thermostat heat anticipator.

**IMPORTANT:** *An incorrectly leveled subbase will cause the temperature control to deviate from setpoint. It is not a calibration problem.*

### LOCATION

Locate thermostat about 5 ft (1.5m) above the floor in an area with good air circulation at average temperature.

- Do not mount the thermostat where it may be affected by:
- drafts, or dead spots behind doors and in corners.
  - hot or cold air from ducts.
  - radiant heat from the sun or appliances.
  - concealed pipes and chimneys.
  - unheated (uncooled) areas such as an outside wall behind the thermostat.

Run wires from the zone panel to the new thermostat location.

**IMPORTANT:** *This control requires two additional conductors to the control transformer common (e.g., a typical 2-wire heating system requires four wires be pulled, a 4-wire heating/cooling requires six wires).*

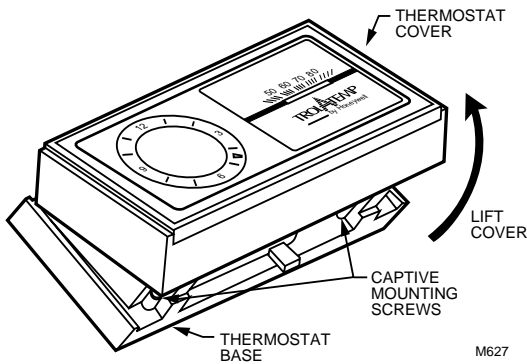
### UNPACK THERMOSTAT

Handle your new thermostat carefully; rough handling may interfere with its accuracy. Before unpacking, refer to Fig. 1.

Remove and discard the shipping wrap.

**IMPORTANT:** *Save package of screws and instructions for the homeowner.*

**Fig. 1—Unpack thermostat.**



Remove the thermostat cover by lifting from the bottom. Set aside cover until needed later.

Carefully remove the material protecting the mercury switch bulb.

Loosen two captive mounting screws and separate wallplate (if provided) from back of thermostat base.

### MOUNT WALLPLATE OR SUBBASE

#### Wall Mounting (Fig. 2)

Hold the wallplate or subbase in position on wall (Fig. 2). Mark holes on the wall for anchors. Use spirit level to make sure the wallplate or subbase is level.

Drill 3/16-in. holes, and gently tap anchors into holes until flush with the wall.

Pull wires through the large wiring hole in the wallplate or subbase.

Loosely fasten the wallplate or subbase to the wall with the three screws. Do not completely tighten the screws.

Carefully level the wallplate or the subbase (Fig. 4), and firmly tighten the screws.

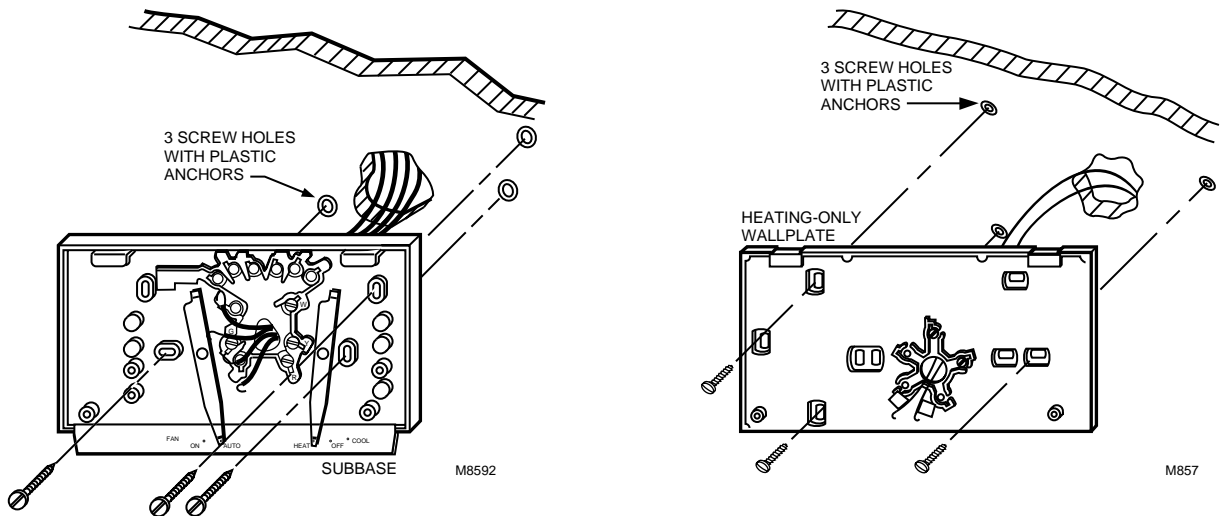
#### Outlet Box Mounting (Fig. 3)

Use a horizontally mounted outlet box if possible. If a vertical outlet box is used, mount the wallplate or subbase on a 202689A (white) Cover Plate Assembly (ordered separately). Follow the instructions provided with the cover plate assembly.

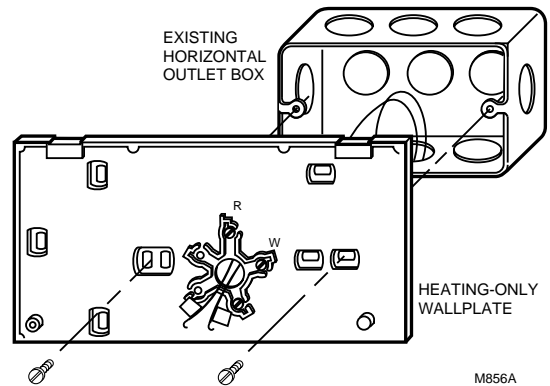
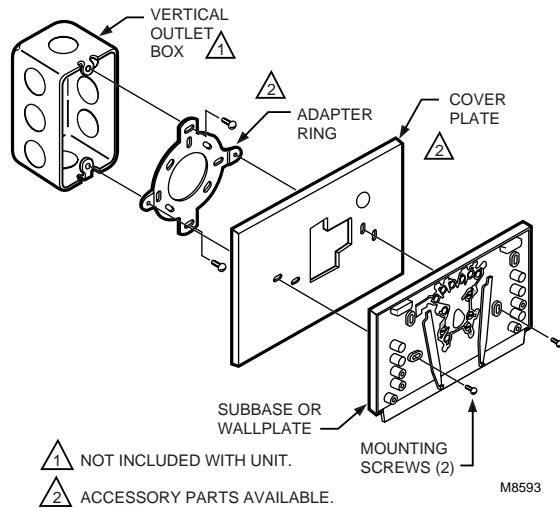
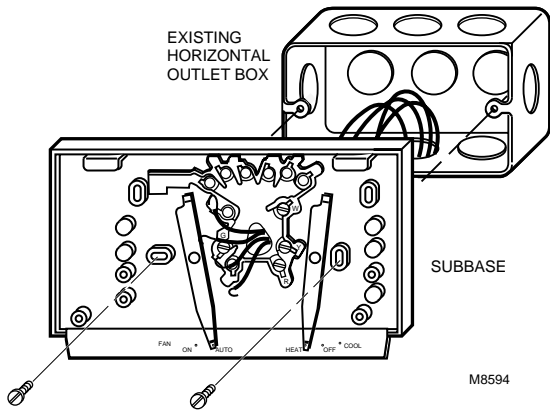
Align the wallplate or subbase mounting holes on the outlet box and loosely fasten with two screws.

Carefully level the wallplate or subbase (Fig. 4), and firmly tighten the screws.

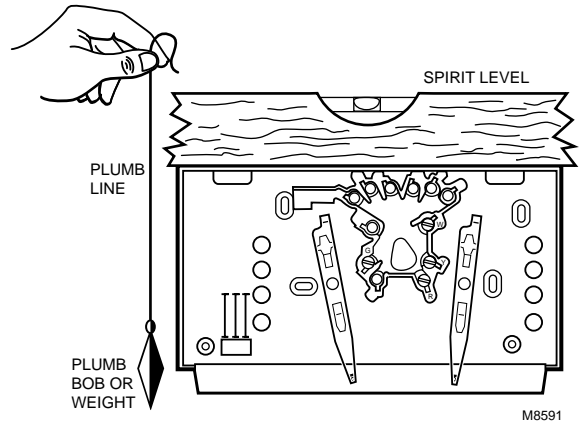
**Fig. 2—Mounting wallplate or subbase to wall.**



**Fig. 3—Mounting wallplate or subbase on horizontal outlet box.**



**Fig. 4—Leveling methods for wallplate or subbase.**



**WIRE WALLPLATE OR SUBBASE**

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

All wiring must comply with local codes and ordinances.

T8090T Zone Thermostat and wallplate or subbase are used in zoned conventional single-stage heating or heating/cooling systems.

In replacement applications, check the existing wallplate or subbase wires for cracked or frayed insulation. Replace any wires in poor condition. If the wire is plastered into the wall, make a hole next to the wires so they can be pushed back into the wall later.

In new installations, run low voltage thermostat cable (if necessary) to the thermostat location. Pull about 3 in. (76 mm) of cable through a hole in the wall.

Refer to Fig. 5 and strip thermostat wire insulation as necessary.

Connect wires to the terminals inside the wallplate or subbase. Refer to Fig. 8 for a wiring diagram of a typical heating/cooling zone system. Refer to Figs. 6 and 7 for thermostat/wallplate and subbase internal schematics.

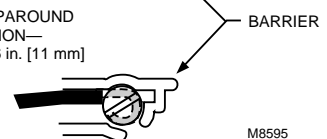
Push excess wire back through the hole and plug any opening with insulation to prevent drafts that may affect thermostat performance.

**Fig. 5—Methods of connecting terminals.**

FOR STRAIGHT CONNECTION—  
STRIP 5/16 in. [8 mm]

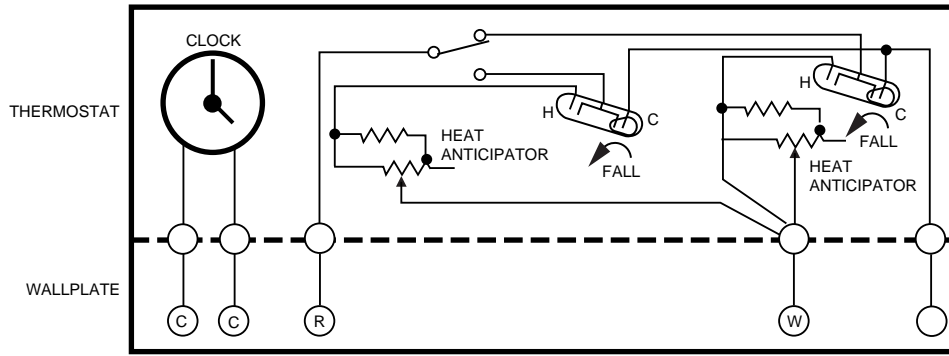


FOR WRAPAROUND CONNECTION—  
STRIP 7/16 in. [11 mm]



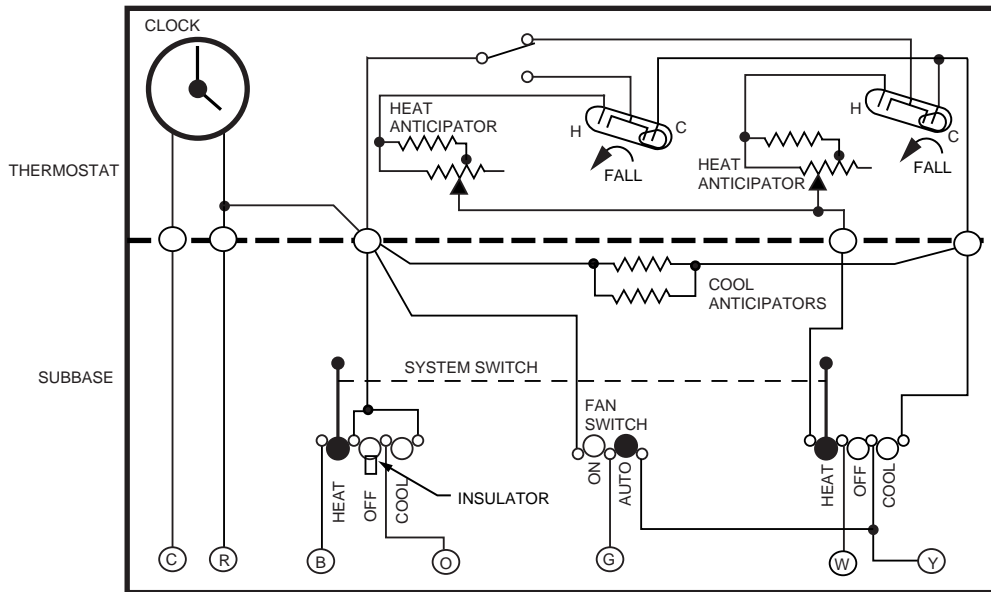
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Fig. 6—T8090T Thermostat/191108AQ Wallplate internal schematic.



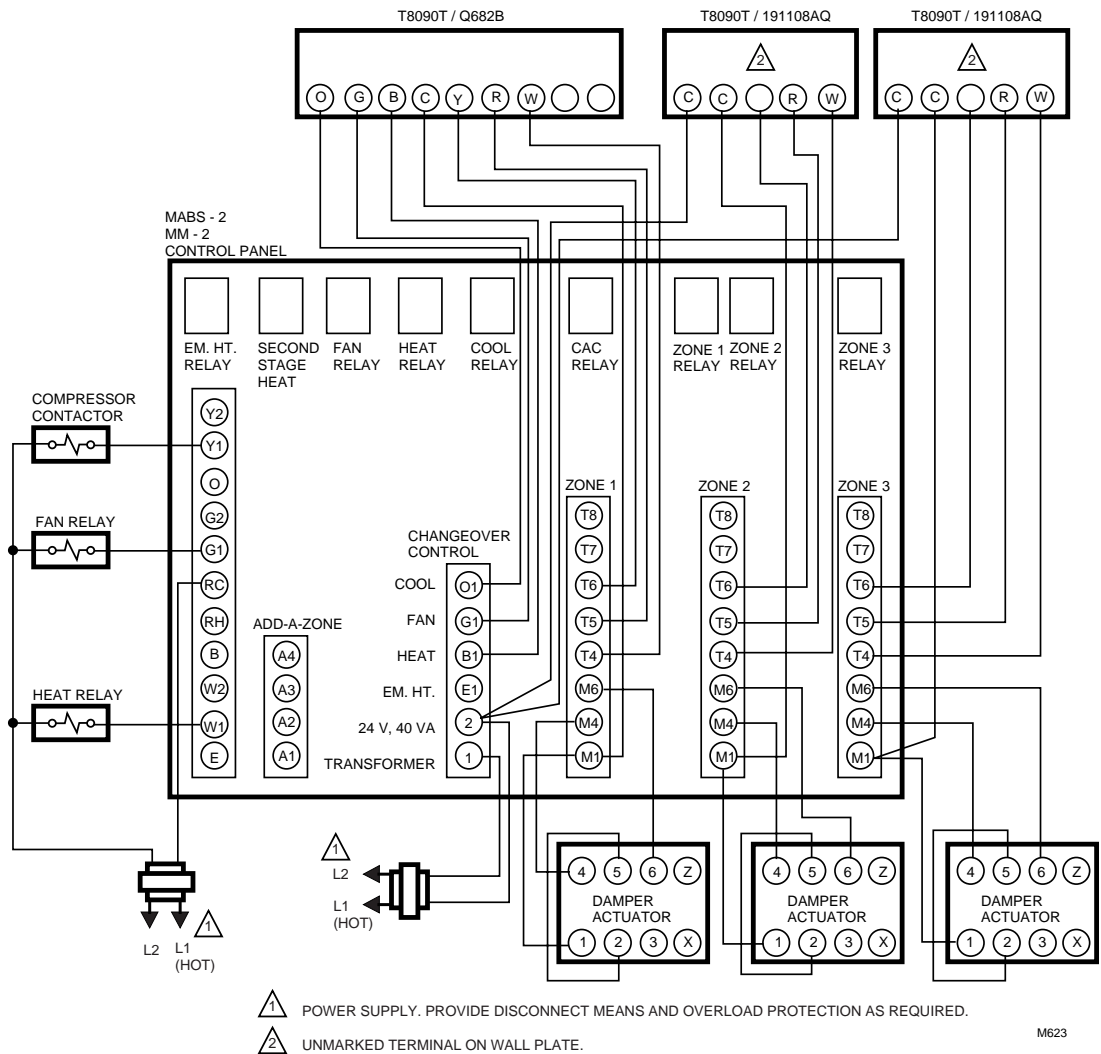
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Fig. 7—T8090T Thermostat/Q682B Subbase internal schematic.



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**Fig. 8—Typical hookup for T8090T Thermostat/Q682B Subbase and 191108AQ Wallplate in single-stage heating/cooling zone system.**



**MOUNT THE THERMOSTAT**

Note the tabs on the top inside edge of the thermostat base. These tabs fit the slots molded into the top of the wallplate or subbase.

Hang the thermostat base on the wallplate or subbase.

Insert the two captive mounting screws located in the bottom corners of the base (Fig. 9).

Firmly tighten the screws.

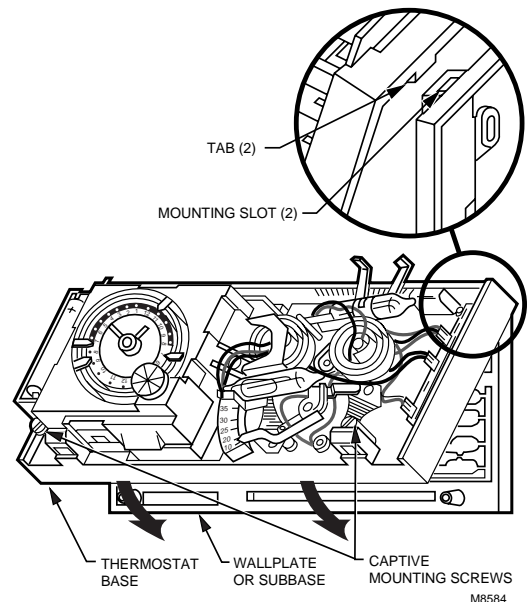
**INSERT CLOCK BATTERIES (OPTIONAL)**

Power is supplied to the clock by the 24-Vac transformer. Two AAA alkaline backup batteries (included) may be installed to supply power to the clock if power is interrupted due to power failure.

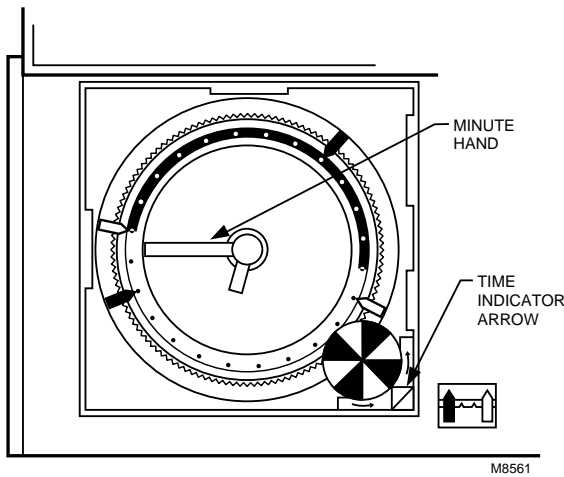
Install the batteries in the thermostat (Fig. 10).

Once a year or when batteries are dead, replace with two new AAA alkaline batteries. We recommend Energizer® batteries.

**Fig. 9—Thermostat mounting.**



**Fig. 10—Insert clock backup batteries.**



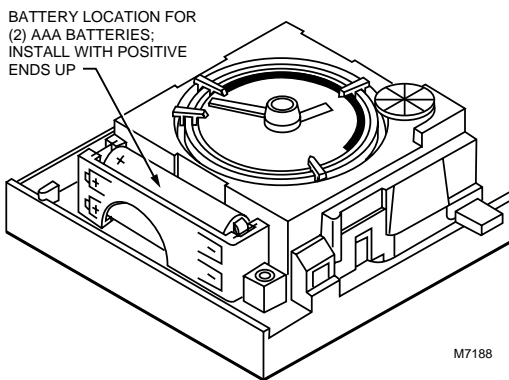
**SET CLOCK**

Adjust the clock by moving the minute hand clockwise. Do NOT reverse the minute hand. When time is correctly set, the time indicator arrow (Fig. 11) points to the correct time and the corresponding daytime (light) or nighttime (dark) portion of the program dial.

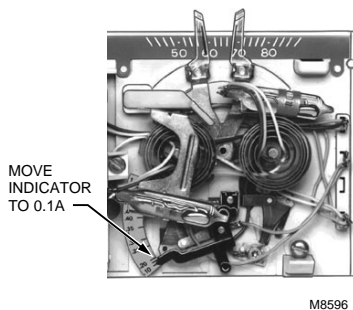
**SET HEAT ANTICIPATOR**

The T8090T thermostat has an adjustable heat anticipator that has been factory-set at 0.1A. The heat anticipator must be set at 0.1A for proper system operation (Fig. 12).

**Fig. 11—Set clock.**



**Fig. 12—Adjust heat anticipator.**



**PROGRAM THERMOSTAT**

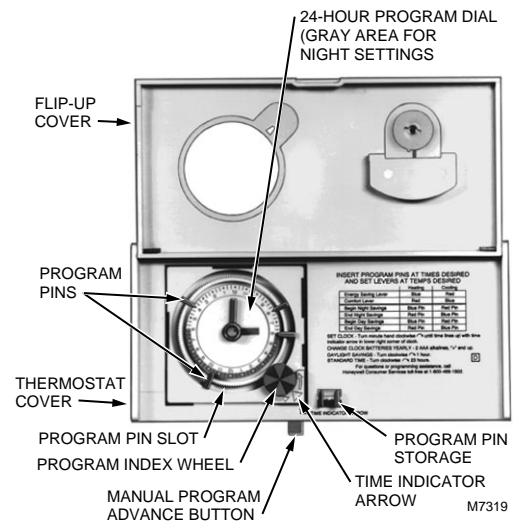
You can program your thermostat to automatically lower and raise the temperature one or more times every 24 hours.

**Before Setting Your Program**

Notice the slots on the program dial (Fig. 13). The dial is slotted for the program pins that can be inserted at ten-minute intervals.

Find the three red and three blue pins that are included with the thermostat. The red pins start the high-temperature period; the blue pins start the low-temperature period. You can set up to six temperature changes with the pins supplied. We recommend at least four hours for each energy savings period.

**Fig. 13—Program components.**



To insert a pin, push it straight into the selected notch on the program dial until it is completely seated.

To remove a pin, press against program dial and pull the pin straight out. DO NOT attempt to change a pin if it is engaged with the program index wheel.

On heating/cooling systems, you must reset the pins when the seasons change. You will also probably want to change the lever positions.

**Set the Heating Program**

Decide when you want the temperature to reach the comfort level. Find the notch on the dial that is one-half hour before this time and insert a *red* pin. The half-hour head start gives the furnace time to heat the house before you awaken or arrive home.

Decide when you want the energy savings period to start and insert a *blue* pin at the notch that corresponds to this time. After the blue pin engages, the furnace will be off until room temperature drops to the energy savings setpoint. You can set both a day and a night program. See Fig. 14 for programming examples.

**Set the Cooling Program**

Decide when you want the temperature to reach the comfort level. Find the notch on the dial that is one-half hour before this time and insert a *blue* pin. The half-hour head

start gives the air conditioner time to cool the house before you awaken or arrive home.

Decide when you want the energy savings period to start and insert a red pin in the notch that corresponds to this time. After the red pin engages, the air conditioner will be off until room temperature rises to the energy savings setpoint.

Fig. 14—Programming examples.

		WINTER			SUMMER		
		TEMPERATURE		PROGRAM PIN IN CONTROL	TEMPERATURE		PROGRAM PIN IN CONTROL
		°F	°C		°F	°C	
NIGHT ENERGY SAVING PERIOD	BEGINS 10:00 PM	58	14	BLUE	80	27	RED
	ENDS 6:00 AM	68	20	RED	75	24	BLUE
DAY ENERGY SAVING PERIOD	BEGINS 7:30 AM	58	14	BLUE	80	27	RED
	ENDS 4:00 PM	68	20	RED	75	24	BLUE

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### Start or End Programs with Manual Program Advance Button

**IMPORTANT:** To prevent damage to the program advance mechanism, do not use the program advance button within a 30-minute period before or after a program change.

The manual program advance button enables immediate, one-time-only program changes to accommodate temporary schedule changes.

Press the button to immediately begin an energy savings period or return to the normal setting. After pressing the button, check the program indicator to assure the system is in the desired mode. If the program indicator shows blue, the lower temperature is in effect; if it shows red, the higher temperature is in effect. Using the manual advance button will not affect the stored program.

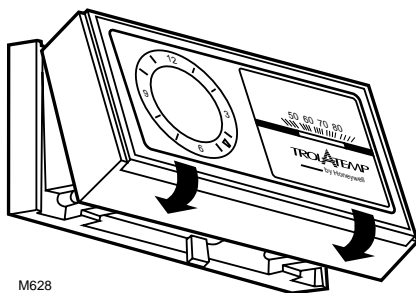
### ATTACH THERMOSTAT COVER

Make sure the packing inserts in the thermostat base are removed.

Place the two tabs on upper edge of cover into mounting slots in thermostat base (Fig. 15).

Swing cover downward until it catches at the bottom of the base.

Fig. 15—Attach cover.



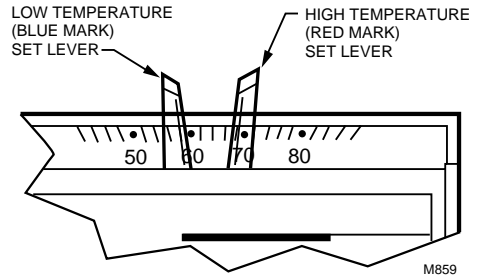
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### SET TEMPERATURE CONTROL LEVERS

The two levers on top of the thermostat control the low and high temperatures for energy savings and comfort control (Fig. 16). The lever on the left (blue mark) controls the lower temperature. The lever on the right (red mark) controls the higher temperature.

We recommend pushing the levers together at an appropriate temperature for either heat or cool until the occupant programs the thermostat and makes the final temperature selections.

Fig. 16—Temperature control levers.



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### SET SUBBASE SWITCHES (IF APPLICABLE)

The Q682B subbase provides SYSTEM and FAN switching for control of heating/cooling equipment and zone 1 fan in multizone applications.

The subbase system switch controls system operation as follows:

- HEAT: Heating system is controlled by the thermostat. Cooling system is off.
- COOL: Cooling system is controlled by the thermostat. Heating system is off.
- OFF: Both the heating and cooling systems are off. If the fan switch is in the AUTO position, the fan is also off.

The subbase fan switch controls fan operation as follows:

- ON: Fan operates continuously.
- AUTO: Fan operates with the cooling equipment as controlled by the thermostat or with the heating equipment as controlled by the plenum switch. In electric heat, heat pump, and fan coil systems, the fan is controlled by the thermostat in heating and cooling.

To switch positions, use thumb or index finger to slide lever to the desired position. For proper circuit operation, switch lever must stop in detent over the desired function indicator mark.

## Checkout

When installation is complete, turn on power supply and check thermostat operation as follows. For complete checkout of entire zone system, refer to system specification, Honeywell form 68-0101.



### CAUTION

Do not check the operation by shorting across the terminals of the system controls. This will damage the thermostat heat anticipator.

**IMPORTANT:** *To assure accurate temperature control, do not touch or breathe on bimetal or thermometer.*

## MULTIZONE SYSTEM

### Heating

With the zone 1 thermostat subbase system switch set at HEAT and fan switch at AUTO, move the heating setpoint lever on the zone 1 thermostat 10°F (6°C) above room temperature to call for heat.

Move the heating setpoint lever on all other zone thermostats 10°F (6°C) below room temperature.

The zone 1 damper should remain open; all other zone dampers should close. Dampers may take up to 30 seconds to open or close fully.

NOTE: If Mastertrol® MABS II panel is used, any zone damper can be set to close when the system is satisfied; damper opens only when that zone thermostat calls for heat.

Furnace should start immediately; fan should start after a short delay.

To check zones other than zone 1, move the heating setpoint lever on one of the zone thermostats 10°F (6°C) above room temperature to call for heating. The associated zone damper should open.

Move the heating setpoint lever on the associated zone thermostat 10°F (6°C) below room temperature; damper should close.

Repeat the preceding two steps for zones other than zone 1.

Move the heating setpoint lever on zone 1 thermostat 10°F (6°C) below room temperature to end call for heat.

Unless another thermostat other than the zone 1 thermostat is calling for heat, the furnace should shut off; the fan should shut off after a short time. All dampers should open unless set to CLOSED on the Mastertrol® MABS II panel.

### Cooling



## CAUTION

Do not operate cooling equipment when outdoor temperature is below 50°F (10°C). Refer to manufacturer recommendations.

With zone 1 thermostat subbase system switch set to COOL and fan switch to AUTO, move the cooling setpoint lever on zone 1 thermostat 10°F (6°C) below room temperature to call for cooling.

Move the cooling setpoint lever on all other zone thermostats 10°F (6°C) above room temperature.

The zone 1 damper should remain open; all other zone dampers should close. Dampers may take up to 30 seconds to open or close fully.

NOTE: If Mastertrol® MABS II panel is used, any zone damper can be set to close when the system is satisfied; damper opens only when that zone thermostat calls for cooling.

Cooling and fan should come on.

NOTE: To prevent compressor short cycling, a minimum off-timer may be included to provide a five-minute time delay before activating the compressor after the thermostat last turned off the compressor, or after the system first received power. This delay protects the compressor.

To check zones other than zone 1, move the cooling setpoint lever on one of the zone thermostats 10°F (6°C) below room temperature to call for cooling. The associated zone damper should open.

Move the cooling setpoint lever on associated zone thermostat 10°F (6°C) above room temperature; damper should close.

Repeat the preceding two steps for each zone other than for zone 1.

Move the cooling setpoint lever on the zone 1 thermostat 10°F (6°C) above room temperature to end the call for cooling.

Unless another thermostat other than the zone 1 thermostat is calling for cooling, cooling and fan should shut off. All dampers should open unless set to closed on the Mastertrol® MABS II panel.

### Fan

Set fan switch on zone 1 thermostat subbase to ON and the system switch to OFF. Fan should run continuously. Move the fan switch to AUTO; fan operation is controlled by the plenum fan control in heating and by the thermostat in cooling.

# Honeywell

*Helping You Control Your World*

**Home and Building Control**

Honeywell Inc.

1985 Douglas Drive North

Golden Valley, MN 55422

**Home and Building Control**

Honeywell Limited—Honeywell Limitée

740 Ellesmere Road

Scarborough, Ontario

M1P 2V9