

## T874A,D Zone Thermostats/ Q674B,D,E Subbases

Installation Instructions for the Trained Service Technician.

### Application

These T874A,D Zone Thermostats and Q674B,D,E Subbases provide 24 to 30 Vac temperature control in Honeywell Trol-A-Temp heating/cooling zone systems.

See Table 1 for thermostat/subbase and system compatibility; see Table 2 for thermostat specifications. For complete Honeywell Trol-A-Temp System specification and application information, refer to the system specification included with the control panel.

TABLE 1—THERMOSTAT/SUBBASE AND SYSTEM COMPATIBILITY.

Thermostat/ Subbase Model Number <sup>a</sup>	Application			Stages
	Mini-Zone	Mabs II, Mabs II-L	Mabs XX	
T874A/Q674B	Zone 1; conventional heat-cool.	Zone 1; conventional heat-cool.	Any zone; conventional heat-cool.	Single-stage
T874A/Q674D	Zones other than zone 1; conventional heat-cool.	Zones other than zone 1; conventional heat-cool.	Not applicable	Single-stage
T874A/Q674E	Not applicable	Not applicable	Any zone; conventional heat-cool.	Single-stage
T874D/Q674B	Not applicable	Zone 1; conventional heat-cool.	Any zone; conventional heat-cool.	Multistage
T874D/Q674D	Not applicable	Zones other than zone 1; conventional heat-cool and heat pump.	Not applicable	Multistage
T874D/Q674E	Not applicable	Not applicable	Any zone; conventional heat-cool.	Multistage

<sup>a</sup> Subbase not included with thermostat; order separately.

TABLE 2—THERMOSTAT/SUBBASE SPECIFICATIONS.

Thermostat/Subbase Order Number <sup>a</sup>	Switching		Thermostat/ Subbase Color	Anticipator Range (A)	
	System	Fan		Heating (Adj.)	Cooling (Fixed)
T874A1465/Q674B1471	HEAT-OFF-COOL	ON-AUTO	White/Gray	Stg. 1— 0.1 to 1.2	Stg. 1— 0 to 1.5
T874A1465/Q674D1123	None	None	White/Gray		
T874A1465/Q674E1379	HEAT-OFF-COOL-AUTO	ON-AUTO	White/Gray		
T874D1801/Q674B1463	HEAT-OFF-COOL	ON-AUTO	Beige/Brown	Stg. 1— 0.1 to 1.2;	Stg. 1— 0 to 1.2;
T874D1827/Q674B1471	HEAT-OFF-COOL	ON-AUTO	White/Gray		
T874D1801/Q674D1115	None	None	Beige/Brown	Stg. 2— 0.1 to 1.0.	Stg. 2— 0 to 1.0.
T874D1827/Q674D1123	None	None	White/Gray		
T874D1827/Q674E1379	HEAT-OFF-COOL-AUTO	ON-AUTO	White/Gray		

<sup>a</sup> Subbase not included with thermostat; order separately.

### Operation

On a 2-heat thermostat, the two stages of heat *make* sequentially as the temperature drops. *Make* refers to the mercury switch initiating a call for heat or cool.

There are about 2° F [1° C] between stages so that the second stage *makes* only when the first stage cannot handle the load. This is the *interstage differential*.



### 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 at 1-800-468-1502.

# Installation

## WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could damage the product or 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 the 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 terminals of systems controls. This can burn out the thermostat heat anticipator.

**IMPORTANT:** *Thermostats are calibrated at the factory by using subbases mounted at true level. Inaccurate subbase leveling will cause thermostat control deviation.*

## LOCATION

Locate the subbase about 5 ft [1.5 m] above the floor in an area with good air circulation at average temperature.

Do not mount the subbase where the thermostat may be affected by:

- drafts or dead spots behind doors and in corners.
- hot or cold air from ducts.
- radiant heat from sun, appliances or fireplace.
- concealed pipes and chimneys.
- unheated (uncooled) areas such as an outside wall behind the thermostat.

## MOUNTING THE SUBBASE

The thermostat subbase can be mounted on a horizontal outlet box or directly on the wall.

1. To mount on a horizontal outlet box, install the subbase on the outlet box as shown in Fig. 1.

For a wall installation, hold the subbase in position and mark holes for the anchors (Fig. 2). Obtain wall anchors locally. Take care that the wires do not fall back into the wall opening. Set aside subbase. Drill two 3/16 in. [4.8 mm] holes and gently tap anchors into the holes until flush with the wall.

2. Pull electrical wires through the cover plate (if used) and subbase cable opening (Fig. 3). See Wiring the Subbase section before pulling any wires.

**IMPORTANT:** *Use 18 gauge, color-coded thermostat cable for proper wiring.*

3. Secure the subbase with the screws provided. Do not fully tighten the subbase screws.

Fig. 1—Installation of subbase on outlet box.

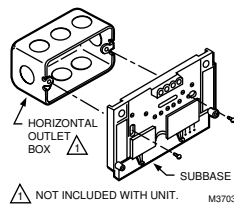


Fig. 2—Installation of subbase on wall.

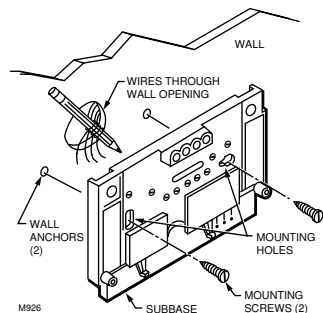
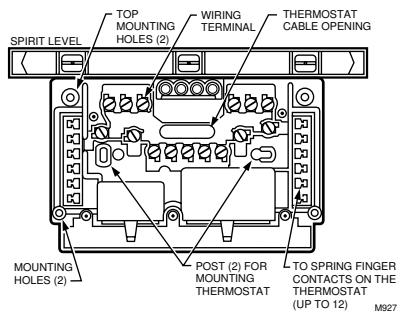


Fig. 3—Subbase components and leveling procedure.



4. Level the subbase using a spirit level, as shown in Fig. 3, and firmly tighten the subbase mounting screws. The subbase mounting holes allow minor out-of-level adjustments.

**IMPORTANT:** *An incorrectly leveled subbase will cause the temperature control to deviate from set point.*

## WIRING THE SUBBASE

All wiring must comply with local electrical codes and ordinances. Follow equipment manufacturer wiring instructions when available. To wire subbase:

1. Connect wires to the subbase terminals. Refer to Figs. 6-10 for wiring diagrams of typical zone systems. A

letter code is located near each subbase terminal for identification. The terminal barrier permits straight or conventional wraparound wiring connection (Fig. 4).

2. Some Q674 Subbases have RC and RH terminals for isolated heating and cooling transformers. For zoning systems, jumper RC and RH terminals as shown in Fig. 5 and wire as single R terminal.

3. Firmly tighten each terminal screw.
4. Fit wires as close as possible to the subbase. Push excess wire back into hole.
5. Plug the hole with nonflammable insulation to prevent drafts from affecting the thermostat.

Fig. 4—Wiring connections.

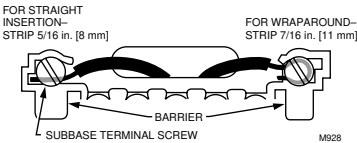


Fig. 5—Jumper RC and RH terminals for single transformer system. Strip wire 3/4 in. [19 mm].

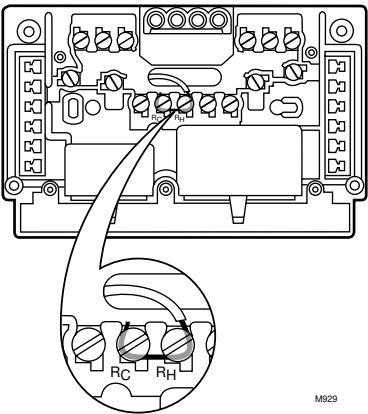
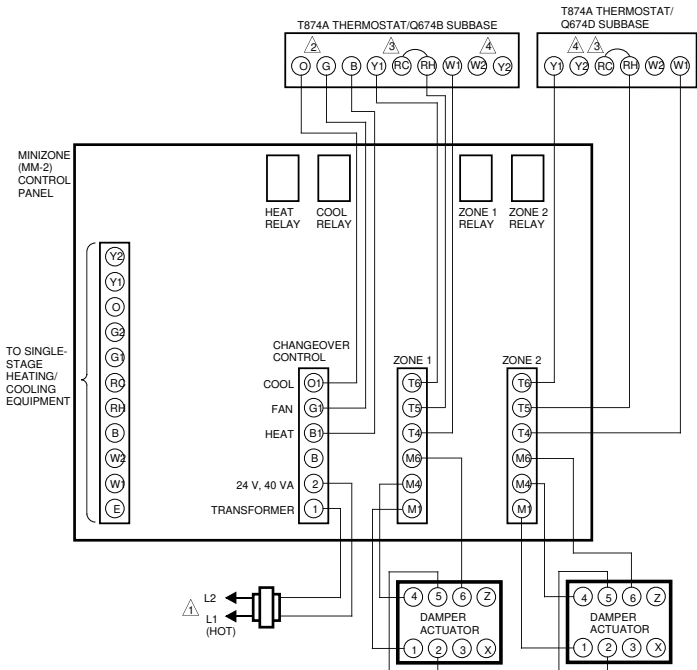


Fig. 6—Typical hookup for MM-2 Mini-zone Control Panel with T874A Thermostat/Q674B,D Subbase in single-stage heating-cooling two-zone system.



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ ZONE 1 O AND B TERMINALS MUST BE CONNECTED FOR PROPER SYSTEM OPERATION.
- ⚠ JUMPER RC AND RH TERMINALS TOGETHER AND WIRE AS SINGLE R TERMINAL.
- ⚠ DO NOT CONNECT W2 AND Y2 TERMINALS TO CONTROL PANEL.

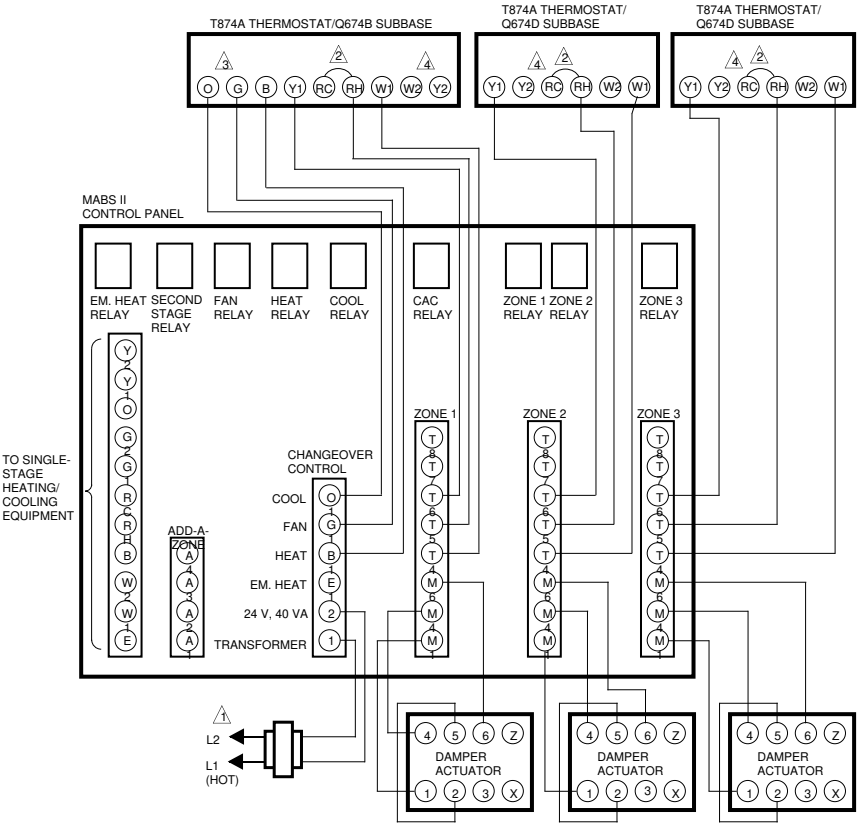
M1633

MOUNTING THE THERMOSTAT

- 1. Remove the thermostat cover by pulling the bottom edge of the cover outward away from the base until it snaps free from the cover clip.
- NOTE: The cover is hinged at the top and is removed by pulling out at the bottom.
- 2. Carefully remove and discard the polystyrene packing insert that protects the mercury switches during shipment.
- 3. Turn over the thermostat base and note the spring fingers that engage the subbase contacts. Make sure the

- spring fingers are *not* bent flat, preventing proper electrical contact with the subbase.
- 4. Set the heat anticipator indicator(s) to 0.1A for proper system operation (Fig. 11).
- 5. Note the two tabs on the top inside edge of the thermostat base. The tabs fit into the corresponding slots on the top of the subbase. Mount the thermostat on the subbase. See Fig. 12.
- 6. Align the two captive mounting screws in the thermostat base with the posts on the subbase (Fig. 12). Tighten both screws. *Do not overtighten the screws* or damage to the subbase posts can result.

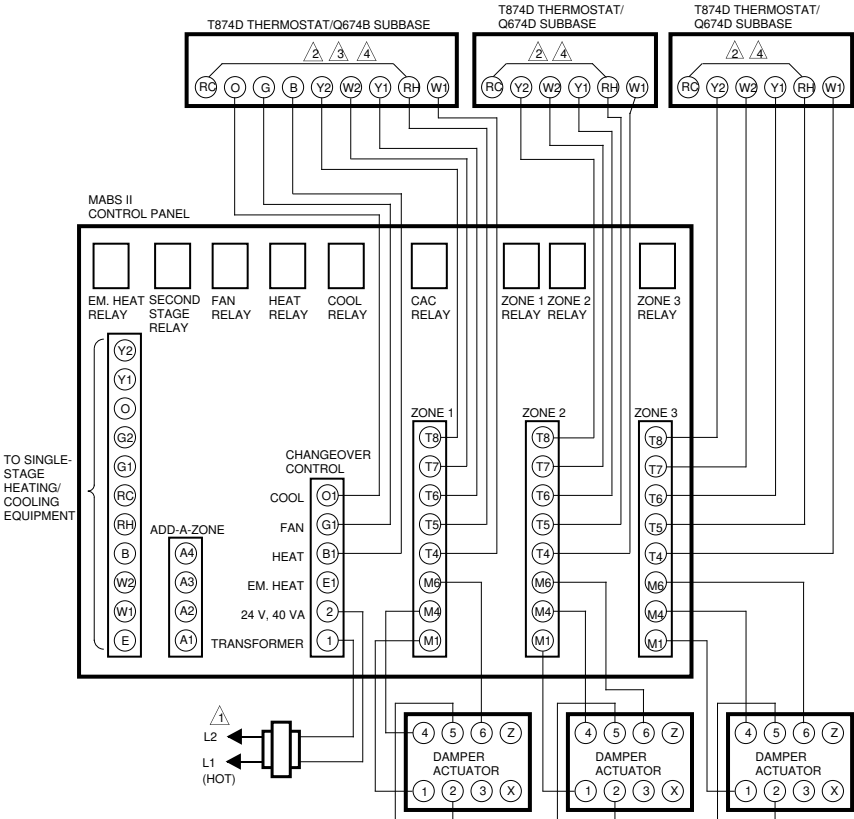
**Fig. 7—Typical hookup for MABS II and MABS II-L Control Panels with T874A Thermostat/Q674B,D Subbases in single-stage heating-cooling zone system. MABS II Control Panel shown; MABS II-L Control Panel hookup is the same.**



- 1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2. JUMPER RC, RH TOGETHER AND WIRE AS SINGLE R TERMINAL.
- 3. ZONE 1 O AND B TERMINALS MUST BE CONNECTED FOR PROPER SYSTEM OPERATION.
- 4. DO NOT CONNECT W2 AND Y2 TERMINALS TO CONTROL PANEL.

M1634

**Fig. 8—Typical hookup for MABS II and MABS II-L Control Panels with T874D Thermostat/Q674B,D Subbases in multistage heating-cooling zone system. MABS II Control Panel shown; MABS II-L Control Panel hookup is the same.**



1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

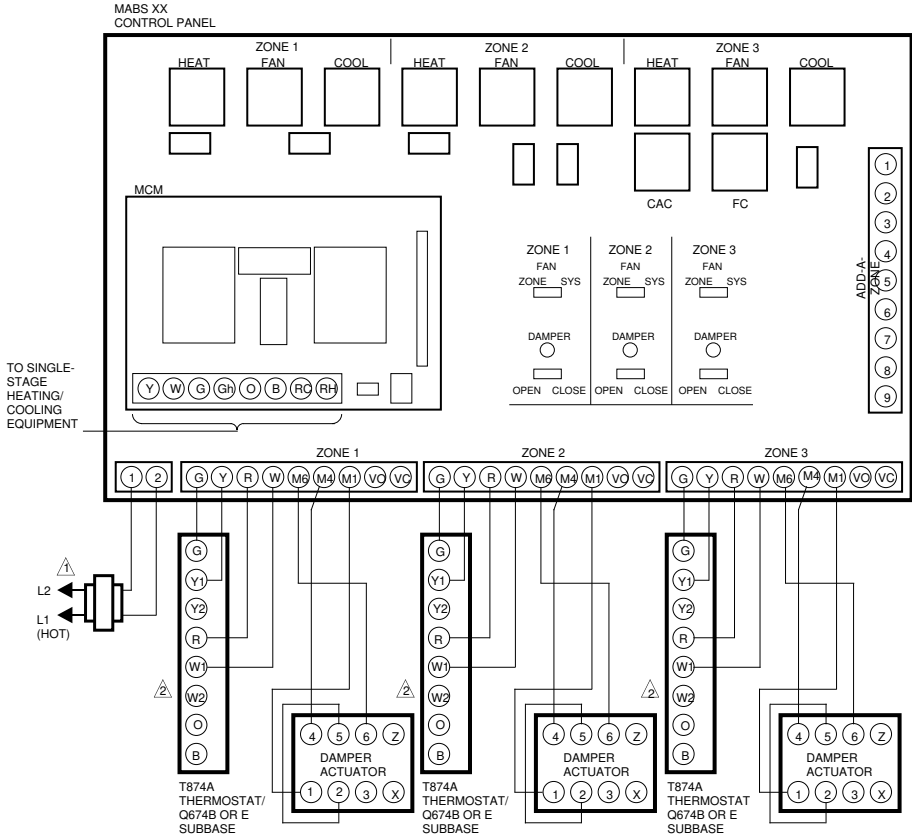
2. JUMPER RC, RH TOGETHER AND WIRE AS SINGLE R TERMINAL.

3. ZONE 1 O AND B TERMINALS MUST BE CONNECTED FOR PROPER SYSTEM OPERATION.

4. IF SINGLE-STAGE COOLING, DO NOT CONNECT Y2; IF SINGLE-STAGE HEATING, DO NOT CONNECT W2.

M1393A

Fig. 9—Typical hookup for MABS XX Control Panel with T874A Thermostat/Q674B,E Subbases in single-stage heating-cooling zone system.



△ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△ WIRE ONLY THE TERMINAL CONNECTIONS SHOWN. SOME TERMINALS NOT AVAILABLE ON ALL THERMOSTATS. IF THERMOSTAT HAS R/RH TERMINALS, JUMPER TOGETHER AND WIRE AS SINGLE R TERMINAL. DO NOT CONNECT THERMOSTAT O AND B TERMINALS TO CONTROL PANEL.

M1636



Fig. 1—Hand milkmeter against IT6717 standard

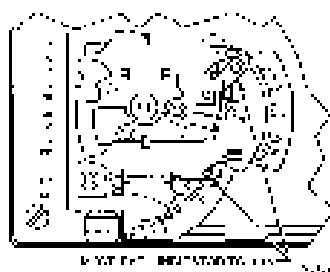
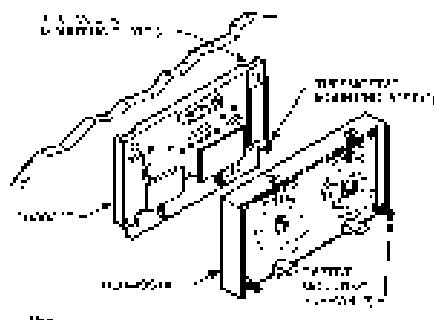


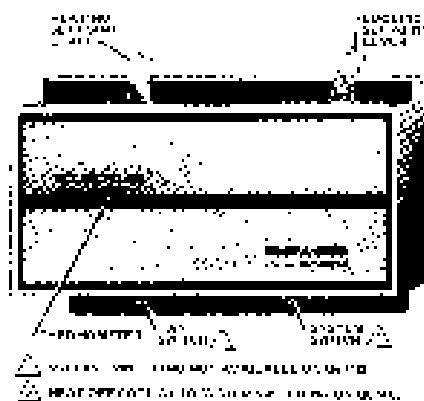
Fig. 12 Mounting Diemastel on subbase (T874D shown).



### TABLE 2. SUBBASE SYSTEMS SATURN ENGINEERING

Selecting Position	Mini-Fans, Mats II, Mats II-L System	Mats XXX System
OFF	Both heating and cooling systems operate. If not in a 4-ALTO position the heating fan is started.	Zone the motor will not call for heating or cooling.
HEAT	System operates in heating mode. Cooling is not.	Zone the motor calls for heating only.
COOL	System operates in cooling mode. Heating is not.	Zone the motor calls for cooling only.
AUTO	System operates.	Zone the motor calls for heating or cooling depending upon indoor temperature.

Fig. 13—Location of animal components.



## Settings

## DISCUSSION

Since both heating and cooling are performed using PTC in the desired ambient positions, one is in a position of doing a heating and the other a few centimetres away of cooling. The minimum  $\sim 10^\circ\text{C}$  differential between one heating and one cooling is  $\sim 10^\circ\text{C}$ .

## SUBSYSTEM SETTINGS: ON THE 4 AND F ONLY.

Refer to Tables 3 and 4 for descriptions of outliers and their positions.

TABLE 1. SUBH-SE FAX SWITCHING POSITIONS

Switching Position	Mini-Zone Mode III, Valve 11-1 System	Mode XX System
COM	Emergency stop mode.	With air valve set to COM, fan will operate continuously.
ALUTO	In cooling fan operation with cooling equipment in cooling, fan operation is controlled by the plenum fan control.	If all zones are set to ALUTO, the fan operation is controlled by the plenum fan control in heating, and with cooling equipment in cooling. If any zone is set to COM, the fan will operate continuously.

\* To move the carriage outside of the normal control positions, use thumb and index finger to slide the lever. Skip the lever over the third control position in subsequent use. The power window will not close.

Before beginning checkout of thermostat operation, set switches on the control panel for the desired system operation. See instructions provided with the control panel.

To set up the system for thermostat checkout, adjust each thermostat settings as shown in Table 5.

TABLE 5—SYSTEM SET-UP FOR THERMOSTAT CHECKOUT.

Control Panel	Heating		Cooling	
	Zone 1	Zones Other Than Zone 1	Zone 1	Zones Other Than Zone 1
Mini-zone MABS II MABS II-L	Set thermostat system switch to HEAT; set fan switch to AUTO. Move the heating set point lever 10° F [6° C] below room temperature.	Move the heating set point lever 10° F [6° C] below room temperature.	Set thermostat system switch to COOL; set fan switch to AUTO. Move the cooling set point lever 10° F [6° C] above room temperature.	Move the cooling set point lever 10° F [6° C] above room temperature.
MABS XX	<p>On <i>all</i> zone thermostats, set the system switch to HEAT; set the fan switch to AUTO. Move the heating set point lever 10° F [6° C] below room temperature.</p> <p>NOTE: The control panel provides a three-minute time delay when 24V is applied to the control panel and at the end of each equipment cycle. The high-speed fan runs during this time delay.</p>		<p>On <i>all</i> zone thermostats, set the system switch to COOL; set the fan switch to AUTO. Move the cooling set point lever 10° F [6° C] above room temperature.</p> <p>NOTE: The control panel provides a three-minute time delay when 24V is applied to the control panel and at the end of each equipment cycle. The high-speed fan runs during this time delay.</p>	

## HEATING

NOTE: If a plenum fan control is used in the heating system, there will be a short delay on a call for heat to allow the furnace to heat the plenum. The fan starts immediately in electric heat systems. Allow 30 seconds for the damper to open or close completely.

Make sure all zone thermostats are set as instructed in the **Heating** column in Table 5. Check each zone thermostat as follows:

1. If thermostat has a fan switch, set it to ON. See Fig. 13. After 30 seconds, place your hand in front of an air register in that zone to check for air flow at the register.
2. Reset fan switch, if provided, to AUTO. After 30 seconds, make sure air flow at register has stopped.
3. Move heating set point lever on zone thermostat 10° F [6° C] above room temperature to call for heat.
4. After 30 seconds (longer, if necessary, for time delay on plenum fan control), check for warm air at the register.
5. Move heating set point lever on the zone thermostat 10° F [6° C] below room temperature to end a call for heat. After 30 seconds (longer, if necessary, for time delay on plenum fan control or control panel), check that air flow at the register has stopped.
6. Repeat steps 1-5 for each zone thermostat.

## COOLING



## CAUTION

Do not operate cooling equipment if outdoor temperature is below 50° F [10° C]. Refer to manufacturer recommendations.

Make sure all zone thermostats are set as instructed in the **Cooling** column in Table 5. Check each zone thermostat as follows:

1. Move cooling set point lever on the zone thermostat 10° F [6° C] below room temperature to call for cooling.
2. After 30 seconds, place your hand in front of an air register in that zone to check for cool air at the register.
3. Move the cooling set point lever on the zone thermostat 10° F [6° C] above room temperature to end the call for cooling. After 30 seconds (longer, if necessary, for time delay on control panel), check that air flow at the register has stopped.
4. Repeat steps 1-3 for each zone thermostat.

When system checkout is complete, return all thermostats to the desired settings for normal system operation.

# Calibration

## THERMOSTAT

T874 thermostats are accurately calibrated at the factory. *They do not have provision for field calibration.*

## THERMOMETER

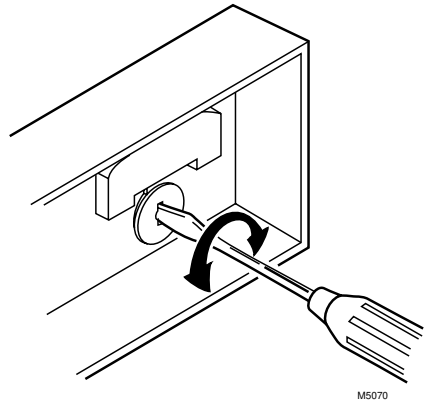
The thermometer in your thermostat has been accurately calibrated at the factory. The thermometer should only need adjustment if it has been dropped or shifted due to mishandling.

If the set point lever and the thermometer reading do not agree:

1. Remove the thermostat cover by pulling up from the bottom of cover until it clears the mounting slots.
2. Set the thermostat cover on a table near an accurate thermometer.
3. Allow ten minutes for the cover thermometer to sense the area temperature; compare the readings. Be careful not to touch the thermometer or breathe on it.
4. If the readings are the same, replace the cover and put the system into operation.
5. If the readings are different, insert a small screwdriver in the thermometer slot (Fig. 14) and turn it until the thermometers have the same reading.
6. Replace the thermostat cover and put the system into operation.

**NOTE:** Hand heat will offset the thermometer reading. After making each adjustment, wait ten minutes for the thermometer to stabilize before comparing.

Fig. 14—Thermometer calibration.



**Home and Building Control**  
Honeywell Inc.  
1985 Douglas Drive North  
Golden Valley, Minnesota 55422

**Home and Building Control**  
Honeywell Limited—Honeywell Limitée  
740 Ellesmere Road  
Scarborough, Ontario  
M1P 2V9

*Helping You Control Your World*

