

## T451A, T651A, T694A,B,D,F Light Duty Line Voltage Thermostats

*T451, T651, T694 Thermostats provide on-off control of valves, fans, motors, contactors, electric heat elements, duct furnaces and fan coil units in heating/cooling systems. Switching subbases provide manual control of heating, cooling and fan.*



**T451A,  
T651A**



**T694A**



**T694B,D,F**

- T451A provides heating control only.
- T651A provides heating and cooling control.
- T694A,B,D,F supplied with switching subbase to provide manual control of heating, cooling and fan.
- Q473A,B switching subbase available for T451A/T651A.
- Automatic cooling anticipator for 120, 208, 240 and 277 Vac.
- Thermostats use spst or spdt snap switches activated by bimetal sensor.
- T451A/T651A mount on standard vertical or horizontal junction box.
- Options include adjustable range stops, locking cover, concealed setpoint, locking setpoint, positive off control, cover thermometer.

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# Specifications

## **SUPER TRADELINE MODEL**

TRADELINE models are selected and packaged to provide ease of stocking, ease of handling and maximum replacement value. TRADELINE model specifications are the same as those of standard models except as noted below.

SUPER TRADELINE MODEL AVAILABLE:  
 T651A2028 Light Duty Line Voltage Thermostat.

### FEATURES:

- Temperature scale range 35° F to 95° F.
- Spdt switch breaks heating contacts and makes cooling contacts on temperature rise.

- Automatic cooling anticipator for 120, 208, 240 and 277 Vac.
- Vertical faceplate with Fahrenheit scale and thermometer.
- Horizontal faceplate with Fahrenheit scale and thermometer.
- Blank vertical faceplate.
- Blank horizontal faceplate.
- Wallplate.
- Adjustable range stops.
- Locking cover screw.

## **STANDARD MODELS:**

Model Number	Application	System Switch	Changeover Switch	Fan Switch
T451A2007 <sup>a</sup>	Heating only.	—	—	—
T451A2015	Heating only with positive OFF.	—	—	—
T651A2028 <sup>a</sup>	Heating/cooling.	—	—	—
T694A2002	Heating/cooling. OFF position breaks fan circuit.	ON-OFF	—	HI-MEDIUM-LO
T694B2001	Heating/cooling. OFF position breaks cooling and fan circuits.	ON-OFF	HEAT-COOL	HI-MEDIUM-LO
T694D2009	Heating/cooling. Heating circuits isolated from cooling circuits. OFF position breaks all control circuits except heat.	ON-OFF	HEAT-COOL	HI-MEDIUM-LO
T694F2007	Heating/cooling. Heating circuits isolated from cooling circuits. OFF position breaks all power to fan and thermostat.	ON-OFF	HEAT-COOL	HI-MEDIUM-LO

<sup>a</sup> With thermometer.

# Ordering Information

When purchasing replacement and modernization products from your TRADELINE® wholesaler or your distributor, refer to the TRADELINE Catalog or price sheets for complete ordering number, or specify—

1. Order number.
2. Accessories, if desired.
3. Order additional components and system accessories separately.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Satisfaction  
 Honeywell Inc., 1885 Douglas Drive North  
 Golden Valley, MN 55422-4386 (612) 951-1000

In Canada—Honeywell Limited/Honeywell Limitee, 740 Ellesmere Road, Scarborough, Ontario M1P 2V9, International Sales and Service offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

ELECTRICAL RATINGS (A):

	Voltage (Vac)	
	120	208/240/277
Full Load	8	4 <sup>a</sup>
Locked Rotor	48	24

<sup>a</sup> Wider temperature differential ranges can occur when used in cooling applications with current draws that are more than four amps. If a wider differential range is unacceptable, use a T6051 Heavy Duty Line Voltage Thermostat for a smaller differential range.

Pilot Duty: 125 VA.

7.2A Resistive: heating contacts only.

TEMPERATURE SETTING RANGE: 35° F to 95° F [2° C to 35° C] (with range stops removed).

STORAGE TEMPERATURE: -40° F to 150° F [-40° C to 66° C].

FIXED DIFFERENTIAL: 2° F [1° C].

SWITCHING ACTION:

T451: Spst. Contacts make on temperature fall.

T651: Spdt. Heating contacts break and cooling contacts make on temperature rise.

T694: Spdt. Heating contacts break and cooling contacts make on temperature rise.

FIELD WIRING CONNECTIONS: No. 10 screw terminals on T451A/T651A; color-coded leads on T694 models.

DIMENSIONS: See Figs. 1 and 2.

FINISH: Brushed champagne gold and dark pewter faceplate; beige and brown case.

UNDERWRITERS LABORATORIES INC.: Listed.

ACCESSORIES:

Q473A2006 Switching Subbase: Use with T651A for HEAT-OFF-COOL manual system switching.

Q473B2005 Switching Subbase: Use with T451A/T652A for AUTO/OFF switching in heating only or cooling only applications.

220124A Faceplate vertical, Fahrenheit scale, with thermometer.<sup>a</sup>

220124B Faceplate vertical, Celsius scale, with thermometer.

220124C Faceplate, horizontal, Fahrenheit scale, with thermometer.<sup>a</sup>

220124D Faceplate, horizontal, Celsius scale, with thermometer.

220125A Faceplate, horizontal, Fahrenheit scale, without thermometer.

220125B Faceplate, vertical, Fahrenheit scale, without thermometer.

220125C Faceplate, horizontal, Celsius scale, without thermometer.

220125D Faceplate, vertical, Celsius scale, without thermometer.

220126A Faceplate, horizontal, blank (concealed setpoint, without thermometer).<sup>a</sup>

220126B Faceplate, vertical, blank (concealed setpoint, without thermometer).<sup>a</sup>

220213 Wallplate, covers old T451A/T651A wall marks when installing new T451A/T651A.<sup>a</sup>

199242 Wallplate, covers old T694 wall marks when installing new T694.

<sup>a</sup> Supplied with SUPER TRADELINE model T651A.

Fig. 1—T451A, T651A mounting dimensions in in. [mm].

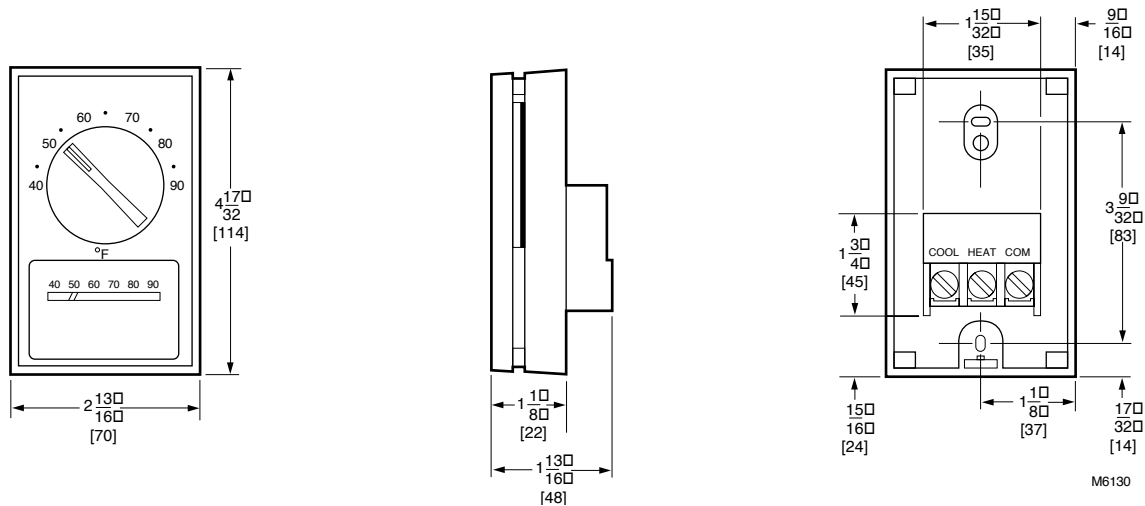
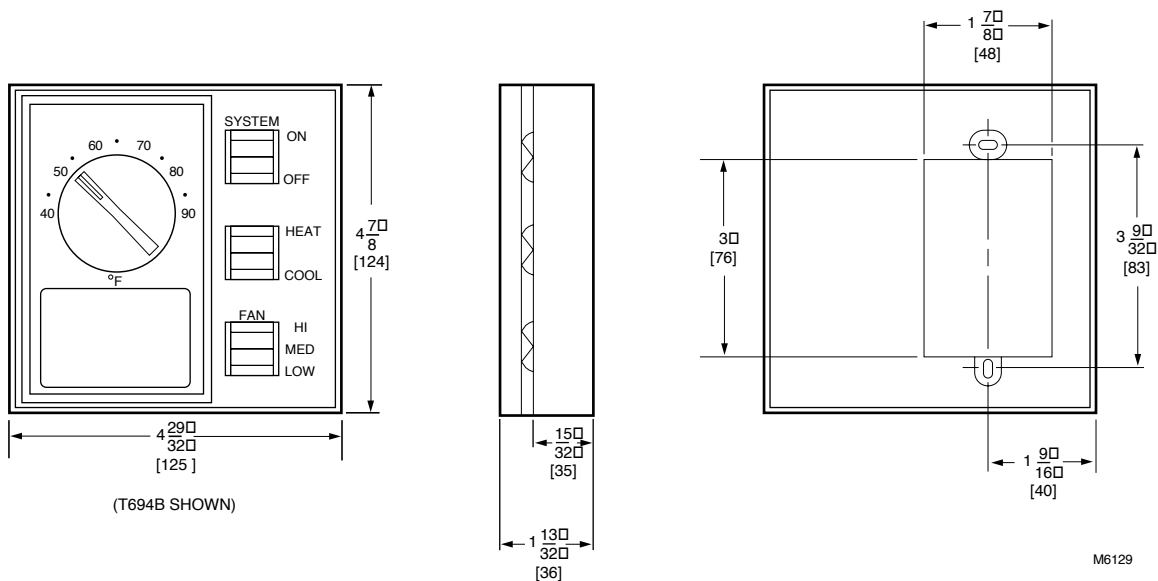


Fig. 2—T694A,B,D,F mounting dimensions in in. [mm].



## Installation



### WARNING

Do not use on electric heat. Possible fire hazard if T694A,B,D used on electric heat. T694F can be used on electric heat.

#### 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

Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage. *Use copper wire only.*

#### LOCATION

Select the same location as control to be replaced, or select a new location about 5 ft. [1.5 m] above the floor, on an inside wall where there is good air circulation at average room temperature.

Do not install 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 sun or appliances.
- concealed pipes and chimneys.
- unheated (uncooled) areas behind the thermostat, such as an outside wall.

#### WIRING AND MOUNTING

Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage. All wiring must comply with applicable electrical codes, ordinances and regulations. *Use copper wire only.* Make sure that thermostat electrical rating is sufficient for current requirements of controlled equipment, and that listed voltage matches power supply.

#### T451A/T651A THERMOSTATS (Fig. 3)

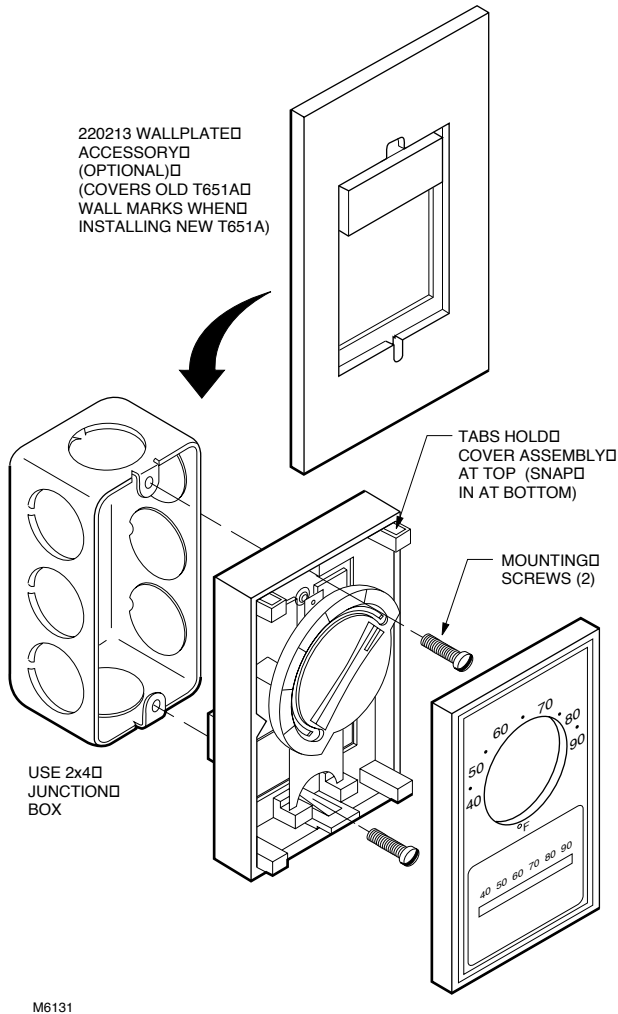
T451A/T651A Thermostats mount vertically on a 2 x 4 in. or 4 x 4 in. junction box. See Fig. 3. Use 2 x 4 in. cover plate with 4 x 4 in. junction. For horizontal mounting, the appropriate horizontal faceplate is required. Horizontal mounting with thermometer and horizontal blank faceplates are packaged with the T651A2028 SUPER TRADELINE model. For additional faceplates or T451 applications, see Accessories. When replacing old style T451A/T651A, use a wallplate to cover previous wall marks. This wallplate is packaged with the T651A2028 SUPER TRADELINE model. For T451 applications, see Accessories.

1. Before mounting thermostat, connect system wiring to proper terminals at rear of thermostat. Follow equipment manufacturer instructions or refer to Fig. 4 for typical system hookup.

2. Remove cover assembly from thermostat. Attach thermostat to junction box with two screws provided. Replace cover assembly. See Fig. 3.

3. Use 1/16 hex Allen wrench to install Allen locking cover screw.

**Fig. 3—Mounting T451A/T651A.**



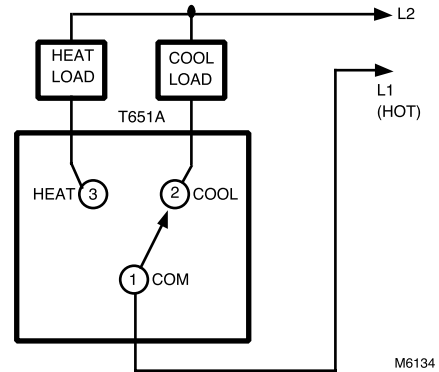
**T694A,B,D,F THERMOSTATS (Fig. 5)**

All T694A,B,D,F Thermostats mount vertically on a 2 x 4 in. or 4 x 4 in. junction box. See Fig. 5. Use 2 x 4 in. cover plate with 4 x 4 in. junction box.

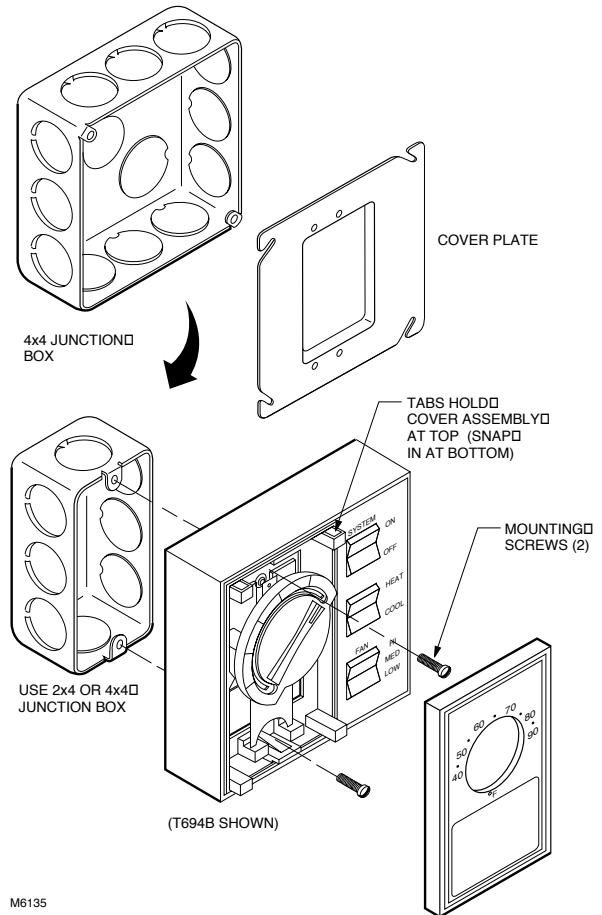
1. Before mounting, connect system wiring to proper color-coded leads at rear of thermostat. Follow equipment manufacturer instructions or refer to Figs. 6-9 for typical system hookups.

2. Remove thermostat cover assembly. Attach thermostat to junction box with two screws provided. Replace thermostat cover assembly.

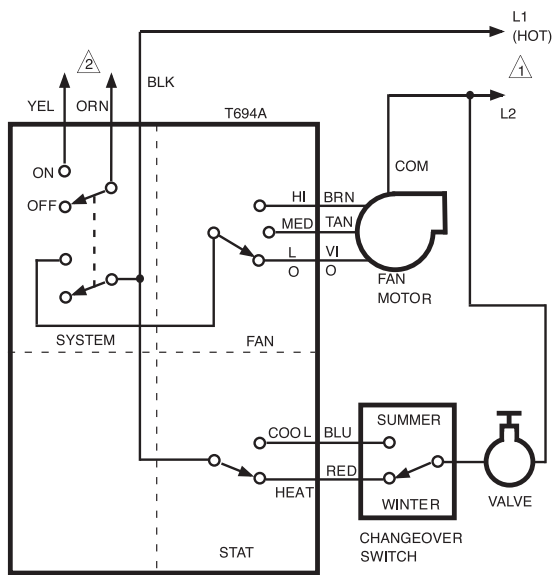
**Fig. 4—T652A in heating-cooling system.**



**Fig. 5—Mounting T694A,B,D,F.**



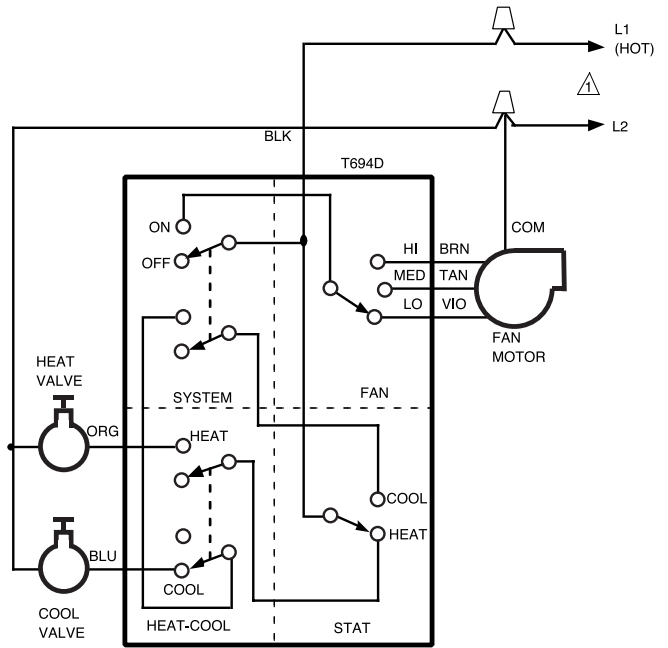
**Fig. 6—T694A in heating-cooling system with independent valve and fan circuits.**



⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.  
 ⚡ SPST SWITCH

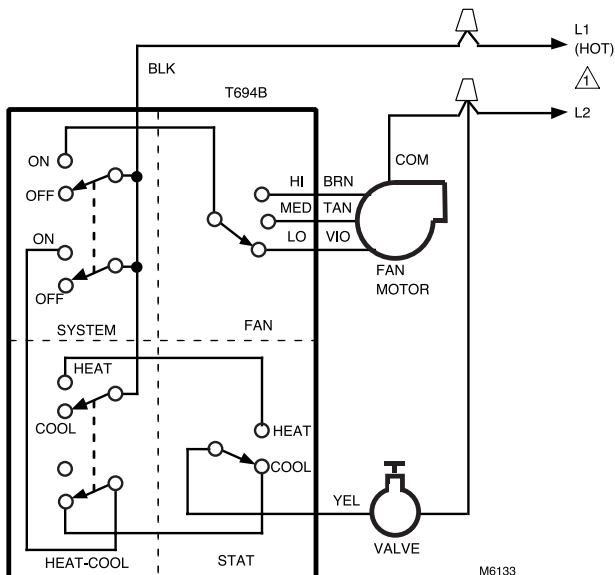
M6132

**Fig. 8—T694D with isolated switching for heating and cooling.**



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

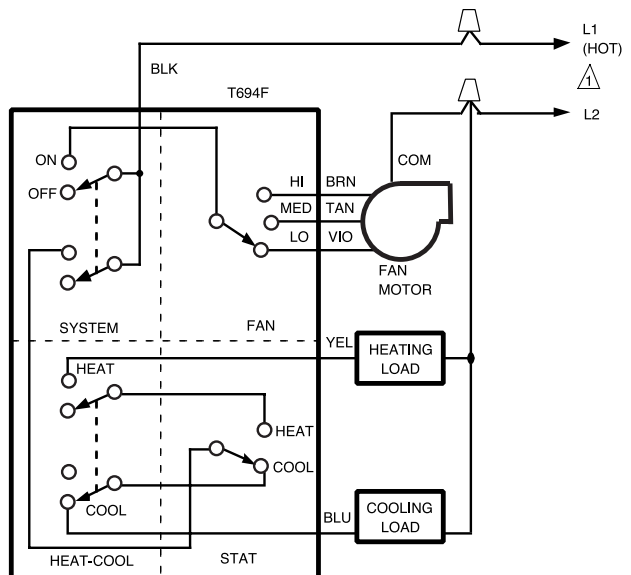
**Fig. 7—T694B connected for positive-off switching in COOL position.**



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

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**Fig. 9—T694F with positive-off position.**



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

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# Checkout

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After the thermostat is wired and mounted, perform the following system checkout procedure.

## **T451/T651**

### IN HEATING APPLICATION:

1. Close disconnect switch (if used).
2. Adjust setpoint above room temperature and check that heating system turns on.
3. Adjust setpoint below room temperature and check that heating system turns off.
4. Adjust thermostat for desired room temperature.

### IN COOLING APPLICATION:

1. Close disconnect switch (if used).
2. Adjust setpoint below room temperature and check that cooling system turns on.
3. Adjust setpoint above room temperature and check that cooling system turns off.
4. Adjust thermostat for desired room temperature.

NOTE: Wider temperature differential ranges can occur when used in cooling applications with current draws that are more than four amps. If a wider differential range is unacceptable, use a T6051 Heavy Duty Line Voltage Thermostat for a smaller differential range.

## **T694**

NOTE: System switch must be in ON position to check out system.

1. Close the disconnect switch (if used) and press HEAT switch; adjust setpoint above room temperature and check that heating system turns on.
2. Adjust setpoint below room temperature and check that heating system turns off.
3. Press COOL switch; adjust setpoint below room temperature. Check that cooling system turns on and fan runs continuously.
4. Press fan LO, MED, HI switches and check that fan control operates properly.
5. Adjust setpoint above room temperature and check that cooling system turns off. Fan operates continuously.
6. Adjust thermostat for desired room temperature.

If questions arise regarding this product, contact your distributor or local Honeywell representative.

**Honeywell**

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