Honeywell

T8624C,D (5-1-1 Day Programming) Chronotherm® III Fuel Saver Thermostats

The T8624C,D Chronotherm III Program-mable Fuel Saver Thermostats provide auto-matic control of multistage heating/cooling sys-tems and offer users the highest standard of comfort and convenience available with energy savings.

- Different schedules may be selected for week-days, Saturday and Sunday.
- Can be programmed in hand (with batteries in-stalled) or on wall to provide up to four tempera-ture settings per day.
- Large digital clock (liquid crystal display) indi-cates continuous time, day, current period and room temperature.
- Adaptive Intelligent Recovery™ brings room tem-perature to programmed temperature at pro-grammed time, maximizing comfort and energy savings.
- Temperature control program maintains tempera-ture within 1° F of setpoint.
- Temporary program override available by using:
  — WARMER and COOLER keys.
  — SKIP next period key.
  — CHANGE to last period key.
- HOLD TEMP key provided for indefinite pro-gram override (vacation/holiday).
- Installer self-test and time delay override save installation time.
- SYSTEM light-emitting diode (LED) indicates system is energized.

- Models available with automatic or manual heat/cool changeover.
- Batteries included provide power to maintain clock and memory during power failures.
- Switching subbase with wiring terminals included.
- Powered directly from control transformer, re-quiring an extra (24V) wire to thermostat.
- Fan operation switch to select either independent or direct thermostat control of fan in heating included on back of select models.

CONTENTS

Specifications

IMPORTANT: *The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. Also, this product is tested under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.*

TRADELINE® MODELS
TRADELINE models (see Table 1) are selected and packaged to provide ease of stocking and handling and also maximum replacement value.
LIGHT-EMITTING DIODE (LED): SYSTEM LED lights during thermostat ON cycle.
VOLTAGE RATING: 15 to 30 Vac.
CURRENT RATING: 1.6A maximum total per stage.
OPERATING HUMIDITY RANGE: 5 to 90 percent relative humidity, noncondensing.
OPERATING AMBIENT TEMPERATURE RANGE: 40° F to 110° F [4° C to 43° C].

SETPOINT RANGE: 45° F to 88° F [7° C to 31° C].
CALIBRATION: Self-calibrating thermostat and thermometer to ±1° F.
SHIPPING TEMPERATURE: -20° F to +120° F [-29° C to +49° C].
CYCLES PER HOUR ADJUSTMENT:
   Heating: First stage of 2-stage heat models—fixed at 3 cph. Second stage of 2-stage heat models or heat stage of single-stage heat models—factory-set at 6 cph; field-adjustable to 1,3,6 or 9 cph.
   Cooling: Factory-set at 3 cph (not field adjustable); minimum off-time of five minutes.
FINISH: Beige matte with decorative brushed metal faceplate or Premier White™.
DIMENSIONS: Thermostat (mounted on subbase)—7 in. [178 mm] long, 5-5/16 in. [135 mm] high, 1-3/4 in. [44 mm] deep. See Fig. 1 for subbase dimensions.
TYPICAL KEYPAD: See Fig. 2.
ACCESSORIES:
   TG586A Locking Cover.
   TG512 Versaguard™ Universal Thermostat Guard.

TABLE 1—TRADELINE MODELS.

Thermostat Model Number	Stages		Changeover Type	Switching		Application
	Heat	Cool		System	Fan	
T8624C	2	1	Auto	HEAT-AUTO-COOL-OFF	ON-AUTO	Multistage
T8624D	2	2	Auto	HEAT-AUTO-COOL-OFF	ON-AUTO	Multistage
T8624D	2	2	Manual	HEAT-OFF-COOL	ON-AUTO	Multistage

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. Model number.
   2. Number of heat and cool stages desired.
   3. System, fan switching desired.
   4. Application.
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
      Minneapolis, Minnesota 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.

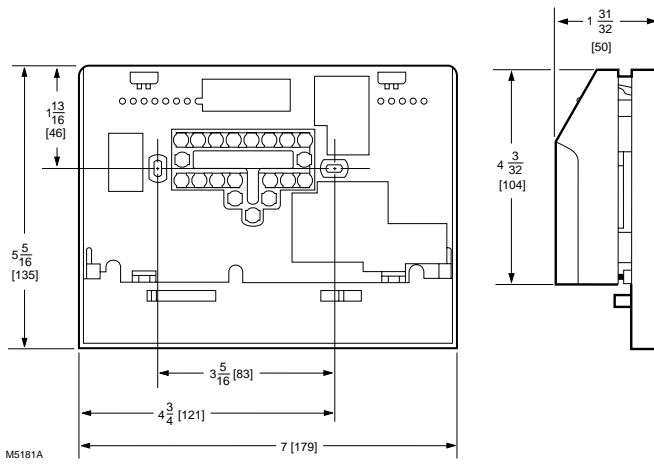**Fig. 1—T8624 Subbase mounting dimensions in in. [mm].**
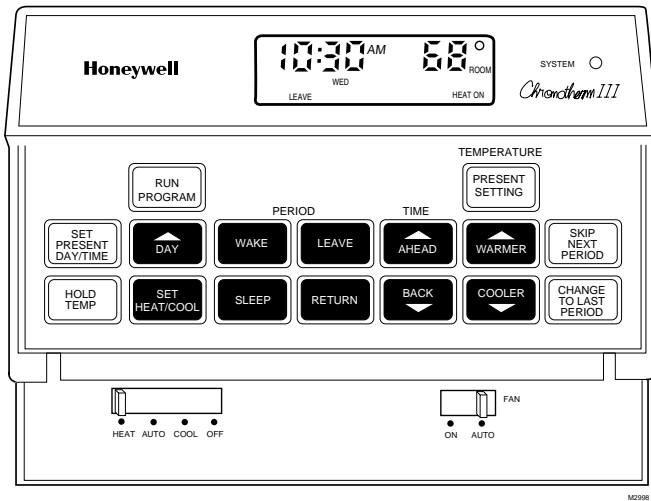

Fig. 2—Typical thermostat keypad.

Selection/Application

The T8624 Thermostat uses the latest microelectronic design and control technology to provide home and building owners with the highest level of comfort available and optimal energy savings in a package that is easy to use and easy to live with.

The following section is a guide to selection and application of the best thermostat to meet individual needs.

PROGRAMMING

Does the thermostat selected accommodate the customer's daily schedule, lifestyle or work schedule?

Device	Programming	Daily Temperature Selection
T8624C,D	5-1-1 (Mon-Fri, Sat, Sun)	4 heat and 4 cool
T8621A,C,D	7-day (each day different)	4 heat and 4 cool
T8600,01,02,03*	5-1-1 (Mon-Fri, Sat, Sun)	4 heat and 4 cool

The choices are:

  *Model not currently available to control multistage equipment.

IF NEW CONSTRUCTION APPLICATION, CONSIDER:
  • Equipment type (see manufacturer specifications).
    —Staging required.
    —System switching required.
    —Fan switching required.
  • Control wiring—number of conductors required to operate equipment and thermostat.

IMPORTANT: *The T8624 requires an additional conductor to transformer common to provide continuous 24V power for thermostat operation.*

IF RETROFIT/REPLACEMENT APPLICATION, CONSIDER:
  • Equipment requirements.
    — Staging (heat stages, cool stages).
    — System switching (manual: HEAT-OFF-COOL; automatic: HEAT-AUTO-COOL-OFF). Emergency heat for heat pump application not provided on T8624.

— Fan switching; does fan come on automatically from thermostat on cooling only (typical gas/oil heating), or on call for cool and heat (typical electric heat with single speed fan)?
  • Existing wiring
    — Are there enough conductors to operate the equipment and the thermostat? Can a new cable be pulled?

IMPORTANT: *The T8624 requires an additional conductor to transformer common to provide continuous 24V power for thermostat operation.*

SECURITY
Does the thermostat selected provide access to

Access	Typical Application	Device
Free access to programming and adjustment/override.	Home or owner-occupied commercial building.	T8624A,C,D
Restricted access to device.	Public building.	T8624 with TG512 Locking Guard or TG586A Locking Cover.

programming and the override features that will best suit the application? The choices are:

SINGLE-STAGE HEAT PUMPS
If home/building owner has a single-stage heat pump, one option is to use a T8624C or D (see Fig. 8).

The T8624C is a two-stage heating, one-stage cooling programmable thermostat. The T8624D is a two-stage heating, two-stage cooling programmable thermostat. What both thermostats have in common is separate W1 and W2 (first and second stage heat) terminals. In both cases, the W1 can be used for changeover in heating.

For single-stage compressor applications (both first-stage heating and first-stage cooling energized through the Y terminal), simply jumper Y1 and W1.

Note that the recovery algorithm of the T8624 may cause the compressor to cycle on and off during recovery.

Although the cycle rate for the first stages of heat and cool are set for hot water systems, the second stage of the T8624 must be adjusted. Turn the cycle rate adjustment screws to the hot water setting on both the T8624C and D to achieve the cycle rate appropriate for heat pumps. If changeover is utilized in the cooling mode, apply a normally closed relay.

The above application should be used *only* on single-stage heat pumps.

Installation

RECYCLING NOTICE

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 your old control.

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

COMPATIBILITY

The T8624 Thermostats will replace most heating/cooling system thermostats. As long as ac power is continuously available to the transformer, the thermostat will be compatible with any low-volt control system.

IMPORTANT: *The T8624 requires an additional conductor to transformer common to provide continuous 24V power for thermostat operation.*

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 on the product to make sure the product is suitable for your application.

3. Installer must be a trained, experienced service technician.

4. Allow thermostat to warm to room temperature before operating.

5. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Disconnect power supply to prevent electrical shock or equipment damage.

LOCATION

Install thermostat and subbase about 5 ft [1.5m] above the floor in an area with good air circulation at room temperature.

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

REPLACING AN EXISTING THERMOSTAT

Turn off thermostat power at furnace or boiler. A two-transformer system may require turning off two switches or disconnects. Remove any existing wallplate or subbase from wall. To avoid miswiring later, label each wire color with the letter or number on the wiring terminal as the wire is removed.

NEW INSTALLATION

Run cable to a hole at the selected wall location for the thermostat, and pull about 3 in. [76 mm] of wire through the opening. Color-coded, 18-gauge thermostat cable with at least one conductor for each wiring terminal is recommended. Good service practice recommends selecting cable with one or two more conductors than the immediate application requires.

MOUNTING SUBBASE

IMPORTANT: *Before mounting, set the system switch to the OFF position.*

NOTE: The subbase does not require leveling for proper operation, but only for appearance.

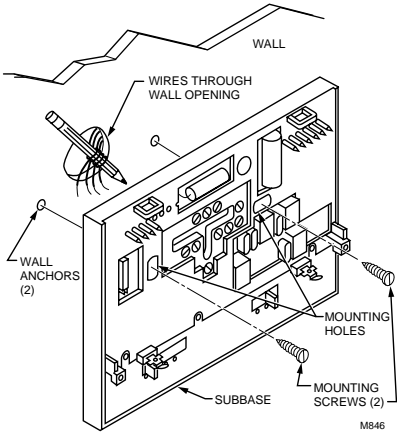**Fig. 3—Removing thermostat from subbase.**
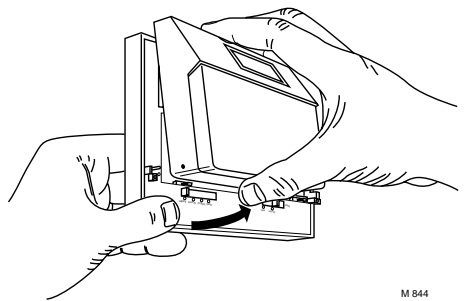
M 844

Remove thermostat from subbase (Fig. 3).

Mount the subbase directly onto the wall with the screws and anchors included. If drywall construction, use plastic anchors. Use the subbase as a template, and with a pencil, mark the two mounting screw positions (Fig. 4). Use 3/16 in. bit to drill holes for anchors. Gently tap anchors into holes until they are flush with the wall surface. Thread wires through the center opening of the subbase. Then mount the subbase using the two screws provided. Gently tighten the screws, level the top surface of the subbase, and securely tighten the screws.

Fig. 4—Mounting subbase on wall.

M846

Fig. 5—Restrict wiring to recessed area surrounding terminals.

FOR STRAIGHT INSERTION – STRIP 5/16 in. [8 mm]

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

RESTRICT WIRING TO THIS AREA

FRONT VIEW OF TERMINAL AREA

WIRING TO BE BELOW THIS SURFACE

TOP SURFACE OF SUBBASE

CROSS-SECTIONAL VIEW OF TERMINAL AREA

M 847

WIRING

All wiring must comply with local electrical codes and ordinances.

Disconnect power before wiring to prevent electrical shock or equipment damage.

The shape of the terminal barrier permits insertion of straight or conventional wraparound wiring connections. Either method is acceptable.

Push excess wire back into the hole, and plug the hole with nonhardening caulk, putty or insulation to prevent drafts from affecting thermostat operation.

NOTE: Restrict wiring to the recessed area surrounding the terminals (Fig. 5) to assure thermostat/subbase contact.

Refer to Figs. 6-8 for typical hookups of subbase and thermostat.
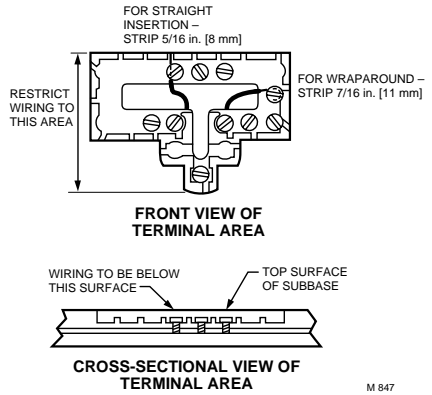
ADJUSTING CYCLE RATE

To customize the thermostat cycling performance to various types of heating equipment, cycle rate adjustment screws are provided on the back of the thermostat to provide optimum room temperature control.

NOTE: Most applications will *not* require a change in cycle rate.

The room air temperature will normally vary slightly from the comfort temperature setting with the cycling of the furnace or air conditioner.

The heating cycle rate of this thermostat is factory-set for gas/oil warm air heating. The cooling cycle rate is factory-set and cannot be adjusted. The heating cycle rate can be adjusted by turning one or both cycle rate adjustment screws located on the back of the thermostat.

In multistage heat systems, the cycle rate adjustment applies to the highest stage of heat only. Screws should be backed out about one-half to one turn, or be turned in until tight. See Fig. 9.

TIME/TEMPERATURE CONVERSION (SOME MODELS)

The display readout may be converted between 12 and 24 hour clock or °C and °F using screws 2A and 2B as indicated in Fig. 9.

FAN OPERATION OPTION SWITCH (SELECT MODELS ONLY)

Select models include a fan operation option switch on the subbase that is visible before the thermostat is mounted on the subbase. The switch should be in electric heat position for electric heating systems that do not have independent fan control.

INSTALLING BATTERIES

Three AAA alkaline batteries are included to provide backup to prevent program loss in case of power outage. Install batteries in back of thermostat as shown in Fig. 10.

Without battery backup, the program will remain about 30 seconds in event of power loss.

IMPORTANT: *When batteries are first installed, the display will flash 1:00 PM and 32°. The temperature will stay at 32° F until the thermostat is powered from the system wiring.*

When the batteries are low, the display will flash REPL BAT. Homeowner will have 20-30 seconds to install new batteries after removing old batteries from back of thermostat. After 20-30 seconds, it will be necessary to reprogram. REPL BAT indication will disap-

Fig. 6—T8624C 2-stage heat/1-stage cool thermostat with HEAT-AUTO-COOL-OFF system and AUTO-ON fan switching.
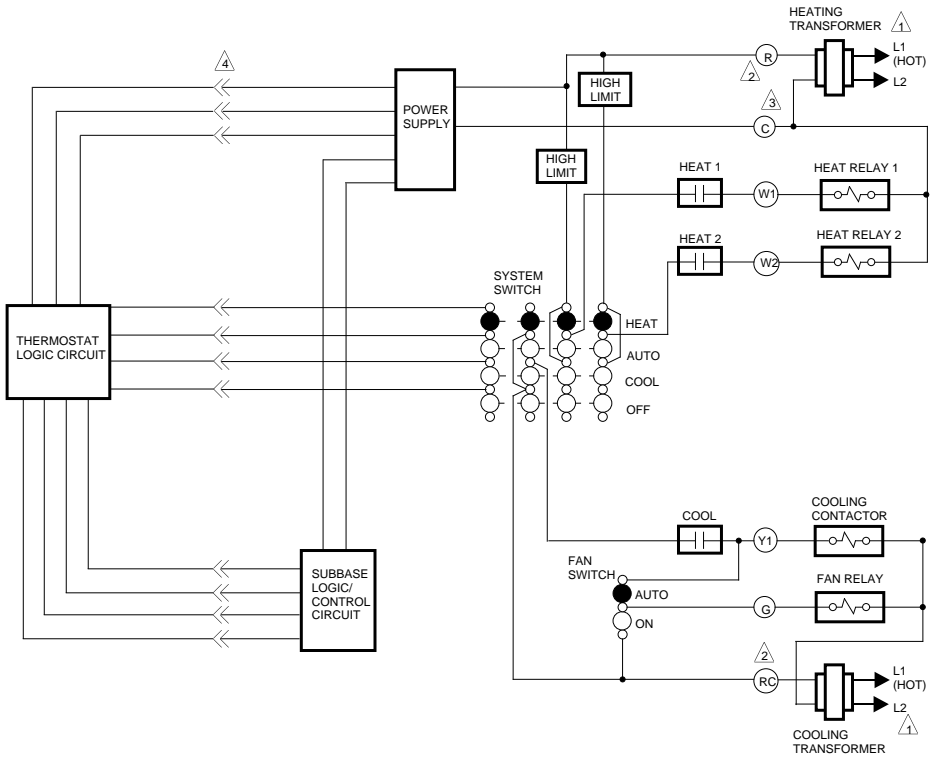
△1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△2 FOR SINGLE TRANSFORMER SYSTEM JUMPER R AND RC.

△3 NOMINAL 24 Vac POWER MUST BE PRESENT BETWEEN R AND C FOR THERMOSTAT OPERATION.

△4 ——《—— DENOTES THERMOSTAT TO SUBBASE INTERCONNECTION.

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Fig. 7—T8624D 2-stage heat/2-stage cool thermostat with HEAT-AUTO-COOL-OFF system and AUTO-ON fan switching.

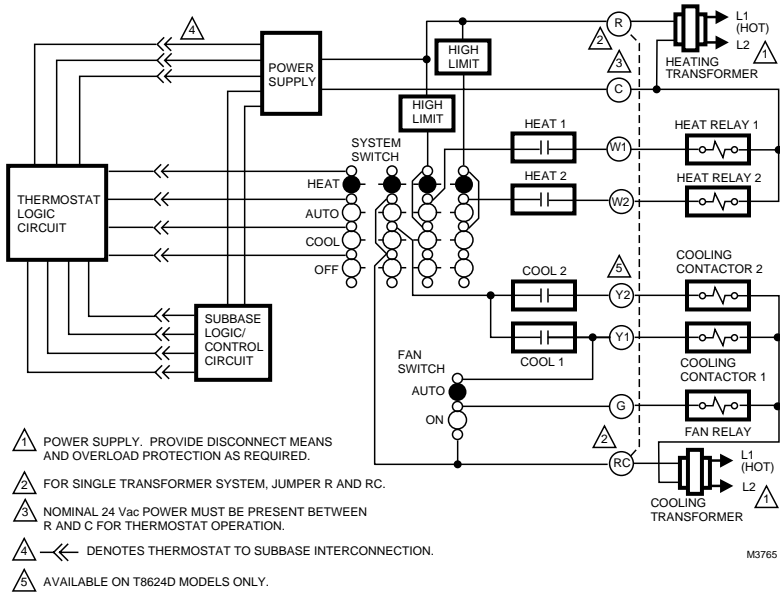1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 FOR SINGLE TRANSFORMER SYSTEM, JUMPER R AND RC.

3 NOMINAL 24 Vac POWER MUST BE PRESENT BETWEEN R AND C FOR THERMOSTAT OPERATION.
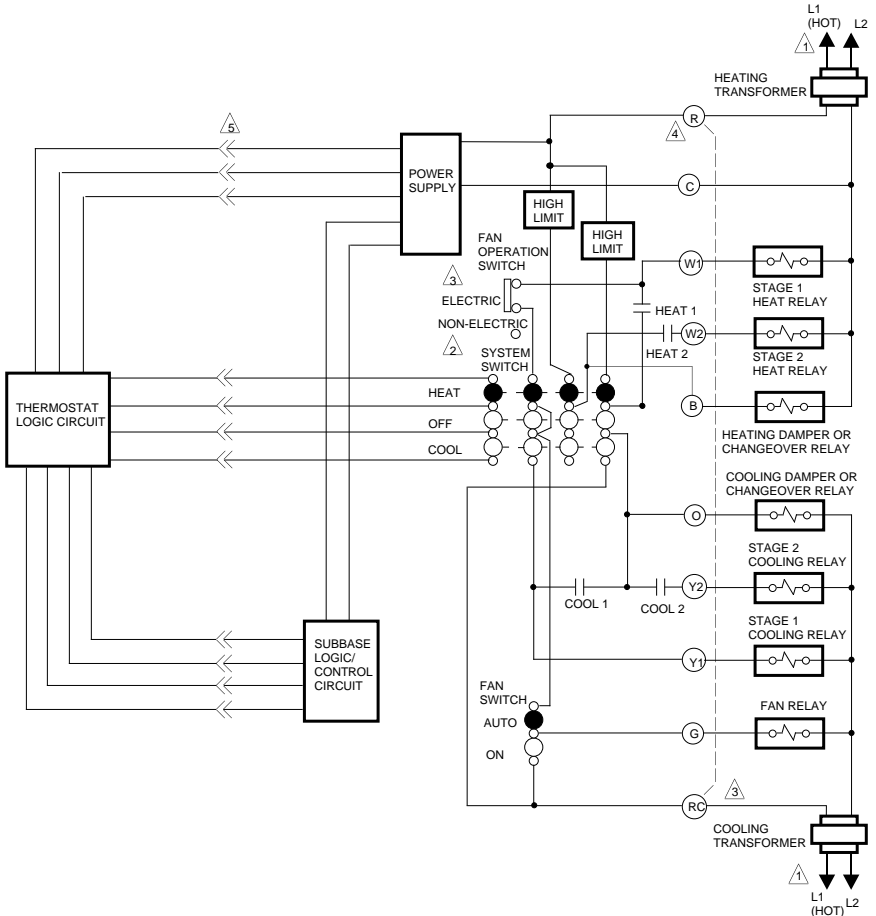
4 ⫸ DENOTES THERMOSTAT TO SUBBASE INTERCONNECTION.

5 AVAILABLE ON T8624D MODELS ONLY.

M3765

Fig. 8—T8624D 2-stage heat/2-stage cool thermostat with HEAT-OFF-COOL system and AUTO-ON fan switching; auto fan on heat and cool; convertible to auto fan on cool only.

Fig. 9—Cycle rate adjustment.
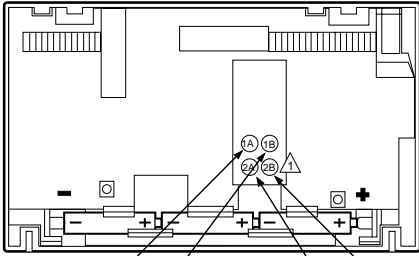
SYSTEM	1A	1B	CYCLES PER HOUR	TIME/TEMP DISPLAY	2A	2B
GRAVITY AIR/WATER	OUT 1/2 TO 1 TURN	OUT 1/2 TO 1 TURN	1	24 HR	IN	—
HOT WATER	OUT 1/2 TO 1 TURN	IN	3	12 HR	OUT 1/2 TO 1 TURN	—
GAS/OIL WARM AIR	IN (FACTORY SETTING)	IN	6	°C	—	IN
ELECTRIC WARM AIR	IN	OUT 1/2 TO 1 TURN	9	°F	—	OUT 1/2 TO 1 TURN

⚠ SCREWS 2A, 2B AVAILABLE ON SOME MODELS ONLY.   M311A

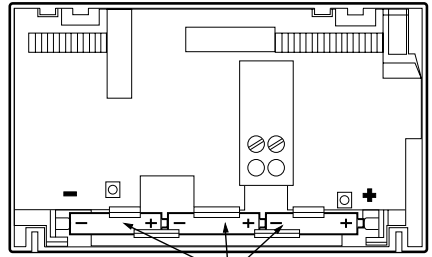pear when thermostat is mounted back on the subbase.

IMPORTANT: *For proper thermostat operation, always replace dead batteries with new alkaline batteries. We recommend Energizer® batteries.*

If batteries are completely dead, the display will go blank when the thermostat is removed from the subbase.

Fig. 10—Battery placement.

POWER OUTAGES
Backup batteries will hold the programming and keep the display on during most power outages. Once the power is restored, the system will resume normal operation.

After replacing the batteries, reprogramming will be necessary.

BATTERY PLACEMENT (NOTE CORRECT PLUS AND MINUS DIRECTION)   M 372A

If the display goes off when power is lost, either the backup batteries need to be replaced or are not installed. When power is restored, the display will flash 1:00 PM as a reminder to reprogram.

MOUNTING THE THERMOSTAT
With system switch set to OFF, hang the thermostat on the tabs at the top of the subbase (Fig. 11A). Swing down and press on lower edge until thermostat snaps in place (Fig. 11B). Open cover and tighten the captive mounting screws (Fig. 11C).

SETTING DAY AND TIME
Restore 24V power to the thermostat. When power is applied to the thermostat, the display will read 1:00 PM and room temperature. It will go off for a few seconds, then begin to flash on and off. Set present day and time.

Press [SET PRESENT DAY/TIME] .

Press [DAY]   to set the current day. Each press of the DAY key advances the display one day.

Press TIME [AHEAD] or [BACK] to set the current time.

If the display will not come on:
— Check the mounting of the thermostat to the subbase. If loose or misaligned, remove thermostat and reinstall on the subbase, making sure it is firmly attached.
— Check to see that heat or cool system power is on.
— Check voltage between R and C; it should be 24 to 30 Vac.

Fig. 11—Mounting thermostat on subbase.
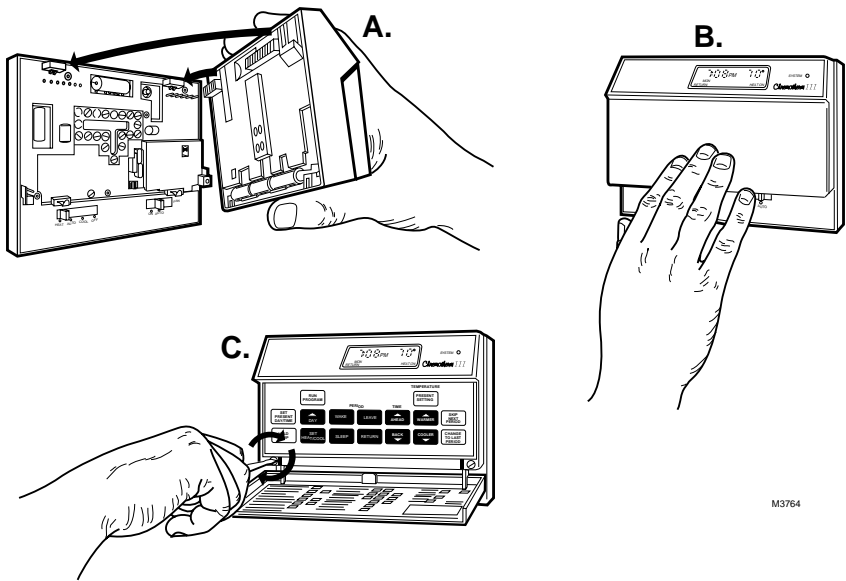
Checkout

HEATING

Move the system switch to HEAT and the fan switch to AUTO. Press WARMER key until the setting is about 10° F [6° C] above room temperature. Heating should start (both stages if multistage), and the fan should run (may be a short delay on forced air systems). Press COOLER key until the setting is about 10° F [6° C] below room temperature. The heating equipment should shut off, followed by the fan.

NOTE: On an AUTO changeover thermostat, the cooling temperature must be set at least 3° F [2° C] above the heating temperature, or display will flash.

COOLING

⚠️ *CAUTION*

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

NOTE: When cooling setting is changed, thermostat will wait up to five minutes before turning on the cooling equipment. This delay is to protect the compressor.

Move the system switch to COOL and the fan switch to AUTO. Press COOLER key until the setting is about 10° F [6° C] below room temperature. The cooling equipment and fan should start (both stages if multistage). Press WARMER key until the setting is about 10° F [6° C] above room temperature. The cooling equipment and fan equipment should stop.

NOTE: On an AUTO changeover thermostat, the heating temperature must be set at least 3° F [2° C] below the cooling temperature, or display will flash.

FAN

Move the system switch to OFF, and the fan switch to ON. The fan should run continuously. When the fan switch is in the AUTO position, the fan operates directly with the thermostat call for cooling and also with the

M410C

System Switch Position	Press This Key	Look For This Response	
		Key Down	Key Released
OFF	WARMER	06	Blank
	COOLER	02	Blank
	AHEAD	05	Blank
	BACK	04	Blank
	LEAVE	01	Blank
	RETURN	00	Blank
(CHECK EACH POSITION)	WAKE	12	See note (A)
OFF	SLEEP	08	Blank
	DAY	13	Microprocessor mask no. and revision no.
	SET HEAT/COOL	09	Blank
	SET PRESENT DAY/TIME	14	Blank
HEAT or AUTO /1\	SET PRESENT DAY/TIME	14	1st stage heating and SYSTEM LED on.
	SET PRESENT DAY/TIME	14	2nd stage heating also on.
	SET PRESENT DAY/TIME	14	2nd stage heating off.
	SET PRESENT DAY/TIME	14	1st stage heating and SYSTEM LED off.
NOTE: If single-stage heating system, press key twice instead of four times; once to turn on heating and SYSTEM LED, second time to turn off.			
OFF	HOLD TEMP	10	Blank
	RUN PROGRAM	11	Normal operating display.

END SELF-TEST

RUN PROGRAM

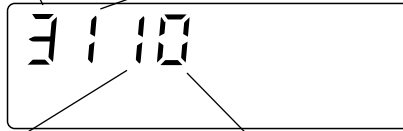| System Switch Position	Press This Key	Look For This Response	
		Key Down	Key Released
OFF	CHANGE TO LAST PERIOD	03	Blank
	SKIP NEXT PERIOD	07	Blank
	PRESENT SETTING	15	Blank
COOL or AUTO (with fan in AUTO)	PRESENT SETTING	15	1st stage cooling, fan and SYSTEM LED on.
	PRESENT SETTING	15	2nd stage cooling also on.
	PRESENT SETTING	15	2nd stage cooling off.
	PRESENT SETTING	15	1st stage cooling, fan and SYSTEM LED off.
NOTE: If single-stage cooling system, press key twice instead of four times; once to turn on cooling, fan and SYSTEM LED, second time to turn off.			

(continued)

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12

Second Digit	Stages of	
	Heat	**Cool**
0	2	1
1	2	2
2	1	1
3	1	2
4	0	2
5	1	0
6	2	0

First Digit	Cycle Rate Setting (cph at 50% on time for stage 1 on 1-heat models, stage 2 on 2-heat models)
0	1
1	3
2	9
3	6

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Third Digit	Manual or Auto Changeover	System Switch Position
0	Manual	HEAT or OFF
1	Auto	HEAT or OFF
3	Auto	AUTO
4	Manual	COOL
5	Auto	COOL

Fourth Digit	Degrees	Clock (hrs)	System Switch Position
0	F	12	COOL, AUTO or OFF
1	F	24	COOL, AUTO or OFF
2	F	12	HEAT
3	F	24	HEAT
4	C	12	COOL, AUTO or OFF
5	C	24	COOL, AUTO or OFF
6	C	12	HEAT
7	C	24	HEAT

Programming the Thermostat

IMPORTANT: *With Adaptive Intelligent Recovery™, program the times for when the homeowner wants the home comfortable. The thermostat will decide how early to begin the temperature changes.*

NOTE: Some models will show 32° F instead of the current temperature, indicating the thermostat is operating on backup batteries until the thermostat is mounted on the wallplate and the system is powered.

STEP 1
SET THE CURRENT DAY AND TIME

This thermostat can be programmed either on the wall or in hand. SEE PAGE 5 TO FIND OUT HOW TO REMOVE THE THERMOSTAT FROM THE SUBBASE.

Always press the keys with fingertip or similar blunt tool. Sharp instruments like a pen or pencil point can damage the keyboard.

NOTE: Check the glossary, page 22, for

| SET PRESENT DAY/TIME |
| DAY ▲ |
| AHEAD ▲ |
| BACK ▼ |

definitions of unfamiliar words.

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Press and release. The display shows 1:00 PM MON.

M5016

Press and hold until the current day appears in the display.

M5017

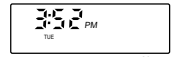Press and hold until the current time appears in the display. Be sure AM or PM appears as desired.

STEP 2
SET THE PROGRAM SCHEDULE AND HEATING TEMPERATURES

Before Beginning…
The schedule form on page 22 provides the homeowner an opportunity to plan the schedule.

Now…
Start by programming the WAKE time and temperature for weekdays.

The thermostat requires a program for WAKE. You can program LEAVE, RETURN and SLEEP or not, as desired.

| WAKE |
| SET HEAT/COOL |
| DAY ▲ |
| AHEAD ▲ |
| BACK ▼ |
| WARMER ▲ |
| COOLER ▼ |

Press and release. Note that the display shows WAKE and the preprogrammed time and temperature.

M5018

If the display reads COOL, press and release to switch to HEAT.

M5018

If display reads SAT or SUN, press and hold until MON TUE WED THU FRI appears.

M5018

Press and hold until the display shows the desired starting time.

M5019

Press and hold until the display shows the desired temperature.

M5020

If the display starts to blink while holding down TEMPERATURE WARMER or COOLER, the setting limit has been reached. If the thermostat can switch automatically between heating and cooling, the heating temperature must be at least three degrees below the air conditioning temperature. For example, if the cooling setting

is 75° F, the maximum heating setting is 72° F.

Program the LEAVE time and temperature, if desired.

NOTE: The LEAVE, RETURN or SLEEP program may be canceled by holding down the period key until the time and

LEAVE

temperature disappear from the display.

Press and release. The display shows LEAVE, but no time or temperature.

Press and hold until the display shows the desired starting time.

AHEAD

BACK

WARMER

COOLER

Press and hold until the display shows the desired temperature.

Program the RETURN time and temperature, if desired.

RETURN

Press and release. The display shows RETURN, but no time or temperature.

AHEAD

Press and hold until the display shows the desired starting time.

BACK

WARMER

Press and hold until the display shows the desired temperature.

COOLER

Program the SLEEP time and temperature, if desired.

SLEEP

Press and release. The display shows SLEEP and the pre-programmed time and temperature.

AHEAD

Press and hold until the display shows the desired starting time.

BACK

WARMER

COOLER

Press and hold until the display shows the desired temperature.

DAY

Set the SATURDAY schedule. Use the same procedure as for weekdays.

WAKE

Press and release until SAT appears on the display.

SLEEP

Press WAKE, LEAVE, RETURN or SLEEP to select the time period.

AHEAD

BACK

Use the AHEAD/BACK keys

to set the time and the WARMER/COOLER keys to set the temperature.

DAY

Set the SUNDAY schedule. Use the same procedure as for weekdays.

LEAVE

RETURN

WARMER

COOLER

WAKE

SLEEP

AHEAD ▲

BACK ▼

LEAVE

RETURN

WARMER ▲

COOLER ▼

Press and hold until SUN appears on the display.

Press WAKE, LEAVE, RETURN or SLEEP to select the time period.

Use the AHEAD/BACK keys to set the time and the WARMER/COOLER keys to set the temperature.

This completes setting the program schedule and heating temperatures. To set air conditioning, go to Step 3.

If cooling temperatures are not being programmed, skip Step 3 and press the RUN PROGRAM key.

STEP 3
SET THE COOLING TEMPERA-TURES

The program times are the same for both heating and cooling. Only the cooling temperatures need to be programmed if the thermostat has already been programmed for heating. To set times as the cooling temperatures are programmed, use the TIME AHEAD and BACK keys as described in Step 2. If the times are changed for cooling, they are also being changed for heating.

WAKE

SET HEAT/COOL

DAY ▲

WARMER ▲

COOLER ▼

First program the WAKE temperature for weekdays.

M5031

Press and release. The display shows WAKE and the time and temperature programmed for heating.

M5032

Press and release so COOL shows on the display, along with the preprogrammed cooling temperature.

M5033

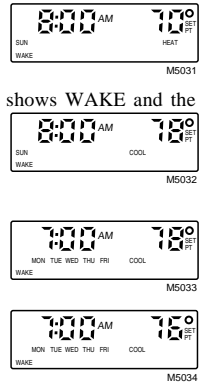If display reads SAT or SUN, press and hold until MON TUE WED THU FRI appears.

M5034

Press and hold until the display shows the desired temperature.

If the display blinks while holding down TEMPERATURE WARMER or COOLER, the setting limit has been reached. If the thermostat can switch automatically between heating and cooling, the cooling temperature must be at least three degrees higher than the corresponding heating temperature. For example, if the heating setting is 70° F, the minimum cooling setting is 73° F. If a lower cooling temperature is desired, the heating temperature first must be lowered accordingly.

LEAVE

M5035

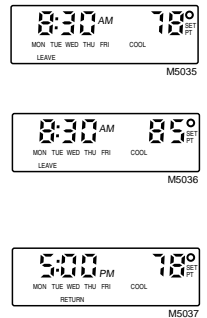Program the LEAVE temperature, if desired.

Press and release. The display shows LEAVE, the time programmed for heating, and 78° F.

WARMER ▲

COOLER ▼

M5036

RETURN

Press and hold until the display shows the desired temperature.

M5037

WARMER

COOLER

Program the RETURN temperature, if desired.

M5038

Press and release. The display shows RETURN, the time programmed for heating,

SLEEP

a n d 78° F.

M5039

Press and hold until the display shows the desired temperature.

WARMER

COOLER

Program the SLEEP temperature, if desired.

M5040

ture, if desired.

DAY

Press and release.

Press and hold until the display shows the desired temperature.

M5041

WAKE

LEAVE

SLEEP

Set the cooling temperatures for the SATURDAY schedule. Use the same procedure as for weekdays.

RETURN

WARMER

Press and hold until SAT ap-

COOLER

pears on the display.

DAY

to select the time period.

M5042

Press WAKE, LEAVE, RETURN or SLEEP

WAKE

Use the WARMER/COOLER keys to set the temperature.

LEAVE

SLEEP

Set the cooling temperatures for the SUNDAY schedule. Use the same procedure as for weekdays.

RETURN

WARMER

Press and hold until SUN appears on the display.

COOLER

Press WAKE, LEAVE, RETURN or SLEEP to select the time period.

RUN PROGRAM

M5043

Use the WARMER/COOLER keys to set the temperature.

You have completed programming the cooling temperatures.
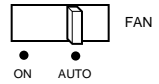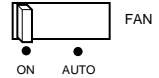
Press and release to start the program.

Go to Step 4.

STEP 4

cleaning.

SET THE SYSTEM AND FAN SWITCHES ON THE SUBBASE.

Depending on thermostat model, some of the switch positions shown may not be available on the thermostat. Note the positions provided on the subbase, then set the switch(es) as desired.
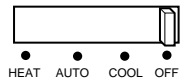
First set the fan switch.

FAN ON: The fan runs continuously. Use for improved air circulation during special occasions or for more efficient electronic air **FAN AUTO:** Normal setting for most homes. The fan goes on and off with the air conditioner in summer. In winter, the fan on most systems starts a few minutes after the furnace comes on. It stops a few minutes after the furnace goes off. The fan starts and stops with the furnace in some electric heat systems and with the compressor in heat pump systems.
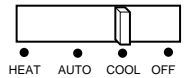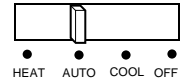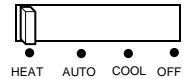
Then set the system switch.

HEAT: The thermostat controls your heating system.

AUTO (select models only): The thermostat controls either your heating or cooling system, depending on room temperature.

OFF: Both the heating and cooling systems are off.

This completes the programming of the thermostat.

Operating the Thermostat

If the thermostat is removed from the wall to program, replace it following the procedure on page 5.

TEMPORARILY CHANGING THE PROGRAM

These features allow the program to be customized for those times when someone comes home early, or stays up late, or plans to be out for the evening.

To keep the current temperature through the next program period:

| SKIP NEXT PERIOD |

Press and release. The name of the period to be skipped will flash in the display until the next regularly scheduled period starts.

To go back to the temperature of the previous program period:

| CHANGE TO LAST PERIOD |

Press and release. The display will show the name of the previous period and flash TEMPORARY until the next regularly scheduled period starts.
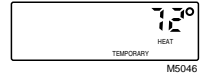
To temporarily raise or lower the temperature for the current period only:

WARMER

COOLER

Press and hold until the desired temperature is reached. The display will flash TEMPORARY until the next programmed time period starts.

```
72°
HEAT
TEMPORARY
M5046
```

PRESENT SETTING

With the system switch at the AUTO position, press and hold down the key to alternate between heating and cooling temperature settings for temporary override.

RUN PROGRAM

Press and release to cancel any of the temporary settings.

```
2:43 PM   70°
TUE
LEAVE
M5047
```
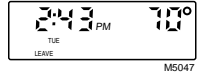
PERMANENTLY CHANGING THE PROGRAM

If the schedule changes or a different temperature is desired, any setting can be updated without affecting other program settings.

WAKE

SLEEP

LEAVE

RETURN

Press and release the desired period key.

DAY

Press and hold until the desired day schedule shows on the display.

AHEAD

BACK

RUN PROGRAM

WARMER

COOLER

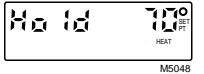Press and hold the Time or Temperature keys until the display shows the desired new program.

Press and release to return to normal operation.

MANUALLY OPERATING THE THERMOSTAT

This feature is particularly useful when on vacation or other extended absences. It does not cancel the program.

HOLD TEMP

Press and release.

```
Hold   70°
SET
PT
HEAT
M5048
```

WARMER

COOLER

Press and hold to change the temperature setting. After a few seconds, the display will show the current temperature.

```
Hold   60°
SET
PT
HEAT
M5049
```

PRESENT SETTING
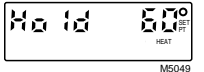
Press and release to check the temperature setting.
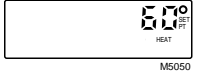
```
60°
SET
PT
HEAT
M5050
```

Press and hold down to alternate between heating and cooling temperature settings.

RUN PROGRAM

Press and release to cancel hold.

```
2:45 PM   70°
TUE
LEAVE
M5051
```

NOTE: Moving the system switch also can-cels hold.

CANCELING THE PROGRAM SETTINGS

The thermostat requires time and tempera-ture settings in the WAKE period, but any of the others can be canceled. Weekday, Satur-day and Sunday settings are canceled separately.

SLEEP

LEAVE

RETURN

Press and hold the desired pe-riod key until the time and temperature clear from the display (about three seconds).

M5052

RUN PROGRAM

Press and release to return to normal operation.

5:15 PM 68°

MON
RETURN

M5053

CHECKING THE PROGRAM TIMES AND TEMPERATURES

Check all the stored settings without affecting the per-manent program.

WAKE

SLEEP

LEAVE

RETURN

Press and release the desired period key. The start time and temperature setting will appear on the display.

10:30 PM 65° SET PT

MON TUE WED THU FRI   HEAT
SLEEP

M5054

DAY ▲

Press and release to display the next daily time and tem-perature for that period.

1:00 PM 65° SET PT

SAT   HEAT
SLEEP

M5055

RUN PROGRAM

Press and release to return to normal operation.

5:15 PM 68°

MON
RETURN

M5056

CHECKING THE CURRENT TEMPERATURE SETTING

Press a single key to compare current room temperature to the current temperature set-ting at any time.

PRESENT SETTING

Press and release. The dis-play will show the current temperature setting for sev-eral seconds, then revert to the room temperature.

68° SET PT

HEAT

M5057

PRESENT SETTING

To check the heating and cooling settings with the sys-tem switch at the AUTO position, press and hold down to alternate between the heating and cooling settings.

During recovery from energy savings, the setting dis-played will not match the programmed setting. This is because the thermostat gradually changes the tempera-ture setting during recovery to provide most efficient use of the heating or cooling equipment.

SYMPTOM	POSSIBLE CAUSE	ACTION

ROOM TEMPERATURE DISPLAY IS 32˚F.	NO ac POWER TO THERMOSTAT	CHECK POWER TO FURNACE OR AIR CONDITIONER.
		–ON-OFF SWITCH
		–FUSE OR CIRCUIT BREAKER
		–LOOSE 24V CONNECTION
		  –AT THERMOSTAT
		  –AT FURNACE /AIR CONDITIONER
		–INCORRECT WIRING
		  –CHECK WIRING DIAGRAM

FURNACE OR AIR CONDITIONER WON'T OPERATE.	NO ac POWER TO THERMOSTAT	CHECK POWER TO FURNACE OR AIR CONDITIONER.
		–ON-OFF SWITCH
		–FUSE OR CIRCUIT BREAKER
		–LOOSE 24V CONNECTION
		  –AT THERMOSTAT
		  –AT FURNACE /AIR CONDITIONER
		–INCORRECT WIRING
		  –CHECK WIRING DIAGRAM

	THERMOSTAT INOPERATIVE	CONDUCT SELF-TEST; SEE CHECKOUT.
	PRESENT SETTING TOO LOW/HIGH	ADJUST TEMPERATURE BY PUSHING WARMER/ COOLER KEYS.
	SYSTEM SWITCH ON THERMOSTAT IN WRONG POSITION.	RESET THERMOSTAT SYSTEM SWITCH.
	MINIMUM-OFF TIMES IN THERMOSTAT IN OPERATION ON COOLING	WAIT 5 -10 MIN. OR USE SELF-TEST IN THERMOSTAT. SEE CHECKOUT.
	INCORRECT WIRING	CHECK CIRCUIT DIAGRAM.
	FURNACE OR AIR CONDITIONER INOPERATIVE	CONSULT FURNACE OR AIR CONDITIONER INSTRUCTIONS.
PARTIAL DISPLAY	INOPERATIVE THERMOSTAT	REPLACE THERMOSTAT.
NO DISPLAY	NO POWER TO THERMOSTAT	CHECK THAT HEAT OR COOL SYSTEM POWER IS ON.
	THERMOSTAT MOUNTED INCORRECTLY ON BASE.	SEE INSTALLATION INSTRUCTIONS FOR CORRECT MOUNTING.
PRESENT SETTING APPEARS INACCURATE.	THERMOSTAT IS IN RECOVERY MODE.	• NORMAL OPERATION THERMOSTAT TURNS ON HEATING/COOLING EARLY TO MEET TEMPERATURE SETTING AT PROGRAMMED TIMES. • RECOVERY CAN BE ENDED BY PUSHING WARMER/ COOLER KEYS.
CANNOT TEMPORARILY OVERRIDE BOTH HEATING AND COOLING SETTINGS IN AUTO MODE.	NOT USING PRESENT SETTING KEY.	PRESS AND HOLD DOWN PRESENT SETTING KEY TO ALTERNATE BETWEEN HEATING AND COOLING SETTINGS.
THERMOSTAT TEMPERATURE NEEDS TO BE ADJUSTED ON A REGULAR BASIS.	WARMER/COOLER KEYS BEING USED TO ADJUST TEMPERATURE	REPROGRAM THERMOSTAT TO MAKE PERMANENT CHANGE IN PROGRAM. WARMER/COOLER KEYS ARE TEMPORARY UNLESS PERIOD KEY IS PRESSED FIRST.
PROGRAM IS LOST DUE TO POWER OUTAGE OR DISPLAY GOES BLANK WHEN POWER IS TURNED OFF.	BATTERIES ARE INCORRECTLY INSTALLED.	REMOVE AND REPLACE PER MARKINGS ON THERMOSTAT.
	BATTERIES ARE DEAD.	REPLACE BATTERIES.
DISPLAY FLASHES WHILE PROGRAMMING.	IMPROPER PROGRAM SEQUENCE	CHECK PROGRAMMING INSTRUCTIONS FOR CORRECT PROGRAM SEQUENCE.
	AUTOMATIC THERMOSTAT HEATING OR COOLING TEMPERATURE CAN NOT BE SET CLOSER THAN 3˚F.	SET HEATING AND COOLING TEMPERATURES 3˚F OR MORE APART.
DISPLAY FLASHES DURING OPERATION.	PROGRAMMING HAS BEEN LOST BECAUSE OF A POWER OUTAGE.	REPROGRAM ACCORDING PROGRAMMING INSTRUCTIONS (MAKE SURE BATTERIES ARE INSTALLED).

M5234A

Troubleshooting

Glossary

Comfort temperature

The temperature desired when active and occupying the home.

Energy-saving temperature

The lower (heating) or higher (cooling) temperature that allows savings on heating and cooling costs when asleep or away. Also called the setback (heating) or

| Period | Start Time | Temperature | |
		Heating	Cooling
WAKE	6:00 AM	70° F	78° F
LEAVE	——— No program ———		
RETURN	——— No program ———		
SLEEP	10:00 PM	60° F	78° F

setup (cooling) temperature.

Period key

One of the four keys—WAKE, LEAVE, RETURN or SLEEP—to check or program the start time and temperatue for a time period.

Preprogrammed schedule

This is the schedule programmed into the thermostat at the factory. It sets a night program that provides energy savings when homeowner sets no program, or if personal program is lost for any reason. The program, which is the same for all days of the week, is:

Program

The times and temperatures homeowner sets to define the comfort and energy saving periods for each day schedule.

Recovery

The time when the thermostat operates the heating or air conditioning equipment to return the home from the energy saving temperature to the comfort temperature. The thermostat starts the recovery period early so the home will be at the comfort setting by the time the homeowner has chosen.

Saturday program schedule

The schedule of WAKE, LEAVE, RETURN and SLEEP period start times and temperatures programmed to run on Saturdays.

Setback

Reducing the temperature in the home for a set period in heating for energy savings. The lower temperature is the energy saving temperature.

Setup

Raising the temperature in the home for a set period in cooling for energy savings. The higher temperature is the energy saving temperature.

Setpoint

The thermostat temperature setting the homeowner selects. The thermostat turns the heating or cooling equipment on and off to maintain this temperature at the thermostat location until another temperature setting (setpoint) goes into effect.

Sunday program schedule

The schedule of WAKE, LEAVE, RETURN and SLEEP period start times and temperatures programmed to run on Sundays.

SYSTEM light

This light glows whenever the thermostat is calling for heating or air conditioning.

Time period

One of four program periods: WAKE, LEAVE, RETURN and SLEEP available with the thermostat. One period begins when the previous program period ends:

WAKE—The time period that the house is at a comfortable temperature while the family gets up and gets ready to leave for work or school. This is the only period that must contain a time and temperature.

LEAVE—The time period that the temperature can be set back (winter) or set up (summer) for energy

RETURN—The time period that the house is at a comfortable temperature because family activities in the evening before bedtime.

SLEEP—The time period that the temperature can be set back (winter) or set up (summer) for energy savings because the family is sleeping. It can be set to start at the family's normal bedtime. Often the SLEEP program is set only for the heating season so family members can sleep cool in the cooling season.

Weekday program schedule

The schedule of WAKE, LEAVE, RETURN and SLEEP period start times and temperatures programmed to run Monday through Friday.

Honeywell