Honeywell

T8112
Programmable Thermostat

FEATURES

- **HEAT-OFF-COOL system switch.**

- **AUTO-ON fan switch.**

- **Separate programs for weekdays and weekends (5 day/2 day).**

- **Digital LCD display.**

- **Easy to program and install.**

- **Precise temperature control.**

- **Four daily energy saving programs.**

- **Compatible with most 24 Vac standing pilot, gas electronic ignition, oil or central electric systems.**

- **Requires two AA alkaline batteries.**

- **LCD flashes *bAt Lo* indicating low battery power.**

- **Isolated heating/cooling circuits.**

GENERAL

The T8112 Programmable Thermostat provides energy savings for single-stage heating and cooling applications while providing reliable, precise temperature control.

Contents

SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances; therefore, an individual unit might not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

Model:
T8112 Thermostat: Provides electronic programmable control for 24 to 30 Vac heating and cooling systems.

Programming Keys:
Eight program keys; without keyboard door.

Electrical Rating:
Battery operated (2 AA alkaline batteries).

System and Fan Ratings:
1.2A run; 7.5A inrush.
Total cooling and fan load not to exceed 1.2A.

Dimensions:
See Fig. 1.

Mounting:
Mounts on mounting plate directly on wall. Mounting screws and wall anchors provided.

Setpoint Range:
45°F to 88°F (7°C to 31°C).

Operating Ambient Temperature Range:
40°F to 110°F (4°C to 43°C).

Shipping Temperature Range:
-20°F to 120°F (-29°C to -49°C).

Temperature Display:
Fixed or field selectable.

Operating Relative Humidity:
5 to 90 percent RH; noncondensing.

Time Indication:
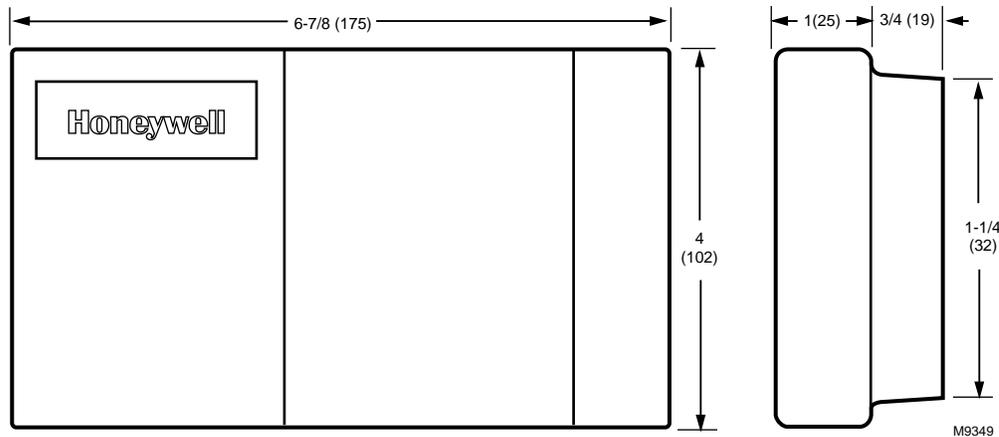12 hour with AM, PM indication.

Fig. 1. T8112 dimensions in in. (mm).

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 information, or specify:
1. Model Number.
2. Accessories, as desired.

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 phone directory).
2. Home and Building Control Customer Logistics
   Honeywell Inc., 1985 Douglas Drive North
   Minneapolis, Minnesota 55422-4386 (612) 951-1000.

In Canada—Honeywell Controls Limited, 155 Gordon Baker Road, North York, Ontario M2H 2C9. 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.

Cycles Per Hour Adjustment:
Heating: Field adjustable to 3, 6, or 9 cph ±10 percent.
Cooling: Factory set at 3 cph ±10 percent (not field adjustable).

Calibration:
Thermostat and thermometer self-calibrating to ±1.25°F.

Accessories:
205013 Isolation Relay Kit.
205014 Transformer Plug-in Kit.
205015 International Organization for Standardization Relay and Transformer.

INSTALLATION

When Installing this Product…

1. Read these instructions carefully. Failure to follow the instructions can damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product and in the compatibility chart (Table 1) 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.

Compatibility

Check Table 1 to make sure the thermostat is compatible with the intended system.

Table 1. Compatibility Chart.

System Type	Compatible with T8112
Gas—Standing Pilot	Yes
Gas—Electronic Ignition	Yes
Gas-Fired Boilers	Yes[a]
Gas—*Millivolt*	*No*
Oil-Fired Boilers	Yes[a]
Oil-Fired Furnace	Yes
Electric Furnace	Yes
Electric Air Conditioning	Yes
Baseboard Electric (120/240 Line Volt)	*No*
Heat pumps/Multistage Equipment	*No*

[a] Compatible with 2-wire Honeywell zone valves.
All system types:
Not compatible with any 120/240 volt circuit.
Not designed for steam or gravity systems.
Not compatible with 2-wire White Rodgers no. 1361 Valves.
Isolating relay required for 3-wire thermostats for zone valves.

⚠️ WARNING

ELECTROCUTION HAZARD CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY, OR DEATH.
Disconnect power supply before wiring to prevent electrical shock or equipment damage.
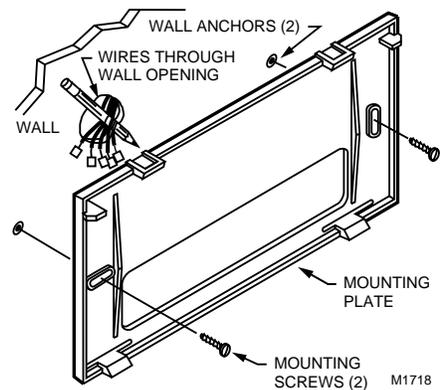
Location

Locate the 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 can be affected by:
— drafts or dead spots behind doors and in corners.
— hot or cold air ducts.
— concealed pipes and chimneys.
— unheated (uncooled) areas such as an outside wall behind the thermostat.

Mounting Plate Installation (Fig. 2)

❶ Hold mounting plate in position and mark the two holes for mounting.
❷ Level for appearance only; thermostat functions properly even when not level.
❸ Tighten the mounting screws.
❹ Set aside the mounting plate.
❺ Drill the two holes in the wall as marked.
  — Drill 3/16 in. holes for drywall.
  — Drill 7/32 in. holes for plaster or wood.
❻ Reposition the mounting plate over the holes and pull wires through the wiring opening.
❼ Loosely insert the two mounting screws into the holes.

Fig. 2. Mounting plate installation.

Wiring Thermostat

All wiring must comply with local electrical codes and ordinances. Refer to Fig. 5 through 8 for typical hookups. A letter code is located near each terminal for identification.

⚠ **CAUTION**

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

❶ Connect the system wires to the thermostat. See Fig. 3. A letter code is located near each terminal for identification.

NOTE: Hold the thermostat as shown in Fig. 4 to minimize the need for wire extenders.

❷ Securely tighten each terminal screw.
❸ Push excess wire back into the hole.
❹ Plug the hole with nonflammable insulation to prevent drafts from affecting thermostat operation.
❺ Run the required number of wires to the thermostat location. Refer to Fig. 5 through 8 for typical wiring diagrams.
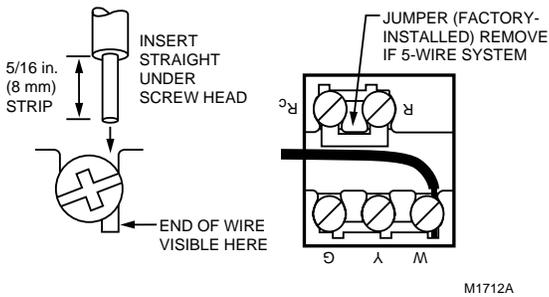❻ In 5-wire installations only, be sure to remove the factory-installed jumper connecting the terminals R and Rc.
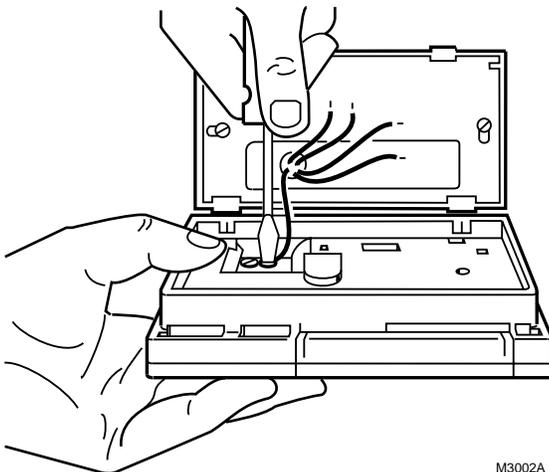

Fig. 3. Proper wiring technique.
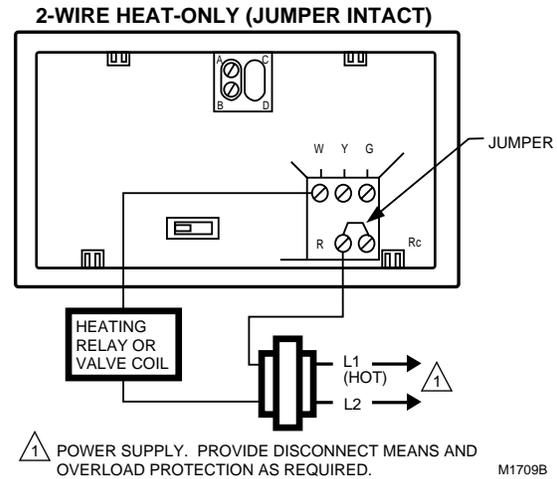

Fig. 4. Holding thermostat while installing.

2-WIRE HEAT-ONLY (JUMPER INTACT)

$\triangle$1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED. M1709B

Fig. 5. 2-wire heat-only application (jumper intact).

3-WIRE COOL-ONLY (JUMPER INTACT)

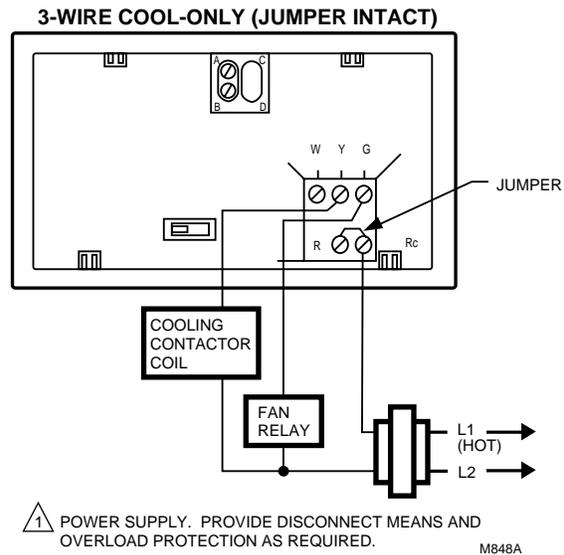$\triangle$1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED. M848A

Fig. 6. 3-wire cool-only application (jumper intact).

4-WIRE HEAT/COOL (JUMPER INTACT)
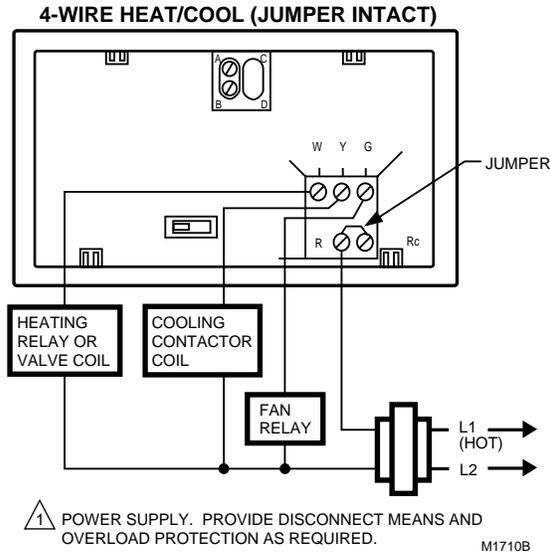

Fig. 7. 4-wire heat/cool application (jumper intact).

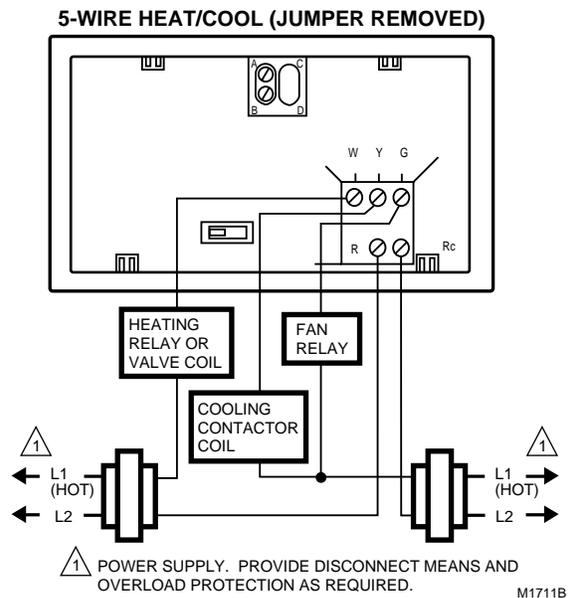**5-WIRE HEAT/COOL (JUMPER REMOVED)**

Fig. 8. 5-wire heat/cool application (jumper removed).

Adjust Fan Operation Switch, as Required

The thermostat fan operation switch, labeled FUEL SWITCH (see Fig. 9) is factory set in the F position. This is the correct setting for most systems. If you have an electric heat system, set the switch to E. In systems with the G terminal connected, the E setting turns on the fan immediately with heating or cooling.
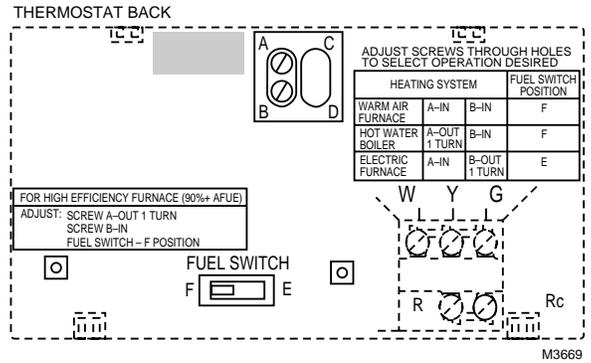

Fig. 9. Back view of thermostat.

Adjust System On-Time as Required

The thermostat on-time is factory set for a warm air, gas or oil heating system. If you are installing it on another type of system, the system on-time must be adjusted by changing the setting of screws A and B on the back of the thermostat. Use the heating system table in Fig. 9 as a guide to minimize room temperature swings. The system on-time should be optimized according to the type of system. Setting the screw *out one turn* means turning the screw approximately 360°, or one complete turn.

NOTE: This thermostat does not have a setting for steam/ gravity air. Cycles would not be long enough for accurate temperature control.

NOTE: For condensing furnaces, follow manufacturer instructions.

IMPORTANT

> *When using a high efficiency furnace such as a 90 percent or greater AFUE (Average Fuel Utilization Efficiency) unit, adjust screw A out one turn and screw B In one turn.*

If you want a longer on-time, readjust screws A and B as follows (refer to Table 1 Compatibility Chart):
• Warm Air Furnace—set at the Hot Water setting (A—out one turn, B—in).
• Electric Furnace—leave at the Warm Air Furnace setting (A—in, B—in).

NOTE: This thermostat does not have a setting for steam/ gravity air. Cycles would not be long enough for accurate temperature control.

Install Batteries

IMPORTANT

> *Batteries must be installed for programming and operating the thermostat and heating/cooling system.*

❶ Use two AA alkaline batteries; nonalkaline batteries will not last as long.
❷ Make sure the thermostat is set to the Off position.
❸ Use a coin to remove the battery door (see Fig. 10).
❹ Install the new batteries as shown, making sure positive and negative terminals are oriented correctly (see Fig. 11).
❺ Replace the battery door.

When the batteries are running low, a *bAt Lo* indicator will flash for one to two months before batteries run out completely. Replace the batteries as soon as possible after the indicator starts flashing. If the batteries are not replaced when the *bAt Lo* indicator is flashing, the indicator eventually stops flashing. When the batteries are almost completely dead, *bAt Lo* will stay on without flashing, indicating that the thermostat and heating/cooling system have stopped working. The thermostat will not function after the batteries are completely dead, and the *bAt Lo* indicator disappears, leaving a completely blank display.

To remove the batteries, press down on the left ends. When the new batteries are installed within 20 to 30 seconds of removing the old ones, the thermostat does not have to be reprogrammed. If the display is blank, the batteries are dead or incorrectly installed and the thermostat has to be reprogrammed. See Owner's Manual for reprogramming instructions.
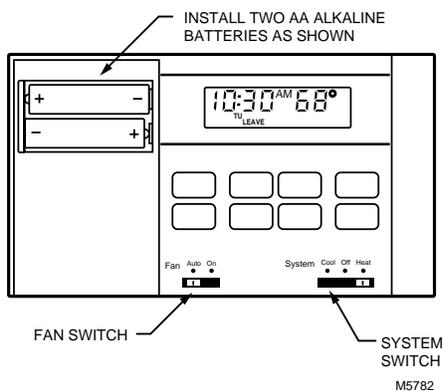
IMPORTANT
Although the thermostat has a low battery indicator, replace the batteries once a year to prevent the thermostat from losing time and programming due to lack of battery power.
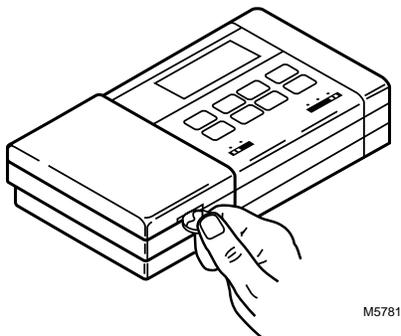

M5781

Fig. 10. Removing battery door.

INSTALL TWO AA ALKALINE BATTERIES AS SHOWN

FAN SWITCH

SYSTEM SWITCH

M5782

Fig. 11. Installing batteries.

Mounting Thermostat
❶ Engage the tabs at the top of the thermostat and mounting plate. See Fig. 12.
❷ Press the lower edge of the case to latch.

NOTE: To remove the thermostat from the wall, first pull out the bottom of the thermostat and then remove the top portion.

A. ENGAGE TABS AT TOP OF THERMOSTAT AND MOUNTING PLATE.

B. PRESS LOWER EDGE OF CASE TO LATCH.
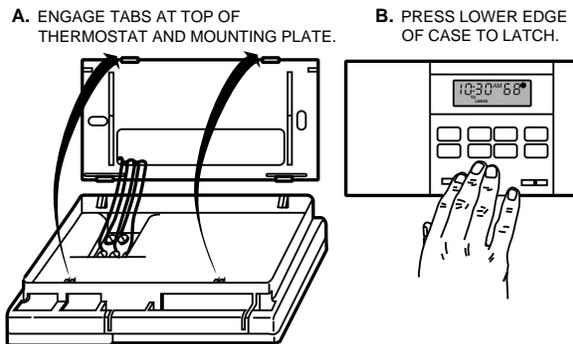
M5780

Fig. 12. Mounting thermostat on mounting plate.

PROGRAMMING THE THERMOSTAT

Set the Current Time/Day
To set the time:
❶ Press and release the **Clock/Day** key once.
❷ Press the **Time** keys ▲ or ▼ until the current time displays.

To set the day:
❶ Press and release the **Clock/Day** key again.
❷ Press the **Time** keys ▲ or ▼ until the current day displays.
❸ Press the **Run Program** key.

Heating Program
To set the system switch to HEAT:
❶ Press and release the **Schedule** key once. WAKE, Mon-Fri , and SET appear on the display.
❷ Press the **Time** keys ▲ or ▼ to program WAKE time, and **Temp** keys ▲ or ▼ to program WAKE temperature for Mon-Fri.
❸ Repeat this sequence for LEAVE, RETURN, and SLEEP.
❹ Press the **Schedule** key until SAT, SUN, WAKE and SET appear on the display.
❺ Press the **Time** keys ▲ or ▼ to program WAKE time, and Temp ▲ or ▼ to program WAKE temperature for Sat-Sun.
❻ Repeat this sequence for SLEEP.

Cooling Program
❶ Set the system switch to COOL and follow the same procedure as for the Heating Program.

❷ After programming, adjust the fan and system switches as desired.

❸ Press and release the **Run Program** key to start the program.

A Quick Guide for Operating or Making Changes

NOTE: The system switch must be set to Heat or Cool to perform the following.

To temporarily change the temperature for the current period only:

❶ Press the **Temp** keys ▲ or ▼.
  — The temporary indicator shows on the display and cancels itself at the next scheduled change.
❷ To cancel sooner, press the **Run Program** key.

To hold a temperature indefinitely:

❶ Press the **Hold Temp** key**.**
❷ Press the **Temp** keys ▲ or ▼.
❸ To cancel, press the **Run Program** key.

To check the current temperature setting:

Press the **Run Program** key. (When using TEMPORARILY CHANGE or HOLD, pressing this key will cancel the change or hold.)

To check the programs:

❶ Press the **Schedule** key repeatedly to see each time and temperature.
❷ Press the **Run Program** key.

To cancel a program:

❶ Press the **Schedule** key until the program to cancel appears
❷ Press both the **Time** keys ▲ and ▼ together.

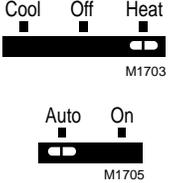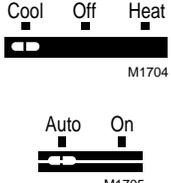### To permanently change a program:

Repeat the steps in the Heating Program or Cooling Program section as applicable.

To return to the normal program:

Press the **Run Program** key.

CHECKOUT AND SETTINGS

After the thermostat is mounted on the mounting plate, check operation as follows:

Heating	Cool Off Heat M1703 Auto On M1705
Do *not* check the heating system operation by jumpering the thermostat terminals at the primary control such as the gas valve, zone valve, or oil burner control. This will damage the thermostat. Instead, you could jumper R and Rc wires at the thermostat.	
Move the system switch to HEAT and the fan switch to AUTO.	
Press the **TEMP** key until the setting is about 10°F (6°C) above the room temperature. After a short delay, the heating should start and the fan should run (immediately if fan operation switch is set in E position).	Temp ▲
Press the **TEMP** key until the setting is about 10°F (6°C) below the room temperature. The heating equipment should shut off.	Temp ▼
Cooling	Cool Off Heat M1704 Auto On M1705
To avoid possible compressor damage, do not operate the cooling system when the outside temperature is below 50°F (10°C). See the compressor manufacturer instructions for further information.	
NOTE: When the cooling setting is changed, the thermostat can delay up to five minutes before turning on the air conditioner to protect the compressor.	
Move the system switch to COOL and the fan switch to AUTO.	
Press the **TEMP** key until the setting is about 10°F (6°C) below room temperature. The cooling equipment and fan should start.	Temp ▼
Press the **TEMP** key until the setting is about 10°F (6°C) above the room temperature. The cooling equipment and fan should stop.	Temp ▲
Move the system switch to OFF with the fan switch remaining at AUTO. The system and fan should be off.	Cool Off Heat M1707 Auto On M1705

68-0170
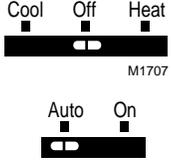
Fan Switch

FAN AUTO: Normal setting for most homes. A single-speed fan turns on automatically with the air conditioner or furnace. A two-speed fan usually runs on high with the air conditioner and on low with the furnace.

FAN ON: The fan runs continuously. Use for improved air circulation during special occasions or for more efficient electronic air cleaning.
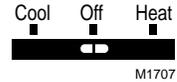
Auto   On

M1705

Auto   On

M1706

System Switch

COOL: The thermostat controls the air conditioning system.

Cool Off Heat

M1704

OFF: Both the heating and air conditioning systems are off.

Cool Off Heat

M1707

HEAT: The thermostat controls the heating system.

Cool Off Heat

M1703

TROUBLESHOOTING

IF…	THEN…
Display will not come on.	• Set the system switch to OFF; remove batteries; insert backward for at least five seconds to reset thermostat; replace batteries correctly. Display should come on.
	• Make sure batteries are fresh and installed correctly.
Temperature display will not go lower than 45°F (7°C) or higher than 88°F (31°C) during programming.	• The temperature setting limit has been reached. The setting range is 45°F to 88°F (7°C to 31°C).
Heating will not come on.	• If the display is blank or displays *bAt Lo*, install fresh batteries.
	• Check that the switch on the thermostat is set to HEAT.
	• Check the system fuse or circuit breaker and replace or reset if necessary.
	• If the temperature setting is higher than the current temperature, and SYSTEM ON indicator is lit, see the furnace manufacturer instructions.
Cooling will not come on.	• If the display is blank or displays *bAt Lo*, install fresh batteries.
	• In 2- or 4-wire installations, verify that the R-Rc jumper is installed.
	• Check that the switch on the thermostat is set to COOL.
	• Check the system fuse or circuit breaker and replace or reset if necessary.
	• The thermostat has a built-in time delay on cooling. Allow five to ten minutes after changing the setting before the air conditioner starts.
	• If the temperature setting is lower than the current temperature, and the SYSTEM ON indicator is lit, move the system switch from COOL to OFF for ten minutes.
	• After ten minutes, return the switch to the COOL position. If the air conditioner comes on, the compressor could have reached its high limit temperature protection and shut down. If the air conditioner does not come on after ten minutes and the SYSTEM ON indicator is lit, see the air conditioner manufacturer instructions.
SYSTEM ON indicator is lit, but no heat is coming from the registers.	• Allow time for the furnace to heat up and the fan to come on before checking for heat at the register. Check to make sure system on-time is set correctly according to the instructions in the Installation section.
Furnace or air conditioner cycles too frequently.	• Check the system setting on the back of thermostat.
The system on-time is too short or too long.	• Readjust according to the instructions in the Installation Section.
The thermostat current setting does not match the display temperature.	• Check that the wiring hole in the wall behind the wallplate was plugged with insulation to prevent drafts that could adversely affect thermostat operation.
	• It is normal for the current setting and display temperature to differ occasionally.
bAt Lo remains on the display after fresh batteries have been installed.	• Remove batteries. Wait one hour. Install fresh alkaline batteries.

Honeywell