Braeburn®

CONTENTS

1 QUICK REFERENCE

Inside of model 5300 shown

❶ **SYSTEM Button:** Selects AUTO (Heat/Cool), COOL, OFF, HEAT or EMER.

❷ **PROG Button:** Program setup mode, selects setpoint time, temperature and fan setting for each program.

❸ **HOLD Button:** Enables extended hold, clears extended hold or temporary override.

❹ **RETURN Button:** Used to enter user settings and returns thermostat to normal mode from program mode.

❺ **DAY/TIME Button:** Selects hour, minute and day setting. Selects program day in Program setting mode.

❻ **FAN Button:** Selects AUTO, ON, CIRC (recirculate) and PROG (program) modes.

❼ **RESET Button:** Located on front of thermostat, will return programming, clock, differential settings, filter check monitor, adjustment limit from setpoint, keypad lock, temperature hold, short cycle timer and recirculating fan to default settings if previously programmed.

❽ ☀ **Button:** Turns on backlight for 10 seconds.

❾ ∧ **Button:** Increases setting (time, temperature, etc.). Scrolls between option settings.

❿ ∨ **Button:** Decreases setting (time, temperature, etc.). Scrolls between option settings.

2 PROGRAMMING USER SETTINGS

2.1 Setting Current Time of Day and Day of Week

NOTE: *It is important for you to set the current time of day (note AM/PM indicator in display), and the current day of week correctly to avoid problems with program execution.*

1. When in normal operating mode, press the **DAY/TIME** keypad button. The LCD display will be cleared except for the time, am/pm indicator, day of week indicator and SET. The hour portion of the time will flash. Press the ∧ or ∨ button to set the current hour.
2. Press the **DAY/TIME** button again; the minute portion of the time will flash. Press the ∧ or ∨ button to set the current minute.
3. Press the **DAY/TIME** button again, the day of week indicator will flash. Press the ∧ or ∨ button to set the current day of week.

```
MO
        AM

  10:03

        SET
```

NOTE: *The thermostat will return to normal operating mode automatically after 30 seconds if no key is pressed. It will also return to normal operating mode immediately if the **RETURN** button is pressed.*

2.2 Setting Fan Control
The Fan Control has 4 modes of operation – AUTO, ON, CIRC (Recirculate) and PROG (Program). The Fan mode can be selected by pressing the Fan button and scrolling through the modes of operation.

AUTO: In the Auto mode, the fan is turned on whenever there is a call for heating or cooling. The Auto mode is not available if the FAN LOCK was enabled in the Installer Options (see Installer Guide).

ON: The fan runs continually.

CIRC: The fan runs for 12 minutes if there is no call for heating or cooling made after the off cycle set in Section 2.4, Setting Thermostat User Options. This feature is available in the COOL, OFF, HEAT or EMER System Modes. The Recirculating Fan feature can be locked on during the Installer Setup so that only CIRC or ON are available, see Installer Guide.

PROG: The fan will remain on for the entire programmed time period if it is set to ON during programming. The PROG mode is not available if the recirculating FAN LOCK was enabled in the Installer Options, or in the non-programmable operating mode. See Section 4.2 of the Installer Guide.

2 PROGRAMMING USER SETTINGS *cont.*

2.3 Setting Thermostat System Selection
The system can be selected by pressing the System button. There are five possible systems to select from – AUTO, COOL, OFF, HEAT and EMER

AUTO: Auto can only be selected if it was enabled by the installer, see Section 4.2 of the Installer Guide. If AUTO is selected, the system cycles between heating and cooling as determined by the setpoints. AUTO will be displayed constantly with either HEAT or COOL depending on the indoor temperature and programmed set temperatures.

COOL: Selected for system to run air conditioning, when there is a cooling call COOL will flash.

OFF: System is off. The room temperature, day and time will be displayed. Any extended hold or temporary override will remain in affect unless they expire. The HEAT setting can be reviewed using the ∧ and ∨ arrows, but there is no heat function.

HEAT: Selected for system to run heat, when there is a heating call HEAT will flash.

EMER: This is only available if a 2 Stage Heat Pump was selected by the installer; see Section 4.2 of the Installer Guide. If selected EMER will be displayed constantly, when there is a heating call HEAT will flash. Only the 2nd stage heat will run.

2.4 Setting Thermostat User Options
The default user options are compatible with most systems and applications. They are normally set at the time of installation and usually do not require any modification under normal operating conditions. If you desire to change these settings simply follow the instructions below.

NOTE: *If at any time while in the User Options Mode, you desire not to make any further changes, you can wait 30 seconds without pressing any keys to return to the normal operating mode.*

NOTE: *The first and second stage differential settings are the same for both the heating and cooling systems.*

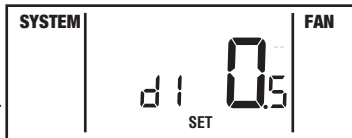### 2.4.1 Setting the First and Second Stage Differentials

First Stage Differential
The default setting is 0.5° F (0.25° C). The room temperature must change 0.5° F (0.25° C) from the setpoint temperature before the thermostat will initiate the system in heating or cooling.

1. In normal mode, press and hold the **RETURN** button for 4 seconds. The LCD display will show "**d1 SET X**" where "**X**" equals the °F / °C differential setting. This is the current temperature differential setting.
2. Press the ∧ or ∨ button to set the temperature differential to your desired setting of 0.5°, 1°, or 2° F (0.25°, 0.5°, 1° C).

Second Stage Differential – Only Available on 2 Stage Systems
The default setting is 2° F (1.0° C). This means that the room temperature must change 2° F (1.0° C) in addition to the first stage differential setting before the thermostat will initiate the system in heating or cooling.

3. Press the **RETURN** button again and the LCD display will show "**d2 SET X**" where "**X**" equals the °F / °C differential setting. This is the current second stage differential setting.
4. Press the ∧ or ∨ button to set the second stage differential to your desired setting of 1°, 2°, 3°, 4°, 5°, or 6° F (0.5°, 1.0°, 1.5°, 2.0°, 2.5° or 3.0° C).

2.4.2 Setting the Filter Check Monitor (see also section 3.6)
The default setting is 0 days (monitor disabled).

5. Press the **RETURN** button and the display will show "**FILTER XXX SET**", where **XXX** is the Filter Monitor interval.
6. Press the ∧ or ∨ button to change the Filter Monitor Interval to the desired value of 0 (disabled), 30, 60, 90, 120, 180 or 365 days.

2.4.3 Setting the Extended Hold (Vacation) Mode (see also section 3.5)
The default setting is Long (indefinite) Hold. If the **HOLD** feature is activated, the current setpoint will be held until **HOLD** is released.

NOTE: *Extended Hold Mode is not available if the thermostat is in the non-programmable mode.*

7. Press the **RETURN** button, the display will show "**SET LG HOLD**", where **LG** is indefinite hold.
8. Press the ∧ or ∨ button to change the Extended Hold time from indefinite (**LG**) to 24 hours (**SH**).

2.4.4 Setting the Temporary Override Adjustment Limit
This sets how many degrees the thermostat can be adjusted up or down from the programmed setpoint. The default setting is 0° F (temporary override adjustment limit are not available).

NOTE: *Temporary Override Adjustment Limit is only available in the non-programmable mode if security level 1 was selected during installation, see section 4.2 of the Installer Guide and the keypad is locked.*

9. Press the **RETURN** button, the display will show "**ADJX SET**", where **X** is the temporary override limits.
10. Press the ∧ or ∨ button to change the Temporary Override Adjustment Limit to the desired value of 0, 1°, 2° or 3° F.

2.4.5 Setting the Multi-Level Keypad Lockout (see also section 3.7)

11. Press the **RETURN** button, the display will show "**000 LOCKSET**".
12. Press the ∧ or ∨ button to enter a 3 digit code, using the **RETURN** button to store each digit and move to the next digit.

2.4.6 **Setting the Recirculating Fan Cycle** (see also section 3.9)

13. Press the **RETURN** button, the display will show "**XXX SET OC**", where "**XXX**" is the Recirculating Fan off cycle.
14. Press the ∧ or ∨ button to change the Recirculating Fan off cycle to the desired value of 120, 60, 40 or 24 minutes.
15. Press the **RETURN** button again to return to the normal mode, or wait 30 seconds for the thermostat to return automatically.

2.5 **Setting Your Energy Saving Programs – Tips Before Starting**

NOTE: *If the thermostat is in the non-programmable mode you cannot set an Energy Savings Program. The System mode, Time, Day, Temperature and Fan mode will be displayed when the thermostat is in the non-programmable mode.*
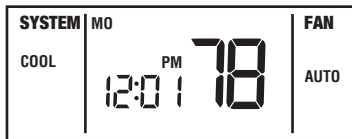
- It is important for you to set the current time of day (note the AM/PM indicator in the display), and the current day of week correctly to avoid problems with program execution. This must be done prior to entering any program settings.
- The heating and cooling programs have both separate setpoint times and setpoint temperatures, unless auto changeover is enabled. If auto changeover is enabled during Installer Setup, (see section 4.2 of the Installer Guide) the heating and cooling programs have common heating and cooling setpoint times with separate setpoint temperatures.
- This thermostat is preprogrammed with Residential 4 events per day times and temperatures recommended by the Environmental Protection Agency and the U.S. Department of Energy in their ENERGY STAR® program. These settings provide efficient energy savings during normal heating and cooling modes of operation. If you wish to use the settings in the table, no further programming is necessary. Review these time and temperature settings prior to establishing your personal program settings to maximize your savings, and minimize programming requirements.

2.5 **Setting Your Energy Saving Programs** *cont.*

4 Event	All Days	2 Event	All Days
MORN	Time: 6:00 am Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)	Occupied	Time: 8:00 am Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)
DAY	Time: 8:00 am Heat: 62˚ F (17˚ C) Cool: 83˚ F (28˚ C)		
EVE	Time: 6:00 pm Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)	Unoccupied	Time: 6:00 pm Heat: 62˚ F (17˚ C) Cool: 83˚ F (28˚ C)
NIGHT	Time: 10:00 pm Heat: 62˚ F (17˚ C) Cool: 78˚ F (26˚ C)		

NOTE: *If the Commercial (BUS) programming mode was selected during the Installer Setup (Installer Guide), the default program is the 2 events per day shown in the chart above.*

2.5 Setting Your Energy Saving Programs *cont.*

4 Event	Weekday	Weekend
MORN	Time: 6:00 am Heat: 70° F (21° C) Cool: 75° F (24° C)	Time: 6:00 am Heat: 70° F (21° C) Cool: 75° F (24° C)
DAY	Time: 8:00 am Heat: 62° F (17° C) Cool: 83° F (28° C)	Time: 8:00 am Heat: 70° F (21° C) Cool: 75° F (24° C)
EVE	Time: 6:00 pm Heat: 70° F (21° C) Cool: 75° F (24° C)	Time: 6:00 pm Heat: 70° F (21° C) Cool: 75° F (24° C)
NIGHT	Time: 10:00 pm Heat: 62° F (17° C) Cool: 78° F (26° C)	Time: 10:00 pm Heat: 62° F (17° C) Cool: 78° F (26° C)

NOTE: *If the 5-2 day programming mode was selected during the Installer Setup (Installer Guide section 4.2), the default program will use the weekday and weekend times and temperatures shown above.*

**2.5 Setting Your Energy Saving Programs** *cont.*

- Make sure you select either **HEAT** or **COOL** by pressing the system button as appropriate. You should not enter a program in the **OFF** position.
- If Auto Changeover was enabled during installation the user must select either the **HEAT** or **COOL** mode. The thermostat cannot be programmed in the **AUTO** mode.

NOTE: *Once the thermostat has been programmed the user can return to the **AUTO** mode if desired.*

- Independent program times and programmable fan settings for heating and cooling are not available if Auto Changeover is enabled.
- When you place the system in the **HEAT** or **COOL** modes of operation, the appropriate indicator will appear in the LCD display when the system is running.
- When you place the system in the **OFF** mode the display will indicate **OFF**.

NOTE: *If the **PROG** button is pressed while **AUTO** is selected, the thermostat will switch from the **AUTO** mode to the mode currently in the display.*

NOTE: *If Auto Changeover is enabled in the Installer Options, and a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the dead band spacing, see section 3.2.*
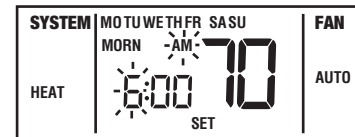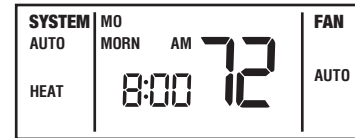
2.5.1 Entering Your Program–7 Day Mode

The 7 Day mode has separate Whole Week or Individual Day programming to allow you to change the daily setpoint times and temperatures to meet your individual schedule needs. The Whole Week programming can be used to set the main portion of your schedule, allowing you to later modify specific days of the week as required using the Individual Day programming capabilities.

Whole Week – allows you to program all seven days (MO, TU, WE, TH, FR, SA, SU will show in display) at the same time. Then you can use the individual day programming to fine tune your program for the few setpoint times or temperatures that you may wish to change.

Individual Days – allows you to program each day of the week individually to give you the greatest schedule flexibility. Often used to fine tune programming after initial programming.

IMPORTANT NOTE! *When in Whole Week programming, the thermostat will check if all of the days of that group have the same program setpoint times and temperatures. If so, the setpoint time and temperature of the individual setpoint will be displayed.*

Otherwise, the individual setpoint time and temperature will be blanked. The user is allowed to change the daily programs for this setpoint time and temperature by pressing the ∧ or ∨ button. This will reset all the daily programs of the group for that specific individual setpoint time and temperature to the startup default for that setpoint. Continued pressing of the ∧ or ∨ button by the user will change setpoint time and temperature settings as desired.

Residential

1. Press the **PROG** button to enter the Program setting mode. Press the **SYSTEM** button to select **HEAT** (not **AUTO HEAT**) to set heating times and temperatures. **MORN** setpoint of the "Whole Week" will be displayed. The display will show **MO, TU, WE, TH, FR, SA, SU** to indicate the whole week is being programmed. The hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

NOTE: *If Auto Changeover is enabled in the installer options, the heating and cooling programs share time and fan settings. If a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the dead band spacing, see section 3.2.*

2. If you wish to program each day individually press the **DAY/TIME** button to select each day.
3. Press the ∧ or ∨ button to change the time to the desired hour in one hour increments. Press the **PROG** button, the minute portion of the setpoint time will begin flashing.
4. Press the ∧ or ∨ button to change the time to the desired minute in 10-minute increments. Press the **PROG** button, the **SET** temperature will begin flashing.
5. Press the ∧ or ∨ button to change the setpoint temperature to the desired setting in 1˚ F increments (0.5˚ C). Press the **PROG** button, the **FAN** mode will begin flashing.

NOTE: *The fan option is not available or displayed if the Fan LOCK was enabled during Installer Setup, see section 4.2 of the Installer Guide.*

6. Press the ∧ or ∨ button to select **AUTO** or **ON**. Changing the **FAN** mode to **ON** will cause the fan to run during the entire programmed time period. Press the **PROG** button, the thermostat will now display the **DAY** setpoint time and temperature. Again, you will see the hour portion of the setpoint time and the **AM/PM** indicator will be flashing.
7. Follow steps 3 through 6 to set the setpoint times and temperatures and fan mode for the **DAY, EVE** and **NIGHT** for the **HEAT** mode.
8. Press the **SYSTEM** button to select **COOL** to set cooling times and temperatures. The display will show **COOL**. Follow steps 3 through 7 to set the setpoint times and temperatures and fan mode for the **COOL** mode.

NOTE: *Press the **SYSTEM** button to select **COOL** (not **AUTO COOL**) to set program.*

9. Press the **RETURN** button to return to the normal mode, or wait 30 seconds for the thermostat to return automatically.

2 PROGRAMMING
USER SETTINGS *cont.*

Commercial

1. Press the **PROG** button to enter the Program setting mode. Press the **SYSTEM** button to select **HEAT** to set heating times and temperatures. **OCCUPIED** setpoint of the "Whole Week" will be displayed. The display will show **MO, TU, WE, TH, FR, SA, SU** to indicate the whole week is being programmed. The hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

2. If you wish to program each day individually press the **DAY/TIME** button to select each day.

3. Press the ∧ or ∨ button to change the time to the desired hour in one hour increments. Press the **PROG** button, the minute portion of the setpoint time will begin flashing.

4. Press the ∧ or ∨ button to change the time to the desired minute in 10-minute increments. Press the **PROG** button, the **SET** temperature will begin flashing.

5. Press the ∧ or ∨ button to change the setpoint temperature to the desired setting in 1º F increments (0.5º C). Press the **PROG** button, the **FAN** mode will begin flashing.

NOTE: *The fan option is not available or displayed if the Fan LOCK was enabled during Installer Setup, see the Installer Guide.*

6. Press the ∧ or ∨ button to select **AUTO** or **ON**. Press the **PROG** button, the thermostat will now display the **DAY** setpoint time and temperature. Again, you will see the hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

7. Follow steps 3 through 6 to set the setpoint times and temperatures and fan mode for **UNOCCUPIED** for the **HEAT** mode.

8. Press the **SYSTEM** button to select **COOL** to set cooling times and temperatures. The display will show **COOL**. Follow steps 3 through 7 to set the setpoint times and temperatures and fan mode for the **COOL** mode.

9. Press the **RETURN** button to return to the normal mode, or wait 30 seconds for the thermostat to return automatically.

2 PROGRAMMING
USER SETTINGS *cont.*

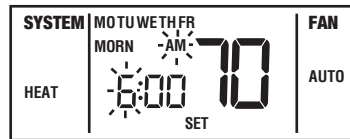**2.5.2 Entering Your Program – 5-2 Day Mode (Residential)**
The 5-2 Day mode has separate Weekday and Weekend Program Groups that allow you to change the daily setpoint times and temperatures to meet your individual schedule needs.

Weekday – allows you to program all the weekdays (MO, TU, WE, TH, FR will show in display) at the same time. Allows programming times and temperature settings for four setpoints (MORN, DAY, EVE & NIGHT) to meet your weekday schedule needs.

Weekend – allows you to program all the weekend days (SA, SU will show in display) at the same time. Again allows programming times and temperature settings for four setpoints (MORN, DAY, EVE & NIGHT) to meet your weekend schedule needs.

1. Press the **PROG** button to enter the Program setting mode. Press the **SYSTEM** button to select **HEAT** to set heating times and temperatures. **MORN** setpoint of the Weekday Program Group will be displayed. The display will show **MO, TU, WE, TH, FR** to indicate the Weekday group is being programmed. The hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

2. Press the ∧ or ∨ button to change the time to the desired hour in one hour increments. Press the **PROG** button, the minute portion of the setpoint time will begin flashing.

3. Press the ∧ or ∨ button to change the time to the desired minute in 10-minute increments. Press the PROG button, the **SET** temperature will begin flashing.

4. Press the ∧ or ∨ button to change the setpoint temperature to the desired setting in 1º F increments (0.5º C). Press the **PROG** button, the **FAN** mode will begin flashing.

NOTE: *The fan option is not available or displayed if the Fan LOCK was enabled during Installer Setup, see the Installer Guide.*

# 2 PROGRAMMING USER SETTINGS *cont.*

5. Press the ∧ or ∨ button to select **AUTO** or **ON**. Press the **PROG** button, the thermostat will now display the **DAY** setpoint time and temperature. Again, you will see the hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

6. Follow steps 3 through 5 to set the setpoint times and temperatures and fan mode for the **DAY, EVE** and **NIGHT** for the **HEAT** mode.

7. After pressing the **PROG** button, you will enter the Weekend Program Group. The display will show **SA, SU** to indicate the Weekend Group is being programmed. The hour portion of the **MORN** setpoint time and the **AM/PM** indicator will be flashing.

8. Follow steps 3 through 6 to set the setpoint time and temperatures and fan mode for the **DAY, EVE** and **NIGHT** for the **HEAT** mode.

9. Press the **SYSTEM** button to select **COOL** to set cooling times and temperatures. The display will show **COOL**. Follow steps 3 through 6 to set the setpoint times and temperatures and fan mode for the **COOL** mode.

10. Press the **RETURN** button to return to the normal mode, or wait 30 seconds for the thermostat to return automatically.

NOTE: *To erase all entered programs, current time of day, day of week and other user settings, gently press the* ***RESET*** *button using a paper clip or a small pencil tip. This will return all thermostat settings to their default values. See the Installer Guide.*

3 ADDITIONAL OPERATION FEATURES

3.1 Review/Change Set Temperature, Non-Programmable Mode

1. Press and hold the ∧ or ∨ button. The current setpoint temperature will be displayed in the place of the current room temperature, and the indicator **SET** will be displayed.

2. The display will return to normal operating mode when the ∧ or ∨ button is released. Continuing to hold the ∧ or ∨ button for 1 second or longer will allow the user to change the current setpoint temperature.
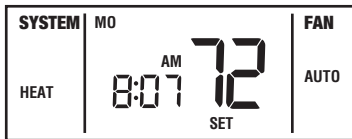
3 ADDITIONAL OPERATION FEATURES *cont.*

3. Press and hold the ∧ or ∨ button for 1 second. The entire display will flash once and the **SET** indicator will be flashing. Release the ∧ or ∨ button and press the ∧ or ∨ button again to adjust the setpoint temperature.

4. The display will return to normal mode after 15 seconds or by pressing the **RETURN** button.

5. By selecting the opposite system mode (**HEAT** or **COOL**) with the system button you can review or change the set temperature for that mode.

NOTE: *If Auto Changeover is enabled in the Installer Options, and a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the dead band spacing. Any change made to the setpoint temperature only applies to the current mode. To review or make changes to the opposite mode that mode must be selected and the above procedure followed. AUTO can then be selected after the heating and cooling setpoints are set.*

3.2 Auto Changeover Mode

When Auto Changeover mode is enabled and selected, the system automatically switches between heating and cooling when the room temperature meets the programmed heating or cooling setpoints. While in AUTO mode, the thermostat will constantly monitor the room temperature to determine whether to run the HEAT or COOL mode to maintain a comfortable temperature. To operate properly, the thermostat requires a "dead band" setting to eliminate program conflicts. The dead band is set in the Installer Options (see section 4.2 of the Installer Guide). The default is 3º F (1.5º C). Therefore, there is 3º F between the highest HEAT setpoint and the lowest COOL setpoint. For example, if the highest HEAT setpoint was 72º F, the lowest COOL setpoint would be 75º F. If a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the programmed dead band spacing.

3.3 Remote Indoor Sensor

The 5390 Remote Indoor Sensor senses the air temperature at a remote location and sends the information to the 5300 thermostat. If installed at setup, the display temperature is either the temperature at the sensor or an average of the temperature at the sensor and the temperature at the thermostat.

3 ADDITIONAL OPERATION FEATURES *cont.*

3.4 Temporary Program Override
Temporary Program Override is the temporary change of the program set temperature. This feature is not available when the thermostat is in the non-programmable mode.
1. Press and hold the ∧ or ∨ button for 1 second. The entire display will flash once and the **SET** indicator will be flashing. The current setpoint temperature will be displayed in the place of the current room temperature. Release the ∧ or ∨ button and press the ∧ or ∨ button again to adjust the setpoint temperature.
2. The display will return to normal mode after 15 seconds or you can press the **RETURN** button.
3. The Program indicator (**MORN, DAY, EVE, NIGHT** for Residential) or (**OCCUPIED, UNOCCUPIED** for Commercial) will be flashing in the display, indicating that a Temporary Program Override is in effect. The Temporary Program Override will reset when the next setpoint time occurs, or after 4 hours, whichever comes first.
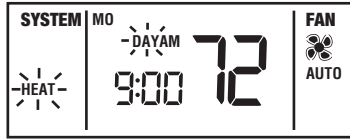
NOTE: *If Auto Changeover is enabled in the Installer Options, and a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the dead band spacing. Any change made to the setpoint temperature only applies to the current mode. To review or make changes to the opposite mode that mode must be selected and the above procedure followed. AUTO can then be selected after the heating and cooling setpoints are set.*

3.5 Extended Hold (Vacation) Mode
1. Press the **HOLD** button to bypass the program schedule. The current setpoint temperature will be held until **HOLD** is released. **HOLD** will show in the display.
2. Press the **HOLD** button again to return the thermostat to normal program operation.
3. The hold period lasts until the hold is released as in step #2 above, or is limited to 24 hours if the default was changed during programming of user settings (section 2.4.3)
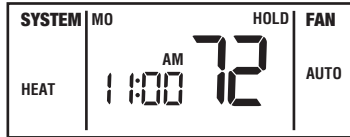
NOTE: *Extended Hold Mode is not available if the thermostat is in the non-programmable mode.*

3.6 Filter Check Monitor (see section 2.4.2 for setting)
The Filter Check Monitor displays a reminder for required filter replacement or cleaning, by flashing the **FILTER** segment in the display. See instructions on your filter or heating/cooling unit for recommendations for interval setting. When the selected interval has been reached, and required cleaning or replacement has been performed, press the **RETURN** button in any normal mode to reset the timer and turn off the warning.
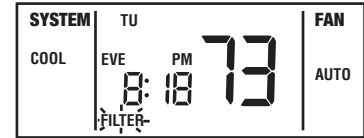
3.7 Multi-Level Keypad Lockout
To prevent accidental or undesired adjustment of the thermostat, the Keypad Lock feature has two levels of security. Level one locks all buttons (including the reset button) except the ∧, ∨ and backlight buttons. Level two locks the entire keypad except the backlight button, and the ability to enter the security code (∧ and ∨ buttons can be pressed together to enter the lock code). The lock level is set in the Installer Options, and the lock code is set in the User Options.

To lock or unlock the keypad press and hold both the ∧ and ∨ buttons at the same time for 5 seconds. The LOCK segment in the display will flash as the program and temperature segments are cleared. The time segments will turn to zeros as shown below. The user is then prompted to enter a 3 digit code which must be either 555, or match the code entered in section 2.4.5 of this manual. After setting the last digit the user must press the **RETURN** key for 1 second, and the display returns to the normal mode, with the **LOCK** segment displayed. If an incorrect code is entered, the display will flash "no".

3 ADDITIONAL OPERATION FEATURES *cont.*

3.8 Adaptive Recovery Mode (ARM™)
In order to maximize comfort and energy efficiency, this thermostat is equipped with Adaptive Recovery Mode (ARM™). This feature minimizes the amount of time required by the heating or cooling system to reach the new setpoint after a setback period is completed, and assures your desired temperature is achieved near your set program times.

This feature activates when recovering room temperature from setback programs to comfort programs, so it will only take place when the current (heating) program setpoint temperature is lower than the upcoming program setpoint temperature, or the current (cooling) program setpoint temperature is higher than the upcoming program setpoint temperature. This feature can be turned off during Installer Setup see section 4.2 of the Installer Guide.

During ARM™, room temperature is recovered gradually by turning on the heating or cooling before the end of the set back period. In a multi-stage configuration room temperature is recovered gradually by using only the first stage heating or cooling until the last 20 minutes, to minimize the use of the 2nd stage heating or cooling. The setpoint temperature is changed to that of the upcoming comfort program temperature. The start time of recovery is based on the difference between the current room temperature and the upcoming comfort program setpoint temperature. The recovery to the upcoming heating setpoint starts 10 minutes before the upcoming setpoint time for each degree of temperature change required, up to a maximum of 2 hours. The recovery to the upcoming cooling setpoint starts 15 minutes before the upcoming setpoint time for each degree of temperature change required, up to a maximum of 3 hours.

ARM™ does not operate when the unit is in the temporary or extended HOLD mode, if the program is temporarily overridden or if emergency heat is selected for multi-stage heat pumps. It also does not operate unless it was enabled during the Installer Setup, see section 4.2 of the Installer Guide.

3 ADDITIONAL OPERATION FEATURES *cont.*

3.9 Recirculating Fan Feature (see section 2.4.6)
The Recirculating Fan Mode provides more even temperature distribution and improves indoor air quality by circulating air through the furnace filtration system more often. The thermostat is put into the Recirculating Fan Mode by pressing the **FAN** button until the **CIRC** icon is displayed. If no call for heating or cooling occurs within the fan off cycle set in section 2.4.6, the fan will run for 12 minutes.

The highest setting, 120 minutes, will run the fan least often – 9% minimum running time. The lowest setting, 24 minutes (factory default), will run the fan most often – 33% minimum running time. During any call for heating or cooling, fan control operates in the AUTO mode. The Recirculating Fan feature is available in the COOL, OFF, HEAT, or EMER mode. The Recirculating Fan can be "locked on" in the Installer Options, so that the only fan selections available to the user are CIRC and ON.

3.10 Programmable Independent Fan Control
The Programmable Independent Fan Control allows the user to run the fan continuously during a selected time period, such as MORN, if **PROG** fan mode is selected with the fan button, (section 2.2 of this manual) and the fan was set to ON when that time period was programmed. The PROG mode is not available if the recirculating **FAN LOCK** was enabled in the Installer Setup or in the non-programmable operating mode. See section 4.2 of the Installer Guide.

3.11 Auxiliary Heat Fossil Fuel Switch
This thermostat is equipped with an auxiliary heat option switch which is set at installation for either an electric or fossil fuel (gas, oil or propane) auxiliary heat source. For heat pump units with an electric auxiliary stage, both the first and second stages of heating will run when a call for second stage heat is made. For heat pump units with a fossil fuel auxiliary stage, the first stage will be locked out one minute after a second stage heat call, and the second stage will only be used.

3.12 High Temperature Safety Switch
While the thermostat is in the **HEAT** mode of operation the thermostat will mechanically turn-off if the room temperature rises higher than 99º F (37º C). There is also a software feature that will automatically turn-off the thermostat in **HEAT** mode if the temperature rises higher than 93º F (34º C).

3 ADDITIONAL OPERATION FEATURES *cont.*

### 3.13 Compressor Protection and AC Power Monitor

This thermostat includes an automatic compressor protection feature to avoid potential damage to the cooling system from short cycling. This thermostat automatically provides a delay, set during Installer Setup, see section 4.2 of the Installer Guide, after turning off the cooling system output to protect the compressor. This protection is also present in the heat mode of operation on single stage heat pump systems to protect the compressor.

NOTE: *The installer can reset the thermostat and bypass the compressor protection features by pressing the RESET button. This will erase all entered programs, current time of day, day of week and other user settings and should only be used during installation for testing purposes or to reset a thermostat to regain normal operation. This will return all thermostat settings to their default values. The user will have to reprogram all of the erased settings.*

If enabled during Installer Setup, see section 4.2 of the Installer Guide, this thermostat also provides cold weather compressor protection by locking out the compressor stage (1st Stage) of heating for a period of time after a power outage greater than 60 minutes. The lockout period is one hour less than the outage time, up to a maximum of 12 hours. During that period of time, the auxiliary heat stage will still be available to maintain the setpoint temperature. The compressor lockout can be manually overridden at any time by changing the system mode to **OFF** momentarily, then back to **HEAT**.

NOTE: *This feature only applies to 2 Stage Heat Pump Systems.*

During a power loss, the thermostat will display an outage warning, if enabled during Installer Setup, see section 4.2 of the Installer Guide. The system clock will continue to run, and all settings will be maintained until the outage period is over.
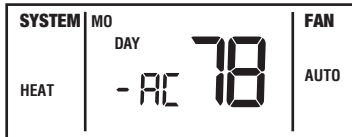
3 ADDITIONAL OPERATION FEATURES *cont.*

3.14 Low Battery Detection and Replacement

This thermostat requires two (2) properly installed "AA" Alkaline batteries to maintain the system clock and to provide power for the thermostat if 24 volt AC power is not connected to the terminal block.

This thermostat is equipped with a low battery detection feature that constantly monitors the batteries during normal operating mode to determine whether they have sufficient power to provide proper operation.

When this feature determines that the battery status is low, a low battery indicator will appear in the display. It is recommended that the batteries be replaced immediately to maintain system operation and / or clock settings.

Replacing the Batteries

1. Open the front cover and locate the battery compartment door.
2. Gently remove the two "AA" Alkaline batteries located in the battery compartment.
3. Install two new "AA" Alkaline batteries into battery compartment. Make sure to match the positive (+) ends of the batteries with the positive (+) terminals located in the battery compartment.
4. Close battery compartment and verify that the low battery indicator does not appear in the display.

4 TROUBLESHOOTING

SYMPTOM	POTENTIAL SOLUTION
Fan continues to run in cooling mode when the system has turned off.	The Residual Cooling Fan Control Feature can allow up to a 90 second fan delay after cooling system shutdown for energy efficiency gains. The default setting is 60 seconds. This can be changed to disable this feature or shorten the time period if desired. See section 4.2 of the Installer Guide.

SYMPTOM	POTENTIAL SOLUTION
Thermostat does not turn on heating or cooling system.	Check to see if **OFF** is shown in display. This indicates that the system is turned off at the thermostat. Press the system button to select **HEAT** or **COOL** mode. After the compressor short cycle protection period expires the system should start within a minutes time.
	Compressor protection features may be in effect due to compressor short cycle conditions, power outages or rolling blackouts. See section 3.12 for full explanation of this feature.
	Heat pump may be malfunctioning. Review the **CHECK** status segment to see if it is. If there is a **CHECK** status segment, call a professional service technician to confirm heat pump operation and provide necessary service. If heating is required, you can press the system button to **EMER** setting, which will start the Emergency Heat source to provide heating until the heat pump can be serviced.
Thermostat turns on heating instead of cooling, or cooling instead of heating.	Check thermostat wiring to make sure that the heating and cooling stages are connected to the correct terminals on the wiring terminal block. See Installer Guide, Section 6.
Fan runs intermittently or when system is off.	Fan switch is in recirculate (🄍) mode.
System turns on prior to the end of a setback period.	Thermostat is in Adaptive Recovery Mode – see section 3.8.

SYMPTOM	POTENTIAL SOLUTION
Thermostat will not follow program setpoints.	Check current time of day, day of week program settings. Make sure to verify **AM/PM** indicator is accurately displaying desired time settings. See *Setting Current Time of Day and Day of Week* section of this manual.
	Check to see if **OFF** is shown in display. This indicates that the system is turned off at the thermostat. Press system button to select **HEAT** or **COOL** mode. After the compressor short cycle protection period expires the system should start within several seconds.
	Verify your program setpoint time entries.
	Thermostat program has been temporarily overridden. Wait till next setpoint and the temporary override will expire or change setpoint temperature to desired comfort level.
	Thermostat program is in Extended Hold (Vacation) Mode and **HOLD** is shown in display. Press **HOLD** button to release hold and return the thermostat to normal program operation.
Thermostat turns heating or cooling system on too often or not often enough.	Increase or decrease first stage temperature differential setting as appropriate to provide the desired performance level. See *Setting the First and Second Stage Differentials* section of this manual.
System does not switch from Heating to Cooling.	Auto Changeover was not selected or enabled during installer set-up. See section 4.2 of Installation Guide and section 3.2 of this manual.
	Program temperature was changed due to dead band violation.

SYMPTOM	POTENTIAL SOLUTION
Thermostat turns on second (auxiliary) stage of heating or cooling too quickly or not quickly enough.	Increase or decrease second (auxiliary) stage temperature differential setting as appropriate to provide the desired performance level. See *Setting the First and Second Stage Differentials* section of this manual.
Low battery indicator is shown in thermostat display.	Replace back-up batteries as soon as possible. See *Low Battery Detection and Replacement* section of this manual.
HI is shown in the thermostat display where the room temperature is normally displayed.	The temperature sensed by the thermostat is higher than the 99° F (37° C) upper limit of the thermostats display range. The display will return to normal after the sensed temperature lowers within the 40° to 99° F (5° to 37° C) display range. Turn on the cooling system or use other methods to lower the temperature accordingly. This condition could occur from the system being turned off during an exceptionally warm period, or upon installation when the thermostat has been stored for a long period of time in a warm vehicle or location prior to being installed. The thermostat is equipped with a mechanical high temperature safety switch that will turn off the system should the temperature exceed 99° F (37° C).
Fan runs constantly or for long periods of time.	Fan control is set to **ON**. Fan control is set to **PROG** and is programmed to be on.

SYMPTOM	POTENTIAL SOLUTION
The room is too warm or too cold.	See *Review Set Temperature* section of this manual to verify the current setpoint and make any modifications that are necessary.
Thermostat display is blank.	It is possible that AC power is not present at the thermostat and the batteries are fully discharged. Check fuse, circuit breaker and thermostat wiring as appropriate to verify AC power is available. Replace batteries before reprogramming thermostat. See *Low Battery Detection and Replacement* and *Setting Your Energy Saving Program* sections of this manual. If AC Power is present, call a professional service technician to verify thermostat and system performance.
Thermostat will not allow me to program a setpoint temperature higher than 90° F (32° C).	This is above the normal thermostat temperature setting range of 45° to 90° F (7° to 32° C).
Thermostat will not allow me to program a setpoint temperature lower than 45° F (7° C).	This is below the normal thermostat temperature setting range of 45° to 90° F (7° to 32° C).
Keypad does not function.	Keypad is locked (check for LOCK segment in display).

SYMPTOM	POTENTIAL SOLUTION
LO is shown in the thermostat display where the room temperature is normally displayed.	The temperature sensed by the thermostat is lower than the 40˚ F (5˚ C) lower limit of the thermostats display range. The display will return to normal after the sensed temperature rises within the 40˚ to 99˚ F (5˚ to 37˚ C) display range. If the temperature in the controlled space seems to be normal, wait for the thermostat to acclimate to the correct room temperature. If the room seems to be colder than usual, turn on the heating system to raise the temperature as needed for comfort within the room. This condition could occur from the system being turned off during a cold weather period or upon installation when the thermostat has been stored for a long period of time in a cold vehicle or location prior to being installed. The thermostat should be allowed to warm up prior to installation to allow proper heating control once installed.
Thermostat will not allow me to change the setpoint.	The Keypad is locked. To lock or unlock the keypad, press and hold both the ∧ and ∨ buttons at the same time for 5 seconds. The LOCK segment in the display will flash as the program and temperature segments are cleared (see section 3.7). The time segments will turn to zeros. Enter the 3 digit code programmed in section 2.4.5 of this manual. After setting the last digit, press the **RETURN** key for 1 second. The display will return to the normal mode. If an incorrect code is entered, the display will flash "**no**".
Fan continues to run all the time whether the system is on or off.	Check that the fan is in the **AUTO** mode. This will allow the fan to run only when the heating or cooling system is turned on and running. Check thermostat wiring to make sure that the fan control wiring is connected to the correct terminals on the wiring terminal block. See section 6 of the Installer Guide.
Unit will not enter program mode.	Non-Programmable mode selected during Installer Setup. See section 4.2 of the Installer Guide.

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5 YEAR LIMITED WARRANTY

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