Braeburn®

READ ALL INSTRUCTIONS BEFORE PROCEEDING

ENERGY STAR

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CONTENTS

1 QUICK REFERENCE

model 5400 shown with cover open

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

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

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

❹ **RETURN Button:** Allows user to enter 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 set point, keypad lock, temperature hold, short cycle timer and recirculating fan to default settings.

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.

❷ + ❺ When pressed at the same time, reviews humidity settings.

❷ + ❸ When pressed at the same time, displays outdoor temperature if outdoor sensor is installed.

2 PROGRAMMING USER SETTINGS

2.1 Setting Current Time of Day and Day of Week

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

NOTE: *The thermostat will return to normal operating mode automatically after 30 seconds if no buttons are 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 intermittently (approximately every 24 minutes) even if there is no call for heating or cooling. This feature recirculates the air for more even temperature distribution, and is available in all heating and cooling modes. See section 2.4.9 and 3.12 for instructions on programming fan run times.
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 if the thermostat has been installed in non-programmable operating mode.

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 settings 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 of the Installer Guide). If AUTO is selected, the system cycles between heating and cooling as determined by the set points. 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 1st stage cooling call, COOL will flash. In a multi-stage system, AUX will be displayed along with COOL for a 2nd stage cooling call.
OFF: System is off. The room temperature, day and time will be displayed. Any extended hold or temporary override will remain in effect unless they expire. The HEAT setting can be reviewed using the ∧ and ∨ buttons, but there is no heat function.
HEAT: Selected for system to run heat. When there is a 1st stage heating call, HEAT will flash. In a multi-stage system, AUX will be displayed along with HEAT for a 2nd stage cooling call. AUX will be displayed along with HEAT2 for a 3rd stage heating call.
EMER: This is only available for 2 or 3 Stage Heat Pump systems. If selected, EMER will be displayed constantly. When there is a heating call HEAT will flash.

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 would like to change these settings simply follow the instructions below.

NOTE: *If at any time while in the User Options Mode, you decide not to make any further changes, you can wait 30 seconds without pressing any buttons to return to the normal operating mode; or press the **PROG** and **RETURN** buttons together to return to the normal mode. The RETURN button scrolls forward in the User Options. The PROG button scrolls backward in the User Options.*

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

2 PROGRAMMING USER SETTINGS *cont.*

2.4.1 Setting the First, Second and Third 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 set point temperature before the thermostat will initiate the system in heating or cooling.

1. In normal mode, press and hold the **RETURN** button for four 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 (0.3˚, 0.5˚, 1˚ C).

SYSTEM		FAN
	d1 05	
	SET	
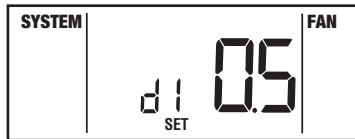
Second Stage Differential – Only Available on 2 or 3 Stage Systems

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 second stage of 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).

Third Stage Differential – Only Available on 3 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 and second stage differential setting before the thermostat will initiate the third stage of the system in heating.

5. Press the **RETURN** button again and the LCD display will show "**d3 SET X**" where "**X**" equals the ˚F / ˚C differential setting. This is the current third stage differential setting.
6. Press the ∧ or ∨ button to set the third 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 PROGRAMMING USER SETTINGS *cont.*

2.4.2 Setting the Filter Check Monitor (see also section 3.7)
The default setting is 0 days (monitor disabled).

7. Press and hold the **RETURN** button for four seconds. Press **RETURN** repeatedly until "**FILTER SET**" is displayed where "**XXX**" is the Filter Monitor interval.
8. 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.

SYSTEM		FAN
	120	
	FILTER SET	

2.4.3 Setting the UV Light Monitor (see also section 3.8)
The default setting is 0 days (monitor disabled).

9. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until "**UV SET**" is displayed where "**XXX**" is the UV Light Monitor interval.
10. Press the ∧ or ∨ button to change the UV Light Monitor Interval to the desired value of 0 (disabled), 180 or 365 days.

SYSTEM		FAN
	180	
UV	SET	

2.4.4 Setting the Humidifier Pad Monitor (see also section 3.9)
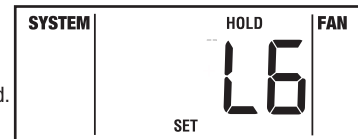The default setting is 0 days (monitor disabled).

11. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until "**SET HUMID PADS**" is displayed where "**XXX**" is the Humidifier Pad Monitor interval.
12. Press the ∧ or ∨ button to change the UV Light Monitor Interval to the desired value of 0 (disabled), 180 or 365 days.

SYSTEM		FAN
	180	
	SET HUMID PADS	

2.4.5 Setting the Extended Hold (Vacation) Mode (see section 3.6)
The default setting is Long (indefinite) Hold. If the **HOLD** feature is activated, the current set point will be held until **HOLD** is released.

SYSTEM	HOLD	FAN
	L6	
	SET	

2 PROGRAMMING USER SETTINGS *cont.*

2.4.5 Setting the Extended Hold (Vacation) Mode (continued - see section 3.6)

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

13. In normal operating mode, press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until **"SET LG HOLD"** is displayed, where "**LG**" is indefinite hold.

14. Press the ∧ or ∨ button to change the Extended Hold time from indefinite (**LG**) to 24 hours (**SH**). In **SH** mode, a Hold will "expire" in 24 hours and the thermostat will resume the original set points.

2.4.6 Setting the Temporary Override Adjustment Limit

This sets how many degrees the thermostat can be adjusted up or down from the programmed set point. The default setting is 0˚ F (no limit).

NOTE: *Temporary Override Adjustment Limit is only available in the non-programmable mode if security level 1 was selected during installation (see section 4 of the Installer Guide), and the keypad is locked.*

15. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until "**ADJ SET"** is displayed where "**X**" is the temporary override limits.

16. Press the ∧ or ∨ button to change the Temporary Override Adjustment Limit to the desired value of 0˚, 1˚, 2˚ or 3˚ F.

2.4.7 Setting the Temporary Override Time Limit

This sets how many hours the thermostat can be adjusted from the programmed set point. The default setting is four hours.

NOTE: *Temporary Override Adjustment Limit is not available in the non-programmable mode.*

17. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until "**OVER SET"** is displayed where "**X**" is the temporary override limits.

18. Press the ∧ or ∨ button to change the Temporary Override Time Limit to the desired value of 4, 3, 2 or 1 hour.

NOTE: *Temporary override time limit is not available in non-programmable mode.*

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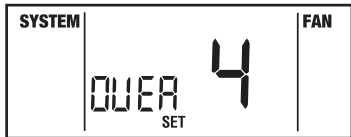
2 PROGRAMMING USER SETTINGS *cont.*

2.4.8 Setting the Multi-Level Keypad Lockout Code (see section 3.10)

19. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until **000 SET LOCK** is displayed.

20. Press the ∧ or ∨ button to enter a 3 digit code, using the **RETURN** button to store each digit and move to the next digit.

2.4.9 Setting the Recirculating Fan Cycle (see section 3.12)

The default setting is 24 minutes.

21. Press and hold the **RETURN** button for four seconds. Press **RETURN** button repeatedly until "**SET OC"** is displayed where "**XXX**" is the Recirculating Fan off cycle.

22. Press the ∧ or ∨ button to change the Recirculating Fan off cycle to the desired value of 120, 60, 40 or 24 minutes.

23. 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 set point times and set point temperatures, unless auto changeover is enabled. If auto changeover is enabled during Installer Setup, the heating and cooling programs have common heating and cooling set point times with separate set point temperatures.

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2.5 **Setting Your Energy Saving Programs – Tips Before Starting** *(continued)*

• This thermostat is preprogrammed with 4 events per day, with 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.

Residential 7 Day Programming *Default Settings*	
4 Event	**All Days**
MORN	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)
EVE	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)

Commercial 2 Event Programming *Default Settings*	
2 Event	**All Days**
Occupied	Time: 8:00 am 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)

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** *(continued)*

Residential 5-2 Day Programming–*Default Settings*		
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), the default program will use the weekday and weekend times and temperatures shown above.*

• 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.*

2 PROGRAMMING USER SETTINGS *cont.*

2.5 Setting Your Energy Saving Programs *(continued)*

• Independent heating and cooling temperatures are available in auto changeover mode. Independent program times and fan settings for heating and cooling are NOT available in auto changeover mode.
• When you place the system in the **HEAT** or **COOL** modes of operation, an 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 how far apart heat and cool are (the dead band), the opposite mode will adjust up or down automatically to maintain the dead band spacing (see section 3.2).*

NOTE: *If a Heat Limit was set in the Installer Options, the heating set point cannot exceed that limit. If a Cool Limit was set in the Installer Options, the cooling set point cannot be less than that limit.*

Entering Your Program–7 DAY, Residential Mode
The 7 Day mode has separate Whole Week or Individual Day programming to allow you to change the daily set point 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 (M, TU, W, TH, F, 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 set point times or temperatures that you may wish to change.
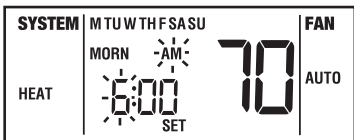
2 PROGRAMMING USER SETTINGS *cont.*

**Entering Your Program–7 DAY, Residential Mode** *(continued)*

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 set point times and temperatures. If so, the set point time and temperature of the individual set point will be displayed.*

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

Programming Instructions–7 DAY, Residential Mode
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** set point of the "Whole Week" will be displayed. The display will show **M, TU, W, TH, F, SA, SU** to indicate the whole week is being programmed. The hour portion of the set point time and the **AM/PM** indicator will be flashing.
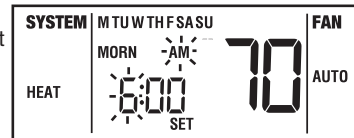
NOTE: *If Auto Changeover is enabled in the installer options, the heating and cooling programs share time and fan settings. If a setting is made in either heating or cooling which violates the dead band, the opposite mode will adjust up or down automatically to maintain the dead band spacing (see section 3.2).*

Programming Instructions–7 DAY, Residential Mode *(continued)*

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 set point 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 set point 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 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** set point time and temperature. You will see the hour portion of the set point time and the **AM/PM** indicator will be flashing.

7. Follow steps 3 through 6 to set the set point 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 set point times and temperatures and fan mode for the **COOL** mode.
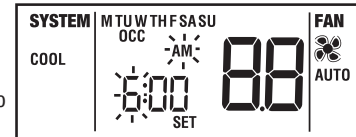
NOTE: *Press the SYSTEM button to select COOL to set program.*

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

Entering Your Program–7 DAY, Commercial Mode

1. Press the **PROG** button to enter the Program setting mode. Press the **SYSTEM** button to select **HEAT** to set heating times and temperatures. OCC (occupied) set point of the "Whole Week" will be displayed. The display will show **M, TU, W, TH, F, SA, SU** to indicate the whole week is being programmed. The hour portion of the set point 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 set point 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 set point 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** set point time and temperature. Again, you will see the hour portion of the set point time and the **AM/PM** indicator will be flashing.

7. Follow steps 3 through 6 to set the set point times and temperatures and fan mode for **UNOCC** (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 set point 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.
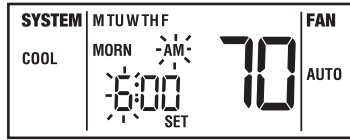
2 PROGRAMMING USER SETTINGS *cont.*

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

Weekday – allows you to program all the weekdays (M, TU, W, TH, F will show in display) at the same time. Allows programming times and temperature settings for four set points (MORN, DAY, EVE and 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 set points (MORN, DAY, EVE and 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** set point of the Weekday Program Group will be displayed. The display will show **M, TU, W, TH, F** to indicate the Weekday group is being programmed. The hour portion of the set point 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 set point 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 set point temperature to the desired setting in 1º increments. 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.*

5. Press the ∧ or ∨ button to select **AUTO** or **ON**. Press the **PROG** button. The thermostat will now display the DAY set point time and temperature. Again, you will see the hour portion of the set point time and the **AM/PM** indicator will be flashing.
6. Follow steps 3 through 5 to set the set point times, temperatures and fan mode for the periods of **DAY, EVE** and **NIGHT**.

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2 PROGRAMMING USER SETTINGS *cont.*

Entering Your Program – 5-2 DAY Residential Mode *(continued)*

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** set point time and the **AM/PM** indicator will be flashing.
8. Follow steps 3 through 6 to set the set point time, temperatures and fan mode for the periods of **DAY, EVE** and **NIGHT**.
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 set point times, 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: *If you make an error and want to start over, you may erase all programs. 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. A reset will also clear any changes to the differential settings made in section 2.4.1.*

3 ADDITIONAL OPERATION FEATURES

3.1 Review/Change Set Temperature, Non-Programmable Mode

1. Press and hold the ∧ or ∨ button. The current set point 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 one second or longer will allow the user to change the current set point temperature.
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 set point temperature.

15
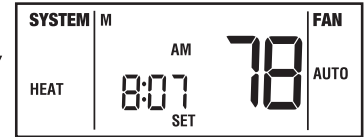
3 ADDITIONAL OPERATION FEATURES *cont.*

4. The display will return to normal mode after 30 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. If you plan on using Auto mode, make changes to the heat and cool settings, then switch to AUTO (see section 3.2).*

NOTE: *If a Heat Limit is set in the Installer Settings, the heating set point cannot exceed that limit. If a Cool Limit is set in the Installer Settings, the cooling set point value cannot be less than that limit. If the temperature is adjusted beyond limits, the temperature in the display will flash as long as the ∧ or ∨ button is held.*

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 set points. 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 of the Installer Guide). The default is 3º F (1.5º C). Therefore, there is 3º F between the highest HEAT set point and the lowest COOL set point. For example, if the highest HEAT set point was 72º F, the lowest COOL set point 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 Braeburn® Remote Indoor Sensor (if installed)

The Braeburn Remote Indoor Sensor senses the air temperature at a remote location and sends the information to the 5400 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 Remote Outdoor Sensor (if installed)

The Braeburn® Remote Outdoor Sensor is used for determining if balance points have been exceeded, humidity control and for outdoor temperature display. It is not used for room temperature control. If an outdoor sensor has been installed, the outdoor temperature can be displayed by pressing the **HOLD** key and the **PROG** key at the same time. The display will return to the normal mode after the buttons are released.

3.5 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 set point 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 set point 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 (**OCC, UNOCC** 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 set point time occurs, or after the maximum time set in section 2.4.7, 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 set point 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 set points are set.*

NOTE: *If a Heat Limit was set in the Installer Options, the heating set point cannot exceed that limit. If a Cool Limit was set in the Installer Options, the cooling set point cannot be less than that limit.*

3 ADDITIONAL OPERATION FEATURES *cont.*

3.6 Extended Hold (Vacation) Mode

1. Press the **HOLD** button to bypass the program schedule. The current set point temperature will be held until the HOLD condition 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 number 2 above, or is limited to 24 hours if the default was changed during programming of user settings (section 2.4.5).

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

3.7 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.
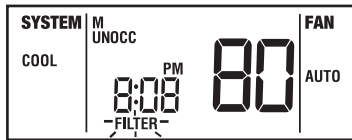
3.8 UV Light Monitor (see section 2.4.3 for setting)

The UV Light Monitor displays a reminder for required replacement of the bulb by flashing the UV segment in the display. See instructions provided with your UV source for recommendations on interval setting. When the selected interval has been reached and required replacement has been performed, press the **RETURN** button in any normal mode to reset the timer and turn off the warning.
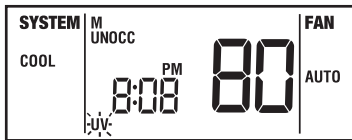
3 ADDITIONAL OPERATION FEATURES *cont.*

3.9 Humidifier Pad Monitor (see section 2.4.4 for setting)

The Humidifier Pad Monitor displays a reminder for required replacement of the humidifier pad by flashing the **HUMID PADS** 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 service has been performed, press the **RETURN** button in any normal mode to reset the timer and turn off the warning.
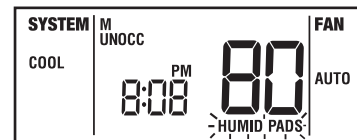
Figure A

3.10 To Lock or Unlock the Keypad

Press and hold both the ∧ and ∨ buttons at the same time. Lock will flash. Continue to hold the ∧ and ∨ buttons for 5 seconds. The display will change to 000 as shown in Figure A. The factory code is 555. Using the ∧ button, change the first digit to 5 and press the **RETURN** button. Using the same buttons (∧ and **RETURN**), change the second and third digit to 5. Pressing **RETURN** on the 3rd digit does the following: the keypad will change to lock if it was locked, or unlock if it was locked (Figure B). If the incorrect code is entered, the display will show "**no**" (Figure C). See section 2.4.8 for instructions on how to add a new unlock code.

Figure B

Figure C
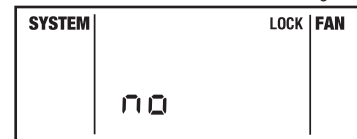
3 ADDITIONAL OPERATION FEATURES *cont.*

3.11 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 set point after a setback period is completed, and helps assure 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 set point temperature is lower than the upcoming program set point temperature, or the current (cooling) program set point temperature is higher than the upcoming program set point temperature. This feature can be turned off during Installer Setup (see section 4 of the Installer Guide).

During ARM™, room temperature is recovered gradually by turning on the heating or cooling before the end of the setback 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 and 3rd stage heating or cooling. The set point 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 set point temperature. The recovery to the upcoming heating set point starts 10 minutes before the upcoming set point time for each degree of temperature change required, up to a maximum of 2 hours. The recovery to the upcoming cooling set point starts 15 minutes before the upcoming set point 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 of the Installer Guide).

3 ADDITIONAL OPERATION FEATURES *cont.*

3.12 Recirculating Fan Feature (see section 2.4.9)

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.
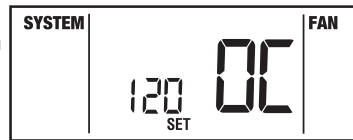
3.13 Programmable Independent Fan Control

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 of the Installer Guide).

3.14 Auxiliary Heat Fossil Fuel Switch

This thermostat is equipped with an auxiliary heat option which is set by the installer 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 compressor stage will be locked out one minute after a second stage heat call, and the second stage will only be used. The proper operation of this function is preprogrammed into this thermostat. No user changes are necessary.

3 ADDITIONAL OPERATION FEATURES *cont.*

3.15 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 (see section 4 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.

If enabled during Installer Setup (see section 4 of the Installer Guide), this thermostat also provides cold weather compressor protection by locking out the compressor stage(s) 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 set point 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 or 3 Stage Heat Pump Systems.*

During a power loss, the thermostat will display an outage warning if enabled during Installer Setup (see section 4 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.*

3.16 Temporary Override Adjustment Limits (see section 2.4.7 for settings)

The Temporary Override Adjustment Limits limit how much the thermostat can be adjusted from the program set points when the thermostat is used in the programmable mode. This will not allow the user to set a temporary override in the heat or cool mode past the limit from the program set points.
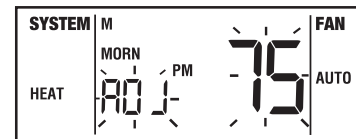
The Temporary Override Adjustment Limits can only be used in the non-programmable mode when the security level is at level 1. This will not allow the user to temporary override in the heat or cool mode past the limit from the program set points.

3.17 Humidification and Dehumidification

If the thermostat is connected to a whole house humidifier and humidity control is enabled in the installer options, the 5400 can be used to control the humidity level during the heating season. The current room humidity and the humidity set point can be displayed by pressing the **PROG** and **DAY/TIME** button at the same time. If either the ∧ or ∨ button is pressed before the unit returns to the normal mode (in 15 seconds), the humidification set point changes while **SET** flashes. Pressing the **PROG** button before the unit returns to the normal mode sets the dehumidification set point, if dehumidification control is enabled in the installer options. If dehumidification is not enabled, then the unit will return to the normal mode in 15 seconds after the last ∧ or ∨ button press.

If dehumidification control is enabled in the installer options, the air conditioning system can be used to reduce humidity during the cooling season. If the room humidity level is above the dehumidification set point, the air conditioning system may run until the room temperature is several degrees lower than the cooling set point, or until the room humidity level reaches the dehumidification set point (which ever comes first).

3 ADDITIONAL OPERATION FEATURES *cont.*

3.17 **Humidification and Dehumidification** *(continued)*

If both humidification and dehumidification control are not enabled, the current room humidity level can still be displayed by pressing the **PROG** and **DAY/TIME** buttons at the same time. The unit will return to the normal mode in 15 seconds.

NOTE: *If Automatic Humidity Limiting was enabled in the installer options, the humidification set point may be automatically adjusted to compensate for changes in outdoor temperatures.*

3.18 **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 solid low battery indicator will appear in the display for 30 days. It is recommended that the batteries be replaced immediately to maintain system operation and / or clock settings.
If the battery continues to be low, the indicator will flash every 2 seconds for 30 days. After 30 days the battery indicator will start to flash every 1 second until the batteries are replaced.

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.

<div align="center">24</div>
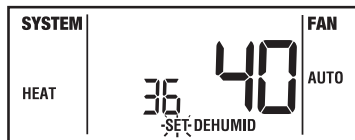
4 TROUBLESHOOTING

Symptom: *Fan continues to run in cooling mode when the system has turned off.*
Potential Solution: 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 of the Installer Guide).

Symptom: *Thermostat does not turn on heating or cooling system.*
Potential Solution: 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 several seconds.

Compressor protection features may be in effect due to compressor short cycle conditions, power outages or rolling blackouts. See section 3.15 for full explanation of this feature.

Heat pump may be malfunctioning. Look in the lower left corner of the thermostat display. If the word **CHECK** is present, 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 may start the Emergency Heat source to provide heating until the heat pump can be serviced.

Symptom: *Thermostat turns on heating instead of cooling, or cooling instead of heating.*
Potential Solution: 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).

Symptom: *Fan runs intermittently or when system is off.*
Potential Solution: This is normal operation when fan switch is in recirculate ( ) mode.

Symptom: *System turns on prior to the end of a setback period.*
Potential Solution: Thermostat is in Adaptive Recovery Mode (see section 3.11).

Symptom: *Thermostat turns heating or cooling system on too often or not often enough.*
Potential Solution: Increase or decrease first stage temperature differential setting as appropriate to provide the desired performance level (see section 2.4).

<div align="center">25</div>

4 TROUBLESHOOTING *cont.*

Symptom: *Thermostat will not follow program set points.*
Potential Solutions: Check current time of day, day of week program settings. Verify AM/PM indicator is accurately displaying desired time settings (see section 2.1).

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 set point time entries.

Thermostat program has been temporarily overridden. Wait until next set point and the temporary override will expire or change set point 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.

Symptom: *System does not automatically switch from Heating to Cooling.*
Potential Solutions: Auto Changeover was not selected or enabled during installer set-up (see section 4 of Installation Guide and section 3.2 of this manual). Program temperature was changed due to dead band violation (see section 3.2).

Symptom: *Thermostat turns on second or third (auxiliary) stage of heating or cooling too quickly or not quickly enough.*
Potential Solution: Increase or decrease second or third (auxiliary) stage temperature differential setting as appropriate to provide the desired performance level (see section 2.4).

Symptom: *Low battery indicator is shown in thermostat display.*
Potential Solution: Replace back-up batteries as soon as possible (see section 3.18).

Symptom: *Fan runs constantly or for long periods of time.*
Potential Solutions: Fan control is set to ON. Fan control is set to PROG and is programmed to be on.

Symptom: *Cannot program a set point temperature lower than 45˚ F (7˚ C).*
Potential Solution: This is below the normal thermostat temperature setting range of 45˚ to 90˚ F (7˚ to 32˚ C).

4 TROUBLESHOOTING *cont.*

Symptom: *HI is shown in the thermostat display where the room temperature is normally displayed.*
Potential Solutions: The temperature sensed by the thermostat is higher than the 99˚ F (37˚ C) upper limit of the thermostat's 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.

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.

Symptom: *The room is too warm or too cold.*
Potential Solution: See section 3.1 of this manual to verify the current set point and make any modifications that are necessary.

Symptom: *Thermostat display is blank.*
Potential Solutions: 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 sections 3.18 and 2.5 of this manual. If AC Power is present, call a professional service technician to verify thermostat and system performance.

Symptom: *Cannot program a set point temperature higher than 90˚ F (32˚ C).*
Potential Solution: This is above the normal thermostat temperature setting range of 45˚ to 90˚ F (7˚ to 32˚ C).

Symptom: *Thermostat will not allow me to change the set point.*
Potential Solution: 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 3.10). The time segments will turn to zeros. Enter the 3 digit code programmed in section 2.4.8 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**".

Symptom: *Keypad does not function.*
Potential Solution: Keypad is locked (check for **LOCK** segment in display).

4 TROUBLESHOOTING *cont.*

Symptom: *LO is shown in the thermostat display where the room temperature is normally displayed.*
Potential Solutions: The temperature sensed by the thermostat is lower than the 40° F (5° C) lower limit of the thermostat's 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 in order to provide proper heating control once installed.

Symptom: *Fan continues to run all the time whether the system is on or off.*
Potential Solution: Verify that the fan is programmed to run in **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).

Symptom: *Unit will not enter program mode.*
Potential Solution: Non-Programmable mode was selected during Installer Setup (see section 4 of the Installer Guide).

Symptom: *Air conditioning stays on after set point is reached.*
Potential Solution: Dehumidification control is enabled (see section 3.17).

Symptom: *Temporary override of the program set point is limited.*
Potential Solution: Override limit was set in user options (see section 2.4.7).

Symptom: *Heating or cooling set point cannot be raised above a certain limit.*
Potential Solution: Set point limit was set in installer options.

Symptom: *Heating or cooling system turns on ahead of scheduled program times.*
Potential Solution: Adaptive recovery mode was enabled in installer options.

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5 YEAR LIMITED WARRANTY

Store this booklet for future reference

Braeburn Systems LLC warrants each new Braeburn thermostat against any defects that are due to faulty material or workmanship for a period of five years after the original date of purchase by a professional service technician. This warranty and our liability does not apply to batteries, nor does it include damage to merchandise or the thermostat resulting from accident, alteration, neglect, misuse, improper installation or any other failure to follow Braeburn installation and operating instructions.

Braeburn Systems LLC agrees to repair or replace at its option any Braeburn thermostat under warranty provided it is returned postage prepaid to our warranty facility in a padded carton within the warranty period, with proof of the original date of purchase and a brief description of the malfunction. This limited warranty does not include the cost of removal or re-installation.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state or province to province. Answers to any questions regarding our limited warranty may be obtained by writing our corporate offices.

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Attn: Warranty Department
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Montgomery, IL 60538

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630-844-1968 (Outside the U.S.)