Thermostat With Humidity Control
Digital 7-Day Programmable

EMERSON
Climate Technologies

WHITE-RODGERS

90 Series™

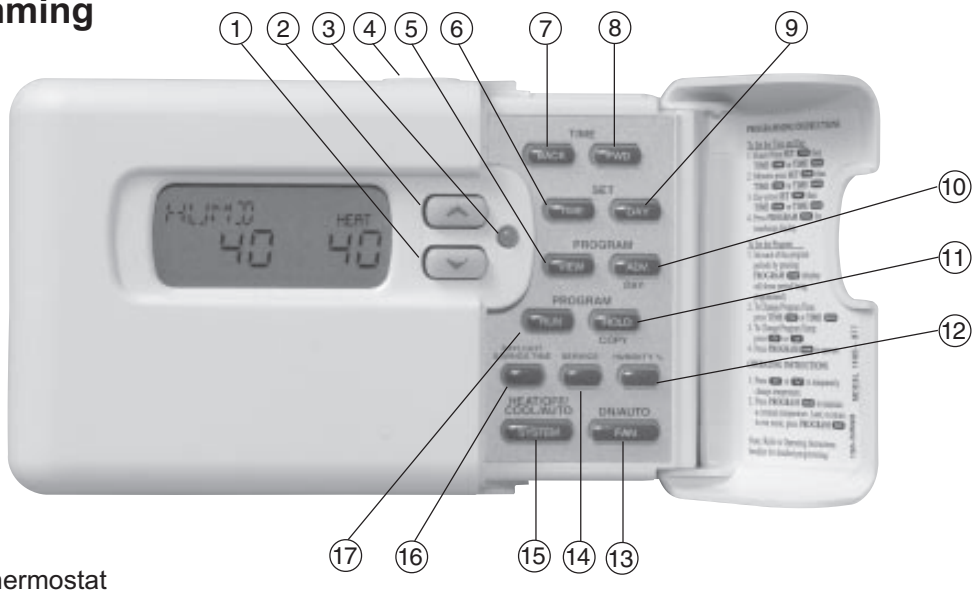
PREMIUM

1F95-391

Operating Instructions
Retain for Future Use

WHITE-RODGERS

Easy, Menu-Driven Set-Up and Programming



Premium options
to customize the thermostat
to fit your application.

ORIENTATION

THE THERMOSTAT BUTTONS

See inside front cover for illustration showing button locations.

1 (Blue arrow) Lowers temperature setting (45°F or 7°C minimum)

2 (Red arrow) Raises temperature setting (99°F or 37°C maximum)

3 The multi-color indicator glows: green for 1st stage, yellow for 2nd stage, flashing yellow for 3rd stage, red for emergency heat and flashing red for malfunction condition in system.

4 This button (on top of the cover) lights the display.

5 Used to initiate or review thermostat programming or advance to next program period in programming mode.

6 Used with **TIME** FWD **/TIME** BACK to set the clock.

7 Used to adjust the time backward, or to select the previous menu item.

8 Used to adjust the time forward, or to select the next menu item.

9 Used with **TIME** FWD **/TIME** BACK to set the current day.

10 Used to advance operation to the next program period or advance to the next day in programming mode.

11 Used to manually override programming to hold at a selected temperature.

12 Used to view ambient humidity or modify humidity setting.

13 Selects fan operation (see The Display page **3**). This button is also used to program the fan to run continuously during a program period.

14 Used to enter the service menu to change or reset humidifier, air filter, UV bulb, and service timers.

15 Sets the system mode (**HEAT**ing, **EMER**gency (Heat Pump models only)**, OFF**, **COOL**ing, or **AUTO**matic changeover).

16 Used to adjust the clock one hour forward or back.

17 Used to start or return to program operation.

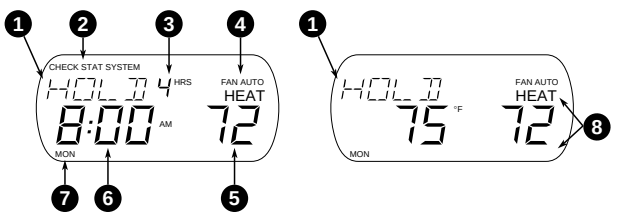
LARGE LIGHTED (LCD) DISPLAY

The thermostat display alternately shows the current time and the current temperature on the left side. The display also shows the temperature you have programmed or set on the right side of your screen.

❶ Display system mode (**OFF**, **AUTO**, **HOLD**, **VACA** or **HUMD**). During programming displays the time period (**MOR**, **DAY**, **EVE**, **NHT**) being programmed. In the configuration menu, the menu item name is shown, one word at a time (**PRGM MODE**, **EMR**, **COOL FAN DELA OFF**, etc.).

❷ **CHECK STAT** appears when the thermostat detects certain problems within itself. **CHECK SYSTEM** appears when the themostat detects certain problems in the heating/cooling or humidity system.

❸ Indicates the length of time remaining in a temporary hold condition. Also indicates the length of time remaining in **VACATION** mode.



❹ Displays **FAN ON** when the fan is operating continuously. Displays **FAN AUTO** when the fan cycles with the heating or cooling system.

❺ Displays the setpoint temperature. In **HUMD** mode, shows humidity setpoint.

❻ Alternately displays room temperature and time of day. In **HUMD** mode, shows actual humidity.

❼ Shows the current day of the week. When programming, shows the day(s) being programmed.

❽ The word **HEAT** or **COOL** will appear above or below the setpoint if area ❶ is needed to display other information.

INTRODUCTION

Thank you for purchasing your new White-Rodgers 90 Series thermostat with humidity control. White-Rodgers has been producing energy saving controls for over 60 years. We have been designing and producing the White-Rodgers 90 Series family of electronic programmable thermostats since 1982. White-Rodgers 90 Series is the third generation of the electronic programmable family. We believe you will find that the White-Rodgers 90 Series is the most user friendly and technologically advanced thermostat and humidity control available today.

You will find information about thermostat buttons (page 1) and display beginning on page 2.

Use the tabs at the bottom of the page to quickly locate sections.

CONFIGURATION

The configuration menu allows you to set thermostat operating characteristics to your system or personal requirements.

To enter the menu, press **TIME** FWD and **TIME** BACK once at the same time. Press **TIME** FWD to advance through the menu options. Press arrow keys to change options.

User Configuration Menu

Step	Press Button(s)	Displayed (Factory Default)	Press ^ or v to select:	COMMENTS	Ref Page
1	TIME FWD	0 °F (0)	5 LO to 5 HI	Adjusts temperature display higher or lower.	6
2	TIME FWD	EMR (ON)	OFF ON ON L	Selects EMR option ON or OFF or ON L.	6
3	TIME FWD	RH (0)	20 LO to 20 HI	Adjusts humidity display.	7
4	TIME FWD	DRY (OFF)	LO or HI to OFF	To reduce or eliminate condensation during cold weather. Use LO setting first, if condensation persists use HI setting.	7
5	TIME FWD	OPTM CMFT (ON)	OFF	Enables improved dehumidification in cooling mode if humidity is above setting.	7
6	TIME FWD	OPTM DHUM (OFF)	ON	Available if OPTM CMFT is ON. Provides extra dehumidification if humidity is above setting. May reduce temperature setpoint by up to 3 degrees.	8

User Configuration Menu (Continued)

7	**TIME** FWD	(°F)	°C	Adjusts temperature display between °F or °C	8
8	**TIME** FWD	SET FAN (0)	0 HRS (OFF) to 6 HRS	Set Fan (one shot) option. Set the duration of the one shot option.	8
9	**TIME** FWD	BEEP (ON)	OFF	Turns beeper ON or OFF.	8
10	**TIME** FWD	HEAT FAST (ON)	OFF	ON allows second stage to energize if setpoint is raised 3 or more degrees. OFF (economy) minimizes second stage operation on setpoint changes.	8
11	**TIME** FWD	COOL FAST (OFF)	OFF	ON allows second stage to energize if setpoint is lowered 3 or more degrees. OFF (economy) minimizes second stage operation on setpoint changes.	9
12	**TIME** FWD	REMT SEN A (OFF)	ON	Enables Remote Sensor A (connected to SA).	9&10
13	**TIME** FWD	REMT SEN B (OFF)	ON	Enables Remote Sensor B (connected to SA).	9&10
14	**TIME** FWD	REMT SEN C (OFF)	ON	Enables Remote Sensor C (connected to SA).	9&10
15	**TIME** FWD	STAT SEN L (ON)	OFF	OFF Disables Thermostat Sensor. (Only available if remote sensor A, B, or C is connected).	9&10

User Configuration Menu (Continued)

16	**TIME** FWD	TEMP OUT (OFF)	ON	Enables outdoor temperature sensor. Requires optional F145-1378 outdoor sensor.	10

CONFIGURATION MENU FEATURES

Adjustable Temperature Display.

(User menu, Item 1), The room temperature display can be adjusted to read higher or lower by following the User menu and adjusting the temperature to a higher or lower value. The thermostat is calibrated at the factory to display a very accurate room temperature, but due to various conditions and/or personal preference, you may wish to adjust the thermostat display higher or lower (up to 5°F). For example, if the thermostat displays a room temperature of 70° and you want it to display **73**° the display can be adjusted to read **73**°. To adjust, refer to the **CONFIGURATION** section (page 5, step 1).

Selectable Energy Management Recovery (EMR).

(User menu, Step 2) EMR causes the thermostat to start operating the system early in order to make the building temperature reach your program setpoint at the time you specify. In multistage heating, the thermostat will start 8 minutes early for every 1°F difference between the room temperature and the next programmed temperature. In cooling and heat pump applications, the thermostat uses 15 minutes per °F. For heating applications in large buildings where extra time to reach the set temperature may be desired, EMR Long may be selected. When **EMR ON L** is selected in the user menu (page 5, item 2) the thermostat uses 15 minutes per °F. EXAMPLE: If the temperature in the room is 65°F and the thermostat is programmed for 70°F at 7 AM, the thermostat will start approximately 40 minutes early. The difference between the room temperature (65°F) and the setpoint (70°F) is 5° and 5° X 8 minutes per °F = 40 minutes. The setpoint on the display will actually change to display 70° about 40 minutes early. The maximum time the thermostat can start early in heating is 75

minutes (or 3 hours, 45 minutes if **EMR ON L** is selected). The maximum time in cooling and heat pump applications is 3 hours and 45 minutes. Cooling or heat pump applications start earlier because it takes longer to reach the desired temperature. This feature also minimizes the use of the auxiliary stages if conditions are such that the compressor stages are adequate to reach the desired setpoint. To select or deselect this feature, refer to the CONFIGURATION section (page 4, step 2).

Adjustable Humidity Display (RH)

(User Menu step 3) The room humidity display can be adjusted to read higher or lower by following the configuration menu and adjusting the humidity to a higher or lower value. The thermostat is calibrated at the factory to display a very accurate room humidity, but due to various conditions and/or personal preference, you may wish to adjust the thermostat display higher or lower (up to +/- 20%). For example, if the thermostat displays room humidity of 40% but you want it to display 43% you can adjust it. To adjust, refer to the **CONFIGURATION** section (page 4, step 3).

Programmable Automatic Humidity Reduction (DRY)

(User Menu step 4)

This feature automatically lowers humidity setting when the outside temperature drops. This is to prevent the interior windows/walls from reaching the dew point where water condenses on surfaces. To achieve automatic humidity reduction, the thermostat lowers the humidity when furnace cycles are long. When the furnace runs shorter cycles, it increases humidity. For suggested settings see table below.

Programmable Dehumidification Optimal Comfort Mode (OPTM CMFT)

(User Menu step 5) When turned on this feature automatically reduces indoor humidity during calls for cooling if humidity is 2% above setting. Humidity is set by pressing the Humidity button when in the appropriate mode, in this case Cooling, and pressing the ^ or v buttons to set desired humidity (range 40 to 95) level followed by pressing Run Program. This dehumidification feature uses less energy by maintaining temperature and dehumidifying only when a call for Cooling is required.

Programmable Dehumidification Optimal Dehumidification Mode (OPTM DHUM)

(User Menu step 6) When turned on this feature automatically reduces indoor humidity if humidity is 2% above setting. Humidity is set by pressing the **HUMIDITY** button when in the appropriate mode, in this case Cooling, and pressing the ^ or v buttons to set desired humidity level followed by pressing RUN **PROGRAM**. This dehumidification feature may use more energy by making dehumidification a priority initiating a call for cooling if humidity is 2% above desired setting. This feature may also over-cool the condition space by up to 3 degrees to achieve the desired humidity level.

Fahrenheit or Celsius Temperature Display.

(User menu, Step 7) This thermostat is factory set to display temperature in Fahrenheit. If you prefer, you may configure the thermostat to display Celsius. See the **CONFIGURATION** Section, page 4.

Single Period Fan Control.

(User menu, Step 8) This feature allows you to have the fan run for a predetermined period of time by pressing the **FAN** key twice within 1.5 seconds. If a time is set in the User menu (page 4, step 8) the display will show **FAN**, # **hrs** and **PRG FAN ON** for six seconds. After six seconds the display will continue to indicate **PRG FAN ON** for the time period selected. After this time period, the fan will return to normal operation. To return the fan to normal operation before the end of the time period, press the **FAN** button.

Beeper on.

(User menu, Step 9) The thermostat has a beeper that will emit a tone when any key is pressed. In the user menu, the **BEEP** feature can be turned **OFF** using ^ or v to provide silent key operation.

Heat Fast.

(User menu, Step 10) This feature, when set to **ON**, will bring the second stage of heating on any time you manually raise the temperature three or more degrees above room temperature. If **HEAT FAST** is set to **OFF**, the thermostat will delay the second stage from 0 to 30 minutes based on how well the first stage is keeping up with your setting.

Cool Fast.

(User menu, Step 11) This feature, when set to **ON**, will bring the second stage of cooling on any time you manually lower the temperature three or more degrees below room temperature. If **COOL FAST** is set to **OFF**, the thermostat will delay the second stage from 0 to 30 minutes based on how well the first stage is keeping up with your setting.

Optional Remote Temperature Sense.

(User menu, Step 12,13,14,15) Up to three remote sensors (F145-1328) can be attached to this thermostat to sense indoor temperature at locations away from the thermostat. Each sensor may be located as far as 300 feet away from the thermostat. This is an excellent feature if the thermostat is in a poor location for sensing temperature or if you want to install the thermostat in a separate room to prevent tampering. After installing and connecting the remote sensor(s) to the thermostat, the installer can enable each remote indoor temperature sensor (A, B, and/or C). When operating with remote sensor(s), the thermostat will calculate an average of the sensed temperatures in all enabled sensor locations (A, B, C and/or L), then display the average temperature as the room temperature. The temperature at each remote sensor can be displayed by pressing the light button twice within one second. With the thermostat in program run or hold mode. Temperatures at the outdoor and indoor remote sensors will be displayed with subsequent presses of the light button in the following order (if connected): outdoor sensor, sensor L, A, B, C. You can also assign each sensor different priorities during different program periods. This allows the system to maintain a comfortable environment by giving higher priority to occupied locations. At the same time, giving lower priority to unoccupied locations enhances efficient system operation. EXAMPLE: Your home has bedrooms on the upper level and a guest bedroom on the main level, along with the living room, kitchen, etc. The thermostat (sensor L) is located in the hall on the main level. Remote sensors are located on the upper level (sensor A) and the guest bedroom (sensor B). The lower level would be occupied in the **DAY** and **EVE** periods. The upper level would be occupied in the **NHT** and **MOR** periods. With no guest in the guest bedroom, the sensors could be programmed as follows:

	SENSOR		
	L	A	B
MOR	AVG	HI	LO
DAY	HI	AVG	LO
EVE	HI	AVG	LO
NHT	AVG	HI	LO

In the **MOR** and **NHT** periods, the sensor on the upper level (sensor A) has more priority than the lower level (sensor L), so the system will operate to keep the temperature at the set point in the upper level. In the **DAY** and **EVE** periods, the lower level has the higher priority, so the system will operate to keep the temperature at the set point on that level. The sensor in the guest bedroom has the lower priority of the sensors. If there is a guest, the sensor in that room (sensor B) should be changed to **AVG** or **HI** for periods when that room will be used. To assign priority to a sensor, press **PROGRAM** VIEW to advance the time period you wish to modify, then press the **HUMIDITY** button. On the display in place of period of day (MOR, DAY, EVE, NHT) the priority of the sensor and the sensor identification will appear. Press the **HUMIDITY** button to step through the sensors that are installed and enabled **L** (local), **A**, **B** or **C**. Only sensors that are installed and enabled will be listed. When the sensor you wish to change is displayed, press the **DAYLIGHT SAVING TIME** key to change the priority (**AVG**, **HI** or **LO**). **AVG** is the default setting. A setting of **HI** gives a sensor more importance and a setting of **LO** gives less importance.

Outdoor Temperature Sense.

(User menu, Step 16) A remote sensor (F145-1378) may be installed for outdoor temperature measurement. The sensor must be properly connected and enabled using the User menu. The display shows the outdoor temperature from -40° to 140°F by pressing the light button twice within one second when the thermostat is in program run or hold mode.

KEYPAD LOCKOUT MENU

The keypad lockout menu allows you to partially or totally lock out the keypad depending on your system or personal requirements. To enter the keypad lockout menu you must first enter the User Menu, while in the User Menu press **TIME** FWD and **TIME** BACK the same time for at least one second. Press **TIME** FWD to advance through the menu options.

Keypad Lockout Menu (Must be in User Menu to enter Keypad Lock Menu- press and hold Time FWD and Time BACK for one second or more).

Step	Press Button(s)	Displayed (Factory Default)	Press ^ or v to select:	COMMENTS	Ref Page
1	TIME FWD	PART LOCK (OFF)	ON	ON Disables all keypad functions except Temp Up and Down. User may temporary override within lowest programmed setpoint in cooling and highest programmed setpoint in heating.	10 & 11
2	TIME FWD	LOCK (OFF)	ON	ON Disables all keypad functions.	10 & 11

Press arrow keys to change options. Choose one of the two keypad locks to prevent unauthorized tampering with the program. Two levels of security are available, **Total Keypad Lockout** or **Partial Keypad Lockout**. Total Keypad Lockout renders all buttons inoperative. Partial Keypad Lockout allows only the ^ or v buttons to operate for temporary temperature overrides. It also limits the temperature to the maximum heating and minimum cooling temperatures used in your program. This is especially useful in buildings where unscheduled events are common. Anyone can change the temperature, but only between the temperatures you set and only for the number of hours you specify if you set up your Hold Till timing (see **"Temporary Program Override"** (page 18).

PROGRAMMING

MANUAL OPERATION

(Bypassing the Program)

Your White-Rodgers 90 Series thermostat can be used to control temperature manually (without programming). For manual operation, press SYSTEM to select **HEAT** or **COOL,** then press **PROGRAM** HOLD Use ^ or v to set the temperature as desired.

PROGRAMMED OPERATION

Planning Your Program

The sample schedule (pages 14 & 15) shows the factory-installed programs for heating and cooling. The heating and cooling programs are separate, and must be programmed individually. To use the factory program, set the clock and press **PROGRAM** RUN with the thermostat set to **Heat, Cool**, or **Auto**. Fill out the blank schedules (pages 16 & 17) with the time and temperatures you want in **your** program. Fill in every space for your program.The same temperature can be repeated more than once if you do not want the temperature to change over several time periods. This is useful for homes or businesses that are occupied all day and only want a setback temperature at night.

Entering Your Program

To Set the Clock:

1. Press **PROGRAM** RUN.
2. Press **SET** TIME. The display will show the hour. Use **TIME** FWD or **TIME** BACK to set to the current hour and AM/PM designation.
3. Press **SET** TIME again. The display will show minutes. Use **TIME** FWD or **TIME** BACK to set to the current minutes.
4. Press **PROGRAM** RUN.

To Set the Day:

5. Press **SET** DAY. The display will indicate a day of the week. Use **TIME** FWD or **TIME** BACK to set to the current day of the week.
6. Press **PROGRAM** RUN.

To Set the Program:

7. Press the SYSTEM button to select **HEAT** (for heating program) or **COOL** (for cooling program).
8. Press **PROGRAM** VIEW one time. The display will show **MOR**, the settings for time and temperature and **MON**.

9. If you program Monday the first time you press **PROGRAM** VIEW it will be copied to the rest of the week. To program the other days of the week press ADV. **DAY** to until you reach the day you wish to change and follow Steps 10, 11 & 12. You can also copy the program from one day to another. To copy, press HOLD/**COPY**. The display will show **COPY**, and all the other days of week will be flashing. Press HOLD/**COPY** again to copy the day in to the rest of the week or press **TIME** FWD or **TIME** BACK until you reach the day you want to copy to and press HOLD/**COPY**.

10. Press **TIME** FWD or **TIME** BACK to set the time on the display as selected in your **HEATING** or **COOLING SCHEDULE.** Be sure to check the AM or PM on the display.

11. Press the ^ or v button to adjust the temperature to match your schedule. If you want the fan **ON** continuously during this period, press the FAN button.

12. Press **PROGRAM** VIEW one time. **MOR** on the display will change to **DAY**. Repeat steps 10 and 11 to enter time and temperature for this period.

13. Press **PROGRAM** VIEW to continue through the entire schedule, entering time and temperature for each period. When you are satisfied that your program matches your schedule, press **PROGRAM** RUN. Programming is now complete for this mode and your program is running.

14. To program the other mode, repeat the procedure from step 6.

7-Day Sample HEAT Program Schedule
(Shows factory programming)

	❶		❷		❸		❹	
	❺	❻	❺	❻	❺	❻	❺	❻
MON	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
TUE	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
WED	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
THU	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
FRI	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
SAT	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)
SUN	6:00 AM	70°F (21°C)	8:00 AM	62°F (16°C)	5:00 PM	70°F (21°C)	10:00 PM	62°F (16°C)

❶ Morning (MOR)
❷ Day (DAY)
❸ Evening (EVE)
❹ Night (NHT)
❺ Start Time
❻ Temperature

7-Day Sample COOL Program Schedule
(Shows factory programming)

	❶		❷		❸		❹	
	❺	❻	❺	❻	❺	❻	❺	❻
MON	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
TUE	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
WED	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
THU	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
FRI	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
SAT	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)
SUN	6:00 AM	78°F (25°C)	8:00 AM	85°F (29°C)	5:00 PM	78°F (25°C)	10:00 PM	82°F (27°C)

❶ Morning (MOR)
❷ Day (DAY)
❸ Evening (EVE)
❹ Night (NHT)
❺ Start Time
❻ Temperature

7-Day Personal HEAT
Program Schedule

	❶		❷		❸		❹	
	❺	❻	❺	❻	❺	❻	❺	❻
MON								
TUE								
WED								
THU								
FRI								
SAT								
SUN								

❶ Morning (MOR)
❷ Day (DAY)
❸ Evening (EVE)
❹ Night (NHT)
❺ Start Time
❻ Temperature

7-Day Personal COOL
Program Schedule

	❶		❷		❸		❹	
	❺	❻	❺	❻	❺	❻	❺	❻
MON								
TUE								
WED								
THU								
FRI								
SAT								
SUN								

❶ Morning (MOR)
❷ Day (DAY)
❸ Evening (EVE)
❹ Night (NHT)
❺ Start Time
❻ Temperature

FEATURES

Pushbutton Backlight

The large numbers and letters on your LCD screen make it easy to see. In low light conditions, press the button on top of the thermostat and the display will light up for three seconds. For ten minutes after pressing the light button, pressing any other button will light the display for ten seconds.

Factory Preprogramming

This thermostat has been programmed at the factory. The chart in the programming examples section lists these factory settings. If the times and temperatures are the same as your schedule, you may simply run the factory installed program by pressing **PROGRAM** RUN **.**

Temporary Program Override

Any time your program is running and you would like to override it for a specific amount of time, press ^ or v until the temperature you want is displayed. The display will indicate **HOLD**, and the number of hours remaining in the hold period is indicated with the word **HRS**. To adjust the length of time for the override, press **TIME** FWD or **TIME** BACK . **HOLD TILL** will be displayed as well as the HOLD period expiration time. Press **TIME** FWD or **TIME** BACK buttons until you reach the time you would like it to resume the program. The **TIME** FWD or **TIME** BACK buttons adjust the time in 15 minute increments. This programmed hold time has a 19 hour maximum and 15-minute minimum. Beyond 19 hours you may wish to use the vacation hold feature (pages 19 & 20). If you need to, you can adjust the temperature up or down.

Indefinite Program Hold.

If you want to operate the thermostat to keep a set temperature without a program running, press **PROGRAM** HOLD . The temperature Up or Down buttons can be used to raise or lower the temperature. The thermostat will hold the set temperature until you return to the program by pressing **PROGRAM** RUN .

Automatic Heat/Cool Changeover

If you have a heating/cooling system, the thermostat can be set to automatically switch the system from heating to cooling as needed. To set your thermostat to this operating mode, press the SYSTEM button until **AUTO** is displayed on the screen. To change the mode of operation from heating or cooling can be accomplished by pressing the ^ and v buttons at the same time, this will change the setpoint temperature displayed to the setpoint of the other mode. This will allow you to modify both the **HEAT** and **COOL** setpoints to accommodate a **HOLD** condition while in Automatic Changeover mode. **Note**: For proper Automatic Changeover mode the heating setpoint must be at least 1°F lower than the cooling setpoint in each program period. If the heating setpoint is equal to or higher than the cooling setpoint this causes is conflict. The thermostat will indicate a conflict by flashing the setpoint and will resolve the conflict by choosing a heating setpoint that
is an average of the two program setpoints. The cooling setpoint will be two degrees higher than the heating setpoint.

Adjustable Temperature Display

The room temperature display can be adjusted to read higher or lower by following the configuration menu and adjusting the temperature to a higher or lower value. The thermostat is calibrated at the factory to display a very accurate room temperature, but due to various conditions and/or personal preference, you may wish to adjust the thermostat display higher or lower (up to 5°F). For example, if the thermostat displays a room temperature of 70° but you want it to display **73°**, you can adjust it. To adjust, refer to the **USER CONFIGURATION** section (page 4, step 1).

Programmable Fan Control

This feature allows you to have your fan operate continuously through one or more programmed time periods. This is useful if you want constant air circulation in your location during a specific time period. If you do not use this feature, the fan will cycle normally with the heating and cooling system.

Programmable Vacation Time/ Temperature Operation.

The **VACATION** mode allows you to program the thermostat to hold a constant temperature for 1 to 29 days. At the end of the day and time you select, the thermostat will return to

normal program operation. To program the number of days, press the ^ or v to set your temperature then press and release the **SET** DAY button and **VACA HOLD TILL** will be displayed. The display will also show **DAYS** (flashing) and the number **5**. To change the number of vacation days, press **TIME** FWD or **TIME** BACK. Press ^ or v to set the temperature you wish to maintain while away. While still in the vacation mode, set the time you require your program to resume by pressing **SET** TIME once. The current time will display along with the word **HRS** (flashing). Press **TIME** FWD to adjust the time in 15 minute increments. You may wish to select a few hours in advance of your expected return to allow time to reach the desired temperature. Your thermostat is now programmed to hold the temperature you selected through your vacation for HEAT, COOL, or AUTO. After 20 seconds the display will return to time/temperature alternation, and will display **VACA**. Pressing **PROGRAM** RUN cancels this feature and begins running your normal program.

Keypad Lockout.

This security feature allows you to lock out the keypad to prevent unauthorized tampering with the program. Two levels of security are available, **Total Keypad Lockout or Partial Keypad Lockout.** Total Keypad Lockout renders all buttons inoperative. Partial Keypad Lockout allows only the ^ or v to operate for temporary temperature overrides. It also limits the temperature to the maximum heating and minimum cooling temperatures used in your program. This is especially useful in buildings where unscheduled events are common. Anyone can change the temperature, but only between the temperatures you set and only for four hours or the number of hours you specify if you set up your Hold Till timing (see Temporary Program Override, page 18). To select or deselect this feature, refer to the **USER CONFIGURATION** section (page 11, steps 1 and 2).

Thermostat Startup Up After Power Loss.

The user program and installation and configuration settings are stored in permanent memory indefinitely. After a total power loss of 24V to the thermostat for more than 4 hours the clock and day settings will be lost. When power is restored your thermostat will maintain a heating temperature of 62°F and a cooling temperature

of 85°F. If this happens, set the clock and day of the week (using steps 1 through 6 from "Entering Your Program", page 12 & 13), then select **HEAT, COOL** or **AUTO** using the SYSTEM button, and press **PROGRAM** RUN to resume operation with your previously set program.

Compressor Short Cycle Protection.

Your thermostat can be configured to protect your system against premature compressor failure by "locking out" the compressor. This ensures that the compressor will stay off for at least five minutes on each cycle. When the thermostat is in compressor lock-out, the word **COOL** will flash. During this period, the compressor will not be energized. See the installation instructions.

Service Button Menu

The Service button allows setting of maintenance reminders for three optional equipment accessories typically used with forced air heating/cooling systems. The three accessories humidifier, air filter, and UV light are designed to enhance indoor air quality. A humidifier will add humidity when conditions would normally make the indoor air uncomfortably dry. Air filters are designed to clean the air through a forced air system. These accessories require routine maintenance to provide optimum performance. The service button maintenance reminders are designed so that they can be customized to the requirements of each accessory. If your system is a forced air system you may have none or all three accessories. The fourth maintenance reminder is for routine servicing of your system by a professional HVAC contractor. The fourth reminder option may be used in lieu of or in conjunction with the other reminders. If you'd prefer having a professional service your system, the Routine Maintenance Reminder is the only reminder you'll need to set. To disable a feature that was previously selected, press **TIME** BACK button to show either **REM PAD TIME, REM FLTR TIME, REM UV TIME, or REM SERV TIME** and then press the ^ or v arrow to turn **OFF**.

Service Button Menu

Step	Press Button(s)	Displayed (Factory Default)	Press ^ or v to select:	COMMENTS
1	**SERVICE**	PAD TIME (OFF) Hrs or REM PAD TIME No. of Hrs	(ON) or (OFF)	Set Humidifier Maintenance Reminder.
2	**TIME** FWD (If PAD TIME is ON)	SET PAD TIME (100) Hrs	25 to 1975	Selects time intervals in increments of 25 hours. The RUN time accumulates when the HM terminal is energized.
3	**TIME** FWD	FLTR TIME (OFF) /Hrs or REM FLTR TIME No. of Hrs	(ON) or (OFF)	Set Air Filter Maintenance Reminder.
4	**TIME** FWD (If FLTR TIME is ON)	SET FLTR TIME (200) Hrs	25 to 1975	Selects time intervals in increments of 25 hours. The RUN time accumulates when the fan is operating.
5	**TIME** FWD	UV TIME (OFF) Days or REM UV TIME No. of Days	(ON) or (OFF)	Selects UV Light Maintenance Reminder.
6	**TIME** FWD (If UV TIME is ON)	SET UV TIME (375) Days	25 to 1975	Selects time intervals in increments of 25 days. The RUN time is the calendar time from when it is entered or reset.

Service Button Menu (Continued)

7	**TIME** FWD	SERV TIME (OFF) Days or REM SERV TIME No. of Days	(ON) or (OFF)	Selects Routine Maintenance Service Call Reminder.
8	**TIME** FWD (If SERV TIME is ON)	SET SERV TIME (175) Days	25 to 1975	Selects time intervals in increments of 25 days. The RUN time is the calendar time from when it is entered or reset.
	PRGM RUN			Returns to Normal Operation.

Humidifier Maintenance Indicator.

This feature allows the thermostat to display the words **CHCK PAD** (check humidifier) after a set time of humidifier operation. This is a reminder to maintain or clean your humidifier. The factory set interval for **CHCK PAD** to be displayed is 100 hours of humidifier operation. This should be adjusted with respect to the humidifier's recommended maintenance schedule.

Air Filter Change-Out Indicator.

This feature allows the thermostat to display the words **CHNG FLTR** (change filter) after a set time of fan operation. This is a reminder to change or clean your air filter. The factory set interval for **CHNG FLTR** to be displayed is 200 hours of fan operation. This can be set anywhere from 0 to 1975 hours in 25 hour increments. A selection of **OFF** will cancel this feature. When **CHNG FLTR** is displayed, you can clear it by pressing the **SERVICE** button. This resets the timer and starts counting the hours until the next filter change. The following steps will allow you to change the number of hours for filter change-out.

1. If you see **CHNG FLTR** on the display, press the **SERVICE** button once to reset the timer. If you do not see **CHNG FLTR** proceed to step 2. When the **SERVICE** button is pressed twice, the display will show the The

number of hours remaining before **CHNG FLTR** indicator will display.
2. Press the **SERVICE** button. The display will show **SET FILTER TIME** and will show the number of hours to filter change.
3. Press **TIME** FWD or **TIME** BACK to change the time to your requirements.
4. Press **PROGRAM** RUN to return to the normal operating mode. **NOTE**: If unsure what interval to use between filter changes or cleaning, contact the manufacturer of your heating/cooling equipment.

UV Bulb Replacement Indicator.

This feature allows the thermostat to display the words **CALL SERV UV** (Call for Service of UV bulb) after a set time of UV bulb operation. This is a reminder to maintain your UV system at optimum level of operation. When enabled the factory set interval for **CALL SERV UV** to be displayed is 350 days of UV bulb operation and can be adjusted in 25 day increments. This should be adjusted with respect to the bulb's recommended maintenance schedule.

Routine Maintenance Reminder.

This feature allows the thermostat to display the words **CALL SERV** (Call for Service) after a set time of system operation. This is a reminder to maintain your system at optimum level of operation. The factory set interval for **CALL SERV** to be displayed is days of system operation. This should be adjusted with respect to your HVAC service company's recommendation. When enabled the default is 175 days and can be adjusted in 25 day increments.

System and Thermostat Diagnostics.

The display will indicate **CHECK SYSTEM** if the room temperature does not rise within two hours of the call for heat. After two hours the thermostat will quit calling for heat for one minute (this allows some furnaces to reset) and call for heat again. When **CHCK PAD** is displayed, you can clear it by pressing **SERVICE** button. This resets the timer and starts counting the hours until the next humidifier maintenance. The following steps will allow you to change the number of hours for humidifier maintenance.
1. If you see **CHCK PAD** on the display, press the **SERVICE** button once to reset the timer. Press **SERVICE** button again the display will show the number of hours to humidifier maintenance.

2. Press **TIME** FWD or **TIME** BACK to change the time to your requirements.
3. Press **PROGRAM** RUN to return to the normal operating mode. If the temperature still does not rise, it will continue to call for heat. This normally indicates the heating system is not working correctly. You may wish to consult your furnace manufacturer or service person. The display will indicate **CHECK STAT** if one of the following occurs.

• One of the buttons is stuck down or in. Check buttons, make sure nothing is pushing them in.

• The thermostat sensor is not functioning. If using a remote sensor, check connections, wiring and power.

• The humidity sensor is not functioning. After checking the above, press **PROGRAM** RUN to reset the display. If this does not clear the display, disconnect power for five minutes. If these checks fail to solve the problem, the thermostat should be replaced.

Adjustable Humidity Display.

The room humidity display can be adjusted to read higher or lower by following the configuration menu and adjusting the humidity to a higher or lower value (up to 20% RH). The sensed humidity is calibrated at the factory. If you want to adjust it, refer to the **CONFIGURATION** section (page 4, step 3).

Programmable Automatic Humidity Reduction.

This feature automatically lowers humidity when the outside temperature drops. This is to prevent the interior windows/walls from reaching the dew point where water condenses on surfaces. To achieve automatic humidity reduction, the thermostat lowers the humidity when furnace cycles are long. When the furnace runs shorter cycles, it increases humidity.

For suggested settings see table below.

OFF	Factory default — no humidity reduction.
LO	Well insulated homes requiring little humidity reduction.
HI	Poorly insulated homes or homes with a lot of condensation on windows/walls.

If your window insulation is poor, you need high humidity reduction. If your window insulation is good, you need low humidity reduction (factory setting). Selection of **OFF** will cancel this feature. To adjust this feature, refer to the **CONFIGURATION** section (page 4, step 4).

Humidifier Control and Monitoring

When the humidity button is pressed while in the run mode and in the **HEAT** position, the actual humidity will be displayed on the left side of the display. **HUMD** is displayed above the actual humidity. The humidity set point is displayed on the right side of the display. ^ or v button may be pressed to modify the humidity set point (range 5 to 50). Maximum displayed humidity is 97% RH and minimum displayed humidity is 2% RH. If the heating system is operating and there is a demand for humidity, then the humidifier will operate. If the demand for humidity is not satisfied for ten consecutive heat cycle operations, the display will show the word **HUMD** for one second and the word **MX** for one second signaling maximum possible humidity is reached.

FAQs	**1F95-391**
1. My thermostat is reading Celsius. How do I change it to Fahrenheit?	Press **TIME** FWD and **TIME** BACK at the same time to enter the configuration menu. Press **TIME** FWD until you get to °C then press the ^ or v arrow to select °F, press **PROGRAM** RUN to return to normal operation.
2. How do I bypass (not use) the program?	Press **PROGRAM** RUN to make certain the thermostat is in the run program mode, then to bypass the program and operate the thermostat manually press the **MODE** SYSTEM button to select Heat or Cool (whichever you prefer) and press HOLD. Use the **TEMP** ^ or **TEMP** v buttons to set the thermostat on the temperature you want. The temperature setting you choose will be held until you manually change it using the **TEMP** ^ or **TEMP** v buttons. The thermostat will remain in the **HOLD** mode when you change temperature and maintain whatever temperature you set. If you decide to return to the program, press **PROGRAM** RUN to cancel the hold feature.

FAQs	1F95-391
3. My furnace (air conditioning) cycles too fast (slow). Is there an adjustment?	The **1F95-391** has a feature called Adjustable Heating and Cooling Cycle times (also called Anticipation) that allows you to increase or decrease the cycle times in heating and cooling. This is useful if you think your cycle times are too long or too short. The higher the number you select, the longer the cycle. The lower the number you select, the shorter the cycle. The **1F95-391** is adjusted in the Installer Table (see your installation instructions). The range of adjustment for **HEATING** is from 1 to 40. The factory Preset is 05, the range of adjustment for **COOLING** is from 9 to 40. The factory Preset is 24. The cooling will not go below 9 because compressors require a longer cycle. See page 6 of your Installation Instructions.
4. Why does the blower fan keep running after the system has shut off?	Normally the blower will turn off within a few minutes after the call for heat or cool. The blower running after the system shuts off may indicate (1) the thermostat is set to **FAN ON**, (2) the fan has been programmed to run at that time period or (3) something has damaged the thermostat or equipment. If the thermostat display indicates **FAN ON**, press the fan button once to set it to **FAN AUTO**, meaning the fan will cycle only with the equipment. If the display indicates **PRG FAN** (Program Fan), sometime during programming, the FAN button was pushed. To remove **PRG FAN** (Program Fan), check all of the programmed times and temperatures. When you encounter **PRG FAN**, press the FAN button to remove it from that time period in the program. As a final test, set the thermostat to **OFF**. Verify that **FAN ON** or **FAN AUTO** is not displayed. If the fan continues to run, you may want to contact your heating and cooling service person for assistance.

FAQs	1F95-391
5. Do I have to program a stop time for each program period?	There is no need to select a time to stop a programming period. Starting a new programming period will stop the previous program period.
6. My display light does not work. Can it be fixed or replaced?	The display light in the **1F95-391** is not a replaceable item.
7. Between Heating and Cooling seasons, I want to turn my system off. Will this change the program?	Any time you wish to turn your system off, simply press SYSTEM button until the display shows **OFF**. This will not affect your thermostat's programming in any way. To turn the system back on, press SYSTEM button until **HEAT, OFF, COOL,** or **AUTO** is displayed and press RUN. The system will begin operating according to the current thermostat program.
8. Do I have to reprogram my thermostat after a power outage?	The **1F95-391** will retain the last program entered indefinitely without power.
9. How can I get an extra copy of the Operating Manual for my thermostat?	Visit our website at **www.white-rodgers.com** for operating manuals.

FAQs	1F95-391
10. What do I do if my system is not working properly and I need service?	Contact a Local Heating & Cooling service person or visit our website at **www.white-rodgers.com** to consult our “Where to Buy” Service/Dealer locator.
11. What does **CHCK PAD** on the display mean and how do I reset it?	This feature displays the words **CHCK PAD** (check humidifier) after a set time of humidifier operation. This is a reminder to maintain or clean your humidifier. When **CHCK PAD** is displayed, you can clear it by pressing the **SERVICE** button.
12.When I push the **Humidity** button, the display shows **HUMD MX**. What does this mean?	**HUMD MX** indicates the humidifier has not reached the current humidity setting in the last 10 heating cycles. If the condition persists, a service person may recommend additional humidifier capacity.
13.Why does the system run with the setpoint and room temperature the same?	In cooling, as the room temperature falls you will eventually reach the setpoint temperature. The system will continue to run until it reaches the low side of the temperature setting. As an example: If set to 78 degrees with the room temperature falling the thermostat will continue to call for cool as the temperature decreases in the following manner. 78.9, 78.8, 78.7, 78.6, 78.5, 78.4, 78.3, 78.2, at approximately 78.2 the thermostat will quit calling for cool. This is why it is not unusual for the room temperature and set temperature to read the same but the system continues to run. The amount of time it takes for the system to shut off

FAQs	1F95-391
(*cont.*) 13.Why does the system run with the setpoint and room temperature the same?	is dependent on system sizing, thermostat location, etc. Note: The thermostat display only displays whole numbers. Internally the thermostat calculates decimals. In heating as the room temperature increases the system will continue to run until the thermostat reaches the high side of the temperature setpoint.
14. How do I reset my thermostat?	There are 3 possibilities to consider, excluding tampering. 1. Loss of power from the system, 24VAC should be constant to maintain a display. 2. Static electricity or a voltage spike from the heating equipment might be resetting the thermostat. Static electricity can be eliminated by touching something before touching the thermostat to dissipate the static charge. A voltage spike from the equipment can be eliminated using an isolation relay as described in the link below. **http:www.white-rodgers.com/pdfs/instruction_sheets/0037_5426_A.pdf** You can also check the wire routing to verify the thermostat or remote wires are not running parallel to high voltage lines with high inductive loads which could (in extreme cases) create a voltage spike at the thermostat. 3. Thermostat not functioning properly. A simple test would be to bench test one of the units for a couple of days to see if it resets or move it to another system where a reset has never occurred.

FAQs	1F95-391
15. How do I temporarily Override the program and Hold Til Timing?	Any time your program is running and you would like to override it for a specific amount of time, press ^ or v until the temperature you want is displayed. The display will indicate HOLD, and the number of hours remaining in the hold period will be indicated with the word HRS. To adjust the length of time for the override, press TIME FWD or TIME BACK. The time you select will become the new number of hours for the Hold Til timing. Once your time is selected, let the thermostat revert back to normal operation on its own to accept the change.
16. What is the thermostat Click Test?	Many furnaces have safety devices that shut the system down when a lock-out condition occurs in the furnace. If the thermostat is turned off or the call for heat is cancelled (by lowering and then raising the set temperature) the furnace may start operating again. A diagnostic to see if the thermostat is operating when the room temperature is below the thermostat setting (in heat) is to lower the setting below the room temp. Within about 3 seconds the thermostat should make a soft click sound. This sound is the thermostat turning off the call for heat and usually indicates the thermostat is operating properly. If the thermostat does not click you would be suspicious of the thermostat and try resetting it by following it's reset operation. If the thermostat does not click after being reset contact your heating and cooling service person or place of purchase for a replacement. If the thermostat clicks and the heat works intermittently contact the furnace manufacturer or local service person. They will want to observe the condition when it is not working.

FAQs	1F95-391
(*cont.*) 16. What is the thermostat Click Test?	You can raise and lower the temperature a few degrees above and below the room temperature and each time expect to hear the thermostat click on and off within a few seconds. If it clicks, it is operating properly.
17. What do AUX, EMER, and MALF indicators mean on a heat pump thermostat?	**Aux.** = Auxiliary Heat or the second stage of heat in the Heat mode. This is energized when the Heat Pump is not keeping up with the thermostat setting. It is normal operation with most pumps for the thermostat to call for auxiliary heat. **Emer.** = Emergency Heat. When switched to Emergency the thermostat bypasses the pump and uses the back-up heat. This is useful if the pump is not operating correctly or if the temperature outside is so cold that the pump is not economical to run. **Malf.** = Malfunction. Malfunction indicates the heat pump system is sending a signal to the Malfunction Light on the thermostat terminal marked **"L"**. It does not indicate a malfunction in the thermostat. The manufacturer of the Heat Pump system can determine the likely cause of malfunction indication on the thermostat. In many heat pump systems Emergency and Auxiliary heat are the same source. If you switch the thermostat to Emergency it will bypass the heat pump and bring on the back-up heat. If you leave the thermostat in the Heat mode it will call for Auxiliary when the pump is not keeping up with your setpoint temperature. Emergency is energized on a call for heat in the Emergency heat mode.

TROUBLESHOOTING

RESETTING THERMOSTAT

The thermostat can be reset back to factory default programs and configuration options. Removing power from the thermostat **will not** reset it to the default settings. Before resetting the thermostat you may want to make note of the previously selected configuration options and programming.

To reset the thermostat, press and release **PROGRAM** RUN , then press the FAN , **TIME** BACK and ∨ buttons at the same time. This will reset the thermostat to factory default programs and configuration. The display will momentarily go blank, and then all segments on the display will momentarily be shown. The thermostat will then go into the **AUTO HOLD** mode and will maintain a factory preset temperatures of 62°F in Heat or 85°F in Cool. To clear the **HOLD TEMPERATURE** overide press the **PROGRAM** RUN button.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No Heat/No Cool/No Fan (common problems)	1. Blown fuse or tripped circuit breaker.	Replace fuse or reset breaker.
	2. Furnace power switch to OFF.	Turn switch to ON.
	3. Furnace blower compartment door or panel loose or not properly installed.	Replace door panel in proper position to engage safety interlock or door switch.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No Heat (Heat may also be intermittent.)	1. Pilot light not lit. 2. Thermostat not set to Heat. 3. Loose connection to thermostat or system. 4. Furnace Lock-Out Condition.	Re-light pilot. Press the SYSTEM button until Heat is displayed and raise temperature above room temperature. Verify thermostat and system wires are securely attached. Many furnaces have safety devices that shut down when a lock-out condition occurs. If the heat works intermittently, contact the furnace manufacturer or local service person for assistance.
No Cool	1. Thermostat not set to Cool. 2. Loose connection to thermostat or system. 3. Cooling system requires service or thermostat requires replacement.	Press the SYSTEM button to Cool and lower temperature below room temperature. Verify thermostat and system wires are securely attached. Press the SYSTEM button until Cool is displayed and lower setpoint below room temperature. There may be five minute delay before the thermostat clicks in cooling.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Heat, Cool or Fan Runs Constantly	1. Possible short in wiring.	Check each wire connection to verify they are not shorted or touching together. No bare wire should stick out from under terminal screws.
	2. Possible short in thermostat.	Try resetting the thermostat as described on page 31.
	3. Possible short in heat/cool/fan system.	
	4. Fan Switch is set to Fan On.	If the **FAN** button is pressed to display **ON**, the blower fan will cycle continuously whether the heating or cooling system is running, press the **FAN** button until **AUTO** is displayed. If the condition persists, the manufacturer of your system or service person can instruct you on how to test the Heat/Cool system for correct operation. If the system operates correctly, replace the thermostat.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Furnace Cycles Too Fast or Too Slow (narrow or wide temperature swing)	1. The location of the thermostat and/or the size of the Heating System may be influencing the cycle rate.	Digital thermostats normally provide precise temperature control and may cycle faster than some older mechanical models. A faster cycle rate means the unit turns on or off more frequently but runs for a shorter time so there is no increase in energy use. If you would like to increase the cycle time, refer to the Installation Instructions under Installer Table for settings. If an acceptable cycle rate is not achieved by the adjustment in the Installer Table then you may want to contact a local heating and air conditioning service person for further suggestions.
Cooling Cycles Too Fast or Too Slow (narrow or wide temperature swing)	1. The location of the thermostat and/or size of the Cooling System can influence the rate.	The cycle rate for cooling is fixed and can not be adjusted. Contact a local service person for suggestions.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Thermostat Setting and Thermostat Thermometer Disagree	1. Thermostat thermometer setting requires adjustment.	The thermostat can be adjusted +/- 5°F. See the Temperature Display Adjustment in the Operating Manual under configuration.
Thermostat Does Not Follow Program	1. AM or PM set incorrectly in program. 2.AM or PM set incorrectly on the clock. 3. Voltage spike or static discharge.	Check current clock and program settings including the AM or PM designations for each time period. If a voltage spike or a static discharge occurs use the Reset Operation listed above.
Blank Display and/or Keypad Not Responding	1. Voltage spike or static discharge.	Check heat/cool system for proper operation. If a voltage spike occurs, use the Reset Operation by pressing **FAN, TIME** BACK, and the temperature ⌄ arrow at the same time.

INDEX

NOTES

WHITE-RODGERS

Controlling Indoor Comfort Worldwide
Since 1937

www.white-rodgers.com

White-Rodgers is a division
of Emerson Electric Co.

PART NO. 37-6528B

Replaces 37-6528A

0443