

prestige

Control Application Supplement - Type 5 MCBA



WARNING

This document is intended to be used by a factory trained and qualified heating contractor or service technician only. Read all instructions within this document and within the PRESTIGE Boiler Installation and Maintenance Manual, before proceeding. It is recommended to follow the procedures in the steps given, skipping or missing procedural steps could result in severe personal injury, death or substantial property damage.

Product and Safety Information 1

Operating Information 2

Entering MCBA Access Code 2

Revising Application Setting 3

Domestic Hot Water (DHW) Parameters 4

Domestic Hot Water Applications 5-11

Central Heating (CH) Parameters 12

Central Heating Applications 13-23

Trouble Shooting Information 24

Parameter Worksheet and Recorded Settings 25

IMPORTANT INFORMATION - READ BEFORE PROCEEDING

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DEFINITIONS

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product.

DANGER

Indicates the presence of a hazardous situation which, if ignored, will result in death, serious injury or substantial property damage.

WARNING

Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.

CAUTION

Indicates a potentially hazardous situation which, if ignored, may result in minor injury or substantial property damage.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to the equipment but not related to personal injury hazards.

BEST PRACTICES

Indicates recommendations made by Triangle Tube for the installers which will help to ensure optimum operation and longevity of the equipment.

NOTICE

Triangle Tube reserves the right to modify the technical specifications and components of its product without prior notice.

OPERATING INFORMATION

The Prestige Boiler is controlled by the MCBA Control Module, which is an electronic microprocessor controller. The MCBA offers many control options, which may be adjusted for various applications to achieve optimum boiler efficiency and operation.

The MCBA Control Module has the ability to sense the boiler supply and return water temperatures, the flue gas temperature, the outdoor temperature, and the domestic water temperature in a SMART Series Indirect Water Heater with the optional IDWH Sensor Kit PSRKIT22. The MCBA uses this information to regulate the boiler's on/off operation and to modulate the firing rate of the boiler to closely match the required demand.

ENTERING MCBA ACCESS CODE

The installer must enter the MCBA Access Code to adjust the advanced parameter settings of the MCBA. The Access Code can be entered as follows:

1. Press the MODE button until the display shows **STBY**.
2. Press and hold the MODE and STEP buttons together for 2 to 3 seconds until the display shows **CODE**.
3. Press the STEP button once and the display will show **└ XX** where **XX** represents a random number.
4. Press the "+" or "-" buttons to change the number displayed to read **└ 54**. Press and hold the "+" or "-" button to rapidly change the number.
5. When the display reads **└ 54**, press the STORE button to save the Access Code. The display should flash to indicate that the Access Code was saved.

After the Access Code has been entered, the advanced parameters can be accessed by pressing the MODE button until the display shows **PPPP**. Once the display shows **PPPP**, press the STEP button to reach the appropriate parameter. The display should follow the following sequence:

Press STEP once- **└ 140**
 Press STEP x2 - **└ 01**
 Press STEP x3 - **└ 01**
 Press STEP x4 - **└ 186**

Press STEP x5 - **└ 10**

Press STEP x6 - **└ 11** Etc.....

After Parameter 4, the display will show P followed by the parameter number. Once a particular parameter is reached, the display will change to show the current setting of that parameter.

NOTICE

The actual parameter values displayed on the display may vary depending on the application, but the sequence will always occur in the order shown.

Changing a Parameter Setting

1. Use the "+" or "-" button to change the parameter setting.
2. Press the STORE button to save the change. The display should flash to indicate that the change was saved.
3. Press the RESET button to leave the Access Code mode.

WARNING

If a parameter setting is changed but the STORE button is not pressed to save the setting, the MCBA will automatically store the setting after 15 minutes. Ensure all parameters are at their factory settings or appropriately revised for the application prior to commissioning the boiler. Failure to comply could result in erratic or unreliable operation of the Prestige boiler.

NOTICE

Once a parameter setting has been revised and stored, pressing the STEP button will display the setting of the next parameter without showing **└ XX. To avoid confusion, it is advisable to continue pressing the STEP button until Parameter 46 is reached. The next press of the STEP button will cause the display to roll over to Parameter 1. Continue pressing the STEP button until the next parameter to be adjusted is reached and revise the setting.**

REVISING APPLICATION SETTINGS

The following sections in this manual cover the various parameters that can be changed to accommodate the particular application. The first section covers the parameters related to the production of domestic hot water. The next section covers the parameters related to space heating.

The installer should record each parameter revision using the worksheet located in the back of the manual. Prior to changing any parameters, the installer should determine which parameters need to be changed to meet the requirements of the application. It may be necessary to change multiple parameters in order to meet those requirements.

DOMESTIC HOT WATER (DHW) PARAMETERS

Parameter	Description	Factory Setting	Minimum Setting	Maximum Setting
1	DHW Setting See page 6	140°F	68°F	150°F
2	DHW Application Selection See page 5	01	00	03
21	Setpoint Value Addition for DHW See page 6	46°F	00°F	54°F
33	DHW Circulator Post Pump Time Period See page 9	03 x 10.2 sec.	00 x 10.2 sec.	30 x 10.2 sec.
38	DHW On Differential See page 8	02°F	(-)06°F	54°F
39	DHW Off Differential See page 8	06°F	(-)36°F	54°F
41	DHW Call Blocking Time See page 10	00 x 10.2 sec.	00 x 10.2 sec.	30 x 10.2 sec.
42	DHW to CH Call Blocking Time See page 10	00 x 10.2 sec.	00 x 10.2 sec.	30 x 10.2 sec.
43	DHW Priority Timeout See page 11	00 Minutes	00 Minutes	120 Minutes
46	DHW Operating Signal Selection See page 7	13 Solo 02 Excellence	00	29

DOMESTIC HOT WATER (DHW) APPLICATIONS

The Prestige Boiler provides a domestic hot water (DHW) priority feature, which will block a heating call when a domestic hot water call is present. The length of time that a domestic call has priority over a heating call can be set with Parameter 43. A domestic call can be sent from either an Aquastat or an NTC sensor in the Indirect Water Heater. The type of domestic call signal can be changed with Parameter 46. During a domestic call, the DHW circulator will be enabled and the boiler setpoint will be set to the DHW setpoint. The boiler setpoint for a domestic call is calculated by adding Parameters 1 & 21. The central heating (CH) circulator will be disabled from providing water to the space heating system during a domestic call.

DHW APPLICATION SELECTION (PARAMETER 2)

The boiler response to a domestic hot water call can be changed with Parameter 2. Parameter 2 provides 4 different modes of domestic hot water operation.

DHW Application Selection Options (Parameter 2)

Setting	Description
00	Burner & DHW Pump Disabled
01	Burner & DHW Pump Enabled
02	Burner Disabled, DHW Pump Continuous
03	Burner Enabled, DHW Pump Continuous

DHW Call Disabled (Parameter 2 = 00)

The boiler will not respond to a domestic call from an Indirect Water Heater. Both the burner and DHW circulator will remain off during a domestic call. The boiler will continue to respond to a call for heat from the heating system.

DHW Call Enabled – Factory Setting (Parameter 2 = 01)

The boiler will respond to a domestic call from an Indirect Water Heater. Both the burner and DHW circulator will operate during a domestic call. A domestic call has priority over a heating system call for heat. The boiler setpoint will be set to the DHW setpoint and the DHW circulator will run. The CH circulator will be off.

Burner Disabled, DHW Pump Continuous (Parameter 2 = 02)

The burner will not respond to a domestic call from an Indirect Water Heater. The DHW circulator will run continuously, even during a heating call. The boiler will continue to respond to a call for heat from the heating system.

Burner Enabled, DHW Pump Continuous (Parameter 2 = 03)

The boiler will respond to a domestic call from an Indirect Water Heater. The burner will operate during a domestic call. The DHW circulator will run continuously, even during a heating call. A domestic call has priority over a heating system call for heat. The boiler setpoint will be set to the DHW setpoint. The CH circulator will be off.

DANGER

When selecting continuous DHW circulator operation, the installer should install a thermostatic mixing valve on the outlet of the Indirect Water Heater to prevent a potential scalding hazard. Failure to comply could result in a scalding hazard causing severe personal injury, death, or substantial property damage.

NOTICE

When selecting continuous DHW circulator operation, the DHW circulator will have priority over the CH circulator which will prevent the CH circulator from operating during a heating call.

Parameter 2 Adjustment

To change Parameter 2, press the MODE button until the display shows *PPPP*. Press the STEP button twice to reach Parameter 2. Press the “+” or “-” button to change the setting of Parameter 2 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

A shortcut can also change Parameter 2 and disable a domestic call. Press and hold the “-” key for approximately 2 seconds while in STBY mode. Releasing the “-” key when *dOFF* is shown on the display will disable the DHW function of the boiler. To enable the DHW function, press and hold the “-” key while in STBY mode and release when the display shows *2_XXX* where *XXX* represents the DHW setpoint.

NOTICE

This method of using the “-” button to disable a domestic call will not disable the DHW circulator if it has already been placed in continuous operation. To change both burner and circulator operation, Parameter 2 must be changed in the PARA mode.

BOILER SETPOINT FOR DHW CALL (PARAMETER 1 & 21)

The boiler setpoint for a domestic call is calculated by adding Parameters 1 & 21. The maximum boiler setpoint is 194°F. The factory settings result in a boiler setpoint of 186°F (140°F + 46°F) for a domestic call.

DHW Setting (Parameter 1)

Factory Setting	Minimum Setting	Maximum Setting
140°F	68°F	150°F

Setpoint Value Addition for DHW (Parameter 21)

Factory Setting	Minimum Setting	Maximum Setting
46°F	00°F	54°F

If Parameter 1 is set below 134°F, it is recommended that Parameter 21 be increased to maintain a high boiler setpoint during a domestic call. A low boiler setpoint will adversely affect the Indirect Water Heater performance and can lead to longer domestic calls.

Parameter 1 Adjustment

To change Parameter 1, press the MODE button until the display shows *PPPP*. Press the STEP button once to reach Parameter 1. Press the “+” or “-” button to change the setting of Parameter 1 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

Parameter 21 Adjustment

To change Parameter 21, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 21. Press the “+” or “-” button to change the setting of Parameter 21 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

DHW OPERATING SIGNAL SELECTION (PARAMETER 46)

The type of domestic call signal can be changed with Parameter 46. Parameter 46 allows the selection of either an Aquastat or NTC Sensor as the signaling device for a domestic call.

DHW Operating Signal Selection Options (Parameter 46)

Setting	Description
02	Prestige Excellence with NTC Sensor
12	Prestige Solo with NTC Sensor
13	Prestige Solo with Aquastat

Prestige Excellence with NTC Sensor – Factory Setting (Parameter 46 = 02)

The domestic call is initiated from an NTC sensor in the Indirect Water Heater. The setpoint for domestic hot water in the Indirect Water Heater is set with Parameter 1. The domestic water temperature is monitored and compared to the domestic hot water setpoint to determine if a domestic call is needed. The domestic water temperature can be monitored on the boiler display via item 3 of the INFO menu.

Prestige Solo with NTC Sensor (Parameter 46 = 12)

The domestic call is initiated from an NTC sensor in the Indirect Water Heater. The setpoint for domestic hot water in the Indirect Water Heater is set with Parameter 1. The domestic water temperature is monitored and compared to the domestic hot water setpoint to determine if a domestic call is needed. The domestic water temperature can be monitored on the boiler display via item 3 of the INFO menu.

Prestige Solo with Aquastat – Factory Setting (Parameter 46 = 13)

The domestic call is initiated from an aquastat in the Indirect Water Heater. The presence of a domestic call can be displayed on the boiler via item 3 of the INFO menu. A reading of $\overline{22}$ indicates no domestic call is present. A reading of $\overline{24}$ indicates a domestic call is present.

Parameter 46 Adjustment

To change Parameter 46, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows $\overline{P P P P}$. Press the STEP button to reach Parameter 46. Press the “+” or “-“ button to change the setting of Parameter 46 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

WARNING

Parameter 46 has multiple settings available in addition to the settings listed. DO NOT set Parameter 46 to any setting other than those listed above. Failure to comply can result in erratic or unreliable operation of the Prestige Boiler.

DHW NTC SENSOR DIFFERENTIALS (PARAMETER 38 & 39)

When an NTC sensor is selected for the DHW operating signal with Parameter 46, the on and off differentials can be adjusted with Parameters 38 & 39.

DHW “On” Differential (Parameter 38)

Factory Setting	Minimum Setting	Maximum Setting
02°F	(-) 06°F	54°F

DHW “Off” Differential (Parameter 39)

Factory Setting	Minimum Setting	Maximum Setting
06°F	(-) 36°F	54°F

DHW “On” Differential (Parameter 38)

The setpoint for domestic hot water in the Indirect Water Heater is set with Parameter 1. Parameter 38 sets the domestic hot water storage temperature low limit. A domestic call is initiated when the domestic hot water temperature goes below Parameter 1 minus Parameter 38.

A low setting of Parameter 38 will result in a quick burner response to any domestic hot water draw from the Indirect Water Heater. A high setting of Parameter 38 will result in a delayed burner response to any domestic hot water draw from the Indirect Water Heater.

DANGER

The DHW “On” Differential setting of Parameter 38 greatly affects the production of domestic hot water. A low setting of Parameter 38 could result in a rapid response to a domestic hot water demand resulting in a potential scald hazard. It is strongly recommended that the installer utilize a thermostatic mixing valve on the hot water outlet of the Indirect Water Heater. Failure to comply could result in severe personal injury, death, or substantial property damage.

DHW “Off” Differential (Parameter 39)

The setpoint for domestic hot water in the Indirect Water Heater is set with Parameter 1. Parameter 39 sets the domestic hot water storage temperature high limit. A domestic call will end when the domestic hot water temperature goes above Parameter 1 plus Parameter 39.

A low setting of Parameter 39 will result in a minimal overshoot of the domestic hot water setpoint. A high setting of Parameter 39 will result in an extended burner cycle in response to a domestic hot water draw from the Indirect Water Heater. This extended burner cycle will result in a final domestic hot water storage temperature that is much higher than desired.

DANGER

The DHW “Off” Differential setting of Parameter 39 greatly affects the production of domestic hot water. A high setting of Parameter 38 could result in an excessive domestic hot water storage temperature resulting in a potential scald hazard. It is strongly recommended that the installer utilize a thermostatic mixing valve on the hot water outlet of the Indirect Water Heater. Failure to comply could result in severe personal injury, death, or substantial property damage.

Parameter 38 Adjustment

To change Parameter 38, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 38. Press the “+” or “-” button to change the setting of Parameter 38 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

Parameter 39 Adjustment

To change Parameter 39, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 39. Press the “+” or “-” button to change the setting of Parameter 39 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

DHW NTC SENSOR ERROR CODES

Two error codes are possible when an NTC sensor is selected for the DHW operating signal with Parameter 46.

Error Code	Cause
b_33	Indirect Water Heater NTC Sensor is short-circuited
b_38	Indirect Water Heater NTC Sensor is "open" or disconnected

If a short circuit is detected across the Indirect Water Heater sensor terminals of the Prestige, a soft lockout will occur. This lockout will be indicated by a boiler status code of **9**, with an alternating error code of **b_33**. Check the sensor wiring for a possible short circuit. Verify the resistance of NTC Sensor.

If an open circuit is detected across the Indirect Water Heater sensor terminals of the Prestige, a soft lockout will occur. This lockout will be indicated by a boiler status code of **9**, with an alternating error code of **b_38**. Check sensor wiring for continuity and proper termination at Prestige terminal strip. Verify the resistance of NTC Sensor.

NOTICE

During a soft lockout, the burner function is blocked from both domestic and heating calls. The CH circulator will continue to operate during a heating call. Both error codes will automatically reset once the condition has been corrected.

FROST / FREEZE PROTECTION OF INDIRECT WATER HEATER

This feature is only available when an NTC sensor is selected for the DHW operating signal with Parameter 46. If the domestic hot water temperature falls to 38°F, the burner and DHW circulator will operate. The burner will operate at its minimum input and the circulator will operate until the domestic hot water temperature reaches 50°F. At that point, the burner and circulator will be turned off. This feature is always active even if the domestic hot water function has been disabled with Parameter 2.

DHW CIRCULATOR POST PUMP TIME PERIOD (PARAMETER 33)

At the completion of a domestic call, the DHW circulator will continue to operate for a time period set by Parameter 33.

DHW Circulator Post Pump Time (Parameter 33)

Factory Setting	Minimum Setting	Maximum Setting
03 X 10.2 Sec.	00 X 10.2 Sec.	30 X 10.2 Sec.

The post pump feature allows the heat remaining in the boiler to be sent to the Indirect Water Heater, thus preventing overheating in low temperature space heating applications.

DANGER

When adjusting the DHW circulator post pump time, it is strongly recommended that the installer utilize a thermostatic mixing valve on the hot water outlet of the Indirect Water Heater. Failure to comply could result in severe personal injury, death, or substantial property damage.

Parameter 33 Adjustment

To change Parameter 33, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows **PPPP**. Press the STEP button to reach Parameter 33. Press the "+" or "-" button to change the setting of Parameter 33 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The parameter setting is multiplied by 10.2 seconds to reach the actual post pump time. For example, the factory setting of 3 results in a post pump time of 30.6 seconds.

DHW CALL BLOCKING TIME (PARAMETER 41)

After the completion of a domestic call, a time delay period before responding to the next DHW call can be set with Parameter 41.

DHW Call Blocking Time (Parameter 41)

Factory Setting	Minimum Setting	Maximum Setting
00 X 10.2 Sec.	00 X 10.2 Sec.	30 X 10.2 Sec.

During the DHW call blocking time, the burner will not respond to a domestic call. The DHW circulator will continue to operate for a domestic call. This blocking time has no affect on heating calls. This DHW call blocking feature prevents short cycling of the burner and extends the life of the burner components.

NOTICE

A long DHW call blocking time could adversely affect the production of domestic hot water.

Parameter 41 Adjustment

To change Parameter 41, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 41. Press the “+” or “-” button to change the setting of Parameter 41 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The parameter setting is multiplied by 10.2 seconds to reach the actual DHW call blocking time. For example, a setting of 3 results in a DHW call blocking time of 30.6 seconds.

DHW TO CH CALL BLOCKING TIME (PARAMETER 42)

After the completion of a domestic call, a time delay period before responding to a heating call can be set with Parameter 42.

DHW to CH Call Blocking Time (Parameter 42)

Factory Setting	Minimum Setting	Maximum Setting
00 X 10.2 Sec.	00 X 10.2 Sec.	30 X 10.2 Sec.

During the DHW to CH call blocking time, the burner will not respond to a heating call. The CH circulator will continue to operate for a heating call. This blocking time has no affect on domestic calls. This blocking time in conjunction with the DHW post circulator feature may prevent overheating of a low temperature heating system.

If the DHW to CH call blocking time is set to *00* (Factory Setting) and the boiler is receiving both domestic and heating calls. At the completion of the domestic call, the burner will continue to fire to maintain the CH setpoint and the CH circulator will operate.

NOTICE

A long DHW to CH call blocking time could adversely affect the production of heat and the comfort level of the occupants.

Parameter 42 Adjustment

To change Parameter 42, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 42. Press the “+” or “-” button to change the setting of Parameter 42 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The parameter setting is multiplied by 10.2 seconds to reach the actual DHW to CH call blocking time. For example, a setting of 3 results in a DHW to CH call blocking time of 30.6 seconds.

DHW PRIORITY TIMEOUT (PARAMETER 43)

The length of time that a domestic call has priority over a heating call can be set with Parameter 43.

DHW Priority Timeout (Parameter 43)

Factory Setting	Minimum Setting	Maximum Setting
00 Min.	00 Min.	120 Min.

The boiler provides a domestic hot water priority feature, which will block a heating call when a domestic hot water call is present. A DHW priority timeout setting of **00** (Factory Setting) will not limit the length of a domestic call. A domestic call will always have priority over a heating call.

A DHW priority timeout setting above **00** will limit the length of a domestic call when both domestic and heating calls are present. Once the DHW priority timeout setting has been reached, priority will shift to the heating call. If both calls continue, the priority will switch back to the domestic call after reaching the DHW priority timeout setting.

NOTICE

A short DHW priority setting could lead to excessive switching between domestic and heating calls. This excessive switching could adversely affect the production of heat and domestic hot water.

Parameter 43 Adjustment

To change Parameter 43, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows **PPPP**. Press the STEP button to reach Parameter 43. Press the “+” or “-“ button to change the setting of Parameter 43 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

CENTRAL HEATING (CH) PARAMETERS

Parameter	Description	Factory Setting	Minimum Setting	Maximum Setting
3	CH Application Selection <i>See page 14</i>	01	00	03
4	CH Maximum Boiler Operating Setpoint <i>See page 15-17</i>	186°F	86°F	194°F
10	CH Minimum Boiler Operating Setpoint <i>See page 15-17</i>	86°F	60°F	140°F
11	CH Reset Curve Coldest Day <i>See page 15-17</i>	00°F	-22°F	50°F
12	CH Reset Curve Warmest Day <i>See page 15-17</i>	64°F	60°F	78°F
13	Frost Protection Setpoint <i>See page 19</i>	-22°F	-22°F	50°F
18	CH Block Temperature Setting <i>See page 20</i>	32°F	32°F	140°F
19	Boost Feature Setting <i>See page 21</i>	00 Minutes	00 Minutes	30 Minutes
20	Parallel Shift Value <i>See page 22</i>	00°F	00°F	144°F
32	CH Circulator Post Pump Time Period <i>See page 22</i>	01 Minutes	00 Minutes	99 Minutes
40	CH Call Blocking Time <i>See page 23</i>	03 x 10.2 Sec.	00 x 10.2 Sec.	30 x 10.2 Sec.
45	CH Operating Signal Selection <i>See page 13 & 18</i>	00	00	86

CENTRAL HEATING (CH) APPLICATIONS

The Prestige Boiler provides an outdoor reset feature, which will lower the central heating (CH) setpoint as the outdoor temperature rises. This allows the boiler output to more closely match the actual heat load requirements and thus improve efficiency. A heating call can be sent from a Room Thermostat (Factory Setting), the outdoor temperature sensor, or an external control system. During a heating call, the domestic hot water (DHW) circulator will be disabled from providing water to the Indirect Water Heater. The CH circulator will be enabled and the boiler setpoint will be set to the CH setpoint.

CH CONFIGURATION OPTIONS

The following outline lists the CH configuration options that are available.

1. Room Thermostat (Parameter 45 = 00)

The heating call is initiated from a switched dry contact such as a room thermostat or zone panel.

a. Fixed CH Setpoint

The CH Setpoint is set to the CH Maximum Boiler Operating Setpoint (Parameter 4) when an Outdoor Temperature Sensor is not connected to the boiler. Additional features include:

CH Application Selection (Parameter 3)

CH Circulator Post Pump Time (Parameter 32)

CH Call Blocking Time (Parameter 40)

b. Outdoor Reset

The CH Setpoint will vary between the CH Maximum Boiler Operating Setpoint (Parameter 4) and the CH Minimum Boiler Operating Setpoint (Parameter 10) when an Outdoor Temperature Sensor is connected to the boiler. Additional features include:

CH Application Selection (Parameter 3)

Frost Protection (Parameter 13)

Boost Feature (Parameter 19)

CH Circulator Post Pump Time (Parameter 32)

CH Call Blocking Time (Parameter 40)

2. Constant CH Demand (Parameter 45 = 01)

The heating call is continuous.

a. Outdoor Reset

The CH Setpoint will vary between the CH Maximum Boiler Operating Setpoint (Parameter 4) and the CH Minimum Boiler Operating Setpoint (Parameter 10) when an Outdoor Temperature Sensor is connected to the boiler. Additional features include:

CH Application Selection (Parameter 3)

Frost Protection (Parameter 13)

CH Block Temperature (Parameter 18)

Parallel Shift Feature (Parameter 20)

CH Circulator Post Pump Time (Parameter 32)

3. 0-10 VDC Analog Signal (Parameter 45 = 02 or 04)

The heating call is initiated from an external modulating boiler controller. The CH Maximum Boiler Operating Setpoint (Parameter 4) limits the water supply temperature from the boiler. Additional features include:

CH Application Selection (Parameter 3)

CH Circulator Post Pump Time (Parameter 32)

CH Call Blocking Time (Parameter 40)

CH APPLICATION SELECTION (PARAMETER 3)

The boiler response to a heating call can be changed with Parameter 3. Parameter 3 provides 4 different modes of central heating operation.

CH Application Selection Options (Parameter 3)

Setting	Description
00	Burner & CH Pump Disabled
01	Burner & CH Pump Enabled
02	Burner Disabled, CH Pump Continuous
03	Burner Enabled, CH Pump Continuous

CH Call Disabled (Parameter 3 = 00)

The boiler will not respond to a heating call. Both the burner and CH circulator will remain off during a heating call. The boiler freeze protection feature will always be active even if CH call is disabled. The boiler will continue to respond to a domestic call from an Indirect Water Heater.

CH Call Enabled – Factory Setting (Parameter 3 = 01)

The boiler will respond to a heating call. Both the burner and CH circulator will operate during a heating call. A domestic call has priority over a heating system call for heat. The boiler setpoint will be set to the CH setpoint and the CH circulator will run. The DHW circulator will be off.

Burner Disabled, CH Pump Continuous (Parameter 3 = 02)

The burner will not respond to a heating call. The CH circulator will run continuously, even during a domestic call. The boiler freeze protection feature will always be active even if the burner is disabled. The boiler will continue to respond to a domestic call from an Indirect Water Heater.

Burner Enabled, CH Pump Continuous (Parameter 3 = 03)

The burner will respond to a heating call. The burner will operate during a heating call. The CH circulator will run continuously, but will be disabled during a domestic call. A domestic call has priority over a heating system call for heat. The boiler setpoint will be set to the CH setpoint. The DHW circulator will be off.

Parameter 3 Adjustment

To change Parameter 3, press the MODE button until the display shows **PARA**. Press the STEP button to reach Parameter 3. Press the “+” or “-” button to change the setting of Parameter 3 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

A shortcut can also change Parameter 3 and disable a heating call. Press and hold the “+” key for approximately 2 seconds while in STBY mode. Releasing the “+” key when **CBFF** is shown on the display will disable the CH function of the boiler. To enable the CH function, press and hold the “+” key while in STBY mode and release when the display shows **3XXX** where **XXX** represents the CH setpoint.

NOTICE

This method of using the “+” button to disable a heating call will not disable the CH circulator if it has already been placed in continuous operation. To change both burner and circulator operation, Parameter 3 must be changed in the PARA mode.

BOILER SETPOINT FOR CH CALL (PARAMETERS 4,10,11,12)

The boiler setpoint for a heating call can be fixed or vary with the outdoor temperature. If the application requires a constant supply temperature from the boiler, the outdoor temperature sensor should not be connected to the boiler. If an outdoor temperature sensor is connected to the boiler, the outdoor reset function is automatically enabled and will vary the CH setpoint with the change in outdoor temperature. The outdoor reset function has no effect on the DHW setpoint during a domestic call.

CH Maximum Boiler Operating Setpoint (Parameter 4)

Factory Setting	Minimum Setting	Maximum Setting
186°F	86°F	194°F

If an outdoor temperature sensor is not connected to the boiler, the boiler setpoint for a heating call will be set to the CH Maximum Boiler Operating Setpoint. If an outdoor temperature sensor is connected, the CH Maximum Boiler Operating Setpoint becomes the boiler setpoint on the CH Reset Curve Coldest Day. The outdoor temperature can be monitored on the boiler display via item 4 of the INFO menu.

CH Minimum Boiler Operating Setpoint (Parameter 10)

Factory Setting	Minimum Setting	Maximum Setting
86°F	60°F	140°F

This parameter is not applicable if an outdoor sensor is not connected to the boiler. When an outdoor temperature sensor is connected, the CH Minimum Boiler Operating Setpoint becomes the boiler setpoint on the CH Reset Curve Warmest Day.

CH Reset Curve Coldest Day (Parameter 11)

Factory Setting	Minimum Setting	Maximum Setting
00°F	(-)22°F	50°F

This parameter is not applicable if an outdoor sensor is not connected to the boiler. When an outdoor temperature sensor is connected, the CH Reset Curve Coldest Day is the coldest design temperature of the heating system.

CH Reset Curve Warmest Day (Parameter 12)

Factory Setting	Minimum Setting	Maximum Setting
64°F	60°F	78°F

This parameter is not applicable if an outdoor sensor is not connected to the boiler. When an outdoor temperature sensor is connected, the CH Reset Curve Warmest Day is the warmest design temperature of the heating system.

Parameter 4 Adjustment

To change Parameter 4, press the MODE button until the display shows *PARAM*. Press the STEP button to reach Parameter 4. Press the “+” or “-” button to change the setting of Parameter 4 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

Parameter 10 Adjustment

To change Parameter 10, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PARAM*. Press the STEP button to reach Parameter 10. Press the “+” or “-” button to change the setting of Parameter 10 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

Parameter 11 Adjustment

To change Parameter 11, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 11. Press the “+” or “-” button to change the setting of Parameter 11 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

Parameter 12 Adjustment

To change Parameter 12, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 12. Press the “+” or “-” button to change the setting of Parameter 12 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

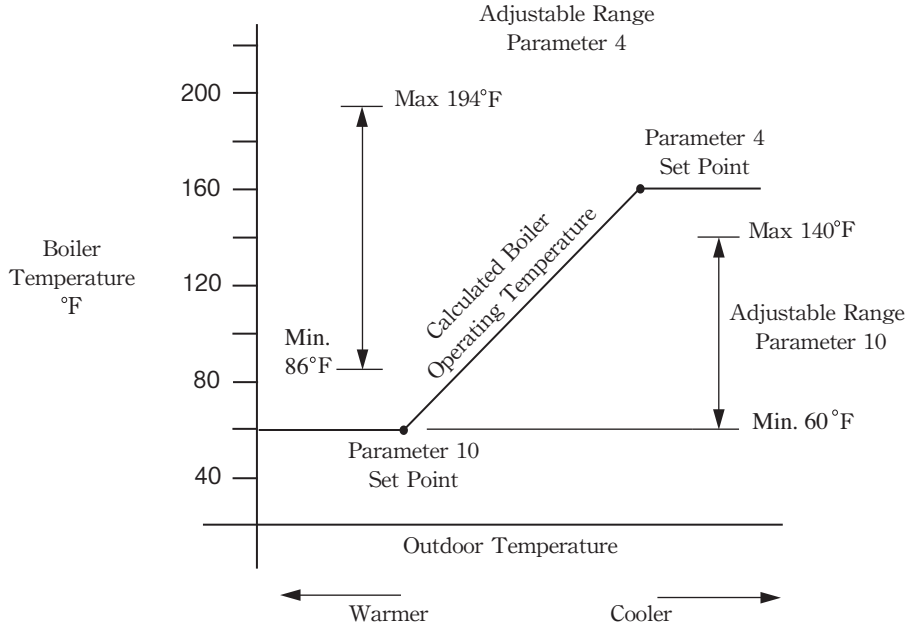


Fig. 1: Setting the Boiler Operating Limits

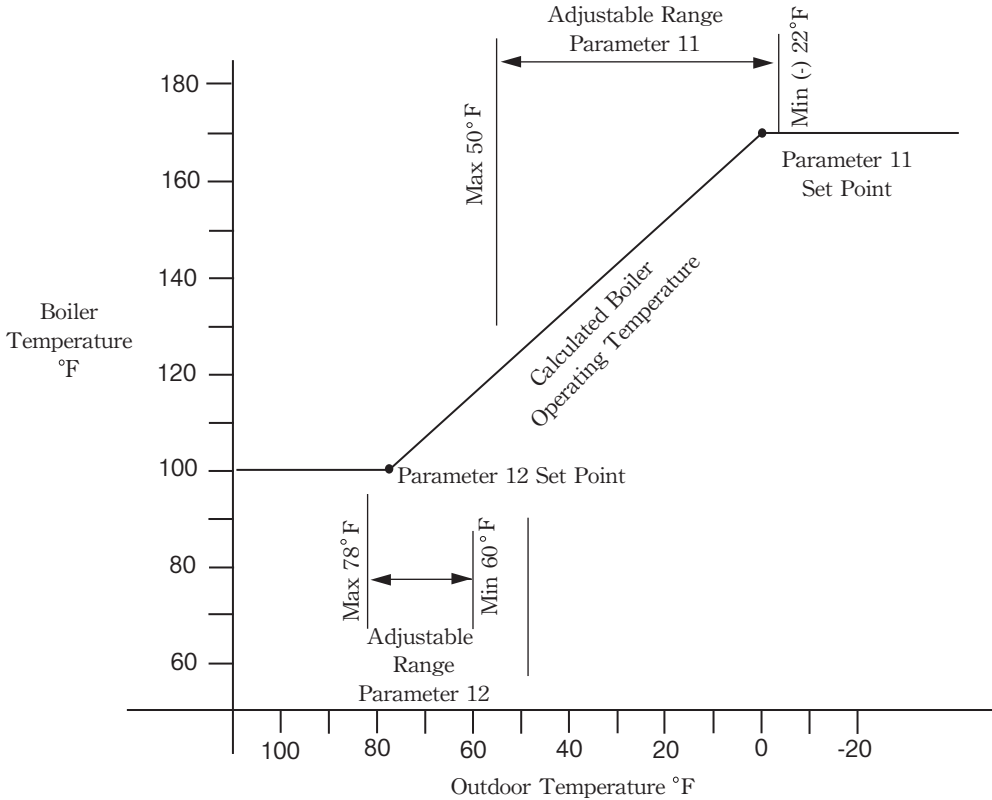


Fig. 2: Setting the Outdoor Temperature Limits

CH OPERATING SIGNAL SELECTION (PARAMETER 45)

The type of heating call signal can be changed with Parameter 45. The boiler can be set to operate with a constant CH demand or a heating call can be initiated from a room thermostat or an analog 0 – 10 VDC signal from an external control system.

CH Operating Signal Selection Options (Parameter 45)

Setting	Description
00	Room Thermostat
01	Constant CH Demand
02	0 - 10 VDC Analog Signal on Prestige
04	0 - 10 VDC Analog Signal AM-4

Room Thermostat - Factory Setting (Parameter 45 = 00)

The heating call is initiated from a switched dry contact such as a room thermostat or zone panel.

Constant CH Demand (Parameter 45 = 01)

The heating call is continuous but can be blocked with Parameter 18.

0 – 10 VDC Analog Signal on Prestige (Parameter 45 = 02)

The heating call is initiated from an external modulating boiler controller wired directly to the boiler.

0 – 10 VDC Analog Signal on AM-4 (Parameter 45 = 04)

The heating call is initiated from an external modulating boiler controller wired to an AM-4 interface module.

Parameter 45 Adjustment

To change Parameter 45, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 45. Press the “+” or “-” button to change the setting of Parameter 45 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

WARNING

Parameter 45 has multiple settings available in addition to the settings listed. DO NOT set Parameter 45 to any setting other than those listed above. Failure to comply can result in erratic or unreliable operation of the Prestige Boiler.

FROST PROTECTION SETPOINT (PARAMETER 13)

The Frost Protection Feature is available when the outdoor temperature sensor is connected to the boiler.

Frost Protection Setpoint (Parameter 13)

Factory Setting	Minimum Setting	Maximum Setting
(-)22°F	(-)22°F	50°F

When the outdoor temperature falls below the setting of this parameter, the CH circulator will be enabled if there are no heating or domestic calls. This feature is always active and cannot be disabled.

Parameter 13 Adjustment

To change Parameter 13, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows **PARAM**. Press the STEP button to reach Parameter 13. Press the “+” or “-“ button to change the setting of Parameter 13 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The Frost Protection Feature is based on the outdoor temperature and is in addition to the Freeze Protection Feature that is based on the boiler temperature.

The Freeze Protection Feature will operate the CH circulator if the boiler temperature falls to 46°F. The burner will operate at its minimum input if the boiler temperature continues to fall to 38°F. The burner and CH circulator will be disabled once the boiler temperature reaches 50°F. This feature is always active even if the heating function has been disabled with Parameter 3.

CH BLOCK TEMPERATURE SETTING (PARAMETER 18)

This boiler shutdown feature is available when a constant CH demand is selected for the CH operating signal with Parameter 45.

CH Block Temperature Setting (Parameter 18)

Factory Setting	Minimum Setting	Maximum Setting
32°F	32°F	140°F

When a constant CH demand is selected for the CH operating signal with Parameter 45, a continuous heating call is generated. The heating call will end when the boiler CH setpoint falls below the temperature set by this parameter. The heating call will resume when the boiler CH setpoint rises above the temperature set by this parameter.

Parameter 18 Adjustment

To change Parameter 18, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 18. Press the “+” or “-” button to change the setting of Parameter 18 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The factory setting of 32°F is the OFF position. The boiler will operate with a continuous heating call.

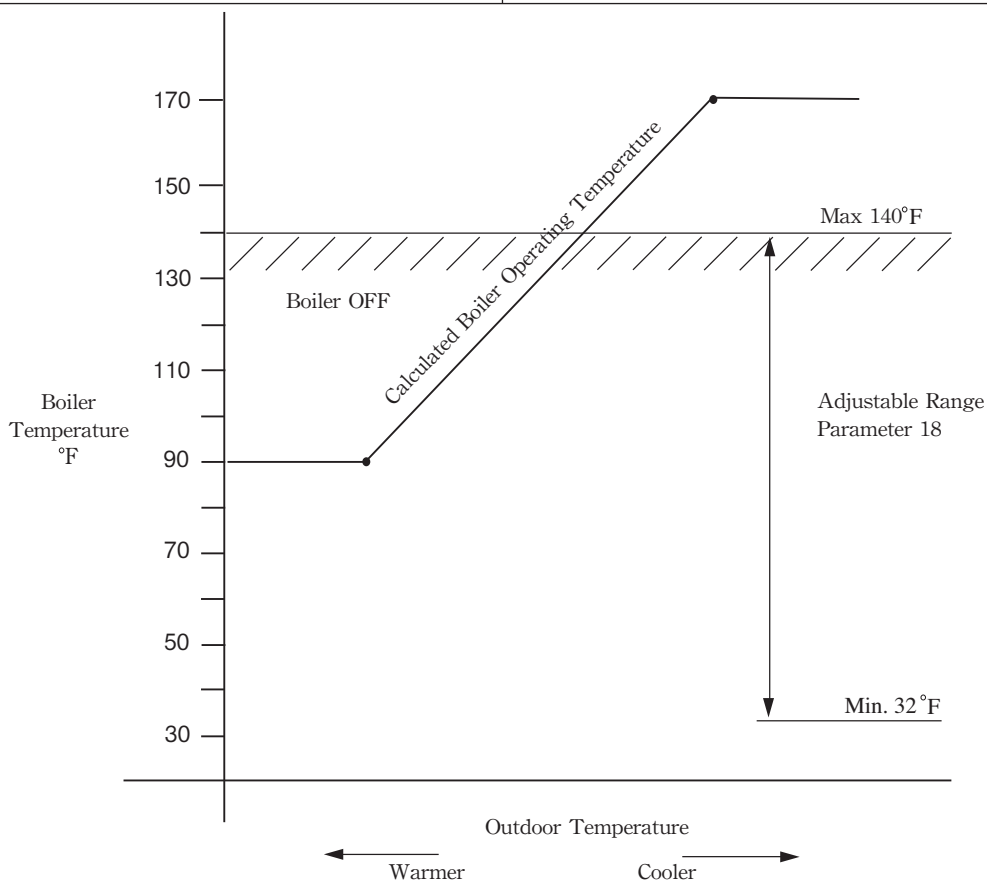


Fig. 3: Setting the Block Temperature Set Point

BOOST FEATURE SETTING (PARAMETER 19)

The Boost Feature is available when a room thermostat is selected for the CH operating signal with Parameter 45 and an outdoor temperature sensor is connected to the boiler. This feature can be used to compensate for a low outdoor reset schedule or to provide a quicker morning recovery.

Boost Feature Setting (Parameter 19)

Factory Setting	Minimum Setting	Maximum Setting
00 Min.	00 Min.	30 Min.

If a call for heat is not satisfied in the time period set by this parameter, the CH setpoint will be raised by 18°F. The CH setpoint will continue to be raised by 18°F for each time period that the call for heat is not satisfied until the CH Maximum Boiler Operating Setpoint (Parameter 4) is reached.

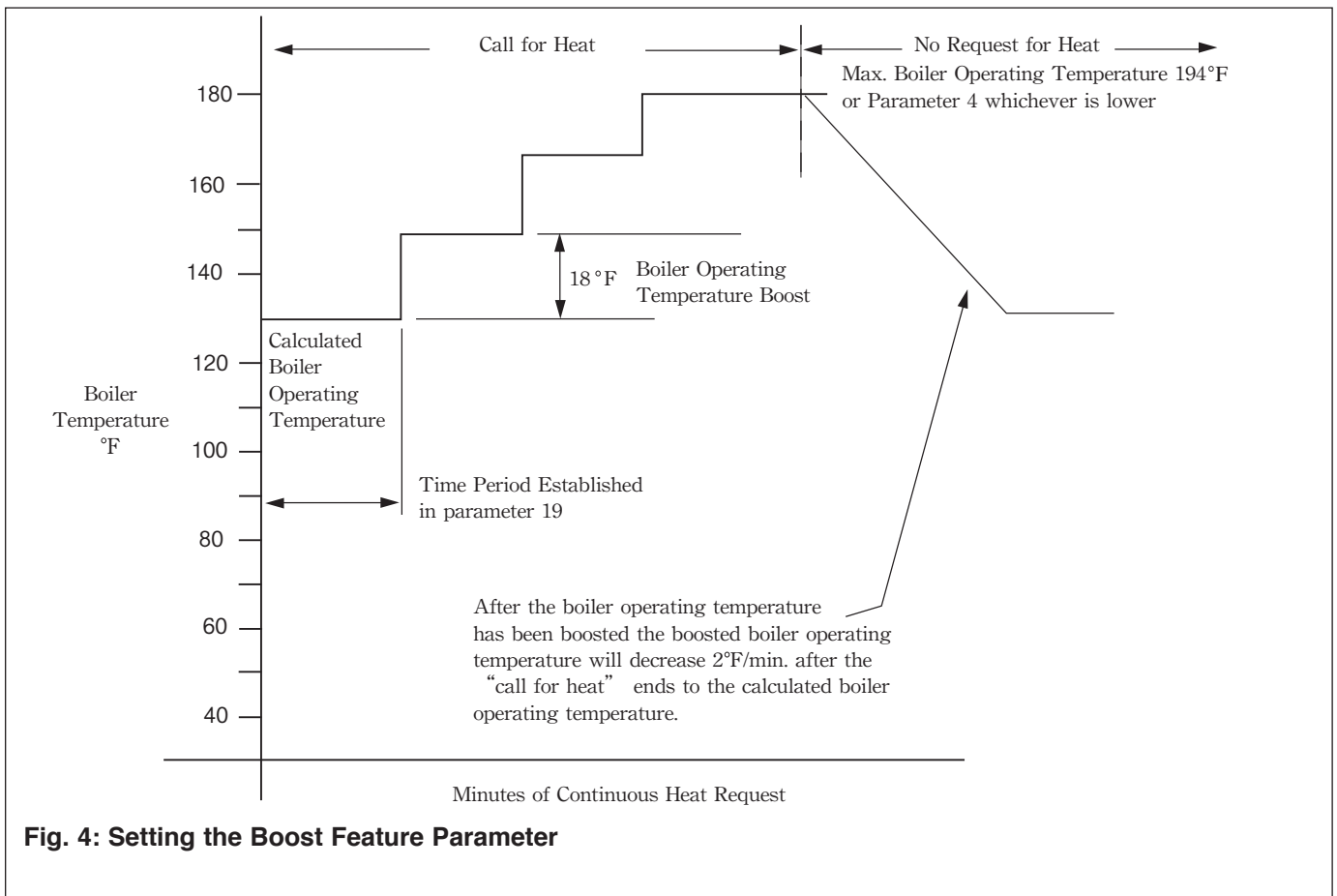
Once the call for heat has ended, the CH setpoint will decrease by 2°F per minute until the original CH setpoint is reached. If a call for heat occurs while the CH setpoint is decreasing, the boiler will operate at the current CH setpoint. The Boost Feature will still be active and will raise the CH setpoint by 18°F if the call for heat is not satisfied in the time period set by this parameter.

Parameter 19 Adjustment

To change Parameter 19, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPPP*. Press the STEP button to reach Parameter 19. Press the “+” or “-” button to change the setting of Parameter 19 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The factory setting of 00 is the OFF position. The Boost Feature will not be active.



PARALLEL SHIFT VALUE (PARAMETER 20)

The Parallel Shift Feature is available when a constant CH demand is selected for the CH operating signal with Parameter 45.

Parallel Shift Value (Parameter 20)

Factory Setting	Minimum Setting	Maximum Setting
00°F	00°F	144°F

When a constant CH demand is selected for the CH operating signal with Parameter 45, a continuous heating call is generated. The outdoor reset function will calculate the CH setpoint based on the settings of Parameters 4,10,11,12. If the room thermostat terminals are open, the CH setpoint will decrease by the setting of this parameter. When the room thermostat terminals are closed, the CH setpoint will return to the setpoint calculated by the outdoor reset function.

Parameter 20 Adjustment

To change Parameter 20, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPRR*. Press the STEP button to reach Parameter 20. Press the “+” or “-” button to change the setting of Parameter 20 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The factory setting of 00°F is the OFF position. The CH setpoint will not decrease if the room thermostat terminals are open.

CH CIRCULATOR POST PUMP TIME PERIOD (PARAMETER 32)

At the completion of a heating call, the CH circulator will continue to operate for a time period set by Parameter 32.

CH Circulator Post Pump Time (Parameter 32)

Factory Setting	Minimum Setting	Maximum Setting
01 Min.	00 = 10 Sec.	99 Min.

The post pump feature allows the heat remaining in the boiler to be sent to the heating system, which will improve the overall efficiency of the system.

NOTICE

A minimum setting of 00 results in a CH circulator post pump time of 10 seconds. The 10 second CH circulator post pump cycle can not be disabled and the system should be designed to allow for this water flow.

Parameter 32 Adjustment

To change Parameter 32, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows *PPRR*. Press the STEP button to reach Parameter 32. Press the “+” or “-” button to change the setting of Parameter 32 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

CH CALL BLOCKING TIME (PARAMETER 40)

After the completion of a heating call, a time delay period before responding to the next CH call can be set with Parameter 40.

CH Call Blocking Time (Parameter 40)

Factory Setting	Minimum Setting	Maximum Setting
03 X 10.2 Sec.	00 X 10.2 Sec.	30 X 10.2 Sec.

During the CH call blocking time, the burner will not respond to a heating call. The CH circulator will continue to operate for a heating call. This blocking time has no affect on domestic calls. This CH call blocking feature prevents short cycling of the burner and extends the life of the burner components.

Parameter 40 Adjustment

To change Parameter 40, requires entering the Access Code as outlined on page 2. After entering the Access Code, press the MODE button until the display shows **PPPP**. Press the STEP button to reach Parameter 40. Press the “+” or “-“ button to change the setting of Parameter 40 to the desired setting. Press the STORE button and confirm that the display blinks to indicate the setting has been stored.

NOTICE

The parameter setting is multiplied by 10.2 seconds to reach the actual CH call blocking time. For example, a setting of 3 results in a CH call blocking time of 30.6 seconds.

TROUBLESHOOTING INFORMATION

After the Access Code has been entered, pressing the MODE button can access additional menu items. This additional information can be useful for troubleshooting the boiler. The display should follow the following sequence:

Press MODE once- **STBY**

Press MODE x2 - **PRPR**

Press MODE x3 - **INFO**

Press MODE x4 - **FAN**

Press MODE x5 - **COND**

Press MODE x6 - **ERRD**

Press MODE x7 - **STBY**

Etc.....







The **FAN** menu will display the speed of the fan, which indicates the units firing rate. The **COND** menu is not used. The **ERRD** menu will display the last error code that occurred and the conditions the boiler was in when it occurred.

Fan Speed

To display the speed of the fan, press the MODE button until the display shows **FAN**. Press the STEP button to display the fan RPM. The fan speed will vary between 1900 RPM (Low Fire) and 5300 RPM (High Fire) depending on boiler load.

Last Error Code

If the user has pressed the RESET button and cleared the last error code, accessing the **ERRD** menu can retrieve it. To display the last error code, press the MODE button until the display shows **ERRD**. Press the STEP button to display the last error code and additional information as follows:

Key:	Display	Description of parameters
STEP		Last Hard Lockout Error Code
STEP		Status Code of the boiler when the error occurred.
STEP		Supply Water Temperature when the error occurred.
STEP		Return Water Temperature when the error occurred.
STEP		Domestic Hot Water Temperature when the error occurred.
STEP		Outdoor Temperature when the error occurred.

Item 1 displays the Last Hard Lockout Code. Consult the Prestige Installation & Maintenance Manual or Troubleshooting Guide for Error Code descriptions.

Item 2 displays the mode the boiler was operating in when the error occurred.

Status Code	Description
0	Standby, No Boiler Demand
1	Fan Pre/Post Purge
2	Ignition
3	Burner on for CH Demand
4	Burner on for DHW Demand
5	Air Flow Check
6	Setpoint Reached, Burner Off
7	CH Post Pump
8	DHW Post Pump
9	Burner Blocked

Item 3 displays the Supply Water Temperature of the boiler when the error occurred.

Item 4 displays the Return Water Temperature of the boiler when the error occurred.

Item 5 will indicate the presence of a domestic call if an aquastat is used in the Indirect Water Heater. If **-22** is displayed, a domestic call was not present when the error occurred. If **240** is displayed, a domestic call was present when the error occurred. Item 5 displays the actual Domestic Water Temperature of the Indirect Water Heater if the optional IDWH sensor kit is installed.

Item 6 displays the Outdoor Temperature when the error occurred.

PARAMETER WORKSHEET

Parameter	Description	Factory Setting	Minimum Setting	Maximum Setting	Adjusted Setting
1	DHW Setting	140°F	68°F	150°F	
2	DHW Application Selection	01	00	03	
3	CH Application Selection	01	00	03	
4	CH Maximum Boiler Operating Setpoint	186°F	86°F	194°F	
10	CH Minimum Boiler Operating Setpoint	86°F	60°F	140°F	
11	CH Reset Curve Coldest Day	00°F	-22°F	50°F	
12	CH Reset Curve Warmest Day	64°F	60°F	78°F	
13	Frost Protection Setpoint	-22°F	-22°F	50°F	
18	CH Block Temperature Setting	32°F	32°F	140°F	
19	Boost Feature Setting	00 Minutes	00 Minutes	30 Minutes	
20	Parallel Shift Value	00°F	00°F	144°F	
21	Setpoint Value Addition for DHW	46°F	00°F	54°F	
32	CH Circulator Post Pump Time Period	01 Minutes	00 Minutes	99 Minutes	
33	DHW Circulator Post Pump Time Period	03 x 10.2 Sec.	00 x 10.2 Sec.	30 x 10.2 Sec.	
38	DHW On Differential	02°F	-06°F	54°F	
39	DHW Off Differential	06°F	-36°F	54°F	
40	CH Call Blocking Time	03 x 10.2 Sec.	00 x 10.2 Sec.	30 x 10.2 Sec.	
41	DHW Call Blocking Time	00 x 10.2 Sec.	00 x 10.2 Sec.	30 x 10.2 Sec.	
42	DHW to CH Call Blocking Time	00 x 10.2 Sec.	00 x 10.2 Sec.	30 x 10.2 Sec.	
43	DHW Priority Timeout	00 Minutes	00 Minutes	120 Minutes	
45	CH Operating Signal Selection	00	00	86	
46	DHW Operating Signal Selection	13 Solo 02 Excellence	00	29	

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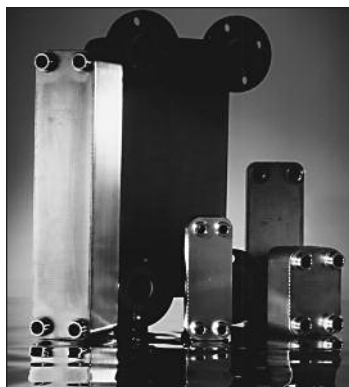
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