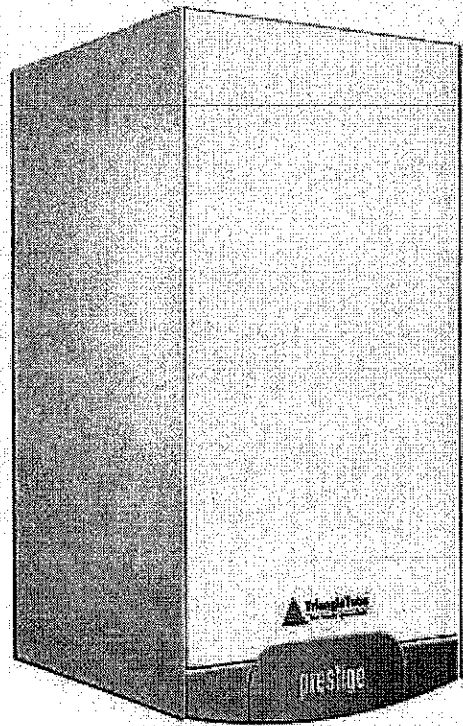


prestige

2nd CH Circuit Application Supplement Secondary Low Temperature Heating Zone Kit



Complies with
ANSI Z21.13
CSA4.9
Gas Fired
Low Pressure Boiler

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.

05/08/2007



TriangleTube
Hot Water Specialists

2006-24 Prestige 2nd Circuit Appl. Sup

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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.

INSTALLER

WARNING

Read all instructions as outlined in this manual and in the boiler installation manual. Failure to comply with these instructions in the order presented could result in personal injury or death.

This document is a supplement to the PRESTIGE boiler Installation and Maintenance manual. The purpose of this supplement is to provide the ability to control multiple temperature heating zones.

HOMEOWNER

- This manual is intended for use by a qualified heating contractor or service technician.
- Please reference the User Information manual for additional information.
- Ensure this document and all pertaining documents are maintained near the boiler to be used by the qualified heating contractor or service technician.

GENERAL INFORMATION

This supplement requires the use of the 2nd CH Circuit kit PSRKIT35.

The 2nd CH Circuit kit should include the following parts:

- NTC- 6 Sensor with wire leads and connectors
- AM3-11 Interface Module
- (2) #10 x 3/4" Screws
- Terminal Block Wire Tool
- 1" 3-way Valve with Actuator

If any of these kit components are missing, contact your local Sales Representative or Triangle Tube Customer Service.

The use of this kit will give the installer the opportunity to have dual temperature space heating circuits. The dual temperature heating circuits are in addition to the high temperature setting requirement for domestic hot water production.

The 2nd CH circuit can be setup in one of the following four configurations:

- * Master Zone with Domestic Priority
- * Slave Zone with Domestic Priority
- * Master Zone without Domestic Priority
- * Slave Zone without Domestic Priority

Each 2nd CH circuit configuration utilizes outdoor reset control. These configurations will be discussed in detail in the MCBA programming section in Table 1 on pages 9 through 11.

NOTICE

The MCBA can only control a single 3-way valve actuator. If multiple temperatures are required in addition to the two temperatures the 2nd Circuit Kit can provide, consult various control manufacturers for external mix systems that are available.

BOILER PIPING - GENERAL REQUIREMENTS

Reference the PRESTIGE Installation and Maintenance manual for complete details required for boiler side piping.

Reference Fig. 1 for a recommended general arrangement of the 2nd circuit piping.

All plumbing must meet or exceed all local, state and national plumbing codes.

Boiler Piping - 2 Zone Circuit

In this piping arrangement the boiler circulator is utilized as the system circulator. The 2nd CH circuit is an additional, possible retrofit zone of heating. The 2nd CH circuit design temperature requirements must be lower than the design temperature of the main heating circuit.

Boiler Piping - Multi Zone Circuit

In this piping arrangement the boiler circulator is utilized as the system circulator with several heating zones controlled by zone valves. The 2nd CH circuit is a zone of heat that requires a lower system design temperature than the remaining zones.

Boiler Piping - Primary / Secondary

In this piping arrangement the boiler circulator is utilized as the primary circulator and there is either a system circulator or multiple zone circulators. The 2nd CH circuit is an additional zone that requires a lower temperature than any of the other heating zones.

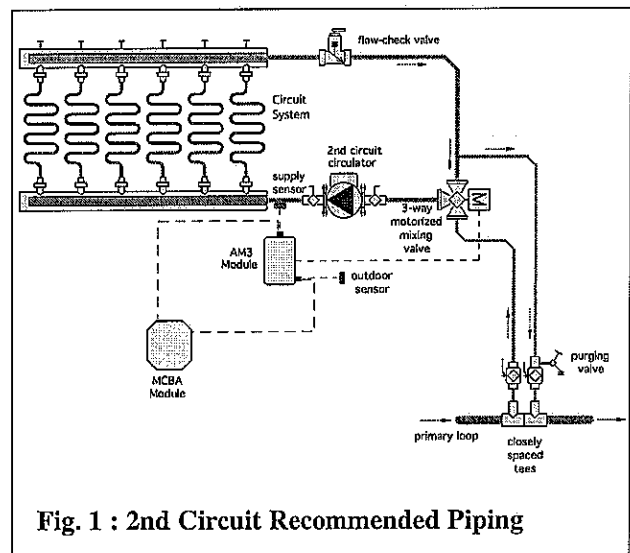


Fig. 1 : 2nd Circuit Recommended Piping

3-Way Valve Installation

Valve Connections - 1" NPT
 CV Value - 9.3
 Maximum Operating Pressure - 150 psi
 Operating Temperature Range - (-)20°F to 248°F

Orient the valve so that when the valve is in the closed position, 100% of the 2nd Circuit system return water is supplied to the 2nd Circuit system. Flow is considered and referenced as AC in this configuration.

Orient the Face Plate (shown as item 8 in Fig. 3) on the valve so that "10" on the scale faces the Return port. With this orientation, a valve setting of 0 will provide a fully closed position of the valve and 100% 2nd Circuit system flow or AC flow pattern is established.

Reference Fig. 2 on page 4 for proper valve configuration and face plate orientation

When the valve is positioned such that 100% of the boiler system is open to the 2nd Circuit system and there is no return water being supplied, this flow pattern is reference as BC.

Mounting NTC6 System Sensor

The system temperature sensor NTC6 should be placed on the circuit supply piping after the 3-way mixing valve.

The NTC6 sensor is supplied with 1/2" NPT threads and can be installed in a tee fitting on the supply piping. Ensure the sensor is placed in the flow of the system supply water.

Mounting Actuator Onto Valve Body

1. Place the coupling sleeve (1) on the valve shaft. Rotate the sleeve until the pointer (2) is aligned with the Number 5 of the scale on the face plate (8).

NOTICE

Placing the coupling sleeve in the manner described above will properly align the actuator motor position to the valve position.

2. The mounting stud (3) must be placed into one of the four mounting holes on the actuator adapter/mounting plate. It is recommended to place the mounting stud in the lower right corner mounting hole when facing the valve in the piped position.

3. The notch on the actuator knob (4) should be oriented facing directly away from the red arrow of the motor as shown. If the motor knob is not properly oriented, press the knob and rotate to the correct position.
4. Place the actuator (9) on the valve and secure it with the central screw (5).
5. Place the wide BLUE side of the red/blue scale label (6) to the position 0 of the scale on the face plate of the valve.
6. Press the cover (7) on the actuator knob so the red/blue scale faces the red arrow of the actuator.

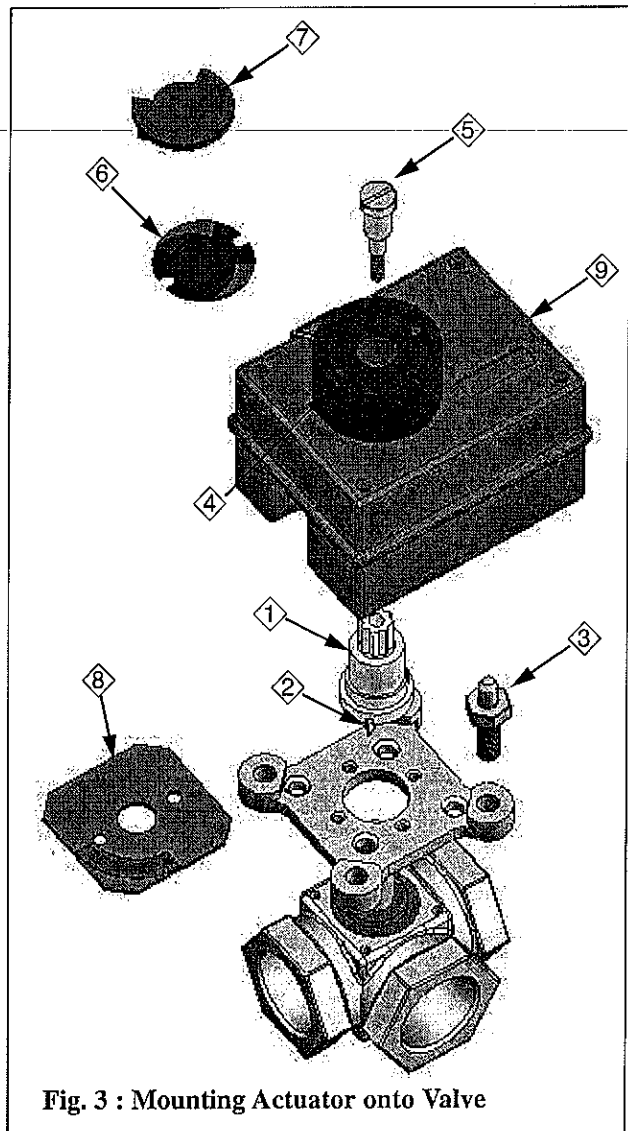


Fig. 3 : Mounting Actuator onto Valve

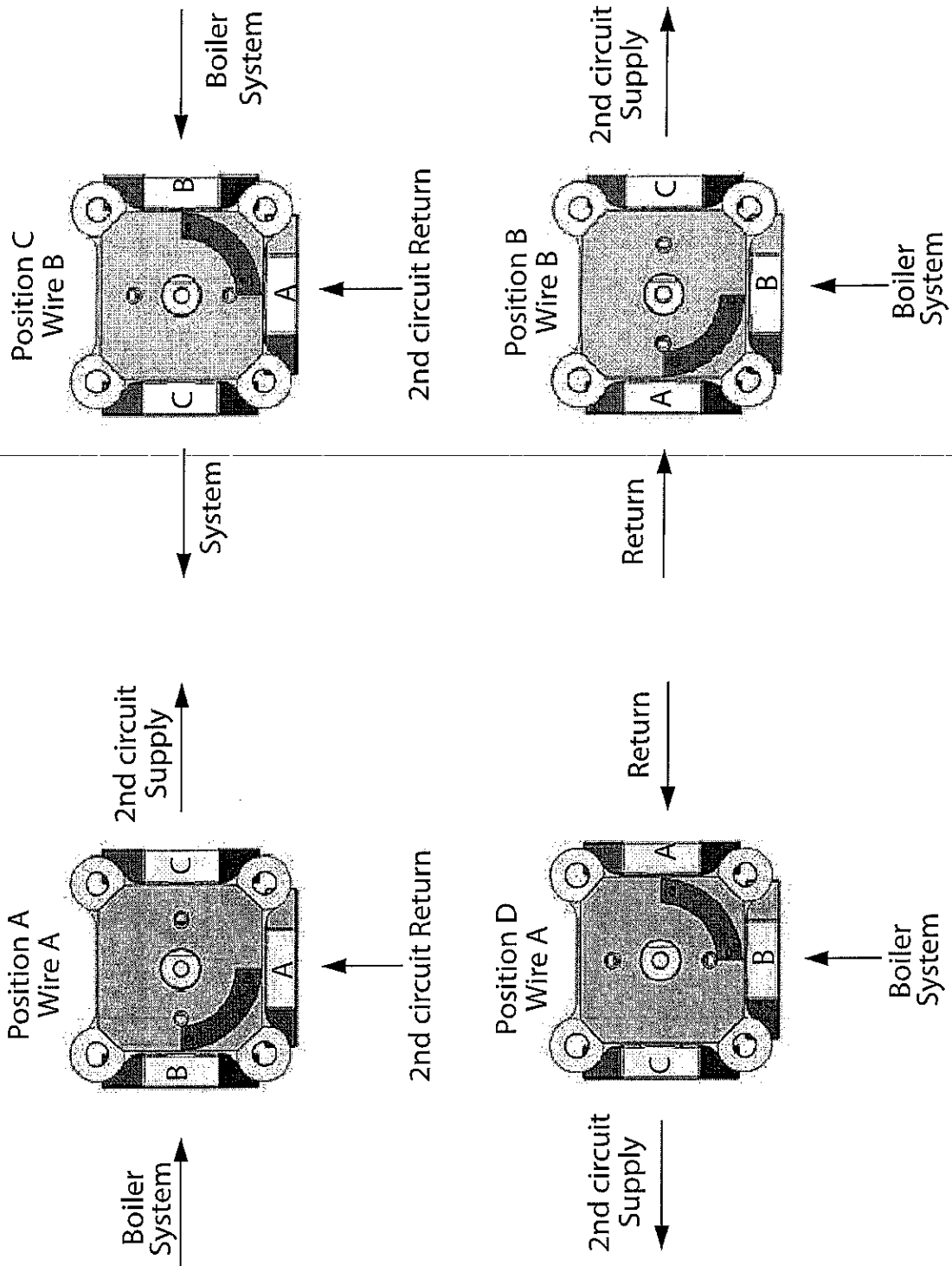


Fig. 2 : Valve Configuration and Face Plate Orientation

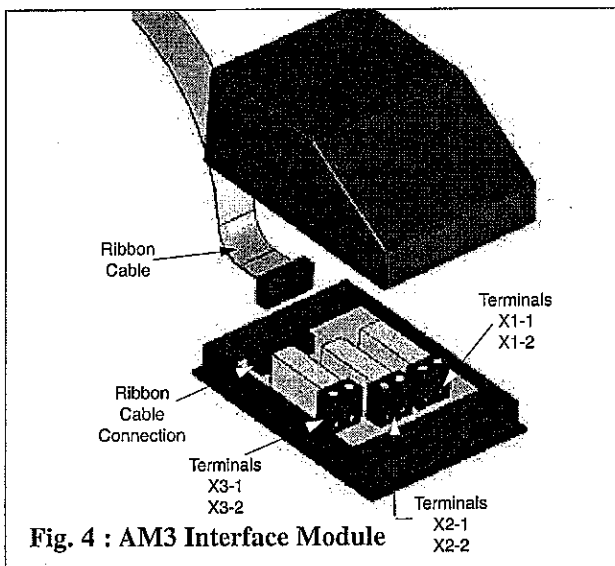
Mounting and Wiring Connection of the AM3 Module

WARNING

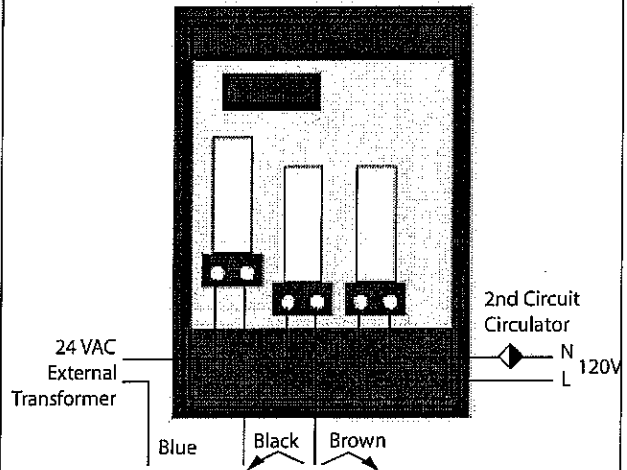
ELECTRICAL SHOCK HAZARD. For your safety disconnect electrical power supply to the boiler before servicing or making any electrical connections to avoid electrical shock hazard. Failure to do so can cause severe personal injury or death.

1. Remove the front jacket panel of the Prestige by removing the mounting screws along the front upper edge of the unit. Lift the panel up and pull forward to remove the front panel from the unit.
2. Remove the screw retaining the control panel. Open the display panel cover and swing the control panel out.
3. Insert a small flat-blade screwdriver into a slot on the bottom of the AM3 module near the tapered end of the module and gently pry off the cover. Use care not to damage the cover or the module.
4. With the cover removed from the AM3, insert either end of the ribbon cable into the AM3 electrical connector. The ribbon cable will fit through the cutout on the end of the AM3 module cover and base. Ensure that the ribbon connector tab is aligned with the AM-3 connector slot.
5. Route the wires from the 2nd Circuit circulator and valve actuator through the wire ways of the Prestige boiler and along the Prestige factory wiring harness. Use the cable clamps provided in the AM3 kit to secure the incoming wires.

Reference Fig. 4 for AM3 terminal connection.



Note: Wire "A" Diagram see Fig. 2 for Valve configuration on page 3.



Note: Wire "B" Diagram see Fig. 2 for Valve configuration on page 3.

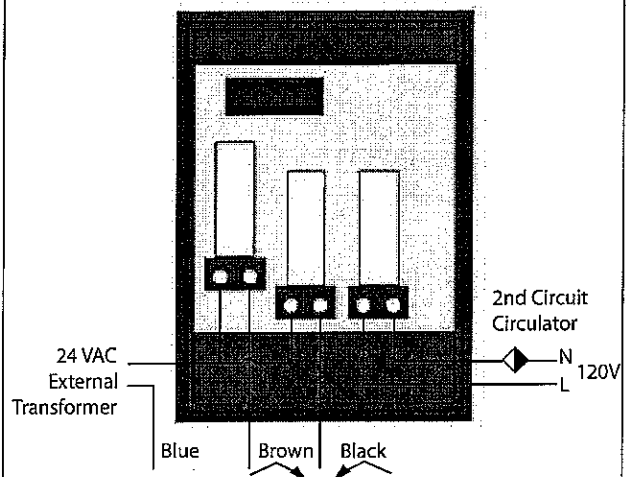


Fig. 5 : AM3/ Valve Configuration Wiring

Reference Fig. 5 for AM3 wiring based on valve configuration.

6. Once the wiring has been completed snap the cover back on the AM3 module.
7. Place the AM3 on the backside of the control panel as shown in Fig. 6, page 6. Align the mounting holes of the AM3 with the upper or lower clearance holes along the hinged side of the control panel. Secure the AM3 module using the two screws provided in the AM3 kit from the front of the control panel as shown in Fig. 6, page 6.

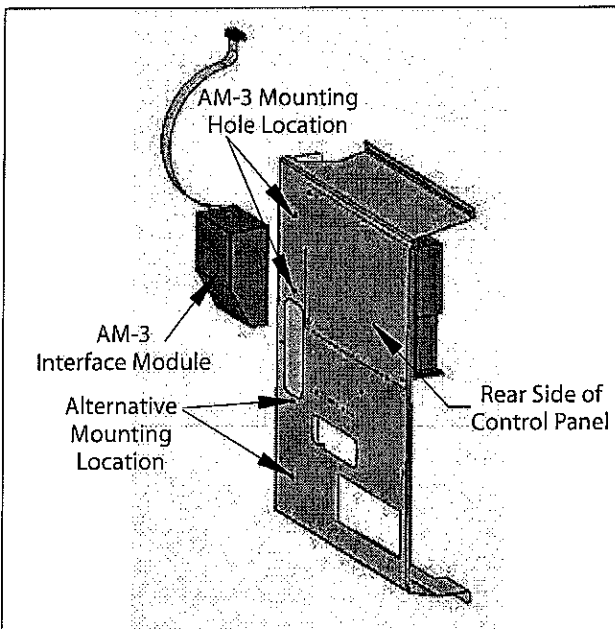


Fig. 6 : Mounting the AM-3 Interface Module

8. Plug the end of the ribbon cable into the empty socket on the left side of the Prestige MCBA control module.
9. Rotate the control panel back into original position and secure with the retaining screw.
10. Once all wiring is completed, replace the front jacket panel and secure with the 3 mounting screws along the upper edge.

Wiring the NTC6 System Sensor

1. Wire the NTC6 System Sensor into the low voltage wiring of the Prestige using terminals 17 and 18.
2. Use the Terminal Block Wire tool to open the retaining clips of the terminal block as shown in Fig. 7.

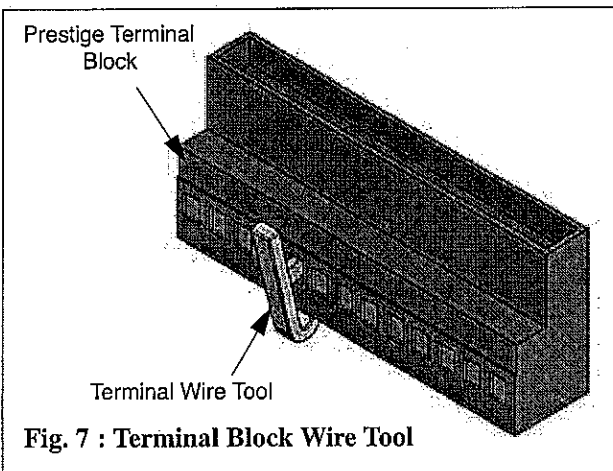


Fig. 7 : Terminal Block Wire Tool

Wiring the Actuator Motor

1. The actuator motor requires an external 24VAC power supply. The installer must supply an external 24VAC transformer minimum 5VA.
2. Connect one lead from the transformer to the BLUE wire on the actuator motor.
3. Connect the second transformer lead to terminals X2-1 and X3-1 of the AM3 module.
4. Reference the valve orientation and wiring diagrams in Fig.2, page 4 and Fig. 5, page 5 to determine proper rotation of the valve for the appropriate flow pattern.
5. If the appropriate wiring diagram is Wire A, then connect the BLACK wire to terminal X2-2 of the AM3 module. The BROWN wire is connected to terminal X3-2 of the AM3 module.
6. If the appropriate wiring diagram is Wire B, then connect the BROWN wire to terminal X2-2 of the AM3 module. The BLACK wire is connected to terminal X3-2 of the AM3 module.

NOTICE

Terminals X2-1 and X2-2 of the AM3 module should provide a valve position for flow of AC (Return to Circuit). Terminals X3-1 and X3-2 of the AM3 module should provide a valve position for flow of BC (Boiler to Circuit).

NOTICE

The BROWN wire on the actuator will provide clockwise rotation of the valve. The BLACK wire on the actuator will provide counter-clockwise rotation of the valve.

7. Rotate the actuator manually by pressing the motor knob in and turning it to the desired settings to ensure the proper rotation is reached.

Wiring the 2nd Circuit Circulator

1. The circulator for the 2nd circuit heat zone requires an external 120VAC power supply.

2. The circulator must be connected in series with the AM3 module through terminals X1-1 and X1-2. See Fig. 5, page 5.

NOTICE

The terminals X1-1 and X1-2 are limited to 1 Amp at 120 VAC. An isolation relay must be used if the pump current draw is above 1 Amp.

Wiring the Outdoor Sensor

1. The outdoor sensor supplied with the boiler must be installed and utilized with the 2nd Circuit Kit. The outdoor sensor is connected to terminals 9 and 10 on the low voltage terminals of the Prestige.
2. Reference the Prestige Installation manual for complete details in mounting and wiring of the outdoor sensor.

Wiring An Optional Summer / Winter Switch

1. An optional Summer / Winter switch may be utilized to by-pass the outdoor sensor and manually shut down the 2nd Circuit circulator. The switch will also shut down the boiler circulator if the boiler is configured for continuous circulation.
2. The Summer / Winter switch is wired in parallel to the outdoor sensor on terminals 9 and 10 of the low voltage terminals of the Prestige.
3. The configuration of the switch is as follows: Winter setting is an open switch and Summer setting is a closed switch.

NOTICE

Once all wire connections have been completed, electrical power supply can be restored to the boiler and placed back into service.

Program Access of the MCBA Control

NOTICE

The Prestige MCBA control module must be programmed to accept an additional temperature sensor and to control a 3-way valve.

To adjust the required parameters for the MCBA to operate a 2nd Circuit heat zone, the installer must enter into the extended parameter menu of the control.

WARNING

Do not attempt to revise any other control parameter settings except those listed in this supplement. Perform only those parameter revisions described in this supplement. Failure to comply could result in erratic or unreliable operation of the Prestige resulting in severe personal injury, death or substantial property damage.

NOTICE

For additional information on revising the Prestige MCBA Control Module operational parameter settings, reference the Prestige Control Supplement.

Activating the Access Code

To enter the parameter listing of the MCBA control, the installer must enter the activation code as follows:

1. Press and hold the MODE button
2. Continue holding the MODE button and press the STEP button until STBY appears and hold both STEP and MODE buttons in for 2 to 3 seconds.

The display should read CODE.

3. Release the STEP and MODE buttons simultaneously.
4. Press the STEP button once.

The display should read C_XX (XX should be a random number from 00 to 99)

5. Press the + or - button to change the display from C_XX to C_05. Press and release the + or - to

change the display one number at a time. Press and hold the + or - to rapidly change the display number.

- When the display reads C_05, press STORE to save the activation code. The display C_05 should flash when the code is entered and saved.

After the activation code is entered press the MODE button until the display shows PARA. At this point the installer can access the parameters required for this application.

Once in the Parameter mode, press the STEP button repeatedly to reach the appropriate parameter setting. The display should show the following sequence, as the STEP button is press repeatedly:

Press STEP once - 1140
Press STEP x2 - 2_01
Press STEP x3 - 3_01
Press STEP x4 - 4186
Press STEP x5 - P_05
Press STEP x6 - P_06

NOTICE

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

After Parameter 4, the display will continue to show the sequential parameters following in the format of P followed by a two-digit number that increases with each press of the STEP button.

Once a particular parameter is reached, release the STEP button. Wait a second and the display will show the current setting for that parameter in the last two display digits.

To Change a Parameter Setting

Use the + or - button to change the value of the parameter.

Press the STORE button once to save the change. The display will flash once when the change has been accepted.

WARNING

If a parameter setting is changed from the factory default and the STORE button is not pressed to save the setting, the MCBA module will automatically store the setting after 15 minutes. Ensure all parameters settings are either factory default or revised based on the application. Review all parameters settings on page 17 when completed and prior to commission of the boiler. Failure to comply could result in erratic or unreliable operation of the Prestige boiler.

NOTICE

Once a parameter setting value has been revised and stored, if the STEP button is pressed for the next parameter setting, the value setting of that parameter will appear. The display will not show P_XX of the next sequential parameter. The sequence of parameters may be scrolled through, as the display will roll over from Parameter 42 to Parameter 1.

BEST PRACTICE

If sequential parameters are being revised and since the display will not show P_XX of the sequential parameter, it is recommended to press and hold the STEP button to scroll through the entire list of parameters and return back to the sequential parameter before making any additional changes to avoid any potential confusion.

Boiler System Application Setup

There are two application settings in which the boiler would operate in a response to meet a heat load demand. Those application settings are:

Room Thermostat - In this application setting the boiler will respond to a heat demand based on the closing of an external thermostat. In this application the boiler circulator can be setup as continuous circulation or to respond on the heat demand.

Outside Temperature - In this application setting the boiler does not require an external thermostat to initiate a heat demand. The boiler will maintain a supply water temperature that is based on the outdoor reset temperature curve that is established. The boiler circulator is set as continuous circulation in this application.

2nd Circuit Application Setup

There are four application settings for the 2nd Circuit heat zone, with each application using continuous circulation. Those application settings are:

2nd Circuit Slave - In this application the boiler burner, boiler circulator and 2nd circuit circulator will respond to an external thermostat, call for heat. This thermostat call for heat may or may not be for the 2nd circuit heat zone. The 3-way valve will adjust to maintain the 2nd circuit setpoint temperature, which is based on the outdoor temperature. The 2nd circuit circulator and primary CH boiler circulator will shut down on a domestic priority heat demand.

2nd Circuit Master - In this application the boiler burner function is based on the relationship of the setpoint temperature of the 2nd circuit as calculated from the outdoor temperature ($T6_{set}$) and the actual measured circuit temperature ($T6$). The burner will shutdown when $T6 > T6_{set} + 2^{\circ}F$ and will fire the burner when $T6 < T6_{set} - T6_{on}$. $T6_{on}$ is an adjustable parameter setting, which is described in detail on page 14. The burner will also shutdown when $T6_{set} \leq T6_{foot}$ ($T6_{foot}$ is the lowest required circuit temperature based on the outdoor reset calculated temperature). The installer also has the option of establishing a temperature limit T_{block} in which the burner and circuit circulator will be disable when $T6_{set} < T_{block}$.

2nd Circuit Slave with DHW - In this application setting, the 2nd circuit will function as described in the 2nd Circuit Slave, except the 2nd circuit circulator will ignore the domestic priority function and continue circulating.

The boiler circulator, however, will continue to recognize the domestic priority function and shut down.

2nd Circuit Master with DHW - In this application setting the 2nd circuit will function as described in the 2nd Circuit Master, except the 2nd circuit circulator will ignore the domestic priority function and continue circulating. The boiler circulator, however, will continue to recognize the domestic priority function and shut down.

Boiler / 2nd Circuit System Parameter Adjustment

Parameter 34 of the MCBA module will set the proper Boiler System and 2nd Circuit setting for desired application.

Follow the steps given in the Program Access section on page 7 until the display shows P_34. Release the STEP button and the display should show the factory setting as listed in Table 1. Use the + or - to adjust to the revised setting as listed in Table 1 and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

NOTICE

Once the 2nd Circuit has been activated in Parameter 34 the MCBA will now conduct a valve adjustment. This adjustment is shown on the boiler display as a status code AXXX. The valve adjustment is 2 minutes long and the display will remain in the status AXXX until the adjustment is completed.

Outdoor Reset Curve Setting
When using the 2nd Circuit in conjunction with the main heating system, the installer must establish two system

Table 1: Parameter 34 Setting

Setting	Description	Function
00	Room Thermostat – No 2nd Circuit (Factory Setting)	<ul style="list-style-type: none"> ⊙ Call for Heat initiated by external thermostat ⊙ Set point or Outdoor Reset operation ⊙ Outdoor Sensor optional ⊙ No 2nd Circuit function ⊙ Boiler CH pump "ON" with a call for heat or continuous depending on Parameter 3 setting ⊙ Parallel Shift (Parameter 12) not available ⊙ Tblock Feature (Parameter 10) and Boost Feature (Parameter 11) is available ⊙ Domestic Priority - CH pump "OFF"

Setting	Description	Function
01	Outside Temperature - No 2nd Circuit	<ul style="list-style-type: none"> ⊙ Call for Heat ⊙ Outdoor Reset operation ⊙ Outdoor sensor required ⊙ No 2nd Circuit function ⊙ Boiler CH pump continuous ⊙ Parallel Shift (Parameter 12) active with Open circuit on terminals 7 and 8. ⊙ Boost feature (Parameter 11) not available ⊙ Tblock Feature (Parameter 10) ⊙ Domestic Priority- CH pump "OFF"
		<ul style="list-style-type: none"> ⊙ 2nd Circuit function active ⊙ Call for Heat initiated by external thermostat (either system or 2nd circuit) ⊙ Set point or Outdoor Reset operation for CH system load
10	Room Thermostat – With 2nd Circuit Slave	<ul style="list-style-type: none"> ⊙ Outdoor reset function for the 2nd Circuit ⊙ 2nd circuit circulator function is initiated by external call for heat. ⊙ Outdoor Sensor required ⊙ Boiler CH pump "ON" with a call for heat or continuous depending on Parameter 3 setting ⊙ 2nd Circuit pump active on "call for heat" ⊙ Parallel Shift (Parameter 12) not available ⊙ Boost feature (Parameter 11) Available for CH System only ⊙ Tblock Feature (Parameters 10 and 11) and active for both CH system and 2nd circuit. ⊙ Domestic Priority- CH pump and 2nd Circuit pump "OFF" ⊙ Frost Protection – 2nd Circuit valve open to system
20	Room Thermostat – With 2nd Circuit Master	<ul style="list-style-type: none"> ⊙ 2nd Circuit function active ⊙ Call for Heat initiated by external CH system thermostat ⊙ No 2nd Circuit thermostat required ⊙ Set point or Outdoor Reset operation for CH system load ⊙ Outdoor reset function for the 2nd Circuit ⊙ 2nd circuit circulator function is continuous. ⊙ Outdoor Sensor required ⊙ Boiler CH pump "ON" with a call for heat or continuous depending on Parameter 3 setting ⊙ Parallel Shift (Parameter 12) not available ⊙ Boost feature (Parameter 11) Available for CH System only ⊙ Tblock Feature (Parameter 10) active for both CH system and 2nd circuit. ⊙ Domestic Priority- CH pump and 2nd Circuit pump "OFF" ⊙ Frost Protection – 2nd Circuit valve open to system

Setting	Description	Function
11	Outdoor Temperature – With 2nd Circuit Slave	<ul style="list-style-type: none"> ⊙ 2nd Circuit function active ⊙ Outdoor Reset operation for CH system load ⊙ Heat enabled for CH System ⊙ Outdoor reset function for the 2nd Circuit ⊙ 2nd circuit reset circulator function is initiated by external call for heat with the 2nd circuit. ⊙ Outdoor Sensor required ⊙ Boiler CH pump continuous ⊙ 2nd Circuit pump active on "call for heat" ⊙ Parallel Shift (Parameter 12) available (2nd circuit thermostat) ⊙ Boost Feature not active for CH System and 2nd circuit ⊙ Tblock Feature (Parameter 10) and Boost Feature (Parameter 11) are available and active for both CH system and 2nd circuit. ⊙ Domestic Priority- CH pump and 2nd Circuit pump "OFF" ⊙ Frost Protection – 2nd Circuit valve open to system
21	Outdoor Temperature – With 2nd Circuit Master	<ul style="list-style-type: none"> ⊙ 2nd Circuit function active ⊙ Outdoor Reset operation for CH system load ⊙ Heat enabled for CH System ⊙ Outdoor reset function for the 2nd Circuit ⊙ No CH or 2nd Circuit thermostat required ⊙ CH and 2nd circuit circulator function is continuous. ⊙ Outdoor Sensor required ⊙ Parallel Shift (Parameter 12) available ⊙ Tboost Feature (Parameter 11) not active for CH System and 2nd circuit ⊙ Tblock Feature (Parameter 10) and Boost Feature (Parameter 11) are available and active for both CH system and 2nd circuit. ⊙ Domestic Priority- CH pump and 2nd Circuit pump "OFF" ⊙ Frost Protection – 2nd Circuit valve open to system
50	Room Thermostat – With 2nd Circuit Slave During DHW	<ul style="list-style-type: none"> ⊙ Same functions as Setting "10" Room Thermostat – With 2nd Circuit Slave ⊙ Domestic Priority- CH pump "OFF" and 2nd Circuit pump "ON"
60	Room Thermostat – With 2nd Circuit Master During DHW	<ul style="list-style-type: none"> ⊙ Same functions as Setting 20 Room Thermostat – With 2nd Circuit Master ⊙ Domestic Priority- CH pump "OFF" and 2nd Circuit pump "ON"
51	Outdoor Temperature – With 2nd Circuit Slave During DHW	<ul style="list-style-type: none"> ⊙ Same functions as Setting "11" Outdoor Temperature – With 2nd Circuit Slave ⊙ Domestic Priority- CH pump "OFF" and 2nd Circuit pump "ON"
61	Outdoor Temperature – With 2nd Circuit Master During DHW	<ul style="list-style-type: none"> ⊙ Same functions as Setting "21" Outdoor Temperature – With 2nd Circuit Master ⊙ Domestic Priority- CH pump "OFF" and 2nd Circuit pump "ON"

curves based on the outdoor temperature. Both curves will utilize the same outdoor design temperature settings which are established in Parameters 6 and 7. The design system temperatures based on the outdoor temperature however will be different.

In this application the Triangle Tube Outdoor sensor kit is required.

Outdoor Temperature (Coldest) Parameter Adjustment

To revise the coldest design temperature day, adjustment of Parameter 6 in the CODE mode is required.

Follow the steps given in the Program Access section on page 7 until the display shows P_06. Release the STEP button and the display should show the factory setting to the desired temperature. Use the + or - to adjust to the revised setting listed below and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Outdoor Temperature (Warmest) Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
6	00°F	(-)04°F	50°F

To revise the warmest design temperature day adjustment of Parameter 7 in the CODE mode is required.

Follow the steps given in the Program Access section on page 7 until the display shows P_07. Release the STEP button and the display should show the factory setting to the desired temperature. Use the + or - to adjust to the revised setting listed below and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Boiler Temperature Set Point - High Limit Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
7	64°F	60°F	78°F

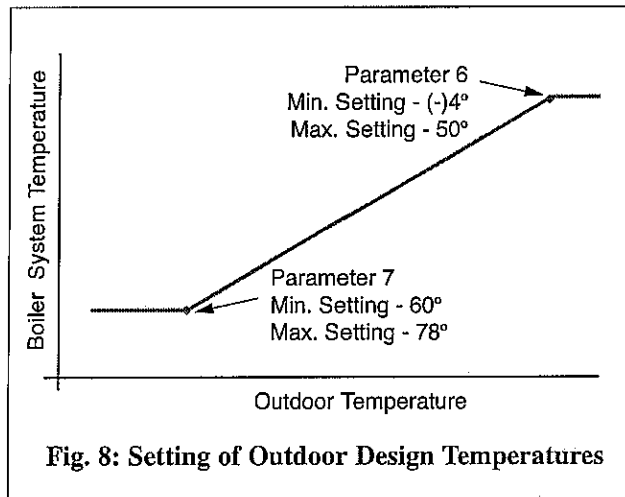


Fig. 8: Setting of Outdoor Design Temperatures

The boiler temperature set point is the temperature the boiler will operate to, based on the outdoor temperature. The boiler set point temperature - High Limit is the maximum boiler temperature established and is based on the coldest outdoor temperature.

Follow the steps given in the Program Access section on page 7 until the display shows P_04. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting to the desired temperature and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

NOTICE

Parameter	Factory Setting	Minimum Setting	Maximum Setting
4	186°F	86°F	194°F

Parameter 4 can be accessed when the boiler is in normal operation. Press MODE until the display shows PARA. Press the STEP button four times to Parameter 4.

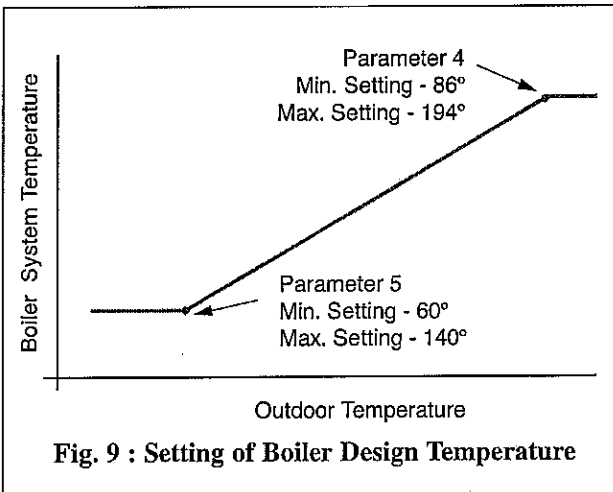
Boiler Temperature Set Point - Low Limit Parameter Adjustment

The boiler temperature set point is the temperature the boiler will operate to, base on the outdoor temperature. The boiler set point temperature - Low Limit is the minimum boiler temperature established and is based on the warmest outdoor temperature.

Follow the steps given in the Program Access section on page 7 until the display shows P_05. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting to the desired temperature and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

2nd Circuit Set Point - High Limit Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
5	86°F	60°F	140°F



The 2nd Circuit temperature set point is the temperature the 3-way valve will operate and adjust to as a target temperature. This 2nd Circuit temperature set point - High Limit is based on the coldest outdoor temperature establish in Parameter 6. The 2nd Circuit set point temperature - High Limit is the maximum circuit temperature established and is based on the coldest outdoor temperature.

Follow the steps given in the Program Access section on page 7 until the display shows P_39. Release the STEP button and the display should show the factory setting

listed below. Use the + or - to adjust to the revised setting to the desired temperature and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

2nd Circuit Set Point - Low Limit Parameter Adjustment

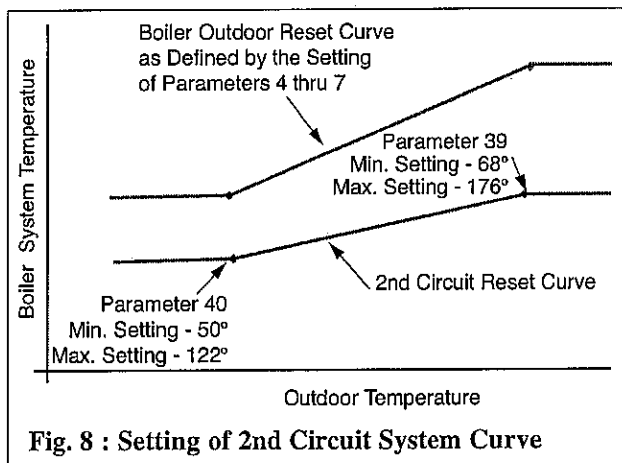
Parameter	Factory Setting	Minimum Setting	Maximum Setting
39	122°F	68°F	176°F

The 2nd Circuit zone temperature set point is the temperature the 3-way valve will operate and adjust to as a target temperature. This 2nd Circuit temperature set point - Low Limit is based on the warmest outdoor temperature establish in Parameter 7. The 2nd Circuit set point temperature - Low Limit is the minimum circuit temperature established and is based on the warmest outdoor temperature.

Follow the steps given in the Program Access section on page 7 until the display shows P_40. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting to the desired temperature and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

2nd Circuit ON Differential Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
40	68°F	50°F	122°F



When the 2nd Circuit is configured, as the MASTER or MASTER with DHW an ON differential setting for the burner function must be established.

When the 2nd Circuit system temperature (T6) falls below the set point temperature (T6set) minus the ON differential (T6on), then a call for heat is initiated to the burner. Burner Function is ON when $T6 < T6set - T6on$

Follow the steps given in the Program Access section on page 7 until the display shows P_41. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting to the desired differential setting and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

2nd Circuit OFF Differential Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
41	10°F	2°F	54°F

When the 2nd Circuit is configured, as the MASTER or MASTER with DHW an OFF differential setting for the burner Function is used. This differential is a factory default of 2°F and cannot be adjusted.

When the 2nd Circuit system temperature (T6) raises above the set point temperature (T6set) plus 2°F, then a call for heat is completed. Burner Function is OFF when $T6 > T6set + 2°F$

NOTICE

The operation of the burner is also initiated by the requirements of the boiler system and may override the requirements of the 2nd Circuit.

T4 Block (Warm Weather Shutdown) Parameter Adjustment

A boiler set point temperature can be established on both the boiler system reset curve and on the 2nd Circuit reset curve which will provide a shutdown of the burner function and both circulator (System and 2nd circuit) functions.

It is important to establish both the boiler system reset curve and the 2nd Circuit system reset curve lower than

the desire T4block temperature set point. Setting the system curves lower allows the T4block temperature to be reached as the outdoor temperature becomes warmer. Once the outdoor temperature drops to a lower temperature and the calculated system temperatures becomes higher than T4block, the boiler burner and both circulators resume normal operation.

Follow the steps given in the Program Access section on page 7 until the display shows P_10. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Boost Feature Parameter Adjustment

Parameter	Factory Setting	Minimum Setting	Maximum Setting
10	32°F	32°F	140°F

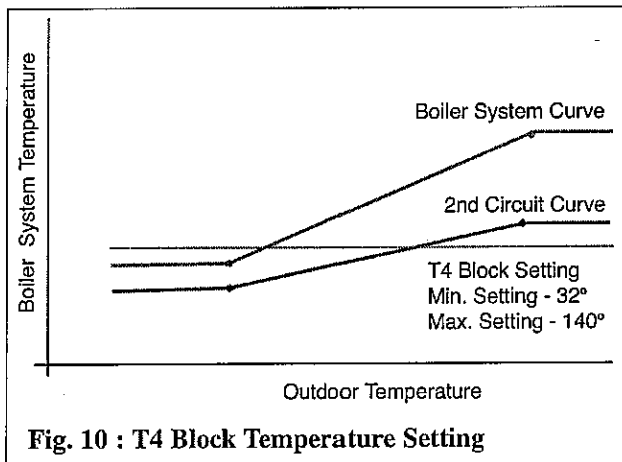


Fig. 10 : T4 Block Temperature Setting

The Boost feature is a time setting in minutes, in which the boiler system set point temperature will be increased by 18°F at the end of every adjustable time period if the request for heat is not satisfied. The Boost feature will continue to be applied increasing the system temperature in increments of 18°F at the end of every adjustable time period until the maximum system temperature setting in Parameter 4 for the boiler system reached. Once the request for heat is completed the system temperature set point will decrease by 2°F per minute until the original calculated set point temperature is reached. If a second call for heat is generated, the boiler system temperature would be based on the amount of Boost periods generated minus the amount of 2°F / minute decrease

that occurred since the completion of the last call for heat.

Follow the steps given in the Program Access section on page 7 until the display shows P_11. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
11	00 Min.	00 Min.	30 Min.

The factory setting of 00 is the OFF position of the Boost feature. With a setting of 00 the Boost feature is not applied.

Parallel Shift (Setback) Feature Parameter Adjustment

The Parallel shift feature is applied when a room thermostat contacts connected to the Prestige low voltage terminals 7 and 8 are "open".

The Parallel shift only applies when the boiler system configuration, parameter 34 is set to OUTDOOR TEMPERATURE and the 2nd Circuit is set to MASTER. Parameter 34 settings must be 21 or 61 for this feature to apply.

Both boiler and 2nd Circuit system reset curves will be shifted by the adjustable Parallel shift temperature setting. Neither system curves however will shift lower than the lowest temperature setting as established in Parameter 5 or Parameter 40.

Follow the steps given in the Program Access section on page 7 until the display shows P_12. Release the STEP button and the display should show the factory setting. Use the + or - to adjust to the revised setting and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Freeze Protection Feature

Parameter	Factory Setting	Minimum Setting	Maximum Setting
12	00°F	00°F	144°F

A non-adjustable, integral function of the MCBA module is the Freeze Protection feature. This feature becomes active if the boiler water temperature falls below 44°F, then the boiler circulator becomes activated. If the boiler temperature falls below 38°F, then the burner becomes active on low input. This feature will remain active until the boiler supply temperature reaches 50°F.

When the Freeze Protection feature is activated the 2nd Circuit circulator will become active and the valve will open to the boiler system establishing a flow pattern BC with the 2nd circuit return in the close position.

Frost Protection Parameter Adjustment

This feature is in conjunction with the Freeze Protection feature of the MCBA and is active when an outdoor sensor is used. If the outdoor sensor senses the outdoor temperature below the setting of Parameter 8 during a non-heating request, then the boiler circulator becomes active. The burner will not become active during this feature unless a call for heat is initiated or if the freeze protection becomes active. There are no means of deactivating this feature other than removing the outdoor sensor.

During this mode of operation, the 2nd Circuit valve will open to allow 100% boiler system water flow into the circuit establishing a flow pattern BC and the 2nd Circuit circulator will become active.

Follow the steps given in the Program Access section on page 7 until the display shows P_08. Release the STEP button and the display should show the factory setting listed below. Use the + or - to adjust to the revised setting and press STORE to save the setting. The display will flash when the setting is stored within the MCBA module.

Parameter	Factory Setting	Minimum Setting	Maximum Setting
8	(-)22°F	(-)22°F	50°F

NOTICE

The Frost Protection feature of Parameter 8 is different than the Freeze Protection feature of the MCBA module. The Frost Protection is based on the outdoor temperature. The Freeze Protection feature is based on the system temperature of the boiler and is considered a boiler protection feature.

2nd Circuit Boiler Display

In the STANDBY mode the MCBA will conduct an adjustment of the 2nd Circuit valve. This adjustment ensures the valve is in the proper position to perform various boiler functions.

This valve adjustment is shown on the display as a status AXXX with XXX indicating the current boiler temperature. The valve adjustment period is 2 minutes long and the display will show AXXX during this period.

In the INFO mode of the MCBA the installer is able to access the current 2nd Circuit temperature.

Press MODE until the display shows INFO.

Press STEP until the display shows 9_XX, press STEP once more. The display will show AXXX, where XXX indicates, the current temperature of the 2nd circuit.

Troubleshooting the 2nd Circuit

If the 2nd circuit system temperature does not respond to the calculated temperature of the circuit check the wiring of the valve and ensure the wiring corresponds to the orientation of the valve.

FACTORY SETTING FOR PARAMETERS

Parameter	Factory Setting
1	140°F
2	01
3	01
4	186°F
5	86°F
6	00°F
7	64°F
8	(-)22°F
9	00°F
10	32°F
11	00 minutes
12	00°F
13	53
14	00
15	53
16	00
17	19
18	00
19	36
20	01 minutes
21	03 x 10.2 sec.

Parameter	Factory Setting
22	6
23	6
24	6
25	10
26	2
27	18
28	03 x 10.2 sec.
29	00 x 10.2 sec.
30	00 x 10.2 sec.
31	44
32	(-)01
33	46°F
34	00
35	13
36	(-)01
37	41
38	32°F
39	122
40	68
41	10
42	0