



**D E S I G N E D T O L E A D**

# Bimini Buddy

**NEAR-BOILER PIPING MODULE**

**INSTALLATION INSTRUCTIONS**

**Models:**

- **BB100H**
- **BB100I**
- **BB100C**

**WARNING:** Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury, or loss of life. For assistance or additional information, consult a qualified installer, service agency or the gas supplier.



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## I. Product Description

The Bimini Buddy is a factory assembled near boiler piping module that is designed for use with Crown Bimini (BWC) series boilers. The central component in this product is a hydraulic separator that is designed to assure that the minimum required flow through the boiler is always maintained regardless of the flow through the heating system. This separator is also used for air removal as well as the connection point for the expansion tank. There are four versions of the Bimini Buddy:

- **BB100H** - Provides hydraulic separation, air elimination, and expansion tank location for heat-only systems.
- **BB100I** - In addition to BB100H features, the BB100I is also equipped with a 120VAC three way diverting valve that allows the boiler output to be directed to either the heating system or an indirect water heater.
- **BB100C** - In addition to BB100H features, the BB100C also includes a 120VAC three way diverting valve that allows the boiler output to be directed to either the heating system or an integral plate heat exchanger for domestic hot water (DHW) production. The BB100C is also equipped with a flow switch to initiate a call for DHW production. DHW temperature is controlled by modulating the boiler supply temperature.

The Bimini Buddy has not been evaluated for use with any boilers not explicitly listed in Table 2.0.

## II. Specifications

Table 2.0: Basic Specifications

Model	BB100H	BB100I	BB100C
Compatible Boilers	BWC070 , BWC090, BWC120, BWC151		
Width (W), in.	12		
Height (H), in.	19-3/4		
Depth (D), in.	12-1/2		
Weight, lbs	24	27	30
Max Expansion Tank Dia. (DM), in.	11		
Maximum Operating Pressure	50 psi		
Maximum Operating Temperature	200F		
3-Way Valve Motor Rating	120VAC, 50/60Hz, 6.5W (Energized for CH Demand)		
Flow Switch Set-point			0.50 GPM
Flow Switch contact Ratings			20VA Pilot Duty at 120VAC

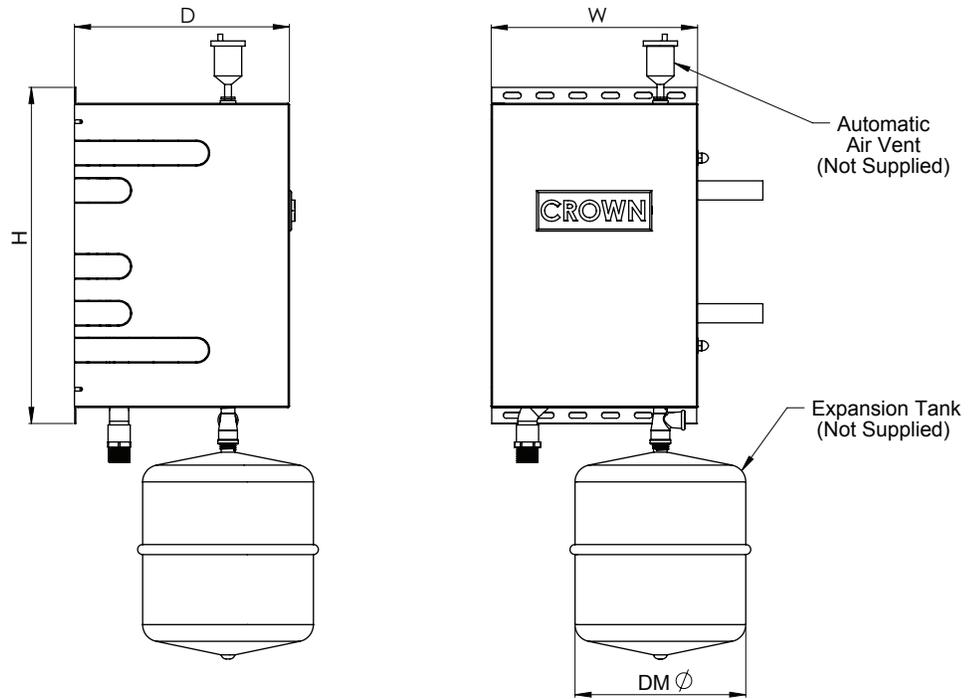


FIGURE 2.1: Bimini Buddy (With Cover Installed )

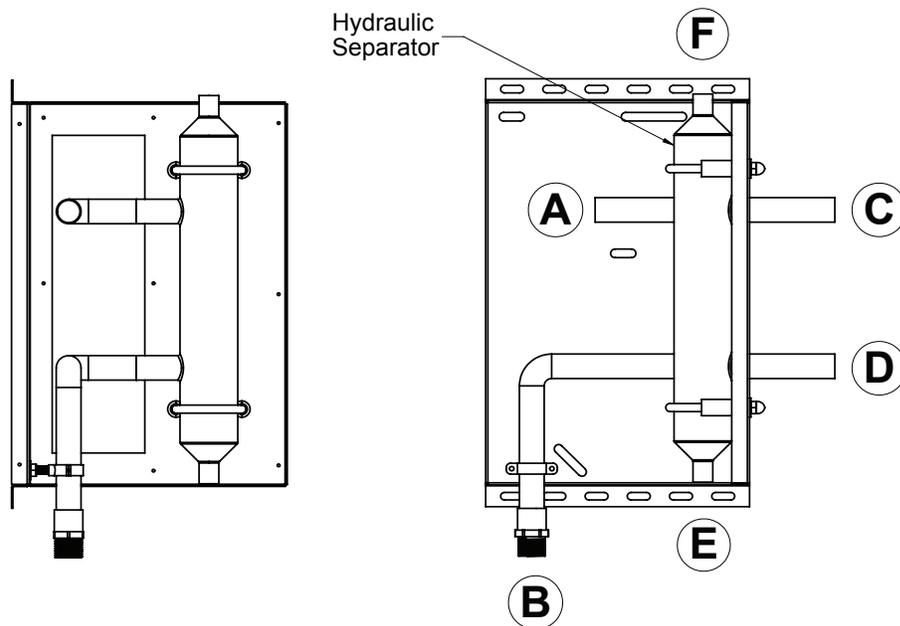


FIGURE 2.2: BB100H (Heat Only - Shown with Cover Removed)

Table 2.3: Connections

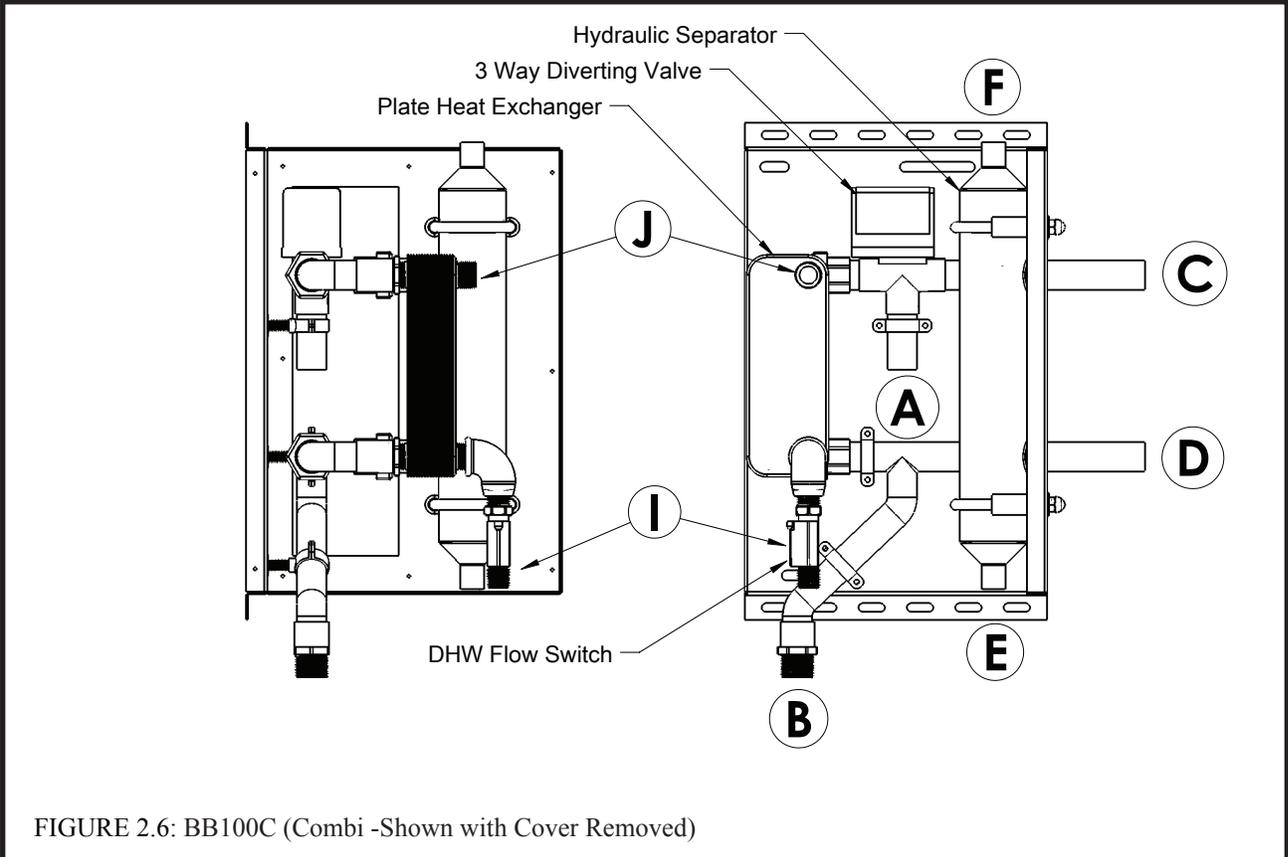
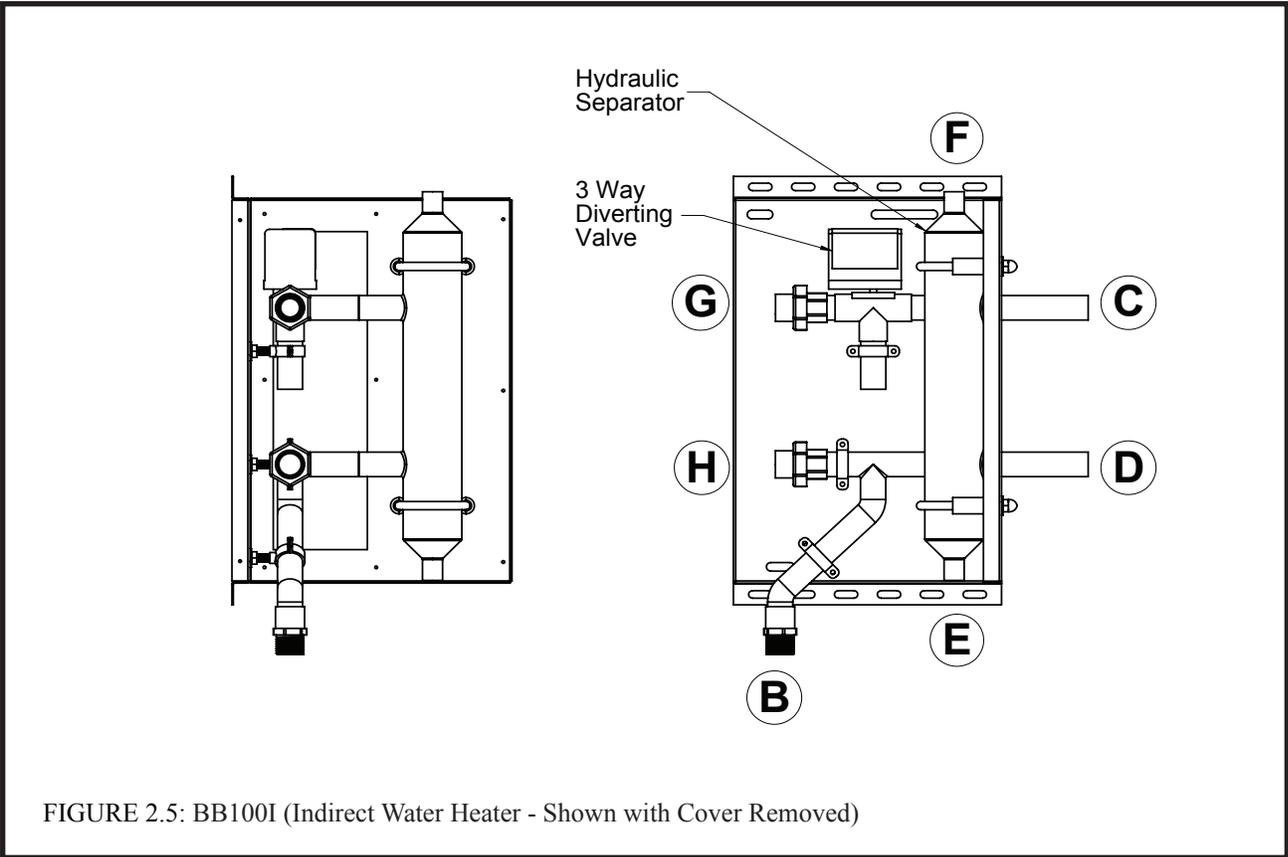
Key	Model	BB100H	BB100I	BB100C
A	From Boiler Supply	1" Copper		
B	To Boiler Return	1" MPT		
C	To System	1" Copper		
D	From System	1" Copper		
E	Expansion Tank/Fill	1/2" FPT		
F	Air Vent	1/2" FPT		
G	To Indirect Water Heater		1" Copper	
H	From Indirect Water Heater		1" Copper	
I	DHW Inlet Connection			1/2" MPT
J	DHW Outlet Connection			3/4" MPT

Table 2.4: BB100C DHW Performance

Boiler Model	DHW Production (GPM)		Approximate Response Time (s)		Approx. DHW Set point Range
	77 Rise	90F Rise	to 100F	to 120F	
BWC070	1.5	1.3	80	120	104 - 140
BWC090	2.1	1.8	70	100	104 - 140
BWC120	2.7	1.8 <sup>1</sup>	70	90	104 - 140
BWC151	2.9	1.8 <sup>1</sup>	70	90	104 - 140

Table 2.4 Notes:

1. At 90 degree rise, boiler input (and therefore DHW production) is reduced due to proximity of DHW outlet temperature to maximum permitted target supply temperature.
2. Response time is time required to reach specified temperature from a "cold start" with DHW inlet temperature of 58F and a 1.0 GPM draw rate. Additional time may be required to purge the piping between the Bimini Buddy and the fixture.



### III. Before Installing

Before installing this product:

1. Verify that the planned installation will be in accordance with all local codes. In Massachusetts, the BB100C must be installed by a licensed Plumber.
2. When using the BB100C, also verify that:
  - The domestic water output temperature, and response times shown in Table 2.4 will be acceptable.
  - The domestic water hardness is less than 200ppm. If it is greater than 200PPM, do not use the BB100C without a water softener.
3. When installing a BB100I, make sure that the indirect water heater has a pressure drop less than that shown in Table 5.4 at the flow rate shown.

### IV. Location and Mounting

Select a location for the Bimini Buddy that is as close as possible to the boiler.

The Bimini Buddy can be located further away from the boiler as long as the maximum piping lengths shown in Tables 5.2, 5.3, or 5.5 are not exceeded. Keep in mind, however, that the response time of the BWC100C to a call for DHW will increase as the length of piping between the boiler and Bimini Buddy is increased.

If possible install the Bimini Buddy slightly above the boiler so that there are no down turns in the supply piping between the boiler and the Bimini Buddy (Figure 5.0) so as to facilitate air removal. If this is not possible, install a screw driver vent in the supply piping (Figure 5.1).

Provide the following clearances for servicing the Bimini Buddy:

- Front: 24"
- LH Side: 6"
- RH Side 1"
- Top/Bottom: As needed in order to replace the field supplied air vent and expansion tank.

These clearances can be reduced, however servicing the Bimini Buddy will become increasingly difficult as they are.

Attach the Bimini Buddy to the wall using at least two suitable fasteners capable of supporting both it and the connected piping using the obround slots in the top and bottom flanges.

#### CAUTION

Drywall alone will not adequately support the Bimini Buddy. Attach to studs or other framing.

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## V. Boiler and System Piping

### CAUTION

- **Install Bimini buddy and boiler so that the gas ignition system components are protected from water (dripping, spraying, rain, etc) during appliance operation and service (circulator replacement, etc).**
- **Install the boiler relief valve, and other boiler trim, as described in the boiler's installation manual.**
- **Operation of a boiler in a system having frequent additions of make-up water can cause severe heat exchanger damage.**
- **Do not use toxic additives, such as automotive antifreeze, in a hydronic system.**
- **Before connecting boiler, make sure that the system is free of sediment, flux and any residual boiler water additives. Flush the system if necessary to ensure that these contaminants are removed.**
- **Do not use antifreeze or other chemicals that are not explicitly permitted by the boiler installation manual. See the boiler installation manual for for additional important information on water chemistry requirements.**

Figures 5.0 - 5.8 show basic Bimini Buddy Piping piping for all types of Bimini Buddies. Please note the following:

- 1) If the Bimini Buddy cannot be installed above the boiler as shown in Figure 5.0 (so that there are no down-turns in the supply piping), install a screw driver vent in the supply piping for initial purging as shown in Figure 5.1.
- 2) Minimize the amount of pipe and fittings between the boiler and Bimini Buddy, and between the BB100I and the indirect water heater:
  - Flow checks are not required in this piping and will only add unnecessary pressure drop.
  - If isolation valves are installed on the system side of the hydraulic separator, there is little reason to also include them in the boiler piping. If isolation valves are installed in the boiler piping, use only full port ball or gate valves.
- 3) If at all possible, avoid cutting the factory supplied system stubs (connections) on the hydraulic separator.
- 4) Recommended fill valve connection is between the hydraulic separator and expansion tank as shown in Figure 5.0.
- 5) Flush the Bimini Buddy and system before connecting the boiler

The hydraulic separator in the Bimini Buddy is designed to assure that the proper flow rate is maintained through the boiler regardless of the flow rate present in the heating system. Even so, the piping between the boiler and Bimini Buddy (and between the BB100I and the indirect water heater) must be properly sized for the boiler and Bimini Buddy to work properly. Size this piping as follows:

- 1) All piping between the boiler and the Bimini Buddy (and between the Bimini Buddy and the indirect water heater on the BB100I) is 1" nominal pipe size. *For BB100I installations, this is true even when the indirect water heater itself has different connection sizes.*
- 2) Refer to the appropriate Figure 5.6, 5.7, or 5.8 for the type of Bimini Buddy being installed. Determine the length of all straight pipe on the planned installation that is shaded in the drawing.
- 3) Count the number of elbows that will be used in the planned installation in the piping that is shaded in the illustration. Multiply the number of 1" elbows that will be used by 2.75ft per elbow. The result is the total equivalent length of all elbows that will be used. Note: the equivalent length of the Tee, Cross, and Reducers provided with the boiler do not need to be considered. Likewise, Unions, runs of Tees, and Full Port Ball or Gate Valves can be treated as straight pipe.

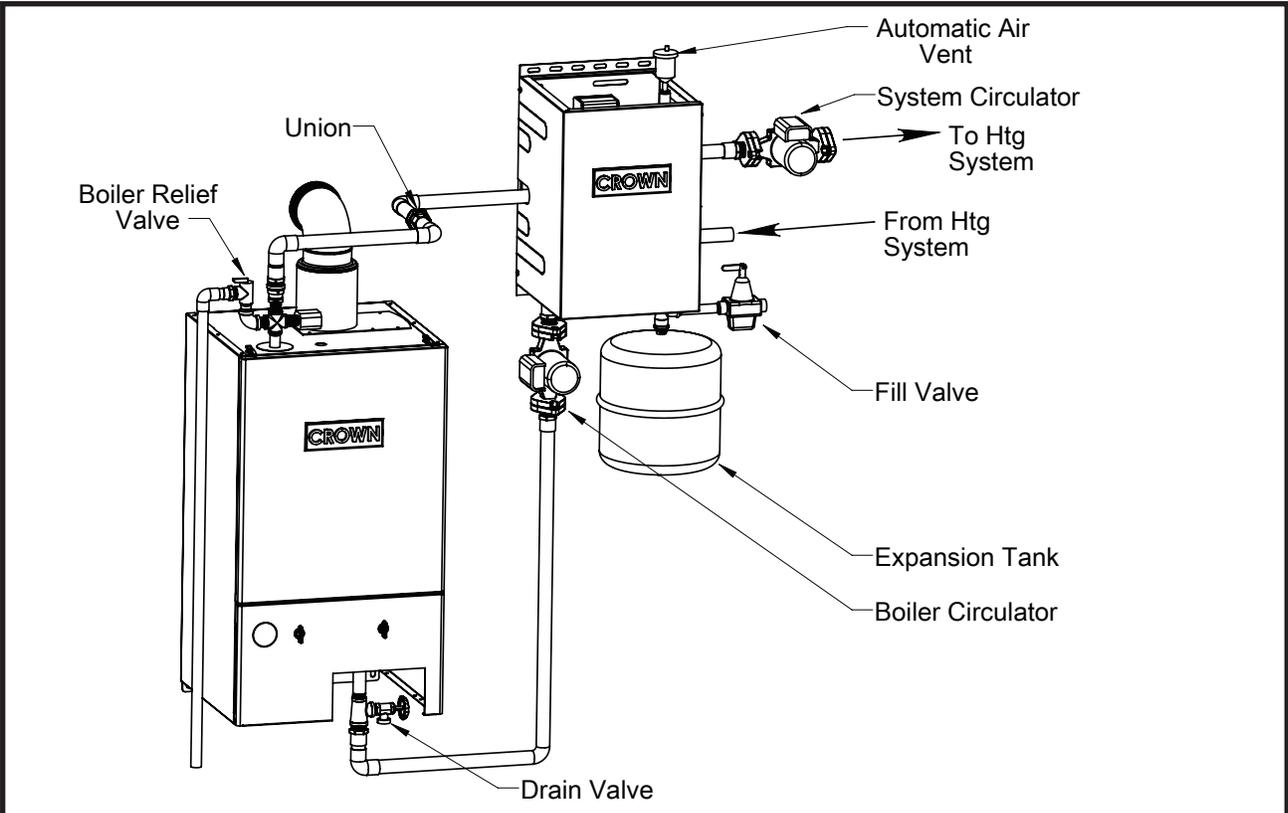


FIGURE 5.0: Basic Bimini Buddy Field Piping (Bimini Buddy Shown Above Boiler to Facilitate Air Removal)

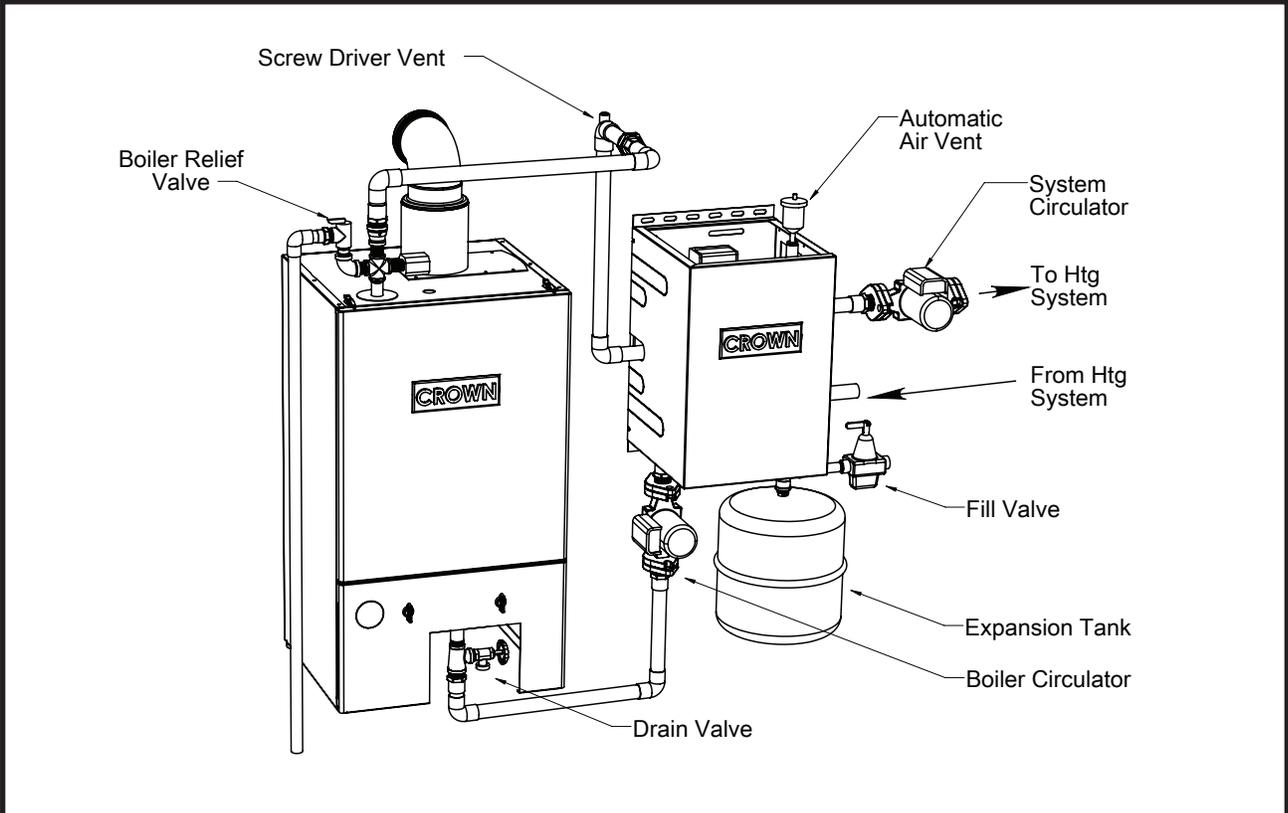


FIGURE 5.1: Installation Of Bimini Buddy at Same Level as Boiler Using Screw Driver Vent

- 4) Add the total equivalent length of the elbows determined in step 3 to the to the total straight pipe length determined in Step 2. The result is the total equivalent length.
- 5) Refer to Table 5.2, 5.3, or 5.5 as appropriate for the type of Bimini Buddy being installed. Verify that the equivalent length calculated in Step 4 is less than that shown for the combination of boiler, circulator, and indirect water heater (BB100I only) being installed. In the case of the BB100I, the pressure drop through the indirect water heater must be considered. The indirect water heater being used must have a pressure drop less than that shown in Table 5.3 at the DHW flow rate shown to work reliably with the BB100I. Table 5.4 shows the pressure drop and flow information for Crown indirect water heaters. These are grouped by “class” and that class is shown in Table 5.4.

Table 5.2: BB100H (Heat Only) Maximum Equivalent Boiler Loop Length

Boiler Model	Circulator	Flow Rate (GPM)	Max. Boiler Temp Rise (F)	Pipe Size	Max Equivalent Length of Shaded Piping in Figure 5.6
BWC070	Taco 008	6.0	21	1”	179
BWC090	Taco 0014	8.0	20	1”	121
BWC120	Taco 0014	8.0	27	1”	152
BWC120	Taco 0014	9.0	24	1”	80
BWC120	Taco 0013	12.0	18	1”	37
BWC151	Taco 0014	8.0	34	1”	92
BWC151	Taco 0014	11.0	25	1”	54
BWC151	Taco 0013	14.0	19	1”	45

Table 5.3: BB100I (IWH) Maximum Equivalent Boiler/IWH Loop Length

Boiler Model	Circulator	CH Mode		DHW Mode				Pipe Size	Max Equivalent Length of Shaded Piping in Figure 5.7
		Flow Rate (GPM)	Max. Boiler Temp Rise (F)	Flow Rate (GPM)	Max. IWH Pressure Drop (ft wc)	Indirect Water Heater Class in Table 5.4	Note		
BWC070	Taco 008	6.25	20	6.0	1.7	A	1	1”	79
BWC090	Taco 0014	8.0	20	7.5	2.6	A	1	1”	55
BWC120	Taco 0014	8.75	26	8.0	3.0	A		1”	37
BWC151	Taco 0014	9.25	29	8.0	5.0	B	2	1”	79

Notes:

1. “Class A” models shown in Table 5.4 may not achieve claimed first hour rating due to inadequate boiler water flow.
2. MS-79 will not achieve claimed first hour rating due to inadequate boiler output.
3. Some models shown in Table 5.4 have 3/4” boiler connections. These must be increased to 1” directly at the indirect water heater connection.

Table 5.4: Crown Indirect Water Heaters

Indirect Water Heater Class	Flow Rate (GPM)	Max. IWH Pressure Drop (ft wc)	Crown Indirect Water Heater Models
A	6.0	1.7	MS-26, MS-40, MSH-40, MT040GBR, MT050GBR, MT050GBR, MT065GBR, MT080GBR
	7.5	2.6	
	8.0	3.0	
B	8.0	5.0	MS-40, MS-53, MS-79, MSH-53

Table 5.5: BB100C (Combi) Maximum Equivalent Boiler Loop Length

Boiler Model	Circulator	CH Mode		Pipe Size	Max Equivalent Length of Shaded Piping in Figure 5.8
		Flow Rate (GPM)	Max. Boiler Temp Rise (F)		
BWC070	Taco 008	6.75	19	1"	24
BWC090	Taco 0014	7.75	21	1"	30
BWC120	Taco 0014	8.00	29	1"	30
BWC151	Taco 0014	9.5	28	1"	30

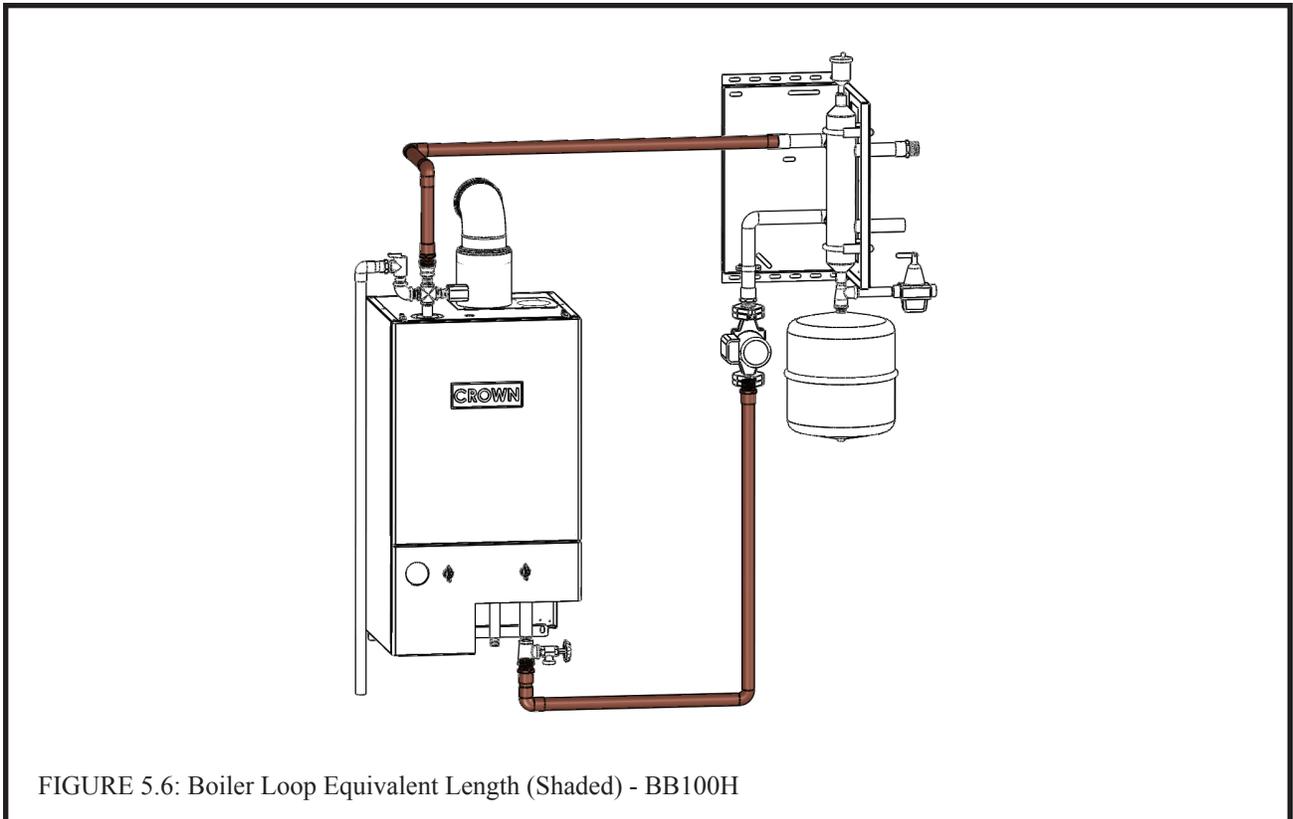
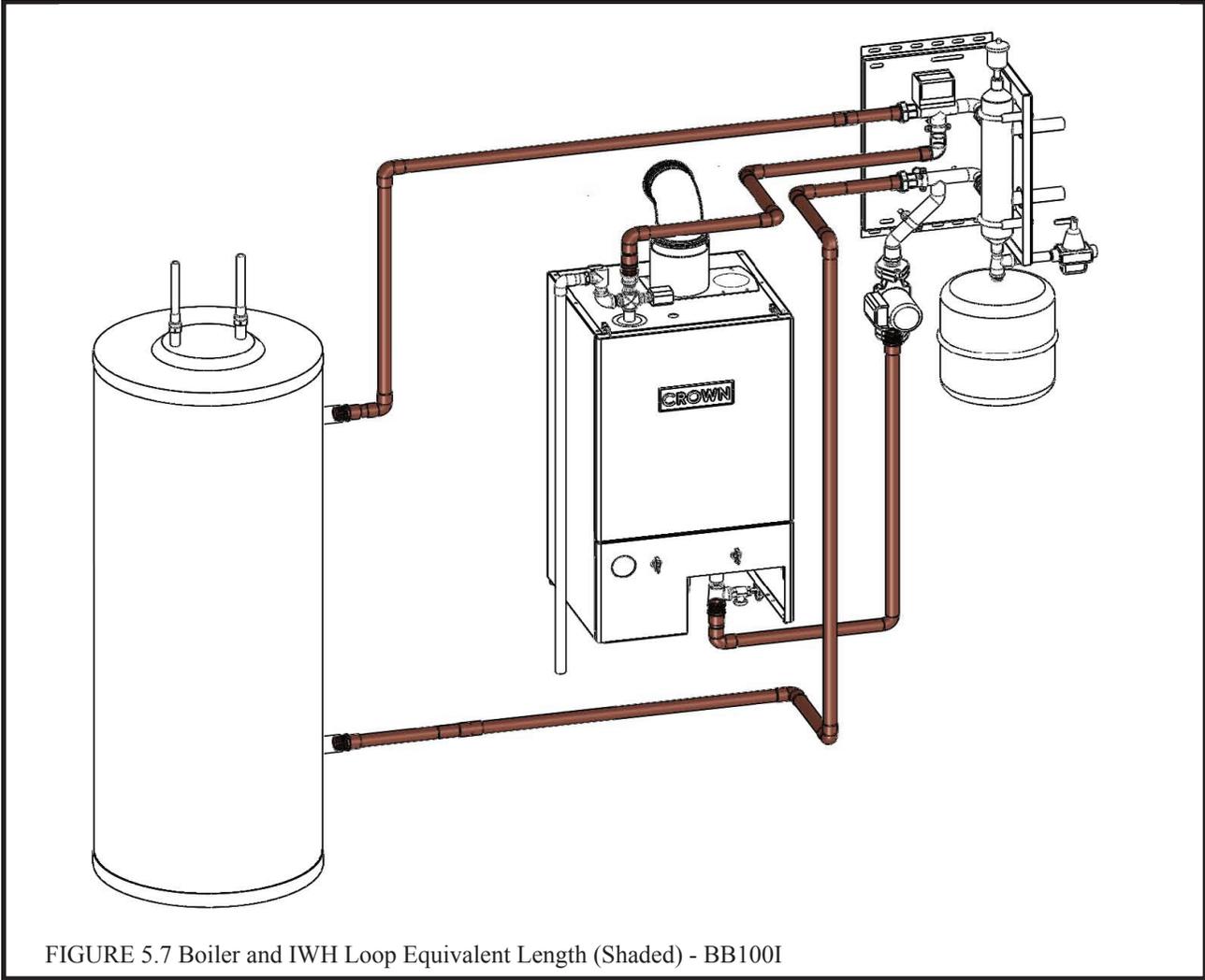
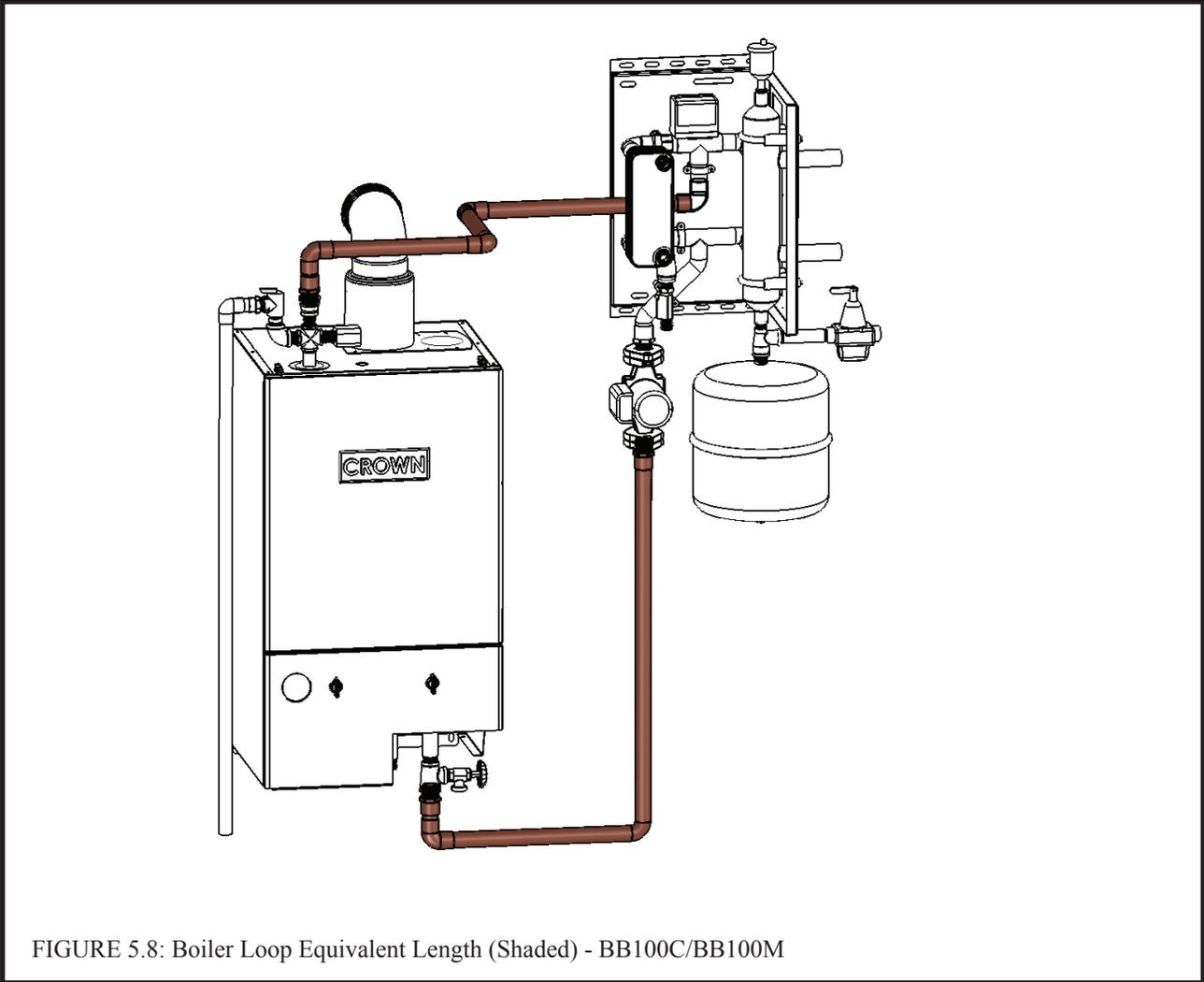


FIGURE 5.6: Boiler Loop Equivalent Length (Shaded) - BB100H





## VI. Domestic Water Piping (BB100C)

### WARNING

Like all domestic water heaters, the BB100C is capable of generating water that is hot enough to cause injury or death due to scalding. To minimize the risk of scalding:

- Set domestic hot water (DHW) temperature as low as possible (see the Start-up Section of this manual for information on setting domestic water temperature).
- Feel water before showering or bathing.
- If anti-scald or anti-chill protection is required, use devices specifically designed for such service. Install and maintain these devices in accordance with the manufacturer's instructions.

### CAUTION

If the BB100C is connected to a water supply having a hardness in excess of 200PPM, scale may prematurely form in the plate heat exchanger, significantly shortening its life. If necessary, soften the water upstream of the cold water connection to the Bimini Buddy.

Connect the domestic hot water piping as shown in Figure 6.0 for the BB100C. The components in this system and their functions are as follows:

- 1) Mixing Valve/Anti-scald Devices (Required) - A thermostatic mixing valve must be field supplied for the BB100C. Where this mixing valve is field supplied, select a model that has an adjustment range which allows it to be set below 120F (Honeywell AM-1 or equivalent). If required, install additional anti-scald protection devices in accordance with local codes. In the absence of any local Codes, install such devices as required by the *Uniform Plumbing Code* (IAPMO UPC).
- 2) Flow Restrictor (Recommended) - If domestic hot water is drawn from the Bimini Buddy at a rate in excess of the rating in Table 2.4, the temperature of the hot water may be too low to be of use. The use of a flow restrictor will prevent this problem by limiting the rate at which water can pass through the heat exchanger. If a restrictor is used, select one having a rating in GPM approximately equal to that shown in Table 2.4.
- z 3) Pressure Relief Valve (Required) - Limits the pressure in the domestic hot water piping. Use a valve designed for DHW service, such as the Watts #3L or #53L. Note that this is a pressure relief valve, not a T&P valve. Select a valve with a pressure setting less than or equal to 150 psi. Pipe the discharge to a safe location using piping the same size as the discharge connection on the valve.
- 4) Hose Bib Valves (Recommended) - These valves permit the plate heat exchanger be periodically “back flushed” to remove sediment. The BB100M is equipped with plugs which can be removed and replaced with hose bib valves when the heat exchanger is cleaned.
- 5) Globe or Ball Valve (Recommended) - Used to aid in back flushing the heat exchanger and to isolate the DHW piping if it must be serviced. In addition, the upstream valve may be used to limit the DHW flow if necessary.

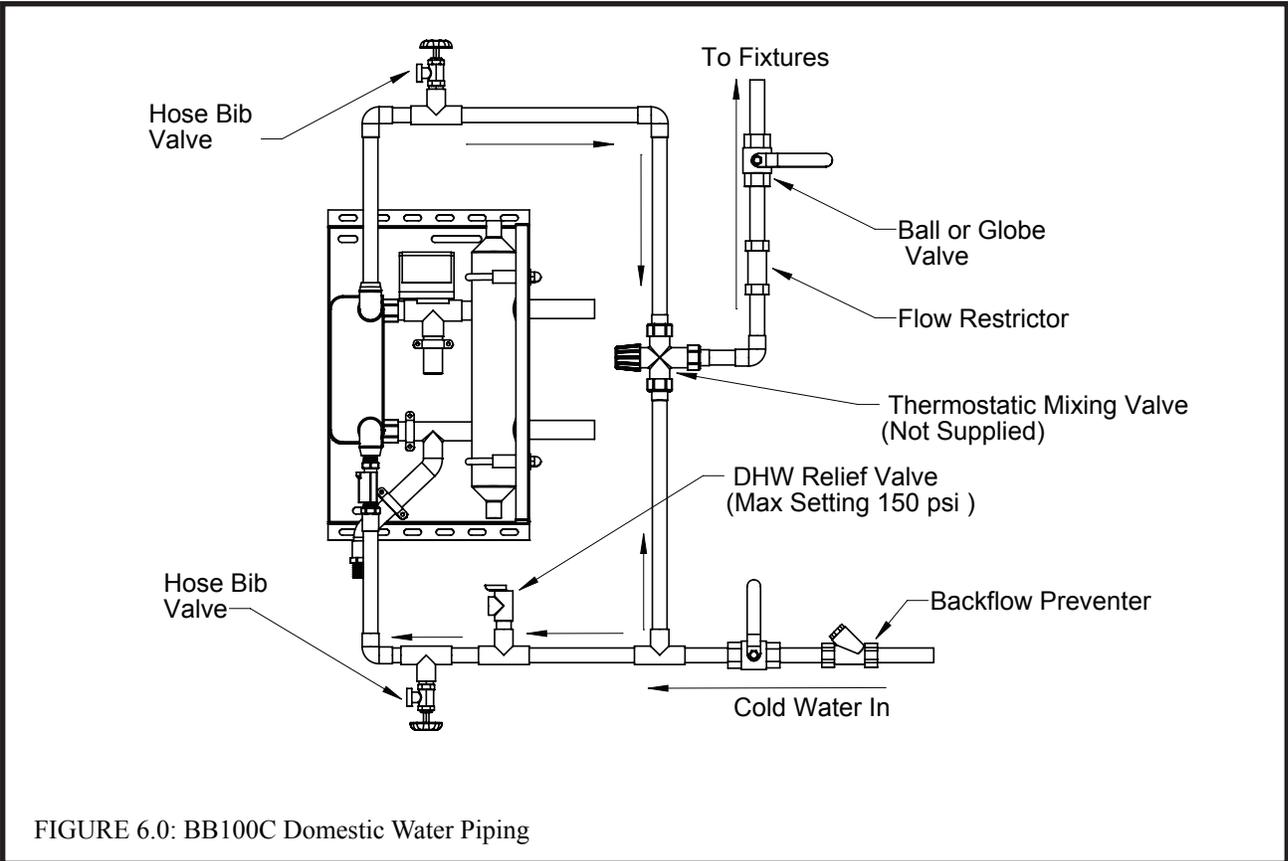


FIGURE 6.0: BB100C Domestic Water Piping

## VII. Wiring

### WARNING

All wiring and grounding must be done in accordance with the authority having jurisdiction or, in the absence of such requirements, with the National Electrical Code (ANSI/NFPA 70).

This manual covers wiring the Bimini Buddy into BWC series boilers using having two different control systems:

- Control Systems using Honeywell Type III MCBA - This control system has been used on all BWC series boilers manufactured between 2005 and late 2010. It uses an LED display.
- Control Systems using Honeywell Sola - This control system is being phased in during 2010 and is distinguished by a Panasonic touch screen display.

#### 1) Connecting BB100H to Type III MCBA Equipped boilers (Figure 7.0):

- a. Connect the boiler circulator to the red lead and neutral (white) in the Boiler's J-Box. If the system has a single system circulator, and the total combined current draw of the boiler and system circulators is less than 2.0A, the system circulator can be wired in parallel to the boiler circulator. Otherwise, a relay (shown) or zoning panel must be used to operate the system pump.
- b. Connect the heating thermostat, or zoning panel boiler contacts, to terminals 1&2 on the boiler.

#### 2) Connecting BB100H to Sola Equipped boilers (Figure 7.1):

- a. Connect the boiler circulator to the terminals marked "BLR Pump" in the boiler's J-Box.
- b. Connect the system circulator to the terminals marked "Sys Pump" in the boiler's J-Box.
- c. Connect the heating thermostat, or zoning panel boiler contacts, to the "CH Stat" terminals on the left side of the boiler's control compartment.

#### 3) Connecting BB100I to Type III MCBA Equipped boilers (Figure 7.2):

- a. Connect the boiler circulator hot to the red lead and neutral (white) in the Boiler's J-Box.
- b. Connect the three way zone valve in the BB100I to the blue lead and neutral (white) in the boiler's J-box. If the system has a single system circulator having a draw of less than 1.5A, the system circulator can be wired in parallel with the zone valve (after reprogramming the MCBA per part G of this manual, the zone valve will be powered during a call for heat). Otherwise, a relay or zoning panel must be used to operate the system pump.
- c. The heating thermostat, or zoning panel boiler contacts, are connected to terminals 1&2 on the boiler.
- d. The indirect water heater's thermostat is connected to terminals 7&8 on the boiler. IWH thermostat contacts must be "dry".

#### 4) Connecting BB100I to Sola Equipped boilers (Figure 7.3):

- a. Connect the boiler circulator to the terminals marked "BLR Pump" in the boiler's J-Box.
- b. Connect the three way zone valve in the BB100I to the terminals marked "DHW Pump" in the boiler's J-Box.
- c. Connect the system circulator to the terminals marked "Sys Pump" in the boiler's J-Box.
- d. Connect the heating thermostat, or zoning panel boiler contacts, to the "CH Stat" terminals on the left side of the boiler's control compartment.
- e. Connect the indirect water heater's thermostat to "DHW Stat" terminals on the left side of the boiler's control compartment.

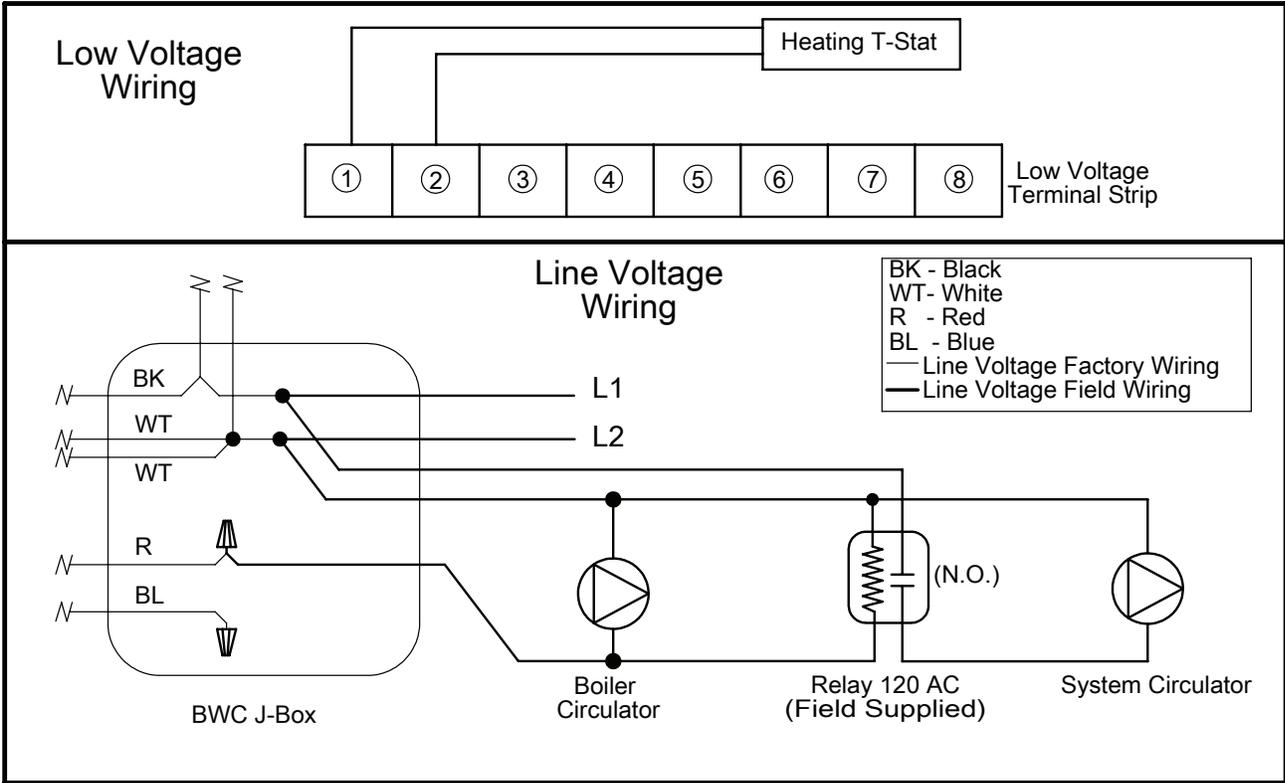


FIGURE 7.0: Wiring BB100H to Boiler equipped with Type III MCBA

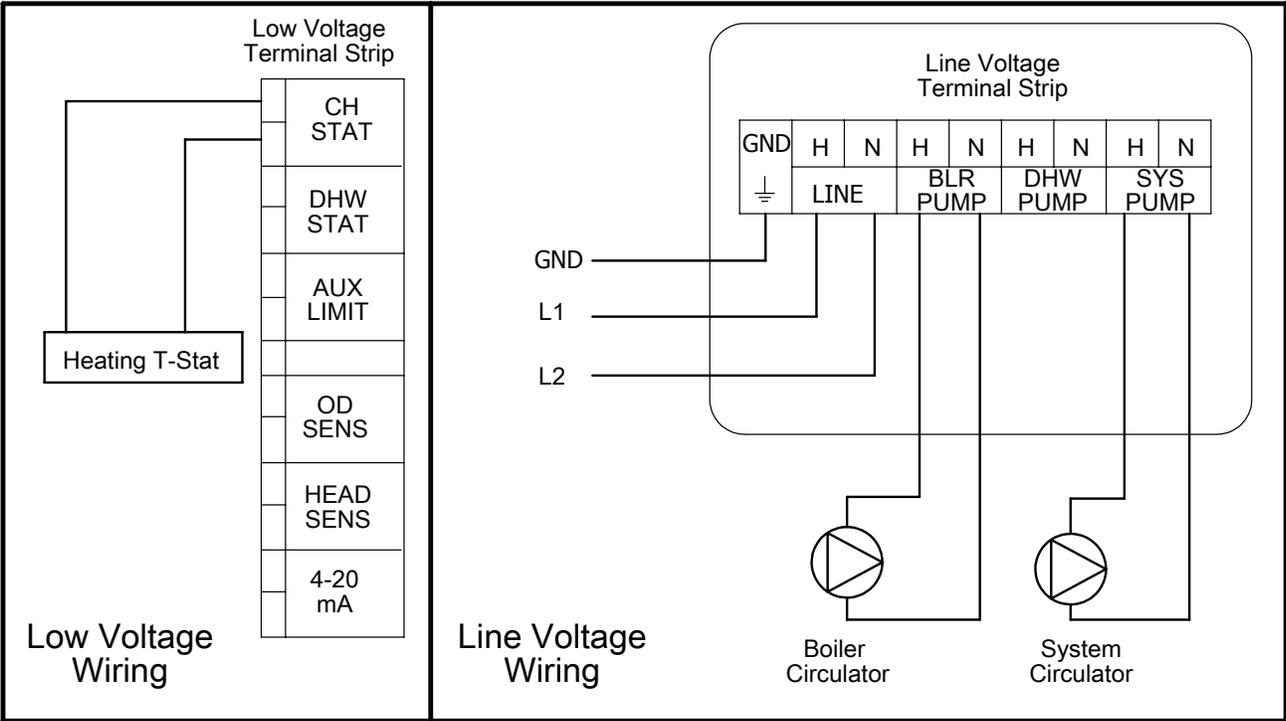


FIGURE 7.1: Wiring BB100H to Boiler equipped with Sola

- 5) Connecting BB100C to Type III MCBA Equipped boilers (Figure 7.4):
  - a. Connect the boiler circulator hot to the red lead and neutral (white) in the Boiler’s J-Box.
  - b. Connect the three way zone valve in the BB100I to the blue lead and neutral (white) in the boiler’s J-box. If the system has a single system circulator having a draw of less than 1.5A, the system circulator can be wired in parallel with the zone valve (after reprogramming the MCBA per part G of this manual, the zone valve will be powered during a call for heat). Otherwise, a relay or zoning panel must be used to operate the system pump.
  - c. The heating thermostat, or zoning panel boiler contacts, are connected to terminals 1&2 on the boiler.
  - d. The BB100M/BB100C flow switch is connected to terminals 7&8 on the boiler. IWH thermostat contacts must be “dry”.
  
- 6) Connecting BB100C to Sola Equipped boilers (Figure 7.5):
  - a. Connect the boiler circulator to the terminals marked “BLR Pump” in the boiler’s J-Box.
  - b. Connect the three way zone valve in the BB100C to the terminals marked “DHW Pump” in the boiler’s J-Box.
  - c. Connect the system circulator to the terminals marked “Sys Pump” in the boiler’s J-Box.
  - d. Connect the heating thermostat, or zoning panel boiler contacts, to the “CH Stat” terminals on the left side of the boiler’s control compartment.
  - e. Connect the BB100C flow switch to the “DHW Stat” terminals on the left side of the boiler’s control compartment.

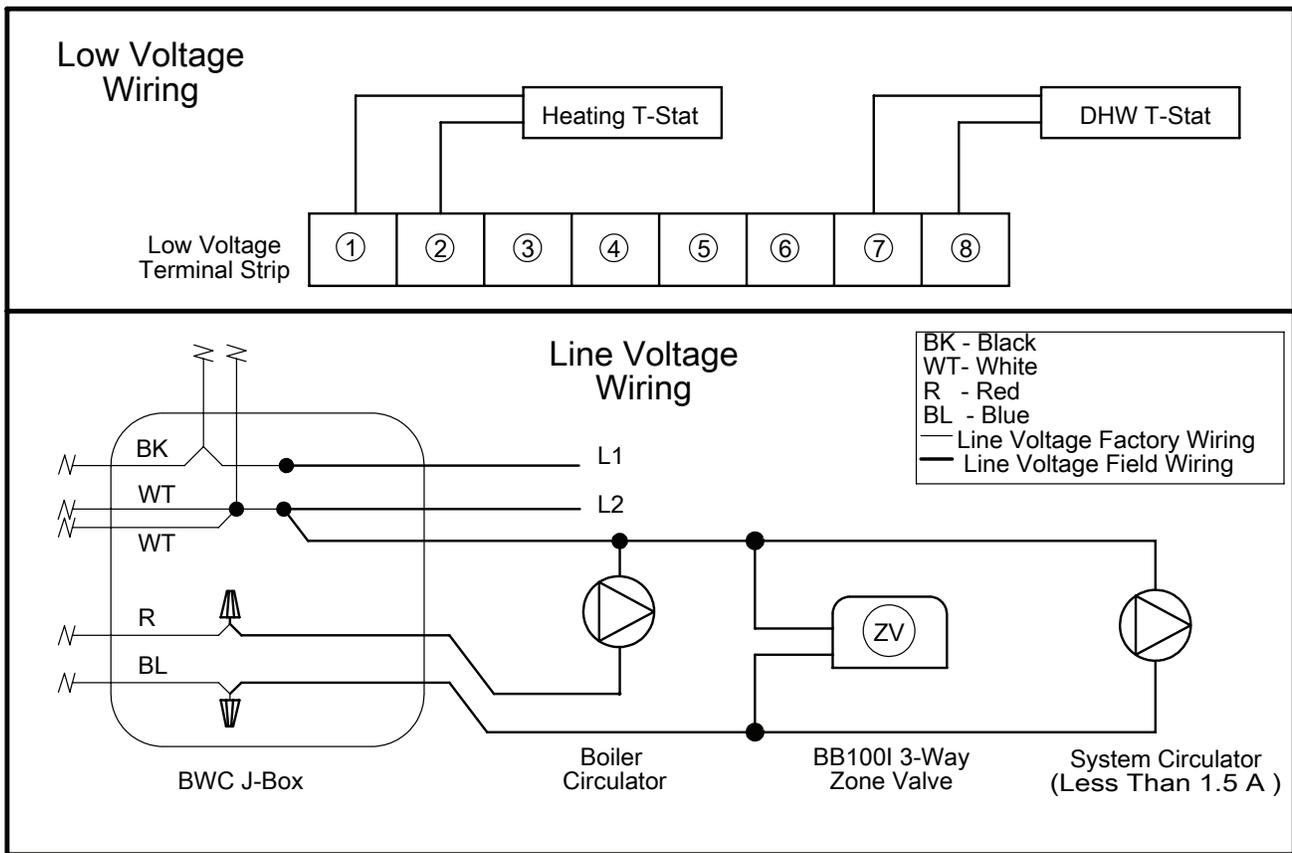


FIGURE 7.2: Wiring BB100I to Boiler equipped with Type III MCBA

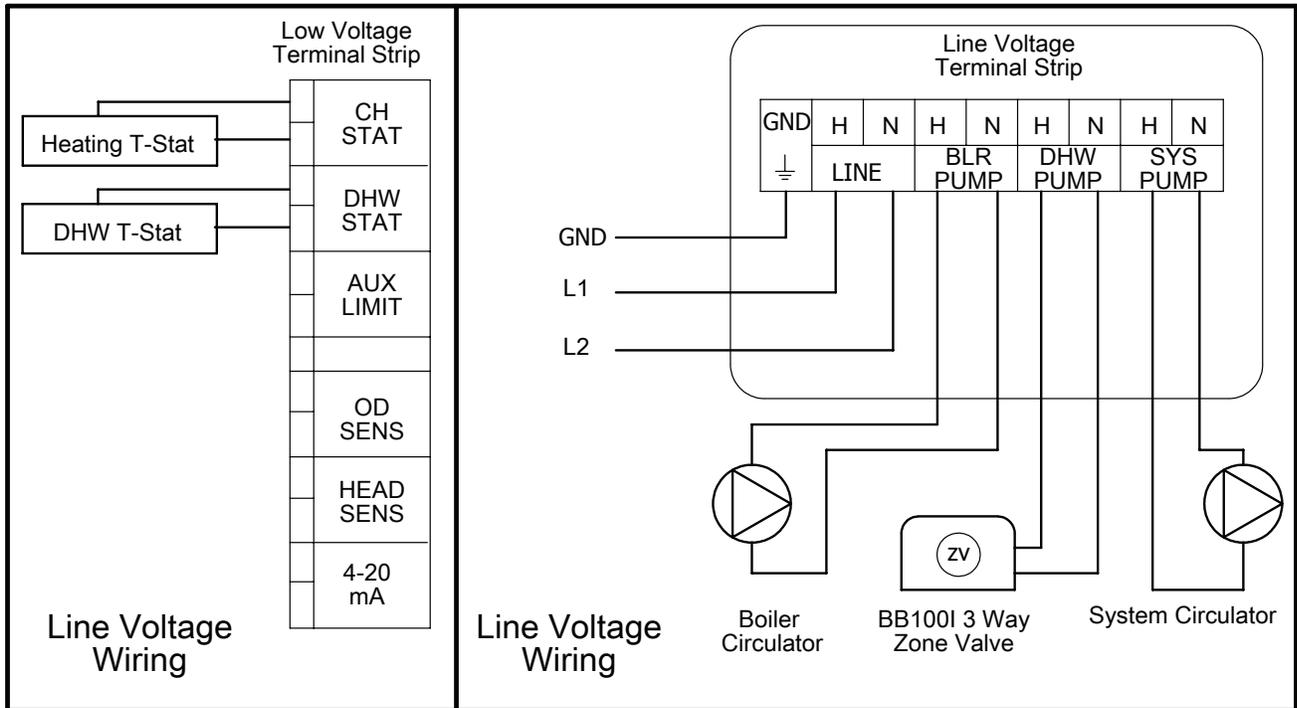


FIGURE 7.3: Wiring BB100I to Boiler equipped with Sola

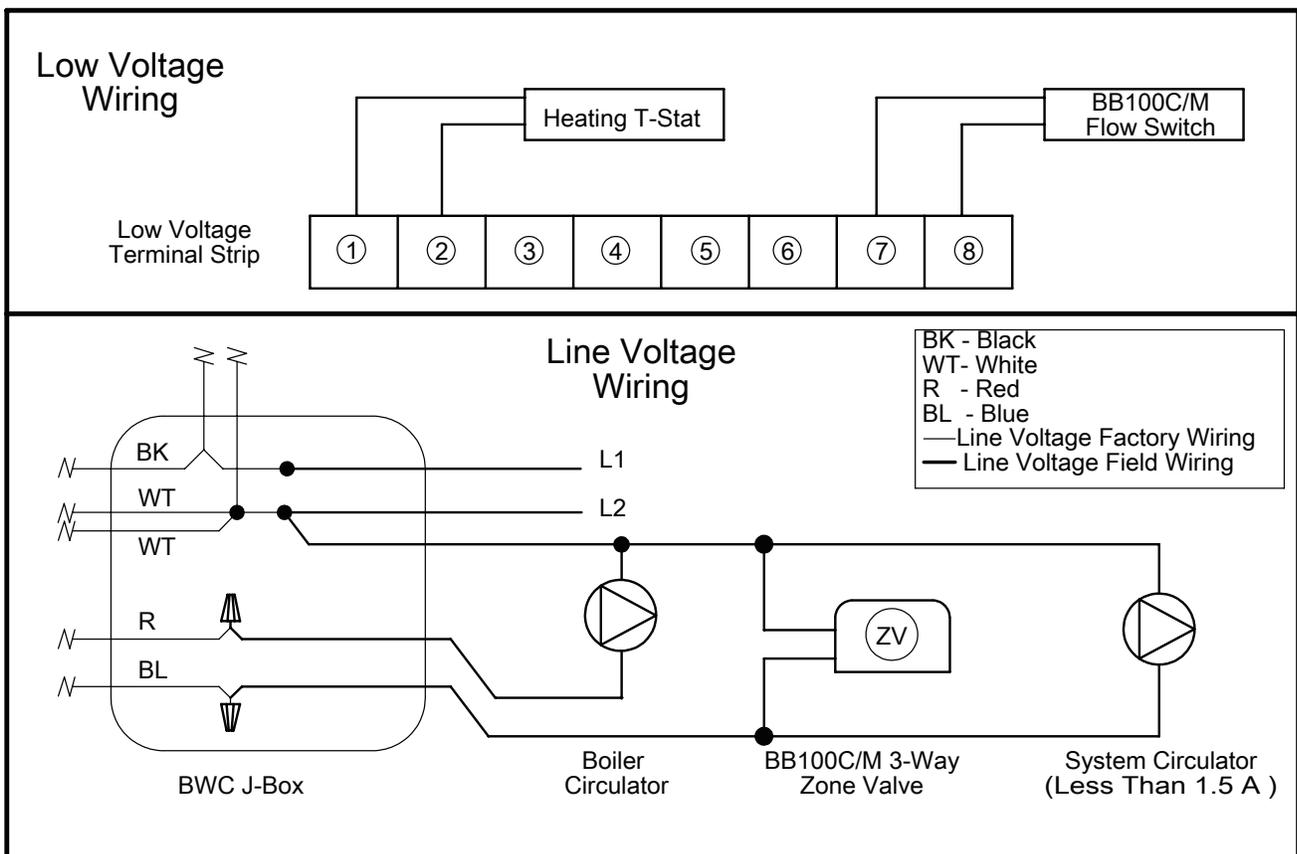


FIGURE 7.4: Wiring BB100C to Boiler equipped with Type III MCBA

## VIII Start-up

The following steps must be taken in addition to those shown in the boiler instruction manual in order to commission the Bimini Buddy:

- 1) If not already done, flush the system so that it is free of sediment, flux and any residual boiler water
- 2) The Bimini Buddy must be purged of air. If it is piped in accordance with Figure 5.0, this can be done simply by opening the fill valve and making sure that the automatic air vent is open. Otherwise, the screw driver vent shown in Figure 5.1 must be also be opened until a steady stream of water comes from this vent. After this is done, any residual air should remove itself through the automatic air vent over the first few days of operation.
- 3) The boiler's control system must be "programmed" to operate the 3-way valve used on the BB100I, BB100C, (the boiler control system will operate the BB100H as is). The exact method for doing this depends on the type of control system supplied with the boiler. Two control systems are used on BWC Series boilers, one employing the Honeywell Type III MCBA and one Employing the Honeywell Sola. See Part VII of this manual for a description of this two systems.

*In the case of the BB100C, it is important to understand that the boiler does not monitor the DHW temperature directly; instead it monitors, and regulates, the boiler supply temperature. The boiler supply temperature tracks the DHW outlet temperature very closely.*

### A. BWC Boilers Equipped with Type III MCBA

**Table 8.0: Type III MCBA Parameters for BB100I, BB100C**

Parameter #	Description	Factory Setting	BB100I Setting	BB100C Setting
1	DHW Set point	135	135	110
24	DHW Modulation Hysteresis On	10	10	-4
25	DHW Modulation Hysteresis Off	6	6	6
35	DHW Configuration	13	03	01

Parameter #35=13 (Factory Setting) - Red circulator lead is only powered on a call for heat. Blue circulator lead is powered only upon a call for DHW. Call for DHW is initiated by a set of DHW thermostat contacts. When parameter 35=13, parameter 1 plus 46F = target supply temperature during a DHW call.

Parameter #35 =03 (BB100I) - Red circulator lead is powered upon either a heating or DHW demand. Blue lead is powered only upon a heating demand. Call for DHW is initiated by a set of DHW thermostat contacts. When parameter 35=03, parameter 1 plus 46F = target supply temperature during a DHW call.

Parameter #35 =01 (BB100C) - Red circulator lead is powered upon either a heating or DHW demand. Blue lead is powered only upon a heating demand. Call for DHW is initiated by the DHW flow switch. When parameter 35=01, parameter 1 = target supply temperature during a DHW call.

Parameters #24 and #25 collectively work as a "differential" for the boiler supply temperature set point. Parameter #25 determines the difference above the supply temperature at which the burner shuts off. Parameter #24 defines how far below the target temperature the supply temperature must fall before the burner turns back on. Since Table 8.0 defines parameter 24 as negative for the BB100C, the burner will actually restart when the supply temperature is still above the target boiler supply temperature. For example, if the parameters are set as shown in Table 8.0 for the BB100C, the burner will shut off when the supply temperature reaches 116F and restart when the supply falls to 114F.

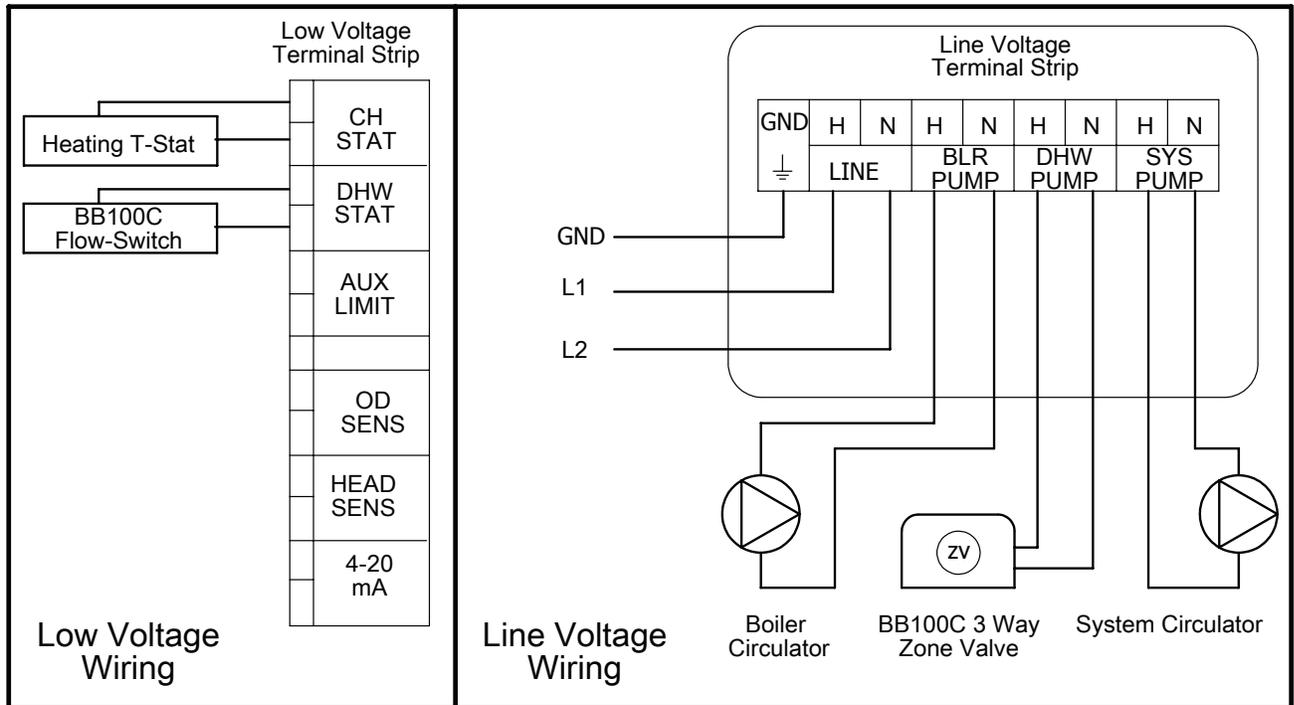


FIGURE 7.5: Wiring BB100C to Boiler equipped with Sola

### WARNING

Improper setting of parameters can cause unreliable or unsafe operation, resulting in property damage, personal injury, or loss of life:

- Changing parameters should only be attempted by a professional heating service technician.
- Do not change any parameters not described in this manual without first consulting the factory.
- Before making changes, it is recommended that initial values of parameters be recorded so that they can be restored if operation of the boiler is not as anticipated.
- After changing any parameters, carefully confirm proper boiler operation before leaving the installation site.

To change the parameters shown in Table 8.0, using the keypad on the boiler to do the following:

- 1) With the boiler powered, toggle the Mode key until you reach the (STBY) Standby mode.
- 2) Depress and hold the Step key and then quickly depress and hold the Mode key for 2 – 5 seconds until the display reads (CODE). Release the Mode key, then the Step key. The display should show a ‘C’ followed by a random two digit number.
- 3) Use the + or – keys to scroll to the number 05.
- 4) Press the Store key momentarily and watch for the display to blink twice. If the access code has been successfully entered, access to Parameters 5 - 42 will be possible. Otherwise only Parameters 1-4 will be accessible. Access to the expanded list of parameters will end and the access code will need to be reentered to regain access to parameters 5-42.
- 5) Toggle the Mode key until you reach (PARA) Parameter mode.
- 6) Press the Step key to scroll through the parameters until you reach the desired parameters.
- 7) Use the + or – key to scroll to the appropriate parameter setting in Table 8.0.
- 8) Press the Store key momentarily and watch for the display to blink once. The parameter setting has now stored its new value.
- 9) Parameter 1 can be accessed without entering a password. Follow steps 5-8 above to change Parameter #1.

In place of the keypad, the GCI PC interface can also be used to change the parameters in Table 8.0. See the *Service Supplement for BWC Series Boilers Equipped with Type III MCBA* for instructions on how to do this.

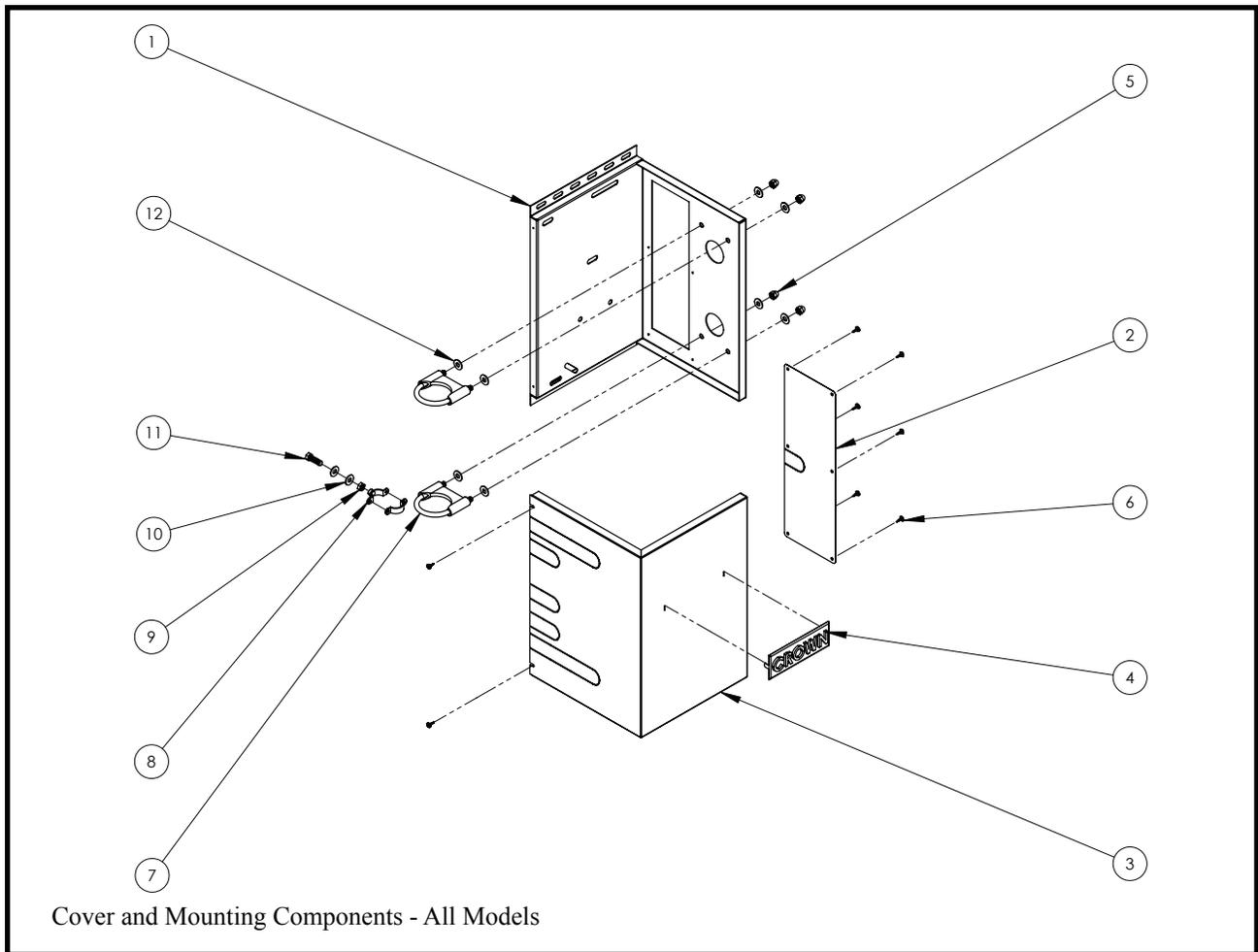
## **B. BWC Boilers Equipped with Sola**

Follow the instructions provided with the boiler and/or the boiler’s Configuration menu to select the type of Bimini Buddy being used. Use the boiler’s setting menu to set the DHW target temperature.

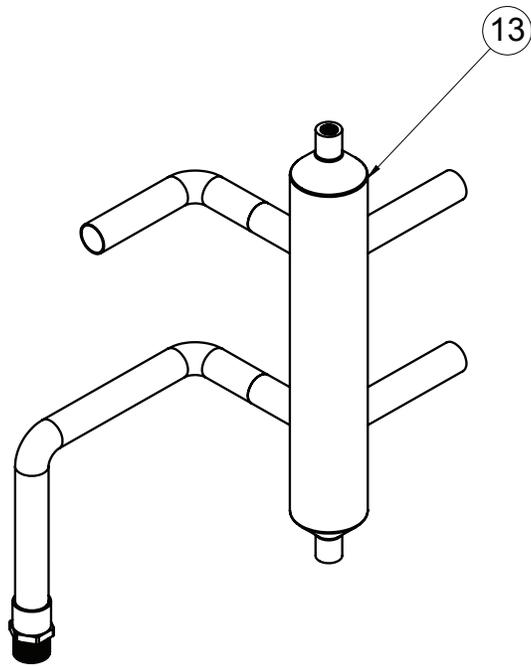
## **IX. Parts**

The replacement parts shown on the following pages can be obtained from any Crown distributor. To find the closest Crown distributor, consult the area Crown representative or the factory at:

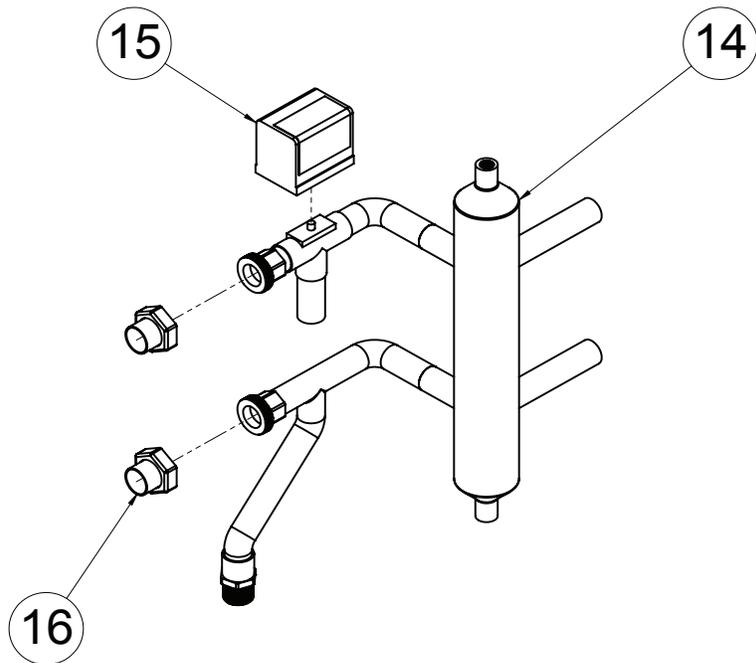
Crown Boiler Company  
Customer Service  
PO Box 14818  
Philadelphia PA 19134  
[www.crownboiler.com](http://www.crownboiler.com)



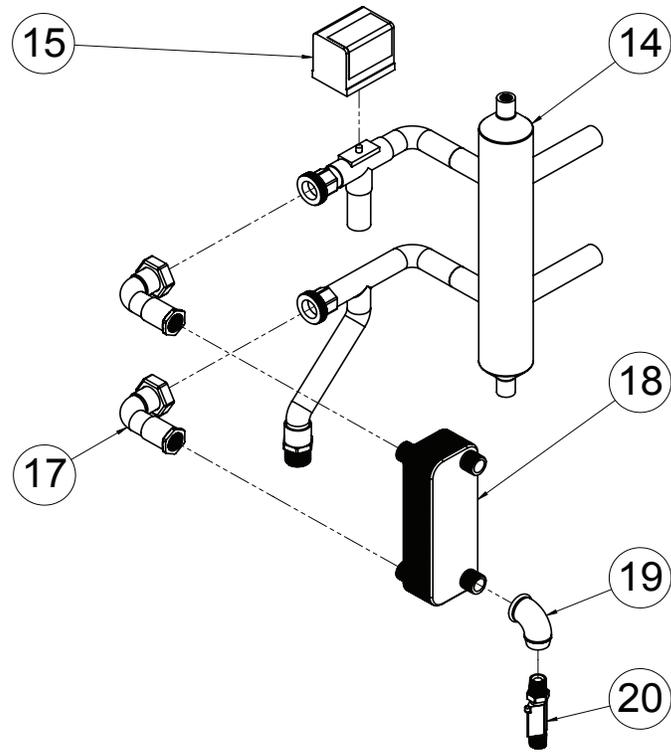
Key	DESCRIPTION	BB100C		BB100I		BB100H	
		PART #	QTY	PART #	QTY	PART #	QTY
1	Mounting Plate	230751	1	230751	1	230751	1
2	Side Cover	230752	1	230752	1	230752	1
3	Cover	230750	1	230750	1	230750	1
4	Crown Aluminium Nameplate	98-044	1	98-044	1	98-044	1
5	Stainless Steel Acorn Nut 3/8"-16 Thread, 5/8" Height	230798	4	230798	4	230798	4
6	#10x1/2 Truss Hd Screws	900120	11	900120	11	900120	11
7	Clamping U-Bolt, Steel, 3/8"-16 FOR 2-1/2"	230794	2	230794	2	230794	2
8	1" Copper Split Ring Hanger	230790	3	230790	3	230790	1
9	Zinc-Plated Hex Nut 3/8"-16 Thread	90-221	3	90-221	3	90-221	1
10	5/16 Flat Washer	900102	6	900102	6	900102	2
11	Cap Screw 3/8"-16 Thread, 1-1/4" Length, Fully Threaded	900452	3	900452	3	900452	1
12	Extra-Thick Flat Washer 3/8" Screw, 0.11"-0.13" Thick	230796	8	230796	8	230796	8
13	Heat Only Separator					230745	1
14	Combi Separator	230740	1	230740	1		
15	120V, Actuator, term block. AG13B020	230764	1	230764	1		
16	Female (Nut) Half 1" Swt Union, Elkahart#33584			230746	2		
17	Hex Bend Assembly	230742	2				
18	Heat Exchanger	230770	1				
19	F3/4" x F1/2" Brass Reducing Elbow, NPT	230792	1				
20	Flowswitch	230762	1				



Piping Components - BB100H



Piping Components - BB100I



Piping Components - BB100C



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Manufacturer of Hydronic Heating Products  
P.O. Box 14818 3633 I. Street  
Philadelphia, PA 19134  
[www.crownboiler.com](http://www.crownboiler.com)