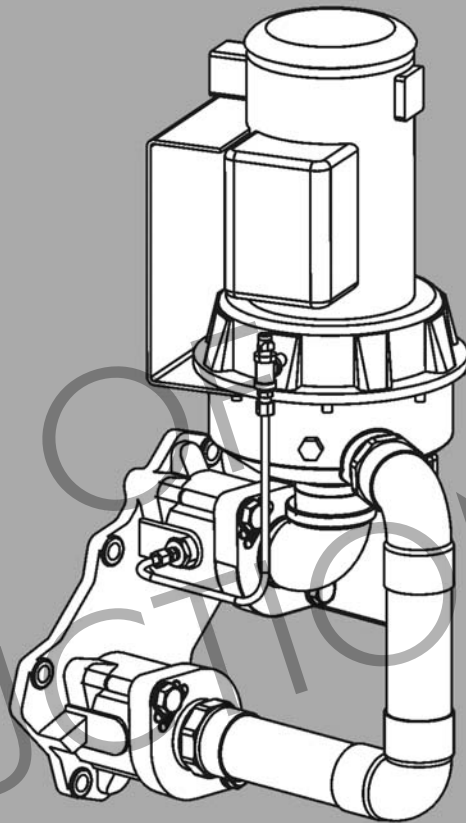


User's  
Information  
Manual  
for

## Mighty Max Pump Mount Kit

Models HH & VW  
Sizes 520-1000



**Note:** This document is to be used in conjunction with Document 2064 or Document 2060, Installation and Operating Instructions for Mighty Max units.

**FOR YOUR SAFETY:** This product must be installed and serviced by a professional service technician, qualified in hot water boiler installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

### **⚠ WARNING**

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

#### **WHAT TO DO IF YOU SMELL GAS**

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a nearby phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or gas supplier.

## SECTION ONE.

### General Information

The Mighty Max Pump Mount Kit is a pre-sized pump that can be mounted on a Mighty Max boiler / heater to pump water through the circulation loop. The Mighty Max Pump Mount Kit will not work with reverse heat exchanger Mighty Max units, or models with 4 pass heat exchangers (320 and 400). For volume water systems, the pump mount kit is intended for use with water hardness between 1-17 grains per gallon. A separate pump will drive the main system circulation loop. The boiler / heater circulation loop should be piped to accommodate the pipe and fittings listed in Table 2.

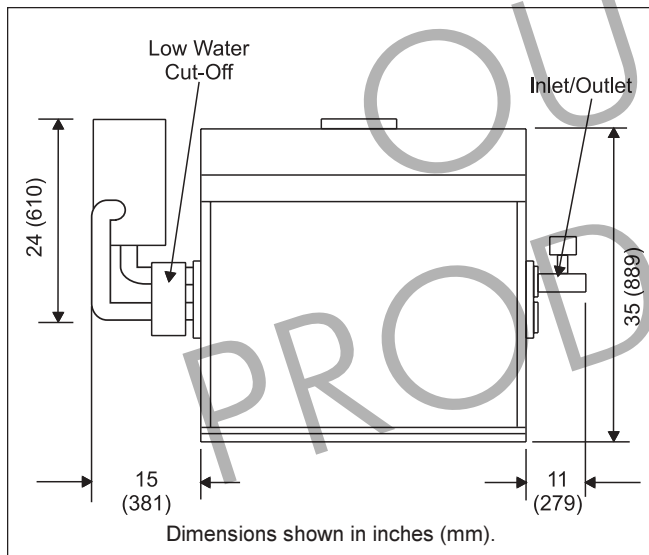


Figure 1. Dimensions.

### 1A. Electrical Data



#### **WARNING** **Electrical Shock Hazard**

Electrical connections are to be made by a qualified electrician in accordance with all-applicable codes, ordinances, and good practices. Failure to follow these instructions could result in serious personal injury, death, or property damage.



#### **WARNING** **Unexpected Startup Hazard**

Motor is equipped with automatic reset overload protectors. Pump can restart without warning. Disconnect and lockout power before servicing. Failure to follow these instructions could result in serious personal injury, death, or property damage.

| Size     | Power (hp) | Current (Amps) |
|----------|------------|----------------|
| 320/400  | N/A        | Not Available  |
| 520/625  | 3/4        | 18.8 amps      |
| 775/1000 | 3/4        | 19.8 amps      |

Table 1. Electrical Data.

See Figure 10 for pump wiring diagram.

### 1B. Piping Requirements

See Figures 11 and 12 for VW & HH piping diagrams. The pump is sized to accommodate the following:

| Mighty Max Model | Pipe / Fitting Size | Maximum Allowed |             |                            |           |
|------------------|---------------------|-----------------|-------------|----------------------------|-----------|
|                  |                     | Pipe Length     | # of Elbows | # of Full Port Ball Valves | # of Tees |
| 520-775          | 2 in                | 30 ft           | 6           | 2                          | 2         |
| 1000             | 2.5 in              | 30 ft           | 6           | 2                          | 2         |

Table 2. Piping Requirements.

### 1C. Installation

The part number for Mighty Max Pump Mount Kit is:

20291300

Listed below are the components in the kit, as shown in Figure 2.

| Item | Description                              | Quantity |
|------|--|----------|
| 1    | Pump / Pump adapter (with 12 ft of wire) | 1        |
| 2    | Water Barrier (with gasket attached)     | 2        |
| 3    | Header Gasket                            | 2        |
| 4    | Coin Valve                               | 1        |
| 5    | Conduit Connector                        | 2        |
| 6    | Grommet                                  | 1        |
| 7    | Conduit                                  | 10 ft    |

Table 3. Parts Breakdown.

1. Shut off and disconnect the gas lines going to the boiler. Refer to the boiler operation manual for instructions on shutting off the boiler. Disconnect electrical power to the boiler. Shut off and drain the boiler.
2. Disconnect the inlet and outlet piping from the boiler, Document 2064 for VW and Document 2060 for HH. Remove the inlet outlet header cover from the heat exchanger. Remove the old water barrier from inside the heat exchanger header (see Figure 3).
3. Insert the new barrier (with U-channel gasket) in the place of the old barrier. Make sure the U channel gasket that is on the water barrier did not come loose during shipping. Do not re-use the old barriers on a pump-mounted unit. (Make sure the barrier tabs match up with the tab slots on the

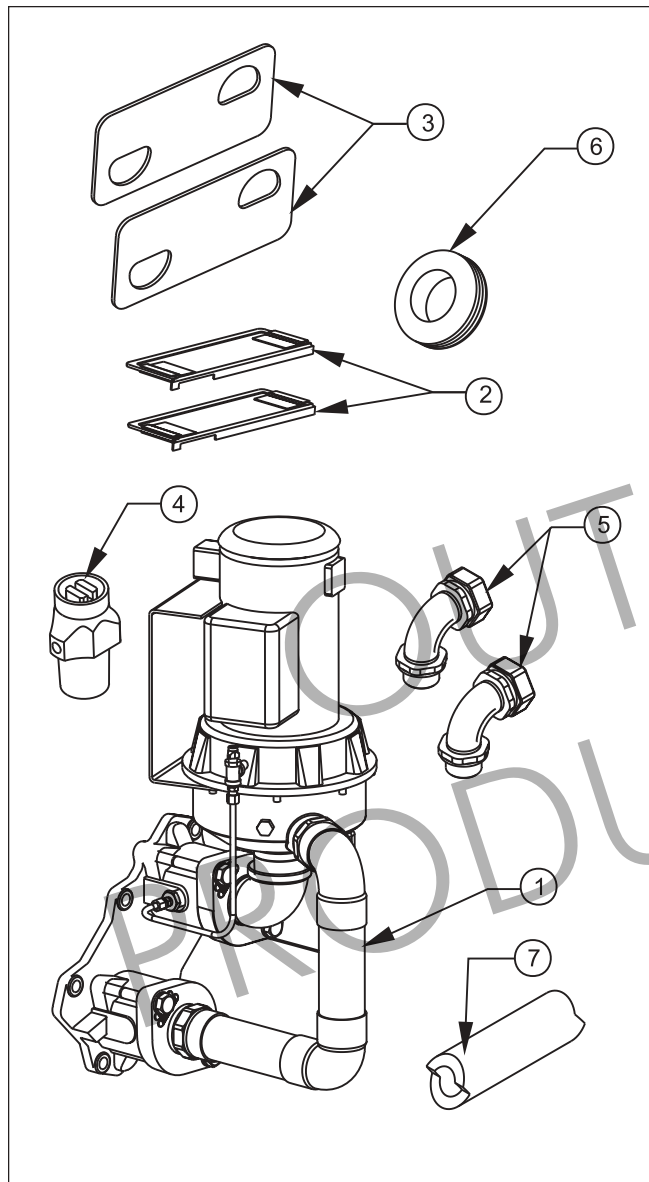


Figure 2. Components in Kit.

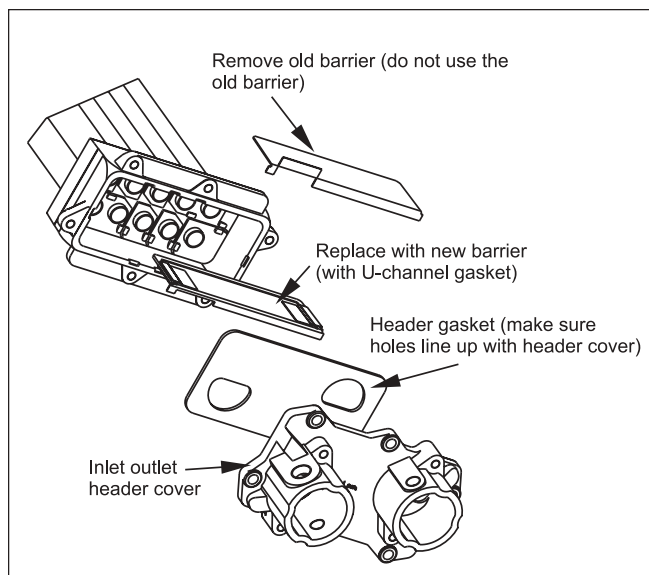


Figure 3. Inlet/Outlet Header Side of Unit.

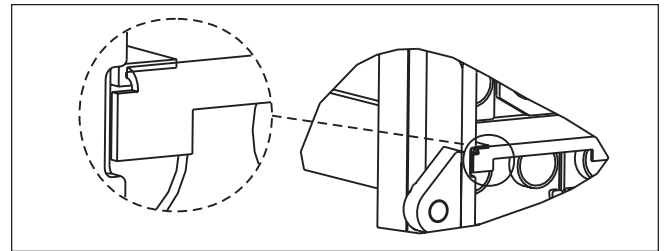


Figure 4. Barrier Tabs in Header Slots.

header as shown in Figure 4, and the barrier is seated firmly in the groove between the two rows of tubes).

4. Attach the inlet/outlet header to the inlet/outlet side of the heat exchanger. Place a new header gasket in-between the heat exchanger and the inlet/outlet header. Make sure the gasket holes line up with the holes on the inlet/outlet header cover (see Figure 3). If the holes do not line up, flip the gasket over so the holes on the gasket line up with the holes on the header cover.

#### **⚠ Caution**

The header gasket holes must line up with header cover holes. Failure to install the gasket correctly may reduce or stop flow resulting in pump failure and dangerous operation.

5. Tighten bolts connecting the inlet/outlet header to the heat exchanger to 40 ft-lbs.
6. Remove the low water cut-off outside cover. Remove the low water cut-off sensor housing cover. Remove the wing nut and white wire from the sensor post. Remove the 4 screws attaching the sensor post to the sensor housing. Remove the sensor housing from the sensor post. Remove the sensor post from the return header (see Figure 5).

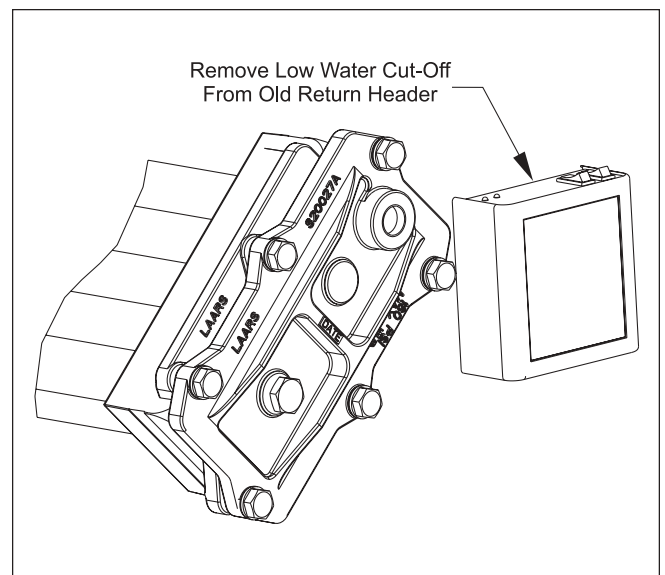
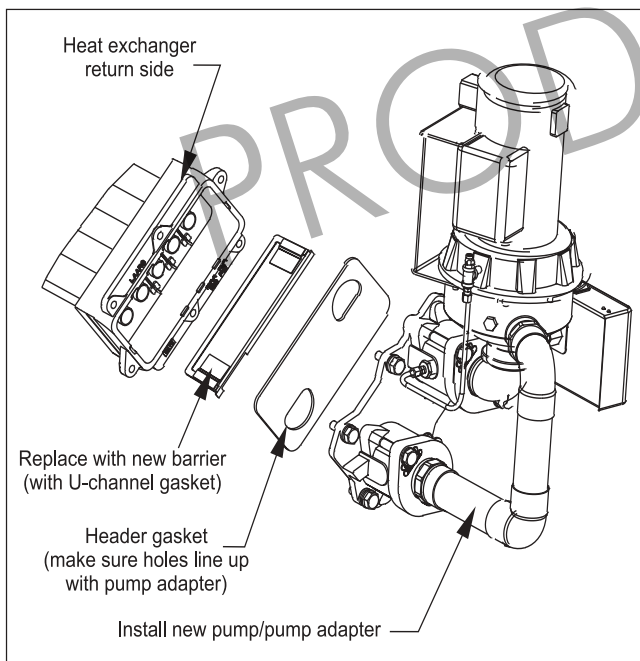


Figure 5. Return Header Side of Unit.

7. Remove the header cover on the return side of the boiler.
8. Insert the new barrier (with U-channel gasket). Do not use the old barriers on a pump-mounted unit. (Make sure the barrier tabs match up with the tab slots on the header as shown in Figure 4, and the barrier is seated firmly in the groove between the two rows of tubes).
9. Attach the pump adapter with pump to the return header side of the heat exchanger. Place a new header gasket between the heat exchanger and the pump adapter. Make sure the gasket holes line up with the holes on the pump adapter (see Figure 6). If the holes do not line up, flip the gasket over so the holes on the gasket line up with the holes on the pump adapter.

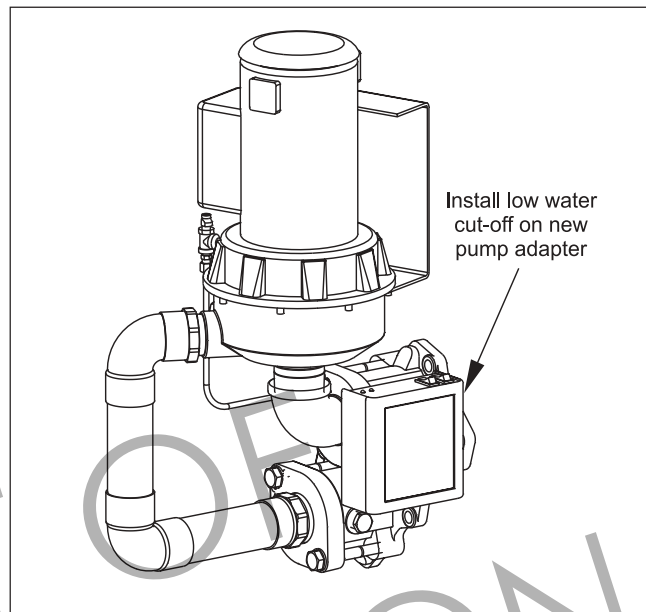
**⚠ Caution**

The header gasket holes must line up with pump adapter holes. Failure to install the gasket correctly may reduce or stop flow resulting in pump failure and dangerous operation.

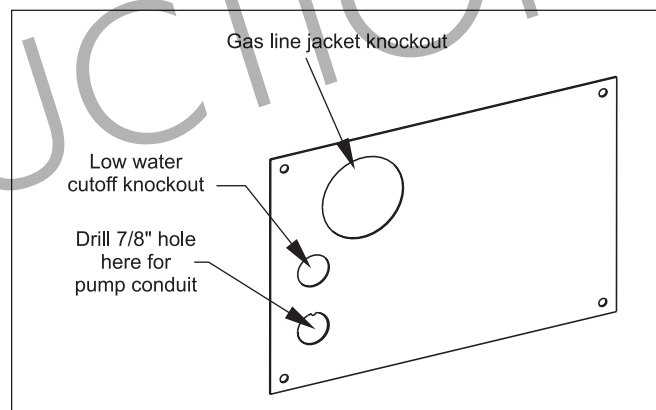


**Figure 6. Return Header Side of Unit.**

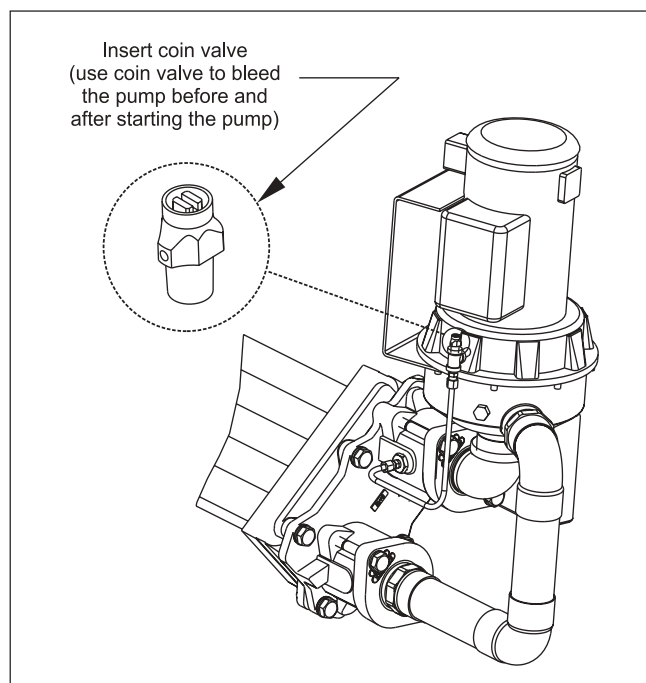
10. Tighten bolts connecting the pump adapter to the heat exchanger to 40 ft-lbs.
11. Screw in the low water cut-off sensor post into the 3/4 inch NPT connection on the pump adapter. Screw the low water cut-off housing back on to low water cut-off post. Attach the white wire to the low water cut-off post with the wing nut. Reattach the low water cut-off housing cover. The low water cut-off should be positioned as shown in Figure 7. Slide the low water cut-off outside cover back into place.



**Figure 7. Return Header Side of Unit.**



**Figure 8. Return Header Side of Unit.**



**Figure 9. Return Header Side of Unit.**

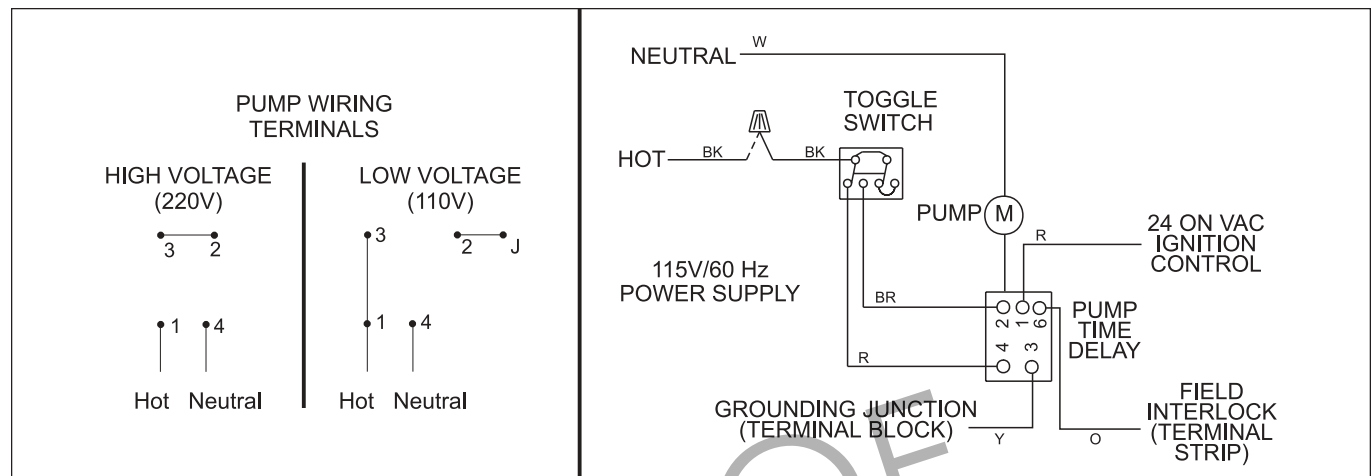


Figure 10. Pump Wiring Diagram.

12. Drill a 7/8 inch diameter hole in the boiler jacket panel as shown in Figure 8.
13. Attach the conduit with conduit connector to the pump, and run the pump wires through the conduit.

Attach a conduit connector to the control box inside the boiler. Create a 7/8 inch knockout if necessary. Attach the grommet connector to the hole for the pump conduit shown in Figure 8. Lubricate the conduit with electrical cable pulling lubricant, and run the conduit from the pump through the grommet. Make sure connections and fittings are watertight. Run the conduit through the inside of the boiler and terminate at the conduit connector on the control box. Wire the pump to the time delay relay and connect the wires as shown in Figure 10.

14. Insert the coin valve into the Tee section on the copper flush-line as shown in Figure 9.
15. Connect the inlet and outlet piping to the inlet/outlet header. Check the heat exchanger and piping for leaks. Fill the heat exchanger with water and remove air from the heat exchanger. Bleed the pump with the coin valve until all air is out and a steady stream of water exits the coin valve.



#### Caution Seal Damage Hazard

Do not allow the pump to run dry. Damage to the seals may occur. Failure to follow these instructions could result in serious personal injury, death, or property damage

16. Start the pump by switching the toggle switch on the boiler to the down position. If necessary, repeatedly start up the pump and bleed the system with the coin valve. After the pump is properly bled, make sure the coin valve is fully closed. Refer to the boiler operation manual for instructions on boiler startup.

## 1D. Maintenance

Refer to the B&G Manual provided with the Pump Mount Kit for pump maintenance.

## 1E. Operational Data



### WARNING Extreme Temperature Hazard

If pump, motor, or piping are operating at extremely high or low temperatures, guards or insulation is required. Failure to follow these instructions could result in serious personal injury, death, or property damage.



### WARNING Excessive System Pressure Hazard

The maximum working pressure of the pump is listed on the nameplate, do not exceed this pressure. Failure to follow these instructions could result in serious personal injury, death, or property damage



### WARNING Excessive Pressure Hazard Volumetric Expansion

The heating of water and other fluids causes volumetric expansion. The associated forces may cause failure of system components and release of high temperature fluids. This will be prevented by installing properly sized and positioned compression tanks and pressure relief valves. Failure to follow these instructions could result in serious personal injury, death, or property damage

The approximate temperature rise between the inlet and outlet of the heat exchanger is shown below:

| Model | Approximate Temperature Rise |       |
|-------|------------------------------|-------|
| 520   | 10 °F                        | 6 °C  |
| 625   | 12 °F                        | 7 °C  |
| 775   | 15 °F                        | 8 °C  |
| 1000  | 20 °F                        | 11 °C |

**Table 4. Temperature Rise.**

The temperature rise may vary with each system.

The temperature rise must remain below 30°F (17°C).

**This pump is not sized for hard water systems. Use this pump in systems with water hardness between 1-17 grains per gallon.**

## SECTION TWO. Trouble Shooting

### Symptom:

There is no flow through the heat exchanger, or there is a 30°F (17°C) or greater temperature rise across the inlet and outlet of the heat exchanger.

### Cause 1:

A valve is closed on the heating loop, or the piping / fittings were not sized correctly.

### Remedy 1:

Make sure no valves on the inlet / outlet piping are closed. Check that the piping and fittings meet the requirements as stated in the "Piping Requirements" section.

### Cause 2:

There is a blockage in the heat exchanger or the wrong water barriers were used.

### Remedy 2:

Shut off and drain the boiler/pump. Refer to the boiler operation manual for instructions on shutting off the boiler. Remove the inlet/outlet header and the pump adapter. Make sure the header gaskets are lined up with header holes. Make sure the appropriate water barrier is properly installed in both the inlet/outlet and return side of the heat exchanger (see Installation section). The correct water barrier should have a U-channel gasket. Do not re-use the original water barriers. Use the water barriers that were supplied with the pump mount kit only. Refer to the Installation section to reinstall the pump adapter and inlet/outlet header. Refer to the boiler operation manual to restart the boiler.

### Cause 3:

There is air trapped in the pump.

### Remedy 3:

Shut off the boiler and the pump. Refer to the boiler operation manual for instructions on shutting off the boiler. Bleed the pump with the coin valve. Turn the pump on for 1 second and then open the coin valve. After all air is removed from the pump, close the coin valve. Refer to the boiler operation manual to restart the boiler.

### Cause 4:

The pump is rotating in the wrong direction.

### Remedy 4:

Make sure the pump is wired as shown in Figure 10. Check all electrical connections.

### Cause 5:

The pump will not stay on.

### Remedy 5:

Make sure the boiler is not locked out. If the boiler is locked out, take the appropriate actions specified by the boiler operation manual. Check all wiring connections.

### Caution

Do not allow the pump to run dry.

### WARNING

#### Electrical Shock Hazard

Electrical connections are to be made by a qualified electrician in accordance with all-applicable codes, ordinances, and good practices. Failure to follow these instructions could result in serious personal injury, death, or property damage.

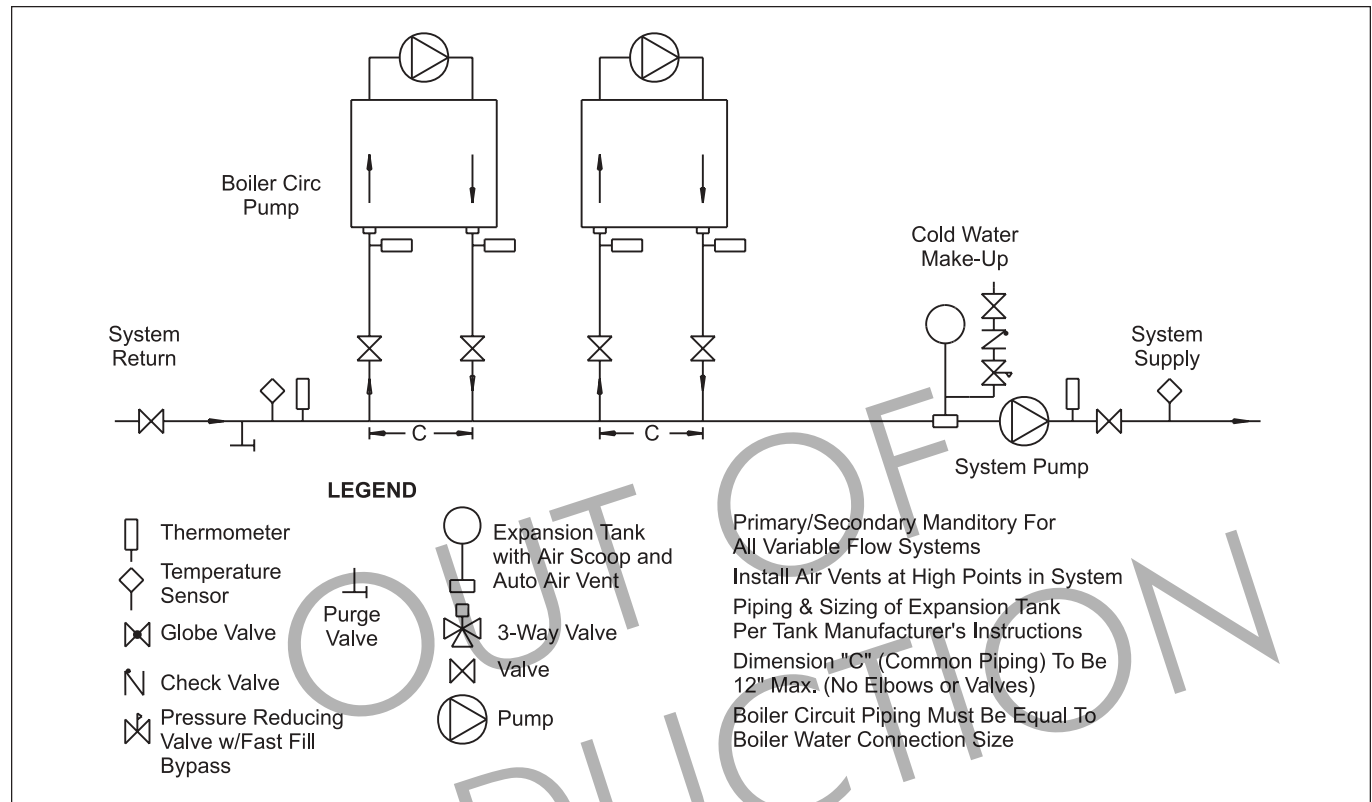


Figure 11. Hydronic Piping Diagram.

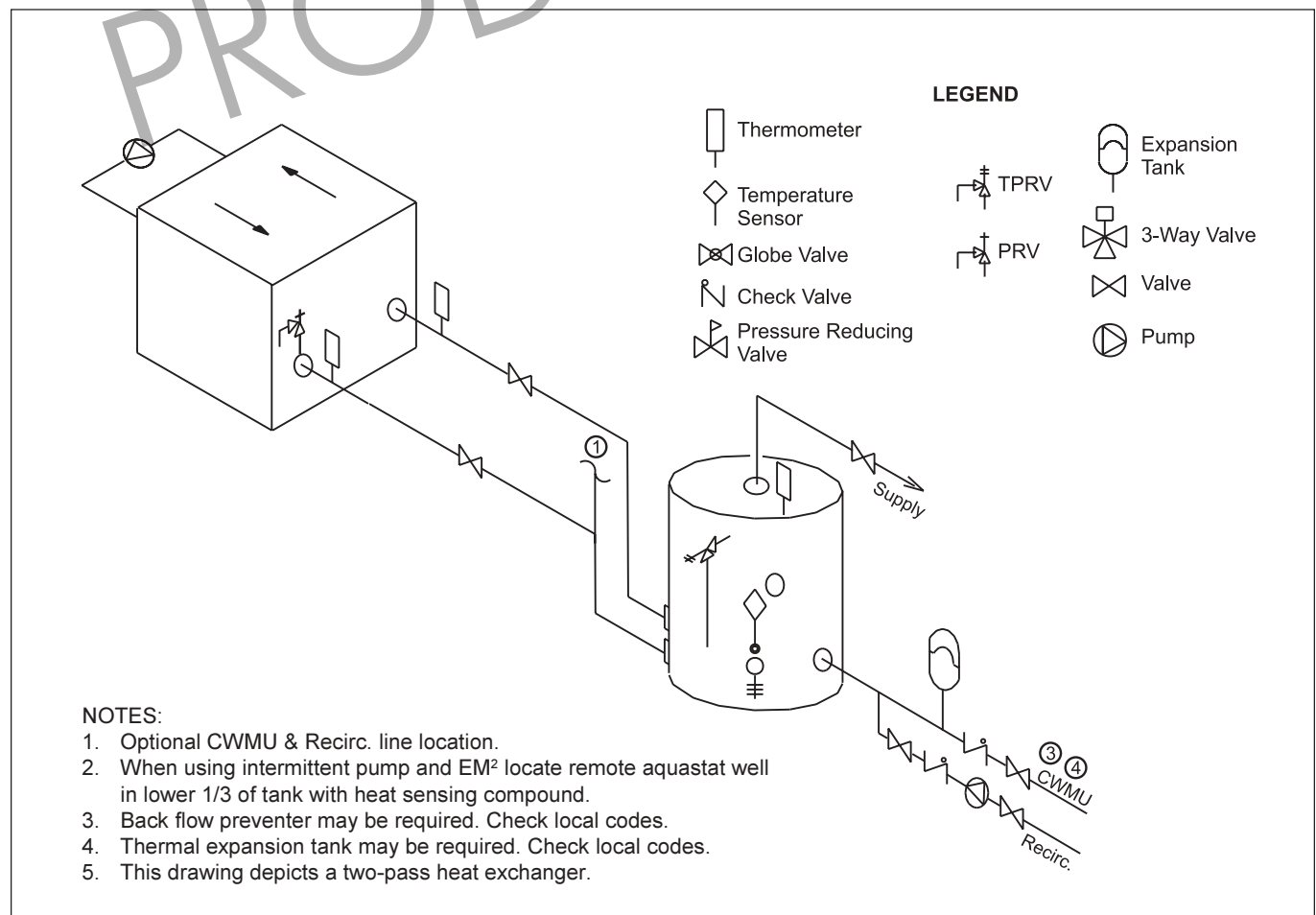


Figure 12. Volume Water Piping Diagram.

OUT OF  
PRODUCTION