



ADVANCE

METALPRES INC

H O T W A T E R T A N K S

J - SERIES

INDIRECT-FIRED WATER HEATERS

INSTALLATION & OPERATIONS MANUAL

WARNING

Read this instruction manual before installation, operation, or service. Failure to follow the instructions in this manual may result in severe personal injury, death or substantial property damage. Installation and service must be performed by a qualified service technician.

Model.....

Serial #.....

Installed date.....

ADVANCE METALPRES INC

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1.1 RECEIVING

INSPECT SHIPMENT FOR POSSIBLE DAMAGE. All goods are carefully manufactured, inspected, checked and packed by experienced workers. The manufacturer's responsibility ceases upon delivery of goods to the carrier in good condition. Any claims for damage and/or shortage in shipment or non-delivery must be filed immediately against the carrier by the consignee.

Use care when receiving and unpacking the tank. The outer casing has been powder coated and baked providing the tank with an attractive hardwearing easy clean finish, but it can be damaged if mishandled. Dropping the tank may dent the casing or prevent proper operation. It is recommended that a dolly be used to place the tank in its final location.

1.2 INSTALLATION CODES AND REQUIREMENTS

All applicable national, provincial/state, and local codes, laws, regulations, and ordinances must be followed. They expand on and take precedence over any recommendations in this booklet. Authorities having jurisdiction shall be consulted before installations are made.

If an external electrical source is utilized, the hot water tank, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electrical Code, ANSI/NFPA 70* (current edition) and/or the *Canadian Electrical Code, CSA C22.1 Part 1* (current edition).

If there is any conflict in the above requirements, the more stringent requirement applies.

The installation and service must also conform to the additional requirements in this manual. If there is any conflict with a requirement in this manual and a code requirement, the code requirement must be followed.

1.3 LOCATION

- This tank should not be placed where freezing might occur and is not to be installed outdoors.
- ***Except HR (HORIZONTAL) Series Tanks. This tank is designed for vertical installation.** Install the tank on an area that is stable, flat, level and capable of supporting the weight of the tank when filled with water. See chart in section 1.6 for weight of tank when filled with water. **CAUTION:** Failure to support and stabilize the water heater could result in severe personal injury, death or substantial water damage.
- Although minimal clearance is required for this tank, ensure that there is sufficient room for the water heater to access all of the fittings easily. We recommend a **service clearance of 24"** around plumbing connections.
- **CAUTION:** The tank should be located in an area where leakage of the indirect water heater or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained (connected to a drain), be installed under the tank.

- This tank must be installed such that any electronic components are protected from water (dripping, spraying, rain, etc.) during appliance operation and service.
- Avoid heat loss and friction loss by locating the tank as close to the boiler as possible. Further heat loss should be avoided by insulating the pipe.
- For the fastest delivery of hot water, locate the water heater in a position central to the points of use.
- **DANGER - Risk of Explosion:** Do not use or store gasoline or other flammable fuels or chemicals which have flammable vapors near the tank. The vapors may be ignited by the heat or electronic components of the tank.

1.4 OPERATING RESTRICTIONS

CAUTION: Single wall heat exchangers must use a heat transfer medium such as water or other non-toxic fluids having a toxicity rating of Class 1, as listed in Clinical Toxicology of Commercial Products (current edition). This does not apply to the J Series "DW" heat exchangers which have a double wall with leak detection. The pressure of the heat transfer medium must be limited to a maximum of 30psi by an approved pressure relief valve.

Maximum working pressure of the tank is 150psi. (Factory test pressure is 300psi.)

1.5 WATER QUALITY

Always use good quality water to prolong the life of the tank. Water which is safe to drink and even city water is not necessarily good quality water for the tank. The use of filters can prevent corrosion and reduce sediments inside the tank. Water hardness, pH, and chlorides must be controlled to normal levels.

- **PH levels must be between 6.0 and 8.0 and dissolved chlorides below 100ppm.**

If you are unsure, use a water softening system or consult a qualified water treatment expert.

Ensure that the softener is regularly maintained.

NOTE: All improper use as detailed above could void the warranty of the tank.

1.6 WATER HEATER WEIGHTS & DIMENSIONS & FITTING SIZES

* AMI reserves the right to make changes at any time without notice.

WEIGHTS (in lbs)	Shipped weight	Tank Weight		Domestic Cold Water In	Domestic Hot Water Out	Boiler Water In (supply)	Boiler Water Out (return)	Re-circulation	Re-circulation	Aquastat	Pressure Relief Valv
	Crated	Tank Empty	Tank Full Water								
J40	183	112	446	3/4"	3/4"	1"	1"			1/2"	3/4"
J40DB	193	122	456	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J40XL	201	132	466	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J40DWXL	212	143	478	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J40ST/SE	165	96	430	3/4"	3/4"			1 1/4"	1 1/4"	1/2"	3/4"
J40HR	225	154	654	3/4"	3/4"	1"	1"			1/2"	3/4"
J60	230	159	659	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J60XL	245	165	765	3/4"	3/4"	1"	1"			1/2"	3/4"
J60DBXL	255	176	676	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J60DWXL	268	186	686	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J60DBDWXL	265	175	675	3/4"	3/4"	1 1/4"	1 1/4"			1/2"	3/4"
J60ST/SE	199	127	627	3/4"	3/4"			1 1/4"	1 1/4"	1/2"	3/4"
J60HR	235	166	666	3/4"	3/4"	1"	1"			1/2"	3/4"
J60 Kompact	204	145	210	3/4"	3/4"	1"	1"			1/2"	3/4"
J60HRDWXL	250	167	834	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J60HRSTSE	255	174	841	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J8XL	270	189	856	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J80DBXL	276	192	859	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J80DWXL	285	199	867	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J80DBDWXL	276	197	865	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J80ST/SE	240	152	819	1"	1"			2"	2"	1/2"	3/4"
J80HRXL	292	213	880	1"	1"	1 1/4"	1 1/4"			1/2"	3/4"
J80RESTSE	310	214	1207	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J80Buffer	320	226	1219	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J119XL	335	240	1229	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J119DBXL	349	256	1249	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J120DWXL	360	267	1269	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J120DBDWXL	340	247	1249	1 1/4"	1 1/2"	1 1/4"	1 1/4"			1/2"	3/4"
J120ST/SE	300	208	1195	1 1/4"	2"			2"	2"	1/2"	3/4"
J120HR	348	255	1248	1 1/4"	1 1/4"	1 1/4"	1 1/4"			1/2"	3/4"

1.7

	Length	Boiler in	Boiler out	Top Coil Boiler In	Top Coil boiler out	Cold water in / drain	Width	re circ out	re-circ in	Cw in / Drain	Domestic Hot Water Out	Domestic Cold Water In	Boiler Water in (supply)	Boiler Water Out (return)	Re-circulation	Re-circulation	Aquastat	Pressure Relief Valv
	Z	Y	X	T	U	V	W	M	N	N	A	B	C	D	C	D	E	H
J40	42½"	24½"	8"			8¼"	23"				¾"	¾"	1"	1"			½"	¾"
J40DB	42½"	22¾"	8½"			8¼"	23"				¾"	¾"	1 ¼"	1 ¼"			½"	¾"
J40XL	42½"	26½"	8½"			8¼"	23"				¾"	¾"	1 ¼"	1 ¼"			½"	¾"
J40DWXL	42½"	26½"	8½"			8¼"	23"				¾"	¾"	1 ¼"	1 ¼"			½"	¾"
J40ST/SE	42½"					8¼"	23"	14¼"	8¾"	8 ¼"	¾"	¾"			1¼"	1¼"	½"	¾"
J40HR	42½"	6¾"	6¾"				23"				¾"	¾"	1"	1"			½"	¾"
J60	62½"	24½"	8"			8¼"	23"				¾"	¾"	1"	1"			½"	¾"
J60XL	62½"	32"	8¼"			8¼"	23"				¾"	¾"	1¼"	1¼"			½"	¾"
J60DBXL	62½"	24½"	8"	52"	35½"	8¼"	23"				¾"	¾"	1"	1"			½"	¾"
J60DWXL	62½"	32"	9½"			8¼"	23"				¾"	¾"	1¼"	1¼"			½"	¾"
J60BDWXL	62½"	32"	9½"			8¼"	23"				¾"	¾"	1¼"	1¼"			½"	¾"
J60ST/SE	62½"	27"	8"	51"	32"	8¼"	23"				¾"	¾"	1¼"	1¼"			½"	¾"
J60HR	62½"					8¾"	23"	14¼"	8¾"	8¾"	¾"	¾"			1¼"	1¼"	½"	¾"
J60 Kompact	62½"	6¾"	6¾"			11¼"	29"				¾"	¾"	1"	1"			½"	¾"
J60HRDWXL	38"	16 ½"	9½"			9½"	23"				¾"	¾"	1"	1"			½"	¾"
J60HRSTSE	66½"	32"	9½"			9½"	23"				1"	1"	1¼"	1¼"			½"	¾"
J8XL	66½"	32"	9½"			9½"	25"				1"	1"	1¼"	1¼"			½"	¾"
J80DBXL	66½"	29¼"	9¼"	34½"	54½"	9½"	25"		9 ½"		1"	1"	1¼"	1¼"			½"	¾"
J80DWXL	66½"	33¼"	10¾"			9½"	25"				1"	1"	1¼"	1¼"			½"	¾"
J80BDWXL	66½"	33¼"	10¾"			9½"	25"				1"	1"	1¼"	1¼"			½"	¾"
J80ST/SE	66½"	29¼"	9¼"	34½"	54½"	9½"	25"				1"	1"	1¼"	1¼"			½"	¾"
J80HRXL	66½"					9½"	25"	15¾"	9 ½"	9 ½"	1"	1"			2"	2"	½"	¾"
J80HRESTSE	66½"	9¾"	9¾"			15¼"	25"				1"	1"	1¼"	1¼"			½"	¾"
J80Buffer	70 ½"	32"	9½"			9½"	25"				1½"	1¼"	1¼"	1¼"			½"	¾"
J119XL	70 ½"	32"	9½"			9½"	29"				1½"	1¼"	1¼"	1¼"			½"	¾"
J119DBXL	70 ½"	31 ½"	9½"	36½"	59"	9½"	29"				1½"	1¼"	1¼"	1¼"			½"	¾"
J120DWXL	70 ½"	32¾"	10¼"			9½"	29"				1½"	1¼"	1¼"	1¼"			½"	¾"
J120BDWXL	70 ½"	32¾"	10¼"			9½"	29"				1½"	1¼"	1¼"	1¼"			½"	¾"
J120ST/SE	70½"	29½"	9½"	36½"	59"	9½"	29"				1½"	1¼"	1¼"	1¼"			½"	¾"
J120HR	70½"	15¾"				9½"	29"	15¾"	9 ½"	9 ½"	2"	1¼"			2"	2"	½"	¾"
J120HR	70½"	11"	11"			15¼"	29"				1¼"	1¼"	1¼"	1¼"			½"	¾"

* AMI reserves the right to make changes at any time without notice.

2.1 BOILER SIDE PLUMBING

Connect boiler out (hot) supply piping to the fitting marked “boiler in” on the water tank. The “boiler out” fitting on the tank should be piped to the boiler return. Use Teflon tape and pipe dope or both on all threaded fittings. When installing the pump make sure that the direction arrow is pointing in the same direction as the flow. The use of shut off valves and dielectric unions are recommended when installing your water tank to simplify future service requirements.

To prevent a back flow through the water heater when heating a radiant system, a check valve or back flow preventer must be installed.

Hot Water Priority

A boiler system connected to multiple zones may be installed so that domestic water heating will be given priority over other zone heating. If hot water priority is used, preventative measures must be taken to ensure hot water priority during cold weather conditions does not result in freezing damage to the other zones.

Sample Systems

Although there are unlimited possibilities for your indirect water heater system, some typical installations are described/shown below. Note that all heating zones can be controlled either by using circulators (pumps) or zone valves as long as correct flow is provided.

- **Standard Circulator Zone**
- **Zone Valve System**
- **3-way Zone Valve System**
- **Radiant Panel System**
- **Double Coil**
- **Multiple Tanks Boiler Piped in Parallel**

Standard Circulators Zone:

Run the same as a standard heating zone except one zone is piped to the water heater and can be prioritized by correct use of the control valve. Ensure that the circulator is sized correctly to allow the boiler water to flow at the correct rate.

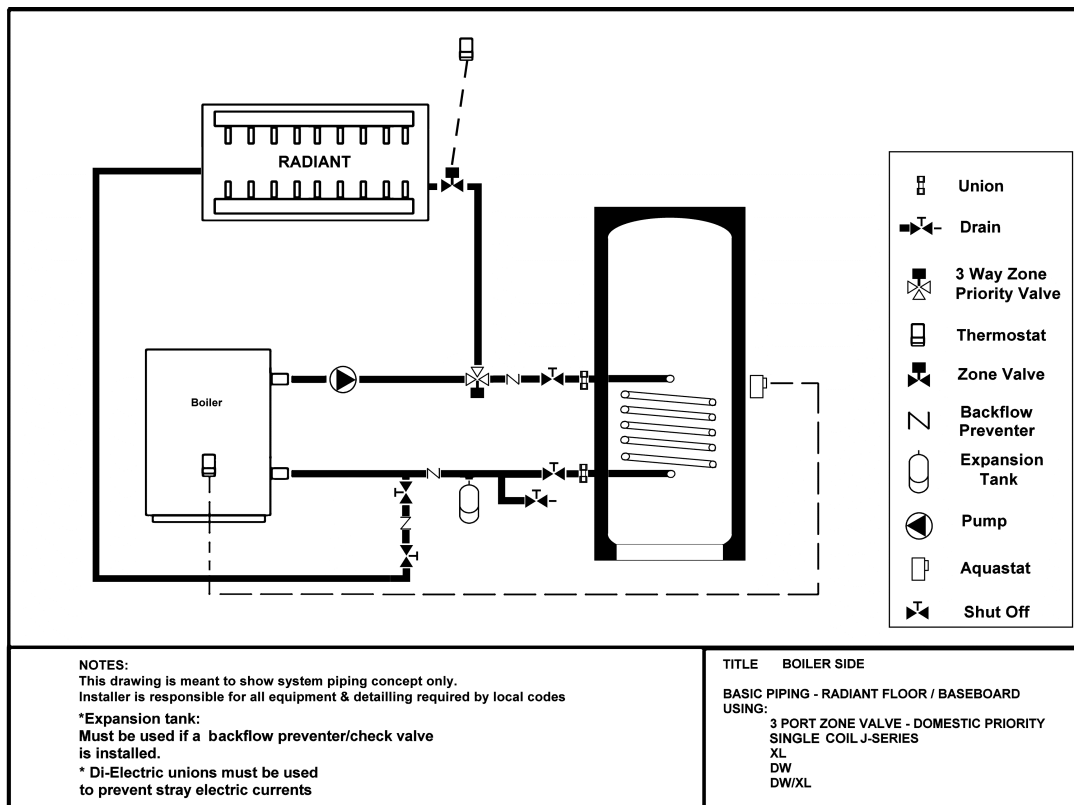
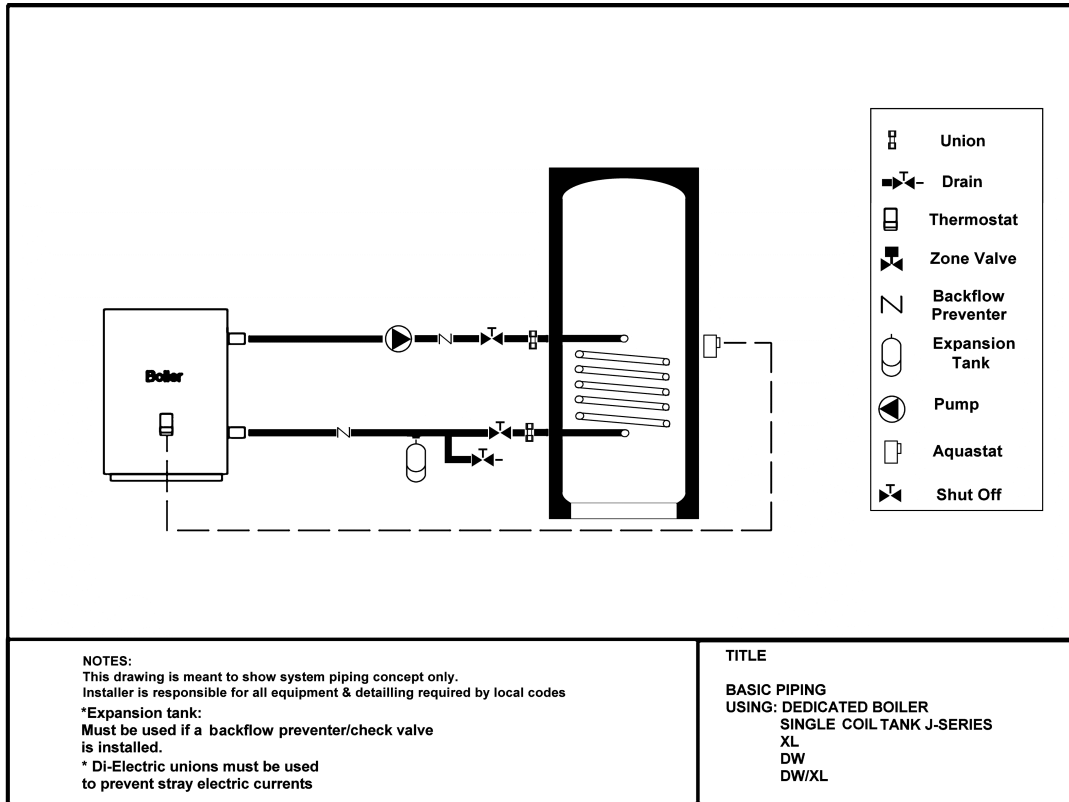
Zone Valve System:

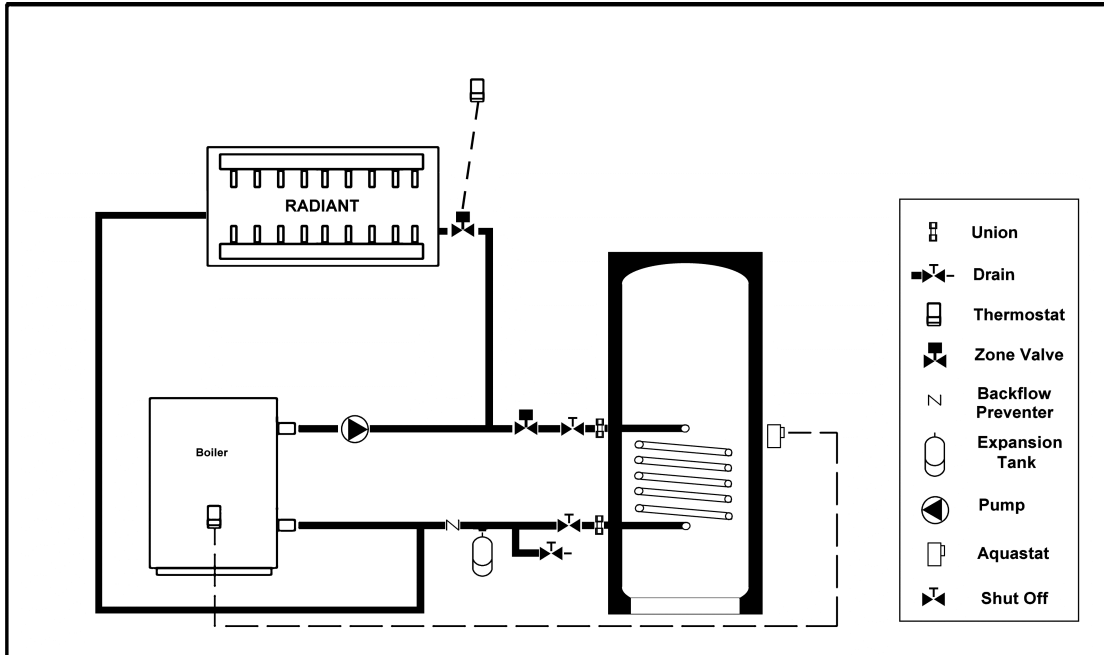
Run the same as a standard heating zone except one zone is piped to the water heater and can be prioritized with correct use of the zone valves. Ensure that the circulator is sized correctly to allow the boiler water to flow at the correct rate.

3-way Zone Valve System:

For prioritizing your water heater, a 3-way zone valve can be installed into your system. This system overrides all other “calls for heat” when the water heater aquastat demands, and diverts all the boiler water to the water heater. There are three ports on a 3-way valve, a common port, a normally closed port, and a normally open port. The common port is connected to the boiler side; the normally open port connected to the heating zone and the normally closed is connected to the water heater coil. The boiler water flows through the heating zone, until the water heater aquastat demands more heat. The zone valve is then activated and the boiler water is diverted to the water heater, once the requested water temperature is achieved the aquastat will shut off power to the zone valve and the boiler water will be divert back to the heating zone.

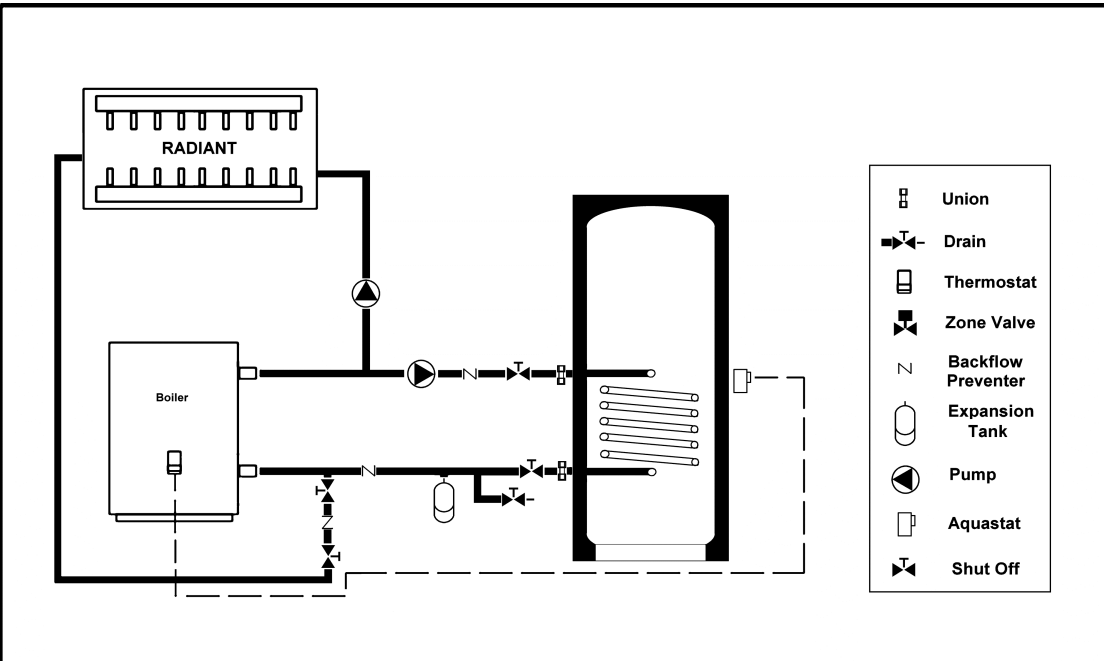
Sample Schematics Boiler Side Piping





NOTES:
 This drawing is meant to show system piping concept only.
 Installer is responsible for all equipment & detailing required by local codes
 *Expansion tank:
 Must be used if a backflow preventer/check valve
 is installed.
 * Di-Electric unions must be used
 to prevent stray electric currents

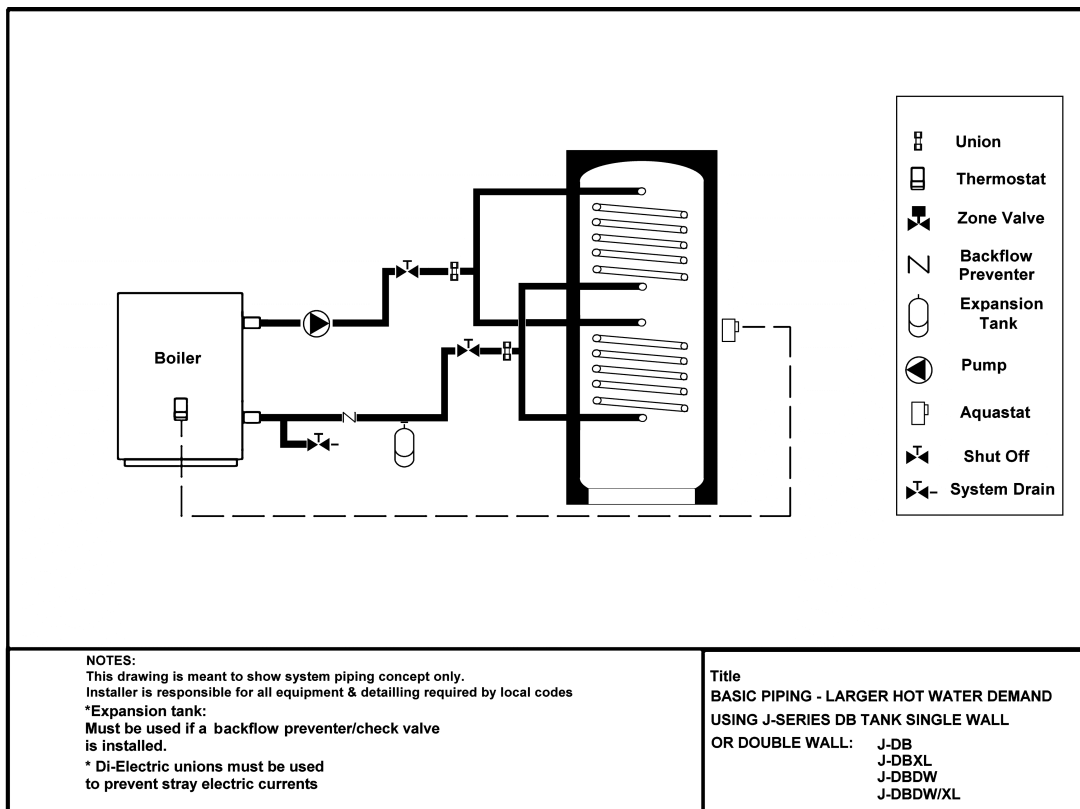
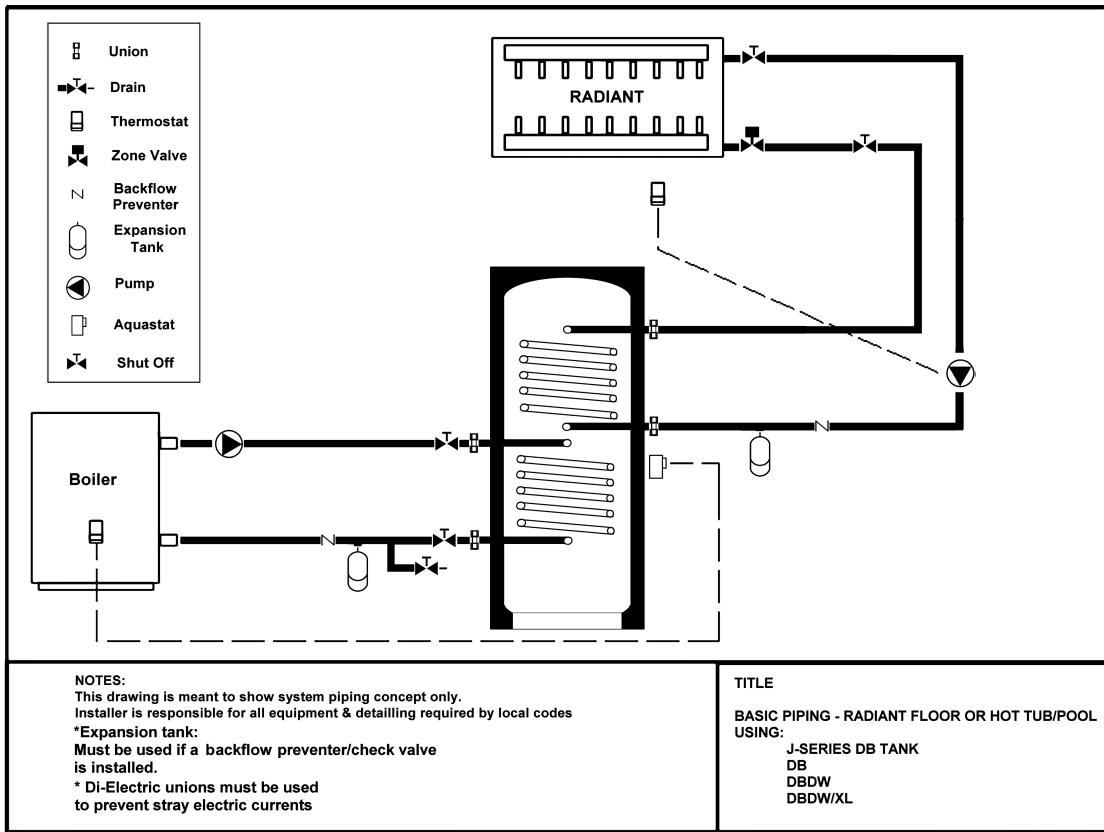
TITLE
 BASIC PIPING - RADIANT FLOOR / BASEBOARD
 USING:
 2 PORT ZONE VALVE - DOMESTIC PRIORITY
 SINGLE TANK J-SERIES
 XL
 DW
 DW/XL



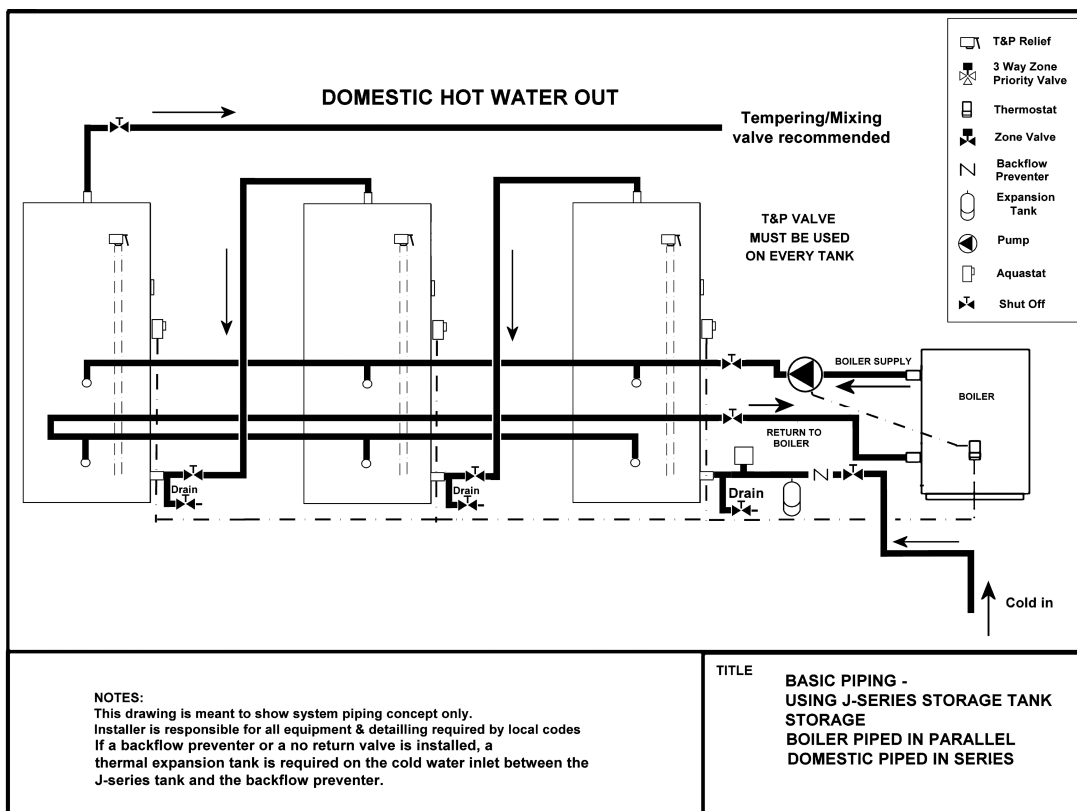
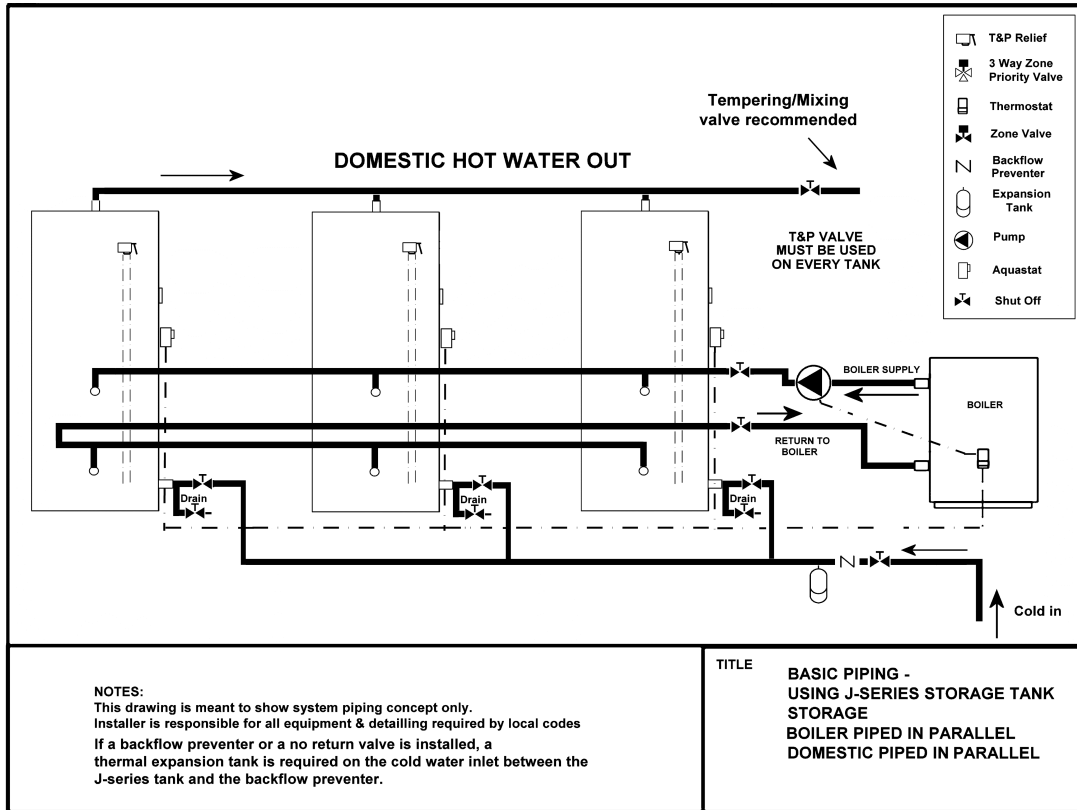
NOTES:
 This drawing is meant to show system piping concept only.
 Installer is responsible for all equipment & detailing required by local codes
 *Expansion tank:
 Must be used if a backflow preventer/check valve
 is installed.
 * Di-Electric unions must be used
 to prevent stray electric currents

Title
 TYPICAL INSTALLATION USING CIRCULATORS
 AND DOMESTIC HOT WATER PRIORITY
 USING J-SERIES:
 J-XL (EXTRALONG COIL)
 J-DW (LEAK DETECTION)
 J-DWXL (LEAK DETECTION)

Double Coil for larger hot water demand



Multiple Water Heaters



2.3 DOMESTIC SIDE PLUMBING

Connect domestic water in and domestic water out to the marked fittings on the water heater. Use Teflon tape and pipe dope or both on all threaded fittings. Connect drain valve near the inlet connection so that the tank can be drained. The use of shut off valves and dielectric unions are recommended when installing your water tank to simplify future service requirements.

You must install an expansion tank of adequate capacity if a backflow preventer, check valve, or pressure-reducing valve is installed on the cold-water inlet. Do not install any valve or restrictions between expansion tank and hot water tank inlet. Improper piping of the expansion tank or backflow preventer can cause excessive pressure in the water heater, which can cause severe personal injury, death or substantial damage to property.

Actual service pressure should not exceed that of pressure stamped on the T & P relief valve minus 25 P.S.I.

T & P Relief Valve Plumbing

Install the T & P Relief Valve directly into the $\frac{3}{4}$ " tapping located near the top of the tank so that the temperature sensing element is immersed in the water within the top 6" of the tank. No valve, reducing coupling or other restriction is to be placed between the relief valve and the tank connection. No valve, reducing coupling, pipe plug, pipe cap or other restriction is to be placed in the discharge piping. Improper placement or piping of the T & P relief valve can cause severe personal injury, death or substantial property damage.

The discharge line shall be installed to allow the complete drainage of both the valve and the line. It shall be independently supported or arranged so as to avoid undue stress on the valve. The discharge line must be installed to allow complete drainage of both the valve and line. **Do not pipe in any area where freezing may occur.**

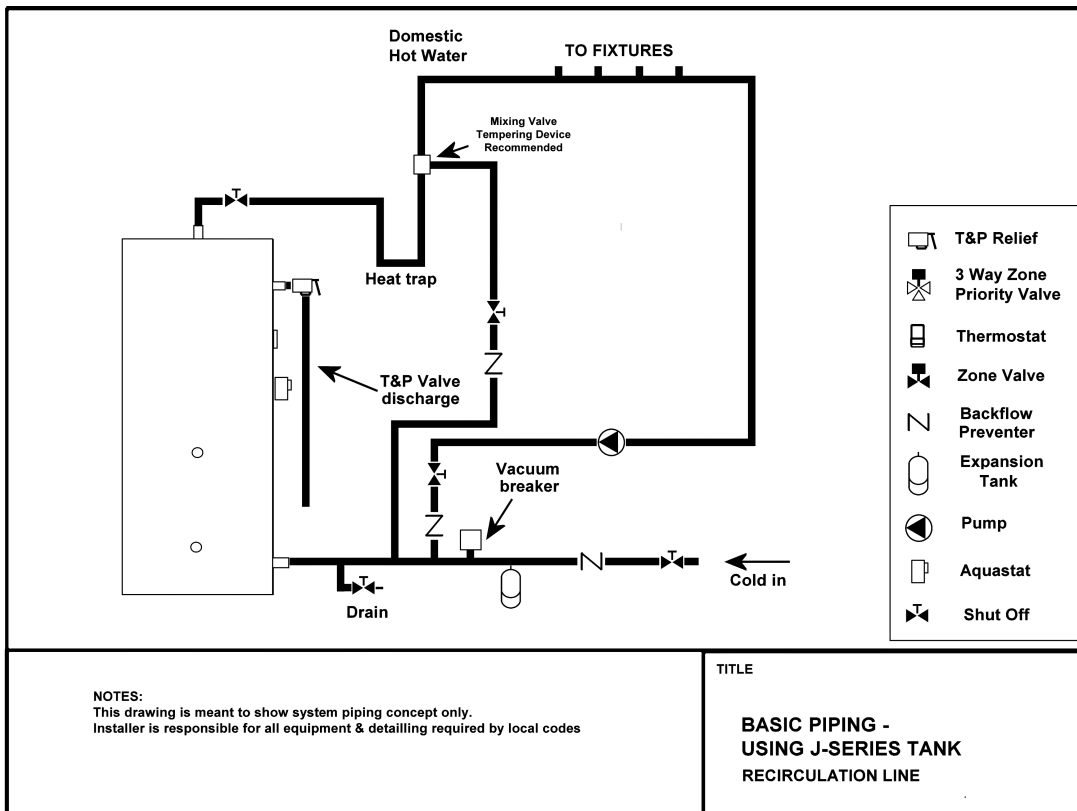
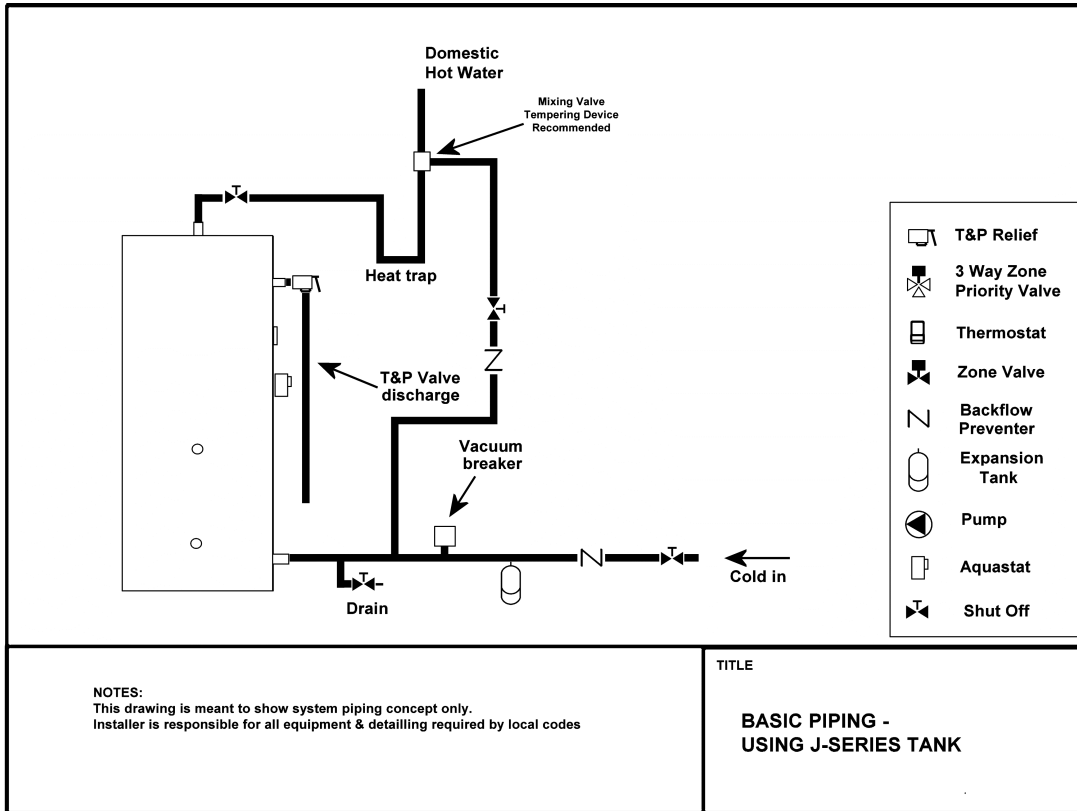
The termination of the T&P Relief Valve discharge line shall be downward and not directly connected to a sewer line. The outlet of the discharge line shall terminate in the vicinity of a point of drainage within 6" of the floor to eliminate potential risk of scalding.

Temperature and pressure settings are factory set and are not adjustable.

DANGER: Do not plug T & P relief valve or discharge piping. Plugging T & P relief valve or discharge piping can cause excessive pressure in water heater, resulting in severe personal injury, death or substantial property damage.

Domestic side piping

Domestic piping with thermostatic mixing valve



3.0 WIRING DIAGRAMS

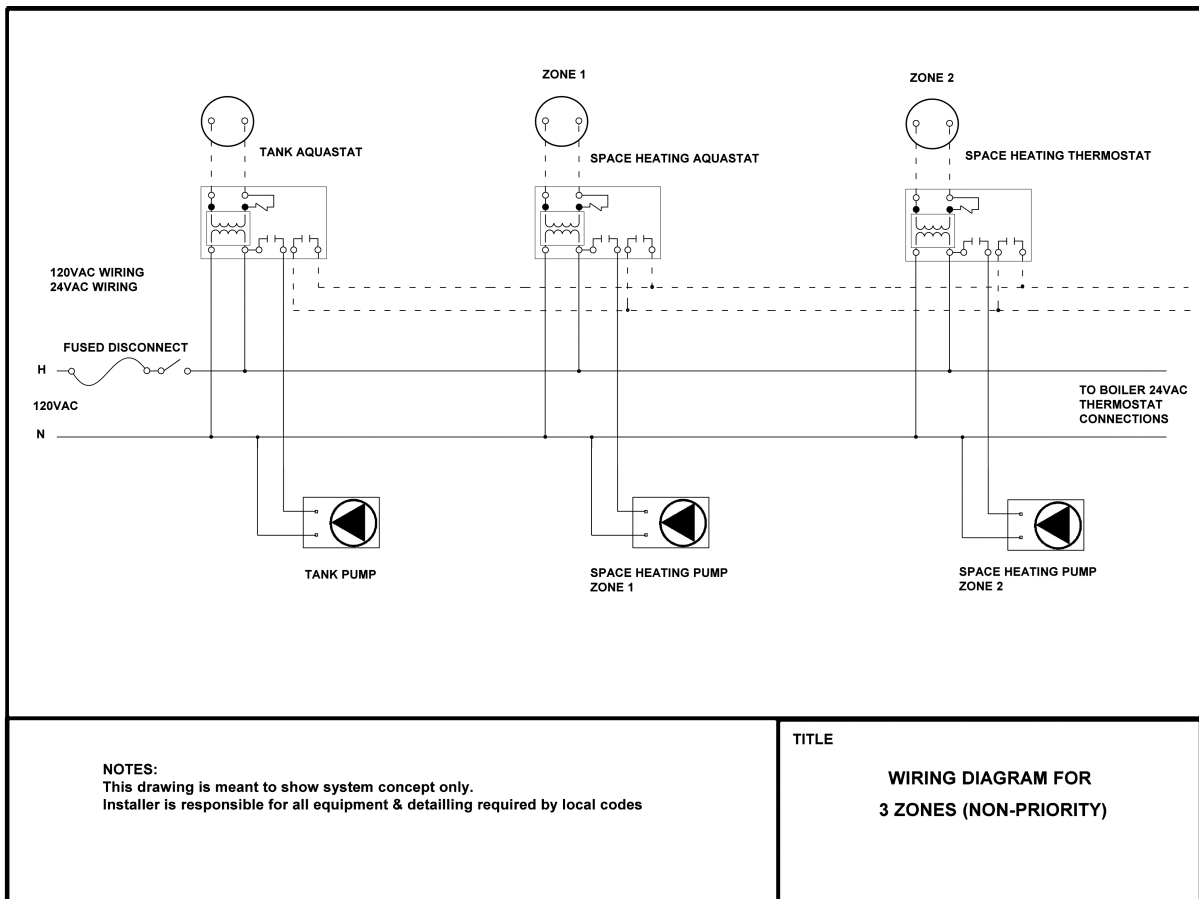
When installed the tank must be grounded in accordance with local codes or in the absence of local codes with the National Electrical Code ANSI/NFPA 70, and/or the CSA C22.1 Electrical code

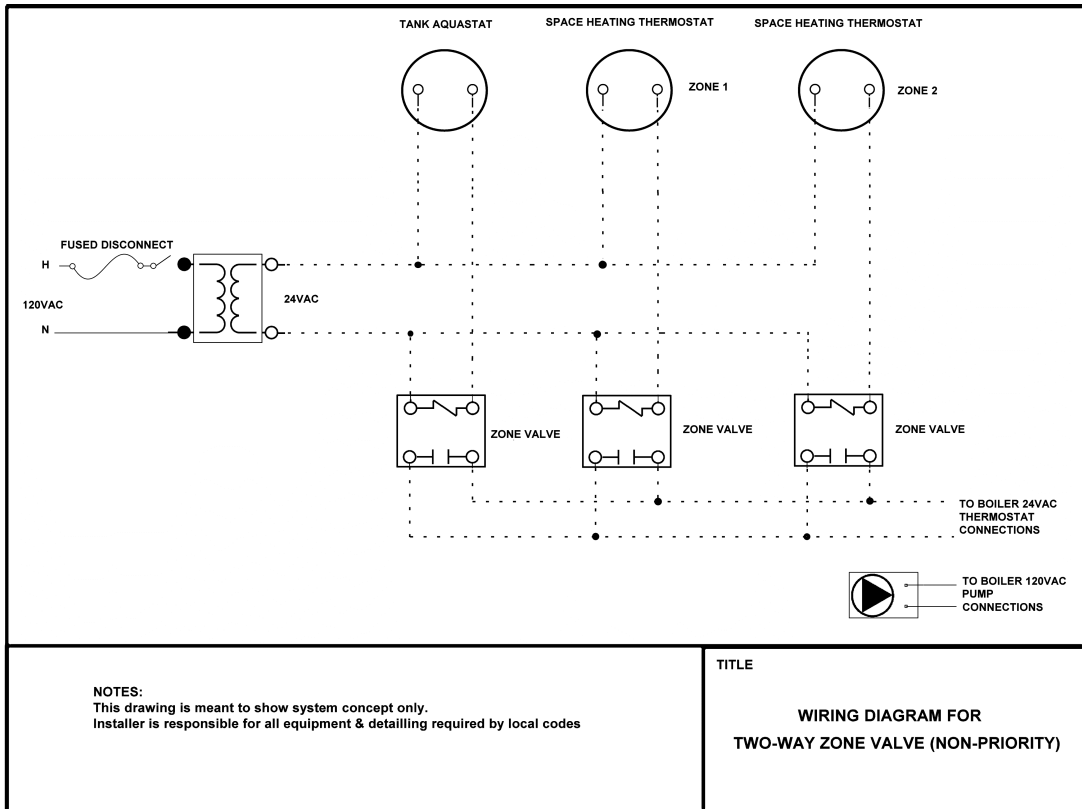
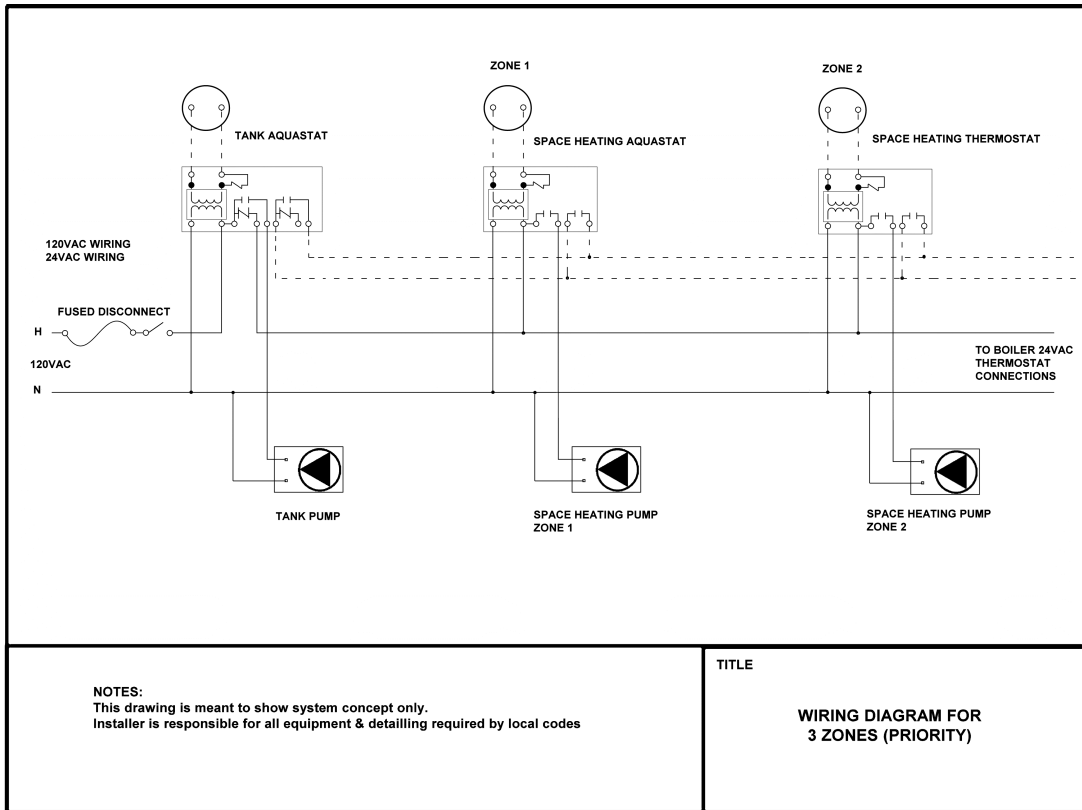
All wiring is to be done in accordance with all applicable local and state/provincial codes. Turn off all the power related to the boiler starting and wiring procedures.

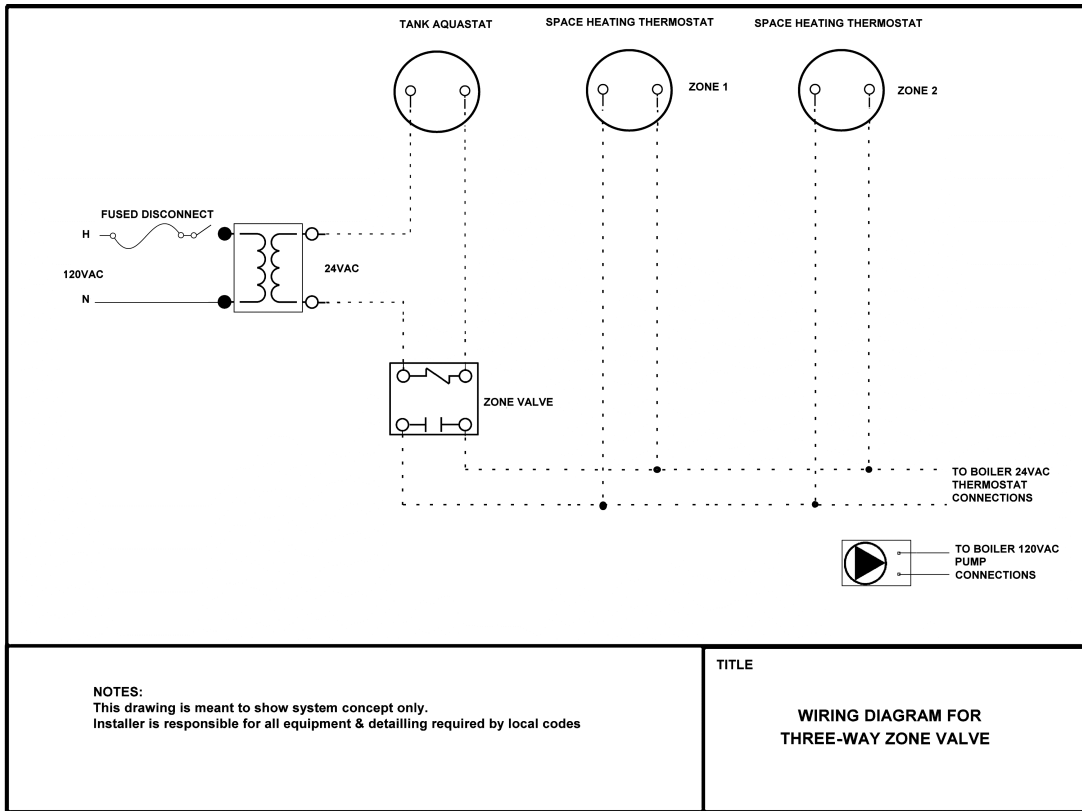
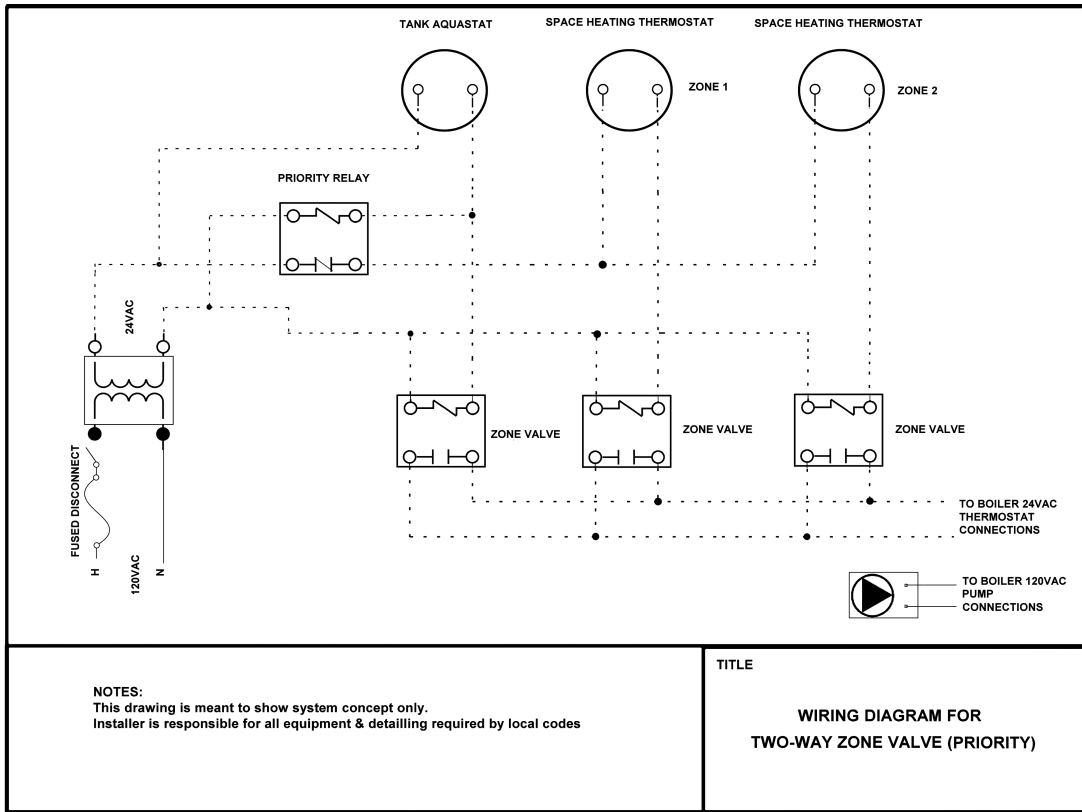
Wiring for the aquastat is to be connected through the junction box below the aquastat opening. The aquastat is to be connected in series. For line voltage connections over 30 volts, wiring must be securely fastened at the junction box opening. (Not provided).

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Wiring diagrams







4.0 STARTUP AND ADJUSTMENT

DANGER: Before filling the tank make sure that the T & P relief valve is installed and that the unit is properly grounded.

CAUTION: Never use tank until it is filled with water and connected to the domestic water piping and boiler piping.

Pre-startup checklist:

- ❑ T&P relief valve is properly installed and drain discharge is directed away to a drain.
- ❑ Domestic cold and hot water lines are correctly connected to domestic water system.
- ❑ Boiler supply and return piping is correctly connected from boiler to the tank.
- ❑ Domestic and boiler water systems are correctly pressurized.
- ❑ All wiring is installed correctly, no exposed high voltage wiring is present and the unit is properly grounded.

Startup instructions:

1. Make sure all electrical power is OFF.
2. Close the drain valve on tank
3. Open domestic water supply valve
4. Open the closest hot water faucet to vent air from the system
5. Close faucet when there is a constant flow of water.
6. For boiler side piping, follow boiler instructions to purge air.
7. The tank, domestic water piping, and boiler water piping should be completely filled with water and all air extracted from both domestic and boiler water systems.
8. Set aquastat on water heater. An initial setting of 120°F (49°C) is recommended. The aquastat is adjusted to its lowest temperature setting when shipped from the factory.
9. Power up boiler (following boiler instructions) and water heater.
10. Check boiler is operating normally.
11. Check zone valve or circulator is in good condition.
12. Check all connections, fittings and piping for leaks.
13. Adjust the temperature at the faucets as described in the next section.

5.0 WATER TEMPERATURE ADJUSTMENT

DANGER: Water Temperatures over 125°F (52°C) can cause severe burns instantly or death from scalds. Feel water before bathing and showering. Homes that have small children, elderly and disabled persons may wish to lower the water heater setting to 120°F (49°C) to prevent potential scalding. Below is a table showing the approximate time it takes to have a scalding accident for different temperatures of hot water:

You should install a mixing valve or tempering valve on the domestic hot water supply and set to 120°F (49°C).

Valves for reducing point of use temperature by mixing cold and hot water are available. Consult a licensed plumber or local plumbing authority.

Water Temperature	Length of Time to Cause Scalding
125°F (52°C)	1 1/2 to 2 minutes
130°F (54°C)	about 30 seconds
135°F (57°C)	about 10 seconds
140°F (60°C)	less than 5 seconds
145°F (63°C)	less than 3 seconds
150°F (66°C)	about 1 1/2 seconds



Maximum boiler water temperature is 210°F

WARNING: Studies show that dangerous bacteria, legionella pneumophila, can form in hot water maintained at 115°F (46°C) or lower. Domestic water temperature lower than 120°F (49°C) is not recommended to limit the potential for legionella pneumophila growth.

CONTROL/AQUASTAT

Insert the control into the factory installed stainless steel well and secure it to the well by using the screw on the aquastat body. Thermal paste is recommended but not required.

The water temperature and the setting of the Aquastat will be similar most of the time but due to unusual usage patterns the outlet water temperature may rise significantly above the setting of the Aquastat. To control this fluctuating temperature a thermostatic mixing valve (tempering valve) should be installed.

Aquastat Temperature

- Use the Aquastat to control the maximum water temperature in the tank. Its differential is fixed at 5°F (3°C). Its maximum setting is 160°F (71°C).
- Household water usage patterns will affect water temperature at any faucet or shower. Always check temperature at every point after adjusting aquastat.
- When hot water is used in repeated small quantities the upper layer of water in tank can be much hotter than lower layers. When adjusting aquastat, be sure boiler limit control is set a minimum 20°F (11°C) higher. However, in no case should boiler limit control be set above 210°F (99°C).

Temperature Adjustment

Allow the water heater to operate several heat-up cycles and check the water temperature at the faucet to verify proper operation.

- If the water at the faucet is hotter than needed:
 1. Adjust the aquastat to a lower temperature setting.
 2. Draw sufficient water or allow the water to sit until another heat-up cycle is initiated.
 3. Wait until the heat-up cycle is completed.
 4. Recheck the water temperature at the faucet.
- If the water at the faucet is colder than needed:
 1. Adjust the aquastat to a higher temperature setting.
 2. If a heat-up cycle begins, wait until the heat-up cycle is completed and recheck the water temperature at a faucet.
 3. If a heat-up does not begin, draw sufficient water or allow the water to sit until a heat-up cycle is initiated. Wait until the heat-up cycle is completed. Recheck the water temperature at the faucet.

6.0 MAINTENANCE & SERVICE

The J-Series Indirect Fired Hot Water Tank has been designed to provide years of trouble-free performance in normal installations and requires minimal routine maintenance to ensure a reliable and safe supply of hot water.

General Operation

- **DANGER:** Before operating the T & P relief valve, make sure no person is near the T & P relief valve discharging piping.
- **DANGER:** Do not plug T & P relief valve or discharge piping. Plugging T & P relief valve or discharge piping can cause excessive pressure in water heater resulting in severe personal injury, death or substantial property damage.
- If the temperature and pressure relief valve on the appliance discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the temperature and pressure relief valve.
- Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable. To prevent the possibility of injury under these conditions, we recommend the hot water faucet to be open for several minutes at the kitchen sink before you use any electrical appliance which is connected to the hot water system. If hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the hot water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.
- Verify Proper operation after servicing.

Annual Service

The owner or user should have a qualified heating technician perform annual service as follows.

1. Water Piping: Check all domestic water and boiler water piping for signs of leakage at joints, valves, unions and other fittings.
2. Controls and Valves: Check function of controls and valves as per the control/valve manufacturer's instructions. If the circulator is oil-lubricated, follow the instructions on the circulator to oil it.
3. Flushing the tank:
 1. When draining tank use caution as water will be hot
 2. Shut off power.

3. Shut off domestic water supply to tank. To relieve pressure in tank, open a hot water faucet.
 4. Open drain valve. Allow water to flow until it runs clear or empties.
 5. For chemical flushing, remove the relief valve and apply the chemical flushing technique as per the manufacturer's instructions.
 6. Close drain valve.
 7. Open domestic water inlet shut-off valve. Close hot water faucet after flow established.
 8. Resume power.
4. T & P Relief Valve: **DANGER:** Before operating T & P relief valve, make sure no person is near the T & P relief valve discharging piping. Hot discharge water can cause severe personal injury or substantial property damage. Check T & P relief valve in accordance with manufacturer's instructions. If short of such instructions, perform the following: move operating lever to open position for a few seconds and then move it back, allowing it to snap closed. If the relief valve continues to release water, close cold water inlet to water heater immediately. Follow "Flushing the tank" instructions to drain water and replace T & P relief valve.

Monthly Service

Visual Check: Visually check joints, valves and other fittings for leaks. Call a qualified service technician to repair any leaks found.

These instructions are for general guidance only; please contact a technician or plumber for required local codes and standard procedures.

Anodes

If your tank is equipped with an anode, the anode must be inspected on a regular basis and replaced prior to exposure of the "core" wire. Premature failure of the tank may occur if this procedure is not followed and warranty coverage will be voided.

After the heater has been installed for about 4 months. The anode should be inspected for wear. Follow steps 1-3 for flushing tank. Caution should be taken as the anode will be Hot, allow the anode to cool before removing. You will need a 15/16" socket wrench to remove the anode from the tank. If the diameter of the anode has reduced from the original 3/4" to 1/4" or less you will need to replace it immediately and check every 3-4 months for wear. If there is only minimal or no wear then every 9-12 months.

Reinstall the anode ensuring that you wrap the thread with PTFE (Teflon) tape and pipe dope to seal the threads, continue with steps 7 & 8 for flushing tank to complete procedure. Ensure that you check the installation of the anode for leaks.

7.0 PERFORMANCE AND SPECS

*NOTE: Data provided for general information only.

J-Series

J-SeriesXL

	Boiler Supply	Condition A	Boiler Supply	Condition B		Boiler Supply	Condition A	Boiler Supply	Condition B
	Btu/h	First Hour delivery US Gallons	Btu/h	First Hour delivery US Gallons		Btu/h	First Hour delivery US Gallons	Btu/h	First Hour delivery US Gallons
J-40	90,000	195	100,000	174	J-40XL	140,000	281	150,000	242
	110,000	230	120,000	201		160,000	316	170,000	268
	129,500	263	142,100	231		180,000	350	190,000	296
J-60	50,000	146	60,000	141	J-60XL	200,000	385	210,000	322
	70,000	181	80,000	168		216,000	412	237,000	359
	90,000	215	100,000	194		140,000	301	150,000	262
	110,000	250	120,000	221	160,000	336	170,000	288	
	129,500	283	142,100	251	180,000	370	190,000	316	
J-80	80,000	218	100,000	214	J-80XL	200,000	405	210,000	342
	100,000	252	120,000	241		216,000	432	237,000	379
	120,000	287	140,000	268		140,000	321	150,000	282
	140,000	321	160,000	295	160,000	356	170,000	308	
	162,000	359	177,800	319	180,000	390	190,000	336	
J-120	80,000	258	100,000	254	J-120XL	200,000	425	210,000	362
	100,000	292	120,000	281		216,000	452	237,000	399
	120,000	327	140,000	308		140,000	361	150,000	322
	140,000	361	160,000	335	160,000	396	170,000	348	
	162,000	399	177,800	359	180,000	430	190,000	376	
						200,000	465	210,000	402
						216,000	492	237,000	439

Condition **A**: 50°F domestic cold water inlet temperature
 120°F domestic hot water outlet temperature
 180°F boiler water supply temperature
 160°F boiler water return temperature

Condition **B**: 50°F domestic cold water inlet temperature
 140°F domestic hot water outlet temperature
 200°F boiler water supply temperature
 180°F boiler water return temperature

*NOTE: Data provided for general information only.

J-DW

J-DWXL

	Boiler Supply Btu/h	Condition A First Hour delivery US Gallons	Boiler Supply Btu/h	Condition B First Hour delivery US Gallons		Boiler Supply Btu/h	Condition A First Hour delivery US Gallons	Boiler Supply Btu/h	Condition B First Hour delivery US Gallons
J-40DW	30,000	92	30,000	80	J-40DWXL	30,000	92	40,000	94
	50,000	126	50,000	107		50,000	126	60,000	121
	70,000	161	70,000	134		70,000	161	80,000	148
	84,000	186	92,900	165		90,000	195	100,000	174
						112,900	235	123,900	207
J-60DW	30,000	112	30,000	100	J-60DWXL	30,000	112	40,000	114
	50,000	146	50,000	127		50,000	146	60,000	141
	70,000	181	70,000	154		70,000	181	80,000	168
	84,000	206	92,900	185		90,000	215	100,000	194
						112,900	255	123,900	227
J-80DW	30,000	132	30,000	120	J-80DWXL	30,000	132	40,000	134
	50,000	166	50,000	147		50,000	166	60,000	161
	70,000	201	70,000	174		70,000	201	80,000	188
	84,000	226	92,900	205		90,000	235	100,000	214
						112,900	275	123,900	247
J-120DW	30,000	172	30,000	160	J-120DWXL	30,000	172	40,000	174
	50,000	206	50,000	187		50,000	206	60,000	201
	70,000	241	70,000	214		70,000	241	80,000	228
	84,000	266	92,900	245		90,000	275	100,000	254
						112,900	315	123,900	287

Condition **A**: 50°F domestic cold water inlet temperature
 120°F domestic hot water outlet temperature
 180°F boiler water supply temperature
 160°F boiler water return temperature

Condition **B**: 50°F domestic cold water inlet temperature
 140°F domestic hot water outlet temperature
 200°F boiler water supply temperature
 180°F boiler water return temperature

J-DB (both coils for hot water)

J-DB (bottom coil for hot water, top coil for low temperature heating)

	Boiler Supply	Condition A First Hour delivery US Gallons	Boiler Supply	Condition B	Boiler Supply	Boiler Supply		Heating	Condition B		
Btu/h	Btu/h		Btu/h	First Hour delivery				Btu/h	Btu/h	Btu/h	First Hour delivery
				US Gallons							US Gallons
	140,000	281	160,000	255		70,000		54,600	61		
	170,000	333	190,000	296		90,000		54,600	88		
	200,000	385	220,000	336	J-40DB	110,000		54,600	115		
J-40DB	230,000	437	250,000	376		136,900		54,600	150		
	259,000	487	284,300	423							
	140,000	301	160,000	275		70,000		54,600	81		
	170,000	353	190,000	316		90,000		54,600	108		
	200,000	405	220,000	356	J-60DB	110,000		54,600	135		
J-60DB	230,000	457	250,000	396		136,900		54,600	170		
	259,000	507	284,300	443		90,000		68,300	109		
	210,000	442	220,000	376		110,000		68,300	136		
	240,000	494	250,000	416		130,000		68,300	163		
	270,000	546	280,000	457	J-80DBXL	150,000		68,300	190		
J-80DBXL	300,000	597	310,000	497		171,200		68,300	217		
	324,000	639	335,600	559		90,000		68,300	149		
	210,000	482	220,000	416		110,000		68,300	176		
	240,000	534	250,000	456		130,000		68,300	203		
	270,000	586	280,000	497	J-120DBXL	150,000		68,300	230		
J-120DBXL	300,000	637	310,000	537		171,200		68,300	257		
	324,000	679	335,600	599							

***NOTE: Data provided for general information only.**

Condition **A**: 50°F domestic cold water inlet temperature
 120°F domestic hot water outlet temperature
 180°F boiler water supply temperature
 160°F boiler water return temperature

Condition **B**: 50°F domestic cold water inlet temperature
 140°F domestic hot water outlet temperature
 200°F boiler water supply temperature

180°F boiler water return temperature

J-HR

	Boiler Supply	Condition A	Boiler Supply	Condition B
	Btu/h	First Hour delivery US Gallons	Btu/h	First Hour delivery US Gallons
J-40HR	50,000	126	60,000	121
	70,000	160	80,000	148
	90,000	195	100,000	174
	110,000	230	120,000	201
	129,500	263	142,100	231
J-60HR	50,000	146	60,000	141
	70,000	181	80,000	168
	90,000	215	100,000	194
	110,000	250	120,000	221
	129,500	283	142,100	251
J-80HRXL	80,000	218	100,000	214
	100,000	252	120,000	241
	120,000	287	140,000	268
	140,000	321	160,000	295
	162,000	359	177,800	319
J-120HRXL	80,000	258	100,000	254
	100,000	292	120,000	281
	120,000	327	140,000	308
	140,000	361	160,000	335
	162,000	399	177,800	359

***NOTE: Data provided for general information only.**

Condition **A**: 50°F domestic cold water inlet temperature
 120°F domestic hot water outlet temperature
 180°F boiler water supply temperature
 160°F boiler water return temperature

Condition **B**: 50°F domestic cold water inlet temperature
 140°F domestic hot water outlet temperature
 200°F boiler water supply temperature
 180°F boiler water return temperature

8.0 TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE:	POSSIBLE CORRECTION:
<u>No hot water</u>	Tank control failure	<ul style="list-style-type: none"> • Check wiring and power supply • Replace control
	Aquastat not calling for heat	<ul style="list-style-type: none"> • Check wiring • Replace aquastat
	Air lock in domestic water loop	<ul style="list-style-type: none"> • Purge and bleed piping
	Circulator not operating	<ul style="list-style-type: none"> • Repair or replace circulator
	Zone valve not operating	<ul style="list-style-type: none"> • Check wiring and power supply / open manually to check • Replace zone valve
	Boiler not operating	<ul style="list-style-type: none"> • Boiler control too low • Check wiring • Check disconnect switch • Check fuse or circuit breaker • Check wiring and power supply
<u>Insufficient hot water</u>	Aquastat setting too low	<ul style="list-style-type: none"> • Adjust aquastat to higher setting
	Defective aquastat or improper calibration	<ul style="list-style-type: none"> • Replace aquastat
	Undersized water heater	<ul style="list-style-type: none"> • Install adequate water heater
	Undersized boiler with no priority to domestic hot water	<ul style="list-style-type: none"> • Rewire for priority / check sizing
	Inadequate boiler water flow	<ul style="list-style-type: none"> • Check circulator sizing • Ensure valve is open • Purge and bleed piping
	Scale build-up in tank	<ul style="list-style-type: none"> • Chemical cleaning or repeated flushing
<u>Slow hot water recovery</u>	Undersized boiler with no priority to domestic hot water	<ul style="list-style-type: none"> • Rewire for priority / check sizing
	Inadequate boiler water flow	<ul style="list-style-type: none"> • Check circulator sizing • Ensure valve is open • Purge and bleed piping
	Circulator capacity too low	<ul style="list-style-type: none"> • Replace circulator with correct one
	Scale build-up in tank	<ul style="list-style-type: none"> • Chemical cleaning or repeated flushing
<u>Water too hot</u>	Aquastat setting too high	<ul style="list-style-type: none"> • Adjust aquastat to lower setting
	Aquastat continuously runs	<ul style="list-style-type: none"> • Check wiring • Replace aquastat
	Improper system piping and/or control	<ul style="list-style-type: none"> • Check piping and flow control valve
	Improper system wiring	<ul style="list-style-type: none"> • Check wiring
	Tempering (mixing) valve	<ul style="list-style-type: none"> • Read valve instructions or consult with manufacturer
<u>Discharge from relief valve</u>	Inlet cold water pressure too high	<ul style="list-style-type: none"> • Install pressure reducing valve
	Excessive water pressure when heating	<ul style="list-style-type: none"> • Install proper thermal expansion tank on cold water inlet
	Relief valve leaking	<ul style="list-style-type: none"> • Replace relief valve

Notes.