

**WARNING LABEL PART NO. V56871
INSTALLED ON PRODUCT. IF
MISSING, IT MUST BE REPLACED**

ZoneTrol™ Zone Pump Controller

Models ZT-2, ZT-3, ZT-4 & ZT-6



Installation, Operation and Service Instructions

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.



SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**

DESCRIPTION

The ZoneTrol is a ready-to-install multiple-zone controller for circulator pumps in hydronic systems. The ZoneTrol controllers feature switchable priority, powerful transformer, automatic resettable fuse and a built-in 30 minute timer on priority circuit. The units are operated by two-wire 24-volt thermostats and requires connection to a 120 V, 60 Hz source voltage.

BEFORE STARTING THE JOB

Please read instructions completely before starting work

All work must be performed by qualified personnel in accordance with all applicable codes and ordinances. Electrical connections must be made using copper wire only.

The applications for the ZoneTrol zone pump controllers are too numerous to show all the various illustrations for the different models. The ZT-4 (four zone) and ZT-2 (two zone) pump controller will be illustrated in this manual for installation and application purposes. The other multiple zone pump controllers are installed in a similar matter. The circuit diagrams indicate the proper terminals for wiring the ZoneTrol for most applications.

Model No.	Maximum Numbers of Zones	Relay Type	Thermostat Current	Transformer Voltage	Maximum Ambient Temperature	Single Phase Motor Rating (Each Relay)	
						120 V AC	240 V AC
ZT-2	2	DPST	0.085 A	120V, 60HZ; 20VA	105°F (40°C)	10A, 1/3 HP	10A, 1/2 HP
ZT-3	3						
ZT-4	4			120V, 60HZ; 30VA			
ZT-6	6						

MECHANICAL INSTALLATION INSTRUCTIONS

The ZoneTrol unit should be securely mounted on a wall, shelf, or partition near the pumps using four #8 screws (not included).

ELECTRICAL INSTALLATION INSTRUCTIONS FOR MODELS ZT-4 AND ZT-6

WARNING: Electrical shock and potential circuit damage. Disconnect power supply before beginning installation. Failure to follow these instructions could result in serious personal injury or death and property damage.

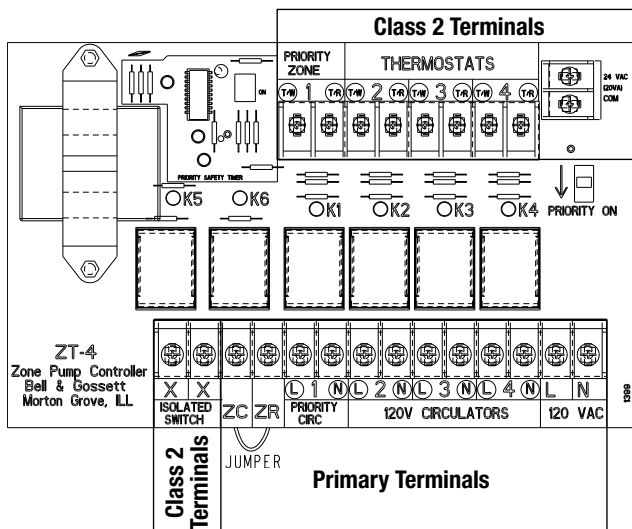
WARNING: Improper wiring and wire can cause electrical shock and fires. Wiring connections must be made in accordance with all applicable electrical codes and ordinances. Use copper wire only. Failure to follow these instructions could result in serious personal injury or death and property damage.

WARNING: Potential electrical overload. Each circuit is limited to a maximum of 10 amps and 1/3 HP. The combined load for the controller is limited to 20 amps and 1 HP maximum. Failure to follow these instructions could result in serious personal injury or death and property damage.

“Cold Start” Boiler Applications

The “cold start” boiler application provides circulator operation whenever a zone thermostat calls for heat (regardless of boiler water temperature) and will start the burner when used in conjunction with an isolated end switch connected to the aquastat on the boiler.

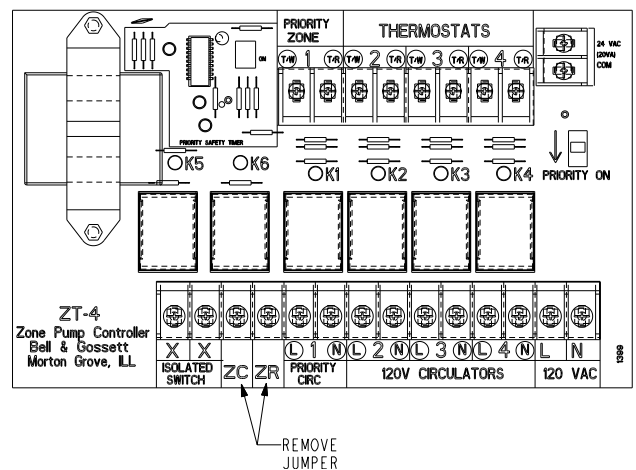
- 1) A factory installed jumper is connected between the ZC/ZR terminals. Leave the jumper in its current position.
- 2) Attach the low voltage SPST thermostat leads to the respective thermostat terminals.
- 3) Attach circulator leads to respective terminals.
- 4) Connect supply voltage line to the terminals marked 120 VAC, located on the lower right side of the circuit board.
- 5) Connect isolated switch (terminals XX) to TT terminals on boiler aquastat. **Note:** The required aquastat connections may vary, depending on model. Refer to aquastat manufacturers’ instructions to ensure appropriate interconnections.



“Tankless Coil” Boiler Applications

The “tankless coil” boiler application activates the boiler and permits circulator operation only after boiler water has reached the low temperature limit settings. If boiler temperatures drop below the low limit setting, all circulators will cease operation until the low limit temperature of the boiler is satisfied.

- 1) A factory installed jumper is connected between the ZC/ZR terminals. Remove the jumper.
- 2) Connect the ZC/ZR terminals to the corresponding ZC/ZR terminals on the boiler aquastat. The XX terminals are not used. **Note:** The required aquastat connections may vary, depending on model. Refer to aquastat manufacturers’ instructions to ensure appropriate interconnections
- 3) Attach the low voltage SPST thermostat leads to the respective thermostat terminals.
- 4) Attach circulator leads to respective terminals.
- 5) Connect supply voltage line to the terminals marked 120 VAC, located on the lower right side of the circuit board.



Priority

If the priority switch is in the ON position, Zone 1 is the priority zone. When the priority zone 1 circulator is actuated, the other circulators will not operate. The ZoneTrol has a 30 minute timer on the priority zone. After 30 minutes of continuous operation, the priority zone function will default allowing all zones to operate preventing possible house freeze up. The timer is automatically reset after the priority zone is satisfied.

If the priority switch is not in the ON position, all zones operate independent of each other.

ELECTRICAL INSTALLATION INSTRUCTIONS FOR MODELS ZT-2 AND ZT-3

WARNING: Electrical shock and potential circuit damage. Disconnect power supply before beginning installation. Failure to follow these instructions could result in serious personal injury or death and property damage.

WARNING: Improper wiring and wire can cause electrical shock and fires. Wiring connections must be made in accordance with all applicable electrical codes and ordinances. Use copper wire only. Failure to follow these instructions could result in serious personal injury or death and property damage.

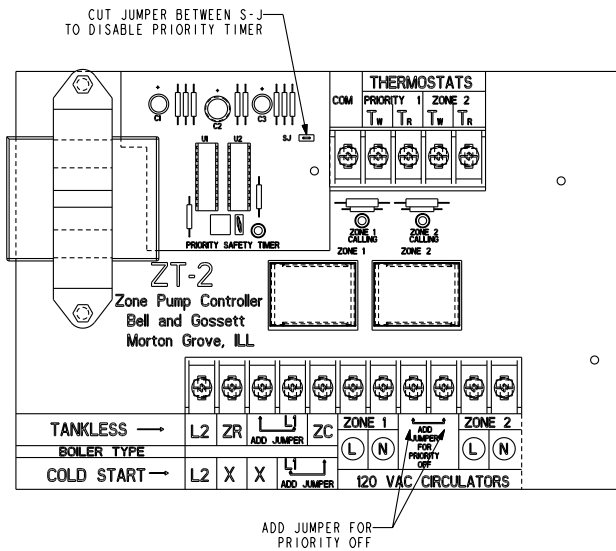


WARNING: Potential electrical overload. Each relay is limited to a maximum of 10 amps and 1/3 HP. The combined load for the controller is limited to 20 amps and 1 HP maximum. Failure to follow these instructions could result in serious personal injury or death and property damage.

“Cold Start” Boiler Applications

The “cold start” boiler application provides circulator operation whenever a zone thermostat calls for heat (regardless of boiler water temperature) and will start the burner when used in conjunction with an isolated end switch connected to the aquastat on the boiler.

- 1) A factory installed jumper is connected between the L1/ZC terminals. Leave the jumper in this position.
- 2) Attach the low voltage SPST thermostat leads to the respective thermostat terminals.
- 3) Attach circulator leads to respective terminals.
- 4) Connect supply voltage line to the terminals L1 and L2, located in the lower center portion of the circuit board.
- 5) Connect isolated switch (terminals XX) to TT terminals on boiler aquastat. **Note:** The required aquastat connections may vary, depending on model. Refer to aquastat manufacturers’ instructions to ensure appropriate interconnections.



“Tankless Coil” Boiler Applications

The “tankless coil” boiler application activates the boiler and permits circulator operation only after boiler water has reached the low temperature limit settings. If boiler temperatures drop below the low limit setting, all circulators will cease operation until the low limit temperature of the boiler is satisfied.

- 1) A factory installed jumper is connected between the L1/ZC terminals. Move the jumper to the terminal as shown on the circuit board.
- 2) Attach the low voltage SPST thermostat leads to the respective thermostat terminals.
- 3) Attach circulator leads to respective terminals.
- 4) Connect supply voltage line to the L1 and L2 terminals located in the lower center portion of the circuit board.
- 5) Connect the ZC/ZR terminals to the corresponding ZC/ZR terminals on the boiler aquastat. The XX terminals are not used. **Note:** The required aquastat connections may vary, depending on model. Refer to aquastat manufacturers’ instructions to ensure appropriate interconnections.

Priority

The ZT-2 and ZT-3 pump controllers are supplied from factory ready for priority applications. When the priority zone 1 circulator is actuated, the other circulator(s) will not operate. The ZoneTrol has a 30 minute timer on the priority zone. After 30 minutes of continuous operation, the priority zone function will default allowing all zones to operate preventing possible house freeze up. The timer is automatically reset after the priority zone is satisfied.

For applications where priority is not desired, add second jumper (remove one from L1 and ZC terminals) between the terminals that are marked “ADD JUMPER FOR PRIORITY OFF” and cut jumper wire between S-J (see drawing). This will disable the priority feature allowing all zones to operate independent of each other.

SERVICE INSTRUCTIONS



WARNING: Potential electrical shock. Disconnect all power to unit before removing chassis cover. Failure to follow these instructions could result in serious personal injury or death and property damage.

The ZoneTrol is quality constructed and should provide many years of trouble-free service when installed and operated in accordance with the instruction manual. To ensure optimum long-term performance, once each heating season, visually inspect the unit to check the condition of the contacts on the plug-in replaceable relays. Replace the relay(s) if contacts appear pitted or severely blackened.

The 24 volt fuse is temperature sensitive and will automatically reset after a couple of minutes cooling time.

WARNING: Improper wiring and wire can cause electrical shock and fires. The wiring diagrams shown provide interconnection recommendations only. The aquastat manufacturers' detailed wiring instructions must be followed to insure proper electrical connections to other system components including burner control, gas valve or limit control. All work must be performed by qualified personnel in accordance with applicable codes and ordinances. Electrical connections must be made using copper wire only. Failure to follow these instructions could result in serious personal injury or death and property damage.

FIGURE 1
(Cold Start Boiler)
ZT-4 to MH L8148

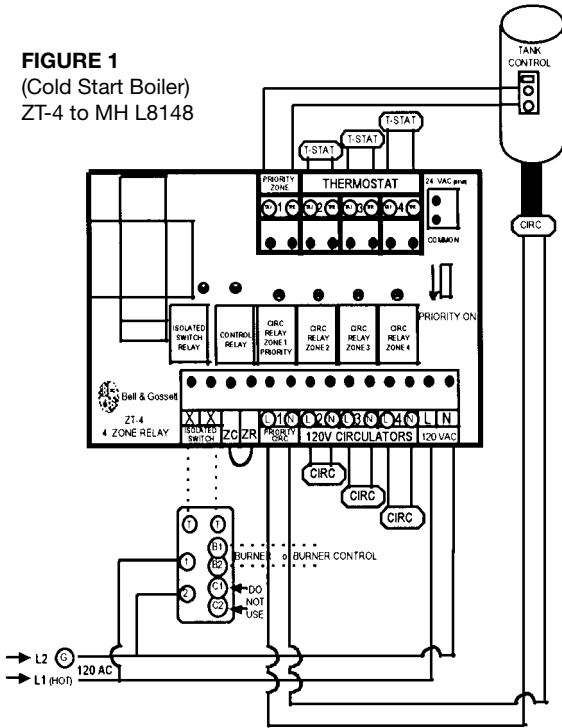


FIGURE 2
(Tankless Coil Boiler)
ZT-4 to MH L8124 A or C

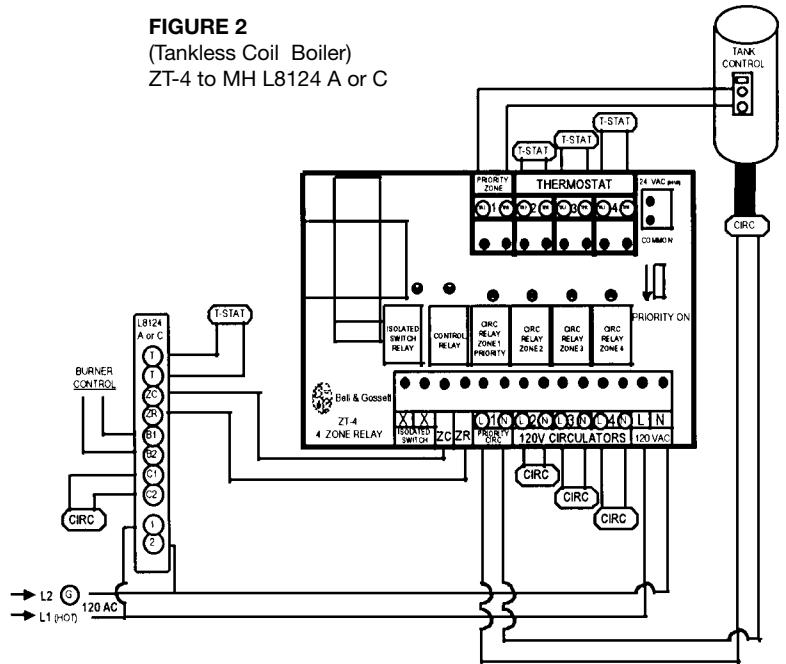


FIGURE 3
(Cold Start Boiler)
ZT-4 to Millivolt Gas Valve

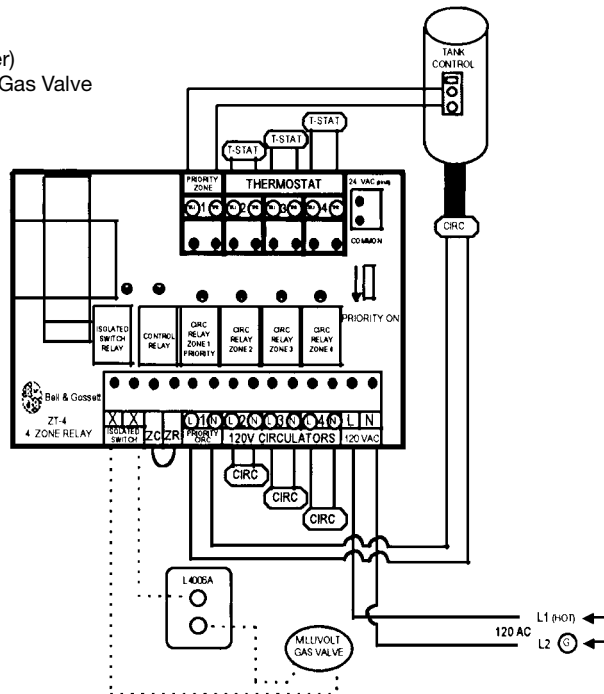


FIGURE 4
 (Tankless Coil Boiler)
 ZT-4 to MH L60081A, L4006A, L6006A

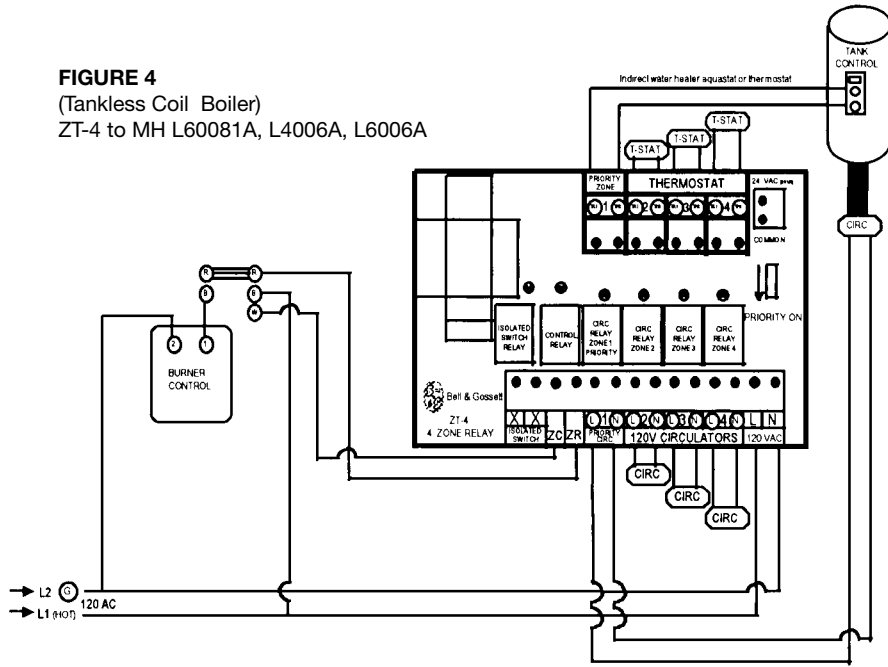


FIGURE 5
 (Cold Start Boiler)
 ZT-4 to MH L8148

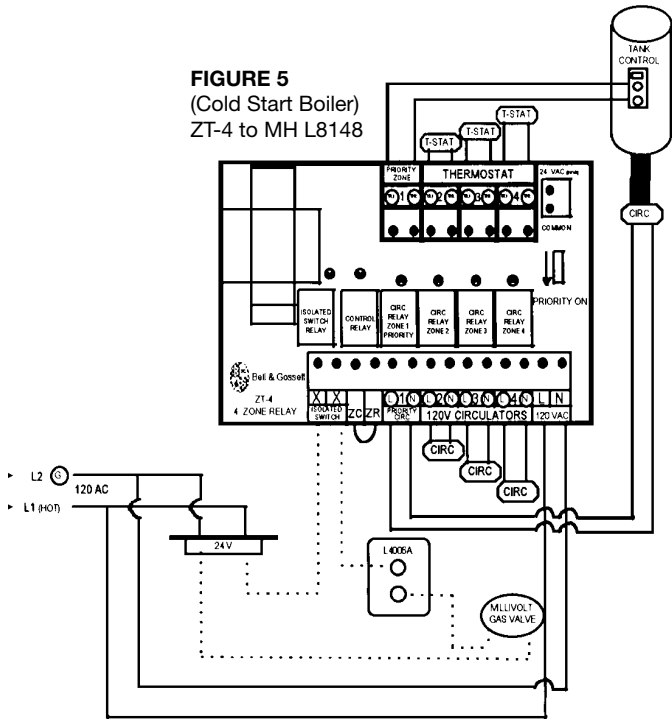
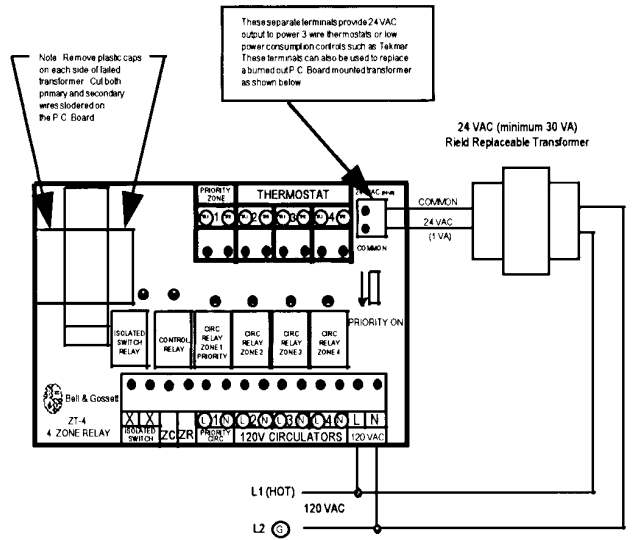
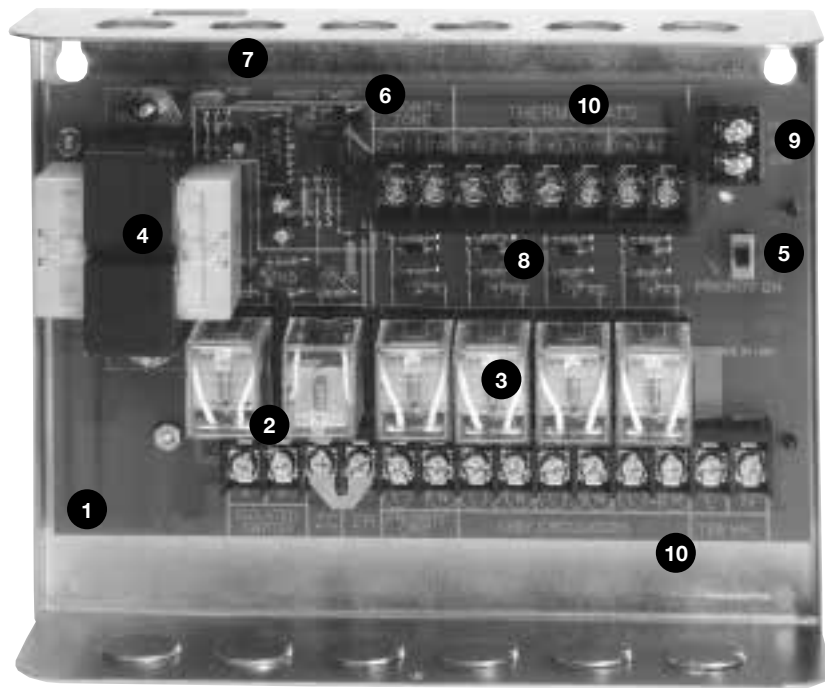


FIGURE 6
 ZT-4 to Field Replaceable Transformer





- 1** 100% factory tested – limited 5 year warranty.
- 2** Separate XX isolated end switch and ZC/ZR relays protect boiler aquastat. Can be used with “tankless coil” or “cold start” applications.
- 3** Replaceable, standard “ice cube” type relays allow up to 10 amps, 1/3 HP per individual zone.
- 4** Powerful 30 VA transformer operates up to 6 zones.
- 5** Switchable priority adds versatility and ease of installation.
- 6** 30 minute built-in safety priority timer helps prevent house freeze up – no additional plug-in cards required.
- 7** Automatically resettable fuse protects controller from overload – Eliminate “no heat” call backs due to blown fuse.
- 8** LED diagnostic lights for easy trouble shooting are installed internally for heating professional’s use – no more calls from curious homeowners inquiring about flashing lights.
- 9** 24 volt I/O terminal for connection of 3 wire thermostats or field replacement of transformer.
- 10** Clearly marked terminals and plenty of clearance make for easy, fast hook-up.

OPERATION

The circulators wired to the ZoneTrol pump controller are controlled by a low voltage thermostat or any other low voltage controller having a SPST switch. The relays provide intermediate switching to permit line voltage to the circulators. The ZoneTrol will operate with most digital/programmable thermostats. The isolated end switch relay (terminals XX) has a full 10 amp rating. The resettable fuse protects the ZoneTrol from overloading conditions.

The following sequence occurs when the ZT-4 has a call for heat:

1. Isolated switch relay closes.
2. XX switch is closed.
3. XX indicator light turns on.
4. Control relay closes. (ZC and ZR connection required either by factory installed jumper or through aquastat)

5. ZC indicator light turns on.
6. Zone circulator starts.
7. Respective zone light indicator turns on.

If priority switch is in ON position:

1. Zone 1 becomes priority zone.
2. When priority zone 1 circulator is actuated, the other circulators will not operate.
3. The ZoneTrol has a 30 minute timer on the priority zone. After 30 minutes of continuous operation, the priority zone will default to allow all other zone to operate in order to prevent house freeze up. The timer is reset after the priority zone is satisfied.