



# Heavy Duty Commercial Electric Water Heaters

Installation

Start-Up

Maintenance

Parts

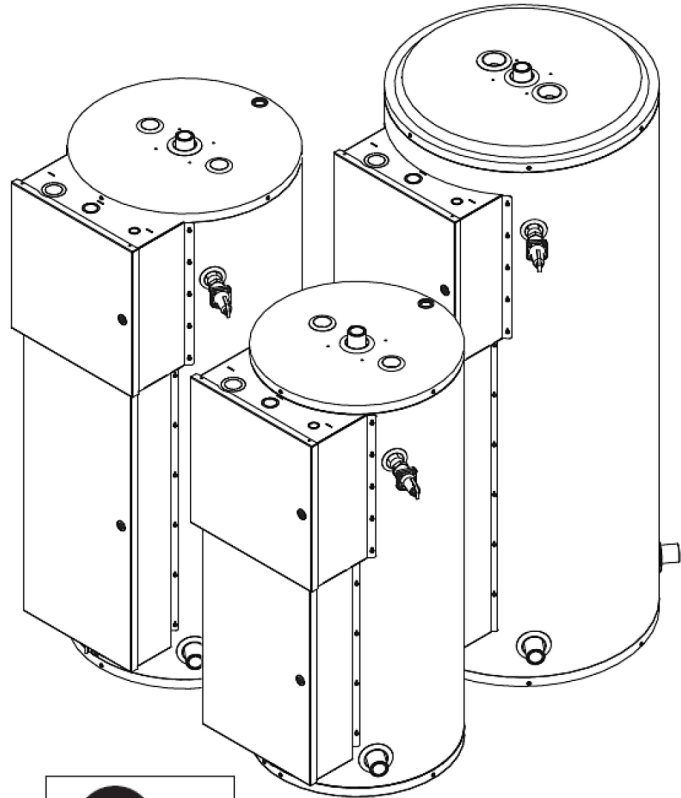
Warranty

## CGE Models

050, 080, or 119 Gallon Capacities

Equipped with 3, 6, or 9 Elements

13,500 to 54,000 Watt Options



## **▲ DANGER**

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

## **▲ WARNING**

Improper installation, adjustment, alteration, service, or maintenance could void product warranty and cause property damage, severe personal injury, or death.

## **NOTICE**

HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

*The surfaces of these products contacted by potable (consumable) water contain less than 0.25% lead by weight as required by the Safe Drinking Water Act, Section 1417.*

**NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.**

<b>SPECIAL ATTENTION BOXES</b>	
The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.	
<b>⚠ DANGER</b>	
<b>DANGER</b> indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.	
<b>⚠ WARNING</b>	
<b>WARNING</b> indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.	
<b>⚠ CAUTION</b>	
<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.	
<b>CAUTION</b>	
<b>CAUTION</b> used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.	
<b>NOTICE</b>	
<b>NOTICE</b> is used to address practices not related to personal injury.	

**Foreword**

This manual is intended to be used in conjunction with other literature provided with the commercial electric water heater. This includes all related control information. It is important that this manual, all other documents included in this system, and additional publications including the *Code for the Installation of Heat Producing Appliances* and *National Electric Code - NFPA 70* (latest versions), be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the Authority Having Jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment.

Authority Having Jurisdiction (AHJ) – The AHJ may be a federal, state, local government, or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department or health department, building official or electrical inspector, or others having statutory authority. In some circumstances, the property owner or his/her agent assumes the role, and at government installations, the commanding officer or departmental official

<b>⚠ DANGER</b>	
<ul style="list-style-type: none"> <li>• <b>DO NOT</b> open the electrical junction box or the element access panel before the power to the water heater is turned "OFF".</li> <li>• <b>DO NOT ATTEMPT</b> to repair or replace any of the electrical components installed on the water heater before the power to the water heater is turned "OFF".</li> <li>• <b>DO NOT USE</b> the water heater on a voltage other than that specified on the water heater rating plate.</li> <li>• <b>DO NOT CONNECT</b> the power supply wiring to anywhere other than the power distribution block in the electrical junction box of the water heater.</li> <li>• <b>DO NOT TURN ON</b> the power to the water heater unless it is completely filled with water.</li> <li>• <b>DO NOT DRAIN</b> the water heater unless the power to the water heater has been turned "OFF".</li> <li>• <b>DO NOT STORE</b> or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.</li> </ul>	<p><b>WHAT TO DO IF YOU SMELL SMOKE</b></p> <ul style="list-style-type: none"> <li>• Immediately turn "OFF" the power to the water heater.</li> <li>• If after turning "OFF" the power the smoke continues, call your local fire department.</li> <li>• When the smoke has stopped, call a qualified service technician to identify and repair the problem.</li> </ul> <p>Failure to follow the information provided in this warning statement will result in property damage, serious personal injury, or death.</p>

<b>⚠ DANGER</b>	
<p><b>⚠ Vapors from flammable liquids will explode and catch fire causing death or severe burns.</b></p> <p>Do not use or store flammable products such as gasoline, solvents or adhesives in the same room or area near the water heater.</p> <p>Keep flammable products:</p> <ol style="list-style-type: none"> <li>1. far away from heater,</li> <li>2. in approved containers,</li> <li>3. tightly closed and</li> <li>4. out of children's reach.</li> </ol>	<p>Water heater has a main burner and pilot flame. The pilot flame:</p> <ol style="list-style-type: none"> <li>1. which can come on at any time and</li> <li>2. will ignite flammable vapors.</li> </ol> <p>Vapors:</p> <ol style="list-style-type: none"> <li>1. cannot be seen,</li> <li>2. are heavier than air,</li> <li>3. go a long way on the floor and</li> <li>4. can be carried from other rooms to the pilot flame by air currents.</li> </ol>
<p><b>Installation:</b></p> <p>Do not install water heater where flammable products will be stored or used unless the main burner and pilot flames</p>	<p>are at least 18" above the floor. This will reduce, but not eliminate, the risk of vapors being ignited by the main burner or pilot flame.</p>
<p>Read and follow water heater warnings and instructions. If owners manual is missing, contact the retailer or manufacturer.</p>	

<b>⚠ DANGER</b>	
<p>Water temperature over 125°F can cause severe burns instantly or death from scalds. Children, disabled and elderly are at highest risk of being scalded.</p> <p>See instruction manual before setting temperature at water heater.</p> <p>Feel water before bathing or showering.</p> <p>Temperature limiting valves are available, see manual.</p>	

may be the AHJ.

**NOTE:** HTP, Inc. reserves the right to modify product technical specifications and components without prior notice.

**For the Installer**

This water heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the water heater, and by local codes and utility company requirements. In the absence of local codes, preference should be given to the *National Electric Code - NFPA 70*, latest version.

**Installations Must Comply With:**

Local, state, provincial, and national codes, laws, regulations, and ordinances.

*Code for the Installation of Heat Producing Appliances* (latest version) from American Insurance Association, 85 John Street, New York, NY 11038.

The latest version of the *National Electrical Code, NFPA No. 70*.

**Table of Contents**

Part 1 - General Safety Information	3
A. When Servicing the Water Heating System	4
B. Heater Water	4
C. Freeze Protection	4
D. Water Temperature Adjustment	4
E. Water Chemistry Requirements	4
F. Handling	5
Part 2 - Installation Instructions	5
A. Locating the Water Heater	5
B. Minimum Clearances	6
C. Water Piping	6
1. Temperature and Pressure Relief Valve	6
2. Pressure Build-Up in a Water System	8
3. Filling the Water Heater	8
D. Electrical	11
1. Voltage	11
2. Field Conversions	21
Part 3 - Operating Instructions	23
A. Starting the Water Heater	23
B. Start-Up Procedure	23
C. Safety Controls	24
D. Water Temperature Regulation	24
Part 4 - General Maintenance	25
A. Housekeeping	25
B. Condensation	25
C. Cleaning Out the Water Heater	25
D. Element and Thermostat Replacement	25
E. Temperature and Pressure Relief Valve	26
F. Anode	26
G. Draining the Water Heater	26
H. Vacation	26
I. Getting Service for the Water Heater	26
Part 5 - Troubleshooting	31
Limited Warranty	33
Maintenance Notes	35
Customer Installation Record Form	36

**Part 1 - General Safety Information**

**WARNING**

**Installer** - Read all instructions in this manual before installing. Perform steps in the given order.

**User** - This manual is for use only by a qualified heating installer / service technician. Have this water heater serviced / inspected annually by a qualified service technician.

**FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.**

**NOTE:** If the water heater is exposed to the following, do not operate. Immediately call a qualified service technician.

1. Fire
2. Damage
3. Water

Failure to follow this information could result in property damage, severe personal injury, or death.

**NOTICE**

**UNCRATING THE WATER HEATER** - Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

**WARNING**

**DO NOT USE THIS WATER HEATER IF ANY PART HAS BEEN SUBMERGED IN WATER.** Immediately call a qualified service technician. The water heater **MUST BE** replaced if it has been submerged. Attempting to operate a water heater that has been submerged could create numerous harmful conditions, such as the release of mold, bacteria, or other harmful particulates into the air. Operating a previously submerged water heater could result in property damage, severe personal injury, or death.

**NOTE:** Water heater damage due to flood or submersion is considered an Act of God, and IS NOT covered under product warranty.

**NOTE:** Obey all local codes. Obtain all applicable permits before installing the water heater.

**NOTE:** Install all system components and piping in such a manner that does not reduce the performance of any fire rated assembly.

Altering any HTP, Inc. water heater with parts not manufactured by HTP, Inc. **WILL INSTANTLY VOID** the water heater warranty and could result in property damage, personal injury, or death.

This water heater has been designed to heat potable water ONLY. Using this water heater to heat non-potable fluid **WILL VOID** product warranty, and could result in property damage, personal injury, or death.

Verify that the voltage being supplied corresponds to that which is marked on the water heater rating plate. Failure to do so could result in severe personal injury, death or substantial property damage.

**CAUTION**

Do not use this water heater for anything other than its intended purpose (as described in this manual). Doing so could result in property damage and **WILL VOID** product warranty.

**For Your Records**

**Write the Product Model and Serial Numbers:**

**Model #** \_\_\_\_\_

**Serial #** \_\_\_\_\_

**These numbers are listed on the product ratings label.**

**Keep this manual and information for future reference.**

**CAUTION**

High heat sources (sources generating heat 100°F / 37°C or greater, such as stove pipes, space heaters, etc.) may damage plastic components of the water heater as well as plastic vent pipe materials. Such damages ARE NOT covered by warranty. It is recommended to keep a minimum clearance of 8" from high heat sources. Observe heat source manufacturer instructions, as well as local, state, provincial, and national codes, laws, regulations and ordinances when installing this water heater and related components near high heat sources.

**A. When Servicing the Water Heating System****WARNING**

Be sure to disconnect electrical power before performing service. Failure to do so could result in electrical shock, property damage, serious personal injury, or death.

Be sure to label all wires when servicing. Wiring errors could result in severe personal injury, death or substantial property damage.

To avoid electric shock, disconnect electrical supply before performing maintenance.

**NOTE:** When inquiring about service or troubleshooting, reference the model and serial numbers from the water heater rating label.

To avoid severe burns, allow water heater and associated equipment to cool before servicing.

**B. Heater Water**

Do not use petroleum-based cleaning or sealing compounds in a water heating system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.

Do not use "homemade cures" or "patent medicines". Damage to the water heater, substantial property damage, and/or serious personal injury may result.

**C. Freeze Protection**

**NOTE:** Consider piping and installation when determining heater location.

**CAUTION**

Failure of the water heater due to freeze related damage IS NOT covered by product warranty.

**WARNING**

NEVER use any toxic chemical, including automotive, standard glycol antifreeze, or ethylene glycol made for hydronic (non-potable) systems. These chemicals can attack gaskets and seals in water systems, are poisonous if consumed, and can cause personal injury or death.

**D. Water Temperature Adjustment**

If the water heater is going to have a set temperature above 120°F, you must use an ASSE 1017 rated mixing valve to avoid severe burns or death from scalding temperatures.

**WARNING**

Households with small children, disabled, or elderly persons may require a 120°F or lower temperature setting to prevent severe personal injury or death due to scalding.

**Approximate Time / Temperature Relationships in Scalds**

120°F	More than 5 minutes
125°F	1 1/2 to 2 minutes
130°F	About 30 seconds
135°F	About 10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	About 1 1/2 seconds
155°F	About 1 second

Table 1 - Approximate Time / Temperature Relationships in Scalds

**E. Water Chemistry Requirements****CAUTION**

Chemical imbalance of the water supply may affect efficiency and cause severe damage to the water heater and associated equipment. HTP recommends having water quality professionally analyzed to determine whether it is necessary to install a water softener. It is important that the water chemistry on both the domestic hot water and central heating sides are checked before installing the water heater, as water quality will affect the reliability of the system. In addition, operating temperatures above 135°F will further accelerate the build-up of lime scale and may shorten the service life of the water heater. Failure of a water heater due to lime scale build-up, low pH, or other chemical imbalance IS NOT covered by the warranty.

Outlined below are water quality parameters that need to be met in order for the system to operate efficiently for many years.

**Water Hardness**

Water hardness is mainly due to the presence of calcium and magnesium salts dissolved in water. The concentration of these salts is expressed in mg/L, ppm, or grains per gallon as a measure of relative water hardness. Grains per gallon is the common reference used in the US water heater industry. Hardness expressed as mg/L or ppm may be divided by 17.1 to convert to grains per gallon. Water may be classified as very soft, slightly hard, moderately hard, or hard based on its hardness number. The minerals in the water precipitate out as the water is heated and cause accelerated lime scale accumulation on a heat transfer surface. This lime scale build-up may result in premature failure of the water heater. Operating temperatures above 135°F will further accelerate the build-up of lime scale and may shorten the service life of the water heater.

Water that is classified as hard and very hard must be softened to avoid water heater failure.

CLASSIFICATION	MG/L OR PPM	GRAINS/GAL
Soft	0 - 17.1	0 - 1
Slightly Hard	17.1 - 60	1 - 3.5
Moderately Hard	60 - 120	3.5 - 7
Hard	120 - 180	7 - 10.5
Very Hard	180 and over	10.5 and over

If the hardness of the water exceeds the maximum level of 7 grains per gallon, the water should be softened to a hardness level no lower than 5 grains per gallon. Water softened as low as 0 to 1 grain per gallon may be under-saturated with respect to calcium carbonate, resulting in water that is aggressive and



corrosive.

**pH of Water**

pH is a measure of relative acidity, neutrality, or alkalinity. Dissolved minerals and gases affect water pH. The pH scale ranges from 0 to 14. Water with a pH of 7 is considered neutral. Water with pH lower than 7 is considered acidic. Water with a pH higher than 7 is considered alkaline. A neutral pH (around 7) is desirable for most potable water applications. **Corrosion damage and tank failures resulting from water pH levels of lower than 6 or higher than 8 ARE NOT covered by warranty.** The ideal pH range for water used in a water heater is 7.2 to 7.8.

**Total Dissolved Solids**

Total Dissolved Solids (TDS) is a measurement of all minerals and solids dissolved in a water sample. The concentration of TDS is usually expressed in parts per million (ppm). Water with a high TDS concentration will greatly accelerate lime and scale formation in the hot water system. Most high TDS concentrations precipitate out of the water when heated. This can generate a scale accumulation that will greatly reduce the service life of the water heater.

The manufacturer of the water heater has no control over water quality, especially TDS levels in your system. TDS in excess of 2000 ppm will accelerate lime and scale formation on the element or the heat exchanger. Water heater failure due to TDS in excess of 2000 ppm IS NOT covered by warranty. **Failure of a water heater due to lime scale build-up IS NOT covered by warranty.**

**Hardness:** Less than 7 grains

**Chloride levels:** Less than 100 ppm

**pH levels:** 6 - 8

**TDS:** Less than 2000 ppm


**Sodium:** Less than 20 mg/L

**F. Handling**

Remove all sides of the shipping crate to allow the heater to be moved into its installation location.

**DO NOT** use the shipping nipple for installation of the plumbing fittings.

**DO NOT** hoist the heater by the hot outlet nipple.

 <b>WARNING</b>
The water heater is very heavy. Use caution when moving into installation location. Failure to do so could result in severe personal injury, death or substantial property damage.

<b>CAUTION</b>
<b>COLD WEATHER HANDLING</b> - If the water heater has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the components come to room temperature. Failure to do so could result in damage to the water heater.

**Part 2 - Installation Instructions**


<b>CAUTION</b>
Carefully consider installation when determining heater location. Please read the entire manual before attempting installation. Failure to properly take factors such as heater piping and wiring into account before installation could result in wasted time, money, and possible property damage and personal injury.

**A. Locating the Water Heater**

 <b>WARNING</b>
This water heater IS NOT design certified for installation in a manufactured (mobile) home or for installation outdoors. Failure to follow this warning could result in property damage, severe personal injury, or death.

This water heater should be located in a clean, dry location, as close as possible to the power supply and the main use of hot water. This location must not be subject to freezing temperatures. The water heater should be positioned so the electrical junction box, element, and thermostat access panels can be opened for inspection, adjustment, and servicing of the elements and thermostats. The temperature and pressure relief valve and drain valve must also be accessible.

All water heaters will leak. The manufacturer, based on national building codes, has given the necessary instructions to prevent damage to the building. Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater. See Figure 2 for proper installation.

 <b>WARNING</b>
The water heater must be located close to a suitable free-flowing floor drain. Where a floor drain is not adjacent to the water heater, a suitable drain pan must be installed under the water heater. See Figure 2 for proper installation. The drain pan should be at least 4" (10.2 cm) larger than the diameter of the water heater, and at least 1" (2.5 cm) deep, providing access to the drain valve. This pan must not restrict the flow of ventilation and combustion air. This pan must be piped to a suitable drain to prevent damage to property in the event of a water leak from the piping, the temperature and pressure relief valve, or the water heater. Failure to follow this warning could result in property damage, severe personal injury, or death.

This water heater is approved for installation on either a combustible or non-combustible floor. However, should this water heater be installed directly on carpeting, the carpeting must be protected by a wood or metal panel beneath the water heater. This panel must extend at least 3" (7.6 cm) beyond the width and depth of the water heater. Should the water heater be installed in an alcove or closet, the entire floor area must be covered by the panel. The panel must be strong enough to carry the weight of the water heater when it is full of water.

 <b>CAUTION</b>
Failure of the water heater or components due to incorrect operating conditions IS NOT covered by product warranty.

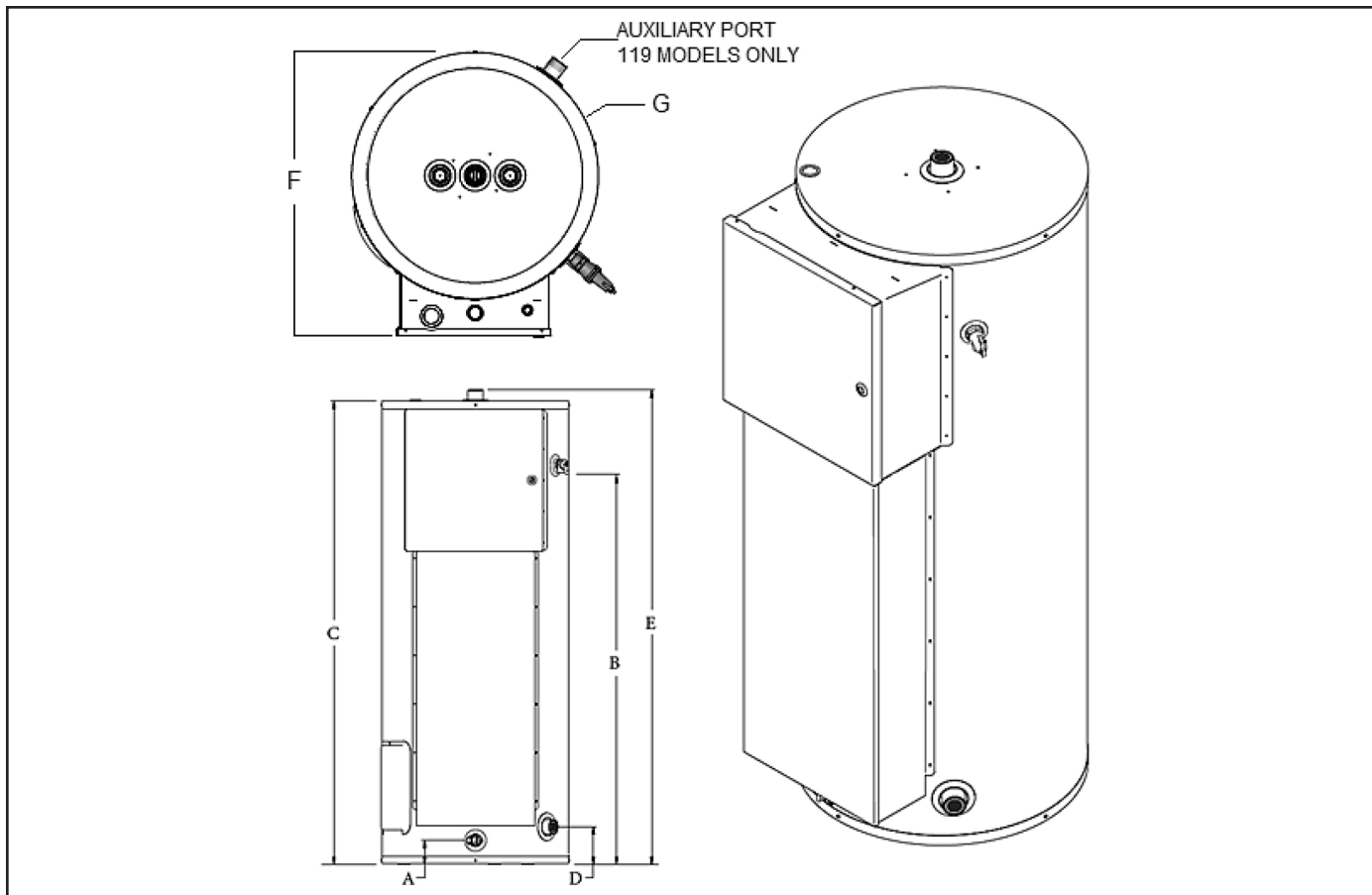


Figure 1 - Water Heater Dimensions - NOTE: All Dimensions Are Approximate

Model	Storage Capacity Gal (Lit)	A	B	C	D	E	F	G	Auxiliary Port
050	48.5 (183.6)	3 1/8"	40 3/16"	49 1/8"	4 7/8"	50 11/16"	26 1/4"	22"	N/A
080	73.7 (279)		51 3/8"	59 5/8"		60 7/8"	28 1/4"	24"	
119	119 (450.5)	4"	56 7/16"	67 1/4"	6"	68 5/8"	32 7/16"	28 3/16"	6"

Table 2 - Specifications and Dimensions

**CAUTION**

Locate the water heater where any leakage from the relief valve, related piping, tank, or connections will not result in damage to surrounding areas or lower floors of the building. The water heater should be located near a floor drain or installed in a drain pan. Leakage damages ARE NOT covered by warranty.

**B. Minimum Clearances**

The minimum clearances from combustible materials for this water heater are: 30" (76.2 cm) from the front, and 12" (30.48 cm) from the top.

**NOTE:** If you do not provide these minimum clearances it might not be possible to service the heater without removing it from the space.

**C. Water Piping**

Refer to Figure 2 for a typical installation. Refer to Figures 3 - 8 for different installation configurations. Before making the plumbing connections, locate the COLD water inlet and the HOT water outlet. These fittings are both 1 1/2" NPT male thread. Install shut-off valves close to the water heater in both the hot and cold water lines. It is recommended that unions be installed in the cold and hot water lines so that the water heater can be easily disconnected if service is required.

**NOTE:** It is recommended to use dielectric unions when connecting to the water heater.

When assembling the hot and cold piping, use food grade pipe joint compound and ensure all fittings are tight. DO NOT apply open flame to the inlet and outlet fittings, as heat will damage or destroy the plastic lined fittings. This will result in premature failure of the fittings, which is not covered by warranty.

Use pipe sizes adequate to handle the expected flow and volume of water. Copper tubing or galvanized pipe should be used. After cutting pipe or tubing, clean out all chips and cuttings before making any connections.

**1. Temperature and Pressure Relief Valve**

**WARNING**

DO NOT plug the temperature and pressure relief valve or its discharge line. DO NOT remove the relief valve. Make sure the relief valve is properly sized for the water heater. If the relief valve continuously discharges water, call a qualified service technician to correct the problem. Failure to follow these instructions can result in property damage, personal injury, or death.

To protect from excessive pressure and/or temperature, the manufacturer has installed a temperature and pressure relief

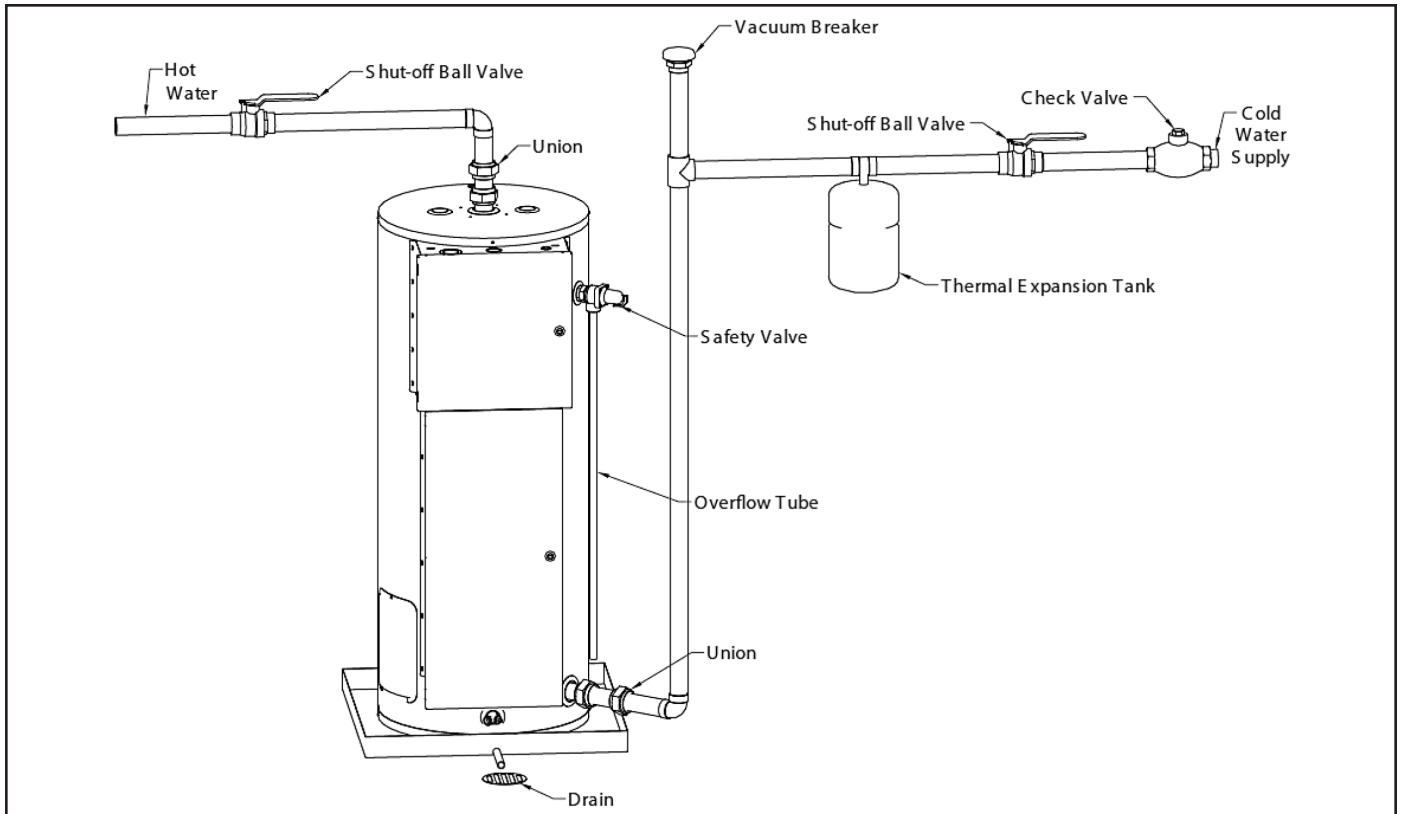


Figure 2 - Typical Installation - Drawing meant only to demonstrate system piping concept.

valve that meets the requirements of the Standard for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, ANSI Z21.22 in the United States, and CSA 4.4 in Canada. This relief valve has a maximum set pressure that does not exceed the hydrostatic working pressure of the water heater (150 psi = 1,035 kPa) and a BTU/H rating equal to or greater than the input rating, as shown on the water heater rating plate. It should never be plugged or removed from the opening marked for it on the water heater.

If this relief valve should need to be replaced, use only a new temperature and pressure relief valve. Never install an old or existing relief valve, as it may be damaged or inadequate for the working requirements of the new water heater. This new relief valve must meet all local codes, or, at minimum, the requirements listed above. Never install any other type of valve between the relief valve and the water heater.

### **WARNING**

To avoid water damage or scalding due to relief valve operation:

- Discharge line must be connected to relief valve outlet and run to a safe place of disposal. Terminate the discharge line in a manner that will prevent possibility of severe burns or property damage should the relief valve discharge.
- Discharge line must be as short as possible and the same size as the valve discharge connection throughout its entire length.
- Discharge line must pitch downward from the valve and terminate at least 6" above the floor drain, making discharge clearly visible.
- The discharge line shall terminate plain, not threaded, with a material serviceable for temperatures of 375°F

or greater.

- Do not pipe discharge to any location where freezing could occur.
- No valve may be installed between the relief valve and heater or in the discharge line. Do not plug or place any obstruction in the discharge line.
- Test the operation of the relief valve after filling and pressurizing the system by lifting the lever. Make sure the valve discharges freely. If the valve fails to operate correctly, immediately replace with a new properly rated relief valve.
- Test T&P valve at least once annually to ensure the waterway is clear. If valve does not operate, turn the heater "off" and call a plumber immediately.
- Take care whenever operating relief valve to avoid scalding injury or property damage.

FAILURE TO COMPLY WITH THE ABOVE GUIDELINES COULD RESULT IN FAILURE OF RELIEF VALVE OPERATION, RESULTING IN POSSIBILITY OF SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

Do not thread a cap or plug into the relief valve or relief valve line under any circumstances! Explosion and property damage, serious injury, or death may result.

## WARNING

**RE-INSPECTION OF T&P RELIEF VALVES:** T&P valves should be inspected **AT LEAST ONCE EVERY THREE YEARS**, and replaced if necessary, by a licensed plumbing contractor or qualified service technician to ensure that the product has not been affected by corrosive water conditions and to ensure that the valve and discharge line have not been altered or tampered with illegally. Certain naturally occurring conditions may corrode the valve and its components over time, rendering the valve inoperative. Such conditions can only be detected if the valve and its components are physically removed and inspected. **Do not attempt to conduct an inspection on your own.** Contact your plumbing contractor for a re-inspection to assure continued safety.

**FAILURE TO RE-INSPECT THE T&P VALVE AS DIRECTED COULD RESULT IN UNSAFE TEMPERATURE AND/OR PRESSURE BUILD-UP WHICH CAN RESULT IN PROPERTY DAMAGE, SERIOUS PERSONAL INJURY, OR DEATH.**

### 2. Pressure Build-Up in a Water System

## WARNING

Failure to account for expansion could result in property damage, severe personal injury, or death. Failure of the product due to expansion IS NOT covered by warranty.

When the water heater operates, the heated water expands creating a pressure build-up. This is a natural function and is one of the reasons for installing a temperature and pressure relief valve. For example: 100 gallons of water will expand by approximately 2 gallons over a 100°F temperature rise. If the cold water supply line has a built-in water meter, check valve, or pressure-reducing valve, a suitable expansion tank must be installed to prevent pressure build-up or water hammer effect. Otherwise, the warranty is void. An indication of pressure build-up is frequent relief valve discharge. If the relief valve discharges water on a continuous basis, it may indicate a malfunction of the relief valve and a qualified service technician must be called to have the system checked and the problem corrected.

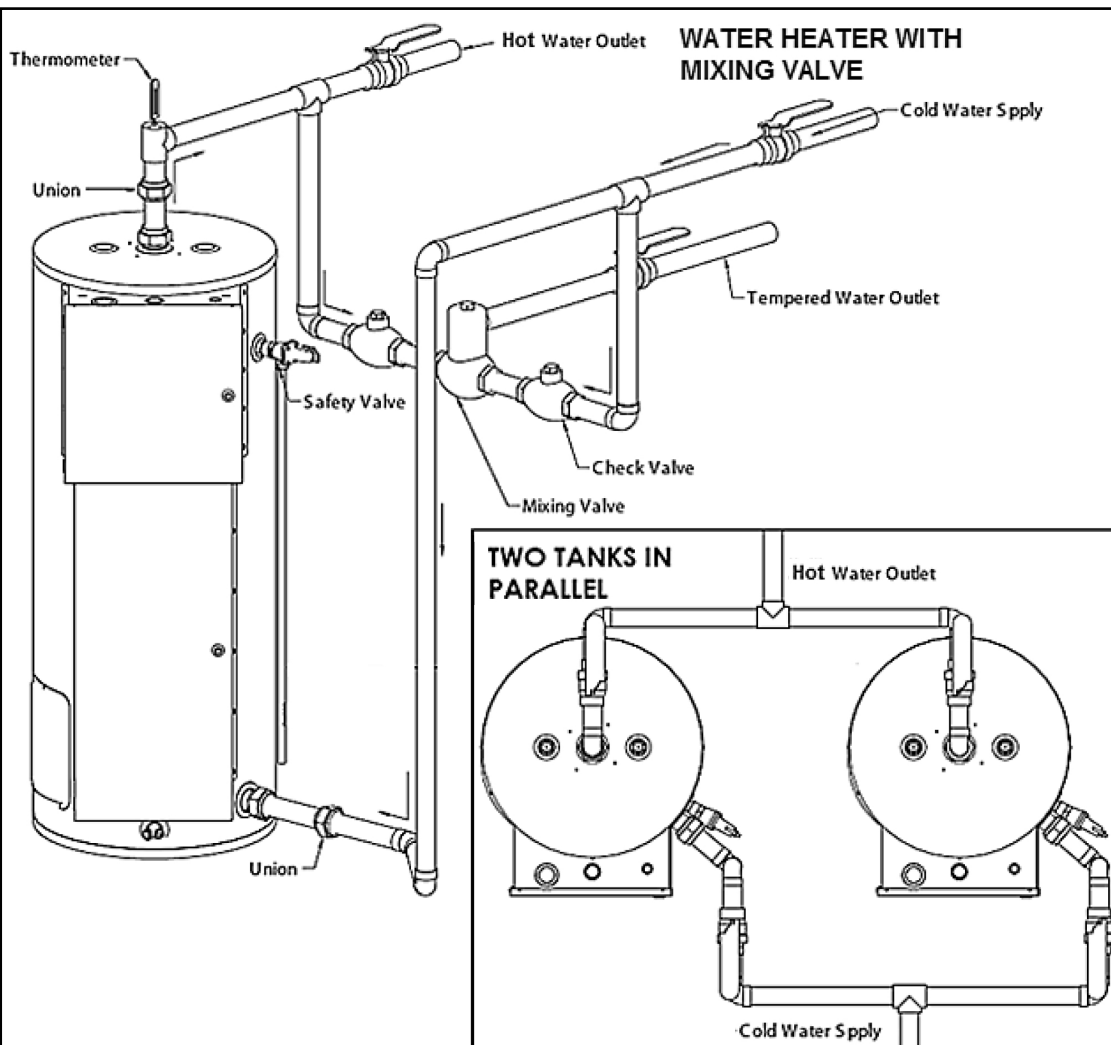


Figure 3 - Two Temperature with Mixing Valve and Two Tanks in Parallel - NOTE: Drawing meant only to demonstrate system piping concept.

### 3. Filling the Water Heater

## CAUTION

NEVER operate the water heater unless it is completely full of water. Failure to follow this instruction can result in premature failure of the water heater. Such failure IS NOT covered by warranty.

Check that all the water piping connections have been made. To fill the water heater:

1. Make sure that the water heater drain valve is closed by inserting a flat head screwdriver into the slot in the head of the drain valve and turning the knob clockwise.
2. Open the cold water supply manual shut-off valve. This valve must remain open as long as the water heater is in use. NEVER operate the water heater with the cold water supply manual shut-off valve closed.
3. To make sure the water heater is completely full of water, open hot water faucets to let the air out of the water heater and plumbing system. Leave the faucets open until a constant flow of water is obtained.
4. Check all of the plumbing connections to make sure there are no leaks.



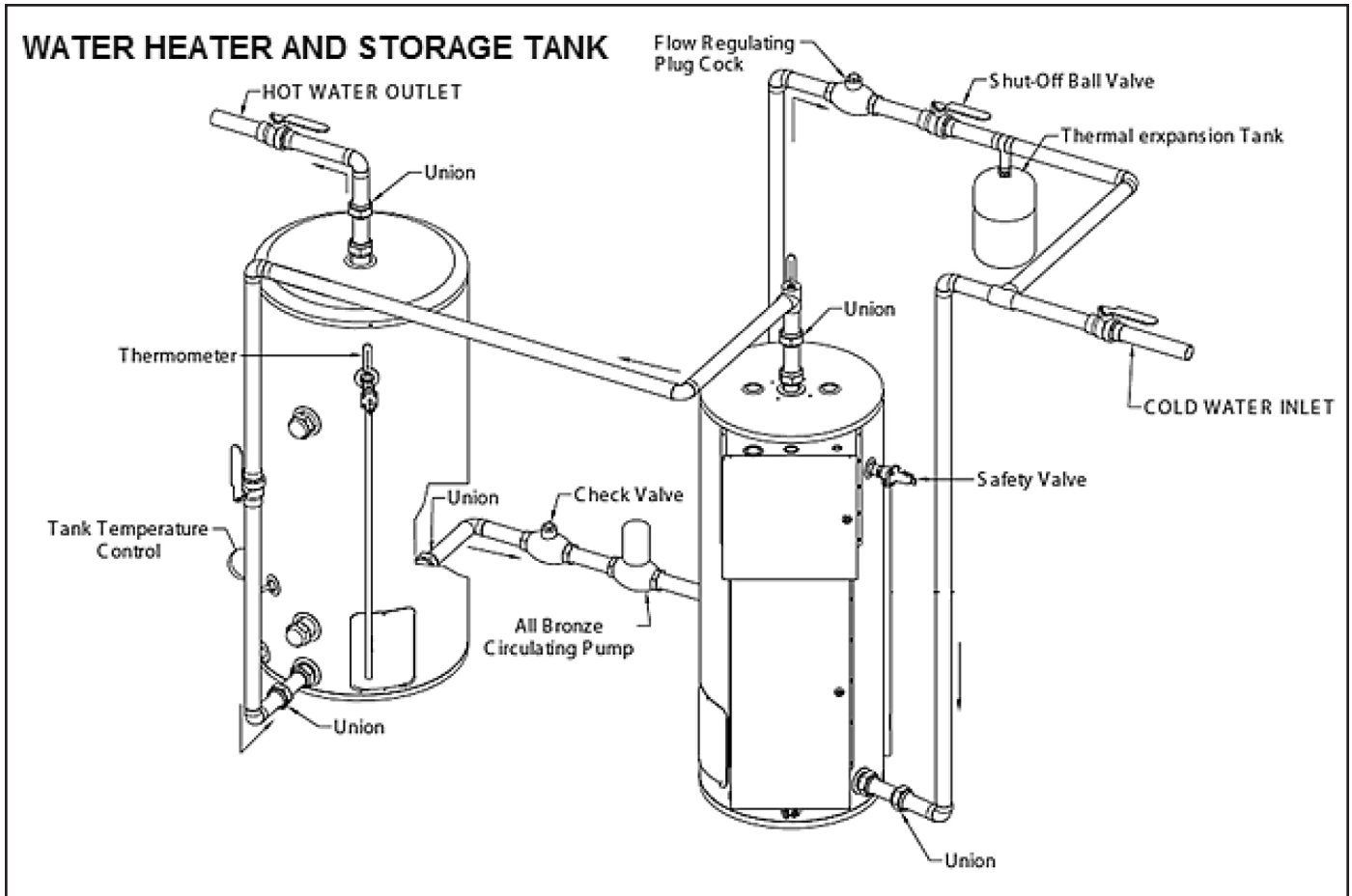


Figure 4 - Water Heater with Storage Tank - NOTE: Drawing meant only to demonstrate system piping concept.

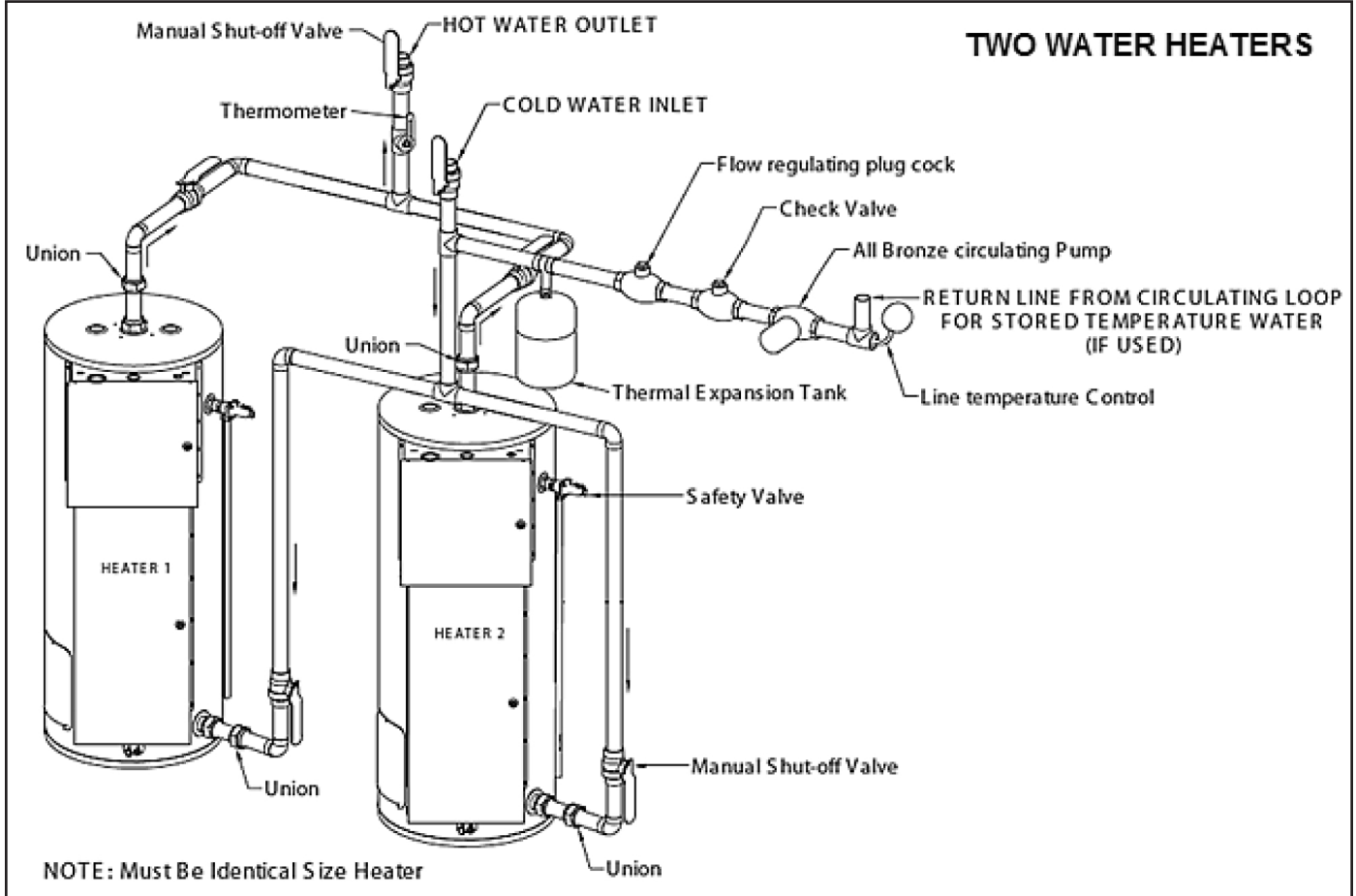


Figure 5 - Two Water Heaters - NOTE: Drawing meant only to demonstrate system piping concept.

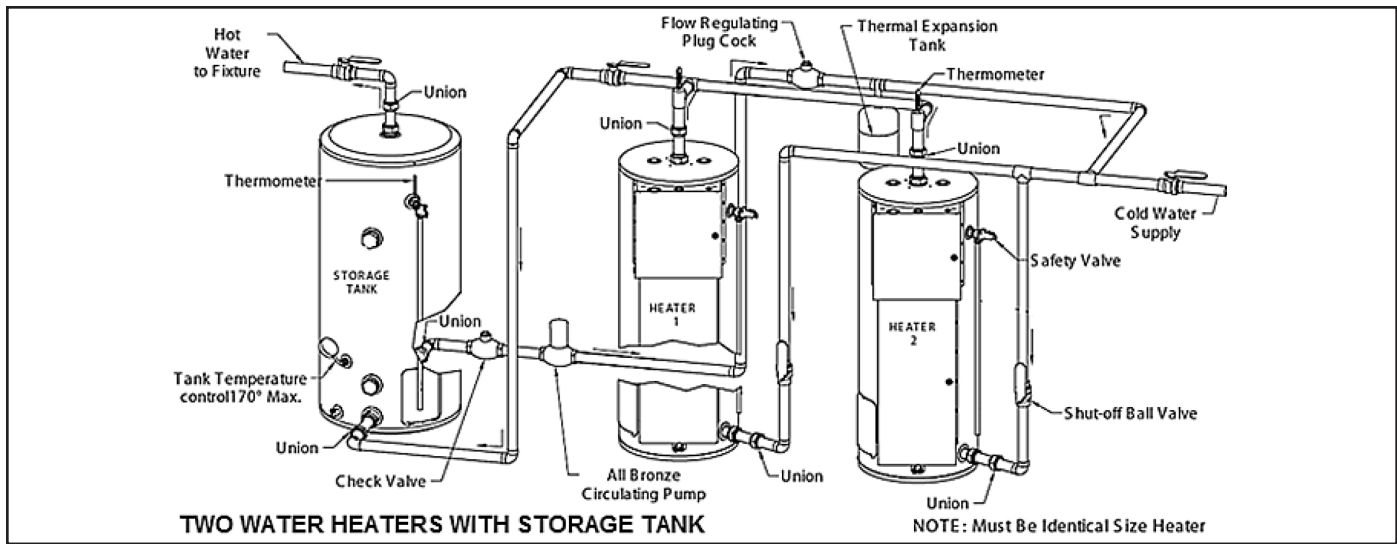


Figure 6 - Two Water Heaters with Storage Tank - NOTE: Drawing meant only to demonstrate system piping concept.

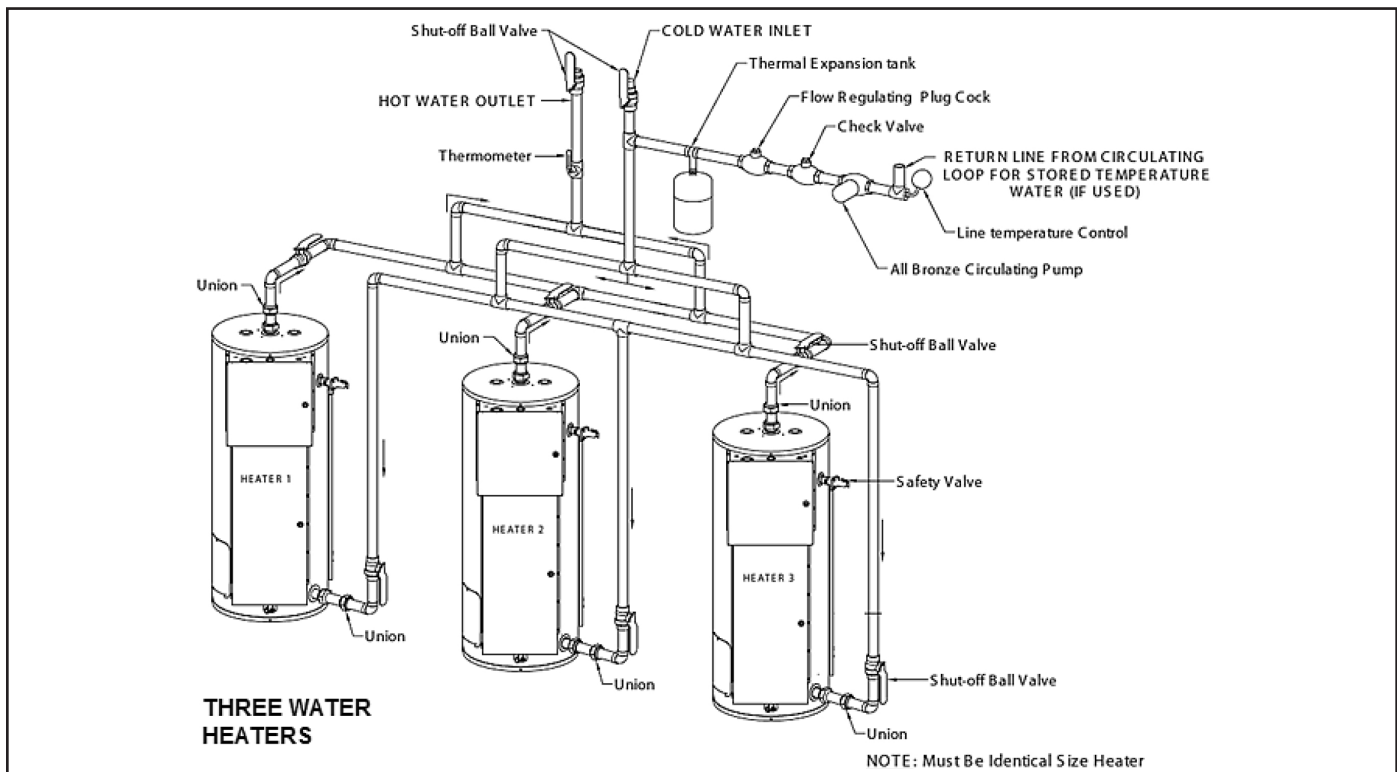


Figure 7 - Three Water Heaters - NOTE: Drawing meant only to demonstrate system piping concept.

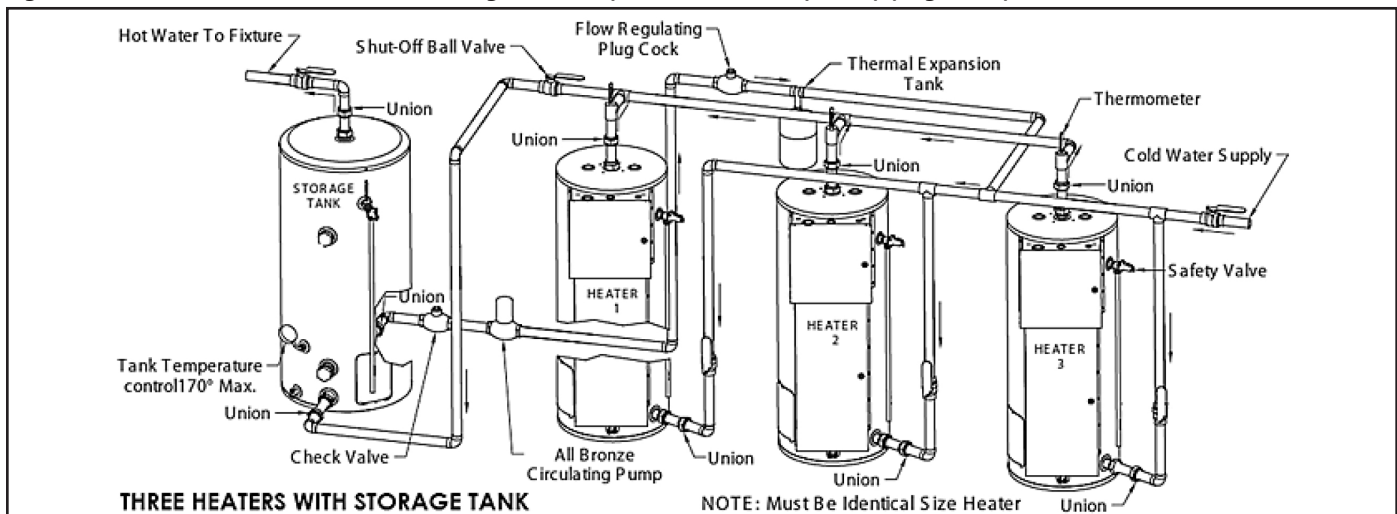


Figure 8 - Three Water Heaters with Storage Tank - NOTE: Drawing meant only to demonstrate system piping concept.

**D. Electrical**

**WARNING**

This water heater uses an external electrical source for power. It must be electrically grounded in accordance with all local codes, or, in the absence of local codes, the latest edition of the National Electrical Code, ANSI/NFPA 70 in the United States, or CAN/CSA C22.1, Canadian Electrical Code, in Canada. Failure to properly ground the water heater can result in property damage, personal injury, or death.

This water heater must be connected on a separate fuse branch circuit. Check the water heater rating plate for the element wattage and voltage and make sure that the power supply wiring and the fusing or circuit breaker are the correct size for this water heater. See Table 3. Verify that all of the wire connections on the element and thermostat have been installed correctly, are secure, and that none of the wires are grounded, have split, or are broken (see Wiring Diagram). If any of the original wiring needs replacing, use only TEW type wire that is approved for 221°F (105°C) of the same size or greater. To hook up the water heater to the power supply, connect the power supply wiring to the power distribution block in the electrical junction box.

**1. Voltage**

When a control transformer is installed in the electrical junction box, make sure that the voltage on the connection of the transformer primary circuit is the same as the voltage on the rating plate of the water heater.

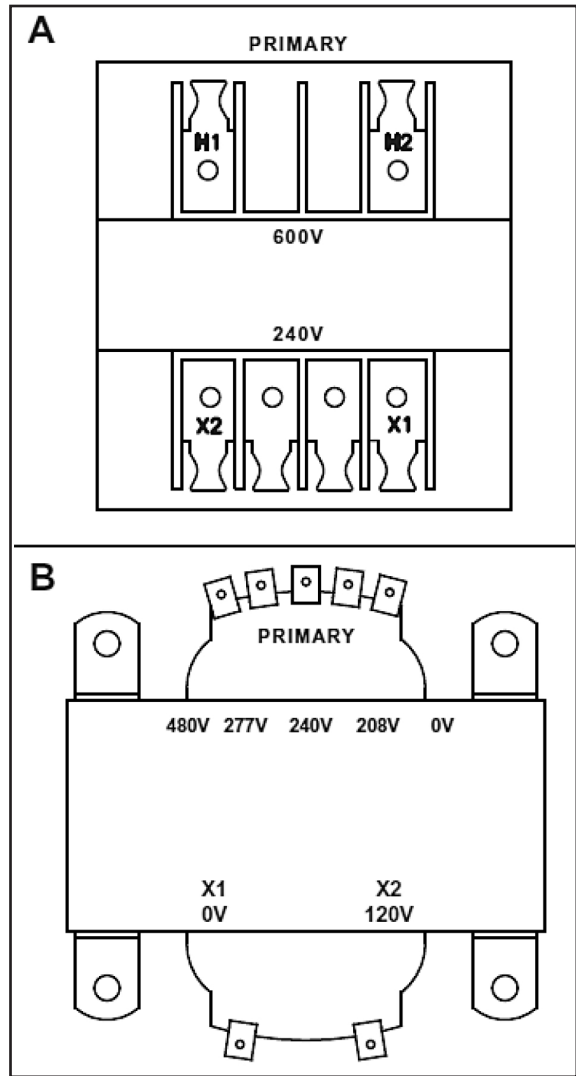


Figure 9 - A - 600V, B - All Other Voltages

Total Input, kW	# of Elements	Element Input	Voltage							
			208		240		277	480		600
			1 ph	3 ph	1 ph	3 ph	1 ph	1 ph	3 ph	3 ph
13.5	3	4.5	64.9	37.5	56.3	32.5	48.7	28.1	16.2	13
15		5	72.1	41.6	62.5	36.1	54.2	31.3	18	14.4
18		6	-	-	75	43.3	65	37.5	21.7	17.3
18	6	3	86.5	50	75	43.3	65	37.5	21.7	17.3
24		4	115.4	66.6	100	57.7	86.6	50	28.9	23.1
27		4.5	129.8	74.9	112.5	65	97.5	56.3	32.5	26
30		5	144.2	83.3	125	72.2	108.3	62.5	36.1	28.9
36		6	-	-	150	86.6	130	75	43.3	34.6
36	9	4	173.1	99.9	150	86.6	130	75	43.3	34.6
40.5		4.5	194.7	112.4	168.8	97.4	146.2	84.4	48.7	39
45		5	216.3	124.9	187.5	108.3	162.5	93.8	54.1	43.3
54		6	-	-	255	129.9	194.9	112.5	65	52

Table 3 - Total Full Load Current in Amperes

**208 Volts / 240 Volts / 277 Volts / 480 Volts**

**Wiring diagram for commercial electric water heater models 50, 80 with 3 elements**

**Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 50, 80 à 3 éléments**

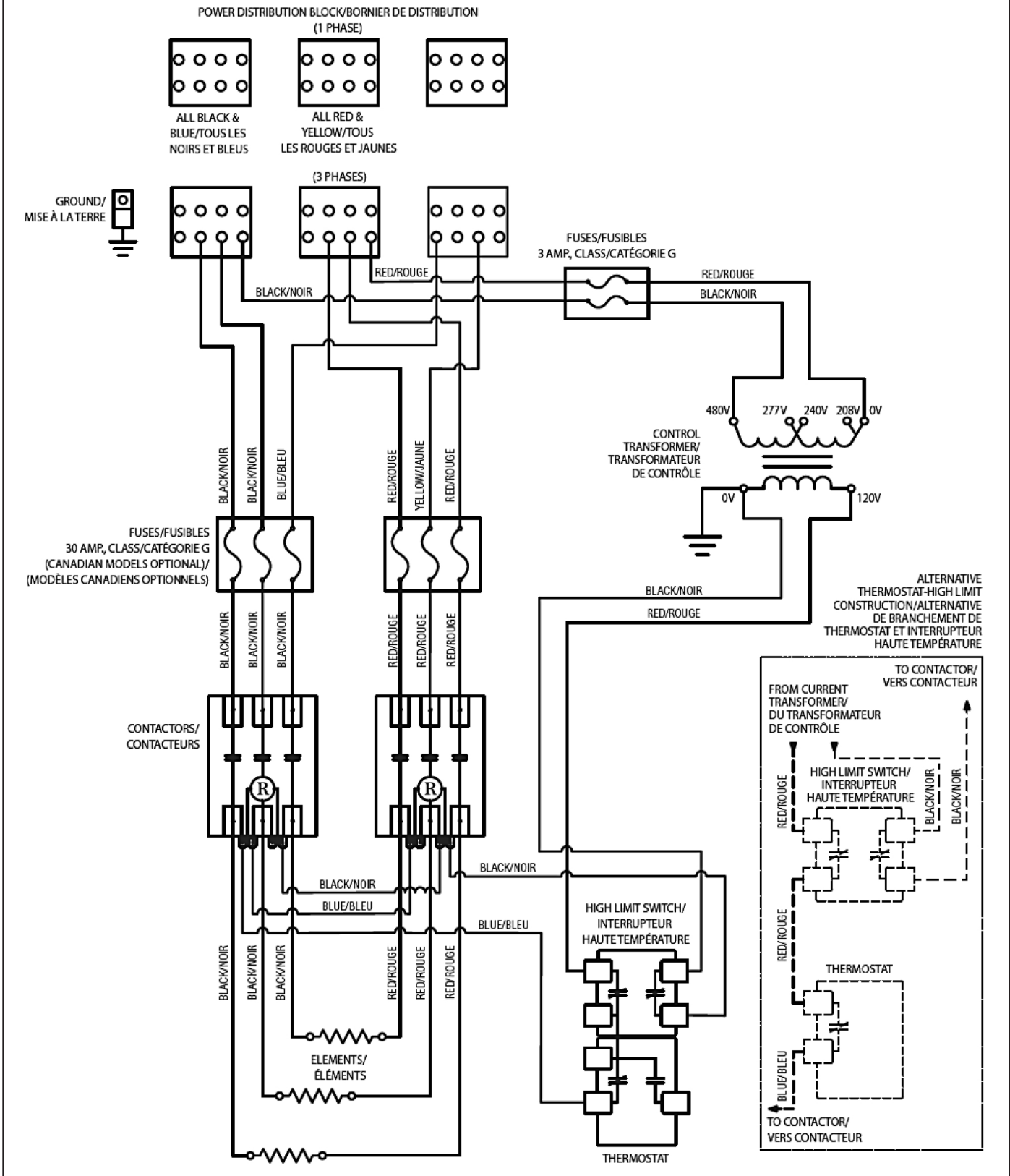


Figure 10 - 3 Element, 208 - 480V



### 208 Volts / 240 Volts / 277 Volts / 480 Volts

### Wiring diagram for commercial electric water heater models 50, 80 with 6 elements

### Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 50, 80 à 6 éléments

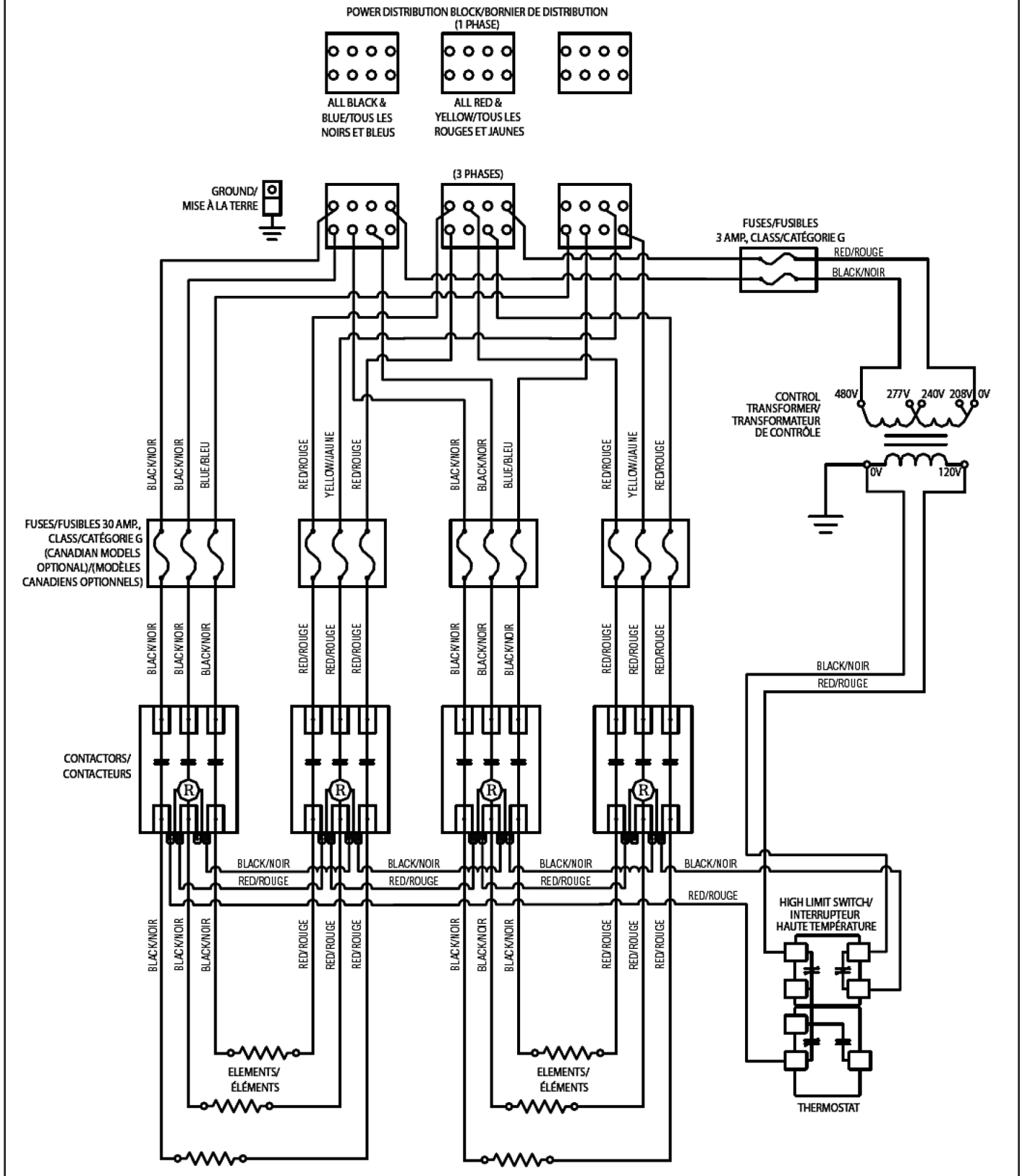


Figure 11 - 6 Element, 208 - 480V Models

**208 Volts / 240 Volts / 277 Volts / 480 Volts**  
**Wiring diagram for commercial electric**  
**water heater models 50, 80 with 9 elements**  
**Diagramme de filage pour les chauffe-eau commerciaux électriques**  
**modèles 50, 80 à 9 éléments**

POWER DISTRIBUTION BLOCK/BORNIER DE DISTRIBUTION (1 PHASE)  
 ○ ○ ○ ○  
 ○ ○ ○ ○  
 ALL RED & YELLOW/TOUS LES ROUGES ET JAUNES

(3 PHASES)  
 ○ ○ ○ ○  
 ○ ○ ○ ○  
 ALL BLACK & BLUE/TOUS LES NOIRS ET BLEUS

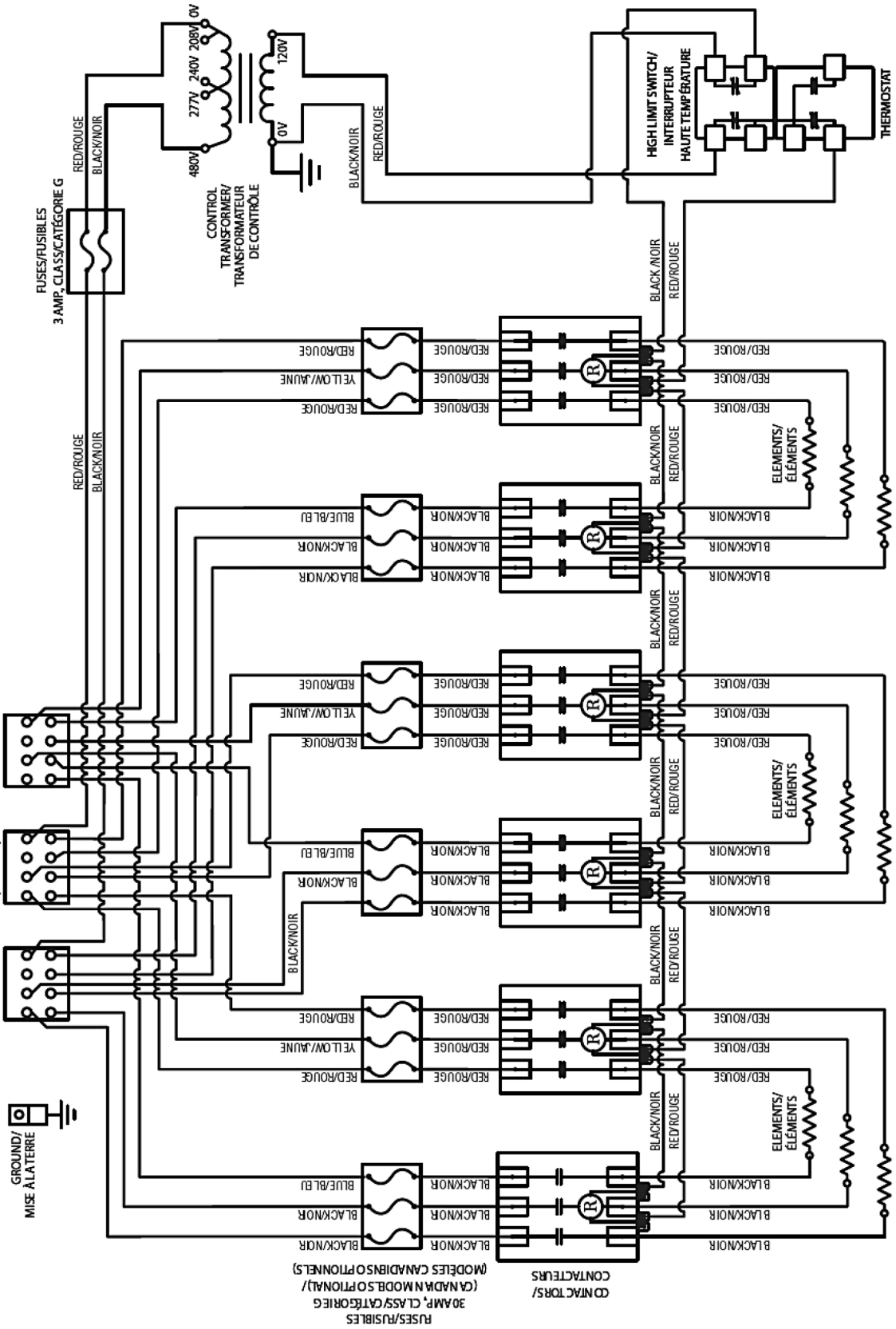


Figure 12 - 9 Element, 208 - 480V

### 208 Volts / 240 Volts / 277 Volts / 480 Volts

#### Wiring diagram for commercial electric water heater models 119 with 3 elements

#### Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 119 à 3 éléments

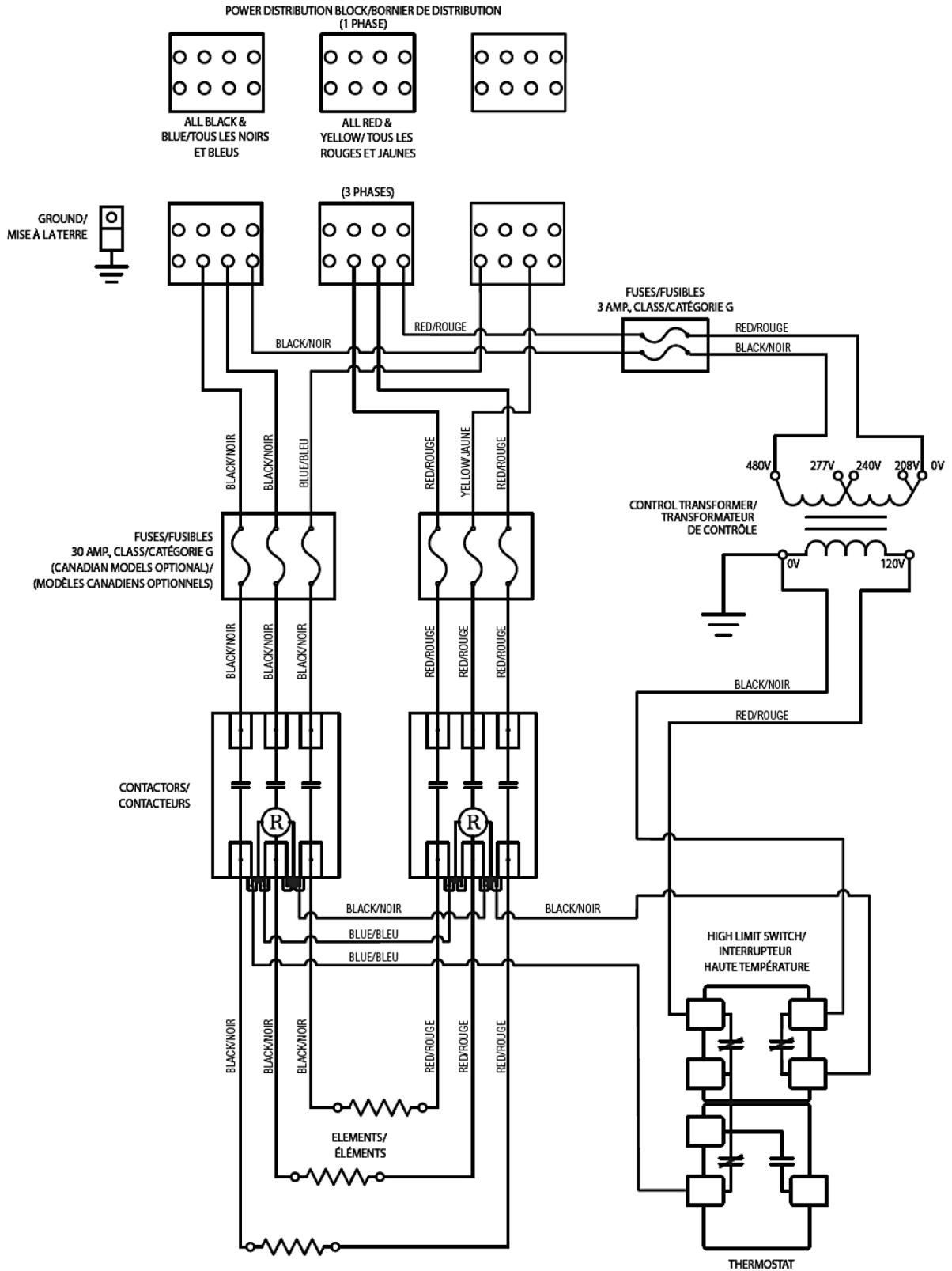


Figure 13 - 3 Element, 208 - 480V, 119 Gallon Models

**208 Volts / 240 Volts / 277 Volts / 480 Volts**

Wiring diagram for commercial electric water heater models 119 with 9 elements

Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 119 à 9 éléments

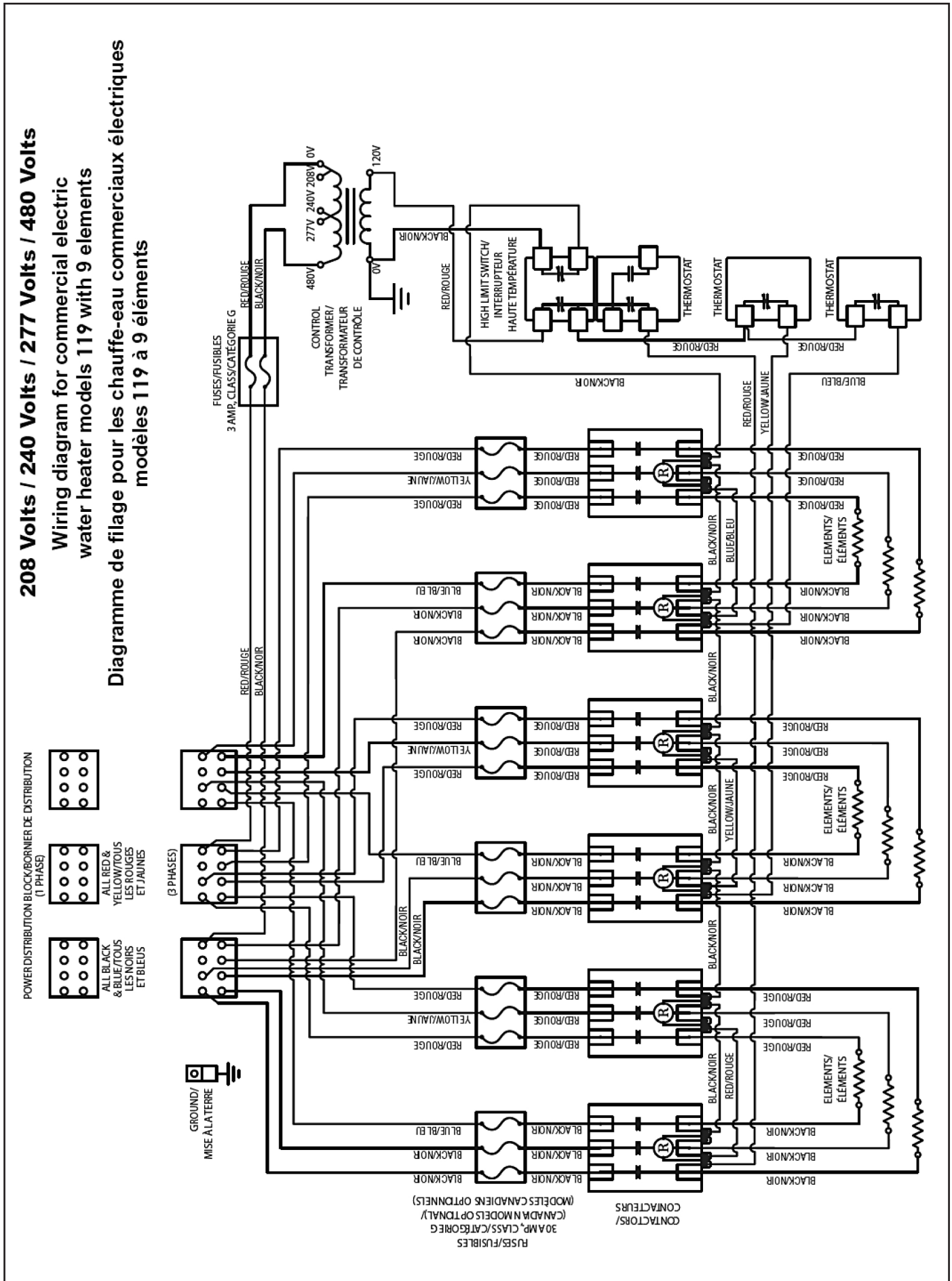


Figure 14 - 9 Element, 208 - 480V, 119 Gallon Models



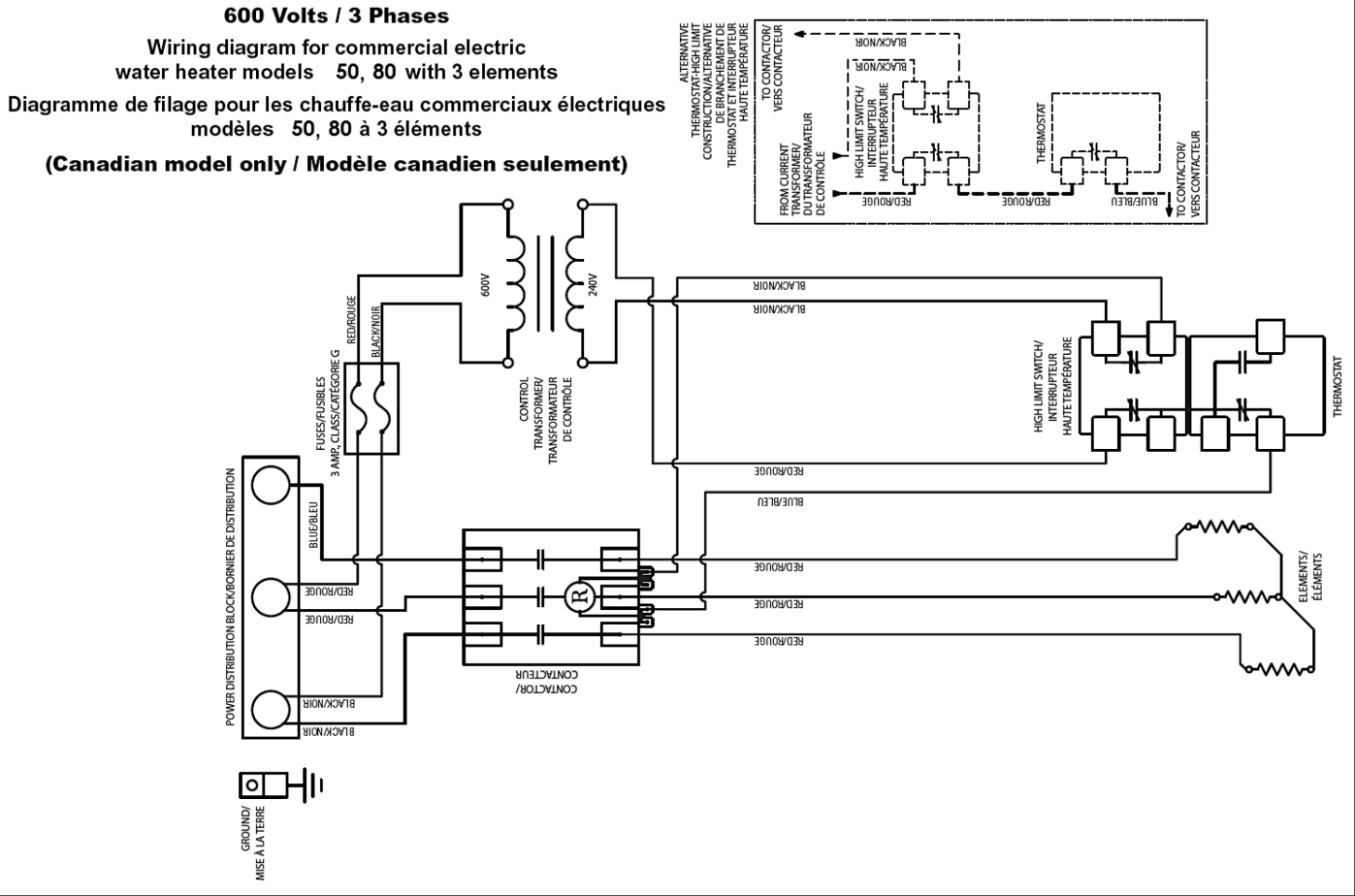


Figure 15 - 3 Element, 600V, 050 or 080 Gallon Models

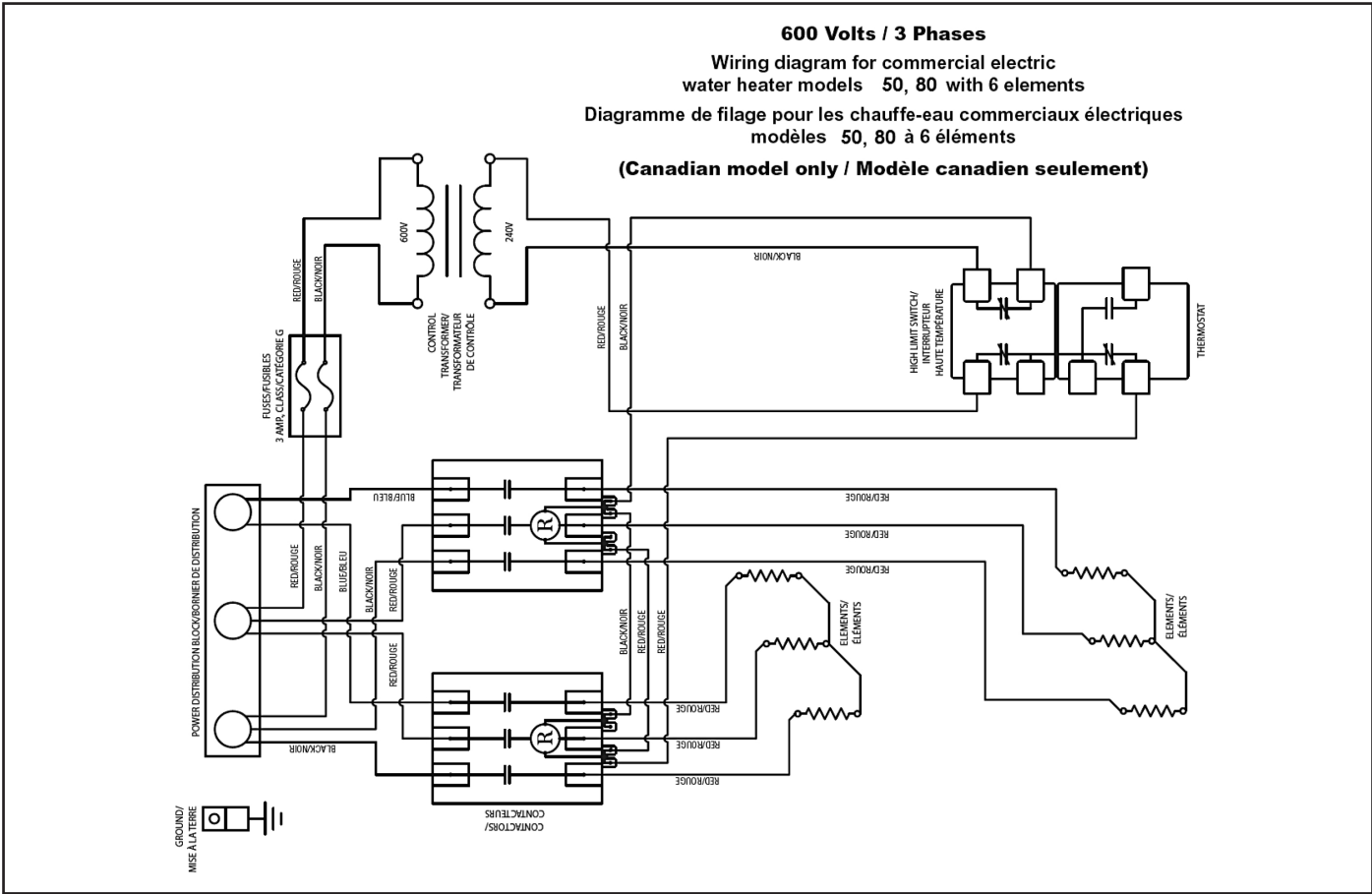


Figure 16 - 6 Element, 600V, 050 or 080 Gallon Models

**600 Volts / 3 Phases**

**Wiring diagram for commercial electric water heater models 50, 80 with 9 elements**

**Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 50, 80 à 9 éléments**

**(Canadian model only / Modèle canadien seulement)**

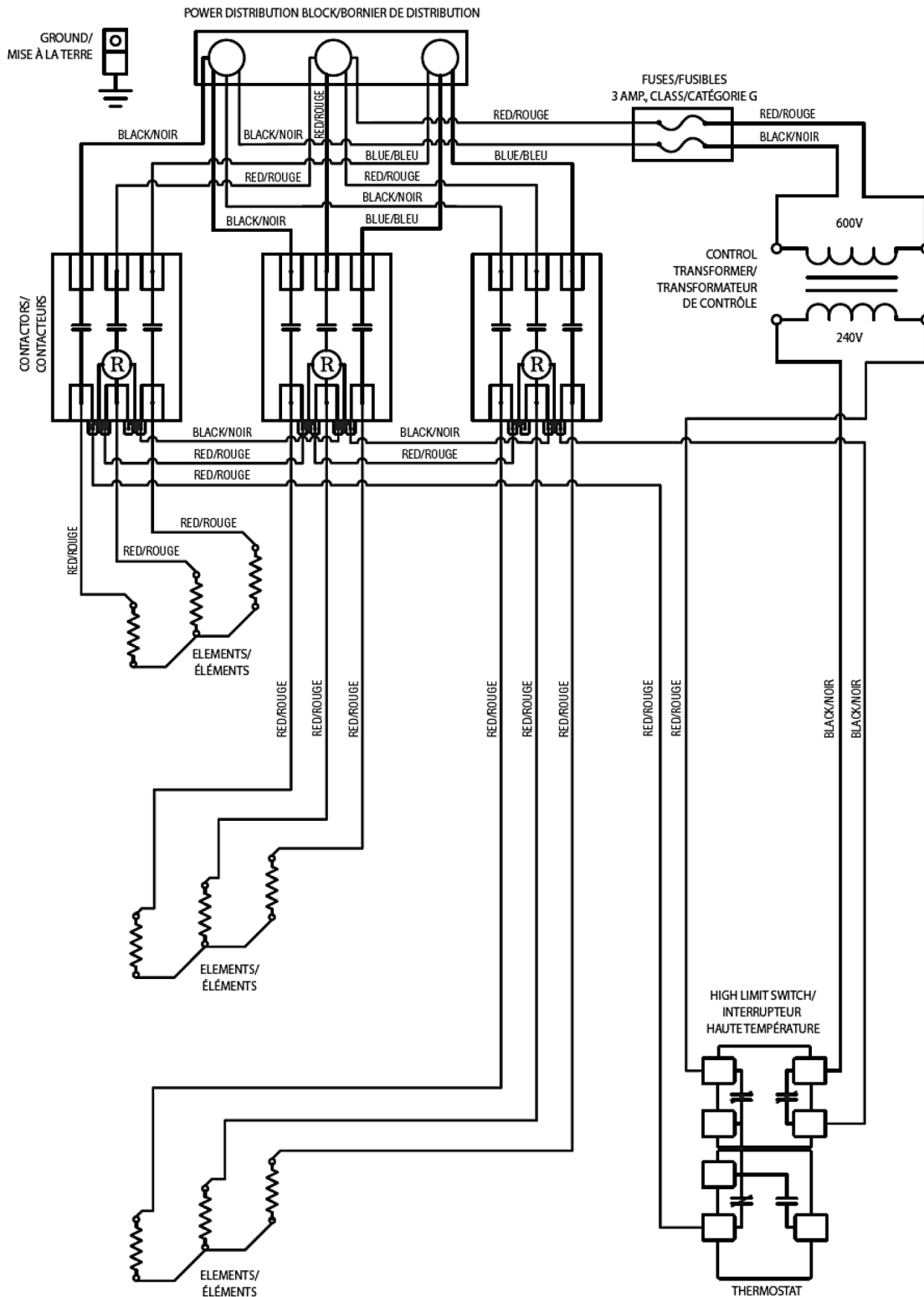


Figure 17 - 9 Element, 600V, 050 or 080 Gallon Models

**600 Volts / 3 Phases**  
**Wiring diagram for commercial electric water heater models 119 with 3 elements**  
**Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 119 à 3 éléments**  
**(Canadian model only / Modèle canadien seulement)**

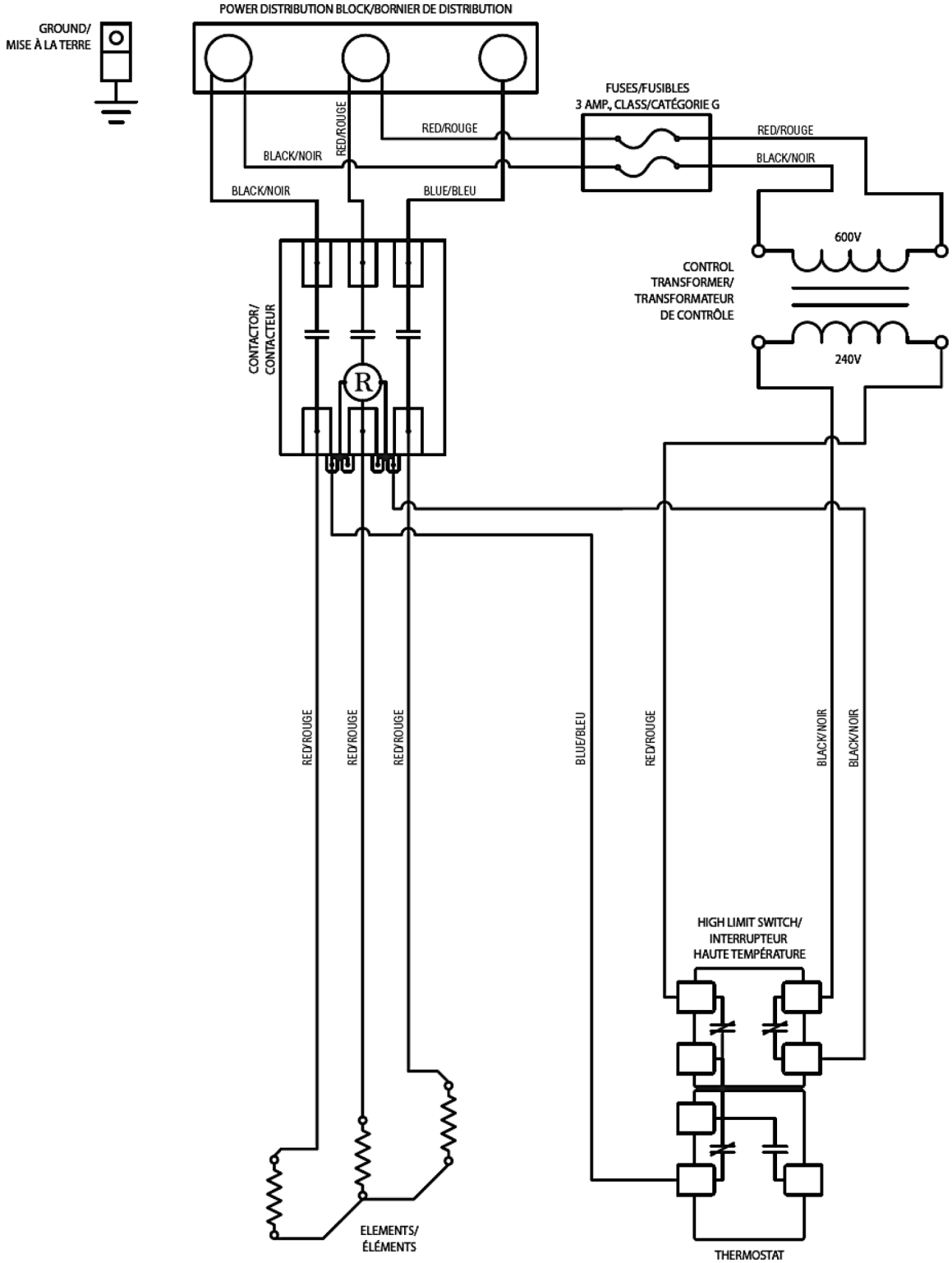


Figure 18 - 3 Element, 600V, 119 Gallon Models

**600 Volts / 3 Phases**

**Wiring diagram for commercial electric water heater models 119 with 9 elements**

**Diagramme de filage pour les chauffe-eau commerciaux électriques modèles 119 à 9 éléments**

**(Canadian model only / Modèle canadien seulement)**

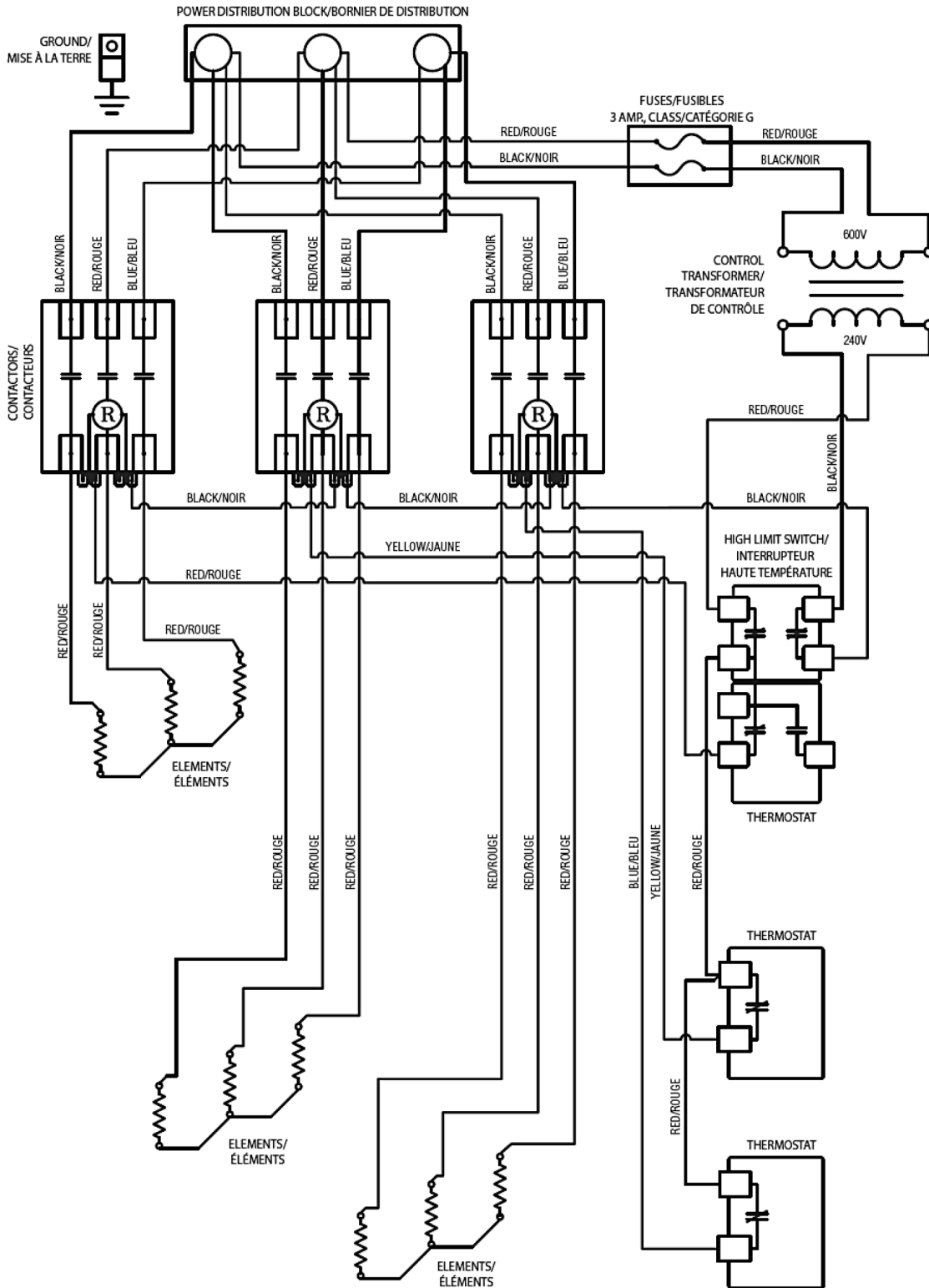


Figure 19 - 9 Element, 600V, 119 Gallon Models



## 2. Field Conversions

All water heaters are manufactured and shipped from the factory pre-wired for phase, voltage, and wattage conversion.

### Phase Conversion

#### **WARNING**

600V Models cannot be converted to (1) single phase operation or any other voltages. 277V models cannot be converted to 3 (three) phase operation. Attempting to do so will void the product warranty, and could result in property damage, severe personal injury, or death.

Disconnect water heater from the power supply and read all instructions before proceeding with conversion procedure. Failure to do so could result in property damage, severe personal injury, or death.

### Surface Mount Thermostat - 3 (Three) Phase to Single Phase

1. Disconnect all blue and yellow wires from terminal L3.
2. Reconnect all blue wires to terminal L1.
3. Reconnect all yellow wires to terminal L2.
4. Connect incoming power to terminal block L1 and L2.

### Surface Mount Thermostat – Single Phase to 3 (Three) Phase

1. Disconnect all blue wires from terminal L1.
2. Disconnect all yellow wires from terminal L2.
3. Reconnect all blue and yellow wires to terminal L3.
4. Connect incoming power to terminal block L1, L2, and L3.

Check that all electrical connections are tightly secured and that wire routings are neat and orderly. Ensure the wiring is completed as specified in these instructions and in the appropriate wiring diagram.

### WATTAGE AND VOLTAGE CONVERSION FOR 208V, 240V, 277V, AND 480V WATER HEATERS

Conversion kits are available to modify total power (kW) and/or voltage (V) of the water heater in the field. Refer to Table 4 for the selection of the appropriate conversion kit.

1. Find the "Number of Elements" in the water heater to be converted.
2. Find the "Element Input (kW)" in Table 4 that matches the number of elements.
3. Then, move across Table 4 on the same row to the "Voltage" column. The appropriate Conversion Kit part number will be the one where the "Total Input" row intersects with the "Voltage" column.

#### **WARNING**

DO NOT attempt to convert 600V water heaters to any other voltages. Any conversion must use the same number of elements as defined by the original product. Addition or removal of heating elements could result in electrical shock and/or property damage, personal injury, or death.

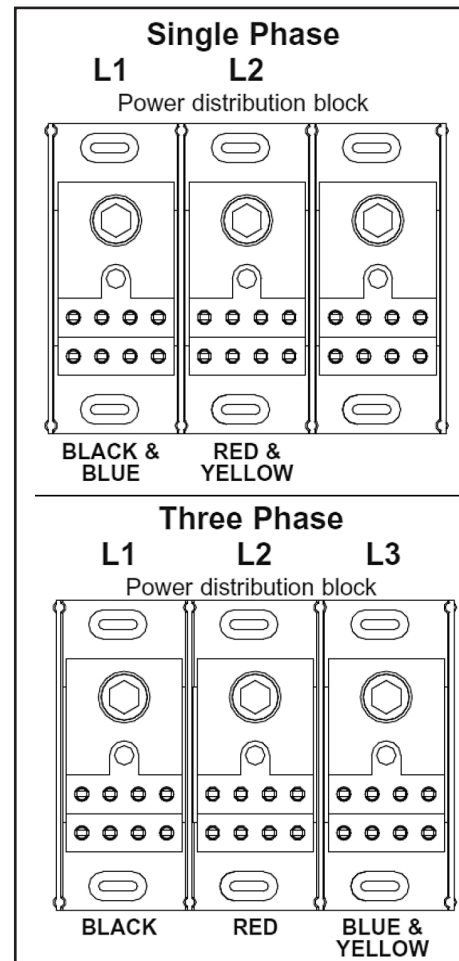


Figure 20 - Single and Three Phase Terminal Block Wiring

### WATTAGE CONVERSION FOR 600V WATER HEATERS

Conversion kits are available to modify total power (kW) of the water heater in the field. Refer to Table 4 for the selection of the appropriate conversion kit.

1. Find the "Number of Elements" in the water heater you wish to convert.
2. Find the "Element Input (kW)" in Table 4 that matches your number of elements.
3. The appropriate Conversion Kit part number will be on the last column of this row.

#### **WARNING**

Any conversion must use the same number of elements as defined by the original product. Addition or removal of heating elements could result in electrical shock and/or property damage, personal injury, or death.

Total Input (kW)	# of Elements	Element Input (kW)	Voltage					
			208	240	277	480	600	
13.5	3	4.5	B3W135M B3Z135M	C3W135M C3Z135M	D3W135M	E3W135M E3Z135M	F3Z135M	
15		5	B3W150M B3Z150M	C3W150M C3Z150M	D3W150M	E3W150M E3Z150M	F3Z150M	
18		6	-	-	C3W180M C3Z180M	D3W180M	E3W180M E3Z180M	F3Z180M
18	6	3	B6W180M B6Z180M	C6W180M C6Z180M	D6W180M	E6W180M E6Z180M	F6Z180M F6T180M	
24		4	B6W240M B6Z240M	C6W240M C6Z240M	D6W240M	E6W240M E6Z240M	F6Z240M F6T240M	
27		4.5	B6W270M B6Z270M	C6W270M C6Z270M	D6W270M	E6W270M E6Z270M	F6Z270M F6T270M	
30		5	B6W300M B6Z300M	C6W300M C6Z300M	D6W300M	E6W300M E6Z300M	F6Z300M F6T300M	
36		6	-	-	C6W360M C6Z360M	D6W360M	E6W360M E6Z360M	F6Z360M F6T360M
40.5		9	4.5	B9W405M B9Z405M B9X405M B9T405M	C9W405M C9Z405M C9X405M C9T405M	D9W405M	E9W405M E9Z405M E9X405M E9T405M	F9Z405M F9T405M
45	5		B9W450M B9Z450M B9X450M B9T450M	C9W450M C9Z450M C9X450M C9T450M	D9W450M	E9W450M E9Z450M E9X450M E9T450M	F9Z450M F9T450M	
54	6		-	-	C9W540M C9Z540M C9X540M C9T540M	D9W540M	E9W540M E9Z540M E9X540M E9T540M	F9Z540M F9T450M

Table 4 - Conversion Kit Part Numbers

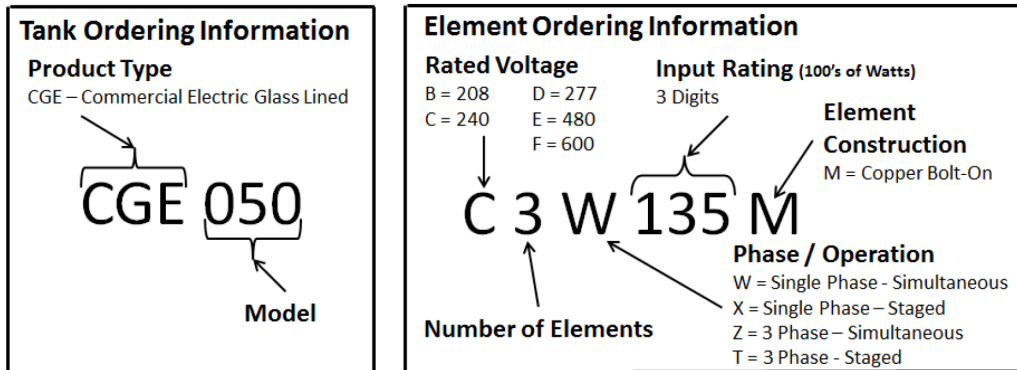


Figure 21 - Tank and Element Ordering Key

Location	Complete
Is the water heater located close to the power supply and the main use of hot water?	
Is the water heater protected from freezing temperatures?	
Has a drain pan been installed and piped to a free-flowing drain?	
Have clearances from combustibile materials been observed?	
Can the elements and thermostat access panels be removed for inspection, adjustment, and servicing of the elements and thermostats?	
Ventilation Air	Complete
Is the area around the water heater clean and properly ventilated?	
Is the area free of corrosive elements and flammable vapors?	
Water Piping	Complete
Has a temperature and pressure relief valve been installed?	
Does this valve have a discharge line installed, and is it piped to a free-flowing drain?	
Have all piping connections been properly installed, and are they leak free?	
Is the water heater full of water?	
Has thermal expansion been properly accounted for?	
Wiring	Complete
Does the power supply voltage match the voltage indicated on the water heater rating plate?	
Has the correct size of wire and fusing or circuit breaker been used to supply the water heater with power?	
Have the electrical connections been checked, and are they secure?	
Is the water heater electrically grounded?	
Signed by Technician	Date

Table 5 - Installation Checklist

### Part 3 - Operating Instructions

#### A. Starting the Water Heater



Before starting the water heater, make sure you have read and understood all of the instructions and warnings in this manual and on the water heater. If you have any questions about turning on the water heater, immediately contact a qualified installer, service agency, or local electric utility.

utility.

#### **WARNING**

DO NOT turn "ON" this water heater if:

- It is not full of water.
- The power supply voltage does not match the voltage listed on the rating plate.
- Gasoline or any other flammable vapors or liquids have been stored in the vicinity of the water heater.

Failure to follow these instructions could result in property damage, serious personal injury, or death.

#### B. Start-Up Procedure

1. Turn "ON" the circuit breaker at the main service panel.
2. Make sure the fuse box or power switch (if one exists) next to the water heater is turned "ON".
3. If you smell smoke, refer to "What To Do If You Smell Smoke".

#### **DANGER**

- **DO NOT** open the electrical junction box or the element access panel before the power to the water heater is turned "OFF".
- **DO NOT ATTEMPT** to repair or replace any of the electrical components installed on the water heater before the power to the water heater is turned "OFF".
- **DO NOT USE** the water heater on a voltage other than that specified on the water heater rating plate.
- **DO NOT CONNECT** the power supply wiring to anywhere other than the power distribution block in the electrical junction box of the water heater.
- **DO NOT TURN ON** the power to the water heater unless it is completely filled with water.
- **DO NOT DRAIN** the water heater unless the power to the water heater has been turned "OFF".
- **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 SMOKE**

- Immediately turn "OFF" the power to the water heater.
- If after turning "OFF" the power the smoke continues, call your local fire department.
- When the smoke has stopped, call a qualified service technician to identify and repair the problem.

Failure to follow the information provided in this warning statement will result in property damage, serious personal injury, or death.

4. Wait one (1) hour. At this time, hot water should be available at the faucet.
5. If after one (1) hour you do not have any hot water, check that the fuse or circuit breaker is in working condition.
6. Wait another hour. If at this time you still do not have any hot water, call a qualified service technician.

**NOTE:** If after one (1) hour you receive only a small amount of hot water, check that the plumbing connections are not reversed.

**C. Safety Controls**

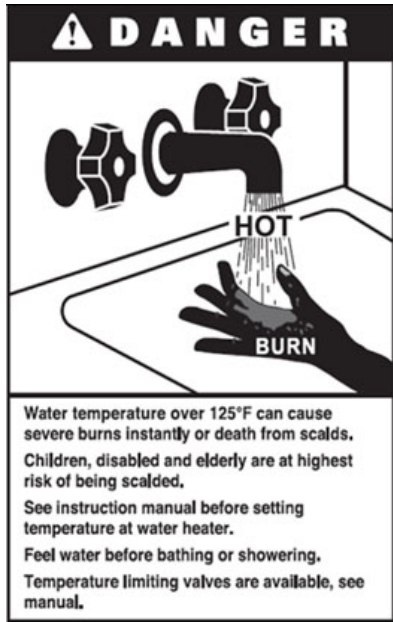
This water heater is equipped with a combination thermostat and high limit reset control (ECO) that is located above the upper heating element. If for any reason the temperature of the water becomes excessively high, the ECO will break the power circuit to the heating element. Once the control opens, it must be reset manually. See Figure 22.

**To Reset the ECO:**

1. Turn "OFF" the power to the water heater.
2. Open the upper element and thermostat access panel and remove the insulation.
3. Press the red reset button. See Figure 22.
4. Replace the insulation and close the access panel before turning "ON" the power to the water heater.

**D. Water Temperature Regulation**

The higher the setting, the greater the risk of scalding. Hot water can cause third degree burns in less than one (1) second at 160°F (71°C), in five (5) seconds at 140°F (60°C), and in thirty (30) seconds at 130°F (54°C). In households where there are children, physically challenged individuals, or elderly persons, mixing valves for point of use are necessary as a means of reducing the scalding potential of hot water. The thermostat is factory set at 140°F (60°C) on all models.



**To Adjust the Temperature on the Thermostat:**

1. Turn "OFF" the power to the water heater.
2. Open the element and thermostat access panel and remove the insulation. DO NOT remove the thermostat protective cover.
3. Use a small flathead screwdriver to turn the thermostat dial to the desired temperature setting.
4. Replace the insulation and close the element and thermostat access panel before turning "ON" the power to the water heater.

Temperature Equivalence	
HOT	120°F / 48,9°C
A	130°F / 54,4°C
B	140°F / 60°C
C	150°F / 65,5°C
VERY HOT	160°F / 71,1°C

Table 6 - Thermostat Temperature Equivalence

**WARNING**

The higher the temperature setting, the greater the risk of scalding. Hot water can cause third degree burns in 1 second at 160°F (71°C), 5 seconds at 150°F (65°C), and 30 seconds at 130°F (54°C). In households where there are children, physically challenged individuals, or elderly persons, mixing valves for point of use are necessary as a means of reducing the scalding potential of hot water. Failure to install a mixing valve can result in serious personal injury or death.

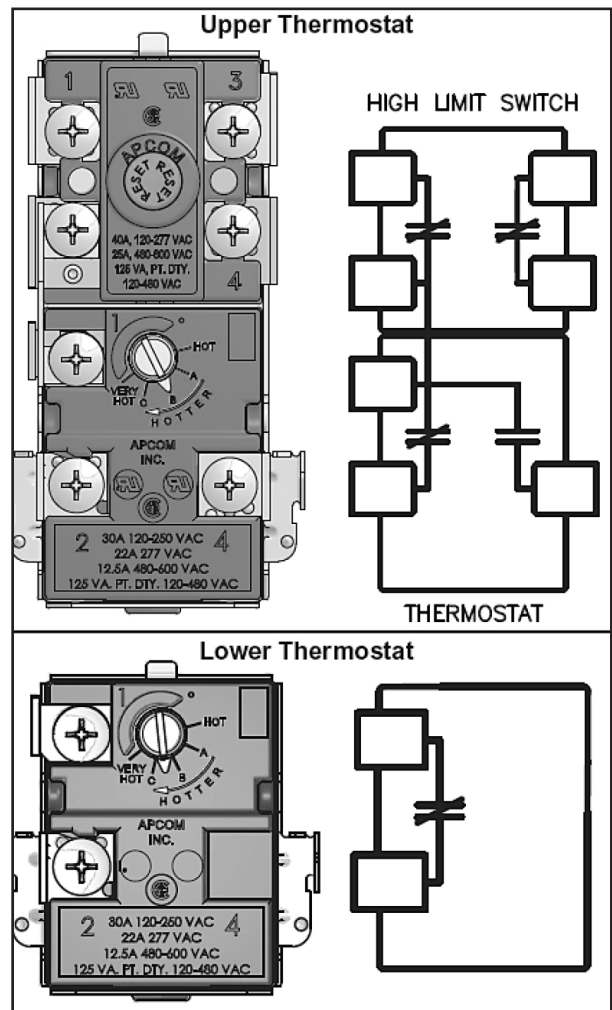


Figure 22 - Thermostat Detail



## Part 4 - General Maintenance

### A. Housekeeping

#### WARNING

DO NOT STORE or use gasoline or other flammable vapors or liquids around the water heater.  
DO NOT PUT or store any objects on the top of the water heater.  
Failure to follow these instructions can result in property damage, personal injury, or death.

Keep the area around the water heater clean and free of dust, lint, and dirt. Vacuum any dirt as required. Make sure that all of the minimum clearances to combustible materials are being maintained.

### B. Condensation

Condensation can form on the surface of the water heater:

- When the water heater is filled with cold water for the first time.
- If the water heater has been undersized.
- When large amounts of hot water are drawn from the water heater in a short period of time, and the refill water is very cold.

Due to the efficiency rating of this water heater, it may produce more condensation than previous water heater models. This condition is not uncommon and must never be misinterpreted as a leaking tank. Excess condensation will disappear once the water becomes heated.

Because of the large amounts of water that can condense, it is very important that a drain pan be installed under the water heater. Refer to Figure 2. **Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater.** If the problem does not go away and water continues to drip after the water heater has heated up, check all of the plumbing connections to make sure they are not leaking.

### C. Cleaning Out the Water Heater

Lime, scale, or sediment may accumulate at the bottom of this water heater. The amount deposited will depend on the hardness of the water supply where this water heater is installed. The harder the water, the more sediment will accumulate. If this sediment is left unchecked, it will reduce the efficiency and life of the water heater. **To control sediment build-up:**

1. Drain a pail of water through the drain valve once a month.
2. Every 3 months, use the following procedure to clean out the bottom of the water heater through the cleanout hole opening:
  - Drain the water. (Refer to *Draining the Water Heater*).
  - Remove the cleanout door on the lower right side of the water heater jacket.
  - Undo the 6 hex head bolts securing the cleanout cover and remove the cover.
  - Remove any excess sediment accumulation from the bottom of the water heater, taking care not to damage the water heater's glass lining.
  - Inspect the cleanout cover's gasket for wear and replace it if necessary.

- Replace the cleanout cover and cleanout cover door.
- Refill the water heater (refer to *Filling the Water Heater*) and turn on the power.

### D. Element and Thermostat Replacement

#### WARNING

Before attempting to repair or replace any of the electrical components on this water heater, turn "OFF" the power to the water heater. Failure to do so could result in electrical shock and/or property damage, personal injury, or death.

#### Replacing an Element

1. Turn "OFF" the power to the water heater and drain all of the water from the water heater. (See "Draining the Water Heater".)
2. Open the element and thermostat access cover and remove the insulation.
3. Disconnect the wires from the element terminals.
4. Unscrew the four (4) bolts securing the element to the water heater and pull element out of the tank. Make sure the Twist-Lock flange is in the right position. See Figure 23.
5. Replace the element with a new element of the same wattage and voltage. Make sure the gasket surface is clean and that the element has been reinstalled water-tight.
6. Reconnect the wiring and tighten securely.
7. Refill the water heater (see *Filling the Water Heater*). **DO NOT TURN THE POWER ON TO THE WATER HEATER UNLESS YOU ARE SURE IT IS COMPLETELY FILLED WITH WATER.**
8. Replace the insulation and close the element and thermostat access panel before turning "ON" the power to the water heater.

#### Replacing a Thermostat

1. Turn "OFF" the power to the water heater.
2. Open the element and thermostat access cover and remove

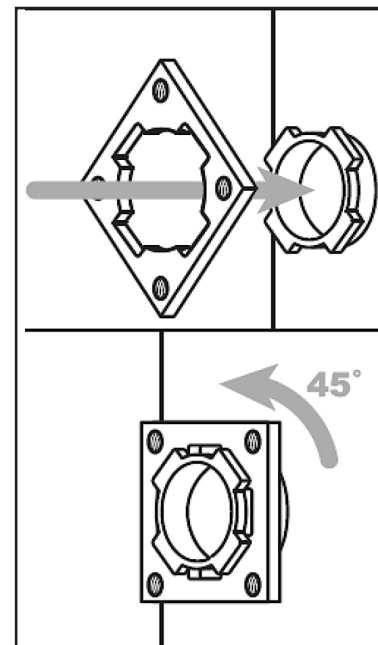


Figure 23 - Twist Lock Flange

- the insulation.
3. Disconnect the wires from the thermostat terminals.
4. Lift the thermostat bracket arms and slide the thermostat up to remove it.
5. Replace the thermostat with a new thermostat of the same manufacturer and type.
6. Reconnect the wires on the thermostat terminals by referring

to the appropriate corresponding wiring diagram. (See Figures 10 – 19.)

7. Set the thermostat to the desired temperature. (See Water Temperature Regulation.)

8. Replace the insulation and close the element and the thermostat access panel before turning "ON" the power to the water heater.

### E. Temperature and Pressure Relief Valve

Manually operate the temperature and pressure relief valve at least once a year. Stand clear of the outlet to avoid being burned. Lift and release the operating lever on the valve to make it operate freely. If, after manually operating the valve, it fails to completely reset and continues to discharge water, replace it with a new valve (refer to *Draining the Water Heater*).

### F. Anode

This water heater is equipped with two (2) anode rods that are designed to prolong the life of the glass-lined tank. By the electrolytic action, these anodes are slowly consumed, protecting the glass-lined tank from corrosion. Each anode should be checked every 2 years. If more than half of an anode has been consumed, it should be replaced. Instructions on how to change an anode can be obtained from the manufacturer.

The life expectancy of the water heater is reduced where a water softener is introduced to fight hard water. The sodium salts added by a softener make this water extremely conductive. In these conditions, the anodes are consumed more rapidly and should be inspected every year.

In certain water conditions, the anodes will react with the water, producing discolored or smelly water. The most common complaint is hot water that smells like rotten eggs. This phenomenon is the result of the reaction between the anodes and hydrogen sulfide gas dissolved in the water which occurs frequently in well systems. This problem can usually be eliminated or reduced by changing the anodes to a type more suitable for these conditions (aluminum anodes) and by chlorinating the water heater and plumbing system. If the problem persists, special filtration equipment may be required. Under no circumstances are the anodes to be removed from the water heater on a permanent basis. **Removal of the anodes will lead to premature failure of the water heater and void the warranty.**

## **WARNING**

Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally 2 weeks or more). HYDROGEN GAS IS EXTREMELY FLAMMABLE. It is highly recommended to open the hot water faucet in the kitchen for several minutes before you use any electrical appliances connected to the hot water system, such as a dishwasher or washing machine. If hydrogen gas is present, there will be an unusual sound, such as air escaping through the pipe, as the hot water faucet is opened. DO NOT smoke or introduce an open flame near the faucet when it is opened.

### G. Draining the Water Heater

To completely drain the water heater:

1. Shut off power to the water heater.
2. Close the cold water supply manual shut-off valve.
3. Connect one end of a garden hose to the water heater drain valve and put the other next to a free flowing drain.
4. Open the drain valve by inserting a flathead screwdriver into the slot on the head of the drain valve and turning the knob counterclockwise.
5. Open a hot water faucet to allow air into the system.

### H. Vacation

If you are planning a vacation or other prolonged absence, it is highly recommended to shut off the power and the cold water supply to the water heater. This will save energy, protect against property damage in the event the water heater leaks, and prevent the build-up of hydrogen gas. The water heater and piping should be drained if exposed to freezing temperatures.

Remember to check the water heater thoroughly after it has been shut off for an extended period of time before putting it back in operation. Make sure that the water heater is completely full of water and that the cold water supply manual shut-off valve is open before restoring power.

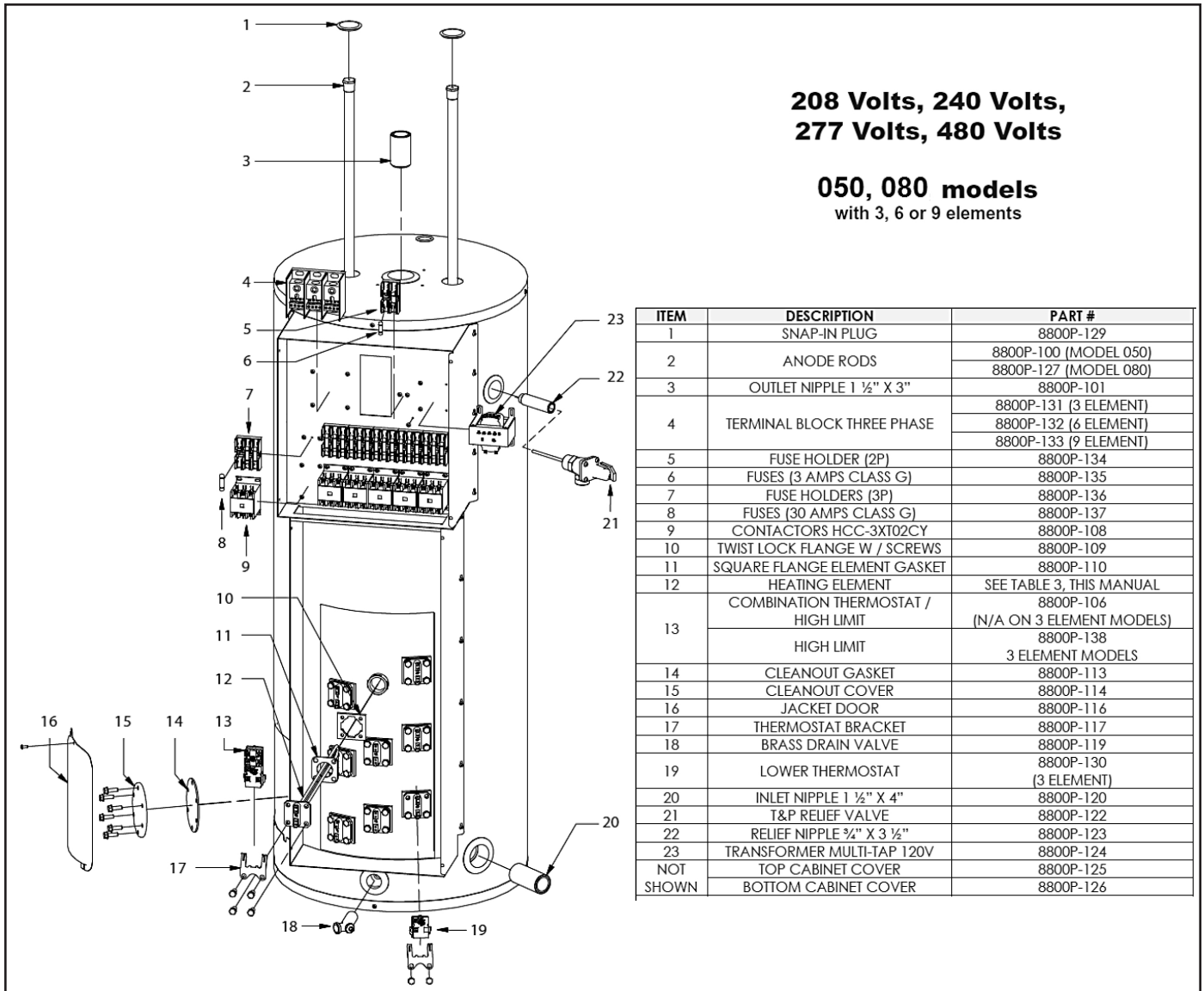
### I. Getting Service for the Water Heater

If you are having problems with your water heater, follow these two easy steps:

1. Consult the Troubleshooting Guide in this manual. It will guide you to the most common problems experienced with a water heater. The solutions you find listed may provide a quick and simple solution to your problem and save time and money.
2. If the solution listed in the Troubleshooting Guide does not solve the problem, or if your particular problem does not appear in the guide, contact the installer of the water heater, or the local electric utility.

Element Input (kW)	Voltage			
	208	240	277	480
3	8800P-207	8800P-215	8800P-222	8800P-235
4	8800P-208	8800P-217	8800P-224	8800P-236
4.5	8800P-209	8800P-218	8800P-225	8800P-237
5	8800P-210	8800P-219	8800P-226	8800P-238
6	-	8800P-220	8800P-227	-

Table 7 - Single Element Replacement Part Numbers



**208 Volts, 240 Volts,  
277 Volts, 480 Volts**

**050, 080 models**  
with 3, 6 or 9 elements

ITEM	DESCRIPTION	PART #
1	SNAP-IN PLUG	8800P-129
2	ANODE RODS	8800P-100 (MODEL 050) 8800P-127 (MODEL 080)
3	OUTLET NIPPLE 1 1/2" X 3"	8800P-101
4	TERMINAL BLOCK THREE PHASE	8800P-131 (3 ELEMENT) 8800P-132 (6 ELEMENT) 8800P-133 (9 ELEMENT)
5	FUSE HOLDER (2P)	8800P-134
6	FUSES (3 AMPS CLASS G)	8800P-135
7	FUSE HOLDERS (3P)	8800P-136
8	FUSES (30 AMPS CLASS G)	8800P-137
9	CONTACTORS HCC-3XT02CY	8800P-108
10	TWIST LOCK FLANGE W / SCREWS	8800P-109
11	SQUARE FLANGE ELEMENT GASKET	8800P-110
12	HEATING ELEMENT	SEE TABLE 3, THIS MANUAL
13	COMBINATION THERMOSTAT / HIGH LIMIT	8800P-106 (N/A ON 3 ELEMENT MODELS)
	HIGH LIMIT	8800P-138 3 ELEMENT MODELS
14	CLEANOUT GASKET	8800P-113
15	CLEANOUT COVER	8800P-114
16	JACKET DOOR	8800P-116
17	THERMOSTAT BRACKET	8800P-117
18	BRASS DRAIN VALVE	8800P-119
19	LOWER THERMOSTAT	8800P-130 (3 ELEMENT)
20	INLET NIPPLE 1 1/2" X 4"	8800P-120
21	T&P RELIEF VALVE	8800P-122
22	RELIEF NIPPLE 3/4" X 3 1/2"	8800P-123
23	TRANSFORMER MULTI-TAP 120V	8800P-124
NOT SHOWN	TOP CABINET COVER	8800P-125
NOT SHOWN	BOTTOM CABINET COVER	8800P-126

Figure 24 - 208 - 480V, 050 and 080 Gallon Model Replacement Parts - Illustration Shows 080 Model with 9 Elements

ITEM	DESCRIPTION	PART #
1	SNAP-IN PLUG	8800P-129
2	ANODE RODS	8800P-100 (MODEL 119)
3	OUTLET NIPPLE 1 1/2" X 3"	8800P-101
4	TERMINAL BLOCK THREE PHASE	8800P-131 (3 ELEMENT)
		8800P-132 (6 ELEMENT)
		8800P-133 (9 ELEMENT)
5	FUSE HOLDER (2P)	8800P-134
6	FUSES (3 AMPS CLASS G)	8800P-135
7	FUSE HOLDERS (3P)	8800P-136
8	FUSES (30 AMPS CLASS G)	8800P-137
9	CONTACTORS HCC-3XT02CY	8800P-108
10	CLEANOUT COVER	8800P-114
11	CLEANOUT GASKET	8800P-113
12	JACKET DOOR	8800P-116
13	BRASS DRAIN VALVE	8800P-119
14	INLET NIPPLE 1 1/2" X 4"	8800P-120
15	LOWER THERMOSTAT	8800P-130 (N/A ON 3 ELEMENT MODELS)
16	MIDDLE THERMOSTAT	8800P-141 (9 ELEMENT MODELS ONLY)
17	THERMOSTAT BRACKET	8800P-117
18	COMBINATION THERMOSTAT / HIGH LIMIT	8800P-106 (BOTTOM ON 3 ELEMENT MODELS, TOP ON 6 AND 9 ELEMENT MODELS)
19	HEATING ELEMENT	SEE TABLE 3, THIS MANUAL
20	SQUARE FLANGE ELEMENT GASKET	8800P-110
21	TWIST LOCK FLANGE W / SCREWS	8800P-109
22	T&P RELIEF VALVE	8800P-122
23	RELIEF NIPPLE 3/4" X 3 1/2"	8800P-123
24	TRANSFORMER MULTI-TAP 120V	8800P-124
NOT SHOWN	TOP CABINET COVER	8800P-125
	BOTTOM CABINET COVER	8800P-126

**208 Volts, 240 Volts,  
277 Volts, 480 Volts**

**119 model**  
with 3, 6 or 9 elements

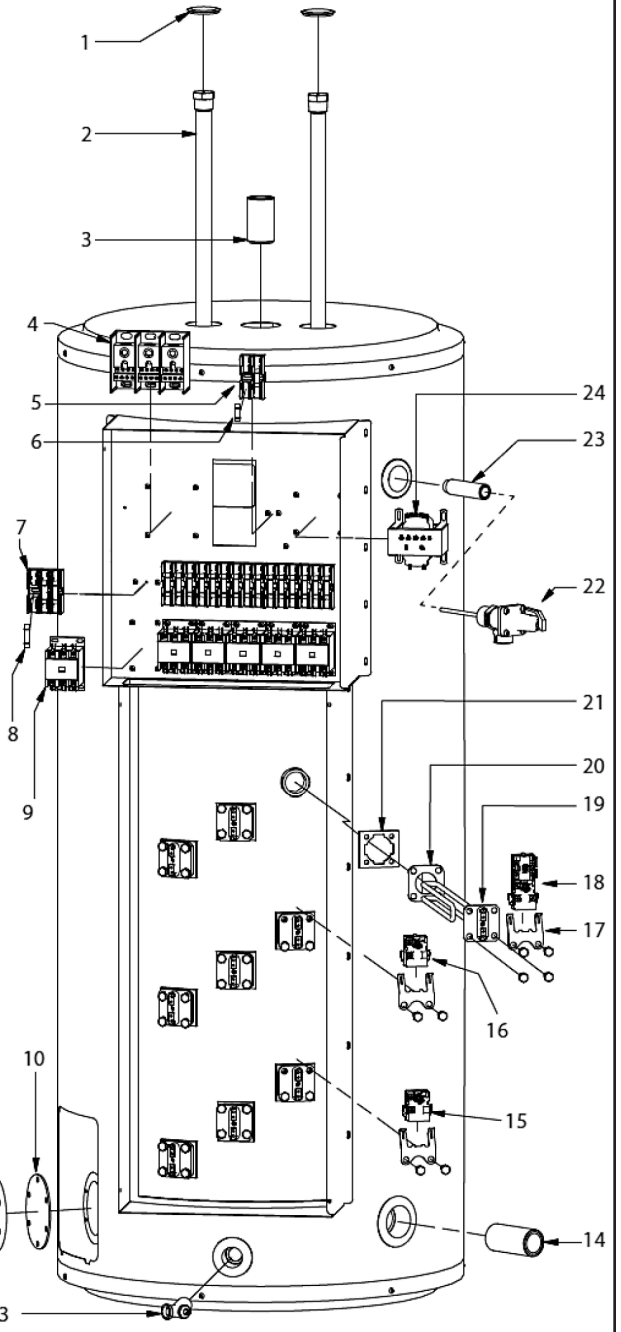


Figure 25 - 208 - 480V, 119 Gallon Model Replacement Parts - Illustration Shows 119 Model with 9 Elements

ITEM	DESCRIPTION	PART #
1	SNAP-IN PLUG	8800P-129
2	ANODE RODS	8800P-100 (MODEL 050) 8800P-127 (MODEL 080)
3	OUTLET NIPPLE 1 1/2" X 3"	8800P-101
4	FUSE HOLDER (2P)	8800P-134
5	FUSES (3 AMPS CLASS G)	8800P-135
6	TERMINAL BLOCK THREE PHASE	8800P-139
7	CONTACTORS HCC-3XT02CY	8800P-108
8	TWIST LOCK FLANGE W / SCREWS	8800P-109
9	SQUARE FLANGE ELEMENT GASKET	8800P-110
10	HEATING ELEMENT	SEE TABLE 3, THIS MANUAL
11	COMBINATION THERMOSTAT / HIGH LIMIT	8800P-106 (N/A ON 3 ELEMENT MODELS)
	HIGH LIMIT	8800P-138 3 ELEMENT MODELS
12	CLEANOUT GASKET	8800P-113
13	CLEANOUT COVER	8800P-114
14	JACKET DOOR	8800P-116
15	THERMOSTAT BRACKET	8800P-117
16	BRASS DRAIN VALVE	8800P-119
17	LOWER THERMOSTAT	8800P-130 (3 ELEMENT)
18	INLET NIPPLE 1 1/2" X 4"	8800P-120
19	T&P RELIEF VALVE	8800P-122
20	RELIEF NIPPLE 3/4" X 3 1/2"	8800P-123
21	TRANSFORMER 600/240V	8800P-140
NOT SHOWN	TOP CABINET COVER	8800P-125
NOT SHOWN	BOTTOM CABINET COVER	8800P-126

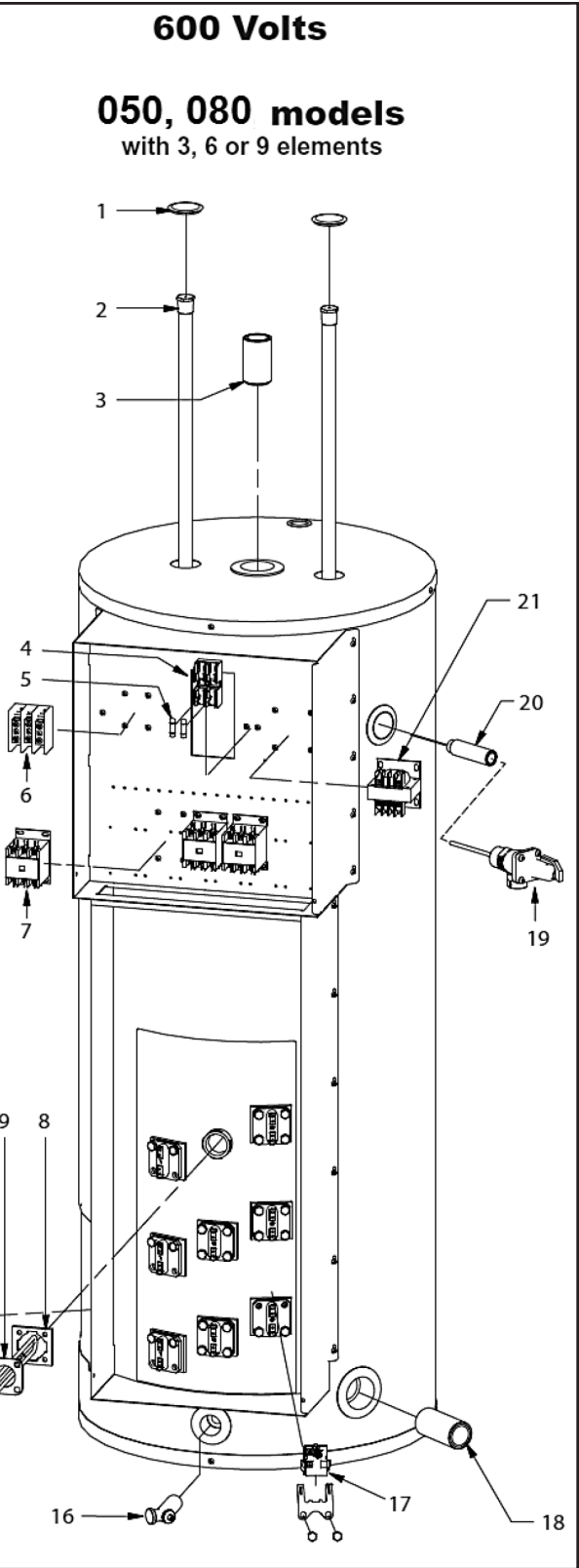


Figure 26 - 600V, 050 and 080 Gallon Model Replacement Parts - Illustration Shows 080 Model with 9 Elements



ITEM	DESCRIPTION	PART #
1	SNAP-IN PLUG	8800P-129
2	ANODE RODS	8800P-100 (MODEL 119)
3	OUTLET NIPPLE 1 1/2" X 3"	8800P-101
4	FUSE HOLDER (2P)	8800P-134
5	FUSES (3 AMPS CLASS G)	8800P-135
6	TERMINAL BLOCK THREE PHASE	8800P-139
7	CONTACTORS HCC-3XT02CY	8800P-108
8	CLEANOUT GASKET	8800P-113
9	CLEANOUT COVER	8800P-114
10	JACKET DOOR	8800P-116
11	BRASS DRAIN VALVE	8800P-119
12	INLET NIPPLE 1 1/2" X 4"	8800P-120
13	LOWER THERMOSTAT	8800P-130 (N/A ON 3 ELEMENT MODELS)
14	MIDDLE THERMOSTAT	8800P-141 (9 ELEMENT MODELS ONLY)
15	THERMOSTAT BRACKET	8800P-117
16	COMBINATION THERMOSTAT / HIGH LIMIT	8800P-106 (BOTTOM ON 3 ELEMENT MODELS, TOP ON 6 AND 9 ELEMENT MODELS)
17	HEATING ELEMENT	SEE TABLE 3, THIS MANUAL
18	SQUARE FLANGE ELEMENT GASKET	8800P-110
19	TWIST LOCK FLANGE W / SCREWS	8800P-109
20	TRANSFORMER 600/240V	8800P-140
22	T&P RELIEF VALVE	8800P-122 (ALL EXCEPT 63 kW)
23	RELIEF NIPPLE 3/4" X 3 1/2"	8800P-123 (ALL EXCEPT 63 kW)
NOT SHOWN	TOP CABINET COVER	8800P-125
	BOTTOM CABINET COVER	8800P-126

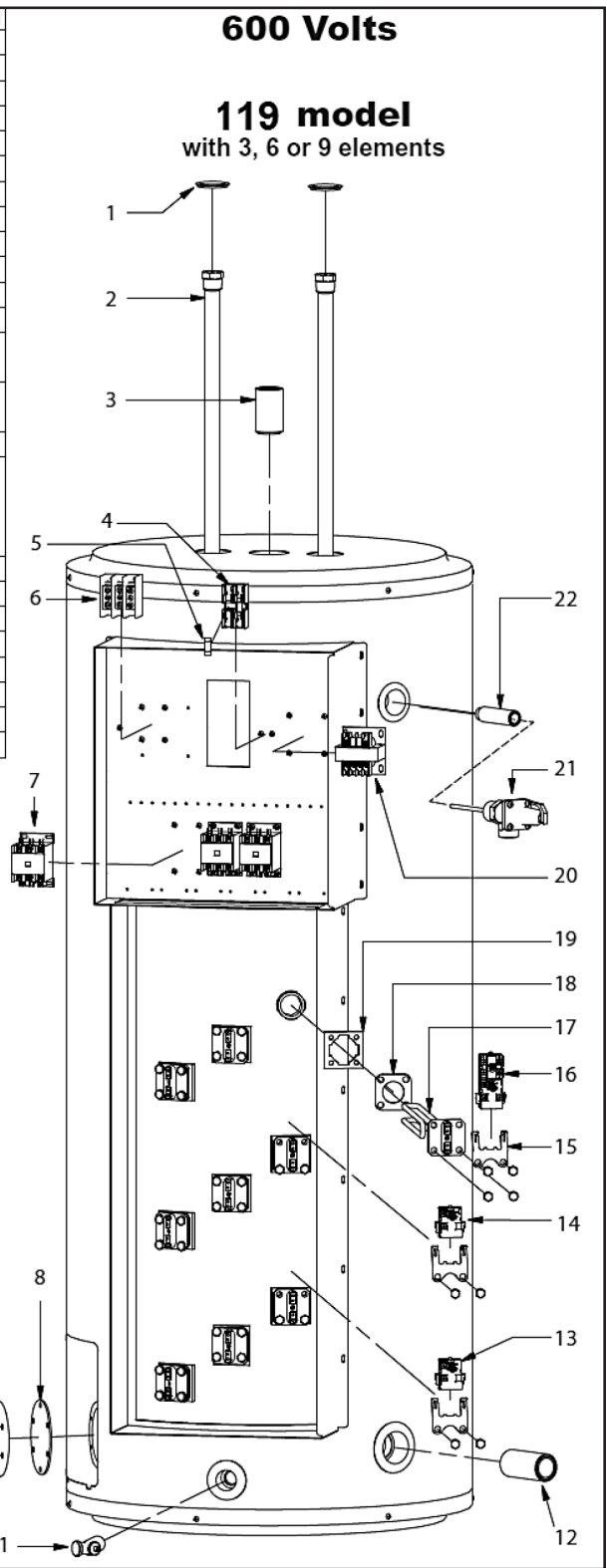


Figure 27 - 600V, 119 Gallon Model Replacement Parts - Illustration Shows 119 Model with 9 Elements

## Part 5 - Troubleshooting

Problem	Reason	Remedy
<b>No Hot Water</b>	Dry-fired element	Replace with new element
	Main power supply is "OFF"	Turn "ON" main power supply
	Burnt fuse	Replace with new fuse
	Circuit breaker has tripped	Reset circuit breaker
	High limit reset control has tripped	Reset high limit control by pushing the red button
	Circuit breaker is defective	Replace with new circuit breaker
	Defective thermostat	Replace with new thermostat
	Defective element	Replace with new element
	Contactors defective	Verify wiring and operation of contactor. Repair wiring or replace contactor.
<b>Not Enough Hot Water</b>	Heater undersized	Install water heater that meets demand or reduce rate of heater use
	High hot water demand	Increase the temperature of the thermostat
	Verify cold water supply	
	Wrong piping connections	Correct piping
	Sediment or lime accumulation at bottom of the water heater	Drain water heater. Check to see if water treatment is necessary
	Hot water plumbing system leaks	Check hot water plumbing system for leaks and repair
	Thermostat adjusted too low	Increase the temperature of the thermostat
	Defective thermostat	Replace with new thermostat
	Defective element	Replace with new element. In 90% of all cases it is the bottom element
	Long runs or exposed piping	Insulate piping
	Hot water piping on outside wall	
<b>Water Too Hot</b>	Thermostat temperature setting too high	Lower thermostat setting as required
	Thermostat not in contact with water heater	Position properly. Be sure insulation is not interfering with thermostat
	Element attacked by CO <sub>2</sub>	Inspect and replace element(s) as needed
	Defective thermostat	Inspect and replace thermostat(s) as needed
	Contactors defective	Verify wiring and operation of contactor. Repair wiring or replace contactor.
<b>Continuous Operation</b>	Water heater is undersized	Install size of water heater that meets demand
	Element wattage is too small	Replace with higher element wattage
	Thermostat not in contact with water heater	Position properly. Be sure insulation is not interfering is thermostat
	Thermostat temperature set too low	Increase the temperature of the thermostat
	Defective thermostat	Replace with new thermostat
	Defective high limit reset control	Replace with new high limit reset control
	Contactors defective	Verify wiring and operation of contactor. Repair wiring or replace contactor
<b>Element Failure</b>	Wiring connections are wrong	See Figures 10 - 19 for correct wiring
	Wiring connections are loose	Locate, clean carefully, and reconnect properly
	Lightning / Power Surge	Inspect / replace fuse, element, and thermostat
	High voltage	Replace with new thermostat
	Short circuit	Replace with new high limit reset control
<b>Thermostat Failure</b>	No power	Inspect fuse / circuit breaker. Replace / reset
	Loose wiring connection	Locate, clean carefully, reconnect properly
	Lightning / Power Surge	Inspect / replace fuse, element, and thermostat
	Low / High voltage	Check with electrical utility and correct
	Short circuit	Locate short circuit and repair

Problem	Reason	Remedy
<b>Blown Fuse / Circuit Breaker</b>	Wiring connections are wrong	See Figures 10 - 19 for correct wiring
	Wiring connections are loose	Locate, clean carefully, reconnect properly
	Lightning / Power Surge	Inspect / replace fuse, element, and thermostat
	High voltage	Check with electrical utility and correct
	Short circuit	Locate short circuit and repair
	Power supply wiring undersized	Consult local building codes for appropriate wiring size
<b>Fuse Burns Instantly</b>	Short circuit	Locate short circuit and repair
<b>Fuse Burns Often</b>	Fuse contacts oxidized or fuse not screwed in tight enough	Clean contacts and tighten fuse
	Power supply wiring is undersized	Consult local building codes for appropriate wiring size
<b>Smoking Wiring</b>	Lightning / Power Surge	Inspect / replace fuse, element, and thermostat
	Low / High Voltage	Check with electrical utility and correct
	Power supply wiring undersized	Consult local building codes for appropriate wiring size
<b>Service Wires Charred or Hot</b>	Wiring connections are wrong	See Figures 10 - 19 for correct wiring
	Water heater not properly grounded	Properly ground the water heater
	Lightning / Power Surge	Inspect / replace fuse, element, and thermostat
	High voltage	Check with electrical utility and correct
	Short circuit	Locate short circuit and repair
	Power supply wiring undersized	Consult local building codes for appropriate wiring size
<b>Drain Valve Leaks</b>	Drain valve is open	Close the drain valve
	Defective drain valve	Replace with new drain valve
<b>T&amp;P Valve Discharges</b>	Excessive water pressure	Install a pressure reducing valve
	Thermal expansion in a closed water system	Install a suitable expansion tank on the cold water supply line
	Improperly seated relief valve	Ensure relief valve works properly. Replace if necessary
	Defective thermostat	Replace thermostat
	Damaged / defective relief valve	Replace relief valve <b>NOTE: DO NOT plug T&amp;P valve under any circumstances</b>
<b>Water on the Floor / Drain Pan</b>	Water discharge from the relief valve	See Pressure Build-Up in a Water System
	Element leaks	Replace with new element
	Water heater leaks	Replace with new water heater
<b>Condensation</b>	Water heater filled for the first time	Let the water heater warm up. If problem persists, check all plumbing connections for leaks
	Heavy draws of hot water with very cold refill water	
	Water heater is undersized	Decrease demand, or install larger water heater to better meet demand
<b>Wet Insulation</b>	Leaking plumbing connections	Locate leak and repair
	Leaking around heating element	Tighten, clean, and smooth face of tank flange and element gasket
	Water discharge from the relief valve	See Pressure Build-Up in a Water System
<b>Singing Element</b>	Build-up of mineral deposits on element	Clean element. Replace with new element if necessary
<b>Singing Thermostat</b>	Thermostat not flush with tank	Install thermostat properly
	Wiring connections are loose	Locate, clean carefully, reconnect properly
<b>Rusty Water</b>	Anode rods have been consumed	Replace with new anode rods
	Water corrosion	Replace with new water heater
<b>Rotten Egg Smell</b>	High sulfate or mineral content in water supply	Drain and flush water heater. Refill. If this does not work, change magnesium anode rods to aluminum anode rods and bleach water heater.
<b>Tank Bulged</b>	No relief valve installed / relief valve defective	Install / replace relief valve
	Excessive water pressure	Install a pressure reducing valve
	Thermal expansion in a closed water system	Install a suitable expansion tank on the cold water supply line

Table 8 - Troubleshooting - \*See Scald / Electric Shock Warnings and Caution Statements, this Manual.

## Limited Warranty

### Commercial Glass-Lined Direct-Fired Gas / Electric Water Heaters

HTP warrants each commercial water heater and its parts to be free from defects in materials and workmanship according to the following terms, conditions, and time periods. The replacement water heater will be warranted for the unexpired portion of the applicable warranty period of the original water heater. The number of replacement water heaters is limited to one (1) per original unit purchased. Replacement parts will be warranted for 90 days. **UNLESS OTHERWISE NOTED THESE WARRANTIES COMMENCE ON THE DATE OF INSTALLATION.** This limited warranty is only available to the original owner of this water heater, and is non-transferable.

#### Extended Limited Warranty (1 year – Parts, 5 years – Tank)

Extended Limited Warranty coverage shall apply to commercial water heaters registered with HTP, Inc. online at [htproducts.com](http://htproducts.com) within 90 days of the installation date. See information provided on the following page of this document for registration details.

#### Standard Limited Warranty (1 year – Parts, 3 years – Tank)

Standard Limited Warranty coverage shall apply to commercial water heaters NOT registered with HTP, Inc. within 90 days of the installation date.

### COVERAGE

A. Should a defect or malfunction result in a leakage of water within the above-stated warranty periods due to defective material or workmanship, malfunction, or failure to comply with the above warranty, HTP will replace the defective or malfunctioning water heater with a replacement of the nearest comparable model available at the time of replacement.

B. If HTP is unable to repair or replace the water heater so as to conform to this warranty after a reasonable number of attempts, HTP will then provide, at its option, a replacement unit. These remedies are the purchaser's exclusive remedies for breach of warranty.

C. If government regulations, industry certification, or similar standards require the replacement water heater or part(s) to have features not found in the defective water heater or part(s), the owner will be charged the difference in price represented by those required features. If the owner pays the price difference for those required features and/or to upgrade the size and/or other features available on a new replacement water heater or part(s), the owner will also receive a complete new limited warranty for that replacement water heater or part(s).

D. If at the time of a request for service the owner cannot provide a copy of the original sales receipt or the warranty registration, the warranty period for the water heater shall then be deemed to have commenced thirty (30) days after the date of manufacture of the water heater and NOT the date of installation of the water heater, and be covered by the unexpired portion of the Standard Limited Warranty detailed above.

E. This warranty extends only to commercial water heaters utilized in heating applications that have been properly installed by qualified professionals based upon the manufacturer's installation instructions.

### OWNER RESPONSIBILITIES

To avoid the exclusion list in this warranty, the owner or installer must:

1. Maintain the water heater in accordance with the maintenance procedure listed in the manufacturer's provided instructions. Preventive maintenance can help avoid any unnecessary breakdown of your water heater and keep it running at optimum efficiency.
2. Maintain all related heating components in good operating condition.

3. Use the water heater in an open system with a properly sized and installed thermal expansion tank.

4. Use the water heater at water pressures not exceeding the working pressure shown on the rating plate.

### WARRANTY EXCLUSIONS

This limited warranty will not cover:

1. Any water heater purchased from an unauthorized dealer or online retailer.
2. Any water heater not installed by a qualified heating installer/service technician, or installations that do not conform to ANSI, CSA, and/or ETL standards, as well as any applicable national or local building codes.
3. Service trips to teach you how to install, use, maintain, or to bring the water heater installation into compliance with local building codes and regulations.
4. Failure to locate the water heater in an area where leakage of the tank or water line connections and the combination temperature and relief valve will not result in damage to the area adjacent to the water heater or lower floors of the structure.
5. Any failed components of the heat system not manufactured by HTP as part of the water heater.
6. Water heaters repaired or altered without the prior written approval of HTP.
7. Damages, malfunctions, or failures resulting from failure to install the water heater in accordance with applicable building codes/ordinances or good plumbing and electrical trade practices.
8. Damages, malfunctions, or failures resulting from improper installation, failure to operate the water heater at pressures not exceeding the working pressure shown on the rating plate, or failure to operate and maintain the water heater in accordance with the manufacturer's provided instructions.
9. Failure to operate the water heater in an open system with a properly sized and installed thermal expansion tank.
10. Failure or performance problems caused by improper sizing of the water heater, expansion device, piping, or the gas supply line, the venting connection, combustion air openings, electric service voltage, wiring or fusing.
11. Damages, malfunctions, or failures caused by improper conversion from natural gas to LP gas or LP gas to natural gas.
12. Damages, malfunctions, or failures caused by operating the water heater with modified, altered, or unapproved parts.
13. Damages, malfunctions, or failures caused by abuse, accident, fire, flood, freeze, lightning, acts of God and the like.
14. Tank failures (leaks) caused by operating the water heater in a corrosive or contaminated atmosphere.
15. Damages, malfunctions, or failures caused by operating the water heater with an empty or partially empty tank ("dry firing"), or failures caused by operating the water heater when it is not supplied with potable water, free to circulate at all times.
16. Failure of the heater due to the accumulation of solid materials and lime deposits.
17. Any damage or failure resulting from improper water chemistry. **WATER CHEMISTRY REQUIREMENTS** – Sodium less than 20mGL. Water pH between 6.0 and 8.0. Hardness less than 7 grains. Chlorine concentration less than 100 ppm.
18. Damages, malfunctions, or failures caused by the removal of the anodes and/or by not assuring that there are working anodes in the tank at all times. All anodes must be checked at least once every two years and replaced as necessary.
19. Components of the water heater that are not defective, but must be replaced during the warranty period as a result of reasonable wear and tear.
20. Damages, malfunctions, or failures caused by subjecting the tank to pressures or firing rates greater than those shown on the rating label.

21. Damages, malfunctions, or failures resulting from the use of any attachment(s) not supplied by HTP.
22. Water heaters installed outside the fifty states (and the District of Columbia) of the United States of America and Canada.
23. Water heaters moved from the original installation location.
24. Water heaters that have had their rating labels removed.

#### ONLINE EXTENDED LIMITED WARRANTY REGISTRATION

To register for the extended limited warranty, complete the form located on the HTP website at <http://www.htproducts.com/warranty> within 90 days of installation. The form must be completed in full with owner name, email address, and phone number, the address where the unit is installed and installation date, and unit model and serial numbers. Proof of purchase is required, and may be an invoice for the product, or a bill from an installing contractor that clearly documents the installation of the unit. To be valid, proof of purchase must also include the unit serial number. Proof of purchase may be typed or hand written. Submit the proof of purchase to HTP, Inc. via the directions provided on the website.

#### PROCEDURES FOR WARRANTY SERVICE REQUESTS

Any claim for warranty assistance must be made promptly. Determine if the water heater is "in-warranty" (that is, within the applicable warranty period) by reviewing a copy of the original sales receipt or warranty registration. The owner must present a copy of the original sales receipt or warranty registration for a warranty service request.

If the water heater is "in-warranty", contact the distributor from whom the water heater was purchased (or the installer) for assistance. Be prepared to provide the retailer or installer with a copy of the original receipt, complete model and serial numbers, and the date of installation of the water heater, in addition to explanation of the water heater problem.

Warranty coverage is subject to validation of "in-warranty" coverage by HTP claims department personnel. All alleged defective or malfunctioning parts must be returned to HTP via the local distribution channels where original purchase was made. NOTE: Any parts or heaters returned to HTP for warranty analysis will become the property of HTP and will not be returned, even if credit is denied. If all warranty conditions are satisfied, HTP will provide replacement parts to the retailer.

For questions about the coverage of this warranty, please contact HTP at the address or phone number stated below:

HTP  
272 Duchaine Blvd.  
New Bedford, MA  
02745  
Warranty Service Department  
1(800) 323-9651

#### SERVICE, LABOR AND SHIPPING COSTS

This limited warranty does not extend to any shipping charges, delivery expenses, or administrative fees incurred by the owner in repairing or replacing the water heater or part(s). This warranty does not extend to labor costs beyond the coverage specified in this warranty document. All such expenses are the owner's responsibility.

**LIMITATIONS OF YOUR HTP WARRANTY AND REMEDIES**  
THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OBLIGATION, LIABILITY, RIGHT, CLAIM OR REMEDY IN

CONTRACT OR TORT, WHETHER OR NOT ARISING FROM HTP'S NEGLIGENCE, ACTUAL OR IMPUTED. THE REMEDIES OF THE PURCHASER SHALL BE LIMITED TO THOSE PROVIDED HEREIN TO THE EXCLUSION OF ANY OTHER REMEDIES INCLUDING WITHOUT LIMITATION, INCIDENTAL OR CONSEQUENTIAL DAMAGES, SAID INCIDENTAL AND CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, PROPERTY DAMAGE, LOST PROFIT OR DAMAGES ALLEGED TO HAVE BEEN CAUSED BY ANY FAILURE OF HTP TO MEET ANY OBLIGATION UNDER THIS AGREEMENT INCLUDING THE OBLIGATION TO REPAIR AND REPLACE SET FORTH ABOVE. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTIES, REMEDIES OR THIS LIMITATION WILL BE BINDING UPON HTP. UNLESS IN WRITING AND SIGNED BY A DULY AUTHORIZED OFFICER OF HTP. THE WARRANTIES STATED HEREIN ARE NOT TRANSFERABLE AND SHALL BE FOR THE BENEFIT OF THE ORIGINAL PURCHASER ONLY.

#### NO OTHER WARRANTIES

This HTP Warranty gives you specific legal rights, and you may also have other rights that vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages so this limitation or exclusion may not apply to you.

These are the only written warranties applicable to the commercial water heater manufactured and sold by HTP. HTP neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said commercial water heaters.

HTP reserves the right to change specifications or discontinue models without notice.





<b>Customer Installation Record Form</b>	
The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.	
Customer's Name	
Date of Installation	
Installation Address	
Product Name / Serial Number(s)	
Comments	
Installer's Code / Name	
Installers Phone Number	
Signed by Installer	
Signed by Customer	
Installation Notes	

**IMPORTANT**

Customer: Please only sign after the installer has fully reviewed the installation, safety, proper operation, and maintenance of the system. If the system has any problems please call the installer. If you are unable to make contact, please call your sales representative.

Distributor / Dealer: Please insert contact details.