

**To the Installer:**

Please attach these instructions next to the water heater.

**To the Consumer:**

Please read these and all component instructions and keep for future reference.

## *Installation and Operation Instructions Manual*



### **Commercial Electric Water Heater**



**Models: LCE6, LCE12, LCE20, LCE30, LCE40, LCE50**

*Warranty, Registration Card and Parts List are included.  
Owner: Please remember to return the Registration Card!*

#### **▲ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause serious injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer or service agency.

#### **▲ CAUTION**

The recommended water temperature for normal residential use is 120°F/49°F. Outlet water temperatures may exceed the thermostat setting. Measure water temperature at the tap nearest to the water heater.

#### **▲ WARNING**

Hotter water increases the risk of scald injury. Before adjusting the water temperature setting, read this instruction manual. Temperatures at which injury occurs vary with the person's age and the length of exposure.

The slower reaction time of children, elderly, and physically or mentally challenged persons increases the scalding hazard to them. It is recommended that lower water temperatures be used where these exposure hazards exist. Such households may require a temperature setting less than 120°F to prevent accidental contact with hot water.

To lower water temperature use point-of-use temperature limiting devices.

#### **▲ WARNING**

Water heater blankets are not recommended and will void the warranty.

#### **CAUTION**

This water heater is not intended for space heating applications.

THIS MANUAL HAS BEEN PREPARED  
TO ACQUAINT YOU WITH THE INSTALLATION,  
OPERATION, AND MAINTENANCE OF  
YOUR WATER HEATER AND TO PROVIDE  
IMPORTANT SAFETY INFORMATION.

#### **INSTALLER RESPONSIBILITIES**

Please read all instructions thoroughly before installing or placing the heater into service. This unit must be installed by licensed or authorized installers, or technical personnel that service water heating equipment. The heater must be installed in accordance with all local codes and ordinances.

FAILURE TO FOLLOW THESE INSTRUCTIONS  
OR ALL APPLICABLE BUILDING CODES AND  
REGULATIONS VOIDS THE WARRANTY  
ON THIS WATER HEATER.

Local plumbing and electrical codes must be followed in the installation of this water heater. In the absence of a local code use the UNIFORM PLUMBING CODE and the National Electric Code, NFPA 70, or the Canadian Electrical Code CSA C22.1. Local codes may supersede instructions in this installation manual.

These instructions are a guide for the correct installation of the water heater. The manufacturer will not be liable for damages caused by failure to comply with the installation and operating instructions outlined on the following pages.

#### **HANDLING**

Before uncrating, check for shipping damage. Report any damage to your carrier. Note damage on bill of lading or delivery receipt and file a claim.



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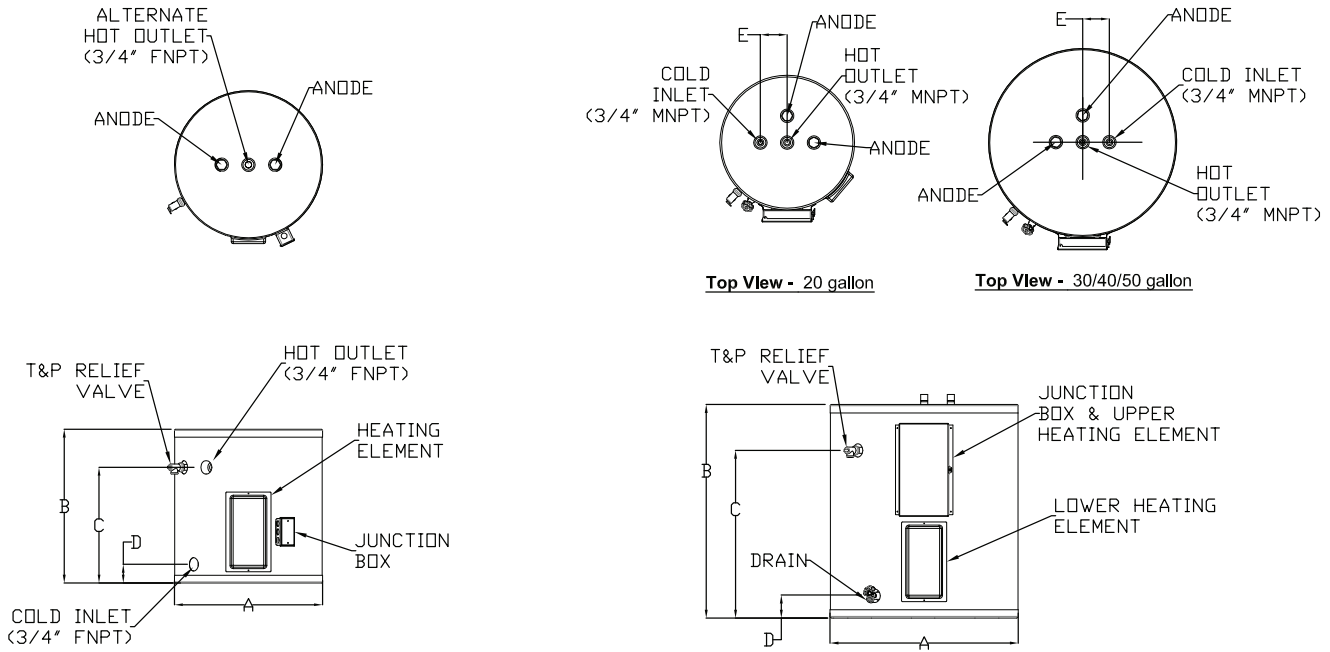
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# SECTION I: SPECIFICATIONS



**Figure 1:** Single Element 6/12/20 gallon

**Figure 2:** Dual Element 20/30/40/50 gallon

**Table 1:** Dimensions

Model	Number of Elements	Rated Storage Capacity		A		B		C		D		E	
		gallons	liters	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
LCE6-1	1	6	23	16.00	406	16.50	419	11.25	286	3.50	89	n/a	n/a
LCE12-1	1	12	45	20.00	508	16.44	418	10.75	273	2.75	70	n/a	n/a
LCE20-1	1	19	72	22.00	559	23.00	584	17.25	438	2.75	70	n/a	n/a
LCE20-2	2	19	72	20.00	508	24.68	627	18.75	476	2.75	70	4.00	102
LCE30-2	2	30	114	22.00	559	34.50	826	26.50	673	2.75	70	4.00	102
LCE40-2	2	40	151	24.00	610	36.88	886	28.75	730	2.75	70	4.00	102
LCE50-2	2	50	189	28.00	711	33.94	811	25.00	635	3.25	83	4.00	102

**Table 2:** Approved Elements

Approved Element Ratings					
Input Rating (kW)	Voltage Rating (V)				
	120	208	240	277	480
1.5	Yes	Yes	Yes	Yes	Yes
2.0	Yes	Yes	Yes	Yes	Yes
2.5	Yes <sup>1</sup>	Yes	Yes	Yes	Yes
3.0	Yes <sup>2</sup>	Yes	Yes	Yes	Yes
3.5	-	-	Yes	-	-
4.0	-	Yes	Yes	Yes	Yes
4.5	-	Yes <sup>3</sup>	Yes	Yes	Yes
5.0	-	Yes <sup>4</sup>	Yes <sup>7</sup>	Yes	Yes
5.5	-	Yes <sup>5</sup>	Yes <sup>8</sup>	-	Yes
6.0	-	Yes <sup>6</sup>	Yes <sup>9</sup>	Yes <sup>10</sup>	Yes

**Notes:**

- 120/277V available in single phase only.
- <sup>1</sup>120V/2500W available as non-simultaneous only.
- <sup>2</sup>120V/3000W available as non-simultaneous only.
- <sup>3</sup>208V/4500W simultaneous available in three phase only.
- <sup>4</sup>208V/5000W available as non-simultaneous only.
- <sup>5</sup>208V/5500W available as non-simultaneous only.
- <sup>6</sup>208V/6000W available as non-simultaneous only.
- <sup>7</sup>240V/5000W simultaneous available in three phase only.
- <sup>8</sup>240V/5500W simultaneous available in three phase only.
- <sup>9</sup>240V/6000W available as non-simultaneous only.
- <sup>10</sup>277V/6000W available as non-simultaneous only.

## SECTION I: SPECIFICATIONS (cont.)

Table 3: Recovery Capacities

Upper/Lower Element Wattage (kW)	Maximum Input (kW)	Recovery (GPH & LPH) at Temperature Rise (°F & °C)											
		°F	40	50	60	70	80	90	100	110	120	130	140
		°C	22.2	27.8	33.3	38.9	44.4	50.0	55.6	61.1	66.7	72.2	77.8
<b>Non-Simultaneous</b>													
1.5/1.5	1.5	GPH	15	12	10	9	8	7	6	5	5	5	4
		LPH	57	46	38	33	28	25	23	21	19	18	16
2.0/2.0	2.0	GPH	20	16	13	11	10	9	8	7	7	6	6
		LPH	76	61	51	43	38	34	30	28	25	23	22
2.5/2.5	2.5	GPH	25	20	17	14	13	11	10	9	8	8	7
		LPH	95	76	63	54	47	42	38	35	32	29	27
3.0/3.0	3.0	GPH	30	24	20	17	15	13	12	11	10	9	9
		LPH	114	91	76	65	57	51	46	41	38	35	33
3.5/3.5	3.5	GPH	35	28	23	20	18	16	14	13	12	11	10
		LPH	133	106	89	76	66	59	53	48	44	41	38
4.0/4.0	4.0	GPH	40	32	27	23	20	18	16	15	13	12	11
		LPH	152	122	101	87	76	68	61	55	51	47	43
4.5/4.5	4.5	GPH	45	36	30	26	23	20	18	16	15	14	13
		LPH	171	137	114	98	85	76	68	62	57	53	49
5.0/5.0	5.0	GPH	50	40	33	29	25	22	20	18	17	15	14
		LPH	190	152	127	109	95	84	76	69	63	58	54
5.5/5.5	5.5	GPH	55	44	37	32	28	25	22	20	18	17	16
		LPH	209	167	139	119	104	93	84	76	70	64	60
6.0/6.0	6.0	GPH	60	48	40	34	30	27	24	22	20	19	17
		LPH	228	182	152	130	114	101	91	83	76	70	65
<b>Simultaneous</b>													
1.5/1.5	3.0	GPH	30	24	20	17	15	13	12	11	10	9	9
		LPH	114	91	76	65	57	51	46	41	38	35	33
2.0/2.0	4.0	GPH	40	32	27	23	20	18	16	15	13	12	11
		LPH	152	122	101	87	76	68	61	55	51	47	43
2.5/2.5	5.0	GPH	50	40	33	29	25	22	20	18	17	15	14
		LPH	190	152	127	109	95	84	76	69	63	58	54
3.0/3.0	6.0	GPH	60	48	40	34	30	27	24	22	20	19	17
		LPH	228	182	152	130	114	101	91	83	76	70	65
3.5/3.5	7.0	GPH	70	56	47	40	35	31	28	26	23	22	20
		LPH	266	213	177	152	133	118	106	97	89	82	76
4.0/4.0	8.0	GPH	80	64	54	46	40	36	32	29	27	25	23
		LPH	304	243	203	174	152	135	122	111	101	94	87
4.5/4.5	9.0	GPH	90	72	60	52	45	40	36	33	30	28	26
		LPH	342	274	228	195	171	152	137	124	114	105	98
5.0/5.0	10.0	GPH	100	80	67	57	50	45	40	36	33	31	29
		LPH	380	304	253	217	190	169	152	138	127	117	109
5.5/5.5	11.0	GPH	110	88	74	63	55	49	44	40	37	34	32
		LPH	418	334	279	239	209	186	167	152	139	129	119
6.0/6.0	12.0	GPH	120	96	80	69	60	54	48	44	40	37	34
		LPH	456	365	304	260	228	203	182	166	152	140	130

## SECTION II: GENERAL INFORMATION

### OVERVIEW

This manual covers single and dual element commercial electric water heaters. Single element models are wired for connection to a single phase branch circuit, have a maximum thermostat setting of 170°F, and are UL listed to UL 174. Dual element models are wired for connection to a three phase delta branch circuit and will operate in an “unbalanced” fashion. Dual element models are factory wired for non-simultaneous operation, have a maximum thermostat setting of 180°F, and are UL listed to UL 1453.

### WATER TREATMENT & FILTRATION

In areas where poor water conditions are suspected (i.e. lime, iron, and other minerals), it is essential that the water be tested and appropriate action taken to prevent damage to the water heater and ensure the quality of the water.

### TEMPERATURE CONTROL

Single element models are equipped with an adjustable, surface-mounted thermostat (125°F - 170°F) and fixed high limit (190°F). The thermostat is factory set to 125°F.

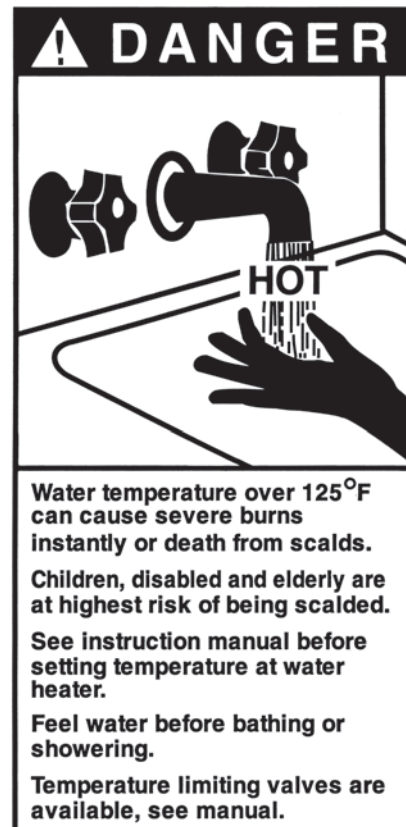
Dual element models are equipped with adjustable, surface-mounted thermostats (135°F - 180°F) and fixed high limits (200°F). Both thermostats are factory set to 135°F.

**▲ CAUTION: Hot water in excess of 120°F can cause scalding!**

Bock recommends a thermostatic mixing valve be installed and used according to the manufacturer’s directions to prevent scalding. Many state and local codes now require installation of these devices. Point of use temperature may be hotter than the setting on the water heater thermostat. The mixing valve will ensure potable water temperatures at the desired set point with a higher degree of accuracy.

**Table 4: Scald Temperature/Time Relationships**

APPROXIMATE TEMPERATURE/TIME RELATIONSHIPS TO SCALDING	
120°F	More than 5 minutes
125°F	1 ½ 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 ½ seconds
155°F	About 1 second



## SECTION II: GENERAL INFORMATION

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### **ANODE RODS**

The anode rod is used as a sacrificial element within the volume of the storage tank. The purpose of the magnesium anode rod is to protect the inside of the tank against corrosion. Anode rods should be inspected twice in the first year and at least yearly once a time interval for inspection has been developed. Water conditions will influence the consumption rate of the anode rods. Please see the Maintenance section of this manual for instructions on how to change the anode rods in your water heater.

#### **▲ CAUTION**

Hydrogen gas is produced in a hot water system served by the heater that has not been used for a long period of time (2 weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet be opened for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. When hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

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### **TEMPERATURE AND PRESSURE RELIEF VALVE (T&P)**

#### **▲ CAUTION**

To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater. Install the valve in an opening provided and marked for this purpose in the water heater, and orient it or provide tubing so that any discharge from the valve exits only within 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

The T&P valve is factory installed. A discharge drain tube must be installed (responsibility of the installer) and shall terminate plain, not threaded, 6 inches above the floor drain. The drain tube material must be approved for temperatures of 120°F or greater and a pressure of 150 PSI or greater.

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### **BACKFLOW PREVENTER (CLOSED LOOP SYSTEM)**

Some local municipal codes and ordinances require the use of these devices on potable (domestic) water lines. Where backflow preventers are required, it will be necessary to install a **thermal expansion tank** (designed for used with potable water) in order to prevent pressure build up in the water heater and associated piping, which could cause the T&P valve to discharge. Follow the expansion tank manufacturer's recommendations when selecting a tank for your hot water system.

**Note: Working pressure of the water heater is 150 PSI. Do not exceed 150 PSI.**

## SECTION III: PRE-INSTALLATION

### LOCATION

#### ⚠ CAUTION

This water heater must be located in an area where leakage of the tank, water line connections, or the temperature and pressure relief valve will not result in damage to the area adjacent to the water heater or to lower floors of the structure. When such location cannot be avoided, a suitable drain pan must be installed under the water heater. The drain pan depth must be suitable for draining and collecting water. The drain pan can be purchased from your plumbing professional. The drain pan must be piped to an adequate drain and all drain piping must be at least 0.75" in diameter and pitched for proper drainage.

#### ⚠ CAUTION

DO NOT store or use gasoline or other flammable, combustible, or corrosive vapors and/or liquids in the vicinity of the water heater or any other appliance.

#### IF YOU SMELL GAS:

- DO NOT try to light any appliance.
- DO NOT touch any electric switch; do not use any telephone in your building.
- Immediately call your gas supplier from a telephone in another building. Follow your gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

**DO NOT OPERATE THE APPLIANCE UNTIL THE LEAKAGE IS CORRECTED!**

#### ⚠ CAUTION

Do not drop water heater or lay heater down on its side. Move the water heater into position by sliding or using an appropriately sized hand truck.

The water heater must be installed indoors. Locate the water heater as close as practical to the water piping system and leave sufficient clearances for servicing the heater. This water heater may be installed on combustible flooring. DO NOT install this water heater on carpeting.

See Tables 5 and 6 for combustible and service clearances.

**Table 5:** Clearance from Combustible Materials

Top	Sides	Front	Rear
6.75"	0"	0"	0"

**Table 6:** Recommended Service Clearances

Top	Sides (non-piping)	Side (T&P Relief Valve)	Front	Rear
12"	4"	6"	24"	0"



## SECTION IV: INSTALLATION

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### WATER CONNECTIONS

**▲ CAUTION**

This water heater incorporates fittings that contain a nonmetallic lining. **DO NOT** apply heat to these fittings when making sweat connections to the heater. Sweat tubing to an adapter before securing adapter to any fittings on water heaters.

ALL PIPING SHOULD CONFORM TO LOCAL CODES AND ORDINANCES. It is highly recommended that unions and shut-off valves are installed at the potable water connections to allow for isolation and/or movement during service. In addition, all piping should be adequately insulated with an approved material to minimize heat loss.

**▲ CAUTION**

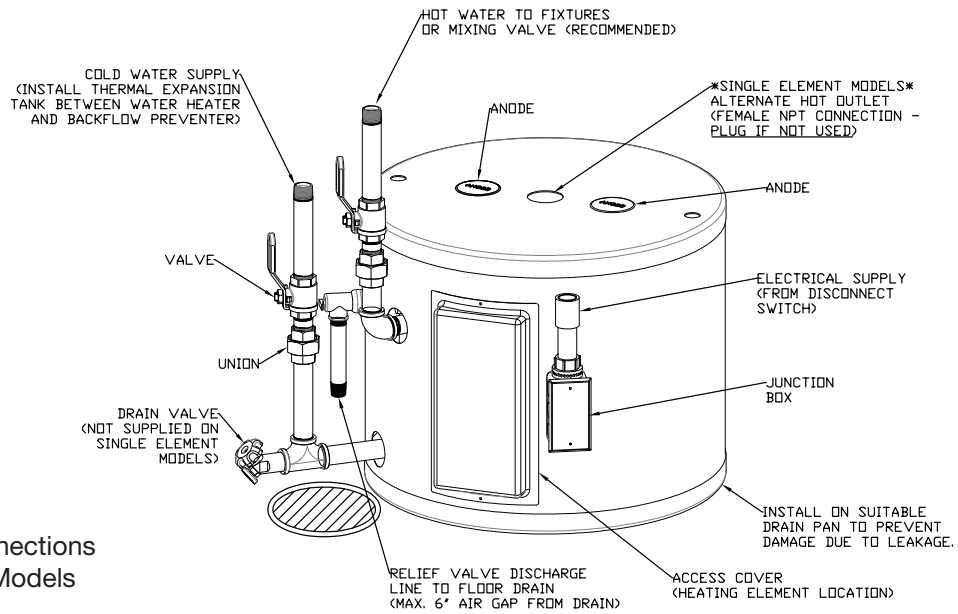
**THE WATER HEATER MUST BE FILLED WITH WATER BEFORE CONNECTING ELECTRIC POWER.**

- 1) Close the main water supply valve before continuing with the installation. After the main water supply is shut-off, relieve the water line pressure by opening a faucet. Once the pressure has been relieved, close the faucet. The “Cold” and “Hot” potable water connections are labeled on the water heater.
- 2) Install a union and shut-off valve on both the cold and hot water sides of the water heater.
- 3) If a backflow preventer is required in the cold water supply, a properly sized expansion tank must be installed to control thermal expansion. Do not operate the water heater in a closed system without installing a thermal expansion tank. Follow the expansion tank manufacturer’s recommendations when selecting a tank for your system.
- 4) Following installation of the water lines, open the main water supply valve and fill the water heater. Open several hot water faucets to relieve air from the system. After water is flowing through the faucets and the system is void of air, close the faucets and check for water leaks in the system.

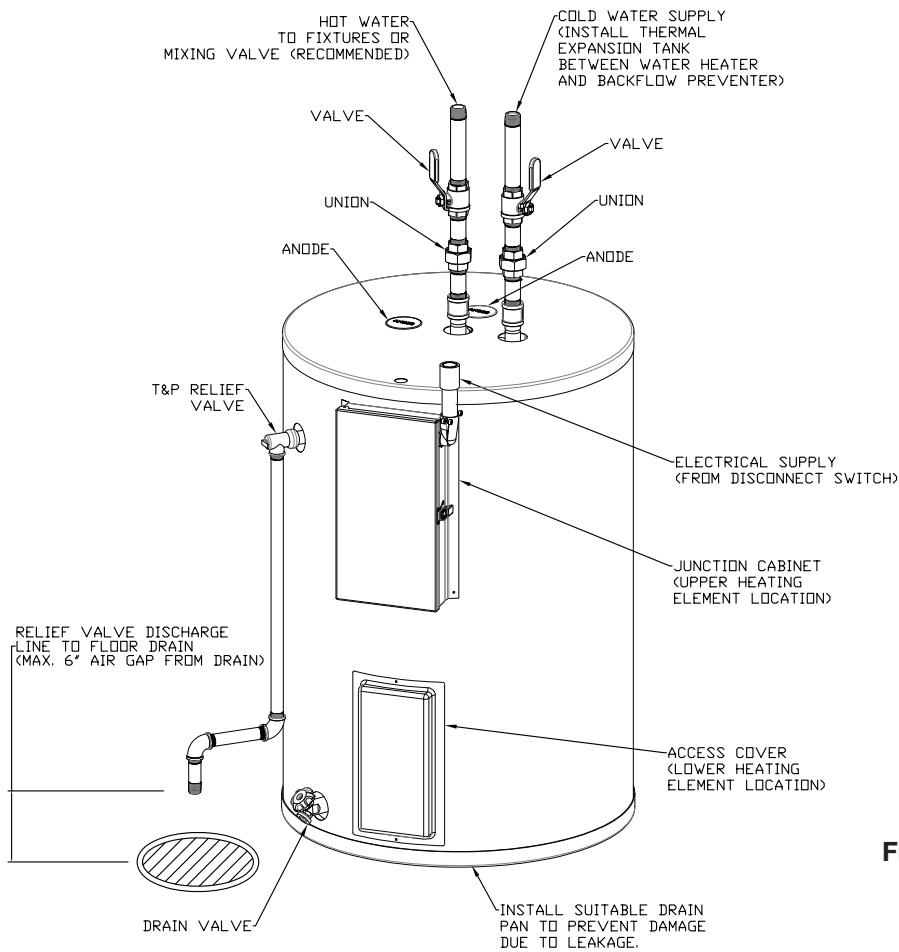
# SECTION IV: INSTALLATION (cont.)

## PIPING DIAGRAMS

Piping connections for single and dual element models are shown in Figures 3 and 4.



**Figure 3:** Piping Connections on Single Element Models



**Figure 4:** Piping Connections on Dual Element Models

## SECTION IV: INSTALLATION (cont.)

### ELECTRICAL CONNECTIONS

**⚠ DANGER**

Confirm that all electrical connections are unpowered before installing or servicing electrical components/connections within the water heater.

**⚠ WARNING**

The water heater must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electric Code, NFPA 70, or the Canadian Electrical Code, CSA C22.1.

Failure to properly wire electrical connections may result in serious physical harm.

#### **THE WATER HEATER MUST BE FILLED WITH WATER BEFORE CONNECTING ELECTRIC POWER.**

All electrical connections on the water heater must be made with copper conductors only. A separate branch circuit with copper conductors, overcurrent protection, and means for disconnection must be provided by qualified service personnel. The total wattage load and voltage requirements for the water heater are specified on the rating label located on the front of the heater.

The thermostats and resistive elements are pre-wired at the factory. Single element models are supplied with a junction box that contains wiring for single phase power. The junction box accommodates a 3/4" trade size electrical conduit connector.

Dual element models are factory wired to a terminal block located inside the junction cabinet. These models are factory wired for three phase power. A 3/4" trade size electrical conduit connector opening is located on the upper right side of the cabinet.

See Figure 5 for factory wiring diagrams. Conversion of elements or alternative wiring for conversion of phase and/or element operation must be done with the appropriate factory supplied conversion kit. Contact Bock Water Heaters for ordering information.

#### **GROUNDING INSTRUCTIONS**

Single element models have a green screw (ground) located in the junction box for proper connection to ground from the branch circuit. Dual element models are equipped with a grounding connection at the terminal block (green/yellow terminal).

#### **BRANCH CIRCUIT SIZING AND WIRE SIZE**

Table 7 provides recommendations for minimum branch circuit sizing and wire size based on the National Electric Code (NFPA 70).

## SECTION IV: INSTALLATION (cont.)

**Table 7:** National Electric Code - Branch Circuit Sizing

Total Water Heater Input (W)	Phase	Recommended Overcurrent Protection (fuse or circuit breaker amperage rating)					Copper Wire Size (AWG) per NFPA 70 Table 310.15(B)(16)* at 75°C				
		Voltage (V)					Voltage (V)				
		120	208	240	277	480	120	208	240	277	480
1,500	1	20	15	15	15	15	12	14	14	14	14
	3	---	15	15	---	15	---	14	14	---	14
2,000	1	25	15	15	15	15	10	14	14	14	14
	3	---	15	15	---	15	---	14	14	---	14
2,500	1	30	20	15	15	15	10	12	14	14	14
	3	---	15	15	---	15	---	14	14	---	14
3,000	1	35	20	20	15	15	8	12	12	14	14
	3	---	20	20	---	15	---	12	12	---	14
3,500	1	---	---	20	---	---	---	---	12	---	---
	3	---	---	20	---	---	---	---	12	---	---
4,000	1	---	25	25	20	15	---	10	10	12	14
	3	---	25	25	---	15	---	10	10	---	14
4,500	1	---	30	25	25	15	---	10	10	10	14
	3	---	30	25	---	15	---	10	10	---	14
5,000	1	---	35	30	---	15	---	8	10	---	14
	3	---	30	30	---	15	---	10	10	---	14
5,500	1	---	35	30	25	15	---	8	10	10	14
	3	---	35	30	---	15	---	8	10	---	14
6,000	1	---	40	35	30	20	---	8	8	10	12
	3	---	40	35	---	20	---	8	8	---	12
7,000	1	---	---	40	---	---	---	---	8	---	---
	3	---	---	35	---	---	---	---	8	---	---
8,000	1	---	50	45	40	25	---	8	8	8	10
	3	---	45	40	---	20	---	8	8	---	12
9,000	1	---	---	50	45	25	---	---	8	8	10
	3	---	50	45	---	25	---	8	8	---	10
10,000	1	---	---	---	50	30	---	---	---	8	10
	3	---	---	50	---	25	---	---	8	---	10
11,000	1	---	---	---	---	30	---	---	---	---	10
	3	---	---	50	---	25	---	---	8	---	10
12,000	1	---	---	---	---	35	---	---	---	---	8
	3	---	---	---	---	30	---	---	---	---	10

Note: For ambient temperatures other than 30 °C (86°F), see correction factors in National Electric Code.

\*Formerly Table 310.16

# SECTION IV: INSTALLATION (cont.)

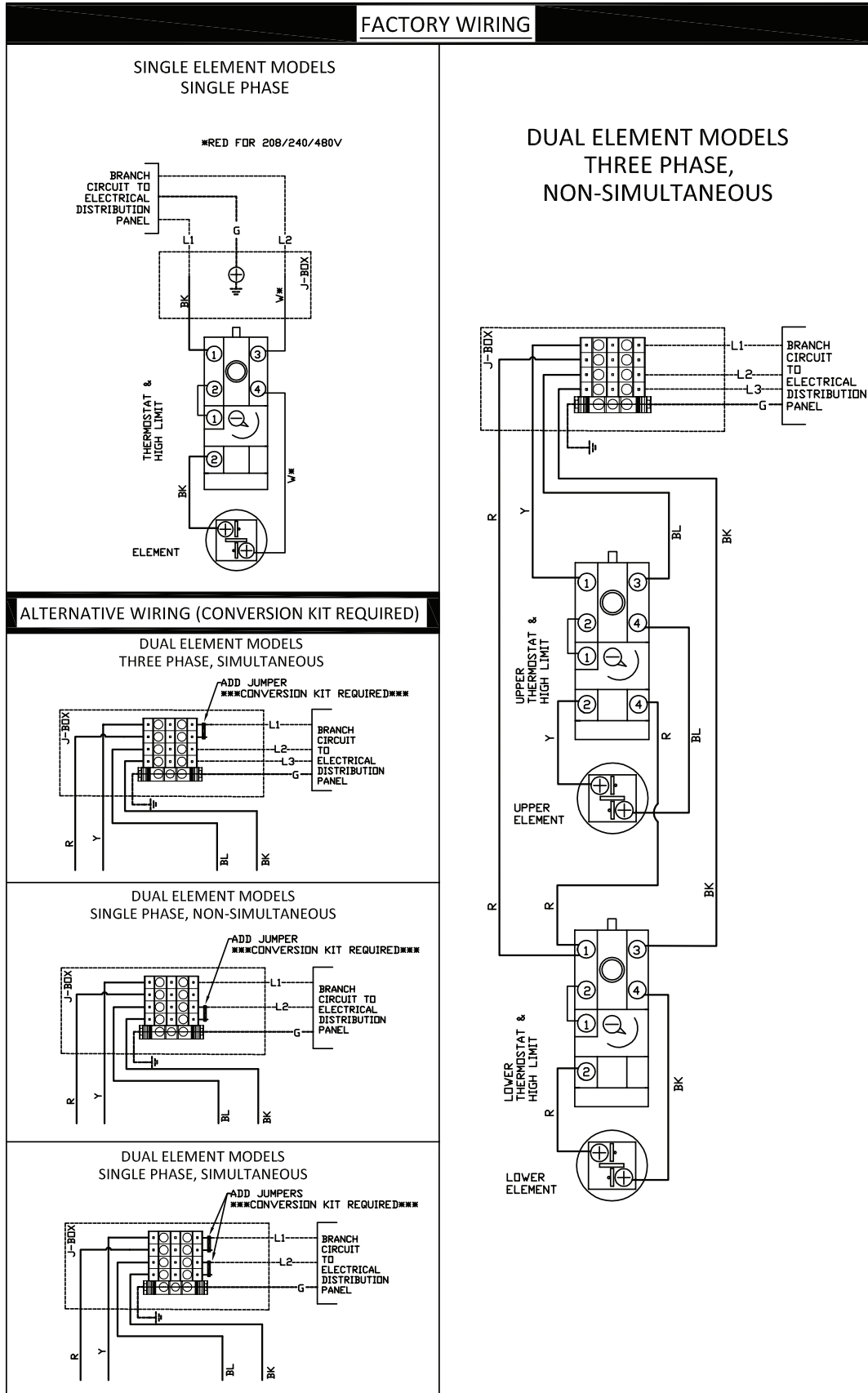


Figure 5: Wiring Diagrams

## SECTION V: OPERATION

### CAUTION

THE WATER HEATER MUST BE FILLED WITH WATER BEFORE CONNECTING ELECTRIC POWER.

When the branch circuit disconnect switch is closed and electric power is applied to the water heater, the operation of the water heater will be automatic. Thermostats on single element and dual element models are factory set to 125°F and 135°F, respectively.

### **THERMOSTAT TEMPERATURE ADJUSTMENT**

### CAUTION

Turn off all power to the water heater before unlatching the junction cabinet or removing an access cover.

If thermostat adjustment is necessary, disconnect all power to the water heater. Open the junction cabinet or remove the access cover to gain access to the foam dam. Remove the insert in the foam dam to expose the thermostat and heating element. Do not remove the plastic protective cover. The temperature knob can be adjusted with a screwdriver. Thermostats on single element models have temperature markings around the adjustment knob. Dual element models incorporate thermostats that are marked “lo”, “med”, and “hi.” See Table 8 for the relationship between markings and temperatures.

**Table 8:** Thermostat Settings (Dual Element Models)

Marking	Temperature °F (°C)
• (min)	135 (57)
LO	140 (60)
MED	160 (71)
HI	180 (82)

### CAUTION

Hot water in excess of 120°F can cause scalding! The temperature at which injury occurs varies with the person’s age and the time of exposure. The slower response time of disabled persons increases the hazards to them. NEVER allow small children to use a hot water tap. NEVER leave a child or disabled person unattended in a bathtub or shower.

Replace the foam dam insert and access cover after adjusting the thermostat. On dual element models, make sure the junction cabinet latch is closed. Reapply power to the water heater and continue normal operation.

## **SECTION VI: MAINTENANCE**

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### ***WATER PIPING***

On an annual basis, all piping should be checked for leakage at joints, shut-off valves, and unions.

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### ***T&P RELIEF VALVE***

On an annual basis, the temperature and pressure relief valve should be checked for proper operation. First, attach a drain line to the valve to direct the water discharge to an open drain. This is very important because the temperature of the discharge could be very hot. Second, lift the lever at the end of the valve several times. The valve should operate freely and return to its original position properly. If water does not flow out of the valve, remove and inspect for corrosion or obstructions. Replace with a new valve if necessary. Do not repair the faulty valve as this may cause improper operation.

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### ***ANODE RODS***

Anode rods should be inspected twice in the first year and at least yearly once a time interval for inspection has been developed. It is recommended to check the rod(s) six months after the heater is installed. If the anode rod had reduced in size by two-thirds of its original diameter of 3/4" or shows signs of pitting, it is time for replacement. Take the following steps when changing the anode rod(s):

1. Shut off water supply.
  2. Open any faucet to relieve tank pressure.
  3. Run a hose from the drain valve to the nearest floor drain. Open the drain valve and empty the hot water distribution piping above the water heater.
  4. Remove caps on water heater top; push insulation aside.
  5. Use a 1 1/16" six-sided socket wrench and a breaker bar. Snap hard to break the anode rod seal.
  6. Remove rod(s) and replace with new rod(s).
  7. Turn water supply back on and leave faucet open until air is out of line.
  8. Turn faucet off and check that new rod(s) doesn't leak.
  9. Snap caps back into place.
- 

### ***FLUSH THE TANK***

Elements in the water such as lime, iron and other minerals may accumulate in the heater. It is recommended that the tank be drained and flushed thoroughly once a year to prevent buildup in the tank.

## SECTION VII: TROUBLESHOOTING

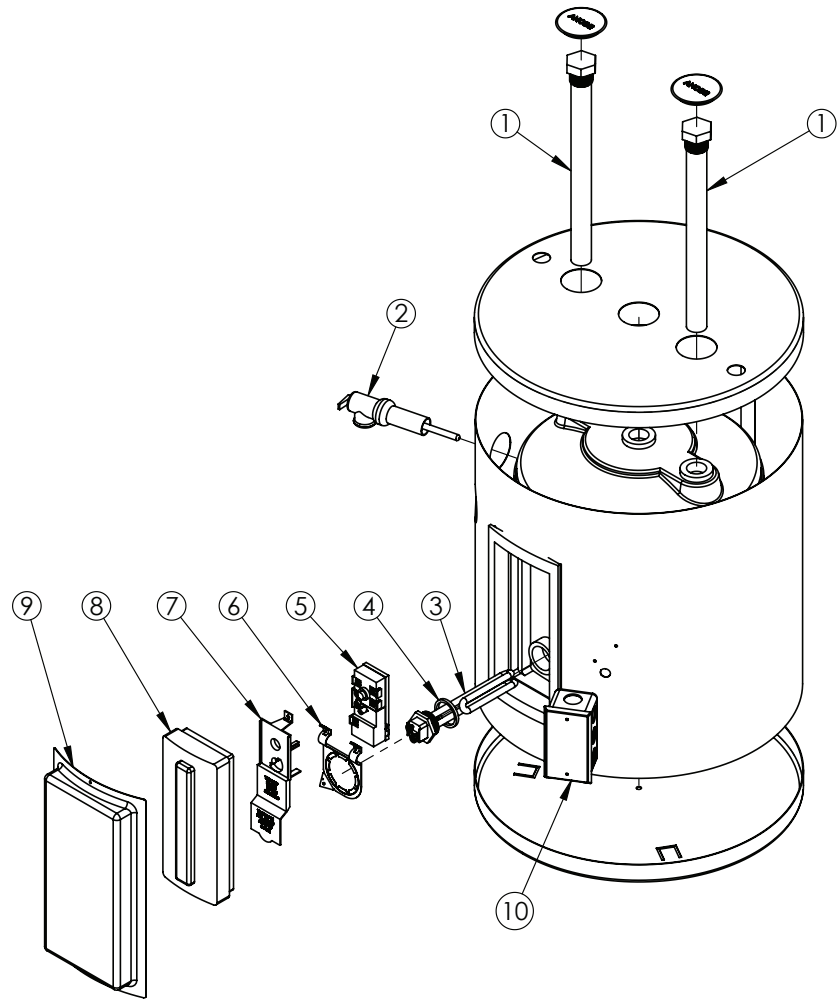
PROBLEM	CAUSE	SOLUTION
No hot water at faucet	High limit tripped	Determine cause of High limit trip (faulty temperature regulation at thermostat?). Replace combination thermostat & high limit if necessary or reset high limit (depress red button).
	Improper thermostat setting	Turn thermostat to safe temperature setting
	Electrical problem (relay, wiring, etc.)	Check fuse and replace
		Check circuit breaker and reset (if applicable)
	Check power supply	
Water at faucet too hot	Thermostat set too high	Lower thermostat setting to safe level
	Thermostatic mixing valve not properly adjusted	Check valve manufacturer's instructions
Insufficient hot water	Thermostat set too low	Raise thermostat setting to safe level. See Section V
	Peak use of hot water is greater than tank storage capacity	Determine peak usage, compare to tank capacity, and add additional storage (storage tank) if necessary
	Faulty thermostat	Replace thermostat
Scale, hard white particles from faucets, popping sound from tank	Lime, water hardness above 7 grains-120ppm	Remove and clean the heating elements. Add a water treatment system (water softener, etc.)
Rust staining; bad taste and odor in water	Iron/minerals in water supply	Filtration
Rotten egg odor	Hydrogen Sulfide	Flush tank with chlorine solution and install aluminum anode rod(s)
Air from hot water fixture	Electrolysis or air introduced by water supply	Properly ground heater & replace anode rod(s). Check well pump system.
Reduction in recovery	Dip tube broken or scale build up on heating elements.	Replace dip tube or clean/replace heating elements.
Inlet/Outlet fitting corrosion	Galvanic corrosion of dissimilar metals	Install dielectric unions
T&P Valve dripping water	Excessive water pressure (above 150 psi)	Check incoming water supply pressure; closed loop system requires expansion tank
T&P gushing water	Excessive water temp. (above 210°F)	Adjust or replace thermostat and T&P valve

### CAUTION

If the plastic thermostat cover is removed to service the thermostat or heating element, the cover must be repositioned in the proper location upon completion of work.



# SECTION VIII: PARTS LIST

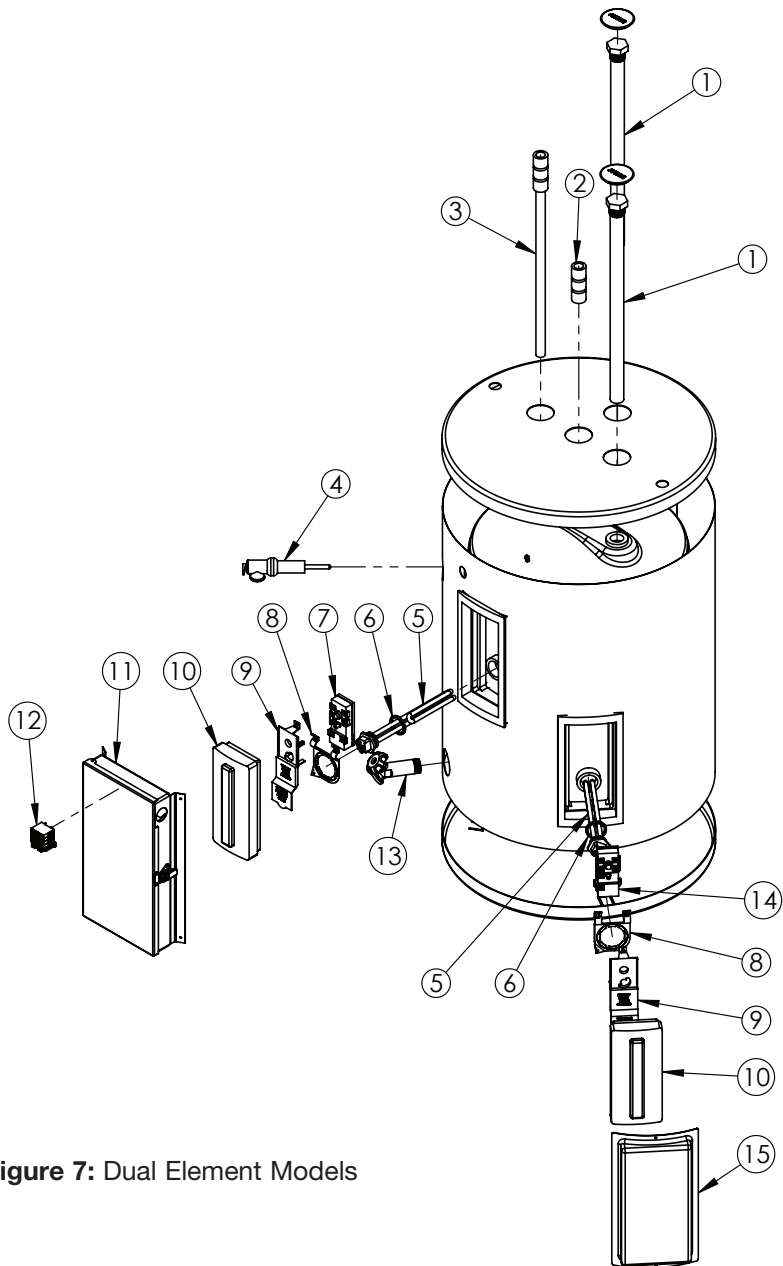


**Figure 6: Single Element Models**

**Table 9: Parts List - Single Element Models**

Part Description	
1	Anode Rod
2	T&P Relief Valve
3	Heating Element
4	Heating Element Gasket
5	Thermostat
6	Thermostat Mounting Bracket
7	Thermostat Cover
8	Foam Dam Cover
9	Access Cover
10	Junction Box

## SECTION VIII: PARTS LIST (cont.)



**Figure 7:** Dual Element Models

**Table 10:** Parts List - Dual Element Models

Part Description	
1	Anode Rod
2	Pipe Nipple
3	Dip Tube
4	T&P Relief Valve
5	Heating Element
6	Heating Element Gasket
7	Upper Thermostat
8	Thermostat Bracket
9	Thermostat Cover
10	Foam Dam Cover
11	Junction Cabinet
12	Terminal Block
13	Drain Valve
14	Lower Thermostat
15	Access Cover

## **SECTION IX: WARRANTY**

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### **LIMITED WARRANTY FOR ELECTRIC WATER HEATER**

#### **Bock Water Heaters, Inc.**

110 S. Dickinson Street

Madison, WI 53703

Phone: 608-257-2225

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#### **WHAT DOES THIS LIMITED WARRANTY COVER?**

This limited warranty applies only to the original consumer purchaser.

**General Defects and Malfunctions:** This warranty covers defections and malfunctions in your new water heater for a period of one year from the original installation date. We will repair or replace, at our option, any defective or malfunctioning component of the water heater. This limited warranty will terminate if you sell or otherwise transfer the water heater, or the water heater is installed at a location different from its original installation location.

**Tank:** We also warrant that the tank will not leak due to defective materials or workmanship for five years from the date of original installation or from date of manufacture in the event the Limited Warranty Registration Card was not completed and returned to manufacturer. If the tank is leaking and we have verified that the leak is due to a defect in materials and workmanship, we will replace the tank with a tank that is the nearest Bock model available at the time of replacement. If a replacement tank is provided, it will remain warranted under this section as if it were the original tank. For example, if we send you a replacement tank under this limited warranty two years after the original installation date, then the replacement tank will remain warranted for the remaining three years after the original installation date.

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#### **HOW DO YOU GET SERVICE UNDER THE LIMITED WARRANTY?**

In order for the warranty period to begin on the date of installation, you must return the warranty registration card attached below within 30 days of purchasing the water heater. You may also register your water heater online at [www.bockwaterheaters.com](http://www.bockwaterheaters.com). You must have a copy of the original sales receipt at the time you request service. Failure to return the warranty registration card and provide a copy of the sales receipt will result in the warranty period beginning from the date of manufacture.

To get service under this limited warranty you should contact either the dealer or installer. If dealer or installer is unknown you can contact us via e-mail at [warranty@bockwaterheaters.com](mailto:warranty@bockwaterheaters.com) or call us Monday through Friday between the hours of 8 o'clock a.m. to 5 o'clock p.m. Central Time at the following number: 1-608-257-2225.

You can also write us at the following address:

Bock Water Heaters, Inc.

Warranty Support Group

110 S. Dickinson Street

Madison, WI 53703

We will respond not later than ten days after we have received your request for service.

## **SECTION IX: WARRANTY (cont.)**

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### **WHAT DOES THIS LIMITED WARRANTY NOT COVER?**

This limited warranty does not cover water heaters that are or were:

- Incorrectly installed, especially where the installation violates state or local plumbing, housing or building codes.
- Operated at inappropriate settings, excessive pressures or temperatures.
- Exposed to adverse local conditions and specifically sediment or lime precipitation in the tank or corrosive elements in the atmosphere or unacceptable water quality.
- Installed outside the United States or Canada.
- Accidentally damaged.

Also, we will not cover the following charges, costs and losses:

- Any freight or delivery charges.
  - Any removal or installation charges.
  - Charges to return the water heater or part to the manufacturer.
  - Water damage, loss or damage to property, inconvenience or loss of use.
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### **WHAT WILL VOID THE LIMITED WARRANTY?**

If you do any of the following, you will void this limited warranty:

- Fail to return the warranty registration card within 30 days.
  - Fail to retain an original copy of your sales receipt.
  - Fail to retain the actual rating plate from the water heater.
  - Alter or remove the serial number.
  - Transfer or sell the water heater.
  - Remove the water heater from its original location and install it somewhere else.
  - Fail to follow the care and maintenance instructions provided with the water heater.
  - Remove the anode rods.
  - Fail to inspect and replace the anode rods (you must retain and present your paid receipts as proof of anode rod replacement).
- 

### **HOW DOES STATE LAW RELATE TO THIS LIMITED WARRANTY?**

This is a limited warranty. WE MAKE NO OTHER EXPRESS WARRANTIES WITH RESPECT TO THIS WATER HEATER. We will not assume, nor authorize any person to assume for us any other liability in connection with the sale or operation of this water heater. ANY IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR APPLICATION, IMPOSED ON THIS SALE UNDER THE LAWS OF THE STATE OF SALE ARE LIMITED TO ONE YEAR. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

WE WILL NOT BE RESPONSIBLE FOR WATER DAMAGE, LOSS OF USE OF THE UNIT, INCONVENIENCE, LOSS OR DAMAGE TO PERSONAL PROPERTY, WHETHER DIRECT OR INDIRECT, AND WHETHER ARISING IN CONTACT OR TORT. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

**Bock Water Heaters, Inc. • 110 South Dickinson Street • Madison, WI 53703**

**Telephone 608 -257-2225 • Fax 608 -257- 5304**

**[www.bockwaterheaters.com](http://www.bockwaterheaters.com)**