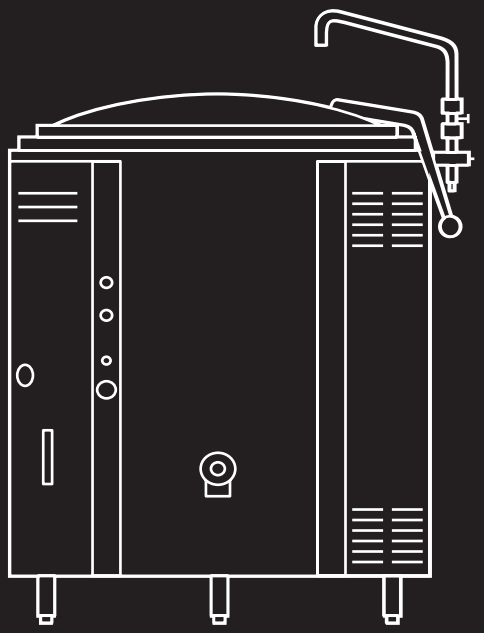
OPERATOR/SERVICE MANUAL

IMPORTANT INFORMATION, KEEP FOR OPERATOR

This manual provides information for:

MODELS EE (CE) International STEAM JACKETED KETTLES

· Self Contained
· Floor Mounted
· Stationary
· Electrically Heated



THIS MANUAL MUST BE RETAINED FOR FUTURE REFERENCE. READ, UNDERSTAND AND FOLLOW THE INSTRUCTIONS AND WARNINGS CONTAINED IN THIS MANUAL.

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

WARNING
Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

NOTIFY CARRIER OF DAMAGE AT ONCE

It is the responsibility of the consignee to inspect the container upon receipt of same and to determine the possibility of any damage, including concealed damage. Groen suggests that if you are suspicious of damage to make a notation on the delivery receipt. It will be the responsibility of the consignee to file a claim with the carrier. We recommend that you do so at once.

Manufacture Service/Questions 888-994-7636.

PART NUMBER 127731 REV J (09/23)

888-994-7636, fax 888-864-7636
unifiedbrands.net

IMPORTANT - READ FIRST - IMPORTANT

THESE APPLIANCES MUST BE INSTALLED BY A COMPETENT PERSON IN CONFORMITY WITH THE INSTALLATION AND SERVICING INSTRUCTIONS AND NATIONAL REGULATIONS IN FORCE AT THE TIME. PARTICULAR ATTENTION MUST BE PAID TO THE FOLLOWING:

I. E. E. REGULATIONS FOR ELECTRICAL INSTALLATIONS
ELECTRICITY AT WORK REGULATIONS
HEALTH AND SAFETY AT WORK ACT
FIRE PRECAUTIONS ACT
LOCAL AND NATIONAL BUILDING REGULATIONS

USERS SHOULD BE CONVERSANT WITH THE APPROPRIATE PROVISIONS OF THE FIRE PRECAUTIONS ACT. IN PARTICULAR THEY SHOULD BE AWARE OF THE NEED FOR REGULAR SERVICING BY A COMPETENT PERSON TO ENSURE THE CONTINUED SAFE AND EFFICIENT PERFORMANCE OF THE APPLIANCE.

WARNING: TO PREVENT SHOCKS, ALL APPLIANCES WHETHER GAS OR ELECTRIC, MUST BE EARTHED.

UPON COMPLETION OF THE INSTALLATION, THE OWNERS MANUAL SHOULD BE HANDED TO THE USERS AND THE INSTALLER SHOULD INSTRUCT THE RESPONSIBLE PERSON(S) IN THE CORRECT OPERATION AND MAINTENANCE OF THE APPLIANCE.

THIS EQUIPMENT IS ONLY FOR PROFESSIONAL USE, AND SHALL BE OPERATED BY QUALIFIED PERSONS. IT IS THE RESPONSIBILITY OF THE SUPERVISOR OR EQUIVALENT TO ENSURE THAT USERS WEAR SUITABLE PROTECTIVE CLOTHING AND TO DRAW ATTENTION TO THE FACT THAT, SOME PARTS WILL, BY NECESSITY, BECOME VERY HOT AND WILL CAUSE BURNS IF TOUCHED ACCIDENTALLY.

UNLESS OTHERWISE STATED, PARTS WHICH HAVE BEEN PROTECTED BY THE MANUFACTURER ARE NOT TO BE ADJUSTED BY THE INSTALLER. BEFORE ATTEMPTING ANY SERVICING, ENSURE THAT THE ELECTRICAL SUPPLY IS DISCONNECTED.

WARNING: THE UNIT MUST BE INSTALLED BY PERSONNEL QUALIFIED TO WORK WITH ELECTRICITY AND PLUMBING. IMPROPER INSTALLATION CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT. THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES.

CAUTION: SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.

WARNING: TO AVOID DAMAGE OR INJURY, FOLLOW THE WIRING DIAGRAM EXACTLY WHEN CONNECTING A UNIT.

WARNING: BEFORE CLEANING THE OUTSIDE OF THE KETTLE, DISCONNECT THE ELECTRIC POWER SUPPLY. KEEP WATER AND CLEANING SOLUTIONS OUT OF CONTROLS AND ELECTRICAL COMPONENTS. NEVER HOSE OR STEAM CLEAN ANY PART OF THE UNIT.

WARNING: CAREFULLY READ THE WARNINGS AND FOLLOW THE DIRECTIONS ON THE LABEL OF EACH CLEANING AGENT. USE SAFETY GLASSES AND RUBBER GLOVES AS RECOMMENDED.

NOTICE: DO NOT USE A CLEANING OR DE-LIMING AGENT THAT CONTAINS ANY SULFAMIC ACID OR ANY CHLORIDE, INCLUDING HYDROCHLORIC ACID. IF THE CHLORIDE CONTENT OF ANY PRODUCT IS UNCLEAR, CONSULT THE MANUFACTURER.

NOTICE: DO NOT USE ANY DE-GREASER THAT CONTAINS POTASSIUM HYDROXIDE OR SODIUM HYDROXIDE OR THAT IS ALKALINE.

WARNING: USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY GROEN OR THEIR AUTHORIZED DISTRIBUTOR VOIDS ALL WARRANTIES AND CAN RESULT IN BODILY INJURY TO THE OPERATOR AND DAMAGE THE EQUIPMENT. SERVICE BY OTHER THAN FACTORY-AUTHORIZED PERSONNEL WILL VOID ALL WARRANTIES.

WARNING: HIGH VOLTAGE EXISTS INSIDE CONTROL COMPARTMENTS. DISCONNECT FROM BRANCH BEFORE SERVICING. FAILURE TO DO SO CAN RESULT IN SERIOUS INJURY OR DEATH.

WARNING: THIS UNIT IS INTENDED FOR USE IN THE COMMERCIAL HEATING, COOKING AND HOLDING OF WATER AND FOOD PRODUCTS, PER THE INSTRUCTIONS CONTAINED IN THIS MANUAL. ANY OTHER USE COULD RESULT IN SERIOUS PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT AND WILL VOID WARRANTY.

WARNING: AVOID ALL DIRECT CONTACT WITH HOT FOOD OR WATER IN THE KETTLE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.

IMPORTANT - READ FIRST - IMPORTANT

CAUTION: **DO NOT OVER FILL THE KETTLE WHEN COOKING, HOLDING OR CLEANING. KEEP LIQUIDS A MINIMUM OF 2-3" (5-8 CM) BELOW THE KETTLE BODY RIM TO ALLOW CLEARANCE FOR STIRRING, AND BOILING.**

WARNING: **TAKE SPECIAL CARE TO AVOID CONTACT WITH HOT KETTLE BODY OR HOT PRODUCT WHEN ADDING INGREDIENTS, STIRRING OR TRANSFERRING PRODUCT TO ANOTHER CONTAINER.**

CAUTION: **KEEP FLOORS IN FRONT OF KETTLE WORK AREA CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY, TO AVOID SLIPS OR FALLS.**

WARNING: **FAILURE TO CHECK SAFETY VALVE OPERATION PERIODICALLY COULD RESULT IN PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT.**

WARNING: **WHEN TESTING, AVOID ANY EXPOSURE TO THE STEAM BLOWING OUT OF THE SAFETY VALVE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.**

WARNING: **TO AVOID INJURY, READ AND FOLLOW ALL PRECAUTIONS STATED ON THE LABEL OF THE WATER TREATMENT COMPOUND.**

References

KLENZADE SALES CENTER ECOLAB, Inc.
370 Wabasha
St. Paul, Minnesota 55102
800/352-5326 or 612/293-2233

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Park
Quincy, Massachusetts 02269

NFPA/70 The National Electrical Code

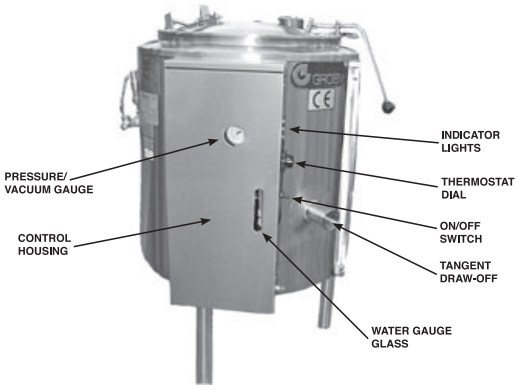
ECONOMICS LABORATORY, INC.
St. Paul, Minnesota 55102

NSF INTERNATIONAL
789 N. Dixboro Rd.
P.O. Box 130140
Ann Arbor, Michigan 48113

UNDERWRITERS LABORATORIES, INC.
333 Pfingsten Road
Northbrook, Illinois 60062

ZEP MANUFACTURING CO.
1310-T Seaboard Industrial Blvd.
Atlanta, Georgia 30318

Equipment Description



Groen Model EE is a floor-mounted, stationary, steam-jacketed kettle which has a thermostatically controlled, self-contained, electrically-heated steam supply and appropriate controls, mounted on a sturdy base. Heat produced by electric heating elements boils water in a reservoir below the jacket to produce steam under pressure.

The kettle is surrounded by air-insulated stainless steel sheathing. Stainless steel panels enclose all of the controls. Three stainless steel, tubular legs support the unit.

EE kettles are available in 20 and 40 gallon capacities. Kettle bodies are welded into one piece. Models are all equipped with a 50 mm (2 inch) sanitary tangent draw-off (product faucet) valve and a stainless steel strainer. This standard draw-off uses a compression disc valve. The unit is controlled with a thermostat, which turns electric power on or off, and sets the cooking temperature. Instruments are provided to show what is happening inside the unit:

- **Water gauge glass:** Shows the level of water within the steam jacket
- **Pressure/vacuum gauge:** Shows the steam pressure and if there is air in the jacket
- **Indicator lamps:** Light when the kettle power is turned on, when the elements are heating the jacket and when the water level in the jacket is low

Automatic controls within the unit:

- **Contactor:** Controlled by the thermostat, turns heating element power on or off
- **Low-water cutoff:** Turns off power to keep heating elements from overheating if water loss exposes them above the water level
- **Safety valve:** Releases steam if jacket pressure gets too high

The jacket is filled at the factory with treated water. When air is removed from the jacket, the kettle efficiently provides a uniform heating temperature range of 65°C to approximately 132°C (150 to 270°F). This range allows the kettle to be used for warming, simmering, boiling or braising.

The interior of the kettle is polished to a 180 emery grit finish and the exterior is given a uniform Number 3 finish. The unit is ASME Code designed and shop inspected to the Pressure Equipment Directive for working pressures up to 206 kPa (30 psi).

Optional equipment for the EE kettles includes:

- 75 mm (3 inch) draw-off valve
- Perforated or solid disc strainer
- Basket inserts (TRI-BC)
- Water fill faucets
- Kettle brush kit

KETTLE CHARACTERISTICS		
Description	**EE-20**	**EE-40**
Capacity	75 liters (20 gallons)	150 liters (40 gallons)
Diameter	660 mm (26 in)	813 mm (32 in)
Rim Height	940 mm (37 in)	940 mm (37 mm)
Total Width	660 mm (26 in)	813 mm (32 in)
Front to Back	972 mm (38¼ in)	1226 mm (48¼ in)

Inspection & Unpacking

CAUTION
SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT. TAKE CARE TO AVOID PERSONAL INJURY OR DAMAGE TO THE UNIT BY STAPLES LEFT IN THE WALLS OF THE CRATE.

CAUTION
THIS UNIT IS VERY HEAVY. INSTALLER SHOULD OBTAIN HELP AS NEEDED TO LIFT THIS WEIGHT SAFELY.

It will be banded to a skid.

The unit will arrive in a heavy shipping crate and will be banded to a skid. Immediately upon receipt, inspect the crate carefully for exterior damage.

Thoroughly inspect the unit for concealed damage. Report any shipping damage or incorrect shipments to the delivery agent.

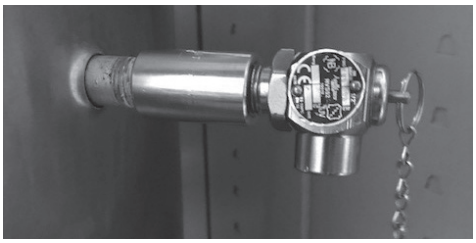
Write down the model number, serial number, and installation date, and retain this information for future reference. Space for these entries is provided at the top of the Service Log at the back of this manual. Keep this manual on file and available for operators to use.

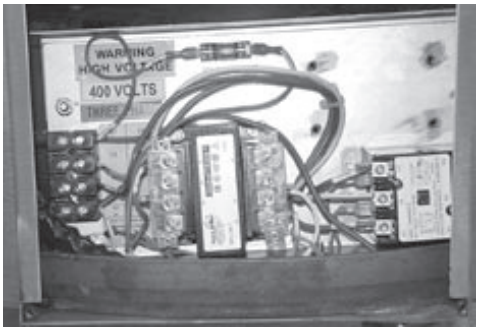
When installation is to begin, carefully cut any straps which hold the unit on the skid. Lift the unit straight up off the skid. Examine packing materials to be sure loose parts are not discarded with the materials.

Installation

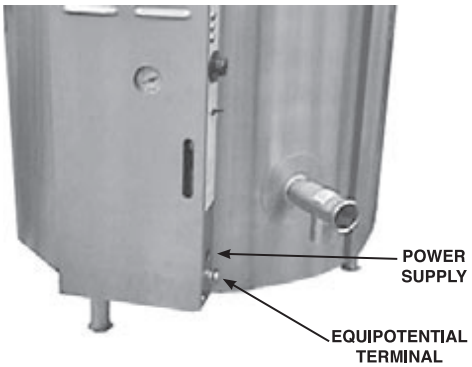
WARNING
INSTALLATION OF THE KETTLE MUST BE DONE BY A CERTIFIED ELECTRICIAN OR AUTHORIZED REPRESENTATIVE QUALIFIED TO WORK WITH ELECTRICITY. IMPROPER INSTALLATION CAN RESULT IN INJURY TO PERSONNEL AN/OR DAMAGE TO EQUIPMENT.

CAUTION
ELECTRICALLY GROUND THE UNIT AT THE TERMINAL PROVIDED. FAILURE TO GROUND THE UNIT COULD RESULT IN ELECTROCUTION AND DEATH.





Control Panel (EE-20 Shown)



The equipotential terminal is located near the bottom of the Control Panel.

The Groen Kettle is provided with complete internal wiring and is ready for immediate connection. Wiring diagrams are provided in this manual and on the inside of the control housing service panel. Any mechanical or electrical changes must be approved by Groen's Food Service Engineering Department.

The completed unit has been operated at the factory to test all controls and heater elements.

1. Set the kettle in place and level it by turning the bullet or flanged feet to adjust leg length. Allow clearance around the unit for cleaning, maintenance and service.

2. Confirm that the jacket water level is above the mid point of the gauge glass. If the level is low, follow the instructions under "Jacket Filling and Water Treatment," Page 15.

3. The open end of the safety valve must face downward. If it does not, turn it to the correct position.

4. Provide electrical power specified on the equipment electrical information plate. Observe local and national codes.

5. The equipment is shipped ready for three phase operation. Check wiring diagram label for correct phase. Contact factory for single phase conversion.

6. Bring in the electrical supply through opening on control housing that is located below the thermostat dial (see photograph on page 5). An opening is provided for 1-1/4" (35 mm) conduit fitting.

   Water tight, 90° elbow connection is recommended. Incoming power connections are made at the terminal block.

   Observe local and national codes. When there is a choice between applicable codes, Groen recommends following the more stringent code. (A BX connection is not recommended.)

7. Equipotential Terminal - In accordance with national regulations and CE directives, the unit has been fitted with an equipotential terminal.

8. Check the following to confirm that your kettle is properly installed:
   - The kettle is level
   - The correct amount of water is in the kettle jacket
   - Safety valve is pointed down
   - Unit is connected with a waterproof supply of the proper voltage, phase and amperage rating
   - Room for cleaning and servicing

Electrical Requirements

	EE-20		EE-40	
	KW	AMP	KW	AMP
230 Volts-Single Phase	11	48	22	96
400 Volts-Three Phase	11	16	22	32
208 Volts-Three Phase	11	30	22	60

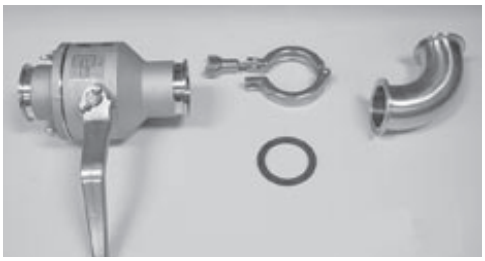
Initial Start-Up

IMPORTANT
BE SURE ALL OPERATORS READ, UNDERSTAND AND FOLLOW THE OPERATING INSTRUCTIONS, CAUTIONS AND SAFETY INSTRUCTIONS CONTAINED IN THIS MANUAL.

WARNING
AVOID ALL DIRECT CONTACT WITH HOT SURFACES. DIRECT SKIN CONTACT COULD RESULT IN SEVERE BURNS.

AVOID ALL DIRECT CONTACT WITH HOT FOOD OR WATER IN THE KETTLE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.

Slide the assembly into the tangent and handtighten the large stainless steel nut.



Some EE models are equipped with a ball valve and tri clamp fittings.

Now that the kettle has been installed, you should test it to ensure that the unit is operating correctly.

1. Remove all literature and packing materials from inside and outside of the unit.
2. Clean out any material which might clog or damage the draw-off (product outlet).
3. Install the draw-off valve (packed separately) by sliding the assembly into the tangent and hand-tightening the large stainless steel nut. Slide the assembly into the tangent and handtighten the large stainless steel nut. Some EE models are equipped with a ball valve and tri clamp fittings.
4. Turn on the electrical service to the unit.
5. Pour water into the kettle until it is about 150 mm (6 inches) deep.
6. Test draw-off valve operation by opening it all the way, then closing it before all the water runs out.
7. Following “To Start Kettle” instructions in the “Operation” section of this manual, begin heating the water at the highest thermostat setting. The heating indicator light should come on immediately, and heating should continue until the water boils.
8. To shut down the unit, turn the thermostat dial to “0” and the power switch to OFF.

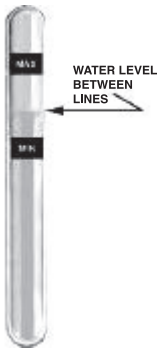
If the unit functions as described above, it is ready for use. If the unit does not function as described, contact your local Groen Certified Service Agency.

Operation

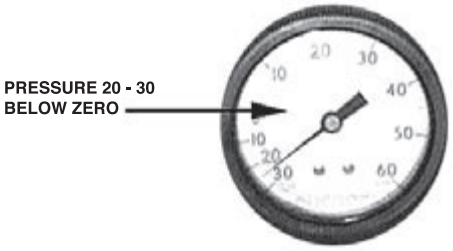
WARNING
OPEN THE KETTLE LID CAREFULLY TO AVOID STEAM WHICH MAY ESCAPE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.

CAUTION
KEEP FLOORS IN FRONT OF THE KETTLE WORK AREA CLEAN AND DRY. IF SPILLS OCCUR, CLEAN AT ONCE TO AVOID SLIPS OR FALLS.

CAUTION
DO NOT OVERFILL THE KETTLE WHEN COOKING, HOLDING OR CLEANING. KEEP LIQUIDS AT LEAST 5-8 CM (2-3 INCHES) BELOW THE KETTLE BODY RIM TO ALLOW CLEARANCE FOR STIRRING, BOILING PRODUCT AND SAFE TRANSFER.



Each day, confirm the jacket water level by checking the water gauge.



Be sure that the pressure/vacuum gauge shows at least 20 inches of vacuum.

The operator controls kettle heating with the thermostat dial. The dial turns heating element power on or off and sets the kettle operating temperature.

A. To Start Kettle

1. EE kettles have three Indicator Lights on the Control Panel:
   - POWER - Green light indicating that the power switch is set to ON and that power is being supplied to the unit controls
   - HEAT - Amber light indicating that power is being applied to the heater elements
   - LOW WATER - Red light indicating that water level is too low, and that corrective action is required.

2. EE kettles are equipped with a Water Level Switch, mounted on a bracket above and forward of the kettle Pressure Gauge and water gauge sight glass, inside the control box. This switch monitors water level and turns on the LOW WATER red light to signal the need for additional water in the kettle jacket.

3. EVERY DAY make sure the jacket water level is between the marks on the gauge glass. If the level is too low, see “Jacket Filling and Water Treatment” on page 15.

4. While the kettle is cold, check the pressure gauge. If the gauge does not show 20 to 30 inches of vacuum (that is, a reading of 20 to 30 below 0), see “Jacket Vacuum” on page 14.

5. Make sure that the strainer covers the draw-off valve outlet at the bottom of the kettle. This keeps food solids from collecting in the draw-off area.

B. To Transfer Product or Empty Kettle

1. The kettle is emptied by means of its drawoff valve, by ladling product out, or with the optional tri-basket insert.

2. Use of Optional Basket Insert: The optional kettle basket insert set will assist in cooking water boiled products such as eggs, potatoes, vegetables, shell fish, pasta and rice. The nylon mesh liner must be used for products smaller than the basket mesh size, (approximately 6 mm (¼ in). This includes rice and small pasta shapes.

Tips For Use:

1. Allow for displacement of the three baskets and product. This may mean only filling the kettle half way. Test baskets and product displacement with the kettle thermostat set to “0” and power switch set to OFF, and with cold water in the kettle.

2. Load baskets on a level, stable work surface.

3. Lift loaded baskets with both hands. Get help from another person if the basket is too heavy for safe handling.

4. Slowly lower product into kettle and securely hook the basket to the “Y” frame.

Operation

CAUTION
DO NOT OVERFILL THE KETTLE WHEN COOKING, HOLDING OR CLEANING. KEEP LIQUIDS AT LEAST 5-8 CM (2-3 INCHES) BELOW THE KETTLE BODY RIM TO ALLOW CLEARANCE FOR STIRRING, BOILING PRODUCT AND SAFE TRANSFER.

WARNING
OPEN THE KETTLE LID CAREFULLY TO AVOID STEAM WHICH MAY ESCAPE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.

5. When removing baskets with cooked product, lift straight up, ensuring basket bottoms clear the kettle rim. Wear protective oven mitts and protective apron.

6. Allow hot water to fully drain from product, before moving basket away from the kettle. Do not rest baskets on kettle rim or pouring lip. If baskets are too heavy for one individual to lift and safely move, get help. Remove product immediately from basket into another container, being sure to avoid contact with hot product and hot basket or:

7. Place baskets with food on a stable, flat surface, inside a solid steamer or bake pan, to catch any remaining hot water draining from product.

C. To Turn Off the Kettle

1. Turn the thermostat dial to “0” and set the power switch to OFF.

2. Before the unit is serviced, or if it will be off for a week or more:

3. Set the thermostat to “0”.

4. Turn the power switch to OFF (the green lamp should go out) and switch off electric power to the unit at the circuit breaker or fuse.

Sequence of Operation

The following “action-reaction” outline is provided to help the user understand how the equipment works.

When the operator starts up the kettle by turning the power switch to ON (which lights the green POWER lamp) and turning the operating thermostat dial from “0” to a desired setting, the thermostat switch closes. This lights up the HEAT amber indicator light and causes the contactors to close, allowing power to flow to heating elements.

When the temperature of the steam jacket reaches the value corresponding to the dial setting, the thermostat switch opens. This turns off the HEAT indicator light and causes the contactors to open, cutting the power to the heaters.

As soon as the thermostat senses that the kettle is cooling below the set point, the thermostat switch closes, the HEAT indicator light comes on, the contactors close, and the heaters come on again. On-off cycling continues, keeping the kettle at the set temperature. This is why the heating indicator light cycles on and off during normal operation.

If steam pressure greater than 206 kPa (30 psi) is generated in the jacket, the safety valve will open and relieve the excess pressure.

If the jacket water level gets too low before the heating elements overheat, the high-limit control will open and shut off power to the elements until the kettle cools.

Setting the operating thermostat dial to “0” shuts down the heating circuits. Setting the power switch to OFF removes power from the control circuits.

Cleaning

WARNING
KEEP WATER AND SOLUTIONS OUT OF CONTROLS AND ELECTRICAL EQUIPMENT. NEVER SPRAY THE SUPPORT HOUSING OR ELECTRICAL CONNECTIONS.

CAUTION
MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNINGS AND FOLLOW LABEL DIRECTIONS.

CAUTION
DO NOT MIX THE PARTS OF DIFFERENT DRAW-OFF ASSEMBLIES DURING WASHING. THE PARTS ARE NOT ALWAYS INTERCHANGEABLE.

Use a brush, sponge, cloth, plastic or rubber scraper, or plastic wool to clean.

Don't use metal implements or steel wool when cleaning.

1. **Suggested Cleaning Supplies:**
   a. Cleaner, such as Klenzade HC-10 or HC-32 from ECOLAB, Inc.
   b. Kettle brushes in good condition (and a bottle brush, for the draw-off).
   c. Sanitizer such as Klenzade XY-12.
   d. Film remover such as Klenzade LC-30.

2. **Precautions**
   Before cleaning, shut off the kettle by turning the thermostat dial to "0", turn the power switch to OFF, and shut off all electric power to the unit at a remote switch, such as the circuit breaker.

3. **Procedure**
   a. Clean food-contact surfaces as soon as possible after use. If the unit is in continuous use, thoroughly clean and sanitize the interior and exterior at least once every 12 hours.

   b. Scrape and flush out food residues. Be careful not to scratch the kettle with metal implements. Close the draw-off.

   c. Prepare a hot solution of the detergent/ cleaning compound as instructed by the supplier. Clean the unit thoroughly. a cloth moistened with cleaning solution can be used to clean controls, housing, and electrical conduits.

   d. Rinse the kettle thoroughly with hot water, then drain completely.

   e. Disassemble the tangent draw-off valve. Clean the draw-off port and each valve part with a brush.

   f. Rinse the kettle and draw-off valve parts thoroughly with hot water, then drain completely.

   g. As part of the daily cleaning program, clean soiled external and internal surfaces. Remember to check the sides of the unit and control housing.

   h. To remove stuck materials, use a brush, sponge, cloth, plastic or rubber scraper, or plastic wool with the cleaning solution. To reduce effort required in washing, let the detergent solution sit in the kettle and soak into the residue. Do NOT use abrasive materials or metal tools that might scratch the surface. Scratches make the surface harder to clean and provide places for bacteria to grow. Do NOT use steel wool, which may leave particles in the surface and cause eventual corrosion and pitting.

   i. The outside of the unit may be polished with a stainless steel cleaner such as "Zepper" from Zep Manufacturing Co. or Groen DeGreaser (Part No. 140830).

   j. When equipment needs to be sanitized, use a solution equivalent to one that supplies 200 parts per million available chlorine. Obtain advice on sanitizing agents from your supplier of sanitizing products. Following the supplier's instructions, apply the agent after the unit has been cleaned and drained. Rinse off the sanitizer thoroughly.

   k. It is recommended that each piece of equipment be sanitized just before use.

Cleaning

CAUTION
NEVER LEAVE A CHLORINE SANITIZER IN CONTACT WITH STAINLESS STEEL SURFACES FOR LONGER THAN 30 MINUTES. LONGER CONTACT CAN CAUSE CORROSION.

l. If there is difficulty removing mineral deposits or a film left by hard water or food residues, clean the kettle thoroughly and then use a deliming agent, like Groen Delimer/Descaler (Part Number 114800), in accordance with the manufacturer's directions. Rinse and drain the unit before further use.

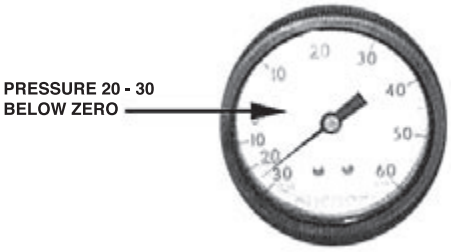
m. If cleaning problems persist, contact your cleaning product representative for assistance.

3. Ball Valve

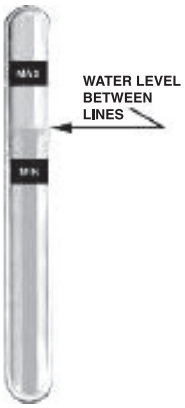
Some kettles are equipped with an optional ball valve. This valve can be easily disassembled for cleaning. These parts may be cleaned in a standard sanitizer or in a dish washing machine.

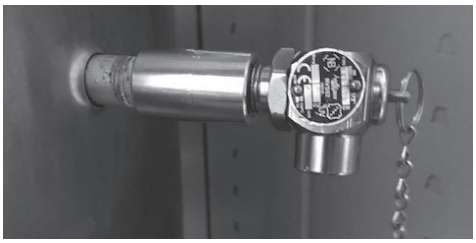
Maintenance

WARNING
WHEN TESTING, AVOID ANY EXPOSURE TO THE STEAM BLOWING OUT OF THE SAFETY VALVE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.



Be sure that the pressure/vacuum gauge shows at least 20 inches of vacuum.





NOTICE: Contact Groen or an authorized representative when repairs are required.

1. **Periodic Maintenance**
   A Maintenance & Service Log is provided at the back of this manual with the warranty information. Each time maintenance is performed on your Groen kettle, enter the date on which the work was done, what was done, and who did it. Keep this manual on file and available for operators to use.

   Periodic inspection will minimize equipment down time and increase the efficiency of operation. The following points should be checked:
   a. Check the pressure/vacuum gauge every day. The gauge should show a vacuum of 20 to 30 inches, when the kettle is cold. If it does not, see "Jacket Vacuum" below.

   b. Also check the jacket water level every day. It should be between the marks on the gauge glass. If the level is low, see "Jacket Filling and Water Treatment" on page 15.

   c. Test the safety valve at least twice each month. Test the valve with the kettle operating at 105 kPa (15 psi), by pulling up the test valve chain for at least 5 seconds. Then release lever and let the valve snap shut. If the valve does not activate, or there is no evidence of discharge, or the valve leaks, stop using the kettle and contact a qualified Groen service representative.

2. **Jacket Vacuum**
   Test the safety valve at least twice monthly. When the kettle is cold, a positive pressure/ vacuum gauge reading or a reading near zero indicates that there is air in the jacket. Air in the jacket slows kettle heating. To remove air:
   a. Start the unit. (Be sure there is water or product in the kettle when heating).

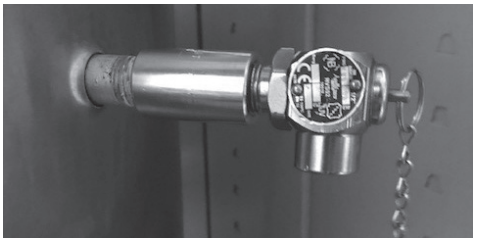
   b. Make sure that the elbow of the safety valve outlet is turned so that escaping steam is directed toward the floor.

   c. When the pressure/vacuum gauge reaches a positive pressure reading of 34 kPa (5 psi), release the trapped air and steam by pulling up or out on the safety valve lever or ring for about 1 second. Repeat this step, then let the pull ring or valve lever snap back into the closed position.

Maintenance

WARNING
STAY AWAY FROM THE STEAM THAT IS BLOWING OUT OF THE SAFETY VALVE. THE STEAM CAN CAUSE A SEVERE BURN.

WARNING
TO AVOID INJURY, READ AND FOLLOW ALL PRECAUTIONS STATED ON THE LABEL OF THE WATER TREATMENT COMPOUND.



Model	Jacket Capacity
EE-20	3-1/4 Gallons
EE-40	4-1/2 Gallons

3. **Jacket Filling and Water Treatment**
   The jacket was charged at the factory with the proper amount of treated water. You may need to restore this water because it was lost as steam during venting or by draining.
   a. If you are replacing water lost as steam, use distilled water. If you are replacing treated water that ran out of the jacket, prepare more treated water as directed in step 4, "Water Treatment Procedure." Do not use tap water.

   b. Allow the kettle to cool. Remove pressure gauge with open-ended wrench or cresent wrench.

   c. Position a funnel in the opening and fill it with properly treated water.

   d. Hold the safety valve open to allow air to escape from the jacket while you pour in the water. Continue to pour until the water level rises to a point between the marks on the gauge glass.

   e. Any air introduced into the jacket during filling must be removed to obtain efficient heating. See "Jacket Vacuum" on page14.

4. **Water Treatment Procedure**
   a. Obtain water treatment compound and a pH test kit from your Groen distributor.

   b. Fill a mixing container with the measured amount of water required. (See table at left). Use distilled water only.

   c. Hang a strip of pH test paper on the rim of the container, with about 1 inch (25mm) of the strip below the surface of the water.

   d. Measure the water treatment compound (One way to do this is to add the compound from a measuring cup.)

   e. Stir the water continuously, while you slowly add water treatment compound, until the water reaches a pH between 10.5 and 11.5. Judge the pH by frequently comparing the test strip color with the chart provided in the pH test kit. If you are color blind read the test strip color level.

   f. Record the exact amounts of water and treatment compound used. These amounts may be used again, if the same water sources and compound are used in the future. However, it is best to check the pH each time treated water is prepared.

Troubleshooting

Your Groen kettle is designed to operate smoothly and efficiently if properly maintained. However, the following is a list of checks to make in the event of a problem. Wiring diagrams are furnished inside the service panel. If an item on the list is followed by X, the work should be done by a qualified service representative. **USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY GROEN COMMERCIAL FOODSERVICE EQUIPMENT OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.**

SYMPTOM	WHO	WHAT TO CHECK
Kettle will not heat and heating indicator will not come on.	User	a. Electric power supply to the unit. b. Water level in jacket.
	Authorized Service Rep Only	c. Control circuit fuses in the control console. X REPLACE BLOWN FUSES ONLY WITH A FUSE OF THE SAME AMP RATING. A HIGHER RATED FUSE WILL NOT PROTECT THE UNIT OR THE BUILDING. d. For loose or broken wires. X e. Operation of variable thermostat. X f. Low water cutout switch. X g. Water probe. X h. That high limit pressure switch is closed. X
Kettle will not heat but heating indicator comes on.	User	a. For air in the jacket. See "Jacket Vacuum" in the "Maintenance" section of this manual.
	Authorized Service Rep Only	b. Contactor. X c. Heater elements with ohmmeter for ground short or open element. If element is defective, call Groen. X
Kettle continues heating after it reaches the desired temperature.	User	a. Thermostat dial setting.
	Authorized Service Rep Only	b. Thermostat circuit for short. X c. Thermostat calibration. X d. Thermostat operation. The thermostat should click when the dial is rotated to settings above and below the temperature of the kettle. X e. Contactor, to determine whether it is energized or stuck. X
Kettle stops heating before it reaches the desired temperature.	User	a. Thermostat dial setting. b. Jacket water level.
	Authorized Service Rep Only	c. Thermostat calibration. X d. Thermostat operation. The thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. X e. Pressure limit the switch. X
Kettle heats slowly.	User	a. For air in the jacket. See "Jacket Vacuum" in the "Maintenance" section of this manual.
	Authorized Service Rep Only	b. Heater elements with ohmmeter for ground short or open element. If an element is defective, call Groen. X c. Voltage of main power source. X

Troubleshooting

SYMPTOM	WHO	WHAT TO CHECK
Safety valve leaks a small amount of steam when the kettle is operating.	User	a. For contamination that prevents seating of valve. With full pressure in the jacket, pull the lever all the way briefly to blow the valve clean, then let the lever snap back to seat the valve.
	Authorized Service Rep Only	b. Safety valve for defects. Replace any defective valve with an identical valve. X
Safety valve pops.	User	a. For air in the jacket. See "Jacket Vacuum" in the Maintenance section of this manual. b. Whether kettle was being heated empty when valve popped.
	Authorized Service Rep Only	c. Pressure limit switch. X d. Thermostat operation. Thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. X e. Safety valve. If the valve pops at pressures below 196 kPa (28 psi), replace it. X f. Contactor, to determine whether it is de-energized. X

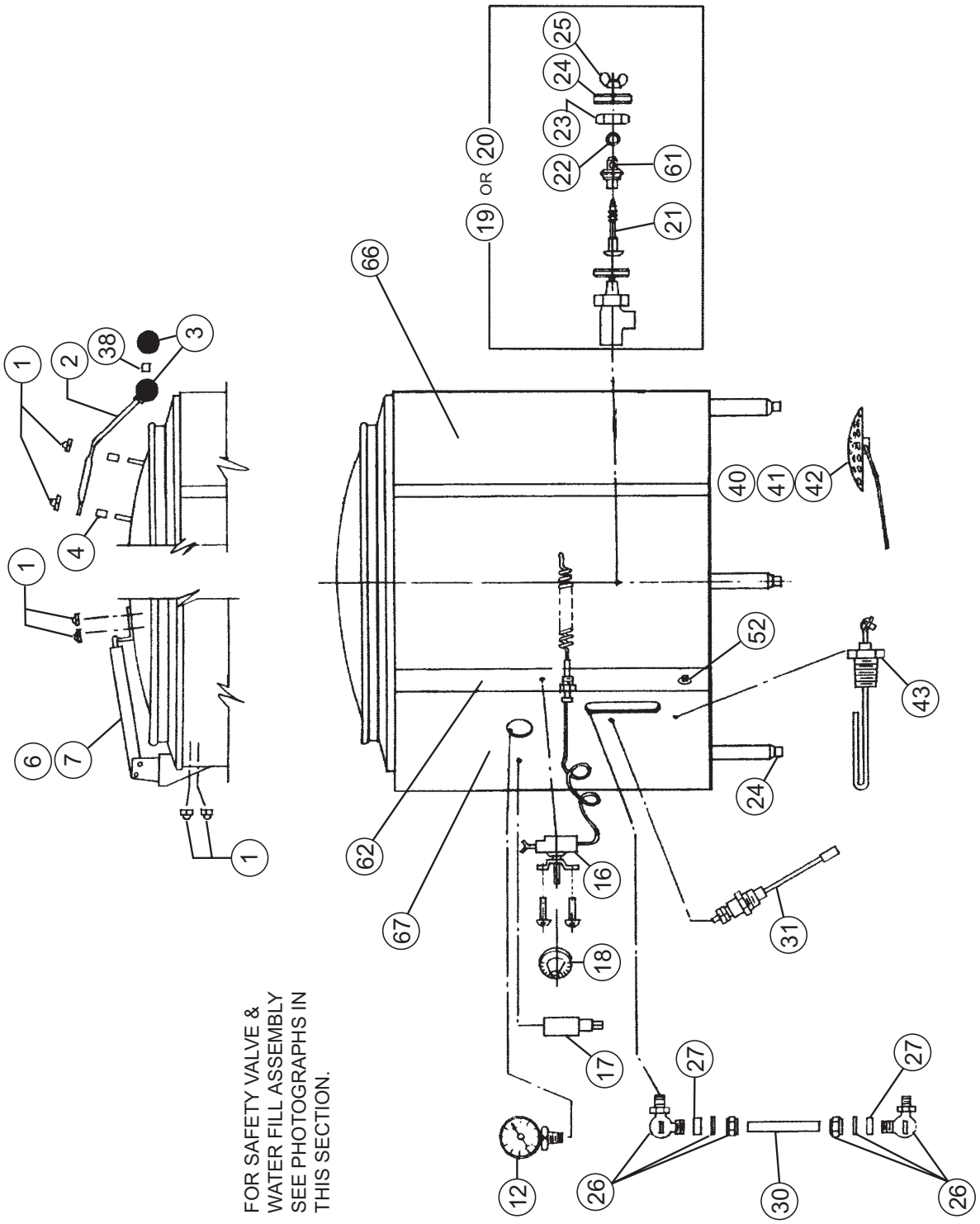
Parts List

(Keyed to Drawings and Photographs on the Following Pages) To order parts, contact your Groen Certified Service Agency. Supply the model designation, part description, part number, quantity and, where applicable, voltage and phase.

KEY	DESCRIPTION	PART NO.
COVER PARTS		
1	1/4-20 ACORN DOME NUT	090567
2	HANDLE	047550
3	RED BALL HANDLE	012691
4	SPACER	012733
58	BRACKET, HINGE COVER	013485
59	HINGE BAR	061012
38	TOLERANCE RING	012692
2" TANGENT DRAW OFF PARTS		
2" TDO COMPRESSION VALVE		
20	2" TDO VALVE (COMPLETE)	009046
21	2" TDO VALVE STEM	009048
22	2" TDO "O" RING	009034
23	2" TDO SANITARY HEX NUT	009354
24	2" TDO TDO VALVE HANDLE	009029
25	10-24 WING NUT	009028
61	2" TDO TDO BONNET	009047
2" BALL VALVE		
---	2" BALL VALVE (COMPLETE)	110962
---	2" BALL VALVE BODY	110927
---	2"BALL VALVE COVER	110916
---	2"BALL	110446
---	2" BALL VALVE CAVITY FILLER SEAL	110443
---	2" BALL VALVE ACUATING SHAFT	110958
---	2" BALL VALVE SHAFT BUSHING	110445
---	2" BALL VALVE RETAINING NUT	110444
---	2" BALL VALVE "O" RING	110954
---	1/4-20 WING NUT	110953
---	3/8-16 WING NUT	052318
---	2" BALL VALVE BALL VALVE HANDLE	110458
---	2" SANITARY CLAMP	053786
---	2" SANITARY CLAMP GASKET	016602
40	REMOVABLE STRAINER. 1/4" HOLES, 2" DRAW-OFF	009044
41	REMOVABLE STRAINER. 1/8" HOLES, 2" DRAW-OFF	013785
42	REMOVABLE STRAINER. NO HOLES, 2" DRAW-OFF	013783
KEY	DESCRIPTION	PART NO.

3" TANGENT DRAW-OFF PARTS		
3" COMPRESSION VALVE		
20	3" TDO VALVE (COMPLETE)	012262
21	3" TDO VALVE STEM	001908
22	3" TDO "O" RING	003926
23	3" TDO SANITARY HEX NUT	003927
24	3" TDO WHEEL AND HANDLE	012209
25	7/16-20 ACORN DOME NUT	100512
61	3" TDO BONNET	003925
3" BALL VALVE		
---	3" BALL VALVE (COMPLETE)	110966
---	3"BALL VALVE BODY	110932
---	3"BALL VALVE COVER	110934
---	3"BALL	110451
---	3"BALL VALVE CAVITY FILLER SEAL	110450
---	3"BALL VALVE ACUATING SHAFT	110959
---	3"BALL VALVE SHAFT BUSHING	110453
---	3"BALL VALVE RETAINING NUT	110452
---	3"BALL VALVE"O" RING	110955
---	5/16-18 WING NUT	110475
---	1/2-13 WING NUT	010924
---	3"BALL VALVE HANDLE	110459
---	3" SANITARY CLAMP	053338
---	3"SANITARY CLAMP GASKET	053362
40	REMOVABLE STRAINER. 1/4" HOLES, 3" DRAW-OFF	137431
41	REMOVABLE STRAINER. 1/8" HOLES, 3" DRAW-OFF	016266
42	REMOVABLE STRAINER. NO HOLES, 3" DRAW-OFF	016267
ELECTRICAL PARTS		
43	HEATER ELEMENT, 208 V, 3.6 KW	008852
43	HEATER ELEMENT, 240 V, 4 KW	008851
48	POWER LAMP (GREEN), 24V	162846
49	HEAT LAMP (AMBER), 24V	116384
50	LOW WATER LAMP (RED), 24V	116383
51	POWER SWITCH, TOGGLE, DPST	146631
55	BOOT, POWER SWITCH	146632
52	EQUIPOTENTIAL TERMINAL ASSEMBLY	122021
53	WATER LEVEL CONTROL BOARD	148323
16	THERMOSTAT	012213
17	PRESSURE SWITCH	108559
KEY	DESCRIPTION	PART NO.

ELECTRICAL PARTS CONTINUED		
5	FUSE HOLDER	077854
13	FUSE , 3A, TYE 3 AG	077583
68	TERMINAL BLOCK, 4-POLE, 115A	119850
57	GROUND LUG, #6-#14 AWG	129714
14	CONTACTOR, 3-POLE, 24VAC	148102
63	TRANSFORMER, 24V SEC, 50 VA	148899
64	ELECTRICAL COMPONENT MOUNTING BRACKET	148171
65	RADIATION SHIELD	127684
---	WIRING HARNESS, HEATER, 208/240V 3-PH DELTA	145283
---	WIRING HARNESS, HEATER, 400V 3-PH WYE	148902
---	WIRING HARNESS, CONTROL, EE-20	145281
---	WIRING HARNESS, CONTROL, EE-40	148925
---	WIRING HARNESS, HIGH VOLTAGE, EE-20, 208/240 3-PH DELTA	145282
---	WIRING HARNESS, HIGH VOLTAGE, EE-20, 400V 3-PH WYE	148901
---	WIRING HARNESS, HIGH VOLTAGE, EE-40, 400V 3-PH WYE	148929
OTHER HARDWARE		
11	PRESSURE SAFETY VALVE, 30 PSI	141361
12	PRESSURE GAUGE	084208
15	COUPLING FULL 1/2" NPT	012741
18	THERMOSTAT KNOB	122000
26	CONNECTOR ELBOW	061163
27	SIGHT GAUGE GLASS GASKET	008917
30	SIGHT GAUGE GLASS TUBE	008742
31	ELECTRODE, WATER LEVEL	074665
34	BULLET FOOT, ADJUSTABLE	013275
34	FLANGED FOOT, ADJUSTABLE	119372
62	OVERLAY, EE-20	132056
62	OVERLAY, EE-40	122036
66	PANNEL ASSEMBLY, CONTROL BOX, EE-20	147867
66	PANNEL ASSEMBLY, CONTROL BOX, EE-40	146666
67	PANEL ASSEMBLY, INSTRUMENT BOX, EE-20	147869
67	PANEL ASSEMBLY, INSTRUMENT BOX, EE-40	146665


FOR SAFETY VALVE &
WATER FILL ASSEMBLY
SEE PHOTOGRAPHS IN
THIS SECTION.
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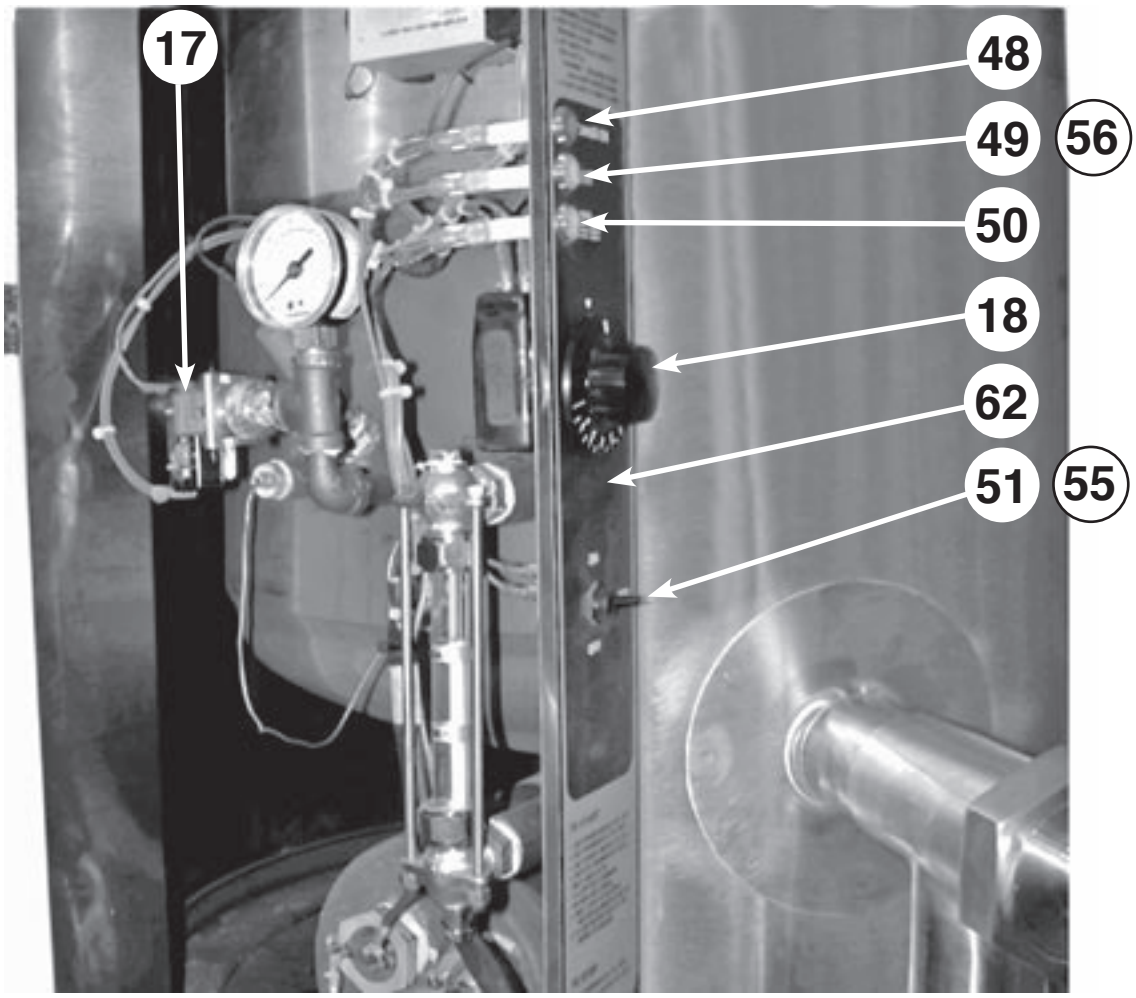
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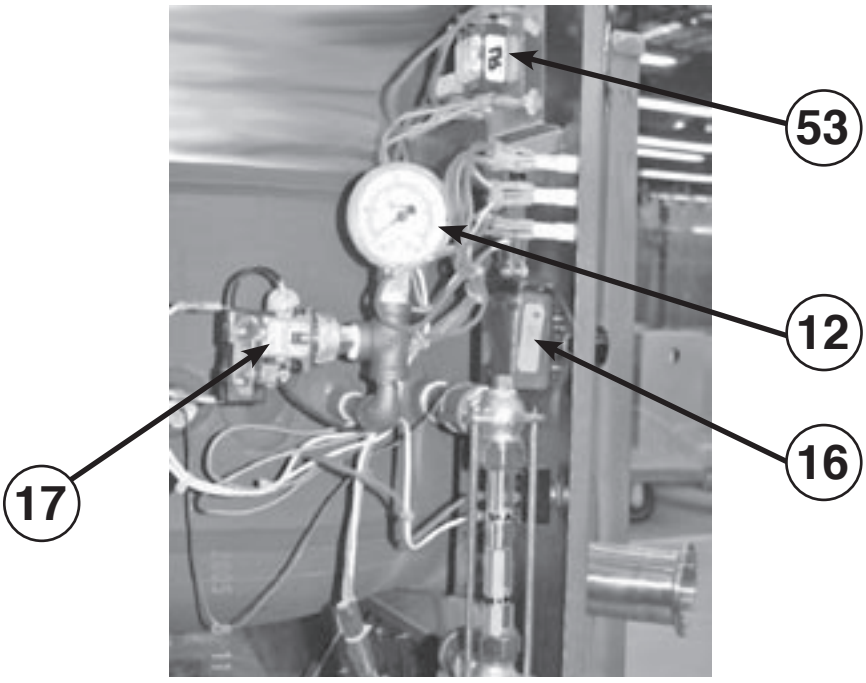
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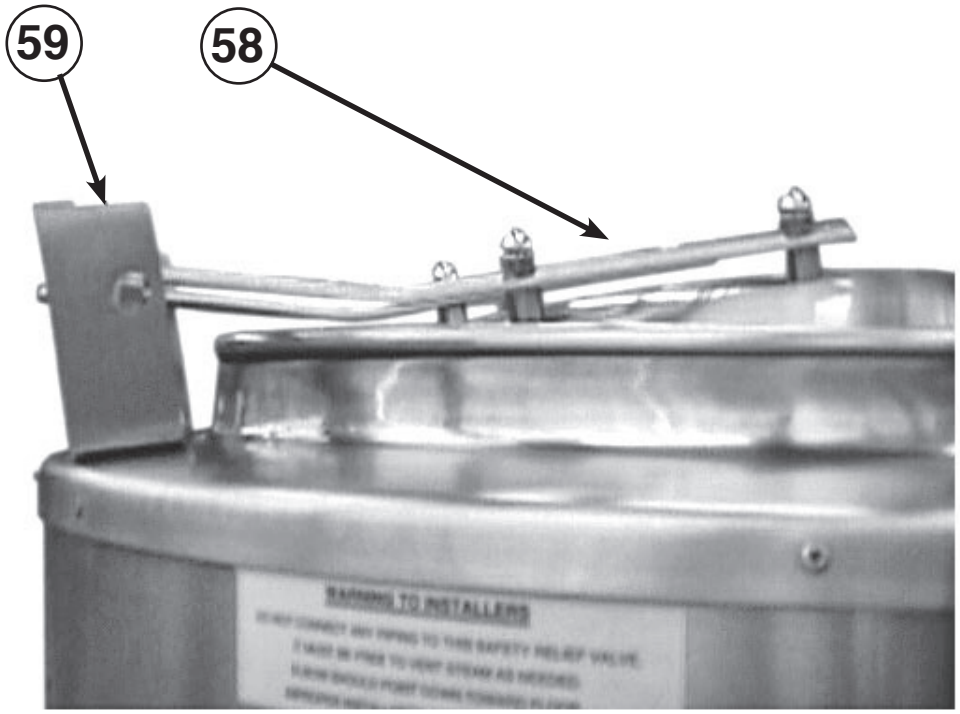
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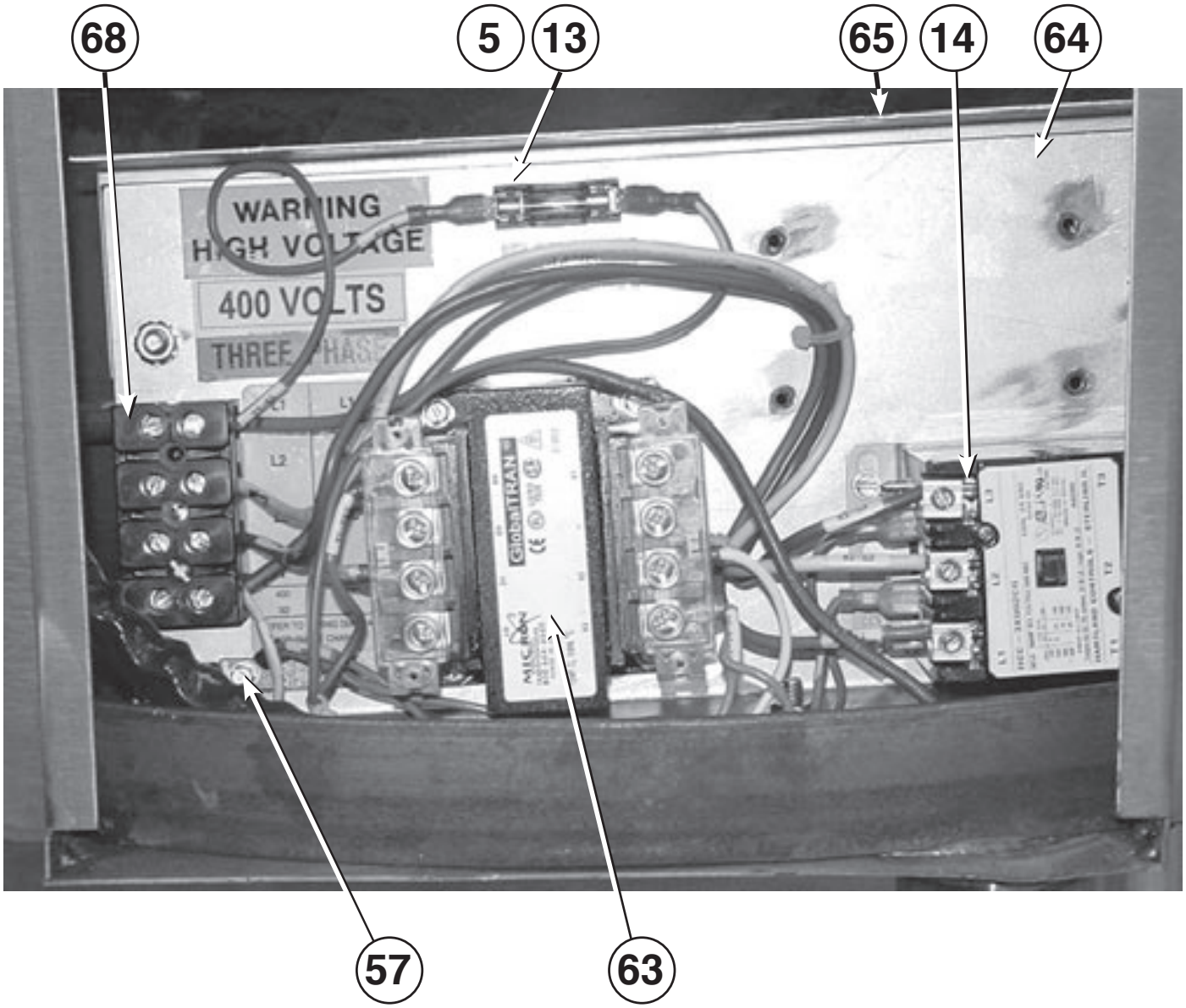
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WARNING
HIGH VOLTAGE
400 VOLTS
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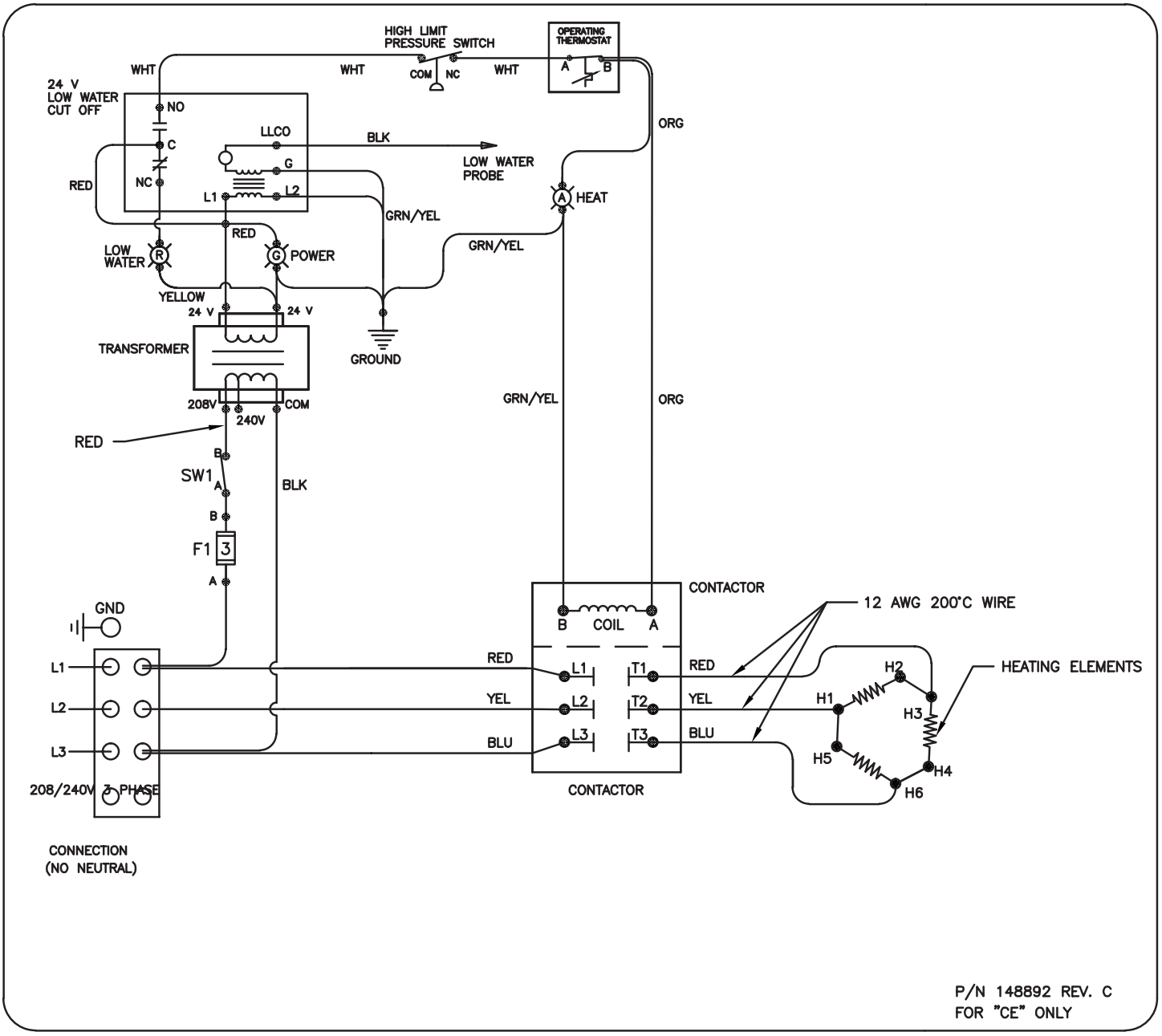
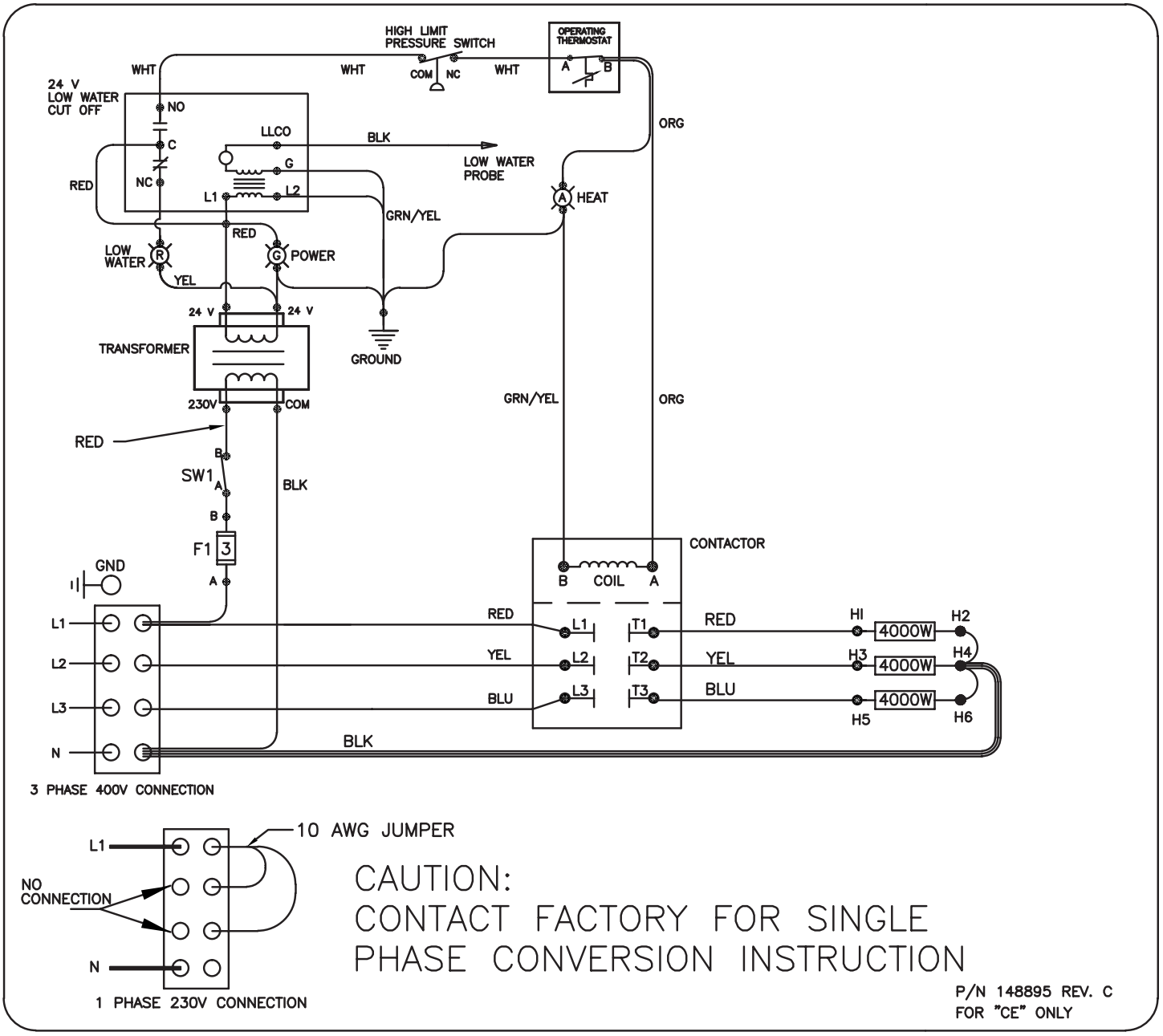
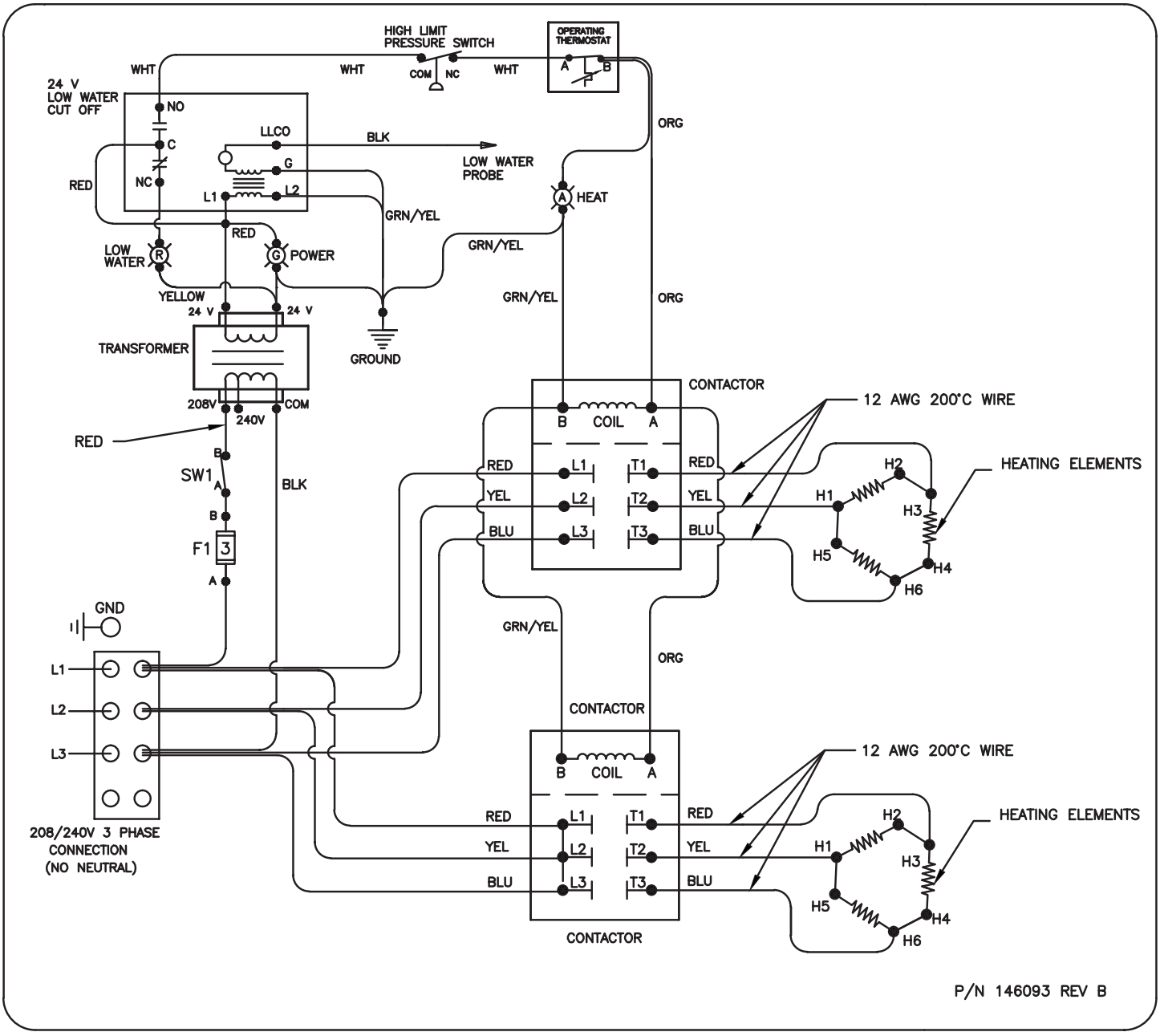
Wiring Diagram



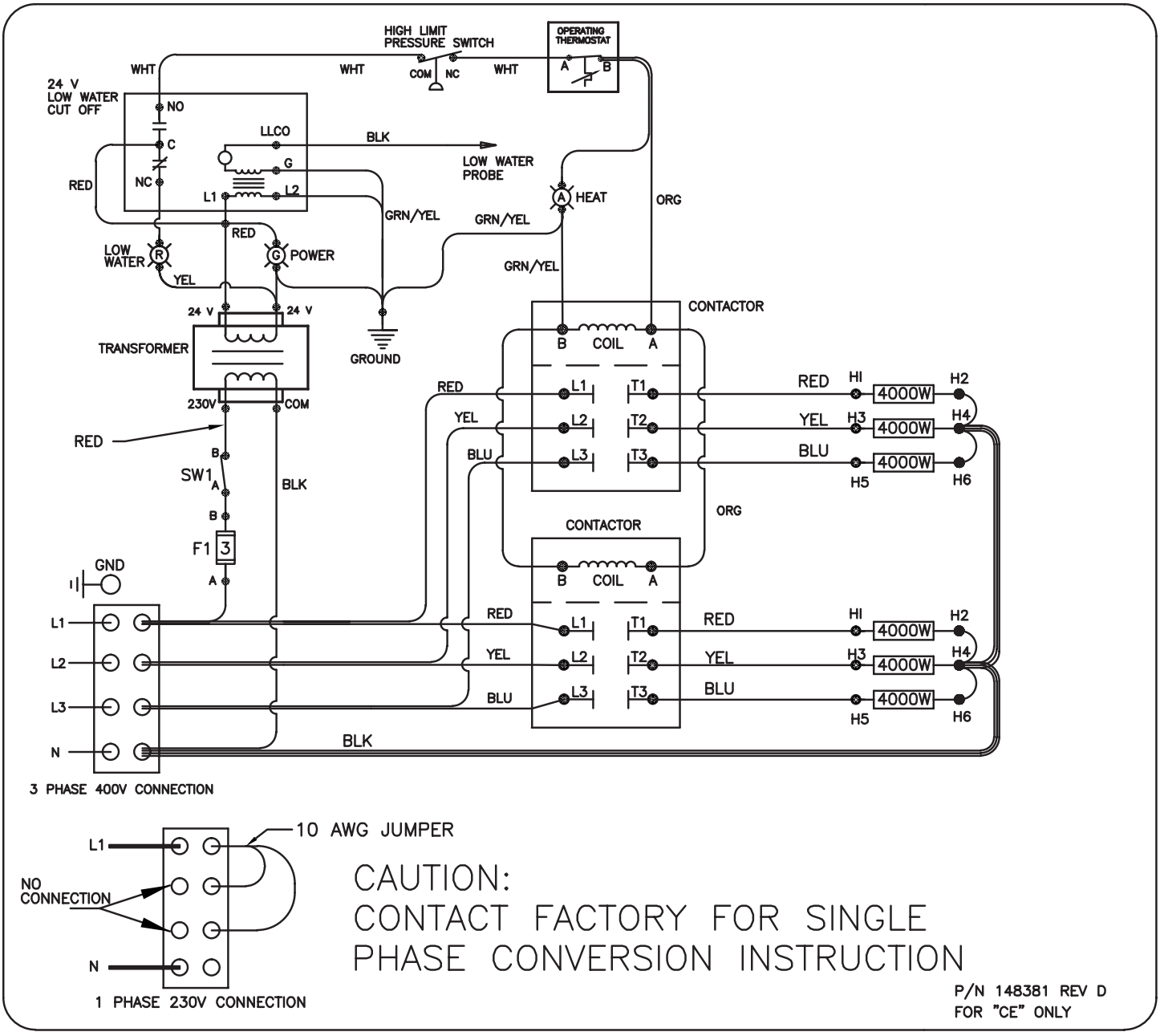
Wiring Diagram



Wiring Diagram



Wiring Diagram



Service Log

Model No:	Purchased From:
Serial No:	Location:
Date Purchased:	Date Installed:
Purchase Order No:	For Service Call:

Date	Maintenance Performed	Performed By