



40ES-KLT Series

SHORT ELECTRIC TILTING FLOOR KETTLE
INSTALLATION - OPERATION - MAINTENANCE



BLODGETT OVEN COMPANY

www.blodgett.com

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Manufacture Service Questions: 866-518-3977

PART NUMBER 170094 REV B (04/11)

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.

POST IN A PROMINENT LOCATION

INSTRUCTIONS TO BE FOLLOWED IN THE EVENT USER SMELLS GAS. THIS INFORMATION SHALL BE OBTAINED BY CONSULTING YOUR LOCAL GAS SUPPLIER. AS A MINIMUM, TURN OFF THE GAS AND CALL YOUR GAS COMPANY AND YOUR AUTHORIZED SERVICE AGENT. EVACUATE ALL PERSONNEL FROM THE AREA.

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. WE SUGGEST 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.

IMPORTANT - READ FIRST - IMPORTANT

- WARNING:** BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.
- CAUTION:** BE SURE ALL OPERATORS READ, UNDERSTAND AND FOLLOW THE OPERATING INSTRUCTIONS, CAUTIONS, AND SAFETY INSTRUCTIONS CONTAINED IN THIS MANUAL.
- 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:** KETTLE MUST BE INSTALLED BY PERSONNEL QUALIFIED TO WORK WITH ELECTRICITY AND PLUMBING. IMPROPER INSTALLATION CAN RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.
- DANGER:** ELECTRICALLY GROUND THE UNIT AT THE TERMINAL PROVIDED. FAILURE TO GROUND UNIT COULD RESULT IN ELECTROCUTION AND DEATH.
- WARNING:** AVOID ALL DIRECT CONTACT WITH HOT EQUIPMENT SURFACES. DIRECT SKIN CONTACT COULD RESULT IN SEVERE BURNS.
- WARNING:** AVOID ALL DIRECT CONTACT WITH HOT FOOD OR WATER IN THE KETTLE. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.
- 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, BOILING AND SAFE PRODUCT TRANSFER.
- WARNING:** TAKE SPECIAL CARE TO AVOID CONTACT WITH HOT KETTLE BODY OR HOT PRODUCT WHEN ADDING INGREDIENTS, STIRRING OR TRANSFERRING PRODUCT TO ANOTHER CONTAINER.
- WARNING:** WHEN TILTING KETTLE FOR PRODUCT TRANSFER:
- 1) USE CONTAINER DEEP ENOUGH TO CONTAIN AND MINIMIZE PRODUCT SPLASHING.
 - 2) PLACE CONTAINER ON STABLE, FLAT SURFACE, AS CLOSE TO KETTLE AS POSSIBLE.
 - 3) DO NOT OVER FILL CONTAINER. AVOID DIRECT SKIN CONTACT WITH HOT CONTAINER AND ITS CONTENTS.
- 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 PRESSURE RELIEF VALVE OPERATION PERIODICALLY COULD RESULT IN PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT.
- WARNING:** DO NOT CONNECT ANY PIPING TO THE PRESSURE RELIEF VALVE. IT MUST BE FREE TO VENT STEAM AS NEEDED. TO AVOID BURNS FROM THE VENTED STEAM THE VALVE DISCHARGE SHOULD POINT DOWNWARD. IMPROPER INSTALLATION WILL VOID WARRANTY.
- WARNING:** DO NOT STAND OR APPLY UNNECESSARY WEIGHT OR PRESSURE ON THE KETTLE FRONT OR POURING LIP. THIS COULD RESULT IN THE OVERLOAD AND FAILURE OF THE TILT MECHANISM, AND POSSIBLE SERIOUS INJURY AND BURNS TO THE OPERATOR AND OTHERS.

IMPORTANT - READ FIRST - IMPORTANT

- NOTICE:** NEVER LEAVE SANITIZER IN CONTACT WITH STAINLESS STEEL SURFACES LONGER THAN 10 MINUTES. LONGER CONTACT CAN CAUSE CORROSION.
- WARNING:** WHEN TESTING, AVOID ANY EXPOSURE TO THE STEAM BLOWING OUT OF THE PRESSURE RELIEF 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.
- WARNING:** KEEP WATER AND SOLUTIONS OUT OF CONTROLS AND ELECTRICAL EQUIPMENT. NEVER USE A HIGH PRESSURE HOSE TO CLEAN KETTLE SURFACES.
- CAUTION:** MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN. WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNINGS AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.
- CAUTION:** USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR CAN CAUSE OPERATOR INJURY AND DAMAGE TO THE EQUIPMENT, AND WILL VOID ALL WARRANTIES.
- IMPORTANT:** SERVICE PERFORMED BY OTHER THAN FACTORY AUTHORIZED PERSONNEL WILL VOID WARRANTIES.
- WARNING:** DO NOT HEAT AN EMPTY KETTLE. EXCESSIVE STEAM PRESSURE COULD DEVELOP.

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References

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800/352-5326 or 612/293-2233

NATIONAL FIRE PROTECTION ASSOCIATION
60 Battery March Park
Quincy, Massachusetts 02269

NFPA/70 - The National Electrical Code

NATIONAL FIRE PROTECTION ASSOCIATION
60 Battery March Park
Quincy, Massachusetts 02269

NSF INTERNATIONAL
789 N. Dixboro Road
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Ann Arbor, Michigan 48113-0140

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

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

Equipment Description



The Blodgett 40ES-KLT is a floor-mounted, tilting, steam jacketed kettle with a thermostatically controlled, self-contained, electrically-heated steam supply and appropriate controls, mounted on a sturdy base.

The body of the kettle is constructed of stainless steel, welded into one solid piece. The kettle is furnished with a reinforced rim and a butterfly shaped pouring lip. It has a steam jacket rated for working pressures up to 50 PSI. Kettle finish is 180 emery grit on the inside and bright semi-deluxe on the outside.

The kettle can be tilted with a hand crank to pour out its contents. Stainless steel panels enclose the controls and the base. Four stainless steel, tubular legs support the unit. Bullet feet on each of the legs can be adjusted to level the kettle. The units include a two inch tangent draw off valve.

A built-in steam generator, sized for the kettle capacity and heated by electricity, delivers steam into the jacket. "Airless" operation of the steam jacket permits uniform, efficient heating at temperatures as low as 150°F and as high as 298°F. In addition to the adjustable thermostat for operating control, the unit has a tilt cut-off switch, low water cut-off, safety valve, and high-limit pressure switch as safety features. A heating indicator light, pressure gauge, and sight glass are provided for monitoring kettle operation.

A single electrical connection is required for installation. The unit may be ordered for use with 208/240, 400 or 480 volt power. All kettles are wired for three-phase operation. Single-phase units are also available.

KETTLE CHARACTERISTICS		
Kettle Capacity	40 Gallon	150 liter
Jacket Capacity	4 Gallon	15.1 liter
Inside Diameter	30 inches	762 mm
Rim Height	39 inches	991 mm
Total Width	47 inches	1194 mm
Front-to-Back	35 inches	889 mm

Optional equipment available with the kettles:

1. 2" diameter tangent draw-off (product valve)*
2. Strainers, solid disk, 1/4" or 1/8" perforations.
3. Lift-off or counterbalanced cover*
4. Water fill faucets
5. Basket cooking system
6. Kettle brush kit
7. Gallon etch marks*

*Factory installed Options.

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 CARTON.

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

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

Carefully cut any polyester straps around the carton and detach the sides of the box from the skid. Pull the carton up off the unit.

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 PERSONNEL QUALIFIED TO WORK WITH ELECTRICITY. IMPROPER INSTALLATION CAN RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

WARNING
DO NOT CONNECT ANY PIPING TO THE PRESSURE RELIEF VALVE. THE VALVE MUST BE FREE TO VENT STEAM AS NEEDED. IMPROPER INSTALLATION WILL VOID THE WARRANTY! THE ELBOW ATTACHED TO THE SAFETY VALVE MUST POINT TO THE FLOOR.

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



The 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 the Food Service Engineering Department.

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

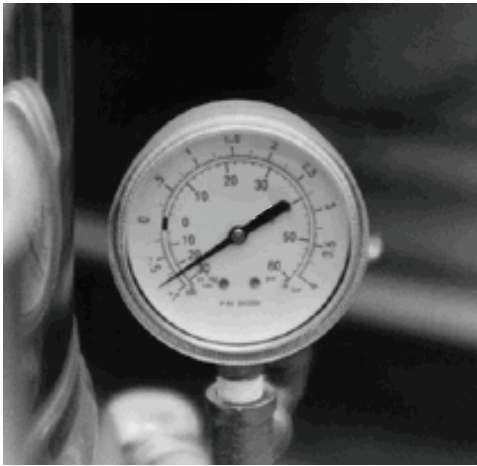
1. Set the kettle in place and level it by turning the bullet feet to adjust leg length. Allow clearance around the unit for cleaning, maintenance and service.
2. Confirm that the jacket water level is at the mid point of sight glass. If the level is low, follow the instructions under "Jacket Filling and Water Treatment," Page 14.
3. The open end of the elbow on the outlet of the pressure relief 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 codes an/or The National Electrical Code in accordance with ANSI/NFPA 70 - (current edition.).
5. The equipment is shipped ready for three phase operation. Refer to the wiring diagram for single phase operation.
6. Bringing the electrical service through the entrance at the rear of the support housing with one inch conduit, making a watertight connection with the incoming lines. Observe local codes and/or the National Electrical Code in compliance with ANSI/NFPA 70 (latest edition). When there is a choice between applicable codes, we recommend following the more stringent code. (A BX connection is not recommended.)
7. Electrically ground the unit at the terminal provided.
8. Check the following to confirm that your kettle is properly installed:
 - Room for cleaning and servicing
 - The kettle is level
 - The correct amount of water is in the kettle jacket
 - Pressure relief valve is pointed down
 - Unit is connected with a waterproof supply of the proper voltage, phase and amperage rating

ELECTRICAL SPECIFICATIONS*		
Voltage	kW	Amperes
208V	21	59
240V	24	61
480V	24	29
400V	24	35

* All at 3-phase. Single-phase also available.

Initial Start-Up

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.



The pressure gauge should show a vacuum of 20 to 30 inches when the kettle is cold.

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. If the unit is equipped with a draw-off valve (product outlet), clean out any material which might clog or damage the draw-off.
3. Confirm that the tilting mechanism is operating properly by tilting the kettle through its full range. Then return the kettle to the upright position.
4. Turn on the electrical service to the unit.
5. Pour 1-2 quarts of water into the kettle.
6. 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.
7. To shut down the unit, turn the thermostat dial 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 Certified Service Agency.

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

Operation

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



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. Controls

Operator controls for the kettle are:

1. Thermostat dial, which turns the thermostat on or off, and sets the kettle temperature.
2. Tilting crank, used to tilt the kettle body.
3. Indicator Lights to alert operator of unit condition. Heat Indicator - indicates that main power is on to produce steam in the kettle jacket.

B. Operating Instructions

1. To Start Kettle
 - a. EVERY DAY make sure that the jacket water level is in the center of the sight glass. If the level is too low, see "Jacket Filling and Water Treatment" on page 14.
 - b. 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.
 - c. Turn on the electrical power to the unit.
 - d. Turn the thermostat dial to the desired setting. The heating indicator light- Indicates that the kettle is heating. Cycling of the light on and off shows that the kettle is being held at the set temperature. Once in each cycle the contactors in the support housing will make a clicking sound. This is normal.
2. To Transfer Product or Empty Kettle:
 - a. The kettle is tilted by means of the crank on the front of the control housing. The kettle remains in the position to which tilted until cranked again.
 - b. Product may also be transferred by means of the optional draw-off valve if the kettle is so equipped.
3. To Stop Kettle Heating:
 - a. Turn thermostat dial to OFF.
 - b. For a prolonged shut-down:
 1. Follow the procedure above.
 2. Disconnect electric power from the unit.

Operation

WARNING
WHEN TILTING KETTLE FOR PRODUCT TRANSFER:

- 1) WEAR PROTECTIVE OVEN MITT AND PROTECTIVE APRON.
- 2) USE DEEP CONTAINER TO CONTAIN AND MINIMIZE PRODUCT SPLASHING.
- 3) PLACE CONTAINER ON STABLE, FLAT SURFACE, AS CLOSE TO KETTLE AS POSSIBLE.
- 4) STAND TO LEFT OR RIGHT OF KETTLE WHILE POURING — NOT DIRECTLY IN POUR PATH OF HOT CONTENTS.
- 5) POUR SLOWLY, MAINTAINING CONTROL OF KETTLE AT ALL TIMES, AND RETURN KETTLE BODY TO UPRIGHT POSITION AFTER CONTAINER IS FILLED OR TRANSFER IS COMPLETE.
- 6) DO NOT OVERFILL CONTAINER. AVOID DIRECT SKIN CONTACT WITH HOT CONTAINER AND ITS CONTENTS.

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. 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 THE KETTLE SPILLS OCCUR, CLEAN AT ONCE TO AVOID SPILLS.

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.

Use Of Common Accessories

A. Lift-Off or Counterbalanced Cover

As with stock pot cooking, an optional cover can speed up the heating of water and food products. A cover helps retain heat and reduces the heat and humidity released into the kitchen. Using a cover can reduce some product cook times and help maintain the temperature, color and texture of products being held or simmered for longer periods.

Be sure the handle is secure on the lift-off cover before using. ALWAYS use the handle to place or remove cover from the kettle. Wear protective oven mitts and a protective apron.

When putting a lift-off cover on the kettle, position it on top of kettle rim, with its flat edge facing the pouring lip.

When removing the lift-off cover:

1. Firmly grasp the handle.
2. Lift rear edge (farthest from operator) 1- 2" (3-5 cm) to allow steam and water vapor to escape the cooking vessel. Wait 2-3 seconds.
3. Tilt cover to 45-60° angle to allow any hot condensate or product to roll off cover back into kettle.
4. Remove cover, ensuring that any remaining hot condensate or product does not drip on operator, floor or work surfaces.
5. Place cover on safe, flat, sanitary, out-of- the-way surface, or return to kettle.

Operation

CAUTION
DO NOT TILT KETTLE WITH LIFT-OFF COVER
IN PLACE. COVER MAY SLIDE
OFF, CAUSING INJURY TO OPERATOR.

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

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



B. Basket Insert

An optional kettle basket insert set can assist in cooking water-boiled products including eggs, potatoes, vegetables, shell fish, pasta and rice. The nylon mesh liner must be used for products smaller than the basket mesh size, (approximately 1/4" (6 mm). This includes rice and small pasta shapes.

Tips For Use.

1. Allow for displacement of the 3 baskets and product. This may mean only filling the kettle half way. Test baskets and product displacement with the kettle 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.
5. When removing baskets with cooked product, lift straight up, ensuring basket bottoms clear the kettle rim and pouring lip. 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 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.

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 operating thermostat dial from “OFF” to a desired setting, the thermostat switch closes. This lights up the heating 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 heating indicator light and causes the contactors to open, stopping 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 heating 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. Every time the kettle is tilted, the tilt cut-off switch interrupts the power supply to the heaters, so that the heating elements will not operate while not submerged in the jacket water.

If steam pressure greater than 50 PSI is generated in the jacket, the safety valve will open and relieve the excess pressure.

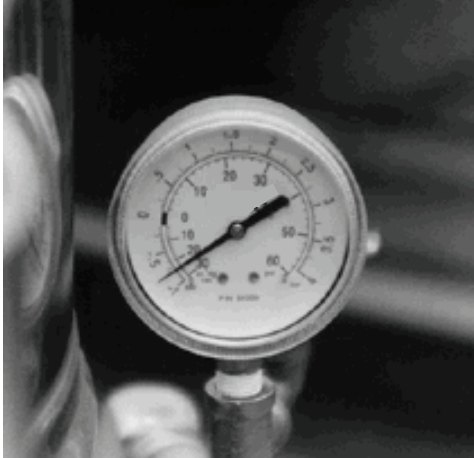
If the jacket water level gets too low before the heating elements overheat, the high-limit control will open and shut off power to the elements until the kettle cools.

Setting the operation thermostat dial to “OFF” shuts down all control and heating circuits. The kettle has the following safety features in addition to the 90-second ignition timer:

1. Low water cutoff relay that will shut off gas supplies to all burners until the jacket water level is corrected.
2. High limit pressure switch, set to open at about 46 PSI and to shut down the burners until jacket pressure is decreased.
3. Pressure relief valve, which will release steam if jacket pressure exceeds 50 PSI.
4. Tilt switch, which shuts off all burners when the kettle is tilted.
5. Gas pressure regulator built into the gas control valve.

Maintenance

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



The pressure gauge should show a vacuum of 20 to 30 inches when the kettle is cold.



Test the pressure relief valve at least twice monthly.



NOTICE: Contact an authorized representative when repairs are required.

A. Periodic Maintenance

A Service Log is provided at the back of this manual with the warranty information. Each time maintenance is performed on your 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:

[BY OPERATOR]

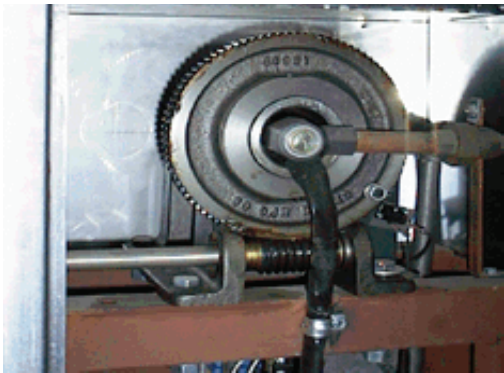
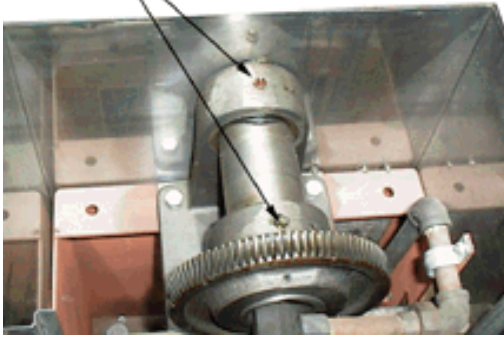
1. Check the pressure/vacuum gauge every day. The gauge should show a vacuum of 20 to 30 inches, when the kettle is cold. If it does not, see "Jacket Vacuum" on page 14.
2. Also check the jacket water level every day. It should be between the marks on the gauge glass. If the level is low, see "Jacket Filling and Water Treatment" on page 14.
3. Carefully test the pressure relief valve at least twice each month. With the kettle operating at 15 psi (105 kPa), pull the test lever and let it snap back to its closed position. If there is little discharge (mostly air), and the pressure gauge drops back to zero PSI, allow the pressure to build back to five PSI and repeat the procedure. (Tip: Using a screwdriver or other implement to pull the ring will help you avoid contact with the steam.

[BY SERVICE TECHNICIAN]

4. Electrical wiring should be kept securely connected and in good condition.
5. The inside of the support housing should be kept clean.

Maintenance

Zerk
Fitting

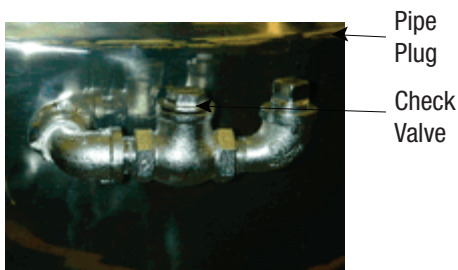
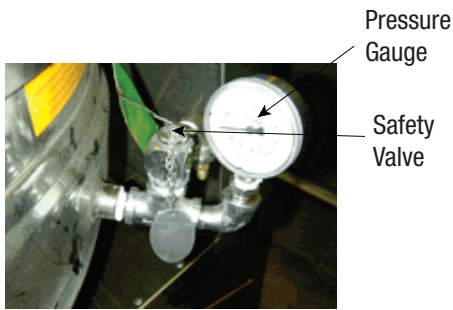


Liberally grease the wheel where it
contacts the worm gear.

6. The gear housing has fittings for lubrication of moving parts. The gears do not run in oil, so periodic lubrication with grease is necessary.
7. Frequency of lubrication depends on operating conditions, but it should be done at least once every six months.
8. Use a #2 grade LGI lithium grease to add grease through Zerk fittings on gear housing until it flows out of the bearings around the trunnion shaft.
9. Place liberal amounts of grease on the gear to cover the arc that is in contact with the worm gear.
10. Keep electrical wiring and connections in good condition.
11. Keep the inside of the control console clean and dry.

Maintenance

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



Test the safety valve
at least twice monthly.

B. Jacket Vacuum/Removing Air from Jacket

When the kettle is cold, a positive pressure reading on the pressure/vacuum gauge or a reading near zero indicates that there is air in the jacket. Air in the jacket acts as an insulator, and slows kettle heating.

To remove air:

1. Start the unit. (Be sure there is water or product in the kettle when heating).
2. When the pressure/vacuum gauge reaches a positive pressure reading of five PSI, release the trapped air and steam by pulling up the safety valve ring for about five seconds. Repeat this step three or four times. Then let the pull ring snap back into the closed position.
3. If there is little discharge (mostly air), and the pressure gauge drops back to zero PSI, allow the pressure to build back to five PSI and repeat the procedure.
4. Once steam has been vented from the jacket as described in b, above, remove the hot water from the kettle and replace it with cold. This will condense steam in the kettle jacket, and the pressure gauge should show a reading of 20 to 30 inches mercury (Hg) below zero. If it does not, or if the vacuum is leaking down, contact an authorized service agency to correct the problem.

C. 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, either because it was lost as venting steam or by draining. 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 "Water Treatment Procedure," below.

1. Allow the kettle to cool completely. The procedure will be easier with the kettle under vacuum (pressure gauge reading below zero).
2. Allow the kettle to cool completely. Remove the pipe plug from the jacket fill assembly. Pour in the distilled or treated water. Using a funnel will help you in this process. Hold the pressure relief valve open while you pour, to let air escape from the jacket. Continue adding water until the water level rises to the center of the round sight glass.
3. Position a funnel in the opening and fill it with properly treated water.
4. Air that gets into the jacket during the filling operation must be removed, because it will make heating less efficient. Follow the procedure in Jacket Vacuum/Removing Air From Jacket above, to restore a negative pressure reading.

Maintenance

D. Water Treatment Procedure

1. Obtain water treatment compound and a pH test kit from your authorized parts distributor.
2. Fill a mixing container with the measured amount of water required. (See table). Distilled water is recommended.
3. Hang a strip of pH test paper on the rim of the container, with about 1 inch of the strip below the surface of the water.
4. Measure the water treatment compound (One way to do this is to add the compound from a measuring cup.)
5. 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 color chart provided in the pH test kit. If you are color blind use an electroanalytical instrument to measure the pH level or have a person who is not color blind read the test strip color level.
6. 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.

Model	Jacket Capacity
40ES-KLT	4 Gallons
	(15.1 liter)

Cleaning

WARNING

KEEP WATER AND SOLUTIONS AWAY FROM 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. WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD, AND PROTECTIVE CLOTHING. READ THE WARNINGS AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER CAREFULLY.

CAUTION

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



Scrapers or steel wool can harm the kettle surface.



Use only a sponge, cloth or plastic brush to clean the kettle.

1. Suggested Tools
 - a. Cleaner, such as Klenzade HC-10 or HC-32 from ECOLAB, Inc.
 - b. Kettle brushes in good condition.
 - c. Sanitizer such as Klenzade XY-12.
 - d. Film remover such as Klenzade LC-30.
 - e. Spray Degreaser
 - f. DeLimer/Descaler
2. Precautions

Before cleaning, shut off the kettle by turning the thermostat dial 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.
 - 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, housings, and electrical conduits.
 - d. Rinse the kettle thoroughly with hot water, then drain completely.
 - e. As part of the daily cleaning program, clean soiled external and internal surfaces. Remember to check the sides of the unit and control housing.
 - f. 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.

Cleaning

- g. The outside of the unit may be polished with a stainless steel cleaner such as “Zepper” from Zep Manufacturing Co.
- h. 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.
- i. It is recommended that each piece of equipment be sanitized just before use.
- j. 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, in accordance with the manufacturer’s directions. Rinse and drain the unit before further use.
- k. If cleaning problems persist, contact your cleaning product representative for assistance. The supplier has a trained technical staff with laboratory facilities to serve you.

NOTICE: NEVER LEAVE A CHLORINE SANITIZER IN CONTACT WITH STAINLESS STEEL SURFACES LONGER THAN 30 MINUTES. LONGER CONTACT CAN CAUSE STAINING AND CORROSION.

Troubleshooting

Your 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 and in this manual. **If an item on the list is followed by X, the work should be done by a qualified service representative.**

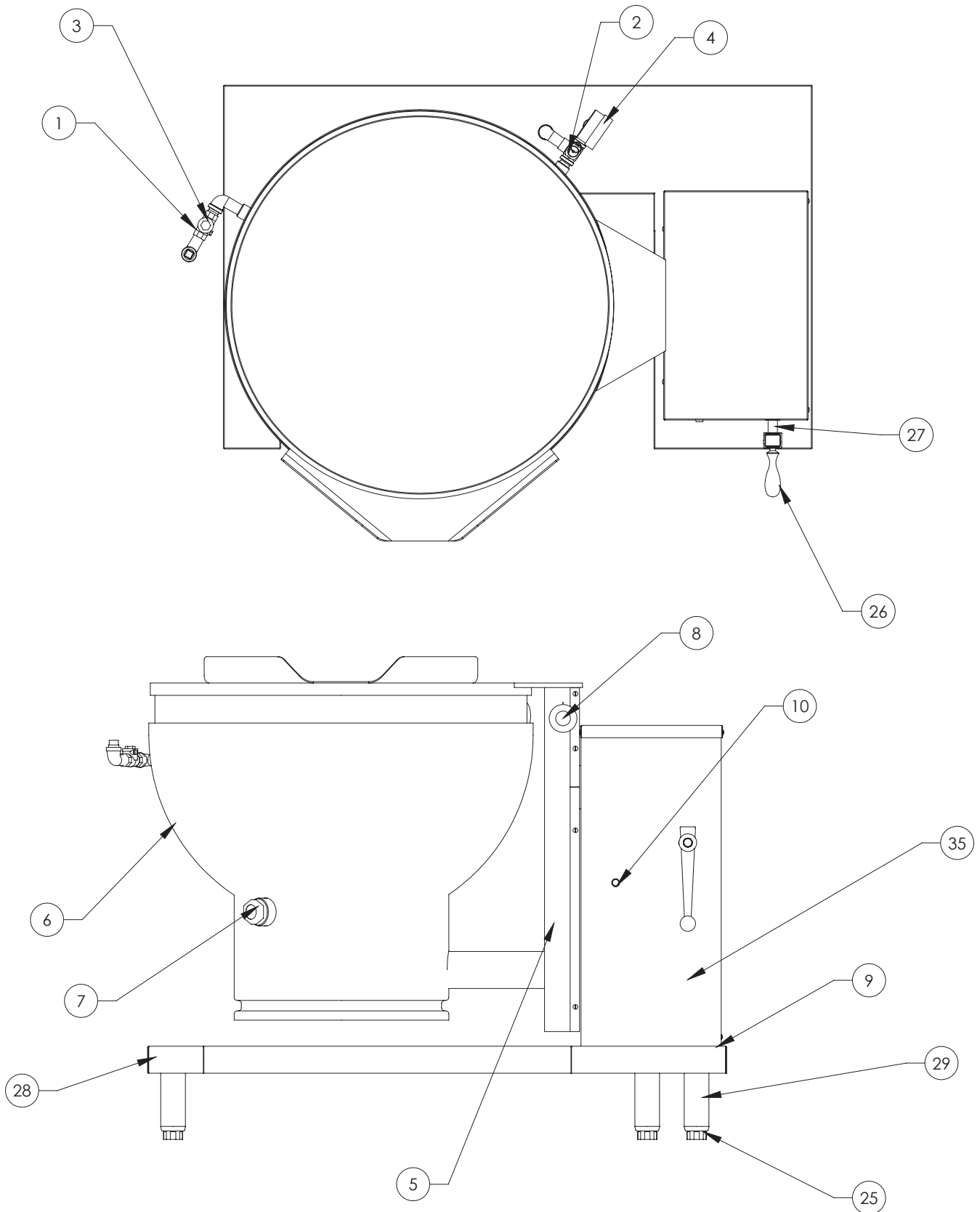
USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY THE MANUFACTURER AND/OR AUTHORIZED DISTRIBUTOR CAN CAUSE INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.

SYMPTOM	WHO	WHAT TO CHECK (X indicates work that should only be performed by a qualified service representative)
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. Replace a blown fuse only with a fuse of the same AMP rating. X d. For loose or broken wires. X e. Tilt cut-off switch. X f. That pressure switch is open. X g. Operation of variable thermostat. X h. Low water cutoff. 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 service. 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 operation. The thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. X d. Contactor, to determine whether it is energized or stuck. X

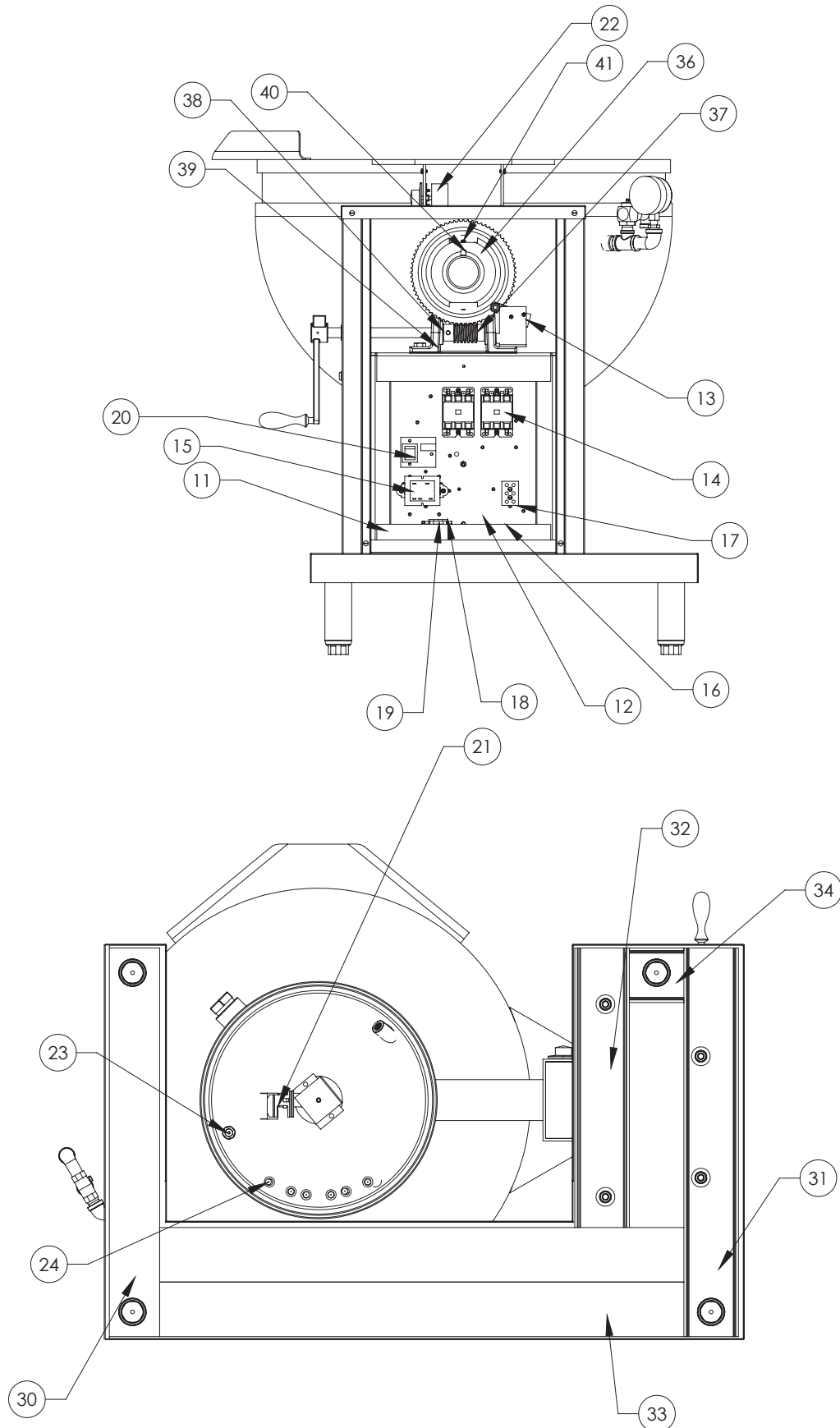
Troubleshooting

SYMPTOM	WHO	WHAT TO CHECK (X indicates work that should only be performed by a qualified service representative)
Kettle stops heating before it reaches the desired temperature.	User	a. Thermostat dial setting.
	Authorized Service Rep Only	b. Thermostat calibration. X c. Thermostat operation. The thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. 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 service. X c. Voltage of main power source. X
Pressure relief 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 switch setting. 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. Pressure relief valve. If the valve pops at pressures below 48 PSI, replace it. X f. Contactor, to determine whether it is de-energized. X
Pressure relief 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
Kettle is hard to tilt.	Authorized Service Rep Only	a. Tilting gear and worm for contamination and for proper alignment and lubrication. X

Parts List



Parts List



Parts List

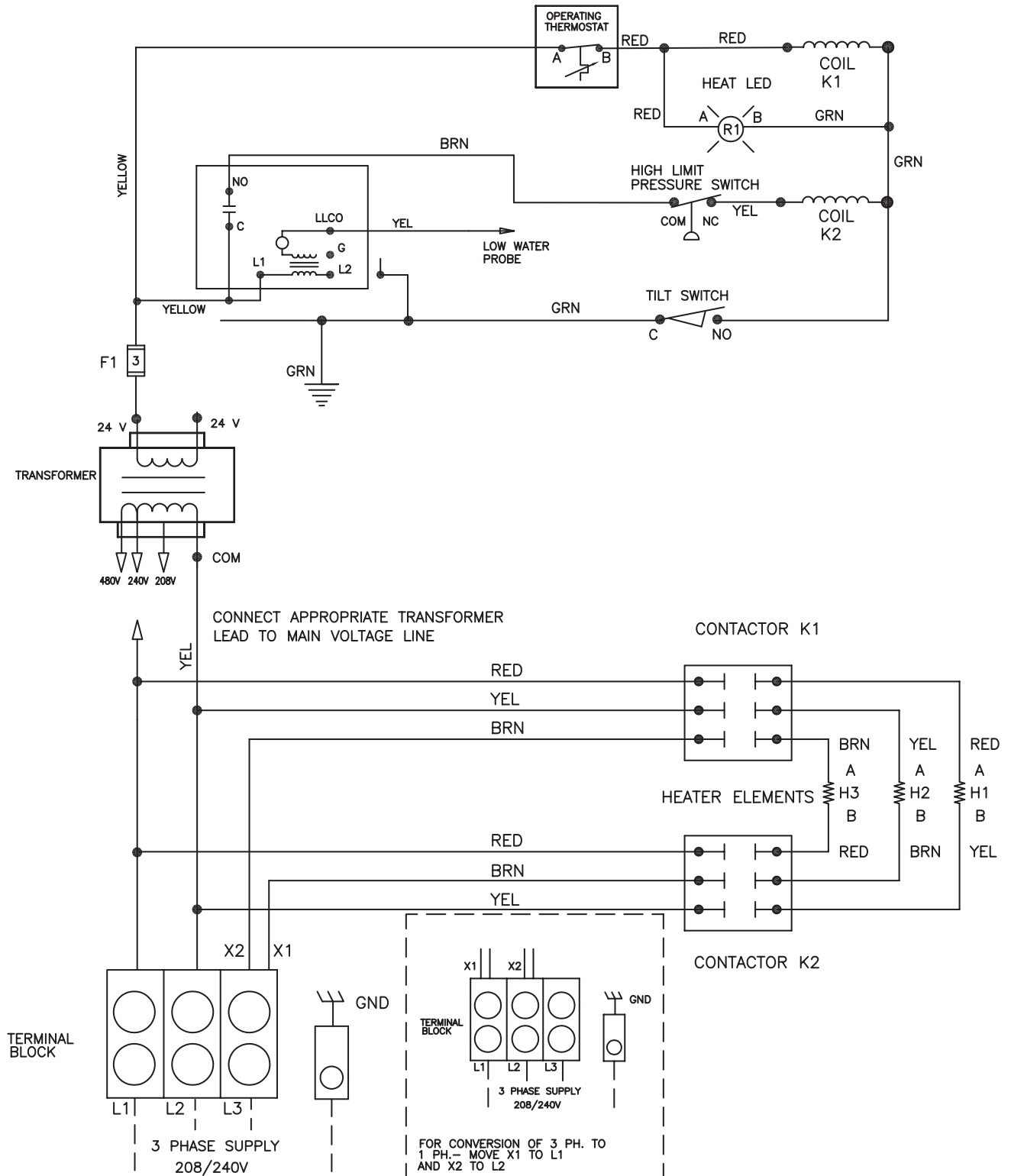
To order parts, contact your Authorized Service Agent. Supply the model designation, serial number, part description, part number, quantity, and when applicable, voltage and phase.

Key	Description	Part #
1	Water Fill Assembly	139396
2	Safety Valve	097005
3	Check Valve	004187
4	Pressure Gauge	170003
5	Trunnion Support Arm Assembly	137877
6	Kettle Body Assembly, No TDO 208V	140593
	Kettle Body Assembly, No TDO 240V	140594
	Kettle Body Assembly, No TDO 480V	140595
	Kettle Body Assembly, TDO 208V	140596
	Kettle Body Assembly, TDO 240V	140597
	Kettle Body Assembly, TDO 480V	140598
7	Sight Glass	108554
8	Knob Thermostat	170229
9	Base and Pedestal Assembly	147855
10	Light, Red	116383
11	Pedestal Weldment	138107
12	Electrical Mount Assembly	138123
13	Tilt Switch	002982
14	Contacto	148102
15	Transformer, 208/240v/24v 40va	137441
	Transformer, 480v/24v 40va	137694
16	Ground Terminal	129714
17	Terminal Block	003888
18	Fuse Holder	077854
19	Fuse, 3 Amp	077853
20	Water Level Board	122192
21	Pressure Switch	096963
22	Thermostat	009730
23	Water Level Probe	070178

Key	Description	Part #
24	Element, 208v 9.95kw	005977
	Element, 240v 8kw	005974
	Element, 480v 8kw	005980
25	Foot, Adjustable Bullet	013275
26	Handle, Crank	013617
27	Shaft, Handwheel	013624
28	Stand Cladding	139054
29	Leg Tube	147506
30	Left Frame Support	146999
31	Right Frame Support	137953
32	Inner Frame Support	137954
33	Rear Frame Support	146998
34	Short Frame Support	137955
35	Pedestal Cladding Assembly	138112
36	Gear Bore	013609
37	Worm Gear	012026
38	Bearing	009765
39	Bearing Housing	009762
40	Key 3/8"	001474
41	Set Screw	012060
X	Cover Skirt	139834
X	Cover, Side Pedestal	001464
X	Cover, Top Pedesta	138114
X	Cover, Lower Trunnion Support Arm	137863
X	Cover, Upper Trunnion Support Arm	137860
X	Overlay Operating Instructions	170011
X	Harness, Wire	148544
X	Harness, High Voltage	149942
X	Harness, Control	149943

X - Item not depicted/called out in drawing or photograph.

Wire Diagrams



Service Log

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

Date	Service Performed	Performed By

Service Log

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

Date	Service Performed	Performed By



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