

IMPORTANT INFORMATION

KEEP FOR OPERATOR

IMPORTANT INFORMATION

# OPERATOR MANUAL

Part Number 147914 Rev. C

OM-DEES

DOMESTIC

MODEL: DEES  
Low Height Steam Jacketed Kettle

Self-Contained  
Stainless Steel  
Electrically heated  
Floor mounted  
Tilting



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.**



Information contained in this document is known to be current and accurate at the time of printing/creation. Unified Brands recommends referencing our product line websites, [unifiedbrands.net](http://unifiedbrands.net), for the most updated product information and specifications.



Packaging - Processing  
**Bid on Equipment**  
1-847-683-7720  
[www.bid-on-equipment.com](http://www.bid-on-equipment.com)

**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.
- 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.

**IMPORTANT — READ FIRST — IMPORTANT**

- 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 GROEN OR THEIR AUTHORIZED DISTRIBUTORS 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.

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**References**

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

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

NFPA/70 - The National Electrical Code

NSF INTERNATIONAL  
789 N. Dixboro Rd.  
P.O. Box 130140  
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 Groen DEES 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 DEES 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. DEES/T 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	
	DEES-40 & DEES/T-40
Kettle Capacity	40 gal (150l)
Kettle Diameter	30 in (76 cm)
Rim Height	39 in (99 cm)
Total Width	47 in (119 cm)
Front to Back	35 in (90 cm)



## OM-DEES

Optional equipment available with DEE/4 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. TRI-BC basket cooking system
6. Powered agitators (TA/3 or INA/2)\*
7. Kettle brush kit
8. 316 Stainless Steel interior\*
9. Gallon etch marks\*
10. Automatic metered water filters.

\* Factory Installed Options.

## Inspection & Unpacking

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.

**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.**

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.

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

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

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.

**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.**

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 13.

**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.**

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 and/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, Groen recommends following the more stringent code. (A BX connection is **not** recommended.)



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

7. Electrically ground the unit at the terminal provided.
8. Check the following to confirm that your DEES 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\*

	DEES-40	
	KW	AMP
208 Volts	21	59
240 Volts	24	61
480 Volts	24	29
400 Volts	24	35

\*All three phase. Single phase is also available.

## Initial Start-Up

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

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.



**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.**

5. 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 Groen Certified Service Agency.



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

## Operation



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 DEES 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 13.
  - 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 13.
  - 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.

**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.**

**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.



**Use Of Common Accessories**

1. 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.

**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.**

**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.**

When removing the lift-off cover:

- a) Firmly grasp the handle
- b) 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.
- c) Tilt cover to 45-60° angle to allow any hot condensate or product to roll off cover back into kettle.
- d) Remove cover, ensuring that any remaining hot condensate or product does not drip on operator, floor or work surfaces.

**CAUTION**

**KEEP FLOORS IN FRONT OF THE KETTLE SPILLS OCCUR, CLEAN AT ONCE TO AVOID SPILLS.**

- e) Place cover on safe, flat, sanitary, out-of-the-way surface, or return to kettle.

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

2. 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.

- a) 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.



**DO NOT OVERFILL THE KETTLE WHEN COOKING, HOLDING OR CLEANING. KEEP LIQUIDS AT LEAST -3" (5-8CM) 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) Load baskets on a level, stable work surface.
- c) Lift loaded baskets with both hands. Get help from another person if the basket is too heavy for safe handling.
- d) Slowly lower product into kettle and securely hook the basket to the "Y" frame.
- e) 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.

- f) 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. . .
- g) 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

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

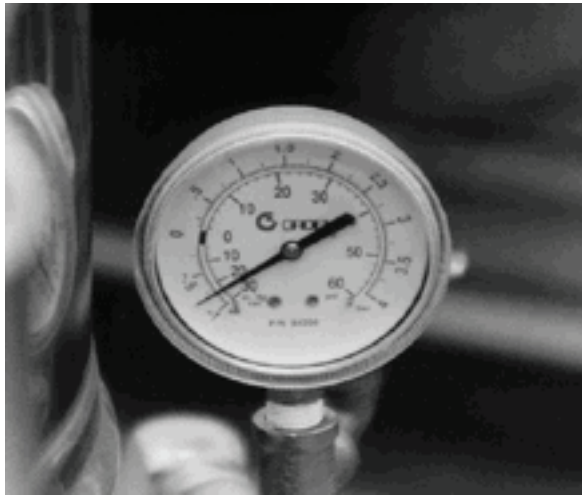
### 1. Periodic Maintenance

A 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:

#### [BY OPERATOR]

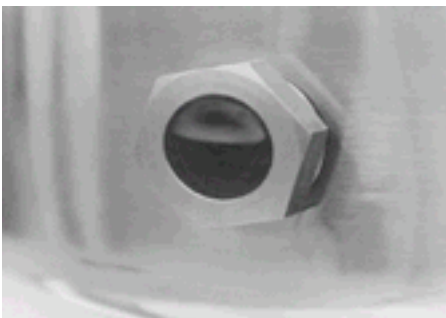
- a. Check the pressure/vacuum gauge



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

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 13.

- 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 13.



- c. 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.



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



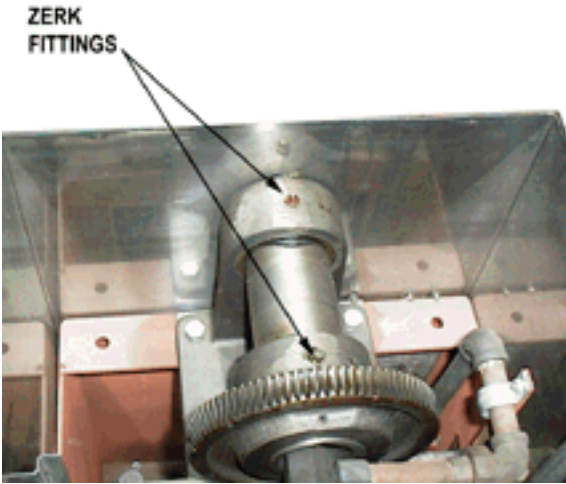
**Test the pressure relief valve at least twice monthly.**

#### [BY SERVICE TECHNICIAN]

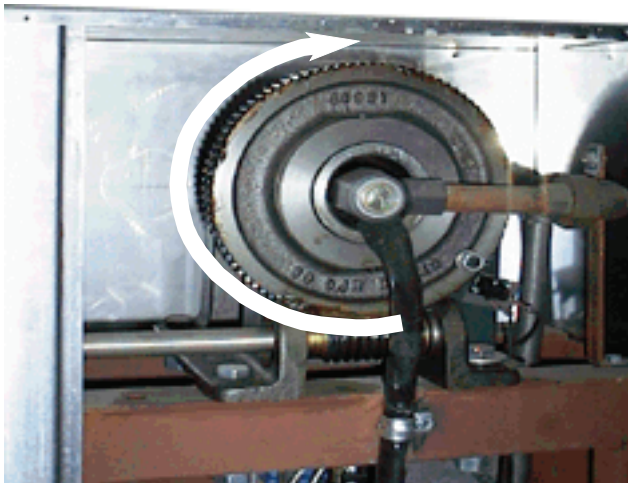
- d. Electrical wiring should be kept securely connected and in good condition.
- e. The inside of the support housing should be kept clean.

## OM-DEES

- f. The gear housing has fittings for lubrication of moving parts. The gears do not run in oil, so periodic lubrication with grease is necessary.
- g. Frequency of lubrication depends on operating conditions, but it should be done at least once every six months.
- h. 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.
- j. Keep electrical wiring and connections in good condition.
- k. Keep the inside of the control console clean and dry.



- i. Place liberal amounts of grease on the gear to cover the arc that is in contact with the worm gear.



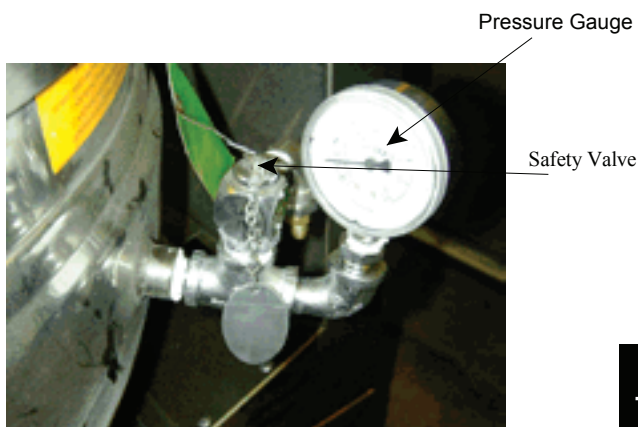
**Liberal grease the wheel where it contacts the worm gear.**

**2. 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:

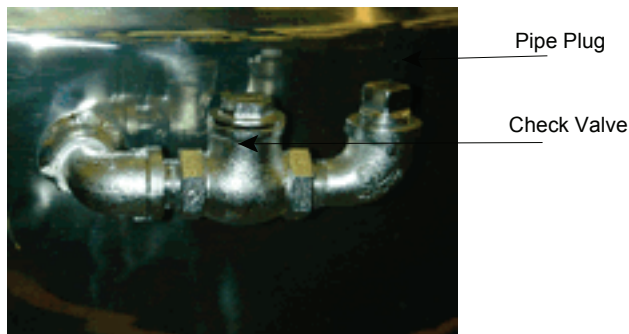
- a. Start the unit. (Be sure there is water or product in the kettle when heating).
- b. When the pressure/vacuum gauge reaches a positive pressure reading of five PSI, release the trapped air and steam by pulling up the safety valve ring for about five seconds. Repeat this step three or four times. Then let the pull ring snap back into the closed position.
- c. 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.
- d. 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 a Groen authorized service agency to correct the problem.



**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, 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.



**Test the safety valve at least twice monthly.**

- a. Allow the kettle to cool completely. The procedure will be easier with the kettle under vacuum ( pressure gauge reading below zero).
- b. 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.
- c. Position a funnel in the opening and fill it with properly treated water.
- d. 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.

**4. Water Treatment Procedure**

- (1) Obtain water treatment compound and a pH test kit from your authorized Groen parts distributor.

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

- (2) Fill a mixing container with the measured amount of water required. (See table). Distilled water is recommended.

## OM-DEES

Kettle Model	Jacket Capacity
DEES-40, DEES/T-40	4 Gallons

- (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.

## Cleaning

### 1. Suggested Tools

- Cleaner, such as Klenzade HC-10 or HC-32 from ECOLAB, Inc.
- Kettle brushes in good condition.
- Sanitizer such as Klenzade XY-12.
- Film remover such as Klenzade LC-30.
- Groen Spray Degreaser (p/n 114801)
- Groen DeLimer/Descaler (p/n 114800)

### 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.

**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.**

### 3. Procedure

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

#### CAUTION

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

- 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.

- Rinse the kettle thoroughly with hot water, then drain completely.
- As part of the daily cleaning program, clean soiled external and internal surfaces. Remember to check the sides of the unit and control housing.
- 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.



**Scrapers or steel wool can harm the kettle surface.**



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

## OM-DEES

- 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.
- i. 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) or Lime-Away from Ecolab, in accordance with the manufacturer’s directions. Rinse and drain the unit before further use.

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

- j. If cleaning problems persist, contact your cleaning product representative for assistance. The supplier has a trained technical staff with laboratory facilities to serve you.

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

**USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY GROEN 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.
	Auth Service Rep Only	c. Control circuit fuses. Replace a blown fuse only with a fuse of the same AMP rating. ✕ d. For loose or broken wires. ✕ e. Tilt cut-off switch. ✕ f. That pressure switch is open. ✕ g. Operation of variable thermostat. ✕ h. Low water cutoff. ✕
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.
	Auth Service Rep Only	b. Contactor. ✕ c. Heater elements with ohmmeter for ground short or open element. If element is defective, call Groen. ✕
Kettle continues heating after it reaches the desired temperature	User	a. Thermostat dial setting.
	Auth Service Rep Only	b. Thermostat circuit for short. ✕ c. Thermostat operation. The thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. ✕ d. Contactor, to determine whether it is energized or stuck. ✕

SYMPTOM	WHO	WHAT TO CHECK <small>✗Indicates items which must be performed by an authorized technician.</small>
Kettle stops heating before it reaches the desired temperature.	User	a. Thermostat dial setting.
	Auth Service Rep Only	b. Thermostat calibration. ✗ c. Thermostat operation. The thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. ✗
Kettle heats slowly	User	a. For air in the jacket. See “Jacket Vacuum” in the “Maintenance” section of this manual.
	Auth Service Rep Only	b. Heater elements with ohmmeter for ground short or open element. If an element is defective, call Groen. ✗ c. Voltage of main power source. ✗
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.
	Auth Service Rep Only	c. Pressure switch setting. ✗ d. Thermostat operation. Thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. ✗ e. Pressure relief valve. If the valve pops at pressures below 48 PSI, replace it. ✗ f. Contactor, to determine whether it is de-energized. ✗
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.
	Auth Service Rep Only	b. Safety valve for defects. <b>Replace</b> any defective valve with an <b>identical</b> valve. ✗
Kettle is hard to tilt.	Auth Service Rep Only	a. Tilting gear and worm for contamination and for proper alignment and lubrication. ✗