

## OPERATOR MANUAL

Part Number 137575 Rev A

## OM-TDB

DOMESTIC

**Models: TDB and TDBC**  
**Steam Jacketed Kettle**

*Self-Contained*  
*Electrically heated*  
*Table top mounted*  
*Tilting*



**Model TDBC**



**Model TDB**



**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.



**IMPORTANT — READ FIRST — IMPORTANT**

- 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. 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:** DO NOT STAND ON OR APPLY UNNECESSARY WEIGHT OR PRESSURE ON THE KETTLE FRONT OR POURING LIP. THIS COULD RESULT IN OVERLOAD AND FAILURE OF THE TILT MECHANISM, AND POSSIBLE SERIOUS INJURY AND BURNS TO THE OPERATOR AND OTHERS.
- WARNING:** WHEN TILTING KETTLE FOR PRODUCT TRANSFER:
- 1) WEAR PROTECTIVE OVEN MITT AND PROTECTIVE APRON.
  - 2) USE CONTAINER DEEP ENOUGH 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 SIDE OF KETTLE (DEPENDING ON TILTING HANDLE PLACEMENT) WHILE POURING . DO NOT STAND DIRECTLY IN POUR PATH OF HOT CONTENTS.
  - 5) POUR SLOWLY, MAINTAIN CONTROL OF KETTLE BODY HANDLE AT ALL TIMES, AND RETURN KETTLE BODY TO UPRIGHT POSITION AFTER CONTAINER IS FILLED OR TRANSFER IS COMPLETE.
  - 6) 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:** 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:** BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY.

**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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## Equipment Description

The Groen TDB and TDBC are table top, tilting, steam jacketed kettles with a thermostatically controlled, self-contained, electrically-heated steam supply and appropriate controls, mounted on a sturdy base. Models TDB and TDBC are available in 20 or 40 - quart capacity.

The body of the TDB and TDBC 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 a design pressure of 50 PSIG. Kettle finish is 180 emery grit on the inside and bright semi-deluxe on the outside. A tilt handle on the TDB kettle and a handwheel crank on the TDBC kettle allows the operator to manually tilt the kettle body in a controlled manner. Pouring height accepts pans up to four inches high on a table top.

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 295°F. In addition to the adjustable thermostat for operating control, the unit has a tilt cut-off switch, low water cut-off, pressure relief 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 or 480 volt power. All kettles are wired for 208 volt, three-phase operation. For 240 volt, three-phase OR single-phase conversion, see the wiring diagrams and installation instructions in this manual.

KETTLE CHARACTERISTICS				
	TDB-20 and TDBC-20		TDB-40 and TDBC-40	
Kettle Capacity	20 qts.	18.8 liters	40 qts.	37.6 liters
Jacket Capacity	7 qts.	6.6 liters	9 qts.	8.5 liters
Diameter	14"	36 cm	16-1/2"	42 cm
Depth	11"	28 cm	14-1/4"	36 cm
K.W. at 208 V	6.3		10.8	
K.W. at 240 V	8.4		14.4	
K.W. at 480 V	6.3		12.0	
Base Width	24"	60 cm	28"	60 cm
Base Depth	16"	41 cm	16"	41 cm

Options available include:

1. Kit, cover and holder (P/N 139805, 20 quart - P/N 139806, 40 quart).
2. One-piece, lift-off cover (P/N 128003, 20 quart - P/N 128002, 40 quart).
3. Holder for Lift-off cover (P/N 133837).
4. Basket insert (P/N 001159, 20 quart - P/N 001161, 40 quart).
5. Rice Strainer (P/N 005187, 20 quart - P/N 005186, 40 quart).
6. Stand that supports the unit and holds a pan in position for filling (Model TS-9).
7. Water fill swing faucet.
8. 316 stainless steel interior (must be ordered with original equipment order).
9. Agitators with motor drives (must be ordered with original equipment order).

## Inspection & Unpacking

The unit will arrive in a heavy shipping carton and will be attached 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 the polyester straps around the carton and detach the sides of the box from the skid. Pull the carton up off the unit.

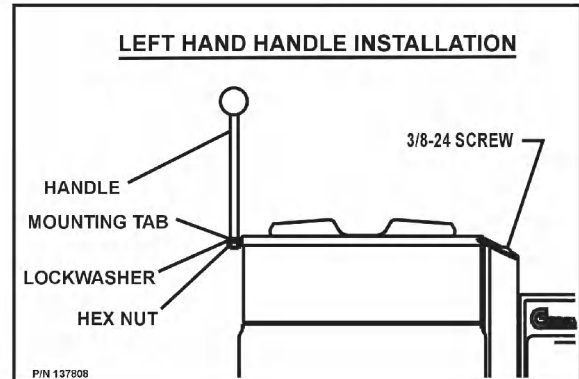
Thoroughly inspect the unit for concealed damage. Report any shipping damage or incorrect shipments to the delivery agent.

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 WEIGHS 140 TO 163 LB. (64 TO 74 KG). INSTALLER SHOULD OBTAIN HELP AS NEEDED TO LIFT THIS WEIGHT SAFELY.**

When installation is to begin, carefully cut the 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.

For TDB units, attach the tilt handle (normally shipped inside the kettle) by carefully threading it into the socket on the trunnion support. Be careful to avoid cross-threading the fine threads on the trunnion.



**NOTE:** After handle installation on the right hand side, retain the hardware supplied with the unit for left hand installation.



## Installation

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



**WARNING**  
**INSTALLATION OF THE KETTLE MUST BE DONE BY A CERTIFIED ELECTRICIAN OR GROEN AUTHORIZED REPRESENTATIVE 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. The base should be securely fastened to a table or work surface. Four 3/8"-16 N.C. threaded couplings are provided in the base of unit. Installation under a ventilation hood is recommended.
2. Once the unit is anchored to a mounting surface, apply a small bead of silicone caulk around the perimeter of the kettle base and seal the joint.
3. Provide electrical power as specified on the electrical information plate attached to the equipment. Observe local codes and/or The National Electrical Code in accordance with ANSI/NFPA 70 - (current edition).
4. Standard equipment is shipped ready for 208V, 3-phase or 480V, 3-phase operation. Refer to the wiring diagram located on the inside cover of the control box and the instructions below for conversion to single-phase operation. A jumper wire and "conversion" label are included with the unit. They can be found in a plastic bag attached to the trunnion assembly inside the control box.

**CAUTION**  
**BEFORE ANY ELECTRICAL CONVERSION, VERIFY THAT THE BRANCH CIRCUIT WIRING IS ADEQUATE TO HANDLE ANY INCREASE AMPERAGE REQUIREMENTS. REFER TO THE ELECTRICAL SPECIFICATIONS LISTED BELOW.**

- a. For conversion from 208V, 3-phase to 208V or 240V 1-phase OR 480V, 3-phase to 480V, 1-phase:
  - i. Verify that the branch circuit wiring is adequate for any increased amperage requirements (see table on page 8).
  - ii. For 240V 1-phase only, enlarge electrical inlet opening for 1" conduit fitting. Use a 1" sealtite conduit fitting.
  - iii. 1-phase requires two jumper wires. One jumper wire exists on the terminal block for 3-phase input. The second jumper wire is located in a plastic bag inside the control box.
  - iv. Attach jumper wire to terminal block as per wiring diagram for 1-phase supply.
  - v. For 240V 1-phase only, pull lead from 208V tab on control transformer and insert on 240V tab (See Photo #1).
  - vi. Complete "conversion label" (supplied in bag) and adhere it to the control box near the UL dataplate.
- b. For conversion from 208V, 3-phase to 240V, 3-phase:
  - i. Verify that the branch circuit wiring is adequate for any increased amperage requirements (see table on page 8).
  - ii. Pull lead from 208V tab on control transformer and insert on 240V tab. (See Photo #1)
  - iii. Complete "conversion label" (supplied in bag and adhere it to the control box near the UL dataplate).

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- c. For conversion from 480V, 3-phase to 460V, 3-phase:
  - i. Verify that the branch circuit wiring is adequate for any increase amperage requirements (see table on page 8).
  - ii. Complete "conversion label" (supplied in bag and adhere it to the control box near the UL dataplate).
5. Bring incoming electrical service through the conduit fitting (for 240V 1-phase, a new one inch conduit fitting is required) at the rear of the support housing, making a watertight connection with the incoming lines. A **BX** style connection is **not** recommended.

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

6. Confirm that the jacket water level is at or just above mid point of sight glass (new models). If the level is low, follow the instructions under "Jacket Filling and Water Treatment" in the "Maintenance" section of the manual.
7. Ensure that the open end of the elbow on the outlet of the pressure relief valve is directed downward.

### TDB / TDBC SUPPLY WIRE REQUIREMENTS THWN (75°) / THHN (90°) COPPER ONLY

TDB-20, TDBC-20			TDB-40, TDBC-40		
VOLTAGE	AMPS	SUPPLY WIRE	VOLTAGE	AMPS	SUPPLY WIRE
208V 1 PH 3 PH	31 18	8 12	208V 1 PH 3 PH	52 30	6 8
240V 1 PH 3 PH	35 20	8 12	240V 1 PH 3 PH	60 35	4 8
460V 3 PH	7.3	14	460V 3 PH	14	12
480V 1 PH 3 PH	14 8	14 14	480V 1 PH 3 PH	25 15	10 12



**Photo #1**  
 Pull lead from 208V tab and insert on 240V tab.



## 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. Turn on the electrical service to the unit.
3. Pour 1-2 quarts of water into the kettle.
4. 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.
5. To shut down the unit, turn the thermostat dial to "OFF".



**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.**

If the unit functions as described above, it is ready for use. If the unit does not function as intended, first recheck power supply connections and, if necessary, contact your local Groen Certified Service Agency.



**A simple turn of the thermostat controls the Groen TDB and TDBC kettle.**

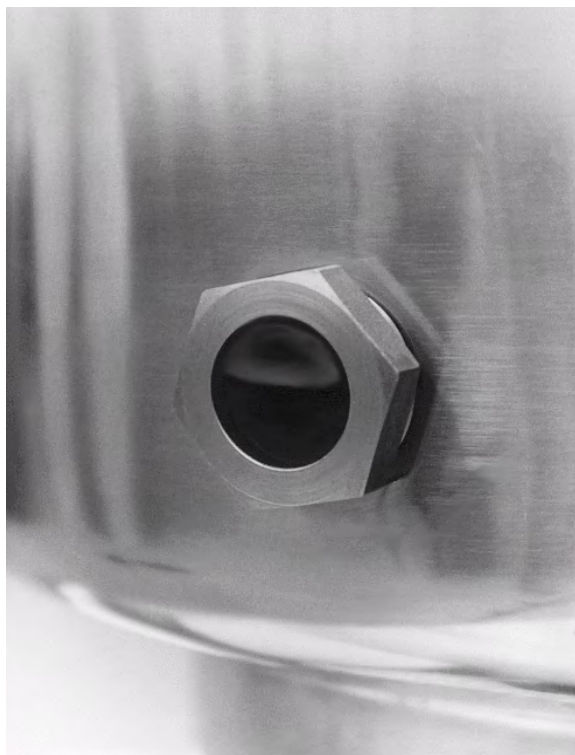
## Operation



Model TDBC



Model TDB



On TDB and TDBC units, the jacket water level is shown in a sight glass on the kettle body.

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

### A. To Start Kettle

1. EVERY DAY make sure that the jacket water level is above the mid-point of the round sight glass. If the level is too low, see "Jacket Filling" and "Water Treatment" on page 14 of this manual.
2. 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 of this manual.
3. Turn on the electrical power to the unit.
4. Turn the thermostat dial to the desired setting. The heating indicator light indicates that the kettle is heating, and cycling of the light on and off indicates 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.

### B. To Transfer Product or Empty Kettle:

**TDB:** The kettle is designed and manufactured to be tilted in a controlled manner. Grasp the insulated plastic ball firmly. Maintain a firm grip on handle when tilting, while keeping kettle body in a tilted position and when SLOWLY returning the kettle body to an upright position. **DO NOT release kettle handle when kettle is partly tilted.** It will impact in either the upright or fully tilted position and may cause burns.

**TDBC:** The kettle is tilted using its crank tilt hand wheel. Turning the crank clockwise tilts the kettle; counter-clockwise returns it to an upright position. The kettle will remain in any cranked position.



### 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**  
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 (DEPENDING ON HANDLE PLACEMENT) WHILE POURING — NOT DIRECTLY IN POUR PATH OF HOT CONTENTS.  
5) POUR SLOWLY, MAINTAIN CONTROL OF KETTLE BODY HANDLE 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.



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

#### Common Accessories

##### 1. Lift Off Cover

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

Make sure the plastic ball handle is secure on the lift off cover before using. ALWAYS use the plastic handle to place or remove cover from the kettle.

Wear protective oven mitts and a protective apron.

When putting the 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.**

When removing cover:

- Firmly grasp plastic handle
- Lift rear edge (farthest from operator) 1-2" (3-5 cm) to allow any steam and water vapor to escape the cooking vessel. Wait 2-3 seconds.
- Tilt cover to 45-60° angle and allow any hot condensate or product to roll off cover back into kettle.



**Lift the rear of the lid first.**

- Remove cover, ensuring that any remaining hot condensate or product does not drip on operator, floor or work surfaces.
- Place cover on safe, flat, sanitary, out-of-the-way surface, or return to kettle rim. Cover may also be placed in the optional holder for the cover as shown in the photograph.



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## CAUTION

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

### 2. Basket Insert

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

#### Tips For Use.

- a) Allow for the water displacement of the basket and product to be cooked. This may mean only filling the kettle half full of water. Test the basket and product displacement with the kettle OFF, and with cold water in the kettle.

## CAUTION

**DO NOT OVERFILL 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

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

- b) Load basket on a level, stable work surface.
- c) Lift the loaded basket with both hands. Get help from another person if the basket is too heavy for safe handling.
- d) Slowly lower product into kettle.
- e) When removing basket with cooked product, lift basket straight up, ensuring bottom of basket clears the rim and pouring lip of the kettle. Wear protective oven mitts and protective apron.
- d) Allow hot water to fully drain from product, before moving basket away from the kettle. Do not rest kettle basket on kettle rim or pouring lip. If basket is too heavy for individual to lift and safely move, get help from another person. Remove product immediately from basket into another container, being sure to avoid contact with hot product and hot basket **or** . . .
- e) Place basket with food on stable, flat surface, setting it 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 the 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 pressure relief valve will open and relieve the excess pressure.

In the event that the jacket water level gets too low and 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 "OFF" shuts down all control and heating circuits.

## Maintenance

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

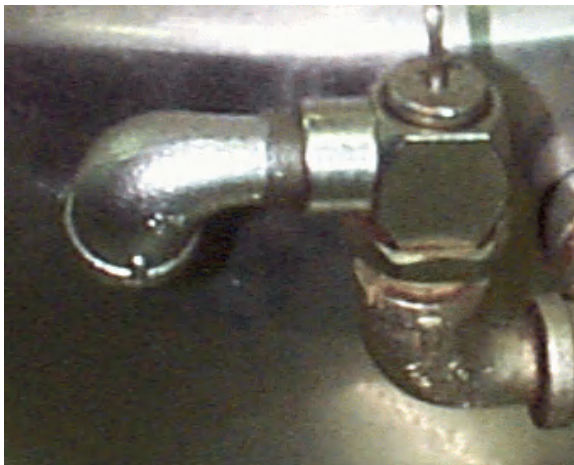
A Maintenance & Service Log is provided at the back of this manual with the warranty information. Each time maintenance is performed on your Groen kettle, enter the date on which the work was done, what was done, and who did it. Keep this manual on file and available for operators to use.

Periodic inspection will minimize equipment down time and increase the efficiency of operation. The following points should be checked:

### 1. Jacket Vacuum/ Removing Air From Jacket (By Operator)

Every day, while the kettle is cold, read the pressure/ vacuum gauge. A positive reading or a negative reading between zero and 20" vacuum on the pressure/ vacuum gauge indicates excess air in the jacket. Air in the jacket slows kettle heating and can prevent the kettle from reaching operating temperature. To remove air:

- Start the kettle. (See the **Operation** section).
- Make sure the elbow on the outlet of the pressure relief valve is turned so that escaping steam is directed down toward the floor. Be sure and follow the instructions on the attached pressure relief valve tag.



Make sure that the open end of the elbow on the pressure relief valve is directed downward.



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

- When the pressure/vacuum gauge reaches a positive pressure reading of 5 PSI, release trapped air by lifting the pressure relief valve ring for about one second. Repeat this step, then let the valve ring snap closed, so the valve will seat properly and not leak.

### 2. Pressure Relief Valve (By Operator)

At least twice a month, test the pressure relief valve. Test the valve with the kettle operating at 15 PSI (105 kPa), by holding the test ring for at least five seconds. Then release the ring and permit the valve to snap shut. If the ring does not activate, if there is no discharge, or if the valve leaks, stop using the kettle immediately and contact a authorized Groen service representative.



**WARNING**  
AVOID ANY EXPOSURE TO THE STEAM  
BLOWING OUT OF THE PRESSURE  
RELIEF VALVE. SEVERE BURNS CAN  
RESULT ON EXPOSED SKIN.

**FAILURE TO CHECK PRESSURE RELIEF  
VALVE OPERATION PERIODICALLY  
COULD RESULT IN PERSONAL INJURY  
AND/OR DAMAGE TO EQUIPMENT.**



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## 3. Grease / Lubrication (By Service)

**For TDB Models:** At least twice a year, grease the two trunnion bearings. The bearings are located within the kettle support housing. Remove the access panels from the support housing with a screwdriver to gain access to the grease fittings. Use a lithium-based, multi-purpose grease. When the access panels are removed, the mounting bolts for the trunnion bearings and tilt switch can also be checked for tightness. When finished, reassemble access panels to support housing.

**For TDBC Models:** The gear housing has been fitted for proper lubrication of moving parts. Since the gears do not run in oil, periodic lubrication with grease is essential. Frequency of lubrication depends on operating conditions, but should occur at least once every six months. Groen recommends the use of a Number Two grade LGI lithium grease. Add grease through the Zerk fittings on the gear housing until grease flows out of the bearings around the trunnion shaft. Place a liberal amount of grease on the gear to cover the arc that is in contact with the worm gear.

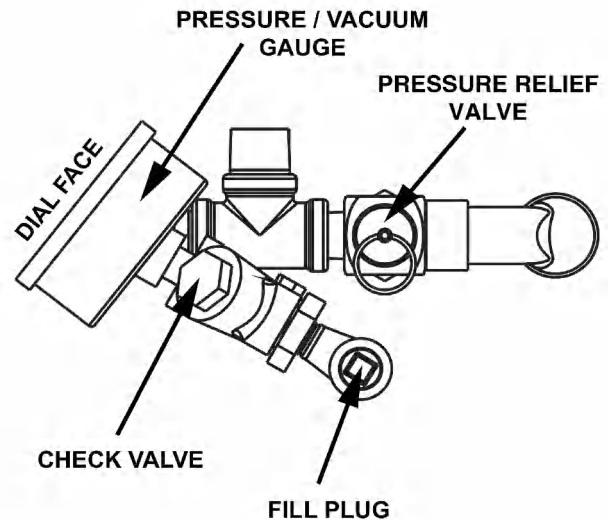
**CAUTION**  
**KEEP GREASE AWAY FROM ELECTRICAL PARTS LOCATED NEAR THE GEARS.**

## 4. Jacket Filling

Every day, **before you turn on the unit**, make sure the water level is approximately in the center of the water gauge glass. The jacket was filled at the factory with the proper amount of treated water, and is air-tight, but over time steam may be vented and water lost.

From time to time, you may need to restore the water to its proper level. The procedure for adding water follows.

- a. If you are replacing water lost as steam, use distilled water. **Do not use tap water.** If you are replacing treated water that was drained from the jacket, prepare more treated water as directed below.



**The pressure relief valve and fill plug are located directly behind the pressure/vacuum gauge.**

- 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. 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.

## 5. Water Treatment

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

- a. Fill a mixing container with the amount of water required. Use only distilled water.

Model	Kettle Capacity	Jacket Capacity
TDB-20, TDBC-20	20 Qt 18.9 ℓ	7 Qt 6.6 ℓ
TDB-40, TDBC-40	40 Qt 37.8 ℓ	9 Qt 8.5 ℓ

- b. 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.
- c. Stir the water continuously, while you slowly add water treatment compound until a color between indicating a pH of 10.5 and 11.5 is reached. (Shown on the pH test kit chart.) Judge the pH by frequently comparing the test strip with the color chart provided in the pH test kit. If there is a problem distinguishing color, use a pH meter.
- d. Use a measuring cup to add the compound so that you may record the exact amount used.
- e. The amount 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.

## Component Replacement



**WARNING**  
BEFORE REPLACING ANY PARTS,  
DISCONNECT THE UNIT FROM THE  
ELECTRIC POWER SUPPLY.

All internal wiring is marked as shown on the circuit schematic drawings. Be sure that new components are wired in the same manner as the old components.

**WARNING**  
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.

**CAUTION**  
REMOVE ELECTRICAL POWER BEFORE  
PERFORMING ANY MAINTENANCE ON  
THIS KETTLE.

**WARNING**  
THIS KETTLE IS DESIGNED TO BE WATER  
RESISTANT. FAILURE TO FOLLOW  
PROPER MAINTENANCE PROCEDURES  
MAY VOID THE WARRANTY.

### 1. Removal of Right Hand Side Cover

Remove the 10 phillips head screws securing the cover.

### 2. Installation of Right Hand Side Cover

Install all 10 screws in side cover to maintain water resistance. Tighten to 10 in-lb torque.

### 3. Replacement of Fuse

- Remove right hand side cover (see section #1 above).
- Remove and replace fuse (refer to Parts List for proper fuse).
- Reinstall right hand side cover (see section #2 above).

### 4. Removal of Contactor

- Remove right hand side cover (see Section #1 above).

- Remove wires from contactor. Starting on the bottom left hand side, remove:
  - T-1 one red wire
  - T-2 two yellow wires
  - T-3 two tan wires
  - T-4 one blue wire
- Starting on the top left hand side, remove:
  - L-1 red wire
  - L-2 yellow wire
  - L-3 two brown wires
  - L-4 blue wire
- From the two spade terminals on the rear of the contactor, remove the left hand blue wire and the right hand green wire.
- Remove the two 1/4" mounting screws.
- Remove contactor.

### 5. Installation of Contactor

- Install contactor.
- On the rear of the contactor, install the left hand blue wire and the right hand green wire on the two spade terminals.
- Install wires on contactor. Starting on the bottom left hand side, install:
  - T-1 one red wire
  - T-2 two yellow wires
  - T-3 two tan wires
  - T-4 one blue wire
- Starting on the top left hand side, install:
  - L-1 red wire
  - L-2 yellow wire
  - L-3 two brown wires
  - L-4 blue wire
- Install right hand side cover (see Section #2 above).

### 6. Removal of Transformer

- Remove right hand side cover (see Section #1 above).
- Remove wires in the following order:
  - On the bottom of the transformer, remove the blue wire which comes from the terminal block.
  - Remove the red wire which comes from the fuse.
  - On the top, remove the red and green wires which come from the water control board.
- Remove the two 1/4" mounting screws.
- Remove the transformer.



## 7. Installation of Transformer

- a. Mount the transformer using the two 1/4" mounting screws.
- b. Install wires on the transformer in the following order:
  - i. On top, install the red and green wires which come from the water control board.
  - ii. On the bottom, install the red wire which comes from the fuse and the blue wire which comes from the terminal block.
- c. Install right hand side cover (see Section #2 above).

## 8. Removal of Water Control Board

- a. Remove right hand side cover (see Section #1 above).
- b. Starting on the top left hand side, remove wires in the following order:
  - i. Two green ground wires
  - ii. The black jumper wire
  - iii. Blue wire from tilt micro switch
  - iv. Blue wire from harness
- c. To remove board, reach behind the board and squeeze the plastic stand-offs together and pull the board off.

## 9. Installation of Water Level Control Board

- a. Snap board back onto plastic stand-offs.
- b. Install wires in the following order starting on the bottom right hand side:
  - i. Blue wire from harness
  - ii. Blue wire from tilt micro switch
  - iii. Black jumper wire
  - iv. Two green ground wires

## 10. Removal of Tilt Micro Switch

- a. Remove right hand side cover (see Section #1 above).
- b. Tilt kettle 90°.
- c. Remove red and blue wire from bottom two spade terminals.
- d. Remove two screws securing switch.
- e. Remove switch.

## 11. Installation of Tilt Micro Switch

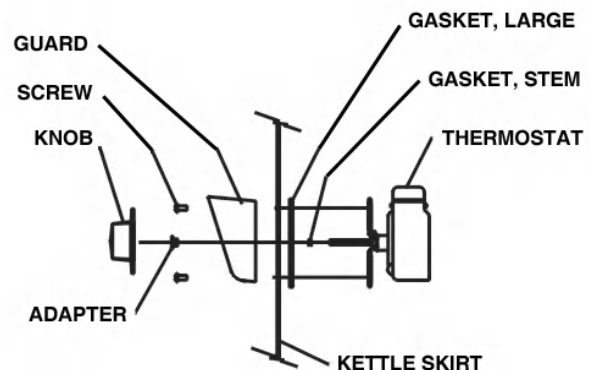
- a. Tilt kettle 90°.
- b. Align switch so arm on switch is pointed forward and down.
- c. Install the two mounting screws and nuts.
- d. Reinstall the red and blue wires on the bottom two spade terminals.
- e. Insure switch actuates when the kettle is returned to the upright position.

## 12. Removal of Thermostat

- a. Remove knob by pulling straight out.
- b. Remove the two screws securing the thermostat to the kettle skirt.
- c. Tilt kettle 90°.
- d. Remove the bottom cover from the skirt.
- e. Remove switch from kettle skirt.
- f. Remove tan, blue and white wires from thermostat.
- g. Unscrew the thermostat bulb from the bottom of the kettle jacket.

## 13. Installation of thermostat

- a. Tilt kettle 90°.
- b. Install thermostat gasket in opening in skirt.
- c. Install second gasket on thermostat and align the screw holes with the holes in the gasket.
- d. Place the thermostat through the hole in the kettle skirt and align screw holes.
- e. Replace plastic spacer on thermostat shaft.
- f. Replace the stainless knob shroud and align holes.
- g. Start both screws but do not tighten.
- h. Put Teflon tape on the screw threads of the thermostat bulb and insert into bottom of kettle. Tighten hand tight plus one turn.
- i. Install bottom cover on skirt. Tighten screws and gasket to 10-12 in-lb torque.
- j. Turn the kettle upright and tighten the two thermostat mounting screws.
- k. Install knob by pushing straight on shaft.
- l. If the knob appears loose, remove and gently spread the two prongs of the shaft and reinstall knob.
- m. Check water level.
- n. Remove air from jacket.



Thermostat and Gasket Installation Detail

# OM-TDB

## 14. Removal of Pressure Switch

- a. Tilt kettle 90°.
- b. Remove bottom cover.
- c. Unplug red and white wires.
- d. Unscrew switch from 90° elbow and remove.

## 15. Install Pressure Switch

- a. Tilt kettle 90°.
- b. Screw switch into elbow.
- c. Plug in red and white wires.
- d. Replace bottom cover. Tighten screws and gasket to 10-12 in-lb torque.
- e. Check water level.
- f. Remove air from jacket.

## 16. Removal of Water Level Probe

- a. Tilt kettle 90°.
- b. Remove bottom cover.

- c. Remove blue wire from probe.
- d. Unscrew probe from jacket and remove.

## 17. Install Water Level Probe

- a. Tilt kettle 90°.
- b. Screw probe into kettle jacket.
- c. Connect blue wire.
- d. Reinstall bottom cover. Tighten screws and gasket to 10-12 in-lb torque.
- e. Check water level.
- f. Remove air from jacket.

**NOTE:** HEATER ELEMENTS CAN **NOT** BE REPLACED. IF THE KETTLE DOES NOT HEAT PROPERLY AND THE HEATER ELEMENTS SHOW AN OPEN CIRCUIT, THE KETTLE MUST BE REPLACED.

## Cleaning

### 1. Suggested Cleaning Supplies:

- 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.

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

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



### 2. Precautions

Before any cleaning operation, 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 OUT OF CONTROLS AND BURNERS. DO NOT USE A HIGH PRESSURE HOSE TO CLEAN THE CONTROL CONSOLE, ELECTRICAL CONNECTIONS, ETC.**

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

### 3. Procedure

- a. Clean food contact surfaces as soon as possible after use, preferably while the kettle is still warm. If the unit is in continuous use, clean and sanitize inside and outside at least once every 12 hours.

- c. Prepare a 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, electrical conduit, etc.
- d. Rinse the kettle thoroughly with hot water. Then drain completely.



**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.**

- e. As part of the daily cleaning program, clean all inside and outside surfaces that may have been soiled. Remember to check such parts as the underside of the cover, control housing, etc.



**Scrapers, steel wool or metal implements will harm the kettle surface.**



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

- f. To remove burned-on foods, use a brush, sponge, cloth, plastic or rubber scraper, or plastic wool along with the cleaning solution. To reduce effort required in washing, let the detergent solution sit in the kettle for a few minutes 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 will leave particles in the surface and cause eventual corrosion and pitting.
- g. The outside of the unit may be cleaned with a warm water (100°F or less) spray. **Do not use a high pressure spray.**
- h. The outside of the unit may be polished with a recognized stainless steel cleaner like "Zepper" from Zep Manufacturing Company.
- i. When the equipment needs to be sanitized, use a sanitizing solution equivalent to one that supplies 200 parts per million chlorine. Obtain advice on the best sanitizing agent from your supplier of sanitizing products. Following the supplier's instructions, apply the sanitizing agent after the unit has been cleaned and drained. Rinse off the sanitizer thoroughly.
- j. It is recommended that the unit be sanitized just before use.
- k. Clean the kettle thoroughly. If there is difficulty removing mineral deposits or a film left by hard water or food residues, then use a de-liming agent, such as Groen De-limer De-Scaler (Part Number 114800), Lime-Away from ECOLAB or an equivalent, following manufacturer directions.
- l. Rinse and drain the unit thoroughly before further use.
- m. If especially difficult cleaning problems persist, contact your cleaning product supplier for assistance. The supplier has a trained technical staff with laboratory facilities to serve you.

## Troubleshooting

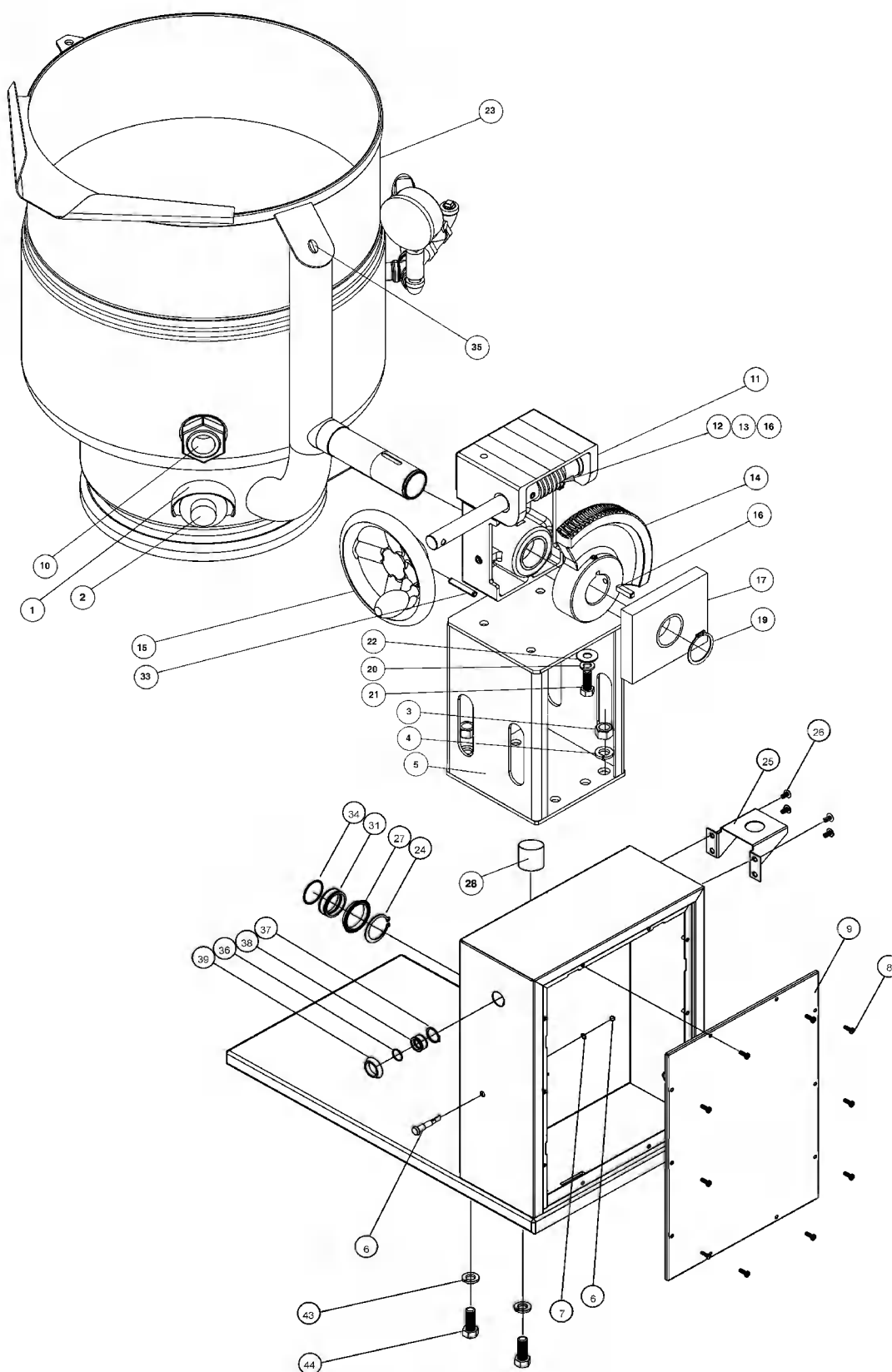
Your Groen kettle is designed to operate smoothly and efficiently if properly maintained. However, the following is a list of checks to make in the event of a problem. Wiring diagrams are furnished inside the service panel. If an item on the list is followed by ✕, the work should be done by a qualified 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
		✕ indicates items which must be performed by an authorized technician.
Kettle is hard to tilt. (TDBC only)	Auth Service Rep Only	a. Gears for foreign materials, and lubrication. ✕ b. Gears for alignment. ✕ c. Worn gears or broken gears. ✕
Kettle will not heat, and heating indicator will not come on.	User	a. Electric power supply to the unit. (Check the circuit breaker.) 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.	Auth Service Rep Only	a. Thermostat calibration. ✕ b. 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. ✕
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.
	Auth Service Rep Only	b. Pressure switch setting. ✕ c. Thermostat operation. Thermostat should click when the dial is rotated above and below the setting for the temperature of the kettle. ✕ d. Pressure relief valve. If the valve pops at pressures below 49 PSI, replace it. e. Contactor, to determine whether it is energized. ✕

## Parts List - TDBC

To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.



# OM-TDB

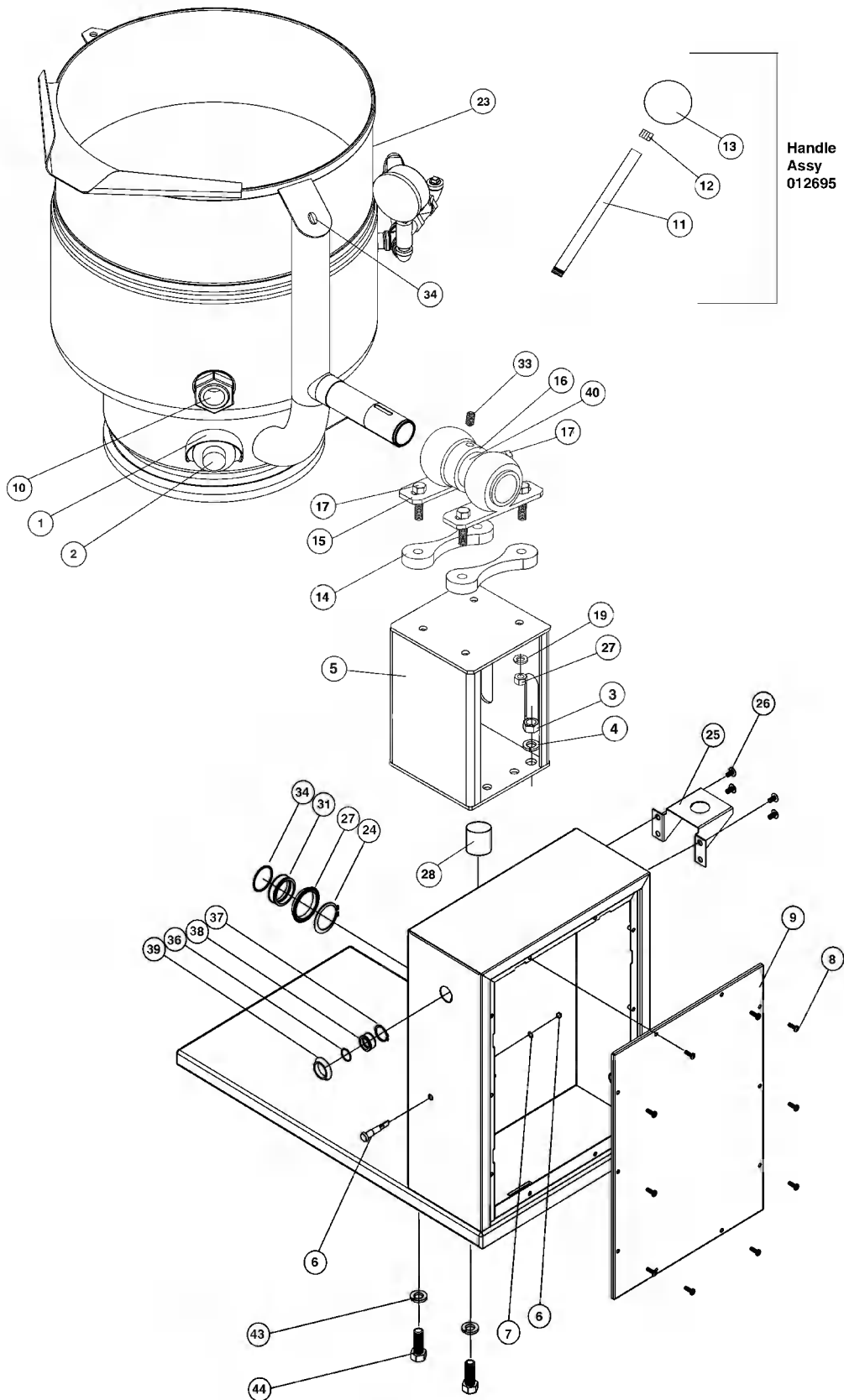
## Parts List - TDBC

*To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.*

Key	Description	Part No.	Key	Description	Part No.
1	Cover, Thermostat	114830	23	Weldment Kettle Body 304, 208/240V (20 qt)	137615
2	Knob, Thermostat	002868	23	Weldment Kettle Body 316, 208/240V (20 qt)	137726
3	Nut, hex 1/2-13 ss	005603	23	Weldment Kettle Body 304, 208/240V (40 qt)	137561
4	Washer lock 1/2 ss	005657	23	Weldment Kettle Body 316, 208/240V (40 qt)	137898
5	Weldment, Pedestal - TDB	122388	24	E-Ring, .1875" Dia	138357
6	Light and locknut, Indicator, Red	116383	25	Bracket Faucet	137738
7	Gasket, Light	137434	26	Screw, 1/4-20 x 1/2 Truss Hd ss	012700
8	Screw, 10-32 x 1/2	137766	27	Seal, Shaft	136087
9	Cover, Cabinet	137618	28	Bumper Stop	137735
10	Liquid Level Indicator	108554	29	Screw Hex Head	005070
11	Assembly, Gear Carrier	124741	30	Washer Lock 1/2 SS	005657
12	Shaft, Worm	122374	31	Collar Shaft Seal	136091
13	Gear, Worm	128001	32	Nut 1/4-20 Hex Keps	012940
14	Assembly, Gear Sector	128028	33	Pin, Roll 1/4 x 1.63 lg.	128036
15	Assembly, Handwheel	124719	34	O-Ring	138358
16	Key, 1/4 Sq. x 1" lg.	122371	35	Screw, 3/8 - 24 x 1/2	137786
17	Assembly, Bearing Block	128021	36	O-Ring	138359
18	Pin Roll 1/4 x 1.25" Lg.	012614	37	E-Ring 1.00" Dia	138356
19	Retaining Ring 1.500	124764	38	Collar, Shaft Seal	138354
20	Washer Lock 3/8"	005618	39	Seal, Shaft 1.00" Dia	136088
21	Screw 3/8-16 x 1" hex head	005612	40	Kit, Light and Gasket ( <i>NOT SHOWN</i> )	137892
22	Washer Flat 3/8"	005830	41	Kit, Switch and Gasket ( <i>NOT SHOWN</i> )	137893
			42	Kit, Thermostat ( <i>NOT SHOWN</i> )	137894
			43	Washer, Lock	005657
			44	Screw, Hex HD Cap	005623
			45	Nut, Hex ( <i>NOT SHOWN</i> )	005603

## Parts List - TDB

To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.



# OM-TDB

## Parts List - TDB

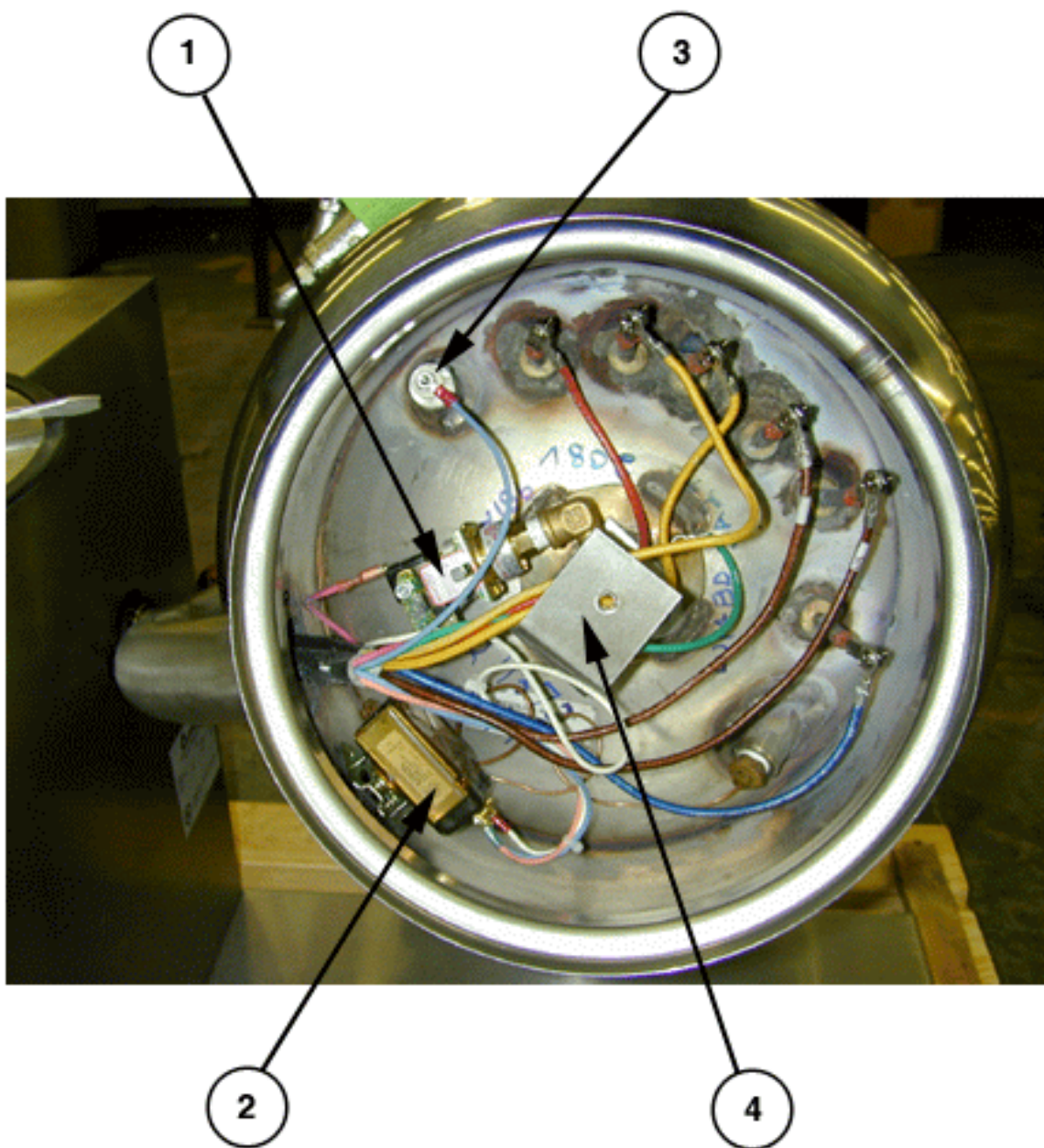
*To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.*

Key	Description	Part No.	Key	Description	Part No.
1	Cover, Thermostat	114830	22	Washer Flat 3/8"	005830
2	Knob, Thermostat	002868	23	Weldment Kettle Body 304, 208/240V (20 qt)	137615
3	Nut, hex 1/2-13 ss	005603	23	Weldment Kettle Body 316, 208/240V (20 qt)	137726
4	Washer lock 1/2 ss	005657	23	Weldment Kettle Body 304, 208/240V (40 qt)	137561
5	Weldment, Pedestal - TDB	122388	23	Weldment Kettle Body 316, 208/240V (40 qt)	137898
6	Light, Indicator, Red	116383	24	E-Ring, .1875" Dia	138357
7	Gasket, Light	137434	25	Bracket Faucet	137738
8	Screw, 10-32 x 1/2	137766	26	Screw, 1/4-20 x 1/2 Truss Hd ss	012700
9	Cover, Cabinet	137618	27	Nut Hex 3/8"-16	005619
10	Liquid Level Indicator	108554	28	Bumper Stop	137735
11	Shaft, Handle	018963	29	Screw Hex Head	005070
12	Ring, 1/2"	012692	30	Washer Lock 1/2 SS	005657
13	Ball, Red	012691	31	Collar Shaft Seal	136091
14	Spacer, Pillow Block	137692	32	Nut 1/4-20 Hex Keps	012940
15	Pillow Block	002989	33	Screw Set Socket	003400
16	Collar, Set	003118	34	Screw, 3/8 - 24 x 1/2	137786
17	Screw Hex HD CAP 3/8"-16 x 1-1/2"	005615	35	Kit, Light and Gasket (NOT SHOWN)	137892
18	Pin Roll 1/4 x 1.25" Lg.	012614	36	Kit, Switch and Gasket (NOT SHOWN)	137893
19	Washer, 3/8" Lock	005618	37	Kit, Thermostat (NOT SHOWN)	137894
20	Washer Lock 3/8"	005618	38	Washer, Lock	005657
21	Screw 3/8-16 x 1" hex head	005612	39	Screw, Hex HD Cap	005623
			40	Spacer, Collar	139042



## Parts List TDB and TDBC

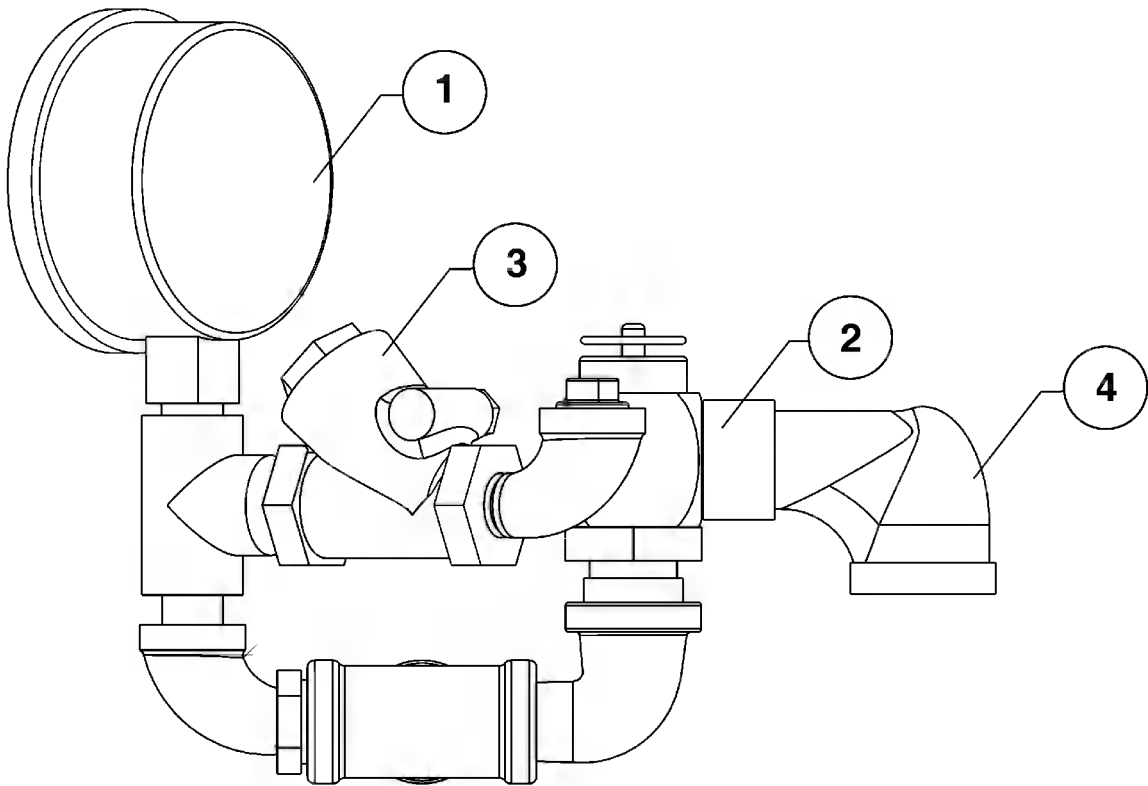
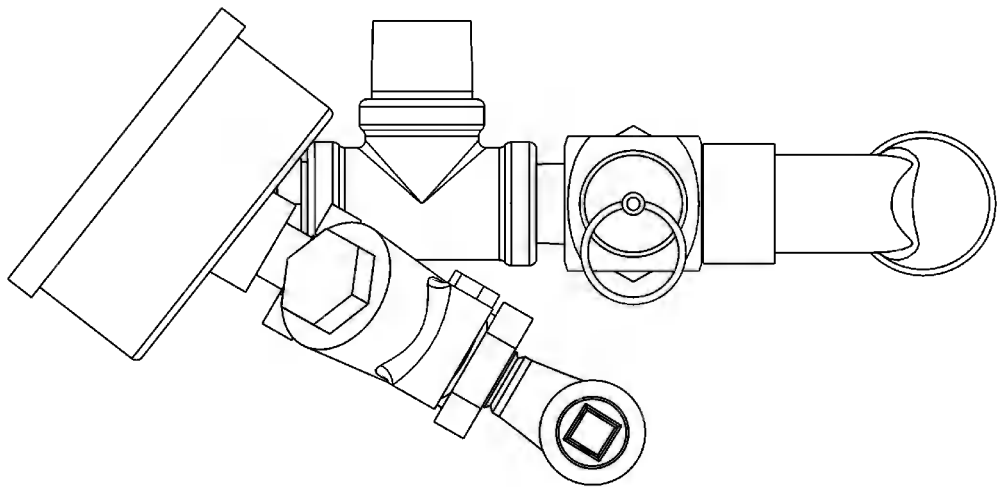
*To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.*



Key	Description	Part No.	Key	Description	Part No.
1	Pressure Switch	096963	5	Cover (NOT SHOWN)	003141
2	Thermostat	012313	6	Gasket, Bottom Cover (NOT SHOWN)	137969
3	Water Level Electrode	015589	7	Screw, ¼-20 x 1 ½" (NOT SHOWN)	012597
4	Bracket	137736	8	Gasket, Bottom Cover Screw (NOT SHOWN)	137968

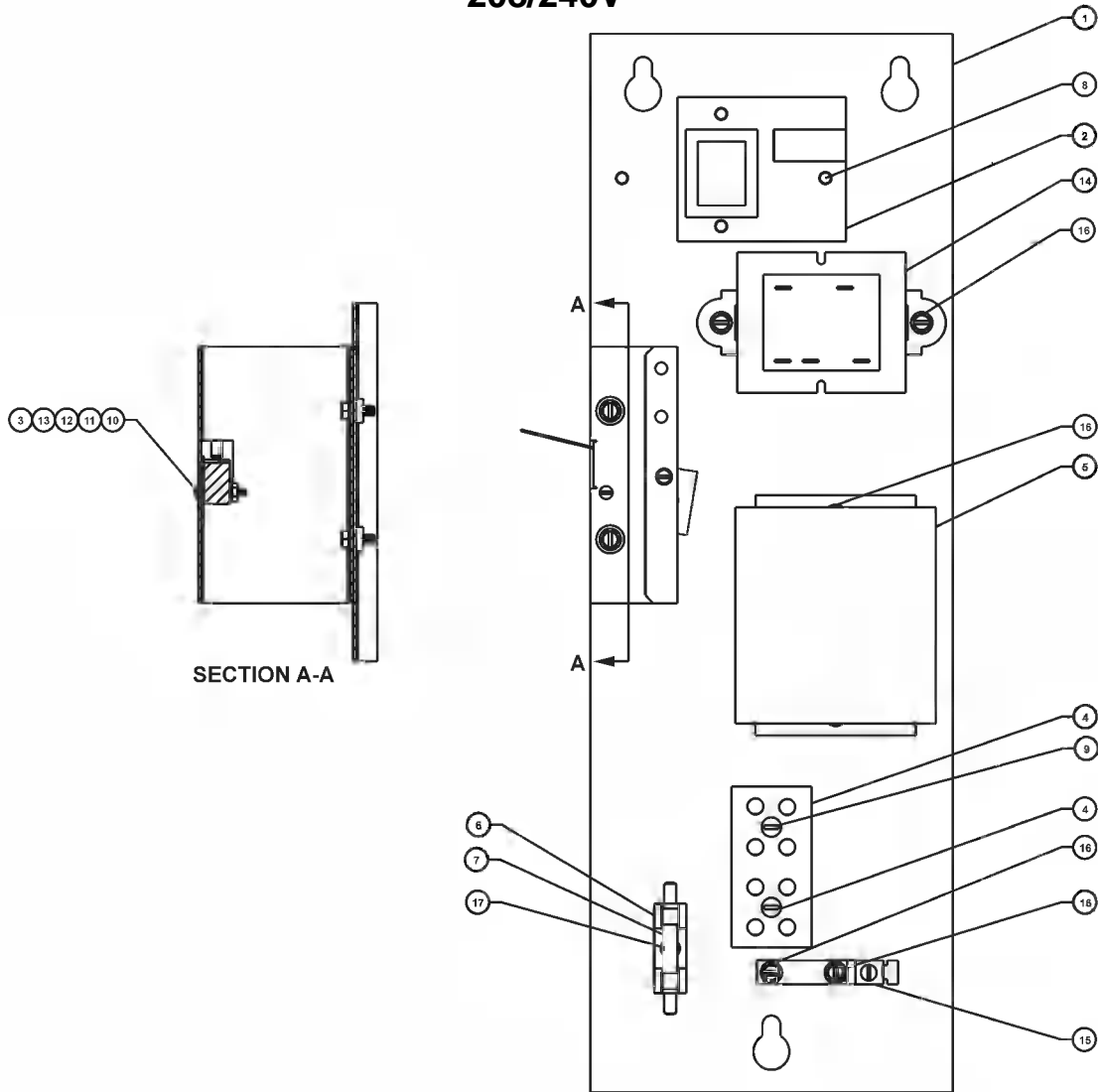
Parts List

To order parts, contact your Groen Authorized Service Agency. Supply the model designation, part description, part number, quantity, and, where applicable, voltage and phase.



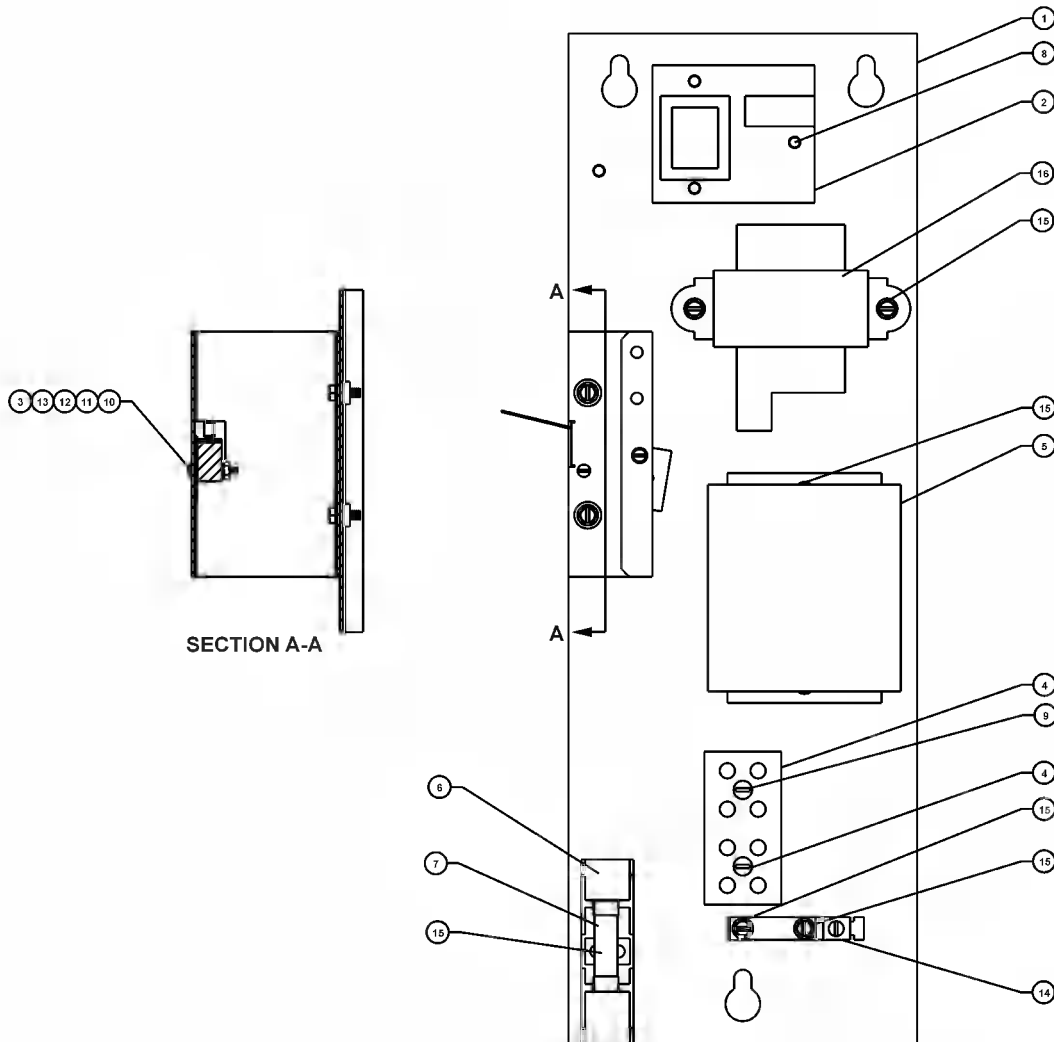
Key	Description	Part No.	Key	Description	Part No.
1	Gauge, Compound Pressure w/Dual	084208	3	Assy, Water Fill Sub	137438
2	Valve, Pressure Relief 50 PSI	097005	4	Elbow, ½" NPT 90 Deg Street Blk	096905

## Replacement Electrical Parts 208/240V



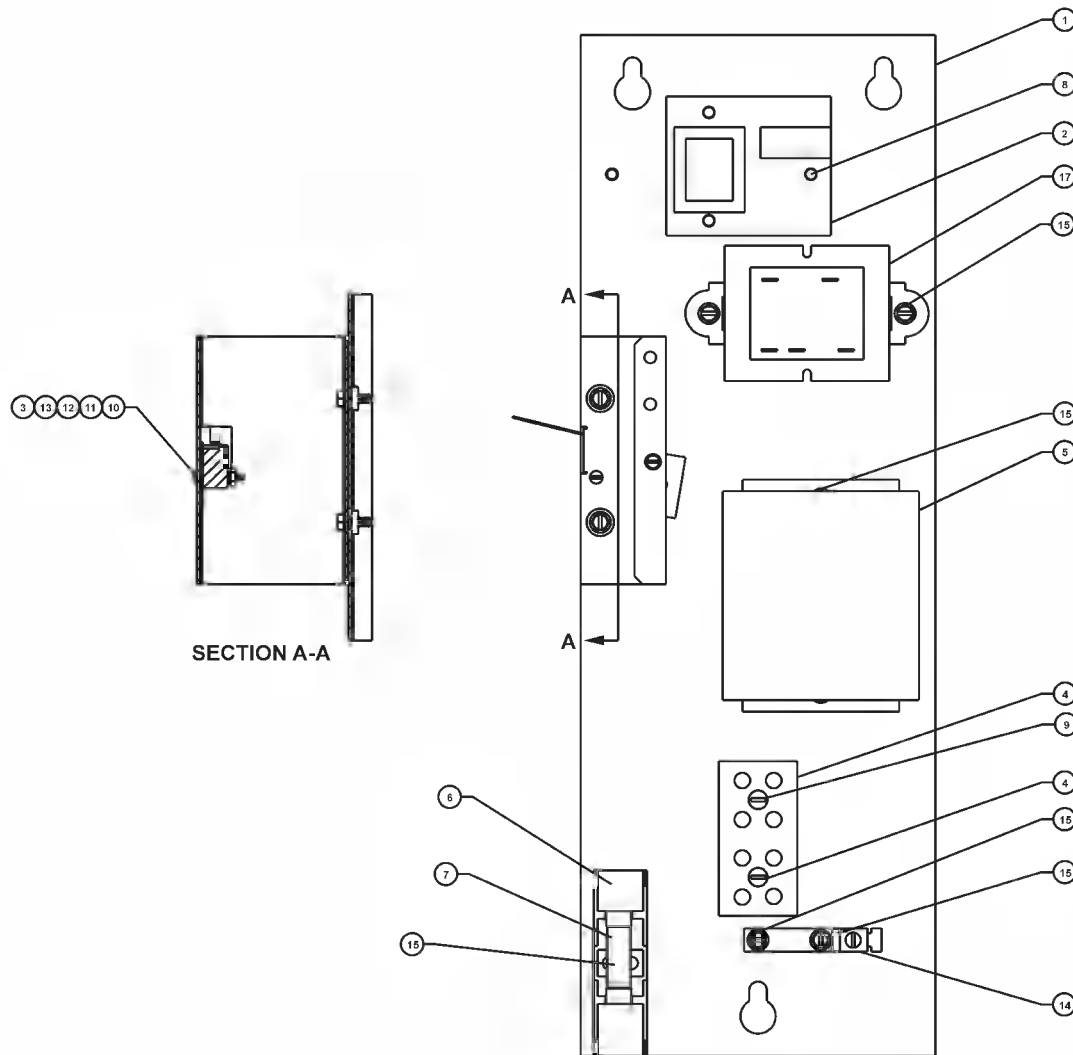
Key	Description	Part No.	Key	Description	Part No.
1	Asm, Electrical Mounting Bracket	137631	11	Barrier Insulation	003490
2	Water Level Control Brd	122192	12	Washer Shakeproof Lock #6	005715
3	Micro Switch, 15 AMP 125/250 VAC	002982	13	Nut Hex #4-40	003121
4	Terminal Block 4 Pole 85 AMP #14-4	088214	14	Transformer, 40VA 208/240 V PRI, 24 V SEC	137441
5	Contactor 50 AMP RES 4 Pole	119811	15	Lug Ground #14 - #6 AWG	129714
6	Fuse Holder Type 3 AG	077854	16	Screw #8-32 x 3/8" Hex Hd Cap	069789
7	Fuse 3.0 Amp Type 3 AG	077853	17	Screw #6-40 x 3/8" Round Hd	009697
8	PC Board Mounting Post	099901	18	Wiring Harness Asm, TDB/2C 24 V Control (Not Shown)	137585
9	Screw #8-32 x 1-1/4" Round Hd	005056	19	Wiring Harness Asm, TDB/2C High Voltage (Not Shown)	137603
10	Screw #4-40 x 3/4" Round Hd	003122	20	Wiring Harness Asm, TDB/2C Heaters (Not Shown)	137604

## Replacement Electrical Parts 440V



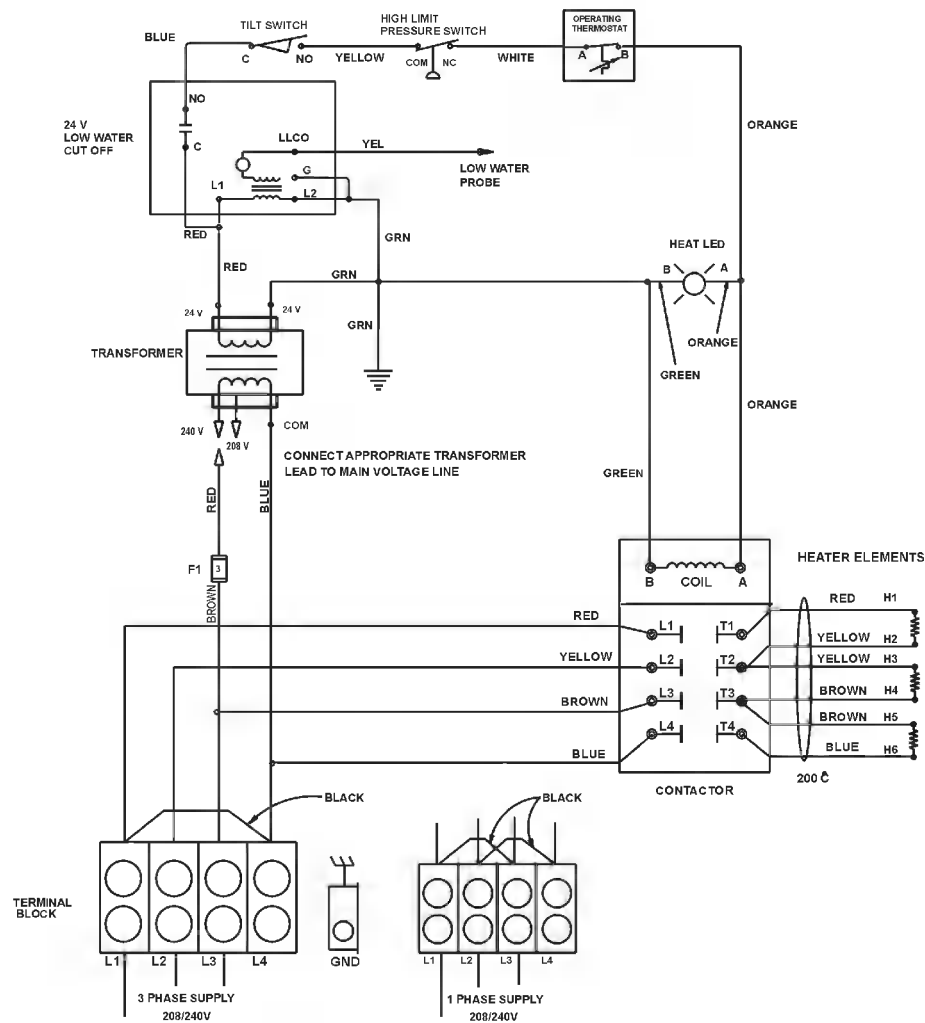
Key	Description	Part No.	Key	Description	Part No.
1	Asm, Electrical Mounting Bracket	137631	12	Washer Shakeproof Lock #6	005715
2	Water Level Control Brd	122192	13	Nut Hex #4-40	003121
3	Micro Switch, 15 AMP 125/250 VAC	002982	14	Lug Ground #14 - #6 AWG	129714
4	Terminal Block 4 Pole 85 AMP #14-4	088214	15	Screw #8-32 x 3/8" Hex Hd Cap	069789
5	Contactor, 4 Pole, 50A, 24 VAC	119811	16	Transformer, 75 VA, 440V	139803
6	Fuse Block, 1 Pole 30 AMP	077840	17	Jumper, 480V Fuse (Not Shown)	139113
7	Fuse, 6 Amp, Class CC	119823	18	Strap Cable Ty-Rap (Not Shown)	011093
8	PC Board Mounting Post	099901	19	Wiring Harness Asm, TDB/2C 24 V Control (Not Shown)	137585
9	Screw #8-32 x 1-1/4" Round Hd	005056	20	Wiring Harness Asm, TDB/2C High Voltage (Not Shown)	137603
10	Screw #4-40 x 3/4" Round Hd	003122	21	Wiring Harness Asm, TDB/2C Heaters (Not Shown)	137604
11	Barrier Insulation	003490			

## Replacement Electrical Parts 480V

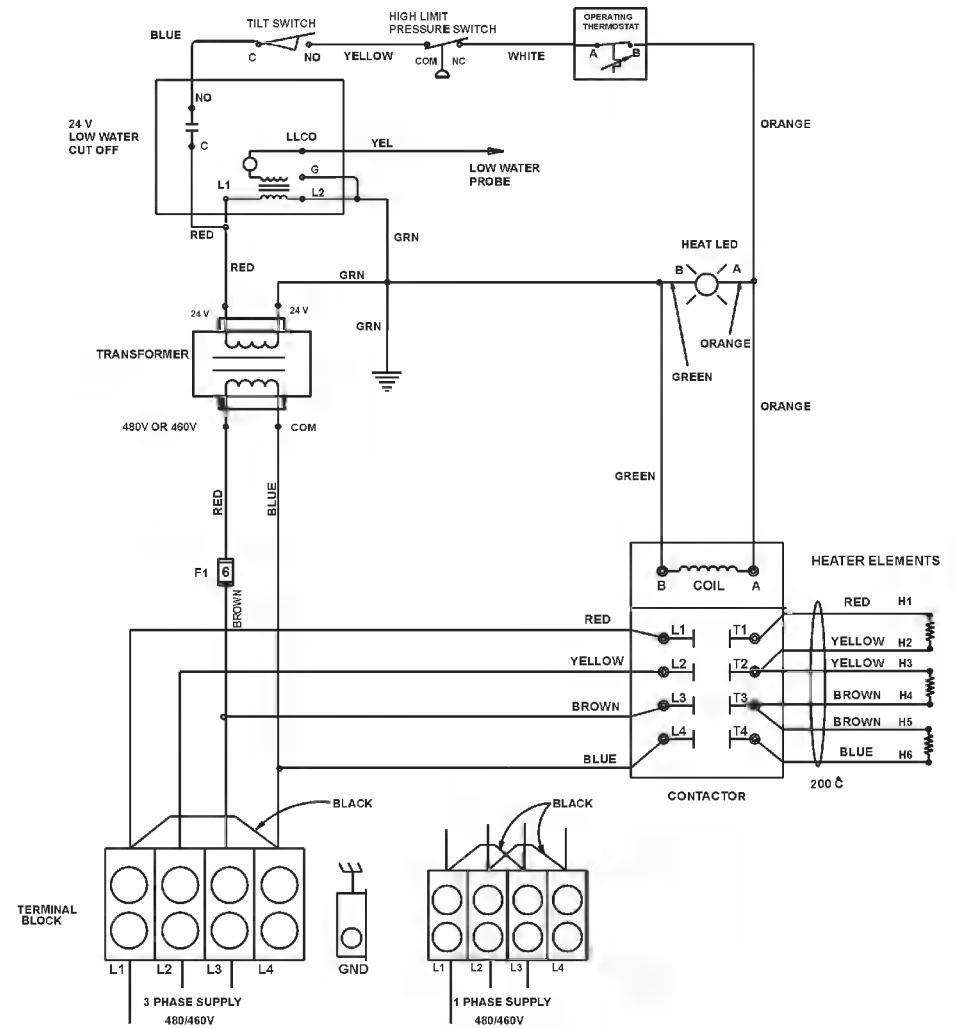


Key	Description	Part No.	Key	Description	Part No.
1	Asm, Electrical Mounting Bracket	137631	12	Washer Shakeproof Lock #6	005715
2	Water Level Control Brd	122192	13	Nut Hex #4-40	003121
3	Micro Switch, 15 AMP 125/250 VAC	002982	14	Lug Ground #14 - #6 AWG	129714
4	Terminal Block 4 Pole 85 AMP #14-4	088214	15	Screw #8-32 x 3/8" Hex Hd Cap	069789
5	Contactor, 4 Pole, 50A, 24 VAC	119811	16	Jumper, 480V Fuse	139113
6	Fuse Block, 1 Pole, 30 AMP	077840	17	Transformer, 40VA 480V	137694
7	Fuse 6, AMP, Class CC	119823	18	Strap Cable TY-RAP (Not Shown)	011093
8	PC Board Mounting Post	099901	19	Wiring Harness Asm, TDB/2C 24 V Control (Not Shown)	137585
9	Screw #8-32 x 1-1/4" Round Hd	005056	20	Wiring Harness Asm, TDB/2C High Voltage (Not Shown)	137603
10	Screw #4-40 x 3/4" Round Hd	003122	21	Wiring Harness Asm, TDB/2C Heaters (Not Shown)	137604
11	Barrier Insulation	003490			

### 208V or 240V, 1 or 3 Phase, 60 Hz

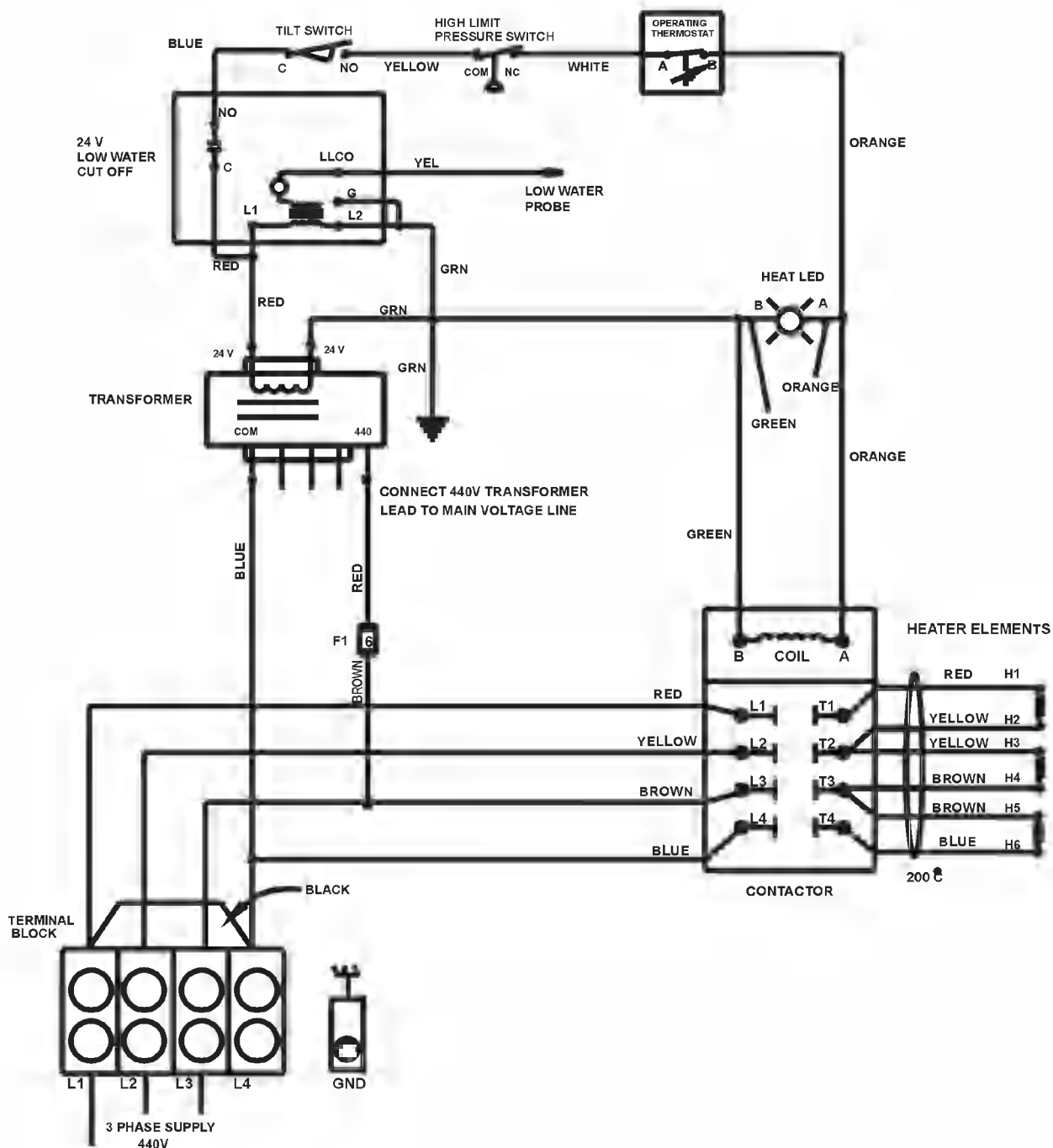


### 480V or 460V, 1 or 3 Phase, 60 Hz



# Schematics

## 440V, 3 Phase, 60 Hz



**OM-TDB**  
**Service Log**

Model No. \_\_\_\_\_

Purchased From \_\_\_\_\_

Serial No. \_\_\_\_\_

Location \_\_\_\_\_

Date Purchased \_\_\_\_\_

Date Installed \_\_\_\_\_

Purchase Order No. \_\_\_\_\_

For Service Call \_\_\_\_\_

Date	Service Performed	Performed By



## **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

NATIONAL SANITATION FOUNDATION  
3475 Plymouth Rd.  
Ann Arbor, Michigan 48106

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

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

LIMITED WARRANTY TO  
**COMMERCIAL PURCHASERS\***  
(U.S. & Canadian Sales Only.)

Groen warrants to original commercial purchaser/users that foodservice equipment manufactured by Groen ("Groen Equipment") (other than CapKold foodservice equipment) shall be free from defects in material and workmanship for (12) twelve months from the date of installation or fifteen (15) months from date of shipment from Groen, whichever date first occurs (the "Warranty Period"), in accordance with the following terms and conditions:

- I. This warranty is limited to replacement parts and related labor for Groen Equipment located at its original place of installation in the United States and Canada.
- II. Damage to Groen Equipment that occurs during shipment must be reported to the carrier, and is not covered under this warranty. The reporting of any damage during shipment is the sole responsibility of the commercial purchaser/user of such Groen Equipment.
- III. For Groen Convection Combo™ Steamer-Ovens, HyPerSteam™ Convection Steamers and HyPlus™ Pressureless Steamers, Groen further warrants to the original commercial purchaser/users of such Groen Equipment that the atmospheric steam generators or boilers contained in such Groen Equipment shall be free from defects in material and workmanship for twenty-four (24) months from the date of installation or twenty-seven (27) months from date of shipment from Groen, whichever date first occurs, provided that: (a) the original purchaser/user shall have also purchased and installed a Groen PureSteam Water Treatment System™ for use in connection with such Groen Convection Combo™ Steamer-Oven, HyPerSteam™ Convection Steamer or HyPlus™ Pressureless Steamer on or before the date such Groen Equipment was installed, (b) the original purchaser/user has continuously used such Water Treatment System in connection with such Groen Equipment from the date of installation, and (c) the commercial purchaser/user shall have maintained such Water Treatment System in accordance with the maintenance and filter cartridge replacement recommendations of Groen, and otherwise maintained such Oven or Steamer in accordance with all other operational and maintenance recommendations of Groen.
- IV. Groen further warrants to the original commercial purchaser/users of Groen Convection Combo™ Steamer-Ovens that the electronic relay and control board contained in such Groen Convection Combo™ Steamer-Oven shall be free from defects in material and workmanship for twenty-four (24) months from the date of installation or twenty-seven (27) months from date of shipment from Groen, whichever date first occurs.
- V. During the Warranty Period, Groen, directly or through its authorized service representative, will either repair or replace, at Groen's sole election, any Groen Equipment determined by Groen to have a defect in material or workmanship. As to any such warranty service during the Warranty Period, Groen will be responsible for related reasonable labor and portal to portal transportation expenses (time & mileage) incurred within the United States and Canada.
- VI. This warranty does not cover boiler maintenance, calibration, periodic adjustments as specified in operating instructions or manuals, consumable parts (such as scraper blades, gaskets, packing, etc.), and labor costs incurred for removal of adjacent equipment or objects to gain access to Groen Equipment. This warranty does not cover defects caused by improper installation, abuse, careless operation, or improper maintenance of Groen Equipment. This warranty does not cover damage to Groen Equipment caused by poor water quality or improper boiler maintenance.

- VII.** THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EACH OF WHICH IS HEREBY EXPRESSLY DISCLAIMED. THE REMEDIES DESCRIBED ABOVE ARE EXCLUSIVE AND IN NO EVENT SHALL GROEN BE LIABLE FOR SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES FOR THE BREACH OR DELAY IN PERFORMANCE OF THIS WARRANTY.
- VIII.** Groen Equipment is for commercial use only. If sold as a component of another (O.E.M.) manufacturer's equipment, or if used as a consumer product, such Equipment is sold AS IS and without any warranty.

**\* (Covers all Groen Equipment (other than CapKold foodservice equipment) ordered after September 11, 2001).**



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**OM-TDB (Revised 04/03)**  
**Part Number 137575 Rev A**