

TK THERMA-KLEEN
COMMERCIAL
Ultra 600E Electric Steam Cleaner

THERMA-KLEEN®

Operators Manual

Model 600E Electric Steam Cleaner



Made in the USA



THERMA-KLEEN®
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October 24, 2019



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OWNERS MANUAL

Do Not Use This System Without Reading This Manual First

You should be familiar with the information in this manual before you operate your equipment. The manual is structured so that it can be used for your reference.

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All information, illustrations and specifications contained within this manual are based on the information available at the time of production.

THERMA-KLEEN®, reserves the right to make changes at any time.

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SERVICE INFORMATION:

Model 600E Electric Steam Cleaner

Please take the time to fill out the form on this page. When completed, this reference form will provide information essential to the proper servicing and ordering of parts for your THERMA-STEEM® Industrial Model 600E.

OWNER:

Name of Business: _____

Address: _____

City, _____ State: _____ Zip Code: _____

Telephone: _____ E-mail: _____

Serial #: _____ Date Shipped: _____

Our sales and parts department will be glad to answer any questions or provide troubleshooting help over the phone. All parts will be shipped via UPS unless otherwise specified. The warranty card must be filled out on our Web Site to activate your warranty.

www.THERMA-KLEEN.com

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MACHINE SPECIFICATIONS:

SPECIFICATIONS

MODELS:	ULTRA 600E
Water Pressure:	600 PSI
Max. Water Temp. produced by this unit:	250-300 degrees F
Water Volume:	1.5 gpm
Size:	L 35-1/4" x W 16" x H 34"
Weight - Standard Body:	150 lbs.
Weight - Stainless-Steel body:	200 lbs
Electrical Requirements:	220-volt, 3 phase, 60-amp outlet 480-volt, 3 phase, 30-amp outlet
Amps Draw:	220 volt: 52 amps 480 volt: 26 amps
Maximum Water Inlet Temperature:	140 degrees F
Maximum Water Temperature Rise:	115-135 degrees F from start

STANDARD UNIT INCLUDES:

25 ft. Steam hose:	X
25 ft. Combi. steam hose:	
Fan Nozzle:	X
Blast Nozzle:	X
Trigger Gun:	X
4 ft. Wand Deluxe:	X
25 ft. Power Cord:	X
Power Cord Holder:	X
Steam Hose Holder:	X
Wand Holder:	X
Temperature gauge with adjustable high limit-combistat-All Models	X
Inlet Water Filter:	X
21 kw heater:	X
Wheels: 3"	X



SAFETY TIPS:

While your THERMA-KLEEN®, portable, high pressure, steam cleaner is designed to be an entirely safe cleaning tool, incorporating the latest and the most state of the art safety features, the following safety tips are recommended by the manufacturer for the user to implement:





- 1 **ALWAYS** - Check the machine, power & steam hose for damage prior to start-up. If damage is detected, it must be repaired prior to use. 
- 2 **DANGER – NEVER** - Place hands, arms, neck, and loose clothing Etc. over the top of the cylinder when and while ignition of the burner takes place and during the actual operation of your high-pressure steam cleaner. Beware of the flame in windy conditions.
- 3 **ALWAYS** - use appropriate safety goggles and gloves while operating your cleaner. 
- 4 **ALWAYS** - wear long sleeves, long pants, while operating your cleaner.
- 5 **DO NOT** touch or grab the steam hose without gloves when hose is being used or hot.
- 6 **CAUTION** - Before use check the electrical cord for damage, wear & tear, cuts or abrasion.
- 7 **CAUTION** - If unsure if the circuit is properly grounded or has the correct voltage\amperage for this machine, contact a certified electrician. 
- a. **DO NOT** - use your machine with a damaged electrical cord.
- a. **ALWAYS** - use the electrical plug that is on an approved grounded circuit for this model.
- a. **CAUTION** - If the Power Outlet is damaged, have a certified electrician repair the outlet.
- b. **CAUTION** - If the Power Outlet is damaged, have a certified electrician repair the outlet.
- c. **NEVER** - Touch the electrical plug or unplug the unit with wet hands or while standing in a wet environment.
- d. **NEVER** - Allow the electrical power cord to lie in water while cleaning.
- e. **NEVER** - Unplug from the receptacle by pulling on the cord, always grasp the plug itself Make sure the unit is unplugged. 

Fig. 2

8 **NEVER** - Touch the system with wet hands or while standing in a wet environment.

9 **NEVER** - Allow the machine to get wet as electrical shock may occur.

10 **CAUTION** - Use extra caution when using the system around water (Swimming Pools, Spas, Toilets, Etc.)

11 **DO NOT** - Allow the electrical power cord or Steam Hose to be run over, stepped on or have something placed or dropped on it.

12 **DO NOT** - Allow the Electrical Power Cord or Steam Hose to be caught in a closed door or pull over a sharp corner.

13 **CAUTION** - Turn off all controls prior to unplugging the unit.

14 **ALWAYS** -

15 **CAUTION** - Make sure all attachments are secured before activating the gun.

a. **CAUTION** - Only operate the unit when it is in a Horizontal position.

16 **WARNING** - To prevent scalding or burning, ALWAYS keep your hands and body away from the nozzle tip during operation and wear appropriate protective clothing.

a. **DO NOT** - Touch the steam nozzle while in use, or until after it cools.

b. **DO NOT** - Grab the hot steam hose without appropriate gloves.

17 **NEVER** - Point or direct the wand or steam at any person, animal or electrical outlet or anything which could be damaged.

18 **DO NOT** - Point or direct the wand and nozzle with high pressure steam at any person/animal as this could result in burning or harming another person/animal.

19 **DO NOT** - Point or direct the water spray from the wand towards an electrical outlet or box.

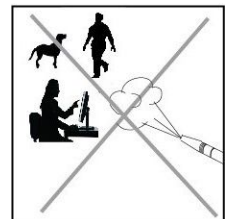
20 **DO NOT** - Move or lift the machine by pulling on the electrical cord.

21 **DO NOT** - Move or lift the machine by pulling on the steam hose or gun.

22 **DO NOT** - Bend the steam hose past the 2" bend radius. This will shorten the life of your hose.

23 **DO NOT** - Operate your unit while the unit stands atop carpeted floors, wood flooring or linoleum type tiled floor, as the heat from the burner could damage these items.

24 **DO NOT** - Operate the machine without water as this may cause damage to the unit.





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- 25 **DO NOT** - Disconnect steam hose from the machine while the water temperature exceeds 100°F.
- 26 **CAUTION** - Only operate the machine while it is in an upright position.
- 27 **DO NOT** - Use in small confined areas.
- 28 **DO NOT** - Steam clean asphalt driveway material or floor grouting while using the blast nozzle. To prevent pitting of such materials, we suggest that you only use the fan nozzle.
- 29 **DO NOT** - leave the machine unsupervised while cleaning away from the machine.
- 30 **NEVER** - Pull or tug on the machine with the power cord or steam hose.
- 31 **CAUTION** - Make sure all attachments are securely attached before activating the gun.
- 32 **NEVER** - Allow children or un-trained persons to use or handle or operate the machine.
- 33 **CAUTION** - Only operate the unit in an upright position.
- 34 **Only** - Use approved THERMA-KLEEN® components and parts in these units.
- 35 **ALWAYS** - Empty machine of all water when finished.
- 36 **NEVER** - Store machine outside.
- 37 **NEVER** - Store machine with water in it.
- 38 **NEVER** - Allow the unit to be exposed to freezing temperatures as severe damage will occur.



WARNING:

Your Therma-Kleen Vapor Steam Cleaner **MUST BE PLUGGED INTO A GROUNDED OUTLET**, or electrical shock can occur. Check with a certified electrician if there is any doubt that the outlet is grounded. Do not modify the Power Cord/Plug provided with the Therma-Kleen Vapor System. If it will not fit the outlet, have a properly grounded outlet installed by a certified electrician.

WHY THIS UNIT MUST BE GROUNDED:

If the unit should malfunction or break down, grounding provides a path of least resistance for the electrical current to pass, reducing the risk of electrical shock. All Therma-Kleen units are equipped with a power cord with an equipment grounding conductor and plug. The plug must be inserted into an appropriate outlet which is properly grounded in accordance with national & local electrical codes and ordinances.

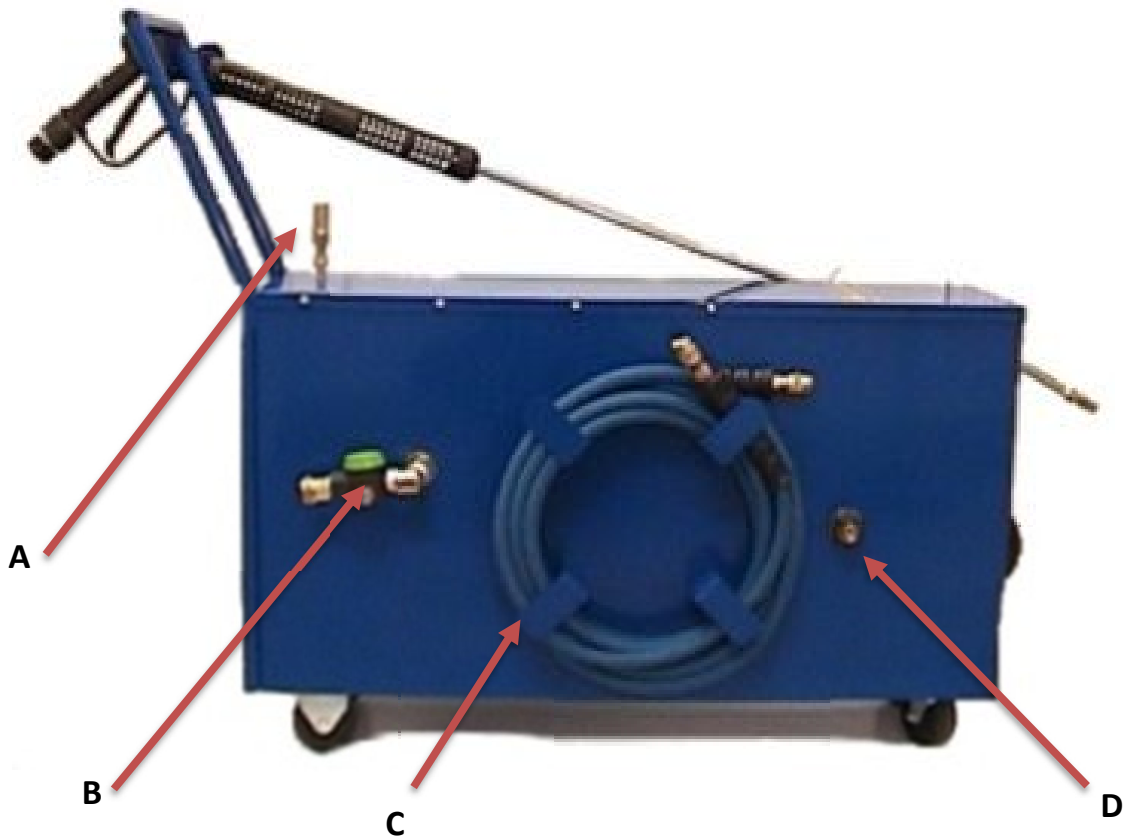
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NOTE:

The 25 ft. length of the input power cord should not be increased. If additional length is required, consult the national & local electrical codes and ordinances as well as seeking the advice of a qualified electrical engineer before proceeding.

PHOTOS OF MODELS:

Available in Blue Paint or Stainless Steel



- A - Nozzle Storage (threaded)
- B - Water Input Connection (garden hose)
- C - Steam Hose Storage
- D - Steam Hose Connection

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Combistat:
For setting
Temperature

Power:
"ON/OFF" Switch



Drain Plug

ACCESSORIES SHIPPED WITH YOUR MACHINE



Steam Hose
25 ft.



Fan Nozzle



Blast Nozzle
Not available with all
pump sizes



4 ft. Deluxe Wand

25 ft. Steam Hose is Standard. A longer length Steam Hose will result in a loss of pressure.

3 PHASE WIRING DIAGRAM:

Each machine is provided with a 25 ft. long input electrical cord similar to the one shown.

Green Wire: Ground
White Wire: Neutral
Black Wire: L1
Red Wire: L2



Each machine has this wiring configuration:

The Customer is to provide their own plug to match their electrical power outlet.

The power cord wire is connected to the heater fuse block within the unit.


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START UP:

1. Connect a garden hose to the inlet fitting located on the side of the machine.
2. Connect the steam hose to the outlet by threading the swivel connection to the hose end. DO NOT over tighten, this will shorten the life of the “O” rings in the fitting.
3. Connect the wand to the steam hose with the same action as above.
4. Plug the power cord into a grounded 3 phase outlet with the same voltage as your machine.
5. Turn the red line on the temperature gauge down below the black line. This will keep the heater from coming “ON”.
6. DO NOT place the nozzle at the end of the wand at this time. Turn the water on full force. Read the incoming water temperature gauge at this time. The incoming water should not exceed 140°F, as higher temperatures could potentially damage the pump. Turn the pump “ON”. Allow the water to run for a few minutes. Remember, your machine works on a temperature rise from the incoming water temperature.
7. Release the trigger gun to stop the flow of water through the wand. After 15 seconds, engage the trigger gun. This action helps to speed up any trapped air in the system. Release the trigger once again to stop the water flow.
8. Place a nozzle on the end of the wand. Engage the trigger gun to allow water to flow.
9. Turn the knob clockwise on the temperature gauge just past the desired operating temperature. Fan Nozzle: 250° F The heater will engage at this time. When the red line meets the black line, the heater will cycle “OFF”.
10. When you stop the water flow when the heater is engaged, the heater will shut off until the water is allowed to flow again by opening the trigger gun.

SHUT DOWN:

1. Turn the RED line DOWN below the BLACK line on the temperature gauge (combistat). You will hear a “Click” when the heater goes “OFF”.
2. Let the pump continue to run until the temperature reads 100°F or less. This will assure that the water coming out of the hoses will be cool when you put the unit away.
3. Turn the pump switch “OFF”.
4. Turn off the water, disconnect the electricity and water hose.
5. Wrap the power cord onto the power cord holder.

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6. Wrap the steam hose onto the steam hose holder.
7. If you plan on storing the machine for more than a short period, drain the unit by removing the drain plug located below the handle and tilting the unit back on the handle to allow the water out of the system.
 - a. Hard water will cause scale on the heater, so it is best to remove the water from the system if it is not going to be used for a while
 - b. Freezing Temperatures will cause extensive damage to the machine and its components if any water is left in the unit.
8. **Never** transport/ship the unit unless all water has been completely drained from the system.



PUMP MAINTENANCE 250E AND 600E:

It is very important to maintain your pump. The seals can be damaged over time by 1.) leaving the machine in by-pass too long creating excess heat to the seals and misshaping them. 2.) Use of chemicals; 3.) Wear and tear. 4.) The incoming water is TOO hot.

Lubrication:

The pump bearing has lubricant on it to create a smooth seal between the hearing and plunger. Re-lubricate as needed.

We recommend using the brand Super Lube or any Synthetic grease with PTFE. Call if you need. Part #6013 for the lubrication and part #6012 for the bearing.

Valves:

The valves can be easily replaced on your pump. If your pressure drops, a valve or valves may be broken. This will cause a low water flow and could cause the machine not to heat. Call for the valve kit and seals. Kit B is part #6011.

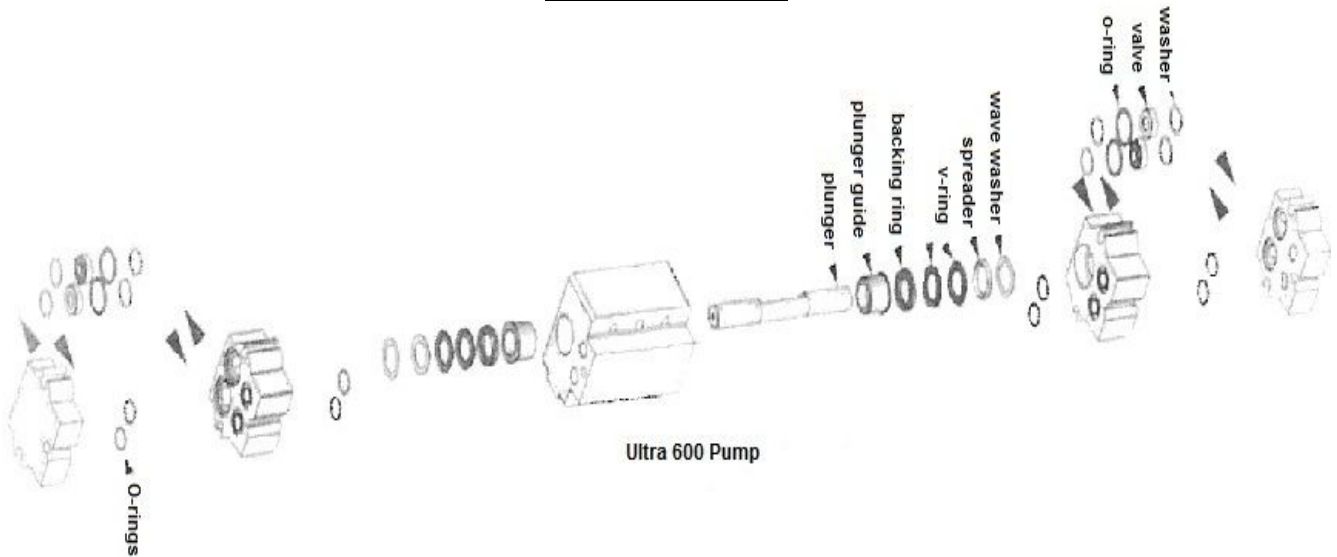
Plunger Kit:

The bearing rides on a plunger. If the bearing was allowed to un-thread by running the motor the wrong direction, this plunger needs to be replaced. Call for the plunger and seals kit. Kit A is part #6010. If your pump is used while the seals are damaged, this can cause water to get into the bearing and break it. If it goes too long, it can destroy the motor winds.

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PUMP BREAKDOWN:

ULTRA 600E PUMP



WANDS :

Optional Accessories (pictured below):

- Snub Nose Wand
- 2.5 ft. Wand

The swivel fitting on the end of your gun that the hose attached to has an "O" ring inside. When you tighten the swivel fitting to the hose do not over tighten, this will shorten the life of the "O" ring. Replace as needed to achieve a good seal.



4-foot Wand

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Trigger Gun
(can be purchased as an individual part if you need to rebuild your wand)



2.5 foot Wand (optional)



Snub Nose Wand (optional)



HOSE:

This hose is a wire braided hose.

DO'S AND DON'Ts

- DO NOT exceed a 2" bend radius.
- DO NOT use the hose to pull the machine.
- DO NOT pull around corners, this will damage the hose.
- DO NOT replace with another type of hose.
- DO wear gloves when moving a hot hose.

Extra hose lengths are available. (25 ft., 50 ft. or 100ft.)

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COMBISTAT:

The combistat is a temperature gauge and a high limit cut off switch in one. This gauge also controls the heat and the heater on this machine. To engage the heat, you must turn the knob in the middle of the gauge to a higher temperature than the black indicator line on the gauge. When the red line is at or below the black line the heater will not come on. When the red line is above the black line the heater will engage. You can control the maximum temperature by setting the red line to the max desired temperature and then heater will cut-off when the temperature is achieved.



Caution: Protect the gauge from impact.

FLOW SWITCH:



The flow switch shuts the heater off when there is an interruption of water flow or the necessary amount of water flow is too low. This protects the heater. Check for debris in your nozzle. Also, always use the correct nozzle size with your model.

Excess air in the water system can cause the flow switch to flutter. Make sure you purge the system of all air before using the machine. This will lengthen the life of your flow switch.

Using the trigger gun activates this switch. Excessive "ON" "OFF" action will also shorten the life of your flow switch.

NOZZLES:



Fan Nozzle
25 degree



Use from cold water
to 250° F.



Blast Nozzle
cleaning temperature
Zero degree



Best

280-300° F.
(Does not come with every model)

PARTS LIST:

ULTRA 600E

PART#

3812 - 1/2 hp. Motor	
6021 - Pump	3788 - 6/4 25 ft. Power Cord-220 volt
6012 - Motor Bearing	3790 - 8/4 25 ft. Power Cord- 480 volt
6013 - Lubrication	3799 - Strain Relief Cord Grip
6010 - Plunger and Seal Kit	3240 - Combistat (Temperature Gauge)
6011 - Valve and Seal Kit	3671 - Male Coupler for End of Gun
3806 - 500 VAC Transformer	3805 - 25 ft. Steam Hose
3776 - 60 amp. Contactor- 220 volt	3798 - 25 ft. Combi Steam Hose
3762 - 30 amp. Contactor- 480 volt	3265 - Plus Model #-Fan Nozzle
3754 - 3" Rigid Wheel	3213 - Plus Model #-Blast Nozzle
3756 - 3" Swivel Wheel	3661 - 4 ft. Wand
3779 - 60 amp. Fuse Block- 220 volt	3834 - 30 amp. Fuse Block-480 volt
3778 - 60 amp. Fuses- 220 volt	3836 - 30 amp. Fuses (heater)
3763 - Toggle Switch	3923 - 21 kw Heater- 220 volt
3024 - Toggle Switch Cover	3985 - 21 kw Heater-480 volt

OPTIONS

3673 - 50 ft. Steam Hose
3160 - 100 ft. Steam Hose
3674 - Coupler for Hose Extension
3905 - 2 ½ ft. Wand
3668 - Snub Nose Wand

PREVENTATIVE MAINTENANCE:

1. Periodically inspect and clean the water inlet screen located just behind your garden hose connection. The Ultra 600E model has a water inlet filter, the Ultra 250E has a water screen inside the garden hose fitting and at the base of the pump. Particles in the water can be abrasive and damage your pump.
2. Periodically inspect the nozzles to make sure they are not clogged. Restricted water flow or a broken spray pattern is an indication of an obstruction in the nozzle.
3. Hardness or mineral content in water along with steam temperatures could create a coating or buildup of scale in the heater and water system. Excess scale will shorten the heater life and interfere with temperature controls.
4. DO NOT FREEZE the machine. Freezing can ruin the flow switch, pump, temperature gauge (combistat) as well as the heater. To protect, remove the drain plug from the heater and tilt the machine until the water is emptied from the system. Replace the plug.
5. Never allow the pump to run without the presence of water. This will damage your pump.
6. Excessive use of the trigger gun can shorten the life of your flow switch, contactors, heater and pump. DO NOT OVER USE.
7. The Ultra 600E pump seals should be inspected regularly for wear. Add additional lubricant, as needed, for the pump and motor. The pump plunger should be protected.
8. Do not tamper with safety features of these models.
9. Pump seals that are not replaced, as needed, can cause damage to the bearing and motor as water is allowed into these items.

TROUBLE SHOOTING:

HEATER does not come on:

1. Make sure the red line on the temperature gauge is set to a higher temperature than the black line, if the red line is set lower than the black line then the contactor will not engage. The contactor will make a “click” sound when the combistat opens it.
2. Make sure you have purged the system of air locks when you first start the unit. Close the trigger gun while the pump is running and count to 15. Then, release the gun and do again. This will help smooth out the system. Excess air in the system could cause an erratic “ON” “OFF” action.
3. Make sure the water flow to and through the machine is not restricted, i.e. a clog in the nozzle, a kink in the garden hose, the water is not on all the way at the garden hose, the water pressure in the water system is too low, or the pump is not pumping enough water through the system. Check the pump water volume per minute and the pump pressure. The flow switch needs to sense a certain flow per minute, if not, then the contactor will not engage.

TEMPERAURE RISE:

1. If you are not achieving enough temperature rise this could be due to using the wrong nozzle or the heater is failing. If your combistat is reading correctly, then check the orifice size on the nozzle. If needed, replace with factory authorized nozzle and orifice.

PUMP SEALS ARE DAMAGED:

1. Make sure that the incoming water temperature is not greater than 140°F. Allowing the pump to stay in the “by-pass” mode for long periods of time will increase the chance of the pump water temperature rising past the approved temperatures. Do not leave the trigger gun closed for more than 2 minutes.

PUMP PRESSURE LOW:

1. Valves in the pump may need to be replaced. Order a valve and seal kit.



LIMITED WARRANTY:

THERMA-KLEEN®, Inc. as manufacturer, warrants to the original purchaser, each new machine for a period of one year from date of shipment from the factory, to be free from defects in material and workmanship under normal use and service. “Normal use and service” means not in excess of recommended maximum pressures, temperatures, incorrect fuels, or handling fluids not compatible with component materials, as noted in THERMA-KLEEN®, Inc. manuals. This warranty shall not apply to any machine or component which has been repaired or altered to adversely affect the performance or reliability of this product. The heating element on the THERMA-STEEM® models will not be covered if distilled water is not used or scale is present. The boiler has a lifetime warranty.

Neither this warranty nor any implied warranty applies to damage or harm caused by any or all of the following:

- 1.) freight damage;
- 2.) freezing damage;
- 3.) damage caused by parts and/or accessories or components not obtained from or approved by THERMA-KLEEN®, Inc.;
- 4.) any consequential or incidental damages arising from the use of a THERMA-KLEEN®;
- 5.) damage due to misapplication or misuse. Pump valves and bearings on the Ultra models are not warrantied if they are broken.

The liability of THERMA-KLEEN® under the forgoing warranty is limited to repair or replacement of a defective component or part at THERMA-KLEEN®’s option. The defective component will be returned to the original manufacturer for judgment as to whether the component failed under normal operating conditions and therefore replaced or misused. These parts must be returned to the regional office or manufacturing facility within the warranty period, at the sole expense of the purchaser. This warranty is limited to furnishing of the parts for replacement exclusive of installation labor. The liability of THERMA-KLEEN®, Inc. under any theory of recovery (except any express warranty where the remedy is set forth in the above paragraph) for loss, harm or damage, shall be limited to the lesser of the actual loss, harm, damage, or the purchase price of the involved machine.

THERMA-KLEEN®, Inc. expressly warrants its machines as above stated. There are no other express warranties. Any implied warranties, including warranty of merchantability

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or of fitness for a particular purpose or merchantability when this product is put to an industrial, commercial or rental use. Before using any product, customer shall determine the suitability of the product for its intended purpose and the customer assumes all risk and liability whatsoever in connection therewith.

No person including any dealer or representative of THERMA-KLEEN®, Inc. is authorized to make any representation or warranty concerning THERMA-KLEEN®, Inc. products on behalf of THERMA-KLEEN®, Inc. or to assume for THERMA-KLEEN®, Inc. the obligations contained in this warranty. THERMA-KLEEN®, Inc. reserves the right to make changes in design and other changes and improvements upon its products without imposing any obligations upon itself to install the same, upon its existing products or products then in process or manufacture.