



southbend

A MIDDLEBY COMPANY

OWNER'S MANUAL

INSTALLATION

USER'S GUIDE

SERVICE

PARTS

TILTING AND STATIONARY ELECTRIC SELF CONTAINED STEAM KETTLES

MODELS: KSLE-20, KTLE-20
 KSLE-40, KTLE-40
 KSLE-60, KTLE-60

These instructions should be read thoroughly before attempting installation. Set up, installation and Performance Check should be performed by a qualified service technician. The Manufacturer, Southbend (1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526), informs you that unless the installation instructions for the above described Southbend product are followed and performed by a qualified service technician, (a person experienced in and knowledgeable concerning the installation of commercial gas and/or electrical cooking equipment) then the terms and conditions of the Manufacturer's Limited Warranty will be rendered void and no warranty of any kind shall apply.

If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the 12-month limited warranty period, then the manufacturer shall not be liable for any incidental or consequential damages to any person or to any property which may result from the use of the equipment thereafter. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion thereto may not apply to you.

In the event you have any question concerning the installation, use, care, or service of the product, write Customer Service Department, Southbend Corporation, 1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526.

**TILTING & STATIONARY
ELECTRIC SELF CONTAINED
STEAM KETTLES
(Manual Section SK)**

Congratulations! You have just purchased one of the finest pieces of heavy-duty, commercial cooking equipment on the market today.

You will find that your new equipment, like all Southbend equipment, has been designed and manufactured to some of the toughest standards in the industry — those of Southbend Corporation. Each piece of Southbend equipment has been carefully engineered and designs have been verified through laboratory tests and field installations in some of the more strenuous commercial cooking applications. With proper care and field maintenance, you will experience years of reliable, trouble-free operation from your Southbend equipment. To get the best results, it's important that you read this manual carefully.

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Retain this manual for future reference.

INTENDED FOR COMMERCIAL USE ONLY. NOT FOR HOUSEHOLD USE.

WARNING — WARRANTY WILL BE VOID IF

- A. SERVICE WORK IS PERFORMED BY OTHER THAN A QUALIFIED TECHNICIAN.**
- B. OTHER THAN GENUINE SOUTHBEND REPLACEMENT PARTS ARE INSTALLED.**

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

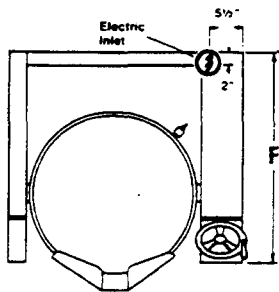
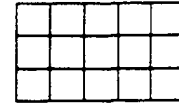
KEEP AREA AROUND APPLIANCES FREE AND CLEAR FROM COMBUSTIBLES.



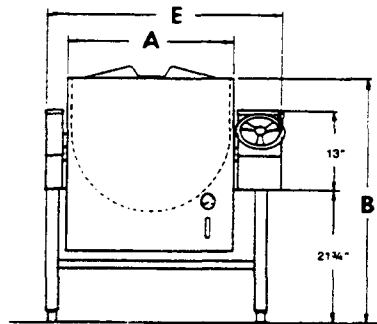
A MIDDLEBY COMPANY

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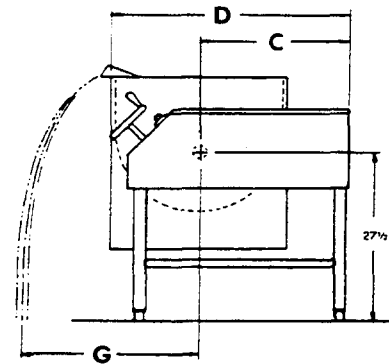
TILTING ELECTRIC SELF CONTAINED STEAM KETTLES SPECIFICATIONS



TOP VIEW



FRONT VIEW



SIDE VIEW

Not For Scale For Dimensional
Purposes Only

DIMENSIONS:

() = Millimeters

MODEL	CAPACITY			MAX		KW	DIMENSIONS						CRATE SIZE			CUBIC VOLUME	CRATED WEIGHT	
	US.	Liter	Imp.	Lb./in.	KPa		A	B	C	D	E	F	G	Width	Depth			Height
KTLE-20	20	75	17	50	345	12	21.125" (537)	40" (1016)	19.75" (502)	31.25" (794)	32.25" (819)	31.25" (794)	23" (584)	40" (1016)	36" (914)	50" (1270)	42 cu. ft. 1.19cu. m.	400 lbs. 181.4 kg.
KTLE-40	40	150	34	50	345	24	27.125" (689)	40" (1016)	23.25" (591)	37" (940)	38.25" (972)	34.75" (883)	28" (711)	43" (1092)	41" (1041)	50" (1270)	51 cu. ft. 1.44 cu. m.	530 lbs. 240.4 kg.
KTLE-60	60	225	50	50	345	24	31.125" (791)	42" (1067)	25.5" (648)	41" (1041)	42.25" (1073)	37" (940)	32" (813)	46" (1168)	46" (1168)	52" (1321)	64 cu. ft. 1.81 cu. m.	600 lbs. 272.2kg.

UTILITY INFORMATION:

ELECTRIC — KTLE-20, KTLE-40, KTLE.60

? STANDARD: 208/60/1 or 3 phase 240/60/1 or 3 phase (50 cycle -no charge)

? OPTIONAL: 480/60/3 (50 cycle - no charge)

Total maximum kilowatts: KTLE-20 - 12 KW; KTLE-40 - 24 KW; KTLE-60 - 24 KW.

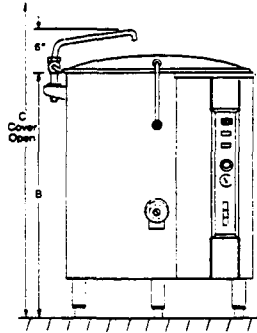
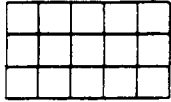
Ⓢ ELECTRIC CONNECTION

APPROVALS:

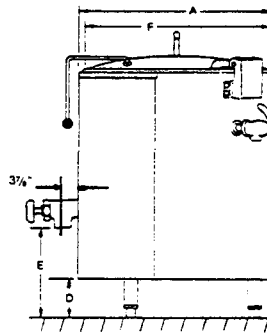
TOTAL K.W. CONN.	TOTAL CONNECTED AMPS				
	SINGLE PHASE		THREE PHASE		
	208V	240V	208V	240V	480V
12	58	50	34	29	15
24	116	100	67	58	29



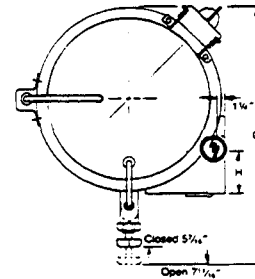
STATIONARY ELECTRIC SELF CONTAINED STEAM KETTLES SPECIFICATIONS



FRONT VIEW



SIDE VIEW



TOP VIEW

**Not For Scale For
Dimensional Purposes Only**

DIMENSIONS:

() = Millimeters

MODEL	Width A	HEIGHT		D	E	DEPTH		Elec. Conn. H	CRATE SIZE			CUBIC VOLUME	CRATED WEIGHT
		B	C			F	G		Width	Depth	Height		
? KSLE-20	22" (559)	37" (939)	60.75" (1543)	8.5" (216)	16.5" (419)	21" (533)	33" (838)	6" (152)	32" (813)	32" (813)	40" (1016)	23.7 cu. ft. .67 cu. m.	360 lbs. 163.3 kg.
? KSLE-40	28" (711)	39" (991)	68.25" (1734)	6" (152)	14.88" (378)	27" (686)	38.56" (979)	7" (178)	40" (1016)	40" (1016)	48" (1219)	44.4 cu. ft. 1.25 cu. m.	425 lbs. 192.8 kg.
? KSLE-60	32" (813)	42" (1067)	75.75" (1924)	6" (152)	15.13" (384)	31" (787)	43" (1092)	8" (203)	43" (1092)	43" (1092)	58" (1473)	62.1 cu. ft. 1.76 cu. m.	500 lbs. 226.8 kg.

UTILITY INFORMATION:

ELECTRIC — KSLE-20, KSLE-40, KSLE-60

? STANDARD: 208/60/1 or 3 phase 240/60/1 or 3 phase (50 cycle -no charge)

? OPTIONAL: 480/60/3 (50 cycle - no charge)

Total maximum kilowatts: KSLE-20 - 12 KW, KSLE-40 - 24 KW, KSLE-60 - 36 KW.

TOTAL K.W. CONN.	TOTAL CONNECTED AMPS				
	SINGLE PHASE		THREE PHASE		
	208V	240V	208V	240V	480V
12	58	50	34	29	15
24	116	100	67	58	29
36	N.A.	N.A.	100	87	44

ELECTRIC CONNECTION

APPROVALS:



MODEL	CAPACITY			MAX.PRESS.		KW
	U.S.	Liter	Imp.	Lb./in.2	KPa	
KSLE-20	20	75	17	50	345	12
KSLE-40	40	150	34	50	345	24
KSLE-60	60	225	50	50	345	36

INSTALLATION



GENERAL:

THE UNIT WHEN INSTALLED MUST BE ELECTRICALLY GROUNDED AND COMPLY WITH LOCAL CODES, OR IN THE ABSENCE OF LOCAL CODES, WITH THE NATIONAL ELECTRICAL CODE ANSI NFPA 70-1984.

CANADIAN INSTALLATION MUST COMPLY WITH CSA STANDARD C22.1-CANADIAN ELECTRICAL CODE PART 1.

EXHAUST FANS AND CANOPIES: Canopies are set over ranges, ovens, kettles, etc., for ventilation purposes. It is recommended that a canopy extend 6" past appliance and be located 6'6" from the floor. Filters should be installed at an angle to 45° or more with the horizontal. This position prevents dripping of grease and facilitates collecting the run-off grease in a drip pan, usually installed with the filter. A strong exhaust fan tends to create a vacuum in the room and may interfere with performance. Makeup air openings approximately equal to the fan area will relieve such vacuum. In case of unsatisfactory performance on any appliance, check with the exhaust fan in the "OFF" position.

WALL EXHAUST FAN: The exhaust fan should be installed at least 2 feet above the vent opening at the top of the unit.

CLEARANCES: Adequate clearance must be provided in aisle and at the side and back. Adequate clearances for air openings, as well as for serviceability.

WARNING:

THESE PROCEDURES MUST BE FOLLOWED BY QUALIFIED PERSONNEL OR WARRANTY CAN BE DECLARED VOID.

TO INSTALL:

1. Uncrate carefully. Report any hidden freight damage to the freight company immediately.
2. Set the unit in place. Be certain to maintain the following minimum clearances to combustible construction:
 - SIDES — 2 Inches BACK — 2 Inches (at the flue box) FLOOR — 2 Inches
 - Allow enough clearance around the kettle for cleaning and maintenance.
3. To level the unit use a spirit level in all directions on the top of kettle (lid up).
 - A. **Units with legs** — Adjust the bottom foot on each leg to overcome an uneven floor.
 - B. **Units with casters** — Loosen the locking nuts, turn casters in or out as required and tighten locking nuts.
4. The pressure relief valve is located at the right rear of the unit. This area should be kept clear and should not be in an area where operators will normally stand. The elbow on the relief valve should be turned toward the floor. A maximum 3 foot, 3/4" diameter pipe may be used to extend to the floor, but must not be piped directly to a drain. It must vent to the atmosphere.
5. Check the pressure gauge on the front panel before operating. If the pressure gauge does not indicate 20 to 30 inches of mercury column vacuum, see "Re-establishing Vacuum" section under SERVICE after completing installation instructions.
6. This unit was shipped from the factory with a full charge of chemically pure water. This can be checked in two ways:
 - A. Viewing water level through sight glass.
 - B. When kettle is turned on, "Low Water" light will come on if water level is too low.

In either case, if the water level is low, the proper procedure is to remove the safety valve of the unit and fill with chemically pure water to the right level looking thru sight glass. Replace safety valve securely.

In either case, the proper procedure would be to remove pressure relief valve and attach a 3/4" NPT elbow pointing upward.

Using pure distilled water only, pour the water into the open end of the elbow (a funnel will be helpful). Water will enter the kettle slowly, as air must escape through the same hole. Water should be added until the water level at the sight glass is half way between the minimum and maximum levels.



INSTALLATION

7. When sufficient water has been added, remove elbow and replace pressure relief valve. Be sure to seal threads with a pipe joint compound suitable for steam at 50 psi.
8. The vacuum must now be re-established. See following section.

For reference, the total amount of distilled water contained in each unit is listed below:

KTLE-20 1.5 gals. U.S.	KSLE-20 7.2 gals. U.S.
KTLE-40 2.5 gals. U.S.	KSLE-40 15.6 gals. U.S.
KTLE-60 3.0 gals. U.S.	KSLE-60 22.8 gals. U.S.

RE-ESTABLISHING VACUUM:

With the kettle completely cold a vacuum of 25 to 30 inches mercury column (M.C.) should be maintained as indicated by the pressure gauge on the front control panel. If at any time the vacuum is less than 25 inches M.C. the vacuum should be re-established.

With the kettle empty, turn the thermostat knob to the highest temperature. When the pressure gauge reaches 20 psi, turn thermostat off, open the pressure relief valve until manometer reads 1 psi, then sharply release it. This should remove the air and any loss in performance should return.

Should the kettle fail to maintain a vacuum after repeated attempts to establish it, further checks should be made to see if the pressure relief valve is leaking or if there are any leaks in the pressure relief valve piping, copper lines going to the pressure switch, pressure gauge or thermostat fitting.

ELECTRICAL CONNECTIONS:

- I. 208/240 Single and Three Phase:

To connect to supply wires, route supply wire through hole in bottom of control compartment and connect to contactor. Be sure to refer to wiring diagram and rating plate on each unit for proper connection, voltage and amperage.

- II. 480 Three Phase:

Units with this electrical rating are factory equipped with a transformer to control voltage to control circuit. Refer to wiring diagram and rating plate on each unit for proper connection, voltage and amperage.

WATER CONNECTION:

On units equipped with an optional water fill valve connect a water line (minimum 1/4 ") to the valve with a 1/4" NPT female fitting. Units with dual (hot & cold) valves must have the hot water line connected to the side with the hot water valve (*Red*) and cold water valve (*Blue*). Plastic or rubber hose is not recommended, as it may melt against the hot kettle side.

UNITS WITH CASTERS:

For a unit equipped with casters, the installation shall be made with a gas connector that complies with the standard for connectors for movable gas appliances, ANSI Z 21.69-1979. Adequate means must be provided to limit the movement of the unit, without depending on the connector and any quick disconnect device or its associated piping to limit the unit's movement. If disconnection of this restraint is necessary to move the appliance for cleaning, etc., reconnect it when the appliance is moved to its originally installed position. A flexible conduit and adequate strain relief must also be provided for the power supply connection.

If the unit is also equipped with an optional water fill valve, it too must be installed with a flexible water supply tube, a quick disconnect, and strain relief.

WARNING:

DO NOT ALLOW ANY TAMPERING OR ADJUSTMENT OF ANY CONTROL OR WIRING. THE UNIT IS FACTORY SET. ADJUSTMENT OF ANY INTERNAL COMPONENT, OTHER THAN THE FIELD TERMINAL BLOCK, CAN VOID THE WARRANTY.

INSTALLATION



PERFORMANCE CHECK:

The following items should be checked before or within the first 30 days of operation by a qualified service technician.

1. Verify correct voltage, cycle and phase.
2. Check internal electrical connections.
3. Thermostat — cycle for operation check.
4. Check tilt mechanism if applicable.
5. Check hinge and lid assembly.
6. Draw-off valve — check operation if applicable.
7. Pressure gauge — check for operation.
8. Advise user on cleaning procedures.

TILTING AND STATIONARY ELECTRIC SELF CONTAINED STEAM KETTLES

LIMITED WARRANTY

Southbend warrants that the equipment, as supplied by the factory to the original purchasers, is free from defects in materials and workmanship. Should any part thereof become defective as a result of normal use within the period and limits defined below, then at the option of Southbend such parts will be repaired or replaced by Southbend or its Authorized Service Agency. This warranty is subject to the following conditions:

If upon inspection by Southbend or its Authorized Service Agency it is determined that this equipment has not been used in an appropriate manner, has been modified, has not been properly maintained, or has been subject to misuse or misapplication, neglect, abuse, accident, damage during transit or delivery, fire, flood, riot or Act of God, then this warranty shall be void.

Specifically excluded under this warranty are claims relating to installation; examples are improper utility connections and improper utilities supply. Claims relating to normal care and maintenance are also excluded; examples are calibration of controls, and adjustments to pilots and burners.

Equipment failure caused by inadequate water quality is not covered under the warranty. WATER QUALITY must not exceed the following limits; Total Dissolved Solids (TDS) - 60 PPM (Parts Per Million), Hardness - 2 Grains or 35 PPM, PH Factor - 7.0 to 7.5. Water pressure 30 PSI minimum, 60 PSI Maximum. Boiler maintenance is the responsibility of the owner and is not covered by warranty.

This equipment is intended for commercial use only. Warranty is void if equipment is installed in other than commercial application.

Repairs under this warranty are to be performed only by a Southbend Authorized Service Agency. Southbend can not be responsible for charges incurred from other than Authorized Southbend Agencies.

THIS WARRANTY MUST BE SHOWN TO AN AUTHORIZED SERVICE AGENCY WHEN REQUESTING IN-WARRANTY SERVICE WORK. THE AUTHORIZED SERVICE AGENCY MAY AT HIS OPTION REQUIRE PROOF OF PURCHASE DATE.

This warranty does not cover services performed at overtime or premium labor rates nor does Southbend assume any liability for extended delays in replacing or repairing any items in the equipment beyond the control of Southbend. "Southbend shall not be liable for consequential or special damages of any nature that may arise in connection with such product or part." Should service be required at times which normally involve overtime or premium labor rates, the owner shall be charged for the difference between normal service rates and such premium rates.

In all circumstances, a maximum of one hundred miles in travel and two and one half hours (2.5) travel time shall be allowable. In all cases the closest Southbend Authorized Agency must be used.

The actual warranty time periods and exceptions are as follows:

This warranty only covers product shipped into the 48 Contiguous United States and Hawaii, one year labor, one year parts effective from the date of original purchase. There will be no labor coverage for equipment located on any island not connected by roadway to the mainland.

Exceptions to standard warranty, effective within above limitations:

Glass Windows, Door Gaskets, Rubber Seals, Light Bulbs, Ceramic Bricks,	
Sight Glasses, Cathodic Descalers or Anodes	90 days material and labor.
Stainless Steel Fry Pot	4 years extended material warranty on fry pot only - No labor.
Stainless Steel Open Top Burners	4 years extended material warranty on burners only - No labor.
Pressure Steam Boiler Shell	Prorated 4 years extended warranty on boiler shell only - No labor.

(Boiler shells which have not been properly maintained will not be covered by warranty.)

In all cases parts covered by a five year warranty will be shipped FOB the factory after the first year.

Our warranty on all replacement parts which are replaced in the field by our Authorized Service Agencies will be limited to three months on labor, six months on materials (parts) effective from the date of installation. See LIMITED WARRANTY - REPLACEMENT PARTS for conditions and limitations.

If the equipment has been changed, altered, modified, or repaired by other than a qualified service technician during or after the one year limited warranty period, then the manufacturer shall not be liable for any damages to any person or to any property which may result from the use of the equipment thereafter.

"THE FOREGOING WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND CONSTITUTES THE ENTIRE LIABILITY OF SOUTHBEND. IN NO EVENT DOES THE LIMITED WARRANTY EXTEND BEYOND THE DURATION OF ONE YEAR FROM THE EFFECTIVE DATE OF SAID WARRANTY."

SOUTHBEND - Effective February 1, 1990



OPERATION

THEORY OF OPERATION:

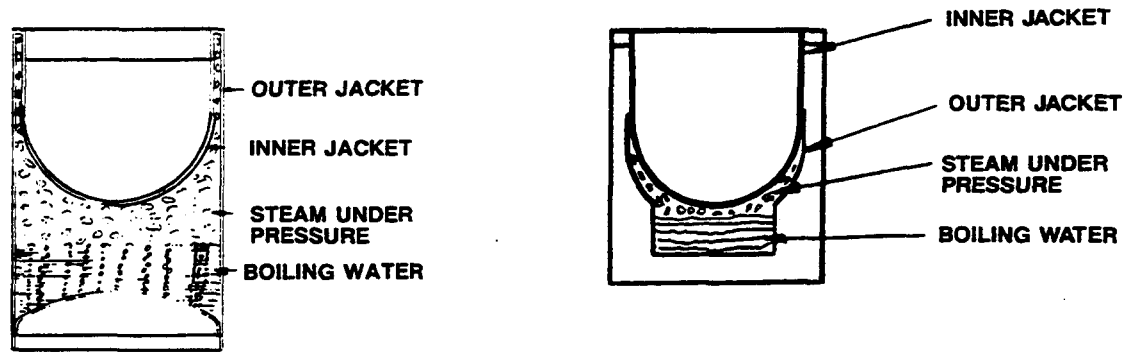
One BTU (British Thermal Unit) is defined as the amount of heat required to raise one pound of water through one degree Fahrenheit. Therefore, for one pound of water at room temperature, it takes $212^{\circ} - 70^{\circ}$ or 132 BTUs to bring water to 212° F, the boiling point of water. However, in order to change this same pound of water at 212° F to steam at 212° F requires another 970 BTUs. This 970 BTUs is called the "heat of vaporization."

Upon contact with a cooler surface, this "heat of vaporization" is immediately given up.

Since a large amount of heat is given up at such a low temperature, 212° F, food is cooked quickly with relatively less shrinkage and the foods valuable nutrients are retained.

In steam jacketed kettles, the steam is produced by the small amount of water between the jacket. This allows for fast, uniform heating of the inner jacket and therefore, the product.

An additional advantage of this low temperature is that most foods won't stick to the sides. This transmits into reduced labor costs since most foods do not require constant stirring.



DAILY OPERATION:

All equipment must be installed correctly to insure proper operation and reliable service. Installation must be followed by a qualified technician.

Before you turn the unit on, be sure that you have: Power to the unit and any required waste drains plumbed in.

Set the thermostat to the desired temperature. The "Cooking" light will come on indicating that the heating elements within the kettle are on. When the desired temperature is reached, the "Cooking" light will go out.

NOTE: IT IS ALWAYS A GOOD IDEA TO PREHEAT THE KETTLE EMPTY. DOING THIS WILL IMPROVE PERFORMANCE.

Add product; thermostat will automatically cycle.

To turn the unit off, turn thermostat knob to "OFF" position.

Clean as required.

NOTE: Whenever kettle is tilted, power to the heating elements is turned off.

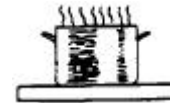
OPERATION



FRONT PANEL CONTROLS:

1. **Power Switch** — This switch turns the main power to the unit on and off. It must be turned on to heat the kettle. It should be turned off when the kettle will not be in use for long periods.
2. **(Red) Cooking Light** — This light is on whenever the electric element is on.
3. **(Amber) Low Water light** — All kettles are supplied with sufficient distilled water in the pressurized jacket. If at any time the water level falls below that required for proper operation, the kettle will not heat and this light will come on. See "Adding Water" section of SERVICE instructions.
4. **Thermostat** — The thermostat selects the desired internal kettle operation temperature.
5. **Pressure Gauge** — The pressure gauge indicates the internal operating pressure of the kettle. When cold, the gauge should indicate 25 to 30 inches mercury column vacuum. If it does not, refer to "Re-establishing Vacuum" section of SERVICE instructions. Under normal operation with the kettle empty (thermostat set to 298° F) the pressure should be between 40 and 45 psi. When loaded the pressure may be considerably less.
6. **Sight Glass** — The sight glass indicates the minimum and maximum water level within the kettle. If water level falls below minimum level more distilled water should be added. See "Adding Water" section of SERVICE instructions.
7. **Pressure Relief Valve** — The pressure relief valve is a safety device which prevents the internal kettles pressure from ever exceeding 50 psi. It should never be tampered with.

COOKING HINTS



END USER TIPS:

It is a good idea to preheat the empty kettle *EXCEPT* when cooking milk and egg products.

When preparing foods containing vinegar or tomatoes, or which have a high salt content, clean the kettle immediately after using to prevent pitting.

Do not use salt to clean the kettle. This will scratch the surface.

If using salt water to cook shellfish, be sure to rinse and wash the kettle thoroughly.

Grease the tilting mechanism on the Kettle about once a year with a non-toxic lubricant.

Bring milk and egg products slowly up to temperature in a cold kettle to prevent product from adhering to the sides.

Install a faucet or a hose to make the kettle easier to clean.

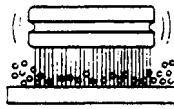
When planning actual cooking capacity, allow room at top for stirring without spilling.

When food is cooked it should be removed immediately to prevent overcooking and difficulty in cleaning.

If the pointer on the pressure gauge is between -25 and -30 and the kettle is at room temperature, the vacuum inside the kettle is good.

ENERGY SAVING TIPS:

1. Turn off when not in use.
2. Set thermostat correctly.
3. Use lid.
4. Maintain equipment.



MAINTENANCE

Southbend equipment is sturdily constructed of the best quality materials and is designed to provide desirable service when treated with ordinary care.

NOTE: Your Southbend steam jacket kettle must be thoroughly cleaned at least once every day.

Certain foods containing salt, vinegar or tomato base additive may cause the inner surface of the kettle to pit. The kettle should be thoroughly cleaned after each use when these types of food additives are used.

Before adding any food to your new Southbend kettle, it should be thoroughly cleaned to remove any trace of dirt or oils left over from the manufacturing, storage or transportation of this unit.

TO CLEAN: Add about one gallon of warm water to the kettle. Using a mild detergent, thoroughly wash the inside food contact surface. Drain and flush with clean water to remove any trace of detergent. Dry thoroughly and buff with a dry cloth to bring out the luster of the stainless steel.

NOTE: Dismantle sanitary valve every day to clean the draw-off and the valve itself.

CAUTION: DO NOT USE VINEGAR OR ANY CORROSIVE CLEANER.

Following daily and periodic maintenance procedures will enhance long-life for your equipment. Climatic conditions — salt air — may require more thorough and frequent cleaning or the life of the equipment could be adversely affected.

STAINLESS STEEL: To remove normal dirt, grease, or product residue from stainless steel use ordinary soap and water (with or without detergent) applied with a sponge or cloth. Dry thoroughly with a clean cloth. Never use vinegar or any corrosive cleaner.

To remove grease and food splatter or condensed vapors that have baked on the equipment, apply cleanser to a damp cloth or sponge and rub cleanser on the metal in the direction of the polishing lines on the metal. Rubbing cleanser as gently as possible in the direction of the polished lines will not mar the finish of the stainless steel. NEVER RUB WITH A CIRCULAR MOTION. Soil and burnt deposits which do not respond to the above procedure can usually be removed by rubbing the surface with SCOTCH-BRITE scouring pads or STAINLESS scouring pads. DO NOT USE ORDINARY STEEL WOOL, as any particles left on the surface will rust and further spoil the appearance of the finish. NEVER USE A WIRE BRUSH, STEEL SCOURING PADS (EXCEPT STAINLESS), SCRAPER, FILE OR OTHER STEEL TOOLS. Surfaces which are marred collect dirt more rapidly and become more difficult to clean. Marring also increases the possibility of corrosive attack. Refinishing may then be required.

TO REMOVE HEAT TINT: Darkened areas sometimes appear on stainless steel surfaces where the area has been subjected to excessive heat. These darkened areas are caused by thickening of the protective surface of the stainless steel and are not harmful. Heat tint can normally be removed by the foregoing, but tint which does not respond to this procedure calls for a vigorous scouring in the direction of the polish lines, using SCOTCH-BRITE scouring pads or a STAINLESS scouring pad in combination with a powdered cleanser. Heat tint action may be lessened by not applying or by reducing heat to equipment during slack periods.

All food contact surfaces must be thoroughly drained and flushed prior to cooking in the kettle.

CONTROL PANEL: The textured control panel should be cleaned with warm water and mild soap. Never use an abrasive cloth or steel wool. Never use cleaning solvents with a hydrocarbon base.

VENT SYSTEM: At least twice a year the unit venting system should be examined and cleaned.

END USER TIPS:

For easier cleaning add cold water to the kettle immediately after removing contents.

When preparing foods containing vinegar and/or tomatoes or those which have a high salt content, clean the kettle immediately after using to prevent pitting.

Do not use salt to clean the kettle. This will scratch the surface.

If using salt water to cook shellfish, be sure to rinse and wash the kettle thoroughly.

Bring milk and egg products slowly to temperature in a cold kettle to prevent product adhering to the sides.

When planning actual cooking capacity, allow room at top for stirring without spilling.

When preparing puddings from a mix, place the powder in a cold kettle, add a small amount of the liquid, and stir to form a thin paste. Turn on the kettle and add the remainder of the liquid. Continue as per recipe instructions.

When browning meat, bring the kettle up to temperature before adding the meat. This seals the juices in the meat.

TILTING AND STATIONARY ELECTRIC SELF CONTAINED STEAM KETTLES SERVICE

ADJUSTMENTS



WARNING:

ADJUSTMENTS AND SERVICE WORK MAY BE PERFORMED ONLY BY A QUALIFIED TECHNICIAN WHO IS EXPERIENCED IN, AND KNOWLEDGEABLE WITH, THE OPERATION OF COMMERCIAL ELECTRIC COOKING EQUIPMENT HOWEVER, TO ASSURE YOUR CONFIDENCE, CONTACT YOUR AUTHORIZED SERVICE AGENCY FOR RELIABLE SERVICE, DEPENDABLE ADVICE OR OTHER ASSISTANCES, AND FOR GENUINE FACTORY PARTS.

All units are adjusted at the factory. In the case of problems at initial installation, check the supply voltage and compare with information listed on the serial plate.

LOSS OF VACUUM:



If the pointer on the pressure gauge is between -25 and -30 and the kettle is at room temperature, the vacuum inside the kettle is good.



If the pointer on the pressure gauge is between -25 and 0 and the kettle is at room temperature, the vacuum between the inner and outer jacket has been lost. This results in slow and inefficient heat transfer, thereby, poor performance.

TO RE-ESTABLISH VACUUM: With the kettle empty, turn the thermostat knob to the highest temperature. When the pressure gauge reaches 5 to 10 psi, open the pressure relief valve for 5 to 10 seconds, then sharply release it. This should remove the air and any loss of performance should return.

Should the kettle fail to maintain a vacuum after repeated attempts to establish it, further checks should be made to see if the pressure relief valve is leaking or if there are any leaks in the pressure relief valve piping, copper lines going to the pressure switch, pressure gauge or thermostat fitting.

NOTE: Let unit cycle a few times to make sure that the thermostat is working properly.

THERMOSTAT:

The thermostat adjustment should not be changed until it is determined to be out of adjustment. Check the following before changing the thermostat adjustment:

1. With kettle cold, the pressure on the pressure gauge should read 25 to 30 inches mercury column vacuum. If not, see "Re-establishing Vacuum" section.
2. The pressure switch is not set too high or too low and causing the out of adjustment condition. A voltmeter should be used by a properly trained serviceman to determine if the pressure switch or thermostat is actually cycling the elements. If the pressure switch is found to be the problem, see "Pressure Switch" section.

Once the pressure switch is found to be operating properly, the thermostat should be set as follows:

1. Be certain kettle is empty.
2. Turn kettle on with thermostat set to 298° F.
3. Allow kettle to cycle two times.



ADJUSTMENTS

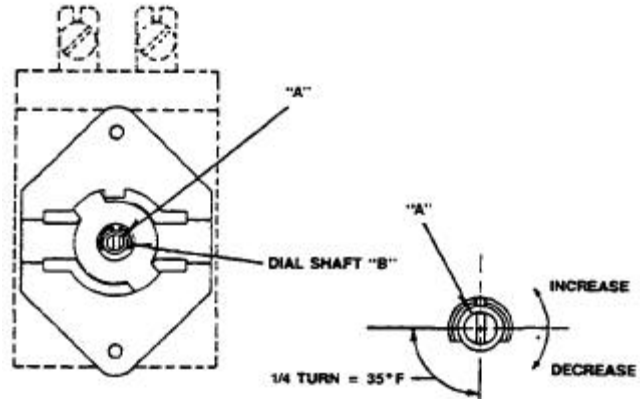
4. Using a voltmeter, determine if the elements are being cycled by the pressure switch or by the thermostat:
 - A. If the pressure switch is cycling the unit, the thermostat should be adjusted to a lower temperature. Turn the thermostat adjustment lower until the thermostat is cycling the unit.
 - B. If the thermostat is cycling the unit, but the pressure reading on the gauge is too low, the thermostat adjustment may be increased. Be certain, however, that it is not increased to the point where the pressure switch is cycling the unit.
5. Remove knob from dial shaft "B" in diagram below.
6. Increase kettle pressure by turning adjustment screw "A" counterclockwise. Decrease kettle pressure by turning adjustment screw clockwise.
7. Turn adjustment screw slowly and allow kettle to cycle after each adjustment.
8. Replace thermostat knob.

PRESSURE SWITCH:

The pressure switch should not be adjusted until it is determined to be the cause of an operating pressure difficulty. See "Thermostat" section to determine if the source of difficulty is the pressure switch or thermostat.

The major difficulties caused by pressure switch misadjustment are:

1. Pressure relief valve opening, especially on preheat from a cold start to 298° F (pressure switch set too high).
2. Pressure in kettle is too low and elements are being shut down by the pressure switch (not thermostat).



The pressure switch is preset for proper operation from the factory. It is adjusted to the maximum pressure which will prevent the pressure relief valve from opening. This setting will be slightly different on different kettle due to variations in the pressure relief valves. During preheat to the maximum thermostat setting (298° F), from either a cold condition or a lower temperature setting, the temperature may overshoot the thermostat setting and be shut down by the pressure switch.

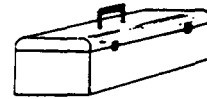
This is normal, however, after the kettle has cycled several times (empty) the thermostat will begin cycling the unit.

TO ADJUST PRESSURE SWITCH:

1. With the kettle empty and completely cold, turn kettle on and set thermostat to maximum setting (298° F).
2. Pressure in kettle (read pressure gauge on front panel) should reach a maximum pressure of 40 to 45 psi and pressure relief valve should not open. Kettle pressure may rise 3 or 4 psi even after elements shut down.
3. If relief valve does not open and kettle pressure is 40 psi or greater, pressure switch setting is satisfactory.
4. If relief valve opens, reduce setting on pressure switch, cool kettle completely by running cold water through it and repeat this procedure.
5. If pressure in kettle is below or equal to 40 psi increase setting of pressure switch, cool kettle completely by running cold water through it, and repeat this procedure.
6. To obtain access to the pressure switch the front panel must be removed. Remove the screws on either side of the panel. Be sure to support the panel to avoid excessive strain on the wiring.
7. To increase the pressure switch setting, turn the white ribbed knob clockwise; to decrease turn it counterclockwise. Use the center of the black ring as an indicator.
8. Replace the front panel when adjustment is complete.

SERVICE

SERVICE



ADDING WATER:

1. Unit should be completely cold and off.
2. Lift handle of pressure relief valve to release vacuum in kettle (relief valve is at right rear of kettle).
3. Remove pressure relief valve and attach a 3/4" NPT elbow pointing upward.
4. Using pure distilled water only, pour the water into the open end of the elbow (a funnel will be helpful). Water will enter the kettle slowly, as air must escape through the same hole. Water should be added until the water level at the sight glass is half way between the minimum and maximum levels.
5. When sufficient water has been added, remove elbow and replace pressure relief valve. Be sure to seal threads with a pipe joint compound suitable for steam at 50 psi.
6. The vacuum must now be re-established. See following section.

For reference, the total amount of distilled water contained in each unit is listed below:

KTLE-20 1.5 gals. U.S.

KSLE-20 7.2 gals. U.S.

KTLE-40 2.5 gals. U.S.

KSLE-40 15.6 gals. U.S.

KTLE-60 3.0 gals. U.S.

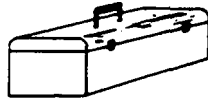
KSLE-60 22.8 gals. U.S.

RE-ESTABLISHING VACUUM:

With the kettle completely cold a vacuum of 25 to 30 inches mercury column (M.C.) should be maintained as indicated by the pressure gauge on the front control panel. If at any time the vacuum is less than 20 inches M.C. the vacuum should be re-established.

With the kettle empty, turn the thermostat knob to the highest temperature. When the pressure gauge reaches 5 to 10 psi, open the pressure relief valve for 5 to 10 seconds, then sharply release it. This should remove the air and any loss in performance should return.

Should the kettle fail to maintain a vacuum after repeated attempts to establish it, further checks should be made to see if the pressure relief valve is leaking or if there are any leaks in the pressure relief valve piping, copper lines going to the pressure switch, pressure gauge or thermostat fitting.



SERVICE

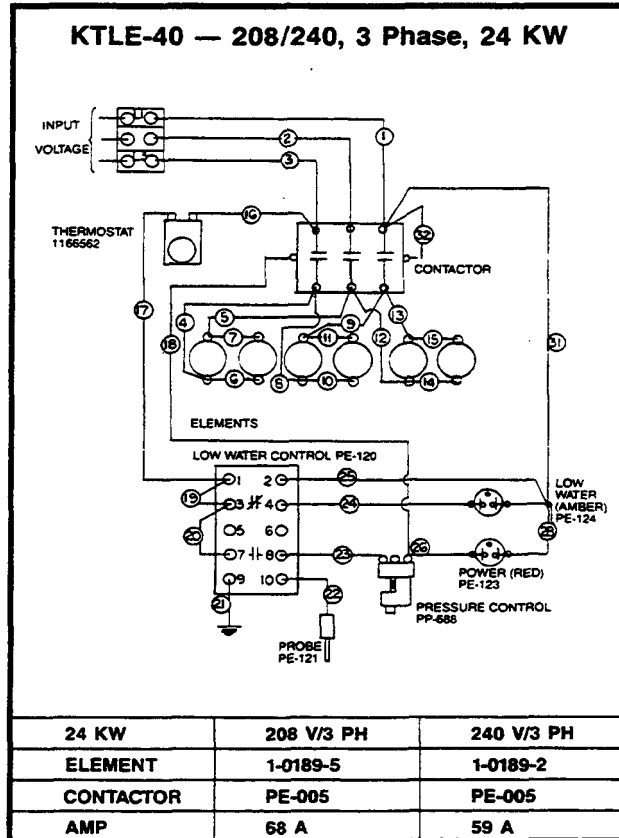
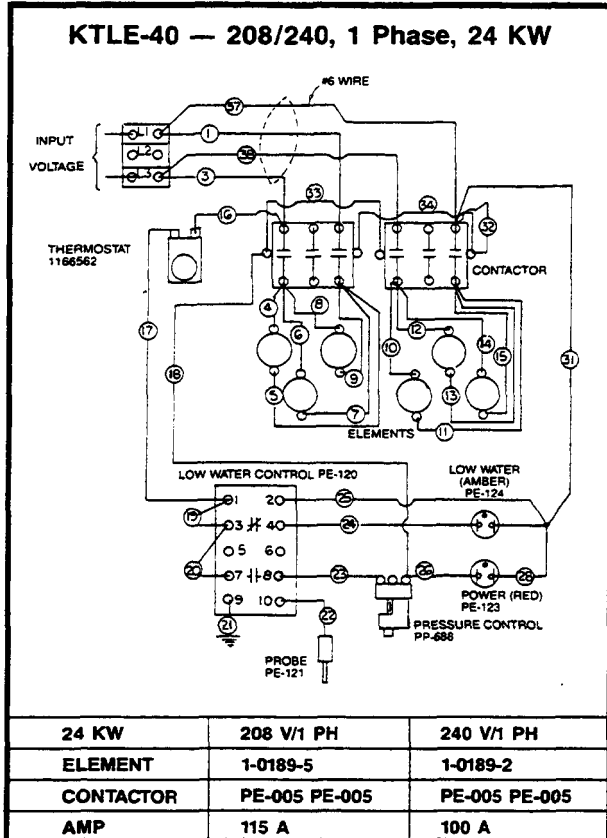
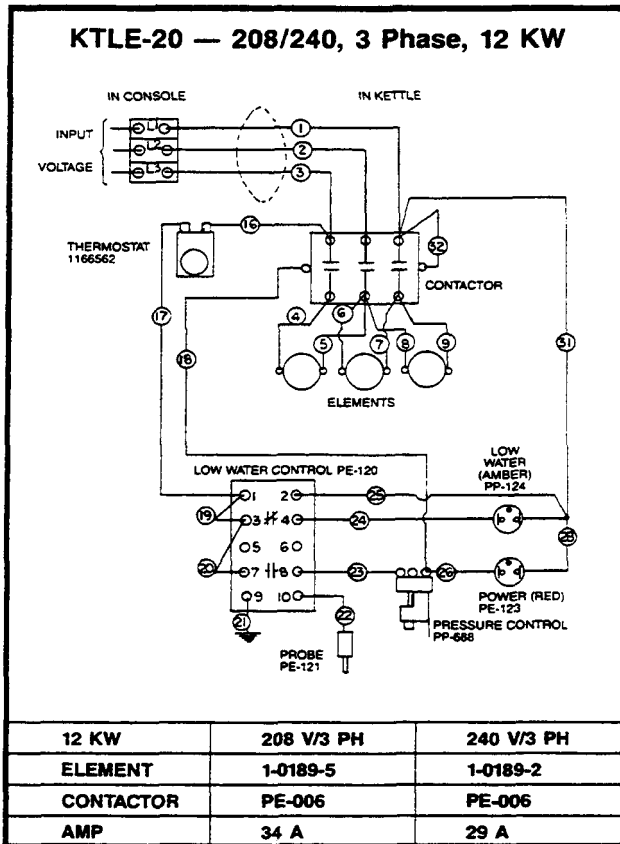
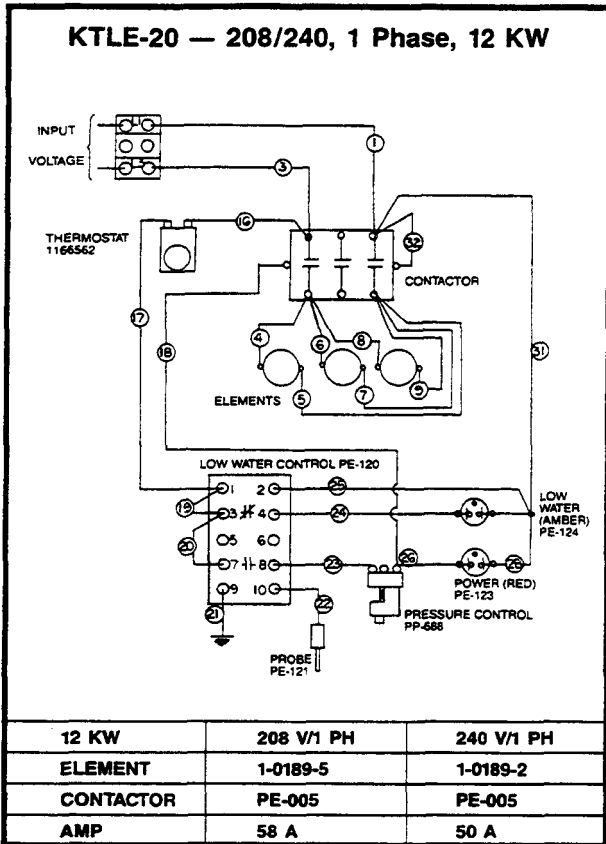
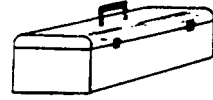
TROUBLE SHOOTING GUIDE:

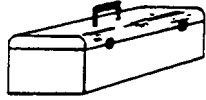
SYMPTOM	POSSIBLE CAUSE	CORRECTION
No heat.	No power. Low water.	Is power to unit? Is junction box on wall on? Does voltage and phase match that of nameplate? Is kettle in upright position (KTLE)? Loose connections. Fill with distilled water. See procedure on nameplate.
Low water light on.		Check water level in sight glass. If low, fill with distilled water. See procedure on nameplate.
Slow heating.	Loss of vacuum in steam jacket. Wrong voltage or phase. Defective thermostat.	Cook kettle to run temp. If vacuum is between 0 & 25, re-establish vacuum. Check nameplate for correct voltage and phase. Check amperage. Check if contact opens freely.
Steam escapes from pressure relief valve.	Wrong pressure switch setting. Thermostat setting too high.	Adjust to 40 psi. Replace switch if found defective. Adjust thermostat. Replace if found defective.
Steam escapes through pressure relief valve.	Foreign matter under seat.	With kettle heated to 5 to 10 psi, open valve and release sharply several times. If this fails to dislodge material, replace the valve. <i>NOTE: Under no circumstances should an attempt be made to remove seat.</i>

NOTE: Steam release over a long period of time will cause a low water condition to occur. The kettle will have to be recharged with distilled water.

NO REPAIRS INVOLVING THE ELECTRICAL SYSTEM SHOULD BE UNDERTAKEN WITHOUT FIRST DISCONNECTING ALL POWER TO UNIT.

SERVICE

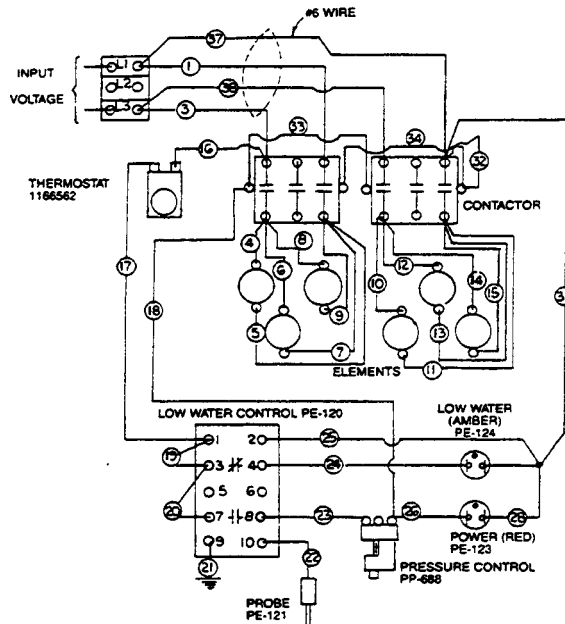




SERVICE

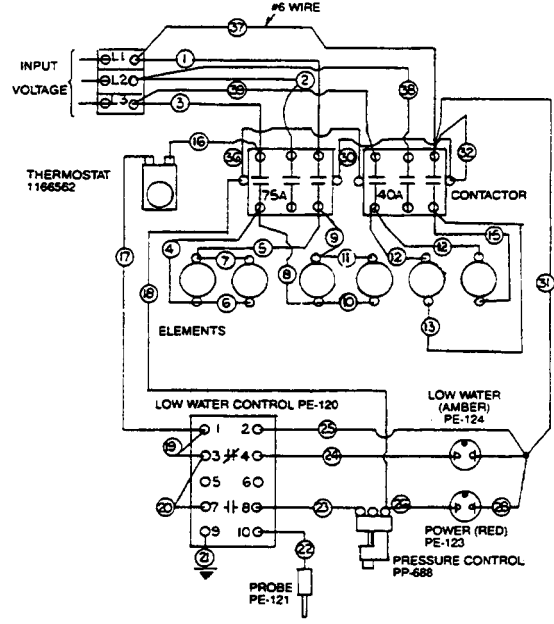
SERVICE

KTLE-60 — 208, 1 Phase, 24 KW



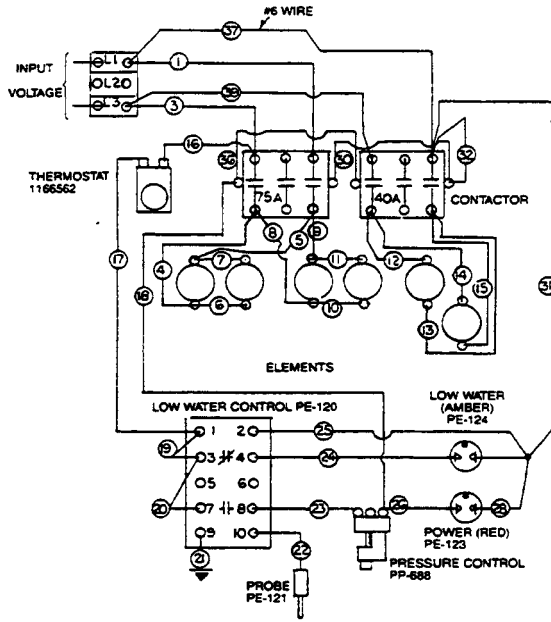
24 KW	208 V/1 PH	
ELEMENT	1-0189-5	
CONTACTOR	PE-005 PE-005	
AMP	115 A	

KTLE-60 — 208/240, 3 Phase, 24 KW

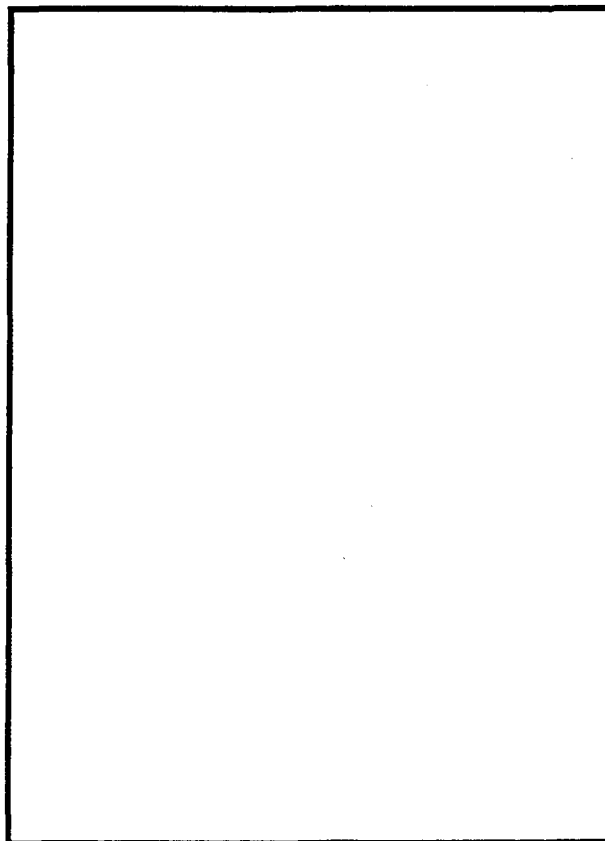
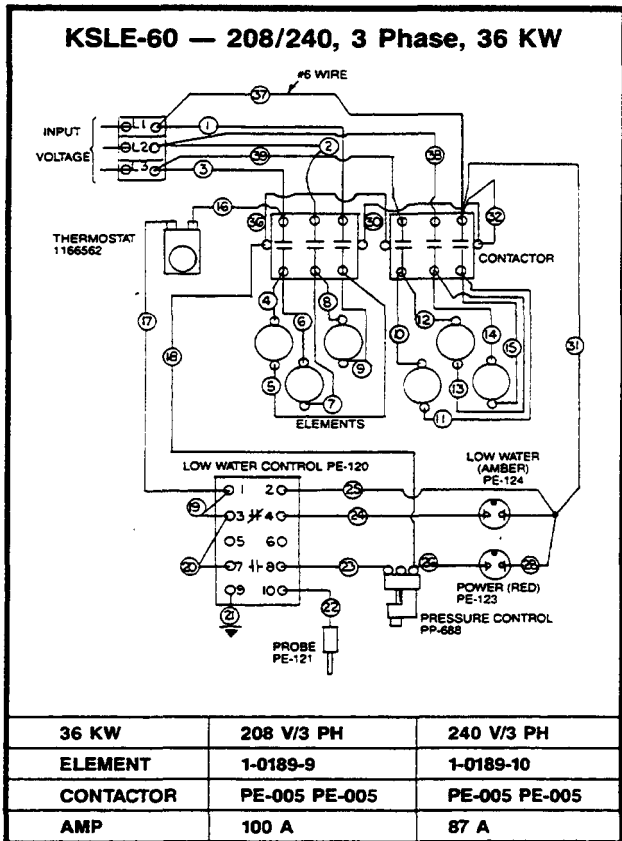
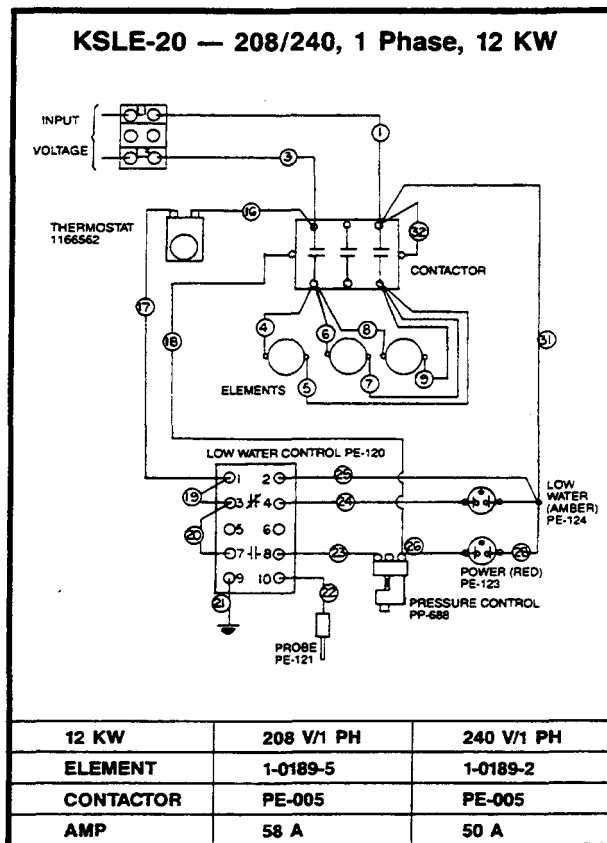
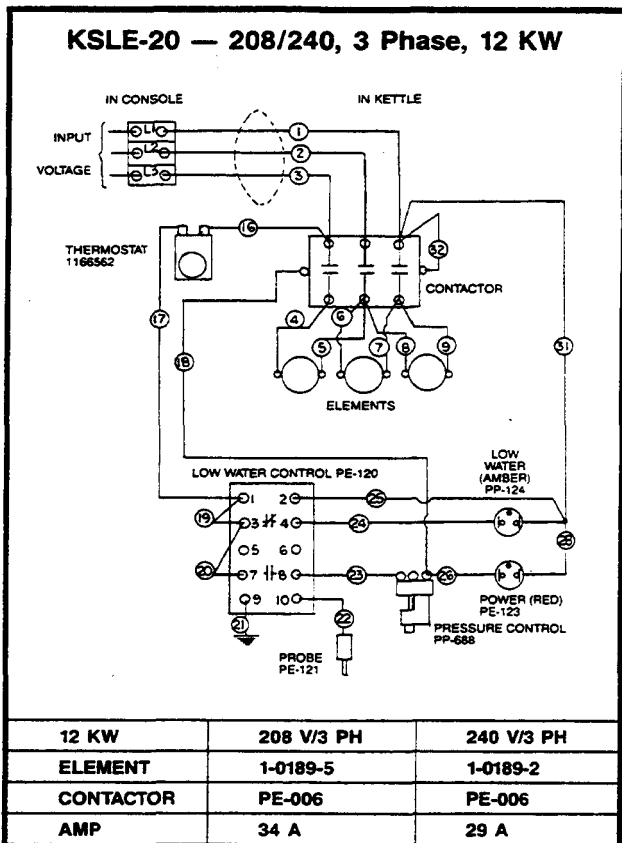
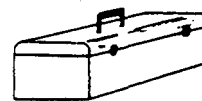


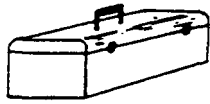
24 KW	208 V/3 PH	240 V/3 PH
ELEMENT	1-0189-5	1-0189-2
CONTACTOR	PE-005 PE-006	PE-005 PE-006
AMP	68 A	59 A

KTLE-60 — 240, 1 Phase, 24 KW



24 KW	240 V/1 PH	
ELEMENT	1-0189-2	
CONTACTOR	PE-005 PE-006	
AMP	100 A	

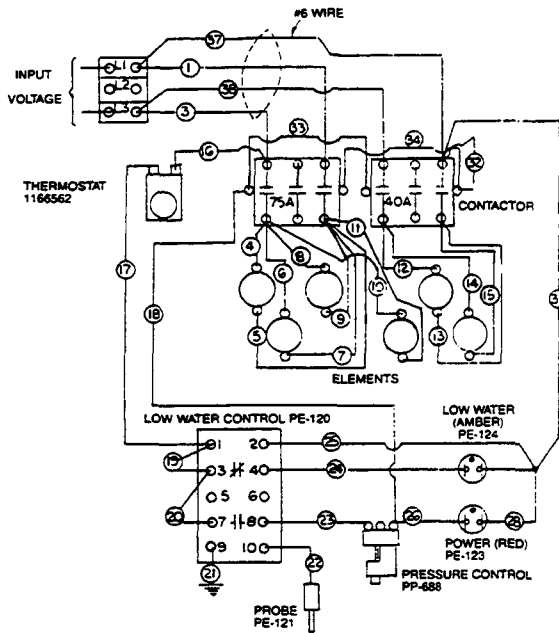




SERVICE

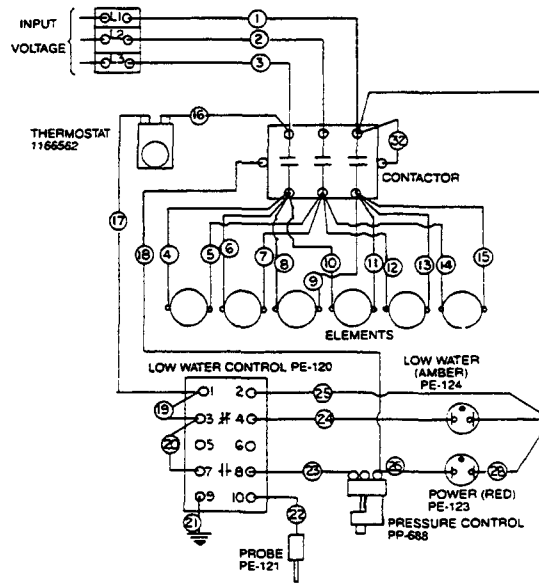
SERVICE

KSLE-40 — 240, 1 Phase, 24 KW



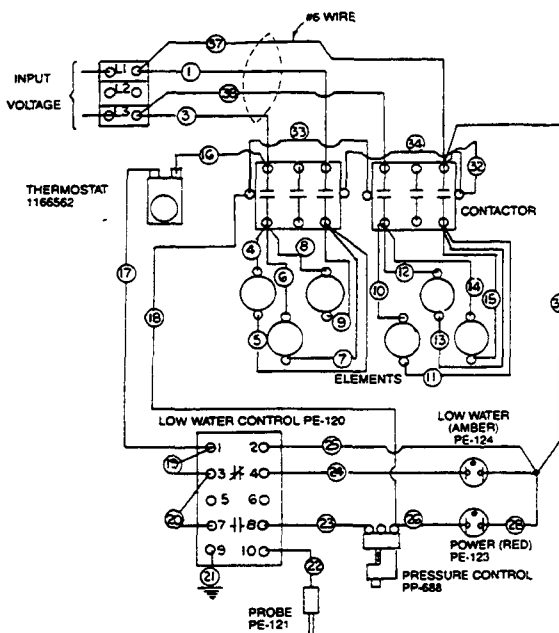
24 KW	240 V/1 PH	
ELEMENT	1-0189-2	
CONTACTOR	PE-005 PE-006	
AMP	100 A	

KSLE-40 — 208/240, 3 Phase, 24 KW



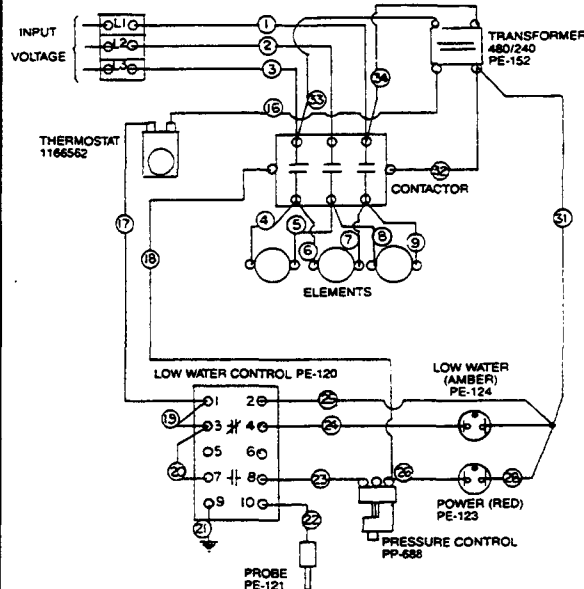
24 KW	208 V/3 PH	240 V/3 PH
ELEMENT	1-0189-5	1-0189-2
CONTACTOR	PE-005	PE-005
AMP	67 A	58 A

KSLE-40 — 208, 1 Phase, 24 KW

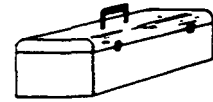


24 KW	208 V/1 PH	
ELEMENT	1-0189-5	
CONTACTOR	PE-005 PE-005	
AMP	116 A	

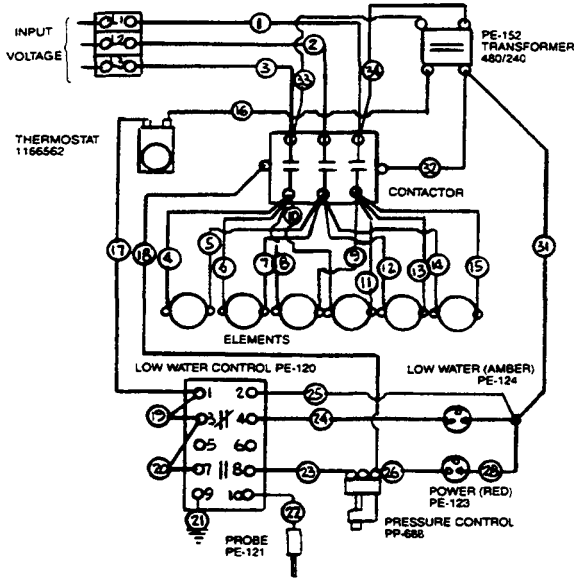
KSLE-20 — 480, 3 Phase, 12 KW



12 KW	480 V/3 PH	
ELEMENT	1-0189-7	
CONTACTOR	PE-006	
AMP	15 A	

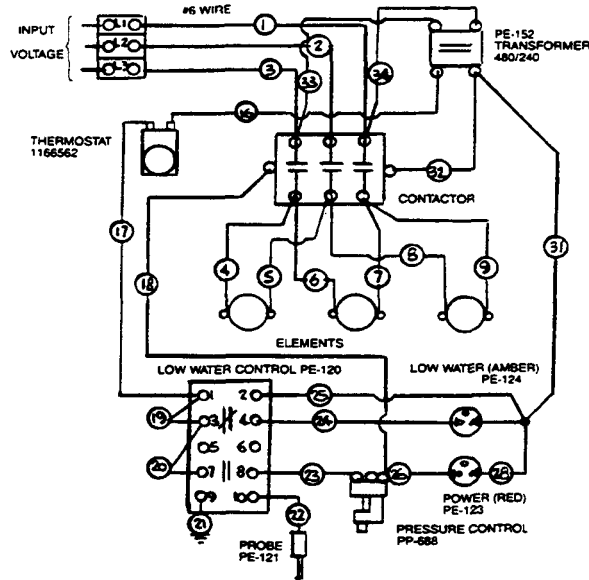


KSLE-60 — 480, 3 Phase, 24 KW



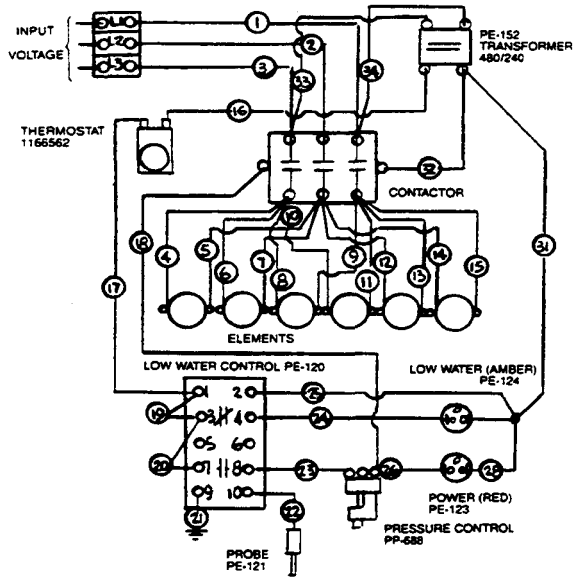
24 KW	480 V/3 PH
ELEMENT	1-0189-7
CONTACTOR	PE-006
AMP	29 A

KTLE-20 — 480, 3 Phase, 12 KW



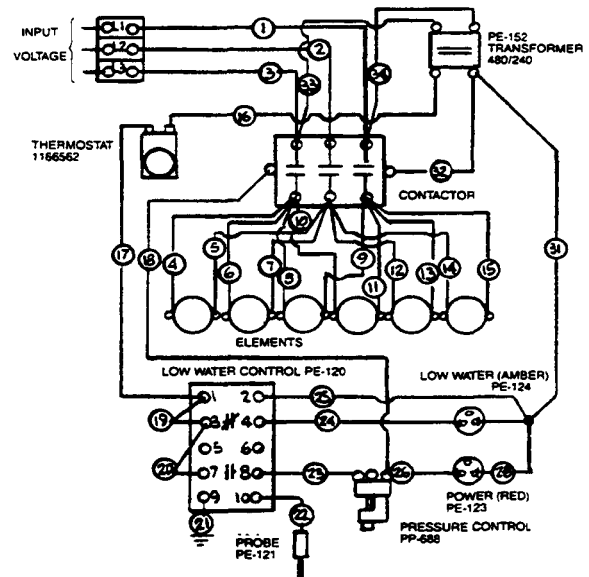
12 KW	480 V/3 PH
ELEMENT	1-0189-7
CONTACTOR	PE-006
AMP	15 A

KTLE-40 — 480, 3 Phase, 24 KW



24 KW	480 V/3 PH
ELEMENT	1-0189-7
CONTACTOR	PE-006
AMP	29 A

KTLE-60 — 480, 3 Phase, 24 KW



24 KW	480 V/3 PH
ELEMENT	1-0189-7
CONTACTOR	PE-006
AMP	29 A

TILTING AND STATIONARY ELECTRIC SELF CONTAINED STEAM KETTLES PARTS



WARNING:

INSTALLATION OF OTHER THAN GENUINE SOUTHBEND PARTS WILL VOID THE WARRANTY ON THIS EQUIPMENT.

The serial plate is located:

ON TILTING UNITS — on the rear of the console in the bottom right-hand corner;

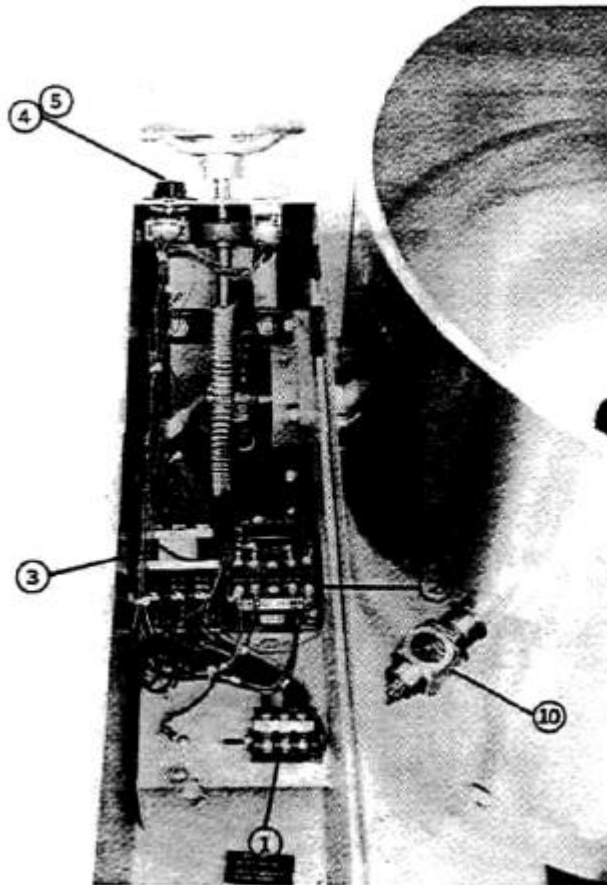
ON STATIONARY UNITS - on the lower right side.

Replacement parts may be ordered either through a Southbend Authorized Parts Distributor or a Southbend Authorized Service Agency.

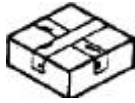
When ordering parts please supply the Model Number, Serial Number, Part Number, Description, plus Finish and Electrical Characteristics, as applicable.

For parts not listed consult a Southbend Authorized Parts Distributor or Southbend Authorized Service Agency. If necessary, please consult Southbend Parts Department for assistance.

TILTING MODEL

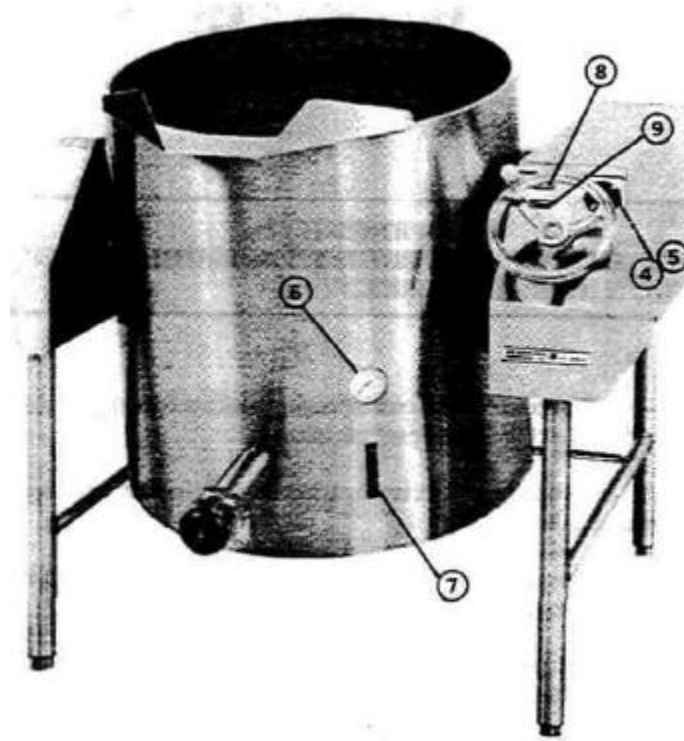


— Please refer to Parts List Charts for proper Key Number identification. —



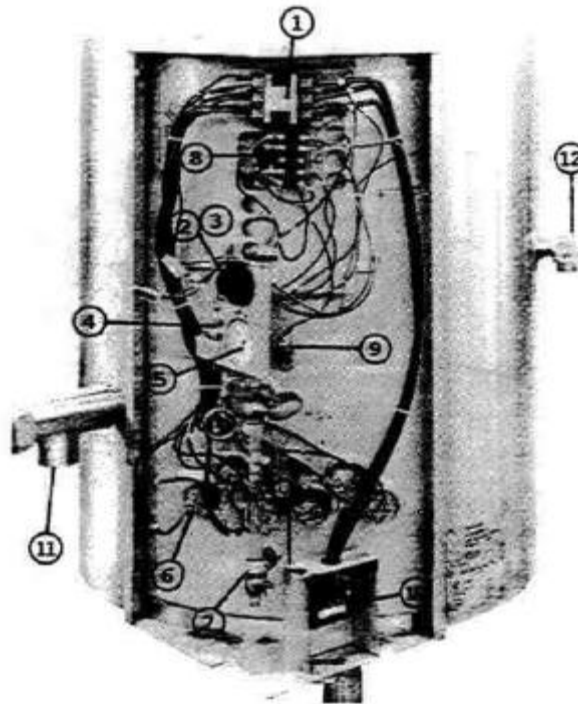
PARTS

TILTING MODEL



— Please refer to Parts List Charts for proper Key Number identification.

STATIONARY MODEL



— Please refer to Parts List Charts for proper Key Number identification.

PARTS

MODEL: KTLE (Tilting Models)

KEY NO.	PART NO.	DESCRIPTION	USAGE												480V, 3 PH			
			208/1	208/3	208/1	208/3	208/1	208/3	240/1	240/3	240/1	240/3	240/1	240/3				
			20 GAL.	40 GAL.	GO GAL.	20 GAL.	40 GAL.	60 GAL.	20 GAL.	40 GAL.	60 GAL.	20 GAL.	40 GAL.	60 GAL.	20 GAL.	40 GAL.	60 GAL.	
9	PE-123	RED PILOT LIGHT - 250V RECT. (1161515)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PE-124	AMBER PILOT LIGHT - 250V RECT. (1167450)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1166562	THERMOSTAT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	PE-126	THERMOSTAT KNOB (1167451)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	PP-694	CHROME SAFETY VALVE (1167456)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	PE-120	LOW WATER CONTROL (1167447)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	PE-121	PROBE FOR LOW WATER (1167448)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	PP-637	PRESSURE/VACUUM GAUGE (6600280)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	PM-097	SIGHT GLASS (1166460)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	PP-688	PRESSURE CONTROL SWITCH (1167455)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	PM-012	BULLET FOOT -2" (1166490)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	PM-023	HANDLE KNOB (6600358)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	PE-005	CONTACTOR - 75A. 208/240 (6600052)	1		2	1	2	1	1	-	2	1	1	1	-	-	-	-
3	PE-006	CONTACTOR - 40A. 208/240 (6600054)	-	1	-	-	-	1	-	1	-	-	1	1	1	1	1	1
1	PE-023	TERMINAL BLOCK (1167335)	3	3	-	3	-	3	3	3	-	3	-	3	3	3	3	3
1	PE-024	TERMINAL BLOCK END (1167446)	1	1	-	1	-	1	1	1	-	1	-	1	1	1	1	1
	PE-169	TERMINAL BLOCK HIGH 150 AMP. 600V	-	-	1	-	1	-	-	-	1	-	1	-	-	-	-	-
	1-0189-2	HEATING ELEMENT - 4KW. 240V (6600178)	-	-	-	-	-	-	3	3	6	6	6	6	-	-	-	-
	1-0189-5	HEATING ELEMENT - 4KW. 208V (1167458)	3	3	6	6	6	6	-	-	-	-	-	-	-	-	-	-
	1-0189-7	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 4KW, 480V (6600654)	-	-	-	-	-	-	-	-	-	-	-	-	3	6	6	6
	1-0189-9	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 6KW, 208V (6600655)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1-0189-10	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 6KW. 240V (6600656)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PE-152	HAMMOND TRANSFORMER - 240-480/120-240V (6600657)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
	PM-100	CLEANING BRUSH FOR 2" DRAWOFF (6600658)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1-0188-2	STRAINER FOR 2" DRAWOFF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	PP-641	DRAWOFF VALVE - 2"	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



MODEL: KSLE (Stationary Models)

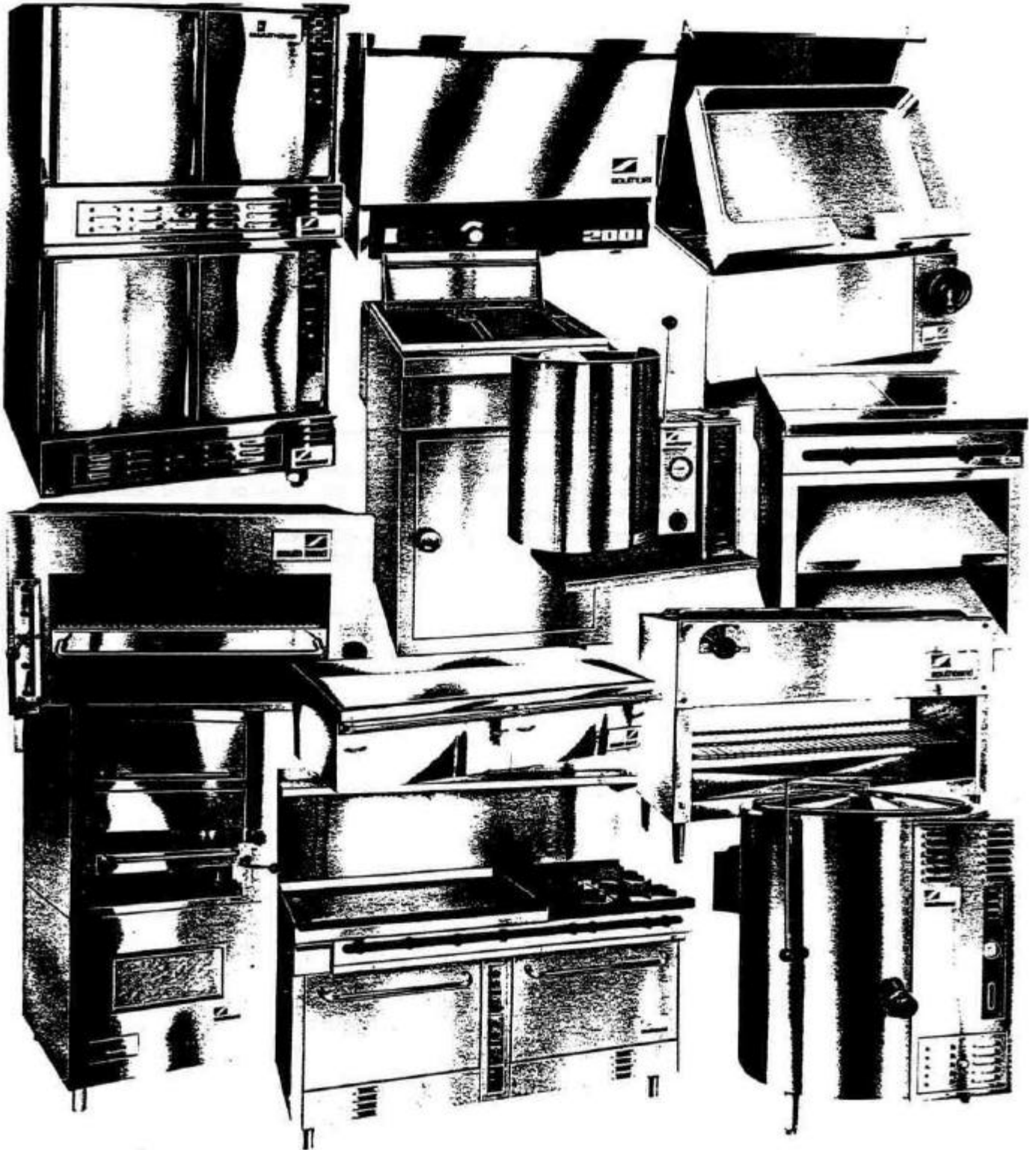
KEY NO.	PART NO.	DESCRIPTION	USAGE											
			480V, 3 PH											
			20 GAL.		40 GAL.		60 GAL.	20 GAL.		40 GAL.		60 GAL.	20 GAL.	40 GAL.
	PE-123	RED PILOT LIGHT - 250V RECT. (1161515)	1	1	1	1	1	1	1	1	1	1	1	1
	PE-124	AMBER PILOT LIGHT - 250V RECT. (1167450)	1	1	1	1	1	1	1	1	1	1	1	1
2	1166562	THERMOSTAT	1	1	1	1	1	1	1	1	1	1	1	1
3	PE-126	THERMOSTAT KNOB (1167451)	1	1	1	1	1	1	1	1	1	1	1	1
12	PP-694	CHROME SAFETY VALVE (50 PSI) (1167456)	1	1	1	1	1	1	1	1	1	1	1	1
8	PE-120	LOW WATER CUT OFF (1167447)	1	1	1	1	1	1	1	1	1	1	1	1
9	PE-149	PROBE FOR LOW WATER (1166452)	1	1	1	1	1	1	1	1	1	1	1	1
5	PP-637	PRESSURE/VACUUM GAUGE (6600280)	1	1	1	1	1	1	1	1	1	1	1	1
7	PM-097	SIGHT GLASS ASSY. (1166460)	1	1	1	1	1	1	1	1	1	1	1	1
4	PP-688	PRESSURE CONTROL SWITCH (1167455.	1	1	1	1	1	1	1	1	1	1	1	1
	PM-012	BULLET FOOT - 2" (6600363)	3	3	3	3	3	3	3	3	3	3	3	3
	PM-023	HANDLE KNOB (6600358. 1166497)	1	1	1	1	1	1	1	1	1	1	1	1
1	PE-005	CONTACTOR - 75A. 208/240 (6600052)	1	-	2	1	2	1	-	1	1	2	-	-
1	PE-006	CONTACTOR - 40A, 208/240 (6600054)	-	1	-	-	-	-	1	1	-	-	1	1
10	PE-023	TERMINAL BLOCK (1167445)	3	3	-	3	-	3	3	-	3	-	3	3
10	PE-024	TERMINAL BLOCK END (1167446)	1	1	-	1	-	1	1	-	1	-	1	1
	PE-169	TERMINAL BLOCK HIGH 150 AMP, 600V	-	-	1	-	1	-	-	1	-	1	-	-
6	1-0189-2	HEATING ELEMENT - 4KW. 240V (6600178)	-	-	-	-	-	3	3	6	6	-	-	-
6	1-0189-5	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 4KW. 208V (1167458)	3	3	6	6	-	-	-	-	-	-	-	-
6	1-0189-7	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 4KW, 480V (6600654)	-	-	-	-	-	-	-	-	-	-	3	6
6	1-0189-9	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 6KW. 208V (6600655)	-	-	-	-	6	-	-	-	-	-	-	-
6	1-0189-10	HEATING ELEMENT - IMMERSION PORCELAIN INSULATOR - 6KW. 240V (6600656)	-	-	-	-	-	-	-	-	-	6	-	-
	PE-152	HAMMOND TRANSFORMER - 240-480/120-240V (6600657)	-	-	-	-	-	-	-	-	-	-	1	1
	PM-100	CLEANING BRUSH FOR 2" DRAWOFF (6600658)	1	1	1	1	1	1	1	1	1	1	1	1
	1-0188-2	STRAINER FOR 2" DRAWOFF (1167528)	1	1	1	1	1	1	1	1	1	1	1	1
11	PP-641	DRAWOFF VALVE - 2" (6600277)	1	1	1	1	1	1	1	1	1	1	1	1



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A product with the Southbend name incorporates the best in durability and low maintenance. We all recognize however, that replacement parts and occasional professional service may be necessary to extend the useful life of this unit. When service is needed, contact a Southbend Authorized Service Agency, or your dealer. To avoid confusion, always refer to the model number, serial number, and type of your unit.



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