



Operators Manual

Installation, Operation & Service

Gas Floor Model Kettles

MODELS:

Stationary - KGL-40, KGL-60, KGL-80, KGL-100

Tilting - KGL-40-T, KGL-60-T, KGL-80-T

Short Series - KGL-40-SH, KGL-60-SH,
KGL-40-TSH



Enodis

1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Phone: (216) 481-4900 Fax: (216) 481-3782
Visit our web site at www.clevelandrange.com

FOR THE USER

IMPORTANT!

ENSURE KETTLE IS AT ROOM TEMPERATURE AND PRESSURE GAUGE IS SHOWING ZERO OR LESS PRESSURE PRIOR TO REMOVING ANY FITTINGS.

FOR YOUR SAFETY

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

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation operating and maintenance instructions thoroughly before installing or servicing this equipment.

IMPORTANT

The following points are to insure the safe installation and operation of this equipment:

- Insure all gas and electrical supplies match rating plate and electrical stickers.
- Observe all clearance requirements.
- Disconnect the electrical power supply to the appliance before cleaning or servicing unit.
- All service must be performed by a qualified Cleveland Range Technician.
- Do not obstruct the flow of combustion and ventilation air.

The installation and connection must comply with current local codes, or in the absence of local codes, with CAN/CGA-B149.1 and .2 installation code or with the national fuel gas code, ANSI Z223.1-L988.

Post in a prominent location, instructions to be followed in the event the user smells gas. This information shall be obtained by consulting your local gas supplier.

The appliance and its individual shut off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig. (3.45 kpa).

The appliance must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig. (3.45 kpa).

RETAIN THIS MANUAL FOR YOUR REFERENCE.

TABLE OF CONTENTS

Installation	<i>Inspection</i>	1
	<i>Shipping Damage Instructions</i>	1
	<i>General</i>	1
	<i>Ventilation</i>	1
	<i>Clearance Requirements</i>	1
	<i>Installation</i>	1
	<i>Gas</i>	1
	<i>Electrical</i>	2
	<i>Water</i>	2
	<i>Cleaning</i>	2
	<i>Installation Checks</i>	2
	<i>Specification Drawings</i>	3-6
Operating Instructions	<i>Operating Controls & Indicators Drawing</i>	7
	<i>Operating the Kettle</i>	8
	<i>Approximate Boiling Times</i>	8
Cleaning Instructions	<i>Care & Cleaning</i>	9
	<i>Recommended Cleaners</i>	9
Service Parts	<i>Wrap Covers</i>	10
	<i>Pressure Relief Assembly</i>	11
	<i>Hinge Assembly</i>	12
	<i>Electrical Component Box</i>	13
	<i>Sight Glass</i>	13
	<i>Trunion Assembly</i>	14
	<i>Tangent Draw-Off Valve</i>	14
	<i>Gas Control Assembly</i>	15-16
	<i>Gear Box Assembly</i>	17-18
	<i>Console Controls</i>	19
Maintenance	<i>Inspection and Maintenance Checklist</i>	20
	<i>Kettle Safety Inspection Checklist</i>	21-22
	<i>Lubrication Procedure</i>	23
	<i>Hinge Adjustment Instructions</i>	23
	<i>Operating Sequence</i>	23-26
	<i>General</i>	23
	<i>Kettle Won't Heat</i>	24
	<i>Kettle Not Hot Enough</i>	25
	<i>Kettle Gets too Hot</i>	26
	<i>Kettle Venting Instructions</i>	27
	<i>Vacuum Leak Test Procedure</i>	27
	<i>Repairing Leaks in Steam Jacketed Kettle Fittings</i>	27
	<i>Reservoir Fill Procedures</i>	28
	<i>Pressure Relief Valve Periodic Testing</i>	29
	<i>Calibrating Procedure</i>	29
	<i>Kettle Jacket Filling & Draining Procedures</i>	30
	<i>Gas Kettle Orifice Replacement</i>	31
	<i>Field Conversion Instructions</i>	32
	<i>Wiring Diagram</i>	33-36
	<i>Symbols Legend</i>	37-38
	<i>Spare Parts List</i>	39

INSTALLATION

INSPECTION

Before unpacking visually inspect the unit for evidence of damage during shipping.

If damage is noticed, do not unpack the unit, follow shipping damage instructions.

SHIPPING DAMAGE INSTRUCTIONS

If shipping damage to the unit is discovered or suspected, observe the following guidelines in preparing a shipping damage claim.

1. Write down a description of the damage or the reason for suspecting damage as soon as it is discovered. This will help in filling out the claim forms later.
2. As soon as damage is discovered or suspected, notify the carrier that delivered the shipment.
3. Arrange for the carrier's representative to examine the damage.
4. Fill out all carrier claims forms and have the examining carrier sign and date each form.

GENERAL

Installation of the kettle must be accomplished by qualified installation personnel working to all applicable local and national codes. Improper installation of product could cause injury or damage.

This equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are: UL, A.G.A., NSF, ASME/N.Bd., CSA, CGA, ETL, and others. Many local codes exist, and it is the responsibility of the owner/installer to comply with these codes.

Observe all clearance requirements to provide proper make-up air flow. Do not obstruct the flow of combustion and ventilation air. Check rating plate to ensure that kettle has been equipped to operate with the type of gas available at the installation.

VENTILATION

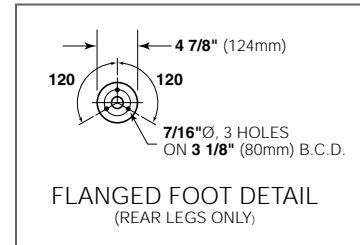
Gas fired kettles are only to be installed under a ventilation hood in a room which has provisions for adequate make up air. Further information can be obtained by referring to the U.S.A. National Fire Protection Associations NFPA96 regulations. These standards have also been adopted by the National Building Code in Canada.

CLEARANCE REQUIREMENTS/ DRAIN LOCATIONS

Note: Dimensions, clearance requirements and suggested drain locations are shown on the applicable SPECIFICATION DRAWING (page #3-6).

INSTALLATION

1. Position the unit in its permanent location, and level the unit by turning the adjustable feet.



2. Once positioned and leveled, permanently secure the unit's flanged feet to the floor using 5/16" lag bolts and floor anchors (supplied by the installer). Three bolts are required to secure each of the flanged feet.
3. Seal joints of flanged feet with a silicone sealant.

GAS

ENSURE THE GAS SUPPLY MATCHES THE KETTLE'S REQUIREMENTS AS STATED ON THE RATING PLATE.

It is recommended that a sediment trap (drip leg) be installed in the gas supply line. If the gas pressure exceeds 14" water column, a pressure regulator must be installed, to provide a maximum of 14" water column gas pressure to the gas control valve.

Connect the gas line to the manual valve located at the rear of the control box.

Installation must be in accordance with local codes and/or the National Fuel Gas Code ANSI Z223.1 Latest Edition (USA) or the latest Installation Codes for Gas Burning Appliances and Equipment CAN/ CGA B149.1 and CAN/ CGA B149.2 (Canada). Use a gas pipe joint compound which is resistant to L.P. gas. Test all pipe joints for leaks with soap and water solution. Ensure that the gas pressure regulator is set for the manifold pressure indicated on the gas rating plate.

The appliance and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.45 kPa). The appliance must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.45 kPa).

ELECTRICAL

ENSURE THE ELECTRICAL SUPPLY MATCHES THE KETTLE'S REQUIREMENTS AS STATED ON THE RATING LABEL.

A cord and plug are supplied with the unit. Simply plug the unit into any grounded outlet rated for a minimum of 10 amps. The wiring diagram is located on the back of the console access panel.

WARNING: Electrical Grounding Instructions.

This unit is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug. Standard supply voltage is 115 volts A.C., however, optional A.C. voltages can be supplied on special order. A separate fused disconnect switch must be supplied and installed in the high voltage electrical supply line. The kettle when installed, must be electrically installed and grounded in accordance with local codes, or in the absence of local codes, with National Electrical Code, ANSI/NFPA 70-1990 (USA) or the Canadian Electrical Code, CSA C22.2, Part 1 (Canada).

WATER

The sealed jacket of the gas-fired kettle is precharged with the correct amount of a water-based formula, and therefore, no water connection is required to the kettle jacket. The kettle can be equipped with optional hot and cold water taps, the taps require 1/2" copper tubing as supply lines.

CLEANING

After installation the kettle must be thoroughly cleaned and sanitized prior to cooking. See CLEANING INSTRUCTIONS (page #9) for detailed information and suggested cleaners.

INSTALLATION CHECKS

Although the kettle has been thoroughly tested before leaving the factory, the installer is responsible for ensuring the proper operation of kettle once installed.

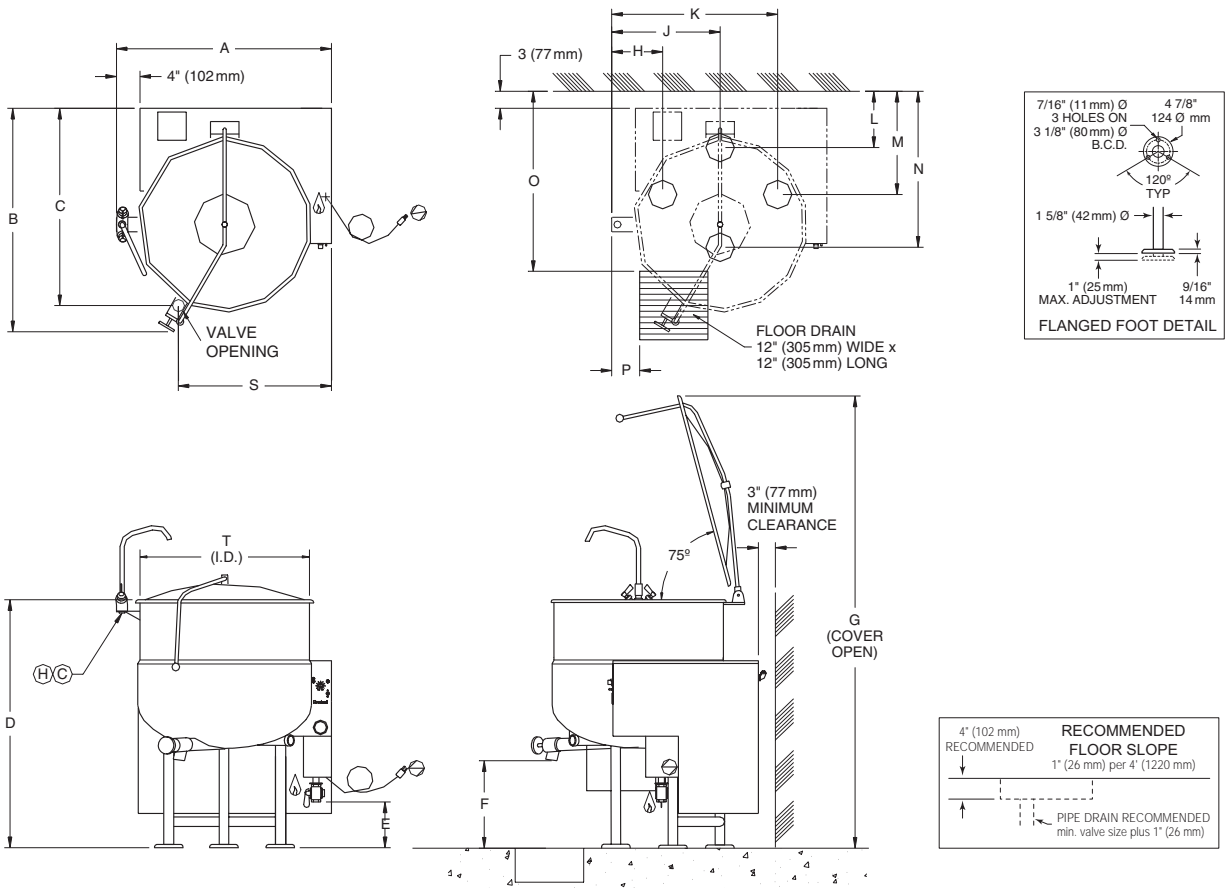
DO NOT ATTEMPT TO OPERATE THIS APPLIANCE DURING A POWER FAILURE.

KEEP APPLIANCE AND AREA FREE AND CLEAR OF COMBUSTIBLES.

1. Before turning the kettle on, read the vacuum/pressure gauge. The gauge's needle should be in the green zone. If the needle is in the "VENT AIR" zone, follow air venting procedure.
2. Supply power to the kettle by placing the fused disconnect switch to the "ON" position.
3. Turn on main gas supply to unit. Open the kettle's shut-off valve (located at back of console).
4. Turn the temperature control knob to "1" (Min.). The green LED light should remain lit, indicating the burner is lit, until the set temperature is reached. Then the green light will cycle on and off, indicating the burner is cycling on and off to maintain temperature.
5. Tilt the kettle forward. The red "LOW WATER" light should be lit when the kettle is in a tilted position. This light indicates that the burner has automatically been shut off by the kettle's safety circuit. This is a normal condition when the kettle is in a tilted position.
6. Raise the kettle to the upright position. The red "LOW WATER" light should go out when the kettle is upright. If the red light remains lit in the upright position, it indicates a low water condition, and water must be added to the reservoir before the kettle can be operated. Refer to the RESERVOIR FILL PROCEDURES (page #28).
7. Turn the temperature control knob to "10" (Max.) and allow the kettle to preheat. The green light should remain on until the set temperature is reached. Then the green light will cycle ON and OFF, indicating the burner is cycling ON and OFF to maintain temperature.

Specification Drawing -

Stationary, KGL-40, KGL-60, KGL-80, KGL-100



UNIT SHOWN WITH OPTIONAL 2" TANGENT DRAW-OFF VALVE, SPRING ASSIST COVER AND HOT & COLD WATER FAUCET.

DIMENSIONS

GALS./ LITERS		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	S	T.I.D.
40	IN	35 1/8	37	32 1/4	40 1/2	9 1/4	16	71 1/2	9 9/16	17 3/4	25 15/16	10 3/8	18 5/8	26 7/8	28 1/2	4 5/8	24 1/2	26
150	mm	893	940	820	1029	235	407	1817	243	451	659	264	474	683	724	118	648	661
60	IN	38 1/4	39	34 1/4	43 1/2	8 3/4	14 1/4	75	8 15/16	19 1/8	29 5/16	10 3/8	18 5/8	27 7/8	30 1/4	5 1/4	27	29 1/2
225	mm	972	991	870	1105	223	362	1905	228	486	745	264	474	709	769	134	686	750
80	IN	41 5/8	42 3/8	35 1/2	45 1/2	8 3/4	15 1/2	79	9 1/4	20 3/4	32 1/4	10 3/8	18 5/8	29 5/8	31 1/2	6 5/8	29	33
300	mm	1058	1077	902	1156	223	394	2007	235	528	820	264	474	753	801	169	737	839
100	IN	44	43 1/2	36 1/2	47 1/2	8 3/4	15 1/2	83 1/2	9 1/8	21 7/8	34 5/8	10 3/8	18 5/8	31 1/4	32 1/2	7 1/2	30 1/2	35 1/2
375	mm	1118	1105	928	1207	22.3	394	2121	232	556	880	264	474	794	826	191	775	902

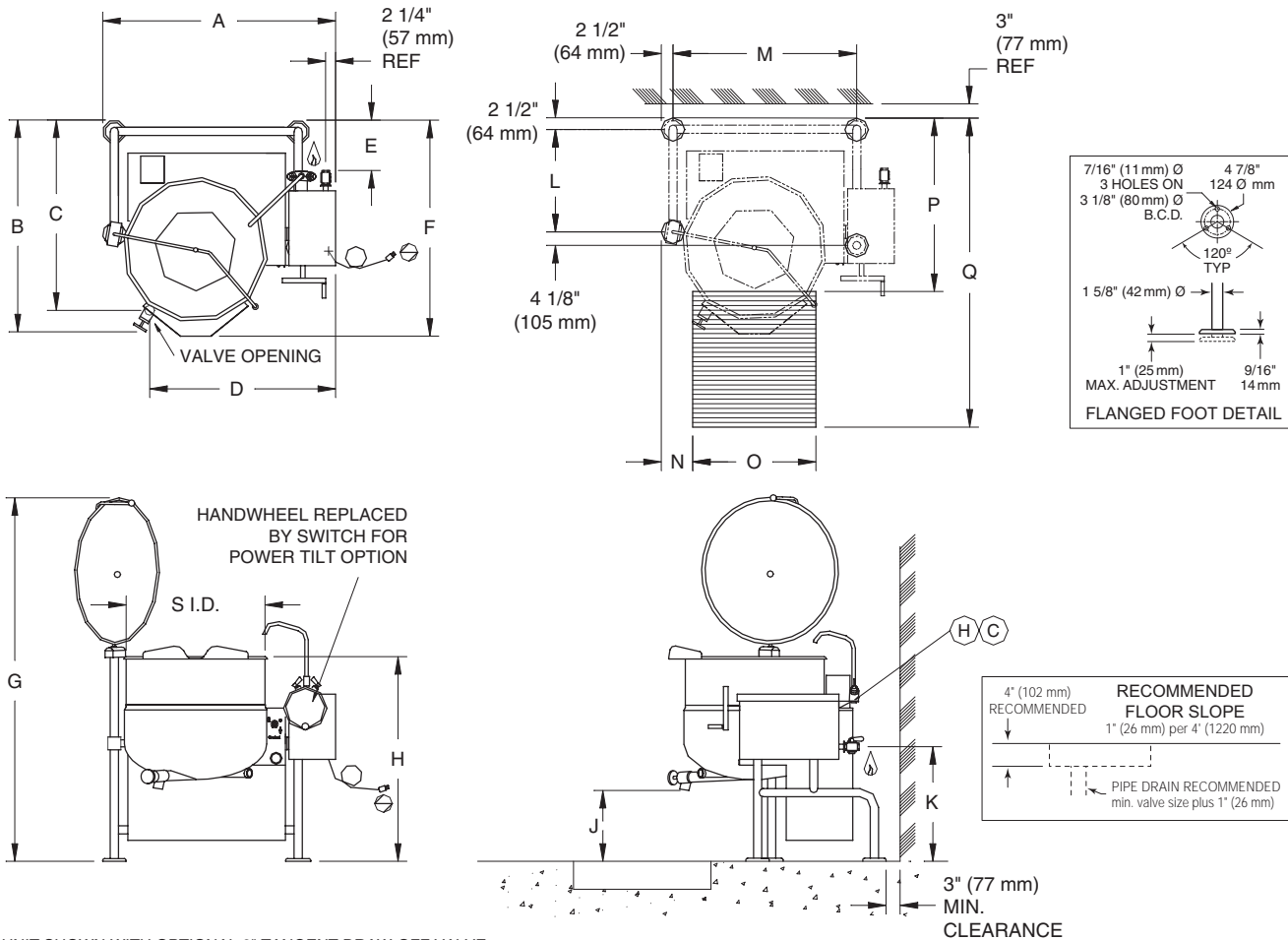
⚡ GAS			⚡ ELECTRIC	💧 WATER (H) (C)	CLEARANCE
NATURAL	PROPANE	B.T.U. RATING	120V-1 Phase, 60 Hz, 10 amps	(H) (C) 1/2" dia. Soft Copper Tubing (each) When ordered with optional faucet.	RIGHT = 3" LEFT = 3" REAR = 3" Allow 6" space minimum from rear and sides when located near combustible walls. 12" recommended on right side for service
Piping: 3/4" N.P.T.	Piping: 3/4" N.P.T.	40 gal. 140,000			
Supply pressure: 4.00" W.C. minimum	Supply pressure: 4.00" W.C. minimum	60 gal. 190,000			
14.00" W.C. maximum	14.00" W.C. maximum	80 gal. 190,000			
Manufacturer must be notified if unit will be operated above 2,000 ft. altitude.					

NOTES:

Cleveland Range reserves right of design improvement or modification, as warranted.
 Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
 Installation of backflow preventers, vacuum breakers and other specific code requirements is the responsibility of the owner and installer.
 Cleveland Range equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are U.L., A.G.A., NSF, ASME/N.Bd., CSA, CGA, ETL and others.

Specification Drawing -

Tilting, KGL-40-T, KGL-60-T, KGL-80-T



UNIT SHOWN WITH OPTIONAL 2" TANGENT DRAW-OFF VALVE, SPRING ASSIST COVER AND HOT & COLD WATER FAUCET.

DIMENSIONS

GALS./LITERS	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	S.I.D.
40 IN	45 3/4	42 1/2	38	35	9	42 1/4	71	40 1/2	15 1/2	23 1/4	19	35 3/4	4 3/8	24	33	63	26
150 mm	1163	108	966	889	229	1074	1804	1029	394	591	483	909	112	610	839	1601	661
60 IN	49 3/8	46	41 1/2	37	11 3/4	47 1/4	75	43 3/4	15 1/4	24 1/2	22	39 3/8	6	28	37	68	29 1/2
225 mm	1255	1169	1055	940	299	1201	1905	1112	388	623	559	1001	153	712	940	1728	750
80 IN	53	49	44 1/2	39	14 3/4	51	78	44 3/4	14	25	25	43	7	30	40	72	33
300 mm	1347	1245	1131	991	375	1296	1982	1137	356	635	635	1093	178	762	1016	1829	839

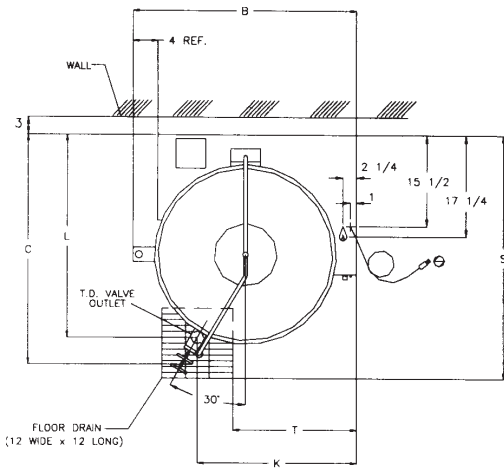
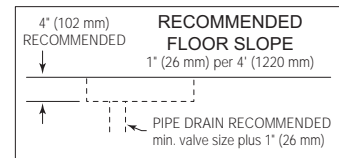
GAS			ELECTRIC	WATER	CLEARANCE
NATURAL	PROPANE	B.T.U. RATING	120V-1 Phase, 60 Hz, 10 amps	1/2" dia. Soft Copper Tubing (each) When ordered with optional faucet.	RIGHT = 0" LEFT = 0" REAR = 3" Allow 6" space minimum from rear and sides when located near combustible walls. 12" recommended on right side for service
Piping: 3/4" N.P.T.	Piping: 3/4" N.P.T.	40 gal. 140,000			
Supply pressure: 4.00" W.C. minimum 14.00" W.C. maximum	Supply pressure: 4.00" W.C. minimum 14.00" W.C. maximum	60 gal. 190,000			
		80 gal. 190,000 100 gal.			
Manufacturer must be notified if unit will be operated above 2,000 ft. altitude.					

NOTES:

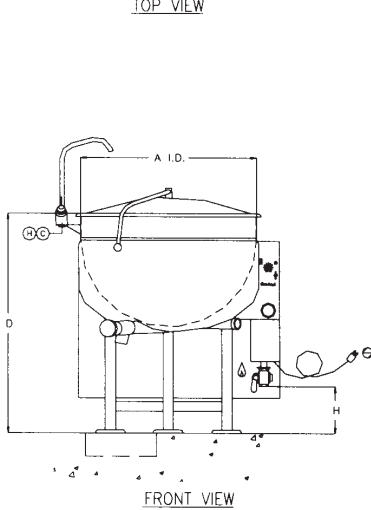
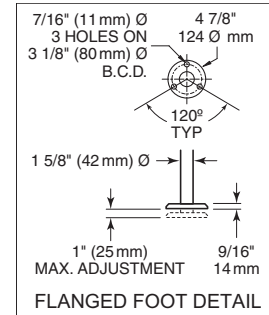
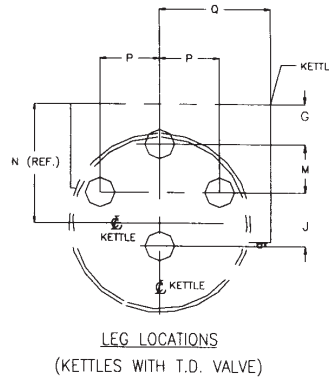
Cleveland Range reserves right of design improvement or modification, as warranted.
Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
Installation of backflow preventers, vacuum breakers and other specific code requirements is the responsibility of the owner and installer.
Cleveland Range equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are U.L., A.G.A., NSF, ASME/N.Bd., CSA, CGA, ETL and others.

Specification Drawing -

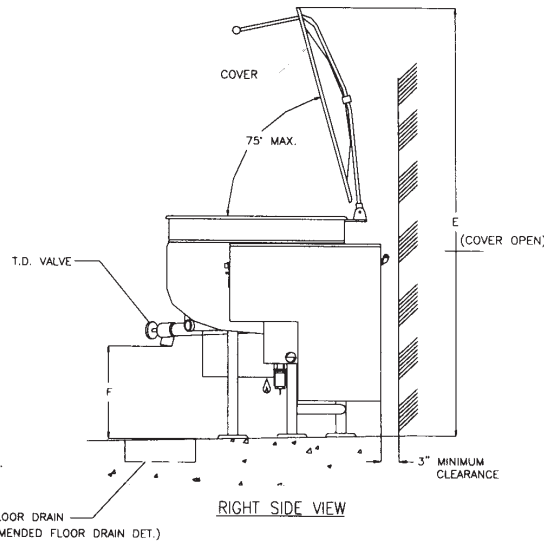
Short Series, KGL-40-SH, KGL-60-SH,



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

DIMENSIONS

MODEL NO	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	T
KGL-40SH IN	33	41.6	43.3	37.5	69	15.5	7.3	6.7	11	28	35.5	8.2	21.6	11.5	20.8	43.5	23
mm	838	1056	1099	953	1752	394	185	170	279	711	902	208	549	292	528	1105	584
KGL-60SH IN	33.5	44	43.5	37.5	71	12.1	7.3	5.5	12.6	30.5	35.5	8.2	22.2	13.7	22.1	44.5	24.5
mm	850	1117	1104	953	1803	307	185	140	320	775	902	208	564	348	561	1130	622

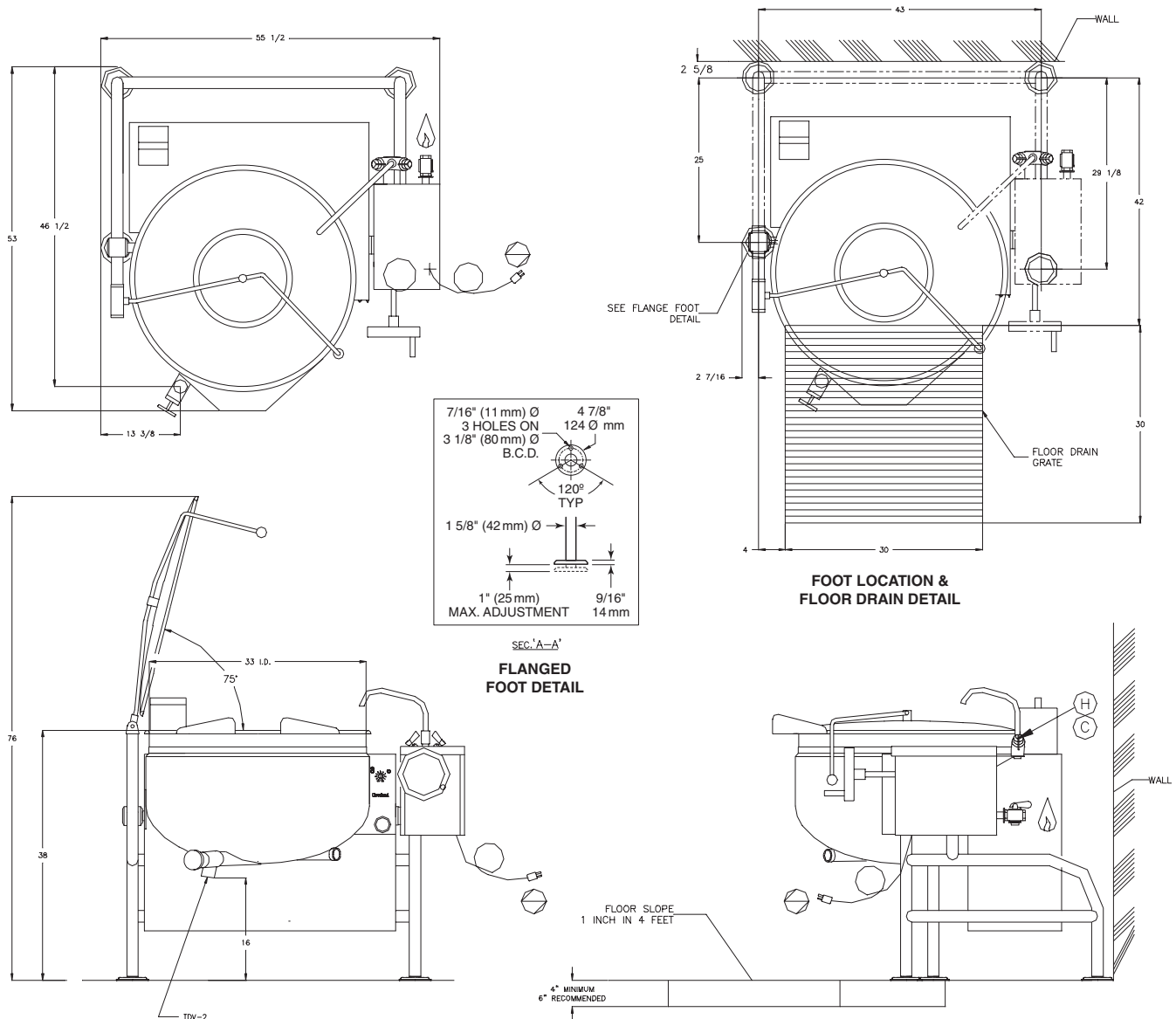
GAS			ELECTRIC	WATER	CLEARANCE
NATURAL	PROPANE	BTU RATING	120V-1Phase, 60 Hz.	1/2" diameter	RIGHT = 0"
Piping 3/4" N.P.T.	Piping 3/4" N.P.T.	190,000	10 amps	Soft Copper	LEFT = 0"
Supply pressure	Supply pressure			Tubing each	REAR = 0"
4.00" W.C. Min.	11.00" W.C. Min.			When ordered	Allow 6" space min.
14.00" W.C. Max.	14.00" W.C. Max.			with optional	from rear and sides
				faucet	When located near
					combustible walls

NOTES:

Cleveland Range reserves right of design improvement or modification, as warranted.
 Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
 Installation of backflow preventers, vacuum breakers and other specific code requirements is the responsibility of the owner and installer.
 Cleveland Range equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are U.L., A.G.A., NSF, ASME/N.Bd., CSA, CGA, ETL and others.

Specification Drawing -

Short Series, KGL-40-TSH



SPECIFICATIONS

MODEL	ELECTRICAL SUPPLY:				GAS SUPPLY:				APPROVALS				CLEARANCE:	SHIPPING WEIGHT	
	VOLTS	PHASE	AMPS	FREQ	TYPE	BTU RATING	WATER COLUMN	BTU PER CU. FT.	SUPPLY PRESSURE	AGA	CGA	CE MARK			NSF
KGL-40-TSH	120	1	10	60	NAT	140,000	3.5	1000	4" TO 14" W.C.	✓	✓	✓	✓	RIGHT: 0 inches LEFT: 0 inches REAR: 0 inches ALLOW 12" SPACE MINIMUM ON RIGHT SIDE FOR SERVICE.	630 LBS.
	120	1	10	60	LP	140,000	3.5	2500	4" TO 14" W.C.	✓	✓	✓	✓		
	220	1	5	50	NAT	140,000	3.5	1000	4" TO 14" W.C.			✓	✓		
	220	1	5	50	LP	140,000	3.5	2500	4" TO 14" W.C.			✓	✓		

NOTES

1. MANUFACTURER MUST BE NOTIFIED IF UNIT WILL BE OPERATING ABOVE 2,000 FOOT ALTITUDE.
2. CONSULT FACTORY FOR MANUFACTURED GAS.
3. ALL VERTICAL DIMENSIONS SHOWN ARE MINIMUM. FEET ARE ADJUSTABLE TO 1 INCH MAXIMUM.
4. UNIT COMES WITH 6' POWER CORD.




NOTES:

Cleveland Range reserves right of design improvement or modification, as warranted.
 Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
 Installation of backflow preventers, vacuum breakers and other specific code requirements is the responsibility of the owner and installer.
 Cleveland Range equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are U.L., A.G.A., NSF, ASME/N.B.d., CSA, CGA, ETL and others.


OPERATING INSTRUCTIONS



Operating Controls & Indicators

ITEM #	DESCRIPTION	FUNCTION
1. 	Low Water Indicator Light (Red)	When lit, indicates that the kettle is low on water and will not operate in this condition (see RESERVOIR FILL PROCEDURES on page #28).
2.	On-Off Switch/ Solid State Temperature Control	Turns kettle ON/OFF and allows the operator to adjust the kettle temperature in increments from 1 (Min.) to 10 (Max.). (see the TEMPERATURE RANGE CHART on page #8).
3. 	Heat Indicator Light (Green)	When lit, indicates that the kettle's burner is on. Cycles ON-OFF with burner.
4. 	Ignition Failure Indicator Light (Amber)	Indicates failure of heating system to ignite.
5.	Vacuum/Pressure Gauge	Indicate steam pressure in PSI inside steam jacket as well as vacuum in inches of mercury.
6.	Pressure Relief Valve (not shown)	This valve is used to vent the kettle and in the unlikely event there is an excess steam build-up in the jacket, this valve opens automatically to relieve this pressure.
7.	Water Level Sight Glass	Displays water level in steam jacket.
8.	Tilt Wheel	Used for tilting the kettle on hand tilt models. In power tilt models there is a toggle switch in same location.
9.	Flue	
10.	Tangent Draw-Off Valve	Used for draining product or wash water from kettle. It is supplied as standard equipment on stationary kettles and is optional on tilting kettles.

OPERATING THE KETTLE



DO NOT ATTEMPT TO OPERATE THIS APPLIANCE DURING A POWER FAILURE.

KEEP APPLIANCE AND AREA FREE AND CLEAR OF COMBUSTIBLES.

DO NOT LEAN ON OR PLACE OBJECTS ON KETTLE LIP. SERIOUS INJURY COULD RESULT IF KETTLE TIPPED OVER, SPILLING HOT CONTENTS.

IF YOU ARE COOKING AN EGG OR MILK PRODUCT, DO NOT PRE-HEAT KETTLE.

1. Before turning kettle on, read the Vacuum/Pressure Gauge (5). The gauges needle should be in the green zone. If the needle is in the "VENT AIR" zone, refer to the KETTLE VENTING INSTRUCTIONS (page #27). Any air that may be present will increase cooking times. Once heated, the kettle's normal maximum operating pressure is approximately 10-12 psi while cooking a water base product.
2. Ensure that the electrical service to the kettle is turned on at the fused disconnect switch.

Temperature Control Setting	Approximate Product Temperature	
	°F	°C
1.	120	49
2.	135	57
3.	150	66
4.	165	74
5.	180	82
6.	195	91
7.	210	99
8.	225	107
9.	245	118
10.	265	130

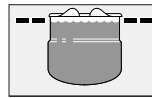
NOTE: Certain combinations of ingredients will result in temperature variations

Temperature Range Chart

3. Preheat the kettle by turning the ON/OFF Switch/Solid State Temperature Control (2) to the desired temperature setting (see above "Temperature Range Chart"). The Heat Indicator Light (Green) (3) will remain lit, indicating the burner is on, until the temperature setting is reached. When the green light goes off, the burners are off, and preheating is complete.

NOTE: When cooking egg and milk products, the kettle should not be preheated, as products of this nature adhere to hot cooking surfaces. These types of food should be placed in the kettle before heating is begun.

4. Place food product into the kettle. The green Heat Indicator Light (3) will cycle on and off indicating the burners are cycling on and off to maintain the set temperature.



NOTE: Do not fill kettle above recommended level marked on outside of kettle.

NOTE: The red Low Water Indicator Light (1) should not be lit during kettle operation. This light indicates that the burners have been automatically shut off by the kettle's safety circuit. It is normal for the red light to come on when the kettle is in a tilted position. However, the kettle cannot be operated when the red light remains lit while the kettle is in the upright position. This indicates a low water condition, and water must be added to the reservoir. Refer to Reservoir Fill Procedures on page #28 for details.

5. When cooking is completed turn On/Off Switch/Solid State Temperature Control (2) to the "OFF" position.

NOTE: A five minute complete shut-of period is required before relighting.

6. Pour the contents of the kettle into an appropriate container by tilting the kettle forward. Care should be taken to pour slowly enough to avoid splashing off the product.

NOTE: As with cleaning food soil from any cookware, an important part of kettle cleaning is to prevent food from drying on. For this reason, cleaning should be completed immediately after cooked foods are removed. Refer to the Cleaning Instructions (page #9) for detailed kettle washing procedures.

APPROXIMATE BOILING TIMES

The accompanying chart shows approximate times required for gas kettles of various capacities to boil water with the lid open. The ON/OFF Switch/Solid State Temperature Control (2) must be set at "10" throughout the heat-up period. Water will boil about 1/3 faster if the kettle is filled only to the outer steam jacket's welded seam resulting in a kettle filled to 2/3 capacity.

Kettle Capacity	Minutes
KGL, KGL-T	
40 gallon	35
60 gallon	47
80 gallon	60
100 gallon	75
KGL-SH, KGL-TSH	
60 gallon	27
80 gallon	34

Approximate Boiling Times

CLEANING INSTRUCTIONS

CARE AND CLEANING

Your kettle must be cleaned regularly to maintain its fast, efficient cooking performance, and to ensure its continued safe, reliable operation.



Chloride Cleaners

WARNING: Do not use chloride base detergents. There is a growing number of non-chloride cleaners available. If unsure of the cleaners chlorine content consult the supplier. Also avoid cleaners containing quaternary salt as they can cause the stainless steel to pit and rust.

WARNING: If any gaskets or seals are found defective, replace or repair immediately. (See Service Parts Drawings for part identification.)

1. Place the kettle's On-Off Switch/Solid State Temperature Control (2) to the "OFF" position.
2. Prepare a warm water and mild detergent solution in the kettle.
3. Remove food soil inside the kettle using a nylon brush.



Wire Brush & Scrapers

WARNING: Do not use a metal bristle brush or scraper, as this may permanently damage the kettle's stainless steel surface.

4. Loosen food which is stuck to the kettle by allowing it to soak at a low temperature setting.
5. If the kettle is equipped with a draw-off valve, it should be cleaned as follows:
 - a) Remove drain screen from bottom of kettle. Thoroughly wash and rinse the screen either in a sink or a dishwasher, then replace it into the kettle.
 - b) Disassemble the draw-off valve first by turning the valve knob counter-clockwise, then turning the large hex nut counter-clockwise until the valve stem is free of the valve body.

- c) In a sink, wash and rinse the inside of the valve body using a nylon brush.
- d) Reassemble the draw-off valve by reversing the procedure for disassembly. The valve's hex nut should be hand tight only.

6. Rinse kettle interior thoroughly, then drain the rinse water. Do not leave water sitting in unit when not in use.

7. Using mild soapy water and a damp sponge, wash the exterior of the kettle, rinse, and dry.



Steel Pads

NOTE: For more difficult cleaning applications one of the following can be used: alcohol, baking soda, vinegar, or a solution of ammonia in water.

Avoid the use of chloride cleansers, which may damage the kettle's stainless steel surface.

WARNING: Steel wool should never be used for cleaning the cooking chamber of the kettle. Particles of steel wool become embedded in the cooking surface and rust, which may corrode the stainless steel.

NOTE: Unit should not be cleaned with a water jet.

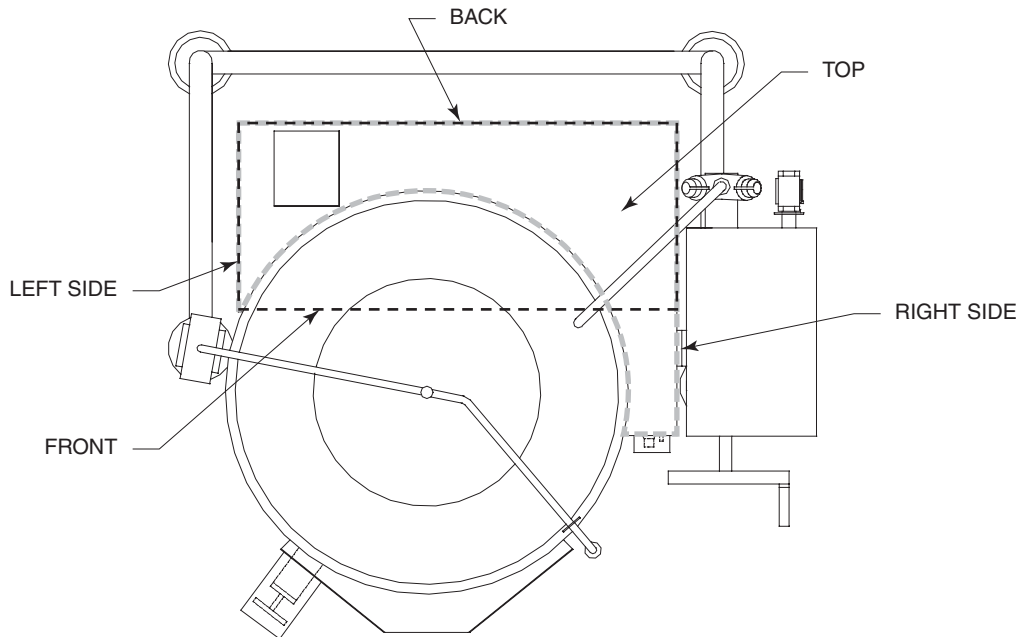
8. Leave the cover off when the kettle is not in use.

RECOMMENDED CLEANERS FOR SPECIFIC SITUATIONS

Job	Cleaning Agent	Comments
Routine Cleaning	Soap, Ammonia Detergent, Medallion	Apply with cloth or sponge
Fingerprints & Smears	Arcal 20, Lac-O-Nu Ecoshine	Provides barrier film
Stubborn Stains & Discolouration	Cameo, Talc, Zud First Impression	Rub in direction of polish lines
Grease & Fatty Acids, Blood, Burnt-On Foods	Easy-Off, De-Grease It Oven Aid	Excellent removal on all finishes
Grease & Oil	Any good commercial detergent	Apply with sponge or cloth
Restoration/ Passivation	Benefit, Super Sheen	

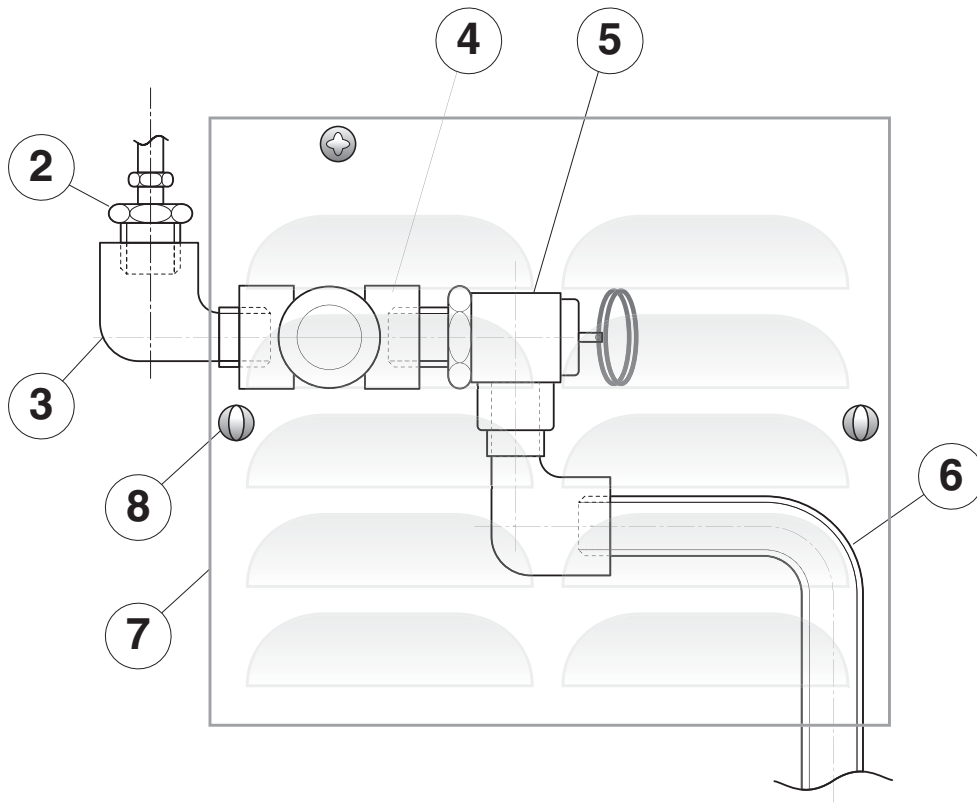
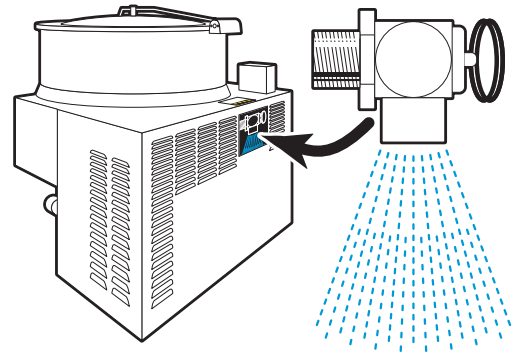
SERVICE PARTS

WRAP COVERS



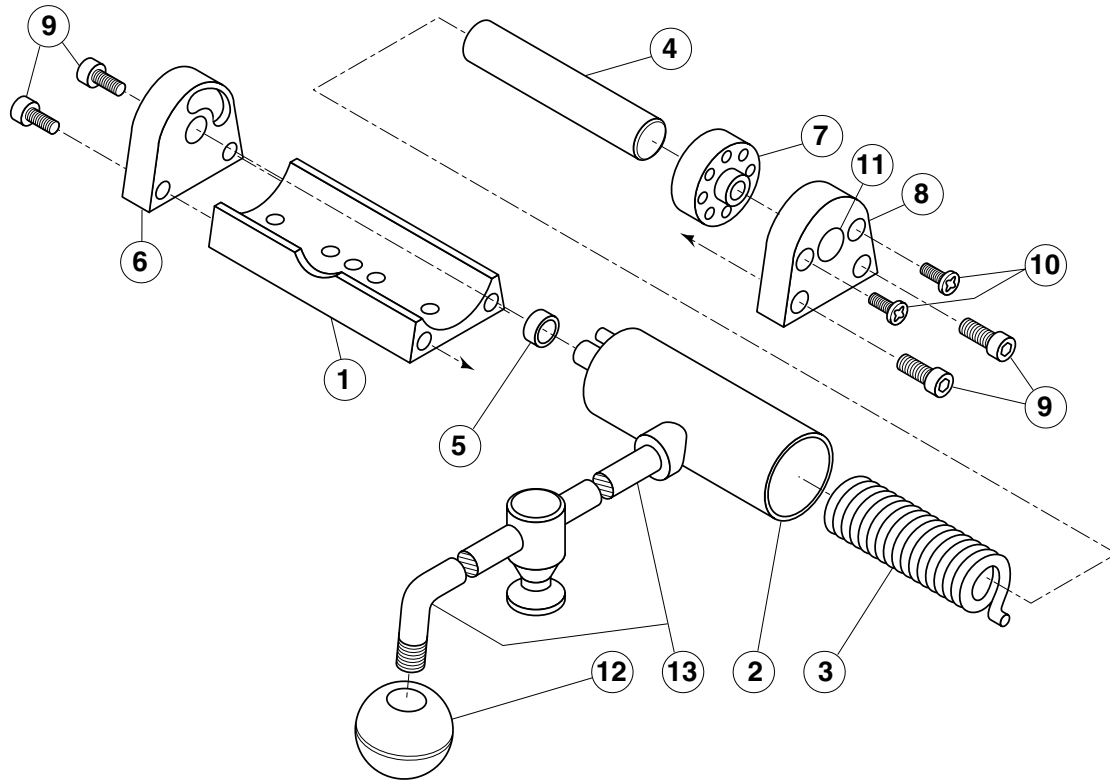
KETTLE	TOP	FRONT	LEFT SIDE	RIGHT SIDE	BACK
KGL-40	KE01479	KE53483-4	KE54253	KE01432	KE02186-1
KGL-60	KE01479-1	KE53483-5	KE54253-1	KE01432-1	KE02186-2
KGL-80	KE01479-2	KE53483-6	KE54253-2	KE01432-2	KE02186-3
KGL-100	KE01479-3	KE53483-7	KE54253-3	KE01432-3	KE02186-4
KGL-40-T	KE01479	KE53483	KE54253	KE01432	KE02186-1
KGL-60-T	KE01479-1	KE53483-1	KE54253-1	KE01432-1	KE02186-2
KGL-80-T	KE01479-2	KE53483-2	KE54253-2	KE01432-2	KE02186-3
KGL-40-SH	KE01479-4	KE53483-6	KE54253-2	KE01432-2	KE02186-3
KGL-60-SH	KE01479-5	KE53483-7	KE54253-3	KE01432-3	KE02186-4
KGL-40-TSH	KE01479-4	KE53483-2	KE54253-2	KE01432-2	KE02186-3

PRESSURE RELIEF ASSEMBLY



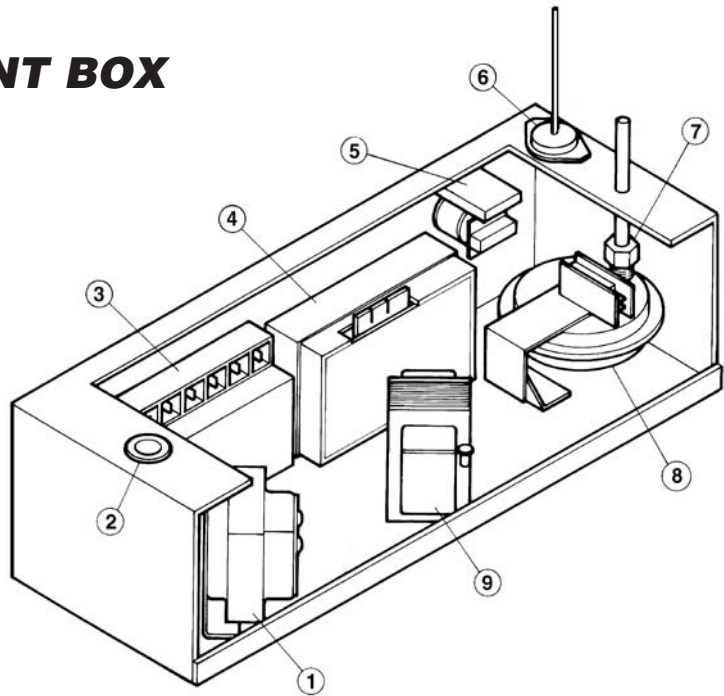
ITEM NO.	PART NO.	DESCRIPTION	QTY.
		<i>PRESSURE RELIEF VALVE ASSEMBLIES</i>	
1.	KE01450	FOR ASME KETTLES (INCLUDES #2-6)	1
	KE01450-1	FOR CE KETTLES (INCLUDES #2-6)	1
2.	FA05049	MALE CONNECTOR, 1/2" PIPE - 1/4" TUBE	1
3.	FI00151	STREET ELBOW, 90°, 1/2", BRASS	2
4.	FI00178	TEE, 1/2" FPT, BRASS	1
		<i>SAFETY VALVES</i>	
5.	KE54941-5	1/2" FPT, 50 PSI., FOR ASME KETTLES	1
	KE54941-31	1/2" FPT, 50 PSI., FOR CE KETTLE	1
6.	KE54223	BLOW DOWN TUBE	1
7.	KE54864	ACCESS PANEL	1
8.	FA11518-4	THUMB SCREW, 10-32 X 1/2" L	1

HINGE ASSEMBLY



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1. - 11	SE00120-1	HINGE ASSEMBLY - KGL-40/T	1
	SE00120-2	KGL-60/T, KGL-80/T, KGL-40-T/SH	1
	SE00120-3	KGL-100/T, KGL-60-T/SH	1
1.	KE50882	HINGE BASE	1
2.	KE51217	HINGE CYLINDER	1
3.	KE50121-2	HINGE SPRING - KGL-40/T	1
	KE50121-1	KGL-60/T, KGL-80/T, KGL-100/T, KGL-40-T/SH, KGL-60-T/SH	1
4.	KE50823-1	HINGE PIN - KGL-40/T, KGL-60/T, KGL-80/T, KGL-40-T/SH	1
	KE50823-2	KGL-100/T, KGL-60-T/SH	1
5.	KE50824	HINGE BEARING	1
6.	KE50819-1	HINGE END PIECE, LHS	1
7.	KE50820	HINGE INSERT	1
8.	KE50819	HINGE END PIECE, RHS	1
9.	FA11284	SCREW, SOCKET HEAD, 1/4-20 X 1/2	4
10.	FA11507	CUTTING SCREW,	2
11.	KE54907-10	PLUG BUTTON	1
12.	KE50151-12	KNOB	1
13.		COVER HANDLE (SPECIFY MODEL)	1

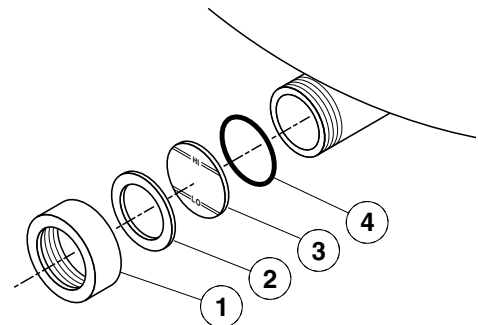
ELECTRICAL COMPONENT BOX



ITEM ON.	PART NO.	DESCRIPTION	QTY.
	KE01422	ELECTRICAL CONTROL BOX ASSEMBLY	1
	KE53439	COMPONENT BOX	1
	KE53440	COVER, COMPONENT BOX	1
	KE53599-1	GASKET	1
1.	KE53838-27	TRANSFORMER, 120-14V.	1
	KE53444	TRANSFORMER BRACKET	1
2.	KE54833-3	SNAP-IN BUSHING, 0.875" DIA.	1
3.	KE53469	IGNITION CONTROL	1
4.	KE00458	KETTLE SOLID STATE CONTROL BOX	1
	KE50303	BRACKET, SOLID STATE CONTROL BOX	1
5.	KE50753-7	RELAY, 120V	1
	KE50753-8	RELAY, 240V	1
6.	KE55069-6	SAFETY THERMOSTAT	1
7.	FI05050	BRASS NUT, 7/16-24	1
8.	KE53436	AIR PRESSURE SWITCH	1
	KE53432	AIR PRESSURE SWITCH BRACKET	1
9.	KE53838-20	TRANSFORMER 120-24V	1

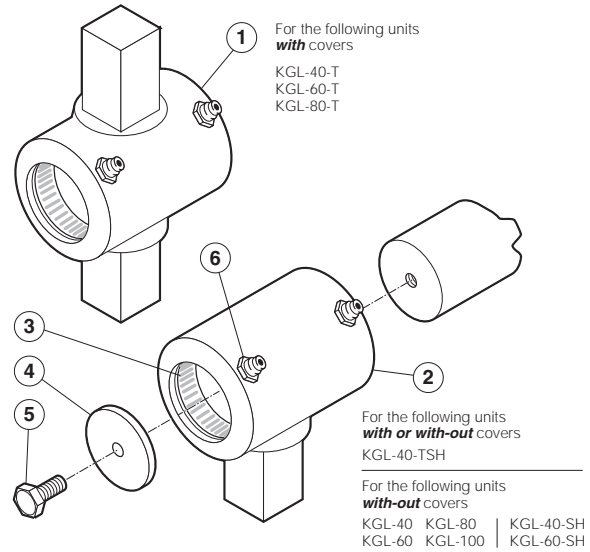
SIGHT GLASS

ITEM ON.	PART NO.	DESCRIPTION	QTY.
1.	KE50955	RETAINING COVER	1
2.	KE52871	GASKET	1
3.	KE51053-1	SIGHT GLASS	1
4.	FA05002-30	"O" RING	1

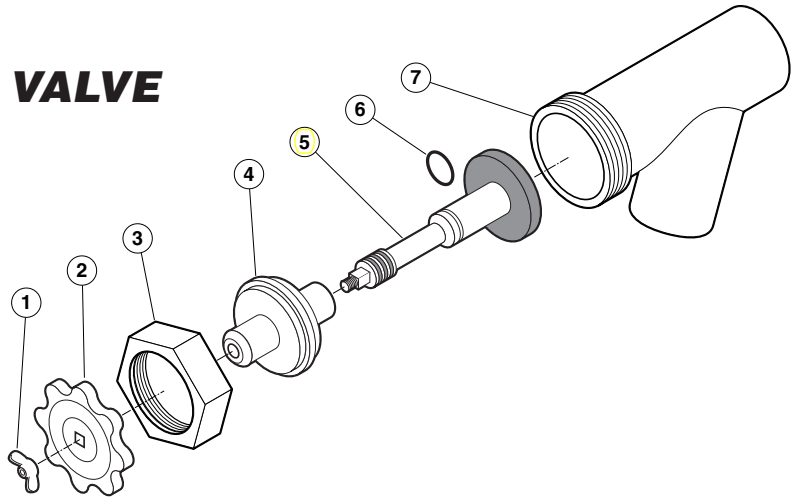


TRUNNION ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE00354	TRUNNION BEARING ASSEMBLY	1
2.	KE00351	TRUNNION BEARING ASSEMBLY	1
3.	KE51711	ROLLER BEARING	2
4.	KE51571-1	SPHERICAL WASHER	1
5.	FA95081-3	BOLT, 5/16-18 X 1/2"	1
6.	KE51886	GREASE NIPPLE	1

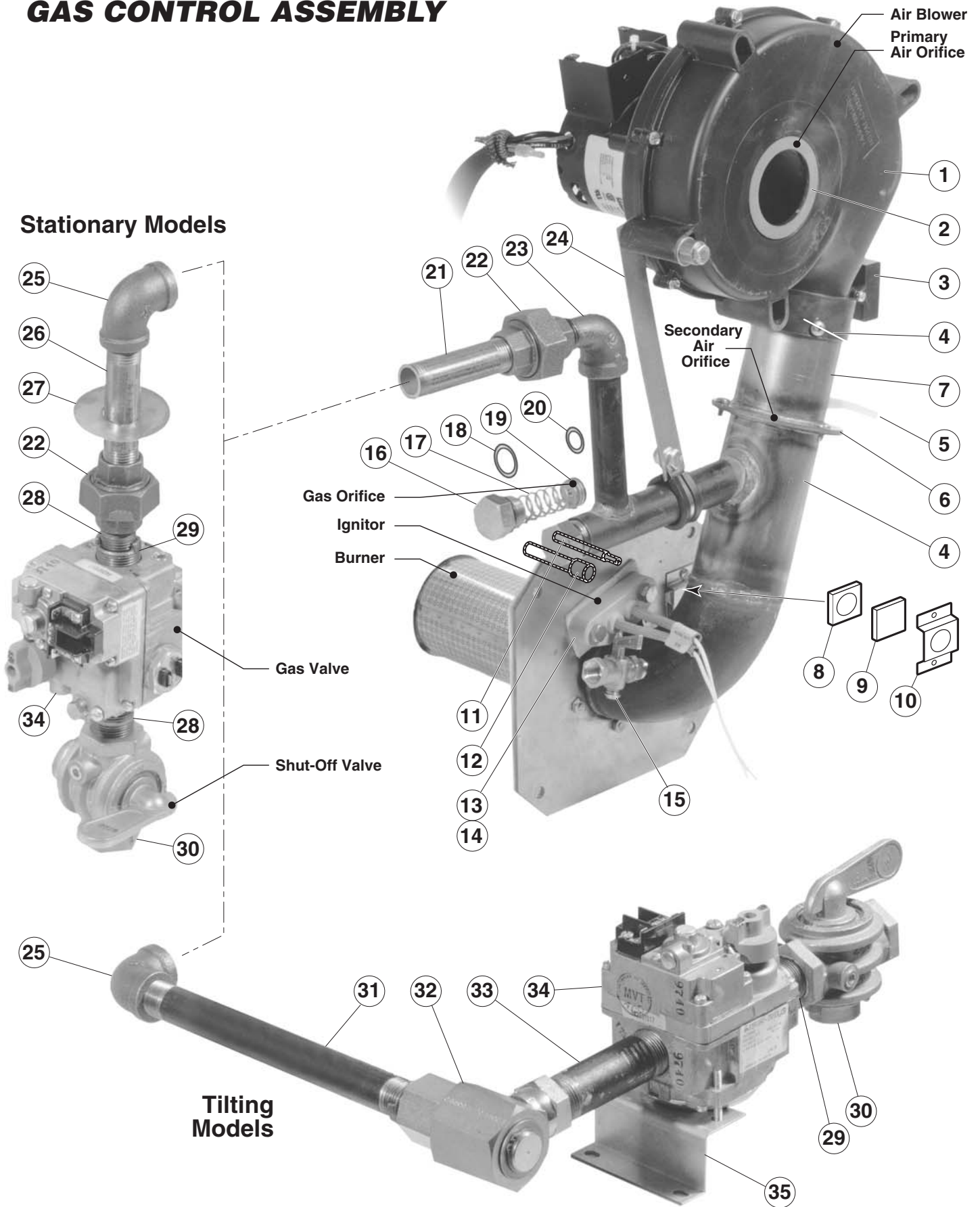


TANGENT DRAW-OFF VALVE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1. - 7.	TD-2	DRAW-OFF ASSEMBLY	1
	TD-3	DRAW-OFF ASSEMBLY	1
1.	FA95049	WING NUT, TD-2	1
	FA21050	ACCORN NUT, TD-2	1
	FA21501-1	ACCORN NUT, TD-3	1
2.	KE52755	KNOB, TD-2	1
	SE50018	KNOB, TD-3	1
3.	KE52754	HEX NUT, TD-2	1
	SE50016	HEX NUT, TD-3	1
4.	KE52753	RETAINER, TD-2	1
	SE50013	RETAINER, TD-3	1
5.	KE52752	PISTON, TD-2	1
	107487	PISTON, TD-3	1
6.	FA05002-24	"O" RING, TD-2	1
	FA05002-38	"O" RING, TD-3	1
7.	KE50972-B	VALVE BODY, TD-2	2
	KE50973-B	VALVE BODY, TD-3	2

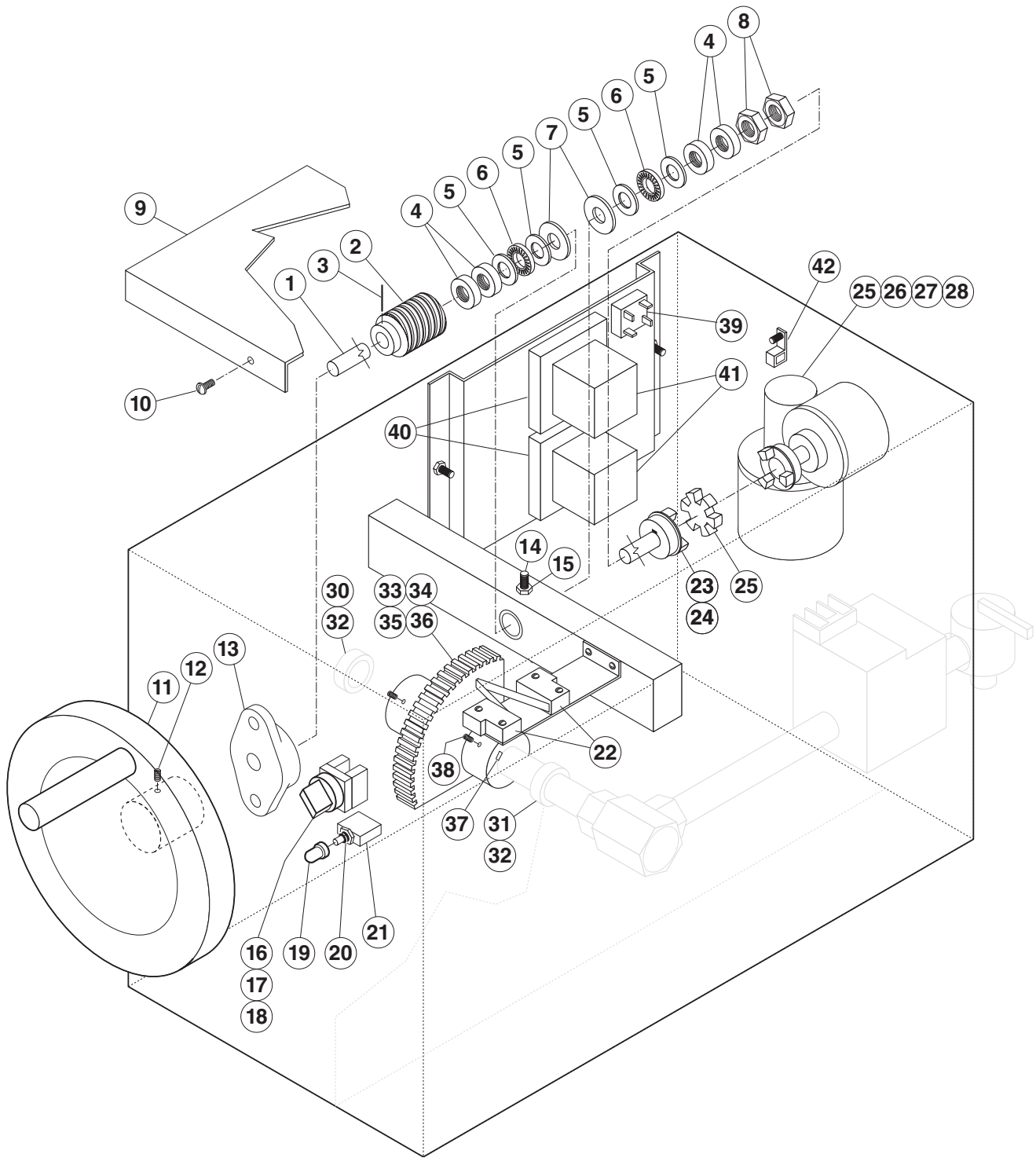
GAS CONTROL ASSEMBLY



GAS CONTROL ASSEMBLY

ITEM ON.	PART NO.	DESCRIPTION	QTY.
1.	KE53441	BLOWER, 115V, 60 HZ	.1
	KE53441-1	BLOWER, 220V, 50 HZ	.1
2.	KE54420	AIR INTAKE WASHER (NATURAL GAS)	.1
	KE54420-1	AIR INTAKE WASHER (PROPANE)	.1
3.	KE54239	CAPACITOR	.1
4.	KE01426-4	MIXING CHAMBER, 40 GALLON KETTLES	.1
	KE01426-1	MIXING CHAMBER, 60 GALLON KETTLES	.1
	KE01426-2	MIXING CHAMBER, 80 GALLON KETTLES	.1
	KE01426-3	MIXING CHAMBER, 100 GALLON KETTLES	.1
5.	KE53523	1/4" TUBING	.1
6.	KE53402	AIR ORIFICE, 40 GALLON KETTLES	.1
	KE53402-1	AIR ORIFICE, 60 - 100 GALLON KETTLES	.1
	KE53402-2	AIR ORIFICE, 40 GALLON KETTLES (FOR FRANCE ONLY)	.1
	KE53402-3	AIR ORIFICE, 60 - 100 GALLON KETTLES (FOR FRANCE ONLY)	.1
7.	KE01449	BLOWER MOUNTING PIPE ASSEMBLY	.1
8.	KE53618	SIGHT GLASS GASKET	.1
9.	KE53617	SIGHT GLASS	.1
10.	KE53619	SIGHT GLASS RETAINER	.1
11.	KE00515	THERMISTOR	.1
12.	KE50556-2	WATER LEVEL PROBE	.1
13.	KE53437	IGNITOR	.1
14.	KE53570	GASKET FOR IGNITOR	.1
15.	FI05257	SHUT-OFF COCK	.1
16.	FI05213	PLUG	.1
17.	KE53422	SPRING	.1
18.	FA05002-4	"O" RING	.1
19.	GAS ORIFICES:		
	KE53403-4	NATURAL GAS - SEA LEVEL UP TO 2000', 40 GALLON KETTLES	.1
	KE53403-5	PROPANE GAS - SEA LEVEL UP TO 2000', 40 GALLON KETTLES	.1
	KE53403-6	NATURAL GAS - SEA LEVEL UP TO 2000', 60 - 100 GALLON KETTLES	.1
	KE53403-7	PROPANE GAS - SEA LEVEL UP TO 2000', 60 - 100 GALLON KETTLES	.1
	KE53403-8	NATURAL GAS - 2000' UP TO 4000', 40 GALLON KETTLES	.1
	KE53403-9	PROPANE GAS - 2000' UP TO 4000', 40 GALLON KETTLES	.1
	KE53403-10	NATURAL GAS - 2000' UP TO 4000', 60 - 100 GALLON KETTLES	.1
	KE53403-11	PROPANE GAS - 2000' TO 4000', 60 - 100 GALLON KETTLES	.1
	KE53403-12	NATURAL GAS - 4000' UP TO 6000', 40 GALLON KETTLES	.1
	KE53403-13	PROPANE GAS - 4000' UP TO 6000', 40 GALLON KETTLES	.1
	KE53403-10	NATURAL GAS - 4000' UP TO 6000', 60 - 100 GALLON KETTLES	.1
	KE53403-14	PROPANE GAS - 4000' UP TO 6000', 60 - 100 GALLON KETTLES	.1
20.	FA05002-29	"O" RING	.1
21.	FI05226-4	NIPPLE, 1/2" NPT, 5 5/16" LONG	.1
22.	FI00073	UNION, 1/2"	.1
23.	FI00133	ELBOW, 1/2", STREET	.1
24.	KE93909	STRIP, TO HOLD BLOWER DOWN	.1
25.	FI00040-1	ELBOW, 1/2"	.1
26.	FI00579	NIPPLE, 1/2" NPT, 4" LONG, KGL-60-T	.1
	FI05226-2	NIPPLE, 1/2" NPT, 4" LONG, KGL-80-T	.1
27.	KE55004-3	RETAINING PLATE	.1
28.	FI00573	NIPPLE, 1/2" NPT, 1 1/8" LONG	.1
29.	FI05231	BUSHING, 3/4 - 1/2" NPT FLUSH, BLACK IRON	.1
30.	F01518-1	GAS SHUT-OFF VALVE, 3/4"	.1
31.	FI05226	NIPPLE, 1/2" NPT, 8" LONG	.1
32.	FI05222	SWIVEL ELBOW	.1
33.	FI05223	SPECIAL NIPPLE	.1
34.	KE02053	GAS VALVE ASSEMBLY	.1
35.	KE53515	GAS VALVE	.1
36.	FI00607	NIPPLE, 3/4" NPT, 1 1/2" LONG	.1

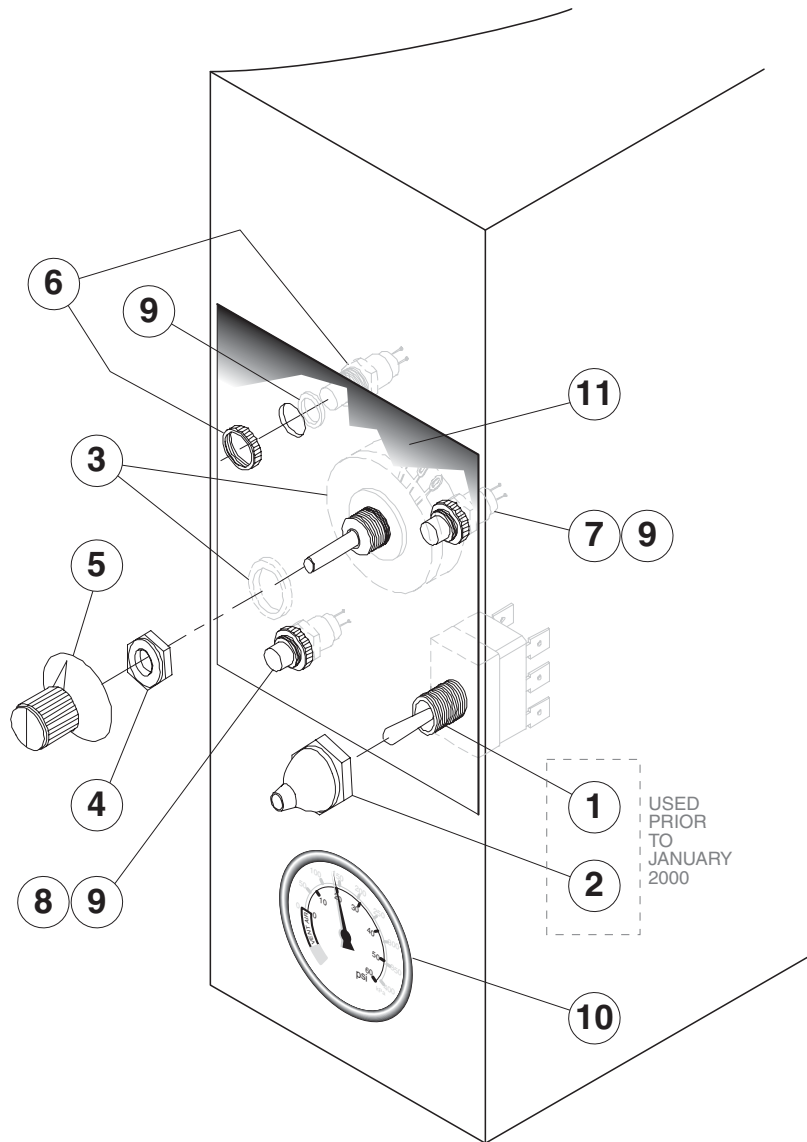
GEARBOX ASSEMBLY



GEARBOX ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE52836-2	TILT SHAFT	1
2.	KE50315	WORM	1
3.	FA95005	TENSION PIN	1
4.	KE52193	THRUST BEARING SPACER	2
5.	KE52192	THRUST WASHER	4
6.	KE52191	ROLLER BEARING	2
7.	FA30088	WASHER	2
8.	FA95008	JAM NUTS	2
9.	KE55057-4	LID FOR GEARBOX	1
10.	FA95062	PAN HD. PHILLIPS SCREW	2
11.	KE00508	HANDWHEEL ASSEMBLY	1
12.	FA19501	HANDWHEEL ALLEN SCREW, HEX SOCKET	2
13.	KE51730	TILT SHAFT BEARING	4
14.	FA19177	HEX SOCKET SET SCREW 5/16-24 X 1/2	1
15.	FA20047	JAM NUT 5/16-24	1
16.	KE53137-3	MOMENTARY SWITCH ACTIVATOR	1
17.	KE53184	CONTACT SECTION HOLDER (LATCH)	1
18.	KE53138-1	CONTACT BLOCK	4
19.	KE50580	WATER RESISTANT BOOT	1
20.	FA00012	"O" RING, CIRCUIT BREAKER	1
21.	KE50579	CIRCUIT BREAKER	1
22.	KE51007	MICRO SWITCH	2
	FA10139	MACHINE SCREW #6-32 X 1" LG	4
	KE50498	MICRO SWITCH INSULATION	2
	FA32004	TOOTH LOCK WASHER #6	4
23.	KE50582	CPLG. ONTARIO BELTING #G-100 5/8 BORE	2
24.	FA95014	SQUARE KEY 3/16 X 3/16 X 1" LG	1
25.	KE50583	RUBBER INSERT, ONTARIO BELTING "BUNA N"	1
26.	KE52832	MOTOR "BODINE" #NSH-54RL	1
27.	FA10487	HEX HD SCREW 1/4-20 X 1" LG	4
28.	FA31008	SPLIT LOCKWASHER 1/4" DIA	4
29.	FA20026	HEX NUT 1/4 - 20	4
30.	KE517112	LEFT HAND BEARING	1
31.	KE517111	RIGHT HAND BEARING	1
32.	KE51712	GREASE NIPPLE	2
33.	KE01889	MICRO SWITCH TRIGGER/WORM GEAR WELDMENT	1
34.	FA10772	SOCKET HD. CAP SCREW	2
35.	FA20048	JAM NUT	2
36.	FA95050	RETAINING RING	1
37.	FA95055-1	SQUARE KEY	1
38.	FA19201	HEX SOCKET SET SCREW 3/8-24	1
39.	KE50581	BRIDGE RECTIFIER	1
40.	KE54535	EDGE CONNECTOR (11 PIN)	2
41.	KE50753-10	RELAY	2
42.	KE50473	GROUND LUG	1

CONSOLE CONTROLS



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE50504	SWITCH, TOGGLE (USED PRIOR TO JANUARY 2000)	1
2.	SK50062	RUBBER BOOT (USED PRIOR TO JANUARY 2000)	1
3.	SE00114	POTENTIOMETER WITH ON/OFF SWITCH, C/W ITEM #4	1
	KE50988-2	POTENTIOMETER (USED PRIOR TO JANUARY 2000)	1
4.	KE51005	RUBBER BOOT	1
5.	KE50569-1	KNOB, POTENTIOMETER	1
6.	KE50567-1	L.E.D., RED	1
7.	KE50568-1	L.E.D., GREEN	1
8.	KE50567-2	L.E.D., AMBER	1
9.	FA05002-18	"O" RING	3
10.	KE50429-2	PRESSURE GAUGE	1
11.	KE5555-5-B	LABEL	1
	KE95457	LABEL (USED PRIOR TO JANUARY 2000)	1

MAINTENANCE

INSPECTION AND MAINTENANCE CHECKLIST

Cleveland Range equipment requires little preventative maintenance. We do however provide the following chart as a guideline for inspection and maintenance to keep your unit functioning at 100%.

INSPECTION AND MAINTENANCE CHECKLIST

The following checks should be completed every six months or more frequently if unit is in a high volume facility.

WARNING: It is imperative that damaged seals be repaired immediately to prevent equipment failure and/or damage.

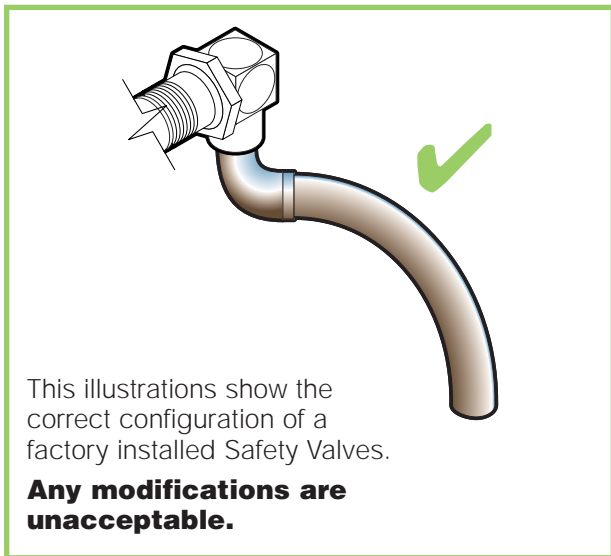
ITEM	CHECK
KETTLE CONSOLE COVER	Inspect gasket material for integrity. Replace if necessary. Insure all screws are in place and firmly holding down the cover. If not replace/tighten screws.
HAND WHEEL (hand tilt models only)	Check hand wheel for tightness. If loose tighten allen screw.
TILTING (tilting models only)	Check that kettle tilts smoothly. Grease as described in LUBRICATION PROCEDURE (page #23).
ON/OFF SWITCH/ TEMPERATURE CONTROL	Check for damage. Replace if necessary.
PRESSURE GAUGE	Check that the gauge does not have moisture on its inside face. Replace if moisture is present. Check that the gauge shows a vacuum (needle is well into the Green zone) when cold and shows between 25-40 psi when unit is hot. If not follow VACUUM LEAK TEST PROCEDURE (page #27).
PRESSURE RELIEF VALVE	Check pressure relief valve as described in PRESSURE RELIEF VALVE TESTING PROCEDURE (page #29).
TEMPERATURE CHECK	Following CALIBRATING PROCEDURE (page #29) check the inner kettle surface temperature with a digital surface thermometer and adjust if required.
LUBRICATION	Grease trunnion housings and gear/worm assembly as recommended in LUBRICATION INSTRUCTIONS on page #23).
GEAR/WORM ASSEMBLY	Inspect for play. Tighten Allen screws if required.
SPRING ASSIST COVER	Check cover is tightly secured to handle and insure spring is holding cover up - adjust if required. Refer to HINGE ADJUSTMENT INSTRUCTIONS (page #23)

KETTLE SAFETY INSPECTION CHECKLIST

Regular inspection and maintenance of units is essential to obtain trouble free and safe operation of equipment. Inspections must include testing of the pressure relief valve and checks of the operating system to insure that it has not been altered.

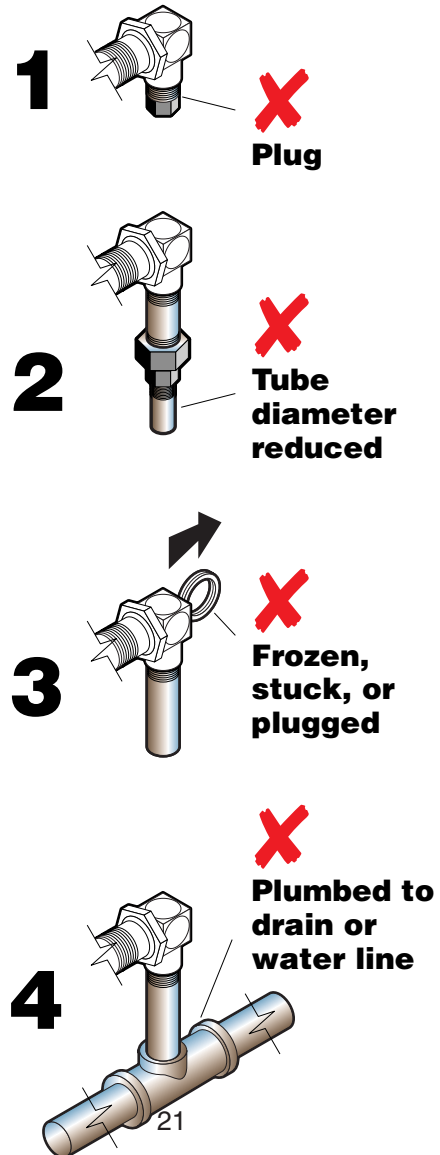
No safety features designed into the equipment should ever be tampered with. Tampering with or bypassing controls is a very dangerous practice and unfortunately we have seen several cases of this. Following is a short list of the most common and the most dangerous alterations performed on kettles.

SAFETY VALVE:

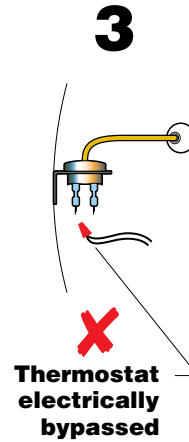
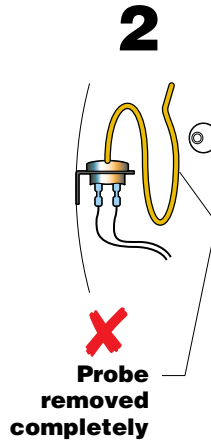
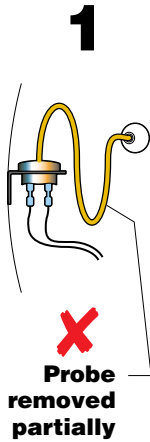
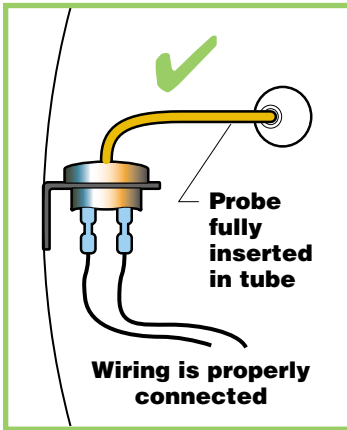


Incorrect Installations

- 1** Safety valve has plug threaded into the discharge opening preventing any steam from escaping.
- 2** Safety valve's tube diameter has been reduced.
- 3** Safety valve is sticking, frozen shut or plugged. To test, refer to page #29, PRESSURE RELIEF VALVE PERIODIC TESTING.
- 4** Safety valve is plumbed to a drain or water line creating back pressure and reducing flow.



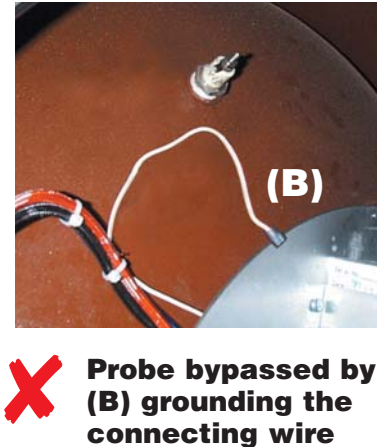
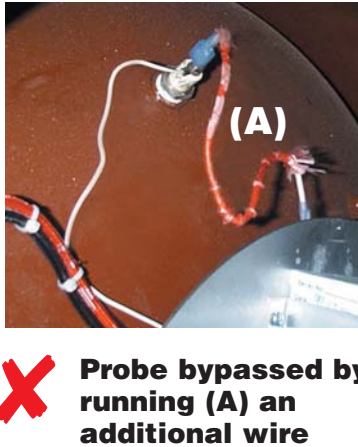
SAFETY THERMOSTAT:



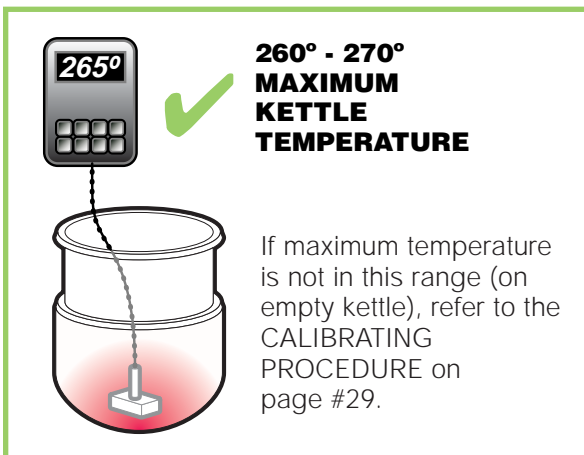
Incorrect Installations

- 1** Safety thermostat probe is not completely inserted into tubing.
- 2** Safety thermostat probe is removed from tubing.
- 3** Safety thermostat electrical connection is bypassed.

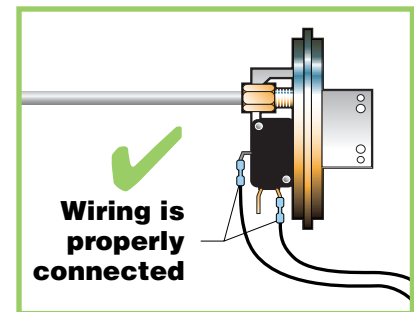
Low Water Level Probe:



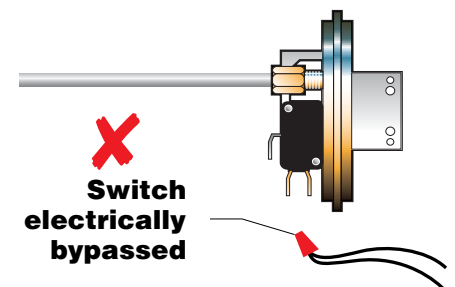
Operating Thermostat:



Air Switch:

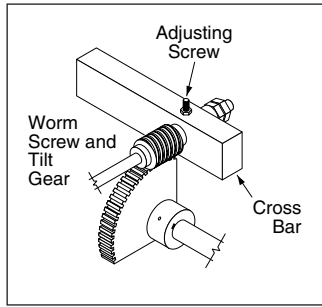


Incorrect Installation



LUBRICATION PROCEDURE

Lubricate the following parts every three months to insure smooth operation and reduce wear.

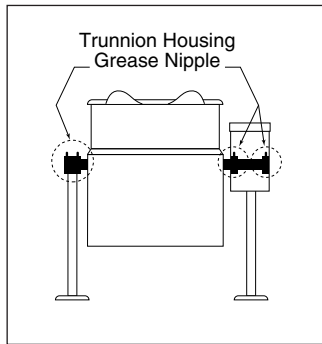


TRUNNION HOUSING, WORM SCREW AND TILT GEAR

These parts are accessed through the top cover of the console.

Apply grease to gear teeth. Check for

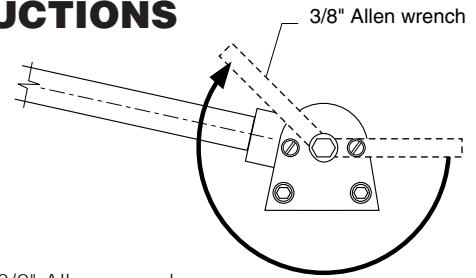
excessive play and adjust with adjusting screw located on top of cross bar.



KETTLE TRUNNIONS

On the left hand side of the kettle there are two grease nipples on the top back portion of the trunnion housing. On the right hand side of the kettle you must remove the console cover to access the two grease nipples.

HINGE ADJUSTMENT INSTRUCTIONS



1. Insert 3/8" Allen wrench.
2. Turn clockwise to relieve tension on spring.
3. While tension is released remove one of the two slotted screws.
4. To prevent Allen wrench from springing back abruptly while the second slotted screw is removed, insert a pin (approximately 1/8") in the hole where the first slotted screw was removed from.
5. Remove second slotted screw.
6. While holding Allen wrench remove pin.
7. Turn Allen wrench clockwise to tighten or counter-clockwise to loosen tension to produce desired effect.
8. Re-insert pin in one of the two holes.
9. Tighten one slotted screw in the other hole (it may be necessary to turn Allen wrench slightly to align holes).
10. Remove pin and repeat step number 9 for other slotted screw.

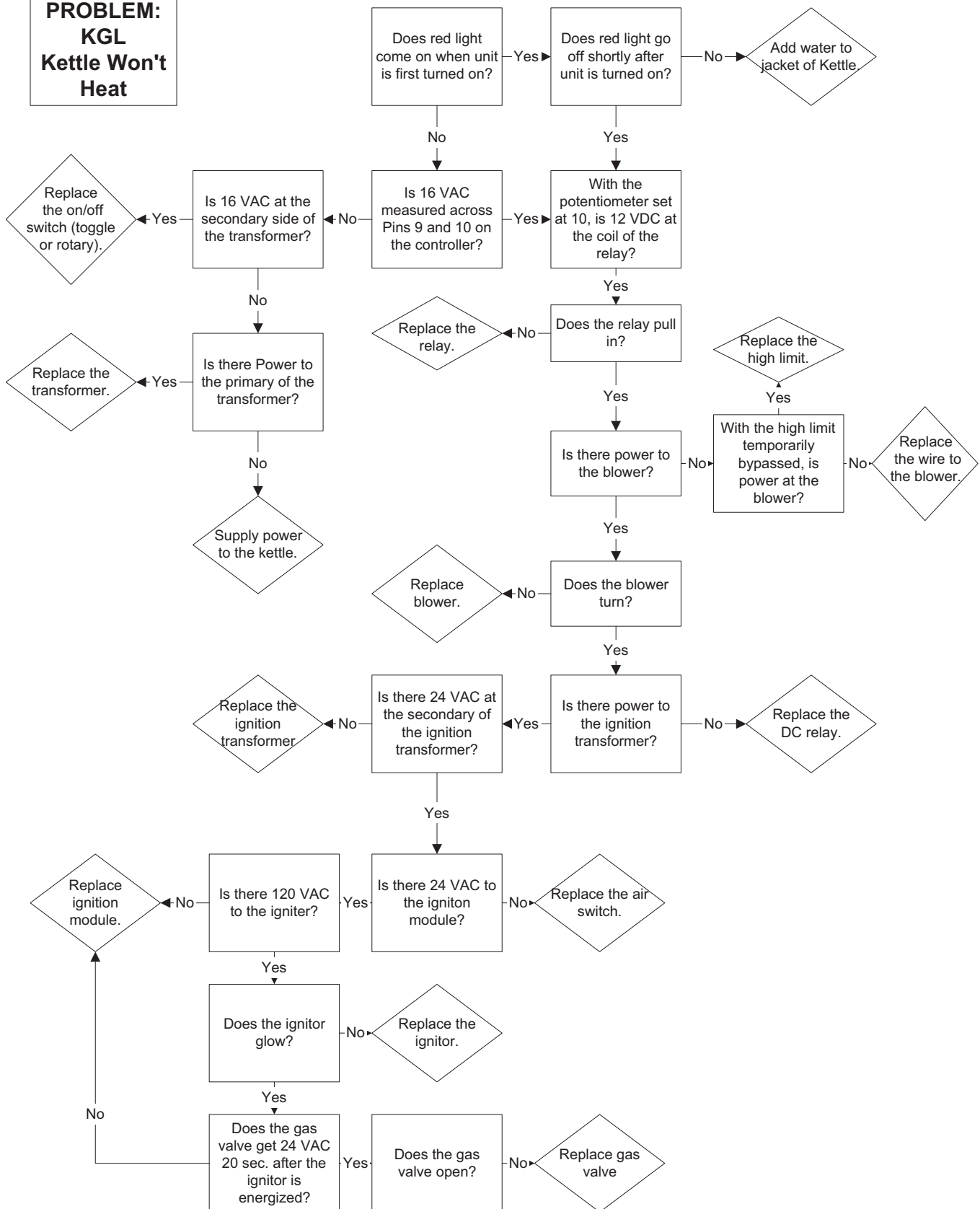
TROUBLESHOOTING GUIDES

GENERAL

1. To turn the unit on, turn the switch to the on position.
 - Power is sent to primary side of the 120vac/16vac transformer.
 - Power is sent to the normally closed high limit.
 - From the high limit power is sent to the normally open contacts of the 12VDC relay and the L1 and L2 terminals of the ignition module.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer (the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, 120VAC is sent to the blower and primary coil of the 120VAC/24VAC transformer.
 - From the secondary of the 24VAC transformer power is sent to the normally open contacts of the air switch.
 - When the air from the blower closes the air switch, 24VAC is sent to the Th terminal of the ignition module.
4. With both 120VAC (at L1 and L2) and 24VAC (at Gnd and Th) to the ignition module then 120VAC will be sent to the surface igniter.
5. After the ignition module has been energized for 24 seconds the module will send 24VAC to the gas valve.
 - The gas will touch the hot igniter and ignite.
 - The kettle will build pressure until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting

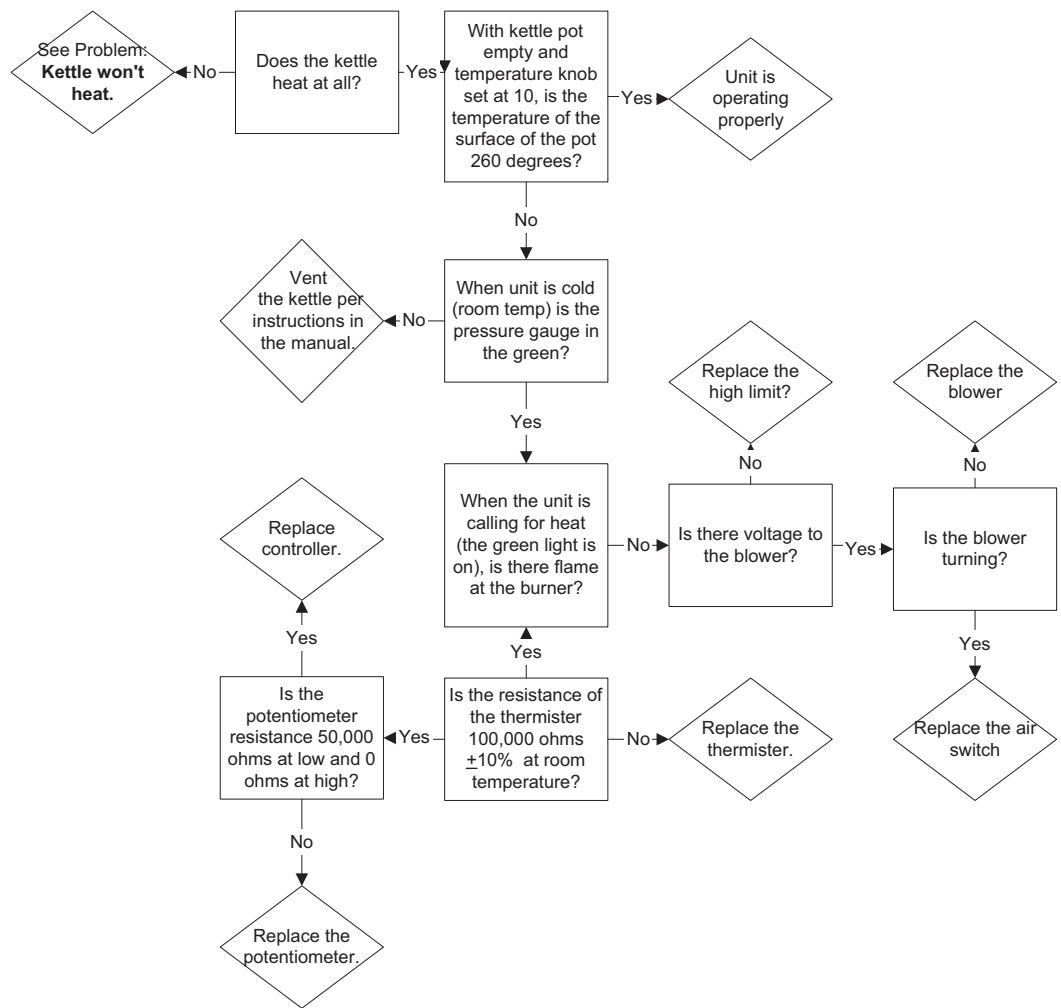
TROUBLESHOOTING GUIDES (continued)

**PROBLEM:
KGL
Kettle Won't
Heat**

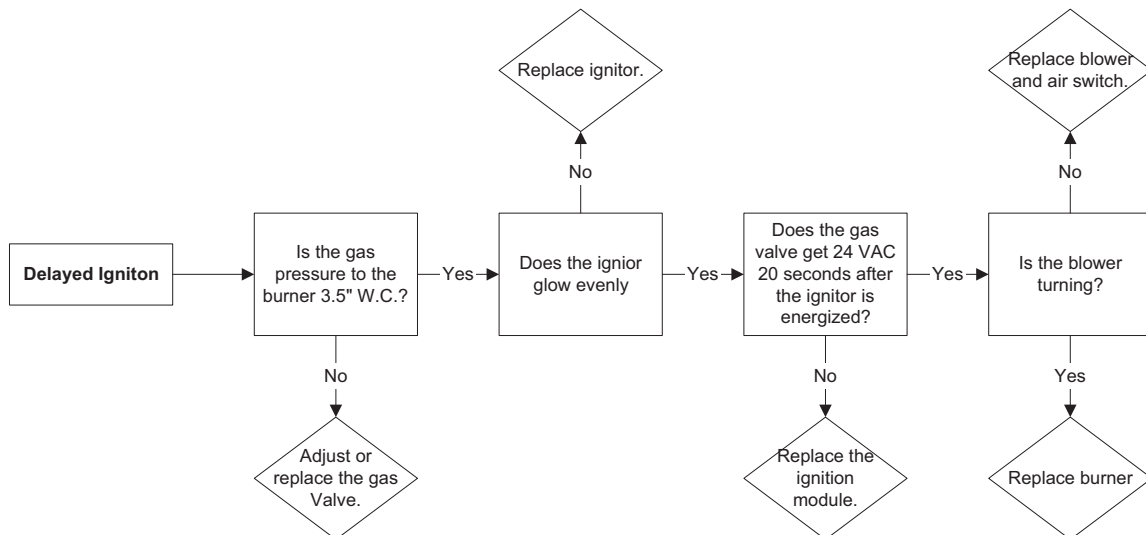


TROUBLESHOOTING GUIDES (continued)

**PROBLEM:
KGL
Kettle Not
Hot Enough**

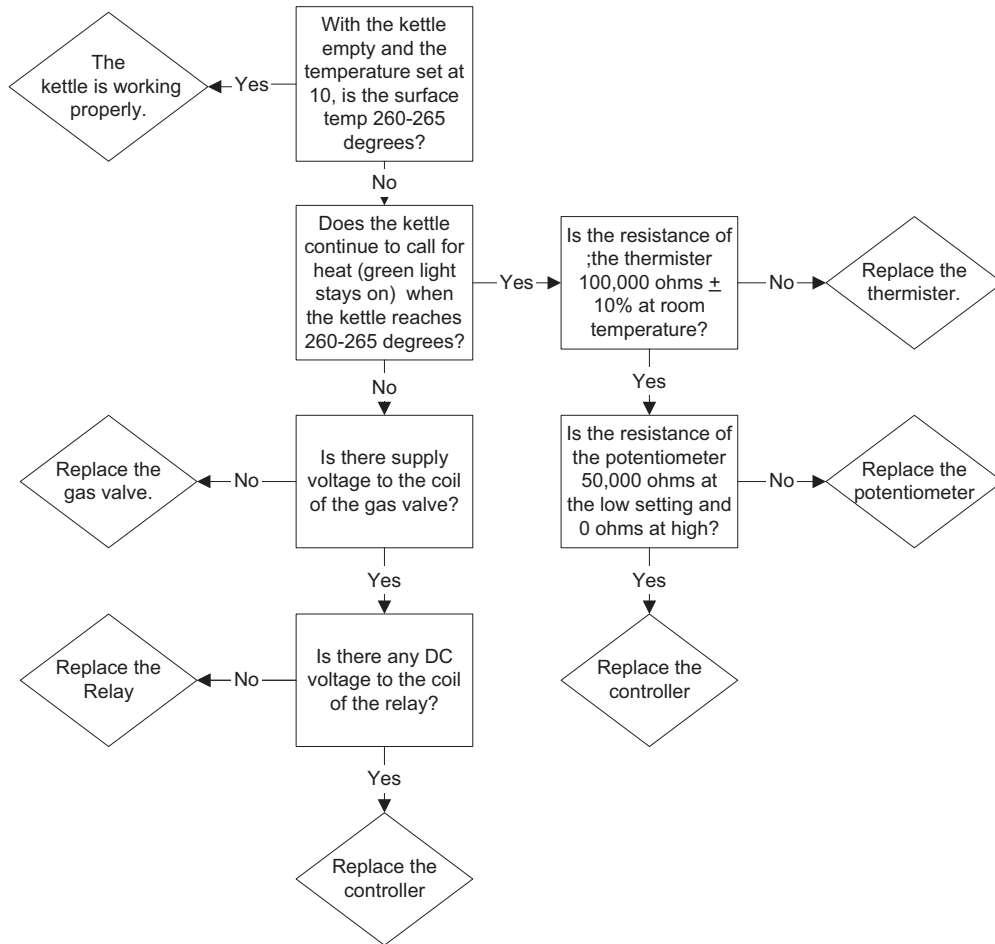


PROBLEM: KGL Kettle Has Delayed Ignition

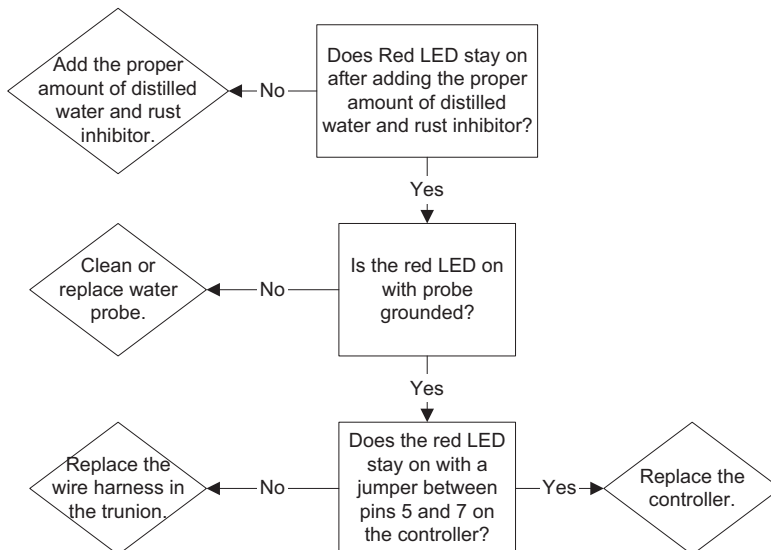


TROUBLESHOOTING GUIDES (continued)

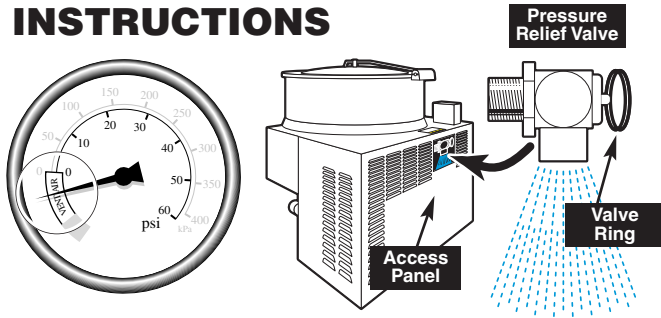
**PROBLEM:
KGL Kettle
Gets Too
Hot**



PROBLEM: Red Add Water LED Stays On




KETTLE VENTING INSTRUCTIONS



The following venting procedure should be followed when the Vacuum/Pressure Gauge needle is in the "VENT AIR" zone:

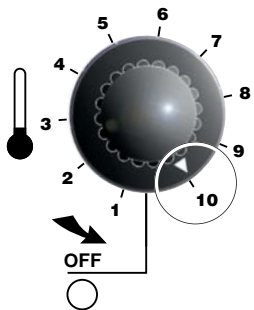
NOTE: Check for and eliminate leaks prior to venting (See REPAIRING LEAKS IN STEAM JACKETED KETTLE FITTINGS on page #27).



DANGER: PRESSURE RELIEF VALVE WILL EXHAUST HIGH TEMPERATURE STEAM. CONTACT WITH SKIN COULD RESULT IN SERIOUS BURNS. KEEP FACE, HANDS AND BODY CLEAR OF DISCHARGE.

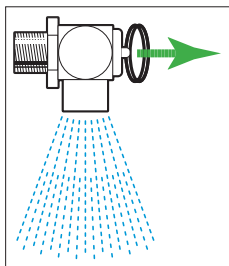


DANGER: WORKING ON MACHINES WITH POWER COULD RESULT IN SEVERE ELECTRICAL SHOCK.

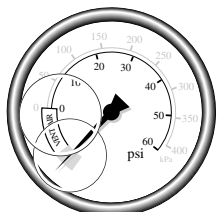


1. Remove Access Panel from back of main kettle console.
2. Turn kettle ON and set temperature control to **10**, heat the empty kettle until unit cycles off.
3. Vent kettle by pulling Valve Ring eight to fifteen times, holding valve open for two seconds each time.

NOTE: If unit cycles ON, stop venting and wait for kettle to cycle OFF before continuing.



4. Turn kettle OFF. Add cold water to kettle until its surface temperature is below 100°F. The pressure gauge needle should be in the green zone, indicating a vacuum in the kettle's jacket.



5. If needle is in the green zone then venting was successful. If not repeat procedure.

VACUUM LEAK TEST PROCEDURE

If the kettle will not hold vacuum, test for leaks at:

- A. Water Level Probe.
- B. Pressure Relief Valve/Pressure Gauge and connecting plumbing.
- C. Boiler Drain Cap.
- D. Sight Glass.

LEAK TEST PROCEDURE:

1. Heat kettle until unit cycles off.
2. Shut off power to the kettle at the fused disconnect switch.
3. Spread Bubble Type Leak Detector over suspected areas and watch closely for bubbles.
4. Repair areas as required.

REPAIRING LEAKS IN STEAM JACKETED KETTLE FITTINGS

If unit will not hold a vacuum the most likely cause is a leak at one of the fittings.

Often, the easiest way to eliminate a leak is reseal the suspect areas.

1. Water Level Probe
Remove, clean threads, apply teflon thread sealant and reinstall.
2. Pressure Relief Valve
A/ Inspect for signs of leaks. Replace if required.
B/ Remove, clean threads, apply teflon thread sealant and reinstall.
3. Pressure Gauge
A/ Inspect face of gauge. If it contains moisture on the inside of face replace.
B/ Check tightness of plumbing connection to pressure Gauge.
3. Sight Glass
A/ Check tightness of sight glass.
B/ Replace "O" ring if required.

RESERVOIR FILL PROCEDURES

WARNING: IMPROPER REFILLING OF KETTLE JACKET WILL RESULT IN IRREVERSIBLE DAMAGE TO UNIT.

The kettle's water level must be maintained at the proper level. Under normal operating conditions, the sealed water reservoir should never require the addition of water.

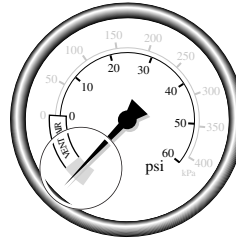
If the red "low water" light comes on during use (while the kettle is in an upright position), the water level has reached a critically low level. The low water protection control has automatically shut off the gas burner. The following procedure must be completed before further use:

DANGER: PRESSURE RELIEF VALVE WILL EXHAUST HIGH TEMPERATURE STEAM. CONTACT WITH SKIN COULD RESULT IN SERIOUS BURNS. KEEP FACE, HANDS AND BODY CLEAR OF DISCHARGE.

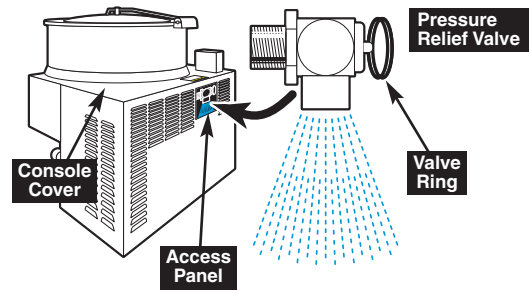
DANGER: WORKING ON MACHINES WITH POWER COULD RESULT IN SEVERE ELECTRICAL SHOCK.

NOTE: Have a qualified service technician repair the leakage problem and add water to the unit. Ensure that the red "low water" light is on when the kettle is upright. On tilting kettles, it is normal for the red light to come on when the kettle is in a tilted position.

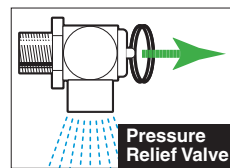
CAUTION: Only distilled water should be used when adding water to a partially filled water reservoir (If unit is completely empty see KETTLE JACKET FILLING & DRAINING PROCEDURES on page #30). Local tap water conditions may cause kettle damage which is not covered under warranty. Rust inhibitor is purchased locally. Read directions and do not exceed manufacturer's recommendation (excessive rust inhibitor can also cause solidification).



1. Ensure kettle is at room temperature and pressure gauge showing zero or less pressure.
2. Shut off power to the kettle at the fused disconnect switch.

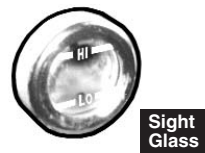


3. Remove Console Cover and Access Panel.

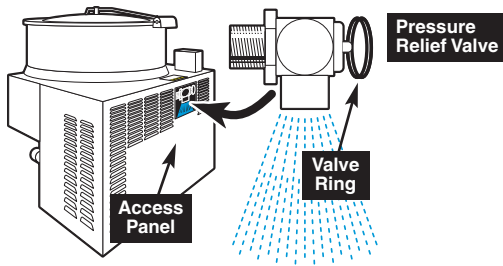


Important- Pull ring on Pressure Relief Valve prior to removal to insure vessel is not pressurized.

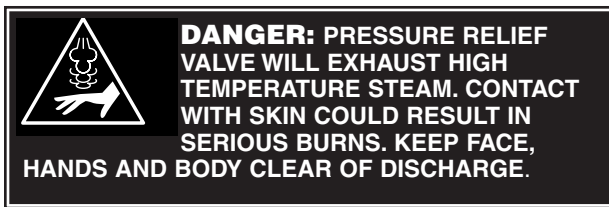
4. Pull Pressure Relief Valve Ring open to insure vessel is not pressurized.
5. Remove 1/4" copper tubing and reducer bushing.
6. Add distilled water using a funnel if necessary. Fill the unit to the high level mark on the Sight Glass.
7. Apply a thread sealant (i.e. Teflon tape) to the reducer bushing threads and replace.
8. Replace Console Cover and Access Panel.
9. Restore power to unit at the fused disconnect switch.
10. The kettle must now be vented. (Refer to the KETTLE VENTING INSTRUCTIONS on page #27).



PRESSURE RELIEF VALVE PERIODIC TESTING

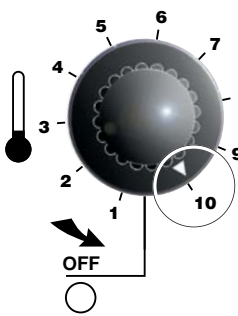


Most insurance agencies require periodic testing of pressure relief valves used on pressure vessels. This procedure will allow you to safely and quickly test your kettle's pressure relief valve. We recommend this test be performed twice a year.

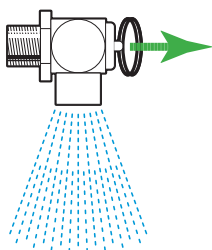


NOTE: The following instruction is intended for use by qualified service personnel.

WARNING: Kettle surface will be hot and steam will be released during testing. Take necessary precautions including the use of gloves and eye protection to prevent personal injury.



1. With the kettle empty, turn unit ON and set temperature control to **10**. Allow the kettle to heat until the unit cycles off.
2. Switch unit OFF and disconnect main power at fused disconnect switch.
3. Remove Access Panel at back of main kettle console.
4. Pull Pressure Relief Valve Ring open for a maximum of one second. Repeat test three to four times. Each time the mechanism should move freely and be accompanied by a rapid escape of steam.



NOTES:

If valve appears to be sticking replace pressure relief valve.

If foreign material is discharged then drain kettle and replace pressure relief valve.

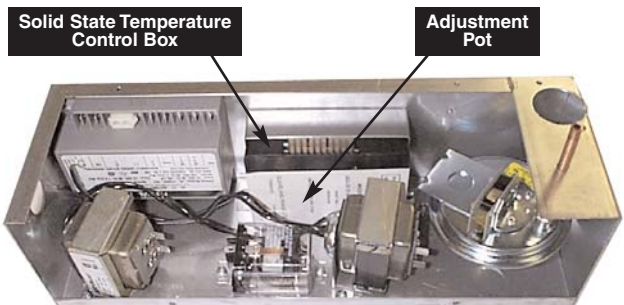
See KETTLE JACKET FILLING AND DRAINING PROCEDURES on page #30 for full instructions on the correct method for draining and refilling kettle jacket.

WARNING: Improper refilling of kettle jacket will result in irreversible damage to unit.

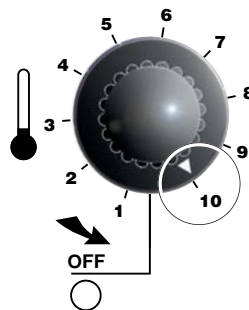
5. Replace Access Panel.

6. Reconnect main power at fused disconnect switch..

CALIBRATING PROCEDURE



1. Insure the unit has a vacuum before you begin calibrating procedures. If unit requires venting refer to KETTLE VENTING INSTRUCTIONS on page #27.



2. Turn kettle ON and set temperature control to **10**.
3. Allow the unit to cycle twice.
4. Check temperature of the inner kettle surface with a digital surface thermometer.
5. Temperature should be between 260°F and 265°F.
6. Using a screw driver adjust temperature by turning the potentiometer on the Solid State Temperature Control Box. Turn very little. Turn clockwise to INCREASES and counter-clockwise to DECREASE temperature.
7. Allow the unit to cycle twice.
8. Check temperature of the inner kettle surface with a digital surface thermometer.
9. Repeat steps 4. through 8. until unit is calibrated.

KETTLE JACKET FILLING & DRAINING PROCEDURES

Under normal circumstances the kettle does not require the draining of all fluid. If the red "low water" light is on, follow the RESERVOIR FILL PROCEDURES (page #28) in this manual.

If unit must be drained follow the procedures described on the following pages.

WARNING: IMPROPER REFILLING OF KETTLE JACKET WILL RESULT IN IRREVERSIBLE DAMAGE TO UNIT.

Use only a mixture of water and rust inhibitor to refill kettle jacket (see instructions below).

Contact your local water treatment company and purchase rust inhibitor with the specifications described below.

Recommended Corrosion Inhibitors for Closed Systems

DESCRIPTION

Recommended for our units is a blend of SODIUM NITRITE and BORAX for corrosion inhibition of ferrous metals and axoles for copper and copper alloy corrosion protection. Product should be formulated for hot or cold closed recirculating water systems.

Source the chemicals stated above from your local water treatment company. Mix only with water and follow manufactures recommended mixing rate.


DISPOSAL OF INHIBITOR

Do not dispose of chemicals in any system which may discharge into water supplies used for drinking or washing or that could accidentally discharge into such systems, or into stream accessible to animals.

Follow all Federal, State and local codes when disposing of product.



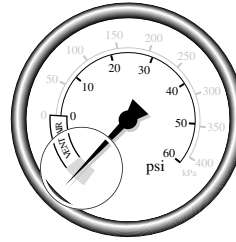
DANGER: WORKING ON MACHINES WITH POWER COULD RESULT IN SEVERE ELECTRICAL SHOCK.



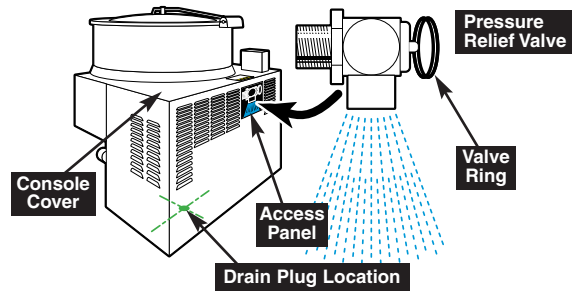
DANGER: PRESSURE RELIEF VALVE WILL EXHAUST HIGH TEMPERATURE STEAM. CONTACT WITH SKIN COULD RESULT IN SERIOUS BURNS. KEEP FACE, HANDS AND BODY CLEAR OF DISCHARGE.



DANGER: EXTREMELY HOT SURFACES. WORK ONLY ON COLD KETTLE.



1. Ensure kettle is at room temperature and pressure gauge showing zero or less pressure.
2. Shut off power to the kettle at the fused disconnect switch.



3. Remove Console Cover and Access Panel.
4. Pull Pressure Relief Valve Ring open to insure vessel is not pressurized.
5. Remove 1/4" copper tubing and reducer bushing.
6. Remove Drain Plug cap and allow water to drain.
7. Replace Drain Plug cap and add water until it shows on sight glass.
8. Repeat steps 6 & 7 until water drains clear.
9. Apply a thread sealant (i.e. Teflon tape) to the Drain Plug cap and replace.
10. Add distilled water and rust inhibitor using a funnel if necessary. Fill the unit to the high level mark on the Sight Glass.
11. Apply a thread sealant (i.e. Teflon tape) to the reducer bushing threads and replace.
12. Replace Console Cover and Access Panel.
13. Restore power to unit at the fused disconnect switch.
14. The kettle must now be vented. (Refer to the KETTLE VENTING INSTRUCTIONS on page #27).

WARNING: IMPROPER REFILLING OF KETTLE JACKET WILL RESULT IN IRREVERSIBLE DAMAGE TO UNIT.

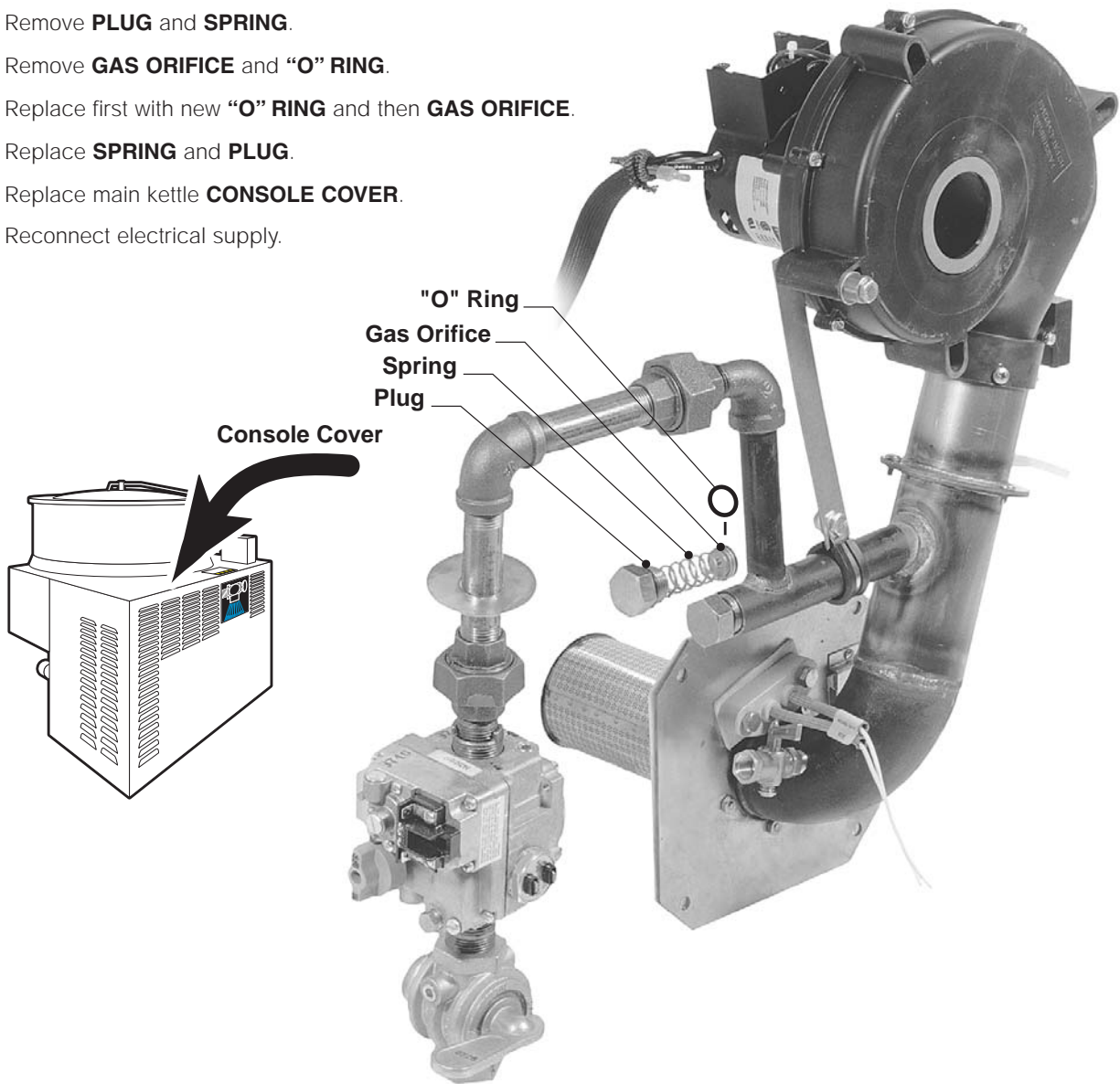


DANGER: EXTREMELY HOT SURFACES. WORK ONLY ON COLD KETTLE.

GAS KETTLE ORIFICE REPLACEMENT

NOTE: Use thread sealant compatible with propane gas on all threaded piping connections.

1. Disconnect electrical connection.
2. Shut off main gas supply and disconnect kettle from supply line.
3. Remove main kettle **CONSOLE COVER**.
4. Remove **PLUG** and **SPRING**.
5. Remove **GAS ORIFICE** and **"O" RING**.
6. Replace first with new **"O" RING** and then **GAS ORIFICE**.
7. Replace **SPRING** and **PLUG**.
8. Replace main kettle **CONSOLE COVER**.
9. Reconnect electrical supply.

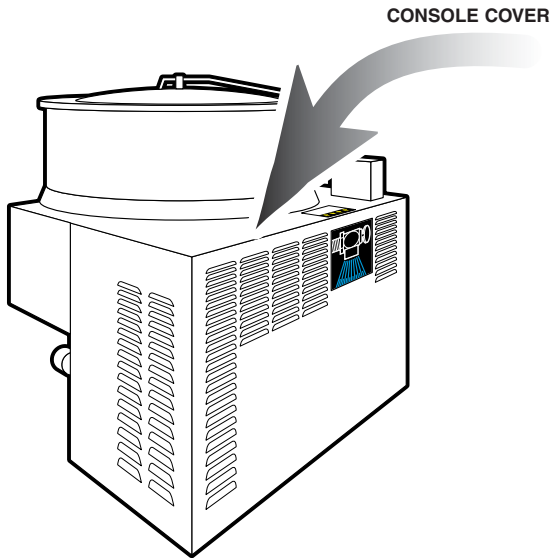


Kettles	BTU's per Hour	Gas Type	Water Column	# of Orifices
KGL-40,	140000	Natural Gas	3.5	1
KGL-40-T,	140000	Propane	3.5	1
KGL-60 to 100,				
KGL-60-T to 80-T,	190000	Natural Gas	3.5	1
KGL-40-TSH,	190000	Propane	3.5	1
KGL-40-F to 60-F,				
KGL-40-SH to 60-SH,				

FIELD CONVERSION INSTRUCTIONS

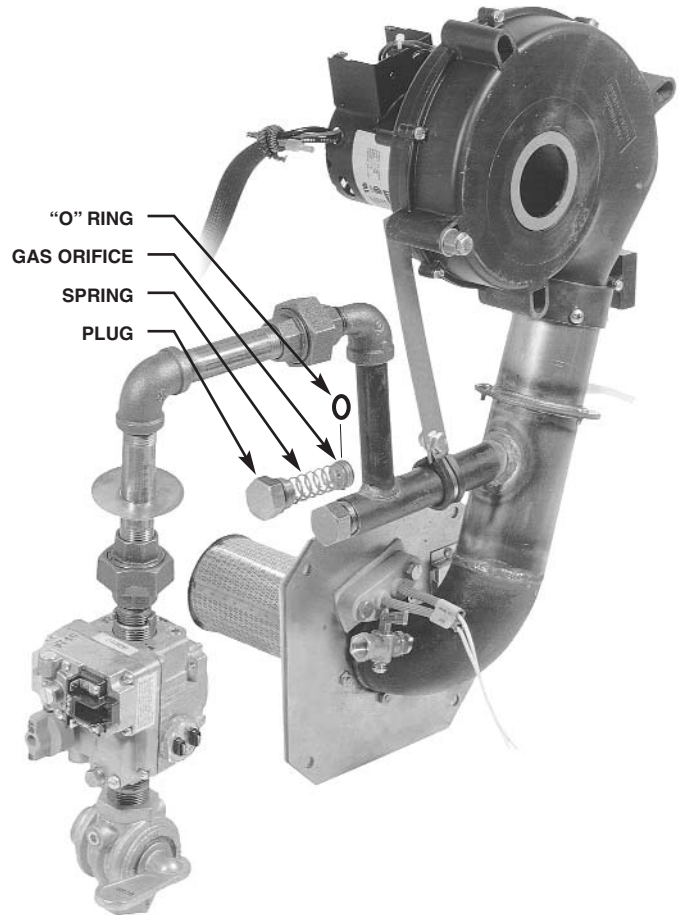
Natural Gas to Propane Gas

Kettles	BTU's per Hour	Gas Type	Water Column	# of Orifices
KGL-40,	140000	Natural Gas	3.5	1
KGL-40-T,	140000	Propane	3.5	1
KGL-60 to 100,	190000	Natural Gas	3.5	1
KGL-60-T to 80-T, KGL-40-TSH, KGL-40-F to 60-F, KGL-40-SH to 60-SH,		Propane	3.5	1



NOTE: Use thread sealant compatible with propane gas on all threaded piping connections.

1. Disconnect electrical connection.
2. Shut off main gas supply and disconnect kettle from supply line.
3. Remove main kettle **CONSOLE COVER**.
4. Remove **PLUG** and **SPRING**.
5. Remove **GAS ORIFICE** and **"O" RING**.
6. Replace first with new **"O" RING** and then **GAS ORIFICE**.
7. Replace **SPRING** and **PLUG**.
8. Replace main kettle **CONSOLE COVER**.
9. Reconnect electrical supply.



Conversion Parts Required

KGL-40

Part No.	Description	Quantity
KE95591	Conversion Label	1
KE54420-1	Air Intake Washer	1
KE53403-5	Gas Orifice	1
FA05002-29	"O" Ring	1

KGL-60 to 100

Part No.	Description	Quantity
KE95591	Conversion Label	1
KE54420-1	Air Intake Washer	1
KE53403-7	Gas Orifice	1
FA05002-29	"O" Ring	1



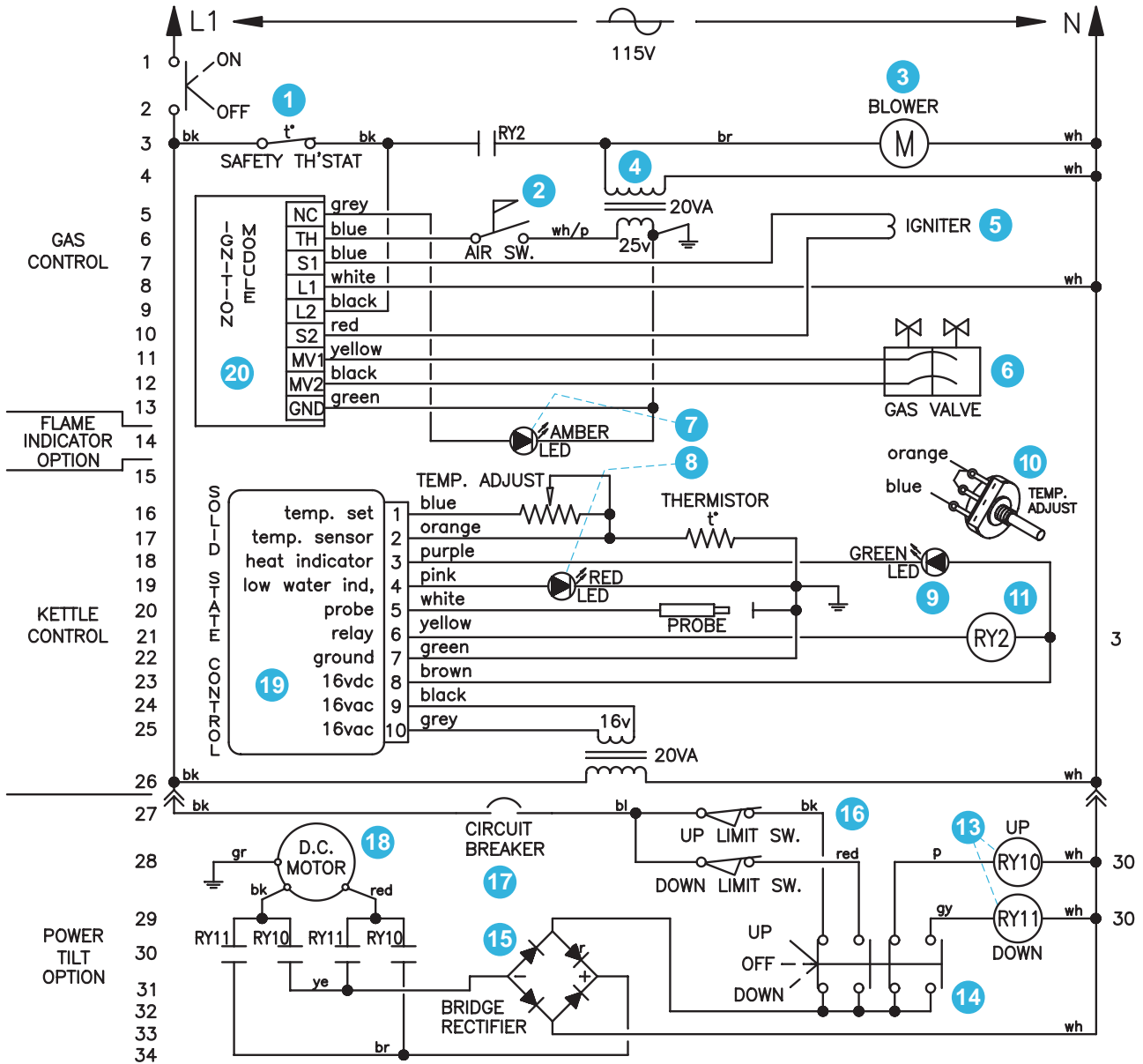
NOTE: Changing the gas type requires a new Rating Label be affixed to the unit.

When ordering conversion parts, it is essential to provide both the Model # and the Serial # of the unit in order to facilitate completion of this label in the factory.

WIRING DIAGRAMS

Diagram #1:

Floor Gas Kettle (except KGL-25/T) 110-120 Volts, 60Hz



KE90407-E

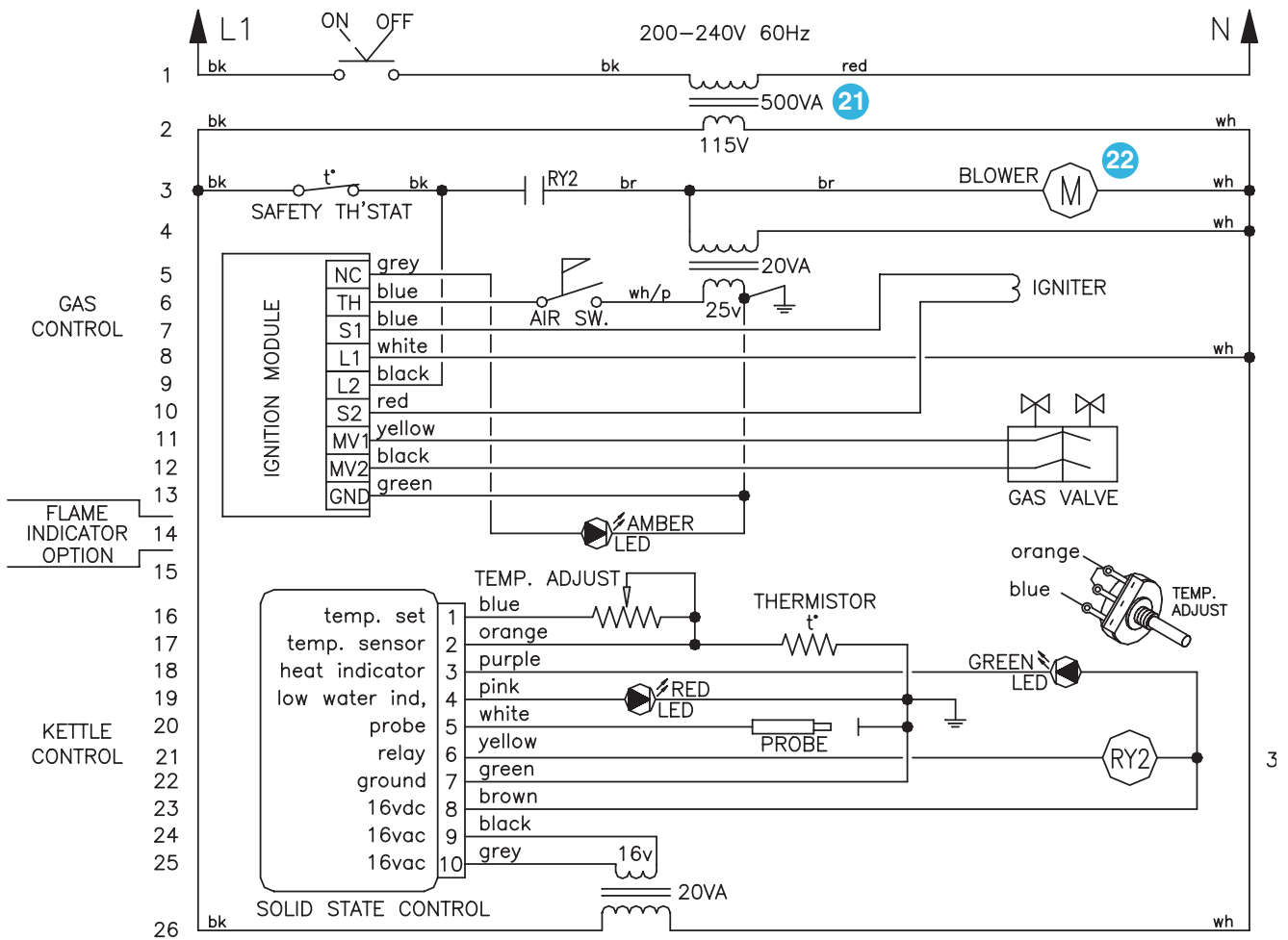
Diagram #1 (continued):

Floor Gas Kettle (except KGL-25/T) 110-120 Volts, 60Hz

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	KE55069-6	SAFETY THERMOSTAT	1
2	KE53436	AIR PRESSURE SWITCH	1
3	KE53441	BLOWER, 115V, 60 HZ	1
4	KE53838-20	TRANSFORMER 120-24V	1
5	KE53437	IGNITOR	1
6	KE53515	GAS VALVE	1
7	KE50567-2	L.E.D., AMBER	1
8	KE50567-1	L.E.D., RED	1
9	KE50568-1	L.E.D., GREEN	1
10	SE00114	POTENTIOMETER WITH ON/OFF SWITCH	1
11	KE50753-7	RELAY, 120V	1
12	KE53838-20???	TRANSFORMER 120-24V	1
13	KE50753-10	RELAY	2
14	FA20047	JAM NUT 5/16-24	1
	KE53137-3	MOMENTARY SWITCH ACTIVATOR	1
	KE53184	CONTACT SECTION HOLDER (LATCH)	1
15	KE50581	BRIDGE RECTIFIER	1
16	KE51007	MICRO SWITCH	2
17	KE50579	CIRCUIT BREAKER	1
18	KE52832	MOTOR "BODINE" #NSH-54RL	1
19	KE00458	KETTLE SOLID STATE CONTROL BOX	1
20	KE00458	KETTLE SOLID STATE CONTROL BOX	1

Diagram #2 (see Diagram #1 for common parts):
 Floor Gas Kettle (except KGL-25/T) 200-240 Volts, 60Hz

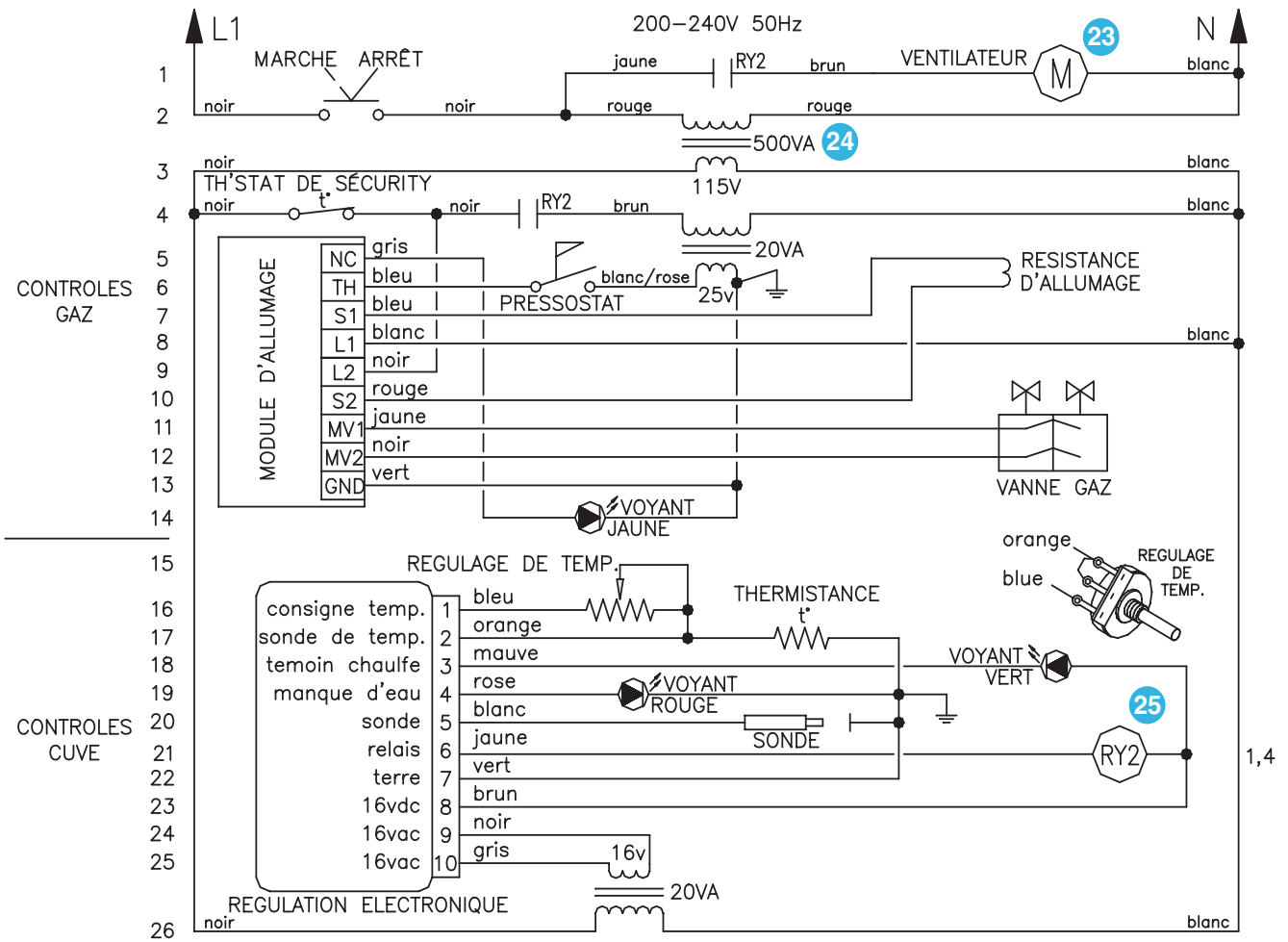
ITEM NO.	PART NO.	DESCRIPTION	QTY.
21	KE53838-2	TRANSFORMER 120-24V	1
22	KE53441	BLOWER, 115V, 60 HZ	1



KE90407-1F

Diagram #3 (see Diagram #1 for common parts):
 Floor Gas Kettle (except KGL-25/T) 200-240 Volts, 50Hz

ITEM NO.	PART NO.	DESCRIPTION	QTY.
23	KE53441-1	BLOWER, 220V, 50 HZ	1
24	KE53838-2	TRANSFORMER 120-24V	1
25	KE50753-8	RELAY, 240V	1



Symbol Legend (page 1 of 2)

□ English □ French □ Spanish □ Italian □ German □ Chinese-Simplified □ Chinese-Traditional

	<p>RISK OF ELECTRICAL SHOCK DANGER DE SECOUSSE ÉLECTRIQUE PELIGRO DE ELECTROCHOQUE PERICOLO DI SCOSSA STROMSCHLAG-GEFAHR</p> <p>有触电危險 有觸電危險</p>		
	<p>SPLASHPROOF ANTIÉCLABOUSSURES A PRUEBA DE SALPICADURAS PROTETTO CONTRO GLI SPRUZZI SPRITZWASSERDICHT</p> <p>防濺水的 防濺水的</p>		
	<p>DISCONNECT ELECTRICAL SUPPLY BEFORE WORKING ON KETTLE COUPER LE COURANT AVANT D'INTERVENIR SUR L'ÉQUIPEMENT DESCONECTAR LA ALIMENTACION ELECTRICA ANTES DE REALIZAR TRABAJOS EN EL EQUIPO DISINSERIRE LA CORRENTE PRIMA DI LAVORARE SULLA MACCHINA STROMVERSORGUNG AUSSCHALTEN, BEVOR AM GERÄT GEARBEITET WIRD</p> <p>操作设备前切断电源 操作設備前切斷電源</p>		
	<p>MAIN POWER ALIMENTATION ÉLECTRIQUE ALIMENTACION PRINCIPAL ALIMENTAZIONE HAUPTSTROM</p> <p>主电源 主電源</p>		<p>ON MARCHE ENCENDIDO ACCESO AN</p> <p>开 開</p>
	<p>OFF ARRÊT APAGADO SPENTO AUS</p> <p>关 關</p>		<p>PAUSE, INTERRUPTION PAUSE, INTERRUPTION PAUSA, INTERRUPCION PAUSA, INTERRUZIONE PAUSE, UNTERBRECHUNG</p> <p>暫停，间断 暫停，間斷</p>
	<p>CONTINUE CONTINUER CONTINUAR CONTINUA WEITER</p> <p>继续 繼續</p>		<p>RESET RÉENCLANCHER RECONECTAR RESET NULLSTELLEN</p> <p>重新设定 重新設定</p>
	<p>START OF ACTION DÉBUT DE L'ACTION INICIAR FUNCIONAMIENTO INIZIO OPERAZIONE FUNKTION STARTEN</p> <p>开始操作 開始操作</p>		<p>STOP OF ACTION ARRÊT DE L'ACTION PARAR FUNCIONAMIENTO ARRESTO OPERAZIONE FUNKTION STOPPEN</p> <p>停止操作 停止操作</p>
	<p>FAST START DÉMARRAGE RAPIDE INICIO RAPIDO AVVIAMENTO RAPIDO SCHNELLER START</p> <p>快启动 快啓動</p>		<p>FAST STOP, EMERGENCY ARRÊT RAPIDE D'URGENCE PARADA RAPIDA, EMERGENCIA ARRESTO RAPIDO, EMERGENZA SCHNELLER STOPP, NOTFALL</p> <p>快止动，紧急 快止動，緊急</p>


Symbol Legend (page 2 of 2)

□ English □ French □ Spanish □ Italian □ German □ Chinese-Simplified □ Chinese-Traditional




AUTOMATIC TEMPERATURE CONTROL
COMMANDE AUTOMATIQUE DE LA TEMPÉRATURE
AJUSTE AUTOMATICO DE TEMPERATURA
CONTROLLO AUTOMATICO TEMPERATURA
AUTOMATISCHE TEMPERATURREGELUNG

自动温度控制
自動溫度控制




LOW WATER
NIVEAU BAS DE L'EAU
NIVEL DE AGUA BAJO
LIVELLO BASSO
WASSERSTAND NIEDRIG

低水量
低水量




BURNER AND/OR ELEMENT ENERGIZED
BRÛLEUR ET/OU ÉLÉMENT ALLUMÉ
QUEMADOR O ELEMENTO ENCENDIDO
FIAMMA E/O ELEMENTO ATTIVATI
BRENNER ODER ELEMENT EINGESCHALTET

燃烧器和/或元件带电
燃燒器和/或元件帶電




IGNITION FAILURE
PANNE D'ALLUMAGE
FALLO DE ENCENDIDO
MANCATA ACCENSIONE
ZÜNDUNGSFEHLER

点火失效
點火失效




HEATING
ÉBULLITION
CALEFACCION
RISCALDAMENTO
HEIZUNG

加热
加熱



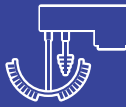
COOLING
REFROIDISSEMENT
REFRIGERACION
RAFFREDDAMENTO
KÜHLUNG

冷却
冷卻




HEAT ADJUSTMENT
RÉGLAGE DE LA CHALEUR
REGULACION DE CALOR
REGOLAZIONE RISCALDAMENTO
WÄRMEREGULIERUNG

热调节
熱調節




MIXER BRIDGE
PONT DU MÉLANGEUR
PUENTE DE MEZCLADORA
MENSOLA MESCOLATORE
MISCHER-BRÜCKE

搅拌桥
攪拌橋




LEFT KETTLE
BOUILLLOIRE GAUCHE
HERVIDOR IZQUIERDO
BOLLITORE SINISTRO
LINKER KOCHKESSEL

左壺
左壺




RIGHT KETTLE
BOUILLLOIRE DROITE
HERVIDOR DERECHO
BOLLITORE DESTRO
RECHTER KOCHKESSEL

右壺
右壺



MIX
MÉLANGER
MEZCLAR
MESCOLATURA
MISCHEN

混合
混合




LIFT
LEVER
LEVANTAR
SOLLEVARE
HEBEN

提升
提升




UP
HAUT
ARRIBA
SU
RAUF

向上
向上




DOWN
BAS
ABAJO
GIÙ
RUNTER

向下
向下



HOT WATER
EAU CHAUDE
AGUA CALIENTE
ACQUA CALDA
HEISSES WASSER

热水
熱水



COLD WATER
EAU FROIDE
AGUA FRIA
ACQUA FREDDA
KALTES WASSER

冷水
冷水

SPARE PARTS LIST

The following is a spare parts listing of parts that wear during normal use or are apt to be misplaced during normal operation. These parts should be kept on hand to prevent loss of time due to a minor problem.

PART NUMBER	DESCRIPTION	QUANTITY
KE00458	KETTLE SOLID STATE CONTROL BOX	1
KE50753-7	RELAY, 120V	1
KE55069-6	SAFETY THERMOSTAT	1
SE00114	POTENTIOMETER WITH ON/OFF SWITCH, C/W ITEM #4	1
KE50569-1	KNOB, POTENTIOMETER	1
KE00515	THERMISTOR	1
KE50580	WATER RESISTANT BOOT	1
FA00012	"O" RING, CIRCUIT BREAKER	1
KE50581	BRIDGE RECTIFIER	1
KE50753-10	RELAY	2

The following is a recommended list of spare parts that may be required if the service agency is of some distance away or if down time must be kept to a minimum and spare parts are required for the service agent on site.

PART NUMBER	DESCRIPTION	QUANTITY
KE54941-5	1/2" FPT, 50 PSI., FOR ASME KETTLES	1
KE54941-31	1/2" FPT, 50 PSI., FOR CE KETTLE	1
KE53838-27	TRANSFORMER, 120-14V.	1
KE53469	IGNITION CONTROL	1
KE00458	KETTLE SOLID STATE CONTROL BOX	1
KE53436	AIR PRESSURE SWITCH	1
KE53838-20	TRANSFORMER 120-24V	1
KE52752	PISTON, TD-2	1
SE50010	PISTON, TD-3	1
KE50567-1	L.E.D., RED	1
KE50568-1	L.E.D., GREEN	1
KE50567-2	L.E.D., AMBER	1
KE50429-2	PRESSURE GAUGE	1
KE53437	IGNITOR	1
KE02053	GAS VALVE ASSEMBLY	1
KE53137-3	MOMENTARY SWITCH ACTIVATOR	1
KE53184	CONTACT SECTION HOLDER (LATCH)	1
KE53138-1	CONTACT BLOCK	4