Visit www.clevelandrange.com to locate a service or sales representative in your area.

CLEVELAND

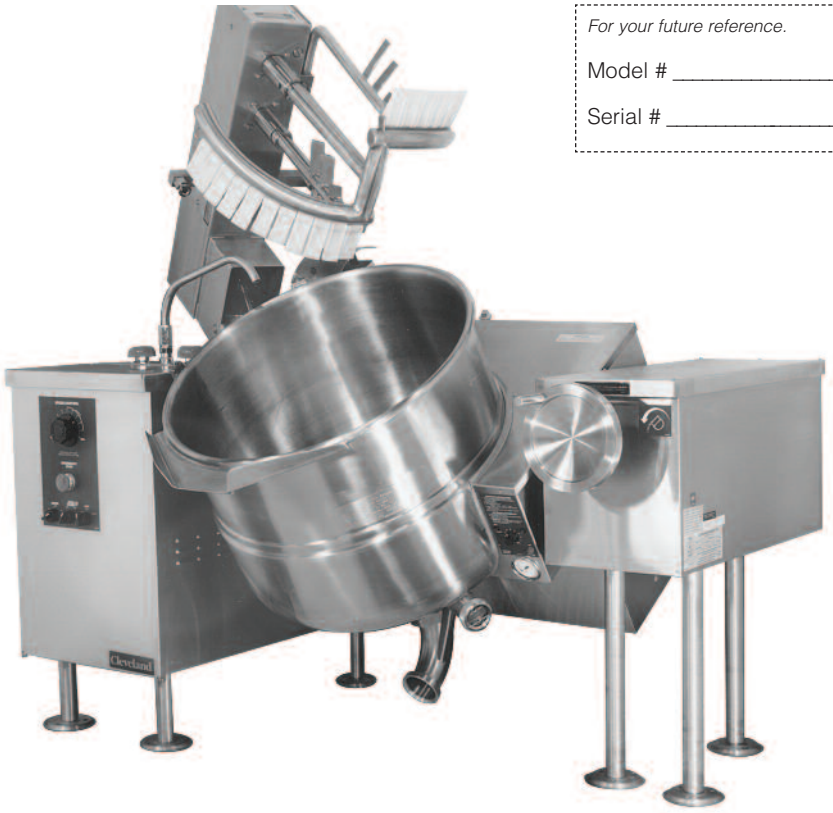
Gas Vertical Mixer Kettles

Installation, Operation, Maintenance, Parts & Service

This manual is updated as new information and models are released. Visit our website for the latest manual.

MODELS:

MKGL-40-T
MKGL-60-T
MKGL-80-T
MKGL-100-T



For your future reference.

Model # _____

Serial # _____

Read the manual thoroughly.

Improper installation, operation or maintenance can cause property damage, injury or death.

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WELBILT®

Part # - KE004006-2 B August 2019

STATEMENT OF RESPONSIBILITIES / DÉCLARATION DES RESPONSABILITÉS / DECLARACIÓN DE RESPONSABILIDADES

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Qualified Cleveland Range, LLC Authorized Service Representatives are obligated to follow industry standard safety procedures, including, but not limited to, OSHA regulations, and disconnect / lock out / tag out procedures for all utilities including steam, and disconnect / lock out / tag out procedures for gas, electric, and steam powered equipment and / or appliances.

All utilities (gas, electric, water and steam) should be turned OFF to the equipment and locked out of operation according to OSHA approved practices during any servicing of Cleveland Range equipment

Qualified Cleveland Range, LLC Authorized Service Representatives are obligated to maintain up-to-date knowledge, skills, materials and equipment.

Ce document est destiné à l'usage des Représentants de Service qualifiés et autorisés de Cleveland Range, LLC qui possèdent l'expérience et la formation ainsi que la bonne connaissance des mesures de sécurité et du matériel qu'ils entretiennent.

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Au cours de tout entretien d'un appareil Cleveland Range, tous les services publics (gaz, électricité, eau et vapeur) doivent être FERMÉS au niveau de l'appareil et le dispositif de fonctionnement doit être verrouillé suivant les pratiques approuvées de l'OSHA.

Les Représentants de Service qualifiés et autorisés de Cleveland Range, LLC sont tenus d'actualiser en permanence leurs connaissances, compétences, matériel et équipement.

Este documento está destinado para el uso de los Representantes de Servicio calificados y autorizados de Cleveland Range, LLC quienes cuentan con la experiencia y la capacitación así como el buen conocimiento de las medidas de seguridad y de los equipos que mantienen.

Cleveland Range, LLC, declina toda responsabilidad en caso de cualquier fallecimiento, lesiones, daños al equipo o daños a la propiedad resultantes de la utilización, del uso indebido o de la falta de utilización de la información provista en este documento.

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Cuando se esté dando servicio o mantenimiento a un aparato de Cleveland Range, todos los servicios públicos (gas, electricidad, agua y vapor) deben estar APAGADOS para el equipo en cuestión y se debe seguir el procedimiento de cierre de operaciones de acuerdo con las prácticas aprobadas por la OSHA.

Los Representantes de Servicio calificados y autorizados de Cleveland Range, LLC tienen la obligación de actualizar constantemente sus conocimientos, destrezas, materiales y equipamiento.

FOR YOUR SAFETY / POUR VOTRE SÉCURITÉ / PARA SU SEGURIDAD

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

Do not spray aerosols in the vicinity of this appliance while it is in operation.

This appliance is not to be used by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

This appliance is not for use by children and they must be supervised not to play with it.

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.

Do not obstruct the flow of combustion and ventilation air.

Retain this manual for your reference.

POUR VOTRE SÉCURITÉ

Ne pas entreposer ou utiliser d'essence ou d'autres liquides ou vapeurs inflammables à proximité de cet appareil ou de tout autre appareil.

AVERTISSEMENT : Toute mauvaise pratique en matière d'installation, de fonctionnement, de réglage, de modification, d'entretien ou de maintenance peut causer des dommages matériels, des blessures ou la mort. Lisez la totalité des instructions d'installation et d'utilisation avant d'installer, d'utiliser ou d'entretenir cet équipement.

Ne pas pulvériser des aérosols dans le voisinage de cet appareil alors qu'il est en fonctionnement.

Cet appareil ne doit pas être utilisé par des personnes dont les capacités physiques, sensorielles ou mentales sont réduites, ou des personnes dénuées d'expérience ou de connaissance, sauf si elles ont pu bénéficier, par l'intermédiaire d'une personne responsable de leur sécurité, d'une surveillance ou d'instructions préalables concernant l'utilisation de l'appareil.

Cet appareil n'est pas destiné à être utilisé par des enfants et ils doivent être surveillés pour s'assurer qu'ils ne jouent pas avec l'appareil.

Affichez à un endroit bien visible les instructions à suivre dans le cas où l'utilisateur sent une odeur de gaz. Ces informations seront obtenues auprès de votre fournisseur de gaz local.

Ne pas obstruer le flux d'air de combustion et de ventilation.

Conservez ce manuel pour votre référence.

PARA SU SEGURIDAD

No guarde ni use gasolina o cualesquiera otros líquidos o vapores inflamables en las cercanías de éste o cualquier otro aparato.

ADVERTENCIA: La indebida instalación, operación, ajuste, modificación, servicio o mantenimiento puede ocasionar daños a la propiedad, lesiones o muerte. Lea detenidamente las instrucciones de instalacion y de operación antes de instalar, poner a funcionar o dar servicio a este equipo.

No pulverice aerosoles en las proximidades de este aparato mientras está en funcionamiento.

Este aparato no debe ser utilizado por personas con capacidades físicas, sensoriales o mentales reducidas, o que no tengan la experiencia y los conocimientos adecuados, a menos que estas personas hayan recibido supervisión e instrucciones en cuanto al uso del aparato por la persona responsable de la seguridad de ellas.

Este aparato no debe ser usado por los niños y ellos deben ser supervisados para que no jueguen con el aparato.

Publicar en un lugar visible, las instrucciones a seguir en caso de que el usuario percibe olor a gas. Esta información se obtendrá mediante la consulta de su proveedor de gas local.

No obstruya el flujo del aire combustión y de ventilación.

Guarde este manual para su referencia.

WARNING / AVERTISSEMENT / ADVERTENCIA

Improper installation, operation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation and operating instructions thoroughly before installing, operating or servicing this equipment. / Toute mauvaise pratique en matière d'installation, de fonctionnement, de réglage, de modification, d'entretien ou de maintenance peut causer des dommages matériels, des blessures ou la mort. Lisez la totalité des instructions d'installation et d'utilisation avant d'installer, d'utiliser ou d'entretenir cet équipement. / La indebida instalación, operación, ajuste, modificación, servicio o mantenimiento puede ocasionar daños a la propiedad, lesiones o muerte. Lea detenidamente las instrucciones de instalacion y de operación antes de instalar, poner a funcionar o dar servicio a este equipo.

Do not lean on or place objects on lip. / Ne vous penchez pas sur oune placez pas des objets sur la lèvre. / No se apoye ni coloque objetos en el labio.

Hot product and surfaces. / Produit et surfaces chaudes. / Producto y superficies calientes.

Do not touch. / Ne pas toucher. / No la toque

Stand clear of product discharge path when discharging hot product. / Écartez-vous du chemin de décharge d'un produit chaud. / Permanezca alejado de la ruta de descarga del producto al vaciar producto caliente.

Keep hands away from moving parts and pinch points. / Gardez les mains loin des pièces mobiles et des points de pincement. / Mantenga las manos lejos de piezas movibles y puntos de presión muy localizada.

Do not fill kettle above recommended level marked on outside of kettle. / Ne remplissez pas la chaudière en excès du niveau recommandé marqué sur la chaudière. / No llene la marmita arriba del nivel recomendado marcado fuera de la marmita.

Unit must be anchored as per manual. / Unité doit être ancrée selon les directives du manuel. / Unidad debe estar fijado según el manual.

Keep appliance and area free and clear of combustibles. / Gardez l'appareil et son entourage libre de tous combustibles. / Mantenga el aparato y el área libres de combustibles.

Do not attempt to operate this appliance during a power failure. / N'essayez pas de faire fonctionner cet appareil lors d'une panne de courant. / No intente poner en marcha este aparato durante un fallo de suministro eléctrico.

Inspect unit daily for proper operation. / Inspectez l'unité tous les jours pour son bon fonctionnement. / Inspeccione diariamente el funcionamiento correcto de la unidad.

Heavy / Lourd / Pesado

Team or mechanical lift. / Équipe ou remontée mécanique. / Equipo o elevador mecánico.

Surfaces and product may be hot! Wear protective equipment. /Les surfaces et le produit peuvent être chauds! Portez un équipement de protection. / ¡Las superficies y el producto pueden estar calientes! Utilice equipo protector.

Floor may become slippery from product spillage. / Déversement de produit peut causer de plancher à être glissante. / Derrame de producto puede causar piso a ser resbaladizo.

Unit exhaust contains carbon monoxide. Operate only under a properly functioning hood with adequate makeup air. / L'échappement de l'unité émet du monoxyde de carbone. Exploiter uniquement sous une hotte fonctionnant correctement avec une source adéquate d'air d'appoint. / El escape de la unidad contiene monóxido de carbono. Operar solamente bajo una campana en buen funcionamiento con aire de relleno adecuado.

Pressurized device. / Appareil sous pression. / Dispositivo de presión.

Keep clear of pressure relief discharge. / Restez à l'écart de la soupape de sureté. / Permanezca alejado de la descarga de presión.

Do not climb, sit or stand on equipment. / Il ne faut pas monter, s'asseoir ni se tenir debout sur l'équipement. / No subirse, ni sentarse ni pararse sobre el equipo.

Do not remove guards or operate without them. / Ne pas supprimer les gardes ou fonctionner sans eux. / No retire los guardias ni funcionar sin ellos.

SERVICING / ENTRETIEN / SERVICIO

Shut gas supply off prior to servicing. / Fourniture de gaz fermée au loin avant d'entretenir. / Suministro de gas cerrado apagado antes del mantenimiento.

Remove electrical power prior to servicing. / Coupez l'alimentation électrique avant l'entretien. / Desconecte la energía eléctrica antes de darle servicio.

Risk of electric shock. / Risque de choc électrique. / Riesgo de choque eléctrico.

Ensure kettle is at room temperature and pressure gauge is showing zero or less prior to removing any fittings. / Assurez-vous que la chaudière est à température ambiante et que le manomètre est à zéro ou moins avant de retirer des accessoires. / Asegúrese de que la marmita esté a temperatura ambiente y el manómetro esté mostrando cero o menos antes de retirar cualquier accesorio.

Have a qualified service technician maintain your equipment. / Demandez à un technicien en entretien et en réparation qualifié d'effectuer l'entretien de votre équipement. / Haga que un técnico de servicio calificado mantenga su equipo

INSTALLATION

GENERAL

Environment:

Operating Criteria	Acceptable Range
Ambient Air Temperature	15-40 degrees Celsius
Relative Humidity	0-80%
Altitude	0-3000 meters
Voltage	208-480, 3ph
Location	Inside building, under ventiltation hood

Insure gas and electrical supplies match rating plate.

Installation of the kettle must be accomplished by qualified installation personnel working to all applicable local and national codes.

This equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are: UL, NSF, ASME/N.Bd., CSA, 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. Do not obstruct the flow of combustion and ventilation air.

RECEIVING 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.

APPROXIMATE WEIGHTS

Model #	Unit	Unit with shipping box
MKGL-40-T	780 lbs.	850 lbs.
MKGL-60-T	855 lbs.	925 lbs.
MKGL-80-T	930 lbs.	1,000 lbs.

UNCRATING

Caution:

Straps under tension and will snap when cut.

Carton may contain staples and skid contains nails.

Use proper safety equipment and precautions.

Unit is heavy use adequate help or lifting equipment as needed.

1. Carefully cut any straps from container.
2. Lift off carton.
3. Inspect for hidden damage.
   If found refer to "SHIPPING DAMAGE INSTRUCTIONS".
4. Cut strap holding unit.
5. Remove lag bolts from feet.
6. Remove manual from kettle pot. Write down the model# and serial# of the unit onto the front of this manual.
7. Lift kettle off skid and move kettle to its installation location.
8. Discard packaging material according to local and or state requirements.

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.

Operation of these units can produce significant levels of steam and condensate, it is recommended they 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.

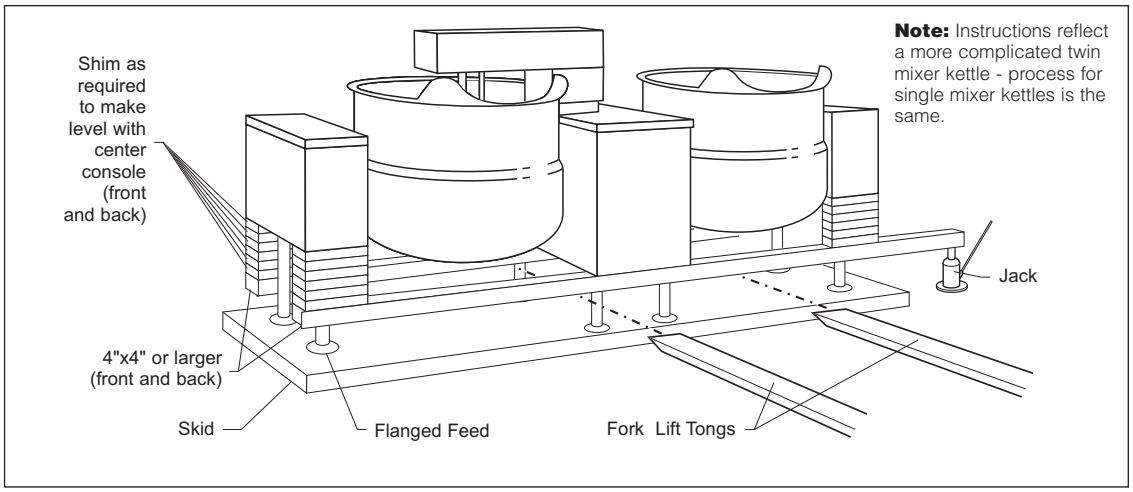
COMPRESSED AIR CONNECTION

Mixer Kettles with an air activated discharge valve require a minimum of 90 PSI to operate correctly.

If the unit is also supplying air to a Metering Filling Station then a pressure of 100 PSI at a minimum volume of 25 CFM is required.

The air supplied to the mixer should be clean and dry. No oil should be added to the supply air. We recommend the compressed air system be equipped with a drier, filter, and automatic water dump on the air compressor receiver tank. If the distance between the tank and the unit is less than 100 feet then a minimum line size of 3/4" is required. A distance of 100 to 300 feet requires a minimum 1" line.

Postitioning



MOVING UNIT

1. While still on skid, move unit as close to final installation position as possible.

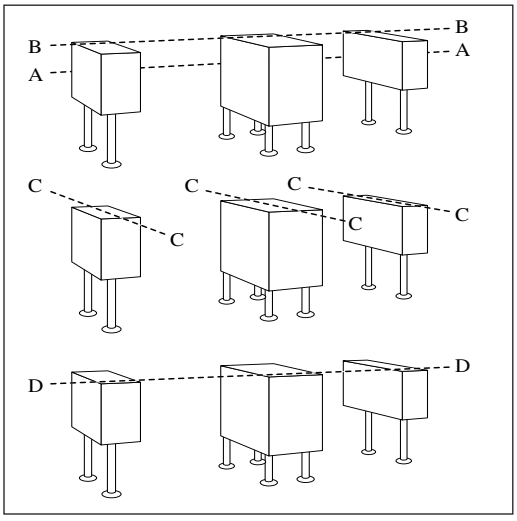
2. Prepare unit for lifting as shown in diagram.

3. Lift gently with a forklift or jacks and remove skid.

4. Lower gently to ground and remove forklift and blocking.

5. If unit has to be re-positioned, slide gently. Do not twist or push one side of unit excessively and cause binding on trunnions.

LEVELING

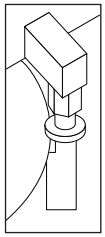


1. With straight-edge, line the backs of the consoles up with each other (dotted line **A**).

2. Level and straight-edge backs of consoles (dotted line **B**). Adjustments are made by turning flanges on back feet only.

3. Level consoles individually from front to back (dotted lines **C**). Adjustments are made by turning flanges on front feet only.

4. Re-check that the back is level (dotted line **B**) and then the front (dotted line **D**). Adjust if necessary.



5. Check that mixer bridge is level and guide pins (see illustration) lock smoothly without binding. If not repeat steps **1** through **4**.

NOTE: See Operating Instructions before operating unit.

6. Make electrical connections (see electrical service connections) and test mixer bridge as follows:

⇒ **A/** Raise mixer bridge.
⇒ **B/** Swing bridge out over centre console.
⇒ **C/** Swing bridge to the left as far as possible.
⇒ **D/** Lower bridge.
⇒ **E/** Bridge pins should enter pin hole on kettle perfectly, If not return to step 1 and repeat leveling steps.
⇒ **F/** Raise bridge and swing to far right (for twin mixers only).
⇒ **G/** Repeat steps **D** and **E** (for twin mixers only).

7. Once positioned and leveled, permanently secure the kettle's flanged feet to the floor using 5/16 inch stainless steel lag bolts and floor anchors (supplied by the installer). Secure each of the flanged feet with one bolt in each hole. 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.

Installation must conform, with local codes or in the absence of local codes, with the National Fuel Gas Code ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1.

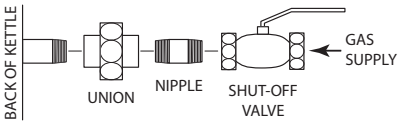
The appliance and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.45 kPa).

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).

It is recommended that a sediment trap (drip leg) be installed in the gas supply line. If the gas pressure exceeds 1/2 psi (3.45 kPa) water column, a pressure regulator must be installed, to provide a maximum of 1/2 psi (3.45 kPa) water column gas pressure to the gas control valve.

Use a gas pipe joint compound which is resistant to L.P. gas. Test all pipe joints for leaks.

1. Removed supplied manual shut-off valve and establish mounting location.
2. Add union and piping as required.
3. Connect the gas line to the manual shut-off valve.



ELECTRICAL

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

Install in accordance with local codes and/or the National Electric Code ANSI/NFPA No 70-1981 (USA) or the Canadian Electric Code CSA Standard C22.1 (Canada). A separate fused disconnect switch must be supplied and installed. The kettle must be electrically grounded by the installer.

The electric supply must match the power requirements specified on the kettle's rating plate. The copper wiring must be adequate to carry the required current at the rated voltage. Refer to the specification sheet for electrical specifications.

1. Ensure main power is turned off before connecting wires.
2. Remove the screws at the rear of the center console cover, and remove the cover. A wiring diagram is affixed to the underside of the console cover.
3. Feed permanent copper wiring 18" through the cut-out in the bottom of the console. Connect wiring in junction box in the bottom of the console.
4. Turn main power back on.
5. Check for correct rotation of electric motor (access by removing top front cover on center console). If rotation is incorrect, disconnect main power and reverse any two of the three live lines.
6. Replace the console cover and secure it with screws.

FOR POWER TILT UNITS ONLY

NOTE: Ensure the electrical supply matches the kettle's requirements as stated on the rating label.

This kettle is built to comply with CE standards. Many local codes exist, and it is the responsibility of the owner and installer to comply with these codes.

CLEANING

After installation the kettle must be thoroughly cleaned and sanitized prior to cooking.

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.

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. Unit has been thoroughly checked for gas leaks at the factory however the installer should check all connections for any leaks which may have resulted from shipping or installation.
3. Supply power to the kettle by placing the fused disconnect switch to the "ON" position.
4. Open gas shut-off valve to turn on main gas supply.
5. 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.
6. Tilt the kettle forward. After a few seconds 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.
7. Raise the kettle to the upright position. The red "LOW WATER" light should go out when the kettle is upright.
8. 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.
9. Check carbon monoxide is less than 0.08 percent in an air-free sample of the flue gases. See FREE AIR CALCULATION procedure in “Maintenance Procedures & Parts Lists” manual.

MIXER

1. Raise Bridge - If bridge does not raise then check motor rotation. Bridge should not raise until speed control is turned to minimum and then adjusted back up.

2. Swing Bridge - Bridge when fully raised should swing without hitting any object, i.e. control housing, kettle lip. Check that hydraulic hoses are not being pinched by stops on swivel assembly.

3. Tilt Kettle - Kettle tilts smoothly both down and back up. If power tilt, check that micro switches are adjusted properly (kettle is level in upright position and drains fully when tilted) and are not being crushed by gear.

4. Lower Bridge - Raise bridge. Switch to mix. Turn speed control to zero to reset micro switch then set speed control to number four. Check that unit does not begin to mix until bridge has lowered part way into the kettle. Check that mixer bridge pin lowers into pin hole correctly

5. Speed Control - Main - Main agitator arm not rotating when set at "0" but will start to move slowly on "1". Speed control makes positive contact with micro switch.

6. Speed Control - Secondary- Set main speed control to five. Adjust secondary control from minimum to maximum. Look for considerable speed variance.

7. Water Faucets - Turn on hot water faucet. Turn off and check for leaks in piping and drips from faucet spout. Repeat above with cold water faucet.

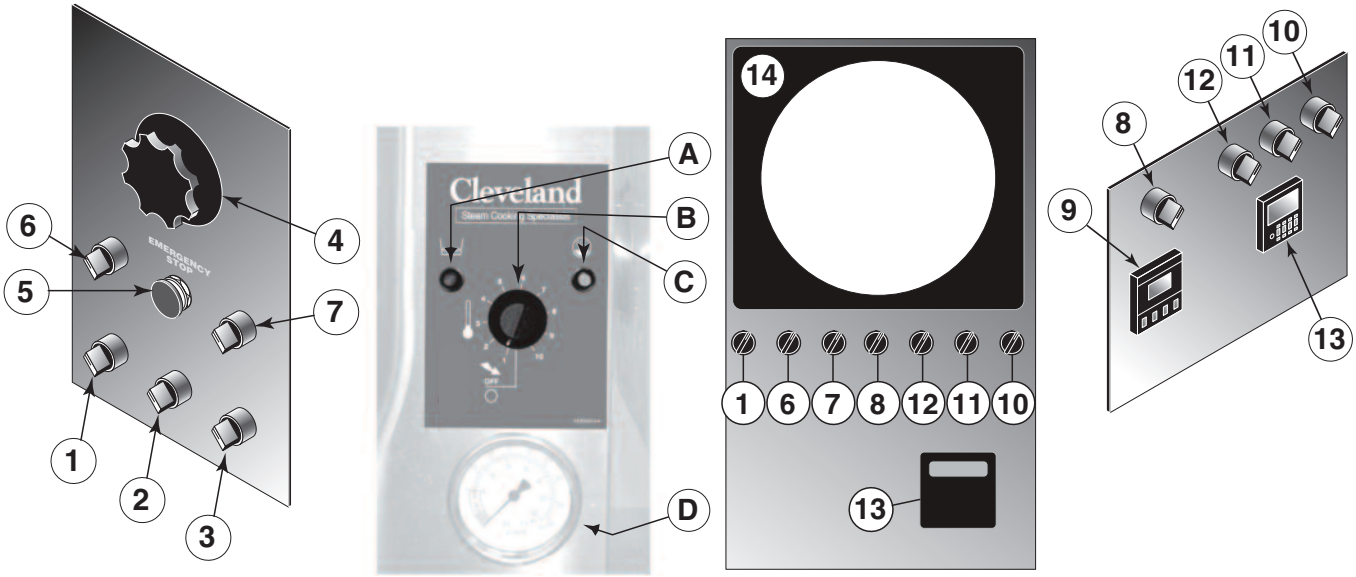
8. Product Discharge - Add water to kettle. Check for leaks from valve. Open and close valve a few times Valve and check for leaks again.

⚠ WARNING

If for any reason this unit is not functioning correctly DO NOT OPERATE. Contact your authorized service agent.

OPERATING INSTRUCTIONS

OPERATING CONTROLS AND INDICATORS



A. LOW WATER INDICATOR LIGHT (RED)
When lit, indicates that the kettle is low on water and will not operate in this condition. This will also light when the kettle is tilted.

B. ON-OFF SWITCH/SOLID STATETEMPERATURE CONTROL
Turns kettle ON/OFF and allows the operator to adjust the kettle temperature in increments from 1 (Min.) to 10 (Max.).

C. HEAT INDICATOR LIGHT (GREEN)
When lit, indicates that the kettle's burner is on .Cycles ON-OFF with burner.

D. VACUUM/PRESSUREGAUGE
Indicate steam pressure in PSI inside steam jacket as well as vacuum in inches of mercury.

1. MAIN POWER SWITCH
Power switch for unit.

2. MIX/LIFT SWITCH
Sets hydraulics to mix or lift mode.

3. UP/DOWN SWITCH
When unit is in lift mode, mixer bridge can be raised or lowered with this switch.

4. MIXER SPEED CONTROL
Controls speed of agitators and mixer bridge lift.

5. EMERGENCY STOP BUTTON
Stops hydraulic system (agitators and mixer bridge lift).

6. HEAT/COOL SWITCH
Switches left hand kettle from heating to cooling.

7. HEAT/COOL SWITCH
Switches right hand kettle from heating to cooling.

8. ACTIVE/BYPASS SWITCH
Switch to activate or bypass (manual operation) the controller.

9. TEMPERATURE CONTROLLER
Digital temperature control and indicator.

10. WATER METER POWER SWITCH
Power switch for water meter.

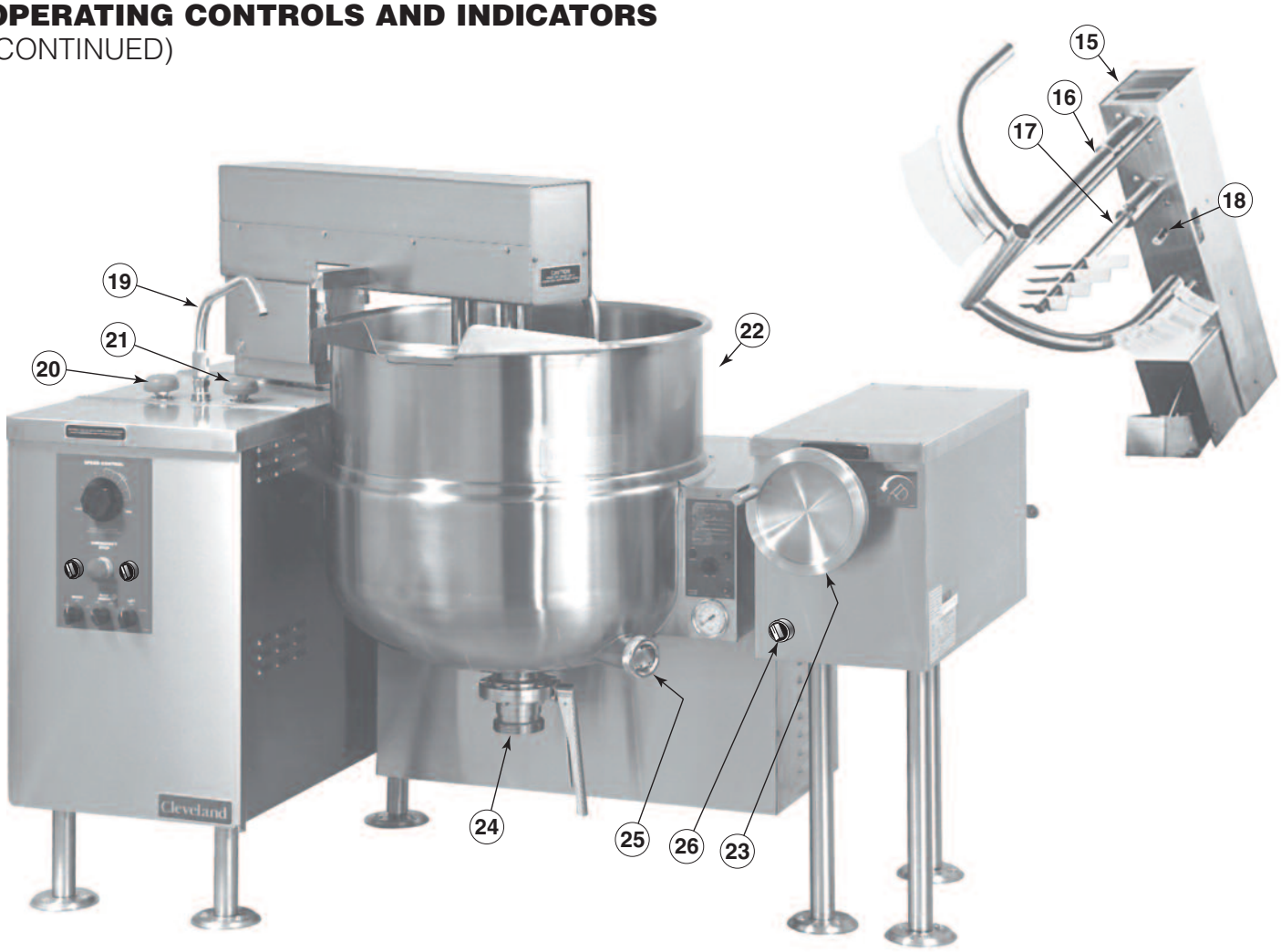
11. WATER METER START SWITCH
Starts water flow to kettle.

12. WATER METER INTERRUPT SWITCH
Interrupts flow without resetting water meter.

13. WATER METER CONTROL
Display and settings for water meter.

14. TIME/TEMPERATURE CHART RECORDER
Documents cooking information.

OPERATING CONTROLS AND INDICATORS
(CONTINUED)



15. MIXER BRIDGE
Encloses agitator motors.

16. MAIN AGITATOR ARM
Provides most of the product movement.

17. SECONDARY AGITATOR ARM
Provides reverse agitation and product lift in kettle.

18. SECONDARY SPEED CONTROL KNOB
Controls speed of secondary agitator arm.

19. FAUCET SPOUT
Delivers water to the kettle.

20. HOT WATER VALVE
Turns on hot water.

21. COLD WATER VALVE
Turns on cold water.

22. 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.

23. HAND TILT WHEEL
Used for tilting the kettle up or down. Replaced by switch on power tilt units.

24. BUTTERFLY VALVE
Discharge valve for product in the kettle.

25. WATER LEVEL SIGHT GLASS
Displays water level in steam jacket.

26. AIR REGULATOR SWITCH
Used to open and close the air valve (optional/not shown).

OPERATING THE KETTLE

Intended Use:

Processing of food and pharmaceuticals in non-residential locations. Not for the making of dough or other heavy dough like products.

Intended Users:

- Supervised and trained staff during production periods.
- Trained maintanance and service personnel.

Removable component weights

Lbs (kg)	40 gal	60 gal	80 gal	100 gal	125 gal	150 gal
Main arm with blades	21 (9.5)	23 (10.4)	25 (11.3)	28 (12.7)	32 (14.5)	32 (14.5)
Baffle arm	7 (3.2)	7 (3.2)	8 (3.6)	10 (4.5)	12 (5.4)	12 (5.4)
Secondary arm	8 (3.6)	8 (3.6)	10 (4.5)	12 (5.4)	13 (5.9)	13 (5.9)
Screen	7 (3.2)	8 (3.6)	9 (4.1)	10 (4.5)	14 (6.4)	14 (6.4)
Air valve complete			12 (5.4)			
Air cylinder only			8 (3.6)			
Air valve body only			4 (1.8)			

Noise level

Noise level maximum 80 Decibels.

Mixing Arm Rotation speeds

Arm	Speed (RPM)
Primary	0-40
Secondary	0-210

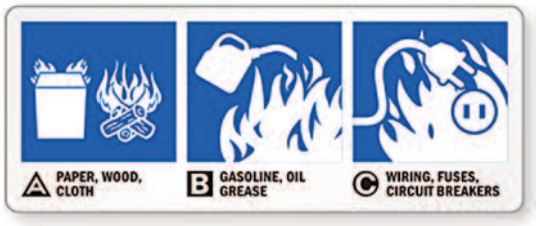
Rim (loading) heights

Rim heights are given below. It is up to owners of the equipment to ensure the operators are performing the loading in a safe and acceptable manner.

Size	Height
40	40.5
60	43.75
80	44.75

Emergency

In the event of a fire or other emergency.



Turn off unit

Shut off power supplies including Electrical, Gas or Steam as applicable. (If safe to do so.)

Using fire extinguishers is only recommended if you are trained and feel safe to do so. Use only Fire extinguishers rated ABC.

This is a pressure vessel and with a properly operating safety valve will not exceed rated pressures. Jacket contains water and trace amounts of rust inhibitor and/or antifreeze.

WARNING:

This unit has been fitted with a warning buzzer for bridge movement and a cover and screen to prevent contact with moving mixer arms. Do not remove or bypass these safeties.

1. Perform daily startup inspection.
2. Preheat the kettle by turning the ON/OFF Temperature Control to the desired temperature setting. The Heat Indicator Light (Green) 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.

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

4. When cooking is completed turn Temperature Control to the "OFF' position.
5. Pour the contents of the kettle into an appropriate container by tilting the kettle forward or using discharge valve.

NOTE: Cleaning should be completed immediately after cooked foods are removed.

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

Operating Suggestions

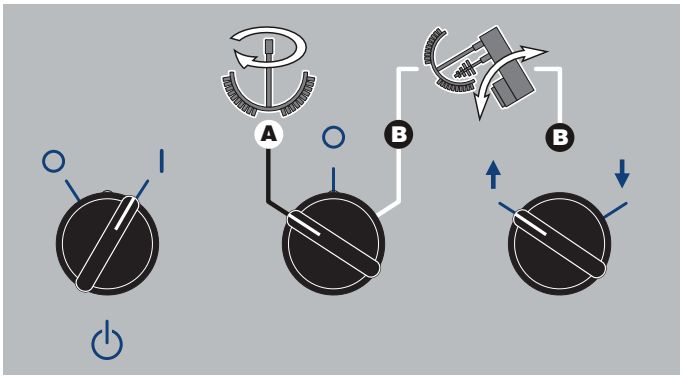
Cleveland Range Mixer Kettles are simple and safe to operate. The following tips will allow you to maximize the use of your new mixer.

If a mixer bridge is equipped with a temperature probe for a controller or thermometer, the probe must be submerged a minimum of three inches in the product for accurate readings.

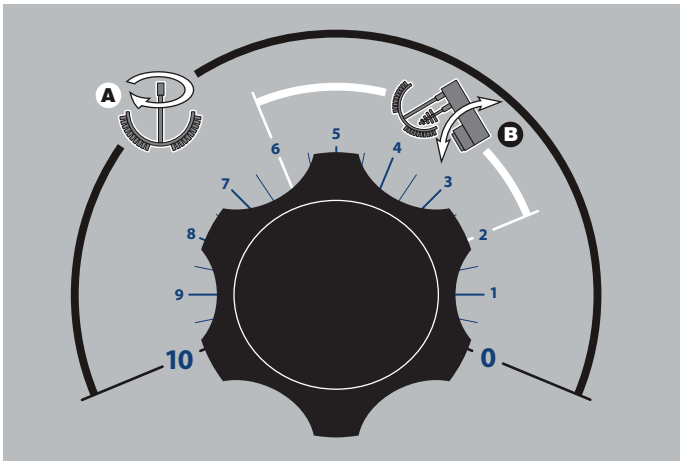
Safety

As a safety precaution the MIXER SPEED CONTROL must first be turned to zero before unit will start to mix.

Always remember, like a cooking pot the kettles become very hot when cooking. Avoid contact with bare skin.



MAIN POWER SWITCH | MIX/LIFT SWITCH | UP/DOWN SWITCH



MIXER SPEED CONTROL SWITCH

General Operation

1. Turn MAIN POWER SWITCH on.
2. Turn Steam Control Valve to control heat kettle.

Lifting & Lowering Bridge

WARNING: Insure FAUCET SPOUT is out of way before raising or lowering bridge.

1. Turn MIX/LIFT SWITCH to lift icon "A".
2. Turn MIXER SPEED CONTROL to "0" and back up to "5".
3. Turn and hold UP/DOWN SWITCH to up arrow to raise or down arrow to lower.

Mixing

1. Turn MIX/LIFT SWITCH to mix icon "B".
2. Turn MIXER SPEED CONTROL SWITCH to "0" and slowly adjust to desired speed.
3. Adjust SECONDARY SPEED CONTROL KNOB to desired speed.

Tilting Kettle

1. Raise MIXER BRIDGE and swing to side.
2. For manual tilt: Turn HANDWHEEL.
3. For power tilt: Turn POWER TILT CONTROL SWITCH.

WARNING: Do not tilt kettle when mixer agitators are in kettle bowl.

Product Discharge Valve

1. For butterfly valve: Push handle in and pull upwards to open.
2. For air valve: Turn Air Regulator Switch to open or close.

CLEANING INSTRUCTIONS

CARE AND CLEANING

Cooking equipment must be cleaned regularly to maintain its fast, efficient cooking performance and to ensure its continued safe, reliable operation. The best time to clean is shortly after each use (allow unit to cool to a safe temperature).

WARNINGS

Chloride Cleaners

Do not use detergents or cleansers that are chloride based or contain quaternary salt.

Wire Brush & Scrapers

Do not use a metal bristle brush or scraper.

Steel Pads

Steel wool should never be used for cleaning the stainless steel.

High Pressure Spray Hose

Unit should never be cleaned with a high pressure spray hose.

Stagnant Water

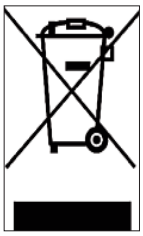
Do not leave water sitting in unit when not in use.

CLEANING INSTRUCTIONS

1. Turn unit off.
2. Remove drain screen (if applicable). Thoroughly wash and rinse the screen either in a sink or a dishwasher.
3. Prepare a warm water and mild detergent solution in the unit.
4. Remove food soil using a nylon brush.
5. Loosen food which is stuck by allowing it to soak at a low temperature setting.
6. Drain unit.
7. Rinse interior thoroughly.
8. If the unit is equipped with a Tangent Draw-Off Valve, clean as follows:
   a) 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.
   b) In a sink, wash and rinse the inside of the valve body using a nylon brush.
   c) Use a nylon brush to clean tangent draw-off tube.
   d) Rinse with fresh water.
   e) Reassemble the draw-off valve by reversing the procedure for disassembly. The valve's hex nut should be hand tight only.
9. If the unit is equipped with a Butterfly Valve, clean as follows:
   a) Place valve in open position.
   b) Wash using a warm water and mild detergent solution.
   c) Remove food deposits using a nylon brush.
   d) Rinse with fresh water.
   e) Leave valve open when unit is not in use.
10. If the unit is equipped with an Air Valve, clean as follows:
    a) Open product valve.
    b) Disconnect air hoses.
    c) Remove air cylinder.
    d) Remove valve tee.
    e) Remove all O-rings.
    f) Clean air cylinder, do not submerge in water. Wipe clean and sanitize.
    g) Clean and sanitize tee and O-rings.
    h) Grease and reinstall O-rings.
    i) Reinstall valve tee to kettle outlet.
    j) Reinstall air cylinder to bottom of tee.
    k) Reconnect air hoses.
    l) Close valve and check for alignment.
11. Clean the scraper blades as follows:
    a) Remove retaining ring and slide scraper blades off agitator arm.
    b) Place parts in a pan of warm water to soak.
    c Clean in a sink, using a warm water and mild detergent solution.
    d) Rinse with fresh water.
    e) Allow to dry thoroughly on a flat, clean surface.
12. Using mild soapy water and a damp sponge, wash the exterior, rinse, and dry.

NOTES

- ⇨ For more difficult cleaning applications one of the following can be used: alcohol, baking soda, vinegar, or a solution of ammonia in water.
- ⇨ Leave the cover off when the kettle is not in use.
- ⇨ For more detailed instructions refer to Stainless Steel Equipment Care and Cleaning (www.nafem.org/resources/stainlesssteelfinal.doc) on Nafem's website (www.nafem.org).



DISPOSAL INSTRUCTIONS

This unit is recyclable. Do not dispose in landfill.

The unit may contain rust inhibitor and or antifreeze within the jacket. Drain unit and dispose following Federal, State and local regulations.

The majority of the unit is composed of stainless steel. Other alloys and electrical components make up a small percentage of the total. Follow Federal, state and local regulations for disposal.

PREVENTATIVE MAINTENANCE

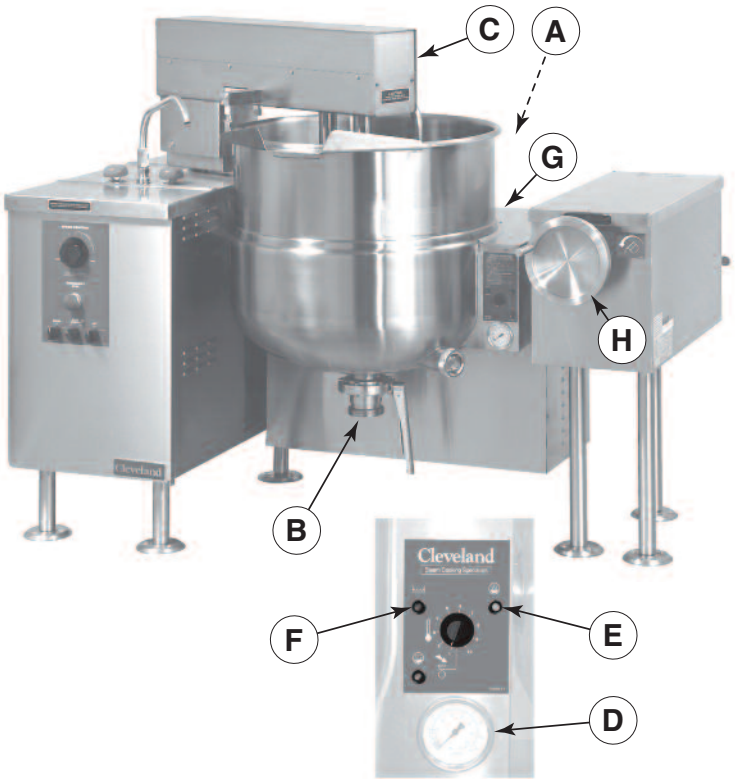
FOR MAINTENANCE AND REPAIRS CONTACT YOUR AUTHORIZED MANITOWOC SERVICE AGENCY AND HAVE A QUALIFIED SERVICE TECHNICIAN MAINTAIN YOUR EQUIPMENT.

WARNING:

If for any reason this unit is not functioning correctly DO NOT OPERATE. Contact your authorized service agent.

DAILY PRE-STARTUP INSPECTION

1. Flue (A) is not obstructed.
2. Product Discharge Valve (B) and opens and closes.
4. Bridge (C) lifts up and screen is in place.
5. Pressure Gauge (D) is in the green when unit is cold.
6. Green Light (E) comes on when unit is energized.
7. Red Light (F) comes on when unit is tilted).
8. All switches are functioning correctly.



SIX MONTH SERVICE INSPECTION

1. Perform daily startup inspection.
2. Gasket (G) around top cover is in good condition.
3. Tilt hand (H) wheel is tight.
4. Grease bearings on both trunnions.
5. Check for play in gears (adjust if required).
6. Fasteners securing panels are in place and tight.
7. Perform pressure relief valve periodic test (see Pressure Relief Valve Testing).
8. Adequate exhaust and makeup air is supplied to working area.
9. Check for hydraulic leaks.
10. Check safety systems have not been bypassed.

YEARLY SERVICE INSPECTION

1. Perform six month service inspection.
2. Check kettle maximum temperature setting (see Calibrating Procedure).
3. Inspect safety thermostat for proper connections (see Safety Thermostat).
4. Inspect Low water probe for proper connections (see Low Water Level Probe).
5. Inspect safety valve installation (see SAFETY VALVE INSTALLATION).
6. Clean blower.
7. Perform free air calculation (see FREE AIR CALCULATION).
8. Replace hydralic oil and filter.

TROUBLESHOOTING AND MAINTENANCE PROCEDURES

The following trouble shooting guide and maintenance procedures are meant to be used by Qualified Service Technician

ANY REPAIRS TO THE PRESSURE VESSEL MUST BE DONE BY A CERTIFIED PRESSURE VESSEL REPAIR SHOP AND ALL REPAIR METHODS AND MATERIALS MUST BE APPROVED BY THE MANUFACTURER.

For periodic maintenance recommendations see "Operators Manual".

Extreme caution must be taken if unit is electrically energized for testing. Remove power from the unit while servicing.

SPARE PARTS LIST

PART NO.	*DESCRIPTION*	*QTY.*
KE51834	Scraper Blades	5
KE00860	Speed Control Cable Assembly	1
KE52936-6	Fuse, 3 Amp	2
KE50753-10	Relay	2-5
KE52936-16	Fuse	2
KE603208-9	Contact Block, Normally Open	2
KE603208-8	Contact Block, Normally Closed	2

MECHANICAL CHECKS

1. Inspect controls, replace damaged seals, switches, LED's etc..
2. Remove the console cover and check that the seal is not cracked or split. Replace seal, screws, missing or worn nylon anchor nuts. **Leave cover off**.
3. Remove the kettle bottom cover and check that the seal is not cracked or split. **Leave cover off**.

4. For units with tilt crank-

A. Check that the kettle tilts smoothly. If there is excess play adjust the worm to gear clearance with Locking Nuts or Adjusting Screw as required.

B. Check that there is no excessive wear in the trunnion bearings.

C. Apply grease to gear teeth and bearings.

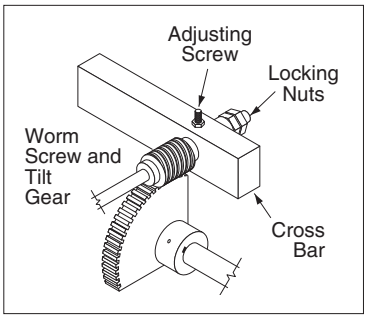
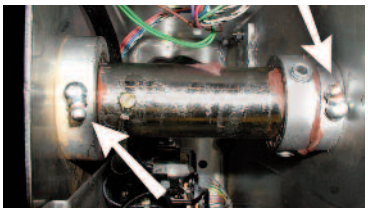
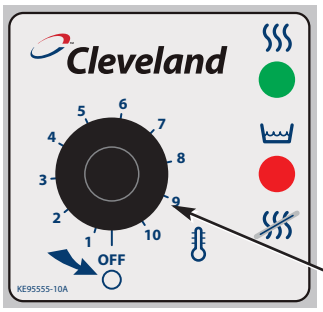


Illustration inverted for clarity.



Grease Nipples.

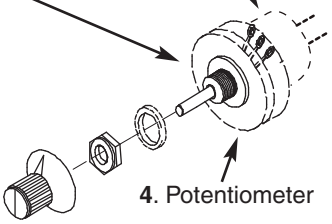
TROUBLESHOOTING GUIDES *(Legend)*



1. Green Light

2. Red Light

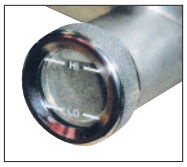
3. ON/OFF Switch



4. Potentiometer

6. Pressure Gauge

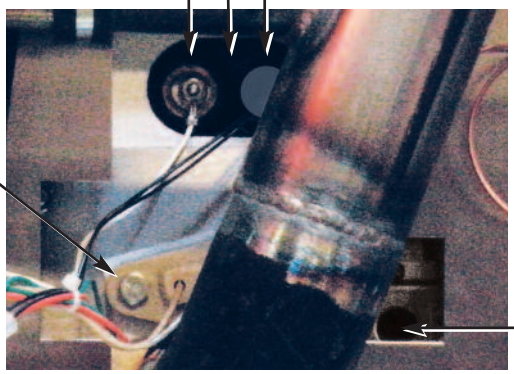
5. Kettle Jacket Water Sight Glass



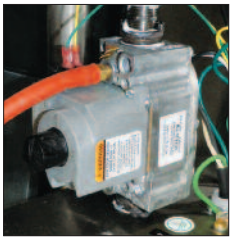
16. High Limit Tube

9. Water Level Probe

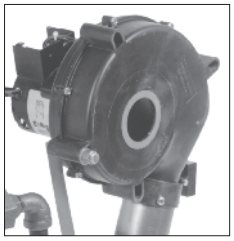
10.Thermistor



11. Ignitor



7. Gas Valve (showing hose for pressure tap)



8. Blower

12. Flame Sight Glass

1. Green Light
2. Red Light
3. ON/OFF Switch
4. Potentiometer
5. Kettle Jacket Water Sight Glass
6. Pressure Gauge
7. Gas Valve
8. Blower
9. Water Level Probe
10. Thermistor
11. Ignitor
12. Sight Glass
13. 14V Transformer
14. 24V Igniton Transformer
15. SSK Controller
16. High Limit
17. Ignition Module
18. Relay
19. Air Switch

15. SSK Controller

13. 14V Transformer

14. 24V Igniton Transformer

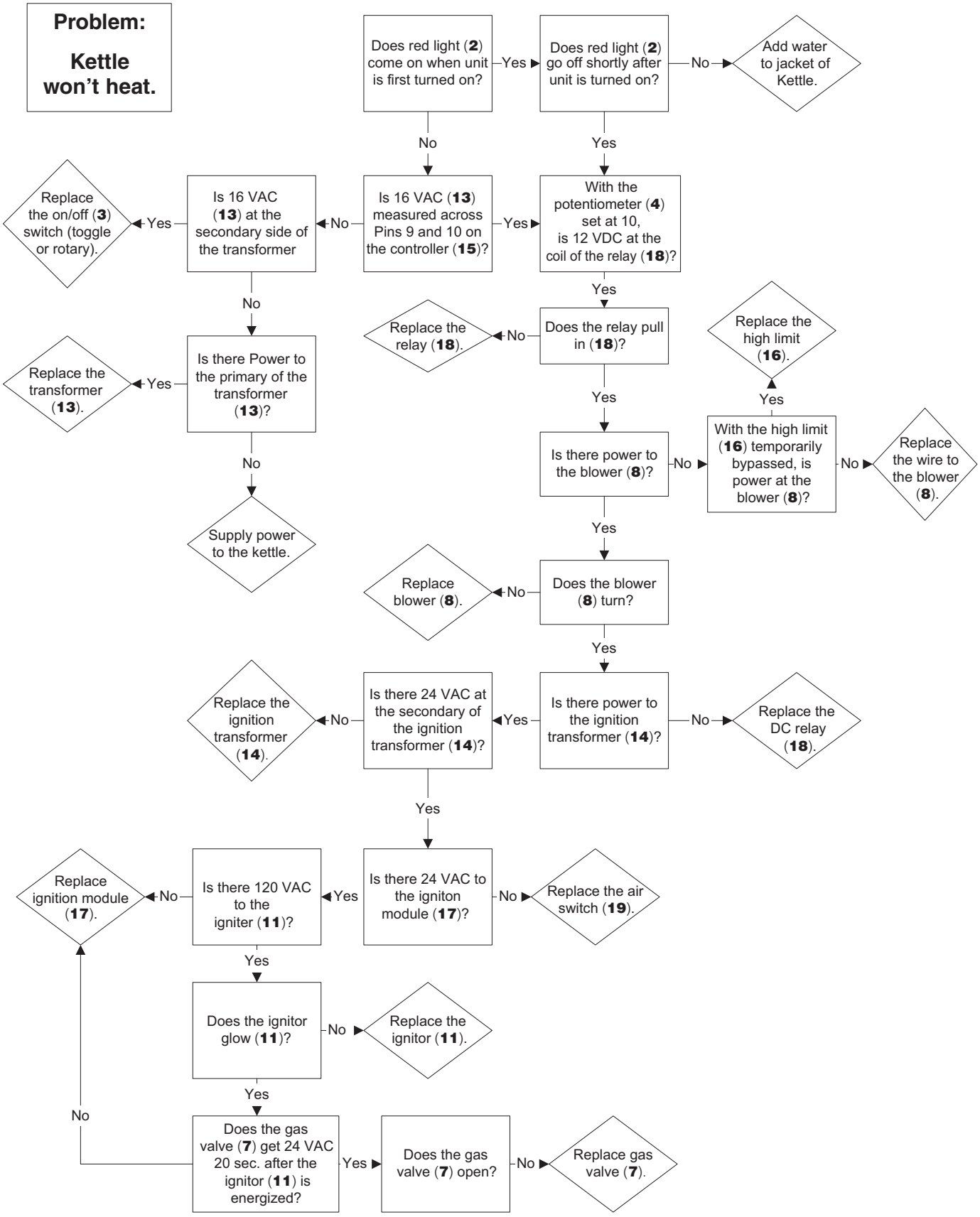
16. High Limit

17. Ignition Module

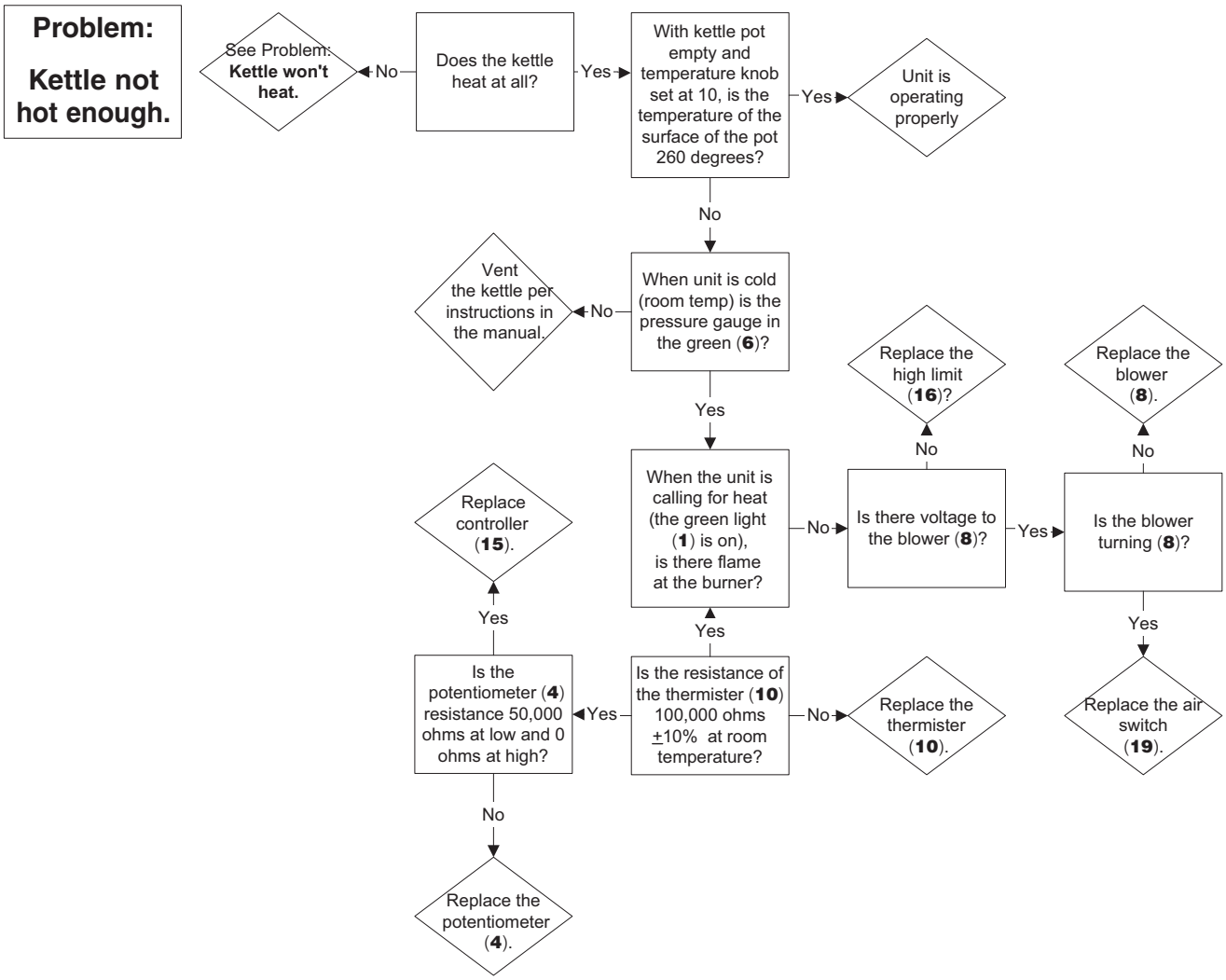
18. Relay

19. Air Switch

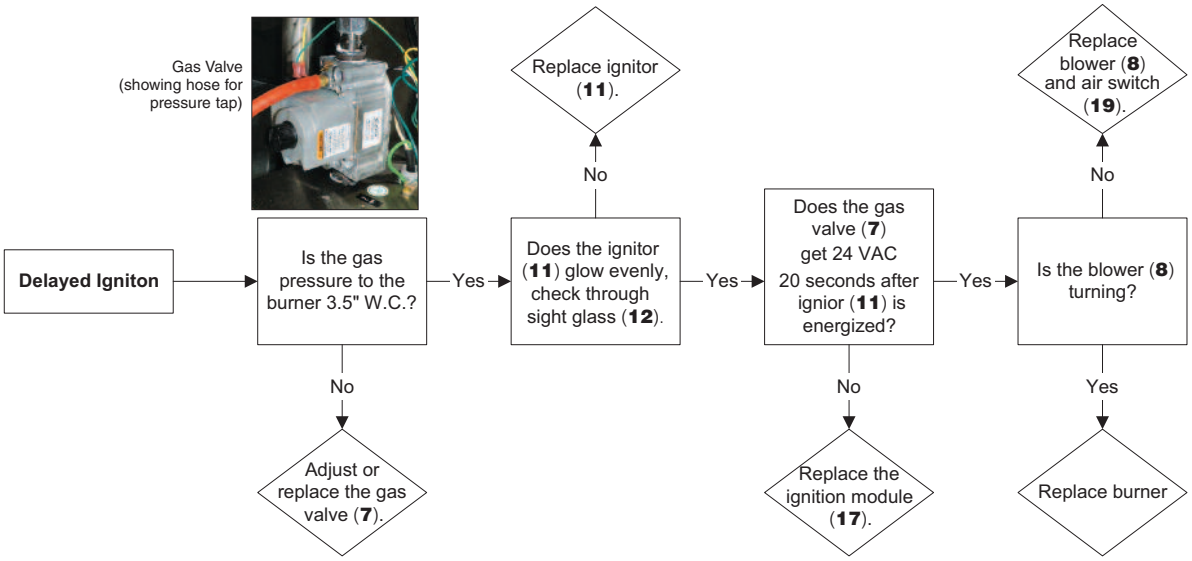
TROUBLESHOOTING GUIDES *(continued)*



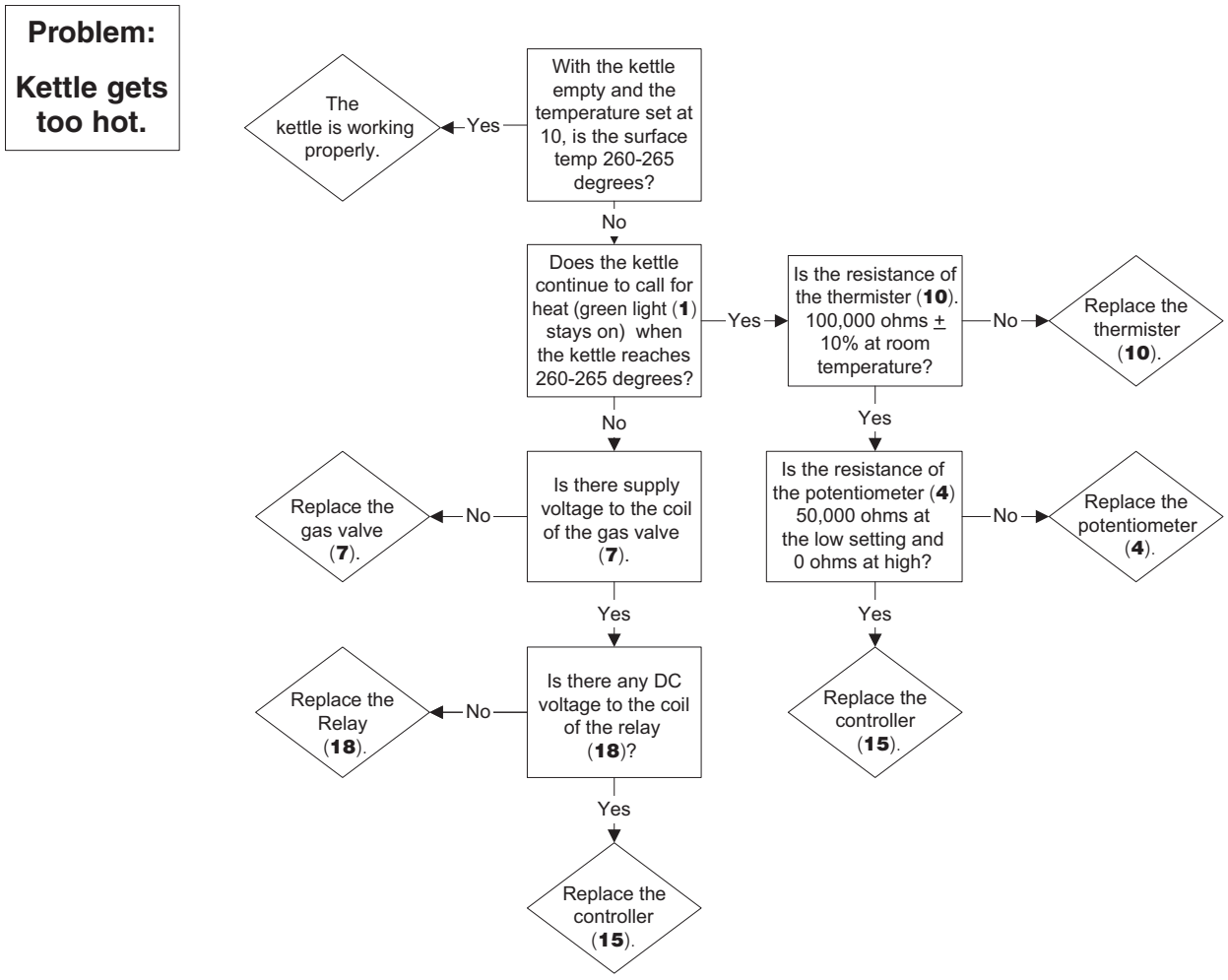
TROUBLESHOOTING GUIDES *(continued)*



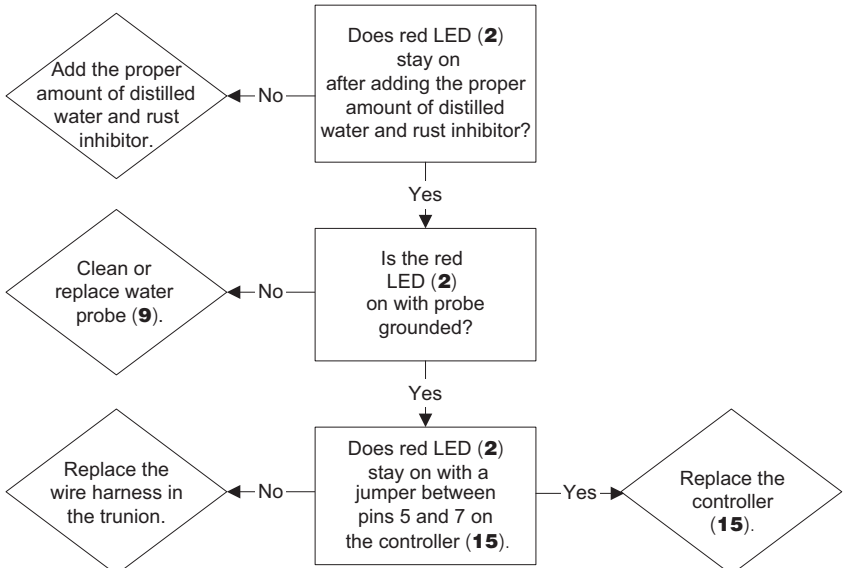
PROBLEM: Kettle Has Delayed Ignition



TROUBLESHOOTING GUIDES *(continued)*

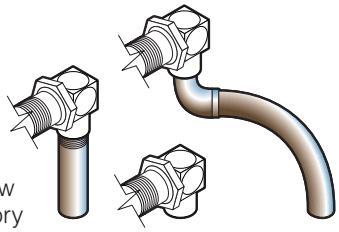


PROBLEM: Red LED Stays On



KETTLE SAFETY INSPECTION AND TESTING

SAFETY VALVE INSTALLATION:

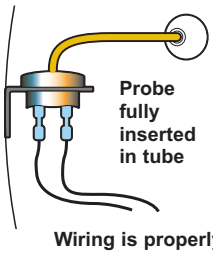


The above illustrations show the three variations of factory installed Safety Valves.

Modifications are unacceptable.

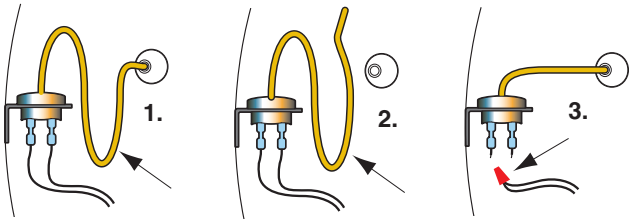
SAFETY THERMOSTAT:

Correct Installation



Wiring is properly connected

Incorrect Installations

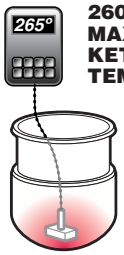


Probe removed partially | **Probe removed completely** | **Thermostat electrically bypassed**

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.

OPERATING THERMOSTAT:

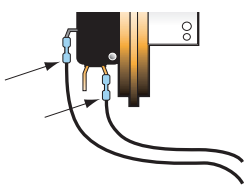
If maximum temperature is not in this range (on empty kettle), refer to the “Calibrating Procedure”.



260° - 270° F MAXIMUM KETTLE TEMPERATURE

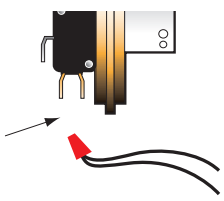
GAS KETTLE AIR SWITCH:

Correct



Wiring is properly connected

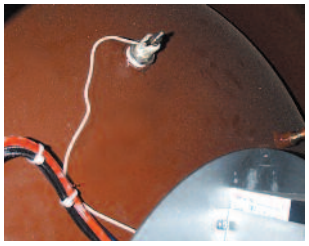
Incorrect

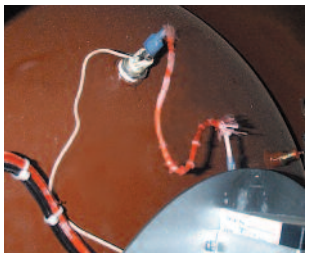


Switch electrically bypassed

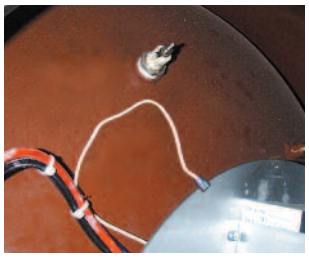
LOW WATER LEVEL PROBE:

Probe properly attached ✔



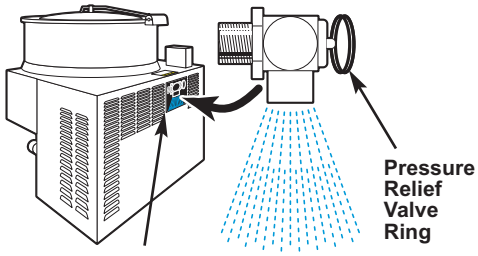


✘ **Probe bypassed by running (A) an additional wire**

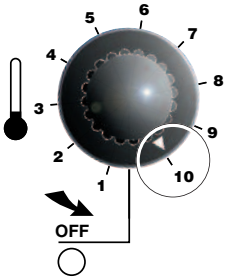


✘ **Probe bypassed by (B) grounding the connecting wire**

PRESSURE RELIEF VALVE TESTING



WARNING: Use of gloves and eye protection to prevent personal injury.



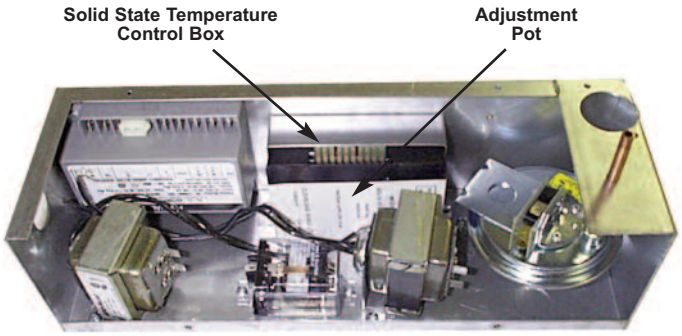
1. With the kettle empty, set On-Off Switch/Temperature Control to "**10**" (Max.). Allow the kettle to heat until the unit cycles off.
2. Switch On-Off Switch/Temperature Control to "**0**" (Off) and disconnect main power at fused disconnect switch.
3. Remove Access Panel at back of main kettle console.
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.
5. Replace access panel.

IMPORTANT:

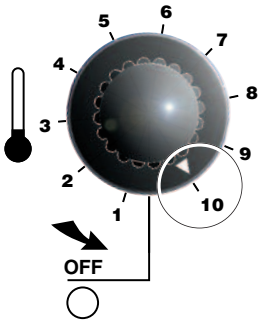
If valve appears to be sticking replace pressure relief valve.

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

CALIBRATING PROCEDURE



1. Insure the unit has a vacuum before you begin calibrating procedures. If unit requires venting refer to KETTLE VENTING INSTRUCTIONS.
2. Set On-Off Switch/Temperature Control to "**10**" (Max.).
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.

FREE AIR CALCULATION

Insert drager pump tube 4" down the center of the flue and take one sample each of Carbon Dioxide (CO2) and Carbon Monoxide (CO) and record results.

_____ % CO (PPM) _____ % CO2

With results obtained for CO2 use chart to determine dilution factor for gas type used.

_____ Dilution Factor

Enter these numbers in the following formula to determine the concentration of carbon monoxide in an air free sample of flue gas.

$$\text{Dilution Factor} \times \frac{\text{CO (PPM)}}{10{,}000} = \underline{\qquad\qquad} \text{ \% Carbon Monoxide}$$

Result must not exceed 0.08% carbon monoxide.

CARBON DIOXIDE IN SAMPLE (PERCENT)	FACTOR PROPANE GAS	FACTOR NATURAL GAS
4.0	3.50	3.05
4.2	3.33	2.90
4.4	3.18	2.77
4.6	3.04	2.65
4.8	2.92	2.54
5.0	2.80	2.44
5.2	2.69	2.34
5.4	2.59	2.26
5.6	2.50	2.18
5.8	2.41	2.10
6.0	2.33	2.03
6.2	2.26	1.97
6.4	2.19	1.91
6.6	2.12	1.85
6.8	2.06	1.80
7.0	2.00	1.74
7.2	1.94	1.70
7.4	1.89	1.65
7.6	1.84	1.61
7.8	1.79	1.56
8.0	1.75	1.53
8.2	1.71	1.49
8.4	1.67	1.45
8.6	1.63	1.42
8.8	1.59	1.39
9.0	1.56	1.36
9.2	1.52	1.33
9.4	1.49	1.30
9.6	1.46	1.27
9.8	1.43	1.24
10.0	1.40	1.22

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.

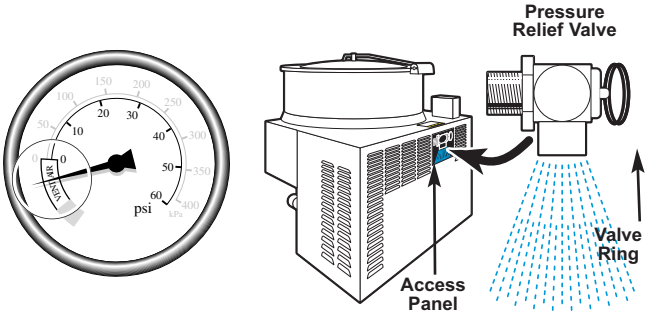
4. Sight Glass

   A/ Check tightness of sight glass.

   B/ Replace "O" ring if required.

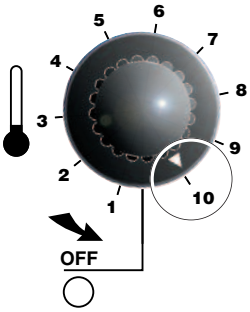
5. If unsuccessfull, repeat this process, replacing all fittings and components.

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).

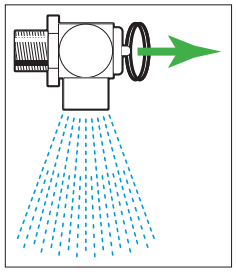


1. Remove Access Panel from back of main kettle console.

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.

RESERVOIR FILL PROCEDURES

WARNING:

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

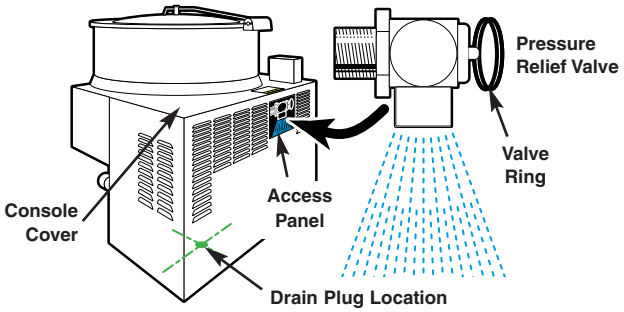
The kettle's water level must be maintained at the proper level. Under normal operating conditions, the sealed water reservoir should never require the addition of water.

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:

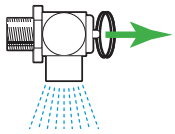
NOTE: Have a qualified service technician repair the leakage problem and add water to the unit. Ensure that the red "low water" light is on when the kettle is upright. On tilting kettles, it is normal for the red light to come on when the kettle is in a tilted position.

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).

Sight Glass

KETTLE JACKET CLEANOUT AND PASSIVATION PROCEDURES

The following procedure should be preformed at least once every three years to prevent possible corrosion and ensure the optimum life of the kettle.

RUST INHIBITOR

Use a “radiator rust inhibitor” that can be purchased at your local automotive centre. It should not contain any anti-freeze and preferably no lubricant.

To ensure satisfactory mixing follow the manufacturer’s instructions.

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

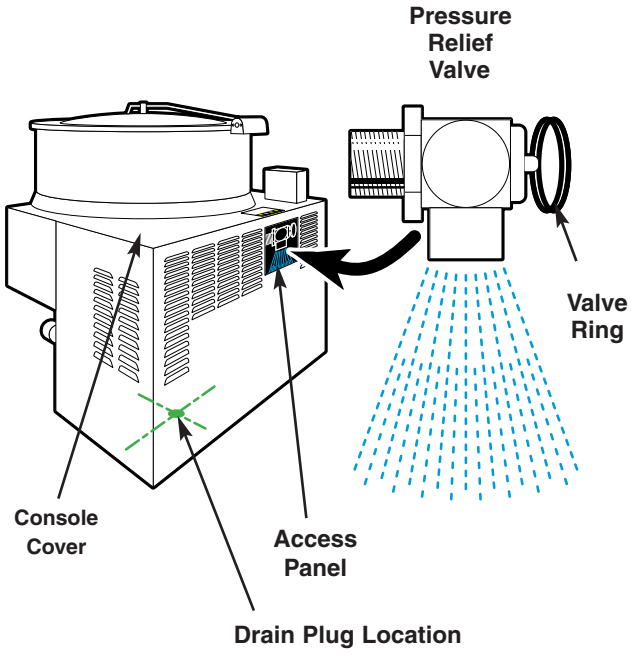
DANGER:

Rust inhibitor can be dangerous.

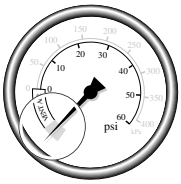
Read label and follow safety instructions.

WARNING:

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



PRESSURE RELIEF VALVE PERIODIC TESTING PROCE\URE



1. Ensure kettle is at room temperature and pressure gauge showing zero or less pressure.
2. Shut off and disconnect gas supply.
3. Remove electrical plug from power source.
4. Remove bolts holding kettle to tabletop.
5. Pull ring on pressure relief valve to insure there is no pressure within the kettle jacket.
6. Remove pressure relief valve.
7. Replace pressure relief valve with street elbow (see above illustration).
8. Remove sight glass from left side of kettle.
9. Tilt kettle on its side (sight glass opening facing downwards) and allow to drain. Flush out with water.
10. Tilt kettle upright, apply a thread sealant (i.e. Teflon tape) to the sight glass threads and replace.
11. Refer to chart below to determine the required volume of water.

Kettle Size	Volume of Mixture	
	U.S. Gal.	Liters
6 U.S. Gal.	1.6	5.8
12 U.S. Gal.	2.2	8.3

12. In a separate container mix water with the required rust inhibitor.
13. Fill jacket via the street elbow with the mixture.
14. Remove street elbow.
15. Apply a thread sealant (i.e. Teflon tape) to the pressure relief valve and replace.
16. Reconnect gas and electrical supplies.
17. Turn kettle on, vent and heat to high for 1/2 hour.
18. Cool kettle.
19. Repeat steps 5-15.
20. Replace bolts holding kettle to tabletop.
21. Reconnect gas and electrical supplies.
22. Turn kettle on and vent kettle.

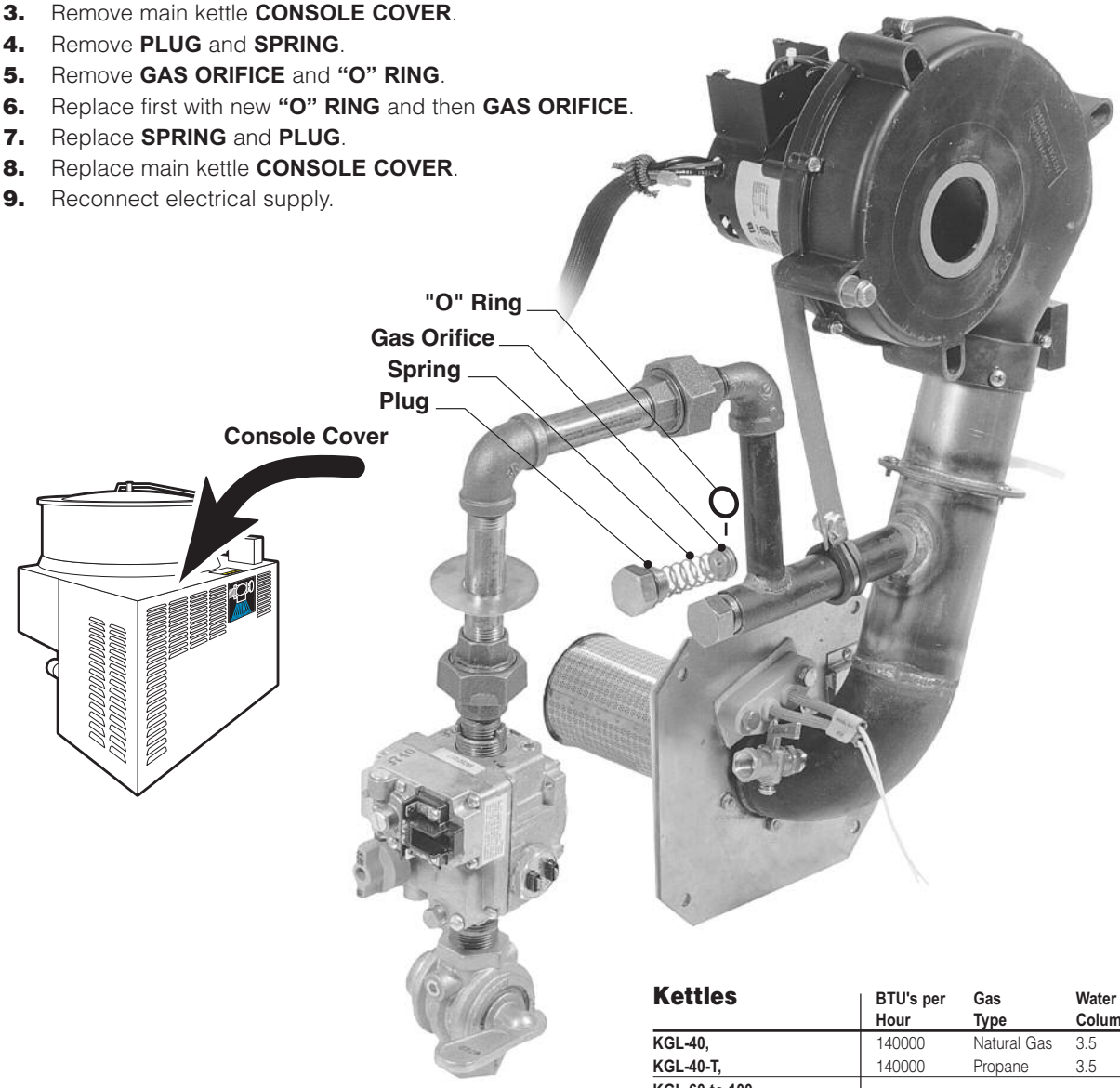
GAS CONVERSION KITS

See Product Bulletin # KE603901.

GAS KETTLE ORIFICE REPLACEMENT

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

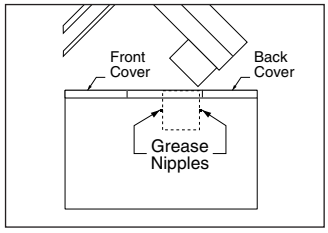
1. Disconnect electrical connection.
2. Shut off main gas supply and disconnect kettle from supply line.
3. Remove main kettle **CONSOLE COVER**.
4. Remove **PLUG** and **SPRING**.
5. Remove **GAS ORIFICE** and **"O" RING**.
6. Replace first with new **"O" RING** and then **GAS ORIFICE**.
7. Replace **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,** **KGL-40-TSH,** **KGL-40-F to 60-F,** **KGL-40-SH to 60-SH,**	190000 190000	Natural Gas Propane	3.5 3.5	1 1

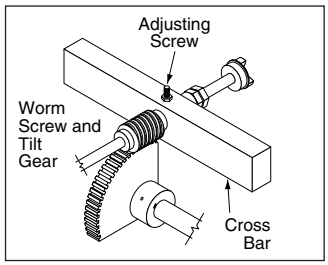
LUBRICATION

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



MIXER BRIDGE HOUSING

There are two grease nipples on the mixer bridge swivel housing which are accessed by removing the front and back covers on the 18" console.



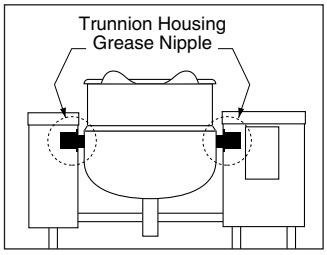
TRUNNION HOUSING, WORM SCREW AND TILT GEAR

These parts are accessed through the front cover on the 18" console.

Apply grease to gear teeth. Check for excessive play and adjust with adjusting screw located on top of cross bar.

KETTLE TRUNNIONS

Accessed via the top covers on the 10" and 18" consoles. Each has two grease nipples.



HYDRAULIC OIL REPLACEMENT PROCEDURE

One of the most important maintenance tasks is to change the hydraulic oil yearly. Under heavy usage the oil should be changed every nine months. It is important to change the oil regularly to prevent its breakdown which leads to the damaging of components.

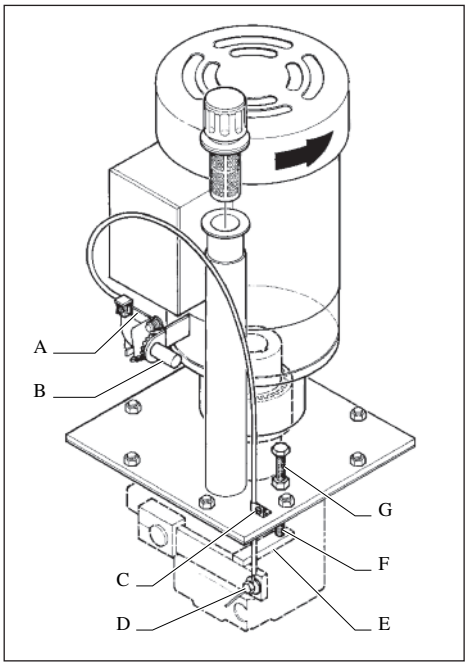
The oil filter should be changed at the same time as the hydraulic oil. A clean filter prevents particles from damaging the other components in the system.

Replace the hydraulic fluid as follows:

⇒ Disconnect power to unit.
⇒ Remover the front top panel on the main console.
⇒ Remove chrome vent cap from breather pipe located beside electric motor.
⇒ Remove plug bolt from bottom left front corner of main console to drain oil into your catch pail.
⇒ Remove oil filter.
⇒ Replace plug bolt.
⇒ Refill unit through breather pipe using approximately 12 U.S. gallons of Tellus 32 hydraulic oil (oil should be 6 1/2" deep in tank).
⇒ Install new oil filter (Part# SE50094).
⇒ Replace chrome vent cap and front top panel.
⇒ Reconnect power to unit.
⇒ Run unit to remove any air in the lines.

NOTE: Mixer may run rough and noisy for one or two hours if air has become trapped in the line.

RE-INSTALLING SPEED CONTROL CABLE

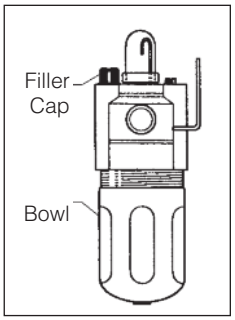


1. Turn sprocket of speed control so that wire."**A**" is fully extended towards shaft "**B**".
2. Insert end of cable through bracket "**C**".
3. Insert wire so it protrudes approximately 1/2" to 5/8" through hole in bolt "**D**". Tighten bolt and bend end of wire.
4. Bring pump arm "**E**" up until it hits stop bolt "**F**" and tighten screw "**C**".
5. Reassemble unit. Speed control knob will go on pointing toward minimum setting.
6. Turn mixer on with speed control set at minimum setting.
7. If scraper arm is turning, loosen nut "**G**" and back stop bolt "**F**" off a few turns. Next loosen screw "**C**" and slowly pull up cable until scraper arm stops turning. Retighten screw "**C**". Gently turn stop bolt "**F**" down until it hits arm. Lock in place by tightening nut "**G**".
8. Scraper arm should now go from no rotation to fast rotation by turning speed control knob.

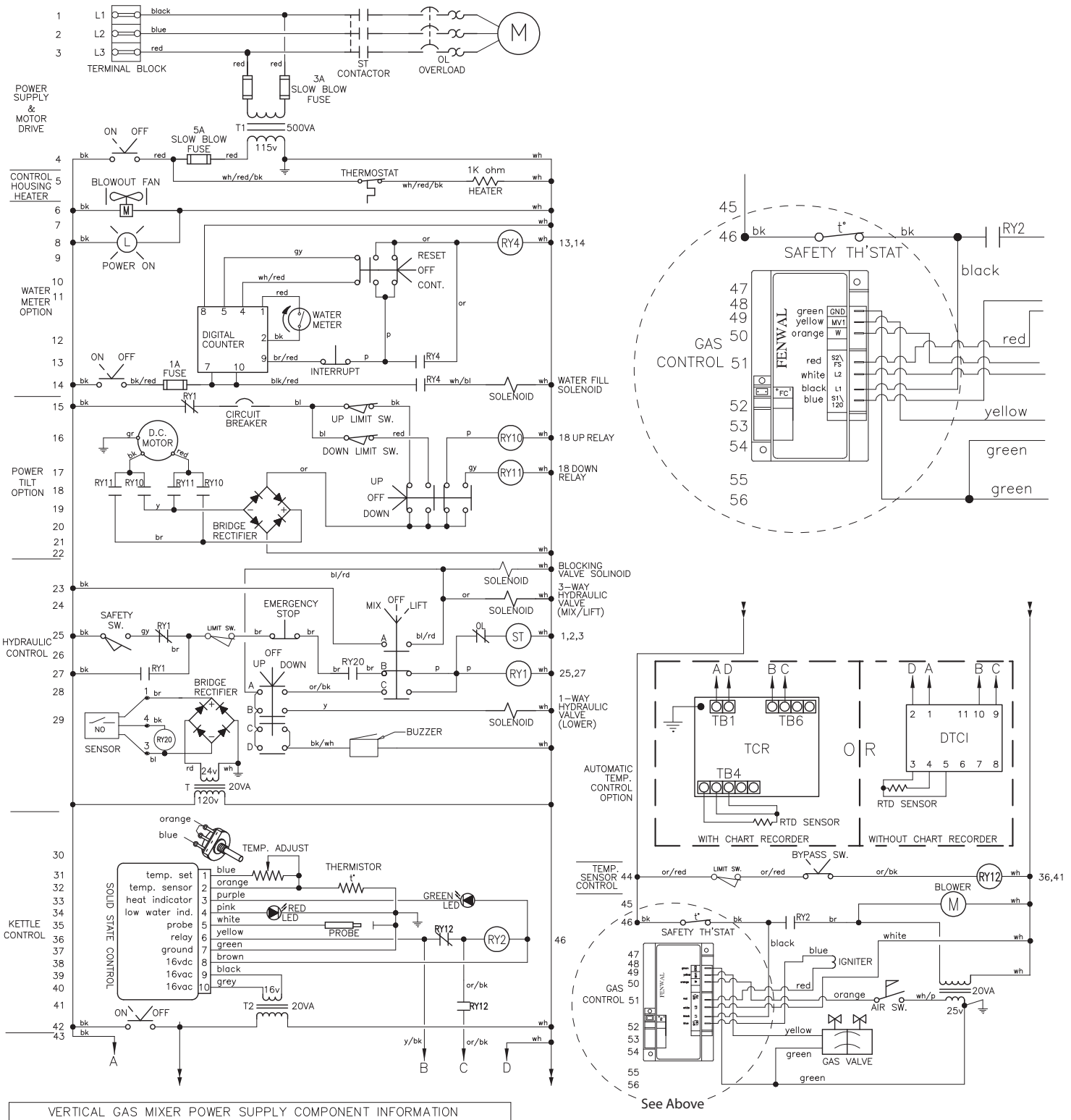
NOTE: Mixer may run rough and noisy for one or two hours if air has become trapped in the line.

AIR LINE LUBRICATOR OIL FILLING PROCEDURE

1. Disconnect air supply and bleed system.
2. Remove cover on console
3. Check for oiler location.
4. Inspect oil level in bowl.
5. Remove filler cap.
6. Add mineral oil as required.
7. Replace filler cap and console cover.



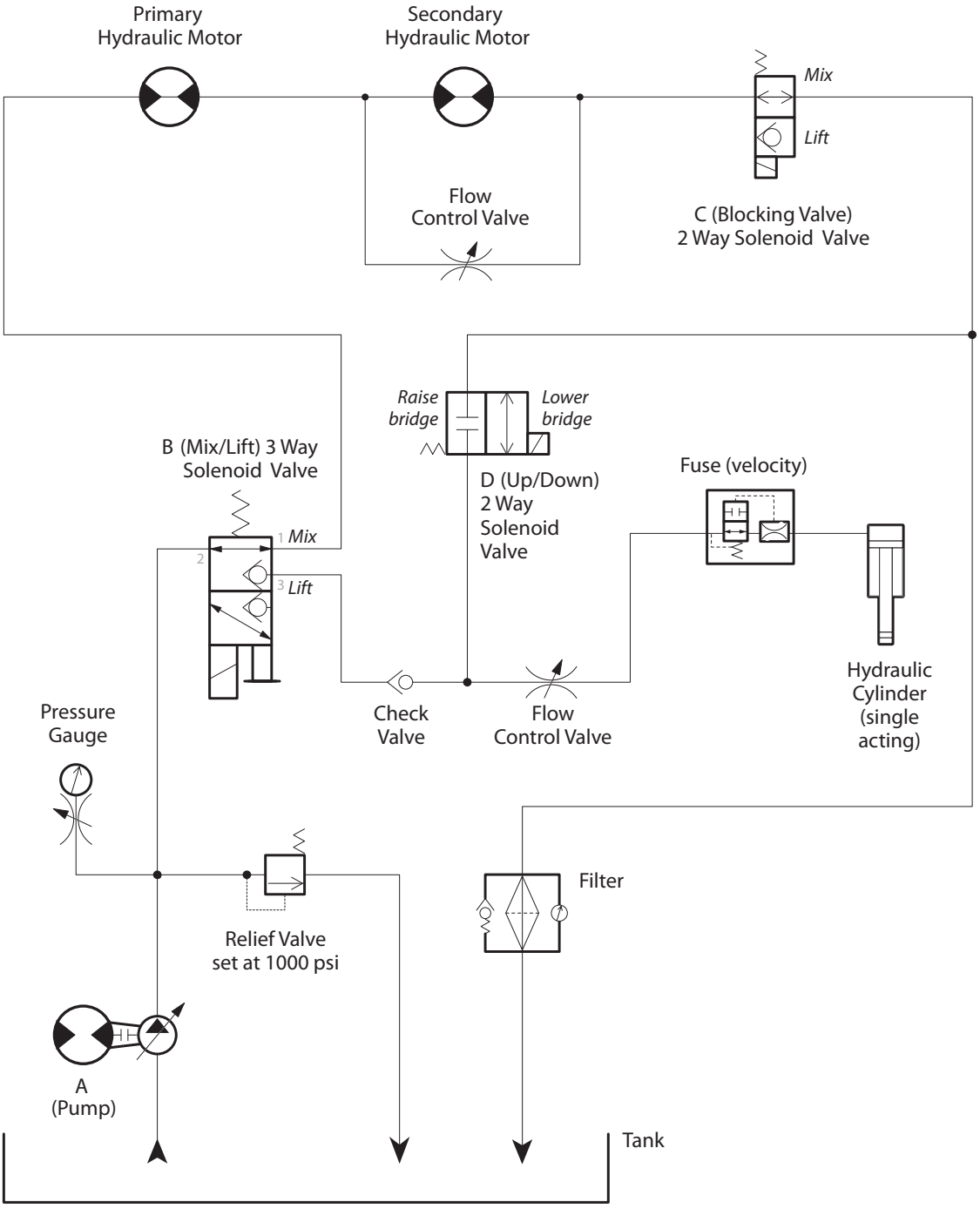
WIRING DIAGRAM (consult factory for other wiring configurations)



VERTICAL GAS MIXER POWER SUPPLY COMPONENT INFORMATION				
VOLTAGE	TRANSFORMER PART #	Hz	OVERLOAD RELAY	HEATER FOR 3 HP. MOTOR
200–240	KE53838–2	50/60	KE51982	KE52055
380–415	KE53838–3 & –11			
440–480	KE53838–2			
600	KE53838–4	60		KE52051

MKGL–T WITH ALL THE OPTIONS
KE90426–2 T

FLOW PATH FOR HYDRAULIC SYSTEM



Switch	*Position*	*Valve Energized*			
		A (Pump)	B (Mix/Lift)	C (Blocking Valve)	D (Up/Down)
Lift/Mix	*Mix*	X			
	Off				
	Lift		X	X	
Up/Down	*Up*	X			
	Off				
	Down				X

SERVICE PARTS

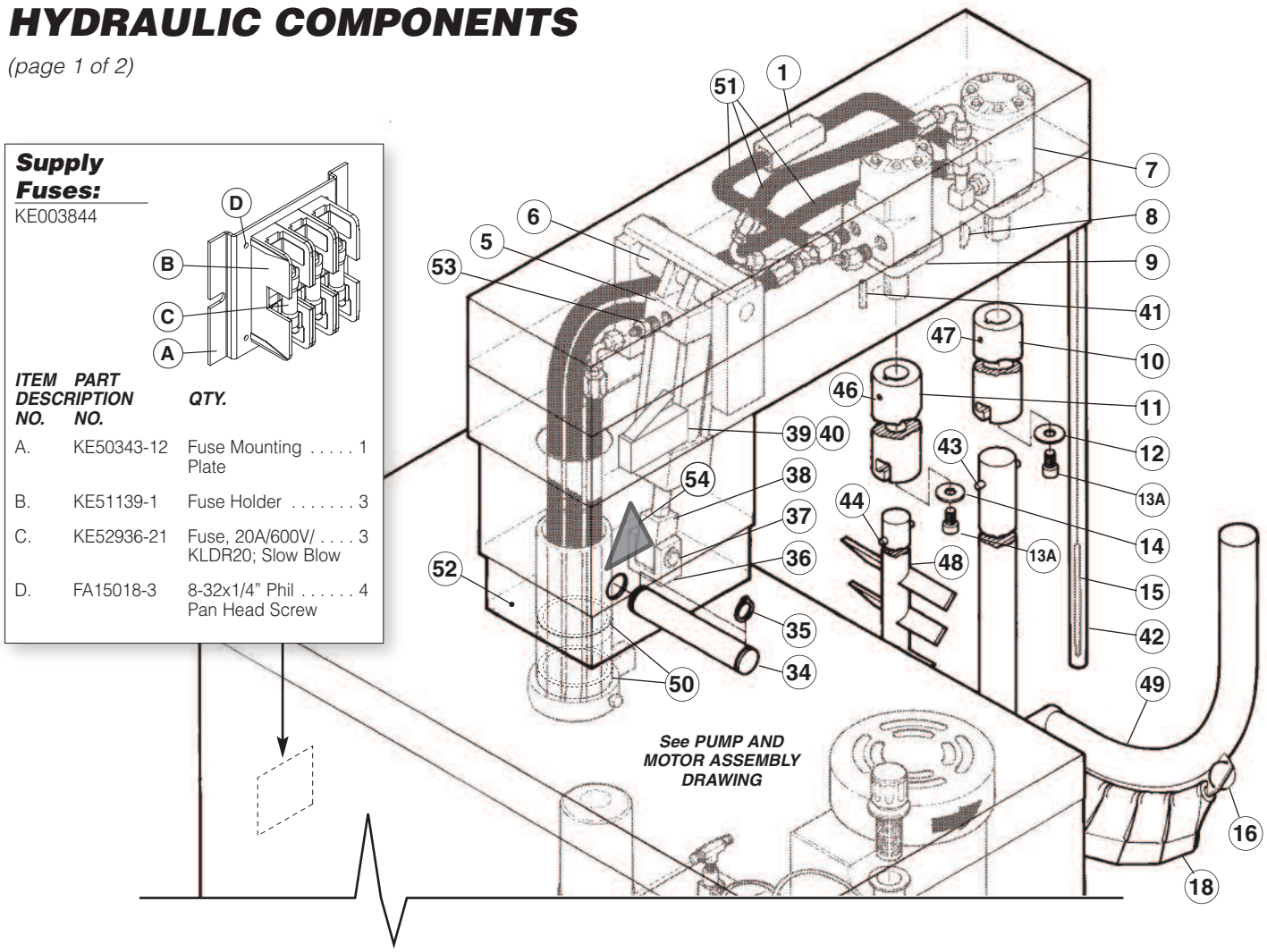
WARRANTY

Our Company supports a worldwide network of Maintenance and Repair Centers. Contact your nearest Maintenance and Repair Centre for replacement parts, service, or information regarding the proper maintenance and repair of your cooking equipment

In order to preserve the various agency safety certification (UL, NSF, ASME/Ntl. Bd., etc.), only factory-supplied replacement parts should be used. The use of other than factory supplied replacement parts will void warranty.

HYDRAULIC COMPONENTS

(page 1 of 2)



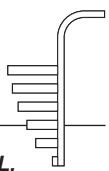
Supply Fuses:
KE003844

ITEM NO.	PART NO.	DESCRIPTION	QTY.
A.	KE50343-12	Fuse Mounting Plate	1
B.	KE51139-1	Fuse Holder	3
C.	KE52936-21	Fuse, 20A/600V/ KLDR20; Slow Blow	3
D.	FA15018-3	8-32x1/4" Phil Pan Head Screw	4

Scraper Blades:
KE651834

KETTLE SIZE - GAL.	QUANTITY
40	22
60	26
80	30
100	34
125	38
150	38

Baffle Arms:



KETTLE SIZE - GAL.	
40	KE01682-1
60	KE01682-2
80	KE01682-3
100	KE01682-4
125	KE01682-5
150	KE01682-6

Cooling Fan:

Fan	KE54860
Fan Cover	KE601236
Fan Guard	KE54861

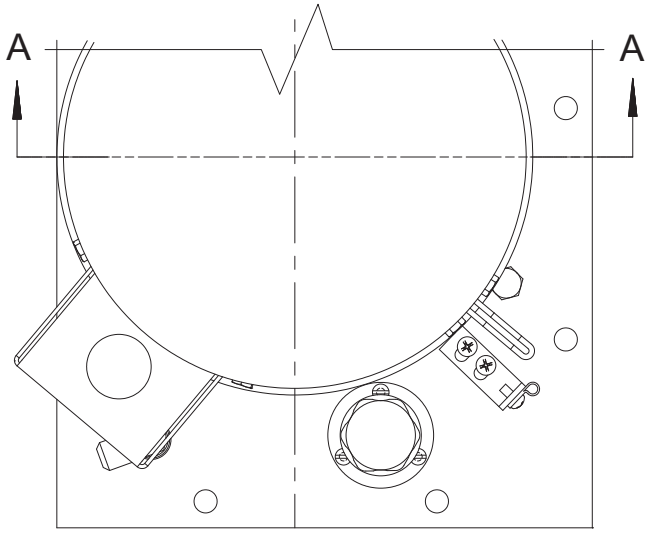
Buzzer:
KE603849
used after April 2010

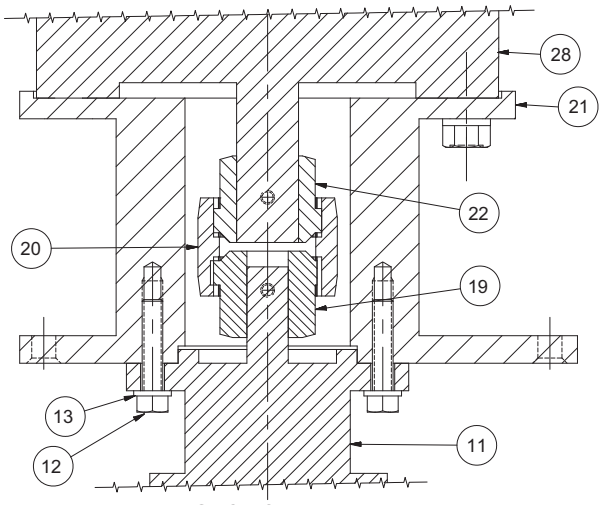
NOTE: For Hydraulic Hoses order Part No. RT00505 and specify length required

HYDRAULIC COMPONENTS *(page 2 of 2)*

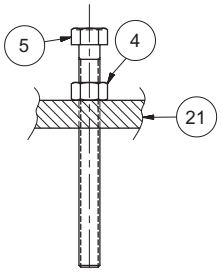
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE51607	Flow Control Valve	2
5.	KE51848	Jack	1
6.	KE52124-1	Jack Upper Pin	1
7.	KE51846	Hydraulic Motor, Scraper Arm, 40 gal.	1
	KE51938	Hydraulic Motor, Scraper Arm, 60-150 gal.	
8.	FA95006	Woodruff Key	1
9.	KE51845	Hydraulic Motor, Secondary Agitator, 40-150 gal. - used prior to August 2009	1
	KE603736	Hydraulic Motor, Secondary Agitator, 40-150 gal. - used after August 2009	
10.	KE51715	Main Coupling, Scraper Arm	1
11.	KE51716	Secondary Coupling, Agitator Arm	1
12.	KE603853-1	Coupling Washer, Primary S.S.	1
13A.	FA11286	Socket Head Screw, 1/4 X 20	2
14.	KE603853-2	Coupling Washer, Secondary S. S.	1
15.	CT50097	R.T.D. Probe Single (optional)	1
16.	KE53962	Blade Stop Ring	2
18.	KE51834	Scraper Blades	as required
34.	KE51622	Bridge Tilt Pin	1
35.	FA95007-10	Retaining Ring	1
36.	KE51623	Clevis Bracket	1
37.	SE50353	Clevis Pin c/w Clips	1
38.	KE51624	Knuckle Joint	1
39.	KE50295	Mounting Clip, Mercury Switch - used prior to August 2005	1
	KE602764	Mounting Clip, Limit Switch - used after to August 2005	
40.	KE50294	Mercury Switch - used prior to August 2005	1-2
	SK2474500	Limit Switch - used after August 2005	
41.	FA95055-3	Square Key	1
42.	T40527	Housing, probe, 40 gal.	1
	T40528	Housing, probe, 60 gal.	1
	T40529	Housing, probe, 80 gal.	1
	T40530	Housing, probe, 100 gal.	1
	T40531	Housing, probe, 125 gal.	1
	T40532	Housing, probe, 150 gal.	1
43.	KE51921	Pin, Scraper Arm	1
44.	KE51925	Pin, Secondary Agitator	1
46.	FA19506	Set Screw, Secondary Agitator	1
47.	FA19507	Set Screw, Scraper Arm	1
48.	KE00935	Secondary Agitator, 40 gal. (includes #44)	1
	KE00936	Secondary Agitator, 60 gal. (includes #44)	1
	KE00937	Secondary Agitator, 80 gal. (includes #44)	1
	KE00938	Secondary Agitator, 100 gal. (includes #44)	1
	KE00939	Secondary Agitator, 125 gal. (includes #44)	1
	KE00940	Secondary Agitator, 150 gal. (includes #44)	1
49.	KE00947	Primary Agitator, 40 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00948	Primary Agitator, 60 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00949	Primary Agitator, 80 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00950	Primary Agitator, 100 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00951	Primary Agitator, 125 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00952	Primary Agitator, 150 gal., with Gallon Markings (includes #16, 18 & 43)	1
	KE00947-1	Primary Agitator, 40 gal., with Liter Markings (includes #16, 18 & 43)	1
	KE00948-1	Primary Agitator, 60 gal., with Liter Markings (includes #16, 18 & 43)	1
	KE00949-1	Primary Agitator, 80 gal., with Liter Markings (includes #16, 18 & 43)	1
	KE00950-1	Primary Agitator, 100 gal., with Liter Markings (includes #16, 18 & 43)	1
	KE00951-1	Primary Agitator, 125 gal., with Liter Markings (includes #16, 18 & 43)	1
	KE00952-1	Primary Agitator, 150 gal., with Liter Markings (includes #16, 18 & 43)	1
50.	KE52687	Roller Bearing	2
	KE52704	Thrust Washer, Brass	2
51.	RT00505	Hydraulic Hose	specify length
52.	KE00715	Bridge Swivel Housing Assembly	1
53.	KE603842	Velocity Fuse	1
54.	KE603825	Label, Hand Crush Warning	1

PUMP AND MOTOR ASSEMBLY

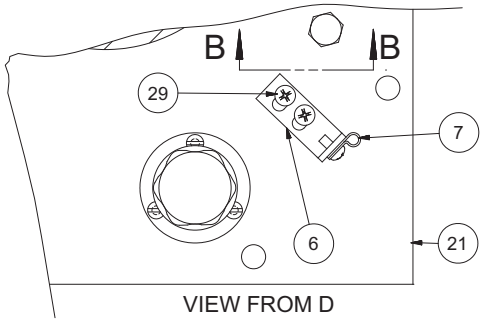




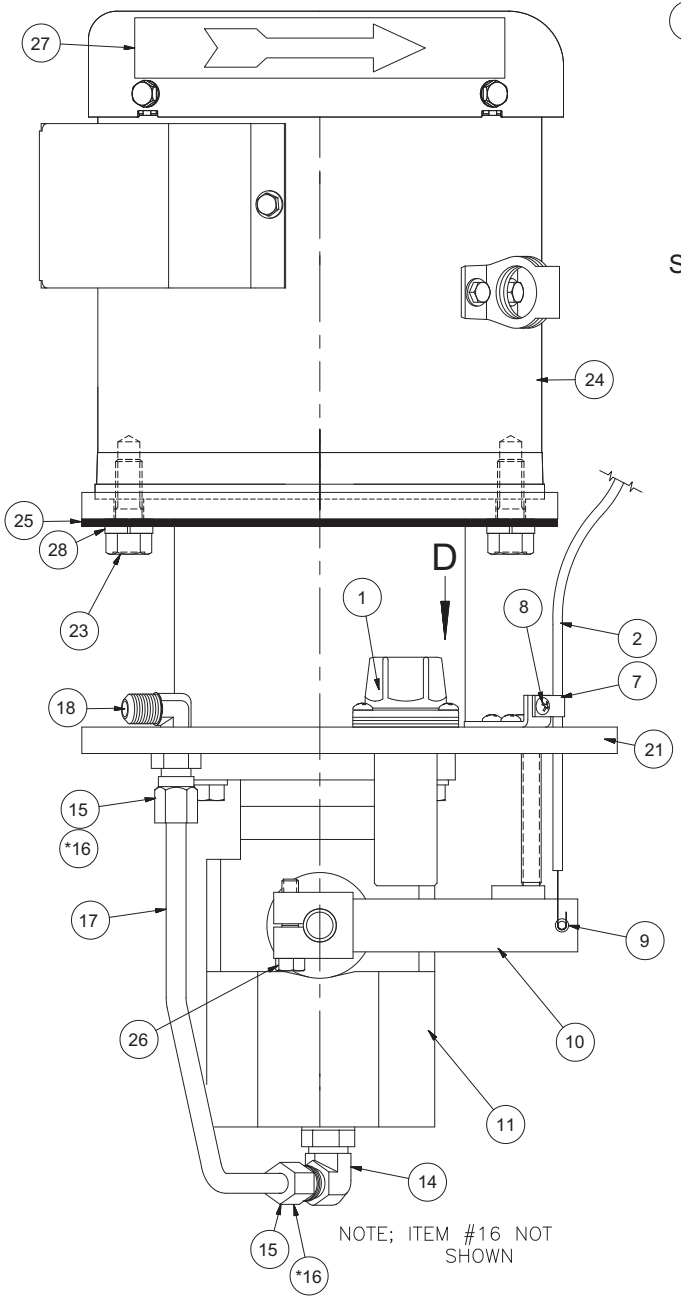
SECTION A-A



SECTION B-B



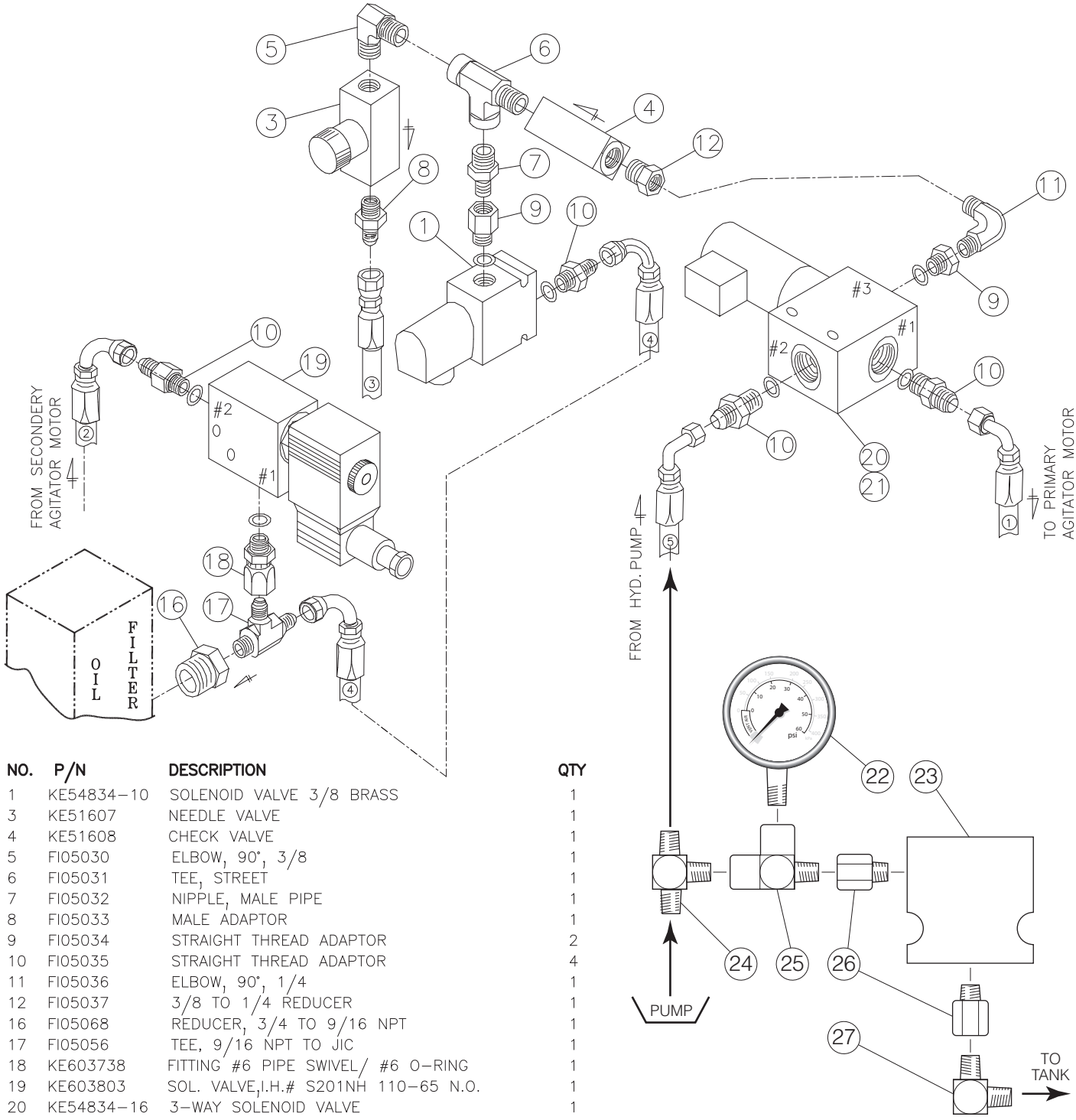
VIEW FROM D



NOTE; ITEM #16 NOT SHOWN

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	KE51889	FILTER & TANK BRETHER
2	1	KE00860	SPEED CONTROL CABLE & BRACKET ASS"Y
4	1	FA20030	HEX NUT 3/8-16
5	1	FA10747	HEX. HEAD BOLT 3/8-16 X 4" LG.
6	1	KE603833	BRACKET
7	1	KE52050	CABLE CLAMP ARENS #MT304-3
8	1	FA11091	#8-32 X 3/8 S.S. Machine Screw
9	1	KE52049	CONNECTOR FITTING, ARENS #FT 319-1
10	1	KE00737	PUMP HANDLE ASSEMBLY
11	1	KE51844	HYDRAULIC PUMP.
12	2	FA11386	HEX BOLT 3/8-16 x 1 1/2 LG.
13	2	FA31010	SPLIT LOCK WASHER 3/8
14	1	FI05059	ELBOW 90°, AEROQUIP #2062-8-6
15	2	FI05079	NUT, AEROQUIP #FC2875-6
16	2	FI05080	FERRULE, AEROQUIP #FF9605-6
17	1	KE52048	HYDRAULIC TUBING
18	1	FI05072	BULKHEAD 90° UNION ELBOW
19	1	KE52222-1	METAL GEAR, 3/4 BORE
20	1	KE52224	PLASTIC GEAR COUPLING
21	1	KE00698	PUMP MTG. PEDESTAL
22	1	KE52222-2	METAL GEAR, 1 1/8 BORE
23	4	FA11509-2	HEX HEAD BOLT, S.S. 1/2-13 X 1 1/4 LG.
24			SEE MOTOR OPTIONS
26	1	FA10606	HEX HEAD BOLT, 15/16-18 X 1 1/4 LG
27	1	KE95265	LABEL, DIRECTION OF MOTOR ROTATION
28	4	FA31033	SPLIT LOCK WASHER , S.S. 1/2
29	2	FA11146	PAN PHIL M/S, S.S. 10-32 X 1/2 LG.
24			MOTOR OPTION.
	1	KE51875-3	MOTOR. VOLTAGE: 208-230/460/3/60
	1	KE51875-4	MOTOR. VOLTAGE: 220-380/440/3/50
25	1	KE52171	GASKET, OIL TANK

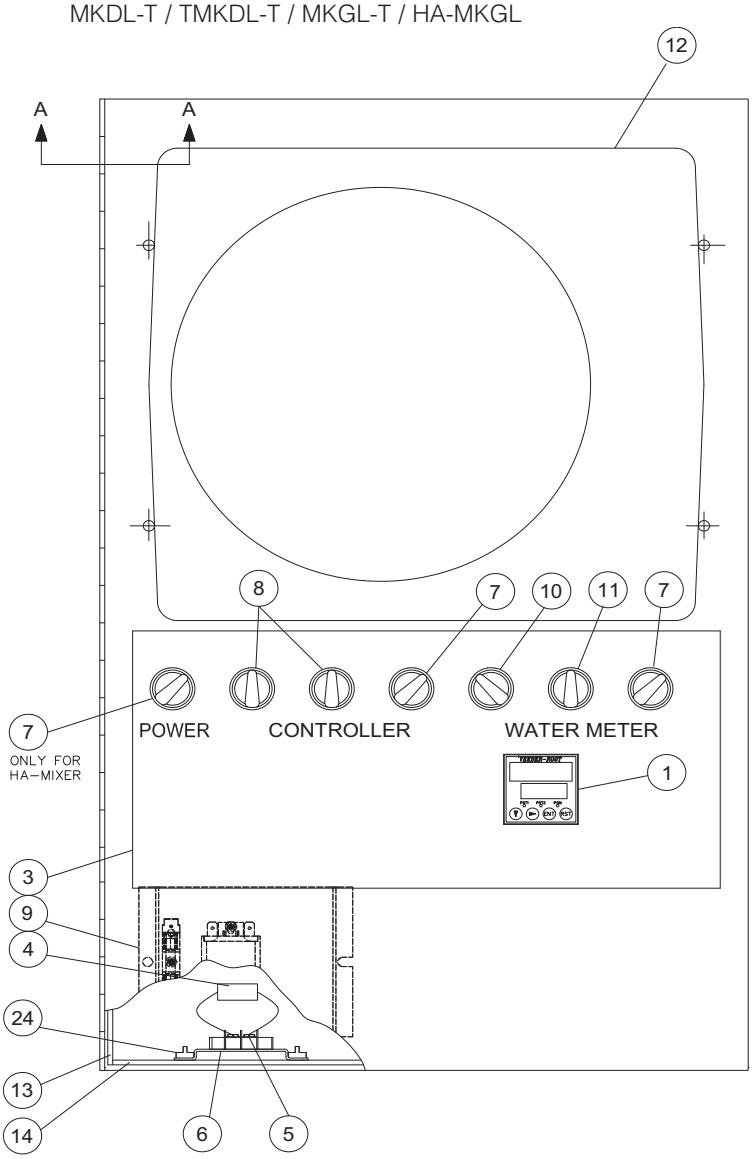
HYDRAULIC FLOW CONTROL HARNESS

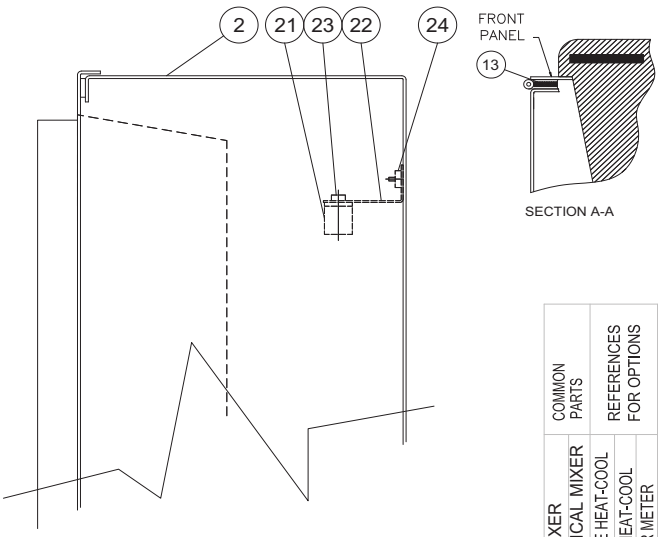


NO.	P/N	DESCRIPTION	QTY
1	KE54834-10	SOLENOID VALVE 3/8 BRASS	1
3	KE51607	NEEDLE VALVE	1
4	KE51608	CHECK VALVE	1
5	FI05030	ELBOW, 90°, 3/8	1
6	FI05031	TEE, STREET	1
7	FI05032	NIPPLE, MALE PIPE	1
8	FI05033	MALE ADAPTOR	1
9	FI05034	STRAIGHT THREAD ADAPTOR	2
10	FI05035	STRAIGHT THREAD ADAPTOR	4
11	FI05036	ELBOW, 90°, 1/4	1
12	FI05037	3/8 TO 1/4 REDUCER	1
16	FI05068	REDUCER, 3/4 TO 9/16 NPT	1
17	FI05056	TEE, 9/16 NPT TO JIC	1
18	KE603738	FITTING #6 PIPE SWIVEL/ #6 O-RING	1
19	KE603803	SOL. VALVE,I.H.# S201NH 110-65 N.O.	1
20	KE54834-16	3-WAY SOLENOID VALVE	1
21	KE603873	SOLENOID VALVE CONNECTOR (HIRSCHMAN)	1
	KE01700	PRESS RELIEF VALVE ASSEMBLY	1 (per kettle)
22.	KE52382	PRESSURE GAUGE; LIQUID FILL	1
23.	KE51874	PRESSURE RELIEF VALVE	1
24.	FI05054	MALE BRANCH TEE FITTING	1
25.	FI05069	STREET TEE	1
26.	FI05034	STRAIGHT THREAD ADAPTER	2
27.	FI05030-1	ELBOW; 3/8-1 1/4 - 90 DEG.	1

TEMPERATURE CHART RECORDER BOX ASSEMBLY

MKDL-T / TMKDL-T / MKGL-T / HA-MKGL





ITEM	PART #	DESCRIPTION	QTY				
			HA-MIXER	VERTICAL MIXER	SINGLE HEAT-COOL	TWIN HEAT-COOL	WATER METER
			COMMON PARTS		REFERENCES FOR OPTIONS		
1	KE53257	DIGITAL COUNTER					1
2	KE01354	TCR BOX WELDMENT	1	1			
3	KE95438	LABEL	1	1			
4	KE01820	AMBIENT HEATER ASSEMBLY	1	1			
5	SK50370–1	TERMINAL BLOCK; 2 SECTIONS	1	1			
6	KE54402	MOUNTING BRACKET	1	1			
7	KE003209–1	SWITCH ON/OFF–MAINTAINED	1		1	1	1
8	KE003209–3	SWITCH ON/OFF/ON–MAINT. (HEAT/COOL CONTROL)			1	2	
9	REF.KE003736	COMPONENT PLATE ASSEMBLY	1	1			
10	KE003209–6	SWITCH ON/OFF–SPR. RETURN MOMENT.					1
11	KE003209–7	SWITCH ON/OFF–SPR. RETURN MOMENT. L/R					1
12	KE53136–1	CHART RECORDER (TCR–DTCI)/TEMPERATURE CONTROLLER	1	1			
13	KE53131	GASKET STRIP 1/2 X 1/8 X 24 1/4	2	2			
14	KE53132	GASKET STRIP 1/2 X 1/8 X 15 3/4	2	2			
18*	NPN00020	CA TIE HOLDER; ADHESIVE BACK	25	25			
19*	SK50370–2	45 DEG TABS CURTIS; TERMINAL BLOCK	4	4			
20*	SK50370–3	90 DEG TABS CURTIS; TERMINAL BLOCK	4	4			
21	KE52710	THERMOSTAT	1	1			
22	KE603924	BRACKET FOR THERMOSTAT	1	1			
23	FA20504–1	"K" LOCKNUT ZINC	1	1			
24	FA21006	10–24 HEXAGON NUTS	3	3			

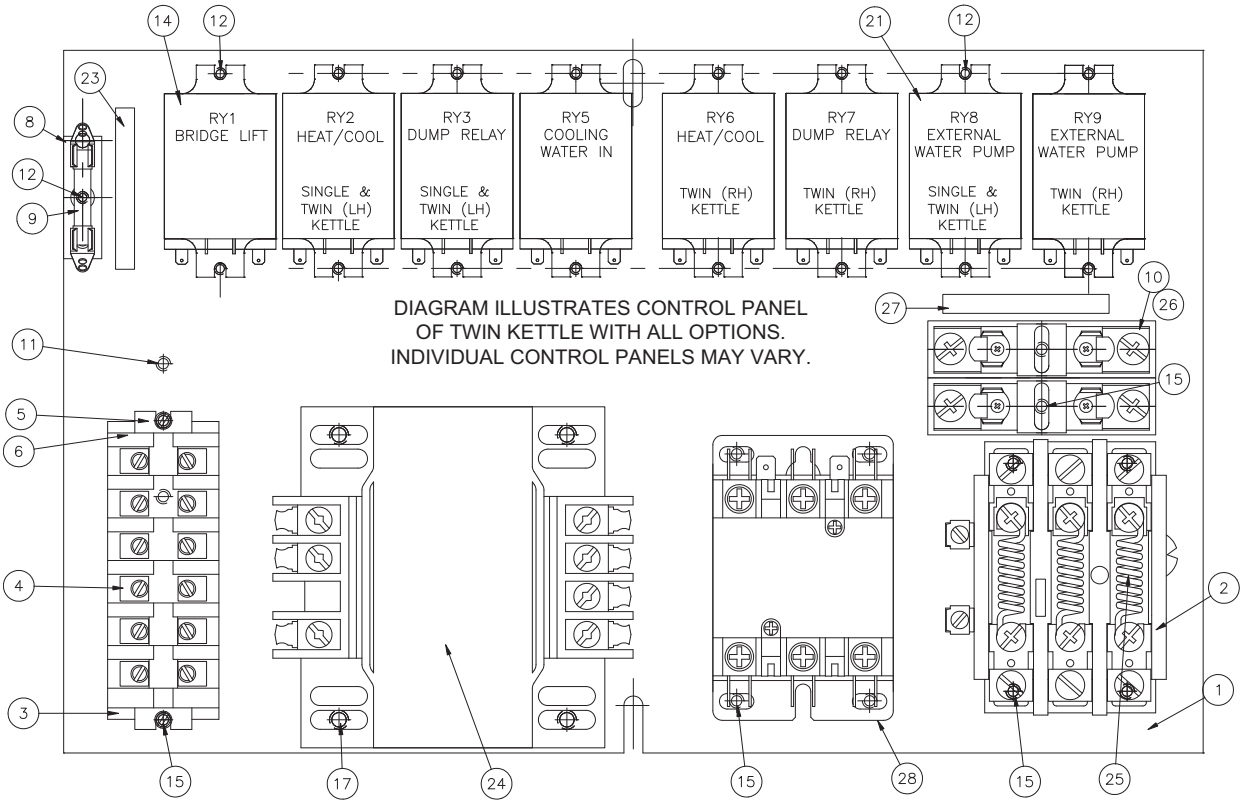
* NOTE: PARTS NOT SHOWN ON DWG.

KE003730A

PART NUMBER	SWITCH KE603208-1	SWITCH KE603208-2	SWITCH KE603208-3	SWITCH KE603208-4	SWITCH KE603208-5	PUSH BUTTON KE603208-6	LATCH KE603208-7	CONTACT KE603208-8	CONTACT KE603208-9
# OF POSTITIONS	2 maintained	3 maintained	2 spring return from right	3 spring return from both sides	3 spring return from right	flush		normally closed	normally open
KE003209-1	1						1		1
KE003209-2	1						1	1	1
KE003209-3		1					1		2
KE003209-4		1					1		1
KE003209-5		1					1		3
KE003209-6			1				1	1	
KE003209-7				1			1		3
KE003209-8				1			1		2
KE003209-9					1		1		2
KE003209-10						1	1	1	1
KE003209-11				1			1		4

KE003209-B

ELECTRICAL COMPONENT ASSEMBLY



NOTE: ITEMS #40 TO #43 AND #45 ARE NOT SHOWN

KE00888R			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	KE50343-7	COMPONENT MOUNTING PLATE	1
2	KE51982	THERMAL OVERLOAD RELAY	1
3	KE54761-3	TERMINAL BLOCK MOUNTING RAIL	1
4	SK50055-1	TERMINAL BLOCKS	6
5	SK50054-1	TERMINAL BLOCK END BARRIER	1
6	SK50054-2	TERMINAL BLOCK END ANCHOR	1
8	KE51139	FUSE HOLDER	1
10	KE51139-1	FUSE HOLDER	2
11	FA12500	SCREW #8-32 x 3/8 lg. BRASS WITH UNDERCUT FOR GROUND	1
12	FA15018-7	SCREW #6-32 x 1/4 lg.	3
14	KE50753-10	RELAY (RY1)	1
15	FA15018-3	SCREWS #8-32 x 1/4 lg.	12
28	KE603902-1	CONTACTOR	1

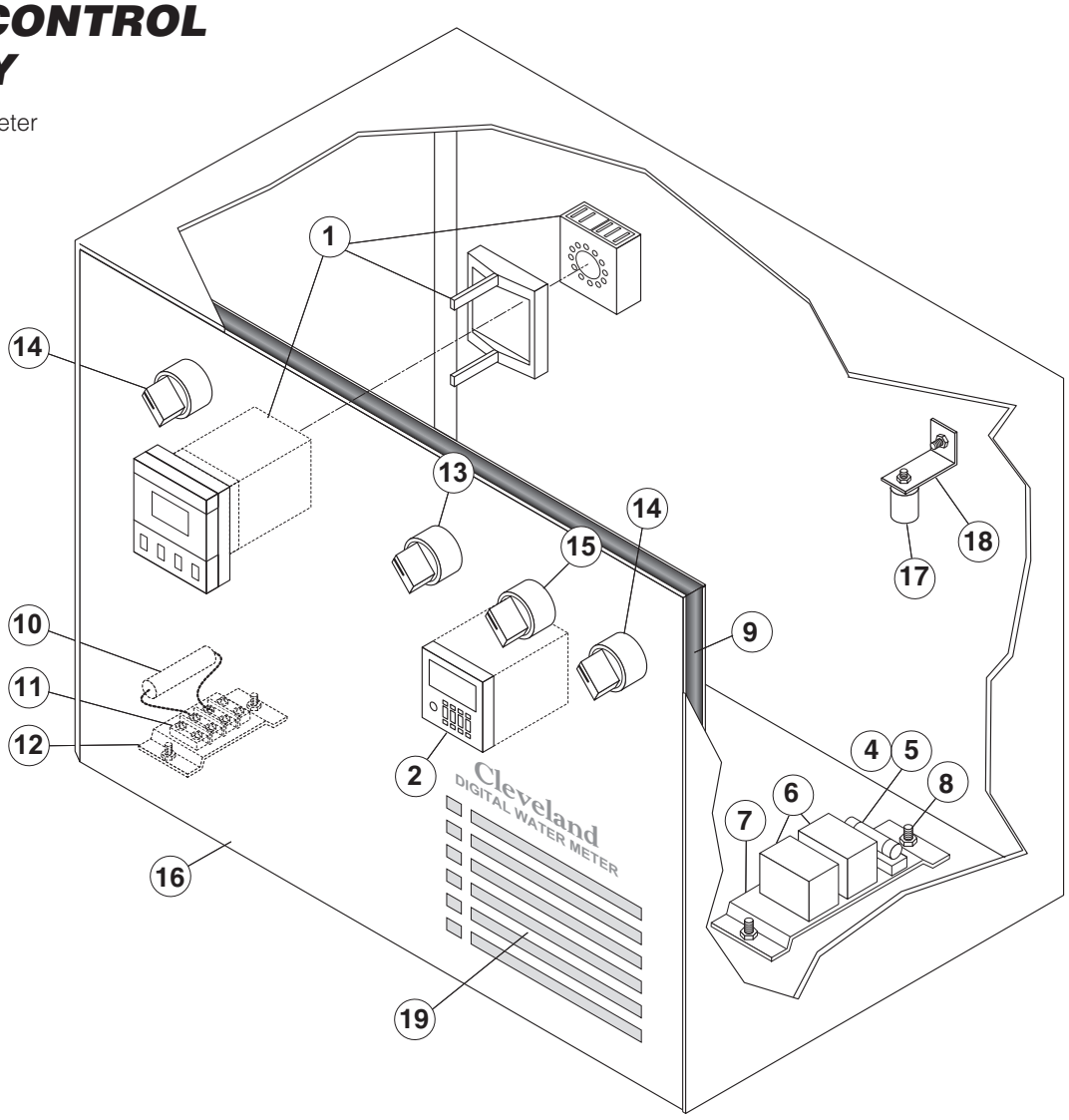
HEAT/COOL WITH CONTROL			
MKDL-T			
21	KE50753-10	RELAY	4
12	FA15018-7	SCREW #6-32 x 1/4 LG.	8
TMKDL-T			
21	KE50753-10	RELAY	7
12	FA15018-7	SCREW #6-32 x 1/4 LG.	14
HEAT WITH SSV/DTCI/TCR			
MKDL-T			
21	KE50753-10	RELAY	1
12	FA15018-7	SCREW #6-32 x 1/4 LG.	2
TMKDL-T			
21	KE50753-10	RELAY	2
12	FA15018-7	SCREW #6-32 x 1/4 LG.	4
HEAT/COOL WITHOUT CONTROL			
MKDL-T			
21	KE50753-10	RELAY	2
12	FA15018-7	SCREW #6-32 x 1/4 LG.	4
TMKDL-T			
21	KE50753-10	RELAY	4
12	FA15018-7	SCREW #6-32 x 1/4 LG.	8

KE00888-1 MKDL & MKEL COMMON PARTS			
ITEM	PART NUMBER	DESCRIPTION	QTY
9	KE52936-6	FUSE- 3 AMP	1
23	KE95242-2	LABEL	1
30	KE00888R	COMPONENT PLATE ASSEMBLY	1
VOLTAGE OPTIONS			
		200-240 V A.C.	
24	KE53838-5	TRANSFORMER (250VA)	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52055	THERMAL OVERLOAD HEATER	3
26	KE52936-16	FUSE, 1.5AMP, SLOW BLOW, TIME DELAY	2
27	KE95242-3	LABEL	1
		380-415 V A.C.	
24	KE53838-6	TRANSFORMER	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52055	THERMAL OVERLOAD HEATER	2
26	KE52936-17	FUSE, 3/4AMP, SLOW BLOW, TIME DELAY	2
27	KE95242-4	LABEL	1
		440-480 V A.C.; 575-600 V A.C.	
24	KE53838-5	TRANSFORMER	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52051	THERMAL OVERLOAD HEATER	3
26	KE52936-17	FUSE, 3/4AMP, SLOW BLOW, TIME DELAY	2
27	KE95242-4	LABEL	1

KE00888-2 MKGL COMMON PARTS			
ITEM	PART NUMBER	DESCRIPTION	QTY
9	KE52936-5	FUSE- 5 AMP/250V/MDA-5, SLOW BLOW	1
23	KE95242-5	LABEL	1
26	KE52936-14	FUSE- 3 AMP/600V/KLDR 3, SLOW BLOW	2
27	KE95242-6	LABEL	1
30	KE00888R	COMPONENT PLATE ASSEMBLY	1
VOLTAGE OPTIONS			
		200-240 V A.C.	
24	KE53838-2	TRANSFORMER (250VA)	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52055	THERMAL OVERLOAD HEATER	3
		380-415 V A.C.	
24	KE53838-3	TRANSFORMER	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52055	THERMAL OVERLOAD HEATER	2
		440-480 V A.C.; 575-600 V A.C.	
24	KE53838-2	TRANSFORMER	1
17	FA15018-4	SCREWS #8-32 x 3/8 lg.	4
25	KE52051	THERMAL OVERLOAD HEATER	3

REMOTE CONTROL ASSEMBLY

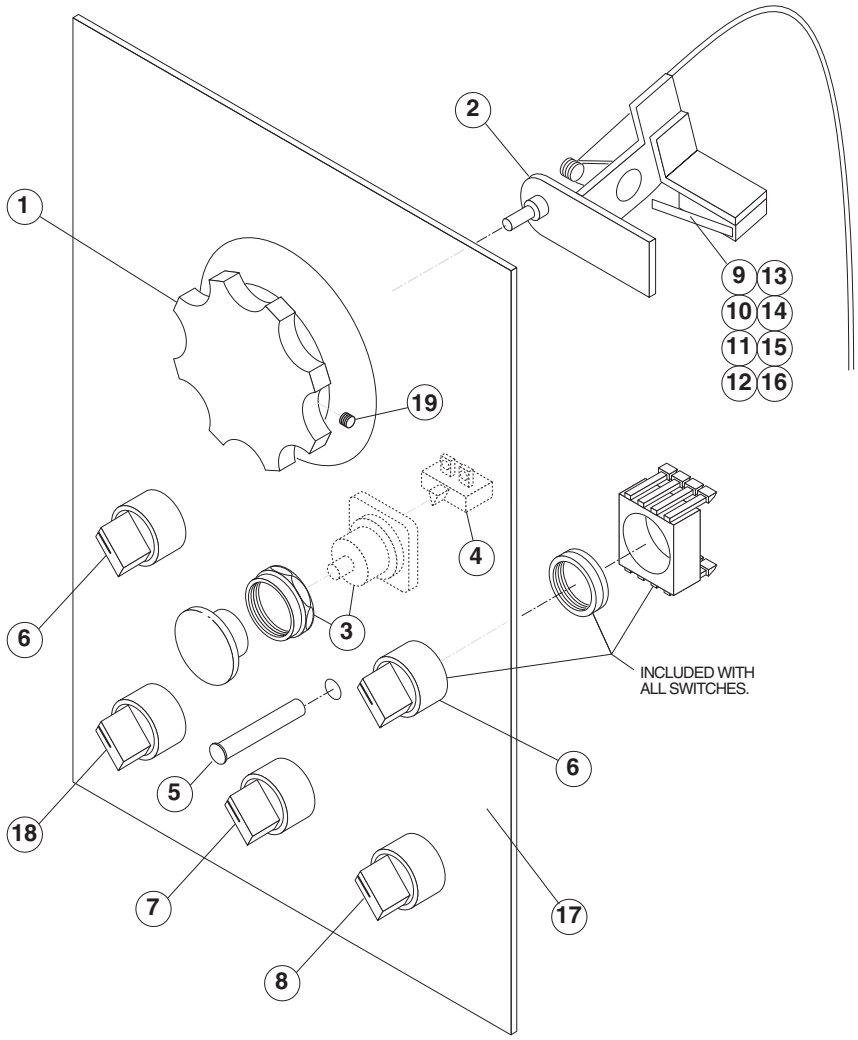
For units with Water Meter
and/or DTCI option



ITEM NO.	*PART NO.*	*DESCRIPTION*	*QTY.*
1.	KE53479-1	Digital Temperature Controller and Indicator	1
2.	KE53257	Digital Counter	1
4.	KE52936-3	Fuse	1
5.	KE51139	Holder, Fuse	1
6.	KE50753-10	Relay	1 (per option)
7.	KE50343-6	Mounting Plate	1
8.	FA10131	Nut	3
9.	KE52280	Weather Strip, 76” long	1
10.	KE01820	Ambient Heater Assembly	1
11.	SK50370-1	Terminal Block, 2 Section	1
	SK50370-2	Terminal Block, 45°	2
	SK50370-3	Terminal Block, 90°	2
12.	KE54402	Mounting Bracket, Terminal Block	1
13.	KE003209-6	Momentary Spring Return Switch Assembly	1
14.	KE003209-1	Switch Assembly, On/Off - Maintained	2
15.	KE003209-7	Momentary Spring Return Switch Assembly	1
16.	KE52272	Console Door	1
17.	KE52710	Thermostat	1
18.	KE603924	Bracket for Thermostat	1
19.	KE95229	Label	1

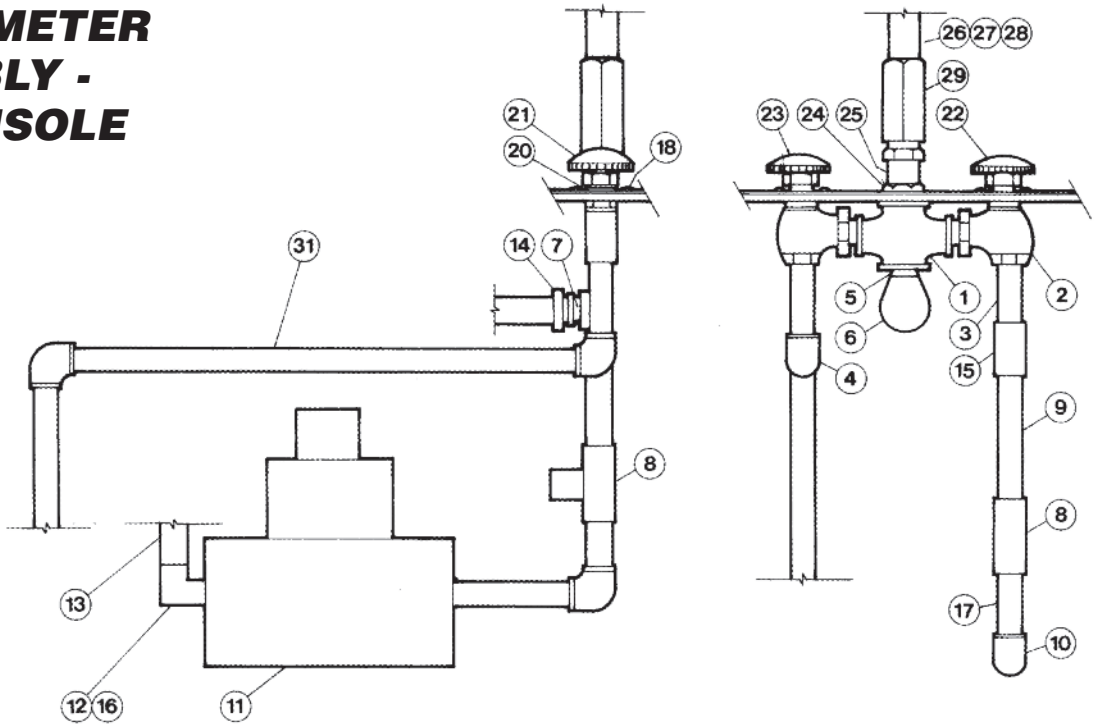
MAIN CONSOLE CONTROLS

For standard Mixer Kettles



ITEM NO.	*PART NO.*	*DESCRIPTION*	*QTY.*
1.	KE52190	Knob, Speed Control	1
2.	KE00860	Cable and Bracket, Speed Control (includes Micro Switch, item 9)	1
3.	KE53193	Emergency Switch	1
4.	KE53377	Push Button Contact Block	1
5.	SK50315-1	Pilot Light	1
6.	KE003209-3	Switch Assembly, On/Off/On - Maintained	
6.	KE003209-4	Switch Assembly, On/Off - Maintained	
		(single kettle)	1
		(twin kettle)	2
7.	KE003209-5	Switch Assembly, On/Off/ON - Maintained	1
8.	KE003209-11	Switch Assembly, On/Off/On - Momentary	1
9.	KE52180	Micro Switch	1
10.	FA10032	Machine Screw, #4-40 x 5/8" LG	2
12.	FA32002	Tooth Lock Washer #4	2
13.	FA20000	Hex Nut, #4-40	2
14.	KE52050	Cable Clamp	2
15.	FA11054	Screw, 8-32	2
16.	FA21004	Washer	2
17.	KE95230	Label:	1
18.	KE003209-1	Switch Assembly, On/Off	1
19.	KE52364	Plunger, Set Screw	1

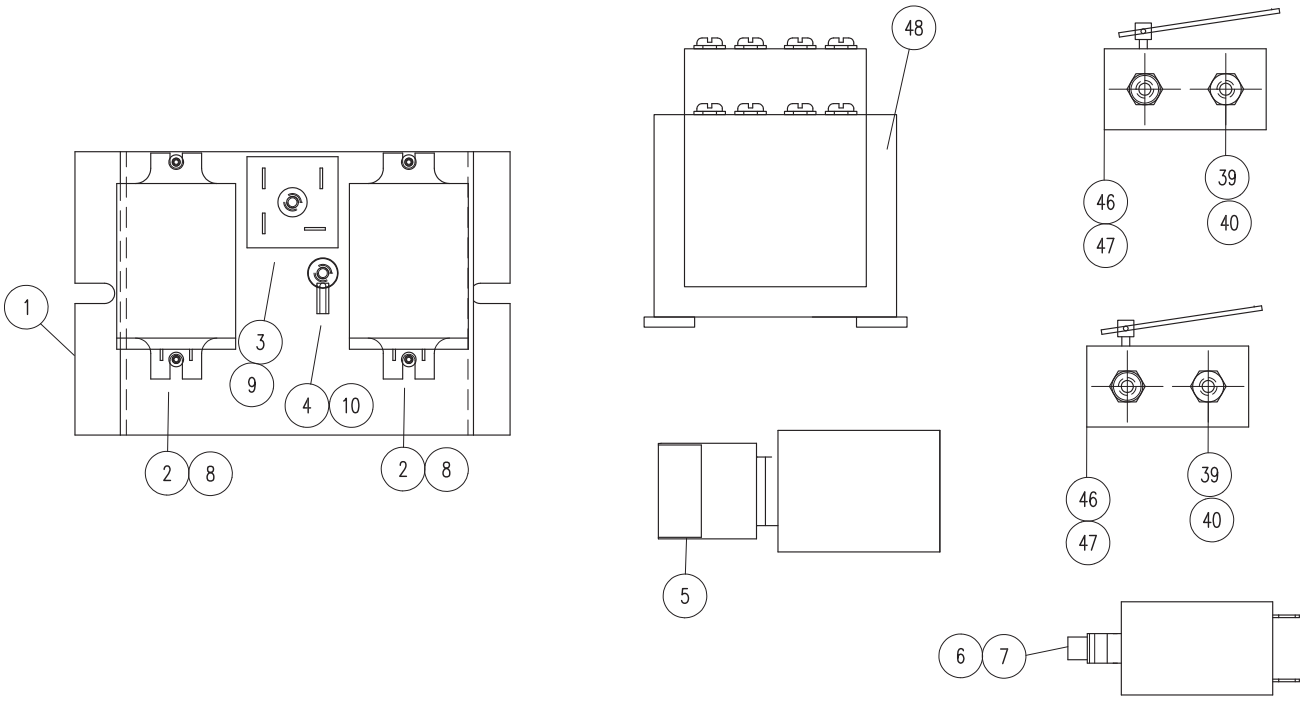
WATER METER ASSEMBLY - 18" CONSOLE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	FI05058	3/4" Cross	1
2.	KE02055-2	Steam Valve Modification	2
3.	N0640B4-5	Nipple	2
4.	FI00063	Elbow 90 degree	4
5.	FI00356	Reducing Bushing	1
6.	KE600812-1	Street Elbow	1
7.	FI05029	Hose Barb	2
8.	KE54834-5	* *Solenoid Valve, 3/4"*	1
	SE50407	Rebuild Kit	
	SE50401	Replacement Coil	
9.	N0640B3	Nipple, Gallon Meter	1
	N0640B3-5	Nipple, Litre Meter	
10.	FI00363-3	Reducing Elbow 90 Degree	1
11.	KE51861	Gallon Meter	1
	KE51860	Litre Meter	
12.	FI00062	Elbow 90 Degree	1
13.	KE52173	1/2"1.D. Hot Water Wash-up Hose	1
14.	FI05220-3	Hose Clamp	2
15.	FI00179	Tee	1
16.	FI05074	Nipple	2
	KE600362	Nipple for Water Cooling Only	
17.	N0640B1-5	Nipple	1
18.	FA11091	Machine Screw	8
20.	KE51369	Steam Valve Flange	2
21.	SE00028	Knob Assembly	2
22.	KE603823	Label "Hot"	1
23.	KE603824	Label "Cold"	1
24.	SD50097	Flanged Nut	1
25.	KE51585	Faucet Spout Fitting	1
26.	KE50825-7	Faucet Spout	1
27.	FA05002-19	"O" Ring	1
28.	FA950707-10	Retaining Ring Carter	1
29.	KE51736	Long Faucet Nut	1

***NOTE:** See SOLENOID VALVE MAINTENANCE section for further information.

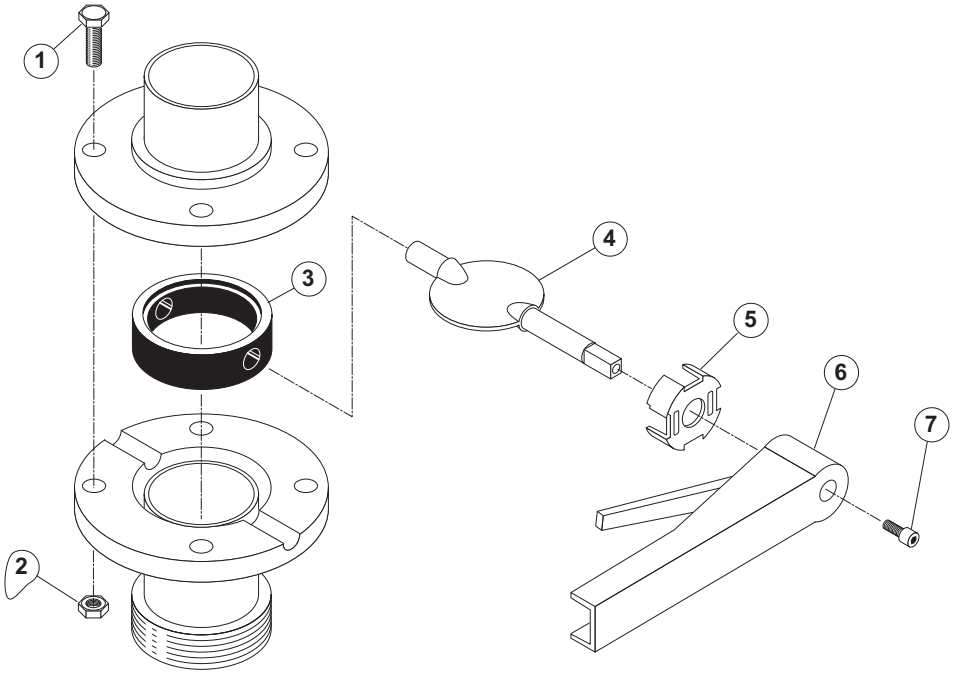
COMPONENT PLATE ASSEMBLY - POWER TILT KETTLES



VOLTS OPTION	PART NUMBER	COMMON PARTS COMPONENT PLATE ASS'Y		TRANSFORMER ITEM # 48	
		PART #	QTY.	PART #	QTY.
208V	KE02185–11	KE02185–5	1	KE53838–10	1
220V–480V	KE02185–12	KE02185–5	1	KE53838–12	1
380V	KE02185–13	KE02185–5	1	KE53838–11	1

COMMON PARTS KE02185–5			
1	KE50343–16	COMPONENT PLATE	1
2	KE50753–10	RELAY, 10 A/120V	2
3	KE50581	BRIDGE RECTIFIER	1
4	KE50473	GROUND LUG	1
5	KE003209–11	SWITCH, POWER TILT	1
6	KE50579–1	CIRCUIT BREAKER, 1.5A	1
7	KE50580	WATER RESISTANT BOOT	1
8	FA11051	6–32 X 3/16 PAN PHIL S.S.	4
9	FA11091	8–32 X 3/8 PAN PHIL S.S.	1
10	FA11089	8–32 X 1/4 PAN PHIL S.S.	1
39	FA20002	HEX NUT 6–32	2
40	FA11060	SCREW 6–32 X 1	2
46	KE51007	MICRO SWITCH, HONEYWELL	2
47	KE50498	MICRO SWITCH INSULATION	2
48	REF.KE53838	SEE ABOVE	1

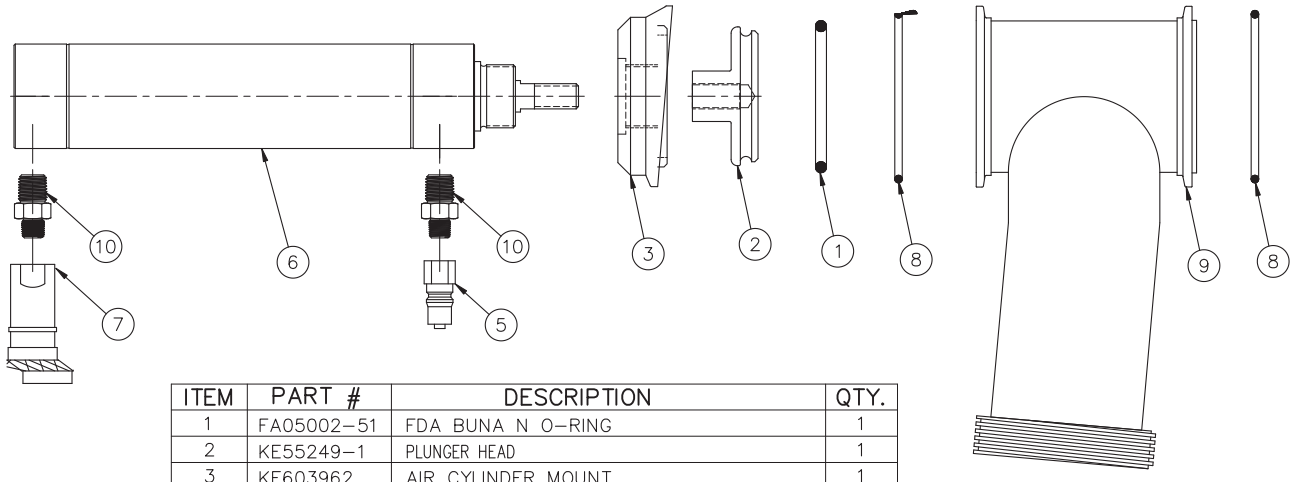
BUTTERFLY VALVE, 3”



ITEM NO.	*PART NO.*	*DESCRIPTION*	*QTY.*
1. - 7.	KE52286	Butterfly Valve (includes housing)	1
1.	FA11224	Bolt, 5/16-18x1" S.S.	6
2.	FA21024	Nut, 5/16-18	6
3.	SE50433-1	Seat	1
4.	SE50434-1	Stem	1
5.	SE50435-1	Locking Spider	1
6.	SE50436	Handle Assembly	1
7.	SE50437	Allen Bolt	1

BUILT AFTER APRIL 2014 -

AIR VALVE ASSEMBLY FOR FPVA-3

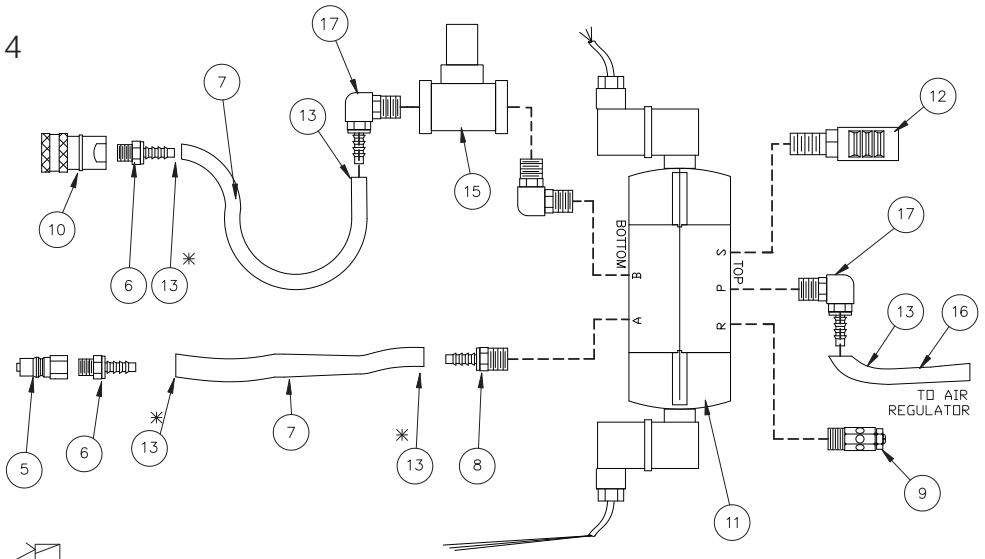


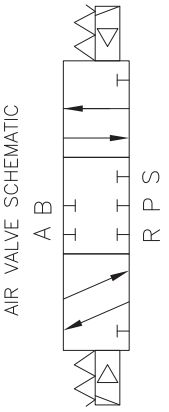
ITEM	PART #	DESCRIPTION	QTY.
1	FA05002–51	FDA BUNA N O–RING	1
2	KE55249–1	PLUNGER HEAD	1
3	KE603962	AIR CYLINDER MOUNT	1
5	KE55257	1/8 NPT BRASS QUICK DISCONNECT COUPLING (MALE HALF)	1
6	KE55253–1	AIR OPERATED CYLINDER	1
7	KE55262	1/8 NPT BRASS QUICK DISCONNECT COUPLING (FEMALE HALF)	1
8	FA05002–53	FDA BUNA N O–RING	2
9	KE003700	DISCHARGE TEE ASSEMBLY	1
10	KE55251–1	HEX NIPPLE(1/4 NPT TO 1/8 NPT)	2

KE02291-1

BUILT PRIOR TO MAY 2014

AIR SOLENOID ASSEMBLY FOR FPVA-3

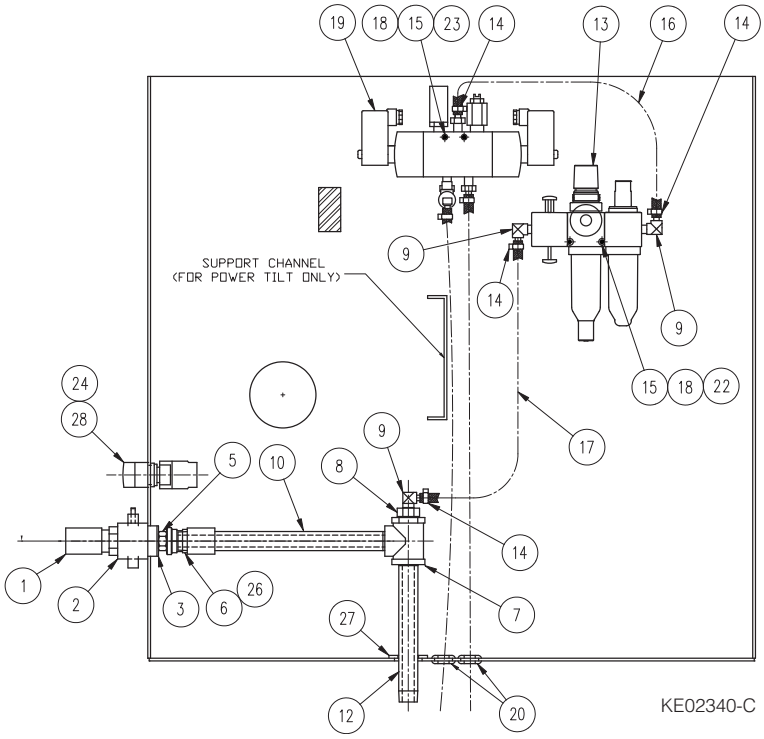




PARTS LIST			
ITEM	PART #	DESCRIPTION	QTY.
5	KE55257	MALE QUICK PLUG	1
6	FI05317-1	HOSE BARB 1/8" NPT MALE TO 1/4" HOSE	2
7	KE55259-1	1/4" ID x 6 FT. LONG HOSE 250 #W.P.	2
8	FI05317-2	HOSE BARB 1/4" NPT MALE TO 1/4" HOSE	1
9	KE55261-1	SPEED EXHAUST MUFFLER 1/8"	1
10	KE55262	FEMALE QUICK PLUG	1
11	KE55263-1	5 WAY AIR SOLENOID VALVE	1
12	KE55264-1	STANDARD 1/8" MUFFLER	1
13	FI05220-1	CLAMP FOR 1/4 I.D. HOSE (NOT SHOWN)	5
14	FI05030-2	90 ° 1/4 ELBOW, MALE PIPE THREAD	1
15	KE55305	1/4" FLOW CONTROL	1
16	KE55259-2	1/4" ID x 3 FT. LONG HOSE 250 #W.P.	1
17	FI05318	90° ELBOW HOSE BARB/ 1/4 HOSE I.D./14 PIPE, BRASS	2

KE02292

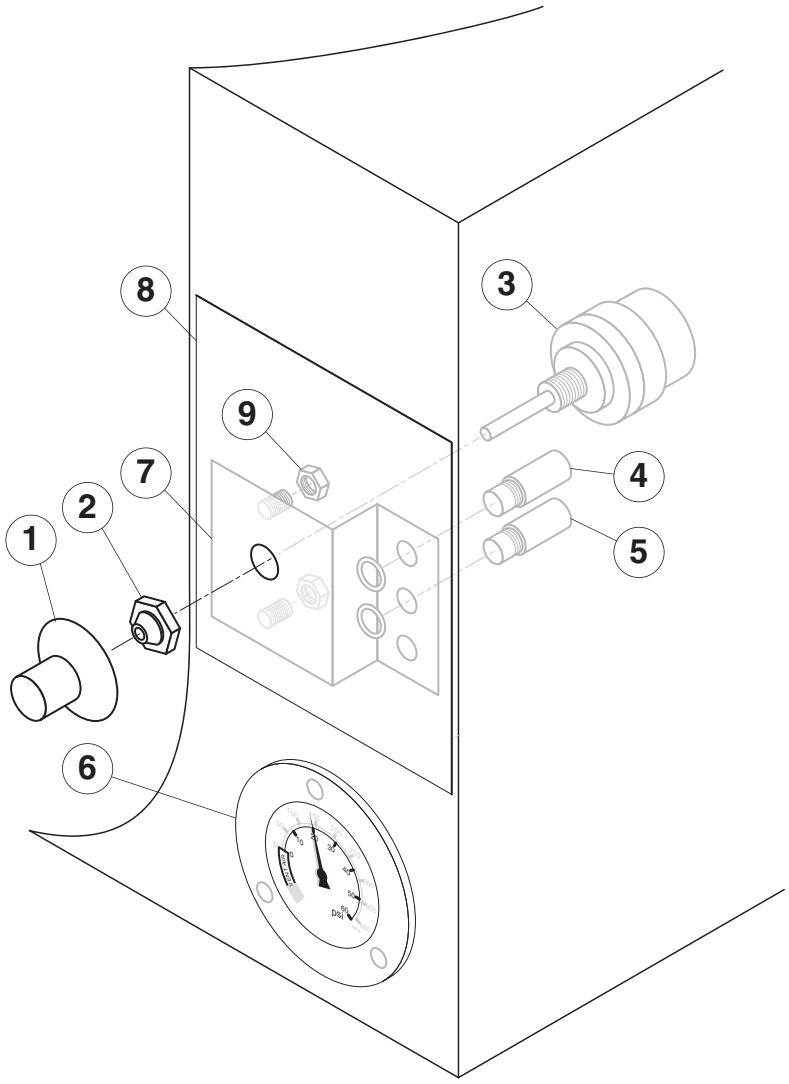
AIR SOLENOID ASSEMBLY FOR FPVA-3



KE02340-C

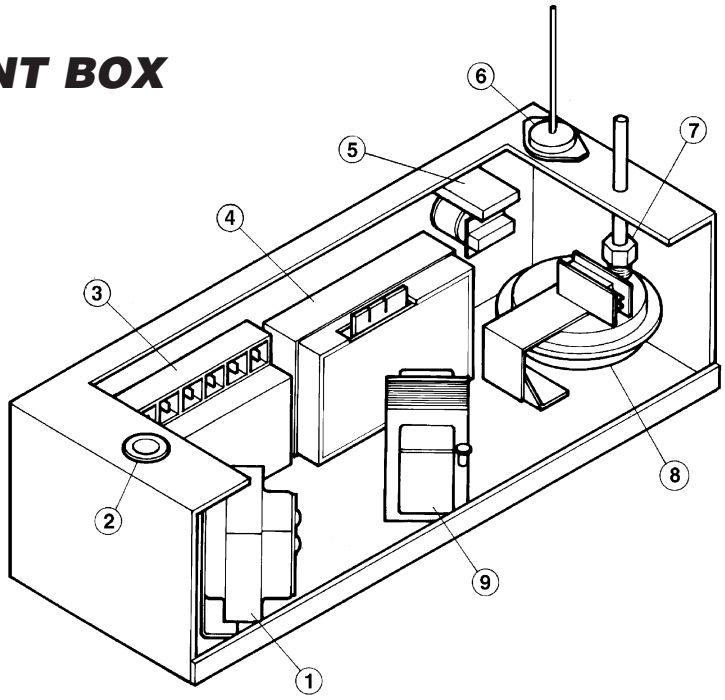
BILL OF MATERIALS (COMMON PARTS)			
ITEM	PART #	DESCRIPTION	QTY
1	KE601603	QUICK CONNECT	1
2	KE601601	SLIDE VALVE	1
3	FA30512	SPACER WASHER	1
4	FA32500	TOOTH LOCK WASHER 7/8 DIA.	1
5	KE52697	NUT 1/2 NPS BRASS	1
6	KE601602	AIR FITTING	1
7	KE600814-1	TEE 1/2 NPT (FIP x FIP x FIP)	1
8	FI00351	BUSHING 1/2 MIP x 1/4 FIP	1
9	FI05318	HOSE BARB 90° ELBOW	3
10	CONSULT FACTORY		
12	CONSULT FACTORY		
13	KE02369	FILTER-REGULATOR ASSEMBLY	1
14	FI05220-1	GEAR CLAMP	4
15	FA21002	#6-32 HEX NUT SS	4
16	KE532176	PNEUMATIC HOSE (1/4 I.D.x12 1/2 LG.)	1
17	KE532177	PNEUMATIC HOSE, (1/4 I.D.x31 LG.)	1
18	FA32004	TOOTH LOCK WASHER, #6 ZINC PLATED	4
19	KE02292	AIR SOLENOID ASSY	1
20	KE50555-3	GROMMET	2
22	KE55307-2	MODIFIED SCREW, #6-32 x 1-3/4 LG.	2
23	KE55307-1	MODIFIED SCREW, #6-32 x 1-1/4 LG.	2
24	KE95481-5	LABEL, PRODUCT DISCHARGE VALVE	1
25	KE55232	WIRING DIAGRAM FOR AIR VALVE	1
26	FI00266	COUPLING;1/2 BRASS	1
27	KE54353	WASHER FOR DRAIN HOLE	1
28	KE003209-9	SWITCH; ON/OFF/ON	1

CONSOLE CONTROLS



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE50569-1	KNOB, POTENTIOMETER	1
2.	KE51005	RUBBER BOOT	1
3.	SE00114	POTENTIOMETER WITH ON/OFF SWITCH, C/W ITEM #4	1
4.	KE55486-3	L.E.D., GREEN	1
5.	KE55486-2	L.E.D., RED	1
6.	KE50429-6	PRESSURE GAUGE	1
7.	KE603836	BRACKET FOR LED'S	1
8.	KE95555-10	LABEL	1
9.	FA20504-3	NUT, 10-24	2

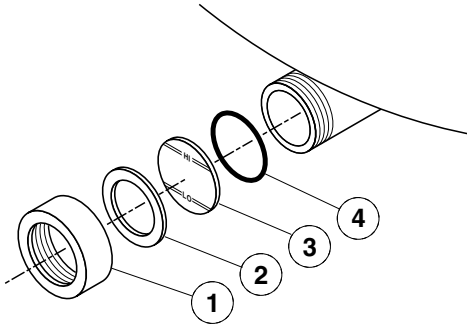
ELECTRICAL COMPONENT BOX



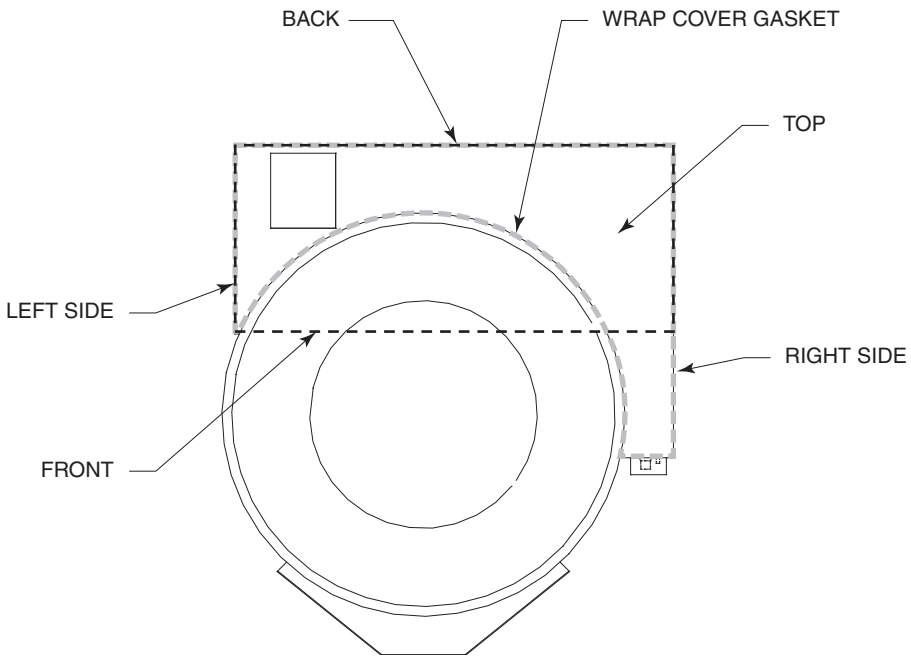
ITEM ON.	PART NO.	DESCRIPTION	QTY.
	KE01422	ELECTRICAL CONTROL BOX ASSEMBLY	1
	KE53439	COMPONENT BOX	1
	KE53440	COVER, COMPONENT BOX	1
	KE53599-1	GASKET	1
1.	KE53838-27	TRANSFORMER, 120-14V.	1
	KE53444	TRANSFORMER BRACKET	1
2.	KE54833-3	SNAP-IN BUSHING, 0.875" DIA.	1
3.	KE02372	IGNITION MODULE, PRIOR TO SEPT. 2004	1
	KE53469-4	IGNITION MODULE, SEPT. 2004 AND AFTER	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.	KE02400	AIR SWITCH, PRIOR TO SEPT. 2004	1
	KE55453-1	AIR SWITCH, SEPT. 2004 AND AFTER	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

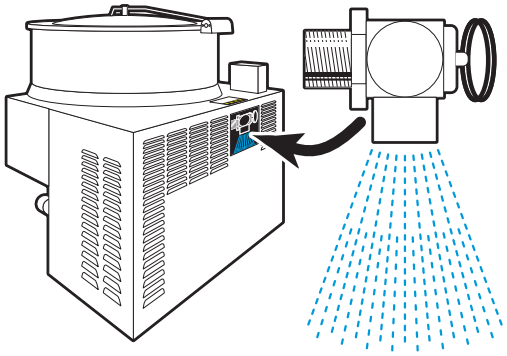


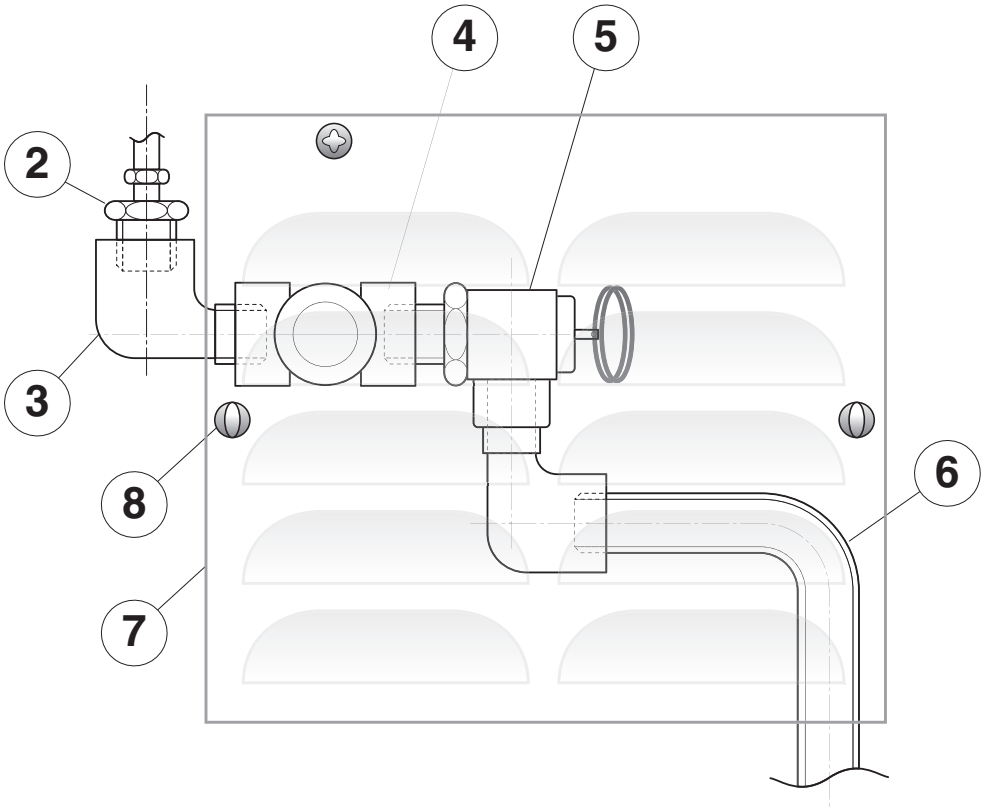
WRAP COVERS



KETTLE	TOP	FRONT	LEFT SIDE	RIGHT SIDE	BACK
MKGL-40-T	KE01479	KE53483-4	KE54253	KE01432	KE02186-1
MKGL-60-T	KE01479-1	KE53483-5	KE54253-1	KE01432-1	KE02186-2
MKGL-80-T	KE01479-2	KE53483-6	KE54253-2	KE01432-2	KE02186-3

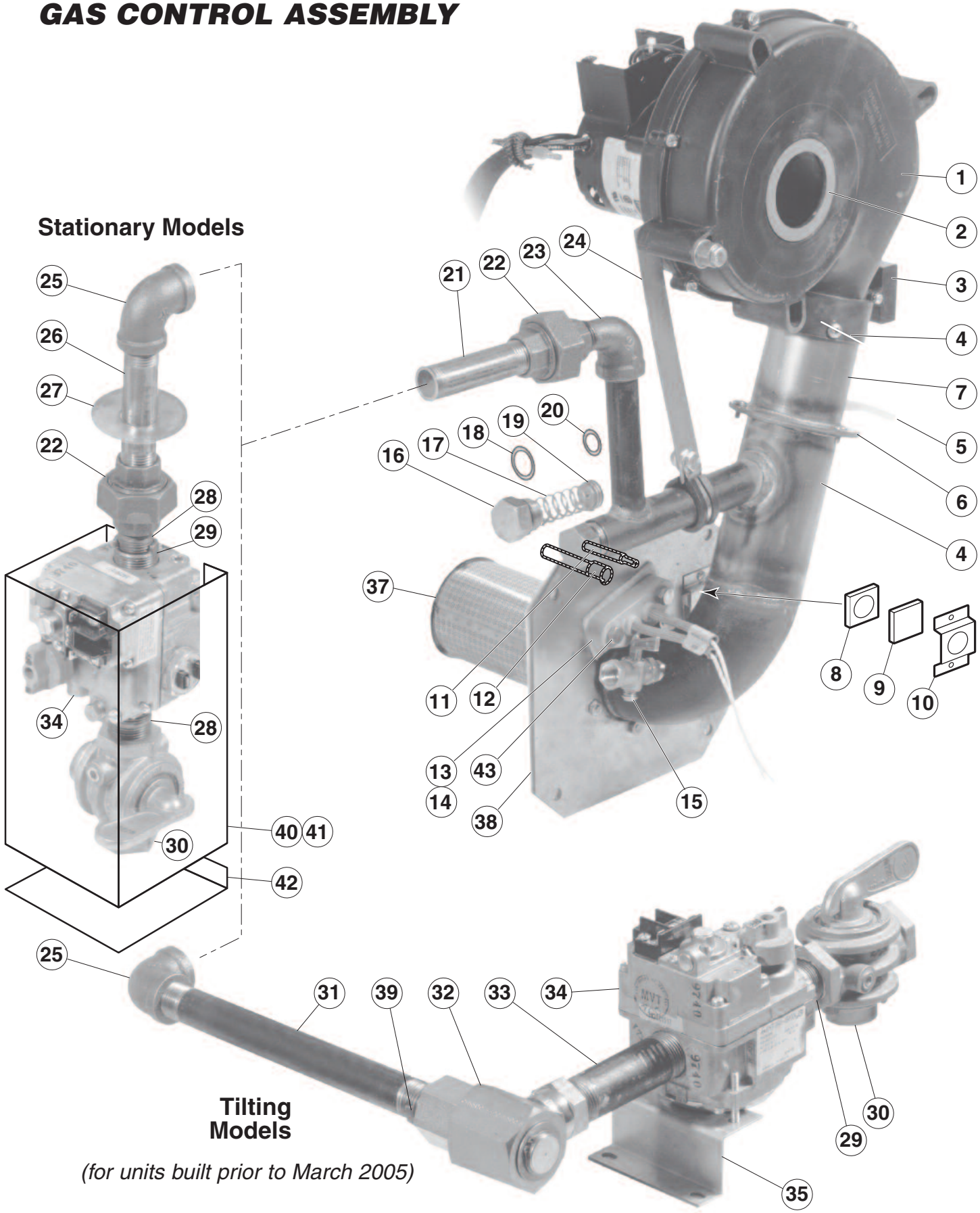
PRESSURE RELIEF ASSEMBLY





ITEM NO.	PART NO.	DESCRIPTION	QTY.
		PRESSURE RELIEF VALVE ASSEMBLIES	
1.	KE01450	FOR ASME KETTLES (INCLUDES #2-6)	1
	KE01450-1	FOR CE KETTLES (INCLUDES #2-6)	1
2.	FI05049	MALE CONNECTOR, 1/2" PIPE - 1/4" TUBE	1
3.	KE600812-1	STREET ELBOW, 90°, 1/2", BRASS	2
4.	KE600814-1	TEE, 1/2" FPT, BRASS	1
		SAFETY VALVES	
5.	KE54941-5	SAFETY VALVE, 50 PSI, 1/2" (NORTH AMERICA)	1
	KE54941-31	SAFETY VALVE, 50 PSI, 1/2", (EUROPE)	1
6.	KE54223	BLOW DOWN TUBE	1
7.	KE54864	ACCESS PANEL	1
8.	FA11518-4	THUMB SCREW, 10-32 X 1/2" L	1

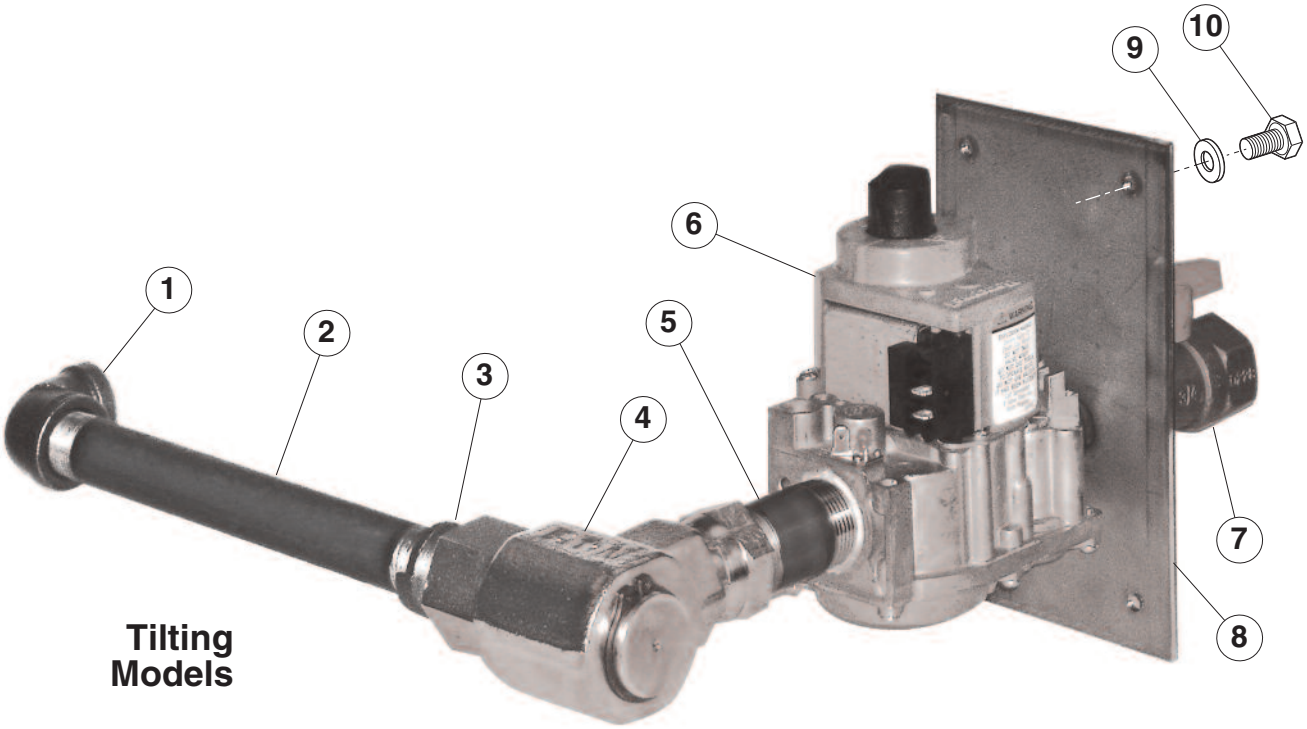
GAS CONTROL ASSEMBLY



GAS CONTROL ASSEMBLY

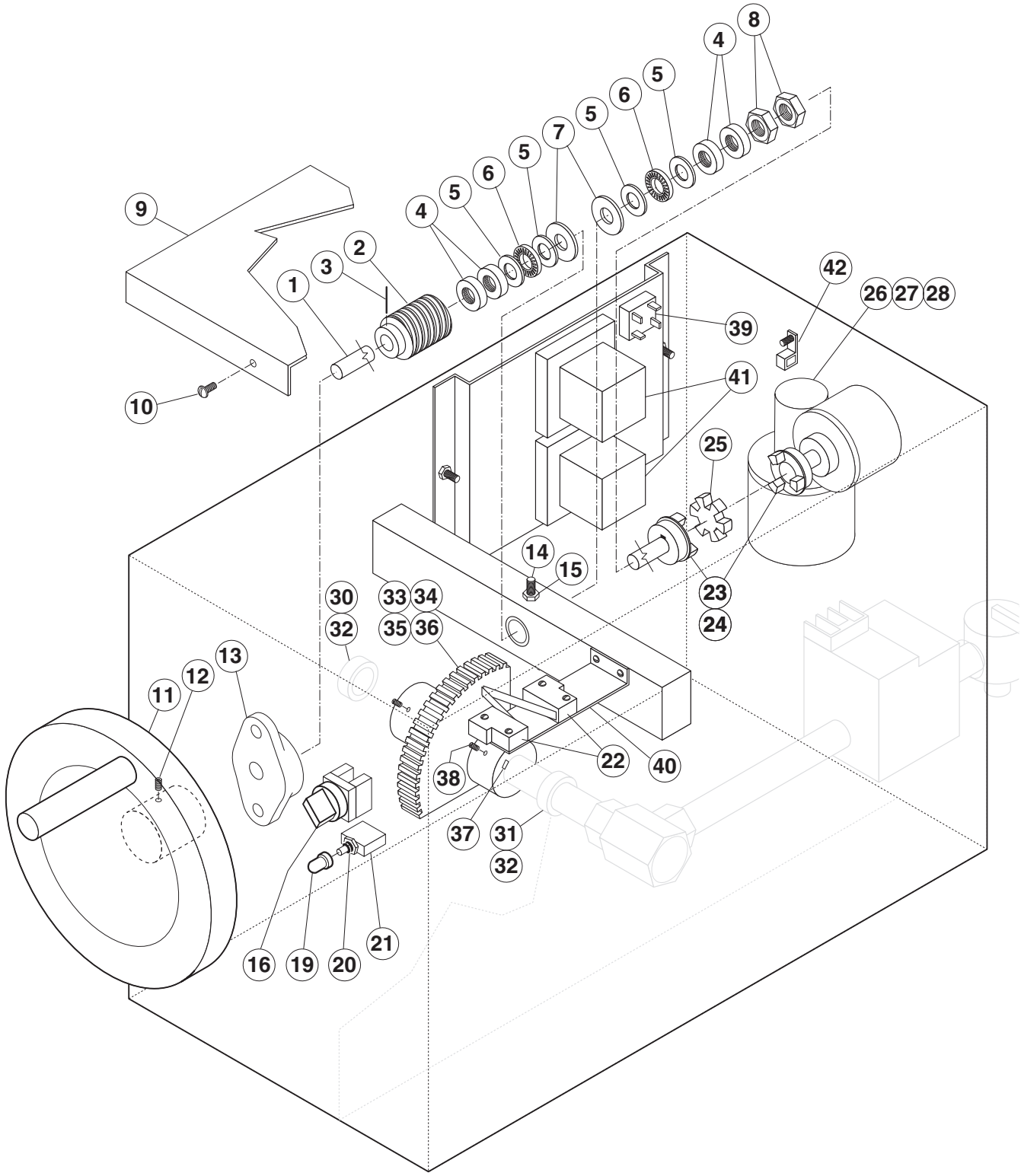
ITEM ON.	PART NO.	DESCRIPTION	QTY.
1.	KE53441	BLOWER, 115V, 60 HZ	1
	KE53441-1	BLOWER, 220V, 50 HZ	1
2.	KE54420	AIR INTAKE WASHER (NATURAL GAS, CE UNITS)	1
	KE54420-1	AIR INTAKE WASHER (PROPANE, CE UNITS)	1
3.	KE54239	CAPACITOR (C-W #2)	1
4.	KE01426-4	MIXING CHAMBER, 40 GALLON KETTLES	1
	KE01426-1	MIXING CHAMBER, 60 GALLON KETTLES	1
	KE01426-2	MIXING CHAMBER, 80 GALLON KETTLES	1
	KE01426-3	MIXING CHAMBER, 100 GALLON KETTLES	1
5.	RT00501	TUBING (SPECIFY LENGTH)	1
	FI05156	HOSE FITTING	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 (50 HZ BLOWER)	1
	KE53402-3	AIR ORIFICE, 60 - 100 GALLON KETTLES (50 HZ BLOWER)	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.	KE53437-3	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:***		
	KE53403-8	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.	N0440C5-312	NIPPLE, 1/2" NPT, 5 5/16" LONG	1
22.	FI00073	UNION, 1/2"	1
23.	FI00133	ELBOW, 1/2", STREET	1
24.	KE53909	STRIP, TO HOLD BLOWER DOWN	1
25.	FI00040-1	ELBOW, 1/2"	1
26.	N0440C4	NIPPLE, 1/2" NPT, 4" LONG, KGL-60-T	1
	N0440C3-875	NIPPLE, 1/2" NPT, 4" LONG, KGL-80-T	1
27.	KE55004-3	RETAINING PLATE	1
28.	N0640C2	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" (NOT FOR FRENCH CE KETTLES)	1
	F01518-2	GAS SHUT-OFF VALVE, 3/4" (FOR AUSTRALIAN KETTLES)	1
31.	N0440C8	NIPPLE, 1/2" NPT, 8" LONG	1
32.	FI05222	SWIVEL ELBOW	1
33.	FI05223-1	SPECIAL NIPPLE, 40 GALLON KETTLES	1
	FI05223-2	SPECIAL NIPPLE, 60 GALLON KETTLES	1
	FI05223-3	SPECIAL NIPPLE, 80 GALLON KETTLES	1
34.	KE02053	GAS VALVE ASSEMBLY	1
35.	KE53390	BRACKET FOR GAS VALVE	1
36.	N0640C1-5	NIPPLE, 3/4" NPT, 1 1/2" LONG	1
37.	KE01500-5	BURNER, 40 GALLON KETTLES, 140,000 BTU	1
	KE01500-1	BURNER, 60-100 GALLON KETTLES, 190,000 BTU	1
38.	KE53397	GASKET, BURNER	1
39.	FI05231	ADAPTOR	1
40.	KE601085	COVER FOR GAS VALVE	1
41.	RB018151	GASKET FOR COVER	1
42.	KE601085	BRACKET	1

GAS CONTROL ASSEMBLY



1.	FI00040-1	ELBOW, 1/2"	1
2.	N0440C2-375	NIPPLE, 1/2" NPT, 8" LONG	1
3.	FI05231	ADAPTOR	1
4.	FI05222	SWIVEL ELBOW	1
5.	KE53515-2	SPECIAL NIPPLE, 40 GALLON KETTLES	1
	KE53515-3	SPECIAL NIPPLE, 60 GALLON KETTLES	1
	KE53515-4	SPECIAL NIPPLE, 80 GALLON KETTLES	1
6.	KE55240R	GAS VALVE	1
7.	F01518-1	GAS SHUT-OFF VALVE, 3/4", CE	1
7.	F01518-2	GAS SHUT-OFF VALVE, 3/4", AUSTRALIA	1
8.	KE000960-1	NIPPLE PLATE WELDMENT, CE	1
8.	KE000960-2	NIPPLE PLATE WELDMENT, AUSTRALIA	1
	FA30505-1	WASHER, 1/4"	4
10.	FA11256	HEX BOLT, 1/4-20 X 1/2, 18-8 SS	4

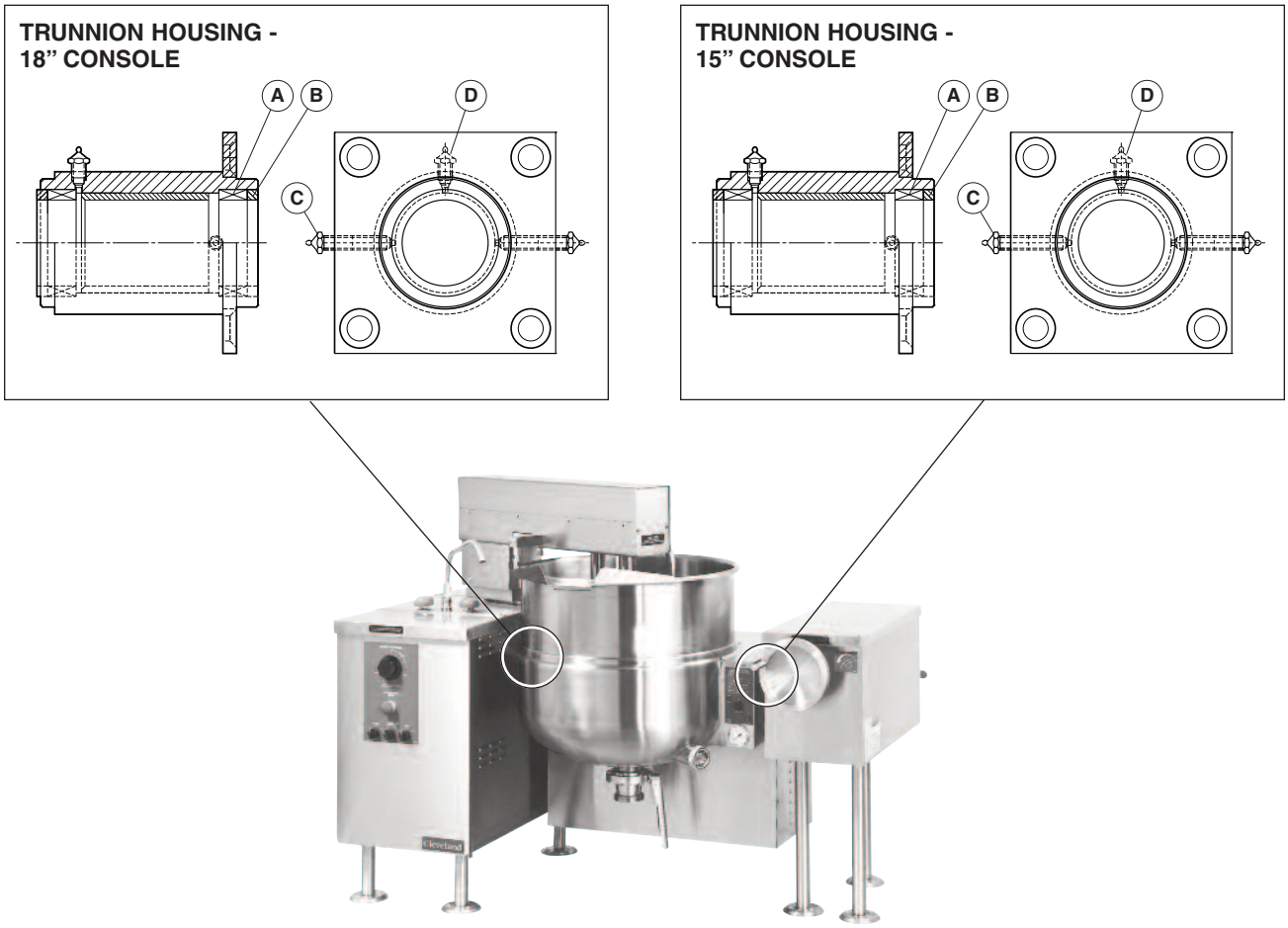
GEARBOX ASSEMBLY



GEARBOX ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE54644	TILT SHAFT, MANUAL TILT	1
	KE52836-2	TILT SHAFT, POWER TILT	1
2.	KE50315	WORM	1
3.	FA95005	TENSION PIN	1
4.	KE52193-1	THRUST BEARING SPACER	2
5.	KE52192	THRUST WASHER	4
6.	KE52191	ROLLER BEARING	2
7.	FA30088	WASHER	2
8.	FA95008	JAM NUTS	2
9.	KE54642-1	LID FOR GEARBOX, 40 GALLON KETTLES	1
	KE54642-2	LID FOR GEARBOX, 60 GALLON KETTLES	1
	KE54642-3	LID FOR GEARBOX, 80 GALLON KETTLES	1
10.	FA95062	PAN HD. PHILLIPS SCREW	6
11.	KE00508	HANDWHEEL ASSEMBLY	1
12.	FA19505	HANDWHEEL ALLEN SCREW, HEX SOCKET	1
13.	KE51730	TILT SHAFT BEARING	1
14.	FA19177	HEX SOCKET SET SCREW 5/16-24 X 1"	1
15.	FA20047	JAM NUT 5/16-24	1
16.	KE003209-11	Complete Switch	1
	KE603208-4	Momentary Switch Activator	1
	KE603208-7	Contact Section Holder, Latch	1
	KE603208-9	Contact Block	4
19.	KE50580	WATER RESISTANT BOOT	1
20.	FA05002-34	"O" RING, CIRCUIT BREAKER	1
21.	KE50579-1	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.	FA95055-6	SQUARE KEY 3/16 X 3/16 X 1" LG	1
25.	KE50583	RUBBER INSERT, ONTARIO BELTING "BUNA N"	1
26.	KE52832-1	MOTOR	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.	KE51886	GREASE NIPPLE	2
33.	KE001234-1	MICRO SWITCH TRIGGER/SEGMENT GEAR WELDMENT	1
34.	FA10772	SOCKET HD. CAP SCREW	2
35.	FA20030	HEX NUT 3/8-16	2
36.	FA95007-4	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.	KE52246	BRACKET	1
41.	KE50753-10	RELAY	2
42.	KE50473	GROUND LUG	1

TRUNNION ASSEMBLIES



18" CONSOLE

ITEM NO.	PART NO.	DESCRIPTION	QTY.
	KE01986	Trunnion Housing (includes A, B, C & D)	1
A.	KE52402	Bearing Housing Washer	2
B.	KE51711	Roller bearing	2
C.	KE52348	Grease Fitting, 1/4-24 Straight	2
D.	KE51886	Grease Fitting, 1/4-28 Straight	2

15" CONSOLE

ITEM NO.	PART NO.	DESCRIPTION	QTY.
	KE01986	Trunnion Housing (includes A, B, C & D)	1
A.	KE52402	Bearing Housing Washer	2
B.	KE51711	Roller bearing	2
C.	KE52348	Grease Fitting, 1/4-24 Straight	2
D.	KE51886	Grease Fitting, 1/4-28 Straight	2

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