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

Cleveland

Mixing Kettles - Gas, Horizontal Agitator 15.6" HMI & Potentiometer Control

Installation, Operation, Maintenance & Service

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

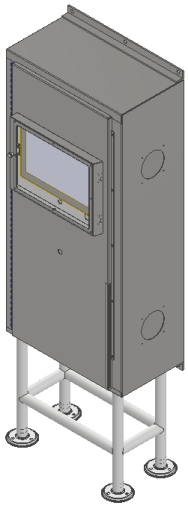
MODELS:

HA-MKGL-60	HA-MKGL-60-T
HA-MKGL-80	HA-MKGL-80-T
HA-MKGL-100	HA-MKGL-100-T

For your future reference.

Model # _____

Serial # _____



Model # & Serial #.

Read the manual thoroughly. Improper installation, operation or maintenance can cause property damage, injury, or death.

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Part # KE004017-2 Rev C
August 2025

STATEMENT OF RESPONSIBILITIES / DÉCLARATION DES RESPONSABILITÉS / DECLARACIÓN DE RESPONSABILIDADES

This document is for use by operators and Qualified Cleveland Range, LTD Authorized Representatives who are familiar with both the safety procedures, and equipment they service.

Cleveland Range, LTD assumes no liability for any death, injury, equipment damage, or property damage resulting from use of, improper use of, or failure to use the information contained in this document. Cleveland Range, LTD has made every effort to provide accurate information in this document but cannot guarantee that this document does not contain unintentional errors and omissions.

The information in this document may be subject to technical and technological changes, revisions, or updates. Cleveland Range, LTD assumes no liability or responsibility regarding errata, changes, revisions, or updates.

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

Ce document est destiné aux opérateurs et aux représentants qualifiés de Cleveland Range, LTD, qui connaissent bien les procédures de sécurité et l'équipement qu'ils entretiennent.

Cleveland Range, LTD décline toute responsabilité pour tout cas de décès, blessure, dommage matériel ou dommage aux biens résultant de l'utilisation, de la mauvaise utilisation ou du manquement d'utilisation des renseignements contenus dans ce document.

Cleveland Range, LTD s'est efforcé à fournir des renseignements précis dans ce document mais ne peut garantir que ce document soit exempt d'erreurs et d'omissions non intentionnelles.

Les renseignements contenus dans ce document peuvent être assujettis à des changements techniques et technologiques, des révisions ou des mises à jour.

Cleveland Range, LTD décline toute obligation ou responsabilité concernant les errata, modifications, révisions ou mises à jour.

Les Représentants de Service qualifiés et autorisés de Cleveland Range, LTD sont tenus de se conformer aux mesures de sécurité normalisées de l'industrie, y compris, mais sans s'y limiter, les réglementations de l'OSHA, les procédures de débranchement / verrouillage / étiquetage relatives à tous les services publics, dont l'approvisionnement en vapeur, et les procédures de débranchement / verrouillage / étiquetage relatives aux équipements et/ou appareils fonctionnant au gaz, à l'électricité et à la vapeur.

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, LTD sont tenus d'actualiser en permanence leurs connaissances, compétences, matériel et équipement.

Este documento es para uso de operadores y Representantes Autorizados Cualificados de Cleveland Range, LTD que estén familiarizados tanto con los procedimientos de seguridad, como con el equipo al que dan servicio.

Cleveland Range, LTD, 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.

Cleveland Range, LTD se ha esforzado en suministrar información precisa en este documento, pero no puede garantizar que este documento esté exento de errores y de omisiones no intencionales.

La información contenida en este documento podría estar sujeta a cambios técnicos o tecnológicos, revisiones o actualizaciones. Cleveland Range, LTD declina toda obligación o responsabilidad con respecto a erratas, modificaciones, revisiones o actualizaciones.

Los Representantes de Servicio calificados y autorizados de Cleveland Range, LTD tienen la obligación de seguir los procedimientos estándar de seguridad de la industria; los cuales incluyen pero no se limitan a los reglamentos de la OSHA (La Administración de la Seguridad y Salud Ocupacionales), los procedimientos de desconexión, cierre y etiquetado relativos a todos los servicios públicos incluyendo el suministro de vapor y los procedimientos de desconexión, cierre y etiquetado para los equipos y/o aparatos que funcionan a base de gas, electricidad o vapor.

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, LTD tienen la obligación de actualizar constantemente sus conocimientos, destrezas, materiales y equipamiento.

Cleveland

WARRANTY DISCLAIMER

Our Kettles, Mixers, Skillets, and Steamers are designed for commercial kitchen environments. To ensure optimal performance, longevity, and safety, the following conditions must be maintained:

- **Humidity & Moisture:** The equipment is designed to operate within standard commercial kitchen humidity levels of **40% to 65%** relative humidity. Prolonged exposure to humidity levels exceeding **65%** may compromise electrical components, cause condensation-related issues, and reduce equipment lifespan. Proper ventilation is essential to maintaining safe conditions.
- **Steam, Condensate & Water Exposure:** While the equipment can withstand occasional water splashes and steam exposure, direct and prolonged contact with high-pressure steam or continuous water spray may cause damage and void the warranty. Effective ventilation is required to manage steam buildup.
- **Ambient Temperature:** The recommended operating temperature range is **13°C (55°F) to 39°C (102°F)**. Exposure to temperatures beyond this range may impact performance, lead to malfunctions, or pose safety risks.
- **Ventilation Requirements:** Proper ventilation must be maintained to prevent excessive heat and humidity buildup, which can lead to overheating, reduced efficiency, and premature wear. Gas-fired equipment must only be installed under a ventilation hood in a room with adequate makeup air. Always consult local regulations to ensure compliance with ventilation standards.
- **Water Quality:** Follow Cleveland Range's water quality guidelines to ensure optimal equipment performance. Softening hard water reduces deposits, and filtration removes corrosive elements. Regular descaling, as recommended, prevents scale buildup. Consult a water treatment specialist and follow local regulations for proper management**.**
- **Installation and Preventive Maintenance:** Follow Cleveland Range's installation and preventive maintenance guidelines to ensure proper functioning and longevity of the units. Regular upkeep prevents issues and ensures optimal performance. Failure to follow the schedule may lead to reduced efficiency and breakdowns.
- **Drainage System:** Failure to follow Cleveland Range specifications may result in damage. Do not place a drain beneath the unit, as excessive moisture can shorten the lifespan of electrical and gas components, leading to potential malfunctions or hazards.

Failure to adhere to these conditions may result in decreased efficiency, equipment damage, or safety hazards and may void the manufacturer’s warranty

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 instalación 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.

Coloque en un lugar visible las instrucciones a seguir en caso de que el usuario perciba olor a gas. Esta información deberá obtenerse consultando al 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.

Inspect unit daily for proper operation. / Inspecter le bloc quotidiennement pour garantir le fonctionnement normal. / Inspeccione diariamente el funcionamiento correcto de la unidad.

Heavy. / Loud. / Pesado.

Team or mechanical lift. / Levage en équipe ou mécanique. / Levantamiento en equipo o mecánico.

Surfaces may be extremely hot! Use protective equipment. / Les surfaces peuvent être extrêmement chaudes ! Utiliser des équipements de protection. / ¡Las superficies pueden estar muy calientes! Utilice equipo protector.

Stand clear of product discharge path when discharging hot product. / Se tenir loin du chemin de purge des produits lors de la purge des produits chauds. / Manténgase alejado de la trayectoria de descarga del producto al descargar producto caliente.

Do not lean on or place objects on kettle lip. / Ne pas adosser ou placer des objets contre le bord de chaudron. / No se apoye en la tapa de la marmita ni coloque objetos sobre ella.

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

Keep hands away from moving parts and pinch points. / Tenir les mains à l'abri des pièces mobiles et des angles. / Mantenga las manos lejos de las piezas movibles y los puntos de presión.

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

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

Do not fill kettle above recommended level marked on outside of kettle. / Ne pas remplir le chaudron au-delà du niveau indiqué à l'extérieur. / No llene la marmita por encima del nivel recomendado marcado en la parte exterior 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.

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.

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.

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.

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.

Opening the drain cock will lead to the outflow of the hot contents of the boiling pan. Wear protective equipment when discharging hot product. / L'ouverture du robinet de vidange entraînera l'écoulement du contenu chaud de la marmite. Porter des équipements de protection lors de la purge des produits chauds. / La apertura de la llave de drenaje provocará la salida del contenido caliente de la marmita. Utilice equipo protector al descargar producto caliente.

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.

Shut off power at main fuse disconnect prior to servicing. / Couper l'alimentation sur le principal fusible sectionneur avant l'entretien. / Apague la alimentación eléctrica en el fusible desconectador principal antes de darle servicio.

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.

Ensure kettle is at room temperature and pressure gauge is showing zero or less prior to removing any fittings. / S'assurer que le chaudron se trouve dans une température ambiante et que le manomètre affiche zéro ou moins avant de déposer les raccords. / Asegúrese de que la marmita está a temperatura ambiente y el manómetro está mostrando cero o menos antes de quitar cualquier accesorio.

MAINTENANCE / ENTRETIEN / MANTENIMIENTO / WARTUNG

The pressure relief valve must be inspected every six months. / La soupape de décharge doit être inspectée à tous les six mois. / La válvula de descarga de presión debe ser inspeccionada cada seis meses.

Have a qualified service technician inspect your unit yearly. / L'unité doit être inspectée annuellement par un technicien de service qualifié. / Haga que un técnico de servicio calificado inspeccione su unidad anualmente.

INTENDED USES / UTILISATIONS PRÉVUES / USOS PREVISTOS

The appliance is intended to be used for commercial applications and in commercial enterprises, but not for continuous mass production of food. / L'appareil est destiné à être utilisé dans des applications commerciales et dans des entreprises commerciales, mais pas pour la production continue en masse de denrées alimentaires. / El aparato está destinado a ser utilizado para aplicaciones comerciales y en empresas comerciales, pero no para la producción continua de alimentos en masa.

NOTICE

FOR THE USER

Read the Operating instructions thoroughly before using this equipment.

FOR THE INSTALLER

Read the Installation instructions thoroughly before installing or servicing this equipment.

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

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.

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.

MODEL NUMBER LEGEND:

1	2	3	-	4	-	5

1 – Type of Equipment
HA-MK = Horizontal Agitator Mixer Kettle

2 – Type of Power
G = Gas

3 – Type of Mount
L = Legs or Frame

4 – Designation of Capacity in Gallon
60 = 60 Gallons
80 = 80 Gallons
100 = 100 Gallons

5 – Tilting Options
Blank = Stationary
T = Tilting

INSTALLATION

GENERAL

Operating Criteria	Acceptable Range
Ambient Air Temperature	15-40 °C
Relative Humidity	0-80%
Altitude	0-2000 meters
Voltage	208-240,480,3ph,60Hz
Location	Inside building, under ventilation hood

Ensure gas and electrical supplies match rating plate.

Installation of the kettle must be accomplished by qualified 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, A.G.A., NSF, ASME/N.Bd., CSA, CGA, ETL, and others. Many local codes exist, and it is the responsibility of the owner/installer to comply with these codes.

Observe all clearance requirements. Do not obstruct 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. As soon as damage is discovered or suspected, notify the carrier that delivered the shipment.
2. 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.
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
HA-MKGL-60-T	1,010 lbs.	1,050 lbs.
HA-MKGL-80-T	1,120 lbs.	1,160 lbs.
HA-MKGL-100-T	1,325 lbs.	1,365 lbs.
HA-MKGL-60	940 lbs.	980 lbs.
HA-MKGL-80	1,030 lbs.	1,070 lbs.
HA-MKGL-100	1,110 lbs.	1,150 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 the 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 the manual.
7. Lift kettle off skid and move kettle to its installation location.
8. Discard packaging material according to local and or state requirements

Model # & Serial #.

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.

POSITIONING

This unit must be installed in accordance with the clearances shown on the rating label which is adhered to the unit.

1. When removing the kettle from the platform, handle with care to prevent scratching or any other damage. It is imperative that the kettle be level before bolting to the floor. This will prevent any twist or out of roundness to the kettle and will stop deflection of the agitator. Make sure the kettle is securely bolted to the floor and follow the procedure listed below:

   ⇒ Position the kettle in its permanent location, check clearances and level the kettle by turning the adjustable feet.

   ⇒ Lower the flange or flanges under the motor channel. Over adjustment, whether up or down, could cause misalignment and cause damage to the agitator drive shaft and hub (stationary kettles only).
2. Once positioned and leveled, permanently secure the kettle’s flanged feet to the floor using 1/2 x 2 1/2 inch lag bolts and floor anchors (supplied by the installer). Two bolts per leg are required to secure each of the flanged feet.

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.

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 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.

ELECTRICAL

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

Electrical installation must be in accordance with local codes and/or the National Electric Code ANSI/NFPA 70-1990 (USA) or the Canadian Electrical Code CSA Standard C22.1 (Canada). The kettle must be electrically grounded by the installer.

A separate fused disconnect switch must be supplied and installed in the high voltage electrical supply line.

A wiring diagram is affixed to the top of component box cover. Remove the right-side panel to access component box. Feed the wiring through the cut-out in the bottom of the console using liquid tight conduit.

For proper electrical connections of units with remote controls please refer to the wiring diagram included with the unit. For tilting units wiring package is attached under the gearbox cover. For stationary units it is inside the Inverter housing on the left side of the kettle. For units with Remote consoles, it is inside the console box.

WATER

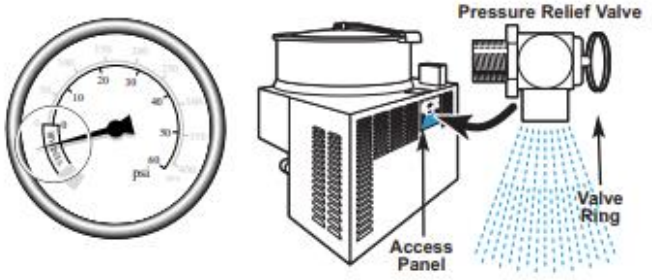
The sealed jacket of the gas-fired kettle is precharged with the correct amount of a water-based formula, and therefore, no water connection is required to the kettle jacket. The kettle can be equipped with optional hot and cold-water taps, requiring 1/2" copper tubing as supply lines

INSTALLATION CHECKS & OPERATION CHECKS

Although the unit has been thoroughly tested before leaving the factory, the installer is responsible for ensuring the proper operation of unit 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 Kettle Venting Instructions.
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.
10. After installation the kettle must be thoroughly cleaned and sanitized prior to cooking.

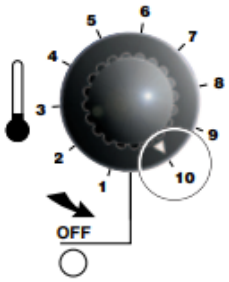
KETTLE VENTING INSTRUCTIONS



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 FITTING).

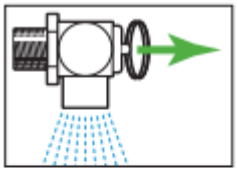
1. Remove Access Panel from back of main kettle console.



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

HMI INSTALLATION INFORMATION

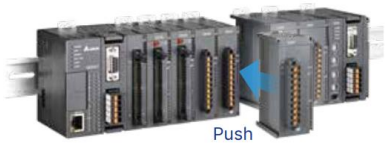
NEMA Rating	The HMI product is NEMA 4 rated (Indoor use only)
Electrical Environment	The HMI product has been tested to conform to European CE requirements. This means that the circuitry is designed to resist the effects of electrical noise. This does not guarantee noise immunity in severe cases. Proper wire routing and grounding will ensure proper operation.
Environement Considerations	(1) Make sure that the displays are installed correctly and that the operating limits are followed. Avoid installing units in environments where severe mechanical vibration or shocks are present. (2) Do not operate the unit in areas subject to explosion hazards due to flammable gases, vapor or dusts. (3) Do not install the unit where acid gas, such as SO2 exists. (4) This device should be mounted vertically on a flat surface. (5) Conform to UL 61010-1 safety requirement for use in Pollution Degree 2 Environment and dry location. (6) Relative Humidity: 10% ~ 90% (non-condensing)
Cleaning considerations	Clean the device using dry cloths. Do not use liquid or spray detergents for cleaning.
IP Rating	IP 66
Warning ⚠	Protection impairment if used in a manner not specified by the manufacturer. Déficit de protection si utilisé d'une manière non spécifiée par le fabricant.

PLC INSTALLATION INFORMATION

Disassembly

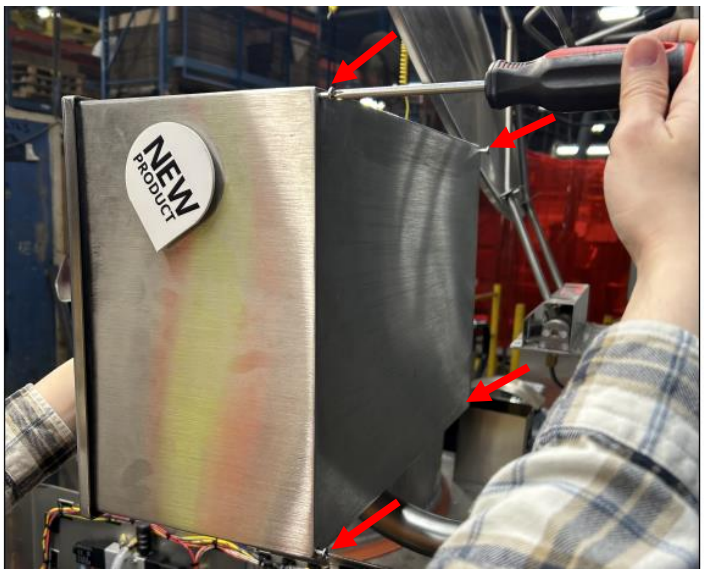
Release the clip ring to easily take out the module from the front without moving adjacent modules

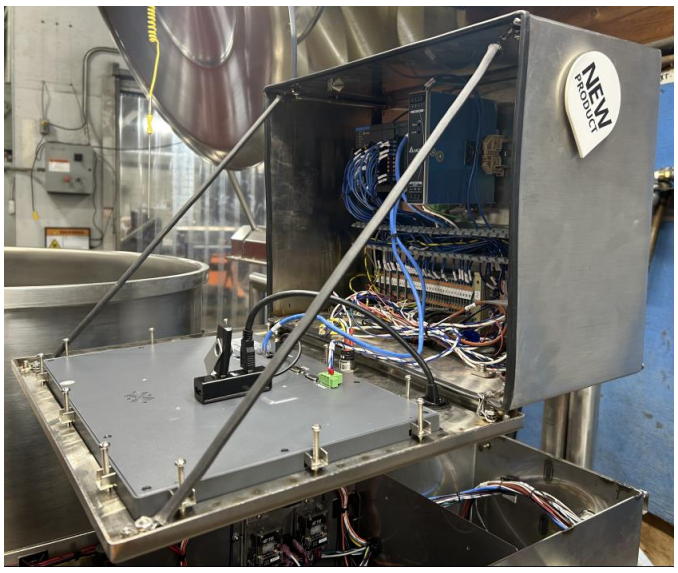
Installation



Press the clip rings and push the module to the desired position until you hear a "click" to finish installation

HMI BIRDHOUSE INTERIOR ACCESS INSTRUCTIONS





1. Holding the front panel, unscrew the 4 screws located at the back (screw locations indicated by the red arrows in the picture above).
2. Slowly lower the front panel. The HMI birdhouse interior can now be accessed.

⚠ WARNING

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

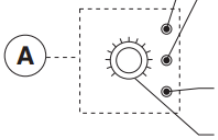
OPERATING INSTRUCTIONS

OPERATING CONTROLS AND INDICATORS (POTENTIOMETER)

WARNING:

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

NOTE:
Location of switches may vary dependent on customers specific options

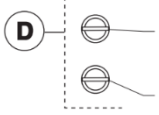


Green Heat Indicator Light - When lit, in on; cycles on-off with solid state controls.

Red Low Water Indicator Light - When lit, in the upright position, indicates kettle gas burner has cut out and unit requires more water. Occasional pulsing of this light is normal.

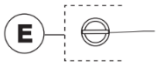
Orange Off Indicator Light

Solid State Temperature Control Knob / On-Off Toggle Switch - Controls electrical power to kettle. and allows operator to select kettle heat increments from minimum, 1-10. A setting of 7 or higher will boil water.

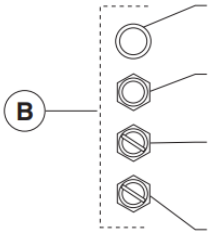


Potable Fill Water Switch
Selects hot or cold water

Fill Cycle Switch
Start/continue cycle switch



Product Discharge Valve Switch
Toggle momentary switch to desired valve opening

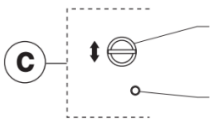


Agitator Stop Button
Stops agitator in case of emergency

Agitator Start Switch
Starts agitator. Agitator power control switch must be ON

Agitator Power Switch
Allows power to agitator. When not in use, turn control power OFF

Agitator Speed Control Switch
Turn clockwise until desired speed is reached



Power tilt control switch
Tilts kettle for pouring; some kettles have manual hand tilt

Reset circuit breaker
Protects power tilt system from overload. Push to reset

1. **Temperature Sensor**
   Senses temperature of product
2. **Automatic Dump Valve**
   Empties kettle of either food product or wash water
3. **Sight Glass**
   For checking water level of kettle jacket
4. **Vacuum /Pressure Gauge**
   Indicates steam pressure inside steam jacket in PSI, as well as vacuum in inches of mercury
5. **Gas Shut-Off Valve**
6. **Air Quick Connect**
   Push yellow tab down to release air pressure before disconnecting air hose
7. **Kettle Filler Nozzle**

OPERATING CONTROLS AND INDICATORS (WITH HMI)

WARNING:

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

⚠ WARNING

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

1. **Temperature Sensor**
   Senses temperature of product
2. **Automatic Dump Valve**
   Empties kettle of either food product or wash water
3. **Sight Glass**
   For checking water level of kettle jacket
4. **Vacuum /Pressure Gauge**
   Indicates steam pressure inside steam jacket in PSI, as well as vacuum in inches of mercury
5. **Gas Shut-Off Valve**
6. **Air Quick Connect**
   Push yellow tab down to release air pressure before disconnecting air hose
7. **Kettle Filler Nozzle**
8. **15.6” HMI Touchscreen**
   Control screen to operate the Mixer and all its features. Refer to page 15 for HMI instructions.

OPERATING THE KETTLE

Intended Use:

Processing 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)	60 gal	80 gal	100 gal
Primary arm with blades	51 (9.5)	65 (10.4)	70 (32)
Screen	7 (3.2)	8 (3.6)	9 (4.1)
Air valve complete			12 (5.4)
Air cylinder only			8 (3.6)
Airvalve body only			4 (1.8)

Noise level

Noise level maximum 80 decibels.

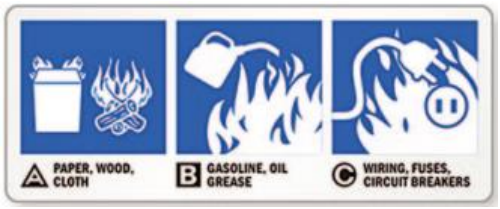
Rim (loading) heights

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
60 gal	50 1/4”
80 gal	51 3/4
100 gal	54 1/4"

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.

1. Perform daily startup inspection.

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

NOTE: Certain combinations of ingredients will result in temperature variations

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 performed immediately after cooked foods are removed.

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

⚠ WARNING

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

HEATING INSTRUCTIONS (POTENTIOMETER)

Manual Heating

1. Turn temperature control knob clockwise to turn on the kettle, Green light will come on.
2. Turn temperature control knob to desired setting. (1- 10)

If Red light is on, it indicates that the water level is low in the jacket.

Picture **#1**

Mixing (“AGITATOR”)

WARNING
Never add product to kettle while agitator is running
Do not put hands in kettle
Watch for loose clothing near agitator

1. Turn "**SPEED CONTROL**" to "**0**"
2. Switch agitator to "**ON**".
3. Push agitator "**START**" to initiate mixing.
4. Turn "**SPEED CONTROL**" to desired mixing speed.
5. To stop mixing action, push agitator **stop** button.

NOTE: Mixing speed depends on the product consistency. The faster the mixing speed the more damage may be done to fragile product.

Emptying the Kettle

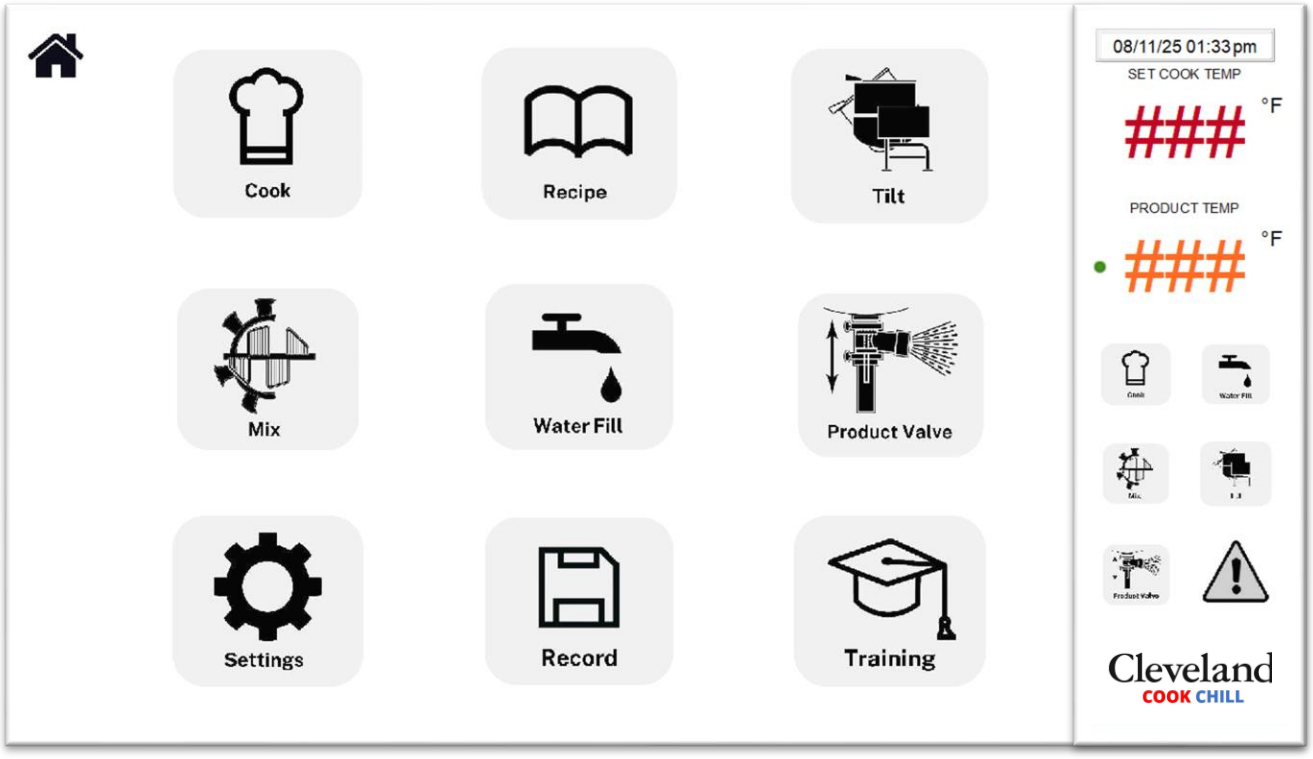
1. To open automatic dump valve:
   - Turn PRODUCT DISCHARGE VALVE switch clockwise to JOG TO OPEN. Release switch to the HOLD position when desired valve opening is achieved.
   - To close valve, turn switch counterclockwise to CLOSED position.
2. To avoid splashing, slowly empty kettle contents into an appropriate container by partially opening discharge valve.

NOTE: When pumping with a Metering Filling Station the speed of the agitator arm must be sufficient to suspend the heavier items in the mix in order to achieve an even distribution in your packaged items.

3. Immediately clean kettle as outlined in CLEANING INSTRUCTIONS on page.

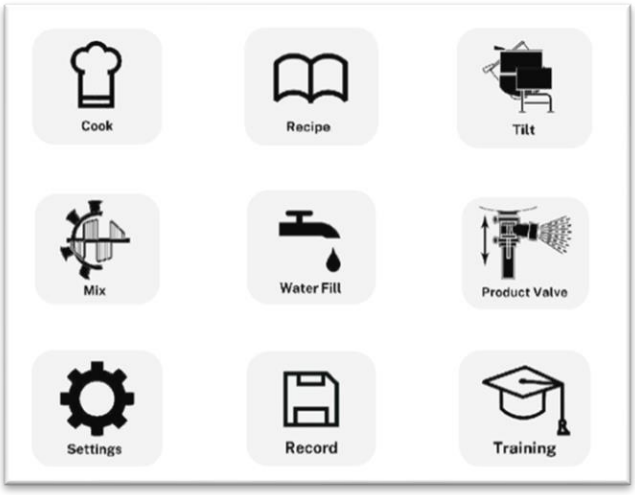
HMI GUIDE

HOME SCREEN



Action items

Click on the icons below to get to the respective tabs.



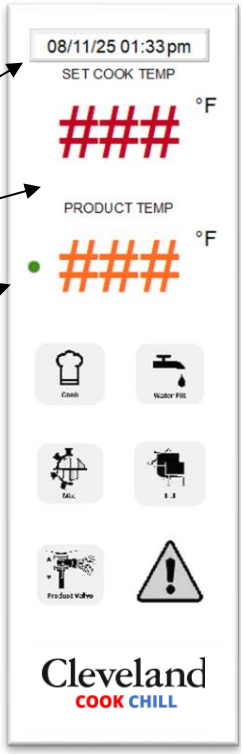
Indicators / Shortcuts

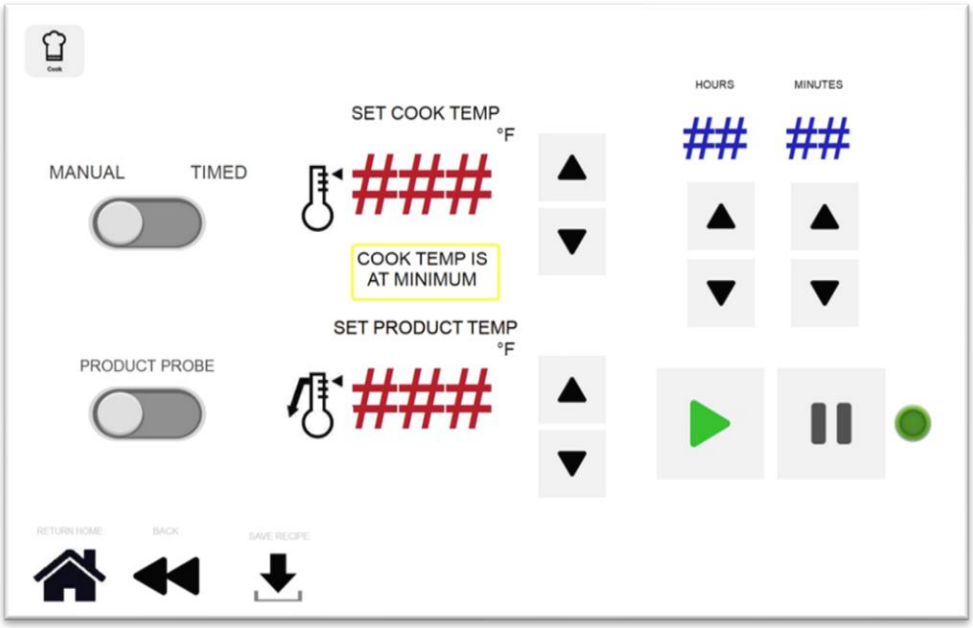
Date & Time indicator

Set cook temp indicator

Live product temp indicator.
- Green light indicates product temperature has been reached

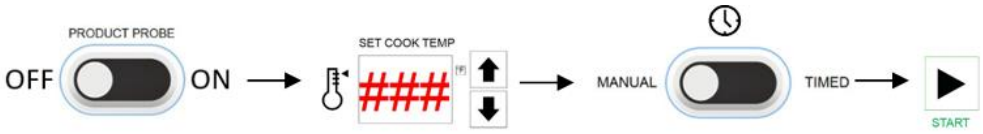
Press “RESET FAULT” to reset the fault on the drive





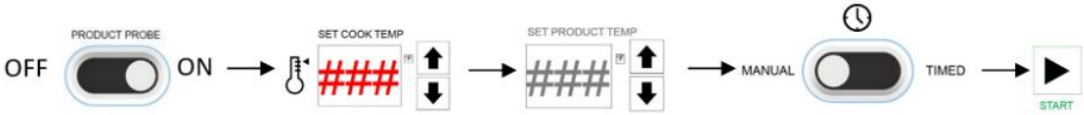
⚠ *'Make sure there is no alert before you cook.'*

Option 1: Cook + Without Product Probe + Indefinite Time:

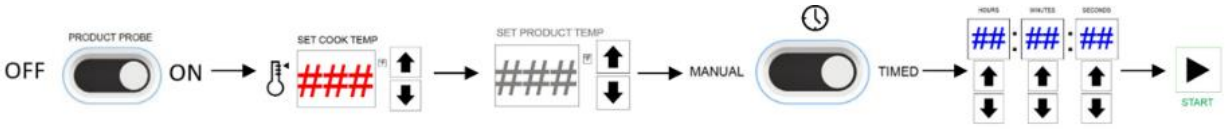


Option 2: Cook + Without Product Probe + Timed:

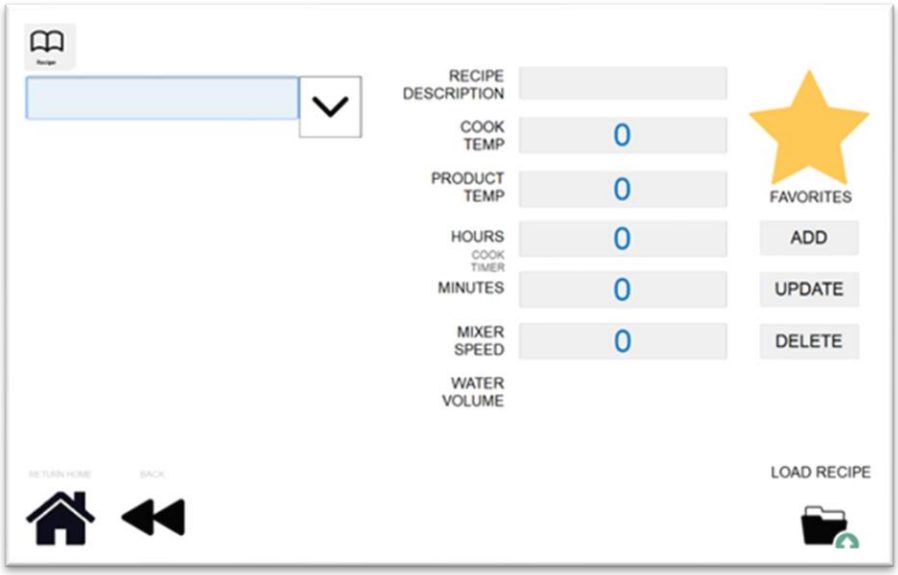
Option 3: Cook + With Product Probe + Indefinite Time:



Option 4: Cook + With Product Probe + Time



To ADD, UPDATE and DELETE a recipe



To Add a Recipe:

- In the recipe description field, enter the name of the recipe you want to create.
- Set the cook temperature, the product temperature, the cooking time (hours and minutes), the mixer speed and the mixer volume.
- Click “ADD” ADD and the recipe will be saved and will appear in the dropdown menu on the left

To Delete a Recipe:

- From the dropdown menu select the recipe you want to delete.
- Click the “DELETE” DELETE button.
- The selected recipe will be removed.

To Update a Recipe:

- From the dropdown menu, click on the recipe you want to update.
- Modify any parameters as needed (e.g., cook temperature, time, speed, etc.).
- Click “UPDATE” UPDATE and the recipe will be updated

To Favorite a Recipe:

- Click on “FAVROITES” and follow the prompts to add, delete, or update a FAVORITE recipe.

Load a Recipe:

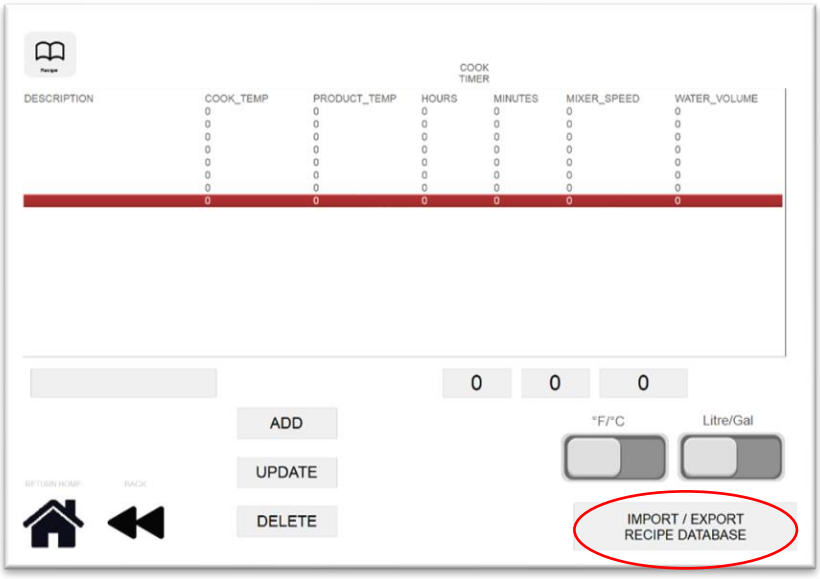
- The Load a Recipe feature recalls all saved settings like cook time, temperature, and mixer speed.

Import and Export a Recipe

To Import/Export a Recipe:

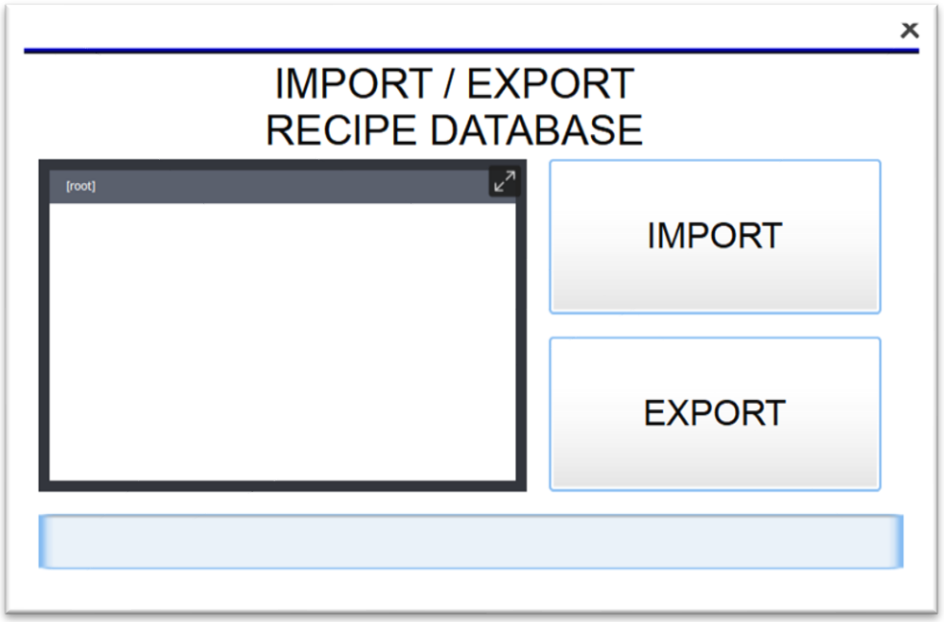
- Click on the Favorites button 

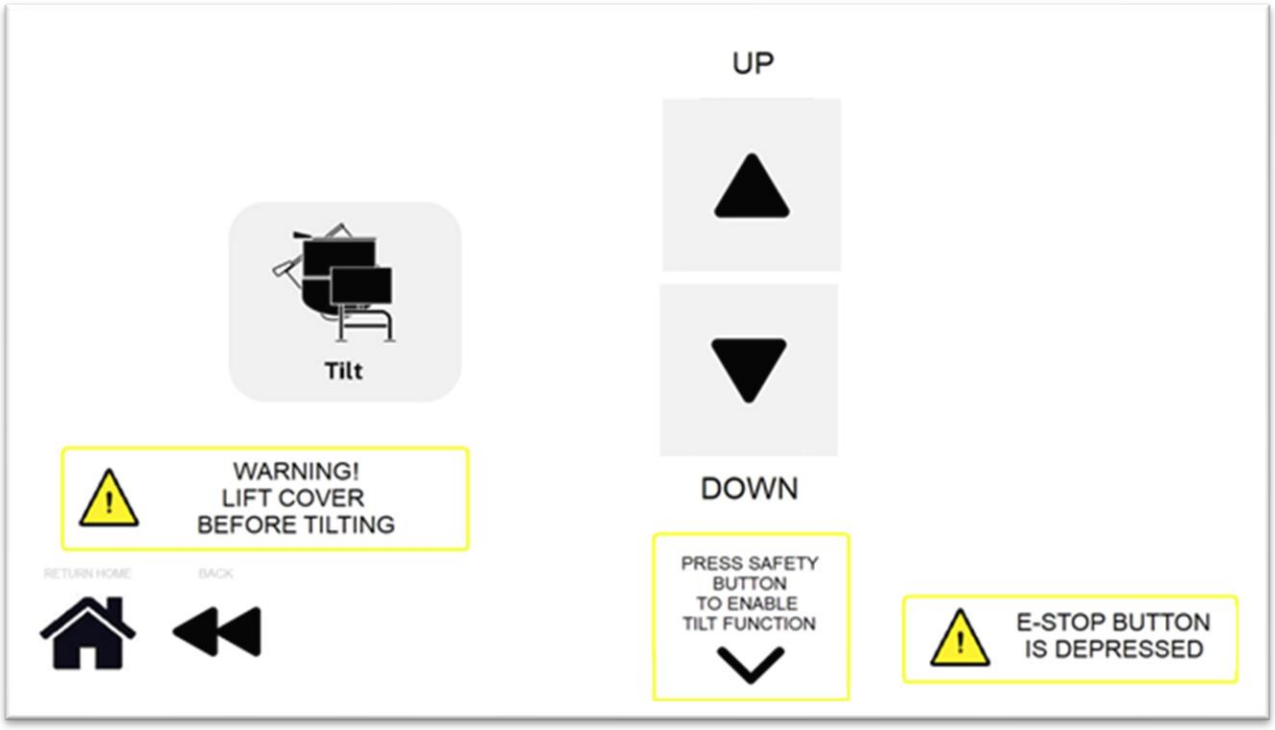
under the Recipe section. This screen shoud come up.



- Click on the Import/Export button at the bottom

1. **To Import a Recipe:**
    - Select a recipe from the available data list.
    - Click Import to add it to your system.
2. **To Export a Recipe:**
    - Select the recipe you want to export.
    - Click Export to save it to the database



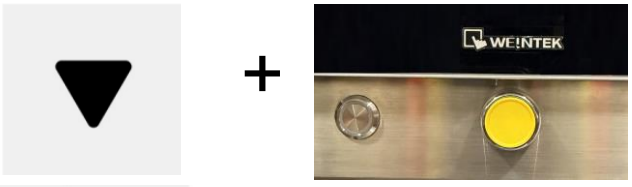


⚠ *'Make sure there is no alert before you tilt.'*

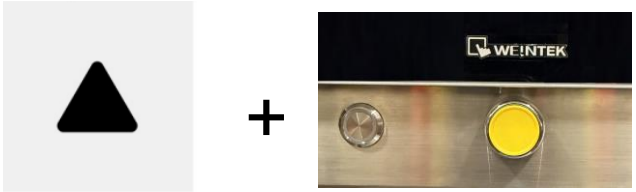
This can only be done while pressing the yellow safety button found on the birdhouse.

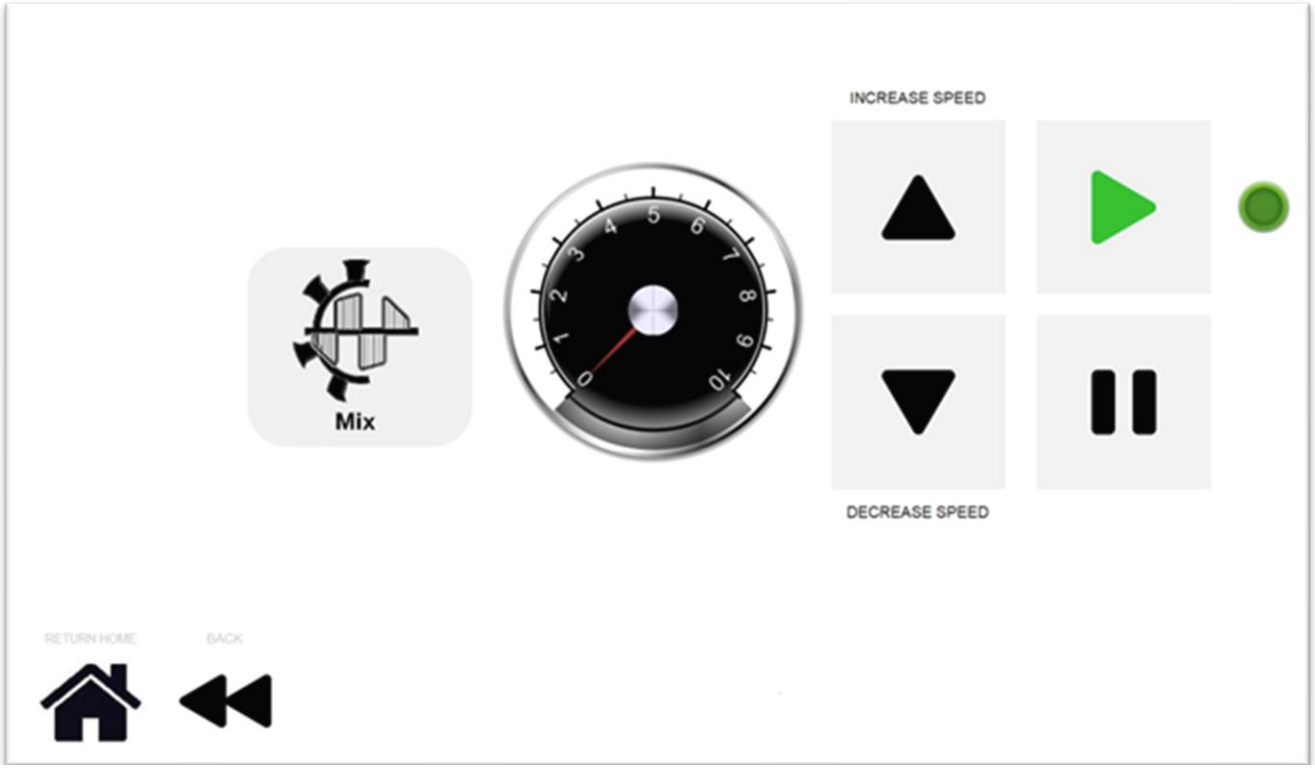
⚠ Lift the kettle cover all the way up before tilting the kettle down.

To tilt the kettle **DOWN,** push the yellow button then the arrow at the same time



To tilt the kettle **UP,** push the yellow button then the arrow at the same time



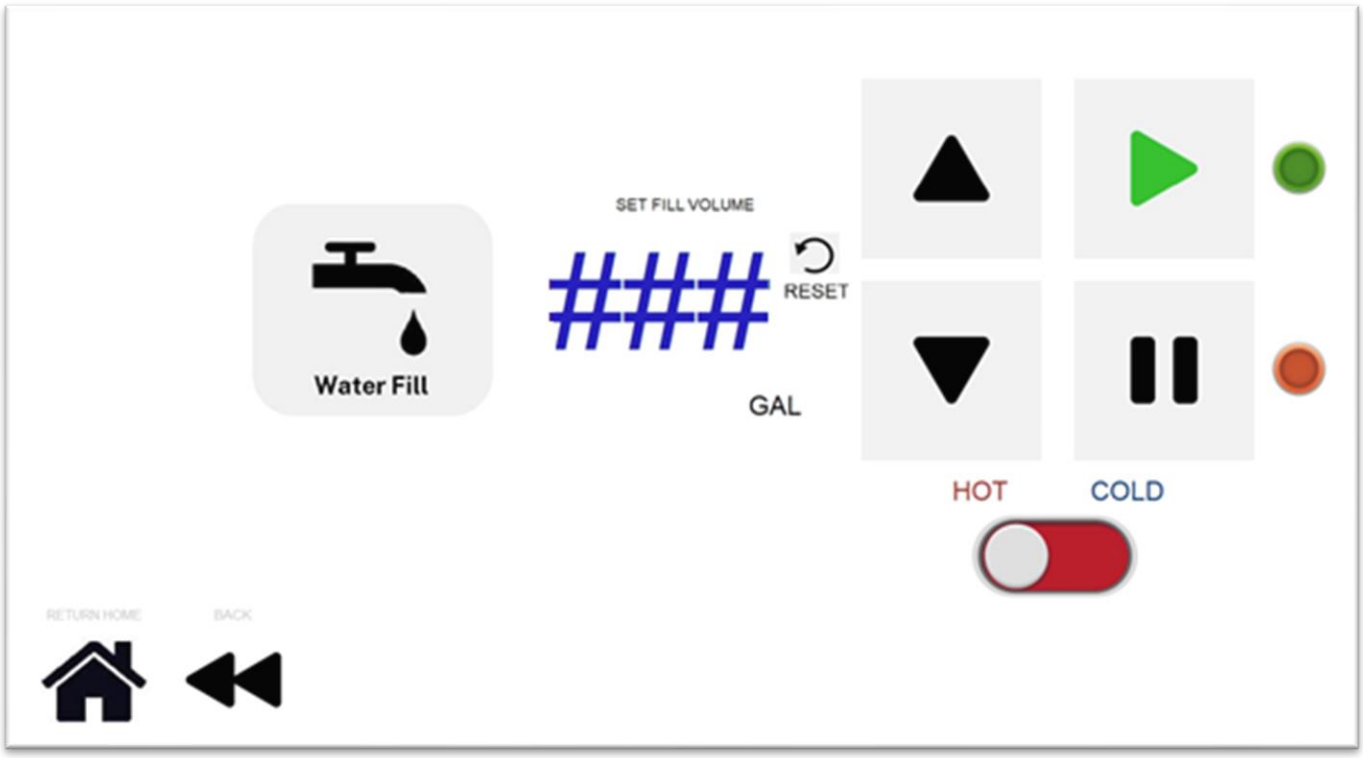


⚠ *'Kettle cover should be down before starting to Mix.'*

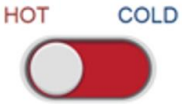
- **TO START MIX**:
  1) Set the speed using the arrows:

  2) Push Start button.

- **TO STOP MIX**:
  1) Push stop key.



⚠ *'Make sure there is no alert before you fill water.'*

1) Choose 

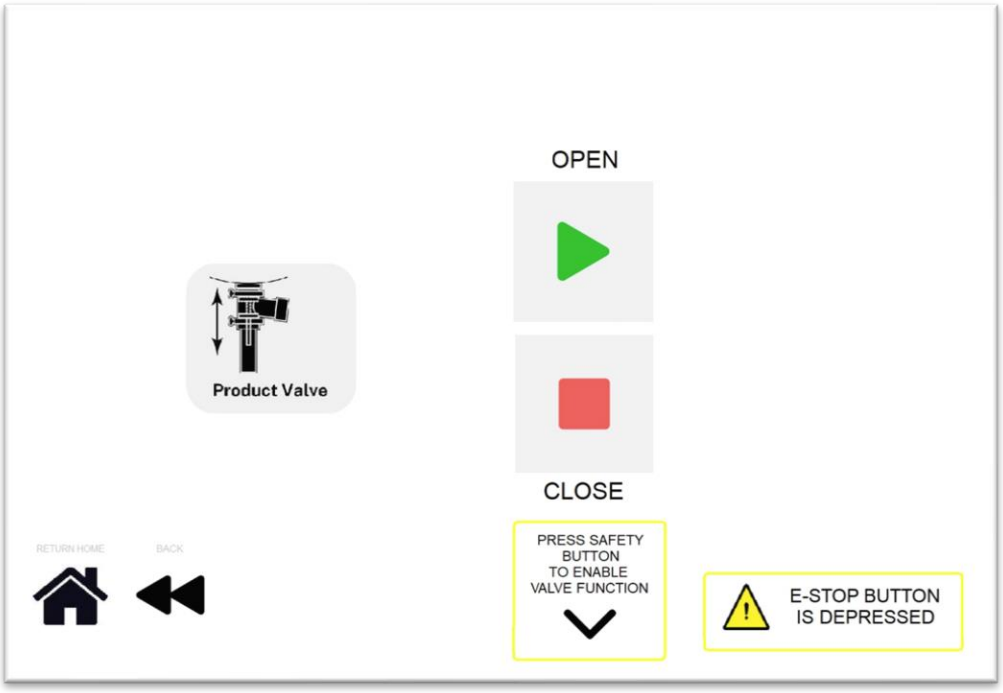
2) Set fill volume 

Go to Setting screen to change Gallons / Liters.

3) Start water fill, 

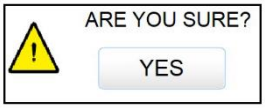
4) 

→ Reset the set fill volume to zero before changing the set volume.



⚠ *'Make sure there is no alert before you open product valve.'*

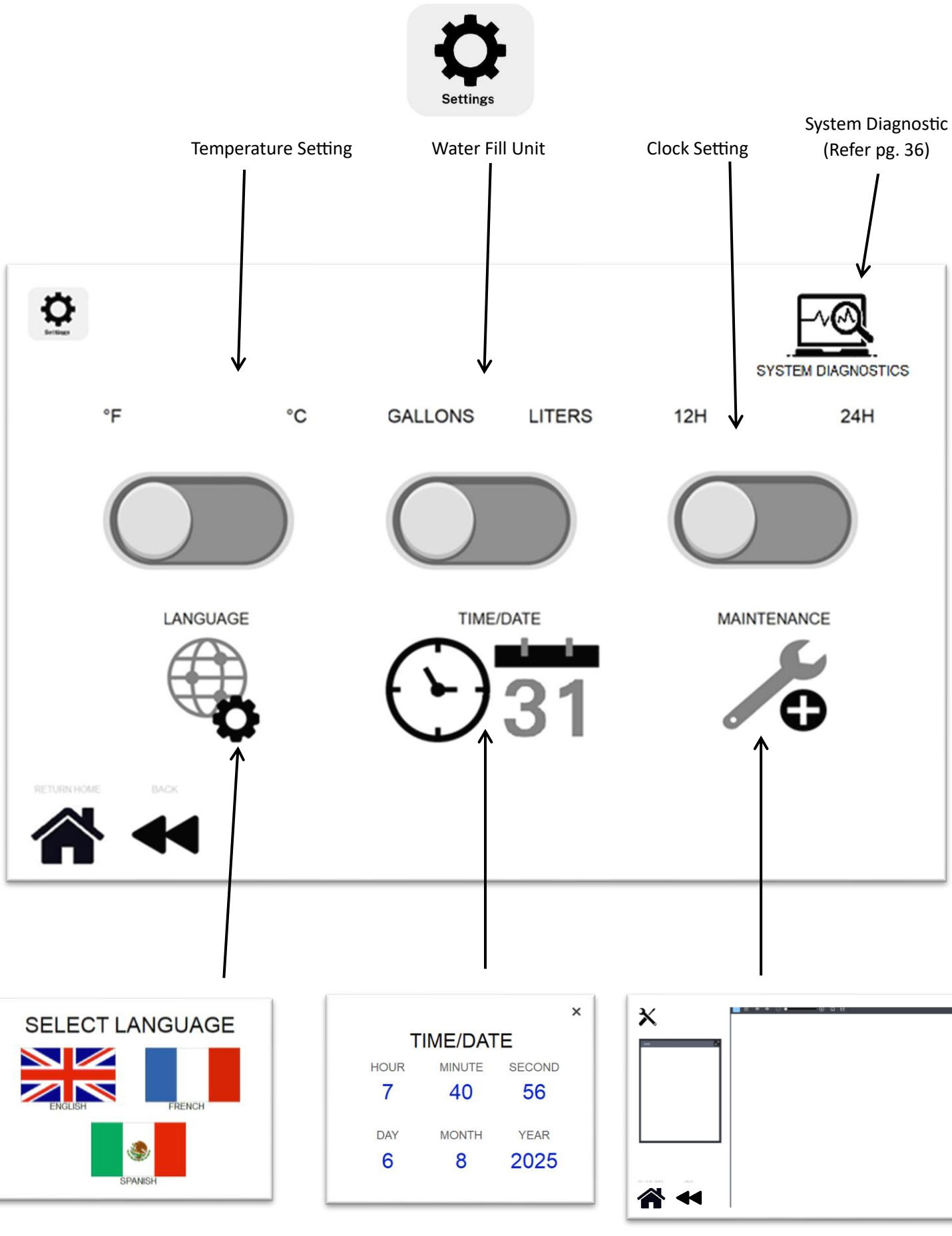
This can only be done while pressing the yellow safety button found on the birdhouse.

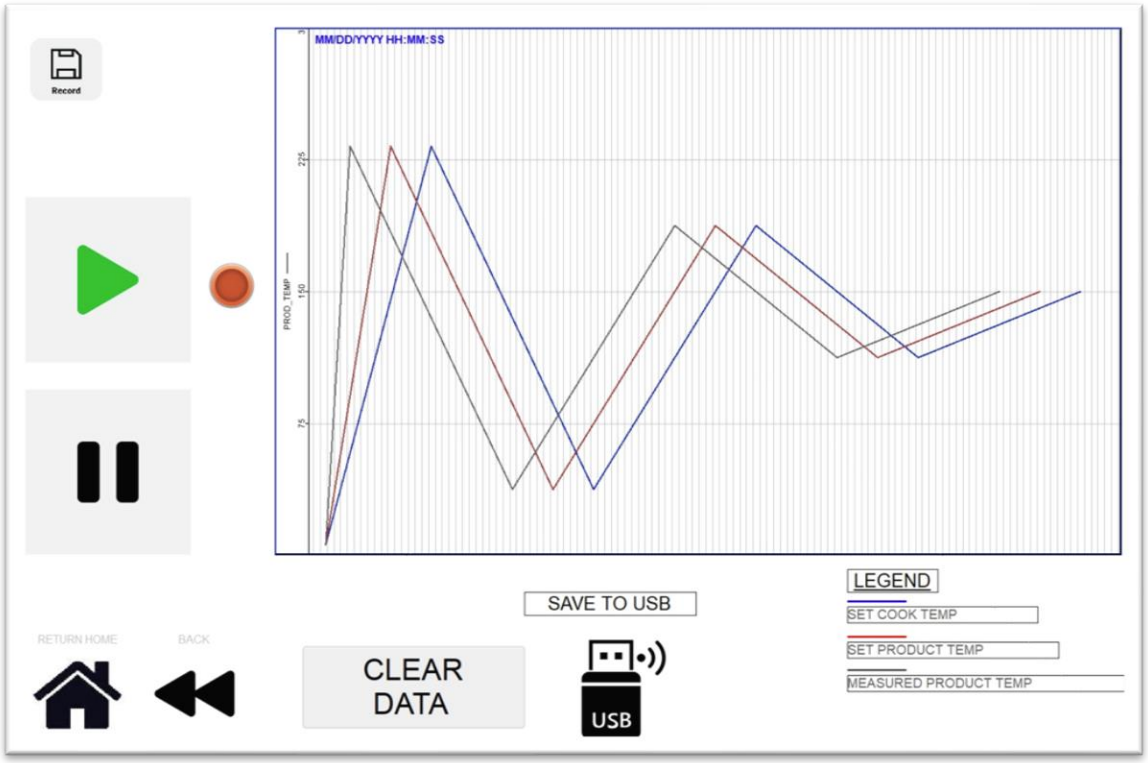


→ This alert will pop-up only at the beginning of every cooking cycle.

- To open the product valve, the yellow safety button  must be pressed simultaneously while pressing the open or close button
- To open the product valve PARTIALLY or FULLY, PRESS and HOLD 

- To close the product valve, press 


Settings
Temperature Setting
Water Fill Unit
Clock Setting
System Diagnostic
(Refer pg. 36)
SYSTEM DIAGNOSTICS
°F
°C
GALLONS
LITERS
12H
24H
LANGUAGE
TIME/DATE
MAINTENANCE
RETURN HOME
BACK
SELECT LANGUAGE
ENGLISH
FRENCH
SPANISH
TIME/DATE
HOUR
MINUTE
SECOND
7
40
56
DAY
MONTH
YEAR
6
8
2025

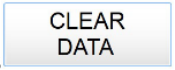


- To record the temperatures of the cooking cycle, press START  before you begin the cooking cycle.

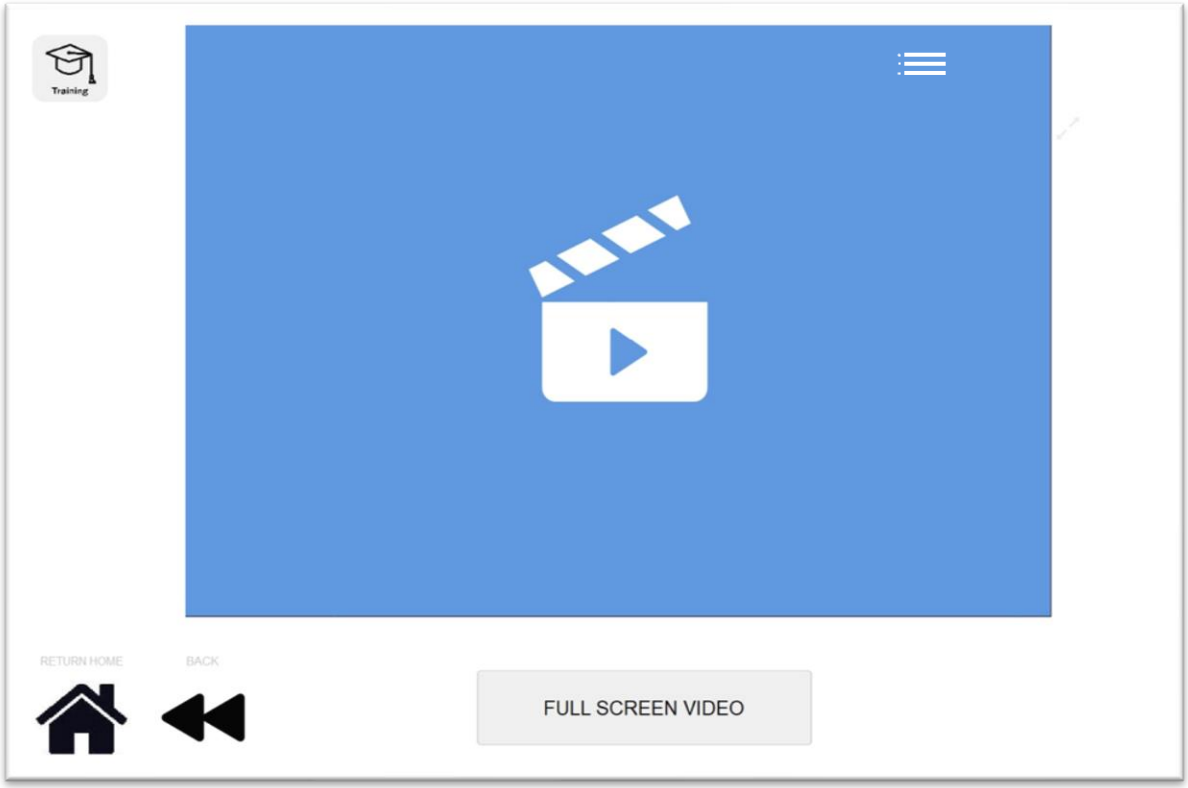
- Red light  indicates the data is being saved.

- To stop the recording at any point of time, press STOP 

- Insert the thumb dive inside the port on the bird house and press  to transfer the data to thumb drive.

- To erase all the data in the HMI, press 

Click here to watch training videos



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 — Steam Cleaner

Unit should never be cleaned with a high-pressure spray hose or steam cleaner.

Stagnant Water

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

CLEANING INSTRUCTIONS

1. Turn unit off and disconnect unit from the power source.
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.
6. Drain unit.
7. Rinse interior thoroughly.
8. If the unit is equipped with a **Butterfly Valve**, clean as follows:
   a) Place valve in open postition.
   b) Wash using warm water and mild detergent solution
   c) Remove food deposits using nylon brush.
   d) Rinse with fresh water.
   e) Leave valve open when unit is not in use
9. 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 an O-rings.
   h) Grease and resinstall 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.
10. 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 web- site (www.nafem.org).

DISPOSAL INSTRUCTIONS

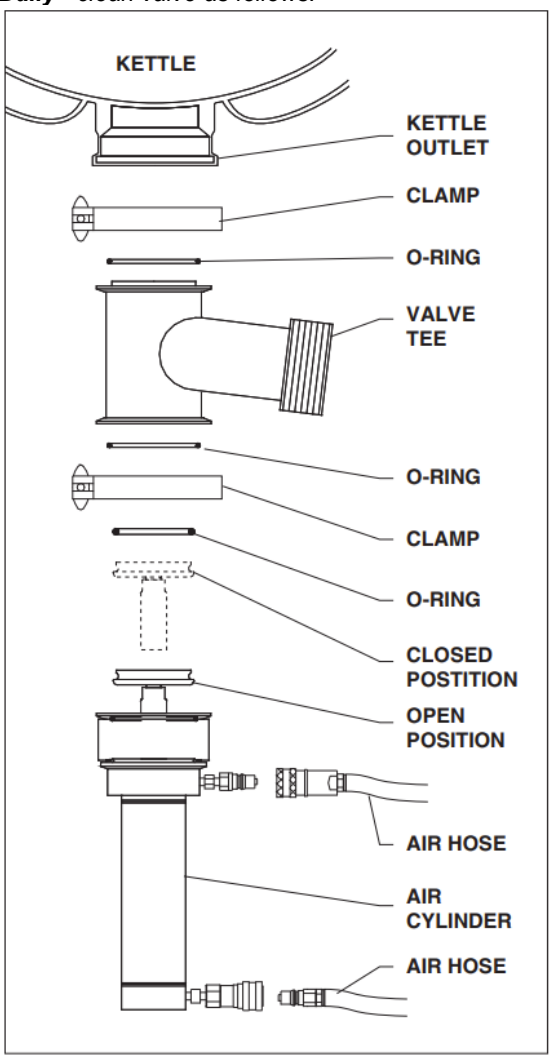
This unit is recyclable. Do not dispose in landfill.

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.

FLUSH PISTON VALVE

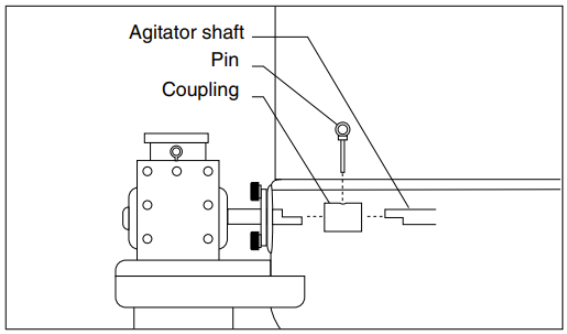
***Daily** - clean valve as follows:*



1. Open product valve.
2. Disconnect air hoses.
3. Remove air cylinder.
4. Remove valve tee.
5. Remove all O-rings.
6. Clean air cylinder, do not submerge in water. Wipe clean and sanitize.
7. Clean and sanitize tee and O-rings.
8. Grease and reinstall O-rings.
9. Reinstall tee to kettle outlet.
10. Reinstall air cylinder to bottom of tee.
11. Reconnect air hoses.
12. Close valve and check for alignment.

AGITATOR

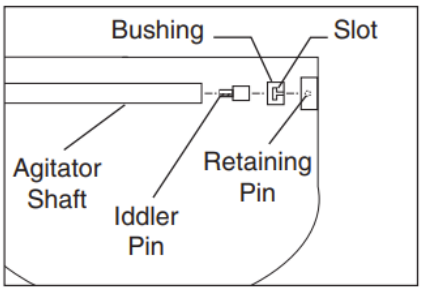
To remove and clean agitator (two-person job):



1. Remove scraper blades.
2. Rotate agitator until pull pin is on top side.
3. Turn power OFF.
4. Pull pin out.
5. Slide coupling toward kettle wall, and carefully lift agitator pulling back to lift out.
6. Clean in a sink, using a warm water and mild detergent solution.
7. Rinse with fresh water.

AGITATOR BUSHING

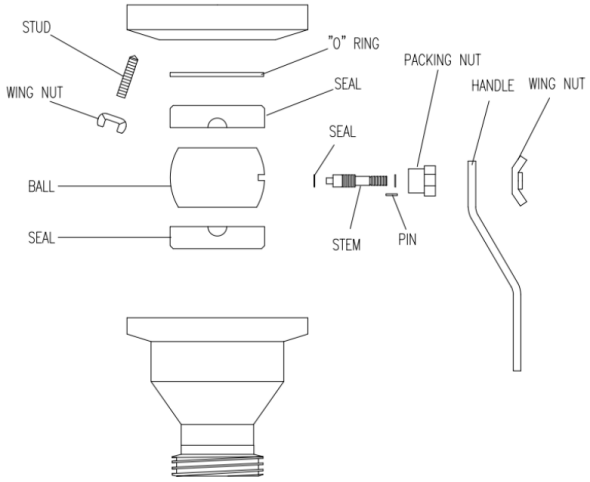
with agitator out, remove bushing by:



1. Remove bushing by turning 1/4 turn and pulling away from the kettle wall.
2. Clean, rinse and sanitize bushing and bushing mounting area.
3. Lubricate metal surfaces with food safe grease.
4. Install bushing by locating retaining pin and sliding bushing on.
5. Rotate to lock into position.

FLUSH BALL VALVE

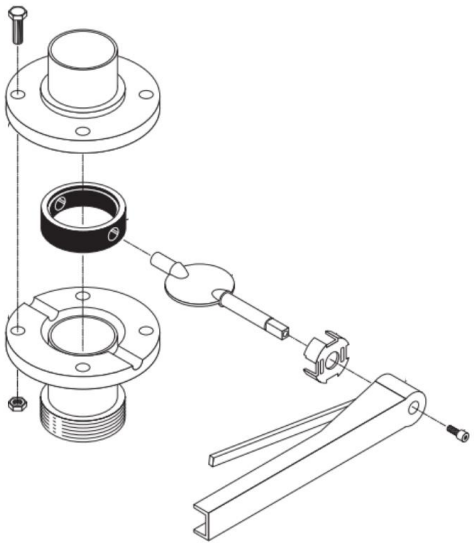
Daily - clean valve as follows



1. Open the wing nuts.
2. Remove all O-rings and ball.
3. Clean seals, O-rings and seals.
4. Reinstall O-rings and seals.
5. Tight the wing nuts properly

BUTTERFLY VALVE

Daily - clean valve as follows



1. Open the four nuts.
2. Separate all the parts.
3. Clean all the parts.
4. Assemble all the parts and tight the nuts properly

SCRAPER BLADES

To remove and clean scraper blades:

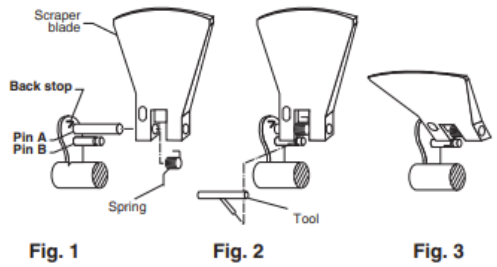


Fig. 1 Fig. 2 Fig. 3

To Remove Scraper Blade

1. Insert tool that is provided as shown in Fig. 2.
2. Pull up on spring arm until arm clears groove in PIN B.
3. Spring is now disengaged, gently release springs to remove scraper blade

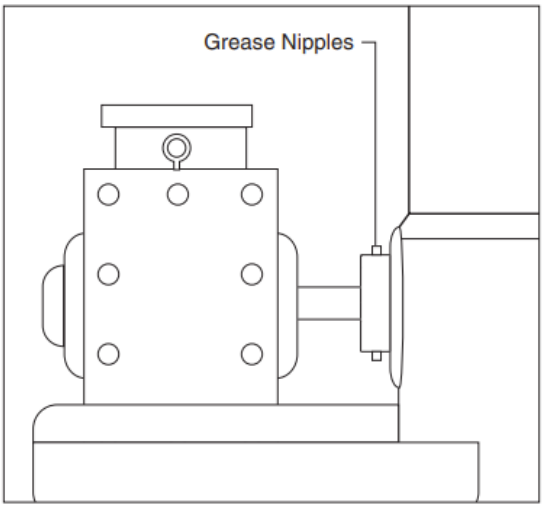
To Install Scraper Blade

1. Slide scraper blade and spring onto Pin A as shown in Fig. 1.
2. Hook spring arm and pull up.
3. Using tool, engage spring arm into groove on Pin B. Scraper blade is no in place

SEAL RETAINER PLATE

(Replaces QUAD RING after June 1999.)

To clean seal retainer plate:



1. Apply food safe grease to grease nipples untill you see clean grease inside the kettle. Grease daily.
2. Remove scraper blades using the tool to release the spring from the retaining pin and sliding the blade off the shaft.
3. Place parts in a pan of warm water to soak.
4. Clean in a sink, using a warm water and mild detergent solution.
5. Rinse with fresh water.
6. Allow to dry thoroughly on a flat, clean surface.

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.

INSPECTION AND MAINTENANCE CHECKLIST

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

DAILY PRE-STARTUP INSPECTION

1. Grease all the nipples.
2. Flue is not obstructed.
3. Pressure Gauge is in green when the unit is cold.
4. Green Light comes on when the unit is energized
5. Red Light comes on when unit is tilted (tilting models only).

MONTHLY INSPECTION

1. Inspect all switches for damage. Replace rubber boots or switches as required.
2. Check that product discharge valve works fully and smoothly.
3. Check that the 3 way regulator shuts off the incoming air and completely vacates the air from the air hose to the metering filling station.
4. Tilt kettle and check for smooth operation in both directions (tilting models).
5. Inspect mixer blades for cracks or other damage - replace as required. Refer to NEW SCRAPER BLADE INSTALLATION PROCEDURE.

SIX MONTH SERVICE MAINTENANCE

1. Check spring assist covers fort tightness to handle and ensure spring is holding cover up – adjust if required. Refer to HINGE ADJUSTMENT INSTRUCTIONS.
2. Check quad ring and replace if required. Refer to QUAD RING REPLACEMENT PROCEDURE.
3. Inspect oiler in gear box and fill with oil if required. Refer to OILER REPLACEMENT PROCEDURE.
4. Inspect air filter cartridge and replace if required. Refer to AIR FILTER REPLACEMENT PROCEDURE.

SIX MONTH SERVICE INSPECTION

1. Perform daily startup inspection.
2. Gasket around top cover is in good condition.
3. Tilt hand wheel is tight.
4. Grease bearings on bothe 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 spring assist covers for tightness to handle and ensure spring is holding cover up – adjust if required. Refer to HINGE ADJUSTMENT INSTRUCTIONS.
10. Check quad ring and replace if required. Refer to QUAD RING REPLACEMENT PROCEDURE
11. Inspect oiler in gear box and fill oil if required. Refer to OILER FILLING PROCEDURE.
12. Inspect air filter cartridge and replace if required. Refer to AIR FILTER REPLACEMENT PROCEDURE.

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).

TROUBLESHOOTING AND MAINTENANCE PROCEDURES

All trouble shooting guides and maintenance procedures are meant to be used only 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.

TROUBLESHOOTING GUIDES

GENERAL

1. When the unit is turned on.

■ Power is sent to primary side of the 115vac/16vac transformer.

■ Power is sent to the normally closed high limit.

■ From the high limit power is sent to the normally open contacts of the 12VDC relay and the L1 and L2 terminals of the ignition module.

2. From the secondary of the transformer 16VAC is sent to the controller.

■ Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.

■ If the water probe is grounded through water the LED will go off.

■ If the water probe is not grounded the LED will remain on and the unit will not heat.

■ If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)

■ The 12VDC relay will close until the unit reaches temperature

3. With the contacts of the relay closed, 115VAC is sent to the blower and primary coil of the 115VAC/24VAC transformer.

■ From the secondary of the 24VAC transformer power is sent to the normally open contacts of the air switch.

■ When the air from the blower closes the air switch, 24VAC is sent to the Th terminal of the ignition module.

4. With both 115VAC (at L1 and L2) and 24VAC (at Gnd and Th) to the ignition module then 115VAC will be sent to the surface igniter.

5. After the ignition module has been energized for 24 seconds the module will send 24VAC to the gas valve.

■ The gas will touch the hot igniter and ignite.

■ The kettle will build pressure until the controller is satisfied by the thermistor at the setting of the potentiometer.

■ The controller will then turn off the heat circuit until the temperature of the kettle is below the setting

OPERATING SEQUENCE - HEATING

STEP	*ACTION*	*RESULT 1*	*RESULT 2*
1.	Close main circuit breaker	115 volts is supplied by primary contactor to kettle On/Off switch and tilt relay contacts. Power supplied to tilt assembly	
2.	On/Off switch on kettle switched to ON.	115/16 volt transformer supplies power to control boxes	Amber LED is illuminted. (Used prior to July 2004)
3.	Control box.	**A/** Requires grounded probe to function (pin #5)	
		B/ More than 6 volts at pin #2. Control box energizes 16 volt DC relay (pin #6)	**a/** Green LED illuminates. **b/** 16 VDC relay contacts close.
4.	16 VDC relay contacts close.	**A/** Blower energizes.	**a/** Air switch contacts close.
		B/ 115/25 volt transformer energizes.	**a/** 25 volts supplied to igniton module
		C/ 115 volt supplied to ignition module.	
5.	Ignition module.	Supplies 115 volts to ignition	Within 20 seconds ignitor glows red
6.	115 volts turned off to ignitor	**A/** Gas valve is energized	**a/** Burner ignites
		B/ Ignitor becomes sensor.	**a/** If temperature drops in chamber gas valve is de-energized within five seconds. **b/** Ignitor will try twice more to light before locking out
7.	Temperature reached	**A/** Less than 6 volts at pin #2. Control box de-denergizes 16 volt DC relay (pin#6)	**a/** Green LED turns off. **b/** 16 VDC relay contacts open. **c/** Blowers turns off. **d/** 25 volt transformer de-energizes.

QUICK CHECKS: Potentiometer - Range 0 - 50K, Safety Thermostat - Normally Closed, Thermistor - Range 0 - 100K, Water Level Probe - Must be submerged in water for burners to work

OPERATING SEQUENCE - AGITATOR

1.	ON/Off switch closed.	**A/** Three phase contactor closes to supply power to variable speed drive	**a/** Indicator light is energized
2.	Start button momentarily depressed	**A/** Power to agitator motor.	**a/** Motor comes up to speed
3.	Speed control turned up.	**A/** Motor speed increases	

OPERATING SEQUENCE - POWER TILT

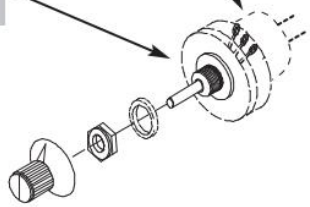
1.	Turn and hold tilt switch in down position	**A/** Relay 2 is eneregized.	**a/** Tilt motor is energized.
2.	Kettle tilts until limit switch is depressed.	**A/** Power interupted to down side of tilt switch.	**a/** Relay de-energized. **b/** Motor stops.
3.	Turn and hold tilt switch in up position.	**A/** Relay 1 is energized.	**a/** Tilt motor is energized.
4.	Kettle tilts until limit switch is depressed.	**A/** Power interrupted to up side of tilt switch.	**a/** Relay de-energized. **b/** Motor stops.

TROUBLESHOOTING GUIDES *(POTENTIOMETER)*

1. Green Light

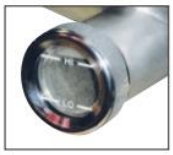
2. Red Light

3 & 4. ON/OFF Switch c/w Potentiometer



6. Pressure Gauge

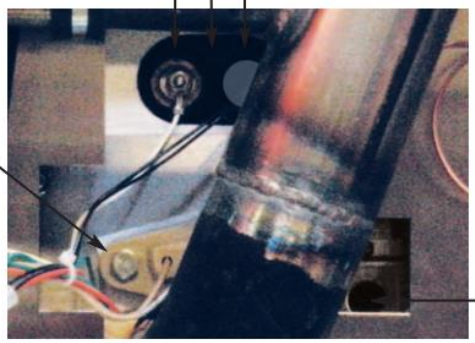
5. Kettle Jacket Water Sight Glass



16. High Limit Tube

9. Water Level Probe

10. Thermistor



11. Ignitor

12. Flame Sight Glass

7. Gas Valve (showing hose for pressure tap)

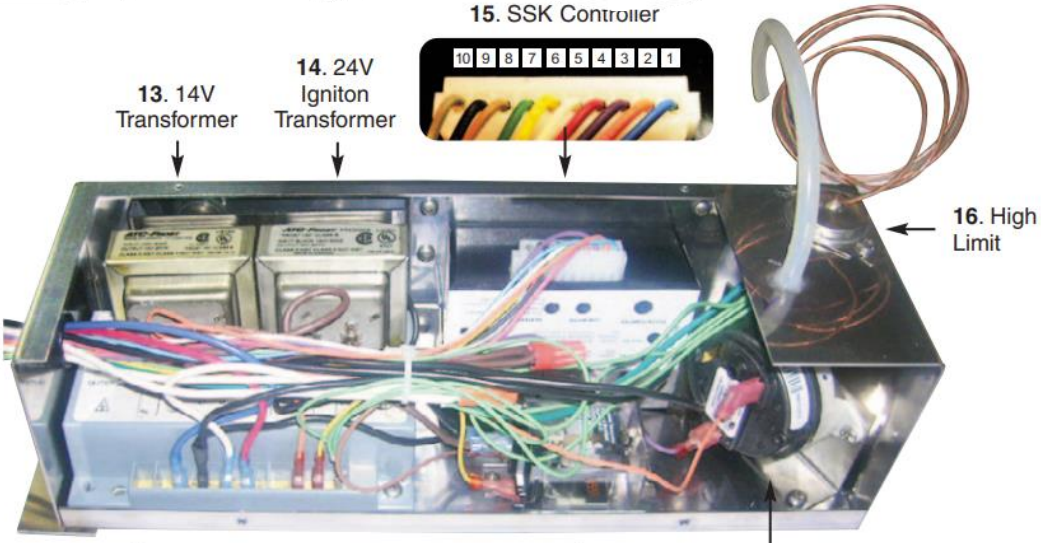
8. Blower

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



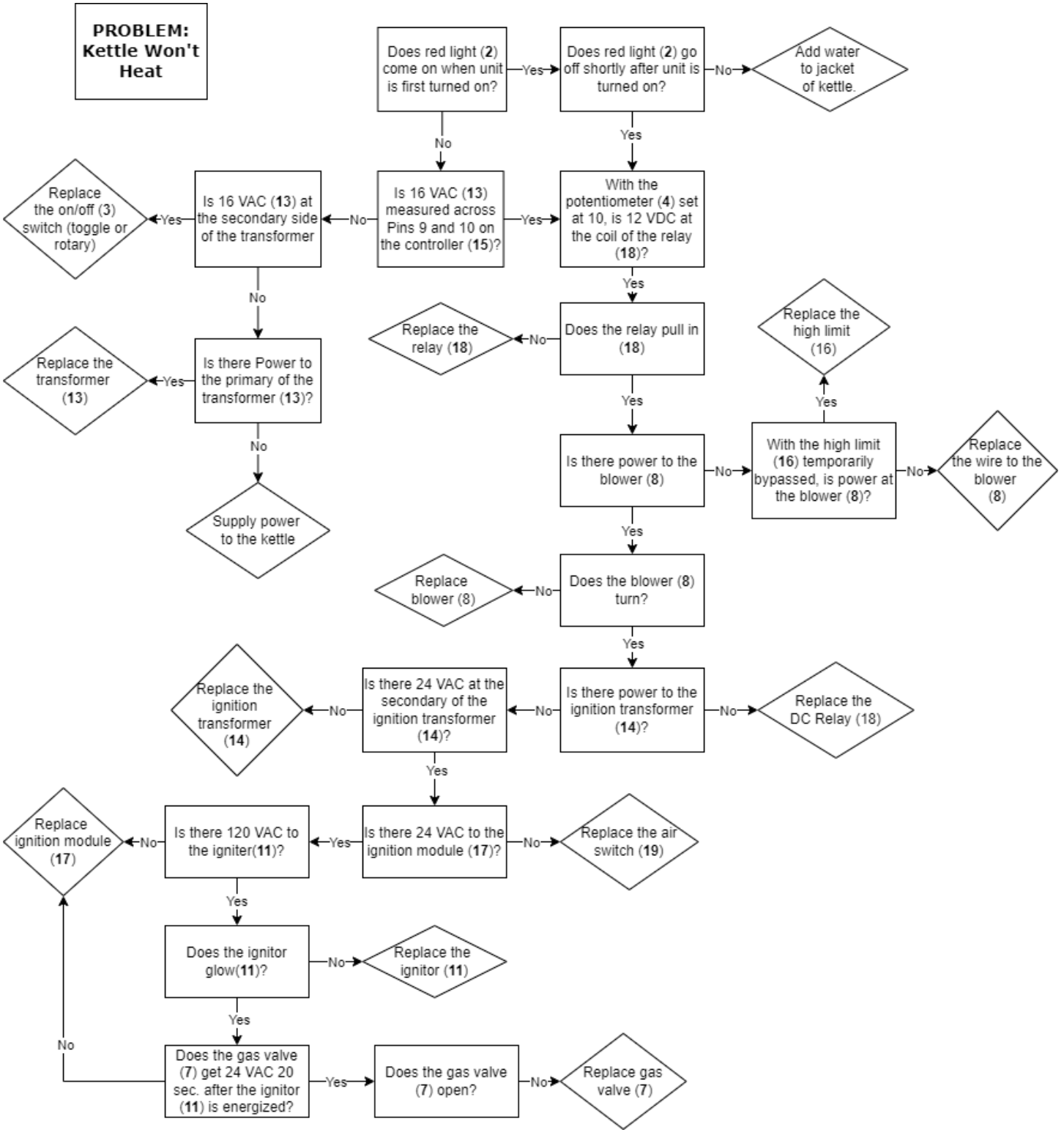
16. High Limit

17. Ignition Module

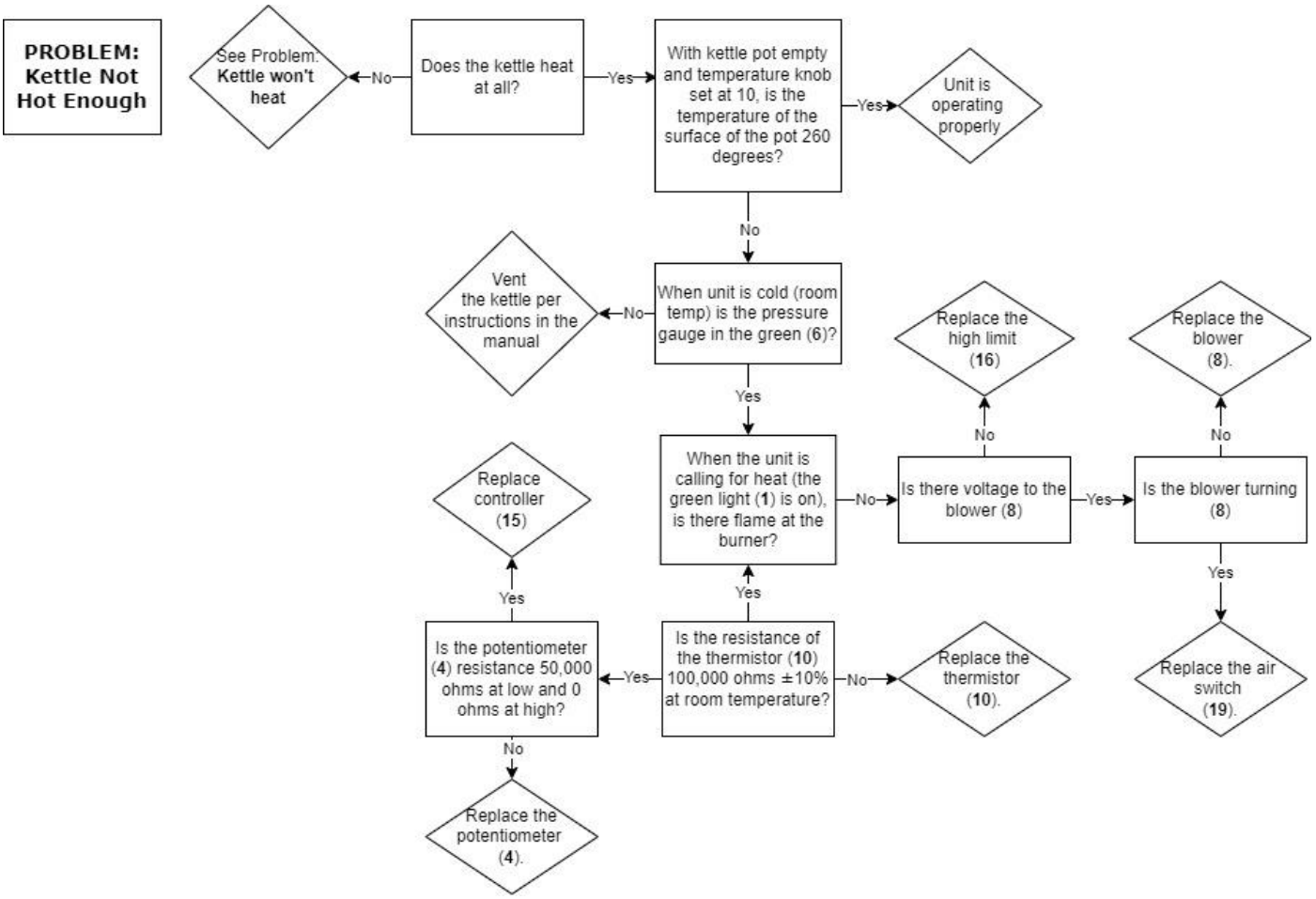
18. Relay

19. Air Switch

TROUBLESHOOTING GUIDES *(Continued)*

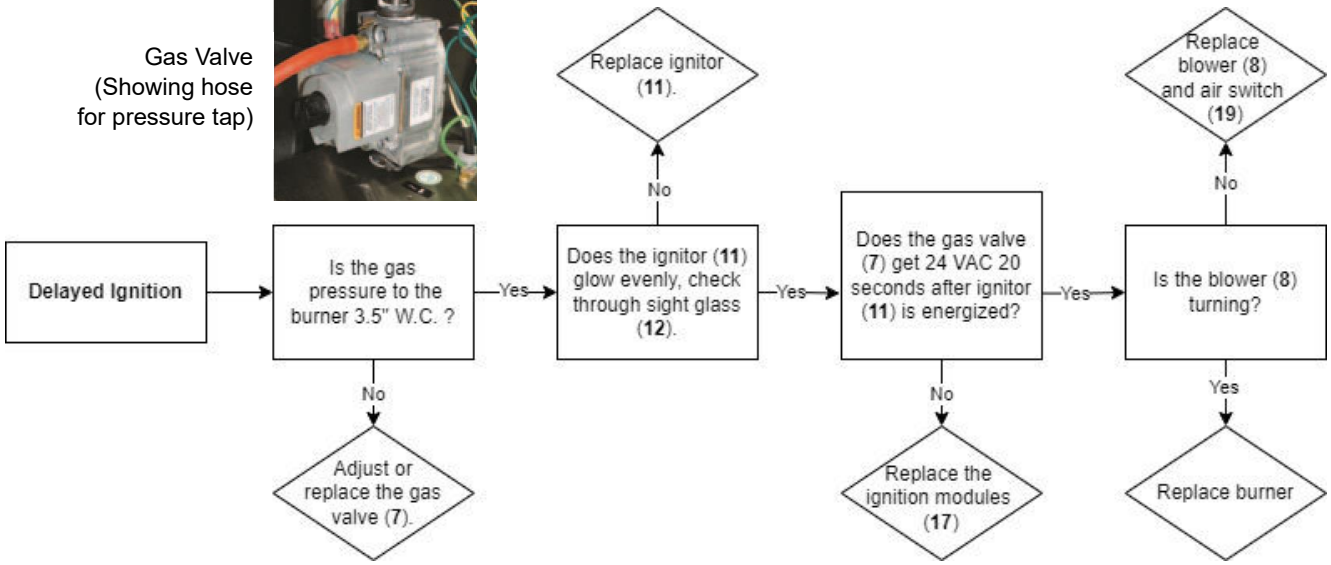


TROUBLESHOOTING GUIDES (Continued)



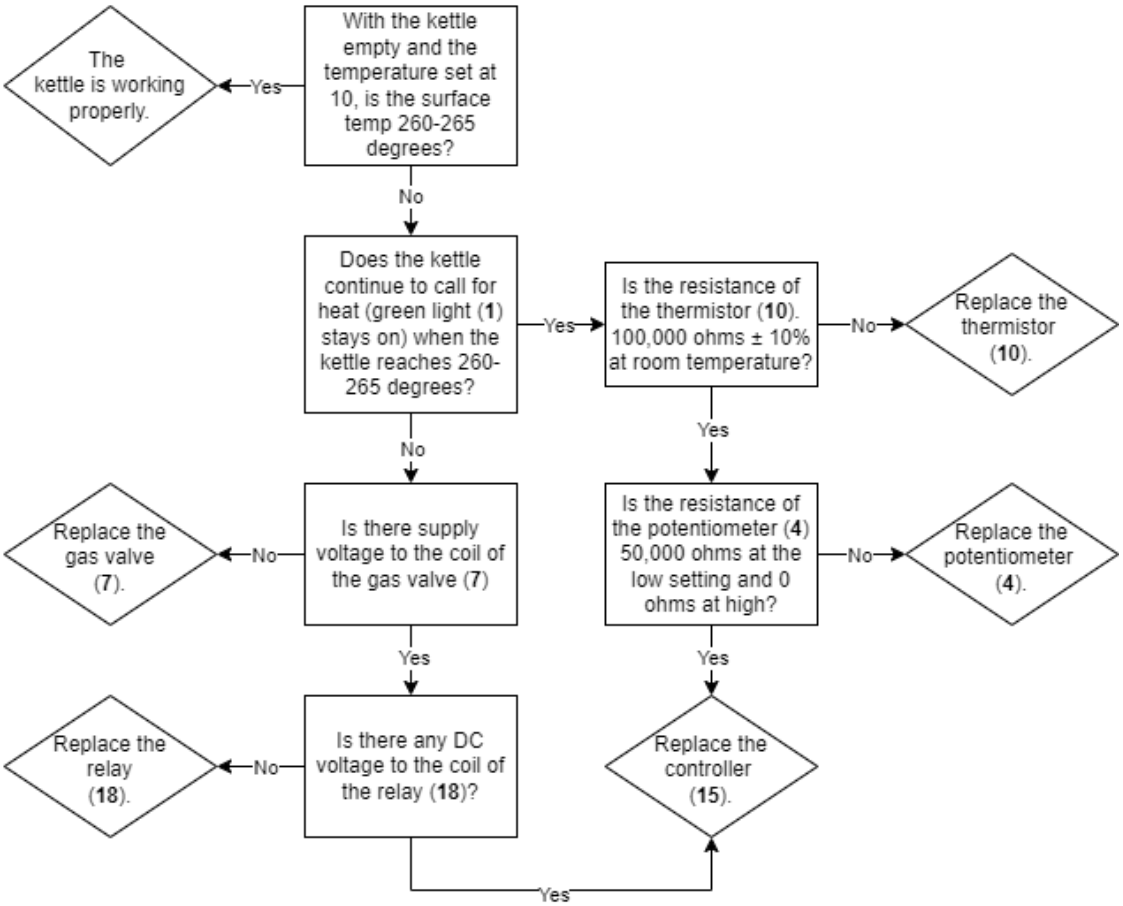
PROBLEM: Kettle Has Delayed Ignition

Gas Valve (Showing hose for pressure tap)

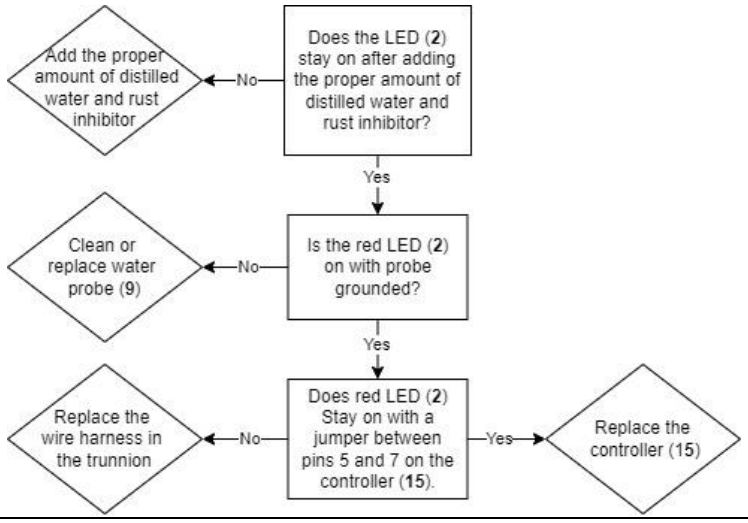


TROUBLESHOOTING GUIDES (Continued)

PROBLEM: Kettle Gets Too Hot



PROBLEM: Red LED stays on.



TROUBLESHOOTING GUIDES – HMI

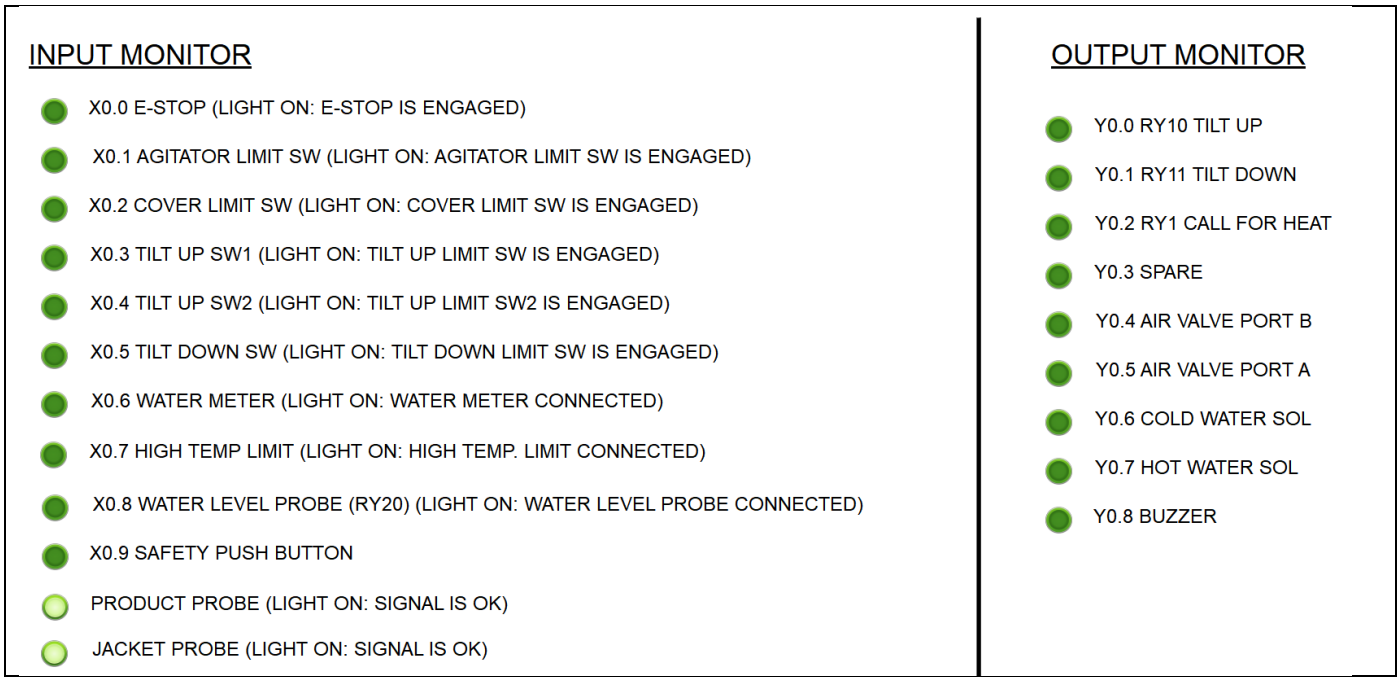
For troubleshooting mixer components, refer to the System Monitoring page.

To get to this page, click on settings  **then click on "System Diagnostic"** 

Each component is associated with an indicator light on this page. A green light ON signifies that the Programmable Logic Controller (PLC) is receiving a signal from that specific component, confirming that it has been triggered and is operating correctly.
If the indicator light is OFF, it means the PLC is not detecting a signal from the component. This could be due to one of the following reasons:

- The component has not been activated (i.e., it hasn't been triggered in the process sequence),
- There may be a fault in the component's wiring or connection, or
- The component itself may be malfunctioning.

Careful inspection of the wiring, signal path, and component condition is recommended in the case of an inactive indicator.

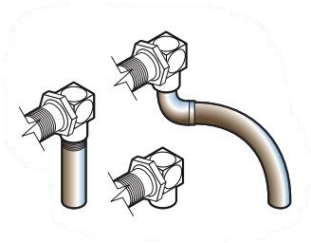


INPUT MONITOR: SINGLE COMING TO PROGRAMMABLE LOGIC CONTROLLER (PLC) FROM COMPONENT

OUTPUT MONITOR: PROGRAMMABLE LOGIC CONTROLLER (PLC) GIVING SIGNALS TO COMPONENTS

KETTLE SAFETY INSPECTION AND TESTING

SAFETY VALVE INSTALLATION:

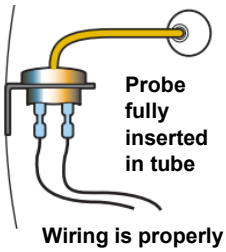


The above illustrations show the three variations of factory installed safety Valves.

Modifications are unacceptable

SAFETY THERMOSTAT:

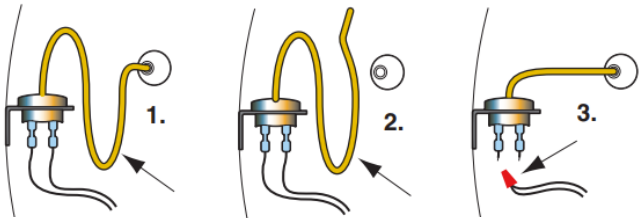
Correct Installation



Probe fully inserted in tube

Wiring is properly connected

Incorrect Installation



Probe removed partially

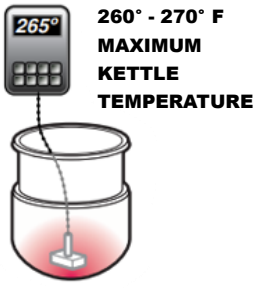
Probe removed completely

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 connections is bypassed.

OPERATING THERMOSTAT:

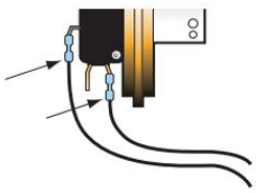
If maximum temperature is not in this range (on empty kettle), refer to the “Calibrating Procedure”.



260° - 270° F MAXIMUM KETTLE TEMPERATURE

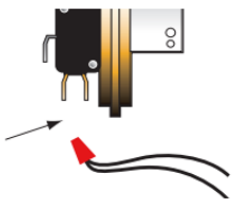
GAS KETTLE AIR SWITCH:

Correct



Wiring is properly connected

Incorrect

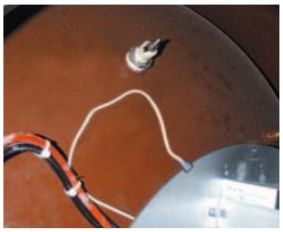


Switch electrically bypassed

LOW WATER LEVEL PROBE:

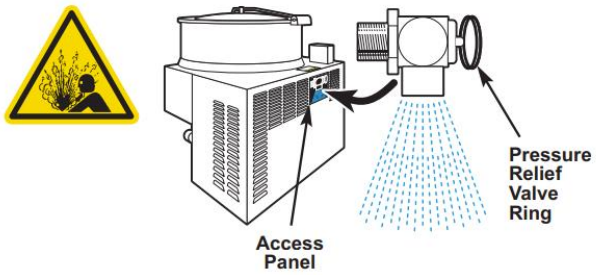
Probe properly attached ✔

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

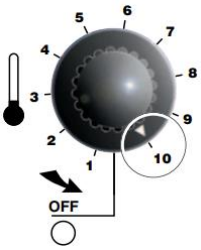


✘ **Probe bypassed by (B) grounding the connecting wire**

PRESSURE RELIEF VALVE TESTING



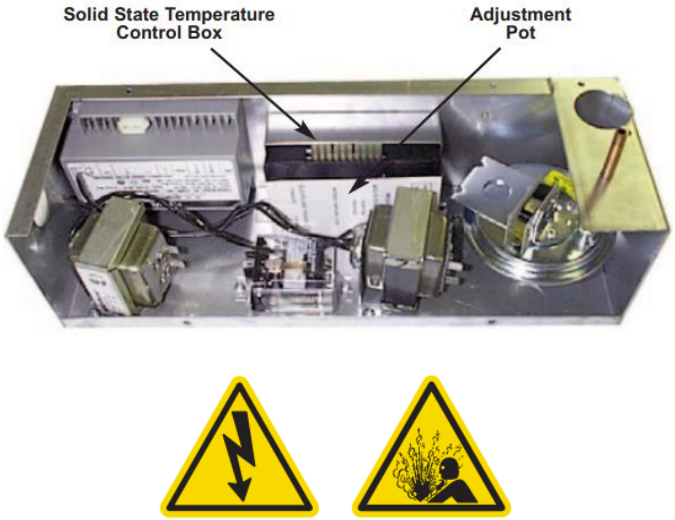
WARNING: Use of gloves and eye protection to prevent personal injury.



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



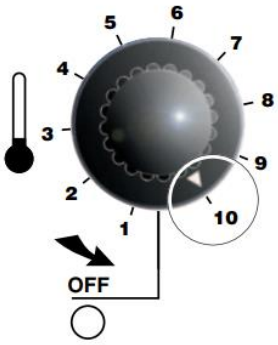
1. Ensure the unit has a vacuum before you begin calibrating procedures. If unit requires venting refer to KETTLE VENTING INSTRUCTIONS.

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 dragger 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.

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

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

$\overline{\frac{\%\,CO}{(PPM)}}$ $\overline{\%CO2}$

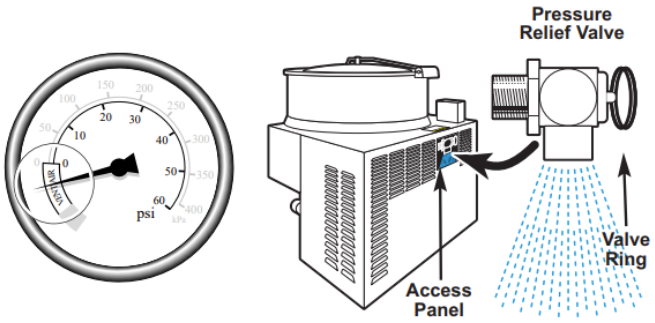
$\overline{Dilution\ Factor}$

$$Dilution\ Factor\ X\ \frac{CO\ (PPM)}{10000} = \overline{\%\ Carbon\ Monoxide}$$

Result must not exceed 0.08% carbon monoxide.

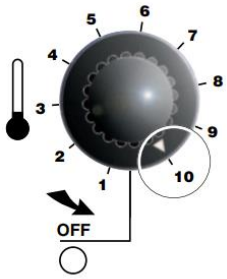
CARBON DIOXIDE IN SAMPLE (PERCENT)	FACTOR PROPANE GAS	FACTOR NATURAL GAS
4.0	3.50	3.05
4.2	3.33	2.90
4.4	3.18	2.77
4.6	3.04	2.65
4.8	2.92	2.54
5.0	2.80	2.44
5.2	2.69	2.34
5.4	2.59	2.26
5.6	2.50	2.18
5.8	2.41	2.10
6.0	2.33	2.03
6.2	2.26	1.97
6.4	2.19	1.91
6.6	2.12	1.85
6.8	2.06	1.80
7.0	2.00	1.74
7.2	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	1.49	1.27
9.8	1.46	1.24
10.0	1.40	1.22

KETTLE VENTING INSTRUCTIONS



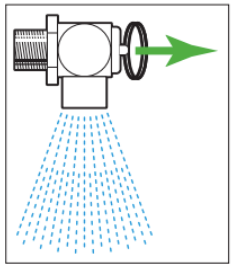
The Following venting procedure should be followed when the Vacuum/Pressure Gauge needle is in the “VENT AIR” zone:

NOTE: Check for and eliminate leaks prior to venting (see REPAIRING LEAKS IN STEAM JACKETED KETTLE FITTINGS)

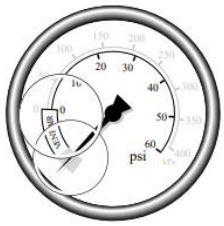


1. Remove Access Panel from back of main kettle console.
2. Turn kettle ON and set temperature control to **10**, heat the empty kettle until unit cycles off.
3. Vent kettle by pulling Valve Ring eight to fifteen times, holding valve open for two seconds each time.

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.

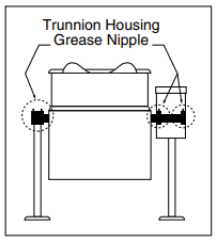
REPAIRING LEAKS IN STEAM JACKETED KETTLE FITTINGS

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/ Inpect face of gauge. If it contains moisture on the inside of the 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

LUBRICATION PROCEDURE

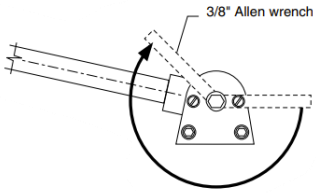
Lubricate the following parts every three months to ensure smooth operation and reduce wear.



KETTLE TRUNNIONS

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

HINGE ADJUSTMENT INSTRUCTIONS



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

KETTLE JACKET CLEANOUT AND PASSIVATION PROCEDURES

The following procedures should be performed at least once every once every three years to prevent possible corrosion and ensure the optimum life of the kettles.

RUST INHIBITOR

Use a “radiator rust inhibitor” that can be purchased at your local automotive center. It should not contain any antifreeze 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.

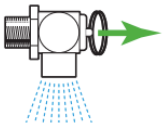
Read label and follow safety instructions.

WARNING:

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

RESEVOIR FILL PROCEDURES



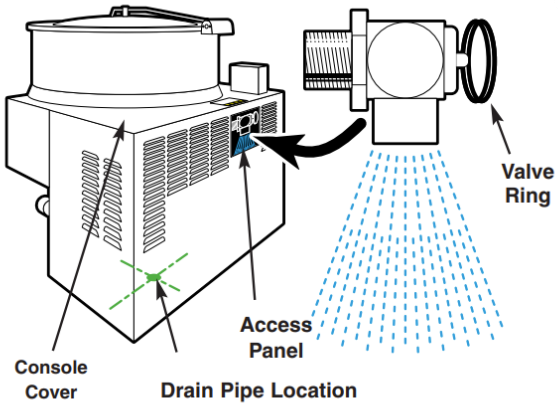



Important-
Pull ring on Pressure Relief Valve prior to removal to ensure vessel is not pressurized.

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.



Remove the cap from the drain pipe to drain kettle jacket.

1. **Caution:** Ensure kettle is at room temperature and pressure pressure gauge showing zero or less pressure.
2. Shut off and disconnect gas supply.
3. Remove electrical plug from power source.
4. Pull ring on pressure relief valve to ensure there is no pressure within the kettle jacket.
5. Remove pressure relief valve.
6. Replace pressure relief valve with street elbow (see above illustration).
7. Remove or loosen water sight glass on the kettle.
8. Tilt kettle on its side (sight glass opening facing downwards) and allow to drain. Flush out with water.


Sight Glass

9. Tilt kettle upright, apply a thread sealant (i.e. Teflon tape) to the sight glass threads and replace.
10. Refer to chart below to determine the required volume of water.

Kettle Size	Volume of mixture	
	U.S. Gal	Liters
60 U.S Gal.	6.5	24.6
80 U.S. Gal	7	26.5
100 U.S Gal	7.5	28.4

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

NATURAL GAS TO PROPANE CONVERSION KIT

DANGER:

Unit exhaust contains carbon monoxide.

Operate only under a properly functioning hood adequate makeup air.

THIS CONVERSION KIT SHALL ONLY BE INSTALLED BY A QUALIFIED SERVICE AGENCY

For use at 0-2000 feet elevation on Honeywell valves Model 8305. For higher elevations consult the factory.

Conversion Parts Required

Kit Service (#KE003716-4)

Part No.	Description	Quantity
KE603911-4	Conversion Label	1
KE53403-7	Gas Orifice	1
FA05002-29	“O” Ring	1
KE05002-29	Instruction Sheet	1

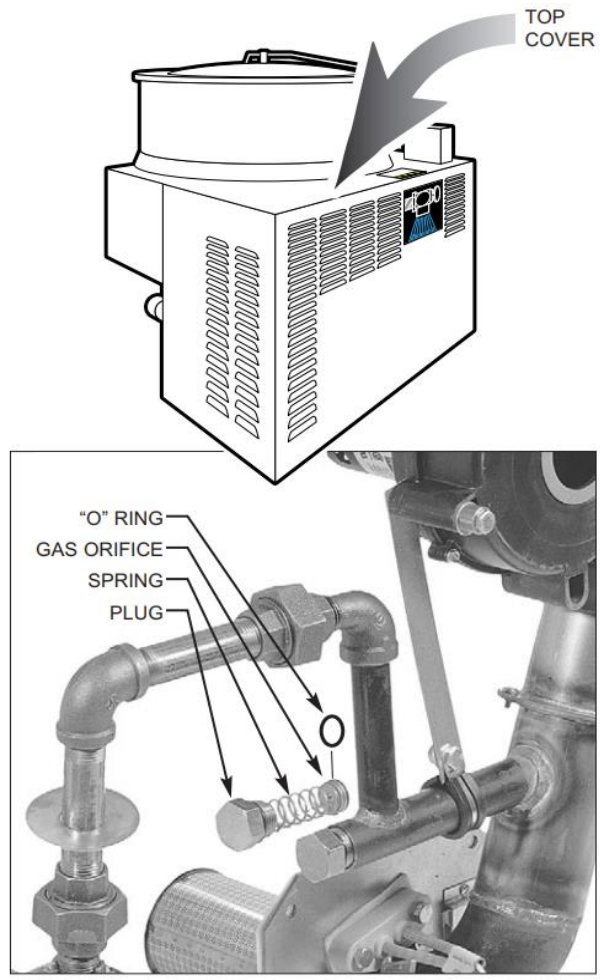
Air intake Washer (KE54420-1) is required for 50 Hz units – see coversion kits KE003716-6 & KE003716-7.

⚠ WARNING:

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer’s instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, and explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer’s instructions supplied with the kit.

⚠ CAUTION

The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.



INSTRUCTIONS

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

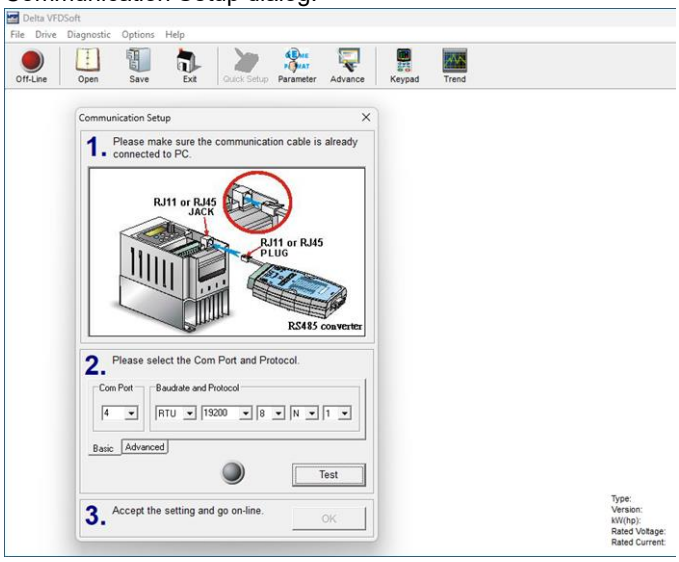
1. Disconnect electrical connection.
2. Shut off main gas supply and disconnect kettle from supply line.
3. Remove TOP COVER.
4. Remove PLUG and SPRING.
5. Remove GAS ORIFICE and “O” RING.
6. Replace with new GAS ORIFICE and “O” RING.
7. Replace SPRING and PLUG.
8. Replace TOP COVER.
9. Check inlet pressure is between 12-14 inches W.C.
10. Check input rate of unit.
11. On the underside of the console cover with indelible marker place the following information: Company, Name, Address & Date of Conversion.
12. Replace TOP COVER.
13. Place gas conversion label next to rating label.
14. Reconnect electrical and gas supplies.

AC INVERTER PROGRAMMING INSTRUCTIONS

NOTE: You will need a typical 'printer cable' or USB Type A male to Type B male and Delta VFDSoft software installed on your laptop.

1. Plug the cable into the USB port on the VFD:

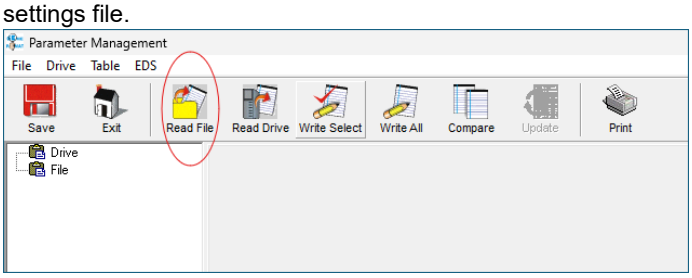
2. Open VFDSoft. Press the 'Off-line' button to open the Communication Setup dialog:



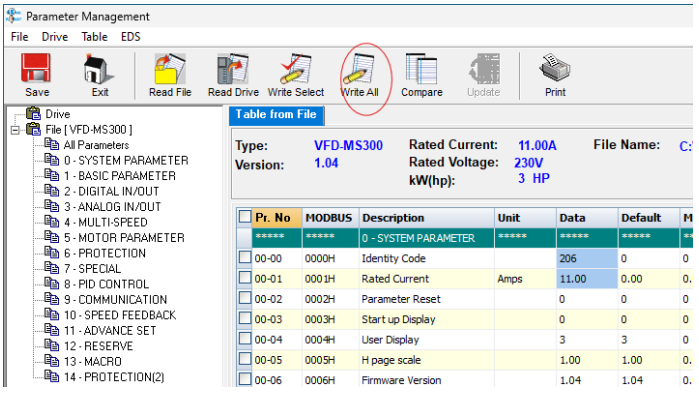
Make sure that the Com Port is directed to the USB port connected to the VFD. You can double-check this in Device Manager, if necessary.
Press the Test button, the indicator to the left will turn GREEN if the USB connection is established.

3. Press the Parameter button to open the VFD parameter settings screen:

4. Press the Read File button and open the parameter settings file.



5. Press the Write All button:

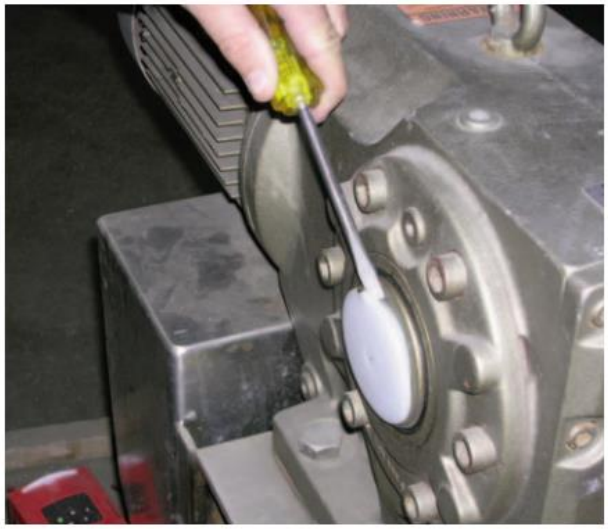


All parameters will be loaded to the VFD.

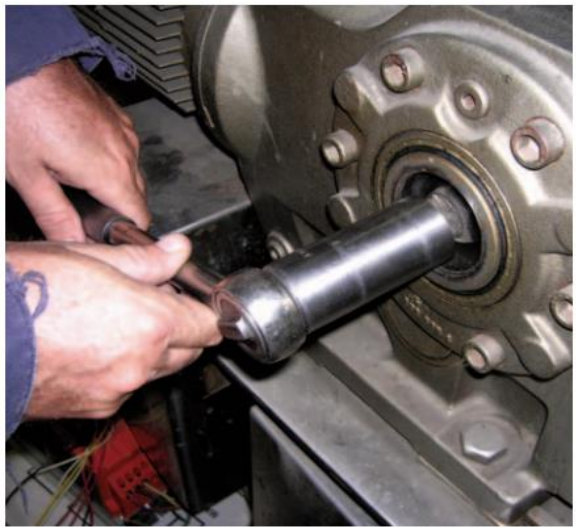
HA DRIVE SHAFT REPLACEMENT PROCEDURE

NOTE: Disconnect external power supply and shut off gas unit prior to servicing

1. Remove mixer arm leaving flat surface on drive shaft facing upwards



2. Remove the shaft end cap.



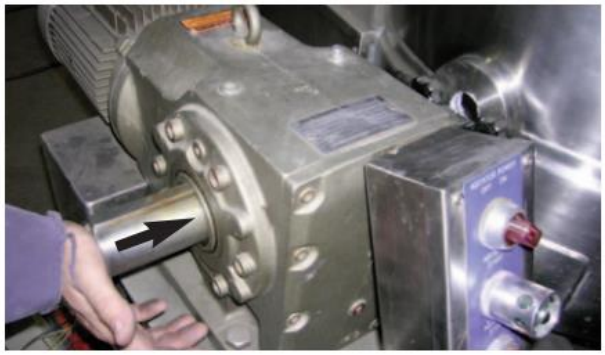
3. Remove shaft retaining bolt.

5. Gently hammer out shaft and remove.

6. Clean seal

7. Grease seal with food grade grease

4. Remove shaft retaining ring.



8. Insert new shaft.

9. Push new shaft past retaining ring grove and install retaining ring.

10. Tap shaft to sit up against retaining ring.

11. Complete reassembly by reinstalling bolt and end cap.

Cleveland

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