

# VULCAN

## INSTALLATION & OPERATION MANUAL

### GS, GL & GT SERIES FULLY STEAM JACKETED GAS KETTLES

#### MODEL

GS25E	ML-52633
GS30E	ML-52634
GL40E	ML-52635
GS60E	ML-52660
GL80E	ML-52637
GT100E	ML-52638
GT125E	ML-52639
GT150E	ML-52640



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[www.vulcanhart.com](http://www.vulcanhart.com)

# IMPORTANT FOR YOUR SAFETY

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL GAS EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD START-UP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION CAN BE OBTAINED FROM THE LOCAL GAS SUPPLIER.

## IMPORTANT

IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN UNITS AT MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.

## FOR YOUR SAFETY

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

**WARNING:** IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.

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# **Installation, Operation and Care of GS, GL & GT SERIES FULLY STEAM JACKETED GAS KETTLES**

**KEEP THESE INSTRUCTIONS FOR FUTURE USE**

## **GENERAL**

Your Vulcan steam jacketed kettle is produced with quality workmanship and material. Proper installation, usage and maintenance will result in many years of satisfactory performance.

Vulcan-Hart Company suggests that you thoroughly read this entire manual and carefully follow all of the instructions provided.

## **INSTALLATION**

Prior to installation check the electrical service and type of gas supply (natural or propane) to make sure they agree with the specifications on the machine data plate located on the lower-left inside front cover.

### **UNPACKING**

This kettle was inspected before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of the shipment. Immediately after unpacking, check for possible shipping damage. If the kettle is found to be damaged, save the packaging material and contact the carrier within 15 days of delivery.

### **LOCATION**

Position the kettle in its final location. Check that there are sufficient clearances for operating and servicing the kettle, and for proper clearance of the cover when raised. Keep the kettle free and clear from all combustible substances. Minimum clearance from combustible and non-combustible construction is 2" (5.0 cm) at the rear and 6" (15.2 cm) at each side.

The kettle draw off valve should be located near a floor drain.

Do not obstruct the flow of air into and around the kettle. This air flow is necessary for proper combustion of gases and for ventilation of the kettle. Provisions for ventilation and incoming air supply for the equipment in the room must be in accordance with the National Fuel Gas Code ANSI Z223.1 (latest edition).

### **LEVELING**

Place a spirit level on the rim of the kettle with the cover open. Turn the feet in or out to level the kettle in both the left-to-right and front-to-rear directions.

## INSTALLATION CODES AND STANDARDS

In the United States, Vulcan kettles must be installed in accordance with state and local codes, with the National Fuel Gas Code, (ANSI-Z223.1, latest edition) available from the American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209, with the National Electrical Code (ANSI/NFPA No. 70, latest edition) available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 and with *Vapor Removal from Cooking Equipment*, (NFPA-96, latest edition) available from NFPA.

In Canada, the kettle must be installed in accordance with local codes, with the National Fuel Gas Code (CAN/CGA-B149.1, latest edition) available from the Canadian Gas Association, 178 Rexdale Boulevard, Etobicoke, Ontario, Canada M9W 1R3, and with the Canadian Electrical Code (CSA C22.2 No.3, latest edition) available from the Canadian Standards Association, 178 Rexdale Boulevard, Etobicoke, Ontario, Canada M9W 1R3.

## GAS CONNECTION

The gas supply connection and any pipe joint compound must be resistant to the action of propane gases.

Codes require that a gas shutoff valve be installed in the gas line ahead of the kettle.

Connect the gas supply line to the gas valve on the kettle. Make sure the pipes are clean and free of obstructions, dirt and piping compound.

The gas line must be capable of delivering gas to the kettle without excessive pressure drop at the rate specified on the nameplate. Suggested gas supply line pressure is 7" Water Column (1.75 kPa) for natural gas and 11" Water Column (2.75 kPa) for propane. Burner manifold pressure is 3.5" Water Column (0.875 kPa) for natural gas and 10" Water Column (2.5 kPa) for propane.

**WARNING:** PRIOR TO LIGHTING, CHECK ALL JOINTS IN THE GAS SUPPLY LINE FOR LEAKS. USE SOAP AND WATER SOLUTION. DO NOT USE AN OPEN FLAME.

After piping has been checked for leaks, all piping receiving gas should be fully purged to remove air.

## TESTING THE GAS SUPPLY SYSTEM

When test pressures exceed ½ psig (3.45 kPa), the kettle and its individual shutoff valve must be disconnected from the gas supply piping system.

When test pressures are ½ psig (3.45 kPa) or less, the kettle must be isolated from the gas supply system by closing its individual manual shutoff valve.

## FLUE

DO NOT obstruct the flow of flue gases from the flue located on the rear of the kettle. It is recommended that the flue gases be ventilated to the outside of the building through a ventilation system installed by qualified personnel. The flue on the kettle should not be directly connected to any ventilation system. From the termination of the flue to the filters of the hood venting system, a minimum clearance of 18" (116 cm) must be maintained.

Information on the construction and installation of ventilating hoods may be obtained from *Vapor Removal from Cooking Equipment*, NFPA-96 (latest edition), available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## **FAUCET BRACKET**

A bracket is provided for mounting a faucet on the kettle; this would allow the addition of water to the kettle for the convenience of the food preparer. A faucet is available as an accessory. NOTE: Do not use tap water from faucet to fill kettle jacket. Refer to Jacket Water & Jacket Water Treatment on page 12.

## **ELECTRICAL CONNECTION**

**WARNING:** ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

**WARNING:** DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT / TAGOUT PROCEDURE.

All kettles are connected to 120 volt, 60 Hz. supply through the pigtail leads in the supply junction box located inside the control panel.

Remove the control box cover. Connect electrical supply to the terminal block per the wiring diagram located inside the control box cover. Use copper wire suitable for at least 75°C. Connect a ground wire to the ground lug in the junction box. NOTE: Earth ground is required for proper operation of electronic ignition. Replace the control box cover.

## **BEFORE FIRST USE**

Use a non-corrosive, grease-dissolving commercial cleaner to clean the protective metal oils from all surface parts and the interior of the kettle. Follow the cleaner manufacturer's directions. Rinse thoroughly with warm water to remove all traces of the cleaner. Drain the kettle's interior cooking area. Wipe dry with a clean cloth.

# OPERATION

**WARNING:** THE KETTLE AND ITS PARTS ARE HOT. USE CARE WHEN OPERATING, CLEANING AND SERVICING THE KETTLE.

Before operating, check the jacket water level by looking at the sight glass at the rear of the kettle with both upper and lower valves open. The water level should be at the midpoint of the sight glass. If water is below the recommended level or if it is murky, refer to Jacket Water Level, page 12. Also check the flue at the rear of the kettle for any obstructions before operating.

## CONTROLS — KETTLES WITH ELECTRONIC IGNITION (Current Construction, Fig. 1)

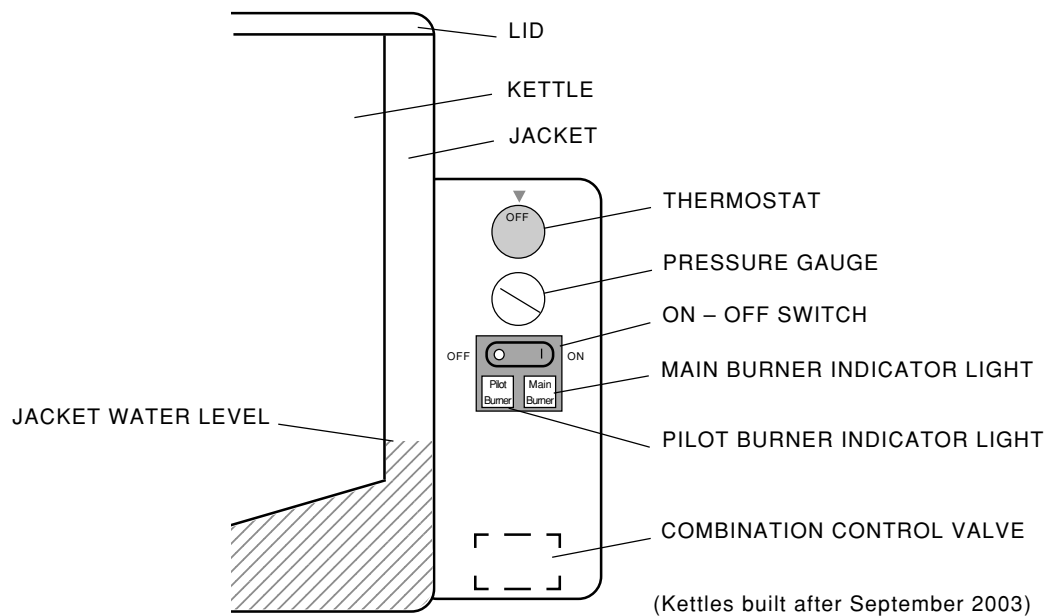
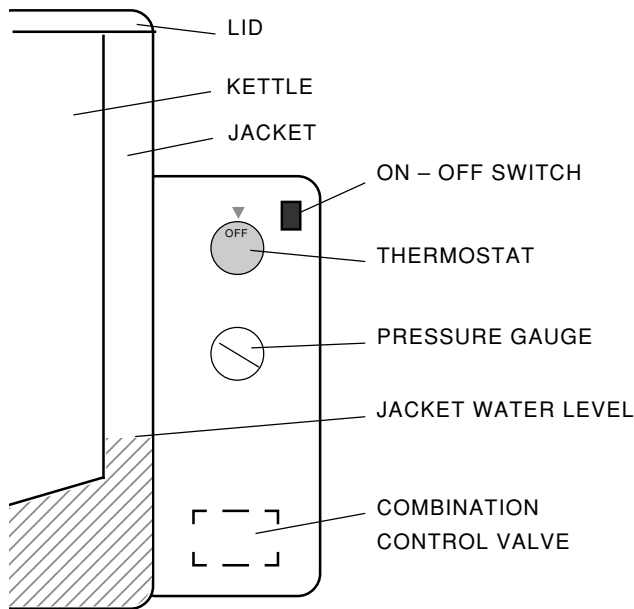


Fig. 1

- Thermostat — Controls heat in the kettle. High dial settings are for cooking; low settings are for holding.
- Pressure Gauge — Indicates pressure in the jacket, normal operating range is 0 to 12 psig.
- On - Off Switch — Located below pressure gauge, when turned to ON, initiates electronic ignition to start the Pilot and Main Burner.
- Pilot Burner Indicator Light — When lit, the electronic ignition system is attempting to light the Pilot or the Pilot has been lit; it remains lit when the Main Burner is on.
- Main Burner Indicator Light — When lit, the Main Burner is providing heat to the kettle.
- Combination Control Valve — Located inside box, this valve controls gas flow to the Main Burner.

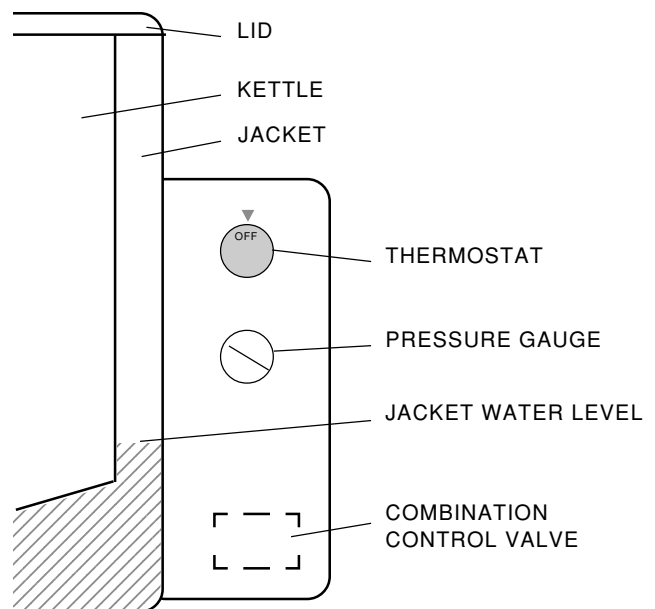
## CONTROLS — KETTLES WITH ELECTRONIC IGNITION (Prior Construction, Fig. 2)

- Thermostat — Controls heat in the kettle. High dial settings are for cooking; low settings are for holding.
- On – Off Switch — Located on the upper right-hand corner of the control panel. When turned to ON, initiates the electronic ignition system.
- Combination Control Valve — Controls gas flow to the main burner. The valve has a built in gas pressure regulator which shuts off all gas in the event of pilot outage.
- Pressure Gauge — Indicates pressure in the jacket, normal operating range is 0 to 12 psig.



(Built before September 2003)

Fig. 2



(Built before November 2002)

Fig. 3

## CONTROLS — KETTLES WITH MANUAL PILOT BURNER (Prior Construction, Fig. 3)

- Thermostat — Controls heat in the kettle. High dial settings are for cooking; low settings are for holding.
- Combination Control Valve — Controls gas flow to the main burner. The valve has a built in gas pressure regulator which shuts off all gas in the event of pilot outage.
- Pressure Gauge — Indicates pressure in the jacket, normal operating range is 0 to 12 psig.



## KETTLE FEATURES — COMMON TO ALL CONSTRUCTIONS (Fig. 4)

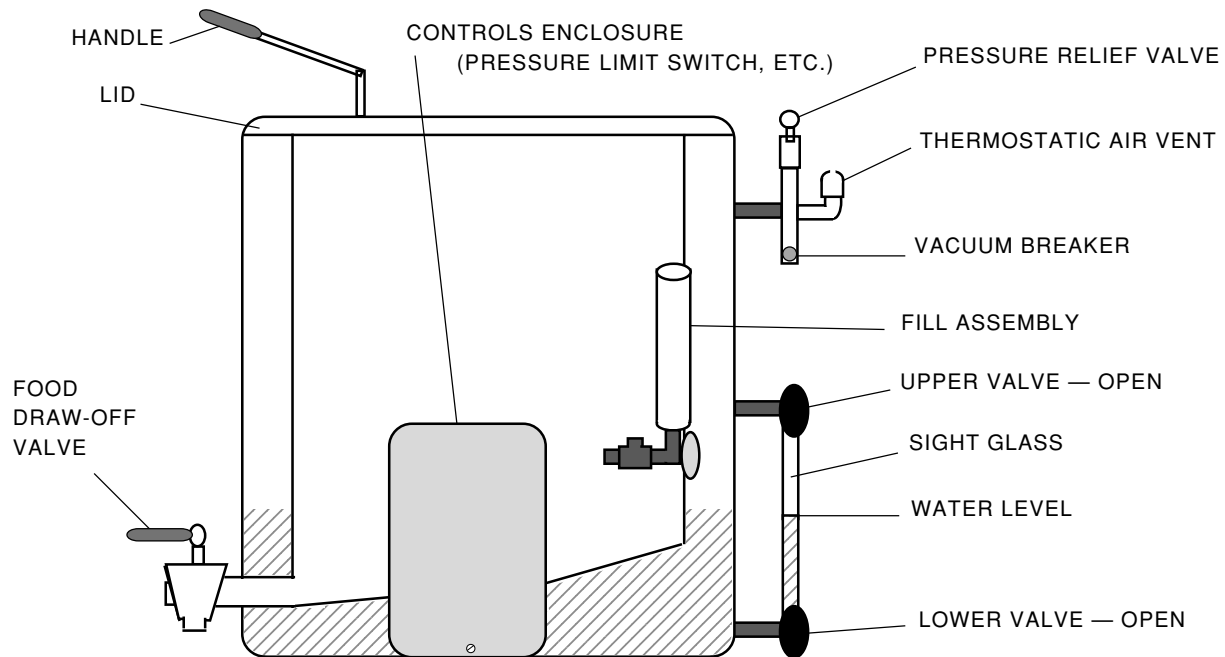


Fig. 4

- |  |  |
|--|--|
| Low Water Cutoff                               | — Pilot and Main Burner won't operate if water level in jacket is low.   |
| Pressure Relief Valve<br>Pressure Limit Switch | — Protect the kettle against excessive pressure should the thermostat malfunction. The pressure relief valve is rated so that it will relieve generated steam faster than the burners can generate it. |
| Thermostatic Air Vent                          | — Allows air to vent out of the jacket as steam is generated; closes at approximately 180°F (82.2°C) to prevent the steam from escaping.   |
| Vacuum Breaker                                 | — Allows air to enter the jacket after cooldown, preventing negative pressure.   |
| Sight Glass Assembly                           | — Visually shows the water level in the jacket when both valves are open and pressure is equalized.  |
| Fill Assembly                                  | — Tube where water can be added to the jacket. A manual valve and a check valve are provided to protect you should the manual valve be inadvertently opened while the jacket is under pressure.        |
| Food Draw-Off Valve                            | — Allows food and liquid to be drawn off from the kettle.  |

### FOOD DRAW-OFF VALVE

The food draw-off valve is designed to allow food and liquid to be removed from the kettle in an easy and safe manner. When the food draw-off valve is off, the valve handle is pointed to either the 9 o'clock position or the 3 o'clock position as you look down on the valve. In this off position, no liquid or food product will flow. To open the valve and allow liquid or food product to flow, slowly turn handle forward. With the valve handle pointing to the 6 o'clock position, the valve is fully open. Turn the valve 90 degrees right or 90 degrees left to close the valve and shut off the flow of food. Stir the food product in the kettle thoroughly before opening the draw-off valve; this makes the food product evenly mixed before it flows into a suitable food service pan or stock pot. Pans or pots may be placed on a portable dolly for ease of movement and handling. Refer to Cleaning, page 11.

## **TURNING ON A KETTLE EQUIPPED WITH ELECTRONIC IGNITION** (Applies to Fig. 1 or Fig. 2)

Before lighting the pilot, both the burner and pilot must have been off at least 5 minutes.

1. Remove the control panel cover screw.
2. Remove the control box cover (lift, pull out at bottom, lower).
3. Turn knob of the combination control valve counterclockwise until it stops at the ON position.
4. Replace the control panel cover and screw. Check proper jacket water level: Refer to Fig. 4, page 9, and Jacket Water & Jacket Water Treatment, page 12.
5. Make sure gas supply is on. Turn the On-Off switch to the ON position.
- 6a. On kettles built after September 2003, the pilot begins sparking and the pilot burner indicator light illuminates. The pilot burner and indicator light remain on as long as the On-Off switch remains on. If the pilot burner goes out, the kettle controls automatically attempt to relight the pilot for 90 seconds, followed by a 5 minute wait (this repeats until pilot lights or switch is turned off).
- 6b. On kettles built from October 1998 to September 2003, the pilot begins sparking only when the thermostat calls for heat from the main burners. The pilot burner cycles on and off with the main burners. If the pilot burner goes out, turn the On-Off switch off for 5 minutes before attempting to restart the pilot by turning the switch back on.
- 6c. On kettles built before October 1998, the pilot begins sparking and the pilot lights. The pilot stays on as long as the On – Off switch remains on. If the pilot burner goes out, turn the On-Off switch off for 5 minutes before attempting to restart the pilot by turning the switch back on.
7. The lit pilot can be viewed through the view port at lower front of kettle.
8. Use thermostat to regulate cooking temperatures.

## **TURNING ON A KETTLE EQUIPPED WITH A MANUAL PILOT BURNER** (Applies to Fig. 3)

1. Remove the control box cover screw. Remove the control box cover (lift, pull out at bottom, then lower).
2. Swing disc to open the lighting hole (lower front).
3. After burners have been off for at least 5 minutes, open the gas shutoff valve.
4. Turn the knob of the combination control valve to the PILOT position. Using a taper, ignite the pilot (through the lighting hole) while completely depressing the knob of the combination control valve. Keep the knob depressed for about one minute after the pilot is lit. Release the knob. The pilot should continue burning. If not, repeat steps 3 and 4.
5. Turn the combination control valve to the ON position.
6. Replace the control box cover. Replace the screw and reconnect the electric power.
7. If pilot light goes out, main burners will not come on. Repeat, starting from step 1.
8. Use thermostat to regulate cooking temperatures.

## **SHUTDOWN**

Turn the thermostat dial to the OFF position. If equipped with an On-Off switch, turn it off. To completely shut off, close the gas shutoff valve. Turn combination gas control valve off.

## CLEANING

After each use, clean and flush the kettle liner immediately, especially if the product cooked contained salt, vinegar or acid in any concentration. Do not use chlorine based cleaning products. Do not use metallic scouring pads or brushes.

### Daily — Kettle Food Draw-Off Valve

**CAUTION: During disassembly, cleaning and reassembly of the valve, take special care to avoid damage to the mating surfaces of the valve plug and valve body. Do not allow the valve plug to contact metal or hard surfaces during cleaning. Do not use metal utensils or scouring pads to clean the valve's mating surfaces. Do not drop valve plug. Damage to the mating surfaces will result in a leaky valve. Damaged valves are not covered under warranty.**

1. Disassemble and clean valve daily. With kettle empty, turn valve handle to the \*removable position. Lift valve plug from valve body. A pin locks the valve plug into the valve body; the valve plug can only be removed or replaced when the valve handle is at the \*removable position. Do not attempt to slide the valve plug into the valve body when the valve handle is in any other than the \*removable position. This would damage the pin, cause the plug not to seat properly and cause leakage between the valve plug and the valve body.

\* The removable position for valves manufactured after June 2003 is with the handle positioned at 7 o'clock. The removable position for valves manufactured from March 1992 through June 2003 is with the handle positioned at 4 o'clock. The removable position for valves manufactured prior to March 1992 is with the handle positioned at 6 o'clock.

2. Using a solution of warm water and detergent, wash the entire valve body the opening that goes into the kettle interior. Also wash the interior and exterior of the valve plug.
3. After cleaning the valve, lubricate the valve body and valve plug with Petro-Gel lubricant supplied with kettle. Make sure all interior mating surfaces are covered with this lubricant before sliding the valve plug into the valve body. Make sure the valve plug handle is in the \*removable position when the plug is slipped carefully into the valve body.

A 4 oz. tube of Petro-Gel lubricant, (P/N 833652) is furnished with your kettle. You can reorder through your local service agency or food service equipment dealer. There are no substitutes for this lubricant. If you fail to lubricate the valve body and plug after cleaning or use a substitute lubricant, this could damage the mating surfaces which is not covered under warranty.

4. If multiple kettles are in use, each draw-off valve body and draw-off plug is stamped with a set of corresponding numbers. After cleaning and lubricating, make sure the body and plug numbers match before reinserting the valve plug. Always examine the valve plug and valve body for nicks and heavy scratches. Do not push or force the valve plug into the valve body if there are any obstructions, nicks or heavy scratches in either the plug or the valve body.
5. To correct a draw-off valve that is leaking after lubricant has been applied, examine the mating surfaces of the valve body and valve plug and carefully dress any raised places with a very fine file or emery cloth. Do not cut below metal surface in removing any raised places. Coat plug lightly with lapping compound, insert plug into valve body and rotate back and forth several times to seat plug into valve body. Use medium grade lapping compound first and finish with a fine grade. Valve grinding compound from an automobile supply house is suitable for this. After use of lapping compound, clean surfaces thoroughly. Lubricate surfaces with Petro-Gel lubricant. If the valve still leaks after lapping, repeat the lapping procedure.

# MAINTENANCE

**WARNING:** THE KETTLE AND ITS PARTS ARE HOT. USE CARE WHEN OPERATING, CLEANING AND SERVICING THE KETTLE.

**WARNING:** DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT / TAGOUT PROCEDURE.

## PRESSURE RELIEF VALVE

Open the pressure relief valve at least once a day to avoid lime build-up. If leakage occurs or if the valve opens below the rated psi, it will need to be replaced by your Vulcan authorized servicer.

## LOW WATER CUT-OFF

This device should be removed and inspected for lime build-up at least once a year. The float must move freely in its cage. Clean if necessary. Replace if lime or sludge cannot be removed to allow the float to move freely. Contact your local Vulcan authorized servicer.

## JACKET WATER & JACKET WATER TREATMENT

The kettle jacket is filled at the factory with chemically pure water mixed with a boiler treatment corrosion inhibitor. During normal kettle operation, it should not be necessary to frequently add water to the kettle jacket. If the water level in the sight glass falls below half, add distilled or chemically pure water to the jacket through the fill tube. The water level in the sight glass should be maintained to just above the halfway position in the sight glass.

If the water in the sight glass appears dirty, it is necessary to have a qualified service technician remove the fluid in the kettle, perform a delime or cleaning operation and refill the kettle with distilled, chemically pure water with a boiler treatment additive.

Do not fill kettle jacket with chlorinated tap water. Appliance failure caused by water quality is not covered under warranty.

## HOOD VENTILATION SYSTEM

Annually, when cool, check the ventilation system and clear any obstructions.

## SERVICE AND PARTS INFORMATION

To obtain service and parts information concerning the kettle, contact the Vulcan-Hart Service Agency in your area (refer to listing supplied with the kettle), or Vulcan-Hart Company Service Department at the address or phone number shown on the front cover of this manual.

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