

**VULCAN®**

**INSTALLATION, OPERATING, SERVICE  
AND PARTS MANUAL FOR  
DIRECT STEAM TRI-LEG AND  
PEDESTAL BASE FLOOR MOUNTED  
2/3 JACKETED KETTLES  
SERIES: VDL & VDP**



Vulcan service agencies are located throughout the United States.  
For location and phone number of one near you, call your local Vulcan dealer.

VULCAN-HART CORPORATION, P.O. BOX 696, LOUISVILLE, KY 40201-0696, TEL. (502) 778-2791

# **IMPORTANT**

## **OPERATING, INSTALLING AND SERVICE PERSONNEL**

The operating information on this equipment has been prepared for use by qualified and/or authorized operating personnel.

All installation and service on this equipment is to be performed by qualified, certified, licensed and/or authorized installation or service personnel, with the exception of any part marked with a  in front of the part number.

To obtain the name and location of an authorized Vulcan service agency, contact your Food Service Equipment dealer.

## **DEFINITIONS**

### **QUALIFIED AND/OR AUTHORIZED OPERATING PERSONNEL**

Qualified or authorized operating personnel are those who have carefully read the information in this manual and are familiar with the equipment's functions or have had previous experience with the operation of the equipment covered in this manual.

1. For the installation of gas piping from the outlet side of the gas meter, or the service regulator when the meter is not provided, and the connection and installation of the gas appliance, qualified installation personnel must be experienced in such work, be familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction. In the absence of local codes, installation must comply with National Fuel Gas Code ANSI Z223.1-latest edition.
2. For the installation of electrical wiring from the electric meter, main control box or service outlet to the electric appliance, qualified installation personnel must be experienced in such work, be familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction. In the absence of local codes, installation must comply with the National Electrical Code ANSI NFPA No. 70 latest edition.
3. For the installation of steam piping from the source of supply to the service inlet of the appliance, qualified installation personnel must be experienced in such work, be familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction.

### **QUALIFIED SERVICE PERSONNEL**

Qualified service personnel are those who are familiar with this equipment who have been endorsed by our company. All authorized service personnel are required to be equipped with a complete set of service and parts manuals and stock a minimum amount of parts for this equipment.

## **SHIPPING DAMAGE CLAIM PROCEDURE**

For your protection, please note that equipment in this shipment was carefully inspected and packed by skilled personnel before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of this shipment.

### **If shipment arrives damaged:**

1. **VISIBLE LOSS OR DAMAGE** — Be certain this is noted on freight bill or express receipt and signed by person making delivery.
2. **FILE CLAIM FOR DAMAGES IMMEDIATELY** — Regardless of extent of damage.
3. **CONCEALED LOSS OR DAMAGE** — If damage is unnoticed until merchandise is unpacked, notify transportation company or carrier immediately, and file "concealed damage" claim with them. This must be done within fifteen (15) days of the date the delivery is made to you. Be sure to retain container for inspection.

We cannot assume responsibility for damage or loss incurred in transit. We will, however, be glad to furnish you with necessary documents to support your claim.

**PLEASE RETAIN THIS MANUAL FOR FUTURE REFERENCE**

# INDEX

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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.

The manufacturer suggests that you thoroughly read

this entire manual and carefully follow all of the instructions provided. Save this manual for future reference.

A data plate with the unit model number, serial number, and the direct steam supply pressure required is on the unit.

## DESCRIPTION

## PAGE

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# DESCRIPTION

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The Vulcan direct steam jacketed kettles in this manual are pressure vessels of double wall stainless steel construction forming a sealed jacket reservoir around the lower two thirds of the kettle bowl surface.

The kettle bowl is the container for the food product which ideally should be a liquid or semi-liquid for complete contact with the bowl surface, to fully absorb the heat transmitted through the surface from the steam in the kettle jacket.

These kettles are equipped with a hinged counter-

balanced stainless steel lid covering the kettle bowl opening, a stainless steel tangent draw-off valve to remove the food product from the kettle bowl, and a relief valve plumbed to the kettle jacket.

These kettles are to be permanently floor mounted on their legs with adjustable flanged feet or on their pedestal bases.

Options include a hinged spring lift assist stainless steel lid covering the kettle bowl opening.

# CAPACITIES

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All models end with 20, 30, 40, 60, 80, or 100 to indicate the capacity of each kettle in gallons. For example, model VDL40 is a two thirds jacketed direct steam kettle mounted on legs, with a capacity of 40 gallons. A VDP40 is a 40 gallon kettle on a pedestal base.

# INSTALLATION

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## **WARNING: PLUMBING CONNECTIONS MUST COMPLY WITH APPLICABLE HEALTH, SAFETY AND PLUMBING CODES.**

- A. Select a location to provide drainage directly below the draw off valve (optional). Allow sufficient rear clearance from the wall for the kettle cover to lift upright freely without obstructions.
- B. Mark anchoring hole locations through flanged adjustable feet (VDL models), or holes in the pedestal base (VDP models).
- C. With hole locations marked, drill holes and insert expansion plugs to accommodate  $\frac{5}{16}$ " size lag bolts.
- D. Reposition the kettle. On VDL models level the kettle by making necessary adjustments using the flanged feet.
- E. Bolt the kettle down and seal with a high grade sealing compound. Sealant must be applied not only to bolt heads but around the flanges or pedestal base and must be making contact with floor surface to meet N.S.F. requirements. Wipe off excess sealant immediately.
- F. Install a separately purchased steam control valve at a convenient location near the kettle on the incoming steam line ( $\frac{3}{4}$ " size pipe).
- G. Connect the steamline to the kettle, making sure there is a steam control valve strainer (not supplied) fairly convenient to the kettle.
- H. Connect the kettle condensate return line to a drain or to a boiler return line. Each kettle return line must have a suitable steam trap (not supplied). Boiler return lines must have a check valve (not supplied).
- I. The relief valve on the kettle must not be adjusted or closed off as it is set to relieve excess pressure in the kettle.
- J. If the incoming steam pressure is greater than kettle **maximum operating pressure**, then a pressure reducing valve (not supplied) **must** be installed in the line.
- K. If large amounts of water accumulate in the steam line, it will be necessary to install one or more ball float traps (not supplied) in the line to eliminate the water.
- L. A steam line pressure gauge (not supplied) is also recommended to determine the actual amount of steam coming to the kettle.
- M. Turn unit "ON" and check for proper operation.

# OPERATION

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The relief valve is installed towards the rear of the kettle jacket. If the pressure in the jacket reaches the rated pressure of the kettle, the relief valve will open automatically and release excessive steam pressure.

The temperatures required for the cooking process to function adequately must be greater than the boiling point of the liquid food product, that is, water. The greater the steam pressure used, the higher the temperature and the quicker the cooking process. For example, steam pressurized at 30 p.s.i. reaches a temperature of 274°F (135°C). Since air is an unsuitable media through which heat may be transferred, for effi-

ciency the air should be exhausted from the jacket by opening the relief valve until the air has been completely replaced by pressurized steam.

In the initial stages of the cooking process when the steam comes in contact with the cold kettle bowl surface it condenses and forms considerable amounts of water. A separately purchased thermostatic steam trap should be installed at the exit end of the kettle jacket. This trap is a mechanical device that closes on high temperatures and opens when the temperature drops, allowing the water formed from condensate to exhaust, but retaining the steam under pressure.

# OPERATING

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- A. Check that the draw-off valve is closed.
- B. Fill the kettle with product to the desired level.

**NOTE:** Food products with milk or egg base should be placed into a cold kettle and then the cooking operation begun. Avoid sudden contact of these food products with a hot kettle surface because the food will stick to the surface.

- C. Slowly turn the steam control valve ON to the full open position (counter-clockwise).
- D. Slowly open the relief valve to allow all air to escape. Stay clear of the valve outlet during this operation to avoid very hot steam.

- E. The water or food should boil in 3 to 4 minutes per gallon. If it does not, then incoming pressure should be checked to determine that it is adequate to operate the kettle efficiently.
- F. Regulate the steam control valve depending on the type of food being prepared.
- G. When the food is cooked, turn off the steam, remove the food and add water, clean the kettle immediately to prevent residue from drying on the kettle bowl.

**WARNING: THE KETTLE IS HOT. USE CARE WHEN OPERATING AND SERVICING THE KETTLE.**

# CLEANING

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The kettle interior and exterior should be thoroughly washed after each use when a different food is to be cooked next or when cooking is completed for the day. Before cleaning check that the kettle has cooled enough to touch it.

- A. Check that the steam supply is turned "OFF".
- B. Pre-rinse the inside of the kettle thoroughly and drain to remove any food particles.
- C. Using a nylon brush, clean kettle with a mild detergent and warm water rinse. **Never** use steel wool or scouring powder as it will scratch stainless steel. Also, plain steel wool can leave small pieces of steel wool which can rust.
- D. Open the (optional) tangent draw off valve to allow the detergent and water solution to drain. Rinse thoroughly with clean water.
- E. By hand, turn the large hex nut on the (optional) draw off valve counter-clockwise until it is completely disengaged from the threads. Grasp the valve knob and slowly pull out the valve stem and disk. Do not allow the disk to come in contact with hard surfaces as it can be damaged and cause valve leakage. Wash the valve stem, disk and handle. Insert a nylon brush wet with detergent and water into the valve body and the tangent draw off tube. Brush vigorously.
- F. Replace the valve stem assembly and turn the hex nut until snug. Rinse the kettle with clean warm water.
- G. Leave the draw off valve open when the kettle is not in use.
- H. Wipe the exterior of the kettle with a clean damp cloth.

## MAINTENANCE

No general maintenance is required other than following the cleaning procedures.

## EXTREMELY SLOW COOKING TIME

If the cooking time is abnormally slow, then the difficulty may be due to insufficient steam pressure and/or volume. First determine that the pressure on incoming steam line at kettle is within 5 p.s.i. of the rated kettle pressure. Note that a pressure approaching the rated kettle pressure is liable to set off the relief valve. If the required pressure is available at the kettle, then possibly the volume of steam is not sufficient. Minimum  $\frac{3}{4}$ " pipe size is required to the kettle but if the steam generating source is at a great distance from the kettle, larger pipe will be required. Finally, the core of the steam supply pipe may have debris or scalants that impede steam flow and the pipe will require disassembly and inspection.

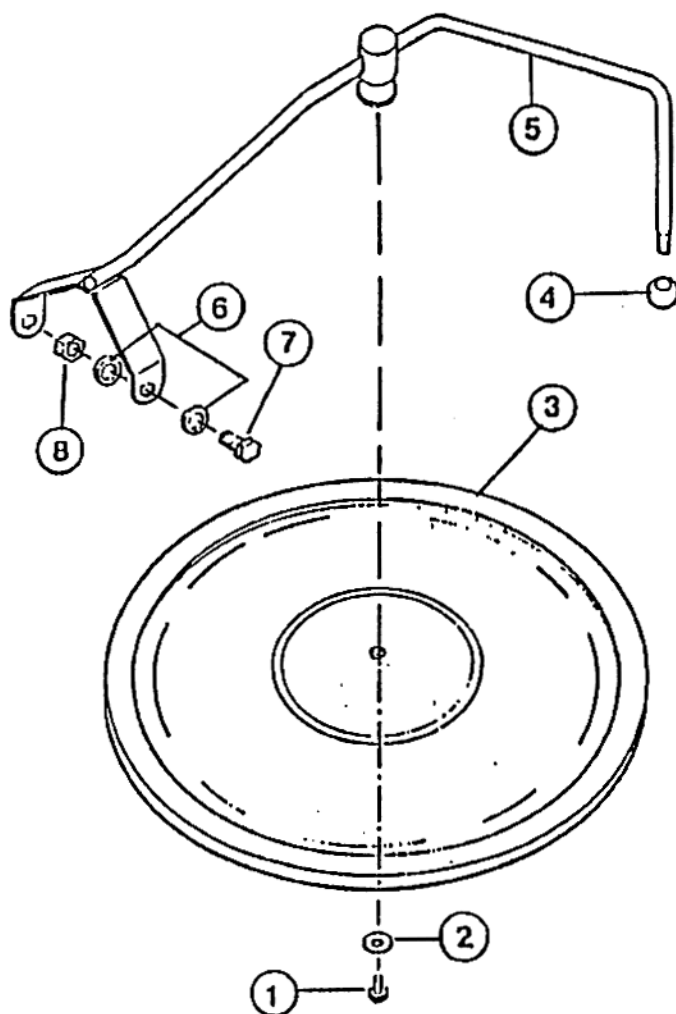
## DRAW OFF VALVE LEAKS (DRAW OFF VALVE IS OPTIONAL)

If a leak occurs through the valve stem, replace the "O" ring. If the leak is due to faulty sealing between the stem disc and the valve seat, this problem can usually be corrected by cleaning off the dried on food residue with an extremely fine emery cloth. If the disc or valve seats are found to be excessively damaged, either or both must be replaced.

However, if only slight damage to either the disc or seat has occurred, then the following lapping procedure should correct it:

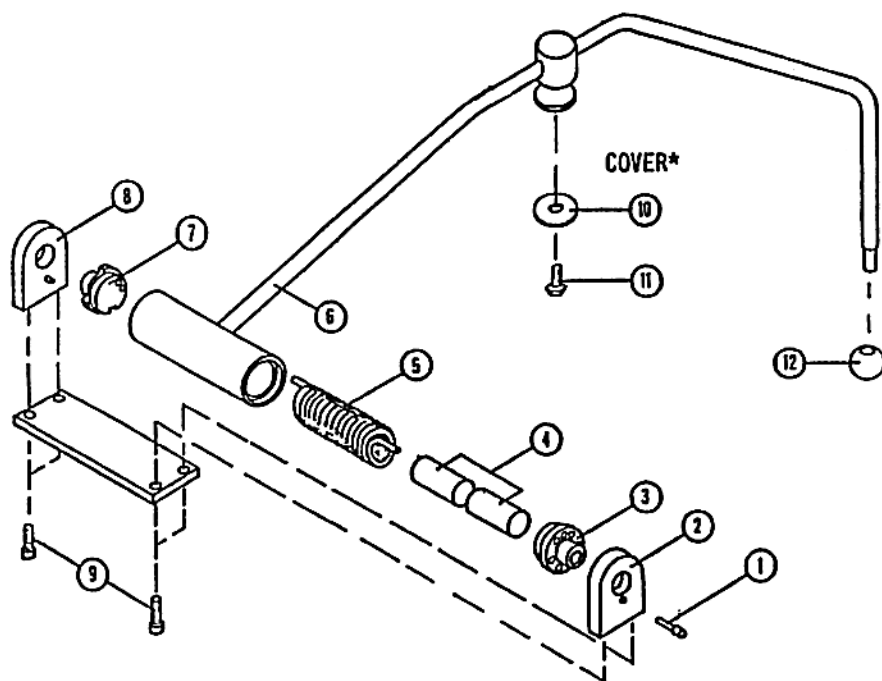
- A. Follow cleaning procedures.
- B. Remove the knob handle from the end of the stem. Unscrew and remove the bonnet from the stem. Put the knob back on the stem.
- C. Apply a fine grade lapping compound around the sealing edge of the disc and insert it into the valve making light contact against seat.
- D. By hand, rotate the stem disk against the valve seat, allowing the stem to wobble slightly in the space previously occupied by the bonnet.
- E. Repeat steps C and D several times.
- F. Reassemble, close the valve and test it for leaks.
- G. If leakage persists, then repeat this lapping procedure.

# PARTS LIST: COUNTERBALANCED HINGED COVER



ITEM NO.	PART NO.	DESCRIPTION	QUANTITY
1	836994-X	Cover (Specify Model No.)	1
2	836964	Knob	1
3	836984-X	Handle Assembly (Specify Model No.)	1
4	WS-007-20	Fibre Washer	4
5	SC-041-42	Bolt	2
6	NS-015-16	Nut	2

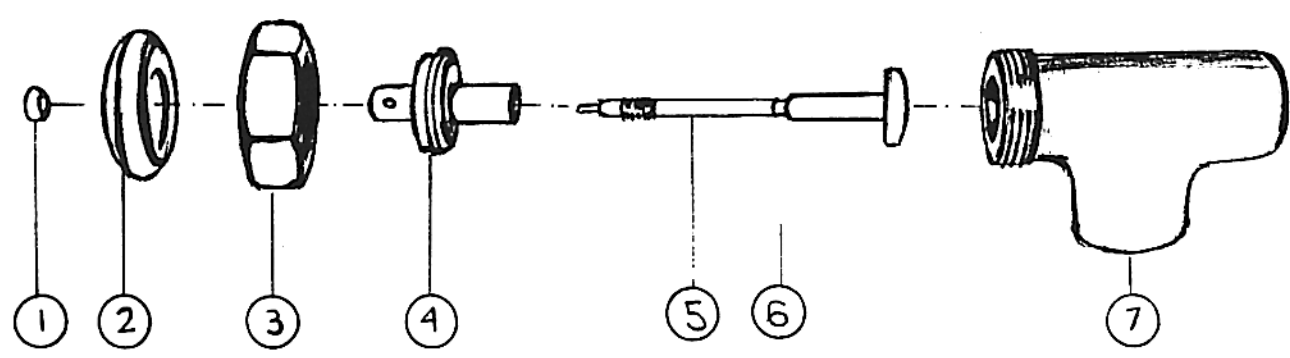
# PARTS LIST: SPRING ASSISTED HINGE ASSEMBLY (OPTIONAL)



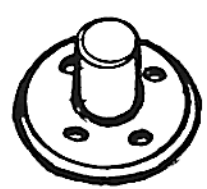
ITEM NO.	PART NO.	DESCRIPTION (20 to 40 Gal. Kettles)	QUANTITY
1	836977	Lock Pin	1
2	836978	End Lock Plate	1
3	836979	Stationary Disc	1
4	836980	Cores	2
5	836981	Spring	1
6	836982-X	Handle Assembly (Specify Model No.)	1
7	836983	Rotary Disc	1
8	836932	End Stop Plate	1
9	SC-041-50	Cap Screws	4
10	836964	Knob (Also 60 to 100 Gal. Kettles)	1

ITEM NO.	PART NO.	DESCRIPTION (60 to 100 Gal. Kettles)	QUANTITY
1	836986	Lock Pin	1
2	836987	End Lock Plate	1
3	836988	Stationary Disc	1
4	836989	Cores	2
5	836990	Spring	1
6	836991-X	Handle Assembly (Specify Model No.)	1
7	836992	Rotary Disc	1
8	836993	End Stop Plate	1
9	SC-041-01	Cap Screws	4
	836994-X	Cover (Not Shown - Specify Model No.)	1

**PARTS: DRAW OFF VALVES (OPTIONAL) & FLANGED FOOT**



ITEM NO.	PART NO.			DESCRIPTION	QUANTITY
	<b>1" Valve</b>	<b>2" Valve</b>	<b>3" Valve</b>		
1	836939	836939	836940	Nut	1
2	836967	836967	836942	Handle	1
3	836943	836944	836945	Hex. Assembly Nut	1
4	836946	836947	836948	Bonnet	1
5	836965	836950	836951	Disc & Stem Assembly	1
6	836966	836953	836954	"O"Ring	1
7	836955	836956	836957	Valve Body	1



PART NO.	DESCRIPTION	QUANTITY
836958	Flanged Adjustable Foot	3

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