



INSTALLATION & OPERATION

IMPORTANT FOR FUTURE REFERENCE

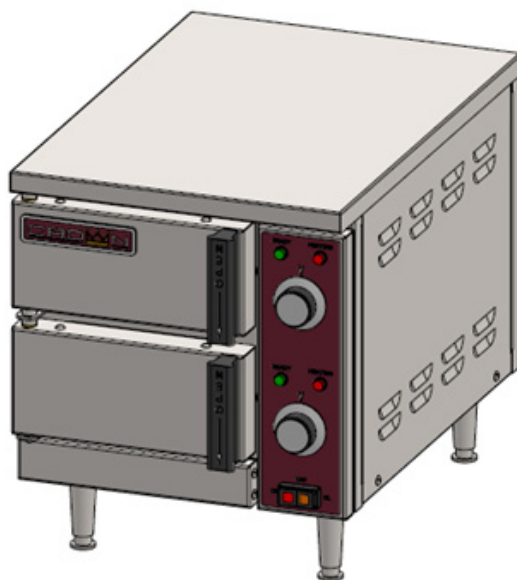
Please complete this information and retain this manual for the life of the equipment:

Model #: _____

Serial #: _____

Date Purchased: _____

Electric Counter Portion Steamer PSEN-2



Model PSEN-2

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.

CROWN FOOD SERVICE EQUIPMENT

 A Middleby Company

70 Oakdale Road, Downsview (Toronto) Ontario, Canada, M3N 1V9

Telephone: 919-762-1000

www.crownsteamgroup.com

SAFETY PRECAUTIONS

Before installing and operating this equipment, be sure everyone involved in its operation is fully trained and aware of precautions. Accidents and problems can be caused by failure to follow fundamental rules and precautions.

The following symbols, found throughout this manual, alert you to potentially dangerous conditions to the operator, service personnel, or to the equipment.

 DANGER

This symbol warns of immediate hazards that will result in severe injury or death.

 WARNING

This symbol refers to a potential hazard or unsafe practice that could result in injury or death.

 CAUTION

This symbol refers to a potential hazard or unsafe practice that could result in injury, product damage, or property damage.

NOTICE

This symbol refers to information that needs special attention or must be fully understood, even though not dangerous.

IMPORTANT NOTES FOR INSTALLATION AND OPERATION

 WARNING

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

 WARNING

FOR YOUR SAFETY:

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

NOTICE

This product is intended for commercial use only. NOT FOR HOUSEHOLD USE.

NOTICE

This manual should be retained for future reference.

RETAIN THIS MANUAL FOR FUTURE REFERENCE.

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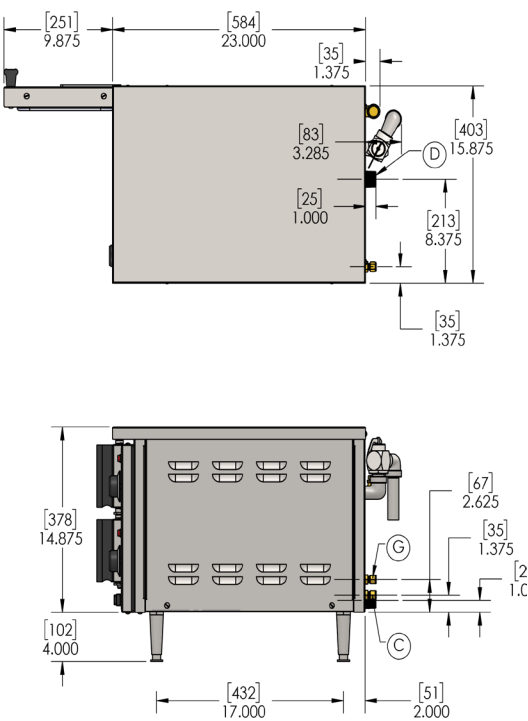
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SERVICE CONNECTIONS

-  - ELECTRICAL CONNECTION: Ø 1-1/8" hole for electrical connection.
Rating to be as specified on data plate.
-  - DRAIN: 1" IPS piped to open floor drain. No solid connection.
Use copper only, 24" length before open air gap opening.
-  - GENERATOR WATER: 3/8" OD tubing at 25-50 psi (170-345 kPa).
-  - CONDENSING WATER: 3/8" OD tubing at 25-50 psi (170-345 kPa).



DIMENSIONS ARE IN INCHES [MM]

ELECTRICAL CHARACTERISTICS

MODEL	KW	AMPS/POWER									
		208V		220V		240V		380V	415V	480V	600V
		1 PH	3 PH	1 PH	3 PH	1 PH	3 PH	3 PH	3 PH	3 PH	3 PH
PSEN-2	7.5 Standard	36	21	34	20	31	18	12	11	9	8

COMPARTMENT PAN CAPACITY

MODEL	PAN	NUMBER OF PANS
PSEN-2	1/3 Size x 2.5" Deep	1

WATER SUPPLY AND DRAIN SPECIFICATIONS

Water is the essential ingredient in steam equipment, water quality is the major factor affecting the performance of your appliance. Crown Steam Group offers a Comprehensive Water Treatment System which exceeds our minimum water requirements. Proof of installation and proper cartridges replacement is required for warranty coverage. Water supply to Crown Steam Group steamers must be within these guidelines.

Total dissolved solids.....	Less than 60 PPM	Chlorine	Less than 1.5 PPM
Total alkalinity	Less than 20 PPM	pH Factor	6.8 - 7.3
Silica.....	Less than 13 PPM		

Water which does not meet these standards should be treated with the installation of Middleby's Water Treatment System. Call 919-762-1000 if you have questions concerning your water meeting these parameters.

*Failure or malfunction of this appliance due to poor water quality is not covered under warranty.

Reference www.crownsteamgroup.com for complete warranty details and instructions.

INSTALLATION INSTRUCTIONS

GENERAL

The PSEN-2 steamer is a dual compartment electric atmospheric steam cooker with an internal steam generator that maintains pressure at approximately 1.8 psi (12 kPa). PSEN-2 is rated 7.5 kW as standard.

At high altitude locations a lower temperature is required to achieve atmospheric steaming.

Contact your authorized service office to have the pressure switch adjusted if the steamer will be **operated at high altitudes**.

INSTALLATION

UNPACKING

IMMEDIATELY INSPECT FOR SHIPPING DAMAGE

Immediately after unpacking the steamer, check for possible shipping damage. If the steamer is found to be damaged, save the packaging material and contact the carrier within 15 days of delivery.

Prior to installation, verify that the electrical service agrees with the specifications on the machine data plate which is located on the left side panel.

LOCATION

Allow space for plumbing and electrical connections. Allow adequate access for operating and servicing the steamer (36" (914 mm) at the front of the steamer and 15" (381 mm) above the steamer).

LEGS (OPTIONAL)

If the optional 4" (102 mm) adjustable legs are used, remove the four levelling feet on the bottom of the steamer.

LEVELING FEET (STANDARD) OR 4" ADJUSTABLE LEGS (OPTIONAL)

Thread the four 2" (51 mm) leveling feet shipped in a bag inside the steamer cabinet into the threaded holes on the bottom corners of the steamer. Or thread the four optional 4" (102 mm) adjustable legs into the threaded holes on the bottom corners of the steamer.

LEVELING

Using a spirit level or pan of water in the bottom of the steamer, adjust the leveling feet or the feet on the adjustable legs to level the steamer front-to-back and side-to-side. After the drain is connected, check for level by pouring water onto the floor of the compartment. All water should drain through the opening at the back of the compartment cavity.

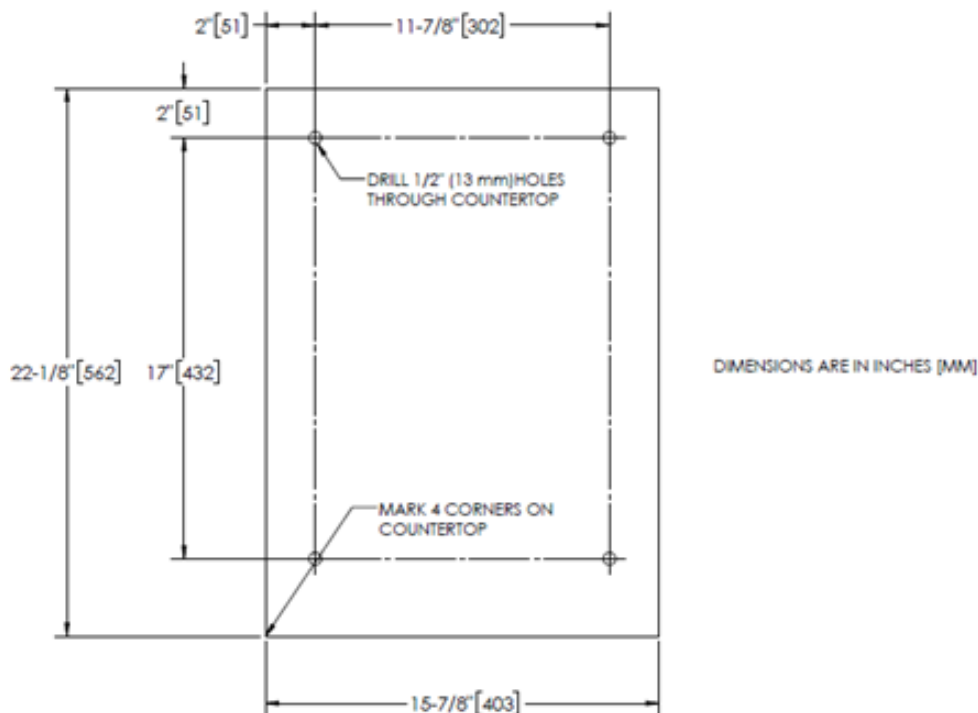
ANCHORING STEAMER (WITHOUT LEGS)

1. Place steamer in the desired location on the levelled countertop and mark four corners. Remove the steamer and drill 1/2" (13 mm) holes as indicated in Figure 1.
2. Apply a bead of RTV or other equivalent sealant around bottom perimeter edge of the steamer. If anchoring the steamer, this bottom seal is necessary to meet NSF requirements.
3. Set steamer on counter and bolt down securely with 3/8"-16 x 1" bolts (not supplied).

STACKING KIT

Follow instructions in the stacking kit when installing stacked portion steamers.

Figure 1



PLUMBING CONNECTIONS

WARNING

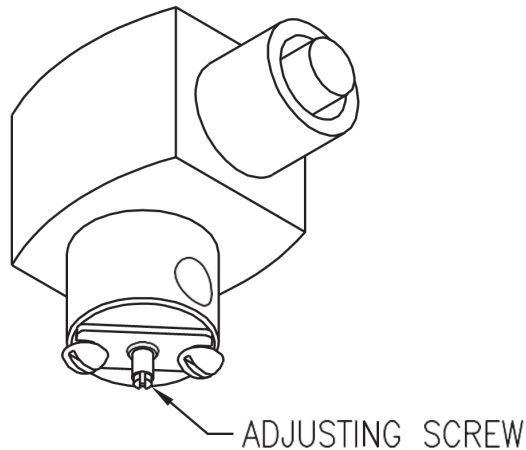
Plumbing connections must comply with applicable sanitary, safety and plumbing codes.

The water supply inlets are provided with 3/8" compression fittings for 3/8" OD copper tubing. The water supply line pressure should be 25-50 psi (170-345 kPa) for each line. The water supply to the generator tank is separate from the water supply to the cooling system where steam is condensed before entering the drain line.

Install line strainers (not provided). A manual shutoff valve for each supply line must be provided convenient to the steamer.

Treated water feeding the generator inlet supply is recommended, and untreated water feeding the condensing water inlet. Hook-ups are labelled on the back of the steamer.

Units are provided with an adjustable condensing water valve. It has been factory set to 2-1/2 turns open, that will suit most installations. Adjust as required to suit local water inlet temperature and pressure. Turn screw clockwise to decrease flow or counterclockwise to increase flow.

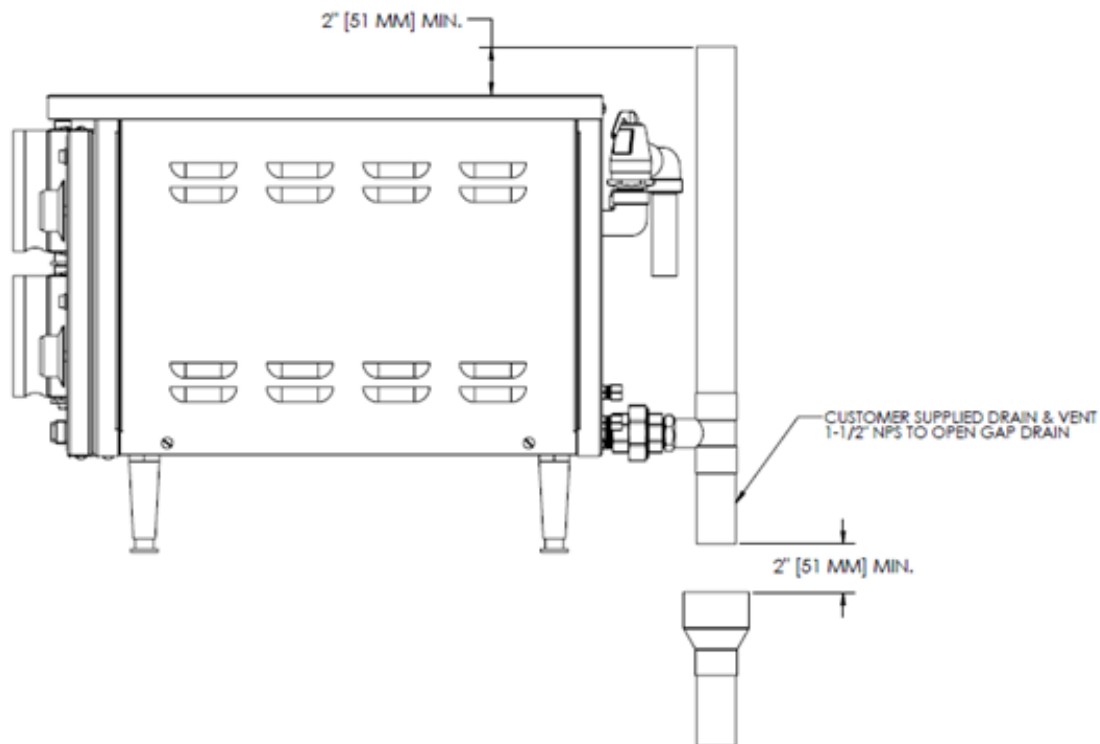


DRAIN CONNECTIONS (FIGURE 2)

The drain connection (Fig. 2) must be 1-1/2" IPS down, preferably with one elbow only, maximum length of 12" (305 mm) horizontal before open air gap and piped to an open air gap type drain. Drain pipe should be copper. DO NOT use PVC pipe - PVC pipe may lose its rigidity or glue may fail.

Overflow Pipe: An overflow is incorporated into the reservoir drain allows water to flow into the drain line out the back of the steamer in case of a waterfill malfunction.

Figure 2



CAUTION

In order to avoid any back pressure in the steamer, do not connect solidly to any drain connection.

WATER QUALITY

The water supply connected to this steamer should contain no more than 2.0 grains of hardness per gallon with pH from 6.8 to 7.3. This degree of hardness and pH can easily be obtained with the use of a properly maintained water softener.

Water supplies vary from one location to another. A local water treatment specialist should be consulted before installing any steam generating equipment.

Untreated water contains scale producing minerals which can precipitate onto the surfaces in the generator. Due to the temperatures in the generator, the minerals can bake onto the surfaces and components. This can result in early component failure and reduced product life.

Mineral scale on components causes several problems:

1. The surfaces of the heating devices become coated with scale, reducing the heat transfer efficiency. This can produce hot spots on the heating elements and result in premature failure.
2. The water level probes become coated with scale. Scale will bridge across the probe insulator from the metal extension which senses the water level in the generator cell. Once this scale becomes wet, the water level control is unable to maintain the proper water level in the generator. This situation may cause an electric heating element to fail if the element is not adequately covered by water.

Strainers and filters will NOT remove minerals from the water.

Refer to REMOVAL OF LIME SCALE DEPOSITS, page 14.

VENT HOOD

Some local codes may require the steamer to be located under an exhaust hood. Information on the construction and installation of ventilating hoods may be obtained from Vapor Removal from Cooking Equipment, NFPA standard No. 96 (latest edition).

ELECTRICAL CONNECTIONS

WARNING

Plumbing connections must comply with applicable sanitary, safety and plumbing codes.

Electrical grounding must be provided in accordance with local codes or in the absence of local codes, with the National Electrical Code, ANSI/NFPA70, or the Canadian Electrical Code, CSA C22-2, as applicable.

Use copper wire suitable for at least 90 degrees Celsius. The steamer must be grounded. The wiring diagram is located on the right-side panel as you face the steamer.

TESTING PROCEDURES

 CAUTION

Live steam and accumulated hot water in the compartment may be released when the door is opened.

Once the steamer is installed and all mechanical connections have been made, thoroughly test the steamer before operation.

1. Check that proper water, drain and electrical connections have been made.
2. Turn power switch ON. After approximately 10 minutes, both READY lights should come on, indicating that temperature of both compartments is 175°F.
3. With READY lights on, set one timer to 60 second position. COOKING light should come on and steam should be heard entering compartment. Open door and observe that steam is no longer entering compartment. READY and COOKING lights should be off.
4. Close door and let cooking cycle finish. Water from cold water condenser should be flowing through drain line. When timer reaches to 0 position, buzzer will sound signaling end of cooking cycle. Buzzer must be manually turned off by setting timer to OFF position.
5. Repeat steps 3 and 4 for other timer.
6. To shut down steamer, close both doors and turn power switch OFF.
7. After water has stopped draining from steamer, leave both doors slightly open to dry compartments.

OPERATION

When set to ON, your steamer has been set to maintain the generator standby temperature at approximately 1.8 psi (12 kPa) and cavity standby temperature of approximately 175°F (79°C), in READY mode.

CONTROLS

Main Power Switch -

ON.....Generator will automatically fill with water and begin heating compartments to preheat temperature.

OFF.....The generator will drain.

DL (Delime).....Closes the drain valve while CLR liquid is being poured into the generator during the delime procedure.

READY Light....When lit, indicates compartment has reached 175°F (79°C), and is ready for the cooking cycle.

Cooking Light..When lit, indicates that a cooking cycle is in progress.

Timer.....Set the cooking time (0 to 60 minutes) - steam cooking will begin when the door is closed. The cooking cycle will be interrupted if the door is opened during the cooking cycle; resume cooking by closing the door. When done, a buzzer sounds, and steam stops being supplied to the cooking compartment. Turn timer OFF to stop the buzzer.

PREHEAT

Turn the main power switch ON. When the READY lights come on, the steamer is now ready to cook.

COOK

After the preheat cycle, the READY light should be on.

Place pan of food in the cooking compartment. Close the door. Set the timer. Steam flows into the compartment and the COOKING light is lit. Opening the door will interrupt cooking; resume by closing the door.

At the end of the cooking cycle, the COOKING light goes off, the buzzer sounds, and steam stops being supplied to the cooking compartment. To stop the buzzer, turn the timer to OFF.

SHUTDOWN

Turn the main power switch OFF – the generator will automatically blowdown. Leave the compartment door open to allow the inside to dry out.

For an extended shutdown, turn the main power switch OFF, turn power and water supply OFF.

Each compartment is equipped with a removable drain screen. Frequently check the drain screen for accumulation of food particles. Should food particles accumulate against, or clog the drain screen, remove it, clean it thoroughly and then replace it in its original position.

Frequently check that the compartment drain and plumbing is free of all obstructions. Never place food containers, food or food portion bags in the cooking compartment in such a way that the compartment drain becomes obstructed.

STEAM COOKING

Your steamer efficiently cooks vegetables or other foods for immediate serving. Steam cooking should be carefully time controlled. Keep hot-food-holding-time to a minimum to produce the most appetizing results. Prepare small batches, cook only enough to start serving, then cook additional amounts to meet demand. Separate frozen foods into smaller pieces to allow more efficient cooking.

Use a pan cover for precooked frozen dishes that cannot be cooked in the covered containers in which they are packed if they require more than 15 minutes of cooking time. When a cover is used, approximately one-third additional cooking time is necessary.

Cooking time for frozen foods depends on amount of defrosting required. If time permits, allow frozen foods to partially thaw overnight in a refrigerator. This will reduce their cooking time.

PREPARATION

Prepare vegetables, fruits, meats, seafood, and poultry normally by cleaning, separating, cutting, removing stems, etc. Cook root vegetables in a perforated pan unless juices are being saved. Perforated pans are used for frankfurters, wieners and similar items when juices do not need to be preserved. Solid pans are good for cooking puddings, rice and hot breakfast cereals. Vegetables and fruits are cooked in solid pans to preserve their own juices. Meats and poultry are cooked in solid pans to preserve their own juices or to retain broth. Canned foods may be heated in their opened cans (cans placed in 1/3 size x 2.5" deep solid pans) or the contents may be poured into solid pans.

ACCEPTABLE PAN SIZES

The steamer accommodates 1/3 size x 2.5" pans, solid or perforated.

Model	Number of Pans Accomodated
	Depth of Pan
	2.5"
PSEN-2	2

DRAINING THE GENERATOR

Drain the steam generator after each day's use to flush out minerals and minimize scale buildup. The generator drains automatically for approximately 5 minutes after the main power switch is turned off.

CLEANING

 WARNING

Disconnect the power supply to the appliance before cleaning or servicing.

 CAUTION

Do not use cleaning agents that are corrosive.

 CAUTION

The appliance and its parts are hot. Use care when operating, cleaning, and servicing the appliance.

 CAUTION

Live steam and accumulated hot water in the compartment may be released when the door is opened.

At the end of each day, or between cooking cycles if necessary:

1. Turn main power switch OFF.
2. Remove pans and racks from compartment and wash in sink.
3. Wash compartment interior with clean water.
4. Use warm soapy water with a cloth or sponge to clean exposed bead of door gasket, rinse with warm clear water and wipe with a dry cloth.
5. Wipe surfaces which touch door gasket with a cloth or sponge and warm soapy water, rinse with warm clear water and wipe with a dry cloth. Do not apply food oils or petroleum solvents or lubricants directly to door gasket or surfaces which touch door gasket.
6. Wipe all solids away from drain opening in compartments to prevent clogging.
7. Keep cooking compartment drain working freely. After cooking grease producing foods, operate steam with compartment empty for 10 minutes at end of the day, or pour ½ gallon of warm soapy water down the drain, followed by ½ gallon of warm clear water.
8. Leave door slightly open when steamer is not in use.

Weekly, or more often if necessary:

Clean exterior with a damp cloth and polish with a soft dry cloth. Use a non-abrasive cleaner to remove discolorations.

 CAUTION

An obstructed drain can cause personal injury or property damage.

MAINTENANCE

 WARNING

Disconnect the power supply to the appliance before cleaning or servicing.

 CAUTION

Live steam and accumulated hot water in the compartment may be released when the door is opened.

 CAUTION

The appliance and its parts are hot. Use care when operating, cleaning, and servicing the appliance.

COLD WATER CONDENSER

The steamer is equipped with a cold water condenser in the rear of the cooking compartment which helps to condense the steam prior to discharge into the drain. The steamer freely vents itself by the negative pressure created by the condensate water drainage. This negative pressure prevents steam leakage around the door gasket and helps draw the steam through the cooking compartment. Steam leakage at the door may indicate a plugged or improperly installed drain.

REMOVAL OF SCALE DEPOSITS

It is recommended that your steamer be delimed once a month, or more often if necessary.

Should your steamer develop a heavy buildup of lime scale deposits, use CLR.

Before beginning deliming procedures, ensure that water is not overflowing into the cooking compartment.

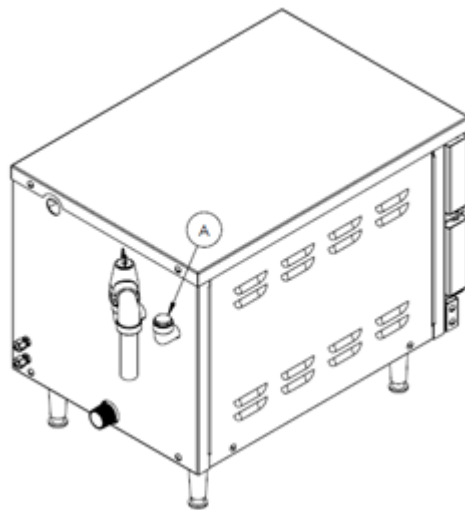
REMOVAL OF SCALE DEPOSITS (CONTINUED)

WARNING

Disconnect the power supply to the appliance before cleaning or servicing.

1. Drain steam generator by setting the main power switch to “OFF”. Set cooking timer to “OFF”.
2. Set the main power switch to “DL” (Delime).
3. Delime port (A) is located on right side at the rear of the unit. Unscrew plug from elbow to allow CLR solution to be poured in using a tube and funnel. Pour in 28 oz (828 mL) of solution into the generator (pour slowly to avoid spillage). Remove tube and funnel. Screw the plug back into the elbow so that it is sealed.
4. Allow steamer to remain in READY cycle for 1-1/2 hours, then turn main power switch OFF and allow generator to drain.
5. FLUSH CYCLE: Turn main power switch to “DL” (Delime). Pour in 250 oz (7393 mL) of water into the generator. Turn power switch to “OFF” to flush generator. Repeat this step three times to completely flush generator.
6. Clean exterior and interior. Use a mild solution of soap and water. Rinse with clean cloth. Dry with soft cloth. Leave compartment doors open when not in use.

The steamer is now ready for use. Turn off for overnight shutdown.



TROUBLESHOOTING

WATER FLOWS INTO DRAIN DURING SHUTDOWN

When steamer is shut down and cold water is running continuously into the open drain, either or both solenoid valves did not close when steamer was turned off.

1. Disassemble solenoid valve(s) and examine for scale or foreign particles lodged in diaphragm or core tube.
2. Clean valve(s) thoroughly and reassemble or replace valve(s).

WATER OVERFLOWS INTO COOKING COMPARTMENT

When steamer is first turned on for the day, and the following conditions occur:

- READY light does not come on after about 5 minutes,
- Water begins to overflow into cooking compartment,
- Water fill solenoid valve is open,

Any or all of these symptoms may indicate a problem with the operating probe due to either:

1. Probes not sensing water, thereby not operating fill solenoid.
2. Excessive scale build-up on the operating probe. This acts as an "insulation" and prevents the probe from sensing the water level. It is therefore unable to close the water fill (solenoid) valve to shut off the water.

As a temporary solution, with power OFF, unscrew probes, check visually, and clean or chip off scalant. Replace probe.

This problem is an indication of severe harmful water conditions which should be corrected immediately to avoid damage to the components and ultimate malfunction of the steamer. (See WATER QUALITY in this manual).

PSEN-2

Electric Counter Portion Steamer



A product with the Crown name incorporates the best in durability and low maintenance. We all recognize, however, that replacement parts and occasional professional service may be necessary to extend the useful life of this appliance. When service is needed, contact a Crown Authorized Service Agency, or your dealer. To avoid confusion, always refer to the model number, serial number, and type of your appliance.



CROWN FOOD SERVICE EQUIPMENT



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