OWNER'S MANUAL

INSTALLATION
USER'S GUIDE
SERVICE
PARTS

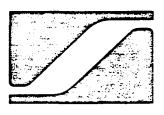
COMPARTMENT STEAMER STEAM COIL

MODELS: SC-2S; SC-3S; SCDA-2S; CSC-24S; CSC-36S; SCHD-2S

These instructions should be read thoroughly before attempting installation. Set up, installation and Performance Check should be performed by a qualified service technician. The Manufacturer, Southbend (1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526), informs you that unless the installation instructions for the above described Southbend product are followed and performed by a qualified service technician, (a person experienced in and knowledgeable concerning the installation of commercial gas and/or electrical cooking equipment) then the terms and conditions of the Manufacturer's Limited Warranty will be rendered void and no warranty of any kind shall apply.

If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the 12-month limited warranty period, then the manufacturer shall not be liable for any incidental or consequential damages to any person or to any property which may result from the use of the equipment thereafter. Some States do not allow the exclusion or 'imitation of incidental or consequential damages, so the above limitation or exclusion thereto may not apply to you.

In the event you have any question concerning the installation, use, care, or service of the product, write Customer Service Department, Southbend Corporation, 1100 Old Honeycutt Rd., Fuguay-Varina, North Carolina 27526.



SOURNDERN

A MIDDLEBY COMPANY

Congratulations! You have just purchased one of the finest pieces of heavy-duty, commercial cooking equipment on the market today.

You will find that your new equipment, like all Southbend equipment, has been designed and manufactured to some of the toughest standards in the industry - those of Southbend Corporation. Each piece of Southbend equipment has been carefully engineered and designs have been verified through laboratory tests and field installations in some of the more strenuous commercial cooking applications. With proper care and field maintenance, you will experience years of reliable, trouble-free operation from your Southbend equipment. To get the best results, it's important that you read this manual carefully.

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CAUTION: WATER QUALITY IS THE MAJOR FACTOR AFFECTING THE PERFORMANCE OF YOUR APPLIANCE. INCOMING WATER HARDNESS SHOULD NOT EXCEED 2.0 PPM GRAINS AND THE pH SHOULD NOT EXCEED 7.5. IF YOU ARE UNSURE OF WATER CONDITIONS, HAVE IT ANALYZED. CONSULT YOUR LOCAL WATER DEPARTMENT OR A COMPETENT WATER CONDITIONER AGENCY. FAILURE OR MALFUNCTION OF THIS APPLIANCE DUE TO POOR QUALITY OF WATER IS NOT COVERED UNDER THE WARRANTY.

Retain this manual for future reference.

WARNING — WARRANTY WILL BE VOID IF

- A. SERVICE WORK IS PERFORMED BY OTHER THAN A QUALIFIED TECHNICIAN.
- B. OTHER THAN GENUINE SOUTHBEND REPLACEMENT PARTS ARE INSTALLED.

FOR YOUR SAFETY

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

KEEP AREA AROUND APPLIANCES FREE AND CLEAR FROM COMBUSTIBLES. IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN EQUIPMENT AT THE MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.



1100 Old Honeycutt Road Fuquay –Varina, NC 27526 (919) 552-9161 FAX (919) 552-9798 (800) 348-2558

COMPARTMENT STEAMER STEAM COIL USER'S GUIDE

LIMITED WARRANTY

Southbend warrants that the equipment, as supplied by the factory to the original purchasers, is free from defects in materials and workmanship. Should any part thereof become defective as a result of normal use within the period and limits defined below, then at the option of Southbend such parts will be repaired or replaced by Southbend or its Authorized Service Agency. This warranty is subject to the following conditions:

If upon inspection by Southbend or its Authorized Service Agency it is determined that this equipment has not been used in an appropriate manner, has been modified, has not been properly maintained, or has been subject to misuse or misapplication, neglect, abuse, accident, damage during transit or delivery, fire, "flood, riot or Act of God, then this warranty shall be void. Specifically excluded under this warranty are claims relating to installation; examples are improper utility connections and improper utilities supply. Claims relating to normal care and maintenance are also excluded; examples are calibration of controls, and adjustments to pilots and burners.

Equipment failure caused by inadequate water quality is not covered under warranty. WATER QUALITY must not exceed the following limits: Total Dissolved Solids (TDS) - 60 PPM (Parts Per Million). Hardness - 2 Grains or 35 PPM, PH Factor - 7.0 to 7.5. Water pressure 30 PSI minimum, 60 PSI maximum, Boiler maintenance is the responsibility of the owner and is not

covered by warranty.

This equipment is intended for commercial use only. Warranty is void if equipment is installed in other than commercial application.

Repairs under this warranty are to be performed only by a Southbend Authorized Service Agency. Southbend can not be responsible for charges incurred from other than Authorized Southbend Agencies. THIS WARRANTY MUST BE SHOWN TO AN AUTHORIZED SERVICE AGENCY WHEN REQUESTING IN-WARRANTY SERVICE WORK. THE AUTHORIZED SERVICE AGENCY MAY AT HIS OPTION REQUIRE PROOF OF PURCHASE. This warranty does not cover services performed at overtime or premium labor rates nor does Southbend assume any liability for extended delays in replacing or repairing any items in the equipment beyond the control of Southbend. "Southbend shall not be liable for consequential or special damages of any nature that may arise in connection with such product or part." Should service be required at times which normally involve overtime or premium labor rates, the owner shall be charged for the difference between normal service rates and such premium rates. In all circumstances, a maximum of one hundred miles in travel and two and one half hours (25) travel time shall be allowable. In all cases the closest Southbend Authorized Agency must be used. The actual warranty time periods and exceptions are as follows:

This warranty only covers product shipped into the 48 contiguous United States and Hawaii, one year labor, one year parts effective from the date of original purchase. There will be no labor coverage for equipment located on any island not connected by roadway to the mainland. Exceptions to standard warranty, effective within above limitations:

Glass Windows, Door Gaskets, Rubber Seals, Light Bulbs, Ceramic Bricks,

In all cases parts covered by a five year warranty will be shipped FOB the factory after the first year. Our warranty on all replacement parts which are replaced in the field by our Authorized Service Agencies will be limited to three months on labor, six months on materials (parts) effective from the date of installation. See LIMITED WARRANTY

- REPLACEMENT PARTS for conditions and limitations.

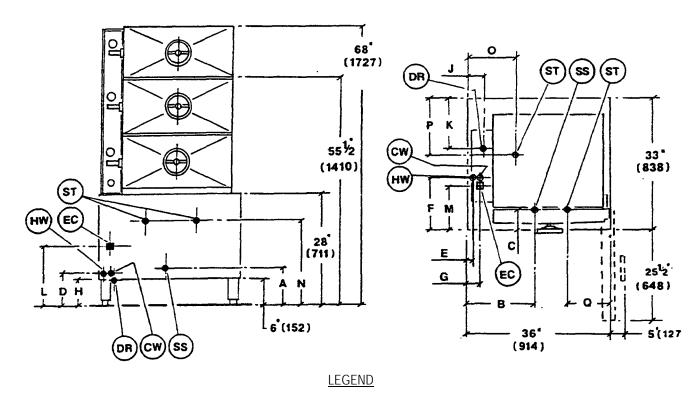
If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the one year limited warranty period, then the manufacturer shall not be liable for any damages to any person or to any property which may result from the use of the equipment thereafter.

"THE FOREGOING WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND CONSTITUTES THE ENTIRE LIABILITY OF SOUTHBEND. IN NO EVENT DOES THE LIMITED WARRANTY EXTEND BEYOND THE DURATION OF ONE YEAR FROM THE EFFECTIVE DATE OF SAID WARRANTY."

SOUTHBEND - Effective February 1, 1990

FIG. 1

	Α	В	С	D	Е	F	G	н	J	К	L	М	N	0	Р	Q
inches	9	17	5	7	2	13	3	5 ¾	4	11	15	11	23	11	12	10
mm	229	689	127	179	51	330	76	146	102	279	381	279	584	279	305	254



- SS 3/4" Female pipe connection for steam supply at 30 50 p.s.i.
- EC Electrical Connection 120 Volts, 60 Hertz single phase with grounding wire required unless otherwise specified.
- DR Boiler and compartment drain approx. 2" in diameter. Provide open air gap type drain.
- CW Cold Water supply. Provide 3/8" copper tube.
- HW Hot Water supply to Boiler. Provide 3/8" copper tube. A Backflow Prevention Device acceptable to BOCA Code or equivalent must be installed in this line.
- ST Steam take-off locations to supply steam to adjacent units if desired.

INSTALLATION INSTRUCTIONS

Set Cooker in place and level appliance using spirit level. Mark hole locations on floor through anchoring holes provided in flanged adjustable feet.

Remove appliance and drill holes into locations marked on floor and insert proper anchoring devices. Set Cooker back in proper position.

Re-level the appliance, leveling the unit left to right and front to back. Appliance should be elevated on the right 1/16" to 1/8" to assure proper compartment drainage. Bolt and anchor appliance securely to the floor. Seal bolts and flanged feet with Silastic or equivalent compound.

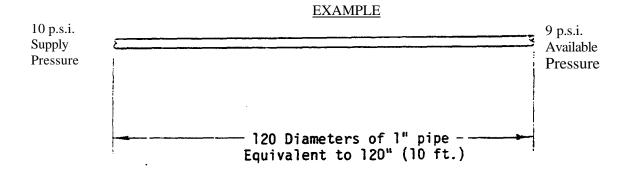
INFORMATION TO STEAM FITTER

Each cooking compartment requires approximately 1 BHP (34.5 IDS. of steam per hour) to operate satisfactorily. Therefore, a Model SC-2 requires 2 BHP and a Model SC-3 requires 3 BHP.

Assuming availability of 30 p.s.i. supply steam pressure immediately to the appliance, then pipe sizes of 1/2". 3/4" or 1" will deliver respectively 90, 165 or 285 lbs. of steam per hour to the appliance Heat Exchanger. From the foregoing to use a 1/2" pipe line would most likely prove inadequate

An extremely important consideration is the pressure drop that will occur through the steam supply line from its point of origin to the appliance. The greater the length of piping and number of valves and elbows, the greater will be the pressure losses.

Consider a pressure drop of 1 (one) p.s.i. for each straight length of pipe equivalent to 120 diameters of that pipe. Thus, a 1" pipe having a straight length of 120" (10 ft.) is equivalent to 120 diameters of that pipe and will have a pressure loss of 1 p.s.i. through that pipe.



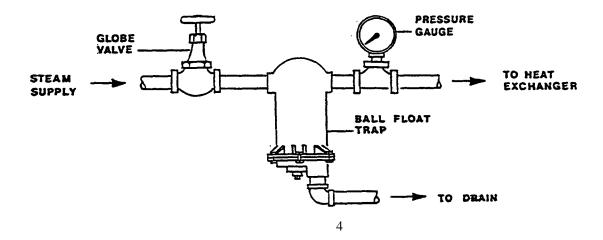
Note, in 3/4" pipe size. that a Standard 90° Elbow, an Angle Valve and a Globe Valve are equivalent to 1.8 feet, 10 feet and 18 feet respectively of straight pipe.

Similarly, in 1" pipe size, a Standard 90° Elbow, an Angle Valve and a Globe Valve are equivalent to 2.2 feet, 12 feet and 23 feet respectively of straight pipe.

40 P.S.I. SUPPLY 3' I' PIPE 90° ELBOW 17' GLOBE VALVE 32 P.S.I. AVAILABLE

Total of above = 20 + 2.2 + 3 + 2.2 + 17 + 23 + 10 + 2.2 = 79.6 feet. Since each 10 feet is equivalent to 1 p.s.i. pressure loss, 79.6 feet is equivalent to approximately 8 p.s.i. pressure loss and pressure available at end of line is approximately 32 p.s.i. from an original Boiler supply of 40 p.s.i.

It is suggested that, wherever possible, the steam supply line to the appliance be a separate line from the steam source. If the appliance must be supplied from a line supplying other appliances, the pipe sizes and pressure will have to be verified. Further, during idle periods, when the steam in the supply line is not in use. water will form from condensed steam in the supply line and it is advisable to prevent water pockets from forming in the steam line and impeding the steam flow when it is required. Therefore, contrive to have the steam supply line level or run slightly downward towards the appliance. Install a Ball Float Trap near the appliance to drain out water (condensed steam) from the line to assure clean dry steam to the appliance.



STEAMER FUNCTIONING MODE

SECTION 2: MODELS: SC-2 & SC-3

Steam, Power, hot and cold water, must be supplied to these Steamers. Refer to Section 1, Service Connections.

These Steamers are intended for use in commercial establishments. They are floor supported, are steam heated and incorporate steel enclosures to contain live electrical parts.

The Cooker consists of two or three compartments and is the upper portion of the Steamer. Each compartment is provided with its own Solenoids, Interlock Switches, Timer, Pilot Light, Operating Handle and Door. When a compartment is off, or de-energized, the Exhaust Solenoid Valve is open and the inlet Steam Solenoid Valve is closed. Pans, containing food properly portioned, are placed into guided racks or unto wire shelves provided in each compartment. When the door is closed, the Timer dialed and the Operating Handle is pulled out to the locked position, (which also locks the door and engages the Interlock Switches), the valves are energized. Steam reduced to maximum 6 p.s.i. pressure by the Pressure Regulating Valve will then be permitted to enter the compartment but not exit. Air, captured in the sealed compartment is allowed to exhaust through the Compartment Vent which will close at approximately 180°F, whence the compartment becomes an entirely sealed chamber. The duration of the cooking cycle is controlled by the Timer and when desired time has elapsed. Timer will read '0' and will set off an audible Buzzer and de-energize valves. Buzzer must be silenced by releasing the Operating Handle and presumably door opened to remove cooked food.

The Cabinet is the lower portion of the Steamer and contains components which control the functioning of the Heat Exchanger. A switch located on the front face of the Generator Control Box, when turned ON will provide power for the appliance and also initiate and maintain steam generation in the Heat Exchanger which in turn supplies steam to the compartments.

The Heat Exchanger is an ASME approved pressure vessel much similar to a boiler but internally it contains a copper steam coil sealed off from the rest of the vessel so that movement of fluids and/or steam is not possible from the copper coil to the vessel interior. The steam coil is supplied with pressurized steam from an outside source and simply "exchanges" the heat derived from that steam to generate usable steam from "clean" water fed into the pressure vessel. It should be noted that because of the separation already mentioned this system permits the utilization of an outside steam source that may be contaminated or toxic but being restricted cannot come in direct contact with food.

Refer to Periodic Maintenance, Section 4, for detailed version of components and controls.

COMPARTMENT CAPACITIES

The Cooker compartments are provided with either removable shelf supports with slide out shelves OR universal pan supports. The following capacities for each compartment are based on full size, 12" x 20", pans and depths indicated.

Shelf supports with shelving can accommodate:

- 6 2-1/2" deep full size pans or
- 4 4" deep full size pans or
- 2 6" deep and 2 2-1/2" deep full size pans.

Universal pan supports can accommodate:

- 8 2-1/2" deep full size pans or
- 4 4" deep full size pans or
- 2 6" deep and 2 2-1/2" deep full size pans.

Food placed in pans must, where possible, be evenly spread out and not protrude above pans since steam circulation between pans in the compartment will be impeded.

Always preheat compartments for satisfactory results.

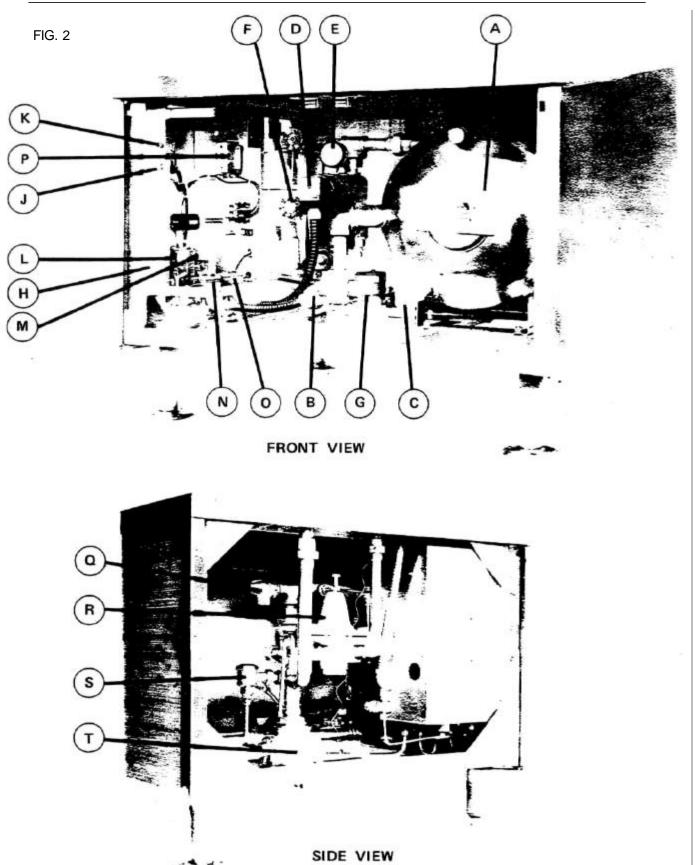
When all compartments are to be used at the same time, allow one compartment to recover steam pressure (approx. 4-1/2 p.s.i.) before commencing cooking operation on next compartment.

When time does not allow for defrosting of frozen vegetables such as loose pack peas. corn, diced carrots, etc., they may be cooked at once provided half suggested portions in Cooking Chart are used.

		COOKING CHART		
ITEM	PAN DEPTH	TIMER SETTING	WEIGHT LBS	NUMBER
	(FULL SIZE)	IN MINUTES	PER PAN	OF PANS
Beans	2-1/2"	10 - 12	5	1 - 3
Lima & Reg.	Perforated	13 - 15		4-6
Beans	2-1/2"	15-20	6	1 - 3
Waxed	Perforated	20 - 25		4-6
Broccoli	2-1/2"	8-10	6	1 - 3
Waxed	Perforated	10 - 12		4-6
Broccoli	2-1/2"	10 - 15	6	1 - 3
1/2" - 3/4"	Perforated	15-20		4-6
Stalks				
Canned	2-1/2"	4-5	7	1 - 3
Vegetables	Solid	5-8		4-6

COOKING CHART - cont'd

ITEM	PAN DEPTH (FULL SIZE)	TIMER SETTING IN MINUTES	WEIGHT LBS PER PAN	NUMBER OF PANS
Carrota (aligned)	2-1/2"	18 - 21	9	1 - 3
Carrots (sliced)	Perforated	21 - 25	9	4-6
Corn	2-1/2"	9-10	5	1 - 3
	Perforated	11 - 13	-	4-6
Chicken	2-1/2"	18 - 25	8	1 - 3
Blanched-Cut	Perforated	25 - 30		4-6
Eggs - out of	2-1/2"	6-7	4 dozen	1 - 3
Shell	Solid	7-8		4-6
Eggs - in	2-1/2"	2-3	3 dozen	1 - 3
Shell	Perforated	4-6		4-6
Fish-Fillets	2-1/2"	8-12	3	1 - 3
	Perforated	10 - 15		4-6
Meatloaf	2-1/2"	35 - 40	15	1 - 3
	Solid for Broth	40 - 45		4-6
Peas	2-1/2"	6-7	5	1 - 3
	Perforated	8-9		4-6
Potatoes cut	2-1/2"	20 - 25	10	1 - 3
Regular	Perforated	25 - 30		4-6
Potatoes cut	2-1/2"	15 - 18	10	1 - 3
French Fry	Perforated	18 - 20		4-6
Spinach	4"	3-5	3	1 - 2
cut, cleaned	Perforated	4-6		3-4
Rice	4"	22 - 24	4	1 - 2
1 Gallon Water	Solid	-,25-27		3-4
Spaghetti	4"	20 - 22	3	1 - 2
1-3/4 Gal. Water	Solid	23 - 26		3-3
Turkey	2-1/2"	50 - 60	10 - 12	1 - 3
	Perforated	60 - 75		4-6



Steamers are made of two sections, the Cabinet and the Cooker.

Fig. 2: The Cabinet is the lower section of the Steamer and not only does it provide a base for the Cooker to be positioned at a proper working height but also provides the enclosure for the Heat Exchanger.

FRONT VIEW Item A: The Heat Exchanger. Refer to Section 2, Functioning Mode.

Item B: A Steam Solenoid (electrically operated) Valve is plumbed to the entry side of the steam coil and when energized will open and allow pressurized steam (approximately 30 to 45 p.s.i.) to enter the steam coil.

Item C: A Thermostatic Steam Trap is plumbed to the exit end of the steam coil and is a mechanical device that closes on high temperatures and opens when the temperature drops. This allows air and water formed from condensate to exhaust out of the steam coil but will retain steam being of a higher temperature.

Item D: The Water Level Control is a mechanical switch intended to maintain proper water level in the Heat Exchanger. A Float is contained within the chamber of the Water Level Control and when it drops, it will trip the switch in the control and demand sufficient water to replenish it to the proper level.

A MANUAL VALVE LOCATED DIRECTLY BELOW THE WATER LEVEL CONTROL CHAMBER MUST BE OPENED BRIEFLY AT LEAST ONCE A WEEK TO BLOWDOWN SEDIMENT AND SCALANT THAT MAY BE LODGED IN THE CHAMBER. FAILURE TO DO SO MAY CAUSE EXCESSIVE ACCUMULATION. SEIZURE OF THE FLOAT AND EVENTUAL MALFUNCTION OF THE WATER LEVEL CONTROL.

Item E: The pressure Gauge is directly above and threaded to the Water Level Control. It should read '0' during shut down and function in a range of approximately 9 to 13 p.s.i. during operation of the Heat Exchanger.

Item F: The Water Gauge assembly has a glass tube to permit visual verification that water level is being maintained in the Heat Exchanger during operation. The manual valves at the top and the bottom of this assembly must be fully open and only closed if damage should occur to the glass tube.

OBSERVE THAT THE WATER IS CLEAN AND CLEAR IN THE GLASS TUBE. THE APPEARANCE OF EXTREME MURKINESS IN THE WATER INDICATES INADEQUATE WATER QUALITY AND WILL CAUSE FAILURE OF CONTROLS AND THE APPLIANCE. WARRANTY DOES NOT COVER MALFUNCTION DUE TO POOR WATER CONDITIONS.

Item G: Boiler Blowdown Valve is plumbed to the drain pipe of the Heat Exchanger and when specified as automatic will be a solenoid (electrically operated) valve which will close when energized in order to facilitate maintenance of proper water level in the Heat Exchanger.

HOWEVER, THE STEAMER SHOULD BE SWITCHED OFF AT LEAST ONCE DAILY WHICH WILL DE-ENERGIZE AND OPEN THE VALVE IN ORDER FOR THE BLOWDOWN PROCEDURE TO OCCUR AND REMOVE SEDIMENTS, SCALANTS AND LIME BUILD-UP IN THE HEAT EXCHANGER. IF THE APPLIANCE IS SUPPLIED WITH A MANUAL VALVE. IT SHOULD BE OPENED DAILY WHEN THE APPLIANCE IS SHUT DOWN.

Item H: Generator Control Box is fastened permanently to the left top portion of the Cabinet directly behind the left cabinet door. It contains provisions for field wiring and a number of controls. A removable bolted cover panel is provided for internal access.

Item J: Power Switch is fastened to the front face of the Generator Control Box and when switched ON will automatically begin the steam generating process in the Heat Exchanger.

Item K: Pilot Light is located directly above the Power Switch and when lit (green) indicates power is ON.

Item L: Operating Pressure Switch is fastened to the inside bottom front of the Generator Control Box and is plumbed to sense the pressure in the Heat Exchanger and thence control the operating cycle of the Steam Solenoid Valve (Item B). This switch is factory set to energize the Steam Solenoid Valve at 9 p.s.i. and denergize it at 12 p.s.i. thus maintaining a pressure range in the Heat Exchanger between 9 p.s.i. to approximately 13 p.s.i. (over ride considered).

Item M: Hi-Limit Switch is similar to and is located directly behind the above switch (Item L). It is a protective device intended to shut off the Steam Solenoid Valve at approximately 14 p.s.i. and will only function if the Operating Pressure Switch fails.

Item N: Solenoid (Hot Water) Valve is fastened to the bottom of Generator Control Box immediately to the right of Item L. This valve feeds hot water to the Heat Exchanger but its functioning is entirely dependent on the Water Level Control (Item D).

Item O: Solenoid (Cold Water) Valve is fastened to the bottom of the Generator Control Box directly behind Item N. This valve supplies cold water to condense live steam before it exhausts into the drain and its functioning is controlled by a thermostat.

Item P: A Thermostat is mounted on the back wall of the Generator Control Box and its heat sensing capillary bulb is fastened to the appliance Drain. When excessive heat (i.e. steam) comes in contact with the bulb, the Thermostat will energize the Cold Water Solenoid Valve (Item O).

SIDE VIEW

Item Q: Safety Relief Valve is a protective device set at 15 p.s.i.. Malfunction or improper setting of controls may allow the pressure to exceed 15 p.s.i. in the Heat Exchanger and will consequently set off this valve.

ONCE A WEEK THIS VALVE SHOULD BE TRIPPED DURING OPERATION TO ASSURE THAT IT FUNCTIONS PROPERLY.

Item R: Pressure Regulator reduces the pressure of the steam supplied from the Heat Exchanger to the Steam Header and the Cooker compartments.

TWICE A YEAR UNSCREW THE LARGE HEX HEAD PLUG LOCATED AT THE BOTTOM OF THE REGULATOR AND REMOVE AND CLEAN THE STRAINER.

Item S: A Thermostatic Steam Trap is plumbed to the steam supply piping from the Heat Exchanger and is similar to Item C. This Trap allows water formed from condensed steam to exhaust into the drain.

Item T: Drain for compartments and Heat Exchanger approximately 2" pipe size. Must be provided with open air gap type floor drain.

FIG. 3

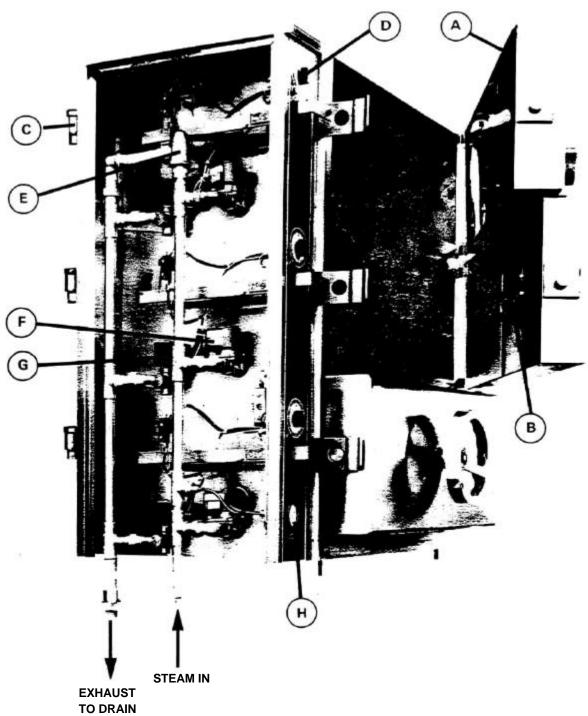


Fig. 3: The Cooker is the upper section of the steamer and is either a two or three compartment appliance. Each compartment functions independently with its own controls and is a separated sealed steam chamber during the cooking operation.

Item A: A Door Gasket is provided on each compartment door and ensures proper sealing of the cooking compartment.

WASH THE GASKET SEALING SURFACE DAILY WITH MILD DETERGENT TO REMOVE HARMFUL FOOD ACIDS. TURN HANDWHEEL COUNTER-CLOCKWISE TO RETRACT GASKET PLATE FULLY INTO DOOR WHEN NOT IN USE. DAMAGE TO GASKET SEALING SURFACE, SUCH AS NICKS OR CUTS WILL CAUSE STEAM LEAKAGE.

Item B: A Thrust Screw is located inside the door and its shaft protrudes through the door centre and is fastened directly to the Handwheel. Any force on the Handwheel is transmitted through the Thrust Screw simultaneously against the Gasket Retaining Plate and Door Gasket to seal the compartment.

THE THRUST SCREW OF EACH COMPARTMENT DOOR SHOULD BE LUBRICATED ONCE A MONTH. TO GAIN ACCESS TO SCREW, OPEN COMPARTMENT DOOR AND TURN HANDWHEEL CLOCKWISE (CLOSE DIRECTION) UNTIL GASKET RETAINING PLATE IS FULLY EXTENDED OUT OF DOOR. GRASP FINGER HOOKS AND LIFT UP AND OUT TO REMOVE GASKET PLATE ASSEMBLY. APPLY GREASE NLG12 CONSISTENCY OF 285W60 VISCOSITY LIBERALLY TO THRUST SCREW ROTATING HANDWHEEL TO ASSURE COMPLETE COVERAGE. REPLACE GASKET PLATE AND TURN HANDWHEEL COUNTER-CLOCKWISE RETRACTING GASKET PLATE INTO DOOR. CLOSE DOOR.

Item C: A Compartment Vent is plumbed to each compartment directly behind the Cooker Control Enclosure. During preheat or initially at commencement of cooking operation it remains open to exhaust air and condensate from the compartment. It will close at approximately 180°F.

Item D: A Timer is fastened to the Cooker Control Panel for each compartment and can be dialed from 0 to 60 minutes. At completion of the cooking cycle, dial should read '0' and an audible Buzzer will commence and can only be silenced by releasing the Operating Handle.

Item E: A Pressure Relief Valve is located inside the Control Enclosure and is plumbed to the top of the Steam Header. This protective device will open when 8 p.s.i. steam pressure is exceeded. Replace if leakage occurs or it opens below rated pressure.

PERIODIC MAINTENANCE

SECTION 4: MODELS: SC-2 & SC-3

Item F: A Steam Solenoid Valve is provided for each compartment and will open when energized to allow steam entry into the compartment. This valve will remain de-energized and closed if the Timer reads "O" and/or the Operating Handle is in the released position.

Item G: An Exhaust Solenoid valve is provided for each compartment and operates in reverse to Item F; that is, it will close when energized thus sealing the steam, provided by the Steam Valve, within the compartment.

ANY FOREIGN MATERIAL. OTHER THAN STEAM OR WATER, SHOULD NOT BE ALLOWED TO EXHAUST THROUGH THIS VALVE. AFTER OPERATION WIPE AND REMOVE FOOD OR ANY OTHER PARTICLES FROM EACH COMPARTMENT BOTTOM.

A stainless steel strainer is provided in each compartment just ahead of the exhaust port as a protective device for this valve. Remove, clean and replace if excessive food and/or dirt accumulation is evident.

IF PARTICULARLY GREASY FOODS HAVE BEEN COOKED IN THE COMPARTMENT, DEPOSITS MAY ACCUMULATE IN EXHAUST VALVES AND MUST BE REMOVED BY CLOSING DOOR. SEALING COMPARTMENT. SETTING TIMER AND AT FREQUENT INTERVALS PULL OUT AND RELEASE OPERATING HANDLE TO BLOW STEAM THROUGH VALVE AND DISSOLVE GREASE.

Item H: A Pressure Gauge is fastened to the bottom face of the Cooker Control Panel. It is plumbed to sense pressure in the Steam Header. When compartments are inactive, it should read approximately 6 p.s.i. but will fluctuate between 4-1/2 to 6 p.s.i. during the cooking cycle. Pressure above 6 p.s.i. indicates that Pressure Regulating Valve is set too high and may set off Pressure Relief Valve (Item E).

STEAM GENERATING PROCESS

Open left door of cabinet and turn ON power switch on face of Generator Control Box. Pilot light will come on (green) and steam generating will begin. After approximately 20 minutes, sufficient amount of pressurized steam will have been generated in the Heat Exchanger and the Cooker is now ready for the Cooking process.

PRE-HEAT COMPARTMENTS

If the appliance has been standing idle for a considerable length of time, the compartments will be cold and must be pre-heated before commencing the Cooking Operation.

COOKING OPERATION

- Refer to Pan Selection and Time Schedules in Section 4.
- Place pans with food into compartment and close door.
- Turn Handwheel clockwise sufficiently to provide a good seal on gasket.
- Set Timer to desired cooking cycle.
- Pull out Operating Handle and set in position.
- Pilot light will indicate that cooking cycle is now in progress.
- Completion of the cooking cycle is indicated by the buzzer going on and the pilot light off.
- Set Operating Handle back and turn Handwheel fully counter-clockwise.
- Open door and remove food in pans.

CLEANING

At the end of each day turn appliance OFF. Remove pans and side racks from compartments. Remove food sediment from compartment bottoms and wash compartment interior with mild detergent and rinse. Never use steel wool on stainless steel equipment. Replace washed racks and shelves.

Wash the gasket sealing surface of compartment door daily with mild detergent to remove harmful food acids.

Turn Handwheel fully counter-clockwise to retract gasket plate into door to avoid pressure on gasket when not in use.

COMPARTMENT DOORS

Door Hasp does not engage Door Catch properly

Check if door appears loose at hinges since worn out Bronze Bushings win cause misalignment of door and bushings must be replaced. Force out Tension Pins in Hinges with pin punch. (Refer to Parts List Section 7 - Compartment Door Assembly). Eject Hinge Pins and remove door. Force out worn Bronze Bushings and replace with care since this is a snug fit.

However, if door is rigid at hinges, then Door Hasp may require adjustment. Remove Cooker Enclosure Panel. Remove Hasp Pin and either add or delete washer under Hasp for proper height.

Handwheel is binding or difficult to turn

Foreign matter or lack of lubricant on dry Thrust Screw may cause threads to bind. Refer to Section 4, Periodic Maintenance.

If Thrust Screw is bent or threads are badly worn, remove Thrust Screw and replace. Refer to Steamer Compartment Door Assembly, Section 7, Page 23.

Door Gasket is leaking

Gasket Retainer Cap Screws may be loose and must be tightened to prevent steam leakage.

Gasket may be nicked, cut or at end of useful life and must be replaced.

Door may hang loosely and Gasket edges do not align with compartment surface properly. Correct as previously noted.

The Door Gasket and Aluminum Plate assembly may be hanging improperly within door on supporting Alignment Screws. Remove Gasket Plate Assembly and adjust Alignment Screws slightly.

As previously noted. Handwheel may be difficult to turn and excessive friction prevents exerting pressure required for sealing.

COOKER PROBLEMS

Water accumulates in bottom of compartment

Water accumulation in bottom of compartment is primarily condensed steam and failure to drain out completely may be due to improperly leveled appliance. Refer to Section 1, Installation Instructions.

Stainless steel compartment Screen protecting exhaust port in compartment may be clogged with debris and screen must be removed, cleaned and replaced. Exhaust Solenoid Valve may be obstructed with accumulated grease which will impede drainage of water. Refer to Section 4, Periodic Maintenance.

If grease is not the obstruction, then with power Off, the Exhaust Header must be disconnected at all unions and removed. The Union Elbow must be unthreaded from the Exhaust Solenoid Valve. Visually inspect the Exhaust Header and the valve for obstruction. Verify that no obstruction is present by passing an object, such as a pencil, freely through valve and also examine that exhaust port (stainless steel 1/2" fitting welded to Cooker body) is internally clean. Reconnect all plumbing.

However, the Exhaust Solenoid Valve may be incapable of opening. Since this valve contains a moveable blade and when de-energized, the blade reacts as a quillotine which should be free to move fully down into the valve pocket (projection at bottom of valve) so that the pierced hole in the blade aligns perfectly with the body opening. If debris has accumulated in the bottom of the valve pocket, then blade obviously will be impeded from moving into pocket completely. Further, a burnt out valve coil is likely. With valve removed from Cooker body, remove retaining clip at top of solenoid. Grasp (green) cover and housing intact with coil inside and slide off from valve. Unscrew projecting tube from top of valve body and remove internal mechanism together with blade assembly. Next unscrew both assembly bolts and split brass body of valve removing loose internal parts. Now flush and clean pocket thoroughly. Reassemble all parts in reverse order of disassembly. Energize valve with 120 V power to verify that valve is functional. As mentioned, coil may require replacement. Reconnect all plumbing.

Compartment remains pressurized at end of cooking cycle

As noted, when water accumulates at bottom of compartment, an obstructed Exhaust Solenoid Valve must be cleansed to allow not only water but also pressurized steam to exhaust at end of cooking cycle.

COOKER PROBLEMS (cont'd)

Steam escapes from compartment during cooking cycle

Initially in the cooking cycle, air is displaced by steam in the compartment through the Compartment Vent (Thermostatic Trap). Displacement of air is audible by the hissing noise but should cease when the Thermo-static Trap reacts to the higher temperature of steam entering the trap. However, malfunction will occur if dirt is lodged internally in metal to metal seat of trap. Unscrew bonnet from top of Compartment Vent. Remove internal mechanism, cleanse thoroughly and replace. If malfunction persist, replace Compartment Vent.

As mentioned previously, if the Exhaust Solenoid Valve has a burnt out coil, it will be incapable of being energized and thus remain open allowing steam to exhaust.

Cooking cycle cannot be activated

Although this appliance has been thoroughly tested, it is advisable to inspect that all wire terminations are positive and secure before assuming any other malfunction.

When Power Switch in Generator Control Box of Cabinet is ON and steam pressure reading shows 5 to 6 p.s.i. on Pressure Gauge of Cooker Control Panel and <u>all</u> compartments fail to function for the cooking cycle, then power obviously is not being supplied to Cooker and wiring must be checked.

The magnetic coil of the Steam Solenoid Valve may be defective and require replacement. With Compartment Door open, observe if steam enters compartment when an outside source of (120 V) power is supplied to valve leads. If the valve energizes and steam enters compartment, then valve is operative and malfunction of cooking cycle is due to either a defective Timer or Microswitch.

When Tinier is dialed. Operating Handle pulled out and cooking cycle will not activate in only one compartment, then Microswitches may require adjustment of their activating levers or replacement if defective. With Cooker Cover Panel removed, observe that levers of Microswitches are fully engaged by Arm of Operating Handle as it is pulled out. Bent Levers may fail to activate Microswitch(es) resulting in failure to energize valves and/or Timer and must be straightened (by hand) to assure positive contact.

A defective Tinier will prevent cooking cycle from functioning and must be replaced. It is not recommended that repair of Timer be attempted.

COOKER PROBLEMS (cont'd)

Water enters compartment through Steam Solenoid Valve

If the cooking cycle is on and water enters compartment through valve and steam pressure is nonexistent, then this may indicate malfunction of the Water Level Control (in Cabinet). The switch in the Water Level Control may be defective and remain in the closed position, consequently energizing the Boiler Water Supply Valve to continuously supply water to fill the Heat Exchanger, Steam Header and eventually overflow into the compartment(s) through Steam Solenoid Valve(s).

However, a more likely cause is excessive sealant and/or lime build up within the chamber of the Water Level Control, which having formed around the float, prevents it from fluctuating upwards with the increase in water level and thus the float is unable to trip the switch in the control to deenergize the solenoid valve and consequently stop water from being fed to the Heat Exchanger and flooding the system. Refer to Heat Exchanger on Removal of Sealants, etc.. This malfunction is extremely serious and indicates that water quality is inadequate and must be rectified immediately with a proper water conditioner.

Pressure Relief Valve leaks or opens frequently

This valve sits on top of the Steam Header and assures that pressure will not exceed 8 p.s.i.. The valve may leak if dirt is under valve disc. Manually trip lever of valve smartly a few times in an effort to dislodge and blow dirt away. Pressure Gauge on Cooker Control Panel should read maximum 6 p.s.i. and if valve continues to leak, then it is defective and must be replaced.

Pressure in Steam Header may be too high and Pressure Regulating Valve will require adjustment. To readjust, loosen lock nut on the adjusting screw and turn adjusting screw counter-clockwise to decrease pressure.

CABINET CONTROL PROBLEMS

Safety Relief Valve blows and releases steam frequently

The Safety Relief Valve is set at 15 p.s.i. and is a protective device intended to prevent pressure from exceeding 15 p.s.i. in the Heat Exchanger. During the operating cycle, observe the fluctuating pressure range as indicated on the Pressure Gauge located directly on top of the Water Level Control. The fluctuating range should read approximately 9 to 12 p.s.i. during a normal operating cycle and if the Safety Relief Valve blows prematurely then assume it must be defective and requires replacement.

However, if the pressure reading, indicated on the Pressure Gauge, approaches 15 p.s.i., then a lower adjustment of the Pressure Switches are required. Remove Cover from Generator Control Box and locate both switches at bottom left side of Control Box. When facing Pressure Switch in the upright position, the adjusting nut on the higher top point to the back controls the high pressure setting of that switch and the adjusting nut on the lower top surface to the front of the switch controls the low pressure setting of that switch. Both nuts when turned counter clockwise with either a 1/4" wrench or slotted screwdriver will lower the pressure settings. Refer to Periodic Maintenance Section 4, for proper pressure settings. Each nut should be turned slightly and the pressure reading on the Gauge observed before adjusting the next nut unnecessarily.

Water is not being supplied to Heat Exchanger

When the appliance is first turned ON. and assuming that water supply is definitely available to the appliance, and after 20 minutes no water can be observed in the Water Gauge Assembly, then either the Solenoid (Hot Water) Valve is defective or is incapable of being energized by the Water Level Control. As mentioned previously, the float within the chamber of the Water Level Control may be seized up and remain stuck in the upper position by sealant thereby falsely indicating sufficient water is present in the Heat Exchanger. The Water Level Control Assembly must be detached, removed and thoroughly cleansed to remove sealants and lime build up. Refer to Heat Exchanger on Removal of Sealants etc.. This malfunction indicates extremely poor water quality being supplied to the appliance and must be attended to immediately to avoid complete breakdown of the appliance.

Another possibility is that as quickly as water is fed to the Heat Exchanger, it is being drained through an open Boiler Blow down Solenoid Valve which cannot close since it is not being energized either through defective wiring or a burnt out coil.

CABINET CONTROL PROBLEMS (cont'd)

Water is not being supplied to Heat Exchanger (cont'd)

This valve is similar in construction to the Exhaust Solenoid Valve mentioned previously and may malfunction due to sealants lodging in the pocket of the valve. Refer to page 17 Cooker Problems - "Water accumulation in the bottom of compartment" - for procedure of cleaning this valve.

Boiler Blowdown Valve does not drain

When the appliance is turned OFF, the Boiler Blowdown Valve is de-energized and consequently opens and the water contained in the Heat Exchanger being under pressure, should be blown through this valve and be noticeably visible exhausting out the appliance Drain. However, if the blowdown operation appears to function rather sluggishly or not at all, then assume that considerable sealant may be lodged in the drain pipe and/or the valve. Disconnect the valve from the drain line and inspect both the valve and the drain pipe fixed to the Heat Exchanger. If considerable sealants or lime build up is apparent then not only the valve but also the Heat Exchanger and Water Level Control must be thoroughly cleansed. Refer to Heat Exchanger on Removal of Sealants etc. for proper procedure.

Heat Exchanger achieves pressure slower than normal

If the Heat Exchanger requires considerably more time than 25 minutes to achieve normal operating pressure (9-12 p.s.i.), then assume that heavy build up of sealant has completely coated the internal copper steam coil and consequently heat transfer through the, coil is hampered by the insulating effect of the sealant.

As mentioned in the previous symptom, an inspection of the Boiler Blow-down Valve should be undertaken to verify presence of sealant.

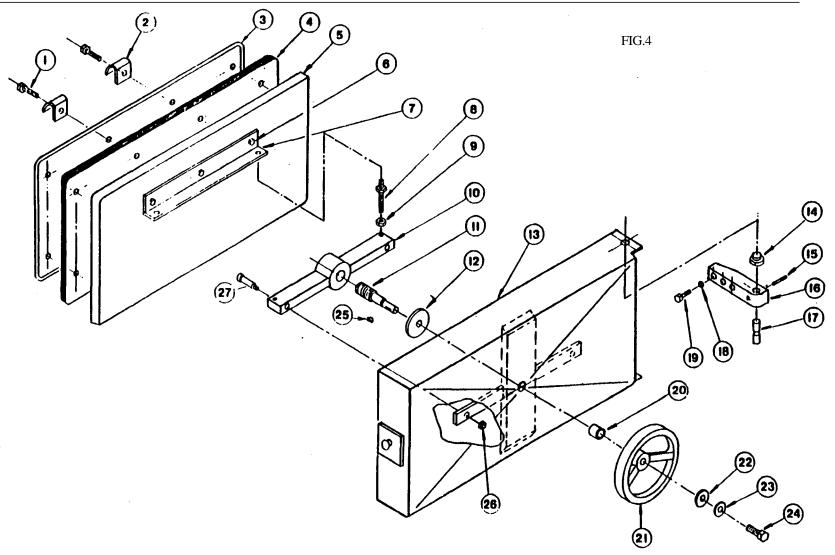
Disconnect all plumbing to the Heat Exchanger at unions. Remove both fastening bolts from the Heat Exchanger front Support Bracket. Note that back Support Bracket has two open ended slots to provide for ease of removal. If the Heat Exchanger cannot be dislodged easily from back Support Bracket, then with hammer strike a few sharp blows on back of Support Bracket. Remove Heat Exchanger completely from Cabinet and lay it along its right side on floor. Plug or cap all pipe fittings with the exception of the two projecting the highest.

Prepare a solution of one part Muriatic (Hydrochloric) Acid to seven parts of water and pour into Heat Exchanger through one of the remaining open pipe fittings. The other open pipe is to allow air to exhaust from vessel when it is displaced by the solution.

CABINET CONTROL PROBLEMS (cont'd)

Heat Exchanger achieves pressure slower than normal (cont'd)

When the vessel is full, allow to stand for several hours or overnight. Unplug and/or uncap all pipe fittings and allow solution, together with sealant to drain out. During the procedure, exercise extreme care to avoid personally coming in contact with the acid. If contact occurs, wash acid off immediately with clean water. Connect hose to pipe fitting and thoroughly flush out vessel with clean water. Return Heat Exchanger to Cabinet and reconnect all plumbing and bolts.



COMPARTMENT STEAMER STEAM COIL PARTS

WARNING:

INSTALLATION OF OTHER THAN GENUINE SOUTHBEND PARTS WILL VOID THE WAR RANTY ON THIS EQUIPMENT.

SERIAL NUMBER/RATING PLATE:

The serial plate is located inside the left door of the cabinet base at the top of the panel.

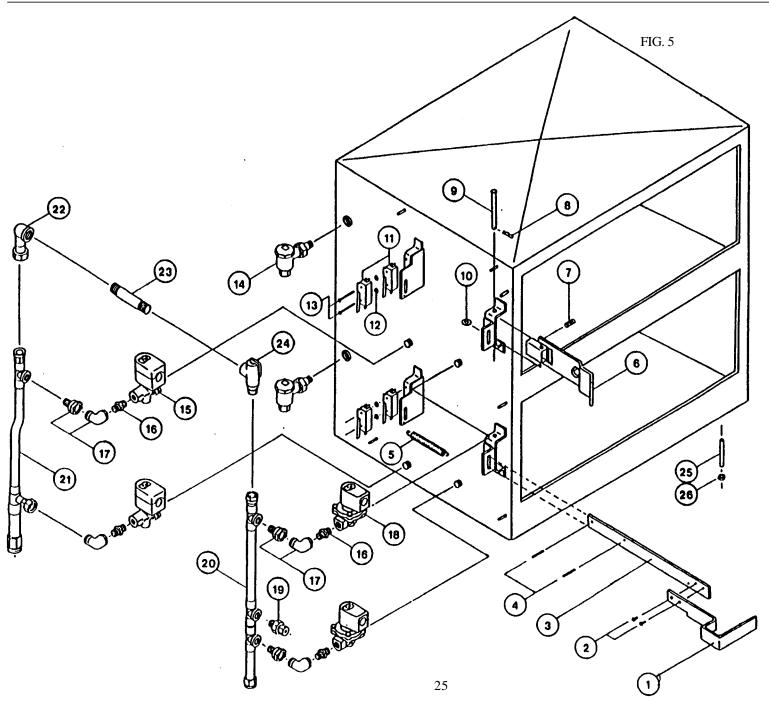
Replacement parts may be ordered either through a Southbend Authorized Parts Distributor or a Southbend Authorized Service Agency.

When ordering parts please supply the Model Number, Serial Number, Part Number, Description, plus Finish, and Electrical Characteristics, as applicable.

For parts not listed consult a Southbend Authorized Parts Distributor or Southbend Authorized Service Agency. If necessary, please consult Southbend Escan Parts Department for assistance.

From Fig. 4

ITEM NO.	PART NO.	<u>DESCRIPTION</u>	QUANTITY
1	1-55S4	Gasket Screw	8
2	8-1176	Finger Hook	2
3	8-1177	Gasket Panel	1
4	8-1178	Door Gasket	1
5	8-1179	Aluminum Plate	1
6	1-55S4	Support Angle Screw	3
7	8-1180	Support Angle	1
8	8-1181	Alignment Screw	2
9	1-69C0	Nut	2
10	8-1182	Thrust 8ar	1
11	8-1183	Thrust Screw	1
12	2-W186	Hasher	1
13	8-1184	Compartment Door	1
14	8-1187	Bronze Bushing	2
15	1-T6S8	Tension Pin	2
16	8-1188	Hinge	2
17	8-1189	Hinge Pin	2
18	2-011 R	"O" Ring	6
19	1-65S4	Hinge Screw	6
20	8-1190	Aluminum Bushing	1
21	8-1191	Handwheet	1
22	2-H9S8	Hasher	1
23	8-1193	Open-dose Label	1
24	1-65S6	Handwheel Screw	1
25	1-K5U5	Thrust Screw Key	1
26	1-59CO	Nut	2
27	2-57U5	Shoulder Screw	2



SECTION 7: COOKER ASSEMBLY

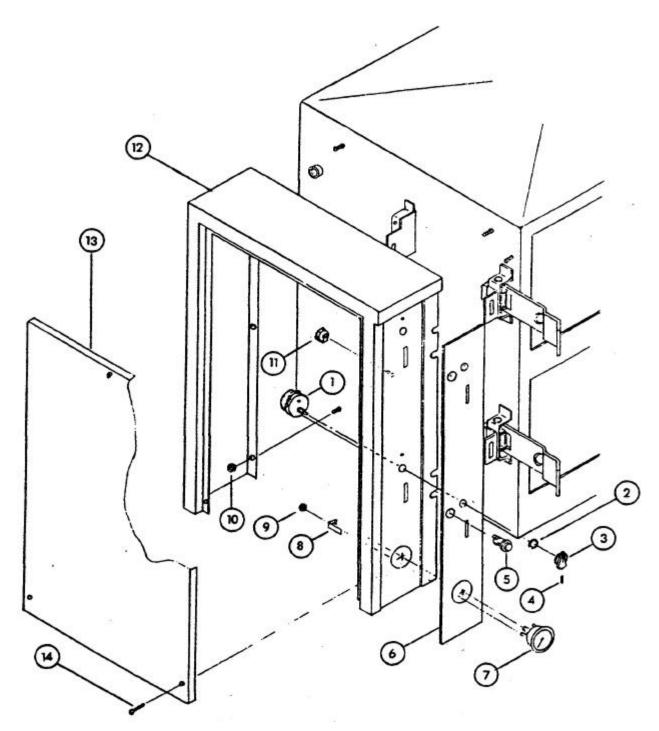
From Fig. 5

REQUIRED FOR EACH COMPARTMENT

ITEM NO.	PART NO.	<u>DESCRIPTION</u>	QUANTITY
1	8-1247	Operating Handle	1
2	1-32C3	Operating Handle Screw	2
3	8-1248	Operating Ann	1
4	2-T4U6	Tension Pin	2
5	2-ES89	Extension Spring	1
6	8-1249	Hasp	1
7	1-CS78	Compression Spring	1
8	1-PCS8	Hasp Pin Clip	1
9	2-P8C9	Hasp Pin	1
10	8-1251	Hasp Alignment Spacer	1
n	4-M603	Microswitch	2
12	1-S7C4	Miroswitch Spacer	2
13	2-11C9	Microswitch Screw	2
14	3-CV42	Compartment Vent	1
15	3-S467	Exhaust Solenoid Valve	1
16	3-2200	Brass Nipple	2
17	3-U4BE	Union Elbow	2
18	3-S422	Steam Solenoid Valve	1
		REQUIRED FOR EACH COOKER	
19	3-68BC	Connector (to Pressure Gauge Tube)	1
20	8-1226	Steam Header (2 Comp.)	1
or	8-1227	Steam Header (3 Comp.)	1
21	8-1228	Exhaust Header (2 Comp.)	1
or	8-1229	Exhaust Header (3 Comp.)	1
22	8-1246	Header Union Elbow	1
23	8-1231	Header Connecting Pipe	1
24	3-SRV1	Safety Relief Valve (8 p.s.i.)	1
25	2-78U7	Cooker Hold Down Bolt	4
26	1-89CO	Nut	4

SECTION 7: COOKER CONTROLS

FIG. 6

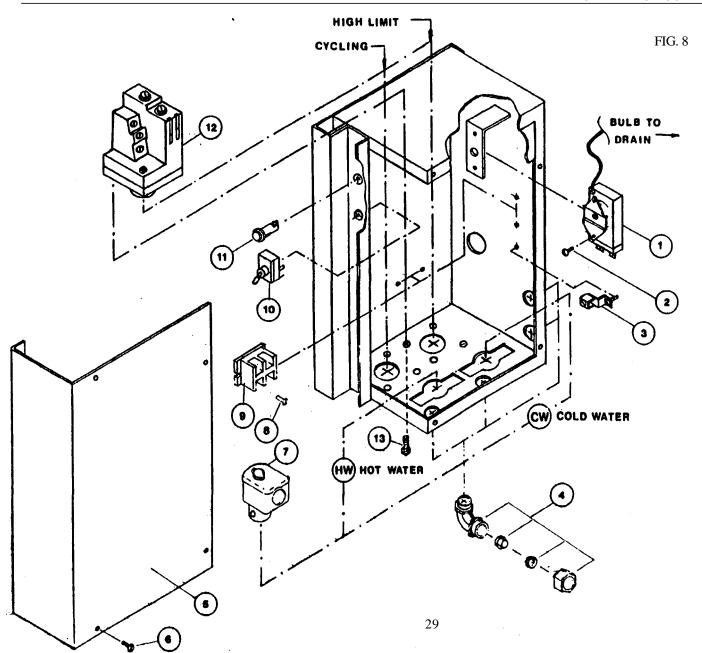


SECTION 7: COOKER CONTROLS

From Fig. 6

REQUIRED FOR EACH COMPARTMENT

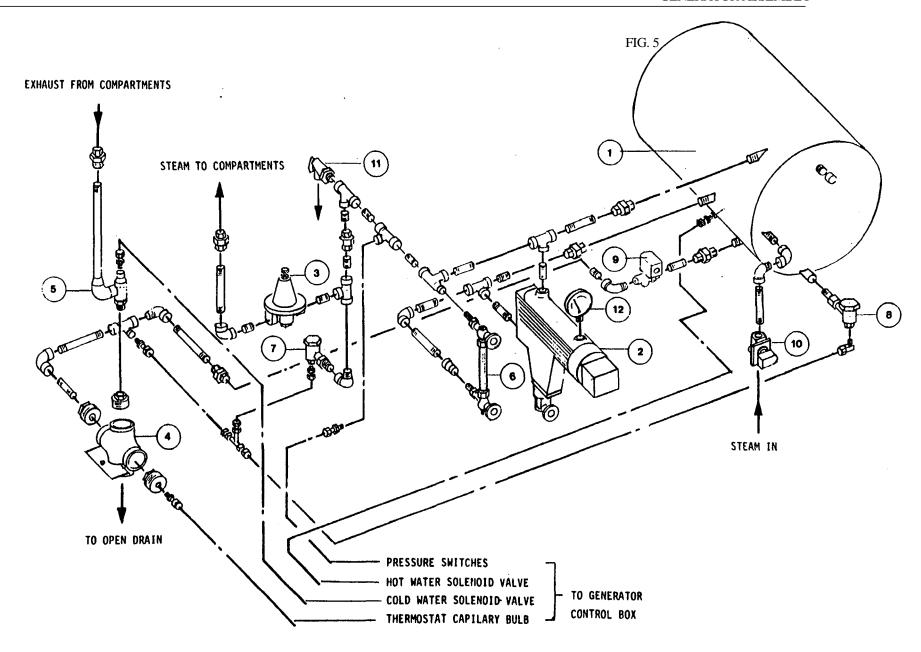
ITEM NO.	PART NO.	DESCRIPTION	QUANTITY
1	4-T208	Timer	1
2	2-79C0	Timer Nut	1
3	4-TK08	Timer Knob	1
4	1-16C3	Knob Set Screw	1
5	4-P5TN	Pilot Light	1
		REQUIRED FOR EACH COOKER	
1			
6	8-1204	Cooker Instruction Label (2 comp.)	1
or	8-1205	Cooker Instruction Label (3 comp.)	1
7	3-PG15	Pressure Gauge	1
8	3-15PG	Gauge Fastening Bracket	2
9	1-39CO	Pressure Gauge Nut	2
10	1-59CO	Enclosure Fastening Nut (2 comp.)	8
or		Enclosure Fastening Nut (3 comp.)	9
11	4-BU08	Buzzer	1
12	8-1207	Cooker Control Enclosure (2 comp.)	1
or	8-1208	Cooker Control Enclosure (3 comp.)	1
13	8-1211	Cooker Enclosure Cover (2 comp.)	1
or	8-1212	Cooker Enclosure Cover (3 comp.)	1
14	1-34S8	Enclosure Cover Screw	3



GENERATOR CONTROL BOX ASSEMBLY

From Fig. 7

ITEM NO.	PART NO.	DESCRIPTION	QUANTITY
1	4-TH04	Drain Thermostat	1
2	1-13C3	Thermostat Screw	2
3	4-70EU	Ground Terminal	1
4	4-LQE7	Liquid Tite Elbow Assembly	4
5	8-1244	Control Box Cover	1
6	1-33C3	Cover Bolts	4
7	3-S162	Solenoid Valve	2
8	1-23C3	Terminal Block Screw	4
9	4-22T8	Terminal Block	2
10	4-S101	Power Switch	1
11	4-PL04	Pilot Light	1
12	3-PA26	Pressure Switch c/w 3-RD20 Transducer	2
13	1-55C8	Pressure Switch Bolt	8

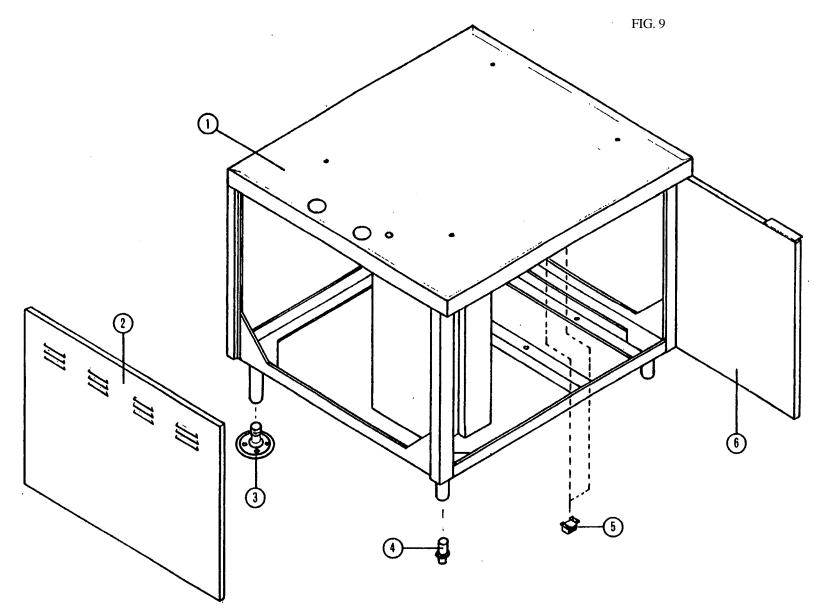


PARTS LIST

SECTION 7: GENERATOR ASSEMBLY

From Fig. 8

ITEM NO.	PART NO.	DESCRIPTION	QUANTITY
1	8-1256	Heat Exchanger	1
2	4-WC67	Low Water Cut-Off	1
3	3-PR52	Pressure Regulator	1
4	8-1254	Steamer Drain Assembly	1
5	8-1255	Exhaust Drain Assembly	1
6	3-WG20	Water Gauge Assembly	1
7	3-TST1	Thermostatic Steam Trap	1
8	3-TST3	Thermostatic Steam Trap	1
9	3-S567	Slowdown Solenoid Valve	1
or	3-BVE0	Manual Valve	1
10	3-S522	Steam Coil Solenoid Valve	1
11	3-SRV3	Safety Relief Valve	1
12	3-PG30	Pressure Gauge	1



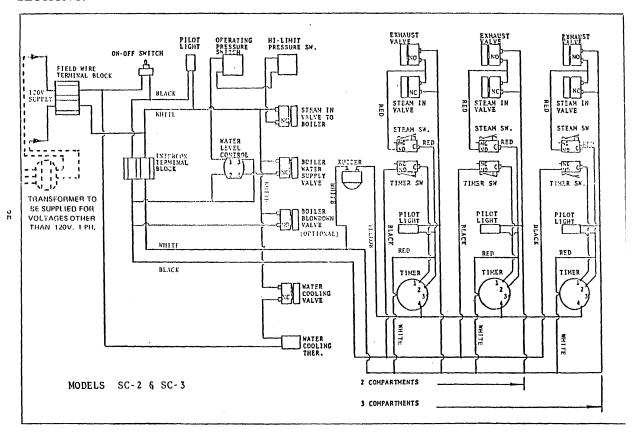
SECTION 7: CABINET

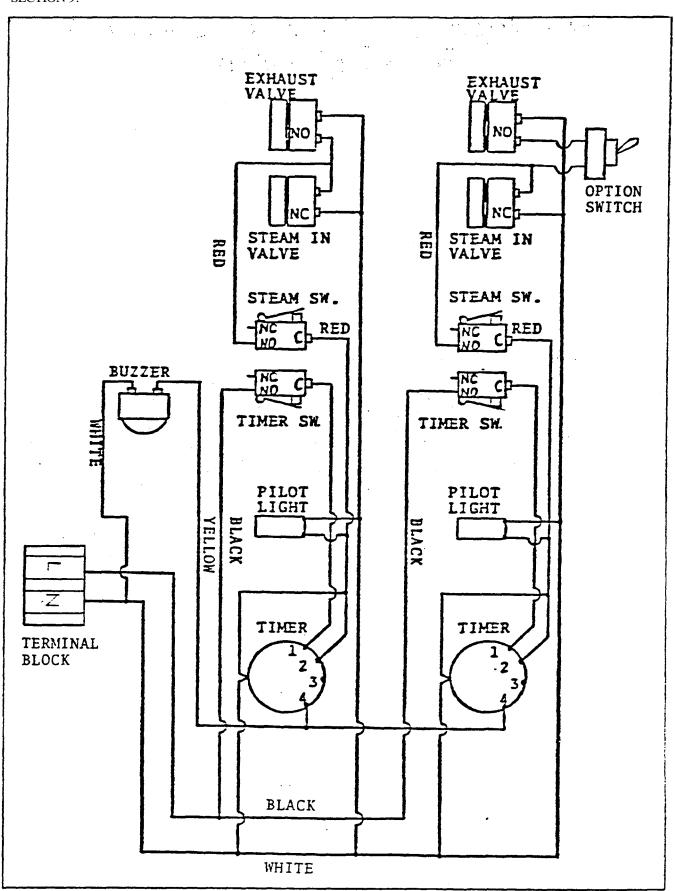
From Fig. 9

ITEM NO.	PART NO.	<u>DESCRIPTION</u>	QUANTITY
1	8-1300	Cabinet Assembly (Galv. Back)	1
	8-1310	Cabinet Assembly (Stainless Back)	1
2	8-1305	Side Panel	2
3	8-1308	Flanged Adjustable Foot (Rear)	2
4	5-FS64	Adjustable Foot Insert (Front)	2
5	5-MC02	Magnetic Door Catch	2
	1-11C2	Magnetic Door Catch Screws	8
6	8-1303	Right Hand Door (Shown)	1
	8-1304	Left Hand Door	1

Note: Item-No. 3, 'Flanged Adjustable Foot', may be specified as an option on all four legs at time of order.

SECTION 8:





COMPARTMENT STEAMER STEAM COIL

A product with the Southbend 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 unit. When service is needed, contact a Southbend Authorized Service Agency, or your dealer. To avoid confusion, always refer to the model number, serial number, and type of your unit.

