

OWNER'S MANUAL
INSTALLATION
USER'S GUIDE
SERVICE
PARTS

**CONVECTION STEAMER
ELECTRIC BOILER**

MODELS: ECX-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 limitation 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., Fuquay-Varina, North Carolina 27526.



southbend

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.

CONVECTION STEAMER ELECTRIC BOILER 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 the 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 DATE.

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 (2.5) 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,

Sight Glasses, Cathodic, Descalers or Anodes 90 days material and labor.

Stainless Steel Fry Pot 4 years extended material warranty on fry pot only - No labor.

Stainless Steel Open Top Burners 4 years extended material warranty on burners only - No labor.

Pressure Steam Boiler Shell Prorated 4 years extended warranty on boiler shell only - No labor.

(Boiler shells which have not been properly maintained will not be covered by warranty.)

In all cases parts covered by a five year warranty will be shipped FOB the factory after the first year.

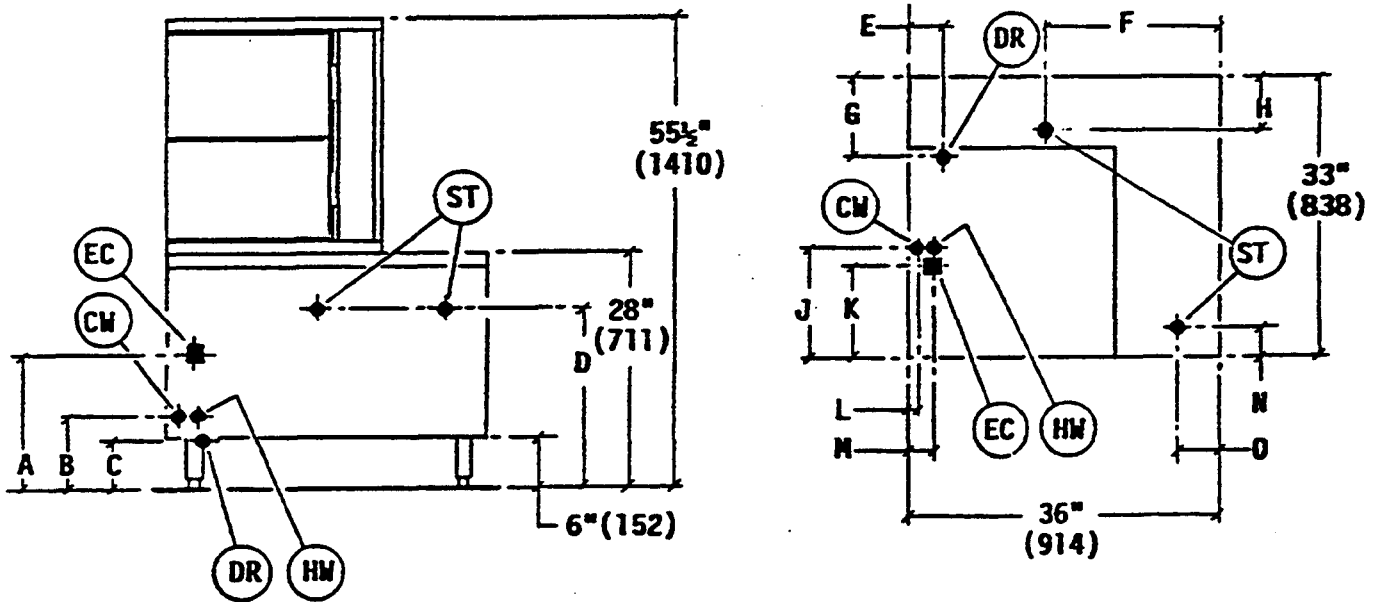
Our warranty on all replacement parts which are replaced in the field by our Authorized Service Agencies will be limited to three months on labor, six months on materials (parts) effective from the date of installation. See LIMITED WARRANTY - REPLACEMENT PARTS for conditions and limitations.

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."

FIG. 1

	A	B	C	D	E	F	G	H	J	K	L	M	N	O
inches	15	7	5-1/2	21	4-1/2	193s	9	6-1/2	13	11	1-1/2	3	4-1/2	4
mm	381	178	140	533	108	495	229	165	330	279	38	76	114	102



LEGEND

- EC** Field Wiring Electrical Connection to be as specified on Electrical Rating Label which is according to Customer's Order.
- DR** Appliance drain is 2" pipe size. 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 & SERVICE CONNECTIONS

SECTION 1:

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

INSTALLATION INSTRUCTIONS

Ideally an Exhaust System should be provided directly above the Steam-Ex in order to exhaust steam and heat generated by the appliance.

Set Steam-Ex in place and level appliance using spirit level.

Ascertain that a floor drain (open gap) is convenient to the appliance drain.

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 Steam-Ex back in proper position and relevel.

Bolt and anchor appliance securely to the floor.

Seal bolts and flanged feet with Silastic or equivalent compound.

Make service connections as indicated in LEGEND (Fig. 1) and test that appliance operates properly.

START UP & TESTING PROCEDURES

STEAM-EX MODEL: ECX-2
Floor Mounted Convection Steamer

SECTION 1:

TESTING PROCEDURES

Once the unit is installed and proper service connections have been made, your Steam-Ex should be thoroughly tested before operation.

If the appliance is equipped with a manual Blowdown Valve, close it.

Open left cabinet door and turn ON Power Switch. Pilot light will come on (green) and water will begin to enter Boiler and required water level will be reached in about 3 minutes. Observe water gauge glass to verify. Steam generation will now commence and be completed in about 15 minutes. Observe that Boiler Pressure Gauge indicates steam pressure in a range of 9 to 12 psi. On Cooker Digital Control Panel both COOK TIME-MINUTES 'Windows' will display "00" and both READY (green) lights will be on indicating that Steam-Ex is now ready for the cooking cycle. Open both compartment doors and observe that no steam has entered cooking compartments. Close doors.

Touch number 8 twice on both Digital Controls. Observe that all segments of "88" in both display windows light up. As well, touch all other numbers and observe that they function. On both Digital Controls touch CANCEL and display windows will show "00".

Touch number 2 on both Digital Controls and "02" will be displayed.

Touch START on both Digital Controls. READY lights will go off and COOK (red) lights will come on and steam will be heard entering cooking compartments.

After one minute when display windows show "01", open each door and observe for a couple of minutes that steam has ceased to enter each compartment, but COOK lights and cooking times at "01" are maintained.

WARNING: THE COOKING COMPARTMENTS CONTAIN LIVE STEAM AND TO AVOID SCALDING AND/OR BURNS STAY CLEAR WHEN OPENING EACH DOOR.

Shut doors. Steam generation and cook time will resume. Observe Appliance Drain that live steam from compartments is being cooled by cold water from Cold Water Solenoid Valve (thermostatically controlled).

When each 'Window' shows "00" each buzzer will come on, steam generation will cease, COOK lights will go off and READY lights will go on. To silence buzzers, open and close each compartment door.

During simulation of the cooking cycle, the Heater Elements will cycle on and off to maintain steam pressure in the Boiler between 9 to 12 psi range.

Turn OFF power switch. If the appliance is equipped with an Automatic Blowdown Solenoid Valve, the Boiler contents water and steam, will be blown out and exhausted through the appliance Drain. The Cold Water Solenoid Valve will now be activated as well. If, however, the appliance is equipped with a manual Blowdown Valve, open it.

FUNCTIONING MODE

SECTION 2:

STEAM-EX MODEL ECX-2 FLOOR MOUNTED CONVECTION

This Steam-Ex is intended for use in commercial establishments as an appliance utilizing steam in the pressureless mode for cooking a variety of food products. It is floor supported and consists of two sections, the Cabinet and the Cooker, both of which incorporate steel enclosures to contain live electrical parts.

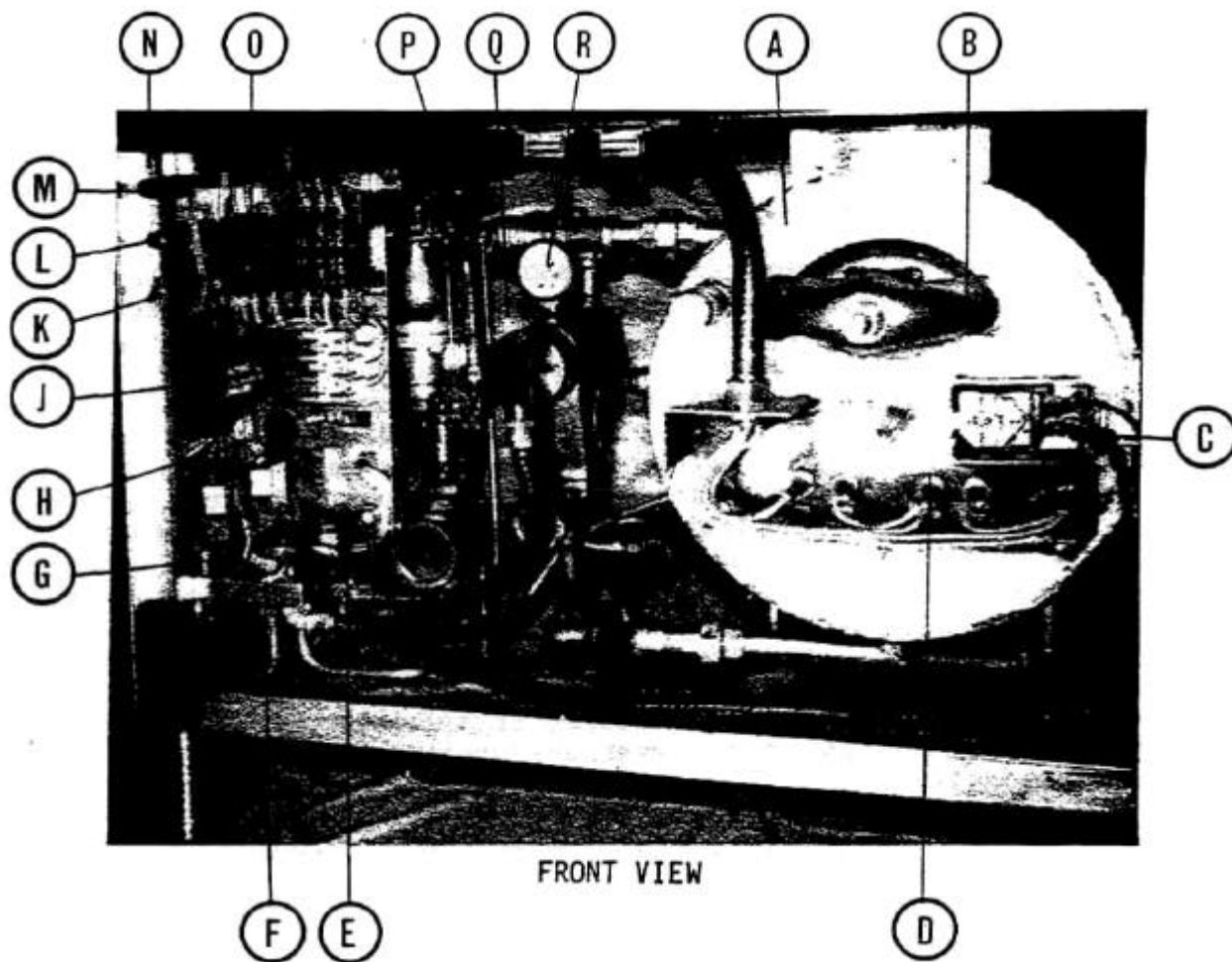
The Cabinet is the lower foot supported section of the appliance with two front doors to provide internal access and contains components which control the functioning of the Electric Boiler and hence is the steam supply source to the Cooker. A switch located on the front face of the Generator Control Box, when turned on will provide power for the entire appliance. Once switched ON, the Water Level Control will signal the Water Fill Solenoid Valve not only to supply water to fill the Boiler to the required level and consequently immerse the heater Elements, but also to replenish and maintain proper level as water is depleted through steam generation. With adequate water level, energizing of Heater Elements is then permitted and steam generation commences. However, since the Electric Boiler is designed to ASME Code and approved as a steam heating boiler restricted to operate at pressures not to exceed 15 psi, therefore a Pressure Switch is utilized to regulate the cycling of the Heater Elements to maintain steam pressures at approximately 9 psi minimum but not to exceed 13 psi since pressure approaching 15 psi will blow the Safety Relief Valve.

The Cooker is the upper section of the appliance consisting of two compartments and a Digital Control Panel. Each compartment is provided with its own door, Digital Control, Steam Solenoid Valve and Solid State Boards. Pans, containing food properly portioned, are then placed into guided compartment racks. With the Door closed and the Digital Control timed for the correct COOK TIME in MINUTES and touching START, the Steam Solenoid Valve is energized and opens allowing constant steam to enter the compartment through eight ports which provide thorough steam coverage of the entire compartment. Since steam is allowed to exhaust through the compartment drain, the chamber cannot ever become pressurized and hence pressureless steam is the cooking mode utilized. With this mode, it should be noted particularly apparent on vegetables, that color, flavor and texture are retained as "fresh from the garden". At the completion of the cooking cycle, the "Window" on the Digital Control will display "00" and an audible buzzer will be set off and can only be silenced by opening the door and presumably the cooked food product removed. Closing the door permits the Initiation of the next cooking cycle.

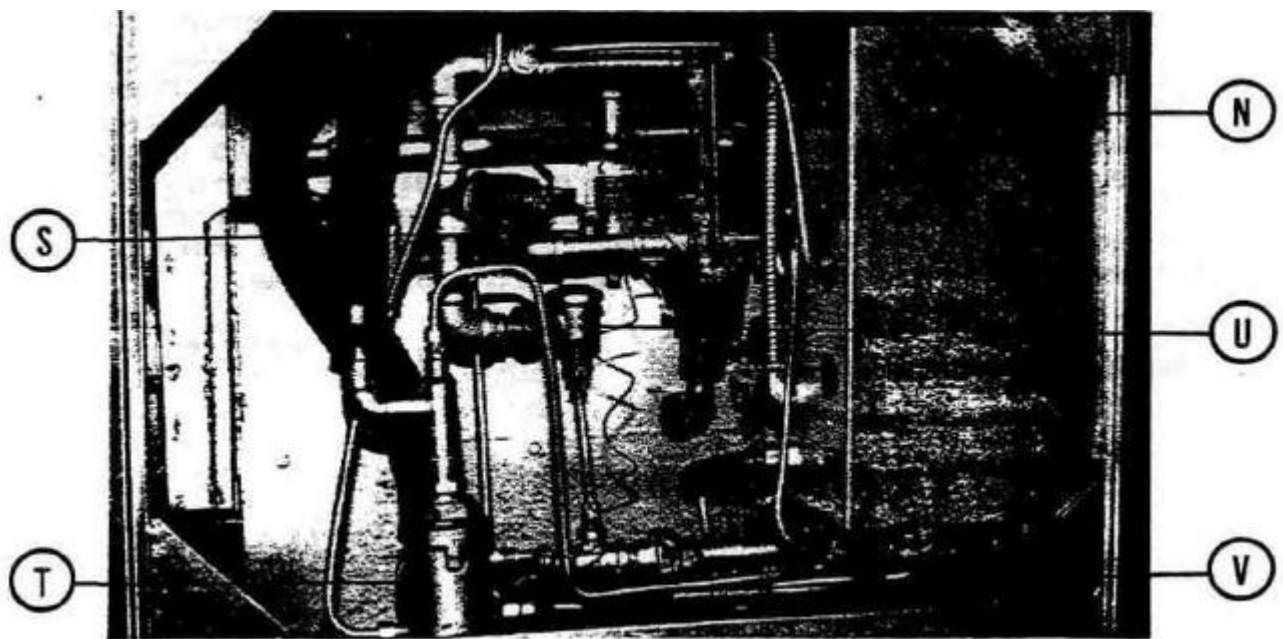
Refer to Periodic Maintenance, Section 3, for detailed version of components and controls.

SECTION 3:

FIG. 2



SIDE VIEW



PERIODIC MAINTENANCE

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

SECTION 3:

The Steam-Ex is made of two sections, the Cabinet and the Cooker.

FIG. 2: The Cabinet is the lower section of the Steam-Ex 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 Boiler and Controls.

FRONT VIEW

Item A: Electric Boiler weldment assembly.

Item B: Handhole Cover Assembly when unbolted and removed allows internal examination and cleaning of Boiler if required.

AT LEAST TWICE A YEAR. UNBOLT AND REMOVE HANDHOLE COVER ASSEMBLY INSPECT INTERIOR OF BOILER FOR SCALANT AND LIME BUILD UP.

Item C: Safety Thermostat, shown enclosed within Thermostat Cover Box, is a protective device which will shut off the Heater Elements should the water level in the Boiler drop below a level sufficient to immerse and protect the Heater Elements. The heat sensing Capillary Bulb of the Thermostat enters the Boiler through the Boiler Head and is attached to an upper leg of one of the Heater Elements and will remain inoperative while immersed in water.

Item D: Heater Elements located within the lower portion of the Boiler provide the heat required to generate steam in the Boiler. During operation of the appliance, water level must be sufficient to immerse and protect the Elements.

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

Item F: Solenoid (Hot Water) Valve is fastened to the bottom of Generator Control Box immediately in front of Item E. This valve feeds hot water to the Boiler but its functioning is entirely dependent on the Water Level Control (Item Q).

Item G: Operating Pressure Switch is fastened to the inside bottom-front of the Generator Control Box and is plumbed to sense the pressure in the Boiler and thence control the operating cycle of the Contactors (Item O) through which the Heater Elements must obtain power for steam generation. This switch is factory set to energize and close the contacts (of the Contactors) to allow power to the Elements at 9 psi but to de-energize them and shut off power to the elements at 12 psi thus maintaining a pressure range in the Boiler between 9 psi to approximately 13 psi (override considered).

Item H: Hi-Limit, Switch, similar to and directly behind Operating Switch Item G. is a protective device intended to de-energize the Contactors and hence shut off power to the Heater Elements at approximately 14 psi and will only function if the Operating Pressure Switch fails.

SECTION 3:

Item J: Transformer. Primary Voltage as per Customer specifications. Secondary at 120V.

Item K: 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 Boiler.

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

Item M: Fuse is a protective device fastened to the front face of the Generator Control Box to prevent excessive power to secondary circuit.

Item N: 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 Boiler controls.

WARNING: TURN POWER OFF TO THIS APPLIANCE BEFORE REMOVING COVER PANEL OF GENERATOR CONTROL BOX.

Item O: Contactors are fastened to the rear wall of the Generator Control Box. Refer to Item G on functioning mode.

Item P: The Water Gauge has a glass tube for visual verification that water level is being maintained in the Boiler 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 Q: Water Level Control is a mechanical switching device activated by the float contained within the chamber of this control. When the float drops, as water is depleted in the Boiler by steam generation, it will trip the switch and energize the Water Fill Solenoid Valve to replenish water to the proper level in the Boiler and consequently the control chamber. Should the water in the Boiler drop to an unsafe level, this control will de-energize the Contactors and hence the Heater Elements.

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 AND SEIZURE OF THE FLOAT AND EVENTUAL MALFUNCTION OF THE WATER LEVEL CONTROL.

Item R: 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 appliance.

SECTION 3:

SIDE VIEW

Item S: Safety Valve is a protective device set at 15 psi. Malfunction or improper setting of controls may allow the pressure to exceed 15 psi in the Boiler and will consequently set off this valve.

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

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

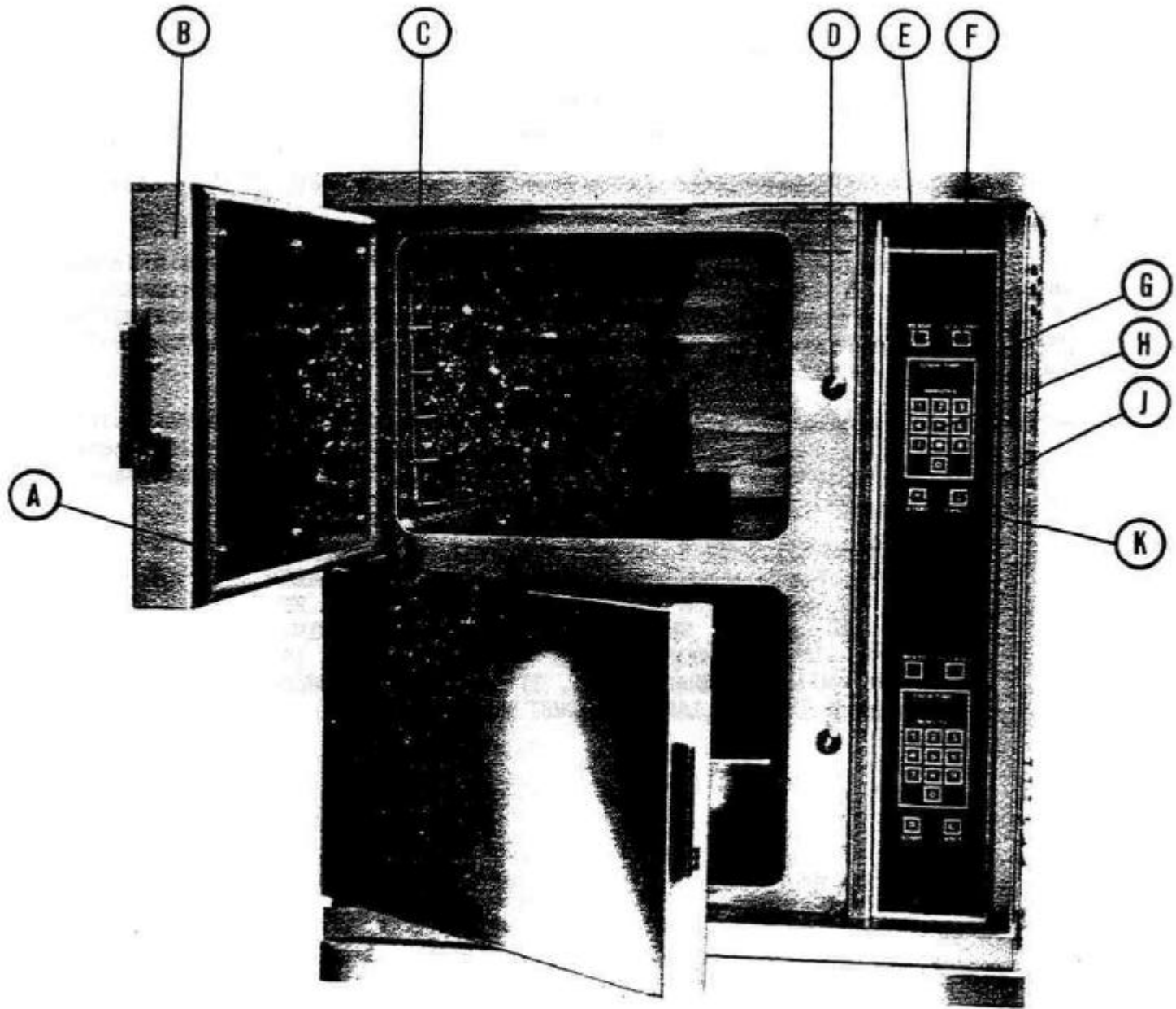
Item U: A Thermostatic Steam Trap is plumbed to the steam supply piping from the Boiler and is a mechanical device that closes on high temperatures and opens when the temperature drops. This Trap allows air and water formed from condensed steam to exhaust into the appliance Drain but will retain steam being of a higher temperature.

Item V: Boiler Slowdown Valve is plumbed to the drain pipe of the Boiler and when specified as automatic will be electrically operated solenoid valve which will close when energized in order to facilitate maintenance of proper water level in the Boiler.

THE STEAM-EX 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 BOILER. IF THE APPLIANCE IS SUPPLIED WITH A MANUAL VALVE, IT SHOULD BE OPENED DAILY WHEN THE APPLIANCE IS SHUT DOWN.

SECTION 3:

FIG. 3



SECTION 3:

FIG. 3: The Cooker is the upper section of the steamer and is a two compartment appliance. Each compartment functions independently with its own controls.

Item A: A Stainless Steel Screw on Gasket Plate immediately adjacent to each corner of Gasket allows adjustment of Gasket if necessary. Refer to Section 6, Service Information.

Item B: 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. DAMAGE TO GASKET SEALING SURFACE SUCH AS NICKS OR CUTS WILL CAUSE STEAM LEAKAGE.

Item C: Stainless Steel Pan Rack for guiding pans into compartment at properly spaced intervals.

AT THE END OF EACH COOKING DAY REMOVE PANS AND RACKS. WASH PANS, RACKS AND COMPARTMENT INTERIORS TO REMOVE RESIDUE FOOD PARTICLES TO PREVENT BACTERIAL GROWTH AND ODOURS.

Item D: Door Striker provides positive latching of door.

Item E: READY light when lit (green) indicates appliance is ready for the cooking cycle.

Item F: COOKING light when lit (red) indicates appliance is in the cooking phase.

Item G: 'Window' displays '00' during READY phase and when programmed will display in minutes the duration of the cooking cycle when STARTed. Maximum programmable time is '99' minutes which is more than adequate for all Cooking Schedules. Note that time displayed counts down and shows amount of time left to complete the cooking cycle.

Item H: Numerical 'touch pad' for programming required cooking time. Note that whatever is the final time programmed and displayed becomes the actual COOK TIME in MINUTES when START is activated.

Item J: CANCEL when touched will automatically cancel any programmed time and window will display '00'. Touching CANCEL during the cooking cycle will also automatically cancel and end the cooking cycle and not only will the 'window' display '00' but the buzzer will come on and the Door must now be opened and closed to initiate a new cooking cycle.

Item K: START when touched initiates the cooking cycle.

OPERATING AND CLEANING INSTRUCTIONS

STEAM-EX MODEL: ECX-2

SECTION 4:

FLOOR MOUNTED CONVECTION STEAMER

OPERATION

- a) If the appliance is equipped with a manual Blowdown Valve, close it. Open left cabinet door and turn ON Power Switch. Pilot light will come on (green) and water will begin to enter Boiler until required water level is reached (about 2 minutes). Immediately thereafter steam generation will commence and be completed in about 10 minutes. Observe that Boiler Pressure Gauge indicates steam pressure in a range of 9 to 12 psi. On Cooker Digital Control panel both COOK TIME-MINUTES 'Windows' will display "00" and both READY (green) lights will also have come on indicating that Steam-Ex is now ready for use.
- b) When READY light (green) comes on, preheat cooking compartment for one minute by pressing number 1 on digital panel and press START. READY light will go off and COOK light (red) will come on. Make sure door is closed. This step is only required when cooking chamber is cold or when unit is to be first used for the day. When buzzer sounds, open and close door to silence buzzer.

WARNING: THE COOKING COMPARTMENTS CONTAIN LIVE STEAM AND TO AVOID SCALDING AND/OR BURNS STAY CLEAR WHEN OPENING EACH DOOR.

- c) With compartment pre-heated and READY light on, Place pans of food into cooking compartment and shut door. Refer to Cooking Schedules and press in desired cooking time on digital panel. Touch START for cooking cycle to begin. Cooking cycle may be interrupted at any time by opening door and resumed again by closing door.
- d) When the buzzer sounds, it indicates the end of the cooking cycle and no more steam in entering the cooking compartment. Buzzer must be silenced by opening door and removing cooked food. The COOK light will go off and the READY light will come on.
- e) Touching CANCEL will automatically display "00" on "Window". Correct time may now be entered.
- f) To shut down your Steam-Ex, turn OFF Power Switch. If the appliance is equipped with an Automatic Blowdown Solenoid Valve, the Boiler contents water and steam, will be blown out and exhausted through the appliance Drain. The Cold Water Solenoid Valve will now be activated as well. If, however, the appliance is equipped with a manual Blowdown Valve, open it.

CLEANING

Turn Power Switch OFF. Remove Pans and Racks from compartment and wash in sink. Wash compartment interior with clean water. Never use steel wool or abrasive scouring pads as they will scratch and ruin the general surface appearance of your appliance. Use a clean damp cloth to wipe down exterior of your Steam-Ex.

NEVER SPRAY WATER INTO ELECTRIC CONTROLS

COOKING SCHEDULES

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

SECTION 5:

THE FOLLOWING ITEMS MUST BE COOKED IN SOLID PANS:

<u>ITEM</u>	<u>TIMER SETTING IN MINUTES</u>	<u>WEIGHT PER PAN</u>
Eggs		
-Scrambled	10 - 12	8 Dozen
Rice		
-Long grain (Cover with 4 cups water/lb)	25	2 Pounds
Pasta		
(Place perforated pan inside solid pan, cover pasta with cold water)		
-Spaghetti - regular/vermicelli	12 - 15	
-Macaroni - shells/elbows	15 - 18	
-Noodles - 1/2" wide	12 - 15	
-Lasagna noodles	15 - 18	
Frozen casseroles, lasagna	35	Full pan
Meat Loaf		
(3-5 lbs each)	40	15 Pounds
Beef		
-Ground chuck	20 - 25	10 Pounds
-Sliced as purchased	35 - 40	10 Pounds
Shrimp, frozen		
(10 shrimps per 1b)	5	4 Pounds
Beans		
-Baked	9	10 Pound Can
-Retried	9	10 Pound Can
Canned vegetables	6	10 Pound Can
Prunes, dried	12 - 15	

COOKING SCHEDULES

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

SECTION 5:

PERFORATED PANS RECOMMENDED FOR FOLLOWING ITEMS :

ITEM	TIMER SETTING IN MINUTES	WEIGHT PER PAN
Clams		
-Frozen	10 - 12	3 Dozen
-Fresh, cherrystone	5-6	3 Dozen
King Crab (frozen)		
-Claws	4	2-1/2 Pounds
-Legs	4-6	4-1/2 Pounds
Lobster tail (frozen)	6	10 Pounds
Lobster live (10"-12")	5	4 Per Pan
Salmon fillets (frozen - 8oz. ea.)	5	7-1/2 Pounds
Scallops (fresh)	4	3 Pounds
Scrod fillets (fresh)	3-5	4 Pounds
Eggs		
-Hard Cooked	15	4 Dozen
-Soft Cooked	9-10	4 Dozen
-Soft yoke for Caesar Salad	6-8	4 Dozen
Chicken		
-Breasts, legs, thighs	20	15 Pounds
Turkey (frozen)		
-Breasts (2)	90	6-7 Pounds each
-Cut lengthwise	55	20-25 Pounds
Corned Beef	40 - 75	6-8 Pounds
Hot dogs or wieners	3	80-100 Count
Asparagus spears		
-Frozen	10 - 12	3 Dozen
-Fresh	5	5 Pounds
Beans		
-Green - 2" cut (frozen/fresh)	6	5 Pounds
-Lima (frozen)	8	5 Pounds
-Baby lima (frozen)	5	5 Pounds
Broccoli		
-Spears (frozen)	8	4 Pounds
-Spears (fresh)	6	5 Pounds
-Flowerettes (frozen)	6	5 Pounds

COOKING SCHEDULES

STEAM-EX MODEL ECX-2

SECTION 5:

FLOOR MOUNTED CONVECTION STEAMER

PERFORATED PANS RECOMMENDED FOR FOLLOWING ITEMS: - continued

ITEM	TIMER SETTING IN MINUTES	WEIGHT PER PAN
Brussel sprouts (frozen)	6	5 Pounds
Cabbage (fresh) 1/6 cut	8	5 Pounds
Carrots		
-Baby whole (frozen)	8	7 Pounds
-Crinkle cut (frozen)	7-8	4 Pounds
-Sliced (fresh)	11	9 Pounds
Cauliflower, flowerettes		
-Frozen	6	4 Pounds
-Fresh	7-8	5 Pounds
Celery (1" diagonal cut)	7	5 Pounds
Corn		
-Yellow whole kernel (frozen)	5	5 Pounds
-Cobbettes (frozen)	8	27 Ears
	16 - 18	80 Ears
-Corn-On-The-Cob (frozen)	10 - 12	18 Ears
	16 - 18	54 Ears
Peas, green	6	5 Pounds
Potatoes, whole russett	55	10 Pounds
Spinach		
-Chopped (frozen)	17	6 Pounds
-Defrosted	5	6 Pounds
-Fresh cut	3	2 Pounds
Squash-Acorn Halves	25	10 Halves
Zucchini, slices	8	10 Pounds
Frozen mixed vegetables	6-7	5 Pounds
Fruit-Blanch for peeling:		
-Grapefruit	3	
-Oranges		
Pineapple - whole for cutting	4	

SECTION 6:

COOKER PROBLEMS DOORGASKET LEAKS

If Gasket is nicked, cut or at end of useful life it must be replaced.

However, if leak occurs in one corner only and Gasket appears serviceable, then turn stainless steel screw on Gasket Plate immediately adjacent to leaking corner one half turn counterclockwise. Do not attempt excessive turning of screws since misalignment of Door is likely.

WATER ACCUMULATES ON BOTTOM OF COMPARTMENT

Water accumulation on bottom of cooking compartment is primarily condensed steam and failure to drain out quickly and completely may be due to clogged debris on Compartment Drain Screen which must be pulled out, completely removed and thoroughly cleaned and then replaced.

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 on Generator Control Box of Cabinet is ON and both COOK TIME-MINUTES 'windows' do not display "00", then obviously power is not being supplied to Cooker components. Check that all wire terminations are positively secured.

When Power Switch on Generator Control Box is ON, both COOK TIME-MINUTES 'windows' display "00" and after about 15 minutes steam generation shows pressure of 8 psi minimum on Pressure Gauge and consequently both Digital Controls indicate READY (both green pilot lights lit), then touch 2 on both Digital Controls and "02" will be displayed. Then, with doors closed, touch START on both Digital Controls and READY lights should go off and COOK lights (red) should come on and steam should now enter both cooking compartments. However, if on one compartment touching START does not activate steam generation and consequently COOK light refuses to come on then remove Cooker Side Enclosure Panel and 'jump' both terminals marked 'A' and 'B' on Printed Circuit Control Board and then touch START again. If COOK light now comes on and steam enters compartment then the Magnetic Switch is either defective or must be realigned properly. Remove jumper wire. The Magnetic Switch is located directly above the Striker lodged in the panel pocket and must be slightly rotated so that the 'reeds' in the glass case are directly one behind the other when facing front to back for proper magnetic action of door magnet. If however the Magnetic Switch is defective it must be replaced. Remove by placing slotted screwdriver under spring retaining clip and wedge outwards and remove switch from 'pocket'. Care must be exercised not to damage glass casing when inserting new switch. Assure that 'reeds' are one behind the other when facing front to back of appliance.

CABINET CONTROL PROBLEMS SAFETY RELIEF VALVE BLOWS ANDRELEASES STEAM FREQUENTLY

The Safety Relief Valve, set at 15 psi, is a protective device intended to prevent pressure from exceeding 15 psi in the Boiler. 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 psi 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 psi then lower adjustments of the Pressure Switches are required. Remove Cover from Generator Control box and locate both switches at bottom left side on 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 a 1/4" wrench 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 BOILER

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 and remain stuck in the upper position by scalant thereby falsely indicating sufficient water is present in the Boiler. The Water Level Control Assembly must be detached, removed and thoroughly cleansed to remove scalants and lime build up. Refer to Boiler on Removal of Scalants 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 Boiler it is being drained through an open Boiler Blowdown Solenoid Valve which cannot close since it is not being energized either through defective wiring, a burnt out coil or the inability of the valve to close completely. This valve contains a moveable blade and when de-energized the blade reacts as a guillotine 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

(Continued)

SERVICE INFORMATION

STEAM-EX MODEL ECX-2

SECTION 6:

FLOOR MOUNTED CONVECTION STEAMER

CABINET CONTROL PROBLEMS (Continued)

WATER IS NOT BEING SUPPLIED TO BOILER (Continued)

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 120V power and if valve fails to close replace coil. Reconnect all plumbing.

BOILER BLOWDOWN SOLENOID 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 Boiler being under pressure, should be blown through this Valve and be noticeable visible exhausting out the appliance Drain. However if the blowdown operation appears to function rather sluggishly or not at all then assume that considerable scalant may be lodged in the drain pipe and/or the Valve. Disconnect Valve from the drain line and inspect both the Valve and the drain pipe fixed to the Boiler. If considerable scalant or lime build up is apparent then not only the Valve but also the Boiler and Water Level Control must be thoroughly cleansed. Refer to preceding paragraph on cleaning procedure of Valve and also Removal of Scalants from Boiler Procedure.

BOILER ACHIEVES PRESSURE SLOWER THAN NORMAL

If the Boiler requires considerably more time than 15 minutes to achieve normal operating pressure (9 to 12 psi), then assume that heavy build up of scalant has completely coated not only the interior of the Boiler but also the Heater Elements and consequently heat transfer is hampered by the insulating effect of the scalant. Unbolt and remove the Handhole Cover Plate and Gasket assembly. Examine interior of Boiler and if scalant and/or lime build up is apparent follow Removal of Scalants from Boiler Procedure.

If considerable scalant is evident then both the Boiler Blowdown Solenoid Valve and the Water Level Control must also be examined.

If the Boiler interior and the Heater elements appear relatively clean and free of scalants then examine and test for a bum out Heater Element and replace if necessary.

REMOVAL OF SCALANTS FROM BOILER

Close Manual Blowdown Valve.

If the appliance has an Automatic blowdown Solenoid Valve, then turn OFF power supply to the appliance and remove cover from Generator Control Box. Disconnect line splices and supply external 120V power to Blowdown Solenoid Valve wire leads to energize and close this valve. Turn power supply back on to appliance.

SERVICE INFORMATION

SECTION 6:

STEAM-EX MODEL ECX-2 FLOOR MOUNTED CONVECTION STEAMER

CABINET CONTROL PROBLEMS (Continued)

REMOVAL OF SCALANTS FROM BOILER (Continued)

Remove 3/4" pipe Plug from end of Steam Take-off located on front head of Boiler next to handhole.

Turn appliance Power Switch ON. Water will now enter and fill Boiler to required level and Heater Elements will come on. Observe closely that as soon as initial flow of steam is readily apparent from the Steam Take-off (approximately 10 minutes), shut appliance Power Switch OFF in order to prevent excessive steam generation and consequently pressure in the Boiler.

Insert appropriate hose or tube through Steam Take-off port and pour in ONE gallon (US) of a recommended Boiler Descaling Solution (full strength).

Replace and screw Plug in securely to Steam Take-off port to prevent leakage.

Allow two hours for descaling and cleaning of Boiler and chamber of Water Level Control.

Manually open both the Blowdown and Water Level Control Valves for complete drainage and then close both valves.

If the appliance has an Automatic Blowdown Solenoid Valve, turn OFF power supply to the appliance, disconnect external 120V power to this valve and reconnect spliced line terminals. Screw Cover back on to Generator Control Box. Open Water Level Control Valve. Turn power supply back on to appliance. After complete drainage close Water Level Control Valve.

Turn appliance Power Switch ON. When water has entered and filled Boiler to required level (approximately 2 minutes), turn OFF Power Switch and rinse water will drain out of Boiler. If the appliance has a manual Blowdown Valve, open it until complete Boiler drainage has occurred and then close it. Repeat this step again.

Turn appliance Power Switch ON allowing steam generation and consequently pressure to rise to normal operating level and then turn OFF Power Switch for a final purging of Boiler and steam supply lines.

"Appliance is now ready for use.

CONVECTION STEAMER ELECTRIC BOILER PARTS

WARNING:

INSTALLATION OF OTHER THAN GENUINE SOUTHBEND PARTS WILL VOID THE WARRANTY 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 South-bend Authorized Service Agency.

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

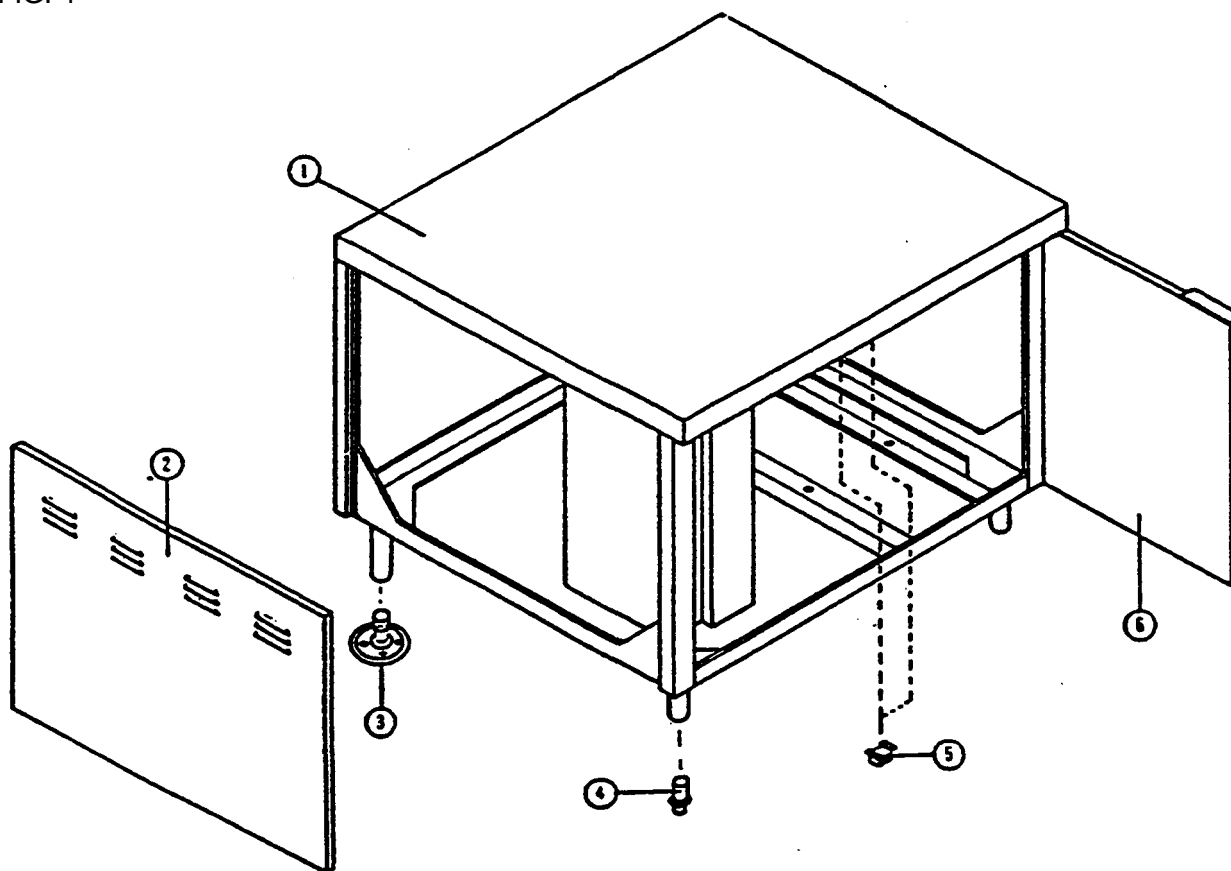
For parts not listed consult a Southbend Authorized Parts Distributor or Southbend Authorized Service Agency. If necessary, please consult Southbend Escan Parts Department for assistance.

PARTS LIST

SECTION 7:

CABINET

FIG. 4



<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	8-1400	Cabinet Assembly (Galv. Back)	1
	8-1410	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

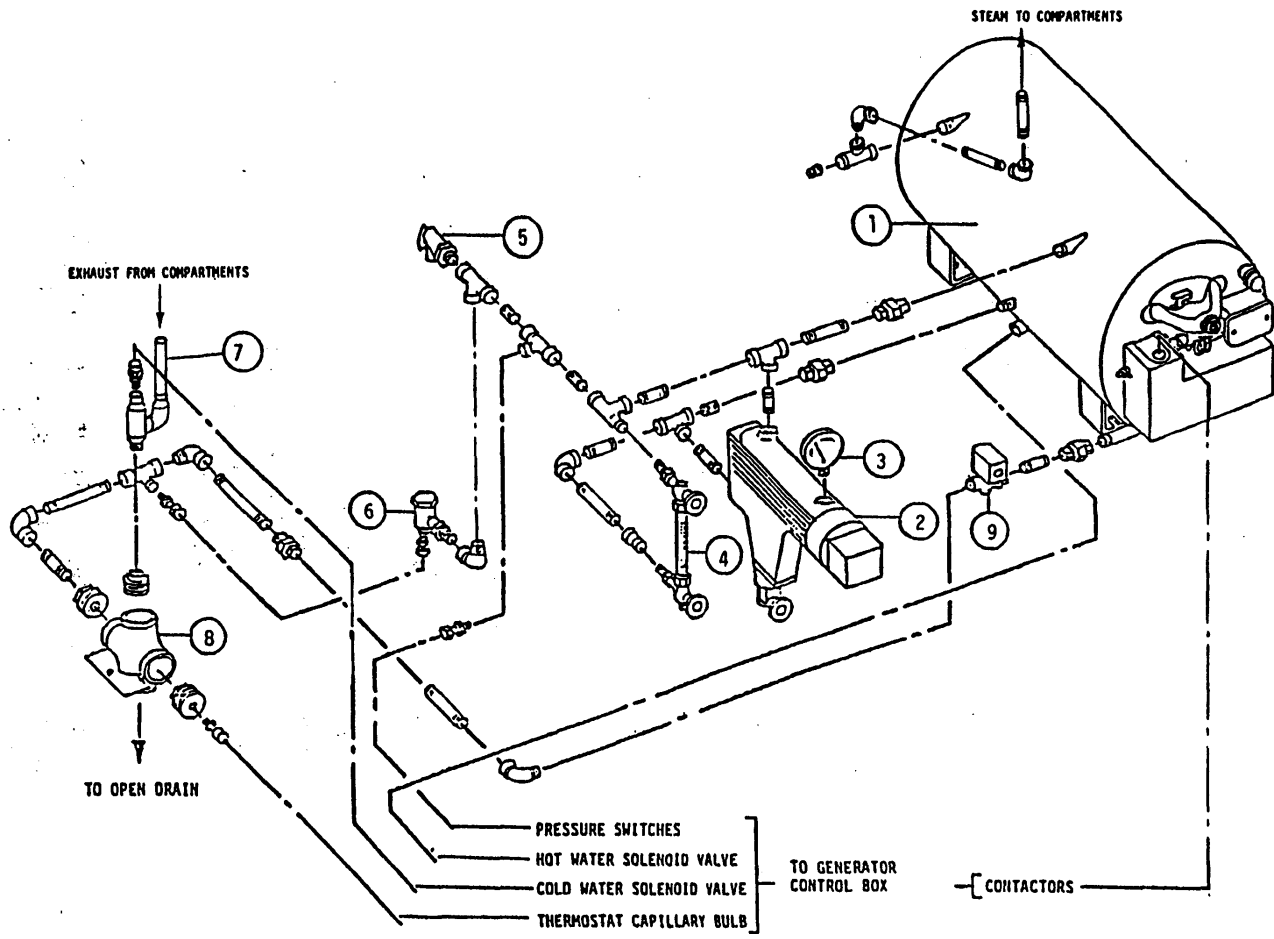
Note: Item No. 3, 'Flanged Adjustable Foot', may be specified as an option on all four legs at time of order.

PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
GENERATOR ASSEMBLY

FIG. 5



PARTS LIST

SECTION 7:

MODEL ECX-2
GENERATOR ASSEMBLY

FROM FIG. 5

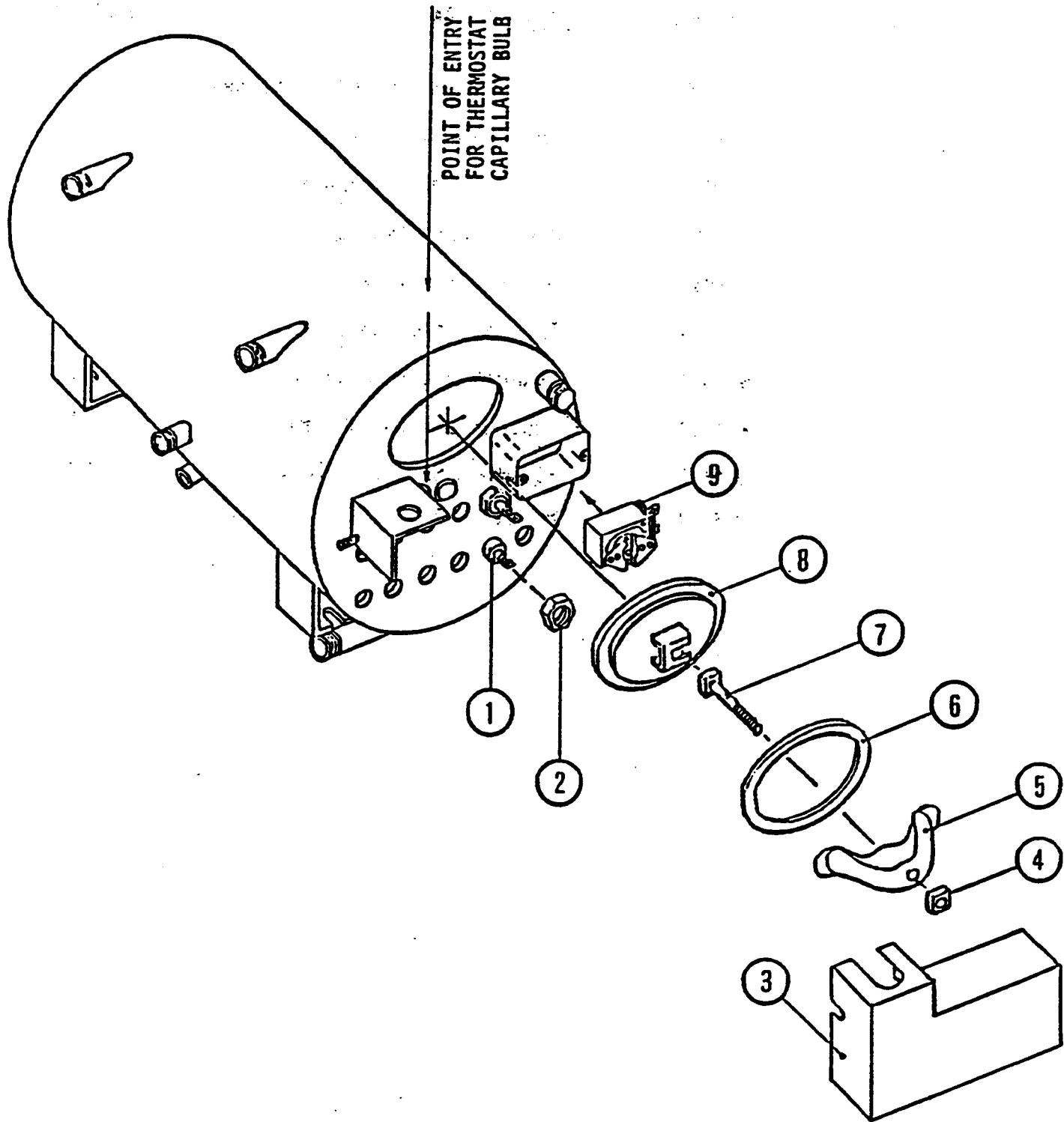
<u>ITEM NO.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	8-1600	Electric Boiler (Specify KW)	1
2	4-WC67	Low Water Cut-Off	1
3	3-PG30	Boiler Pressure Gauge	1
4	3-WG20	Water Gauge Assembly	1
5	3-SRV3	Boiler Safety Valve	1
6	3-TST1	Thermostatic Steam Trap	1
7	8-1320	Exhaust Drain Assembly	1
8	8-1321	Appliance Drain Assembly	1
9	3-S567	Blowdown Solenoid Valve	1
	or		
	5-BVEO	Manual Valve	1

PARTS LIST

SECTION 7:

MODEL ECX-2
ELECTRIC BOILER ASSEMBLY

FIG. 6



PARTS LIST

SECTION 7:

**MODEL ECX-2
ELECTRIC BOILER ASSEMBLY**

FROM FIG. 6

<u>Item No.</u>	<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
1	8-1415	Element (Specify KW & Voltage)	3 or 6*
2	8-1428	Element Fastening Nut (Specify KW)	6 or 12
3	8-1430	Element Enclosure Box (Specify KW)	1
4	2-75UO	Fastening Nut	1
5	8-1410	Yoke	1
6	8-1409	Handhole Gasket	1
7	2-75U9	Fastening Bolt	1
8	8-1408	Handhole Cover Plate	1
9	4-TH46	Safety Thermostat	1

* Cookers with Boiler Rating of 24KW Have Three 8000W Elements
Cookers with Boiler Rating of 36KW Have Six 6000W Elements
Cookers with Boiler Rating of 42KN Have Six 7000W Elements
Cookers with Boiler Rating of 48KW Have Six 8000W Elements

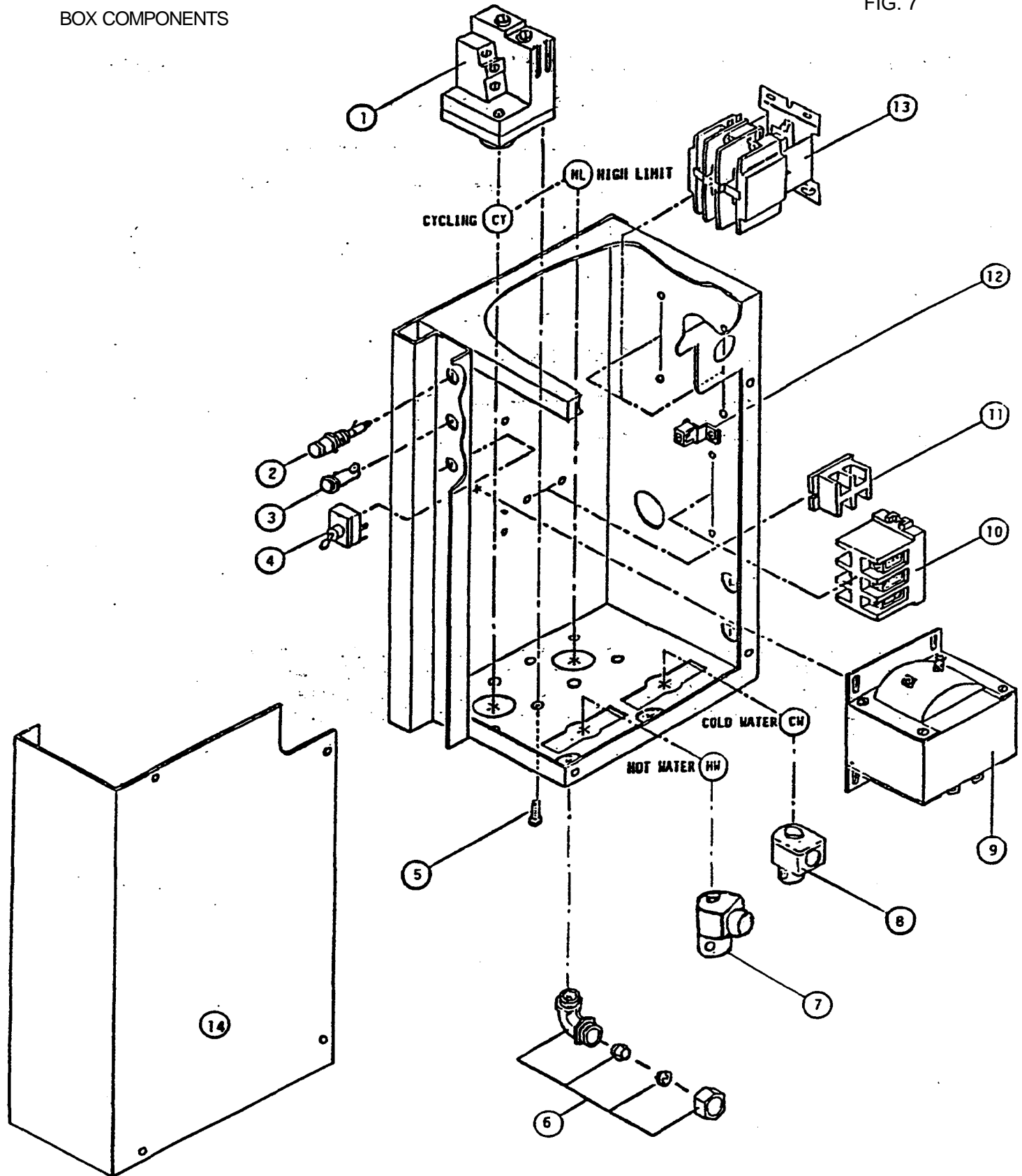
PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

GENERATOR CONTROL
BOX COMPONENTS

FIG. 7



PARTS LIST

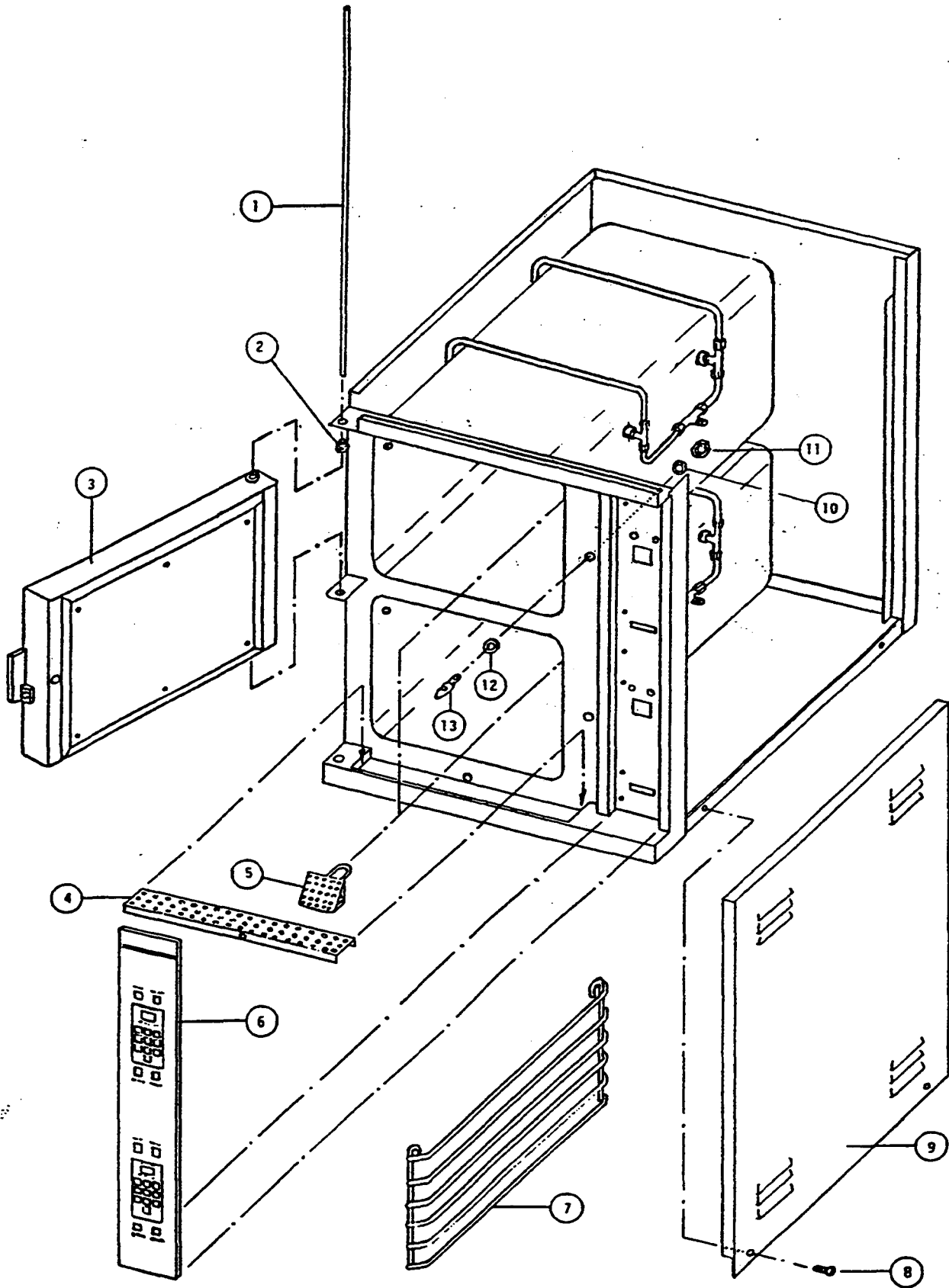
SECTION 7:

STEAM-EX MODEL ECX-2
GENERATOR CONTROL BOX ASSEMBLY

FROM FIG. 7

<u>ITEM NO.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	3-PA26	Pressure Switch c/w 3-RD20 Transducer	2
2	4-FH03	Fuseholder	1
3	4-PL04	Pilot Light	1
4	4-S191	Power Switch	1
5	1-55C8	Pressure Switch Bolt	8
6	4-LQE7	Liquid Tite Elbow Assembly	3
	4-LQE7	Liquid Tite Connector Assembly (to Element)	1
7	3-S252	Solenoid Valve	1
8	3-S162	Solenoid Valve	1
9	4-TxxH	Transformer (Specify Voltage)	1
10	4-24T9	Terminal Block	1
11	4-22T8	Terminal Block	1
12	4-70EU	Ground Terminal	1
13	4-CF50	Contactors	2
14	8-1244	Control Box Cover	1

FIG. 8



PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
COOKER ASSEMBLY

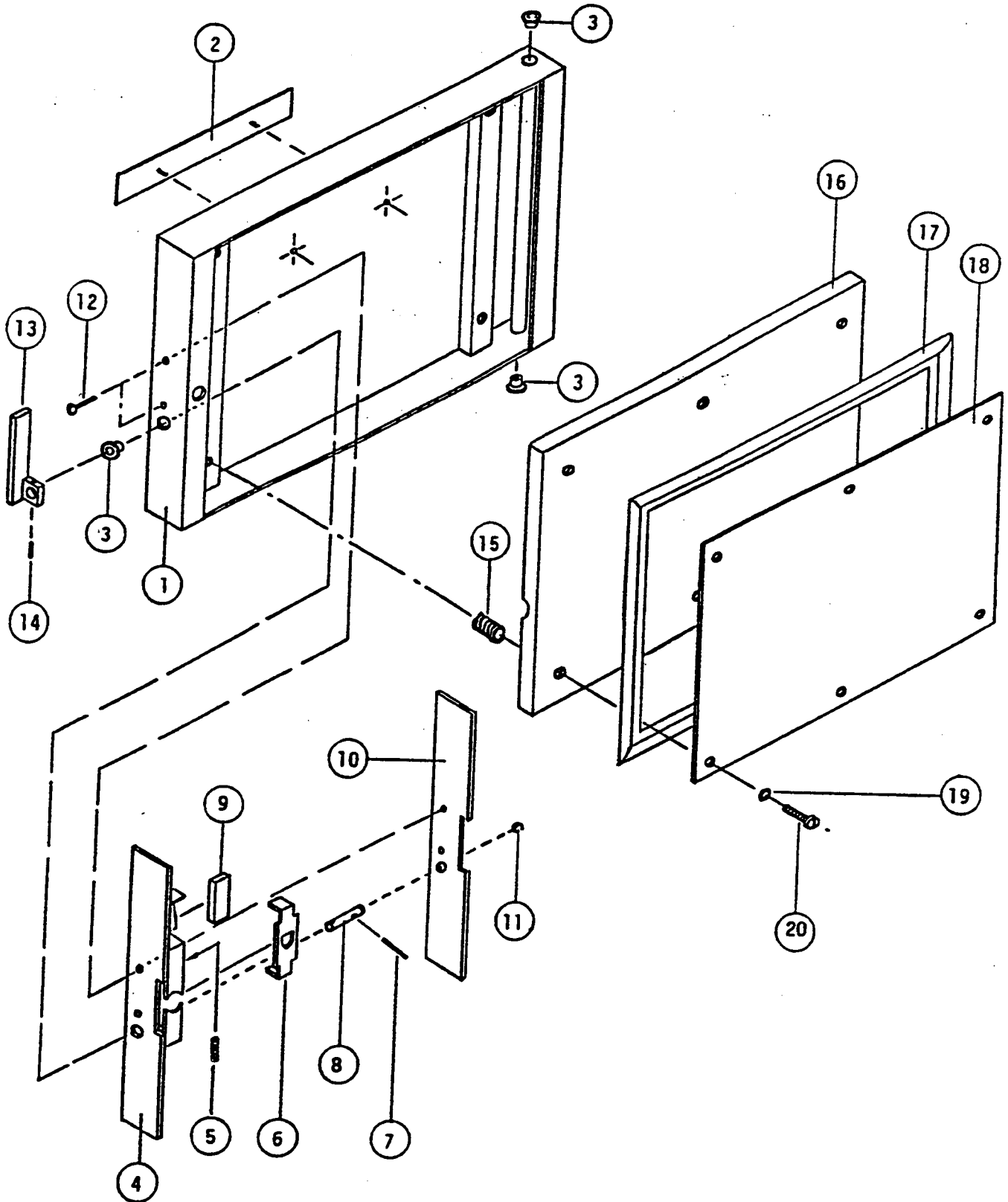
<u>Item No.</u>	<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
1	8-5101	Hinge Rod	1
2	8-5078	Bronze Bushing	2
3	8-5076	Door Assembly	2
4	8-5023	Perforated Trough Channel	1
5	8-5081	Compartment Drain Screen	2
6	8-5005	Digital Control Panel	1
7	8-5080	Pan Rack	4
8	1-34S4	Stainless Steel Panel Screws	2
9	8-5102	Enclosure Panel	1
10	1-90S0	Lock Washer	2
11	1-99S0	Nut	2
12	8-5022	Stainless Steel Washer	2
13	8-5021	Striker	2
14	8-5108	Top Panel (not shown)	1

PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
DOOR ASSEMBLY

FIG. 9



PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
COMPARTMENT DOOR PARTS

FROM FIG. 9

<u>Item No.</u>	<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
1	8-5060	Door Panel	1
2	8-1101	Name Plate	1
3	8-5079	Bronze Bushing	3
4	8-5069	Latch Assembly Plate	1
5	1-CS77	Compression. Spring	1
6	8-5068	Locking Device	1
7	1-T658	Spring Tension Pin	1
8	8-5067	Latch Pin	1
9	8-5875	Magnet	1
10	8-5070	Enclosure Plate	1
11	1-XB33	Retaining Ring	1
12	1-34S8	Stainless Steel Screw	2
13	8-5066	Door Handle	1
14	1-T5S6	Spring Tension Pin	1
15	1-CS78	Compression Spring	4
16	8-5065	Mounting Plate	1
17	8-5063	Gasket	1
18	8-5064	Gasket Plate	1
19	2-0T0R	"0" Ring	6
20	2-53S5	Stainless Steel Screw	6

MOTE: Parts are sequenced in order of assembly. For disassembly and reassembly. Door must be removed from Cooker and placed face down on flat surface. When assembling Parts 15 to 20 inclusive, screw in tow threaded 1/4-20 rods initially into Door Panel and insert Parts 15, 16, 17 and 18. Remove threaded rods one at a time and replace with '0' Rings and Stainless Steel Screws.

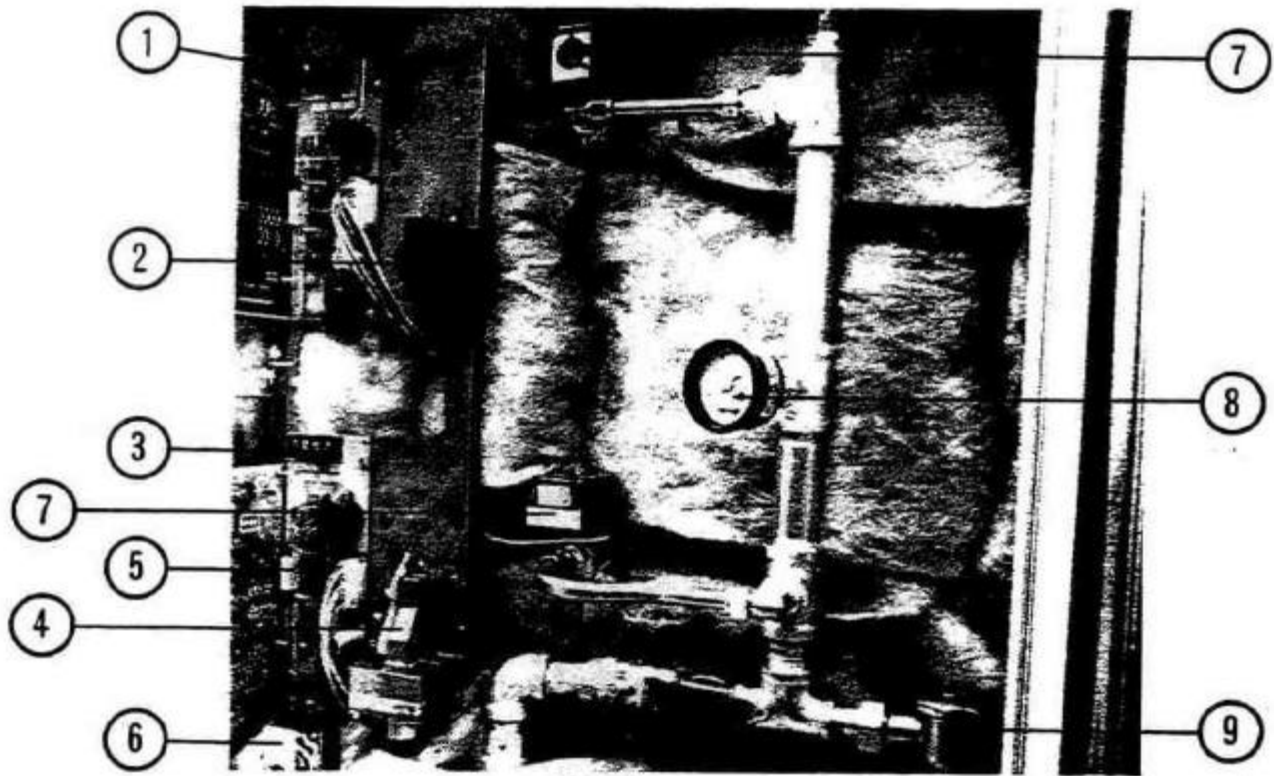
PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
FLOOR MOUNTED CONVECTION STEAMER

COOKER CONTROL COMPONENTS

FIG. 10



PARTS LIST

SECTION 7:

STEAM-EX MODEL ECX-2
COOKER CONTROL COMPONENTS

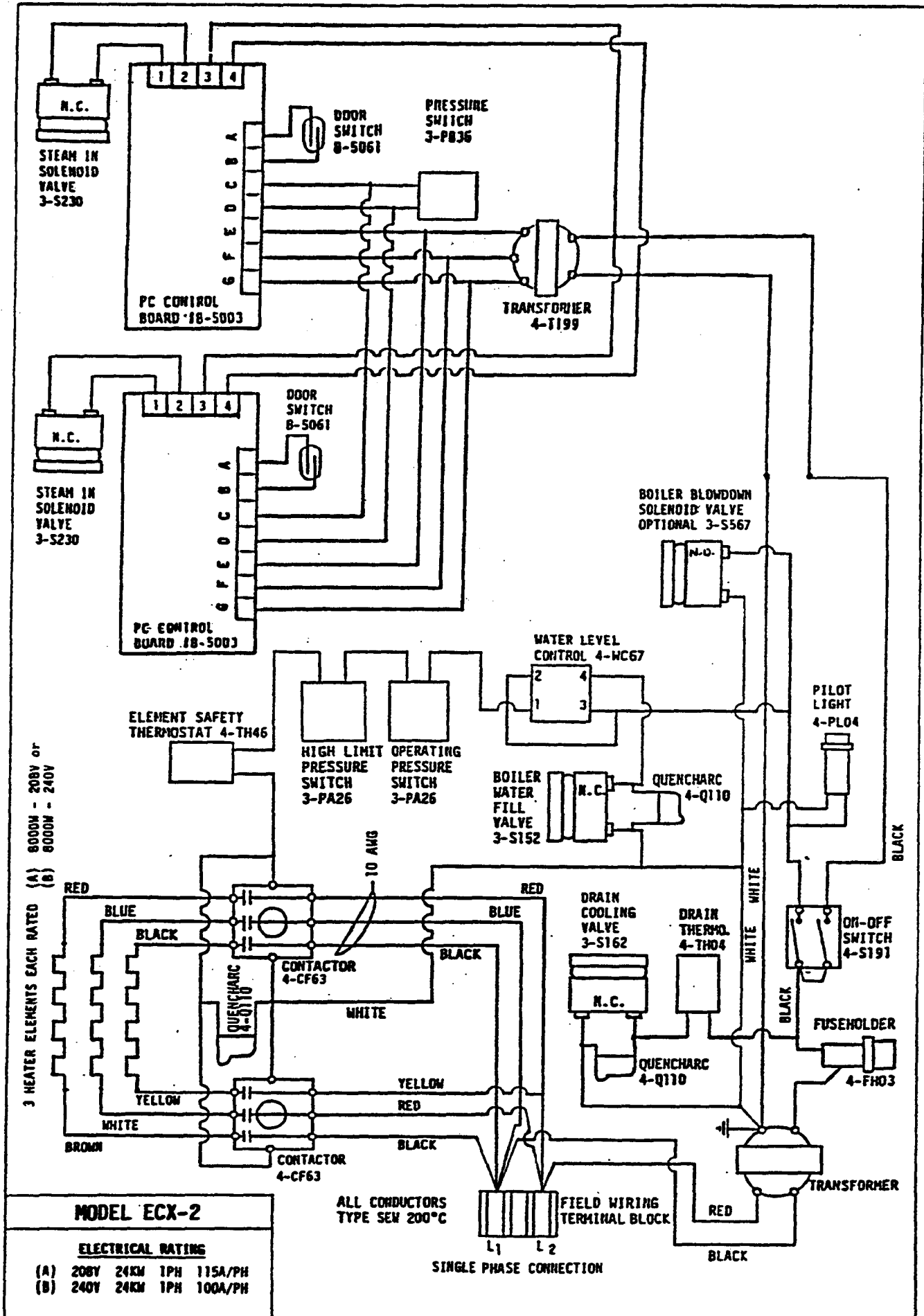
FROM FIG. 10

<u>Item No.</u>	<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
1	8-5061	Door Switch	2
2	4-T199	Transformer	1
3	8-5003	Printed Circuit Board	2
4	3-PA36	Pressure Switch	1
5	8-5002	Printed Circuit Board	2
6	4-TH04	Drain Thermostat (Water Cooling)	1
7	3-S263	Steam Solenoid Valve	2
8	3-P615	Pressure Gauge	1
9	3-TSH	Thermostatic Steam Trap	1

WIRING DIAGRAM

SECTION 8:

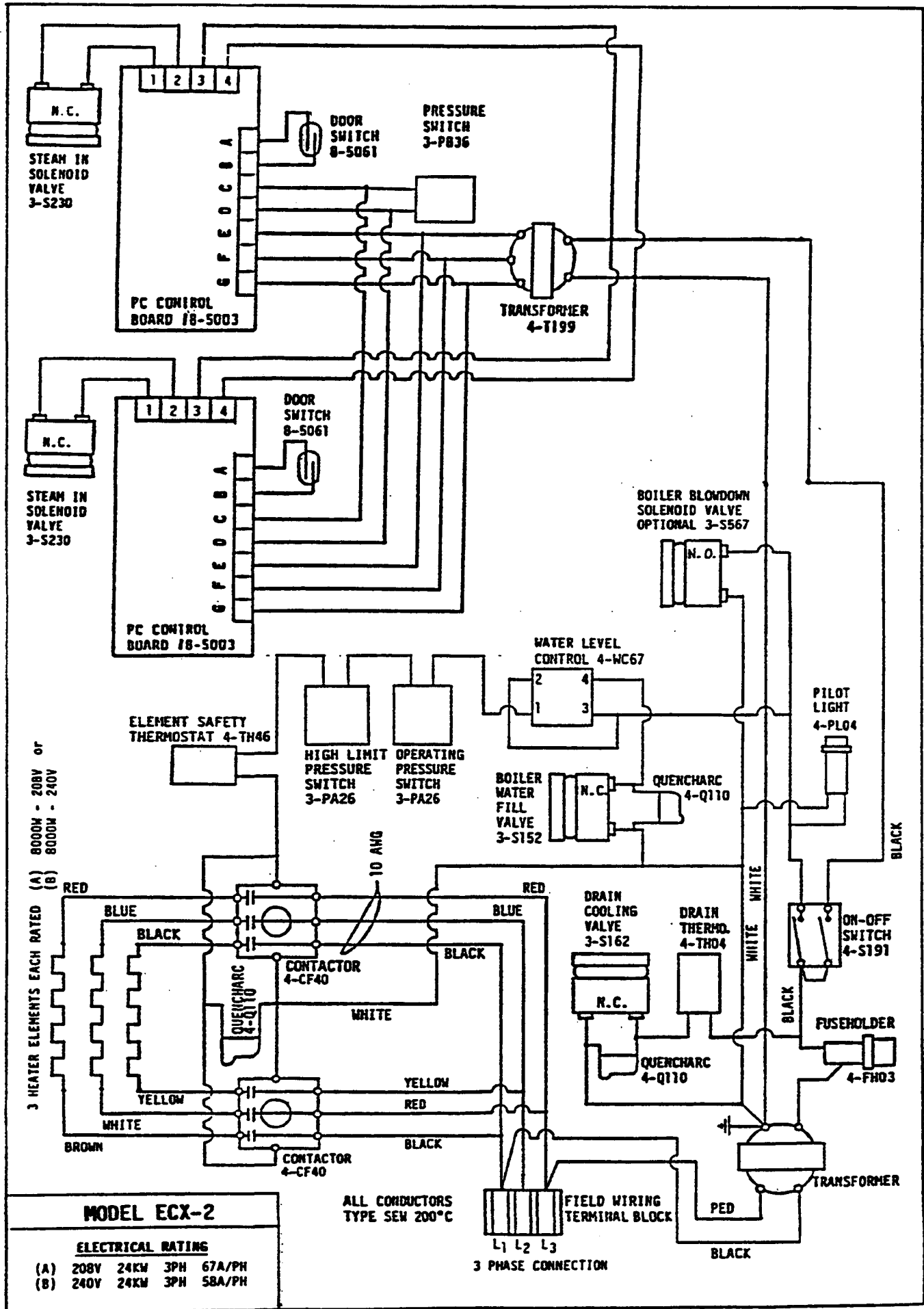
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

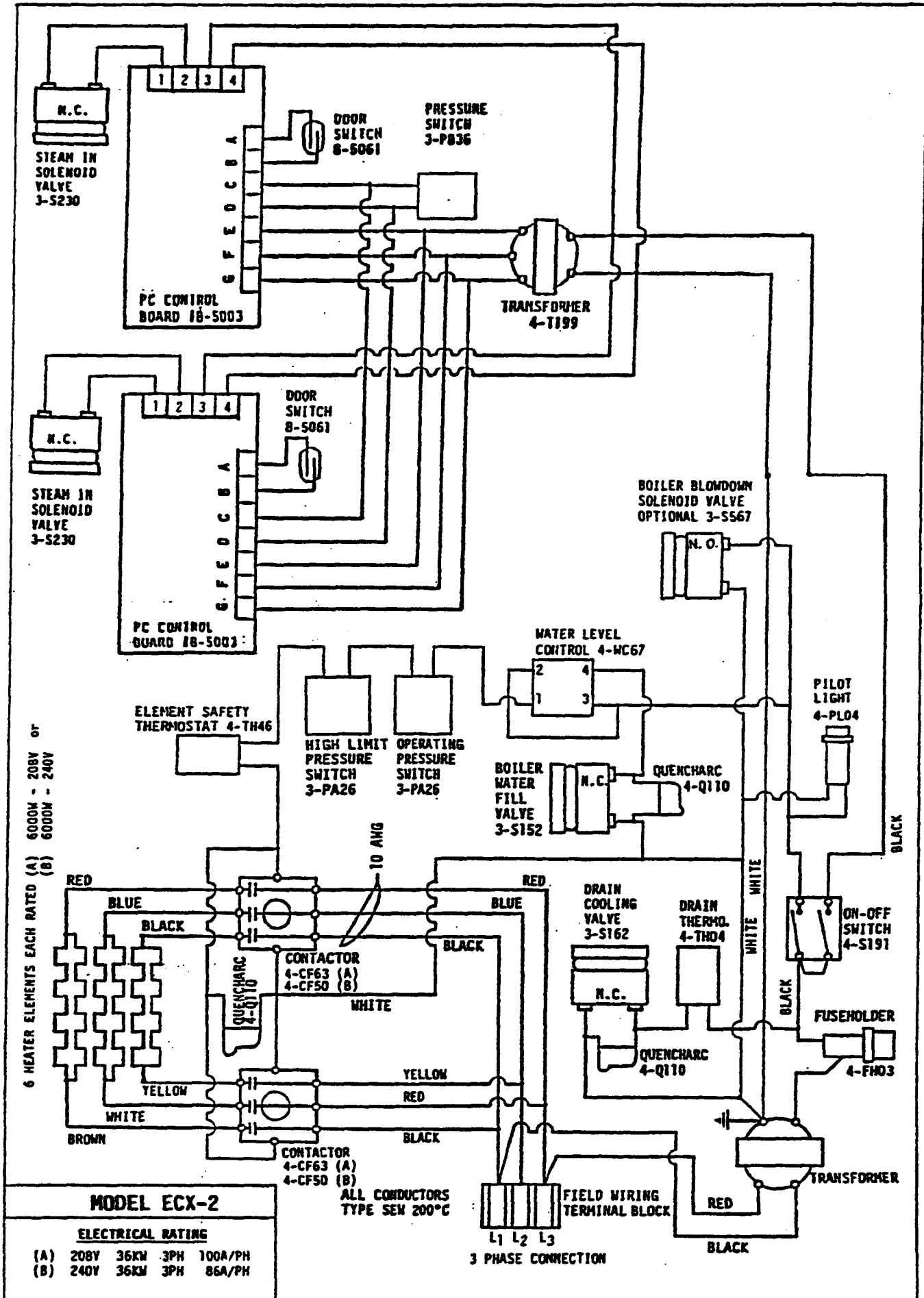
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

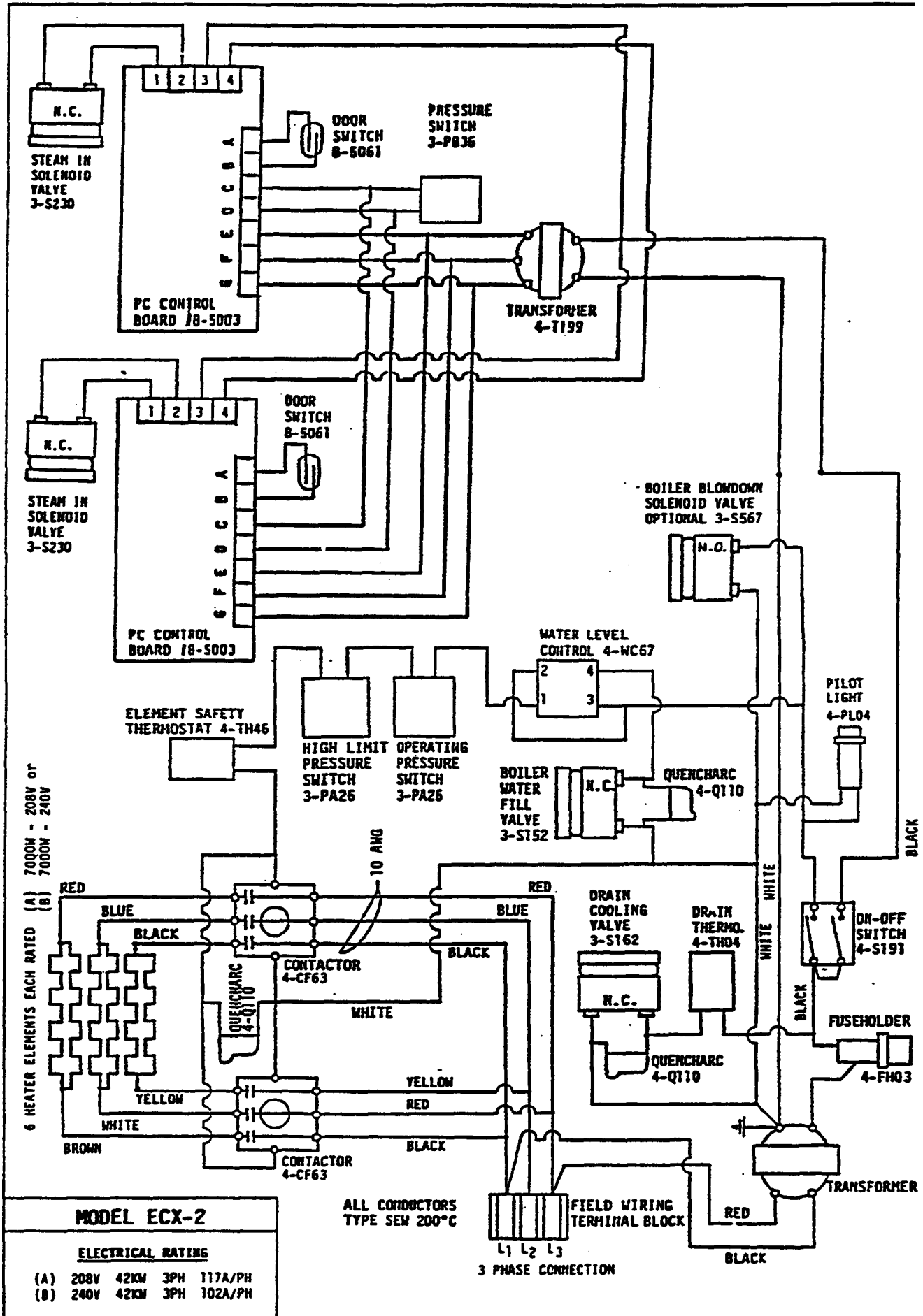
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

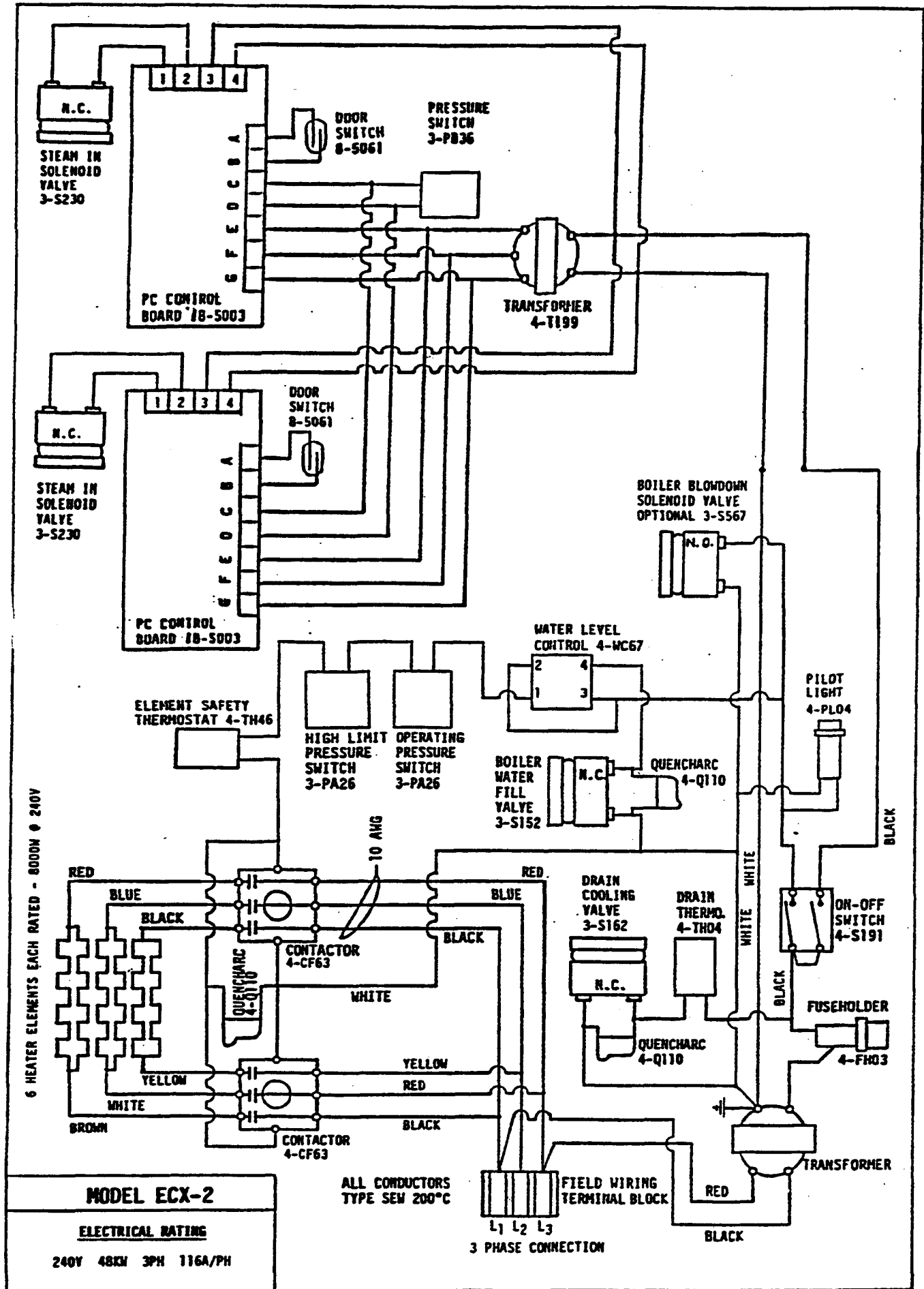
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

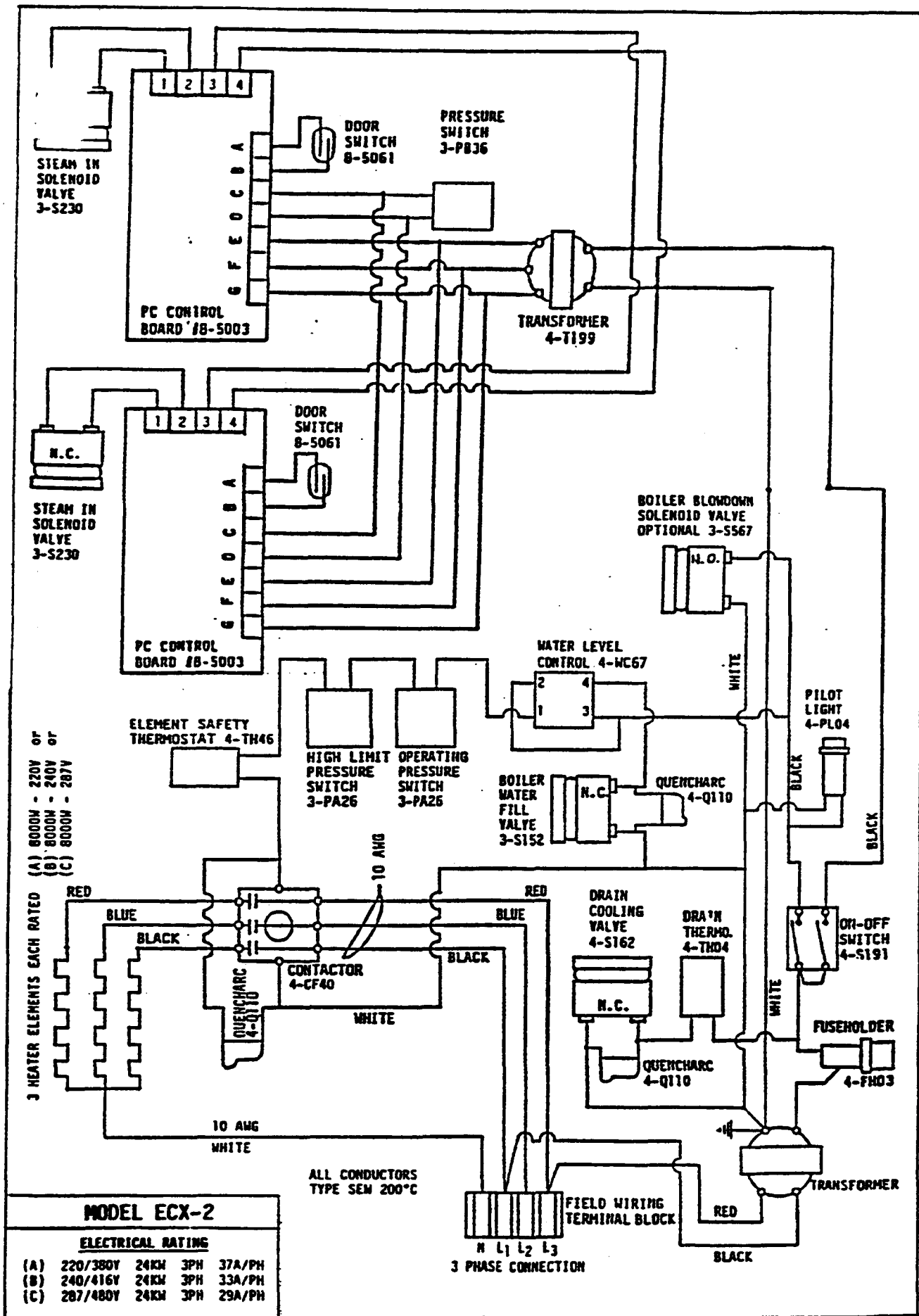
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

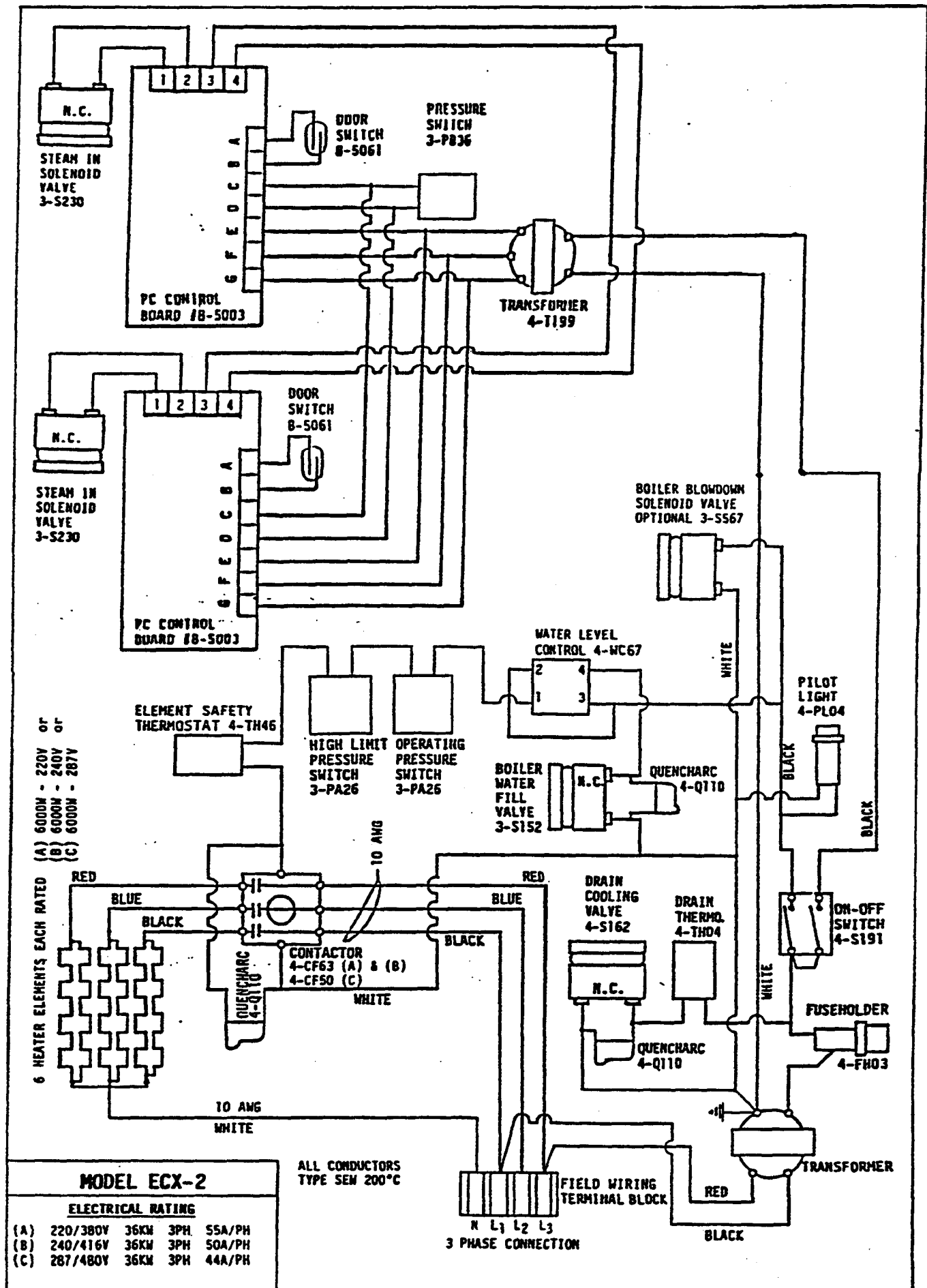
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

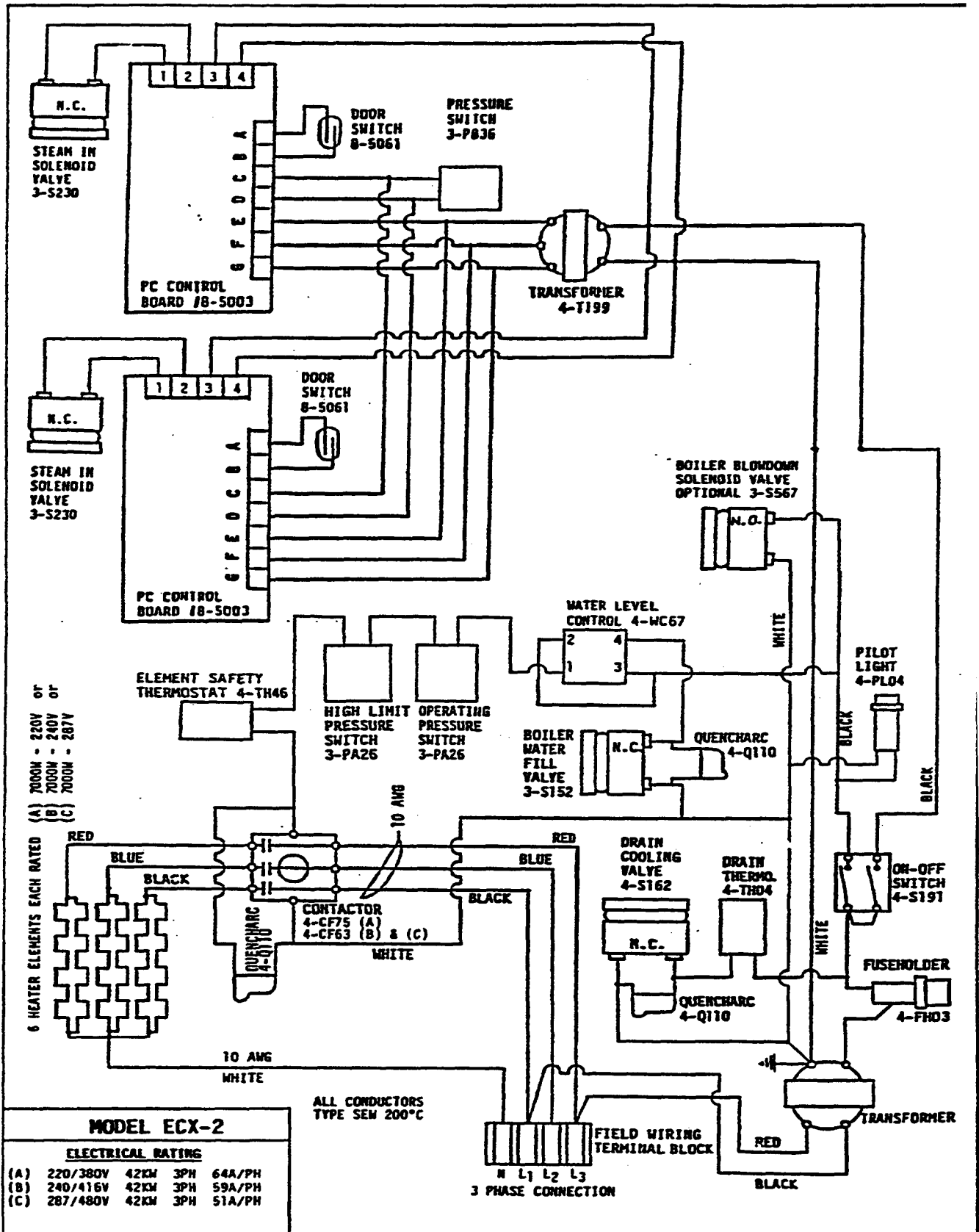
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

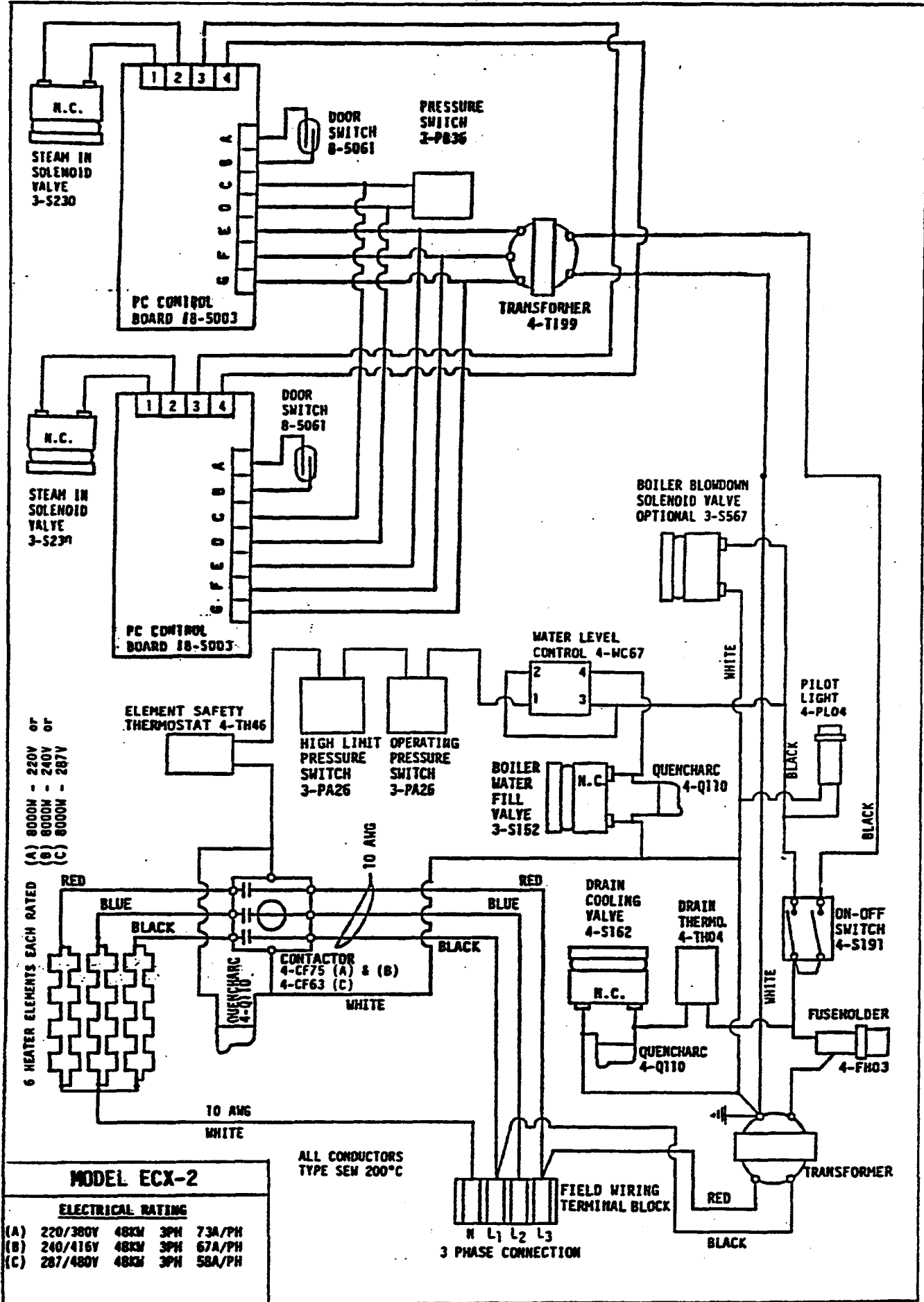
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

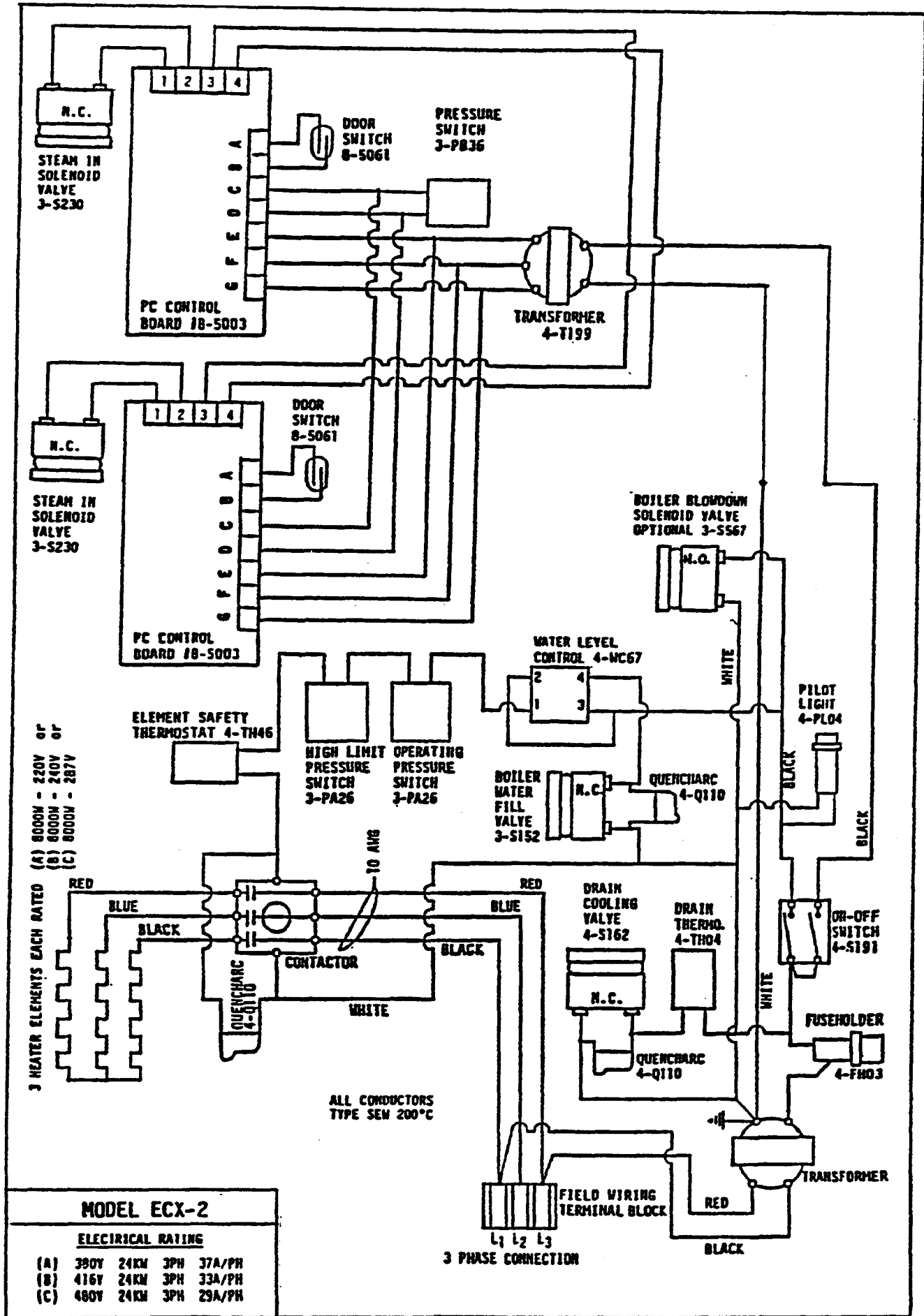
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

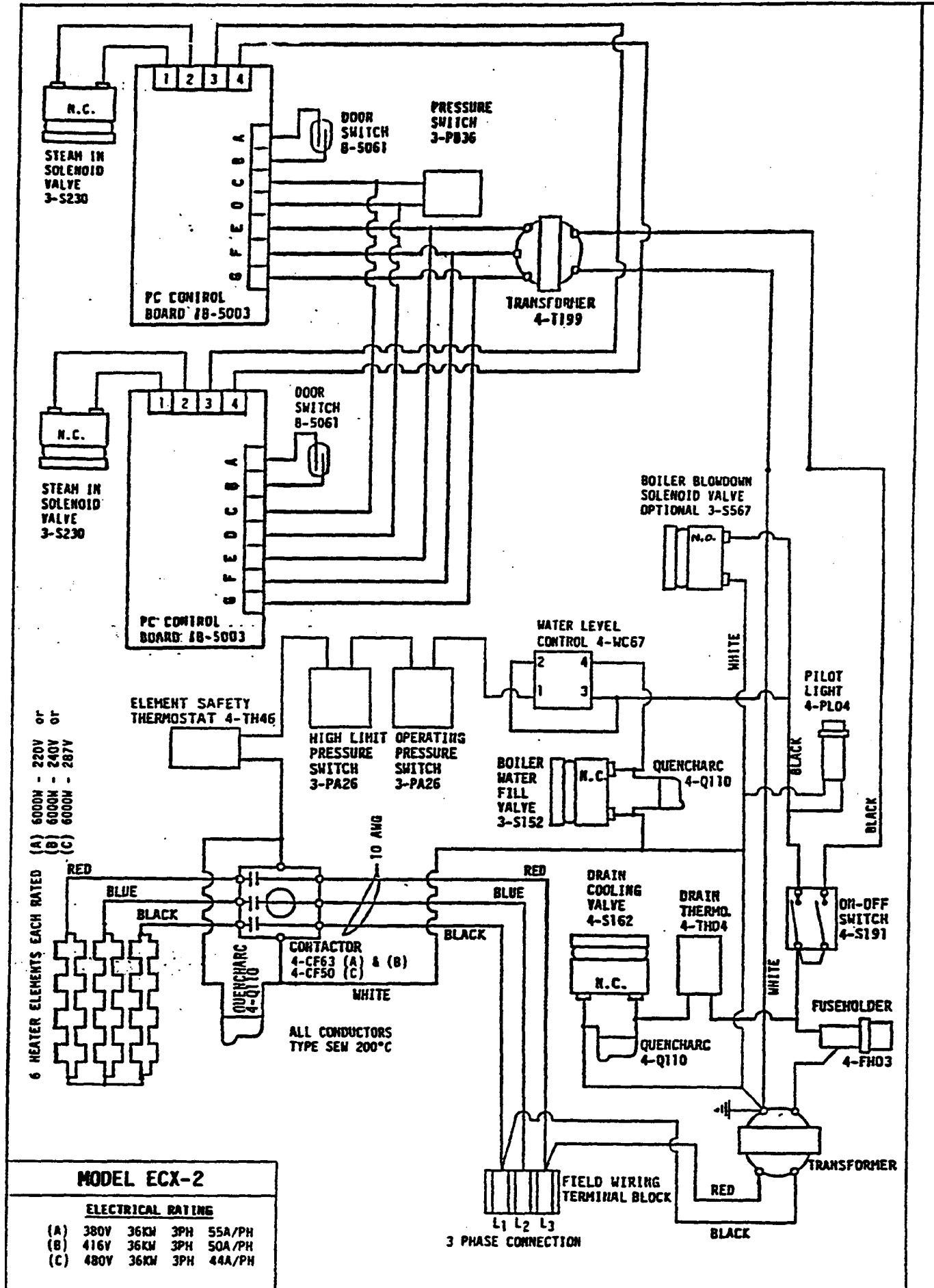
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

MODEL ECX-2



MODEL ECX-2

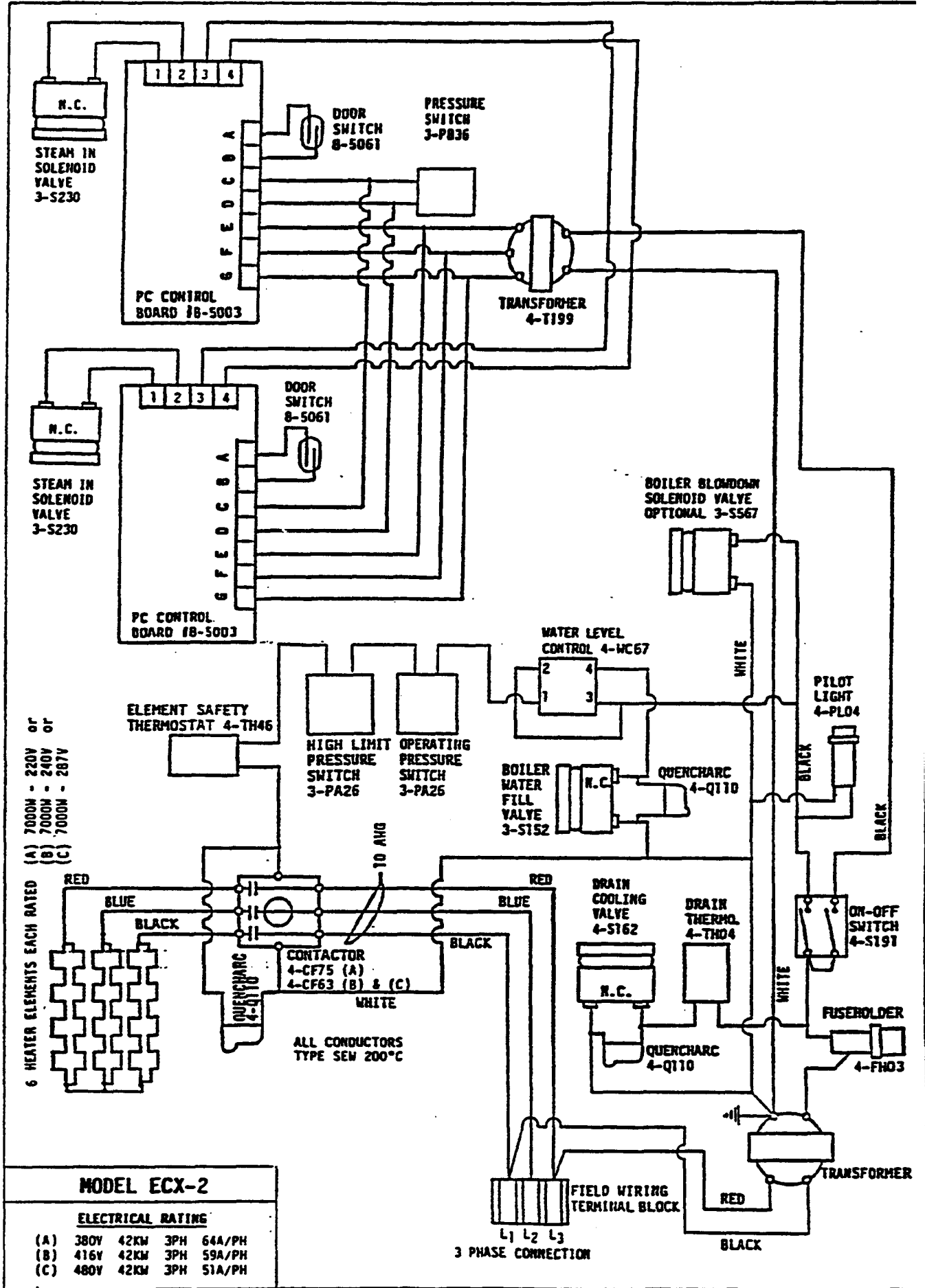
ELECTRICAL RATING

(A)	380V	36KW	3PH	55A/PH
(B)	416V	36KW	3PH	50A/PH
(C)	480V	36KW	3PH	44A/PH

WIRING DIAGRAM

SECTION 8:

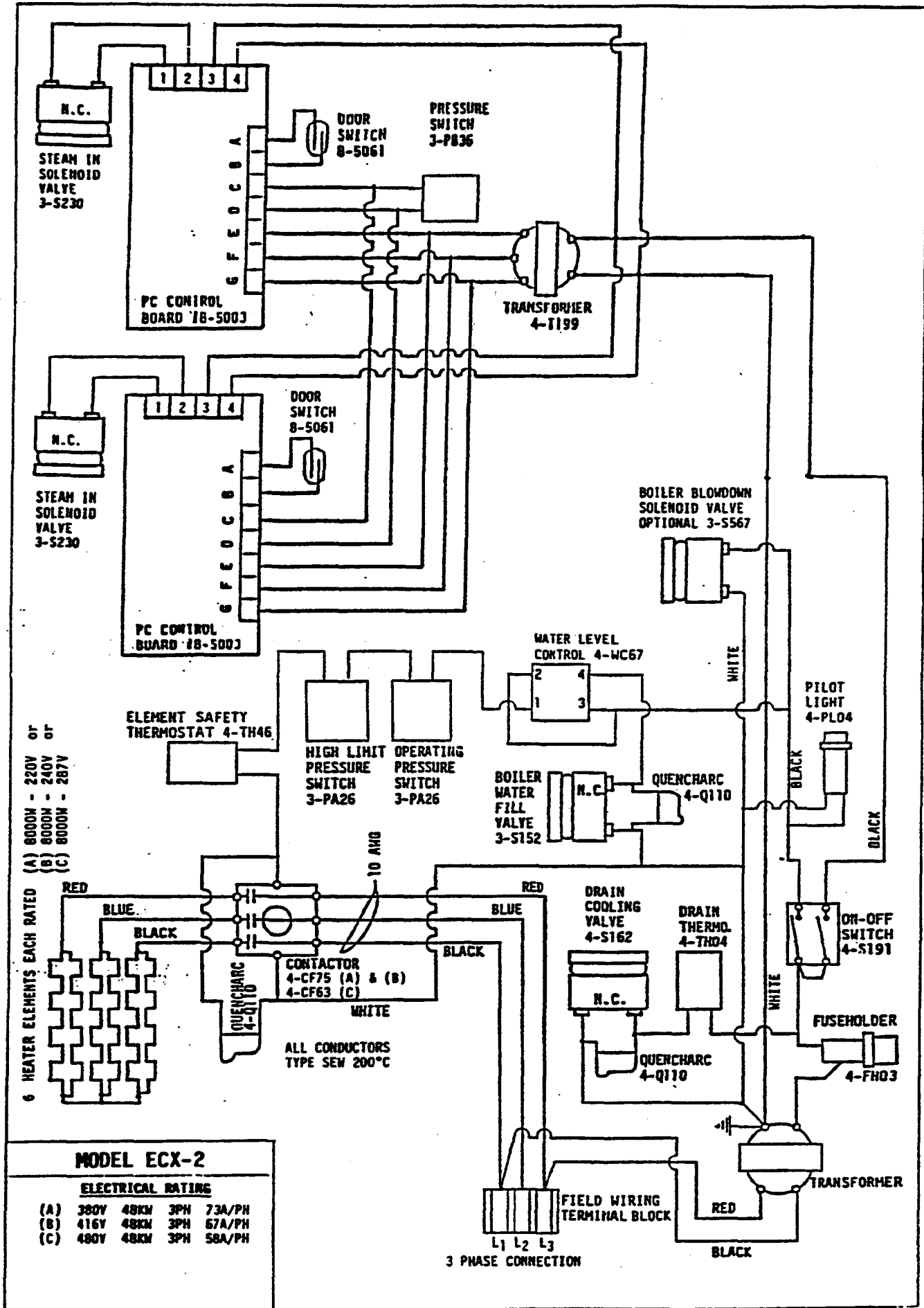
MODEL ECX-2



WIRING DIAGRAM

SECTION 8:

MODEL ECX-2



CONVECTION STEAMER ELECTRIC BOILER

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.

**CONVECTION STEAMER
ELECTRIC BOILER
(Manual Section CS)**