Statement of Responsibilities

This document is for use by experienced and trained Qualified Cleveland Range, LLC Authorized Service Representatives who are familiar with both the safety procedures, and equipment they service.

Cleveland Range, LLC assumes no liability for any death, injury, equipment damage, or property damage resulting from use of, improper use of, or failure to use the information contained in this document.

Cleveland Range, LLC has made every effort to provide accurate information in this document, but cannot guarantee that this document does not contain unintentional errors and omissions.

The information in this document may be subject to technical and technological changes, revisions, or updates.

Cleveland Range, LLC assumes no liability or responsibility regarding errata, changes, revisions, or updates.

Qualified Cleveland Range, LLC Authorized Service Representatives are obligated to follow industry standard safety procedures, including, but not limited to, OSHA regulations, and disconnect / lock out / tag out procedures for all utilities including steam, and disconnect / lock out / tag out procedures for gas, electric, and steam powered equipment and / or appliances

All utilities (gas, electric, water and steam) should be turned OFF to the equipment and locked out of operation according to OSHA approved practices during any servicing of Cleveland Range equipment

Qualified Cleveland Range, LLC Authorized Service Representatives are obligated to maintain up-to-date knowledge, skills, materials and equipment.

Cleveland

Convection Steamers

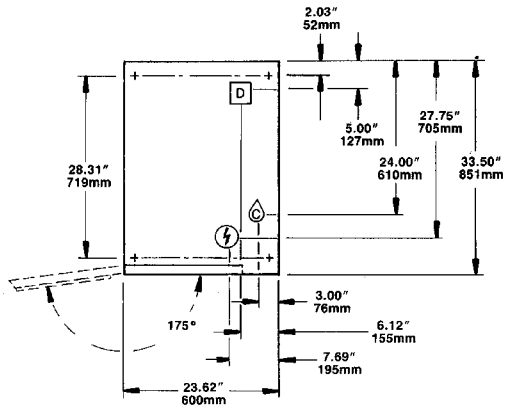
Cleveland Classic Series®

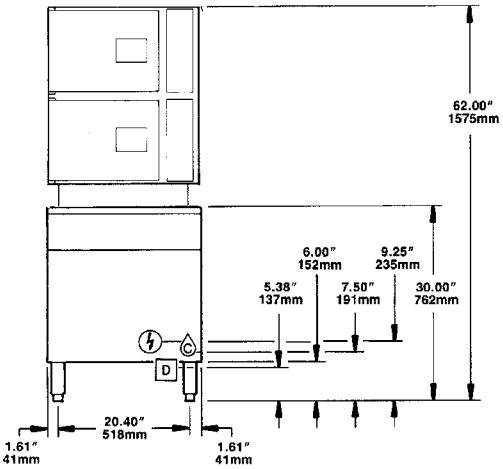
TWO COMPARTMENT-PRESSURELESS
ELECTRIC STEAM GENERATOR
24, 36 OR 48 KW
24" WIDE CABINET BASE DESIGN

MODEL: ☐ 24-CEM-24 ☐ 24-CEM-48
☐ 24-CEM-36

ITEM NUMBER _____

JOB NAME / NUMBER _____



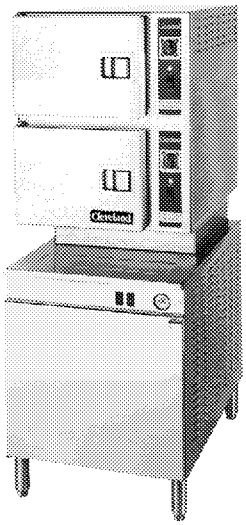


NOTE: When ordering optional reverse door openings Control Panel, door openings and cooking compartments are opposite that shown.

ELECTRIC						WATER
KW			208V	220V	240V	480V	¼" IPS Cold Water Inlet 35 psi minimum 60 psi maximum
24	3 PHASE	AMPS PER LINE	59.5	63.5	53.5	27	
	1 PHASE		103	N/A	89	46	
36	3 PHASE		89	95	80	40	
48	3 PHASE		119	126.5	106.5	53.5	

For Power Supply, use copper wire only

DRAINAGE D	CLEARANCE
The Floor Drain must be located outside the confines of the equipment base. 1 1/2" IPS common drain. Do not connect other units to this drain. Do not use PVC pipe for drain.	RIGHT = 6" (12" if adjoining wall or equipment is over 30.00" high) LEFT = 0" REAR = 0"



SHORT FORM SPECIFICATION

Shall be Two Compartments, CLEVELAND Convection Steamer, Model 24-CEM-____, Electric Steam Generator, ____KW, ____ volts, ____ phase, 3 wire. Solid State Controls operate timing, water level and safety functions. Electric Steam Generator with Automatic Water Fill on start-up and Automatic Blowdown with additional Manual Drain Valve, For each cooking compartment: 60 minute Mechanical Timer, Manual Operation Mode and Cold Water Condenser. Type 304 Stainless Steel cooking compartment.

WATER QUALITY REQUIREMENT

The recommended minimum water quality standards whether untreated or pre-treated, based upon 10 hours of use per day, and a Daily Blowdown, are as follows:

TOTAL DISSOLVED SOLIDS	less than	60 parts per million
TOTAL ALKALINITY	less than	20 parts per million
SILICA	less than	13 parts per million
pH FACTOR	greater than	7.5

Consult a local water treatment specialist for an on site water analysis for recommendations concerning steam generator feed water treatment (if required), in order to remove or reduce harmful concentrations of minerals. The use of highly mineralized water will mean that more frequent servicing of the steam generator will be necessary. The fact that a water supply is potable is not proof that it will be suitable for the generator.

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CLEVELAND RANGE
SEQUENCE OF OPERATIONS
Electric Boiler Base

1. Supply voltage is sent to the primary of the Control Transformer.
   - 115 VAC is sent from the secondary of the Control Transformer to the on/off rocker switch.

2. To turn the unit on, depress the red on/off rocker switch.
   - 115 VAC is sent to the upper cabinets and terminal block in control box.
   - 115 VAC is sent to normally open drain valve closing it.
   - 115 VAC is sent to L1 and L2 of the water level board.

3. With the water level board energized and no water in the boiler
   - 115 VAC is sent from the WF terminal to the fill solenoid.
   - The fill solenoid opens and the boiler fills through the drain valve.
   - The water fills to the low probe shorting it to ground
   - 115 VAC is sent from the HTR terminal through the normally closed contacts of the highlimit pressure switch to contacts of the ice cube relay and the amber reset switch, energizing the amber light.

4. When the momentary amber switch is depressed 115 VAC is sent to the coil of the ice cube relay closing it.
   - The relay latches itself through a jumper to the coil.
     - If either the high-pressure switch or the low water cut of switch opens, the latch circuit opens.
     - When the contacts close the amber light will energize and the process may begin again.
   - The relay contacts close sending 115 VAC through the normally closed contacts of the operating pressure switch to the coil of the contactor(s). .

5. With 115 VAC to the coil of the contactor(s).
   - The contactor closes.
   - Supply power is sent to the elements.

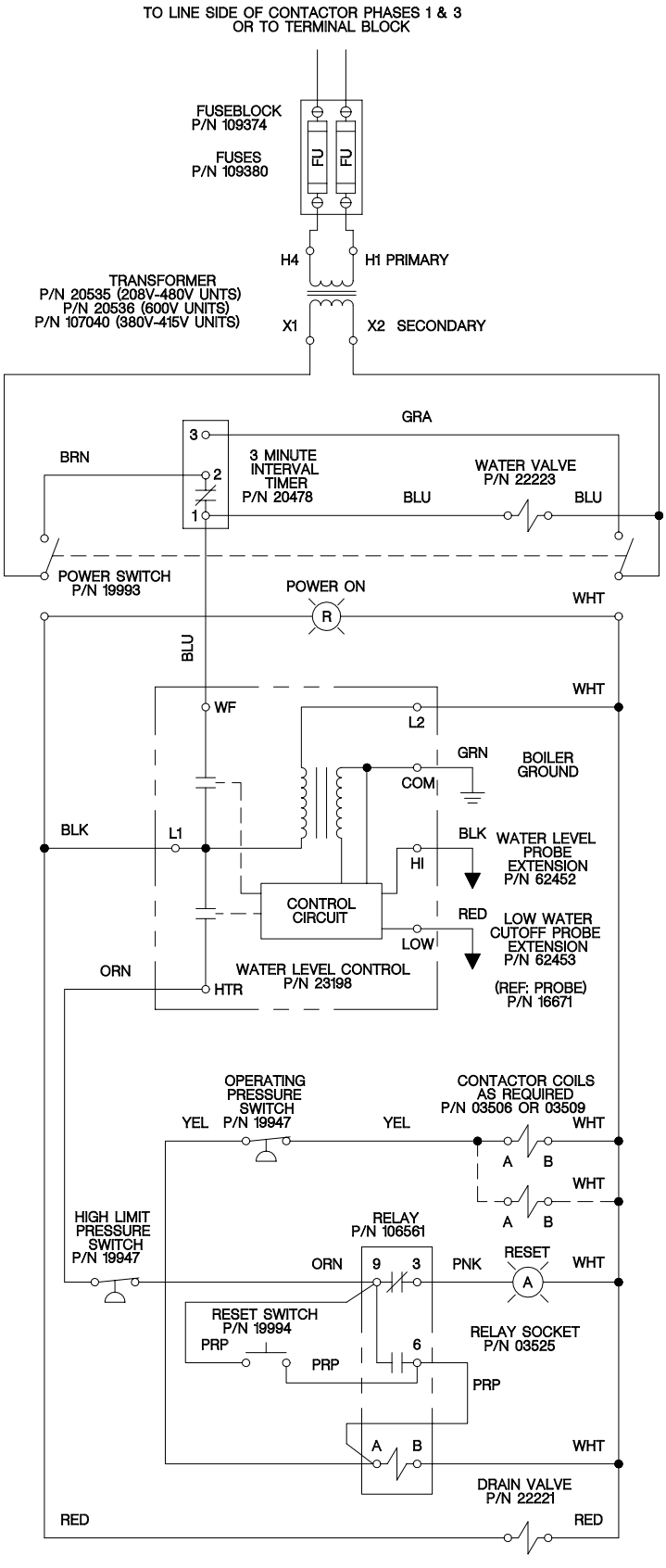
6. The water in the boiler is heated to steam.
   - As steam is generated and pressure builds the air is pushed out through the steamtrap.
   - When steam goes through the steam trap and heats it to 192 degrees it closes.

7. Pressure builds in the boiler to the set point of 8-10 PSI (except 36CEM16 or pressure steamers that are set at 5PSI).
   - The operating pressure switch opens and the heat circuit is de-energized.
   - When the pressure drops below the set point the heat circuit is energized and the heat process begins again.

8. Water continues to fill until the high probe is grounded.
    - When the high probe is grounded the WF terminal on the water level board is de-energized.
    - The fill solenoid closes until the high probe is ungrounded for 05 seconds.
    - If the water level drops below the low probe for more than 20 seconds the WF terminal is energized and the water fill circuit begins again.

9. When the unit is turned off, by depressing the red rocker switch,
    - 115 VAC is removed from the heat circuit.
    - 115 VAC is removed from the drain circuit and the normally open drain valve opens allowing the unit to drain.
    - 115 VAC is sent to the 3-minute timer.
    - The three-minute timer will energize the fill solenoid for 3 minutes while the steamer drains.

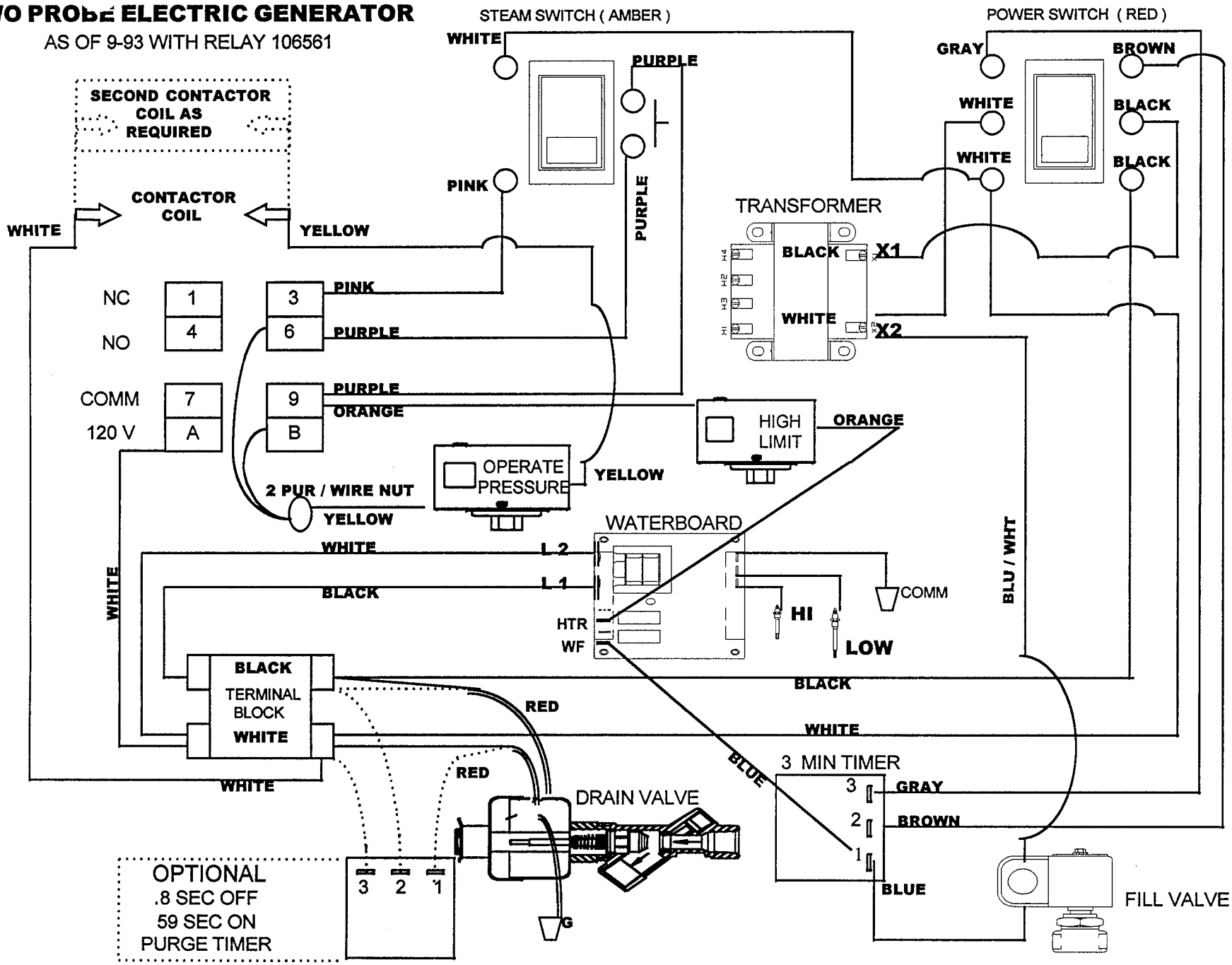
ELECTRIC GENERATOR CONTROL WIRING (INTERMITTENT BLOWDOWN OPTION)



104825 D

TWO PROBE ELECTRIC GENERATOR

AS OF 9-93 WITH RELAY 106561



CLEVELAND RANGE
SEQUENCE OF OPERATIONS
Electric Boiler Base
With Secondary Low Water Cut Off Switch

1. Supply voltage is sent to the primary of the Control Transformer.
   - 115 VAC is sent from the secondary of the Control Transformer to the on/off rocker switch.

2. To turn the unit on, depress the red on/off rocker switch.
   - 115 VAC is sent to the upper cabinets and terminal block in control box.
   - 115 VAC is sent to normally open drain valve closing it.
   - 115 VAC is sent to L1 and L2 of the water level board.
   - 115 VAC is sent to the open contacts of the low water cut-off switch.

3. With the water level board energized and no water in the boiler
   - 115 VAC is sent from the WF terminal to the fill solenoid.
   - The fill solenoid opens and the boiler fills through the drain valve.
   - The water fills to the low probe shorting it to ground
   - 115 VAC is sent from the HTR terminal through the normally closed contacts of the operating pressure switch to coil of the contactor(s).
   - The rising water also raises the float on the low water cut-off switch closing it.
   - 115 VAC is sent through the normally closed contact of the high-pressure switch to the amber reset switch, energizing the amber light.

4. When the momentary amber switch is depressed 115 VAC is sent to the ice cube relay closing it.
   - The relay latches itself through a jumper to the coil.
     - If either the high-pressure switch or the low water cut of switch opens, the latch circuit opens.
     - When the contact close the amber light will energize and the process may begin again.
   - The relay contacts close sending 115 VAC to the coil of the contactor.

5. With 115 VAC to the coil of the contactor(s).
   - The contactor closes.
   - Supply voltage is sent to the elements.

6. The water in the boiler is heated to steam.
   - As steam is generated and pressure builds the air is pushed out through the steamtrap.
   - When steam goes through the steam trap and heats it to 192 degrees it closes.

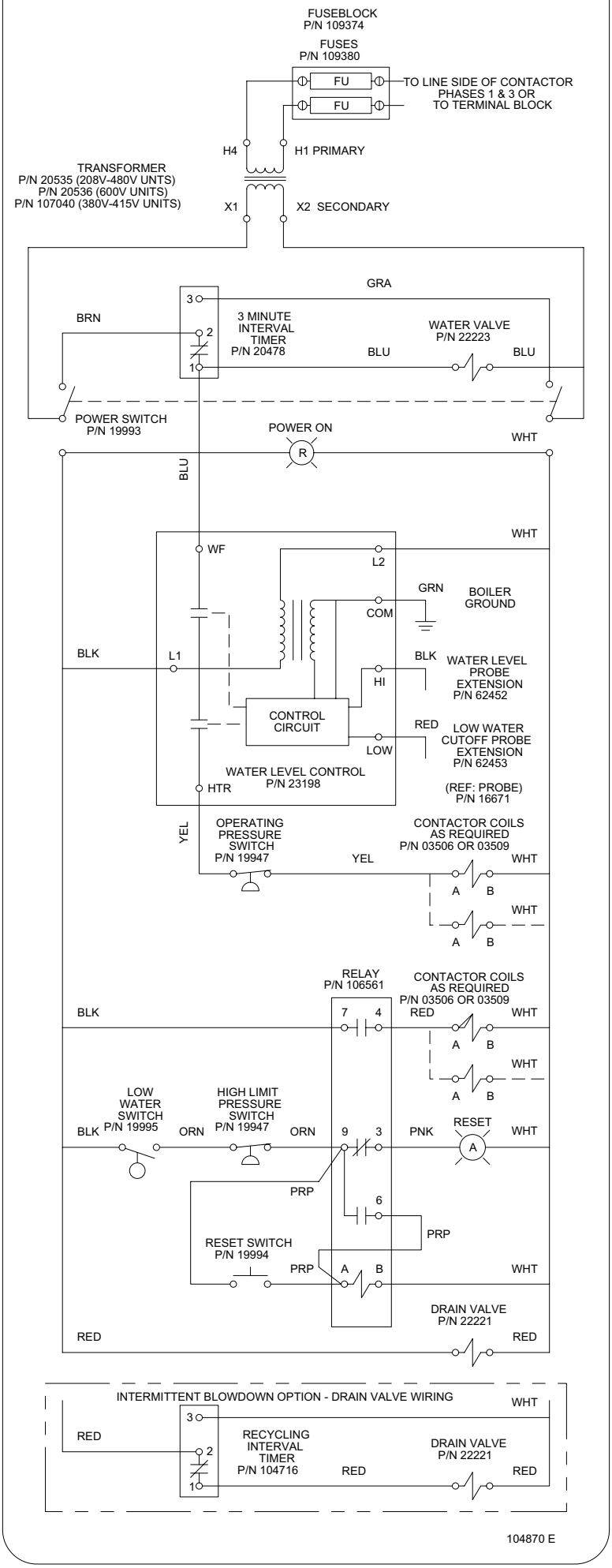
7. Pressure builds in the boiler to the set point of 8-10 PSI (except 36CEM16 or pressure steamers that are set at 5PSI).

- The operating pressure switch opens and the heat circuit is de-energized.
- When the pressure drops below the set point the heat circuit is energized and the heat process begins again.

8. Water continues to fill until the high probe is grounded.
   - When the high probe is grounded the WF terminal on the water level board is de-energized.
   - The fill solenoid closes until the high probe is ungrounded for 05 seconds.
   - If the water level drops below the high probe for more than 20 seconds the WF terminal is energized and the water fill circuit begins again.

9. When the unit is turned off, by depressing the red rocker switch,
   - 115 VAC is removed from the heat circuit.
   - 115 VAC is removed from the drain circuit and the normally open drain valve opens allowing the unit to drain.
   - 115 VAC is sent to the 3-minute timer.
   - The three-minute timer will energize the fill solenoid for 3 minutes while the steamer drains.

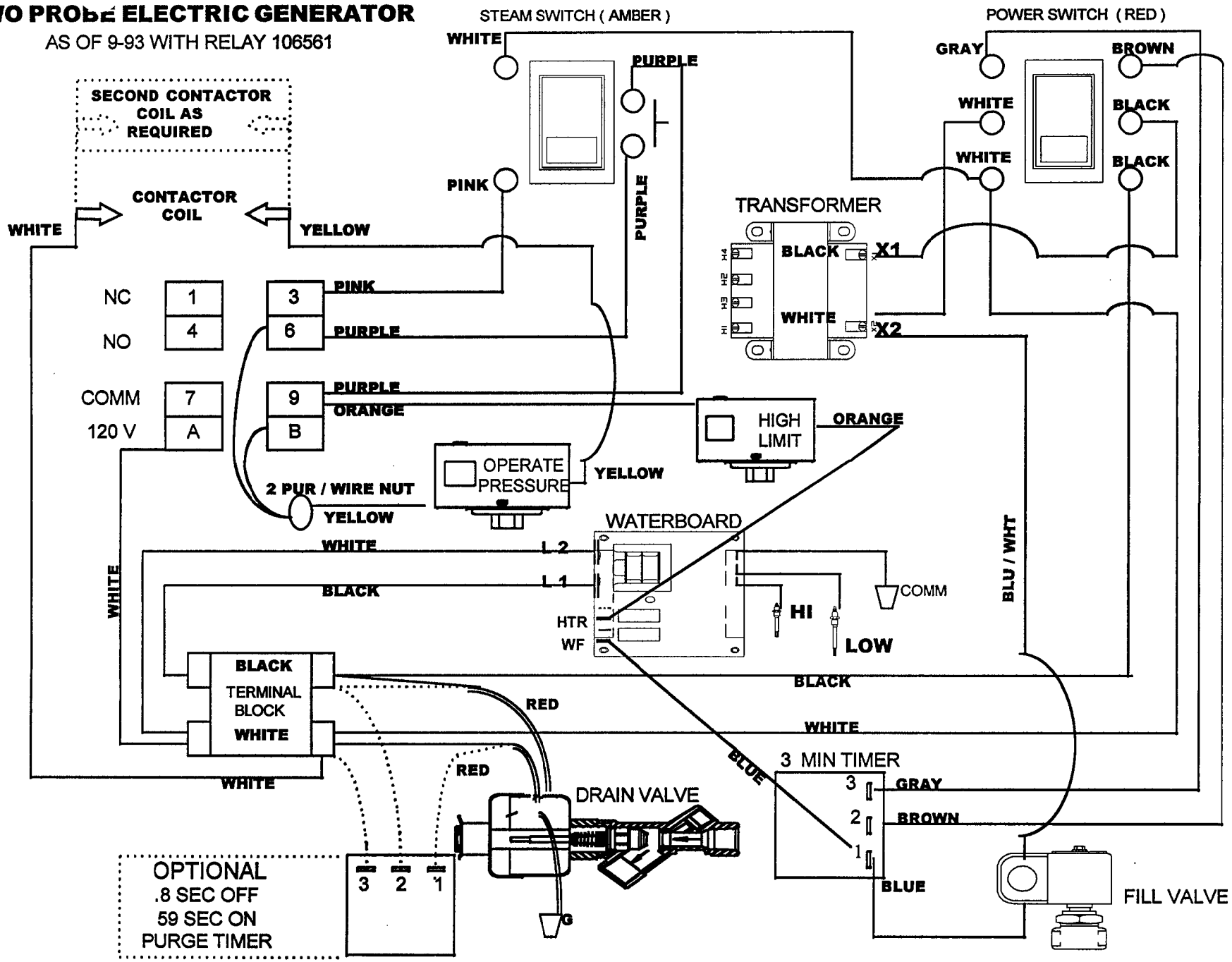
ELECTRIC GENERATOR CONTROL WIRING
CALIFORNIA CODE (ASME CSD-1)
(INTERMITTENT BLOWDOWN OPTION)



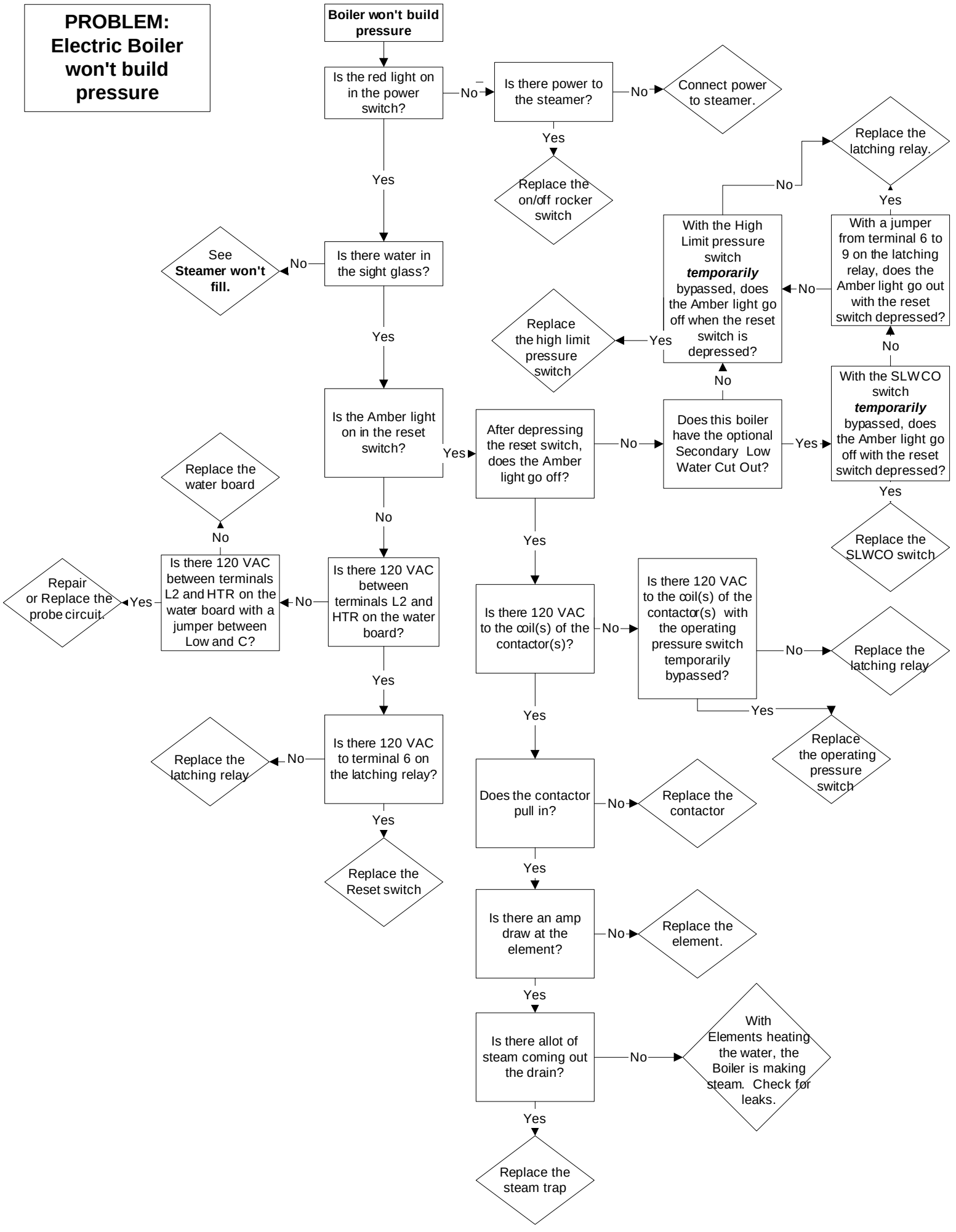
104870 E

TWO PROBE ELECTRIC GENERATOR

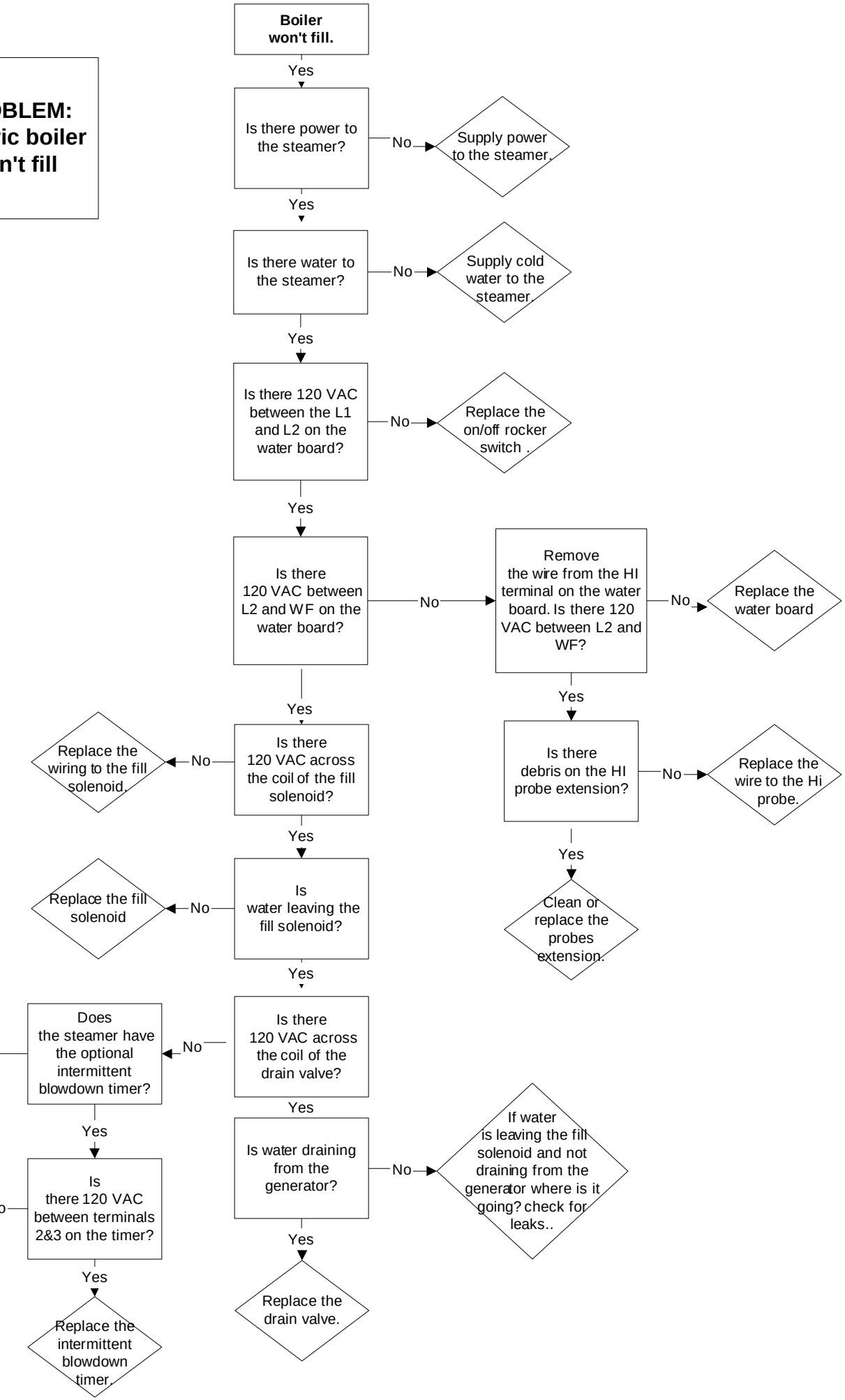
AS OF 9-93 WITH RELAY 106561



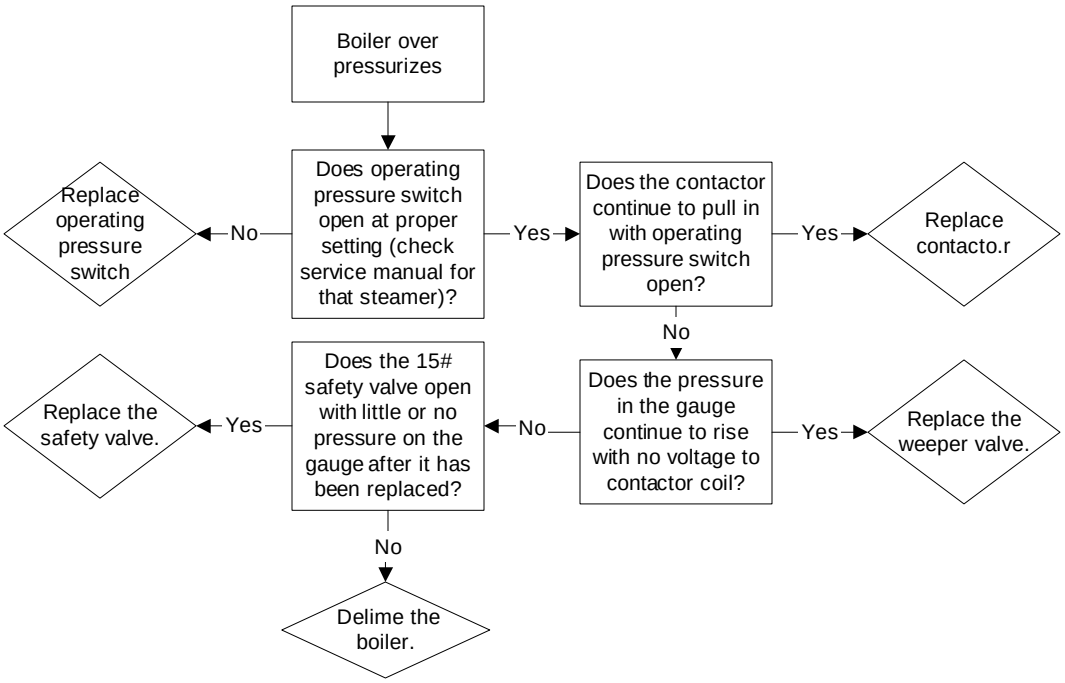
PROBLEM: Electric Boiler won't build pressure



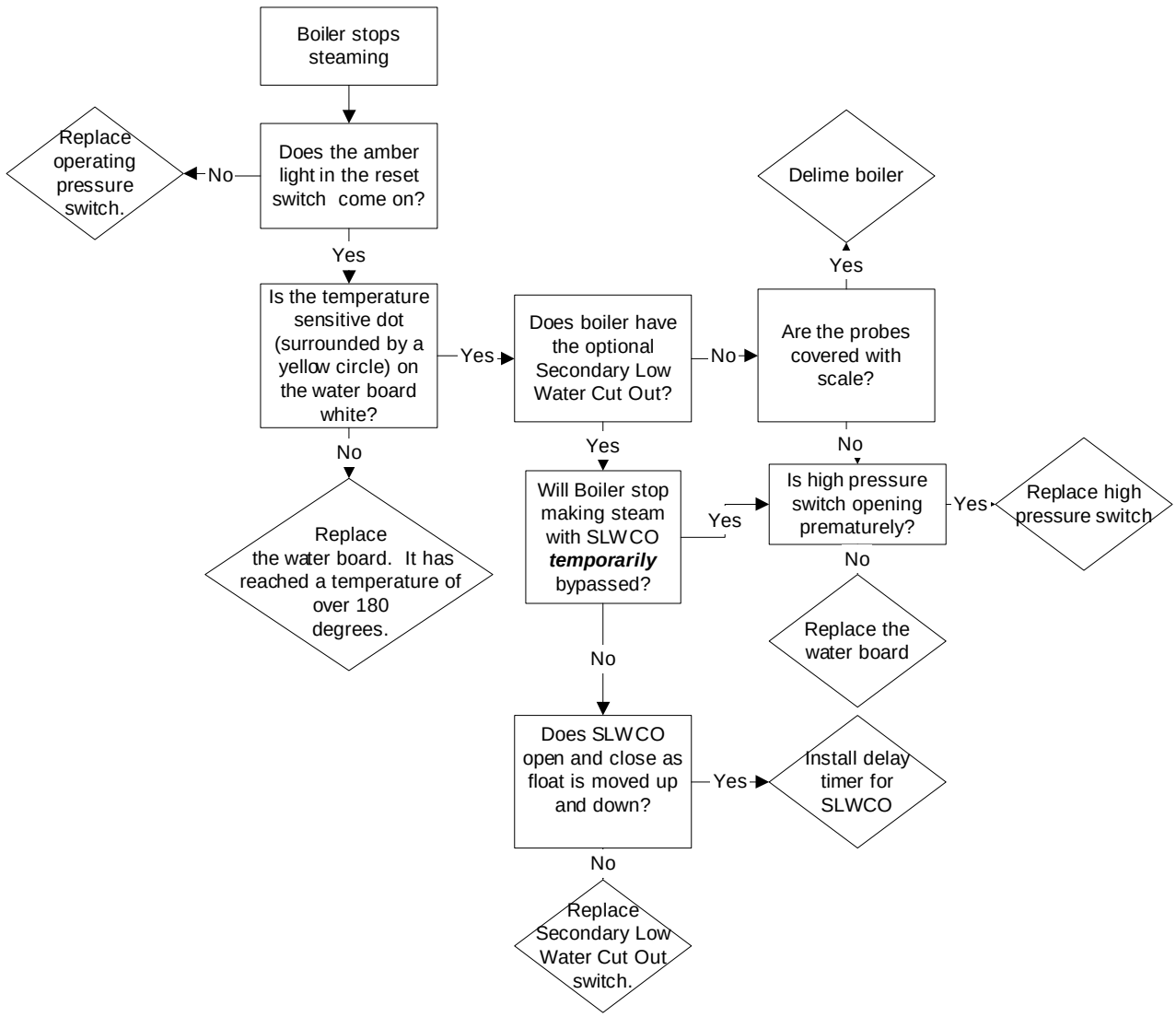
PROBLEM: Electric boiler won't fill



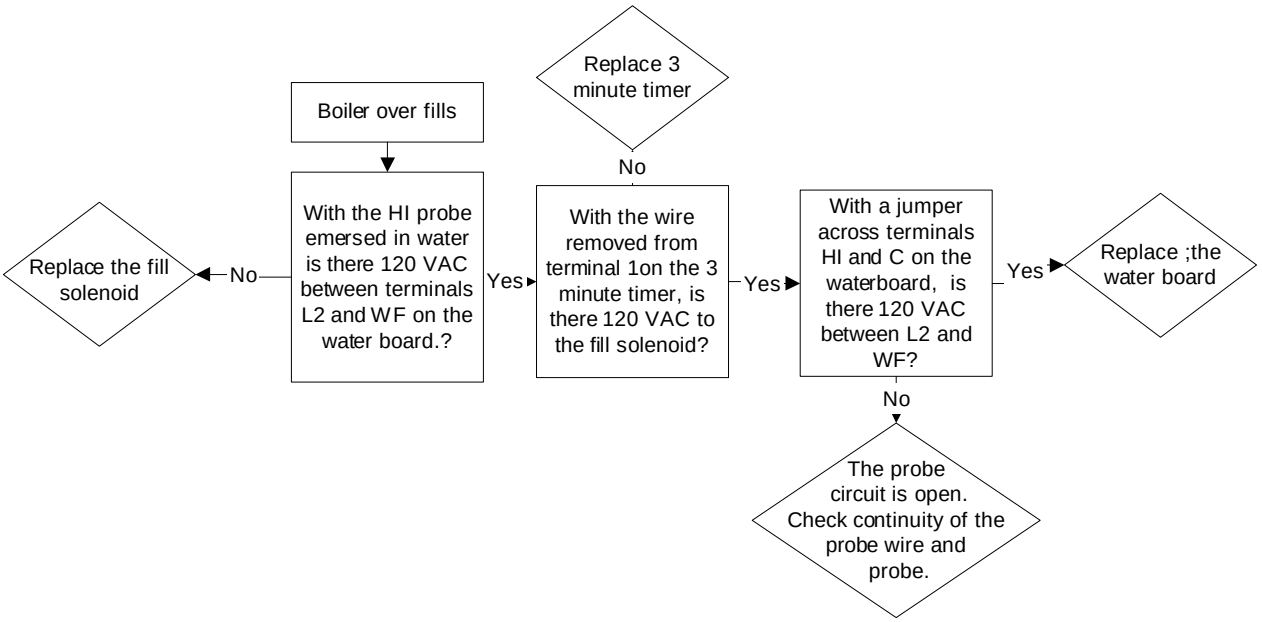
PROBLEM:
Electric Boiler Over Pressurizes (15# Safety valve opens)



PROBLEM:
Electric Boiler Stops Producing Steam



PROBLEM: Electric Boiler Overfills



PROBLEM: Transformer continues to fail.