

## 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.

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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.



# Convection Steamers

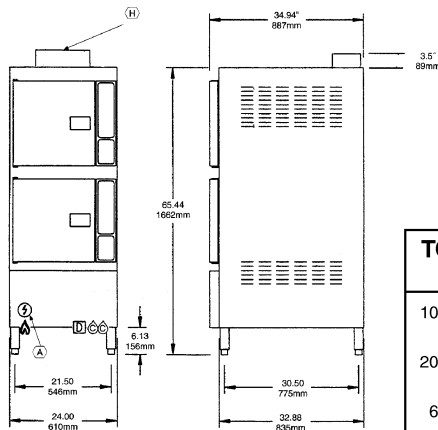
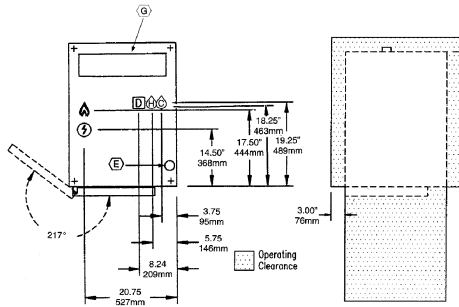
## SteamCraft® Ultra 10

TWO COMPARTMENT FLOOR MODEL DESIGN  
PRESSURELESS CONVECTION STEAMER  
Gas Steam Generator, 125M BTU

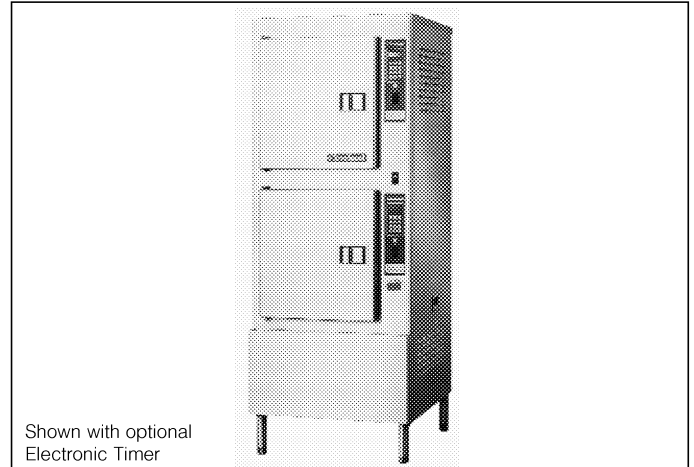
MODEL:  24-CGA-10

ITEM NUMBER \_\_\_\_\_

JOB NAME / NUMBER \_\_\_\_\_



TOTAL CAPACITY (2 Compartments)	
10	12" x 20" x 2 1/2" Cafeteria Pans or
20	12" x 20" x 1" Cafeteria Pans or
6	12" x 20" x 4" Cafeteria Pans



Shown with optional Electronic Timer

### SHORT FORM SPECIFICATION

Shall be CLEVELAND, SteamCraft® Ultra 10, two compartments, Floor Model Steamer, Model 24-CGA-10, single, large capacity Gas-fired Atmospheric Steam Generator, 125M BTU input. Remote Probe Type Water Level Controls. Steam Generator with Automatic Water Fill on start up, Automatic Generator Blowdown, Electronic Spark Ignition and Generator Stand-by for instant steam. Choice of Compartment Controls, Manual By Pass Operation Mode, Compensating Thermostat, Patented Cold Water Condenser design, Type 430 Stainless Steel exterior and cooking compartments.

### WATER QUALITY REQUIREMENT

The quality of water varies greatly from region to region. Steam equipment must be blown down daily and chemically descaled periodically to ensure proper operation. To minimize service problems caused by the accumulation of minerals and chemicals in water, review the following quality guidelines with a local water treatment specialist. Inlet water that is beyond these specified guidelines should be treated to achieve the acceptable limits.

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
CHLORINE	less than 30 parts per million

A typical water quality analysis can be secured from your local water district. Water that is potable does not guarantee compatibility with steam equipment.

### UTILITY CONNECTIONS

- (A) Electrical Supply
- (B) Cold Water Supply for Generator and Water Injection.  
3/8" Dia. IPS (for water treatment conn.)  
Unit comes with a 50 Mesh Water Strainer (installation required)
- (C) Drain: 1.50" (38mm) Dia.
- (D) Inlet for Generator Deliming Solution
- (E) Gas Supply .50" (13mm) Dia.
- (F) Flue Gas Exhaust from Boiler
- (G) Flue Diverter (if required)

GAS	ELECTRIC	COLD WATER	DRAINAGE				
75,000 BTU - 1 Compartment, 125,000 BTU - 2 Compartments	115V - 1 Phase 1 Fan & Controls - 150 Watts	35 psi minimum 60 psi maximum 3/8" Dia. IPS for Generator (for water treatment connection) 1/2" Dia. IPS for Condenser	1 1/2" Dia. Do not connect other units to this drain. Drain line must be vented. No PVC pipe for drain.				
<b>SUPPLY PRESSURE</b> <table border="1"> <thead> <tr> <th>NATURAL</th> <th>PROPANE</th> </tr> </thead> <tbody> <tr> <td>4.00" W.C. minimum 14.00" W.C. maximum</td> <td>12.00" W.C. minimum 14.00" W.C. maximum</td> </tr> </tbody> </table>		NATURAL	PROPANE	4.00" W.C. minimum 14.00" W.C. maximum	12.00" W.C. minimum 14.00" W.C. maximum		
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4.00" W.C. minimum 14.00" W.C. maximum	12.00" W.C. minimum 14.00" W.C. maximum						
Manufacturer must be notified if unit will be used above 2,000 ft. altitude.							

Cleveland Range reserves right of design improvement or modification, as warranted.

**Cleveland Range, LLC**  
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1333 East 179th St., Cleveland, Ohio, U.S.A. 44110  
Visit our Web Site at [www.clevelandrange.com](http://www.clevelandrange.com)

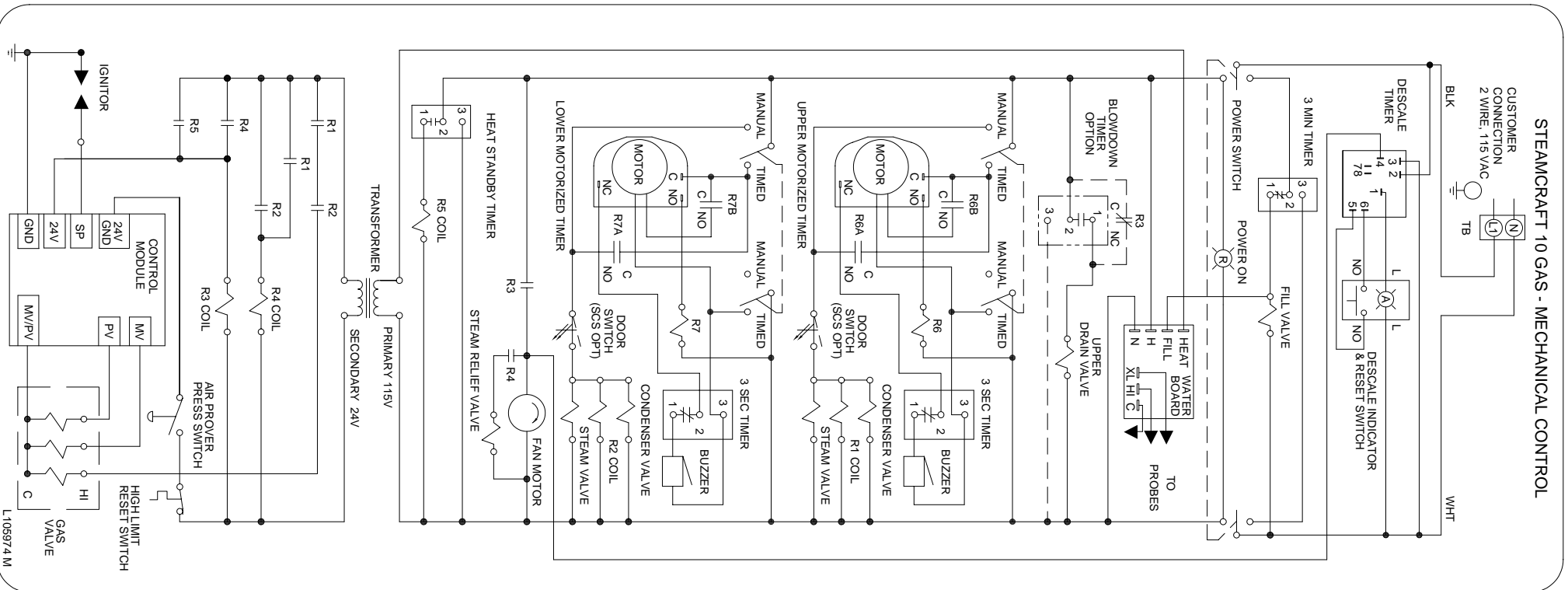
CLEVELAND RANGE 24CGA10  
SEQUENCE OF OPERATIONS  
Mechanical Timer

1. To turn the unit on, depress the red on/off rocker switch.
  - 115 VAC is sent to the red indicator light.
  - 115 VAC is sent to normally open drain valve closing it.
  - 115 VAC is sent to H and N of the water level board
  - 115 VAC is sent to the timed/manual switches.
  - 115 VAC is sent to the heat standby timer which will energize the R5 relay 20 seconds every 6 minutes to maintain heat while unit is idle
  
2. With the water level board energized and no water in the generator
  - After a 5 second delay 115 VAC is sent from the FILL terminal to the fill solenoid.
  - The fill solenoid opens and the generator fills through the drain valve.
  - The water fills to the low probe shorting it to ground
  - 115 VAC is sent from the HEAT terminal to the 24 VAC heat circuit transformer.
  -
  
3. When the timed/manual switch is in the timed position and time is on the timer for the top cabinet only
  - 115 VAC is sent from the timer to the coil of the R6 relay.
    - The R6 relay energizes
    - R6B contacts close sending 115 VAC to the timer motor.
    - R6A contacts close sending 115 VAC through the door switch (optional) to the steam solenoid, condensate solenoid and R1 relay.
  - R1 is energized closing the R1 contacts.
    - 24 VAC is sent from the 24VAC transformer to the normally open contacts of R2.
    - 24 VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24 VAC is sent to one side of the ignition module.
    - 24 VAC is sent to the R3 relay coil
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes.
    - 24 VAC is sent through the normally closed highlimit and the now closed air prover switch to the other side of the ignition module.
  
4. With 24 VAC to both sides of the ignition module.
  - Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected, 24 VAC is sent to the main coil of the gas valve igniting the main burner on low flame.

- Steam is energized and sent to the cooking compartment.
  - When the mechanical timer times down a buzzer will sound and the timer will open removing 115 VAC from the heat circuit.
5. When the timed/manual switch is in the timed position and time is on the timer for the bottom cabinet only
- 115 VAC is sent from the timer to the coil of the R7 relay.
    - The R7 relay energizes
    - R7B contacts close sending 115 VAC to the timer motor.
    - R7A contacts close sending 115 VAC through the door switch (optional) to the steam solenoid, condensate solenoid and R2 relay.
  - R2 is energized closing the R2 contacts.
    - 24 VAC is sent from the 24VAC transformer to the normally open contacts of R1.
    - 24 VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24 VAC is sent to one side of the ignition module.
    - 24 VAC is sent to the R3 relay coil.
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes sending 24 VAC to the other side of the ignition module.
6. With 24 VAC to both sides of the ignition module.
- Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected, 24 VAC is sent to the main coil of the gas valve igniting the main burner on low flame.
  - Steam is energized and sent to the cooking compartment.
  - When the timer times down, the closed contact will open removing 115 VAC from the heat circuit.
    - 115 VAC will be sent through the now closed contacts to the 3-second timer.
    - For 3 seconds 115 VAC will be sent to the buzzer and it will buzzzzzz.
7. When the timed/manual switch is in the timed position and time is on the timer for both cabinets
- 115 VAC is sent from the timer through the door switch (optional) to both steam solenoids, both condensate solenoids and both relays.
  - Both relays are energized closing the relay contacts.
    - 24 VAC is sent from the 24VAC transformer through the R1 and R2 contacts to the high coil on the gas valve.
    - 24 VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24 VAC is sent to one side of the ignition module.

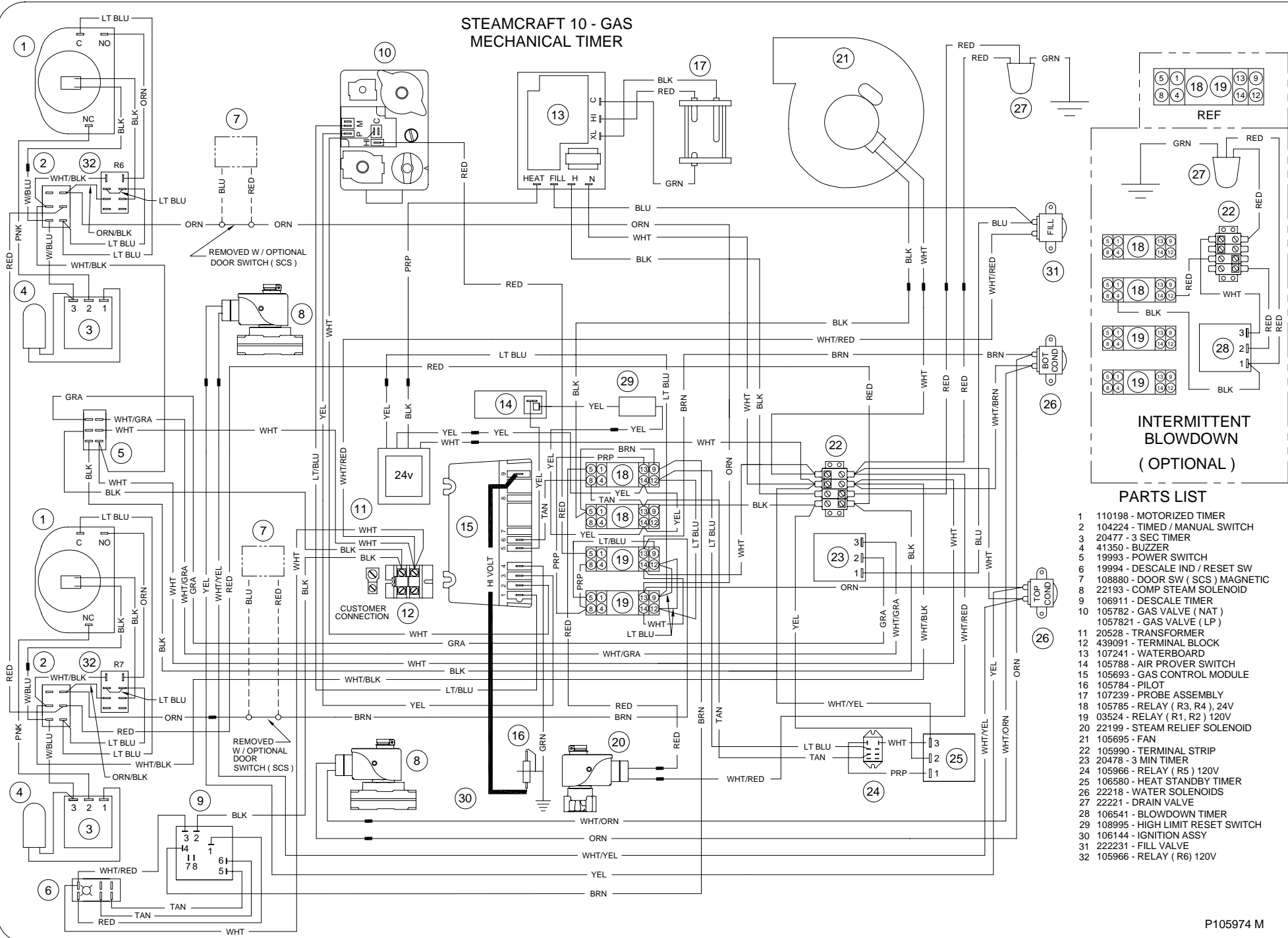
- 24 VAC is sent to the R3 relay coil.
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes sending 24 VAC to the other side of the ignition module.
8. With 24 VAC to both sides of the ignition module.
- Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected 24 VAC is sent to the main coil of the gas valve igniting the main burner on high flame (the high coil was energized in step 7).
  - Steam is energized and sent to the cooking compartments.
  - When the timers time down the buzzers will sound and each timer will open removing 115 VAC from the heat circuit.
9. When the water level reaches the high probe then 115 VAC is removed form the FILL terminal and the fill solenoid is turned off.
10. After the water level drops below the high probe for 5 seconds 115 VAC is sent to the FILL terminal again.
11. 115 VAC is turned of by depressing the red on/off rocker switch.
- 115 VAC is removed from the timer and heating circuits.
  - 115 VAC is removed from the normally open drain valve allowing the steamer to drain.
  - 115 VAC is sent to the 3-minute timer.
    - The fill solenoid is energized for 3 minutes flushing the drain.

# STEAMCRAFT 10 GAS - MECHANICAL CONTROL



L105974M

# STEAMCRAFT 10 - GAS MECHANICAL TIMER



## PARTS LIST

- 1 110198 - MOTORIZED TIMER
- 2 104224 - TIMED / MANUAL SWITCH
- 3 20477 - 3 SEC TIMER
- 4 41350 - BUZZER
- 5 19993 - POWER SWITCH
- 6 19994 - DESCALE IND / RESET SW
- 7 108880 - DOOR SW ( SCS ) MAGNETIC
- 8 22193 - COMP STEAM SOLENOID
- 9 106911 - DESCALE TIMER
- 10 105782 - GAS VALVE ( NAT )
- 10 1057821 - GAS VALVE ( LP )
- 11 20528 - TRANSFORMER
- 12 439091 - TERMINAL BLOCK
- 13 107241 - WATERBOARD
- 14 105788 - AIR PROVER SWITCH
- 15 105693 - GAS CONTROL MODULE
- 16 105784 - PILOT
- 17 107239 - PROBE ASSEMBLY
- 18 105785 - RELAY ( R3, R4 ), 24V
- 19 03524 - RELAY ( R1, R2 ) 120V
- 20 22199 - STEAM RELIEF SOLENOID
- 21 105695 - FAN
- 22 105990 - TERMINAL STRIP
- 23 20478 - 3 MIN TIMER
- 24 105966 - RELAY ( R5 ) 120V
- 25 106580 - HEAT STANDBY TIMER
- 26 22218 - WATER SOLENOIDS
- 27 22221 - DRAIN VALVE
- 28 106541 - BLOWDOWN TIMER
- 29 108995 - HIGH LIMIT RESET SWITCH
- 30 106144 - IGNITION ASSY
- 31 222231 - FILL VALVE
- 32 105966 - RELAY ( R6 ) 120V

**CLEVELAND RANGE 24CGA10**  
**SEQUENCE OF OPERATIONS**  
**Electronic Timer**

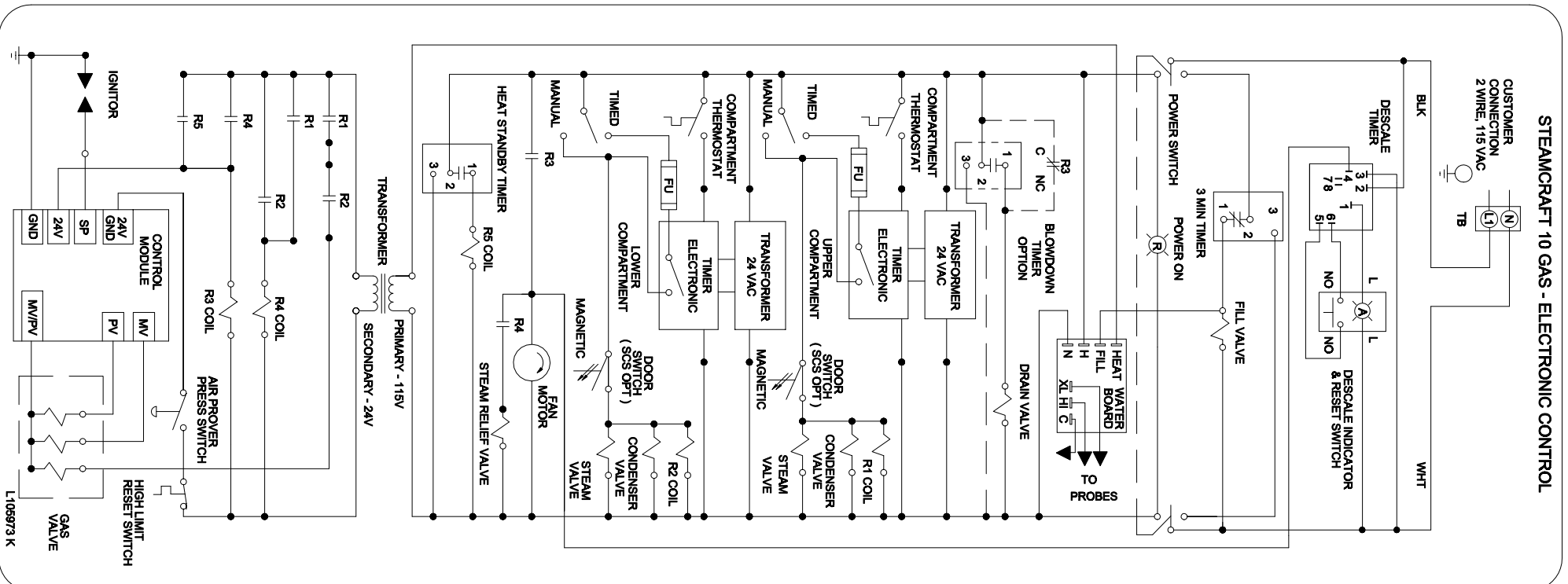
1. To turn the unit on, depress the red on/off rocker switch.
  - 115 VAC is sent to the red indicator light.
  - 115 VAC is sent to normally open drain valve closing it.
  - 115 VAC is sent to H and N of the water level board
  - 115 VAC is sent to the 24VAC transformer for the electronic timer.
  - 115 VAC is sent to the normally open compartment thermostat switch.
  - 115 VAC is sent to the timed/manual switch.
  
2. With the water level board energized and no water in the generator
  - After a 5 second delay 115 VAC is sent from the FILL terminal to the fill solenoid.
  - The fill solenoid opens and the generator fills through the drain valve.
  - The water fills to the low probe shorting it to ground
  - 115 VAC is sent from the HEAT terminal to the 24 VAC heat transformer.
  - 115 VAC is sent to the heat standby timer which will energize 20 seconds every 6 minutes to maintain heat while unit is idle
  
3. When the timed/manual switch is in the timed position and time is on the timer for the top cabinet only
  - 115 VAC is sent from the timer through the door switch (optional) to the steam solenoid, condensate solenoid and R1 relay.
  - R1 is energized closing the R1 contacts.
    - 24VAC is sent from the 24VAC transformer to the normally open contacts of R2.
    - 24VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24VAC is sent to one side of the ignition module.
    - 24VAC is sent to the R3 relay coil
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes.
    - 24VAC is sent through the normally closed highlimit and the now closed air prover switch to the other side of the ignition module.
  
4. With 115 VAC to both sides of the ignition module.
  - Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected, 24VAC is sent to the main coil of the gas valve igniting the main burner on low flame.
  - Steam is energized and sent to the cooking compartment.



- When the cooking compartment reaches 193 degrees the compartment thermostat closes sending 115 VAC to the timer.
  - The timer will then begin counting down.
  - When the electronic timer times down a buzzer will sound and the timer will open removing 115 VAC from the heat circuit.
5. When the timed/manual switch is in the timed position and time is on the timer for the bottom cabinet only
- 115 VAC is sent from the timer through the door switch (optional) to the steam solenoid, condensate solenoid and R2 relay.
  - R2 is energized closing the R2 contacts.
    - 24VAC is sent from the 24VAC transformer to the normally open contacts of R1.
    - 24VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24VAC is sent to one side of the ignition module.
    - 24VAC is sent to the R3 relay coil.
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes sending 24VAC to the other side of the ignition module.
6. With 24VAC to both sides of the ignition module.
- Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected, 24VAC is sent to the main coil of the gas valve igniting the main burner on low flame.
  - Steam is energized and sent to the cooking compartment.
  - When the cooking compartment reaches 193 degrees the compartment thermostat closes sending 115 VAC to the timer.
  - The electronic timer will stop flashing “PAUS” and then begin counting down.
  - When the timer times down a buzzer will sound and the timer will open removing 115 VAC from the heat circuit.
7. When the timed/manual switch is in the timed position and time is on the timer for both cabinets
- 115 VAC is sent from the timer through the door switch (optional) to both steam solenoids, both condensate solenoids and both relays.
  - Both relays are energized closing the relay contacts.
    - 24VAC is sent from the 24VAC transformer through the R1 and R2 contacts to the high coil on the gas valve.
    - 24VAC is sent from the 24VAC transformer to the R4 coil.
  - R4 is energized and the R4 contacts are closed.
    - 24VAC is sent to one side of the ignition module.

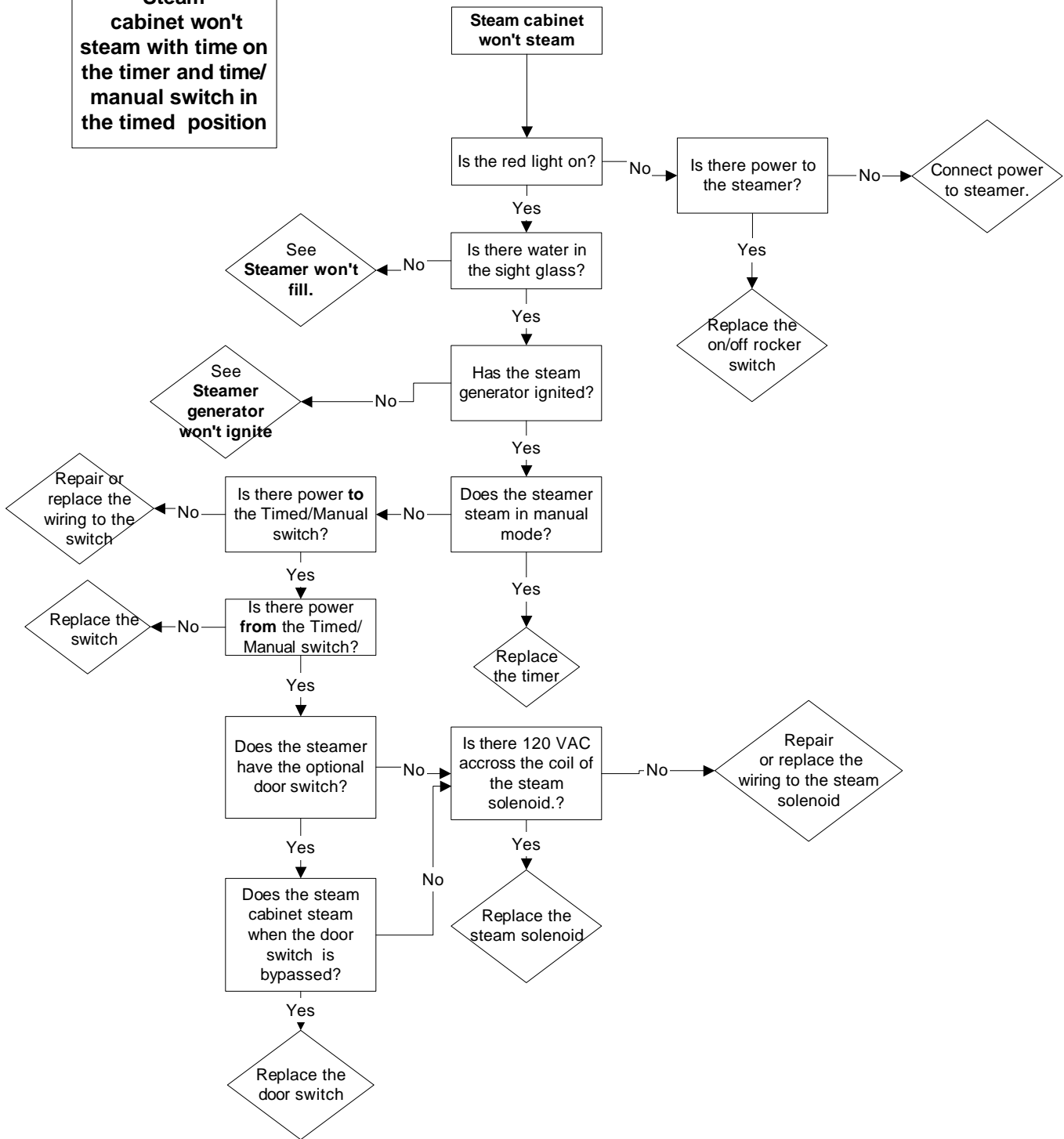
- 24VAC is sent to the R3 relay coil.
  - R3 is energized and the R3 contacts are closed.
    - 115 VAC is sent through the now closed R4 contacts to the normally open steam relief valve closing it.
    - 115 VAC is sent to the fan motor.
    - The fan motor is energized and the air prover switch closes sending 24VAC to the other side of the ignition module.
8. With 24VAC to both sides of the ignition module.
- Spark is sent to the igniter.
  - 24VAC is sent to the pilot coil on the gas valve and gas is sent to the pilot.
  - When flame is generated and 1.0 micro amps DC is detected 24VAC is sent to the main coil of the gas valve igniting the main burner on high flame (the high coil was energized in step 7).
  - Steam is energized and sent to the cooking compartments.
  - When the cooking compartments reach 193 degrees the compartment thermostats close sending 115 VAC to the timers.
  - The timers will then begin counting down.
  - When the timers time down a buzzer will sound and the timer will open removing 115 VAC from the heat circuit.
9. When the water level reaches the high probe then 115 VAC is removed from the FILL terminal and the fill solenoid is turned off.
10. After the water level drops below the high probe for 5 seconds 115 VAC is sent to the FILL terminal again.
11. 115 VAC is turned off by depressing the red on/off rocker switch.
- 115 VAC is removed from the timer and heating circuits.
  - 115 VAC is removed from the normally open drain valve allowing the steamer to drain.
  - 115 VAC is sent to the 3-minute timer.
    - The fill solenoid is energized for 3 minutes flushing the drain.

# STEAMCRAFT 10 GAS - ELECTRONIC CONTROL

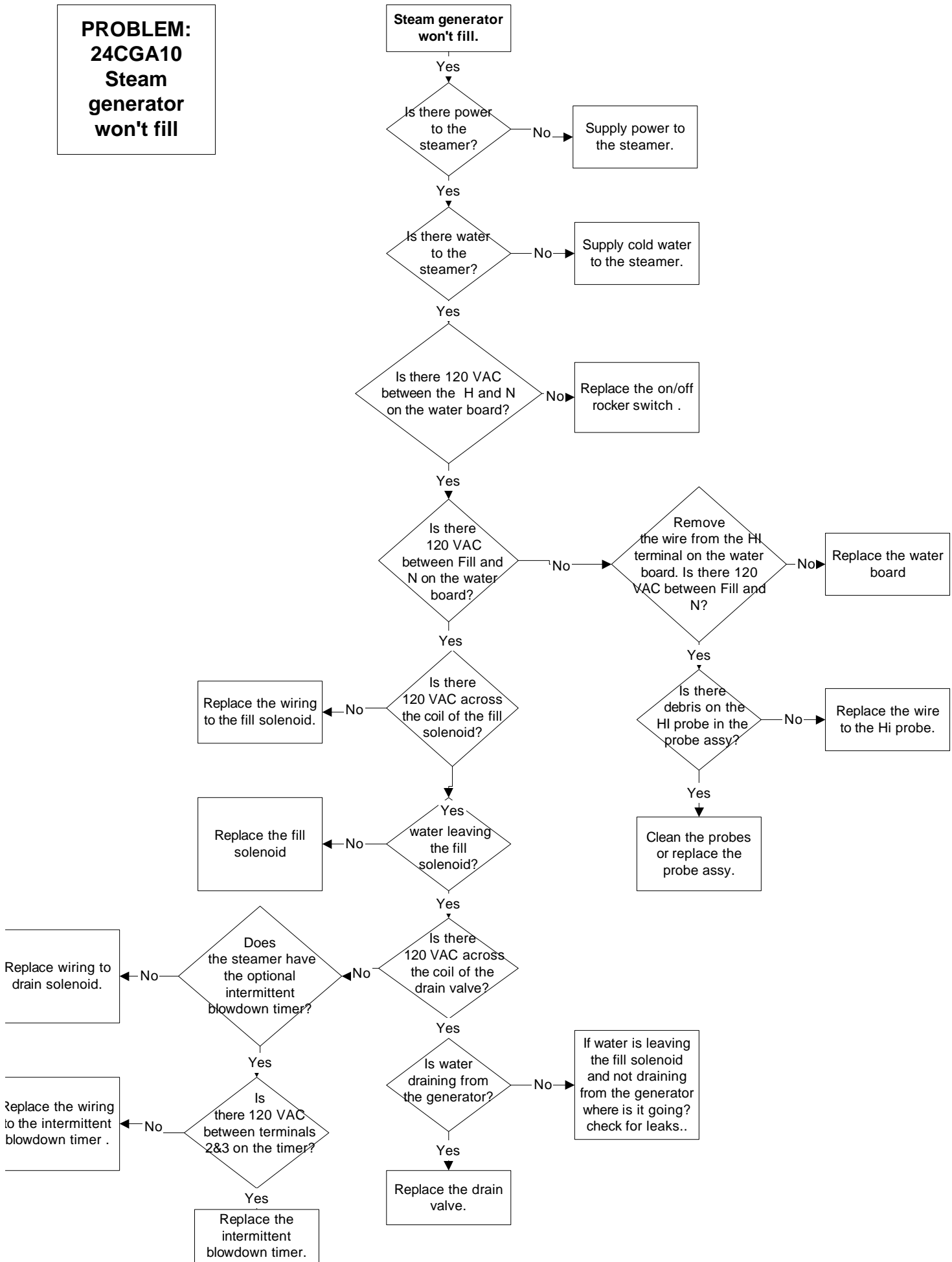




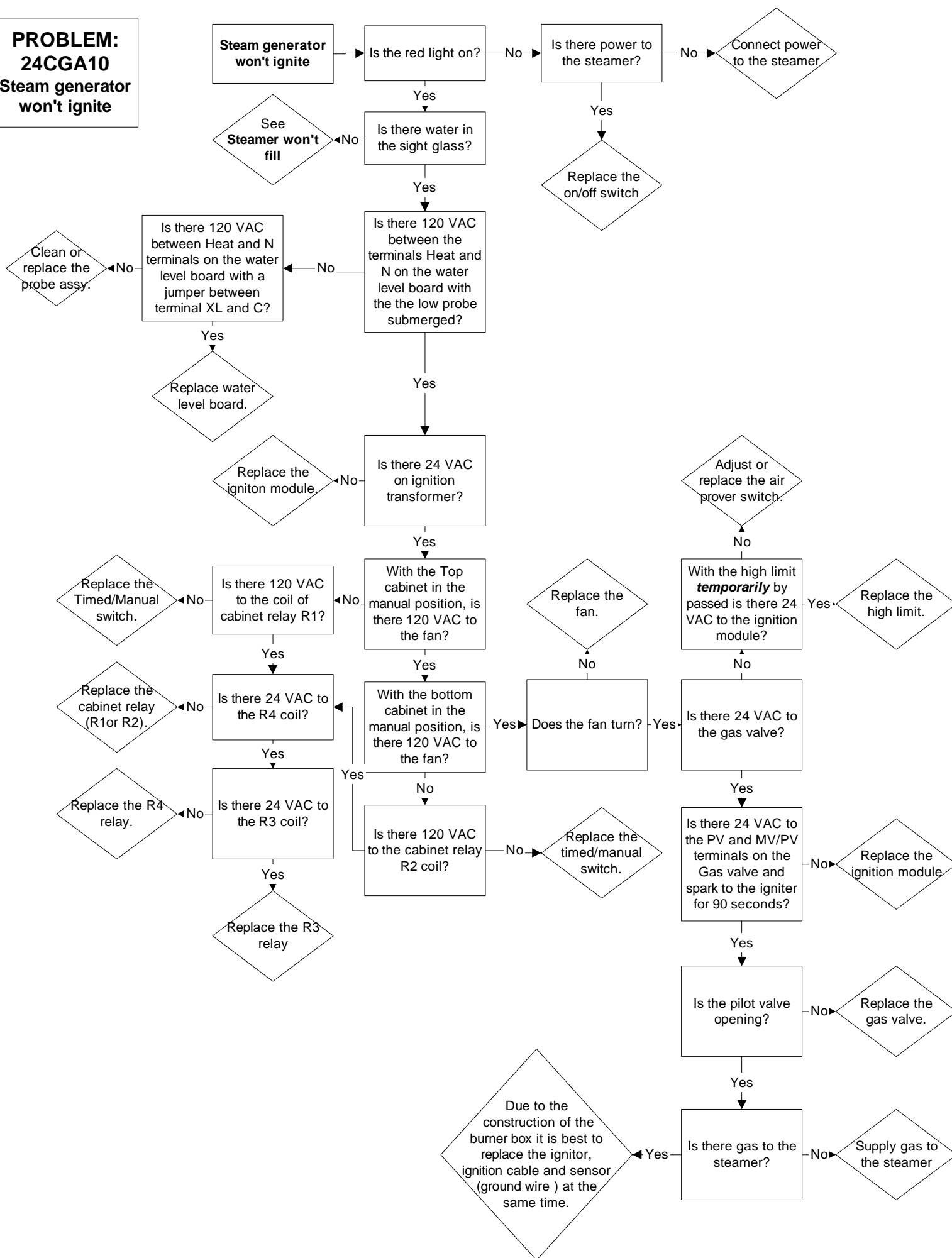
**PROBLEM:**  
**24CGA10**  
**Steam**  
**cabinet won't**  
**steam with time on**  
**the timer and time/**  
**manual switch in**  
**the timed position**



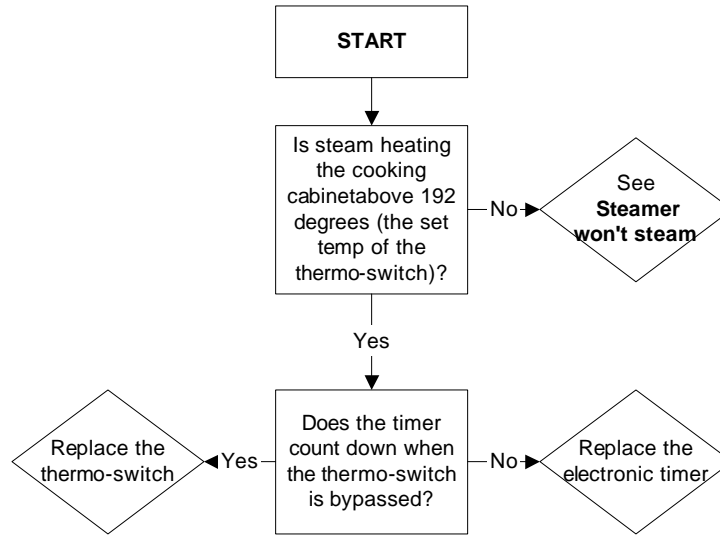
**PROBLEM:  
24CGA10  
Steam  
generator  
won't fill**



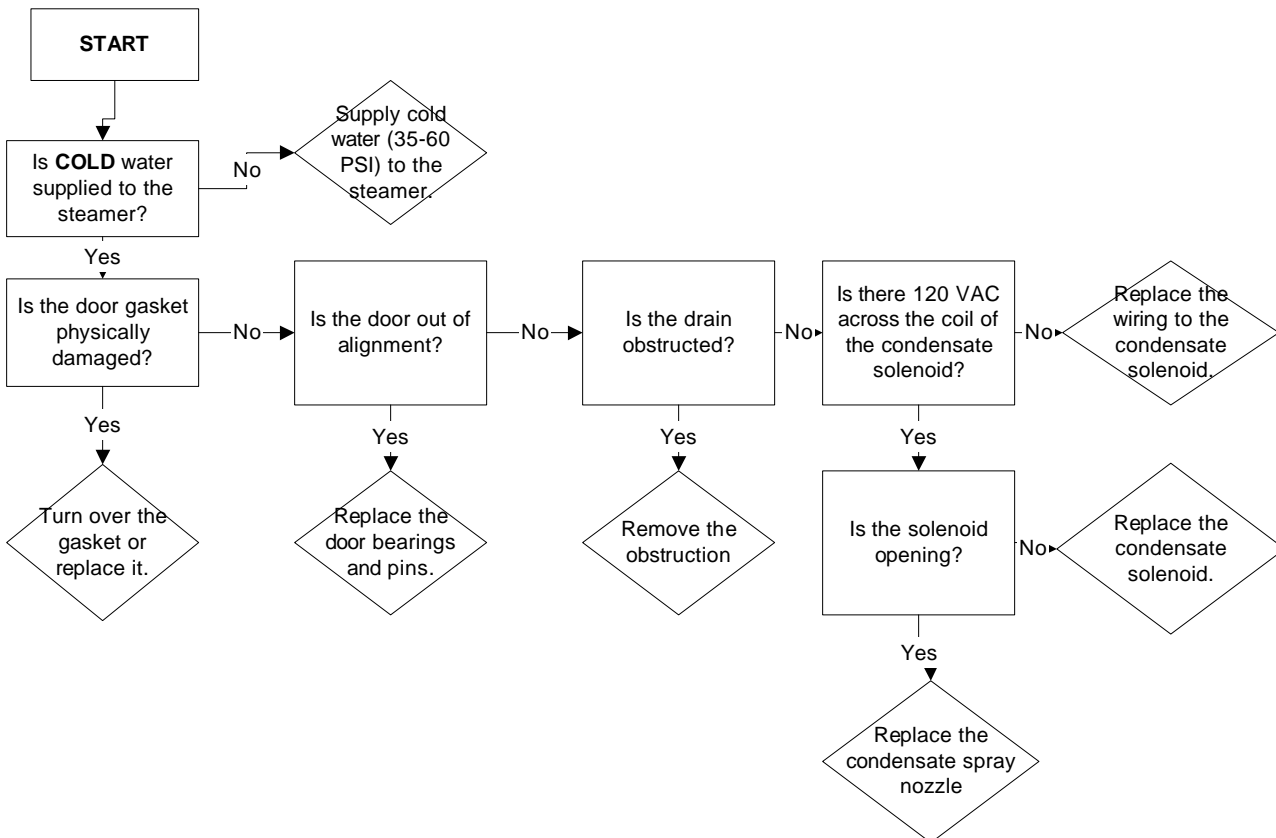
**PROBLEM:  
24CGA10  
Steam generator  
won't ignite**



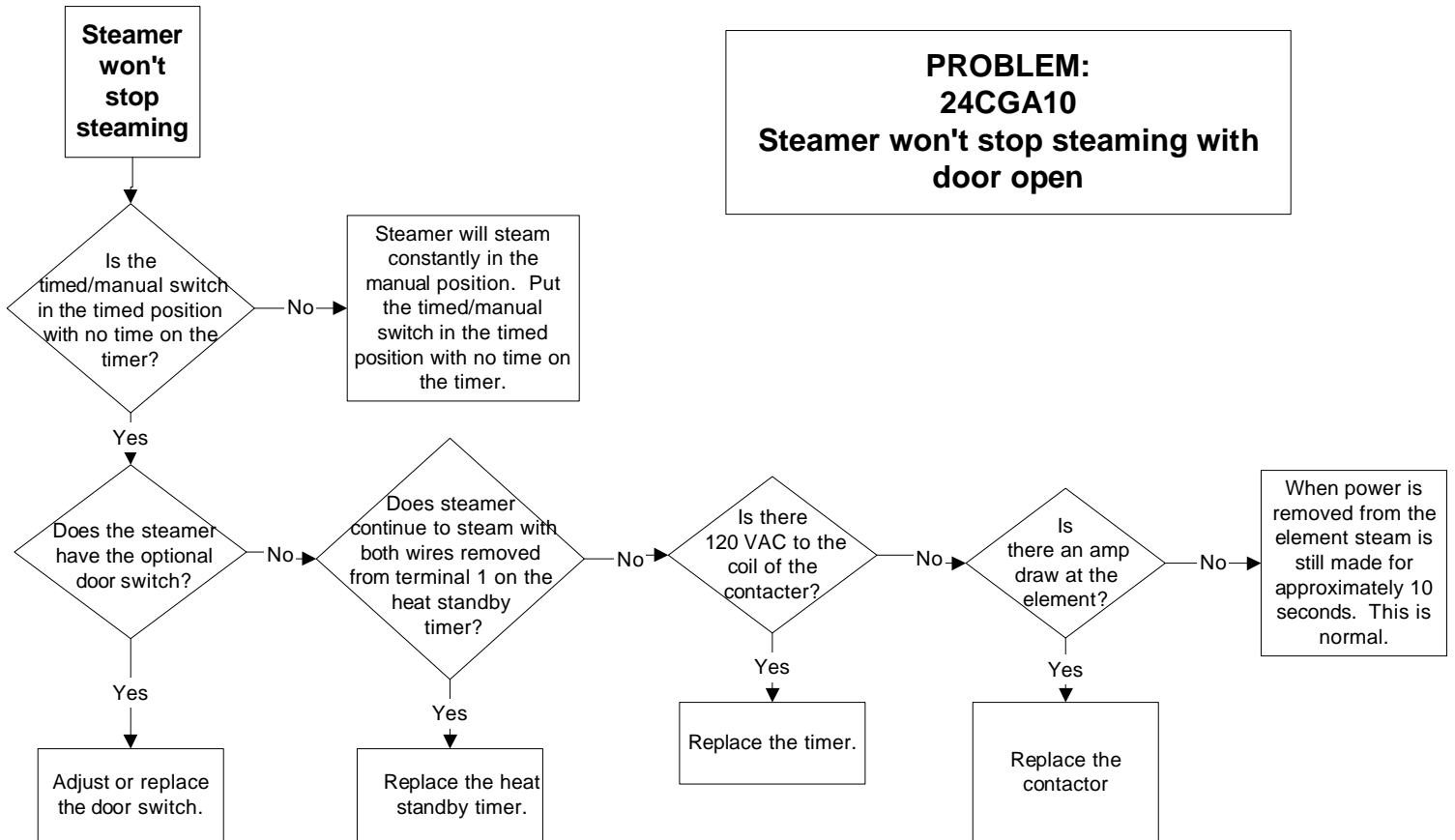
**PROBLEM:  
24CGA10  
Electronic timer displays "PAUS" and won't count down**



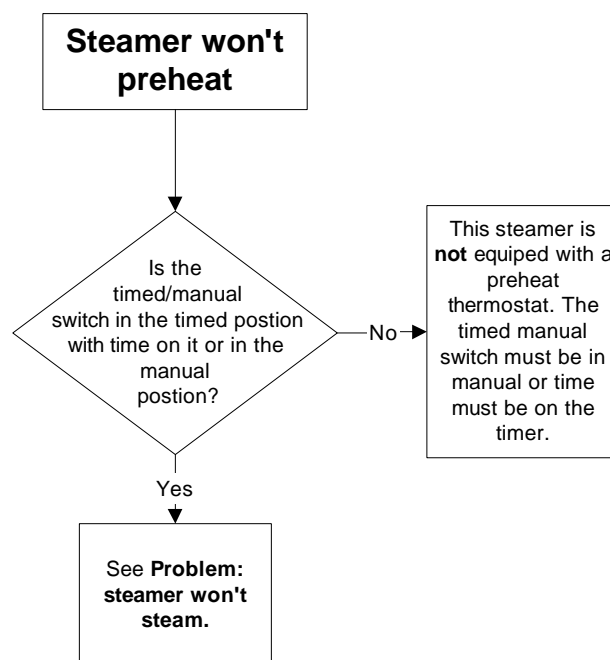
**PROBLEM:  
24CGA10  
Steam leaks around the door.**



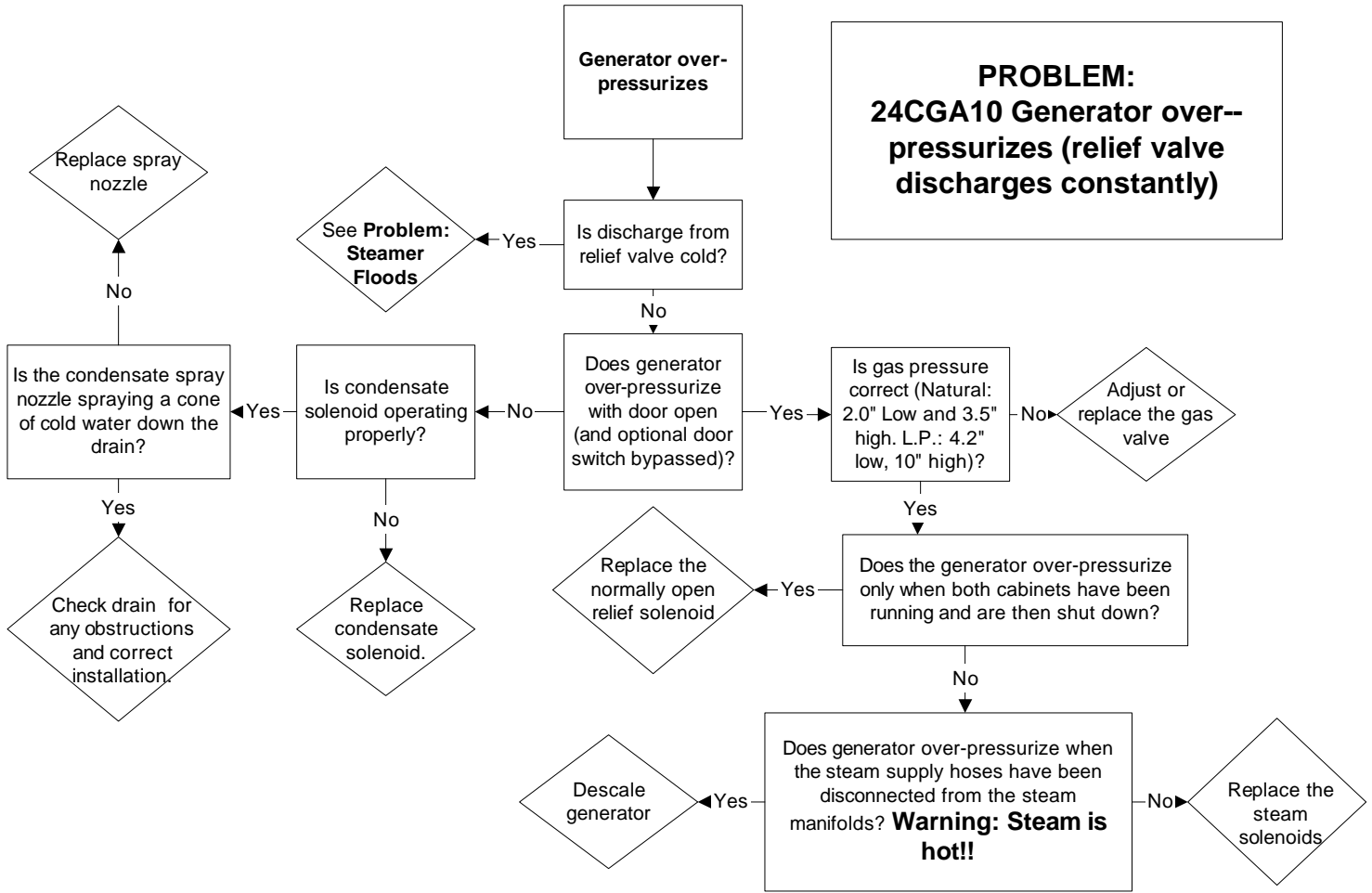




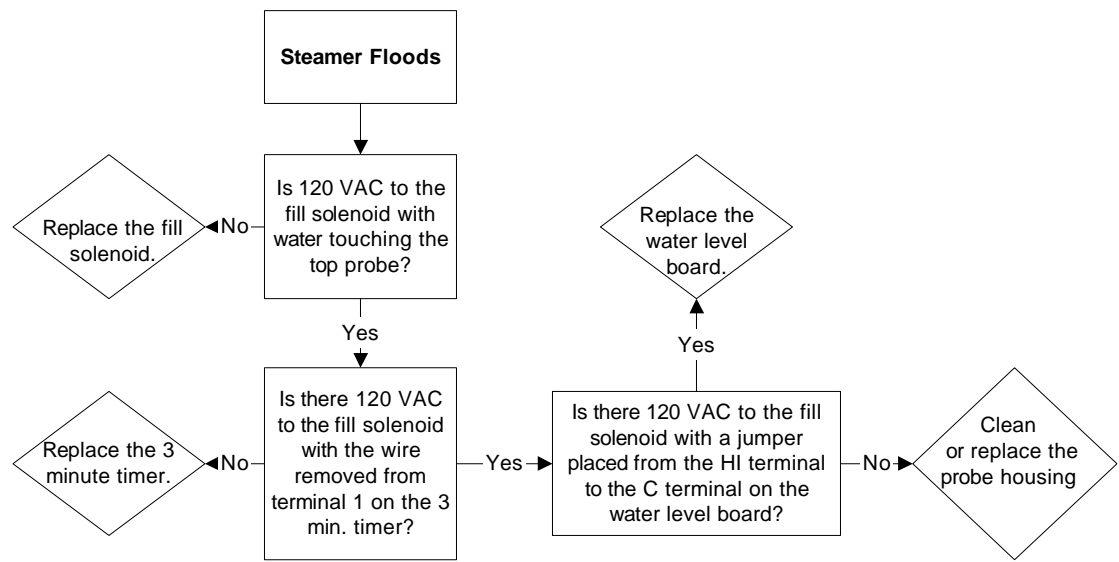
**Problem: 24CGA10 Steamer won't preheat**



**PROBLEM:  
24CGA10 Generator over-  
pressurizes (relief valve  
discharges constantly)**



**Problem: 24CGA10 Steamer Floods (Water is entering cabinet through the steam nozzles)**





# Cleveland

## Descaling Procedure-SteamCraft Ultra and Gemini Series

### How Much DISSOLVE to Use

Model	Dissolve
Ultra 3	1/2 Gallon
Ultra 5	1 Gallon
Ultra 10 (Elec.)	1 Gallon (ea.)
Ultra 10 (Gas)	1½ Gallon
Gemini 6 & 10	1 Gallon (ea.)

#### 1. Turn the unit OFF and open the doors:

This will drain and rinse the generator for about 3 minutes.

#### 2. Turn the unit power back On:

The generator will begin to refill with water.

#### 3. Select Timed with the Timed/Manual switch:

DO NOT start the timer, since you do not want to heat the water during descaling. Leave the doors open.

#### 4. Remove descaling port cap and add with the specified amount of DISSOLVE: (See chart above)

Do this while the unit is refilling. The generators can take-up to 8 minutes to refill.

#### 5. After refill has stopped, add extra tap water into the descaling port until liquid is seen entering the cooking cabinet. Note: Ultra 10 gas will have liquid coming out of the drain,

Adding extra water when descaling will raise the descaling solution higher than the normal fill level, allowing the DISSOLVE to work on sensors and surfaces above the water line

Note: Some SteamCraft Ultra models (the electric powered Ultra 10 and Gemini 6 and 10, for example) have two generators and two descaling ports. Both units should be descaled at the same time, using this procedure

#### 6. Let the descaler soak in generator for approximately one hour:

#### 7. After one hour, turn the unit power Off: This will drain and rinse the generator for about 3 minutes.



#### 8. After the 3-minute drain cycle completes, turn the unit back ON. After the filling has stopped, add water until liquid enters the cooking compartment (or drain for the ultra 10 gas), and then turn the unit OFF. This will drain and flush any residue from the water level control assembly. Replace descaling cap.

#### 9. After the 3 minute drain cycle completes, Turn the unit ON and set the Timer for 20 minutes: Make sure the Time/Manual switch is in the timed setting and the doors are closed.

#### 10. When the timer times out (after 20 minutes) turn the power Off:

This will drain and rinse the generator for about 3 minutes.

This ends the descaling procedure. You can now turn the unit back on and resume normal startup and cooking operations.