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

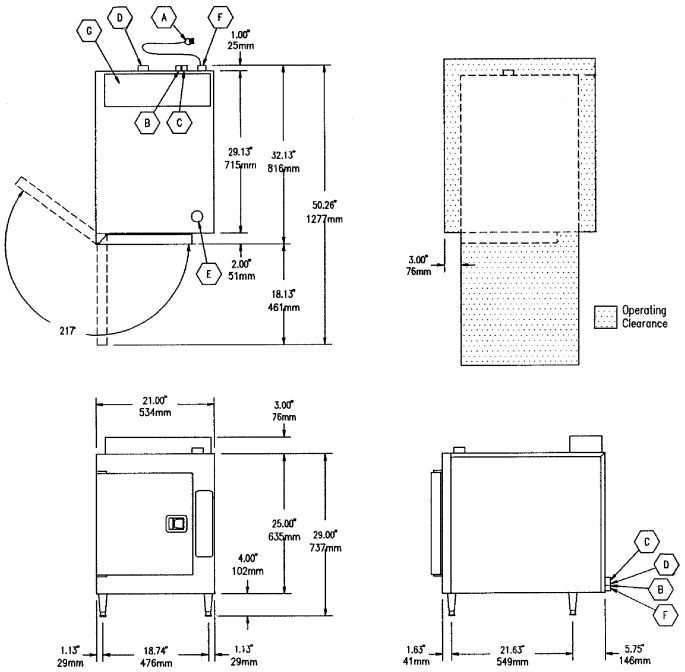
SteamCraft® Ultra 5

COUNTER TYPE PRESSURELESS
CONVECTION STEAMER
GAS Steam Generator, 75,000 BTU

MODEL: ☐ 21-CGA-5

ITEM NUMBER _____

JOB NAME / NUMBER _____



Shown with optional Electronic Timer

SHORT FORM SPECIFICATION

Shall be CLEVELAND, **SteamCraft® Ultra 5**, *one compartment, Counter-Type Steamer, Model 21-CGA-5, 75 M BTU, heavy duty all Stainless Steel construction; rear mounted, insulated Steam Generator with Remote Probe Type Water Level Controls and Automatic Steam Generator Blowdown with "Water Jet" Drain Cleaning feature.*

TOTAL CAPACITY

5 — 12″ x 20″ x 2½″ Cafeteria Pans or
10 — 12″ x 20″ x 1″ Cafeteria Pans or
3 — 12″ x 20″ x 4″ Cafeteria Pans

UTILITY CONNECTIONS

- (A) Electrical Supply
- (B) Cold Water Supply for Condenser 1/4″ Dia. IPS
- (C) Cold Water Supply for Generator and Water Injection. 1/4″ Dia. IPS (for water treatment conn.) Inlet for Generator Deliming Solution
- (D) Drain: 1-1/4" (32mm) Dia. IPS
- (E) Inlet for Generator Deliming Solution
- (F) Gas Supply 1/2" (13mm) Dia. IPS
- (G) Flue Gas Exhaust from Boiler

WATER QUALITY REQUIREMENTS

The quality of water varies greatly from region to region. Steam equipment generators must be drained 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 these acceptable limits. Total Dissolved Solids less than 60 ppm, Alkalinity less than 20 ppm, Silica less than 13 ppm, pH factor greater than 7.5, Chlorine less than 30 ppm.

GAS (A)	ELECTRIC	COLD WATER (C)	DRAINAGE (D)
1/2″ (13mm) Dia. IPS **SUPPLY PRESSURE** NATURAL: 4.00″ W.C. minimum, 14.00″ W.C. maximum PROPANE: 12.00″ W.C. minimum, 14.00″ W.C. maximum Manufacturer must be notified if unit will be used above 2,000 ft. altitude.	115V - 1 Phase 35 Watts	35 psi minimum 60 psi maximum (C) ¼″ Dia. IPS for Generator (for water treatment connection) (C) ¼″ Dia. IPS for Condenser	1¼″ Dia. IPS Do not connect any other units to this drain. Drain line must be vented. No PVC pipe for drain.

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

Cleveland Range, LLC
Ph: 1-216-481-4900 Fx: 1-216-481-3782
1333 East 179th St., Cleveland, Ohio, U.S.A. 44110
Visit our Web Site at **www.clevelandrange.com**

CLEVELAND RANGE 21CGA5
SEQUENCE OF OPERATIONS
STEAMCRAFT ULTRA 5
Mechanical Timer

1. To turn the unit on, depress the red on/off rocker switch.

2. 115 VAC is sent to the red indicator light.

3. 115 VAC is sent to the normally open drain valve closing it.

4. 115 VAC is sent through the normally closed water level (top) float switch to the coil of the R1 relay
   - The R1 relay energizes
   - The R1 contacts close 115 VAC is sent to the fill solenoid
5. The fill solenoid opens and the generator fills through the drain valve.
   - The water fills to the normally open low water cut off float switch (bottom float).
     - The float is lifted by the water and the switch closes.
   - The water fills to the normally closed water level (top) float switch.
     - The float is lifted by the water and the switch opens.
     - With the switch opened 115 VAC is removed from the coil of the R1 relay.
       - The R1 relay deenergizes and 115 VAC is removed from the fill solenoid and the unit stops filling
     - When the water level drops, the operational water float drops closing the switch and energizing the R1 relay
       - The R1 contacts close 115 VAC is sent to the fill solenoid. The unit fills back to the proper level.

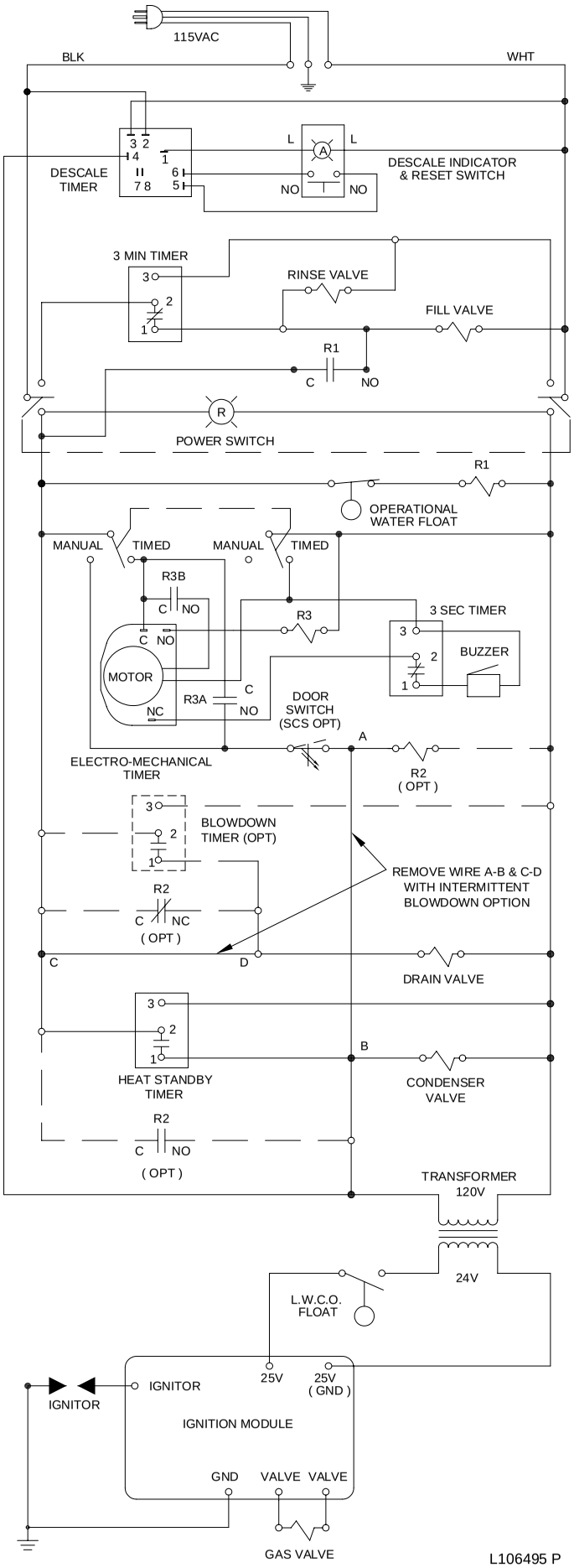
6. When the timed/manual switch is in the timed position and time is on the timer
   - 115 VAC is sent from the timer to the R3 relay coil.
     - The R3 relay energizes
     - The R3B contacts close sending 115 VAC to the timer motor
     - The R3A contacts close sending 115 VAC through the optional door switch to the condensate valve and the primary of the 24 VAC ignition transformer.
   - 115 VAC is sent to the #4 terminal on the clean light timer.
     - The clean light timer counts down from the set time (time is set by dip switches on timer)
     - 115 VAC is sent to the amber light in the clean light switch.
     - The light is turned off and the clean light timer is reset by depressing the clean light timer switch.
   - With the sight glass filled the L.W.C.O. float will be raised and the normally open switch is closed.
   - 24 VAC is supplied from the secondary of the transformer through the L.W.C.O. float switch to the ignition module.

- Spark is sent to the igniter.
- 24 VAC is sent to the gas valve.
  - The gas valve opens to the first stage (.7” W.C. natural gas and 2.25” LP) allowing gas to the burner.
  - 6 to 8 seconds later the valve opens to the second stage (3.5” W.C. natural gas and 10” W.C. LP)
- When the gas is ignited the ignition module detects at least 1.5 micro-amps DC through the flame and burner ground wire.
  - If the 1.5 micro-amps DC is not detected in 4 seconds the ignition module locks out and has to be reset by removing 24 VAC to the module. This can be done by turning the steamer on and off.

7. With water in the generator and flame heating it, steam is made and directed into the cooking chamber.

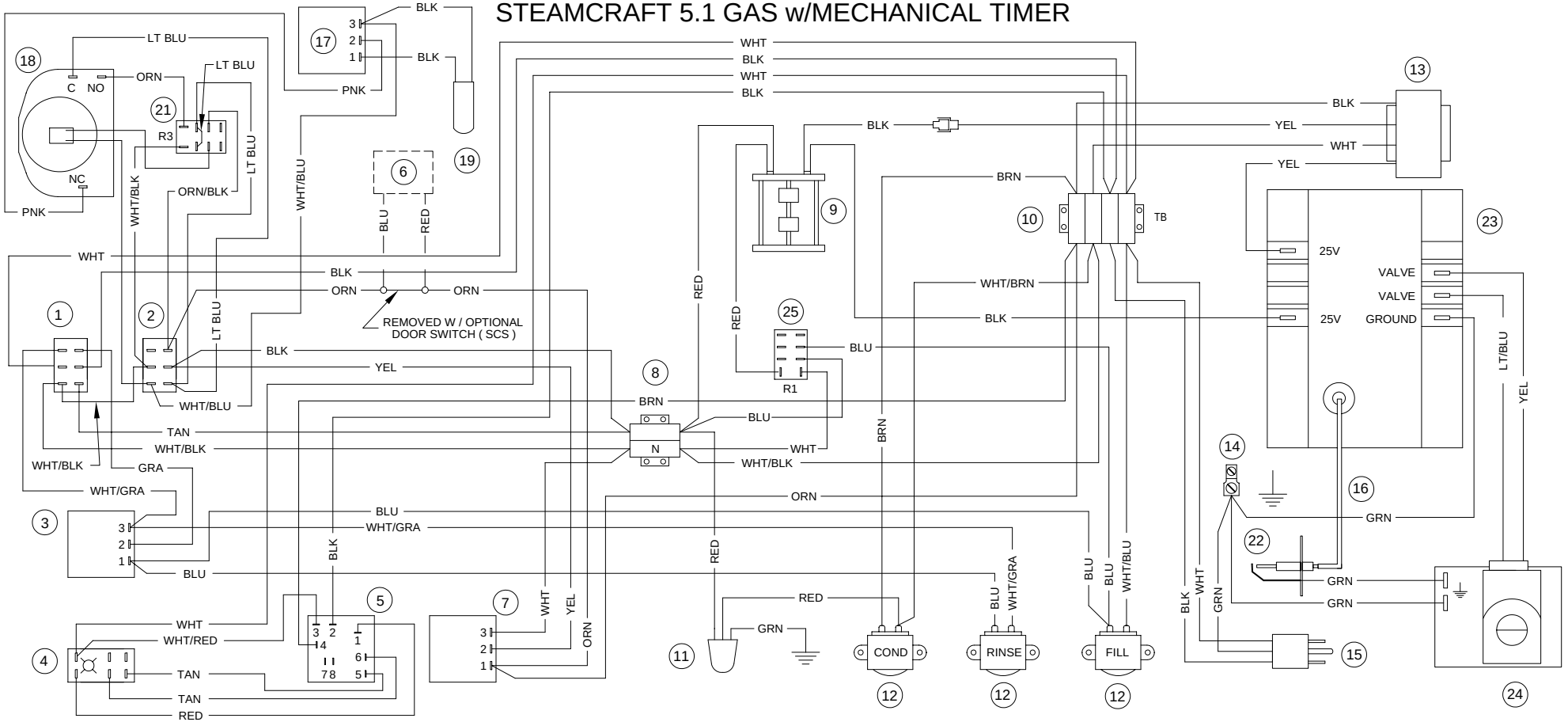
8. The steamer will continue to steam until the timer runs down.
   - When the timer times down 115 VAC is removed from the R3 relay.
     - The R3 relay de energizes.
     - The R3B contacts open removing 115 VAC from the timer motor
     - The R3A contacts open removing 115 VAC from the heat circuit
   - 115 VAC is sent to the 3 second timer
     - 115 VAC sent to the buzzer for three seconds.
9. The steamer is turned off by depressing the on/off rocker switch.
   - 115 VAC is removed from the heat and timer circuits.
   - 115 VAC is removed from the drain valve.
   - 115 VAC is sent to the 3-minute timer and water is sent in to the now open drain valve flushing and cooling the drain.

STEAMCRAFT 5.1 GAS, MECHANICAL TIMER

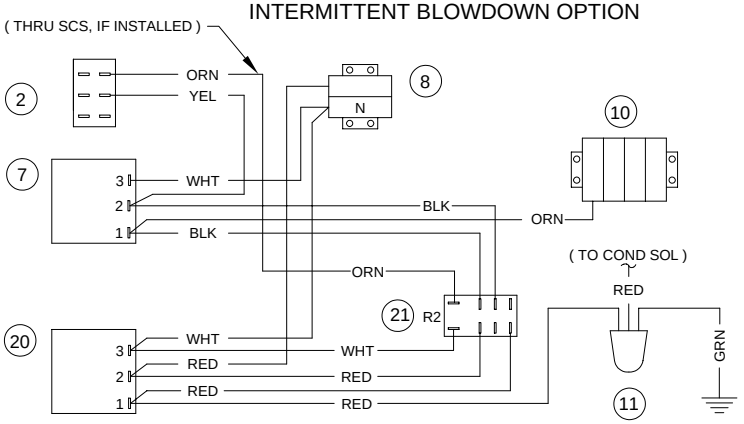


L106495 P

STEAMCRAFT 5.1 GAS w/MECHANICAL TIMER



INTERMITTENT BLOWDOWN OPTION



PARTS LIST

1 19993 - POWER SWITCH
2 104224 - TIMED/MANUAL SWITCH
3 20478 - 3 MIN TIMER
4 19994 - DESCALE INDICATOR RESET SW.
5 106911 - DESCALE TIMER
6 108880 - DOOR SW (SCS) MAGNETIC
7 106580 - HEAT STANDBY TIMER
8 44168 - TERMINAL BLOCK
9 103726 - FLOAT ASSEMBLY
10 44164 - TERMINAL BLOCK
11 22221 - DRAIN VALVE
12 22218 - WATER SOLENOIDS
13 20528 - TRANSFORMER 24V
14 20304 - GROUND LUG
15 106461 - LINE CORD
16 1065681150 - IGNITION CABLE
17 20477 - 3 SEC TIMER
18 110198 - MOTORIZED TIMER
19 41350 - BUZZER
20 106541 - INTMT BLOWDOWN TIMER
21 105966 - RELAY
22 300092 - IGNITOR
23 03546 - IGNITION MODULE
24 106400 - GAS VALVE (NAT)
1064001 - GAS VALVE (LP)
25 105966 - RELAY

P106495 P

CLEVELAND RANGE 21CGA5
SEQUENCE OF OPERATIONS
Electronic Timer
Floats

1. To turn the unit on, depress the red on/off rocker switch.

2. 115 VAC is sent to the red indicator light.

3. 115 VAC is sent to the 24 VAC timer transformer.
   - 24 VAC is sent to the timer.

4. 115 VAC is sent to normally open drain valve closing it.

5. 115 VAC is sent through the normally closed operational water float switch (top float, red wires) to the fill solenoid.

6. The fill solenoid opens and the generator fills through the drain valve.
   - The water fills to the normally open low water cut off float switch (bottom float black wires).
     - The water lifts the float and the switch closes.
   - The water fills to the normally closed operational water float switch.
     - The water lifts the float and the switch opens.
     - With the switch opened 115 VAC is removed from the fill solenoid and the unit stops filling.
     - When the water level drops, the operational water float drops closing the switch and energizing the fill solenoid. The unit fills back to the proper level.

7. When the timed/manual switch is in the timed position and time is on the timer
   - The timer display will alternate between "PAUS" and the set time. This will continue until the cooking cabinet reaches 193 degrees and the thermal switch closes. Then the timer will begin timing down.
   - 115 VAC is sent from the timer through the optional door switch to the condensate valve and the primary of the 24 VAC ignition transformer.
   - 115 VAC is sent to the #4 terminal on the clean light timer.
     - The clean light timer counts down from the set time (time is set by dip switches on timer)
     - 115 VAC is sent to the amber light in the clean light switch.
     - The light is turned off and timer reset by depressing the clean light timer switch.
   - With the sight glass filled the L.W.C.O. float will be raised and the normally open switch is closed.
   - 24 VAC is supplied from the secondary of the transformer through the L.W.C.O. float switch to the ignition module.
     - Spark is sent to the igniter.
     - 24 VAC is sent to the gas valve.

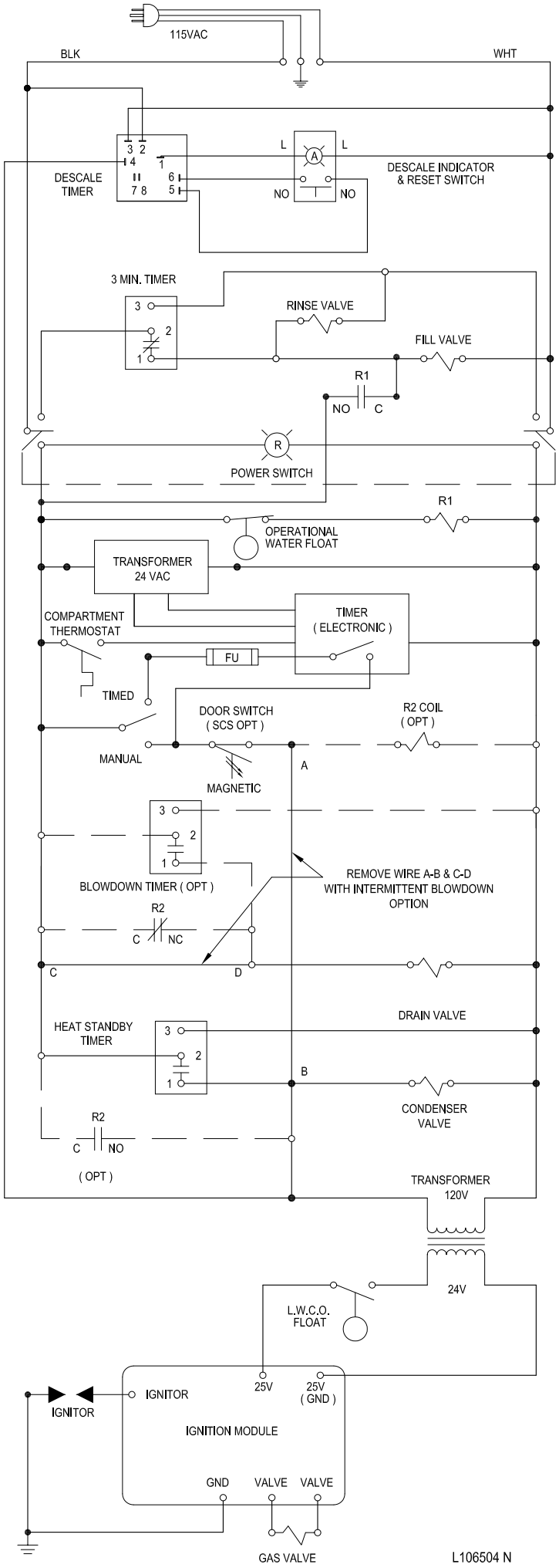
    - The gas valve opens to the first stage (.7" W.C. natural gas and 2.25" LP) allowing gas to the burner.
    - 6 to 8 seconds later the valve opens to the second stage (3.5" W.C. natural gas and 10" W.C. LP)
  - When the gas is ignited the ignition module detects at least 1.5 micro-amps DC through the flame and burner ground wire.
    - If the 1.5 micro-amps DC is not detected in 4 seconds the ignition module locks out and has to be reset by removing 115 VAC to the module.

8. With water in the generator and flame heating it steam is made and directed into the cooking chamber.

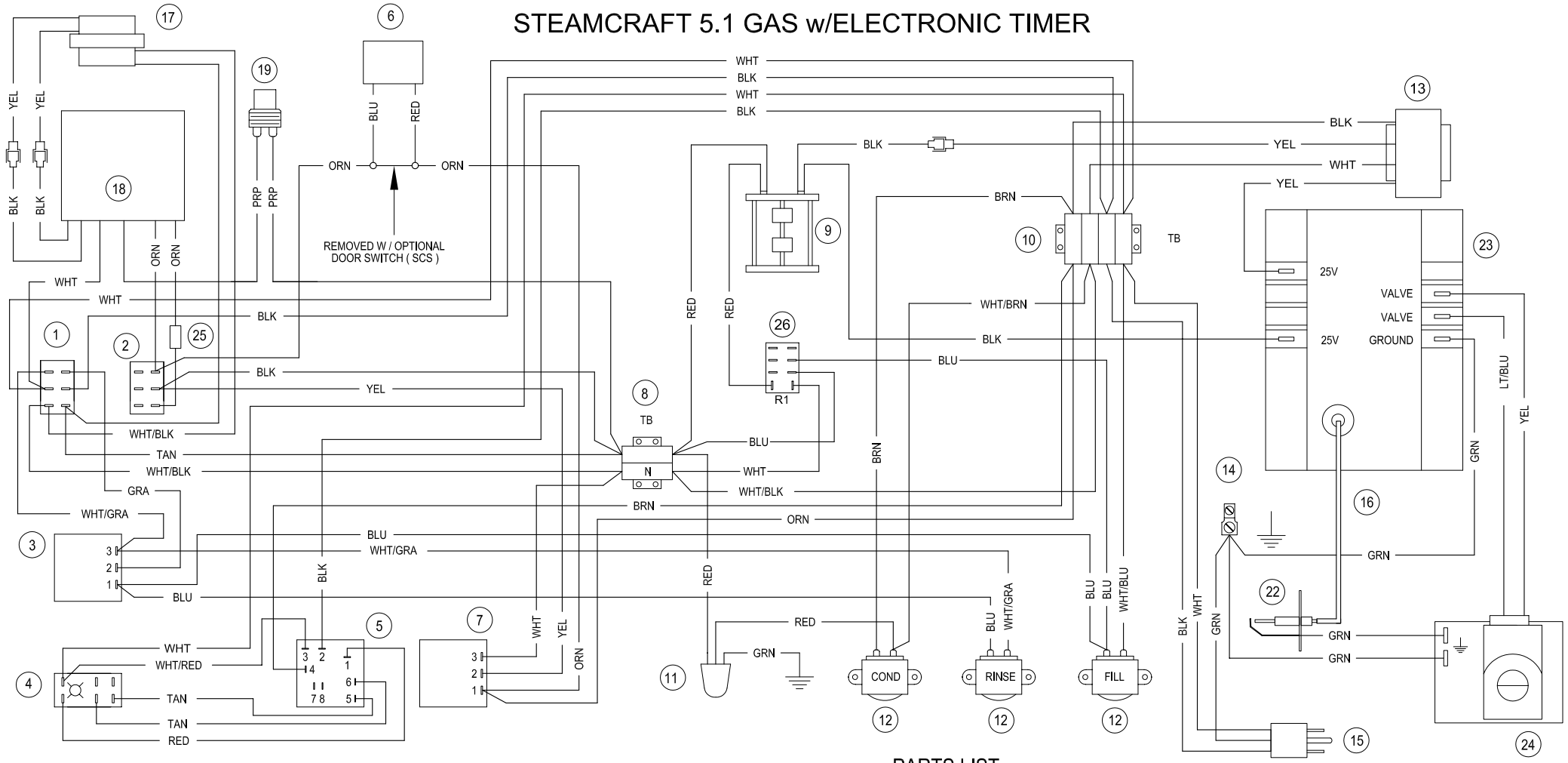
9. The steamer will continue to produce steam until the timer counts down.
   - When the timer times down 115 VAC is removed from the heat circuit and condensate circuit.

10. The steamer is turned off by depressing the on/off rocker switch.
    - 115 VAC is removed from the heat and timer circuits.
    - 115 VAC is removed from the drain valve.
    - 115 VAC is sent to the 3-minute timer and water is sent in to the now open drain valve flushing and cooling the drain.

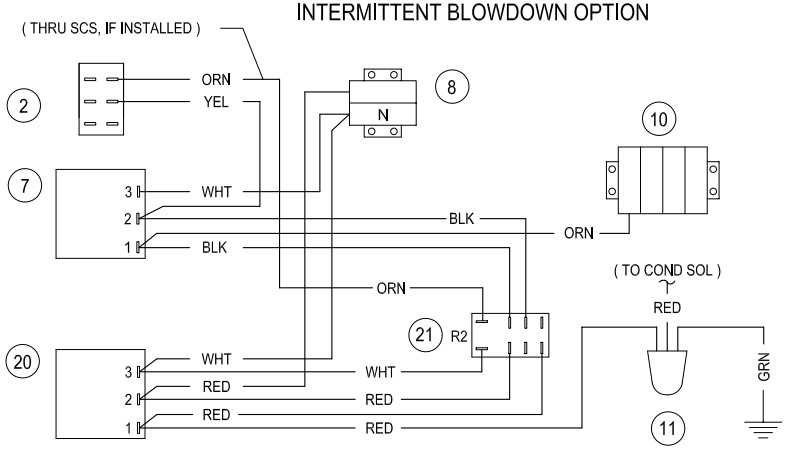
STEAMCRAFT 5.1 GAS, ELECTRONIC TIMER



STEAMCRAFT 5.1 GAS w/ELECTRONIC TIMER



INTERMITTENT BLOWDOWN OPTION

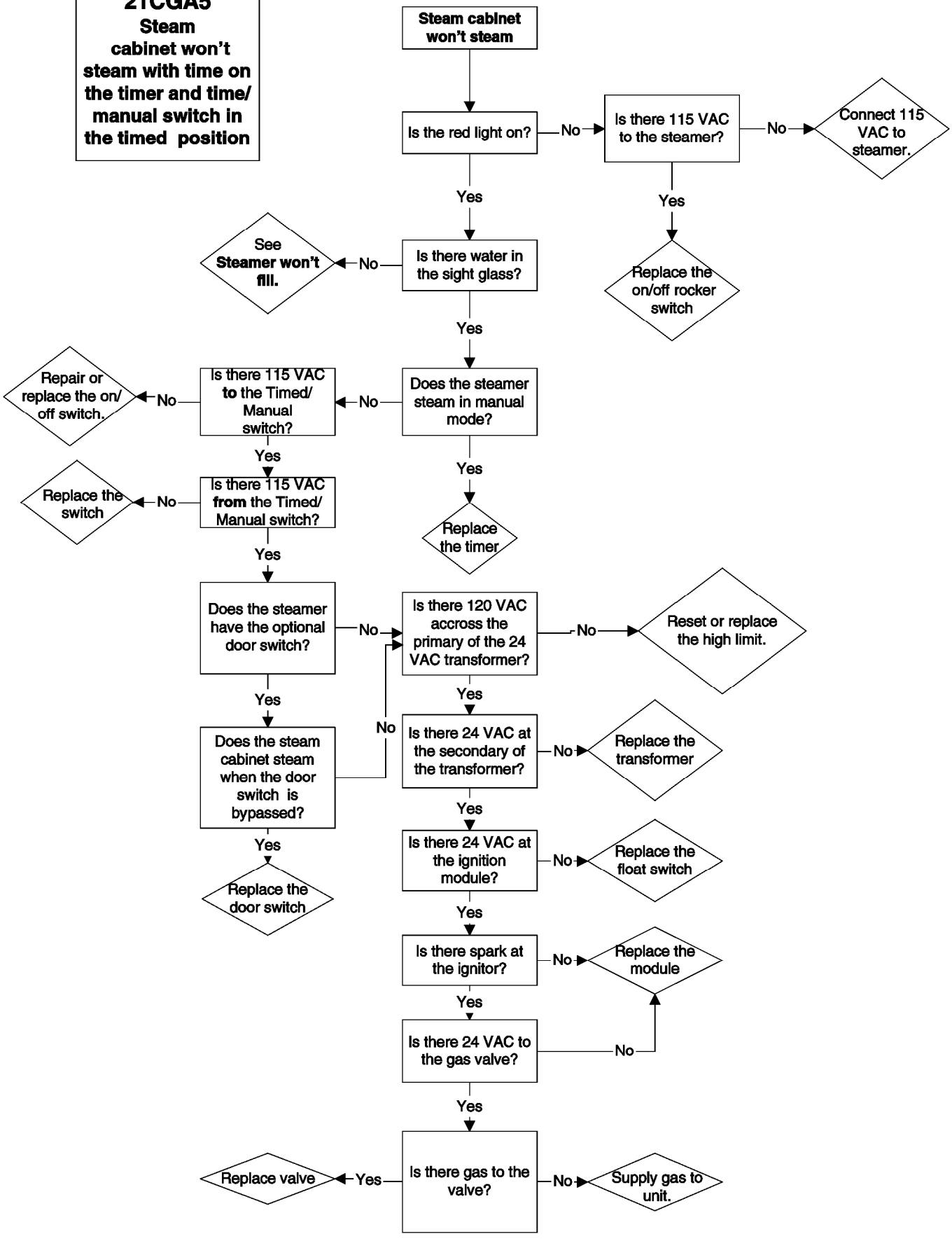


PARTS LIST

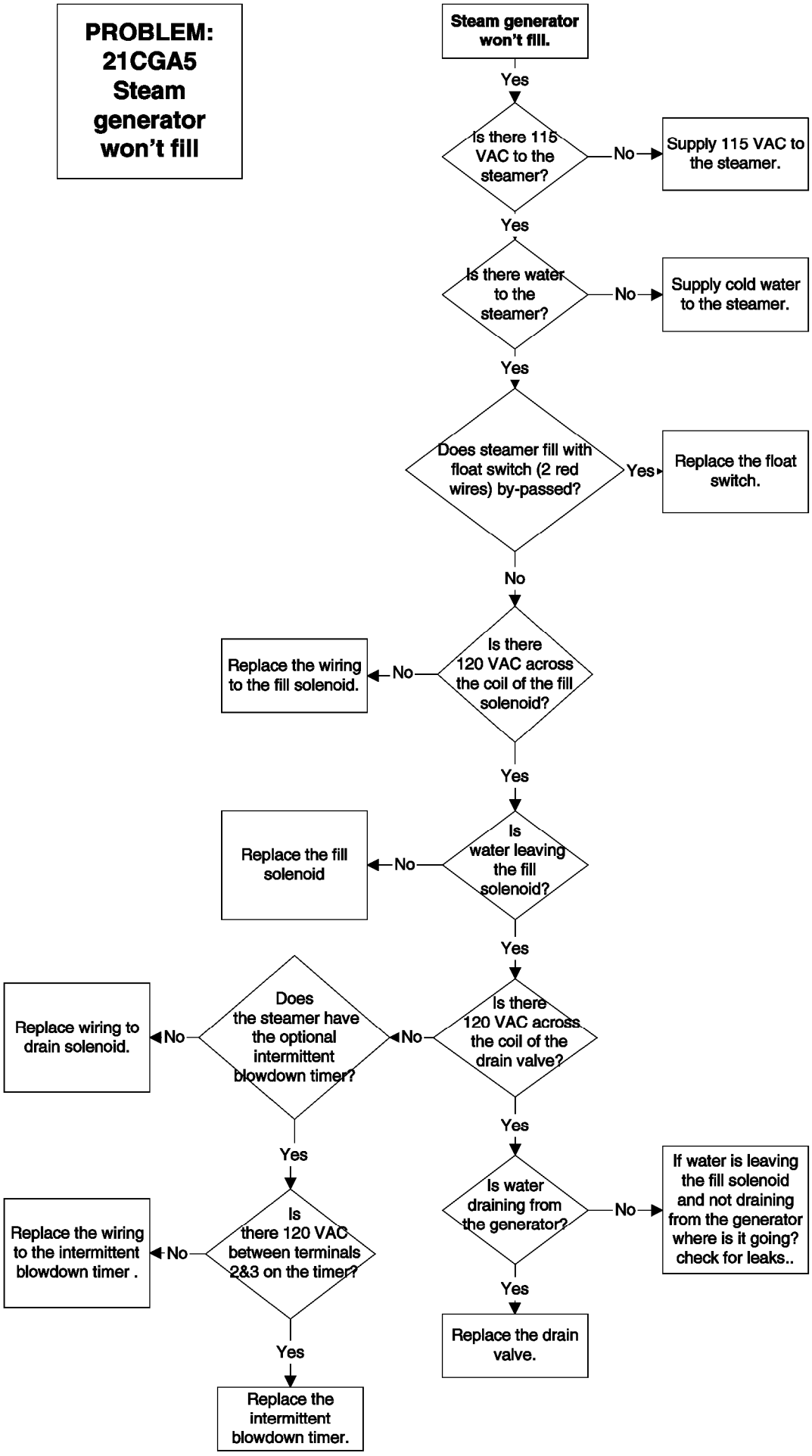
1	19993 - POWER SWITCH
2	104224 - TIMED / MANUAL SWITCH
3	20478 - 3 MIN TIMER
4	19994 - DESCALE INDICATOR RESET SW
5	106911 - DESCALE TIMER
6	108880 - DOOR SW (SCS) MAGNETIC
7	106580 - HEAT STANDBY TIMER
8	44168 - TERMINAL BLOCK
9	103726 - FLOAT ASSEMBLY
10	44164 - TERMINAL BLOCK
11	22221 - DRAIN VALVE
12	22218 - WATER SOLENOIDS
13	20528 - TRANSFORMER 24V
14	20304 - GROUND LUG
15	106461 - LINE CORD
16	1065681150 - IGNITION CABLE
17	104390 - TRANSFORMER
18	104389 - ELECTRONIC TIMER
19	19972 - THERMAL SWITCH
20	106541 - INTMT BLOWDOWN TIMER
21	105966 - RELAY
22	300092 - IGNITOR
23	03546 - IGNITION MODULE
24	106400 - GAS VALVE (NAT)
	1064001 - GAS VALVE (LP)
25	106909 - 2 AMP, 250V FUSE
26	105966 - RELAY

P106504 N

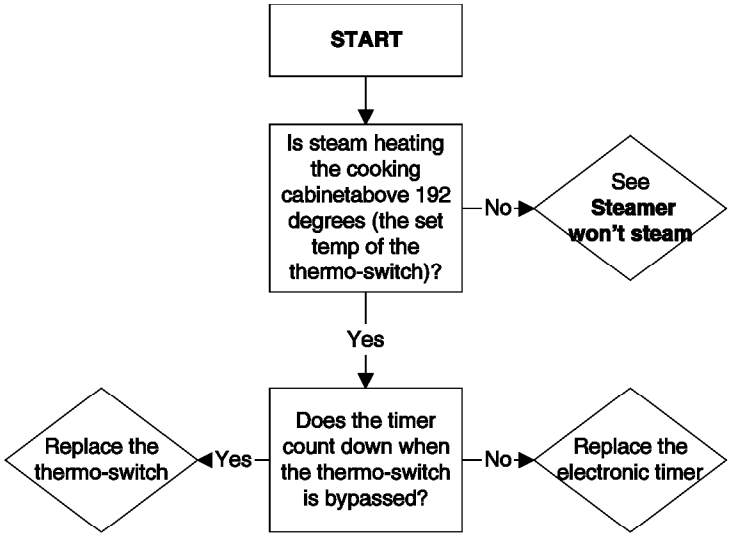
PROBLEM: 21CGA5
Steam cabinet won't steam with time on the timer and time/ manual switch in the timed position



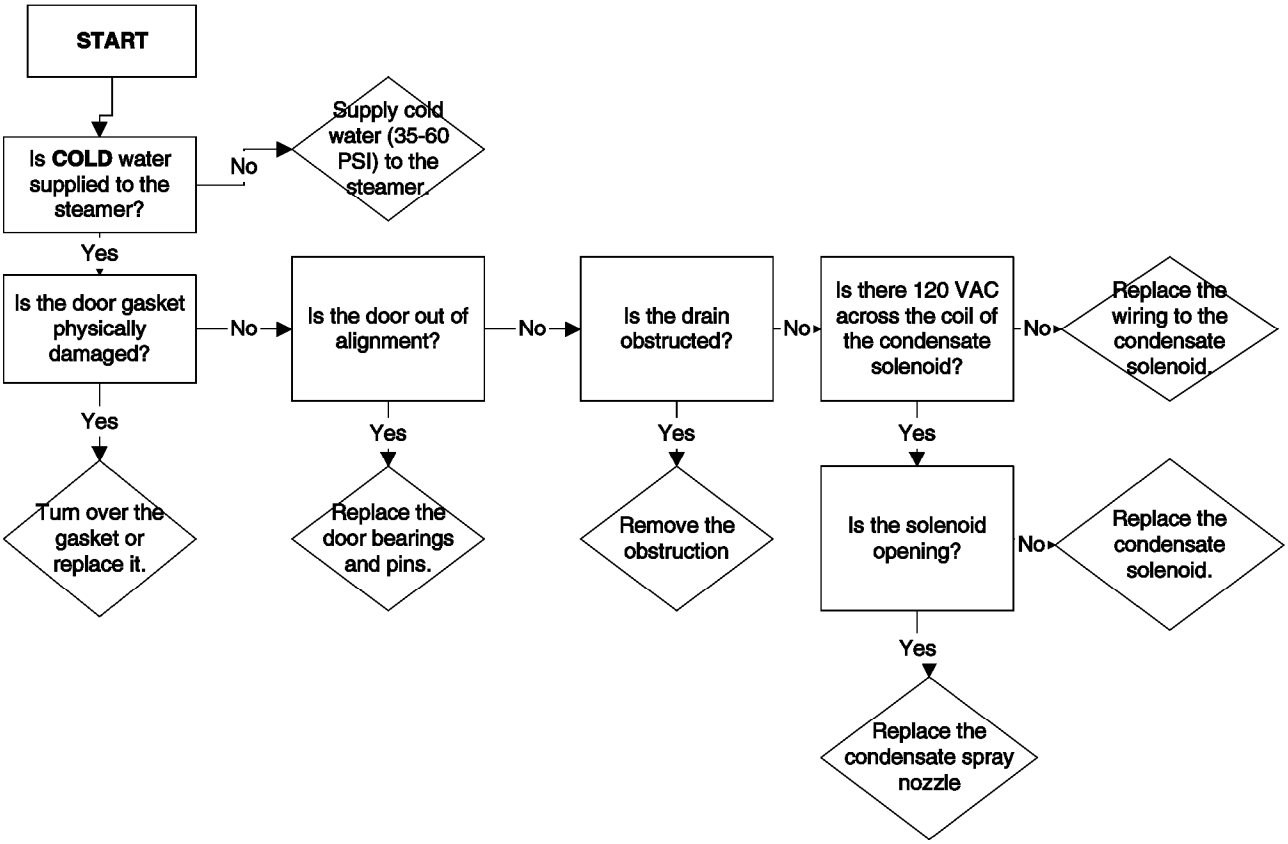
PROBLEM: 21CGA5 Steam generator won't fill



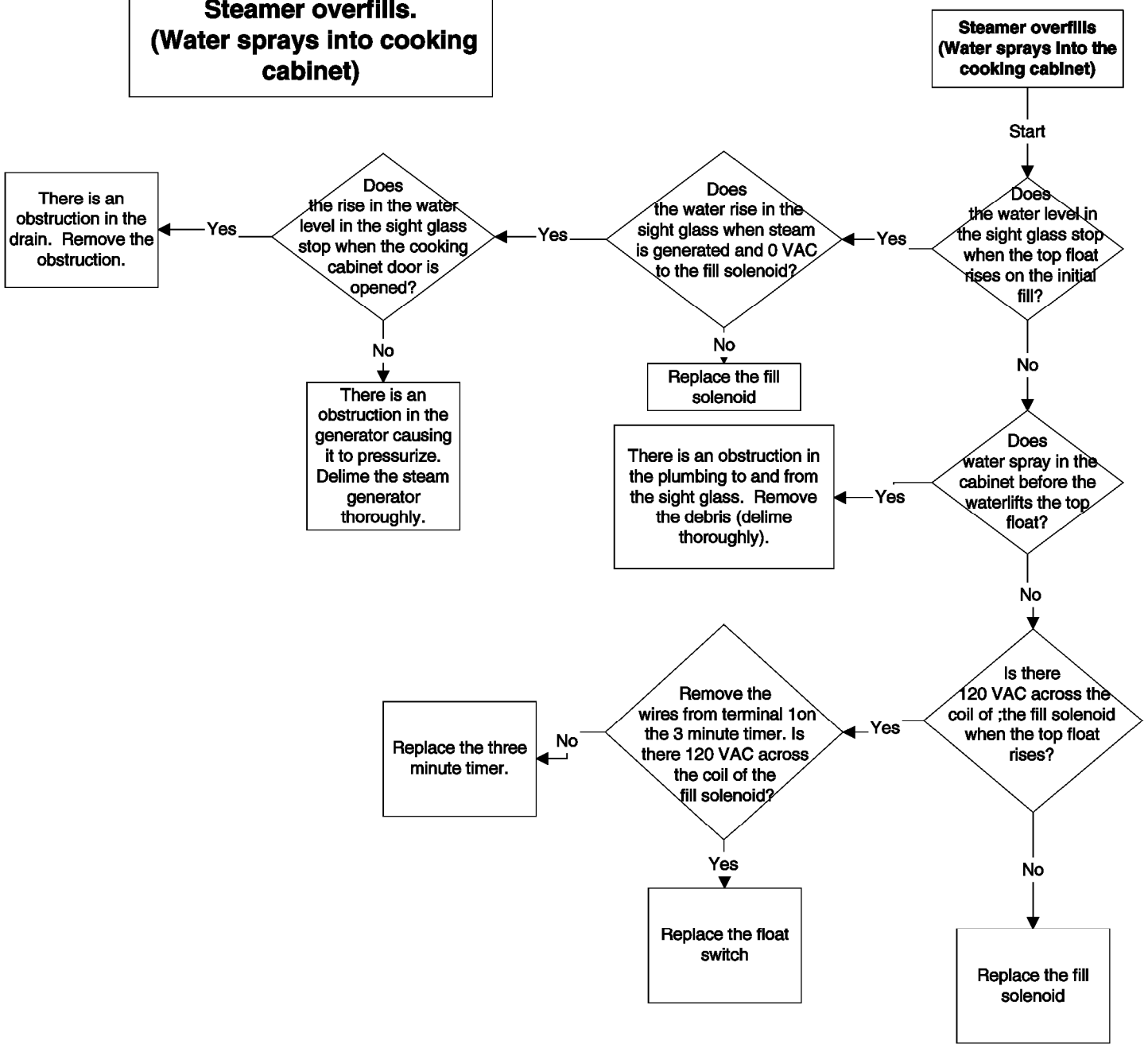
PROBLEM:
21CGA5
Electronic timer displays "PAUS" and won't count down

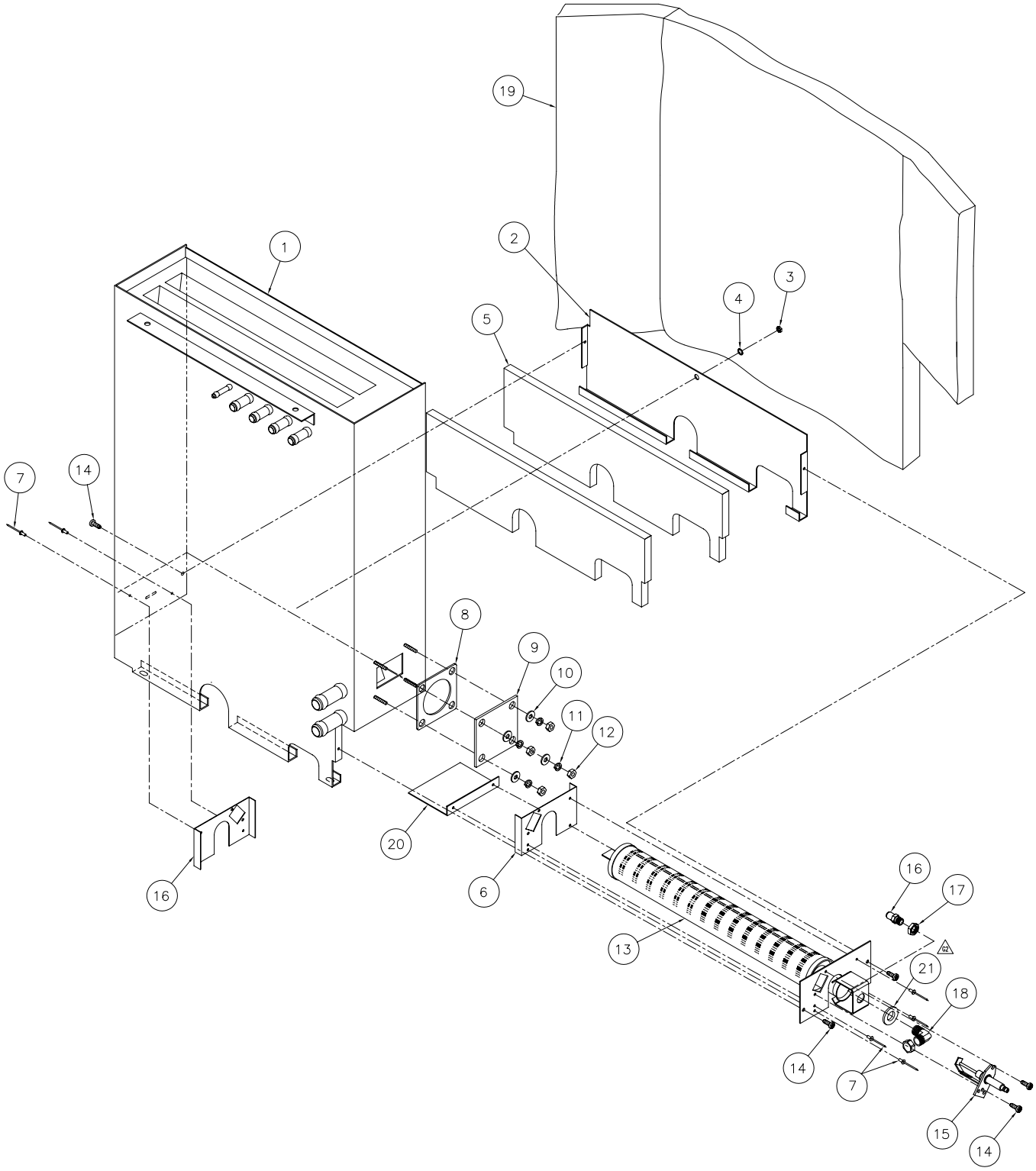


PROBLEM:
21CGA5
Steam leaks around the door.

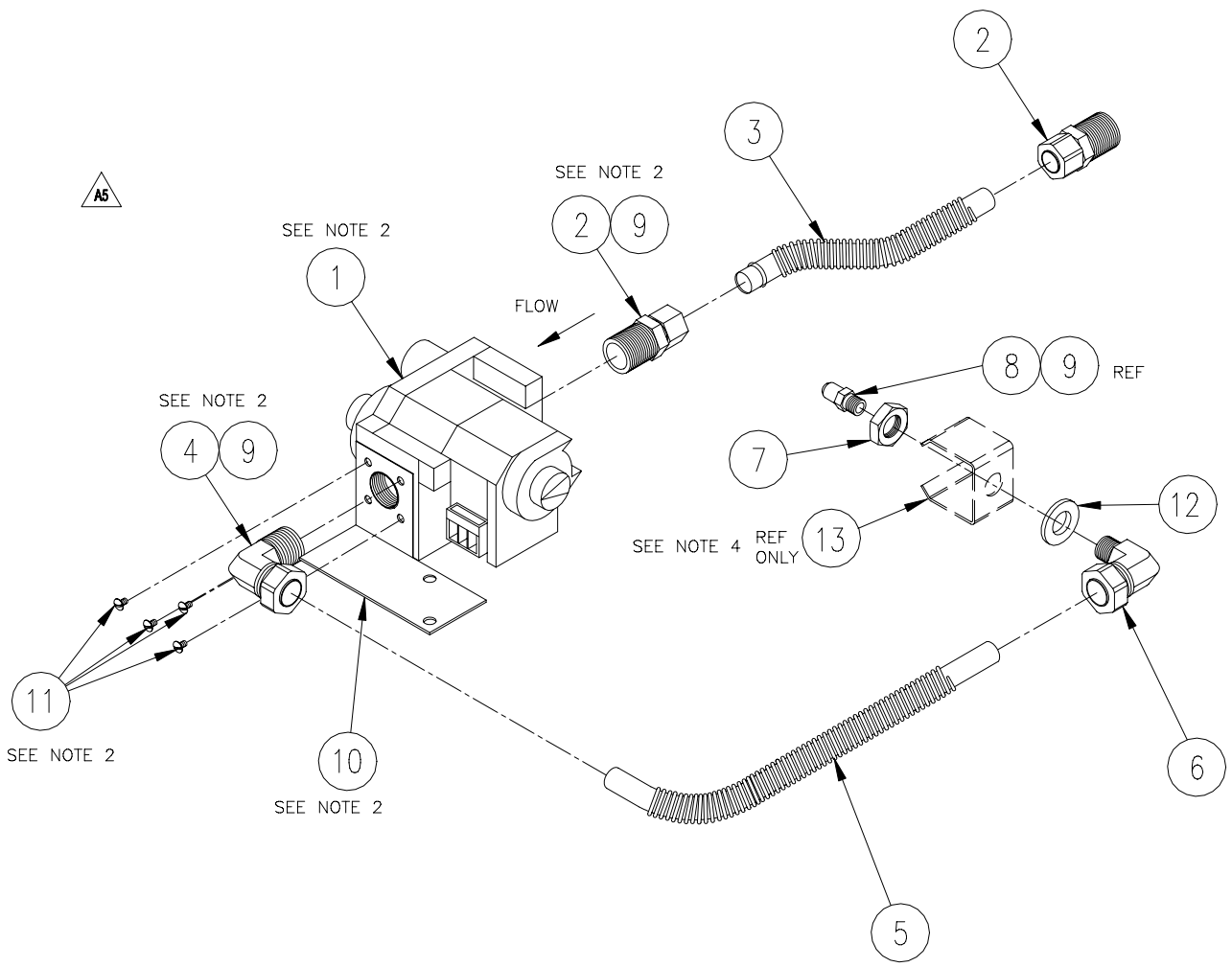


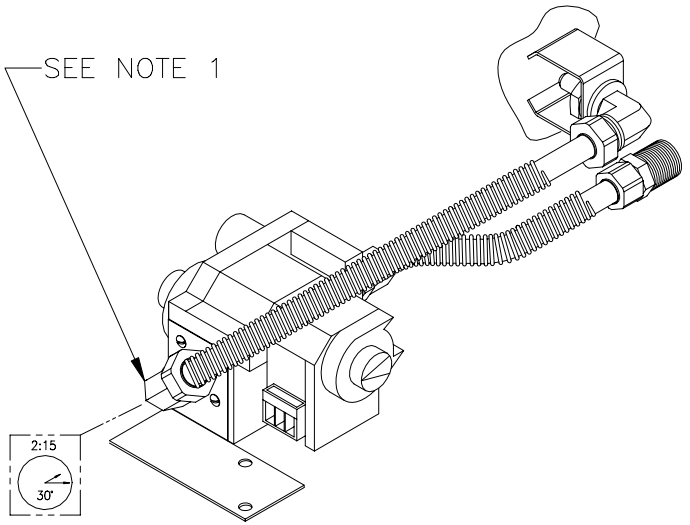
PROBLEM:
21CGA5
Steamer overfills.
(Water sprays into cooking cabinet)





21	–	100539	WASHER, 0.563 ID
20	1	111146	BAFFLE, BURNER, 21CGA5
19	1	106408	INSULATION, GENERATOR WRAP
18	–	106459	FITTING, COMPRESSION, 1/2 T x 1/4–18 NPT, 90°, MOD
17	–	106460	NUT, 1/4–18 NPT, BRASS
16	–	1064021	ORIFICE, #41 DRILL, LP GAS
16	–	106402	ORIFICE, #21 DRILL, NATURAL GAS
15	–	300092	ELECTRODE, REVERSED, COMBINATION IGNITOR/SENSOR
14	5	106126	SCREW, TORX, 8–32 x 1/2
13	–	106582	BURNER, WELD ASSEMBLY
12	4	14618	NUT, HEX, 1/4–20
11	4	23105	WASHER, LOCK, 1/4, SST
10	4	23116	WASHER, FLAT, 1/4 ID x 5/8 OD
9	1	104614	COVER, BLOCK–OFF
8	1	07128	GASKET, HEATER
7	6	18358	RIVET, 1/8 DIA., FLUSH BREAK, SST
6	2	106362	BRACKET, SIDE, INSULATION SUPPORT
5	2	106360	INSULATION, CUT, COMBUSTION CHAMBER
4	1	23114	WASHER, LOCK, INT. TOOTH, #10
3	1	14659	NUT, HEX, 10–24
2	1	106361	BRACKET, REAR, INSULATION SUPPORT
1	1	106407	GENERATOR ASSY, WELD, SC 5.1 GAS





ASSEMBLED VIEW

NOT SHOWN
REF ONLY

M	14	2	14672	NUT, HEX, 10-32, LOCKING
M	13	–	106582	BURNER, WELD ASSEMBLY, H.L. W/BRACKET
M	12	1	100539	WASHER, 9/16 ID X 1 1/16 OD
M	11	4	19156	SCREW, ROUND HD SLOTTED 8-32 X 3/4, ZINC PLTD
M	10	1	111099	BRACKET, GAS VALVE MTG, 21CGA5
	9	A/R	00934	SEALANT, PIPE DOPE
	–	–	107531	ORIFICE, NAT, 8001'-10000', #27 DRILL, 21CGA5
A6	–	–	107534	ORIFICE, NAT, 6001'-8000', #25 DRILL, 21CGA5
	–	–	107530	ORIFICE, NAT, 4001'-6000', #23 DRILL, 21CGA5
	–	–	107527	KIT, TURKEY BASKET QTY 1, ROTISSERIE
	8	–	106402	ORIFICE, NAT, UP TO 2000' #21 DRILL, 21CGA5
	7	1	106460	NUT, 1/4 NPT, BRASS
	6	1	106459	FITTING, COMP. 1/2 T X 1/4 NPT, 90°
A2	5	1	111101	GAS LINE, FLEXIBLE, 1/2 X 13.000 SST
	4	1	06205	FITTING, COMP. 1/2 T X 1/2 MPT, 90°
A1	3	1	111100	GAS LINE, FLEXIBLE, 1/2 X 7 SST
	2	2	06204	FITTING, COMP. 1/2 T X 1/2 MPT, STR
	1	1	106400	GAS VALVE, NATURAL

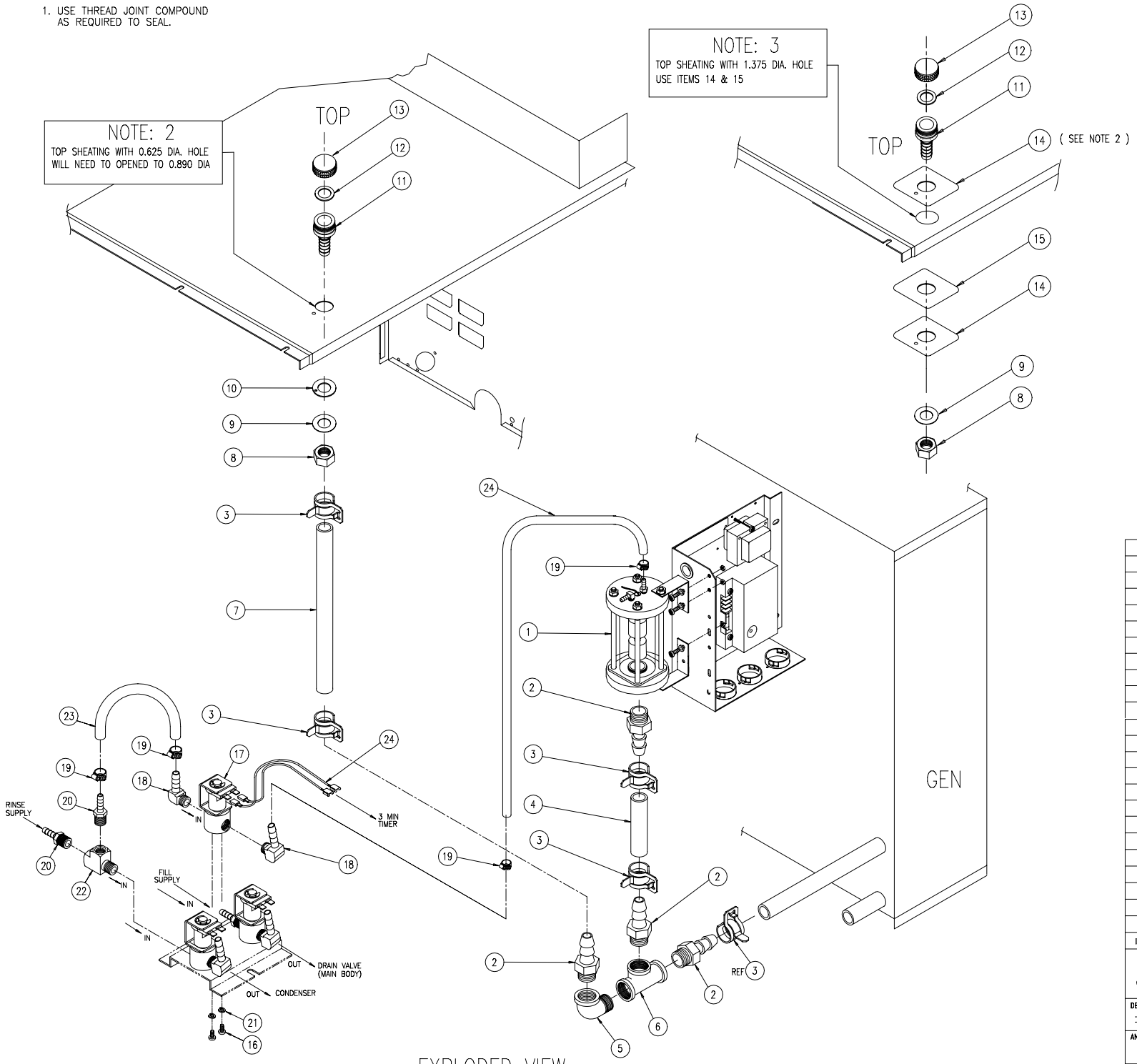
NOTE:

1. USE THREAD JOINT COMPOUND AS REQUIRED TO SEAL.

LET.	REVISIONS	DATE	BY

NOTE: 2
TOP SHEATING WITH 0.625 DIA. HOLE WILL NEED TO OPENED TO 0.890 DIA

NOTE: 3
TOP SHEATING WITH 1.375 DIA. HOLE USE ITEMS 14 & 15



EXPLODED VIEW

ITEM	QTY	PART NO.	DESCRIPTION
24	1	300013	HARNESS, WIRE, RINSE VALVE
23	1	105850	TUBING, NT-80, 1/4 X 6
22	1	106663	FITTING, MALE RUN, 1/4 MPT X 1/4 FPT
21	2	102641	WASHER, SPLIT LOCK, # 8 SST
20	2	104381	FITTING, HOSE, 1/4 H X 1/4 MPT
19	4	106526	CLAMP, HOSE, 3/8 X 5/8 X 5/16 W
18	2	105786	FITTING, HOSE, 1/4 H X 1/4 MPT, 90°
17	1	22218	SOLENOID VALVE
16	2	19114	SCREW,TRUSS HD,# 8-32 X 0.375
15	2	108723	DESCALER PORT CONVERSION MTG. GASKET
14	2	108724	DESCALER PORT CONVERSION MTG. PLATE
13	1	108031	CAP, HOSE NUT
12	1	108034	WASHER
11	1	109642	FITTING DESCALER
10	1	109646	GASKET
9	1	109645	WASHER
8	1	109644	NUT, HEXJAM
7	1	08511	HOSE, STEAM, WHITE EPDM, FDA 3/4 X 14.000 LG
6	1	20206	TEE, 3/4 , BRASS
5	1	05231	ELL, STREET, 90°, 3/4 BRASS
4	1	08511	HOSE, STEAM, WHITE EPDM, FDA 3/4 X 4.500 LG
3	4	107312	CLAMP, HOSE, METAL TENSION, 1-1/8 OD HOSE
2	4	06240	FITTING, 3/4 H X 3/4 MPT, BRASS
1	1	105877	FLOAT ASSEMBLY, STEAMCRAFT

TOLERANCES (EXCEPT AS NOTED)

CLEVELAND RANGE INC.
1333 East 179th St. Cleveland, Ohio 44110-2574

DECIMAL ± –
ANGULAR ±1°

SCALE NA | DRAWN BY VDS | APPROVED BY

TITLE INSTRUCTION, KIT, CONVERT, PROBE TO FLOAT & 3/4 DESCALE S/C 5.1, GAS

AC

DATE 9-21-00 | DRAWING NO. C-260AUC (Sht 1of2) | REV A

KIT P/N 110129

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 DISSLOVE: (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.