

# Chromalox®

## Installation, Operation and RENEWAL PARTS IDENTIFICATION

### SERVICE REFERENCE

DIVISION 4	SECTION 3001H
SALES REFERENCE (Supersedes PQ400-8)	PQ400-9
161-048643-001	
DATE	OCTOBER, 1998

## Type CMB Electric Steam Generator 0 – 90 PSI

IMPORTANT – This data file contains the National Board Registration Certificate approving your generator. It must be kept near the generator at all times.

Boiler Serial # .....	Power Circuit Voltage .....
Model # .....	Control Circuit Voltage .....
National Board # .....	Amps .....
	Phase..... Cy .....



CMB-3A

### Specifications —

Model	kW	Vol. (Gals.)	Output Lbs./Hr. AT † 212°F	Volts	Single Phase		Three Phase	
					Amperes Drawn	Power CCT. Diag.	Amperes Drawn	Power CCT. Diag.
CMB-3A	3	1.6	9	120	25	1	NA	NA
	3	1.6	9	208	14.4	2	8.3	3
	3	1.6	9	240	12.5	2	7.2	3
	3	1.6	9	480	6.3	2	3.6	3
CMB-6A	6	6	18	208	28.8	4	16.7	8
	6	6	18	240	24	4	14.4	8
	6	6	18	480	125	4	7.2	8
CMB-9A	9	6	27	208	43.3	6	25	8
	9	6	27	240	37.5	5	21.7	8
	9	6	27	480	18.8	4	10.8	8
CMB-12A	12	6	36	208	57.7	7	33.3	8
	12	6	36	240	50	7	28.9	8
	12	6	36	480	25	5	14.4	8
CMB-15A	15	6	45	208	72.1	7	41.6	9
	15	6	45	240	62.5	7	36.1	8
	15	6	45	480	31.2	5	18	8

† Assuming Feedwater at 50°F.  
Note — All Models listed with Underwriters Laboratories Inc.

Table 1 —  
Temperature-Pressure  
Relationship for Steam

Gauge Pressure (psig)	Temperature (°F)
0	212
1	216
2	219
3	222
4	224
5	227
6	230
7	232
8	235
9	237
10	240
15	250
20	259
25	267
30	274
35	281
40	287
45	292
50	298
55	303
60	307
65	312
70	316
75	320
80	324
85	328
90	331

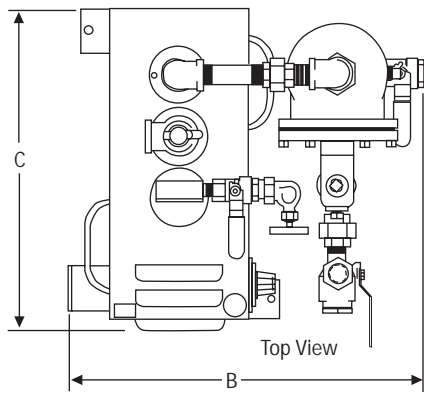
### GENERAL

**WARNING: Hazard of Electric Shock.** Any installation involving electric generators must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

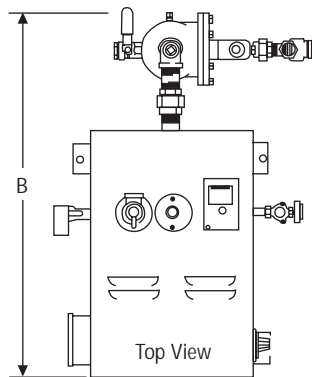
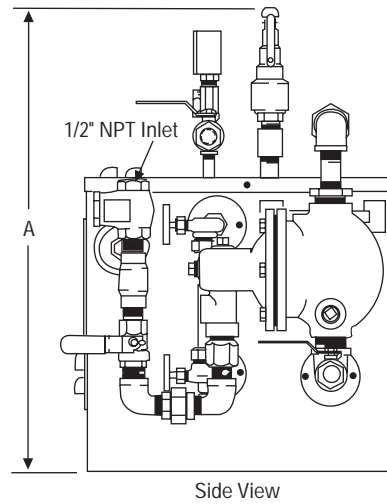
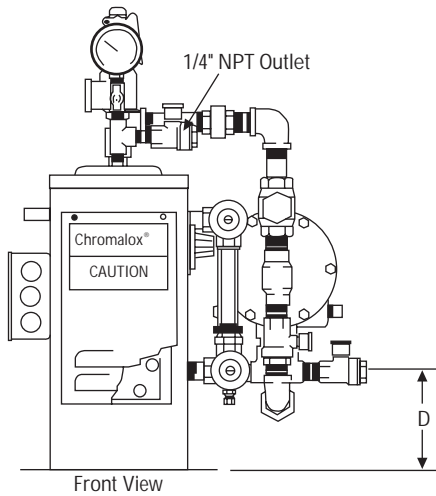
1. Locate unit on level floor or platform.
2. Connect water line to tagged fitting on the water control feeder.
3. The incoming water supply **must** be 10 pounds greater than the operating pressure. Otherwise, a high pressure feed (pump) **must** be used.
4. Wire unit following wiring diagrams supplied. (See recommendations on safety switches and fusing.)
5. Connect steam line with an outlet valve to boiler steam outlet. Chromalox recommends using a globe valve one pipe size smaller than steam line to limit any pressure drops (surges) that may occur during start-up.
6. Open all gauge valves and steam outlet valve. Keep drain valve closed.
7. Turn on water supply; water will reach operation level automatically.
8. Close steam outlet valves.
9. Set thermostat for desired steam pressure (see Table 1).
10. Turn boiler switch to **ON** position, pilot light will go on.

- Generator will Build up to desired pressure and shut off automatically.
11. Open steam outlet valves and use steam as needed.
  12. Generator should be blown down daily (see Blowdown instructions).
  13. Chromalox generators are pretested before shipment. No internal wiring or piping is required.
  14. Substitution of components or modification of wiring systems without consult of manufacturer voids the warranty.
  15. Power must be off when generator is drained.
  16. Purchaser should use a safety switch between the main power source and the steam generator. The safety switch should use circuit breakers or fuses.

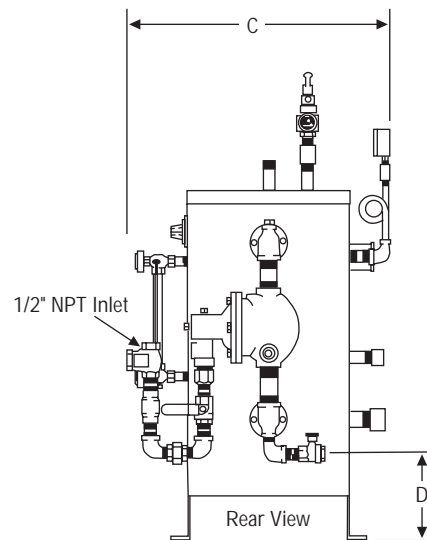
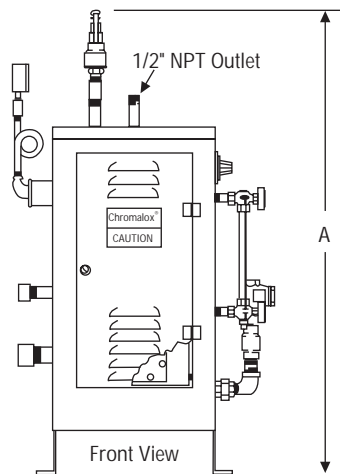
## DIMENSIONS



Model	Dimensions (In.)			
	A	B	C	D
CMB-3	22-1/2	17-1/4	15	4-1/4



Model	Dimensions (In.)			
	A	B	C	D
CMB-6, 9, 12, 15	36-1/2	30	20	7



## OPERATION

### BLOWDOWN INSTRUCTIONS

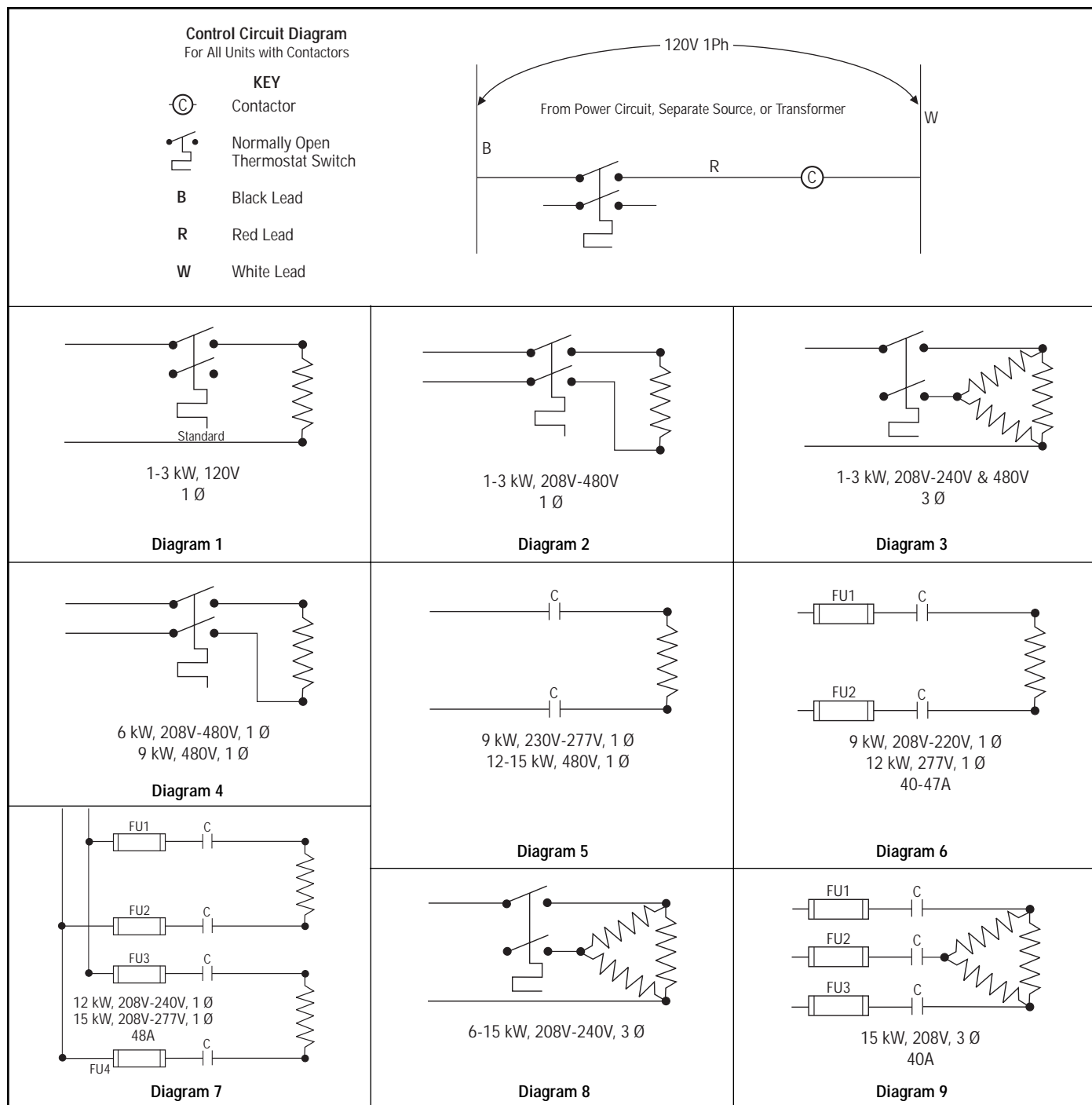
Blowdown is an essential part of generator operation. It is the best preventive maintenance you can give your generator and will add years of life to the unit. Make sure that a blowdown schedule is established and followed regularly.

In extremely hard water areas, blowdown may be necessary once a day. In other areas, once each week may be sufficient. If there is a particular problem which applies to your local water condition, other than mineral content, take this into consideration in determining what schedule is to be followed.

1. At the end of the working day turn the control switch to the OFF position and close the water supply valve.
2. If blowing down into a receptacle, allow the pressure to decrease to 15-20 psi before opening the blowdown valve.

3. It is preferable to connect the blowdown valve directly into a drainage system, if local codes permit. If this is allowed, the generator can be discharged at operating pressure.
4. When discharge is complete and the generator is drained, close the blowdown valve and open the water supply valve, allowing the generator to fill to normal level.
5. Close wall-mounted safety switch.
6. If you have been supplied with a manual reset control (as required in some states), the reset button on the control must be pushed before generator will begin developing pressure.  
**CAUTION: Do not push reset until boiler has filled with water.**
7. **WARNING:** The use of chemical cleaning compounds in these generators voids the warranty, unless approved by the manufacturer.

## WIRING DIAGRAMS



## RENEWAL PARTS IDENTIFICATION

HEATING ELEMENTS	
Description	Part Number
3kW 120V 1PH	155-300129-005
3kW 208V 1PH	155-300129-008
3kW 240V 1PH	155-300129-002
3kW 480V 1PH	155-300129-037
3kW 208V 3PH	155-300122-008
3kW 240V 3PH	155-300122-009
3kW 480V 3PH	155-300122-010
6kW 208V 1PH	155-300129-022
6kW 240V 1PH	155-300129-023
6kW 480V 1PH	155-300129-027
6kW 208V 3PH	155-300122-006
6kW 240V 3PH	155-300122-001
6kW 480V 3PH	155-300122-004
9kW	CONTACT FACTORY
12kW	
15kW	

SAFETY VALVES	
Description	Part Number
Popoff 1/2" 100 PSIG	344-300032-004
Popoff 1/2" 15 PSIG	344-300032-001

MISCELLANEOUS VALVES AND GAUGES	
Description	Part Number
Float Valve	344-300247-001
Check Valve 1/2"	276-118536-053
Ball Valve 1/4"	344-121194-007
Ball Valve 1/2"	344-121194-006
Ball Valve 1/4" T-Grip	344-300323-002
Gauge, 0-160 PSIG Dual Scale	130-118661-001
Gauge, 0-30 PSIG Dual Scale	130-118661-013
Strainer 1/2"	351-118664-001

ELECTRICAL PARTS	
Description	Part Number
Rocker Switch with Pilot	292-053223-001
Contactors 40A 2 Pole	072-047913-009
Contactors 40A 4 Pole (For 1Ph)	072-047913-022
Contactors 50A 2 Pole	072-047913-003
Contactors 50A 3 Pole	072-047913-019
Thermostat — SPST 22A	300-300330-001
Thermostat — DPST	300-300176-001
Thermostat SPST 25A	300-300330-002
Fuse 50A 250V	128-121133-079
Fuse 60A 250V	128-121133-080
Fuse 40A 600V	128-121133-064
Fuse 60A 600V	128-121133-067
Fuse Block 35-60A, 250V 2 Pole	129-024494-005
Fuse Block 35-60A, 250V 3 Pole	129-024494-006
Fuse Block 35-60A, 600V 1 Pole	129-047445-003
Fuse Block 35-60A, 600V 2 Pole	129-047445-001
Fuse Block 35-60A, 600V 3 Pole	129-047445-002
Terminal Block, Control Circuit	303-075444-001
Terminal Block, Power	303-071809-001

SIGHT GLASS ASSEMBLIES	
Description	Part Number
Sight Glass Assy., Complete, CMB 3	130-073287-003
Tubing Protector CMB 3	374-056360-003
Valve Set CMB 3	344-120970-003
Sight Glass Tubing CMB 3	374-121046-019
Sight Glass Assy., Complete, CMB 6-15	130-073287-004
Valve Set CMB 6-15	344-120970-002
Sight Glass Tubing CMB 6-15	324-121046-020
Guard Rods (2) CMB 6-15	242-121047-008

### WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

Chromalox warrants only that the Products and parts manufactured by Chromalox, when shipped, and the work performed by Chromalox when performed, will meet all applicable specification and other specific product and work requirements (including those of performance), if any, and will be free from defects in material and workmanship under normal conditions of use. All claims for defective or nonconforming (both hereinafter called defective) Products, parts or work under this warranty must be made in writing immediately upon discovery, and in any event, within one (1) year from delivery, provided, however all claims for defective Products and parts must be made in writing no later than eighteen (18) months after shipment by Chromalox. Defective and nonconforming items must be held for Chromalox's inspections and returned to the original f.o.b. point upon request. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Notwithstanding the provisions of this WARRANTY AND LIMITATION Clause, it is specifically understood that Products and parts not manufactured and work not performed by Chromalox are warranted only to the extent and in the manner that the same are warranted to Chromalox by Chromalox's vendors, and then only to the extent that Chromalox is reasonably able to enforce such warranty, it being understood Chromalox shall have no obligation to initiate litigation unless Buyer undertakes to pay all cost and expenses therefor, including but not limited to attorney's fees, and indemnifies Chromalox against any liability to Chromalox's

vendors arising out of such litigation.

Upon Buyer's submission of a claim as provided above and its substantiation, Chromalox shall at its option either (i) repair or replace its Products, parts or work at the original f.o.b. point of delivery or (ii) refund an equitable portion of the purchase price.

THE FOREGOING IS CHROMALOX'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY, AND IS BUYER'S EXCLUSIVE REMEDY AGAINST CHROMALOX FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES AND BUYER SHALL HOLD CHROMALOX HARMLESS THEREFROM. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE DATE OF SHIPMENT OR IT SHALL BE BARRED.

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**Chromalox**<sup>®</sup>  
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WIEGAND INDUSTRIAL DIVISION  
 EMERSON ELECTRIC CO.

