

MB10

ELECTROLYTIC BROMINE GENERATOR OWNERS MANUAL

INSTALLATION AND OPERATION

Manual Date: 7-28-04

Model Serial #: _____

Manufactured by ProChemTech International, Inc., Brockway, PA 15824

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ATTACHMENT: PCT DWG. SD-272 System Layout and Connection Detail

*For Support Services contact your local representative or ProChemTech
at P#(814)265-0959 or F#(814)268-1027*

PURPOSE & GENERAL DESCRIPTION OF SYSTEM

1.0 The "MB10" Mini-Electrolytic Bromine Generator is a portable unit designed to produce a continuous halogen by electrolysis. The unit includes the necessary equipment to produce the solution on a side stream recirculation flow of chemically charged pool water supplied by the owner.

MAJOR EQUIPMENT LIST

2.0 The major equipment items included with the MB10 are as follows:

- Main System Control Panel with rectifier, power supply and transformer
- Electrolytic Cell Assembly

SYSTEM OPERATIONS

3.0 The MB10 is a compact, fully functional system that provides a continuous feed of halogen from the bromides added to the re-circulating pool water. No chlorine will be present with the correct chemical application.

3.1 Pool water is used as the feed water to the system. Water flows through a flow control and then through the cell piping.

3.2 In the electrolytic cell, a constant electrical current is applied to the cell and is reacted with the bromide ions in the water to create a mixed free halogen.

3.3 The solution is discharged from the cell by pressure from the incoming water flow. The recommended discharge point is a return to the pool.

UNIT OPERATIONS – Model MB10

4.0 *Connections* (as seen on the attached drawing SD-272). The connections required for system operation include a 10 Amp - 120V power connection with a male plug included (circuit is dedicated to the unit), a 3/4" pool water inlet connection underneath the Control Panel and a 3/4" cell discharge piping from the cell to the discharge location.

4.1 *Flow Requirement*. A water flow of 10 gpm minimum is needed with a target of 15 gpm to achieve optimum results.

4.2 *Electrolytic Cell*. The cell is a reaction chamber for the pool water and the applied current.

4.3 *Control Panel - Power Supply*. The power supply includes "Constant Current" as well as "Polarity Reversal" to prevent buildup of scale in the cell from water hardness ions.

4.4 *Control Panel*.

A Main Power Switch is located on the panel face with a green "POWER ON" light. A Potentiometer is included on the panel face for adjusting the amperes to the cell. An amperes meter is located just above the potentiometer. When increased to a maximum setting of 10 Amps, the unit will then produce the maximum amount of bromine. A 5 amp fuse is installed as a protection against overloading the circuit. The "mushroom" vent located on the top of the control panel allows removal of heat from the internal controls. Do not block this vent system at any time.

4.5 Water Quality

The MB10 is designed to operate with a set amount of conductivity in the feed water (from bromide ions and other ions). The targeted range is 2,500 to 3,500 ummhos/cm. Below this concentration will cause a lower rate of bromine production and decrease the cell life. Above this range will not have any detrimental affects, but may increase corrosion throughout the rest of the system.

The required dosage of chemical(PCT 3023) to be added is as follows:

Add 1.5 to 3.0lbs. of PCT 3023 per 20,000 gallons of pool water capacity. The product is then activated by operation of unit for 24 hours prior to pool use. Test with a bromine test kit for a total bromine level targeted at 2.0 to 5.0 ppm. Do not enter pool if bromine exceed 8 ppm.

Follow up dosages will be much smaller to maintain targeted range. The increased amount of sunlight and the frequency of pool usage will increase the amount of PCT 3023 needed. Colder weather will decrease this amount.

4.6 Continued Maintenance

Maintaining good water chemistry is essential for a healthy pool. We recommend maintaining the following chemical ranges in your pool with periodic testing. Always follow your local and state requirements.

Biweekly Checks

Free Bromine: 2-5 ppm

pH: 7.0 to 8.5

TDS: 1250 to 1750 ppm

Monthly Checks

Calcium Hardness: 200-400 ppm

Total Alkalinity: 80-150 ppm

Saturation Index: +/- 0.3 pH of saturation

Bromine is not affected by pH unless the water rises above 8.5. At that point, the bromine loses some of it effectiveness. Too much bromine in a pool can accelerate corrosion on metallic surfaces. A stabilizer for the bromine can be added to lengthen the life of the bromine ion in the pool water.

SAFETY PROCEDURES

5.0 Normal safety precautions should be taken when performing activities on or around the MB10 equipment.

5.1 Installation should be completed with the connected electrical circuit OFF in a weather protected area to avoid electric shock. If adjustments are to be made within the main control panel, it is recommended that the panel be opened by an experienced electrician only. The cell includes a cover to protect the possibility of a short across the plates. Unplug the unit to terminate all power.

INSTALLATION PROCEDURES

6.0 Installation must be completed in a weather protected sight. Mount the unit on an inside wall.

The unit connections include a 120V - 10 Amp power connection(10 Amp dedicated circuit), a 3/4" pool water recirculation water supply connection at the bottom of the cell and a 3/4" discharge out of the cell. The recirculation pressure loop should not exceed 50 psi.

6.1 This unit should be installed to run electrically on a timed basis or only when the re-circulating filter pump is operating.

STARTUP PROCEDURES

7.0 For proper start up, the correct application of chemical should be added before starting the MB10 (see section 4.5 for dosages). Next, confirm flow of re-circulated pool water through the cell. The Main Power Switch should then be turned ON. The Current dial can be adjusted based on the desired output. The initial setting should be 10 amperes. This is considered full power.

MAINTENANCE SCHEDULE

8.0 Very little maintenance is required with the MB10. To ensure continued, trouble-free operation, we recommend the following:

-Verify flow through discharge piping on a weekly basis. If there is no flow through the cell and it is allowed to operate, the cell will be damaged.

-Check the conductivity or total dissolved solids (TDS) of the water to confirm that it is within range. The cell life will be shortened if the unit is run below the given range.

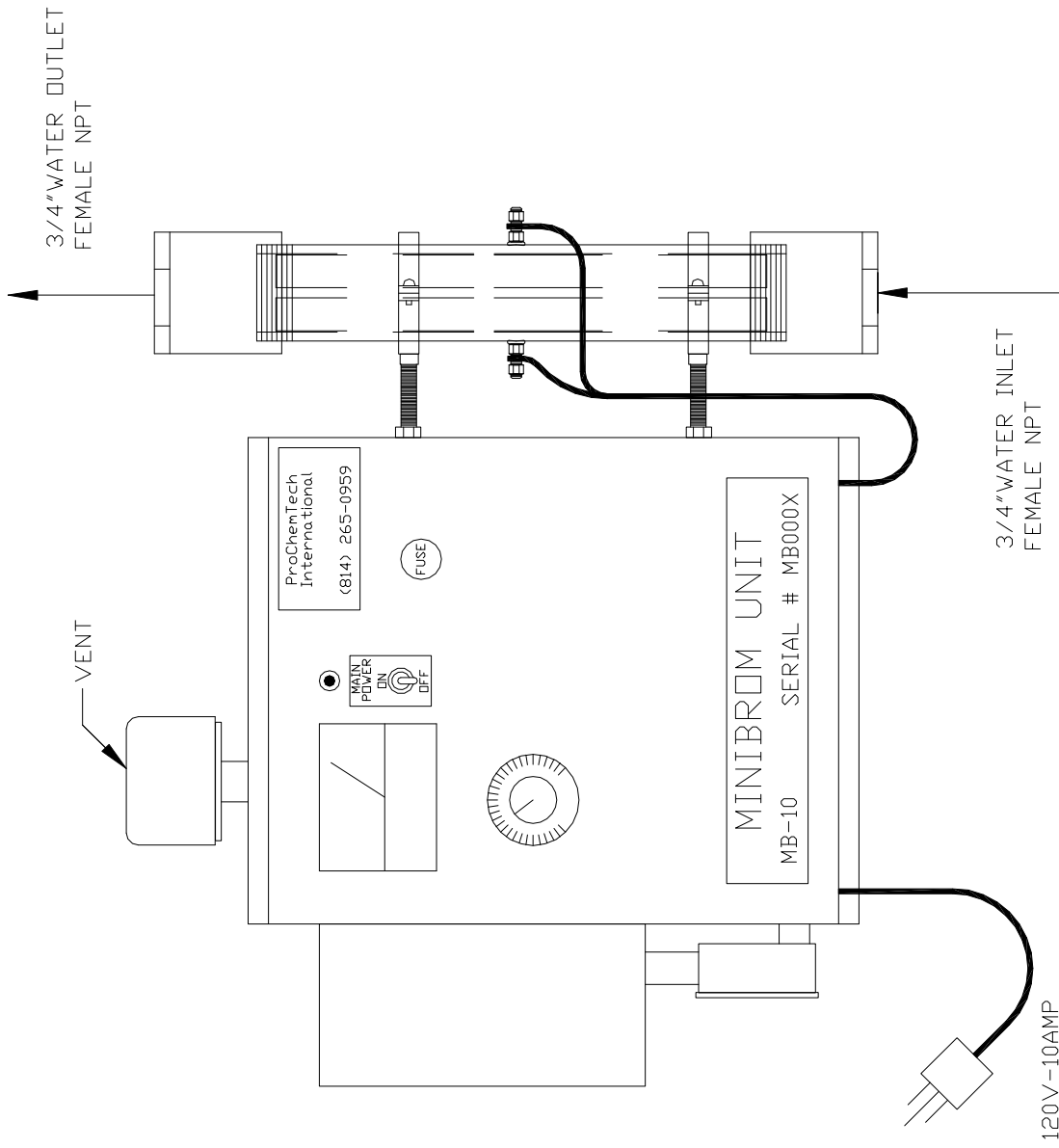
TROUBLESHOOTING


9.0 Several items are listed below that should be considered when troubleshooting problems with the MB10 system. Should problems occur that are not resolved with the troubleshooting guide, please contact ProChemTech immediately for support.

<u>Problem</u>	<u>Solution</u>
1.No Flow out of System	a. No pump water flow b. Flow control plugged
2.No Bromine Production	a. Main panel pump switch OFF b. Conductivity changed in feed water
3.No Amp Reading	a. Current dial needs adjusted b. No water flow c. Cell failure d. Conductivity changed in feed water
4. Will not operate	a. Fuse blown b. Unit not connected to power

RECOMMENDED SPARE PARTS

10.0 There are no spare parts included with the MB10 system. ProChemTech maintains a stock of replacement parts for items that are expendable.



 ProChemTech International, Inc. Brockway, PA, 15624	
SCALE	DRAWN BY: JMM
TITLE	APPROVED:
MINIBROM MODEL MB10 GENERAL LAYOUT	
DATE	4/22/04
SD-272	