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C L MARKETING, INC.

2770 - 24 Avenue N.E.
Calgary, Alberta, T1Y 6V7

REGISTRATION NO 24585
PEST CONTROL PRODUCTS ACT

ELECTRACLOR MODEL AG500

DOMESTIC

Maximum output of Sodium
Hypochlorite equivalent to
0.185 kg of chlorine per day.

WARNING: Operating the ELECTRACLOR MODEL AG500 without water flow through the cell can cause a build up of flammable gases which can result in FIRE OR EXPLOSION.

READ THE LABEL AND THE
INSTRUCTION MANUAL BEFORE USING

ElectraClor

MODEL AG500

ABOVE GROUND

SALT CHLORINE GENERATOR

INSTALLATION MANUAL

IMPORTANT:
READ THIS MANUAL BEFORE OPERATING

C L MARKETING,
div. of 263430 Alberta Ltd.
2770 - 24 Avenue N.E.
Calgary, Alberta, T1Y 6V7

MODEL AG500

IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**

2. WARNING - to reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

3. Prolonged immersion in hot water, such as a spa, may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level, several degrees above the normal body temperature of 98.6EF (37EC). The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy and an increase in the internal temperature of the body. The effects of hyperthermia include: 1) unawareness of impending hazard; 2) failure to perceive heat; 3) failure to recognize the need to exit the spa; 4) physical inability to exit spa; 5) fetal damage in pregnant women; and 6) unconsciousness resulting in danger of drowning. **WARNING - The use of alcohol, drugs or medications can greatly increase the risk of fatal hyperthermia in hot tubs and spas.**

4. Provide compartment drainage of electrical components during installation.

5. Consult local electrical codes to determine minimum distance required between equipment and outside wall of pool or spa.

6. A ground fault circuit interrupter (G.F.C.I.) must be provided with this device. Consult local code requirements.

7. **The AG500 power supply is "Factory Sealed". Breaking this "Seal" and exposing the electronic components could be dangerous or hazardous and must only be performed by factory trained and authorized personnel. Unauthorized "tampering" will VOID the warranty.**

8. **All electrical "work" should be performed by a qualified licensed electrician.**

9. SAVE THESE INSTRUCTIONS.

DANGER: Failure to follow these instructions can result in fire, explosion, electric shock or electrocution. Read through and follow these instructions carefully before beginning the installation or start up of the AG500 Above Ground system.

Note: These instructions refer to the installation of a single unit. If more than one unit is being installed, consult your Retailer.

SPECIFICATIONS FOR AG500

INPUT: 110 - 120 VAC, 50/60HZ, 1.0 Amps

P.C. BOARD RATING (low voltage)

Main Board Outputs FLOW SWITCH 4.6mA @ 5VDC

Power Bd. Outputs C4 - 2 AMPS @ 15VDC.
C3 - 2 AMPS @ 15VDC.

MATERIAL REQUIRED FOR INSTALLATION

Supplied by Installer

- Required amount of salt blend (See Pool Water Preparation Section)
- Hacksaw
- Tape Measure
- Screw drivers, 5/16" and 1/8" flat head
- Drill with 1/4" (6mm) masonry-drill bit for block or stucco
- Voltmeter to determine AC line voltage to control panel
- Test kit for chlorine, calcium hardness, pH, total alkalinity and CYA

Supplied with AG500

- (1) **AG500** power supply with **110 VAC** power cord
- (1) **AG3 or AG4** cell
- (1) Flow Switch/Tee assembly
- (1) DC cord - 8 ft/2.5 M (attached to power supply)
- (1) Flow Switch cable - 8 ft/2.5 M (attached to power supply)
- (2) Unions - 1 1/2" X 2"/38mm X 50mm (solvent welded to cell)
- (1) Salt Test Strips (Jar of 10)
- (1) Wall bracket (attached to power supply) with anchors and screws
- (1) Owner's Manual, Operator's Manual & Warranty Card.

System Sizing:

The rate at which chlorine is consumed in a swimming pool depends on the relationship of three major variables:
Bather usage (loading), water temperature and pool volume (Length in ft. x Width in ft. x Avg. Depth in ft. X 7.5 = U.S. Gallons, or Length in M x Width in M. x Avg. Depth in M. = Cubic M.). The sizing recommendations given below are intended to satisfy the chlorine demands of most (average usage) residential above ground pools. Exceptionally high bather usage and/or water temperature may require an additional unit(s).

AG500 with C4 cell One unit for above ground pool up to 12,000 U.S. Gallons(46 Cubic M.)

POOL WATER PREPARATION

Proper **AG500** system operation is dependent on proper pool water conditions. Before startup, make sure the pool meets the following requirements:

BALANCE POOL/SPA WATER

If a chlorine demand exists in the water; this demand must be removed prior to startup. We recommend this be accomplished by the use of a "non-chlorine" shock or by super chlorinating. The non-chlorine shock is preferred because of its simplicity and "no waiting time" required. **IMPORTANT:** If super chlorinating, let the free chlorine level drop **below** 3.0 ppm before system startup. This could take from one day to one week.

Adjust Water Chemistry Parameters As Follows:

1. Calcium Hardness 180 - 220 ppm (pool) 140 - 160 ppm (spa)
2. Total Alkalinity 100 - 120 ppm (pool) 80 - 100 ppm (spa)
3. Cyanuric Acid/ Stabiliser 30 - 50 ppm (pool/spa)
4. "Salt" level 2800 - 3000 ppm (pool/spa)
5. Establish a Free Chlorine Residual of 1.0 - 2.0 ppm, using liquid or granular chlorine.

**These checks should be performed by your qualified "Lectranator" retailer.

Note: To decrease pH, the preferred product is dry acid (Tabex pH down). To decrease total alkalinity, the **preferred** product is muriatic acid. To raise total alkalinity, use Tabex Total Alkalinity Increaser. **DO NOT ADD** directly to the skimmer. These and other chemical products should be diluted in water and broadcast evenly around the perimeter of the pool/spa. For more detailed information, read and follow package instructions or consult your "Lectranator" retailer.

CAUTION: Free Available Chlorine levels consistently maintained near 3.0 ppm or higher will cause or contribute to corrosion of pool metals and premature cell failure. Do not over-chlorinate.

INITIAL Salt Requirements

It is important to maintain salt levels between 2800 - 3000 ppm at all times. Maintaining low levels of salt could result in premature deterioration of the chlorine cell, and/or loss of chlorine production. The initial amount of salt required depends on the size of the pool. We recommend the use of the following blended products:

LECTRACLOR - Salt blend for **indoor** pools and spas.
LECTRACLOR PLUS - Salt blend for **outdoor** pools and spas (includes stabilizer/CYA).
LECTRABROME - Salt blend for **bromine** pool and spa systems.

INITIAL Salt Requirements (cont'd)

DO NOT use rock salt, as it contains impurities. Use the chart below to determine the amount of salt blend to add, in Lbs. or Kgs. for a new pool startup. (Preferably after a "fresh" fill) pour the salt around the perimeter of the pool. **NEVER** add salt directly through the skimmer or drain. Circulate for at least 24 hours to allow the salt to properly dissolve. Do not allow large amounts of undissolved salt to remain on fresh plaster, marcite or any other cement like pool/spa interior surface. Brush vigorously to accelerate salt dissolving,

especially in cold water conditions.

(If using products other than those recommended, consult your dealer for additional dosage rates of cyanuric acid and/or sodium bromide.)

INITIAL TREATMENT of LectraClor, LectraClor Plus or LectraBrome required to establish 3000 ppm.

KILOGRAMS OF SALT NEEDED FOR 3000 PPM								
Salt Level (PPM)	Volume of Water in Litres (L)							
	1000	1500	4,000	20,000	50,000	100,000	500,000	1,000,000
0	3.00	4.50	12.00	60.00	150.00	300.00	1500.00	3000.00
250	2.75	4.10	11.00	55.00	137.50	275.00	1375.00	2750.00
500	2.50	3.75	10.00	50.00	125.00	250.00	1250.00	2500.00
750	2.25	3.40	9.00	45.00	112.50	225.00	1125.00	2250.00
1000	2.00	3.00	8.00	40.00	100.00	200.00	1000.00	2000.00
1250	1.75	2.60	7.00	35.00	87.50	175.00	875.00	1750.00
1500	1.50	2.25	6.00	30.00	75.00	150.00	750.00	1500.00
1750	1.25	1.90	5.00	25.00	62.50	125.00	625.00	1250.00
2000	1.00	1.50	4.00	20.00	50.00	100.00	500.00	1000.00
2250	.75	1.10	3.00	15.00	37.50	75.00	375.00	750.00
2500	.50	.75	2.00	10.00	25.00	50.00	250.00	500.00
2750	.25	.37	1.00	5.00	12.50	25.00	125.00	250.00
3000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3250+	REDUCE BY DILUTION							

POUNDS OF SALT NEEDED FOR 3000 PPM								
Salt Level (PPM)	Volume of Water in Gallons							
	12,000	14,000	16,000	18,000	20,000	22,000	24,000	25,000
0	300	350	400	450	500	550	600	625

250	275	320	365	410	460	500	550	575
500	250	290	335	375	415	460	500	520
750	225	260	300	335	375	410	450	465
1000	200	235	265	300	335	365	400	415
1250	175	205	235	265	295	320	350	360
1500	150	175	200	225	250	275	300	310
1750	125	145	165	185	210	230	250	260
2000	100	115	135	150	165	185	200	210
2250	75	85	100	110	125	135	150	155
2500	50	60	65	75	85	90	100	105
2750	25	30	35	40	42	45	50	55
3000	-	-	-	-	-	-	-	-
3250+	REDUCE BY DILUTION							

MAINTENANCE Salt Requirements

Over time, pool/spa water will be lost through carry-out, splash-out and backwashing of sand and diatomaceous earth filters. This will slowly deplete the initial 3000 ppm residual and will necessitate the replenishing of salt/CYA levels. Periodic testing of salt/CYA levels is recommended. Refer to charts on **page 4** of this document to determine accurate quantities required.

INSTALLATION - AG500

FIGURE A
Typical Installation
(with In-line cell)

((diagram))

POWER SUPPLY

Mount the Power Supply within 6 feet of cell and flow switch.

The Power Supply should be wall/board mounted in an area which provides the best protection from outdoor elements and direct sunlight. Determine the location of the Power Supply mounting and make sure the DC cord will reach the cell. Then position as described

below. The cell **MUST** remain easily accessible for inspection and/or cleaning. The cell should be positioned **after** the pump, filter and heater, but **before** the acid injection point (if a chemical feed pump is being used for pH control).

CHLORINE CELL POSITIONING AND INSTALLATION

The cell may be installed one of two ways:

1) In-line, as depicted in FIGURE A (page 5)

2) As part of a by-pass system, as depicted in FIGURE B, further in this document. The by-pass installation is the better choice as it allows you to continue to operate your pump, filter and heater in the event that the cell has to be removed for cleaning/servicing, and it also eliminates the possibility of "too much flow" going through the cell, which could occur with the In-line configuration.

In-Line Installation of Cell (1)

1. Select a section of uninterrupted pipe at least 16" (41 cm) long. (This is the minimum length required for **both the cell and flow switch.)** Mounting may be vertical or horizontal. (Note: You may wish to install "isolating" ball valves on either side of your "cell/flow switch" assembly to simplify servicing and cleaning. Consult your "Lectranator" retailer for additional information.)

2. Remove a 15 1/2" (39.5 cm) section of pipe, leaving at least 1 1/4" (3 cm) on the effluent side to accommodate the union.

3. The "cell side" section of each union has been factory cemented to the C4 cell. Prime and cement the "pipe side" section of the "effluent" union to the piping.

4. Connect the union nut and threaded section of this union. **DO NOT** over tighten fittings. Hand tight is usually sufficient to provide a proper seal. At this point, the **"effluent"** side of the cell/union will be cemented to the pool piping.

((diagram))

In Line Installation of Flow Switch (1)

The Flow Switch should be installed **before** the cell. The Flow Switch

will operate at any angle in the return line, but ensure that it can be easily removed for service. Using the 15 1/2" section of pipe removed earlier, cut a piece 2 1/2" (6.5cm) in length. This will be used to connect the Flow Switch tee to the union on the "influent" side of the cell. **Note: Before cementing, ensure that the arrow on the Flow Switch body is pointed in the direction of the water flow.** Prime and cement as in step #3 above. The Flow Switch tee will now be "butted" up against the "influent" cell union. You may now prime and cement the pipe into the "influent" side of the Flow Switch tee. Plumbing is now complete.

WARNING: Operating the chlorine cell without water flow can cause a build-up of **Flammable gases** which can result in fire and explosion. The Flow Switch **MUST** be located on the same piping as the cell, without any valves or tees between them (as in FIGURE A or B). Following these installation instructions will protect against the possibility of the AG500 operating without water flow through the cell.

By-Pass Installation (2)

Installing the cell on a "by-pass" will require extra plumbing fittings, including **3 extra 1 1/2" ball valves.** Plumbing procedures (priming/cementing) of the cell and flow switch are the same as outlined for the "In-line" system, but the finished product will be similar to that shown in FIGURE B, below.

FIGURE B
Typical Installation
(with By-pass cell)

((diagram))

SYSTEM DESCRIPTION

The AG500's system output provides 15VDC @ 2 Amps to the C4 chlorine cell, or other load. It is controlled, ON and OFF by the Flow Switch or a combination of a Flow Switch and time clock (optional). When enabled, the system runs continuously. However a time clock can be used to control the system's ON and OFF times, or for specific time-of-day operation. On the bottom of the Power Supply is a Control Knob to adjust the amount of chlorine being produced. The front panel lights (7 in total) show system status. The far left light (RDY light) shows if the system is ready to operate, and the remaining 6 lights show how much current the cell is drawing. The output polarity

reverses automatically, every 4 hours, providing the AG500 with it's unique "self-cleaning" cell feature.

LIGHT PANEL DESCRIPTION

With AC power on: If the RDY light is RED - The system is **not ready.** No voltage is present at output. If the RDY light is GREEN - The system is ready is will produce chlorine based on control knob setting. The **Control Knob** controls the amount of power to the cell, MIN being the lowest setting, MAX being the highest. The Control Knob is located at the bottom of the unit.

Lights 1,2,3,4,5,6 ... These green lights show how much chlorine is being produced. The less number of lights on, the less current the cell is drawing and the less chlorine the cell is producing. As the Control Knob is turned clockwise (to MAX), the amount of current available to the cell is increased, and if the cell takes that current, more lights will turn on. These lights act as a digital AMP meter, showing the condition of the cell, the salinity and temperature of the water. Example: If the salt level is low, fewer lights will come on. If the salt level is high, more lights will come on. These lights are also affected by the water temperature. If the temperature is below 80EF (26.5EC), fewer lights will come on. At or above 80EF (26.5EC), more lights will come on. Under ideal conditions, with the salt level at 3000 ppm, the water temperature at or above 80EF (26.5EC) and the cell in "as new" condition; all lights should be lit. With the Control Knob turned to MAX, if the cell is worn or dirty, or if the salt level is too low, or if the water temperature is too low, the lights **will not** display to 6 and would indicate servicing is required.

(((diagram)))

OPERATION AND "HOOK-UP" OPTIONS

The flow switch must be activated in order for DC current to flow to the Cell. When the Flow Switch is "open" (indicating no flow) the RDY light will be RED and all six of the display lights will be OFF, showing no current to the cell. When the Flow Switch closes (indicating adequate flow) the RDY light will turn GREEN, and after a 5 second time delay, the 6 display lights will shown the amount of current the cell is drawing, based on Control Knob setting.

FLOW SWITCH: The 5 second time delay is built into the Flow Switch to allow for turbulence and water bubbles to pass.

CONTROL KNOB: Set the Control Knob to desired output level, MIN being the lowest, MAX being the highest. The cell will draw current and display on the 6 green status lights. As the cell degrades or salt level drops or water temperature drops, **less lights will be lit.**
Adjust salt and temperature levels to normal then turn Control Knob towards MAX to compensate for cell degradation.

Ensure that your outside plug (source of 110 VAC power) is connected to a G.F.C.I. circuit and is wired in accordance with local codes. Also, make sure that the circuit breaker is sized to adequately handle your swimming pool filter pump voltage and amperage requirements. As the AG500 requires only 1 Amp/110 VAC, it should have little or no effect on the breaker size.

TYPICAL "HOOK-UP"

Under normal conditions the following sequence would apply:

- Source power supply (15 or 20 Amp/110 VAC, G.F.C.I. circuit) is connected to the 110 VAC cord on AG500 Power Supply.

- 110 VAC output receptacle on the AG500 is then connected to the 110 VAC filter pump motor.

In the event that a timer is being used, it may be installed between the Source power supply and the 110 VAC cord on the AG500.

NOTE: If you encounter any technical problems during installation, or are unsure of these instructions. consult your Lectranator Retailer before proceeding.

All electrical "work" should be performed by a qualified licensed electrician.

((diagram))

CUSTOMER ASSISTANCE....

**For the location
of the "Lectranator" retailer
nearest you...**

CALL OUR HOTLINE:
1-800-661-8179 or 403-250-2494

ElectraClor

MODEL AG500 ABOVE GROUND
SALT CHLORINE GENERATOR

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