

24-APR-1998

Eco-Matic Salt Water Pool System

REG. NO. 25552 P.C.P. ACT

Control Bacteria and Algae in Swimming Pools and Spas

READ LABEL AND OPERATING MANUAL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Eco-Matic Canada
Division of 543820 BC Ltd.
28377 Haverman Road
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How ECO-MATIC can help you:

No chlorine taste, smell or feel...

Healthy to use and Economical...

Easy to use and maintain; suits all pools...

Prevents algae growth...

Eco-Matic Salt Water Pool Systems

What is ECO-MATIC and how does it work?

ECO-MATIC is a patented, proven alternative to the use of commercial 'pool chlorine' in pools and spas.

ECO-MATIC was first produced in 1976 in Australia, where today some 90% of all pool owners have chosen the Salt Water System in lieu of 'pool chlorine'. The Salt Water System is now the means of purification preferred by almost a half million pool and spa owners around the world. ECO-MATIC is now sold in more than 25 countries.

There are 3 components to ECO-MATIC - two product components are easily attached to your existing pool filter equipment. The third component is pure salt (evaporated ocean salt), which is added directly into (and dissolved in) the pool water - creating a very mild salt water solution. This automatic process does not consume

the salt, but simply recycles it, over and over again.

The ECO-MATIC pool feels like a truly fresh water pool, with none of the undesirable effects, taste and smell which come with packaged pool chemicals.

Healthy...

The mild salt water itself has many therapeutic benefits for swimmers and a bacteria-free pool means safe swimming for everyone.

Easy to use, maintain...

Easy-to-operate controls enable the system to operate automatically in conjunction with the pool filter.

Suits all pools...

ECO-MATIC comes in a variety of models and sizes, to suit the size and particular environment of any pool or spa.

Economical...

Expensive 'pool chlorine' is replaced by a small amount of inexpensive salt. More stable water conditions will extend pool equipment life and ECO-MATIC will eliminate costly calcium removal from pool walls and tiles.

Prevents algae growth...

The constantly healthy condition of the water will prevent the growth of common pool algae.

Questions and Answers

Q: How salty is the water?

A: Approximately one ninth (1/9th) as salty as sea water - or one half as salty as human tear drops. Try it at home - add half an ounce of salt to a gallon of water. Taste it; you will agree it's very mild.

Q: Will the salt water corrode the pool equipment?

A: No. The low salt level and ECO-MATIC's simple operating procedures do not create a corrosion problem. If corrosion was a problem, ECO-MATIC simply could not have been so successful for almost 20 years.

Q: Does ECO-MATIC come with any warranties?

A: Yes. Every sale is backed with substantial product and performance guarantees. Ask your local dealer for details.

Q: How easy is it to install ECO-MATIC?

A: Most installations take less than 2 hours and none of your existing pool equipment needs to be altered or replaced.

Q: What are the disadvantages of an ECO-MATIC System?

A: We can't think of any. Some people wonder about swimming in slightly salty water, but inevitably it is the fantastic feeling of the water which ECO-MATIC owners like most.

Specifications:

A Range of Models are available to suit everything from small spas, through pools up to 90,000 gallons - in normal daily filtering times, and much larger pools (300,000+ gallons) with longer filtering times.

Features include...

Variable sanitizer output - adjusts to suit your pool

Electronically controlled power output - self regulating current control

Low Salinity/Overload Protection - audible and visual low-salt warning

In-line "cell" installation - many advantages over 'in-pool' cell types

Clear "cell" housing - allows visual inspection of "cell". Cell suits PVC or copper pipes

Input voltage 110v or 220v - connects to timer, filter pump

Weather Protected Enclosure

UL Listed, C-UL Listed Option. Patents and Trademarks apply

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ECO-MATIC (TM)

SALT WATER POOL SYSTEMS

OWNER'S GUIDE

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WELCOME TO THE HEALTHY LUXURY OF A SALT WATER SWIMMING POOL

We at ECO-MATIC are dedicated to providing you with the most luxurious, healthy, 'natural' pool water you have ever experienced, as well as the most reliable product and the best after-sales service you could hope for.

Reading this Guide will help ensure that your ECO-MATIC system functions correctly and efficiently, help avoid the expense of unnecessary service calls and make you aware of certain maintenance procedures which, if left undone, may void warranties offered by the manufacturer. Please refer to the Trouble-Shooting section of this Guide before calling for in-field service.

AN OVERVIEW OF THE ECO-MATIC SALT WATER POOL SYSTEM

When salt (pure, natural evaporated ocean salt), is dissolved in pool water and then subjected to simple electrolysis (by way of the in-line ECO-MATIC 'Cell'), the chloride portion of the salt (sodium chloride) is transformed into an effective sanitizer

(HOCl), which has the ability to oxidize (kill) bacteria, virus, algae and other such radicals which would otherwise flourish in the water. This process is reversible, so does not consume the salt, which is simply used over and over again.

Sized to suit your particular pool or spa, your ECO-MATIC system will automatically provide the sanitizer necessary to maintain your pool/spa water in perfectly healthy condition, in an environmentally-perfect manner, by using and recycling a natural product - salt. Your ECO-MATIC will do exactly the same thing as 'pool chlorine' would do, but without need to add (or swim in) potentially harmful, toxic man-made sanitizing chemicals.

Operating Your ECO-MATIC

When correctly installed, your ECO-MATIC will operate ONLY WHEN THE FILTER PUMP IS OPERATING and water is flowing through the 'Cell'. Your ECO-MATIC must not be able to operate while the filter pump is OFF. If your ECO-MATIC continues to operate after the filter pump is switched OFF (as indicated by the Output gauge, the LSI indicator light or by bubbling and cloudiness at the 'Cell') contact your ECO-MATIC Dealer or the person who installed your ECO-MATIC immediately and ensure that the fault is rectified.

((SEE DIAGRAM))

ECO-MATIC Operating Modes

Whenever your ECO-MATIC is switched ON it will go through a 'Startup Phase' lasting approx 30 seconds, during which time the LSI indicator light will be GREEN and the Output Gauge will be inactive. At the end of the 'Startup Phase' the Output Gauge will become active and the LSI indicator will be either GREEN or RED according to the following Operating Modes:

LSI Indicator Light	Buzzer Alarm	Output Gauge	Operating Mode
GREEN	OFF	INACTIVE	Startup Phase
GREEN	OFF	NORMAL	Normal operation
RED	ON	NORMAL	LOW SALT condition or 'Cell' needs cleaning
RED	ON	INACTIVE	Fault in system (refer to Trouble-Shooting)

((SEE DIAGRAM))

Sanitizer Control

The Output Control gauge on the front control panel of your ECO-MATIC has two color sections for each 'Cell' size - Silver and Red. Always operate your ECO-MATIC with the gauge needle within the Silver section of the dial - and adjust the needle position UP or DOWN according to the sanitizer needs of the pool (see below).

Sanitizer Level - How to Measure

The sanitizer which ECO-MATIC produces (HOCl) from the dissolved salt (NaCl) also results (amongst other things) when 'pool chlorine' is added to water - and is the substance which shows up on ordinary 'pool chlorine' Test Kits. You can therefore use an ordinary 'pool chlorine' Test Kit to measure the sanitizer produced by your ECO-MATIC.

The Amount of Sanitizer Produced by ECO-MATIC Depends Upon:

- a) The daily operating time of the equipment (pump and filter and ECO-MATIC)
- b) The Output Control setting
- c) The condition of the ECO-MATIC 'Cell' (clean or dirty)

The rate of sanitizer production will decrease as the 'Cell' becomes dirty (scaled with calcium etc), or if the salt level in the water decreases and, in time, as the 'Cell' nears the end of its life.

Your Test Kit is your ONLY INDICATOR of whether your ECO-MATIC is producing sufficient, too little, or too much sanitizer for your pool.

If your ECO-MATIC is producing TOO MUCH SANITIZER, turn the Output Control DOWN, or reduce the daily operating time (being sure to maintain at least the minimum recommended daily filtering time).

If your ECO-MATIC is producing TOO LITTLE SANITIZER, turn the Output Control UP, or increase the daily operating time of the equipment.

Optimizing the Sanitizer

- 1) Always ensure that your pool water has the recommended level of Conditioner (stabilizer). Conditioner will prevent sunlight from destroying the sanitizer before it can do its job, and will make it easier to maintain a residual of sanitizer in the pool.
- 2) The effectiveness of the sanitizer decreases as pH rises. To ensure that the sanitizer can effectively do its job, always maintain the water pH within the recommended range of 7.2 - 7.8 (max). Refer to 'Maintenance of the Water', later in this Guide.

Important Note: If you have a spa attached to your pool, be sure to turn the ECO-MATIC production DOWN or OFF when confining the water circulation to the spa only - to avoid over-production of sanitizer in the spa.

MAINTENANCE OF YOUR ECO-MATIC

The 'Power Pack'

The POWER PACK should require very little (if any) maintenance - except maybe for occasional replacement of blown fuses. However, damage to certain components may result from improper maintenance of the 'Cell' (see below). Always ensure that the POWER PACK is located in a well ventilated area free of corrosive fumes from any acid or chemical containers in the vicinity.

Red Sensor Lead (Safety Cut-off)

The RED Sensor Lead connected to the top of the 'Cell Housing' provides a safety cut-off in the event that water stops flowing through the 'Cell Housing'. Always ensure that the RED Sensor Lead is properly connected to the 'Sensor Clip' on top of the 'Cell Housing', otherwise your ECO-MATIC will not operate. Calcium scale can sometimes build up on the inside of the 'Sensor Clip' (causing a loss of contact between the 'Sensor Clip' and the water and switching OFF the ECO-MATIC) and may require cleaning off from time to time (refer to Trouble Shooting).

The 'Cell'

Maintenance of the 'Cell' is quite simple, but very important. ECO-MATIC 'Cells' are comprised of expensive materials and even with proper care and maintenance the delicate coating on the 'Cell' anode will eventually wear away and the 'Cell' will 'die' and will no longer be able to produce sufficient sanitizer for the pool. Proper care (and cleaning) will ensure the maximum life for the 'Cell'. Operating your 'Cell' on lower-than-recommended salt levels will shorten 'Cell' life and will void 'Cell'

warranties.

Cleaning The 'Cell'

Mineral salts, calcium, etc. (scale) will accumulate onto the 'Cell' and will effect the efficiency of the 'Cell' in its production of sanitizer. If allowed to build up unchecked, this scale can damage the 'Cell'. It is therefore essential that the 'Cell' be cleaned whenever necessary, as indicated by visual inspection, a drop in Output and/or a RED warning light and buzzer alarm.

The rate at which the scale accumulates on the 'Cell' varies from pool to pool and is influenced mostly by the Total Hardness, Total Alkalinity and the ratio of these two important components of water balance. Rapid scaling on the 'Cell' indicates the need to adjust either the Total Hardness and or the Total Alkalinity of the pool water (refer to Maintenance of the Water).

How To Clean The 'Cell'

((SEE DIAGRAM))

The 'Cell' can sometimes be cleaned by squirting with a hose and brushing with a soft brush - but in most cases will need to be cleaned in a weak acid solution as follows:

- * Turn OFF filter pump before attempting to clean the 'Cell'.
- * Remove the 'Cell' from the 'Cell Housing' by unscrewing the threaded collar at the end of the 'Cell Housing'
- * Immerse the 'Cell' into the weak acid solution (see below) for as short a time as necessary for the scale to be dissolved off the 'Cell'
- * If necessary, remove the 'Cell' from the weak acid solution, brush with a soft brush (never use a metal brush) to help remove stubborn scale, then re-immerses into the weak acid solution. Repeat until 'Cell' is completely clean of scale
- * Either rinse the acid solution off the 'Cell' using fresh water, or immediately replace the 'Cell' into the 'Cell Housing' and start the filter (so the pool water rinses the 'Cell')

NEVER tap or knock the 'Cell' against hard objects to help remove scale. 'Cell' will break.

When re-inserting the 'Cell' into the 'Cell Housing', ensure that

the O-ring is in place (against the end of the clear plastic 'Cell Housing') and that the notches and grooves ('Cell' and 'Cell Housing') are aligned allowing the 'Cell' to seat properly (sandwiching the O-ring between the 'Cell' head and the end of the 'Cell Housing'). Do not over-tighten the threaded collar (hand tight is OK).

Weak Acid Solution

((SEE DIAGRAM))

Add 3 parts water to the 'Cell' cleaning container, then add 1 part acid (pool acid, muriatic acid) to the water, to a total depth which allows all of the 'Cell' mesh to be immersed.

Warning: NEVER add water-to-acid. ALWAYS add acid-to-water

The weak acid solution can be stored in a safe place (some place where the kids can't get at it) and re-used for some time (saves having to make the solution each time). Avoid getting the weak acid solution on skin or in your eyes. If you accidentally do so, wash off immediately with fresh water (or use the pool/spa water).

Please do not hesitate to contact your ECO-MATIC Dealer for any assistance regarding 'Cell' cleaning.

Maintaining The Salt Level

It is important to always maintain at least the minimum recommended salt level (4000ppm) in the pool water. (in some cases, in-ground spas can operate on lower salt levels - check with your ECO-MATIC Dealer).

Operating your ECO-MATIC at lower than recommended salinity level will shorten the life of your 'Cell' and will void warranties on the 'Cell'. An excess of salt (up to 6000ppm) is acceptable and will not harm the ECO-MATIC (in fact, the system operates more efficiently at higher salt levels).

We recommend that you check the salt level in your pool at least every couple of months (more in summer).

Checking The Salt Level

Your ECO-MATIC (SR Models) has a Low Salt Indicator (LSI). When the level of salt in the water falls below the minimum level, the LSI will indicate a RED light and the buzzer alarm will sound. While in this Mode the ECO-MATIC will continue to produce sanitizer, but the situation should be corrected quickly to avoid

unnecessary damage to the 'Cell'.

At correct salt levels, the Output gauge needle should be able to reach the RED portion of the gauge dial (for your 'Cell' size), by turning the Output Control knob.

The LSI has been factory calibrated (plus or minus) to a minimum salt level of 4000ppm, so could therefore activate at slightly higher salinity than 4000ppm. If the LSI activates when you think there is sufficient salt in the water, a physical test kit measurement of the salinity is necessary to, determine the facts (before deeming it necessary to re-calibrate the ECO-MATIC).

Salt Test Kits

Various salt test kits are available. Salt Test Strips are available at many pool shops (one brand name is AquaChek). Some pool shops also test for salt.

How Salt Is Lost From Your Pool

The ECO-MATIC process does not consume the salt - it merely re-uses it over and over. Evaporation also leaves the salt in the water. However, salt is lost from the pool when water is lost - back-flushing filter, splash-out, overflow in rainy periods, leaks in the pool.

Adding Salt To The Water

Salt is generally available in 25lb, 40lb, 50lb or 80lb bags - at places such as Home Base, Home Depot etc. Use ordinary rock salt, evaporated ocean salt - the same as would be used for a water softener (avoid salt pellets). Call your ECO-MATIC dealer if you need assistance in locating a source of salt.

Add the salt by tipping it directly into the pool. Dissolve by sweeping the salt to the deep-end floor drain and/or by vacuuming the pool. The heavier than-water saline 'syrup' will remain on the floor of the pool if not mixed properly.

How Much Top-up Salt To Add

When topping-up the salt level, we suggest adding salt at the rate of approx 50lb per 10,000 gallons of water. Remember: A slight excess of salt is not a problem, but too little salt causes damage to the 'Cell'. When the added salt is dissolved, check that the LSI remains GREEN. Measure the salinity if in doubt.

MAINTENANCE OF THE WATER

You should always be sure that your pool water is 'in balance'. The person who maintains the pool should already be checking and adjusting the water for the following. If you need verification of any of the following, take a water sample to your local pool shop for testing (or send to your ECO-MATIC dealer for testing).

Adding 'chemicals' To Your Pool

Your ECO-MATIC will eliminate the need for you to add 'pool chlorine', algaecides and 'shock' chemicals to the water. Many pool owners and pool service people are in the habit of 'shocking' their pool water periodically, but this is no longer necessary with ECO-MATIC and we advise against adding such chemicals (including copper-based algaecides, non-chlorine shock etc).

If the need to add 'pool chlorine' should ever arise, you can do so without risk of harming your ECO-MATIC equipment.

In the event that your sanitizer level has fallen too low, or that you feel a need to 'shock' the pool, simply let your ECO-MATIC operate for an extended time (say for 24 hours).

Conditioner/Stabilizer

It is important to maintain 50 - 80ppm of conditioner (cyanuric acid) in the pool water, in order to prevent the sunlight from destroying the sanitizer (especially important in hot, sunny areas). If the conditioner level is too low, "good-bye sanitizer" you will find it difficult to maintain a good residual of sanitizer in the water - and your ECO-MATIC will need to work twice as much as it would if the conditioner level was correct.

pH Level

Pool water pH should be maintained in the range 7.2 - 7.8. At higher pH levels, the sanitizer loses its effectiveness, allowing algae growth etc even though your Test Kit may indicate sufficient sanitizer in the water. If you have difficulty maintaining the pH in the correct range, this is an indication that the Total Alkalinity (TA) is not at the correct level. It is always necessary to bring the TA within the correct range before pH can be properly maintained.

Total Alkalinity (TA)

(TA) determines the speed and ease of pH change. TA can also greatly effect the frequency of having to clean the ECO-MATIC 'Cell'. The ideal range for TA is generally 80 - 120ppm, but really depends upon the Total Hardness (TH) of the water and

should be set at the level which suits your pool. The harder the water in a pool, the lower the TA should be. Your TA is correct when the pH becomes stable and easy to maintain.

If the TA is TOO LOW	If the TA is TOO HIGH
pH 'bounce'	Almost constant acid demand
Stains on plaster walls	Promotes 'Cell' scaling
Etching of plaster walls	
Corrosion of metal parts	

Total Hardness (TH)

The Total Hardness (not just calcium hardness) if too high, can promote rapid scaling of the ECO-MATIC 'Cell'. TH also determines the desired level of TA.

General Rule: If the pool water TH is greater than 500ppm and is at least 300ppm above the TH of the fill water (tap water) - then dump the water and re-fill the pool.

Warning: be aware that pools in high water-table areas should not be emptied without first consulting your pool builder or pool service.

Recommended Sanitizer level	1.0 - 2.0 ppm
Suggested pH level	7.2 - 7.8
Suggested Conditioner level	50 - 80 ppm
Suggested Total Alkalinity level	80 - 120 ppm (adjust to suit your pool)
Suggested Total Hardness level	500 ppm maximum
MINIMUM salt level	4000 ppm

WARRANTY DETAILS

The manufacturer of ECO-MATIC, Monarch Industries, through ECOMATIC Salt Water Pool Systems Inc., warrants to the original purchaser Of an ECO-MATIC product that if any component (other than fuses) proves defective, or if faulty workmanship be evident

within a period of 12 months from the date of purchase, that the defect will be repaired or replaced free of charge.

Any product deemed to be defective shall be returned freight or postage paid to the authorized ECO-MATIC Agent from whom the product was purchased, accompanied by evidence of date of purchase. The manufacturer and ECO-MATIC accept no responsibility other than the repair or replacement of defective parts.

This warranty does not cover failure due to accidental damage, abuse, misuse, negligence, damage due to non-compliance with installation, care and maintenance instructions or unauthorized alterations or modifications to the product.

A Warranty Registration card is included with all new ECO-MATIC product and should be completed and returned to your ECO-MATIC agent in order to validate your warranty.

TROUBLE SHOOTING

SR Model Operating Modes

LSI Light	Buzzer Alarm	Output Gauge	Operating Mode
GREEN	OFF	INACTIVE	Startup Phase
GREEN	OFF	NORMAL	Normal Operation
RED	ON	NORMAL	Low Salt Level
			'Cell' Dirty
			'Cell' Deteriorating
ACTION	Measure Salt Level, Clean 'Cell' Check 'Cell' Output		
RED	ON	INACTIVE	Fault in System
ACTION	Check RED Sensor Lead, Clean Sensor Clip, Check Voltage to 'Power Pack' (new installations)		

Is Your ECO-MATIC Producing Sanitizer?

You can check if your ECO-MATIC is producing as follows:

- 1) If you can get movement of the Output gauge needle, by adjusting the Output Control, the ECOMATIC is working. Only sanitizer production can cause the needle to indicate.

- 2) When sanitizer is being produced, it is often noticeable as cloudiness in the water immediately after the 'Cell' (look through the 'Cell Housing').
- 3) With the ECO-MATIC Output on HIGH, take a sanitizer Test Kit reading immediately at the RTP outlet (water return-to-pool outlet) then compare that reading with a second Test Kit reading with water taken from a distant point in the pool. The first reading should be noticeably higher than the second (the water having just passed through the ECO-MATIC).

ECO-MATIC Not Working

1. Main power OFF No power getting to 'Power Pack'.
2. ECO-MATIC switched OFF
3. Output Control set too low.
4. Blown fuses.
5. RED Sensor Lead not connected or connection dirty.
6. Too little salt in the water.

ECO-MATIC Producing, But Sanitizer Level Low

1. 'Cell' dirty.
2. Output Control set too low.
3. Insufficient operating time.
4. Low salt level.
5. Filter dirty. Poor circulation rate.
6. Conditioner level too low.
7. Poor water quality. Sanitizer being used quickly.
8. Other chemicals added to pool? Could 'screen' sanitizer reading on Test Kit.

Sanitizer Level OK, But Water Cloudy, or Signs of Algae

1. pH too high. Adjust to 7.2 - 7.8 range.
2. Filter dirty, poor circulation. Insufficient filtration.

3. Filter pump faulty.
4. Check that conditioner/stabilizer level is not too high.

'Cell' Is Scaling Too Frequently

1. Total Alkalinity too high.
2. Total Hardness too high.

Output Gauge Cannot Reach maximum (Red Section)

1. Insufficient salt.
2. 'Cell' dirty, needs cleaning.
3. 'Cell' may be deteriorating.

LSI RED Light and Buzzer ON

1. Indication of low salt level.
2. 'Cell' may need cleaning.
3. If gauge is inactive, check RED Sensor Lead connection.
4. 'Cell' may be deteriorating.

Continual Salt Loss

1. Check for a leak in pool. Turn off any automatic fill device, check for water loss.

Water Leaking At 'Cell'

1. O-ring not in place, or missing altogether. (look in the bottom of the cell cleaning container)
2. Notches and grooves not aligned, 'Cell' not seated properly.
3. See if 'Cell' seats better when rotated 180E in 'Cell Housing'.

When Output Control Turned Low, RED Light Comes ON

1. Salt level is borderline.
2. If salinity OK, 'Cell' may be deteriorating.
3. Can happen in 'COLD' water.

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