

**ALIGATOR MANUAL
For Swimming Pools**

Congratulations, you are the owner of the most advanced swimming pool water purification in the world. Used correctly, it will make your swimming a much healthier exercise and a less costly one for many years to come.

This booklet should be used as a reference book, and as such, should be kept in a water proof wallet in or near the pump room. It is designed to assist you to make the very most out of your unit, and we have attempted to cover most eventualities you may encounter with the operation of your pool. If in the unlikely event you do need further assistance please do not hesitate to contact us at the address below.

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PART ONE

Aligator Control Unit Type ali-2

INTRODUCTION

PRINCIPLES OF OPERATION

The unit is managed, timed and controlled by a single chip microprocessor. Permanent storage is provided by an industry standard Electrically Erasable Programmable Memory. User control is provided by three simple push buttons, one for display mode change and the other two for ON/OFF or UP/DOWN as appropriate. The display is a 20 character by 2 row LCD display with backlight for operation in any location.

Power and electrode connections

The unit is designed to be connected to a **permanent** power supply **220/240 volts**, via the mains plug. The mains supply **should not** be timed or interrupted. The unit should be mounted on the wall within 2 metres of the filter and pump.

The unit is designed to come on twice in a twenty four hour cycle for a time dependant on the size of your pool. The user must thus set his pump operating time to suit the times in the table shown under Pool Size Setting display below. Failure to do this will reduce the electrode operating times and reduce the efficiency of the unit.

The control unit is connected to the **electrodes via the grey four core cable**. This cable has four plugs. Two for the electrodes and two for the flow switch, both of which are situated in the electrode chamber. Identification is simple as both pairs of plugs are distinctly different. Polarity of either the electrodes or the flow switch is unimportant so the plugs can be fitted either way.

The unit will operate as soon as power has been established to it and the Pool Size entered into its computer. However, power to the electrodes will only operate when pump is on. Electrode timing always starts when the pump starts unless the pump has been off for less than 30 minutes e.g. for filter cleaning (or automatically after 12 hours if the pump is continuous).

LCD DISPLAYS

On power-up the unit will display **“Welcome to Aligator”** for 10 seconds during which time the electrodes will be off and the electrode current detection circuit will automatically zero itself.

The first normal screen shown below is then displayed. Changing to other display modes is achieved by **pressing the MODE switch**, each time the switch is pressed the screen advances one display. This allows cycling right round all the screen operations. If the switch is not used for more than 10 seconds then the unit reverts automatically to the default display (screen one) electrode current display mode.

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Electrode Current & Alarm

The first normal and default display is as follows:

Current:	82mA	OK
Current Alarm:		ON

Actual current into the electrodes will be displayed, dependant upon your pool setting.

Should the “OK” be replaced by “LOW” or “HIGH” the alarm will be activated, the red LED will flash and the unit will “beep” this indicates that either the pool water balance or the electrodes need attention.

The alarm can be switched **off** by pushing the bottom right hand button or back **on** by pushing the top right hand button.

NOTE: Current Alarm reverts to ON at end of 12 hours

Pool Size Setting

The second display shows what pool size has been selected from the table below, i.e. the size of your pool, for example:-

POOL Ltrs	9-27000
SIZE Gals	2-6000

The Top right hand button increases Pool Size from size 1 to 6.

The Bottom right hand button decreases Pool Size from size 6 to 1

The Alternative options are shown below for various pool sizes.

On Hours for 12 Hour period

LCD Display	Size	Summer	Winter
9 – 27700’ Ltrs 2 – 6000’ Gals	1	2	1
27 – 50000’ Ltrs 6 – 110000’ Gals	2	3	2
50 – 70000’ Ltrs 11 – 160000’ Gals	3	4	3
70 – 100000’ Ltrs 16 – 22000’ Gals *****	4	5	4
100 – 50000’ Ltrs 22 – 340000’ Gals *****	5	6	5
150 – 200000’ Ltrs 34 – 45000’ Gals *****	6	8	6

NOTE: The large pool sizes noted above as ***** requires the larger Aligator unit and cannot operate with the normal domestic unit.

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Summer/Winter Setting

The third display is as shown below with ON/OFF as appropriate, timing effects are as detailed below:

Summer Timing:	OFF
Winter Timing:	ON

The Top right hand button sets Summer ON and Winter OFF

The Bottom right hand button sets Winter On and Summer OFF

Language Setting

The fifth display is as shown below with language as selected:

Language:	English
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The top and bottom right hand buttons allow you to select a language.

English

French

Spanish

Elapsed Times Display

The sixth display is as shown below with Elapsed Hours as appropriate:

(NOTE: Elapsed times are

Electrodes	Pump	Total
000000	000000	000000

The hours shown are the total hours the electrodes have worked, the pump has worked and finally the total hours the power has been connected to the unit.

PART TWO

ELECTRODE CHAMBER

The chamber must be fitted between the pump and the filter. The flow switch is activated by the flow of water pushing it upwards; this indicates to the control unit that the pump is operating. Once the flow ceases the flow switch falls by gravity back between the electrodes. It is therefore of utmost importance that the chamber is fitted to allow this action to take place.

Access to the chamber is by unscrewing the top flange and gradually easing out the top transparent lid with a screw driver. A rubber “O” ring situated around the base of the lid creates the seal. Once the lid is removed the electrodes can be replaced by releasing the 10mm stainless steel bolts securing them through the lid. Make sure on replacing the electrodes, the rubber seal is placed against the lid underface followed by the stainless steel threaded nut then the electrode. Electrodes can be cleaned by simply removing the lid and wiping the electrodes with a cloth. On replacing the lid, make sure the location lugs are in line before pushing the lid into the chamber.

Electrodes

Electrodes are a composition of a number of metals. Under good pool management i.e. keeping the **balance** of the water within range, the electrodes will last up to 12 months. The correct wear pattern should be progressive reduction in the diameter until the electrode is slightly more than the width of a pencil. At this point they should be replaced.

Replace the electrodes only with genuine Aligator Electrode Kits.

If other types are used the result will be a reduction in sanitation and possible staining of the pool walls.

PART THREE

Water Preparation

Test Pool Water and bring to ideal levels:

*pH	7.0	to	7.4
*Alkalinity	90	to	150
*Chlorine	1.2	to	1.5ppm (start up)
*Chlorine	0.6	to	1.0ppm (Normal Operation)
*Cyanuric	40	to	60ppm (No Higher than 80ppm)

Please Note: IMPORTANT

Please Refer to Page 10 of this Handbook

DO NOT POUR CHLORINE GRANULES INTO THE SKIMMER IF YOUR POOL IS FITTED WITH AN AUTOMATIC CHLORINATOR.
PLEASE REFER TO YOUR AGENT OR TO ALIGATOR FOR FURTHER ASSISTANCE.

STABILISED CHLORINE MUST NOT UNDER ANY CIRCUMSTANCES BE MIXED WITH UNSTABILISED CHLORINE.

Cyanuric

Is a stabilising compound used to stabilise chlorine against dissipation by sunlight. If the level is above 80ppm it must be reduced by dumping water and adding fresh until you have acquired the correct level. It is advisable **not** to use **stabilised chlorine** in indoor pools.

Chemical Tables for stabilising your pool water

WARNING: Do not mix chemicals together. Mixing chemicals causes Fire, Explosion and Toxic fumes.

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The chemical quantities are approximate. Use them as a **guide** until you have established the correct amount for your pool.

To establish the size of your pool

Apply the following calculation. This will give you a reasonably accurate indication.
Measure in Meters/

Length x Width x Depth x 1000 = Volume in litres i.e. 10m x 5m x 1.5m x 1000 = 75000 ltrs
To convert to gallons multiply by 0.22. I.e. 75000 x 0.22 = 16500 Gals

pH CORRECTION

Correct Reading 7.0 to 7.4

High Reading Use Dry Acid (**Sodium Bisulphate**) to reduce pH Reading

pH Reading					
Size of Pool		7.6	7.8	8.0	8.2
50000 litre	11000 gals	300 Gram	600 Gram	900 Gram	1.2 kg
75000 litre	16000 gals	600 Gram	900 Gram	1.2 kg	1.5 kg
100000 litre	22000 gals	900 Gram	1.2 kg	1.5 kg	1.8 kg
125000 litre	28000 gals	1.2 kg	1.5 kg	1.8 kg	2.1 kg

Application Method:

Set pump on **FILTER**. Mix dry acid in bucket of water, pour contents around the deep end of the pool. Extreme care should be taken when handling Acid.

For **low reading** use **Sodium Bi-Carbonate (Bi-Carb of Soda)** to increase pH.

Size of Pool		pH Reading 6.8
50000 litre	11000 gals	500 Gram
75000 litre	16000 gals	750 Gram
100000 litre	22000 gals	1.0 Kg
125000 litre	1.25 Kg	1.25 Kg

Application Method:

Set pump on **Bypass/Circulate**, pour Bi-Carb slowly down the leaftrap/skimmer.
Do not administer Bi-Carb with the pump set on filter.

ALKALINITY CORRECTION

Correct Reading 90 to 140ppm

Use Dry Acid (Sodium Bisulphate) to decrease

Test Reading of Alkalinity					
Size of Pool		250	220	200	180
50000 litre	11000 gals	2kg	1kg	750g	500g
75000 litre	16000 gals	4kg	3kg	2kg	1kg
100000 litre	22000 gals	6kg	5kg	4kg	3kg
125000 litre	28000 gals	8kg	7kg	6kg	5kg

Application Method:

Mix small amounts in a bucket of water and pour around the deep end of pool with the pump set on filter. Do not mix more than 1kg at a time in an average size bucket. Care is needed as the acid is very corrosive and any spillage should be diluted with water without delay.

Use Bi-Carb of Soda to Increase

Test Reading of Alkalinity					
Size of Pool		80	60	40	30
50000 litre	11000 gals	2kg	3kg	4kg	5kg
75000 litre	16000 gals	3kg	4kg	5kg	6kg
100000 litre	22000 gals	4kg	5kg	6kg	7kg
125000 litre	28000 gals	5kg	6kg	7kg	8kg

Application Method:

Set pump multiport on **RECIRCULATE ONLY**, pour slowly and directly into the leaftrap/skimmer. Leave pump on **RECIRCULATE ONLY** until all traces of the chemical have entered the pool.

DO NOT ATTEMPT TO PUT BI-CARB INTO THE SKIMMER WITH THE PUMP ON FILTER.

When correcting the stabilisation of the pool using the above chemicals, test after 24 hours and readjust as necessary.

IMPORTANT: When adding large amounts of acid to decrease the Alkalinity, the pH will be reduced to a very low level. The pH will slowly increase over the next ten days as the Alkalinity is reducing. This is normal and will not harm your pool, it is however not recommended to swim in water below 6.5.

Flocculants and Algaecides

Neither of these substances are needed with Aligator. Aligator will kill all known algae and through its own unique magnetic field, remove most unwanted solids from the water. With stubborn algae ALI-CIDE may be used.

Vacuuming and Backwashing

During the first two weeks, frequent vacuuming and backwashing must be done to clear away the residue of solids being solidified by the action of the Aligator. This action makes the water crystal clear. After a period, depending on how contaminated the water was before the **Aligator** was fitted, the vacuuming and backwashing may be resumed at the normal frequency. Visual inspection of the bottom of the pool showing no solids present indicates this situation. A frequent vacuuming and backwashing policy however, is absolutely essential for the good management of your pool.

Chlorine and Cyanuric/Cyanurates

There are Four (4) main donors of Chlorine.

Two are hypo-chlorites, Liquid and Granular, commonly called **Chlorine**.

Two are known as **Stabilised Chlorine**, (Granular or Tablet) these are Cyanuric and Cyanurate.

Their Chemical names are very long so our description will suffice for this booklet.

Stabilised Chlorine is used to minimise the loss of Chlorine in sunlight and therefore is to be recommended in outdoor pools.

Chlorine (Non Stabilised) is used in indoor pools with artificial lighting.

Stabilised Chlorine in tablet form. We recommend the slow dissolving (200g) tablet (dissolves in 5 to 7 days) in outdoor pools and also indoor pools where sunlight penetrates the water.

IMPORTANT: Whenever Stabilised chlorine is used, the Cyanuric Acid level must be monitored and kept below 80ppm.

(See paragraph headed Cyanuric/Stabilised Chlorine for more information).

DO NOT MIX STABILISED CHLORINE WITH NON STABILISED CHLORINE EXPLOSION MAY RESULT.

Chlorine Levels

Chlorine level should be maintained at 1.2 to 1.5 for the start up period. After this period the level can be reduced further and maintained at 0.6ppm / 0.8ppm.

Remember a heavy bathing load demands more attention to the Chlorine level.

Do not pour chlorine directly into pool. This may cause black staining to appear on the floor of the pool. Instead, dissolve slowly in a bucket of warm water and then add through the weir/skimmer.

If you choose to use the Chlorine tablet (200g) these can be placed in the skimmer/weir basket. Do not use fast dissolving tablets. A good quality slow dissolving tablet should last approx 5 to 7 days.

IMPORTANT; Do not assume that because the tablet has dissolved you need to put a new one in. Test first to see what level exists in the water before applying further chlorine.

Chlorine Dosing

The dosage of chlorine, and frequency at which it must be administered can only be determined by trial and error, as each pool is different in size, usage, etc. Once you have established the dosage for your pool it becomes a simple matter to maintain the levels required.

A point to remember is; both **Aligator** and chlorine work together to sanitise your pool and protect you from bacteria. Neither will work efficiently if the **balance of the water** is out. There is no point in administering chlorine if the pH and Alkalinity are out of range. Make sure you have a regular test program.

Shock Treatment

The only time when a pool needs to be shock treated is when it has been:

1. Neglected and the water has turned green
- Or
2. A high content of Cyanuric acid is present.

In any other circumstances such as the water being cloudy, we recommend that testing and readjustment of the **balance** of the water normally will bring a pool back to clarity. In the case of (1) above the following programme is advisable in the order stated.

- a) Backwash and vacuum thoroughly making sure there is no debris left in the pool.
- b) Test the **balance** and correct as required. It advisable to bring the pH down to 7.0
- c) Apply 200g/200ml of unstabilised granulated/liquid chlorine for every 2000 gal/10000ltrs
- d) Vacuum and backwash over the next two days periodically checking and correcting the **balance**. The water should clear after two days.

In the case of (2) above, the same procedure can be carried out, and the water may clear. This will however be a temporary situation, as the water will almost certainly cloud up again until the Cyanuric level has been reduced to the correct amount by simple dilution of the water.

Stabilised Chlorine / Cyanuric / Cyanurate

All stabilised chlorine forms **Cyanuric acid** in the water. This substance is the stabiliser.

The level at which it is at its most efficient is between 40 and 60ppm. Over this level it starts to become a problem reducing the power of the chlorine and the effect of the Aligator. We therefore strongly recommend you purchase a test kit, and periodically test your pool. If you find that you are approaching the danger level, simply revert to using Non Stabilised chlorine for a period, and allow the normal backwashing to reduce the level. If the level exceeds 80ppm you must take more positive action and dilute the water. The only effective way to dilute the level is to dump water. A guide to the amount to be dumped is:

At a level of 80ppm 20% of the entire pool volume.

At a level of 100ppm 50% of the entire pool volume

Above this level 75% of the water should be replaced.

Copper levels

We recommend you obtain a low free copper level test kit and check the level every month. The correct level of free copper should be between .2 and .6 parts per million. If the level is above .6ppm or below .2ppm then please consult your dealer or contact us directly for advice.

Important:

**All chemicals are dangerous and should be handled carefully. Do not mix chemicals.
The oxidising effect can cause an explosion, fire and toxic fumes.**

Test Kits

There are a number of test kits on the market all of which have their own instructions in their use. For the successful operation of the Aligator you need to be able to test for:

pH, Alkalinity, Chlorine, Copper (Low)

In addition a **Cyanuric test kit** is advisable. pH and Chlorine test kits alone are not sufficient for good management.

Test kits in good condition are vital for the good management of your pool.

Test kits should be kept in a cool place away from direct sunlight. The chemicals and tablets contained therein should not be more than one year old as they deteriorate with age, so they should be updated frequently.

Note; If you have a defective test kit you will never achieve good management of your pool.

Winterisation of outdoor pools if pump circulation is maintained throughout winter

The information contained herewith is intended to be a **guide** to assist operators of outdoor pools in **temperate climates** (not tropical) to close their pools down for the winter in the most economical way.

IN issuing this **guide** **ALIGATOR** does not, and will not be held responsible for any problems occurring due to its implementation.

1. Clean all debris and dirt from the pool.
2. Backwash the filter until the sight glass is absolutely clear.
3. Top up pool to its normal level.
4. Bring the pH to 6.8. Alkalinity 90-150.
5. With the pump set on filter, shock treat the pool according to the instructions given earlier. Re-test the pH and adjust if necessary.
6. Set pump n **BYPASS/CIRCULATE** and leave on this setting.
7. Set the Aligator to the **winter setting mode**.
8. During the course of the winter, periodic checks and corrections of the pH should be made and debris cleaned from the pool. If it necessary to use the vacuum, the pump should be set on **waste** and not on filter, after which the pool should be topped up to its normal level. Reset the pump to **bypass/circulate** after cleaning operation is complete. **Note: Once the above operation has been completed the pool is NOT suitable for bathers.**

IF THE POOL IS TOTALLY CLOSED DURING THE WINTER AND THE PUMP CIRCULATION IS INOPERATIVE, THEN YOU MUST REVERT TO THE START UP PROCEDURE DESCRIBED IN PART ONE OF THIS BOOK ON REOPENING THE POOL IN THE SPRING.