

**UNIQUE AC AUTO CLEAN**

**SALTWATER CHLORINATOR**

**OWNERS HANDBOOK**

*Manufactured by:*

**JOY POOL SYSTEMS PTY LTD**

ACN 003 452 659 ABN 60 003 452 659

**UNIT 21, 2 RICHARD CLOSE**

**NORTH ROCKS NSW 2121**

**AUSTRALIA**

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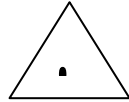
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## PREFACE

Joy Pool Systems Pty Ltd is a Sydney, Australian based company which has been involved in the manufacture and distribution of Salt Water Swimming Pool chlorinators for a period now spanning over 25 years. Up until this period, the sanitization of swimming pools was achieved by manually dosing domestic swimming pools with powder or liquid type chlorine. Today's market sees around 90% of new pools throughout Australia fitted with the automatic Salt Water Chlorinator.

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*Important Safety Matters are indicated by*



### **SAFETY – FOR YOUR SAFETY AND THE SAFETY OF OTHERS BEFORE YOU OPERATE THIS CHLORINATOR.**

Do not operate the chlorinator unless you have read all WARNINGS and INSTRUCTIONS and understand all safety / operational procedures contained in this manual. Ensure that the chlorinator (Power Pack, Plumbing and Cell) has been installed by competent personnel to the instructions contained in this manual.

Power Pack to be installed according to AS/NZ 3000:2000 and located outside pool Zone 2 area.

Servicing should only be attempted by trained technicians. Dangerous voltages are present inside the chlorinator enclosure. Untrained personnel should not attempt to remove the cover of the power pack. Return to supplier for repair.

For any unresolved problems, contact your dealer.

Keep this manual in a safe, convenient location and refer to it if any doubt exists over operational or safety matters.



**SAFETY – TO PREVENT RISK OR INJURY TO YOURSELF AND OTHERS OBSERVE THE FOLLOWING SAFETY INSTRUCTIONS..**

Understand all safety and operational procedures contained in this manual and check the condition of the Chlorinator and Cell before use. Again, if in doubt contact your dealer before proceeding.

Do not attempt to modify the chlorinator or installation in any way.



**SAFETY – TO PREVENT RISK OR INJURY TO YOURSELF AND OTHERS OBSERVE THE FOLLOWING SAFETY INSTRUCTIONS...**

The chlorinator should not be operated by personnel (eg. Operating time clock switches, adjusting time clock, safety cutout, cleaning cells etc.) when the surrounding area is damp. In addition, personnel should not operate the unit with bare feet or wet hands. This will minimise the risk of electrocution in the event of a fault developing either in the chlorinator or the electric power wiring to the unit.



**SAFETY - CELL CLEANING USES HYDROCHLORIC ACID. CARE IS REQUIRED.**

Cell cleaning may require the use of Hydrochloric Acid, which a highly corrosive chemical that needs to be handled with extreme care. Personnel performing cleaning should be equipped with safety goggles and acid resistant gloves as a minimum.

Any spills should be immediately flushed with water. When diluting the acid ALWAYS ADD ACID TO WATER / NEVER THE REVERSE, to do so will cause a very violent chemical reaction. Take care when immersing the cell in the dilute acid solution to ensure that no acid splashes or spills occur. When finished wash gloves and used containers in water.

Please note that the edges of the cell electrodes can be extremely sharp, avoid contact when cleaning as lacerations may occur.



**SAFETY – IF IN ANY DOUBT ABOUT THE SAFETY OF THE UNIT OR IF THE UNIT MALFUNCTIONS THEN ADOPT THE FOLLOWING SAFETY INSTRUCTIONS...**

Turn off the power to the unit at the power point, disconnect the power cord and call for service. Please note that dangerous voltages are always present inside the unit - irrespective of the setting of the front panel controls or time clock.



**SAFETY – STORAGE OF CHEMICALS**

Never store chlorine and hydrochloric acid in the same area. They are both very active chemicals and can react, if accidentally mixed, with explosive results.



## **SAFETY – ASPECTS TO BE CONSIDERED FOR SERVICING..**

Servicing should only be attempted by trained technicians. Dangerous voltages are present inside the chlorinator enclosure. Untrained personnel should not attempt to remove the cover of the power pack.

Servicing should be carried out with the power switched off and the chlorinator disconnected from the power point. Where it is absolutely necessary to power the unit for service then it shall be powered from the unearthed secondary of a safety isolation transformer or by means of an approved earth leakage detection unit.

The chlorinator is a prescribed item under NSW LAW AND CANNOT BE MODIFIED IN ANY WAY.

As part of servicing the following safety checks need to be performed on the chlorinator: -

- The interior of the unit has not been modified or tampered with in any way.
- There is adequate separation between mains and extra low voltage parts.
- All insulating panels are in place and terminal connections are tight.
- Earth pin of power cord to all external metal parts of the chlorinator to have a resistance value not exceeding 0.1ohm.
- MUGGER power cord active and neutral at 500 V D.C. to all external metal work and output cell terminals in turn. Resistance value not to be less than 2 meg ohm.
- Visually ensure that all parts of the unit are in good condition. Insulation on power cords in good condition and any corrosion on the pins of the power cord plug to be rectified.

Place a sticker on the underside of the unit identifying the Company that carried out the service, date of service, safety check carried out and the signature of the service technician that carried out the work.

## CONTENTS

|  |       |
|--|-------|
| Introduction .....                             | 2     |
| Safety .....                                   | 2     |
| Identification Details .....                   | 6     |
| Location & Installation .....                  | 7     |
| Pool water Preparation .....                   | 7     |
| Mount the Power Pack .....                     | 7     |
| Installation of the Cell .....                 | 7     |
| Installation Diagram .....                     | 8     |
| Check list before turning Chlorinator on ..... | 9     |
| Operation/Start up procedure .....             | 9     |
| Setting of the Time clock .....                | 9     |
| Summer setting .....                           | 10    |
| Winter setting .....                           | 10    |
| Understanding the Chlorine Monitor .....       | 11    |
| General information on water care .....        | 12    |
| Maintenance .....                              | 13&14 |
| Salt Requirement Chart.....                    | 15    |
| Check list when problems occur .....           | 16    |
| Service-Check List.....                        | 17    |
| Warranty .....                                 | 18    |

## IDENTIFICATION DETAILS



### POWER PACK

**A...Power Pack**

**B...Time Clock** - refer Page 9

**C...Pump Switch** (on Time Clock)

- refer Page 9

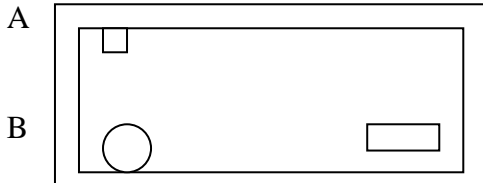
**D...Chlorine Monitor.** -see page 9

**E...Chlorine Level knob** –

C

D

E



### BASE OF POWER PACK

**A---Reset Button** – re-settable circuit breaker.

**B---Three pin Pump socket**

**C....Cell Termination Box**  
-Junction Box

A

B

C



### CELL

**A...Cell Housing\***

**B...Cell Electrode**

**C... 'O' Ring** – use silicone lube only

**D....Screw Cap** – unscrew anti-clockwise.

C D

B A

*\*Install either way for ease of servicing.*

## LOCATION AND INSTALLATION

To ensure compliance with regulations, safety in operation and long term reliability please observe the following:

- Unit to be installed by qualified personnel.
- Power Pack to be installed according to AS/NZ 3000:2000 and located outside pool Zone 2 area.
- Warranty is null and void if it is installed in direct sunlight or enclosed in a hot area. Adequate ventilation must be provided around the Power Pack.
- Protection to be provided from inclement weather.

### 1. POOL WATER PREPARATION

1. Measure the Pool size in litres to determine salt requirements.
2. Refer to salt requirements chart-refer page 15. Add 5 kg of **refined salt** per 100 litres of water in shallow end of pool.
3. Connect up vacuum hose and place vacuum head close to salt.
4. The salt *must* be dissolved completely **before chlorinator is turned on**. (24 hours summer – 72 hours winter)

### 2. MOUNT THE POWER PACK

1. Screw mounting bracket to wall or post with slots facing upwards and within 1.5 meters of the power outlet and within 1.5 meters of the filters return to Pool Line.
2. Place back of Power Pack to mounting bracket and slot into place.
3. **Note; Do not mount in direct sunlight.**

### 3. INSTALLATION OF THE CELL

Determine Filter Return to Pool Line

1. Cell must be in a horizontal position with inlet and outlet sockets facing downwards as per diagram (Page 8).
2. Cell must be installed before all breakout lines such as dual outlets, Spa line.
3. Cell must be installed after the heater (where fitted) and Solar systems. (See Diagram Page 8). Pool cleaner pump motors that draw water from the return to pool line should be fitted after the Cell for correct pool chlorination.
4. CAUTION: It is very important that no gas generated from the Cell can find it's way back in to the Filter pump, Heater, Solar Systems or Spa Blowers.
5. When position to install cell has been decided, turn off Filter AND CLOSE OFF VALVLES.
6. If Return to Pool Line is 40mm pipe, use 50-40mm reducers provided. If 50mm pipe, glue pipe/fitting direct to inlet and outlet ports.

4. **POWER PACK / CELL CONNECTION**

1. The Power Pack **must not be** connected to any external timer. Only the timer within the unit may be used.
2. The Cell is already connected to the Terminal Box, under the Power Pack
3. If it is necessary to disconnect the cell lead – re-assemble as follows:
  - a. Attach Blue Wire of Cell lead to Blue wire of Terminal Box.
  - b. Attach Brown wire of Cell lead to Brown wire of Terminal Box.
  - c. Attach small Black Sensor lead wire to center terminal.

**Note: The Unit may malfunction if wired incorrectly and will void warranty.**

5. **PUMP / CHLORINATOR LEAD CONNECTION**

- a) Insert Pump plug lead into 3 pin socket underneath the Power Pack.
- b) Insert Chlorinator plug lead into power point.

**Note: No external timer may be used.**

**Do not plug more than one pump into socket underneath Power Pack.**

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## **INSTALLATION DIAGRAM**

**Note: Water may flow either way through inlet/outlet ports on cell. (Cell may be reversed as shown in diagram). Gas and electric heaters require cell installed minimum of 1 metre from heater outlet.**

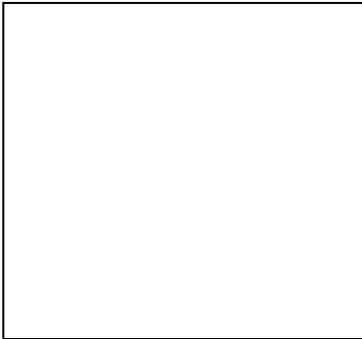
## CHECK LIST BEFORE TURNING ON.

1. Pool Salt must be dissolved.
2. Allow solvent cement to set before applying pressure. (allow 24 hours).
3. Valves reopened.

## OPERATION / START UP PROCEDURE.

1. Set Time clock and operating times.  
This procedure is VERY important, see Page 10.
2. Set *Pump Switch (on timer)* to "AUTO" position.
3. Adjust *Chlorine Level Knob* to normal green sector after start up by turning clockwise.
4. Turn on Main/s Power supply.
5. Pump and Chlorinator will commence operation when the time-clock setting reaches "ON" position.

## SETTING OF THE TIME CLOCK



This 24 hour timer controls the Pump/Filter/Chlorinator which is switched ON and OFF by the position of the coloured tappets. The chlorinator/pump is ON when the white triangle points to the tappets that have been pushed to the outer perimeter of the timer face, and OFF when the white triangle points to the tappets that are closer to the numbers on the timer face. Each tappet represents 15 minutes. The tappets are simply pushed towards the outer perimeter of the timer face to program the desired chlorination time periods. (The white triangle is located at the 2 o'clock position and should be pointing to current time).

Normal - "AUTO" operation

Slide up to "ON" for continuous running  
(Overrides Timer)

Slide down to "OFF" position. Pump/  
Chlorinator will cease to operate

PUMP SWITCH on Time Clock

**IMPORTANT.**

**CELL WILL NOT CORRECTLY AUTO-CLEAN UNLESS THE FOLLOWING IS ADHERED TO:**

All chlorination time cycles must be EQUAL to achieve efficient auto-cleaning of the cell. Setting examples:

|                 |                   |  |
|-----------------|-------------------|--|
| SUMMER SETTING: | 6.00am to 10.00am | -16 tappets out for 4 hours morning running (0600hrs to 1000hrs)   |
|                 | 5.00pm to 9.00pm  | -16 tappets out for 4 hours afternoon running (1700hrs to 2100hrs) |
| WINTER SETTING: | 6.00am to 7.30am  | -6 tappets out for 1.5 hours morning running (0600hrs to 0730)     |
|                 | 4.00pm to 5.30pm  | 6 tappets out for 1.5 hours afternoon running (1600 to 1730)       |

**WARNING:** Turn the Time-clock dial only in the direction of arrow, i.e. *Clockwise*, or damage will result.

If time-clock has been incorrectly set, (timer sequence must be even) and you have a build-up of calcium on your cell then please perform the following:

1. Clean the cell- refer page 14
2. Reset the timer for equal 'ON' period
3. Set the *Chlorine Level Control* refer Page 11
4. Your chlorinator is now ready for operation.

**IMPORTANT:** To ensure maximum auto-cleaning efficiency you must ensure you operate your equipment as follows:

1. Do NOT TURN OFF POWER TO THE UNIT.
2. All chlorination time cycles MUST BE EQUAL TO ACHIEVE EFFICIENT AUTO-CLEANING OF THE CELL (Refer to setting of the timer 'ON' period.)
3. Minimise the frequency of adjustments of the chlorine level.
4. If you need to add chlorine during peak bathing periods or high water temperatures use liquid chlorine as some granular types of chlorine have a calcium content (if granular chlorine is used, premix in a bucket of water to separate calcium content). It is recommended to use only liquid chlorine.

## UNDERSTANDING THE CHLORINE MONITOR.



The Chlorine Monitor presents a visual indication of the chlorination process of your Aquajoy Chlorinator. It does NOT relate to pH control, but supersedes the need for frequent messy chemical analysis and test kits; it is a passive INDICATOR and slow to change.

Allow at least 7 DAYS on your pumping program for the pool and cell to “settle in” before placing reliance on the monitor as certain slow chemical changes take place in the initial salt charging.

The Chlorine Monitor is of the ‘CENTRE ZERO’ type. For no output to the cell the needle is in the vertical, CENTRE position. The meter alternates between the (+) and

(-) positions for each alternate output cycle indicating that the cell is being automatically self cleaned.

The Aquajoy chlorinator is available in 2 Models to suit the capacity of your pool. This capacity is related to details on the label fixed to the front of the chlorine monitor.

20A = pools to a maximum of 90,000 cubic meters capacity.

30A = pools to be maximum Of 150,000 cubic meters capacity.

Each level is divided into coloured areas. YELLOW, GREEN, ORANGE (see colour coding in lower left hand corner) and the monitor needle position will vary according to the condition of your pool and cell i.e.: salinity or salt content, pool water temperature, and the cleanliness condition of the cell which is an electrolytic generator of chlorine.

The letters A to E at the top of the scale of the monitor are a further reference relating to the indicator needle position within a coloured sector.

A summary of the above information will be indicated as in the following:

|        |    |   |
|--------|----|---|
| YELLOW | 1. | Calcium deposit on cell electrodes and or     |
|        | 2. | Salt level has lowered (page 14) and or       |
|        | 3. | Very low pool temperature.                    |
| GREEN  |    | Normal  |
| ORANGE |    | High output from Aquajoy chlorinator due to   |
|        | 1. | Higher water temperature (heated pool) and or |
|        | 2. | Salt level over 5000 ppm minimum.             |

**NOTE:** *The chlorine Monitor is factory calibrated at 25 degrees Celsius water temperature. Higher temperatures will increase needle setting into orange sector.*

# **GENERAL INFORMATION ON WATER CARE**

A basic knowledge of pool-care fundamentals will allow some insight in to the function of the various pieces of equipment and chemicals used in and around your pool.

The three fundamental requirements in maintaining a pool or any body of water are:

- 1 Adequate Filtration.
- 2 Sufficient Chlorination
- 3 Proper pH Control.

## **FILTRATION**

It is necessary to pass water through a filter to remove the debris. A powerful pool pump (with normal filter pressures) will pump approx, 10,000 litres an hour. Normal pool practiced, demands all the pool water pass through the filter at least one and one half times (1.1/2) per day. This is normally achieved in a six to ten hour filtration cycle to remove 60% of the debris in the water. The longer the filtration cycle, the better the clarity and polish in the water. However excessive filtration causes excessive electricity bills and wear and tear on equipment.

## **CHLORINATION**

Chlorine is required to react with the debris, removing stains by oxidation and to sterilize the water of harmful bacteria. Chlorine residual, or reserve, is required for bather loading. Normally, if 1 ppm of chlorine is introduced, then one and one half (1.1/2) filtration cycles of the pool water, will leave the water in a clean clear condition. Clear water is achieved only with filtration and chlorination. Longer filtration cycles can reduce the chlorine demand and conversely more chlorine can reduce the filtration requirements.

## **PH**

The acid/alkaline balance of water is measured using the pH scale. PH 14 is alkaline, 0 is acid, and 7 is neutral. PH control is the third essential to pool care. Within the pH range of 7.0 to 8.0 chlorine will work as a bleach and sterilizer and the precipitates formed will be at their maximum size. A pH above 8.0 is too alkaline and will cause skin rashes and below 7.0 will sting sensitive tissue due to acidity. The ideal pH is in the range 7.0 to 7.4.

## CONCLUSIONS

It follows then that your pool must have an adequate circulation, chlorination and filtration systems and the pH should be in the correct range.

The use of Pool Stabilizer (isocyanuric acid) in hot weather is essential to help keep a reserve of chlorine in the pool.

If times have been incorrectly set and you have a build-up of calcium on your cell then please perform the following:

1. Clean the cell – refer page 14
2. Reset the Timer for equal 'ON' period.
3. Set the Chlorine level control – refer page 9
4. Your chlorinator is now ready for operation.

**IMPORTANT:** To ensure maximum auto-cleaning efficiency you must ensure you operate your equipment as follows:

1. Do NOT TURN OFF POWER TO THE UNIT.
  - a. All chlorination time cycles MUST BE EQUAL TO ACHIEVE EFFICIENT AUTO-CLEANING OF THE CELL (Refer to setting of the timer 'ON' period. Refer Page 10
  - b. Minimise the frequency of adjustments of the chlorine level.
  - c. If you need to add chlorine during peak bathing periods or high water temperatures use liquid chlorine as some granular types of chlorine have a calcium content (if granular chlorine is used, premix in a bucket of water to separate calcium content). It is recommended to use only liquid chlorine.

## MAINTENANCE:

**Before** performing pool maintenance, vacuuming etc. ensure *that the timer is not, and will not,* be supplying power to the chlorinator during maintenance period (refer setting of timer – page 9).

1. Turn the *Chlorine Level Control* to minimum – off – position, fully anticlockwise.
2. To power the pump, turn the *Pump Switch* to the 'ON' position. (Pump switch on time clock).

**After** completion of maintenance.

1. Turn the Pump Switch from the "ON" position to the 'AUTO' position.
2. Readjust the Chlorine Level Control to normal Green Sector.
3. The unit is now back to its normal operating mode.

## POWER PACK.

Provided the Power Pack is installed as instructed, no maintenance is required. However it should be kept clean and inspected regularly for spiders/ants etc. Do not interfere with Timer/Intervals.

## CELL.

At the beginning of each summer period check that cell lead connections are tight. Your Auto Clean cell will function to ensure pool owner satisfaction. If calcium buildup occurs the following checks should be made.

1. Ensure timer is on correct settings (refer page 9) If not – reset.
2. Higher than normal calcium levels are present in the pool water and therefore electrodes may require manual cleaning on occasions.
  - A Switch off the filtration and Chlorinator and close valves – leave mains power on.
  - B Unscrew cap in an anti-clockwise direction.
  - C Remove electrode holder and soak electrodes in very hot water and detergent.
  - D If ineffective, mix one part of Hydrochloric Acid to 15 parts of water. (Add Acid to water). Immerse cell until clean and rinse in fresh water.
  - E Insert electrode holder into Cell body, insuring locating lug is at top of cell.
  - F Lubricate 'O' ring using only silicon grease for complete sealing (do not use vasaline).
  - G Open valves, turn on filtration and chlorinator.

## ADDING SALT

Use only refined salt in your pool. The Chlorinator is designed run at 5000 ppm – lower than 4000 will cause problems in your pool and may void electrode warranty.

1. Determine salt requirements.
2. Ensure that the Chlorine Level Control is turned to the minimum-off-position fully, anti-clockwise.
3. Add salt into the shallow end of the pool.
4. Allow salt to dissolve.
5. Readjust the Chlorine Level Control to normal Green Sector.

## BACKWASHING FILTER

The chlorinator Chlorine Level Control must be turned to the minimum position when backwashing (manually) for long periods, or when vacuuming to waste.





# SERVICE – CHECK LIST

## *Remember*

### BEFORE PICKING UP THE TELEPHONE

### HAVE YOU COMPLETED THE FOLLOWING CHECK LIST:

1. Is my pH correct?
2. Is my salt level correct?
3. Are my electrodes clean: (Cell)?
4. Am I running the chlorinator long enough?
5. Have I added stabilizer?
6. Have I read my Aquajoy instructions correctly?

Should your Pump Motor fail, or other problems do not allow you to operate your Aquajoy Chlorinator in the normal manner, Sodium Hypo chlorite (liquid Chlorine) may be added to keep the pool sterile until the malfunction is corrected.

### NOTE:

Unit must be returned for service to:-  
**JOY POOL SYSTEMES PTY LTD.**

ACN 003 452 659

Unit 21/2 Richard Close, North Rocks, NSW 2151 Australia

Telephone: (02) 9630 5011 Fax: (02) 96834750

Email: [sales@aquajoy.com.au](mailto:sales@aquajoy.com.au) Website: [www.aquajoy.com.au](http://www.aquajoy.com.au)

## WARRANTY

For a period of 24 months from the date of purchase JOY POOL SYSTEMS PTY LTD warrants to the original purchaser that the AQUAJoy CHLORINATION UNIT shall be free from defects in materials and workmanship. The Cell's anode coating carries a 36 month \*pro rata replacement warranty. Commercial Installations are for 6 months on Power Pack and Cell with no Pro Rata provision on Cell. The Warranty shall be void if unit's case or cabinet be opened or altered or modified during this period. If a defect should occur the unit must be returned to JOY POOL SYSTEMS PTY LTD and PROOF OF PURCHASE presented.

Purchases sole and exclusively remedy in the event of defect is expressly limited to correction of the defect by adjustment, repair or replacement at JOY POOL SYSTEMS PTY LTD election and sole expense, except there shall be no obligation to repair items which by their nature are expendable. Such items include electrodes and rectifier devices.

JOY POOL SYSTEMS PTY LTD shall not be liable for loss of profits or benefits, indirect, special, consequential or other similar damages arising out of any breach of warranty of otherwise.

**PLEASE NOTE:** Labour and or service calls are not included in this warranty. No replacement parts will be supplied prior to the return of any faulty parts. Freight on returns is the responsibility of the purchaser.

**Warranties shall be void if correct timer settings are not adhered to.**

**Warranties shall be void if correct installation is not adhered to as outlined in the installation procedures.**

**Warranties shall be void if wired incorrectly. It is the owners responsibility to ensure correct wiring at the time of installation.**

**Warranties shall be void if cell shows signs of excessive acid or too strong a concentration of acid is used in washing of the anodes of the cell.**

**Warranties shall be void if cell anode electrodes are engulfed in deposits and the owner fails to remove such deposits.**

**Warranties shall be void if the pool size exceeds the rated Cell size, or salt levels are less than 4500 p.p.m.**

Pro Rata applies from purchase date.