



SALTWATER CHLORINATOR

OWNERS HANDBOOK

AUTO DELUXE & STANDARD

Manufactured by:

JOY POOL SYSTEMS

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**DO NOT MOUNT THE POWER
PACK IN DIRECT SUNLIGHT.
DO NOT RUN POWER PACK WHEN
ADDING SALT, PUMP ONLY.**

The pump must always be operating and water flowing through the AQUAJOY cell when the AQUAJOY is switched on.

Please check that the pump is functioning correctly before assuming that the AQUAJOY unit is not working.

Your AQUAJOY is fitted with a light which indicates when the unit is switched on.

The AQUAJOY *must* be switched off at the switch marked “CELL” when vacuuming to waste, backwashing (manually) for long periods or when salt has been added to the pool.



POWER PACK



CELL

Important Safety Matters are indicated by



SAFETY PRECAUTIONS



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 / operating 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 is 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 front panel 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 is 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. Take care when immersing the cell in the diluted 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, ADOPT THE FOLLOWING SAFETY INSTRUCTIONS:

Turn off the power to the unit at the power point. Disconnect the power cord and call for service.



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 switch 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.
- Megger 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 is 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.

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INTRODUCTION

Congratulations on your choice of “AquaJoy” Salt Water Chlorinator. Check your Model and follow appropriate instructions. Care and only top-quality components have been used to ensure you, the Pool Owner, may enjoy the benefits of your chlorinator. No commodity can operate successfully without understanding. This Handbook has been compiled to assist you on Basic Pool Care.

“AQUAJEY” SALT WATER CHLORINATOR MODELS

1. STANDARD
2. AUTO DELUXE Time Clock



AQUAJEY STANDARD

Ideal for established and new pools, where a time clock is already fitted.

AQUAJEY AUTODELUXE T.C.

Similar to the Standard but fitted with a time clock for automatic filter operation.



AQUAJEY CELL

This unique design is engineered for maximum chlorine output. It features the latest clear (see through) material and is available in three sizes.



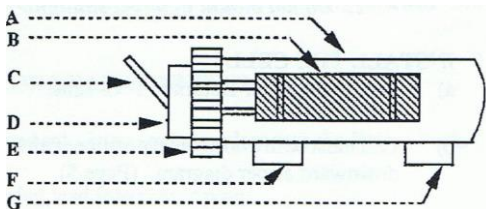
CELL COMBINATIONS

60cm	60,000 litres
90cm	90,000 litres
150cm	150,000 litres

IDENTIFICATION DETAILS & EXPLANATIONS



- A. Power Pack
- B. Chlorine Monitor – see page 11.
- C. On / Off / Auto switch. Up “ON”, in the middle “AUTO” and Down is “OFF” In the “On” position pump will run continuously by over-riding the time clock – normal position “AUTO” when in time clock mode.
- D. Chlorine production dial. Anticlockwise to reduce, clockwise to increase.
- E. Time clock – see page 12.
- F. 3A Circuit Breaker.



- A. Cell Casing
- B. Cell Electrodes
- C. Cell Lead to Power Pack
- D. Electrode Holder
- E. Screw Cap – unscrew anti-clockwise
- F. Outlet or Inlet Port *
- G. Inlet or Outlet Port *

* Install either way for ease of removal when cleaning.

INSTALLATION

These instructions should be read and understood completely before starting installation. **Correct installation is mandatory for correct and safe operation.**

1. POOL WATER PREPARATION

- a) Measure the pool size in litres to determine salt requirements.
- b) Refer to salt requirement chart. (page 10). Add 4kg of **refined salt** per 1000 litres of water in shallow end of pool.
- c) Connect up vacuum hose and place vacuum head close to salt. This will cause salt to dissolve quicker.
- d) **BEFORE CHLORINATOR IS TURNED ON** the salt must be dissolved completely (24 hours in summer, 72 hours in winter).

2. MOUNT THE POWER PACK

- a) Screw mounting bracket to wall or post with slots facing upwards within 1.5 metres of the power outlet and within 1.5 metres of the Filter Return to Pool Line.
- b) Place back of Power Pack to mounting bracket and slot into place.
Note: Do not mount in direct sunlight.

3. INSTALL THE CELL

- a) Determine Filter Return to Pool Line.
- b) Cell must be in a horizontal position with inlet and outlet sockets facing downward as per diagram (page 5).
- c) Cell must be installed before all breakout lines such as dual outlets, Spa lines.
- d) Cell must be installed after the heater (where fitted) and Solar systems (see Diagram Page 5). Pool cleaner pump motors which draw water from the return to pool line should be fitted after the Cell for correct pool chlorination.

- e) **CAUTION.** It is very important that no gas generated from the Cell can find its way back into the Filter Pump, Heater, Solar Systems or Spa Blowers.
- f) When position to install Cell has been decided, turn off Filter AND CLOSE OFF VALVES.
- g) If Return to Pool Line is 40mm pipe, use 50-40mm reducers provided. If 50mm pipe, glue pipe/fittings direct to inlet and outlet ports.

4. POWER PACK / CELL CONNECTION

- a) The Cell is supplied already connected to the Terminal Box under the Power Pack.
- b) If it is necessary to disconnect the cell lead, re-assemble as follows:
 - i. Attach Blue wire of cell lead to Blue wire of Terminal Box.
 - ii. Attach Brown wire of Cell lead to Brown wire of Terminal Box.
 - iii. Attach small Black Sensor lead wire to centre terminal.

NOTE: The unit cannot function if wired incorrectly and will void warranty.

5. PUMP / CHLORINATOR LEAD CONNECTION

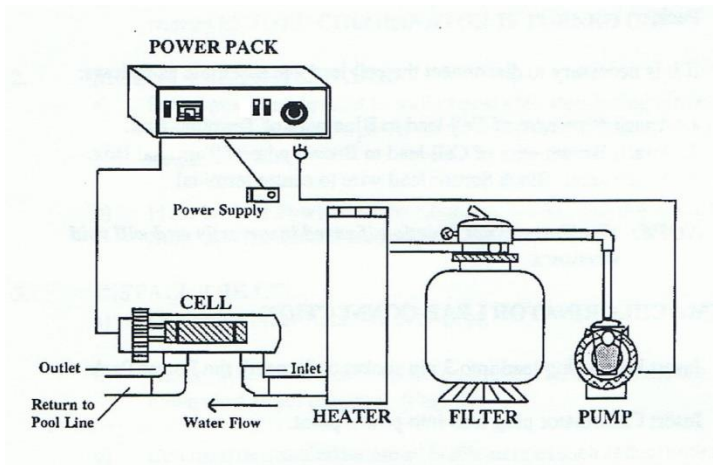
- a) Insert Pump plug lead into 3 pin socket underneath the Power Pack.
- b) Insert Chlorinator plug lead into power point.

NOTE: Do not plug more than 1 pump into socket underneath Power Pack.

CHECK LIST BEFORE TURNING ON

1. Pool Salt all dissolved.
2. Glue is set (allow 24 hours).
3. Valves re-opened.

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.

OPERATION – START UP PROCEDURE

- a) Time Cell Switch on “ON” position.
- b) Set Chlorine Production Switch to maximum on position. Turn on Mains / Power supply.
- c) Filter and Chlorinator are now running.
- d) Check Clock and running times – see Page 12.
- e) Set Chlorine Monitor needle is in normal operation sector.

CHLORINE PRODUCTION TEST

1. Turn on Filter and Chlorinator.
2. Place thumb over chlorine test vial and place next to return to pool outlet.
3. Allow water to fill vial and replace thumb over vial before return to surface.
4. Add the chlorine test tablet and note the reading.
5. The reading should be greater than 1 ppm.

NOTE: ENSURE CHLORINE PRODUCTION SWITCH IS ON HIGH SETTING DURING TEST. HIGH SETTING SHOULD BE USED DURING SUMMER AND WARMER WATER CONDITIONS.

GENERAL INFORMATION ON WATER CARE

A basic knowledge of pool care fundamentals will allow some insight into 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. Typically, a powerful pool pump (with normal filter pressures) will pump approx. 10,000 litres an hour. Normal pool practice demands all the pool water pass through the filter at least one and one-half times (1½ times) per day and this is normally achieved in a six to ten hours filtration cycle to remove 60% of the debris in the water. The longer the filtration cycle the better will be 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 sterilise 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 (1½) 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 7.8 chlorine will work as a bleach and steriliser 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 tissues due to acidity. The ideal pH is in the range of 7.0 to 7.4.

CONCLUSIONS

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

The use of **Pool Stabiliser** (iso-cyanuric acid) in hot weather will help keep a reserve of chlorine in the pool.

MAINTENANCE

CLEANING OF THE CELL

Check at weekly intervals to determine amount of deposit (calcium etc.) on the electrodes. A heavy build-up may interfere with the flow of electrical current and subsequently the production of Chlorine. It may also damage the anode electrodes and cause damage beyond repair.

1. Switch off the filtration and Chlorinator and close valves.
2. Unscrew cap in an anti-clockwise direction.
3. Remove electrode holder and soak electrodes in very hot water and detergent.
4. If ineffective, we recommend you immerse the Cell in Lo-Chlor "Cell Clean". Soak for 30 minutes or until clean and rinse in clean water.
5. Insert electrode holder into Cell body, ensuring **locating lug** is at top of cell.
6. Lubricate "O" ring using only silicon grease for complete sealing.
7. Open valves, turn on filtration and chlorinator.
8. Check Chlorine monitor reading.

ADDING SALT

Use only refined salt in your pool. The chlorinator is designed to run in at least 4,000 ppm of Salt – **lower than 4,000 ppm will cause problems in your pool and may void electrodes warranty.**

1. If after cleaning Cell the Chlorine Monitor is not operating in the normal position, add 1 x 25kg bag of salt into pool at shallow end. Ensure Chlorine production dial is turned down.
2. Allow salt to dissolve and increase Chlorine output. Inspect Chlorine Monitor. If not in normal sector, repeat as above until correct reading is achieved.

POWER PACK MAINTENANCE

Regular maintenance of the Power Pack should be confined to keeping it in a clean, dry position away from sunlight. The brass screws which connect the cell leads to the Power Pack should be checked and tightened about every three months.

SALT REQUIREMENT CHART

Eg: To achieve 4,000 parts per million salt in 60,000 litres of pool water, add 240kg salt.

Parts per million Salt

Litres of Water	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
5000	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5
10,000	5	10	15	20	25	30	35	40	45	50	55
15,000	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5
20,000	10	20	30	40	50	60	70	80	90	100	110
25,000	12.5	25	37.5	50	62.5	75	87.5	100	112.5	125	137.5
30,000	15	30	45	60	75	90	105	120	135	150	165
40,000	20	40	60	80	100	120	140	160	180	200	220
45,000	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5
50,000	25	50	75	100	125	150	175	200	225	250	275
*60,000	30	60	90	120	150	180	210	240	270	300	330
65,000	32.5	65	97.5	130	162.5	195	227.5	260	292.5	325	357.5
70,000	35	70	105	140	175	210	245	280	315	350	385
75,000	37.5	75	112.5	150	187.5	225	262.5	300	337.5	375	412.5
80,000	40	80	120	160	200	240	280	320	360	400	460

Kilograms of Salt

* Example for 60,000 Litre Pool

UNDERSTANDING THE CHLORINE MONITOR



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

Allow at least *7 DAYS* on your pumping programme 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 capacity or output of your **Aquajoy** chlorinator has been designed to suit the capacity of your pool, i.e. 60-90-150CM = *cubic metres*. This capacity is shown on the label fixed to the front of the chlorine monitor and is to be the reference in relation to *ONE* of the 3 levels shown on the scale.

Each level is divided into SUMMER and WINTER sectors and each sector has 3 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, ie salinity or salt content, pool water temperature and the cleanliness condition of the cell which is an electrolytic generator of chlorine (refer page 8).

The letters A to H 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 (page 8) and or
 2. Salt level has lowered (page 0) and or
 3. Very low pool temperatures.

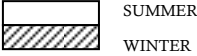
GREEN Normal

ORANGE High output from Aquajoy due to
 a) Higher water temperatures (heated pool) and or
 b) Salt level over 4,000 ppm minimum.

NOTE: THE CHLORINE MONITOR IS FACTORY CALIBRATED AT 24° CELCIUS WATER TEMPERATURE. HIGHER TEMPERATURES WILL INCREASE NEEDLE SETTING INTO ORANGE SECTOR.

Maintenance Procedure

If the Monitor needle is in the YELLOW sector and NOT the normal (GREEN) sector, the following procedure should be carried out. Ensure Chlorine Production Switch is on high setting.

- 1) Check cell for calcium deposit (clean if necessary).
- 2) Check water temperature, weather, summer/winter? 
- 3) Extra salt to be added (1 x 25kg bag) at a time. Allow to fully dissolve until needle on monitor returns to *NORMAL* (GREEN sector) position.

CAUTION: Each of the maintenance procedures must be carried out in order of preference ie. 1 to 3.

SETTING THE CLOCK

This clock controls the Pump / Filter which is switched **ON** and **OFF** by the position of the white tappets. The dial is for 24 hours and each tappet represents 15 minutes. The correct time is set at the white indicator (arrow) situated at “2.0 O’clock” on the black face.

To set the Time Clock, push white tappets outwards to the perimeter of the Clock face until they click into place. We suggest you run your Pump / Filter and Chlorinator for a minimum of 6 hours per day in the summer ie 6.00 am to 9.00 am (12 tappets out) for 3 hours running in the morning. For afternoon running – 5.00 pm to 8.00 pm. Push out 12 tappets from 1700 – 2000 hours.

The Pump Switch over-rides the Time Clock to enable the Pump / Filter and Chlorinator to be operated at times other than the dial setting. Should the power supply be interrupted the clock should be reset to the correct time.

WARNING: *Turn the clock dial only in the direction of arrow, ie clockwise, or damage will result.*



CHECKLIST WHEN PROBLEMS OCCUR

Problem	Possible Cause
Chlorine Residual Low or Nil	<input type="checkbox"/> Insufficient running times <input type="checkbox"/> pH too high or low <input type="checkbox"/> Strong sunlight and low conditioner levels <input type="checkbox"/> Poor circulation <input type="checkbox"/> Heavy bather loading <input type="checkbox"/> Low chlorine production
Chlorine Production Low or Nil	<input type="checkbox"/> Low salt levels <input type="checkbox"/> Air in cell casing <input type="checkbox"/> Scale build up on the cell <input type="checkbox"/> Faulty circulation <input type="checkbox"/> Algaecide addition within the last 2 to 3 weeks <input type="checkbox"/> Cell leads incorrectly connected <input type="checkbox"/> Debris levels in the pool too high <input type="checkbox"/> Cell too old and worn out.
Chlorine Levels High in mornings and low at night	<input type="checkbox"/> Heavy bather loadings
pH alters rapidly and easily	<input type="checkbox"/> Extreme sunlight conditions <input type="checkbox"/> Insufficient pool conditioner levels <input type="checkbox"/> A low total alkalinity level in Marblesheen, pebble or tiled pools. <input type="checkbox"/> Contamination with debris especially urine could be another cause.
Poor circulation	<input type="checkbox"/> Dirty and clogged filter <input type="checkbox"/> Hair and link baskets full or leaves at the skimmer boxes or pump <input type="checkbox"/> Faulty pump <input type="checkbox"/> Water levels is low or cell is clogged with scale
Short intervals between backwashes	<input type="checkbox"/> Ineffective backwashing <input type="checkbox"/> Body fat or oil build up on pads. With Diatomaceous earth filters the cause may be insufficient diatomaceous earth over the pads.
Cloudy water	<input type="checkbox"/> Insufficient filtration times <input type="checkbox"/> Holes in the filter pads <input type="checkbox"/> High pH <input type="checkbox"/> Pool walls need brushing <input type="checkbox"/> Main drain not working <input type="checkbox"/> Algaecide's have been added in the last few weeks <input type="checkbox"/> Bather load too great for filtration and chlorine times.
Low salt level	<input type="checkbox"/> The results of splash out by bathers <input type="checkbox"/> Heavy overflow from rain or accidental filling of the pool <input type="checkbox"/> Topping up because of pool leaks or from excessive backwashing
Appearance of Stains	<input type="checkbox"/> Low chlorine levels <input type="checkbox"/> High pH levels <input type="checkbox"/> Poor circulation <input type="checkbox"/> Infrequent brushing of the pool walls <input type="checkbox"/> Incorrect total alkalinity
Algae Formation and High Chlorine Levels	<input type="checkbox"/> The pH is over 7.4 <input type="checkbox"/> The pool conditioner level is too high
Frequent Cell cleaning	<input type="checkbox"/> Hard bore water being used <input type="checkbox"/> Incorrect total alkalinity levels in Marblesheen, pebble, tiled or heated pools <input type="checkbox"/> pH levels may also be too high <input type="checkbox"/> Prior to the CHLORINATOR and currently, are you still adding powdered chlorine?

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 my **AQUAJoy** long enough?
5. Have I added stabiliser?
6. HAVE I READ MY **AQUAJoy** INSTRUCTIONS CORRECTLY?

Should your Pump Motor fail or other problems do not allow you to operate your **AQUAJoy** in the normal manner, Sodium Hypochlorite (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 SYSTEMS

ACN 141 035 172

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

Telephone: + 61 2 9630 5011 Fax: + 61 2 9683 4750

Email: sales@aquajoy.com.au Website: www.aquajoy.com.au

CELL & POWER PACK MAINTENANCE

DATE CLEANED	METHOD USED	RESULT

***POWER PACK – TERMINAL BOX FASTENINGS**

DATE CHECKED	NEEDED ATTENTION	YES / NO

**Connections on Terminal Box should be checked at three (3) monthly intervals to ensure they are firm and tight.*

JOY POOL SYSTEMS

WARRANTY

For a period of 36 months from the date of purchase JOY POOL SYSTEMS warrants to the original purchaser that the AQUAJoy CHLORINATION UNIT shall be free from defects to materials and workmanship. The cell's anode coating carries a further 36 months pro rata replacement warranty. Commercial installations are for 12 months on Power Pack and Cell with no pro rata provision on the cell. The Warranty shall be void if the unit's case or cabinet are opened or altered or modified during this period. If a defect should occur the unit must be returned to JOY POOL SYSTEMS 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 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 devises.

JOY POOL SYSTEMS shall not be liable for loss of profits or benefits, indirect, special, consequential or other similar damages arising out of any breach of warranty or 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 installation is not adhered to as outlined in the installation procedures. The one exception is where the cell is placed in the line so that any gas generated flows up and directly into the pool.

Warranties shall be void if wired incorrectly. It is the owner's 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 4,000 ppm.



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