



INGROUND OPERATING GUIDE FOR NEW POOL OWNER'S





THANKS FOR CHOOSING PIONEER FAMILY POOLS

Congratulations and welcome to the wonderful world of owning your very own backyard pool. Your new pool will be a safe source of family fun and togetherness, an accessible place for exercise and therapy or just a place to escape to.

Your Pioneer Family Pool Dealer is equipped with the most advanced pool equipment available today. Each piece has been carefully chosen with one important goal in mind: to provide you with as close to a maintenance-free pool as possible.

This manual provides easy to follow step-by-step instructions for your basic pool maintenance tasks. If there are any points that you require to be clarified, your Pioneer Family Pools dealer is always there to help make your pool ownership a safe and enjoyable experience.



We're Always Here To Help!
Your Pioneer Family Pools Staff

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SECTION 1 OPERATING YOUR EQUIPMENT

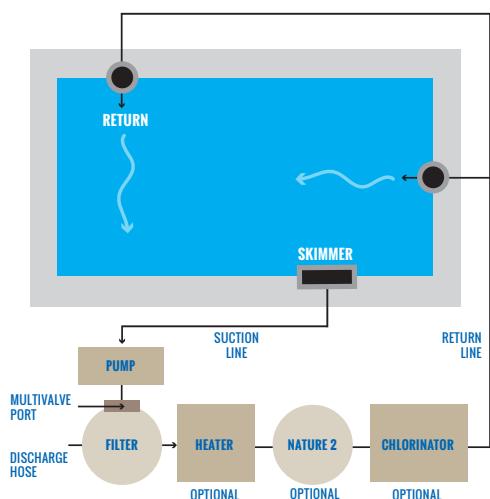


The following section deals with the important aspects of your pool which will assist you, the new pool owner, in acquiring an in-depth appreciation for your pool, its equipment and its correct operation.

Your Pool's Basic Elements:

- | | |
|------------------|------------------|
| → Pool Shell | → Pool Deck |
| → Pool Equipment | → Deck Equipment |
| → Plumbing | → Accessories |

WATER CIRCULATION & HOW IT WORKS



Suction Lines

These lines draw water from the pool through the skimmer to the pump.

Discharge Hose

This is used to expel water from the system during either backwashing or draining water from the pool.

Return Lines

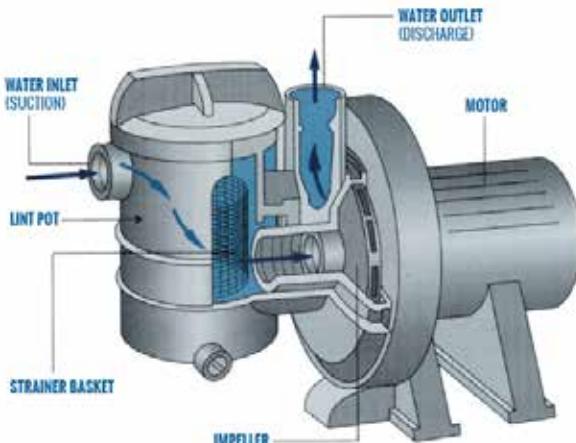
As the water has passed through the pump, filter, heater, Nature 2 and chemical feeder, it is returned to the pool through the return lines, which are always under

pressure when the filter system is operating in either the **FILTER** or **RECIRCULATE** position.

Your Pool's Equipment Has 3 Functions:

- Clean & Clarify → Heat → Sanitize

THE PUMP & MOTOR



A pump and motor is used to draw water from the pool. The pump is generally the only active or powered component of your pool equipment. In essence, it is the 'heart' of your system, drawing the water from an opening in the pool wall called the skimmer, and then directing it under pressure to the filter tank where it is cleaned and returned to the pool. When the pump is off no other equipment can operate.

There is a strainer basket inside the skimmer which must be checked daily to remove any accumulated debris. As well, there is a second strainer basket located in the lint pot which, while it does not have to be checked daily, should be cleaned regularly to ensure a free-flow of water to the filter at all times.

How Do I Prime My Pump?

- Check that the water level in your pool is at least 3/4 filled at the skimmer
- Remove the lid from the pump
- Fill the pump bowl with water
- Replace the lid securely
- Turn your pump and motor switch **ON**

Remember!

- ✓ It may take several minutes for the pump to prime. If it refuses to start on the first try, simply repeat the above steps until the water flow starts. If it refuses to start after 3 or 4 attempts, contact Pioneer Family Pools

What Do The Valves In Front Of My Equipment Pad Do?

These valves are used to control where water is drawn from and how it is returned to the pool.

Water can be drawn from one source, the skimmer (unless you have an SDX or Maindrain). There are 3 destinations through which the water is returned to your pool:

- Through the return fittings in the poolwall
- Through the jets in the walk-in stairs (with step jets)
- Through the waterfall or water feature

By setting each of these valves to its **ON** or **OFF** position you can control the flow of water to and from the pool.

Remember!

- ✓ Always turn the power to your pump **OFF** when adjusting these valves

THE FILTER

After the water leaves the pump it passes to the filter. The purpose of the filter is to remove any fine particles from the water before returning it back to the pool. There are 2 types of filters, Cartridge or Sand.

CARTRIDGE POOL FILTERS - CV SERIES FILTERS

Cartridge filters do not require sand or diatomaceous earth as the filter medium. Instead, the filter contains

Cartridge filter elements which are easily removed for cleaning or replacement.

As debris collects in the filter, the pressure will rise and water flow to the pool will diminish. The filter will eventually become so plugged with debris that it will be necessary to remove the filter cartridges and clean them with water.

The Jandy CV and CL Filters include a unique pressure gauge with a **CLEAN/DIRTY** indicator that can be customized for each pool, making it easy to assess filter condition.

As the filter cleans the water and the cartridges begin to clog, the pressure begins to increase. When the needle of the pressure gauge aligns with the arrow next to the word **DIRTY** on the **CLEAN/DIRTY** indicator ring, this indicates an increased pressure and it is time to clean the filter. To determine where to set the **CLEAN/DIRTY** indicator begin with a clean cartridge and start the pump. After the pressure gauge has stabilized, turn the indicator ring so that the arrow next to the word **CLEAN** aligns with the needle of the gauge.

Check the pressure during operation at least once a week. Never operate the filter system at more than 50 psi of pressure.

Remember!

- ✓ A filter removes dirt and other suspended particles but does not sanitize the pool. Pool water must be sanitized and chemically balanced for clear water

Cleaning The Filter Cartridge

1. Turn the pump **OFF**. Switch the circuit breaker to the pump motor **OFF**
2. **IMPORTANT:** Completely open air release valve on top of the filter tank to release all pressure from inside the tank and system
3. Close valve in front of pump on the system to prevent flooding
4. Open the drain located at the bottom of the filter tank and allow the tank to drain
5. Loosen tank clamp ring retainer and remove the clamp ring

6. Remove top of the filter tank by lifting it straight up until it clears the cartridges on the inside of the tank
7. Pull the cartridges out of the filter tank, place them upright and clean them using a hose and nozzle to wash each pleat of each element
8. Inspect each cartridge for holes, tears or excessively worn pleats and replace them if necessary
9. Reassemble the filter with new or clean cartridges
10. Close the drain valve
11. Close the air release valve on the top of the filter tank
12. Open valve in front of pump on the system

Remember!

- ✓ Maintain your pressure gauge in good working order. The pressure gauge is the primary indicator of how the filter is operating
- ✓ During operation of the filtration system, check the pressure gauge/air release assembly for air/water leaks at least 1x week
- ✓ Never operate the filter system at more than 25 psi of pressure
- ✓ Never assemble, disassemble or adjust the filter when there is pressurized air in the system. This can cause the filter lid to blow off causing death, serious personal injury, or property damage
- ✓ Algae, suntan oil, calcium and body oils can form coatings on the filter element which may not be removed by normal hosing. To remove such materials, soak the element in a pool cartridge cleaner

HIGH-RATE SAND FILTER (POOLS WITHOUT CARTRIDGE FILTERS)

A sand filter is fitted with a multiport valve which provides the means for changing the direction and routing of water through the filter system, allowing it to perform different functions.

The first place the water reaches in the sand filter is the multiport (or dial) valve on the head of the unit. This valve has 6 operating positions or functions:

- Filter, Rinse, Recirculate, Backwash, Waste, Close/Winterize

When the valve is set to the **FILTER** position, the water is directed into the filter tank where it passes through a bed of sand to remove any solid debris which was too small to be removed by the skimmer or pump strainer baskets. The water then flows back to the pool via your heater and feeders. This is the normal setting used for your pool.

The **BACKWASH** position is used to clean the filter after debris has built up in the sand bed to the point where it is restricting the flow of water back to the pool. Usually taking between 3-5 minutes, the dirty water flows out of the backwash port and is directed to a waste area through a backwash hose. Remember not to direct your discharge water towards your plants or flowers.

There are 2 methods to determine when backwashing is required:

1. When the pressure indicator shows a 7 PSI increase
2. If there is less-than robust flow of water through the return fitting in the wall of the pool

The **RINSE** position is used for approximately 30 seconds immediately following backwashing to clear the lines of any turbidity before returning to the normal circulation of the pool water.

The **WASTE** position is used to either drain the pool or vacuum debris without having it pass through the sand bed in the filter. This application is common when removing dead algae from your water or lowering your water level when closing.

The **RECIRCULATE** position is intended for use when you do not want to filter the pool water but still wish to maintain overall circulation. In this setting, **NO** filtration occurs and the water by-passes the filter tank completely.

There is also a setting called **CLOSED/WINTERIZE** which should only be used by professional service technicians.

Remember!

- ✓ To change from one of these positions to another it is very important that the electric power to the pump and motor is **ALWAYS TURNED OFF** first or you will damage the dial valve and/or the plumbing to the pool

How To Clean Your Sand Filter

One of the more commonly asked questions customers have is 'When do I change my sand'? The short answer is **NEVER**, provided that you clean your filter sand annually with a filter cleansing product.

How Do I Do This?

Follow these 12 steps yearly for more effective filtration:

1. Backwash your filter normally
2. Leaving the multiport valve handle in the backwash position, shut off your pump and motor
3. Close the valve coming from the skimmer to the pump
4. Remove the drain plug from the filter and allow **ALL** of the water to drain out
5. Replace the drain plug securely
6. Remove the lint pot cover from your pump
7. Fill a plastic pail with warm tap water and add filter cleaner product according to directions on the bottle. Stir the water continuously with a wooden stick until the cleaner has dissolved
8. Make sure the multiport valve handle is still in the backwash position, turn the pump **ON** and slowly pour the solution from your pail into the lint pot
9. Add an additional 3 pails of water to the lint pot. **DO NOT** let the pump run dry between pails!
10. Once you have added your 4 pails of water, shut the pump **OFF** at once, replace the lint pot cover on your pump and allow the filter to sit for at least 12 hours
11. After 12 hours open the valve from the skimmer to the pump, then start the pump and backwash for 5-6 minutes or until the discharge water appears clear. **DO NOT** backwash into the pool, over your lawn or any desirable plants
12. When you have finished backwashing, shut off the pump, set the multiport valve handle to the **FILTER** position, restart the pump and start normal filtration again with a clean filter!

THE HEATER

Located after the pump and filter, your heater allows you to control the temperature of your pool water, regardless of the weather. It can also extend your swimming season into the cooler months in the Spring and Fall.

Because of the need to purge the gas lines of air and moisture the first time your heater is turned on after building your pool, the initial set up should always be left to a licensed gas technician.

How To Light/Start Your Heater (After Initial Set-Up)

Follow these steps:

1. Be certain that the external gas supply (gas lock/shut-off) to the heater is turned on
2. Turn **ON** heater breaker
3. On the control panel on top of the heater, press **POOL**. A **GREEN LED** light to the left will light and the unit will display current temperature (pools without auto controls)
4. In about 2 minutes you should hear the fan running and a 'poofing' sound which indicates that the heater is now operating
5. When the water temperature falls to 1 degree below the temperature setting, the control will start the heater and the associated right **LED** will light **RED**

Common Sense Tips About Your Heater

Chemically balance your water! To avoid costly repairs to the internal part of your heater, make sure your pH, Total Alkalinity and Sanitizer levels are always in their proper ranges. The lighting of your heater should always be left to a licensed gas technician.

Never place your Chlorine or Bromine tablets in your skimmer. The high concentration of sanitizer will damage your heater. Instead, install a chemical feeder **AFTER** the heater on the return line.

Remember!

- ✓ **ALWAYS** shut your heater **OFF AT LEAST 10 MINUTES BEFORE** you turn off your pump and motor. Failure to do so can result in serious damage to the plumbing if you do not have automation

To maximize your heater's efficiency, consider a Liquid Blanket at night to retain the heat generated by the heater.

Have your heater inspected and cleaned by a qualified professional each Spring to provide you the safest and most economical heating possible.

AUTOMATIC CHEMICAL FEEDERS



NATURE 2 NATURAL MINERAL PURIFIER

The 'Nature 2' is an amazing addition to any pool system. It allows you to have better quality swimming water while reducing your other chemical needs (and therefore costs) at the same time. This may be combined with your Salt System.

How Does It Work?

Water is passed through a cartridge that contains a patented, coated mineral bed. The minerals assist in killing bacteria, algae and viruses on contact. Next, the Nature 2 releases trace amounts of minerals into the pool water to prevent the growth of new bacteria and algae. They provide an environmentally friendly, almost 'fool-proof' way of maintaining a truly "algae-free" pool.

The Nature 2 cartridge only needs to be replaced at the beginning of each season.

How To Start Up Your Nature 2 Purifier

Balance your water **BEFORE** installing your Nature 2 cartridge, and always maintain water balance.

1. pH 7.2 - 7.8
- Total Alkalinity 80 - 120 ppm
- Calcium Hardness 200 - 300 ppm
2. Install the Cartridge
3. Superchlorinate the pool to burn off any contaminants and to activate the cartridge
4. Run your pump for 24 hours a day for 4 days with Chlorine between 1 - 3 ppm

5. Let the Free Available Chlorine residue drop to, but not below 0.6 ppm

CHEMICAL FEEDER

The final piece of equipment on your return line heading back to the pool is your chemical feeder. If you are using chlorine it is referred to as a Chlorinator; if you are using bromine, it is referred to as a Brominator. These feeders add Sanitizer to your pool on a continuous basis, saving you the hassle of having to do it manually.

To refill your feeder, first turn the power to your pump **OFF**. Then depress the safety lock on the body of the feeder (located just below the cover) while turning the cover in a counter-clockwise direction. Wearing protective hand wear, fill your feeder to the top with either chlorine or bromine and then securely replace the lid. Set the dial to **MEDIUM-LOW**. Over the next 72 hours test your water for Sanitizer level and then adjust the dial accordingly.

Remember!

- ✓ Never use a chemical feeder to feed anything except the chemical for which it was intended. Ie. Never put unstabilized chlorine into a stabilized chlorine or bromine feeder or an explosion will occur!



HOW DOES THE NATURE 2 FUSION SOFT WORK?

The Nature 2 Fusion Soft uses a dual approach to treat pool water in the same way as the DuoClear salt system. The first process is Zodiac's patented Nature 2 technology which delivers controlled trace amounts of minerals to help maintain an algae-free pool. The mineral cartridge reduces the amount of chlorine your pool

requires. This improves the water quality and extends the life of the electrolytic cell.

The second process is known as electrolysis, which produces chlorine from a low concentration of salt added to the pool water. Chlorine kills bacteria, oxidizes organic material, kills algae and reverts back to salt. The Nature 2 Fusion Soft then reuses the salt to repeat the process again. It's the existence of the minerals in the Nature 2 cartridge that allows Nature 2 Fusion Soft to maintain chlorine in much lower amounts than in a traditional pool - as low as 1.0 ppm.

Remember!

- ✓ Maintain proper water chemistry readings



WHAT IS A ZODIAC TRUCLEAR SALT SYSTEM?

It is an electronic device that turns salt into chlorine. It consists of a cell (where the chlorine is produced), and a power pack (to supply power to the cell). A salt system automatically sanitizes your pool, eliminating the need to purchase, store, add and handle chlorine. It also takes much of the work out of maintaining your pool by making water balance much easier and makes pool water feel soft and clear without red eyes, itchy skin and the odour normally associated with chlorine.

How Does It Work?

A salt system converts salt water into chlorine by electrolysis. The unit is plumbed inline after the filter and salt is administered directly into the pool. The salted water then passes through the cell and 100% pure chlorine is produced. The unused chlorine then reverts back to salt to be used over again. Salt is only lost

through backwashing and splash-out. This method of producing chlorine is the same method that a chlorine factory uses.

Buttons On The Powerpack

The Zodiac Salt System will operate when the pump is turned **ON**. If necessary, the **ON/OFF** button will switch the system on or off (for instance when backwashing the filter). A yellow light appears in the chlorine output indicator window when the unit is on.

The output button is used to set the chlorine output. A series of five lights indicate the chlorine output setting of the power pack. Each light represents 20% of production (ex. 3 lights indicate the unit is producing at 60% of maximum capacity). Once the desired level of chlorine is achieved, this button is rarely touched.

Salt Cell Life/Care System

A Zodiac Salt System cell has an approximate life span of three to five years depending on the model. Because each pool is different, exact cell lives cannot be predicted. A Nature 2 System will help to prolong the life of the cell because of reduced chlorine output.

The following factors affect cell life:

1. How long the unit is run - days per year/hours per day
2. Output - how high the unit is turned up
3. Low salt levels - plates begin to damage at 2500 ppm
4. Water chemistry - if pH is frequently high, more calcium will tend to gather on the plates
5. Care - if plates are left uncleaned, the coating will be eaten away by the calcium

How Much Salt Will Be In The Pool?

Optimum chlorine production occurs between 3500 and 4000 ppm of salt. We recommend a salt level of 3500 ppm so that the addition of salt is not as frequently required. Allowing the salt level to fall below 2800 ppm may reduce the life of the cell.

How Much Salt Will I Need?

4.0 kg of salt per 1000 litres of water. Therefore, 280 kg of salt will raise a 70,000 litre pool from 0 ppm to 4000 ppm. (See the salt chart in your Zodiac Salt System Owner's Manual for a quick guide to adding the right amount of salt for your pool).

When To Add Salt

Salt is not lost in the process of making chlorine or through evaporation. Salt is only lost through backwashing and splash-out. So, you'll only have to top up to maintain optimal range each year.

What Type Of Salt Should I Use?

High purity, pool-grade salt. It is important that the salt does not contain additives. Any common salt (like table salt) usually has an additive that may have staining properties. Avoid salt with additives like iodine and yellow prussiate. Pool-grade salt is available at Pioneer Family Pools.

Testing Salt

Salt levels can be tested with test strips just like chlorine levels can.

Water Chemistry Tips

A Zodiac Salt System will make pool maintenance much easier and it will improve the look and feel of the water, but proper water chemistry must still be observed.

Recommended levels are:

pH	7.2 - 7.8
Total Alkalinity	80-120 ppm
Calcium Hardness	200 - 300 ppm
Stabilizer	30 - 50 ppm
Salt	3200 - 3800 ppm

Spring Start-Up

The output of the cell is determined by water temperature, salt level and mains voltage. In the springtime when the water temperature of the pool may be below 18°C (65°F) the Add Salt light may light up. The add salt light is only reliable at temperatures above 18°C because the temperature affects the conductivity of the water. There is no need to add salt if the level is already at 3500 ppm. In cold water there is very low chlorine demand because of low bather load, therefore the chlorine output should be set to minimum or you may not need the chlorinator on at all.

How To Clean Your Cell

The cell of the Zodiac Salt System is self-cleaning. Every 5 hours, the electrolytic plates reverse their polarity to prevent calcium build up. For areas with hard water, the reversal period can be changed to 2.5 hours (please contact Zodiac Pool Systems Canada, Inc. 1-888-647-4004).

In unusual situations, the self cleaning electrodes may benefit from occasional manual cleaning to remove scale build-up as the result of having very "hard" water or continuous high pH conditions, which can occur with new plaster finishes. (See your Zodiac Salt System Owner's Manual for instructions).

Winterizing

When closing the pool for the winter, perform the following additional steps to winterize your salt system.

1. Turn off power to the salt system at the circuit breaker
2. Remove the cell by unthreading the quick disconnect unions and removing the three wires from cell. Inspect the cell and clean if necessary with a solution of 1 part Muriatic acid and 10 parts water. (See further directions in Owner's Manual)
3. Coil the wires and wrap them in a plastic bag to prevent corrosion over the winter. Tape the bag to the power pack
4. Insert expandable plugs into upright plumbing lines where the cell was connected
5. Store the cell indoors for the duration of the winter

WHAT IS A CLEAR O3 OZONE SYSTEM?



Paramount's clear O3 Ozone unit reduces the demand for pool chemicals by up to 60% and allows the small residual of chlorine in the pool to work more effectively as a disinfectant. Ozone is safe and effective and does not affect pH levels. Ozone kills or removes viruses, bacteria, spores, amoebae, cysts, mildew and fungi while helping to maintain a consistent clean and clear water environment.

How Does Ozone Work?

The Clear O3 water purifying system creates ozone using a proprietary UV Bulb specifically designed to excite ozone molecules from the oxygen in the air. This ozone is delivered into the pool water using the Clear O3's suction injection system, where the ozone enriched air is mixed with the water going into the pools circulation pump. Ozone is up to 50 times more powerful at killing bacteria and viruses than traditional pool chemicals and works up to 3000 times faster. When your pump is on, your ozone automatically comes on (blue power light will show).

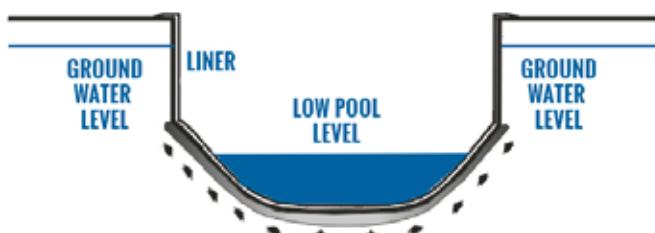
Remember!

- ✓ The Clear O3 flow meter is very sensitive and the red ball may drop to the lower level of the "normal range". If this happens, please be aware that this is **COMMON**. The flow meter will still deliver the proper amount of ozone as long as the blue light is on. There is no need to reset the flow meter until after you clean/backwash your filter
- ✓ When using multiple speed pumps, set the flow meter with the pump running on the highest speed that will be used

For more information and a product video visit:
<http://www.1paramount.com/products/clearO3>

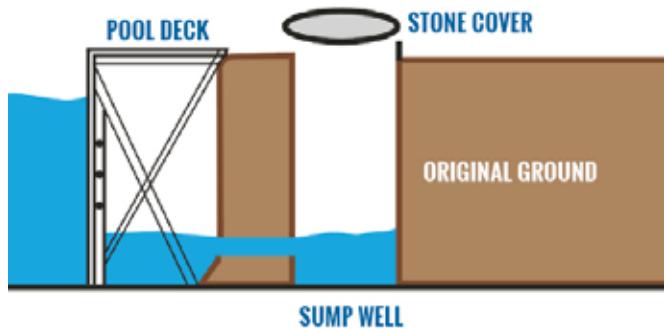
THE SUMP WELL

The final area of your pool equipment and plumbing that will require your attention is the Sump Well. It is installed to deal with high water tables or surface drainage which might migrate to the pool area.



If the pool water level is low and if ground water is high as in the following illustration the water in the ground wants to make the pool and its' liner float.

The sump well is covered with a circular patio stone or other cover after installation. This sump well is a monitoring station where you should periodically inspect the level of the water inside especially before opening your pool in the spring, during extreme wet weather, when removing water from on top of the pool cover and in the fall before closing.



Remember!

- ✓ Do not use a large pump for this activity

If you find more than 12 inches of accumulated water you should use a submersible pump to **SLOWLY** lower the water level to approximately 3 inches in the well. It is important that you drain the water slowly and remove as much as possible (often 1" - 3" is unreachable).

SECTION 2

CARE & MAINTENANCE



MANUALLY VACUUMING & CLEANING THE POOL

If the water level in the well is allowed to rise higher than the water level in the pool, then it will result in water seeping under the pool liner thus causing a floating liner. In some cases, this water pressure can heave and crack a pool deck. First remove any debris off the surface of the pool using the leaf skimmer attached to your vacuum pole. The leaf skimmer is only intended to remove floating debris; **DO NOT** attempt to retrieve items that are submerged or their weight combined with the water pressure will destroy the net.

Next, brush the walls and walk-in stairs using your pool brush attached to your vacuum pole. To prepare for the vacuuming, do the following:

- Attach the vacuum head and hose to the vacuum pole. Extend the pole to 12ft. in length, drop the vac head into the pool water and secure the pole up against the deck
- Hold the **FREE** end of the vacuum hose securely over one of the return fittings in the pool
- Air bubbles will escape from the vac head and it will begin to float. Once the air has been removed from the vac hose, the vac head will settle to the bottom of the pool
- Remove the free end of the hose from the return fitting. Cover it tightly with your hand and take it to the skimmer and insert the vac plate on top of the basket inside the skimmer. Insert the hose onto the vac plate
- As soon as you position it you should feel a strong suction pulling down on the skimmer plate

- Now you are ready to vacuum the pool using slow, deliberate passes over the entire pool bottom

Remember!

- ✓ Be sure to turn the power to the pump off before trying to remove the plate when you are finished vacuuming or that same suction will damage the plumbing



SAFETY COVER MAINTENANCE

Your safety cover requires very little maintenance. By following these procedures, you will ensure that your new cover will continue to serve you well for years to come.

Tightness

Your safety cover must be installed and remain tightly stretched across your pool, resembling a trampoline.

Upon its original installation, the adjustable springs on your safety cover should be compressed about 90%. The tension will gradually decrease in time to 75% without assistance. Adjust as needed to maintain this 75% compression.

Cover Strength

Your safety cover will have no problem supporting the weight of a child, adult or pet in an emergency, however, we recommend that you do not walk on it.

Snow Support

During the snow season, the water level in your pool should never be more than 15" to 18" below the top of the pool. This is important for supporting the weight of the snow on the cover. Allowing the water level to drop below 18" will put excess stress on the cover and will void the warranty. Do not pump water out of the pool during the winter, even if the water level is only a couple of inches from the top of the pool.

Cover Removal & Storage

- Hose the cover off while it is still installed across the pool to remove any debris
- When removing your safety cover, accordion-fold it and roll it into its storage bag. Hang the bag on a hook or nail (off the floor) to allow the cover to drain through the bag and to protect it from rodents
- Be careful when installing or removing your safety cover. Dragging the cover across the deck over sharp edges or obstructions, or over raised anchor heads will damage the cover

Anchors

- In spring and fall unscrew all anchors with the allen key provided and flush out the casings with a hose. This will prevent anchors from sticking when you re-install them
- When the cover is not in use, close the anchors completely so they are flush against the deck. This will eliminate the possibility of stubbed toes

Remember!

- ✓ Mice love to eat safety covers, so store yours in a covered container or suspend it from the ceiling in the summer



VINYL LOCK-IN MAINTENANCE

Your vinyl lock-in winter cover **MUST BE STORED IN WATER** once it has been cleaned and removed from your pool in the spring of each year. We recommend that you place the cover in its white storage pail and establish a location where it will be stored for the Summer months. Once there you must fill the pail full with tap water thus submerging the cover and firmly affix the lid to the pail. A few capfuls of a concentrated Algaecide will assist in preventing any algae growth over the storage months.

A lock-in winter cover that is not stored in water will eventually shrink and its life span will be greatly diminished.

SECTION 3

WATER CARE & CHEMISTRY



CHEMISTRY

The purpose of this section of the manual is to familiarize you with the proper chemical care of your pool water.

Simply put, good pool water should always be:

- Sanitized
- Non-corrosive & Non-scaling
- Algae-Free
- Clear, Colourless & Odourless
- Stable Against Chemical Changes

Why?

Your water must be sanitized because, more than just looking nice, a safe and healthy pool must be free of dangerous bacteria and viruses which are the source of many common ailments such as respiratory infections, skin diseases, upset stomach, diarrhea, and other intestinal tract infections.

Your water should be algae-free because in addition to looking unsightly, algae makes pool surfaces slippery and increases the demand for chlorine. In larger outbreaks, the toxins it releases can cause **GASTROENTERITIS** and pose other health risks.

Your water should be odourless, colourless and non-irritating to bathers for the obvious reason.

Your water should be non-corrosive and non-scaling as it is important to avoid the expensive repairs and maintenance costs to your heater and other pool equipment that will result if left in such a state.

Your water should be stable against chemical changes as you will want to avoid the nuisance and associated costs involved in continuously having to re-balance it.

How Do I Achieve This?

There are 6 parameters that you must be familiar with in order to maintain good pool water:

- pH
- Total Alkalinity
- Calcium Hardness
- Chlorine Residuals
- Stabilizer
- Salt Concentration (salt/chlorine generator if applicable)

pH is the most dynamic factor at play in your pool water. Everything that is added to your water has an effect on it, and in turn, it affects the performance of the major chemicals required to maintain your pool.

It is the measurement of how acidic or basic the water is on a scale of 0 - 14, where 0 is completely acidic, 14 completely basic and 7 being neutral. The optimum range for your pool is between 7.2 - 7.8, with 7.4 being ideal which is the pH of your eyes. If you pH is too low, heavy chlorine usage, eye irritation and corrosion of your pool equipment will occur; if it is too high, you will experience low chlorine efficiency, scaling and skin and eye irritation.

Total Alkalinity

Total Alkalinity is closely related to pH. It is an indication of the ability of your pool water to resist pH change. It is measured in Parts Per Million (ppm) and has an optimum range between 80 and 120 ppm. If the TA is too low, it will cause the pH to fluctuate wildly and you will have staining and corrosion; if it is too high, it makes your pool water more susceptible to scaling and pH drift (upwards

of 8.4) and you will have cloudy water. If you are on a bromine system, it is recommended that you keep the reading slightly higher, between 120 and 130 ppm.

Calcium Hardness

Is the measurement of the amount of calcium or magnesium present in your pool water. It affects the efficiency of your chlorine and can adversely affect the general cost of maintaining your pool. Like Total Alkalinity, it is read in ppm and has an optimum range between 200 and 300 ppm. If your reading is low, it can also pit metal surfaces. If it is too high, it will have a tendency to form scale deposits on the surface of the pool, decrease circulation and increase heating and chlorine costs. Extra care needs to be taken to monitor in areas with hard tap water.

Chlorine

Acts as an inhibitor to the growth of bacteria, viruses and algae. It is measured in two forms: **FREE AVAILABLE** or **ACTIVE** chlorine (the desirable form), which is the chlorine present in your water ready to destroy contaminants and bacteria; and **COMBINED** chlorine (the undesirable form), which has been combined with ammonia compounds and is essentially useless, as it has only about 1/6 the oxidizing power of free chlorine.

Both types of chlorine are measured in ppm with the optimum range for **FREE** chlorine being between 1 - 3 ppm and **COMBINED** chlorine being 0 ppm. Another measurement, TOTAL chlorine, is the sum of both the **FREE** and **COMBINED** chlorine and its optimum range is the same as the **FREE** chlorine.

If your **FREE** chlorine level is too low, you will have an unsafe swimming environment and risk an algae infestation. If it is too high, you will produce an uncomfortable swimming environment and possibly have a health risk.

If your **COMBINED** chlorine level is too high, you will have a less than acceptable sanitizing effect and will produce a strong chloramine level.

Stabilizer

Cyanuric Acid acts like a shield which prevents the sun from dissipating the chlorine from your pool. It too is measured in ppm and its optimum range is between 30 - 60 ppm. If your reading is too low, your chlorine stands to burn off prematurely; if your reading is too high, you risk getting 'chlorine lock', where the chlorine in your water is rendered ineffective.

HOW TO ADJUST CHEMICALS

Although your pool chemicals provide your pool with healthy, great looking water, you should not forget that you are still dealing with chemicals and as such you should respect how you handle them. **ALWAYS** pour the chemical into the water, **NEVER** pour water into a pail of the dry chemical.

Remember!

- ✓ You should always wear protective eye and hand wear when applying pool chemicals!

pH PRODUCTS

If your pH is too LOW

It can be raised by adding "pH UP" (Soda Ash). Pre-dissolve the product in a plastic pail before adding it to the pool.

If your pH is too HIGH

It can be lowered by either (a) adding pH DOWN (sodium bisulfate) or (b) Muriatic Acid. If you choose (a), pre-dissolve the product in a plastic pail before adding it to the pool. If you choose (b), pour the product carefully around the pool and avoid splashing or contact with your skin.

Only adjust the pH when no one is swimming.

TOTAL ALKALINITY

If your Total Alkalinity is too LOW:

It can be raised by adding Baking Soda (Sodium Bicarbonate) which is marketed as **ALKAJUSTER**, to the pool water. Simply broadcast the product over the surface of the pool water.

If your Total Alkalinity is too HIGH:

Although your Total Alkalinity can be adjusted by applying small amounts of Muriatic Acid over a period of days, the most expedient method is to simply empty and replace a portion of your pool water.

You can use your pool immediately after applying **ALKAJUSTER**.

CALCIUM HARDNESS

If your Calcium Hardness level is too LOW:

It can be raised by adding hydrated calcium chloride, marketed as **HY-CAL**, directly to the pool water. Pre-dissolve the product in a plastic pail of **COLD** water before adding to the pool.

You can use your pool immediately after applying **HY-CAL**.

If Your Calcium Hardness Level Is Too HIGH:

The only convenient method of lowering it is to replace a portion of your pool water.

CHLORINE

If the **FREE** chlorine level is allowed to drop below the recommended level, it should be raised by **SUPERCHLORINATING** the water with an unstabilized granular or liquid chlorine product. Both types cost about the same but the granular pouches are easier to carry and provide far less chance of bleaching your clothes when applying the product to the pool than the heavier and messier liquid form.

Unstabilized Granular:

Read the label! With the more common forms, you must add the dosage to a pail of water, stir and wait 30 minutes. Pour the **LIQUID** portion **ONLY** into the pool water. **DO NOT** let the sludge from the bottom of the pail fall into the water.

Unstabilized Liquid:

Pour carefully around the perimeter of the pool.

It is best to apply either of these forms of unstabilized chlorine at night, so the sun cannot burn it off and you must allow 12 hours before you can swim again.

If your **FREE** chlorine is too **HIGH**, you are best advised just to wait until the level drops below 5 ppm before swimming.

Maintaining Your Daily Chlorine Residual

This is best handled by applying slow-acting stabilized chlorine in a puck form fed through an automatic chlorinator which should be refilled weekly. Be careful not to breathe in the dust from the chlorine puck package or handle the pucks with bare hands. They form a health hazard when not handled properly. An alternative method is to use a stabilized granular chlorine. In this case, broadcast according to the manufacturer's instructions, downwind and evenly over the pool surface.

It is **VERY IMPORTANT** that you store your stabilized chlorine well away from the unstabilized product and any other oxidizers or an explosion and fire can result.

STABILIZER

If your stabilizer level is too LOW:

Add Instant Conditioner. It is safe to use your pool while the stabilizer is being absorbed into the pool water. Add directly through skimmer with pump running.

PHOSPHATES

Phosphates should be monitored as they can negatively impact your pool water chemistry as well as the life of your pool equipment. High levels assist in the growth of Algae and also cause deterioration and internal damage (flaking) in equipment components like the heater and salt chlorine generator. Phosphates should be regularly tested at a proper water lab to ensure levels remain below 500 ppb.

SPECIALTY CHEMICALS

There are a number of **SPECIALTY** chemicals that you should also be familiar with:

- Vinyl Cleaners
- Stain & Scale Control
- Oxidizers
- Algaecides

VINYL TILE & LINER CLEANER

When cleaning the liner, coping, ladder, stairs or other pool surfaces, it is **IMPERATIVE** that you use cleaners specifically formulated not to adversely affect the efficiency of the other chemicals regularly used to maintain your pool. As good as they are in your kitchen and bathroom, household and industrial cleaners containing phosphates and ammonia should **NEVER** be used to clean your pool.

OXIDIZERS

Generically known as Potassium Monopersulfate, oxidizer provides a non-chlorine method of oxidizing your pool water. Safer and less messy than using an unstabilized chlorine, it is just as effective in burning off organic contaminants and converting combined chlorine into free chlorine. It has relatively little effect on the other parameters of your pool water and you can also swim immediately after its application.

It is recommended as part of your regular weekly

chemical treatment. The trade-off with unstabilized chlorine is that you cannot raise your chlorine residual with oxidizer as you can with unstabilized chlorine.

STAIN & SCALE CONTROL

Prevents the build-up of scale on the pool, equipment and staining of the pool surfaces from the precipitation of oxidized copper or iron from the pool water onto the liner of your pool.

By following the regular maintenance dosage instructions on the label you can prevent these problems. You can swim after it is applied.

ALGAEKIDES

Are intended for the prevention of killing of algae. Pioneer's algaecide is formulated to be compatible with your other pool chemicals and is one of the most effective ways of preventing or removing algae infestations. It can be applied directly to the pool water or pre-diluted in a pail of water before application.

When included as part of your regular pool maintenance program, it provides a form of insurance against the occurrence of algae and its associated cost remedies.

You can swim immediately after its application, however swimming is **NOT** recommended when algae is present.

TESTING YOUR POOL WATER

By testing your pool water on a regular basis, you can care for your pool in a proactive manner - rather than reacting to problem water:

Basic Parameters Which Must Be Tested:

By The Owner

- Free Available Chlorine
- TA - Total Alkalinity
- pH
- Salt (Specialty Strip)
- Stabilizer
- Calcium Hardness
- Copper Content
- Phosphate Level

Professionally

How Do I Test My Water?

There are 2 basic types of home kits available:

1. **Drop Kit** - OTO drops (sanitizer readings) and phenol drops (pH readings) are mixed with samples of your pool water in a vial. Match the colour of your mixed sample with the colour levels on the vial
2. **Strip Kit** - Litmus strips are dipped into your pool water for a few seconds. Match the colour on the

strip with colour levels on the container. Strip Kits are simple to use and measures your FAC (Free Available Chlorine - drop kit does not). Get up to 3 parameter readings from 1 strip

Professional Testing

Your Pioneer Family Pool's Water Lab can provide you with professional readings for Stabilizer, Phosphates, Calcium Hardness, Salt and Copper. These levels should be checked at least once per month by trained staff who can advise you when corrective action is needed.

A List of Common Products & Alternative Names:

COMMON NAME	ALTERNATIVE NAME
pH Up	Soda Ash
pH Down	Sodium Bisulfate
Alkajuster	Sodium Bicarbonate (Baking Soda)
HY-CAL	Hydrated Calcium Chloride
Oxidizer	Potassium Monopersulfate
Stabilized Chlorine	
Granular	Dichloro-s-Triazinetrione
Mini-Tabs	Trichloro-s-Triazinetrione
Pucks	Trichloro-s-Triazinetrione
UnStabilized Chlorine	
Liquid	Sodium Hypochlorine
HTH Extra	Calcium Hypochlorine
HTH	Calcium Hypochlorine
Salt	Sodium Hypochlorine (Must be Pool grade)

Remember!

- ✓ Use a sterilized plastic sample bottle provided by Pioneer (household bottles run the risk of contamination). Take your sample directly to Pioneer, as samples left overnight or in extreme heat will provide inaccurate readings

SECTION 4

WATER SAFETY & TROUBLESHOOTING



SAFETY FIRST

At Pioneer Family Pools, our first priority is to make sure you enjoy your swimming pool in a fun and **SAFE** manner. Please read the following safety tips to help ensure your pool area is a **SAFE** pool area:

- Always close and lock pool gates when the pool is not in use
- Keep all chemicals out of the reach of children & pets
- Store and handle all chemicals as per manufacturer instructions
- Learn CPR and other emergency techniques
- Keep a list of emergency telephone numbers in a prominent location
- **DO NOT** allow horse play or running in a pool area
- Keep a complete first aid kit in a clearly marked and easy to reach location
- Keep a safety rope float kit installed at all times
- **NEVER** leave children unsupervised
- **NEVER** leave non swimmers unsupervised
- Keep a rescue apparatus handy poolside at all times
- Demand that all children pass your proficiency exam before being allowed to use your pool

- Carefully explain your pool rules to all visitors
- **NEVER** allow any diving or head first entry into any pool unless you are certain the pool is designed for diving and the proper depths have been provided. Results could be catastrophic
- **NEVER** dive or slide head first into a pool after drinking alcohol or while under the influence of any drugs. Results could be catastrophic. We recommend you **DO NOT SWIM** at all
- **NO DIVING** signs should be placed at all areas around your pool where diving is not appropriate
- Keep all glass away from pool areas including decks and patios
- Keep electrical cords or appliances at least 3 meters (10') away from the pool
- Keep the cover to the automatic vacuum line in the **CLOSED** position at **ALL** times when not in use. The suction on this line is capable of holding even an adult underwater if their hair or bathing suit were to get sucked into the opening. This could result in serious injury or even death
- **DO NOT** swim with your solar cover on the pool

YOUR POOL'S INFORMATION

Pool Size, Shape & Model: _____

Volume (Litres): _____

Salesperson: _____ Location: _____

Tel: _____ Year Installed: _____

YOUR EQUIPMENT

Motor Make & Serial #: _____

Filter Make & Serial #: _____

Heater Make & Serial #: _____

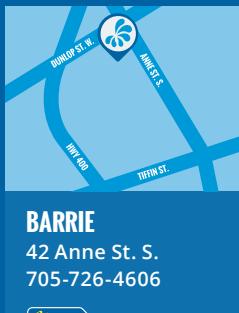
COMMON PROBLEMS & TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Cloudy or Turbid Water	pH too high Water not in balance Improper filtration Excessive use of pool Excessive wind blowing in dirt and other contaminants	Adjust pH Balance your water Check filter for backwashing Use a Clarifier liquid Use an Oxidizer
Eye/Skin Irritation	pH out of range High chlorine residual	Adjust pH Shock with a non-chlorine Oxidizer using twice normal weekly dosage
Scale Formation	High pH Water imbalance	Adjust pH Balance water (bring a sample to Pioneer Family Pool's Water Lab) Add a sequestering agent
High Chlorine Consumption	Low or no stabilizer pH out of acceptable range High combined Chlorine residual Heavy bather load or rainfall Windborne contaminants High water temperature	Add stabilizer Adjust pH Treat for Chloramines Superchlorinate Oxidize Turn off heater
Algae Infestation	Sanitizer level too low and/or water out of balance	See your Pioneer Family Pools Dealer for Algae treatment
Green Coloured Water	Metal oxidized in water due to low pH and corrosion	Test water for iron or copper content Adjust pH and balance water Add sequestering agents as per Pioneer Water Lab instructions
Filter (weak pressure)	Slow flow/low pressure	Clogged baskets/dirty filter Backwash and/or empty baskets
Pump	Motor doesn't start Motor noisy	Clogged/damaged impeller Blown fuse or tripped circuit breaker/loose electrical connection Worn bearing in motor
Heater	Won't start	Pump ON & Water Circulating Gas line is Open Reset Heater breaker
High Phosphates	Phosphates present over 500 ppb	Add Phosfree to reduce level below 500 ppb
Hard Water	High levels of calcium & magnesium	Muriatic Acid

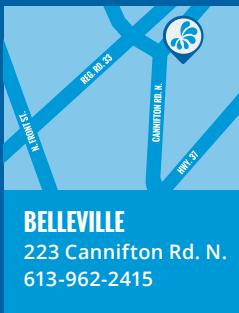


WE KNOW POOLS PATIOS HOT TUBS

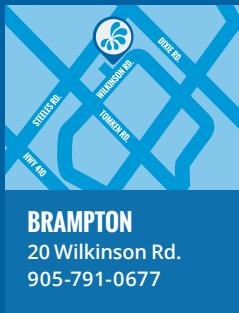
At Pioneer Family Pools we pride ourselves on being the experts that can make your backyard dreams a reality. With numerous locations across Southern Ontario we're able to provide the best sales, installation, and service to the largest geographical region possible. Visit us in-store or online at pioneerfamilypools.ca



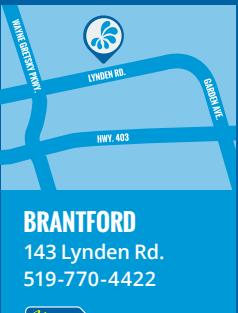
BARRIE
42 Anne St. S.
705-726-4606



BELLEVILLE
223 Cannifton Rd. N.
613-962-2415



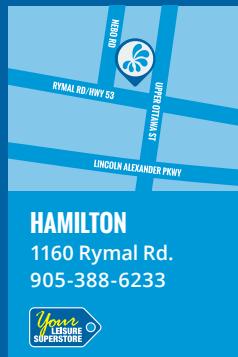
BRAMPTON
20 Wilkinson Rd.
905-791-0677



BRANTFORD
143 Lynden Rd.
519-770-4422



BURLINGTON
4265 Fairview Rd.
905-637-5201



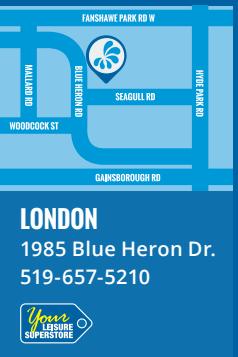
HAMILTON
1160 Rymal Rd.
905-388-6233



KITCHENER
1176 Victoria St. N.
519-578-5010



KINGSTON
1157 Midland Ave.
613-389-4747



LONDON
1985 Blue Heron Dr.
519-657-5210



MARKHAM
71 Cochrane Dr.
905-946-8008
TORONTO
416-291-8403



NEWMARKET
17915 Leslie St.
905-836-9636



OAKVILLE
1020 S. Service Rd.
905-844-7490



SUDBURY
1099 Falconbridge Rd.
705-566-1552



VAUGHAN
7979 Weston Rd.
Bldg B Unit 1
905-851-2393



WOODSTOCK
840 Parkinson Rd.
519-539-5210