

# Your Pool Info

Address \_\_\_\_\_

Pool size \_\_\_\_\_ Approximate gallons \_\_\_\_\_

Shape /model \_\_\_\_\_

Pool pump: Brand \_\_\_\_\_ Model \_\_\_\_\_

H.P. \_\_\_\_\_ Speed \_\_\_\_\_

Filter system: Brand \_\_\_\_\_ Model \_\_\_\_\_

Lbs. of Sand \_\_\_\_\_

Heater/Heat Pump: Brand \_\_\_\_\_ Model \_\_\_\_\_

BTU \_\_\_\_\_

Chemical system \_\_\_\_\_

Solar Cover Size \_\_\_\_\_ Winter Cover Size \_\_\_\_\_

Record startup filter pressure here \_\_\_\_\_

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### Operations preface

This manual is designed to help you understand the basics of pool equipment, chemistry and operations.

It has been comprised from input from all of our senior staff to make it informative and as easy to understand as possible.

Please take the time to read and understand as it will only help you and your family to enjoy your pool and have you swimming in healthy and comfortable water, and ultimately allowing you to run your pool as efficiently and as economically as possible.

Keep in mind that this manual covers basics and may not show your particular equipment or situation.

Even though you will all receive hands on operations by one of our techs once your pool is up and running, it would be wise to read and understand this prior to, so that you may get the best out of your onsite meeting.

Please remember that like with most things, proper care and understanding of operations will make a huge difference on the total success and satisfaction of your new pool.

We expect that you may have questions and encourage you to call or stop in at any time.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gene Habeck', with a long, sweeping flourish extending to the right.

Gene Habeck

Vice president

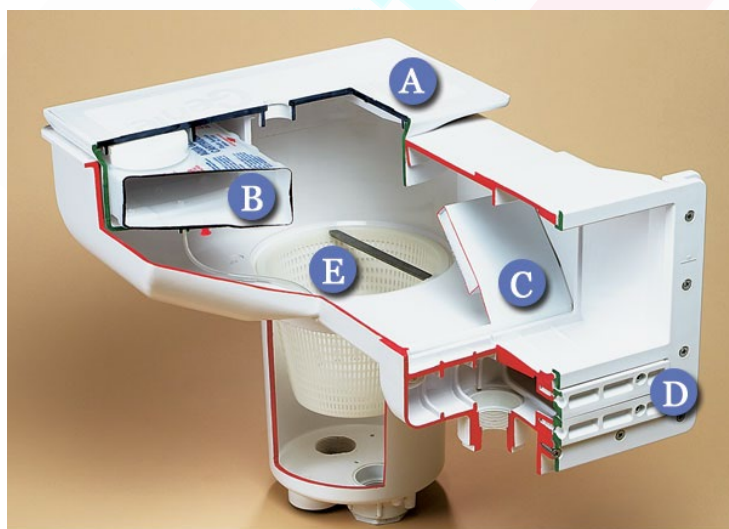
## How does my pool work? The basics please

Most residential pools work by drawing water from the pool via the pool pump. The pump draws water from the “*skimmer(s)*” and main drains or in the case of most North Eastern pools, from a specific type of skimmer called the “*Aqua genie*”.

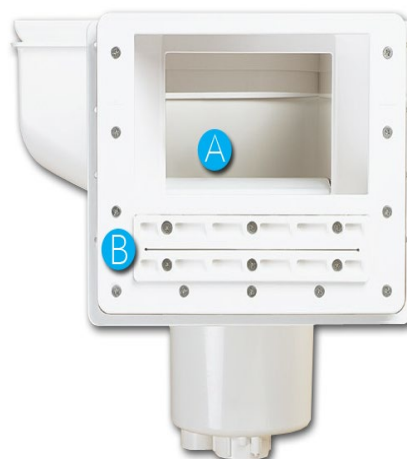
The water enters the front of the pump and goes through the “*strainer housing*” (that’s where the lid and the pump basket is that collects large debris and leaves). From there it will exit out of the top of the pump to the pool filter.

The water is filtered and exits to the pool heater (if you have one) and from there to the “*chlorinator*” (or in some cases a “*chlorine generator*”) and then back to the pool. Most of you will have the “*Frog*” system which is a brand name for a specific type of chlorinator.

The water leaves the chlorinator and heads back to the pool where it enters in through inlet fittings, commonly called returns. In most cases with North Eastern pools, the return jet or pressure chamber as Aqua genie calls it, is built into your “Aqua genie” just under the skimmer opening. See the Aqua genie diagrams below.



FRONT VIEW OF THE AQUA GENIE



A. SKIMMER  
B. PRESSURE CHAMBER

Aqua Genie's remarkable performance and reliability are a result of its simplicity.

There are NO moving parts.

- A. Replaceable top plate
- B. Removable chlorine canister
- C. Replaceable weir
- D. Pressure chamber
- E. Oversized leaf basket

Item B—the chlorine canister is not used on North Eastern pools as we normally install a low chlorine sanitation system such as the FROG which feeds the chlorine into the water after the heating system which prolongs the life of the pool heater. It is also more user friendly.

We started using the Aqua genies after a federal law was enacted known as the Virginia Graham Baker Act. The intent of the law was to eliminate any chance of entrapment, particularly in the “*main drains*” at the bottom of a pool. As a result of the legislation, the performance of the main drains were

drastically reduced. That's when we decided to try the Aqua Genie. We were so impressed by its performance and simplicity that we decided to incorporate it into all of our pools. The pressure chamber style return forces heated water and chemicals to circulate from the bottom up, while at the same time enhancing the ability to skim. Best of all, it virtually eliminates any possible entrapment issues.

That's the basics of how a pool circulates water. Let's talk more in depth about some of the specific components.

## **The Pool Pump**

As previously discussed, the pool pump is what circulates your water. It also has a strainer housing that collects larger debris and leaves. It can be cleaned by shutting the pump off and simply removing the lid and emptying the basket. Please be sure to line the basket back up when re-installing. Once your pool is opened for the season and pump is initially "primed" you should not have to add water to the pump again (re-prime) when you clean the basket. Usually the pump should start pulling water again relatively quickly, typically no longer than 2 to 3 minutes. If the pump has not completely primed within this time period please consult our Troubleshooting Section. When a pump is running properly it may look like nothing is going on when looking through the lid. It should be full with perhaps a little air bubble or two dancing around under the lid, but there should not be a lot of air bubbles or gulping of the water in there once it has been running for a few minutes. A pump should never be running dry with no water in it.

There are basically 3 types of pumps available. The most common is the single speed. Variable speed is becoming increasingly popular and can offer some energy savings, however they are a bit more costly in the initial investment. Two speed pumps are becoming much less popular with the advent of the variable speed pumps. Energy savings can be achieved with a single speed pump too, through the use of a timer. A timer is required by code and provided by your electrician unless you have other means of timed operation such as "automation" (also called a control system), or if you have a variable speed pump, the timer is typically built in to the pump.

**There are many different schools of thought on how long to run your pump.** The simple fact is that it can be different for everyone. Bather loads and size of your pool and even what time of year it is all play a part. For example, even if the pool is not being used much in the fall, you may want to run the pump more or even 24/7 when the leaves are falling vs. perhaps 10 to 14 hours per day in the summer. We would not recommend less than 10 hours a day even with a small pool. Make sure you never add chemicals to a pool if the pump timer is going to shut it down shortly after, or if you do, simply override the timer so that chemicals circulate for a minimum of 6 hours. If chlorine or certain other types of chemicals go in uncirculated, they can sink to the bottom and stain or bleach your liner. If you are making large changes in your water chemistry or trying to clean up a problem such as algae then you should run 24 hours a day until the problem is cleared up. See the pictures below. The pump on the left is called the "super flow" and works quite well on most applications. It is our most popular pump. The pump on the right is called the "intelliflow". It is a variable speed pump that can change speeds and has multiple programming options built in.

## How do I turn my pool pump on and off?

- **If you have a timer:** typically, you will have an override switch inside the timer door that will act as an on/off switch. There will also be simple instructions on the door to tell you how to use your timer. Make sure you keep the door closed at all times when not servicing to prevent water intrusion.
- **If you have EZ touch control system:** if you are servicing your pool equipment, you should start by opening the door to on your “load center”. That’s the box that’s out by your pool equipment. Push the “Mode” button until the display reads “service”. At that time –everything will shut off and you can turn any functions back on by simply hitting the button associated with what you want to do while you are servicing equipment. when you are done servicing your equipment, push the “mode “button back on to “Auto” and the system will go back to its programmed functions.



## The Pool Filter

Although there are other types of filtration systems, we are going to talk about “sand filtration”. It is the oldest form of filtration and the most common. It is very simple and economical to operate while providing excellent water quality. The sand or “media” in your filter is actually quartz silica milled to a specific size. Its sharp edges allow it to catch dirt particles in the voids as the water passes through from the top of the tank to the bottom “laterals” where it exits the tank. As the dirt builds up, the voids became smaller thereby trapping smaller particles and filtering to a smaller micron. It also will increase the pressure inside the tank as the pump has a harder time pushing the water through. So a dirty filter actually cleans better until at some point the media becomes too restrictive thus reducing the water flow. At that time, you will need to “backwash” and then the whole process starts over again. There is additional information on this in the “when should I back wash section”.

- You should record your filter start up pressure when the pool first becomes operational and the filter is clean. This gives you a reference and is called your “start up pressure”. The “pressure gauge” is located on the multiport. The measurement is in P.S.I. which is short for pounds per square inch.
- The filter sand will last on average for 5 years or longer before needing to be replaced.



## What is the “Multiport”?

The multiport is the multi position valve that’s on your filter tank. It allows you to direct the water through the valve for various functions. **The multiport positions are labeled on the valve and are as follows:**

- **Filter:** This is the normal position to be in when up and running. This is when the water is being directed through the sand media from the top of the filter tank down to the laterals where the filtered water exits. The “laterals” are attached to a center pipe that allows the clean water to go back to the multiport.
- **Backwash:** This is the position you want to be in to backwash. It reverses the flow, forcing the water backwards up from the laterals and out the waste port. This is how we clean the sand. The waste port is where you can connect a collapsible hose on the multiport-usually by hose clamps, so that you can direct waste water to a safe place.
- **Rinse:** Rinse position is how you clean the internal pipes just after backwashing. It should be done after every backwash. The water will exit the waste port.
- **Waste:** Waste position is most frequently used to lower your water level as the water will exit the waste port. Another use for the waste port is vacuuming large debris. Please refer to the “In Season Maintenance” section for this application.
- **Recirculate:** Recirculate by-passes the filter tank thus not filtering water and is not typically used. It can be helpful sometimes when servicing the system.
- **Winter:** The position to be when the pool is closed for the winter.
- **Closed:** This position is used to close the valve. Typically only used during service.



This is a cut away of a typical sand filter

1. Multiport
2. Pressure Gauge
3. Media Fill Level
4. Laterals
5. Drain Plug
6. Filter Base

## When should I backwash?

You should backwash when the pressure rises so high that it starts to diminish the performance of the pool system. If you're in the pool and feel that the aqua genie return(s) are not bringing water back in very strong, then your system is probably dirty. Take note of the pressure on the gauge at that time. For example- if your system start up pressure is 20 p.s.i. clean and you see that the performance has diminished significantly at 26 p.s.i. - then take note of that. Use your pressure gauge like a "dirt meter". Bear in mind, all systems are a little different because of the length of plumbing runs and the type of pump and filter/heater you have. Most pumps will usually "dead head" meaning to lose the ability to overcome the resistance of the dirt, starting around 26 or 27 p.s.i.... At that pressure you may pumping very little or no water even though the pump is running. There are some pumps that are designed to overcome more resistance such as the "whisperflow" or the "intelliflow", they are usually on pools that have more demanding requirements, such as excessively long plumbing runs or water features. These pumps can pump into the low 30s p.s.i. before "dead heading" but once again they are a higher initial investment and not required on most pools.

- You may find that if you're vacuuming your pool and it's so dirty, like when you first open in the spring, that you have to backwash several times just to get it cleaned up. Converse to that, if it's the middle of the summer, some people may be able to go 2 to 3 weeks or more before needing to backwash. If it is cottonwood/dogwood season you will need to backwash more frequently. If there is still a lot of construction/landscaping going on in your back yard, you may have to backwash much more until the yard is grown in and construction has ended. A good analogy is to compare it to changing the bag in your vacuum cleaner. You're usually not going to do that until the performance in the vacuum starts to diminish. To sum it up- you should backwash based more on performance, not duration.

If you have the Pentair VS (variable speed) "superflow" pump, make sure you backwash and rinse on the highest speed (3450 rpm, 1.5 h.p.). If you have a VS "intelliflow" pump you may not want to backwash on the highest speed as its max. horse power is 3 H.P. and could actually try to pump more than is needed. This should be addressed at your on-site operations with one of our techs.

## How do I backwash?

1. Make sure you have your collapsible discharge hose, often called a backwash hose, hooked up securely to the waste port and directed to a safe place such as your driveway or the back of the yard. Do not have any kinks in the hose.
2. Turn your pool pump off and rotate the multiport handle to the "backwash" position. You will need to push down on the handle to turn it. **Always turn the pump off anytime you change the multiport position or you may damage the valve.**
3. Turn your pump back on and backwash for minimum 2 to 3 minutes (even if the backwash water appears to be clean). If you do not backwash long enough, you will not get the sand media clean and you will find that you're backwashing more often than necessary. This is especially true during cottonwood /dogwood season or after heavy vacuuming such as spring start up. After every backwash you should have returned to your original "start-up pressure" on your pressure gauge.
4. Shut your pump back off and move multiport to "rinse" position. Turn pump back on and rinse for 20 to 30 seconds.



5. Turn pump back off and go to filter position. Start pump back up and check your pressure gauge. You should be back to your original start up pressure and water should be returning to the pool in full force.

That's all there is that .You have just finished backwashing your filter.

## The Pool Heater

### How to turn on your pool heater

Most pool heaters today have a digital display and are quite simple to turn on and off and to adjust the temperature. They can be as simple to use as your home thermostat. Most also have a pool and spa mode. Generally you will only use the pool mode, the spa mode is a function that is not usually used. The display will also show error codes. So if your heater will not start up, see if there is an error code on the display. For example, a display may read "FLO". This is indicating that the heater thinks there is not sufficient water going through it so it won't start up. Many times with that error code it is as simple as your filter system needing to be backwashed. Refer to your heater owner's manual for specifics on your particular heater. If you have an EZ TOUCH control system, the how to's will be covered later in this manual. **Remember- your heater cannot work if your pump is off (there must be sufficient water flow). So if you want to heat, you may need to override your timer if it is scheduled to shut off.**

### When should I heat my pool?

This depends on what type of heater you have. Gas or electric heat pump

### If I have a propane or natural gas heater



The benefit of a gas heater is that it has the ability to heat fast and is not reliant on the outside air temperature. We expect an appropriately sized heater to achieve a rise of one degree per hour. So for example, if your pool is 72 degrees (not useable by most people's standards) you can get to 82 degrees in approximately 10 hours. Now of course this will vary from pool to pool. What is nice to know is how fast your particular pool will heat. This is called "*rate of rise*" and can be helpful for planning your swimming events. Some people will simply set the pool to a desired temperature and leave it there, but knowing your rate of rise can help you save a lot of money in fuel when you're not going to be using the

pool (we call this *“spot heating”*). Similar to your house, if you’re not going to be using it then turn it down to a lower temperature or off.

### If I have a heat pump



A heat pump works similar to an air conditioner only in reverse. It can heat your pool much faster when it is warmer and humid out. For example, if it is 55 degrees out, you will heat your pool much slower than if it was 85 degrees and humid. In other words, your “rate of rise” can be significantly different depending on the ambient temperature (air temperature) and even your pool water temperature. The combination of the ambient temperature, the water temperature and the humidity all factor in on how fast your heat pump will heat. So in the spring, you can expect it to run a lot until the water heats up.

A good analogy of a heat pump is to think of it kind of like a freight train. It takes a while to get going but once it gets up to speed it is very efficient. You don’t want to deviate too much from that speed (temperature). Many people will “set and forget” to the temperature they desire and find that their utility bills are still reasonable. So if you fluctuate from your desired temperature, I wouldn’t set it too low so that when you want to get to your desired temperature you are not too far away.

We recommend shutting your heat pump off if the air temperature is only going to be mid to higher 40s. If you don’t, not to worry it will not damage the heat pump but if it gets to cold it will go into a “defrost” mode until it warms up.

### If you have the “Frog” chlorinator



The “Frog” is a specific type of chlorinator system that utilizes minerals as well as chlorine to allow you to run a significantly lower amount of chlorine levels in your pool. It is referred to as a “low chlorine system”. This is a great benefit to you and your family and even your pool equipment and liner as it is much softer and easier on everything. After all you wouldn’t want to take a bath in 3 parts per million of chlorine, so let’s not swim in it either. You will receive some in store training when you first come in to pick up your start up chemicals. After that, we hope to see you in the store on a regular basis so that we can help you run as efficient as possible and keep you in clean comfortable water. As you learn your system and terminology, you may not need to stop in as often. Testing your water once per week is generally sufficient. You should not go longer than one week without testing.

### If you have a “chlorine generator”



Sometimes people will call this a salt generator. That would be inaccurate as the system actually uses salt to generate chlorine through an electrical process. North Eastern will deliver and add a starter amount of salt to your pool once you are up and running. Many pools will start out with 500 pounds or more depending on the size. We generally leave a little extra so you can dial in the proper amount. Even though we will do an on-site operations, with this system you will need to read and understand the manual to use it properly. Keep the manual handy with your pool binder for reference when needed as the proper use of this is very important to the safe and successful operation of your pool. As always, please see us with a water sample so that we may help you get your system dialed in and producing good results. Testing your water once a week is generally sufficient. You should not go longer than one week without testing.

### If you have an EZ touch control system



The major component of the EZ TOUCH system is called the “load center” and is located out by your pool equipment. The purpose of the load center is to have one location where all the electrical components can be wired up and controlled via a separate controller. It is the brains of the system and also electrical sub-panel as well that will house all your breakers for the various equipment.

There are three types of options for controllers.

- The hard wired indoor remote that would mount somewhere stationary in your house.
- The handheld portable remote.
- The “screen logic” that allows you to use your computer or cell phone.

All of these controllers are equally capable of setting up and controlling your equipment and accessories tied into the “load center”.

Generally one of our technicians will go over and set up some basic programming when we do our onsite operations. Just like learning a new phone or computer- it can take a little effort to navigate at first, but with a little practice it will become quite EZ. Keep your owner’s manual handy for reference. **Remember- when servicing your equipment at the pad, for example “backwashing”, you need to press the “mode” button to the “Service” mode and then operate what you want to by pushing the buttons at the load center. If you don’t then you will temporally alter the preprogramed times of your pump or other timed functions. When completed, simply push the “mode” button back to “Auto”.**

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***That concludes the basics of how your pool works!!***

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# Water Chemistry

## Why do I need to test my water?

The three main reasons are as follows:

1. **Healthy sanitized water:** First and foremost, we want a safe and healthy environment for your family and friends to swim in. A swimming pool is not like a bathtub where you drain the water after each bath. When you stop and think about the fact that the same water may be in your pool for the next 10 to 15 years then it is easy to understand the importance of testing and treating your water on a regular basis.
2. **Swimmer comfort:** Bather comfort is heavily dependent on proper water chemistry. We have all experienced swimming in a pool or soaking in a hot tub only to find that it leaves your skin dry and itchy or burns your eyes. Most people assume that this is simply a result of the chlorine in the water. THIS IS NOT TRUE! There are multiple factors of water chemistry that can cause these discomforts which will be discussed later in this section.
3. **Save money:** how do we save money?
  - **Use less chemicals** – Keeping your water balanced makes a pool use less chlorine. Making minor adjustments on a regular basis can save you money. It's cheaper to fix a 1 lb. problem than wait for it to become a 10 lb. problem.



- **Prolong the life of your equipment and liner-** Poor water chemistry can also be quite corrosive and cause damage to your pool liner and equipment. **Unbalanced water (primarily low PH and alkalinity) can ruin a liner, dissolve a heat exchanger, and destroy seals and gaskets in a matter of months. It is also no fun to swim in. Damage caused by poor water chemistry is not covered under any warranties.**

## How do I test my water?

1. **Use test strips at home:** Test strips are the most common way for testing water at home. They are very simple and convenient to use. All pool owners should own test strips as they give a good snap shot of what's going on. Please make sure you keep your test strips dry and be aware that they have an expiration date. **Tip** – to test, take a test strip out of the bottle and set it aside. Now take a small container about the size of a cool whip bowl and fill it by **reaching an arm's length into the pool water**. Please make sure to test the water at least 12 inches below the surface! **Testing at the top few inches of the water in your pool can lead to false readings**

with chlorine and pH, especially on hot sunny days. Now dip your test strip into bowl by holding the test strip on its side (like a knife) and remove from bowl. Wait 15 seconds and compare results to the color chart on the bottle. By dipping the strip in this fashion, you will prevent the colors from running into each other and you will have a more accurate test. The color chart will show you the ideal range for each test on the bottle. It is best to test in the morning. We will discuss this further later on.

## Dip Strip in Water Then Compare Strip with Pack



2. **Use liquid reagents at home:** A professional 5-way test kit used by us in the store and by a lot of technicians in the field. They provide more comprehensive and accurate tests of the water chemistry. This option is ideal for meticulous pool owners who want to keep their chemistry spot on or for the true pool professional.



3. **Bring us in a water sample IT'S FREE!:** If you are a new pool owner or even if you have had experience before, our water test services are a great resource to guide you in the right direction, help you learn terminology and ultimately keep you out of trouble. Our staff is highly trained with years of experience testing thousands of pools per season.

As you are learning, it is a good idea to test your water at home prior to coming to see us so that you can compare your results with ours. This is a great way to gain confidence in your home testing especially if travel limits your ability to come see us as often as you would like.

**We highly recommended to have your water professionally tested at least 4 or 5 times a year.** Here is the when and why of a recommended schedule.

- **Spring:** Starting off with a thorough water test, once your pool has been opened is crucial to setting up a successful season. Simply adding a bunch of chlorine or other chemicals in and saying to yourself-*yep!! I think it's clearing up??*- is how you get in trouble. Follow up a week or two later to confirm water is balanced and you're on the right track.
- **Mid-summer:** Typically, July is our hottest and heaviest usage month which equals more people in the pool, hence more bather load that must be compensated for. This is a good time to see us.
- **Late season:** Sometimes in August and leading into September going towards closing season, the pool may not be being used as much. It can be human nature to get complacent and get off of your routine. One might say *the pool water looked great so I didn't bother to test*. Well it might look great but that doesn't mean it is balanced. **We have seen in too many occasions where water is crystal clear but highly acidic (low ph and alkalinity).** This condition will damage your equipment and liner and if you go swimming it's not going to be comfortable.
- **Before closing:** A professional test prior to closing is crucial. The water must be balanced for your closing chemicals to function properly and to insure a good opening. Remember, your pool is going to be sitting, uncirculated and covered for the next 6 or 7 months. The water should be tested two to three weeks before closing in case any adjustments are needed, with a final test the week of closing.

### **Why do we advocate a professional test by North Eastern??**

- **We can test more parameters.** There are several tests that we can do that are not available on test strips or basic reagent kits. Metals, phosphates, calcium hardness and total chlorine, just to name a few. These are helpful tests to get you started in the beginning of the season, general preventive maintenance or for trouble shooting unusual issues. Also some tests like the stabilizer and calcium test may be affected by other tests like ph. and alkalinity and require a professional turbidity test for accurate measuring.
- **We record your history.** Very few companies do this. This can be a very helpful tool and you will also receive a copy of your water test telling you what adjustments may be

needed. The print out will show you the proper ranges then it will show you how your pool tested. Under your water test information, the sheet will tell you what adjustments if any you will need to make to get your pool water to the middle of each of the proper test ranges. Testing your water at North Eastern can also be a very helpful in the event of a warranty claim. If we have your good tests on record, or show that you always made adjustments as needed, then we can send your records that we always save to manufacture's if there is a need to help you with a manufacture warranty claim.

- **Expert advice.** Our staff is professionally trained. This is what we do, and have done for many, many years! We are open 7 days a week to serve you during the season.
- **Water tests are free-** and will keep you out of trouble and save you money on pool chemicals that are needed by telling you exactly how many pounds or ounces of each product is needed. Takes all the guess work out!

## **What are you testing for at home?**

The routine tests that you would typically do at home are for free chlorine, pH, total alkalinity, and stabilizer. These are covered by the basic test strip described above. After getting your readings you will have to read the chemical bottles to determine how much product is need to make the necessary adjustments. If you bring North Eastern a water sample, we will at minimum test for total chlorine, free chlorine, pH, alkalinity, calcium and stabilizer. If you have a chlorine generator, we will test the salt levels. If you are on well water vs public water, you should bring us a sample of that so we can test it for all the parameters above and metals too. When adding salt to a pool you are always adding trace amounts of minerals/metals. Testing for Metals is not a standard test so you will need to make us aware that you have well water or are on a salt system.

## **When should I test my water at home?**

1. We recommend testing water at minimum on a weekly basis. **Tip-** assuming you have had some circulation over the course of the evening, the most accurate time to take a reading is **in the morning. That's when you will have the best chlorine reading.** If you test in the evening, you will rarely have an adequate chlorine reading as the sun and bather load may have taken the brunt of the chlorine out. If you have a good reading in the A.M., then your pool will have a good day. If you have a low reading in the A.M., then you will need to increase the chlorine level by turning up the chlorinator or increasing the pool circulation run time or pump speed (depending on what type of pump you have). Also, make sure you haven't run out of tablets by checking the chlorinator. The same principal applies if you have a chlorine generator, except instead of checking for tablets, make sure your salt levels are good, and check the indicators on the cell and the pH level. PH that's too high will make your chlorine ineffective.
2. Always test the water if it doesn't look right, such as cloudy or green. REMEMBER, a pool always turns cloudy before it turns green (with exception to mustard algae). It is always advisable to

test the water before treating it chemically. By having North Eastern test your water, we can tell you the proper amounts of chemicals to use for faster and less expensive clean up.

3. Testing is important before and after a large party with high bather loads. Every bather contaminates 600 gallons of pool water in an hour!
4. Make sure to test after heavy rains. Rain water has significantly different test levels than your ideal pool water. Rain water can quickly wreak havoc on your pH and alkalinity levels and dilute your stabilizer. You will also typically find that your chlorine levels will decrease after heavy rains.

*o.k.- you may be thinking-WHAT DID I GET MYSELF INTO!! Now while it's true that advanced water chemistry can be complicated, most people get the hang of basic pool water chemistry pretty quickly. It can be very intimidating at first with all the fancy terms and such, but with a little effort and by using this manual as a reference, you will learn that it is not as difficult as it may seem and soon you will join the thousands of other happy North Eastern pool customers that are quite successful at maintaining their own pool. You will also receive a one on one session here at the store with one of our Retail techs when you receive your initial startup chemicals. Free" POOL SCHOOL" SESSIONS ARE ALSO AVAILABLE twice Monthly. Check with retail on times and dates.*

## **Basic Chemical Terminology**

In this next section, we are going to teach you basic chemical terminology and their proper ranges to be in, and the ill-effects of when you are out of range. Most chemistry as it relates to pools is measured in "parts per million", or ppm. So imagine 1 ppm of chlorine in your pool is like one coffee cup of chlorine to a million cups of pool water. Three ppm's is like three coffee cups of chlorine to a million coffee cups of pool water!

### **Proper test Ranges-**

These are acceptable ranges to be within for the following most common tests.

Total Chlorine 1.0-3.0ppm

Free Chlorine 1.0-3.0ppm

Ph. 7.2-7.6

Alkalinity 80-120ppm

Calcium Hardness 150-300ppm

Stabilizer 30-100ppm

**Now let's take a more in depth look into these terms.**

**Chlorine:** Chlorine is the most popular pool sanitizer. Pool water generally contains 3 types of chlorine commonly known as **Free Chlorine**, **Combined Chlorine** and **Total Chlorine**. The differences of the three and how to test them can seem confusing at first, so let's see if we can simplify it. Consider this simple formula

$$FC + CC = TC$$

- **Free Chlorine:** This is the amount of active chlorine in the pool that's still available to sanitize your water. Free Chlorine is also known as "Good" Chlorine. The **Free Chlorine** should test between 1-3 ppm in a regular or salt chlorine pool (and between 0.5-1.5 ppm in a pool that uses a mineral system like our Frog system).
- **Combined Chlorine:** This is the chlorine that has already been "used up" by sanitizing your water. It is bound by contaminants in the pool water such as rain, debris, sweat, urine mucous etc.. **Combined Chlorine** is also known as "Bad" Chlorine or "Chloramines". This form of chlorine has little to no sanitizing power and will ideally test at 0 ppm. When it is present in the water it will fool you because it makes the water smell of chlorine. **Remember you NEVER smell chlorine in a properly balanced pool!** If you smell chlorine, test your water right away.
- **Total Chlorine:** This is the total amount of chlorine in the pool- **Free Chlorine Plus Combined Chlorine = Total Chlorine**. If the **Total Chlorine** is higher than the **Free Chlorine**, then the difference of the two represents the level of **Combined Chlorine**. If the readings are the same, then no **Combined Chlorine** is present. The **Total Chlorine** level cannot be less than the **Free Chlorine** level. We can only test for **Free Chlorine** and **Total Chlorine**, so that's why we use the formula to determine the **Combined Chlorine**.

**What happens when we have low free chlorine?** The most common issue regarding chlorine is inadequate (not enough) Free Chlorine levels. Since Free Chlorine is what sanitizes the water, low Free Chlorine will sometimes cause cloudy water and if left unadjusted will eventually lead to algae growth.

**Can there be too much chlorine?** An excessively high Free Chlorine reading can cause skin irritation for swimmers with sensitive skin. Over chlorinating on a regular basis can bleach a liner.

**Why do I smell chlorine?** If the pool has a strong chlorine odor, this is caused by **high Combined Chlorine**. If your free chlorine and total chlorine are within proper ranges, then you should not smell chlorine. **It is a common misconception that a chlorine odor is caused by high free or Total Chlorine. The odor ONLY comes from the combined chlorine.** High combined chlorine can also cause cloudy water. So if you have a strong chlorine odor, you probably need to "*shock*" the pool.

*To re-cap, let's do a couple sample chlorine tests. For these examples we will say the customers are on the Frog System as many of you are. Remember our test strips previously discussed?*

*Customer A preforms test with strips at home and reads a Free Chlorine reading of 1.5 ppm and a Total Chlorine test of 1.5 ppm. By using the formula  $FC+CC=TC$  we conclude the Combined Chlorine is 0. This is good as there is no Combined Chlorine present ( bad chlorine)*

$$1.5 + 0 = 1.5$$

*Customer B preforms same test and has Free Chlorine reading of .5 and a Total Chlorine reading of 5. The difference here is 4.5. So 4.5 is the Combined Chlorine reading. This would prompt us to ask you how your water looks and or smells as the Free Chlorine (good chlorine) is on the low side and the Combined Chlorine ( bad chlorine or “chloramines”) are getting high. This situation usually warrants a good “shock” to get rid of the Combined Chlorine which in turn will raise the Free chlorine and lower the Combined Chlorine getting you back on track like customer A’s test.*

$$.5 + 4.5 = 5$$

**What does the term “shock” the pool mean?** Shocking is also known as super chlorinating. It’s a way to keep the pool water safe and clean by adding 3 to 5 times the normal amount of chlorine to your pool water to **drastically raise the chlorine level for a short time**. This will kill bacteria or any other contaminants in the pool and **help remove Combined Chlorine** (bad chlorine). In turn, this will boost the availability of your **Free Chlorine** (good chlorine). Shocking the pool is an important regular maintenance step with which every pool owner should be familiar.

**How often should I shock my pool?** *Now this is a loaded question!* The main contributing factors that dictates how often we shock our pool is the amount of people using your pool (bather load), and the temperature of the pool water and the weather. For example, you should be shocking the pool a lot more if you keep your pool water at 84 degrees and have half the neighborhood in your pool throughout the week vs. the casual user that likes their water at 78 degrees. Technically, you shouldn’t need to shock unless you have low or zero Free Chlorine levels or high Combined Chlorine levels or the combination of both like our customer B did above., however most professionals recommend shocking a minimum of once or twice a month, regardless. Many people find that shocking their pool on a weekly basis, especially during the heat of the season, keeps them out of trouble and is a good way to be proactive by not allowing any contaminants to build up. Here are some good “rules of thumb”

- Shock after heavy bather use: aka “party’s”
- After heavy amounts of rain (rain is full of dirt and algae)
- During extended periods of hot, sunny weather.
- Shock a minimum of once or twice a month regardless.
- Dog(s) using the pool- 1 dog = 30 bathers.
- And of course, when chlorine test results dictate it.

**How do I shock my pool and with what chemicals?** There are basically 4 ways to shock your pool. Each way has its pro’s and con’s and you may want to shock different ways sometimes depending on your water test. Items 2,3 and 4 are all granular shocks and are available in small bags. They are all commonly referred to as “bag” shocks but they are all quite different as you will see below. We will describe them by their main abbreviated active chemical ingredient.

1. **Liquid Chlorine**-(sodium hypochlorite) **Liquid** chlorine works great and is the least expensive way to shock a pool. It also has a high pH, which can be helpful if you need to raise the pH as well. This can be the case many times if you are using chlorine tablets, as they are low in pH as is most rainwater. **PRO'S**- least inexpensive, can help raise pH if needed-can be dumped directly into the pool **CON'S**- harder to handle and transport. Will bleach your cloths/car carpet if you splash it on you, or spill it.
2. **Dichlor**- what's nice about this "bag" shock is that it is pH neutral and will not hurt your liner. **PRO'S**- does not need to be pre-diluted. Safe to broadcast directly into pool. Easy to handle and transport. Will not affect pH. **CON'S**- little more expensive.
3. **Potassium Monopersulfate (Non-Chlorine Shock)**- The best time to use this type of "bag" shock is when your combined chlorine levels are high and you have an adequate amount of free chlorine. **PRO'S** -will decrease the combined chlorine levels without spiking up the total chlorine. Non-Chlorine shock can also be used in conjunction with any of the other three types of shock and actually increases the effectiveness of the other shocks. You do not have to wait to go swimming and it also can be broadcast directly into pool. Easy to handle/transport. **CON'S**- do not use if you are trying to raise total chlorine levels. More expensive.
4. **Cal Hypo**- The most important thing to note with this type of "bag" shock is that **it has to be pre-dissolved**. You never want to pour this directly into the pool because it can settle to the bottom and bleach the liner. This type of shock also tends to cloud up the water because it is calcium based. The only advantage of this kind of shock is the price. **PRO'S**- It's cheap and easy to transport. **CON'S**- has to be pre-diluted. Can permanently stain your liner. Can make the water cloudy. Not as user friendly.



**If you use Cal Hypo bag shock, it must be pre-dissolved first. Start by taking a 5 gallon pale and filling it up  $\frac{3}{4}$  of the way with water ( pool water is o.k.). then add the bag(s) of shock to the water and stir until completely dissolved. Always add chemicals to the water, not water to the chemicals. After granules are completely dissolved, you can dump the mixture into the pool. Follow by rinsing the bucket in the pool water. XXXXX NEVER ALLOW UNDISSOLVED GRANULARS TO SIT ON THE LINER OR YOU CAN EXPECT IRREVERSABLE DAMMAGE. XXXX**

**TIP-** The best time to add shock to your pool is after the sun has gone down. This will get you the "best bang for your buck" as the sun or u.v. light is not depleting the effectiveness. You will not get as good



results, if you shock during a sunny day. Make sure you are circulating water for a minimum of 3 hours after the shock has been added.

**What do we mean by the term “balanced water”?** When we say that the pool water is balanced, we are primarily talking about the pH, alkalinity, calcium hardness and stabilizer, all being within their proper ranges. (refer back to the table at the start of this chapter). If they are, then the water is “balanced”.

**pH (potential hydrogen):** The potential hydrogen reading, more commonly known as “pH” measures how acidic or basic the water is. The pH scale ranges from 0-14 with 7 being neutral. The ideal range for pool water is 7.2-7.6. The pH scale is more unique than a typical nominal scale. With each decrease in the pH scale of 1 the water becomes 10 times more acidic. This means that a pH of 6.4 is 10 times more acidic than an adequately balanced pool with a pH of 7.4 and a pH of 5.4 is 100 times more acidic!

- **What if my pH is too low?** Low pH, or acidic water, can cause a number of issues for a pool. Low pH is typically found in pools that have not been tested regularly and is a common problem for negligent pool owners. There are a number of factors that can cause pH to drop. The most common factors are rainwater and chlorine tablets. Low pH, if left unadjusted for too long, will cause issues with nearly everything in the pool from the liner to the heater. Low pH over the course of time will cause the liner to lose elasticity which can result in wrinkling and pinhole leaks. Acidic water can rapidly damage equipment like the pump, heater, pool lights and most importantly the heat exchanger. The “heat exchanger” in gas fired pool heaters is a copper coil which is susceptible to damage from acidic water and is very costly to repair. Damage to pool equipment caused by improper water chemistry is not covered under manufacturer's warranty.

See the pictures below. The 2 pictures on the left are brand new heat exchangers. The 2 on the right are heat exchangers that have been damaged by low pH and alkalinity. If you look closely, you can see that copper is thin and worn away on the right side. That copper is now in your pool in a soluble form. Not only does the heater leak now, but the water needs to be treated for the copper in it.



- Along with the problems to the pool equipment, water with low pH is very uncomfortable for swimmers and can cause itchy, dry skin and burning of the eyes. Note: The fluid in your eyes is 7.4 that's why the range is 7.2 to 7.6 That is called the comfort zone. The range of 7.2 -7.6 is where the water is the most comfortable to your eyes ears nose and throat, it's also where your chlorine is the most effective and stays in the water the longest.
- **Low ph and or alkalinity is the #1 mistake pool owners make in chemistry.** The reason is that most people use chlorine tablets and the type of chlorine needed to make a tablet is very low in ph. Also most rain water is acidic. Therefore you will find that you will need to raise the ph more often than lower. The opposite would be true if you use only liquid chlorine or have a chlorine generator as that type of chlorine is high in ph. **MANY TIMES THE POOL WATER WILL LOOK CRYSTALL CLEAR , BUT BE HIGHLY ACIDIC. DON'T MAKE THE MISTAKE OF NOT TESTING BECAUSE "MY WATER LOOKS GREAT!! "**
- **What if my pH is too high?** High pH, or basic water, is less common than low pH but can also cause water quality issues. The most immediate result of high pH is the restricting effect that it has on the chlorine's sanitizing ability. Even with a proper level of chlorine if the pH is too high it will be ineffective as a sanitizer and will cause cloudy water. High pH also makes metals and minerals more likely to break out of solution and cause staining or scale buildup. High pH is

usually a result of the sanitation system of the pool. Pool owners with Salt Systems or people who regularly use liquid chlorine may find that the water often has a high pH.

**Total Alkalinity:** The Total Alkalinity acts as somewhat of a buffer for the pH. When Total Alkalinity is in the proper range it inhibits the fluctuation of pH. The ideal range for Total Alkalinity in a pool is 80-150 ppm with an ideal level of 120 ppm. In general, Total Alkalinity and pH act together, so if one is low the other tends to be low and vice versa.

- **What if my alkalinity is low or high?** All of the common effects of high and low Total Alkalinity are essentially the same as high and low pH. Another effect of high Total Alkalinity is pH Lock. If the Total Alkalinity is too high, then it becomes difficult to adjust the pH.

**Calcium Hardness:** The Calcium Hardness measures how hard or soft the water is. The ideal range for Calcium Hardness in a pool is 150-300 ppm. Hardness fluctuations are much less common than fluctuations in the other readings. The Hardness will only fluctuate if calcium is added or new water is added with a Calcium Hardness reading different than the pool water. The most typical cause of fluctuations is from rain water which will decrease the Calcium Hardness due to dilution.

- **What if my calcium is low?** Low calcium generally causes corrosion to any metal parts of the pool equipment.
- **What if my calcium is high?** High calcium can cause plugged filters, cloudy water, and a waterline buildup. High hardness is a very uncommon problem and is usually seen when pool owners fill using well water.

**Stabilizer (cyanuric acid):** Cyanuric Acid, also commonly referred to as stabilizer or conditioner, is a chemical used in pools to help prevent chlorine degradation by UV light (sunlight). With little or no stabilizer in the water chlorine is burned off more rapidly and chlorine tablets will not dissolve properly. The ideal range for Cyanuric Acid is 30-50 ppm. Similar to calcium hardness, cyanuric acid remains fairly constant and will only decrease with the addition of fresh water or rain water (dilution). A typical pool will need Cyanuric Acid to be added once per season. Testing Stabilizer is one of the reasons it is important to test the pool water in the spring. Having the proper amount of stabilizer will save you a lot of money in chlorine and make the most of the chlorine that is added to the pool. If a significant amount of water is drained and replaced by fresh water from the pool at any time, additional stabilizer may need to be added. Have the water tested to be sure stabilizer is needed.

- **What if my stabilizer is too low?** Low stabilizer will directly cause the pool to have a high chlorine demand. A high chlorine demand usually causes low sanitizer readings which can result in cloudy water or algae blooms. If cloudy water or algae blooms occur due to low sanitizer shocking the pool will fix the problem but if the stabilizer is low the problems will be recurring. If this is the case the Cyanuric Acid levels will need to be adjusted along with the shock treatment.
- **What if my stabilizer is too high?** High stabilizer is a fairly uncommon problem. The most common issue caused by high stabilizer is a problem called "Chlorine Lock" in which the chlorine in the pool is less effective as a sanitizer and oxidizer. High Cyanuric Acid levels are usually a result of over addition of stabilizer or by low quality chlorine tablets. Low quality chlorine tablets often contain high concentrations of Cyanuric Acid and over time can build up in pool

water which will perpetually lower your pH and alkalinity levels as well. This is why it is worth using a good quality tablet or the frog system. We all know the old adage- ya get what ya pay for!!! Another effect of high stabilizer in the presence of copper is a thick purple buildup. This is very, very difficult to treat. Please note that high stabilizer alone does not cause this. There needs to be copper present. Copper in the water is usually a result of low pH damaging the heat exchanger.

**Frog system (aka mineral system or low chlorine system):** Some pools use minerals to sanitize the water along with chlorine. These minerals aid in the sanitation process which allows the pool to require less chlorine. You still need to shock with the frog system, or any system for that matter. Common mineral systems are the *Frog System* and *Nature 2*. The *Frog System* mineral reservoir consists of two major components.

1. **Silver Ions:** Silver ions are what help in sanitizing the water. The pool water cannot be sanitized adequately with Silver Ions alone it is necessary to keep a Chlorine or Bromine level between 0.5-1.5 ppm. There is no test for the Silver Ions and there is not an ideal range.
2. **Calcium Carbonate (Limestone):** Calcium Carbonate has a high pH which assists in the balancing of the water. Chlorine tablets, including the tablets used in the *Frog System*, generally have a very low pH. The high pH of the Calcium Carbonate helps to counter the low pH of the tablets which will require less balancing for the pool owner.

The *Frog System* mineral reservoir will last approximately six months and needs to be replaced at the beginning of each season for the system to be capable of running low chlorine levels. This is a very important step.

If you are using the FROG system, you should know that it comes with an **ALGAE FREE GUARENTEE!** You MUST just follow these simple steps.

- 1) Replace the POOL FROG mineral cartridge every spring when pool is opened.
- 2) Use the proper amount of the FROG LEAP 90-day Algaecide which is one bottle for every 15,000 gallons of pool water added in the spring
- 3) Use FROG test strips for accurate testing
- 4) Use FROG LEAP ANTI BAC back pacs
- 5) Have water tested regularly at North Eastern Pool and Spa

*o.k.- tough chapter!*

REMEMBER THE RETAIL STAFF AT NORTH EASTERN POOL AND SPA ARE ALWAYS HERE TO HELP YOU WITH ANY CHEMICAL QUESTIONS!

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***That concludes the basics of water chemistry!!***

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# In Season Maintenance

Just like a car or your house, a pool requires routine maintenance and up keep to keep it looking good and operating properly. Routine maintenance will also prolong the life of your equipment and liner, ultimately saving you money while avoiding unnecessary service calls and downtime. So let's get started right away with this frequently asked question.

## How do I vacuum my pool?

Manually vacuuming your pool is actually quite a simple concept and process. Let's start with the concept.

When we vacuum, what we are actually doing is extending the pipe that ties into your aqua genie to the bottom of the pool. We do this by using a "vac hose" and "vac head". When we draw water off the bottom- we grab the dirt and debris with it. It's that simple. Now let's do a step by step.



- Start by locating the 4 components you will need- the vac head, vac hose, "vac pole" and "vac plate(s) "
- Connect the vac head to the vac pole and connect the vac hose to the fitting on the vac head. Note: the two vac hose ends look the same but have a subtle difference. One hose end is capable of swiveling and the other does not. **The end that swivels should be attached to the vac head.**
- Put the vac pole with head and hose attached into the pool shallow end and let it rest there. Now take the remainder of the vac hose and slide it directly down the pool wall so as to fill the vac hose with water at the same time. This is an important step. **The vac hose must be full of water, not air, before connecting it to the aqua genie.**
- Remove the top cover on the aqua genie. Attach the other end of the vac hose to the vac plate. Now at this time, the vac hose should be mostly full of water with the exception of the small remainder of hose and plate you have in your hand. If you have two aqua genies, you will need to cover the second aqua genie with a plugged vac plate to prevent the water from being drawn in there.
- Now, with the filter system running, simply set the vac plate and hose over top of the aqua genie basket and you should feel the suction grab it and a small amount of resistance. It may take a few seconds as it has to work the last bit of air out that was in the top of the vac hose.
- Once it grabs, you can now move the vac head around the pool using the vac pole. The vac pole is telescopic so it can extend to nearly twice its length. You should feel a moderate suction at

this time and visibly be able to see the dirt and debris being removed as you navigate around the pool. When you are done vacuuming, you should turn off the pool pump to disconnect the vac hose/plate at the aqua genie.

- **If at any time the vac head seems as though it is getting stuck to the liner with too much suction you should stop vacuuming and shut the pump off immediately and disconnect the vac.** Refer to our trouble shooting section or call our service department to see what the problem may be. If the vac head is sticking to the liner, it is possible to put cuts in the liner that would not be covered under warranty. **The number one cause of this is a vac head that has worn out bristles. Do not use a vac head with worn out bristles.**
- It is not recommended to vacuum up large quantities of leaves. **Better off to scoop out leaves with a leaf net or leaf rake.** If you are vacuuming up large debris it is recommended to vacuum to waste.
- You may find that you have to backwash after vacuuming, or sometimes even during vacuuming if the pool was extremely dirty. Also, if you vac up several leaves, you may need to clean the aqua genie basket under the vac plate. You will need to shut the pump off to do this.

## **Brushing your pool liner**

It's a good idea to brush your liner several times during the pool season. This will keep your liner looking good, especially brushing the liner on the vertical walls at the water line. This will help prevent a build up there at the water line. As with all tools that you put in your pool- make sure they are in good shape prior to use.

## **Skimming leaves and debris**



You receive a leaf net with your initial pool purchase that works well for smaller amounts of leaves and debris.

If you have a pool that gets a tremendous amount of leaves, you should consider purchasing a leaf rake. Leaf rakes have a much larger capacity and can save you a lot of time. They also work better when trying to remove large quantities of leaves from the bottom of a pool or a winter cover.

## **Check your baskets**

**You should check and clean aqua genie basket(s) as needed**



The frequency of having to do this can differ significantly from one house to the next and change as the season does. For example – in the fall when leaves are falling, you may have to empty the baskets **several times a day**, especially if it's windy.

### **Check and clean your pump strainer housing basket as needed**

Keep plantings and debris clear of pump. Replace the pump lid O-ring and basket if they become brittle or damaged. It is normal for a pump to be very hot to the touch.

### **Backwash filter when needed**

Please refer the “When Should I Backwash?” in the *How Does My Pool Work* Section.

### **Check and adjust water chemistry at minimum once per week**

Please refer to the water chemistry section.

- It is recommended to have your water professionally tested at least 4 or 5 times per year, even if you consider yourself experienced. At minimum, once at the start of the season, mid through and just before closing. **See the “chemical” section for detailed information on testing.**

### **Maintain a proper water level**

If your water level is too high your aqua genie will not skim properly. In extreme cases of overfill-water could get behind the liner and “float” the liner. If water level is too low you run the risk of sucking air into your system. There is a mark on the aqua genie faceplate that designates the optimum water level.

### **How do I know if I am losing water or it's from use and evaporation?**

There are various conditions that effect the amount of water loss through evaporation. For example, a cold night with a warm, uncovered pool can equal a significant loss of water (and heat loss). You could lose as much as  $\frac{3}{4}$ ” or more in one evening in extreme conditions. Wind and dry weather can also have a large effect. In general, up to an  $\frac{1}{8}$ ” per day is not uncommon with warmer days and heavy usage.

If you want to be sure, you can run a test of your own called the “bucket test”. It is a very simple test that can be very accurate and either give you piece of mind or prompt you to take action. The directions are available on our web site or contact our service department.

**Never close your pool if you suspect water loss. We cannot help you in the cold and winter months. A pool in the north eastern climate must have water in it to protect it from possible frost damage.**

### **If you're using a solar cover**

Solar covers are a very effective way to save energy, especially on the colder nights associated with the spring and fall. They can be a bit of work to put on and off, but the dollars saved will be significant. For example, if your pool was 82 degrees, you may drop six or seven degrees over one evening if it's 45 degrees out that night. Whereas if you used your cover-you may only lose a couple and you will have

significantly less water loss do to evaporation.. There are many different opinions on day use, even between professionals. Here is what we at North Eastern advise for general guidelines.

- If it's going to be 90 degrees or more, you would be wise to remove the cover.
- The cover should be pulled back periodically if the pool is not being used. **It is not recommended to keep the pool covered continually for longer than 3 or 4 days' maximum.** You may find that just pulling it back a bit will be adequate instead of removing it completely, especially if it's cooler and overcast. If you are going on a long vacation you might want to leave the cover off or at least pulled back, or you may come home to a cloudy or green pool.
- Solar covers will need to be replaced periodically. This can vary significantly, depending on how diligent you are with chemistry and winter storage. Three to five years is a reasonable expectation.

### **If you have a gas heater**

There is really no maintenance required by the home owner, other than keeping plantings trimmed back away from the unit and whatever you can to keep rodents from making your heater into a home. It is not a bad idea to have the unit cleaned and inspected every year or two. If you would like to arrange that you can contact our service department. This is a service we would do in the summer, starting around mid-June, after opening season.

- If you smell gas while the unit is running, you should turn off the heater and contact our service department. There may be "spider mites "or something else preventing the unit from operating properly.
- In the unlikely event you smell gas when the unit is off, you should contact your energy supplier immediately and exit the house.

### **If you have a heat pump**

Similar to a whole house air conditioner, there is not really any maintenance required on your heat pump other than keeping the coils clean, especially during the cottonwood/dogwood season. Keep any plantings trimmed as to not encroach on the equipment. Rodents are usually not a problem with heat pumps because they are very open and do not make a great house. Heat pumps cannot be enclosed. Generally speaking, you should have 18" clearance around the unit and it should be open above the unit.

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***That concludes the in season maintenance!!***

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# Arranging for a closing and off season maintenance and responsibilities

## Closing your pool

You will need to arrange for your pool to be closed for the off season. We recommend a professional closing. The equipment must be drained and the plumbing lines blown clean and plugged. If the winterization of your equipment and plumbing lines is done incorrectly, your pool and equipment could suffer serious and costly damage.

We offer two different types closing services. See the brief description below.

**Package A-** Winterize the system, blow out the lines, add anti-freeze as needed, and install plugs and "Gizzmos". We remove any rail goods /diving board and then we install the cover.

**Package B-** Same as above except the customer removes the rail goods and installs the cover. The package B is a good way to save a few dollars, yet insure a proper winterization.

- Prior to closing, you will need to make sure the pool is cleaned, water balanced and proper closing chemicals have been circulated. Once that is complete you will need to lower the water level before the pool can be closed. We will discuss this in depth shortly.
- If you would like to use North Eastern to close your pool, you will need to schedule with our service department. The schedule fills up fast so it's a good idea to book your closing early. Contact our service department for detailed information and pricing.

**O.K. my pool is closed, is there anything else that needs to be done during the closed season?**

Even though your pool may have been professionally closed, there are still responsibilities over the winter that are not practical for the pool company to handle. We will be talking primarily about monitoring your water level over the winter and storage of your equipment.

## Monitoring your water level

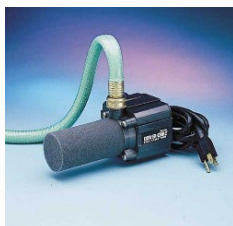
**Why is this important?**

- Did you know that the average precipitation in our area from October through May is 13.22 inches?
- In 2011 there was 17.68" of precipitation from January to the end of May.
- In 1973 there was 30.02" IN THE MONTH OF APRIL-and yes that was the record

**So why is this important?      YOUR POOL CAN OVERFILL!!!!!!**

- **If you own a pool, it is best to own a good submersible pump.** Although a little bit more than some of the other cover pumps, we have found the "little giant "submersible to be an excellent

choice. We sell them here or you can find various models at home improvement stores as well. When using an electrical submersible pump, be sure to plug it in to a "G.F.I. outlet".



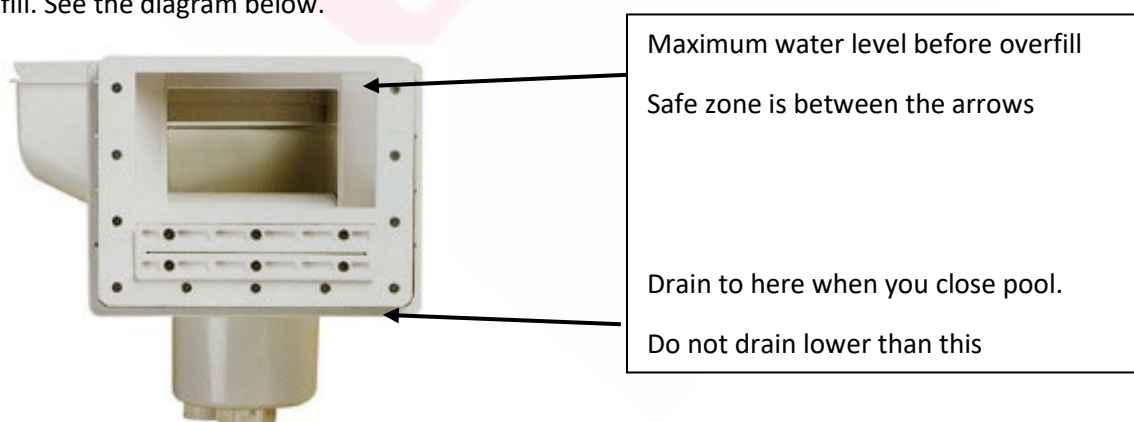
### What happens if my pool overfills?

If your pool overfills, usually what happens is it leaks through what's called the extension collar on your aqua genie or actually makes it all the way up to where the liner clips in and leaks there. In both cases, water will end up on the other side of the liner and more than likely will cause the liner to "float". Water can also end up under the concrete decks, which can erode the soil under your decks. Both scenarios are undesirable. If you open your pool to find newly formed wrinkles in the liner, and your water level is high due to lack of monitoring, then your pool has most likely overfilled.

Re-setting liners is costly and usually cannot be done until after opening season, which means we may be draining your pool during the swimming season. This is not covered under the warranty.

**All this sounds pretty scary, but the good news is that it is not difficult or time consuming to monitor your water level, so let's get started.**

We recommend that you drain your pool to the bottom of the face plate, just below the aqua genie return just prior to closing. This height allows for just under 10" of precipitation before a potential over fill. See the diagram below.



One might ask-why don't we just drain the pool lower so we don't have to worry about it? Here are the two main reasons.

1. If you drain your water to low, you may cause your liner to "float" – especially in high water table areas or conditions that effect water tables such as heavy rains or saturated soil in the spring.

2. Whether you have a regular cover or a safety cover- each must be supported by the pool water or they may fall in-especially with heavy snow loads

We are going to break this up now into two different sections based on what kind of cover you have.

There are basically two methods of covering your pool. The conventional way is using a solid cover with water tubes. Some of you may have upgraded to a “Safety Cover” which is attached with springs, similar to a trampoline.

## **Conventional pool cover**

**If you have a conventional solid pool cover, there are several things you should be aware of**



- It is best to be pro-active and keep the cover as clean as possible by scooping out leaves and debris as we progress through the fall. This will be well worth the effort when it comes time to open the pool in the spring.
- You should always have a few inches of water on the cover to keep the wind from raising it up off the pool.
- Drain your cover when too much water accumulates on the top. Keep in mind that if an abundance of water freezes up on top of the cover it can actually overfill your pool by the ice mass or snow load pushing down and forcing water underneath to be displaced up. This would



be similar to placing a barge in your pool. **This is why it is a good idea to drain most of the water off the cover when the weather allows.** Generally speaking, draining once before the first major freeze and after the first major thaw is sufficient.

- **When draining your cover do not leave the pump unattended.** Why do we say this? Here is a scenario. Customer starts pump running on cover and goes to work at 8 am. Customer comes home and water has leaked through cover and inadvertently customer has drained the pool 2' and now part of cover has fallen into pool including the debris, and liner is floated. Yes that can happen. If a cover develops even a few small holes, it can be enough to feed a small pump or syphon. Even with a brand new cover-you may expect some water to migrate through the seams. It's not a bad idea depending on where your pool water is to fill the pool by putting a garden hose under the cover as your pumping off your pool cover in the spring when preparing for opening. **Do not drain your pool down by accident.**
- **Never use concrete blocks, pavers or similar items for weights to hold down your cover.** What can happen is if your pool loses water for any reason, the weight of the water /ice or snow will pull the cover in, along with the blocks and destroy your liner. We have seen this on many occasions. This is why you need to use water bags, as they will not damage the liner.
- Replace damaged water bags as needed. They are a consumable item. It is not uncommon to have to replace a few every year. Do not fill them completely up as there needs to be some room for expansion when they freeze. We recommend filling them no more than 75%.
- If your cover seems as though it is being pulled into the pool, the first thing you should do is check the water level in the pool, you may have a leak. When we say monitor the water level, that includes the possibility of losing water.
- It's a good idea to store your cover and bags in a tote or in a safe place away from rodents during the swim season.

## Safety Cover

If you have a safety cover, there are several things to be aware of





- When we install your safety cover, you will receive your owner's manual, storage bag and an installation bar. The bar is used for putting on and taking off the springs that attach to the anchors. You will need the bar and to learn how to use it so that you can pull the cover back enough to check water levels or pump water out if needed over the winter. You will need the storage bag once the cover comes off in the spring. **Do not store the cover where rodents or insects can get to it.** Some people hang it up by the bag to keep it off the ground. We have rodent repellent bags available at the store. It is recommended to read through your owner's manual.
- Converse to a conventional solid cover, a mesh cover allows rain and snow melt to go through the cover, thus filling the pool. So instead of pumping off the top of a solid cover, it is likely you will need to pump water out of the pool. What we recommend, and what is usually sufficient, is to check the water level prior to the first major freeze and to check again after the first major thaw and lower the level as needed. It is not very hard to pull back a corner of the cover to have access to the pool. This is when you need the installation bar. **Pull your cover back to check water levels and lower if need be.** You may be able to check the water level by pulling your aqua genie cover off and looking down through there. Some smaller pumps will fit in there.
- We have talked primarily about the risk of your pool overfilling. The opposite of that could happen too. Whether your pool is one year old or fifteen years old, it is possible to develop a leak that you were not aware of during the season. Being that the cover is securely fastened, you may not know that you lost water without taking a closer look. As discussed earlier, we do not drain the water too low, as the cover needs to be supported by the pool water. If your cover becomes unsupported by the water and we get a heavy snow, generally what happens is the brass anchors will shear off, letting your cover fall into the pool. It also ovals out the springs and can tear the cover. **Your cover manufacture will void your warranties if the water level is not maintained between 6" and 16" from the top of the cover.** If you maintain the water as per our diagram of the aqua genie, you will meet those parameters.
- When you open your pool, you should expect a bit of silt on the bottom. This is normal but easily handled by a good vacuum. Here are some tips to make sure you do not open up to a green pool.

1. Close your pool with clean, balanced water. It is also recommended to do a phosphate treatment. See our retail department for more info on that.
2. Many times leaves will simply dry up and blow away on your cover. If they don't then use your pool brush to push them off. Sometimes the wet leaves are an indication that the water level is too high. When this happens, the leaves tend to sit in the water and break down and large amounts of organics filter through. You want to avoid this.
3. Keep animals and their business off the cover.
4. A couple other factors can make a big difference on how your pool opens. One is the duration that your pool is closed for, and the other is the weather. **If you want to ensure you will open up to clear water with no algae regardless of the above, then do the following, it is not a huge amount of effort and makes a big difference!** Once the weather has broken and it's starting to warm up and we are finally through winter, take your cover bar and pull the cover back a little in the deep end and in the shallow end. Put your submersible pump in the deep end and put the discharge end of the hose in the shallow end and plug it in. now ,for an average size pool , say 22,500 gallons, dump two gallons of liquid chlorine in the deep end and two in the shallow end. Let your pump circulate it for 6 or 8 hours. Remove the pump and put your cover back on- that's it. **Never dump chlorine through the cover because it will bleach it.** The reason we like to see it circulated with the submersible pump is because liquid chlorine is heavier than water and will sink to the bottom. If you over chlorinate and do not circulate it, you may bleach the bottom of the liner. Many people will use their pool brush to agitate the water. This will work too as long as you are not over chlorinating.

## **What about the pool equipment in the winter?**

Your pool equipment at the pad, meaning your pump filter and heater, are designed to be outside. You can cover your equipment if you like to keep the elements off, however, it is not recommended to cover your heater or heat pump completely. This tends to attract rodents as it makes a nice house with a whole lot of stuff to chew on. Cover the top but leave the sides open.

**If you have a chlorinator- you must make sure all the tablets have been removed prior to closing. This is very important to prevent the chlorine gases from creating a problem.**

**If you have a chlorine generator, the cell should be removed and stored inside. Follow manufactures instructions on cleaning**

There are no other special requirements for storing your other items such as rail goods, diving board, tools, etc. Sensible storage out of the elements is best.

**This concludes this section. Enjoy the winter – we look forward to seeing you in the spring!**

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***This concludes the off season maintenance. Enjoy the winter, we look forward to seeing you in the spring!***

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## Re-cap of do's and don'ts

- **Do** – test your water at minimum once per week
- **Don't**- assume your water is balanced because it “looks good”. It may be acidic and damaging to your equipment and no fun to swim in.
- **Do** – if you use calcium hypochlorite “bag shock” **It must be pre-diluted** to prevent damage to your liner.
- **Don't** – assume that just any chemical can be dumped directly into your pool.
- **Do** – always circulate water after adding chemicals unless specifically directed not to.
- **Don't** – “shock” your pool if your timer will be shutting your filter system off shortly thereafter.
- **Do** – have your water professionally tested at least three times per season, including at opening and closing.
- **Don't** – rely only on test strips. Be aware that test strips also have an expiration date.
- **Do** – use your solar cover if you can, especially on the colder nights
- **Don't** – leave your solar cover on if the ambient temperature is 90 degrees or warmer
- **Do** – scoop out large amounts of leaves with a leaf net or leaf rake.
- **Don't** – try to vacuum out huge amounts of leaves.
- **Do** – pay extra attention to your baskets and filter pressure during cottonwood/dogwood season and in the fall when leaves are dropping.
- **Don't**- neglect to replace baskets if they become brittle or damaged
- **Do** - replace vac heads and brushes as they become worn out. They can damage your liner.
- **Don't** – keep vacuuming if your vac head is sticking to the liner.
- **Do** – backwash for minimum 2 to 3 minutes. That will seem like a long time when you are standing there.
- **Don't** – move the multiport handle while the pump is on.
- **Do** – schedule your openings and closings early, as desired dates fill up fast.
- **Don't** – open your pool 3 days before the “big party”. Be safe- allow 2 to 3 weeks in case you require service.
- **Do** – shock your pool after heavy bather load or heavy rain, and usually at minimum once per week.
- **Don't** – rely only on your chlorinator as it does not substitute for a shock
- **Do** – take the time to learn, we have well trained staff here at the store and we offer” **pool school**” as well. This is a class that is done by one of our staff here at the store. Please contact us for dates.
- **Do** – contact us with any questions. Stop in or call us. We are open 7 days a week throughout the season.
- **Do** – get to know us!!!! We look forward to establishing a great and long lasting relationship with you and continuing to earn your business.



## F.A.Q. and Trouble Shooting

In this section we will talk about some common calls that we field or perhaps even get dispatched on a service call that might have been avoided. **So, before you call, or arrange for service – check this out. Your situation may be easily solved.**

**I just serviced my pool and now I can't get the pump to prime (draw water) even though it has been running for a couple minutes. (it should never take longer than 3 or 4 minutes)**

- Confirm that you have water in the pump up to the bottom of the inlet in front of the pump. **Do not run a pump dry or it may damage the seal.** Normally, you should not have to add water to the pump again, once the pool has been initially primed for the season.
- Make sure your pump basket is clean, aligned properly and that the pump lid gasket is on, and the lid is tight.
- Confirm that you have water in your pool up to minimum operating level.
- Make sure that your aqua genie basket is clean and there are no obstructions to the inlet of the aqua genie such as toys or floaties.
- Make sure that your “weir” door in the aqua genie is not stuck in the up position.
- If you have a variable speed pump, make sure you are on high speed.
- If you have any valves, make sure they are in your normal run position. This includes the multi-port on your filter.
- Verify that there are no loose fittings or “unions” at the inlet side of the pump where the water comes in.
- There are 2 plugs on your pump that are used for winterizing. Confirm they are tight with good O-rings on them.
- If you have a lot of pine needles or seeds that may have made it past your pump strainer housing basket in to the “impeller”, your impeller may be clogged. This situation would require the pump to be taken apart to service.



**The pump is gulping for water and/or blowing air back into the pool.**

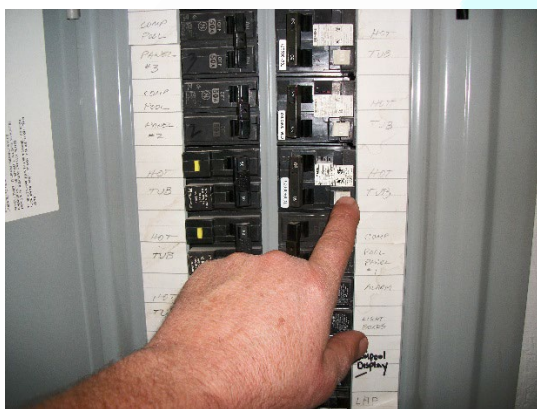
- usually with this situation, it is related to low water levels or something not allowing water into the aqua genie.
- Review the items above as most could pertain to this issue.



- It is possible if a filter is extremely dirty and clogged that you could have symptoms like this. If you haven't backwashed for a very long duration, you might want to try to run the pump on "recirculate". this will by-pass the filter tank. If the pump primes and runs good on recirculate then try a long duration backwash and see if that solves your problem.

### My pool pump won't turn on

- Verify your timer or control system is asking it to be on or override the timer.
- Verify that the main breaker hasn't tripped. It will be on a "G.F.I." breaker that is very sensitive and sometimes can give a nuisance trip or kick off during a storm. You will need to pull the breaker back towards the center of the box before you can re-set it. The breaker is usually located in your home panel box or inside your EZ – touch load center by your equipment. There should be a test button on the breaker to help you identify it.



### My pump is running but there is hardly any water coming back into the pool!

- # 1 cause – YOU NEED TO BACKWASH !!!
- If you have a variable speed pump, try increasing the "r.p.m."

### I can't get my pressure gauge on my multiport to read what it used to at initial start-up?

- #1 cause – bad pressure gauge. Check to see if when you turn your pump off that the gauge returns to zero. If it doesn't, it is bad. It is not uncommon to replace the gauge every couple of years. good news is that they are not expensive and they are easy to change on your own. **Tip** – Do not over tighten the gauge or use too much Teflon tape or you can crack the multi-port which would require replacement.
- Improper backwashing can sometimes cause this. You really need to backwash for a good 2 to 3 minutes. That can seem like a long time when you're standing there. If you have a variable speed pump- make sure you're on high speed. On service calls, we have removed the multi-port on filters to find massive build ups of usually cottonwood, dogwood and debris. This comes from improper backwash practices.



### My gas pool heater won't turn on – the display is blank.

- If the control board won't light up then check the g.f.i breaker that sends power to the heater. Generally the g.f.i. is an outlet (the style, like in your bathroom or kitchen) so you should test and re-set it by pushing the buttons. If you have an E.Z. touch control system, the outlet should be on the lower right of the outdoor control panel. Also, if you have an E.Z. touch, make sure you are in auto mode and you calling for heat. If you have a pool light(s), they typically work off the same g.f.i. So if the light doesn't work, then it usually confirms that it is the g.f.i. breaker.

### My gas pool heater has power to the display, but won't turn on.

- Verify that you are calling for heat- meaning the temperature is set higher than the pool water temp.
- **If you do not have adequate water flow**, then your heater won't start because the heater is protecting itself from overheating. With the Pentair brand "MasterTemp" the heater the display light will come on "**Service System**". With the Rheem brand heater the display will say "**water sw open**". A good "backwash" should solve the problem.
- If your pool heater is trying to start, but then shuts off, see what error codes the display may be showing. These conditions usually require a service call to repair. You can refer to the owner's manual for more in depth troubleshooting or if you call us for a service call, let us know what codes the display shows.
- If you have a propane fired heater , verify that you have adequate propane in your tank(s). **DO NOT RUN YOUR PROPANE HEATER LOW ON PROPANE AS THE INADEQUATE PREASURE WILL CAUSE THE HEAT EXCHAGER TO SOOT UP.**

### My heat pump display is blank.

- Check your main breaker- this will be a "double breaker either in your main home electric panel or the "disconnect" electric panel out near your heat pump or if you have a E.Z. touch, then check in the load center by your equipment.

### My heat pump has power to the display, but won't turn on.

- Verify that you are calling for heat-meaning the temperature is set higher than the pool water temp. If you have an E.Z. touch system, make sure you are in the "auto" mode and that it is set to heat.

- See if there are any error codes on the display. If you do not have adequate water flow then the unit will not run so that it doesn't overheat. Check your water pressure and "backwash" if needed.
- Remember that most heat pumps have a countdown before the compressor will start. The fan should start first and then the compressor. If the fan will not start, then see what error codes are on display. You can refer to your owner's manual for more in-depth trouble shooting or arrange for a service call.

**My pool light(s) won't turn on.**

- Check the g.f.i. breaker by testing and resetting. There may have been a nuisance trip If you have a gas heater and it doesn't have power too-then it is more than likely that the g.f.i. breaker tripped. If you re-set the breaker and it trips immediately when you try to turn the light on-then there may be water intrusion in the light fixture. This would require possible repair or replacement of the fixture or you may have a bad breaker.

**Please contact us regarding any other issues not covered in this manual.**

## Glossary of Terms

**Algae-** Organic Growth in your pool water. Algae can form on pool surfaces or as floating masses in the pool water. Algae is typically green but can also be yellow or black.

**Algaecide-** Chemicals designed to kill or prevent algae.

**Alkalinity-** We describe alkalinity as a “pH Buffer”. When your alkalinity is in range it helps prevent your pH from fluctuating. *See Water Chemistry page 23*

**All-Out/Bam-** A 90 Day algaecide used with the Frog chlorinating system.



**Aqua Genie-** The brand of skimmer we use on all new inground installs. It's unique because it has the return built right in. *See page 4*

**Automation-** The ability to control the pool equipment and accessories from one or more locations remotely.

**Automatic Cleaner-** A pool vacuum that does not require the user to guide it. These include suction, pressure, and robotic cleaners.

**Back Fill-** The repositioning of soil after the pool is built.

**Backwash-** The process in which you clean debris from the sand in your tank. *See pages 8-9*

**Ball Valve-** A 2-way valve that allows you to block the flow of water.



**Bromine-** A common sanitizer used as an alternative to chlorine.

**Brush-** The tool used to brush algae or dirt off the walls or floor of the pool. *See page 26*

**BTU [British Thermal Unit]-** This is used to measure the “heating power” of a pool heater.

**Calcium Hardness-** The measure of how hard or soft the water in the pool is. *See Water Chemistry pages 23*

**Check Valve-** A two way valve that prevents backflow of water.



**Chlorinator-** A cylindrical device used to distribute chlorine into the water.

**Chlorine Generator-** Also known as a “salt system”. This turns the salt in the pool into chlorine. *See page 11*

**Closing Kit-** A kit consisting of all the chemicals needed to properly winterize the pool.

**Combined Chlorine-** The difference between the total and free chlorine levels. This is the “unusable” chlorine in the pool. *See Water Chemistry pages 18*

**Coping-** The edging around the top of a pool, usually made of aluminum, and has an integrated bead receiver to clip the liner into.

**Cyanuric Acid (Stabilizer)-** A chemical added to the pool that keeps the sun from burning off the chlorine as quickly. *See page 23*

**Dead Head-** Complete restriction of the flow out of the pump usually caused by a valve in the wrong position. *See page 8*

**Drain Plug-** A plug typically found in the bottom of your pool equipment (pump, filter, heater) that is removed to allow the water to drain out.

**Eyeball-** The name used to identify the return fitting where the water comes back into the pool. This usually has a movable piece often referred to as the eyeball.



**Filter-** The unit that cleans the debris from your water. This can be sand, cartridge or D.E. *See pages 6-7*

**Filter Savers-** These are sock like covers for your skimmer basket(s) that are used to trap certain debris before they enter the system. They are particularly helpful during cottonwood season. We also refer to them as “Scum Socks”.

**Floating Liner-** When water gets between the liner and the bottom of the pool and “Floats” the liner.

**Free Chlorine-** The amount of “Good” or active chlorine in the water. *See page 18*

**Frog-** A low chlorine sanitation system. *See page 11*



**GFI Outlet-** An outlet that's ground fault protected. GFI stands for "Ground fault interrupter". It's a protective device with electrical equipment around water.

**Gizzmo-** A dual functioning item used for pool closing. It plugs the skimmer and can also absorb ice expansion over the winter.



**Heater-** A device used to heat the pool using either natural gas or propane. *See page 9, 28, 38*

**Heat Pump-** A device used to heat the pool using electricity. *See page 10,28,38-39*

**Installation Bar-** A steel bar with a handle used to take the safety cover off or put it on. *See page 33*



**Laterals-** "Finger like" pieces of the center assembly in the bottom of a sand filter. *See page 6-7*

**Leaf Net (In Season)-** A skimmer net with a deep pocket used to scoop leaves. *See page 26*

**Leaf Net (Winter)-** A net that goes over your winter cover to catch leaves. The leaf net is able to be removed without removing the cover allowing you to easily removed large amounts of leaves off of your winter cover.

**Liner-** Typically made of vinyl this is what holds the water.

**Main Drain-** A suction port at the bottom of a pool.

**Minerals-** Referring to the Frog System minerals. The primary mineral used by the Frog is silver, which is antibacterial. This lessens the work load on your chlorine/bromine allowing you to run lower levels. *See page 24*

**Mineral Reservoir-** The cartridge that is inserted into the Frog Chlorinator to provide the minerals to the water. This should be replaced once a year, ideally at the beginning of the season. *See page 24*



**Multiport-** The valve at the top of the sand filter. *See page 6-8*

**Opening Kit-** A collection of chemicals used to open a pool.

**pH (Potential Hydrogen)-** This measures the acidity of the water. The scale goes from 0-14. 7 is pH neutral and pool water should be between 7.2-7.6. *See page 21-23*

**Phosphates-** Phosphates increase the amount of carbon dioxide found in the water which promotes organic growth. Carbon dioxide is essentially food for algae so the presence of phosphates and sunlight greatly increases the rate of growth of algae.

**Pinhole Leak-** A very small hole in a liner that allows a slow leak of water. These often go undetected throughout the season.

**Pressure Gauge-** A gauge typically found on the multiport which measures the pressure of the system in PSI. *See page 6-7, 37*

**Pressure Side-** Refers to the circulation system after the pump where the water is pressurized. Any component of the system after the water leaves the pump converse to the “suction side”.

**Prime-** The simple act of adding water to the pump. A full prime is when the pump is moving only water and is completely void of any air. *See page 5, 36-37*

**Pump-** A device used to circulate the water. *See page 5-6, 36-37*

**Rate of Rise-** The rate at which a heater or heat pump increases the temperature. *See page 9-10*

**Return-** Where the water comes back into the pool.

**Robotic Cleaner-** A type of automatic pool cleaner that runs on electricity rather than suction or pressure of the pump. These cleaners hook into a power supply instead of the skimmer or return.

**Safety Cover-** A type of winter cover that attaches to the deck using springs and anchors. Often compared to a trampoline. *See page 32-34*

**Shock-** This is a very general term that refers to any type of rapid oxidation of the water. It is most commonly used when referring to super-chlorination but can also be used to refer to non-chlorine shocks as well. *See page 19-20*

**Skimmer-** A device in the side of the pool which takes in water and skims debris off the surface. *See page 4-5*

**Solar Cover-** A cover used to keep heat in the pool. It is best to put this on at night and take it off during the day. *See page 27-28*

**Spot Heating-** A term used to describe heating up the pool for a short period of time. Usually describing when people use the pool infrequently and only want to heat the pool before use, not maintain a temperature.

**Start Up Pressure-** The pressure of the filter system when the system first starts with a clean filter and normal operating parameters. *See page 6*

**Strainer Housing-** The basket housing of the pool pump, also called the “Wet end”. *See page 5*

**Submersible Pump-** A pump which drops into the pool to empty the water. *See pages 29-30*

**Suction Side-** Refers to the circulation system before the pump where the water is being drawn into the system. Converse to the “pressure side”.

**Three Way Valve-** A valve that controls the water where two separate lines become one single line.



**Torpedo Pac/Bac Pac-** The chlorine cartridge used with the Frog system.



**Total Chlorine-** Free Chlorine + Combined Chlorine = Total Chlorine. *See page 18*

**Vacuum-** A device used to clean up debris from the pool. *See page 25-26*

**Vac Head-** The part of the vacuum assembly which moves along the bottom of the pool and attached to the vac pole and van hose. *See page 25*



**Vac Hose-** A long hose used for vacuuming with one end being attached to the vac head and the other attached to the vac plate. *See page 25*

**Vac Plate-** A plate that goes over the skimmer basket during vacuuming which the vac hose connects to. *See page 25*

10000-001



**Vac Pole-** A long telescopic pole which allows you to move the vac head throughout the pool when vacuuming. *See page 25*

**Water Tubes/Bags-** These are used during closing to weigh down a conventional winter cover. *See page 31-32*

**Weir Door-** A flap that connects to the front of the skimmer which helps draw in debris.

**Winterization-** The process of closing a pool for the winter. *See page 29*

**Winter Cover (Conventional)-** This is the traditional way to cover the pool during the winter. These are "Tarp like" covers that are weighed down with water tubes. *See page 31-32*