Long Island Pool and Patio Owners Manual

Long Island POOL & PATIO Since 1981

Your 24/7 Guide to Easy Pool Ownership

Your Interactive Pool Manual contains the top Manufacturers' most-current operating manuals, web-links, & instructional videos.

Long Island Pool and Patio
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Welcome and Thank You!

Welcome to the world of pool ownership and to Long Island Pool and Patio's family of customers. We would like to thank you for entrusting our company with your backyard memories.

Please take your time in reviewing the information in this manual and read all of the manufacturers' instructions that came with your pool. To operate your pool safely and trouble-free you need to know the basics of pool care. If you understand and follow a good maintenance routine that includes proper filtration, balanced pool water and a consistent chemical program, your pool water will be sparkling clean and easy to maintain.

You have heard the saying "an ounce of prevention is worth a pound of cure", this certainly applies to pool care.

Preventative maintenance saves you time and money avoiding water problems while protecting your pool and equipment from damage caused by imbalanced pool water.

Page 2 & 3 of this manual is a quick reference guide to all of your pools equipment, as well as warrantee information.

As a pool owner it is your responsibility to make your pool environment as safe as possible. Please read all of the safety information provided with your pool and follow the *swimming pool safety* information contained within this manual. The APSP (Association of Pool & Spa Professionals) is another excellent source for safety information, online at https://www.phta.org/ or by calling 703-838-0083. Warning signs or notices supplied by the manufacturer should be posted or applied where they are visible to pool users. Remember, our staff is always available to help you with any questions or pool problems that may arise. We appreciate your business and have offered you this interactive pool manual to ensure your pool will operate smoothly providing years of family fun & relaxation.

If you are looking for information on a certain topic, such as SHOCK, simply click on SEARCH (from bookmark), enter the word in the search box and all information on that subject will be shown.

If you have questions concerning your pool or equipment please call Long Island Pool & Patio at 631-698-4100 or email us at : customerservice@LIPoolandPatio.com

Once again, we thank you for choosing Long Island Pool & Patio and wish you many years of good health & enjoyment in your new pool!

Visit us on-line anytime at www. LIPoolandPatio.com

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Product Manuals and How-to Videos:

- **Tristar Variable Speed Pump:**
  - http://www.hayward-pool.com/pdf/manuals/TriStarVS-IS32900VSP.pdf
  - https://www.youtube.com/watch?v=lmTWSHBvxVQ&t=55s
- **Swim Clear Cartridge Filter:**
  - http://www.hayward-pool.com/pdf/manuals/SwimClear-Cxx30-revB.pdf
- **SharkVac Robotic Cleaner:**
  - http://www.hayward-pool.com/pdf/manuals/SwimClear-Cxx30-revB.pdf
- **Colorlogic LED Lighting:**
  - http://www.hayward-pool.com/pdf/manuals/UniversalColorLogicandCrystaLogic-InstallationandOperations.pdf
- **Aqua-Rite Salt System:**
  - http://www.hayward-pool.com/pdf/manuals/AquaRite-900Series.pdf
- **Aqua-Rite S3 with Omni Automation:**
  - http://www.hayward-pool.com/pdf/manuals/AquaPlusPL-PLUSSeriesOperationManual.pdf
- **Omni Logic Automation System:**
  - https://hayward-pool-assets.com/assets/documents/pools/pdf/manuals/omnilogic-hlbase-operation.pdf
- **Hayward Heat Pumps:**
  - http://www.hayward-pool.com/shop/en/pools/res-heaters/summit-xl-i-hpsumxl--1
- **Hayward Gas Heaters:**
  - https://www.hayward-pool.com/shop/en/pools/res-in-ground/res-heaters/universal-h-series-i-gunihs

You Tube "How to" Videos:

Visit Long Island Pool and Patio's

"YouTube" Channel…

https://www.youtube.com/user/LIPoolandPatio

- General Questions about your pool… customerservice@lipoolandpatio.com
- Billing / New Construction Issues… Call Donna at 631-698-4100 or dtaylorlipp@optimum.net
- Service needed…Call Big Blue Pools at 631-828-9024 or bigbluepools@gmail.com
- Pool Openings / Closings / Weekly Maintenance / Power Vacs…
    - Call Big Blue Pools at 631-828-9024 or bigbluepools@gmail.com

Happy with your pool?

Recommend us and receive a

$100 Home Depot Gift Card!!

Gift cards will be mailed out once their pool is completed.

Write a review on Google

Receive $25. Home Depot Gift Card!

Basic Water Chemistry

Click Logo for Information, Troubleshooting or general water chemistry

Balanced water is vital for bather comfort, effectiveness of your sanitizer and protection of pool and equipment from corrosion or scaling. You will be testing and maintaining your sanitizer, pH and Total Alkalinity on a regular basis, 2-3 times per week.

pH

pH is the number that characterizes the acidic or basic characteristics of the pool water. Measured on a scale from 0-14, 7 being neutral. pH is the single most important element in swimming pool water chemistry, it affects every other chemical balance in pool water. It is important to maintain a pH reading between 7.4 - 7.6. The type of sanitizer you use can affect your pH as does rain water and many other things, requiring you to test and adjust your pH on a regular basis. Maintaining the pH of your pool is the most important thing you can do to preserve the life of your liner and heater.

Ideal range 7.4 – 7.6

High pH (over 7.8)

- promotes scale
  - Scale will form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to over heat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water
- swimmers will complain of dry skin and irritated eyes
- causes sanitizer to be less effective

To lower the pH add BioGuard Lo 'N Slo per label directions.
Please make note of the following when you are lowering your pH with Lo 'N Slo:

- After application circulate water for 2 hours and then retest pH.
- Never add more than 1 1/2 lbs. of Lo 'N Slo per 10,000 gallons at one time
- Do not add near metal fittings nor allow pH to drop below 7.2
- Do not allow un-dissolved lumps to remain on the pool bottom. Break up with brush.

Low pH (below 7.2) water is too acidic

- promotes corrosion
  - Corrosion in vinyl liners causes vinyl to lose its plasticizers-causing wrinkles.
  - Corrosion in equipment causes pitting.
- promotes clear water-hard to tell something is wrong.
- swimmers will have irritated skin and red eyes.
- causes sanitizer to be used up quickly.

To raise pH use BioGuard Balance Pak 200 per label directions.

Please note the following when you are raising your pH with Balance Pak 200:

- After application continue to circulate water for 2 hours and retest pH.
- Add a maximum of 1 lb. per 10,000 gallons of water per application.

Total Alkalinity (TA)

Total Alkalinity is a measure of the ability of the water to resist pH change. This test measures the concentration of carbonates, bicarbonates, silicates, borates and other chemical compounds that contribute to Total Alkalinity. If the total alkalinity is within range it acts as a buffer against changes in pH. So if it rains heavily or a lot of people are in for a swim, the Total Alkalinity absorbs the shock of pH changing events and the pH doesn't "bounce".

Ideal ranges

Vinyl pools 125-150; Pools using Mineral Springs should maintain a TA reading of 80-120 ppm.

High TA (over 180)

- promotes scale
  - Scale will form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to over heat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water.
- swimmers will complain of dry skin and irritated eyes.
- causes sanitizer to be less effective.

To lower Total Alkalinity add BioGuard Lo'N Slo per label directions.

Please note the following when you are lowering your pH with Lo'N Slo:

- After application circulate water for 2 hours and then retest pH.
- Never add more than 1 1/2 lbs. of Lo'N Slo per 10,000 gallons at one time
- Do not add near metal fittings nor allow pH to drop below 7.2
- Do not allow un-dissolved lumps to remain on the pool bottom. Break up with brush.

Low TA (under 100)

- Promotes corrosion. Corrosion in vinyl liners causes vinyl to lose its plasticizers, causing wrinkles. Corrosion in equipment causes pitting.
- Promotes clear water-hard to tell something is wrong.
- Swimmers will have irritated skin and red eyes.
- Causes sanitizer to be used up quickly.

To raise TA add Balance Pak 100 per label directions.

Calcium Hardness

Water is a universal solvent. Given enough time, pressure and temperature, water will dissolve most metals or minerals into a solution. Because of this tendency, any minerals that are present in the water's environment will ultimately end up dissolved in the water. Though calcium is not the only mineral in water, it is certainly the most prevalent. When detergent manufacturers were recognizing the characteristics of how their soaps performed in different types of water, they noted that in water with high mineral levels it was hard for soap to suds-up. So, water that easily suds-up with soap is said to be soft.

Calcium Hardness in a pool is an important water balance characteristic. Pool water that has too little calcium is likely to be aggressive. The water needs to satisfy its mineral appetite and it looks for the most vulnerable means to satisfy this mineral hunger.

Ideal ranges

Vinyl Lined Pools 175- 300 ppm, ideal 225 ppm

High Calcium Hardness (over 350 ppm)

- promotes scale
  - Scale can form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to overheat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water
- swimmers will complain of dry skin and irritated eyes
- causes sanitizer to be less effective

To lower calcium hardness we recommend you have you water tested by your local Leslie's Pool Supplies and follow their instructions on how to best treat the pool.

Scale Inhibitor would be recommended for maintenance to help stop calcium from sticking to surface.

Scale Inhibitor will help inhibit scale formation. Add Scale Inhibitor monthly around the perimeter of the pool, at a rate of 16 oz. per 10,000 gallons of water. After application, watch filter pressure and backwash if necessary.

Low Calcium Hardness (below 175 ppm)

- promotes corrosion
  - Corrosion in vinyl liners causes wrinkles.
  - Corrosion equipment causes pitting.
- promotes clear water-hard to tell something is wrong.
- swimmers will have irritated skin and make eyes red.
- causes sanitizer to be used up quickly.

To raise calcium hardness add BioGuard Balance pak 300

Low calcium pools have a tendency to foam, as the soft water easily becomes sudsy!

TDS

TDS is the measurement of the total dissolved solids in the water. Remember, water is a universal solvent; metals, minerals, salts, chemicals, organic waste-virtually everything water contacts, goes into solution. Everything dissolved in the water is measured. When too many are in solution several problems occur. Over time the TDS levels in your pool water will increase.

Ideal range
Should not be left to exceed 1500 ppm

High TDS Levels (over 1500 ppm)

- water becomes hazy.
- sanitizer is less efficient, TDS decreases its ability to attack and bacteria and inhibit algae.
- filtration will NOT remove dissolved solids in the water.

Lowering the TDS Level: We recommend you have your water tested professionally at your local Leslie's Pool Supply Store. After you have your water tested, please follow their instructions for the best treatment options.

METALS

There are various metallic substances that can be found in pool water (copper, iron, manganese, etc.) which can cause staining and discoloration in your pool. These substances can occur naturally from the water used to fill the pool or from metallic pool equipment parts if water has been acidic or corrosive. Any time metal objects such as poles, toys, and tools that fall into the swimming pool, they can release iron and copper into the pool water. These local deposits of metal can cause discoloration of the pool surface. PREVENTION is much easier than treatment, especially when it comes to metals.**To Prevent Metal staining or discoloration** BioGuard Stain remover or Pool Magnet Plus should be used at start-up following label instructions and when recommended, on a weekly basis to prevent metal staining or discoloration, see *Specialty Chemicals* for more information.

Iron- If present it will stain pool orangish/brown. Chlorine entry will oxidize metal and make the stain more intense. Ideal levels - 0 ppm

Copper -If present will stain pool greenish/blue or grayish/blue.

WATER TESTING

Pool water testing can be performed with liquid test kits or test strips. Whether you are using a liquid test kit or test strips be sure to read the directions provided. You should also have your water professionally tested at least one to two times every season, ideally every 4-6 weeks. You can have your water tested at your local Leslie's Pool Supply store. A professional water analysis will provide a wider range of tests and a detailed analysis of your pool water.

You should test your pool water at minimum, once a week using your test kit or test strips. When testing your pool water take a sample from approximately 12" below the water surface and away from the return inlet.

 **Test Strips** –provide quick and accurate results for a variety of water tests. A typical 3-way test strip will provide chlorine (Free chlorine), pH and Total Alkalinity readings. As with any test kit, there are several factors that can be controlled to ensure the validity of the test results. Following are some guidelines for using test strips to obtain accurate water analysis results.

- **Follow the directions that came with the kit.** Sounds simple, doesn't it? However, there have been many cases where a user inadvertently used the directions that came with another manufacturer's strips or used directions from an older kit. Most inaccurate test results occur when individuals do not follow directions or follow the wrong directions! Test strips are continually improving and becoming more accurate, and you should never assume that the directions on one container are going to apply to another container's strips. In addition, not all manufacturers' test strips are the same, so it is essential to read and follow the directions on each container.
- **Store test strips in a low humidity environment at room temperature.** Test strips will be most effective over a long period of time if they are stored properly. Suitable storage will give you confidence in your results until the product has reached the date of expiration.
- **Keep the cap on tight between uses.** Doing this will prevent moisture from entering the bottle of unused strips. It is important that moisture not be introduced to the test strips until you use them in your pool or spa.
- **Keep wet fingers out of the bottle.** The test strips won't know the difference between the water on your fingers and the pool or spa water! So, make sure that the only water your test strips are reacting with is the pool or spa water you intend to measure.
- **Do not use expired test strips.** Most containers of test strips will display an expiration date somewhere on the container. Always be aware of this date when using or purchasing test strips. Regardless of how the container has been stored or handled, test strips have a definite shelf life and should not be used after the product has expired. Using test strips after this date will likely lead to inaccurate results. Therefore, replace any bottles that have expired.

SANITIZING YOUR POOL

Clean, clear, healthy pool water is the result of proper sanitation, filtration and circulation. The term sanitize means to *kill all disease-causing organisms*. The sanitizer is the key component of your chemical program. In order to be effective, a chemical program used to treat pool water must not only sanitize but also disinfect – *kill all living organisms* and oxidize- *destroy organic waste*.

There are many sanitizer options available today. Once you find a sanitizer program that works for you stick with it! Maintaining a consistent level of sanitizer in your water will prevent bacteria and algae growth and provide sparkling clear water.

Many swimming pool products are incompatible and should not be used with certain sanitizers, alternative sanitizers or pool types. Again, it is best to stick with the products offered in your brand specific chemical program.

The basics of water chemistry, found within this manual, explains the importance of water chemistry and the role that water balance plays in the effectiveness of your sanitizer.

Each chemical program requires specific handling and storage precautions. Please read and follow all label directions as well as the safety recommendations listed in *Chemical Safety*. In all cases chemicals should be kept in a dry location out of the reach of children.

SHOCKING or SUPERCHLORINATION

When you shock your pool you use the process of oxidation to chemically remove (burn up) organic debris, such as body waste, particulate matter and perspiration, from the water. All pools require a shock treatment on a regular basis to maintain optimum water quality. Routinely shocking the water following your chemical program's recommendations will greatly increase the water quality of your pool. In addition to oxidizing undesired wastes – shocking will help rid the pool of algae and bacteria that might be hiding in filters and hard-to-sanitize areas.

Contrary to what most people think, a strong chlorine smell is not an indication of too much chlorine in the pool but actually a red flag that a super dose may be required to correct the problem. A properly balanced and chlorinated pool will have no discernible odor. In chlorine treated pools shocking can be achieved by superchlorination (adding a much higher chlorine amount than normal). Hypochlorous acid is the form of chlorine that provides sanitization. Hypochlorous acid is very active and will react with ammonia and other nitrogen-containing organic compounds (i.e., perspiration, urine, etc.) and form chloramines. This "combined chlorine" is 40 to 60 times less effective than free available chlorine. Combined chlorine, in addition to reduced effectiveness against bacteria can cause eye irritation and so called "chlorine odor."

The following are GENERAL recommendations for shocking your pool water. For more complete instructions follow your specific chemical program instructions, shown below.

WHEN TO SHOCK

Every 2 Weeks*:	When the temperatures are 80° F or below
Weekly:	When the temperatures are above 80° F Heavy bather load (after the pool party!)
As Needed:	At the first signs of visible algae (slippery walls or floor) Cloudy water (check water balance as well) Heavy rains or storms (increase organic debris in water)

Most biguanide programs require a monthly shock treatment using the specific shock in your program.

WHAT TO USE

As mentioned above, the sanitizer program you use to treat your pool will determine the type of shock you can use. Not all shocks are compatible with all sanitizers, so be sure to follow the recommended shock treatment for your treatment program, shown in the link at the bottom of this page. The chemicals used for shock treatments are powerful oxidizers. CAREFULLY read and follow the recommendations in the *Chemical Safety-oxidizers* section.

- ✓ It is most effective to shock in the evening as chlorine shock dissipates very rapidly in sunlight.
- ✓ If you are using a chlorine shock treatment you will have a very high chlorine reading (10 ppm or higher). You must allow the Free Chlorine level to drop back down to the safe range of 3 ppm or lower before re-entering the pool. This can take up to 24 hours, so plan according when superchlorinating or use a non-chlorine shock (mono-persulfate) if the pool will be in use sooner. Non-chlorine shocks and biguanide shock treatments allow you to re-enter the pool within 15 to 30 minutes after treatment.

BIOGUARD SPECIALTY CHEMICALS

There are many specialty chemical products available today to treat a wide range of water problems while reducing chemical usage and maintenance time.

Algae Treatment-
As discussed early in this manual, prevention is always preferable to treatment when it comes to water problems. Maintaining the proper level of sanitizer in your pool is critical to the prevention of algae. In addition there are algae inhibitors that can be routinely added to prevent algae growth and algae killers that can be used if an algae problem occurs.

Algae Inhibitors-

Include BioGuard Back-Up Algae Inhibitor at a rate of 2 ounces per 10,000 gallons of water. Used weekly as part of your routine chemical program Back-Up will help your pool stay clear and algae free all summer long.

Algae Killers-
Banish™ is the most effective algaecide available to treat all types of algae. It contains a patented chelating agent that prevents staining — a common occurrence with other copper-based algaecides. Fast-acting formula produces results in 24 hours while allowing swimmers to return to water soon after treatment. Treatment of an existing algae problem will also include shocking the pool with BioGuard Burn Out Extreme *See Shocking and Superchlorination* for details.

Chelating or sequestering agents- *Stain Preventors*
If metals or minerals are present in pool water we may recommend a chelating or sequestering agent to prevent staining or scaling by binding metals or minerals together so they will not precipitate (fall out of solution). These products work best to prevent discoloration **PRIOR** to the use of any chemicals so remember to have your water tested for metals, **BEFORE** adding chemicals.

Clarifiers
Polysheen Blue clarifies the water by helping to filter out suspended particles that cannot be oxidized. Made of Polyelectrolyte, it attracts and coagulates, or binds, small particles together making them large enough to be trapped by the filter. Be sure to read and follow the instruction label. See Cloudy Water for more information.

Filter Aid

Sparkle Up™ can be used to increase filter efficiency in D.E., Cartridge and Sand filters. See the directions for your specific filter type, as they will vary with each.

- Restores water sparkle, keeping pool water clear
- Helps the filter remove tiny particles of dirt, dead algae, pollen, etc.
- Removes metals to prevent staining

Flocculants

PowerFloc is used to treat extremely cloudy water by binding suspended particles and settling to the pool floor. This treatment involves loss of water as the settled material should be vacuumed to waste (by-passing the filter system) so you should consider your water level prior to use. See label directions for application instructions.
See Cloudy Water for more information.

Filter Cleaners

Generally, your filter should be chemically cleaned 1 to 3 times per season using Strip Kwik and Kleen It. Strip Kwik removes oils and grease from all types of filters, acting like a shampoo for the filter. Kleen It uses a dual action formula designed to remove scale, dirt and debris.

- Promotes greater filter efficiency
- Keeps water clearer
- Reduces maintenance costs
- Can reduce chemical use
- Lengthens the life of the filter media

Optimizer Plus

BioGuard Optimizer Plus suppresses algae growth, clears water and increases water comfort. The chemical makeup of Optimizer Plus also improves the performance of other BioGuard pool products. Optimizer Plus is compatible with chlorine, bromine and biguanide, mineral salts & purifiers (such as FROG or Nature²) To Use Optimizer Plus: Add 1 to 2 lb Optimizer Plus per 1,000 gals of pool water. Add 1/3 of dosage at a time. Always readjust pH to 7.4 - 7.6 and Total Alkalinity to 125 - 150 ppm (vinyl pools; 100 - 125 ppm gunite pools), using BioGuard® Lo 'n Slo pH Decreaser about 4 hours after dosing. Be sure to follow all label directions.

Works best at these levels: Chlorine/Bromine Pools: 30 - 50 ppm (parts per million) SoftSwim®/Baquacil®/Biguanide Pools: 50 - 80 ppm

(Not available in California)

Tile & Vinyl Cleaner

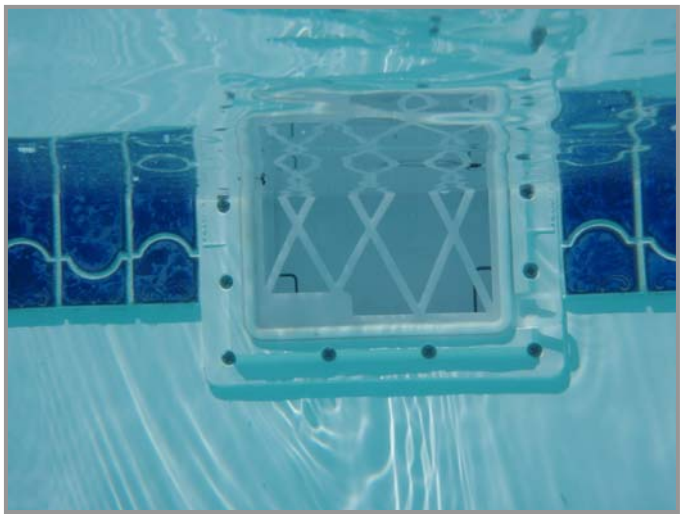
You should clean the waterline of the pool often to prevent a scum-line from forming. Off The Wall™ is a heavy-duty, non-abrasive surface cleaner that removes scale and hard water deposits, grease and dirt along the water line.

CAUTION: When using any chemical you should always read the label directions for usage and handling instructions. Follow all safety guidelines on the bottle as well as the *Chemical Safety* recommendations found within this manual.

CHEMICAL SAFETY

Handling swimming pool chemicals is safe and easy when they are used and stored properly. Problems occur when careless mistakes are made. By following some easy safety rules, accidents can be prevented. In addition to the recommendations listed below be certain to read and follow the directions on the bottle label.

1. FOLLOW INSTRUCTIONS: MIX CHEMICALS ONLY AS INSTRUCTED.
2. NEVER add water to chemicals—add chemicals to water slowly.
3. ALWAYS use the exact dosage specified on the label by the manufacturer.
4. PROTECT eyes with glasses or a mask when handling chemicals.
5. ALWAYS open product containers in a well-ventilated area.
6. NEVER mix different chemicals together. This can produce a chemical reaction that can lead to a fire, toxic fumes or explosion.
7. ALWAYS use a clean dipper, free of oil, grease, or insecticides. Even a small amount of residue can combine with the chemicals and produce a danger.
8. ALWAYS keep chemicals in their original containers, tightly sealed.
9. STORE your chemicals in a clean, dry, well-ventilated area away from household items such as fertilizer, gasoline, oil, or other cleaning solutions.
10. NEVER store any liquid products directly over or directly next to dry pool products (trichlor, granular chlorinators, shock products).
11. KEEP liquid acid (muriatic) and liquid chlorine products away from each other and away from all shock products and chlorine-based products.
12. SEPARATE your pool care products with an empty space (at least 3 feet) as a buffer zone between products.
13. CAREFULLY read the active ingredient section on the front of the product label to determine what acids, balance chemicals, or oxidizers it contains.
14. ALWAYS clean up spills immediately with a clean broom or dust pan. Dispose of spilled materials in clean container. DO NOT PUT SPILLED CHEMICALS BACK IN THEIR ORIGINAL CONTAINER. The chemical may have been contaminated.
15. REMEMBER to rinse plastic dispensing containers with water after use.
16. KEEP chemicals away from electrical equipment and open flames.
17. NEVER FLUSH excessive amounts of chemicals down storm sewers. In case of large spills, contact your local fire department for assistance.
18. ALWAYS wash hands thoroughly after handling chemicals.



ACIDS AND OXIDIZERS SAFETY

Balance Chemicals such as pH increaser, pH decreaser, Alkalinity increaser, Muriatic Acid

Protective Equipment
- Eyes-goggles
- Hands-gloves (rubber, neoprene, or PVC)

Handling Precautions
- DO NOT take internally
- Avoid contact with eyes, skin or clothing
- Avoid breathing dust, spray or mist
- Store containers in a cool, dry place
- Always keep containers tightly sealed

** Caution: DO NOT MIX balancing chemicals with anything other than water*

Conditions and Materials to Avoid
- Avoid contact with acids
- Avoid contact with organics and oxidizers
- Do not store near acids

Oxidizers- any form of chlorine, bromine, or shock treatment.

Protective Equipment

- Eyes-wear glasses or goggles
- Hands-wear gloves (rubber, neoprene, or PVC)

Handling Precautions
- DO NOT take internally
- Avoid contact with eyes, skin or clothing
- Upon contact with skin or eyes, rinse with water
- Avoid breathing dust
- Store all containers in a cool, dry place
- Do not store containers in direct sun light
- Do not store near combustible materials
- Do not mix oxidizers
- Use clean, dry utensils when handling oxidizers
- Keep all oxidizer containers off wet floors

Conditions and Material to Avoid
- Excessive heat—oxidizers will decompose, releasing toxic gasses and heat
- Solvents
- Acids
- Other pool chemicals such as acids, algaecides, clarifiers, sequestering agents, surface cleaners, etc.
- Organic materials
- *Do not mix chemicals with anything other than pool water. Always add chemicals to plenty of water. Never add water to chemicals.*

ALGAE

Algae is the most common water problem in swimming pools. Inadequate sanitizer levels, improper water balance and improper filtration can all play a part in the growth of algae. Algae are microscopic plant life that are very tough and resourceful. There are many types of algae, yellow, green, brown, or black; thousands of species of algae exist. Green algae are the most common type and the easiest to get rid of. Green algae can appear in patches or create an all-over cloudy green shade of water. Pink slimy algae are actually not algae but fungus bacteria, often appearing as streaks or spots in corners and crevices. Sometimes it appears as a pink or orange colored ring around the skimmer or waterline. See *Water Mold or Pink Slime* for details and treatment. Mustard algae prefer shady areas like pool step corners, along the walls and under the pool lights, ladders or other fixtures. Black algae often appear as dark colored spots on the walls or floor. Temperature, sunlight, pH, sanitizer level and the presence of carbon dioxide, phosphates and nitrates all affect the presence and growth rate of algae. Algae can be introduced into the pool by rain or wind, leaves and organic material, even fill water. In early stages of algae infestation you may notice the water circulation slowing as the filter is removing algae spores, the filter pressure builds and the return flow decreases.

In all cases it is much easier and better to prevent the growth of algae than to cure it.

Prevention

To prevent algae from growing in the first place requires regular pool maintenance, proper circulation and filtration; keeping the pH and free chlorine residual or other sanitizer at the proper level, and routine shocking. While proper sanitizer levels will prevent most algae growth there are some strains that are resistant to chlorine and other sanitizers. That is why we highly recommend a weekly preventative maintenance dose of BioGuard Back-Up Algae Inhibitor at a rate of 1 ounces per 5,000 gallons of water as part of your routine treatment program to help prevent algae growth.

FROG users can simply add BAM to their Cycler at start-up and once every 90 days to maintain their pool algae free all summer long.

Treatment

If your pool would develop algae, the first thing you should do is test and adjust the water balance (pH and total alkalinity) if needed. You can follow the general treatment recommendations that follow.

Treatment using Algaecide

Algaecides kill algae working hand in hand with your sanitizer to help control and prevent algae growth.

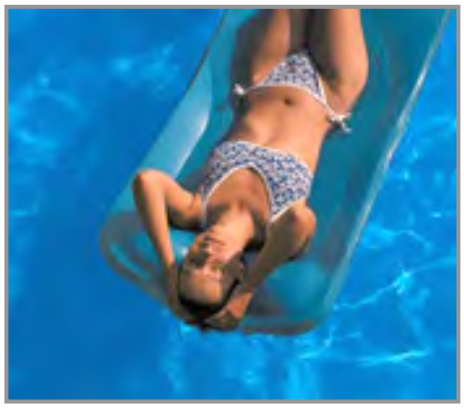
1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Check alkalinity and pH and adjust if necessary.
3. Shock pool using BioGuard Burn Out Extreme 1 lb. per 10,000 gallons of water or Burn Out 35- 1 lb. per 6,000 gallons. **SoftSwim** users must always use the SoftSwim C liquid shock treatment along with SoftSwim A algaecide.
4. Pour Banish algaecide directly into the water near or over the visible algae growth, at a rate of 16 oz. per 10,000 gallons of water.
5. Increase filter run time to 24 hours if possible to increase circulation.
6. The following day, brush and vacuum affected areas

7. Check filter pressure and backwash if necessary.
8. Continue to maintain the sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
9. Continue to brush walls and vacuum, clean filter as necessary and add maintenance algaecide until pool is clear of all signs of visible algae.

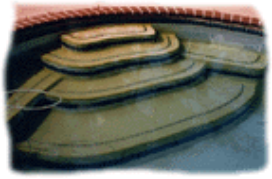
Black Algae

Some types of algae, especially black algae, are very stubborn and require special treatment. Black algae form a protective coating which makes it highly impervious to shock treatments and algaecide. The best treatment for black algae is to scrub the affected areas or spots prior to chemical treatment so the shock and algaecide will have an opportunity to penetrate the algae spores.

1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Vigorously scrub algae spots with a maintenance or algae brush (nylon bristled brushes are recommended for vinyl pools)
3. Check pH and adjust if necessary.
4. Shock pool using BioGuard Burn Out Extreme, 1 lb. per 10,000 gallons of water or Burn Out 35, 1 lb. per 6,000 gallons. **SoftSwim** users must always use the SoftSwim C liquid shock treatment along with SoftSwim A algaecide.
5. Pour Banish algaecide directly into the water near or over the visible algae growth, at a rate of 16 oz. per 10,000 gallons of water.
6. Increase filter run time to 24 hours if possible to increase circulation.
7. The following day, brush and vacuum affected areas again.
8. Check filter pressure and backwash if necessary.
9. Continue to maintain the sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
10. Continue to brush walls and vacuum, clean filter as necessary and add maintenance algaecide until pool is clear of all signs of visible algae.
11. After fighting a stubborn algae problem such as black or mustard algae it is recommended that you thoroughly clean your filter media, brushes, vacuum head and hoses. If algae spores remain in any of these areas they can re-infest the pool.



Mustard Algae



This type of algae brushes off very easily, in fact too easily. It is NOT, however, an easy form of algae to get rid of. Mustard algae tends to scatter or spread throughout the pool when brushed. Banish Algaecide is recommended to combat mustard algae, along with aggressively shocking your pool, as mustard algae is resistant to normal chlorine levels.

1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Check pH and adjust if necessary.
3. Vigorously scrub algae spots with a maintenance or algae brush (nylon bristled brushes are recommended for vinyl pools)
4. Shock pool using BioGuard Burn Out Extreme, 1 lb. per 10,000 gallons of water or Burn Out 35, 1 lb. per 6,000 gallons. **SoftSwim** users must always use the SoftSwim C liquid shock treatment along with SoftSwim A algaecide.
5. Pour Banish algaecide directly into the water near or over the visible algae growth, at a rate of 16 oz. per 10,000 gallons of water.
6. Increase filter run time to 24 hours if possible to increase circulation.
7. Check filter pressure and backwash if necessary.
8. Continue to maintain your sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
9. Clean filter as necessary and continue to add a maintenance algaecide until pool is clear of all signs of visible algae.
10. After fighting a stubborn algae problem such as mustard algae, it is recommended that you thoroughly clean your filter media, brushes, vacuum head and hoses. If algae spores remain in any of these areas they can re-infest the pool.

Pink Algae- *See Water Mold or Pink Algae*

STAINING AND SCALING

All water contains some levels of minerals and metals. When the minerals or metals are dissolved and in suspension they are not visible. If they precipitate, or fall out of suspension, staining or scaling can result. Metals such as copper, iron or manganese in sufficient quantities can all cause staining. Prior to treating a stain you must first determine the cause. Algae or bacteria can cause green, black, yellow, brown or pink discoloration. These organic deposits can generally be distinguished from mineral or metal staining by their response to chemical treatments (sanitizer and algaecide) and in most cases can be removed with a vigorous brushing (although they may grow back), see Algae for more information. Leaves, worms and other organic material left in the pool can also cause staining. This type of staining will usually respond to a sanitizer and a follow up stain remover.

Ruling out the above, one can assume that the discoloration, throughout the water or in deposits, is caused by metals or minerals that have oxidized or dissolved and have precipitated (come out of solution). Unbalanced pH, Alkalinity and the addition of sanitizers are all possible causes for such precipitation. High levels of metallic salts such as calcium or magnesium in suspension may cause cloudy water, when they form hard white deposits or crystals on the pool surface it is referred to as scaling. Heavy metals like copper and iron will cause discoloration or when deposited, staining. Green usually indicates copper or iron, red and brown –iron, black or brown -manganese.

As with all water problems, prevention is preferred to treatment. The best way to prevent staining is to have your pool water tested regularly **PRIOR** to the addition of ANY pool chemicals. Often the original source water that you use to fill your pool may contain iron or other metals or minerals that are not visible to the naked eye. If a test reveals the presence of metals or minerals in your water,Leslie's can recommend a treatment method, often consisting of the addition of a sequestering or chelating agent. These chemicals are used to help bind the metals together so they will not precipitate. Some pool water will require regular additions of these chemicals, especially after the addition of make-up water. Have your water professionally tested for metal content at the beginning of every season. Another key in preventing precipitation is to follow the chemical guidelines for adjusting pH and alkalinity, high, rapid fluctuations can cause precipitation. Corrosion of metal equipment components due to unbalanced pH and Alkalinity can also cause dissolved metals to precipitate in the water. If staining or scaling does occurLeslie's can recommend a stain and scale remover for treatment. Pool owners with plaster and fiberglass pool surfaces need to be especially diligent in stain and scale prevention, although all pool types are susceptible- the penetrable surface of plaster pools make them more vulnerable to staining and scaling.

PREVENT STAINING AND SCALING

- Have your water professionally tested for metals- results should be 0 ppm. **DO NOT ADD ANY CHEMICALS UNTIL THIS TEST IS PERFORMED**
- Follow water balance guidelines for pH, Total Alkalinity, TDS and Calcium Hardness. Add pH and Total Alkalinity adjusters following the application directions closely. **DO NOT** add too much chemical or make too rapid of an adjustment in a short period of time or precipitation can result.
- Routine maintenance dosages of a sequestering or chelating agent will help prevent staining and scaling- Strongly recommended in plaster and fiberglass pool finishes.
- Poor filtration or circulation will accelerate metal precipitation.

CLOUDY WATER

Cloudy water can be caused by a number of conditions, check in the following order:

- Insufficient filtration- Make sure your filter is clean and functioning properly. Perhaps your filter is due for a more thorough cleaning than backwashing alone will provide. For more information about a filter cleaner (see filtration). Has your pool been circulating a minimum of 12 hours a day, up to 24 hours a day? Be sure to allow your filter to run continuously, 24 hours a day, until your water clears.

- Unbalanced Water- High ph (above 7.8), high Total Alkalinity (above 150), high Calcium Hardness (above 400) are all capable of causing cloudy water. Test your water and enter the results under Water Analysis to determine if you need to make adjustments and balance your water.

- Low Sanitizer level- Sanitizers can be consumed rapidly, especially in high heat and heavy bather loads. A low sanitizer residual can also allow for algae growth, which in the early stages can appear as cloudy water. Add a dose of your maintenance sanitizer and shock your pool. Shocking your pool with a non-chlorine shock (mono persulfate) at a rate of 1 lb. per 10,000 gallons will oxidize any contaminants without adding calcium, found in granular chlorine (calcium hypochlorite), which can add to the cloudiness. SoftSwim Users CANNOT use chlorine or non-chlorine (mono persulfate) shock and must always use SoftSwim C shock treatment.

TREATMENT

After running your clean filter, balancing and shocking your pool water you may still find the need to add a clarifier. Clarifies help filter out suspended particles that cannot be oxidized. Made of Polyelectrolyte, clarifiers use the art of attraction to bind small particles together making them large enough to be trapped by the filter. Clarifiers come in a variety of concentrations. Be sure to read and follow the bottle's instruction label on the clarifier.

In extreme cases of cloudy water, your local pool store may suggest a **Flocculant.** Floc is used as a coagulant and a settling agent for turbid water, attaching to free floating matter in the water to form larger, heavier-than-water particles that settle to the bottom of the pool. Floc requires a higher than normal pH, above 8.2, to be effective. If the label directs, you will need to add pH increaser to raise the pH prior to treatment. Read the label directions carefully and allow the pool to stand undisturbed overnight, up to 24 hours, again, as label directions recommend. After the debris has settled to the bottom, vacuum the pool on the waste or drain cycle (see filtration) to rid the pool of the unwanted matter. This will mean water loss, so carefully consider this option prior to treatment.

WATER MOLD OR PINK SLIME

Pink slime or pink algae are actually not algae but a bacteria or fungus, often appearing as streaks or spots in corners and crevices. Sometimes it appears as a pink or orange colored ring around the skimmer or waterline. Water mold may have different appearances. It may appear as raised white spots or as sheet-like growth on the pool's surface. It will have a slippery feel and may appear as different colors. Water mold is caused by the build-up of a slime coating produced by microorganisms on exposed surfaces. These microorganisms are constantly introduced into the environment and will begin to grow when conditions become favorable (that is, low sanitizer, poor house keeping, etc.). The film that is generated as these organisms grow makes them particularly difficult to treat as the slime that results affords the organisms(s) protection from the sanitizer. Water mold is nonpathogenic (does not cause disease) and, like algae, your pool can be sanitized and safe to swim in with water mold present. Also like algae, water mold originates from the environment around your pool. One common way of introducing water mold into a pool is by placing a pool cover on the ground where it comes in contact with soil that contains the mold. When the cover is placed on the pool, the mold is introduced into the pool. It is always best to fold a cover and drape it over a chair or railing. Cold may slow its growth but will not kill water mold.

Regular housekeeping usually keeps water mold and pink slime from growing in your pool. But there are places in a pool where proper attention is not always given such as behind lights, under ladder treads, nooks and crannies, a dirty filter, etc. Poor circulation is probably the biggest culprit. Water mold likes to grow in "dead spots." These are places that water does not readily circulate to and therefore the water becomes stagnant.

TREATMENT

The best overall treatment for pink slime or water mold is to vigorously brush the affected areas then treat using a shock treatment and specialty algaecide. Regular maintenance algaecides are generally not effective on pink slime or water mold. If treating with a shock and algaecide follow the directions provided by Long Island Pool & Patio and read and follow each product’s label.

1. Remove solar cover and discontinue use during treatment.
2. Vigorously scrub affected areas with a maintenance or algae brush. Brush all surfaces very carefully, including the underside of ladder treads and skimmer faces behind pool lights, etc. Pink slime, in particular, has a gel-like protective coating that resists casual brushing.
3. Check pH and adjust if necessary, to achieve a 7.2 to 7.6 reading.
4. After fighting a stubborn problem such as water mold or pink slime it is recommended that you thoroughly clean your filter media and disinfect brushes, vacuum head and hoses to prevent re-infestation.
5. Increase filter run time to 24 hours if possible to increase circulation, until water problem is gone.
6. The following day, brush and vacuum affected areas again.
7. Check filter’s pressure and backwash if necessary. If your filter pressure is running 10 + psi above starting pressure and has been cleaned, backwashed, rinsed or bumped, your filter should be chemically cleaned.
8. Continue to maintain your sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
9. Continue to brush walls and vacuum, clean filter as necessary and add maintenance algaecide until pool is clear of all signs of infestation.

VINYL LINER CARE & MAINTENANCE

1. Always maintain your swimming pool water at the proper levels:

pH between 7.2-7.8, ideally at 7.6
Total alkalinity 80-150 ppm, ideally 120 ppm
Calcium Hardness approximately 175-300 ppm, ideally 225 ppm
Free chlorine residual between 1.0-3 ppm
Biguanide level of 30-50ppm

2. Do not let the pH of the water drop below 7.2. A low pH level can cause the liner to form wrinkles. Maintaining a proper Total Alkalinity level will help stabilize your pH reading.
3. You should avoid using hydrochloric (muriatic) acid to adjust pH or Total Alkalinity. Use a pH Minus (sodium bisulphate) unless an extreme Total Alkalinity would require a muriatic acid to be recommended by your local pool store, in which case you would need to follow recommendations closely to avoid damage to pool liner.
4. Have your water tested for the presence of dissolved metals or excess minerals that may be present from your water source. **ALWAYS** have your water tested **PRIOR** to adding chemicals as any dissolved metals in the water can cause staining of the walls and bottom of your pool liner when combined with chemicals.
5. Always follow exact manufacturer's recommendations when adding chemicals to your pool. If directions require diluting or dissolving a chemical be certain that you follow these directions. Concentrated chemicals near the waterline or pool floor can cause bleaching of the color or pattern and or damage to the liner. Don't mix chemicals together or add into the pool at the same time. Combinations of chemicals that alone would not have an affect on your liner can be detrimental when combined. Water should be circulating when chemicals are added (unless otherwise directed).
6. When closing your pool for the season always let the water circulate for several hours (follow closing chemical directions) after the final addition of chemicals before shutting down the system. Even liquid chlorine can become concentrated in the water at the deep end of your pool and this can cause bleaching of the liner's color.
7. Be sure all organic debris (leaves, worms, etc) are removed from pool bottom prior to closing to prevent staining of the liner. Always close your pool with a properly sized winter pool cover that fits tightly around the entire edge of the pool to prevent the accumulation of debris that can cause staining. **DO NOT** use cinder blocks or other sharp edged, heavy materials to hold down winter cover- use only water tubes or an anchored safety cover.
8. Do NOT use abrasive cleaners or cleaning tools such as scouring powders, steel wool pads or sharp bristled brushes on your liner. Use only a recommended tile and vinyl cleaner to clean the water line.
9. DO NOT drain your pool (other than directed for winter closing). Your pool should remain filled with water at all times.
10. TIP: It's a good idea to always leave your vacuum head or maintenance brush attached to your vacuum pole. A pole with an open end (nothing attached) can cause a puncture or damage to the liner if it ends up in the pool.
11. If you have a small section of beaded liner that pulls out of the receiver track you may reinstall by pouring very hot water over the liner to make the vinyl supple enough to pull up and snap into the liner bead receiver track.
12. In the unlikely event that you would get a small hole or tear in your liner it can easily be repaired with a patch kit available at your local pool store. Simply cut a circular patch of vinyl material, apply adhesive and fold over. Once underneath the water, quickly unfold the patch and place it over the hole. Apply pressure to the patch for 1 to 2 minutes and the vinyl patch will bond to the vinyl liner creating a water tight seal.

LEAK DETECTION

Is your pool leaking?

Over time, every pool may begin to leak which will not only lead to high replacement costs but also both mechanical and structural problems. The demands of chemicals necessary to maintain a pool losing water will also be much greater. A pinpoint size hole may lead to hundreds of gallons of water loss in a single day.

How do you know

Water loss is common in pools due to evaporation and of course, the kids playing in it. However, if you're losing inches of water a day a leak is definitely the answer. A loss of more than 1" of water per day is the general rule of thumb for recognizing a leak. As mentioned above, a higher chemical demand will occur to maintain correct levels in the water which acts as a good indication of a leak. An increase in algae also hints towards a leak because the water entering the pool is not being treated. If the lawn surrounding your pool is extremely wet or mushy there are probably underground plumbing issues. Air in the system will also lead to water loss; however it will not be as noticeable.

Find it, Fix it

Taking action as quick as possible is very important because the longer you wait generally the more expensive the repair will be. You may be able to both find and fix your leak by yourself, but in other cases a professional is necessary who will be able to detect and repair through the usage of equipment. There is a test that you can perform on your own when determining if your pool is actually leaking:

The Bucket Test:

Check to see if there is actually a leak or if the water loss is due to evaporation.

7 step Procedure

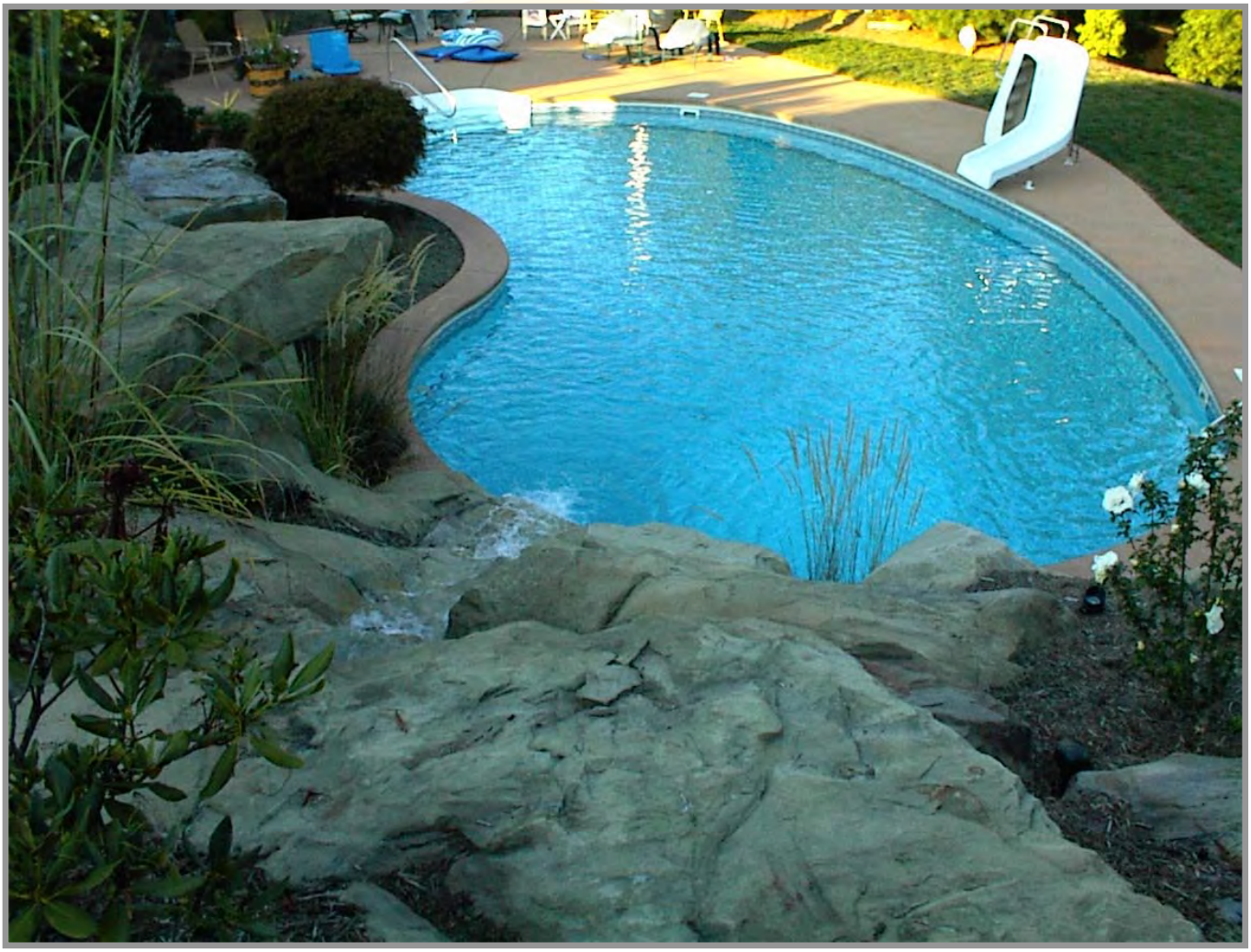
- Fill pool to normal water level.
- Fill a bucket with pool water to approximately one inch from the top of the bucket.
- Place bucket on first or second step of pool (place brick or rock in it to prevent it from floating away).
- Mark water level inside bucket.
- Mark water level of the pool on outside of bucket, on the pool wall, or skimmer face plate.
- Operate pool for 24 hours the same as it had when leak was first suspected.
- Compare two levels after 24 hours – if pool water mark (outside bucket) goes down more than mark on the inside of the bucket then there is a leak.

AUTOMATIC CONTROLS

Today controlling your pool and spa has never been easier with an automated control system. Heating, filtration, and cleaning cycles can be automatically programmed from inside or outside your home. There are a variety of control panels and remote control options that allow you to operate pumps, valves, pool and landscape lighting, water features and more. These systems are not only convenient they are cost effective as well, programming your equipment to run at peak efficiency.

To learn more about the operation of your control system, please refer to the link below:

Click Here for Information on Hayward Control Systems



CIRCULATION

Your pool's circulation system is unique. How many skimmers (and what type), bottom drains and return inlets, the size of pluming and type of pump and motor will vary from pool to pool. All of these factors can influence the length of time you should run your pump and motor to circulate and filter your pool water. Generally, this should be a minimum of 8 to 12 hours every day, up to 24 hours a day. Moving water allows your sanitizer to work more effectively, helps prevent dirt build-up and algae and allows your filter to effectively remove dirt and debris.

Circulation occurs as water travels into the Skimmer(s) and Drains (optional) passes through the Plumbing to the pump. It then is filtered and returned via the Return Inlet(s) of the pool. Check the skimmer and pump baskets frequently to be sure that they are clean and free of debris. When adding chemical treatments to your pool it is usually best to be circulating the water (unless otherwise directed).

Skimmer

Typically an above ground pool has 1 skimmer installed through the wall of the pool while an inground pool may have multiple skimmers. The skimmer opening into the pool is half submerged under the water surface. The skimmer is mounted to a vinyl pool wall with faceplates that are screwed into place, sandwiching the skimmer gaskets. You should monitor the water level in your pool to maintain a level that is ½ to 2/3 up on the skimmer opening.

If the water level drops below these levels the pump may begin to suck air and cavitate, possibly causing damage to the pump and motor by allowing it to run dry. All vinyl pool skimmers and some concrete pool skimmers have a weir door. This door flaps in and out of the skimmer opening -drawing floating debris into the skimmer. The door simply snaps into place in the skimmer mouth and should at all times move freely to allow unrestricted water flow into the skimmer. The skimmer body contains a basket for catching leaves and debris before they enter the pump and possibly clog the impeller area. You should check the basket regularly (every few days) and empty as needed. If your basket becomes cracked it should replaced. There are many styles and sizes of skimmers available, be sure to save yourself an extra trip by bringing your old skimmer basket with you. Manual vacuuming is performed through the skimmer. Go to Vacuuming section of the manual for detailed instructions.

Bottom or Main Drains

Bottom or main drains provide an additional source of circulation by moving water from the drain to the suction side of the pump through underground plumbing. Drains are not commonly found in above ground pools and are optional in most inground pool installations. Originally designed as the main source of draining commercial concrete pools- they are generally located at the deepest (bottom) end of the pool, hence the name bottom main drain. Today main drains are used primarily to enhance circulation (pulling water from the bottom and surface) as most pools do not require draining. In fact, vinyl pools and fiberglass pools should **NEVER** be drained unless done so by a pool professional. Please read and follow all safety precautions regarding the potential hazards related to suction inlets and drains on the following page.

PUMP & MOTOR

Your pool water circulates as a result of your pump and motor. Which, generally recommended, should operate a minimum of 8 to 12 hours every day, up to 24 hours a day. If you begin to experience a water problem, cloudy water or algae present, run the filter longer, 24 hours if necessary. Optional automatic timers are a convenient way to control run-times.

Your pump has a suction side and a discharge side. The pump housing holds an impeller that pushes water to the discharge side of the pump, where it then flows through the filter for cleaning and then it goes back to the pool through the return fitting.

Most pumps have a lint strainer where the water enters the pump. The pump strainer basket is usually positioned under a clear lid, so you can literally see if it contains any debris. You will have to check the pump basket regularly and clean it out with a hose. The lid on the lint strainer holds an o-ring that must be lubricated with an o-ring lubricant from time to time to ensure a good water tight seal. (do not use Vaseline® on o-rings as the petroleum can break down the rubber) When worn, cracked or stretched the strainer lid o-ring will not seal properly which can allow air into the lines causing pump to not hold prime and air bubbles in return inlet. Inspect the o-ring for wear and replace as needed.

Your pump will have (1) or (2) ¼" drain plug(s) threaded into the lint pot and or pump housing; the drain plug is used to drain water out of the pump for winterizing. If your plugs come with o-rings you should keep them lubricated to keep air from entering the pump and loosing prime.

<u>Priming</u>

Priming your pump (removing air and filling with water) may need to be done manually. Most above ground pumps are not self priming and occasionally inground self priming pumps may still need to be primed. At times the pump will lose its prime if the pump is higher than the water level in the pool, if it has been winterized or after cleaning your pump basket. If you need to prime your pump use the following steps:

- ✓ Check water level in the pool is at the half-way point on the skimmer.
- ✓ Check the skimmer basket –empty if needed.
- ✓ Make sure the drain plugs are installed in the pump.
- ✓ Check that any valves leading to pump are in the open position
- ✓ Remove the lid from the lint strainer at front of pump.
- ✓ Take a garden hose and put it into the pump housing. Fill the pump housing, which should automatically fill the suction line.
- ✓ When water flows out of the pump housing remove the hose.
- ✓ Put the lid back on the pump over the basket area. Check the lid O-ring is in place so that no air gets into the pump housing.
- ✓ Quickly turn "on" the power to the pump.

Watch the lid on the pump and see if the water has started to come in, this should take a minute or less, if after a minute you don't see water and the clear lid is starting to fog up, then turn "off" your pump and repeat the above steps.

The motor is what powers the pump to circulate water. The motor is the electrical side of the pump; it is located opposite of the pump housing. Most above ground pump & motors have 110v electrical plugs. They should always be plugged into a GFCI receptacle. You should NOT run the motor off of extension cords as this is an electrical hazard and is also detrimental to the motor itself. Inground Pumps can be 110v or 220v and are generally hard wired. Motors are designed and built for maintenance free operation. In order to keep your motor operating smoothly and extend motor life you should follow these general maintenance guidelines:

- ✓ Keep the area in and around the motor clean. Excessive dirt in the area can be pulled into the motor, resulting in shortened motor life.
- ✓ If the motor is being stored when not in use, be sure that all surfaces are dry to prevent rust. If left outside, the motor should be covered to guard against blowing leaves, dirt, and snow. DO NOT SEAL THE MOTOR IN AIR TIGHT MATERIALS. Condensation may form, causing bearing and insulation damage.
- ✓ Most of today's motors have permanently lubricated ball bearings. Thus, lubrication is not normally required.
- ✓ Keeping the motor cool is most important. Ambient temperatures should not exceed nameplate markings. Provide shade from direct sunlight. The area around the motor should be large enough to provide ample cross ventilation

FILTRATION

Adequate filtration is the one of the most important elements of good pool maintenance. Chemicals alone do not keep the pool water clean. It is the combination of chemicals, circulation and filtration that keeps your pool water clean, clear and healthy. The importance of proper filtration cannot be overemphasized in the overall program of sound pool maintenance and sanitary water. Proper circulation and filtration of the water is one of the best defenses against algae formation and cloudiness. The filter system comprises the complete filter and pump and motor. The filter is passive and requires the pump and motor to pass water through it for cleaning.

Circulation begins as water flows through the in-wall skimmer and drain (optional) into the pump & motor. It then is pushed into the filter tank where dirt and debris are trapped in the filter medium. Clean water then exits the tank through a return hose or pluming to the pool through the return inlet(s). Regardless of the type of filter system you have you should operate your system a minimum of 8 to 12 hours per day, up to 24 hours. As dirt and debris accumulate within the medium of the filter tank the pressure gauge on the tank will begin to rise and the return flow of water going back to the pool will simultaneously diminish. When the pressure gauge increases 10 psi above the normal starting pressure it is then time to backwash the filter. Refer to the operating instructions for your specific filter system type from the link at th e bottom of this page. Be certain to read and follow all manufacturers' instructions on operation and winterizing prior to start-up.

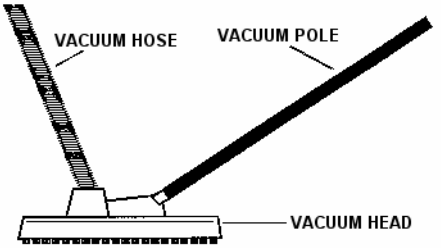
VACUUMING

To keep your pool clean it will be necessary to vacuum the pool floor to remove dirt and debris. When vacuuming you are using your pool pump with vacuum attached to skimmer to pull dirt and debris from the pool floor to be trapped inside of your filter- returning the water back to the pool. You should vacuum your pool on a regular basis, generally once a week- or as needed. If your looking for a little less maintenance there are a variety of automatic cleaners available today for all pool types and budgets. We would be happy to recommend a pool cleaner that is right for you.

Your manual vacuum consists of a vacuum head, vacuum hose, telescopic pole and (optional) skim-vac plate. The Vacuum head attaches to the telescopic pole, the hose slips onto the vacuum head on one end- (if you have a swivel end on your hose attach the swivel cuff end to the vacuum head) the other hose end will slip onto the skim-vac or directly into the suction opening in the skimmer- follow the steps below before attaching the vacuum hose in the skimmer or skim-vac.

Before vacuuming you should:

- ✓ Check the water level- should be at the ½ way point of skimmer opening. A lower water level could cause the pump to loose prime while vacuuming.
- ✓ Check the skimmer basket- empty if needed. The skimmer basket will remain in place when using a skim-vac. The skim-vac will sit over the skimmer basket with a fitting in which to attach your vacuum hose. If you are not using a skim-vac you will need to remove the skimmer basket in order to connect the vacuum hose to the suction opening. If you have 2 skimmers, make sure one NOT attached to vacuum hose is plugged!
- ✓ Check the pump strainer basket-clean if necessary.
- ✓ Check the filter pressure- backwash if necessary.



You are now ready to prime the vacuum hose:

- ✓ Submerge the vacuum head (already attached to pole and hose
- ✓ With the filter running hold the free end of hose in front of the return wall fitting to purge the hose of any air and fill with water. When you no longer see any air bubbles coming from the vacuum head the hose is primed.
- ✓ Hold the hose underwater to maintain the prime while connecting to the skimmer. The hose can usually fit through the front of the skimmer opening (weir door may need to be removed) where you can slip onto skim-vac plate or insert into suction opening. Some skimmers have a suction port below the mouth of the skimmer in which you can attach your vacuum hose.

You are ready to vacuum:

Move the vacuum head slowly and gently to thoroughly clean your pool and not “stir” up debris. It is normal for the pressure reading on your filter’s gauge to drop while vacuuming- as the water flow is being restricted through the vacuum head and hose. You should not, however, notice a decrease in the return flow. If while vacuuming the suction decreases check the strainer baskets (in skimmer and pump) and empty if necessary. If the baskets are clean and suction is still diminished the filter may need cleaned or backwashed- you will notice a decrease in the return flow at this time. When vacuuming large amounts of dirt or debris it may be necessary to clean or backwash during the vacuuming process.

During spring clean up, after an algae problem or heavy dirt/debris you may want to consider vacuuming to waste. If your filter type allows for this option the water being vacuumed from the pool would be discharged through a waste or backwash line out of the pool vs. circulating through the filter. You will lose a considerable amount of water doing this, so you should consult a pool service professional before proceeding.

If you are experiencing air bubbles coming from the return inlet or low suction (and filter does not require backwashing) you may have an air leak on the suction side.

- ✓ Check the vacuum hose itself for pinholes or cracks that could be sucking air, check the connection at the skim-vac or skimmer- is the hose still submerged
- ✓ Check the pump housing is it filled with water? The strainer lid on the pump housing holds an o-ring that should be checked as well. Lubricate with an o-ring lube from our store. If o-ring is worn, cracked or stretched replace it. A filter system that is running fine can sometimes show air leaks when the suction is increased during vacuuming.

Automatic Pool Cleaners keep your pool looking great, effortlessly! There are several cleaners available to suit every pool style and budget

AUTOMATIC POOL CLEANERS

There are a variety of automatic pool cleaners available today that will keep your pool looking great, while saving you time. Your pool professional can recommend the type of cleaner and brand best suited to your pool type and budget. Automatic cleaners not only remove dirt and debris but also improve your pool's circulation. .

You can view complete operating manuals by clicking on the links below. If your make and model is not listed you will need to reference the printed material that came with your cleaner or contact your pool professional.

HAND HELD (Self-contained) Hand held cleaners snap onto any telescopic pole and require no installation or assembly. Using a rechargeable battery and a reusable, easy-to-clean, filter bag they collect leaves, hair, dirt, and even sand, silt and algae which means dirt and debris stay out of your filter.

ROBOTIC CLEANERS This type of cleaner operates independent of your pool's circulation system. These completely self-contained cleaners are like adding another filter to your pool. They plug into a wall outlet and include a transformer that sends low voltage power through a long cord to operate the cleaner. A motor within the cleaner draws water into a re- usable filter bag trapping dirt and debris as the cleaner scrubs and vacuums the pool bottom, walls and waterline.

Shark Vac by Hayward

ROUTINE MAINTENANCE

Keeping your pool physically clean is as important as the regular addition of chemicals. Debris in the pool is unsightly, increases sanitizer demand and may cause staining of the pool surface. During the swimming season, thoroughly clean you pool at least once a week.To ensure proper circulation and filtration you should run your system at the minimum of 8 to 12 hours, up to 24 hours per day.

Follow these general maintenance tips below to keep your pool looking great and operating smoothly.

1. Maintain proper water level-2/3 on skimmer opening (you can lose up to 3” of water per week through evaporation, splash outs and back-washing.)
2. Skim pool surface with leaf skimmer daily.
3. Brush walls and floor with proper brush weekly, this will reduce your vacuuming time.
4. Remove dirt ring from waterline weekly using a tile and vinyl cleaner.
5. Clean out skimmer basket.
6. Clean out hair and lint basket.
7. Check filter pressure and backwash as needed- when pressure gauge raises 10 psi above or doubles the normal starting pressure.
8. Keep deck area clean near pool.
9. Check hoses and equipment and replace when needed.
10. Vacuum pool weekly or as needed. *See Vacuuming for complete instructions.*
11. Test your pool water using your test strips 2-3 times per week and follow a regular sanitizer/chemical treatment program.

HEATING YOUR POOL

Your pool won't contribute to your health or pleasure unless it's warm enough to swim in comfortably when you want to swim. Heating your pool will enable you to get the maximum value out of your investment by allowing you to enjoy the most comfortable water temperatures possible, allowing you to use your pool more often.

How warm you keep your pool is, of course, entirely up to you. Competitive swimmers prefer a temperature of 78º F while recreational swimmers are generally more comfortable near 80ºF, the young and elderly closer to 82ºF. The sun alone usually can't keep your pool water at that comfort minimum of 78ºF. By having a heater to warm your water you can add substantially to the daily use of your pool and extend your swimming season.

There are several methods available to heat your pool, from the sun itself to: gas, oil and electric fired heaters, electric heat pumps and solar heating systems. Your Long Island Pool & Patio professional will help you select the heating system that best suits your budget, geographic region and lifestyle. To learn more about the heating system used on your pool, click on the link below for the complete owner's manual. Remember, operating costs can be kept to a minimum by installing an efficient, properly sized heater or heat pump; using a good quality pool cover; and, of course, keeping your filter clean and your heating and filtering system well maintained.

If you are operating a Solar Heating system on your pool please refer to the manual link at the bottom of this page for a complete operating manual.

The following tips will help you conserve energy and heat your pool more economically.

1. Keep a thermometer in your pool. It will pinpoint accurately the temperature most comfortable for you.
2. Keep your thermostat at the lowest comfortable setting. Each degree more heat than needed could add more to your monthly fuel cost and use up more energy than necessary.
3. Mark the "comfort setting" on the thermostat dial. This will prevent accidental or careless over-heating and waste of energy.
4. Lower thermostat to 70°F when pool is not going to be used for three or four days. For longer periods, shut the heater off. You will save money on fuel consumption and help conserve energy.
5. Protect your pool from wind. Wind above 3 to 5 miles per hour can lower the pool temperature substantially. A hedge, cabana or decorative fence can be an effective windbreak.
6. Use a pool cover when pool is not in use. This can reduce heat loss by as much as 50%. If you are vacationing for a couple of weeks or shutting down for winter, turn the heater off completely, including any pilot light.
7. Drain heater or heat pump completely prior to freezing weather. Freezing water inside the heat exchanger can result in costly repairs. *Read owner's manual thoroughly*.

SOLAR COVERS AND REEL SYSTEMS

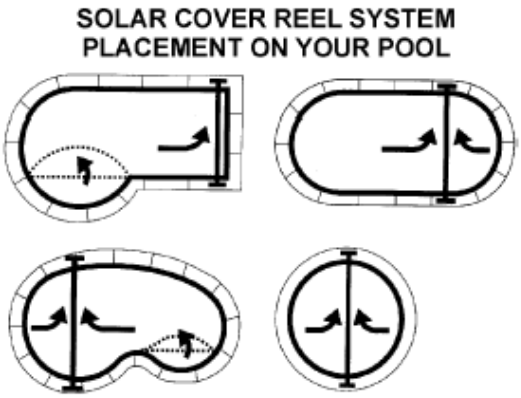
For a variety of reasons, the single biggest energy conservation move that you can make is to put a cover on your pool. First, the cover reduces the heating bills by preventing heat loss. The cover can also reduce the amount of dirt and grime that enters the pool, reducing the amount of time it takes to remove them from the water through filtration or vacuuming.

A solar cover goes one step further, collecting heat from the sun, which lessens that reliance on fossil-fuel burning heaters. In addition, the cover will save on the amount of chemicals and water that need to be added. Covers can also reduce evaporation, which can waste both water and heat and increase the Total Dissolved Solids levels in the water. Some estimates say that as much as 50 gallons a day can be lost in an uncovered pool from evaporation. That's more than 18,000 gallons of water wasted each year.

Though solar pool covers are not a necessity they are highly recommended in preserving energy and making your pool more pleasant to swim in. Please note the following tips when using your solar cover:

- ✓ **CAUTION:** Solar covers pose a drowning hazard to children or pets who may try to walk across the cover. ALWAYS keep an eye on children around the pool and warn them that the cover will NOT support them and that they should not try to play on or around the pool. **DO NOT** swim with the cover on.
- ✓ Covers should float on the surface of the water- bubble side down.
- ✓ DO NOT remove your cover and lay it on the lawn. The intense UV rays of the sun will burn-out the grass very quickly.
- ✓ Leave your solar cover off immediately after shocking your pool and during treatment for visible algae or cloudy water. This will help promote the circulation and water quality of the pool as well as extend the life of your solar cover.
- ✓ When solar cover has been removed and is reel ed onto a solar reel- it should be covered with the protective white plastic supplied with cover, to protect the coiled cover from gathering heat in the sun and possibly sticking together.
- ✓ DO NOT leave your pool covered for 3 to 4 days or more without removing the cover from time to time to promote circulation and reduce algae growth. This includes vacation time- leave your cover OFF while away.

Solar reel systems are available for all styles of pools; above ground, inground and custom shapes. This illustration shows how a solar reel can be placed on various pool shapes.



POOL OPENING

If you choose to open your own pool, please follow steps below...

1. Remove standing water and debris from winter cover. For water removal use a cover pump or siphon. *(Note: if you notice your water level is dropping there may be pinholes in your cover at which time you would be draining water from your pool from atop your cover) Try to avoid the water and debris on top of the cover from entering the pool water while removing. Once removed clean the winter cover with a cover cleaner- allow to dry (to prevent mildew and deterioration)- and fold for storage until fall. *(Do not lay cover out in yard to dry- it will burn and kill the grass in a very short time)
2. Remove any winter plugs, closing plates or freeze protectors from skimmer or return inlets. Install skimmer basket and directional “eyeballs” in inlets.
3. Check water level and if necessary add fill water to bring pool water to proper level- ½ to 2/3 up on the skimmer opening.
4. Using a leaf net or leaf bagger remove leaves and debris from water, floor.
5. Connect all hoses, pump and motor and filter system. See your Filter owner’s manual that came with your pool for complete instructions on hooking up your filter system- clean or replace filter media if necessary. Make sure all drain plugs have been reinstalled in pump and motor, filter, chlorinator, etc. Lubricate all o-rings (pump strainer lid, filter, valves, unions, chlorinator lid, etc) with an o-ring lubricant and replace any that are worn, cracked or stretched. Be sure all equipment is in good working order.
6. Prime pump if necessary (if non-priming or above water level) and start circulation/filtration.
7. Vacuum the pool. A thorough manual vacuuming is usually recommended-*Vacuuming*
   *If there is a lot of fine debris or sediment covering the floor you may want to vacuum to waste if this is an option on your filter system *See your filter manual.
8. Prior to adding any chemicals you should have your water tested-especially if you suspect metals or minerals may be present in your pool. It is better to treat metals in the water prior to adding any chlorine.
9. Re-install all equipment and accessories. Check the diving board, slide, stairs and ladders for any signs of looseness or corrosion. Tighten all hardware replace any necessary fittings.
   Once your water has been tested and is in balance you can begin treatment with Sanitizer program of your choice. *See* *Sanitizing your Pool* in this manual for detailed instructions.

POOL CLOSING - WINTERIZING INGROUND POOLS

OVERVIEW

If you choose to close your own pool, please follow the general steps below and be sure to read and follow all manufacturers winterizing instructions for equipment.

1. Be sure that the water is clean and balanced.
2. Brush and Vacuum the pool and remove any fallen leaves or debris.
3. Test the water and make any necessary adjustments so the pH reads between 7.2 –7.8 and the Total Alkalinity between 80-120 ppm.
4. If you have or suspect you have excess minerals or metals in your water have your water tested by Leslie's Pool Store and add the recommended sequestering agent or metal remover per label directions.
5. For best results allow water to circulate a minimum of 2-4 hours so that any chemicals added will be evenly distributed.
6. Purchase any necessary winterizing products that you may need to close your pool; such as a freeze protector for your skimmer, air freeze pillows, plugs, winterizing chemicals, etc.
7. Check winter cover and be sure it is in good condition along with water tubes. Replace any worn or lost item

If you choose to close your own pool please carefully read and follow all the manufacturer's winterizing instructions that came with your pool and equipment. The recommendations below will provide general guidelines for closing your inground pool.

1. Add closing chemicals recommended by your local pool store. Often, a winterizing kit is available with all of the chemicals you need to close.
2. **IMPORTANT:** FOLLOW the directions on the kit, or bottle labels regarding circulation time, often a circulation time of 4 to 8 hours is required to ensure the chemicals have circulated thoroughly.
3. Backwash and clean filter following owner's manual for cleaning and winterizing. Most manufacturers recommend that you chemically clean your cartridge or D.E. elements at the end of each season. Sand filters can be emptied and new sand added the following spring.
4. Shut off pump and motor.
5. Water level should be lowered according to our staff's recommendations. Generally, if using a snap-on lid, drop the water 1"-2" below the skimmer opening. If not using a snap on lid you need to lower the water 4"-6" below the skimmer opening. You can lower the water by using your pool pump and motor- with the return hose redirected, or by starting a manual siphon with your vacuum hose or garden hose or by using a cover pump.
6. PROTECT UNDERGROUND PLUMBING-before sealing off skimmer and plugging return inlet(s) you need to protect your underground plumbing. Blowout the lines using a canister type wet-dry vacuum in the skimmer opening, plug return inlets with threaded plugs w/ o-rings and add swimming pool antifreeze to the lines at a rate of 1 gallon per 25 feet of plumbing.

7. Remove all parts from skimmer (basket, weir, lid) store indoors. Wipe the inside of the skimmer clean and use a freeze protection method recommended by Long Island Pool & Patio.
8. Remove ladder, handrails, boards, and accessories.

9. Read manufacturer's instructions for winterizing your pool light and if necessary lower into deep end of pool or lift onto pool deck.
10. DRAIN ALL EQUIPMENT: pump, filter, heater, chlorinator, fittings and valves, etc. (store drain plugs in pump basket) Refer to you equipment owner's manuals for more detailed winterizing instructions.

    All water must be ***completely drained from any equipment to avoid freeze damage.***

11. Secure winter pool cover. Tarp-style covers should lie on the surface of the water and be anchored securely at perimeter using water tubes/bags. Allow some room in the water tubes for expansion when the water freezes. Do not allow excessive water more than 1"-2" to accumulate on the winter cover.

    Safety Covers are available to cover and protect your pool, see Safety Cover section for more information as well as use and care instructions.
12. **IMPORTANT:** During the winter months, inspect your pool cover and remove any excess accumulation of water from the top of the pool cover. The weight of too much water, ice and snow load on the cover will cause stress and possibly damage to the pool cover.

SAFETY COVERS

Safety covers provide a virtually impenetrable shield against wandering children or pets. The pool cover stretches taunt over the pool area and is attached to the pool deck by a series of brass anchors and stainless steel springs. All safety covers must conform to the Standard Performance Specification set by the American Society for Testing and Materials (ASTM). According to the ASTM, a safety cover must be able to support a certain amount of weight, not permit gaps that a child or pet could squeeze through, and remove standing water. LOOP-LOC safety covers far exceed minimum ASTM standards, however. Built from extremely strong material and secured tightly to the deck by heavy-duty springs and brass anchors, a LOOP-LOC safety cover puts a "lock" on a pool that will prevent children and pets from gaining access to the water.

Safety covers made of mesh, solid or light blocking materials all offer specific advantages. Mesh safety covers provide a shield over the pool area while allowing rain and melting snow to drain through, so the top of the cover never becomes a dangerous, slippery hazard (There have been cases of children and pets that have drowned in the collected rainwater). Because the cover stays dry, leaves and debris blow quickly away, providing for a clean, attractive appearance in any weather. Solid safety covers eliminate fine debris and UV rays that can penetrate mesh covers and offer a drain panel to reduce standing water while filtering debris. With solid covers any standing water should be removed immediately using a cover pump to maintain safety standards. Your Long Island Pool & Patio professional will assist you in selecting the safety cover best suited for your pool type, family and budget.

By following the general care and use guidelines below
will optimize the performance and maximize the life of your safety cover.

Water Level:	The water level in the pool should always be kept within 18” of the top of the pool wall.
Spring Tension:	Initially, adjust the straps so that they are set to at least half compression. This will keep the cover tight and aid in draining. The springs should be checked periodically and the straps adjusted to maintain tension.
Water Treatment:	Be sure your pool has the proper level of sanitizer and algaecide before closing in the winter. This will insure that the water is clear upon opening in the spring. If the cover is left on when the temperature has gone beyond 60º F, it may be necessary to add algaecide to maintain clarity.
Snow & Water:	Large accumulations of snow should be carefully removed, taking precautions not to damage the cover. Likewise, if a large puddle of water accumulates. , it should be removed immediately by directing it to the drain panel or by using a weighted cover pump. The straps should be readjusted to prevent a reoccurrence. Failure to perform this maintenance could result in stretching or damage to other cover components. Drainage can be facilitated by slightly loosening the strap that runs through the drain areas while tightening the straps away from the drain. A small amount of puddling is normal and will evaporate in dry weather. If you have questions about these or any other procedures, please contact Long Island Pool & Patio.
Debris & Standing Water:	Standing water resulting from melting snow and rain must be removed immediately. Covered pools located in heavily wooded areas are susceptible to accumulation of leaves, needles and other debris that will inhibit water flow to and through the drain panel. **It is very important to keep the drain clear of debris at all times.** Water can be removed by placing a weighted pool cover pump in a suitable location on the cover. Cover pumps are available through your pool dealer.
Abrasive Coping:	For covers not ordered with protective padding at the coping, it is recommended and often required that padding be placed as a barrier between rough or sharp coping and the cover itself. Failures to do so may void your safety cover warranty. Periodic examination of the cover is necessary for detection of early signs of wear.
Removal:	The cover may be hosed off and should be allowed to dry before fan folding for storage in its mesh bag. Cover cleaner and treatments, available from your pool supply store are also recommended.
Anchors:	After removing or prior to installing the cover, clean out all the anchor sockets with a stream of compressed air or water. This biannual cleaning will assure proper anchor function. Applying spray silicone to these components will also be beneficial to their proper operation. When the cover is not in use, screw anchors down completely to keep out debris and prevent tripping and foot injuries.

SWIMMING POOL SAFETY

Safety is the most important factor to consider when using or caring for your pool. Please read all of the pages contained within this section, and make a habit of practicing basic safety in the use and care of your pool and equipment. Also, read your equipment owner's manuals carefully. When you see blue underlined text you can click to open up more information on that particular topic. In this section, we will discuss four main subgroups of safety:

Chemical Safety ***Water Safety*** ***Electrical Safety*** ***Equipment Safety***

The following ***GENERAL SAFETY RECOMMENDATIONS*** are supplied by the APSP and provide an overview of the various safety aspects mentioned above.

- Set pool rules and stick by them.
- Never dive in an above ground pool or shallow water. Nine out of ten diving injuries occur in six feet of water or less.
- Post depth markers to accurately identify the pool depth.
- Keep these basic safety items by the pool at all times:
    1. Shepherd's crook or long-handled hook
    2. Life ring preserver-coast guard approved
    3. First aid kit including written instructions on how to administer CPR
- Never leave children unattended or even out of eye contact in your swimming pool.
- Make sure pool is inaccessible to children when unsupervised or you are away from home.
- Don't leave toys around the pool or in the water. They could encourage an unsupervised child to enter the pool area.
- Follow instructions for assembly and use of a ladder.
    - Locate the ladder on a solid base
    - Face the ladder when climbing
    - Use the hand grips
    - One person on the ladder at a time
    - No running or pushing on the ladder
    - Swing-up ladders should be raised when leaving the pool unattended—even for a
- Make sure you are aware of local requirements concerning fencing around pools.
- It is a good idea for all family members to become familiar with CPR (Cardio-Pulmonary Resuscitation). Training is normally available from a number of different groups, i.e., American Red Cross & YMCA.

- In case of emergency, call 911 immediately. It is a good idea to have a cordless phone available in the pool vicinity. Keep the following emergency phone numbers posted near the pool:
    - Police/Fire/Rescue
    - Poison control
    - Physician
    - Ambulance/Hospital
- Be aware and prepared for unsafe weather conditions. All swimmers should leave the water immediately as soon as you see or hear a storm to prevent possible electrical shock.

- Keep all chemicals sealed and out of children's reach. Always follow all directions on label.
- Never mix chemicals together.
- Always add chemicals to water, never the reverse.
- Chemicals should be stored in a cool, dry place.
- After handling chemicals, clean hands thoroughly.
- Never put a quick dissolving chlorine tablet or granular chlorine into an automatic chlorinator or floating dispenser.
- Pool alarms are recommended for families with small children or pets.
- Many serious pool accidents involve alcohol. Remember alcohol and pools don't mix!
- Glass and Sharp objects should not be used on or around the deck of the pool.
- All electrical equipment (including power supply cords) used with or around the swimming pool should be protected by a ground-fault circuit interrupter (GFI) at the power source. Your licensed electrical contractor always supplies this circuit. Serious injury and even death can result from improper electrical hook-up.

Chemical Safety

When opening your pool or doing routine maintenance, remember to follow common-sense rules for safety. Using pool care products can be dangerous if you forget the right handling and storage procedures. Click here for more information on *Chemical Safety-Storage and Handling.* All chemicals used for any purpose in or around the pool should be handled very carefully, stored in a safe place, and precautions noted. Chlorine and other pool sanitizers are classified as oxidizers. These chemicals require specific precautions, see *oxidizers*. Some pool chemicals, specifically balancing chemicals, are classified as acids and also require specific handling and usage instructions, see *acids*.

Water Safety

Pools are a great asset to any home or community, however, rules must be set and enforced, manuals must be read and re-read, and knowledge of proper water safety is key to avoiding preventable accidents. Every parent should teach his or her child(ren) to swim at an early age. You can contact one of the following organizations on-line to locate a certified water safety instructor in your area: www.ymca.net or www.swimamerica.org With a few precautions, the likelihood of a drowning incident may be significantly diminished.

Layers Of Protection

Your pool provides your family the opportunity to enjoy healthy recreational activity together, as well as the means to teach your children a lifelong respect for water. As a responsible adult, you are aware of the risk of a child drowning when around any body of water, including pools. While it is a fact that adult supervision is the primary solution to childhood drowning, it is also a fact that most of these accidents occur when there has been a lapse in that supervision. Studies have shown in the majority of cases it is during these short lapses in supervision that children have gained access to the pool are through:

- ✓ **Open or unlocked house doors or windows,**
- ✓ **Open, unlocked or broken fence gates.**

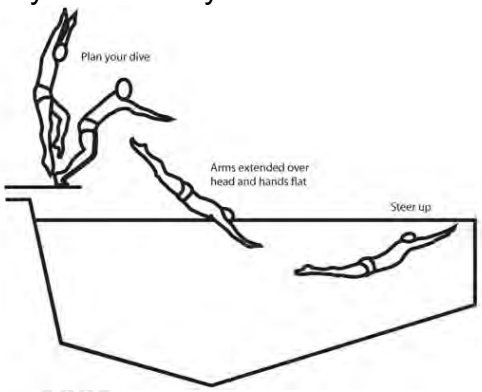
Several suggested alternatives or options have come forward to provide a layering effect between the house and the pool. These options are to be used only in conjunction with proper supervision. **In no instance**, are they to be used in place of supervision. In discussing pool safety alternatives, Association of Pool & Spa Professionals (APSP),believes that certain requirements should be met at an absolute minimum. These are as follows:

- All pools should be enclosed by a barrier.
- When the house is used as one side of the barrier, all windows should have a latching device and all doors should be self-closing and self-latching with the latch located at least 56" from the floor.
- All fence gates should be self-closing and self-latching and capable of being locked when the pool is not supervised.

The suggested recommendations are in logical progression from the house to the pool. The APSP recommends that you not rely on any one system, rather several together providing layers of protection. Please pay particular attention to any sliding glass doors which provide access to the pool. These doors may often be left open, requiring layers of safety.

Diving

Under NO CIRCUMSTANCES should diving occur in an above ground pool. In an inground pool the pool area must be examined (depth, obstacles) and a diving technique should be discussed to ensure a safe and fun dive. To learn more please visit www.divingboardsafety.net



Entrapment

Entrapment occurs when a swimmers' hair or body parts are sucked into or held down by a strong vacuum through a suction fitting or main drain. Be certain that all swimmers know to **STAY AWAY** FROM the main drain and suction fittings. Regularly inspect the skimmer lids, and main drain covers to be sure they are securely screwed in place without sign of cracking or deterioration. If a broken or missing grate or drain cover is detected, the pool should not be used until the hazard is fixed. It is a good idea to have an emergency shut-off switch for the pool pump in an easily accessible area near the pool. Anyone using the pool should know where it is and how to use it in the event of an emergency.

Electrical Safety

GFCI - All electrical equipment (including power supply cords) used with or around the swimming pool should be protected by a ground-fault circuit interrupter (GFI) to protect from possible shock. Your licensed electrical contractor always supplies this circuit. Serious injury and even death can result from improper electrical hook-up. The GFI is located in either the junction box that connects the pool light to the electrical system or in the main load center for the pool (breaker box). The GFI consists of a reset button and a small square button marked "test". To test the effectiveness of the GFI first press the "test" button, it should trip. Next, depress the "reset" button. You should hear a clicking sound. This tells you that the shock protection is intact. Perform this test once a month to be sure your GFI is in working order.

Codes- All electrical equipment and wiring must meet the requirements of the local and national codes which apply.

Grounding and Bonding- All electrical equipment must be grounded. All metal objects (ladders, diving platforms, etc.) must be electrically bonded together.

Extension cords- Never use extension cords around a pool or spa. If they get wet, it's an invitation to a shock - possibly a fatal one.

Equipment Safety

Always read the complete owner's manual for all equipment and be certain you have a good understanding of its operation prior to start-up. Compressed air can become trapped within your pump and filter system creating a dangerous amount of pressure- enough to actually blow the lids off of filters or strainers. The manufacturer's owner's manual for your filter system and pump will explain how to safely bleed the air out of your system. **NEVER** start your system without opening the air bleeder valves first. Below is a safety checklist you should routinely perform to be sure your pool and equipment are operating safely and efficiently.

- Main Drain cover is installed correctly, screwed down, unbroken, and certified for that application.
- All skimmer covers are in place, screw-fastened and unbroken.
- Filter pressure gauge is in good working condition and that the filter pressure is within the operating range specified in your filter owner's manual.
- Filter 0-rings are sealing properly and in good condition.
- Filter Tank Clamps and Bolts in place, in good physical condition, and correctly tightened? (Don't try to adjust clamps while the filter is under pressure.)
- Bleed off accumulated air from the system.
- Skimmer baskets and the pump strainer basket empty and free of debris.
- Remove any debris or obstructions from the main drain cover.
- Remove obstructions and combustibles from around the pump motor air vents.
- All chemicals are properly stored (*see chemical safety storage and handling*).
- Pool heater is functioning properly, with no smell of gas around the heater.
- Make sure that all grounding and bonding wires are connected and in good condition.
- Make sure that all wiring connections are tight and clean and that all wiring and electrical equipment are in good condition.
- If equipment is indoors the area should be clear of leaves, debris, and combustibles.

The topic of safety cannot be stressed enough. Adult supervision (knowledgeable swimmer and CPR certified) around the pool is highly recommended. It is also wise to use multiple safeguards or Layers of Protection, mentioned below. As a pool owner it is your responsibility to make your pool environment as safe as possible.

The APSP, Association of Pool and Spa Professionals, publishes several pool safety pamphlets that can be obtained online at https://www.phta.org/ or by calling 703-838-0083. Warning signs or notices supplied by our staff should be posted or applied where they are visible to pool users.

LIFETIME LIMITED

WARRANTY

Perfect 10 System

Transferable Limited Warranty

Alpha 3 Manufacturing Corp. warrants that its reinforced composite panels will not split, break, rust or tear apart beyond use for as long as they are owned by the original retail purchaser, and properly registered subsequent owners.

Exclusions

This limited warranty is enforceable only by the original retail purchaser and properly qualified subsequent owners. This warranty covers only Perfect 10 System wall panels manufactured by Alpha 3 Manufacturing Corp. All accessories, including but not limited to, vinyl liners, pumps, filters, motors, copying, skimmers, wall fittings, heaters, ladders or other standard fittings are specifically excluded from this warranty.

Limitations

This limited warranty does not apply to panels that have been subject to misuse, abuse, repairs or attempted repairs by a non authorized employee or representative of Manufacturer; or a failure due to improper installation, an act of God, weather conditions or other damage from causes beyond the control of Manufacturer.

Disclaimers

Alpha 3 Manufacturing Corp. neither assumes nor do we authorize any other person to assume for us, any other liability in connection with the sale of panels manufactured by us. THIS LIMITED WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO A PURCHASER AND MANUFACTURER SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM OR CAUSED BY ANY DEFECT, WHETHER A CLAIM IS BASED UPON WARRANTY, CONTRACT, NEGLIGENCE OR OTHERWISE. Some jurisdictions do not allow the exclusion of incidental or consequential damages, so this limitation may not apply to you. To the extent permitted by applicable law, THIS LIMITED WARRANTY SPECIFICALLY EXCLUDES ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, OTHERWISE all implied warranties are limited in duration to two (2) yeas from the original date of retail purchase. THERE ARE NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF ANY KIND OR NATURE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Manufactured by:
Alpha 3 Manufacturing Corp.
301 North Taylor
Garrett, Indiana 46738
260-357-4161
260-357-6529 Fax

Thermoplastic
Pro-Rated 25 Year Limited

WARRANTY

Alpha 3 Manufacturing Corp. warrants that this thermoplastic step will retain its structural integrity and shape for a period of 25 years. Alpha 3 Manufacturing Corp. warrants that for a period of one year, the polymer finish will not split, break, rip, corrode, or tear apart.

Exclusions
This limited warranty is enforceable only by the original retail purchaser. This warranty covers only steps manufactured by Alpha 3 Manufacturing Corp. All accessories, including but not limited to, vinyl liners, pumps, filters, motors, copying, skimmers, wall fittings, heaters, ladders or other standard fittings are specifically excluded from this warranty.

If the inspection confirms that the defect was due to defective finish within one year, or the step loses its structural integrity within 25 years, credit against the retail purchase price of a new step will be issued on the following pro-rated basis:

paid by original purchaser-

Years 1 - 3	0%
Years 4 & 5	25%
Years 6 - 10	50%
Years 11 - 15	75%
Years 16 - 25	90%

Limitations
This limited warranty does not apply to steps that have been subject to misuse, abuse, repairs or attempted repairs by a non authorized employee or representative of Alpha 3 Manufacturing Corp.; or a failure due to improper installation, an act of God, weather conditions or other damage from causes beyond the control of Manufacturer.

Warranty Claims
Upon notice of warranty claim, Alpha 3 Manufacturing Corp. or an authorized representative of Alpha 3 Manufacturing Corp. will inspect the step in a reasonable time after the initial notification to determine if the failure is a covered defect under this limited warranty. If it is determined that the defect is covered under this limited warranty, Alpha 3 Manufacturing Corp., through its authorized representative will repair or replace the step. The cost of removal of a defective step, freight cost incurred in sending a replacement step and the installation of a replacement step shall be the sole responsibility of the purchaser.

Disclaimers
Alpha 3 Manufacturing Corp. neither assumes nor do we authorize any other person to assume for us, any other liability in connection with the sale of steps manufactured by us. THIS LIMITED WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO A PURCHASER AND MANUFACTURER SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM OR CAUSED BY ANY DEFECT, WHETHER A CLAIM IS BASED UPON WARRANTY, CONTRACT, NEGLIGENCE OR OTHERWISE.
Some jurisdictions do not allow the exclusion of incidental or consequential damages, so this limitation may not apply to you.
To the extent permitted by applicable law,
THIS LIMITED WARRANTY SPECIFICALLY EXCLUDES ANY AND ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, OTHERWISE all implied warranties are limited in duration to two (2) yeas from the original date of retail purchase. THERE ARE NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF ANY KIND OR NATURE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Manufactured by:
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GLOSSARY

Acid- Chemical which lowers pH.

Acidic- Having a pH below 7.0. Opposite of basic.

Acid Wash- A procedure using an acid solution to clean an interior surface of a pool with subsequent neutralization of the acid.

Acrylic- A thermoplastic material that can be extruded, injection-molded or vacuum-formed into usable shapes and surfaces.

Activated Carbon- A charcoal-like material used to remove colors, odors, and/or excess oxidizer from water.

Aggressive Water- Water that is corrosive because it is low in pH and/or calcium hardness and/or total alkalinity.

Algae- Microscopic plants that enter your pool via rain, wind, dust, etc. and can cause discoloration of the water or pool surface.

Algaecide- Chemical that kills or prevents algae.

Alkaline- Having a pH above 7.0.

Alkalinity- All pool chemicals work most effectively when alkalinity remains in balance. Alkalinity prevents pH bounce. Low alkalinity is very corrosive to the filter and other pool equipment. High alkalinity promotes scale formation, cloudy water and reduces chlorine efficiency.

Alum (aluminum sulfates)- A compound used to cause suspended solids in water to form filterable masses (flocculant).

Ammonia- A chemical compound of hydrogen and nitrogen that combines with free chlorine in pools to form chloramines, or combined chlorine. Also combines with free bromine to form bromamines.

Antivortex Drain Cover- A plate or cover that is affixed to the main outlet of a swimming pool to prevent a vortex from forming as water passes through to the main outlet.

Backwash- The process of cleansing the filter medium and/or elements by the reverse flow of water through the filter.

Bacteria- Microscopic organisms that enter your pool from swimmers and dust, among other things, can cause irritation and infection.

Balanced water- Total water chemistry that is right where it should be to prevent both corrosion and scaling. The factors to check for in balancing your water are pH, total alkalinity and water hardness.

Ball Valve- A device that can partially or totally obstruct the flow of water, using a ball-shaped diverter.

Base- A chemical used to raise the pH and/or total alkalinity of pool water.

Basic- Having a pH above 7.0. Opposite of acidic.

Breakpoint Chlorination- The practice of adding a sufficient amount of chlorine to water to destroy the combined inorganic chlorine present. Normally, the amount added is 10 times the combined chlorine concentration.

Broadcasting- Tossing granules out over the deep end of your pool.

Buffer- Any chemical that, when dissolved in water, will resist pH change. Also any chemical solution used to calibrate pH instruments.

Calcification- Formation of calcium carbonate on walls of pools or pipes, or in a filter or heater, due to precipitation of calcium carbonate.

Cavitation- The formation of partial vacuums when pump capacity exceeds the water replacement supply.

Channelization- The undesirable process whereby filter sand is permeated by tubes or channels of calcified or oily material, allowing water to pass freely, without filtration.

Chelating Agent- and sequestering agents are used to prevent mineral/metal precipitation (fall-out) by bonding minerals or metals in solution in the water to prevent staining, scaling or water discoloration.

Chloramine- A compound formed when chlorine combines with nitrogen or ammonia. It causes eye and skin irritation and has a strong, unpleasant chlorine odor.

Chlorinator- A device used to add or deliver a chlorine disinfectant at a controllable rate. Chlorinators are designed specific chlorine compounds and should only be used with the compounds for which they are designed.

Chlorine- A chemical element that exists as a gas in its elemental form, or as a part of a chemical compound. Used as an oxidant to sanitize and disinfect pool water.

Chlorine Demand- The amount of free available chlorine combines with nitrogen or other organic compounds.

Circulation System- A system of mechanical equipment and/or components designed to ensure even distribution of heat, chemicals, and filtration of water throughout a pool. Includes filters, heaters, pumps, piping, inlets, drains, skimmers, and other devices.

Clarifier- A chemical that coagulates suspended particles in water. See coagulant or flocculant.

Coagulant- A chemical, usually alum, used in pools to gather and precipitate suspended matter.

Coping- The cap on the wall that provides a finishing edge around a pool. Can be formed, cast in place, precast or prefabricated from metal or plastic materials, brick or stone. May be used as part of the system that secures a vinyl liner to the top of the pool wall.

Corrosion- Eating away of metal surfaces in your system caused by water that's out of balance.

Cove- The radius that joins the floor and wall of a pool.

Cyanuric acid (Stabilizer)- Maintaining an appropriate cyanuric acid level protects free chlorine from the sun's UV (Ultra Violet) rays by slowing the breakdown of chlorine by the sun. The ideal range is 30-50 ppm. If the test value is beyond 90 ppm, you may have to drain a portion of the pool's water and replace it with fresh water to reduce the cyanuric acid level. This test should be performed at the beginning of each pool season and twice during the season by Long Island Pool & Patio. Stabilized chlorine (di-chlor and tri-chlor) are chlorines mixed with isocyanurates (stabilizer) and will increase the cyanuric level over time.

Etching- Corrosion on the surface; the pitting or eating away of a material such as the surface of plaster (marcite).

Filter Agitation- Mechanical or manual movement to dislodge the filter aid and dirt from the filter element.

Filter Aid- A powder-like substance such as diatomaceous earth or volcanic ash used to coat the filter media and trap a finer particle.

Filter Cycle- The operating time between cleaning or backwash cycles.

Filter Medium- A finely graded material (such as sand, diatomaceous earth, polyester fabric, anthracite, etc.) that removes solid particles from water.

Filter Sand- A hard, silica-like substance free of carbonates or other foreign material used as the medium in sand filters.

Filtration- The process of capturing suspended particles and clarifying water.

Flocculant (floc)- A chemical substance (Alum) or compound that promotes the combination, agglomeration or coagulation of suspended particles in water.

Free Chlorine- A measurement of the available disinfectant (hypochlorous acid) remaining in the water to kill bacteria, algae and other contaminants found in the water.

Hardness/Calcium Hardness/Water Hardness- A measure of the amount of calcium and magnesium in your water.

Hydrogen Peroxide- A compound of hydrogen and oxygen used as an oxidizer to shock pools treated with a biguanide program.

Hypochlorous Acid (HOCl)- The active form that kills algae and bacteria in your pool. The most powerful disinfecting form of chlorine in water.

Mineralizer (or Mineral Purifier)- Used to treat the water with minerals such as silver, copper and zinc. Available in a variety of cartridge forms, it significantly reduces the need for sanitizer by trapping and assisting in killing bacteria.

Organic Matter- In a pool, material introduced to the water by users and the environment such as perspiration, urine, saliva, suntan oil, cosmetics, lotions, dead skin, and similar debris.

Organism- Plant or animal life. Usually refers to algae or bacteria-like growth in pool water.

OTO (Orthotolidine)- A colorless reagent used in liquid test kits. OTO reacts with chlorine or bromine to produce a series of yellow to orange colors, indicating the amount of chlorine or bromine in water. Effectively measures Total Chlorine NOT Free Chlorine

Oxidizer- A disinfectant that works to eliminate irritating organic compounds from pool water.

Ozone- A gaseous molecule composed of three oxygen atoms, generated on site and used for the oxidation of water contaminants.

Ozonator- A device that generates Ozone (a special form of oxygen) that kills bacteria an algae spores. The resulting material and microscopic debris is then "burned up" (oxidized) for removal by the pool filter.

pH- A measure of acidity and alkalinity of pool water. If the pH level is high (alkaline), it will cause eye and skin irritation, cloudy water and scale formation. Chlorine and filter efficiency will decrease. If pH is too low (acidic), it will cause eye and skin irritation, a breakdown of total alkalinity, and corrosion of metal. Acceptable levels are 7.2-7.8, with an ideal reading of 7.6.

PPB- Part per billion, the measure of a chemical's concentration in your water (this measure is usually used when testing for phosphates.

PPM- Part per million, the measure of a chemical's concentration in your water.

Precipitate- A solid material that is forced out of a solution by some chemical reaction and settles out or remains as a haze in suspension (turbidity).

Priming- Refers to evacuating the air; in a pump strainer housing you can manually prime the pump by filling with water and quickly replacing the lid.

Pressure Gauge- A gauge that measures the amount of pressure built up within a closed container, such as a filter.

Salinity- The sodium chloride or salt content of water.

Saturation Index- A rating that indicates whether water will have a tendency to deposit calcium carbonate from a solution, or whether it will be potentially corrosive. Four factors are used in the computation: pH, total alkalinity, calcium hardness, and temperature. When correctly balanced, water will be neither scale-forming nor corrosive.

Scale- White, gray or brownish spots on surface or equipment caused by water that's out of balance.

Sequestering Agent- and sequestering agents are used to prevent mineral/metal precipitation (fall-out) by bonding minerals or metals in solution in the water to prevent staining, scaling or water discoloration.

Shock Treatment- The practice of adding significant amounts of an oxidizing chemical to water to destroy ammonia and nitrogenous and organic contaminants.

Stabilized Chlorinating Products- A chlorinating compound that contains cyanuric acid protecting the chlorine residual against the negative effects of the sun. Lasts up to 5 times longer than unstabilized chlorinating compounds.

Superchlorination or Shock- The practice of periodically adding an oxidizer to destroy chloramines and other undesirable compounds that builds in your pool water. Free Chlorine levels need to reach 10 ppm or higher for a minimum of 4 hours for a shock treatment to be effective. You should routinely shock your pool every 1-2 weeks with an increase in frequency during heavy bather loads, high heat or heavy rain. If water problems such as cloudy water or algae appear you will want to shock the water.

Total Alkalinity- The ability or capacity of water to resist change in pH, also know as the buffering capacity. Measured with a test kit and expressed as ppm.

Total Chlorine- The measurement of your water is a combination of chlorine in the form of chloramines (already used chlorine) and free available chlorine (unused chlorine).

Total Dissolved Solids (TDS)- A measure of the total amount of dissolved matter in water, e.g., calcium, magnesium, carbonates, bicarbonates, metallic compounds, etc.

Turbidity- A cloudy condition of water due to the presence of extremely fine particles in suspension that interfere with the passage of light.

Winterizing- The process of preparing a pool for freezing weather. Includes chemical treatment of the standing water, plus physical and chemical protection against freezing of the pool and its equipment.

Start Swimming and Enjoy Your Pool !

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We hope that you have found your Long Island Pool and Patio interactive pool manual to be an informative and useful tool as you learn about the care and maintenance of your swimming pool. We encourage you to reference this program often to find answers and advice for all of your pool care needs. Remember, if at anytime you have unanswered questions, the staff of Long Island Pool and Patio is only a phone call away.

If you have questions or concerns regarding warranties or product performance you can contact us at 631-698-4100 or by emailing: customerservice@lipoolandpatio.com

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