TRASOLINI

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Owner's Manual

"How to use, care, and maintain your luxury pool."

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Daily Maintenance

By now your pool should be full of water, circulating the initial chemicals added and heating.

Care of Your Pool's Interior:

It is important immediately after a new pool is put into operation that it must be brushed and vacuumed every day for at least 30 days.

Water level in the pool must be at least 1/2 way up on the tiles at all times. If the water level is allowed to drop, the marble plaster will be damaged.

Pool Water Chemistry:

Proper pool chemical treatment is very important. Daily testing and chemical applications to the pool water for chlorine and pH is necessary for the first 30 days or until you feel familiar with your test kit and chemical application. Instruction for use are supplied with the test kit or you can find the information here. Chlorine test must be done daily.

If you have an Ozonator, click here.

If you have an Ion System, click here.

Good pool water chemistry can prevent such problems as scaling, etching, and staining of the pool surfaces as well as control the growth of troublesome algae that can lead to costly cleanups. Application of chemicals other than chlorine and pH chemicals are required and you should familiarize yourself with a local chemical supplier such as Ideal Distributors Limited. They will provide a detailed test of your pool water and provide chemical application instructions. The chemical supplier will usually require a 16 oz. water sample of your pool water and you need to know how many litres of water in your pool from this table, or while online, try this calculator for U.S. gallons.

Weekly Maintenance

After the first month of use of your new pool, the interior plaster and tile must be brushed once a week, vigorously with the brush passing over all areas at the plaster and tile. The interior of the pool should be vacuumed weekly.

Care for Cleaning Equipment and Accessories:

Cleaning equipment should not be scattered around the pool area carelessly causing a safety hazard and exposing this equipment to weather conditions reducing it's life. When the vacuum hose is in use, it should not be dragged over the concrete, stepped on or punctured with anything. When not in use, the hose should be drained, rolled up and stored in a safe place away from the sun. When telescopic poles are not in use, they should be hung on provided hooks or placed where they cannot be run over or stepped on. The leaf skimmer tool should not be overloaded with leaves and should not be struck on any object to dislodge leaves and debris. All cleaning equipment and accessories should be stored inside out of the weather. Proper care of the pool cleaning equipment and accessories will make them last longer, saving you the cost for replacement.

Pool Water Chemistry:

Pool Water should be tested twice a week. Chemicals should be applied accordingly. See here.

Filter Backwash: - Click here to see schematic drawings.

1. Backwash filter when pressure is 3-5 lbs. higher than normal.
2. Turn off the pump.
3. Set the filter dial valve to the backwash setting.
4. Turn on the pump.
5. Leave pump on for not more than 3 minutes.
6. Turn off pump.
7. Set filter dial valve to the rinse setting.
8. Turn on the pump.
9. Leave the pump on for 30 seconds.
10. Turn off the pump.
11. Set filter dial valve to the filter setting.
12. Turn on the pump.
13. Check to see that gauges are normal.

Manually Vacuuming the Pool:

1. Attach swivel end of vacuum hose to vacuum head.
2. Attach vacuum head to telescopic pole and place vacuum head in deep end of pool.
3. Fill vacuum hose with pool water by pushing this head to it's very end.
4. Plug it's very end into the skimmer.
5. Close main drain valve in mechanical room for better vacuum suction. Click here for valve location.

After Pool Is Vacuumed:

1. Open main drain line in mechanical room.

2. Remove vacuum equipment.
3. Clean strainer (lint) pot. Click here for instructions.
4. Backwash filter. **See above.**

Monthly Maintenance

Deck Equipment - Pool handrails and ladders

Your deck equipment is generally constructed of stainless steel and requires monthly applications of metal cleaners and metal protectors. These may be purchased at your chemical supply house.

Pool Decks

Spraying down your decks once a month prevents excessive dirt blowing into the pool and prevents staining of your deck.

Pool Tile

Tile cleaning with tile cleaner may be required monthly. Some relatively insoluble suntan lotions and body oils from swimmers using the pool may build up on the tile at the water level. Your pool chemical supplier will have specially formulated product that will quickly clean the tile without effecting pool water chemistry.

Pool Water Chemistry

A sample of your pool water should be tested by your chemical supplier and the pool chemistry adjusted with the required chemicals. Click here for more details.

Clean Strainer Pot - Monthly - Click here for Schematics

1. Turn Off Pump.
2. Turn off main drain and skimmer valves.
3. Turn off return valve. (only if equipment is lower level than pool)
4. Open pump strainer pot lid, clean basket, replace basket, fill pot with water and replace lid. Hand tighten only.
5. Open the return valve. (only if equipment is lower level than pool)
6. Open the main drain and skimmer valves.
7. Turn pump on.
8. Check filter gauge to see that pressure is up to normal. (may take a few minutes)

Winter Months

It is important that you keep your chemicals balanced and the pool clean during the winter months to avoid stains and costly repairs later.

It is imperative that the water level of the pool be kept 1/2 way on the tile during the winter months. If the water is allowed to rise on the tile to the coping or cantilevered deck, the tile, coping and deck will be damaged by freezing and expansion. Damage caused by freezing because of improper water levels is not covered by any warranty. Do not put logs or other floating devices into the pool in freezing weather. They are not necessary and could cause damage to the interior of the pool.

In freezing weather, when the pool equipment is circulating freely, the pool is clean and the equipment is running smoothly, it is normally understood that there is no danger of freezing. However, on rare occasions a system has frozen up for no apparent reason, except by acts of nature. If you are concerned with freezing temperatures, turn your heater on and maintain pool water temperature above freezing. Follow the following instructions for winter operation:

1. Keep baskets clean.
2. Keep filter backwashed.
3. Maintain pool chemistry.
4. Drain all auxiliary pumps not continuously circulating by unscrewing the drain plug.
5. In case of electrical failure, drain filter and pump by unscrewing the drain plugs.

Care of the Pool Pump and Motor:

- Motor should be kept clean, dry, cool, and properly serviced.
- Leaves, paper, airborne lint, and other foreign objects should not be allowed to clog the screened air passages.
- Dirt should never be allowed to enter the motor, do not sweep around a RUNNING motor. Motor fans will suck dust and dirt into the motor which could damage it.
- Another danger problem is storing or spilling dry chemicals or other powdery materials near the motor. These could also be sucked into the ventilation opening or into the motor.
- The motor is a drip-proof motor, designed to withstand the hazards of rain, mist and fog. This does mean though, that it can be flooded or submerged in water.
- Avoid the motor and the area immediately adjacent to it when hosing down floors, deck and other equipment, and when watering lawns and plants.
- One pool practice that many people do unknowingly is to hose down the outside of the motor.

- Water can be picked up by the fan and blown back into the unit, shortening the life of the motor.
- Do not wrap the motor with airtight materials, such as plastic.
- In case of electrical failure during freezing weather, the filter system, pump and heater must be DRAINED or they will freeze and burst.

Turning Spa on Manually: - Click here for Schematics

1. Locate two 3-way black valves. One located on suction side of pump and on discharge side.
2. Turn handle on both valves to spa setting marked on pipe.
3. Switch toggle on heater to high temperature reading. Your spa is operating and heating.
4. After using the spa, turn handle on both valves to pool setting marked on pipe, and switch toggle back to low temperature reading.
5. Should only one black valve be mistakenly turned instead of both, you will experience overflow or draining of spa. Turn the valves to proper setting as described above.

Swimming Pool Heater:

To Light the Pilot:

1. Turn off switch for heater thermostat.
2. Turn main gas valve inside heater to off position. Leave in off position for two (2) minutes.
3. Turn main gas valve to pilot position and depress the valve and hold down.
4. Light the pilot. You can locate the pilot by following the small tube that runs from the main gas valve to where the heaters burners are located. At the end of this tube is the pilot head. When the pilot lights, continue to hold the main gas valve down for one (1) minute.
5. Switch the main gas valve to on position.
6. Switch on thermostat and turn up heat.

There is a considerable amount of condensation that drips from the heater when the pool water temperature is below 75° F. This is normal.

The pool heaters thermostat has an accuracy of ± 4° F. maximum temperature is normally preset at 102° F.

If the Heater Quits Working:

1. Check the pilot to see if it is on. Wind or breeze may blow pilot out.
2. Check the gas valve, make sure it is on and gas pressure is available.
3. Backwash the filter to make sure it is clean. Build up of residue in the filter can drop pressure in heater which shuts it off.
4. Make sure the pool pump is on and running.
5. Be sure that the bypass valve in pool piping is not opened too much.

Symptoms/Solutions to Common Pool Problems

- **If motor stops running:**
    - Check switch and circuit breakers
- **If heater is not working:**
    - Check pilot light. Check filter pressure gauge (backwash if needed). Check thermostat wiring.
- **If underwater light goes out:**
    - Check switch and circuit breaker. Change bulb.
- **If skimmer stops working:**
    - Check water level of pool. (Water should be halfway up the skimmer opening).
- **If pump runs but will not move water:**
    - Pump may have lost it's "prime." With pump motor off, prime pump by removing lid from pump strainer. Fill strainer with water from garden hose until pot is full. (Note: If gate valve has been installed on pump suction line, close before filling pot.) When pot is full, replace strainer pot lid and tighten securely. Place valve in backwash position (open gate on suction line, if system is so equipped) and turn pump on. When water begins to run freely, turn pump off, place valve in filter position and turn pump back on.
- **If water is clean but lacks "sparkle":**
    - Test water and consult chemical instructions.
- **If water looks green:**
    - You have an extreme algae condition. Put in a heavy "dose" of chlorine. When blue color begins to return, test water and get pH and chlorine back in balance. Take a sample of your water to your pool chemical supply company for water analysis.

Pool Chemistry:

The previously mentioned equipment and procedures should keep your pool free of most solid particles that could make it unsightly. However there are contaminants constantly being introduced into the water that can be controlled only with chemistry.

Even though your water is almost completely free of dirt and other solid particles, it will not have the crystal clear sparkle you want unless the chemical balance is correct.

You do not have to become a chemist to keep your pool pure and clear, but you do have to learn a few basic facts.

Your Test Kit Is Your Best Friend

The test kit that you get with your swimming pool is simple to use and it tells you almost all you need to know about the chemistry of your water. Use it frequently and you will enjoy your pool more.

The test kit measures the two main things that you must keep under control:

1. The chlorine content of the water.
2. The pH of the water.

To Use the Test Kit:

1. Fill tube to top line.
2. Add 5 drops of phenol red test reagent.
3. Compare color in tube with pH standards on the right.

To raise the pH add one unit or 1 pound of soda ash for each 10,000 gallons of water. Distribute directly into the deep end of the pool. Allow the water to recirculate 2 to 3 hours before re-checking the pH, then repeat the treatment only if the test shows it is necessary. Click here for a table to show your gallonage, or click here for a calculator in U.S. gallons.

CAUTION: Never swim for at least 15 minutes after adding Muriatic Acid to the pool.

What Is "pH"?

An oversimplified definition of pH is, "the degree of balance between acid and content of alkalinity of the water." What it means to the pool owner is that he must occasionally add chemicals to raise or lower the ratio to keep his pool in perfect condition. Your test kit will give

you a pH "reading" that makes it easy to know whether the pH is correct and what to do about it even without fully understanding the fine points of the chemistry involved.

Maintaining proper pH is one of the most important and most often neglected swimming pool operations. Improper levels can cause cloudy water, staining, etching, scaling of the pools' plaster, discoloured water, excessive eye irritation, and corrosion of metal accessories such as pumps, ladders, grab rails, etc. It can even damage your equipment and prevent chlorine from working, thus increasing the cost of chemicals more than necessary.

Poolside Testing

The pH is normally maintained at 7.4 to 76. An exception would be where natural water contains some mineral imbalance. In such cases, it might be advisable to vary the pH slightly to compensate for this condition. Your professional service company should be consulted for this advice.

A phenomenon of new or newly plastered pools is an unusually high pH for the first few weeks of operation. This is caused by an "alkaline bleed-off" from the plaster and you should expect to experience some temporary difficulty in maintaining pH during the "curing" period.

The pH will be relatively stable when the chemicals recommended with this program are used, provided the pool water is properly balanced. The test kit will indicate whether to lower or raise the pH in order to stay in the desired range. The most common need is to lower it.

Chlorine

Chlorine is a sanitizing agent that is available in a variety of forms. It can be obtained as a gas (100%), as the liquid sodium hypochlorite (5-15%), and in various forms such as calcium hypochlorite (65%), lithium hypochlorite (30%), dichloroisocyanurate (55-65%) and trichlor isocyanate (80-90%). The most common chlorine you will use is trichloroisocyanurate "pucks". When any of the chlorine products are dissolved in water, hypochlorous acid (HOCL) and hypochlorite ion (OCI) are formed.

Hypochlorous acid is an excellent sanitizing compound that is responsible for the majority of the sanitizing power that we associate with chlorine. Conversely, chlorine in the form of the hypochlorite ion is not a good disinfectant and does not actively contribute in the purification process. The amount of hypochlorous acid and hypochlorite ion that is produced when chlorine is added to the water is directly related to the pH of that solution. This relationship is illustrated below.

At pH 7.0, 75% of the chlorine exists in the active hypochlorous acid form. Increasing pH to 8.0 reduces the active hypochlorous acid concentration to only 25%. The term "free active chlorine" is given to both hypochlorous acid and hypochlorite ion. However, in pool and hot tub chemistry, we generally restrict the use of this term to represent only that chlorine which is in the form of

hypochlorous acid. This is the form that disinfects and at normal concentrations it cannot be detected by taste or smell, nor will it cause eye irritation.

When free active chlorine reacts with ammonia, organic nitrogen compounds and other contaminants in the water, a class of combined chlorine compounds are formed. These combined forms are known as chloramines. The chloramines do not exhibit any substantial sanitizing power and are actually the cause of some unpleasant problems. They are known to be responsible for eye and mucous membrane irritation and also the source of chlorine odours. As a result of these qualities, chloramines should be removed from the water when they have reached a level of .3ppm or more. The accepted method for removal is known as "breakpoint chlorination or "shocking". it is achieved by introducing ten times the combined chlorine content in the form of free available chlorine to the water. This large concentration of free chlorine will eliminate the combined chlorine and leave behind a residual that is in the form of free active chlorine.

Testing the chlorine level plays an important role in the maintenance of pool and hot tub water. It is also imperative that the method used for testing be able to distinguish between free active chlorine and combined chlorine. This is easily accomplished by using the DPD (N,N-diethyl-p-phenylenediamine) method used in test kits. Addition of two liquid reagents to a sample of water containing chlorine results in a colour that indicates only free active chlorine. It is matched to a permanent colour standard and the concentration is recorded. Subsequent addition of a third liquid reagent to the same water sample produces a colour indicative of the total chlorine concentration and is matched the same way. Thus, the chloramine or combined chlorine content is calculated simply by subtracting the free chlorine value from the total chlorine value.

Bromine

Bromine is another sanitizing agent that can be used in the purification of water. it is available in a solid stick form, bromochloro-5.5 dimethylhydantoin, which contains 66% bromine, and 30% chlorine. It can also be obtained as a salt, sodium bromide, which is dissolved in water and converted to free bromine by the addition of an oxidizing agent such as potassium mono-persulfate.

When bromine is used as a disinfectant, the water chemistry of the bromine compounds differ from that of their analogous chlorine compounds. The forms of free bromine are hypobromous acid (HOBr), which is a very active disinfectant, and hypobromite ion (OBr), which is considered to be relatively inert.

At pH 7.0, 98% of the bromine exists in the active hypobromous acid form, while increasing pH to 8.0 reduces this percentage to 83%. In the pH range used for pools and hot tubs, the active form of bromine is not as pH dependent as the active form of chlorine.

Free bromine is a term which represents bromine in the form of hypobromous acid. When free bromine reacts with contaminants in the water, combined bromine compounds called bromamines are formed. A striking difference between bromamines and chloramines is that bromamines are good disinfectants that exhibit activity similar to hypobromous acid

Bromine can also be tested by using the DPD method but the testing procedure is slightly different from that used for chlorine. Since free bromine and combined bromine are active disinfectants, there is no need to distinguish between the two forms. The addition of two liquid DPD reagents to a water sample containing bromine indicates both the free and combined forms and is representative of the total bromine concentration.

Stabilized Chlorine

Dissolving chlorine in water makes it unstable and subject to decomposition by ultraviolet light. It has been found that cyanuric acid forms a loose compound with chlorine that inhibits the ultraviolet reaction without affecting the germicidal activity of chlorine. Cyanuric acid can be applied to pools, hot tubs and spas as the free acid, the sodium salt of the free acid and as sodium dichloroisocyanurate or trichlorocyanuric.

The use of cyanuric acid in public pools and spas is regulated in many provinces. Some provinces prohibit it's use and other regulate it at a limit of 100 ppm while the manufacturers recommend a level from 30 to 75 ppm. Some health departments suggest that when cyanuric acid is used, the chlorine level should be increased.

The test for cyanuric acid is based on the fact that it reacts with melamine to form an insoluble but suspended product that makes the solution cloudy. This turbidity is an index of the cyanuric acid content and the cyanuric acid level is estimated by pouring the cloudy solution into a calibrated tube until a black dot at the bottom of the tube is no longer visible.

pH

pH is an essential factor in proper water balance. It can be described as a measure of the acid activity in the water and is controlled by the concentration of the hydrogen ion [h+]. The pH scale runs from 0 - 14 with a pH of 7 being neutral. As the pH increases from 7 up to 14 the water becomes more alkaline. As the pH decreases from 7 down to 0 the water becomes more acid. The control of pH is important because it affects bather comfort, sanitizer level and overall water balance.

The pH can fluctuate for a variety of reasons and various sanitizers have different effects upon the pH. Below is an indication of how some sanitizers can influence the pH.

- Gas chlorine - pH decrease
- Liquid chlorine - pH increase
- Calcium hypochlorite - pH increase
- Lithium hypochlorite - pH increase (slight)

- Dichloro compounds - pH decrease (slight)
- Trichloro compounds - pH decrease
- Stick bromine - pH decrease (slight)
- Salt bromine/oxidizer - pH decrease (slight)
- Iodine - pH decrease (slight)

pH should be monitored often and frequent testing is a necessity. Kits for colourimetric pH determination contain permanent colour standards and indicators that contain inhibitors to prevent halogen interference. Most kits also supply reagents to perform acid and base demand tests.

Calcium Hardness

Originally the term hardness referred to the ability of water to lather with soap. There are two principal types of hardness in water, calcium and magnesium. We need only concern ourselves with the contribution of calcium hardness as it applies to the concepts of water balance. It is an integral part of water balance and is discussed in that section.

Methods of lower calcium hardness in pools and hot tubs are difficult, but are frequently accomplished by dilution. Increasing the amount of calcium hardness is easily done by adding calcium chloride. When testing calcium hardness the EDTA (ethylenediaminetetraacetic acid, a chelating agent) method is the method of choice because it is simple, rapid and accurate. Test kits employ this method.

In swimming pools it is important to maintain a balance of calcium between the water and the surrounding pool areas. ie: pool walls.

Total Alkalinity

Total Alkalinity is a measure of water's ability to neutralize acid. In swimming pool, hot tubs and spas, alkalinity is usually due to the carbonate content, although phosphates, silicates and cyanurates, if present, will contribute. Since carbonates are buffers, the alkalinity of the water is a measure of its ability to resist pH change. Total Alkalinity is important in water balance calculations.

It is often necessary to adjust total alkalinity for proper water balance. it is increased by the addition of sodium bicarbonate (baking soda) and decreased by adding acid to the water (sodium bisulfate or muriatic acid).

Total Alkalinity is measured by performing a simple acid-based titration. A measured sample of water is titrated with a standard acid solution and the endpoint is indicated by a colour change using a total alkalinity indicator.

Water Balance

One might be led to believe that if he controls the pH and sanitizer (chlorine or bromine) level in the water, that he need do nothing more. This is true in some cases but when problems develop such as cloudiness, scaling or corrosion, one must look further into water chemistry. Some years ago Dr. Wilfred Langlier of the University of Southern California developed a relatively simple formula for calculating what we call water balance. By using data for the solubility product of calcium carbonate at various temperatures, he derived an equation as follows:

SI = TF + log CH + log TA + pH - 12.5

SI stands for saturation index, TF is a temperature factor, CH is calcium hardness, and TA is total alkalinity. When the appropriate figures are entered into the equation, the value of the saturation index tells us if the water is in balance. If the value is found to equal zero, the water is in perfect balance. If the value is found to vary from zero by plus or minus 0.3 pH units, the water requires attention. if the variation is +0.5, cloudiness and scaling of water will result. If the variation is -0.5, corrosion of concrete surfaces and possible metals will result. Since the Langlier Index was calculated using the solubility product of calcium carbonate it can be said that corrosion refers only to the corrosion of concrete surfaces which usually contain calcium in some form. However, when water is in balance at room temperature it can be rendered seriously out of balance when heated as in a pool, hot tub or spa. This could result in the deposition of a film of calcium carbonate on the inside surface of the heater tubes. Some would call this a protective layer, others would call it an insulating layer interfering with the efficiency of the heater. When this layer is removed by water that is out of balance in the corrosive mode, the metal loses its protective coating and corrosion could result. Water balance in a heated environment merits serious attention.

To determine if your water is in balance, one need only test for pH, calcium hardness and total alkalinity with a suitable test kit and calculate the pH of saturation. Your chemical supplier often provides testing for you and will instruct you on these chemical applications.

Proper Testing

- Accurate and reliable test results are easy to achieve. Below is a list of reminders to insure that your testing is consistent and maintains a high level of accuracy.
- Always follow the test kit manufacturers instructions. Different manufacturers may use different reagents or procedures for the same test.
- Give special attention to the amounts of reagents used in tests and if there is a time requirement in a test procedure, be sure to wait the specified interval.
- Clean all equipment thoroughly between tests. This is especially true of any test cells used.
- Be informed about reagent shelf life and proper storage conditions.
- Always use fresh reagents.

- Use sunlight or properly filtered artificial light for colour matching.
- When performing drop tests, hold the dropper bottle vertically and swirl the sample tube between drops.
- In obtaining samples for testing. be consistent. A good sample should be taken away from return water inlets about two feet below surface. In large pools it is recommended to sample and test both shallow and deep ends.

Common Chemistry Problems

Water may become coloured due to algae growth. Some algae gives the water a greenish tint, while black algae usually grows to produce spots. A chlorine shock will oftentimes remove algae, but if the problem is persistent, draining and scrubbing the pool with acid may be necessary. Algaecides such as quaternary ammonium compounds or copper based solutions are also used to fight algae.

Iron, depending on the oxidation state, may be green, brown or red. Copper is blue or blue-green and manganese is brown or black. if these metals are present in sufficient amount, they will cause problems. Test kits are available to measure the presence of these metals. Treatment usually consists of chlorine shock or alum flocculation to remove these metals. There are also sequestering products available which will keep the metals tied-up and prevent them from staining.

Cloudy water may be caused by unbalanced water with a positive saturation index with either pH, hardness and alkalinity, or all being high.

Occasionally, high chloramine levels have caused cloudiness and high total dissolved solids can also be blamed for cloudy water. Filtration problems can also be a cause.

Chlorine odours and eye burn can usually be traced to high chloramine levels. Superchlorination will relieve this type of situation.

Final Message

IF YOU ARE NOT SURE, **PLEASE CALL!**

We would love to hear from you!

THANK YOU!

Ed Trasolini