



HOW-TO BOOKLET #3090 POOL & SPA CARE



TOOLS & MATERIALS CHECKLIST

- Testing Kit
- Wall Brush
- Pumice Stone
- Vacuum
- Plastic Funnel
- 2-1 Gallon Plastic Jugs
- Leaf Skimmer
- Leaf Rake
- Tile Brush
- Chemicals
- Plastic Measuring Cups and Spoons
- Telescopic Pole

Read This Entire How-To Booklet For Specific Tools and Materials Not Noted In The Basics Listed Above.

CARE AND MAINTENANCE

Your pool, spa or hot tub is as reliable as the care and maintenance that you provide them.

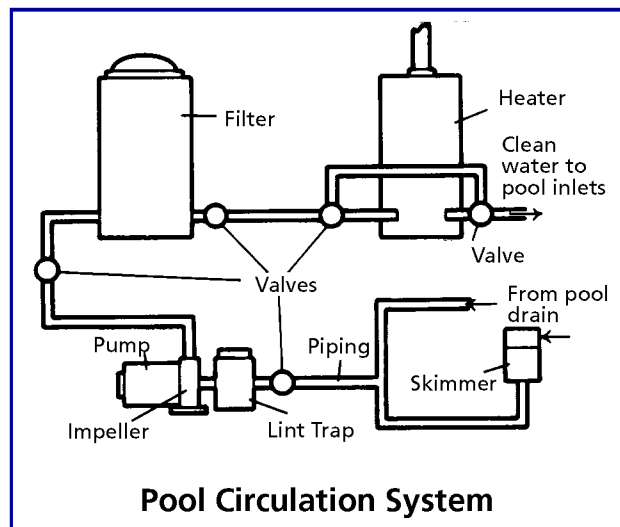
A weekly routine of simple maintenance with periodic cleanings will provide you with years of satisfactory use.

Successful maintenance depends on:

- 🏠 An effective and properly working filtration system
- 🏠 Chemicals to control bacteria, minerals and PH
- 🏠 Manual cleaning of all surfaces

INITIAL USE

- 1 Pool/spa must be thoroughly cleaned before filling with water. Vacuum dirt and wipe away oils and grime with specified cleaners. On acrylic, vinyl and fiber glass, follow the manufacturer's specifications for cleaning methods and agents.
- 2 To fill a spa/hot tub, cover hose-end with a clean towel. This prevents damage to the surface and filters out dirt/residue before entering the spa/hot tub.



3 Check the mineral balance. Imbalanced water is difficult to sanitize, wastes chemicals, and requires more manual cleaning efforts. Some dealers offer a mineral test as a special service to their customers. Make sure that they also test for WATER HARDNESS at the same time. You want to achieve balanced water at the start of each season.

OPTION: Take a quart of pool/spa water into a dealer for testing; make sure the water has been filtered for at least 3 hours. Take the sample away from water inlets or return lines, and at least 20" below the surface. Once tested, the dealer can recommend specific chemicals and combinations to you.

4 Inspect the system daily. Start with the first stage of the system; probably the skimmer. Clean the skimmer of leaves and debris before use.

5 Clean the lint trap, following the manufacturers instructions. Some lint traps need to be flushed.

6 Inspect the filter and record the initial pressure on the gauge. When the pressure drops 6 or more p.s.i., the filter may need to

be cleaned or replaced. Weekly backwashing during heavy use is considered normal.

NOTE: The filter system should be serviced annually.

FILTERING CYCLES

Filtering efficiency depends on continuous operation measured in terms of water turnover.

The optimum daily turnover rate is 3 times for pools and 6 times for spas. DO NOT stretch cycles; from 8 to 12 hours for example.

Optimum turnover removes up to 95% of suspended contaminants. The more you remove by filtering the less cleaning and chemicals are needed.

PUMPS & HEATERS

1 Daily inspect for any signs of oil or water, indicating a broken seal. Also listen for any unusual noises that indicate a need for service.

NOTE: Log all inspections, service, etc.

2 Check the strainer and lint trap to the pump.

NOTE: TURN OFF PUMP BEFORE REMOVING THE COVER.

3 Clean the strainer and trap, if needed. Lubricate gaskets and seals with the recommended lubricants to insure a good seal.

NOTE: REFILL THE PUMP WITH WATER BEFORE STARTING.

4 Vacuum and clean the pool and deck every third day. This removes dirt that can clog skimmers and filters, which are designed to remove the smaller particles from the water.

5 Monitor the water flow to heaters. Log daily the flow meters, and open the bleeder valves weekly to remove the line residue.

NOTE: Some heaters require the removal of the flow line in order to clean the line. Refer to the directions before doing so.

TOUBLESHOOTING WATER PROBLEMS

Symptom	Cause	Remedy
White cloudy water	High pH	Add Sodium Bisulfate
	Hard Water	Use De-ironizer
	Algae Growth	Super Chlorinate
	Combined Chlorine	"
Yellow or Green	Dissolved Organics	"
Dark Green, Murky	Algae	"
Yellow, Brown, Green		Manganese Remover

6 Check periodically the working level of the thermostat and/or pressure switch. Both can and will eventually fail. Refer to your specifications on how to check and adjust them.

7 Hose off solar panels weekly to insure that enough sunlight penetrates the panels. Check for leaks and needed repairs when washing.

TESTING-ADJUSTING WATER

NOTE: pH is the acid-alkaline balance of water.

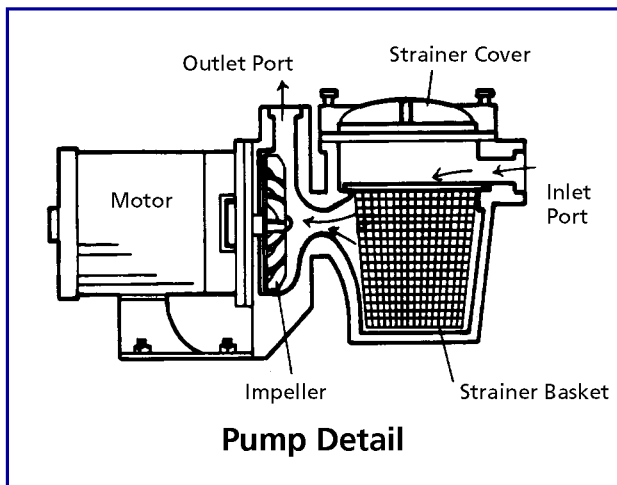
1 Look at the water to determine if there is high or low pH balances; white cloudy or murky, for example.

2 Measure the pH level with your test kit. Make sure the filter has run at least 3 hours before testing, and before you add any chemicals.

NOTE: The pH should fall between 7.0 and 7.7; below it is too ACIDIC, above is too ALKALINE. MAKE NO ADJUSTMENTS YET.

3 Measure the amount of free chlorine. This is measured in "ppm"; parts per million. The range of free chlorine is between 1.0 and 1.5 ppm. You should not use a pool/spa when the free chlorine is 2.5 ppm or greater. (Free chlorine is the amount of chlorine ready to attack bacteria.)

4 Adjust the chlorine and/or pH levels by adding the needed chemicals to the water as per your testing kit's instructions.



NOTE: NEVER ADD WATER TO ACIDS; POUR THEM INTO THE WATER.

5 Retest the pH balance and free chlorine levels after the water is filtered 1 hour or longer.

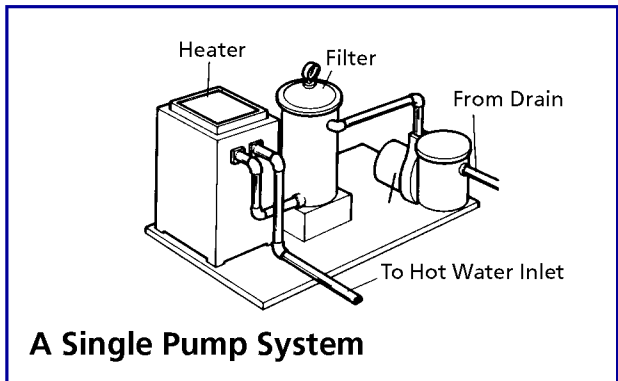
NOTE: Never allow swimmers into a pool/spa that has free chlorine over 2.5 ppm, or a pH below 7.0 or above 8.0 **FOR SAFETY'S SAKE.**

6 Check the alkalinity of the water every other test cycle, or if wide fluctuations of pH balances are recorded. This is the water's ability to maintain the pH balance; when the alkalinity is about 120 ppm, or according to directions.

7 Next check the stabilization level for outdoor pools/spas, when you check the alkaline level. Sunlight causes chlorine to escape water, and cyanurates stabilize it with cyanuric acid.

NOTE: WHEN CYANURATES ARE BETWEEN 25-90 PPM, FREE CHLORINE BETWEEN 1.0-1.5 PPM, pH BETWEEN 7.0-7.7 AND ALKALINITY IS ABOUT 120 PPM, YOUR POOL/SPA WATER IS CONSIDERED TO BE BALANCED; THE BEST COMBINATION OF CHEMICALS FOR CLEAN AND SPARKLING WATER.

8 Check the water hardness once per month. You checked this when initially filling your pool/spa; keep it between 100-200 ppm.



A Single Pump System

SUPER CHLORINATING

Pools are left filled so an occasional **SUPER CHLORINATING** is an excellent way to maintain a clean and healthy pool. Only super chlorinate during a period of non-use. Several days may pass before the chlorine levels drop to levels of 2.5 ppm or lower so the pool can be used.

1 Super chlorinate after heavy use, once per week, or by determining the chlorine requirement on your own. A sample method to calculate for the requirement is as follows:

- A. MEASURE THE FREE CHLORINE
- B. DETERMINE TOTAL CHLORINE FROM LOG
- C. DIVIDE FREE CHLORINE BY TOTAL CHLORINE
- D. MULTIPLY PRODUCT BY 100
- E. NUMBER = % OF FREE CHLORINE
- F. IF FREE CHLORINE MORE THAN 50%, THE POOL IS OK.
- G. IF FREE CHLORINE LESS THAN 50%, SUPER CHLORINATE WATER.

NOTE: Measure the chlorine levels before the day's use.

2 Super chlorinate after the sun has set for outdoor pools, and during a period of non-use for indoor and outdoor spas. Add chlorine until the free chlorine levels are ten times normal levels; or about 10 ppm.

3 Allow the water to reduce to 2.5 ppm or less before re-entering the water.

SPAS AND HOT TUBS

Spas and hot tubs need special considerations beyond those given to pools. Their use is up to ten times as much as a pool. More people in less water, higher temperatures and active jets all contribute to the growth of bacteria.

NOTE: Each manufacturer has specific operating level for each spa/tub; **FOLLOW THE INSTRUCTIONS.**

1 Clean your spa at least twice per year. Hot tubs require cleaning at least 4 times per year. Drain and clean using the recommended agents for your spa/tub.

NOTE: DO NOT LET A WOOD HOT TUB STAND EMPTY FOR LONG PERIODS. This causes the wood to shrink and crack. Keep it partially filled as a precaution.

4 Oil the outside of a hot tub after cleaning. High temperatures cause the wood tannins to leach out of the wood.

NOTE: DO NOT OIL THE INSIDE! The wood must be porous in order to absorb water to seal.

5 Refill the spa/tub and check the chemical balance of the water.

NOTE: New hot tubs may have discolored water from tannins leaching into the water. This dark color is not harmful and eventually dissipates.

6 Monitor the water balance during use as outlined here and in your owner's manual.

NOTE: NEVER SUPERCHLORINATE A HOT TUB! It can cause the wood fibers to break down and rot. The extra cleaning and scrubbing will keep the tub clean.

Remember that hot tubs need to breathe. The bottom and sides of a tub should have at least a 1/4" air gap to breathe and to expand/contract. Follow the manufacturer's specifications.

USING CHEMICALS

Kits are available to work with chemicals. You can dilute and mix most chemicals with: 1-gallon plastic jugs; plastic funnel; plastic measuring spoons and cups; rubber gloves; face and eye protection; pail; fresh water source.

CHLORINE is available in gas, solids or liquids. The safest form is dry powder or tablets, gas is very dangerous and is used in large public pools.

HYDROCHLORIC ACID AND CALCIUM HYDROXIDE are used to maintain the pH balances. Wear gloves and eye/face protection!

NOTE: Chlorine and water form hypochlorous acid which is the primary disinfectant in the water.

SODIUM BISULFATE AND HYDROCHLORIC ACID are used to **LOWER** the pH balances.

NOTE: NEVER POUR WATER INTO ACIDS!
SODA ASH is used to **INCREASE** the pH balance. **LIME** also increases pH, and may leach into water from concrete walls and floors.

SODIUM BICARBONATE increases alkalinity.

CHLOROMINES are the result of low free **CHLORINE**. They irritate the eyes and nose and smell like there is too much chlorine in the water, when the opposite is true.

CYANURIC ACID stabilizes chlorine outdoors.

BROMINE can be used instead of chlorine to treat water. It is more stable in higher temperatures and may cause less irritation to some people.

Whenever adding chemicals to adjust the disinfectant level of your pool/spa, allow the chemicals to circulate through the filter system before using. This may take several hours depending on your system's turnover rate.

OFF-SEASON CARE

The best time to inspect every aspect of your pool/spa is at the end of each season. Review your log to note problems encountered, your supplies level, and the repairs needed before re-opening.

- 1 Maintain a log book to record your tests, methods, problems, and material uses. It will help you manage expenses and prevent or correct problems.
- 2 Plan on spending the time at the end of each season to make the pool ready for the follow season.
- 3 You may wish to drain, clean and partially refill the pool to prevent freeze damage in colder regions. Super chlorinate the refilled pool.

NOTE: A PARTIALLY FILLED POOL IS DANGEROUS BECAUSE SOMEONE MAY FALL IN; TAKE PRECAUTIONS TO PREVENT ACCIDENTS!

- 4 Check all pumps, motors and lines to see that they are drained, and cover to protect.

NOTE: COVERS SHOULD NOT PROMOTE SWEATING, TRAPPED WATER SWELLS WHEN FROZEN, BREAKING SEALS AND LINES.

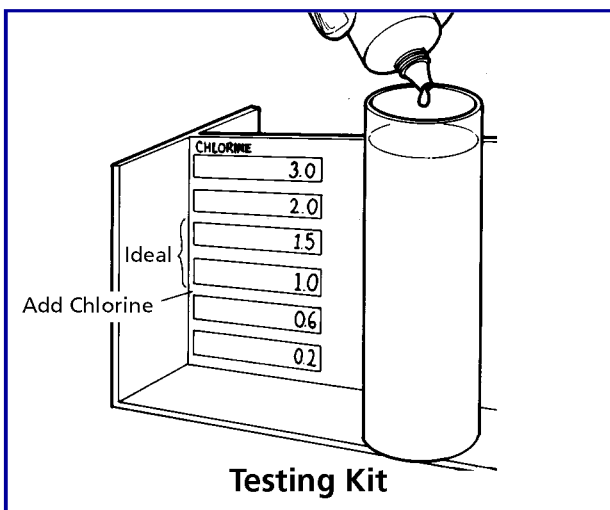
- 5 Clean all filters and store in a clean and dry area.



Diatomaceous Earth (DE) Filter

- 6 Lubricate all valves and leave partly open for drainage. Loosen all heads and flanges as well.
- 7 Clean and paint any surfaces that need it. Pool paints take a long time to cure so paint it now to let cure over the winter.

NOTE: Any paint job is only as good as the surface preparation. Follow the paint directions and clean all surfaces to the paint specifications.



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