

# SOLAR-BREEZE

Intelligent Robotic Solar Powered Pool Skimmer



## Owner's Manual

# THE SOLAR-BREEZE

"The Solar Solution to Swimming Pool Maintenance"

This intelligent robotic pool skimmer is intended for use only in well-maintained private swimming pools, and only where the owners have control of persons entering the swimming pool area. The warranty covers more public applications (hotels, public pools etc.) only if the unit is removed from the pool during times of public use. The Solar-Breeze will charge in the sun even when it is turned off. It may then be placed back into the pool to operate for several hours when swimmers are not in the pool.

## IMPORTANT: (Before Starting)

- Read all instructions carefully before using the Solar-Breeze, in particular, about allowing the sun to charge the unit's batteries BEFORE use. It is a SOLAR powered unit, and requires direct sunlight.
- Register the purchase of this product online at: ( [www.solar-breeze.com](http://www.solar-breeze.com) ) This is the preferred method. OR, fill out and Return the Consumer Product Ownership Registration Card included in the mailing box.
- The Consumer Product Ownership Registration **MUST** be completed online, or with the mail in form **WITHIN 10 DAYS** in order to **ACTIVATE THE WARRANTY!**
- A **PRODUCT REGISTRATION NUMBER** will be given at the time of registration (online) or by a return postcard, if registering by mail. Record that number **HERE** \_\_\_\_\_, and make sure you do not lose it, as it is necessary for future warranty service!
- The Solar-Breeze **MUST** be returned in its **original package** for warranty service, Therefore do not discard the package. (It also allows safer storage of the unit.)

## Staple Sales receipt

(Needed to register unit and obtain Product Registration Number)

**HERE:**

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## SAFETY Warnings:

- DO NOT SWIM while the Solar-Breeze is on the pool surface. The unit must be removed from the water during swimming or when children are present.
- DIVING, with the Solar-Breeze in the water may injure humans, if their head or hands strike the moving skimmer. Diving may also incidentally swamp or submerge the Solar-Breeze, damage its electronics, and VOID THE WARRANTY.
- SWIMMING or floating on the pool with long hair floating on the pool surface is a SPECIAL HAZARD, since the Solar-Breeze is specifically designed to skim floating hair, and may sneak up behind a swimmer and entangle their long hair in its Paddlewheels. This could create a DROWNING HAZARD with young children or poor swimmers.
- ALWAYS watch CHILDREN around water. They can slip into the pool and drown in seconds. The Solar-Breeze looks like a very fascinating pool toy that could lure children into the swimming pool when no one is looking.
- Pool Chlorine tablets can burn skin and eyes, and damage fabric and surfaces. When using the pool Chemical Dispenser of the Solar-Breeze, keep children out of the swimming pool area, and take extreme precautions to not touch the chlorine tablets, or touch water that has just dripped off of the tablets, or sitting in or placing towels or garments in chlorine saturated water.
- Solid pool chlorine tablets combined with any liquid or solid capable of burning, can create an EXPLOSION, or trigger an intense fire by SPONTANEOUS COMBUSTION. Dry chlorine tablets must NEVER be stored in the unit, and flammable materials must NEVER be used to clean the unit.
- Chlorine in the unit IS NOT COMPATIBLE WITH OTHER CLEANING CHEMICALS, particularly those containing AMMONIA. Either remove the Chemical Dispenser or empty and clean it of all chemicals before using window cleaners OR ANY OTHER CLEANING CHEMICAL on the Solar-Breeze.
- Chlorine (or bromine) pool sanitizers MUST be in the form of two 3" SOLID (JUMBO) TABLETS of commercially available products. Placing liquid, powdered, or granular chlorine in the Chemical Dispenser creates conditions of extreme HAZARD, can produce chemical burns, and will VOID THE WARRANTY. The ONLY granular products allowed are small quantities of pool "clarifiers" not containing chlorine. And it is recommended that they not be mixed with any other chemicals when placed in the Chemical Dispenser. (See Advanced Pool Care section)

## GENERAL Warnings:

- The Solar-Breeze IS NOT A POOL TOY, and can be damaged by being submerged, roughly treated, or struck by larger automated swimming pool cleaners.
- Do not USE OTHER AUTOMATED POOL CLEANERS while the Solar-Breeze is on the pool surface. Automated Pool Vacuums can come to the surface, capsize the Solar-Breeze (and VOID the WARRANTY). Also, when they operate, they tend to sink the thin floating film of dust and debris that the Solar-Breeze is designed to skim off the surface. Remove the Solar-Breeze from the water during ANY other pool cleaning activities.
- Storage batteries MAY arrive discharged or only partly charged. The Solar-Breeze must be placed in direct sun for an entire day to fully charge the batteries before use, otherwise disappointing performance may result.
- DO NOT SUBMERGE the Solar-Breeze, aim a garden hose at the main body of the unit, or otherwise immerse its motors and electronics under water. Water inside of motors or electronics will VOID THE WARRANTY. It is designed to tolerate rain, passing under small pool waterfalls, and other GENTLY FALLING water, but not to be pushed underwater, or hit with a higher-pressure spray of water from a hose. It contains electronics, and should be treated like an electrical device, not a pool toy.
- REMOVE the Solar-Breeze from the pool during SWIMMING ACTIVITIES, POOL CLEANING, and during VIOLENT WEATHER. Abnormally violent weather, such as torrential rains, hail, sleet, and winds above gale force, any snow, or any weather sufficiently cold to freeze water, are each capable of damaging the unit. Light rains and normal winds will not harm the Solar-Breeze.

## WARRANTY WILL BE VOID IF:

- Solar-Breeze motor and electronics are submerged, or if the unit is used to carry weight which causes it to ride abnormally low in the water so as to submerge motors or electronics, or if the entire unit is sprayed with high pressure water from a hose. Water inside of motor and electronics shall be taken as evidence of mistreatment of the unit.
- Solar-Breeze is treated with excessive roughness (such as breaking the solar panels or paddlewheels or stripping the drive gears by forcing stuck paddlewheels to turn.)
- Solar-Breeze is used to distribute chemicals other than two 3" (JUMBO) TABLETS of commercial solid swimming pool chemicals or small quantities of granular clarifier NOT containing chlorine. Refer to "Advanced Pool Care" for further instructions regarding Pool Clarifiers

- Solar-Breeze is stored with chemicals remaining in the Chemical Dispenser. Always wash and rinse the Chemical Dispenser thoroughly before storage.
- Solar-Breeze is allowed to sit un-maintained in a foul or empty pool or is used in bodies of water other than well-maintained swimming pools.
- Solar-Breeze remains in water below the freezing point (becomes encased in ice), or is stored in an environment that is so cold or so hot that it causes damage by freezing or overheating of batteries or cracking or warping of plastic components. Storage of the unit (when out of the water) should ideally be at household room temperatures, in an upright position, preferably in the original shipping box. But it must ALWAYS be in areas out of direct sunlight, that maintain temperatures between 32° – 100° F.
- Solar-Breeze is not maintained in a reasonable state of cleanliness. (Manufacturer will not be responsible for failure to operate due to caking of dirt, hair, fibers, chemicals, algae, lime, or other materials that it is the reasonable responsibility of the user to clean from the unit).

# INTRODUCTION:

The Solar-Breeze is an intelligent, solar powered, robotic swimming pool surface skimmer, combined with a swimming pool Chemical Dispenser. It operates on solar power alone, and on internal storage batteries, charged by the sun during the part of the day when the sun is high in the sky. As such, it needs no electrical connections, and operates on hundreds, or even thousands of times less electric power than required by competing pool cleaners.

## ABOUT SURFACE SKIMMING:

- Most dirt, dust, bugs, pollen, and debris entering a swimming pool will first float on the water surface for a considerable time before sinking into the water.
- Surface tension initially causes dust and debris to float, even dust that is heavier than the water. And even the lightest breeze will cause this debris to float to the downwind side of the pool, where it forms a sort of visible "film" on the surface. This film of dust and debris is more visible when viewed at a low angle (with eyes close to the water) in a completely calm pool.
- The Solar-Breeze is the only pool cleaner that is specifically designed to search for and scoop up such floating films. Its slowly rotating powered paddlewheels scoop up the film of dust and debris gently, before it has an opportunity to sink.
- The powered "Bumper Wheels" on the front corners of the Solar-Breeze rotate the unit each time it hits a pool wall, encouraging the skimmer to travel parallel to the pool edges, where dirt and debris is already floating as a wind concentrated "film".
- It will stop skimming, with the front paddlewheel, if it thinks it has been stuck in one place too long. Then it will reverse the Rear Paddlewheel, maneuver backwards for a minute, coast for half a minute, and then resume forwards skimming.
- If its Front Paddlewheel gets jammed with large debris, so that it can't rotate, the skimmer will repeatedly reverse the Front Paddlewheel, attempting to clear the jam. It will resume forwards operations as soon as the jam has been cleared.
- If the Front Paddlewheel remained jammed, and cannot rotate for ten minutes or more, the unit will stop skimming. The Red ALARM indicator LED will come on continuously, indicating you must clear the Front Paddlewheel, before turning the unit back on. You may want to empty the Filter Basket as well.
- The Solar-Breeze is designed to spend much of its time moving along the edges of the pool, where the dirt naturally floats, occasionally changing directions, to maneuver around obstacles, or to head across to the other side of the pool.
- It does not need to move fast, only to be persistent. Indeed, if the Paddlewheels moved any faster than they do, or if the Solar-Breeze moved across the pool much faster than it does, it would tend to swamp the floating film of debris, and make the debris and dust film sink to the bottom before it had a chance to be gathered and filtered out of the water.

- A film of dust held together only by water surface tension is very fragile. It must be approached both slowly and gently for the Solar-Breeze to be able to gather the dust while it is still on the surface. Excessive turbulence would cause sinking of the dust film on either side of the Solar-Breeze.
- Vacuuming, sweeping, or swimming activities will sink this film of dust and debris to the bottom of the pool. It is most efficient to vacuum the pool and swim AFTER the Solar-Breeze has cleared the surface of its debris. The Solar-Breeze must be removed from the water during swimming and during pool vacuuming.

## ABOUT SOLAR POWER:

- Solar electric power is "weak" but free, and it keeps coming, hour after hour, day after day, as surely as the sun rises. It is the persistence of the Solar-Breeze, not its high power that makes it effective.
- Fully discharged batteries cause a blinking Red ALARM indicator. It may require some time in direct sun with the sun fairly high in the sky before batteries are charged and the unit resumes normal operations.
- It is an engineering feat to design a solar robot capable of moving, even slowly, as the designers of Martian Rovers discovered. This unit uses advanced Solar Panels, allowing it to do a very significant amount of work, movement, and filtration during the course of a day.
- Storage batteries allow the Solar-Breeze to "escape" from shadows. Otherwise, the first time it entered a shadow, it would stop, and never have the power to navigate back into the sun. As it is, a microprocessor with very sophisticated programming is required to make SURE the Solar-Breeze spends enough time in the sun to charge its batteries and prevent it from getting stuck in a shadow.
- Because of the need to charge batteries while in direct sunlight, the Solar-Breeze will sometimes behave oddly when its storage batteries are less than half charged.
- When batteries are low, the Solar-Breeze goes into "LOW SPEED" mode. This happens more in the late afternoon and evening. It will happen more frequently in pools with limited direct sun, and during winter, when sun angles are low.
- In "LOW SPEED" mode, both of the Solar-Breeze's Paddlewheels will rotate slightly slower, to conserve power.
- In "LOW SPEED" mode, the Solar-Breeze will turn off its rear (propulsion) Paddlewheel each time it enters the sunshine, and turns it back on each time it drifts back into shadow. This "escape from shadow" maneuver allows the Solar-Breeze to spend more time in the sun than in the shade, giving the solar panels more time to charge the batteries while the unit is in the sun. The Front Paddlewheel continues to rotate and skim the pool while it is sitting in the sun.
- At night, the Solar-Breeze will always operate in "LOW SPEED" mode. If the battery charge is high, will operate slowly, but continually. If the battery charge



is low, only the front paddlewheel will run, about 10 minutes out of a half hour, intermittently. This makes maximum use of a small amount of battery power.

- During prolonged cloudy weather and during the winter (when sun angles are low) it is possible for the Solar-Breeze to completely run out of battery power. In this case, it might enter a shadow, and have insufficient stored electricity to escape from the shadow. The Red ALARM LED will blink to tell you that the battery is very low.
- If the Solar-Breeze ever gets trapped in shadow during the day, and the motors are off, the skimmer has simply run out of battery power. There has not been enough sunlight to allow the unit to run, and it has no battery power left to get back into the sunlight. "Eventually" it will gather enough charge to move itself again, even from indirect light. Shoving it into the sun speeds recovery, but the unit will usually eventually start working when the sun reaches the skimmer.
- When the Battery gets extremely low (after dark cloudy weather) it speeds up recovery considerably to lift Solar-Breeze out of the water, and manually place it in direct sunshine for a few hours, during the middle of the day. But, even if you don't do this, it will "eventually" manage to charge its batteries enough (with indirect light) to sneak back out of the shadow and obtain some direct sunlight to operate again. But, when batteries are extremely low on charge, and sunshine hours are very short, it may get stuck in shadows several times in a row with low batteries. (This is particularly likely in pools with lots of shade, and in the wintertime, when shadows are longer.)
- In the early morning and late afternoon, solar cells do not work well, sometimes not at all, when the sun's angle is low. The sunlight reflects off the solar panels, without even penetrating inside, unless the sun is high in the sky. The same can happen during midwinter at high latitudes, when the sun just barely gets over the horizon. Solar cells produce maximum power when the sun is nearly directly overhead, high in the sky. Light that is indirect produces only very limited power. The Solar-Breeze can SLOWLY charge its batteries even in cloudy weather with indirect light. But the total operating time on a dark day might be relatively low, and the unit might operate entirely in "Low Speed" mode.
- The "Solar Day" (the time that the sun really provides "full power") is really only from 10:00AM to 2:00PM. Perhaps a bit longer in summer, and a bit shorter in winter; quite a bit shorter in Northern latitudes. If the sun shines brightly during these hours, the Solar-Breeze typically runs at FULL SPEED, once its batteries are fully charged, and until they start to discharge again. During much of the rest of the day, especially during winter, the unit goes into LOW SPEED mode.
- LOW SPEED requires less power than does HIGH SPEED. When there is a shortage of direct sunlight, the unit is likely to spend more time in LOW SPEED than in HIGH SPEED mode.

## ABOUT POOL CHEMICALS:

- A Chemical Dispenser (for commercial solid pool chemical tablets) is included in the Solar-Breeze design because dispensing chlorine or clarifiers evenly and

- randomly over the surface, makes the chemicals far more efficient than when spread by other means.
- The Solar-Breeze is the ideal platform for distributing the steady "maintenance" levels of chlorine needed in a swimming pool. It can carry a maximum of two 3" (Jumbo) solid chlorine tablets in its Chemical Dispenser that will slowly dissolve as the Solar-Breeze navigates around the pool.
  - Only the Solar-Breeze can distribute chlorine so evenly on the surface, or do such a thorough job of releasing it uniformly near the outside walls of the pool and do so without the need to operate the swimming pool pump. This can greatly INHIBIT THE START OF ALGAE GROWTH on the upper walls of the pool, where sunshine is at its maximum, and chlorine is normally at a minimum. This release of chlorine near the edge of the pool, along with skimming the surface of fine dust that collects algae, makes a tremendous difference in inhibiting algae growth. Complete algae suppression, however, still requires occasional sweeping, vacuuming, chemical monitoring, and shock treatment of the swimming pool. While general pool maintenance is still required, this even spreading of chlorine at just the right time and places will often prevent the beginning of algae growth.
  - Conventional floating Chemical Dispensers tend to stay where the wind pushes them. And Swimming pool pumps, used as Chemical Dispensers, require vast amounts of energy to pump the chemicals into and around the pool. The Solar-Breeze mixes the chemicals, slowly and gently, over the entire surface of the pool, ALL DAY LONG, with no outside power required.
  - Most severe algae problems BEGIN with algae growth on the pool sides, or on floating dust or debris on the surface. The Solar-Breeze is capable of removing BOTH of these triggers for an algae "bloom" in a swimming pool, and do it with far lower use of chlorine than conventional methods.
  - WARNING!!! "SHOCK TREATMENT" (whether liquid, powdered, or granular) must NEVER be placed in the Solar-Breeze Chemical Dispenser. Use of SHOCK TREATMENT will VOID the WARRANTY, as well as create a chemical burn hazard and damage the unit.
  - Small quantities of granular Pool Clarifiers may be used occasionally in place of the two Jumbo Chlorine tablets. See the "**Advanced Pool Care**" section for a full explanation of their use. Briefly: Up to ¼ cup of granular Pool Clarifier in the Chemical Dispenser will cause "cloudiness" in the pool water to settle as a fine film of dirt on the bottom of the pool, where it can be vacuumed up. This leaves the pool water sparkling with the minimum possible time of running the main pool filter. They behave better when contained inside of a porous cloth bag or an old sock.

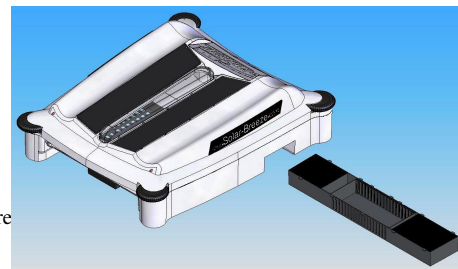
# DIRECTIONS FOR USE:

## Getting Started:

- The Solar-Breeze MAY arrive with its storage batteries discharged or only partly charged. The Solar-Breeze must be left in the sun (out of the water) for a full day to charge the batteries before use, otherwise disappointing performance may result. The Unit will CHARGE, when in the sun, even when the unit is OFF. Operation without a fully charged battery will not harm the unit, but may result in disappointing and unpredictable behavior for one to three days, followed by recovery and more normal behavior. Direct sunlight, high in the sky provides enough solar power that operation may begin in an hour or less. This does not always mean that the battery is fully charged.
- Take the unit out of the box, remove all packing materials, and place the Solar-Breeze somewhere (out of the water) where it can safely charge its batteries in the sunlight. NOTE: The "ON/OFF" button can be used to turn the unit either ON or OFF. If it fails to turn the unit ON, (as indicated by the "POWER" indicator light), the batteries are low, and the batteries need charging in the sun. It will charge with power turned either OFF or ON.
- AFTER the sun shines on the Solar-Breeze's solar panel for one full day, the batteries should be sufficiently charged to begin skimming the pool. Turn the unit "ON", gently place it on the pool surface, and allow it to work.
- Remove any extremely large debris (branches, plastic bags, newspapers, etc) floating on the pool surface that are OBVIOUSLY too large for the Solar-Breeze to swallow.
- We recommend removing large pool toys, floating hoses, and other obstacles from the pool surface so that the Solar-Breeze can navigate unhindered over the entire pool surface. Large obstacles may allow some floating dirt and debris to "hide" from the unit and make cleaning the surface of the pool more difficult.

## Adding Pool Chemicals:

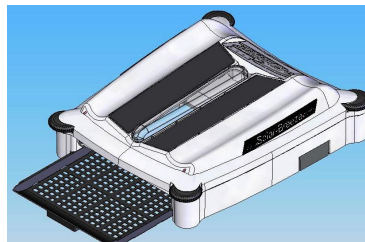
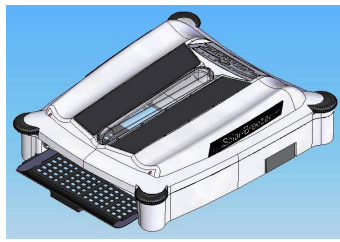
- The Solar-Breeze has a built in Chemical Dispenser, in a drawer that slides out of the side of the unit (see picture).

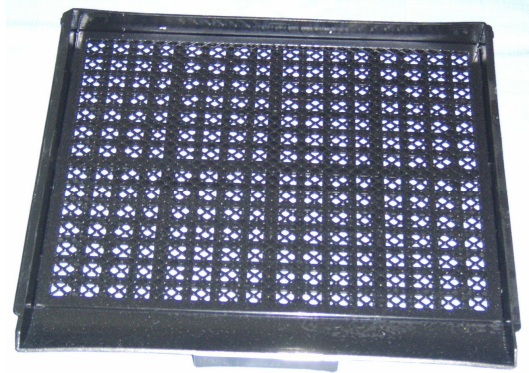
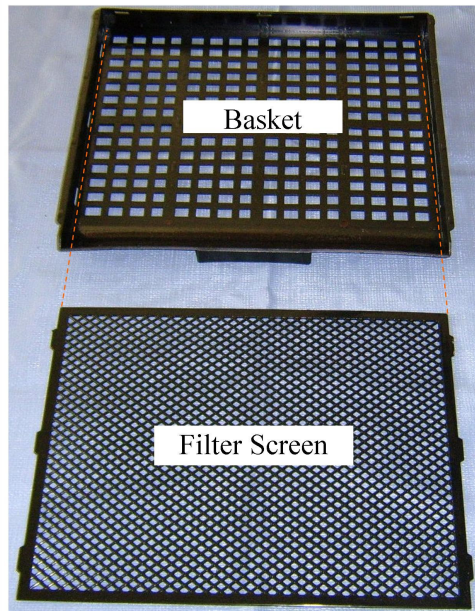


- It is best to remove the Solar-Breeze from the water and to turn it OFF when adding chemicals to the Chemical Dispenser.
- The Chemical Dispenser is built to hold two large (Jumbo, 3") pool chlorine tablets.
- The Chemical Dispenser has adjustable "slots" with variable width openings that allows the user to control how fast the chlorine tablets will dissolve.
- Monitor pool chemicals with conventional test kits, and adjust Dispenser slot width and add chlorine tablets as needed to control "residual chlorine".
- For more information, see "[Advanced Pool Care](#)" and "[Pool Chemicals](#)"

## Cleaning the Filter

- The Filter Basket slides out forward, underneath the Front Paddlewheel, for cleaning (see picture).



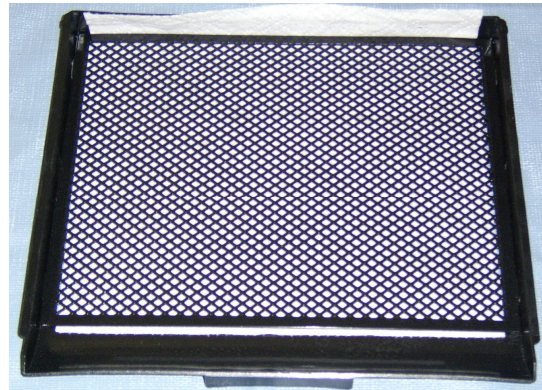
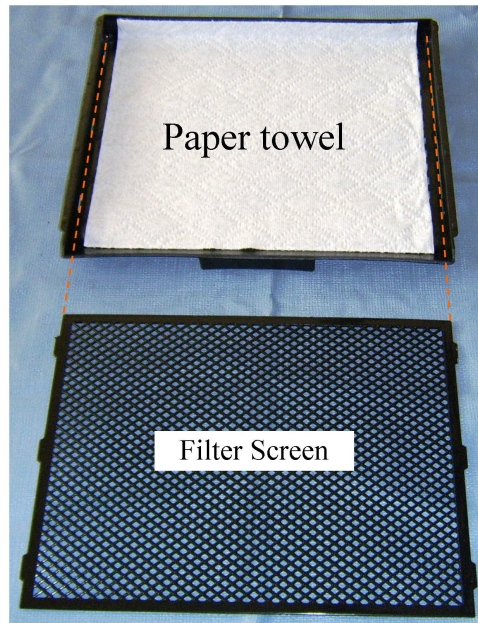


- The unit must be turned OFF before removing the filter basket, by simply touching the ON/OFF button on the control panel.
- A dirty (plugged up) filter can result in the Skimmer thinking it is stuck, due to increased drag on the front paddlewheel. If the skimmer reverses every 3 minutes and goes backwards, when it is not stuck, please check the filter. Simply looking at the filter through the Clear Lens built into the top of the Solar-Breeze will then tell you if a dirty filter is the source of the reversing problem..
- Once the basket is slid out, debris in the Filter Basket can be removed by simply dumping the Filter Basket upside down, preferably while still wet.
- If debris sticks to the Filter Basket Screen, the wet Filter Basket (after removing it from the Solar-Breeze) can be tapped against a hard smooth surface to drive out dirt. The Filter Screen is always easiest to clean when wet, so dipping it in water between each attempt is useful. Or, it can be sprayed off with a garden hose (keeping the spray away from the main unit, of course.) For further cleaning instructions, see "Taking Care of Your Solar-Breeze."
- See "Taking Care of your Solar-Breeze" for more detailed cleaning instructions

## PAPER TOWELS (as a disposable filter)

- PAPER TOWELS can be added as an additional, much finer, filter, by sandwiching the Paper Towel between the bottom of the Filter Basket and the Snap In Fine Screen. Paper Towels will filter fine dust, algae, and Sun Tan oil from the surface of the pool.
- Generally, high quality KITCHEN TYPE paper towels designed to have high wet-strength make the best filters. But too high of a density may not allow sufficient water flow. Check our website ( [www.solar-breeze.com](http://www.solar-breeze.com) ) periodically for what paper towels perform the best.





- The Solar-Breeze can filter the water with its Snap In "Fine Screen", or with an ordinary high quality Paper Towel acting as an even finer filter, sandwiched between the Snap In Fine Screen and the course Mesh Bottom of the Filter Basket.
- WHEN INSTALLING the Filter Basket, with paper towels, large AIR BUBBLES may become trapped under the Filter Basket, causing the filter screen to become dislodged and float upwards.
- AIR BUBBLES may be prevented by sliding the Filter Basket into the Solar-Breeze while it is floating in the water, after first "burping" any air bubbles. (Tilt the Filter basket in the water to allow bubbles to escape before sliding it in.)
- DO NOT use "shop towel" type paper towels, or extra heavy "felt-like" paper towels, as they will not allow water to pass. This inhibits skimming effectiveness.
- In areas with low levels of blowing dust, pollen, and other fine particulate pollution, the Fine Screen alone may be an adequate filter. The use of the Fine Screen alone is also recommended if the pool is in an area that gathers large amounts of leaves, bugs, or other large debris. Adding a Paper Towel (as an even finer filter sandwiched underneath the Fine Screen) slows down the rate of skimming somewhat, but allows the removal of extremely fine dust.
- Looking at the surface of the pool will tell you what you need. If you can see fine dust floating, use a Paper Towel, particularly when there is enough dust to form a visible "film" on the downwind side of your pool. If you see only large course objects such as bugs or leaves, the screen alone may be sufficient.
- Paper Towels, used as a finer filter media, are particularly effective in capturing wind blown dust, particulate air pollution (soot), fly ash (from coal burning), and very tiny gnats (common near some lawn areas.)
- Paper towels also do a fine job in capturing floating oils, such as residues from sun screen and suntan oils. This prevents such oils from forming greasy films on the pool wall at the waterline.



- Paper towels also can capture wind blown dust (from dust storms, use of leaf blowers, etc.). If dust constitutes a major problem in your pool, paper towel filters will go a long way to alleviating the problem.
- Algae spores are commonly introduced to swimming pools as windblown spores from nearby stagnant or natural bodies of water. They commonly land on the pool and float for a period of time before beginning to grow. IF they are captured by paper towel filters before they infect the pool, algae blooms can frequently be prevented before algae has time to grow and multiply.

## PROBLEMS?

- If the unit is not performing as expected, see "[Troubleshooting](#)"
- If you need further information on how the unit works, see "[How It Works](#)"
- If you want to learn how to use the Solar-Breeze more intelligently, see "[Advanced Pool Care](#)"
- For even more information (and updated suggestions) go to ( [www.solar-breeze.com](http://www.solar-breeze.com) )

# AUTOMATIC OPERATIONS:

(Things the intelligent robot skimmer will do all by itself)

## High and Low Speed operation:

- The Solar-Breeze only operates at Full Speed when the sun is shining brightly at the same time that its batteries are well charged, typically in the early afternoon.
- At all other times (including nighttime, cloudy weather, and in shadows) the Solar-Breeze operates at its energy conserving Low Speed Setting. Low Speed allows the unit to run longer on a battery charge than it could at Full Speed.
- The unit also (briefly) switches into Full Speed mode whenever it tries to gather too large of a chunk of debris, or when the Bumper Wheels first contact the sides of a pool. This prevents stalling the motors and keeps the Solar-Breeze both moving and skimming.
- In the Low Speed mode, the Solar-Breeze may appear "lazy", and not move very fast. This conserves battery power and increases the length of time the unit can operate on a battery charge, while only slightly reducing the actual effectiveness of its skimming. It substitutes "persistence" for speed during the time it operates off of batteries, increasing the total time that it can operate each day.
- The Solar-Breeze is Solar powered, naturally operating mostly during the day and late afternoon. Sometimes it operates into the night. During the night, as the battery charge gets very low, it operates intermittently, to conserve power. The Rear (propulsion) paddlewheel is turned off completely, and the Front Paddlewheel operates in cycles, 10 minutes each half hour. This stretches a small amount of battery power to the maximum.

## Moving into the sun to charge

- The Solar-Breeze is smart enough to know that its batteries cannot charge without direct sunlight.
- Normally, during the day, BOTH the Front (skimming) and the Rear (propulsion) Paddlewheels operate at the same time.
- When batteries are low, the unit will "seek out the sun" and avoid spending much time in the shade. This charges the batteries faster, and avoids getting stuck in a shadow with a dead battery.
- If bright sunlight is encountered when the batteries are low, the Solar-Breeze may turn off its rear (propulsion) Paddlewheel for an hour or more, to encourage it to stay in the sun to "soak up" more sunlight. The Front (skimming) Paddlewheel will normally keep running (on low speed) so that useful skimming is still being done. It may sit in the sun for an hour or more charging its batteries.
- If the Solar-Breeze drifts back into a shadow while it is still charging its low batteries, the rear (propulsion) Paddlewheel will turn back on. Then, when it moves back into bright sunlight, the Rear Paddlewheel may stop again, so that the skimmer may linger in the sun to charge its battery.
- It will often keep up this shuffle from shadow to sunlight repeatedly till the batteries are more fully charged. Once the batteries are over half charged and the

Solar-Breeze is in bright sunlight, both the Front and Rear Paddlewheels will begin "Full Speed" operation, which provides for "more vigorous" propulsion and skimming.

## When STUCK (in a difficult position)

- The Solar-Breeze will keep operating normally for about 30 seconds in a stuck position.
- But, eventually, it will decide that it is not moving, briefly slow the rotation of its Front Paddlewheel, and place its rear (propulsion) Paddlewheel into reverse for about a minute, then coast backwards for another half minute. This will (normally) allow the unit to back away from obstacles, and then take another crack at making its way around the pool.
- Around very difficult obstacles, it may do this repeatedly. As long as it does not spend "all" of its time doing so, and it eventually skims all of the pool surface, nothing is hurt by this shuffle. The Solar-Breeze will not repeat such a reverse for a full three minutes, even if it gets stuck again. This gives it some time for skimming, since it does not really skim during the reverse.
- The Front Paddlewheel continues to rotate slowly during such a reverse to help prevent losing debris already gathered in the Filter Basket.
- See "Advanced Pool Care" or our website ( [www.solar-breeze.com](http://www.solar-breeze.com) ) for suggestions on how to "fix" a pool with a built in obstacle that repeatedly causes the Solar-Breeze to waste too much time getting around it. This involves installing a small "deflector" near the obstacle, just above the waterline, at the level of the Bumper Wheels.

## Circling the pool edges:

- Surface dirt tends to drift to one edge or the other of the swimming pool, where it floats as a film on the surface.
- The Bumper Wheels of the Solar-Breeze are designed to encourage the vessel to repeatedly go around the edges of the pool, selectively skimming in the areas where most of the floating dirt and debris is likely to accumulate.
- Even a light wind tends to blow both debris films and the floating Solar-Breeze towards the same side of the pool. When the Powered Bumper Wheels of the Solar-Breeze contact that wall of the pool, they abruptly turn the unit so that it will navigate along that side of the pool, conveniently and quickly "gobbling up" the entire film that the wind has just concentrated. Since the wind does this repeatedly, throughout the day and night, this natural cycle of wind concentration of the debris film serves to greatly enhance the skimming effectiveness of the Solar-Breeze. The natural navigation system of the Solar-Breeze "just happens" to cause it to do most of its skimming in the very spot where the wind "just happens" to concentrate most of the debris on the pool surface.

## Clearing a jammed Paddlewheel :

- Solar powered Paddlewheels have limited torque, especially on "Low Speed", and can occasionally attempt to swallow things (such as plastic bags and long tree limbs) that will jam the Front Paddlewheel, preventing it from rotating.

- Immediately upon encountering a large obstacle, the FIRST response of the Solar-Breeze is to steadily increase power to try and "swallow" the object.
- Sometimes, the object is too big, or the level of solar and battery power too low, and the Front Paddlewheel simply becomes jammed.
- Rather than simply ceasing to operate, the "brain" of the Solar-Breeze keeps track of the rotation of the Paddlewheels. If the Front Paddlewheel quits rotating, while being given sufficient power, the Solar-Breeze will assume that that Front Paddlewheel is jammed, and attempt to "spit out" the offending debris.
- A stopped Paddlewheel will repeatedly reverse itself, for one half second at a time, at Full Power, so that these brief bursts of reversals will clear the jam.
- The unit will keep attempting to "spit out" a "serious jam" for a period of 10 minutes. If it fails to move the paddlewheel in this time, it will shut off the motors and have the Control Panel's ALARM Indicator Red LED continually lit. It is necessary to turn the skimmer OFF, then ON again before it can resume operation.
- In the case of such a "serious jam", turn OFF the power switch. Then the owner may just very carefully extract the offending debris, by unwrapping it gently from the Paddlewheel, if necessary. It is critical, during this operation, to be gentle, and to avoid applying excessive forces to the paddlewheel that might strip internal gears or bend paddlewheel blades.
- After the Paddlewheel is cleared, turn the unit ON. If it still doesn't operate, check for further obstructions, particularly wound up hair or string around paddlewheel or bumper wheel shafts.
- See "[Troubleshooting](#)" and "[Caring for the Solar-Breeze](#)" for more advice on what to do when the unit quits functioning from Paddlewheel jams, or some other cause.

## ADVANCED POOL CARE

Swimming pool filter pumps are "energy hogs", using considerable electricity year around. Pool pumps have to run for hours a day, even when the water itself looks clear, just to allow the surface debris to be skimmed and to allow an automatic vacuum to clean off the bottom, as the dirt and debris settles. And sometimes the filter pump is run merely to distribute pool chlorine evenly. (That's why so many people use floating chlorinators. While floating chlorinators do not distribute chlorine evenly, they are used because they do not require the pool pump to operate just to distribute chlorine!)

If a pool is very dirty, or it needs to be vacuumed, then, of course, pool filters need to be run. BUT pool filter operation can be reduced considerably, if the Solar-Breeze is allowed to do its job of continual skimming and chemical spreading. In the "off-season", the Solar-Breeze can sometime meet ALL of the pool cleaning needs, except for an occasional sweeping and vacuuming of the bottom. It can skim finer dust, using a Paper

Towel as an additional filter. It can distribute all of the chlorine the pool needs in winter time. And it can distribute “Pool Clarifiers” to make the water “sparkle”, and cause even the finest of algae, dust, and bacteria sink to the bottom.

“Advanced Pool Care” deals largely with getting the most out of the Solar-Breeze, and to minimize running the main pool pump, particularly during the “off season”.

## POOL CARE TIPS:

- Cover the pool, if possible, during the coldest part of winter. Particularly in areas that get snow and significant freezing weather. The Solar-Breeze **MUST** be removed from the pool during times when night and morning temperatures allow for the formation of ice. Ice buildup from water splashed onto the unit (by the Paddlewheels) or snow accumulation on top of the unit can cause the unit to sink low enough in the water to damage its electronics and **VOID** the **WARRANTY**. Surface ice on the pool can be even more damaging. The unit is not designed to cope with snow or ice. Covering the pool can frequently block the formation of ice, in all but the coldest of climates, and dramatically cut down the need for chemicals and cleaning.
- We recommend that you allow the Solar-Breeze to operate for as much of the year as possible, even when direct sunlight levels are so low that it only runs occasionally. Even in very dark cloudy weather it will catch most of the dirt and debris that lands on the pool surface, before it sinks. Once dirt sinks, it is far more expensive and time consuming to remove.
- In cloudy weather, just because you don't happen to **SEE** the Solar-Breeze moving doesn't mean it isn't intermittently running when you are not looking. In dark weather, it won't run till the unit accumulates some power in its batteries, which is most likely to result in running near the end of the day. While it is possible to have weather (in winter) so dark that the unit might not run for extended periods of time, this is not common in most areas with open air swimming pools.
- Only a total lack of debris accumulating in the filter basket should be taken as evidence of no skimming activity. There are several climates (such as Western Washington state) where a combination of cloudy winters and northern latitudes may justify removing the Solar-Breeze from the pool for several months, even when the pool surface itself is not freezing.
- If you add chlorine to your pool as a gas or liquid or other forms of chlorine that does not contain "stabilizers", you might consider occasionally using standard commercial 3" (Jumbo) stabilized chlorine tablets in the Solar-Breeze, just to bring up the level of stabilizer high enough to prevent too fast of breakdown of the chlorine in the pool. (Most commercial pool chlorine tablets contain stabilizers.) Discuss this issue with your pool care professional, as it may dramatically reduce your chlorinating expenses. (Sunlight, wind, and rain cause rapid loss of chlorine when "stabilizer" levels get too low.)
- If your pool has an automatic sanitizing system (say, a salt system that manufactures its own chlorine), you probably do not need to use the Solar-Breeze to distribute chlorine. In this case, you might consider using the Solar-Breeze for

occasionally spreading granular Pool Clarifiers to make the pool water "sparkling clean".

- Such "Pool Clarifiers" can also be used periodically (or as needed to reduce cloudiness) during the "off season" to almost eliminate the routine running of the swimming pool filter, except for an occasional sweeping and vacuuming of the pool bottom.
- Pool clarifiers should not be used continually. Occasional use, only when the pool water looks cloudy in sunlight, is more than sufficient. If very cloudy, adding swimming pool "shock treatment" directly to the swimming pool, and distributing "Pool Clarifiers" with the Solar-Breeze is especially effective.
- Pool clarifiers do nothing toward cleaning the pool bottom. This must be done with brooms and vacuums.
- "Pool Clarifiers" are granular chemicals specifically designed to reduce the "cloudiness" of pool water by making algae, bacteria, and microscopic dirt "clump" together and settle to the bottom of the pool. This makes the water "sparkling clean", but leaves a thin film of dirt on the bottom that must be swept and vacuumed up. Clarifiers filter the pool water significantly cleaner than most pool filters are capable of, but does require manual or automatic vacuuming of the settled dirt film on the pool bottom. What clarifiers eliminate is long term running of the pool filter to reduce "cloudiness" in the water. In winter, use of clarifiers every week or two, followed the next day by vacuuming of the pool, may keep the pool "sparkling", so that no other operation of the pool filter may be needed.
- Up to ¼ cup at a time of granular pool clarifiers (such as alum) may be added to the Chemical Dispenser of the Solar-Breeze, but NOT at the same time that chlorine tablets are present. This small amount of Pool Clarifier (and perhaps even a smaller amount) is usually more than enough to "miraculously" cause all of the cloudiness to settle to the bottom within 24 hours. Since granular chemicals tend to cake in the Chemical Dispenser, it is important to periodically clean out the corners before using Chlorine Tablets once again. (It may also be necessary to have the Adjustable Slots in the Chemical Dispenser adjusted to a much narrower width than when using the slower dissolving solid Chlorine Tablets. Too rapid of release reduces the efficiency of Pool Clarifiers.)
- If granular Pool Clarifiers dissolve too quickly, or pour out of the slots in the back of the chemical dispenser, they may be contained inside of a porous cloth bag to slow down their rate of dissolving (such as an old sock). This has the added benefit of making it easy to remove the remaining chemicals, should it be decided that they have already cleared the pool sufficiently.
- Pool clarifiers are difficult to spread over the surface by traditional means. Clarifiers work the best when the water is calm, and they are placed gently, as a solution, on the surface. For this reason, the quantity used is normally far greater than required to do the job. The Solar-Breeze is so good at distributing clarifiers that people may be shocked by the clarity of water in the pool, even when the pool filter is not run at all. But one must not forget, that the bacteria, algae, and microscopic dust has settled to the bottom, and should be vacuumed out, preferably prior to heavy swimming that will stir them up again.



- Pool Clarifiers make water "sparkle", by eliminating cloudiness. But this has not rendered the pool "clean". The "cloudiness" settles as a thin film of dirt on the pool bottom that must be swept and vacuumed out before the pool is truly clean.
- The Solar-Breeze sweeps the surface clean, before dust and dirt can settle. This can dramatically reduce the need for sweeping and vacuuming. BUT it cannot entirely eliminate it. Neglecting even a small amount of dirt on the sides or bottom of a pool can eventually result in the growth of a patch of difficult to remove algae (such as "black algae"). Therefore, do not neglect periodic sweeping and vacuuming, even when the Solar-Breeze appears to otherwise be doing an excellent job of keeping the pool clean.
- During the off season, with minimal swimming and cooler pool water, the Solar-Breeze may perform the entire skimming, chlorinating, and water clarifying roles, virtually eliminating the need for running the filter, for any reason other than vacuuming the pool bottom. But it is still CRITICAL for the pool owner to monitor Chlorine levels, acid levels, and water clarity, as well as occasionally sweep and vacuum the pool sides and bottoms as needed. Lack of attention to the pool and "over-reliance" on the Solar-Breeze may result in chemical imbalances or black algae growth.
- Off-season, the distribution of Chlorine, particularly around the pool edges, helps prevent the start of black algae on the walls, and algae "blooms" that usually start on dust and debris floating on the pool surface.
- The Solar-Breeze can filter the water with its Snap In "Fine Screen", or with an ordinary high quality Paper Towel acting as an even finer filter, sandwiched between the Snap In Fine Screen and the course Mesh Bottom of the Filter Basket.
- In areas with low levels of blowing dust, pollen, and other fine particulate pollution, the Fine Screen alone may be an adequate filter. The use of the Fine Screen alone is also recommended if the pool is in an area that gathers large amounts of leaves, bugs, or other large debris. Adding a Paper Towel (as an even finer filter sandwiched underneath the Fine Screen) slows down the rate of skimming somewhat, but allows the removal of extremely fine dust. Looking at the surface of the pool will tell you what you need. If you can see fine dust floating, use a Paper Towel, particularly when there is enough dust to form a visible "film" on the downwind side of your pool. If you see only large course objects such as bugs or leaves, the screen alone may be sufficient.
- Paper Towels, used as a finer filter media, are particularly effective in capturing wind blown dust, particulate air pollution (soot), fly ash (from coal burning), and very tiny gnats (common near some lawn areas.) They also are notable in capturing floating oils, such as residues from sun screen and suntan oils. This prevents such oils from forming greasy films on the pool wall at the waterline. Another benefit comes from the tendency of some algae species to first appear on the surface film of the pool. If algae spores are captured by paper towel filters before they infect the pool, algae blooms can frequently be prevented before algae has time to multiply.
- Paper Towels should be KITCHEN STYLE paper towels, with high wet strength, but quite porous. Shop Towel style paper towels act like thick felt, and do not

allow enough water to pass through them. Too thick of Paper Towels inhibits skimming.

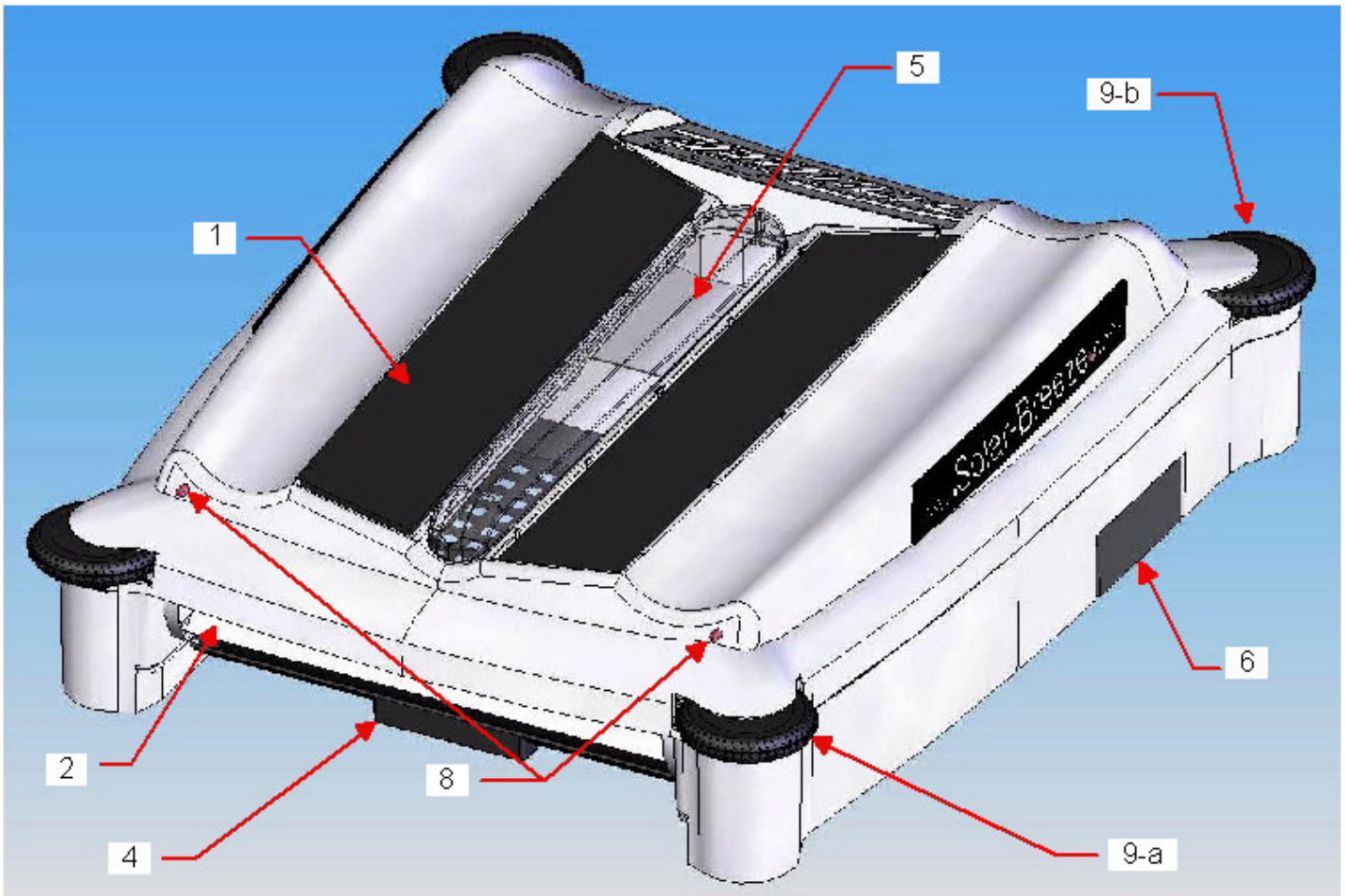
- Paper Towels can trap large AIR BUBBLES under them, during installation. To prevent this, install the Filter Basket into the skimmer while it is floating in the water, after tilting the Filter Basket in the water, to allow large bubbles to escape.
- Automatic pool vacuums need to be used less often when the Solar-Breeze is consistently used. But they must never be used at the same time as the Solar-Breeze, as this may VOID the WARRANTY. Automated cleaning devices occasionally break the surface or tie their hoses into circles, and can damage, submerge, or capsize the Solar-Breeze. Just because you have not SEEN your automated pool vacuum doing such violent things, they still might, on rare occasions, when you are not looking. Even if they do not damage the Solar-Breeze, their hoses may block its proper navigation, and tend to rapidly sink floating debris, before the Solar-Breeze can sweep it off the surface of the water. The use of both devices at the same time is not recommended.
- OFF SEASON, some pool owners find that the Solar-Breeze, used with alternating Chlorine Tablets and Pool Clarifiers, can almost eliminate other pool maintenance. With less swimming three things occur: First, almost the entire dirt load in the pool comes from the surface, where the Solar-Breeze skims it off as fast as it lands. Second, the chlorine requirements decrease, to the point that residual chlorine can be controlled entirely with the Solar-Breeze. And Third, occasional use of Pool Clarifiers will filter the water, without running the Pool Filter and Pump. Then other maintenance drops down to only an occasional sweeping and vacuuming the pool bottom. IF this is found to be the case, it is still necessary that the pool owner monitor chlorine levels, do occasional shock treatments, and sweep and vacuum the pool bottom, occasionally, as needed. The Solar-Breeze reduces pool maintenance, but does not eliminate it. Not monitoring chlorine, acid, and water clarity levels, and not sweeping and vacuuming (occasionally) can still result in pools becoming foul.
- RAIN or DUST STORMS, occurring off season requires extra maintenance. Specifically:  
Rain releases chlorine from pool water into the air. It is critical to check chlorine levels after a rain.  
Dust Storms (and other wind) can introduce debris that can swamp the capacity of the Solar-Breeze, and can vastly increase the chlorine requirement and require additional vacuuming of the bottom. Always check the condition of the pool, the pool chemical levels, and the Solar-Breeze after wind or rain.
- OBSTRUCTIONS at the waterline of a pool that give the Solar-Breeze a hard time on every single circuit of the pool can be ignored IF the Solar-Breeze does not spend more than half of its time navigating around them. Otherwise, creative building of "deflectors" at the waterline around these objects, to allow the Bumper Wheels to work properly, will "fix" the pool, and make it "friendly" for Solar-Breeze operation once again. See the website at ([www.solar-breeze.com](http://www.solar-breeze.com)) for more suggestions on the design of "deflectors" around pool obstructions. We suggest you print a hardcopy of these suggestions for your Swimming Pool Professional, if you lack the skills to fabricate or install such deflectors.

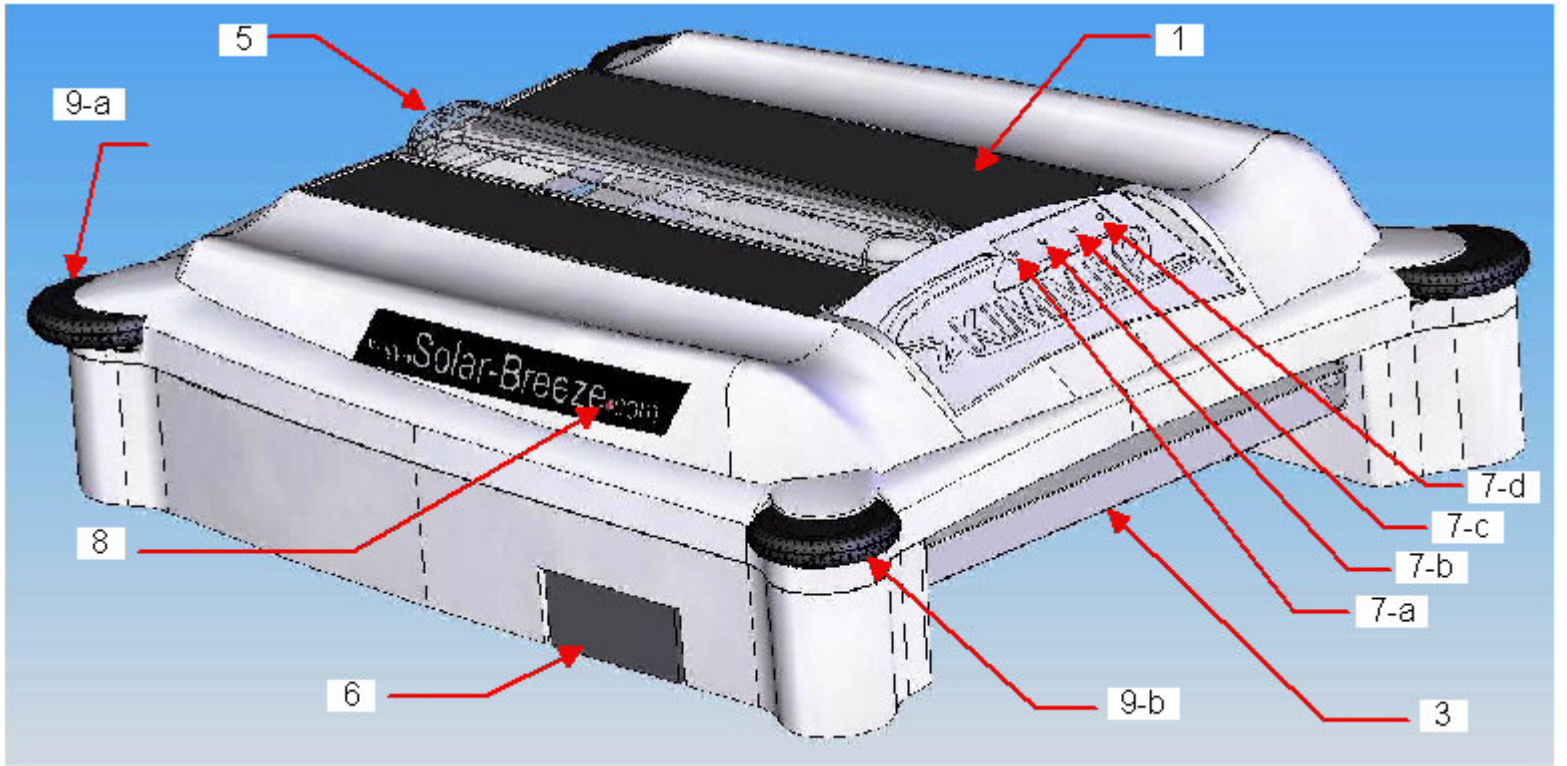
## TROUBLESHOOTING (Problems):

Problem	Diagnosis/Solution
All indicator Lights OFF, including POWER LED and navigation LEDs.	Unit may have turned itself "OFF". It may turn itself OFF, if batteries ever completely discharge. After the unit charges its batteries in the sun, it may simply need to be turned back ON.
Motors off, Navigation LEDs off at night	Check if unit is simply turned OFF. If not, the batteries may be completely discharged. Charge the unit in direct sunlight for one full day and try again.
POWER indicator light ON	Indicates unit is turned ON, and has sufficient power to operate. IF unit fails to run with "POWER" LED "ON", check for other problems, such as stuck paddlewheels.
Front Paddlewheel slow (Skimmer may reverse repeatedly)	Clean Filter Basket (if dirty) Clear out string or hair around Paddlewheel or Bumper Wheel shafts
Rear Paddlewheel or propulsion slow	Check for dragging debris under Solar-Breeze or for physical friction involving the paddlewheel, such as wound up string.
Reoccurring dead batteries (Totally discharged batteries)	Reoccurring could indicate string or hair buildup on Paddlewheels or other sources of excess friction.
Repeatedly gets (physically) stuck in same place in the swimming pool.	Go to ( <a href="http://www.solar-breeze.com">www.solar-breeze.com</a> ) for advice on "deflector" construction to allow unit to skirt around an obstacle.
Repeatedly gets stuck in a shadow	Batteries are too low to power the unit, once it enters a shadow, where there is no solar power. Take unit out of the water, place in sun, and turn it off, so that it charges the batteries for one full day.
Unit fails to operate midwinter	Low sun angles and cloudy weather can combine to completely discharge batteries. At midday, place unit with solar panels perpendicular to the sun to charge for one day. Then re-test. If it works after such charging, It indicates low sunlight levels are the only problem.
BATTERY light lit (in sun)	The batteries are charging. (Not a problem)
BATTERY light off (in sun)	Batteries are fully charged. (Not a problem)
Power button causes no response (not even an indicator light)	Batteries totally discharged. Place unit in the midday sun to charge for one full day, then turn ON.
ALARM LED BLINKING	Batteries are extremely low. Turn off, and set unit with solar panels in the sun for one full day for batteries to charge before turning ON. Or, simply allow unit to charge by itself, if sun is adequate.
Front Paddlewheel Stuck (ALARM Indicator LED ON steady)	Allow the unit to first attempt to spit the object out. If paddlewheel shut down, it is sometimes necessary to use fingers or a tweezers to gently remove the offending debris, especially if string or hair has wrapped around the front paddlewheel shaft.
Rear Paddlewheel Stuck	This is very rare, and would usually involve string or hair wrapped around the paddlewheel. Normally though, assume that LOW SPEED mode is on, and that the rear paddlewheel might simply be turned off to conserve power.
Bubbles trapped under Paper Towel filter	Slide Filter Basket into unit while floating in the water, after first allowing trapped bubbles to escape (tilting Filter Basket)
Pool water Level Problems Bumper wheels not making contact	Raise or Lower pool water level till Bumper Wheels make optimum contact. (Skimmer body must not hit before bumper wheels.)

## PARTS NAMES:

1. Solar Panels
2. Front Paddlewheel
3. Rear Paddlewheel
4. Filter Basket
  - a. Snap In Fine Screen
  - b. Optional Paper Towel (filter)
5. View Lens
6. Chemical Dispenser
  - a. Adjustable Slots
7. Control Panel
  - a. POWER Indicator LED (green)
  - b. ALARM Indicator LED (red)
  - c. BATTERY Indicator LED (green)
  - d. ON/OFF Button
8. Navigation Lights (4)
9. Bumper Wheels
  - a. Front Bumper Wheels (powered)
  - b. Rear Bumper Wheels (idlers)





# HOW THINGS WORK:

## SOLAR PANELS

- Solar panels can only power motors at High Speed when the sun is high in the sky, and the Solar-Breeze's Storage Batteries have nearly a full charge.
- If Batteries are very low, it is not unusual for operation of the Solar-Breeze to begin at 10:00 AM or later, as the unit needs to both gather power for its motors to operate, and for its batteries to charge. The sun needs to be almost directly overhead before the Solar Panels can both run the motors and charge the batteries.
- Batteries, when very low, may require the Solar-Breeze to charge its batteries in the sun before motors can operate at all. This is more common from late fall to early spring, or during rainy seasons, when available sunlight is less.
- When the sun is lower (or has already set) the Solar-Breeze will usually run its motors at Low Speed, to conserve energy and to allow the skimmer to operate for several hours more. The unit may occasionally operate intermittently (at night), with short periods turned ON, and longer periods turned OFF, during the night, to conserve battery charge, while still skimming the pool periodically.
- Since the "Solar Day" (when the sun is nearly directly overhead) is relatively short, the Solar-Breeze will end up operating more of its time at Low Speed, off of stored Battery Power, than one would naturally expect (with High Speed operation most likely in the afternoon). While skimming action visually appears slightly slower at Low Speed, the Solar-Breeze still get the job done, slowly and persistently.
- The Solar-Breeze is programmed to turn the Rear Paddlewheel off at night, when the battery charge gets down below 50% charge, and to operate the Front Paddlewheel in cycles of 10 minutes ON and 20 minutes OFF. This extreme energy conservation mode sometimes may allow operation late into the night. This is only likely to occur in summertime, and varies greatly with latitude and climate (how sunny it is in late afternoon.)
- If the batteries are fully charged at the end of the day, the Solar-Breeze may occasionally operate intermittently into the night before it shuts down. This is not an error, but is an attempt by the unit to utilize the larger amount of solar energy available during the middle of the summer.

## FRONT PADDLEWHEEL

- The Front Paddlewheel acts as a dirt scoop for debris floating as a film on the pool surface, with the film held together by water surface tension
- The slowly rotating Front Paddlewheel scoops the surface film into the Filter Basket, while churning the water ahead of the skimmer as little as possible. (Otherwise, dirt might sink before it gets scooped into the Filter Basket.)
- Surface tension holds this film of dust together so well that it is common to see the Front Paddlewheel "suck in" a swath of the dust film significantly wider than



- the width of the vessel, leaving the untouched dust film to either side still floating for the next pass of the Solar-Breeze around the pool.
- When not rotating, the Front Paddlewheel also acts as a dam or barrier, preventing dirt already gathered in the Filter Basket from escaping back into the pool.
  - Twigs, branches, plastic bags, and other large debris are occasionally too big for the Front Paddlewheel to "swallow". If it jams, it will repeatedly reverse itself in ½ second bursts till it operates freely again (after "spitting out" the offending oversized debris).
  - IF the Front Paddlewheel cannot clear itself in 10 minutes of these reversals, and still cannot rotate, then an ALARM condition occurs. The motors will be turned OFF. The offending debris should be removed GENTLY with the fingers, or (in the case of string or long hair) unwrapped gently with a tweezers. Try to avoid forcing a Paddlewheel to rotate, as this can damage gears if it turns out that it is a front bumper wheel that is actually stuck. If you feel uncomfortable doing this repair, take it to your pool care professional.
  - After the jammed paddlewheel is clear, place the skimmer in the water, and turn the unit ON again.

## REAR PADDLEWHEEL

- The Rear Paddlewheel is for propulsion, and to increase the efficiency of the Chemical Dispenser.
- When the Solar-Breeze gets stuck at an obstacle for about 30 seconds, the microprocessor commands the Rear Paddlewheel to reverse for about 70 seconds, causing the vessel to back away from the obstacle. It will then coast for another 20 seconds, before resuming normal forwards operation. During the entire "navigation reverse", the Front Paddlewheel rotates slowly to retain already gathered debris. Most of the time this will allow the unit to "back away" from an obstacle and take another attempt at navigating around the pool.
- No skimming occurs during a "navigation reverse". Therefore the unit is programmed to always wait 3 minutes before another navigation reverse. That way, if a full filter basket, or some other harmless obstruction, is causing too frequent of navigation reverses, there will still be time in the cycle for useful skimming, between the reversals.

## BUMPER WHEELS

- The powered Front Bumper Wheels force the Solar-Breeze to turn one way or the other, to follow the edge of the pool, any time the unit collides with a wall of the pool.
- They keep the vessel moving, even when it would otherwise easily get stuck against a pool wall, or in a corner of a pool. The Front (powered) Bumper wheels actually pull the vessel along the wall, causing it to turn sharply to one side or another after contact. The Rear Bumper Wheels act as “idlers”, just reducing friction, so that the sides of the skimmer do not rub against the walls of the pool.
- Bumper Wheels encourage the Solar-Breeze to spend much of its time selectively moving along the walls of the pool, usually on the downwind side, skimming where most of the debris is concentrated by the wind.
- Powered Bumper Wheels allow for very fast response to almost any obstacle. They are particularly good at causing the vessel to do a hard right or a hard left turn each time it encounters a wall of the pool, causing the vessel to quickly maneuver out of corners and around obstacles. Skimmers without powered Bumper Wheels tend to “suck”, with the Front Paddlewheel literally “sucking” the skimmer into a corner, where it is very difficult to escape.
- WATER LEVEL: Raise or lower pool water level for optimum Bumper Wheel contact. If the body of the Solar-Breeze strikes some part of the pool edge before the Bumper Wheels do, it is frequently because the water level is higher or lower than it should be.

## FILTER BASKET

- The Filter Basket is where gathered debris is stored, and is filtered. It consists of a course Mesh Bottom, a "Snap In" Fine Screen, and an optional sheet of ordinary (disposable) Paper Towel that may be sandwiched in between the Snap In Screen and the Mesh Bottom of the Filter Basket.
- Dirt in the Filter Basket can be viewed from the top, with the Solar-Breeze operating, through the View Lens.
- When full, the Basket may be slid forwards, underneath the Front Paddlewheels, for emptying.
- For coarse debris (like bugs and leaves) the Fine Screen insert can be used as the only filter medium. Because of higher water flow, it results in faster skimming. In some areas, bugs and leaves represent the vast bulk of the "biological load" that eats up the chlorine you put into the pool. Getting them out on a daily basis greatly increases water clarity and need for adding chlorine.
- For finer (dust) filtration, a disposable sheet of (high quality) Paper Towel can be sandwiched between the course mesh bottom of the Filter Basket and the Fine Screen, which snaps in place above it. Paper Towel filtration is used when dust, sun tan oils, air pollution, or pollen leaves a visible "film" of dust on the downwind side of the pool. In windy and dusty areas, this disposable Paper Towel fine filter can significantly cut down on the time spent running the main pool filter and the time spent vacuuming the pool bottom.

- A Filter Basket that is FULL can cause extra drag on the front paddlewheel. The skimmer, thinking it is stuck, might go into a "navigation reverse" every three minutes or so, trying to back away from a non-existent obstacle. This does not harm anything, but is a sign that the filter needs changing.
- Do not use excessively thick Paper Towels, or Shop Towel style paper towels. These heavier paper towels that look like felt do not allow enough water flow for skimming to occur. Use KITCHEN TYPE PAPER TOWELS, of good quality (so they do not decompose when wet), but not excessively thick.
- An overly full filter basket can cause the Front Paddlewheel to jam (with overflowing debris) and stop rotating. If it cannot clear itself in 10 minutes, the unit may shut down its motors, and turn on the ALARM LED (continuously ON). This can only be reset (after clearing the Front Paddlewheel) by turning the unit Off and then back ON.

## MICROPROCESSOR

- The microprocessor is the "brain" that makes decisions for the Solar-Breeze
- It can decide if the vessel is "stuck", and back up, away from the obstacle.
- It can decide that the Front Paddlewheel is jammed with debris, and cause it to briefly reverse and "spit out" what it cannot swallow.
- It can increase power to the Front Paddlewheel (or the interconnected Front Bumper Wheels) every time a piece of large debris is "swallowed" and every time one of the Front (powered) Bumper Wheels contact the side of the pool. (This prevents the unit from "stalling" under a heavy load.)
- It can decide if the battery is low or the sun is not shining brightly, and revert to Low Speed mode.
- In Low Speed Mode, it can turn on the Rear Paddlewheel every time the unit is in shade, and turn it off every time it re-enters the sun. This forces the unit to travel slower (or even stop) in the sunlight to charge the batteries when the batteries are low, preventing the unit from getting stuck with fully discharged batteries in a shadow. It still keeps the Front (skimming) Paddlewheel rotating during this battery charging operation.
- It can decide that the battery needs charging, and use the Solar Panels to charge the battery even when the Solar-Breeze main push button switch is turned OFF!
- It can decide that the batteries are fully discharged, and turn the motors off till the sun comes out again.
- It can decide that it is night, and that the batteries are at less than 50% charge, and turn the motors off till dawn to conserve battery power for operation in the early morning. (This gives the unit enough reserve power to find its way out of shadows to charge its batteries in the sun.)
- It can decide that it is night, so that it can run the unit intermittently, allowing at least some pool skimming to be performed into the night, so that the pool surface will be clean in the morning.
- It can decide that it is night, and cause the Navigation Lights to blink to make the unit more visible in the dark.

- It can detect and warn of an “Alarm” condition (with the ALARM LED indicator steadily ON), whenever the Front Paddlewheel gets stuck for 10 minutes or more.
- It can detect a very low battery, and conserve enough power to keep the microprocessor memory alive (so it can remember that the unit is turned ON, and keep the navigation lights blinking during the night.) It gives a blinking ALARM LED as a warning of this condition.

## CONTROL PANEL and LIGHTS

- The Control Panel is a plate on the rear of the Solar-Breeze with an ON /OFF (push button) switch, and three "Indicator" lights, that tell you how the skimmer is operating.
- The ON/OFF Button only prevents the motors from running and the lights from working. With the ON/OFF switch turned OFF, the solar cells can still effectively charge the storage battery, if the Solar-Breeze is sitting in the sun. In fact, storing the unit where indirect light or even room lights hits the solar panels will usually keep the batteries fully charged when turned "OFF".
- The 4 Blue "Navigation Lights" around the edges of the Solar-Breeze normally flash during the night, if the unit has at least some power in its batteries and is turned ON. They make it visible in the pool at night.
- The POWER Indicator Light (green) is on whenever the unit is turned on and has at least a little power in the batteries. It simply tells you that the unit is turned ON.
- The Red ALARM Indicator Light comes ON (steady) when the Front Paddlewheel becomes rigidly stuck from debris or string or hair wrapped around the blades or shaft.
- The Red ALARM Indicator Light BLINKS when the batteries are exceptionally low. (see "Troubleshooting"). If the ALARM light blinks (battery very low) when the unit is turned ON or if no lights at all come on (battery dead), this indicates the battery charge is very low. The unit may be turned off and set the unit in the sun to charge up the batteries for a full day. Otherwise slower charging and unpredictable performance may result. It WILL charge (eventually) without doing this, and simply shoving the floating unit into the sun will help.
- The BATTERY Indicator light tells you when the battery is charging. This helps you to judge when the sunlight is bright enough to be useful in charging a fully discharged battery. During winter and extremely cloudy days, it may be necessary to set the unit (with fully discharged batteries) at an angle so that the Solar Panels are more nearly perpendicular to the sun before effective battery charging may result.

# OFF WARRANTY USES:

## Non-Swimming Pool Uses

(Uses for the Solar-Breeze not covered by the Warranty)

Certain (non-swimming pool) uses of the Solar-Breeze will VOID THE WARRANTY, but may still (relying on the judgment of the user) present relatively safe and useful functions for the device.

By listing such POSSIBLE uses, the Manufacturer neither recommends these uses, nor warranties that they will be effective in any given application, nor that they will not cause damage NOT COVERED BY THE WARRANTY, to the Solar-Breeze.

These warnings are not intended to scare the user away from such creative uses, only to warn the user that we have not thoroughly tested the unit in these applications, and cannot possibly extend the service warranty for such creative and "off warranty" applications.

### OFF WARRANTY USES:

- ANY BODY OF WATER to be skimmed by the Solar-Breeze must meet certain minimum requirements: It must have smooth vertical edges near the waterline like swimming pools do, so that the Bumper Wheels will contact the walls. It must have limited obstacles in the pond, since some classes of obstacles will cause the Solar-Breeze to get stuck too often to be useful. It must not have vegetation growing at the surface of the water, since the Solar-Breeze will "attempt" to capture the vegetation while it is still attached by its roots. And it must not have so much "pond-scum" that the debris simply overwhelms the relatively small surface skimmer.
- Cleaning the surface of a concrete edged fishpond. The Solar-Breeze may be useful in inhibiting surface vegetation, skimming leaves and debris, and reducing maintenance. Continual use of the Solar-Breeze might inhibit the growth of surface floating vegetation and surface algae, once it is initially limited.
- Cleaning the surface of large basin fountains. In this application, the user must determine whether the violence of any fountain spray presents a hazard to the Solar-Breeze. Generally, if the fountain does not hit the skimmer significantly harder than would natural rain, the skimmer will not be harmed. But this statement is neither warranted nor tested by the manufacturer. The Solar-Breeze may be the only Chlorinating system needed in some large fountains.
- Cleaning the surface of other larger ponds and bodies of water. Very large bodies of water (having concrete near vertical edges) will eventually reach such a size that there may be some "fatal trap" from which the Solar-Breeze cannot escape. Whirlpools from suction inlets, non-vertical pond sides, tree roots and branches, and docks (and other structures) in the water are particularly likely to present "fatal traps" that will repeatedly cause the unit to get stuck. Creative building of "deflectors" at the waterline around these objects, to allow the Bumper Wheels to work properly, will "fix" the pond, and make it "friendly" for Solar-Breeze operation once again. See the website at ([www.solar-breeze.com](http://www.solar-breeze.com)) for more suggestions on the design of "deflectors" around pool obstructions.

- **CLARIFYING WATER** in large deep ponds. In some applications it is desirable to have the water in a deep pond be crystal clear, even if algae grows on the bottom. This can be accomplished by using the Solar-Breeze for distributing granular CLARIFIER on the surface, while skimming debris and rising algae clumps off the surface (to inhibit "pond-scum"). In this semi-clean pond application, the algae and bacteria clump and settle to the bottom, where they stay permanently (or until the bottom is cleaned). In some cases, the Solar-Breeze may be the ONLY pond maintenance required, except when storms bring in excessive debris, or when algae blooms overwhelm the tiny Solar-Breeze. For PUBLIC HEALTH REASONS, the use of mosquito fish may be required to inhibit West Nile Virus spreading mosquitoes. User must determine the quantity of granular clarifier that will not kill such mosquito eating fish, and maintain the appropriate balance between clear water and mosquito safety.
- **REDUCING MOSQUITO LARVA** in large untreated ponds and tanks of water: Mosquitoes, in their early life as eggs and larva live right at the surface of the water. The Solar-Breeze, in some applications, does an EXCELLENT job of skimming these eggs and larva into a Filter Basket, where the tiniest amount of a chemical may kill them. For instance, a very tiny chunk of a solid chlorine tablet, placed in the bottom of the Filter Basket, will "sanitize" it of any living mosquitoes, while adding virtually no chlorine to the large tank or pond being skimmed. User MUST determine the effectiveness of this treatment, monitor mosquitoes, and be responsible for meeting local anti-mosquito regulations.
- **Water Treatment.** Because of both safety and governmental regulation concerns, it is NEVER recommended to use the Solar-Breeze as a critical phase in the treatment of drinking water. IF, however, water in large settling ponds is being clarified for appearances sake only (not to make it into potable drinking water, or to meet any Federal, or State regulations), THEN the Solar Breeze is especially efficient at spreading Granular Clarifiers over the surface, and keeping the surface free of debris. Due to the cyclic nature and irregular nature of sunlight, it is NEVER recommended for use in holding ponds with short retention times, since it may result in no water treatment during dark cloudy weather.

# TAKING CARE OF YOUR SOLAR-BREEZE:

## CLEANING:

The body of the SOLAR-BREEZE should be cleaned with a damp rag, moistened with water, or water containing a mild soap. Stubborn deposits may be removed with a soft bristled brush, such as a vegetable brush or toothbrush. Additional cleaning tips, for difficult cases, may be found on our website at ( [www.solar-breeze.com](http://www.solar-breeze.com) ) and in the instructions below.

**WARNING!!!** Before cleaning the Solar-Breeze with any chemical, remove the Chemical Dispenser. Window cleaning solutions (such as WINDEX) routinely contain ammonia. Any such cleaning solutions **MUST NOT CONTACT CHLORINE TABLETS!!!** Ammonia and chlorine react to produce toxic gasses. And Solvents (such as paint thinner or alcohol) become extremely flammable upon contact with dry Chlorine Tablets.

## CHEMICAL DISPENSER CLEANING

- The Chemical Dispenser must be cleaned and rinsed of all chlorine and chlorine residue before storage. Never store the Solar-Breeze with any chlorine remaining in the Chemical Dispenser.
- Rinse, and scrub the inside corners of the Chemical Dispenser with a brush, wash, and rinse again, to be sure that any caked chlorine residue is gone before storing the unit. Residual chlorine, stored in the unit, will slowly release corrosive chlorine gas in any box, closet, or storage space in which the unit is stored. This has been found to be particularly detrimental to other equipment stored near the Solar-Breeze. (Chlorine gas is especially corrosive to electronics, stored photographs, and items made of aluminum, steel, and certain other metals.)
- When separated from the Solar-Breeze, the Chemical Dispenser can be immersed in water, hosed off with a garden hose, scrubbed with a brush, or whatever other gentle means may be appropriate to remove any caked chemicals.

## FILTER BASKET CLEANING

- With Filter Basket removed from the unit, gently tap the still wet Filter Basket upside down on a flat, smooth, hard surface. If debris still clings to the screen, dip the entire Filter Basket in water and repeat.
- Do not allow debris to dry onto the screen, as this makes removal more difficult.
- Soaking the screen in warm soapy water, and using a soft brush or spray from a garden hose from the back side will frequently clean out a badly clogged screen.
- Difficult deposits (such as from algae or lime) can sometimes be removed after soaking the Filter Basket only, or the Filter Basket Screen only, in a weak solution of household bleach in water or a weak solution of acidic cleaners such as CLR,

or extremely strong detergent such, such as TSP. Thoroughly rinse the Filter Basket after use of such chemicals before placing the Filter Basket back into the Solar-Breeze.

- When reinstalling Filter Basket using Paper Towels, be sure to slide into the unit while it is floating in the water, after tilting the Filter Basket to allow any large air bubbles to escape that might be trapped under the Paper Towel.

## PADDLEWHEEL CLEANING:

- Sticky debris clinging to Paddlewheel blades can cause them to be off balance, or even to jam.
- Paddlewheels can be gently scrubbed with a soft bristle brush (such as a toothbrush), and can be rubbed with rags and mild soap
- DO NOT force the rotation of Paddlewheel blades, or strike them suddenly, as it is possible to damage the gears connecting them to the motors.
- IF string, hair, or other stringy material wraps around the shaft of the Paddlewheel, turn the unit OFF, GENTLY remove it with tweezers, unwrapping it (if possible) from around the shaft. DO NOT CUT hair or string with a knife, since this might cut into the metal of the Paddlewheel blades or the plastic of the shaft. Various clippers, such as fingernail clippers, and small nosed wire cutters might do the job with less Paddlewheel damage. But FIRST, always try and unwrap the string or hair in a direction opposite to the normal turning direction of the Paddlewheel.
- If the Paddlewheel is rigidly jammed with debris, first remove the Filter Basket, if possible, and then remove the stuck debris with the gentlest possible method that does not exert excessive force on the Paddlewheel. The Paddlewheel drive mechanism is DELICATE, and Paddlewheels should be handled with gentleness and patience. Forcing the rotation of a Paddlewheel or a Front Bumper Wheel can potentially damage gears inside the unit.
- In case of extremely bad jammed Paddlewheels (say, one wrapped with hundreds of strands of human hair, or fine thread), it may pay to ask assistance of a swimming pool professional, or even a vacuum cleaner repair person, as they have daily experience with clearing this sort of tightly wrapped string jam.

## SOLAR PANEL AND SOLAR-BREEZE BODY CLEANING:

- With the unit out of the water and turned OFF, and the Chemical Dispenser removed, gently wipe the Solar Panel surface with a soft cloth dampened with water or a window cleaning solution.
- Dry with a soft cloth, not Paper Towels, since they can scratch the polycarbonate surface of the Solar Panels. (While this damage is only cosmetic in nature, the unit will appear newer and cleaner if care is always taken to wash the Solar Panels with softer cloths. Mild scratching and water spots have little effect on the Solar Panel output.)



- Dust, dirt, and scale buildup hurts Solar-Panel performance. Mild streaking after cleaning has virtually no effect. Except for cosmetic purposes, a quick wipe with a clean damp cloth is adequate to keep the solar cells at peak efficiency.
- If the Chemical Dispenser is removed BEFORE cleaning, then window-cleaning solutions, sprayed onto a soft rag, may be used on any surface of the Solar-Breeze EXCEPT the Chemical Dispenser.
- **WARNING!!!** Never risk mixing ANY CLEANING CHEMICAL with swimming pool chlorine. Spontaneous fires, explosions, or the production of deadly poisonous gases could result.

## LUBRICATION:

- **WARNING!!!** Do not use oils or greases on the Solar-Breeze, as they present a fire hazard in proximity to solid chlorine
- The Solar-Breeze does not need oils, greases, or other lubrication, and their use may cause degradation of the plastic surfaces of the unit.
- If Paddlewheels act "sticky", look first for a wad of human hair wrapped around the Paddlewheel shaft, where it contacts the body of the skimmer, or something wrapped around one of the front Bumper Wheels. Removing this (with a tweezers) will frequently cause the Paddlewheels to spin freely once again. If you lack skill or patience for this job, ask your pool care professional. Vacuum cleaner repairmen also tend to be very experienced at removing such problem wads of hair or fibers.

## STORAGE

- Do not store the Solar-Breeze outside, in the sun, out of the water for extensive periods of time. Hot sunshine, without the presence of cooling water can result in eventual warping of plastic parts. The unit is actually safer in the water, operating, or even turned off, than sitting out on a hot concrete pool deck.
- Note: The Solar-Breeze is capable of charging its batteries in the sun, even with the switch turned OFF. If batteries are COMPLETELY DISCHARGED, placing the unit in the sun, but turned OFF, will allow the batteries to accumulate a full charge before use or storage.
- Do not store the Solar-Breeze in locations that are excessively cool (below freezing), or excessively hot (above 100 degrees Fahrenheit), as these extremes can damage batteries and plastics over long periods of time. Ideally, store the Unit at household room temperatures, as this can significantly increase its useful life.
- Long term storage (such as over winter) should be in its original box, right side up. Then, when it is unpacked for use, it should be placed in direct sunlight for one full day for the batteries to be charged.
- CHEMICALS must never remain in the Chemical Dispenser when it is stored. This is HAZARDOUS, and will VOID THE WARRANTY. The Chemical Dispenser must be removed from the unit, rinsed, have any residue in the inside

- corners brushed or scraped out, be washed, and rinsed again - before being placed back in the Solar-Breeze for storage.
- After prolonged storage, or when first receiving the Solar-Breeze, allow the unit to charge in bright sunlight for one full day before turning the unit on. (Otherwise, its performance with a dead battery will be very disappointing and unpredictable. If it gets stuck with a dead battery in a deep shadow, it might go for several days before operating at full performance.)
  - Never (even for a short time) store the Solar-Breeze with ANY weight or other pressure exerted upon the Paddlewheels. This can bend and distort the Paddlewheels, and prevent them from being able to rotate freely.
  - Do not leave the Solar-Breeze in a foul, partially empty, or empty swimming pool, or use it for skimming in fish pods, lily ponds, or other water that is not sanitized. This will VOID the WARRANTY. While it may be capable of safely and efficiently skimming in certain non-swimming pool environments, the warranty only covers its use in well maintained swimming pools. (See the section, "Off Warranty Uses" for such other applications, such as concrete fishponds and large basin fountains that are useful, but not covered by our Service Warranty.)

## "PROBLEM OBSTACLES" in your pool:

- Some pools will have a "problem obstacle" that repeatedly slows down the operation of the Solar-Breeze as it attempts to navigate around it. Usually, the Solar-Breeze can quickly navigate around anything, or back away from it when stuck.
- IF an obstacle wastes too much of the skimming time, backing away from it, every time the Solar-Breeze navigates around the pool, it may be worth it to consider the addition of a small "Deflector" that assists the Solar-Breeze to quickly go around the obstacle, without missing skimming any area of the pool in the process.
- Go to ( [www.solar-breeze.com](http://www.solar-breeze.com) ) for more specific and updated suggestions on the building of such "deflectors" or contact your pool care professional.
- Generally, a deflector is made from a small piece of PVC plastic, or similar smooth and non-corroding material, located precisely at the level of the Bumper Wheels of the Solar-Breeze. This causes the Bumper Wheel to contact it, and turn the unit away from the obstacle before it has an opportunity to get "stuck", and have to "back up" to find its way around the obstacle. Deflectors may be glued to the smooth tiles at the waterline by marine epoxies or other similar underwater rated glues. Care must be taken to avoid getting glue on grout joints or anywhere but on the smooth tile surfaces, since glue can only be removed (by razor knife scraping) on very smooth surfaces. Do NOT get glue on plaster or pebble textured pool walls!
- The manufacturer of the Solar-Breeze can take no responsibility for damage to the pool from the installation of Deflectors, since the workmanship, glues, application, and clean up methods are beyond our control. Consult a swimming pool professional or do small scale tests on scrap pieces of tile if you have doubts.

- **WATER LEVEL:** Too low or too high of water level in the pool may prevent Bumper Wheels from making optimum contact with the edge of some swimming pools. It is critical to raise or lower water level for optimum bumper wheel contact.

## OWNER REGISTRATION

Please register your name and address and other information within **10 days of purchase**, for your service warranty to be effective.

You may register online at ( [www.solar-breeze.com](http://www.solar-breeze.com) ), or by the return postcard included with the Solar-Breeze. If registering online, you will receive a **PRODUCT REGISTRATION NUMBER** at that time. Otherwise, you will receive it by return postcard.

Once you have registered, and you seek warranty service, be prepared to give this Product Registration Number when contacting us online or by phone.

**You MUST keep this PRODUCT REGISTRATION NUMBER, WITHOUT WHICH YOU CANNOT RECEIVE WARRANTY SERVICE!**

# SERVICE:

If you need service under this warranty, visit ( [www.solar-breeze.com](http://www.solar-breeze.com) ) for more information, and to verify that your warranty is in force, and how to obtain service. You may also call our service number: Phone **623-582-2825**

If you have registered your Solar-Breeze within the required **10 days** of purchase, you have received a valid and unique **Product Registration Number**.

AFTER contacting us about service, and giving us your unique Product Registration Number, and IF your unit is still under warranty, you will be issued a unique RETURN AUTHORIZATION NUMBER and an a Service Return Address.

- Mail the unit, with the RETURN AUTHORIZATION NUMBER printed in LARGE LEGIBLE LETTERS on the outside of the box. A SERVICE ADDRESS, to mail the unit to, will be provided, along with the Return Authorization number.
- Units received at our warehouse without a RETURN AUTHORIZATION NUMBER printed in large legible letters on the box, will be refused unopened, and returned at owners expense.
- Please also place the Return Authorization Number on a piece of paper taped to the body of the Solar-Breeze.
- The unit must not have been abused in any way that will VOID the Warranty
- The unit must be shipped in its original shipping container (for warranty service) OR packed sufficiently well so as not to sustain damage during shipping (for out-of-warranty-service).
- If the unit has been abused, or is otherwise out of warranty, it will be shipped back, in the same container, along with a brief statement of explanation for refusal of warranty service.
- If the unit is under warranty, it will be repaired or replaced at the manufacturer's option.

## OUT OF WARRANTY SERVICE

Once out of warranty, some repairs may be performed locally by pool care professionals. For problems beyond their abilities, go to ( [www.solar-breeze.com](http://www.solar-breeze.com) ) or call our service number at **623-582-2825** for more service options and suggestions.

In ALL cases, including Out of Warranty Service performed for a fee, we will ALWAYS require a "RETURN AUTHORIZATION NUMBER" (to be issued by us) that MUST be printed in large legible letters on the outside of the box in which the Unit is returned in, OR we will return the box unopened at the owner's expense.

After receiving a Solar-Breeze unit returned for “out of warranty service”, the manufacturer will evaluate the condition of the unit and contact the owner by email (preferred) or by phone and inform the owner of the cost of repair of the unit. Manufacturer will only perform repairs approved by the owner, at the cost quoted after evaluation of the unit. If the customer shall choose not to accept our offer of service-at-a-fee, the unit will be shipped back to the owner at the owner’s expense.

Individuals or companies performing repairs on an out-of-warranty Solar-Breeze may find information about parts availability at ( [www.solar-breeze.com](http://www.solar-breeze.com) ).

## Limited Warranty

Manufacturer of this product, hereby warrants, subject to the conditions set forth below in paragraph 1, 2, 3, and 4, that it will either repair, or replace, at its option, this product if it proves to be defective by reason of improper workmanship or materials within 1 year after the purchase of this product at retail or (at the manufacturer's option) refund the **pro-rated** portion of the original purchase price appropriate for the remaining portion of the warranty period. This warranty, to be effective, must be registered within 10 days of the original purchase date.

It may be registered online at ([www.solar-breeze.com](http://www.solar-breeze.com)) or by mail with the included mail in warranty registration card. In order to obtain repairs or replacement under this limited warranty during the first 30 days after the purchase date, you must bring this product to the original place of purchase OR call the Warranty Service phone number listed, below. After 30 days from the purchase date, you **MUST**, to obtain any warranty service, first contact the manufacturer online or by phone to obtain a valid RETURN AUTHORIZATION NUMBER. The unit must be returned in the **original packaging material**, and the RETURN AUTHORIZATION NUMBER must be clearly printed on the outside of the package in large legible letters. The following conditions apply to this Limited Warranty.

1. **ORIGINAL PURCHASER.** This limited warranty is limited to the original purchaser at retail of this product from retailer or manufacturer or authorized distributor.
2. **UNAUTHORIZED REPAIR, ABUSE, ETC.** This product shall not have been previously altered, repaired, or serviced by anyone other than a service facility authorized by the manufacturer or distributor to render such service: This product shall not have been subject to accident, misuse, abuse, casualty, vandalism, or operated contrary to instructions, accompanying this product.
3. **REGISTRATION.** This warranty must be registered within 10 days of the purchase date by registering online at [www.solar-breeze.com](http://www.solar-breeze.com) or by mail, using the Registration Card included with the Solar-Breeze. Your registered unit will be issued a "registration number" which is required when contacting the manufacturer (online or by phone) for any warranty service.
4. **EXCLUSIONS.** This warranty does not apply to any Solar-Breeze unit that has been mistreated in any way, including if the unit has been:
  - Submerged underwater sufficiently to get water inside the motors or electronic enclosures
  - Treated roughly so as to break components by what is obviously abuse (such as breaking the solar panels, cracking the plastic housing, Paddlewheels or other components. )
  - Stored or used in a pool of water as the pool surface freezes or becomes too foul to allow its use as a swimming pool, or allowed to remain in water during sleet, snow, tropical storms, or swimming activity.
  - Stored (out of water) with chemicals still remaining in its Chemical Dispenser, or in excessively hot or cold environments (below 32°F or above 100°F).
  - If the Solar-Breeze is used in anything but a well maintained private swimming pools where the owners have control of persons entering the swimming pool area. Or more public applications where the Solar-Breeze is removed from the public area during times of pool use. Or if the Solar-Breeze is used for any "off-warranty" application.

Except to the extent prohibited by applicable law, no other warranties, whether express or implied, including the warranties of merchantability and fitness for a particular purpose, shall apply to this product. Under no circumstances shall manufacturer or distributors be liable for consequential or incidental damages in connection with this product. To the extent manufacturer is prohibited by applicable law from excluding implied warranties, the duration of such implied warranties which are not excludable shall be 1 year from the date of the purchase of this product at retail. Some states do not allow the limitation on how long an implied warranty lasts, so the above limitation on the duration of implied warranties, if any, which are not excludable may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion of incidental or consequential damages may not apply to you.

Manufacturer neither assumes nor authorizes any representative or other person to assume for it any obligation or liability other than such as is expressly set forth herein. This limited warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

For warranty service go to ([www.solar-breeze.com](http://www.solar-breeze.com)) or call **623-582-2825**

**Solar-Breeze, Warranty Registration, P.O. Box 41187, Phoenix, AZ. 85080-1187**

## SPECIFICATIONS:

- Two Electrical Motors - 3Phase long life brushless DC motors, with Pulse Width Modulated speed control.
- Two Solar Panels - Mono-Crystalline solar cells with polycarbonate cover with epoxy seal.
- Storage batteries: NiCd battery pack for extended night time operation.
- Hazard lights, Long life LEDs.
- Chlorine Capacity - 2 large (jumbo, 3 inch) commercial swimming pool chlorine tablets.

### Radio Frequency Interference...

This device complies with Part 15 of the FCC rules.

Operation is subject to the following 2 conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that might cause undesired operation.

This Class A digital apparatus complies with Canadian ICES – 003, Class B



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