

PRESSURIZED DIATOMACEOUS EARTH FILTER SYSTEM



This filter system is designed for use with aboveground and semi-inground swimming pools. **DO NOT** operate this filter system without adding D.E. as it will cause damage to the support element inside the unit.

TOOLS REQUIRED

- Phillips head screwdriver
- Pliers
- O-ring lube

PARTS FOR SAND FILTER

NOTE Some part numbers may vary for each filter size. Please refer to the breakdown on the next page for model specific parts lists.



A. FILTER TANK



B. LID WITH O RING



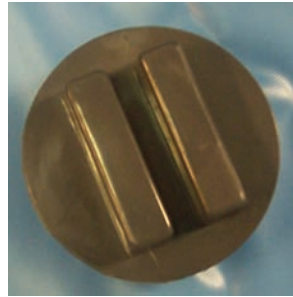
C. AIR RELIEF



D. GAUGE



E. ELEMENT



F. THREADED PLUG



G. FILTER BASE



H. BASE HARDWARE



I. UNION ADAPTER



J. HOSE CLAMPS (4)



K. SIDE MOUNT UNION



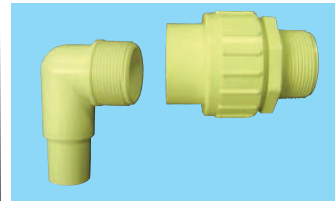
L. SLIDE VALVES (2)



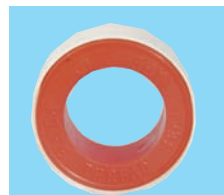
M. 6'-1/2" HOSE (2)



**N. FLEX PIPE W/
CONNECTION FITTING**



**P. ELBOW
FITTING**



**O. TEFLON
TAPE**



**Q. STRAIGHT
FITTING**

D E FILTER PARTS BY MODEL

PART #	DESCRIPTION	AC DE40	AC DE50	AC DE60	AC DE75	AC DE85	AC DE95
AC DETANK40	Tank for DE40	1	N/A	N/A	N/A	N/A	N/A
AC DETANK50	Tank for DE50	N/A	1	N/A	N/A	N/A	N/A
AC DETANK60	Tank for DE60	N/A	N/A	1	N/A	N/A	N/A
AC DETANK75	Tank for DE75	N/A	N/A	N/A	1	N/A	1
AC DETANK85	Tank for DE85	N/A	N/A	N/A	N/A	1	N/A
AC DETANK95	Tank for DE95	N/A	N/A	N/A	N/A	N/A	1
AC 37044	Lid with O-Ring	1	1	1	1	1	1
BS PRCBASE	Filter and Pump Base	1	1	1	1	1	1
BS PRCVLVE	Slide Valve	2	2	2	2	2	2
BS 17396GRY	Threaded Plug	2	2	2	2	2	2
BS 35815	2 Pack Hose Clamps	2	2	2	2	2	2
BS 35858	Teflon Tape	1	1	1	1	1	1
BS 39349	Rear Mount Pressure Gauge	1	1	1	1	1	1
BS 11762	Air Relief Valve	1	1	1	1	1	1
AC 04723	Flex Pipe With Connection Fittings	1	1	1	1	1	1
BS 10022	6'-1/2" Filter Hose	2	2	2	2	2	2
AC 11991	Side Mount Union	1	1	1	1	1	1
AC 08524	Union Adapter	1	1	1	1	1	1
AC 26565	Elbow Fitting	1	1	1	1	1	1
AC BSEHDW	Base Hardware	1	1	1	1	1	1
AC 26573	Element for DE40	1	N/A	N/A	1	N/A	N/A
AC 26689	Element for DE50	N/A	1	N/A0	N/A	N/A	N/A
AC 26808	Element for DE60	N/A	N/A	1	N/A	N/A	N/A
AC 74640	Element for DE75	N/A	N/A	N/A	1	N/A	N/A
AC 74713	Element for DE85	N/A	N/A	N/A	N/A	1	N/A
AC 74748	Element for DE95	N/A	N/A	N/A	N/A	N/A	1

ASSEMBLY INSTRUCTIONS FOR DE FILTER

STEP 1— PRE-ASSEMBLY

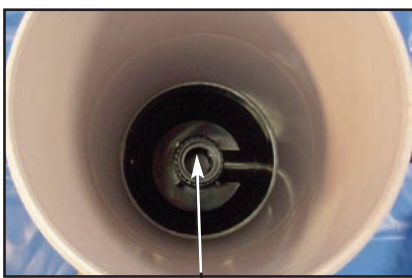


- Open the filter tank (A) and inspect internal components. In order to do this, you will need to unscrew the lid (B).
- This filter features a lock tab, which is designed to protect from over-tightening the lid and causing leaks and/or damage to the o-ring.

- To open the lid, push down on the lock tab as shown (above) and turn the lid to the left.
- To close the lid, center the lid over the opening of the tank and turn to the right. Keep turning right until the lid stops turning. You will see that the lid reaches a point where it is caught past the lock tab and you will not be able to turn any further (see right).



NOTE To ensure a proper seal at the lid, lubricate the O-ring inside the lip of the lid with o-ring lube (sold separately).



Center element over rounded opening

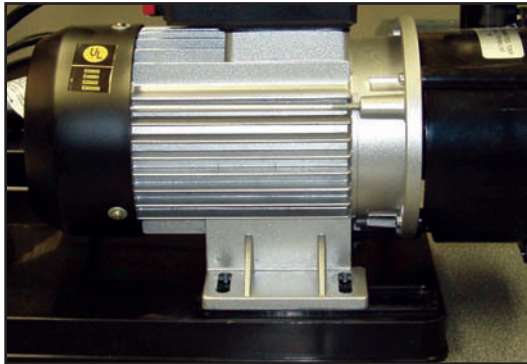
- The element (E) inside the unit DOES NOT filter the water. This element acts as a support system to hold D.E. and provides a surface area where dirt and debris will be caught.



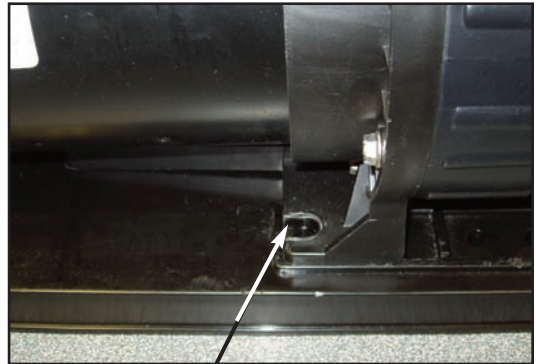
- Check to ensure that the pre-installed element is sitting properly inside the tank. The bottom of the tank has a round opening that the element must sit on in order for the lid to close.
- When reinstalling the element, place it inside the tank and push straight down. If the opening of the element is centered over the round opening, it will be pushed down easily. If experiencing difficulty, pull the element up and try again to center and push downward.

2. ATTACHING PUMP TO BASE & FILTER

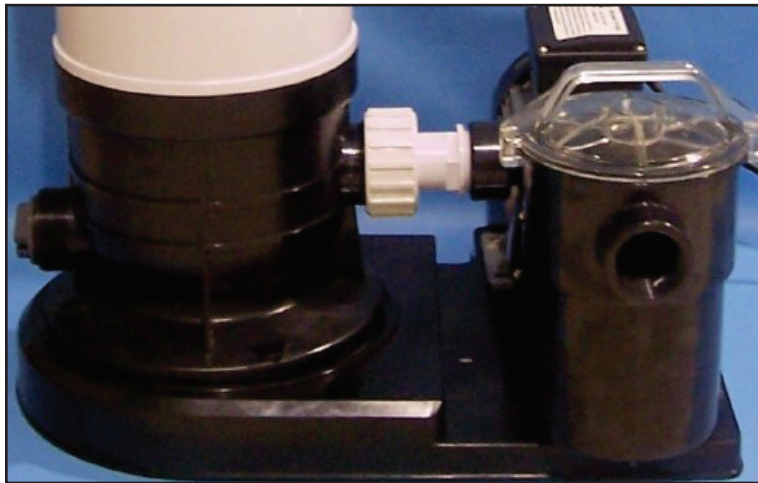
There are different styles of mounts which will affect the way your pump is attached to the base. Inspect your pump and determine which of the three mounts below is most similar to yours. Use the corresponding directions for your hook-up (2A, 2B or 2C) and then proceed to Step 3.



2A— Cradle style mount pump

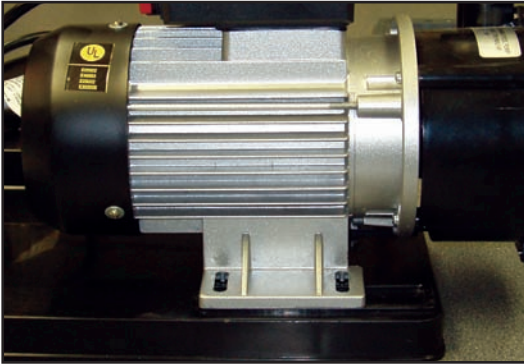


2B — Plastic pump housing mount

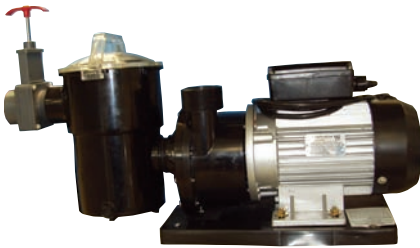


2C— Side mount pump

2A. CRADLE STYLE MOUNT



Pumps with cradles located directly under the motor (see left) should be aligned with the holes inside the raised area of the base. This type of mount will require the use of **FOUR** mounting bolts from the hardware bag (**H**).



Cover threads of slide valve (**L**) entirely with Teflon tape (**O**) to protect from leaks at the connection. Thread the slide valve into the **FRONT** of the pump or pump strainer basket if applicable (see left).

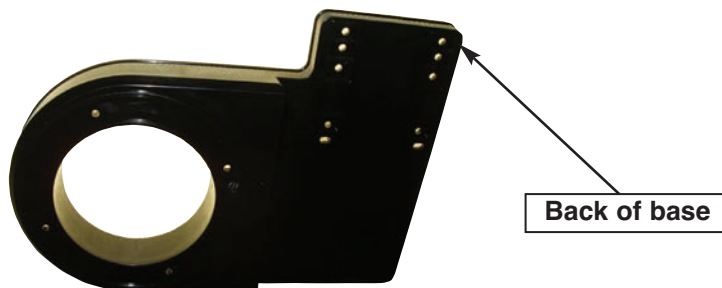


Raised area on base



If there are **NO THREADS** on the inside of your pump inlet or on the inside of the pump basket, attach slide valve to the bottom of thru-wall skimmer (in place of standard fitting). This valve will allow you to stop the flow of water **FROM** the pool when filter maintenance is necessary. (see left).

Place tank on top of round opening on base and rotate until the holes in the tank bottom line up with the holes in the base. Use the remaining mounting bolts from hardware bag (**H**) to secure in place. **BEFORE** bolting down, make sure that the port labeled "TO PUMP" (see raised words on side of port) is facing the back of the base (longer part of base indicates back).

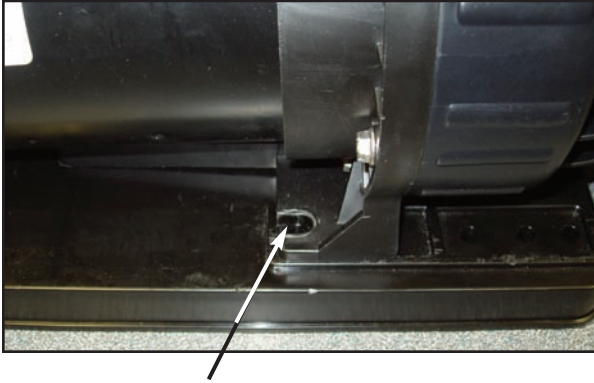


Back of base



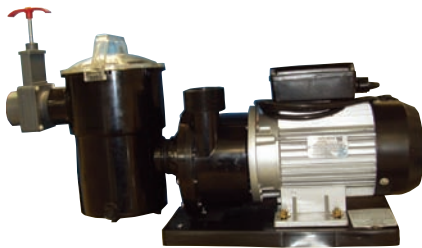
PROCEED TO STEP 3

2B. PLASTIC PUMP HOUSING MOUNT



- Pumps with plastic pump housing mounts (see left) should be attached by aligning the openings with the holes outside the raised area (see below). This type of mount will require the use of TWO mounting bolts from the hardware bag (H).
- Please note that there are TWO sets of openings. Some pumps will need to be connected to the first set and others will need to be bolted down through the second set.
 - If you are attaching the Speck E90 (SS E90) pump to the base, use the set of holes closest to the raised area.
 - If you are attaching the Speck E91 or E92 (SS E91 or SS E92) pump, use the set of holes that are closest to the center of the base.

NOTE Failure to follow these placement instructions will result in an issue connecting the flex pipe with connection fittings to the pump and filter.



Cover threads of slide valve (L) entirely with Teflon tape (O) to protect from leaks at the connection. Thread the slide valve into the FRONT of the pump or pump strainer basket if applicable.



Holes outside raised area



If there are NO THREADS on the inside of your pump inlet or on the inside of the pump basket, attach to bottom of thru-wall skimmer (in place of standard fitting). This valve will allow you to stop the flow of water FROM the pool when filter maintenance is necessary.

Place tank on top of round opening on base and rotate until the holes on the bottom of the tank line up with the holes in the base. Use remaining mounting bolts from hardware bag (H) to secure in place. BEFORE bolting down, make sure that the port labeled "TO PUMP" (see raised words above port) is facing the back of the base (longer part of base indicates back).

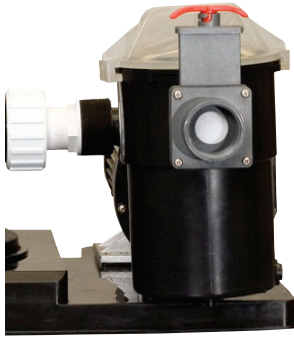


Back of base



PROCEED TO STEP 3

2C. SIDE-MOUNT PUMPS

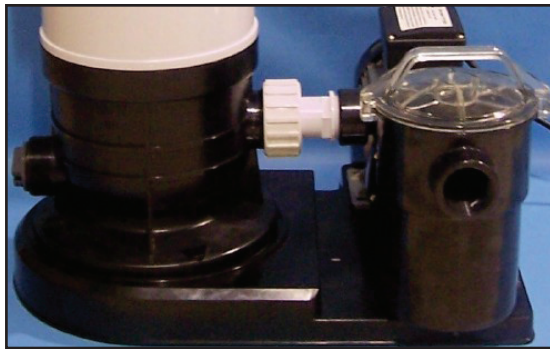


Side-mount pumps (see left) allow you to attach the pump **DIRECTLY** to the filter body. Prior to attaching the pump, you must attach the tank to the base in order to determine which set of holes to use for the pump.

Place tank on top of round opening on base and rotate until the holes in the tank bottom line up with the holes in the base. Use remaining mounting bolts from hardware bag **(H)** to secure in place. **BEFORE** bolting down, make sure that the port labeled **“TO PUMP”** (see raised words on side of port) is facing towards motor mount.

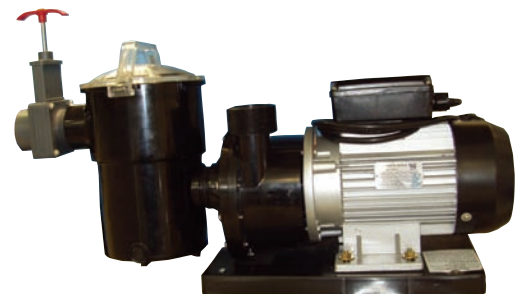


Raised area of the base



Attach side mount union **(K)** to pump by using Teflon tape **(O)** on threads and screwing into the pump opening. When properly installed, the 2” locking ring should face the filter body. Place the pump onto the raised part of the base (see above) and line up with the set of holes which allows the union to be in line with the **“TO PUMP”** filter port. Use the mounting bolts to secure on base (see left).

Thread the ring of the union onto the threads on the outside of the **“TO PUMP”** port. Once this is secure, cover threads of slide valve **(L)** entirely with Teflon tape **(O)** to protect from leaks at the connection. Thread the slide valve into the **FRONT** of the pump or pump strainer basket if applicable.



If there are **NO THREADS** on the inside of your pump inlet or on the inside of the pump basket, attach to bottom of thru-wall skimmer (in place of standard fitting). This valve will allow you to stop the flow of water **FROM** the pool when filter maintenance is necessary.

3. FITTING ATTACHMENT

There are several ways to hook up hoses to your filter and pump and the best way will depend on your set-up. Some pumps have female threads only (inside), some have male threads only (outside) and others may have both or none. There are parts included in CARTON 2 which will allow for set-up with virtually any style of pump. Below are the options available for hook-up based on the threads that your pump has.

- Note that the filter has 3 ports in the black area. One port has already been hooked up to your pump. The remaining two ports should each have a threaded plug (F) pre-installed.
- Remove both plugs and cover the threads with Teflon tape to protect from leaks at the plugs.
- Screw the plugs back into place and hand tighten.



NOTE Even though one of the plugged ports says, "TO FILTER" it will NOT be used as the return line for the filter. Make sure to replace plug in this opening as the filter will not function properly if this port is used to send water back to the pool.



- Cover the threads of the union and elbow (P) with teflon tape and screw them both into the threaded opening on the lid (B) of the filter. Try to tighten to the point where the elbow faces the direction of your pool's return.

- Locate the second slide valve (L) and cover the threads with Teflon tape.
- If there is a straight fitting screwed into your return, remove it at this time.
- Thread slide valve into the opening on the outside of the return. The direction in which it points does not affect its ability to stop water flow.



NOTE To ensure a proper seal at the lid, lubricate the O-ring inside the lip of the lid with o-ring lube (sold separately).



- Thread the fitting removed from the return (or provided with your thru-wall skimmer) into the threaded opening of the slide valve. Remember to cover threads with Teflon tape to protect from leaks.
- Instructions on how to use the slide valves can be found under 6- Using Slide Valves.

4. ATTACHING PUMP AND FILTER

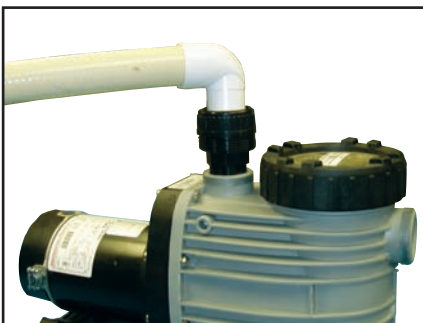
- To connect your filter and pump, a flex pipe with connection fittings (**N**) is included. This hose will adapt to fit your pump if there are male (outside) or female (inside) threads on the pump's outlet.
- The flex pipe is bent in a way that it will only fit with the smaller of the two fittings on the pump and the larger of the two fittings on the filter port.
- Check the flex pipe with connection fittings to ensure that o-rings are inside (see right). Lubricate these o-rings with o-ring lube (sold separately) prior to installation.



NOTE: If you have a SIDE-MOUNT PUMP, you will NOT need to attach this piece to your filter as the pump is already connected.

NOTE: If you have a pump that has NO THREADS then you will need to purchase additional items to set up your new filter system. You will need to get a 3' hose (1-1/4" or 1-1/2" depending on the size your pump accepts) to attach directly onto your pump's outlet as the threaded fitting provided will not fit. You will also need an *elbow fitting* to thread into the female threads in the filter "FROM PUMP" port to attach your hose. Please remember you will need additional *hose clamps* to install with this method. For best results place tank with "TO PUMP" port facing back of base and attach hose as shown (see left).

If your pump has threads on the **outside** of the outlet (top of the pump) then you will thread one of the connection fittings directly onto it. Thread opposite side directly onto the "FROM PUMP" port of the filter and hand tighten connection.



If your pump **ONLY** has threads on the **inside** of the outlet (top of the pump) then you will need to use the union adapter (**I**). Cover the male threads of the union adapter with Teflon tape and thread the union adapter directly into the outlet on the pump. At this point you may thread one of the connection fittings directly onto the union adapter and the other onto the "FROM PUMP" port of the filter and hand tighten the connection.

5. ATTACHING FILTER SYSTEM TO POOL



- Attach (1) 6' 1-1/2" hose (**M**) to the elbow fitting using (1) hose clamp (**J**). Secure the free end of this hose to the fitting on the slide valve connected to the return using (1) hose clamp (see left).



- There should be at least one straight fitting provided with your pump (or that you will need to purchase separately), which you will thread into the slide valve on the front of the pump or bottom of the skimmer.
- Second 6' 1-1/2" hose should be secured to the fitting on the bottom of the skimmer and the fitting on the front of the pump/pump basket using hose clamps.



6. USING SLIDE VALVES



- The slide valves are used to stop the flow of water to the filter for routine maintenance. While the filter is in operation, the slide valves **MUST** remain in the open position. To open the valve, turn the red handle to the left and pull straight up [or out depending on position of valve] (see right).
- When you need to clean the element you will have to move the slide valves into the closed position. First, turn off your pump to avoid damage due to excessive pressure. Next, push the red handle straight down [or in] and turn it to the left to lock valve in place (see left).
- Remember to open **BOTH** valves again prior to restarting pump after cleaning.



7. FINISHING UP



- Check to ensure that you replaced the element and lid properly in the first step.
- Hand-tighten the air relief valve (**C**) to make sure that it is closed securely.
- Locate the pressure gauge (**D**) and cover the threads with Teflon tape to prevent leaks at the connection. Screw the gauge into the small threaded opening on the lid and hand-tighten.

- Fill the water in the pool to the middle of your thru-wall skimmer **BEFORE** operating your filter. Once the water has reached mid-skimmer you may turn on the pump.
- You **MUST** bleed the air out of the system using the air relief valve on the top of the tank. Turn the valve to the left and you will hear a hiss of air. When water starts to spurt out, close the valve.
- The dosage of **D.E.** will vary based on the size of the filter system. Refer to the model numbers below for the recommended amount of D.E. to add.

AC DE40 1 LB

AC DE75 2-1/2 LB

AC DE50 1-1/2 LBS

AC DE85 3 LBS

AC DE60 2 LBS

AC DE95 3-1/2 LBS

NOTE DO NOT exceed the recommended dosage! Adding too much D.E. powder can cause weak return flow and/or D.E. returning to the pool.

- To add D.E. into your filter, mix the recommended amount of D.E. with water in a bucket until it is the consistency of pancake mix. With the filter running, pour the D.E./water mixture into the thru-wall skimmer. The D.E. will stick to the element inside the tank and begin to filter out dirt and debris.
- Please refer to the following pages for further instructions on using your filter system

IMPORTANT SAFETY NOTES

- **NEVER** attempt to remove the lid of the filter while the pump is running.
- **DO NOT** run filter system while people are swimming.
- Make sure to follow proper electrical precautions as advised by pump manufacturer. Failure to do so may result in injury or death.
- Note the pressure gauge reading when D.E. is added for initial start-up. When the gauge reads 10 psi higher than this number, you will need to clean the filter system.
- Allowing too much pressure to build in the system can be dangerous and may cause damage to the filter and pump.
- Any time that the filter system is started, you **MUST** bleed the air from the system. Failure to do so may result in damage to the system or cause an explosion.

MAINTENANCE AND CLEANING

- When the pressure through the return becomes sluggish and/or the pressure gauge reads 10 psi higher than the start-up reading you will need to clean the filter.
- To clean the system, turn off the filter pump and bleed the air out of the system using the air relief valve on the lid.
 - a) Close slide valves by pushing down the red handle on each and twisting to lock into place.
 - b) Remove threaded plug on the DRAIN port at bottom of tank. This will allow water and excess D.E. to escape tank.
 - c) Remove lid from filter system (see Step 1 of assembly instructions for directions on opening with the lock tab).
 - d) Pull element straight up and out of filter tank. Rinse well using garden hose with spray nozzle. For best cleaning results, use Blue Seal Spray-A-Way (BS 52175 sold separately) to get inside pleats and remove traces of D.E. from element.
 - e) Thread plug back into drain port.
 - f) Place element back into the filter tank and close lid tightly.
 - g) Open both slide valves to allow filter to fill with water.
 - h) Mix recommended amount of D.E. powder and water in bucket until it reaches the consistency of pancake mix.
 - i) Open air relief valve and start pump. Once pump is running and air is out of system, close air relief valve and pour D.E./water mixture into the thru-wall skimmer.
- On occasion, it will be necessary to soak the element overnight in a solution of Advanced Solutions Filter Flush (BSC 67822) and water (1:10) to thoroughly clean it.

NOTE Filter cycles will vary based upon pool usage and conditions. Clean element as necessary to protect filter system.

NOTE Whenever algae is present in the pool, it will significantly reduce the length of the filter cycle. The filter will be most effective when proper water chemistry is maintained.

POOL CHEMISTRY GUIDELINES

SUGGESTED POOL CHEMISTRY LEVELS	ACTION REQUIRED TO CORRECT POOL CHEMISTRY	
	TO RAISE	TO LOWER
pH 7.2 to 7.6	Add pH UP	Add pH DOWN
TOTAL ALKALINITY 100 to 130 ppm	Alkalinity Up	Add pH DOWN
CHLORINE (Unstabilized) 0.3 to 1.0 ppm	Add Chlorine Chemical	No action - Chlorine will naturally dissipate
CHLORINE (Stabilized) 1.0 to 3.0 ppm	Add Chlorine Chemical	No action - Chlorine will naturally dissipate
CHLORINE STABILIZER (Cyanuric Acid) 40 to 70 ppm	Add Stabilizer (Cyanuric Acid)	Dilution — partially drain & refill pool with water that has not been treated with Cyanuric Acid

TROUBLESHOOTING

LOW WATER PRESSURE

- **Air is getting into system**
 - a) Check to ensure that all hose connections are tight
 - b) There is a crack present in filter, pump, or pump basket
 - i) Inspect tank and pump for cracks as these would allow air to enter system.
 - ii) If a crack is found, replace the part which has been cracked. You **CANNOT** fix cracks, air will continue to leak through.
- **Perform filter maintenance**
 - a) Refer to Maintenance & Cleaning section.
- **If algae is present, it will increase the amount of filter maintenance necessary as it will clog up filter. To clear up pool:**
 - a) Adjust pH and Alkalinity then shock pool with double the normal dosage.
 - b) Continue running filter system and cleaning system as necessary.
 - c) Use an algaecide strong enough to kill live algae the evening following the shock treatment.
 - d) If necessary, add clarifier to clear up cloudiness caused by dead algae.
 - e) Refer to Pool Chemistry Guidelines section and maintain proper water chemistry to avoid this issue in the future.

EXTREMELY SHORT FILTER CYCLES

- **Element may be dirty and not allowing water to flow through properly.**
 - a) Perform filter maintenance to clean system and soak element overnight in solution of 1 part Filter Flush and 10 parts water. Rinse well following morning and reinstall element. Add recommended amount of D.E. and begin new cycle.
 - b) If this does not help, consult local dealer regarding acid bath for element or purchase a new element.
- **Improper water chemistry**
 - a) Follow instructions for water chemistry as outlined in Pool Chemistry Guidelines section or consult your local pool dealer.

D.E. OR DEBRIS RETURNING TO THE POOL

- **Too much D.E. has been added to the filter system**
 - a) Perform cleaning of filter system and restart using proper amount of D.E.
- **Hoses are hooked up incorrectly**
 - a) If the hoses are hooked up improperly, it can lead to D.E. or debris being pushed into the pool. Check hook up against instructions and correct if necessary.
- **Damaged element**
 - a) Rips or wear and tear on element will allow D.E. or dirt to pass through the element and return to the pool. There is only one solution, purchase new element.
- **Element is not sitting properly in tank**
 - a) While difficult to do if the lid is closed, it is possible that the element is not sitting properly.
 - b) Turn off pump, close slide valves, bleed air from system and open lid to check that cartridge has been placed inside properly.
 - c) See Step 1 of instructions for proper element installation.

POOL WATER IS NOT CLEAR

- **Filter system is clogged with dirt, debris and/or algae**
 - a) Perform cleaning of filter system and restart
- **Pool chemistry is off**
 - a) The alkalinity or pH being off may cause cloudiness on its own. Test levels and increase or decrease as necessary.
 - b) Low chlorine may also cause cloudiness. Shock pool regularly to avoid low chlorine.
- **Particles are too small for filter to catch**
 - a) Add a coagulant. This type of clarifier will cause the small particles to bind together becoming larger particles that are large enough for the D.E. to catch

WINTERIZING FILTER SYSTEM

- To winterize the filter, start by turning off the pump and closing the slide valves.
- Purge air from the system using the air relief valve on the lid.
- Install winter plate on skimmer and winter plug in return (items sold separately, see your local pool dealer).
- Remove drain plug from bottom of filter to allow water and D.E. to escape tank.
- Remove lid from filter tank and pull element out.
- Clean the element thoroughly.
 - a) It is recommended to soak overnight in Filter Flush and water solution to prevent build up from remaining on element through the winter.
 - b) Rinse element well after soaking and allow it to dry entirely prior to storing for the winter. Failure to allow the element to dry will result in the growth of mildew and/or mold on the element.
- Disconnect hoses from pool and filter and rinse well.
- Remove pump from base and run fresh water through to remove chemical residual from the pump.
 - a) Store pump INDOORS in a warm, protected environment to protect from cracking.
- Rinse filter tank (inside and out) using fresh water and dry off.
 - a) Store filter tank and element in an area where they will be protected from the elements, preferably indoors.
 - b) Keep components of tank disassembled during storage to protect from condensation forming during fall and causing cracks in the winter.
 - c) Keep drain plug off tank to allow any trapped water to drip out through the winter.

NOTE Failure to winterize and store filter properly will VOID warranty. Cracks due to improper care and/or winterization are NOT covered under warranty.