



# CLEAN AND CLEAR® CARTRIDGE FILTER SYSTEM

## INSTALLATION AND USER'S GUIDE

### IMPORTANT SAFETY INSTRUCTIONS READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS

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 1620 Hawkins Ave., Sanford, NC 27330  
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#### Important Notice



Attention Installer. This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

#### WARNING

Before installing this product, read and follow all warning notices and instructions accompanying this filter. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call 1-800-831-7133 for free copies.

## SECTION I. PUMP SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. WARNING - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. WARNING - Risk of Electrical Shock. Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.
4. Do not bury the electrical cord. Locate the cord to minimize the abuse from lawn mowers, hedge trimmers, and other equipment.
5. WARNING – To reduce the risk of electrical shock, replace damaged cords immediately.
6. WARNING - To reduce the risk of electrical shock, do not use an extension cord to connect unit to electric supply; provide a properly located outlet.
7. CAUTION – For continued protection against possible electrical shock, this unit is to be mounted to the base in accordance with the installation instructions.
8. SAVE THESE INSTRUCTIONS.

### WARNING



THIS FILTER OPERATES UNDER HIGH PRESSURE. WHEN ANY PART OF THE CIRCULATING SYSTEM (e.g. LOCK RING, PUMP, FILTER VALVES, ETC.) IS SERVICED, AIR CAN ENTER THE SYSTEM AND BECOME PRESSURIZED. PRESSURIZED AIR CAN CAUSE THE LID TO SERPARATE WHICH CAN RESULT IN SEVERE INJURY, DEATH, OR PROPERTY DAMAGE. TO AVOID THIS POTENTIAL HAZARD, FOLLOW THESE INSTRUCTIONS.

1. BEFORE REPOSITIONING VALVES AND BEFORE BEGINNING THE ASSEMBLY, DISASSEMBLY, OR ADJUSTMENT OF THE LOCK RING OR ANY OTHER SERVICE OF THE CIRCULATING SYSTEM: (A) TURN THE PUMP OFF AND SHUT OFF ANY AUTOMATIC CONTROLS TO ENSURE THE SYSTEM IS NOT INADVERTANTLY STARTED DURING THE SERVICING; (B) OPEN AIR RELIEF VALVE; (C) WAIT UNTIL ALL PRESSURE IS RELIEVED.

2. WHENEVER INSTALLING THE FILTER LOCK RING **FOLLOW THE CLEANING FILTER INSTRUCTIONS EXACTLY.**

3. ONCE SERVICE OF THE CIRCULATING SYSTEM IS COMPLETE **FOLLOW THE INITIAL START SYSTEM RESTART INSTRUCTIONS EXACTLY.**

4. MAINTAIN CIRCULATION SYSTEM PROPERLY. REPLACE WORN OR DAMAGED PARTS IMMEDIATELY (e.g., lock ring, pressure gauge, relief valve, o-rings, etc).

5. BE SURE THAT THE FILTER IS PROPERLY MOUNTED AND POSITIONED ACCORDING TO THE INSTRUCTIONS PROVIDED.

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

## SECTION II. HOW YOUR FILTER WORKS

### WARNING



To reduce the risk of electrical shock, only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others, which can result in serious personal injury or death.

Your cartridge filter is designed to produce clear, sparkling water and operate for years with a minimum of maintenance when installed, operated and maintained in accordance with these instructions.

#### A. YOUR FILTER USES A CARTRIDGE ELEMENT TO REMOVE DIRT PARTICLES FROM THE WATER.

1. Dirt is collected in the filter by the cartridge element as water flows through the filter. Water enters the filter through the filter inlet port and is distributed evenly through the cartridge element.
2. The dirt is removed by the cartridge fabric and the clean water flows through the filter outlet port and is returned to the pool through the piping or hoses.

#### B. AFTER A PERIOD OF TIME, DIRT WILL ACCUMULATE IN THE FILTER CAUSING A RESISTANCE TO THE FLOW OF WATER THROUGH THE FILTER.

1. This resistance results in a diminished flow of water and a rise in the filter pressure. Eventually the filter will have removed so much dirt and the filter pressure risen to such a point that it will be necessary to clean your filter, see SECTION V. CLEANING THE FILTER.
2. The filter's function is to remove suspended matter from the water and does not sanitize the water. For sparkling clear water, the water must be sanitized and as well as balanced.
3. Pool chemistry is a specialized area, and you should consult your local pool service specialist for specific details. In general, proper pool sanitation requires a free chlorine level of 1 to 2 PPM and a PH range of 7.2 to 7.6.

### WARNING

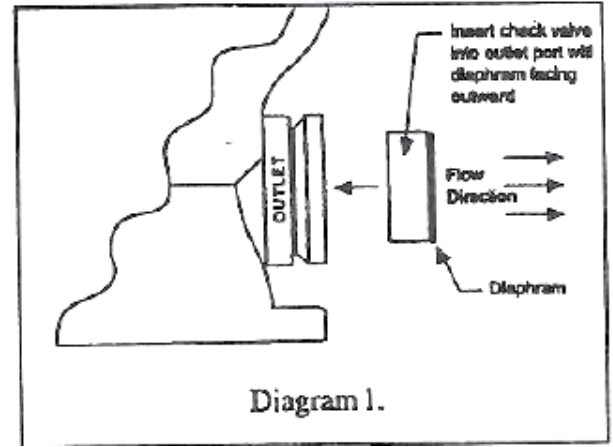
Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Pool water clarity may obscure objects in the water, which while swimming and diving could cause severe personal injury and death. Never swim in a pool with poor water clarity.

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

## SECTION III. INSTALLATION

To install this filter system, you will need the following simple tools – a screwdriver, pliers, and ½” wrench.

1. Carefully remove the equipment from the carton and check for any evidence of damage due to rough handling or shipping. If any of the equipment is damaged, immediately notify the organization where the equipment was purchased.
2. This filter should be mounted on a level concrete slab, preferable concrete poured in a form or on a platform constructed of concrete block or brick.
3. Position the filter tank on the mounting base so that the drain plug is oriented away from the motor mount side of the base. Secure the tank to the base with two (2) 5/16-18 bolts.
4. Place the pump on the base with the lint pot to the same side as the outlet port of the tank. Secure the pump to the base with two (2) 5/16-18 bolts. See Diagram 2.
5. Install the connector hose, Item 15 on page 11, to the inlet port of the tank, tightening the union nut that is attached to the tank, only hand tight. Bend the hose 90 degrees to fit the threaded union nut over the outlet port of the pump. Hand tighten only.
6. Insert the check valve into the outlet port of the filter, making sure the rubber diaphragm is facing outward, see Diagram 1.
7. Install the union elbow adaptor to the outlet port of the tank tightening the nut only hand tight. Secure the flex hose with a hose clamp. Tighten the clamp with a screwdriver. Connect the flex hose from the outlet side of the filter to the return fitting on the pool wall, using a hose clamp.
8. Screw the hose adaptor, item number 711006 on page 11, into the inlet port of the pump. This is the opening in the sidewall of the pump pot. Use plumber's tape on the threads and tighten no more than one (1) turn past hand tight. Connect the flex hose to this adaptor with a hose clamp and tighten with a screwdriver. Connect the hose from the inlet port of the pump to the skimmer, using a hose clamp.
9. Install the High Flow air relief valve to the top of the tank lid. See Diagram 2, Detail A. This is an O-ring seal that requires hand tightening only.
10. Install the pressure gauge in the ¼”NPT threaded hole in the tank lid, using plumber's tape on the threads. See Diagram 2, Detail B.
11. Never install a pump in this system that exceeds the maximum pressure of the filter. See data label.



**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

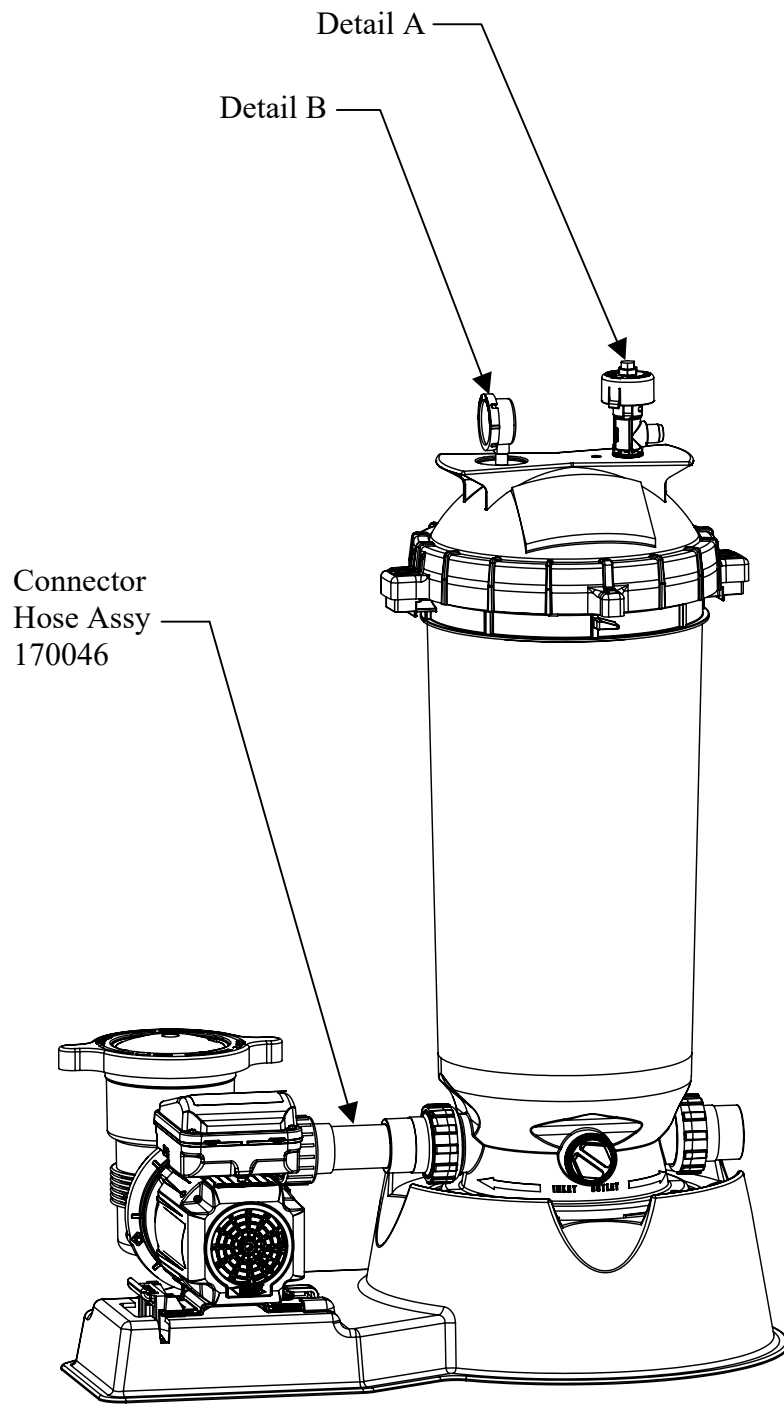




Diagram 2

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

## SECTION IV. INITIAL START UP AND RESTART INSTRUCTIONS.

1. Be sure all connections have been made and are secure.
2. Make sure the hair and lint pot of the pump is filled with water. (FAILURE TO FILL THE HAIR AND LINT POT WITH WATER WILL RESULT IN DAMAGE TO THE PUMP AND PUMP SEAL).
3. OPEN THE HIGH FLOW MANUAL AIR RELIEF VALVE UNTIL IT SNAPS INTO THE FULL OPEN POSITION (THIS ONLY REQUIRES A ¼ TURN COUNTERCLOCKWISE).
4. STAND CLEAR OF THE FILTER. Start pump allowing the filter tank to fill with water. Close the high flow air relief valve after a steady stream of water appears.
5. Your filter has now started its filter cycle. You should check that the water is returning to the pool and take note of the operating pressure.  
My original starting pressure is \_\_\_\_\_ PSI with the filter clean.
6. Check the system for water leaks. If a leak is found, shut off pump before correcting leak.

 <b>WARNING</b>	
	THIS FILTER OPERATES UNDER HIGH PRESSURE. WHEN ANY PART OF THE CIRCULATING SYSTEM (e.g. LOCK RING, PUMP, FILTER, VALVES, ETC.) IS SERVICED, AIR CAN ENTER THE SYSTEM AND BECOME PRESSURIZED. PRESSURIZED AIR CAN CAUSE THE LID TO SEPARATE WHICH CAN RESULT IN SEVERE INJURY, DEATH, OR PROPERTY DAMAGE.

7. As the filter removes dirt and impurities from the pool water, the accumulation will cause the filter pressure to rise and the flow to diminish. When the pressure gauge reading is 8 to 10 PSI higher than the clean filter reading noted above, it is time to clean the filter's element grids, see SECTION V. CLEANING THE FILTER.

## SECTION V. CLEANING THE FILTER

1. Cleaning frequency will vary from pool to pool and with other factors such as weather conditions, heavy rains, dust pollen, bather load and water chemistry.
  - a. Check the pressure gauge reading on a regular basis and when the pressure gauge reading increases 8 to 10 PSI over the initial clean filter reading, it is time to clean your CARTRIDGE ELEMENT.
2. Turn the pump off, shut off any automatic controls to assure that the system is not inadvertently started during servicing.
3. Plug the skimmer port with a rag. This will prevent pool water from running out during servicing.
4. Open the High Flow™ manual air relief valve, and the filter drain plug

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

5. Remove the hair and lint strainer pot lid and clean the basket. Replace the basket and secure the lid.
6. Remove the filter lock ring by depressing the two (2) spring loaded locking blocks and rotating the ring counter clockwise until the ring is free from the filter body.
7. Remove the filter lid using the lifting handles on the lid.
8. Remove the CARTRIDGE ELEMENT assembly from the filter body by using the lifting handles and pulling straight up.
9. Remove the CARTRIDGE ELEMENT from the core assembly by placing your middle fingers into cloth area and using your thumbs on top of the lifting handles and pressing until the CARTRIDGE ELEMENT is loose and freely slides off the center core assembly.
10. Using a garden hose, direct water spray at the CARTRIDGE ELEMENT to dislodge and wash away any accumulated foreign matter and Diatomaceous Earth. Thoroughly clean the elements.
11. Clean and remove debris from the inside of the filter tank.
12. Replace the CARTRIDGE ELEMENT over the center core assembly making sure the end of the element with the wording "This Side Up" is facing up.
13. Replace the CARTRIDGE ELEMENT into the filter tank body making sure the arrow on the top of the center core is aligned with the filter inlet port. You will be able to feel the assemble drop into and lock into place when in the proper position.
14. Clean any debris from the O-ring at the top of the filter tank. Apply a silicone lubricant to the O-ring. **DO NOT USE A PETROLEUM-BASE LUBRICANT ON THE O-RING.** Failure to properly clean and lubricate the O-ring may result in water leakage.
15. Replace the filter tank lid making sure it is fully and firmly seated on the tank body.
16. Place the filter lock ring over the filter lid, and turn clockwise until the safety latches click and the lock ring hits the stops on the body. **DO NOT ATTEMPT TO OVER TIGHTEN THE FILTER LOCK RING AFTER THE SAFETY LATCHES HAVE ENGAGED.**

**⚠ WARNING**



If the filter lock ring is damaged, replace it immediately. This filter operates under high pressure. Replace locking ring if damaged or worn. Failure to replace locking ring can result in the lid separating from the filter, which can cause severe injury or death.

17. Replace the drain cap hand tight only.
18. Follow Initial Start Up and System Restart Instructions; see Section IV.

**⚠ WARNING**

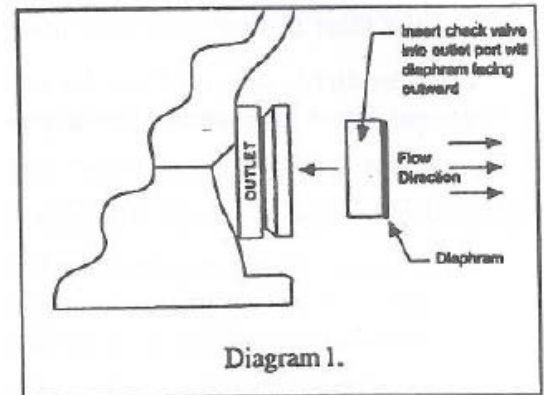
Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Pool water clarity may obscure objects in the water, which while swimming and diving could cause severe personal injury and death. Never swim in a pool with poor water clarity.

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

## SECTION VI. CHECK VALVE INSTALLATION INSTRUCTIONS

### INSTALLATION

1. Turn the pump off, shut off any automatic controls to assure that the system is not inadvertently started during servicing.
2. Open the High Flow™ manual relief valve.
3. Plug the suction line by inserting a rag into the skimmer port, or if equipped with a valve close it at this time to prevent water from siphoning from the pool during servicing.
4. If possible, plug the return line to prevent siphoning. If this cannot be done, disconnect the union fitting from the outlet port of the filter and quickly place the return hose into the pool.
5. Remove the drain cap to empty the water from the filter.
6. Insert the Check Valve into the outlet port approximately ¾" to 1" deep making sure the rubber diaphragm is facing outward (toward you), see Diagram 1.
7. Reconnect the return hose to the outlet port and tighten the union fitting.
8. Replace the drain cap.
9. Remove the rag from the skimmer or open the valve on the suction line.
10. If the return line was plugged, unplug it at this time.
11. With the High Flow™ manual air relief valve in the open position, start the pump, after a steady stream of water appears close the High Flow™ manual air relief valve.
12. Your system is now in operating order.



## SECTION VII. WINTERIZING THE FILTER

1. In areas that have freezing temperatures, the pool equipment must be winterized to protect it from damage.
2. With the equipment turned off, open the High Flow™ manual air relief valve.
3. Remove the drain port cap, and allow the filter to drain completely.
4. Remove the drain port plugs on the pump and allow the pump to drain completely.
5. Drain all appropriate system piping.
6. It is recommended that the pump and filter be covered with a tarpaulin or plastic sheet to inhibit deterioration from the weather.  
DO NOT WRAP THE PUMP MOTOR IN PLASTIC.
7. Your filter is now winterized.

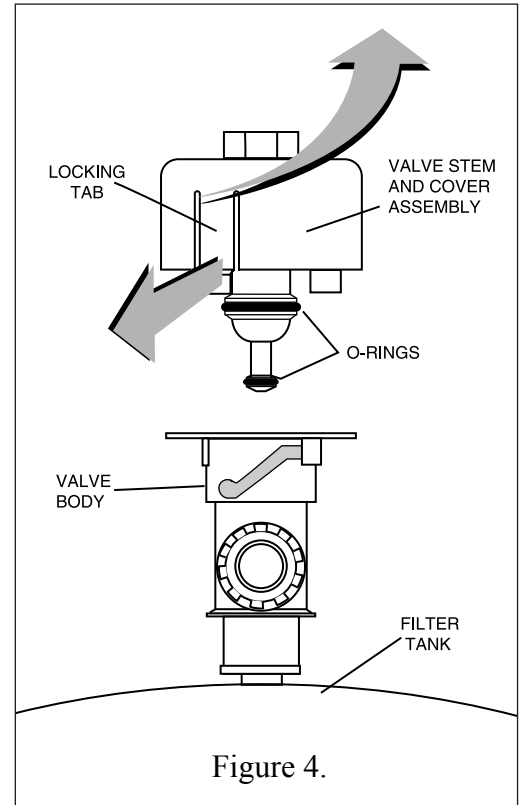
**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**



- See SECTION IV. INITIAL START-UP AND SYSTEM RESTART, when pool is ready to be opened for the season.

## SECTION VIII. CLEANING THE HIGH FLOW MANUAL AIR RELIEF VALVE

- Turn the pump off and shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
- OPEN THE HIGH FLOW MANUAL AIR RELIEF VALVE UNTIL IT SNAPS INTO THE FULL OPEN POSITION, THEN WAIT UNTIL ALL PRESSURE IS RELIEVED.
- With the relief valve attached to the filter tank, pull out the locking tabs and remove the valve stem and cover assembly with a counter clockwise and lifting motion, see Figure 4.
- Clean the debris from the valve stem and body. Verify that the filter tank's air passage is opened by inserting a 5/16" drill bit through the valve body. Verify that the O-rings are in good condition, properly positioned, and lubricated with a silicone base lubricant.
- Reinstall the valve stem and cover assembly with a downward and clockwise motion until it snaps into position.





## SECTION IX. TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY
Pool water not sufficiently clean.	<ol style="list-style-type: none"> <li>Pool chemistry not adequate to inhibit algae growth.</li> <li>Inadequate turnover rate.</li> </ol>	Maintain pool chemistry or consult pool service technician. Run system for longer time or consult dealer or pool service technician.
Higher filter pressure.	<ol style="list-style-type: none"> <li>Insufficient cleaning of the filter element.</li> <li>Partial closed valve or restriction.</li> </ol>	Clean the filter element (see Cleaning Filter instructions). Open valve or remove obstruction in return line.
Short filter cycles.	<ol style="list-style-type: none"> <li>Insufficient cleaning of filter element.</li> <li>Pool chemistry not adequate to inhibit algae growth.</li> <li>Flow rate too high.</li> </ol>	Clean the filter element (see Cleaning Filter instructions). Maintain pool chemistry or consult pool service technician. Restrict flow to capacity of filter.
Return flow to pool diminished, low filter pressure.	<ol style="list-style-type: none"> <li>Obstruction in the pump hair and lint pot.</li> <li>Obstruction in pump.</li> <li>Obstruction in suction line to pump.</li> </ol>	Clean basket in strainer. Disassemble and clean pump. Clean skimmer basket. Remove obstruction in lines. Open valves in suction line.

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

## SECTION X. PUMP INSTRUCTIONS

 <b>WARNING</b>	
	To reduce the risk of electrical shock, only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others, which can result in serious personal injury or death.

1. TO PRIME PUMP – (pump must be off).
  - a. Unscrew the lid from the pot and fill the pot with water to level of suction line. Inspect O-ring, lubricate with silicone lubricant.
  - b. Replace the lid on the pot. Align the clamp ears with the slots on the strainer pot. Press the lid and clamp down and twist the clamp clockwise to engage.
  - c. Turn the pump on; priming time will vary depending upon elevation above water level and horizontal distance of suction line.
  - d. If the filter is installed, open the air relief valve, (before turning the pump on) until a steady stream of water comes out, then close the air relief valve.
  - e. The pump is now primed. If the pump is installed below water level, close the return line prior to filling the hair and lint pot with water. Line must be reopened before turning the pump on.
  
2. TO CLEAN THE BASKET – (pump must be off)
  - a. Follow the instructions above to prime the pump.
  - b. After removing the lid, remove the basket and empty the debris.
  - c. Replace the basket and proceed to fill the pot with water.
  - d. It is important to visually inspect the basket, through the see through lid, at least once a week. A dirty basket will reduce the efficiency of your system, and can put an abnormal load on the pump, which could result in costly repair bills.
  
3. SHAFT SEAL – (rotary seal). The shaft seal consists of two (2) parts:
  - a. Rotating spring loaded seal, press fitted into the impeller.
  - b. A stationary ceramic seal, press fitted into the rear of the volute.
  
4. THE ELECTRIC MOTOR.
  - a. The electric motor should be protected from foreign matter, water splashing, hosing, and the weather. Enclosures should be well ventilated to prevent overheating. If a motor becomes wet, permit it to dry before running it. If a motor has been damaged by water or dirt, the warranty is void.

**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

- b. The motors used on these pumps are 48 frame through bolt motors. The through bolts are used to secure the volute to the motor. When replacing the motor, mark the end bells and the motor shell to indicate alignment. Remove the four nuts from the through bolts at the shaft end. Place the shaft through the back of the volute and locate the bolts in line with the brass inserts located in the four (4) legs at the rear of the volute. Be sure the end bell and the shell marking line up. Securely fasten the motor to the volute.
- c. Protect the motor from heat. Provide ample ventilation.

 **CAUTION**

The highly polished and lapped faces of the seal are easily damaged. Handle with care. This centrifugal pump requires little or no service, however the shaft seal will wear with normal use over the years and will require periodic replacement.

 **CAUTION**

**DO NOT RUN PUMP DRY.** If the pump is run dry, the mechanical seal will be damaged and external leakage will occur. When the seal is damaged, the seal must be replaced.

 **CAUTION**

Always maintain proper water level in the pool. Water level must be half way up the skimmer opening. A low water level can cause the pump motor to run dry which will damage the mechanical seal and cause external leakage.

# SECTION XI. TECHNICAL DATA

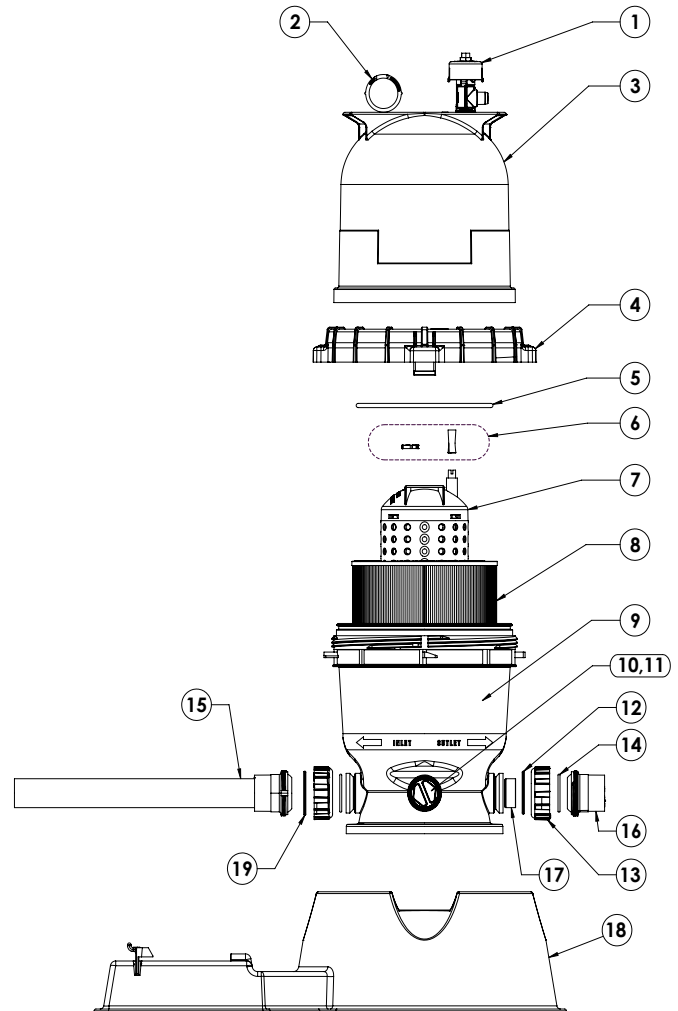
## A. FILTER AND BASE – REPLACEMENT PARTS

### Clean & Clear / Predator Filter Replacement Parts

Item	Part Number	Description	Quantity
1	98209800	Manual Air Relief Valve	1
2	190058	Pressure Gauge	1
3	178553	Lid, 50/100 Sq	1
3	178561	Lid, 75/150/175/200 Sq Ft	1
4	59052900	Locking Ring Assy	1
5	87300400	Body O-ring	1
6	59016200	Air Bleed Sock Kit	1
7	59053500	Center Core, 50 Sq Ft	1
7	59053600	Center Core, 75 Sq Ft	1
7	59053700	Center Core, 100/125 Sq Ft	1
7	59053800	Center Core, 150/175/200 Sq Ft	1
8	59054000	Cartridge Element, 50 Sq Ft	1
8	59054100	Cartridge Element, 75 Sq Ft	1
8	59054200	Cartridge Element, 100 Sq Ft	1
8	173200	Cartridge Element, 125 Sq Ft	1
8	59054300	Cartridge Element, 150 Sq Ft	1
8	173201	Cartridge Element, 175 Sq Ft	1
8	59054400	Cartridge Element, 200 Sq Ft	1
9	178554	Tank Bottom, 50/75	1
9	178547	Tank Bottom, 100/150/175/200	1
10	86202000	Drain Cap With O-ring	1
11	51005000	O-ring, Drain Cap	1
12	39104500	C-Clip, Union Nut	2
13	98212200	Union Nut	2
14	071426	O-ring, Union	2
15	170046	Connector Hose Assy With O-ring	1
16	36107400	Outlet Connector	1
17	51516100	Check Valve Kit	1
18	178540	System Base Assembly	1
19	071426	O-ring, Connector Hose	2
	98219800	Bolt, Motor To Stand	2
	354265	Bolt, Filter To Stand	2

#### In Units Purchased With a Hose Kit (Not Shown)

20	711006	Adaptor, 1 1/2" Hose	1
21	711004	Clamp, Hose	4
22	155005	Kit, Flex Hose 12 Ft	2
23	155151	Kit, Flex Hose 6 Ft	2



**READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

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