

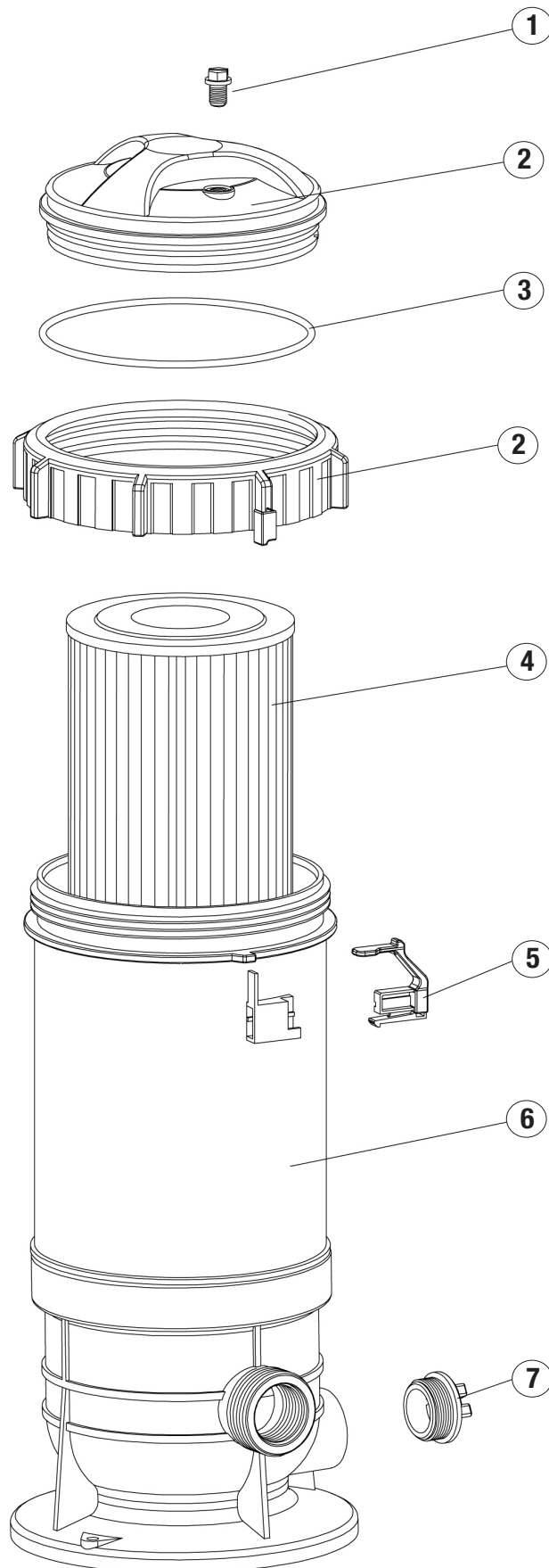
MAKO CARTRIDGE FILTER INSTRUCTIONS



TOOLS REQUIRED

1. Flat Head Screwdriver
2. Pliers
3. Wrench

MAKO PRESSURIZED CARTRIDGE FILTER



MAKO FILTER PARTS BY MODEL

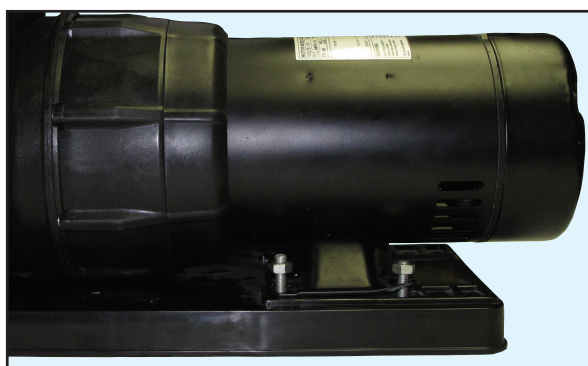
PART #	MODEL #	DESCRIPTION	QTY
1	AC 26913	Bleeder Valve	1
2	AC 26875	Lid	1
3	AC 26883	Lid O-Ring	1
4	AC 16411	Black Diamond Element 30	1
5	AC 61123	Filter Head Latch	1
6	AC 09474	PRC & Black Diamond Body 30	1
7	BS 17396GRY	Threaded Plug	1

3. PRE-ASSEMBLY

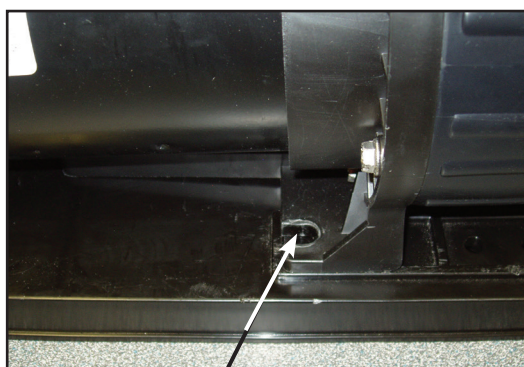
Hooking up the filter and motor to the base will vary based on the style of pump you have. Please note that steps 4A, 4B will help you determine the style of pump and proper hook-up to the base.

4. ATTACHING PUMP TO BASE & FILTER

As mentioned in the pre-assembly, 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 (4A, 4B) and then proceed to step 4C. Leave motor bolts loose until Union AC 11991 is completely tight.



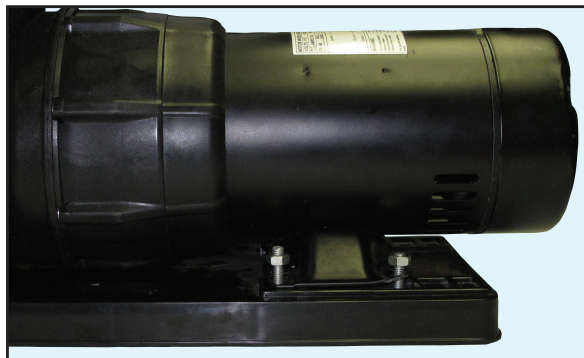
4A— Cradle style mount pump



4B — Plastic pump housing mount

4A. CRADLE STYLE MOUNT

Pumps with cradles located directly under the motor should be aligned with the holes inside the raised area of the base. This type of mount will require the use of either two or four mounting bolts from the hardware bag. Leave motor bolts loose until Union AC 11991 is completely tight.



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 to secure in place. BEFORE bolting down, make sure that the port labeled “TO PUMP” (open port, without slide valve) is facing the back of the base (longer part of base indicates back). See Figures 5 and 6 below.

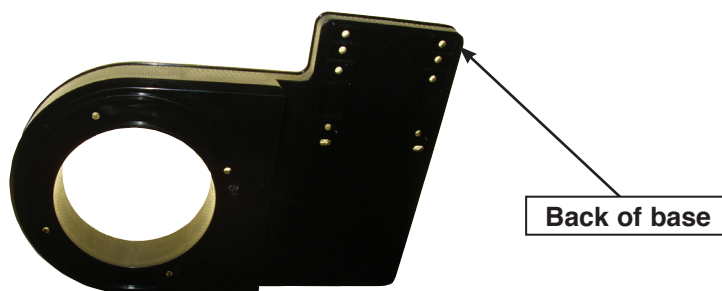


Figure 5 — Back of base



PROCEED TO STEP 5

4B. PLASTIC PUMP HOUSING MOUNT

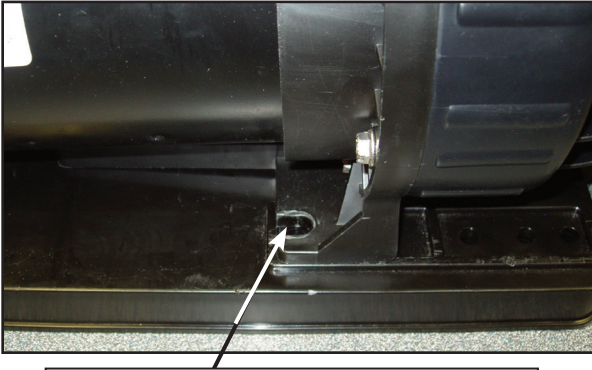


Figure 7 — Plastic pump housing mount

- Pumps with plastic pump housing mounts (see Figure 7) should be attached by aligning the openings with the holes outside the raised area. This type of mount will require the use of TWO mounting bolts from the hardware bag.
- 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.

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 to secure in place. BEFORE bolting down, make sure that the port labeled “TO PUMP” (open port, without slide valve) is facing the back of the base (longer part of base indicates back). See Figures 10 and 11.

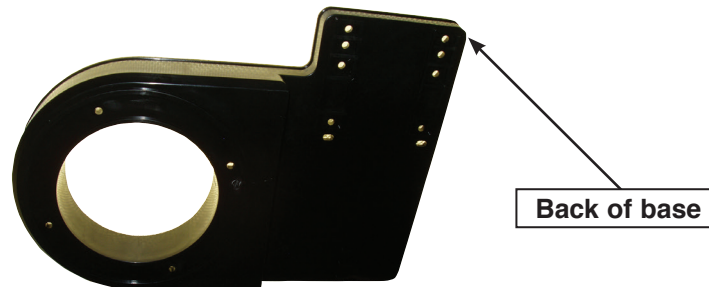


Figure 10 — Back of base



Figure 11
Filter on base

PROCEED TO STEP 5

4C. SIDE-MOUNT PUMPS

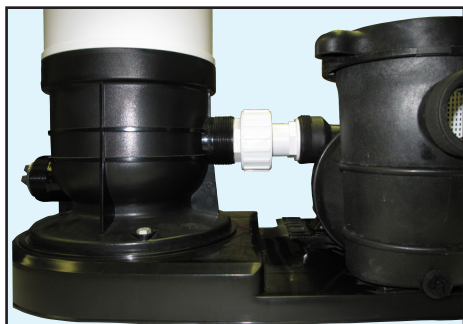


Figure 13b — Side mount pump attached directly the filter tank

Attach Side Mount Union AC 11991 to pump by using Teflon tape 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 and line up with the set of holes which allows the union to line up with the "TO PUMP" filter port. Use the mounting bolts to secure on base (see Figure 13b). Leave motor bolt loose until Union is completely tight.

5. INSTALLING THE LID

Make sure that the cartridge is installed inside the filter body, the lid O-Ring is lubricated and the lid is closed securely. The pressure gauge should be screwed into the opening on the tank lid after covering the threads with Teflon tape. (See Figures 25a & 25b).

The O-Ring has been factory installed.

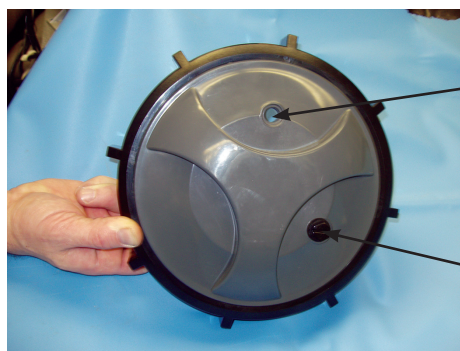


Figure 25a — Filter Lid



Figure 25b — Installing pressure gauge

Fill the water in the pool to the middle of your thru-wall skimmer BEFORE operating your filter. Once 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 top of the tank (see Figure 25a). Turn the valve to the left, you will hear a hiss of air and once all the air is cleared some water will spurt out. Close the valve and the filter is ready to operate.

READ AND FOLLOW SAFETY INSTRUCTIONS



This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

! DANGER

Warns about hazards that will cause death, serious personal injury, or major property damage if ignored.

! WARNING

Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.

! CAUTION

Warns about hazards that will or can cause minor personal injury or property damage if ignored.

NOTICE

Indicates special instructions not related to hazards.

CAREFULLY READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND ON EQUIPMENT
Keep safety labels in good condition; replace if missing or damaged.

! WARNING

Incorrectly installed equipment may fail, causing severe injury or property damage.

Hazardous Pressure

Read and follow instructions in owner's manual when installing and operating equipment.

1. Do not connect system to a high pressure or city water system.
2. Use equipment only for a pool installation.
3. Trapped air in system can cause explosion. BE SURE all air is out of system before operating or testing equipment.

BEFORE OPERATING, MAKE THE FOLLOWING SAFETY CHECKS

1. Check all clamps, bolts, lids and system accessories before testing.
2. Release all air in system before testing.
3. Tighten trap lids.
4. Water pressure must be less than 25 PSI.
5. Water temperature must be less than 100° F.
6. Open all slide valves.

! DANGER	BEFORE WORKING ON FILTER:
If filter clamp is adjusted under pressure, tank will blow off base, causing severe injury or major property damage.	<ol style="list-style-type: none"> 1. Stop pump. 2. Open air release valve. 3. Release all pressure from system.

GENERAL INFORMATION

DANGER

Hazardous pressure. Permanent Filter damage will result if Filter is improperly dis-assembled or assembled. To avoid danger of severe injury or major property damage, always follow service instructions in this manual when working on filter.

WARNING

Risk of injury. Never operate this filter system at more than 50 pounds per square inch (50 PSI) pressure.

- Clean a new pool as well as possible before filling pool and operating filter.
- Excess dirt and large particles of foreign matter in the system can cause serious damage to the filter and pump.
- With a cartridge filter system in place and operating correctly, clean water is returned to the pool faster than the pool water is being contaminated. A typical pool installation will require approximately one week to obtain and maintain the sparkle that your filter is capable of giving you.
- Keep pool water pH at recommended level (7.2 to 7.6).
- Maintain pressure gauge in good working order. Replace gauge if it fails or is damaged.
- Cleaning interval is based on pressure differential, not on length of time filter is operated.

NOTICE

Some pool disinfectants may clog filter media. To maximize media life and filter cycle time, closely follow disinfectant manufacturer's instructions when cleaning pool or filter.

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

INSTALLATION — GENERAL

FILTER LOCATION SHOULD:

- Provide space and lighting for easy access for routine maintenance.
- Provide adequate ventilation and drainage for pump.
- Be reasonably level.
- Be as close to pool as possible to reduce pressure loss from pipe friction.

PIPING

- Never use pipe joint sealing compound on pipe and fittings that are plastic or may come into contact with plastic. To seal threaded connections on PVC pipe and fittings, use only teflon tape. Pipe joint compound may cause stress cracking of plastic components.

NOTICE

Filter locations remote from pool are possible but may require larger pipe to produce adequate flow through filter.

- Check local codes if considering a remote installation.
- Fittings restrict flow; for best efficiency use fewest possible fittings.
- Keep piping tight and free of leaks. Pump suction line leaks may cause trapped air in filter tank or loss of prime at pump. Pump discharge line leaks may show up as dampness.

ELECTRICAL

- **BE SURE** filter grounding and bonding meets local and National Electrical Code standards. All wiring, grounding and bonding of associated equipment must also meet local and National Electrical Code standards.

ASSEMBLING FILTER

Filter Cartridge may shift position during shipping. To make sure cartridge is in place, follow procedure below before using filter.

When disassembling filter, place all parts in a clean area.

1. Place filter in a clean area near its permanent location.
2. Remove filter lid by turning Locking Ring counter clockwise Figure 1. Remove lock ring by lifting straight up over tank.
3. As ring is turned the Filter lid will rise from the tank body. Please note the Filter Lid and Locking Ring are one piece.
4. Set tank lid in a clean place; check for missing or damaged parts.
5. Filter element should be installed firmly by pressing into base.
6. Replace tank lid evenly on filter tank shell for a tight seal.

NOTICE Be sure O-Ring and O-Ring seating area are clean.

7. Replace Filter lid and Locking Ring assembly on tank. Make sure lid flange is centered and placed inside center port of cartridge.

NOTICE To properly engage threads make sure Filter lid is on straight and push downward.

8. Tighten Locking Ring by turning clockwise until it stops Hand Tighten Only. Locking tab will engage.
9. Attach pressure gauge and air release valve as shown in Figure 1. Apply Teflon tape to threads of pressure gauge.

NOTICE Hand tighten gauge hand tight only. Tighten air release valve, finger tight only.

CONNECTING FILTER PIPING

NOTICE For ease of installation, plastic pipe and fittings are recommended for all piping to and from pool.
DO NOT use pipe joint compound on base of filter. Doing so will cause stress cracking of base, which will void warranty and may cause property damage.

CAUTION Risk of damage to filter. Do not tighten fittings into base ports past thread stops. Doing so will ruin filter base and void warranty, and may cause property damage.

NOTICE If pool water level is higher than filter base, shut-off valves must be installed in suction and return lines.

1. Wrap 1-1/2 to 2 layers of teflon tape to male threads only on all piping and fittings.
2. Hand tighten fitting in each port. Be careful not to cross thread.
3. If pipe connections leak, remove teflon tape, re-apply teflon tape and re-tighten in ports. Do not overtighten.

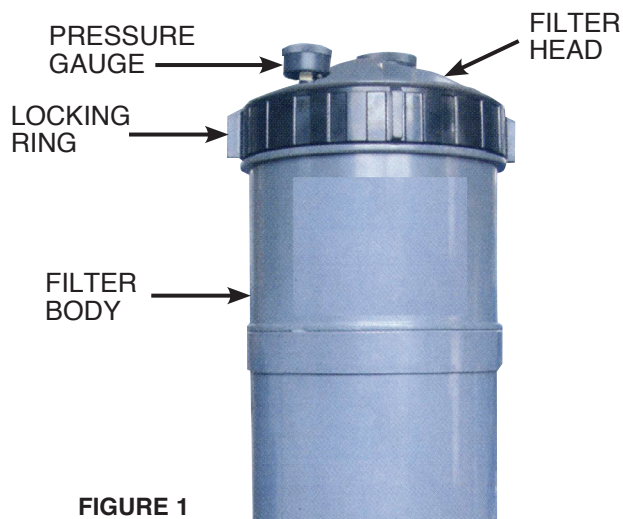


FIGURE 1

START UP

⚠ WARNING

1. Turn pump OFF before starting procedure.
2. Properly seat filter clamps and securely tighten clamp knobs before proceeding.

NOTICE

1. Tightly close plugs on Tank Drain Port (Figure 2).
2. Open air release valve located on top of filter tank lid.

NOTICE

Air trapped inside the filter greatly increases the tank pressure. The air release valve allows you to get accumulated air out of the filter tank. At startup, open the air release valve and make sure that it is running a solid stream of water before putting the filter in service.

1. Start pump.
2. When a steady stream of water comes from air release valve, close valve.
3. After filter is operating, record filter pressure gauge reading in owner's manual for future use.

NOTICE

When installed on a new pool, filter element may need cleaning after approximately 48 hours of operation.

NOTICE

A new or recently cleaned filter element may pass some foreign material until it builds up a sufficient coating. This is normal. A short operational period will correct the condition.

Check pressure gauge. If pressure has risen more than 10 PSI above startup pressure, remove and clean element.

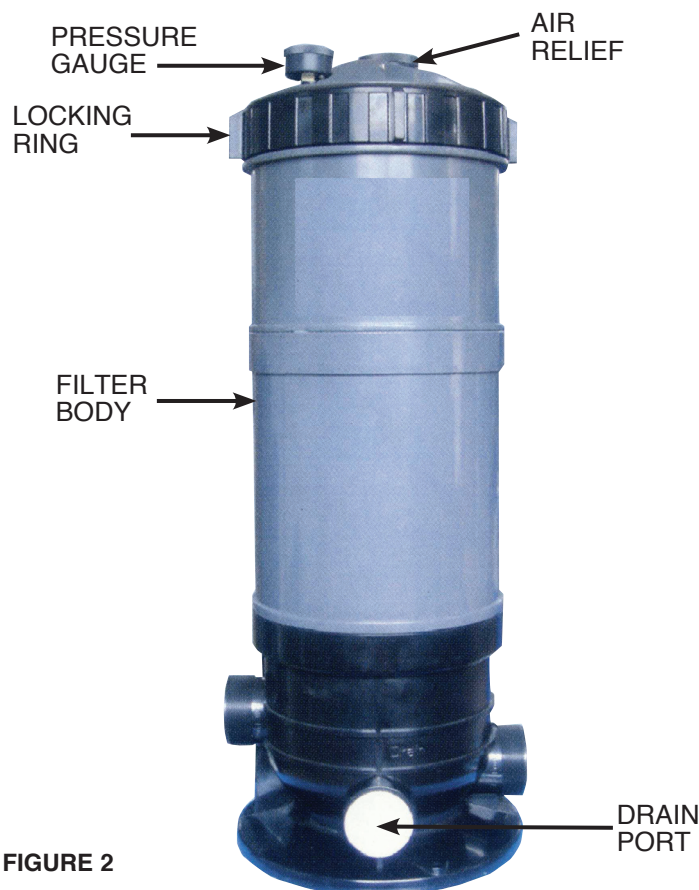


FIGURE 2

FILTER DISASSEMBLY

DANGER

Hazardous Pressure

Releasing lid ring with pressure on system will cause tank or tank lid to blow off base, causing severe injury or property damage. NEVER adjust, tighten or loosen ring when tank is under pressure. If filter leaks at the ring, do not adjust the ring. Instead, follow instructions under "Filter Disassembly", below and "Filter Assembly".



Regularly inspect clamp assemblies for cracked, corroded or broken welds and worn or stripped threads. If any wear or damage shows, replace the complete ring.



Tension stresses and aggressive pool chemicals can aggravate mechanical wear. Tank clamp assemblies and nuts or plastic knobs should be replaced every five years.



Do not use a filter that shows cracks, corrosion or distortion.

FILTER DISASSEMBLY

1. STOP PUMP.

2. CLOSE suction and return line valves (if used).

3. OPEN air release valve on top of filter.

4. WAIT until all pressure is released from filter tank and system before loosening either clamp.

WARNING

To prevent injury, make sure that all pressure has been released from filter tank BEFORE proceeding.

5. Remove drain plug or open drain valve at "Tank Drain Port" and drain filter.

6. Loosen lid ring; remove ring by lifting it straight up over tank.

7. Remove tank lid from tank body. Be careful not to damage O-Ring. Place tank lid in clean area.

NOTICE

If heavy dirt deposits have collected around bottom of filter element and base, wash out base before removing element.

8. Remove the O-Ring from the filter. Clean the O-Ring and inspect it. If you see cuts, cracking, deformation or wear, replace it.

9. Rock filter element to one side to free seal.

10. Lift element out of tank body. Do not drop filter element. Place element in clean area where it can be cleaned with hose and spray nozzle attachment.

FILTER REASSEMBLY

1. Replace plugs or close valves in Tank Drain and Auxiliary Drain ports.
2. Set filter element on base.
3. Make sure filter element is flush with base of filter to avoid damaging element when you replace the filter lid.
4. Inspect and clean the tank flanges and O-Ring seats. If flanges are deformed, cracked or corroded, replace entire filter.
5. Re-install Filter Head and Locking Ring assembly on tank.
6. Tighten Locking Ring by turning clockwise until it stops.
Hand Tighten Only.
7. Clean pump strainer basket.
8. Open system valves as needed.
9. Proceed to "Startup".

FILTER CLEANING PROCEDURE

NOTICE Keep track of filter operating pressure. When pressure reaches 10 pounds per square inch (PSI) above initial operating pressure, clean filter element.

NOTICE If filter is used with a spa, soak element at each regular cleaning. With hose, wash foreign material from inside of base. Try to avoid washing debris into outlet port.

NOTICE Be sure inside surface of base is clean.

WASHING FILTER ELEMENT

1. Use a garden hose with straight flow nozzle to wash down filter element. For best results use a spray nozzle cleaning system.
2. Work from the top down; wash down all pleats. Wash between all pleats.
3. Turn element while spraying to wash down entire outside of element.
4. Repeat wash down process for inside of filter element. Hold nozzle as close to inside of pleats as possible.

NOTICE

- BE SURE all dirt and foreign materials are washed away from INSIDE pleats of element.
- TIP — Have a second cartridge on hand and ready to use; this will avoid filter down time.

WINTERIZING

NOTICE Filter must be protected from the weather and drained if freezing is anticipated. Allowing filter to freeze can cause damage to filter and WILL VOID THE WARRANTY!

1. Stop pump.
2. Open air release valve.
3. Remove drain plugs from ports or open valves at "Tank Drain Ports".
4. Drain ALL piping to and from filter.
 - a) Gravity drain system as far as possible.
 - b) Protect areas which retain water with non-toxic propylene glycol antifreeze (RV antifreeze) or pipeline Anti-Freeze.
5. Turn to Page 7 for filter disassembly instructions.

CAUTION Do not remove or damage safety and instruction labels during cleaning. Replace any decals which may have been damaged.

TROUBLESHOOTING GUIDE

SHORT CYCLE:

NOTICE Time between cleanings will vary with each installation. The following causes and remedies are for cycle times shorter than normal.

NOTICE Some pool disinfectants may clog filter media. To maximize media life and filter cycle time, closely follow manufacturer's instructions when cleaning pool or filter.

POSSIBLE CAUSES:

1. Chlorine residual too low — maintain proper residual (consult pool professional for recommendation).
2. Flow rate too high — restrict flow to rated capacity of filter (see instruction decal on filter).
3. Filter too small — install larger filter or additional filter.
4. Unstable water — consult pool professional.
5. Filter element not cleaned properly or clogged with algae, iron, calcium, etc.
6. Heavy or improper application of powdered chlorine or chlorine pills that contain a binder.
7. Algae in pool — apply heavy dose of chlorine or algaecide as recommended by pool manufacturer.
Continue until algae is controlled.

LOW FLOW:

POSSIBLE CAUSES:

1. Element is clogged.
2. Pipe blocked downstream from filter — remove obstruction.
3. Piping too small — replace with larger pipe (consult dealer for recommendation).
4. Pump hair and lint trap is plugged — empty and clean.
5. Pump impeller and diffuser worn — replace with new parts. Consult pump owner's manual for information.
6. Pump too small for system — replace with larger pump.
7. Pump pulling in air — lube hair and lint trap O-Ring.

POOL WATER NOT CLEAR:

POSSIBLE CAUSES:

1. Chlorine dosage too low — maintain adequate chlorine residual (consult pool professional for recommendation).
2. Element cloth torn or punctured — replace element.
3. Filter too small, flow too low, or daily operating time too short, giving inadequate turnover rate — consult dealer to verify that equipment is properly sized for your pool.
4. Pump too large — overpumping — reduce flow rate.
5. Filter installed backward — replumb.

LONG RECOVERY TIME AFTER HEAVY USAGE:

POSSIBLE CAUSES:

1. Residual Chlorine level is too low — add chlorine.
2. Filter too small — replace with larger unit.
3. Pump too large — reduce flow rate.

FILTER BY-PASSES DIRT:

POSSIBLE CAUSES:

1. Element cloth torn or punctured — replace element.
2. Filter element is not seated properly in filter base — follow instructions under "Filter Disassembly - Reassembly" and reposition properly.
3. Filter is plumbed backwards and element cloth is ruptured — replumb properly and replace element.
4. Colloidal fines (very small suspended dirt particles) are present and passing through element covering — use Crystal Clear or if fines have already settled, vacuum to waste.
5. Blue bypass plug was removed from lid — replace bypass plug and lid.



Blue Torrent manufactures all of its products using cutting-edge technology with the best materials and workmanship available.

Blue Torrent's PUMPS AND FILTERS are warranted as follows:

1 YEAR LIMITED WARRANTY

Blue Torrent warrants its Pumps and Filters to be free of defects in material and/or workmanship for a period of one year from the original date of purchase and/or installation.

WARRANTY CLAIM EXCLUSIONS:

- Damage caused by improper installation as specified in owner's manual
- Damage caused by improper handling
- Damage due to misuse, abuse and/or failure to operate item per owner's manual
- Damage caused by improper water chemistry
- Damage caused by improper winterization of equipment
- Damage caused by not using original **Blue Torrent** replacement parts
- Damage caused by improper wiring or use of extension cords
- Accidental damage, fire, acts of God or other circumstances outside of **Blue Torrent's** control

NOTE:

- Customer must retain the original sales invoice as proof of purchase along with the installers invoice (to establish date of installation)
- Commercial facilities are not covered by warranty

Please return any and all defective items to your local authorized **Blue Torrent** dealer for inspection.

The customer is responsible for all shipping charges to and from the nearest Factory Warranty Center. For more information. Please visit www.btwarranty.com

Should a defect in material or workmanship appear the product will be repaired or replaced at our discretion. **Neither Blue Torrent nor any authorized dealer is responsible for any charges related to the installation of the new item or part.**

Nor are they responsible for any incidental charges incurred including, but not limited to, water, chemicals, landscaping or any other associated expenses.