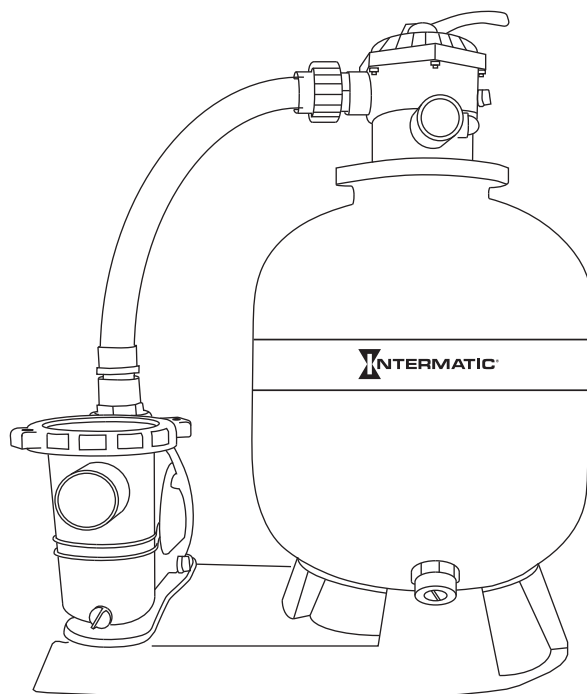




OWNER / INSTALLATION MANUAL

16", 19", and 24"

SAND FILTER SYSTEM



Questions, problems, missing parts? Before returning to the store,
call Customer Service

815-675-7000 or email customerservice@intermatic.com

Intermatic.com

THANK YOU

We appreciate the trust and confidence you have placed in us through the purchase of this pool pump. We strive to continually create quality products. Visit us online to see our full line of products available for your in-ground or above ground pool or spa.

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WARNING: This equipment must be installed and serviced by a qualified technician in accordance with all applicable codes and ordinances. Improper installation can create hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.

The NOTICE label indicates special instructions that are important but not related to hazards.



NOTICE TO INSTALLER: This manual contains important information about the installation, operation and safe use of this product. Once installation is complete, this manual must be given to the owner/ operator of this equipment.



DANGER: To avoid dangerous or fatal electrical shock hazard, turn OFF power to the motor before draining the pump. Disconnect power at its source, lock out the power, and place a tag on the dedicated GFCI circuit breaker indicating the power is to remain off.



NOTE: Allowing the pump to freeze will damage the pump and void warranty! Use only non-toxic antifreeze. Do not use automotive antifreeze. It is highly toxic and may damage plastic components in the system.

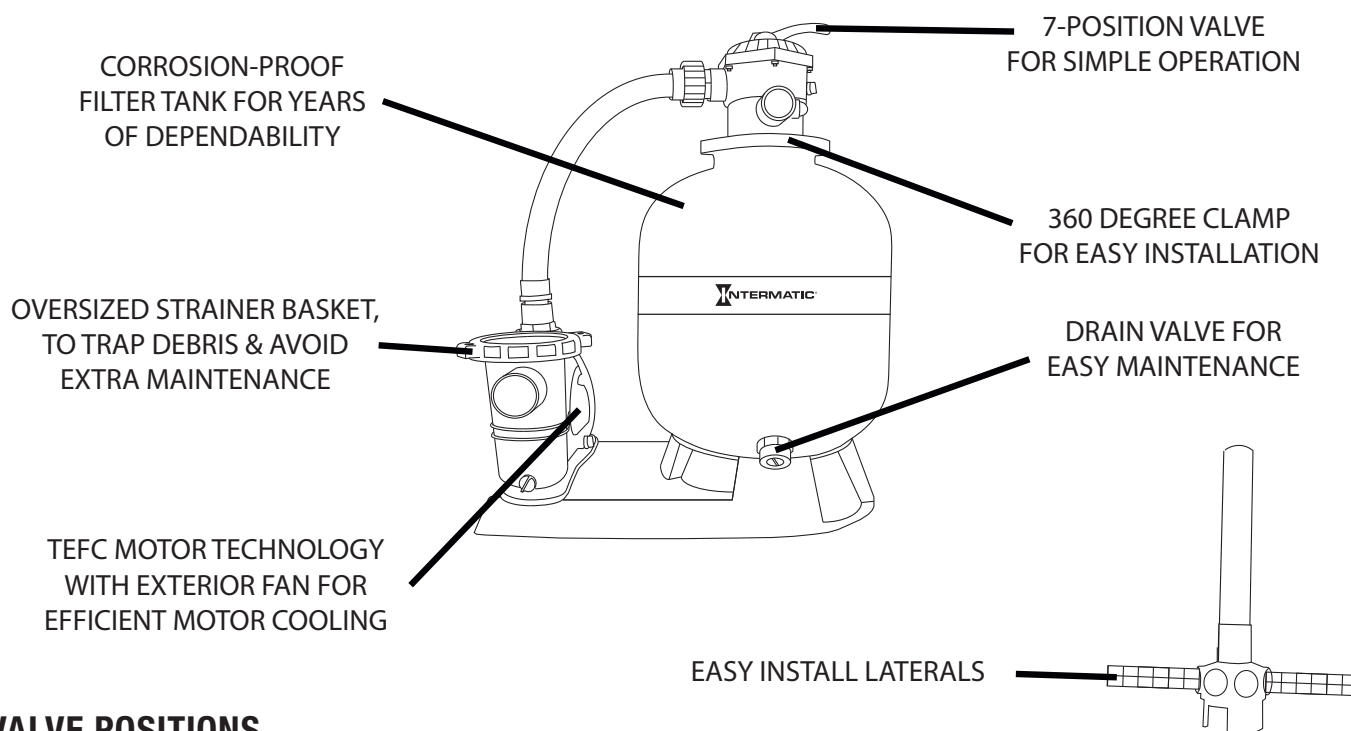
Descriptions

DESCRIPTION OF POOL PUMP

These self priming pool pumps are for high efficiency, and easy maintenance, with an oversized strainer basket . It is constructed of durable thermoplastic for years of trouble free service. These swimming pool pumps are designed for use with permanently installed swimming pools and spas only. Do not use with storable pools.

DESCRIPTION OF SAND FILTRATION

Incoming water from the piping system is automatically directed by the Multiport Valve to the top of the filter bed . As the water is pumped through the filter sand, dirt and debris are trapped by the filter bed, and filtered out. The filtered water is returned from the bottom of the filter tank, through the Multiport Valve and back through the piping system.



VALVE POSITIONS

- 1. Filter - Position for filtering the body of water.** Incoming water from the piping system is automatically directed by the Multiport Valve to the top of the filter bed. As the water is pumped through the filter sand, dirt and debris are trapped by the filter bed, and filtered out. The filtered water is returned from the bottom of the filter tank, through the Multiport Valve and back through the piping system.
- 2. Backwash - Position for cleaning the filter media.** Water flow is reversed by the Multiport Valve through the filter bed so that water flow is directed to the bottom of the tank and up through the filter bed, flushing the previously trapped dirt and debris out the waste line.
- 3. Rinse - Position for flushing the filter system.** The water flow is directed by the Multiport Valve through the filter bed and out the waste line. This process settles the filter media bed into place and ensures any dirt or debris is rinsed out of the filter, preventing possible return to the Swimming Pool/ Spa.
- 4. Waste - Position for bypassing the filter bed to Waste.** The water flow is directed by the Multiport Valve straight to the backwash outlet, bypassing the entire filter bed. This Multiport Valve position is used lower the water level or for vacuuming water with high dirt loads.
- 5. Re-circulate - Position for bypassing the filter bed to the Swimming Pool/ Spa.** The Multiport valve recirculates water flow directly back to the Swimming Pool/ Spa, bypassing the filter.
- 6. Closed – Position for closing all flow to the filter.** This position is not to be used with the pump operating.
- 7. Winter - Position for winter storage.** This position is not to be used with the pump operating. Please see winterizing section of this manual for further details.

CAUTION: Operation of the Multiport Valve or mode selection is to be always done with the pump switched off.

UNPACKING

After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

SAFETY GUIDELINES

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS.

As a user, you are important to us. Thus, one copy of the Operating Instructions and Parts Manual is included with each pump shipped from our factory. This manual contains important sections relative to user safety, use, maintenance, warranty, etc. It is a good idea to ask for extra copies for other installers/users. Extra copies, free of charge, are available.

Do not use pump for any purpose other than pool/spa application. Components have not been designed for other applications. Severe pump failure, may result. Any unapproved use will void warranty.



CALIFORNIA PROPOSITION 65

WARNING: This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.



DANGER: To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.



WARNING: Risk of electrical shock. Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI. The unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.



CAUTION: This pump is for use with permanently- installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently- installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity. Do not install within an outer enclosure or beneath the skirt of a hot tub or spa.

NOTICE: PLEASE SAVE THESE INSTRUCTIONS.

ALWAYS FOLLOW BASIC SAFETY PRECAUTIONS WITH THIS EQUIPMENT, INCLUDING:

- Provide sufficient ventilation to maintain air temperature below the maximum ambient temperature rating shown on the motor nameplate. Pump house must allow adequate ventilation to assure the ambient temperature remains below the motor rating when the pump is operating.
- Locate the pump on a non combustible surface. The surface should be hard, level, dry, well ventilated, and out of direct sunlight. The surrounding area should provide protection from the elements and allow sufficient space for maintenance and service. Ensure the drainage will flow away from the pump. To reduce vibration and pipe stress, use anchor bolts to secure pump base to surface. Support the suction and discharge piping.
- Design the piping system to allow the pump suction inlet height to be as close to water level as possible. Mount the pump below water level for easy priming. If the pump must be located above the filled water level, keep the vertical distance to a minimum. Use short, direct piping to the suction as this will minimize friction loss.



WARNING: Fire and burn hazard. Motors run at high temperatures. Do not allow leaves, debris, or foreign matter to collect around the pump motor. Keep ventilation holes open. Allow the motor to cool before handling. Keep flammable liquids away.

- If the thermal overload protection in the motor trips or if the GFCI trips, determine the reason and correct the problem before re-starting pump.
- Use rigid or flexible PVC pipe. Ensure pipe ends are clean and free of any flash caused by cutting. Use the proper glue for the type of pipe selected.



NOTE: Use a supplier recommended primer to ensure glued joints are secure. Many local codes require primer with a purple tracer to verify primer use.

Consider climatic conditions when applying adhesives. Atmospheric conditions with high humidity will make the adhesive action of certain glues less effective. Follow the manufacturer's instructions.

POOL SAFETY GUIDELINES

RESPONSIBLE ADULT SUPERVISION

Constant and responsible adult supervision is mandatory in the pool or spa environment. Always supervise children around pools and spas. Never allow a child to play in a way that could permit the child's hair to come near the drain cover.

DRAINS, SUCTION FITTINGS, AND JETS

Keep hair and clothing away from the suction fitting drain cover. Wear a bathing cap or pin hair up if you have long hair. Current grates and covers help prevent body or hair entrapment. Make sure that drain covers meet the ANSI/ASME A112.19.8 standard. Safety doors should be installed in all pool cleaner wall suction lines. Pools or spas with drain covers that are broken, missing, or not adequately secured should not be used until the proper replacement has been installed.

ELECTRICAL HAZARDS

A licensed electrician, experienced in swimming pools and spas, should inspect your equipment to make sure everything is properly grounded, bonded, and protected by proper GFCI circuits according to Article 680 of the National Electric Code.

DROWNING PREVENTION

Install and routinely inspect fences, self-closing and latching gates, baby barrier fences, and alarms. Eliminate incidental routes to pool including machinery or equipment that provides a route over fencing into pool area.

INDOOR INSTALLATIONS

Pools and spas located indoors must comply with ANSI/ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers) standard 62-2001 to ensure adequate ventilation and safe use.

WARNING SIGNS

Protect your family and guests. Make sure that all warning signs provided by the manufacturer, builder, or installer are displayed according to the manufacturer's specifications.

1. Sand Filters are designed to work with water at a temperature $>$ than 32° F and $<$ than 113° F.

The filter should never be operated outside of these temperatures or damage may occur.

2. The installation should be carried out in accordance to the safety instructions of swimming pools and the specific instructions for each facility.

3. The user should make sure that the installation is carried out by qualified authorized persons and that these persons have first carefully read the following instructions.

4. The operating safety of the filter is only guaranteed if the installation and operation instructions are correctly followed.

5. To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

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

7. Chemical spills and fumes can weaken Swimming Pool/ Spa. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

8. Any modification of the filter requires the prior consent from the supplier's original replacement parts and accessories authorized by the manufacturer ensure a high level of safety. The supplier assumes no liability for the damage and injuries caused by unauthorized replacement parts and accessories.

9. In the event of defective operation or fault, contact the manufacturer at 815-675-7000.

Installation Tools Required

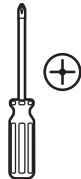


WARNING: Shock Hazard! Only qualified, licensed personnel should install pump and wiring. A professional trained and familiar with pool pump installation must perform pressure tests.

TOOLS REQUIRED



Wrench



Phillips
screwdriver



Plumber's
seal tape

UNPACKING

After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

INSTALLATION INSTRUCTIONS

The pump mount must be located away from corrosive or flammable chemicals. Do not connect the pump to a municipal water system. The pump is only designed for pool or spa installation. All air must be removed from piping system before operating or testing equipment (see filter manual).

THREADED CONNECTIONS

Use only Plumber's Seal tape or equivalent on threaded plumbing connections. Other pipe compounds may damage threads. Do not use silicone or petroleum based compounds.

PUMP PLUMBING

1. Keep the piping as straight and short as possible, and of suitable size.
2. Avoid connecting an elbow directly into the pump inlet. A length of straight pipe will allow proper entry of the water to the pump.
3. Slope horizontal runs upward to the pump to prevent trapping air.
4. Use independent piping supports to reduce strain on the pump.
5. Keep as much of the suction line as possible below the water level to reduce priming time.
6. Keep all valves fully open during operation. Partially closed valves waste energy!

Use Plumber's Seal tape for making threaded connections to the pump. Do not use pipe dope.

PLUMBER'S SEAL TAPING INSTRUCTIONS

Use only new or clean PVC pipe fittings. Wrap male pipe threads with one to two layers of Plumber's Seal tape. Cover entire threaded portion. Do not over tighten. If leaks occur, remove pipe, clean off old tape, rewrap with one to two additional layers of tape and remake the connection.

FITTINGS

Fittings restrict flow; for best efficiency use fewest possible fittings. Avoid fittings which could cause an air trap. Pool fittings must conform to International Association of Plumbing and Mechanical Officials (IAPMO) standards. Use only non-entrapping suction fitting or double suction.

Product Positioning

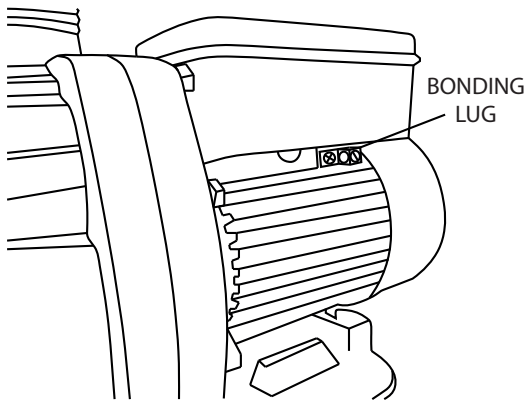
1. Position the filter as close to the Swimming Pool/ Spa as possible.
2. Position the filter so that it is free from flooding, away from sumps, guttering, garden hollows, etc.
3. Position the filter so that the piping connections, Multiport Valve and winter drain is convenient and accessible for operation, servicing and winterizing.

4. Ensure that the compliance label is facing the front to allow easy identification in the case of service difficulties.
5. The filter should be placed on a level concrete slab, very firm ground, or equivalent. Ensure that the ground will not subside, preventing any strain from the attached plumbing.
6. Ensure that there is no movement of the filter during operation of the Multiport Valve.

Electrical

WIRING, GROUNDING & BONDING

Install, ground, bond and wire motor according to local or National Electrical Code (NEC) requirements, with copper conductors only. Permanently ground motor. Use green ground terminal provided under motor canopy or access plate (use size and type wire required by code) to connect motor ground terminal to electrical service ground. In addition to the ground, a Bond wire is required for the safety of people and equipment. If Bond wire is not to NEC, warranty will be voided.



Bonding Lug Location

It is recommended to use a dedicated breaker. (If unsure how to do this or if this is confusing, consult a licensed electrician.) Use the load circuit breaker as the master on-off switch.

Install a Ground Fault Circuit Interrupter (GFCI) in circuit; it will sense a short-circuit to ground and disconnect power before it becomes dangerous to pool users. For GFCI test procedures, see GFCI manufacturer's instruction.

In case of power outage, check GFCI for tripping (which will prevent normal pump operation). Reset if necessary.



NOTE: If you do not use conduit when wiring motor, be sure to seal wire opening on end of motor to prevent dirt, bugs, etc. from entering.



WARNING: Shock hazard and electrocution hazard. Extension cords are NOT recommended, due to risk of mixing water with electricity.

Installation Steps

INSTALLATION STEPS

1. Check contents: Sand Filter System Includes the following (see schematics at end of owner manual).

2. Inspect Contents for shipping damage.

3. Attach the pump base to the tank base: Please see fig. 1.

Note: For the 24" Tank, you will need the included Pump Base Adapter to attach the pump Base to the Tank Base.

3a. Assemble the pump to the pump base using the provided bolts and the only 4 round holes in the pump base, as shown.

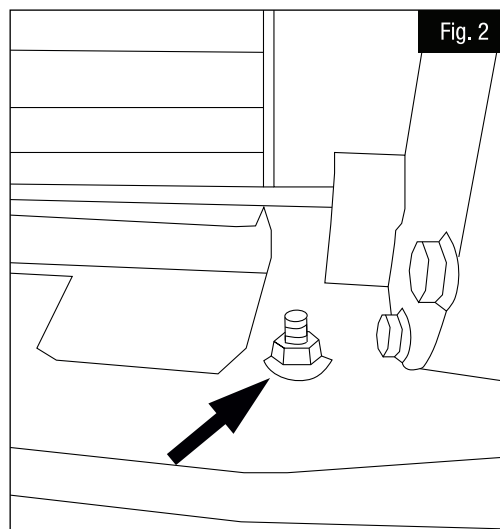
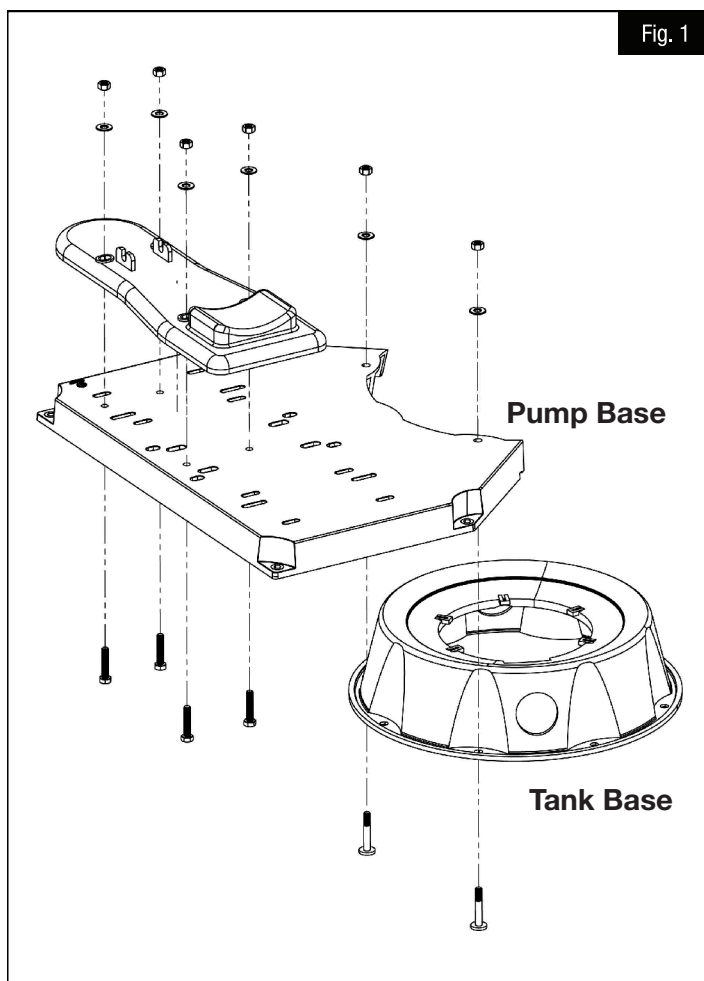
Note: Do not use the slotted openings, only the 4 round holes.

3b. From the bottom of the pump base, push the bolts through the 4 round holes provided, until the head of the bolt is down flush.

3c. Flip Pump Base right side up.

3d. Place pump over the 4 bolts with the suction of the pump facing your desired location (as the pump can face either way).

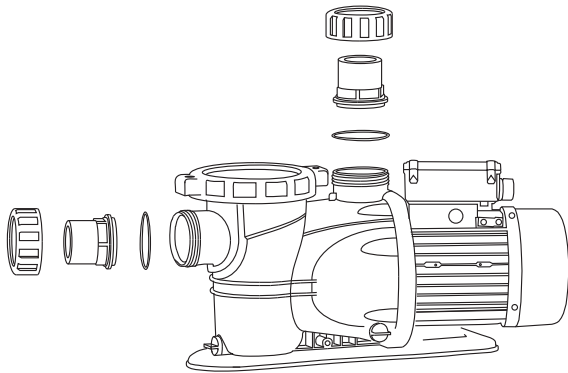
3e. Use the provided washers and nuts to secure the pump to the Base Tray. (Do not over torque) Please see fig 2.



4. Installing Pump Union Adapters:

4a. Remove the 2 Pump Unions Adapters, 2 O-rings & 2 Locking Rings from blue Basket from Pool Pump.

4b. Supporting the O-ring between the Union Adapter and the Pump, use the Locking Ring to lock on Pump on both the suction side and the Discharge side of the Pool Pump.



5. Tank Assembly:

5a. Remove all the loose parts from the tank.

5b. Place the center pipe in the tank, and install the laterals to the center pipe WHILE THE CENTER PIPE IS IN THE SAND FILTER TANK with the lateral assembly towards the bottom of the tank.

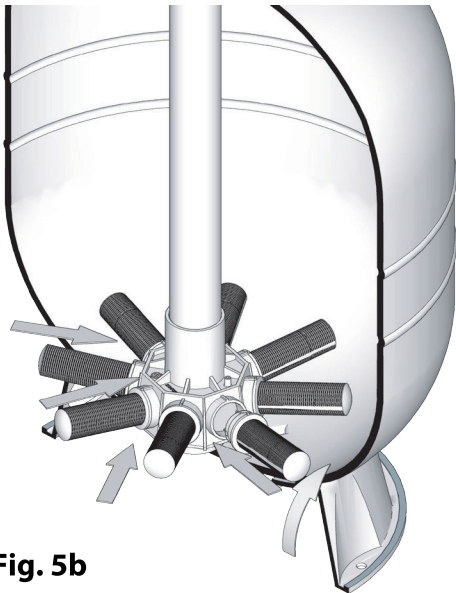


Fig. 5b

5c. Place the Sand Shield/Aligner in the sand tank opening.

Installation Steps (cont.)



Fig. 5c

5d. Before adding sand, place the tank in the desired location.

6. Adding Media (Sand):

6a. Before adding Sand, Fill Sand Tank half full of water for a cushioning effect to help protect the laterals when pouring sand.

6b. Add the Proper Amount of #20 Silica Sand; 45 -.55mm by dispersing evenly around the tank.

***Note:** 24" Tank = 300lbs/19" Tank = 180lbs/16" Tank = 100lbs.



Fig. 6b

6c . After all sand is added to Tank, remove the Sand Shield/Aligner and store away for future use.

NOTE: Sand will only reach about 2/3 of the way to the top of the tank.

7. Attaching Sand Filter Valve:

7a. Remove Sand Filter Valve, (2) Valve Half Clamps, Valve Clamp Hardware Bag & large O-ring from Valve Box.

Installation Steps (cont.)

7b. Place Large O-ring on bottom of Valve. Please ensure O-ring is 100% up against Valve lip.

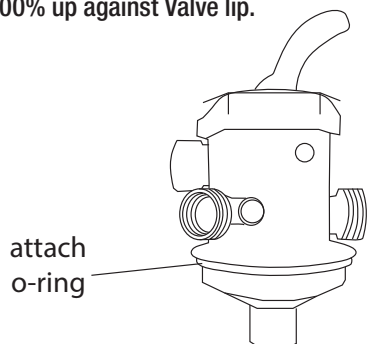


Fig. 7b

7c. Place Valve on top of Filter Tank and rotate it to align with the corresponding pipe connections/outlets.

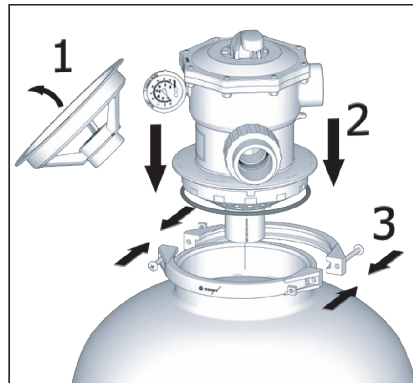
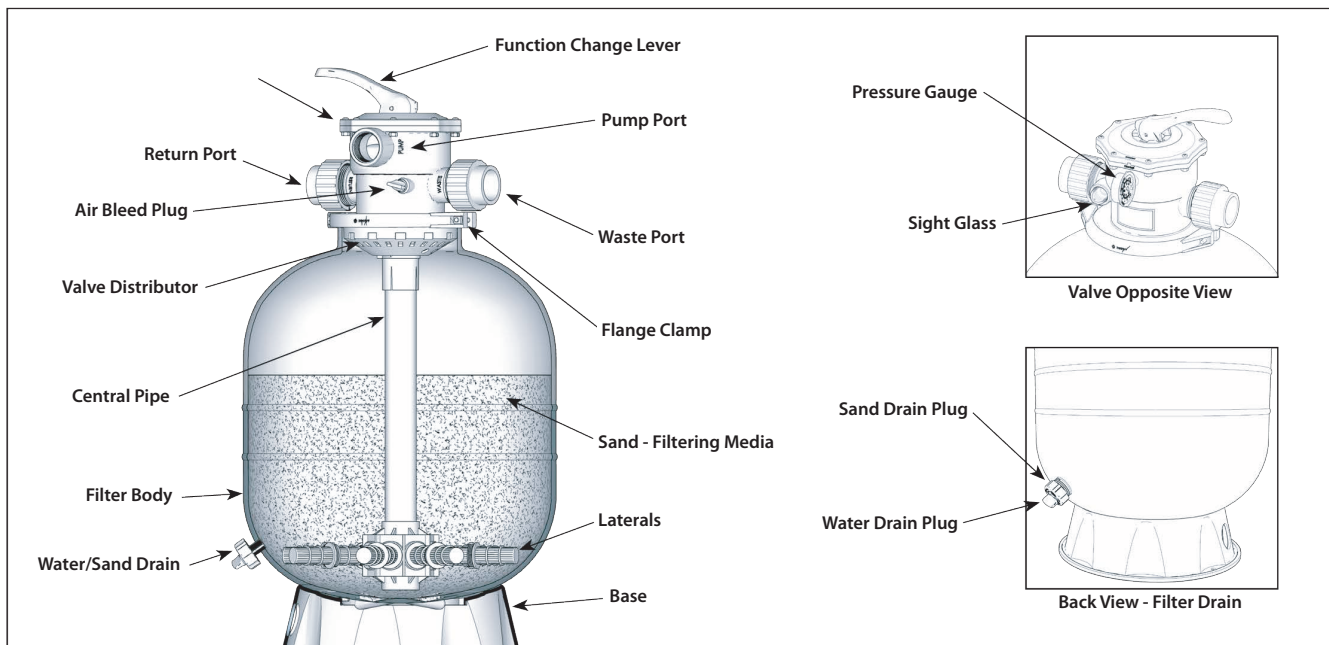


Fig. 7c

7d. Using the 2 Half Clamps and hardware that was included with the Valve, ensure the lip of the Valve and the lip of the Tank are both started in the Half Valve Clamps before tightening the hardware.

7e. Lubricate the O-Ring that goes between the valve and tank with the provided silicone lubricant. Tighten the screws on the valve clamp, maintaining a distance between clamps of between 0.150" to 0.375" (4mm to 9.5mm) on each side (Fig. 7c). Check for leaks; if necessary, loosen and rotate the clamp, reseal the valve and retighten.

Main System Components



8. Connecting Discharge Hose from Pool Pump Discharge (on top pump) to Pump Port on Valve: *****Please Note***** Use Thread Seal Tape **ONLY** & ALWAYS WRAP IN THE SAME DIRECTION AS THE THREADS. Plumbers Dope/Paste is not permitted as it will damage the components on all threaded System Connections Provided.

Wrap thread seal tape clockwise



8a. Find the Discharge Hose from Main Carton (Discharge hose has a 1.5" Threads on one end with a union locking ring on the other end).

8b. Find the small (About 2" diameter) O-ring and Discharge Hose Adapter that was provided.

8c. Using thread seal tape, wrap the 1.5" threads side of the Discharge Hose Adapter with one or two layers of the thread seal tape. Cover the entire threaded position. If leaks occur once system is complete, remove adapter, clean off old tape, rewrap with one or two additional layers of tape and reassemble. Repeat if necessary.

Installation Steps (cont.)

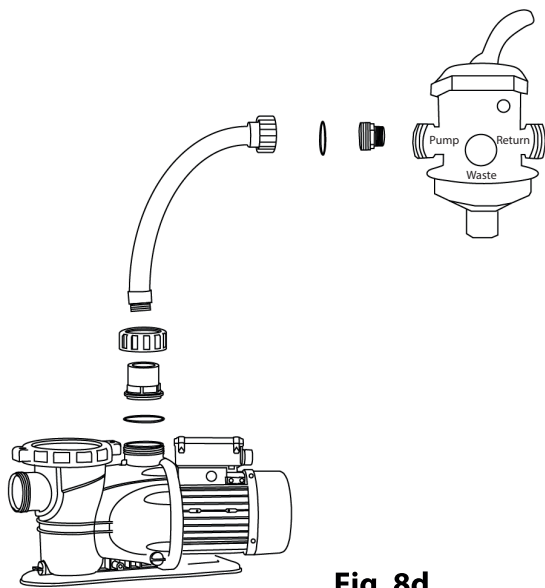


Fig. 8d

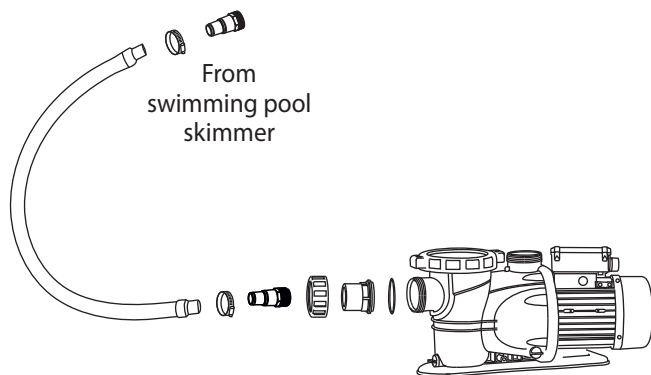
8d. To connect the valve to the pump, first connect the hose to the port labeled “pump” on the valve (Fig. 8d).

8e. To assemble the male adapter to the pump port on the valve, use up to 10 turns of Teflon thread seal tape. Attach the hose end with the union nut to the male adapter.

8f. Once the hose is connected to the valve, attach the other end of the hose to the pump's threaded sleeve, using up to 10 turns of Teflon thread seal tape.

8g. Connect the remaining part of the hose with the Union Locking Ring to the Discharge Hose Adapter that was tightened to the “Pump” Port of the Filter Valve in step 8e.

9. Connect the Suction Hose from the Thru-Wall Skimmer of the pool to the front (Suction Side) of the pump.



9a. Locate (2) Hose Barbs and (2) Hose Clamps that were also provided in the bag of hose connections that was removed from the filter tank in step 5a.

9b. Using thread seal tape, wrap the 1.5" threads side of the Hose Barbs with one or two layers of the thread seal tape. Cover the entire threaded position. If leaks occur once system is complete, remove adapter, clean off old tape, rewrap with one or two additional layers of tape and reassemble. Repeat if necessary.

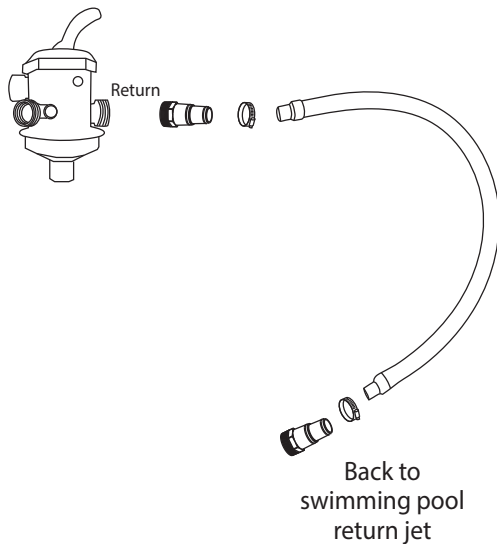
9c. Install the Hose Barb into the Swimming Pool Skimmer Basket / Drain area. Tighten snugly, but do not over tighten.

9d. Install the other Hose Barb into the Suction side (Blue Basket Plumbing Connection) of the Pool Pump. Tighten snugly, but do not over tighten.

9e. Place the Hose Clamp around the beginning of the provided 6 ft flex hose and press the hose onto Hose Barb located at the Swimming Pool Skimmer Basket / Drain Area until completely engaged. Tighten Hose Clamp.

9f. Place the other Hose Clamp around the opposite end of the beginning of the 6 ft flex hose and press onto Hose Barb located at the Suction Side of the Pool Pump until completely engaged. Tighten Hose Clamp.

10. Connect the Return Hose from the "Return" Port on the Sand Filter Valve to Swimming Pool Return Jet.



10a. Locate (2) more Hose Barbs and (2) more Hose Clamps that were also provided in the bag of hose connections.

10b. Using thread seal tape, wrap the 1.5" threads side of the Hose Barbs with one or two layers of the thread seal tape. Cover the entire threaded position. If leaks occur once system is complete, remove adapter, clean off old tape, rewrap with one or two additional layers of tape and reassemble. Repeat if necessary.

10c. Install the Hose Barb into the Return Port located on the Sand Filter Valve. Tighten snugly, but do not over tighten.

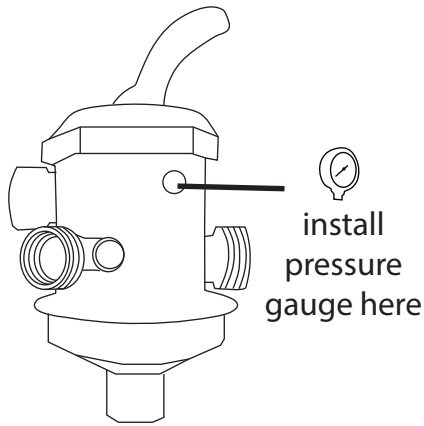
10d. Install the other Hose Barb into the Return Jet going back into the Swimming Pool. Tighten snugly, but do not over tighten.

10e. Place the Hose Clamp around the beginning of the provided 6 ft flex hose and press the hose onto Hose Barb located at the Return Port on the Sand Filter Valve until completely engaged. Tighten Hose Clamp.

10f. Place the other Hose Clamp around the opposite end of the beginning of the 6 ft flex hose and press onto Hose Barb located at the Swimming Pool Return Jet until completely engaged. Tighten Hose Clamp.

*****Please Note***** The remaining Hose Barb and Hose Clamp is to be used for the "Waste" Port on the Sand Filter Valve for backwashing.

11. Installing Pressure Gauge to the Sand Filter Valve.



11a. Find the Pressure Gauge located in the Valve box.

11b. Using thread seal tape, wrap the Pressure Gauge Threads with one or two layers of the thread seal tape. Cover the entire threaded position. If leaks occur once system is complete, remove adapter, clean off old tape, rewrap with one or two additional layers of tape and reassemble. Repeat if necessary.

11c. Find 1/4" NPT Port with Plug installed into Valve.

11d. Remove 1/4" Plug.

11e. Install the Pressure Gauge into the open 1/4" NPT port located on the Sand Filter Valve. Tighten snugly, but do not over tighten. Do Not use the Pressure Gauge Body to tighten the Pressure Gauge as it can damage the Gauge. Use the Square section under the gauge to tighten Pressure Gauge.

*****Please Note***** We recommend back-washing the system to ensure clean startup into your pool.

*****Important Operation Note***** Do Not Operate Pump while Valve is "Closed" or "Winterized" Positions, as this will damage the valve by damaging the seal internally & create a High Pressure Dangerous Situation, which would Void Warranty.

Operation



DANGER: Risk of fire and burns. Motors run at high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for 20 minutes before trying to work on it. An automatic internal cutoff switch protects the motor from heat damage during operation.



DANGER: Hazardous Suction. Can trap hair or body, causing severe injury or death. Do not block suction. Keep small children under close adult supervision at all times.



NOTE: Do NOT run the pump dry! It will void your warranty and may damage seals, causing leakage and flooding. Fill the pump with water before starting the motor.

BEFORE REMOVING THE TRAP COVER

1. CLOSE GATE VALVES in suction and discharge pipes.
2. RELEASE ALL PRESSURE from pump and piping system.

If the pump is being pressure tested, be sure pressure has been released before removing the trap cover.

PRIMING PUMP

Release all pressure from the filter, pump, and piping system; see the filter owner's manual. In a flooded suction system (water source higher than pump), pump will prime automatically when suction and discharge valves are opened. If the pump is located above the normal pool water level, remove ring and cover assembly and slowly fill the basket and pump with water. Clean and inspect the O-ring and reinstall on the trap. Replace the ring and cover assembly and rotate clockwise to tighten the cover.

The clamp ring must engage with the pump body. Push down and rotate until the internal stops are felt. Properly aligned tabs shown above. Ensure the lid is securely clamped. Failure to tighten clamp ring as indicated will reduce product strength, resulting in failure of components, and bodily injury.



NOTE: Pump prime time will depend on vertical distance and length of suction line. If the pump does not prime, make sure that all valves are open and the suction pipe is submerged. Verify there are no leaks in suction lines. See Troubleshooting Guide for further assistance.

INITIAL STARTUP OF FILTER

Be sure correct amount of filter sand media is in tank and that all connections have been made and are secure.

1. Depress Multiport Valve handle and rotate to the BACKWASH position. NOTE: To prevent damage to control valve seal, always depress handle before turning.
2. Switch on the Pump/ Open the Inlet Valve allowing the filter tank to fill with water. CAUTION: All suction and discharge valves must be open when starting the pump. Failure to do so could cause severe personal injury and/ or property damage. NOTE: If a pump is installed, switch the pump on and off, instead of closing and opening the Inlet Valve.
3. Once water flow is steady out the waste line, run the pump for at least 1 minute. The initial backwashing of the filter is recommended to remove any impurities or fine sand particles in the sand media.
4. Turn the pump off, Multiport Valve to the RINSE position. Switch on the Pump/ Open the Inlet Valve until water in sight glass is clear — approximately 10 to 15 seconds.
5. Switch off the Pump/ Close the Inlet Valve, set the Multiport Valve to the FILTER position and Switch on the Pump/ Open the Inlet. Your filter is now operating in the normal filter mode.
6. Adjust pool suction and return valves to achieve desired flow. Check the plumbing and filter for water leaks and tighten connections, bolts, and nuts, as required. NOTE: during the initial cleanup of the pool water, it may be necessary to backwash frequently due to the heavy dirt load in the water.
7. Record the pressure gauge reading (start up pressure) during the initial operation. After a period of time, the accumulated dirt and debris will cause the pressure to rise. When the pressure is 10 psi above the start up pressure, a backwashing operation should be performed.

BACKWASHING

The function of backwashing is to separate the deposited particles from filter media grains and flush them from the filter bed. Backwashing is achieved by reversing the flow of water through the filter bed at a fairly high flow rate. This high flow rate expands the filter bed and the water collects the debris taking it to waste.

SYSTEM INSPECTION

The pool circulation system should be frequently inspected for debris and signs of leaks.

⚠ WARNING

Any time the system is opened, air must be bled from the filter using the air relief valve. Air trapped in the system can cause an explosion.

1. **Ensure pump is OFF.** Turn off any automatic controls and lock out / tag out switches and / or circuit breakers to ensure the system cannot inadvertently turn on.

⚠ WARNING

Verify power is removed from the system. Disconnect, tag and lock out power source before attempting to install, service, relocate or perform any maintenance.

2. Close system isolation valves, if installed.
3. Remove debris from the pool skimmer basket.
4. Open the air relief valve to release any pressure in the system.
5. Check system for signs of leaks. If found, consult the owner's manual of the leaking equipment.
6. Remove pump trap cover and basket; remove debris. Refer to the pump owner's manual for more specific information.
7. Replace the pump basket and trap cover according to the pump owner's manual.
8. Open system isolation valves, if installed.
9. With the air relief valve open, stand clear of the filter and start the pump.
10. Once a steady stream of water flows from the air relief valve, close the valve.

NOTICE

Do not over tighten valve. If the valve fails to seal, turn the pump off, remove the top assembly and inspect the valve o-ring. Reseat or replace if necessary.

11. When the system has returned to normal operation, check the filter operating pressure. If the filter pressure is 10 psi to 12 psi (69 kPa 83 kPa) above the start-up pressure, the filter media needs to be backwashed. Refer to the "Backwashing" section of the owner's manual (Page 21).

Troubleshooting

Above normal or excessive force to operate the Multiport Valve	Scoring or jamming with foreign matter or debris. If this condition persists after rinsing, disassemble the valve to clear. Continued operation of the valve may result in a non-sealing condition (damage to spider gasket). This will lead to water loss to the backwash line or to inefficient filtration.	Filter Media In the backwash	<ol style="list-style-type: none"> 1. Excessive quantity of media in the filter. 2. Excessive water flow. 3. Incorrect sized or grade of filter media.
Dirty Water	<ol style="list-style-type: none"> 1. Insufficient filtration time. 2. Heavy contaminants or dirt load. 3. Dirty filter, requires backwashing. 4. Air leaking on suction. 5. Pump impeller vanes blocked. 6. In sufficient water supply (water level low, blockage). 7. Pump not primed. 8. In correct water chemistry. 9. Excessive flow of water for filter size. Foreign matter or debris forced through filter media and through the under drain. 10. Other restrictions including (pool suction cleaners) resistance from other inline equipment such as strainers. <p>Operating the filter on recirculate will determine if the restriction is in the filter.</p> <ol style="list-style-type: none"> 11. Clogged or channeled filter media. Perform backwash or regeneration. <p>Refer to maintenance section.</p>	Filter Media returning to Swimming Pool/ Spa	<ol style="list-style-type: none"> 1. Filter is on recirculate. 2. Verify it is the filter media and not from another source. 3. Damage to the under-drain laterals. 4. Damage or incorrect fit of Multiport Valve are correct. 5. Incorrect or mixed grades of media in the filter.
		Short filtration cycles	<ol style="list-style-type: none"> 1. Presence of algae or a scale builds up. 2. Check water chemistry. 3. Excessive water flow, check pump size, mains water flow. 4. Filter blocked through calcium etc. clean filter media.

Read and understand the safety and operating instructions in this manual before doing any work on the pump! Only qualified personnel should electrically test the pump motor!

WATER LEAKING AROUND THE MOTOR

A water leak in the area of the motor to the pump connection indicates a mechanical seal failure and a shock hazard. Take the pump out of service and replace the seal immediately to avoid damage to other components and to reduce the risk of an electric shock. Refer to the pump maintenance section.

FAILURE TO PUMP: REDUCED CAPACITY OR DISCHARGE PRESSURE SUCTION LEAKS/LOST PRIME:

1. The pump must be primed; make sure that the pump body and the basket body are full of water. See the priming instructions.
2. Make sure there are no leaks in the suction piping.
3. Make sure the suction inlet is well below the water level to prevent the pump from sucking air.
4. Lower the pump closer (vertically) to the water source or install a check valve in the suction line.



WARNING: Some safety vacuum release system (SVRS) devices are not compatible with the installation of check valves. If the pool has an SVRS device, be sure to confirm that it will continue to safely operate when any check valves are installed.

FAILURE TO PUMP: CLOGGED PIPE/TRAP/IMPELLER, WORN IMPELLER:

5. Make sure the suction trap is not clogged; if it is, clean the trap and the strainer. See Maintenance section.
6. Make sure the impeller is not clogged (follow steps 1 through 7 under "DISASSEMBLY"; check the impeller for clogging; and follow steps under "REASSEMBLY").
7. Impeller and diffuser may be worn. If so, order replacement parts by calling customer support.

8. The pump may be trying to push too high a column of water. If so, a “higher head” pump is needed. Call customer support.

FAILURE TO PUMP: ELECTRICAL

9. The pump may be running too slowly. Check voltage at the motor terminals and at the meter while the pump is running. If low, see wiring instructions or consult power company. Check for loose connections.

10. The pump may be too hot.

A. Check line voltage; if less than 90% or more than 110% of rated voltage consult a licensed electrician.

B. Increase ventilation.

C. Reduce ambient temperature.

D. Tighten any loose connections.

Maintenance

All of our pumps are shipped from the factory with DANGER and/or WARNING labels already on the pump. These labels contain a series of basic, yet extremely important safety messages for the user and bystander. Regardless of how well these labels are attached or how scratch resistant or wear-resistant they may be, it is possible that, in time, the wording may become illegible with normal use. Whenever you are repairing the pump, performing routine maintenance, or have the opportunity to inspect the pump, make sure the label is readable. If the label is not legible, replace the label with an adhesive version that is available at no charge by calling customer support. The unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

Use only parts supplied by the manufacturer. Similar looking parts may not have sufficient strength for safe operation.

The only routine maintenance needed is inspection/cleaning of the strainer basket. Debris or trash that collects in the basket will choke off water flow through the pump.

BEFORE ATTEMPTING TO CLEAN THE BASKET

A. Stop the pump, disconnect power at its source, lock out power, place a tag on the dedicated GFCI circuit breaker indicating the power is to remain OFF.

The filter media will only require replacement once it has reached the limits of its designated life. Refer to the product information of the particular filter media used. To ensure the maximum life of the selected filter media, please follow the procedures below:

1. Backwash the filter regularly according to the instructions set under “Backwashing”.

2. Refer to the specifications of the filter media used and implement regeneration procedures accordingly.

3. Maintain a correct chemical balance your pool/spa water. The chemical balance of water is a relationship between its Ph, total alkalinity, calcium hardness and water temperature. The water must be maintained at all times to the following:

PH LEVEL: BETWEEN 7.2 & 7.8.

TOTAL ALKALINITY: BETWEEN 80 & 150ppm.

CALCIUM HARDNESS: BETWEEN 150 & 300ppm.

And within these tolerances be balanced to the Langelier Saturation Index within a range of -0.2 to +0.2.

NOTE: Testing kits are available to test the water yourself or alternately bring a sample of the water to a professional pool and spa shop.

4. Mains water and rural water supplies need to be monitored. Saturation (life) in mains water or bore (rural) will vary depending on water quality.

5. To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly

Maintenance (continued)



DANGER: Hazardous suction can trap hair or body parts, causing severe injury or death. Do not block suction.

- B. Remove the ring and cover assembly by turning counterclockwise. If necessary, tap handles gently with a rubber mallet.
- C. Remove the basket and clean. Inspect holes in the basket for blockage. Clean the basket with water and replace in the basket housing. Do not hit the basket to clean. Verify the basket is oriented correctly in the housing.
- D. Clean and inspect the lid O-ring. Reinstall ring and cover assembly.
- E. Prime the pump (see priming instructions).

DRAINING THE PUMP



DANGER: Risk of electric shock. Can shock, burn or kill. Disconnect power before working on pump or motor.

1. Pump down water level below all inlets to the pool. Risk of electric shock. Can shock, burn or kill. To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before draining pump.
2. Remove trap cover and use low pressure air to blow accumulated water from the piping system. Never use high pressure air to purge system.
3. Cap inlet piping after draining to keep water out of the pipes.
4. To prevent pump from freezing, remove trap cover and drain the tank body through the two drain plugs provided. Clean pump thoroughly; replace trap cover.

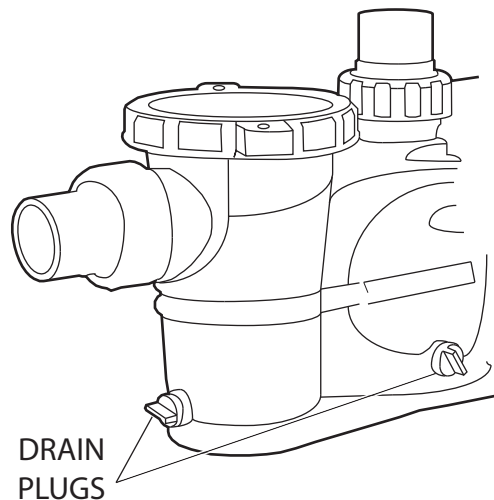


Figure 11 - Pool Pump Drain Plugs



NOTE: Tighten trap cover by hand only (no wrenches)! If pump is not anchored, use caution to avoid breaking attached piping.

5. Be sure motor is kept dry and covered.

Storage / Winterizing



DANGER: To avoid dangerous or fatal electrical shock hazard, turn OFF power to the motor before draining the pump. Disconnect the power at its source, lock out the power, and place a tag on the dedicated GFCI circuit breaker indicating the power is to remain off.

NOTICE Allowing pump to freeze will damage pump and void warranty!

NOTICE Do not use anti-freeze solutions (except propylene glycol) in your pool/spa system. Propylene glycol, or “RV antifreeze”, is non-toxic and will not damage plastic system components; other anti-freeze formulas are highly toxic and may damage plastic components in the system.

Drain all water from pump and piping when expecting freezing temperatures or when storing pump for a long time (see Draining The Pump).

Keep motor dry and covered during storage. To avoid condensation/corrosion problems, do not cover pump with plastic.

For outdoor/unprotected installations:

1. Enclose entire system in a weatherproof enclosure.
2. To avoid condensation/corrosion damage, allow ventilation; do not wrap system in plastic.
3. Use a 40% propylene glycol/60% water solution to protect pump to -50°F (-46°C).

STARTUP FOR WINTERIZED EQUIPMENT

1. Remove any temporary weather protection placed around system for shutdown.
2. Follow filter manufacturer’s instructions for reactivation of the filter.
3. Inspect all electrical wiring for damage or deterioration over the shutdown period. Have a qualified serviceman repair wiring as needed.
4. Inspect and tighten all watertight connections.
5. Open all valves in suction and return piping.
6. Remove any winterizing plugs in piping system.
7. Drain all antifreeze from system.
8. Close all drain valves and replace all drain plugs in piping system.
9. Prime pump according to instructions in Priming Pump.



DANGER: To avoid dangerous or fatal electrical shock hazard, turn OFF power to the motor before draining the pump. Disconnect power at its source, lock out the power, and place a tag on the dedicated GFCI circuit breaker indicating the power is to remain off.



NOTE: Allowing the pump to freeze will damage the pump and void warranty! Use only non-toxic antifreeze. Do not use automotive antifreeze. It is highly toxic and may damage plastic components in the system.

Conditions for Backwashing

Time for backwashing is determined by the following conditions:

1. The flow rate through the filter bed decreases until it is insufficient to meet the demand.
2. The removal efficiency of the filter bed decreases to the point where the effluent quality deteriorates and is no longer acceptable.
3. When the pressure gauge reading is 10psi higher than the start-up pressure.
4. If the filter is connected to mains water, pressure rise is not an accurate indicator as mains pressure tends to fluctuate. It is best to rely on the actual flow rate. **NOTE:** We recommend that you backwash a swimming pool sand filter in a residential installation at least once a month.

Importance of Backwashing

The importance of backwashing cannot be overstated. Dense filter media can become “packed” without proper and frequent enough backwashing. Debris will remain trapped and create channeling within the filter bed. This will result in the filter bed exhausting early. Moreover, if debris is not flushed from the media grains, the filter bed will become dirtier and dirtier as time goes on until the filter operation fails.

Backwashing Instructions

1. Switch off the Pump/ Close the Inlet Valve.

NOTE: If a pump is installed, switch the pump on and off, instead of closing and opening the Inlet Valve.

2. Release the filter’s pressure by loosening Pressure Release Valve until the Pressure Gauge needle drops to zero <0>.

3. Retighten Pressure Release Valve.

4. Depress and turn Handle 180° to the BACKWASH position. In the BACKWASH position, the water flow is automatically reversed through” the filter so that it is directed to the bottom of the filter vessel, up through the sand, flushing the previously trapped dirt and debris out the” waste line.

5. Switch on the Pump/ Open the Inlet Valve. Backwash water will flow out through drain pipe.

6. When the backwash water in the sight glass appears clear, Switch off the Pump/ Close the Inlet Valve.

7. Depress and turn the handle to the RINSE position. In the RINSE water flow is directed through the filter bed and out of the filter through the backwash outlet. This process settles the filter media bed into place and ensures any dirt or debris is rinsed out of the filter, preventing possible return to the pool.

8. Switch on the Pump/ Open the Inlet Valve. Rinse water will flow out through the drain pipe.

9. When the rinse water in the sight glass appears clear. Switch off the Pump/ Close the Inlet Valve.

10. Depress and turn the handle to the Filter position and Switch on the Pump/ Open the Inlet Valve for normal operation.

Pool / Spa Chemistry

Maintaining water chemistry at the correct levels is critical for health of pool / spa users and will help prolong the life of pool / spa equipment. This chart contains the recommended levels for a typical pool / spa. If you have questions about maintaining your pool / spa and its chemistry, consult your local APSP / NSPI pool professional or call 815-675-7000

TABLE 1

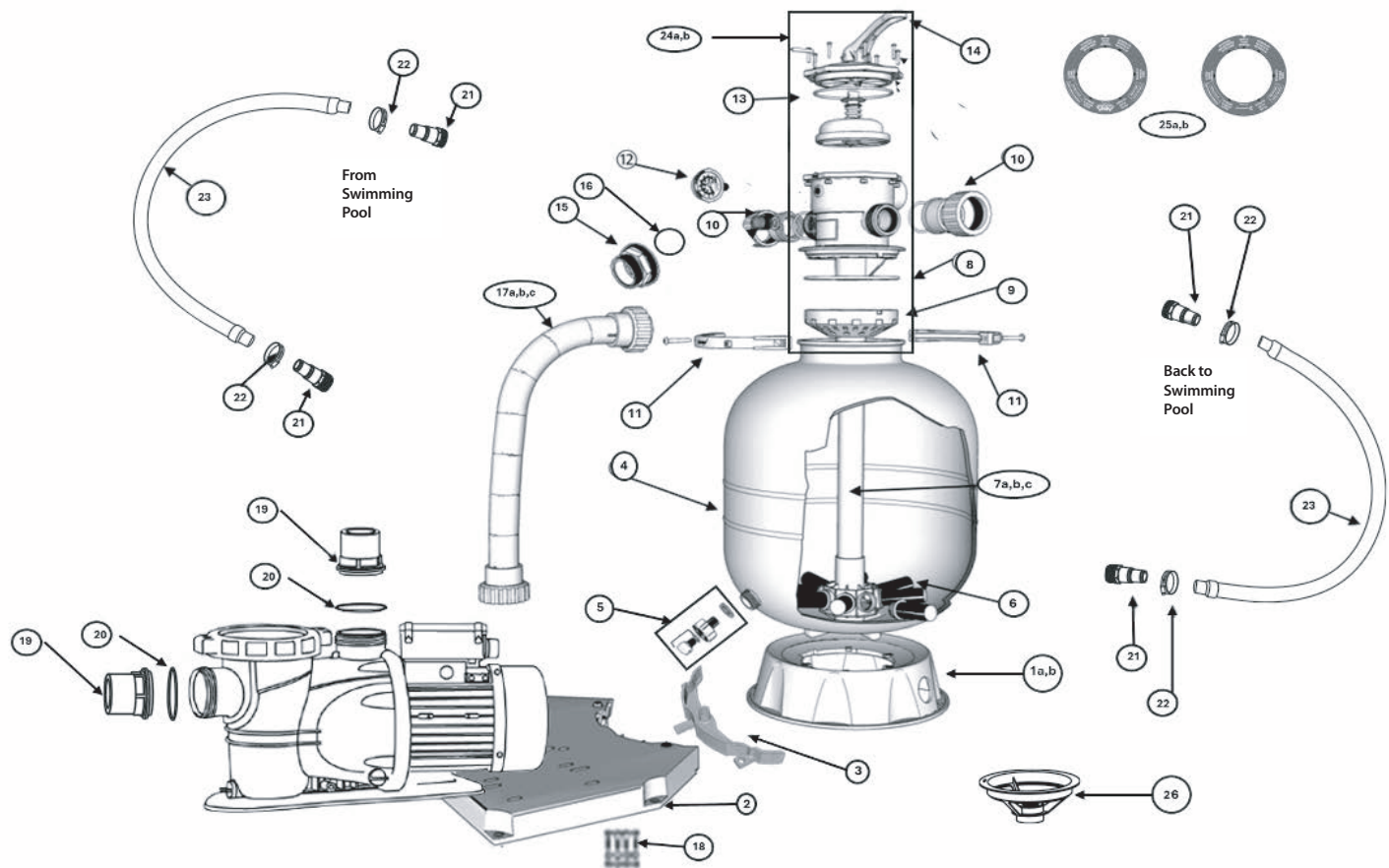
INDUSTRY STANDARD	POOL / SPA	MINIMUM	IDEAL WATER CHEMISTRY	MAXIMUM
Free Chlorine, ppm	Pool	1.0	2.0 - 4.0	5.0
	Spa	2.0	3.0 - 5.0	10.0
Total Bromine, ppm	Pool / Spa	2.0	4.0 - 6.0	10.0
pH	Pool / Spa	7.2	7.4 - 7.6	7.8
Total Alkalinity, ppm	Pool / Spa	60	80 - 100* 100 - 120**	180
Calcium Hardness, ppm as CaCO ₃	Pool	150	200 - 400	1000
	Spa	100	150 - 250	800
Cyanuric Acid, ppm	Pool / Spa	0	30 - 50	***

* For Calcium Hypochlorite, Lithium Hypochlorite, or Sodium Hypochlorite

** For Sodium Dichlor, Trichlor, Chlorite gas, BCDMH (Bromine Tablets).

*** Dictated by state or local codes. Typically 100 ppm.

Schematics



Key	Description	Intermatic Part Number		
		16 inch	19 inch	24 inch
1a,b	Sand Tank Base	FS-1619STB		
2	Pump Base	FS-161924SSPB		
3	24" Tank Base Adapter	n/a		
4	Sand Tank	FS-16ST	FS-19ST	FS-24ST
5	Drain and Plug Kit	FS-DRPL		
6	Lateral Kit	FS-1619LAT		
7a,b,c	Center Pipes	FS-16STCP	FS-19STCP	FS-24STCP
8	Gasket - Tank/Valve	FS-STVLGSKT		
9	Valve diffuser w/screw	FS-STVLVDIF		
10	1 1/2" Union Kit w/Gasket	FS-UNGSKT		
11	Valve Clamp w/screws and nut	FS-VLVLCLMP		
12	Pressure Gauge	FS-STPG		
13	Valve Cap Gasket	FS-VLVCAPGSKT		
14	7-Way Valve Handle	FS-7WHA		
15	1 1/2" Mate Adapter	65023-ADAPTER		
16	Adapter O-Ring	65023-ORING		
17a,b,c	Flexible Hose w/Union Kits	FS-16FLXP	FS-19FLXP	FS-24FLXP
18	Pump Mounting Hardware	65035-01		
19	Hose Adapter	63061-2020		
20	Hose Adapter O-Ring	63063-2020		
21	Hose Barbs	65020-01		
22	Hose Clamps	65022-01		
23	6ft Hoses	10020-001		
24a	7-way Valve (Complete) AP Branded	FS-ST7WVLVAP		
24b	7-way Valve (Complete) Intermatic Branded	FS-ST7WVLVIN		
25a	AquaPro Branded Valve Label	FS-ST7WLBLAP		
25b	Intermatic Branded Valve Label	FS-ST7WLBLIN		
26	Centering Ring	FS-SSCTRRING		

Warranty Information

Limited Warranty

This warranty service is available by either (a) returning the product to the point of purchase or (b) by completing a warranty claim online at www.intermatic.com. You are required to provide a receipt, the model number and/or serial number when exercising this limited warranty.

This warranty is made by: Intermatic, 1950 Innovation Way, Suite 300, Libertyville, IL 60048. For warranty service go to:
<http://www.intermatic.com> or call 815-675-7000.

DO NOT MAIL THIS FORM TO THE MANUFACTURER. Use this form only to maintain your records.

MODEL NO. _____ SERIAL NO. _____ INSTALLATION DATE _____

Questions, problems, missing parts?

Before returning to the store, call Customer Service

815-675-7000 or customerservice@Intermatic.com

Intermatic.com

Retain this manual for future use.