



ADVANTAGE
P O O L S & P O N D S



ADVANTAGE
P O O L P U M P S



QUIETFLO PLUS OWNER'S MANUAL INSTALLATION, OPERATION & PARTS

To prevent potential injury and to avoid unnecessary service calls, read this manual carefully and completely.

⚠ CAUTION – We highly recommend a qualified professional install and service this product.

⚠ WARNING – This manual contains important safety information that must be furnished to the end user of this product. FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS COULD RESULT IN SERIOUS INJURY.

SAVE THIS INSTRUCTION MANUAL

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IMPORTANT SAFETY INSTRUCTIONS

Before installing or servicing this electrical equipment, turn power supply OFF.

Basic safety precautions should always be followed, including the following: Failure to follow instructions may result in injury.

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

 **WARNING** warns about hazards that could cause serious personal injury, death or major property damage and if ignored presents a potential hazard.


 **CAUTION** warns about hazards that will cause or can cause minor or moderate personal injury and/or property damage and if ignored presents a potential hazard. It can also make consumers aware of actions that are unpredictable and unsafe.

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





 **WARNING – Read and follow all instructions in this owner’s manual and on equipment. Failure to follow instructions can cause severe injury and/or death.**

 **WARNING** – This product should be installed and serviced only by a qualified professionals.

 **CAUTION** – All electrical wiring MUST be in conformance with all applicable local codes, regulations, and the National Electric Code (NEC).

ATTENTION INSTALLER – THIS MANUAL CONTAINS IMPORTANT INFORMATION ABOUT THE INSTALLATION, OPERATION, AND SAFE USE OF THIS PUMP THAT MUST BE FURNISHED TO THE END USER OF THIS PRODUCT. FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS COULD RESULT IN SERIOUS INJURY.

 **WARNING** – To reduce risk of injury, do not permit children to use or climb on this product. The ANSI/NSPI 4 Standard (above-ground and on-ground pools) advises that components such as the filtration system, pumps, and heaters be positioned to prevent their being used as a means of access to the pool by young children. Closely supervise children at all times.

 **CAUTION** – The QUIETFLO PLUS Pump is intended for use on permanently installed above-ground swimming 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.

Though this product is designed for outdoor use, it is strongly advised to protect the electrical components from the weather. Select a well-drained area, one that will not flood when it rains. It requires free circulation of air for cooling. Do not install in a damp or non-ventilated location.

Bond motor to pool structure. Use a solid copper conductor, size 8 or larger. Run wire from external bonding lug to reinforcing rod or mesh. Connect a No.8 AWG (8.4 mm²) solid copper bonding wire to the pressure wire connector provided on the motor housing and to all metal parts of swimming pool, spa, or hot tub, and to all electrical equipment, metal piping or conduit within 5 ft. (1.5 m) of inside walls of swimming pool, spa, or hot tub. (In Canada use No.6 AWG bonding wire.)

⚠ WARNING – Pool and spa components have a finite life. All components should be inspected frequently and replaced at least every ten years, or if found to be damaged, broken, cracked, missing, or not securely attached.



⚠ WARNING – Risk of Electric Shock. All electrical wiring **MUST** be in conformance with all applicable local codes, regulations, and the National Electric Code (NEC). Hazardous voltage can shock, burn, and cause death or serious property damage. To reduce the risk of electric shock, do **NOT** use an extension cord to connect unit to electric supply. Provide a properly located electrical receptacle. Before working on pump or motor, turn off power supply to the pump.

⚠ WARNING – To reduce the risk of electric shock replace damaged wiring immediately. Locate conduit to prevent abuse from lawn mowers, hedge trimmers and other equipment.

⚠ WARNING – It is recommended to install a Ground Fault Circuit Interrupter (GFCI) in the circuit, however, all electrical wiring **MUST** be in conformance with all applicable local codes, regulations, and the National Electric Code (NEC).

⚠ WARNING – Failure to bond pump to pool structure will increase risk for electrocution and could result in injury or death. To reduce the risk of electric shock, see installation instructions and consult a professional electrician on how to bond pump. Also, contact a licensed electrician for information on local electrical codes for bonding requirements.

Notes to the electrician: Use a solid copper conductor, size 8 or larger. Run a continuous wire from external bonding lug to reinforcing rod or mesh. Connect a No.8 AWG (8.4 mm²) solid copper bonding wire to the pressure wire connector provided on the motor housing and to all metal parts of swimming pool, spa, or hot tub, and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5m) of inside walls of swimming pool, spa, or hot tub. **IMPORTANT** – Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and other general wiring procedures.



⚠ WARNING – Suction Entrapment Hazard. Suction in suction outlets and/or suction outlet covers which are damaged, broken, cracked, missing, or unsecured cause severe injury and/or death due to the following entrapment hazards:

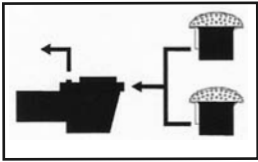
Hair Entrapment – Hair can become entangled in suction outlet cover.

Limb Entrapment – A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.

Body Suction Entrapment – A differential pressure applied to a large portion of the body or limbs can result in an entrapment.

Evisceration/ Disembowelment – A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration/disembowelment.

Mechanical Entrapment – There is potential for jewelry, swimsuits, hair decorations, fingers, toes, or knuckles to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.



⚠️ WARNING – To Reduce the risk of Entrapment Hazards:

– When outlets are small enough to be blocked by a person, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall), must be installed a minimum of three feet (3') [0.91 meter] apart, as measured from near point to near point.

- Dual suction fittings shall be placed in such locations and distances to avoid “dual blockage” by a user.
- Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- Never use pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- In addition to two or more suction outlets per pump installed in accordance with latest IAF (formerly NSPI) standards and CPSC guidelines, follow all national, state, and local codes applicable.
- Installation of a vacuum release or vent system, which relieves entrapping suction, is recommended.



⚠️ WARNING – Hazardous Pressure. Pool and spa water circulation systems operate under hazardous pressure during start-up, normal operation, and after pump shut-off. Stand clear of circulation system equipment during pump start-up. Failure to follow safety and operation instructions could result in violent separation of the pump housing and cover due to pressure in the system, which could cause property damage, severe personal injury, or death.

Before servicing pool and spa water circulation system, all system and pump controls must be in off position and filter manual air relief valve must be in open position. Before starting system pump, all system valves must be set in a position to allow system water to return back to the pool. Do not change filter control valve position while system pump is running. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air or air and water mix) is discharged from the valve. All suction and discharge valves **MUST** be **OPEN** when starting the circulation system. Failure to do so could result in severe personal injury and/or property damage.



⚠️ WARNING – Separation Hazard. Failure to follow safety and operation instructions could result in violent separation of pump components. Strainer cover must be properly secured to pump housing with strainer cover lock ring. Before servicing pool and spa circulation system, all system and pump controls must be in off position and filter manual

air relief valve must be in open position. Do not operate pool and spa circulation system if a system component is not assembled properly, damaged, or missing. Do not operate pool and spa circulation system unless filter air relief valve body is in locked position in filter upper body. All suction and discharge valves **MUST** be **OPEN** when starting the circulation system. Failure to do so could result in severe personal injury and/or property damage.

⚠️ WARNING – Never operate or test the circulation system at more than 50 PSI.

⚠️ WARNING – Fire and burn hazard. Motors operate at high temperatures and if they are not properly isolated from any flammable structures or foreign debris they can cause fires, which may cause severe personal injury or death. It is also necessary to allow the motor to cool for at least 20 minutes prior to maintenance to minimize the risk for burns.

⚠️ WARNING – Failure to install according to defined instructions may result in severe personal injury or death.

GENERAL INFORMATION

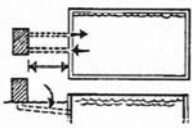
Introduction

This manual contains information for the proper installation and operation of the QUIETFLO PLUS Pump. The instructions in this manual **MUST** be followed precisely. Failure to install according to defined instructions will void warranty.

Installation Instructions

⚠ WARNING – This product should be installed and serviced only by a qualified professional.

Pump Location



Locate pump as close to pool as practical and run suction lines as direct as possible to reduce friction loss. Suction lines should have continuous slope upward from lowest point in line. Joints must be tight (but not over-tightened). Suction line diameter must equal or be larger than the discharge line diameter.

Though the pump is designed for outdoor use, it is strongly advised to place pump and filter in the shade to shield them from continuous direct heat. Select a well-drained area that will not flood when it rains. Do NOT install pump and filter in a damp or non-ventilated location. Keep motor clean. Pump motors require free circulation of air for cooling.

Pump Mounting

Install pump on a level concrete slab or other rigid base to meet all local and national codes. Secure pump to base with screws or bolts to further reduce vibration and stress on pipe or hose joints. The base must be level, rigid, and vibration free.

Pump mount must:

- Allow pump inlet height to be as close to water level as possible.
- Allow use of short, direct suction pipe (to reduce friction losses).
- Allow for gate valves in suction and discharge piping.
- Be protected from excess moisture and flooding.
- Allow adequate access for servicing pump and piping.

Pipe Sizing Chart

| MAXIMUM RECOMMENDED SYSTEM FLOW RATE BY PIPE SIZE | | | | | |
|---|------------------------|-------------------------|-------------------|------------------------|-------------------------|
| Pipe Size [mm] | Flow Rate GPM [LPM] | Suction Pipe Length* | Pipe Size [mm] | Flow Rate GPM [LPM] | Suction Pipe Length* |
| 1" [32] | 20 [75] | 5" | 2" [63] | 80 [300] | 10" |
| 1 ¼" [40] | 30 [110] | 6 ¼" | 2 ½" [75] | 110 [415] | 12 1/2" |
| 1 ½" [32] | 45 [170] | 7 ½" | 3" [90] | 160 [600] | 15" |

*NOTE – It is recommended that a minimum length of straight piping equivalent to 5 pipe size diameters be used between the pump suction inlet and any plumbing fittings (elbows, valves, etc.).

Pump Mounting (cont'd.)



⚠ WARNING – Hazardous Pressure. Pumps, filters, and other equipment/components of a swimming pool filtration system operate under pressure. Incorrectly installed and/or improperly tested filtration equipment and/or components may fail resulting in severe personal injury or death.

Plumbing

Use **Teflon tape** to seal threaded connections on molded plastic components. All plastic fittings must be new or thoroughly cleaned before use. **NOTE – Do NOT use Plumber’s Pipe Dope as it may cause cracking of the plastic components.** When applying **Teflon tape** to plastic threads, wrap the entire threaded portion of the male fitting with one to two layers of tape. Wind the tape clockwise as you face the open end of the fitting, beginning at the end of the fitting. The pump suction and outlet ports have molded-in thread stops. **Do NOT attempt to force hose connector fitting past this stop.** It is only necessary to tighten fittings enough to prevent leakage. Tighten fitting by hand and then use a tool to engage fitting an additional 1-1/2 turns. Use care when using Teflon tape as friction is reduced considerably; **do NOT over-tighten fitting or you may cause damage.** If leaks occur, remove connector, clean off old Teflon tape, re-wrap with one to two additional layers of Teflon tape, and re-install connector.

Fittings restrict flow. For better efficiency, use the fewest possible fittings (but at least two suction outlets). Avoid fittings that could cause an air trap. Pool and spa fittings **MUST** conform to the International Association of Plumbing and Mechanical Officials (IAPMO) standards. Use a non-entrapping suction fitting in pool (multiple drains) or double suction (skimmer and main drain).

Electrical



⚠ WARNING – All electrical wiring **MUST** be in conformance with all applicable local codes, regulations, and the National Electric Code (NEC). Ground and bond motor before connecting to electrical power supply. Failure to ground and bond pump motor can cause serious or fatal electrical shock hazard. **Do NOT** ground to a gas supply line. To avoid dangerous or fatal electrical shock, turn **OFF** power to motor before working on electrical connections. **Fire Hazard – match supply voltage to motor nameplate voltage.** Insure that the electrical supply available agrees with the motor’s voltage, phase, and cycle, and that the wire size is adequate for the HP (kW) rating and distance from the power source. Use copper conductors only.

Voltage

Voltage at motor **MUST NOT** be more than 10% above or below motor name plate rated voltage, or motor may overheat, causing overload tripping and reduced component life. If voltage is less than 90% or more than 110% of rated voltage when motor is running at full load, consult power company.

Grounding And Bonding

Install, ground, bond, and wire motor in accordance with local or national electrical code requirements.

Permanently ground motor. Use green ground terminal provided under motor canopy or access plate; use size and type wire required by code. Connect motor ground terminal to electrical service ground.

Bond motor to pool structure. Bonding will connect all metal parts within and around the pool with a continuous wire. Bonding reduces the risk of a current passing between bonded metal objects, which could potentially cause electrical shock if grounded or shorted. **Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and general wiring procedures.**

Use a solid copper conductor, size 8 or larger. Run wire from external bonding lug to reinforcing rod or mesh. Connect a No.8 AWG (8.4 mm²) solid copper bonding wire to the pressure wire connector provided on the motor housing and to all metal parts of swimming pool, spa, or hot tub, and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5 m) of inside walls of swimming pool, spa, or hot tub.

Wiring

⚠ WARNING – All electrical wiring **MUST** be in conformance with all applicable local codes, regulations, and the National Electric Code (NEC).

Pump **MUST** be permanently connected to circuit. If other lights or appliances are also on the same circuit, be sure to add their amp loads before calculating wire and circuit breaker sizes. Use the load circuit breaker as the Master On-Off switch.

START-UP & OPERATION

Prior to Start-Up

NOTE – If it is necessary to perform a pressure test, prior to initial use to ensure pump is functioning properly, then the following criteria should be maintained for this test:



1. Have a professional perform this test.
2. Ensure all pump and system components are sealed properly to prevent leaks.
3. Remove any trapped air in the system by fully opening filter manual air relief valve until a steady stream of water (not air or air and water mix) is discharged from the valve.
4. Allow no more than 50 psi (345 kPa) at a water temperature no higher than 100° F (38° C).
5. Run pressure test for no longer than 24 hours. Immediately inspect all parts to verify they are intact and functioning properly.

⚠ WARNING – If pump is being pressure tested (50 PSI MAXIMUM), be sure pressure has been released, using the filter manual air relief valve, before removing strainer cover.

⚠ WARNING – All suction and discharge valves **MUST be OPEN**, as well as filter air relief valve (if available) on filter, when starting the circulating pump system. Failure to do so could result in severe personal injury.

Starting/Priming the Pump:

Fill strainer housing with water to suction pipe level. If water leakage occurs from anywhere on the pump or filter, DO NOT start the pump. If no leakage occurs, stand at least 10 feet from pump and/or filter and proceed with starting the pump.

⚠ WARNING – Return to filter to close filter manual air relief valve when a steady stream of water (not air or air and water) is discharged from valve. Failure to do so could result in severe personal injury.

⚠ ATTENTION – NEVER OPERATE THE PUMP WITHOUT WATER. Water acts as a coolant and lubricant for the mechanical shaft seal. NEVER run pump dry. Running pump dry may damage seals, causing leakage, flooding, and voids warranty. Fill strainer housing with water before starting motor.

⚠ ATTENTION – Do NOT add chemicals to pool/spa system directly in front of pump suction. Adding undiluted chemicals may damage pump and voids warranty.

⚠ ATTENTION – Before removing strainer cover:

1. **STOP PUMP** before proceeding.
2. **CLOSE VALVES** in suction and outlet pipes.
3. **RELEASE ALL PRESSURE** from pump and piping system using filter manual air relief valve. See filter owner's manual for more details.
4. If water source is higher than the pump, pump will prime itself when suction and outlet valves are opened. If water source is lower than the pump, unscrew and remove strainer cover; fill strainer housing with water.
5. Clean and lubricate strainer cover O-ring with Teflon based lubricant if necessary.
6. Replace strainer cover on strainer housing; turn clockwise to tighten cover.
NOTE – Tighten strainer cover lock ring by hand only (no wrenches).

Before re-starting pump, see “Starting/Priming the Pump” instructions.

⚠ ATTENTION – Wait five (5) seconds before re-starting pump. Failure to do so may cause reverse rotation of motor and consequent serious pump damage.

Turn on power and wait for pump to prime, which may take up to five (5) minutes. Priming time will depend on vertical length of suction lift and horizontal length of suction pipe. If pump does NOT prime within five minutes, stop motor and determine cause. Be sure all suction and discharge valves are open when pump is running. See Troubleshooting Guide.

MAINTENANCE

- Clean strainer basket regularly. Do NOT strike basket to clean. Inspect strainer cover gasket regularly and replace as necessary.
- Advantage pumps have self-lubricating motor bearings and shaft seals. No lubrication is necessary.
- Keep motor clean. Insure motor air vents are free from obstruction to avoid damage. Do NOT use water to hose off motor.
- Occasionally, shaft seals must be replaced, due to wear or damage. See “Shaft Seal Change Instructions” in this manual.

STORAGE/WINTERIZATION



⚠ WARNING – Separation Hazard. Do not purge the system with compressed air. Purging the system with compressed air can cause components to explode, with risk of severe injury or death to anyone nearby. Use only a low pressure (below 5 PSI), high volume blower when air purging the pump, filter, or piping.

⚠ ATTENTION – Allowing the pump to freeze will void the warranty.

⚠ ATTENTION – Use ONLY propylene glycol as antifreeze in your pool/spa system. Propylene glycol is nontoxic and will not damage plastic system components; other anti-freezes 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 instructions below). Gravity drain system as far as possible.

Keep motor dry and covered during storage. To avoid condensation/corrosion problems, do NOT cover or wrap pump with plastic film or bags.

Storing Pump For Winterization



⚠ WARNING – To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before draining pump. Failure to disconnect power may result in serious personal injury or death.

1. Drain water level below all inlets to the pool.
2. Remove drain plugs and strainer cover from strainer housing. (See Parts Diagram on page 11 of this manual for pump component locations.)
3. Disconnect pump from mounting pad, wiring (after power has been turned OFF), and piping.
4. Once the pump is removed of water, re-install the strainer cover and drain plugs. Store pump in a dry area.

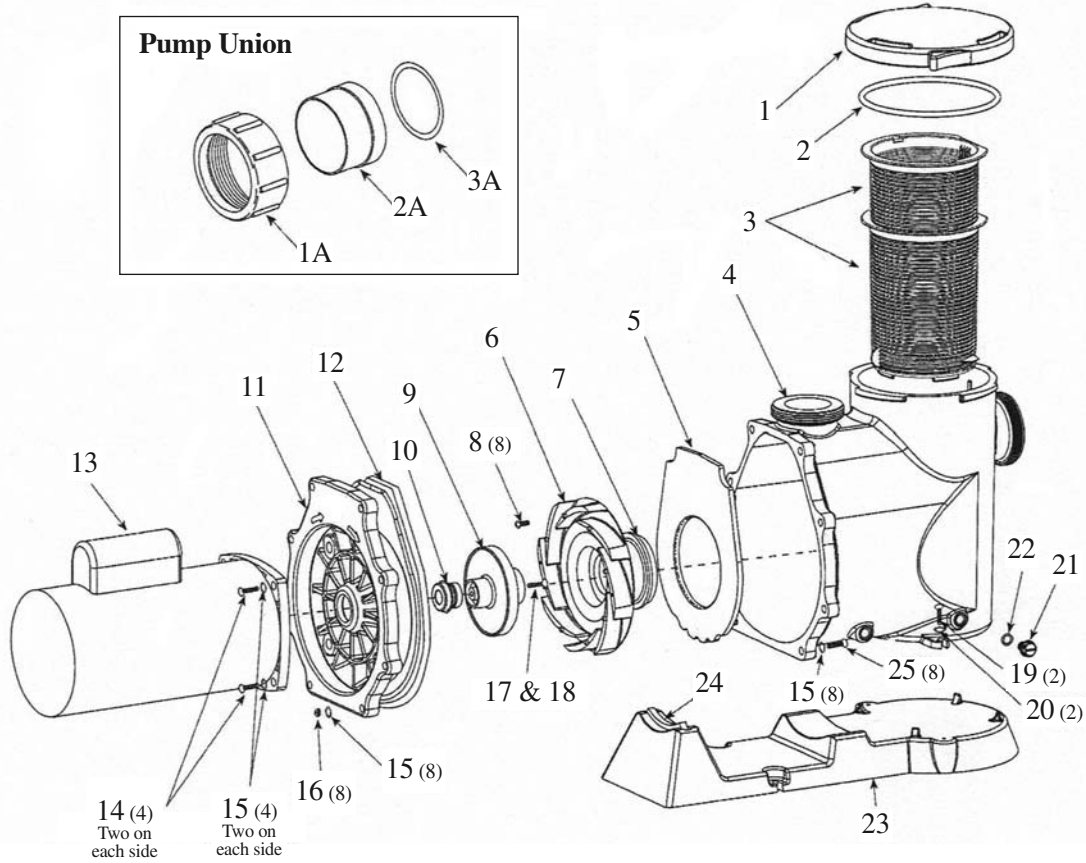
SHAFT SEAL CHANGE INSTRUCTIONS

⚠ EXERCISE EXTREME CARE IN HANDLING AND INSTALLING THE NEW SEAL AND FACE PLATE. THE SURFACES OF THE CERAMIC SEAL (IN THE IMPELLER) MAY EASILY BE DAMAGED BY DIRT OR SCRATCHING!

⚠ WARNING – Turn off power before servicing.

1. Stop water flow to and from pump. Drain pump by removing drain plugs.
2. Remove the eight (8) $\frac{3}{8}$ " x $1\frac{3}{4}$ " hex head bolts which hold the face plate to the volute.
3. Slide the motor assembly out from the volute, exposing the diffuser. Unscrew $\frac{3}{32}$ " Allenhead screws and pop out diffuser, exposing the impeller wear ring. The wear ring should fit snugly on the impeller. If not, replace it.
4. Remove the motor shaft end cover by prying with flathead screwdriver.
5. To prevent motor shaft from turning, carefully slide a wrench between the capacitor and the protector switch, and rotate the impeller so the wrench fits over the (2) flats on the motor shaft.
6. Rotate the impeller counterclockwise and remove. The spring portion of the seal assembly is now exposed. **NOTE:** Carefully position the spring seal, and remove it. **NOTE:** Replace motor cover to protect delicate motor parts.
7. Remove the face plate. **NOTE:** The "U" shape on the end of the diffuser should be upside-down when this part is reinstalled.
8. Clean all recesses and parts to be reassembled. Inspect a-ring and replace if necessary.
9. Clean the impeller hub and pump housing seal recess with a diluted solution of any regular liquid-type soap. The use of petroleum or silicone lubricants may contribute to seal leakage.
10. Gently wipe the black, polished surface of the spring seal assembly with a soft cotton cloth. Place onto the impeller hub with the black polished surface facing away from the impeller.
11. Gently wipe the polished face of the ceramic seat with a soft cotton cloth. Lubricate the a-ring on the ceramic seat and press it firmly and evenly into the recess of the seal plate polished side facing out.
12. Screw the impeller onto the motor shaft in a clockwise direction. Tighten snugly by holding motor shaft with wrench.
13. Make sure the wear ring is correctly placed on the impeller. Place the diffuser over the impeller onto the face plate. **NOTE:** The "U" shape on the end of the diffuser should be upside-down.
14. Slide the motor assembly, with the diffuser in place, into the volute (wet end), being careful not to dislodge the diffuser's a-ring.
15. Fasten assembly to housing using the eight (8) $\frac{3}{8}$ " x $1\frac{3}{4}$ " bolts (making sure volute a-ring is in place). Tighten bolts alternately so as to distribute the torque evenly (for example, tighten the top right, the bottom left, then 2nd from bottom left, then 2nd from top right, and so on).

PARTS LIST FOR QUIETFLO PLUS PUMP



| Item | Part No. | Part Description | Item | Part No. | Part Description |
|------|---------------|-------------------|------|---------------|----------------------------|
| 1 | 84543 | Trap Lid | 13A | 84561 (3/4S0) | Motor 3/4hp |
| 2 | 84544 | Trap Lid a-Ring | 13B | 84562 (1S0) | Motor 1hp |
| 3 | 84545 | Basket | 13C | 84563 (1.5S0) | Motor 1.5hp |
| 4 | 84546 | Volute Housing | 130 | 84564 (2S0) | Motor 2hp |
| 5 | 84547 | Diffuser Plate | 13E | 84565 | Motor 3hp |
| 6 | 84548 | Diffuser | 14 | 84566 | Bolt 3/8' |
| 7 | 84549 | Diffuser a-Ring | 15 | 84567 | 3/8' Flat Washer |
| 8 | 84550 | Diffuser Screw | 16 | 84568 | 3/8' Hex Nut |
| 9 | 84551 | Impeller 1/2hp | 17 | 84569 | Screw Left Hand Thread |
| 9A | 84552 | Impeller 3/4hp | 18 | 84570 | Gasket for Left Hand Screw |
| 9B | 84553 | Impeller 1hp | 19 | 84571 | Screw |
| 9C | 84554 | Impeller 1.5hp | 20 | 84572 | Flat Washer |
| 90 | 84555 | Impeller 2hp | 21 | 84573 | 3/8' Drain Plug |
| 9E | 84556 | Impeller 3hp | 22 | 84574 | Drain Pug a-Ring |
| 10 | 84557 | Pump Seal Set | 23 | 84575 | Base |
| 11 | 84558 | Seal Plate | 24 | 84576 | Motor Support Strip |
| 12 | 84559 | Seal Plate Gasket | 25 | 84577 | Screw |
| 13 | 84560 (1/2S0) | Motor 1/2hp | | | |

TROUBLESHOOTING

Motor Will NOT Start – Check For:

Make sure the terminal board connections agree with the wiring diagram on motor data plate label. Be sure motor is wired for available field supply voltage (see pump operating label).

1. Improper or loose wiring connections; open switches or relays; tripped circuit breakers, or blown fuses.
Solution: Check all connections, circuit breakers, and fuses. Reset tripped breakers or replace blown fuses.
2. Manually check rotation of motor shaft for free movement and lack of obstruction.
3. If you have a timer, be certain it is working properly. Bypass it if necessary.

Motor Shuts OFF – Check For:

1. Low voltage at motor or power drop (frequently caused by undersized wiring or extension cord use).
Solution: Contact qualified professional to check that the wiring gauge is heavy enough.

NOTE: Your QUIETFLO PLUS pump motor is equipped with an “automatic thermal overload protector.” The motor will automatically shut off if power supply drops before heat damage can build up causing windings to burn out. The “thermal overload protector” will allow the motor to automatically restart once the motor has cooled. It will continue to cut On/Off until the problem is corrected. Be sure to correct cause of overheating.

Motor Hums, But Does NOT Start – Check For:

1. Impeller jammed with debris. **Solution:** Have a qualified repair professional open the pump and remove the debris.

Pump Won't Prime, Check For:

1. Empty pump/strainer housing. **Solution:** Make sure pump/strainer housing is filled with water and cover o-ring is clean. Ensure o-ring is properly seated in the cover o-ring groove. Ensure o-ring sealing surface is lubricated with Teflon based lubricant and that strainer cover is locked firmly in position. Lubricant will help to create a tighter seal.
2. Loose connections on suction side. **Solution:** Tighten pipe/union connections.

NOTE: Any self-priming pump will not prime if there are suction air leaks. Leaks will result in bubbles emanating from return fittings on pool wall.

3. Leaking O-ring or packing glands on valves. **Solution:** Tighten, repair, or replace valves.
4. Strainer basket or skimmer basket loaded with debris. **Solution:** Remove strainer housing cover or skimmer cover, clean basket, and refill strainer housing with water. Tighten cover.
5. Suction side clogged. **Solution:** Contact a qualified repair professional.

Block off to determine if pump will develop a vacuum. You should have 5” - 6” of vacuum at the strainer cover (only your pool dealer can confirm this with a vacuum gauge). You may be able to check by removing the skimmer basket and holding your hand over the bottom port with skimmer full and pump running. If no suction is felt, check for line blockage.

- a. If pump develops a vacuum, check for blocked suction line or dirty strainer basket. An air leak in the suction piping may be the cause.
- b. If pump does not develop a vacuum and pump has sufficient “priming water”:

Pump Won't Prime, Check For: (cont'd.)


- i. Re-check strainer housing cover and all threaded connections for suction leaks. Check if all system hose clamps are tight.
- ii. Check voltage to ensure that the motor is rotating at full RPM's.
- iii. Open housing cover and check for clogging or obstruction in suction. Check impeller for debris.
- iv. Remove and replace shaft seal only if it is leaking.

Low Flow – Generally, Check For:

- 1. Clogged or restricted strainer or suction line. **Solution:** Contact a qualified repair professional.
- 2. Undersized pool piping. **Solution:** Correct piping size.
- 3. Plugged or restricted discharge line of filter, valve partially closed (high gauge reading). **Solution:** Sand filters – backwash as per manufacturer's instructions; D.E. filters - backwash as per manufacturer's instructions; Cartridge filters – clean or replace cartridge.
- 4. Air leak in suction (bubbles issuing from return fittings). **Solution:** Re-tighten suction and discharge connections using Teflon tape. Inspect other plumbing connections and tighten as required.
- 5. Plugged, restricted, or damaged impeller. **Solution:** Replace including new seal assembly.

Noisy Pump – Check For:

- 1. Air leak in suction piping, cavitations caused by restricted or undersized suction line or leak at any joint, low water level in pool, and unrestricted discharge return lines. **Solution:** Correct suction condition or throttle return lines, if practical. Holding hand over return fitting will sometimes prove this point or putting in a smaller eyeball fitting.
- 2. Vibration due to improper mounting, etc. **Solution:** Mount the pump on a level surface and secure the pump to the equipment pad.
- 3. Foreign matter in pump housing. Loose stones/debris hitting impeller could be cause. **Solution:** Clean the pump housing.
- 4. Motor bearings noisy from normal wear, rust, overheating, or concentration of chemicals causing seal damage which will allow chlorinated water to seep into bearings wiping out the grease causing bearing to whine. **Solution:** All seal leaks should be replaced at once.

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|  | <h2 style="margin: 0;">PRODUCT REGISTRATION</h2> <p style="margin: 0;">(Retain For Your Records)</p> |  |
| DATE OF INSTALLATION _____ | | |
| INITIAL PRESSURE GAUGE READING (CLEAN FILTER) _____ | | |
| PUMP MODEL _____ HORSEPOWER _____ | | |
| FILTER MODEL _____ | | |

1 YEAR LIMITED WARRANTY

CLAIMS: All claims must be made within ten (10) calendar days after receipt of the merchandise. If any shipment is Here received in a damaged condition, your claim must be filed with the delivering carrier and noted on the freight bill before you accept the merchandise.

RETURNS: All returns are subject to our written approval and must be accompanied by a "Return Goods Authorization" number obtained from APP prior to shipment. Unauthorized returns will not be accepted. Freight must be prepaid. Material returned for credit, if in original condition and resalable, is subject to a 20% handling charge.

TAXES: Any Federal or State Excise or Sales Tax for which APP may be liable on any sale will be charged to and paid by the buyer. Buyer is responsible for furnishing a resale certificate.

PRICES: Prices and Products are subject to change without notice.

LIMITED WARRANTY: To Buyer, as original purchaser of the Goods, APP warrants its products free from defects

in materials and workmanship for a period of one year from the date of purchase. Parts which fail or become defective during the warranty period, except as a result of freezing, negligence, improper installation, use or care, shall be repaired or replaced, at our option, within ninety (90) calendar days of the receipt of the defective product, barring unforeseen delays. To obtain warranty, replacements or repair, defective components or parts should be returned, transportation paid, to the place of purchase. No returns may be made directly to the factory without the express written authorization of APP. Pump housing/strainers which become defective during the warranty period, except as a result of freezing, negligence, improper installation, use or care, or as the result of use in association with an automatic valving system, shall be repaired or replaced, at APP's option, without charge. All other conditions and terms of the standard warranty apply. APP shall not be responsible for cartage, removal and/or re installation labor or any other cost incurred in obtaining warranty replacements. The foregoing warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturers will apply.

LIMITATION ON IMPLIED WARRANTIES: Implied warranties, including any warranty or merchantability imposed on the sale of the goods under state law, are limited to one year duration for the goods or any parts.

LIMITATIONS OF LIABILITY: THE ESSENTIAL PURPOSE OF THIS PROVISION IS TO LIMIT APP'S LIABILITY HEREUNDER. EXCEPT FOR BODILY INJURY OR DEATH OF A PERSON, UNDER NO CIRCUMSTANCES WILL APP, ITS EMPLOYEES, OFFICERS OR DIRECTORS, AGENTS, SUCCESSORS OR ASSIGNS, BE LIABLE TO ANYONE UNDER ANY PRODUCT ORDER, SCHEDULE OR TERMS AND CONDITIONS HEREIN, UNDER ANY CONTRACT, STRICT LIABILITY, TORT (INCLUDING NEGLIGENCE) OR OTHER LEGAL OR EQUITABLE THEORY, WHETHER OR NOT FORESEEABLE OR FORESEEN, FOR: (1) BUSINESS INTERRUPTION COSTS, COST OF REWORK, RETESTING, PROCUREMENT OF SUBSTITUTE GOODS, REMOVAL AND RE INSTALLATION OF GOODS; OR (2) ANY SPECIAL, INCIDENTAL, EXEMPLARY, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS, LITIGATION COSTS, LOSS OF EQUIPMENT, PRODUCTION OR PROFIT, GOODWILL, LOSS OF REVENUE, OR LOSS OF UNITS; COST OF RENTING REPLACEMENTS, AND OTHER ADDITIONAL EXPENSES, EVEN IF THE AP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, THERE IS A TOTAL AND FUND A MENTAL BREACH

OF THIS AGREEMENT OR WHETHER ANY REMEDY PROVIDED.

HEREIN FAILS OF ITS ESSENTIAL PURPOSE. APP'S LIABILITY AND BUYER'S SOLE REMEDY, WHETHER IN CONTRACT, UNDER WARRANTY, IN TORT (INCLUDING NEGLIGENCE,) IN STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE RETURN OF THE AMOUNT OF THE PURCHASE PRICE PAID BY BUYER AND SHIPMENT COSTS.

INDEMNIFICATION: Buyer will defend and indemnify APP and its directors, employees, agents, customers, end users, successors and assigns from and against all actual and alleged claims, liabilities, suits, damages, losses and expenses (including attorney's fees and legal costs) arising from, or caused in whole or in part, by buyers breach of any provision, term or condition of purchase.

BINDING EFFECT: All sales transactions are binding on APP and the buyer and their respective directors, officers, employees, agents, subcontractors, successors and permitted assigns.

GOVERNING LAW: All transactions will be interpreted and enforced under the laws of the State of California (including without limitation the Uniform Commercial Code as adopted by the California), without recourse to the conflict of laws provision thereof. In no event will the provisions of the UN Convention of the International Sale of Goods apply to any purchases. APP and buyer agree that any action or proceeding arising out of or in connection with any sale of product or service, will be brought exclusively to a court of competent jurisdiction in the County of Orange, State of California.

THE LIMIT OF LIABILITY FOR ANY CLAIMS SHALL NOT EXCEED THE AMOUNT PAID OR PREPAID ON ACCOUNT BY BUYER FOR THE GOODS GIVING RISE TO SUCH CLAIMS. BUYER SHALL BE DEEMED TO ASSUME ALL LIABILITY FOR ANY AND ALL DAMAGES ARISING FROM OR IN CONNECTION WITH THE USE OR MISUSE OF THE GOODS BY BUYER, ITS EMPLOYEES, CUSTOMERS AND OTHERS. SELLER

SHALL NOT BE LIABLE FOR AND BUYER AGREES TO INDEMNIFY, DEFEND AND HOLD SELLER

HARMLESS FROM ANY CLAIMS BASED ON SELLER'S COMPLIANCE WITH BUYER'S DESIGNS, SPECIFICATIONS OR INSTRUCTIONS, OR MODIFICATION OF ANY GOODS BY PARTIES OTHER THAN SELLER, OR USE IN COMBINATION WITH OTHER PRODUCTS. EACH PARTY RECOGNIZES AND AGREES THAT THE WARRANTY DISCLAIMERS AND LIABILITY AND REMEDY LIMITATIONS HEREIN ARE MATERIAL, BARGAINED FOR BASES OF ANY ORDER OR CONTRACT AND THAT THEY HAVE BEEN TAKEN INTO ACCOUNT AND REFLECTED IN DETERMINING THE CONSIDERATION TO BE GIVEN BY

EACH PARTY UNDER ANY ORDER OR CONTRACT AND IN THE DECISION BY EACH PARTY TO ENTER INTO SUCH ORDER OR CONTRACT.

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