

External Pump

OWNERS MANUAL

MODELS	ITEM#
EPP-1950	02782
EPP-2500	02784
EPP-4100	02786

UPC	Max Flow GPH	Max Ht Feet	AMPS/ WATTS
02782	1950	20	2.2 / 255
02784	2500	30	3.8 / 380
02786	4100	45	8.8 / 875



WARNING! PONDS ARE DANGEROUS TO SMALL CHILDREN!
NEVER LEAVE CHILDREN UNSUPERVISED NEAR A POND.

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

Thank you for purchasing this Pondmaster ProLine water pump. This continuous duty external pump is designed to move large volumes of water through filtration systems or to a waterfall, stream or fountain. It incorporates a high efficiency vortex impeller in conjunction with a rugged housing. Overload protection is built in by means of a self resetting thermal overload switch. Never run this pump dry.



EPP- 4100 External Pump has a Built in Debris Basket for Easy Installation
EPP-1950 and EPP-2500 External Pumps Adapt Easily to a Universal Fit Debris Basket UPC 12966 (Sold Separately)

Use of appointed replacement parts voids warranty.

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.

Symbol means:

! DANGER This symbol indicates that if failure to potential hazard, injury or death or property damage.

it **will** cause severe personal

! WARNING This symbol indicates that if failure to potential hazard, injury or death or property damage.

it **could** result in severe personal

! CAUTION This symbol indicates that if failure to potential hazard, personal injury or property damage.

it **will or could** cause moderate

CHAPTER One: IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

! WARNING Pay attention to children.

1. To reduce risk of injury, do not permit children to use or climb on this product. Closely supervise children at all times. Components such as the filtration system, pumps, and heaters must be positioned to prevent children from using them as a means of access to the pool or pond.

2. This pump is intended for use on permanently installed 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.

3. 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.

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

! WARNING Risk of Electric Shock.

5. Hazardous voltage. Can shock, bump or cause death. To reduce the risk of electric shock, do NOT use an extension cord to connect unit to electric supply. Provide a properly located outlet. It is required that licensed electricians do all electrical wiring. All electrical wiring MUST be in conformance with applicable local and national codes and regulations. Before working on pump or motor, disconnect motor wiring.

6. To reduce the risk of electric shock replace damaged cord immediately. Do NOT bury cord. Locate cord to prevent abuse from lawn mowers, hedge trimmers and other equipment.

7. Risk of Electric Shock. Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI).

Contact only to a electrician if you cannot verify that the receptacles is protected by a GFCI.

8. 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.

9. 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 A. (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.

NOTE - The National Electrical Code (NEC) permits use of a cord with a maximum 3 A. (1 m) length. If your pump is equipped with a cord complying with the NEC, the preceding four (4) hazards apply.

10. Do not install within an outer enclosure or beneath the skirt of a hot tub or spa.

11. SAVE THESE INSTRUCTIONS.

12. These pumps are not poolside pumps.

! WARNING Suction Entrapment Hazard.

13. 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 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:

14. 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.
- The maximum system flow rate shall not exceed the values shown in the "Pipe Sizing Chart" found in this manual.
- 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.
- Installation of a vacuum release or vent system, which relieves entrapping suction, is recommended.

▲WARNING Hazardous Pressure.

15. 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) is discharged. 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.

16. 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.

17. Never operate or test the circulation system at more than 40 PSI.

▲WARNING Fire and burn hazard.

18. 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.

19. Il faut que le moteur soit contacté à la terre selon les règlements locaux et internationaux du code de machine électrique.

20. Il est interdit de laisser la pompe d'eau à fonctionner sans eau afin d'éviter le choc électrique ou des autres risques.

21. L'installation de pompe d'eau doit être au moins 10 pieds de distance du paroi interne de piscine pour diminuer le risque de choc électrique. N'utiliser pas le câble électrique allongé.

22. Ce type de pompe d'eau n'est qu'utilisé dans la piscine du type d'installation permanente, il ne peut pas être utilisé dans la piscine du type gonflable ou mobile.

CHAPTER Four: Start-up & Operation

Prior to Start-up

Notice: 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 is discharged.
4. Allow no more than 40 psi (276 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.

Fill strainer housing with water to suction pipe level. **NEVER OPERATE THE PUMP WITHOUT WATER.** Water acts as a coolant and lubricant for the mechanical shaft seal.

! WARNING If pump is being pressure tested (40 PSI MAXIMUM), be sure pressure has been released, using the filter manual air relief valve, before removing strainer cover.

! CAUTION NEVER run pump dry. Running pump dry may damage seals, causing leakage, flooding, and voids warranty. Fill strainer housing with water before starting motor.

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

7. 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 detail.**

Priming Pump

! CAUTION 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.

- 1) Release all pressure from filter, pump, and piping system. See filter owner's manual.
- 2) 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.
- 3) Clean and lubricate strainer cover O-ring each time it is removed. Inspect O-ring and re-install on strainer cover.
- 4) Replace strainer cover on strainer housing; turn clockwise to tighten cover.

NOTE - Tighten strainer cover by hand only (no wrenches).

! CAUTION 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. Wait five (5) seconds before re-starting pump. Failure to do so may cause reverse rotation of motor and consequent serious pump damage. Close filter manual air relief valve after pump is primed.

CHAPTER Five: Maintenance

- Clean strainer basket regularly. Do NOT strike basket to clean. Inspect strainer cover gasket regularly and replace as necessary.
- Pumps have self-lubricating motor bearings and shaft seals. No lubrication is necessary.
- Keep motor clean. Insure air vents are free from obstruction to avoid damage. Do NOT use water to hose off motor.

CHAPTER Six: Storage/Winterization

⚠ WARNING Separation Hazard.

1. 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.
2. Allowing the pump to freeze will void the warranty.
3. Use ONLY propylene glycol 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.
4. Drain all water from pump and piping when expecting freezing temperatures or when storing pump for a long time. (see instructions below).
5. 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 from bottom of strainer body, and remove strainer cover from strainer housing.
3. Disconnect pump from mounting pad, wiring system (after power has been turned OFF), and piping system.
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

Only qualified personnel should attempt rotary seal replacement. Contact your local authorized Dealer or service center.

CHAPTER Seven: Troubleshooting

A. 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, GFCI's, 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.
Solution: Refer to "Shaft Seal Change Instructions" in this manual.
3. If you have a timer, be certain it is working properly. Bypass it if necessary.

B. 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 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.**

C. 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.

D. 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 is lubricated and that strainer cover is locked firmly in position.

Lubricant will help to create a tighter seal. 1

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":
 - 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.

E. 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.

F. 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.

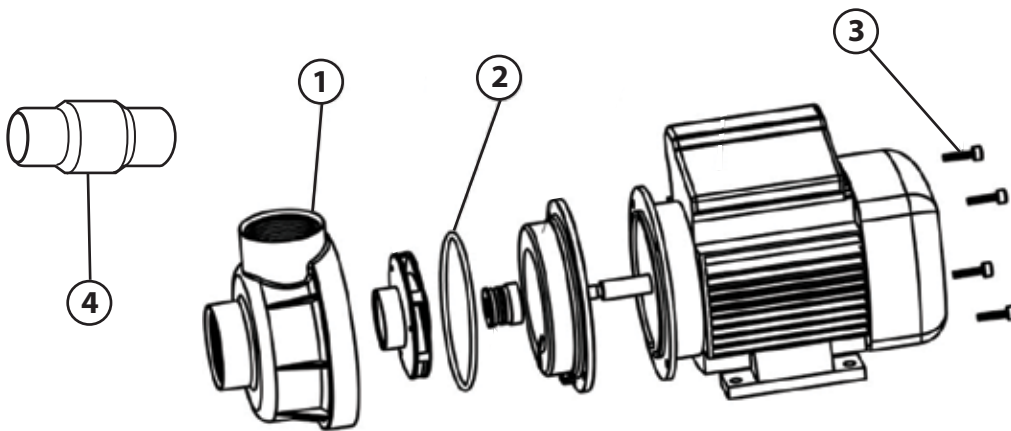
CHAPTER Eight: Technical data

Pump performance table:

Pump Model	Volt / HZ	AMPS	Q (GPM)	H (m)
02782	115/60HZ	2.2	37	6.8
02784	115/60HZ	3.8	44	8.8
02786	115/60HZ	8.8	73	14

CHAPTER Nine Pump structure & parts

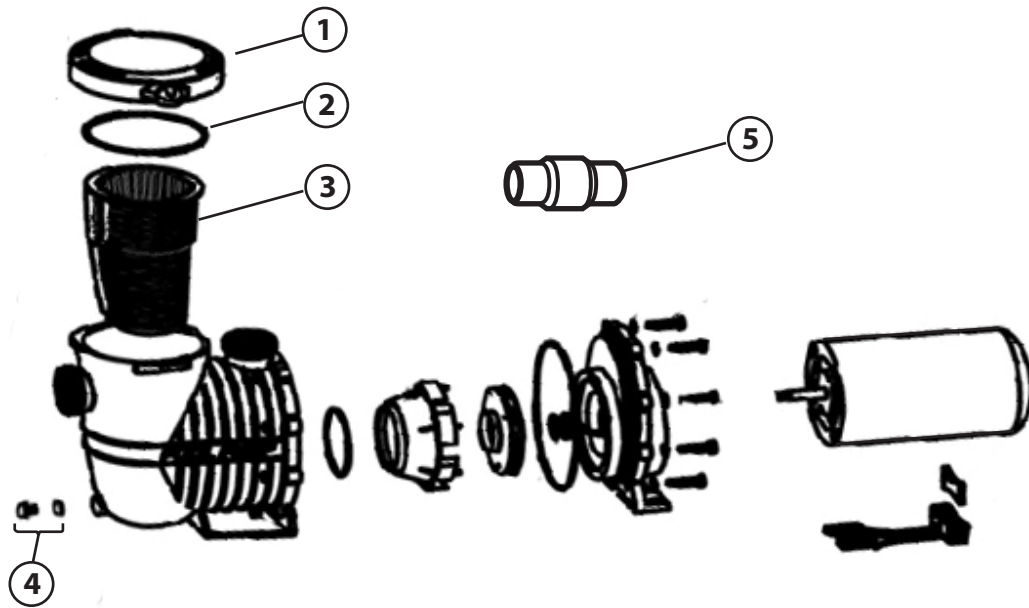
A. Pump models 02782 & 02784



NO.	ITEM number	Part Name	QTY
1	12951	Pump Housing	1
2	12952	o-ring	1
3	12953	Screw M5X20	4
4	12932	Check Valve	1

CHAPTER Nine Pump structure & parts (continued)

B. Pump model 02786



NO.	ITEM number	Part Name	QTY
1	12956	Cover	1
2	12957	o-ring	1
3	12958	Basket	1
4	12959	Gasket & Drain Plug	1 set
5	12932	Check Valve	1

WARRANTY

This Pondmaster external water pump is warranted against failure due to defects in materials and/or workmanship for one year from date of purchase. This warranty covers defects occurring under normal use and applies to the original purchaser at retail from a certified Pondmaster dealer and may not be transferred. The warranty and remedies set forth herein are conditional upon proper installation, use, maintenance, storage, and conformance with the applicable use. It will be based upon Danner Mfg. discretion as to whether the defects are of manufacturing origin. Any damages due to improper installation are not covered by this warranty. This warranty does not apply to appearance or accessory items. This warranty does not include damage due to handling, transportation, unpacking, setup, installation, repair or replacement of parts supplied by any other than Danner Mfg.; improper maintenance, modification or repairs by the purchaser; abuse, misuse, neglect, accident, fire, flood, or other acts of God. Any oral statements about this product made by the seller, the manufacturer, their representatives or any other parties do not constitute warranties and shall not be relied upon by the user and are not part of this contract. Neither the seller nor the manufacturer shall be liable for any injury, loss or damages, direct, incidental, or consequential, including but not limited to incidental or consequential damage for lost profits, lost sales, injury, and inability to use the product and the user agrees that no other remedy is available. Before using, the user shall determine the suitability of the product for their intended use and the user shall assume all risk liability whatsoever in connection therewith. To validate this warranty, keep your proof of purchase (copy of sales receipt from a certified Pondmaster dealer). Warranty covers the repair or prorated replacement of the Danner Mfg. products. Danner Mfg. denies all liability for any other loss including but not limited to loss of equipment, income, livestock, or personal injury.

THE FOLLOWING VOIDS WARRANTY:

PRODUCT LABELS ARE DEFACED OR REMOVED. PRODUCT IS IMPROPERLY INSTALLED OR MAINTAINED BY USER OR THEIR AGENT. PRODUCT IS ABUSED, MISUSED, OR DAMAGED BY USER OR THEIR AGENT. PRODUCT DAMAGE IS CAUSED BY OVER-TIGHTENING FITTINGS ON VALVE PORTS. USING ANY SEALANT OTHER THAN TEFLON TAPE ON THE PUMP CONNECTIONS.