REPLACEMENT PUMPS
OWNER'S MANUAL
INSTALLATION, OPERATION & PARTS

FX PRO II In Ground Pumps
NE4517 NE4518 NE4519
NE4520 NE4521 NE4522

FX PRO II Above Ground Pumps
NE4513 NE4514 NE4515
NE4516 NEP4208

FlowXtreme Prime Pump
NE4523 NEP4268 NEP4269

FlowXtreme Prime SPS3 Pumps
NE4524 NEP4271

VER.1219

CONGRATULATIONS!

YOU HAVE PURCHASED A HIGH QUALITY REPLACEMENT PUMP FROM BLUE WAVE. ALL PUMPS COVERED IN THIS MANUAL HAVE FULL RATED MOTORS AND HAVE BEEN MANUFACTURED AND TESTED TO OFFER MANY YEARS OF TROUBLE FREE SERVICE.

IMPORTANT – READ THIS MANUAL CAREFULLY

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

SAVE THIS INSTRUCTION MANUAL

Use of unauthorized replacement parts voids warranty.

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

THIS MANUAL IS BROKEN INTO SEVERAL SECTIONS:

Section #1, Safety Instructions

WARNING – 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.

CAUTION – This pump is intended for use on permanently installed In Ground or 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 unventilated location. If installed within an outer enclosure or beneath the skirt of a hot tub or spa, adequate ventilation and free circulation of air must be provided to prevent overheating of the motor.

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.

Hazardous voltage. Can shock, burn, 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.

WARNING – 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.

WARNING – Connect only to a grounding type receptacle protected by a Ground Fault Circuit

Interrupter (GFCI).
Contact a licensed electrician if you cannot verify that the receptacle is protected by a GFCI.

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

WARNING – Suction Entrapment Hazard.

Entrapment in suction outlets and/or suction outlet covers, which are damaged, broken, cracked, missing, or unsecured can 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 limb becoming entrapped.
Body Suction Entrapment- A pressure applied to a large portion of the body or limbs can result in an entrapment.
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 – 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.
- The maximum system flow rate shall not exceed the values shown in the "Pipe Sizing Chart" found at the bottom of page 5 of 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.
- 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 if part of the filtration system 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.

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 closed position. 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 40 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.

WARNING - Use of unauthorized replacement parts voids warranty.

Section #2, 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 protect the electrical components from the weather. Select a well-drained area, one that will not flood when it rains. **Do NOT install pump 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 firm, level base or pad to meet all local and national codes. Fasten pump to base or pad with screws or bolts to further reduce vibration and stress on pipe or hose joints. The base MUST be solid, level, rigid, and vibration free.

Pump installation should:

- Allow pump inlet height to be as close to water level as possible for In Ground pump installations.
- Allow use of short, direct intake pipe or hose (to reduce friction losses).
- Allow for gate valves in intake and discharge pipes for In Ground pump installations.
- Be protected from excess moisture and flooding.
- Allow adequate access for servicing pump and plumbing.

Pipe Sizing Chart

MAXIMUM RECOMMENDED SYSTEM FLOW RATE BY PIPE SIZE					
Pipe Size	Flow rate	Pipe Size	Flow rate	Pipe Size	Flow rate
[mm]	GPM[Liter/Min]	[mm]	GPM[Liter/Min]	[mm]	GPM[Liter/Min]
1”	20	1 1/2”	45	2 1/2”	110
[32]	[75]	[50]	[170]	[75]	[415]
1 1/4”	30	2”	80	3”	160
[40]	[110]	[63]	[300]	[90]	[600]

NOTE - It is recommended that a minimum length of piping, equivalent to 10 pipe diameters, be used between the pump suction inlet and any plumbing fittings.

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 injury and/or property damage.

Plumbing

Use "Teflon" tape, available at any plumbing or hardware store, 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 ½ 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 fitting, clean off old Teflon tape, re-wrap with one to two additional layers of Teflon tape, and re-install fitting. See the Trouble Shooting section for additional solutions.

Fittings

Different pumps come with different type and size hose or plumbing fittings. Review the Technical Sections in this Owners / Installation manual to insure you have the correct fitting before starting installation. If your new pump is replacing an older pump it may be necessary to find specialized plumbing fitting to make the plumbing connections. Check with your local pool professional store or a well-equipped hardware store to find what you need.

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).

Section #3, Electrical & Wiring

WARNING – 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. See Grounding and Bonding instructions.

WARNING – Do NOT ground to a gas supply line.

WARNING – To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.

WARNING – Ground Fault Circuit Interrupter (GFCI) tripping indicates electrical problem. If

GFCI trips and won't reset, consult electrician to inspect and repair electrical system.

WARNING – 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 H.P. (KW) rating and distance from the power source. **NOTE - All electrical wiring MUST be performed by a licensed electrician, and MUST conform to local codes and NEC regulations.** Use copper conductors only.

Electrical Pump Details

Full Rated Pumps		60Hz,1PH		
HP	KW	Voltage	Amps	Wire Size
1/2	0.37	208-230 115	10A 15A	14AWG 14AWG
3/4	0.55	208-230 115	10A 15A	14AWG 14AWG
1.0	0.75	208-230 115	15A 20A	14AWG 12AWG
1-1/2	1.10	208-230 115	15A 30A	14AWG 10AWG
2.0	1.55	208-230	20A	12AWG
2-1/2	1.87	208-230	20A	12AWG
3.0	2.20	208-230	20A	12AWG

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 place; 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 wiring must be done by a licensed electrician.
See specific wiring instructions in the Technical Data sections for each pump covered by this manual. Above Ground FX PRO II and FlowXtreme Prime pumps have pre-attached power cords with 3 prong grounded plugs. If local electrical codes call for power cords with twist lock plugs, please check with your local professional pool store or on line for availability.
WARNING – Never use an extension cord to connect a pump with a pre-wired cord to the circuit.

FX PRO II In-Ground Pumps MUST be permanently connected to an appropriate electrical 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.

Always 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 size of GFCI required and test procedures for GFCI, see manufacturer's instructions. In case of a 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 the back end of the motor to prevent dirt, bugs, etc., from entering.

Section #4, 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 $100F^0$ ($38C^0$).
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 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.

ATTENTION – Do NOT add chemicals to pool system through the skimmer (if pool is so equipped) or 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 intake and outlet pipes if part of the pump installation.
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 injury.

- Release all pressure from filter, pump, and piping system. **See filter owner's manual.**
- If water source is higher than the pump as is normal with Above Ground installations, pump will prime itself when suction and outlet valves are opened.
- If water source is lower than the pump as is normal with In Ground installations, unscrew and remove strainer cover; fill strainer housing with water.
- Clean and lubricate strainer cover O-ring with high quality O-ring lubricant each time it is removed.
- Inspect O-ring and re-install on strainer cover.
- Replace strainer cover on strainer housing; turn clockwise to tighten cover.
- **NOTE - Tighten strainer cover by hand only (no wrenches).**

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.

ATTENTION – 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.

Section #5, Maintenance / Storage & Winterization

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.
- Occasionally, shaft seals must be replaced, due to wear or damage. Replace with genuine seal assembly kit. See "Shaft Seal Change Instructions" in this manual.

Storage & Winterization

WARNING – Separation or Explosion 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).
- 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.

- Drain water level below all inlets to the pool.
- Remove drain plugs from bottom of strainer body, and remove strainer cover from strainer housing.
- Disconnect pump from mounting pad, wiring system and plumbing system.
- Once the pump is empty of water, re-install the strainer cover and drain plugs. Store pump in a dry area.

Section #6, Shaft Seal Change Instructions

WARNING - When servicing electrical equipment, basic safety precautions should always be observed including the following. Failure to follow instructions may result in injury.

- To reduce risk of injury, do not permit children to use or service this product.
- Disconnect all electrical power service to pump before beginning shaft seal replacement.
- Only qualified personnel should attempt rotary seal replacement. Contact your local authorized Dealer or service center if you have any questions.
- Follow the instructions that come with the replacement mechanical seal
- Exercise extreme care in handling both the rotating and the stationary sections of the two-part replacement seal. Foreign matter or improper handling will easily scratch the graphite and ceramic sealing surfaces.

Section #7, TECHNICAL DATA for FX PRO II, In Ground Pool Pumps

MODEL #s; NE4517, NE4518, NE4519, NE4520, NE4521, NE4522

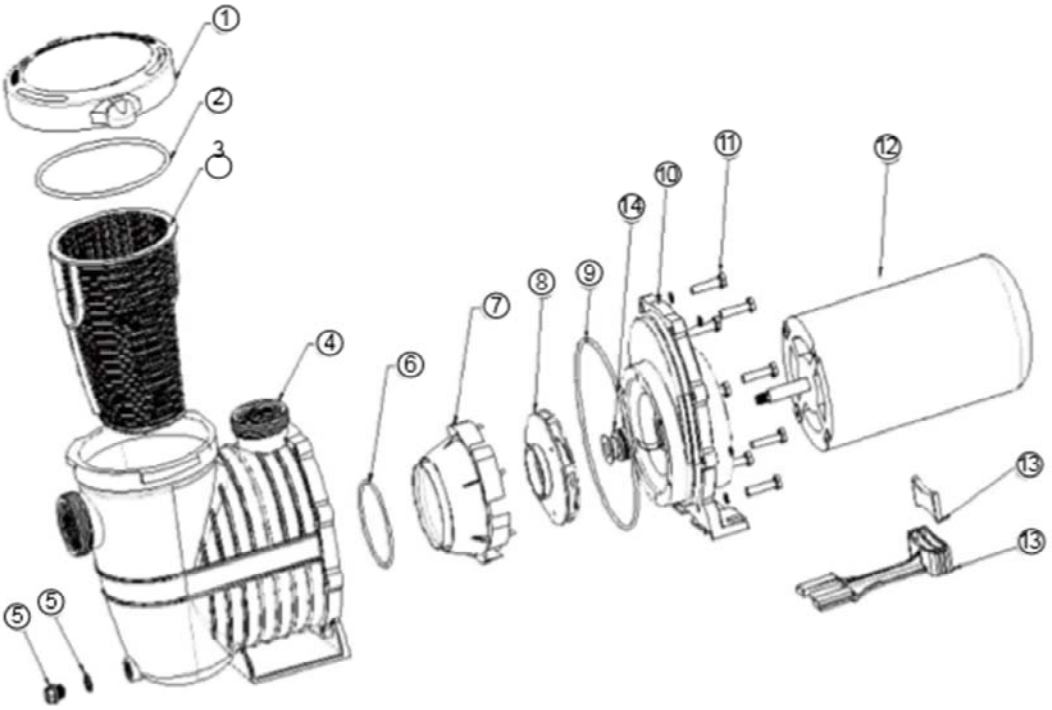
Technical Data

BW No.	HTI	HP	Voltage	Hertz	Amps	Flow Rate
NE4517	HTI100	1.0	115/230	60	13/6.5	86GPM
NE4518	HTI150	1.5	115/230	60	15/7.5	90GPM
NE4519	HTI2SP075	0.75/0.23	230	60	5/1.6	80/35GPM
NE4520	HTI2SP100	1.0/0.3	230	60	6/1.8	86/37GPM
NE4521	HTI2SP150	1.5/0.39	230	60	7.5/2.1	90/42GPM
NE4522	HTI2SP200	2.0/0.4	230	60	11/2.4	92/44GPM

FX PRO II, In Ground Pumps Parts Breakdown & Diagram

MODEL #s; NE4517, NE4518, NE4519, NE4520, NE4521, NE4522

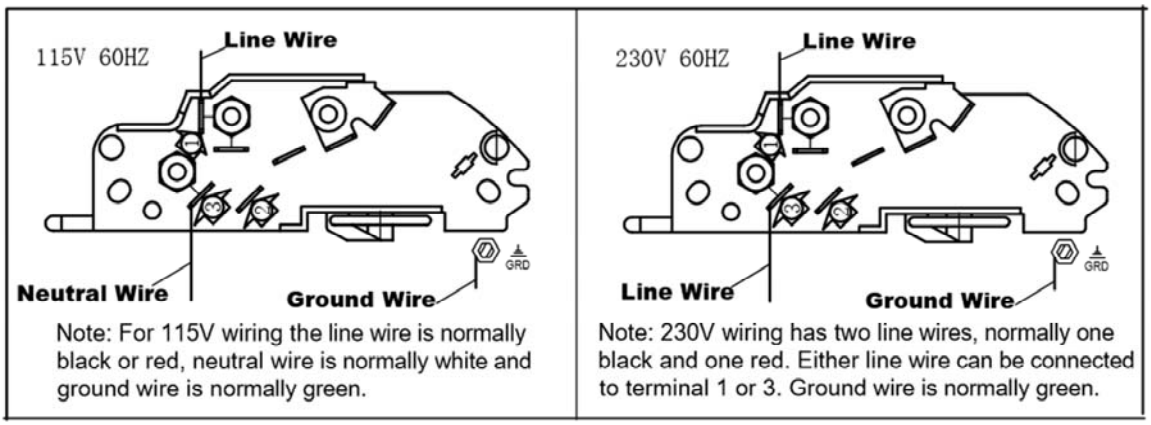
Key	Part Name	Manuf. No.	B.W. No.	For Model#
1	Lid W/Transparent Cover	HTI001	NEP4209	All
2	O-Ring	HTI002	NEP4210	All
3	Basket	HTI003	NEP4211	All
4	Strainer	HTI004	NEP4212	All
5	Drain Plug	HTI005	NEP4213	All
	Drain Plug O-Ring	HTI006	NEP4214	All
6	O-Ring	HTI007	NEP4215	All
7	Diversion Sets	HTI008	NEP4216	All
8	Impeller Of Item# HTI 075/HTI2SP 075	HTI009	NEP4217	NE4519
8	Impeller Of Item# HTI 100/HTI2SP 100	HTI010	NEP4218	NE4517 & NE4520
8	Impeller Of Item # HTI 150/HTI2SP 150	HTI011	NEP4219	NE4518 & NE4521
8	Impeller Of Item # HTI 200/HTI2SP 200	HTI012	NEP4220	NE4522
9	O-ring	HTI013	NEP4221	All
10	Pump Housing	HTI014	NEP4222	All
11	Screw	HTI015	NEP4223	All
12	Motor Of Item# HTI 100	HTI017	NEP4225	NE4517
12	Motor Of Item # HTI 150	HTI018	NEP4226	NE4518
12	Motor Of Item # HTI2SP 075	HTI020	NEP4228	NE4519
12	Motor Of Item # HTI2SP 100	HTI021	NEP4229	NE4520
12	Motor Of Item # HTI2SP 150	HTI022	NEP4230	NE4521
12	Motor Of Item # HTI2SP 200	HTI023	NEP4231	NE4522
13	Carrier	HTI024	NEP4232	All
14	Mechanical Seal	HTI025	NEP20197	All



Wiring Diagrams for FX PRO II, In Ground Pumps

Single Speed, Dual 115V or 230V Voltage

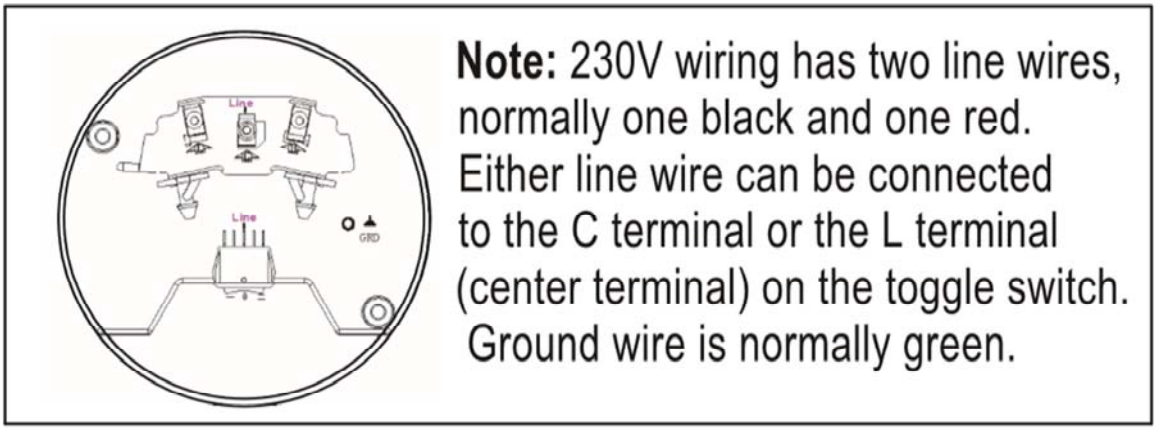
MODEL #s; NE4517, NE4518



Wiring Diagrams for FX PRO II, In Ground Pumps

2 Speed, 230 Volt

MODEL #s; NE4519, NE4520, NE4521, NE4522



Section #8, Technical Data for FX PRO II, Above Ground Pool Pumps

Model #s; NE4513, NE4514, NE4515, NE4516, NEP4208

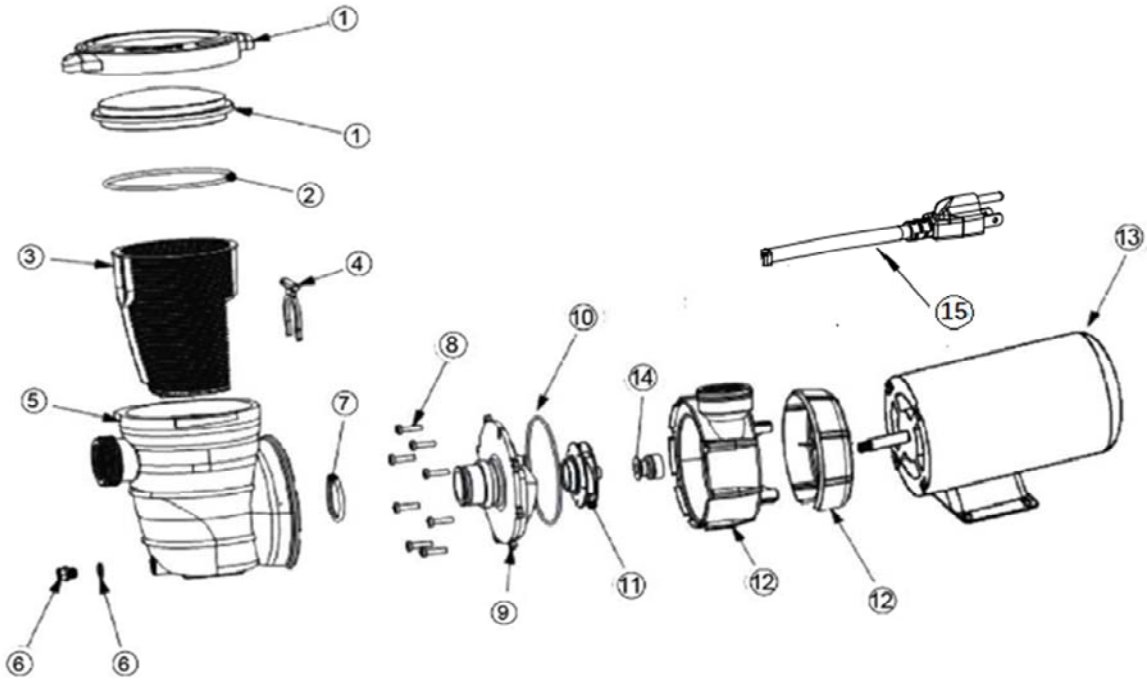
Technical Data

BW No	HTA	HP	Voltage	Hertz	Amps	Flow Rate
NE4513	HTA075	0.75	115	60	9.2	84GPM
NE4514	HTA100	1.0	115	60	12	88GPM
NE4515	HTA2SP075	0.75/0.28	115	60	10/3.2	84/36GPM
NE4516	HTA2SP100	1.0/0.3	115	60	11/3.4	88/40GPM
NEP4208	HTA2SP150	1.5/0.39	115	60	12/3.6	90/42GPM

FX PRO II, Above Ground Pumps Parts Breakdown & Diagram

Model #s; NE4513, NE4514, NE4515, NE4516, NEP4208

Key	Part Name	Manuf. No.	B.W. No.	For Model#
1	Lid	HTA001	NEP4185	All
	Transparent Cover	HTA002	NEP4186	All
2	O-Ring	HTA003	NEP4187	All
3	Basket	HTA004	NEP4188	All
4	Clamp	HTA005	NEP4189	All
5	Strainer	HTA006	NEP4190	All
6	Drain Plug	HTA007	NEP4191	All
	Drain Plug O-ring	HTA008	NEP4192	All
7	O-ring	HTA009	NEP4193	All
8	Screw	HTA010	NEP4194	All
9	Pump Cover	HTA011	NEP4195	All
10	O-ring	HTA012	NEP4196	All
11	Impeller of item# HTA 075/HTA2SP 075	HTA014	NEP4198	NE4513 & NE4515
11	Impeller of item# HTA 100/HTA2SP 100	HTA015	NEP4199	NE4514 & NE4516
11	Impeller of item# HTA 150/HTA2SP 150	HTA016	NEP4200	NEP4208
12	Pump Housing	HTA017	NEP4201	All
13	Motor of Item# HTA 075	HTA019	NEP4203	NE4513
13	Motor of Item# HTA 100	HTA020	NEP4204	NE4514
13	Motor of Item# HTA2SP 075	HTA022	NEP4206	NE4515
13	Motor of Item# HTA2SP 100	HTA023	NEP4207	NE4516
13	Motor of item# HTA2SP 150	HTA024	NEP4208	NEP4208
14	Mechanical Seal	HTA025	NEP20198	All
15	Power Cord with 3 Prong Plug	HTA026	NEP20199	All



Section #9, TECHNICAL DATA for FlowXtreme Prime Single Speed pumps

Model #s; NE4523, NEP4268, NEP4269, NE4524, NEP4271

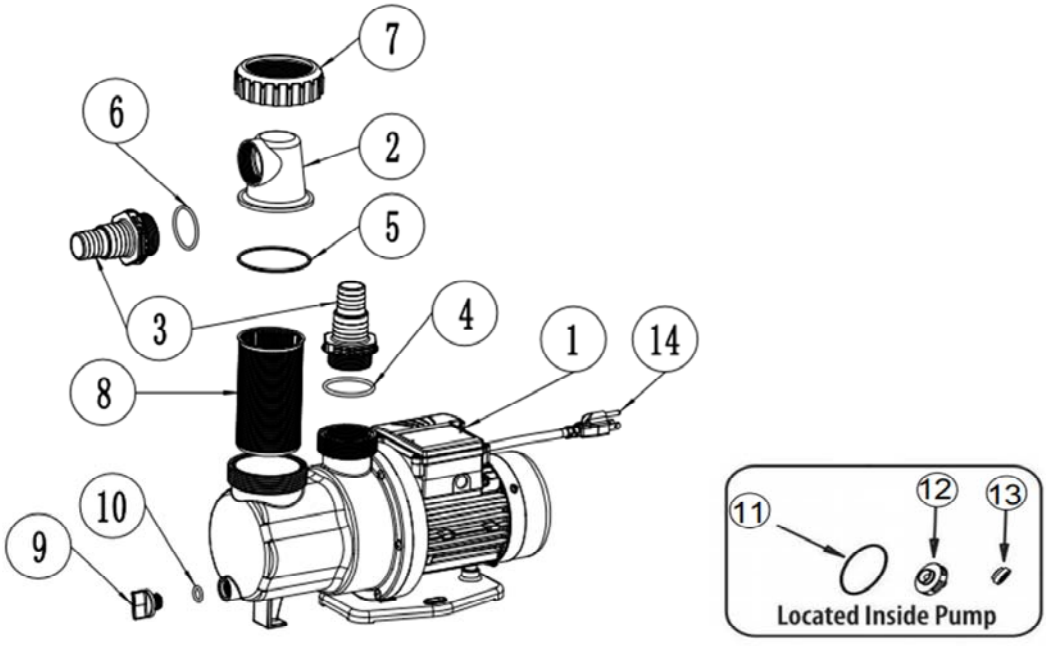
Technical Data

Model	HP	Voltage	Hertz	Amps	Flow Rate GPM
NE4523	0.75	115	60	5.5	38GPM
NEP4268	0.33	115	60	2.5	24GPM
NEP4269	0.50	115	60	4.5	35GPM
NE4524	1.50	115	60	15.5	115GPM
NEP4271	1.0	115	60	11.0	90GPM

FlowXtreme PRIME, SPS1 Pumps Parts Breakdown & Diagram

Model #s; NE4523, NEP4268, NEP4269

Key	Part Name	Qty	Mnfg. No.	B.W. No.	For Model#
1	Water Pump/ Motor 250 W	1	SPS1A250	NEP4268	NEP4268
1	Water Pump/ Motor 450 W	1	SPS1A450	NEP4269	NEP4269
1	Water Pump/ Motor 550 W	1	SPS1A550	NE4523	NE4523
2	Transparent Hair & Lint Strainer Cover	1	P00131	NEP4245	NEP4268/NEP4269/NE4523
3	1 1/4"- 1 1/2" Hose Connector	2	P00132	NEP4246	NEP4268/NEP4269/NE4523
4	O-ring "A"- 2 1/4"	1	P00182	NEP4265	NEP4268/NEP4269/NE4523
5	O-ring "B"- 3"	1	P00183	NEP4266	NEP4268/NEP4269/NE4523
6	O-ring "C"- 1.5"	1	P00184	NEP4267	NEP4268/NEP4269/NE4523
7	Strainer Collar	1	P00133	NEP4247	NEP4268/NEP4269/NE4523
8	Strainer Basket	1	P00134	NEP4248	NEP4268/NEP4269/NE4523
9	Pump Drain Cap	1	P00135	NEP4249	NEP4268/NEP4269/NE4523
10	Drain Valve O-ring	1	P00136	NEP4250	NEP4268/NEP4269/NE4523
11	Motor Pump Seal - 250	1	P00137	NEP4251	NEP4268/NEP4269/NE4523
11	Motor Pump Seal - 450	1	P00138	NEP4252	NEP4268/NEP4269/NE4523
11	Motor Pump Seal - 550	1	P00138	NEP4252	NEP4268/NEP4269/NE4523
12	Impeller Assembly - 250	1	P001392	NEP4253	NEP4268
12	Impeller Assembly - 450	1	P001404	NEP4254	NEP4269
12	Impeller Assembly - 550	1	P001405	NEP20200	NE4523
13	Shaft Seal & Spring Assbly – 250	1	P00141	NEP4255	NEP4268/NEP4269/NE4523
13	Shaft Seal & Spring Assbly - 450	1	P00142	NEP4256	NEP4268/NEP4269/NE4523
13	Shaft Seal & Spring Assbly - 550	1	P00142	NEP4256	NEP4268/NEP4269/NE4523
14	Power Cord With 3 Prong Plug	1	P00143	NEP20201	NEP4268/NEP4269/NE4523

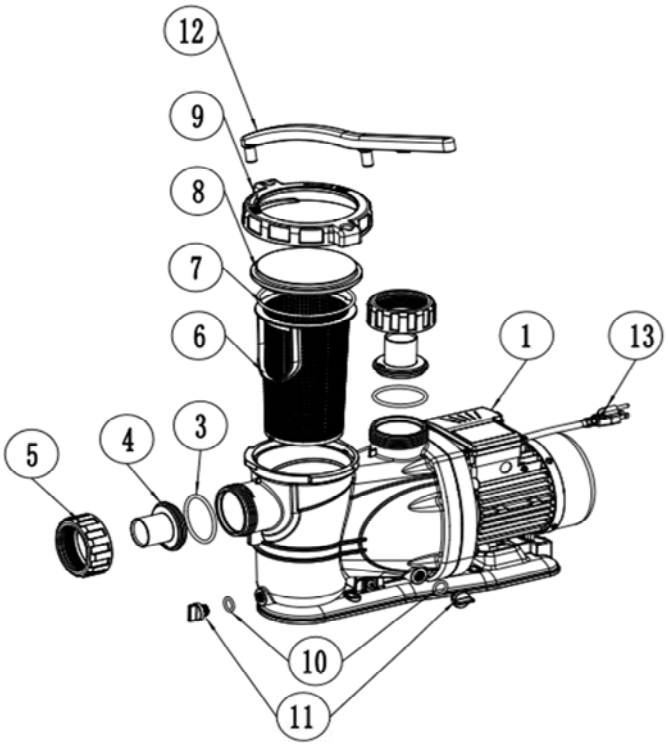


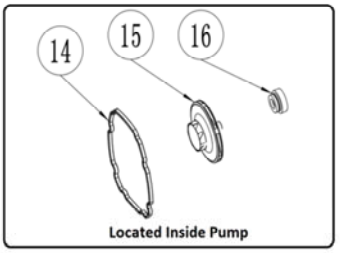
FlowXtreme PRIME, SPS3 Pumps Parts Breakdown & Diagram

Model #s; NEP4271, NE4524

Key	Part Name	Qty	Mnfg. No.	B.W. No.	For Model#
1	Water Pump	1	SPS3 1100	NEP4271	NEP4271
1	Water Pump	1	SPS3 1600	NEP4254	NE4524
2	Valve Body	1	3029S3	NEP4128	NEP4271 & NE4524
3	Connector O-Ring	1	3030S3	NEP4129	NEP4271 & NE4524
4	Pump Connector	1	3031S3	NEP4130	NEP4271 & NE4524
5	Pump Connector Nut	1	3032S3	NEP4131	NEP4271 & NE4524
6	Strainer Basket	1	3033S3	NEP4132	NEP4271 & NE4524
7	O-Sealing Ring	1	3034S3	NEP4133	NEP4271 & NE4524
8	Transparent Cover	1	3035S3	NEP4134	NEP4271 & NE4524
9	Cover Locking ring	1	3036S3	NEP4135	NEP4271 & NE4524
10	Drain Valve O-Ring	2	3037S3	NEP4136	NEP4271 & NE4524
11	Pump Drain Valve	2	3038S3	NEP4137	NEP4271 & NE4524
12	Basket Cover Closing Tool	1	3039S3	NEP20202	NEP4271 & NE4524
13	Power Cord with 3 prong plug	1	3040S3	NEP20203	NEP4271 & NE4524

14	Motor Pump Seal	1	3041S3	NEP20204	NEP4271 & NE4524
15	Impeller Assembly - 1100	1	3042S3	NEP20205	NEP4271
15	Impeller Assembly - 1600	1	3043S3	NEP20206	NE4524
16	Shaft Seal & Spring Assembly	1	3044S3	NEP20207	NEP4271 & NE4524





Section #10, Troubleshooting for FX PRO II and FlowXtreme Prime

Pumps

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.

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.

2. Motor may be overheating due to direct sunlight or low water level in the pump basket.

Solution: Check water flow to insure uniform amount of water coming to the pump.

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 shut 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.

2. Motor is frozen either form months in the carton after manufacturing or from over winter storage.

Solution: Insert a flat bladed screw driver into the slot at the back end of the motor shaft and turn motor shaft until it moves freely. You may have to remove the protective metal cap from some models to access the motor shaft.

NOTE – All FlowXtreme & FX PRO II pumps are run tested with water before leaving the factory.

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.

2. Loose connections on suction side.

Solution: Tighten pipe/union connections or hose clamps on flexible hose.

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

3. Leaking O-ring 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 In Ground pool intake plumbing clogged.

Solution: Contact a qualified repair professional to do a vacuum test.

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 intake plumbing 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 and tighten all system hose clamps on Above Ground pools.

ii. Check voltage to ensure that the motor is ~~rotating~~ running 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: Check for visible debris and remove if observed. If the problem continues contact a qualified repair professional.

2. Undersized pool plumbing.

Solution: Correct plumbing 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: Contact a qualified repair professional to install a new impeller & seal assembly.

Noisy Pump – Check For:

1. Air leak in suction piping, cavitation 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 tighten fittings, if practical. Holding hand over return fitting will sometimes prove this point or putting in a smaller return 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 will cause noise.

Solution: With the pump turned off or disconnected from the power source clean the pump housing and inspect to remove any debris visible in the inner portion of the pump by the impeller.

4. Motor bearings noisy from normal wear, rust, overheating, or concentration of chemicals causing seal damage. This will allow chlorinated water to seep into bearings wiping out the grease resulting in rusting of the motor shaft and causing the bearing to whine.

Solution: All seal leaks must be replaced at once. Have a qualified pump repair specialist replace the motor shaft seals and inspect the motor shaft for possible damage. If the motor shaft is damaged replace the motor.

Water Leaks Around Intake and Discharge fittings – Check For

1. Lose union fittings or hose fittings.

Solution: Tighten fittings or remove, apply Teflon tape and reinstall.

2. Lose hose clamps on flexible hose.

Solution: Tighten hose clamps using a nut driver or wrench instead of a screwdriver

3. Leaks that continue after trying the above solutions.

Solution: Inspect union fittings and hose fittings for excess plastic mold flashing that can cause hoses and plumbing not to seal. If plastic mold flashing is found remove it with a fine tooth file or knife blade and re-assemble. If the fitting still will not seal replace them and reassemble plumbing with the new fittings.

ATTENTION

DO NOT RETURN THIS PRODUCT TO YOUR RETAILER. IF YOU ENCOUNTER ANY DIFFICULTIES WITH YOUR NEW SWIMMING POOL PUMP CONTACT BLUE WAVE CUSTOMER SERVICE FOR ASSISTANCE. 1-800-759-0977

Section #11, Warranty information

This product is warranted to the original purchaser to be free from defects in material or workmanship for a period of one (1) year from the date of the original retail purchase.
This warranty does not cover defects or damage due to improper installation, alteration, accident or any other event beyond the control of the manufacturer. Defects or damage resulting from misuse, abuse or negligence will void this warranty. This warranty does not cover scratching or damage that may result from normal usage.
This product is not intended for institutional or commercial use; the manufacturer does not assume any liability for such use. Institutional or commercial use will void this warranty.
This warranty is nontransferable and is expressly limited to the repair or replacement of the defective product. During the warranty period, the manufacturer shall repair or replace defective parts at no cost to the purchaser. Shipping charges and insurance are not covered and are the responsibility of the purchaser. Labor charges and related expenses for removal, installation or replacement of the product or components are not covered under this warranty.
The manufacturer reserves the right to make substitutions to warranty claims if parts are unavailable or obsolete.
The manufacturer shall not be liable for loss of use of the product or other consequential or incidental costs, expenses or damages incurred by the consumer of any other use. The user assumes all risk of injury resulting from the use of this product.
This warranty is expressly in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for use to the extent permitted by Federal or state law. Neither the manufacturer nor any of its representatives assumes any other liability in connection with this product.

All warranty claims must include the retailer's information where the product was originally purchased. A purchase receipt or other proof of date of purchase will be required to process all warranty claims. The model number and part numbers found within the assembly instructions will be required when submitting any parts requests or warranty claims.

For further warranty information or inquiries, please call 1 (800) 759-0977 Or email warranty@splashnetxpress.com

Blue Wave Products, Inc.
1745 Wallace Ave, Suite B
Saint Charles, IL 60174

La garantie du produit est valide pour l'acheteur original en ce qui a trait aux pièces défectueuses ou à la main-d'œuvre pour une période de 1 année de la date d'achat.
Cette garantie n'est couvre pas les dommages causés par accident, par modification, par une installation défectueuse ou tout autre événement hors du contrôle du fabricant. Tout défaut ou dommage résultant de la négligence ou d'une mauvaise utilisation annule cette garantie. La présente garantie ne couvre pas les égratignures ou les dommages attribuables à un usage normal.
Ce produit n'est pas destiné à un usage institutionnel ou commercial; le fabricant décline toute responsabilité pour une telle utilisation. Un usage institutionnel ou commercial annule cette garantie.
Cette garantie est non transférable et est expressément limitée à la réparation ou au remplacement du produit défectueux. Au cours de la période de garantie, le fabricant s'engage à remplacer et à réparer les pièces défectueuses sans frais pour l'acheteur. Les frais d'assurance et d'expédition ne sont pas couverts et sont à la charge de l'acheteur. Les frais de main-d'œuvre et les dépenses liées au déplacement, à l'installation ou au remplacement du produit ou de ses composantes ne sont pas couverts par cette garantie.
Le fabricant se réserve le droit de faire des substitutions de recours en garantie si la pièce n'est pas disponible ou obsolète.
Le fabricant décline toute responsabilité liée à la perte d'utilisation ainsi que tous les autres coûts directs ou indirects, frais ou dommages encourus par le consommateur qui aurait été causés par une autre utilisation. L'utilisateur assume tous les risques de dommage résultant de l'utilisation de ce produit.
Cette garantie tient lieu expressément de toute autre garantie, exprimée ou implicite, y compris les garanties de qualité marchande ou d'adaptation à un emploi particulier dans la mesure permise par les lois fédérales ou provinciales. Ni le fabricant, ni aucun de ses représentants n'assument aucune autre responsabilité en rapport avec ce produit.

Toute réclamation doit être faite par le détaillant où le produit a été acheté. Une facture ou autre preuve d'achat est nécessaire pour traiter toutes les réclamations de garantie. Le numéro de modèle et les numéros de référence figurant dans les instructions d'assemblage seront exigés lors de la soumission de demande de pièces ou de recours en garantie.

Pour plus d'information ou pour toute question, veuillez téléphoner au 1 (800) 759-0977 ou email warranty@splashnetxpress.com

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1745 Wallace Ave, Suite B
Saint Charles, IL 60174