



VS Omni Pump Owner's Manual



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TriStar VS 950 Omni
 Tristar VS 900 Omni
 Super Pump VS 700 Omni
 MaxFlo VS 500 Omni

SAVE THIS INSTRUCTION MANUAL

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HAYWARD®

IMPORTANT SAFETY INSTRUCTIONS

Basic safety precautions should always be followed, including the following: Failure to follow instructions can cause severe injury and/or death.

⚠ This is the safety-alert symbol. When you see this symbol on your equipment or in this 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 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 the equipment. Failure to follow instructions can cause severe injury and/or death.

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

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

USE OF NON-HAYWARD REPLACEMENT PARTS VOIDS WARRANTY.

ATTENTION INSTALLER - THIS MANUAL CONTAINS IMPORTANT INFORMATION ABOUT THE INSTALLATION, OPERATION, AND SAFE USE OF THIS VARIABLE SPEED 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. 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 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. 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.

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

⚠ 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 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) [No. 6 AWG (13.3 mm²) for Canada] solid copper bonding wire to the pressure wire connector provided on the pump 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. **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 (symbols complements of APSP):



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.
- The maximum system flow rate shall not exceed the values shown in the “Pipe Sizing Chart” found in section 4.3 below.
- 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 APSP 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 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 pump is running. Before starting 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 manual 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 the circulation system at more than 50 PSI maximum.

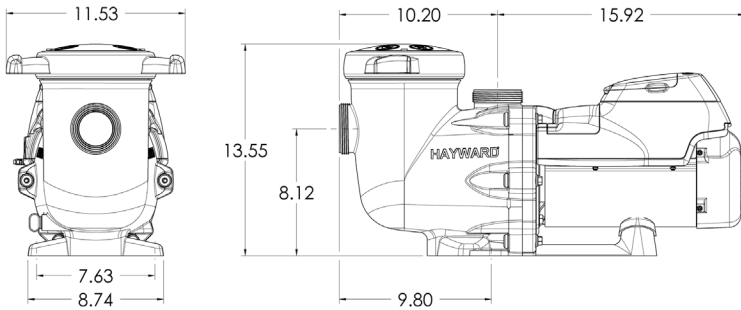
▲ WARNING – Fire and burn hazard. Motors operate at high temperatures and if they are not properly isolated from any flammable structures or foreign debris they can cause fires, which may cause severe personal injury or death. It is also necessary to allow the motor to cool for at least 20 minutes prior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

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

SAVE THESE INSTRUCTIONS

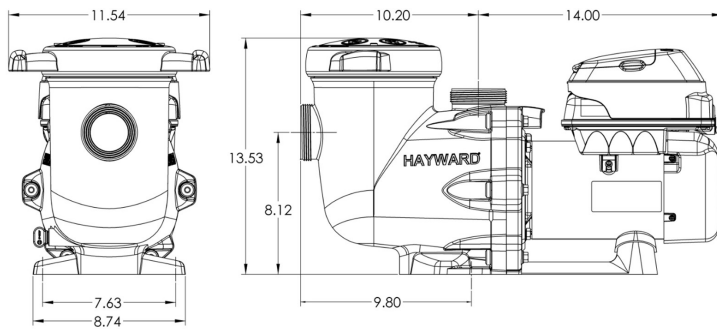
Overview

The new family of VS Omni variable speed pumps offer incredible energy savings via their advanced hydraulic design combined with a totally enclosed permanent magnet motor. The four different VS Omni pump models are shown below with their dimensions and specs. Although very similar in design, this manual will point out any differences with installation, wiring and operation. Refer to the label on your pump to determine which model you have and follow any specific instructions related to your pump throughout this manual.



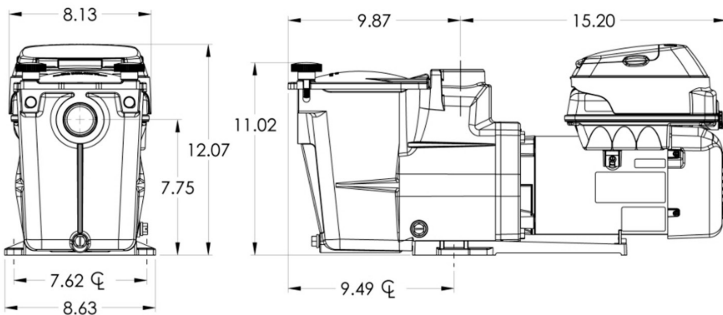
TriStar VS 950 Omni

Voltage:	230 VAC, 60Hz, Single Phase
Amps:	10.9 amps
Speed Range:	600 - 3450 RPM
Horsepower:	2.7 hp



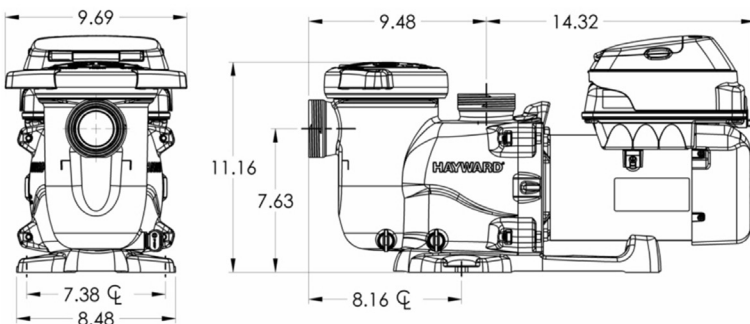
TriStar VS 900 Omni

Voltage:	230 VAC, 60Hz, Single Phase
Amps:	0.4 - 11.0 amps
Speed Range:	600 - 3450 RPM
Horsepower:	1.85 hp



Super Pump VS 700 Omni

Voltage:	230 VAC, 60Hz, Single Phase
Amps:	0.4 - 10.0 amps
Speed Range:	600 - 3450 RPM
Horsepower:	1.65 hp



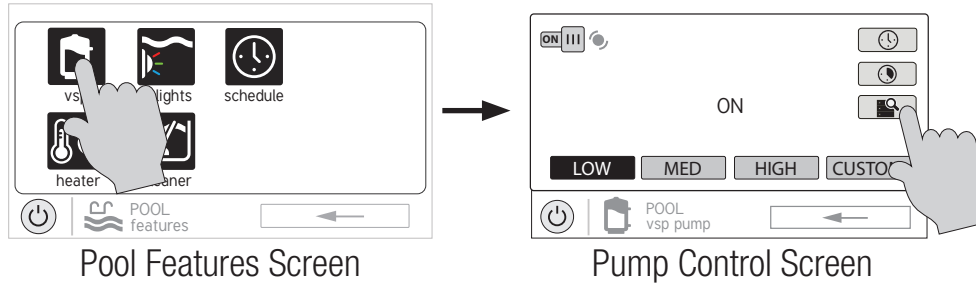
MaxFlo VS 500 Omni

Voltage:	230 VAC, 60Hz, Single Phase
Amps:	0.4 - 10.0 amps
Speed Range:	600 - 3450 RPM
Horsepower:	1.65 hp



Energy Efficiency Overview and Power consumption

The energy consumed by a pool pump is measured in terms of Watts (W) or Kilowatts (kW). Because the VS Omni displays power consumption in watts, you can easily determine the cost of operating the pump at the given speed. After installation, to display power consumption at any time, follow the screens below:



The power consumption will be displayed in watts. To calculate power costs, refer to the example below:

VS Omni Variable Speed Pump operating at 300 W. Cost of electricity = *\$0.10 per kWh
Convert Watts to Kilowatts: 300 W = 0.3 kW
0.3 kW X \$0.10/kWh = \$0.03 per hour

*National Average (use your actual cost of electricity for more accurate results)

Note the power consumption is greatly affected by the speed of the pump. Lowering the speed of the pump can drastically reduce the power that is consumed. Below are some of the major benefits of running the pump at lower speeds.

- Save electricity and money
- Improved filtration – the filter can often remove smaller particles when the water moves slower
- Quiet operation
- Reduced Total Dynamic Head – less stress on equipment (e.g. filter) which can lengthen equipment life

When determining the speed(s) to operate your pump, you must also take into account the minimum requirements for proper sanitation and equipment/water feature functionality.

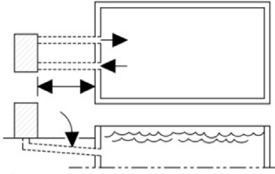
It is recommended you filter (“turnover”) all the water in the pool at least once every 24 hours. Check with local requirements for the minimum turnover rate. Running the pump at a lower speed may require running the pump for a longer period of time in order to meet the turnover requirements for proper sanitation. Equipment such as heaters, skimmers, and chlorinators require minimum flows to operate correctly. Refer to individual equipment manuals for specific flow requirements.

After setting the pump speed(s), it is recommended you check that all other equipment/water features are functioning as intended. For example, when running at a low speed for daily filtration, verify water is adequately flowing over the skimmer weirs. Operate the pump at higher speeds for the shorter periods of time needed to operate a heater, water feature, etc.

Installation

Pump Location

Locate pump as close to the pool as possible, in compliance with local codes. To reduce friction loss, suction lines should be as direct as they can be. 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 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

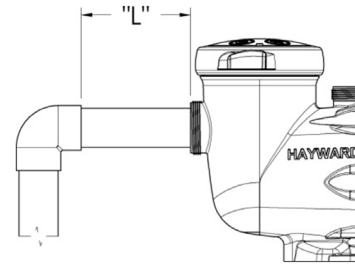
Install pump on a level concrete slab or other rigid base to meet all local and national codes. Secure pump to base with screws or bolts to further reduce vibration and stress on pipe or hose joints. The base must be level, rigid, and vibration free.

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 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 in. [mm]	Maximum Flow Rate GPM [LPM]	Minimum Straight Pipe Length "L" in. [mm] *
1 1/2" [50]	45 [170]	7 1/2" [190]
2" [63]	80 [300]	10" [254]
2 1/2" [75]	110 [415]	12 1/2" [317]
3" [90]	160 [600]	15" [381]



Note: It is recommended that a minimum length of straight piping (shown as "L" in above diagram), equivalent to 5 pipe size diameters, be used between the pump suction inlet and any plumbing fittings (elbows, valves, etc.).

When installing the VS Omni pump, care should be taken to ensure proper pipe and equipment sizing to handle the maximum flow required. It is recommended to set the maximum speed in order to not exceed the maximum flow rate. After installation is complete, set maximum speed during configuration of the VSP. For more information, refer to the Configuration section in the VS Omni Installation manual.

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

1. Use PTFE tape to seal threaded connections on molded plastic components. All plastic fittings must be new or thoroughly cleaned before use. Do NOT use Plumber's Pipe Dope as it may cause cracking of the plastic components. When applying PTFE 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 PTFE tape as friction is reduced considerably; do NOT over-tighten fitting or you may cause damage. If leaks occur, remove connector, clean off old PTFE tape, re-wrap with one to two additional layers of PTFE tape, and re-install connector.
2. Fittings (elbows, tees, valves, etc.) restrict flow. For better efficiency, use the fewest possible fittings. 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.



Electrical

Use copper conductors only. For indoor & outdoor use. Connect pump to a 15 amp branch circuit in accordance with local codes, regulations, and the National Electric Code (NEC). A disconnecting means located at least 5 ft. from the inside wall of the pool, spa, or hot tub must be provided.

Voltage

Voltage at pump MUST NOT be more than 10% above or below nameplate rated voltage, or components may overheat, causing overload tripping and reduced component life. If voltage is less than 90% (207 VAC) or more than 110% (253 VAC) of rated voltage (230 VAC) when pump is running at full load, consult the power company.

Grounding and Bonding

1. Install, ground, bond, and wire pump in accordance with local or national electrical code requirements.
2. Permanently ground pump. Use green ground terminal provided under access plate; use size and type wire required by code. Connect ground terminal to electrical service ground.
3. Bond pump 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.
4. 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) [No. 6 AWG (13.3 mm²) for Canada] 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

1. 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 circuit breaker as the master On-Off switch.
2. The pump requires constant input power whether from the VS Omni Hub using the Wiring Whip or directly from a service panel/switch/timeclock.

Wiring Whip

A High Voltage Wiring Whip (6ft flexible conduit containing three 12AWG conductors - red, black and green) has been provided to connect the VS Omni Hub to the VSP, ONLY IF THE VS OMNI HUB WILL BE POWERED BY 230 VAC. Refer to the Quick Start Guide for more detail. If powering the Hub by 115 VAC, the pump will have to be wired separately.

Communication Cable

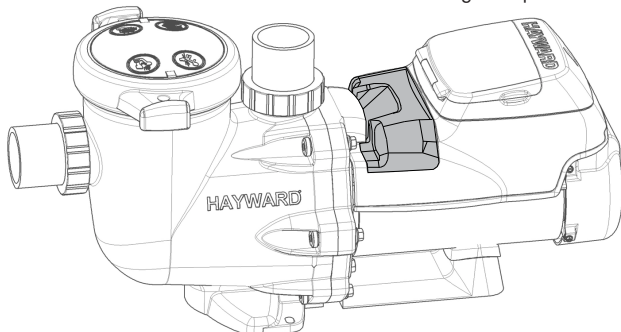
A 15 ft, 3 conductor (red, black and bare wire) low voltage communication cable has been provided for the connection from the VS Omni Hub to the VSP. The bare wire is only used with TriStar VS 900 Omni, Super Pump VS 700 Omni and MaxFlo VS 500 Omni models only. Tape off or snip the bare wire when used with TriStar VS 950 Omni.

TriStar VS 950 Omni Wiring Connections

Both the high voltage input power and the low voltage communication cable need to be connected to the TriStar VS 950 Omni pump. Both connections are accessible in the drive wiring compartment found underneath the cover plate. Refer to the following steps when wiring the TriStar VS 950 Omni.

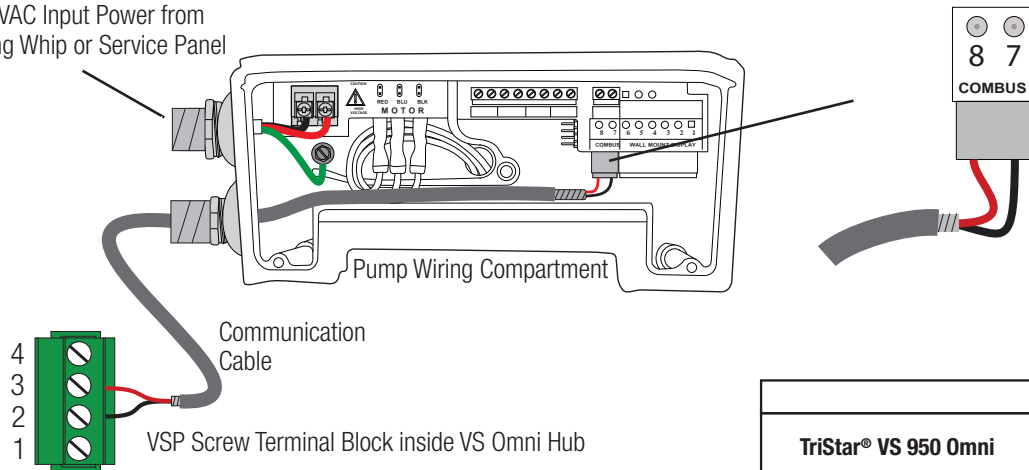
1. Remove cover plate as shown below.

Unscrew Single Fastener and Remove Cover Plate to access Wiring Compartment



2. **Low Voltage Wiring** - Wiring connections for the TriStar VS 950 Omni are shown below. When wiring the low voltage communication cable, refer to the table below. One conductor will go from screw terminal “2” on the VS Omni Hub to screw terminal “7” on the TriStar VS 950 Omni pump. The other conductor will go from screw terminal “3” on the VS Omni Hub to screw terminal “8” on the pump. The bare wire will not be used and can be snipped off at the ends. Route the cable as shown, making sure that it does not run across any high voltage wiring. The communication cable must exit in its own conduit opening as shown, using appropriate waterproof fittings and conduit.

230 VAC Input Power from
Wiring Whip or Service Panel



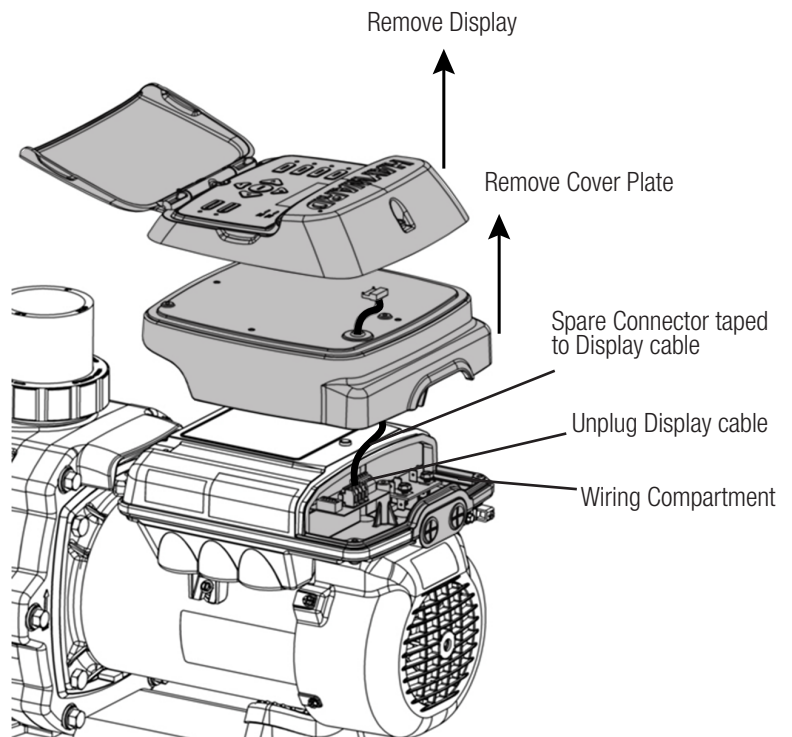
3. **High Voltage Wiring** - If the VS Omni Hub is being powered by 230 VAC, the easiest method for bringing power to the pump is using the provided Wiring Whip as shown in Step 2 on the Quick Start Guide. If the VS Omni Hub is being powered by 115 VAC or if the pump and Hub are not in the same vicinity, it is recommended that power be brought to the pump from a nearby service panel. If power is coming from a timeclock, it must be set to run continuously to assure that power is always available to the pump.

Refer to the diagram above for the location of the 230 VAC connections and ground. Run wiring through its own conduit opening as shown, If not using the Wiring Whip, use appropriate waterproof fittings and conduit. Re-install the cover plate and secure.

TriStar VS 900 Omni, Super Pump VS 700 Omni, MaxFlo VS 500 Omni Wiring Connections

Both the high voltage input power and the low voltage communication cable need to be connected to these pumps. Both connections are accessible in the drive wiring compartment found underneath the display and cover plate. Refer to the following steps low and high voltage wiring.

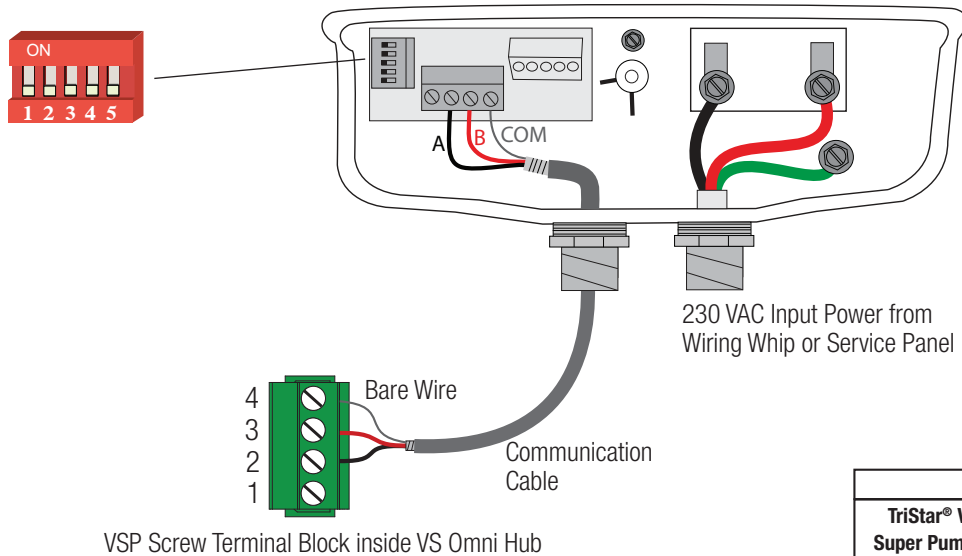
1. Remove the two fasteners on the display and lift it away to reveal the cover plate. Remove the three cover plate fasteners and remove the cover plate to gain access to the wiring compartment. Note that the short display cable routes through the cover plate and connects to a RS485 screw terminal block on the pump. Remove the connector. The display will no longer be used. An additional RS485 connector has been taped to the display cable. Use this connector for the low voltage communication connection (see 3. below).



2. **Dip Switch Settings** - The factory configured dip switch settings must be changed before use with the VS Omni. Locate the dip switch on the circuit board shown in the diagram below. Move all dip switches to the "OFF" position, then proceed with wiring.

3. **Low Voltage Wiring** - Refer to the table and diagram below for proper connections. Use the RS485 screw terminal connector taped to the display cable.

One conductor will go from screw terminal "2" on the VS Omni Hub to screw terminal "A" on the pump. The other conductor will go from screw terminal "3" on the VS Omni Hub to screw terminal "B" on the pump. The bare wire will attach to screw terminal "4" on the VS Omni Hub and "COM" on the pump.



	Hub Conn.	Pump Conn.
TriStar® VS 900 Omni	2	A
Super Pump® VS 700 Omni	3	B
MaxFlo VS 500 Omni	4	COM

4. **High Voltage Wiring** - If the VS Omni Hub is being powered by 230 VAC, the easiest method for bringing power to the pump is using the provided Wiring Whip as shown in Step 2 on the Quick Start Guide. If the VS Omni Hub is being powered by 115 VAC or if the pump and Hub are not in the same vicinity, it is recommended that power should be brought to the pump from a nearby service panel. If power is coming from a timeclock, it must be set to run continuously to assure that power is always available to the pump.

Refer to the diagram above for the location of the 230 VAC connections and ground. Run wiring through its own conduit opening as shown, If not using the Wiring Whip, use appropriate waterproof fittings and conduit.

Once completed, the cover plate and display will need to be re-installed but DO NOT re-attach the display cable. The display is now disabled and the VS Omni system will fully control all pump functions.

Operation

Prior to Start-Up

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

1. Have a professional perform this test.
2. Ensure all Hayward pump and system components are removed from system prior to performing test.

WARNING – If circulation equipment must remain in the plumbing system during water pressure test, do not apply more than 10 psi pressure to the system. Be sure water pressure has been released, using the filter manual air relief valve, before removing pump 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

Note that starting and priming will require that the VS Omni pump has been configured. Refer to the VS Omni Installation manual for instructions on the configuration and operation of the pump. After configuration, start and prime the pump using the Control Pad.

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, remove strainer cover; fill strainer housing with water.
5. Clean and lubricate strainer cover O-ring with "Jack's 327" if necessary.
6. Replace strainer cover on strainer housing.

Turn on power and wait for pump to prime, which can take up to fifteen (15) minutes. Priming time will depend on vertical length of suction lift and horizontal length of suction pipe. If pump does NOT prime within 15 minutes, stop motor and determine cause. Be sure all suction and discharge valves are open when pump is running.

Troubleshooting

Motor Will NOT Start

- Check that supply voltage is wired properly and available at the pump.
- Check that low voltage communication cable is wired properly for your model according to the tables shown on page 9 and 10.
- Check the rotation of the motor shaft for free movement and lack of obstruction. Correct if necessary.

Motor Shuts OFF

- Check for low voltage or power drop at the motor (frequently caused by undersized wiring). Contact a qualified professional to verify the electrical connections.

Motor Hums, But Does NOT Start

- Check if impeller is jammed with debris. Have a qualified repair professional open the pump and remove the debris.

Pump Won't Prime

- Empty pump/strainer housing. Make sure the pump/strainer housing is filled with water and the cover o-ring is clean. Ensure the o-ring is properly seated in the cover o-ring groove. Ensure the o-ring sealing surface is lubricated with "Jack's 327" or equivalent and that the strainer cover is locked firmly in position. Lubricant will help to create a tighter seal.
- Check for loose connections on the suction side and tighten the pipe/union connections. Note: Any self-priming pump will not prime if there are suction air leaks. Leaks will result in bubbles emanating from the return fittings on the pool wall.
- Check for leaking O-ring or packing glands on valves. Tighten, repair, or replace the valves.
- The strainer basket or skimmer basket may be loaded with debris. Remove the strainer housing cover or the skimmer cover. Clean the basket, and refill the strainer housing with water. Tighten the cover.
- The suction side may be clogged. Contact a qualified repair professional. You should have 5" - 6" of vacuum at the strainer cover (your pool dealer can confirm this with a vacuum gauge). You may be able to check by removing the skimmer basket and holding an object over the bottom port with the skimmer full and the pump running. If no suction is felt, check for line blockage:
 - If the pump develops a vacuum, check for a blocked suction line or a dirty strainer basket. An air leak in the suction piping may be the cause.
 - If the pump does not develop a vacuum and the pump has sufficient "priming water":
 - Re-check the strainer housing cover and all threaded connections for suction leaks. Check if all system hose clamps are tight.
 - Check voltage to ensure that the motor is rotating at full rpm's.



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- Open the housing cover and check for clogging or obstruction in suction. Check the impeller for debris.
- Remove and replace the shaft seal only if it is leaking.

Low Flow

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

Noisy Pump

- 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. Correct the suction condition or throttle return lines, if practical. Holding your hand over the return fitting will sometimes prove this, or by putting in a smaller eyeball fitting.
- Vibration due to improper mounting, etc. Mount the pump on a level surface and secure the pump to the equipment pad.
- Foreign matter in the pump housing. Loose stones/debris hitting the impeller could be the cause. Clean the pump housing.
- 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. All seal leaks should be replaced at once.

Maintenance, Storage and Winterization

Maintenance

- Clean strainer basket regularly. Do NOT strike basket to clean. Inspect strainer cover gasket regularly and replace as necessary.
- Hayward 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. Replace with genuine Hayward seal assembly kit.

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 with water in it will void the warranty.

ATTENTION – Use ONLY propylene glycol as antifreeze in your pool/spa system. Propylene glycol is non-toxic 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.

Winterization

- Drain water level below all inlets to the pool.
- Remove drain plugs and strainer cover from strainer housing.
- Disconnect pump from mounting pad, wiring (after power has been turned OFF), and piping.
- Once the pump is fully drained of water, re-install the strainer cover and drain plugs. Store pump in a dry area.

Additional Information

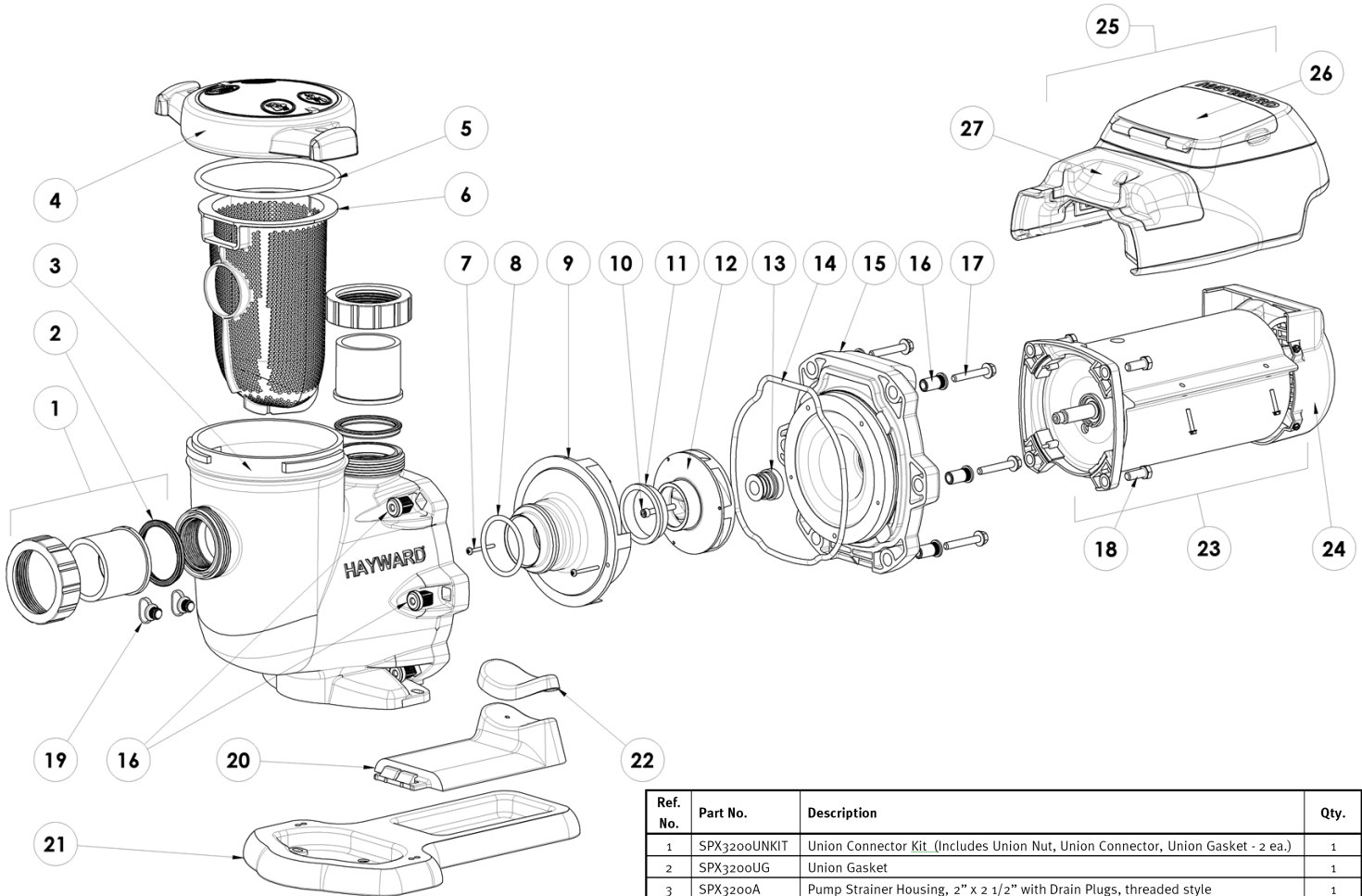
If needed, additional detailed information is available for your pump. The manuals can be found online and show shaft seal replacement instructions, stand alone pump operation (when not connected to VS Omni.), and more. To find the appropriate manual for your VS Omni pump, go to Hayward.com use the cross referenced using the part numbers shown below.

TriStar VS 950 Omni - SP32950VSP

Tristar VS 900 Omni - SP32900VSP

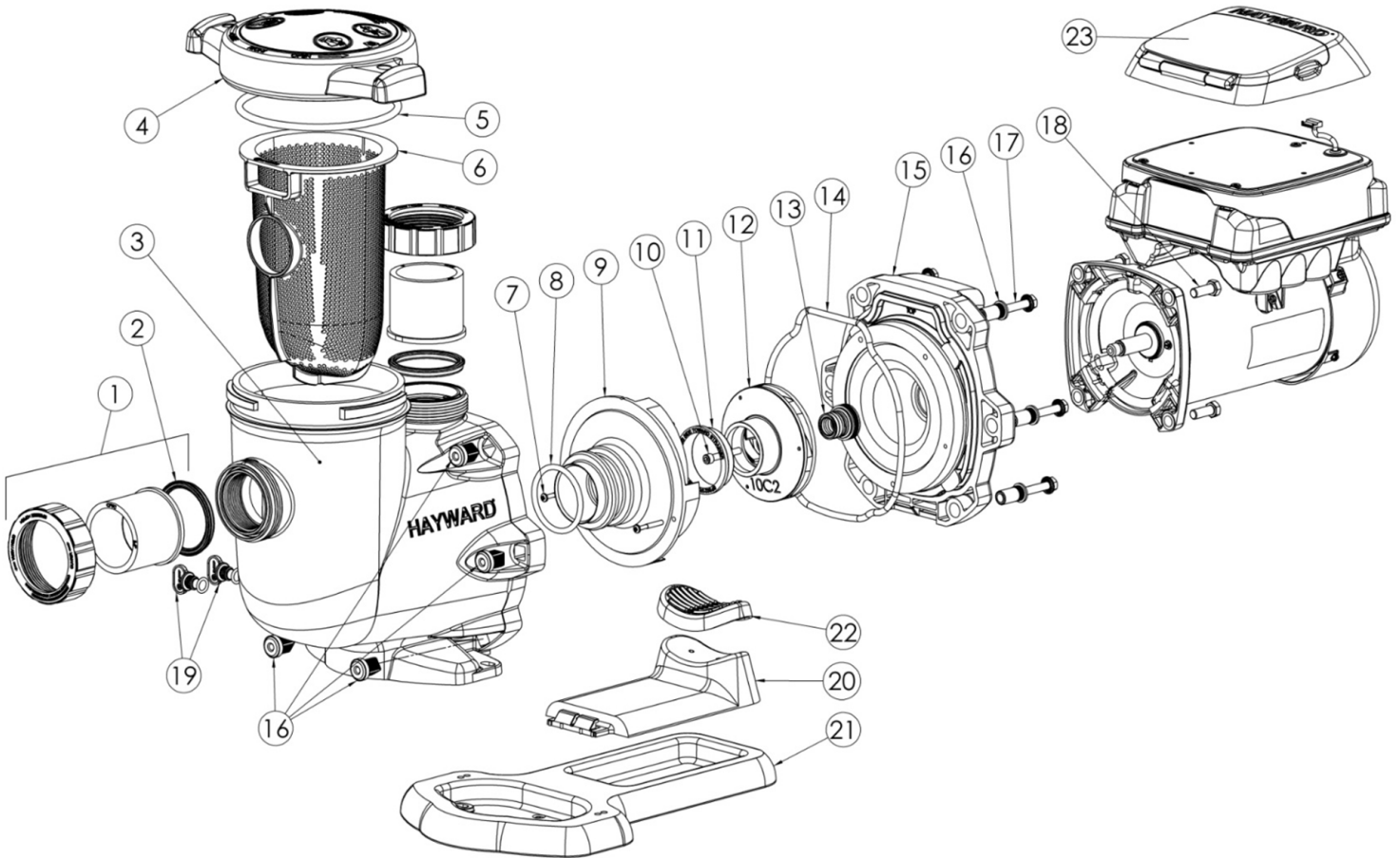
Super Pump VS 700 Omni - SP2670020VSP

MaxFlo VS 500 Omni - SP23520VSP



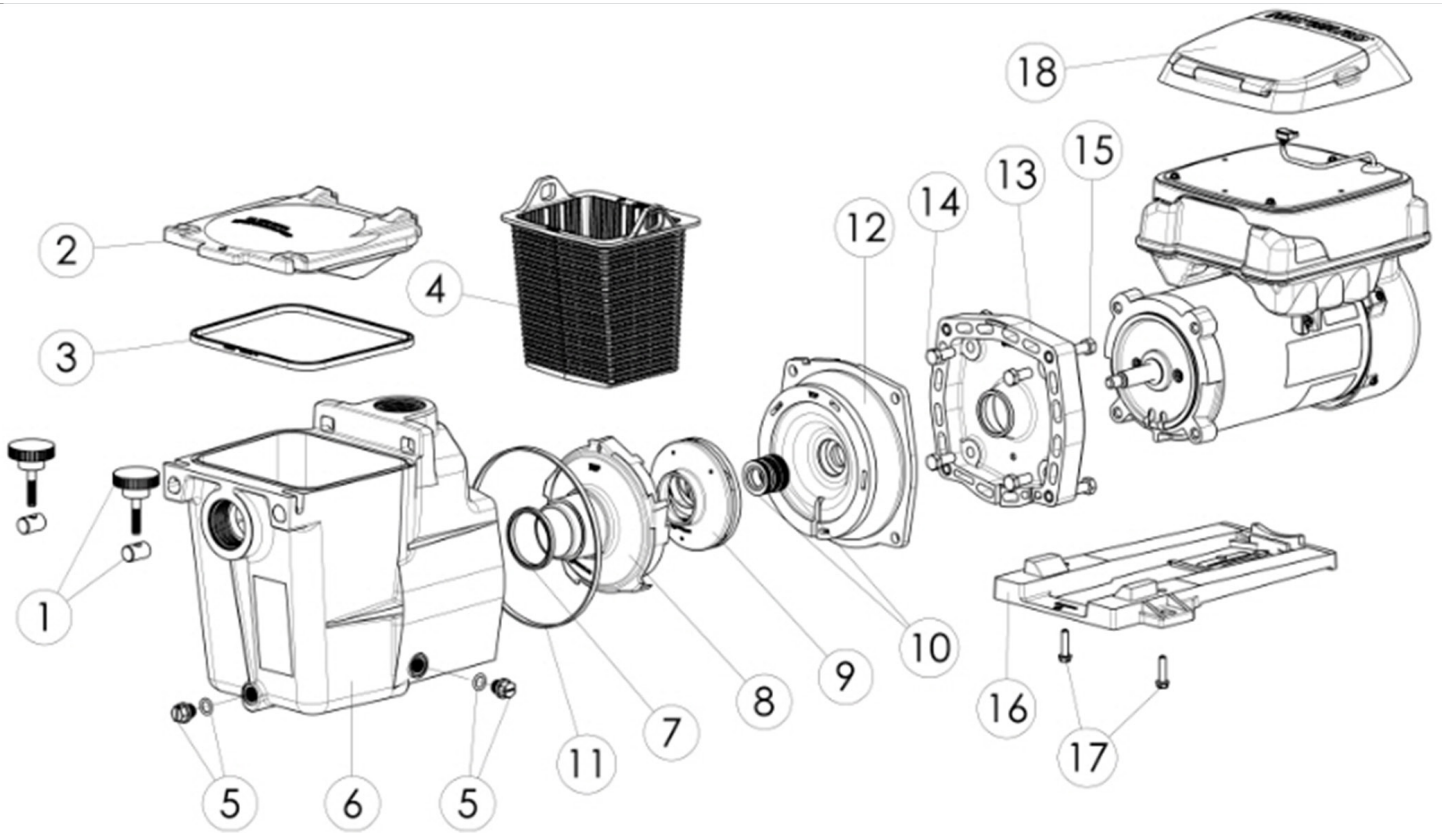
TriStar VS 950 Omni

Ref. No.	Part No.	Description	Qty.
1	SPX3200UNKIT	Union Connector Kit. (Includes Union Nut, Union Connector, Union Gasket - 2 ea.)	1
2	SPX3200UG	Union Gasket	1
3	SPX3200A	Pump Strainer Housing, 2" x 2 1/2" with Drain Plugs, threaded style	1
4	SPX3200DLS	Strainer Cover Kit (Includes Strainer Cover, Lock Ring, O-Ring)	1
	SPX3200DLSB	Strainer Cover Kit (Biguanide Sanitizer Applications Only; NOT Pressure Testable)	1
5	SPX3200S	Strainer Cover O-Ring	1
6	SPX3200M	Strainer Basket	1
7	SPX3200Z8	Diffuser Screw	1
8	SPX4000Z1	Diffuser O-Ring	1
9	SPX3200B3	Diffuser	1
10	SPX3200Z1	Impeller Screw	1
11	SPX3021R	Impeller Ring	1
12	SPX3220C	Impeller with Impeller Screw	1
13	SPX4000SAV	Shaft Seal Assembly	1
14	SPX3200T	Housing O-Ring	1
15	SPX3200E	Seal Plate	1
16	SPX3200Z211	Housing Insert/Seal Plate Spacer Kit	1
17	SPX3200Z3	Housing Bolt	1
18	SPX3200Z5	Motor Bolt	1
19	SPX4000FG	Drain Plug with O-Ring	2
20	SPX3200GA	Bracket, Motor Support	1
21	SPX3200WF	Riser Base (To align TriStar VS with inlet port of Pentair® WhisperFlo® pump*)	1
22	SPX3200Q	Adapter-Motor Support	1
23	SPX3400Z1ECM	Motor Assembly	1
24	SPX3400FAN	Motor Fan Shroud	1
25	SPX3400DR	Motor Drive	1
26	SPX3400DR4	Motor Drive Display Cover	1
27	SPX3400DR2	Motor Drive Wiring Cover	1
-	SPX3400LCD	Digital Control Interface Assembly	1
-	SPX3400DRKIT	Wall Mount Kit	1



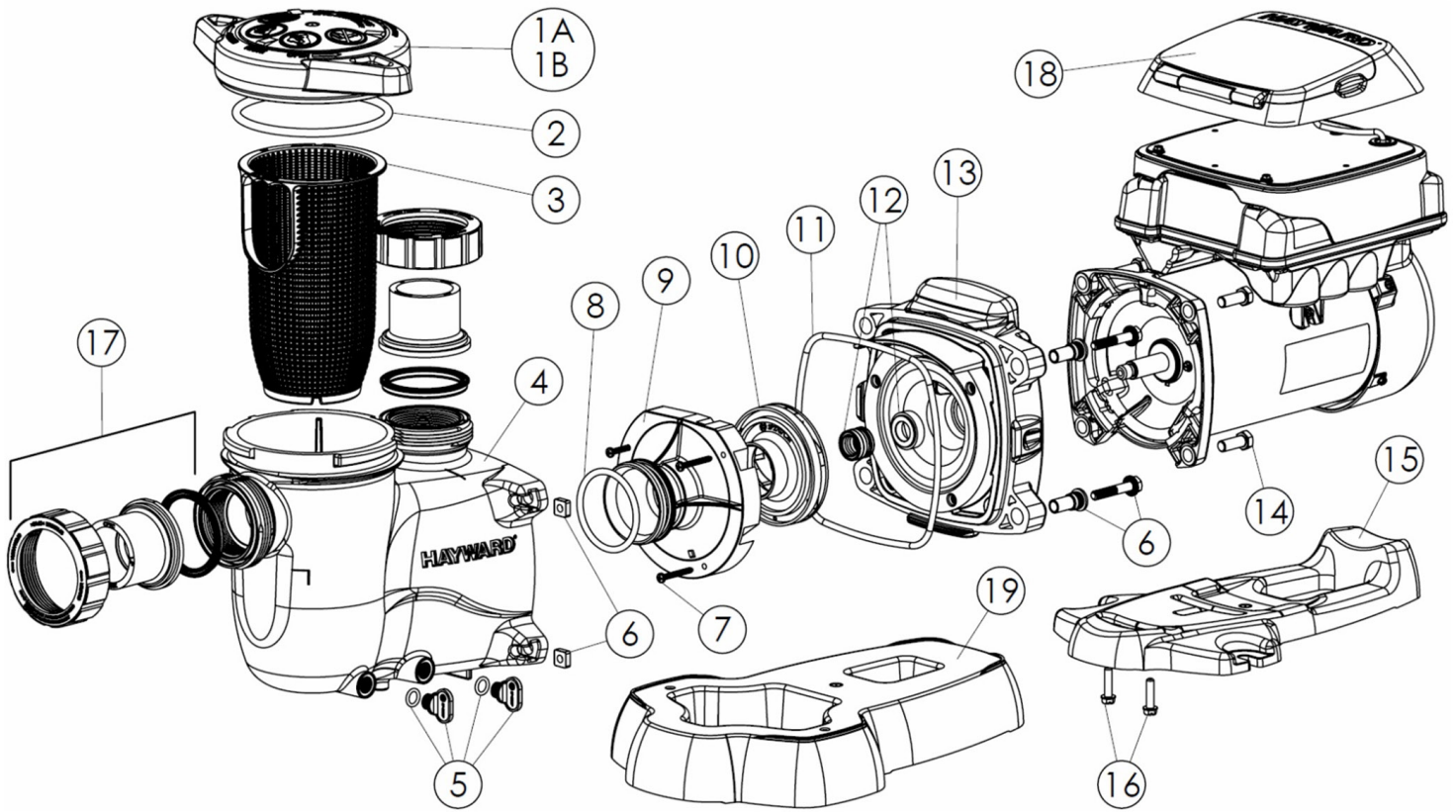
Ref. No.	Part No.	Description	Qty.
1	SPX3200UNKIT	Union Connector Kit (Includes Union Nut, Union Connector, Union Gasket - 2 ea.)	1
2	SPX3200UG	Union Gasket	1
3	SPX3200A	Pump Strainer Housing, 2" x 2 1/2" with Drain Plugs, threaded style	1
3	SPX3200DLS	Strainer Cover Kit (Includes Strainer Cover, Lock Ring, O-Ring)	1
4	SPX3200DLSB	Strainer Cover Kit (Biguanide Sanitizer Applications Only; NOT Pressure Testable)	1
5	SPX3200S	Strainer Cover O-Ring	1
6	SPX3200M	Strainer Basket	1
7	SPX3200Z8	Diffuser Screw	1
8	SPX4000Z1	Diffuser O-Ring	1
9	SPX3200B3	Diffuser	1
10	SPX3200Z1	Impeller Screw	1
11	SPX3021R	Impeller Ring	1
12	SPX3210C	Impeller with Impeller Screw	1
13	SPX3200SAV	Shaft Seal Assembly	1
14	SPX3200T	Housing O-Ring	1
15	SPX3200E	Seal Plate	1
16	SPX3200Z211	Housing Insert/Seal Plate Spacer Kit	1
17	SPX3200Z3	Housing Bolt	1
18	SPX3200Z5	Motor Bolt	1
19	SPX4000FG	Drain Plug with O-Ring	2
20	SPX3200GA	Bracket, Motor Support	1
21	SPX3200WF	Riser Base (To align TriStar VS with inlet port of Pentair® WhisperFlo® pump*)	1
22	SPX3200Q2	Adapter-Motor Support	1
23	SPX3400DR4	Motor Drive Display Cover (Cover only)	1
-	SPX3200LCD	Digital Control Interface Assembly	1
-	SPX3400DRKIT	Wall Mount Kit	1
-	SPX3202Z1VSPE	Power end assembly includes parts #7-15 and 18, Motor, Drive and Display	1

TriStar VS 900 Omni



Ref. No.	Part No.	Description	Qty.
1	SPX1600PN	Swivel Nut & Hand Knob	2
2	SPX1600D	Strainer Cover	1
3	SPX1600S	Strainer Cover Gasket	1
4	SPX1600M	Basket	1
5	SPX4000FG	Drain Plug with Gasket	2
6	SPX1600AA	Pump / Strainer Housing With Gasket	1
7	SPX1600R	Diffuser Gasket	1
8	SPX2600B	Diffuser	1
9	SPX2610C	Impeller	1
10	SPX1600Z2VIT	Shaft Seal Assembly	1
11	SPX1600T	Housing Gasket	1
12	SPX2600E5	Seal Plate	1
13	SPX1600F5	Motor Mounting Plate	1
14	SPX0125Z44	Motor Cap Screws (Set of 4)	1
15	SPX1600Z4	Housing Cap Screw	4
16	SPX2600G1	Mounting Foot (Includes Screws)	1
17	SPX1600Z52	Mounting Foot Screws (Set of 2)	1
18	SPX3400DR4	Motor Drive Display Cover (Cover only)	1
-	SPX3200LCD	Digital Control Interface Assembly	1
-	SPX3400DRKIT	Wall Mount Kit	1
-	SPXHKIT3	Quick Fix Kit (Includes #3, 7, 10, 11 & Jack's Lube)	1
POWER END			
-	SPX2603Z1VSPE	Power End Assembly (Includes #7-14, motor and drive)	1

Super Pump VS 700 Omni



Ref. No.	Part No.	Description	Qty.
1A	SPX2300DLS	Strainer Cover Kit (Includes Strainer Cover, Lock-Ring, O-Ring)	1
1B	SPX2300DLSB	Strainer Cover Kit for Biguanide Sanitizers (Includes Strainer Cover, Lock-Ring, O-Ring) NOT Pressure Testable	1
2	SPX2300Z4	Strainer Cover O-Ring	1
3	SPX2300M	Strainer Basket	1
4	SPX2300AA	Pump Strainer Housing with Drain Plugs	1
5	SPX4000FG	Drain Plug with O-Ring	2
6	SPX2700ZPAK	Hardware Pack (Includes 4 Housing Bolts, Seal-Plate Spacers & Square Nuts)	1
7	SPX2300Z3PAK3	Diffuser Screws (3 Pack)	1
8	SX220Z2	Diffuser O-Ring	1
9	SPX2300B	Diffuser	1
10	SPX2710CM	Impeller	1
11	GMX600F	Housing O-Ring	1
12	SPX2700SAV	Shaft Seal Assembly, viton	1
13	SPX2300E	Seal Plate	1
14	SPX3200Z5PAK4	Motor Bolt (4 Pack)	1
15	SPX2300G	Motor Support with Base Mount Screws	1
16	SPX1600Z52	Motor Support Base Mount Screws	1
17	SPX2700UNKIT	Union Connector Kit (Includes 2 Nuts, Connectors, Gaskets)	1
18	SPX3400DR4	Motor Drive Display Cover (Cover only)	1
-	SPX3200LCD	Digital Control interface assembly	1
-	SPX3400DRKIT	Wall Mount Kit	1
OPTIONAL			
19	SPX2300GR	Optional Riser Base Aligns with Sta-Rite® Dyna-Pro®	1
POWER END			
	SPX2303Z1VSPE	Power end assembly, (includes parts #7-14, motor and drive)	1

MaxFlo VS 500 Omni





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Hayward® TriStar VS 950 Omni Limited Warranty

To Buyer, as original purchaser of this equipment, Hayward Pool Products, Inc. warrants this product to be free from defects in materials and workmanship for a period of FOUR (4) years 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 without charge, within 90 days of the receipt of 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, or to the nearest authorized Hayward service center. For further Hayward dealer or service center information, contact Hayward customer service department or visit us at www.hayward.com. No returns may be made directly to the factory without the express written authorization of Hayward Pool Products.

Proof of purchase is required for warranty service. In the event proof of purchase is not available, the manufacturing date of the product will be the sole determination of the purchase date.

Hayward shall not be responsible for cartage, removal, repair or installation labor or any other such costs incurred in obtaining warranty replacements or repair.

The Hayward Pool products warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply.

The express limited warranty above constitutes the entire warranty of Hayward Pool Products with respect to its' pool products and is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose. In no event shall Hayward Pool products be responsible for any consequential, special or incidental damages of any nature.

Some states do not allow a limitation on how long an implied warranty lasts, or the exclusion of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Hayward® TriStar VS 900 Omni, Super Pump VS 700 Omni, MaxFlo VS 500 Omni Limited Warranty

To Buyer, as original purchaser of this equipment, Hayward Pool Products, Inc. warrants this product to be free from defects in materials and workmanship for a period of THREE (3) years 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 without charge, within 90 days of the receipt of 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, or to the nearest authorized Hayward service center. For further Hayward dealer or service center information, contact Hayward customer service department or visit us at www.hayward.com. No returns may be made directly to the factory without the express written authorization of Hayward Pool Products.

Proof of purchase is required for warranty service. In the event proof of purchase is not available, the manufacturing date of the product will be the sole determination of the purchase date.

Hayward shall not be responsible for cartage, removal, repair or installation labor or any other such costs incurred in obtaining warranty replacements or repair.

The Hayward Pool products warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply.

The express limited warranty above constitutes the entire warranty of Hayward Pool Products with respect to its' pool products and is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose. In no event shall Hayward Pool products be responsible for any consequential, special or incidental damages of any nature.

Some states do not allow a limitation on how long an implied warranty lasts, or the exclusion of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.



Product Registration

(Retain For Your Records)

DATE OF INSTALLATION _____

Retain this Warranty Certificate (upper portion) in a safe and convenient location for you records.



DETACH HERE: Fill out bottom portion completely and mail within 10 days of purchase/installation or register online.

VS Omni Variable Speed Pump

Please Print Clearly:

First Name _____ **Last Name** _____

Street Address _____

City _____ **State** _____ **Zip** _____

Phone Number _____ **Purchase Date** _____

E-Mail Address _____

Serial Number (may not be applicable)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Model Number _____

Pool Capacity _____ (U.S. Gallons)

Please include me on all e-mail communications regarding Hayward® Equipment or promotions.

Mail to: Hayward Pool Products, 620 Division Street, Elizabeth, NJ 07207

Attn: Warranty Dept

or REGISTER YOUR WARRANTY ON-LINE AT WWW.HAYWARD.COM

Warranty Card Registration

Years Pool has been in service	
<input type="checkbox"/> < 1 year <input type="checkbox"/> 1-3 <input type="checkbox"/> 4-5 <input type="checkbox"/> 6-10 <input type="checkbox"/> 11-15 <input type="checkbox"/> >15	
Purchased from _____	
<input type="checkbox"/> Builder <input type="checkbox"/> Retailer <input type="checkbox"/> Pool Service <input type="checkbox"/> Internet/Catalog	
Company Name _____	
Address _____	
Type of Pool:	
<input type="checkbox"/> Concrete/Gunite	
<input type="checkbox"/> New Installation <input type="checkbox"/> Replacement	
Installation for:	
<input type="checkbox"/> In Ground <input type="checkbox"/> Spa	

For further information or consumer
technical support, visit our website at
www.hayward.com



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