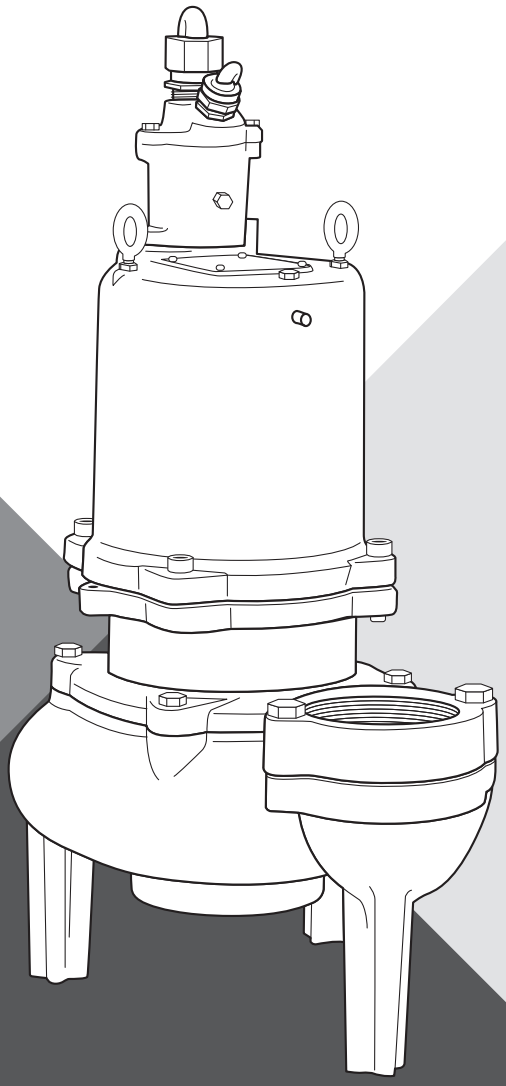
PENTAIR HYDROMATIC

SUBMERSIBLE SEWAGE PUMP
DUAL SEAL PUMPS

S3S(D), S4S(D), SB3S(D), SB4S(D)



FM APPROVED

OWNER'S MANUAL

pentair.com/hydromatic

HYD4529 (08-15-25)

TABLE OF CONTENTS:

SAFETY INFORMATION

SAFETY SYMBOLS

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

⚠ DANGER warns about hazards that will cause serious personal injury, death or major property damage if ignored.

⚠ **WARNING** warns about hazards that can cause serious personal injury, death or major property damage if ignored.

⚠ **CAUTION** warns about hazards that will or can cause minor personal injury or property damage if ignored.

The word ***NOTICE:*** indicates special instructions that are important but not related to hazards.

California Proposition 65 Warning

⚠ **WARNING** This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

GENERAL SAFETY

- ⚠ **CAUTION** Do not touch an operating motor. Modern motors can operate at high temperatures. To avoid burns when servicing pump, allow it to cool for 30 minutes after shutdown before handling.
- Follow all applicable local and state codes and regulations.
- Submersible pumps are not approved for and should not be used in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pump fluid is common. Pump is designed for municipal and commercial wastewater applications.
- Keep safety labels in good condition, replacing any missing or damaged labels.
- **DO NOT** run the pump dry. Dry running can overheat the pump, (causing burns to anyone handling it) and will void the warranty.
- The pump is permanently lubricated. No oiling or greasing is required in normal operation.
- Periodically inspect pump and system components.
- Wear safety glasses at all times when working on pumps.
- Keep work area clean, uncluttered and properly lighted. Store all unused tools and equipment.
- **DO NOT** use to pump flammable liquids.
- ⚠ **DANGER** **RISK OF FIRE OR EXPLOSION**. Can cause severe personal injury, property damage or death. Do not smoke or use open flames in or around this system.
- ⚠ **DANGER** **RISK OF ASPHYXIATION**. Installer(s) and/or service personnel must use proper Personal Protective Equipment and follow OSHA 29 CFR 1910.146 or OSHA 29 CFR 1926. Pump may be installed in a location classified as a confined space.
- ⚠ **DANGER** **BIOHAZARD RISK**. Once wastewater source has been connected to system, Biohazard Risk exists. Installer(s) and/or service personnel must use proper personal Protective Equipment and follow handling procedures per OSHA 29 CFR 1910.1030 when handling equipment after wastewater source has been connected to system.
- ***NOTICE*:** FM rated models are only to be used in 60hz applications.

ELECTRICAL SAFETY

⚠ **DANGER** **HAZARDOUS VOLTAGE. CAN SHOCK, BURN, OR KILL.** When installing, operating, or servicing this pump, follow the safety instructions listed below.

- ⚠ **DANGER** **ELECTROCUTION HAZARD:** Must be installed by a qualified professional. Disconnect all electrical power before attempting service.
- **DO NOT** modify the cord. When wiring to a system control, connect ground lead to the system ground.
- **DO NOT** splice the electrical power cord.
- **DO NOT** allow the power leads on the end of the electrical cords to be submerged.
- **DO NOT** handle or service the pump while it is connected to the power supply.

⚠ **WARNING** A water test must be taken before installation of any water treatment equipment. The water quality can significantly influence the life of your system. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to ensure satisfactory performance and prevent premature failure.

GENERAL INFORMATION

THE PUMP

Shipping:
When unpacking unit check for concealed damage. Claim for damage must be made upon receipt through the delivering carrier. Damage cannot be processed from the factory.

Pumps in Storage or Not Operating:
Pumps with carbon ceramic seals must have impellers manually rotated (6 revolutions) after sitting non-operational for 3 months or longer and prior to electrical start-up.

Pumps with tungsten carbide seals must have impellers manually rotated (6 revolutions) after sitting non-operational for 3 weeks or longer and prior to electrical start-up.

Seal Failure:
An electrode is installed in the seal chamber so if any water enters the chamber through the first seal, the electrode will be energized and a signal will be transmitted to the sensing unit at ground surface, causing an alarm function to energize.

In operation the seal failure unit indicates only that there is some water in the seal chamber. The pump will continue to operate without damage but the seal should be checked immediately after failure is indicated.

NOTICE: Failure to install such a device voids all warranties by Pentair Hydromatic*.

Seal Failure Probes:
All hazardous location submersible pumps have two factory installed moisture detectors (seal failure probes). They are in a normally open series circuit in the seal chamber. Under normal operating conditions, the circuit remains open. If the lower seal leaks and moisture enters this chamber, the moisture would settle to the bottom of the chamber and will complete the circuit between the moisture detectors.

This circuit must be connected to a sensing unit and signaling device. This is supplied in a Pentair Hydromatic control panel.

Pump:
The submersible pump is supplied for 1 and 3 phase, and for 200, 230, 460 or 575 volts. A power cable is supplied with the green wire for ground. Be sure green wire is connected to a good ground such as a water pipe or ground stake.

Heat Sensors:
All motors have heat sensor units embedded in the motor winding to detect excessive heat. The sensors automatically reset when motor cools to safe temperature.

The sensors are connected in series with the motor starter coil so that the starter is tripped if heat sensor opens. The motor starter is equipped with overload heaters so all normal overloads are protected by the starter.

NOTICE: Failure to install such a device voids all warranties by Pentair Hydromatic.

Once sensor resets, the starter is to be automatically or manually reset for continued operation of the pump. This circuitry is supplied in a Pentair Hydromatic control panel.

NOTICE: Failure to install such circuitry would negate FM approvals and all warranties by Pentair Hydromatic.

Sump Level Control:
The sump level is controlled by Pentair Hydromatic float switch controls. The float is held in position in the sump by a weight attached to the power cord above the float. The cord supports the float and is adjusted for height from the surface.

Typical duplex systems use three controls: one set at turn-off, one set at turn-on for one pump, and one set for turn-on for two pumps. Pumps alternate operation on each successive cycle.

Two pumps operate together only if sump level rises to the third or override control. The override control also brings on the second pump in case of failure of the first pump. Extra floats with appropriate controls can be supplied for alarm functions. Triplex systems use four controls: one set at turn-off, one set at turn-on for one pump, one set at turn-on for two pumps, and one set at turn-on for three pumps. Pumps alternate each successive cycle.

Three pumps operate together only if sump level rises to the fourth control (second override). This control also brings on the third pump in case of failure of either or both of the first two pumps.

Alarm Controls:
The alarm level is usually set above the override level so the alarm will signal only if the override level is exceeded. The alarm level may be set below the override level as it is possible for one pump to fail and the other pump to operate on the override level with the sump level never reaching the alarm level. This approach is particularly applicable in cases of low inflow capacity.

Electrical Control Panel:
It is recommended that the Pentair Hydromatic* control panel be used with all pumps, as proper starter heaters, and connections for heat sensor wires are furnished.

NOTICE: If Pentair Hydromatic electrical controls are not used and the motor fails because of improper components or if the heat sensors are not properly connected, the warranty is void.

Pentair Hydromatic electrical equipment is installed in a weatherproof NEMA 3R enclosure. The electrical equipment includes a main circuit breaker, magnetic starter with overload protection, H-O-A switch and run light for each pump, electric alternator and a transformer to provide appropriate control circuit and alarms.

Power Cords:
The power cord and heat sensor seal failure cord are potted into the connection box cap. The cords must not be spliced.

Overload Heaters:
If the Pentair Hydromatic electrical panel is not used, starters with 3-leg overload protection must be supplied. On 3 phase pumps the heaters must be sized in accordance with the nameplate amps on the motor housing. The amp draw on these submersible motors is slightly higher than a corresponding horsepower surface motor, so heaters must be sized by the nameplate rating.

Single phase pumps with capacitor start have a run and a start winding; each drawing a different current. To adequately protect these windings with the appropriate heaters, consult the factory.

NOTICE: Red lead is always start winding of pump using single phase.

PUMP INSTALLATION

Installing Sump Level Control Float Controls:
In either simplex, duplex or triplex systems the lower or turnoff control is to be set to maintain a minimum level in the sump. This level shall be no more than 3-1/4" from the top of the motor housing down to the surface of the sewage.

The second or turn-on control is set above the lower turnoff control. The exact distance between the two floats must be a compromise between

a frequent pumping cycle (10 starts per hour max.) to control septicity, solids and a slower cycle for energy economy. This distance should be determined by the engineer or consulting engineer, depending on the conditions of the application.

Installing Pump in Sump:

Before installing pump in sump, lay it on its side and turn impeller manually. Impeller may be slightly stuck due to factory test water, so it must be broken loose with small bar or screwdriver in edge of vanes. The impeller should turn freely.

Clean all trash and sticks from sump and connect pump to piping.

A check valve must be installed on each pump. A gate or plug valve in each pump discharge line is also recommended. This valve should be installed on the discharge side of the check valve, so if necessary to service the check valve, the line pressure can be cut off. Single pump systems are sometimes installed without a check valve, where it is desirable to self-drain the discharge line to prevent freezing. This can be done only with short discharge lines, otherwise water will return to the sump and cause short cycling of the pump.

NEMA 4 Junction Box: (Optional)

If electrical control panel is to be set remote from the pump sump, a NEMA 4 junction box should be used to make power and control connections. The Pentair Hydromatic NEMA 4 junction box is provided with compression connectors for sealing all wires. No sealing compound is needed to make connections waterproof.

The size wire to use from panel to sump depends on motor size and distance in feet.

Be sure each wire is checked out so that a wrong connection will not be made. An ohmmeter or Megger® can be used to check wire continuity.

Installing Float Switch Controls:

The controls are supported by a mounting bracket that is attached to sump wall or cover, or to the NEMA 4 junction box.

Cord snubbers are used to hold the cord in place. Control lever can be changed at any time by loosening the snubber and readjusting cord length.

In either simplex or duplex system the lower or turnoff control is set just above the top of volute so that the volute will always be submerged during the pumping cycle. The second, or turn-on control, is set about 24 inches above the lower turnoff control.

Distance between turn-on and turnoff controls may be increased, but may result in sewage becoming septic or a higher amount of solids than the pump can handle. A frequent pumping cycle is recommended for ideal operation.

If an alarm system is used, this control is usually set about 6 inches above the override control.

Making Electrical Connections:

All electrical wiring must be in accordance with local code.

NOTICE: If equipment is not properly wired and protected as recommended, the warranty is void.

⚠ CAUTION The 230 volt 3 phase pump has a dual marked nameplate. Voltage may be rewired by the manufacturer or a Class I Div 1 equipment qualified electrician. Once the voltage is changed, the factory cord tag indicating 230 volt 3 phase must be removed.

For record keeping purposes, it is recommended the pump be marked externally with the new voltage and qualified personnel that performed the change. Pumps shipped from the factory as 460 volt 3 phase cannot be rewired to any other voltage.

To Rewire the Pump from 230V to 460V 3 Phase:

Only a 230V pump from the factory is considered dual voltage, a cord label clearly states the factory wound voltage.

Remove bolts securing cord assembly then raise the cord cap assembly enough to slip a prying instrument on opposite sides between the cord cap casting and the junction box. Take care to not damage the O-ring or the machined surfaces of the castings. Doing so could void FM agency certifications. While prying evenly on both sides; separate the cord cap casting from the motor housing, the assembly is airtight and will have a vacuum effect when disassembling. Once separated, the cord cap can be inverted and rotated to the outside of the pump assembly, and a bolt can be used to secure the upside down cord cap to the motor housing for ease of rewiring.

Refer to "Wiring Diagrams" on Page 8 for wiring details. Once all electrical connections are finished and secure (a crimped electrical connector is best to prevent issues due to vibration if required), the cord cap should be re-attached reversing the steps above. Ensure the O-ring is in place and perform a hi-pot test for safety once everything is complete.

Heat Sensors and Seal Failure Connections:

Be sure that heat sensor wires are connected in series with the starter coil.

PUMP OPERATION

Starting System

1. Turn H-O-A switch to Off position, then turn on main circuit breakers.
2. Open all discharge valves and allow water to rise in sump pump.
3. Turn H-O-A switch to Hand position on one pump and notice operation. If pump is noisy and vibrates, rotation is wrong. To change rotation, interchange any two line leads to motor on 3F.

   Do not interchange main incoming lines. If operating duplex system, check second pump in the same manner.
4. Now set both H-O-A switches to Auto position and allow water to rise in sump until one pump starts. Allow pump to operate until level drops to turnoff point.
5. Allow sump level to rise to start other pump. Notice run lights on panel; pumps should alternate on each successive cycle of operation.
6. Turn both H-O-A switches to Off position and allow sump to fill to the override control level.
7. Turn both switches to Auto position and both pumps should start and operate together until level drops to turnoff point.
8. Repeat this operation cycle several times before leaving the job.
9. Check voltage when pumps are operating and check the amp draw of each pump. Check amps on each wire as sometimes a high leg will exist. One leg can be somewhat higher, 5% to 10%, without impacting operation. For excessive amp draw on one leg, the power company should be consulted.

PUMP MAINTENANCE

As the motors are oil filled, no lubrication or other maintenance is required.

If the pump is used on a Hydrorail system, it should be lifted once every six months and checked for corrosion and wear.

⚠WARNING Before handling these pumps and controls, always disconnect the power first. Do not smoke, use flames or devices that can produce electrical discharge or sparks in a septic (gaseous) or possible septic sump.

Field Service on Ordinary Location Motors:

Ordinary location submersible motors out of warranty can be serviced in the field by any reliable motor service shop. Any pump (in warranty) must be returned to the factory for service or repaired at an authorized Pentair Hydromatic* service center. Charges will not be allowed if (in warranty) pump is not taken to an authorized Pentair Hydromatic service center.

When field service is performed on a pump, these instructions should be carefully followed.

Replacing Cords:

The power cord and heat sensor – seal failure cord is potted into the connection box cap, forming the cord and cap assembly.

If cords require replacement due to damage or cords being too short, cord and cap assembly must be replaced as a complete assembly available from factory.

Replacing Lower Seal, Impeller or Volute:

The wet end components may be repaired or replaced by an authorized Pentair Hydromatic service facility without compromising the hazardous location rating to the pump.

NOTICE: Any time the seal is disturbed, it must be replaced.

Replacing Stator on Standard Pump:

1. If stator only is damaged, it may not be necessary to completely dismantle pump as stator and housing can be lifted from pump without disturbing seals or bearings.
2. Drain all oil from upper housing, remove from upper housing, remove drain plug from bottom of stator housing and remove plug from top of housing to allow air to enter.
3. After chamber is drained, remove hold-down bolts and lift off. Use care in lifting as the seal failure connecting wire must be disconnected before housing is completely removed.
4. Set assembly on bench and remove connection box. When box is lifted off, connection wires to motor will be exposed. These wires may appear burned, but each wire is tagged with a metal marker giving a wire number. Cut the wires. If the leads to the connection box are burned, a complete new connection box with new wire must be used. The wires are potted in with sealing compound, therefore, a new unit must be obtained from the factory.
5. The stator is held in the housing with a bolted-in clamp ring.
6. After ring is removed, turn housing upright and bump on hardwood blocks. This should jar the stator loose and allow it to drop out.
7. Thoroughly clean housing before replacing new stator. Replace stator and make all wire connections to connection box before replacing housing on pump. This is important as leads must be tucked behind the windings by using hands up through the rotor core.

   NOTICE: Use only compression type insulated connectors on the wires. Do not tape leads as oil will deteriorate the tape and cause damage to stator and bearings.
8. Check top bearing. If clean and does not turn rough, bearings can be reused and it is not necessary to completely dismantle pump to change bearings. If bearings are damaged with dirt or heat, they must be replaced.
9. Replace stator housing onto seal chamber and bolt in place. Be sure seal failure wire is connected before housing is assembled.

   Be sure O-ring seal has been replaced. If O-ring is nicked or cut, replace with new rings. This applies to all O-rings used in assembly.
10. After all leads are reconnected in the connection box, make a high voltage ground test on each wire. The only wire that should show ground is the green power lead and the ground lead in the auxiliary control cable.
11. For safety, complete pump should be air checked under water for leaks. Fill with oil to about 1 inch below plug hole. Use only high grade transformer oil or regular Pentair Hydromatic* submersible oil in this chamber. Replace plug; use Permatex® on threads. Install air valve in top plug opening of motor housing and charge housing with about 10 psi of air. Be sure air is dry. Do not use air line where water may be trapped in the line. Submerge complete unit under water and check for leaks.
12. Refill motor chamber with oil. Use high grade transformer oil or Pentair Hydromatic submersible oil. Fill chamber until oil covers top of windings. Leave air space at the top for expansion. Use Permatex® on plug threads.

Replacing Seals and Bearings on Standard Pump:

1. Drain all oil from motor chamber and seal chamber as described.
2. Remove motor housing.
3. Remove bolts that hold seal chamber to pump housing. Use back-off screws to break loose. With hardwood block, tap end of impeller to loosen from shaft. When free, remove impeller from shaft.
4. Lift rotating assembly (rotor, shaft and impeller) from pump case.
5. Impeller removal – Hold motor and remove bolt and washer from impeller end of shaft. Impeller is threaded to the shaft, so tap face of impeller to free threads. Holding rotor, turn impeller counterclockwise to free thread.
6. Remove lower seal spring and pry out seal.
7. To remove seal housing, take out socket head bolts and using bolts in back of holes, pry plates loose. This will force out lower seal if not already removed.
8. Remove snap ring that holds upper seal. Pull seal if it is free. If not free, it can be forced off when shaft is removed.
9. Remove bolts that hold bearing housing in place. Set assembly in upright position.
10. Use bearing puller to remove bearings. Replace with new bearings. Press only on inner face of bearing when replacing. Pressing on outer face can damage the bearing.
11. Thoroughly clean all castings before replacing seals. Any dirt between the seal faces may cause failure.
12. Be sure seal washers are replaced under heads of the 4 bolts that hold bearing cap in place.
13. Be sure key is in place in notch of shaft sleeve to prevent sleeve from turning.
14. Use Loctite® on socket head, locking screw in end of shaft.
15. Before refilling chamber with oil, air test.
16. Refill both chambers with oil.
17. Always check all leads with high voltage or with Megger® for grounds before operating the pump.

TROUBLESHOOTING

Below is a list of common problems and the probable causes:

Pump will not start.

1. No power to the motor. Check for blown fuse or open circuit breaker.
2. Selector switch may be in the Off position.
3. Control circuit transformer fuse may be blown.
4. Overload heater on starter may be tripped. Push to reset.

Pump will not start and overload heaters trip.

1. Turn off power and check motor leads with Megger® or ohmmeter for possible ground.
2. Check resistance of motor windings. All 3 phases should show the same reading.
3. If no grounds exist and the motor windings check OK, remove pump from sump and check for clogged or blocked impeller.

Pump operates with selector switch in Hand position but will not operate in Auto position.

1. This indicates trouble in the float level control or the alternator relay.
2. To check for defective float control, put selector switch in Auto position and turn off main power. Put a jump wire on terminal strip. Turn on power and if pump starts, trouble is in float control. Replace control.

Pump runs but will not shut off.

1. Pump may be air locked. Turn pump off and let set for several minutes, then restart.
2. Lower float control may be hung-up in the closed position. Check in sump to be sure control is free.
3. Selector switch may be in the Hand position.

Pump does not deliver proper capacity.

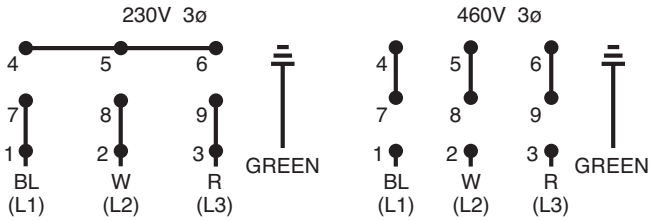
1. Discharge gate valve may be partially closed or partially clogged.
2. Check valve may be partially clogged. Raise level up and down to clear.
3. Pump may be running in wrong direction. Low speed pumps can operate in reverse direction without much noise or vibration.
4. Discharge head may be too high. Check total head with gauge when pump is operating. Total head is discharge gauge pressure converted to feet plus vertical height from water level in sump to center line of pressure gauge in discharge line. Gauge should be installed on pump side of all valves. Multiply gauge pressure in pounds by 2.31 to get head in feet.
5. If pump has been in service for some time and capacity falls off, remove pump and check for wear or clogged impeller.

Motor stops and then restarts after short period but overload heaters in starter do not trip.

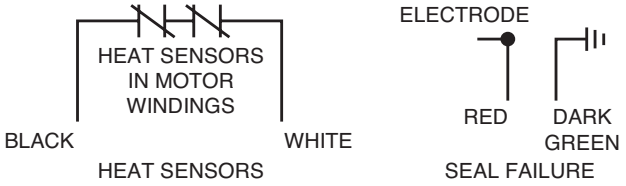
1. This indicates heat sensors in the motor are tripping due to excessive heat. Impeller may be partially clogged giving a sustained overload but not high enough to trip overload heater switch.
2. Motor may be operating out of liquid due to a failed level control.
3. Pump may be operating on a short cycle due to sump being too small or from water returning to sump due to a leaking check valve.

WIRING DIAGRAMS

DUAL VOLTAGE 3 PHASE MOTOR WIRING



HEAT SENSORS AND SEAL FAILURE CONNECTIONS FOR ANY VOLTAGE MOTOR



WARNING

WARRANTY IS VOID IF HEAT SENSORS ARE NOT CONNECTED AS SHOWN (IN SERIES WITH CONTACTOR OIL)

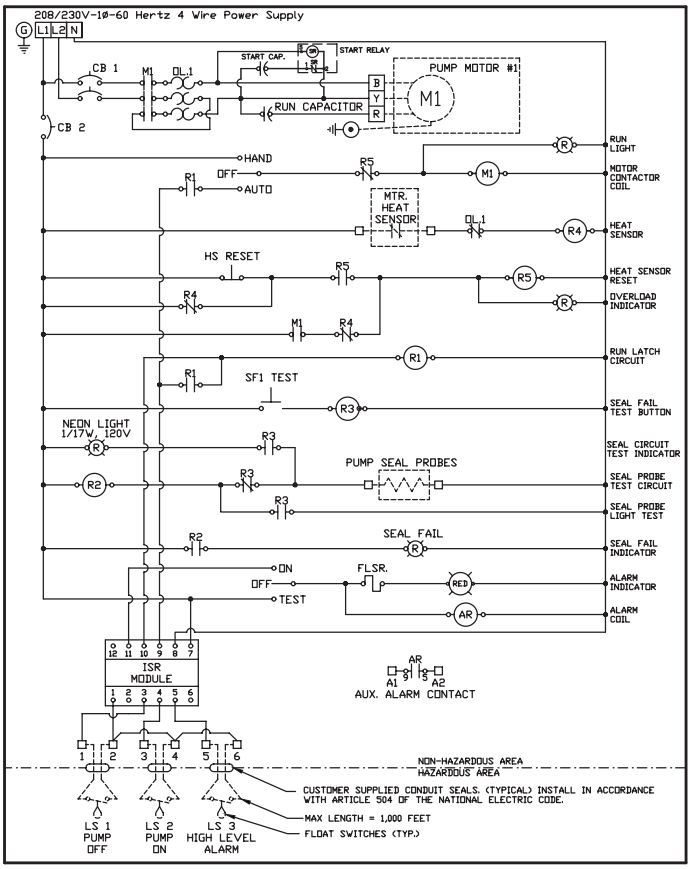
COLOR	PURPOSE
DARK GREEN	SEAL FAILURE
RED	SEAL FAILURE
BLACK	HEAT SENSOR
WHITE	HEAT SENSOR

TWO WIRE CONTROL OFFERING AUTOMATIC RESET

THREE WIRE CONTROL OFFERING AUTOMATIC RESET

IN CERTAIN APPLICATIONS THE NEC MAY REQUIRE THREE OVERLOAD RELAYS

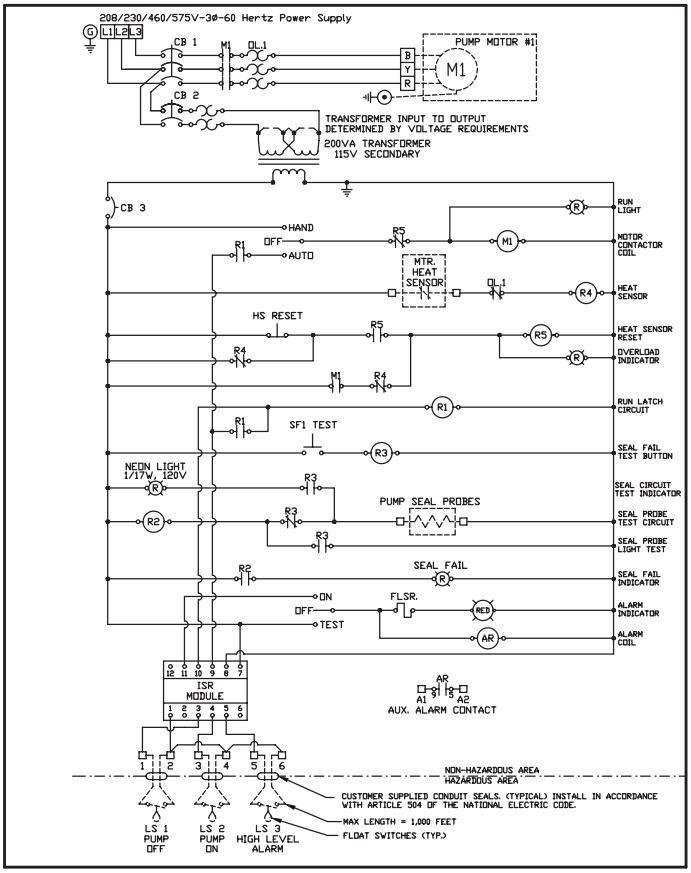
WIRING DIAGRAMS



1 PHASE

BLACK, WHITE, AND RED MOTOR LEADS CAN ONLY BE CONNECTED TO PANEL TERMINAL BLOCKS AS SHOWN ON SCHEMATIC. INCORRECT CONNECTION CAN CAUSE DAMAGE TO PUMP AND/OR PANEL COMPONENTS. THREE PHASE OVERLOAD RELAY MUST BE CLASS 10 TRIP & AMBIENT COMPENSATED & CONNECTED IN THE "DAISY CHAIN" CIRCUIT AS SHOWN.

Notes:
1) Level Switches Must Be Rated a Minimum of 2 Amps at 120 Volts
2) Torque all white field wiring terminals to 20 In.Lbs.
3) Field Wiring Must Be 60°C Copper Wire Minimum.
4) -------- = Items Not Supplied In Control Panel.
5) Pump power, heat sensor, and seal probe cables must pass through approved NEC 501.15 conduit seals.

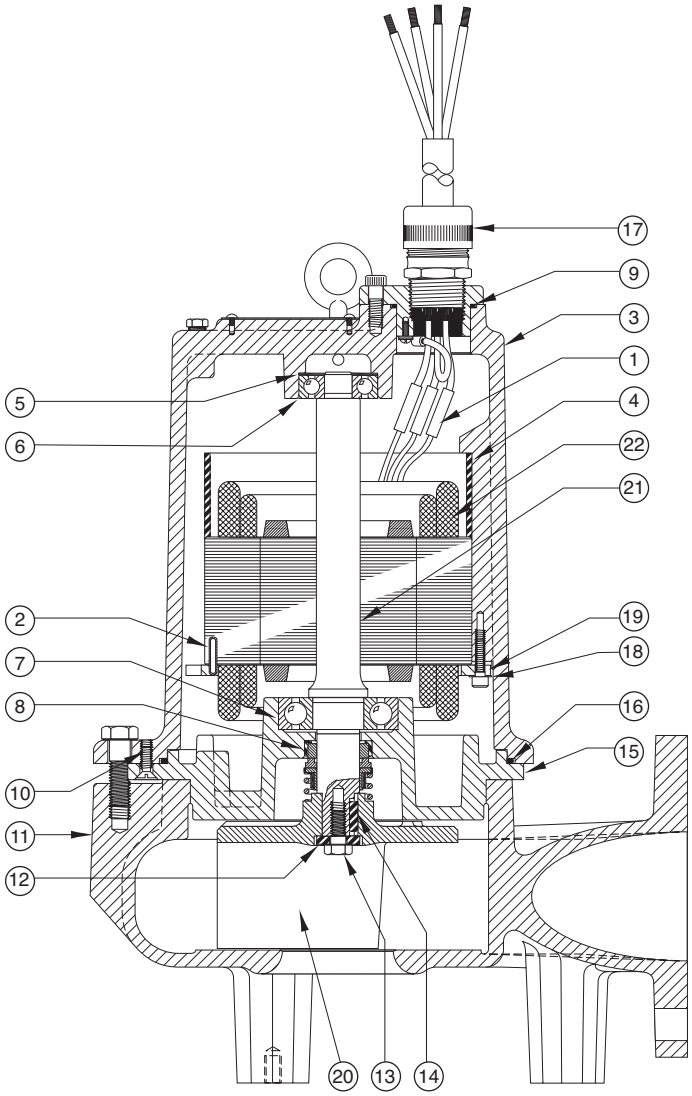


3 PHASE

Notes:
1) Level Switches Must Be Rated a Minimum of 2 Amps at 120 Volts
2) Torque all white field wiring terminals to 20 In.Lbs.
3) Field Wiring Must Be 60°C Copper Wire Minimum.
4) -------- = Items Not Supplied In Control Panel.
5) Pump power, heat sensor, and seal probe cables must pass through approved NEC 501.15 conduit seals.

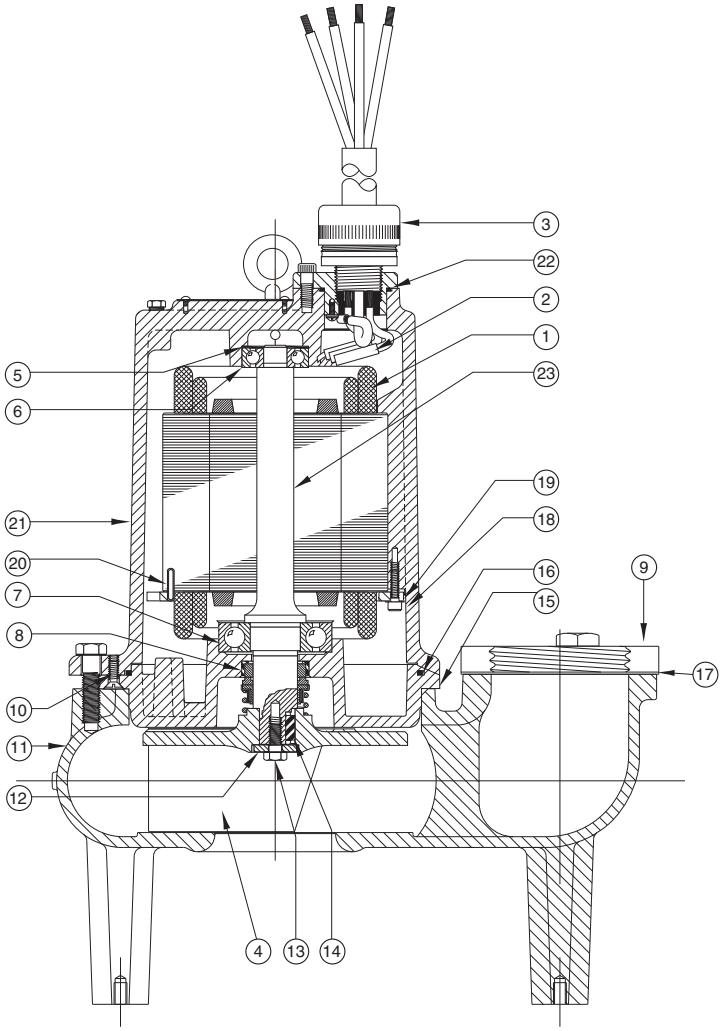
PENTAIR HYDROMATIC S3S / SB3S PARTS LIST

ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1	12672A001	Wire Connector All 1ϕ & 208/575V 3ϕ	3
	002820011	Wire Connector 230/460V 3ϕ	6
2	054540011	Roll Pin	1
3	133910002	Motor Housing	1
4	007360011	Spacer Ring 2 HP All 1Φ Models	1
	007360001	Spacer Ring 2 HP All 3Φ Models	1
5	000640031	Load Spring	1
6	000650211	Upper Bearing	1
7	000650271	Lower Bearing	1
8	003000001	Shaft Seal	1
	006960001	Shaft Seal (Carbide) Opt	1
9	008340151	O-Ring	1
10	011300031	Machine Screw (Flat Head)	4
11	099470002	Volute Case for S3S (shown)	1
	099471002	Volute Case for SB3S	1
12	100120001	Impeller Washer	1
13	19101A003	Impeller Capscrew	1
14	101020011	Key	1
15	099520022	Seal Plate	1
16	001500211	O-Ring	1
17	152710335	35' Cord Assembly 14-4	1
	152710305	35' Cord Assembly 12-4	1
	152710315	35' Cord Assembly 10-4	1
18	009950081	Lockwasher	4
19	002990021	Stator Retaining Ring	1
20	099270082	Impeller – 5.25"	1
	099270092	Impeller – 5.69"	1
	099270162	Impeller – 6.06"	1
21		Rotor/Shaft	1
	28294D601	2 HP All 1ϕ Models	1
	28295D601	2 HP All 3ϕ Models	1
	28293D601	3 HP All 1ϕ Models	1
	28293D601	3 HP All 3ϕ Models	1
22		Stator	
	28287C401	2 HP 230V 1ϕ	1
	28287C402	2 HP 208/230/460V 3ϕ	1
	28287C403	3 HP 230V 1ϕ	1
	28287C404	3 HP 208/230/460V 3ϕ	1
	28287C404	3 HP 208V 3ϕ	1
	28287C405	3 HP 575V 3ϕ	1
-	003560002	Discharge Flange	1



PENTAIR HYDROMATIC S4S / S4BS PARTS LIST

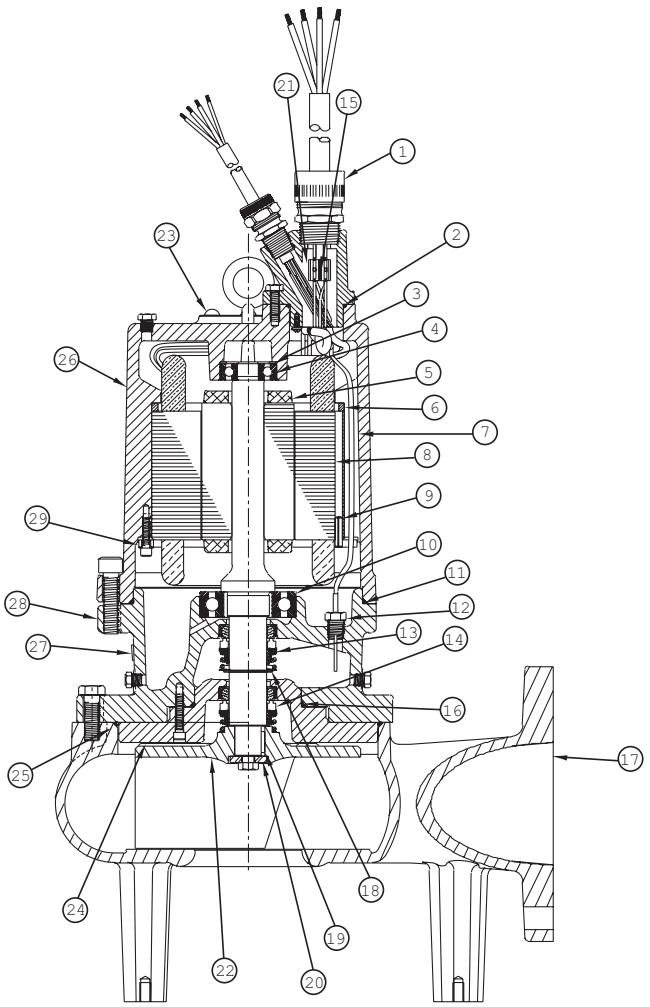
ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1		Stator	
	28287C403	3 HP 230V 1ϕ	1
	28287C404	3 HP 208/230/460V 3ϕ	1
	28287C405	3 HP 575V 3ϕ	1
	28287C406	5 HP 230V 1ϕ	1
	28287C407	5 HP 208/230/460V 3ϕ,	1
	28287C408	5 HP 575V 3ϕ	1
	28287C409	7.5 HP 208/230/460V 3ϕ	1
	28287C410	7.5 HP 575V 3ϕ	1
2	025770001	Wire Connector	As Req.
	12672A001	Wire Connector (14 & 16 wire size)	As Req.
	010060011	Wire Connector (10 & 12 wire size)	As Req.
3		35' Cord Assembly	
	152710335	14-4	1
	152710305	12-4	1
	152710315	10-4	1
	152710325	8-4 SOOW	1
	152710345	8-4 W	1
4	099780072	Impeller – 6.06"	1
	099780082	Impeller – 6.75"	1
	099780092	Impeller – 7.38"	1
5	000640031	Load Spring	1
6	000650211	Upper Bearing	1
7	000650181	Lower Bearing	1
8	049160001	Shaft Seal	1
	049160011	Shaft Seal (Carbide) Opt.	1
9	003560042	Discharge Flange	1
10	011300031	Machine Screw (Flat Head)	4
11	099950002	Volute Case for S4S	1
	099951002	Volute Case for SB4S (shown)	1
12	101080001	Impeller Washer	1
13	19101A003	Impeller Capscrew	1
14	089080021	Key	1
15	099960022	Seal Plate	1
16	001500211	O-Ring	1
17	010540001	Gasket	1
18	009950081	Lockwasher	4
19	002990021	Stator Retaining Ring	1
20	054540011	Roll Pin	1
21	133910002	Motor Housing	1
22	008340151	O-Ring	1
23	28294D602	Rotor w/Shaft (All 1ϕ/3ϕ)	1



PENTAIR HYDROMATIC S3SD PARTS LIST

For use with product built with Regal Beloit / Marathon motor.

ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1	152720335	35' Cord Assembly 14-4	1
	152720305	35' Cord Assembly 12-4	1
	152720315	35' Cord Assembly 10-4	1
2	008340151	O-Ring	1
3	000640031	Spring – Brg.	1
4	000650211	Brg.	1
5		Rotor w/ Shaft	
	28295D606	2 HP 208/230/460V 3ϕ - 1750 RPM	1
	28293D606	3 HP All 1750 RPM	1
	28294D606	2 HP 230V 1ϕ - 1750 RPM	1
6	007360031	Spacer 2 HP 3ϕ - 1750 RPM	1
	007360011	Spacer 1 HP 1ϕ - 1150 RPM	1
	007360031	Spacer 1 HP 3ϕ - 1150 RPM	1
7	060000141	Seal Fail Wire	1
8		Stator	
	28287C401	2 HP 230V 1ϕ - 1750 RPM	1
	28287C402	2 HP 208/230/460/575V 3ϕ - 1750 RPM	1
	28287C403	3 HP 230V 1ϕ - 1750 RPM	1
	28287C404	3 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C405	3 HP 575V 3ϕ - 1750 RPM	1
9	054540011	Pin - Roll	1
10	000650181	Brg.	1
11	001500571	O-Ring	1
12	084720015	Seal Fail	1
13	049160001	Mechanical Seal, Upper (CE-B)*	1
14	049160001	Mechanical Seal, Lower (CE-B)*	1
	049160011	Mechanical Seal, Lower (TC-B)*	1
	049160041	Mechanical Seal, Lower (TC-V)*	1
15	025770001	Wire Connector all	1
16	001500291	O-Ring	1
17	099470012	Volute	1
18	009750121	Snap Ring	1
19	089080021	Key Square	1
20	101080001	Washer – Impeller	1
21	12672A001	Wire Connector	
		All HP 230V 1ϕ - 1750 RPM	3
		All HP 208/575V 3ϕ - 1750 RPM	3
		All HP 230/460V 3ϕ - 1750 RPM	4,6
		All 1ϕ - 1150 RPM	3
		2 HP 208/575V 3ϕ - 1150 RPM	3
		2 HP 230/460V 3ϕ - 1150 RPM	4,6
22	099271232	Impeller – 5.25"	1
	099271242	Impeller – 5.69"	1
	099271252	Impeller – 6.13"	1
23	045800011	Screw – Drive	2
24	079900022	Plate – Seal	1
25	001500191	O-Ring	1
26	002940032	Housing – Motor	1
27	082060001	Inst Plate	1
28	071450002	Housing – Bearing	1
29	002990021	Ring-Retainer Stator	1



NOTES:

Fill oil to above motor windings.

*CE-B: Carbon Ceramic / Buna-N

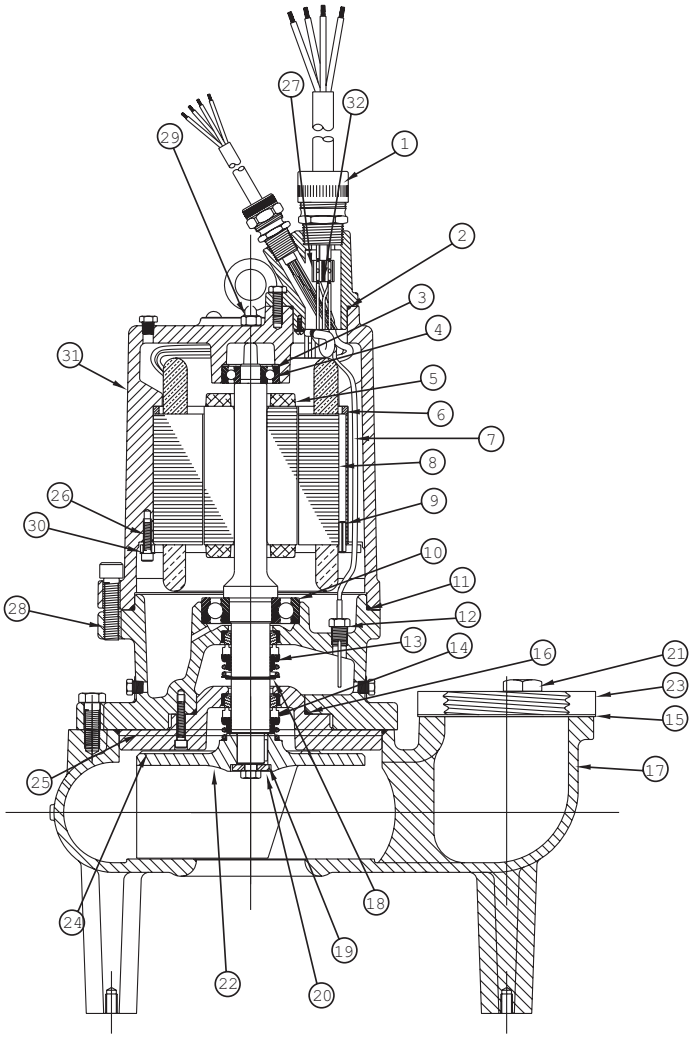
*TC-B: Tungsten Carbide / Buna-N

*TC-V: Tungsten Carbide / Viton

PENTAIR HYDROMATIC SB3SD PARTS LIST

For use with product built with Regal Beloit / Marathon motor.

ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1	152720335	35' Cord Assembly 14-4	1
	152720305	35' Cord Assembly 12-4	1
	152720315	35' Cord Assembly 10-4	1
2	008340151	O-Ring	1
3	000640031	Spring – Brg.	1
4	000650211	Brg.	1
5		Rotor w/ Shaft	
	28293D606	3 HP 230V 1ϕ & 230/460/575V 3ϕ	1
	28294D606	2 HP 230V 1ϕ	1
	28295D606	2 HP All 3ϕ	1
6	007360031	Spacer 2 HP 3ϕ - 1750 RPM	1
7	060000141	Seal Fail Wire	1
8		Stator	
	28287C401	2 HP 230V 1ϕ - 1750 RPM	1
	28287C402	2 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C403	3 HP 230V 1ϕ - 1750 RPM	1
	28287C404	3 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C405	3 HP 575V 3ϕ - 1750 RPM	1
9	054540011	Pin – Roll	1
10	000650181	Brg.	1
11	001500571	O-Ring	1
12	084720015	Seal Fail	1
13	049160001	Mechanical Seal, Upper (CE-B)*	1
14	049160001	Mechanical Seal, Lower (CE-B)*	1
	049160011	Mechanical Seal, Lower (TC-B)*	1
	049160041	Mechanical Seal, Lower (TC-V)*	1
15	010540001	Gasket	1
16	001500291	O-Ring	1
17	099471012	Volute	1
18	009750121	Snap Ring	1
19	089080021	Key Square	1
20	101080001	Washer – Impeller	1
21	19105A044	Screw – Hex	2
22	099271232	Impeller – 5.25"	1
	099271242	Impeller – 5.69"	1
	099271252	Impeller – 6.13"	1
23	003560002	Discharge Flange	1
24	079900022	Plate – Seal	1
25	001500191	O-Ring	1
26	05454A023	Lock Washer	4



ITEM	ENG. NO.	PART DESCRIPTION	QTY.
27	12672A001	Wire Connector	
		All HP 230V 1ϕ - 1750 RPM	3
		All HP 208/575V 3ϕ - 1750 RPM	3
		All HP – 230/460V 3ϕ - 1750 RPM	4,6
		All 1ϕ - 1150 RPM	3
		2 HP 208/575V 3ϕ - 1150 RPM	3
		2 HP 230/460V 3ϕ - 1150 RPM	4,6
28	071450002	Housing – Bearing	1
29	010320021	Hex Nut	2
30	002990021	Ring-Retainer Stator	1
31	002940032	Housing – Motor	1
32	025770001	Wire Connector - All	1

NOTES:

Fill oil to above motor windings.

*CE-B: Carbon Ceramic / Buna-N

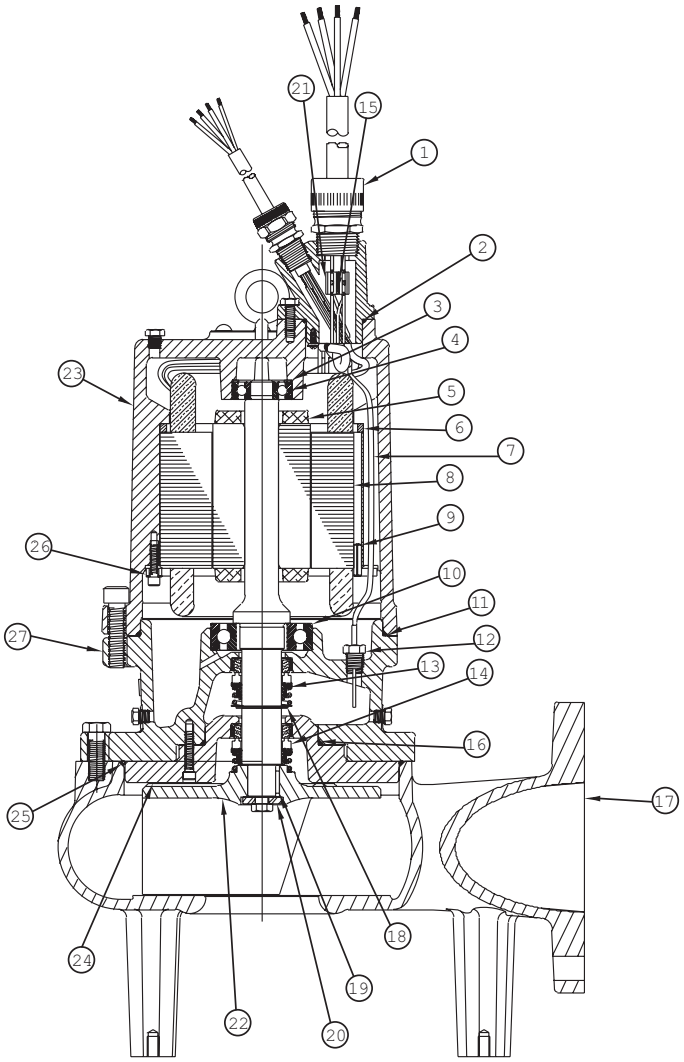
*TC-B: Tungsten Carbide / Buna-N

*TC-V: Tungsten Carbide / Viton

PENTAIR HYDROMATIC S4SD PARTS LIST

For use with product built with Regal Beloit / Marathon motor.

ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1		35' Cord Assembly	
	152720335	14-4	1
	152720305	12-4	1
	152720315	10-4	1
	152720325	8-4 SOOW	1
	152720345	8-4 W	1
2	008340151	O-Ring	1
3	000640031	Spring – Brg.	1
4	000650211	Brg.	1
5		Rotor w/ Shaft	
	28293D606	3, 5, & 7.5 HP – All 1750 RPM	1
	28293D606	2 HP 208/230V 1ϕ - 1150 RPM	1
	28294D606	2 HP All 3ϕ - 1150 RPM	1
6	007360001	Spacer 2 HP All 3ϕ - 1750 RPM	1
7	060000141	Seal Fail Wire	1
8		Stator	
	28288C601	2 HP 230V 1ϕ - 1150 RPM	1
	28288C603	2 HP 208/230/460 3ϕ - 1150 RPM	1
	28287C403	3 HP 230V 1ϕ - 1750 RPM	1
	28287C404	3 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C405	3 HP 575V 3ϕ - 1750 RPM	1
	28287C406	5 HP 230V 1ϕ - 1750 RPM	1
	28287C407	5 HP 208/230/460 3ϕ - 1750 RPM	1
	28287C408	5 HP 575V 3ϕ - 1750 RPM	1
	28287C409	7.5 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C410	7.5 HP 575V 3ϕ	1
9	054540011	Pin – Roll	1
10	000650181	Brg.	1
11	001500571	O-Ring	1
12	084720015	Seal Fail	1
13	049160001	Mechanical Seal, Upper (CE-B)*	1
14	049160001	Mechanical Seal, Lower (CE-B)*	1
	049160011	Mechanical Seal, Lower (TC-B)*	1
	049160041	Mechanical Seal, Lower (TC-V)*	1
15	025770001	Wire Connector all	1
16	001500291	O-Ring	1
17	099950012	Volute	1
18	009750121	Snap Ring	1
19	089080021	Key Square	1
20	101080001	Washer – Impeller	1
21	12672A001	Wire Connector	
		All 1ϕ, 1150 RPM	3
		2 HP 208/575V 3ϕ 1150 RPM	3
		2 HP 230/460 3ϕ - 1150 RPM	4,6
		2 & 3 HP 230V 1ϕ - 1750 RPM	3
		2 & 3 HP 208/575V 3ϕ - 1750 RPM	3
		2 & 3 HP 230/460V 3ϕ - 1750 RPM	4,6
		5 HP 230/460V 3ϕ - 1750 RPM	1,3
		7.5 HP 230/460/575V 3ϕ - 1750 RPM	3



ITEM	ENG. NO.	PART DESCRIPTION	QTY.
22	099781312	Impeller – 6.75"	1
	099781302	Impeller – 6.06"	1
	099781292	Impeller – 7.56"	1
24	002940032	Housing – Motor	1
24	079900032	Plate – Seal	1
25	001500231	O-Ring	1
26	002990021	Ring – Retainer Stator	1
27	071450002	Housing – Bearing	1

NOTES:

Fill oil to above motor windings.

*CE-B: Carbon Ceramic / Buna-N

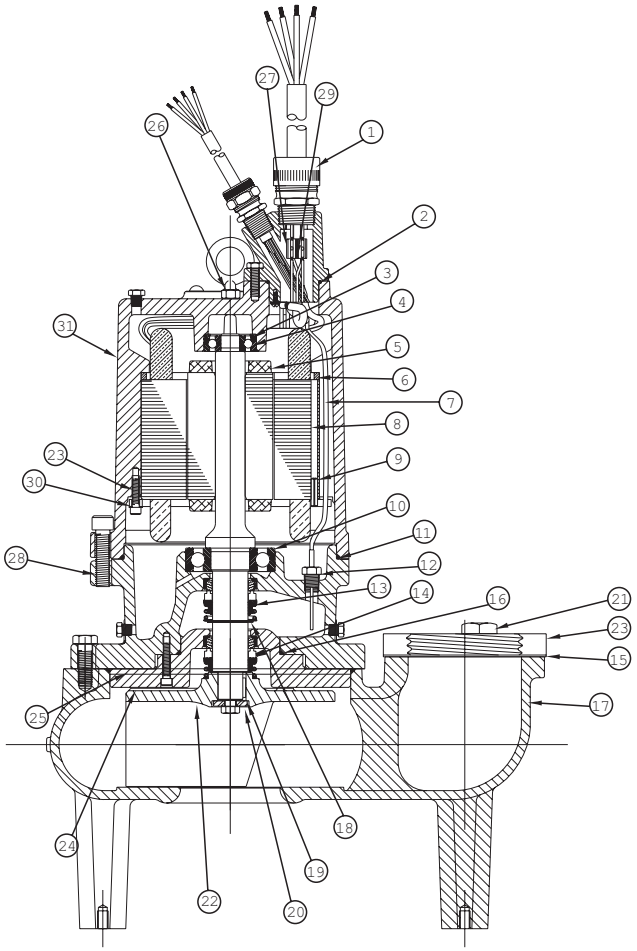
*TC-B: Tungsten Carbide / Buna-N

*TC-V: Tungsten Carbide / Viton

PENTAIR HYDROMATIC SB4SD PARTS LIST

For use with product built with Regal Beloit / Marathon motor.

ITEM	ENG. NO.	PART DESCRIPTION	QTY.
1		35' Cord Assembly	
	152720335	14-4	1
	152720305	12-4	1
	152720315	10-4	1
	152720325	8-4 SOOW	1
	152720345	8-4 W	1
2	008340151	O-Ring	1
3	000640031	Spring – Brg.	1
4	000650211	Brg.	1
5		Rotor/Shaft	
	28293D606	3, 5, & 7.5 HP – All 1750 RPM	1
	28293D606	2 HP 208/230V 1ϕ - 1150 RPM	1
	28294D606	2 HP All 3ϕ - 1150 RPM	1
6	007360001	Spacer 2 HP – 1750 RPM – 3ϕ	1
7	060000141	Seal Fail Wire	1
8		Stator	
	28288C601	2 HP 230V 1ϕ - 1150 RPM	1
	28288C603	2 HP 208/230/460 3ϕ - 1150 RPM	1
	28287C403	3 HP 230V 1ϕ - 1750 RPM	1
	28287C404	3 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C405	3 HP 575V 3ϕ - 1750 RPM	1
	28287C406	5 HP 230V 1ϕ - 1750 RPM	1
	28287C407	5 HP 208/230/460 3ϕ - 1750 RPM	1
	28287C408	5 HP 575V 3ϕ - 1750 RPM	1
	28287C409	7.5 HP 208/230/460V 3ϕ - 1750 RPM	1
	28287C410	7.5 HP 575V 3ϕ	1
9	054540011	Pin – Roll	1
10	000650181	Brg.	1
11	001500571	O-Ring	1
12	084720015	Seal Fail	1
13	049160001	Mechanical Seal, Upper (CE-B)*	1
14	049160001	Mechanical Seal, Lower (CE-B)*	1
	049160011	Mechanical Seal, Lower (TC-B)*	1
	049160041	Mechanical Seal, Lower (TC-V)*	1
15	010540001	Gasket	1
16	001500291	O-Ring	1
17	099951012	Volute	1
18	009750121	Snap Ring	1
19	089080021	Key Square	1
20	101080001	Washer – Impeller	1
21	003560042	Discharge Flange	1
22	099781312	Impeller – 6.75"	1
	099781302	Impeller – 6.06"	1
	099781292	Impeller – 7.56"	1
23	05454A023	Lock Washer	4
24	079900032	Plate – Seal	1
25	001500231	O-Ring	1
26	010320021	Hex Nut	2



ITEM	ENG. NO.	PART DESCRIPTION	QTY.
27	12672A001	Wire Connector	
		All 1ϕ - 1150 RPM	3
		2 HP 208/575V 3ϕ - 1150 RPM	3
		2 HP 230/460V 3ϕ - 1150 RPM	4,6
		2 & 3 HP 230V 1ϕ - 1750 RPM	3
		2 & 3 HP 208/575V 3ϕ - 1750 RPM	3
		2 & 3 HP 230/460V 3ϕ - 1750 RPM	4,6
		5 HP 230/460V 3ϕ - 1750 RPM	1,3
		7.5 HP 230/460/575V 3ϕ - 1750 RPM	3
28	071450002	Housing – Bearing	1
29	30025770001	Wire Connector all	1
30	002990021	Ring – Retainer Stator	1
31	002940032	Housing – Motor	1

NOTES:

Fill oil to above motor windings.

*CE-B: Carbon Ceramic / Buna-N

*TC-B: Tungsten Carbide / Buna-N

*TC-V: Tungsten Carbide / Viton

STANDARD LIMITED WARRANTY

Seller warrants equipment (and its component parts) of its own manufacture against defects in materials and workmanship under normal use and service for one (1) year from the date of installation or start-up, or for eighteen (18) months after the date of shipment, whichever occurs first. Seller does not warrant accessories or components that are not manufactured by Seller; however, to the extent possible, Seller agrees to assign to Buyer its rights under the original manufacturer's warranty, without recourse to Seller. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the serial number, the type of equipment, and the date of purchase) within thirty (30) days of the discovery of such defect during the warranty period. No claim made more than 30 days after the expiration of the warranty period shall be valid. Guarantees of performance and warranties are based on the use of original equipment manufactured (OEM) replacement parts. Seller assumes no responsibility or liability if alterations, non-authorized design modifications and/or non-OEM replacement parts are incorporated If requested by Seller, any equipment (or its component parts) must be promptly returned to Seller prior to any attempted repair, or sent to an authorized service station designated by Seller, and Buyer shall prepay all shipping expenses. Seller shall not be liable for any loss or damage to goods in transit, nor will any warranty claim be valid unless the returned goods are received intact and undamaged as a result of shipment. Repaired or replaced material returned to customer will be shipped F.O.B., Seller's factory. Seller will not give Buyer credit for parts or equipment returned to Seller, and will not accept delivery of any such parts or equipment, unless Buyer has obtained Seller's approval in writing. The warranty extends to repaired or replaced parts of Seller's manufacture for ninety (90) days or for the remainder of the original warranty period applicable to the equipment or parts being repaired or replaced, whichever is greater. This warranty applies to the repaired or replaced part and is not extended to the product or any other component of the product being repaired. Repair parts of its own manufacture sold after the original warranty period are warranted for a period of one (1) year from shipment against defects in materials and workmanship under normal use and service. This warranty applies to the replacement part only and is not extended to the product or any other component of the product being repaired. Seller may substitute new equipment or improve part(s) of any equipment judged defective without further liability. All repairs or services performed by Seller, which are not covered by this warranty, will be charged in accordance with Seller's standard prices then in effect.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLER AND SELLER HEREBY EXPRESSLY DISCLAIMS AND BUYER WAIVES ALL OTHER WARRANTIES EXPRESSED, IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole obligation under this warranty shall be, at its option, to repair or replace any equipment (or its component parts) which has a defect covered by this warranty, or to refund the purchase price of such equipment or part. Under the terms of this warranty, Seller shall not be liable for (a) consequential, collateral, special or liquidated losses or damages; (b) equipment conditions caused by normal wear and tear, abnormal conditions of use, accident, neglect, or misuse of said equipment; (c) the expense of, and loss or damage caused by, repairs or alterations made by anyone other than the Seller; (d) damage caused by abrasive materials, chemicals, scale deposits, corrosion, lightning, improper voltage, mishandling, or other similar conditions; (e) any loss, damage, or expense relating to or resulting from installation, removal or reinstallation of equipment; (f) any labor costs or charges incurred in repairing or replacing defective equipment or parts, including the cost of reinstalling parts that are repaired or replaced by Seller; (g) any expense of shipment of equipment or repaired or replacement parts; or (h) any other loss, damage or expense of any nature.

The above warranty shall not apply to any equipment which may be separately covered by any alternate or special warranties.

PERFORMANCE: In the absence of Certified Pump Performance Tests, equipment performance is not warranted or guaranteed. Performance curves and other information submitted to Buyer are approximate and no warranty or guarantee shall be deemed to arise as a result of such submittal. All testing shall be done in accordance with Seller's standard policy under Hydraulic Institute procedures.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability under the Order or otherwise for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, regardless of the cause of such damages or losses. In any event, Seller's aggregate total liability under the Order or otherwise shall not exceed the contract price.

ACTS OF GOD: Seller shall in no event be liable for delays in delivery of the equipment or other failures to perform caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control.

COMPLIANCE WITH LAW: Seller agrees to comply with all United States laws and regulations applicable to the manufacturing of the subject equipment. Such compliance shall include: The Fair Labor Standards Acts of 1938, as amended; Equal Employment Opportunity clauses of Executive Order 11246, as amended; Occupational Safety and Health Act of 1970 and the standards promulgated thereunder, if applicable. Since compliance with the various Federal, State, and Local laws and regulations concerning occupational health and safety, pollution or local codes are affected by the use, installation and operation of the equipment and other matters over which Seller has no control, Seller assumes no responsibility for compliance with those laws and regulations, whether by way of indemnity, warranty, or otherwise. It is incumbent upon the Buyer to specify equipment which complies with local codes and ordinances.

PENTAIR

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HYD4529 (08-15-25)