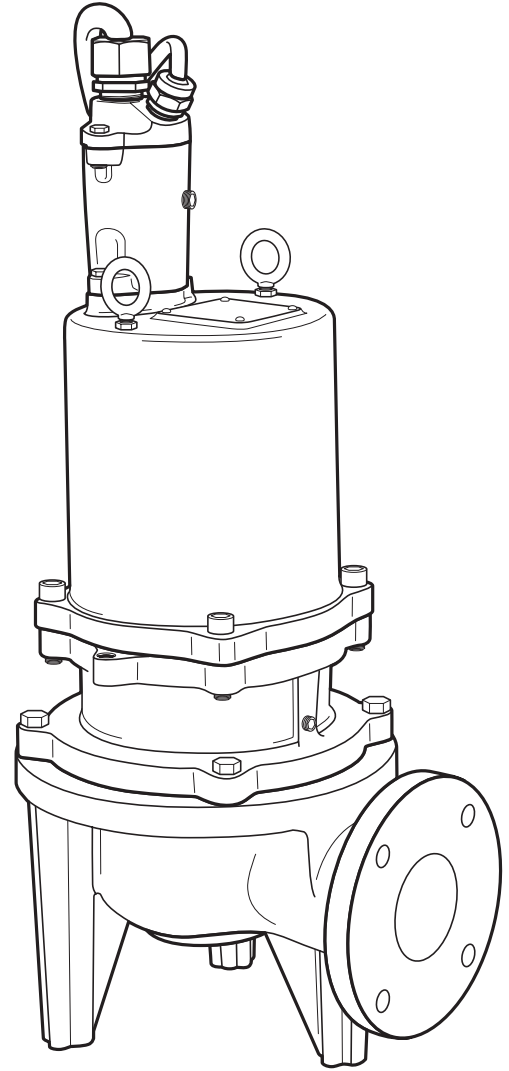




HYDROMATIC®



MODEL S3R(X*)

*Used in Hazardous Locations Class I, Division 1, Groups C and D

**SUBMERSIBLE
SOLIDS HANDLING PUMP**

INSTALLATION AND SERVICE MANUAL

For use with product built with Marathon® motor.

NOTE! To the installer: Please make sure you provide this manual to the owner of the equipment or to the responsible party who maintains the system.

(*Hazardous Location
Motor End)



APPROVED
(S3RX Only)



Safety Warnings

Before Installation:

This manual contains important information for the safe use of this product. Read this manual completely and follow the instructions carefully. Reasonable care and safe methods relating to the installation and operation of this product should be practiced. Check local codes and requirements before installation.

DANGER: Risk of Electrical Shock or Electrocution. May result in serious injury or death or fire hazard. Installer must disconnect all electrical sources prior to installation, handling or servicing. Only qualified personnel may install this system. NFPA 70/National Electric Code (NEC) or local codes must be followed. System must be properly grounded according to NEC. Do not lift pump by power cord.

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.

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: Risk of Fire or Explosion. Do not smoke or use open flames in or around this system.

DANGER: Cutting Risk. Risk of serious cutting or amputation exists.

Disconnect all power sources prior to servicing pump. Pump may start without warning.

Do not modify the cord and plug. When using the cord and plug, plug into a grounded outlet only. When wiring to a system control, connect the pump ground lead to the system ground.

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 normally runs hot. To avoid burns, allow it to cool for 30 minutes after shutdown before handling it.

Submersible sump pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common. Pump is designed to be installed in a sump or wet location where drainage collects.

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 Information

Unpacking Pump:

Remove pump from carton. When unpacking unit, check for concealed damage. Claims for damage must be made at the receiving end through the delivery carrier. Damage cannot be processed from the factory.

WARNING: Before handling these pumps and controls, always disconnect the power first. Do

not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

Pumps Not Operating or in Storage:

Pumps with carbon ceramic seals must have impellers manually rotated (6 revolutions) after setting nonoperational for 3 months or longer and prior to electrical start-up.

Pumps with tungsten carbide seals must have impellers manually rotated (6 revolutions) after setting 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 a red light to turn on. The electrode probe is installed in all units but the sensing unit is supplied at extra cost and must be ordered.

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.

The sensing unit is recommended on all installations as good insurance against motor failure.

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 Hydromatic® built control panel.

NOTE: Failure to install such a device negates all warranties by Hydromatic.

Pump:

The S3R submersible pump is supplied for 1 and 3 phase and for 200, 230, 460 or 575 volts. Power cable is supplied with the green wire for ground. Be sure the green wire is connected to a good ground such as water pipe or ground stake.

The S3RX submersible pump is supplied for 1 and 3 phase and for 200, 230, 460 or 575 volts. Pump is supplied with 35 feet of power cord and/or 35 feet of auxiliary control cord. Longer cable lengths can be furnished but must be specified at time of order. Power cable is 4 wire with the green wire for ground. Be sure the green wire is connected to a good ground such as water pipe or a ground stake. The auxiliary cable for seal failure and heat sensors is also 4 wire color coded.

Heat Sensors:

All motors have heat sensor units embedded in the motor winding to detect excessive heat. The heat sensors are set to trip at 120°C. 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.

IMPORTANT: If Hydromatic electrical starting equipment is not supplied, the heat sensor circuit must be connected in series with the starter coil or warranty is void.

Sump Level Control:

Sump level is controlled by Hydromatic 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.

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.

Installing Sump Level Control Float Controls:

In either simplex, duplex or triplex systems the lower or turn-off control is to be set to maintain a minimum level in the sump. This level shall be no more than 3¼" 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 turn-off 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.

For installation of Hydromatic supplied level controls, refer to your system's installation and service manual.

Alarm Controls:

The alarm level is usually set above the override level so the alarm will signal only if the override level is exceeded. However, some engineers prefer to have the alarm level 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 is particularly true in cases of low inflow capacity.

Electrical Control Panel:

It is recommended that the Hydromatic control panel be used with all pumps as proper starter heaters and connections for heat sensor wires are furnished.

IMPORTANT: If 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.

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

Overload Heaters:

Starters with 3 leg overload protection must be supplied if the Hydromatic electrical panel is not used. The heaters must be sized in accordance with the nameplate amps on the motor. 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.

IMPORTANT: Make certain the heat sensor wires are connected in series with the starter coil circuit if other than Hydromatic starters are used.

Pump Installations

Installing Pump in Sump:

Before installing pump in sump, lay it on 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 the line pressure can be cut off if necessary to service the check valve. 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):

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

Wiring diagrams are provided with panel for making connections. An extra set of diagrams is included so that one set can be used in the sump when making connections. 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 Switch Controls:

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

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

In either a simplex or duplex system, the lower or turn-off 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 turn-off control.

More distance between turn-on and turn-off controls can be used, but sewage may become septic, and excessive solids may collect for the pump to handle. A frequent pumping cycle is recommended for best operation.

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

Some engineers, as described previously, prefer to have the alarm control set below the override control.

Making Electrical Connections:

All electrical wiring must be in accordance with local codes, and only competent electricians should make the installations. Complete wiring diagrams are glued to the inside cover of the panel, and an additional set of prints is included for use in making the installation. All wires should be checked for grounds with an ohmmeter or Megger after the connections are made. This is important, as one grounded wire can cause considerable trouble.

Field Service on Hydromatic® Hazardous Location Pumps:

If a Hydromatic hazardous location pump is used in a hazardous location, or if the pump is still in warranty, the pump must be returned to the factory for service or repaired at an authorized Hydromatic service center. Charges will not be allowed if (in warranty) pump is not taken to an authorized Hydromatic service center. This will ensure the integrity of the hazardous location rating of the pump and comply with our warranty requirements.

Disconnecting Pump Cords:

If a Hydromatic hazardous location pump is to be removed from its location, the pump cords may be disconnected at control panel (on sump mounted control panels) and cord assembly taken with pump.

CAUTION: If cord openings from sump to control panel are open, gases from sump could enter panel and an explosive condition could exist.

CAUTION: Do not reconnect power to a cord and cap assembly while removing from the pump.

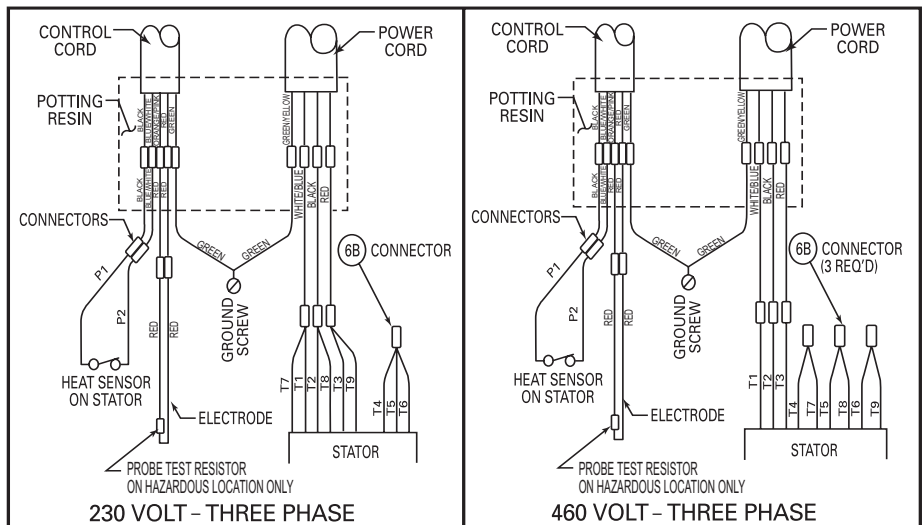
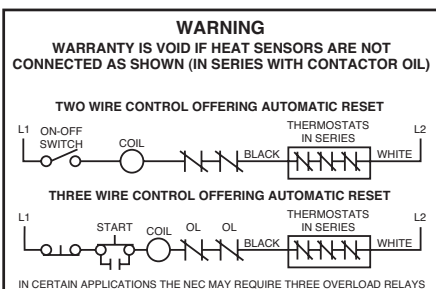
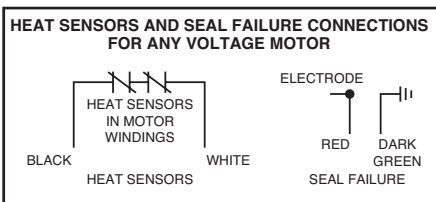
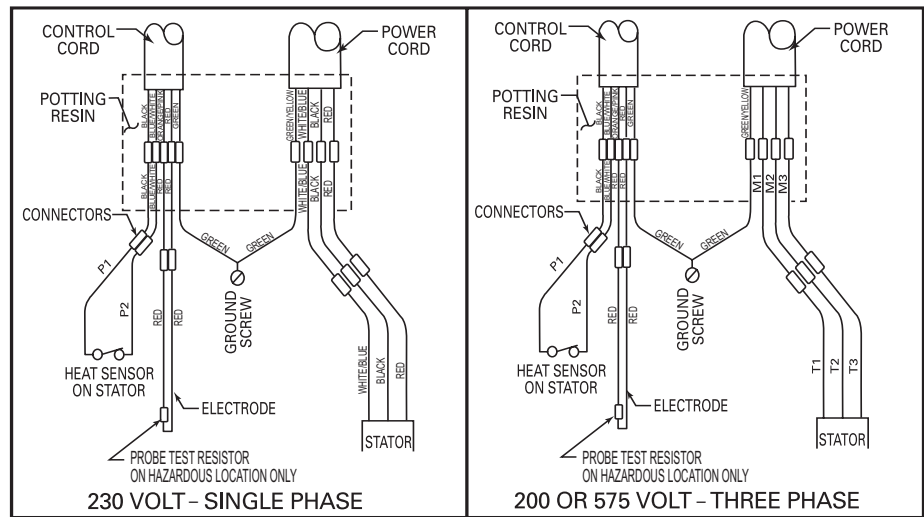
Replacing Stator:

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 in bottom of stator housing and remove plug in 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 will probably be burned, but each wire is tagged with a metal marker giving 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 and 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 rotor core.

IMPORTANT: 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. See additional instructions on replacing seals and bearings. Remember to reinstall the upper bearing load spring.
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 ones. 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. Lay pump on side for this oil filling with oil fill hole upright. Do not completely fill; leave oil about 1 inch below plug hole. Use only Hydromatic[®] submersible oil in this chamber or high grade transformer oil. 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 the motor chamber with oil. Use high grade transformer oil or Hydromatic special submersible oil. Fill chamber until oil covers top of windings. Leave air space in top for expansion. Use Permatex on plug threads.

Replacing Seals and Bearings:

1. Drain all oil from motor chamber and seal chamber as described.
2. Remove motor housing as described.
3. Remove bolts that hold seal chamber to pump housing. Use back-off screws to break loose. With hardwood block, tape end of impeller to loosen from shaft. When free, remove impeller from shaft.

4. Lift rotating assembly (rotor, shaft and impeller) from pump case and place horizontally on bench.

Impeller removal

5. Hold motor and remove bolt and washer from impeller end of shaft. Impeller is threaded to the shaft, so tap face of impeller with hardwood block to free threads. Holding rotor, turn impeller counterclockwise as thread is right-hand.

IMPORTANT: The impeller is designed to be self-tightening when running so impeller may be difficult to break loose. If this is the case, use plastic or rubber hammer on impeller tip to free. Remove impeller.

6. Remove lower seal spring and pry out seal with screwdriver.
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 4 bolts that hold bearing housing in place. Set assembly in upright position and bump end of shaft on hardwood block. This will push the bearing from the housing and will force upper seal from shaft.
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.

IMPORTANT: Do not use any of the old seal parts. Replace with all new seals.

11. Thoroughly clean all castings before replacing seals. One grain of dirt between the seal faces can cause failure.
12. Examine all O-rings for nicks before using.
13. Use Loctite® on socket head locking screw in end of shaft.

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. Check the control panel for trouble.

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.

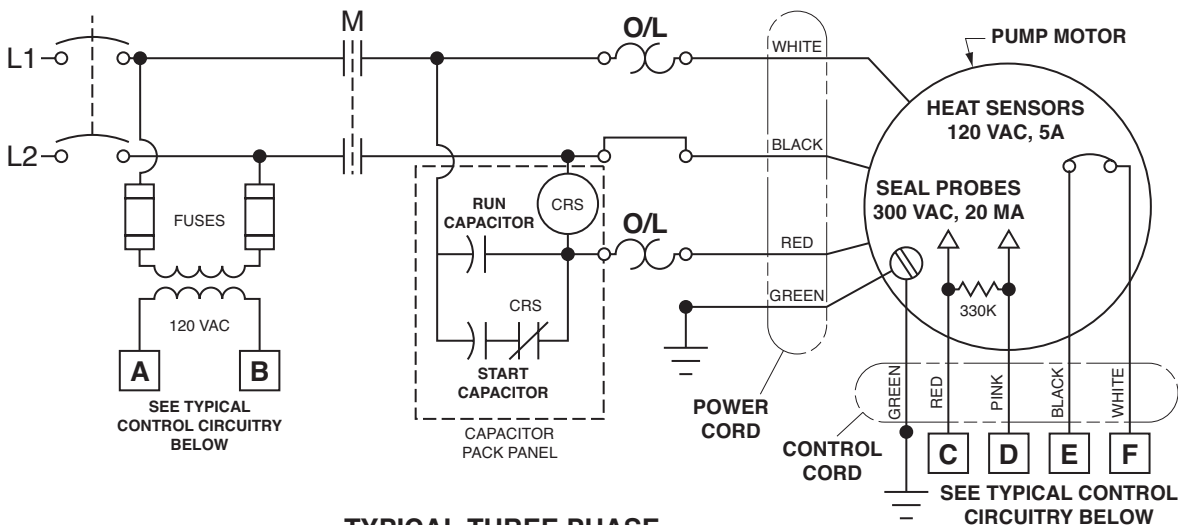
5. If pump has been in service for some time and capacity falls off, remove pump and check for wear or clogged impeller.

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

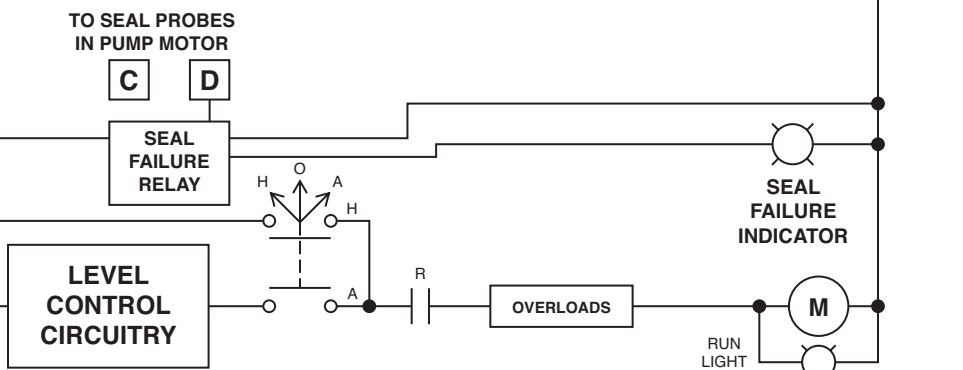
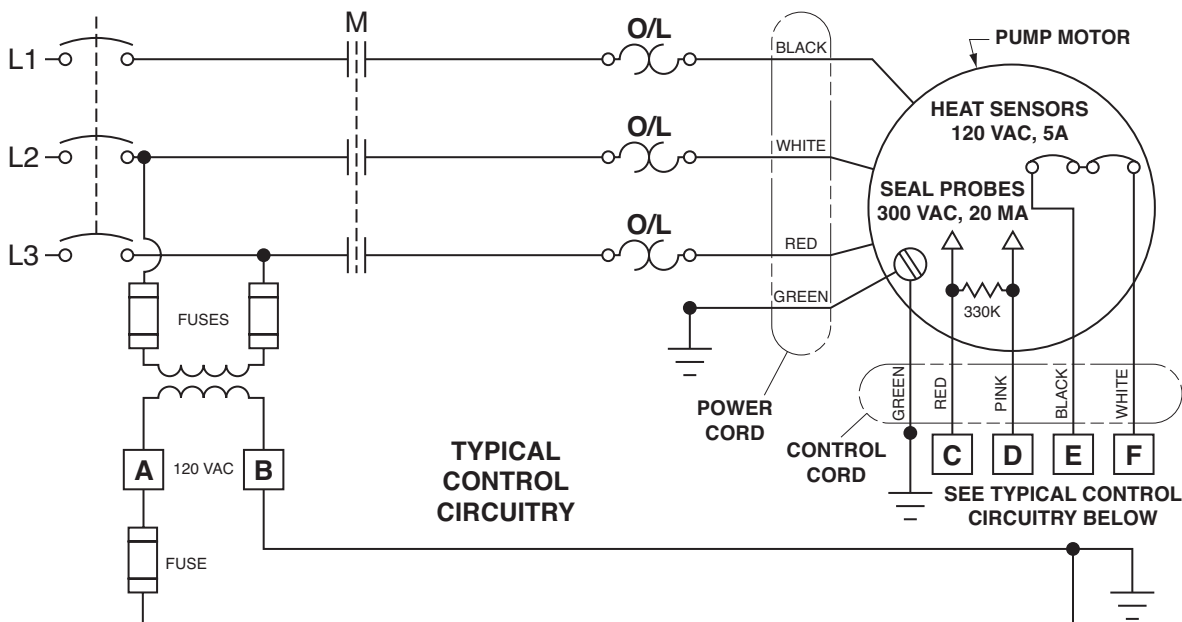
1. This indicates heat sensors in the motor are tripping due to excessive heat. Impeller may be partially clogged giving a sustained overload but not high enough to trip overload heater switch.
2. Motor may be operating out of liquid due to a failed level control. All Hydromatic® S3R submersible motors can operate for extended periods out of water without burning up the winding, but the heat sensors give motor prolonged life by controlling winding temperature.
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.

TYPICAL FM ONLY SCHEMATICS

TYPICAL SINGLE PHASE MOTOR CONNECTIONS



TYPICAL THREE PHASE MOTOR CONNECTIONS

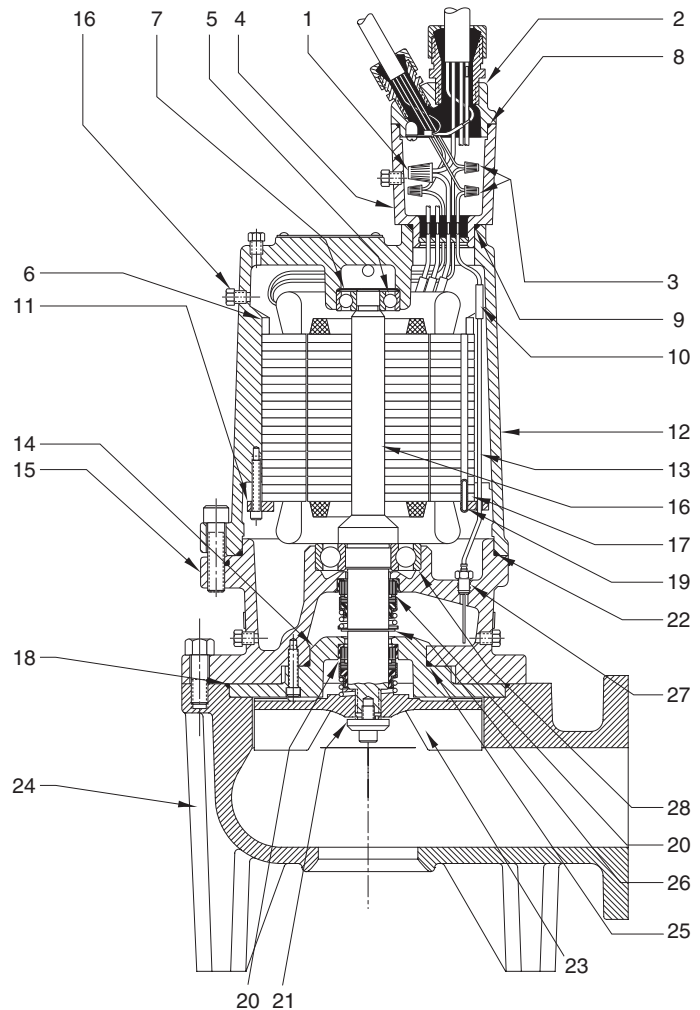


NOTE: CAPACITORS AND/OR CONTROLS SHOULD BE LOCATED OUTSIDE HAZARDOUS AREA AND ENCLOSED IN AN APPROPRIATE ENCLOSURE.

S3R Parts List For use with product built with Marathon® motor.

Ref. No.	Part No.	Part Description	Qty.
1	008530001	Wire Connector (230V 3φ Only)	2
	005570001	Wire Connector (460/3/60)	6
	005570001	Wire Connector (200/230/1/60 & 200/575/3/60)	3
2	152740355	35' Cord Assembly 14-4	1
	152740345	35' Cord Assembly 12-4	1
	152740305	35' Cord Assembly 10-4	1
	152740315	35' Cord Assembly 8-4 S00W	1
	152740325	35' Cord Assembly 8-4 W	1
3	000730011	Wire Connector (Dual Cord)	3
4	054300025	Connection Box (200/230/1/60, 575/3/60 & 200/3/60)	1
	054300055	Connection Box Assy. 230/460/3/60	1
5	000650211	Upper Bearing	1
6	007360021	Spacer Ring (200/230/1/60 1 hp)	1
	007360011	Spacer Ring (200/230/460 & 575/3/60 2 hp) & (200/230/1/60 3 hp)	1
7	000640031	Load Spring	1
8	008340101	O-ring	SC 1
9	008340081	O-ring	SC 1
10	12672A001	Wire Connector 1φ 575/3/60 & 200/3/60	6
	12672A001	Wire Connector 230/460/3/60	12
11	002990021	Stator Retaining Ring	1
12	002940012	Motor Housing 1 hp 3φ Only	1
	002940022	Motor Housing All Other hp & φ	1
13	060000141	Seal Failure Wire Assy.	1
14	079900002	Seal Housing	1
15	071450002	Bearing Housing	1
16	013290145	Rotor & Shaft Assy. 7.5 hp	1
	077740135	Rotor & Shaft Assy. 1 hp 200/230/1/60	1
	077730135	Rotor & Shaft Assy. 1 hp 200/230/460/575/3/60	1
	008650145	Rotor & Shaft Assy. 2 hp 200/230/1/60	1
	009190145	Rotor & Shaft Assy. 2 hp 200/230/460/575/3/60	1
	013290145	Rotor & Shaft Assy. 3 & 5 hp 200/230/1/60	1
	013290145	Rotor & Shaft Assy. 3 & 5 hp 200/230/460/575/3/60	1
17	147152031	Stator 1 hp 200/1/60 1150 RPM	1
	24407C223	Stator 1 hp 230/1/60 1150 RPM	1
	24407C224	Stator 1 hp 200/3/60 1150 RPM	1
	24407C225	Stator 1 hp 230/460/3/60 1150 RPM	1
	24407C226	Stator 1 hp 575/3/60 1150 RPM	1
	147172031	Stator 2 hp 200/1/60 1150 RPM	1
	24407C231	Stator 2 hp 230/1/60 1150 RPM	1
	24407C232	Stator 2 hp 200/3/60 1150 RPM	1
	24407C233	Stator 2 hp 230/460/3/60 1150 RPM	1
	24407C234	Stator 2 hp 575/3/60 1150 RPM	1
	24407C217	Stator 2 hp 230/460/3/60 1750 RPM	1
	24407C216	Stator 2 hp 200/3/60 1750 RPM	1
	24407C215	Stator 2 hp 230/1/60 1750 RPM	1
	24407C218	Stator 2 hp 575/3/60 1750 RPM	1
	24407C200	Stator 3 hp 230/1/60 1750 RPM	1
	24407C201	Stator 3 hp 200/3/60 1750 RPM	1
	24407C202	Stator 3 hp 230/460/3/60 1750 RPM	1
	24407C203	Stator 3 hp 575/3/60 1750 RPM	1
	24407C204	Stator 5 hp 230/1/60 1750 RPM	1
	24407C205	Stator 5 hp 200/3/60 1750 RPM	1
24407C206	Stator 5 hp 230/460/3/60 1750 RPM	1	
24407C207	Stator 5 hp 575/3/60 1750 RPM	1	
24407C209	Stator 7-1/2 hp 200/230/460/3/60 1750 RPM	1	
24407C210	Stator 7-1/2 hp 575/3/60 1750 RPM	1	

Ref. No.	Part No.	Part Description	Qty.
18	001500231	O-ring	SC 1
19	054540011	Spring Pin	1
20	049160001	Seal (Ceramic) Std.	SC 2
	049160011	Seal (Carbide) Opt.	C 1
21	084220011	Impeller Washer	1
22	001500571	O-ring	SC 1
23	27708B020	Impeller 5" Dia.	1
	27708B022	Impeller 3.5" Dia.	1
	070813002	Impeller 7" Dia.	1
	070813012	Impeller 5.625" Dia.	1
	070813022	Impeller 5.25" Dia.	1
24	27705D020	Volute Case	1
25	001500291	O-ring	SC 1
26	009750121	Snap Ring	1
27	084720015	Seal Failure Assy.	1
28	000650181	Lower Bearing	1
	517000167	Seal Kit	
	517003167	Carbide Seal Kit	

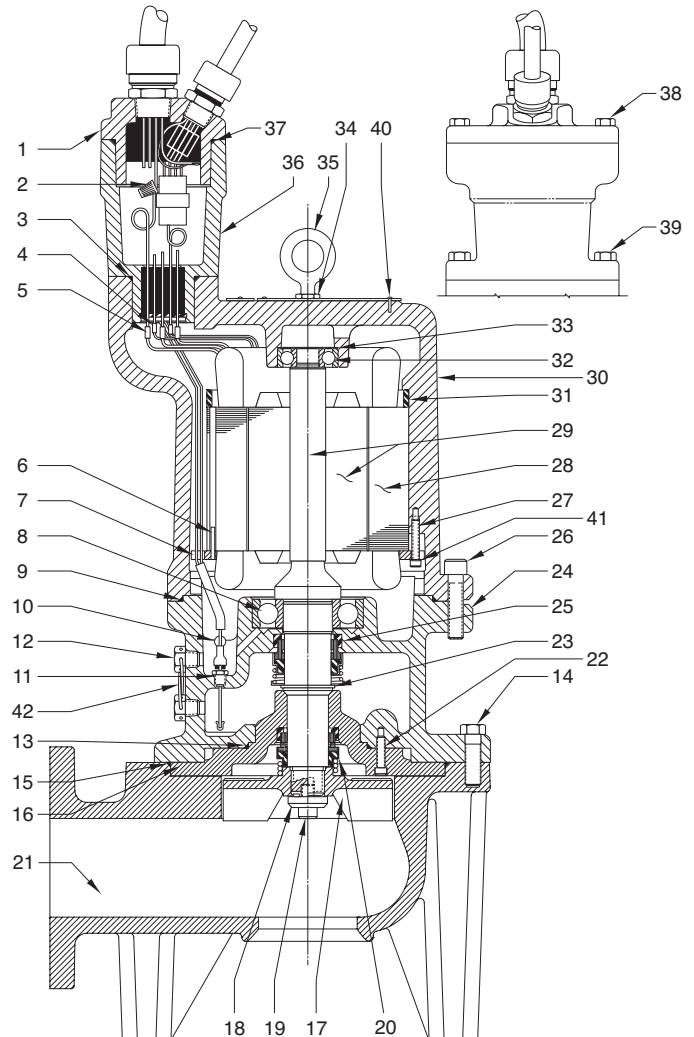


Notes: S — Parts in Seal Kit C — Parts in Carbide Seal Kit
 Amount of oil required will vary depending on stator size, fill to above motor windings.

S3RX Parts List For use with product built with Marathon® motor.

Ref. No.	Part No.	Part Description	Qty.
1	152730355	35' Cord Assembly 14-4	1
	152730345	35' Cord Assembly 12-4	1
	152730305	35' Cord Assembly 10-4	1
	152730315	35' Cord Assembly 8-4 SOOW	1
	152730335	35' Cord Assembly 8-4 W	1
2	005570001	Connector 200/230/1/60 & 200/575/3/60 (3/4-5 HP)	3
	008530001	Connector 230/460/3/60 (1-1/2-5 HP)	4
	024940001	Connector 200/230/460/575/3/60 (7-1/2 HP)	4
3	008340081	O-ring	SC 1
4	108980001	Connector	4
5	108990001	Connector	9
6	054540011	Roll Pin	1
7	002990021	Stator Holding Ring	1
8	08565A027	Lower Bearing	1
9	001500201	O-ring	SC 1
10	109000015	Resistor Assy	1
11	109010001	Terminal Seal Failure	2
12	001190161	Pipe Plug	2
13	05876A106	O-ring	SC 1
14	19103A043	Bolt	4
15	001500231	O-ring	SC 1
16	107530002	Seal Plate	1
17	27708B020	Impeller 5" dia.	1
	27708B022	Impeller 3.5" dia.	1
	070813002	Impeller 7" dia.	1
	070813012	Impeller 5.625" dia.	1
	070813022	Impeller 5.25" dia.	1
	079920162	Impeller 5.70" dia.	1
	079920272	Impeller 5.54" dia.	1
	18	084220011	Washer
19	005560031	Capscrew SST	1
	049160001	Lower Seal (ceramic) std.	S 1
20	049160011	Lower Seal (carbide) opt.	C 1
	27706D020	Volute 1750	1
21	27705D020	Volute 3450	1
	005170071	Capscrew SST	3
23	009750031	Retainer Ring	1
24	107430002	Bearing Housing	1
25	009200011	Upper Seal	SC 1
26	005680071	Capscrew	4
27	005170081	Capscrew	4
28	24407C215	Stator 2 HP 230/1/60 1750	1
	24407C217	Stator 2 HP 230/460/3/60 1750	1
	24407C216	Stator 2 HP 200/3/60 1750	1
	24407C218	Stator 2 HP 575/3/60 1750	1
	24407C200	Stator 3 HP 230/1/60 1750	1
	24407C202	Stator 3 HP 230/460/3/60 1750	1
	24407C201	Stator 3 HP 200/3/60 1750	1
	24407C203	Stator 3 HP 575/3/60 1750	1
	24407C204	Stator 5 HP 230/1/60 1750	1
	24407C206	Stator 5 HP 230/460/3/60 1750	1
	24407C205	Stator 5 HP 200/3/60 1750	1
	24407C207	Stator 5 HP 575/3/60 1750	1
	22574C200	Stator 5 HP 230/1/60 3450	1
	22574C201	Stator 5 HP 200/3/60 3450	1
	22574C202	Stator 5 HP 230/460/3/60 3450	1
	22574C204	Stator 5 HP 575/3/60 3450	1
	22574C216	Stator 7.5 HP 230/460/3/60 3450	1
	22574C217	Stator 7.5 HP 575/3/60 3450	1

Ref. No.	Part No.	Part Description	Qty.
29	007400175	Rotor & Shaft 2 HP 1 ph. 1750	1
	013290175	Rotor & Shaft 3 HP 1 ph. 1750	1
	013290175	Rotor & Shaft 3-5 HP 3 ph. 1750	1
30	107650022	Housing (all others)	1
31	007360011	Spacer 3/4-1 1/2 HP 3 ph. 1150,	1
32	000650211	Upper Bearing	1
33	000640031	Load Spring	1
34	010320021	Nut	2
35	21929A002	Bolt	2
36	108950005	Conn. Box 230/460/3/60	1
	108950015	Conn. Box 200/230/1/60, 200/575/3/60	1
37	008340131	ORing	SC 1
38	19100A029	Capscrew	2
39	19101A017	Capscrew	2
40	045800011	Drivescrew	6
	009950081	Washer	4
41	517000577	Seal Kit	
	517003577	Carbide Seal Kit	
42	109020001	Wire - Safety	1



Notes: S — Parts in Seal Kit C — Parts in Carbide Seal Kit

Amount of oil required varies depending on stator size, fill to above motor windings.

STANDARD LIMITED WARRANTY

Pentair Hydromatic® warrants its products against defects in material and workmanship for a period of 12 months from the date of shipment from Pentair Hydromatic or 18 months from the manufacturing date, whichever occurs first – provided that such products are used in compliance with the requirements of the Pentair Hydromatic catalog and technical manuals for use in pumping raw sewage, municipal wastewater or similar, abrasive-free, noncorrosive liquids.

During the warranty period and subject to the conditions set forth, Pentair Hydromatic, at its discretion, will repair or replace to the original user, the parts that prove defective in materials and workmanship. Pentair Hydromatic reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for prior sold and/or shipped units.

Start-up reports and electrical schematics may be required to support warranty claims. Submit at the time of start up through the Pentair Hydromatic website: <http://forms.pentairliterature.com/startupform/startupform.asp?type=h>. Warranty is effective only if Pentair Hydromatic authorized control panels are used. All seal fail and heat sensing devices must be hooked up, functional and monitored or this warranty will be void. Pentair Hydromatic will cover only the lower seal and labor thereof for all dual seal pumps. Under no circumstance will Pentair Hydromatic be responsible for the cost of field labor, travel expenses, rented equipment, removal/reinstallation costs or freight expenses to and from the factory or an authorized Pentair Hydromatic service facility.

This limited warranty will not apply: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with the printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and parts used in connection with such service; (d) to units that are not installed in accordance with applicable local codes, ordinances and good trade practices; (e) if the unit is moved from its original installation location; (f) if unit is used for purposes other than for what it is designed and manufactured; (g) to any unit that has been repaired or altered by anyone other than Pentair Hydromatic or an authorized Pentair Hydromatic service provider; (h) to any unit that has been repaired using non factory specified/OEM parts.

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