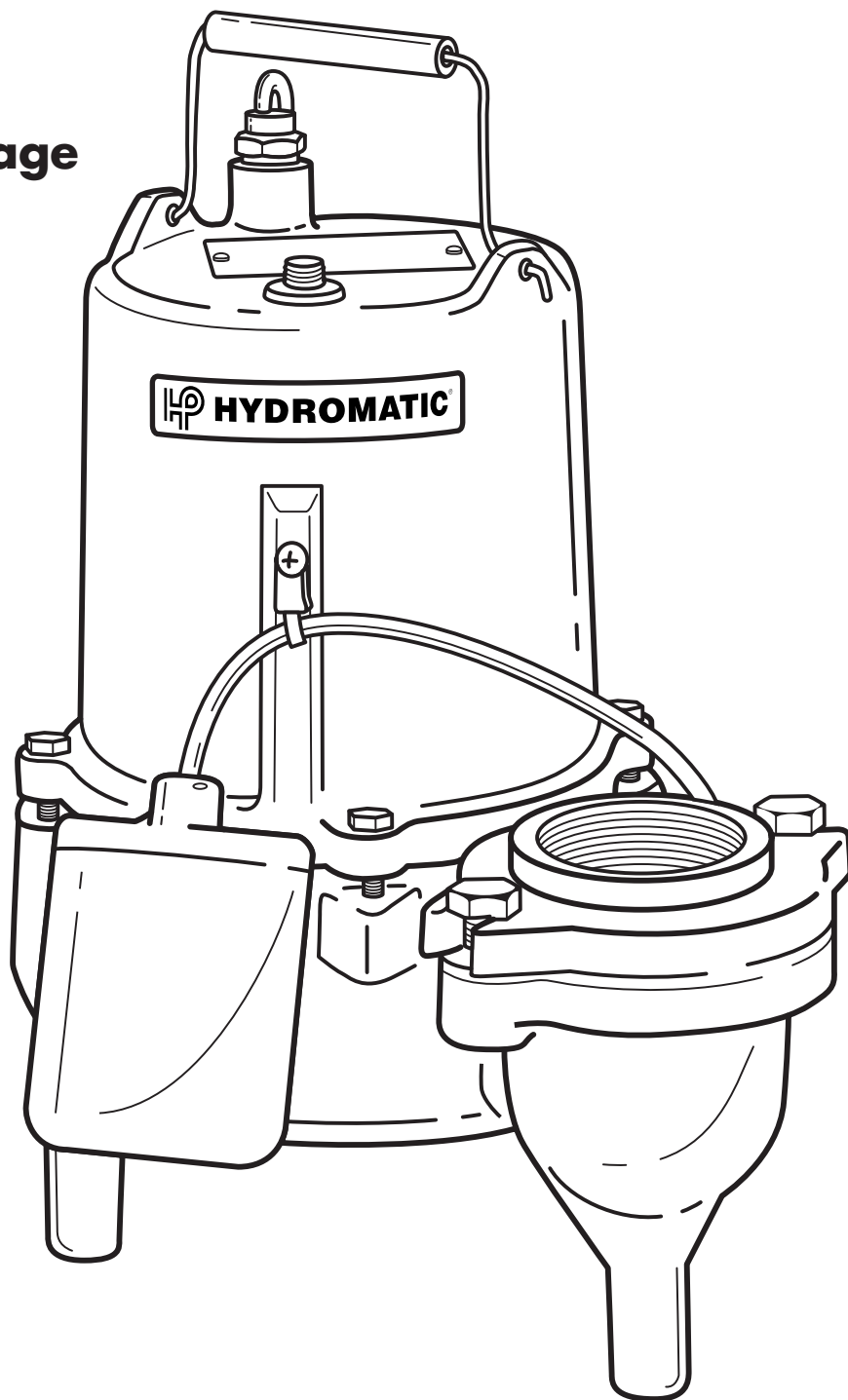




HYDROMATIC®

SK60

Submersible Sewage
Ejector Pump



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



**Pentair
Water™**

General Information

Thank you for purchasing your Hydromatic® pump. To help ensure years of trouble-free operation, please read the following manual carefully.

Before Operation:

Read the following instructions carefully. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

Attention:

This manual contains important information for the safe use of this product. Read this manual completely before using this product and refer to it often for continued safe product use. **DO NOT THROW AWAY OR LOSE THIS MANUAL.** Keep it in a safe place so that you may refer to it often.

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.

Pump Warning

To reduce risk of electrical shock:

1. Risk of Electrical Shock:

This pump has not been investigated for use in swimming pool areas.

2. Risk of Electrical Shock:

Connect only to a properly grounded receptacle.

Septic tank is to be vented in accordance with local plumbing codes.

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

If a septic sump condition exists and if entry into sump is necessary, then (1) provide proper safety precautions per OSHA requirements and (2) do not enter sump until these precautions are strictly adhered to.

Do not install pump in location classified as hazardous per N.E.C., ANSI/NFPA 70- 2001.

Failure to heed above cautions could result in injury or death.

Pump Installation

These important instructions must be followed for satisfactory performance of your pump:

1. Provide proper sump (minimum sump diameter of 18").
2. Do not set pump directly on the bottom of sump pit if it is not solid. Raise the pump by using bricks or concrete blocks underneath it.
3. Make sure sump is free of string, cloth, nails, gravel, etc., before installing pump.
4. Risk of electrical shock—connect only to a properly grounded, grounding-type receptacle.
5. Do not remove ground pin from electrical plug.
6. Do not use an extension cord.

7. For proper automatic operation, make sure the pump power cord is plugged into the piggyback receptacle on the diaphragm switch cord.

Do not cut, crimp, or bend switch power cord. The vent tube needs to “breathe” for proper operation of switch. This may cause pump failure and void warranty.

8. Connect to separate electrical circuit taken directly from main switch.
9. Use steel or plastic pipe for all connecting lines between pump and sewer outlet.

Note: Some city regulations do not allow installing a pump with plastic pipe. Check local regulations.

10. In applications where the pump may sit idle for months at a time, it is recommended that the pump(s) be cycled every month to ensure the pumping system is working properly when needed.

11. Hydromatic check valve should be installed in discharge pipe.
12. The Hydromatic Q Alert is an audible alarm system for high water conditions. It should be installed in every pump pit for greater protection.

Note: Q Alert is for indoor use only. Other Q Alarm and control panels are available for outdoor use. Contact your Hydromatic distributor for applications.

Pump Servicing

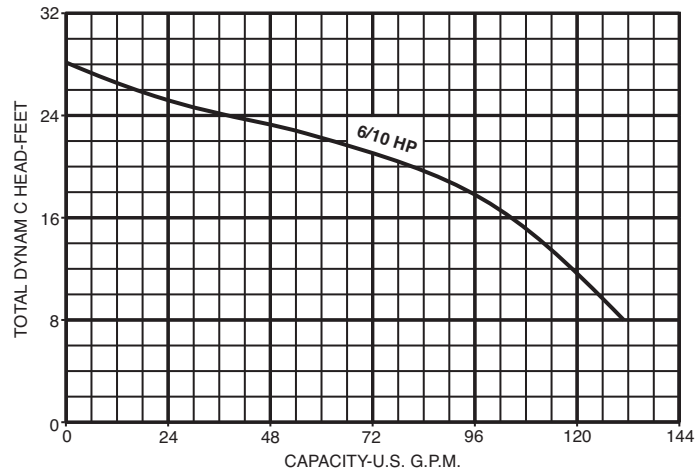
Read the following instructions carefully before replacing any parts. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation. Only a competent electrician should make the installations. The following steps should be performed by an authorized service center.

Important: Read all directions before replacing any parts. Remove pump and switch from power source before servicing.

- 1. Replacing diaphragm switch.**
From switch housing (9) remove screw (8) from housing. Replace with new switch. Insert screw (8) into housing (9) and tighten. Plug pump into switch and switch into correct power source.
- 2. Replacing wide angle switch.**
From motor housing (21) remove switch tethering screw (29). Replace with new switch (27) with new switch tethering screw (29). Plug pump into switch and switch into correct power source.

Note: To be sure wires are not burned or broken in cord, use ohmmeter for check. Set ohmmeter scale pointer to R 2 1 scale and attach one meter lead to white cord wire and one meter lead to black cord lead. Place screwdriver blade across blade terminals of plug (1). If cord is functional, the meter will go to zero (0). If open (∞), cord must be replaced.

SK60 Performance Curve



Pump Servicing

- 3. Checking motor operation.** Plug power cord in power receptacle to check motor operation. Motor should start and run smoothly. If motor does not start, pump must be dismantled and motor checked. Be certain to unplug cord before disconnecting any wires.
- 4. Checking switch housing for leaks.** After switch is replaced and ready for operation, switch housing must be checked for air leaks. Use air hose and blow air into switch housing through nylon vent tube. Do not put air nozzle directly against tube but blow air with nozzle about $\frac{1}{8}$ inch from tube end. Blow into tube then remove nozzle and hold finger over end of nylon tube. Place plug near your cheek, then release finger to be sure air is in housing. Hold tube and place complete pump unit under water. Recharge housing with air if necessary. An initial surge of air bubbles will appear, then none.

Note: If motor does not run when tested as described above, the stator must be removed from the housing and checked.

- 5. Checking motor stator.** Remove plug (3) from top of housing, and pour oil in container, preferably glass, so that oil can be observed. If oil is clear it will indicate motor is not burned and there has been no water leaking into the motor. If oil is cloudy or black, it will indicate water in the motor or a burned stator.

Remove bolts (6) to separate volute case (14) from motor housing. Remove O-ring (18) and seal plate (13) from motor housing. Remove bolts to separate motor-stator (20) from rotor. If stator is visibly burned, it must be replaced. If stator is not burned but the oil shows signs of water stator can be checked with the ohmmeter to see if it can be used.

- 6. Ground check.** Set ohmmeter scale pointer to R 2 100K scale and check meter by putting both meter leads together and adjusting the needle knob until meter reads zero. If meter cannot be adjusted to zero it will indicate that batteries in meter must be replaced.

Note: Always reset meter to zero (0) when going to a new scale before making any checks on motor. Connect one meter lead to one blade terminal of stator and touch other meter lead to motor stator shell. If needle reads below 500,000 ohms stator must be dried out before retesting. To dry out, place in 220 degree oven four hours. Recheck after motor cools. If motor is thoroughly dry, needle of ohmmeter will not move on the ground check. This indicates a reading of 50 megohm or higher. One megohm is one million ohms. When making the ground check, if the needle goes to zero the motor in all probability has a wire touching the stator shell at some point and the stator will have to be replaced.

Note: If motor shows a satisfactory ground check then the winding resistance must be checked.

- 7. Winding resistance test.** Use ohmmeter with scale pointer set on R 2 1 scale. On this scale, meter reads directly on ohms. Recheck to zero (0) before making a reading on the winding.

Note: If water is found in motor, seal should be replaced.

- 8. Replacing seal.** Remove (3 phase pumps only) the impeller screw (31) and impeller washer (30). Hold rotor and unscrew impeller (12). Bump on end of shaft with plastic or rubber hammer. This will push the rotating seal (11) from shaft and also push lower bearing from seal plate. Clean seal plate (13) and motor housing (21) thoroughly. All sand and dirt must be removed. Remove stationary ceramic seat of seal (10) from seal plate. Push new ceramic seat into seal plate. Use Parker O-ring Lube on rubber ring. Replace rotor in seal plate (13). Use care in putting shaft through ceramic seat to be sure it is not chipped. Inspect seal after shaft is in place. If seal has been chipped it must be replaced. Do not replace rotating part of seal until the balance of the pump is assembled.
- 9. Bearings.** When the pump rotor has been removed, check bearings before replacing. If bearings are rusted or rough when turned, they should be replaced. Pull bearings with a bearing puller. If puller cannot be replaced over lower bearing, remove the outer face by cracking in a vice. After outer face is cracked, it can be removed and the balls can be removed. This will allow inner face to be pulled. When

replacing bearings push only on inner face. If a press is not available, bearings can be tapped on, using a sleeve that bears only on the inner face.

Note: Never pound on the outer face of the bearing. This will cause bearing damage.

10. Push the new rotor shaft and ball bearing assembly into the seal plate. (Note that the replacement rotor must be of the same manufacture as the existing stator, or vice versa.) Reassemble the motor (20) to the seal plate (13) with the four long cap screws. Be sure to tighten down the bolts evenly and firmly to prevent cocking of the stator. An uneven assembly can cause the rotor to rub the motor causing the motor to short.
11. Press the new ceramic seal (11) in place with the rubber ring facing the impeller. This should have a thin oil (dielectric, same as in motor housing) coating.

Note: Ceramic must be kept clean. Any dirt will cause seal failure.

12. Start the impeller (12) on the shaft one to two turns; then, add a drop of Loctite #277 to the impeller threads and screw the impeller hand tight. The impeller will force the ceramic seal into position. The shaft should be free of dirt, grease, etc., or the Loctite will not hold as designed. On three phase models only, replace impeller washer (30) and impeller screw (31) to the shaft.

Note: Loctite overrun onto the seal or bearing will result in shaft seizure.

13. Remove the old seal ring (18) and stretch on new ring with O-ring lube.
Do not roll the ring onto seal plate or water leakage into the motor housing will result.
14. Fasten the ground wire (22) inside the motor housing and tuck wires up into the housing to prevent rubbing on the rotor; then assemble housing (21) to volute (14) with bolts (6).
15. Check for seal leaks by pressurizing the pump to 7 to 9 pounds of air pressure. Air bubbles should appear at first then stop. If air bubbles continue, recheck seals.

Hydromatic pumps have a small air vent hole in the impeller cavity to let out trapped air. If this hole becomes plugged, pump may air lock. To break the air lock, use a small screwdriver to clear hole in the impeller cavity.

As a secondary precaution in installations of this type, 1/16" hole should be drilled in the discharge pipe below the check valve. The check valve should be 12 to 18 inches above pump discharge. Do not put check valve directly into pump discharge opening.

NOTE: In sumps where the pump is operating daily, air locking rarely occurs.

16. **Oil fill.** After air test is satisfactory, remove unit from water and wipe or blow off any excess water.

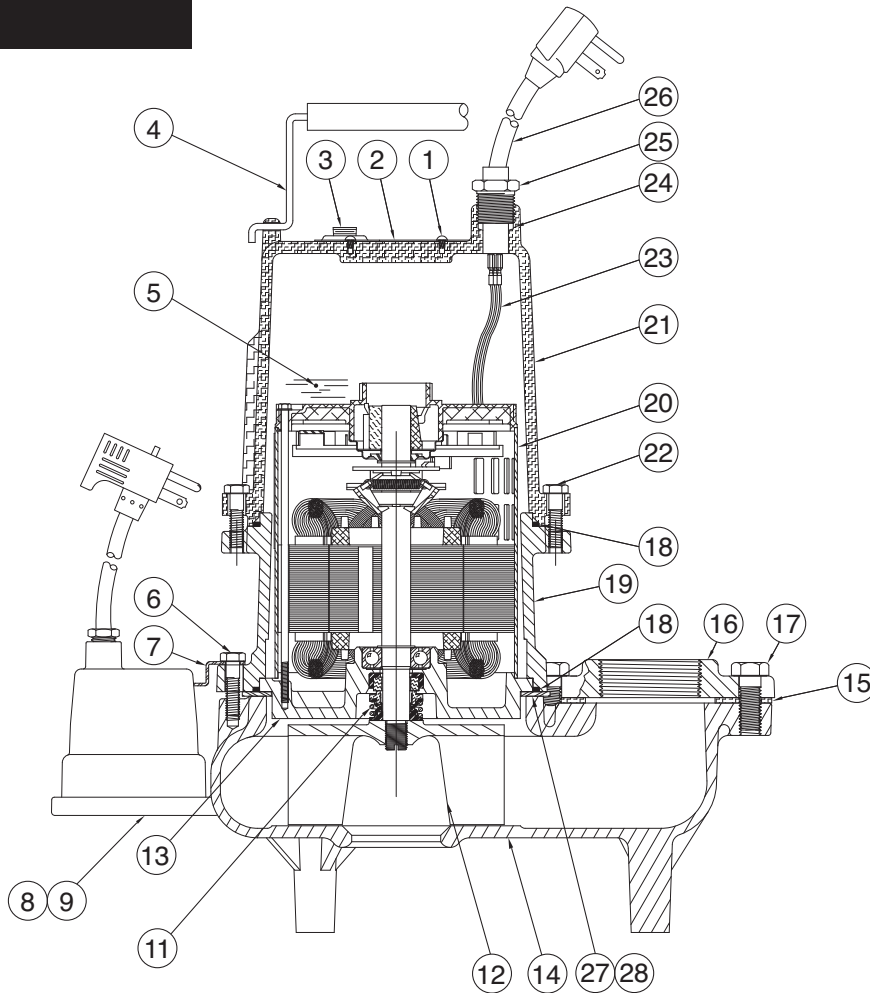
Do not put oil in motor with any water present in motor cavity.

Fill oil to 1/8" over windings in motor housing through opening (11). Use oil fill tube that will go into holes so that air can escape. Replace plug (3) and pump is ready for operation. Use only high grade transformer oil.

17. **Manual pumps.** All general instructions for automatic pumps apply to manual pumps except the level switch is not used and the power cord does not have a vent tube.

Manual models have the plug (3) in switch cap for installing a fitting to air test the pump for leaks. Replace all plugs with Permatex on threads. The switch housing seat is tapped and plugged with pipe plug.

SK60 Parts List



Single Phase Pictured

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	4580-001-1	Drive Screw	2		10834-100-1	Motor 230-460/3/60	1
2	13425-069-1	Nameplate	1		10878-700-1	Motor 575/3/60	1
3	14981-001-1	Pipe Plug	1	21	56-036-2	Motor Housing (1Ø)	1
4	60-000-5	Handle	1		56-023-2	Motor Housing (3Ø)	1
5	—	Oil-Paraffinic	0.44	22	19100A012	Capscrew	4
6	101-010-1	Capscrew	3	23	6000-082-1	Wire Terminal (All 1Ø)	1
7	5502-005-1	Switch Bracket	1		6000-081-1	Wire Terminal (All 1Ø)	2
8	30-021-1	Screw	1		73-001-1	Wire Connector (All 3Ø)	4
9	51752-413-7	Diaphragm Switch 115V-20' (STD)	1	24	139-014-1	Ring Seal (All 1Ø)	1
	51752-414-7	Diaphragm Switch 230V-20' (STD)	1	25	75-005-1	Cord Nut (All 1Ø)	1
11	14525A010	Shaft Seal	1	26	14623-020-1	Power Cord 16/3 115V/1/60 -20'	1
12	4781-000-2	Impeller	1		14623-220-1	Power Cord 16/3 200-230V/1/60 -20'	1
13	6846-000-2	Seal Plate	1		11644-089-5	Power Cord Ass'y 3E - 20'	1
14	6818-000-2	Volute	1	27	5677-000-3	Clamp Ring	1
15	324-001-1	Gasket	1	28	984-001-1	Flathead Screw	3
16	208-000-2	Discharge Flange 2" (STD)	1	30	7532-003-1	Roll Pin	1
	207-000-2	Discharge Flange 3" (OPT)	1				
17	19103A052	Capscrew (2" Discharge)	2				
	19103A043	Capscrew (3" Discharge)	2				
18	77-003-1	O-Ring	1				
19	12709-000-2	Adapter	1				
20	13371-100-1	Motor 115/1/60	1				
	13372-100-1	Motor 230/1/60	1				
	13373-100-1	Motor 200/1/60	1				
20	10834-300-1	Motor 200/3/60	1				

LIMITED WARRANTY

HYDROMATIC warrants to the original consumer purchaser ("Purchaser" or "You") of HYDROMATIC Sump Pumps, Effluent Pumps, Sewage Pumps (other than 2-1/2"), and Package Systems, that they will be free from defects in material and workmanship for the Warranty Period of 36 months from date of manufacture.

Our warranty will not apply to any product that, in our sole judgement, has been subject to negligence, misapplication, improper installation, or improper maintenance. Without limiting the foregoing, operating a three phase motor with single phase power through a phase converter will void the warranty. Note also that three phase motors must be protected by three-leg, ambient compensated, extra-quick trip overload relays of the recommended size or the warranty is void.

Your only remedy, and HYDROMATIC's only duty, is that HYDROMATIC repair or replace defective products (at HYDROMATIC's choice). You must pay all labor and shipping charges associated with this warranty and must request warranty service through the installing dealer as soon as a problem is discovered. No request for service will be accepted if received after the Warranty Period has expired. This warranty is not transferable.

EXCEPTIONS: Hydromatic Special Application Pumps, Battery Back-Up Sump Pumps, Filtered Effluent Pumps, Grinder Pumps, and 2-1/2" Sewage Pumps are warranted for a period of 12 months from date of purchase or 18 months from date of manufacture, whichever comes first.

HYDROMATIC SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE FOREGOING WARRANTIES SHALL NOT EXTEND BEYOND THE DURATION EXPRESSLY PROVIDED HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on the duration of an implied warranty, so the above limitations or exclusions 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.

This warranty supersedes and replaces all previous warranty publications.

HYDROMATIC

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