

HYDROMATIC[®]



MODELS HPGFX/HPGHX & HPGFHX/HPGHHX (Class I, Division 1, Groups C & D): FM HAZARDOUS LOCATION SUBMERSIBLE GRINDER PUMPS

INSTALLATION AND SERVICE MANUAL For use with product built with Regal Beloit or 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.

General Information

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. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

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.

California Proposition 65 Warning:

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

Application:

These pumps are designed for on-site residential sewage discharge applications with a pH ranging from 6 to 9, specific gravities from 0.9 to 1.1, viscosities ranging from 28 to 35 S.S.U., and temperatures up to 140 degrees Fahrenheit.

Pumps Not Operating or in Storage:

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

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 Hydromatic[®] control panel.

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

Heat Sensors:

All motors in this family have heat sensors on or embedded in the motor winding to detect excessive heat. This prevents damage to the motor. If the sensor trips due to excessive winding temperature, the starter in the panel breaks power to the pump. Once the sensor resets, the starter is to be reset (automatic for F.M.) for continued operation of the pump. This circuitry is supplied in a Hydromatic control panel. The sensors are set to trip at 120° Celsius.

NOTE: Failure to install such circuitry would negate F.M. approval and all warranties by Hydromatic pumps.

Power Cords:

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

NOTE: Each cable has a green lead. This is the ground wire and must be grounded properly per NEC, and/or local codes. During normal maintenance procedures, power cords should be inspected for abnormal wear and replaced accordingly.

Overload Heaters:

If the Hydromatic electrical panel is not used, starters with 3-leg overload relay must be supplied on three-phase pumps. Each leg is to have an identical heater 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.

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

Pump Installation

Installing Pump in Sump:

Before installing pump in sump, lay it on its side and rotate impeller. Impeller may be slightly stuck due to factory test water so it must be broken loose with a small bar or screwdriver in edge of vanes. The impeller should turn freely. Do not connect the power until after this test.

Clean all trash and sticks from sump and connect pump to piping. A check valve must be installed on each pump.

Location:

If pumps are installed in an existing basin or concrete sump, the piping can either be connected permanently or rails and brackets can be furnished for mounting to walls of basin. In either case, be sure the Hyromatic solids handling ball check valve is used and that the pumps are submerged in a vertical position. The complete factory-built packaged system is recommended for the most satisfactory installation and generally for the lowest cost where expensive installation labor is involved.

Making Electrical Connections:

All electrical wiring must be in accordance with local code, and only qualified electricians should make the installations. Complete wiring diagrams are included for use in making the installation. All wires should be checked for shorts to ground with an ohmmeter or Megger[®] after the connections are made. This is important, as one grounded wire can cause considerable trouble.

IMPORTANT: If equipment is not properly wired and protected as recommended, Hydromatic warranty is void.

Heat Sensor and Seal Failure Connection:

If a Hydromatic control panel is used, terminal blocks are provided for heat sensor and seal failure connections (see panel schematic). If a control panel is supplied by others, it must allow heat sensor and seal failure terminations.

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 $3^{1/2}$ " 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 maximum) 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.

Pump Operations

Starting the Pump:

To start the pump, perform the following steps in order:

WARNING! Keep hands and clothing away from cutters and impeller!

If pump is three-phase, the rotation of the impeller must first be checked. Lift pump from sump, lay it down and quickly turn pump on and then off.

The impeller should turn counterclockwise when viewed from the suction. If rotation is wrong, turn off main breaker and interchange any two line leads to motor to correct rotation.

1. If pump is piped-in permanently and inlet cannot be observed, rotation will have to be checked by pump operation described later.

If pump is single-phase, no rotation check is necessary.

- 2. Run water into sump until motor is covered.
- 3. Open gate valve in discharge line.
- 4. Turn pump on. If pump runs and sump liquid does not pump down, stop pump and close discharge gate valve. Then lift pump until sealing flange is open to vent off trapped air. Lower pump, open discharge valve, and start the pump again.

If pump is piped in permanently, it may be necessary to break union at pump discharge to clear air.

- 5. If pump is three-phase, piped-in permanently and still does not operate properly after venting, rotation is wrong and can be reversed by interchanging any two line leads.
- Level controls should be set in accordance with "Installing Sump Level Control Float Controls" above.

Pump Maintenance

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

If the heat sensor and seal failure are hooked up properly, no attention is necessary as long as the seal failure indicator light doesn't come on. To ensure continuity of the seal sensor leads, a test light is provided on intrinsically safe Hydromatic panels as standard equipment.

Pump should be checked every three months for corrosion and wear.

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 in an authorized Hydromatic service shop. 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. Seal the openings! CAUTION: Do not reconnect power to a cord and cap assembly while removed from pump.

Replacing Cords:

The power cord and heat sensor/ seal failure cord are 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.

Check pump for proper rotation before returning to normal service.

Cutter Adjustment:

There is no cutter adjustment necessary as all adjustments have been factory set.

Replacing Grinder Parts:

If necessary to replace grinder parts because of wear or to inspect for clogging:

- 1. Close gate valve at pump discharge.
- 2. Turn off circuit breaker.
- 3. Remove pump from sump.
- 4. Unscrew cap screws and remove cutter ring retainer.
- 5. Unscrew hex head cap screws and remove volute case.
- 6. Radial cutter and axial cutter are now exposed. If checking for clogging, these parts can now be cleaned without removing them from the shaft.
- If necessary to replace cutters, remove serrated head cap screw washer, radial cutter and impeller from shaft while tapping with a plastic hammer to loosen. Disassemble radial cutter and axial cutter from the impeller by removing socket head cap screw.
- 8. Clean all parts thoroughly before proceeding with assembly. Replace impeller, axial cutter, and radial cutter and secure together with

socket head cap screws. Make sure impeller key is in place between shaft and impeller. Replace volute case, replace grinder ring.

9. Plug pump into power and operate for a few seconds only to ensure parts are not rubbing.

Replacing Lower Seal:

Lower seal may be replaced by an authorized Hydromatic service facility without compromising the hazardous location rating to the pump.

NOTE: Anytime the seal is disturbed, it must be replaced.

NOTE: When applying power, be sure the pump is restrained from turning by holding the pump at the motor housing, or by clamping it in a holding fixture.

CAUTION: Always keep hands away from the pump cutter area after the circuit breaker is reconnected.

Pump Troubleshooting

Below is a list of troubles and their probable causes.

No liquid delivered.

- 1. Pump air bound
- 2. Discharge head too high
- 3. Pump or piping plugged
- 4. Wrong rotation
- 5. Speed too low

Insufficient liquid delivered.

- 1. Discharge head too high
- 2. Impeller or cutters partially plugged or damaged
- 3. Wrong rotation
- 4. Incorrect diameter impeller
- 5. Speed too low

Insufficient discharge pressure.

- 1. Wrong rotation
- 2. Air or gases in liquid
- 3. Impeller damaged
- 4. Incorrect impeller diameter
- 5. Speed too low

Pump overloads motor.

- 1. Wrong rotation
- 2. Specific gravity or viscosity of liquid too high
- 3. Speed too high
- 4. Head lower than rating, pumping too much liquid
- 5. Pump clogged
- 6. Defective bearings
- 7. Defective impeller

Pump is noisy.

- 1. Defective bearings
- 2. No axial clearance between impeller and volute
- 3. No axial clearance between radial cutter and cutter ring

If the cause of the trouble cannot be determined and corrected as outlined above, contact your nearest factory representative.





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

Effective 04-01-09

HPGFX Parts List

For use with product built with Marathon® motor.

ltem No.	Eng. No.	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	Wire Connector 230/460V	3
	008530001	Wire Connector, All	3
3	008340081	O-Ring	1
4	108980001	Connector	4
5	108990001	Connector All 1ø & 3ø 200 & 575V	3
	108990001	Connector 3ø 230/460V	9
6	054540011	Roll Pin	1
7	002990021	Stator Retainer Ring	1
8	001500201	O-Ring	1
9	109000015	Seal Sensor Assy.	1
10	109010001	Seal Failure Probe	2
11	001190161	Pipe Plug	2
12	109020001	Wire	1
13	05876A106	O-Ring	1
14	19101A021	Cap Screw	6
15	001500371	0-Ring	1
16	078891032	Seal Plate	1
17	078940062	Impeller 8″	1
	078940092	Impeller 10.13″	1
	078940012	Impeller 10.50″	1

ltem No.	Eng. No.	Description	Qty.
18	19099A029	Cap Screw	3
19	084220031	Washer, Impeller	1
20	148850011	Impeller Screw	1
21	06106A019	Screw	2
22	049160001	Shaft Seal — Lower	1
23	078910002	Volute (HPGFX)	1
	078910022	Volute – Horizontal (HPGFHX)	1
24	005170081	Screw	4
25	009750031	Snap Ring	1
26	109150022	Seal Housing	1
27	009200011	Shaft Seal Upper	1
28	005680071	Cap Screw	4
29	005170051	Screw	4
30	24407C209	Stator 7-1/2 hp 230/460V/3ø	1
	24407C206	Stator 5 hp 230/460V/3ø	1
	24407C205	Stator 5 hp 200V/3ø	1
	24407C207	Stator 5 hp 575V/3ø	1
	24407C204	Stator 5 hp 230V/1ø	1
	24407C200	Stator 3 hp 230V/1ø	1
	24407C202	Stator 3 hp 230/460V/3ø	1
	24407C201	Stator 3 hp 200V/3ø	1
	24407C203	Stator 3 hp 575V/3ø	1
31	013290285	Rotor with Shaft 1	
		3—7.5 hp 1ø/3ø	
32	107650022	Motor Housing	1

ltem No.	Eng. No.	Description	Qty.
33	000650211	Bearing — Upper	1
34	108950005	Conn. Box All 230/460V/3ø	1
	108950015	Conn. Box 200/230/1ø; 200/575/3ø1	
35	008340131	0-Ring	1
36	19100A021	Cap Screw	2
37	19100A017	Cap Screw	2
38	000640031	Spring – Bearing	
39	21929A002	Bolt – Eye	1
40	05454A023	Lock Washer	4
41	079070001	Cutter Ring Retainer	1
42	065790031	Кеу	1
43	079030002	Radial Cutter	1
44	079040002	Axial Cutter	1
45	079050002	Cutter Ring	1
46	05454A023	Lock Washer	3
47	08565A027	Bearing — Lower	1
48	045800011	Screw – Drive	6
49	010320021	Nut – Hex	1
	517005017	Seal Kit	
	006280501	Impeller Shim .005"	As Req.
	006280511	Impeller Shim .010"	As Req.
	006280521	Impeller Shim .020″	As Req.
	006280461	Cutter Shim .005"	As Req.

For pumps built prior to 04-01-09

HPGFX Parts List

For use with product built with Regal Beloit motor.

ltem No.	Eng. No.	Description	Qty.
1	RTF	35' Cord Assembly	1
2	005570001	Wire Connector 230/460V	3
	008530001	Wire Connector, All	3
3	008340081	O-Ring	1
4	108980001	Connector	4
5	108990001	Connector All 1ø & 3ø 200 & 575V	3
	108990001	Connector 3ø 230/460V	9
6	054540011	Roll Pin	1
7	002990021	Stator Retainer Ring	1
8	001500201	0-Ring	1
9	109000015	Seal Sensor Assy.	1
10	109010001	Seal Failure Probe	2
11	001190161	Pipe Plug	2
12	109020001	Wire	1
13	05876A106	0-Ring	1
14	19101A021	Cap Screw	6
15	001500371	0-Ring	1
16	078891032	Seal Plate	1
17	078940062	Impeller 8″	1
	078940092	Impeller 10.13″	1
	078940012	Impeller 10.50″	1
18	19099A029	Cap Screw	3
19	084220031	Washer, Impeller	1
20	148850011	Impeller Screw	1
21	06106A019	Screw	2
22	049160001	Shaft Seal — Lower	1
23	078910002	Volute (HPGFX)	1
	078910022	Volute – Horizontal (HPGFHX)	1
24	005170081	Screw	4
25	009750031	Snap Rina	1
26	109150022	Seal Housing	1
27	009200011	Shaft Seal Upper	1
28	005680071	Cap Screw	4
29	005170051	Screw	4
30	24407C209	Stator 7-1/2 hp 230/460V/3ø	1
	24407C206	Stator 5 hp 230/460V/3ø	1
	24407C205	Stator 5 hp 200V/3ø	1
	24407C207	Stator 5 hp 575V/3ø	1
	24407C204	Stator 5 hp 230V/1ø	1
	24407C200	Stator 3 hp 230V/1ø	1
	146982031	Stator 3 hp 200V/1ø	1
	24407C202	Stator 3 hp 230/460V/3ø	1
	24407C201	Stator 3 hp 200V/3ø	1
	24407C203	Stator 3 hp 575V/3ø	1
31	013290285	Rotor with Shaft	1
	107/20000	3–7.5 hp 1ø/3ø	
32	107650022	Motor Housing	1
33	000650211	Bearing — Upper	1
34	108950005	Conn. Box All 230/460V/3ø	1
	108950015	Conn. Box 200/230/1ø; 200/575/3ø1	
35	008340131	O-Ring	1
36	19100A021	Cap Screw	2
37	19100A017	Cap Screw	2
38	000640031	Spring – Bearing	
39	005890021	Bolt – Eye	1



ltem No.	Eng. No.	Description	Qty.
40	05454A023	Lock Washer	4
41	079070001	Cutter Ring Retainer	1
42	065790031	Кеу	1
43	079030002	Radial Cutter	1
44	079040002	Axial Cutter	1
45	079050002	Cutter Ring	1
46	05454A023	Lock Washer	3
47	08565A027	Bearing — Lower	1

ltem No.	Eng. No.	Description	Qty.
48	045800011	Screw — Drive	6
49	010320021	Nut – Hex	1
	517005017	Seal Kit	
	006280501	Impeller Shim .005"	As Req.
	006280511	Impeller Shim .010"	As Req.
	006280521	Impeller Shim .020"	As Req.
	006280461	Cutter Shim .005"	As Req.

Effective 04-01-09

HPGHX Parts List

For use with product built with Marathon® motor.

ltem No.	Eng. No.	Description	Qty.		ltem No.	Eng. No.	Description
1	152730355	35′ Cord Assembly 14-4	1		22	049160001	Shaft Seal — Lower
	152730345	35' Cord Assembly 12-4	1		23	078920012	Volute (HPGHX)
	152730305	35' Cord Assembly 10-4	1	L		078920032	Volute Horiz. (HPGHHX)
	152730335	35' Cord Assembly 8-4	1	L	24	005170081	Screw
2	005570001	Wire Connector 230/460V	3	L	25	009750121	Snap Ring
	008530001	Wire Connector, All	3	L	26	109150032	Seal Housing
3	008340081	0-Ring	1	L	27	009200011	Shaft Seal Upper
4	108980001	Connector	4	L	28	005680071	Cap Screw
5	116750001	Connector All 1ø & 3ø 200 & 575V	3	L	29	005170071	Screw
	116750001	Connector 3ø 230/460V	9	L	30	22574C216	Stator 7-1/2 hp 230/460V/3ø
6	054540011	Roll Pin	1	L		22574C215	Stator 7-1/2 hp 208V/3ø
7	002990021	Stator Retainer Ring	1	L		146920031	Stator 5 hp 230/460V/3ø
8	001500201	0-Ring	1	L		22574C201	Stator 5 hp 208V/3ø
9	109000015	Seal Sensor Assy.	1	L		22574C204	Stator 5 hp 575V/3ø
10	109010001	Seal Failure Probe	2	L		22574C200	Stator 5 hp 230V/1ø
11	001190161	Pipe Plug	2	L		22574C210	Stator 3 hp 230V/1ø
12	109020001	Wire	1	L		22574C211	Stator 3 hp 208V/3ø
13	05876A106	O-Ring	1	L		22574C212	Stator 3 hp 230/460V/3ø
14	19101A021	Cap Screw	6	L		22574C214	Stator 3 hp 575V/3ø
15	001500191	0-Ring	1	L	31	21285B203	Rotor 7-1/2 hp 3ø
16	078891052	Seal Plate	1	L		007640215	Rotor with Shaft 7-1/2 hp
17	078930322	Impeller 4.50″	1	L			208/230/460/575V/3ø
	078930402	Impeller 5.50"	1	L		007640215	Rotor with Shaft 5 hp
	078930122	Impeller 6.866" (7-1/2 hp ONLY)	1	L			230V/1ø
18	19099A029	Cap Screw	3			007650225	Rotor with Shaft 5 hp
19	084220031	Washer, Impeller	1	1			208/230/460/575V/3ø
20	148850011	Impeller Screw	1	1		080530185	Rotor with Shaft 3 hp
21	06106A019	Screw	2	1			230V/1ø

ltem No.	Eng. No.	Description	Qty.
	084340215	Rotor with Shaft 3 hp	1
		208/230/460/575V/3ø	
32	107650022	Motor Housing	1
33	000650211	Bearing — Upper	1
34	108950005	Conn. Box All 230/460V/3ø	1
	108950015	Conn. Box 200/230/1ø; 200/575/3ø1	
35	008340131	0-Ring	1
36	19100A021	Cap Screw	2
37	19100A017	Cap Screw	2
38	048500011	Drive Screw	4
39	08565A027	Bearing — Lower	1
40	009950081	Lock Washer	4
41	079113041	Cutter Ring Retainer	1
42	065790031	Кеу	1
43	079080002	Radial Cutter	1
44	079090002	Axial Cutter	1
45	079100002	Cutter Ring	1
46	001770041	Lock Washer	3
	517005027	Seal Kit	
	006280501	Impeller Shim .005″	As Re
	006280511	Impeller Shim .010″	As Re
	006280521	Impeller Shim .020″	As Re
	006280491	Cutter Shim .005"	As Re

Qty.

For pumps built prior to 04-01-09

HPGHX Parts List

For use with product built with Regal Beloit motor.

ltem No.	Eng. No.	Description	Qty.
1	RTF	35' Cord Assembly	1
2	005570001	Wire Connector 230/460V	3
	008530001	Wire Connector, All	3
3	008340081	0-Ring	1
4	108980001	Connector	4
5	116750001	Connector All 1ø & 3ø 200 & 575V	3
	116750001	Connector 3ø 230/460V	9
6	054540011	Roll Pin	1
7	002990021	Stator Retainer Ring	1
8	001500201	O-Ring	1
9	109000015	Seal Sensor Assy.	1
10	109010001	Seal Failure Probe	2
11	001190161	Pipe Plug	2
12	109020001	Wire	1
13	001500111	O-Ring	1
14	002380071	Cap Screw	6
15	001500111	O-Ring	1
16	078891052	Seal Plate	1
17	078930152	Impeller 4.50"	1
	078930062	Impeller 5.50″	1
	078930122	Impeller 6.866″ (7-1/2 hp ONLY)	1
18	001760031	Cap Screw	3
19	084220011	Washer, Impeller	1
20	148850011	Impeller Screw	1
21	005170101	Screw	2
22	049160001	Shaft Seal — Lower	1
23	078920002	Volute (HPGHX) 3 & 5 hp	1
	078920022	Volute Horiz. (HPGHHX) 3 & 5 hp	1
	078920012	Volute (HPGHX) 7.5 hp	1
	078920032	Volute Horiz. (HPGHHX) 7.5 hp	1
24	005170081	Screw	4
25	009750121	Snap Ring	1
26	109150032	Seal Housing	1
27	009200011	Shatt Seal Upper	1
28	0056800/1	Cap Screw	4
29	0051/00/1	Screw	4
30	22574C216	Stator 7-1/2 hp 230/460V/3ø	1
	225/40215	Stator 7-1/2 hp 200V/3ø	
	146920031	Stator 5 hp 230/460V/3ø	
	225/4C201	Stator 5 hp 200V/3ø	
	225/40204	Stator 5 hp 5/5V/3ø	
	225/40200	Stator 5 hp 230V/1ø	
	225/40210	Stator 3 hp 230/1/60	1
	140892031	Stator 3 hp 200/1/60	1
	225/40211	Stator 3 hp 200/3/60	1
	225/40212	Stator 3 hp 230/460/3/60	1
21	122100125	Sidior 3 lip 3/3/3/00	1
31	132190123	Kotor /-1/2 np 30	1
	007040215	230V/1ø	I
	007650225	Rotor with Shaft 5 hp 200/230/460/575V/24	1
	132190215	Rotor with Shaft 7-1/2 hp	1
		200/230/460/575V/3ø	
	080530185	Rotor with Shaft 3 hp	1
	08/3/0915	200/230/1/60 Rotor with Shaft 2 hn	1
	007390213	200/230/460/575/3/60	



ltem No.	Eng. No.	Description	Qty.
32	107650022	Motor Housing	1
33	000650211	Bearing — Upper	1
34	108950005	Conn. Box All 230/460V/3ø	1
	108950015	Conn. Box 200/230/1ø; 200/575/3ø1	
35	008340131	0-Ring	1
36	001010071	Cap Screw	2
37	002380061	Cap Screw	2
38	048500011	Drive Screw	4
39	08565A027	Bearing — Lower	1
40	009950081	Lock Washer	4
41	079113041	Cutter Ring Retainer	1

ltem No.	Eng. No.	Description	Qty.
42	065790031	Key	1
43	079080002	Radial Cutter	1
44	079090002	Axial Cutter	1
45	079100002	Cutter Ring	1
46	001770041	Lock Washer	3
	517005027	Seal Kit	
	006280501	Impeller Shim .005"	As Req.
	006280511	Impeller Shim .010"	As Req.
	006280521	Impeller Shim .020"	As Req.
	006280491	Cutter Shim .005"	As Req.

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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.

Warranty Exclusions: PENTAIR HYDROMATIC MAKES NO EXPRESS OR IMPLIED WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. PENTAIR HYDROMATIC SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.

Liability Limitation: IN NO EVENT SHALL PENTAIR HYDROMATIC BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY PENTAIR HYDROMATIC PRODUCT OR PARTS THEREOF. PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY RESULT FROM IMPROPER INSTALLATION. PENTAIR HYDROMATIC DISCLAIMS ALL LIABILITY, INCLUDING LIABILITY UNDER THIS WARRANTY, FOR IMPROPER INSTALLATION. PENTAIR HYDROMATIC RECOMMENDS INSTALLATION BY PROFESSIONALS.

Some states do not permit some or all of the above warranty limitations or the exclusion or limitation of incidental or consequential damages and therefore such limitations may not apply to you. No warranties or representations at any time made by any representatives of Pentair Hydromatic shall vary or expand the provision hereof.



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