

# Myers®

Pentair Pump Group

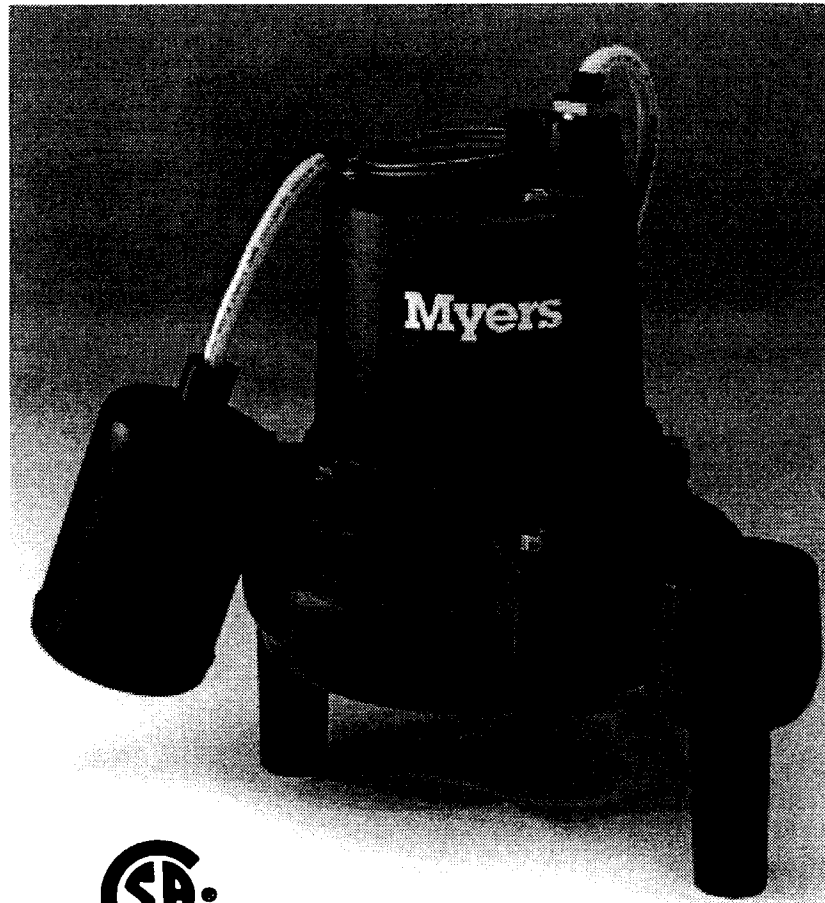
## S40HT SERIES Submersible High Temperature Sump & Effluent Pumps

Safety Instructions

Installation and Service Manual

Automatic and manual models. Single phase power only - 115 volt

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## SAFETY WARNINGS

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.

Failure to heed these symbols and follow the instructions in this manual may result in **severe bodily injury or death, or substantial property damage.**

### DO NOT THROW AWAY OR LOSE THIS MANUAL.

Keep it in a safe place so that you may refer to it often.

- ▲ **DO NOT** wear loose clothing that can become entangled in the impeller or other moving parts.
- ▲ This pump is designed to handle materials which could cause illness or disease through direct exposure. Wear adequate protective clothing when working on the pump or piping.
- ▲ **CAUTION:** Never enter pump chamber after sewage or effluent has been in basin. Sewage water can give off methane, hydrogen sulfide and other gases which are highly poisonous.
- ▲ **DO NOT** use this product in applications where fluid temperatures exceed 195°F (90°C).
- ▲ This pump must not be used to pump flammable, combustible or hazardous liquids.
- ▲ **ALWAYS** use piping, fittings, cords, and controls, whose temperature rating exceeds maximum fluid temperature.
- ▲ To reduce risk of electrical shock, pump must be properly grounded. Follow all applicable state and local codes and ordinances, as well as the most recent National Electric Code (NEC-ANSI/NFPA 70).
- ▲ **ALWAYS** disconnect the pump from power source before handling or servicing.
- ▲ Any wiring to be done on pumps should be done by a qualified electrician.
- ▲ **NEVER** operate a pump with a power cord that has frayed or brittle insulation.
- ▲ **NEVER** let cords or plug lay in water.
- ▲ **NEVER** handle connected power cords with wet hands.

**WARNING: RISK OF ELECTRICAL SHOCK!** Single phase pumps are supplied with a grounding conductor and grounding-type attachment plug on the power cord. To reduce risk of electrical shock, be certain that it is connected only to a properly grounded, grounding-type receptacle. **DO NOT** cut off ground pin or use an adapter fitting. **DO NOT** use an extension cord with this pump

Entire plug may be cut off if a control panel is used. All duplex installations require a control box.

All pumps have a GROUND WIRE that is grounded inside the metal motor housing. This wire goes to the receptacle or control box which must be connected to good outside **GROUND** such as a metal water pipe or **GROUND STAKE** driven at least 8 feet into the ground.

## PUMPS

- ▲ Pumps build up heat and pressure during operation. Allow time for pump to cool before handling or servicing.
- ▲ Only qualified personnel should install, operate or repair pump.
- ▲ Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.
- ▲ Make sure lifting handles are securely fastened each time before lifting.
- ▲ **DO NOT** lift pump by power cord.
- ▲ **DO NOT** exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.
- ▲ **ALWAYS** secure the pump in its operating position so it can not tip over, fall, or slide.
- ▲ Keep hands and feet away from impeller when power is connected.
- ▲ **DO NOT** use in swimming pools, decorative fountains or any installation where human contact with pumped fluid is common.
- ▲ Do not operate pump without safety devices in place.

**IMPORTANT!** F. E. Myers is not responsible for losses, injury or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

## DESCRIPTION AND APPLICATION

S40HT series pumps are single seal units, available in automatic and manual versions. These pumps are designed for use in pumping high temperature liquids that do not exceed 195°F (90°C). These pumps **are not** designed for pumping potable water. These pumps **are not** for use in swimming pools, decorative fountains, or any installation where human contact with pumped fluid is common or possible.

S40HT series pumps use a 4/10 HP shaded pole, 1550 RPM motor, and are available in 115 volt, single phase. All pumps are supplied with a 20' power cord. All automatic pumps are supplied with a mechanical (mercury-free) piggy-back float switch rated for high temperature use. The S40HT series pumps are designed to pass ¾" spherical solids. Pump impellers are Class 20 cast iron vortex design. All pumps have 1½" NPT discharge.

## AIR LOCKING

A pump is said to be air locked if water traps air in the pump and it cannot get out, thus preventing the pump from operating. S40HT series have 1/8" air vent hole in the impeller chamber to let out trapped air. If this hole becomes plugged, pump may air lock. As a secondary precaution a 1/8" hole should be drilled in the discharge pipe below the check valve. The check valve should be 12" to 18" above pump discharge. Do not put check valve directly into pump discharge opening.

## PACKAGING

Each pump is packaged separately in a carton marked with a catalog number and Myers engineering number. The pumps are carefully packaged to prevent damage in shipping. However, occasionally damage may result due to rough handling. Carefully go over pump and check for damage that could cause pump to fail.

## LEVEL CONTROLS

All S40HT-11P pumps are supplied with a 20 foot mechanical (mercury-free), piggy-back float switch. The piggy-back switch is tethered directly to pump. The switch must float free from pump and basin wall. Plug the switch cord plug into a properly grounded, rated voltage receptacle. Plug the power cord into the back of the switch cord and tape the cords to the discharge pipe approximately every 12". The power receptacle must be located outside the wet sump or basin due to the DANGER of current leakage.

## MOTOR TYPE

The motors used in the S40HT series pumps are pressed into the cast iron housings and surrounded by dielectric oil for superior heat dissipation. All models use a 4/10 HP shaded pole, 1150 RPM motor. All models have Class F motor windings, are available in 115 volts with overload protection, and use a double sleeve bearing design. These pumps have no starting switches and do not require a control panel for individual installations.

## INSTALLATIONS

Basin or tanks must be vented in accordance with local plumbing codes. These pumps are not designed for and **cannot** be installed in locations classified as hazardous in accordance with the National Electrical Code ANSI/NFPA 70.

When installing S40HT series pumps in high temperature installations, ALL basins, tanks, piping, fittings, additional floats and cables **must have rating exceeding 195°F (90°C)**. Also pumps **are not** to be used in environments where ambient temperatures exceed 195°F (90°C).

**CAUTION:** If pump is to be used for pumping sewage effluent: never enter pump chamber after sewage or effluent has been in basin. Sewage water can give off methane, hydrogen sulfide and other gases which are highly poisonous.

Myers recommends installing effluent pumps with a quick removal systems. The quick removal system may be a union or Cam-lok coupling if the pipe is within reach from the surface, or a rail system type quick disconnect on deeper installations.

The dosing tank or pumping chamber must be constructed of corrosion resistant materials and must be capable of withstanding all anticipated internal and external loads. It also must not allow infiltration or exfiltration. The tank must have provisions for anti-buoyancy. Access holes or covers must be adequate size and be accessible from the surface to allow for installation and maintenance of the system. **Access covers must be lockable or heavy enough to prevent easy access by unauthorized personnel.** The pumping chamber holding capacity should be selected to allow for emergency conditions.

The discharge pipe must be the same size as the pump discharge, 1½" or larger. In order to insure sufficient fluid velocity to prevent any residual solids from collecting in the discharge pipe, it is recommended that a minimum flow of 2' per second be maintained (12 GPM through 1½" pipe, 21 GPM through 2" pipe and 46 GPM through 3" pipe). A full flow (ball or gate) shut off valve must be installed to prevent back flow of effluent if the pump must be removed for service. A check valve must be installed on pressure sewer systems to prevent backflow and to reduce wear on the pump system.

**A high water alarm must be installed on a separate circuit from the pump circuit.** The alarm should have the ability to be tested for proper operation.

## POINTS TO CHECK IF PUMP DOES NOT RUN OR DOES NOT RUN PROPERLY

- (1) **Pump does not run or start when water is up in tank.**
  - (a) Check for blown fuse or tripped circuit breaker.
  - (b) Check for defective level switch.
  - (c) Where control panel is used be sure H-O-A switch is in the AUTO position. If it does not run, turn switch to the HAND position and if the pump runs then the trouble is in the automatic electrical system. Have electrician make electrical checks.
  - (d) Check for burned out motor. Occasionally lightning can damage a motor even with lightning protection.
  - (e) Where plug-in cords are used be sure contact blades are clean and making good contact. **DO NOT USE PLUG-IN CORDS INSIDE A SUMP OR WETWELL.**
  - (f) Level control ball or weight may be stuck on side of basin. Be sure it floats freely.
- (2) **Pump runs but does not deliver flow.**
  - (a) Check for air lock. Start and stop pump several times, if this does not help it may be necessary to loosen a union in the discharge line to relieve air lock.
  - (b) Check valve may be installed backwards. Check flow arrow on valve body. Check shut-off valve. It may be closed
  - (c) Check vertical elevation. It may be higher than pump can develop. (See pump curve).
  - (d) Pump inlet may be plugged. Remove pump to check.

**CAUTION: ALWAYS UNPLUG POWER CORDS OR TURN OFF ALL MAIN AND BRANCH CIRCUIT BREAKERS BEFORE DOING ANY WORK ON THE PUMP.** If control panel is remote from pump, disconnect lead wires to motor so that no one can turn the circuit breaker back on.

## BEFORE DISMANTLING PUMP FOR REPLACEMENT OF PARTS

Allow pump to cool. Clean pump thoroughly. Knock off all scale and deposits. If used in sewage effluent submerge complete unit in Clorox solution for one hour before taking apart.

**▲ CAUTION: FOR ANY WORK ON PUMP OR SWITCH, ALWAYS UNPLUG POWER CORD. DO NOT JUST TURN OFF CIRCUIT BREAKER OR UNSCREW FUSE.**

**USE ONLY REPAIR PARTS CALLED OUT IN PARTS LIST SUPPLIED IN THESE INSTRUCTIONS. ALL COMPONENTS MUST BE RATED FOR HIGH TEMPERATURE APPLICATIONS.**

## TO REPLACE AUTOMATIC FLOAT

- (1) Unplug the pump power cord from the back of the piggy-back float plug.
- (2) Unplug the piggy-back float plug from the power receptacle.
- (3) Remove the pump from the sump if access to the tether point is inaccessible.
- (4) Disconnect the switch from its tether point and remove from the discharge piping.
- (5) Re-tether the new cord to the pump or discharge piping.
- (6) Cable tie or tape the power and switch cords to the discharge piping.
- (7) Plug the switch into the power receptacle.
- (8) Plug the power cord into the switch plug.
- (9) Fill basin and test switch operation.

**ALL PUMP REPAIRS SHOULD BE DONE AT AN AUTHORIZED MYERS SERVICE CENTER.**

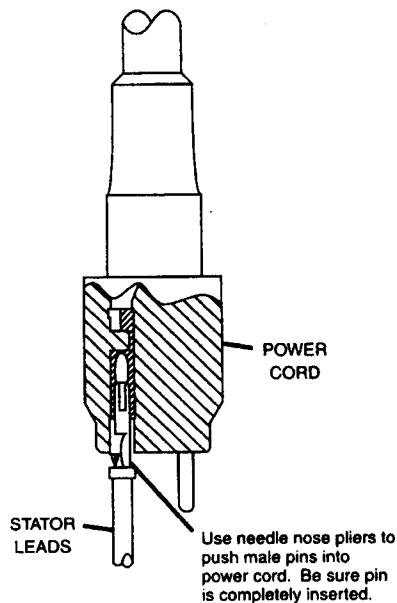
## SHAFT SEAL REPLACEMENT

- (1) Remove the oil fill plug located on the top of the motor housing and drain the oil in the housing. Properly dispose of the used oil. Do not reuse old oil since it may contain water from seal failure.
- (2) Remove the three cap screws holding the volute case onto the seal plate. Lift the motor assembly up and out of the volute case.
- (3) Lay the motor assembly on its side. Insert a slotted screwdriver into the slot in the center of the shaft. With a rubber mallet, carefully tap the impeller in a counter rotating direction while holding the shaft with the screwdriver.
- (4) Remove the rotating portion (ceramic) of the seal with fingers. Pry on stationary portion (carbon) with a pair of slotted screwdrivers to remove from volute casing. Discard the old seal assembly parts. **NEVER USE OLD SEAL PARTS, REBUILD PUMP WITH ONLY NEW SEAL ASSEMBLY.**
- (5) Thoroughly clean the shaft and volute casing with a clean cloth. If the drained oil showed signs of water, then the motor should be air dried for several days to remove any remaining moisture.
- (6) Carefully remove the new seal assembly from the package. Add a film of new oil to the rubber O.D. on the stationary portion (carbon), and insert into the seal cavity on the volute casing. Using a pushing tool (a piece of PVC pipe works well), push on the rubber portion of the stationary seal until it is evenly seated into the seal cavity. With a clean cloth, carefully wipe the seal face.
- (7) Remove the rotating portion (ceramic) from the package and carefully wipe with a clean cloth. Add a film of new oil onto the motor shaft. Slide the rotating portion over the shaft with the rubber surface of the seal facing away from the stationary seal face. Center the seal on the shaft.

- (8) Place the impeller onto the shaft. Screw the impeller clockwise onto the shaft using a screwdriver to hold the shaft from turning and tighten impeller. Check to see that the impeller spins freely after tightening.
- (9) Place the pump motor assembly upright and set it into the volute case. Replace the three cap screws and tighten. Check that the impeller turns freely.
- (10) Replace oil in the motor housing using only Myers submersible transformer oil. The level should be  $\frac{3}{4}$ " below the top of the motor housing. Check with dip stick to assure that the pump is properly filled.
- (11) Plug pump into grounded receptacle to test operation. Pump must run quiet and free of vibration.

### POWER CORD REPLACEMENT

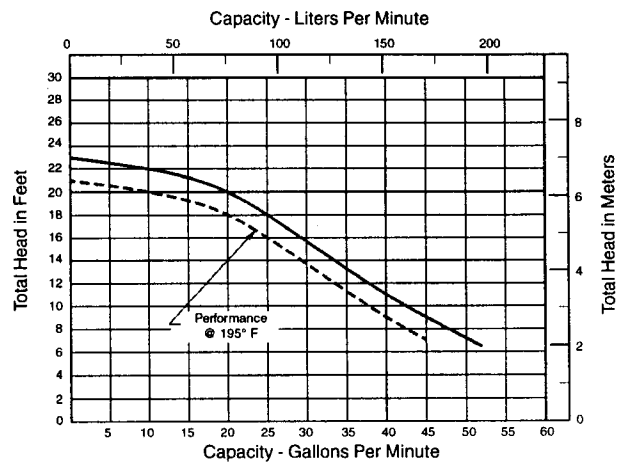
- (1) Loosen the compression nut that retains the power cord. Slide nut out of the motor housing.
- (2) Pull the power cord from the motor housing by hand. The cord may need to be wiggled back and forth several times to loosen from the housing. Pull the power cord out until the connecting wires are fully exposed. Disconnect the motor power and ground leads with a pair of pliers.
- (3) Reconnect the motor power leads and ground to the new power cord. The ground terminal on the power cord has a male connector, and the power terminals on the new power cord are female.
- (4) Carefully push the connected wires into the motor housing until the molded body of the power cord seats. Make sure that the wires stay away from the rotor and shaft. Slide the nut into place and hand tighten. Tighten the nut with 1" wrench until snug, but do not over tighten.
- (5) Plug pump into grounded receptacle to test operation. Pump must run quiet, free of vibration, without tripping out breaker.



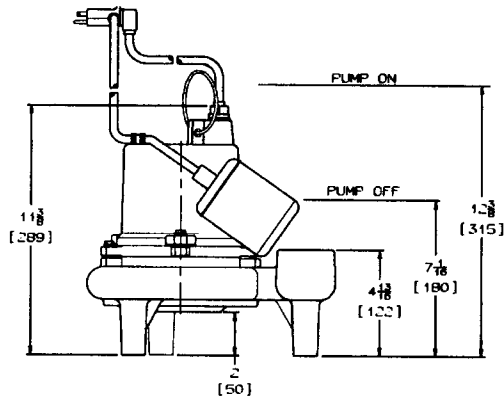
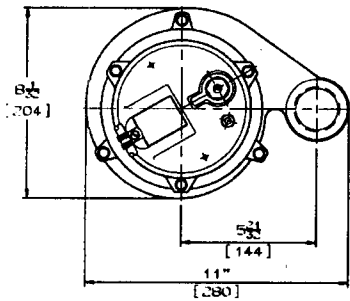
### MOTOR REPLACEMENT

- (1) Disconnect the power cord and drain the oil as noted in the previous sections. If the oil shows signs of water or other contamination, it may be necessary to replace the seal assembly as noted in a previous section.
- (2) Loosen and remove the three cap screws retaining the motor housing. Lift the motor housing off of the pump assembly.
- (3) Remove the o-ring from the remaining pump assembly. Clean surface area and place new o-ring into position. Be careful not to cut o-ring when installing.
- (4) Position new motor housing (with new stator), onto the pump assembly. Align the screw bosses, and insert the three cap screws. Evenly tighten the cap screws.
- (5) Reinstall the power cord as noted in the previous section.
- (6) Replace oil in the motor housing using only Myers submersible transformer oil. The level should be  $\frac{3}{4}$ " below the top of the motor housing. Check with dip stick to assure that the pump is properly filled.
- (7) Plug pump into grounded receptacle to test operation. Pump must run quiet, free of vibration, without tripping out breaker.

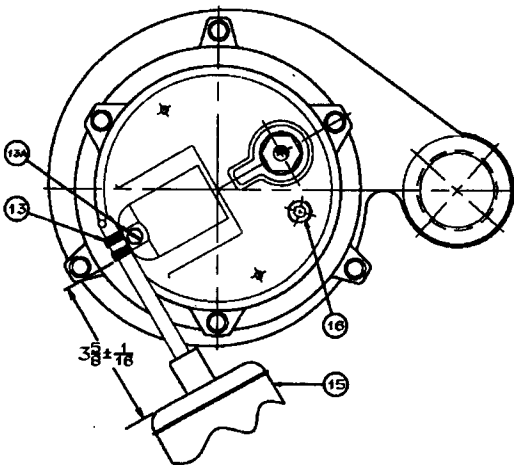
HP	Speed	Volts	Phase	Winding Resistance In OHMS	Max. Amps	Locked Rotor Amps
4/10	1550	115	1	1.2	12.0	16.0



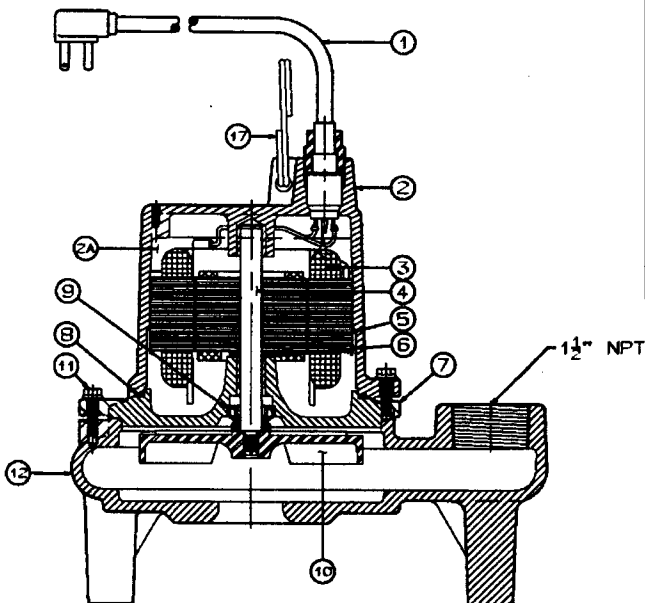
## S40HT Series Dimensions



## S40HT Series Parts List



Ref. No.	Description	No. Req'd	Part Numbers
1	Cord, Power (20 ft.)	1	21628B070
2	Housing, Motor 4/10 HP, 115V, 1 Ph, 60 Hz	1	23770D080K
2A	Oil, Transformer	1 qt.	11009A008K
3	Stator, 4/10 HP, 115V	1	21599B028
4	Rotor w/Shaft	1	22821A000
5	Washer Thrust, SST	1	05030A243
6	Washer Thrust, graphite	1	05030A244
7	Plate, Seal	1	26227D000
8	Gasket, Rubber	1	05014A172
9	Seal, Shaft	1	21607A001
10	Impeller, Recessed	1	21663C012
11	Screw, Cap, 1/4"-20 x 7/8 lg.	6	18475A003
12	Case, Volute	1	26226D002
13	Clamp, Float	1	22071A003
13A	Screw, Tapping	1	09822A006
15	Control, Level, 115V, 20 Ft.	1	21813B143
16	Plug, 1/4" Pipe	1	05022A056
17	Ring, Lifting	1	26230A000



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# MYERS

## LIMITED WARRANTY

### SUMP & RESIDENTIAL SEWAGE

During the time periods and subject to the conditions hereinafter set forth, **F. E. Myers** will repair or replace to the original user or consumer any portion of your new **MYERS** product which proves defective due to defective materials or workmanship of **MYERS**. Contact your nearest Authorized **MYERS** Dealer for warranty service. At all times **MYERS** shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. Damage due to lightning or conditions beyond the control of **MYERS** is NOT COVERED BY THIS WARRANTY.

#### WARRANTY PERIOD

**Pumps:** 12 months from date of purchase or 18 months from date of manufacture.

**Labor, etc. Costs:** **MYERS** shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or reaffixing any **MYERS** product, part or component thereof.

**THIS WARRANTY WILL NOT APPLY:** (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; or (e) unit is used for purposes other than for what it was designed and manufactured, and (f) if three phase submersible motors are installed on a single phase power supply using a phase converter or if three phase power is supplied by only two transformers, making an open Delta system.

**RETURN OR REPLACED COMPONENTS:** any item to be replaced under this Warranty must be returned to **MYERS** in Ashland, Ohio, or such other place as **MYERS** may designate, freight prepaid.

**PRODUCT IMPROVEMENTS:** **MYERS** reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such a change or improvement.

**WARRANTY EXCLUSIONS:** **MYERS** SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AFTER THE TERMINATION OF THE WARRANTY PERIOD SET FORTH HEREIN.

Some states do not permit some or all of the above warranty limitations and, therefore, such limitations may not apply to you. No warranties or representations at any time made by any representatives of Myers shall vary or expand the provision hereof.

**LIABILITY LIMITATION:** IN NO EVENT SHALL **MYERS** BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY **MYERS** PRODUCT OR PARTS THEREOF. PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY RESULT FROM IMPROPER INSTALLATION. **MYERS** DISCLAIMS ALL LIABILITY, INCLUDING LIABILITY UNDER THIS WARRANTY, FOR IMPROPER INSTALLATION -- **MYERS** RECOMMENDS FOLLOWING THE INSTRUCTIONS IN THE INSTALLATION MANUAL. WHEN IN DOUBT, CONSULT A PROFESSIONAL.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion 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.

In the absence of suitable proof of this purchase date, the effective date of this warranty will be based upon the date of manufacture.

**DETERMINATION OF UNIT DATE OF MANUFACTURE:** Submersible Sump pump (8-95) month and year stamped on pump nameplate; column sump pump month and year on red warranty tag.

**Myers**

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