

ITT

Wastewater

Goulds Pumps

Sump Pumps

Installation, Operation and
Maintenance Instructions



GOULDS PUMPS

Goulds Pumps is a brand of ITT Water Technology, Inc.
- a subsidiary of ITT Industries, Inc.

www.goulds.com

Engineered for life

TO AVOID SERIOUS OR FATAL PERSONAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN MANUAL AND ON PUMP.



This is a **SAFETY ALERT SYMBOL**. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.



Warns of hazards that **WILL** cause serious personal injury, death or major property damage.



Warns of hazards that **CAN** cause serious personal injury, death or major property damage.



Warns of hazards that **CAN** cause personal injury or property damage.

NOTICE: Indicates special instructions which are very important and must be followed.

THIS MANUAL MUST BE KEPT WITH THE PUMP.

MAINTAIN ALL SAFETY LABELS.

IMPORTANT PRE-INSTALLATION INFORMATION



All electrical work must be performed by a qualified technician. Always follow the National Electrical Code (NEC), or the Canadian Electrical Code, as well as all local, state and provincial codes.



The pump must be connected to a dedicated electrical circuit protected by a properly sized circuit breaker or fuses. Install a disconnect where required by code. Code questions should be directed to your electrical inspector. **See Chart 1 for specific information.**



Disconnect electrical power before installing or servicing the pump. The motor's automatic thermal overload protection may allow an overheated pump to restart unexpectedly.



Pump is not designed for use in swimming pools, open bodies of water, hazardous liquids, or where flammable gases exist.



Pumps and floats equipped with a 3-prong grounded plug must be connected to a 3-wire receptacle. Do not attach to extensions or connectors without a 3-prong grounded plug. Removing the plug from the power cord is allowable as long as the hard wiring is done per code by a qualified technician. Removing the plug will not void the warranty or agency listing.

1. GENERAL INFORMATION

- 1.1. Sump pumps are designed to operate intermittently and usually seasonally. It is recommended that you test the pump before your rainy season begins to insure that the pump and switch are operating properly.
- 1.2. We suggest installing a high water alarm system and a battery back-up pump system for finished basements or areas where flooding will cause property damage. A back-up generator is another option you can discuss with your pump installer. Most power outages occur during rain storms, just when you need your sump pump the most! Pump manufacturer's warranties cover only the pump. Labor and incidental damage such as flooding is not covered.

2. PRE-INSTALLATION CHECKS

- 2.1. Open all cartons and inspect for shipping damage. Report any damage to your supplier immediately.
- 2.2. Verify that all equipment is the correct voltage. Warranty does not cover damage caused by connecting pumps and controls to incorrect voltage.
- 2.3. Is your basin sized correctly and the proper type for the location?

Diameter - It must be wide enough to allow the pump and switch to physically fit and provide room for the switch to operate freely. The vertical switch models typically require less diameter than the wide-angle float models. See "*min. basin diameter*" in Chart 1.



Depth - It must be deeper than the minimum depth at which the switch turns the pump On. As an example, if the pump turns on at 15" you want to use a basin deeper than 15". See "*On level*" in Chart 1.



Style - There are several sump basin styles available. The location of the sump determines if you require a cover and what type you require. It is important to keep debris from entering the sump and clogging the pump. An open sump in a traffic area such as a basement is dangerous. If children or pets will be playing

in the area a bolt-on or child-proof cover is recommended.

3. PIPING

- 3.1. Discharge pipe should be the same size as the pump discharge to insure optimum performance. Using undersized pipe may dramatically reduce the flow and therefore waste energy. Your pump supplier can suggest the correct pipe for your installation.
- 3.2. Install a threaded pipe adapter, matched to the pipe type you are using, into the threaded pump discharge. One end will have a male thread and the other end will have a barbed connector, compression fitting or solvent weld connector. Use Teflon[®] tape on all threaded joints. If using solvent welded pipe and fittings it is best to dry fit them first and after verifying the fit, solvent weld. A union installed just above the sump or basin cover will facilitate future maintenance and replacement. See *Chart 1 for discharge sizes*.
- 3.3. Install a line check valve within 2 feet of the pump. Install per valve manufacturer's instructions.

IMPORTANT - Drill a 1/8" (3.2mm) relief hole in the discharge line approximately 2" (51 mm) above the pump discharge connection but below the check valve and within the sump. This "relief" hole allows trapped air to escape from the pump and prevents air-locking the pump. Failure to drill this hole is a major cause of sump pumps failing to pump after long periods of inactivity such as seasonal use. Model ST is self-venting - no hole is required.

4. INSTALLATION IN SUMP

- 4.1. The pump can be placed directly on the bottom of a poly or fiberglass sump basin or a concrete sump bottom. If the bottom is packed gravel the stones must be larger than 1/2" (13mm) in diameter and the pump should be placed on bricks for support.
- 4.2. After connecting the discharge pipe to the pump it can be lowered into the sump (basin). Always lower the pump by the handle and the pipe, never by the power cord. Place the pump against the basin wall so the switch is to the center. See "*Installation Data*".

- 4.3. Check to insure all piping connections are tight. The pipes should be supported by fastening to floor joists or wall. This will prevent the pump from moving in the sump. If it moves the switch could get stuck and either keep the pump running or not let it turn on.
- 4.4. The power to the outlet should be Off at this point. The dedicated outlet should supply power only to the pump.
- 4.5. Our sump pumps have either a single power cord for pumps with built-in switches or two power cords for pumps with piggyback switches:
Built-In/Single Cord - plug the single power cord into a dedicated power outlet.
Piggyback/Two Power Cords - insert the piggyback switch male plug into a dedicated power outlet. You then plug the standard male pump plug into the back, female side, of the piggyback switch plug.
- 4.6. Fasten the power cords to the discharge pipes using tie wraps or electrical tape. Coil and store any excess power cord outside the sump.

5. OPERATION

- 5.1. Turn the power On at the breaker panel and/or the disconnect switch.
- 5.2. Fill the basin with water and observe where the pump turns On and Off. It should go On well before the water overflows the top of the sump. The pump should go Off before the water goes below the pump suction. The On-Off cycle on models with wide-angle float switches is adjustable. Adjustment is made by changing the tether length between the switch body and the switch tether (pivot) point. The tether length cannot be less than 3" – 3.5". Tethers less than 3" may not allow the float to drop down enough to turn off. See "Installation Data".
- 5.3.  **WARNING** Install a cover on the sump basin if there is a danger of debris, children, or pets falling into the basin. See Basin "Style" in Section 2.3.

6. SEASONAL SERVICE / MAINTENANCE

- 6.1. If your sump pump only operates seasonally and then sits idle for months it is recom-

mended that you test the pump before your rainy season begins. Fill the sump with water and check for debris and proper switch operation. Remove any debris which could clog the suction strainer or jam the switch. Insure that the switch operates freely and does not hit the sump wall or hang-up on piping or power cords.

7. OPTIONS

- 7.1. Your pump supplier has a full line of basins, covers, high water alarms, and battery back-up pump systems available to complete your system. We also sell simplex and duplex pump control panels. A duplex system is recommended when the inflow is constant and the pumps run almost continuously. The duplex system provides a back-up pump in the event the primary pump fails.

8. TROUBLE SHOOTING CHART

Extreme caution should be exercised when servicing electrical devices. Fatal injuries could result from electrical shock. Always disconnect the electrical power from the device being serviced unless it is necessary for the work being done.

MOTOR NOT RUNNING

(See causes 1, 2, 3, 4, 6, 8)

LITTLE OR NO LIQUID DELIVERED

(See causes 5, 6, 7, 8, 10)

PUMP WILL NOT TURN OFF

(See causes 7, 8, 9, 10, 13)

PUMP CYCLES CONSTANTLY

(See causes 9, 11, 12, 13)

PROBABLE CAUSES:

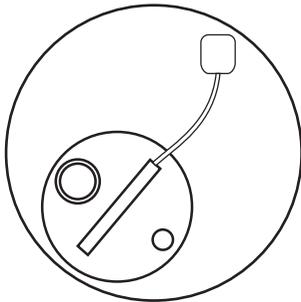
1. Tripped thermal protector.
2. Open Circuit breaker of blown fuse.
3. Rotating parts binding.
4. Defective motor.
5. Air locked.
6. Low voltage.
7. System head too high.
8. Pump clogged.
9. Level control defective or switch not properly positioned.
10. Improper check valve direction.
11. Check valve leaking.
12. Incorrect size basin or wet-well.
13. Inflow excessive for size of pump.

MODEL INFORMATION (CHART 1)

Series No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Min. On Level	Min. Off Level	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
ST31	1/3	115	12.0	20	1	Vertical Switch	10'	1 1/2"	8"	3.5"	11"	1/2"	29 / 13.2
						Wide Angle Switch			14"	7"	18"		
						No Switch			Manual	Manual	11"		
LSP03	1/3	115	2.9	10	1	No Switch	10' / 20'	1 1/2"	Manual	Manual	9"	3/8"	11 / 5
						Wide Angle Switch			11"	5"	12"		
						Vertical Switch			8.5"	2"			
LSP07	3/4	115	7.1	10	1	No Switch	20'	1 1/2"	Manual	Manual	9"	3/8"	15 / 6.8
		230	3.5			Wide Angle Switch			12.5"	6.5"	12"		
SPO24	1/4	115	2.4	10	1	Vertical Switch	10'	1 1/4"	6"	3"	9"	3/8"	8 / 3.6
SPO25			1 1/2"										
SP035			1/3					3.0	No Switch	Manual	Manual		
SP28C	*	115	75 WATT	10	1	Plug / Comp. Controlled	8'	1 1/2"	1"	5/8"	9"	1/16"	10 / 4.5

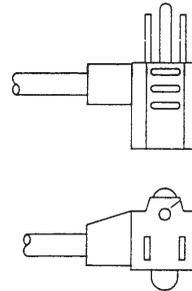
* This is a D.C. motor. It starts every 1 minute looking for a load. If there is water in the basin it will pump down to 5/8" and shut-off. There is no HP rating.

INSTALLATION DATA



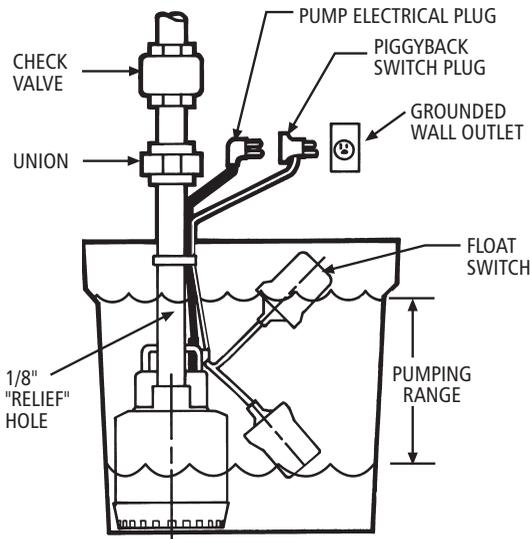
Suggested Pump Positioning in Sump

Figure 1



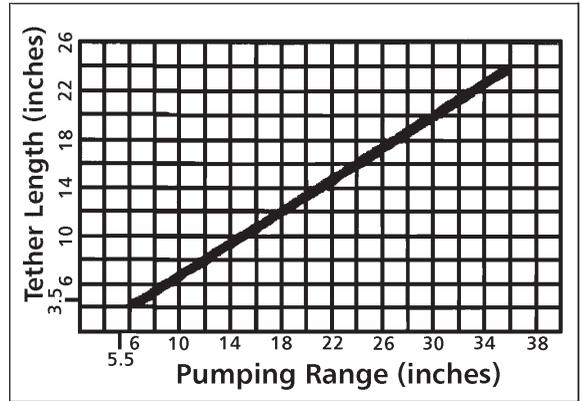
Piggyback Plug

Figure 2



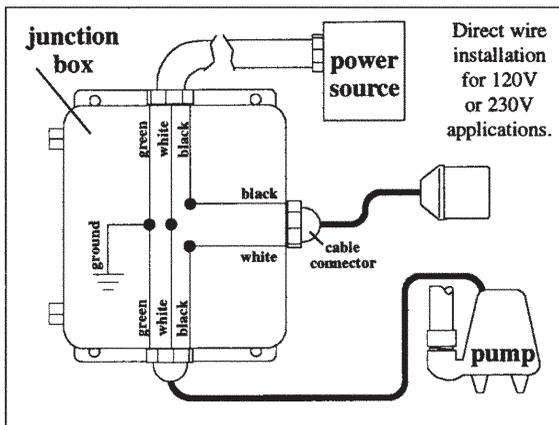
Typical Pump Installation in Sump

Figure 3



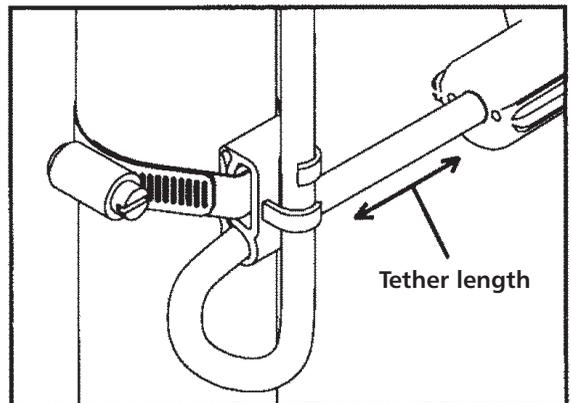
Tether Length vs. Pumping Range Curve

Figure 5



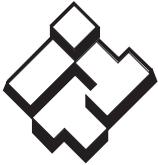
Pumpmaster and Pumpmaster Plus
Hard Wired

Figure 4



Wide Angle Float Mounting Strap

Figure 6



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GOULDS PUMPS LIMITED WARRANTY

This warranty applies to all water systems pumps manufactured by Goulds Pumps.

Any part or parts found to be defective within the warranty period shall be replaced at no charge to the dealer during the warranty period. The warranty period shall exist for a period of twelve (12) months from date of installation or eighteen (18) months from date of manufacture, whichever period is shorter.

A dealer who believes that a warranty claim exists must contact the authorized Goulds Pumps distributor from whom the pump was purchased and furnish complete details regarding the claim. The distributor is authorized to adjust any warranty claims utilizing the Goulds Pumps Customer Service Department.

The warranty excludes:

- (a) Labor, transportation and related costs incurred by the dealer;
- (b) Reinstallation costs of repaired equipment;
- (c) Reinstallation costs of replacement equipment;
- (d) Consequential damages of any kind; and,
- (e) Reimbursement for loss caused by interruption of service.

For purposes of this warranty, the following terms have these definitions:

- (1) "Distributor" means any individual, partnership, corporation, association, or other legal relationship that stands between Goulds Pumps and the dealer in purchases, consignments or contracts for sale of the subject pumps.
- (2) "Dealer" means any individual, partnership, corporation, association, or other legal relationship which engages in the business of selling or leasing pumps to customers.
- (3) "Customer" means any entity who buys or leases the subject pumps from a dealer. The "customer" may mean an individual, partnership, corporation, limited liability company, association or other legal entity which may engage in any type of business.

THIS WARRANTY EXTENDS TO THE DEALER ONLY.



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SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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