SHURflo

Extreme™ Series Smart Sensor™ 5.7

5900-0201/5900-0211 Installation & Operation Manual

IMPORTANT

READ INSTRUCTIONS ENTIRELY BEFORE INSTALLING THE SMART SENSOR 5.7

Congratulations! You have purchased the finest potable water pump in the RV industry. The Smart Sensor 5.7 has been designed and engineered to provide your RV with "just like home" water flow. Below is a list of recommendations to maximize the Smart Sensor 5.7's performance and silent operation. These recommendations are not required for use of the Smart Sensor 5.7, only suggestions to maximize its performance.

1. **Minimize the restrictions in tubing from your water tank to the inlet of the pump**
   - **Use a minimum ½" diameter tubing**
   - **Eliminate any unnecessary restrictive elbow fittings**
   - **Use 12" to 18" of soft ½" tubing from inlet of pump to hard tubing**
   - **Use only an Extreme Series High-Flow water strainer**

2. **Minimize the restrictions in tubing going from the outlet side of the pump**
   - **Use a minimum ½" tubing**
   - **Eliminate any unnecessary restrictive elbow fittings**
   - **Use 12" to 18" of soft ½" tubing from outlet of pump to hard tubing**

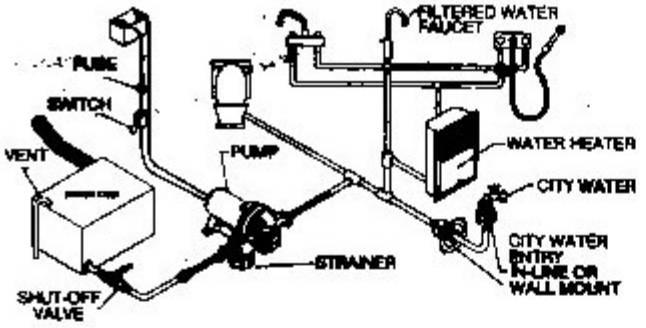
Reducing unnecessary restrictions in the inlet tubing to the pump will allow the pump to run freely, maximizing the Smart Sensor's performance and eliminate the possibility of cavitation (starving the pump).

Reducing unnecessary restrictions to outlet tubing from the pump will minimize backpressure, allowing pump to run freely and maximizing the Smart Sensor's performance and quietness.

STOP!!!!!!!!! PRE- INSTALLATION MUST BE FOLLOWED!!!

Pre-Installation

- Pump is taller and wider than previous models. Measure depth and width of area before doing any installation. Minimum suggested requirement is 1 cubic foot of space around pump.
- Pump takes more power than many previous models. Check to be sure wire and circuit protection can handle the larger power requirement. **Minimum power requirement is 15 AMPS.**
- If pump has Intellitec latching pump controller, it must be 10 Amps (Intellitec part # 00-00145-100). If not, 10 amp version (Intellitec part # 00-00145-100), or relay, must be installed in circuit.
- Make sure pump's electrical circuit and wiring is rated for 15 amps. Use 15 Amp fuse on circuit.
- Pump shut-off pressure is 65 PSI. Make sure system has been designed to handle 65 PSI.
- Pump may flow better with ¾" line feeding the pump.
- Make sure fitting o-rings are generously lubricated.
- Guide fittings into pump and strainer ***SLOWLY*** to assure o-rings stay in grooves.
- Dimensions (fittings not attached):
  9.2" [23.4cm] Length x 4.9" [12.5cm] Width x 5.5" [14cm] Height



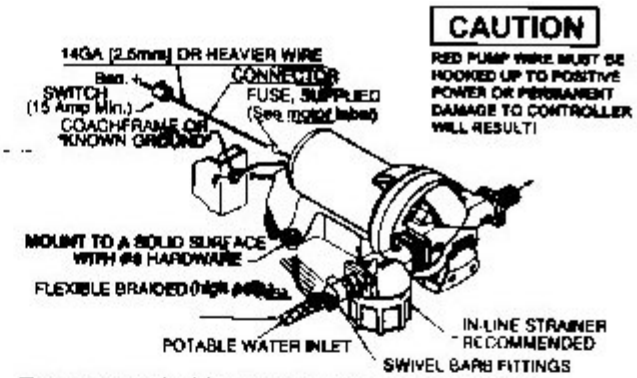
MOUNTING

- Mount pump within 6 feet of tank for best performance.
- Pump has a 6 ft. [1.8M] vertical prime. Horizontal inlet tubing allows priming to 30 ft. [9M]. Prime affects performance.
- Mount pump for easy access if maintenance is required.
- Mount pump in a space of one cubic foot unless adequate ventilation is provided.
- The pump may be mounted in any position. If mounting the pump vertically, the pump head should face down so that in the unlikely event of a leak, water will not enter the motor.
- Choose a *solid* surface (thick plywood) that will not amplify pump vibration. Padding under pump provides better insulation.
- The mounting feet are intended to isolate the pump from the mounting surface; over-tightening, or use of oversized screws will reduce ability to isolate vibration/noise.

ELECTRICAL

CAUTION **RED PUMP WIRE MUST BE HOOKED TO POSITIVE POWER OR PERMANENT DAMAGE TO CONTROLLER WILL RESULT!!!**

- The pump should be on an individual circuit, protected by the specified size fuse or circuit breaker.
- A 15 amp or higher switch is recommended, and must be on the positive (+ red) lead. Marine use UL marine duty switch.
- **TEST INCOMING POWER WITH MULTIMETER TO BE SURE OF PROPER VOLTAGE POLARITY (RED = +).**
- Wire size (gauge/mm^2) is based on the distance from the power source to the pump.
- Minimum size wire is #14GA [2.5mm^2].
- 12GA [4mm^2] recommended.
- Lengths of 20-50ft. [6-15M] use #12GA [4 mm^2].
- The pump must be grounded to a "known ground" (frame or battery negative terminal).
- The ground wire must be the same size as the positive wire.



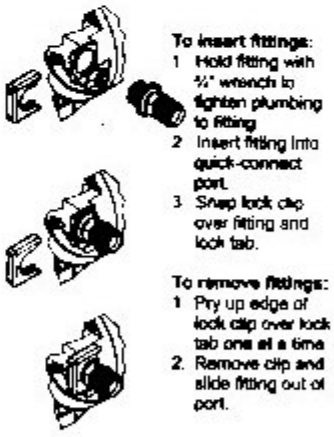
Recommended Installation Tools & Supplies

- Phillips Head Screwdriver
- Wire cutter/ crimper
- 12GA or 14GA wire
- ¾" open end wrench [or adjustable crescent wrench]
- Pliers
- #8 x 1-1/2" Mounting screws [4 required]
- High pressure flexible hose [18 in. on each side of pump]
- Fittings & Hose clamps
- Multimeter
- Waterproof wire splices

PLUMBING

- Installation of a 40 mesh strainer (SHURflo model 254) is recommended to prevent debris from entering the pump.

- SHURflo recommends at least 1ft. [.3 M] of ½" [13mm] I.D. flexible high pressure tubing to both ports. Ideally, the pumps ports and strainer ***should not*** be connected to plastic or rigid pipe. The pump's normal oscillation may transmit through rigid plumbing causing noise, and possibly loosen or crack components.



- SHURflo quick-connect fittings provide easy installation and removal if required. The fittings are designed with dual o-rings, creating a seal when snapped into place. Lubricate o-rings with silicone-based grease.

OPERATION

The Extreme pump is made for both high flow and low flow applications. In a high flow application, the pump will function normally. In a low flow application, the pump will run normally at high flow until 65 psi nominal shut-off. If the pump then still senses a need for water, the pump will shift into low-flow mode, with lower flow, lower amp draw and no cycling. The pump will lower to between 30 and 40 psi with low amps and flow, and no cycling. When the fixture is closed, pressure will build up and the pump will shut off.

Service Turn off power and drain system before servicing

Upper Housing Replacement

1. Remove four switch screws ⑤ and switch cover ⑧.
2. Carefully unhook 4-prong transducer wire connector ⑨ from under switch cover ⑧.
3. Remove ten housing screws ⑦ and remove upper housing ④.
4. Insert new upper housing ④over valves ③ and drive assembly ②.
5. Insert and tighten ten upper housing screws ⑦ to 20 in-lbs torque.
6. Remove four new switch cover screws ⑤ and remove new switch cover ⑧.
7. Attach 4-prong transducer wire connector ⑨ under switch cover ⑧, black wire to left when facing pump.
8. Insert and tighten four switch cover screws ⑤ to 10 in-lbs. torque.

Drive Assembly Replacement

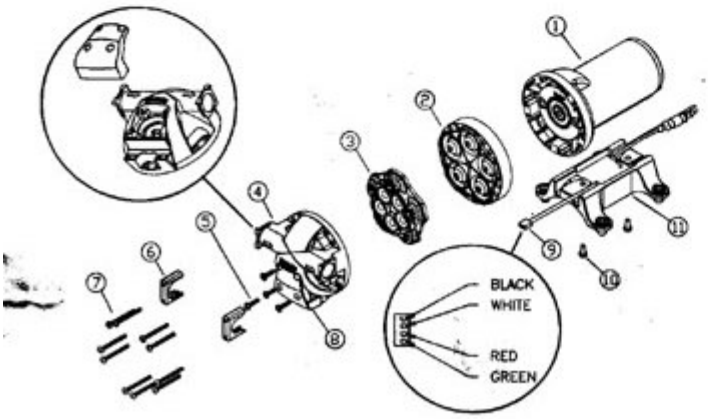
1. Remove ten housing screws ⑦ and remove upper housing ④.
2. Remove valve assembly ③.
3. Remove drive assembly ② from motor shaft ①. Note how 'D' on drive fits on motor shaft.
   4. Line up 'D' on new drive assembly ②, and slide drive assembly ② onto motor shaft ①.
5. Insert valve assembly ③ onto drive assembly ②.
6. Insert upper housing ④ over valves ③ and drive assembly ②.
7. Insert and tighten ten upper housing screws ⑦ to 20 in-lbs torque.

Motor/Baseplate/Controller Replacement

1. Remove four switch screws ⑤ and switch cover ⑧.
2. Carefully unhook 4-prong transducer wire connector ⑨ from under switch cover ⑧.
3. Remove ten housing screws ⑦ and remove upper housing ④, valve assembly ③ and drive assembly ② together as one unit.
4. Line up 'D' on drive assembly ②, and slide upper housing ④, valve assembly ③ and drive assembly ② together as one unit onto new motor shaft ①.
5. Insert and tighten ten upper housing screws ⑦ to 20 in-lbs torque.
6. Attach 4-prong transducer wire connector under switch cover ⑦, groove side to top of pump, black wire to left when facing pump.
7. Insert and tighten four switch cover screws ⑤ to 10 in-lbs. torque.

Valve Assembly Replacement

1. Remove ten housing screws ⑦ and remove upper housing ④.
2. Remove valve assembly ③.
3. Insert new valve assembly ③.
4. Insert new upper housing ④over valves ③ and drive assembly ②.
5. Insert and tighten ten upper housing screws ⑦ to 20 in-lbs torque.



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Troubleshooting

GENERAL INSPECTION

Vibration induced by road condition can cause plumbing or hardware to loosen. Check for loose system components. Many symptoms can be resolved by tightening the hardware. Check the following items along with other particulars of your system.

PUMP WILL NOT START/ BLOWS CIRCUIT

- Electrical connections, fuse, breaker, main switch, and ground connection.
- Is the motor hot? Thermal breaker may have triggered; will reset when cool.
- Is voltage present at the pump?
- Charging System for correct voltage (±10%) and good ground.
- For an open or grounded circuit or motor; improperly sized wire.
- For seized or locked diaphragm assembly (water frozen?).
- Is wire size too small? Minimum 14 GA wire required.

WILL NOT PRIME/SPUTTERS (No discharge/Motor runs)

- Is the strainer clogged with debris?
- Inlet cavitation from restrictions, small tubing? Outlet restrictions?
- Is there water in the tank, or air in the hot water heater?
- Is the inlet plumbing sucking in air at connections (vacuum leak)?
- Is inlet/outlet plumbing severely restricted or kinked?
- Proper voltage with the pump operating (±10%).
- For debris in pump inlet/outlet valves or swollen/dry valves.
- Pump housing and drive assembly for cracks or loose screws.

PUMP WILL NOT SHUT OFF/RUNS WHEN FAUCET IS CLOSED

- Output side plumbing for leaks, and inspect for leaky valves or toilet.
- For air trapped in outlet side (water heater) or pump head.
- For correct voltage to pump (±10%).
- For loose drive assembly or pump head screws.
- Are the valves held open by debris or swollen

LEAKS FROM PUMP HEAD OR SWITCH

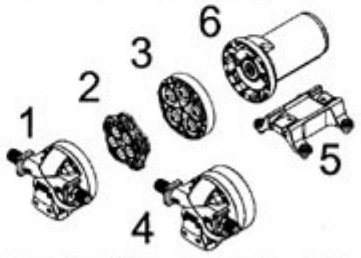
- For loose screws at switch or pump head.
- Switch diaphragm ruptured or pinched.
- For punctured diaphragm if water is present in the drive.
- Leaks from fitting? Check o-ring in groove? O-ring lubricated properly?

NOISY OR ROUGH OPERATION

- For plumbing which may have vibrated loose.
- Is pump plumbed with rigid pipe causing noise to transmit?
- Does the mounting surface multiply noise?
- For mounting feet that are loose or compressed too tight.
- For loose pump head to motor screws.
- For air in system.
- The motor with pump head removed. Is noise from motor or pump head.

5900-0201 SERVICE PARTS KITS

Have model and manufacture date ready when contacting SHURflo.



Number	Component	Part Kit
1	Upper Housing	94-030-00
2	Valve Assembly	94-030-01
3	Drive Assembly	94-030-02
4	Pumphead	94-030-03
5	Base/Controller	94-030-04
6	Motor	77-000-07

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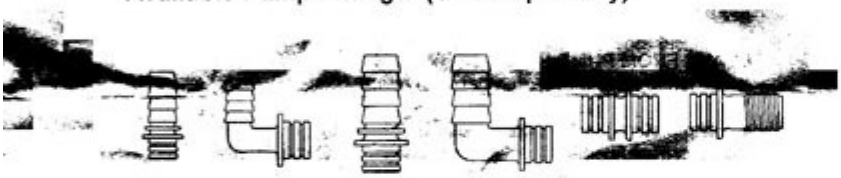
SANITIZING SUGGESTIONS

Potable water systems require maintenance to stay clean. The major cause of pre-mature pump failure is related to not keeping a clean and sanitary system. Debris and scale can accumulate under valves and check valve causing poor performance. Sanitizing is recommended prior to storing and before using the water system after storage. Systems with new components, or ones subjected to contamination, should also be disinfected as follows:

NOTE: This procedure is in conformance with the approved procedures of RVIA ANSI A119.2.

1. Use one of the following methods to determine the amount of common household bleach needed to sanitize.
   A) 1-1/2 ounces of bleach per 10-gallon tank size.
   Example: 40 gallon tank = 4 x 1.5 = 6 ounces of bleach.
   B) Multiply "Liters of tank capacity" by 1.0; the result is the milliliters of bleach needed to sanitize the tank.
2. Mix the proper amount of bleach within a 1-gallon container of water.
3. Pour the solution (water/bleach) into the tank and fill the tank with potable water. Rock vehicle back and forth to splash water on tank walls and top.
4. Open ***all*** faucets (Hot & Cold) allowing the water to run until the distinct odor of chlorine is detected.
5. The standard solution must have four (4) hours of contact time to disinfect completely. Doubling the concentration of bleach allows for contact time of one (1) hour.
6. When the contact time is complete, drain the tank. Refill with potable water and purge the plumbing of all sanitizing solution.

Available Pump Fittings* (Sold Separately)



84-920-01	84-920-02	84-920-03	84-920-04	84-920-05	84-920-06 *
1/2" Barb Straight	1/2" Barb Elbow	3/4" Barb Straight	3/4" Barb Elbow	Strainer Coupler	1/2" NPS-M Straight

* 2 each #84-920-06 included with pump
NOTE: Lubricate fitting o-rings with silicone-based grease.

WINTERIZING SUGGESTIONS

The goal of winterizing procedures is to either get all, or as much as possible, of the water out of the system before it freezes, or to keep the water from freezing.
The best guarantee against damage is to completely drain the water system.

Potable anti-freeze may still be poured in the drains to protect the p-traps and waste system from freezing.

NOTE: When used per the manufacturers recommendations ***non-toxic antifreeze for potable water*** is safe for use with SHURflo pumps. **Make sure all components in the system are compatible. Hot water heaters and filters must be drained and by-passed when using potable water anti-freeze.** Refer to the coach manufacturer and other equipment manufacturers for their specific winterizing & drainage instructions.

⚠ WARNING

***Do not* use Automotive Antifreeze to winterize potable water systems.**

Such solutions are highly toxic. Ingestion may cause serious injury or death.

To properly drain the system, perform the following:

1. Drain the water tank. If the tank doesn't have a drain valve, open all faucets and let pump run until the tank is empty.
2. Open all the faucets (including the lowest valve or drain in the plumbing) and allow the pump to purge the water from the plumbing, and then turn the pump OFF.
3. Using a pan to catch the remaining water, remove the plumbing at the pump's inlet/outlet ports. Turn the pump ON, allowing it to operate until the water is expelled. Turn OFF power to the pump once the plumbing is emptied. Do not reconnect pump plumbing. It is o.k. to lightly cover plumbing ends to prevent bugs from entering the system.
   Make a note at tank filler as a reminder:
   "Plumbing is Disconnected".
4. All faucets should be left open to guard against any damage.
5. Potable water anti-freeze may be poured into drains to protect p-traps and waste system from freezing.
6. Fill system and **sanitize** before use in the Spring.

LIMITED WARRANTY

SHURflo warrants its Potable Water pumps to be free from material and workmanship defects under normal use and service for a period of three (3) years from the date of manufacture indicated on the motor nameplate.

The limited warranty will not apply to pumps that were improperly installed, misapplied, or are incompatible with components not manufactured by SHURflo. Pump failure due to foreign debris is not covered under the terms of this limited warranty. SHURflo will not warrant any pump that is physically damaged, or altered outside the SHURflo factory.

Warranty claims may be resolved by an authorized dealer service center, or by a SHURflo service center. Returns are to be shipped with charges pre-paid. Package all returns carefully. SHURflo will not be responsible for freight damage incurred during shipping to a service center.

For complete Limited Warranty details, please contact SHURflo.

★ISO Certified Facility

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SHURflo reserves the right to update specifications, prices, or make substitutions.

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