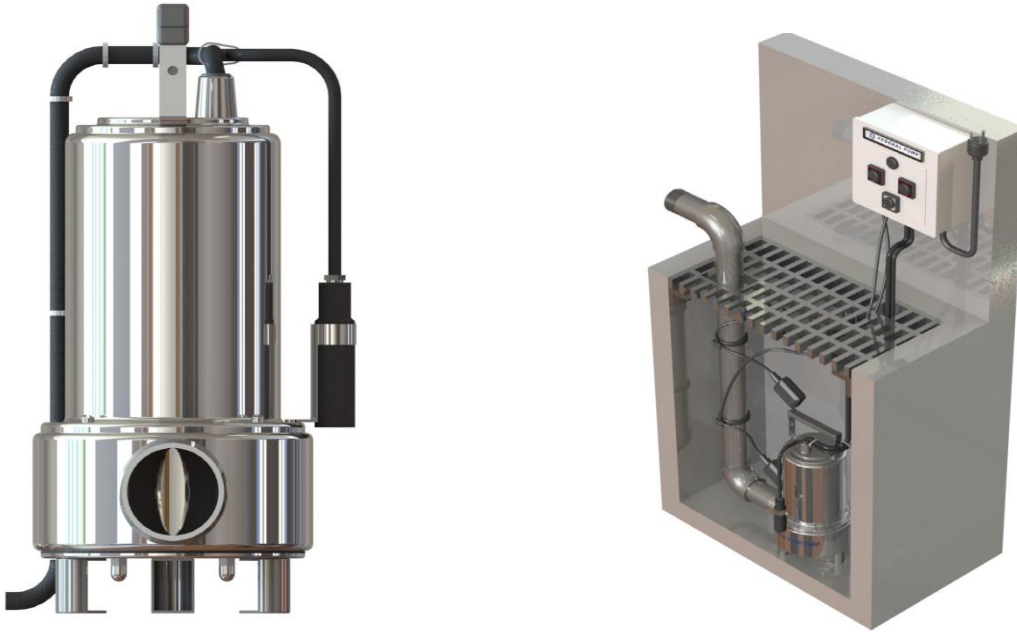


FEDERAL PUMP TYPE POS OIL SHIELD™ INSTALLATION, OPERATION AND MAINTANCE MANUAL



Manufactured By:

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Read the manual carefully before installing, operating or servicing these pumps models. **Pay attention to all safety information and warnings.** Failure to comply with instructions may result in personal injury and/or property damage. Please retain these instructions.

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FIGURE 1

Introduction

The Installation, Operation and Maintenance manual provides important information on safety and the proper inspection, disassembly, assembly and testing of the Federal Pump POS Oil Shield™. If you have any questions regarding the inspection, disassembly, assembly or testing, please contact us.

For assistance with your electric power source, please contact a certified electrician.

The Federal Pump POS Oil Shield™, when combined with a pump, allows water to be pumped automatically from elevator, transformer vaults, and industrial sumps without danger of ejecting hazardous oil into sewage systems, rivers, and waterways. There is no need for an oil-water separator. This product is engineered for efficient under the most severe conditions.

Please pay attention to the alert notifications. They are used to notify operators and maintenance personnel to pay special attention to procedures, to avoid causing damage to the equipment, and to avoid situations that could be dangerous to personnel.



Caution: Hazard or unsafe practices **MAY** result in personal injury, product or property damage. These instructions describe the procedure required and the possible damage which could result from failure to follow the procedure.



Caution: Immediate hazards **WILL** result in severe injury or death, product or property damage. These instructions describe the procedure required and the injury which will result from failure to follow the procedure.

Safety Instructions and Warning



1. **FIGURE 1.** Check if the power is off and the line is disconnected before working on the pump. Always disconnect the power before task on working on the pump, cable, control box or accessories. Do not modify cord or plug, use grounded outlet only.



2. Before attempting to open or service the pump, familiarize yourself with this manual.
3. **FIGURE 2.** Always lift the pump by its handle, **(1)** for lifting or lowering. Never lift by the electrical cable **(2)**, it is fragile and can cause dangerous electrical shorts. See Figure 1 for visual.

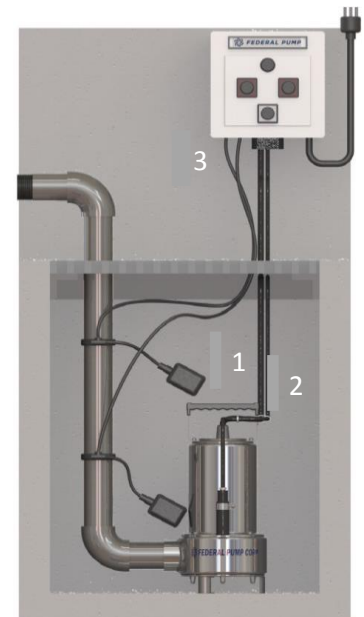


FIGURE 1: POS



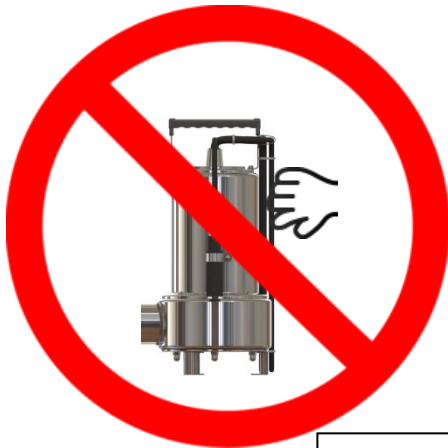
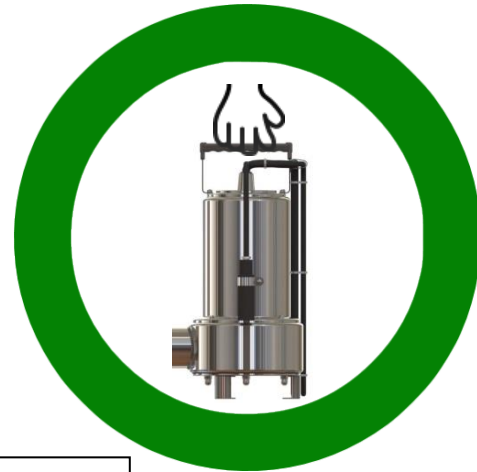


FIGURE 2: POS Handling



DON'T NOT LIFT WITH POWER CORD



- Secure that power supply information such as volts, hertz, and phase on pump motor nameplate matches incoming power supply. The pump motor nameplate is located on pump



- Never attempt to alter the length or repair any power cable with a splice. The pump motor and cable must be completely waterproof. Damage to the pump or personal injury may result from alterations. FIGURE 1



- The sump pump cannot be installed in any location that is classified as hazardous by the National Electrical Code, ANSI/NFPA 70-1984.

- The temperature of the water is not to exceed 104°F. Contact the factory for high temperature application; high temperature models are fitted to withstand temperatures of 190°F.

- Maximum depth for the Oil Shield™ is 65 feet

- Always mount control panel **(3)** in a vertical position and in a dry area above ground near pump. If outdoor installation is applicable, make sure a more suitable control panel enclosure is used.



- Do not run pump dry, it can overheat the pump and can cause burns to the personnel.

- The pump cannot freeze if it is running or submerged in water. If it is removed from the liquid, empty the pump, clean and dry it. Store it in a space where the temperature is above 62°F. If the pump has been exposed to freezing temperatures, let it thaw slowly before it is started again. **NEVER** thaw using flame or similar methods, as O-rings and other materials may be damaging.

- After shutdown of pump, allow 20 minutes to cool.



13. An automatic overload protector in the motor will protect the motor from burn-out due to overheating or overloading. When motor cools, the overload protector will automatically reset and start motor.

Installation



1. The Oil Shield™ Sump Pump should be installed on a solid bottom, with or without the steel graded cover, like cement or asphalt (never) hanged by a wire. Never place on a loose or soft bottom, it could sink and water will not reach the impeller **FIGURE 3**. Do not install on earth, clay or gravel.
2. If the pump is chosen to be hung by a wire, it will have to be restricted from twisting during start-up. This can be done by securing the pump to one side of the sump pit.
3. Pump discharge piping must not be smaller than the pump discharge connection. For handling effluent, pipe must be capable of handling a 2" diameter solid minimum. When handling effluent, pipe must be capable of handling a ¾" diameter solid minimum.



FIGURE 3: POS Impeller

4. The pumps are equipped with a volute that needs to be kept ¾ submerged for proper motor cooling during extended run times (15+ minutes). Stops and starts should not exceed 10 times per hour and the pump needs to be sized accordingly to sump size and water in-flow ratio.
5. The pump is set in the base of the sump pit. The pump is equipped with its own stand and does not need external support.
6. The control panel must be secured to the wall in a convenient location, near the pump, with four mounting screws and installed per local building code requirements.
7. The electrical cord from the Control panel is to be plugged into a standard 115V outlet, thereby activating the pump and control.
8. Always check if the floats are positioned in the sump correctly so there are no obstructions and the floats are allowed to oscillate freely.





- 9. The float switch and alarm switch is moved to the on position to check its physical operation and pump operation during normal vault inspections, or every six months.

- 10. Make sure the impeller rotates in the correct direction by tilting the pump slightly to one side and starting up the pump for a short moment. The impeller should turn clockwise.

Start-Up Description

- Check the pump for any damages that may have occurred during shipment

- Inspect the pump for any cracks, dents, damaged threads, etc.



- Check power chord for any cuts or damages

- Check for, and tighten any hardware that appears loose



- Check all data tag for correct voltage and specifics of the pump

- When permanently installing the pump in a sump pit, the holding capacity of the sump is a direct proportion to the capacity of the pump. If the sump is too small, the pump will stop and start too often.

- The recommended maximum start-ups is ten per hour. If used with hose, check that restrictions are present.

- Always** use a check valve to prevent back flow.

If you notice anything unusual, contact Federal Pump. If damaged, the pump may need to be repaired before use. Do not install or use the pump until appropriate action has taken place.



Operations

Storage

1. The system should be stored in a clean and dry environment above 62°F prior to install.
2. If the pump and control system are to be stored for longer than three months, it is recommend for the impeller be turned several revolutions by hand, before installation.

Overhaul

1. If the pump or the mechanical seals are new, the oil seal should be checked after two days of operation.
2. After the initial inspection, check every 1000 hours if pump is used in clean water.
3. If the liquid being pumped is very dirty or laden with abrasive material, the pump should be checked every 500 hours.
4. When inspecting the oil in the oil housing, make sure that no water is present. Change the O-ring (**FIGURE 4**) under the inspection plug after each inspection.
5. Motor should not need oiling, When overhauling, replace with new oil. Use oil that is instructed by the factory.
6. When detaching the mechanical seal, beware of leaking oil. The oil reserve is located above the mechanical seal.



FIGURE 4: POS Top View



Maintenance

The system is designed to withstand water, oil, and moisture and requires minimal maintenance. It is recommended that the probe is cleaned of any debris, calcium or iron deposits once every year or more frequently under severe conditions.

1. To stop the pump, disconnect power to pump by unplugging it from the power source, turn off the breaker or generator and control switch before removing pump from pit or basin.



2. Remove all scale and deposits on pump. Submerge pump in disinfectant solution for one hour before disassembly.

General Inspection

1. Regular inspection and preventive maintenance ensure more reliable operation. The system is designed to withstand water, oil, and moisture and requires minimal maintenance.
2. It is recommended that the probe and connecting bracket be cleaned of any debris, calcium or iron deposits once every year. If it's under more severe conditions, it should be cleaned more frequently.
3. The float switch is turned on to check pump operation during normal maintenance or every six months.
4. To clean probe, use alcohol and an abrasive pad or steel wool. To clean connecting bracket use a rag and alcohol. Remove all debris or iron deposits so as to prevent the possibility of shorting the probe.
5. The pump housing and the impeller should be visually inspected every time an oil and stator inspection is made.

Mechanical Seal Inspection

1. Remove the oil inspection plug located on the side of the volute or on top of pump.
2. Tilt the pump so that some oil is drained. If the color of the oil is light yellow gray or if there is a noticeable trace of water, the lower mechanical seal and seal ring should be inspected and the oil replaced.



FIGURE 5: POS Mechanical Seal

3. Check that the oil housing contains the correct quantity of oil and it must be checked after 15 hours.
4. When installing mechanical seals, make sure a sleeve is used and that the shaft is well lubricated with the same oil as used in the oil housing or motor housing (oil filled motors use transformer oil).

Changing Seal Oil

1. Make sure that the pump cable is disconnected from the power source
2. Lay the pump down on its side
3. Remove the screws that hold the bottom plate in place.
4. Remove bottom plate.
5. Remove screws holding the suction cover.
6. Remove the suction cover.
7. Remove the impeller
8. Remove the inspection screw for the oil chamber. Pour out a small sample of the oil. If it is milky white, or contains water, then the oil possible, the mechanical seal, should be changed. If an oil change is needed:
9. Remove the screws that hold the oil chamber cover in place and remove the oil.
10. Replace the mechanical seal if necessary.
11. Replace the oil.
12. Assemble the pump.

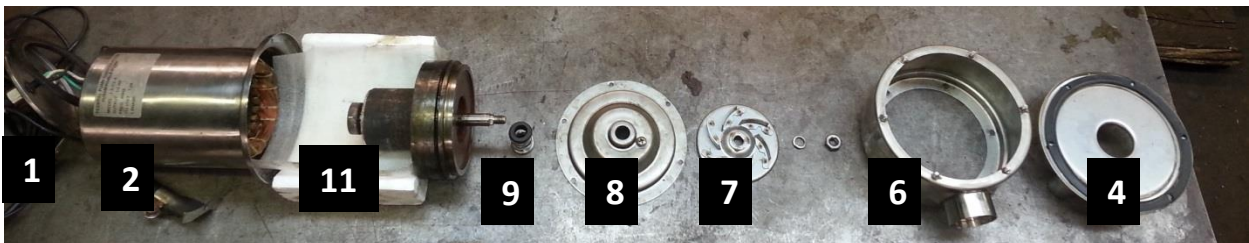


FIGURE 6: POS Exploded View

Operating Problems and Remedies

If pump fails to operate:

1. Be sure power cord is tightly plugged into outlet.
2. Be sure that the power plug is operational.
3. Be sure that liquid level is high enough to activate control switch.
4. Be sure that 3/16" vent hole in discharge pipe is not clogged.
5. Check for blockage of pump inlet, impeller, and check valve or discharge pipe.
6. Check for defective cable or incorrect wiring
7. Observe if the float switch is tangled/ obstructed. Clean and free float switch from obstruction
8. Check for float switch defective. If this is the case, it should be replaced
9. Check to see if thermal overload is tripped. Test start pump, and if it stops immediately, allow 30 minutes to cool, and then reconnect power. Determine cause of overheating.

If pump runs but does not deliver rated capacity:

1. The Discharge line may be clogged, restricted or hose kinked. Check discharge hose/pipe.
2. Check for a worn impeller and/or suction cover. Inspect and replace as necessary.
3. The pump may be overloaded due to liquid pumped being too thick
4. The pump may have air in it. Check liquid level and position of pump
5. Check for excessive voltage drop, it could be due to long cables.

If pump fails to empty sump:

1. Be sure all discharge lines valves are fully open.
2. Clean out discharge pipe and check valve.
3. Check for pump inlet or impeller blockage.
4. A higher capacity pump may be required.

If pump will not shut off:

1. Check float switch and floats for proper operation and location
2. If pump is completely inoperative or continues to malfunction, consult your serviceman.



