# Commercial Facility Sump Pump Float Switch Testing And Cleaning

## 1.0 Maintenance Objective & Frequency

The objective of this procedure is to verify the mechanical and electrical integrity of the sump pump float switch assembly, remove any debris or sediment buildup that could impede float travel, and ensure the switch activates and deactivates the pump at the correct water levels. This prevents pump cycling failures, motor burnout, and potential basement flooding.

Frequency: Quarterly (every 3 months) or immediately after a heavy rain event or suspected pump malfunction.

## 2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Locate the dedicated circuit breaker or disconnect switch for the sump pump. Switch to the OFF position and apply a personal lock and tag.
- Verify Zero Energy State: Attempt to start the pump using the manual test button (if equipped) to confirm power is disconnected.
- Confined Space Awareness: The sump pit may be classified as a confined space. If the pit depth exceeds 4 feet or has a restricted entry, follow your facility's confined space entry permit procedure.
- Mandatory PPE: Safety glasses, chemical-resistant gloves (e.g., nitrile), rubber boots, and a face shield if there is risk of splashing contaminated water.
- Hazardous Atmosphere: If the sump pit contains sewage or chemical waste, test the atmosphere for H2S, methane, and oxygen deficiency before opening the cover.

## 3.0 Required Tools, Parts & Lubricants

- 5-gallon bucket or wet/dry vacuum for removing standing water
- Adjustable wrench or socket set (typically 10mm or 13mm) for removing pump discharge pipe
- Multimeter with continuity and resistance functions
- Soft-bristle brush (e.g., nylon parts brush) or old toothbrush
- Clean rags or paper towels
- Spray bottle with clean water or mild detergent solution
- Dielectric grease (e.g., Permatex 22058) for electrical connections
- Replacement float switch (OEM part number verified from pump nameplate)
- Teflon tape for pipe threads
- Flashlight or headlamp

## 4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO as described in Section 2.0. Confirm the pump is electrically isolated.
2. Remove the sump pit cover. Use the flashlight to inspect the pit for visible debris, oil sheen, or unusual odors. If the water level is above the pump intake, use the wet/dry vacuum or bucket to lower the level to below the pump base.

3. Disconnect the pump discharge pipe union or coupling using the adjustable wrench. Be prepared for residual water in the pipe. Cap or plug the discharge line to prevent backflow.

4. Carefully lift the pump and float switch assembly out of the pit. Place it on a clean, stable surface (e.g., a tarp or plastic sheet). Inspect the float switch for physical damage, cracks, or water ingress.

5. Using the soft-bristle brush and mild detergent solution, gently scrub the float switch body and the tether cord (if applicable). Pay special attention to the pivot point or hinge area where sediment accumulates. Rinse with clean water and dry with a clean rag.

6. Inspect the float switch electrical cord for cuts, abrasions, or kinks. Check the cord entry point into the pump housing for signs of moisture or corrosion.

7. Using the multimeter set to continuity or resistance mode, test the float switch operation. For a normally open (NO) switch: the meter should read infinite resistance (open circuit) when the float is in the down position, and near zero resistance (closed circuit) when the float is lifted to its actuation angle. For a normally closed (NC) switch, the opposite should be true. If the switch fails to actuate or shows intermittent continuity, replace it with the OEM part.

8. If the float switch passes the electrical test, apply a thin layer of dielectric grease to the electrical pins or terminals inside the pump connection box (if accessible). Reconnect any wiring that was disconnected, ensuring a tight, corrosion-free connection.

9. Reinstall the pump assembly into the sump pit. Ensure the float switch has free, unobstructed movement and is not tangled with the pump cord or discharge pipe. The float should be positioned so it activates before the water level reaches the pump motor housing.

10. Reconnect the discharge pipe union. Apply Teflon tape to the male threads and tighten the union securely with the adjustable wrench. Do not overtighten.

11. Replace the sump pit cover securely.

## 5.0 Verification & Return to Service

1. Remove LOTO devices and restore electrical power to the pump circuit.

2. Pour a bucket of clean water into the sump pit to raise the water level. Observe the float switch rise and confirm the pump activates automatically. Listen for smooth operation and check for unusual noises or vibrations.

3. Allow the pump to run until the water level drops and the float switch returns to the down position. Confirm the pump shuts off cleanly without short-cycling.

4. Check all pipe connections for leaks. Tighten if necessary.

5. Record the maintenance completion in ServiceGrid, including float switch continuity readings, any debris observed, and the condition of the pump and pit. Sign off on the PM work order.