

**871DO-C Dissolved Oxygen Sensor
Membrane Replacement Kits**

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871DO Dissolved Oxygen Sensor Membrane Replacement Kits

Sensor Inspection

Fouling (the buildup of a film) on the sensor membrane may cause a decrease in output current or an erratic signal. Torn or broken membranes may cause high and erratic output currents. For new installations, a weekly inspection of the sensor is recommended until the required maintenance schedule for the particular installation is known. Inspect the sensor when readings are suspect. If fouling of the membrane is evident, clean the sensor as described in these instructions. If membrane damage (tears, pinholes, rips) is observed, the membrane cap assembly requires replacement.

Kit Part Numbers

Quantity	Description
	BS807RU - Single Membrane Replacement Kit
1	membrane replacement
1	50 ml bottle electrolyte with MSDS (a)
1	vent cap
1	polishing disc
1	Instruction
1	membrane protection cap
	BS807RV - Three Membrane Replacement Kit
3	membrane replacements
3	50 ml bottles electrolyte with MSDS (a)
3	vent caps
3	polishing discs
1	Instruction
3	membrane protection caps

a. SDS = Safety Data Sheet

Sensor/Membrane Cleaning

NOTICE

Handle the sensor and membrane carefully to avoid damage to the composite membrane.

Rinse the sensor, along with the membrane cap assembly, with clean water. Blot the electrode with a soft cloth or tissue. Inspect the membrane.

Coatings or adherent films may be removed by gently wiping the membrane with a soft tissue or cloth. Inspect the membrane.

More tenacious coatings may be removed by soaking the assembled sensor in a dilute detergent/water mixture. Gently rinse and blot the sensor with a soft cloth or tissue. Inspect the membrane.

NOTICE

Mechanical cleaning of the membrane with abrasives is not recommended.

If coating persists, or membrane damage is evident, membrane and electrolyte replacement is required.

Membrane and Electrolyte Replacement

The membrane cap and electrolyte are designed to provide trouble-free operation for up to three months in ambient temperature conditions. In higher temperature applications, particularly where frequent temperature cycling occurs, the sensor should be inspected, cleaned, and calibrated at one month intervals.

Membrane and electrolyte changes are required when:

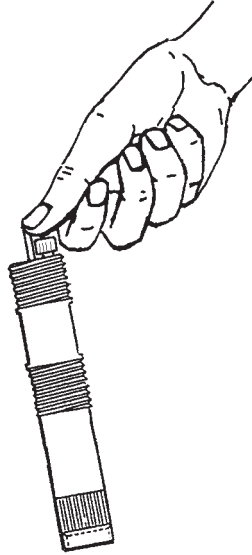
- ◆ The response of the sensor is slower than normal or the output is excessively high or drifting monotonically high.
- ◆ The sensor calibration or on-line readings exhibit greater than normal drift.
- ◆ The sensor has been stored in a non-water saturated atmosphere resulting in loss of electrolyte from the internal reservoir.
- ◆ The membrane is torn or otherwise physically abraded or damaged.

When it is necessary to change the membrane or electrolyte, use the following procedure.

Replacement Procedure

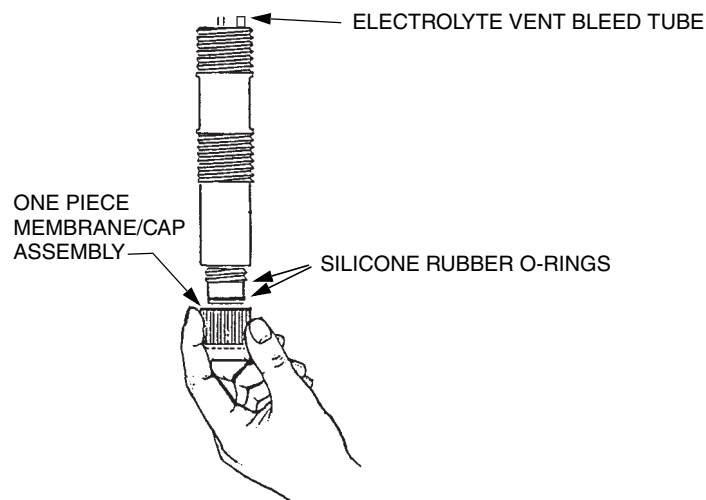
1. Remove sensor from installation.
2. Unscrew and remove the yellow electrolyte vent cap on top of the sensor body. See Figure 3. The electrolyte vent bleed tube will be exposed.

Figure 1. Removal of Vent Cap



3. While holding the sensor assembly vertically (see Figure 2), unscrew the membrane cap assembly from the sensor body. Discard the old membrane cap assembly. To remove old electrolyte, shake sensor down (like a clinical thermometer).

Figure 2. Membrane Cap Removal



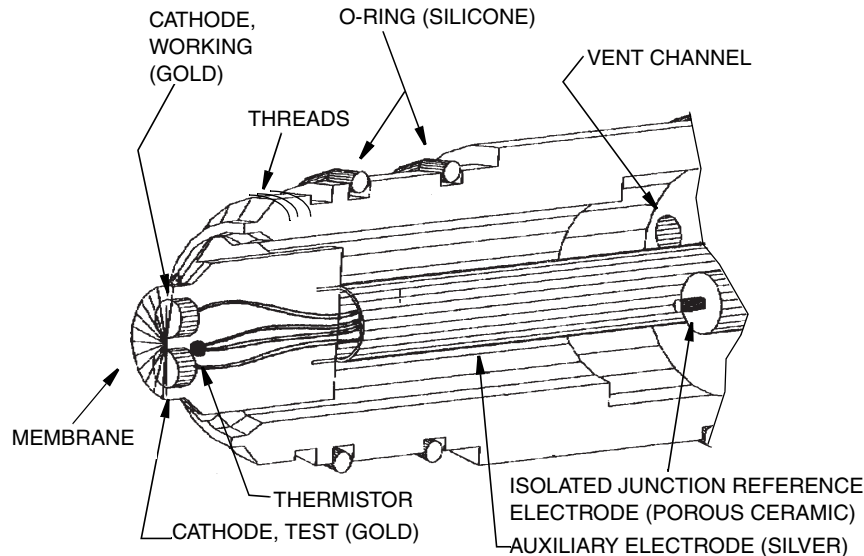
4. Flush the sensor body and electrolyte vent channel with clean tap water. Ensure that the vent channel is free flowing by seeing that water flows easily through electrode body. Dry assembly with a lint-free cloth or tissue.
5. Inspect o-rings for nicks or wear. Remove and discard damaged o-rings (Part Number X0145CL).

6. Before installing a new o-ring or membrane cap, inspect the test and working electrodes for nicks or tarnish. See Figure 3 for location of test and working electrodes. If either is present, remove by polishing with a wet polishing disc (Part No. XS004DX, enclosed with membrane cap assemblies). Remove the adhesive backing from the polishing disc and stick to palm of hand to form a curved surface to accommodate the convex surface of the sensor. Wet the polishing disc with clean water, hold sensor in other hand, and rub gently in a single linear direction. Rotate sensor 90° and repeat procedure. A crosshatch pattern should result. Rinse internal chamber thoroughly to remove sediment that may have entered the sensor during this procedure, shake out water and dry with a lint-free cloth or tissue.

NOTICE

For proper operation of the sensor, it is imperative that no dirt or particulate material is present in the thin electrolyte layer between the membrane and the working and test electrodes.

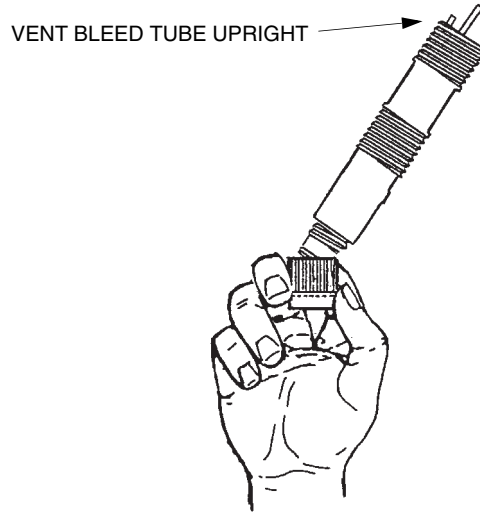
Figure 3. Location of Work and Test Electrodes and Vent Channel



7. Replace o-rings (Part No. X0145CL) if necessary. Place o-rings in groove, ensuring proper seating.
8. Fill a new membrane cap assembly with fresh electrolyte. Tap the cap to release any trapped air bubbles. Allow them to rise to the surface. Refill cap to the top. The sensor holds approximately 9 ml of electrolyte.

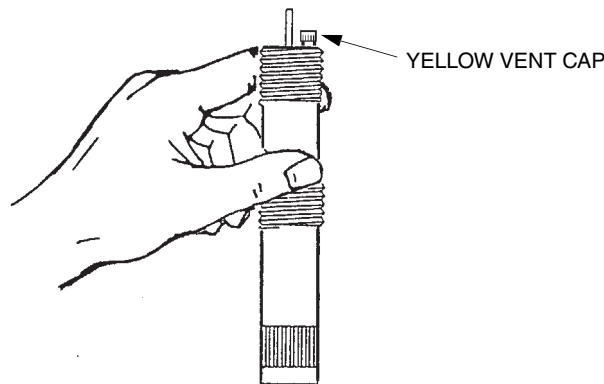
9. Holding the sensor at a slight angle with the vent bleed tube aligned upright, slowly insert the sensor body into the membrane cap so excess electrolyte and any remaining trapped air escapes through the vent hole. See Figure 4.

Figure 4. Replacement Membrane Installation and Venting



10. Straighten the sensor body and screw the membrane cap to the sensor body; snug to finger tight. Check the membrane for evidence of trapped particles. (Silver chloride may flake off of the auxiliary electrode.) If any particles appear, remove the membrane cap assembly, rinse with clean water, shake to remove excess water, and refill with fresh electrolyte. Repeat Steps 8 and 9.
11. Install vent cap on vent bleed tube and tighten down finger tight (Figure 5).

Figure 5. Replacement of Vent Cap



12. Allow sensor to “polarize” at least 15 minutes before attempting to standardize. (Leave sensor wired to powered 873DO.) During this period, excess oxygen in the thin film between the membrane and working electrode is electrochemically reduced. Ensure that the sensor current is stable before standardization is attempted. Shelter sensor from direct sunlight during this period and during air calibration.
13. **The sensor must be recalibrated after replacing the electrolyte and/or membrane.** Consult the analyzer instructions for complete calibration/standardization procedures.

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