

Tech Note 130827.1: REM-B Anode Upgrade

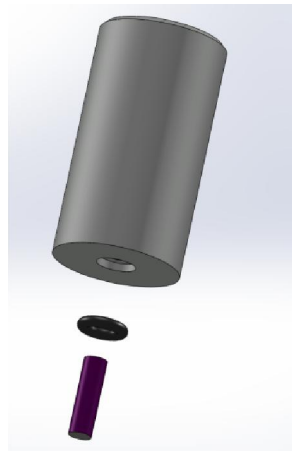
The zincs (20 grams) previously installed onto the REMB model of the optical Biofloat sensor family are to be replaced. The zincs have been redesigned (90 grams) to facilitate a longer protection life (see Calculation table below). This upgrade only applies to the REM-B model. This document will show the user how to install/replace the current zinc anode with the larger anode.

Note

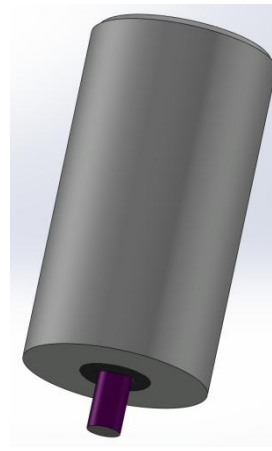
Be careful not to scratch the anodizing from the flange.

Assemble the Anode

Before installing the anode on the sensor, a #6-32 X 0.5" stud must be threaded into the anode. Thread the stud into the anode until it bottoms out in the hole and can no longer be turned. Install the 2-008 size O-ring over the protruding section of the stud and seat the O-ring inside the counter-bore located in the anode.



Anode exploded assembly



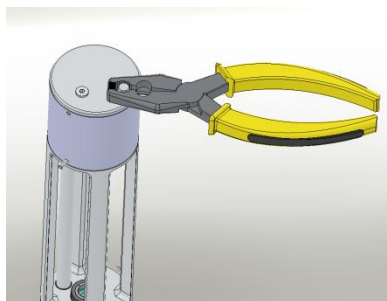
Anode assembly completed

Remove the Old Anode from REM-B

Use pliers to grip the 20 gr anode and turn counterclockwise to loosen and remove from the top flange. Wipe the area that was under the anode with IPA to remove any dirt, biofouling, and/or grease.

Note

Be careful not to scratch the anodizing from the flange with the pliers.



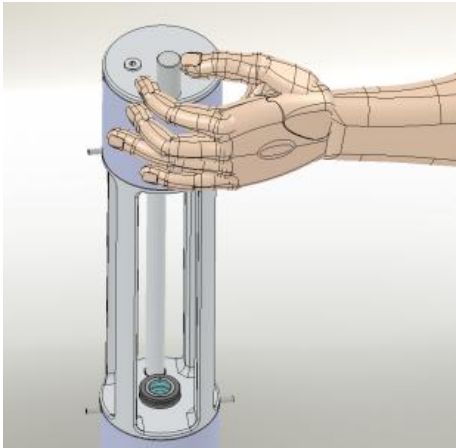
Remove original zinc

Install the New Anode

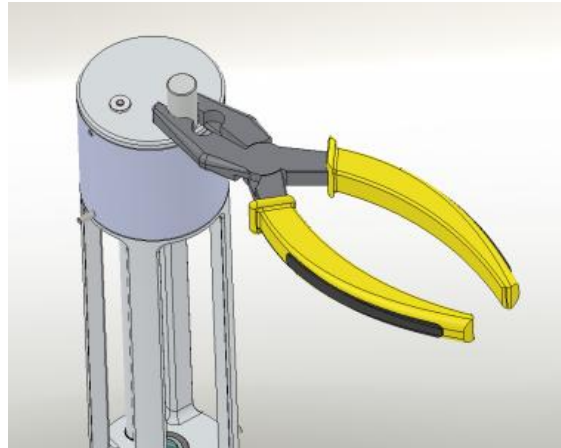
Thread in the new 90 gr zinc anode assembly by hand until the O-ring can no longer be compressed against the face of the flange. Use pliers to grip the outside diameter of the zinc, and turn clockwise until the zinc is tight against the flange. Marking caused by the pliers on the cylindrical face of the anode is OK.

Note

Be careful not to scratch the anodizing from the flange with the pliers.



Hand tightening anode



Final tightening with pliers

Anode Life Calculation and Assumptions

Instrument	Wetted Surface Area (sq-ft)	Current Density (mA/sq-ft)*	Immersion (Hours/Year)	Years	Energy Content (A-hrs/lb)*	Anode Weight (Lbs)	Anode Weight (g)
Rem-A w/o OCR	0.83	1	8766	3	368	0.06	26.90
Rem-B w/ OCR	2.845	1	8766	3	368	0.20	92.22
Energy Content (A-hrs/lb)* = 368 for mil-spec zinc anodes							
Estimating Current Density*:							
The amount of electric current required from anodes protecting a metal hull (or structure) in seawater is primarily a function of the water's flow rate and the quality of the metal's protective paint coating. The following are design estimates:							
<u>Aluminum Hull or Structure</u>							
Stationary (0 - 0.5 mph):							
Well coated = 0.5 mA/sq-ft							
Poor or old coating = 1 mA/sq-ft							
Uncoated = 2 mA/sq-ft							
Low Velocity Water Flow (0.5 - 2 mph):							
Well coated = 1 mA/sq-ft							
Poor or old coating = 2 mA/sq-ft							
Uncoated = 4 to 8 mA/sq-ft							
Medium Velocity Water Flow (2 - 5 mph):							
Well coated = 2 mA/sq-ft							
Poor or old coating = 3 mA/sq-ft							
Uncoated = 5 to 12 mA/sq-ft							
High Velocity Water Flow (>5 mph):							
Well coated = 3 mA/sq-ft							
Poor or old coating = 5 mA/sq-ft							
Uncoated = 10 to 25 mA/sq-ft							