



P&S Marine Repair & Supply, Inc.

Proudly serving: Putnam, Flagler, Volusia, St. Johns & Marion counties!



Nautical Times

Monthly Newsletter - February 2025



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We will be on [Flagler Voice](#) this month as guest speakers so come and enjoy our podcast!

ALSO!

We are starting our own [YouTube podcast channel](#) this month as well! We will be doing new marine gear reviews as well as discussing other marine related issues on our channel!

West Marine is generously providing us with products to review for our channel!

AND

We now have a place where you can [sell your boat on our website!](#)
Contact us for more details!



by **Stephen D. Surowitz** on February 01, 2025

As the boating season approaches we all have a responsibility. That is to provide something that we enjoy almost all year some love and maintenance. Let's face it, if you don't take care of something that provides you hours of fun, especially during the summer, then it is bound to fail! Sure you might get lucky, but as the old saying goes "an ounce of prevention is worth a pound of cure"! You wouldn't drive your car without changing its oil or replacing the tires when they are bald right? So don't let your boat down, take care of it!

Yes, we provide these services and would love to do them for you, but if you are a do it yourselfer then by all means do it!

As a special for all of our newsletter recipients we are offering a pre-season tune up special! 12% off of your entire bill!



For this month I have chosen a subject that should open your eyes to a major issue that really affects us all and that is **corrosion!**

What is Galvanic Corrosion? (Reprinted from Quicksilver Anodes)

Galvanic corrosion is an electrochemical reaction that occurs when two or more dissimilar metals, for example an aluminum lower unit and a stainless-steel propeller, are connected together and immersed in a conductive solution, such as salt or brackish water. Electrons flow from the more chemically active metal directly to the less chemically active metal through the external connection. Positively charged ions move from the anode and negatively charged ions move from the cathode through the electrolyte. The result of this process is the dissolving of the anode material, typically aluminum components such as an outboard gearcase or sterndrive unit. Conductivity increases with water temperature, which is one reason boats in Florida experience more galvanic corrosion than boats in colder climates such as Maine or Alaska.

One of the first signs of galvanic corrosion is paint blistering, usually beginning on sharp edges below the waterline. It appears as a white powdery substance forming on the exposed metal areas. As corrosion advances, exposed metal areas may become deeply pitted, as metal is eaten away. Galvanic corrosion of aluminum outboard gearcases, sterndrive units or any other underwater aluminum on your boat is accelerated by proximity to stainless steel components like propellers, powered trim tabs and aftermarket steering systems.

Sacrificial Anodes

Sacrificial anodes are made of alloys that are more vulnerable to the effects of galvanic corrosion and are intended to corrode more easily, or “sacrifice” themselves, to protect the adjacent aluminum material. Sacrificial anodes are made of materials such as aluminum, magnesium and zinc. Zinc anodes are commonly used on boats operated in saltwater or brackish water.





Magnesium anodes are frequently used in freshwater-only applications. Aluminum anodes are a popular all-around choice that can be used effectively in all water conditions. They also tend to be the lightest and least-expensive option for most applications.

A common misconception among some boat owners is that non-corroded anodes are a good sign that corrosion is not occurring. In fact, the opposite is true. If your anodes show no signs of wear or corrosion after extended use in the water, that may be an indication that damaging corrosion is occurring on other more critical components. If this happens to your motor, check the anodes closely. They may be dissipated, coated with scum or marine growth, or otherwise not functioning and should be replaced.

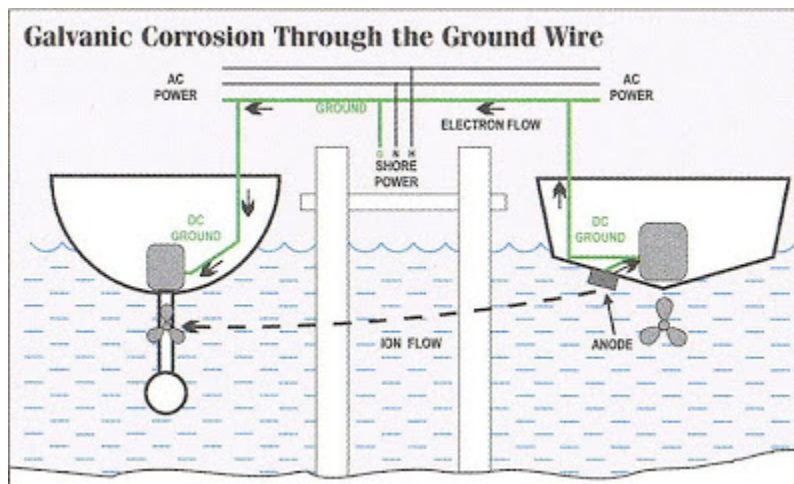
Replacement Tips

- Anodes look like a small gray block and are usually secured with one or more bolts.
- Some anodes are grounded to the engine case with a wire or strap. If yours are grounded, be sure to reattach the ground strap when replacing the anode.
- Anodes may become coated with a thin film of scum in some water conditions. This film can be removed with a stiff brush.
- Anodes must be in direct contact with the water to work properly, **so never paint or apply other coatings over them**. Either remove or tape over them when painting the surrounding area.
- Replace anodes when about half of the material has been lost to corrosion. To get the best protection for your boat, always use quality anodes.

“The Galvanic cell”:

The issue for boats plugged into shore power is that each one is electrically connected to every other one in the marina via the system's grounding conductor — the green wire. This creates a natural phenomenon known as the galvanic cell. In this cell there will be winners and losers in the form of unwanted metal corrosion of the less noble metal in the cell, which is unfortunately often expensive underwater metals such as aluminum outdrives. To help mitigate damage from this natural electrochemical reaction, a typical boat will have sacrificial anodes installed to corrode rather than the metal in the galvanic cell. This is all well and good for a boat isolated from the dock and stored on a mooring. But any time that boat is plugged into shore power at a dock, those anodes, which are connected to the boat's grounding system, are also contributing to the corrosion protection for all the other boats plugged into that same dock sharing the same green wire. A boat that is plugged in that has insufficient anode area will naturally act as a drain to a boat that is properly equipped with adequate anodes and plugged in at the same dock.

Enter the galvanic isolator. Although not as capable as an isolation transformer, the galvanic isolator can go a long way toward extending sacrificial anode service life and mitigating corrosion, at much lower cost and nearly insignificant weight compared to the transformer. If your boat is plugged into shore power on a regular basis, you need a galvanic isolator installed in your shore power system.





Galvanic Isolation:

Remember that the galvanic isolator needs to be able to fulfill multiple roles in your boat's AC shore power system. Eliminating one of the components that make up a galvanic cell is one of its functions. But because it is installed in series with the green grounding conductor in your boat's AC shore power system, it must also ensure that electrical continuity is always maintained in that wire.

For that reason, the American Boat & Yacht Council (ABYC) has some strict guidelines in its standard addressing galvanic isolators. The isolators must be rated for system amperage, usually 30 or 50 amps. They must be hard wired into the system without the use of any friction type connections and meet a series of design specifications to ensure that they can never inadvertently open circuit, effectively eliminating the all-important safety ground for your boat. The newest designs incorporate technology that can identify these units as "fail safe." Simply put, this designation ensures that even after something as significant as a lightning strike, the galvanic isolator will maintain continuity of the safety ground on board your boat. It may not continue to protect your underwater metals, but the safety ground will be intact, one reason why a galvanic isolator should be regularly checked for proper function.

In Conclusion

The recent revolution in marine electronics demands an evolution of our thinking on marine lightning-protection; equipment protection should be an important aspect of any modern lightning protection system. The knowledge and resources to safely transform this change in thinking into reality are readily available, both from the NFPA and industries also at risk from lightning. However, there are unique challenges on pleasure craft that are not addressed by others. These must be solved by sharing the experiences of lightning-protection systems and their effectiveness across the industry.

Here are a few examples of Galvanic isolators that we use on a great deal of our customers boats. The Pro Mariner 30amp and 60amp are just two of the products we use with great success!





Customer Boat(s) for sale:

1971 Bristol Trawler: New batteries, new charger, new remote windlass, 2-Lehman Diesels that run great! Asking \$26,500.00 [email us](#) for more details!



SORRY NO BOAT OF THE MONTH!

~ Paul & Stephen ~