by Michael Kurnides

As you read this issue, St. Patrick's Day has passed and, concurrently, it is the traditional time for boat owners to prep their vessels for spring launching. Other than the cosmetic cleaning, polishing, painting, oiling and varnishing, I urge you to check important items like sea cocks, fuel line connections, hoses and clamps, fuel tank integrity, accessible wiring and safety equipment. Following a checklist can make this procedure an annual tradition.

Common deficiencies encountered while inspecting boats during the winter season very often are found at the battery terminals and connections to the vessel's bonding system. Corrosion grows as an environmental reaction and starts by turning copper terminals a shade of green. A salt type of substance accumulates around the lead acid battery terminals, and this, along with terminal corrosion, will eventually cause conductor failure, a loss of power, and possible deterioration of metal parts in thru-hulls, struts and propellers.

Besides maintaining a potential balance between thru hull metals, the bonding system provides possible protection from lightning strikes. Let's take a look at the bonding system and its design to prevent the degradation of dissimilar metals in a salt water environment. Now that many of our yachts are high and dry, a good inspection of the exterior hull metal components could identify a fault in the interior bonding system. It is not unusual to find a broken wire at the base of a thru-hull due to corrosion as it was lying in bilge water all last season. Assuming that we start out with all metal fittings that penetrate the hull being wired together and with a zinc connected at some point to be sacrificial, galvanic corrosion should be minimized. Any dissimilar metals are equalized by the bonding. A broken wire to one of these items can excite the metal's electrons and start a deterioration process. This usually is slow in overall activity and may be identified by bronze components developing a pink surface coloration.

It is "stray currents" coming from a direct current (battery) source that when not properly contained, can dissolve metal fittings in a matter of days. Situations resulting in loss of steering, a broken prop shaft and strut, or even a sinking from a failed exhaust system can be attributed to stray current corrosion. The American Boat and Yacht Council (ABYC) set standards pertaining to the requirements of wire size, type, insulation, terminal connectors, grounding and bonding with the objective of keeping electrical current contained within the electrical system. Stray or leakage currents will always seek the path of least resistance. Faulty wiring will encourage escaping currents to find an alternative path via another wire or bilge water. If it is another wire, the possibility of corrosion is unlikely but could be a fire hazard. That, running through water, could be very corrosive, and the feed metal would be the one to corrode, technically being „anodic‰ and the one receiving the current or „catholic‰ would not be affected. To emphasize what was mentioned earlier, galvanic action is the potential reaction of dissimilar metals in seawater, but the corrosive action of stray currents is greatly amplified due to the increased output of a 12-volt battery source.

Protection against stray currents is accomplished by maintaining efficient wiring and avoiding alternate current paths through water. Keep wiring as high as possible above any bilge water. When exposed in damp places, wiring connections should be encased in a weatherproof box or shrink wrap. Even the use of inhibitor sprays is recommended. A

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