A photograph of a white aluminum boat on a trailer in a marina. The boat is the central focus, with other boats visible in the background. The sky is overcast. The boat has a cabin and a steering wheel. The text is overlaid on the right side of the image.

This month Nikkulas looks at the warning signs to prevent your boat falling victim to corrosion.

How to beat ALLOY CORROSION

Aluminum is the favoured material for most small trailable boats for reasons such as lightweight, low maintenance and strength. What more could you ask for? Yes it sounds like a perfect combination. There is one serious potential problem you will have to manage correctly if you wish to enjoy your alloy boating experience and that is corrosion.

Yes it's true in the marine environment your aluminum boat can be attacked by this devastating and debilitating disease. This corrosion comes in two forms electronic and galvanic which if not detected can

become very hard to beat.

Most of us that have some knowledge of boat corrosion with electrolysis the most common on alloy boats, but in reality galvanic corrosion is more common on trailable aluminum boats. The symptoms of both types of corrosion are virtually identical. In each case a chemical reaction will occur and parts of your vessel will start disintegrating.

Electronic corrosion or electrolysis can only occur when a stray or external current is flowing between two metals via a conductive solution such as saltwater. The metals don't have to be in physical contact but the solution

such as saltwater transfers the current causing a reaction.

Galvanic corrosion occurs when two dissimilar metals are in contact with one another and then exposed to saltwater. In the past it was thought the two differing metals had to be immersed but recent studies suggest that even irregular exposure will result in galvanic corrosion.

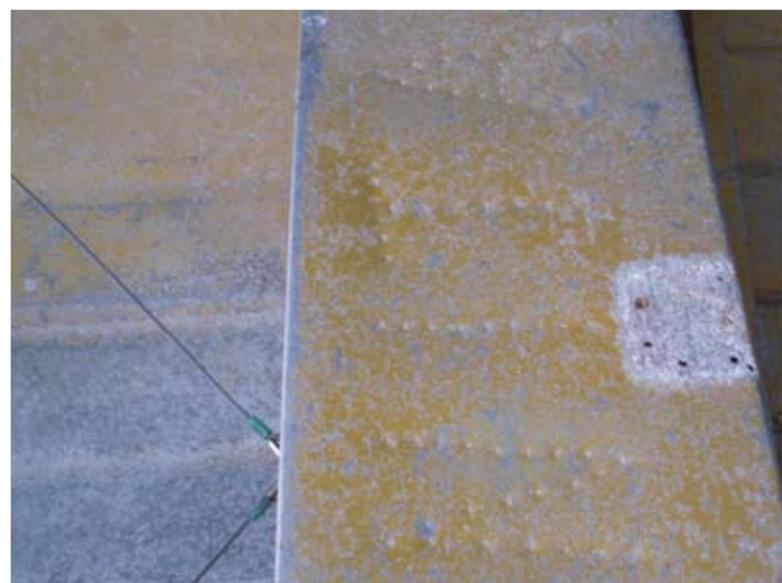
Ok enough of the typical stuff; both forms of corrosion are bad news for your aluminum boat. But why? In both cases the chemical reaction taking place results in the weaker metal on the 'Galvanic Scale' to react. The 'Activity Scale' is a list of metals ranked



OPPOSITE: Good condition, but notice the anchor corrosion starting.

THIS PICTURE: An example of the beginning of corrosion.

BELOW: Seat with pinholes caused by galvanic corrosion from a metal plate.



in order of their ability to resist corrosion .The higher up on the list the better, as they are able to resist corrosion. On the boating version of this ranked list Aluminum sits near the bottom of the list above magnesium and zinc. So if you have either form of corrosion on your aluminum boat the aluminum is going to start being eaten away first before brass, copper lead etc.

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The metals don't have to be in physical contact but the solution such as saltwater transfers the current causing a reaction.

It's not uncommon to find on aluminum boats differing metals in contact with one another. Structurally the brass base of an aerial fitted to the deck of an aluminum boat gets covered in spray and this saltwater solution is enough to start galvanic corrosion. The brass is the more resistant metal and metal in contact with the base starts to be eaten away.

A dropped sinker or a small brass swivel left trapped under the carpet or in the hull hidden by the supports of your tinny will also set off galvanic corrosion. I often think of this in boat designs that have many places these types of objects can be trapped and if undetected can cause all sorts of problems.

At the start of galvanic corrosion, the two metals appear to be welding or fusing together and can often be impossible to part. Then in the later stages the most alarming pinprick holes start to appear in the keel and

other areas under the water line.

I remember many times forcing surfboard wax into these tiny but annoying holes of my alloy dingy. After a while it reminded me of a sieve as the boat sat on the trailer draining out. Once this type of corrosion sets in it can become expensive to repair. In the extreme case the whole section should be cut out. Pin holes can be welded up but you still have to stop the cause of the problem.

MAINTENANCE

Aluminum corrosion can be prevented. After each outing hose down the entire boat with freshwater. Here's a tip, if you use a car wash you won't be breaking any council laws and the high pressure foam jets are perfect for removing built up salts. Top to bottom is the go but make sure you have the jockey well extended and fully up to allow the water to flow out of the transom drain hole.

When you attach your new hardware to your alloy boat such as rod holders, brackets etc make sure not to mix your metals. For example when attaching a transom mount transducer to an alloy boat, a plywood or Teflon pad is a good buffer between the hull and the transducer. Marine grade stainless is still the best for all screws nuts and bolts, etc used for these fittings.

Regarding the stray current, if you don't have a battery isolator switch then disconnecting both leads is an option when the boat isn't in use. This is of great concern to boats on moorings as the automatic bilge system should be still connected but the isolator switch is off. Don't take your battery leads off in this situation but get your electrical system checked out when you get an isolator switch fitted.

TO PAINT OR NOT PAINT.

To paint or not to paint Aluminum is a good question. I have been told



ABOVE: New alloy with painted sides and bare underside.

OPPOSITE: Another victim of galvanic corrosion.

that by painting alloy it does offer some protection but when it gets scratched or chips the small edge can provide a place for salt to build up. So once again if you paint it must be done correctly and any scratches chips repaired ASAP. However flecking paint may just be the result of poor undercoating or finishing coat.

There have been some boats on to the

market recently that have the natural alloy look. They generally have been sealed offering protection and a good cosmetic look therefore paint is not needed.

SPOTTING THE PROBLEM

The best way you could tell if there are any potential corrosion problems would be to lift up the floor and have a good look around. If there are hooks, sinkers, etc lying around then there's a good chance that the corrosion has already started. You may see the pinholes straight away but if you were to partially

fill the transom end of deck with water then (unless they have been plugged up with my old surf board wax trick) if the holes are present you will see the sieve effect. This is a great way to check for leaks when the boat is on the trailer but not practical for larger boats. Thankfully it is not as frequent on pressed alloy boats and even rarer in plate alloy.

If you take care keeping different metals apart and retrieve lead sinkers dropped under the floor then this is a good start to avoid aluminum corrosion.