

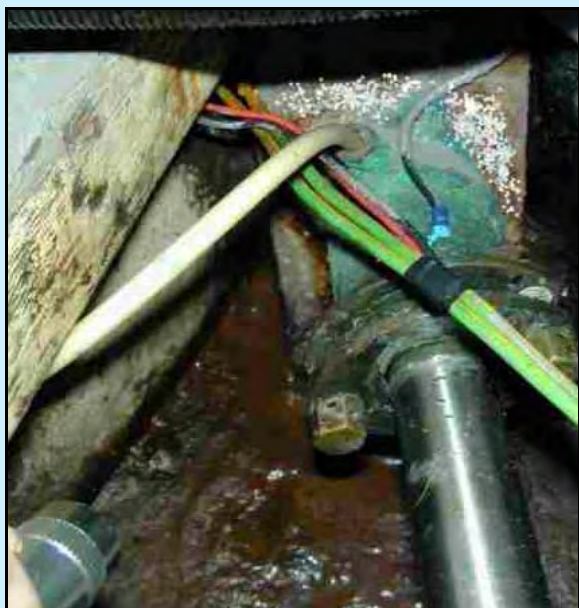
**Timber constructional problems**

**Electrolytic damage**

Electrolytic damage is very common in timber vessels and the more serious cases are often caused by the attachment of anodes. Whenever metal corrodes through whatever cause, there will generally be a buildup of chemicals surrounding the metal be it bronze, copper, iron, steel or any other metal. These strong solutions can irreparably damage timber.

In cases where an anode is fitted, this is designed to erode/corrode in order to protect more noble and important metal. When the anode is wired to the metal to be protected this creates an electrical circuit that in itself creates chemicals surrounding both protected and sacrificial metal when in salt water (the electrolyte).

This electrolytic solution becomes concentrated at the point of the connections and inevitably the metals being sacrificed or protected. This is even more pronounced on the inside of the vessel where the solutions are not been diluted by external seawater, but being further concentrated by damp non flushed conditions. The usual major problems on timber vessels are firstly the planking in at the position of the anode particularly anode fastenings where the planking will go soft and irrecoverable and even more drastic in some cases, where the wiring is connected to the internal stern tube and rudder tube.



Surrounding the stern gland /deadwood junction is the typical crud indicating electrolytic damage is present. The timber is damaged here, note the wire connection just visible on the shaft outlet end of the top of the gland. This goes to an anode.

There have been many recorded cases of which I see many myself where the internal deadwood has significantly deteriorated to the point of having to be replaced emanating from the stern tube & rudder tube connections. The higher the currents and stray voltages incurred through various reasons, the more drastic and speedy the deterioration.

The normal sign of significant electrochemical damage is a build-up of white crud similar to that which occasionally occurs on battery terminals surrounding the metal parts being protected and the anode wiring terminals. If this type of crud is seen by then, damage is already occurring.

Other electrochemical damage occurs merely through localised fastening corrosion such as keelbolts, skin fittings etc where the timber softens around the fastening somewhat.

If electrochemical damage is suspected, particularly anode related damage, it must be prevented at all costs. Prevention will usually consist of merely breaking the circuit but, it would be important to gain some professional advice in this area.



Early electrochemical damage caused by Copper Fastening contacting steel rudder tube & creating electric cell with softening to the plank hood end

A solution of vinegar in fresh water will often counteract the strong alkalis formed, followed by comprehensive flushing with clean fresh water and further inspection.

In severe cases, there is no option other than to have the decayed areas repaired either by graving pieces or, in extreme cases, major plank or deadwood replacement. Be very wary about fitting anodes and even more wary about wiring anodes on any timber vessel.