

Identifying Corrosion

and knowing how to stop it

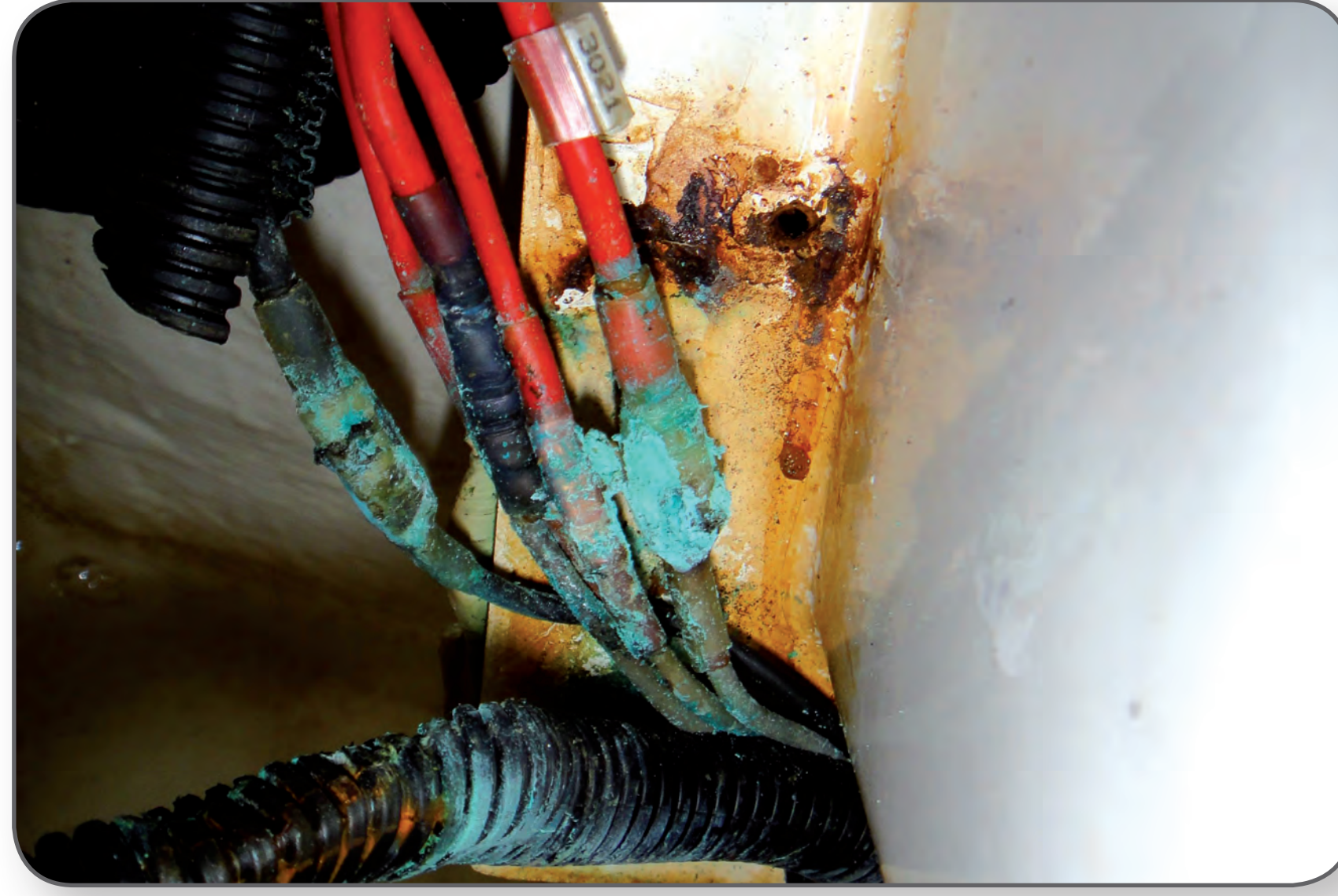
Dezincification - Pinking



Manganese Bronze is sometimes used for shaft brackets, rudders and propellers. When the metal is not in good contact with an anode or bonding circuit, the zinc component of the metal will be dragged from it in a galvanic reaction. This leaves the metal weak, pink in colour and pitted.

Dezincification can be prevented by ensuring replacement parts are good quality bronze and that the vessel has an efficient bonding circuit connection to the appropriate anode.

Damaged Wiring



The integrity of the vessels wiring is critical to the performance and reliability of its electronics and corrosion bonding system. Poor design, poor quality materials or lack of maintenance can lead to stray currents and aggressive corrosion in engine parts and or submerged metal.

Regular inspection is required and only replace with marine grade materials. Seek qualified advice on the performance of your electrical wiring.

Galvanic Coupling – Dissimilar Metals



Dissimilar metals in the same electrolyte (water) will create a galvanic coupling and galvanic corrosion.

All through hull fittings, valves and inlets should be of matched material to reduce the effects of galvanic corrosion. Inspect bonding connection to confirm appropriate cathodic protection.

Cavitation Burn



Improper balance or water flow over the submerged metal results in implosion of water bubbles on the surface of the metal eroding it. A common cause is loose or partly missing shaft and rudder anodes.

Investigate alignment and condition of underwater metal. Seek qualified advice to eliminate unnecessary anodes, replace with alternative products or more appropriate anode type and mass.

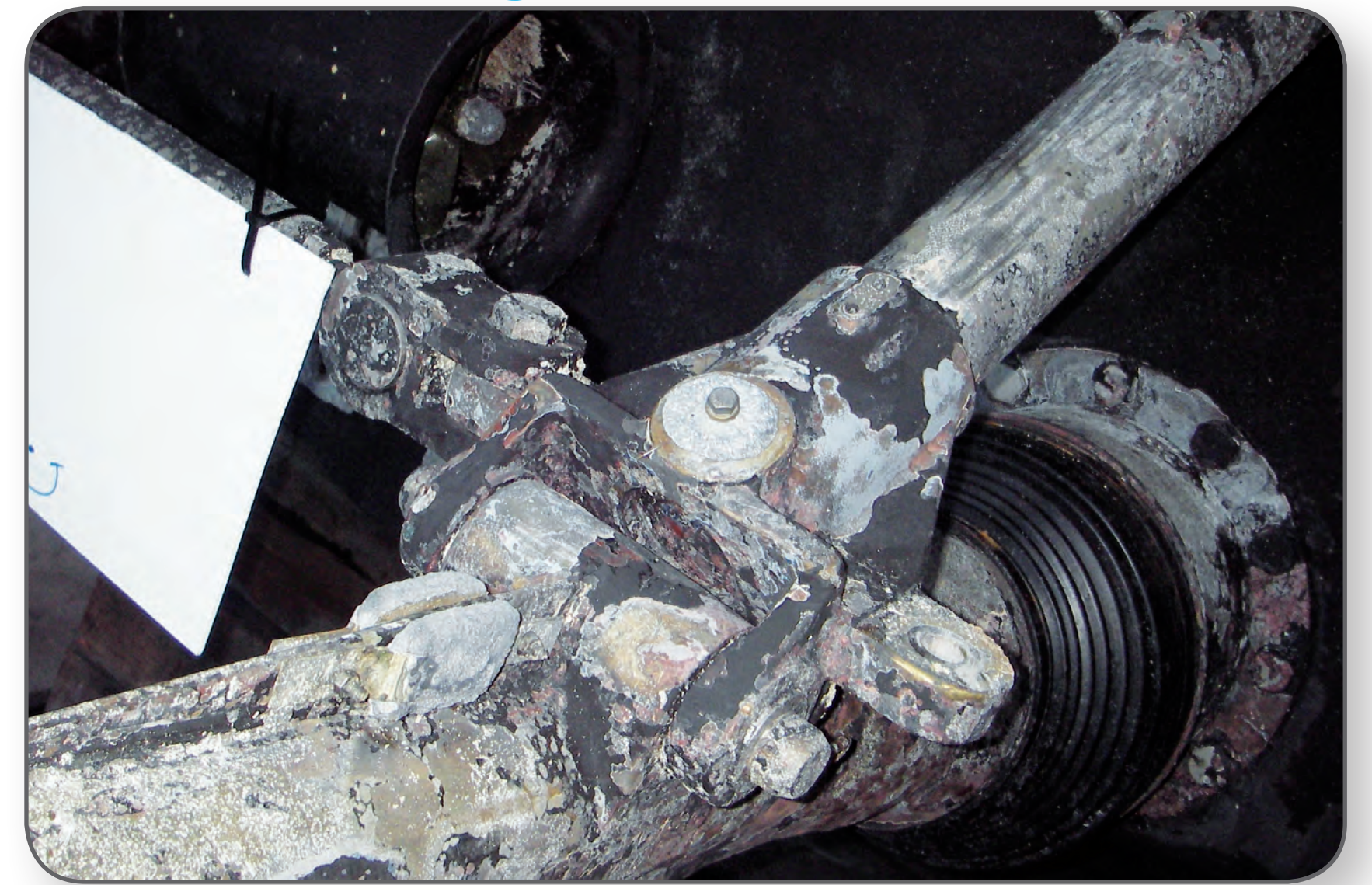
Zinc Passivation



Zinc anodes can build up a crust layer known as "Passivation" that renders them ineffective or passive. This can occur due to changes in current draw on the anode caused by fresh water exposure, stray currents or changes in internal bonding connections.

Seek qualified advice to determine the cause, investigate more appropriate anode.

Paint Blasting – Over Protection



Most commonly seen on stainless steel trim tabs, swim platform supports or stainless rudders. Over protection like this is caused by using the wrong type of anode or too much anode.

Use more appropriate anode composition for stainless steel. Seek qualified advice for suitable alternatives.

Alkaline Degradation – Wood Rot



Wood/Dry rot is caused by the highly aggressive electrical potential of zinc anodes that destroys the cellulose fibres which give wood its strength. Zinc dry rot will quickly break down areas around through hull fittings leaving the potential for seepage or a more significant leak.

A wooden vessels with stainless steel and bronze drive parts should be protected by a Maddox composite anode only. Seek qualified advice to ensure you have the appropriate anode type, size and placement.

Barnacles & Weed



A high level of growth including barnacles, weed and worm slows down your vessel, reduces the life of your hull and propeller coatings and is expensive to clean off. Excessive growth is usually caused by the over protection of zinc anodes.

Ensure an efficient vessel bonding system and seek qualified advice in the use of a more appropriate anode mass, composition or placement.

Electrolysis – Submerged Metal



An aggressive form of galvanic corrosion usually caused by a stray current or break down in bonding connection.

Install Electrolysis Blocker on board to eliminate marina stray current and then seek qualified advice to confirm adequate cathodic protection. Do not leave unattended.

Electrolysis – Engine Components



Most often caused by stray current from an engine or on board electrical component. Common causes are alternators, battery chargers and bilge pumps.

Eliminate stray currents from a marina by installing a standards approved Electrolysis Blocker. Seek qualified assistance to identify any stray current generated on board.

Atrolytic – Worm Corrosion



Occurs where water can be trapped between dissimilar metals creating a galvanic current. Hydrochloric acid is produced and aggressive corrosion results.

Eliminate potential for trapped water, weld repair damaged area with like metal and confirm efficient bonding connection to appropriate anode.

These are some of the most common corrosion issues found on marine hard stands. New technology anodes and advanced understanding of the issues mean that you can run more efficiently and reduce maintenance costs.

**Ask the team here what difference MPS products can make to your vessel or contact AJW Shipwright
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