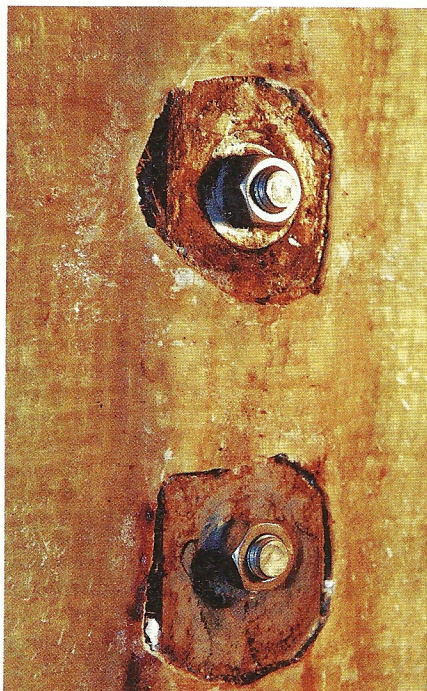


some nickel in the mix. Stainless alloys without nickel are magnetic and have poor corrosion resistance. Such alloys are commonly found in stainless steel hose-clamp screws because the threads are then easier to machine. Unfortunately, these screws soon rust in a salty atmosphere. Better-quality hose clamps have screws containing nickel, in which case the hose clamp will be stamped "all 300 SS," or "all 316 SS."

Much stainless steel found on boats is 18 percent chromium and 8 percent nickel. This is known as 18/8, or 304 alloy. It is about the minimum quality of alloy that should be used on a boat. The addition of 2 percent molybdenum and a somewhat higher nickel content gets us to 316 alloy, which is a good all-purpose marine stainless steel. Another 1 percent molybdenum gets us to 317 alloy, which is not so common. Then there is Nitronic 50 (Aquamet 22) alloy, which is widely used in rod rigging and high-end propeller shafts. It is 21 percent chromium, 12 percent nickel, 4 percent manganese and 2 percent molybdenum. At the top of the heap are the "6 percent molies," with 6 percent molybdenum.

Most stainless steel contains traces of carbon. When welded, the chromium in the area of the weld tends to bind with the carbon, reducing the chromium's film-forming ability and increasing the risk of corrosion. This is known as weld decay or intergranular corrosion. Low-carbon stainless steel, indicated by adding an "L" after the alloy's grade number—for example 304L, or 316L—should be used for any marine hardware that is welded (such as water tanks).

Regardless of the quality of an alloy, once



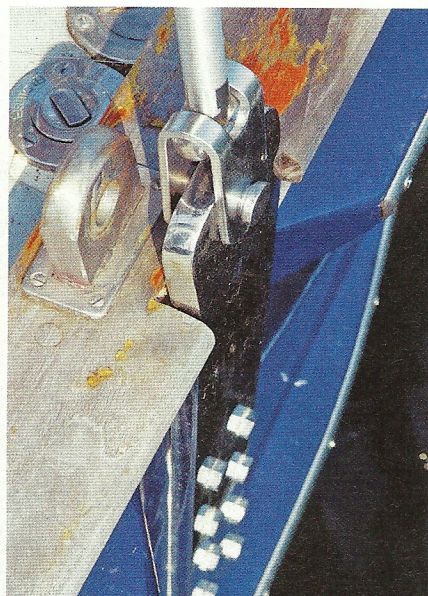
the inert surface breaks down and a corrosion cell gets established, all stainless steel corrodes at a similar rate. It is the resistance to the initiation of corrosion that varies widely according to quality.

BACK TO CHAINPLATES

So how can you tell if your chainplates are corroding? Unfortunately, most of the time from the deck you can't. Occasionally there will be some tell-tale rust, especially coming from the bolts on externally mounted chainplates (those fastened to the outside of a hull—a rare sight these days), but typically there is no visible evidence.

On many boats you can access the underside of the deck where a chainplate comes through. If you see any rust streaks, the chainplate needs to be pulled. However, a lack of rust streaks doesn't mean all is well. There are also some boats with chainplates that are bonded into the hull or a bulkhead, often under an interior liner that conceals everything. In this case there's no way to inspect any part of a chainplate without cutting into the boat.

I know of no technique for properly checking these chain-



A new chainplate has been bolted to the outside of the hull (above); corrosion revealed by cutting away the fiberglass encasing a chainplate (left)

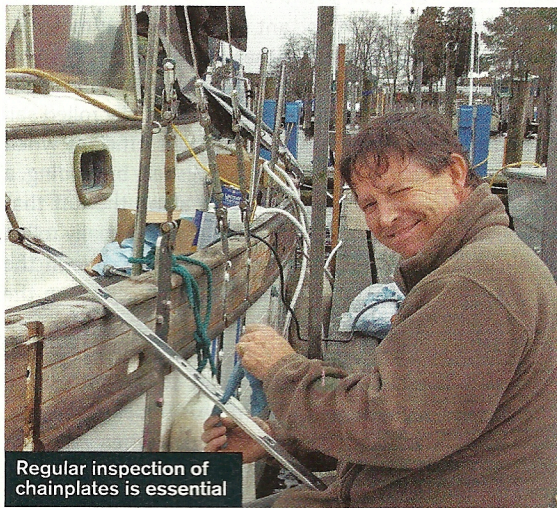
plates without removing them from the boat. It's often a huge job. And just because one comes out clean, it doesn't mean the others are OK—to be thorough, all have to come out.

We had one friend experience chainplate failure. Luckily, the rig stayed up. He pulled all the rest to check them, and all were fine. In some ways, this would seem like a great deal of wasted effort and expense, but what price can you put on peace of mind? Another friend cut all his chainplates off at the deck. Rather than rip apart the interior of the boat, he installed replacements on the outside of the hull.

HOW OFTEN?

How often should you check your chainplates? Unfortunately, there's no good answer to this question. Some are fine after 20 years or more and others develop corrosion in just a few years. Several factors are involved: the quality of the stainless steel and of the installation, the extent to which the stainless has been enveloped in a damp, anaerobic (without oxygen) environment, the temperature (the warmer it is, the faster any corrosion will develop) and so on.

About all I can say is, I would not be comfortable crossing an ocean on a boat that is much over 10 years old without first checking the chainplates. *—Bill*



Regular inspection of chainplates is essential