

SPAR AND RIGGING MAINTENANCE:

STANDING RIGGING:

Your boat is equipped with stainless steel standing rigging, and Dacron running rigging, to give you years of trouble-free service. However, due to normal wear and tear, it is recommended that a periodic inspection be made on all fittings and wire. Turnbuckles should never be neglected and should be unscrewed from time to time in order that they do not seize. Every three months should be about right for the average sailor. A slightly bent turnbuckle shaft or broken wire in your shrouds should be replaced immediately.

Under most conditions, 1 X 19 standing rigging has a safe "working" life span of approximately five years: seven years under ideal conditions. Factors which reduce the life of the wire are environmental factors such as high humidity (Florida, the Caribbean, and Gulf States); high salinity (Great Salt Lake, Gulf States or mooring near a sea wall with constant salt spray) extremes in temperature; and industrial pollution (pulp mills, generating plants, acid rains, and smog). High loading of the rigging, as required in most racing boats, also induces stress in the rigging system.

Many of us have to deal with at least one of these conditions and should consider replacing standing rigging nearer the five year limit.

Unlike running rigging wire rope, which gives us clear signs that it is deteriorating by broken strands and "meat hooks", standing rigging may give no sign that failure is imminent. The usual point of failure of stay or shroud is approximately $\frac{1}{4}$ " inside the bottom swedged threaded stud fitting which threads into the turnbuckle barrel.

Although the stud is compressed around the wire during the swedging process, salt water and pollutants work down into the tiny cavities between the wire strands and the inevitable corrosive process starts in the crevice first time the rigging becomes wet with salt water.

A common method of visually monitoring swedge-fitting conditions, employed by distance racers and cruisers, is to dab a small ring of enamel paint around the joint between the wire and the swedge fitting. This will help provide a means to see if the wire is pulling out of the fitting.

Another technique used to check the condition of swedge fittings is a "dye penetrant" test. This simple test will detect any cracks which may develop in the fittings due to internal pressure from the corrosive process. Inexpensive dye tests kits usually are available from most welding supply stores. Dye tests usually are not required by weekend sailors, but may be done before an extended cruise or ocean passage if any doubt about the integrity of the rigging exists.

All stainless steel wire rope rigging will develop some rust film when new. This is normal.

The rust is caused by two factors. When wire rope is manufactured, the wire strands are fed over steel rollers during the process of twisting or laying the wire. Trace amounts of the ferrous steel from the rollers and dyes are transferred to the wire strands. As this small amount of steel rusts it causes a film on the new wire.

The second cause of the rust film on new wire is the microscopic veins of ferrous material which exist in all stainless steel. After a period of time, as the surface material veins are depleted, and the stainless steel has been cleaned several times, new rust film development will slow to a minimum.

For the average sailor, the best insurance against a rigging failure is a periodic (every six months is recommended) inspection of all rigging parts, including turnbuckles, and replacement of standing rigging as required.