

# CARBON FIBER MAST MAINTENANCE GUIDE

Since carbon fiber masts are a relatively new development, many people have asked us how their maintenance differs from that needed on aluminum spars. A carbon mast tube will not corrode like its metal cousin. Paint is much less likely to blister around the fittings on the composite spar. Fatigue and stress cracking should also be less of an issue with carbon.

In many other respects, the areas that should be checked are the same for both materials. The following list should be used as a guide to help you during spring fitting out and when you go aloft during the sailing season. We recommend that the mast be thoroughly inspected at least once every year and immediately after instances of severe use. If damage is suspected or you would just like advice on what you have seen, please get in touch with us. Since 1984 we have been defining the art of carbon for the marine, medical and industrial markets. We are always glad to share our experience with you and discuss any questions you may have after going through the checklist below.

## CHECK LIST

(NOTE ALL ITEMS ARE NOT PRESENT ON ALL MASTS)

### **MASTHEAD AREA:**

Check for elongation of holes around headstay and backstay pins. Are cotter pins secure?

Tighten screws holding lights, antenna or instruments. Are all bulbs working?

Make sure that the wiring of all devices is secure and not frayed.

Halyard sheaves should not wobble on their pins. They should spin freely.

Check for wear in spinnaker blocks or the u-bolt attachment.

Check any chafe guards for wear

Lubricate the bearing on the mainsail furler as needed.

On aluminum mastheads, the top of the carbon as it bears against the underside of the masthead top plate should not be mushroomed. There should be no

cracks just below the cutouts for the jib and mainsail sheaves. A slight vertical crack in the filler between aluminum and carbon is normal.

On carbon mastheads, there should be no cracks around any of the vertical or horizontal joints connecting the masthead to the mast. Also check gussets holding the spinnaker crane and the crane itself.

### **SAIL TRACK:**

Fasteners should be tight.

There should be no wear in the track especially around the height where the headboard lives at full hoist and reefs.

Any dings in the track should be repaired if they interfere with sail movement.

On carbon tracks, check for wear at the headboard locations

### **STANDING RIGGING ATTACHMENTS:**

For OYS or Navtec diagonal tangs make sure that any screws are tight. There should be no cracking or crushing of the laminate around the tang.

For runner tangs, check any nuts and cotter pins to make sure they are secure. A circumferential crack around the tang is common and not a cause for concern. Cracks radiating out from the hole in the tang could be serious.

For strap tangs, check clevis pins for bending. Cotter pins should be secure. Make sure that the nuts and bolts holding the tang to the mast are tight and have not pulled down through the laminate.

Look for corrosion around the tang. Check the fitting on the stay for any sign of cracking.

### **SPREADERS:**

Spreader bars should be tight in the mast. The spreaders will have some play but excessive movement is a sign of wear.

On spreaders held on with bars, check the inboard end of the spreader for crushing or crushing of the mast laminate.

Inspect clevis pins. They should not be bent or worn. The holes in the spreaders should not be elongated.

For stainless steel spreader bases, check that all screws are tight.

Inspect the outboard end of the spreader for corrosion. Lubricate tip cups and rod ends when they are disassembled.



Check that wire lashing around spreader bends on the top spreader is secure.

Inspect the leading edge of the spreader for wear from halyards.

### **GOOSENECKS:**

All screws holding gooseneck to the mast should be tight.

Check for wear in the horizontal and vertical pins.

Tighten nuts on pins.

In carbon goosenecks, check for wear of the stainless bushings around the vertical pins.

### **WINCH BASES:**

When winch drum is off for servicing, make sure that the 4 or 5 screws holding the winch to the mast are tight.

There should be no signs of cracking around the winch.

### **SMALL FITTINGS:**

Tighten all fasteners holding fittings to the mast. If a screw has to be tightened periodically, it may be pulling through the laminate. Putting it in with epoxy would help.

Check for corrosion of all metal fittings.

Electrical fittings should be cleaned of corrosion.

All sheaves should turn freely.

Halyard exits should not be worn.

### **MAST BUTT:**

Check for signs of crushing or wear at the bottom of the mast.

There should be no cracking in the bottom area.

Inspect all metal steps for corrosion and good water drainage.

For hydraulic steps, check that there is no cracking around the lifting bar hole. Bolts holding the bricks should be tight too.

## **GENERAL:**

Look around each hole, fitting or highly loaded area of the mast for any signs of cracking.

Make sure that the mast is adequately chocked at the partners. Wooden wedges must not be used as they can point load and crack the mast. Use spartite or rubber with a durometer of around 60 to 70.

All fasteners should be tight especially those holding fittings that will be loaded up.

Areas that have been struck by hard objects should be carefully inspected. Crazeing or cracking on the outside surface could indicate laminate damage below.

Check the lightning protection system to insure adequate path to ground.