# Top Tips - Leaky Masts by Bob Carter

## Question

*Please can anyone give me advice on why my two piece mast keeps filling with rain water (both halves). It has been suggested filling them with expanding foam but I'm nervous to do this if water still manages to get in! The mast halves have been looked at and there are no obvious areas that would let the water in. Has anyone had a similar problem?*

## Answer :-

**Yes, this is a common problem - at least with the bottom section of 2 piece masts. What happens is the aluminium extrusion joining section which is fixed in the lower section becomes loose and will rock slightly - it is under great strain when sailing with the main sheet hard in and it eventually works loose. Then it leaks around the join - most of the leakage happens when it is raining and seeps in, aided by surface tension. If you take you mast down and lay it with the foot slightly higher than the top, you can see it leak out at the join.**

**To fix this you have a couple of options. The first option is to take the mast down. Take it apart and drain the lower section by storing it vertically upside down over night. Then lay the mast on it's side and clean up the area of the joint between the lower mast and the inner joint section with a power full degreasant, like acetone or cellulose thinners and a paint brush. Apply it liberally so it seeps up the circumferential crack. Repeat this so that the crevice is degreased and leave overnight to dry. Finally, place the lower section of the mast vertically against the house, go upstairs (assuming you don't live in a bungalow), and apply a low viscosity liquid silicone sealant all around the crack. Continue the application so that the sealant has adequate time to seep along the crack and form an effective seal. Leave it to cure before using the mast.**

**The alternative solution is more drastic. It involves drilling a small drainage hole at the bottom of the mast. This hole needs to be tapped and plugged with a small stainless steel screw and fibre washer. You then live with the leakage, and every so often, take out the drainage plug and drain it. It is important that this hole is kept plugged when the boat is in use. If you drilled an open hole, it would promote rapid filling of the mast when inverted in a capsize, and the boat would then be un-rightable. With the screw in place, the leakage in a capsize is small as it is controlled by the air-lock.**

**There is another possible solution I've just thought of but have never tried. Take the mast down and drain the lower section as above. Put a rubber band over the joint section on the lower mast to act as a seal when the mast is assembled. It will be under compression (trapped in the joint between the two mast halves) when the mast is up and will probably be quite an effective seal and will stop most of the leakage. I don't know how long it would last. You may have to replace it each time the mast has been taken down but that's no big deal.**

**The leakage of the top section is very rare, suggesting a structural problem with the top mast section. Check for :-**

**a) Any holes drilled in it for screws or rivets. If any screws or rivets penetrate the sealed box section, check them for any looseness. Replace and seal with clear silicone sealant to suit.**
**b) Look for any cracks. I have seen several masts which have cracked along the top on the hounds where the fitting is welded on the mast section. If a crack forms, you must get your mast welded up before it breaks.**

**Finally, the trick of filling up the joint section with builders foam can help make capsizes easier to deal with by preventing the joint section taking in too much water when the boat is capsized. This however, in no way helps correct the leakage into the sealed sections. If you want to do it you have to do it with the lower half of the mast vertical (e.g. against the house as above) but be careful to protect the side of the house. The foam expands for an hour or two after application, and cascades down the mast and the side of the house if you are not careful.**