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Resolution Proposal Form | 29er

Number 17-xx
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Re: Cannoning of the mast joints

Proposed Resolution:

Top-mast into mid-mast
Secure the existing sleeve into the FRP top-mast.

Method
Because it flexes, the existing sleeve moves inside the FRP laminate and there is nothing holding it (the sleeve) hard against the inside wall of the FRP, allowing the top-mast to cannon into the mid-mast. By changing the means of attachment of the trapeze wire to a t-ball fitting this will work best in terms of retro fitting, as well as going forward. By switching to a key-plate anchor, there are 4 x M5 rivets holding the alloy sleeve hard against the FRP tube. We know that 4 x M5 rivets are enough to withstand about 4 tonnes which is more than you can ever subject a 29er to. Retro fitting, the ID of a Keyplate is 8-10 mm, the hole is 8-10mm, it is accessible from the joint, it can be done easily. Even just adding 4 x M5 rivets approximating the position of a key plate above and below the existing spreader bar would dramatically alter the structural integrity of the sleeve/FRP joint.

T-balls are well known, simple, cheap, there could be even a negative (as in cheaper) cost consequence of the change.

Mid-mast into lower-mast
The internal sleeve that is used to anchor the spreader and secure the mid-mast and lower-mast together would be lifted 20 mm, and secured as it is presently. The spreader would still be attached in exactly the same way and in addition to that in-line with the bolts attaching the spreader, approx. 20mm above the spreader add 2 x M6 MT CSK bolts going from the lower-mast, through the mid-mast and into the sleeve. They would be approx. 10mm in length.

Reasoning: Over the last 5 -10 years sailors have increased operational rig tensions in the 29er. We have made a number of changes to the hulls to overcome this increase, most notably to the thwart/mast partner and the result is that more and more load is being transferred to the 8mm brass spreader bolt that secures the topmast into the Mid-mast. The walls of the Mid-mast are not coping with this extra load. We have also recently allowed the use of turnbuckles, so this problem is only going to become a greater and greater issue with time.

The movement of the top-mast downwards into the mid-mast and the mid-mast into the lower mast, under increasing rig tension loads, has happened in part because the boat is being pushed harder by the latest generation of sailors and in part because of the introduction of the turnbuckles, again because the boat is now being sailed by a more determined group.

The benefit will be for all sailors, there will be no change to the performance of the mast, other than that the topmast won't disappear into the mid-mast so much, the t-ball keyhole fitting won't alter anything, it's retro fit-able, it can be done by any competent mast rigger anywhere in the world. It is true that the load will be transferred to the joint between the Mid-mast and the Lower-mast, and that will also require stepping up that joint at the same time. That will not be adding any function so we can do that without requiring a spec change.

Resolutions to the World Council shall only be submitted by a National Class Association or a member of the World Council. Reference any and all constitutional or Class Rule changes that may be affected. ***Deadline for 2017 is June 22, 2017.***