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Mr. Rick West, EC 12 Class Secretary 139 Dardenelle Avenue
Pacifica, California 94044

Dear Mr. West

I have recently acquired EC 12M, *1589, and wish to do some updating before registering her for the nationals and other regattas.

It is with this thought that interpretation and clarification is requested for building materials and practices not clearly stated in the present class rules or published as interpretations by the class secretary.

This request is made under class rules 1.2 and 1.3.

The request is made relative to the use of carbon fiber (and / or Kevlar or Spectra or other) materials for the reinforcement of decks, hulls, bulkheads and rudder post stabilizers and spars. Following is the background along with various discussion points and questions on the subject.

BACKGROUND

- . The EC 12m class rule 1.2 clearly states:
 - 0 "Unless the Specifications specifically permit something, manufacturers, builders and owners shall assume it is prohibited."
- . There are at present 2 different discussions active on the class website discussion pages
 - 0 One, headed "Carbon Fiber rods and tubes" under the "sails and rigs" section
 - 0 Then second is headed "Bulkheads/Deck Frames" **under** the "below deck" section.
- . Both make mention of deck beams, bulkheads etc.

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DISCUSSION AND SPECIFIC REQUESTS FOR CLARIFICATION DECK FRAMES

The postings on the class discussion pages and rules are not explicitly clear about deck support techniques and / or acceptable materials. One post suggests that carbon fiber composite deck beams are not acceptable. A second post suggests that they are not illegal and another that they might not be the builder's best choice. This lack of a clear determination begs for the requested clarification.

The classification of a deck beam (support) as to being a part of the hull or a part of the deck is not clear. Perhaps, it is not a part of either.

Mr. Wotring has posted that carbon fiber deck supports are being used in his boat. There are no known challenges to his using the material. If this use has been approved as a result of a ruling that was issued, Please provide a copy.

If there has been no prior ruling, please provide an interpretation regarding the use of carbon fiber for deck supports to the class.

If the use of carbon fiber is acceptable for use in deck support (frames etc.) and the material form and dimensions are not specified, please clarify the following;

- . In what form is the carbon fiber material, when affixed to the underside of the deck, acceptable?
 - 0 Sandwich?, laminations? Built up rod? Fabricated tube? Ribbon? Woven? Any form?
 - 0 Are there dimensional limitations to the acceptable materials?
- . Is there any limitation on the orientation of any of the materials noted above?
 - 0 Must the strengthening materials be oriented athwart ships, as a deck beam?
 - 0 May they also be placed diagonally"
 - 0 May they be oriented in a fore and aft manner?
- . If carbon fiber, in any form, is allowable please advise if alternate materials such as Kevlar, Spectra, Nylon, OrIon, Dacron or aluminum, are also acceptable.
- . Must the strengthening material be attached to the hull as well as the deck at any point?

BULKHEADS AND RUDDER TUBE SUPPORT

It is noted in the discussions on deck frame materials that Mr. Wotring mentions that he has used carbon fiber for the forward (turning pulley) bulkhead. ~so, noted in the same discussion, is a statement by Mr. Kahle that a carbon fiber composite was used to provide support to the rudder tube on his boat.

. If these uses have been the result of prior rulings that were issued, please provide copies.

. If no prior rulings have been made, please provide them.

. As this bulkhead becomes an integral part of the hull the use of carbon fiber reinforcement on the forward interior of the hull becomes an important issue to be resolved.

. Since the rudder post support also becomes an integral part of the hull the use of carbon fiber reinforcement on aft interior parts of the hull also becomes an important issue for clarification.

If these uses are permissible, it logically follows that it will be acceptable to use carbon fiber (or other materials) for other types of hull strengthening such as frames etc.. Interpretation clarification on this specific point is requested.

HULL

Class rule 3.3 states "teration to certified hulls by sawing, cutting, or adding any material to the exterior of the hull that would change the profile, contours or shape: in any way is prohibi ted. .

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I have noticed that some areas of the hull are not . ""~i~ sufficiently strong and deformation of the underbody occurs ~ in certain conditions.

. An interpretation and / or ruling regarding the acceptability of modifications made by an owner to the interior of the hull to strengthen and reinforce the weak areas is requested.

0 If such action is permitted, are carbon fibers, linen, Dacron, nylon, Kevlar, Spectra or aluminum materials permitted?

. Is additional finishing (painting) of the hull interior (except of course for the embedded hull identification tag) permitted?
0 Please publish a ruling accepting or rejecting interior finishes by an owner or their agent.

OTHER

The class rules are silent on the use of carbon fiber materials for rudder push rods, spreaders, vang and jumpers, reading the postings on the discussion pages and building site could lead to the conclusion that such uses of Carbon fiber material are acceptable. Your formal, written rule interpretation, for the record, will be appreciated.

. Since materials for these applications are not directly specified, is the use of titanium similarly acceptable?

. Is the material used for direct support of the mast between the keel ballast and deck underside restricted?

0 Specifically is a carbon rod or fabricated structure made with carbon fiber acceptable to provide mast support between the keel and deck?

SPARS

The class rules state that decks may be made from foam, fiberglass, wood or Formica. The class rules also clearly state that masts and booms must be made of wood or aluminum (fiberglass also for booms) and hulls from fiberglass. The rules are silent on the use of carbon fiber (or other

similar materials) for reinforcement or strengthening in all three applications

If carbon fiber is acceptable to be used for supporting the deck, and carbon fiber is acceptable for hull reinforcement (bow bulkhead and rudder post support, etc.) does it not logically follow that carbon fiber reinforcement of masts and booms should be equally acceptable?

. If so please provide a written interpretation.

. If not I would appreciate knowing the logic to support the acceptability of carbon fiber reinforcement in one application but not the other.

