



the boat the world sails

## Submission Form 2017 General Assembly Meeting

**Submission Form to be completed by Presidents of the National 470 Class Associations and by Individual members**

Your Name (first name, surname)	Dimitris Dimou
Your Nation	470 Management Committee
Your email address	dimitrisd@470.org
I propose the following submission, to be discussed at the General Assembly meeting (in case of several submissions, please, use one form for each submission):	
Subject Header: Introduction of carbon fiber as permitted material for mast spars	
Context: If referencing existing 470 Class Rules, Championship Manual or other documentation please reference the documentation.	
<p><b>Proposal Text:</b></p> <p>Insert the following where appropriate:</p> <p><u>B.3.2 Carbon fiber <b>mast spars</b> shall carry a sticker issued by the ICA</u></p> <p>C.6.1 WEIGHT</p> <p style="text-align: right; margin-right: 100px;">Minimum</p> <p>The weight of the boat shall be ..... <b>11X.X</b> kg, measured with the boat in dry condition, including compasses, but excluding <b>sails</b>, jib luff wire and all <b>portable equipment</b>.</p> <p><b>C.9 RIG</b></p> <p>C.9.1 <u>MODIFICATIONS AND MAINTENANCE</u></p> <p>(a) <u>Carbon <b>mast spars</b> as supplied by the licensed builder shall not be altered in any way except as permitted by these <b>class rules</b>.</u></p> <p>(b) Routine maintenance such as small repairs, painting, light sanding and polishing is permitted.</p> <p>C.9.2 LIMITATIONS</p> <p>(b) <u>the Notice of Race shall indicate if carbon fiber masts may be used at an event.</u></p> <p><b>F.1 RULES</b></p> <p>(a) <b>Rigs</b> shall comply with the current <b>class rules</b> <u>and official plans</u>.</p>	

(b) Carbon mast spars shall be built to the same detailed specification submitted by each licensed manufacturer to the ICA. Any subsequent modifications have to be approved by ICA before implementation and such approval will not be granted inside the 6-month period before the first scheduled start of the Olympic Sailing Competition.

**F.2 MANUFACTURERS**

- (a) For aluminium masts, booms and spinnaker poles the manufacturer is optional.
- (b) Carbon masts shall be made by an ICA approved manufacturer, as listed at the “technical” section of:

<http://www.sailing.org/classesandequipment/I470.php>

**F.3 MAST**

**F.3.2 MATERIALS**

- (a) The **mast spar** shall be of aluminium alloy or standard modulus carbon fiber.

**F.3.4 CONSTRUCTION**

(b) Carbon fiber mast spars shall be of a round cross section and shall include an external fixed sail track. The mast spar shall be in three separate parts with joints at **XXXX**mm +/-100mm and **YYYY**mm +/-100mm from the **MDP**.

**F.3.6 DIMENSIONS**

Carbon **Mast spar cross section** between MDP and 5010 mm;

**Transverse** ..... **XX** mm ..... **YY** mm

Carbon **Mast spar cross section** between 1550 mm and 5010 mm;

**fore-and-aft** ..... **XX** mm ..... **YY** mm

**F.3.7 WEIGHTS**

The weight of the **mast** includes rigging specified under F.6.2; F.6.3 (a) (1), F.7.2 (a), fittings specified under F.3.5 and riveted or adhesively bonded compass bracket if applicable, but without wind indicator, compass and/or timing device & bracket:

	minimum	maximum
<b>Mast weight</b> .....	<b>X.Y</b> kg	

Add a carbon mast specification under the official plans list.

The effective date will not be earlier than September 2020.

Note:

The mast and boat weight and center of gravity limits are under consideration at the time of submission and will be finalized later.

**Current Position**

As above

**Reason:**

1. To enable much improved distribution of the mast and therefore making the 470 more accessible.
  - The current mast can only be shipped in a 40ft container. A 3 piece carbon mast can be shipped in a 20ft container worldwide.
  - Air freight of the current mast is very difficult and expensive. Air freight of a 3 piece carbon mast to most destinations in the world will become easy. Especially important for emerging nations without mast dealers close by.
  - The carbon mast can be carried on the roof of a car or inside a boat. Travel to regattas will become easier.
2. Approved carbon masts will last longer making 470 sailing more sustainable.
  - The carbon mast will be stronger for the same stiffness. Longevity of the mast will be improved.
  - The carbon mast will not fatigue and will remain competitive for longer. The cost of campaigning will be reduced
  - The carbon mast will not get permanently bent out of shape as is the case of aluminium masts under heavy loading.
3. A detailed specification with tighter tolerances can be enforced to ensure consistent characteristics from one mast to another.
  - Teams will know that the mast they buy is the same as the other teams.
  - Teams will not have to buy multiple masts to find "a good one". All masts from one builder will be the same.
  - Material limitations will help keep the cost down to acceptable levels
4. Limited licensed builders
  - No arms race will develop and no team will be able to enjoy an advantage by having a special mast made by a builder which is not going to be available to other teams.