12th September 2021

Subject: Rule Change Proposals for AGM December 2021

1. ONE-DESIGN & CLASS PLANS

- Proposed Change:
  - ***Delete the following sentences:***
  - INTRODUCTION: Etchells hulls, hull appendages, rigs and sails are measurement controlled. These rules are deemed to include the Sail Measurement Certificate, Measurement Templates and Measurement Diagrams.
  - H.4. NOTE. The class plans are not included in the class rules and measurement procedures as it is difficult for a measurer to know what he/she should check or not – what is advice and what are rules.

  - ***Insert the following sentences.***
  - INTRODUCTION:
    - These are **Closed Class Rules.**
    - The Etchells is a One-Design class. The rules, official plans and specifications are intended to ensure that the yachts of this class are as nearly as possible the same as regards shape and weight of hull and deck, including the keel, rudder, spars and sails and that the equipment is simple, functional and dependable.
    - These rules are deemed to include the official plans, measurement forms, measurement templates and measurement diagrams.

    NOTE:
    (l) Builders and owners are strongly advised to refer to these rules and plans for guidance.
    (2) It is impossible to mention every suggestion that has been ruled illegal in the past, and to foresee every innovation which may be thought of in the future. Therefore when considering anything in connection with the boat or its sails or equipment (including use of exotic materials for any item) which is not clearly covered by the plans, specifications and/or rules, it must be assumed illegal unless prior approval has been obtained from World Sailing through the IECA.

- Rationale:
  - This language is taken from the original wording of the Class Rules. In the re-write into the ISAF Standard Class Rules template effective 1 July 2011, it was believed that these messages were retained, and their intent achieved, by the wording of the Closed Class Rules. However, it has become apparent that the change has led to doubt in the Class about the One-Design nature of the Etchells. The IGC wishes to re-affirm this One-Design nature.
  - The Plans form an integral part of the description of an Etchells and how it is built. The Class Audit will bring them up to date and as a result their status in the Rules must be re-instated to give clarity to builders, measurers, and owners.

2. **MODIFICATIONS, MAINTENANCE AND REPAIR**

- Proposed Change:
  - D.2.3. MODIFICATIONS, MAINTENANCE AND REPAIR: Insert the word "**G10**" as follows:

    "(d) Limited extra reinforcement in way of attachment of fittings to the hull, deck, cuddy, coaming, seat, bulkheads or knees, shall consist of:

    polyester resin and glass tapes and/or backing plates of metal, wood, filler**, G10** or any combination of these.

    Reinforcement shall not exceed the area needed to prevent local crushing or fracture. It shall not create an additional structural member, nor connect two or more structural components."
- Rationale:
  - G-10 is a high-pressure fiberglass laminate, a type of composite material. It is created by stacking multiple layers of glass cloth, soaked in epoxy resin, and by compressing the resulting material under heat until the epoxy cures. It is manufactured in flat sheets, most often a few millimeters thick. G-10 is the toughest of the glass fibre resin laminates and therefore the most commonly used.
  - There is no performance enhancement from allowing G-10 backing plates.
  - There is no cost increase from permitting G-10 backing plates. Its ready availability and stength may actually allow for lower costs and less labour when installing fittings or making repairs.

3. **OPEN HOLE DIMENSIONS**

- Proposed Changes:
    - Class Rule D.2.3.(e):
        1. In the first two rows of the table, move the dimension from the Maximum column to the Minimum column.
        2. In the last row of the table, in the Maximum column, change the figure to 20cm^2.
- Rationale
    - The first two rows: these are purely typographical errors. It is clear that the intention of the rule is to prevent a hole being so close to the edge of the knee or thwart that it would cause structural weakness.
    - The last row: the "250cm^2" was either a calculation or copy/paste error. The area of a hole with diameter 50.5mm is 20cm^2 not 250cm^2.

4. DIMENSIONS

- Proposed Changes
  - D.10.2 DIMENSIONS. Insert the following table after the table row starting "at aft datum point" and before the table row starting "Beam of hull, excluding rubbing strakes and fittings, at sheerline;"

	Min	Max
Hull/Keel Thickness as measured by the Garboard Measurement Tool. Garboard Measurement Point ("GMP") is 3786mm measured forward from the ADP folllowing the hull shape, and 75mm from hull centreline port and starboard.:		
300mm forward of GMP	74	83
750mm forward of GMP	142	151
1200mm forward of GMP	118	127
1300mm forward of GMP	82	91
Distance of Hull/Keel trailing edge forward of GMP	106	138
Distance of Hull/Keel from Hull/Keel Leading Edge Profile Template	-3	5
Hull/Skeg fillet radius forward of a point 100mm forward of the centre of the rudder shaft at the hull	6	
Hull/transom corner radius	3	

- Rationale
  - Class Rule C.7.1.(b) states that "Grinding, planing, sanding and/or the application of putty fillers and coatings on the outside of the hull is permitted only for the fairing of local imperfections" - in other words, it is not permitted to change the moulded shape of the outside of the hull.
  - Measurers need to make various assessments of the hull in order to ensure compliance with this rule. These measurements are used to confirm that the boat, in these specific areas, retains the shape and dimensions with which it left the mould.
  - The GMP, referenced off the ADP (the intersection of the transom and underside of the hull counter extension) has been determined to be the correct base reference point for the first five measurements, because the ADP is common across all boats whereas the HDP, and hence the Stations/Sections, vary across boats mainly due to collision damage.
  - Re the Garboard: a garboard measurement template, affectionately known as the "Iron Maiden", was developed in 2015/16 to assist Measurers with the task of shape checking in the garboard area. Based on measuring a statistically significant number of hulls in this area, a process and a set of measurements were created by the ODTC, agreed by the Class Measurer, approved by the IGC, and published on the IECA website on 16 August 2016. This can be found at https://etchells.org/news/article/message-from-class-chairman-gary-gilbert. Information about this was also published by Etchells Australia, on 25 April 2016 from Phil Smidmore at https://www.etchells.org.au/news/news.asp?newsID=23078759 and on 30 June 2017 from David Ritchard at https://www.etchells.org.au/news/news.asp?newsID=23078797

- The Garboard Measurement Tool is not used on some boats older than a certain age because it is known that the location of their keels is an outlier.
- Details of the “Iron Maiden” and its use are being prepared for publication on the IECA website.
- The Class Audit has identified the need to include the “Iron Maiden” as a registered template, and for its use to be included in the Guide To Measurers which is currently being updated.

5. SPINNAKER POLE

- Proposed Changes
  - In section F.5 SPINNAKER POLE
  - Delete "F.5.2.(a) The **spar** shall be of aluminium." and replace with: "F.5.2.(a) The **spar** may be of aluminium, GRP, or carbon fibre reinforced resin."
  - Add: "F.5.2.(b) **Spinnaker pole** ends material is optional."
  - Add: "F.5.6. WEIGHTS

	minimum	maximum
Spinnaker pole weight, fully rigged	2.3kg	

- Rationale
  - The IGC feels that the time is right to allow fibreglass or carbon fibre to be used in the manufacture of spinnaker poles (and spinnaker poles ONLY – not masts, or booms), with any performance impact mitigated by the insertion of a minimum pole weight. The reasons for this are:
    1. Aluminium spinnaker poles with tapered fibreglass sertions (around 40cm long at each end) have been in existence in the class since the early 2000s.
    2. In the original Class Rules and Plans, the material of the Spinnaker Pole was optional, so long as no exotic materials were used. In a block of emergency rule changes effective 9 November 2006, a change was approved by ISAF which said "The spinnaker boom spar shall be made of aluminium alloy". However, the published Class Rules did not include this change until the re-write of the Class Rules into the ISAF Standard Class Rules template effective 1 July 2011, nor was the wording in the Spar Plan ever changed from the original wording: "THE DESIGN, MATERIAL, AND METHOD OF CONSTRUCTION OF THE SPINNAKER BOOM ARE OPTIONAL, EXCEPT NO EXOTIC MATERIALS MAY BE USED."
    3. The ODTC has weighed multiple spinnaker poles around the world, and has found spinnaker poles weighing between 2.3kg and 3.6kg. These weights are inclusive of fittings and rigging. Both all-Aluminium and composite poles have been found which weigh at the low end of the weight range. Therefore it is concluded that setting a Minimum Weight of 2.3kg both prevents any performance gain through weight advantage, and mitigates any safety risk from building the poles ever lighter.
    4. The J-24 Class also has a spinnaker pole with max length 2.895m, and they have permitted carbon fibre poles for some time now. There are a wide range of suppliers around the world.
    5. While carbon fibre poles are on the whole more expensive than Aluminium, the price differential has fallen since this change was last contemplated by the Class. A survey by the ODTC revealed a wide range of prices between USD400 and USD1400 for fully-rigged Etchells and J-24 spinnaker poles across the full range of aluminium, composite, and carbon fibre. There is now significant overlap between the range of prices of Aluminium and carbon fibre spinnaker poles.
       a. Example of complete poles: https://www.mauriprosailing.com/us/product/FRTFCTJ24.html

   b. Example of tubes (c.3mm wall, 57mm ID): http://www.carbon-tube.com/round.php
6. The end fittings for existing poles can be fitted into available composite and carbon fibre poles, so there need be no additional cost of extra fittings when replacing a damaged tube.
7. Carbon fibre tubes are available separately from pole ends, from many sources and across all fleet locations.
8. Spinnaker pole suppliers do not have to be licensed under the Class Rules (whereas mast & boom suppliers do).