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Status: Approved

Class Rules

International Etchells Class Association

The Etchells was designed in 1966 by Skip Etchells and was adopted as an International Class in 1974

sport / nature / technology

World Sailing
Class Association

INDEX

INTRODUCTION

This introduction only provides an informal background; the International Etchells Class Rules begin proper on the next page.

*The Etchells is a One-Design class. The **class rules**, Plans and Building Specifications are intended to ensure that the boats of this class are as nearly as possible the same as regards shape and weight of hull, hull appendages, rig and sails and that the equipment is simple, functional and dependable.*

Etchells hulls and hull appendages are subject to manufacturing control; they are required to comply with the International Etchells Plans and Building Specifications and are subject to a World Sailing approved manufacturing control system.

Etchells hulls and hull appendages shall only be manufactured using moulds that have been approved using the WS/IECA Mould Approval Procedures.

*Etchells hulls, hull appendages, masts and booms shall only be manufactured by World Sailing approved manufacturers - referred to in the **class rules** respectively as licensed builders and licensed spar-makers.*

*Etchells hulls and hull appendages may, after having left the licensed builder, only be altered to the extent permitted in Section C of the **class rules**.*

Etchells rigs and sails are subject to measurement control.

*Etchells rigs may be altered providing they continue to comply with Section F of the **class rules**.*

*Etchells sails may be altered providing they continue to comply with Section G of the **class rules**.*

Owners and crews should be aware that changes to some of the items in Section C require re-certification.

*Rules regulating the use of equipment during a race are contained in Section C of the **class rules**, in ERS Part I and in the Racing Rules of Sailing.*

PLEASE REMEMBER:

THE CLASS RULES ARE **CLOSED CLASS RULES** WHERE IF IT DOES NOT SPECIFICALLY SAY THAT YOU MAY – THEN YOU SHALL NOT.

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 CHOICE OF 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.

COMPONENTS, AND THEIR USE, ARE DEFINED BY THEIR DESCRIPTION.

PART I — ADMINISTRATION

Section A — General

A.1 LANGUAGE

A.1.1 The official language of the class is English and in case of dispute over translation the English text shall prevail.

A.1.2 The word “shall” is mandatory and the word “may” is permissive.

A.2 ABBREVIATION

A.2.1

WS	World Sailing
MNA	World Sailing Member National Authority
IECA	International Etchells Class Association
NCA	National Class Association
ERS	Equipment Rules of Sailing
RRS	Racing Rules of Sailing

A.3 AUTHORITIES

A.3.1 The international authority of the class is World Sailing which shall co-operate with the IECA in all matters concerning the **class rules**.

A.3.2 Notwithstanding anything contained herein, the **certification authority** has the authority to withdraw a **certificate** and shall do so on the request of World Sailing.

A.4 ADMINISTRATION OF THE CLASS

A.4.1 World Sailing has delegated its administrative functions of the class to MNAs. The MNA may delegate part or all of its functions, as stated in the **class rules**, to an NCA.

A.4.2 In countries where there is no MNA, or the MNA does not wish to administer the class, its administrative functions as stated in the **class rules** shall be carried out by the IECA which may delegate the administration to an NCA.

A.5 WORLD SAILING RULES

A.5.1 The **class rules** shall be read in conjunction with the ERS.

A.5.2 Except where used in headings, when a term is printed in “**bold**” the definition in the ERS applies and when a term is printed in “*italics”* the definition in the RRS applies.

A.5.3 The **class rules** are deemed to include the Plans and Building Specifications. The Measurement Forms and Measurement Diagrams are complementary to the **class rules**.

A.6 CLASS RULES VARIATIONS

A.6.1 At Class Events – see RRS 89.1(d) - World Sailing Regulation 10.5(e) applies. At all other events RRS 87 applies.

A.7 CLASS RULES AMENDMENT

A.7.1 Amendments to the **class rules** are subject to the approval of World Sailing in accordance with the World Sailing Regulations.

A.8 CLASS RULES INTERPRETATION

A.8.1 Interpretation of **class rules** shall be made in accordance with the World Sailing Regulations.

A.9 INTERNATIONAL CLASS FEE AND WS BUILDING PLAQUE

A.9.1 The licensed builder shall pay the International Class Fee to the IECA.

A.9.2 The IECA shall, after having received the International Class Fee for the hull send the World Sailing Building Plaque and a measurement form to the licensed hull builder.

A.10 SAIL NUMBERS

A.10.1 Sail numbers shall be the boat's World Sailing Building Plaque number.

A.11 CERTIFICATION

A.11.1 A **certificate** shall record the following information:

(a) Class
(b) Certification authority
(c) Sail number
(d) Owner and address
(e) Hull identification/CIN
(f) Builders details including, hull no., mould no. and plug no
(g) Date of issue of initial **certificate**
(h) Date of issue of **certificate**
(i) Complete Boat Weight
(j) Mast bury
(k) Weight of **corrector weights**, if any
(l) Signature of owner

A.12 INITIAL CERTIFICATION

A.12.1 For a **certificate** to be issued to a boat not previously **certified**:

(a) **Certification control** shall be carried out by an **official measurer** who shall complete the appropriate documentation.

(b) The documentation and **certification** fee, if required, shall be sent to the **certification authority**. If the **certification authority** is not the IECA, a copy of the documentation shall be sent to the IECA.

(c) Upon receipt of satisfactorily completed documentation and a **certification** fee, if required, the **certification authority** may issue a **certificate** and, if

the **certification authority** is not the IECA, a copy of the certificate shall be sent to the IECA.

A.13 VALIDITY OF CERTIFICATE

A.13.1 A **certificate** becomes invalid upon:

(a) the change to any items recorded on the **certificate** as required under A.11.

(b) withdrawal by the **certification authority**.

(c) the issue of a new **certificate**.

A.14 RE-CERTIFICATION

A.14.1 The **certification authority** may issue a **certificate** to a previously certified boat**:**

(a) when it is invalidated under A.13.1(a) and/or after receipt of the old **certificate**, and **certification** fee if required.

(b) when it is invalidated under A.13.1 (b), at its discretion. However, this discretion shall not be exercised without WS approval if the invalidation under A.13.1(b) occurred as a result of a request by WS under A.3.2.

(c) in other cases, by application of the procedure in A.12

A.14.2 When a certificate is re-issued, if the **certification authority** is not the IECA, a copy shall be sent to the IECA.

A.15 RETENTION OF CERTIFICATION DOCUMENT

A.15.1 The **certification authority** shall:

(a) retain the documentation upon which the current **certificate** is based.

(b) upon request, transfer this documentation to the new **certification authority** if the boat is exported.

Section B — Boat Eligibility

For a **boat** to be eligible for *racing*, it shall comply with the rules in this section.

B.1 CLASS RULES AND CERTIFICATION

B.1.1 The **boat** shall:

(a) be in compliance with the **class rules**.

(b) have valid **certificates** for the **hull** and **spars**.

(c) have a valid Measurement Form (see B.1.3)

B.1.2 The owner/owners shall be a fully paid up member/members of the IECA.

B.1.3 If any item in Section C or Section F, that is part of the Measurement Form, is **modified**:

(a) the item shall be checked by an **official measurer**

(b) any updated information shall be recorded on the Measurement Form

(c) the **official measurer** shall initial the Measurement Form beside the updated information

(d) the updated Measurement Form shall be sent to the **certification authority**. If the **certification authority** is not the IECA, a copy shall be sent to the IECA.

B.2 FLOTATION CHECKS

B.2.1 It is the responsibility of the owner to ensure the water tightness of the **boat** at all times.

PART II — REQUIREMENTS AND LIMITATIONS

The **crew** and the **boat** shall comply with the rules in Part II when *racing*. In case of conflict Section C shall prevail.

The rules in Part II are **closed class rules**. **Certification control** and **equipment inspection** shall be carried out in accordance with the ERS except where varied in this Part.

Section C — Conditions for Racing

C.1 GENERAL

C.1.1 RULES

(a) The ERS Part I – Use of Equipment shall apply.

(b) RRS 42.3 (b) is changed as follows: see C.2.4(a)

(c) RRS 49.1 Crew Position is changed as follow: see C.2.3

C.2 CREW

C.2.1 LIMITATIONS

(a) The **crew** shall consist of 3 or 4 persons.

(b) Substitutions of **crew** shall be requested to the Race Committee who shall verify the eligibility and crew weight of the substitute **crew**. The substitution shall be approved in writing.

(c) The Notice of Race may change C.2.1(a) and/or C.2.1(b).

C.2.2 WEIGHTS

	Minimum	Maximum
The total weight of the **crew** dressed in light clothing, the minimum being outerwear shorts and t-shirt		285 kg

C.2.3 HIKING

(a) When hiking in the sitting position, no part of the **crew's** body between the middle of the thigh and the feet shall be outboard of the **sheerline.**

(b) When hiking in the lying position, at least one arm and one leg shall be completely inboard of the **sheerline.**

(c) The use of only the headsail, spinnaker and/or mainsail **sheets** and/or a single safety line attached to the top of the console, held solely in the hands, may be used to assist hiking. The safety line shall be of constant thickness with a maximum diameter of 10 mm. It shall have no knots, loops or splices other than to attach it to the console. When extended outboard perpendicular to the **sheerline**, it shall extend no more than 300 mm from the **sheerline**.

(d) Unless specifically permitted in C.2.3(c), no rope, wire, rail, handhold or other special device shall be used by any member of the **crew** for the purpose of supporting his weight outboard of the **sheerline**.

(e) Hiking straps and stiffeners worn under the thighs are not permitted. This amends RRS 49.1.

C.2.4 BOAT HANDLING

(a) Hanging on to the mast and shrouds to promote roll tacking or gybing is prohibited. (This amends RRS 42.3(b)).

C.3 PERSONAL EQUIPMENT

C.3.1 MANDATORY

The boat shall be equipped with a **personal flotation device** for each **crew** member to the minimum standard in accordance with ISO standard 12402-5 (Level 50), or USCG Type III, or AUS PFD 1, or equivalent. The **personal flotation device** shall be readily available and shall have a whistle attached.

C.3.2 TOTAL WEIGHT

The total weight per person of worn or carried clothing and equipment, including footwear and other clothing worn below the knee, shall not exceed 10 kg. The total combined weight worn or carried by the **crew** shall not exceed 30 kg.

C.4 ADVERTISING

C.4.1 LIMITATIONS

In accordance with World Sailing Regulation 20.5.1, no advertising shall be displayed pursuant to World Sailing Regulation 20.3.2 (Advertising chosen by the Person in Charge on hulls, spars and sails).

C.5 PORTABLE EQUIPMENT

C.5.1 FOR USE

(a) MANDATORY

(1) Hand Pump

(2) Anchor, as follows:

	Minimum	Maximum
Anchor weight	3.5 kg	
Anchor chain link size	6 mm	
Combined weight anchor and chain	5.5 kg	9.0 kg
Anchor line diameter	10 mm	
Continuous anchor line length (**Running rigging** does not comply with this rule)	45 m	50 m

(3) 2 Buckets, each as follows:

	Minimum	Maximum
Capacity	9.5 l	
Lanyard length	1.5 m	

(b) OPTIONAL

(1) Electronic or mechanical timing devices
(2) Magnetic compass(es)
(3) Self-contained digital compass(es) – giving no more than direction, tacking prompt and timer
(4) Extra hand pumps and/or electric bilge pump system (pump, battery, wiring and switches) weighing no more than 6.0 kg. In total, with the battery securely positioned in the port seat locker and easily removable.
(5) Depth sounder not piercing the hull, to be used only when permitted by a National Authority for *races* confined to boats of their own nationality
(6) Electronic video recording apparatus
(7) VHF Radio(s) (except when stated as mandatory by the NoR or SI)
(8) Electronic Tracking Device without display
(9) Flashlight(s)
(10) Heaving line and throwing PFD device
(11) Re-boarding device
(12) Sound signalling device
(13) First Aid Kit
(14) Spare parts, rope and tools including tape
(15) Spinnaker stowage bags or boxes
(16) Storage bags or boxes

C.5.2 NOT FOR USE

(a) MANDATORY

(1) Towing rope: minimum 25 m and maximum 30 m of continuous length and of not less than 12 mm diameter. Towing rope must float and must not be pre-stretched. **Running rigging** does not comply with this rule.
(2) Two paddles: minimum 1200 mm long and with a blade area of minimum 0.04 m^2.

(b) OPTIONAL

(1) Mooring line(s)
(2) Fenders
(3) Mobile telephone
(4) Flares
(5) Other safety items including any required by law of the boat's National Authority or country.

C.6 BOAT

C.6.1 COMPLETE BOAT WEIGHT

	Minimum	Maximum
The Complete Boat Weight……..	1508 kg	1565 kg

The Complete Boat Weight is the weight of the **boat** in dry condition and ready to sail, excluding **sails** and all **personal** and **portable equipment** as listed in C.3 and C.5, but including one set of **sheets**.

C.6.2 HULL CORRECTOR WEIGHTS

(a) If the Complete Boat Weight as defined in C.6.1 is found to be less than 1508 kg, **corrector weights** shall be added as detailed in (b) below so that the Complete Boat Weight is no less than 1508 kg.

(b) **Corrector weights** shall be added by **fastening** them in equal amounts by weight to the cockpit side of the forward and aft bulkheads, on the centreline at the top.

C.6.3 MODIFICATIONS

(a) Adhesive tape may be applied above the **waterline**.

C.7 HULL

C.7.1 MODIFICATIONS

(a) **Modification** of the external shape of the **hull** is not permitted in any way except as permitted in C.7.1(b) to C.7.1(i).

(b) The size, shape, and position of the mast spar hole in the deck may be **modified**, and limited extra reinforcement (in addition to Standard Materials, reinforcement materials may include acetyl or G10) may be added, providing the resulting hole in the deck in which the **mast** may move complies with the dimensions in this table:

	Minimum	Maximum
Longitudinal distance from **hull datum point** to the centre of mast spar hole at deck level on the centreline	5472 mm	5497 mm
Length of mast spar hole	200 mm	204 mm
Width of mast spar hole	98 mm	102 mm

(c) Limited extra reinforcement or mounting brackets in way of attachment of **fittings** to the **hull** is permitted, providing:

(1) reinforcement shall consist of Standard Materials (see H.1)

(2) mounting brackets or backing plates, if installed, shall consist of Standard Materials or G10

(3) it shall not exceed the area needed to prevent local crushing or fracture

(4) it shall not create an additional structural member

(5) it shall not connect two or more structural components.

(d) Holes not bigger than necessary for the installation of **fittings** and to permit free working of the **rigging** may be made in the deck, bulkheads, knees or thwart.

All holes piercing the forward and aft flotation compartments shall be filled, bushed or positively plugged to increase watertight integrity in the event of flooding. Unfilled holes in these compartments are prohibited. A hole shall be considered to be filled if the clearance around the **rigging** does not exceed 0.5mm. Watertight tubes for **rigging** are prohibited.

Holes in the knees and/or thwart to allow **running rigging**, storage of **spinnaker pole** and/or paddle and to provide access to thwart storage compartment are permitted and shall comply with the following dimensions:

	Minimum	Maximum
Running rigging - distance of edge of hole to any edge of any knee or thwart	25 mm	
Distance of any other edge of hole to any edge of any knee or thwart	50 mm	
Total area of hole(s) in a single knee		75 cm^2
Total area of hole(s) in forward or aft vertical thwart member		250 cm^2
Area of any one hole passing **running rigging** through a knee or thwart (equivalent to max diameter of 50.5 mm)		20 cm^2

(e) Recesses in the deck for the placement of **fittings** and passage of lines may be added or **modified** and shall comply with the following:

(1) DIMENSIONS

Recess	Maximum number	Maximum surface area (cm^2)	Max Depth (mm)
Mainsheet traveller	1	1060	70
Side deck controls	2	340	60
Forward spinnaker sheet block	2	210	60
Cuddy top control lines	2	230	60
Jib sheet lead track	2	310	20
Jib tack	1	70	10
Jib **halyard**	1	120	85
Spinnaker **halyard**	1	100	110

(2) LIMITATIONS

(i) The bearing surface of the traveller mainsheet block shall not be below the surface of the deck.

(ii) Recesses on the cuddy top for jib sheet leads are not permitted.

(iii) Jib tack recesses shall be filled flush with the deck.

(f) Additional non-skid may be added to the deck, thwart, or floorboards.

(g) The position of the hole in the deck for the **forestay** may be **modified**.

(h) A block, not extending more than 75 mm from the centreline of the **boat**, may be fitted to the cleat shelf face to assist a **crew** member to brace themselves and prevent falling or sliding inboard when trimming.

(i) For **boats** built prior to 1st January 2008, a bow tank ring frame may be fitted. The ring frame shall be supplied by a licensed builder. Installation methodology, including location and tabbing specifications, is available on the IECA website and shall be installed in accordance with IECA instructions.

C.7.2 MAINTENANCE

(a) **Maintenance** is permitted.

C.7.3 REPAIR

(a) **Repairs** to the **hull** require an **official measurer** to verify on the Measurement Form that the external shape is the same as before the **repair** and that no substantial stiffness, or other advantage, has been gained as a result of the **repair**. The **official measurer** shall add a description of the details of the **repair** to the Measurement Form.

(b) **Repairs** shall be made with Standard Materials which shall be as identical as possible to the original materials.

(c) Epoxy resin is not permitted in laying up large sections of repair work but is permitted as an adhesive to join breaks.

C.7.4 FITTINGS

(a) MATERIALS

(1) Mast Shoe: Aluminium alloy 356 F or equivalent, and stainless steel

(2) All other **fittings**: materials are optional unless otherwise specified.

(b) MANDATORY

(1) Mast Shoe

(c) OPTIONAL

(1) General control blocks and **fittings**.

(2) Tiller lock

(3) Stowage clips for paddle(s), **spinnaker pole**, sail bags and other equipment

(4) One inspection hole in each buoyancy tank, provided that the watertight integrity of the buoyancy tank is maintained and covers are capable of resisting accidental dislodgement. Covers, including metal fasteners shall be fitted in accordance with manufacturer's recommendations.

(5) Drain holes in buoyancy tanks, provided that the watertight integrity of the buoyancy tank is maintained and have screw in plugs that are capable of resisting accidental dislodgement.

(6) Deck clips for cockpit cover and/or tent.

(7) Drain hole in bilge closed with a screw-in plug.

(8) Pump outlets exiting on deck – not in buoyancy tanks.

(d) USE

(1) Bulkhead access hole covers with gaskets attached and all wing nuts securely fastened and drainage plugs shall be kept in place while *racing*.

C.7.5 COMPONENTS

(a) RULES

(1) Components shall comply with the **class rules** in force at the time of installation.

(b) MANDATORY

(1) Floorboards shall be fitted and may be **modified**, **repaired** or replaced and shall comply with the following rules:

(i) MATERIALS

(A) In addition to Standard Materials (See H.1), closed cell foam is permitted.

(ii) CONSTRUCTION

(A) The design and construction of the floorboards is optional, except that they shall be easily removable and the top surface of the floorboards shall be a single horizontal plane.

(B) The floorboards may be fastened in position at the keelson and at two locations on each side.

(C) At each fastening point the **hull** may be reinforced for a maximum area of 75 mm x 75 mm using Standard Materials (See H.1)

(D) The openings between the floorboards and **hull** may be bridged with flexible materials such as tape or mesh.

(E) The floorboards may extend to the inside surface of the **hull**.

(F) The floorboards shall contact the **hull** with not more than five transverse members;

(iii) DIMENSIONS

	Minimum	Maximum
Depth of cockpit sole floorboards below the **sheerline** at Station 6	640 mm	770 mm
Length of floorboards	1780mm	1880 mm
Overall width of floorboards	810 mm	
Longitudinal distance from Station 6 to forward end of floorboards	900 mm	1100 mm
Fastening for floorboards from each end (max two per side)		50 mm
Thickness of floorboard members (fore & aft)		35 mm
Spacing of floorboard members	250 mm	
Weight of floorboards incl. members	15 kg	20 kg

(iv) LIMITATIONS

(A) The floorboards shall be constructed such that the top surface shall contain a rectangle with minimum dimensions of 1780 mm x 810 mm.

(c) OPTIONAL

(1) A console (a component attached to the **hull** in the cockpit to hold cleats and blocks and organise the control lines) may be fitted and shall comply with the following rules:

(i) MATERIALS

(A) In addition to Standard Materials (See H.1), closed cell foam is permitted.

(ii) CONSTRUCTION

(A) The design and construction is optional except that the console shall not be attached so as to affect the rigidity of the **hull.**

(B) No **fitting** shall be attached on a base higher than necessary to ensure a fair lead.

(C) Tabbing specifications - see H.2

(iii) DIMENSIONS

	Minimum	Maximum
Length of console at top, excluding **fittings**		530 mm
Width of console at top, excluding **fittings**		220 mm
Length of console at bottom, excluding **fittings**		630 mm
Width of console at bottom, excluding **fittings**		400 mm
Top of console below cockpit coaming, excluding **fittings**	50 mm	
Tabbing distance from centreline		305 mm

C.8 HULL APPENDAGES

C.8.1 MODIFICATIONS

(a) **Modification** of the external shape of the **hull appendages** is not permitted in any way except as permitted in C.8.1(b).

(b) For **boats** built prior to 1st December 1998: the **keel** may be **modified** to comply with the current **class rules**. The procedure in H.4 shall be followed. This **modification** may only be done once only.

C.8.2 MAINTENANCE

(a) **Maintenance** is permitted.

C.8.3 REPAIR

(a) **Repairs** to **hull appendages** require an **official measurer** to verify on the Measurement Form that the external shape is the same as before the **repair** and that no substantial stiffness, or–other advantage has been gained as a result of the **repair**. The **official measurer** shall add a description of the details of the **repair** to the Measurement Form.

C.8.4 FITTINGS

(a) MANDATORY

(1) Tiller

(i) MATERIALS

(A) The tiller shall be constructed from one or a combination of: wood, aluminium, steel, closed cell foam, and glass reinforced polyester resin.

(b) OPTIONAL

(1) Tiller extension

(i) MATERIALS

(A) Any materials are permitted.

C.9 RIG

C.9.1 FITTINGS

(a) MANDATORY

(1) Mast partner blocks shall be fitted and may be attached either to the **mast** or the mast spar hole. If attached to the **mast**, they may include a step in their design, which shall be a clearance fit above the raised side of the mast spar hole when the **mast** is at rest with no tension on the **standing rigging.**

(b) OPTIONAL

(1) Fore and aft mast chocks may be fitted and used to hold the **mast** in position in the partners.

(2) Mechanical means, including rams, levers and/or block and tackle arrangements with cleats to move and hold the position of the **mast** fore and aft in the partners are permitted, providing that such systems attach to the **mast** and fit entirely below the top of the partners.

C.9.2 USE

(a) The position of the **mast** in the partners may be adjusted while *racing*.

C.9.3 LIMITATIONS

(a) Only one set of **spars** and **standing rigging** shall be used during an event.

(b) The Notice of Race may change C.9.3(a).

C.9.4 MAST

(a) DIMENSIONS

	Minimum	Maximum
Lower point: distance above Point B	725 mm	740 mm
Bottom of heel plug to top of mast step		25 mm

(b) USE

(1) The **spar** shall be stepped in the Mast Shoe on the mast step in such a way that the heel is capable of being moved in a fore and aft direction, except that it shall not be capable of moving more than 2 mm while *racing*.

(2) If a sliding gooseneck is used, a stop shall be fitted to prevent the upper edge of the **boom** being below the **lower point**.

C.9.5 BOOM

(a) DIMENSIONS

	Minimum	Maximum
Outer point distance		3530 mm

C.9.6 STANDING RIGGING

(a) DIMENSIONS

	Minimum	Maximum
Longitudinal distance from centreline of **forestay** at deck to **hull datum point**	7957 mm	8007 mm

(b) USE

(1) **Shrouds** may be adjusted. This shall only be done by using turnbuckles attached to the Chainplates above the deck.

(2) The fore and aft position of **shrouds** shall not be adjusted while *racing*.

(3) The **forestay** may be adjusted only by a below deck turnbuckle attached to the Forestay Fitting and shall not be adjusted while *racing*.

(4) While sailing downwind with the jib lowered on the deck, the **mast** may be steadied by either:

(i) unfastening the **halyard** from the headsail and attaching it to the tack fitting or to a separate deck eye located aft of the forestay and tensioning the halyard, or,

(ii) attaching a separate line from the headsail tack fitting, or from the Forestay Fitting, or from a separate deck eye located aft of the **forestay** to the head of **sail** or **halyard** and then tensioning the halyard

C.9.7 RUNNING RIGGING

(a) USE

(1) **Sheeting** arrangements are optional except that no lines may pass through the **hull** sides.

(2) The lower section of the **backstay** shall be led around the backstay sheave inside the **hull**.

(3) **Halyards** shall be led over sheaves or fairleads in the positions as shown on the Plans.

(4) The kicking strap/boom vang shall be led only to the Chainplates, cabin top and/or the **mast** above the partners.

(5) Other **running rigging** arrangements are optional.

C.10 SAILS

C.10.1 IDENTIFICATION

(a) The national letters and sail numbers shall comply with the RRS.

C.10.2 LIMITATIONS

(a) Not more than 1 **mainsail**, 2 **headsails** and 2 **spinnakers** shall be carried aboard while *racing*.

(b) The Notice of Race may limit the number of **sails** to be used during an event.

(c) Only one **sail** of each type shall be hoisted at any one time.

C.10.3 MAINSAIL

(a) USE

(1) The **sail** shall be hoisted on a **halyard**. The arrangement shall permit hoisting and lowering of the **sail** at sea.

(2) **Luff** and **foot** bolt ropes shall be in the **spar** grooves or tracks.

(3) Battens may be placed in the **batten pockets.**

C.11 HEADSAIL

(a) USE

(1) The **sail** shall be hoisted on a **halyard**. The arrangement shall permit hoisting and lowering of the **sail** at sea.

(2) The intersection of the **luff** or its extension and the deck shall be not more than 50 mm aft of **forestay**

(3) Battens may be placed in the **batten pockets.**

C.11.2 SPINNAKER

(a) USE

(1) The **sail** shall be hoisted on a **halyard**. The arrangement shall permit hoisting and lowering of the **sail** at sea.

Section D — Hull

D.1 PARTS

D.1.1 MANDATORY

(a) Hull shell
(b) Bow tank ring frame
(c) Deck
(d) Buoyancy Tanks
(e) Bulkheads
(f) Thwart
(g) Partition aft of thwart
(h) Knees

D.2 GENERAL

D.2.1 RULES

(a) The hull shall be built in compliance with the **class rules** in force at the time of initial **certification**.
(b) **Modifications** *(Section C)* shall comply with the current **class rules**.

D.2.2 CERTIFICATION

(a) See rule A.12.
(b) The hull shall undergo **certification** and the licensed builder shall sign the builder's declaration on the Measurement Form stating that the **hull** and **hull appendages** are built in accordance with the **class rules**, Plans, Building Specifications and the building licence agreement.

D.2.3 DEFINITIONS

(a) The **hull datum point** (HDP) is the intersection of the extensions of the transom and underside of the **hull** on the centreline.
(b) The Forward Measurement Point is the vertical tangent to the bow, excluding any **fittings**, at the **sheerline** on the bow centre line.
(c) The Rudder Reference Mark is 1750 mm measured forward from the HDP following the hull shape.

D.2.4 IDENTIFICATION

(a) The **hull** shall carry the World Sailing Building Plaque permanently placed near the centreline on the forward face of the aft bulkhead.
(b) The World Sailing Building Plaque number shall also be cut into the keelson or moulded into the glass of the hull in the bilge area.

D.2.5 MANUFACTURERS

(a) The parts of D.1 shall only be manufactured and assembled by licensed builders.

D.2.6 MATERIALS AND CONSTRUCTION

(a) The boat shall be constructed according to the International Etchells Plans and Building Specifications.

(b) **Hulls** shall be supplied with the **keel** and **skeg** permanently attached and the **rudder** fitted.

D.3 ONE DESIGN FITTINGS

D.3.1 MANDATORY

(a) **Fittings** to be supplied and installed by licensed builders in accordance with the Building Specifications and Plans

(1) Chainplates

(2) Forestay Fitting

(3) Backstay Fitting

(4) Mast Step

Section E — Hull Appendages

E.1 PARTS

E.1.1 MANDATORY

(a) **Keel**

(b) **Rudder**

(c) **Skeg**

E.2 GENERAL

E.2.1 RULES

(a) **Hull appendages** shall comply with the **class rules** in force at the time of **certification**.

E.2.2 CERTIFICATION

(a) **Hull appendages** shall be **certified** as part of hull **certification**. See D.2.2.

E.2.3 MANUFACTURERS

(a) The parts of E.1 shall only be manufactured and assembled by licensed builders.

E.2.4 MATERIALS AND CONSTRUCTION

(a) The **hull appendages** shall be constructed according to the World Sailing approved International Etchells Plans and Building Specifications.

E.3 KEEL

E.3.1 RULES

(a) For **boats** built prior to 1st December 1998 where the **keel** has not been **modified** in any way, the **keel** shall comply with the dimensions in Section H.5.1.

(b) For **boats** built prior to 1st December 1998 and where the **keel** is **modified** in any way after 1st December 1998, the **keel** shall comply with the current **class rules**.

E.4 ONE DESIGN FITTINGS

E.4.1 MANDATORY

(a) **Fittings** to be supplied and installed by licensed builders in accordance with the Building Specifications and Plans

(1) Rudder Stock

Section F — Rig

F.1 PARTS

F.1.1 MANDATORY

(a) **Mast**

(b) **Boom**

(c) **Standing rigging**

(d) **Running rigging**

F.1.2 OPTIONAL

(a) **Spinnaker pole**

F.2 GENERAL

F.2.1 RULES

(a) The **spars** and their **fittings** shall comply with the **class rules** in force at the time of **certification** of the **spar**.

(b) The **standing rigging** and **running rigging** shall comply with the **class rules**.

F.2.2 MODIFICATIONS

(a) **Spars** shall not be **modified** in any way except as permitted by the **class rules**.

(b) **Spars** from a licensed spar maker which have shown a history of failure may be **modified** at that location on the **spar**.

(c) Any **fastening** or welding shall not alter the flexibility of the **spar** and shall not add to its strength.

F.2.3 MAINTENANCE

(a) **Maintenance** is permitted.

F.2.4 REPAIR

(a) Internal or external sleeves or doublers may be fitted when the **spar** is fractured or broken or the **spar** shows damage which will cause failure, the damage having been caused by accident or normal use.

(b) Prior to any **repair**, approval shall be given by the fleet captain and the **official measurer** that the **repair** is necessary. When completed, the **official measurer** shall inspect and re-measure as necessary. (See B.1.3)

(c) The materials used shall be the same specifications as used in the **spar** construction.

(d) Unused holes 8mm or less in diameter shall be filled with pop rivets or machine screws. Unused holes greater than 8 mm shall be filled with aluminium.

F.2.5 CERTIFICATION

(a) The **official measurer** shall **certify spars** and shall sign and date the **certification mark** and complete a **spar** Measurement Form**.**

(b) No **certification** of **standing rigging** and **running rigging** is required.

(c) The **mast** and **boom** shall be legibly marked with the authorised serial numbers, issued by the IECA, at the following locations:
   (1) **Mast:** within 150 mm of the bottom of the heel plug**.**
   (2) **Boom:** within 150 mm of outboard end.

F.2.6 DEFINITIONS

(a) The **mast datum point** (MDP) is the lower point.

(b) Point B is defined as the intersection of the aft edge of the **mast** with the **sheer**.

F.2.7 MANUFACTURER

(a) Mast **spar** sections, **spreaders** and boom **spar** sections shall only be manufactured by a licensed spar maker.

(b) The extrusion dies shall be approved by World Sailing.

F.3 MAST

F.3.1 MATERIALS

(a) The **spar** and **spreader** extrusion: as specified in Spar Building Specifications.

(b) Main halyard lock - stainless steel or titanium.

(c) Sheaves – aluminium or plastic.

(d) Gooseneck (if permanently fixed) – stainless steel.

(e) Heel plug: Aluminium alloy 356 F or equivalent.

(f) Other fittings - as specified in the Plans.

F.3.2 CONSTRUCTION

(a) The mast **spar** and **spreader** sections shall be built according to the Spar Building Specifications and Plans.

(b) The **spar** extrusion shall include a fixed sail groove which shall be integral with the **spar** and shall be of the same material.

F.3.3 MODIFICATION

(a) The forward face of the **mast** may be reinforced with any of the following four sleeves or doublers.

	maximum
UPPER MAST REINFORCEMENT	
1. External reinforcement (may be as a modification of the jib/spinnaker halyard sheave box)	
Maximum length	400 mm
Maximum width, measured around the forward face of the **mast**	100 mm
Maximum extension above top of spinnaker halyard exit slot	200 mm
2. Internal reinforcement (may be as a modification of the jib/spinnaker halyard sheave box)	

Maximum length	650 mm
Maximum width, measured around the forward face of the **mast**	100 mm
Maximum extension above top of spinnaker halyard exit slot	350 mm
LOWER MAST REINFORCEMENT	
3. External reinforcement, below **lower point**	
Maximum length	500 mm
4. Internal reinforcement, below **lower point,** no less than 100 mm above the bottom of the heel plug	
Maximum length	1000 mm

(b) The attachment method of all mast reinforcements is optional.

(c) The materials used shall be of the same specifications as used in the **spar** construction.

F.3.4 REPAIR

(a) No more than two sleeves or doublers are permitted.

(b) The length of any sleeve or doubler for the purpose of **repair** is limited as follows:

(1) Any internal sleeve shall be no longer than 1000 mm

(2) Any external sleeve below 4360 mm above the **mast datum point** shall be no longer than 500 mm

(3) Any external sleeve wholly or partly above 4360 mm above the **mast datum point** shall be no longer than 400 mm

F.3.5 FITTINGS

(a) MANDATORY

(1) Supplied by the licensed spar maker, pre-installed on the mast section.

(i) Masthead Crane

(ii) Masthead Cap

(iii) Spinnaker & Headsail Halyard Sheave Box

(iv) Lower Sheave Boxes

(2) Supplied by any licensed spar maker:

(i) A set of **spreaders**, either fixed or with restricted movement

(ii) Spreader Bracket (comprising a spreader bracket plate and spreader socket)

(3) Supplier optional, not restricted to licensed spar makers:

(i) Mast Heel Plug

(ii) Shroud Tangs

(iii) Mainsail Halyard Lock above **upper point**

(iv) Sheaves

(v) Spinnaker pole topping lift block and attachment
(vi) Spinnaker pole track
(vii) Spinnaker pole track sliding fitting
(viii) Gooseneck. A permanently fixed gooseneck or a sliding gooseneck mounted on a track is permitted.

(b) OPTIONAL
(1) Gooseneck track
(2) Kicking strap/boom vang attachment
(3) Mechanical wind indicator
(4) Compass bracket
(5) Spinnaker halyard block and cleat

F.3.6 DIMENSIONS

	Minimum	Maximum
Mast spar curvature		50 mm
Mast spar cross section below taper;		
Fore-and-aft	123 mm	126 mm
Transverse	76 mm	79 mm
Mast spar cross section at **upper point**;		
Fore-and-aft	65 mm	75 mm
Transverse	60 mm	70 mm
Mast **limit mark width**	25 mm	
Lower point to **upper point**		9906 mm
Start of taper above **mast datum point**	7800 mm	7950 mm
Forestay height	7605 mm	7635 mm
Shroud height	8120 mm	8140 mm
Lower **shroud** height, above or below centre line of spreader		60 mm
Spinnaker pole fitting:		
Height to top of track from **mast datum point**		1525 mm
Length of track	1220 mm	
Projection		95 mm
Spinnaker hoist height		7575 mm
Spinnaker halyard sheave box extension		45 mm
Spreader:		
Length	760 mm	780 mm
Height	3845 mm	3875 mm
Spreader section:		
Fore & aft	47mm	49 mm
Depth	18 mm	20 mm
Spreaders may be rigidly fixed or may swing fore and aft from the centreline of the spreader socket with 15 kg applied at the tip of each spreader:		

Aft swing at tip of spreader		100 mm
Forward swing at tip of spreader		75 mm
Bottom of heel plug to bottom of mast extrusion	7 mm	13 mm
Length of sail entry cut-away or flare	100 mm	200 mm
Top of sail entry cut-away or flare above **mast datum point**	470 mm	570 mm
Gooseneck track length	169 mm	376 mm
Gooseneck track backing plate length	168 mm	381 mm

F.3.7 WEIGHTS

	Minimum	Maximum
Mast tip weight, excluding heel plug, **spreaders** and all **rigging**	12 kg	
Mast tip weight, fully rigged with spinnaker track slide at lowest point	13 kg	

F.4 BOOM

F.4.1 MATERIALS

(a) The spar extrusion: as specified in Spar Building Specifications.

(b) Outboard plug & Inboard plug: Aluminium alloy 356 F or equivalent.

(c) All other **fittings** – optional unless otherwise specified.

F.4.2 CONSTRUCTION

(a) The **spar** extrusion: as specified in Spar Building Specifications and Plans.

(b) The **spar** extrusion shall be of constant section. It shall include a fixed sail groove which shall be integral with the **spar** and shall be of the same material.

(c) The **spar** shall not be tapered or cut away except for providing entry for the footrope and for the attachment of **fittings**.

F.4.3 MODIFICATION

(a) The **boom** may be internally reinforced. The maximum length of the reinforcement is 1300 mm. Location and attachment method are optional. Maximum wall thickness of the reinforcement shall be 3.18 mm.

F.4.4 REPAIR

(a) No more than one internal sleeve or doubler is permitted. Maximum length 1300 mm.

F.4.5 FITTINGS

(a) MANDATORY

(1) Supplier optional, not restricted to licensed spar makers:

(i) Inboard boom plug

(ii) Outboard boom plug

(b) OPTIONAL

(1) All other **fittings**
(2) Internal mainsheet system

F.4.6 DIMENSIONS

	Minimum	Maximum
Boom spar curvature		25 mm
Boom spar cross section between;		
Vertical	81 mm	84 mm
Transverse	65 mm	67 mm
Extension of boom section aft of **boom outer point** excluding boom end plug	100 mm	150 mm
Sail entry cut-away from forward end of extrusion		190 mm
Outhaul track cut-away from aft end of extrusion		267 mm
Internal mainsheet – all holes from either end of **spar**		400 mm
Internal mainsheet – single sheave exit, forward of **boom outer point**		1800 mm
Boom **limit mark width**	25 mm	

F.5 SPINNAKER POLE

F.5.1 MANUFACTURER

(a) Manufacturer is optional.

F.5.2 MATERIALS

(a) The **spar** may be of aluminium, GRP, or carbon fibre reinforced resin.
(b) Spinnaker pole end **fittings**: optional.

F.5.3 CONSTRUCTION

(a) Construction is optional.

F.5.4 FITTINGS

(a) **Fittings** are optional.
(b) Grip tape or similar may be added to the pole.

F.5.5 DIMENSIONS

	Minimum	Maximum
Spinnaker pole length		2895 mm

F.5.6 WEIGHTS

	Minimum	Maximum
Spinnaker pole weight, fully rigged	2.3 kg	

F.6 STANDING RIGGING

F.6.1 MATERIALS

(a) The **standing rigging** shall be of stainless steel.

F.6.2 CONSTRUCTION

(a) The **forestay** shall be of 1 x 19 wire.

(b) The **shroud**s shall be of 1 x 19 wire.

F.6.3 FITTINGS

(a) MANDATORY

(1) **Forestay** rigging link

(2) **Shroud** rigging screws

(b) OPTIONAL

(1) Tell-tales

(2) Plastic spacers in rigging screws

F.6.4 DIMENSIONS

Diameters	Minimum	Maximum
Forestay	4.7 mm	
Shroud	4.7 mm	
Lower **shroud**	4.7 mm	

F.7 RUNNING RIGGING

F.7.1 MATERIALS

(a) **Halyards**: stainless steel wire or rope

(b) **Backstay**: stainless steel wire

(c) Backstay pennant: stainless steel wire or rope

(d) **Sheets** and control lines: optional

(e) Fittings: optional unless otherwise specified

F.7.2 CONSTRUCTION

(a) MANDATORY

(1) Mainsail **halyard**; rope or 7 x 19 wire

(2) Headsail **halyard**; rope or 7 x 19 wire

(3) Spinnaker **halyard**; rope

(4) A **backstay** of 1 x 19 wire

(5) A backstay pennant of 7 x 19 wire or equivalent rope.

(b) OPTIONAL

(1) All other lines

F.7.3 FITTINGS

(a) OPTIONAL

(1) Backstay pennant system

(2) All other fittings

F.7.4 DIMENSIONS

Diameters	Minimum	Maximum

Main **halyard** wire	2.4 mm	
Main **halyard** rope	4.0 mm	
Headsail **halyard** wire	3.1 mm	
Headsail **halyard** rope	4.8 mm	
Spinnaker **halyard** rope	4.8 mm	
Backstay	3.2 mm	
Backstay pennant wire	4.0 mm	
Backstay pennant rope	4.0 mm	

(a) When attached to the upper **backstay rigging point**, the lower end of the 1 x 19 wire **backstay** shall be not less than 200 mm below the **mast datum point** when pulled taut along the mast with 5 kg tension.

Section G — Sails

G.1 PARTS

G.1.1 MANDATORY

(a) **Mainsail**

(b) **Headsail**

G.1.2 OPTIONAL

(a) **Spinnaker**

G.2 GENERAL

G.2.1 RULES

(a) **Sails** shall comply with the **class rules** in force at the time of **certification**.

G.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) **Modification** of **sails** is permitted providing they are re-**certified.**

(b) **Maintenance** and **repair** is permitted.

G.2.3 CERTIFICATION

(a) The **official measurer** shall **certify** mainsails and headsails in the **tack** and spinnakers in the **head** and shall sign and date the **certification mark**.

G.2.4 SAILMAKER

(a) No license is required.

G.2.5 SAIL ROYALTY TAG

(a) **Sails** produced after 1st March 2021, must have a uniquely-numbered 'IECA sail royalty tag' permanently affixed. For mainsails and headsails it shall be affixed in the tack of the **sail**. For spinnakers in the head of the **sail**. Sailmakers shall purchase the sail royalty tags from the IECA Office.

(b) Royalty tags shall not be transferred from one **sail** to another.

G.3 MAINSAIL

G.3.1 IDENTIFICATION

(a) The class insignia shall conform with the dimensions and requirements as detailed in the diagram contained in Section H and be placed in accordance with the RRS.

(b) The preferred colour of the insignia is blue; however other contrasting colours may be used except that gold shall only be used for the insignia of a boat owned by a world champion.

G.3.2 MATERIALS

(a) The **ply** fibres shall consist of polyester

(b) **Stiffening** shall consist of:

(1) Corner boards: plastic or aluminium.

(2) Battens: wood or glass reinforced polyester and/or epoxy resin.

(c) **Sail reinforcement** shall consist of woven polyester of the same weight as the **body of the sail**. For a **two ply sail,** reinforcement beyond the **primary**

reinforcement dimension shall not be more than one extra layer of the same weight cloth.

G.3.3 CONSTRUCTION

(a) The construction shall be: **soft sail**, **single ply sail or two ply sail** where both layers are of equal weight cloth.

(b) The **sail** shall have 4 **batten pockets** in the **leech**. They shall be spaced equally +/-80 mm along the leech, measured to the upper edge of the **batten pocket**. Battens may be permanently fixed or removable.

(c) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, **batten pocket** elastic, **batten pocket** end caps, mast and boom slides, adjustable leech line, **windows**, flutter patches, spreader patches, tell tales, sail shape indicator stripes and items as permitted or prescribed by other applicable *rules*.

(d) Corner boards shall only be on the surface of the **sail**.

G.3.4 DIMENSIONS

	Minimum	Maximum
Leech length		10425 mm
Half width		2267 mm
Three-quarter width		1400 mm
Upper width at **upper leech point** 450 mm from **head point**		342 mm
Finished weight of **ply** of the **body of the sail**	250 g/m^2	
Primary reinforcement		843 mm
Secondary reinforcement:		
From **sail corner measurement points**		1800 mm
Window: number of		Unlimited
Total window area		1.0 m^2
Window to **sail edge**	100 mm	
Headboard width		102 mm
Batten length		1300 mm
Batten width		35 mm
Batten pocket spacing tolerance either side of equal leech points		80 mm
Bolt rope including covering	8 mm	

G.4 HEADSAIL

G.4.1 MATERIALS

(a) The **ply** fibres shall consist of polyester.

(b) **Stiffening** shall consist of battens of wood or glass reinforced polyester and/or epoxy resin.

(c) **Sail reinforcement** shall consist of woven polyester of the same weight as the **body of the sail**. For a **two ply** sail, reinforcement beyond the **primary**

reinforcement dimension shall not be more than one extra layer of the same weight cloth.

G.4.2 CONSTRUCTION

(a) The construction shall be: **soft sail, single ply sail** or **two ply sail** where both layers are of equal weight cloth.

(b) The headsail shall have 3 **batten pockets** in the **leech**. They shall be positioned 40 mm +/- 20 mm below the leech cross height points, measured to the upper edge of the **batten pocket** at the **leech**. Battens may be permanently fixed or removable.

(c) The **leech** profile shall be straight or concave between:

(1) each **batten pocket**,

(2) the **aft head point** and top **batten pocket**,

(3) the **clew** and lower batten.

(d) The following are permitted: Stitching, glues, tapes, corner eyes, hanks, hook and loop or web and snap, luff fasteners, batten pocket elastic, **batten pocket patches**, batten pocket end caps, adjustable leech and foot lines, **windows**, flutter patches, tell tales, sail shape indicator stripes and items as permitted or prescribed by other applicable *rules*.

G.4.3 DIMENSIONS

	Minimum	Maximum
Luff length		7915 mm
Leech length		7370 mm
Foot length		2540 mm
Foot median		7700 mm
Quarter width		1860 mm
Half width		1275 mm
Three quarter width		650 mm
Seven-eighths width	315 mm	
Top width		55 mm
Foot irregularity		25 mm
Finished weight of **ply** of the **body of the sail**	270 g/m^2	
Primary reinforcement		705 mm
Secondary reinforcement:		
From **sail corner measurement points**		1800 mm
Window: number of		Unlimited
Total **window** area		1.0 m^2
Window to **sail edge**	100 mm	
Batten length:		800 mm
Batten width:		35 mm
Batten pocket spacing tolerance at 40 mm below cross points		20 mm

G.5 SPINNAKER

G.5.1 MATERIALS

(a) The **ply** fibres shall consist of nylon.

(b) **Sail reinforcement** shall consist of nylon or woven polyester.

G.5.2 CONSTRUCTION

(a) The construction shall be: **soft sail**, **single ply sail**.

(b) The following are permitted: Stitching, glues, tapes, corner eyes, sister clips, corner rings, head swivel, tell tales, adjustable leech lines, hook and loop and items as permitted or prescribed by other applicable *rules*.

G.5.3 DIMENSIONS

	Minimum	Maximum
Leech length	8250 mm	8450 mm
Half **foot length**	2545 mm	2745 mm
Foot median	9300 mm	9500 mm
Half cross width between **leech** and centrefold 2745 mm from head	2425 mm	2625 mm
Half cross width between **leech** and centrefold 5485 mm from head	2955 mm	3155 mm
Finished weight of **ply** of the **body of the sail**	32 g/m^2	
Primary reinforcement		740 mm
Secondary reinforcement from **sail corner measurement points**		1800 mm

PART III — APPENDICES

The rules in Part III are **closed class rules**. Measurement shall be carried out in accordance with the ERS except where varied in this Part.

Section H

H.1 MATERIALS

H.1.1 Standard Materials. Where a rule permits the use of Standard Materials these may be used:

(1) E-glass (chopped strand mat and woven cloth)
(2) Polyester resin
(3) Stainless steel
(4) Aluminium
(5) Brass
(6) Bronze
(7) Wood
(8) Microballoons (Phenolic or silica-glass spheres)
(9) Polyester filler
(10) Gelcoat
(11) Paint

H.1.2 No other materials shall be used unless specified in a rule as permitted for a particular item, in which case they shall only be permitted for the item so specified.

H.2 TABBING SPECIFICATIONS

H.2.1 Console tabbing layup schedule. These specifications shall be used unless prior approval to use an alternative has been received from the IECA.

(a) 1 ply 450 g/m^2 chopped strand mat, 125 mm wide tape
(b) 1 ply 610 g/m^2 woven roving, 125 mm wide tape
(c) 1 ply 450 g/m^2 chopped strand mat, 150 mm wide tape
(d) 1 ply 610 g/m^2 woven roving, 150 mm wide tape
(e) Optional. 1 ply 450 g/m^2 mat may be applied to tank top in way of bearing surface of the console, then console is pressed into mat until cured.

H.2.2 The minimum tabbing requirement for other items bonded to the hull and deck, and permitted in Section C, is 580 g/m^2 stitch bonded woven cloth with ±45° fibre orientation and a 25 g/m^2 chopped strand mat. If commercially available a single stitch bonded product of the specified composition and fibre orientation may be used.

H.3 SPARE

H.4 PROCEDURE FOR MODIFICATION OF A PRE-1ST DECEMBER 1998 KEEL

H.4.1 Before any **modification** to the keel, the owner shall;

(a) Notify the fleet captain

(b) Contact the **certification authority** for permission and any instructions

(c) Submit the name of the **official measurer** who will inspect the work.

(d) The **certification authority** will advise the **official measurer** and owner of the current hull measurement details and suspend the **certificate** during the **modification** process.

(e) Prior to work starting the **official measurer** shall weigh and record the Complete Boat Weight as per C.6.1.

H.4.2 All work and re-measurement shall be in accordance with C.6.1. All measurements shall be recorded on the Measurement Form in accordance with H.4.6.

H.4.3 TO REMOVE LEAD FROM A HEAVY KEEL.

(a) Any drilled holes shall be in the area:

	Minimum	Maximum
Above the bottom of the **keel**	380 mm	480 mm
From the leading edge in the **waterline** plane	305 mm	505 mm

(b) Alternatively, the entire lead surface may be planed.

(c) The **official measurer** shall re-weigh the complete **boat** as per C.6.1 and weigh and record the lead removed.

H.4.4 TO ADD LEAD TO A LIGHT KEEL; that is less than maximum weight and less than maximum chain girth.

(a) Mark the 80 mm chain girth measurement mark at section 6 on both sides.

(b) Add lead to the bottom of the **keel**. The total **keel** weight shall not exceed 965 kg

H.4.5 TO ADD LEAD TO A HEAVY KEEL; that is less than maximum chain girth.

(a) Proceed to add lead as per H.4.4.

(b) Remove weight as per H.4.3(a) only. The location of holes shall be measured from the new **keel** bottom and leading edge.

H.4.6 MEASUREMENT AND RE-CERTIFICATION

(a) The **official measurer** shall re-weigh the **boat** as per C.6.1 and fully re-measure the **keel** using the keel **modification** Measurement Form.

(b) The **official measurer** shall send the keel **modification** Measurement Form and report to the **certification authority** and, if the **certification authority** is not the IECA, a copy shall be sent to the IECA.

(c) The **certification authority** shall, on confirming that the **modifications** comply with all the **class rules**, issue a new **certificate.**

(d) The owner shall inform the fleet captain that a new **certificate** has been issued.

H.5 KEEL DATA FOR BOATS PRE-1ST DECEMBER 1998

Only items that have changed since 1st December 1998 are shown.

H.5.1 DIMENSIONS

	Minimum	Maximum
Maximum thickness	133 mm	144 mm
Chord length measured along template	1130 mm	1170 mm
Difference between min and max chord dimensions		20 mm
Surface of **keel** including **coatings** to template	0 mm	8 mm
Radius of leading edge over template control area		10 mm
Chain girth at station 6	2140 mm	2190 mm
Hull Datum Point to:		
Intersection of leading edge and bottom of **keel**	4660 mm	4690 mm
Intersection of trailing edge and bottom of **keel**	3600 mm	3635 mm
Angle of **keel** Vee bottom section from vertical	38°	45°
Keel bolt diameter - nominal size	16 mm	16 mm
Keel bolt number	10	10

H.5.2 WEIGHTS

	Minimum	Maximum
Including keel bolts, but excluding **coatings**	953 kg	987 kg

H.6 MEASUREMENT DIAGRAMS

H.6.1 Measurement Diagrams may be found in the Measurement Guide.

H.6.2 The list of Measurement Diagrams is:

(a) Sail Insignia
(b) Deck & Cockpit Measurements
(c) Mast measurements
(d) Rudder profile template
(e) Rudder thickness – 100mm and 250mm lines
(f) Hull & hull appendages profile measurements
(g) Hull section templates
(h) Chain girth
(i) Mast Bury & Point ‘B’
(j) Hull Datum Point and Measurement Diagram
(k) Angled keel template position diagram
(l) Height of lead in keel
(m) Keel template leading and trailing edge positions
(n) Procedure for levelling boat diagram
(o) Keel forward and trailing edges intersection diagram
(p) Measurement of holes piercing flotation compartments
(q) Knee, seat thwart open hole diagram
(r) Spreader measurements

H.7 TEMPLATES

H.7.1 The list of official templates is:

(a) Hull Section Templates - Stations 0, 3, 6, 10

(b) Keel Section Templates
(c) Hull Keel Join Forward Template
(d) Garboard Measurement Tool
(e) Rudder Template

H.8 DOCUMENTS

H.8.1 The list of documents that, together with this document, form the **class rules** is:

(a) Hull and Hull Appendage Building Specifications
(b) Spar Building Specifications
(c) 1A – Lines Plan
(d) 9F – Hull Appendages Plan
(e) 10G – Construction Plan
(f) 15F – One-Design Fittings Plan
(g) 25G – Spar Plan

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