



AMERICA'S CUP® "72" CLASS RULE

Version 1.0

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This Rule is adopted by the Challenger of Record and the Defender of the
34th America's Cup

_____ on behalf of the Defender

_____ on behalf of the Challenger of Record

_____ on behalf of ACRM

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INTENT

The America's Cup 72 Class Rule ("**AC72 Rule**") is intended to be a premier development rule in the sport of sailing, producing a fleet of high performance racing catamarans which utilize commercially available materials and technology.

The catamarans must always be eligible for competition under the terms of the Deed of Gift.

The **AC72 Rule** is intended to provide for match and fleet racing which is visually exciting while being physically and technically challenging for the crew, who handle and trim sails using manual power only.

The catamarans are intended to be raced on a variety of coastal courses within defined wind and sea limits which are not extreme.

In addition to being suitable for racing in the America's Cup, it is intended that regular Class racing will take place at events not connected with the America's Cup.

The **AC72 Rule** is intended to survive several editions of the America's Cup commencing with the 34th America's Cup. It is anticipated that the **AC72 Rule** will be revised from time to time to promote the evolution of rule compliant catamarans and continued use of the existing fleet.

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SECTION A GENERAL

1. STATUS

- 1.1 Amendments may be made to the **AC72 Rule** by ACRM pursuant to Articles [TBD] of the Protocol.
- 1.2 After [DATE TBD], however, any such amendments shall require the unanimous approval of all the Competitors.
- 1.3 The words "America's Cup" and the Class Insignia of the America's Cup Class as shown in AC72 Rule *Appendix D* are the trademark property of America's Cup Properties Inc. No person or entity may use such trade marks in any manner without authority of and written license from America's Cup Properties Inc.
- 1.4 Copyright in these **AC72 Rules** is owned by ACRM. All rights are reserved.

2. LANGUAGE AND DEFINITIONS

- 2.1 The official language of the **AC72 Rule** is English. If this AC72 Rule is translated into another language, this English text shall prevail. Except for words specifically defined, the meaning of any word shall be determined by reference to the Oxford English Dictionary second edition (1989) – CD Rom Version 3.1 (Oxford University Press 2004) or any later published version.
- 2.2 The word "shall" is mandatory; and the words "may" and "can" are permissive.
- 2.3 The metric system shall be used for all measurements unless otherwise prescribed.
- 2.4 System of Axes. The three major orthogonal axes of the **catamaran**: vertical, longitudinal, and transverse, shall be related to **MWP** and to the **catamaran centerplane**.
- 2.5 Interpretation: Words, phrases and interpretation principles defined in the Protocol, Event Regulations and Competition Regulations shall have the same meaning and application in this AC72 Rule. The following additional terms are used in this AC72 Rule. When a defined term is used in its defined sense, it is printed in bold type. In AC72 Rule *Appendices E and F*, several sail-specific terms are also defined and these are used in bold type within that Appendix.
- 2.6 **Definitions:**
 - (a) "**AC72 Rule**" means the America's Cup Class Rule issued by ACRM for AC72 **Catamarans** pursuant to Article [TBD] of the Protocol, as amended from time to time and as interpreted by the Measurement Committee pursuant to **AC72 Rule 3** hereunder;
 - (b) "**Appendage**" means any moveable component which is outside the **hull**, that:
 - i. is wholly or partially submerged at any time during racing and is used to affect stability, leeway, steerage, directional stability, motion damping, trim, or displaced volume;
 - ii. may also include an integral element(s) which extends from outside the **hull** into the **hull** (e.g. bilgeboard head or rudder stock);
 - iii. is not a movable or retractable device whose sole purpose is the removal of weed or debris from a **hull** or **appendage**, and in no other way enhances the performance of the **catamaran**;
 - (c) "**Catamaran**" means a sailing vessel with two **hulls** connected by **cross structure** and is symmetrical about a **centerplane**;
 - (d) "**Centerplane**" means a vertical longitudinal plane of symmetry perpendicular to the **MWP**

- (e) “**Competitor**” means a Competitor as defined in the Protocol, and any participant in the racing in any event in this AC72 Class;
- (f) “**Cross Structure**” means structure used for the purpose of connecting the **hulls** or for supporting the **wing, standing rigging** and sails, this may also include an integral element(s) which extends from outside the **hull** into the **hull**;
- (g) “**Cure**” means the irreversible change of properties of a resin by the chemical reaction;
- (h) “**Draft**” means the furthest distance of any part of the **hull** or **appendages** below **MWP**;
- (i) “**Element**” means a discrete aerodynamic component of the **wing**;
- (j) “**Fiber modulus**” means the batch-nominal elastic modulus of the fibers in an **FRP** laminate as determined by one of the measurement methods listed below with the modulus measured with impregnated tows, by extensometers, in the strain range between 1000 and 6000 microstrains. The testing method may be either SACMA-SRM16, ASTM D 4018, or JIS R 7601;
- (k) “**FRP**” means fiber reinforced polymer matrix composites, of which the fibers would include carbon, glass, aramid and polymer;
- (l) “**Hoist Point**” means the location where the tack of a sail is attached when the sail is flying.
- (m) “**Hull**” means the exterior shell of any enclosed volume that carries 45% or more of the **catamaran**'s displacement when the **catamaran** is in **measurement condition**;
- (n) “**Hull centerplane**” means a longitudinal plane within 10 degrees of vertical about which specified portions of a **hull** are symmetrical;
- (o) “**Inboard beam waterline**” means the shortest distance between **hulls** at the **MWP**;
- (p) “**Interpretation**” means an **Interpretation** issued in writing by the **Measurement committee** in accordance with **AC72 Rule 3**;
- (q) “**Measurement committee**” means the committee appointed by the **Technical Director** pursuant to Article [TBD] of the Protocol;
- (r) “**Measurement condition**” means the condition of the **catamaran** as specified in **AC72 Rule 27.2**;
- (s) “**Measurement weight**” means the weight of the **catamaran** in **measurement condition**;
- (t) “**Measurer**” means a person appointed by the **Technical Director** to provide measurement or compliance services; a **measurer** may or may not be a member of the **Measurement Committee**;
- (u) “**MWP**” is the flotation plane in **measurement condition**;
- (v) “**Owner**” means the **owner** (or charterer) or the designated representative of a **Competitor**;
- (w) “**Running Rigging**” means rigging which is used to hoist, trim, or control sails or the **wing** and includes running backstays, checkstays, halyards, sheets, mainsheet, tack line and forestay strop, but does not include the **standing rigging** of the **catamaran**;
- (x) “**Sailing condition**” means the condition of the **catamaran** as specified in **AC72 Rule 27.3**;
- (y) “**Sailing Series**” means a series of races as defined by Article [TBD] in the Protocol;

- (z) **"Sailing weight"** means the weight of the **catamaran** in **sailing condition**;
- (aa) **"Standing rigging"** means rigging which supports the **wing** or **cross structure** and
 - (i) maintains approximately the same position and orientation relative to the **wing** and **cross structure** while sailing
 - (ii) shall be easily removable, and not be laminated or bonded to other components;
 - (iii) and shall primarily be loaded in tension and essentially ineffective in compression.
- (bb) **"Stem"** means the vertical transverse plane that passes through the forward-most point of the **hulls**;
- (cc) **"Stern"** means the vertical transverse plane that passes through the aft-most point of the **hulls**;
- (dd) **"Tack point"** means the location where the tack of a sail is attached when the sail is flying;
- (ee) **"Technical Director"** means the Technical Director of the America's Cup Class appointed pursuant to Article [TBD] of the Protocol.
- (ff) **"Wing"** means the system of connected **elements** that rotate on the **wing rotation point**;
- (gg) **"Wing area"** means the sum of all measured **element** surface areas;
- (hh) **"Wing measurement position"** means the position in which the wing datum, as defined in Appendix F, is perpendicular to the **MWP**.
- (ii) **"Wing rotation point"** means the point, located at the center of the single hemispherical surface which is on the lowest compressive load-bearing component of the **wing** which remains part of the **wing** when the **wing** is removed normally from the **catamaran**.

3. INTERPRETATIONS

- 3.1 After [DATE TBD], **Interpretations** shall be issued by the **Measurement Committee** sequentially and when issued shall form part of this **AC72 Rule**. All **interpretations** will be issued on behalf of ACRM and shall be available to the public.
- 3.2 **Interpretations** may be sought by a **Competitor** at any time by request in writing to the **Technical Director**. An **Interpretation** may be initiated by the **Measurement Committee** itself. **Interpretations** shall be issued by the **Measurement Committee** within 30 days of the request being received by the **Technical Director** unless an extension of the time has been requested by the **Measurement Committee** and agreed with the requesting **Competitor**.
- 3.3 In the preparation of an **Interpretation**, the **Measurement Committee** may consult other independent parties at its discretion.
- 3.4 A **Competitor** shall place no reliance on any advice or opinion from a **measurer** or any member of the **Measurement Committee** unless it is set out in an **Interpretation**. The **Measurement Committee** shall not be bound by any advice or opinion given in any form, other than in an **Interpretation**.

SECTION B GENERAL REQUIREMENTS

4. GENERAL LIMITATIONS

- 4.1 The maximum overall beam of the **catamaran** not including wing, sails, running rigging, and crew shall be 14.000 m. The beam shall be measured between vertical planes at the transverse extents of the **catamaran** parallel to the **catamaran's centerplane**.
- 4.2 The **inboard beam waterline** shall not be less than 11.500 m.
- 4.3 The **sailing weight** shall be shall be no less than 5600 kg and no greater than 5800 kg.
- 4.4 Water retained in the bilge, any recess, or other volume may not be used to intentionally increase stability or change trim.
- 4.5 The maximum **draft** shall not be more than 4.400 m from **MWP** with all appendages in their lowest possible position.
- 4.6 The **catamaran** shall be easily disassembled such that:
- (a) The **catamaran** shall be able to be disassembled, from a state of ready to sail to packed in shipping boxes in not more than 24 hours.
 - (b) The **catamaran** shall be able to be assembled, from a state of packed in shipping boxes to ready to sail, in not more than 48 hours.
 - (c) Detailed plans describing the procedure for disassembly and assembly shall be supplied to the **measurer** before measurement of the **catamaran**.

5. GENERAL CONSTRUCTION

- 5.1 The structural integrity of the **catamaran** is the responsibility of the **Competitor**. Compliance with the following requirements does not relieve the **Competitor** from ensuring the **catamaran** is of adequate strength.
- 5.2 These requirements apply to the processes used by the builder to construct the components, but not to the manufactured constituent materials such as carbon fiber, resin systems and core materials.
- 5.3 A material manufacturer's certificate of compliance, and, if required by the **Measurement Committee**, material samples, shall be supplied to the **Measurement Committee**.
- 5.4 The **owner**, designers and builders of any component shall provide to the **Measurement Committee** a signed declaration as set out in **AC72 Rule Appendix B** confirming the **components** have been constructed from materials and using methods permitted by **AC72 Rule**.
- 5.5 A material-usage schedule as shown in **AC72 Rule Appendix C** shall be supplied to the **Measurement Committee**, that shall include the quantity supplied, relevant batch numbers, and a description to assist identification; however, documentation is not required for wet-laminate **FRP** materials used in the construction of any component, provided that the total quantity of wet-laminate **FRP** is less than 5% by weight of the total **FRP** materials used in the construction of that component. Nonetheless, wet-laminate **FRP** mechanical properties shall comply with **AC72 Rule** and shall be covered by a declaration referencing this clause as set out **AC72 Rule Appendix B**.
- 5.6 A maximum of 40 kg of **cured FRP** constituent parts from commercially available ex-stock material (e.g. tube, plate, etc.) may be used in the construction of the **catamaran**, provided that no single constituent part exceeds 10 kg. These constituent parts are not limited by the building methods set out in **AC72 Rule**. These materials shall be covered by a declaration referencing this clause as set out in **AC72 Rule Appendix B**.
- 5.7 Boron and Beryllium are not allowed.

- 5.8 The use of electron beam or any other non-thermal radiation cure of composites is prohibited. This does not prohibit the use of conductive heating with electrical current for the cure of composites.
- 5.9 Sandwich construction techniques may be used. Any component materials used in the manufacture of core shall have a modulus in any direction not exceeding 140 GPa.
- 5.10 The temperature of any component shall not exceed 135 degrees Celsius at any time during the building process.
- 5.11 No **FRP** component shall have **fiber modulus** greater than 440 GPa. Some components may have additional limitations on **fiber modulus**.
- 5.12 Materials with elastic modulus exceeding specified in **AC72 Rule 5.11** may be used provided:
- (a) Largest dimension of each particle does not exceed 1 micron.
 - (b) The total weight of these materials used in any composite component does not exceed 1.0% of the weight of that composite component.
- 5.13 No part of **hull** or **cross structure**, including fairings or other surfaces, may be adjusted, trimmed or moved while racing.
- 5.14 No part of **hull** or **cross structure** shall move (translate or rotate about any axis) relative to any other, except for minor deflections caused by normal sailing loads.
- 5.15 The intersection between any **hull** and any **cross structure**, **standing rigging** or **running rigging** shall be no further aft than 1.000 m forward of the **stern**, and shall be no further forward than the forward watertight bulkheads (per **AC72 Rule 7.4**).
- 5.16 Any recess in the **hull** or **cross structure** capable of retaining water at any heel angle less than 25 degrees or any trim angle less than 10 degrees must be self draining.
- 5.17 Gases with a density less than standard atmosphere air shall not be used to reduce the weight of the catamaran.

SECTION C HULLS

6. HULL LIMITATIONS

- 6.1 The overall length of the **hulls** between the **stem** and **stern** shall not be more than 22.000 m including fittings. This shall not include the **cross structure** and its rigging or any equipment supplied by ACRM.
- 6.2 No component may be used to increase waterline length at any heel condition other than the **hull**.
- 6.3 Each **hull** shall be symmetrical about its **hull centerplane** and below its **hull** symmetry waterplane. The **hull** symmetry waterplane is a longitudinal plane that is perpendicular to **hull centerplane**. The intersection of **hull centerplane** and **hull** symmetry waterplane shall be 300 mm above **MWP**.
- 6.4 **Hull** sections that are more than 13.000 m forward of the **stern** and **hull** sections that are less than 1.000 m forward of the **stern** must be entirely symmetrical about the **hull centerplane**. Port and Starboard **hulls** of the **catamaran** are to be symmetrical in the zones described to allow for the use of common tooling.
- 6.5 The minimum enclosed volume of any **hull** is 16.0 m³.

7. HULL CONSTRUCTION

- 7.1 **Hulls** and internal structure shall comply with the follow requirements:
- (a) Shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, or a combination thereof.
 - (b) Fibers used shall have a **fiber modulus** less than 245 GPa. Isotropic materials shall have an elastic modulus less than 245 GPa.
 - (c) Pressure applied at any time during construction shall not exceed 1 atmosphere, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding etc.
- 7.2 Minimum outer skin weight on any external **hull** surface must be not less than 900 g/m², including fiber and resin but not including any paint, fairing or core bond adhesive.
- 7.3 The forward-most 1.000 m and aft-most 1.000 m of length on any **hull** shall be easily replaceable in not more than 12 hours:
- (a) One forward replacement section and one aft replacement section must be complete and present at time of inspection and during any **sailing series**.
 - (b) The forward and aft sections of the yacht shall only be replaced in the event of significant and irreparable damage.
 - (c) The geometry and construction of any replacement section shall be identical to the section it replaces.
 - (d) A detailed plan describing the procedure for replacement of the forward and aft replacement sections shall be supplied to the **measurer** before measurement of the **catamaran**.
- 7.4 A watertight bulkhead shall be located in each **hull** between 1.000 m and 1.500 m from the **stem**, and between 1.000 m and 1.500 m from the **stern**.
- 7.5 Hatches shall be allowed in the **hull** provided that:
- (a) Each hatch shall be closed by a cover permanently attached to the **hull** by hinges, slides or similar arrangement.
 - (b) Hatches shall be watertight. Watertight in this context means a closed hatch shall prevent the ingress of water from a hose applied in any direction.
 - (c) Hatches shall meet **hull** construction requirements as per **AC72 Rule 7** or meet CE Area 2 requirements.
 - (d) No part of any hatch may be less than 500 mm above the **MWP**.
- 7.6 Lightening holes in any external **hull** surface are forbidden.
- 7.7 Small openings in **hulls** for passing rigging or similar lines and attachments are permitted provided:
- (a) they are no larger than required for their specific task.
 - (b) if the area exceeds 50 cm² a rubber gaiter boot or other means of closing the opening shall be fitted.
 - (c) they shall not be forward of 12.000 m from the **stern**.
 - (d) they shall not be below 600 mm above the **MWP**.
- 7.8 Small ports for hand access are permitted, provided each does not exceed 0.10 m² in area and

is closed by a hinged or screwed watertight cover.

SECTION D APPENDAGES

8. APPENDAGE LIMITATIONS

- 8.1 No part of any appendage, through its entire range of motion, shall be forward of the forward watertight bulkhead (per **AC72 Rule** 7.4), or less than 1.000 m forward of the stern.
- 8.2 The total number of **appendages** shall not be greater than 4. Two of the **appendages** shall be rudders and two of the **appendages** shall be bilgeboards.
- 8.3 No **appendage** shall be more than 6.000 m in any direction, measured along a straight line.
- 8.4 Rudders shall rotate about a single axis. The axis of rotation of each rudder shall be within 10 degrees relative to a vertical axis perpendicular to the **MWP**. Rudders shall not translate in any direction while racing.
- 8.5 The primary lower load bearing support of each bilgeboard may rotate about a single axis and shall not translate in any direction.
- 8.6 A bilgeboard shall not translate along the longitudinal axis more than 20 mm at its primary lower load bearing support.
- 8.7 Each **appendage** shall move as a single unit and shall not have moving components, such as trim tabs or moveable winglets;
- 8.8 All appendages must be capable of being raised to within the hull or removed within 1 hour arrival at dock or mooring.

9. APPENDAGE CONSTRUCTION

- 9.1 **Appendages** shall comply with the follow requirements:
- (a) **Appendages** shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, or a combination thereof.
 - (b) Fibers used shall have **fiber modulus** less than 440 GPa. Isotropic materials shall have elastic modulus less than 440 GPa.
 - (c) Pressure applied at any time during construction shall not exceed 7 atmospheres, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding etc.

SECTION E CROSS STRUCTURE

10. CROSS STRUCTURE LIMITATIONS

- 10.1 The **cross structure**, and any fittings on the **cross structure**, shall not be more than 25.200 m forward of the **stern**.
- 10.2 No part of the **cross structure**, including fittings, shall be less than 1.000 forward of the **stern**.

11. CROSS STRUCTURE CONSTRUCTION

- 11.1 **Cross structure** shall be easily demountable from the **hulls**, such that no part of the **cross structure** shall be laminated or bonded to the **hulls**;
- 11.2 No part of **cross structure** shall be below the **MWP**.

- 11.3 **Cross structure** shall comply with the following:
- (a) **Cross structure** shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, or a combination thereof.
 - (b) Fibers used shall have **fiber modulus** less than 310 GPa. Isotropic materials shall have elastic modulus less than 310 GPa.
 - (c) Pressure applied at any time during construction shall not exceed 7 atmospheres, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding etc.

SECTION F RIG

12. WING LIMITATIONS

- 12.1 The **wing** shall be symmetrical about the **centerplane** within a tolerance of 10mm in **wing measurement position**.
- 12.2 The total **wing area** shall not be more than 260.00 m².
- 12.3 The area enclosed by the outline of the profile of the **wing** in **wing measurement position** shall not be more than 260.00 m².
- 12.4 The **wing rotation point** shall be:
- (a) symmetrical about the **centerplane** within a tolerance of 10 mm;
 - (b) located on the plane of symmetry of the **wing** in **wing measurement position**;
 - (c) not more than 2.500 m from the **MWP**;
 - (d) the point about which the **wing** rotates;

The radius of the hemispherical surface which defines the **wing rotation point** shall be less than 125 mm and more than 50 mm.

- 12.5 The height and sail hoist points on the **wing**, per *Appendix F*, shall be as follows:
- (a) $39.800 \text{ m} \geq \text{HWR} + \text{AWH} \leq 40.000 \text{ m}$;
 - (b) $35.800 \text{ m} \geq \text{HWR} + \text{ART} \leq 36.000 \text{ m}$;
 - (c) $35.300 \text{ m} \geq \text{HWR} + \text{AUH} \leq 35.500 \text{ m}$
 - (d) $\text{HWR} + \text{ALH} \leq 34.600 \text{ m}$
- 12.6 The chord lengths of the **wing**, per *Appendix F*, shall be as follows:
- (a) No part of the wing shall have a chord longer than 8.600 m;
 - (b) $7.500 \text{ m} \geq \text{C1} \leq 8.600 \text{ m}$;
 - (c) $7.500 \text{ m} \geq \text{C2} \leq 8.600 \text{ m}$;
 - (d) $2.000 \text{ m} \geq \text{C3} \leq 3.000 \text{ m}$.
- 12.7 The **wing** removable tip shall:

- (a) have a lower edge which is straight;

- (b) shall only require mechanical or slip fit connections for attachment and shall not be bonded in any way to the rest of the **wing**;
 - (c) shall not be attached to any **standing rigging**;
 - (d) shall be easily removable within 45 minutes with the wing stepped and the **catamaran** in the water.
- 12.8 The forward most edge of the **wing** when viewed in profile in **wing measurement position**:
- (a) shall not have hollows;
 - (b) shall be straight below C2 per *Appendix F*.
- 12.9 Along any line parallel to the **wing** baseline as defined in *Appendix F* the **wing** shall not consist of more than three **elements**.
- 13. WING AREA MEASUREMENT**
- 13.1 Any surface of the **catamaran** that is not part of the **wing**, sails, **standing rigging**, **running rigging**, or ACRM mandated equipment, and that is 2.000 m or more above the **MWP**, and that has a chord length/thickness ratio greater than 3:1, and makes an angle of greater than 10 degrees to the **MWP** shall not be allowed.
- 13.2 The intention of the **AC72 Rule** is to find the actual **element** surface area using the formula below. If, in the opinion of the **measurer**, the wing surface area which contributes forward thrust to the **catamaran** is not being accurately measured by this method, he may use another method after reference to the **measurement committee**.
- 13.3 Any **element** of the **wing** shall be measured except for:
- (a) **elements** of the **wing** surface which are horizontal or nearly so when the **wing** is in **wing measurement position** shall not be measured, provided that the surfaces of such **elements** are not able to make an angle, measured at right angles to the fore and aft axis of the **catamaran**, greater than 10 degrees to the **MWP** when the **wing** is in **wing measurement position**, and that the total area of these elements does not exceed four percent of the **wing area**.
 - (b) Any **element** with a measured girth of less than 150 mm provided that no attempt is made to increase the **wing** area through the use of unmeasured **elements**.
- 13.4 If the profile of the **element** forms a fair curve or curves, it shall be divided into a suitable number of equal lengths and Simpson's Quadratic Rule used to calculate the area, using half girth measurements as offsets.
- (a) The girth measurement shall be taken as the distance from the centerline round the surface of the **element** to the same point on the centerline. The resultant measurement shall be divided by two, to give the half girth measurement.
 - (b) An articulated **element** shall be measured as described except that the girth measurement shall be taken over all the sections when they are in the position that gives the greatest girth.
- 14. WING CONSTRUCTION**
- 14.1 **Wing** shall comply with the following requirements:
- (a) **Wings** shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, bronze, brass, or a combination thereof.
 - (b) Fibers used shall have **fiber modulus** less than 440 GPa. Isotropic materials shall

have elastic modulus less than 440 GPa.

- (c) Pressure applied at any time during construction shall not exceed 7 atmospheres, but this limitation shall not prohibit building methods including the use of clamps or mechanical fastenings, wrapping, and winding etc.

15. SAILS

- 15.1 Sails shall be measured in accordance with **AC72 Rule Appendix F**.
- 15.2 All sails shall be three sided.
- 15.3 Sails must be flown from a **tack point** and a **hoist point**. Any aerodynamic surface not flown from a **tack point** and a **hoist point** shall be measured as **wing area**.
- 15.4 A **catamaran** shall have no more than two **tack point** locations, which shall be defined as follows:
 - (a) "Tack Point A" is a **tack point** that shall not be farther forward than 22.000 m from the **stern**, and shall not be further forward than would result in a JA measurement, per *Appendix F*, which is greater than 9.000 m.
 - (b) "Tack Point B" is a **tack point** that shall not be farther forward than 25.000 m from the **stern**, and shall not be further forward than would result in a JB measurement, per *Appendix F*, which is greater than 13.000 m.
 - (c) Tack Point A and B shall be within 30 mm of the **centerplane**.
- 15.5 A **catamaran** may have no more than two **hoist point** locations.
- 15.6 Subject to **AC72 Rule**, non-woven and multi-ply sails are permitted.
- 15.7 Other than for sail hardware, intentional openings in a sail are prohibited.
- 15.8 Artificially thickened sails are specifically prohibited, eg. foamed sails or rigid sails and multiple-surface sails, whether inflated by the action of the wind or otherwise, except battens and batten pockets as provided in **AC72 Rule 16**.
- 15.9 Reinforcement:
 - (a) Within 700 mm of the head, clew, or tack, reinforcement may be of any number of layers of fabric, webbing, or similar materials. Any rigid materials used in these areas shall comply with the sail hardware dimensional constraints of **AC72 Rule Appendix F**;
 - (b) Beyond 700 mm of the head, clew, or tack, a sail shall be flexible and capable of being folded without damaging the sail or reinforcement.

For the purposes of this **AC72 Rule**, damage is defined as either clearly visible structural failure, or failure to return to near flat after being folded.
- 15.10 The dimension of any sail hardware, in any direction, shall not exceed 250 mm.
- 15.11 Any sail may be attached to an item of standing rigging along its luff. If the girth of this standing rigging item is more than 150 mm measured perpendicular to the sail luff, it shall be counted as sail area.
- 15.12 The tack on any sail shall be constrained such that, the tack or projection of its luff shall be no more than 30 mm from the **centerplane**.
- 15.13 No device shall control a sail except:
 - (a) a halyard on the head, and if installed, a halyard lock;

- (b) a tack system near the tack;
- (c) a cunningham system near the tack;
- (d) a furling system;
- (e) sheets on the clew;
- (f) a tacking line near the foot, the purpose of which is to bring the clew of the sail forward during a tack or gybe, provided it is not used to sheet the jib in any way;
- (g) a luff support device on a stay;
- (h) systems to control the lead of the sheets.

16. BATTENS

16.1 A batten:

- (a) shall pass through a 100 mm diameter circle;
- (b) may consist of multiple elements that need not necessarily be attached to one another, provided they shall be in close proximity over their entire length, and the multi-element array complies with (a) above;
- (c) shall be approximately straight within a tolerance of 100 mm either side of a straight line;
- (d) shall not be adjusted when a sail is set;
- (e) may not be inflatable;
- (f) may be inside a pocket not exceeding 300 mm width measured normal to the batten;
- (g) shall have no part closer than 3.000 m from the head or tack. This measurement shall be taken from the head or tack to the closest point on the batten.

17. CLASS INSIGNIA, NATIONAL LETTERS AND NUMBERS

- 17.1 The class insignia shall be the image of the America's Cup as depicted in **AC72 Appendix D**. Insignia, national letters and identification numbers shall be placed in the upper 1/3 of the **wing** measured vertically. The image shall not be changed in style. The image shall be 2.500 m high and shall be placed on both sides of an **element** or **elements** of the **wing** such that it is visible at all times when racing. The image shall be positioned with the "pouring lip" side of the America's Cup forward.
- 17.2 Class insignia, national letters, and identification numbers shall be carried on the **wing** only.
- 17.3 Identification numbers may be placed on the same line following the national letters.
- 17.4 The following are the minimum sizes for national letters and identification numbers:

Height	1200 mm
Width	800 mm*
Thickness	180 mm
Space between adjoining letters/numbers	240 mm

*except the number "1" and the letter "l".

- 17.5 Identification numbers shall be allocated sequentially, irrespective of nationality. When a **catamaran's** ownership is transferred from one country to another, it shall retain the same identification number with only the national letters being changed.

SECTION G OTHER RULES

18. RIGGING, FITTINGS & OTHER EQUIPMENT

- 18.1 Hardware and fittings shall be constructed of wood, polymer, aluminum alloys, **FRP**, titanium, or steel and steel alloys, bronze, brass or a combination thereof.
- 18.2 **Standing rigging** and **running rigging** shall be made of one or any combination of steel, polymer and/or fibrous materials with a **fiber modulus** less than 395 GPa, consisting of carbon, aramid, or polymer fibers.
- 18.3 The **owner** shall provide to the **Measurement Committee** a signed declaration similar to that shown in *Appendix B* stating that the materials used for the **standing** and **running rigging**.
- 18.4 **Standing rigging** may be a non-round section with a maximum girth of 150 mm, provided that the chord length is not more than three times the width of the cross-section. Non load-bearing rigging fairings are allowed.
- 18.5 Multiple-element **standing rigging** stays are prohibited and if two or more **standing rigging** stays are near parallel to each other then they shall have a clear space between the two stays of at least 50 mm along their length.
- 18.6 **Catamarans** shall be fitted with a lifting eye(s) which enable weighing by lifting from a single point, and placed such that when lifted, the **catamaran** shall be approximately horizontal.
- 18.7 **Running rigging, standing rigging, sails and appendages** shall only be adjusted manually, and the use of stored energy is not permitted, except:
- (a) for springs, shockcord, and similar devices;
 - (b) low pressure hydraulic or gas accumulators of less than 6 bar which provide back pressure to a hydraulic system to prevent cavitation, but do no significant work themselves;
 - (c) to power electric bilge pumps provided the total capacity is no greater than 200 l/min;
- 18.8 Trampolines shall be directly fixed on the **hulls** and **cross structure**, and
- (a) shall be strongly secured with regular spacing on their support edges, this spacing shall not be greater than 1000 mm. Gaps between the trampoline and the **hulls** or **cross structure** shall not be greater than 200 mm;
 - (b) in case of inversion of the **catamaran** one shall be able to walk on the trampoline;
 - (c) shall be able to support local loadings equivalent to the weight of the crew and sails in normal working conditions at sea;
 - (d) when the mesh of the trampoline is stretched such that the cords are parallel, the longest stretched dimension, measured from the center of the intersection at one end of the stretched opening to the center of the intersection at the other end of the stretched opening, shall not be greater than 50 mm;
 - (e) shall be made of material with a fiber modulus no greater than 160 GPa;
 - (f) must cover all areas from the **wing rotation point** to the aft extent of **cross structure** and the full width between **hulls**;
 - (g) must cover a triangle with a base of a 3.000 m transverse line centered on the **wing rotation point** and an apex of **Tack Point A**.

19. ELECTRONICS

- 19.1 Stored energy may be used for the electronic control systems for the purpose of controlling the shape of the **wing**. These control systems may not receive direct input or information from any source other than the crew. Stored energy may not be used as the motive force to rotate or translate the **wing** or any **element**. For example stored electrical energy may be used to control clutches or valves that in turn control power from the crew that is used to rotate or translate the **wing** or any **element**.
- 19.2 Charging batteries while racing is not permitted.
- 19.3 Electrical energy used for the purpose of controlling the **wing** and catamaran instrumentation shall only be stored in a battery with less than or equal to 1 kWh of storage capacity. The battery shall be Lithium-Iron-Phosphate chemistry. Battery capacity shall be determined at a C/20 rate.

20. COMMUNICATIONS & ACTV REQUIREMENTS

- 20.1 One self-draining media compartment is required in each **hull** at a location to be specified by the Regatta Director. These compartments must each have:
- (a) Dimensions of 650 mm x 650 mm x 340 mm;
 - (b) One waterproof hatch;
 - (c) Two 50 mm cable openings;
 - (d) Two 50 mm vent openings into the interior of the **hull**.
- 20.2 Each **catamaran** shall fit 3 cameraman platforms. The Regatta Director shall specify the details of these platforms.
- 20.3 A carbon conduit tube with an inner diameter of 40 mm and a wall thickness of no less than 0.5 mm shall be fitted from top to bottom of the **wing** for television cables.

21. CREW

- 21.1 When performing their routine sailing functions crew shall not be positioned inside the **hull** enclosure. Crew shall only be positioned inside the **hull** during emergencies and for equipment inspection purposes.
- 21.2 Crew may position their bodies outside the maximum beam as defined in **AC72** Rule 4 to increase stability provided they are not supported or assisted by any device including ropes, straps, halyards, harnesses, and stays.
- 21.3 No part of any crew shall be below **MWP** + 300 mm.
- 21.4 No areas occupied by crew shall be covered.

22. SURFACE FINISHES & BOUNDARY LAYER INTERFERENCE

- 22.1 Only paint systems using two-component linear polyester saturated aliphatic polyurethane or two component acrylic urethane shall be applied. No materials other than specified manufacturer-supplied retardants, accelerants, thinners and pigments shall be added. Similarly, the specific gravity of the paint shall not be altered with any material other than those specified above.
- 22.2 Each **Competitor** shall supply to the **Measurement Committee** a declaration similar to that shown in *Appendix B* of the **AC72 Rule** stating that only paint systems as specified above have been applied to the outermost surfaces of any **hull** or **appendage**.
- 22.3 The **Measurement Committee** reserves the right to take samples of the paint from the **hull** and/or **appendages** for analysis by the manufacturer to ensure that only the specified paint systems have been used.

- 22.4 Coatings of paint in compliance with the **AC72 Rule 22** must be used for all repairs or modifications to the outermost **hull** and **appendage** surfaces.
- 22.5 The application of vinyl-film over the painted surface of the **hull** is not prohibited, provided:
- (a) its sole purpose is branding or advertising.
 - (b) it shall not be textured in any way.
 - (c) The area of the vinyl shall be no larger than required to portray the branding or advertising.
 - (d) It shall not be applied below the **MWP** unless subsequently covered by a paint system complying with the **AC72 Rule 22**.
- 22.6 The outermost surfaces of the **hull** or **appendages** may be sanded and/or cleaned with normal concentrations and quantities of detergents or similar materials. However, while afloat on a scheduled race day, no substances shall be present on the outermost surfaces of the **hull** and **appendages** other than those permitted in the **AC72 Rule**.
- 22.7 Devices in, on or near the surface of any **hull**, **appendage** or **wing**, the purpose or effect of which is or could be to bleed off or alter the water or air flow of the boundary layer, are prohibited. Such devices include but are not limited to holes in surfaces, textured surfaces, riblets, Large Eddy Break-Up Devices (LEBUs), and compliant surface structures. This shall not prohibit **appendage** fairing strips and cross-flow closing devices and normal through-**hull** fittings (such as self-bailers, drains, boatspeed transducers, weed-removal devices,) approved by the **Measurement Committee**.
- 22.8 Electric, magnetic, sonic, thermal and other methods, the purpose or effect of which is to modify the flow characteristics of the water or air in the boundary layer of any **hull**, **appendage** or **wing** are prohibited

SECTION H INSPECTION & MEASUREMENT

23. MEASUREMENT – GENERAL

- 23.1 The Metric System shall be used for all measurements. Length measurements shall be measured in meters to three decimal places. Area measurements shall be measured in square meters to two decimal places. Volumes shall be measured in cubic meters to one decimal place. Weights shall be in kilograms to the nearest 0.5 kg.
- 23.2 A **catamaran** may be re-measured at the discretion of the **Measurement Committee**.
- 23.3 The specific gravity of the sea water shall be measured and recorded at the time of measurement afloat.
- 23.4 When specific gravity of the water varies from 1.025, the **measurer** shall correct it as necessary;
- 23.5 When carrying out measurement ashore, the **measurer** shall allow a reasonable time to drain water from the **catamaran** and equipment and allow the substitution of wet **running rigging** with equivalent dry **running rigging**.

24. MEASUREMENT COMMITTEE & MEASURERS

- 24.1 A **measurer** who becomes aware that a **Competitor** may have failed to comply with any **AC72 Rule** shall advise the **Measurement Committee**.
- 24.2 Any matters relating to the measurement of a **catamaran**, the **interpretation** of this **AC72 Rule**

or the determination as to whether a **catamaran** complies with this **AC72 Rule**, shall be determined by the **Measurement Committee** pursuant to Article [TBD] of the Protocol.

24.3 Unless otherwise prescribed, decisions of the **Measurement Committee** shall be subject to appeal to the **Sailing Jury** pursuant to Article [TBD] of the Protocol.

24.4 All components such as **appendages**, sails, **cross structure**, **standing rigging**, **running rigging** shall meet AC72 class requirements prior to inclusion in **measurement weight**.

25. COMPLIANCE & ASSISTANCE

25.1 **Competitors** shall permit and assist all inspections and measurements by a **measurer** and the **Measurement Committee** and shall afford all reasonable facility to carry out such measurements and inspections.

25.2 **Competitors** shall ensure that the **catamaran**, its **wing**, sails and equipment comply with the **AC72 Rules** at all times while racing and that any alterations, replacements and repairs do not invalidate the measurement certificate.

25.3 A **competitor** who becomes aware that a component of their **catamaran** may fail to comply with the **AC 72 Rule** shall advise the **Measurement Committee** of that fact in writing.

26. PROCEDURES, DECLARATIONS & POST-CONSTRUCTION INSPECTIONS

26.1 A new identification number shall be allotted by the [TBD] per the Protocol:

(a) when construction of the **catamaran** is commenced. Construction is deemed to commence upon lamination of the first skin of a **hull**. The first skin shall be the inner skin of a **hull** constructed on a male mould or alternatively the outer skin on a female mould. Where the **hull** is built in sections it shall be the first skin on any **hull** component exceeding 25% of the **hull** by area; or

(b) when otherwise required by the Protocol.

26.2 The allotted identification number shall be issued to the **catamaran** by the [TBD] when a measurement certificate is issued.

26.3 Upon completion of the **hull**, **cross structure**, **wing** and **appendages** and prior to the issue of the measurement certificate, **Competitors** shall submit declarations to the **Measurement Committee** that the **hull**, **cross structure**, **wing** and **appendages** have been constructed in accordance with the **AC72 Rule**. The declaration(s) shall be signed by the **catamaran's** designer(s), builder(s), and **owner**. The form of this declaration shall be as shown in **AC72 Rule Appendix B**.

26.4 The **Measurement Committee** may inspect a **Competitor's catamaran** at any time during construction and carry out whatever measurement checks it requires.

26.5 Laminate samples may be taken at the discretion of the **measurer**.

26.6 If laminate samples have been taken, the **measurer** shall submit to the **Measurement Committee** a diagram indicating the approximate positions on the **hull** from which the samples have been taken.

26.7 If a **Competitor** disputes the **measurer's** selection of the number, method or position of sampling or testing, the matter shall be referred to the **Technical Director** whose decision shall be final.

26.8 Upon completion of the **catamaran** but prior to the issue of a certificate, a **Competitor** shall submit to the **Measurement Committee** a declaration that the rigging, paint finish and wet laminates comply with the relevant **AC72 Rules**. The form of the declarations shall be as shown in **AC72 Rule Appendix B**.

27. MEASUREMENT PROCEDURE

- 27.1 Prior to measurement, the **competitor** shall paint permanent marks onto the inboard sides of the **hulls** at 6 locations by the **competitors** to designate the predicted floatation plane:
- (a) One mark on each bow at the forward intersection of the predicted floatation plane and the **hull** fairbody;
 - (b) One mark on each **stern** at the aft intersection of the predicted floatation plane and the **hull** fairbody;
 - (c) One mark on each **hull** at the predicted inboard beam waterline position.

See *Appendix XX* for a stencil template for the permanent marks. A laser level or other device shall be used to ensure that all marks are planar.

- 27.2 Ashore the **catamaran** shall be positioned on four load cells located near the **stem** and **stern** of the **hulls**. The **catamaran** shall be brought to **measurement condition** to determine the **measurement weight**. The **measurement condition** includes:

- (a) all sails to be used while racing, including:
 - (i) one gennaker
 - (ii) one code zero
 - (iii) one jib
- (b) a full set of 4 **appendages** that is comprised of 2 rudders and 2 bilgeboards
- (c) complete **cross structure** including any **standing rigging** that does not connect directly to the **wing**;
- (d) all hardware and running rigging that will be on the **catamaran** while racing;
- (e) all electronics, including those supplied by **ACRM**, that are not attached to the **wing** when the **wing** is removed normally from the **catamaran**;
- (f) and all other items used while racing;

and does not include:

- (g) crew;
- (h) crew clothing including any equipment that crew normally carry on their person when racing;
- (i) food and drinking fluids;
- (j) the **wing** with any **standing rigging** or electronics that are attached to the **wing** when the **wing** is removed normally from the **catamaran**.

The sum of the weights from the four load cells shall be the **measurement weight**.

- 27.3 Ashore, the weight of the **wing** with any attached **standing rigging**, electronics, or other hardware shall be measured. The sum of the **measurement weight** and the **wing** weight shall be the **sailing weight**.
- 27.4 The **wing** height shall be measured according to the wing measurement procedures.
- 27.5 Afloat, the predicted floatation plane in **measurement condition** shall be compared to the actual floatation plane. Appendages shall be in their lowest possible positions. If the marks

indicating the predicted floatation plane are no more than 5 mm vertically from the water surface then the predicted floatation plane shall be considered a valid **MWP**. If the predicted marks do not create a valid **MWP**, then the **measurer** can either mark the actual floatation plane in the water, or require that previous steps in the measurement process be repeated.

- 27.6 Any volume of the hull that is not flooded while racing shall not be flooded when establishing **MWP**.
- 27.7 Afloat, the predicted **inboard beam waterline** position shall be compared with the actual **inboard beam waterline** position. If the marks indicating the predicted **inboard beam waterline** position are no more than 10 mm transversely from the actual **inboard beam waterline** position then the predicted **inboard beam waterline** mark shall be considered a valid **inboard beam waterline**. If the predicted marks do not create a valid **inboard beam waterline**, then the **measurer** can either mark the actual **inboard beam waterline** in the water, or require that previous steps in the measurement process be repeated.
- 27.8 Afloat, HWR is measured.
- 27.9 Ashore, with the **MWP** established the limitations on length, beam, and draft shall be checked by the **measurer**.
- 27.10 Ashore, with the **MWP** established, the hull symmetry may be checked at any location by the **measurer**. Hull templates at zones specified by the **measurer** shall be constructed by each **competitor**.

28. COMPLIANCE WHILE RACING

- 28.1 During a **sailing series**:
- (a) the **sailing weight** of the **catamaran** shall not vary more than 100 kg;
 - (b) the total weight of consumable stores, other equipment and clothing worn or carried onboard shall be less than 80 kg;
 - (c) dead weight, ballast, sails and other equipment shall not be moved for the purpose of changing trim or stability, however, bilge water may be bailed out;
 - (d) the number of crew shall be 11 (unless the number is reduced while racing due to accident or injury) and the crew weight shall not be greater than 1045 kg or less than 990. The weight plus the weight of one observer as prescribed by the Protocol.

29. MEASUREMENT CERTIFICATE

- 29.1 When the **Measurement Committee** is satisfied that the **catamaran** has been inspected and measured correctly, it shall issue to the **Competitor** a measurement certificate in the form appearing in **AC72 Rule Appendix A** and shall retain a copy for its own records. The **Measurement Committee** shall provide a copy of the front page of that measurement certificate to the **Regatta Director** for public dissemination.
- 29.2 The measurement certificate ceases to be valid if there is any change:
- (a) to the **catamaran's appendages** except for repair of damage;
 - (b) to the **catamaran** that would alter any information recorded on the **catamaran's** measurement certificate. A **catamaran** shall always be able to return to its weight recorded on its measurement certificate;
 - (c) to the shape of the **hull** surface;
 - (d) to the **wing** except for repair of damage.
- 29.3 A damaged **appendage, wing** or **wing element** may be replaced or repaired, with the

written approval of the **Measurement Committee**, provided:

- (a) if an **appendage, wing or wing element** is replaced the **Measurement Committee** is satisfied that the damaged item cannot be repaired in a reasonable regatta-constrained time;
 - (b) the **Measurement Committee** is satisfied that after all the necessary changes associated with repairing or replacing the damaged item, the **catamaran** complies with **AC72 Rule**.
- 29.4 A measurement certificate may be withdrawn by the **Measurement Committee** at any time if the **Measurement Committee** believes, on reasonable grounds, that the **catamaran** is no longer in compliance with this **AC72 Rule** or an **Interpretation**.
- 29.5 When a certificate is invalidated, a new measurement certificate shall be issued following a partial or complete re-measurement, as appropriate.
- 29.6 A **catamaran** shall have only one valid measurement certificate at any one time.
- 29.7 The **Technical Director, measurers** and the **Measurement Committee** shall hold certificates in confidence until [TBD].

APPENDICES

APPENDIX A MEASUREMENT CERTIFICATE

Preliminary Draft

APPENDIX B CONSTRUCTION DECLARATIONS

HULL CONSTRUCTION DECLARATION**DESIGNER'S DECLARATION**

I, the designer of the yacht

declare that the hull has been designed and to the best of my knowledge, built, only from materials, and using building methods, as permitted in the AC72 Class Rule.

Designer (Block Letters)

Signature

Date

BUILDER'S DECLARATION

I, the builder of the yacht declare that the hull has been built only from materials, and using building methods, as permitted in the AC72 Class Rule.

Builder (Block Letters)

Signature

Date

OWNER'S DECLARATION

I, the owner of the yacht declare that the hull has been built only from materials, and using building methods, as permitted in the AC72 Class Rule.

Owner (Block Letters)

Signature

Date

This declaration is to be preceded by a completed material usage schedule as set out in *Appendix C*.

COMPONENT DECLARATION

YACHT _____

COMPONENT _____ DATE _____

DESIGNER'S DECLARATION

I declare that the component named and referenced above has been designed, and to the best of my knowledge, is constructed only from materials, and using building methods, as permitted in the AC72 Class Rule.

Designer (Block Letters) _____

Signature _____ Date _____

BUILDER'S DECLARATION

I declare that the component named and referenced above, is constructed only from materials, and using building methods, as permitted in the AC72 Class Rule.

Builder (Block Letters) _____

Signature _____ Date _____

OWNER'S DECLARATION

I declare that the component named and referenced above, is constructed from materials, and using building methods, as permitted in the AC72 Class Rule.

Owner (Block Letters) _____

Signature _____ Date _____

This declaration is to be preceded by a completed material usage schedule as set out in AC72 Rule Appendix

APPENDIX C MATERIAL USAGE SCHEDULES

America's Cup Class							
Component Construction Material Usage Schedule							
Date:		Yacht Name:		Sail Number:			
Component:							
Material Description	Supplier Batch Number	Quantity Supplied	Supplier C of C Number	Material Type	Manufacturer Batch Number	Manufacturer C of C	

APPENDIX D AC72 CLASS INSIGNIA



APPENDIX E AC72 SAIL MEASUREMENT DEFINITIONS

The **forward**, **aft**, **bottom**, and **top** edges of the sail are measured in the same coordinate system as the **catamaran**:

- a) **Forward** means closer to the bow.
- b) **Aft** means closer to the **stern**.
- c) **Bottom** and **top** refer to the height above the waterline.

Foot

The **bottom** edge of the sail in its normal configuration when in use.

Head

The **top** edge or point of the sail in its normal configuration when in use.

Luff

The **forward** edge of the sail.

Leech

The **aft** edge of the sail.

Tack

The area on the sail where the **luff** and **foot** meet.

Clew Point

The intersection of the **leech** and **foot**, projected as necessary.

LP

The distance, measured perpendicular to the **luff**, from the **luff** to the **clew point** of a sail.

Solent

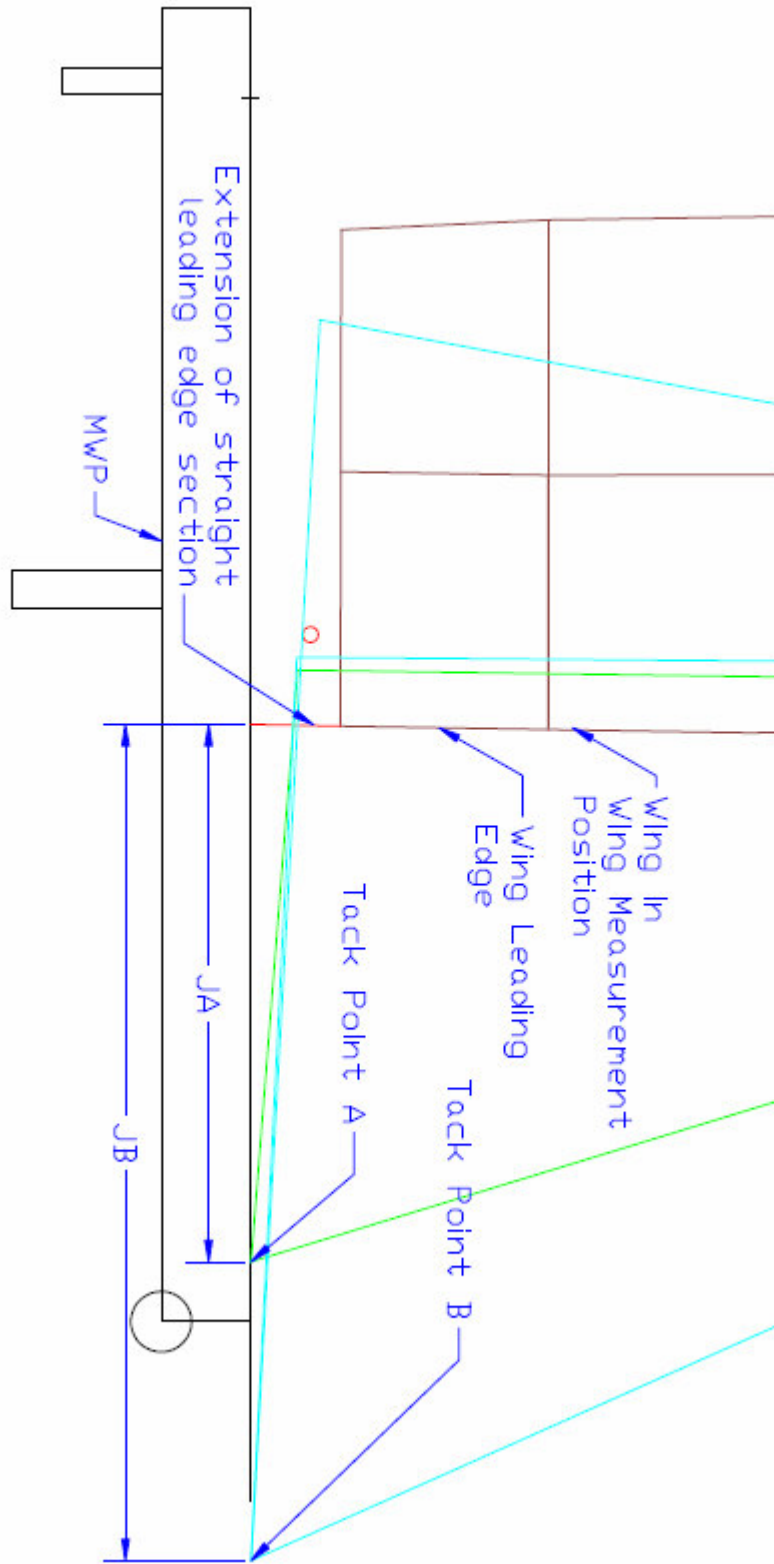
A sail, flown from tack point A, with an LP of not more than 9.25m

Code 0

A sail, flown from tack point B, with an LP of not more than 13.5m

Gennaker

A sail, flown from tack point B, with an LP of not more than 18.5m



APPENDIX F AC72 WING MEASUREMENT DEFINITIONS

The **forward**, **aft**, **bottom**, and **top** edges of the wing are measured in the same coordinate system as the **catamaran**:

- d) **Forward** means closer to the bow.
- e) **Aft** means closer to the **stern**.
- f) **Upper** means farther from the **MWP**.
- g) **Lower** means farther from the **MWP**.

AWH

The length of an arc taken from the **wing rotation point** to the furthest extent of the **wing** from the **wing rotation point**.

HWR

The height of the **wing rotation point** above the **MWP**.

ART

The length of an arc taken from the **wing rotation point** to the furthest extent of the **wing** when the removable tip is removed, from the **wing rotation point**.

Wing Datum

A line which is drawn from the **wing rotation point** to the point on the **wing** which defines the upper extent of **AWH**. If there are multiple points on the **wing** to which this arc can be drawn, the furthest forward point on the **wing** shall be chosen.

Wing Baseline

A line perpendicular to the wing datum which passes through the **wing rotation point**.

AUH

The length of an arc taken from the **wing rotation point** to the upper **hoist point**.

ALH

The length of an arc taken from the **wing rotation point** to the lower **hoist point**.

Chord Length

A section taken between forwardmost and aftmost extents of the **wing** perpendicular to the wing datum.

C1

The distance between the forwardmost and aftmost extents of the **wing** along a line 1.50m from the wing baseline.

C2

The distance between the forwardmost and aftmost extents of the **wing** along a line 7.50m from the wing baseline.

C3

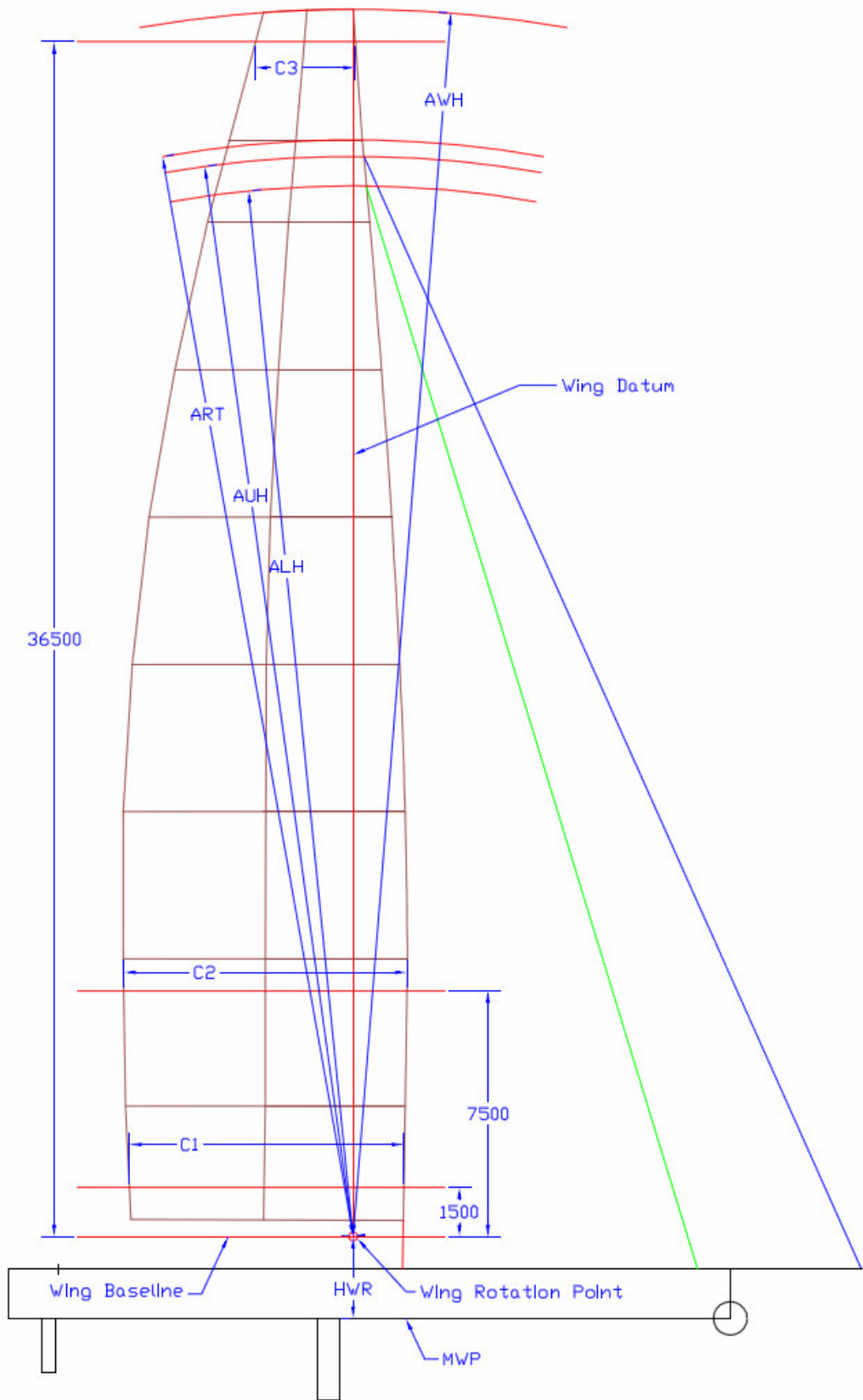
The distance between the forwardmost and aftmost extents of the **wing** along a line 36.50m from the wing baseline.

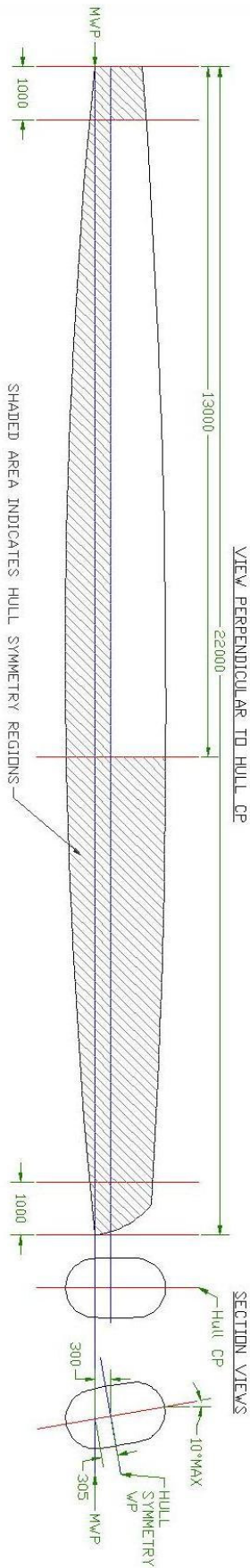
JA

The distance, measured parallel to the **MPW**, between tack point A and a line which is the extension of the straight leading edge section of the **wing** (per **AC72 Rule 12.8**) with the **wing** in **wing measurement position**.

JB

The distance, measured parallel to the **MPW**, between tack point B and a line which is the extension of the straight leading edge section of the **wing** (per **AC72 Rule 12.8**) with the **wing** in **wing measurement position**.





inary Draft