NACRA F20 Carbon FCS

# CLASS RULES 2015


**The NACRA F20 CARBON FCS was designed in 2014 by NACRA in cooperation with Morelli & Melvin**

# INDEX

# INTRODUCTION

*The NACRA F20 CARBON FCS Class has been formed to support owners throughout the world with better racing and race support service. The concept is to ensure fair racing through a simple one-design manufacture that allows all sailors to compete fairly on the water.*

*NACRA F20 CARBON FCS hulls, hull appendages, tillers, rigs and sails must be produced by Nautical Sports bv (= NACRA) or their licensed builders and sail makers. Equipment is required to comply with the NACRA F20 CARBON FCS Building Specification.*

*NACRA F20 CARBON FCS hulls, hull appendages, rigs and sails may, after having left the manufacturer, only be altered to the extent permitted in Section C of the Class Rules.*

*Owners and crews should be aware that compliance with the rules in Section C is NOT checked as part of the manufacturing process.*

*Rules regulating the use of equipment during a race are contained in Section C of these Class Rules, in ERS Part 1 and in the RRS.*

*This introduction only provides an informal background and the NACRA F20 CARBON FCS rules follows.*

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

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.1.3 When the term is printed in "**bold**" (except headings) then the definition in the ERS applies, and when the term is printed in "*italics*" then the RRS shall apply.

### A,2. ABBREVIATIONS

A.2.1

| | |
|---|---|
| ISAF | International Sailing Federation |
| MNA | ISAF Member National Authorities |
| N.S. bv | Nautical Sports bv and their licensees, referred to in the rules as NACRA. |
| INCA | International Nacra Class Association |
| NNCA | National Nacra Class Association |
| ERS | Equipment Rules of Sailing. |
| RRS | Racing Rules of Sailing. |

### A.3. AUTHORITIES

A3.1 The international authority of the class is the INCA who shall co-operate with NACRA in all matters concerning these **Class Rules.**

A3.2 The INCA may declare ineligible any NACRA F20 CARBON FCS, which does not conform to the letter of these rules and the official drawings and specifications held by NACRA.

### A.4. ADMINISTRATION OF THE CLASS

A4.1 The Class is administered by the INCA in conjunction with NACRA.

A4.2 In countries where there is not a NNCA, the functions can be managed by the INCA

### A.5. CLASS RULES CHANGES

A.5.1 At all events RRS 87 applies.

### A.6. CLASS RULES AMENDMENTS

Amendments to these **Class Rules** are subject to the approval of INCA and in line with ISAF Regulations.

### A.7. CLASS RULES INTERPRETATION

Interpretations of these **Class Rules** shall be made with INCA in accordance with ISAF Regulations.

### A.8. SAIL NUMBERS

A.8.1 Sail numbers shall be issued by NACRA.

A.8.2 Sail numbers shall be issued in consecutive order.

# Section B – Boat Eligibility and Equipment Inspection

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

### B.1 CLASS RULES

B.1.1 The **boat** shall:

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

(b) Have valid manufacturers declarations.

(c) Have valid **certification marks** on **sails**

### B.2 CLASS ASSOCIATION MARKINGS

B.2.1 A valid Class Association Sticker, if required by the NNCA or the INCA, shall be affixed to the **hull** on the transom.

### B.3 EQUIPMENT INSPECTION

B.3.1 In the case of a dispute at an event alleging non-compliance with **Class Rules** where specific measurements are not stated, the **Equipment Inspector** shall adopt the following procedure:

(a) A group of 5 **boats** or pieces of equipment is randomly selected and measured the same manner (= control group).

(b) The dimensions of the **boat** or pieces of equipment under dispute shall be equal to, or fall between the maximum and minimum dimensions of the control group.

(c) If the dimensions of the **boat** under dispute are outside the dimensions, then the matter shall be referred to the TECHNICAL COMMITTEE of the INCA. The INCA shall give a binding ruling and shall take appropriate action.

### B.4 EVENT LIMITATION MARKS

B.4.1 If an event uses **event limitation marks** these marks shall not be removed during the event. If the **event limitation mark** becomes damaged or lost this shall be reported to the Race Committee as soon as possible.

# PART II – REQUIREMENTS AND LIMITATIONS

The **boat** and **crew** shall comply with the rules in Part II when *racing*. If there is any conflict with the **Class Rules** then Section C shall take precedence.

The Class Rules in Part II are **closed class rules**, where anything that is not specifically allowed in **Class Rules** is prohibited.

Any **equipment inspection** shall be carried out in accordance with the ERS except where varied by Part II of these **Class Rules.**

## Section C - Conditions for racing.

### C.1 GENERAL

C.1.1 RULES

(a) RRS 49.1 is amended such that both members of the **crew** may use a trapeze.
Add to RRS 49.1; both **crew** must maintain contact between the **boat** and their body when using their trapezes.

C.1.2 LIMITATIONS

(a) The Nacra F20 CARBON FCS shall only be raced with original or replacement equipment supplied by Nacra licensed suppliers only, except where otherwise authorized by these **Class Rules**.

(b) Where replacement equipment other than from Nacra licensed suppliers is authorized, it may be obtained from any supplier provided that the replacement is of a similar weight, size and type, performs the same function within the tolerances set by Appendix section H and I. Replacement fittings shall be fitted in the same position as the original fitting.

### C.3 CREW

C.3.1 LIMITATIONS

(a) One member of **crew** shall be a member of the INCA.

(b) The **crew** shall consist out of two persons

.

### C.3 PERSONAL EQUIPMENT

C.3.1 PERSONAL FLOATATION DEVICE

(a) When racing both **crew** shall wear a **personal floatation device** to the minimum standard ISO 12402-5 (Level 50 Newtons), or USCG Type III, or AUS PFD 1, or EN 393, unless an alternative standard is prescribed otherwise in the Notice of Race.

(b) The use of inflatable personal flotation devices is not permitted when racing.

## C.4 ADVERTISING

C.4.1 Advertising as chosen by the Person in Charge is unrestricted as in accordance with ISAF Regulation 20.3.1.1 and 20.3.1.2

C.4.2 For the purpose of ISAF Advertising Code, the gennaker shall be deemed a spinnaker.

## C.5 PORTABLE EQUIPMENT

C.5.1 OPTIONAL

(a) Timing devices.
(b) Electronic devices such as compass and GPS that provide timing, speed, tracking and heading
(c) Spare parts and tools, removable for weighing.
(d) Camera recording equipment and attachments, where permitted by the Notice of Race and/or Sailing Instructions and removable for weighing.

## C.6 BOAT

The following is permitted without the approval of the NS. Unless stated otherwise items mentioned in the section may be obtained from any manufacturer or supplier.

C.6 BOAT

The following is permitted without the approval of the NS. Unless stated otherwise items mentioned in the section may be obtained from any manufacturer or supplier.

C.6.1 MODIFICATIONS

(a) The use of the following items is in general unrestricted, except that such items shall not be used in such a way as to create a fitting or extend a function of a permitted fitting:
  (i) shockcord, with a maximum diameter of 5 mm; (ii) adhesive tape
  (iii) rings
  (iv) ropes of any length and diameter may be added as long as it does not create a new function to the boat.
  (v) plastic balls
(b) To facilitate advertising, the application of vinyl, mylar or other plastic film over the surfaces of the hull, sails and spars, provided that the film shall not be specially textured or otherwise manufactured in a way that could improve the character of the flow of water or air inside the boundary layer.
(c) The righting line may be changed to a minimum diameter of 5 mm and a minimum length of 4500 mm, led under the trampoline with both ends fixed to the Front Cross Beam at either sides of the hulls and held under tension by the use of shockcord and rings.

C.6.2 MAINTENANCE

(a) Maintenance may be carried out provided that the essential shape, characteristics and function of the original component are not affected.
(b) Any cleat including integrated fairlead may be replaced with a cleat of any material and substantially of the same size and design.
(c) Any block on the boat may be replaced with a block of the same number of sheaves with a sheave diameter tolerance as listed in appendix section H. With exception for the following:
    (1) The mainsheet system number of sheaves may be altered to achieve a maximum purchase of 12:1 and a minimum purchase of 10:1, only one ratchet block is allowed in the mainsheet system.
    (2) The block on the jib track car may have a double sheave block or single sheave block to create a 2:1 purchase, as listed in appendix section I.
    (3) The four supplied blocks for the Gennaker sheets, maybe changed to any type of block with a minimum sheave diameter of 38mm and a maximum of 60mm.
(d) Any attachment of blocks may be replaced. Attachments for blocks shall be of substantially the same size and design as the original.

C.6.3 REPAIR

(a) Maintenance may be carried out provided that the essential shape, characteristics and function of the original component are not affected.
(b) Fasteners may be replaced or added if the function of the fitting or part is not altered and where required to facilitate a repair the fitting maybe modified to accommodate slightly larger fixings

C.6.4 WEIGHT

The weight of the boat in dry condition shall be minimum 178 kg

The weight shall be taken including: hull platform, mast, hull appendages, bowsprit and all equipment and rigging excluding: the tiller extension, mainsail and battens, jib and battens, gennaker and all portable equipment listed in C.5.1.

C.6.5 CORRECTOR WEIGHTS

(a) Corrector weights of lead shall be securely fastened to the outside on the starboard side from the middle of the front beam at the V-bar (dolphin- striker rod), when the boat weight is less than the minimum requirement.
(b) The total weight of such corrector weights shall not exceed 4 kg.

## C.7 HULL

The following is permitted without the approval of the NS. Unless stated otherwise items mentioned in the section may be obtained from any manufacturer or supplier.

C.7.1 MODIFICATIONS

(a) Additional non-skid tape may be applied to:
    (i) the upper deck areas in front of the front cross beam

(ii) the rear cross beam

(iii) the upper deck areas behind the rear cross beam

(b) Wedges may be fitted under the rotation line clam-cleats.

(c) Stand-up springs or boots may be fitted between the gennaker blocks and the eye-straps on the deck.

(d) Two foot straps may be fitted to each hull, aft of the rear cross beam

(e) No holes may be made in the hull or deck mouldings except; (i) for the purpose making repairs
(ii) to fit foot straps
(iii) to attach the deck eyes for the trapeze elastics.

(f) Two deck eyes per hull may be fitted on the deck area between the beams for the sole purpose of routing the trapeze take up shockcord

C.7.2 MAINTENANCE

(a) The watertight integrity of the hull shall be maintained.

(b) The breather hole in the centre of the top hatch of each hull shall remain open. Shockcord may be led through the hole.

(c) The outermost surfaces of the hulls may be polished and cleaned with normal concentrations and quantities of detergents or similar materials.

C.7.3 REPAIR

(a) In the event of damage to any part of the hull, necessary repairs may be made provided repairs are made in such a way that the essential shape and function is not materially affected. Areas of damage repair may be filled, sanded and polished over.

(b) Only composite repairs with E-glass laminate are permitted for the hull structure.

(c) Replacement of non-skid 'pro-grip' (type: EVA Foam 3mm thickness) of the same type to the deck moulding is permitted. The pro-grip shall be supplied by Nacra licenced suppliers only.

C.7.4 LIMITATIONS

(a) Only one starboard hull and one port hull shall be used in an event, except when lost or damaged beyond repair. Any replacement shall only be made with the approval of the Race Committee.

## C.8 HULL APPENDAGES

The following is permitted without the approval of the NS. Unless stated otherwise items mentioned in the section may be obtained from any manufacturer or supplier.

C.8.1 MAINTENANCE

(a) The outermost surfaces of the lifting Foils and rudders may be sanded, polished and cleaned with normal concentrations and quantities of detergents or similar materials. Provided that the essential shape, characteristics and function of the original component are not affected, the N.S. may use templates to verify compliance with these limitations.

(b) The rope handle of the lifting Foil, may be replaced by a different rope, with a maximum length of 600 mm.

(c) Small quantities of friction-reducing compounds (E.g. McLube or Teflon) may be applied only to the surfaces prior to racing, and solely for the purpose of reducing bearing friction while raising and lowering the hull appendages.

(d) The rudder upper casting packing may be replaced by any material to fit the rudder arm and blade.

(e) The rudder lower casting packing may be replaced by any material to fit the blade.

(f) The tiller extension may be replaced without any restrictions as to design and material.

C.8.2 REPAIR

(a) Repairs to chips in the leading and trailing edges of blades may be filled and blended in.

Advisory note: nowhere is re-finishing, fairing of the hull appendage surfaces permitted except to facilitate localised repair in this rule. Painting is not mentioned therefore as these are closed class rule it is prohibited.

C.8.3 LIMITATIONS

(a) Only one starboard lifting Foil, one starboard rudder, one port lifting Foil and one port rudder shall be used in an event, except when lost or damaged beyond repair. Any replacement shall only be made with the approval of the Race Committee. C.9

## C.9 BEAMS

The following is permitted without the approval of the NS. Unless stated otherwise items mentioned in the section may be obtained from any manufacturer or supplier.

C.9.1 MODIFICATIONS

(a) Jib sheet and Cunningham trim line retraction systems may be modified to make them continuous by the addition of one block per system per hull with a maximum sheave size of 22mm attached using rope and/or shockcord.

(b) Adjustment of the beam bolts bedding inside the beam extrusion and castings is prohibited and no filler may be applied.

(c) Beams may be bedded in on the hull and shall be able to be removed without damage to either the hull or beam at any time.

(d) No additional holes may be made in the beam extrusions.

(e) A hook may be fitted to each end of the 'chicken line'. (The line which exits either side of the aft cross beam.)

C.9.2 MAINTENANCE AND REPAIR

(a) Routine maintenance such as cleaning, polishing and the replacement of broken fittings is permitted.

(b) Beam bolts are Nacra licensed suppliers only.

(c) Any cleat or fittings may be replaced with a fitting of same type and manufacturer in the same position as the standard fitting and substantially of the same size and design.

(d) Any running block may be replaced with a block of the same number of sheaves with a sheave diameter tolerance as listed in appendix section I.

C.9.3 FITTINGS (a)

USE

| | Minimum | Maximum |
|---|---|---|
| Front cross beam curvature | | 30mm |

Front cross beam curvature is the greatest distance between:
the cross beam
and a straight line from the port and starboard bottom points of the beam at the intersection with the hull
taken at $90^{o}$ to the straight line with the dolphin-striker tensioned, the mast removed, the cross beam horizontal and both crossbeams tightened into their beam beddings.

## C10 RIG

C.10.1 MODIFICATIONS, MAINTENANCE, REPAIR

(a) Maintenance or replacement of running **rigging** and fittings with similar materials is permitted.

(b) Replacement of standing **rigging** shall be supplied by NACRA.

(c) **Masts** may have wind indicators and compasses

(d) The maximum limitation of downhaul (Cunningham) is at 16:1.
Maximum mainsheet is at 12:1.

(e) Sheets and lines may be replaced without any restrictions as to length, diameter and taper providing the part is not made of wire

C. 10.2 LIMITATION

(a) Only one set of **spars** and standing **rigging** may be used during an event, permission to change must be agreed in writing with the Race Committee.

C10.3 MAST

The **mast** shall be supplied by NACRA.

C. 10.4 BOWSPRIT

Only **bowsprits** supplied by NACRA are class legal.

(a) The **bowsprit** shall be in the longitudinal centreline of the **boat** and not be adjusted while racing.

(b) The end cap of the **bowsprit** shall always be smooth, round and blunt.

C. 10.5 STANDING RIGGING

(A) MODIFICATION, MAINTENANCE AND REPAIR.

(1) **Standing rigging** may be replaced and shall comply with the following:

| Standing rigging | | | Material | Associated Hardware | options or restrictions |
|---|---|---|---|---|---|
| | Qty | Diam. | | | |
| | | mm | | | |
| Forestay | 1 | 4.0 | Standard 1 x 19 stainless steel wire | | ±0.05 mm diam. wire and C.10.5 (a) |
| | 1 | | | Shrouds Chainplate | C.10.7(a)(2) |
| Bridle | 2 | - | Standard 1 x 19 stainless steel wire | | Nacra Licensed suppliers only |
| | 1 | | | Bridle fitting NA31698 | Nacra Licensed suppliers only |
| Shrouds | 2 | 4.0 | Standard 1 x 19 stainless steel wire | | diam. ±0.05 mm. |
| | 2 | | | Sta/Master | C.10.7(a)(2) |
| Diamonds | 2 | 4.0 | Standard 1 x 19 stainless steel wire | | diam. ±0.05 mm. |
| Bowsprit bridle | 2 | 2.5 | Standard 1 x 19 stainless steel wire | | diam. ±0.1 mm, length ± 5 mm |
| Bowsprit mid-bridle | 2 | 3.0 | Dyneema Sk75/80 or polyester | | ±0.2 mm diam. |
| Tramp lace rear | 1 | 3.0 | Dyneema Sk75/80 or polyester | | ±0.2 mm diam. |
| Tramp laces side | 2 | 3.0 | Dyneema Sk75/80 or polyester | | ±0.2 mm diam. |
| Trapeze lines | 4 | 2.5 | 1 x 19 stainless steel wire | open, see C.10.8 (a)(1) | ±0.2 mm diam. Shall be either 1x19 stainless steel wire, Dyneema sk75/80 or polyester or a combination. |
| | | 3.0 | Dyneema Sk75/80 or polyester | | |

(2) The stay adjusters of the forestay and shrouds may be replaced by a turnbuckle of the following manufactures:

- Sta/Master PAT. 8,281,080
- Ronstan Calibrated Turnbuckles RF1575
- NavTec Quickfit lifeline Turnbuckle 316
- Blue Wave Spanner (Mono race tuning – MRT- Calibrated AISI 316.
- C.S. Johnson 12-100 Stay Adjuster – Calibrated.

Note: The N.S. may authorize the use of comparable turnbuckle products from other manufacturers provided those products meet comparable requirements for product standardization, compliance, and testing. info@nacrasailing.org

(3) The shrouds and forestay terminal wire connectors shall be a fitting from any manufacturer in the same position as the standard fitting and substantially of the same size, weight and structural design.

(4) The **jib** halyard locking system shall be in the same position as on the standard forestay, substantially of the same size, weight and structural design.

(b) USE

(1) Standing rigging shall not be adjusted while racing.

C. 10.6 RUNNING RIGGING

C.10.8 RUNNING RIGGING

(a) MODIFICATION, MAINTENANCE AND REPAIR.

(1) Running **rigging** may be replaced from the original supplied by NACRA as long as it is equal to or greater than original gauge .

(2) The trapeze system arrangement is open and may be modified to include an adjustable hook height system provided that the attachment methods by shockcord to the hull and front cross beam are not changed.

(3) The Cunningham trim line may be led through a block with a maximum sheave diameter of 22mm attached to the trapeze system by rope.

(4) A shackle or snap-shackle may be fitted at the end of the main sheet where it attaches the mainsail.

(5) A shackle or snap-shackle may be fitted at the end of the jib sheet where it attaches to the clew board of the jib.

(6) The gennaker tack-line inboard end block may be attached by rope to the shrouds, gennaker strap-eye or front cross beam casting.

(7) Mast rotation line may be modified to a continuous system.

(8) A rope with a ring may be fitted to the gennaker clew for the purpose of leading the gennaker retrieval line through this ring.

(b) USE

(1) Running rigging shall be led through and attached to the fittings supplied for their function.

## C.11 SAILS

### C.11.1 MODIFICATIONS, MAINTENANCE AND REPAIR

The following is permitted without (re-certification or) approval and may be done by anyone.

(a) Routine maintenance and repair

(b) Addition of tell tales

(c) Addition of camber stripes

(d) Battens as supplied by NS may be placed in the batten pockets

### C.11.2 LIMITATIONS

(a) Not more than 1 mainsail, 1 jib and 1 gennaker shall be used during an event except when a sail has been lost or damaged beyond repair. Any replacement shall only be made with the approval of the Race Committee.

### C.11.3 MAINSAIL

(a) MODIFICATION, MAINTENANCE AND REPAIR.

(1) The Cunningham blocks HK300 attached in the mainsail may be replaced by blocks from any other manufacturer with the same number of sheaves and a sheave diameter tolerance of ±2 mm.

(2) As per C.6.1 (b) the application of vinyl, mylar or other plastic film over the surfaces of the mainsail is permitted to facilitate advertising, provided that the film shall not cover the window panels in the sail and the batten pockets on the port side of the sail in order to identify the batten certification stickers.

(b) IDENTIFICATION

The national letters and the sail numbers shall be black in colour and applied under batten nr. 4. The national letters and numbers shall comply with the RRS

(c) BATTENS

The main battens shall be of the standard set supplied by Nacra Licensed suppliers only and shall not be altered. A standard batten set shall consist of 8 battens numbered down from the head point of the sail.

it is not allowed to put battens in not-matching batten pockets and each batten pocket sail carry one batten.

(e) USE

(i) The sail shall be hoisted on the halyard. The Nacra licensed supplied arrangement shall permit hoisting and lowering of the sail whilst afloat.

C.11.4 JIB

(a) MODIFICATION, MAINTENANCE AND REPAIR.

(1) As per C.6.1(b) the application of vinyl, mylar or other plastic film over the surfaces of the jib is permitted to facilitate advertising, provided that the film shall not cover the window panels in the sail and the batten pockets on the port side of the sail in order to identify the batten certification stickers.

(b) BATTENS

The jib battens shall be of the standard set supplied by Nacra Licensed suppliers only and shall not be altered. A standard batten set shall consist of a lower, middle and top batten.

it is not allowed to put battens in not matching batten pockets and each batten pocket sail carry one batten.

(c) USE

(i) The sail shall be hoisted on the halyard. The Nacra licensed supplied arrangement shall permit hoisting and lowering of the sail whilst afloat.

C.11.5 GENNAKER

(a) MODIFICATION

The gennaker may be painted for graphics.

# Section D – Hull.

## D.1 PARTS

D.1.1 MANDATORY

(a) **Hull** shells

(b) Front beam

(c) Rear Beam

(d) Trampoline

## D.2 GENERAL

D.2.1 RULES

(a) The **hulls** shall comply with the **Class Rules** and Building Specification in force at the time of initial manufacture declaration.

D.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

The **hulls** shall not be altered in any way except those allowed in Section C of these **Class Rules.**

(a) Coloured materials may be used during construction

(b) If any **hull** is damaged and needs considerable repair then this must be carried out to the original building specification.

D.2.3 IDENTIFICATION

The **hull** shall carry a manufacturers identification number. permanently placed inside the starboard **hull**.

### D.3 HULLS

D.3.1 (a) The **hulls** shall comply with the Building Specification in force at the time of manufacturer and shall be manufactured by NACRA,

(b) Modifications, maintenance and repairs are permitted to include sanding, polishing, waxing, BUT the use of surface coatings with additives such as increased sliding agents, friction reducing agents or additives to reduce the specific gravity of the surface coating are not allowed.

### D.4 BEAMS

(a) The beams shall not be convex except for the necessary pre-bend to counteract mast loading

(b) Beams may be fitted with sail adjustment fittings

(c) Beams may have compass(es) fitted.

(d) Any holes drilled shall only be as large as necessary for fittings

### D.5 TRAMPOLINE

The trampoline shall be made of mesh and supplied by NACRA and must completely cover the area between the beams and may have an uncovered area of maximum 10 cm between the trampoline and the **hulls**.

### D.6 ASSEMBLED HULL

D.6.1 FITTINGS

**Hull** fittings shall comply with the Building Specification in force at the time of manufacture except when altered, added or replaced as permitted by Section C of these **Class Rules.**

# Section E – Hull Appendages

### E.1 PARTS

E.1.1 E.1.1 MANDATORY

(a) Starboard Lifting Foil or Curved lifting Foil
(b) Port Lifting Foil or Curved lifting Foil
(c) Starboard Rudderblade
(d) Port Rudderblade
(e) Rudder upper-casting including tiller-arm
(f) Rudder lower-casting
(g) Tiller-bar

### E.2 GENERAL

E.2.1 RULES

**Hull appendages** shall comply with the **Class Rules** in force at the time of **certification** and be manufactured by NACRA.

E.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) **Hull** appendages shall not be altered in any way except as permitted by Section C of these **Class Rules**.

(b) Routine maintenance such as waxing and polishing is permitted without re-measurement and re-certification provided the intention and effect is to polish only.

E.2.3 MANUFACTURERS

The **lifting Foils, rudder blades, rudder** stock/tiller and cross bar shall be made only by a manufacturer licensed by NACRA to produce these.

### E.3 LIFTING FOILS

The **Lifting foils** shall comply with the Building Specification in force at the time of manufacture.

### E.4 RUDDER BLADE, RUDDER STOCK, TILLER AND CROSS BAR

The **rudder** blades and **rudder** stock/**tiller** and **cross bar** assembly shall comply with the Building Specification in force at the time of manufacture by NACRA.

## Section F- Rig

### F.1 PARTS

F.1.1 MANDATORY

(a) **Mast**
(b) **Boom**
(c) Standing **Rigging**
(d) Running **rigging**

(e) **Bowsprit**

### F.2 GENERAL

F.2.1 RULES

(a) The**, spars** and fittings shall all comply with the **Class Rules** applicable at time of manufacture by NACRA.

(b) The standing and running **rigging** shall comply with the current **Class Rules.**

F.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

The **spars** shall not be altered in any way except as permitted in Section C of the **Class Rules.**

### F.3 MAST

The **mast spar** and its fittings shall comply with the Building Specification in force at the time of manufacture of the **spar** by NACRA**.**

### F.4 BOOM

The **boom spar** and its fittings shall comply with the Building Specification in force at the time of manufacture by NACRA.

### F.5 BOWSPRIT

The **bowsprit** and its fittings shall comply with the Building Specification in force at the time of manufacture by NACRA.

### F.6 STANDING RIGGING

The standing **rigging** and its fittings shall comply with the Building Specification in force at the time of manufacture by NACRA.

### F.7 RUNNING RIGGING

The running **rigging** and its fittings shall comply with the Building Specification in force at the time of manufacture by NACRA.

F.7.1 CONSTRUCTION & MATERIALS

MANDATORY

(a) All lines, mainsheet, jib sheet, spinnaker downhaul, etc are free to be replaced with length and materials as desired. See C.9.1.e.

## Section G – Sails

### G.1 PARTS

G.1.1 MANDATORY

(a) **Mainsail**

(b) Headsail

(c) Spinnaker

## G.2 GENERAL

G.2.1 RULES

The **sails** shall comply with the **Class Rules** applicable at time of manufacture by NACRA

G.2.2 SAILMAKER

The **sails** shall be made only by a manufacturer licensed by NACRA to produce **sails**.

## G.3 MAINSAIL

The **mainsail** shall comply with the Building Specification in force at the time of manufacture by NACRA.

G.3.1 IDENTIFICATION

(a**)** The **class i**nsignia shall affixed as specified in Section C.

## G.4 JIB

The jib shall comply with the Building Specification in force at the time of manufacture by NACRA.

## G.5 SPINNAKER

The spinnaker shall comply with the Building Specification in force at the time of manufacture by NACRA.

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