



**INTERNATIONAL
NACRA INFUSION
CLASS RULES**

2013



The NACRA Infusion Cat was designed in 2003 by Morelli & Melvin and was adopted as an International class in November 2010.

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INTRODUCTION

The Nacra Infusion 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 complete fairly on the water.

Nacra Infusion hulls, hull appendages, tillers, rigs and sails must be produced by Nautical Sports by or their licensed builders and sail makers. Equipment is required to comply with the NACRA Infusion Building Specification and is subject to an ISAF approved manufacturing control system.

Nacra Infusion 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 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 Racing Rules of Sailing.

This introduction is intended to provide a non-binding overview.

PLEASE REMEMBER

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

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 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

- A.3.1 The international authority of the class is the ISAF who shall co-operate with NACRA and the INCA in all matters concerning these **Class Rules**.
- A.3.2 The INCA may declare ineligible any Nacra Infusion, which does not conform to the letter of these rules and the official drawings and specifications held by the ISAF.

A.4. ADMINISTRATION OF THE CLASS

- A.4.1 The Class is administered by the INCA in conjunction with NACRA.
- A.4.2 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 Class events – see RRS 89.1 –ISAF Regulation 10.5(f) applies.
At all other events RRS 87 applies.

A.6. CLASS RULES AMENDMENTS

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

A.7. CLASS RULES INTERPRETATION

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



A8. ISAF BUILDING PLAQUE AND INTERNATIONAL CLASS FEE

- A.8.1 The licensed **hull** builder shall pay the International Class fee to the ISAF.
- A.8.2 For all **boats** measured after 1st November 2009, **hulls** shall carry the ISAF plaques permanently placed on starboard transom, IF18CA plaques are acceptable
- A.8.3 Having received the payment, the ISAF shall send the ISAF building plaques to NACRA which shall then be attached to the transom of the **hull**.

A.9. SAIL NUMBERS

- A.9.1 Sail numbers shall be issued by NACRA.
- A.9.2 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**
- (d) Display an ISAF plaque for **boats** measured after 01.11.2009

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 ISAF, which shall consult the TECHNICAL COMMITTEE of the INCA. The ISAF shall give a binding ruling which shall be communicated to INCA which 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) The ERS Part I – Use of Equipment shall apply.
- (b) RRS 49.1 shall not apply.
- (c) RRS Appendix G1.3 (d) shall not apply.

C.1.2 LIMITATIONS

- (a) The Nacra Infusion shall only be raced with original or replacement equipment supplied by NACRA, for the Nacra Infusion, except where otherwise authorized by these class rules.
- (b) Where replacement equipment other than from NACRA is authorized, it may be obtained from any supplier provided that the replacement is of a similar weight, size and type and performs the same function.

C.2 ADVERTISING

Competitor advertising may be displayed in accordance with ISAF Regulation 20.

C.3 CREW

C.3.1 LIMITATIONS

- (a) One member of **crew** shall be a member of the INCA.
- (b) The **crew** shall consist of two sailors
- (c) No **crew** members shall be substituted during a regatta unless agreed in writing with the Race Committee. The Race Committee shall consider any advantage that may give the **boat**, if this replacement will take place.

C.4 PERSONAL EQUIPMENT

C.4.1 MANDATORY

- (a) A **boat** shall be equipped with a **personal flotation device** for each **crewmember** to the minimum standard EN393, ISO 12402-5 (CE 50 Newtons), USCG Type III, or



AUS PFD 2 unless an alternative standard is prescribed otherwise in the Notice of Race.

C.4.2 OPTIONAL.

- (a) Trapeze harness for each member of **crew**
- (b) Other personal equipment
- (c) Magnetic devices.
- (d) Mechanical timing devices
- (e) Electronic devices that provide timing, heading and heading memory but which do not receive or transmit data
- (f) Water, food and clothing containers
- (g) Emergency Positioning Indicating Radio Beacons (EPIRB) devices
- (h) Towing line if required in Sailing Instructions.
- (i) A paddle, fit for purpose if required in Sailing Instructions
- (j) Wind indicator(s)

C.5 EQUIPMENT

Replacements parts may be obtained from any supplier unless otherwise stated.

C.5.1 MANDATORY

A righting line of minimum of 10mm thickness and 4 metres in length shall be fitted on the **boat** at all times.

C.6 BOAT

C.6.1 MODIFICATIONS, MAINTENANCE AND REPAIR

The following is permitted without the approval of NACRA. Unless stated otherwise items mentioned in this section may be obtained from NACRA.

- (a) Holes no larger than the necessary size for the passing of lines may be made in any part of the **boat**
- (b) Routine maintenance for minor repairs, filling, sanding, cleaning, polishing and waxing is permitted as long as the **hull** is in a similar condition as when new ie gel coat
- (c) Replacements for any boat equipment, including but not limited to **hull appendages, rig, sails**, battens, spinnaker bag frame or fittings, whether original or replacements shall only those produced by NACRA except where otherwise authorised by this section.
- (d) Foot loops,
- (e) **Crew** restraining lines
- (f) **Daggerboard** retention systems may be added
- (g) Compass holders may be added
- (h) **Sail** calibration marks may be added



- (i) Replacement of fittings on an equal type and mark basis.

C.6.2 WEIGHT

The minimum weight of the **boat** in dry condition, excluding optional equipment detailed in C.4.3 and the righting line detailed in C.5.1, shall be 180 kg.

C.6.3 CORRECTOR WEIGHTS

- (a) **Corrector weights** of lead may be added of up to 7 kg permanently fastened to the outside of the forward beam to achieve the **boat** weight.

C.7 HULL

C.7.1 MODIFICATIONS, MAINTENANCE AND REPAIR

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

- (a) Additional hiking straps are permitted
- (b) Additional sail adjustment devices may be added to and fitted through the trampoline
- (c) Non slip surfaces may be applied to the **hulls**
- (d) Vinyl or similar may be added to the **hull** above the waterline to facilitate the displaying of advertising.
- (e) Waxing and polishing of the **hull** is permitted.

C.7.2 LIMITATION

- (a) Spinnaker bags and storage pockets are permitted, but shall not be fastened to the hull.

C.8 HULL APPENDAGES

C.8.1 MODIFICATIONS, MAINTENANCE AND REPAIR

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

- (a) All **hull appendages** shall be original equipment supplied by NACRA.
- (b) Waxing and polishing of the **hull appendages** is permitted.
- (c) The **hull appendages** may be lightly sanded to key the surface.
- (d) Sanding and filing to improve fit and function is permitted
- (e) Shims may be added to reduce or compensate for wear
- (f) Tiller Extension may be allowed to be exchanged for an alternative (Adjustable = Arriba type or single one piece).

C.8.2. LIMITATION

- (a) Only two rudder blades and daggerboards may be used during an event, permission to change agreed in writing with the Race Committee.



C9 RIG

C.9.1 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 of mainsheet is at 10:1.
- (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.9.2 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.

C.9.3 MAST

Shall be supplied by NACRA.

C.9.4 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 sailing.
- (b) The end cap of the **bowsprit** shall always be smooth, round and blunt.

C.9.5 STANDING RIGGING

Standing rigging shall be supplied by NACRA.

C.9.6 RUNNING RIGGING

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

(a) USE

- (1) **Running rigging** shall be arranged as supplied by NACRA.
- (2) Spinnaker sheet blocks and mounting is open and additional blocks may be added.

Additions of snuffer type retrievable systems of any design are allowed.C.9.7

C.9.7 TRAPEZE WIRE

Trapeze wire shall be supplied by NACRA

C.10 SAILS.

C.10.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Telltales are allowed, number and placement are optional
- (b) Advertising, in line with ISAF Regulation 20, is allowed as long as size and shape of sail are not altered.



- (c) Battens shall be supplied by NACRA
- (d) Battens shall be placed in **batten pockets**.
- (e) Sails shall not be altered in any way, however routine maintenance and repair are allowed as long such actions do not alter shape or size from the original.

C.10.2 LIMITATION

- (a) Only one set of **sails** may be using during an event, permission to change agreed in writing with the Race Committee

C 10.3 MAINSAIL IDENTIFICATION

- (a) Numbering shall be in line with ISAF Appendix G.
- (b) The class Insignia shall be the NACRA logo as prescribed by NACRA and shall be displayed near the head.



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 gel coat may be used during construction
- (b) If any **hull** is damaged and requires repaired in any other way than described in section C, it shall be carried out by a licensed builder and the details shall be recorded on the Manufacturers declaration.

D.2.3 IDENTIFICATION

- (a) The **hull** shall carry the ISAF Plaque permanently placed on the transom.

D.2.4 BUILDERS

- (a) The **hull** shall be built by NACRA.

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.

- (c) Sail adjustment fittings may be added to the **hulls** but preventing any water ingress

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 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 MANDATORY

- (a) **Daggerboards**
- (b) **Rudder blade, rudder stock, tiller and cross bar**

E.2 GENERAL

E.2.1 RULES

- (a) **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 **daggerboards, rudder blades, rudder stock/tiller** and cross bar shall be made only by a manufacturer licensed by NACRA to produce these.

E.3 DAGGERBOARDS

E.3.1 RULES

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

E.3.2 DAGGERBOARD TYPES

Two types of daggerboards are manufactured by NACRA...

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

- (a) 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**.

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



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

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 insignia** 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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