

**CHALLENGER TRIMARAN  
DESIGN RULES 2008**



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# INTRODUCTION

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*The Challenger Class Rules are **closed class rules** (previously known as one-design class rules) where anything not specifically permitted by the class rules is prohibited. The rules are intended to ensure that boats in the Challenger Class are as nearly as possible the same as regards shape and weight of hull, the deck, centreboard, rudder, spars and sails, and in all respects affecting performance.*

*Challenger hulls, hull appendages, rigs and sails are manufacturing controlled.*

*Challenger hulls and hull appendages shall only be manufactured by White Formula Ltd – in the class rules referred to as licensed builder.*

*Challenger rigs shall only be manufactured by Needlespar(Hawk Marine Products) Ltd – in the class rules referred to as licensed builder.*

*Challenger sails shall only be manufactured by Mouse Sails – in the class rules referred to as licensed builder.*

*Equipment is required to comply with the Challenger Building Specification and is subject to a Copyright holder's approved manufacturing control system.*

*Challenger 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 certification process.*

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

*This introduction only provides an informal background and the Challenger Class Rules proper begin on the next page.*

*The class permits IHC (In House Certification) for items produced under section G-Sails. ROGER LACEY of Mouse Sails is registered for this post.*

**PLEASE REMEMBER: IF THE RULES DO NOT SAY YOU CAN – THEN YOU CAN NOT!**

# PART I – ADMINISTRATION

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## Section A – General

### A.1 LANGUAGE

- A.1.1 The official language of the class is English and in case of dispute over translation the English text shall prevail.
- A.1.2 The word “shall” is mandatory and the word “may” is permissive.

### A.2 ABBREVIATIONS

- A.2.1 ISAF International Sailing Federation
- MNA ISAF Member National Authority
- ICA International Challenger Class Association
- NCA National Class Association
- ERS Equipment Rules of Sailing
- RRS Racing Rules of Sailing

### A.3 AUTHORITIES

- A.3.1 The Copyright Holder is RYA Sailability.

### A.4 ADMINISTRATION OF THE CLASS

- A.4.1 The Copyright Holder has delegated its administrative functions of the class, as stated in these **class rules**, to an NCA – The Challenger Class Association.

### A.5 ISAF RULES

- A.5.1 These **class rules** shall be read in conjunction with the ERS.
- A.5.2 Except where used in headings, when a term is printed in “**bold**” the definition in the ERS applies and when a term is printed in “*italics*” the definition in the RRS applies.

### A.6 CLASS RULES VARIATIONS

- A.6.1 At Class Events – see RRS 88.1.(d) – RRS 86 applies.

### A.7 CLASS RULES AMENDMENTS

- A.7.1 Amendments to these **class rules** are subject to the approval of the NCA and the Copyright Holder

### A.8 CLASS RULES INTERPRETATION

- A.8.1 Interpretation of **class rules** shall be made only by the Challenger Class Chairman, Technical Representative or full Committee and shall only clarify but not change an existing rule. They shall have the status of a class rule and shall remain valid until the next class AGM when they may be superseded by an official rule change or modification

## **A.9 SAIL NUMBERS**

A.9.1 Sail numbers shall be issued by the Copyright Holder.

A.9.2 Sail numbers shall be issued in consecutive order starting at “1”.

## **A.10 HULL CERTIFICATION**

A.10.1 **Certificates** shall not be issued.

# **Section B – Boat Eligibility**

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

## **B.1 CLASS RULES AND CERTIFICATION**

B.1.1 The boat shall:

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

## **B.2 CLASS ASSOCIATION MARKINGS**

B.2.1 A valid Class Association Sticker, if required by the NCA, shall be affixed to the hull in a conspicuous position.

# PART II – REQUIREMENTS AND LIMITATIONS

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

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

## Section C – Conditions for Racing

### C.1 GENERAL

#### C.1.1 RULES

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

### C.2 CREW

#### C.2.1 LIMITATIONS

- (a) The **crew** shall consist of 1 person.
- (b) When permitted in the rules for an event, a buddy person may be carried.

### C.3 PERSONAL EQUIPMENT

#### C.3.1 MANDATORY

- (a) The boat shall be equipped with **personal buoyancy** for each crew member to the minimum standard EN 393: 1995 (CE 50 Newtons), or USCG Type III, or AUS PFD 1.

### C.4 ADVERTISING

#### C.4.1 LIMITATIONS

Advertising shall only be displayed in accordance with Category C of the ISAF Advertising Code.

### C.5 PORTABLE EQUIPMENT

#### C.5.1 FOR USE

- (a) OPTIONAL
  - (1) Electronic or mechanical timing devices
  - (2) Magnetic or electronic compasses
  - (3) Mooring line
  - (4) Anchor and line

#### C.5.2 NOT FOR USE

- (a) OPTIONAL
  - (1) Paddles

(2) Towing lines

**C.6 BOAT**

C.6.1 WEIGHT

The weight of the **boat** in dry condition ..... 140 kg .....  
The weight shall be taken including **sail**.

C.6.2 CORRECTOR WEIGHTS

- (a) **Corrector weights** of lead shall be permanently fastened at the base of the mast box, inside the hull.
- (b) The total weight of such **corrector weights** shall not exceed 9 kg.

C.6.3 FLOTATION

- (a) The **hulls** shall be fully decked and have flotation element(s).
- (b) Fully decked **hulls** shall comply with ISO 11812 and ISO 12216.
- (c) Flotation elements shall comply with ISO 12217-3 Annex C.
- (d) **Hulls** with air tank(s) as flotation element(s) shall additionally comply with ISO 12217-3 Annex D, by test or calculation, except that the largest air tank shall not be included as a flotation element.

**C.7 HULL**

C.7.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Routine maintenance such as painting and polishing and repairs is permitted.

C.7.2 FITTINGS

- (a) USE
  - (1) Inspection hole covers and drainage plugs shall be kept in place at all times.
  - (2) All fittings and their positions are optional.
  - (3) Powered assistance by electric winches and similar is permitted for all functions other than additional propulsion.

**C.8 HULL APPENDAGES**

C.8.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Routine maintenance such as painting and polishing and repairs is permitted.

C.8.2 FITTINGS

- (a) USE
  - (1) All control fittings are optional

C.8.3 LIMITATIONS

- (a) Only one **centreboard** and one **rudder** blade shall be used during an event of less than 5 consecutive days, except when a **hull appendage** has been lost or damaged beyond repair.



C.8.4 RUDDER

(b) USE

- (1) The rudder blade shall be in its fully lowered position. However for races sailed in shallow water the sailing instructions may prescribe that this rule shall not apply.

**C.9 RIG**

C.9.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Routine maintenance such as polishing and repair or replacement of fittings is permitted.

C.9.2 FITTINGS

(a) USE

- (1) All fittings are optional

C.9.3 LIMITATIONS

- (a) Only one set of **spars** shall be used during an event of less than 5 consecutive days, except when an item has been lost or damaged beyond repair.

C.9.4 MAST

(a) USE

- (1) The **spar** shall be stepped in the mast box with locking plates of optional design so that the mast cannot fall out in the event of a capsize.

C.9.5 BOOM

(a) DIMENSIONS

	minimum	maximum
Overall length of boom from aft face of mast .....		2650 mm

C.9.6 RUNNING RIGGING

(a) USE

- (1) All running rigging is optional.

**C.10 SAILS**

C.10.1 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) **Sails** shall not be altered in any way except as permitted by these **class rules**.
- (b) Routine maintenance such as cleaning and minor repairs which do not alter the shape of the sail is permitted.

C.10.2 LIMITATIONS

- (a) Not more than 1 mainsail shall be carried aboard.
- (b) Not more than 1 mainsail shall be used during an event of less than 5 consecutive days, except when a **sail** has been lost or damaged beyond repair.

### C.10.3 MAINSAIL

#### (a) USE

- (1) A halyard shall be used to hoist the **sail**. The arrangement shall permit hoisting and lowering of the **sail** at sea.
- (2) **Luff** bolt ropes and foot slider shall be in the **spar** grooves or tracks.

## Section D – Hull

### D.1 PARTS

#### D.1.1 MANDATORY

- (a) Hull shell
- (b) Deck
- (c) Buoyancy Tanks
- (2) Sponsons

### D.2 GENERAL

#### D.2.1 RULES

- (a) The **hull** shall comply with the **class rules** in force at the time of initial **certification**.

#### D.2.2 CERTIFICATION

See Rule A.10.

#### D.2.3 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) The hull shell, deck, sponsons and cockpit shall not be altered in any way except as permitted by these **class rules**.
- (b) Existing Mark 3 and Aero Rig boats with front cockpits and in their original configuration shall remain legal.
- (c) Routine maintenance such as painting and polishing is permitted.

#### D.2.4 IDENTIFICATION

- (a) The hull shall carry the RCD Plaque permanently placed on the main hull.
- (b) The sail number shall be indelibly marked or engraved on the main hull.

#### D.2.5 BUILDERS

- (a) The hull, deck and sponsons shall be built by a builder licensed by the Copyright Holder.
- (b) All moulds shall be approved by the NCA and the Copyright Holder.

### D.3 HULL SHELL, DECK AND SPONSONS

#### D.3.1 MATERIALS

- (a) They shall be built to the approved builder's specification

### D.3.2 CONSTRUCTION

- (a) The moulds shall not deviate from the original offsets and measurements in the 1979 Rod McAlpine Downey design, except as modified by Reg White in 1991 and now known as the Mark 2 and Mark 2a. From 2005 all **boats** that are built shall conform to the Mark2a design.
- (b) The main hull shall maintain the Mark 2a layout by seating a single helmsman in a forward facing cockpit.
- (c) The double bottom cockpit shall drain into the centreboard case and not retain water.
- (d) The seating position shall be capable of trimming the boat with the helmsman in place.
- (e) The **boat** shall be fitted with the mast box for the Una Rig. It shall be sealed and not allow water into the main hull while sailing.
- (f) A hole may be drilled through the bottom of the mast box and hull to restrict the height of water in the box and allow water to drain after sailing. It shall not compromise the integrity of the hull buoyancy.
- (g) The crossbeams shall be secured using M10 stainless steel bolts, into phosphor bronze blocks or similar built into the main hull and sponsons.

## D.4 BUOYANCY TANKS

### D.4.1 CONSTRUCTION

- (a) Buoyancy equipment shall comprise of the watertight main hull and sponsons.
- (b) Adequate foam buoyancy shall be fitted in the main hull and sponsons so that the **boat** will remain upright and above the water surface even when the hulls are breached or full of water.
- (c) Extra internal buoyancy such as bags etc may be fitted.

## D.5 ASSEMBLED HULL

### D.5.1 FITTINGS

#### (a) MANDATORY

The following fittings shall be positioned in accordance with the builder specification:

- (1) Anodised aluminium fore and aft crossbeams with plastic end caps.
- (2) Mast deck level bearing plate with hole cut to match bearing ring on mast.
- (3) Two locking plates to prevent mast falling out of boat.

#### (b) OPTIONAL

- (1) Inspection holes in the main deck and sponsons decks, provided that the watertight integrity of the buoyancy tank is maintained and covers are capable of resisting accidental dislodgement.
- (2) Draining holes in the main hull and sponsons, provided that the watertight integrity of the buoyancy tank is maintained and plugs are capable of resisting accidental dislodgement.

(3) All other fittings are optional

#### D.5.2 DIMENSIONS

	minimum	maximum
Overall beam of <b>boat</b> .....		3500 mm
Longitudinal dimension of mast deck plate .....		155 mm
Horizontal distance from edge of mast bearing ring to forward end mast deck plate .....	20 mm	
Crossbeam wall thickness.....	2.5 mm	3.5 mm
Forward crossbeam diameter.....	63 mm	65 mm
Aft crossbeam diameter.....	76 mm	78 mm

## Section E – Hull Appendages

### E.1 PARTS

#### E.1.1 MANDATORY

- (a) **Centreboard**
- (b) **Rudder**

### E.2 GENERAL

#### E.2.1 RULES

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

#### E.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) Hull appendages shall not be altered in any way except as permitted by these class rules.
- (b) Routine maintenance such as polishing and the repair of minor chips and abrasions is permitted.

#### E.2.3 CERTIFICATION

- (a) No certification of **hull appendages** is required.

### E.3 CENTREBOARD

#### E.3.1 RULES

- (a) The **centreboard** shall comply with the **class rules** in force at the time of construction.

#### E.3.2 MANUFACTURERS

- (a) Manufacturers shall be licensed by the Copyright Holder.

#### E.3.3 MATERIALS

- (a) The **centreboard** shall be of GRP.
- (b) The wooden **centreboards** to the same pattern as E.3.4, supplied as original equipment to boats below sail number 200 remain class legal.

#### E.3.4 CONSTRUCTION

- (a) The **centreboard** shall be manufactured from a pattern and moulds approved by the Copyright Holder.

#### E.3.5 FITTINGS

- (a) Fittings and operating systems are optional.

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

#### E.4.1 RULES

- (a) The **rudder** blade shall comply with the **class rules** in force at the time of construction.

#### E.4.2 MANUFACTURERS

- (a) No licence is required.

#### E.4.3 MATERIALS

- (a) The **rudder** blade shall be of wood or GRP.
- (b) The **rudder** stock shall be of aluminium or wood.
- (c) The **rudder** stock T-bar shall be aluminium or stainless steel.
- (d) The tiller shall be of wood, aluminium or stainless steel.

#### E.4.4 CONSTRUCTION

- (a) The **rudder** blade shall be either:

Pattern 1: Shape to fit in a rectangle of dimensions in E.4.6. The leading and trailing edges shall be straight and parallel +/- 2mm. The edges may be bevelled.

Pattern 2: Shall be from the mould of the "Topper" Vibe rudder.

- (b) The **rudder** blade shall be capable of being rotated to at least the horizontal position by means of control lines accessible to the helmsman in the cockpit.
- (c) The **rudder** stock design is optional.
- (d) The **rudder** stock T-Bar may be either fixed or removable in the **rudder** stock. If removable it shall be secured with a split pin or similar through both the bar and the stock.
- (e) The control lines from the tiller shall be attached to the T-Bar or other system that gives direct control of the rudder.
- (f) The tiller shall be to a pattern approved by the Copyright Holder.
- (g) The tiller shall be mounted on the cockpit foredeck or the main crossbeam.

#### E.4.5 FITTINGS

- (a) MANDATORY

- (1) The **rudder** stock shall be fastened to the centreline of the transom by means of pintles and gudgeons or two gudgeons with a single locking pin through both.
- (2) If the **rudder** stock is attached by means of pintles and gudgeons, then a retaining clip shall be fitted to prevent accidental removal.

(b) OPTIONAL

- (1) Method of adjusting tension on control lines between tiller and rudder.

E.4.6 DIMENSIONS

	minimum	maximum
Thickness of <b>rudder</b> blade.....		25 mm
Pattern 1 <b>rudder</b> blade;		
To fit in a rectangle of .....	245 mm	x 820 mm

## Section F – Rig

### F.1 PARTS

#### F.1.1 MANDATORY

- (a) **Mast**
- (b) **Boom**
- (c) Kicker boom lever and control wire
- (d) Running **rigging**

### F.2 GENERAL

#### F.2.1 RULES

- (a) The **spars** and their fittings shall comply with the **class rules** in force at the time of construction of the **spar**.
- (b) The standing and running **rigging** shall comply with the **class rules**.

#### F.2.2 MODIFICATIONS, MAINTENANCE AND REPAIR

- (a) **Spars** shall not be altered in any way except as permitted by these **class rules**.
- (b) Routine maintenance such as cleaning, polishing and minor repairs that do not alter the characteristics of the spar is permitted.

#### F.2.3 CERTIFICATION

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

#### F.2.4 MANUFACTURER

- (a) **Spars** shall only be manufactured and supplied by builders licensed by the Copyright Holder.

### F.3 MAST

#### F.3.1 MATERIALS

- (a) The **spar** shall be of anodised aluminium, non-metallic fibres, such as carbon fibre, or a mixture of both but only as specified by the Copyright Holder.

F.3.2 CONSTRUCTION

- (a) The **spar** shall be an un-stayed mast of tapered section to the class building specification.
- (b) The **spar** shall have a slot cut to allow the kicker/vang boom to pass through and the slot area may be reinforced as necessary to prevent damage in normal use

F.3.3 FITTINGS

(a) MANDATORY

- (1) Domed plastic or aluminium heel fitting to allow rotation
- (2) Mainsail halyard sheave box
- (3) Kicking strap attachment
- (4) Deck bearing ring

(b) OPTIONAL

- (1) One mechanical wind indicator
- (2) All other fittings.

F.3.5 DIMENSIONS

	minimum	maximum
<b>Mast length</b> .....		6400 mm
<b>Mast spar cross section;</b> To fit in a rectangle of .....		60 mm x 75 mm

**F.4 BOOM**

F.4.1 MATERIALS

- (a) The **spar** shall be of anodised aluminium, non-metallic fibres, such as carbon fibre, or a mixture of both but only as specified by the Copyright Holder.
- (b) The kicker boom lever shall be of solid flat aluminium non-metallic fibres, such as carbon fibre, or a mixture of both but only as specified by the Copyright Holder.

F.4.2 CONSTRUCTION

- (a) The **spar** extrusion shall be rectangular in section and include a fixed sail groove integral with the **spar**.
- (b) The main section of the kicker boom lever shall project through the mast section.
- (c) The kicker boom lever shall have shoulders protecting forward of the main boom section a minimum of 20mm

F.4.3 FITTINGS

(a) MANDATORY

- (1) A removable stopper shall be fastened into the kicker boom a maximum of 20mm from the front wall of the mast to prevent the boom sliding back in use

- (b) OPTIONAL
  - (1) All other fittings

F.4.5 DIMENSIONS

	minimum	maximum
Projection of kicker boom lever from front of mast .....	.....	755 mm
<b>Boom spar cross section;</b>		
<b>vertical</b> .....	.....	87 mm
<b>transverse</b> .....	.....	38 mm

**F.5 RUNNING RIGGING**

F.5.1 MATERIALS

- (a) Materials are optional.

F.5.2 CONSTRUCTION

- (a) MANDATORY
  - (1) Mainsail halyard
  - (2) Mainsail sheet
  - (3) Kicking strap
- (b) OPTIONAL
  - (1) All other rigging is optional

F.5.3 FITTINGS

- (a) MANDATORY
  - (1) The kicker/vang assembly shall be attached to the front of the kicker boom lever and the front of the mast, such that it gives a total length of minimum 1990mm, maximum 2030mm.
- (b) OPTIONAL
  - (1) All other fittings and systems are optional

**Section G – Sails**

**G.1 PARTS**

G.1.1 MANDATORY

- (a) Mainsail

**G.2 GENERAL**

G.2.1 RULES

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

G.2.2 CERTIFICATION

- (a) The **official measurer** shall **certify** the mainsail in the **tack** and shall sign and date the **certification mark**.



- (b) An MNA may appoint one or more persons at a sailmaker to measure and **certify sails** produced by that manufacturer in accordance with the ISAF In-house Certification Guidelines.

G.2.3 SAILMAKER

- (a) The sailmaker shall be licensed by the Copyright Holder.

**G.3 MAINSAIL**

G.3.1 IDENTIFICATION

- (a) The class insignia shall be a trident consisting of three arrows, the middle longer than the other two, mounted on the longest side of a right angled triangle.
- (b) The national letters and sail numbers shall comply with the RRS

G.3.2 MATERIALS

- (a) The **ply** fibres shall consist of polyester.
- (b) **Stiffening** shall consist of:
  - (1) Cornerboards: plastic or aluminium
  - (2) Battens: wood, GRP or foam or a combination of these.
- (c) **Sail reinforcement** shall consist of polyester.

G.3.3 CONSTRUCTION

- (a) The construction shall be: **soft sail, single ply**.
- (b) The **body of the sail** shall consist of **woven ply** or **laminated ply** throughout.
- (c) The **sail** shall have 3 batten **pockets** in the **leech**, which extend full length to the **luff**.
- (d) The following are permitted: Stitching, glues, webbing and woven tapes, buckles, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, mast and boom slides, tell tales, sail shape indicator stripes and items as permitted or prescribed by other applicable *rules*.

G.3.4 DIMENSIONS

Where no limit(s) for a particular dimension is given then the item is not controlled and need not be measured. maximum

<b>Leech length</b> .....	4785mm
<b>Luff length</b> .....	5380 mm
<b>Foot length</b> .....	2410 mm
<b>Quarter width</b> .....	2003 mm
<b>Half width</b> .....	1580 mm
<b>Three-quarter width</b> .....	960 mm
<b>Top width</b> .....	140 mm

Weight of **woven ply** of the **body of the sail**:

Heavy panels along the <b>leech</b> .....	275 g/m <sup>2</sup>
Light panels along the <b>luff</b> .....	250 g/m <sup>2</sup>

Weight of **laminated ply** of the **body of the sail**:

Heavy panels along the <b>leech</b> .....	250 g/m <sup>2</sup>
Light panels along the <b>luff</b> .....	160 g/m <sup>2</sup>

# PART III – APPENDICES

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

## Section H

### H.1



The insignia should be of a size to fill a circle of minimum 550mm diameter and should be positioned below the top batten of the sail with points facing towards the leech and with the front edge approximately halfway between the luff and leech