

**AUSTRALIAN ARROW AND ARAFURA CADET ASSOCIATION
ARAFURA CADET CATAMARAN
RESTRICTIONS AND MEASUREMENT CERTIFICATE**

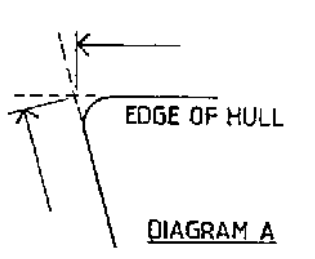
NOTE: The object of these restrictions is to provide uniform specifications and restrictions for the Arafura Cadet Catamaran. They override the measurements and recommendations contained in the plans, building instructions and materials list. They are to be read to in conjunction with the Equipment Rules of Sailing, published by the International Sailing Federation. These restrictions are operative from 30 June 2015.

1.0 GENERAL: to compete in an Arafura Cadet Catamaran Association Race an Arafura Cadet must comply with these restrictions. All measurements (excluding sails) shall be noted on this Certificate.

2.0 PRINCIPAL DIMENSIONS:

- 2.1 Length overall 3353 mm plus or minus 25mm.
- Deck and keel measured at centreline of each hull –1194mm plus or minus 13mm.
- 2.3 Forward edge of beams from aftermost point (plus or minus 13mm)
- 2.3.1 rear beam – 469 mm.
- 2.3.2 rear centreplate case beam – 1757mm.
- 2.3.3 main beam –2097mm.
- 2.3.4. forebeam – 3214mm.

3.0 HULL DIMENSIONS: There is a tolerance of plus or minus 6mm on the following dimensions. All dimensions are to be measured by projecting lines with straight-edges, as shown in diagram A below. Fibreglass may be used on all corners of the hulls in which case the plus tolerance shall not exceed 7.5mm.

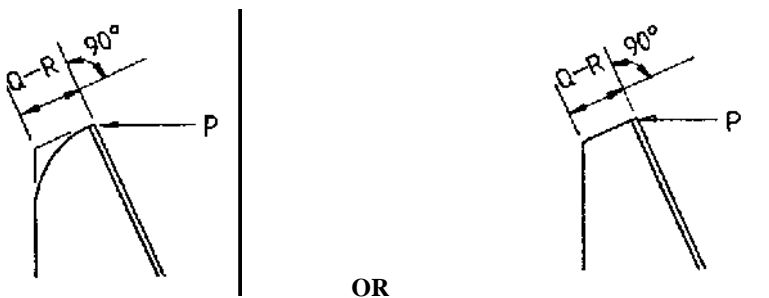


- 3.1 Stem:-
- 3.1.1 Length –396mm plus or minus 10mm.
- 3.2 At forward edge of forebeam:-
- 3.2.1 Deck –60mm.
- 3.2.2 Sides –370mm.
- 3.2.3 Bottom –8mm.
- 3.3 At 2650mm from aftermost point (between main and fore beams)
- 3.3.1 Deck – 222mm.
- 3.3.2 Sides – 405mm.
- 3.3.3 Bottom –84mm.
- 3.4 At forward edge of main beam:-
- 3.4.1 Deck 335mm.
- 3.4.2 Sides 407mm.
- 3.4.3 Bottom 137mm.
- 3.5 At 1262mm from aftermost point :-
- 3.5.1 Sides –360mm.
- 3.5.2 Bottom –178mm.
- 3.6 At aft edge of rear beam:-
- 3.6.1 Deck 270mm.
- 3.6.2 Sides 300mm.
- 3.6.3 Bottom 150mm.
- 3.7 Aftermost point:-
- 3.7.1 Deck 205mm.
- 3.7.2 Sides 255mm.
- 3.7.3 Bottom 118mm.
- 3.8 Profile: the hull sides between restricted measurement points shall follow a fair curve. The maximum deviation from a fair curve shall be plus or minus 6mm.

- 3.9 Longitudinal deck curve between foremost and aftermost points shall not exceed 30mm or be less than 15mm, measured at the centre line of each hull and the forward edge of the main beam.
- 3.10 The transom is the surface to which the rudder assembly is attached.
- 310.1 No point on the transom shall be more than 20mm forward of the aftermost point.
- 3.11 All hull frames and the transom shall be shaped to produce flat hull sides, decks and bottoms. The surface deformation in the cross section of a hull at any point shall not exceed (width ÷ 125) or 3mm, whichever is the lesser.
- 3.12 The centre of the chain plate shall be no closer than 300mm from the centre of the main beam.
- 4.0 **WEIGHT OF HULL;** hull and beams shall be dry when weighed and include fixed fitting only. Centreplate, complete rudder assembly and all removable fittings and sheets shall be removed. **Minimum weight – 36kg.** Weight correctors are permitted but must be bolted inside the hull to main frame in an easily accessible position (max 3kg of lead permitted).
- 5.0 HULLS:**
- 5.1 **PLYWOOD:** shall be of exterior grade, waterproof quality. Hull sides, bottoms, decks, transoms and frames shall be constructed of 3 or 5 ply timber with a minimum 4mm thickness.
- 5.2 **BEAMS:** main, rear, centreplate case, rear beam and centreplate case side beams shall be a standard aluminium extruded tube of 50mm x 25mm x 3mm minimum. The beam between the centreplate case and rear beam shall be a minimum of 32mm diameter x 1.6mm aluminium extruded tube. Lightening of fore, main and rear beams is not allowed. Centreplate case rear and side beams may be lightened provided no beam has more than 50% of the aluminium removed.
- 5.3 **LOAD STRAP:** under main beam – minimum 20mm x 1.5mm stainless steel or 25mm x 3mm aluminium strap not less than 50mm deep.
- 5.4 **FOREBEAM:** shall be a minimum of 25mm x 3mm aluminium extruded tube.
- 5.5 **TRAMPOLINE:** material shall only be fitted between main and rear beams and inner sheerlines and shall be either:
 (a) Sailcloth of minimum 340g per square metre OR
 (b) Multi-filament polypropylene cloth through which a size 10 sewing needle shall not pass.
 i.e. shade-cloth of 90% shade.
- 5.6 **FIBREGLASS BOTTOM CHINES:** boats built without bottom chines shall have fibreglass seams.
- 5.6.1 Interior of hull: minimum 38mm wide x 130g per square metre cloth along seams, to both sides of main and rear frames, one side of transom and foreframe.
- 5.6.2 Outside of hull: minimum of two layers of 38mm wide by 130g per square metre cloth.
- 5.7 **NUMBER OF FRAMES:** all boats must have forebeam gusset, main frame and rear frame, together with three frames of minimum depth of 125mm between the main and rear frames, one of which shall support the plate case rear beam.
- 5.8 **HATCHES:** minimum requirement: - two 100mm diameter removable inspection ports in each hull.
- 5.9 **FIBREGLASS HULLS:** the hulls may be of fibreglass construction provided that:
 (a) they conform with the exterior dimensions, number of frames and weight restrictions contained herein.
 (b) The hulls are supplied by an approved builder as set out in the Australian Arrow and Arafura Cadet Association Constitution.
- 5.10 **HULL IDENTIFICATION**
- 5.10.1 All hulls shall be stamped with a hull identification number inside each hull. This number shall be non removable and only applied by the State measurer or delegate. This number shall be visible through the rear hatch. The number will be issued with each set of plans.
- 5.10.2 All hulls completed after 1 July 1995 shall be inspected by the State measurer or a delegated representative prior to the deck being installed. This inspection is to ensure that hulls comply with Class internal restrictions and buoyancy requirements.
- 5.10.3 Only one set of hulls shall be built from each plan and the hull number shall be stamped inside the hull as per 5.10.1. The hull and sail number shall be the same. The only exemption is where a hull is damaged and can be replaced. In the event that the complete set of hulls is written off then a new set of hulls shall be built with a new hull number.
- 6.0 MATERIALS:**
 Type of timber is optional. However, balsa wood cannot be used for frames listed in 5.7 above, internal gunwales and chines and deck support frames. Rounding of corners on all frames, chines, gunwales and inwales both internally and externally shall not exceed 4mm radius.
- 7.0 TIMBER SIZES:**

All timber sizes shall be not less than 2mm under the dimensions shown on the plan and materials list. (Note: the 2mm tolerance is included only to cover minor errors in machining. It is stressed that timbers should be ordered to the full dimensions given, (i.e. dressed or finished sizes).

- 8.0 BUOYANCY:** each hull shall be divided by a watertight bulkhead at frame 3 or frame 4.
- 9.0 CENTREPLATE:**
Maximum length shall be 1120mm including plate handle. Maximum width of blade 180mm. Minimum thickness of the upper 180mm shall be of 24mm at point of maximum camber, then may taper in thickness toward the tip.
- 10.0 RUDDERS:** the complete rudder and tiller assembly is de-restricted.
- 11.0 MAST:**
11.1 Maximum length shall be 5230mm including all fittings.
11.2 Section – shall be an aluminium extrusion maximum 75mm deep x 55mm wide.
11.3 Rotating masts are permitted.
11.4 Tapered or stepped metal masts are not permitted.
11.5 Maximum height of mast step above top surface of centreplate case shall be 25mm.
11.6 The mast shall be stepped within 50mm of the vertical centre of the main beam.
- 12.0 BOOM:** Shall be an aluminium extrusion with a maximum depth of 64mm.
- 13.0 TRAPEZE:** Only one trapeze is allowed on each side of the boat. Hiking planks are not permitted.
- 14.0 SAILS:**
For championship racing one jib and one mainsail only shall be used in any series. If a sail is damaged beyond repair it may be replaced with the permission of the Sailing Committee. A spinnaker is not permitted. Adjustable jib luff, main luff and main foot tensioners are allowed. Minimum sailcloth weight shall be 130g per square metre, or for laminate or composite cloth the minimum weight shall be 95g per square metre. Sails shall be stamped and signed by the State Measurer each season. This shall occur at the commencement of each season except where geographical factors make this impractical.
- 14.1 MAINSAIL**
Refer to Page 5.
- 15.0 JIB:** No headboards are permitted. Up to three battens of maximum length 305mm are allowed. Maximum measurements shall be:
- 15.1.1 Luff – 2870mm.
15.1.2 Leech – 2590mm.
15.1.3 Foot – 1400mm.
- 15.2 **TOP OF SAIL:** the top of the sail shall be defined as point P on the diagrams following. Point P ignores any tabs used to secure the sail. All measurements relating to luff, leech and cross measurements shall be from this point.



- 15.3 **HEAD WIDTH** - maximum width of the head of the jib, as defined by line Q-R in the diagrams above shall be:
For sail with wire luff and eyelet - 35mm
For sail with zip luff - 50mm
- 15.4 **CROSS MEASUREMENTS** - The maximum cross measurement between the luff and leech of the jib at the following points shall be:
- | 15.4.1 Measurement point on luff:
(from top of sail) | Measurement point on leech: | Cross Measurement: |
|---|-----------------------------|--------------------|
| (a) 718mm | (a) 648mm | (a) 415mm |
| (b) 1435mm | (b) 1295mm | (b) 742mm |
- The cross measurements shall be determined by bridging any hollows in the leech with a straight line.
- 15.5 **FOOT** - The foot of the jib shall follow a fair curve between tack and clew, with a maximum foot round of 100mm.
- 15.6 **LEECH** - The leech of the job shall be a continuous and fair curve, with only single concave or convex

curve.

The leech shall deviate no more than 20mm from a straight line between the ¼ measurement point (15.4.1(b)) and the top of the sail at the back of the head.

16.0 RIGGING:

- 16.1 All stays shall be attached to the mast via a single hound fitting. The bearing surface of the eye in this fitting shall be 3715mm (plus or minus 50mm) from the tip of the mast base fitting and shall not extend more than 30mm from the forward surface of the mast.
- 16.1.1 POINT OF INTERSECTION OF BRIDLE – the point of intersection is the extension of the bridle wires and the forestay wire. This point shall be not further than 240mm and no shorter than 160mm from the surface of the forebeam, measured along the line of the forestay.

17.0 RETROSPECTIVITY:

- 17.1 No amendment to a Restriction shall make any part of a boat or any part of its fittings illegal which was legal at the time of manufacture unless specifically stated in the amendment to the Restriction.
- 17.2 Existing sails which do not comply as a result of a Restriction change may continue to be used for up to 2 years from the date of notification of the result of the Class Vote.

AMENDMENTS:

June 1993 General upgrade
 June 1994 Cl. 5.3, 5.4, 6.0, 14.0, 15.2, 15.3, 16.1.1
 June 1995 Cl. 3.8, 3.10, 5.9, 5.10
 June 1997 Cl. 3.1.1, 3.2.3, 3.3, 8.0, 17.2
 Sept 2002 Cl. 3.4.3, 3.5, 14.1, 14.2, 14.3
 Dec 2003 Cl. 11.2, 15.5, Fibreglass hull manufacturer's statement
 Dec 2010 Cl. 2.3, 3.3, 3.5, 3.7, 3.9, 3.10, 3.10.1
 June 2015 Cl. 14.1 (p.5 added)

STATEMENT BY STATE MEASURER

- 1.1 SAILS
- 1.1 I certify that Arafura Cadet Cat Sail No.conforms to the above Class Restrictions.
- 2.0 HULL, SPARS, RIGGING
- 2.1 I certify that Arafura Cadet Cat No.conforms to the above Class Restrictions.
- 2.2 I have found that Arafura Cadet Catamaran No.does not conform to the above Class Restrictions but in my opinion this is a bona fide and minor variation which does not affect the performance of the boat and I therefore approve it for Arafura Cadet Class racing. It does not conform to the following Restrictions and the variations are listed below.

Measurer's Name (print).....Signature.....Date

14.1 MAINSAIL

Sail markings shall be in accordance with I.S.F. Rules. The sail shall carry the class insignia as shown on the plans. Up to six battens are permitted. The mainsail bolt rope shall run in the track of the mast. The foot of the mainsail shall be attached to the boom at the tack and clew only (i.e. loose footed). To measure - peg the sail out flat on the floor stretched taut but without distortion. A tension of 15kg shall be applied when measuring the luff. All measurement points on the luff and leech shall be measured in a straight line from the uppermost part of the headboard on the luff side thereof. The head width and cross measurement shall be to a corner apex at the projection of the head and leech lines. Measurements include the bolt rope. There shall be no convex lines between battens and any concave/hollow between battens shall be bridged in a straight line between battens to measure girths. The Luff, Leech, Head, Foot and Cross measurements shall not exceed the maximum dimensions shown on Diagram A. The foot shall follow a fair curve between tack and clew with a maximum round of 50mm.

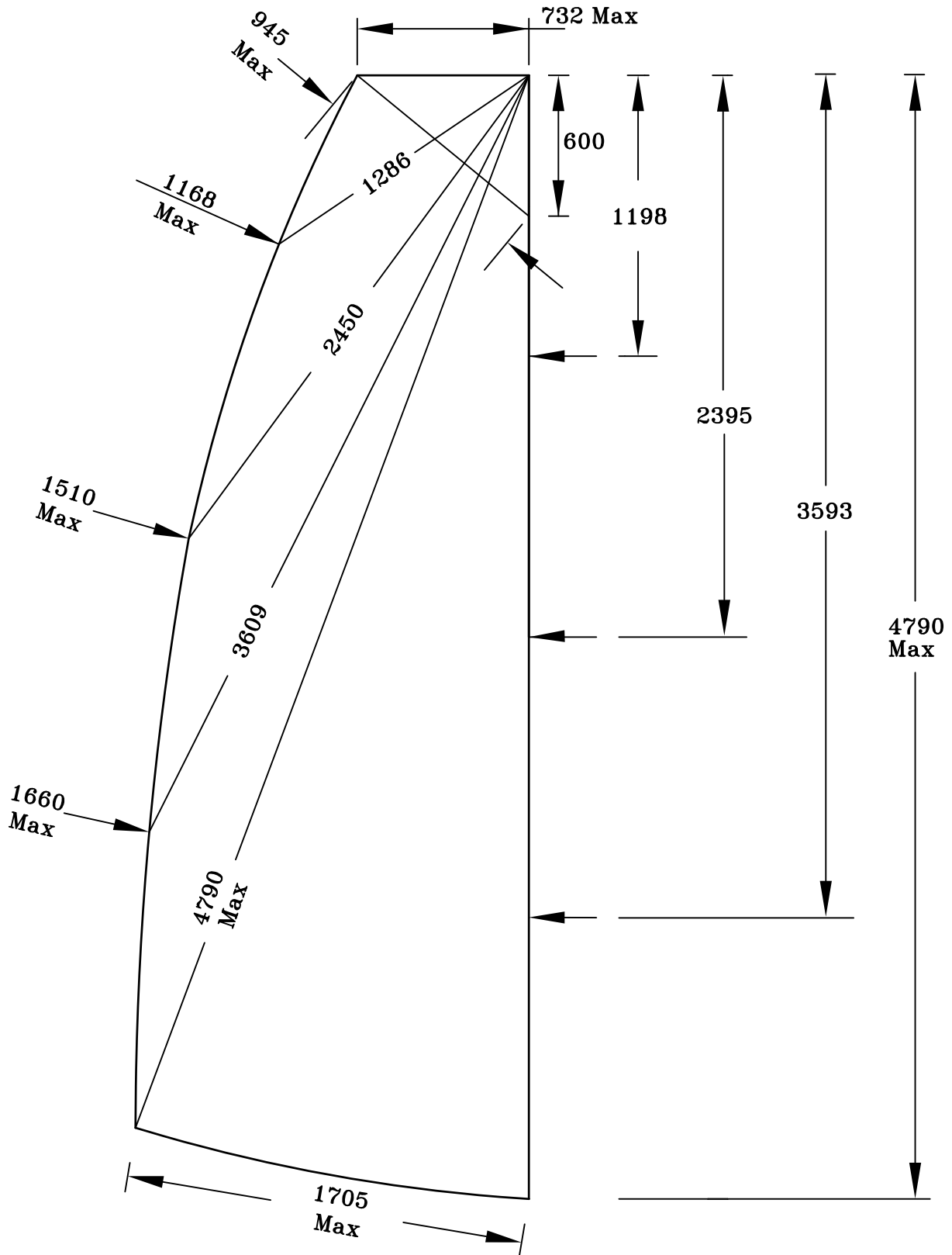


DIAGRAM A

SCALE 1:25

Dimensions are in Millimetres.