



International Tornado Association

CLASS RULES

1. General

- a. The official language of the International Tornado Class is English and in the event of dispute over interpretation the English text shall prevail.
- b. These rules shall take precedence over the measurement form and the plans.
- c. Neither the ISAF nor the International Tornado Association ([TA) accepts legal responsibility in respect of these rules or any claim arising therefrom.
- d. Where there is no National Authority or the National Authority does not wish to administer the class, its function as stated in these rules shall be carried out by the International Tornado Association or its delegated representatives.

2. International Class Fee

- a. An International Class Fee shall be paid by the builder on every pair of hulls built whether or not the boat is subsequently measured and registered. A fee of half the amount payable on the completed boat shall be paid on any single hull built for replacement or other purpose.
- b. For each boat built, kit make, or set of parts supplied, the builder shall pay to the International Tornado Association (ITA), c/o Justus Wolf, Balhindamm 35, D - 20095 Hamburg, Germany, the appropriate International Class Fee as defined, for which two numbered ISAF plaques shall be issued and are to be permanently affixed to the transoms by the builder prior to delivery to the owner.
- c. An official International Class Building Fee Receipt shall be issued to the builder by the Association. These shall be numbered consecutively.
- d. The International Class Fee Receipt shall be delivered by the builder to the owner on delivery of the hull, kit or Set of parts.
- e. The term 'builder' shall include a constructor of hull shells and a manufacturer of hull kits or sets of parts.

3. Builders

- a. Professional builders of the Tornado shall be only those recognised and registered by the ISAF and boats or hull kits shall only be built for sale by these builders.
- b. Recognition shall be subject to review and withdrawal by the ISAF and professional builders shall be required to satisfy the ISAF through the [TA and the relevant National Authority of their competence to build the Tornado.
- c. Additional professional builders may be recognised by the ISAF at the recommendation of the International Tornado Association and the relevant National Authority, provided that a requirement can be shown for an additional source.
- d. Bona tide amateur builders shall be permitted to build not more than one boat a year, and this boat shall be for their own use.

4. Registration

- a. No boat shall be allowed to race in the class unless it has a valid class Measurement Certificate. Application for measurement and registration shall be the responsibility of the owner who shall apply to this National Authority for a sail number and measurement form, submitting at the same time the proposed name of the boat on the International Class Fee Receipt.
- b. Each country shall issue sail numbers, which shall be consecutively commencing from 'one



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and the number shall be preceded by the official nation's letters. The National Authority shall enter the sail number of the boat on the International Class Fee Receipt.

- c. No two boats in the class registered in the same country shall have the same name.
- d. The owner should arrange the attendance of a recognised Measurer who shall complete the measurement form and, if satisfied, shall certify thereon that the boat complies with the class rules. A copy of the completed measurement form and/or changes to the form, due to re-measurement shall be sent to the ITA by the measurer.
- e. The measurement form, when complete, shall be returned by the owner to his National Authority. On receipt of these a measurement certificate shall be issued to the owner. The original measurement form and building fee receipt shall be returned to the owner.
- f. The National Authority may charge a registration fee.
- g. Change of ownership invalidates the certificate but re-registration may be effected by returning the old certificate to the National Authority, together with an application in writing containing the name and address of the new owner and the appropriate re-registration fee, if any. Re-measurement is not necessary. The National Authority shall issue a new certificate to the owner.
- h. Notwithstanding anything contained in these rules, the International Tornado Association or the ISAF shall have the power to refuse or withdraw the certificate of any boat.

5. Measurement

- a. This is a one-design class. A certificate may be refused even if the specific requirements of the rules are satisfied. Interpretations of these rules shall be made by the ISAF, which shall consult the ITA. The measurer shall report on the Measurement Form anything, which he considers, departs from the intended nature of the design on the boat, and shall not sign the form. A copy of the incomplete form together with a full explanation of the points in question shall be immediately sent to the ITA Secretariat for a ruling in writing.
- b. Templates used for official measurement or re-measurement shall be issued by the ISAF.
- c. Only an official class measurer recognised by the National Authority or the ISAF and registered with the International Tornado Association shall measure a boat, spars, sails and equipment, and sign the declaration on the Measurement Form that it complies with the class rules. Payment for the measurer's service is the responsibility of the owner.
- d. A measurer shall not measure a boat, its spars, sails and equipment, owned or built by himself.
- e. It is the responsibility of the owner to see that the boat, its spars, sails and equipment are correctly measured and to ensure that they thereafter comply with the current class rules.
- f. All certified boats shall be liable to re-measurement at the discretion of the National Authority or Race Committee, but only by an official measurer. Any boat, re-measured and found not to comply with the class rules, may be disqualified.
- g. A certificate shall be invalidated by structural alteration, replacement of components or repair to the boat and the boat shall be re-measured in respect on the affected parts by an official class measurer.
- h. New sails shall be measured by an official class measurer who shall sign and date the sail in an indelible manner.

6. Recognition Marks

- a. The sail number and national letters of the boat shall be indelibly marked in letters with minimum height of 50mm on to the outside of the port transom.
- b. The sail numbers, national letters and class emblem shall be placed on both sides of the



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mainsail, at approximately two-thirds of the height of the sail above the boom. Sail numbers, letters and emblem shall sharply contrast in colour with the sail. The sail numbers and letters shall be placed at different heights on the two sides of the sail, those on the starboard side being the uppermost. The emblems shall be placed above the letters and numbers. If the emblems are placed back-to-back it is recommended that the tail should slope towards the luff of the sail. Letters and numbers on the sail shall be of the following minimum size:

Height: 300mm

Width: 200mm (except figure 1 and the letter l)

- c. Sail makers marks, if any, shall be placed within 355mm of the tack of the mainsail and within 300mm of the tack of the foresail and shall not exceed 150mm x 150mm.

7. Materials

- a. Hulls and centreboards shall be made only of one or more of the following materials: wood, glass fibre, foam plastics, plastic fibres with a modulus of elasticity less than 100.000 kg/cm², resins, paints, glues and normal metal fastenings.
- b. Metal fastenings shall be of stainless steel or aluminium.
- c. The materials for rudderheads and tillers, tiller connecting arm, mast tiller, spreaders, beam attachment straps, blocks, pulleys, cleats, compass holders, wind indicators, and bowsprits are optional.
- d. Except for such fastenings, all materials when dry to the measurer's satisfaction shall be of high electric resistance. Equipment may be used by the ISAF or its delegated representatives to detect materials of low resistivity such as metals and carbon fibre and a boat may be disqualified or have its certificate withdrawn if low resistivity is found which the measurer believes cannot be explained by normal metal fastenings or fittings.
- e. Masts may be extruded only of aluminium alloys approved by the ISAF.
- f. Kevlar, or any similar fibre, shall not be used in the Tornado Catamaran except for running rigging. Core materials require prior approval of the ISAF. Those containing Kevlar or other high modulus fibres may be permitted but in addition to their structural properties the primary criteria in deciding whether a particular core material is acceptable will be its cost and durability.
- g. Tornados built using such prohibited materials shall remain illegal: however, they shall be permitted to race in the club and local events for evaluation purposes, provided that they are registered with ITA (not the National Authority) and also provided:
 - i. both hulls are indelibly marked on the outside of the transoms with a letter 'X' and with a number allocated by the ITA.
 - ii. the mainsails have a letter 'X' of size and position in accordance with Rule 6(b). The letter 'X' shall be either in addition to or instead of national letter(s).
- h. The International Class Fee as stated in Rule 2, shall be paid in respect of each experimental boat although it remains illegal. Such illegal boats will not be permitted to race in qualifying open meetings of any kind, National Championships, European Championships, World Championships or the Olympic Games unless approved by the ITA and ISAF as required by ISAF Regulation 10.3.6.

8. Hull Measurement

- a. The hull shape shall be inverted. The bow template shall be applied with the projections touching the skin.
 - i. Template No. 5 shall be positioned 5 metres shaft the aft edge of the bow template and shall touch the skin at the keel and be equidistant from the sheerlines.



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- ii. The bow template shall be adjusted to bring the inscribed datum line in coincidence with a base line, which shall be horizontal and pass through the datum point at the centre of the hole in template No. 5.
- iii. The remaining measurement templates shall be positioned 0, 1, 2, 3.3 and 4.2 metres abaft the aft edge of the bow template. Touching the skin at the keel and at each station the template shall be equidistant from the sheerlines.
- b. Each of the templates positioned 0, 1, 2, 3.3, 4.2 and 5 metres abaft the aft edge of the bow template shall touch the hull at, either the centreline inscribed on the template, or within the raised section on the template, and on both sides of the inscribed centreline.
- c. The base line shall pass through the holes in the templates and shall clear template 1, 2, 3.3 and 4.2.
- d. The clearance between any template and the stem of the hull shall not exceed 10mm, except that within 10mm of the centreline inscribed on the respective template the clearance shall not exceed 3mm on template 0 and 2mm on templates 1, 2, 3.3, 4.2 and 5.
- e. The sheerlines at all stations shall not be above or below the tolerance marks on the templates. The radius at the sheer measured perpendicular to both the deck and the topside shall not exceed 12mm.
- f. The skin shall not project beyond the transoms, which shall be flat and square across the hulls.
- g. The hull shall not extend more than 5096mm nor less than 5085mm abaft the aft end of the bow template.
- h. The aft surface of the transom at sheerline level shall be not more than 50mm nor less than 30mm forward of the aft most point of the hull.
- i. The difference between the deck centreline separation and the keel line separation immediately abaft the main beam shall not exceed 10mm.
- j. The distance between deck centrelines shall be not more than 2630mm or less than 2610mm.
- k. The difference in length between the diagonals from the tip of each bow to the aft edge of the opposite transom at the inner sheerlines shall not exceed 25mm.
- l. The centreplane of each hull and its centreboard case shall coincide.
- m. With the deck crown template normal to the deck and square across the hull, the clearance between deck and template shall be not more than 5mm except in way of recesses or pads for ports and fittings.
- n. The builder shall certify that the boat with full racing equipment, and with both hulls swamped, shall support 160kg. If the boat is found at any time not to comply with this requirement, the certificate shall be invalid.
- o. No rigging or control devices shall pass through the hull.

9. Beams

- a. The hulls shall be joined by a main beam and a rear beam. There shall be no beam or strut attached to the hulls other than the main beam and rear beam and there shall be no beam or strut connecting the main beam and rear beam.
- b. The main beam and rear beam extrusions shall each be straight aluminium alloy tube of constant section along its length. Holes may be drilled in the beams for fastenings. The ends of the main and rear beams shall be perpendicular to their length.
- c. The major diameter of the main beam section shall be not more than 135mm nor less than 130mm. The minor diameter of the section shall be not more than 91mm nor less than 90mm. The main beam shall be oval in section with a common radius front and rear of a minimum of 45mm.



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- d. The major diameter of the rear beam section shall be not more than 135mm nor less than 130mm. The minor diameter of the section shall be not more than 91mm or less than 89mm except that where an external or partly external traveller track is extruded integrally with and on top of the section, the overall projected diameter including such track shall not be less than 106mm or more than 108mm. An extrusion incorporating an integral mainsheet track shall only be permitted if the design has been submitted to and approved by the ISAF.
- e. The wall thickness of the sections shall not be less than 2mm.
- f. The main beam and rear beam extrusions shall each be in one continuous piece. They shall be let into the deck and their lower surfaces shall be not more than 35mm nor less than 25mm below the inner sheerlines.
- g. The major axis of the sections shall be parallel to the sheer. The beams shall be rigidly attached to the hulls but shall be easily removable.
- h. Spare number.
- i. The rear edge of the main beam shall be not more than 3115mm nor less than 3095mm abaft the stem head length datum, as inscribed on the bow template.
- j. The front edge of the rear beam shall be not more than 5344mm nor less than 5324mm abaft the stem head length datum as inscribed on the bow template.
- k. The main beam shall be fitted with a strut and tie. The underside of the tie in way of the strut shall be not less than 235mm nor more than 255mm below the underside of the main beam. The line of the tie shall meet the underside of the main beam not less than 1000mm nor more than 1100mm from the centreline of the strut. The tie shall be flat stock with a thickness of not less than 3mm, the leading edge of which may be rounded, but not sharpened, to not more than 1.5mm from the leading edge. The strut shall be of circular cross-section of diameter not less than 24mm. The maximum deflection of the beam in any direction over its full length at rest, without the mast being stepped, shall not exceed 15mm.
- l. Any device for adjusting the main beam strut or tie shall remain locked whilst racing.
- m. There shall be no fairings.

10. Trampoline

- a. A trampoline shall cover the area between the main beam, rear beam and inner sheerlines, except that a maximum gap of 130mm is allowed around the perimeter. In addition to these gaps and the necessary lacing eyes, holes not exceeding 0.1 sqm in total area are allowed in the trampoline. The area of each hole shall be taken as the area of the enclosing rectangle. (A net trampoline is not permitted. For the purpose of this rule, net shall be defined as a material where the intersection of warp and weft are knotted, welded or in any other way treated to space the warp and weft apart).
- b. There shall be no trampoline or other covering whatsoever in front of the main beam or behind the rear beam except that the trampoline material may be wrapped round the beams. The trampoline shall not overlap the inner sheerlines of either hull.
- c. A single trampoline may be wrapped around the beam to form a sleeve. The sleeve and any lacing shall extend not more than 185 mm from the beam, and shall not incorporate any padding. Double trampolines are prohibited.
- d. A Spinnaker bag that is integrated into the trampoline and has an opening in the top of the trampoline shall be considered a bag and is not subject to Rule 10(c).

11. Centreboards

- a. Two centreboards shall be fitted in the centreboard cases, one in each hull. Each centreboard shall pivot about one point only, relative to the hull, and shall be capable of being raised com-



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- pletely so that it does not project below the line of the keel. The line of the keel shall be the continuation of the keel line in way of the centreboard case. The pivot point shall be aft of the line of the underwater leading edge of the centreboard and not more than 100mm from it.
- b. Daggerboards are prohibited.
 - c. In the fully down position, the underwater profile of each centreboard shall not overlap or be more than 10mm away from the centreboard template, both ends of which shall touch the keel line.
 - d. In the fully down position the front edge of each centreboard at the line of the keel shall be not more than 2485mm nor less than 2465mm abaft the aft edge of the correctly positioned bow profile template.
 - e. The maximum thickness of each centreboard shall not exceed 29mm. In the fully down position the maximum thickness of each centreboard at the line of the keel shall be not less than 25mm. The minimum height from the head to tip of each centreboard shall be 1150mm.
 - f. The cross-section of each centreboard shall be substantially symmetrical about its fore and aft centreline.
 - g. The centreboards shall have no moving parts.
 - h. Sealing strips of any suitable material for the centreboard slots are permitted.
 - i. The maximum weight of each centreboard shall not exceed 5kg.

12. Rudders

- a. In the fully down centred fore-and-aft position the profile of each rudder blade shall not overlap nor be more than 10mm away from the rudder blade template, the forward top edge of which shall be on the keel line or its extension. The leading edge of the rudder shall not be in front of the transom at the line of the keel.
- b. The rudders shall be hung on the transoms on normal fittings and shall have devices to retain them in the event of a capsize. The distance from the face of the transom to the pivot line of the rudder shall not exceed 50mm.
- c. The rudders shall, when fore-and-aft, be in the centre plane of each hull.
- d. Dagger and fixed rudder blades are prohibited.
- e. The minimum weight of each complete rudder assembly comprising blade, stock and tiller shall be 3kg (for rudders built prior to 1993 correctors may be added to achieve minimum weight).

13. Weight

- a. The total assembled weight of hulls, correctors if any, main beam, rear beam, trampoline, centreboards, rudders, tillers, connecting arm, tiller extensions, mainsheet track, mainsheet traveller or slide, and all fittings normally bolted, screwed or permanently fixed to the boat shall be not less than 127kg, nor more than 145kg when in dry condition to the Measurer's satisfaction. Not included in this weight are spars, standing rigging or mainsheet and foresail sheet lines and blocks, compasses and support fittings, jib strops and sliders, and all other loose and easily removable gear.
- b. Correctors shall be attached on the outside of the main beam and shall be removable for the purposes of measurement.
- c. The total weight of correctors shall not exceed 5kg. This shall apply to boats first registered after February 1977.
- d. If correctors are altered or removed the boat shall be re-weighed by an official class measurer and a new certificate obtained.



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14. Mast

- a. The mast shall be an inherently straight continuous aluminium alloy extrusion of constant section, with no cuts or added stiffening, such as to affect its stiffness or flexibility, with integral track, and of general shape shown in the diagrams. The exterior and interior surface shall be designed to be smooth. There shall be one web only, which shall be predominantly flat across the section. Dimensions AC shall be not less than 132mm nor more than 135mm and dimension DE shall be not less than 74mm nor more than 76mm. The ratio of AB:AC shall not be less than 0.140 or more than 0.180. Dimensions AB, AC, and DE shall be measured externally. The wall thickness shall be not less than 1.8mm.
- b. The extrusion may be tapered above a point 7190mm from the lower end of the mast extrusion and the track opened or cut away below a normally positioned sail entry point, but the shape shall be not otherwise altered.
- c. Tapering shall be only achieved by cutting a single “V” slot down the front of the section, closing it and making a single continuously welded butt joint. The girth of the mast at the bottom edge of the top measurement band shall be not less than 240mm and the taper shall not be hollowed:
 - i. when viewed from the side, by more than 5mm from a string line stretched taut along the leading edge of the tapered section of the mast between the bottom edge of the top measurement band and the lower edge of the taper. This measurement shall be taken when the mast is horizontal with the major axis of the section horizontal.
 - ii. when viewed from forward, by more than 3mm from a string line stretched taut along the side of the tapered section of the mast, at its widest points, between the bottom edge of the measurement band and the lower edge of the taper. This measurement shall be taken when the mast -is horizontal with the major axis of the section vertical.
- d. The forestay and shrouds shall be attached to the mast at a single point, within 20mm of the extrusion surface and not more than 7180mm nor less than 7165mm from the lower end of the mast extrusion.
- e. The trapeze wires shall be attached to the mast and not to the standing rigging. The attachment point shall be not more than 50mm from the attachment point for the shrouds and forestay and may be the same point.
- f. The mast shall be stepped on the centerline of the boat and its vertical centreline shall intersect the main beam in any position to which the mast may be rotated.
- g. A measurement band shall be painted round the mast with its top edge not more than 390mm nor less than 375mm from the lower end of the mast tube extrusion. A second measurement band shall be painted with its bottom edge not more than 89 15mm above the sop edge of the first. (Measurement bands shall be in a colour contrasting with that of the spar).
- h. When stepped, the lower end of the mast extrusion shall be not more than 90mm above the top of the main beam.
- i. The mast shall be weighed in the following condition:
 - i. Spinnaker halyard sheaves, Spinnaker halyard guides, gooseneck, and base fittings, which rotate with the mast shall remain attached to the mast.
 - ii. Running rigging and normally attached diamond rigging shall remain attached to the mast.
 - iii. Shrouds, forestay and trapeze wires and their shackles shall be removed from the mast.
 - iv. Halyards shall be fully hoisted and their tails shall be coiled and attached to the mast heel.
 - v. Sail attachment fittings shall touch the upper halyard sheaves.
- j. The mast, in the condition given in 14(i), shall weigh not less than 23kg.



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- k. With the mast in the condition given in 14(i), in a horizontal position supported at the bottom end of the extrusion and at the bottom edge of the top measurement band, the weight measured at the top band shall be not less than:
 - i. 10.5kg for masts with internal jib halyards.
 - ii. 10.25kg for masts with external jib halyards and locking devices that are not connected to the mast in any way.
- l. Mast jacks and adjustable mast steps are prohibited.
- m. All masts manufactured from March 1st, 1997 shall be adequately sealed between the black bands to prevent water entering the section shown. in the diagram as BC. All main halyards shall pass only up and down the mast track AB.
- n. The bearing surface of the Spinnaker halyard lead shall be:
 - i. no higher than 1000mm above the bearing point of the forestay and shroud attachment point
 - ii. no more than 100mm from the mast, when measured with the halyard extended at 90 degrees to the mast

15. Boom

- a. The boom shall be an inherently straight continuous aluminum alloy extrusion of constant section throughout its length.
- b. Excluding fittings, the boom shall pass through a 100mm-diameter circle.

16. Standing Rigging

- a. There shall be one shroud only to each hull, the attachment point being on the outer topsides and not more than 728mm nor less than 708mm aft of the after edge of the main beam measured along the sheer to the point of intersection with the plane of the shrouds. The distance between the outer surface of the chain plate and the outer surface of the topside shall not exceed 15mm.
- b. The mast shall carry one pair of diamond stays only, which shall be rigged below the hounds, and which shall pass over a spreader of unfaired round tube or rod of diameter 15mm minimum.
 - i. The diamonds shall be rigged between external tangs fastened to the outside of the mast. Diamond stays may be passed through a fairlead, permanently fixed to the mast above the lower tangs. The distance between the diamond attachment point on the upper tangs, and the attachment point on the lower tangs, or the fairlead, shall not be less than 6000mm. The distance between the diamond attachment point on any tang and the nearest fastening of that tang to the mast shall be not more than 75mm.
 - ii. The points of intersection of the diamond wires and the spreaders shall be not less than 790mm apart measured in a straight line.
- c. There shall be one forestay only, which shall be attached to a strop between the hulls. The forestay strop attachment point to each hull shall be not more than 50mm from the inner sheerline and not more than 1980mm nor less than 1965mm forward of the after edge of the main beam measured to the centre of the attachment hole in the fitting fixed to the hull.

The line of each half of the forestay strop shall not pass above the inner sheerlines when the boat is rigged.

- d. The point of intersection of the lines of the forestay and each half of the forestay strop shall lie on the centreline of the boat and shall be not less than 838mm from a straight line joining the inner sheerlines where they intersect the plane of the forestay bridle.



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This measurement shall be taken with the forestay strop in a vertical plane and with an upward force of not less than 2kg and not more than 6kg applied vertically at the centreline of the boat.

- e. Spare number
- f. There shall be no other standing rigging.
- g. All standing rigging shall be circular in section and shall have no fairings. Rod rigging is prohibited. The minimum diameter of the shrouds, diamond wires, forestay, and forestay strop shall be 3mm.
- h. Adjusting the standing rigging whilst racing is prohibited. Standing rigging shall be adjusted only by means of rigging screws or turnbuckles, shackles, shroud adjuster plates and lashing. Any of these shall be locked, wired or otherwise firmly secured while racing.
- i. The weight of the forestay, forestay strop, shrouds, trapeze wires, and handles and shackles, rigging links and adjusters used to attach these to the mast and the hulls shall be not less than 1.7kg.

17. Sails

- a. The rig shall consist of a mainsail, headsail and spinnaker. The ISAF sail measurement instruction (1986) shall apply where no conflict with these rules arises. Reinforcement having the effect of stiffening the sail shall be permitted only within a distance from each corner of 595mm for the mainsail and 440mm for the headsail. Secondary reinforcement, not extending beyond four times the limits prescribed for the headsail primary reinforcement shall be permitted. Beyond this limit sails shall comply with ISAF Sail Measurement Instructions (1986). The mainsail shall be measured with the battens removed.
- b. The mainsail and jib shall be made of either woven or non-woven polyester materials, or a combination of both, and shall be capable of being stowed in a sail bag of normal dimension. The spinnaker shall be made of nylon and/or polyester fabrics only. Kevlar or other high modulus tape or rope may be used as reinforcement at the luff of the sail. No part of the tape or rope shall be more than 80mm from the edge of the sail.
- c. Headsail (The old jib rule 17c as per 2000 year book will be grandfathered until 2004, however can not be used in Continental Championships, World Championships and Olympic Games)
 - i. The "triangulation" method of measurement shall be used if the width of the sail at the head exceeds 50mm. For the purpose of this rule the width at the head shall be measured at right angles to the luff through the highest point of the sail on the luff to the line of the leech extended if necessary.
 - ii. The length of the luff shall be not more than 6300mm. The maximum measurement from the clew point to the nearest point on the luff shall be 1680mm.
 - iii. The foot of the jib shall have a maximum of 80mm round.
 - iv. As many as 3 battens are allowed and not more than 20mm in width each.
 - v. The leech shall be in no place convex.
 - vi. Zips, Velcro and sleeve luffs are allowed.
 - vii. The headsail shall be carried on the forestay. The tack shall not extend more than 500mm below the intersection of the forestay with the forestay strops. A device shall be used to prevent adjustment of the tack below this point.
 - viii. Chaffing patches in addition to ISAF sail measurement instructions (1986) 1, 3, 4 are permitted from the leech to include the area where the diamond wire could touch the sail.
 - ix. The jib shall carry at least one transparent window of a size not less than 300mm x



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- 400mm. The area of 300mm x 400mm shall be below 1000mm from the foot of the sail.
- d. Mainsail
- i. The "Head" shall be the top of the sail. The "Head Point" shall be the intersection of the luff and the head, each extended as necessary. The "Tack Point" shall be the intersection of the foot and the luff, each extended as necessary. The "Clew Point" shall be the intersection of the foot and the leech, each extended as necessary. The "Aft Head Point" shall be the intersection of the leech and the head.
 - ii. The mainsail shall be set within the edges of the measurement bands on the mast. There shall be a mechanical stop to prevent the tack coming below the upper edge of the lower measurement band.
 - iii. The sail shall be loose footed.
 - iv. The foot, when smoothed out for measurement, shall not be convex.
 - v. The main may carry a maximum of 10 battens. These battens shall not exceed a width of 30mm or protrude more than 100mm beyond the leech of the sail.
 - vi. The battens shall have no moving parts.
 - vii. The battens shall not incorporate carbon fiber.
 - viii. The distance from the head to the clew shall be not more than 8700mm.
 - ix. The headboard shall not exceed 220mm in any direction.
 - x. The leech shall be straight or concave between the batten pockets. Any hollows in the leech in way of width measurement points shall be bridged with straight lines for measurement.
 - xi. The head of the sail shall be straight with a maximum dimension of 800mm measured between the head point and the aft head point. The aft head point shall not be above the head point.
 - xii. At a point 1300mm down the luff from the head, the nearest point on the leech shall not be more than 1270mm distance, measured to include the boltrope.
 - xiii. At the quarter, half and three quarter leech points the nearest point on the luff shall be not more than 2260mm, 2000mm and 1500mm distance respectively measured to include the bolt rope. The half leech point shall be found by folding the head to the clew and smoothing the sail flat. The quarter and three quarter leech point shall be found by folding the clew and the head to the half leech point and smoothing the sail flat.
 - xiv. From the clew point the nearest point on the luff shall not be more than 2355mm.
 - xv. The mainsail shall be hoisted in the integral luff groove of the mast extrusion and shall not be fitted with a sleeve or double luff or other fairing device.
 - xvi. The mainsail shall carry a window of not less than 300mm x 800mm and to be positioned no higher than 1500mm from the foot of the sail.
- e. Spinnaker
- i. The spinnaker shall be set between the mast and bowsprit. The sheeting position is optional.
 - ii. The tack shall be the intersection point of the luff and the foot. The clew shall be the intersection point of the leech and the foot. The head shall be the intersection of the luff and the leech.
 - iii. The luff measured from the head to the tack point shall not exceed 9150mm. The foot, measured from the tack to the clew points, shall not exceed 4250mm. The leech, measured from the head to the clew, shall not exceed 8050mm.
 - iv. At a point half way between the tack and the clew measured to the head of the sail shall not exceed 8750mm.
 - v. The mid-girth measurement shall not exceed 3450mm. The midpoints shall be



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determined by folding the head to the tack to establish mid luff and head to the clew to establish mid leech.

- vi. Spinnaker cloth shall be limited to the use of nylon and polyester fabrics only.
- vii. When measured and found to be in accordance with these rules, the sails shall be legibly and permanently endorsed with the date of measurement and the measurer's signature. New or substantially altered sails shall be measured by a recognised measurer.

18. Mainsheet

A mainsheet traveller system is permitted if the traveller runs in a substantially straight line vertically and horizontally along the rear beam only. The track shall be considered to be substantially straight if it departs from a straight line by not more than 10mm.

19. Bowsprit

- a. The bowsprit shall be attached to the main beam either on the front edge or the underside at the centre of the beam.
- b. The bowsprit shall be fixed in a fore aft position and stayed from the Spinnaker tack block position and it's mid-section to the hulls. It shall not be adjusted while racing.
- c. The bowsprit shall be no less than 38mm in diameter.
- d. The bearing surface of the tack lead pulled tight with the halyard shall be no more than 4000mm from the forward edge of the main beam. This will be measured with the bowsprit fitted to the boat in its normal sailing position.
- e. Spare number
- f. The bowsprit, fasteners, tack block, halyard/tackline block, internal tack line and brace stays shall weigh no less than 2.2kg. Snuffers, snails, socks or any removable parts not normally part of the bowsprit structure should not be included in the minimum weight of the bowsprit.
- g. The forward end of the bowsprit shall be plugged or capped, and blunt to prevent personal injury.

20. Miscellaneous

- a. No hiking aid shall be allowed except for foot loops, toe straps, trapeze gear, and any line for retaining crew position on the boat. At least one foot of each crewmember using the trapeze gear must be in contact with the boat.
- b. Trapeze gear worn by the crew and/or helmsman shall be buoyant.
- c. The following are prohibited: Foresail booming out spars, foresail booms, boom vangs or kicking straps, hydrofoils, outriggers, ballast, suction bailers, keel bands except in way of centreboard slot, rubbing strakes, spray deflectors, chines, and any projection from the skin other than normal fittings.
- d. Electronic devices that provide timing and heading memory but which do not transmit or receive data are permitted.
- e. Emergency Position Indicating Radio Beacon (EPIRB) devices are permitted. Other electronic devices are prohibited.

21. Equipment

The following equipment shall be carried on board whilst racing:

- i. A lifebuoy or personal buoyancy for each member of the crew.
- ii. An anchor is not required unless so specified in the Sailing Instructions, in which cast it shall be of not less than 2.5kg weight with not less than 30 metres of line. A paddle is not required unless so specified in the Sailing Instructions, in which case it shall be not less



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than 1000mm long.

22. Persons on board

The crew (including helmsman) shall consist of two persons.

Official Plans

The set comprises:

- 1b Construction details (1 May 1968 amended 19 September 1968 and September 1975).
- 2b Panel offsets and deck jig (2 April 1968 amended 27 February 1968 and September 1975).
- 3b Details of fittings (10 March 1968 amended 19 September 1968 and September 1975).
- 4a Bulkheads, rudder and daggerboard (4 April 1968).
- 5a Sail shape (7 May 1968 amended September 1975).
- 6a Details of stitch and glue (15 April 1968 amended September 1975).

Official Templates

The set comprises:

- Bow template 0, 1, 2, 3.3, 4.2 and 5 hull templates
 - Centreboard template
 - Rudder template
 - Deck camber template
- ISAF Limited, Effective: 1st March 2003*