

International FIREBALL Class Rules

Authority:- I.Y.R.U. HOLDINGS LTD., 5 BUCKINGHAM GATE, LONDON, S.W.1.

Date of International Status *August 21st 1970*

1. GENERAL

- (a) The object of the International Fireball Class Rules is to establish the Class as one in which all matters affecting performance are strictly controlled. Enough latitude is permitted to maintain interest in fitting out, maintaining and racing the boats.
 - (b) The official language of the Class is English, and in the event of dispute over interpretation the English text shall prevail.
 - (c) In the event of discrepancy between the rules and the measurement form the rules shall take precedence.
 - (d) For major international events after 1 January 1974 all boats shall comply with the current rules applicable to new boats.
 - (e) The I.Y.R.U. accepts no legal responsibility in respect of the rules or any claim arising therefrom.

...the National Authority does not wish to administer the Class, its function as

INTERNATIONAL FIREBALL CLASS

The following amendments shall be effective from 1st March 1971:

Rule 7(a)(iii)

Line 4 delete "shell".

Rule 7(d)(ii)

Insert after first paragraph "A spinnaker launching tube may be fitted into the forward buoyancy compartment for the sole purpose of setting and stowing a spinnaker. The under-deck part of the tube shall not cross the centre line of the boat. The entire unit shall be fitted so that the forward buoyancy compartment remains watertight."

Rule 7(j)

Delete final sentence and insert "The pivot shall be fitted passing through the centreboard pivot hole"

Rule 7(n)

Delete penultimate sentence and insert "The unfaired length of the bottom rails shall have level bottom surfaces to which the flat surfaces of protection strips shall be fastened"

Rule 7(e)

Delete "407 mm. above the point of the bottom panel, 4760 mm. from station O" and insert "419 mm. above the intersection of the outer face of the bottom panel with the forward face of the bow transom".

Rule 7(e) D

Delete "138 mm" and insert "137 mm" in the following text phrases and table cells on the other hand.

Rule 10(d)

Delete "3.5 kg." and insert "3 kg."

Rule 17(b)(viii)

Delete "2500 mm" and insert "3550 mm".

Rule 30(a)

20(a) Delete "for one person" and insert after "between" "to" to read "between or to one or more persons."

Rule 34

Figure 24
Delete “or animals in motion, etc.”

- (a) No boat shall be allowed to race in the Class unless it has a valid measurement certificate.
 - (b) A measurement certificate shall be issued by the National Authority on receipt from the owner, or his representative, of:
 - (i) Two copies of a correctly completed measurement form—see Rule 5.b.
 - (ii) The registration fee, if any, required by the National Authority.
 - (iii) Alternative names for the boat, from which the National Authority shall select one which is not duplicated in that country.
 - (c) Change of ownership shall invalidate the measurement certificate but shall not necessitate remeasurement. The new owner shall apply to the National Authority for a new measurement certificate, returning the old one, together with the registration fee (if any), and necessary particulars.
 - (d) The National Authority shall send a duplicate copy of each measurement certificate issued and measurement form approved to Fireball International which will enter the boat in the Class Register.
 - (e) Notwithstanding anything contained in these rules, the I.Y.R.U. or National Authority shall have the power to refuse or withdraw the measurement certificate of any boat.
 - (f) The measurement certificate is only valid if the owner is a paid up member of a recognised Fireball Association.

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- (c) In the event of discrepancy between the rules and the measurement form the rules shall take precedence.
- (d) For major international events after 1 January 1974 all boats shall comply with the current rules applicable to new boats.
- (e) The I.Y.R.U. accepts no legal responsibility in respect of the rules or any claim arising therefrom.
- (f) 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 Fireball International or its delegated representatives (National Associations).

2. BUILDERS

- (a) Professional builders of the International Fireball shall be only those holding a licence under the copyright of the International Fireball and registered by the I.Y.R.U.
- (b) Additional professional builders may be licensed (in accordance with the terms of agreement between the I.Y.R.U. and the Sponsors, Norris Brothers Ltd, Burrel Road, Haywards Heath, Sussex, England, with the support of the National Authority and at the recommendation of Fireball International, provided that a requirement can be shown for an additional source.
- (c) An amateur is authorised to build one only International Fireball per annum. The boat shall be registered in the name of the builder and shall not be transferred to other ownership within 6 months, without prior permission from Fireball International.
- (d) Professional builders shall be responsible for supplying boats within the measurement rules and specifications. The builder shall at his own expense correct or replace any boat which fails to pass measurement and failure to do so can be cause for cancellation of his licence. The responsibility for ensuring the continuing validity of the boat's certificate shall rest with the owner.

3. BUILDING FEE

- (a) The building fee is £10.50, or its equivalent in other currencies.
- (b) (i) The building fee shall be based on 3% of the U.K. professional builders' average retail price of the complete boat in the U.K. market, excluding sails. This fee includes the Designer's and Sponsor's fee of $\frac{1}{8}\%$ each or together, the Fireball International Association administration fee of $\frac{5}{8}\%$ and the I.Y.R.U. administration fee of $\frac{1}{2}\%$.
(ii) The amount of the building fee shall always be assessed on the above basis and will be reviewed every other year.
(iii) The Sponsor shall be responsible for the collection and distribution of building fees on the above basis.
- (c) (i) Professionally built boats and kits.
The building fee shall be payable by the Builder whether or not the boat is subsequently measured and registered. Payment shall be made direct to the Sponsor at his U.K. address, who will issue a registration plaque and building fee receipt, both of which shall be handed to the owner on sale of the boat or kit. A sail number will only be issued by the National Authority on presentation of the building fee receipt (or plaque).
(ii) Amateur built boats (from plans)
The building fee shall be payable on completion of the boat whether or not it is subsequently measured and registered. Payment shall be made to the National Fireball Association who will issue a registration plaque and building fee receipt, and measurement forms (in duplicate). A sail number will be issued by the National Authority on presentation of the building fee receipt (or plaque).
- (d) Professional builders must complete the appropriate form in full when applying for the registration plaque. Amateur builders shall furnish the following details when paying the building fee: Name and address, whether or not a member of the Fireball Association, two proposed names for the boat.

4. REGISTRATION

- (a) No boat shall be allowed to race in the Class unless it has a valid measurement certificate.
- (b) A measurement certificate shall be issued by the National Authority on receipt from the owner, or his representative, of:-
 - (i) Two copies of a correctly completed measurement form—see Rule 5.b.
 - (ii) The registration fee, if any, required by the National Authority.
 - (iii) Alternative names for the boat, from which the National Authority shall select one which is not duplicated in that country.
- (c) Change of ownership shall invalidate the measurement certificate but shall not necessitate remeasurement. The new owner shall apply to the National Authority for a new measurement certificate, returning the old one, together with the registration fee (if any), and necessary particulars.
- (d) The National Authority shall send a duplicate copy of each measurement certificate issued and measurement form approved to Fireball International which will enter the boat in the Class Register.
- (e) Notwithstanding anything contained in these rules, the I.Y.R.U. or National Authority shall have the power to refuse or withdraw the measurement certificate of any boat.
- (f) The measurement certificate is only valid if the owner is a paid up member of a recognised Fireball Association.

5. MEASUREMENT

- (a) *This is a one-design Class. Measurement tolerances are intended to allow for genuine building errors only and shall not be deliberately used to alter the design. Measurement shall be carried out using these rules. The measurer shall report on the Measurement Form anything which he considers to be a departure from the intended nature and design of the boat, or to be against the general interest of the class, and a certificate may be refused, even if the specific requirements of the rules are satisfied.*
 - (b) *Only an official measurer appointed by the National Authority, and approved by it to measure International Fireballs, may measure a boat and sign the declaration on the Measurement Form that it complies with the Class rules. Payment for the measurer's services is the responsibility of the owner.*
 - (c) *A measurer shall not measure a boat owned or built by himself, or in which he is an interested party or has a vested interest.*
 - (d) *It is the responsibility of the owner to ensure that the boat is correctly measured and to ensure that it thereafter complies with the Class rules*
 - (e) *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.*
 - (f) *A certificate may be invalidated by structural alterations, replacements which affect measurement, or repair of the boat, until the boat has been re-measured in respect of the affected parts by an official measurer and found correct.*
 - (g) *All sails shall be measured and registered on the measurement certificate—see Rule 17.a.*
 - (h) *All new boats and sails shall comply with the current rules. Old boats and sails shall comply with either the current rules or with the corresponding rules applying to them at the time they were first granted a certificate, except that the rules printed in italics and relaxations in the current rules shall apply to all boats, and that old sails shall measure under a single set of rules. Any alterations or replacements which affect measurement shall comply with the current rules.*

6. RECOGNITION MARKS

- (a) The registration plaque shall be fixed conspicuously inside the cockpit of all boats registered after 21 August 1970. It shall not be removed during the life of the boat.
 - (b) The sail numbers, national letters and class emblems shall be placed on both sides of the mainsail. Sail numbers only shall be on both sides of the spinnaker. See Rule 17 (e and f).
 - (c) The boat's sail number shall be cut approximately 2 mm deep into the thwart in figures which are not less than 25 mm in height.

7. HULL

All measurements referred to the aft transom shall be taken to the bottom of the aft face of the aft transom at centreline: (station O).

- (a) **Constructional Materials**

 - (i) The following to be of marine grade plywood of nominal thickness not less than 6 mm. The thickness shall not be less than 5·4 mm after sanding and scraping.
 - Centre bottom panel
 - Bilge panels
 - Centreboard case sides
 - (ii) The following to be of marine grade plywood of nominal thickness not less than 4 mm. The thickness shall not be less than 3·6 mm after sanding and scraping.
 - Topsides
 - Bulkheads
 - Tanksides
 - Decking
 - (iii) Glass Reinforced Plastics (G.R.P.) may be used as a constructional material as an alternative to or in conjunction with timber or plywood. The hull shell comprising bottom panel, bilge panels, topside panels, and aft and bow transom shall, if produced in G.R.P., only be produced from certified hull moulds supplied to the licensed builders with the agreement of the Sponsor. All other moulds for the completion of the hull shell in G.R.P. may be produced by the licensed builder, providing that the mouldings produced therefrom conform to the Class rules. The hull, when in the same condition as described in rule 7.c., shall have a fore and aft centre of gravity of 2286 mm plus or minus 229 mm measured from the aft transom along the bottom rails. The position shall be determined by balancing the hull when upright with its weight taken across the bottom rails and resting on a wood or metal roller placed athwartships of the centre line of the boat. No attempt shall be made to concentrate the weight near mid-length.

- (b) Length and Beam**

The overall length from aft transom to forward edge of bow transom, excluding bow protection strips, shall be 4928 mm \pm 13 mm between perpendiculars. The maximum beam excluding gunwale shall not be greater than 1359 mm. The distance from the aft transom to the bottom edge of the bow transom shall be 4762 \pm 25 mm.

- (c) **Weight**

The hull when painted and complete with all fixed fittings and toe straps, but less centreboard, shall weigh not less than 79.4 kg. The initial weighing, or any reweighing for the purpose of changing correctors shall be done either:

1. Before the boat is launched for the first time.
or 2. Provided the boat has been kept out of water, in a dry condition, with hatch covers removed, and cover off for at least 14 days.

If a boat is found to be under weight at the time of measurement, correcting weights shall be fitted to bring the boat up to the minimum permitted weight. The combined weight of the correctors shall not exceed 4.5 kg. The correctors shall be fixed at the level of the underside of the thwart in a visible position. The total weight of the correctors shall be shown on the measurement certificate. No correctors shall be removed or altered without the boat being reweighed by an official measurer.

11. WEAR AND DAMAGE

On a check remeasurement at a Regatta the Race Committee or Jury may allow additional tolerance for obvious wear or damage on wooden or G.R.P. parts.

12. MAINSHEET

The points of attachment or lead of the standing part of the mainsheet to the boat, whether fixed or moveable, shall be contained within the areas defined below or the vertical extensions thereof:

- (a) The area contained by the forward face of the aft bulkhead, the forward edge of the thwart and the inboard faces of the tanksides.
- (b) The area contained by the forward face of the aft bulkhead, the outer edges of the gunwale rubbers and an imaginary line 25 mm aft of and parallel to the aft face of the aft transom.

13. MAST

- (a) Shall be of aluminium alloy, steel or wood and stayed by one pair of shrouds and one forestay only. The mast shall be free from staying or bracing above a point 5166 mm from the heel.
- (b) The mast may be braced by one pair of spreaders going to the shrouds or one pair of diamonds, or both.
- (c) When stripped of standing and running rigging, but complete with all fixed fittings and bracing if fitted, the weight of the mast shall not be less than 8 kg.
- (d) The centre of gravity of the mast when rigged as described in 13(c) shall not be less than 2743 mm from the heel excluding tenon.
- (e) Permanently bent or rotating masts are prohibited. A permanent set of up to 40 mm due to deformation is permitted in the line of the aft edge of the mast from upper band to heel when rigged in the boat without tension in the shrouds or bracing.
- (f) The bearing point of the eye, tube or sheave which supports the spinnaker halyard shall not be higher than 125 mm above the bottom edge of the middle mast band, nor extend more than 75 mm from the forward face of the mast.

14. BOOM

- (a) Shall be of metal or wood, and not permanently bent. A permanent set of up to 20 mm due to deformation is permitted in the line of the top of the boom.
- (b) Booms shall pass through a ring of 105 mm diameter. Fixed fittings serving solely to attach sheets, outhaul, kicking strap and spinnaker pole to the boom are excluded from having to pass through the 105 mm ring.

15. MAST BANDS

- I = 16.64
to bottom of
mast*
- 5715 = 18'9"*
- (a) The mast shall carry three painted bands of a colour strongly contrasting with the colour of the mast. They shall not be less than 10 mm in width.
 - (b) The top of the lower band shall not be more than 1029 mm above the heel of the mast, tenon excluded. When racing the top of the boom shall not come below the top of the lower band.
 - (c) The lower edge of the middle band shall not be more than 5064 mm nor less than 5074 mm above the heel of the mast, tenon excluded. The line of the luff of the foresail, when extended, shall not meet the forward side of the mast above this height. The points where the lines of the shrouds and of the forestay when extended meet the mast shall be within 80 mm of the lower edge of the middle band.
 - (d) The lower edge of the upper band shall not be more than 5715 mm above the top edge of the lower band. When racing, no part of the mainsail shall extend above the lower edge of this band.

16. BOOM BAND

2845 = 9'4"

The boom shall carry a painted band of a colour strongly contrasting with the colour of the boom. The band shall not be less than 10 mm wide. With the boom fitted on the gooseneck and at right angles to the mast, the distance between the downward projection of the aft edge of the mast, disregarding local projections or cut outs, and the forward edge of the band shall not exceed 2845 mm. When racing, no part of the mainsail shall extend aft of the forward edge of this band.

17. SAILS

- 6325 = 20'9"*
- (a) (i) Sails shall be measured in accordance with the Sail Measurement Instructions of the I.Y.R.U. unless the Class rules specify a different method.
 - (ii) Each sail shall be passed by an official measurer who will sign and date it on the tack. Details (maker and number) shall be entered on the measurement certificate. When the owner already has a certificate this shall be done by the official measurer.
 - (iii) Sails shall be of woven material and be capable of being stowed completely in a normal sail bag. Sails used in International Championships shall comply with the current rules with no exceptions under rule 5(h).
- (b) **Mainsails**
- (i) The leech measurement shall be not greater than 6325 mm. The measurement to be taken as the distance between the lowest point of the sail, including the bolt rope, directly under the centre of the clew cringle and top forward corner of the headboard. For the purposes of this rule, the top forward corner of the headboard is defined as the point level with the topmost part of the sail, headboard included, and 20 mm aft of the aft edge of the luff rope or its extension.

- $2500 = 8' 2.42''$
 $1956 = 6' 5''$
 $1168 = 3' 9.98''$
- $155 = 6.10''$
 $160 = 6.299''$
 $1168 = 45.98''$
 $1257 = 49.48''$
- $285m = 11.29 \text{ inches}$
- (ii) The cross measurement of the sail shall not exceed the following:
at quarter height —2500 mm; applicable from 1 January 1971.
at half height —1956 mm.
at three quarter height—1168 mm.
- (iii) Cross measurement shall be measured as follows: the mid point of the luff shall be determined by folding the sail upon itself with the top forward corner of the headboard even with the lowest edge of the bolt rope at the tack. The mid point of the leech shall be determined in similar fashion, with the headboard folded down to the lowest point of the bolt rope at the clew. The half height cross measurement shall be the distance between the halfway points of the luff and leech with the sail laid on the floor with just sufficient tension to remove the wrinkles. The bolt rope shall be included. Three quarter and quarter height cross measurements shall be determined in a similar way by folding a second time. In determining cross measurements, any hollows in the leech shall be bridged by straight lines.
- (iv) Where the tack of the mainsail cannot be clearly defined, the mid point of the luff shall be found by stretching the full length of the luff, under sufficient tension to remove wrinkles, and measuring from the head along the luff a distance equal to half the measurement between the inner edges of the coloured bands on the mast, (as shown in the measurement form or certificate of the yacht). Quarter and three quarter points on the luff shall be determined by measuring from the head, using the coloured bands, in a similar manner.
- (v) The headboard shall not extend more than 155 mm aft of the point defined as the top forward corner of the headboard in (i) above nor exceed 160 mm in overall depth.
- (vi) The number of battens in the mainsail shall be four; the top batten not to exceed 1168 mm in length and to go to the mast. The distance of the top of the upper batten at leech from the top forward corner of the headboard shall not be less than 1257 mm. The bottom batten shall not exceed 686 mm in length and from 1 January 1971 shall nowhere be less than 800 mm from the bottom edge of the footrope. The two intermediate battens shall not exceed 838 mm in length. The battens shall not exceed 51 mm in width.
- (vii) One transparent panel may be fitted in the mainsail. It shall not exceed 0.28 sq. m in area, nor be less than 150 mm from any edge of the sail.
- (viii) A double luffed or loose footed mainsail is prohibited.

(c) Foresail

- $4320 = 14' 2''$
 $1525 = 5'$
 $155 = 6.10''$
- 1956
- The foresail shall be a three cornered sail. A convex curve is permitted in the foot, but not in the leech. Only one cringle, eye or ring is permitted in the vicinity of the clew.
- (i) The length of the luff shall not exceed 4320 mm. The measurement shall be taken from the lowest point of the sail cloth at the tack to the highest point of the sail cloth on the luff wire at the head.
- (ii) The diagonal measurement shall not exceed 1525 mm. The measurement shall be taken from the outside edge of the sail at the intersection of the leech and the foot to the nearest point on the outside of the luff.
- (iii) The maximum roach on the foot shall not exceed 155 mm. The maximum roach shall be measured from a straight line taken from the lowest point of the luff to the lowest point of the leech.
- (iv) No battens or other form of stiffening are allowed in the foresail other than reinforcing patches made of similar material to that of the sail.
- (v) One transparent panel may be fitted to the foresail. It shall not exceed 0.28 sq. m in area, nor be less than 150 mm from any edge of the sail.
- (vi) The luff of the foresail shall not enclose the forestay.

(d) Spinnaker

- $14' 3.24''$
 $16' 8.76''$
 $4' 11''$
 $5' 10.8''$
 $4' 11''$
 $20''$
- (i) The spinnaker shall be a symmetrical three cornered sail. No headboard, battens or other stiffening device, other than normal woven cloth reinforcing is allowed.
- (ii) When measuring, the sail shall be folded in half with the tack and clew laid on top of each other, and laid on the floor as flat as possible with just sufficient tension to remove wrinkles along the luffs, the middle fold and the foot of the sail.
- (iii) The length of the luffs shall not exceed 4350 mm—this shall be the distance between the highest point of the sail and the lowest point of the sail directly below the centre of the tack or clew cringles, measured round the edge of the luff.
- (iv) The length of the middle fold of the sail shall not exceed 5100 mm—this measurement shall be the distance between the highest point of the sail and the middle of the foot measured round the middle fold of the sail.
- (v) The half width of the foot shall not exceed 1500 mm—this measurement shall be taken round the edge of the sail from the lowest point of the sail directly below the centre of the tack and clew cringles to the lowest point of the middle fold.
- (vi) The half width shall at no point exceed 1800 mm—this measurement shall be taken at right angles to the luff.
- (vii) The half height/half width measurement shall not be less than 1500 mm—this measurement shall be found by laying the highest point of the sail directly below the centre of the tack and clew cringles. The resulting fold at half height must be made free of wrinkles and the measurement be taken round the edge of the fold.
- (viii) Where the clew and the tack cringles are fixed outside the edges of the sail, the point of measurement shall be the intersection of the lines drawn along the edges of the luffs and the foot of the sail.
- (ix) Only one spinnaker may be carried in the boat.

(e) Insignia

The Fireball Class Insignia shall be two red discs 510 mm in diameter \pm 13 mm and placed back to back on the mainsail, above the racing numbers.

(f) Racing Numbers

Sails shall carry racing numbers complying with I.Y.R.U. Rule 25.

$838 = 33$
 $686 = 27$
 $51 = 2$

(d) Watertight Compartments

- (i) The forward face of the aft bulkhead shall be 762 mm \pm 13 mm from the aft transom.
The aft face of the forward bulkhead shall be 3200 mm \pm 13 mm. from the aft transom.
The width between the inboard faces of the tanksides at:
(1) Aft face of the forward bulkhead shall be 946 mm \pm 13 mm.
(2) Forward face of the aft bulkhead shall be 889 mm \pm 13 mm.
- (ii) Two spinnaker boom storage tubes, not exceeding 80 mm internal diameter, may be fitted. They may only be fitted into the forward and aft watertight compartments, provided that they are sealed to prevent water entering the watertight compartments.
Not more than two drainage tubes of not more than 26 mm internal diameter may be fitted through the aft bulkhead and the aft transom, provided they are effectively sealed to prevent water entering the watertight compartments. Not more than two drain sockets may be fitted to each watertight compartment.
At least one, but no more than two removable hatches shall be fitted to each compartment to allow access. The opening provided shall not be less than 85 mm in diameter. The hatches shall be in the cockpit sides, bulkheads or the aft transom.
- (iii) With hatches and drain socket bungs in place, the forward and aft bulkheads, tanksides, hull and decking shall form four separate and properly sealed off watertight compartments which shall be effectively watertight when racing.
- (iv) Except for normal fastenings and the items listed in (ii) above, no holes, tubes or concavities shall be made in the constructional surfaces of the watertight compartments.
- (v) G.R.P. boats shall have rigid non-communicating air cell foam plastics attached to the underside of the decking in each of the side tanks.
Boats with G.R.P. decks shall carry 0.043 cu. metre each side
" " wooden decks " " 0.035 " " "

(e) Tanksides

Each tankside shall run in a straight line, with a deviation not exceeding 8 mm, between the bulkheads when viewed in plan, and the face of the tank shall not deviate from the vertical by more than 8 mm in the height of the tank when measured at the forward and aft bulkheads.

(f) Decking

The decking at sides shall be fastened to the top of the gunwale and shall form the top of the buoyancy compartments.

Measured down the centreline of the forward bulkhead, the height of the crown of the foredeck above the inside of the centre bottom panel shall be 533 mm \pm 13 mm. Measured down the centreline of the aft bulkhead, the height of the crown of the aft deck above the inside of the centre bottom panel shall be 365 \pm 13 mm.

The foredeck centreline shall be a convex curve.

The height of the inboard edges of the side decks shall be measured by placing a straight edge athwartships resting on the side decks and measuring the height of the straight edge from inside the bottom panel.

At aft bulkhead this height shall not be less than 280 mm. At 1980 mm forward of aft bulkhead, this height shall not be less than 406 mm. Between these measurement points the highest part of the side decks when viewed from the side shall run in a straight line or a single convex curve. The radius of the join between the tanksides and side decks shall not exceed 19 mm.

(g) Transoms

The measurements shall conform to Dimension Sheet One and be within the stated tolerances.

The overall depth of the aft transom, measured down the aft face and including the thickness of the decking and the centre bottom panel shall be 254 mm \pm 13 mm.

With the boat set up as required in rule 7(o), the aft transom shall not depart more than 8 mm from the vertical.

(h) Hull Sections

The measurements shall conform to Dimension Sheet One and be within the stated tolerances.

The position of the intermediate sections shall be established by measuring with a tape lying along the bottom panel.

When a straight edge is placed upon either topsides, side decks, bilge panels or centre bottom panels in the same plane as the sections, no part of the surface shall be further away from the straight edge than 3 mm.

(i) Centreboard Case Slot

The slot shall not exceed 30 mm in width. The sides of the slot opening in the bottom of the boat may be radiused. Slot closure strips are permitted.

(j) Centreboard pivot

The pivot shall be centred 70 mm \pm 7 mm above the outside of the centre bottom panel, and 2698 mm \pm 26 mm from the aft transom measured along the bottom. The pivot shall be fitted passing through the centreboard pivot hole and holes, not exceeding 16 mm in diameter, in the sides of the centreboard case.

(k) Mast Step

The mast shall be stepped on top of the spur at the forward end of the centreboard case. The depth of the spur above the outside of the centre bottom panel shall be at least 135 mm. The height of the heel of the mast above the outside of the centre bottom panel shall not exceed 165 mm, tenon excluded, when the mast is positioned 75 mm from the forward bulkhead.

(l) Gunwale Rubbers

The outer edges of these shall not extend more than 38 mm nor less than 6 mm from the outside of the hull when measured at 90° to the face of the topsides. The gunwale rubbers shall extend the full length of the gunwales but may be rounded off at the extreme ends. The depth of the gunwales at the face of the topsides shall not exceed 30 mm nor be less than 15 mm.

(m) **Chine Deflectors**

These shall be triangular in section with the outboard face flush with the topside and the upper face flush with the surface of the bilge panel. The deflectors shall extend forward of the aft transom for at least 3860 mm.

The dimensions shall be within the limits stated below, except that for a distance not exceeding 305 mm from the forward end, the deflectors may be faired into the hull:

Width of upper face 32 mm \pm 2 mm.

Overall depth measured at 90° to the plane of the bilge panel: 6 mm minimum, 11 mm maximum.

(n) **Bottom Rails**

The outboard face of each rail shall be at 90° to the plane of the centre bottom panel and lie on the knuckle formed between the centre bottom panel and each bilge panel. The bottom rails shall extend forward of the aft transom at least 2820 mm. The forward 102 mm may be faired into the bottom of the hull. The bottom rails shall be 10 mm deep at the outboard edges and 32 mm wide. Both these dimensions shall have tolerance of \pm 2 mm. The unfaired length of the bottom rail shall have a level bottom surface to which the flat surface of the protection strip shall be fastened. The protection strips shall be metal or plastic and of segmental section at least 3 mm deep and 8 mm wide.

(o) **Rocker**

With the boat upside down and the transoms supported on blocks of equal thickness on a level surface, a base line shall be set up directly above the centreline. One end shall be 305 mm above station O. The other end shall be 407 mm above the point on the bottom panel 4760 mm from station O.

In this rule, all measurements from the aft transom (station O) shall be measured along the bottom surface of the boat at centre line.

At the following distances from the aft transom:

- A 765 mm
- B 1580 mm
- C 2390 mm
- D 3208 mm
- E 3975 mm

The vertical distance from the baseline to the centre bottom panel shall be within \pm 8 mm of:

- A 231 mm
- B 164 mm
- C 125 mm
- D 138 mm
- E 229 mm

A line pulled taut between the ends of the centre bottom panel shall in no place be more than 3 mm from the skin.

(p) **Thwart**

The thwart shall be of solid timber, 114 mm \pm 6 mm wide and 16 mm \pm 2 mm thick. Solid plywood or laminated timber is also permitted. The radius of the edges of the thwart shall not exceed 16 mm. The thwart shall be fitted with its forward edge 2134 mm \pm 13 mm from the aft transom. The height of the top of the thwart above the centre bottom panel or its extended plane, shall nowhere be less than 250 mm.

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4566*
8. SHROUD AND FORESAIL TACK POSITIONS

The lower ends of the shrouds and their associated fittings shall only be attached to the shroud plates which shall be fixed to the outside of the hull and have attachment holes not exceeding 10 mm in diameter. The centres of these holes shall be not more than 2693 mm nor less than 2641 mm forward of the aft transom. The distance between them shall be 1321 mm \pm 13 mm. The attachment hole for the foresail tack shall not exceed 10 mm in diameter. It shall be 4566 mm \pm 13 mm forward of the aft transom.

The forestay shall be attached on the centreline of the foredeck not more than 51 mm from the point of attachment of the foresail.

9. CENTREBOARD

(a) *The centreboard shall be of solid timber; solid plywood or laminated timber is also permitted. Protective strips may be applied to the edges.*

(b) *The profile of the board, including any protective strips, shall be measured according to the Centreboard Profile Sheet. Measurements A, B and C are taken at 90° to the leading edge at the stated distances from the centre of the pivot hole. They shall be within the limits of measurement given on the Centreboard Profile Sheet.*

The leading and trailing edges of the centreboard between the points of measurement for A and B shall not deviate from straight lines by more than 6 mm.

The bottom part of the centreboard shall be within the area bounded by the lines PQ, QR and RS, where PQ and RS are straight extensions of the leading and trailing edges respectively and the angle PQR is 65 degrees.

The distance PQ shall be 177 mm. Point P is where line B cuts the leading edge. The pivot hole centreline is drawn through the centre of the pivot hole and parallel to the leading edge. The diameter of the pivot hole, whether bushed or not, shall not exceed 16 mm.

(c) *When complete with any friction device the centreboard shall weigh not more than 9 kg.*

10. RUDDER

(a) *The rudder blade shall be of solid timber; solid plywood or laminated timber is also permitted. Protective strips may be applied to the edges.*

(b) *The rudder blade below the waterline shall not exceed a thickness of 25 mm when complete with its protective coating.*

(c) *The rudder shall be fitted to the transom in such a manner that it will not part company with the boat during a capsize.*

(d) *The weight of the complete rudder assembly including blade, fittings, tiller and extension, shall not be less than 3.5 kg.*

(e) *Except for the tiller and tiller extension, the assembly and fittings shall not exceed 100 mm in transverse width.*

18. SPINNAKER BOOM

- (a) When fixed to the mast the distance between the extreme outboard end, including fitting, and the nearest point of the mast, at the mast fixing attachment, shall not exceed 2025 mm.
- (b) The spinnaker boom, complete with fittings, shall be capable of passing through a ring 64 mm in diameter.
- (c) The spinnaker boom may be used as a jibstick.

19. CREW

The boat shall be raced by a crew of two persons.

20. TRAPEZE

- (a) Apart from the toestraps, which shall be contained within the cockpit area, and a trapeze for one person suspended from the hounds, no other means may be used to support the helmsman or crew outboard while racing.
- (b) One flexible footloop, not exceeding 300 mm in overall length, may be fitted to the gunwale on each side of the boat to support the crew. These loops shall not be used to support the crew's foot beyond the edge of the gunwale while racing.
- (c) A trapeze belt or harness shall not weigh more than 3.5 kg.

21. PROJECTIONS

Apart from bow protection strips, stern protection strip at deck level, chine deflectors, rudder fittings, horse, shroud plates, bottom rail protection strips, centreboard slot closure strip and protection strip, self bailers, normal transom drain sockets, gunwale rubbers, hatch covers in transom, deck projecting not more than 15 mm beyond the aft transom, no other form of projection or deflector shall be fitted to or through the outside of the hull shell.

22. SELF BAILERS

Two self bailers may be fitted. The total effective area of the bailing outlets shall not exceed 1290 sq. mm.

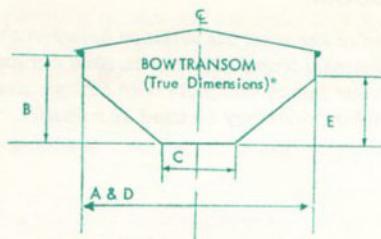
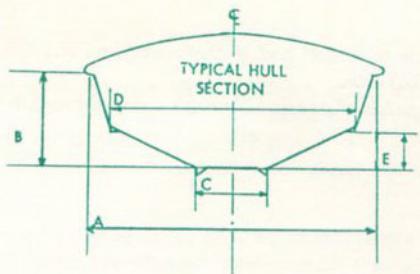
23. SHEET LEADS

No part of the foresail or spinnaker sheet leads shall project beyond the outside edge of the gunwale rubbers when viewed in plan.

24. PROHIBITIONS

The following are prohibited : underdeck jib furling gear, electrical or electronic instruments, advertisements as prohibited by I.Y.R.U. Rule 26, transom scuppers, lightening holes in thwarts, sheets or halyards or spinnaker launching tubes led through the watertight compartments, materials containing carbon fibres.

Rules effective from 21st August 1970. Printed 14th July 1970.



* True dimensions measured in plane of transom

Tolerance on all dimensions on this sheet ± 8 mm.

Boats first registered before 21 August 1970 are permitted ± 13 mm.

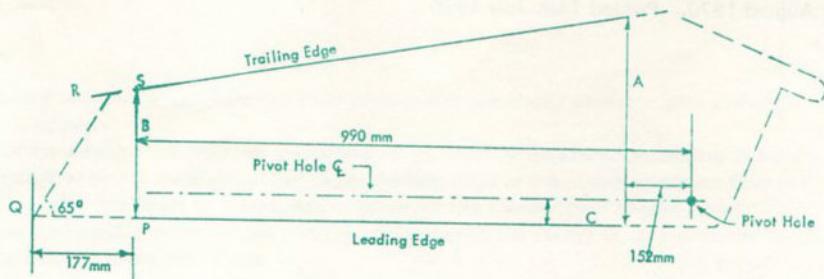
HULL SECTIONS	mm				
	A	B	C	D	E
After Transom	1060	155	343	1029	79
At 765 mm from aft face of aft transom	1206	241	390	1146	108
At 3208 mm from aft face of the aft transom	1225	365	375	1143	165

BOW TRANSOM	
	mm
A	400
B	165
C	165
D	400
E	140

- A. At underside of gunwale rubbers.
- B. Underside of gunwale rubber to outer face of bottom panel.
- C. At outer edges of bottom rails.
- D. To intersection of outer faces of bilge and topside panels
- E. Between outer face of bottom panel and lower outboard corner of chine deflectors.

DIMENSION SHEET ONE

LINE	MEASUREMENT	TOLERANCE
A	381 mm	± 10 mm
B	229 mm	± 10 mm
C	57 mm	± 13 mm



CENTREBOARD PROFILE SHEET