

# ZEPHYR CLASS RULES

April 1998

## 1 GENERAL

### 1.1 Name

The class shall be known as the Zephyr Class. The Zephyr is a one-design class.

### 1.2 Control

The class shall be administered by the Zephyr Owners' Association (ZOA) Inc.

### 1.3 Policy

1. It is the policy of the ZOA to restrict the hull form and sail plan, while allowing a certain freedom of finish and equipment, so as to ensure that all boats have the same potential speed.
2. It is impossible to define completely every aspect of the craft and thus any aspect deemed to be "not within the spirit of the class rules" may be cause for the refusal of a measurement certificate or for disqualification.
3. It is essential, should an owner wish to deviate from the norm, that an interpretation of class rules be requested in writing from the ZOA.

### 1.4 General

1. These rules consist of Part 1 General, Part 2 Restrictions, Part 3 Equipment, Part 4 Builder's Specifications, Finishing Plans, and the Measurement Form
2. In the event of a discrepancy between these rules, the measurement form and/or the finishing plans, the matter shall be referred to the ZOA.
3. All boats shall be built in accordance with the class rules.
4. Anything contrary to the spirit of these rules is not permitted.
5. Where doubt exists as to the validity of any matter, it should be referred to the Committee for decision. Where appropriate, the Committee shall have such questions decided by ballot in accordance with Part 1.9 of these rules.
6. Neither Yachting New Zealand (YNZ) nor the ZOA accept any legal responsibility in respect of these rules or any claim arising therefrom.

### 1.5 Definitions

1. Committee means the Committee of the Zephyr Owners' Association Inc.
2. Registered owners means current financial members of the Zephyr Owners' Association

### 1.6 Hulls

1. To maintain the one-design nature of the class, all hulls shall be built by a Builder approved by the Committee and in accordance with the current specifications and plans for the construction of Zephyr hulls.
2. All hulls shall be finished in accordance with Part 2 of these rules (Restrictions and Finishing Instructions for Hulls).
3. **Boats finished prior to January 1984 shall comply with the bracketed imperial dimensions, where given.**

### 1.7 Sails

1. All sails shall be made by a sailmaker approved by the Committee to the approved pattern and in accordance with the current specifications for the construction of Zephyr sails.
2. No alteration to sails shall be permitted apart from making good flaws during manufacture or for the purpose of making good shrinkage of bolt ropes.
3. All repairs shall be carried out by the sail manufacturer currently appointed for the manufacture of the sails or where sails are unable to be presented to the sailmaker so appointed, by such other maker as may be permitted by the Committee of the ZOA.
4. Owners shall purchase sails from the ZOA.

### 1.8 Equipment

All boats shall be equipped in accordance with Part 3 (Equipment) of these rules and the YNZ Safety Regulations Part 1.

## **1.9 Rule Changes**

1. No changes of rules or restrictions shall be made unless:
2. Notice proposing the change has been given to the Committee in writing and signed by six registered owners.
3. Details of such change, together with relevant details have been circulated to all registered owners, at least six weeks before the vote being taken.
4. The proposed rule change has been approved by two-thirds of the registered owners who have voted.
5. Where voting is being decided at a Special General Meeting called for the purpose, Registered Owners unable to attend may register their vote by mail or by proxy.
6. The proposed rule change will be effective only after approval by the YNZ.

## **1.10 Registration and Measurement**

1. From 1 October 1990, no boat is permitted to race in the class unless it has a valid measurement certificate.
2. A measurement certificate shall be obtained by the owner making application to the local measurer appointed by the Committee. The measurer will complete a measurement form and submit it to the Committee for approval. The Committee will then issue a measurement certificate to the owner.
3. Any peculiarities will be noted by the measurer on the measurement form.
4. Change of ownership invalidates the certificate but shall not necessitate re-measurement. The new owner may apply to the ZOA for a new certificate, returning the old certificate and stating the necessary particulars. A certificate shall be supplied to the owner.
5. It is the owner's responsibility to ensure that the boat, its spars, sails and equipment comply with the class rules at all times and that alterations or replacements to the boat, spars, sails or equipment do not invalidate the certificate.
6. Notwithstanding anything contained in these rules, the YNZ or ZOA shall have the power to refuse to grant a certificate to, or withdraw a certificate from, any boat.
7. Measurers shall not measure a boat, spars, sails, or equipment owned or built by them, or in which they have a vested interest.
8. Templates used for official measurements shall be supplied by the ZOA.
9. Measurement tolerances are intended to allow for genuine building errors only, and shall not be deliberately used to alter the design.
10. Measurers shall report on the measurement form anything that they consider to be a departure from the intended nature and design of the boat, or to be against the general nature of the class. A certificate may be refused even if the specific requirements of the rules are satisfied.
11. All boats, spars, sails and equipment shall comply with current rules applied to them at the time the current certificate was issued. Any alterations or replacements shall comply with the current rules.
12. All boats, spars, sails and equipment shall be liable to re-measurement at the discretion of the ZOA or the race committee,
13. Where these rules are silent on any point of measurement procedure, the International Sailing Federation measurement handbook shall be used.

## **1.11 Identification Marks**

All hulls shall have the registration number issued by the ZOA permanently marked on the keelson.

# **2 RESTRICTIONS AND FINISHING INSTRUCTIONS FOR HULLS**

## **2.1 Hulls**

1. Hulls shall be supplied with deck beams, gunwales, carlins, deckposts, centrethwart, centre case and mast step permanently fitted. Deckposts are optional where there is an immediately adjacent bulkhead. No alteration to the hull as supplied shall be permitted except as provided for herein.
2. The minimum weight of the hull, including all permanently attached fittings shall be 57kg. Permanently attached fittings include chainplates, rudder fittings, cleats and forestay fittings, compass, but exclude centreplate, rudder and all items which rotate with the rudder, blocks, shackles, lashings, sheets, stacking straps, pussy pads, gear bags. Internal ballasting is not permitted.
3. Hulls weighing less than the minimum weight are to be brought up to weight by the addition of lead. This additional weight shall be attached to the upper corners of the

outside face of the transom. Weights must be attached to the hull so as to be readily visible.

## **2.2 Deck**

1. The deck shall be of marine ply, not less than 4mm (3/16") thick and shall be glued down. Deck beams may be rounded to 5mm convex radius.
2. The decking shall completely cover, aft from the stemhead to the main deck beam, the side decks and aft deck. Apertures to a maximum of 20mm diameter shall be allowed, to accommodate the passage of control lines only.

## **2.3 Beadings**

1. Shall be fitted to the gunwales, carlins and main deck beams.
2. External beadings shall not be less than 10mm (3/8") thickness and must not extend more than 35mm (1 3/8") from the shell.
3. Internal beadings shall not be less than 3mm thick and 15mm wide.

## **2.4 Coamings**

1. Shall be set at 60 degrees plus or minus 10 degrees and shall be permanently fixed, on the centreline no further than 100mm (4") aft of the mast and no part shall extend more than 150mm ahead of the mast.
2. Shall be at a minimum height of 65mm from the deck in the mid line, and a minimum of 25mm high if projected to the gunwale.

## **2.5 Mast Hole Collar**

1. A mast collar not less than 20mm (3/4") high shall be permanently fixed to the deck.
2. The mast hole shall be 2625mm (8' 7.5")  $\pm$  10mm from the outside face of the tuck to the centre of the hole.
3. The hole shall be a 65mm (2.5") diameter circle  $\pm$  2mm.

## **2.6 Mast Step**

Maximum height 90mm (3.5") from keel to topside of step. Any fitting which stands more than 5mm above the timber step installed by the builder shall be added to the measured length of the mast.

## **2.7 Chainplates**

Chainplates shall be fitted with centre of shackle eye not more than 2371mm from the aft face of the transom.

## **2.8 Floor Battens**

1. At least two floor battens 6mm (1/4") x 45mm (1 3/4") minimum sizes shall be fitted per side, parallel to centreline of boat.
2. Minimum total length 6000mm (20').
3. Except that where full side bulkheads are fitted, the minimum length may be reduced to 4000mm.

## **2.9 Buoyancy**

1. A minimum of 0.2 cubic metres and it shall comply with YNZ Safety Regulations Part 1.
2. Bulkheads are permitted and recommended and may enclose the whole or part of the area covered by the deck.

# **3 EQUIPMENT**

## **3.1 Masts**

1. Timber masts (oregon or spruce) shall conform to the following dimensions:
  - Overall length 5640mm max.
  - Sizes: at 1100mm from heel 89 x 70mm  
at 3800mm from heel 76 x 57mm  
at 100mm from top 57 x 41mm

A tolerance of  $\pm$  6mm is permitted.

2. Aluminium masts shall be Baverstock BS5 or Standard McKechnie die 57.15 round section with track glued and riveted, supplied by a manufacturer approved by the ZOA Committee to the following specifications:
  - Overall length 5640mm max.

- Taper to start within 3500 and 4000mm from the heel and be  $22 \pm 2$ mm at 5500mm from the heel (excluding the sail track), in both side and fore/aft dimensions.
  - Mast to be supplied with base plug (not glued) welded top cap, sail track cut away to maximum of 1000mm above the heel.
3. Weight: minimum weight shall be 5.4kg when stripped of all shrouds, stays, halyards and fittings not permanently attached to the spar. Make weights shall be added to the mast tangs.
  4. The mast shall not revolve. The heel may slide freely fore and aft to a maximum of 20mm. No adjuster may be applied to the heel of the mast while sailing.
  5. Rigging:
    - Two side stays and one forestay shall be fitted.
    - The forestay may be adjusted from the cockpit. The sidestays shall not be adjusted while sailing.
    - A halyard complying with YNZ Safety Requirements shall be fitted.
    - No other rigging is permitted.
    - Stays shall be attached to the mast between 3810mm (12' 6") and 4115mm (13' 6") from the heel.±

### **3.2 Booms**

1. Timber booms (oregon or spruce) shall comply with the following dimensions:
  - Overall length 2690mm max (from aft face of mast)
  - Circular size 63mm  $\pm$  6mm.
2. Aluminium booms shall be Baverstock BS5 or Standard McKechnie die 57.15 round section with track glued and riveted, and built to the following specifications:
  - Overall length 2690mm max (from aft face of mast)
  - To be supplied by a manufacturer approved by the ZOA Committee with the sail track cut away not more than 180mm from the aft face of the mast.
3. Minimum weight shall be 2.7kg when stripped.
4. Boom vang are permitted.

### **3.3 Mainsheet**

1. The mainsheet shall be operated off the centrethwart.
2. Mainsail may not be sheeted outboard of carlin.

### **3.4 Centreplate**

1. Shall fit within a rectangle 1370 x 292mm (4'6" x 11.5").
2. Maximum thickness shall be 22mm (7/8").
3. Shape is optional.

### **3.5 Rudder**

1. Blade shall fit within a rectangle 900 x 292
2. Maximum thickness shall be 22mm (7/8").
3. Minimum size shall be 500 x 180mm.
4. Blade may be fixed or mounted in stocks.
5. Shape is optional.
6. The steering pivot axis for the rudder and stocks shall not be more than 100mm aft of the transom.

### **3.6 Venturis**

Are permitted and/or a maximum of 2 stern drains, each to have a maximum area of 5400 square mm.

### **3.7 Cunningham Eye**

The sail luff tension may be adjusted from the cockpit while sailing by the use of a Cunningham eye in the sail.

### **3.8 Items Not Permitted**

Sliding seats, spreaders, trapezes, ballast, weight jackets, additional decking, and false flooring.

## 4 BUILDER'S SPECIFICATIONS

### 4.1 *The Builder's Responsibility*

1. Zephyr hulls shall be built by a builder approved by the ZOA Committee.
2. The hulls shall be built strictly in accordance with the Zephyr Class Rules – Parts 1,2 and 4. The builder shall keep the objectives and policies set out in Part 1 uppermost while constructing Zephyr hulls.
3. The builder shall be answerable to the ZOA Committee and/or its representatives.
4. Where doubt exists as to the validity of any matter, it should be referred to the Committee for decisions.
5. Hulls shall be purchased only by the ZOA.

### 4.2 *Quality of Work and Materials*

1. All work carried out by the builder and his employees, shall be to a standard that is recognised and accepted as good trade practice.
2. All timber and materials used shall be the best of their type available. No second grade or faulty materials shall be used.
3. There shall be no change of materials or building methods, from this specification by the builder without the specific permission of the ZOA Committee and where deemed necessary, the vote of owners in accordance with Part 1.9 (Rule Changes).

### 4.3 *Hull Shell*

1. Shells shall be built over a male mould approved by the ZOA for the construction of Zephyr hulls. No alterations shall be made to this mould without the inspection and specific permission of the Committee.
2. Shells shall be constructed using either triple skin diagonal cold moulding or single skin strip plank, glassed both sides.
  - **Triple skin diagonal cold moulding:** the shell shall be constructed of three skins of 2mm (1/10") approved timber.
  - **Single skin strip plank, glassed both sides:** the shell shall be one skin of 7mm Western red cedar or equivalent, planks edge glued with an approved marine glue. Each glass skin shall be a minimum weight of 6oz E-Glass combining to a total glass weight of 16oz laid in epoxy resin.

### 4.4 *Framing Timbers*

1. These items shall be made in accordance with the plans and patterns supplied by the ZOA.

Transom	20mm
Keelson	70 x 20mm tapered
Stem	20mm
King Plank	114 x 20mm
Carlins	20 x 20mm
Gunwales	16 x 20mm
Centrethwart	20mm
Deck beams	20mm
Centrecase	Sides 20mm Centrespacer 21mm
Deckposts	25mm
Mast step	20mm

2. Hulls shall be supplied by the builder with these framing members, glued and screwed in place permanently.

### 4.5 *Finish and Supply*

1. This specification covers the minimum work by the builder for the supply of Zephyr hulls.
2. No hull shall be released by the builder to an owner until it has been inspected and approved by the Committee and/or its representative, as meeting this minimum specification.

## Zephyr Class Rules – The Measurement Form

Owner's Name:	
Owner's Address:	
Boat Name:	Hull No:
Measurers Present:	
Builder:	

HULL MEASUREMENTS	Min	Max	Actual	Comment
1. Construction Method	3 Skin / Strip Plank			
2. Overall Length				
3. Diameter of Mast Hole	63	67		
4. Position of Centre of Mast Hole	2615	2635		
5. Chainplates ahead of transom/deckbeam		2371/172		
6. Beam @ Centrethwart				
7. Height of Mast Collar	20			
8. Height of Coaming at Centreline	65			
9. Height of Coaming at Gunwale	25			
10. Coaming Position from mast-Fwd		150		
11. Coaming Position from mast-Aft		100		
12. Deck Thickness	4			
13. External Beading Width		10x35		
14. Internal Beading Dimensions	3x15			
15. Position of Front of Centrecase Slot	1795	1815		
16. Total Floor Batten Length	4000 or 6000			
17. Mast Step Height		90		
18. Rudder gudgeon pivot		100		
19. Hull Weight	57kg			
20. Correction Weights & Position				
21. Front bulk head position	Mast Step/Front of Cockpit			
22. Side tanks present? Y / N				
23. Aft bulk head present? Y / N				

<b>TIMBER MASTS</b>				
Overall length		5640		
Size @ 1100 from Butt	83x64	95x76		
Size @ 3800 from Butt	70x51	82x63		
Size @ 100 from Top	51x37	63x47		
Height of forestay	3810	4115		
Height of sidestay	3810	4115		
Weight	5.4 kg			
<b>ALUMINIUM MASTS</b>				
Overall length		5640		
Taper starts from Butt	3500	4000		
Size @ 5500 from Butt	20	24		
Height of sailtrack above Butt		1000		
Height of forestay	3810	4115		
Height of sidestay	3810	4115		
Weight	5.4 kg			
<b>BOOM MEASUREMENTS</b>				
Overall length		2690		
Weight	2.7 kg			
Timber boom dimensions	57	69		
Track cutaway		180		
<b>CENTREBOARD MEASUREMENTS</b>				
Length		1370		
Width		292		
Thickness		22		
<b>RUDDER MEASUREMENTS</b>				
Length	500	900		
Width	180	292		
Thickness		22		
<b>SAIL ALTERATIONS?</b>				
<b>NOTES</b>				

# A Guide to the Zephyr Class Rules

## Introduction

- This guide explains the intention behind each of the Zephyr Class Rules to give some indication to owners and measurers as to the likely interpretation by the ZOA Committee. It should be noted that this document is not part of the class rules and should be used as a guide only. Any disputes over interpretation must be referred to the ZOA committee of the day for a ruling.
- It should also be noted that the measurer's job is simply to record measurements on a measurement form and submit them to the ZOA for approval. It is not their responsibility to deal with disputes or to have to justify any particular rule to owners. Measurers' are to offer their opinion but an owner should not take it as the final answer as this can only come from the Committee.

## 1 GENERAL

1. The general section of the rules is fairly self-explanatory. It outlines the policy and control methods for the ZOA Committee to administer the class rules.
2. The most important part of the general section (excepting the measurement procedure) is Part 1.3 (Policy) and its reference to the "spirit of the class rules". This is a safeguard against somebody finding a loophole which allows for a significant advantage over other boats without breaking the letter of the rules, but which in the opinion of the ZOA goes beyond the intention of those rules and is in conflict with the basic policy of maintaining a one-design fleet with the same potential speed.
3. The measurement procedure is straightforward, a boat must have a certificate to race and a certificate can only be issued by the ZOA Committee.

## 2 RESTRICTIONS AND FINISHING INSTRUCTIONS FOR HULLS

### 2.1 Hulls

1. This section is fairly straightforward. All the items mentioned should be present with no attempts to reduce weight by drilling of holes or carving down of members. The Measurer should note any evidence of this on the form. It should be noted that some of the boats built in Christchurch do not conform to the standard construction system – they have a strongback along the keel forward of the centrecase. These boats should be identified by the Measurers. It is impractical to expect owners to make these boats comply with the construction plan with respect to the framing in the bow area, however in the future when these boats are redecked it may be that the ZOA requires them to be altered.
2. Identification Marks: Zephyrs can be positively identified by looking for their identity number punched into either the keelson just forward of the centrecase or under the deck king plate just forward of the number three frame (at the front of the cockpit). The position of the number depended on which way up the boat was when it was numbered. Unfortunately, Des Townson did not number all hulls. No boat should be issued with a certificate without the permanent identification number. This is included because a lot of effort has gone in to finding 'lost' boats. There have been cases of owners not knowing the registration number of their boats and several cases of boats with the same number with nobody quite sure which one is genuine. By ensuring that from now on all boats are permanently marked this problem should be eliminated in the future. Written or painted numbers are not permanent, the preferred method is to carve the numbers but other permanent methods would be acceptable. Boats with strong backs in the forward section should have numbers carved elsewhere on the keel.
3. Minimum weight of the hull: Measurers should make a thorough inspection of the hull to ensure nothing extra is in the boat. Only those items which are listed as permanently attached fittings should be on the boat. One exception to this is flotation bags, which should be left in place. Some common sense will have to be used in defining anything unusual as permanently attached or not. There may be occasional objections to removing such items as stacking straps and control lines but it is likely to be only an occasional inconvenience. Hulls should not be weighed while wet.
4. The Measurers should note additional correcting weights on the measurement form.

### 2.2 Deck

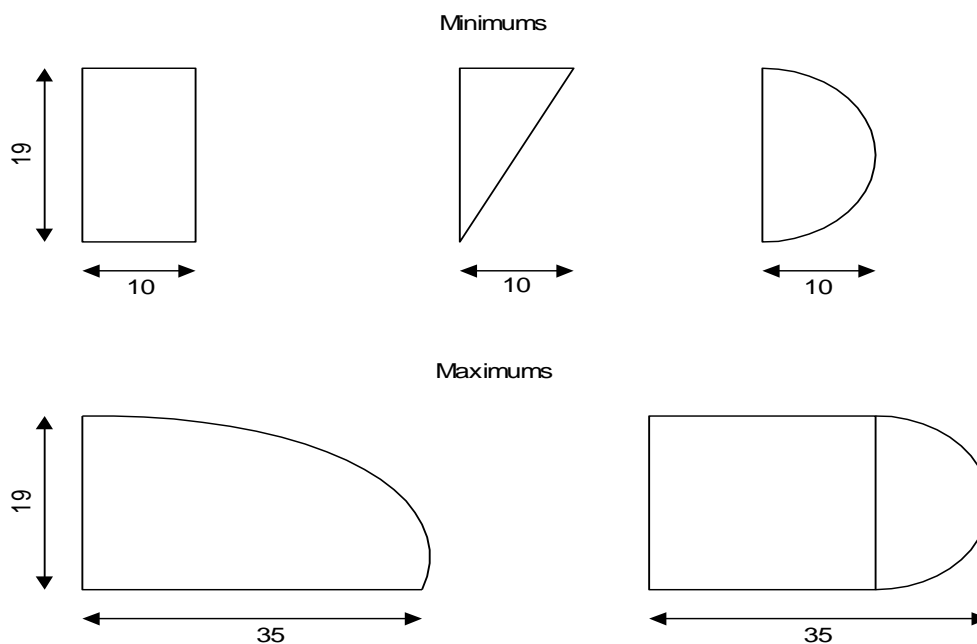
Deck thickness is the major item to check here. An indication of deck thickness can be gained by simply flexing the deck. If it seems particularly flexible the Measurer may wish to



check the thickness by using calipers through an inspection port or by drilling a small hole through the deck (with the owner's permission!). An owner may be asked to prove the deck thickness complies with the rule. Measurers should note that some plywood types may be more flexible than others.

### 2.3 Beadings

Beadings help to keep the deck edges watertight and must be fitted. Some tolerance should be allowed for small sections of beading undersize from damage or repeated sanding, and they may taper slightly at the ends of the gunwales. However, any deliberate attempt to reduce beading size is not allowed. Similarly, any oversize beading must be reduced until they comply. Any of the beadings shown below would be considered acceptable.



### 2.4 Coamings

Check position of coamings with reference to mast hole. The 60 degrees referred to is from the foredeck at the midline mitre. When measuring the height of the coaming at the gunwale it is acceptable to project the line of the coaming and measure it, as many boats have the end of the coaming rounded off for aesthetic reasons.

### 2.5 Mast Hole Collar

Check the position of the mast collar, height and diameter and note them on the measurement form. Some allowance for wear may be necessary.

### 2.6 Mast Step

Check that the maximum height is 90mm (3.5") from the keel to topside of step. Any fitting which stands more than 5mm above the timber step installed by the builder should be added to the measured length of the mast.

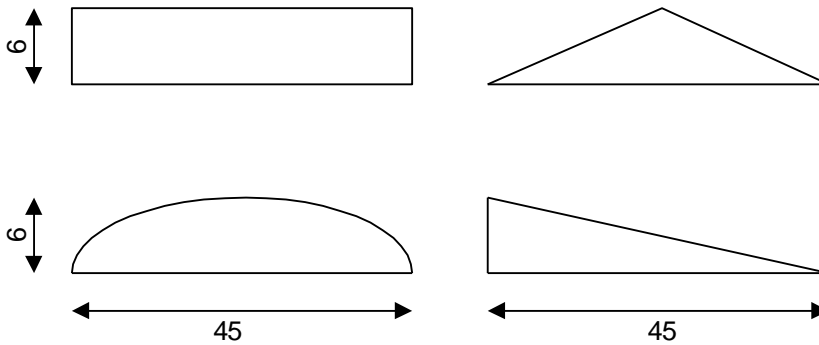
### 2.7 Chainplates

The position of these should be recorded. The centre of the attachment hole for the stay should be no further forward than 2371mm from the aft face of the transom.

### 2.8 Floor Battens

Measure and record the length of floor battens in the boat, they provide a significant amount of stiffening in the flat middle sections of the boat. Their cross sectional shape can take any of those shown below and still be acceptable.

## Minimums



## 2.9 Buoyancy

The Measurer should record the position and extent of buoyancy tanks provided. From this the ZOA can calculate the volume. Dimensions of buoyancy bags should be recorded and the measurer will ensure that these bags are held securely in the boat.

## 3 EQUIPMENT

### 3.1 Masts

Timber masts will generally be older spars so it may be necessary to be a little flexible over minimum dimensions due to years of sanding or damage. Maximums however will be mandatory, in particular overall length:-

1. Remember to make any addition required from the mast-step.
2. Confirm correct aluminium section.
3. Mast weight. In retrospect it would have been better to change the rule so that we had a minimum rigged weight, rather than a stripped weight which is difficult to confirm without a lot of work. However, the standard aluminium spars will all be over the minimum weight unless it they have been radically modified, which should be obvious. The timber masts can be built underweight quite easily so some judgement be used. If a spar is close to the minimum weight, say within 1.5 kgs, then the owner should be asked to strip the spar for weighing. These comments apply to the boom as well.
4. Some owners have utilised a small amount of carbon fibre to stiffen tired old timber spars. This should be acceptable, as it is a cheap way of keeping a competitive spar working.

### 3.2 Booms

1. Note the comments above.
2. Cutaway ends on booms - strictly speaking these are not allowed. However a small cutaway at each end makes life easier from a practical point of view - a maximum cutaway of 150mm would be acceptable in my opinion.

### 3.3 Mainsheet

1. The traveller may not extend out over the side deck.
2. The traveller, bridle or other sheeting system used, must operate in the region of the centrethwart, i.e. no end boom sheeting is allowed.

### 3.4 Centreplate

1. Fairly straight forward, any shape is allowed within the specified maximum dimensions.
2. Wings or tiplets are allowed.
3. The board may not be ballasted.

### 3.5 Rudder

1. Because of the variety of rudder types and systems, the only fair way to measure the dimensions of the blade is to mount the rudder on the boat and project the keel line across the blade and measure the size of the blade below this line. It should fall within the maximum and minimum dimensions as specified.
2. Check the distance between pintle pivot line and transom.

### **3.6 *Venturis***

Check area of stern tubes if used.

### **3.7 *Cunningham Eye***

This is self-evident.

### **3.8 *Items Not Permitted***

These are self-explanatory.

## **4 *Builder's Specifications***

1. These are not entirely relevant to the measurement procedure, however, the measurers should have a general understanding of this section in order to be able to note any changes to the boat as supplied.
2. Some owners have applied a layer of glass cloth to their cold moulded hulls. There is no objection to this as it adds strength and longevity without boosting performance.
3. Any further queries should be addressed to the ZOA Committee. Interpretations should be published in the class newsletter to inform all owners.