ZEPHYR CLASS RULES

June 2014

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

1.3.1. 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.

1.3.2. 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.

1.3.3. 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

1.4.1. These rules consist of Part 1 General, Part 2 Restrictions and Finishing Instructions for Hulls, Part 3 Equipment, Part 4 Builder's Specifications, Finishing Plans, and the Measurement Form.

1.4.2. 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.

1.4.3. All boats shall be built in accordance with the class rules.

1.4.4. Anything contrary to the spirit of these rules is not permitted.

1.4.5. 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.

1.4.6. 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

1.5.1. Committee means the Committee of the Zephyr Owners' Association Inc.

1.5.2. Registered owners means current financial members of the Zephyr Owners' Association.

1.6. Hulls

1.6.1. 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.

1.6.2. All hulls shall be finished in accordance with Part 2 of these rules (Restrictions and Finishing Instructions for Hulls).

1.7. Sails

1.7.1. All new sails shall be made by a sail maker approved by the Committee, to the computer generated design and specifications current at 30th January 2007. No further new sails will be made from the earlier pattern. Existing sails from the previous approved pattern may remain in use.

1.7.2. 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. Reefing points are allowable, but must be a minimun of 300mm from the foot of the sail.

1.7.3. 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.

1.7.4. Owners shall purchase new 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

No changes of rules or restrictions shall be made unless:

1.9.1. Notice proposing the change has been given to the Committee in writing and signed by six registered owners.

1.9.2. Details of such change, together with relevant details have been circulated to all registered owners, at least four weeks before the vote being taken.

1.9.3. The proposed rule change has been approved by two-thirds of the registered owners who have voted.

1.9.4. 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.

1.9.5. The proposed rule change will be effective only after approval by the YNZ.

1.10. Registration and Measurement

1.10.1. From 1 October 1990, no boat is permitted to race in the class unless it has a valid measurement certificate.

1.10.2. 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.

1.10.3. Any peculiarities will be noted by the measurer on the measurement form.

1.10.4. 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.

1.10.5. 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.

1.10.6. 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.

1.10.7. Measurers shall not measure a boat, spars, sails, or equipment owned or built by them, or in which they have a vested interest.

1.10.8. Templates used for official measurements shall be supplied by the ZOA.

1.10.9. Measurement tolerances are intended to allow for genuine building errors only, and shall not be deliberately used to alter the design.

1.10.10. 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.

1.10.11. 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.

1.10.12. All boats, spars, sails and equipment shall be liable to re-measurement at the discretion of the ZOA or the race committee,

1.10.13. Where these rules are silent on any point of measurement procedure, the International Sailing Federation measurement handbook shall be used.

1.10.14. The ZOA committee may grant a measurement certificate to a boat which has been altered or otherwise does not comply with these rules, if the committee is satisfied that the non complying features do not materially affect its potential speed or handling characteristics.

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

2.1.1. Hulls shall be supplied with deck beams, gunwales, carlins, deckposts, centrethwart, centrecase, bulkheads and mast step permanently fitted. A fore or aft deckpost is optional. No alteration to the hull as supplied shall be permitted except as provided for herein.

2.1.2. Minimum weight of the hull, including the following fittings, shall be 58kgs. Included fittings are; chain plates, fixed rudder fittings, cleats, hiking straps, buoyancy bags, blocks, mainsheet take off system, control lines including vang, cunningham, traveller and forestay control lines, compass, drink bottle holder. Excluded are; mainsheet, centreboard, rudder and all items that rotate with the rudder, gear bags, loose bailers, sponges, drink bottles.

2.1.3. Hulls weighing less than the minimum weight are to be brought up to weight with corrector weights. These may be attached anywhere in the boat, but must be readily visible. They shall not be located inside a buoyancy tank.

2.2. Deck

2.2.1. The deck shall be of marine ply, nominal thickness not less than 4mm, and shall be glued down. Deck beams may be rounded to 5mm convex radius.

2.2.2. The decking shall completely cover, the area from the stemhead to the main deck beam, the side decks and aft deck. The following shall be allowed:

2.2.2.1. A mast hole, with the dimensions specified in these rules
2.2.2.2. Apertures to accommodate the passage of control lines only
2.2.2.3. Round inspection ports

2.3. Beadings

2.3.1. Shall be fitted to the gunwales, carlins and main deck beams.

2.3.2. External beadings shall not be less than 10mm thickness and must not extend more than 35mm from the shell.

2.3.3. Internal beadings shall not be less than 3mm thick and 10 mm wide.

2.4. Coamings

2.4.1. Shall be set at 60 degrees ± 10 degrees and shall be permanently fixed. Measured at the centreline, the coaming shall be either no more than 150mm forward of the front edge of the mast hole or no more than 100mm aft of the rear edge of the mast hole.

2.4.2. Shall be a minimum height of 65mm from the deck at the centreline, and a minumimum of 20mm high, measured at 100mm from the nearest point on the gunwale.

2.5. Mast Hole Collar

2.5.1. A mast hole collar, 28mm ± 10mm high, shall be permanently fixed to the deck.

2.5.2. The mast hole shall be 2625mm ± 10mm from the outside face of the tuck to the centre of the hole.

2.5.3. The hole shall be a 65mm ± 2mm diameter circle.

2.6. Mast Step

Maximum height 90mm from top of keelson to top side 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 the eye not more than 2371mm from the aft face of the transom.

2.8. Floor Battens

2.8.1. At least two floor battens 6mm x 45mm minimum sizes shall be fitted per side, parallel to centreline of boat.

2.8.2. Minimum total length 6000mm.

2.8.3. Except that where full side bulkheads are fitted, the minimum length may be reduced to 4000mm.

2.9. Buoyancy

2.9.1. A minimum of 0.2 cubic metres and it shall comply with YNZ Safety Regulations Part 1.

2.9.2. Bulkheads are permitted and recommended and may enclose the whole or part of the area covered by the deck.

3. EQUIPMENT

3.1. Masts

3.1.1. Timber masts shall conform to the following dimensions:

- Overall length 5640 mm max
- Sizes
  - at 1100mm from heel the fore and aft dimensions should be between 73mm and 95mm, the athwartships between 58mm and 76mm
  - at 3800mm from heel the fore and aft dimensions should be between 70 and 95mm, the athwartships between 53mm and 63mm
  - at 100mm from top the fore and aft dimensions should be between 36mm and 63mm, the athwartships between 21mm and 47mm

3.1.2. Aluminium masts shall be supplied by a manufacturer to a specification approved by the ZOA Committee:

- Overall length from the upper bearing surface of the halyard sheave to the point of contact with the mast step mast shall be a maximum of 5640mm minus any excess over the 90mm mast step installed by the builder.
- The sail track, for all masts built after 1st October 2012, shall be continuous for a minimum of 4480 ± 10mm from the top of the the halyard sheave.
- Stays shall be attached to the mast between 1525mm and 1830mm from the top of the halyard sheave.

3.1.3. Weight: minimum weight for wooden masts shall be 5.4kg inclusive of all shrouds, stays, halyards and fittings permanently attached to the spar. Make weights shall be added to the mast tangs.

3.1.4. 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.

3.1.5. Rigging:

- Two side stays and one forestay shall be fitted. Stay material shall be 1x19 SS wire where all strands are of circular and equal cross section, overall diameter to be minimum 2.3mm.

- The forestay may be adjusted while sailing. The sidestays shall not be adjusted while sailing.
- A halyard complying with YNZ Safety Requirements shall be fitted.
- The halyard shall be wholly external to the mast.
- No other rigging is permitted.
- Stays shall be attached to the mast between 1525mm and 1830mm from the top of the halyard sheave.
- Attachment points for a halyard cleat, boom vang, gooseneck, cunningham, clew outhaul, fore and side stays and halyard lock only are permitted.
- Mast hole sealing grommets are permitted.

3.1.6. The vertical pivot axis for the gooseneck shall be no more than 35 mm from the aft face of the mast

3.2. Booms

3.2.1. Timber booms shall comply with the following dimensions:

- Overall length 2690mm max (from aft face of mast)
- Circular size 63mm ± 6mm.

3.2.2. Aluminium booms shall be supplied by a manufacturer to a specification approved by the ZOA Committee:

- Overall length 2690mm max (from aft face of mast)
- The sail track may be cut away not more than 200mm from the forward end of the boom.

3.2.3. Minimum weight for timber booms shall be 2.7kgs when stripped.

3.2.4. Fittings are permitted for the gooseneck, attachment of the sail tack, cunningham adjustment, boom vang, boom preventer, mainsheet blocks and outhaul (which may be adjustable).

3.2.5. Booms first measured prior to 1 March 2010 which are less than the maximum length may have an extender piece, made from any material, to extend them up to maximum length. No such extender shall exceed 100 mm long.

3.3. Mainsheet

3.3.1. The mainsheet shall be attached only to the centrethwart/centrecase assembly

3.3.2. Mainsail may not be sheeted from a point outboard of carlin.

3.4. Centreboard and Centrecase

3.4.1. The centre board shall be fitted with a positive stop and shall fit within a rectangle 1370 x 292mm. Maximum thickness shall be 22mm. Shape is optional.

3.4.2. Centrecases shall have a minimum depth of 300mm, measured from the external surface of the hull, to the top of any capping. Fairing flaps, capping strips or internal wedges are permitted

3.5. Rudder

3.5.1. The design and construction of the rudder, rudder blade and tiller are optional.

3.5.2. Maximum thickness shall be 22mm.

3.5.3. 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 while sailing.

3.8. Items Not Permitted

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

3.9. Electronic Aids

Digital compasses and timing devices are permitted. All other electronic aids are prohibited.

4. BUILDER'S SPECIFICATIONS

4.1. The Builder's Responsibility

4.1.1. Zephyr hulls shall be built by a builder approved by the ZOA Committee.

4.1.2. 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.

4.1.3. The builder shall be answerable to the ZOA Committee and/or its representatives.

4.1.4. Where doubt exists as to the validity of any matter, it should be referred to the Committee for a decision.

4.1.5. Hulls shall be purchased from the builder only by the ZOA.

4.2. Quality of Work and Materials

4.2.1. All work carried out by the builder and his/her employees, shall be to a standard that is recognised and accepted as good trade practice.

4.2.2. All timber and materials used shall be the best of their type available. No second grade or faulty materials shall be used.

4.2.3. 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

4.3.1. 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.

4.3.2. 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 at least 2.2mm 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

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

Part	Material	Min unless stated (mm)	Notes
Transom	Clear Timber Marine Plywood	20 thick 18 thick	Shape as shown in template
Keelson	Clear Timber	70 x 20	Tapers to 40mm at stem and 50mm at transom
Stem	Clear Timber	50 x 20	Shape as shown in template
Fore Deck King Plank	Clear Timber	114 x 20	Shape to deck camber. May be tapered to min 75mm wide foreward of mid foredeck bulkhead

			beam.
Aft Foredeck Trans Beam (Cockpit)	Clear Timber	44 x 20	May have 5mm radius
Mid Foredeck Trans Beam (Mast Step Area)	Clear Timber	44 x 20	May have 5mm radius
Fwd Foredeck Trans Beam	Clear Timber	32 x 20	May have 5mm radius
Aft Deck King Plank	Clear Timber	52 x 20	May have 5mm radius
Aft Deck Transverse Beam	Clear Timber	44 x 20	May have 5mm radius
Aft Deck Post		25 Diam	Dowel
Foredeck Post		25 Diam	Dowel
Centrecase Sides	Clear Timber Marine Plywood	20 min 18 min	Shape as shown in template
Centrecase Centrespacer	Clear Timber	24 max	Cut out centre for board
Carlin	Clear Timber	20 x 20	
Gunwale	Clear Timber	16 x 20	Tapers to 8mm at either end
Centre Thwart	Clear Timber	40 x 20	Minimum dimension is at centre

4.4.2. Material for the following parts, where not stated in the rules, should be shown as follows;

Rule	Part	Material	Min. Dimensions (mm)	Notes
2.3 – 2	External Beadings	Any Timber	10 Thick	Fitted to Gunwales and Top of Transom
2.3 – 3	Internal Beadings		15 x 3	Fitted to Carlins and Cockpit Deck Beams
2.5 – 4	Mast Hole Collar	Any Timber or Marine Plywood	20mm High	65mm +/- 2 Diam Circle
2.4 – 5	Coamings			Min Height 65mm at Centre, 20mm measured 100mm from Gunwale
2.6	Mast Step	Clear Timber	100 x 20	
	Mast Step Webs	Clear Timber	20 Thick	Max 90mm from Keel to Topside of Step
2.8	Floor Battens	Clear Timber	45 x 6	2 Per Side, 6000mm or 4000mm if full side tanks fitted.
4.3 – 2	Hull Shell	Clear Timber	Min. 2mm per Skin	Triple Skin Diagonal Cold Moulding.

4.4.3. Hulls shall be supplied by the builder with these framing timbers glued in place permanently.

4.5. Finish and Supply

4.5.1. This specification covers the minimum work by the builder for the supply of Zephyr hulls.

4.5.2. 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.

4.5.3. Owners may replace the decks, coamings, mast collar, transom, bulkheads, sidetanks or centrecase components with materials specified for the relevant use in these rules after one year of being issued with a first measurement certificate, except that manufacturing flaws may be made good in consultation with the Class Measurer and Executive. Following any such replacement, the boat must be inspected and approved by a Class Measurer,

4.5.4. Other parts of the hull may be replaced only in the case of breakage or deterioration. All materials used must comply with these class rules.

4.5.5. Painting; Any protective coating may be used on the hull, centreboard, rudder, tiller, mast and boom.

5. ADDITIONS AND ALTERATIONS.

5.1. The transom may have 2 cutouts to act as lifting handles, with the dimensions not exceeding 130 x 70 mm. If the transom forms part of a bouyancy tank, the cutouts shall be sealed to prevent ingress of water.

5.2. A tie rod assembly, from the king plank to the keelson, or mast step, is permitted.

5.3. Buoyancy tank inspection ports may be added.

~~6. REINFORCING MATERIALS~~

~~Any wooden or plywood part of the hull may be reinforced by addition of any reinforcing material, including glass fibre or carbon fibre, attached with resin. Fairing filler of up to 5mm thickness may also be added, but shall be used only to fair in hollows in the surface.~~

7. CHAMPIONSHIPS

For all National, Island and provincial championships, and any other regatta held over a period of 6 days or less, the skipper shall use only one hull, one mast, one boom, one sail, one centreboard and one rudder. These items may be replaced or repaired in the case of genuine damage, following inspection of the damaged item by the measurer or race officer.

8. MAST AND BOOM SPECIFICATION

This section is determined by the ZOA Committee and is not part of the Class Rules. Aluminium masts and booms shall be Baverstock BS5 or Standard McKechnie die 57.15 or NZ Rigging Die F6 57.50mm round section with track attached. The mast taper shall start between 1640mm and 2140mm from the top of the mast and be 24 ± 2mm, 140mm from the top.

Zephyr Class Rules – The Measurement Form

Owner's Name;	
Owner's Address;	
Email Address;	
Hull No;	Boat Name;
Measurement Date;	
Measurer's 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	2371/172			
6.Beam @ Centrethwart				
7.Height of Mast Collar	18	38		
8.Height of Coaming at Centreline	65			
9.Height of Coaming 100mm from Gunwale	20			
10.Coaming Position from front edge mast-holeFwd		150		
11.Coaming Position from rear edge mast hole Aft		100		
12.Deck Thickness	3.8			
13.External Beading Width		10x35		
14.Internal Beading Dimensions	3x15			
15.Position of Front of Centrecase Slot	1795	1815		
16. Centrecase Depth	300mm			
17.Total Floor Batten Length	4000 or 6000			
18. Mast Step Height		90		
19. Rudder gudgeon pivot		100		
20. Hull Weight	58kg			
21. Correction Weights & Position				
22. Front bulk head position	Mast Step/Front of Cockpit			
23. Side tanks present? Y / N				
24. Aft bulk head present? Y / N				
25. Transom Cut Outs	250 x100			

TIMBER MASTS				
Overall length		5640		
Size @ 4540 from Top	83x64	95x76		
Size @ 1840 from Top	70x51	82x63		
Size @ 100 from Top	51x37	63x47		
Height of forestay	1525	1830		
Height of sidestay	1525	1830		
Weight	5.4 kg			
ALUMINIUM MASTS				
Overall length		5640		
~~Taper starts from top~~	~~3500~~	~~4000~~		
~~Size @ 5500 from Butt~~	~~20~~	~~24~~		
~~Height of sailtrack above Butt~~		~~1150~~		
Height of forestay	1525	1830		
Height of sidestay	1525	1830		
~~Weight~~	~~5.4 kg~~			
Gooseneck pivot point from mast				
BOOM MEASUREMENTS				
Overall length		2690		
~~Weight~~	~~2.7 kg~~			
Timber boom dimensions	57	69		
Track cutaway		200		
CENTREBOARD MEASUREMENTS				
Length		1370		
Width		292		
Thickness		22		
RUDDER MEASUREMENTS				
~~Length~~	~~500~~	~~900~~		
~~Width~~	~~180~~	~~292~~		
Thickness		22		
SAIL ALTERATIONS?				
NOTES				