SPECIFICATION (2025) for SEABIRD HALF-RATER CRAFT

Document Status		
Issue	**Date**	**Status**
Compiled Spec 1.0	28/11/15	First compiled version
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1. Introduction

1.1 Generally

As Seabird Half-Rater boats have been built over the years the different interpretation of design and construction detail by different boat-builders carries the risk of divergence from the original concept. Since 1905 the Seabird Association, to avoid this tendency, have developed and issued a specification to supplement the construction drawings. This Specification (last issued version) brings together, and revises as necessary, the existing Specifications to ensure that builders have sufficient information for boat construction and renovation using the new issue of digital drawings available in 2012.

This Specification embodies the following aims:

- To define and clarify key aspects of build which hold the original design intent and/or affect sailing performance
- To supplement the construction drawings adopted and used by the Seabird Association
- To promote consistency in construction and repair of Seabirds by traditional methods while accommodating certain beneficial modern-day developments
- To ensure that Seabirds continue to race as a 'one-design' Class

The hull, rigging, gear and sails of a Seabird must comply with all aspects of this Specification if it is to qualify for a Certificate of Measurement. Any proposed variance to, or addition to, this Specification must be forwarded to the Official Measurer in writing for consideration. Any matters not referred to in this Specification shall be deemed out of Class until such matters are approved by the AGM.

With the introduction of the 'Application for Racing Certificate' the understanding of, and adherence to, the Seabird Specification assumes greater significance for all parties. In order to encapsulate the latest approved developments this Specification will be revised and re-issued as necessary, but note that it is the responsibility of the user to ensure that only the 'last approved' version is referenced.

1.2 Drawings

Since the first boats were built the original design drawings have been subject to only minor updating. Individual boat builders would have interpreted the hull shape through the 'lofting' process, using key dimensions and offsets to produce a 'fair' hull form giving good performance on the water. From 2012, wishing to avoid variances between new-build boats, the Seabird Association has commissioned a set of digital (CAD) Seabird Class Drawings which, in particular, define an agreed shape for the hull.

The complete set of digital drawings listed below and now adopted by the Association, used along with this Specification, comprises information sufficient to construct and renovate Seabirds to the level of consistency required for a 'one design' Class.

Seabird Class Drawing Schedule

Date of issue: **February 2018**

Plot No.	Description	Revision History		Notes
		Adopted	Revised	
1	Header Sheet	2012		Skeletal Isometric of Hull
2	Hull Lines in Profile	2012		
3	Hull Lines Section & Diagonals	2012		
4	Deck Plan – Transverse Dimensions	2012		
5	Keel & Transom	2012		(Shows slot for Centre Pl.)
6	Sternpost & Deadwood Assembly	2012		
7	Isometric of Sternpost & Centre Case onto Keel	2012		(Exploded view)
8	Centre Case & Horns	2012		
9	Deck Beams	2012		
10	Rudder	2012		
11	Rudder Fittings	2012		

Plot No.	Description	Revision History		Notes
		Adopted	Revised	
12	Gaff Jaw	2012		
13	Gooseneck	2012		
14	Frame at Station 12	2012		
15	Frame at Station 10	2012		

16	Frame at Station 8	2012		
17	Frame at Station 6	2012		
18	Frame at Station 4	2012		
19	Frame at Station 2	2012		
20	Frame at Station 14	2012		
21	Frame at Station 16	2012		
22	Frame at Station 18	2012		
23	Transom	2012		
24	Aft Locker	2012		
25	Sternpost	2012		
26	Deck Cambers	2012		
27	Sternpost Detail	2012		
28	Samson (Mooring) Post	2012		
29	Section at Station 12	2012		
30	Details at Station 12	2012		
31	Planking Lines	2012		
32C	Centre Plate	2012	Dec 2016 Mar 2017	Rev B. New fabrication drg incl. edge detail options Rev C. Trailing edge bevelled as option
Plot No.	**Description**	**Revision History**		**Notes**
		Adopted	Revised	
33	Isometric of Keel, Frames & Floors	2012		

34	Floor Boards	2012		
35	Stations & Key Dimensions	2012		
36	Centre Case	2012		(Exploded view)
37	Deck Beams Arrangement	2012		
38	Mast	2012		
39	Boom & Gaff	2012		
40	Spinnaker Pole	2012		
41	*Not used*			*As Plot 11*
42	Rudder Fit-up at Keel	2012		

1.3 Boat Builders

A boat may only be built by the Authorised Boat Builder appointed by the Seabird Association at the Annual General Meeting, or by other persons approved by the Seabird Committee.

1.4 Measurement & Certification of New and 'Major Rebuild' Boats

The Official Measurer (OM) will undertake inspection and measurement of key aspects of boat construction or major renovation in order to determine compliance with this Specification and associated Seabird Drawings. To ensure sufficient rigour and accuracy, the inspection and measuring shall take place at key stages in the work sequence. The OM will determine which of the inspection stages are applicable to any construction/renovation works.

The outcome of the inspections and the measured values shall be recorded by the OM on the Inspection & Measurement Record. Successful completion of the inspection and measurement at each stage represents a 'hold point' and the build/renovation process shall not progress without authorisation from the OM.

The OM shall also assess and report on other aspects of the Builder's work for compliance with the detail of this Specification and the Seabird Drawings.

1.5 Repairs & Alterations to Existing Boats

1.5.1 Alterations or repairs

Any alterations or repairs undertaken on existing boats must, whenever possible, be executed in a manner which brings them into line with this Specification and associated Seabird Drawings. Any substantial work on the hull must be reported to the OM by the boat Owner prior to the work being carried out.

1.5.2 Epoxy glues and fillers

The use of epoxy glues and fillers is permitted for all repair work.

2. Hull

Length overall 20 ft Beam (not including Rubbing Strake) 6 ft Draft approx. 15"

Note that the hull shape and structure is determined in relation to positional 'Stations' which are located and numbered at one foot intervals counting aft-wards from the forward face of the stem at deck level – refer to Drawings 2, 3 4 & 5.

The 'lines' of the hull are defined by the official Class Drawings. The hull shape can be determined from the given profile of the frames at their location along the keel.

2.1 Hull Structure

2.1.1 Planking (Drgs. 29, 30, 31)

The hull is to be carvel built with 11 strakes of 5/8" finished thickness pitch pine planking and a gunwhale strake on each side of the boat as indicated on Drawings. The gunwhale strake shall be 5" deep amidships and of american elm, iroko or mahogany. The finished thickness of the planking is not to vary by more than $\pm$1/32".

At the turn of the bilge and at the hollow of the transom the planks may be joined as required at the edges. The amount worked off the planks to be maintained uniform.

The gunwhale strake is to have a decorative 1/2" wide cove line cut 1" above the lower edge.

2.1.2 Hull Fastenings

The only form of connection between planking and timbers, both sawn and steamed, shall be by either copper rivets with roves on the inner surface, or copper rivets clenched on the inner surface, and including screws where appropriate.

Fastenings of the garboards to the keel shall be with copper or phosphor bronze nails or alternatively with phosphor bronze or stainless steel screws. Fastenings of the hood ends to the stem and transom shall be by copper nails or brass, stainless steel or phosphor bronze screws.

Tie rods are to be fitted between the gunwhale strake and the cockpit coaming bearers at points adjacent to the deck beams and the hanging knees at station Nos. 12 and 14. The tie rods, threaded to accept nuts at each end, shall be of 8 or 10mm diameter brass, stainless steel or phosphor bronze.

The breast hooks and the lodging knees at the stem head and at the transom respectively to be riveted into position using copper or brass rod with washers at each end, or stainless steel bolts.

2.1.3 Keel and Stem (Drgs. 5, 6, 7 14, 15, 16, 18, 19, 20, 21, 33)

The keel to be of full section 6" wide x 4" deep and cut from one piece of american elm, oak or iroko and fashioned in one piece with the stem. Alternatively, the keel may be made up of oak or iroko laminates

If using a single timber for the keel the forward end forming the stem to be split by a longitudinal saw-cut to facilitate bending upwards; the cut shall stop forward of the mast at Station 6. The two parts so cut to be securely bolted together after being steamed and bent to the required shape using glue, bolts of copper, stainless steel or phosphor bronze.

The centre section of the keel to have a central slot corresponding to the Centre Case – see para. 2.1.14.

The stem shall be shaped and fashioned to the Drawings. The cut-water face being 2.1/4" wide at the stem head, tapering down to not less than 5/8" wide at the water line; moving aft, the lower keel face then increasing up to 4.1/2" width at the forward end of the centreplate slot. The full section shall be utilised amidships throughout the length of the centreplate slot. From the after end of the centre-plate slot the keel face to be tapered from
4.1/2" to 2" wide at the stern.

2.1.4 Transom (Drgs. 5, 6, 7, 23)

The transom to be of 1.1/4" finished thickness, with not more than 1/32" variation, mahogany or iroko. The upper part of the transom shall be fitted with two solid or laminated lodging knees of oak or iroko between the transom and the gunwhale stringer to carry the decking.

The transom to be 1.1/2" proud of the deck at the centreline, tapering to 1/2" proud at the gunwhale edge and finished off with a rounded top edge.

2.1.5 Sternpost (Drgs. 6, 7, 25, 27)

The stern post to be of american elm, oak or iroko to correspond with the keel and to be worked from 2.1/2" thick timber so as to be 6" wide at the foot where it is mortised into the keel and tapered to be 2.1/4" wide at the top close to the deck.

2.1.6 Deadwood (Drgs. 5, 6, 7)

The deadwood shall be shaped as indicated on the Drawings from 3" thick american elm, oak or iroko and fitted to correspond with the stern post and the keel such that the lower corners clear the inside surfaces of the planking.

2.1.7 Main Frames (Drgs. 6, 14, 15, 16, 17, 18, 19, 20, 21, 22, 29)

The boat to be built on sawn oak frames 2.5/8" depth at the keel tapering upwards to 1.1/2" at the gunwhale stringers x 1.1/4" wide as shown on the Drawings and grown as nearly as possible to the natural shape. Alternatively, the frames may be made up of oak or iroko laminates approximately 3/8" to ¾" thickness secured with water-resistant glue and finished to the previous dimensions (allow extra material for final shaping).

The frames to be spaced approximately every two feet and in relation to Stations 2, 4, 6, 8, 10, 12, 14, 16 and 18 on the Drawings. Note that frame 12 has its centre on Station 12, frames 2, 4, 6, 8 and 10 have their after side at their respective Stations while frames 14, 16 and 18 have their fore sides at their respective Stations.

Scarfed joints in the length of these frames are permitted only in the case of repair.

2.1.8 Timbers (Drg. 33)

Steamed timbers of section 7/8" wide x 5/8" deep of american elm or oak to be spaced every 8" between the sawn frames. These timbers not to be more than 1/32" lighter than this size and not to exceed section 15/16" wide x 11/16" deep.

2.1.9 Coaming Bearer (Drgs. 9, 29, 30)

The coaming shall be screwed to a coaming bearer, also known as a stringer, of section 2.1/2" wide x 3/4" thick of yellow pine, pitch pine, iroko or oak. The coaming bearer to receive the deck beams, which are to be dovetailed into the coaming bearer and the gunwhale stringer and further stayed by tie bolts passing through adjacent station Nos. 12 and 14 (see para. 2.1.2). The hanging knee at Station 12 to reach out far enough to support the coaming stringer.

2.1.10 Gunwhale Stringers (Drgs. 9, 29, 30)

This important member, also known as a shelf, to be one piece of section 3.1/2" wide x 3/4" thick of pitch pine, iroko or oak.

2.1.11 Caulking

Caulking between the planks shall be by any of the following means:

a) Traditional cotton caulking with the outside of the seam filled with linseed oil and white lead putty.
b) Traditional cotton caulking with the outside of the seam filled with a modern single component flexible material.
c) Traditional cotton caulking with the outside of the seam filled with Epoxy with suitable fillers (Fillers being thickening agents such as silica)
d) Any of the above in conjunction with wooden splines

2.1.12 Deck Beams (Drgs. 4, 9, 26, 30, 37)

The deck beams to be of section 2" wide x 1.1/4" thick, except at Stations 6, 8 and 17 where the beams to be increased to section 2.1/2" wide x 1.1/2" thick, of yellow pine or whitewood and to be spaced at approx. 12" centres. Beams at Stations 2 to 12 to be forward of the frames. Beams at Stations 14, 16 and 18 to be aft of the frames.

The deck beams to be moulded in shape as shown on the Drawings. The greatest camber is 2.1/2" at Station 10, decreasing fore and aft.

2.1.13 Carline Beams (Drgs. 9, 29, 30, 37)

The carline beams, also known as short deck beams, to be of section 2" wide x 1.1/4" thick of yellow pine or whitewood and to be positioned beside the cockpit opening. The carline beams are similar to the other deck beams and are to be dovetailed at one end into the coaming bearer and at the reverse end into the gunwhale stringer.

2.1.14 Centre Case (Drgs. 8, 29, 35, 36)

The Centre Case to be of 1.1/4" thick yellow pine or mahogany; the width between the sides of the slot to be 3/4" (minimum) to 7/8" (maximum). The Case shall be made in accordance with the Drawings and positioned on the keel such that the pivot pin for the Centre-plate is centred on Station 8.

Drawings 35 and 36 indicate an optional triangular infill piece at the forward end of the Case.

The Centre Case shall be secured to the keel with a minimum of four 8 or 10mm diameter galvanised steel, stainless steel or phosphor bronze rods installed on each side through the full depth of the Case sides and through the keel. The rods are to be threaded at each end with nuts and washers sunk in flush. The 'Dickies modification' or other similar 'short bolt' fixing is permitted for fixing Centre Case.

Two posts of mahogany, iroko or oak shall be fitted in order to support the Case; known as the Horns, these shall be to be mortised into the keel and bolted to the deck beam at Station No. 7 as shown on the Drawings.

2.1.15 Bollard (Drgs. 9, 28, 35)

A Bollard, also known as a mooring or samson post, of oak minimum section 2.1/2" x 2.1/2" to be bolted securely to the after side of the deck beam forward of Station No. 3 with the lower end being mortised into an equivalent timber mounted on the stem apron. The Bollard to rise not less than 4.1/2" above the deck.

2.1.16 Rubbing Strake (Drgs. 29, 30)

The Rubbing Strake, also referred to as the rubber or covering riband, to be of section 1.3/4" wide and 1/2" to 3/4" thick of american elm, mahogany, iroko or teak with a rounded section and to be fastened as shown on the Drawings around the upper edge of the gunwhale covering the edge of the deck planking.

2.1.17 Bilge Chocks

The bilge chocks to be a minimum of 4'6" in length of section $1^3/_4$" wide x 3/4" deep of american elm, iroko or oak and fitted to the underside of each bilge, positioned 20-24” off keel centreline and mid-ships where the boat would rest when not afloat. The chocks may be tapered fore and aft as required.

2.1.18 Hanging Knees (Drgs. 29, 30, 33)

The hanging knees to be of the sizes shown on the Drawings of grown or laminated oak or other suitable solid or laminated hardwood timber and to be positioned as shown on the Drawings at each end of the beams at Stations 8, 11 and 14.

2.1.19 Channel Timbers

The channel timbers, located inside the hull planking as backing support for the chain plates on each side, shall be of solid oak or of oak or iroko laminates. The channel timbers shall be positioned approximately 14” aft of Station 6, reaching from the underside of the deck to the waterline.

2.1.20 Breast Hook (Drgs. 9, 37)

A breast hook of $1^1/_2$" thickness of solid or laminated oak to be fitted at the fore end to connect the stem and the gunwhale stringer.

2.1.21 Floor Knees (Drgs. 6, 17, 18, 19, 20, 21, 33, 35)

Solid or laminated oak or Iroko flooring knees to be positioned as shown on the Drawings adjacent to Stations 2, 4, 6, 14 and 16.

2.1.22 Floor Bearers (Drg. 33, 35)

Four floor bearers, also known as sole bearers, of section 2" wide x $1^1/_4$ " thick of whitewood to be positioned adjacent to Stations No. 8, 10, 12 and 14 to support the floorboards in the cockpit-well. The floor bearers to be secured to the sawn frames in such a way as to be movable for handling ballast.

2.1.23 Cockpit-well Floorboards (Drg. 34)

The floorboards shall be of ¾" marine quality plywood or another suitable timber. The floorboards forward of Station 14 shall be movable for handling ballast. A central section of the floor aft of Station 14 shall be removable for the purpose of bailing.
Total weight of floorboards is not to exceed 40kg. All floorboard sections must be in position during weighing of the hull.

2.1.24 Seats (Drgs. 9, 29, 30)

Two thwarts shall be fitted, one each side of the Centre Case, and securely fastened ahead of Station No. 12. An aft seat shall be located on local side stringers inside the hull near Station No. 16; this seat may be movable. Thwarts and the aft seat shall be of mahogany or iroko 8-9" width x 1" thickness.

Seats on the side deck are permitted.

All seats must be in position during weighing of the hull.

2.1.25 Rail (Drgs. 29, 30)

A rail, also known as a deck or a toe rail, of section 5/8" wide x 1" deep mahogany or teak, or iroko to correspond to the Rubbing Strake and having freeing ports and a rounded top edge, shall be screwed to the edge of the deck from the stem to the transom.

2.1.26 Hull Finish

The internal and external coating of the hull is optional; however, paint and other timber finishes must be applied in accordance with the manufacturer's instructions.

The application of epoxy coatings, other than commercially available two-pack epoxy paint, either inside or outside the hull, is strictly prohibited and not endorsed by the Association.

Commercially available coating systems specifically having antifouling properties may be applied to the hull below waterline. Any such coatings must comply with all current Regulations applicable for local waters.

2.2 Deck

See also Section 2.1.12 – Deck Beams.

2.2.1 Deck Planking (Drgs. 4, 29, 30)

The deck to be of planks of section 2.1/2" wide x 3/4" finished thickness yellow pine, agba or 5/8" finished thickness silver spruce, with tongue and groove joints laid parallel to the centreline.

A King Plank of mahogany or iroko, in section 7" wide (minimum) and finished depth 1.1/8", shall be positioned on the centreline of the fore and after deck.

All joints in the deck planking are to be served with varnish.

2.2.2 Deck Covering Board (Optional)

A covering board on the edge of the deck is permitted to allow access to frames and timbers. The covering board shall be not more than 2.1/2” wide and shall be of the same timber and thickness as the deck.

2.2.3 Mast Partner (Drgs. 9, 27)

A mast ring is to be fitted of 7" external diameter x 1" thick of mahogany, iroko or oak, positioned on the deck centreline and screwed down to the King Plank. The internal aperture of the mast ring to be 4".

A section of 7" (minimum) wide x 1.1/2" thick of spruce, yellow pine or white pine to be fitted between the beams at stations 6 and 7 to support the deck and king plank where the mast passes through.

2.2.4 Coamings (Drgs. 4, 30, 35)

The coaming to be of 5/8" thick mahogany or iroko steamed and bent to the shape as shown on the Drawings. Alternatively, the coaming may be made up of mahogany or iroko laminates. The coaming to stand 3" above the deck at the aft end, rising to 4.1/2" above the deck at the fore end, flaring forward and outward and corresponding with the rise of the deck.

The coaming to be finished with triangular sectioned post at the fore end to strengthen the joint. A beading or fillet piece may be fitted at the junction of the coaming and the deck. A fairlead to be provided through the fore end of the coamings on each side to accommodate halyards.

2.3 Centre-plate & Rudder

2.3.1 Centre-plate (Drg. 32)

The Centre-plate shall be 10mm thick mild steel (3/8" for older plates), manufactured in accordance with the drawing and hot-dip galvanised. The edges of the plate shall be treated as follows:

i) The leading, bottom and trailing edges shall be square or rounded (maximum 5mm radius). Square edges shall be deburred or chamfered at 45 deg., but not to form pointed edges less than 4mm wide. Optionally, each side of the plate's trailing edge may be bevelled by no more than 12mm from the trailing edge; the bevels must not form a pointed edge less than 4mm wide.

ii) Maintenance and repair are permitted on edges that become uneven due to damage or failure of the galvanising. Any repair that causes the plate edge to become shaped to a point less than 4mm or rounded to greater than 5mm radius shall be deemed out of Class. A corner that becomes worn (not exceeding 25mm material loss) is permitted.

iii) Centre-plate finish – in addition to hot-dip galvanising, proprietary antifouling paint may be applied to the centre-plates of boats stationed or raced at Wallasey Yacht Club. No other paint finish is allowed.

The Centre-plate shall be mounted on a metal pivot pin of ¾" or 20mm diameter passing through the Centre Case and Horns; the pin shall have suitable sealing grommets, washers and nuts at each end.

2.3.2 Rudder (Drg. 10)

The rudder and stock shall be made to the dimensions and shape shown on the Drawing. The rudder blade shall be 1.1/4" thick with not more than 1/32" variation. The after edge of the rudder blade to be of half round finish.

The rudder blade shall be of pitch pine or mahogany. If pitch pine is used for the rudder blade the rudder stock may be of elm or mahogany.

2.3.3 Rudder Fittings (Drg. 11)

The rudder shall be hung from the transom by means of 2 gudgeon blocks fitted into the transom and sternpost, with a corresponding pair attached by straps to the rudder blade. A

1/2" or 12mm diameter galvanised steel or stainless steel rod passes through all four gudgeons to form the pintle. The pintle is to rest at the lower end on the heel of the skeg.

The rudder fittings shall be of galvanised steel or stainless steel. The gudgeons may have nylon or plastic bushings.

2.3.4 Tiller (Drg. 10)

The tiller shall be of section 3" depth x 1.1/4" or 1.1/2" width at its heaviest part (entering the rudder head), made of solid or laminates of suitable hardwoods. The length of the tiller shall be at the option of the Owner. A spare tiller must be carried on board at all times.

2.4 Hull Fittings

2.4.1 Metal Fittings & Fasteners

All metal fittings and fastenings shall be made of materials appropriate for the marine environment; eg., stainless steel (grade 316) and bronze materials (phosphor bronze or aluminium bronze). The use of traditional copper fastenings is encouraged, however the use of brass is not recommended. Any carbon steel used must be hot-dip galvanised.

2.4.2 Deck Fittings

Deadeye leads to be provided on the deck in positions suitable for the jib sheets.

Eye bolts of suitable size to be fitted to each quarter for the mainsheet lead blocks, bolted through the transom lodging knees.

A fabricated or cast metal fairlead for mooring shall be provided on the stem, suitably fitted to enable the strop or chain to be secured from risk of dislodgement from the fairlead.

2.4.3 Belaying Cleats

Belaying cleats shall be fitted on the inboard side of the coamings in suitable positions for the main halyard, the jib halyard, the main and the jib sheets. Jamming cleats may be used for jib sheets, spinnaker sheets and centre-plate tackle. Jamming cleats are not sanctioned for the main sheet, however a single ratchet type or friction block may be deployed in the mainsheet run.

Suitable cleats should be fitted on the mast near deck level for the spinnaker halyard and a cleat is also required on the boom for securing the mainsail outhaul.

Cleats should be fitted on the sides of the centre board case for the centre plate tackle on the one side and for the main halyard tackle on the opposite side.

The larger belaying cleats are to be secured by heavy screws or bolts through backing pads.

2.4.4 Boom Crutches

To be supplied together with suitable deck fittings to allow the crutches to be quickly erected and securely retained.

2.4.5 Pump/Bailer

A manual pump of suitable capacity shall be permanently installed. If necessary, a small additional electric pump may be installed, however this shall not operate during racing.

2.4.6 Mast Step

The mast base spigot locates in a recess suitably positioned in the keel at Station 6. A fabricated stainless steel mast step having some adjustment for the position of the mast base is optional, however it shall not be possible to make adjustments while racing.

2.4.7 Keel Irons

The stem and keel shall be faced with maximum 1/4" thick (6 mm) flat bar or 3/8” (10mm) ‘half round’ bar in bronze, galvanised iron, stainless steel or hard plastic material. The stem section to be 5/8” wide at the water line, widening out to follow the increased section of the keel below the water line to Station 4 where it butts up to the two keel bands of 5/8" wide flat or ‘half round’ bar which bind the outer edges of the keel face as far as Station 16.

The after end of the keel shall be fitted with a plate 12" long of section 2.1/4" tapering to 2" wide thick of material as above.

2.5 Ballast

2.5.1 Ballast Requirements

Ballast weighing 254 kg (+ 9 kg) in total shall be carried internally.

2.5.2 Ballast Constitution

Ballast shall consist of either 8 or 12 pieces of cast iron, shaped to fit between and rest upon the main framing of the boat. If necessary to reach the required weight range, a further rectangular ‘make-up’ piece may be added.

(i) Boats with 8 pieces of ballast may cut the 4 larger "inner" pieces in half longitudinally to create 12 pieces, provided the overall ballast weight does not fall below the minimum weight.

(ii) Cast ballast sections can be obtained directly from a foundry as advised by the Association.

2.5.3 Ballast Position

The ballast shall be positioned below the floorboards between frames at Station Nos. 10 and 12 and between frames at Station Nos.12 and 14, evenly distributed between each section, fore and aft and port and starboard. If necessary a ‘make-up’ piece shall be sited on the centre line between the aft end of the centre board case and Station No. 14.

2.5.4 Ballast Finish

To avoid corrosion, ballast may be painted, galvanised or otherwise ‘thin coat’ treated."

3. Weight & Weighing

3.1 Weight of Craft

No Seabird may be entered for any regatta or open race for boats of the Seabird Class unless it has first been weighed in accordance with this Specification and its weight is not less than the Regulation Weight , defined as :

- A hull weight not less than 650 kg and ballast weighing not less than 245kg and not more than 263kg.

A Seabird shall weigh not less than the Regulation Weight if it is weighed :-

a) having been launched and in commission in normal marine conditions for not less than 28 days

and

b) exclusive of all chain, anchors, loose gear, sails and spars, but inclusive of :-

- hull, centre-plate and rudder,

- all floorboards,
- all seats and buoyancy (where fitted)
- ballast. (The ballast is weighed separately, including any make-up section).

Notwithstanding these requirements a new or substantially rebuilt Seabird must be weighed prior to first being commissioned for racing and if the hull weighs less than 585kg the weight of the hull must be increased to not less than the Regulation Weight in the ways prescribed in section 3.3 below before a Measurement Certificate will be issued.

No Seabird shall be fitted with any additional weights which are not prescribed in this Specification unless sanctioned by the Association

3.2 Weighing Equipment

The Official Measurer shall weigh boats at appropriate intervals using the Class weight measurement equipment. This weighing equipment must have valid calibration documentation associated with it.

3.3 Compensating Weights

The weight of any Seabird weighing less than the Regulation Weight shall be increased to not less than the Regulation Weight only by the application of additional ballast in the form of lead weights in the proportions specified in either Set A or Set B fixing positions. Each lead weight shall be stamped with its weight and fixed so as to be readily accessible for visual inspection.

3.3.1 Set A fixing positions

(i) 10% of the total additional weight shall be sheet lead wrapped around the Samson Post with the centre of gravity half way between the keel and the deck.

(ii) 25% of the total additional weight shall be one lead slab screwed to the uppermost point on the leading edge of the centreboard casing.

(iii) 40% of the total additional weight shall be two lead slabs not more than one inch (25mm) thick screwed one each side of the centreboard case with the lower edge level with the top of the floorboards. The fore and aft position to be set so that the trim of the boat is not changed by the fitting of all six compensating weights.

(iv) 25% of the total additional weight shall be in two slabs under the aft thwart vertically under the cockpit coaming, one on each side.

(v) If the total compensating weight required is less than 20kg then 50% can be screwed to the uppermost point on the leading edge of the centreboard casing, and 50% can be two lead slabs screwed to the underside of the aft thwart vertically under the cockpit coaming, one on each side.

3.3.2 Set B fixing positions

(vi) 10% of the total additional weight shall be sheet lead wrapped around the Samson Post at its lowest point to the keel.

(vii) 25% of the total additional weight shall be one lead slab screwed to the lower most point on the leading edge of the centreboard casing.

(viii) 40% of the total additional weight shall be two lead slabs screwed under the centre thwart one on each side close to the centreboard case.

(ix) 25% of the total additional weight shall be in two slabs screwed to the coaming bearer under the deck, one on each side vertically above the aft thwart.

(x) If the total compensating weight required is less than 20kg then 50% can be screwed to the lower most point on the leading edge of the centreboard casing, and 50% can be two lead slabs screwed to the coaming bearer under the deck, one on each side vertically above the aft thwart.

Fitting Notes: The lead on the Samson Post may be a single piece cast to weight. The lead on the leading edge of the centreboard casing, if over 10kg, may be in two pieces fitted either side of the casing at the lowest point, flush with its leading edge. In Set B, aft weights under the side deck may be fitted to a spacer fixed to the two deck beams in lieu of the coaming bearer if the bearer is too shallow to accommodate the cast weights.

Any dispute as to the practical application of the corrective weights shall be determined by the Official Measurer whose decision shall be final and binding.

4. Spars & Rigging

4.1 Spars

The mast, the gaff, the boom and the spinnaker boom to be fashioned from solid timber, or laminated from more than one piece of timber but must not be hollow, preferably sitka or silver spruce, free of shakes and sapwood, with a true straight grain.

4.1.1 Mast (Drg. 38)

The mast shall be 16'6" overall and 15'11" from the top of the heel to the hounds. The diameter of the mast to be 4" nominal (i.e. 3.7/8" finish) and tapered in accordance with the Drawing.

The mast requires a central fixed metal bush or rolling sheave just below the shoulder and a pair of turning sheaves, mounted in cheek-pieces each side of the mast, just above deck level as indicated on the Drawing.

4.1.2 Gaff (Drg. 39, see also Drg. 12)

The gaff, also known as the yard, to be 15'0" from the inside of the jaws to the centre of the lacing hole and not to exceed 15'2.1/2" from the inside of the jaws to the end of the yard.

The gaff requires a metal jaw (as Drg. 12) and a metal gaff sling (with a range of adjustment) for halyard attachment having centre point at 68” from the inside of the gaff jaw.

4.1.3 Boom (Drg. 39, see also Drg. 13)

The boom shall be 14'11" from the face of the mast to the turning point for the main outhaul, and not exceeding 15'1" from the mast face to the end of the boom. The main outhaul turning point is at the aftermost face of the ‘dead-eye’ or running sheave.

The boom and mast require fitment of gooseneck items as indicated on Drg. 13. The centre of the gooseneck pin shall be set no to be higher than 48" from the top of the keel.

The boom shall have a ‘comb’ fitting at the after end as indicated on the Drg. 39.

4.1.4 Spinnaker Boom (Drg. 40)

The spinnaker boom shall not to exceed 8'0" from the face of the mast to the extreme end as shown on the Drawing. The diameter of the spinnaker boom must not be less than 1.3/4" tapering to 1.3/8" at either end. The types of attachment used at the ends of the pole are optional.

4.1.5 Spar Fittings (Drgs. 12, 13)

Metal fittings shall be of galvanised steel, stainless steel, phosphor bronze or gun metal formed and fabricated in accordance with the Drawings.

4.2 Rigging

Standing and running rigging requirements are described below. A summary of typical current rigging arrangements is to be found in TABLE 4.1, however line sizes for running rigging may be larger than those indicated for easier handling.

In parallel with using sails of more modern design, the use of modern materials for cordage and rigging has been sanctioned. While meeting specifications below, the Owner has reasonable flexibility to rig the boat to his own requirements

4.2.1 Forestay & Shrouds

6 mm ($^1/_4$") galvanised plough steel wire or 7x7 stainless steel wire shall be used for the forestay and shrouds, these having a soft eye to fit over the mast shoulder and a thimble eye formed at the lower end. Swaging and/or hand splicing is acceptable. A light, pre-stretched lashing is deployed as a multi-purchase tie between the lower eye and the chainplate.

Wire lengths are given in TABLE 4.1

4.2.2 Main Halyard

The main halyard comprises three sections :-

The gaff up-haul of 6mm ($^1/_4$") galvanised or 7x19 stainless steel flexible wire having a thimble or a 'soft eye' at one end with a single sheave block at the other; from the back of the block to the back of the eye to be 13'3". It is acceptable to utilise a low stretch braid line for this purpose.

The halyard applies a double purchase to the up-haul block noted above, running to a below-deck sheave-block at one end and to the cockpit cleat at the other.

The purchase, located beneath the foredeck and attached to the keel or mast step, applies a further double purchase to the below-deck block noted above.

Further requirements and typical details are given in TABLE 4.1.

4.2.3 Mainsail Outhaul

The mainsail outhaul line turns through a dead-eye at the outer end of the boom, then secured to a cleat on the boom. A multi-part purchase is permissible for this outhaul. The dead-eye may be replaced with a rolling sheave (max. diameter $1^3/_4$") to reduce friction.

4.2.4 Jib Halyard

The jib halyard applies single purchase to the head of the jib, turning over a suitable sheave block short-stropped to the shoulder of the mast, turning again just above deck level to run to the cockpit cleat.

To allow increased purchase to be applied to the jib halyard from within the cockpit the Association has sanctioned use of a multi-purchase arrangement below the foredeck similar to that of the main halyard, which may include a wire uphaul section.

4.2.5 Main & Jib Sheets

The Mainsheet shall apply not more than a 3-part purchase to the Boom via sheave blocks in the region of the 'comb' with turning block(s) on the aft deck. A forward sheet lead block is attached to the Boom over the cockpit, however this shall not be located any more than 7' forward of the outhaul eye or sheave.

The Jib sheets shall be run via fixed-eye fairleads positioned to the Owners requirements.

4.2.6 Spinnaker Rigging

Note that the asymmetric spinnaker is rigged so as to be only set inside the forestay. For further rigging details see TABLE 4.1 below.

4.2.7 Topping Lift (Option)

This item is optional and not in general use, nevertheless it has been previously sanctioned. In position it may serve as a spare halyard. Use 35' of $^{3}/_{4}$" diameter pre-stretched 3-strand polyester rope or similar braid cordage having a 1 $^{3}/_{4}$" internal diameter eye at one end to fit over the boom. A cheek-sheave fitted at the mast shoulder and a cleat at deck level would be necessary.

4.2.8 Centre-plate Purchase & Tackle (Drg. 28)

Centre-plate tackle shall comprise a 3x (or more) purchase arrangement using a minimum 3/8" dia. haul-line, with appropriate turning-blocks stropped to the Bollard and shackled onto the Centre-plate. The tackle should be selected and set-up to minimise friction.

The haul line may be cleated on the Centre Case or other suitable location.

SEABIRD ASSOCIATION

Seabird Rigging & Cordage Summary				**TABLE 4.1**
Function	**Cordage**			**Application**
	Type	Diameter	Noted Length	
Centre-plate tackle	3-strand pre-stretched polyester or equivalent braided line	7/16”	Minimum 20’	3-part (or more) purchase making use of appropriate sheave blocks attached to the Bollard and Centreplate – lead back to convenient cleat
Forestay	Galvanised or st. steel wire	¼” 7x7	14’ 2”	Soft eye for mast shoulder - measure from neck to back of thimble at lower end – use ~4’ of light lashing to secure
Shrouds (2 no.)	Galvanised or st. steel wire	¼” 7x7	13’ 3”	
Main halyard				
Gaff up-haul	Galv. or st.steel wire Alternative - low stretch braid (Dyneema or equiv.))	¼” 7x19 3/8”	13’ 3”	Soft eye or thimble shackled onto gaff, sheave-block other end – measure back of this eye to back of block. Up-haul works over permanent sheave at the mast shoulder
Halyard	3-strand pre-stretched polyester or equivalent braided line	7/16”	32’	Single sheave-block at one end, set below foredeck – line extends through deck, up to halyard block, thence to turning block at lower mast – through coaming onto cleat
Purchase	As above	7/16”	10’	Single becket sheave at one end shackled to keel or mast base – line runs via halyard block below foredeck, returning round keel sheave and onto convenient cleat
Main sheet	Braided line	7/16”	66’	Max. 3-part purchase to the Boom. Typically, the sheet attached to boom (aft) leads down and through sheave

				blocks on each aft quarter, thence up and forward into cockpit via sheave blocks on the boom
Mainsail outhaul	3-strand pre-stretched polyester or equivalent braided line	1/4”	As required	Single direct purchase around dead-eye or rolling sheave. Option to apply a multi-part purchase to this line (mounted on the boom)

Jib halyard	3-strand pre-stretched polyester or equivalent braided line	7/16”	36’	Continuous line, tied or swivel clipped onto jib head – run via sheave block at the mast shoulder and turning block at lower mast – through coaming onto cleat
Alternative	As per main halyard			A multi-purchase arrangement has been sanctioned, similar to the main halyard
Jib sheets (2 no.)	Braided line	7/16”	15’ each	Via suitably positioned fairleads and jam cleats
Spinnaker halyard	Braided line	3/8”	Minimum 28’	Snap shackle or Englefield clip (swivel type) for attachment to Spinnaker – through eye or block set above the mast shoulder. Spinnaker halyard may be belayed at the mast or led through the deck and back to a cleat on the Centre Case
Spinnaker guy	Braided line	3/8”	18’	Guy with snap shackle remains on pole ready for use
Spinnaker sheet	Braided line	3/8”	12’	Sheet attached to Spinnaker ready for use
Signal halyard	Nylon line (size #1)	1/8”	32’	Typically an endless line via eye or hole on the mast truck

5. Sails & Sail Measurement

5.1 Sails

5.1.1 Ordering & Supply of Sails

Seabird sails used for racing shall only be manufactured and supplied by the Association's Official Sailmakers. The Sailmaker shall be responsible for sail quality, detail and compliance with this Specification.

Boat Owners shall order sails for their own use directly from Official Sailmakers, who will keep a log of sails supplied per Owner/ boat number.

The maker's identification, sail serial number, date of supply and signature, along with the weight of the sail cloth shall be indelibly marked near the tack of each sail by the sail manufacturer. This marking effectively certifies each sail for use in racing.

The OM shall undertake post-delivery spot-checks to ensure that the sails supplied meet this Specification.

5.1.2 Sail Materials

Mainsails and Jibs can only be manufactured from a woven, impregnated sail material (i.e. no laminates or coated fabrics) and must have a cloth weight of between :-

280grams/m^2 (6.5 US Oz) maximum - 210grams/m^2 (5.0 US Oz) minimum

Spinnakers must be manufactured from a material with a weight of not less than:-

65grams/m^2 (1.5US Oz) minimum

5.1.3 Definitions

Sail corner measurement points are defined in the TABLE 5.1 below:

Mainsail	**Jib & Spinnaker**
Peak: Intersection of Leech & Head	Head: Intersection of the Luff & Leech
Clew: Intersection of Leech & Foot	Tack: Intersection of Luff & Foot
Tack: Intersection of Luff & Foot	Clew: Intersection of Leech & Foot

Throat: Intersection of Luff & Head	**TABLE 5.1**

5.1.4 Vision Panels (Sail Windows)

Windows are permitted in the mainsail and jib but are not to exceed 0.5m^2 in total per sail. The precise location of the window for any sail may be determined by the Owner/Sailmaker. The window may consist of a number of sections to accommodate the stitching of the sail panels.

No window shall be positioned closer than 150mm from the edge of the sail and windows must adequately serve the purpose of collision avoidance.

5.1.5 Tell Tails

The Sailmaker shall include at least 3 tell tails near the luff of the jib (both sides) and at the leech of the mainsail. Others may be added at further locations.

5.2 Sail Measurement

Sail size is determined by a 'box rule' as recommended by 'World Sailing'. The maximum dimensions for each of the sails are represented in a box into which the sail must fit.

5.2.1 Mainsail

a) Dimensions (***Maximum***). Refer to SKETCH 5.2

Foot (Tack to Clew)	4380mm
Luff (Tack to Throat)	1780mm
Head (Throat to Peak)	4480mm
Leech (Clew to Peak)	6860mm
Clew to Throat	4570mm

b) Mainsail shall be crosscut, not vertical or radial. Maximum panel width 914mm Maximum number of seams 8

c) 20mm diameter SR20 rings at major load bearing points.
(i.e. at head, throat, tack, clew, luff/leech reefing points)

d) Gauge #0 eyelets spaced 350mm apart along head and foot for sail lacing.

e) Two reefs in the sail. Height of reefs to be measured from the tack.

Reef one max 600mm Reef two max 1300mm

f) Gauge #00 eyelets equally spaced in sail reefing rows between luff and leech reefing eyes on a 50mm wide reinforcing strip of Dacron (7 no. for each reef). Centre of eyelets to be 50 mm below line joining the centres of the two 20mm diameter SR20 ring reefing eyes of each reefing row.

g) 4mm diameter polyester braid reefing ties 560mm long knotted either side of the #00 eyelets. (7 no. for each reef).

h) The foot, luff and head of the sail to be reinforced with 7mm diameter polyester or polypropylene rope (continuous around the clew, tack, throat and peak); this line contained within 100mm wide polyester tape to match the colour of the sail

i) 3mm diameter polyester braid leech line within 50mm wide leech tape to match colour of sail. A suitable cleat to be included at the tack

j) Maximum foot round 140mm which is to be a fair curve between tack and clew.

k) Minimum leech hollow 25mm which is to be a fair curve between peak and clew

l) Sail numbers in Cheltenham Bold to be 381mm high cut from self-adhesive cloth of contrasting colour. Sail numbers to be parallel with foot of sail. Single numbers always to be placed in the space nearest the mast. Dark coloured sails may have back to back numbers in high position.

m) Items to be supplied with Mainsail: -

5 sail ties 1500mm long
2 lengths of pre-stretched lacing 7m long x 3mm diameter
2 lengths of pre-stretched lacing 2m long x 3mm diameter

5.2.2 Jib Sail

a) Dimensions (***Maximum***). Refer to SKETCH 5.3.

Foot	2030mm
Luff	3970mm
Leech	3350mm

b) Jib to be crosscut with a maximum of 5 seams.

c) 14mm diameter SR14 rings at head and tack and 20mm SR20 ring at the clew.

d) 5 off no. 1 hanks:- one at 150mm from head, one at 300mm from tack, the remainder at evenly spaced intervals, each fastened to #00 gauge eyelets in the luff.

e) 4mm 7x19 stainless steel wire within 100mm polyester tape (to match sail colour) from head to tack, having thimble eyes at both ends.

f) Head of sail attached to the upper thimble by 40mm long light stainless steel shackle. Tack of sail secured to lower thimble with suitable lashing

g) 3mm polyester braid Leech line with suitable cleat at the tack.

h) Maximum foot round 89mm which is to be a fair curve between tack and clew.

i) Minimum leech hollow 38mm.

5.2.3 Spinnaker

a) Dimensions (***Maximum***). Refer to SKETCH 5.4.

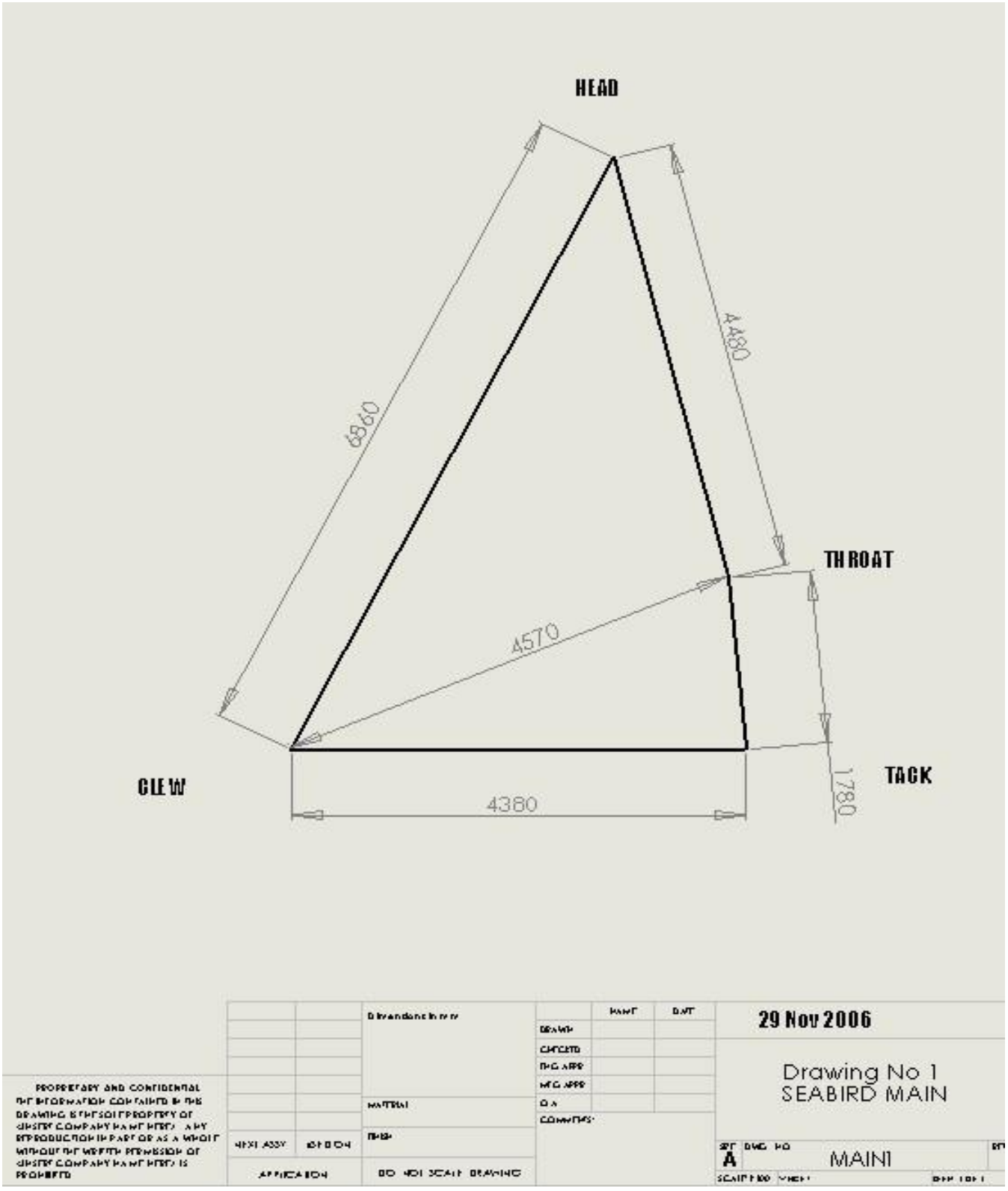
Luff	4570mm
Leech	4040mm
Foot	3450mm
Head to mid Foot	4420mm
Mid Luff to mid Leech	2030mm

b) 14mm SR14 diameter rings at major load bearing points i.e. head, tack and clew.

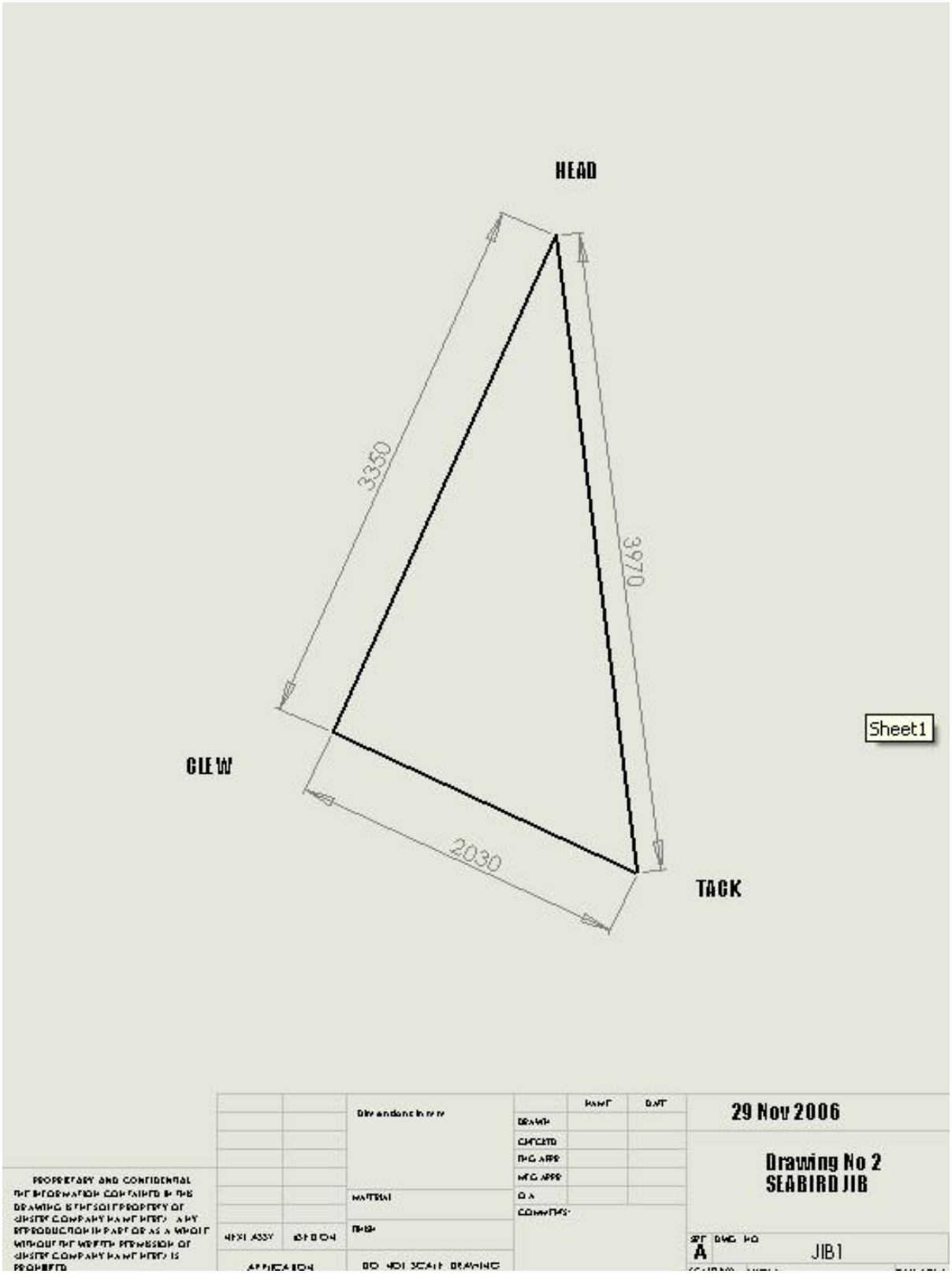
c) Reinforced with 25mm wide polyester tape around leech and foot.

d) Light cording in the luff reinforced with 40mm wide polyester tape.

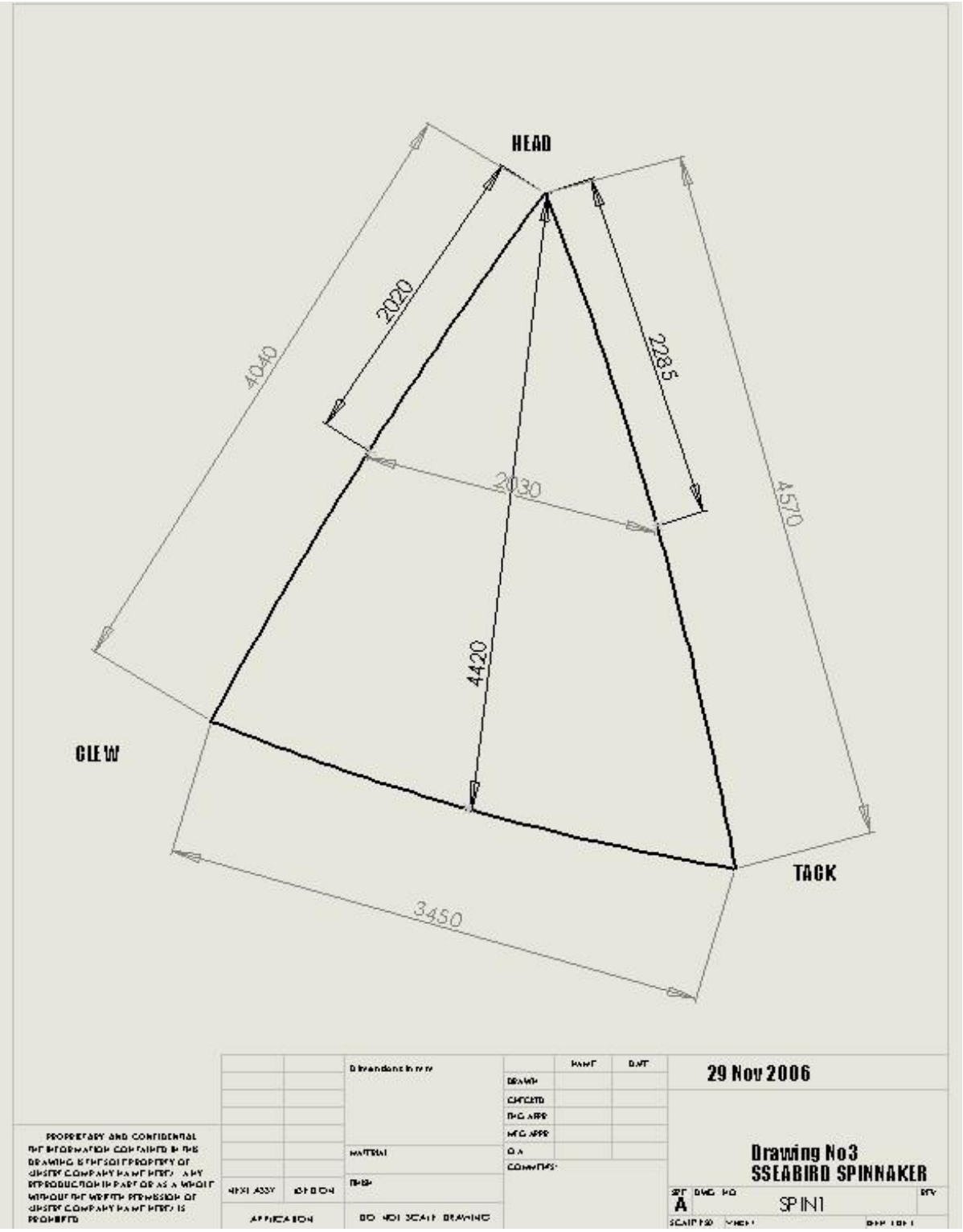
SKETCH 5.2 - Mainsail Dimesions



SKETCH 5.3 – Jib Dimensions



SKETCH 5.4 – Spinnaker Dimensions



6. Ancillary Equipment

6.1 Anchor & Anchor Rode

6.1.1 One At least one suitable anchor shall be carried on board at all times. Older style anchors (eg. Fisherman's, plough/CQR type) of 9kg (20lbs.) or modern anchors (eg. claw/Bruce, Delta, Spade types) of not less than 6kg (13 lbs.) are considered suitable. Owners must select an anchor giving full consideration to the local situation and anchoring conditions (wind/weather, shelter, water depth, tide and seabed), and always following the manufacturer's recommendations.

6.1.2 A minimum of 30m (100') of 6mm (1/4") section short link galvanised chain shall be carried. The chain is to have enlarged links at each end and a suitable shackle for connection to the anchor.

6.1.3 The stowed anchor chain shall be located forward of the mast and ready for deployment

6.2 Oars & Rowlocks

6.2.1 One pair of 10'0" oars or one sculling oar of 12'0" length must be carried.

6.2.2 One pair of long shanked rowlocks of sufficient size to clear the coamings or one heavy rowlock positioned above the transom must be carried. Suitable mounting points for rowlocks shall be provided to facilitate their use.

6.3 Reserve Buoyancy

6.3.1 The installation of buoyancy bags or block flotation material is optional; such buoyancy should be well secured. However, structural alterations to the hull in order to gain buoyancy are not allowed.

7. Items of Equipment Not Sanctioned

The Association have not sanctioned the following :-

a) Bottle screws
b) Kicking strap (boom vang)
c) Winches
d) Sliding fairleads
e) Barber hauls
f) Topping lifts, down-hauls and sliding mast tracks for the spinnaker boom g) Toe straps
h) The covering of the keel Centre-plate slot with strips, plugs or fairing of any sort
i) The tiller shall not be hinged, jointed or otherwise flexible and shall be free of all appendages such as extensions or handles.
j) Jamming cleats for the mainsheet