Section E -Sail Specifications

E1 Modifications, Maintenance, and Repair

1.1 Sails shall not be altered in any way except as permitted by these class rules.

1.2 Routine maintenance such as re-stitching seams or patching a rip is permitted without re-measurement and re-certification provided it makes no change to the dimensions of the original sail.

E2 Limitations

2.1 Not more than 1 mainsail, 1 jib, 1 Genoa and 2 spinnakers shall be carried aboard.

2.2 Not more than 1 mainsail, 1 jib, 1 Genoa and 2 spinnakers shall be used during an event, except when a sail has been lost or damaged beyond repair.

2.3 A working jib may be substituted for Genoa jib at any time.

E3 Mainsail

3.1 Identification

The Class symbol shall be  . The class symbol shall be placed above the racing number, and both symbol and number shall be no less than 10" in height.

3.2 Sail Numbers

(a) Sail numbers are issued by the boat manufacturer.

(b) Sail numbers are issued in consecutive order starting with the number 1.

3.3 Mainsail Use

(a) The mainsail shall be hoisted on a halyard. The arrangement shall permit hoisting and lowering of the sail at sea.

(b) No part of the mainsail shall project above the main halyard sheave in the mast.

(c) Luff and foot bolt ropes or sail toggles (slugs) shall be in the spar grooves or tracks.

E4 Working Jib

The working jib shall be hoisted on a jib halyard. The arrangement shall permit hoisting and lowering. The tack of the jib must be shackled to the forestay chain plate. The jib must be hanked to the forestay.

E5 Spinnaker

The spinnaker must be affixed to the spinnaker halyard. The spinnaker halyard is run through a grommet in the jib hound assembly on the mast. It is also acceptable to run the spinnaker halyard through a block shackled to the jib hound grommet.

E6 Measurement Procedures

Notes:

1. A measurer shall not measure any part of a boat owned by himself, or in which he is an interested party, or has a vested interest.

2. If an official measurer is in any doubt as to the application of, or compliance with, the class rules of any part of a boat he shall consult the National Association or it's representative present at the competition before signing a measurement certificate or attaching a certificate mark. It is not a measurer's job to make rule interpretations.

3: The current International Sailing Federation (ISAF) "Equipment Rules for Sailing" shall be used as a reference document when questions of definition or measurement methods arise.

6.1 All sails shall be constructed and measured in accordance with the provisions in this document.

6.2 All new, previously unmeasured or recut sails must be measured and marked by an Association approved sail measurer prior to being used for a Nationals competition. All sails previously measured and marked at a Nationals competition may be used in future Nationals competition, if the "mark" is still readable. Competitors must show their "marked" sail to the measuring committee.

6.3 All sails must be legibly marked with an indelible marker. The marking shall include the measurement date, the initials of the measurer and the group affiliation (Yacht Club). This marking shall be made at the tack of all sails.

6.4 All sails shall be measured while dry and lying on a flat surface. All measurements shall be made in a straight line.

6.5 Boltropes, tapes or wire, where used on the edges of any sail, shall be considered as part of the sail when measuring or determining all dimensions or locations, except as otherwise specified.

6.6 To find a corner measurement point or "apex" may require the extension of the line of the edges of the sail adjacent to the point. Where the line of the extension is obvious this should be used. Placing a batten along the edge can often help to give a true extension line continuing any curve. Where the line of the extension of the edge is uncertain and not repeatable leading to inconsistent

measurements points, the measurement of the sail should be refused. Cringles, thimbles, or other hardware, which are partly or entirely external to the sail shall be disregarded.

6.7 The leech of the jib and of mainsail may be of any shape, except that no part of the sail be so constructed as would be deemed or might be deemed by a measurer to be a violation of the intent of the Association Rules on girth restrictions. The leech shall be a "fair" and "normal" curve particularly along its midpoint. Refer to Figures 1a and 1b.

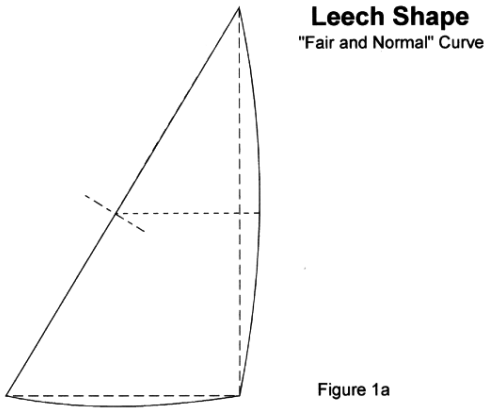


Figure 1a

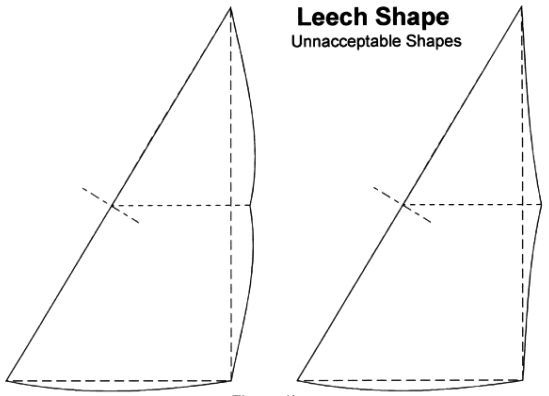


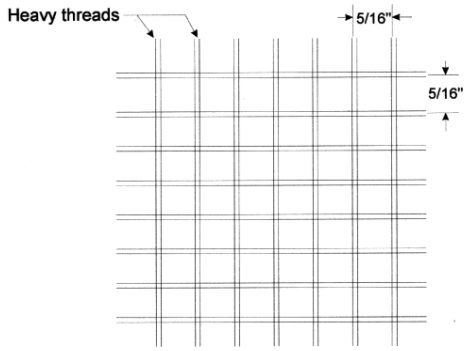
Figure 1b

6.8 If a sail measures outside the published specifications the measurer shall show the owner the reason for the discrepancy and recheck the sail with the owner present.

E7 Fabric

7.1 Permitted: One ply of woven cloth e.g., cotton, Dacron, or polyester.

Example; *use of 4.2 oz Dimension Polyant HTP® square cloth is permitted. This is a woven material much like rip-stop spinnaker cloth except heavier and stiffer.*



4.2 oz. Dimension Polyant HTP square cloth (polyester woven)

7.2 *Not permitted:* Laminated sail material, film, Mylar, Kevlar, tri-axial construction or other variations of materials. Two or more plys are not permitted except when used as reinforcements as described below in Article III, Section 1.3.

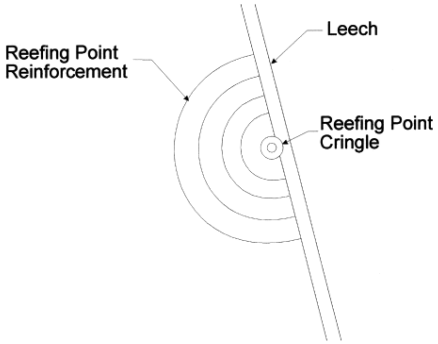
E8 Reinforcements

8.1 Reinforcements at the corners of the sails, made only of permitted types of woven fabrics, for the purpose of ensuring the integrity of the sail and the longevity of the original sail shape, may be of two types; "Stiffening" and "Additional". Such reinforcements are to be measured from the actual physical corner of the sail, not from an extended "apex" or "triangulation" point. The dimensions given in "a." and "b." below are maximum dimensions. The use of maximum reinforcements is optional and not necessarily recommended.

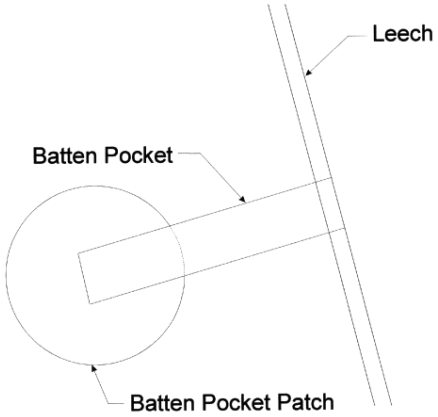
8.2 Stiffening reinforcements, constructed of multiple layers of permitted types of fabrics, with or without close stitching, provided that they are within a 24 inch maximum radius from any corner of the sail, are permitted.

8.3 Additional reinforcements, which are a continuation or an extension of the corner stiffening area, constructed of not more than two layers of permitted type of fabrics, of the same weight or lighter weight as the body of the sail, are permitted. Additional reinforcements must be flexible, must be capable of being folded in any direction and must not exceed a maximum radius of 72 inches from any corner of the sail. Any form of stiffening, including additional reinforcements, the use of bonding agents, and close stitching, is prohibited at the tack of the mainsails or jibs. Glued seams shall not be considered a form of stiffening if they can be folded in any direction.

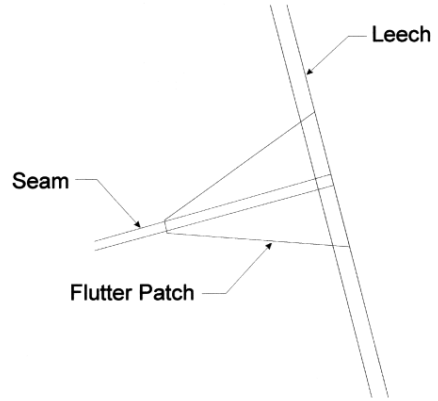
8.4 Additional reinforcement at a reefing point cringle is permitted.



8.5 Circular batten patches to reinforce the inner end of batten pocket is permitted. This may be made from 2 oz. insigna cloth with adhesive or from heavier cloth and sewn in.



8.6 Flutter patch covers at seam to reinforce the sail edge are permitted. This lessens "comb-out" of the seam and greatly reduces the chance of seam failure at the leech.



E9 General Specifications

9.1 Boltropes and tapes may be of polyester or nylon. Normal tabling is permitted provided that the sail is not stiffened by the tabling. Sail slugs are permitted on the luff and foot.

9.2 Battens may be constructed of wood or plastic/fiberglass. Wood and plastic/fiberglass battens may be used simultaneously in one sail. Batten pockets shall be no longer than required to accommodate the batten.

9.3 Telltale windows are permitted in jibs and mainsails. No more than three telltale windows may be placed in any one sail and each telltale window shall not exceed 30 square inches in area.

9.4 Anti-collision windows, other than telltale windows, shall be permitted in mainsails, genoas and working jibs. Anti-collision windows, where permitted, shall be optional and shall be no larger then 2 square feet per sail. Anti-collision windows shall not be placed closer than 6 inches to the luff, leech or foot.

9.5 Loose footed mainsails are not permitted.

9.6 No means of changing size or shape of any sail mechanically, except for roller-reefing or reefing points on the mainsail, is permitted. This shall not restrict the adjustment of tension on the luff or foot by the use of halyards, downhauls, outhauls, cunninghams, or vangs.

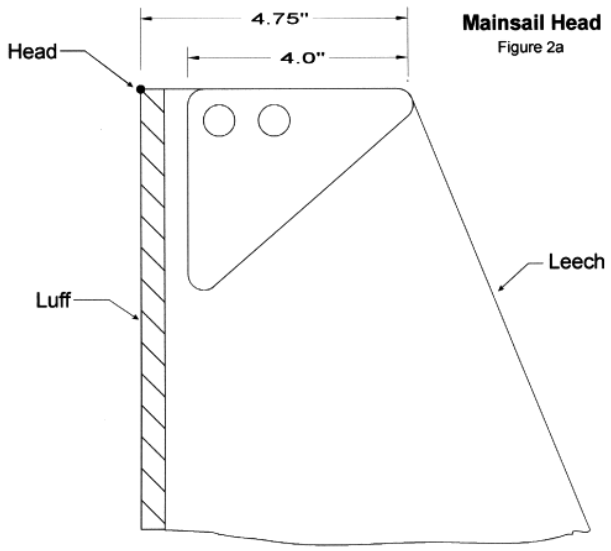
9.7 Any detail of sail construction not expressly addressed in these specifications (e.g., seam direction, width of panels, or type of weave) is allowed.

9.8 The use of leech lines in all sails is permitted to reduce flutter after aging and stretching.

E10 Measuring the Mainsail

Note: *Boltropes, tapes or wire, where used on the edges of any sail, shall be considered as part of the sail when measuring or determining all dimensions or locations, except as otherwise specified.*

10.1 The headboard may be of plastic, cast or flat metal and shall not be more than 4 inches wide when measured across the top of the headboard perpendicular to the luff, and not more than 4.75 inches wide when measured across the top of the headboard from the outer edge of the luff, including the boltrope, to the outer edge of the leech. Refer to figure 2a.

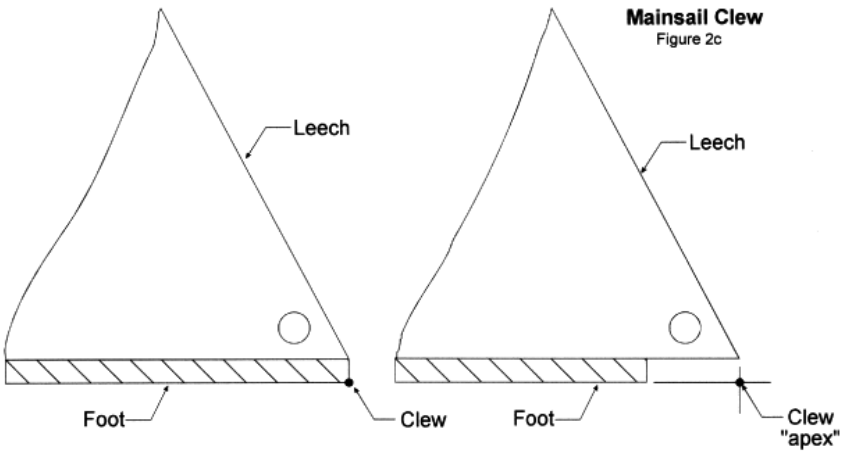


Mainsail Head
Figure 2a

10.2 The mainsail shall contain three battens spaced approximately equally along the leech. The upper batten shall not exceed 15 inches, the middle batten shall not exceed 24 inches, and the lower batten shall not exceed 21 inches.

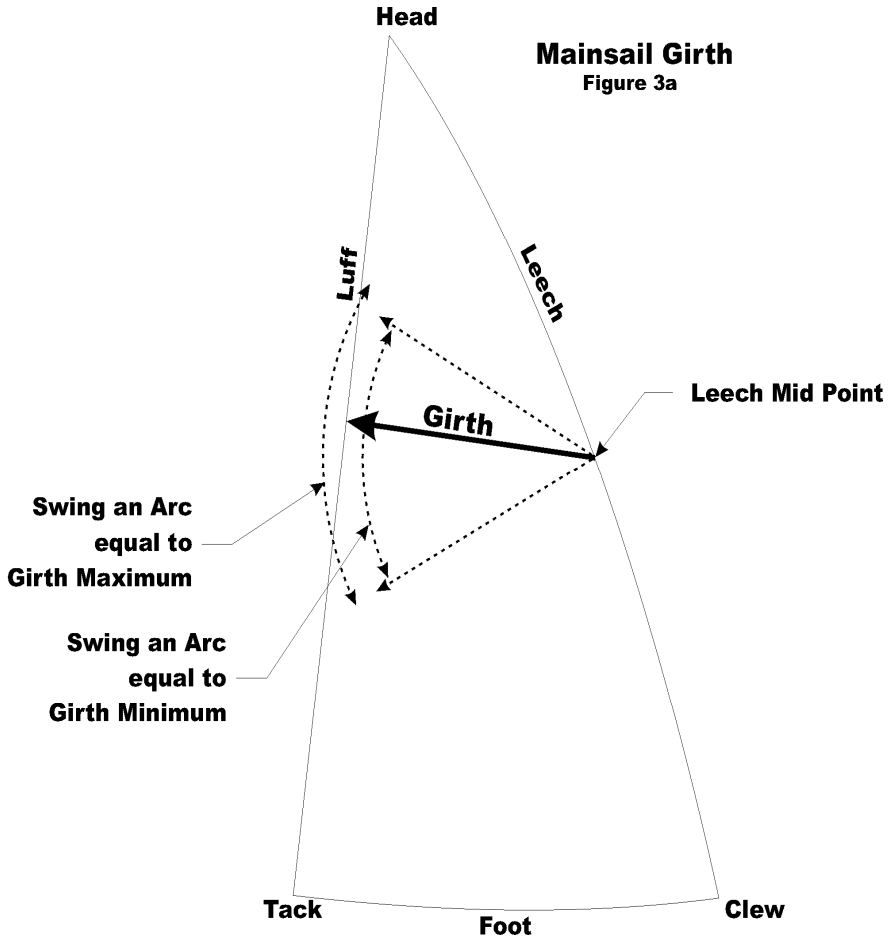
10.3 The leech of the mainsail shall be measured, with battens removed, under a pull of 10 lbs. applied at the clew thimble with the headboard fixed as a stationary point. Refer to figures 2a, 2c and 3a. The straight line measurement shall be taken from the apex of the headboard at the luff edge, including the boltrope, to the apex of the foot at the clew, including the boltrope. This measurement shall not exceed the following limits:

Leech	
Maximum	**Minimum**
20' 3" (243")	19' 9" (237")



10.4 The girth of the mainsail shall be measured, without tension, as the shortest straight line distance swung across the sail by a tape from the half leech point to the luff including the bolt rope . The half leech point is found by folding the head point to the clew point and equally tensioning the two halves of the leech so formed. The half leech point is the intersection of the fold and the leech. The measurement shall be taken with the sail smoothed without pulling or stretching the cloth on the bias. The measurement shall not exceed the following limits:

Girth	
Maximum	**Minimum**
6' 1" (73")	5' 10" (70")



E11 Measuring the Jibs

11.1 No headboards are permitted on any jib.

11.2 Two battens (optional) may be used in the working jib spaced approximately equally along the leech. They shall not exceed 12 inches each. No battens are permitted in the genoa jib.

11.3 To measure both the working jib and genoa:

(a)Locate the head apex and tack apex and then measure the luff.

(b) Locate the head apex and clew apex and then measure the leech.

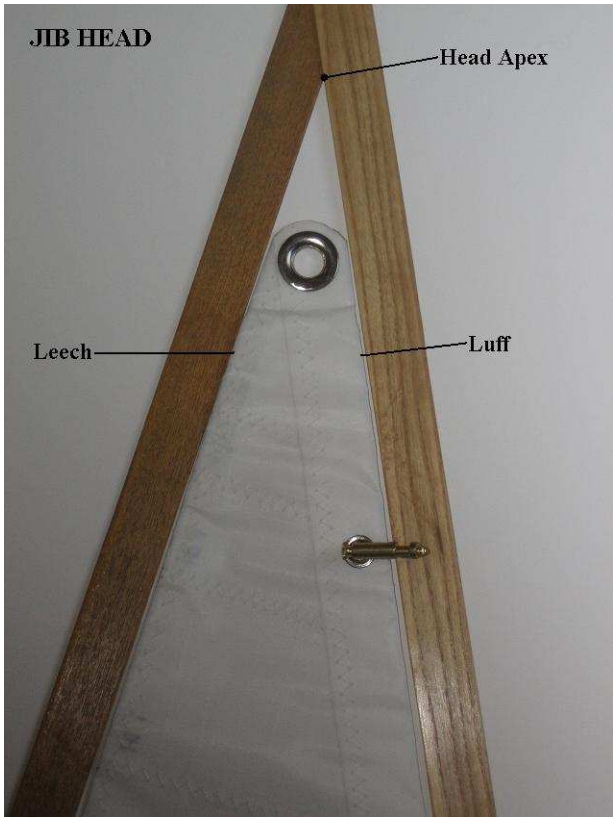
(c) Locate the tack apex and clew apex and then measure the foot.

(d) To measure the girth, put the head apex and tack apex together, locate and mark the mid point. Put the head apex and clew apex together, locate and mark the mid point. Measure the distance between the two marks.

(e) Measurements are to be made under a pull of 5 lb. Refer to figures 4a, 4b, 4c, 5a and 5b. The measurements are to be taken from the intersection of straight lines extending from the edges of the sail at each corner. To find an apex, see Section E6.1(f). These measurements shall not exceed the following limits:

Working Jib		
	Maximum	**Minimum**
Luff	14' 2" (170")	13' 10" (166")
Leech	12' 5" (149")	12' 1" (145")
Foot	4' 10" (58")	4' 8" (56")
Girth	2' 9" (33")	2' 7" (31")

Genoa Jib		
	Maximum	**Minimum**
Luff	14' 6" (174")	14' 2" (170")
Leech	13' 10" (166")	13' 6" (162")
Foot	8' 6" (102")	8' 4" (100")
Girth	4' 3" (51")	3' 11" (47")



NOTE: *On the girth measurement, be sure to use the head apex when matching up to the tack and clew. Do not measure cringle to cringle as this will incorrectly increase your girth measurement. Refer to the photos at left and below, 4a-c.*

Figure 4a

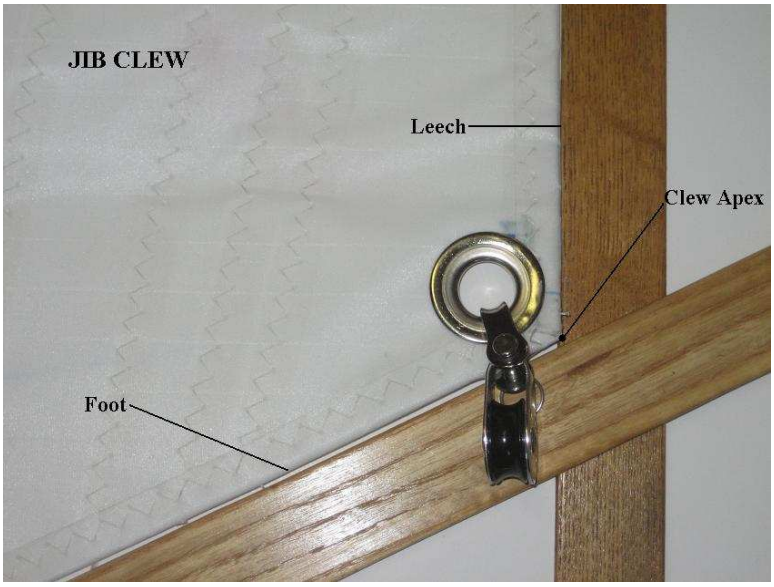


Figure 4b

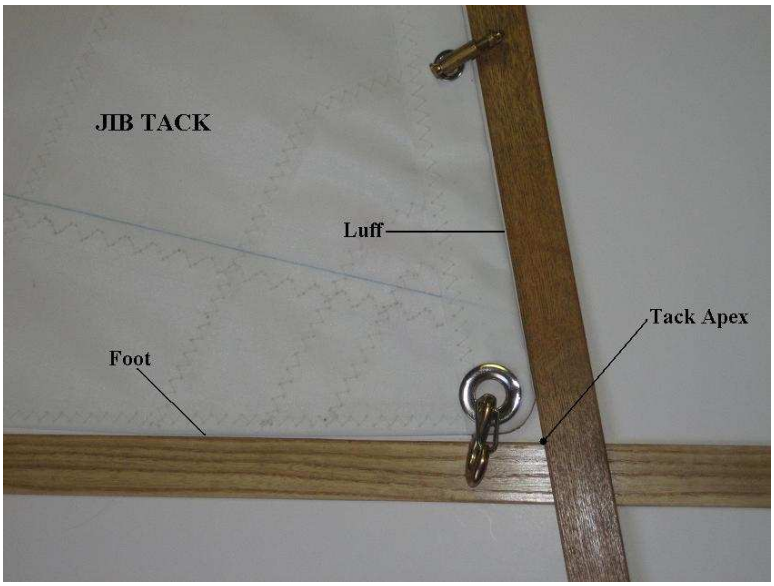
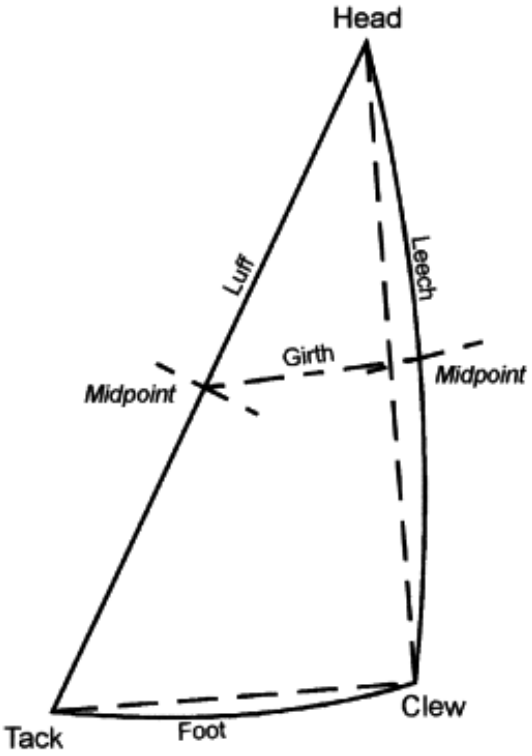


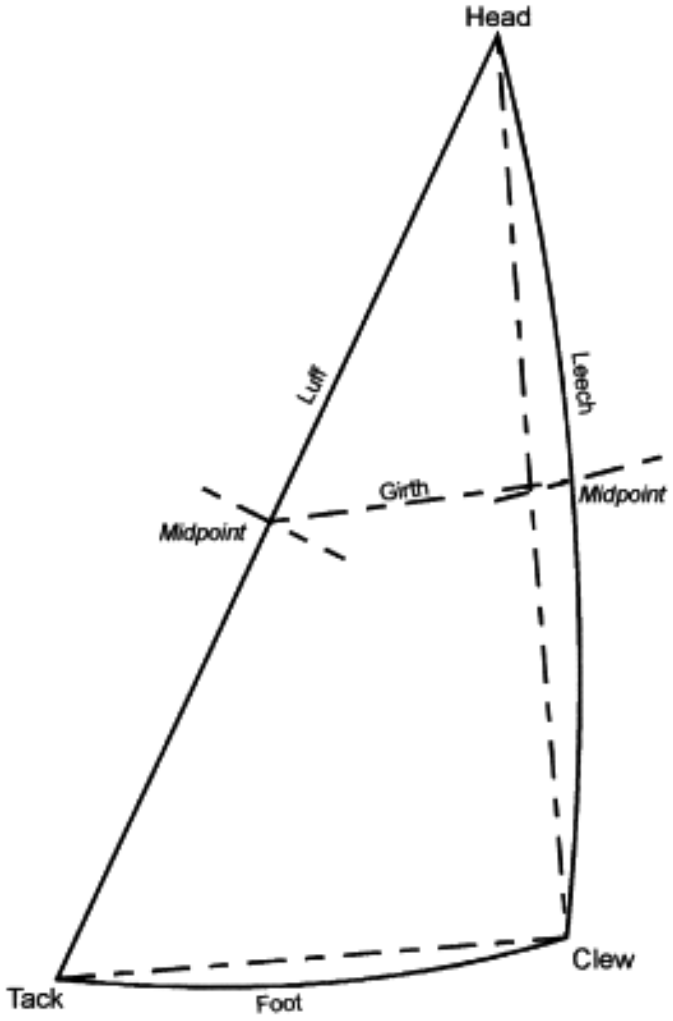
Figure 4c

Working Jib

Figure 5a



Genoa Jib
Figure 5b



E12 Measuring the Spinnaker

12.1 No headboards shall be permitted.

12.2 The spinnaker must be measured on a clean dry area large enough to allow for the entire length of the sail and one-half of the width of the sail to be laid out.

12.3 The sail shall be folded in half around a vertical axis by placing the luffs/leeches together with the body of the sail pulled out to one side. Refer to figure 6.

12.4 Brummel hooks are optional.

12.5 The luff and leech shall be measured from a point on the edge of the sail at the center of the head cringle to the "apex" or "triangulation" of the tack and clew. Refer to photos 7, 8, and 9. Both the luff and leech shall be measured simultaneously with 10 lbs. of tension applied to the tack/clew with the head fixed as a stationary point. This measurement shall not exceed the following limits:

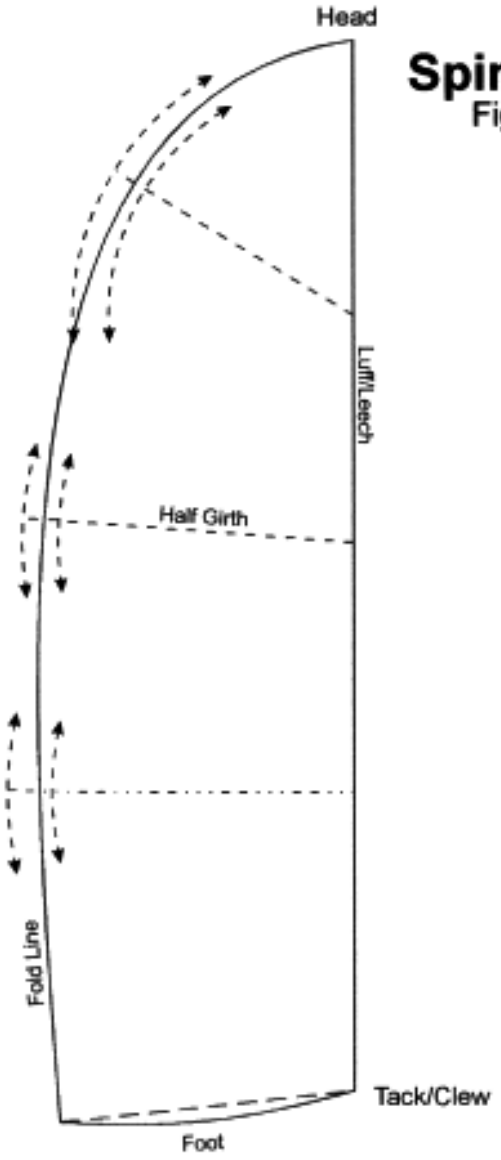
Leech & Luff	
Maximum	**Minimum**
17' 2" (206")	15' 6" (186")

12.6 The spinnaker maximum width shall be the maximum width, whether at the foot or across the body of the sail, between points on the luff and leech equidistant from the head. Beginning at the top of the sail and working down to and including the foot of the sail, a series of half girths must be measured at close intervals.

The half girth is measured by placing the zero end of a tape measure at the leeches/luffs and measuring across the sail to the fold line. An arc must be swung from the leeches/luffs to locate the perpendicular from the fold line. In any one station, the perpendicular is the shortest distance between the luff/leech edges and the fold line or the smallest measured distance. Refer to figure 6. The largest half girth when doubled is the Spinnaker Maximum Width.

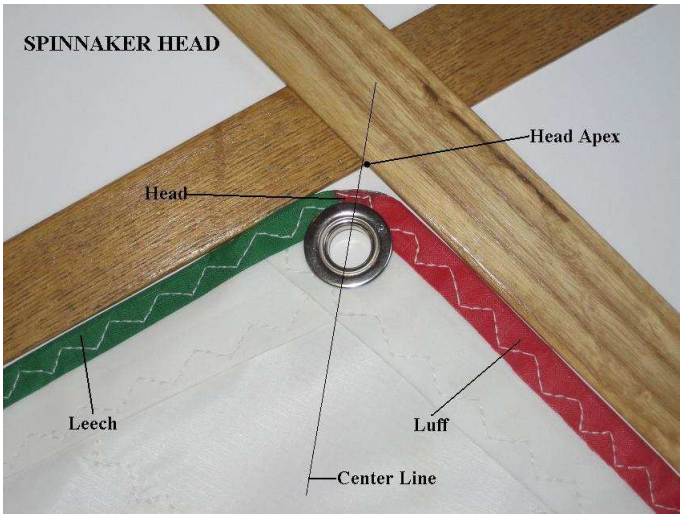
NOTE: *When measuring the girth be careful not to put any tension on the cloth. It should only be smoothed out to remove wrinkles.*

Maximum Width and Half Girth		
	Maximum	**Minimum**
Spinnaker "Max Width"	12' 0: (144")	11' 6: (138")
Half Girth	6' 0: (72")	5' 9" (69")



Spinnaker
Figure 6

Figure 7



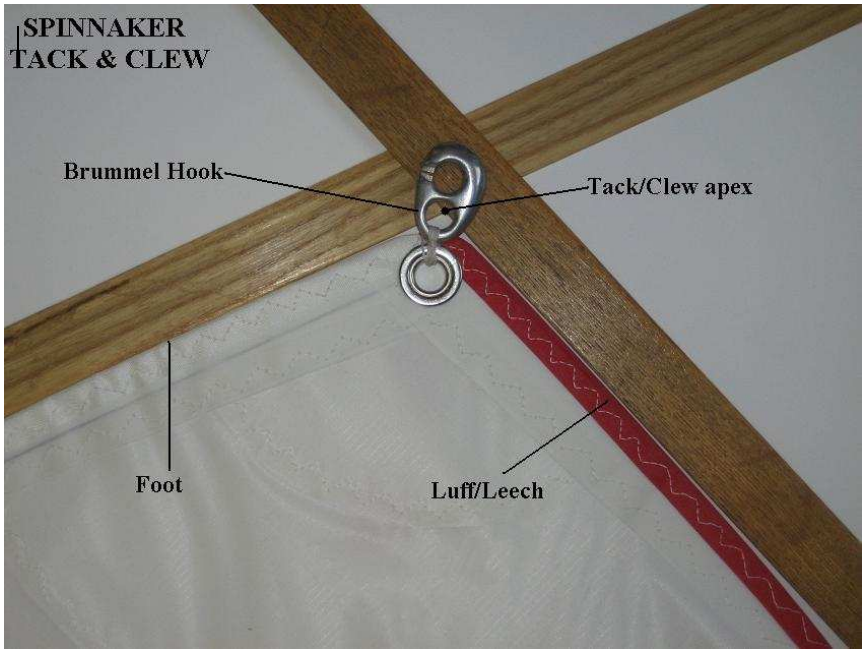


Figure 8

Figure 9