

**Report of the Chief Handicapper
To the LNKC Board of Directors
February 28, 2010**

1. The Board of Handicappers (BOH) met in February and August as prescribed in the LNKC PHRF Program document. The minutes of these meetings are attached. The LNKC currently has 116 boats on the PHRF Valid List.
2. The Board of Directors will please note that at the August meeting the BOH resolved that recommended changes attached to the minutes for that meeting be forwarded to the Board of Directors for approval. It is recommended that these changes be approved.
3. The current LNYC handicappers, Jeff Asher and Mike Wasner, have requested that they be replaced for personal reasons. It is recommended that the following persons be appointed to serve on the Board of Handicappers for 2010.

LNYC – Clay Cleeland & Don Trask
OYC – Rick Rowan & Neil Liner
PYC – Chip Richardson & John Guthrie
Chief Handicapper – Rick Rowan

4. US Sailing has received the \$125.00 LNKC organization membership fee paid in December 2009. That membership is current until December 31, 2010. The LNKC Offshore Division PHRF membership had, by prior agreement, been extended until December 31, 2009. As the LNKC did not receive membership benefits during 2009, Ms. Donna Leary, Offshore Division Coordinator, has agreed to extend the LNKC Offshore Division PHRF membership until December 31, 2010. The cost savings to LNKC for this arrangement is \$250.00.

Respectfully submitted,

R.A. Rowan
LNKC Chief Handicapper

Attachments:

1. Minutes of the January 22, 2009 BOH meeting w/attachment
2. Minutes of the August 30, 2009 BOH meeting w/ attachments

LNKC Board of Handicappers

February 22, 2009, 3:00 pm

PYC Commodore's Room

Attending – Rick Rowan, Neil Liner, Chip Richardson, Jeff Asher & Mike Wasner

The minutes for the August 24, 2008 meeting of the Board were approved as read.

Correspondence

US Sailing email dated September 23, 2008 confirming that ODR rated boats are to comply with all of their respective class rules (incorporated into minutes for August 24, 2008 meeting).

Unfinished Business

Revisions to LNKC PHRF Program Documents - All proposed revisions approved at and subsequent to the August 24, 2008 meeting of the Board of Handicappers were approved by the LNKC Board of Directors at the February 15, 2009 meeting of that Board. (Closed)

New Business

Rating adjustments for shoal draft keel variants when not specifically listed as a separate class in the US Sailing PHRF Handicaps book – The chief handicapper presented a listing of LNKC rated boat shown as shoal draft in the data base. In some instances a disparity exists between declared keel length and the shoal draft declaration. The chief handicapper will confirm the actual keel configuration for each of these boats. The Board approved a motion to allow adjustments to the base ratings of shoal draft variants not listed as distinct classes by US Sailing on an individual basis as determined by consensus of the Board. (Open)

The chief handicapper stressed the importance of timely responses to emails regarding suggested ratings for new rating requests as a consensus of the Board is required before a rating certificate may be issued. (Closed)

The chief handicapper cited the need for analyzing race results on a systematic basis to aid in determining the need for class base rating reviews. No action taken. (Open)

Rating Reviews/Rating Appeals - None

The meeting was adjourned at 4:00 pm.

R.A. Rowan
Chief Handicapper

Attachment:

1. Shoal Draft Analysis

SHOAL DRAFT ANALYSIS

Cert	Boat Model	Boat Name	Draft	Disp	LNKC	Base Rating		
						Chesapk	NC	Mid Atl
	C&C 30		5.00	7703	NR	174	174	NR
218	C&C 30 SD	Cayenne	4.20	8500	180	180	180	180
	Hunter 27		4.30	7000	NR	216	216	216
217	Hunter 27 SD	Water Music	3.30	7000	216	216	222	222
142	Harbor 25	Azzurra	5.00	3900	174	174	NR	NR
	Shoal Keel		3.83	4050				
180	Beneteau Oceanis 321	For Sale	4.25	9700	180	174	NR	NR
	Shoal Keel (Note 1)							
140	Hunter 26.5	Intuition	3.50	4400	192	192	NR	NR
	Shoal Keel (Note 2)							
	Beneteau 42 TM (Note 3)		7.30	21484	NR	84	NR	NR
	Beneteau 42 TM SD		6.00	21484	NR	96	NR	NR

NR - Not rated

Note 1 - Beneteau Oceanis 321 declared shoal keel with keel draft and displacement same as standard Oceanis 321

Note 2 - Hunter 26.5 declared shoal keel with keel draft and displacement same as standard Hunter 26.5 and 26.5 IB

Note 3 - Beneteau 42 TM shown to illustrate that rating differences can be as much as 12 sec/mi

LNKC Board of Handicappers

August 30, 2009, 3:00 pm

PYC Commodore's Room

Attending – Rick Rowan, Neil Liner, John Guthrie, Chip Richardson, Jeff Asher & Mike Wasner

The minutes for the February 22, 2009 meeting of the Board were approved as read.

Correspondence - None

Unfinished Business

LNKC rated boats listed in the data base as shoal keel. Rick Rowan has reviewed all boats shown in the data base as shoal keel and made required changes to reflect the correct keel configuration for each boat with rating adjustments as necessary. (Closed)

Systematic analysis of race results. At this time the BOH does not systematically review race results to aid in determining the need for class base rating reviews. Board members will attempt to insure that complete race results are provided to Neil Liner for posting on the LNKC site. However, the Board failed to appoint a responsible person to analyze the data. (Open)

New Business

Changes to LNKC PHRF program documents. Rick Rowan introduced proposed revisions to the PHRF Rating Program document and the Standard Sail & Equipment Specifications. It was resolved that all recommended changes be submitted to the LNKC Board of Directors for final approval. (Proposed changes are attached) (Open)

Rating Reviews/Rating Appeals - None

The meeting was adjourned at 4:00 pm.

R.A. Rowan
Chief Handicapper

Attachments:

1. LNKC PHRF Rating Program red line changes
2. LNKC Standard Sail & Equipment Specifications red line changes

Lake Norman Keelboat Council

Performance Handicap Racing Fleet (PHRF)

Rating Program

Introduction. Rating by performance handicap is a method of providing equitable time allowances for sailboats of different designs racing against each other. Numerous systems have been employed. Some were methods of handicapping boats, some handicapped skippers, and some combined both systems. The increased interest in the racing of cruiser/racer type sailboats has produced the Performance Handicap Racing Fleet. Measurement-based rating formulas with the attending rapid changes in boat design have turned many skippers to the performance based handicap system. Performance handicap emerges as the best assurance of continued opportunity to compete fairly against all designs, both new and old. In 1981, USYRU (now US Sailing) recognized PHRF as a full committee under its Offshore Racing Council. PHRF programs are locally administered by rating organizations throughout the United States and elsewhere. At Lake Norman the program is administered by the Lake Norman Keelboat Council (“LNKC”) Board of Handicappers under policies approved by the Board of Directors of the LNKC.

PHRF Handicaps. PHRF ratings are boat performance handicaps based on the speed potential of the boat, and are determined to the extent possible by observation of previous boat performance. However, because of the number of boats in PHRF, it is not practical to operate on statistics related to individual boats alone. A broader statistical base is obtained by treating production boats of consistent design and construction as a class. Where a class has several boats racing actively, the performance data accumulate rapidly and it is possible to arrive at a fair handicap in a short time. It is the intent of PHRF handicapping that any well equipped, well maintained, and well sailed boat will have an equal opportunity to win. PHRF ratings are not intended to reflect skipper and crew capability. Intensity of competition and the influx of new and aggressive sailors require each skipper to maintain consistently high performance in order to place well. The PHRF rating of an individual boat, expressed in increments of 3 sec/mile, is deducted from elapsed time to produce a corrected time. The higher rating indicates the slower boat. Observations of numerous races show that it is impossible to gauge a boat’s potential performance more accurately than this because of the multiple factors involved. Differences in skipper and crew skill represent a much larger factor than 3 sec/mi.

Boat Design. The PHRF is an open rule. There are no limitations on ingenuity other than those listed herein. A boat must be a monohull of self righting design with an overall length of at least 20 feet. Well designed and constructed boats are expected not to be made obsolete by newer designs under PHRF. PHRF does not use formulas to determine handicaps, because any formula once established can be beaten by a clever designer. As faster designs appear, they are handicapped accordingly. Therefore, one of the major attractions of the PHRF system is that older boats can race competitively with the latest designs. PHRF discourages rule beating. If a skipper modifies his boat, PHRF will attempt to compensate for the new potential speed. The use of taller masts, longer spinnaker poles, extra ballast, gutted interiors, or other modifications intended to increase speed is compensated for by the rating assigned.

Classes. A base rating is established for each production class, and boats within a class are assumed to be identical for rating purposes. Ratings for boats in the same class will differ only with headsail size or other specific factors known to affect performance. Deviations from class regulations must be substantive to warrant a non-class rating and boats must declare any deviations from class specifications. PHRF may assign a One Design Rating (ODR) to the one design configuration of a boat that is of a design that is recognized by US Sailing as a One Design Class, however one design class rules which limit headsail size, sail materials, or spinnakers do not apply to PHRF unless the boat is rated as ODR. Each individual boat that desires to be issued a one design rating must specifically request a ODR and all class restrictions will apply when competing with the ODR. A boat may not change its rating by choosing ODR or non ODR more often than once during the calendar year.

New Class Boats. A new boat in an established class is given the rating for that class, except that adjustments may be made for deviations from the class standards. For new classes and one-of-a-kind boats, the rating is determined on the basis of comparison with similar boats with established ratings. Comparison is made considering the type of design and principal dimensions. The rating may be adjusted as performance data becomes available.

Equipment. PHRF assumes that the boat is equipped to race. It does not attempt to rate a partially equipped boat, or a boat which differs from others in its class, in that it is unusually heavy, out of balance, or has unusual windage (as from a dinghy or davits). However, if the basic hull and rig differ from others in its class, it may be rated uniquely. A skipper may experiment with different ways of improving the performance of his or her boat without the inconvenience of applying for a new rating. However, if there are changes to the hull, rig, sails, or other factors upon which the existing rating is based, they must be reported to the handicapper for evaluation. If possible deviations on the part of another boat become evident other competitors are urged to appeal to the handicapper. A detailed list of PHRF equipment requirements is contained in the Lake Norman Keelboat Council Standard Sail and Equipment Specifications which is published as an integral part of this document.

Auxiliaries. A boat that carries a valid rating claiming an inboard or outboard auxiliary must carry that auxiliary during every race. For a boat rated with an engine, the boat shall have enough engine and propeller power to move the boat at a speed in knots equal to the square root of her waterline length (LWL) measurement. A boat which has a valid rating issued on the basis of no engine or auxiliary may choose to carry an auxiliary; however no rating change shall be made. A boat may petition the Board of Handicappers for a re-rating, considering the presence of an auxiliary, but no more than once in any calendar year.

Headsail Size. Because headsail size can greatly affect boat speed, PHRF uses this as a rating factor. Non ODR boats are base rated for a maximum headsail LP of 155% of the boat's J measurement. A rating adjustment is made for headsails greater than 155%. A rating assigned to accommodate a large headsail will be used even if wind conditions preclude use of the sail. A boat may not change its rating by choosing a different headsail more often than once during the calendar year.

Spinnaker or Non-spinnaker. Boats possessing a valid LNKC spinnaker class rating will use the same rating regardless of whether they race in spinnaker or non-spinnaker classes. If spinnaker measurements are not submitted on the rating application, the rating will be issued for non spinnaker competition only. If a boat declares an oversize pole but does not submit spinnaker measurements, the rating will be issued without an adjustment for the pole as the use of oversize poles is prohibited in non-spinnaker classes. A boat may not change its rating by choosing a spinnaker or non-spinnaker rating more often than once during the calendar year.

Symmetric and Asymmetric Spinnakers. LNKC allows boats to be rated to race with a conventional symmetric spinnaker, an asymmetric spinnaker, or both types of spinnakers. Either type of spinnaker may be flown from a movable spinnaker pole attached to the mast, or an asymmetric spinnaker may be tacked to a retractable, movable, or fixed bowsprit. Boats may race with both types of spinnakers. The choice of symmetric, asymmetric, or both types of spinnakers will be made at time of application for a spinnaker class rating and may be changed once during the calendar year.

Courses. The PHRF rating system can be used for all types of courses. An objective evaluation of a well prepared and well sailed boat's performance on the various courses run on Lake Norman will yield a fair rating that can be used in all events conducted on the Lake.

Board of Handicappers ("the Board"). Ratings are determined by a Board of Handicappers that will consist of two (2) handicappers from each LNKC member club appointed annually by the Board of Directors of the LNKC. One member of the Board will be appointed as Chief Handicapper. The Chief Handicapper acts as chairman. With time, the handicappers become familiar with the performance of the active boats and are able to evaluate their characteristics. Through experience, the handicappers become familiar with the Lake Norman wind conditions and understand how much of an allowance to make for conditions before evaluating boat speed in competition. Handicappers maintain a constant search for boats which require an adjustment of handicap in order to permit them to compete fairly with the balance of the fleet. Handicappers are selected on the basis of an active interest in handicap racing, knowledge of boat design and performance, a judicial temperament, and demonstrated leadership in sailboat racing. Those who are active participants in racing have put aside their primary interests as contestants to evaluate boats fairly and accurately. Clearly, the system rests on the integrity of the handicappers. The names and club affiliation of the members of the Board as well as contact information can be found on the LNKC web site at www.lnkc.com.

Meetings. The Board shall convene no less often than twice each year in February and August to conduct the business of the Board. The Chief Handicapper will prepare and distribute to the members of the Board a meeting announcement and agenda, along with any documents to be considered by the Board, at least fifteen (15) days prior to each meeting. A quorum of four (4) members shall be required for the Board to take any action.

Application for Ratings. Any owner or skipper of a boat requiring a rating shall apply to the Chief Handicapper using the form available at www.lnkc.com. The hull, rig and sail measurements as reported on the rating application form are critical to the establishment of the PHRF rating. The responsibility for supplying accurate measurements rests solely with the owner of the boat. Although builder-supplied information can and should be consulted, particularly with regard to hull measurements, considerable variances between sailboats of the same model can be possible. Variances in rig and spinnaker pole dimensions are quite common, which could result in the rating being declared invalid if the owner supplied incorrect information. Accurate measurements of the largest headsail and largest symmetric and/or asymmetric spinnaker to be used are required to obtain a rating, as well as a declaration as to how the sail measurements were obtained.

Base Ratings. PHRF base ratings are made by consensus of the Board under the following assumptions. Additional requirements and definitions of the variables expressed below are contained in the LNKC Standard Sail and Equipment Specifications. Adjustments are made to the base rating if the boat does not conform to assumptions one through ten.

- (1) Genoa maximum LP is 155% of J.
- (2) Spinnaker or whisker pole maximum length (SPL) is equal to J.
- (3) Symmetric spinnaker hoist (SH) is equal to I.
- (4) Symmetric spinnaker maximum girth (G) is 180% of J.
- (5) Symmetric Spinnaker maximum luff (SL) is .95 times the square root of $(I^2 + J^2)$.
- (6) Asymmetric spinnaker maximum luff (ALU) ~~shall be between 1.0 and 1.1~~ is 1.1 times the square root of $(AH^2 + BS^2)$. BS is equal to SPL if the sail is tacked at a spinnaker pole.
- (7) Asymmetric spinnaker maximum foot length (AF) is 180% of BS.
- (8) The ratio of asymmetric spinnaker mid girth to foot length (AMG/AF) shall be not less than .75.
- (9) The boat has a folding or feathering propeller, or a retractable outboard motor.
- (10) There are no modifications to the original hull or rig design.
- (11) The boat is in racing condition.

Race Ratings. Race ratings will be established by applying adjustments to the Base Ratings. Although considerations may warrant modifications, the adjustments most commonly applied for non conforming boats are as follows:

LP larger than 155% but not greater than 165%	-3 sec/mi
LP larger than 165% but not greater than 175%	-6 sec/mi
LP larger than 175%	-9 sec/mi
Oversize spinnaker pole	-3 sec/mi
Oversize spinnaker	-3 sec/mi
Hull or rig modifications	-6 sec/mi
Exposed 2-bladed fixed propeller	+3 sec/mi
Exposed 3-bladed fixed propeller	+6 sec/mi
Roller furling above deck with UV on leech and foot	
4 to 6 oz/yd ² (UV Dacron - 4.19 oz/yd ²)	+3 sec/mi
> 6 oz/yd ² (Stamoid Vinyl Dacron, Sunbrella)	+6 sec/mi

Adjustments other than those listed above will be made by consensus of the Board.

Valid List. The Valid List is the official list of current handicaps of all boats rated at Lake Norman. It is kept current throughout the year and is posted at www.lnkc.com.

How Ratings Are Used. The rating to be used in a race is the rating in effect on the day of the first race for that event. Each applicant receives a Valid Certificate giving the current rating for the boat and the Valid Certificate is evidence of a valid rating. Valid Certificates are issued without expiration dates; however the Board will verify current data for each certificate every three (3) years and will retire the rating for a boat that is no longer being raced at Lake Norman by the certificate holder. It is the obligation of each competitor to declare the latest valid rating when entering a race. Only boats with current PHRF ratings may enter PHRF races. Race committees are requested to refuse entry to boats not listed on the most recent Valid List, unless the skipper can produce a more recent Valid Certificate or has been issued a single event rating.

Rating Reviews. Ratings may be changed by a vote of the members present at any regular meeting of the Board. Any handicapper may initiate a rating review by requesting that a discussion of the rating be placed on the agenda for the next meeting of the Board. The handicapper advocating the change must present information to support the change in the form of race results, personal observations of the boat's racing performance, or known deviations from assumptions used to establish the rating.

Rating Appeals. Formal appeals of ratings are made to the Chief Handicapper and are considered in Board meetings to be conducted twice each year in February and August. A skipper may appeal his or her boat's rating or that of another boat. Rating appeals shall be submitted no later than January 31 for consideration at the February meeting and July 31 for consideration at the August meeting. Appellants set forth their views in writing, and document their case with supporting information. Appeals must be submitted on the Rating Appeal Form available at www.lnkc.com.

Notice of Appeal or Rating Review. Certificate holders of boats with pending appeals or that are to be considered by the Board for a change in rating will be notified of the date, time and place of the meeting during which the boat's rating is to be discussed no less than 15 days in advance of the meeting and will be given the opportunity to present information justifying the current rating or supporting a change in the rating. The deliberations of the Board will be open to the Board members only. Upon receiving notification that a boat's rating is to be placed on the agenda, handicappers will avoid substantive discussions of the boat's rating with other handicappers or certificate holders.

Single Event Ratings. Single Event Rating Certificates may be issued to boats competing in races at Lake Norman. Certificates from other areas of the country will not be valid for events being conducted under LNKC PHRF handicapping guidelines and policies. Single Event Rating Certificates will be issued by the Chief Handicapper or a host club handicapper and will be valid for only that single event.

Race Results. Race results are acknowledged to provide data that can be a useful tool in handicapping. These results are used by PHRF to flag a potential misaligned rating of a particular boat class. This does not mean that because a particular boat does well the rating will be changed. However, if the race results indicate a trend in that boat class, the Board will review the rating for that class.

Conclusion. We hope you will enjoy racing in this open and competitive sport. The system is being refined constantly. You have the opportunity to play an important part in shaping the future for this kind of racing, not only by sailing competitively, but also by taking an active role in the management of PHRF.

Associated Program Documents:

- Lake Norman Keelboat Council Standard Sail and Equipment Specifications
- LNKC PHRF Rating Request form
- LNKC Board of Handicappers Rating Appeal form

Approved by the LNKC Board of Directors on February 2, 2008

Revision approved February 15, 2009

Summary of changes – Consolidated LNKC PHRF System document and LNKC Board of Handicappers Policies. Revised language regarding rating reviews and rating appeals.

LAKE NORMAN KEELBOAT COUNCIL
STANDARD SAIL AND EQUIPMENT SPECIFICATIONS

1. Headsails

- A. A headsail is defined as a sail set in the fore triangle that is tacked between the fore side of mast line and the intersection of the forestay with the deck or fixed bow sprit.
- B. The mid girth of a headsail, measured between the midpoints of the luff and leech, shall not exceed 50% of the foot length nor shall the length of any intermediate girth exceed a value similarly proportional to its distance from the head of the sail (rule 50.4).
- C. A sailboat may use a luff groove device provided that such luff groove device is of constant section throughout its length and is either essentially circular in section or is free to rotate without restraint.
- D. Headsails may be sheeted from only one point on the sail except in the process of reefing. Thus quadrilateral or similar sails in which the sailcloth does not extend to the cringle at each corner are excluded.

2. Measurement of headsails

- A. Longest perpendicular of jibs (LP) shall be measured on the perpendicular from the luff (outside edge of the sail or rope) to clew (intersection of edges of sail).
- B. LP shall be the largest such dimension found on the headsails carried on board.

3. Limitations on headsails

- A. No clew boards or headboards may be used on jibs.
- B. Battens may be used only in jibs smaller than 110% LP. The number of battens is limited to four, which must be arranged with approximately equal spacing between head and clew.
- C. The maximum Length Perpendicular (LP), measured from the clew perpendicular to the mid point of the luff, that may be used without penalty shall be 155% of J.
- D. The distance, measured on the surface, between the midpoint of the foot and the midpoint of the luff shall not exceed 55% of the length of the leech.
- E. Headsail sheeting to the boom shall be allowed provided the sheeting point is not further aft on the boom than E plus six inches. This shall be marked if such sheeting is to be used by a red band one (1) inch wide. The forward edge of the band will define the limits of the sheeting approved.
- F. In no case shall the sum of the LP of the headsail and the distance measured from the forward end of J to the tack of the sail be greater than the sailboats rated LP.

4. Measurement of spinnakers

- A. For measurement as a symmetric spinnaker, the luff and leech must be of equal length and the sail must be symmetric in shape and construction about a line joining the head to the center of the foot.
- B. Spinnakers shall be measured with such tension as will remove wrinkles across the line of measurement.
- C. Symmetric spinnaker maximum Girth (G) shall be at the foot or across the body of the sail, measured between points on the luffs equidistant from the head.
- D. Spinnaker Luff and Leech (SL for symmetric or ALU and ALE for asymmetric) shall be the greatest length of spinnaker luff and leech measured around the edges of the sail. Where stiffening is used to extend the angles at the tack or clew of spinnakers beyond an included angle of 110 degrees, the greatest length of any such stiffening in the foot of the sail, measured from the clew, shall be added to the length to determine SL, or ALU and ALE.
- E. Asymmetric spinnaker Mid Girth (AMG) shall be across the body of the sail measured from mid-point on the luff to mid point on the leech.
- F. Asymmetric spinnaker Foot (AF) shall be the distance measured along the foot tape from tack to clew.

5. Limitations on spinnakers

- A. Choice of asymmetric, symmetric, or both types of spinnakers shall be made at time of rating application and may be changed once during the calendar year.
- B. Spinnakers shall be sheeted from only one point on the sail.
- C. Battens shall not be used in spinnakers.
- D. Adjustable leech lines are not permitted on spinnakers.
- E. Spinnaker Pole Length (SPL) shall not exceed 100% of J.
- F. Symmetric spinnaker Hoist (SH) shall not exceed 100% of I.
- G. Symmetric spinnaker Luff (SL) shall not exceed .95 times the square root of ($I^2 + J^2$).
- H. Symmetric spinnaker maximum Girth (G) shall not exceed 1.8 times J.
- I. Symmetric spinnaker maximum Girth (G) shall not be less than ~~75% of the foot length~~ .75 times AF.
- J. Asymmetric spinnaker maximum Luff (ALU) shall ~~be between 1.0 and not exceed~~ 1.1 times the square root of ($AH^2 + BS^2$).
- K. Asymmetric spinnaker Foot (AF) shall ~~be no greater than not exceed~~ 1.8 times BS. BS is equal to SPL if the sail is tacked at a spinnaker pole.
- L. Asymmetric spinnaker Mid Girth to Foot ratio (AMG/AF) shall not be less than 0.75.

6. Sails with mid girth between .5 and .75 times foot length

Asymmetric sails with a mid girth to foot ratio between .5 and .75 tacked forward of the fore side of the mast line shall be considered to be in the spinnaker configuration.

7. Bloopers

A. A blooper that is flown with a spinnaker must be no longer on the luff than the head stay. A tack pennant not to exceed 2.5 feet can be added. A blooper must be tacked to the stem fitting on the bow.

B. The mid girth measured between the midpoints of the luff and leech, shall not exceed 50% of the foot length nor shall the length of any intermediate girth exceed a value similarly proportionate to its distance from the head of the sail.

C. The distance, measured on the surface of the sail, between the midpoint of the foot and the midpoint of the luff shall not exceed 55% of the length of the leech.

D. The LP can be no longer than the largest declared headsail.

8. Measurement of mainsails

A. Foot of mainsail (E) shall be the length measured along the boom of the foot of the sail taken from the aft face of the mast to the aftermost position to which the sail is permitted to extend. Where this latter point is inside of the boom end, it shall be located by the inner edge of a one inch band around the boom.

B. Mainsail hoist (P) shall be the measured length of the hoist of the sail. It is the distance along the after side of the mainmast from the highest level to which the head of the sail may be set to the lowest position of the tack. The highest point shall be taken at the top of the highest sheave used for the main halyard, or to the lower edge of a one inch band around the mast. If a sliding goose neck is used, measurement is to be made with the boom at the extreme bottom of the slide unless the lowest sailing position of the foot is marked by the upper edge of a one inch band around the mast.

C. Mainsail Headboard (MH) shall be the maximum fore and aft dimension from the luff of the main, projected if necessary, to the extreme aft edge of the leech measured across the widest part of the headboard.

9. Limitations on mainsails

A. The number of battens in any mainsail or mizzen shall be limited to seven (7) for all sailboats. Batten spacing shall be approximately equal between headboard and clew.

B. The maximum mainsail headboard (MH) dimension shall not exceed 4% of E or .5 feet (6 inches).

C. Rated without adjustment are One Design mainsail girths, or IMS maximum default girths as per the table below:

MGT (7/8 leech) = 0.22*E

MGU (3/4 leech) = 0.38*E

MGM (1/2 leech) = 0.65*E

MGL (1/4 leech) = 0.90*E

10. General equipment limitations

Sailboats shall race as rated with at least all the equipment and furnishings supplied as standard equipment by the manufacturer. A sailboat which has altered or removed bulkheads, permanently attached furniture, or structural interior components shall be considered a custom sailboat. Drawers, headliners, cabinet and locker doors, steps, ladders and engine enclosures shall remain in place as supplied as standard equipment for a sailboat not to be considered a custom sailboat. Passageway doors, cushions, dining tables and carpet are specifically exempted and are alterable or removable.

11. Crew limitations

There shall be no limitations on the number of crew other than those specified in the class restrictions for ODR ratings. See rule 49.

12. Non-spinnaker limitations

A. The maximum length of a spinnaker pole (whisker pole) that may be used shall be equal to J. If the spinnaker pole (whisker pole) is adjustable, there shall be no gap visible between ½” stripes, placed one on each section of the pole where the sections intersect, when the pole is extended to its rated length. See rule 50.2.

B. The non-spinnaker headsail shall meet all headsail regulations. No part of the luff of a jib shall be more than 4% of the length of the luff from a straight line drawn from its halyard exit to the point on the sailboat to which it is tacked. The use of sails other than a mainsail and headsails is prohibited in the non-spinnaker classes.

C. All other sail and equipment rules applicable to spinnaker classes apply to non-spinnaker classes. Only one (1) headsail may be used at a time while racing, except for cutter rigs flying headsails in the normal configuration. Two (2) headsails may be flown during a sail change, which must be completed in a seaman-like manner

13. Requirements for Roller Furler (RF) credit

A. The RF headsail must be tacked above the RF drum and have the head (or pennant) secured to the bottom of the upper swivel at all times while racing except while changing the headsail.

B. RF headsails may be constructed of any material, but laminated sails must be protected by continuous woven taffeta skins on both sides, and all RF sails must have 4.0 oz minimum woven UV cover present on both the leech and foot.

C. The roller furling headsail, once hoisted, shall not be changed during a day, race, series, or regatta, unless conditions warrant use of a heavy weather sail. If conditions during a race have warranted the use of a heavy weather sail and during the course of the race these conditions have abated, it is permissible to hoist the declared RF headsail for that sailboat.

14. Stock boat Roller Furler (RF)

A. If a standard class boat is supplied from the factory with a RF system for the jib, the board of handicappers will provide the rating for the class assuming no modifications to the RF system or sail attachment thereto. This means that the jib shall be tacked above the RF drum and the swivel shall be at maximum luff hoist when a jib is flown.

B. Any modifications departing from these standards must be reported to the Board of Handicappers.

15. Lifting and swing keels

Lifting and swing keels shall be locked in the down position at all times while racing.

16. Mizzen

A. The measurement procedures for mizzen shall be the same as for mainsails.

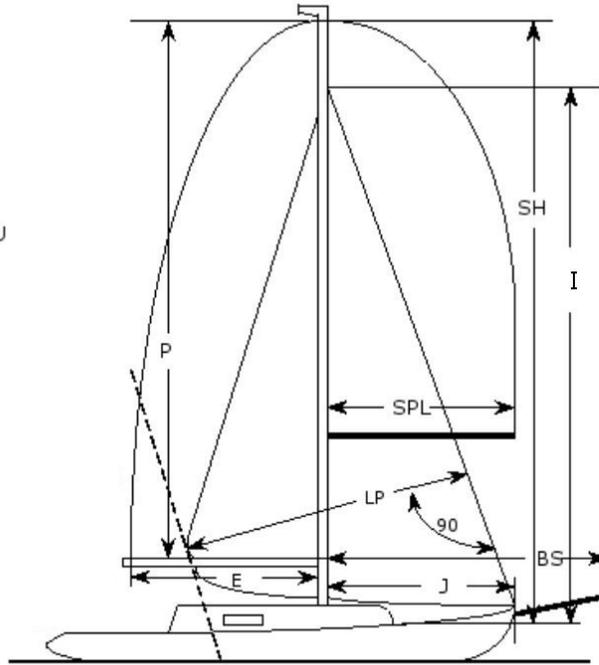
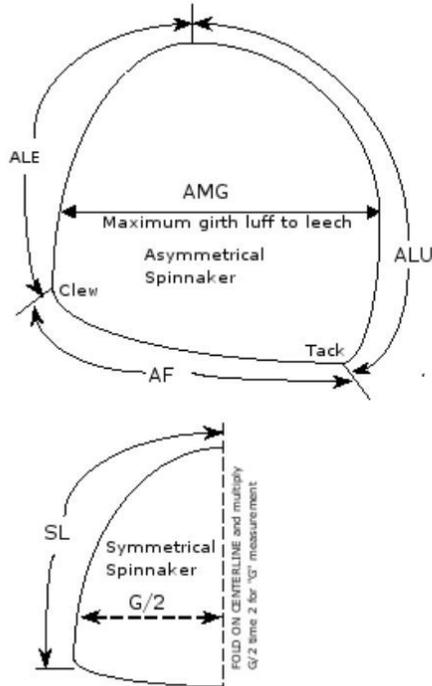
B. The limitations for mizzen shall be the same as for mainsails.

17. Mizzen stay sails

A. Sheet leads may be to hull or rail and to mizzen boom, but they may not be sheeted to any other spar or outrigger.

B. Mizzen Stay sails must be 3-cornered (head, tack, and clew). The tack or tack pennant must be secured abaft the point of intersection of the face of the mainmast with the deck and also must be secured no higher than a rail cap, deck, or cabin top.

C. No mizzen stay sail may be carried set on a sloop rig flying from the backstay.



<u>MEAS</u>	<u>LIMITS</u>	<u>DEFINITIONS</u>
LOA		Length Over All (LOA) of the hull. Note bowsprit and or boomkins separately.
LWL		Loaded Water Line (LWL). If unmeasured, use brochure LWL.
BEAM		Maximum beam of the vessel.
DRAFT		Deepest draft of hull. If centerboard or daggerboard sailboat include draft with board up and down.
DISPL		Vessel displacement in pounds without crew, water, fuel, stores aboard. If unmeasured use brochure DISPL.
BAL		Ballast (BAL) of vessel in pounds. Note any additions or deletions from standard and the location.
I		Height of fore triangle measured from deck sheer line abeam the mast to highest point of sail attachment.
J		Distance perpendicular from fore side of mast line to the point of intersection of the forestay with deck or fixed bow sprit.
P		Luff length of mainsail measured from boom to head board in its highest position.
E		Foot length of mainsail measured from the mast to clew in its most outboard position.
P2		Luff length of mizzen (two masted boats only) measured same as P.
E2		Foot length of mizzen (two masted boats only) measured same as E.
SH		Symmetric spinnaker Hoist (SH) measured from the deck sheer line abeam the mast to the highest point of spinnaker attachment.
SH%	100%	SH measurement expressed as a percentage of I.
AH		Asymmetric spinnaker Hoist (AH) measured same as SH.
LP		Length of the Perpendicular (LP). Distance perpendicular from the luff to the clew of the largest headsail.
LP%	155%	LP measurement expressed as a percentage of J.
SPL		Spinnaker (or whisker) Pole Length (SPL) measured with the pole in fitting and in a horizontal position athwart ship.
SPL%	100%	SPL measurement expressed as a percentage of J.
BS		Distance perpendicular from the fore side of mast line to the point of intersection with the outermost point of sail attachment with the bow sprit.
G		Symmetric spinnaker maximum Girth (G), measured luff to luff. Fold on centerline, measure width, multiply by 2.
G%	180%	G measurement expressed as a percentage of J.
SL		Length of symmetric Spinnaker Luff (SL) measured along luff tape from head to clew on the largest spinnaker.
SL%	95%	SL measurement expressed as a percentage of the square root of $(I^2 + J^2)$.
ALU		Length of Asymmetric spinnaker Luff (ALU) measured along longest luff tape from head to tack.
ALU%	100-110%	ALU measurement expressed as a percentage of the square root of $(AH^2 + BS^2)$. BS is equal to SPL if the sail is tacked at a spinnaker pole.
ALE		Length of Asymmetric spinnaker Leech (ALE) measured along shortest tape from head to clew.
AF		Length of Asymmetric spinnaker Foot (AF) measured along foot tape from tack to clew.
AF%	180%	AF measurement expressed as a percentage of BS.
AMG		Asymmetric spinnaker Mid Girth (AMG) measured from mid-point on luff to mid-point on leech.
AMG%	75%	AMG measurement expressed as a percentage of AF shall be not less than 75%.