

PHRF OF EASTERN CONNECTICUT

The Performance Handicap Racing Fleet of the Eastern Connecticut Sailing Association

2012 REGULATIONS

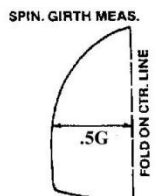
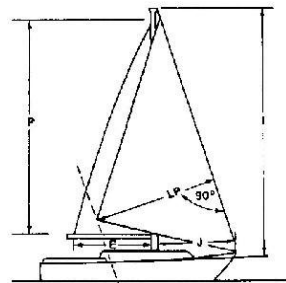
I. General Regulations

Handicap ratings are based on boat speed potential, determined from the demonstrated speed of "standard" boats that are expertly sailed, well equipped, and conditioned. A standard boat must be equipped to the degree intended by the manufacturer, including those appointments and equipment supplied or intended by the manufacturer, such as joiner work, cushions, galley equipment, standing rigging, etc. It is the responsibility of the applicant to provide details of **any** and **all** changes that have been made to the boat. To qualify for a handicap, a boat must be single-hulled and self-righting. The use of a trapeze, hiking straps, hiking boards, or any other hiking aid is not permitted. A boat shall not have more than one current Eastern Connecticut PHRF handicap at any time. Rating changes based on a change in headsail size will be limited to one per season.

Boats with an ODR rating must conform to the hull, rig, and sail configuration specified by its One-Design Class. Additional class requirements such as limitations on crew weight, hiking, sail size or materials, number of on-board sails, new sail purchases, etc., will not apply. Practices permitted by the class, but otherwise prohibited by these Regulations, or the Racing Rules of Sailing, such as the use of trapezes or movable ballast, shall not be allowed.

II. Definitions

AMG	Asymmetric spinnaker mid-girth, measured from the midpoint of the luff to the midpoint of the leech.
ASF	Asymmetric spinnaker foot length, measured in a straight line from tack to clew.
ASLIM	Equal to: $1.15\sqrt{(ISP^2 + TSP^2)}$.
BAL	Ballast of vessel in pounds.
BEAM	Maximum width of the vessel.
DECK HEIGHT	The height of the sheer line abreast of the mast.
DISP	Displacement of vessel in pounds, without any water, fuel, etc.
DRAFT	Distance from bottom of keel to LWL. Also include draft with board down if centerboard vessel.
E	Distance from the after face of the mast to the center of the outhaul sheave or band which ever is less.
EY	The mizzen correspondent of "E".
G	Maximum symmetric spinnaker girth measured luff to leech (IMS SMW).
I	The distance above sheer line to the point of intersection of the head stay and the mast.
ISP	The distance above sheer line to the highest headsail halyard (if above the intersection of the head stay and the mast).
J	Horizontal base of foretriangle measured from head stay intersection at deck edge to front of mast.
JSP	Horizontal distance from front of mast to outboard end of sprit when fully extended.
LLY	Luff length of the largest mizzen staysail (mule, etc.).
LOA	Length overall of hull.
LP	Distance perpendicular from the luff to the clew of the jib.
LPY	Distance perpendicular from the luff to the clew of the largest mizzen staysail.
LWL	Load water line.
MAT	Construction material of the keel or mast, e.g., lead, iron, carbon, aluminum.
MGM	Mainsail girth measurement from a point along the leech, halfway between the clew and the head, to the nearest point of the luff.
MGT	Mainsail girth measurement from a point along the leech, seven-eighths (7/8) of the distance from the clew to the head, to the nearest point of the luff.
MGU	Mainsail girth measurement from a point along the leech, three-quarters (3/4) of the distance from the clew to the head, to the nearest point of the luff.
P	Height of main luff between black bands or from bottom of upper band to bottom of fixed boom track. (Use top of halyard sheave if no upper band).



PY	The mizzen correspondent of "P".
Rated Sail	Those sails upon which the handicap is based; specifically the largest Jib/Genoa, Mainsail, and largest Spinnaker.
SL	Length of symmetric spinnaker measured along either luff, with only enough tension to remove wrinkles. Sail to be stretched flat while measuring.
SLE	Asymmetric spinnaker leech, measured from head to clew.
SLIM	Equal to: $0.95\sqrt{(I^2 + J^2)}$, [or $0.95\sqrt{(ISP^2 + J^2)}$, if ISP is greater than I].
SLU	Asymmetric spinnaker luff, measured from head to tack.
SPL	Spinnaker pole length measured from centerline of mast to outboard end of pole when set in a horizontal position, athwart ship.
TPS	Spinnaker tack point for centerline-tacked asymmetric spinnakers. Measured from face of mast, similarly to "J".
WPL	Whisker pole length. Measured similarly to SPL.

III. Handicap Adjustments

Non-Spinnaker Handicap

Non-Spinnaker handicaps are based on the ratio of mainsail size (including mizzen sails, if applicable), to fore triangle size as follows:
 Ratio = $(P \times E + [PY \times EY] + [.6LLY \times LPY]) / (ISP \times J)$.

<u>Ratio</u>	<u>Rating Adj.</u>	<u>Ratio</u>	<u>Rating Adj.</u>	<u>Ratio</u>	<u>Rating Adj.</u>
.3 but less than .4	+26	1.2 but less than 1.3	+17	2.2 but less than 2.4	+8
.4 but less than .5	+25	1.3 but less than 1.4	+16	2.4 but less than 2.6	+7
.5 but less than .6	+24	1.4 but less than 1.5	+15	2.6 but less than 3.0	+6
.6 but less than .7	+23	1.5 but less than 1.6	+14	3.0 but less than 3.4	+5
.7 but less than .8	+22	1.6 but less than 1.7	+13	3.4 but less than 4.0	+4
.8 but less than .9	+21	1.7 but less than 1.8	+12	4.0 but less than 4.0	+3
.9 but less than 1.0	+20	1.8 but less than 1.9	+11	5.0 but less than 6.0	+2
1.0 but less than 1.1	+19	1.9 but less than 2.0	+10	6.0 but less than 7.0	+1
1.1 but less than 1.2	+18	2.0 but less than 2.2	+ 9	7.0 + greater	0

Non Spinnaker handicaps for cat-rigged vessels shall be equal to their Spinnaker handicap minus 6 seconds per mile.

Headsails

Headsails

A jib shall not have mid-girth, measured between the mid points of luff and leech, which is more than 50% of its foot length. The length of any intermediate girth shall not exceed a value proportionate to its distance from the head of the sail.

Limitations on Jibs

- Jibs must be sheeted from only one point on the sail except while in the process of reefing.
- Jibs must be tacked on centerline.
- No headboards shall be used.
- Battens may be used only if the LP is 117% or smaller. The number of battens is limited to four, which must be arranged with approximately equal spacing between the head and clew. There is no limit on batten length.

Headsail Adjustments

NOTE Headsail handicap adjustments **shall not apply** to boats with one-design ratings. For unmodified series production boats use the design "J" dimension when determining adjustment.

<u>Spinnaker Class</u>		<u>Non-Spinnaker Class</u>	
<u>LP/J Size Range</u>	<u>Rating Adjustment</u>	<u>LP/J Size Range</u>	<u>Rating Adjustment</u>
Up to 1.10	+7	Up to 1.10	+16
Greater than 1.10 to 1.20	+6	Greater than 1.10 to 1.20	+13
Greater than 1.20 to 1.30	+5	Greater than 1.20 to 1.30	+10
Greater than 1.30 to 1.35	+4	Greater than 1.30 to 1.40	+ 7
Greater than 1.35 to 1.40	+3	Greater than 1.40 to 1.48	+ 4
Greater than 1.40 to 1.45	+2		
Greater than 1.45 to 1.51	+1	Greater than 1.48 to 1.51	+ 1
Greater than 1.51 to 1.55	0	Greater than 1.51 to 1.55	0
Greater than 1.55 to 1.60	-1	Greater than 1.55 to 1.60	- 1
Greater than 1.60 to 1.65	-2	Greater than 1.60 to 1.65	- 2
Greater than 1.65 to 1.70	-3	Greater than 1.65 to 1.70	- 3
Greater than 1.70 to 1.75	-4	Greater than 1.70 to 1.75	- 4
Greater than 1.75 is adjusted proportionally.		Greater than 1.75 is adjusted proportionally.	

Mainsails

Unless standard for a class, unpenalized mainsail girth shall be limited as follows:

Headboard shall not exceed the greater of 0.04E or 0.5 feet.

MGT (7/8 leech) shall not exceed 0.22E

MGU (3/4 leech) shall not exceed 0.38E

MGM (1/2 leech) shall not exceed 0.65E

Individual girth or headboard dimensions that exceed the standard fraction of actual E, will be addressed on a case-by-case basis. If actual E is greater than standard E, a penalty of 2 seconds/mile will be assessed for each 5% or fraction thereof..

Asymmetric Spinnakers

An Asymmetric Spinnaker is a spinnaker wherein SLE and SLU are not equal and its AMG is not less than 75% of ASF

Pole-Flown or Tacked to Centerline An AMG of up to 180% x TPS, and an average of the leech and luff lengths $((SLE+SLU)/2)$ not exceeding ASLIM, shall be permitted without penalty. Oversized sails will be penalized using the same methodology as for symmetric spinnakers (see below substituting TPS for J), and the average of the leech and luff lengths will be substituted for SL.

Oversized poles will be penalized using the same methodology as for symmetric spinnakers.

Centerline-tacked asymmetric spinnakers may be flown from the deck, an extension thereof, or non-articulating retrofit sprit with a pennant not exceeding 2 feet in length, and will receive a handicap adjustment as follows:

<u>TPS / J %</u>	<u>Rating Adjustment</u>
Less than or equal to 100%	+9
Greater than 100% to 108%	+6
Greater than 108% to 116%	+3
Greater than 116% to 124%	Zero
Greater than 124% to 132%	-3
Greater than 132% to 140%	-6
Greater than 140%	-9

Sprit-Flown Base boat rating will be based on the largest standard asymmetric spinnaker, as specified by the boat manufacturer. Additional sail area will be penalized at the rate of 1 second per mile for each 5% increase, or fraction thereof, in sail area.

Code Zero Spinnakers Code 0/Close Reaching Spinnakers, are designed to fill a hollow in the polar diagram. They are normally have an area of about 60% of a full sized asymmetric and are effective in 40 to 80 degrees apparent wind. These sails are

characterized as being made of a laminate or aramid material and have a substantial luff rope for the large luff tensions that these sails require. For handicap purposes, Code 0 spinnakers shall be treated as an asymmetrical spinnaker. Battens are not permitted and they shall be sheeted from only one point.

Symmetric Spinnakers

A Symmetric Spinnaker shall have a mid girth of 75% or more of its foot length and be symmetrical about a line joining its head to the center of its foot.

Spinnaker rating adjustment is based on the largest spinnaker measured by the G/J ratio and the SL/SLIM ratio. A luff length equal to SLIM is standard. The maximum girth without penalty is equal to 1.8 x J. If spinnaker luff length is greater than standard, excess length is converted to excess girth. Convert the excess luff to excess girth using the following formula: G/J Rated = (G/J Actual) (SL/SLIM).

Girth Adjustments for Symmetric Spinnakers

<u>G/J</u>	<u>Rating Adjustment</u>
Up to 1.80	0
Greater than 1.80 to 1.85	-1
Greater than 1.85 to 1.90	-2
Greater than 1.90 to 1.95	-3
Greater than 1.95 to 2.00	-4
Greater than 2.00 to 2.05	-5
Greater than 2.05 to 2.10	-6
Greater than 2.10 will be adjusted proportionally.	

Maximum Spinnaker Pole Length (SPL) Without a Penalty

For spinnakers where G is less than or equal to 1.8 x J, SPL=J.

For spinnakers where G is larger than 1.8 x J, SPL=G/1.8.

If SPL exceeds both J and G/1.8, use the Girth Adjustment Tables (substituting 1.8 SPL/J for G/J) to determine penalty.

The spinnaker/pole penalty shall be the greater of either the girth penalty or the pole penalty.

Whisker Poles There is no whisker pole length (WPL) limit.

Modified Appendages All modified rudders shall initially be given -3 sec. penalty until reviewed by the council. Modified keels must be reported to the Application.

Mast Height Adjustments

(Only applicable when "I" & "P" change equally.)

Standard Mast Height is "I"

Excess or deficient height is measured by mast ratio. Mast Ratio= Actual "I"/Std. "I"

<u>Mast Ratio</u>	<u>Rating Adj.</u>
Greater than 0.91 to 0.93	+12
Greater than 0.93 to 0.95	+ 9
Greater than 0.95 to 0.97	+ 6
Greater than 0.97 to 0.99	+ 3
Greater than 0.99 to 1.00	0
Greater than 1.00 to 1.03	- 3
Greater than 1.03 to 1.05	- 6
Greater than 1.05 to 1.07	- 9
Greater than 1.07 to 1.09	-12
Greater than 1.09 to 1.11	-15
Greater than 1.11 is adjusted proportionally.	

Engine or prop too small to drive vessel

at KTS = 0.8 (1.3√LWL) -6
(Not applicable if temporary engine outage.)

Propeller Adjustments

Inboard Engine

2 or 3 blade folding or feathering	0
Solid 2 blade aperture	0
AutoProp	+ 3
Solid 2 blade exposed to water	+ 6
Solid 3 blade in aperture	+ 6
Solid 3 blade exposed to water	+12

Outboard Engine Propellers

Std. retracted when racing 0

Engine not retracted, prop immersed on both tacks:

2 blade	+ 6
3 blade	+12

Roller-Furling Headsails A boat utilizing a roller-furling headsail with an above-deck drum, will receive a 3 second, non-spinnaker rating credit.

Rating adjustments for other hull and rig modifications are handled individually.