

PHRF REGULATIONS
PART I: DEFINITION OF TERMS

HULL

LOA	LENGTH OVERALL OF THE HULL
LWL	LOAD WATERLINE
BEAM	MAXIMUM WIDTH OF THE YACHT
DISPL	DISPLACEMENT OF THE YACHT IN POUNDS
BALLAST	WEIGHT OF THE KEEL IN POUNDS
INTERNAL BALLAST	WEIGHT OF ANY INTERNAL BALLAST (EXCLUDING WATER, FUEL, ETC)

RIG

I	HEIGHT OF FORETRIANGLE MEASURED FROM DECK SHEERLINE TO HIGHEST POINT OF JIB ATTACHMENT.
ISP	HEIGHT OF SPINNAKER ATTACHMENT MEASURED FROM DECK SHEERLINE
J	PERPENDICULAR DISTANCE FROM THE FORESIDE OF THE MAST TO THE POINT OF INTERCEPTION OF THE FORESTAY AND DECK.
JC	J DIMENSION ADJUSTED TO ACCOUNT FOR SPRITS OR SPINNAKER POLES EXTENDING BEYOND THE FORWARD LIMIT OF J.
JS	STANDARD J DIMENSION TAKEN FROM BASE BOAT RATING LIST. EQUAL TO MEASURED J FOR ONE OF A KIND BOATS.
P	FULLY STRETCHED OR BANDED LUFF LIMIT OF MAINSAIL.
E	FULLY STRETCHED OR BANDED FOOT LIMIT OF MAINSAIL.
PY	FULLY STRETCHED OF BANDED LUFF LIMIT OF MIZZENSAIL.
EY	FULLY STRETCHED OR BANDED FOOT LIMIT OF MIZZENSAIL.

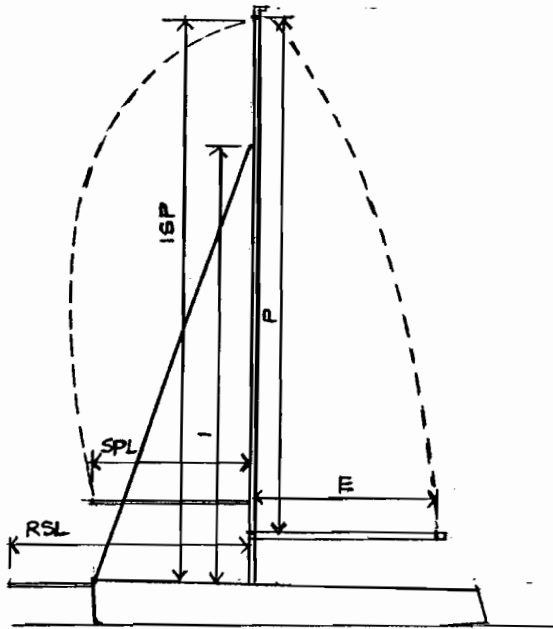
CALCULATED FACTORS

SA	RATED SAIL AREA CALCULATED AS $0.5 [(I \times J) + (P \times E)]$.
SA/D	SAIL AREA / DISPLACEMENT RATIO CALCULATED AS $SA / (DISPL / 64)^{2/3}$.
C	THE ABSOLUTE DIFFERENCE BETWEEN A YACHT'S SA/D AND THE NUMBER 21.0.
SACF	SAIL AREA CORRECTION FACTOR: A YACHT'S ACTUAL SAIL AREA / THE BASE RATING SAIL AREA. CALCULATED AS $LP \sqrt{\frac{(I^2 + J^2) + (P \times E)}{2}} / 1.48 \sqrt{\frac{(I^2 + J^2) + (P \times E)}{2}}$
RMR	RIGHTING MOMENT RATIO; A MEASURE OF A YACHT'S ABILITY TO CARRY SAIL. USED TO MODIFY HEADSAIL CORRECTIONS FOR HP-1 AND HP-2 TYPE BOATS. CALCULATED AS $RMR = 0.3 \times [(DISPL \times DRAFT) / (P^2 E + I^2 J)] \times KEEL FACTOR$.
KEEL FACTOR	ADJUSTS RMR TO ACCOUNT FOR DIFFERENT KEEL TYPES. KEEL FACTOR FOR FIN KEELS = 1.00, FOR SCHEEL KEELS = 1.15, AND FOR WING / BULB KEELS = 1.33

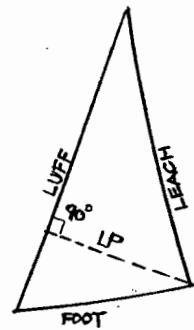
SAILS

LP	PERPENDICULAR MEASUREMENT OF THE JIB FROM LUFF TO CLEW.
G	MAXIMUM GIRTH OF SYMMETRICAL SPINNAKERS MEASURED LUFF TO LUFF.
MSL	LENGTH OF SYMMETRICAL SPINNAKER LUFF. WHEN MEASURED SAIL IS TO BE STRETCHED FLAT WITH ONLY ENOUGH TENSION TO REMOVE WRINKLES.
SLIM	MAXIMUM SPINNAKER LUFF LIMIT WITHOUT PENALTY, CALCULATED AS 95% OF THEORETICAL FORESTAY LENGTH ($0.95\sqrt{I^2 + J^2}$)
ALU	ASYMMETRICAL SPINNAKER LUFF MEASURED FROM HEAD TO TACK.
ALE	ASYMMETRICAL SPINNAKER LEACH MEASURED FROM HEAD TO CLEW.
AMG	ASYMMETRICAL SPINNAKER MAXIMUM GIRTH MEASURED FROM MID-POINT OF LUFF TO MID-POINT OF LEACH.
ASF	ASYMMETRICAL SPINNAKER FOOT MEASURED FROM TACK TO CLEW.
SPL	SPINNAKER POLE LENGTH MEASURED FROM CENTERLINE OF MAST TO OUTBOARD END OF POLE WHEN SET IN A HORIZONTAL POSITION ATHWARTSHIP.
RSL	RETRACTABLE SPRIT LENGTH MEASURED FROM SPINNAKER ATTACHMENT POINT ON SPRIT TO FORWARD FACE OF MAST.
WPL	MAXIMUM LENGTH OF WHISKER POLE; MEASURED SIMILARLY TO SPL.

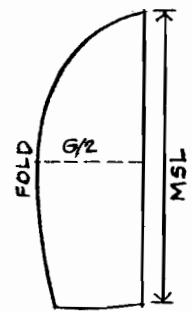
MEASUREMENT DIAGRAMS



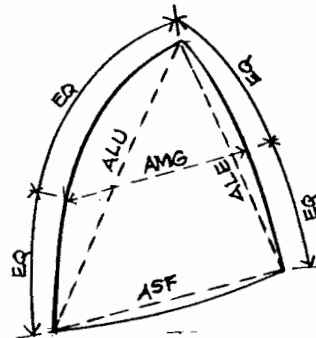
RIG



JIBS



SYM. SPINNAKERS



ASYM. SPINNAKERS

**PHRF REGULATIONS
PART II; HANDICAP ADJUSTMENTS**

HEADSAILS

RATING ADJUSTMENT IS A TWO STEP PROCESS. PRELIMINARY ADJUSTMENT IS BASED UPON SACF TAKEN FROM TABLE 1. THIS PRELIMINARY ADJUSTMENT IS THEN MULTIPLIED BY THE BOAT'S RMF DERIVED FROM TABLE 2 TO OBTAIN ACTUAL RATING ADJUSTMENT. FOR ALL TYPE A AND C BOATS, RMF IS FIXED AT 1.00 REGARDLESS OF ACTUAL RMR VALUE.

TABLE 1

SACF	RATING ADJ. (SEC/MILE)	SACF	RATING ADJ. (SEC/MILE)	SACF	RATING ADJ. (SEC/MILE)
UP TO 0.7749	+ 16	0.8800 - 0.8949	+ 8	1.0000 - 1.0149	0
0.7750 - 0.7899	+ 15	0.8950 - 0.9099	+ 7	1.0150 - 1.0299	- 1
0.7900 - 0.8049	+ 14	0.9100 - 0.9249	+ 6	1.0300 - 1.0449	- 2
0.8050 - 0.8199	+ 13	0.9250 - 0.9399	+ 5	1.0450 - 1.0599	- 3
0.8200 - 0.8349	+ 12	0.9400 - 0.9549	+ 4	1.0600 - 1.0749	- 4
0.8350 - 0.8499	+ 11	0.9550 - 0.9699	+ 3	ABOVE 1.0750, ADJUST	
0.8500 - 0.8649	+ 10	0.9700 - 0.9849	+ 2	PROPORTIONALLY	
0.8650 - 0.8799	+ 9	0.9850 - 0.9999	+ 1		

TABLE 2

RMR	RMF	RMR	RMF	RMR	RMF
BELOW 0.14	0	0.240 - 0.249	0.61	0.340 - 0.349	0.87
0.140 - 0.149	0.05	0.250 - 0.259	0.66	0.350 - 0.359	0.88
0.150 - 0.159	0.07	0.260 - 0.269	0.69	0.360 - 0.369	0.89
0.160 - 0.169	0.10	0.270 - 0.279	0.72	0.370 - 0.379	0.90
0.170 - 0.179	0.15	0.280 - 0.289	0.75	0.380 - 0.389	0.91
0.180 - 0.189	0.20	0.290 - 0.299	0.77	0.390 - 0.399	0.92
0.190 - 0.199	0.26	0.300 - 0.309	0.79	0.400 - 0.409	0.93
0.200 - 0.209	0.33	0.310 - 0.319	0.81	0.410 - 0.419	0.94
0.210 - 0.219	0.41	0.320 - 0.329	0.83	0.420 - 0.429	0.95
0.220 - 0.229	0.48	0.330 - 0.339	0.85	ABOVE 0.430	1.00
0.230 - 0.239	0.55				

SPINNAKERS

SYMMETRICAL

RATING ADJUSTMENT IS BASED UPON LARGEST SPINNAKER AS MEASURED BY G/JS AND MSL/SLIM RATIOS. MAXIMUM LUFF LENGTH (SLIM) WITHOUT PENALTY IS EQUAL TO .95 I + J. EXCESS LUFF LENGTH IS CONVERTED TO ADDITIONAL GIRTH BY MEANS OF THE FOLLOWING FORMULA: G/JS rated = (G/JS actual)/(MSL/SLIM). EXCESS GIRTH IS PENALIZED ACCORDING TO TABLE 3. MAXIMUM SPINNAKER POLE LENGTH (SPL): FOR SPINNAKERS WHERE G DOES NOT EXCEED 1.8 (JS), SPL = JS. FOR SPINNAKERS WHERE G > 1.8 (JS), SPL = G / 1.8.

TABLE 3

G/JS	RATING ADJ.	G/JS	RATING ADJ.	G/JS	RATING ADJ.
UP TO 1.80	0	1.901 - 1.95	- 3	2.051 - 2.10	- 6
1.801 - 1.85	- 1	1.951 - 2.00	- 4	ABOVE 2.10	
1.851 - 1.90	- 2	2.001 - 2.05	- 5	ADJUST PROPORTIONALLY	

ASYMMETRICAL

LIMITING DIMENSIONS WITHOUT PENALTY ARE AS FOLLOWS; .5(ALU + ALE) <= SLIM, ASF <= 1.8 JS, AMG <= 1.75 JS AND AMG => .75 ASF. MEASUREMENTS THAT EXCEED THESE LIMITS WILL BE CONVERTED TO ADDITIONAL GIRTH IN A MANNER SIMILAR TO THAT USED FOR SYMMETRICAL SAILS. EXCESS GIRTH IS PENALIZED ACCORDING TO TABLE 3.

ASYMMETRICAL SPINNAKERS FLOWN FROM THE JIB TACK FITTING, BOW PULPIT OR A TACK PENNANT (LENGTH NOT TO EXCEED TWO FEET) QUALIFY FOR A CREDIT OF +9 SEC/MI. ASYMMETRICAL SPINNAKERS FLOWN FROM SPINNAKER POLES OR SPRITS DO NOT QUALIFY FOR THIS CREDIT. A YACHT MAY CARRY BOTH SYMMETRICAL AND ASYMMETRICAL SPINNAKERS BUT BY DOING SO WILL FORFEIT THE ASYMMETRICAL SPINNAKER CREDIT REGARDLESS OF THE MANNER IN WHICH THE SAIL IS SET.

NON – SPINNAKER RATING ADJUSTMENTS

RATING ADJUSTMENT IS BASED ON THE RATIO OF A YACHT'S RATED SAIL AREA AFT OF THE FOREMAST TO THE RATED AREA OF ITS SPINNAKER MODIFIED BY THE YACHT'S SAIL AREA / DISPLACEMENT RATIO. THESE RATIOS ARE EXPRESSED BY THE TERM M/G WHICH IS DERIVED FROM THE FORMULA $M/G = P \times E + (.6 PY \times EY)/(ISP \times JC) + (SA/D + C - 21)/ 45$. M/G RATING ADJUSTMENTS ARE SHOWN IN TABLE 4.

TABLE 4

M/G	RATING ADJ.	M/G	RATING ADJ.	M/G	RATING ADJ.
0.30 – 0.39	+ 26	1.20 – 1.29	+ 17	2.20 – 2.39	+ 8
0.40 – 0.49	+ 25	1.30 – 1.39	+ 16	2.40 – 2.59	+ 7
0.50 – 0.59	+ 24	1.40 – 1.49	+ 15	2.60 – 2.99	+ 6
0.60 – 0.69	+ 23	1.50 – 1.59	+ 14	3.00 – 3.39	+ 5
0.70 – 0.79	+ 22	1.60 – 1.69	+ 13	3.40 – 3.99	+ 4
0.80 – 0.89	+ 21	1.70 – 1.79	+ 12	4.00 – 4.99	+ 3
0.90 – 0.99	+ 20	1.80 – 1.89	+ 11	5.00 – 5.99	+ 2
1.00 – 1.09	+ 19	1.90 – 1.99	+ 9	6.00 – 6.99	+ 1
1.10 – 1.19	+ 18	2.00 – 2.19	+ 8	7.00 and greater	0

MAXIMUM WHISKER POLE LENGTH (WPL) WITHOUT PENALTY; FOR JIBS WHERE $LP < 1.25 J$, $WPL = JS$; FOR JIBS WHERE $LP > 1.25 J$, $WPL = (LP) \times 0.8$.

RIG

PROPELLER ADJUSTMENTS

FOR MASTHEAD RIGS ONLY;
EXCESS OR DEFICIENT MAST HEIGHT
IS MEASURED BY RATIO: $| \text{actual} / | \text{std}$

RATIO RATING ADJ.

UP TO 0.91	+ 15
0.911 – 0.93	+ 12
0.931 – 0.95	+ 9
0.951 – 0.97	+ 6
0.971 – 0.99	+ 3
0.991 – 1.01	0
1.011 – 1.03	- 3
1.031 – 1.05	- 6
1.051 – 1.07	- 9
1.071 – 1.09	- 12
1.091 – 1.11	- 15

ABOVE 1.11 ADJ. PROPORTIONALLY

INBOARD ENGINE

RATING ADJ.

NO ENGINE	- 12
ENGINE UNDERSIZED	- 6
FOLD OR FEATHERING PROP	0
SOLID 2 BLADE IN APERTURE	0
SOLID 2 BLADE, EXPOSED SHAFT	+ 6
SOLID 3 BLADE IN APERTURE	+ 6
SOLID 3 BLADE, EXPOSED SHAFT	+ 12

OUTBOARD ENGINE

NO ENGINE	- 12
ENGINE UNDERSIZED	- 3
PROP RETRACTED WHEN RACING	0
PROP IMMERSED, 2 BLADE	+ 6
PROP IMMERSED, 3 BLADE	+ 12