HANDICAPPERS MANUAL
PART II

Version Date: April 2016

(May 6 - correction to 6.1.3.d)

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1. SP STANDARD HANDICAPS FOR STANDARD BOATS

The SP handicap for standard boats will be found in the Standard Boat Characteristics list as published from time to time. Dimensions for Class Boats shall be obtained from the manufacturers. Where this is impossible, the Handicappers Council shall make the determinations.

2. NON STANDARD BOATS

Many boats are not equipped as Standard Boats. The SP handicap of a particular boat shall be adjusted according to the schedules that follow. The intent of the adjustment is to give a penalty to any alteration intended to make a boat sail faster or a credit to any alteration that can be expected to slow a boat. (See Definitions in Part I, Section 4.4 and 4.5)

3. DEFINITIONS OF TERMS USED IN HANDICAPS AND ADJUSTMENTS.

(Please refer to the Equipment Rules of Sailing (ERS) for additional information)

AMG is defined as the Asymmetrical spinnaker mid girth, measured mid luff to mid leech under moderate tension.

ALU is defined as the measured luff length of an Asymmetrical spinnaker.

ALE is defined as the measured leech length of an Asymmetrical spinnaker.

ASF (Asymmetrical Spinnaker Foot) shall be the distance from the tack to the clew measured in the shortest path on the surface of the sail.

APR is defined as the propeller aperture. To qualify as in aperture, the propeller must be entirely surrounded (in the vertical plane of the shaft line) by the keel, skeg and/or rudder.

BSL is defined as the measured bowsprit length, the distance from the forward side of the mast to the attachment point of the asymmetrical spinnaker.

E is defined as the length measured along the boom from the aft side of the mast including any external track or groove to the aftermost position to which the sail is permitted to extend.

EXP is defined as Exposed propeller shaft. Any propeller installation that is not in aperture or a Saildrive.

FLYING SAILS –

A: Symmetrical: -For measurement as a standard spinnaker, a sail must have the following characteristics.

1. The sail must be symmetrical about a line joining the head to the center of the foot.
2. Spinnakers shall be sheeted from only one point on the sail.
3. Battens shall not be used.
4. Sail area no greater than the Standard Sail area, without penalty.
5. Spinnaker pole no longer than JSP, without penalty

6. Leech lines are permitted, but must not be adjusted while racing.

B: Asymmetrical: -Asymmetrical spinnakers shall have the following characteristics.

1. Mid (AMG) girth, measured mid luff to mid leech, shall be greater than or equal to 75% of the foot length.
2. Spinnakers shall be sheeted from only one point on the sail.
3. Battens shall not be used.
4. Luff and leech of unequal lengths, where luff is at least 5% longer than the leech.
5. Sail area no greater than Standard Sail area, without penalty.
6. Spinnaker pole or Bowsprit pole no longer than JSP, without penalty
7. Leech lines are permitted, but must not be adjusted while racing.

FS Handicap: Boats racing with a Flying Sail rating (FS) may use Main, jibs, Genoas, Spinnakers, Bloopers, and staysails as long as the largest Genoa and spinnaker are measured.

HHW (Headsail Half Width) is defined as the shortest distance between the half leech point and the luff. . Ref: appendix ERS – Half Leech Point

Headwidth (HW) (previously known as Headboard (HB)) is defined distance from the Head Point to the Aft Head Point of the mainsail.

I is defined as the distance from shear line abreast the mast to the intersection of the headstay with the forward side of the mast.

ISP is defined as the "Standard Equipment supplied" (ref: Part I, 4.3) spinnaker hoist, measured from the bottom of the spinnaker halyard, when drawn horizontally forward from the mast, to the level of the sheer line abreast the mast.

J is defined as the distance from the forward side of the mast to the point where the headstay attaches to the deck or bowsprit in a direction perpendicular to the mast.

JIB as defined under the Racing Rules of Sailing, section 50.4, Headsails – the width of a headsail, measured between the midpoints of its luff and leech, is less than 75% of the length of its foot. A sail tacked down behind the foremost mast is not a headsail.

JSP is defined as the length of the class spinnaker pole or bowsprit pole (refer to BSL or SPL definition for measurement instructions). Described as the "Standard Equipment supplied" (ref: Part I, 4.3) spinnaker tack location. Note that this can be much greater than the J.

LP is defined as the shortest distance from the projected intersection of the leech and the foot of a jib to the luff in a direction 90 degree to the luff.

LEECH: the distance between the aft head point and the clew of the aft edge of the sail.

LUFF: the distance between the head point and tack point of the forward edge of the sail.

MG is defined as the symmetrical spinnaker maximum girth. With the spinnaker folded in half, this is 2 x the maximum width of the sail measured from the center/fold of the sail to the luff and leech.

MGM (Main Girth Middle): Shall be the length of the girth of the mainsail taken at the half leech point of the leech from the clew. Ref: appendix ERS – Half Leech Point

MGU (Main Girth Upper): Shall be the length of the girth of the mainsail taken at the three-quarter point of the leech from the clew. Ref: appendix ERS – Three-Quarter Leech Point

MGT (Main Girth Top): Shall be the length of the girth of the mainsail taken at the seven-eigth Point.

NFS handicap: Boats racing with a No Flying Sails rating (NFS) may use Main and one genoa attached to the forestay for its entire length.

P is defined as the distance along the aft side of the mast from the top of the boom to the black band at the top of the mast or the top of the main halyard sheave.

SF (Symmetrical Spinnaker Foot) shall be the distance from the tack to the clew measured in the shortest path on the surface of the sail.

SLU is defined as the Symmetrical Spinnaker luff measurement. Measurement shall be the distance from the projected intersection of the luff and foot with the luff line under moderate tension.

SLE is defined as the Symmetrical Spinnaker leech measurement. Measurement shall be the distance from the projected intersection of the leech and foot with the leech line under moderate tension.

SPL shall be the distance between the ends of the spinnaker pole.

STREAKER is defined as a sail set flying in the space to leeward of the flying sail sheet, forward of the mainsail, and alongside the flying sail. A streaker is measured as a genoa.

Square Top Main shall be any Mainsail Headwidth (HW) that exceeds 0.5 feet (6 inches) or the calculated HW Limit (HWL)

WPL - No longer a required measurement

4. REQUIRED MEASUREMENTS

4.1. It is the responsibility of the OWNER to obtain required measurements.

4.2. It is the responsibility of the Handicapper to vouch for the validity of the required measurements on the applications he/she signs.

4.3 The following measurements are required for all boats:

LP	of the largest jib or upwind Staysail	HW	Mainsail Headwidth
HHW	When the Jib LP <115%	MGT	Mainsail Top (7/8)
MG	Symmetrical sail Max girth.	MGU	Mainsail girth upper (¾)
SLU	Symmetrical Luff Length.	MGM	Mainsail girth middle (½)
SLE	Symmetrical Leech Length	AMG	Asymmetrical Mid Girth
SF	Symmetrical Spinnaker Foot	ALU	Asymmetrical Luff
ATP	Articulating Tack Point Length	ALE	Asymmetrical Leech
CTP	Centerline Tack Point Length	ASF	Asymmetrical Spin Foot

5. TERMS and GUIDELINES FOR MEASURING SAILS

See appendix ERS – includes Section G of the Equipment Rules of Sailing (ERS)

6. ADJUSTMENTS TO SP HANDICAPS

6.1. JIB (GENOA)

6.1.1 The boat is handicapped on its largest jib or upwind staysail. The ratio to LP/J shall be calculated and expressed as a percentage: LP%

6.1.2. Headsail Half Width (HHW)

Should the largest headsail in the boats rated inventory be of a LP 115% or less, and that sails aft edge trims ahead the spreaders with battens, the HHW shall be measured.

The Jib LP will then be calculated as: LP = 2 * HHW

6.1.3 Handicap Adjustments are based on LP% as follows:

LP% = LP/J*100

6.1.3.a. Maximum LP% without penalty shall be 155%

6.1.3.b. Adj = 1 sec/nm adjustment for every 5% (or part).

2015 season examples:
144.5% - (+2)
150.0% - (+1)
155% - (0)
155.5% - (-1)

6.1.3.c Maximum penalty for any Jib shall be -9

6.1.3.d Maximum credit for any Jib shall be +11

6.1.3.e No adjustment for short luffed jibs

6.2 FLYING SAILS

Note: For 2016, this section has been rewritten to improve interpretation only.

Flying sails adjustments are based on the largest Symmetrical and Asymmetrical flying sail. Measurement of each sail may be required to identify the largest in inventory.

All Asymmetrical sails in inventory "must" be measured to ensure they meet the definition of an Asymmetrical sail as outlined on Page 32 Part II, Section 4.1 Definitions.

There are two distinct configurations of flying sails permitted:

- Flying Sails attached to a spinnaker pole or articulating bowsprit.
- Flying Sails attached to the centerline only to a fixed bowsprit or stemhead (does not include a spinnaker pole or articulating bowsprit)

6.2.1. STANDARD FLYING SAIL AREA

– for both Symmetrical and Asymmetrical Design

$$SAstd = 1.8 * .79 * JSP * (ISP^2 + JSP^2)\ \hat{}\ 0.5$$

6.2.2 FLYING SAILS ATTACHMENT POINT

(recognized as the distance to the attachment point for the spinnaker)

ATP = Spinnaker Pole length or Articulating Bowsprit length

CTP = Non-articulating Bowsprit or Centerline Tacked Sails

SG = Symmetrical Max Girth (MG) or Asym Max Girth (AMG)

6.2.2.a. ARTICULATING TACK POINT (ATP)

Maximum ATP permitted without penalty is as follows:

MaxATP = SG/1.8 or JSP (whichever is greater)

If the actual ATP is greater than MaxATP

SGadj = SG + (ATP – MaxATP) * 1.8

If the actual ATP is NOT greater than MaxATP:

SGadj = SG

6.2.2.b. CENTERLINE TACK POINT (CTP)

Applicable to Non-articulating Bowsprits and sails tacked to the centerline.

(no spinnaker pole or Articulating Bowsprit shall be on board)

For Boats converted from ATP to CTP only!

JSPadj = JSP + greater of (0.15 * J or 1 foot)

For Boat manufactured as centerline

JSPadj = JSP

Maximum CTP permitted without penalty is as follows:

MaxCTP = greater of SG/1.8 or JSPadj

If the CTP is greater than MaxCTP

SGadj = SG + (CTP – MaxCTP) * 1.8

If the CTPadj is NOT greater than MaxCTP

SGadj = SG

Centerline Credit: (refer to Section: 6.2.5)

6.2.3. SAIL AREA %

SA% (Refer to Section 6.2.4)

6.2.3.a. SYMMETRICAL (SAsym)

Size is defined as the percentage of SAsym / SAstd

SF (Sym Foot) = MG for “unmeasured” sails currently in our database.

SAsym = .83 * SLU * (SF + 4 * SGadj) / 5

SA% is then 180 * SAsym / SAstd

6.2.3.b. ASYMMETRICAL (SAasym)

Size is defined as the percentage of SAasym / SAstd

AML = (ALU + ALE) / 2

SAasym = .83 * AML * (ASF + 4 * SGadj) / 5

SA% is then 180 * SAasym / SAstd

6.2.4. SPINNAKER HANDICAP ADJUSTMENT

Only applied to the single largest SA% (Sym or Asym) in inventory

6.2.4.a. Maximum SA% without penalty shall be 180%.

Adj = 1 sec/nm adjustment for every 5% (or part).

Examples:
175.0% - (+1)
180.0% - (0)
185.0% - (-1)
185.1% - (-2)
190.0% - (-2)

6.2.4.b. Maximum penalty for any spinnaker shall be -24

6.2.4.c. Maximum credit for any spinnaker shall be +12

6.2.5. CENTRELINE CREDIT

Any Spinnaker tacked to the centerline will receive a +6 sec/nm credit

NOTE: No spinnaker pole or articulating bowsprit shall be on board in order to qualify.

6.3. NON-FLYING SAILS (NFS)

6.3.1 An NFS handicap (no flying sails) will be calculated for all boats. At the Inter-Club level there is no mixing of fleets allowed (flying sails and non-flying sails). However, recognizing the need for individual Clubs to allow this practice it is important to point out that the NFS handicap cannot fairly compensate under all circumstances to allow fair racing in all fleets.

6.3.2. Downwind Jib Adjustments are based on the Jib LP%:

6.3.2.a. Maximum LP% without penalty shall be 155%,

6.3.2.b. Adj = 1 sec/nm adjustment for every 5% (or part).

2015 season examples:
144.5% - (+2)
150.0% - (+1)
155% - (0)
155.5% - (-1)

6.3.2.c. Maximum penalty for any Downwind Jib shall be -9

6.3.2.d. Maximum credit for any Downwind Jib shall be +11

6.4. MAINSAIL

6.4.1. SP is based upon manufacturer's standard P and E dimensions. If no such standard exists, the Handicappers Council will make a determination.

6.4.2. Mainsail measurements are required for all new (to a certificate) mainsails. Note: For 2017, the MGT (7/8th) will be also be required on all "New to a Certificate" mainsails.

MAIN AREA Standard (MAstd):

HWstd = 0.04 * E or 0.5' (whichever is greater)
MGUstd = 0.38 * E
MGMstd = 0.65 * E

MAstd = (P/8)*(2 * E + 3 * MGMstd + 2 * MGUstd + HWstd)

MAIN AREA Measured (MAmsd):

MAmsd = (P/8)*(2 * E + 3 * MGM + 2 * MGU + HW)

6.4.3. Handicap Adjustments are based on MA% as follows:

6.4.3.a. MA% = (MAmsd / MAstd) x l00

6.4.3.b Maximum MA% without penalty shall be 103%

(For 2015:No change from previous years. To be reviewed in the future with the intent of normalizing the maximum (without penalty) to 100%.

6.4.3.c. 1 sec/nm penalty for every 1% (or part) over 103%
1 sec/nm credit for every 1% (or part) below 100%

2016 season examples:

98.9% - (+2)
99.9% - (+1)
100.0% - (0)
103.0% - (0)
103.1% - (-1)
104.1% - (-2)
105.1% - (-3)

6.4.3.d. Maximum penalty for any mainsail shall be -9

6.4.3.e. Maximum credit for any mainsail shall be +9

6.5. PROPULSION

See definition – refer to Part I, Section 4.8

6.5.1. SCHEDULE OF ADJUSTMENTS FOR INBOARD ENGINES

INBOARD		Fixed/Solid	Folding or Feathering
Prop Configuration	Blades	Adj	Adj
IN aperture (APR)	2 Blade	0	0
	3 or 4 Blade	+12	0
Out of aperture (EXP)	2 Blade	+12	0
	3 or 4 Blade	+15	0
Saildrive (SDR)	2 Blade	+12	0
	3 or 4 Blade	+15	0
Retractable prop with flush plate		-6	
Inadequate Speed	< Hull Speed (.67√LWL)	-6	

6.5.2. SCHEDULE OF ADJUSTMENTS FOR OUTBOARDS

OUTBOARD	Notes	Adj
Inadequate speed	< Hull Speed (.67√LWL)	-3
Standard	Retracted	0
	Not retracted	+6
Retractable motor with flush plate	See IB	-6

6.5.3. SCHEDULE OF ADJUSTMENTS FOR OTHER THAN IB OR OB

OTHER	Notes	Adjustment
NO MOTOR	Absolutely no motor on board vessel	-12
Converted prop New class required	IB to OB = Create MOD class	-6
	OB to IB	+6

6.5.4. When a handicap adjustment is made for inadequate speed under power then no further adjustments are made for propulsion.

6.5.5. Feathering Props: Will be handled as standard props.(equivalent to two blade folding)

6.5.6. V Drive Props: Will be handled as standard props.(equivalent to two blade folding)

6.6. MAST

Boats must apply for a correction to their handicap when the mast on their vessel is of a different type than standard.

Aluminum (AL) is implied unless specified in the class name as being Carbon Fibre with the abbreviation "CF".

ITEM	ADJUSTMENT
Carbon Fibre Mast	-6
Aluminum Mast	+6

7. GLOSSARY OF ABBREVIATIONS

GENERAL:
Outboards (OB) are implied unless otherwise specified

1/4T	Quarter ton	IB	Inboard
1/2T	Half ton	M/T	Miniton
1T	One Ton	MOD	Modified Boat
2T	Two Ton	MS	Motor Sailer
3/4T	Three Quarter Ton	OB	Outboard
CR	Cruiser	SDR	Saildrive

RIG
Sloops (SL) are implied unless otherwise specified.
Masthead sloops (MH) are implied unless qualified: i.e. 15/16, 7/8, 3/4, etc..

CA	Cat boat	SC	Schooner
CF	Carbon Fibre Mast	SM	Short/Small Mast
CK	Cat Ketch	TM	Tall Mast
K	Ketch	Y	Yawl
RFM	Roller Furling Main		

KEEL

Fin Keels (FK) are implied unless otherwise specified.

AC	Articulating/canting with dagger or canard	FXK	Fixed Keel
AK	Articulating or Canting Keel	FX DK	Fixed Deep Keel
BK	Bulb Keel	KCB	Keel Centerboard
CB	Drop Keel or Daggerboard	SD	Shoal Draft
DK	Deep Keel	SHK	Scheel Keel
FK	Fin Keel	SK	Swing Keel (lift keel)
FLK	Full Kel	WK	Wing Keel

Pictures of keel types are available on our web site from our “Main Menu”, “Information”

8. MISCELLANEOUS

8.1. WATER BALLAST - is acceptable.

The assumption is that the tanks will be filled and remain filled while racing. Handicaps are based on this assumption.

8.2 MOVABLE APPENDAGES - shall be declared

Drop keels, centerboards, dagger boards, canards and other movable appendages shall be declared. (Except for Keel Centerboards). Lifting of such appendages during racing is strongly discouraged for safety reasons

8.3 TRADITIONAL PHRF RACER/CRUISER

The traditional PHRF Racer/Cruiser is a keelboat meeting all the following conditions:

- a displacement to waterline length (in lbs/ft) of greater than 90 (for yachts under 200 sec/mi handicap)
- a rated sail area to displacement (RSA/D) of 25.00 or less
- lifelines (single or double) and bow and stern pulpit surrounding the working deck or affixed jacklines (at all times while racing)
- self-draining cockpit
- permanently or semi-permanently mounted head
- appropriate sleeping accommodations below
- galley (sink and permanently or semi-permanently mounted stove)
- designed for an engine that propels the boat at hull-speed.

8.4. SPORT BOATS

A sport boat is defined as - any boat that has a sail area to displacement ratio of over 25 and is designed to plane upwind.
Boats identified as at February 4th, 1995:

Melges 24	Tripp 26
Carrera	Mull 21
Ultimate 20	Quest 30
Whitbread 30	Mantra 7000

8.5. PHRF-LO recommends that yachts whose performance varies dramatically within different sailing conditions (ie: Sport Boats vs Traditional Racer/Cruiser) should, where possible, be raced in their own division.

8.6. EXTREME YACHTS

PHRF-LO will only rate monohull keel boats, as defined by ERS C.6.2.a, without devices or facilities to move the crew member's body outside of the sheerline, as defined by ERS D.1.2., of the hull.

8.6.1. This prohibition includes, but is not limited to:

i. Racks
ii. Wings
iii. Trampolines
iv. Trapezes (ERS F.1.7.c, i)

8.6.2. Exception – this rule does not apply to classes of boats originally designed, built or modified prior to 1980.