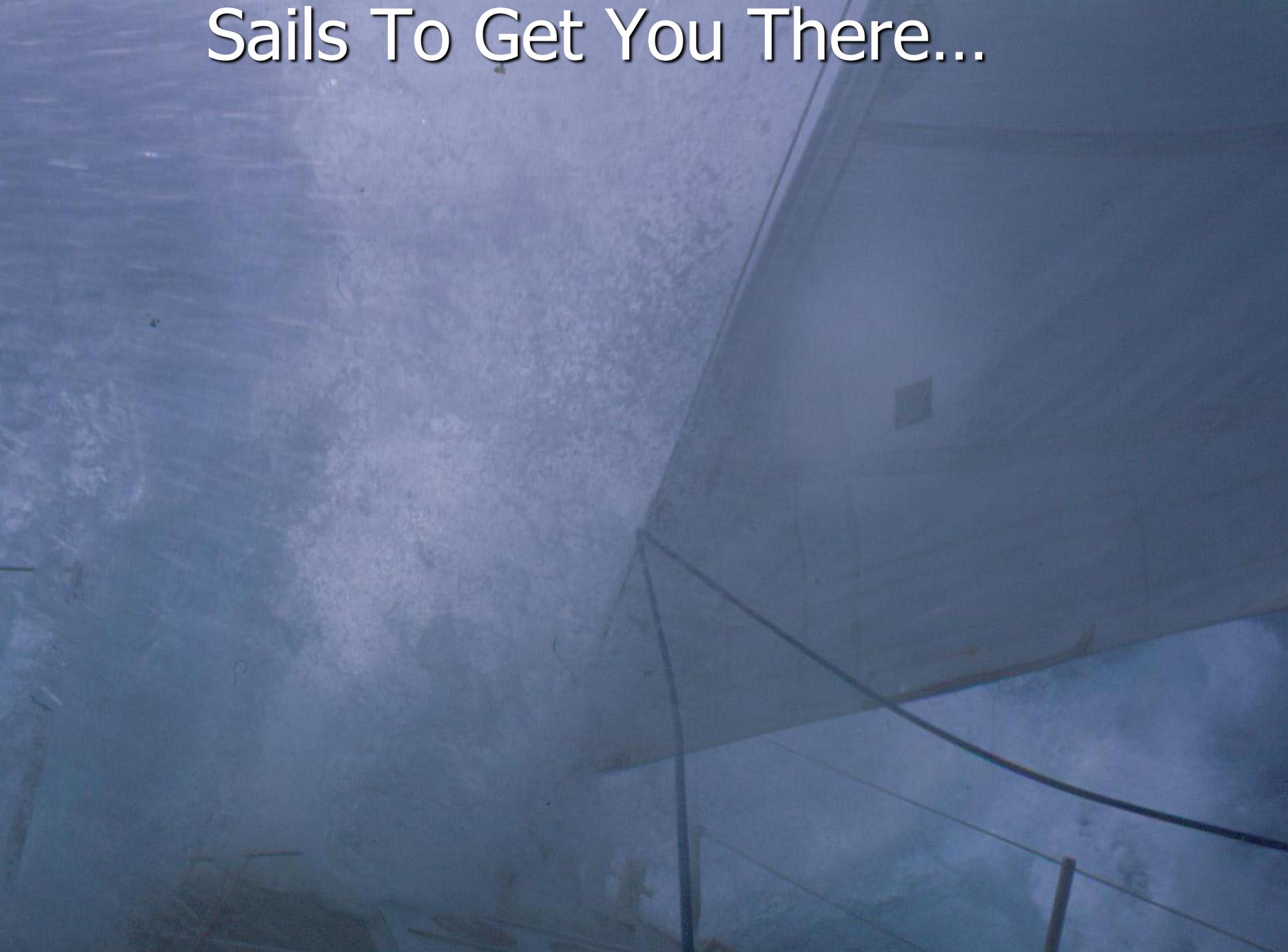


Sails To Get You There...



- What sails do I need?
- How should they be built? (Design criteria)
- Tips on Use: Getting them up and down.
- Keeping them in one piece.

Different Approaches to the Problem





I Had a Dream...Ultimate Offshore Race Inventory

SAIL CROSSOVERS FOR Southern Cross 52 for Dick Oland

updated 1/11
by df

10/28/2008

TWS	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	TWS
TWA																TWA
35				#2 JIB	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	35
40		#1 Jib	#1 Jib	#2 JIB	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	40
45	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	45
50	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	50
55	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	55
60	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	60
65	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	#3 JIB	#3 JIB	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	65
70	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	JT	JT	#3 JIB	#3 JIB	#4 JIB	#4 JIB	#4 JIB+1REEF	#4 JIB+1REEF	storm jib	70
75	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	#4 JIB+1REEF	storm jib	75
80	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	#4 JIB+1REEF	storm jib	80
85	#1 Jib	#1 Jib	#1 Jib	#1 Jib	#2 JIB	#2 JIB	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	85
90	A0	FRO	FRO	#1 Jib	#2 JIB	#2 JIB	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	90
95	A0	FRO	FRO	FRO	FRO	#2 JIB	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	95
100	A0	A0	A0	FRO	FRO	FRO	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	100
105	A0	A0	A0	A0	A0	FRO	FRO	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	105
110	A0	A0	A0	A0	A0	FRO	FRO	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	storm jib	110
115	A0	A0	A0	A0	A0	FRO	FRO	JT	JT	JT	JT	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	115
120	A0	FRO	FRO	FRO	FRO +reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	JT+1 Reef	120						
125	A 1	A 1	A 1	A3	A3	A0	A0	FRO	FRO	FRO	FRO +reef	FRO +reef	FRO +reef	FRO +reef	JT+1 Reef	125
130	A 1	A 1	A 1	A3	A3	A3	A3	A0	A0	FRO	FRO +reef	FRO +reef	FRO +reef	FRO +reef	JT+1 Reef	130
135	A 1	A 1	A 1	A1.5	A3	A3	A3	A7	A7	A7	FRO	FRO +reef	FRO +reef	FRO +reef	JT+1 Reef	135
140	A 1	A 1	A 1	A 1.5	A 1.5	A2	A2	A4	A4	A7	A7	A7	A7	A7	A7 + reef	140
145	A 1	A 1	A 1	A 1.5	A 1.5	A2	A2	A2	A4	A4	A4	A4	A4	A4	A7	145
150						A2	A2	A2	A4	A4	A4	A4	A4	A4	A7	150
155															A7	155
160															A7	160

	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	25 kt**
TWA	134.8	136.3	140.1	145.9	150.6	152.5	151.6		144.9							152.8
AWA	50.6	56.9	68.2	86.3	103.3	113.2	114.9		104.40							117.6
AWS	3.7	5.2	5.3	5.4	6	7.3	8.2		10.80							12.6
HEEL	2.35	4	4.6	3	2.6	2.9	4		10.30							12.9
BS	5.15	7.031	8.186	8.643	9.058	9.653	10.538		13.46							16.4

Upwind			
Code	Fabric	Area	Bag Color
Code 1	11,000 dpi	67	Yellow
Code 2	14,000 dpi	67	Purple
Code 3	20,000 dpi	66	Lt Blue
Code 4	24,000 dpi	57	Green
Storm Jib	Dacron	22	White
JT	18000d M	67	White
GS*	6,000 dpi	33	Orange

Downwind			
Code	Fabric	Area	Bag Color
A0	CZ 30/15	197	Red
A1.5	Superkote 50/60	271	Purple
A2	Superkote 50/60	279	Lt Blue
A3	CZ 15/05	250	Green
A7	Superkote 150	215	Grey
SS**	CZ 05 HP	57	White
A4	Superkote 90/70	281	Orange
FRO	Composite	139	Black

Windward Leeward Jib Crossovers	
Code	Range
Code 1	2-10
Code 2	9-18
Code 3	17-24
Code 4	24-32
Storm Jib	32+

Note: VPP Data provided by Reichel Pugh

*Genoa Staysail used in conjunction with jibtop at most angles and wind velocities
 **Spinnaker Staysail used in conjunction with spinnakers at angles greater than 140twa and true wind speeds of more than 10

Vela Volce Sail Inventory Summary

updated 1/11 df

Downwind Inventory

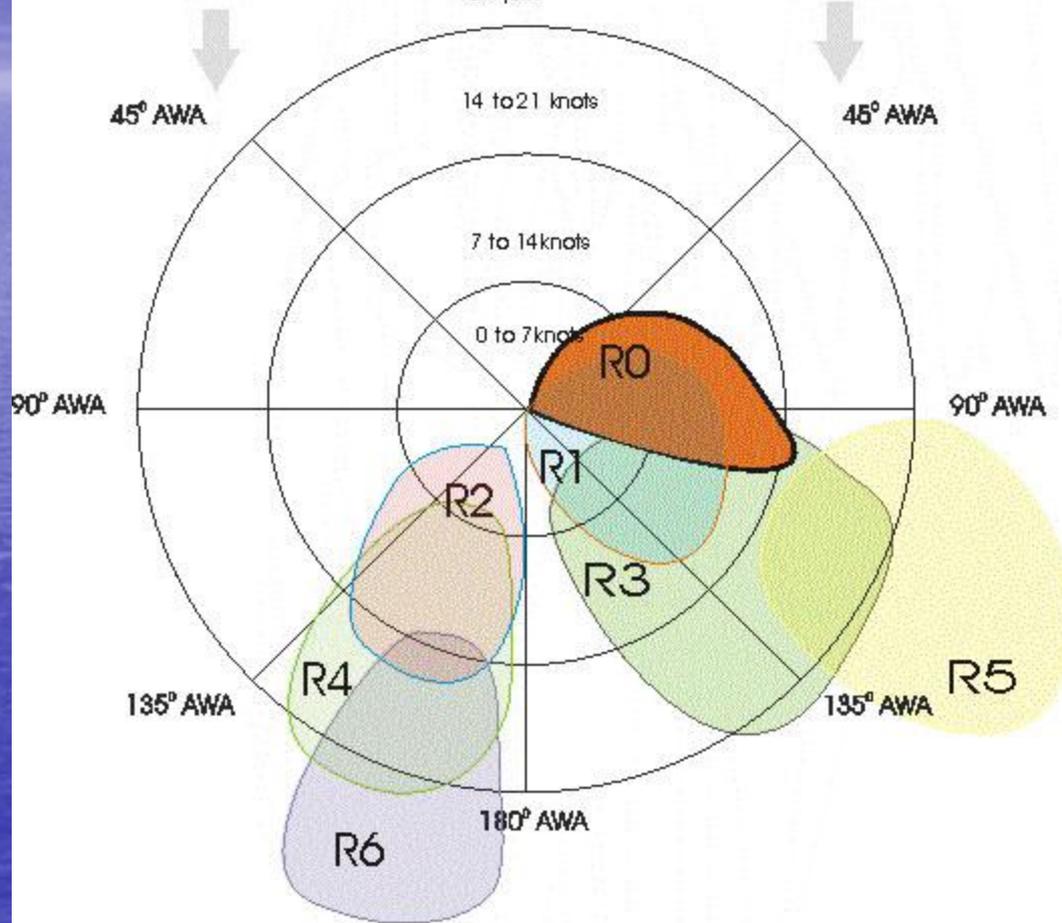
Code	bag color	Date:	Design #	Fabric	SLU	SLE	SMG	SF	Area
Code A0 (B)	red	7/10	48622	CZ 30/15	24.504	22.543	9.454	12.566	197
Code A1		6/10	56825	Superlite 40/50	25.306	23.154	12.146	13.422	250
Code A1.5 (C)	purple	3/10	56149	Superkote 50/60	25.706	22.753	13.277	13.970	271
Code 2A (D)	light blue	1/11	60273	Superkote 50/60	25.982	22.516	13.846	13.846	279
Code A3	green	5/09	48625	CZ 15/05	25.550	23.000	12.100	13.440	250
Code A4 (B)	orange	1/11	53271	Superkote 90/70	26.382	22.630	13.846	13.846	282
Code A7	grey	5/09	48626	Superkote 150	22.930	19.720	11.830	13.290	215
Fractional A0		1/11	61574	ODL 06/04	21.650	18.005	8.300	11.069	145.000

Asymmetrical
Running



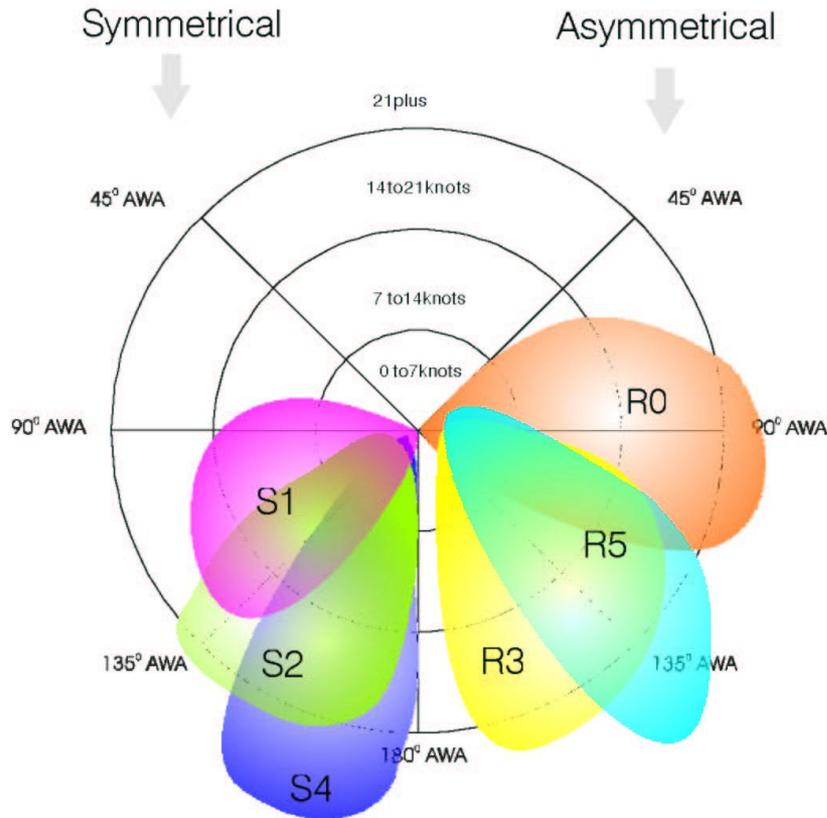
Asymmetrical
Reaching

21 plus



R0 40-70awa 2-11tws

Symmetric versus Asymmetric



It's reaching sails that count in distance racing.

- Code Zero
- Jibtop
- Blast Reacher
- Code 3A asymmetrical
- Genoa staysail

The Racing Code Zero

4.30.2002



The Cruising Code Zero



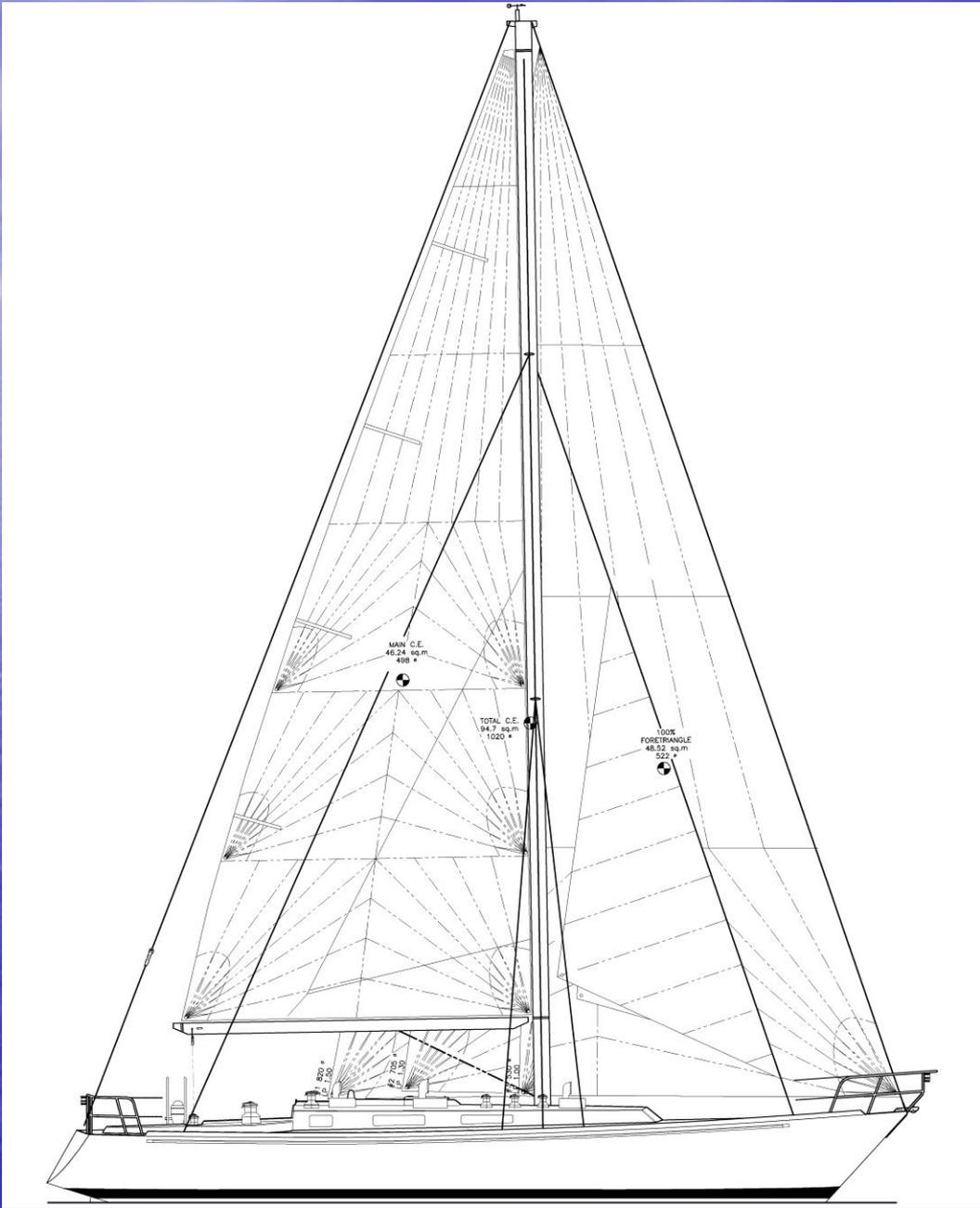


Reaching leads



Code 3A





Performance Cruising

Working sails

- Mainsail w/2 or 3 reefs
- Mid-Size all purpose genoa

Heavy weather

- 95% working jib
- staysail /storm jib
- Storm Trysail

Light air

- Mid-sized, medium weight, asymmetrical spinnaker w/sock
- Code Zero Asymmetrical

Moderate Air



Heavy Air



Moderate Downwind



Light Air Close Reaching



Heavy Air Sails: the ORC #4

- 13.5% of I^2
- Alternative means of attachment





Storm Jib

- 5% of I^2



How are you going to do it now?









The Inner Forestay Alternative





You Could Roll it...



Getting Serious





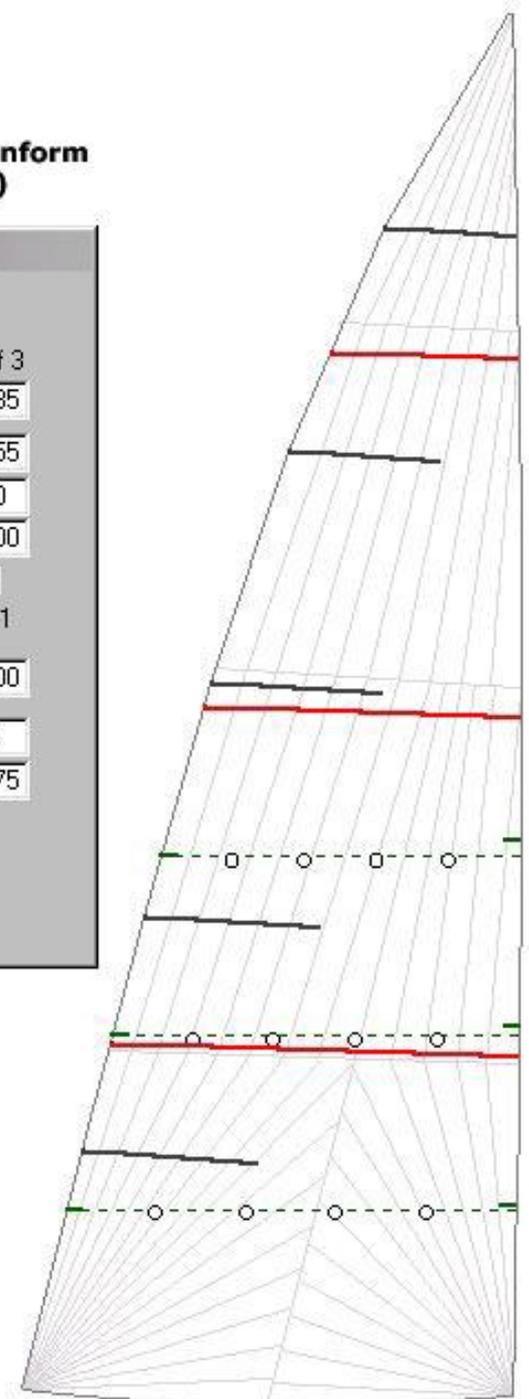
Mainsail reefs

Reef Placement / Planform Zaraffa Mainsail (m3)

Reef Layout

Luff Angle (rake)

	Reef 1	Reef 2	Reef 3
Luff Ht. (m.)	<input type="text" value="3.560"/>	<input type="text" value="6.900"/>	<input type="text" value="10.35"/>
Leech Ht. (m.)	<input type="text" value="3.536"/>	<input type="text" value="6.984"/>	<input type="text" value="10.55"/>
Angle	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
+/- Horizontal (m.)	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>
Parallel to Foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Width (m.)	8.514	7.713	6.821
Stack (m.)	<input type="text" value="0.100"/>	<input type="text" value="0.200"/>	<input type="text" value="0.300"/>
Number of Points	<input type="text" value="4"/>	<input type="text" value="4"/>	<input type="text" value="4"/>
Offset (m.)	<input type="text" value="0.075"/>	<input type="text" value="0.075"/>	<input type="text" value="0.075"/>





USA-2

USA 2U

Reefing / the tack



Single Line Reefing



Reefing / the clew





Powered by the wind and the sun
VOI 70
PER CA

ace.co

ALGH

NOSHAI

KHALID

FISHER

Abu Dhabi

Abu Dhabi

Trysail

- 17.5% of P X E







Separate track



3.30.2001

The Depowering Sequence Upwind

- Full Main / Light #1 0-8
- Full Main / Heavy #1 8-14
- Full Main / #2 14-20
- Full Main / #3 19-25
- Full Main / #4 24-28
- Reef Main / #4 28-32
- Reef Main / #5 32-36
- Double Reef / #5 36-40
- Three Reefs or Trysail / SJ 40+

Adventures with spinnakers Clearing the wreckage

- The letter box drop
- Don't let it all go
- Death Rolls
- The All Standing Jibe



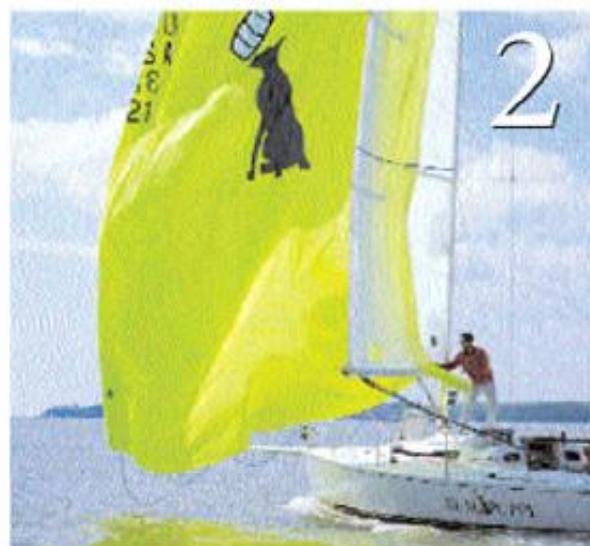
So what do I do now?



MASTERING THE A SAIL

Letter Drop

The letter drop, in which the sail is doused to leeward, pulled on board between the boom and mainsail foot, and sent down the companionway, can be done only on boats rigged with loose-footed mainsails. A well-executed letter drop keeps the spinnaker blanketed by the main throughout the takedown. It's a safe maneuver in all wind conditions.



[ONE] Before dropping the spinnaker, lead the windward sheet between the boom and the foot of the mainsail to a winch on the deckhouse. **[TWO]** A trimmer in the cockpit grinds in the sheet; this can be done by hand in light winds. When the clew reaches the boom, a crew standing on the deckhouse should start to gather the foot of the sail. **[THREE]** Ease the tackline and continue gathering the foot. The sail is ready to douse once it's blanketed by the main and the majority of the foot has been pulled through the boom/foot slot. **[FOUR]** Ease halyard and aggressively gather the sail, guiding it down the companionway; there should be one crewmember below. The letter drop is very effective on offshore raceboats because a small number of crew on one watch can handle the blanketed sail.

The alternative to a full crew



In one piece

- Spreader/stanchion/pulpit patches
- Batten pockets against rig
- Sew or tie in battens (carry spares)
- Minimize flogging
- Watch what you are pulling on

What sails are really for...
for questions: dflynn@quantsails.com

