

*i*550
Sportboat

Performance Package

Designed by: Christopher Beckwith

Dimensions

Length over all: 18.00 feet
Sailing Length: 17.83 feet
Second Moment Length measured in Trim floating upright.: 17.41 feet
Second Moment Length in various conditions measured in Trim floating with 25 degrees heel: 16.83 feet
Effective Beam: 4.50 feet
Wetted Surface: 57.00 square feet
Area Maximum Section: 1.99 square feet
Forward Freeboard: 2.28 feet
Freeboard Aft: 1.60 feet
Effective Draft: 4.60 feet
Draft of Keel and Hull Adjusted: 0.57 feet
Weight of Yacht in Sailing Trim: 1300.00 lbs
The ballast or keel weight: 150.00 lbs
Righting Moment per degree in Sailing trim at 2 degrees heel: 61.00
Righting Moment per degree in Sailing trim at 20 degrees heel: 55.25
Righting Moment per degree in Sailing trim at 40 degrees heel: 42.25
Propeller Installation Projected Area: 0.00 square feet

Jib

Foretriangle Height: 21.16 feet
Base of Foretriangle: 7.04 feet
Longest perpendicular of jib: 7.10 feet

Spinnaker

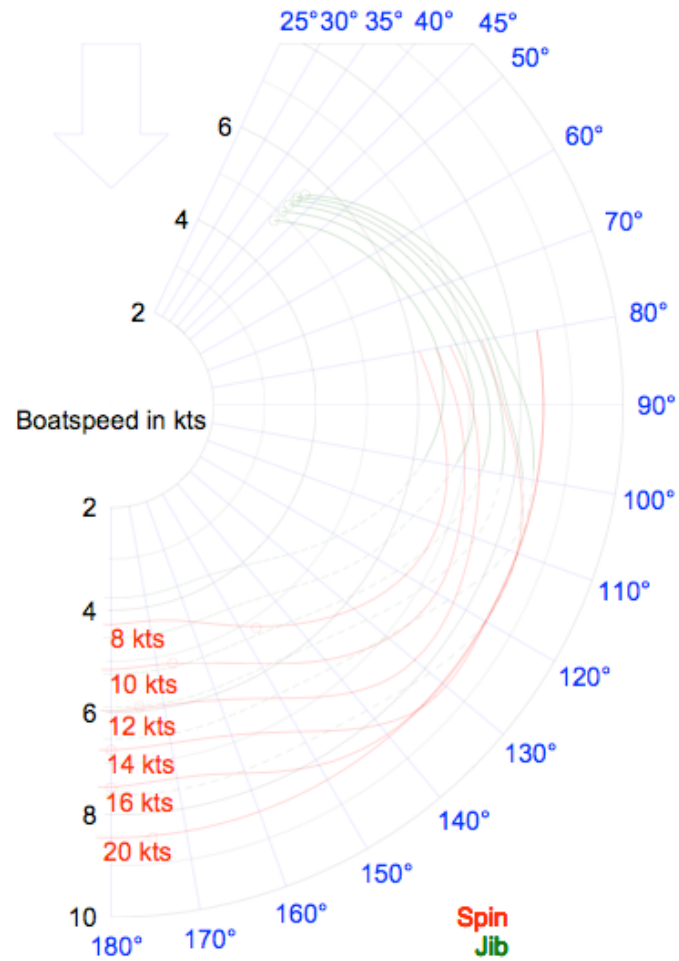
Spinnaker Pole Length: 11.83 feet
Spinnaker Luff/leech Length: 31.50 feet
Spinnaker Maximum Width: 12.67 feet
Vertical Center of Gravity of Sail Weight.: 12.67 feet
Height of Base of I: 2.33 feet

Mainsail

Mainsail hoist: 24.00 feet	Maximum Transverse Dimension of Main Mast: 0.20 feet
Mainsail Hoist Corrected (IOR): 25.20 feet	Maximum Longitudinal Dimension of Main Mast: 0.31 feet
Foot of Mainsail: 8.91 feet	Transverse Dimension of Main Mast at head: 0.20 feet
Foot of mainsail Corrected (IOR): 8.91 feet	Longitudinal Dimension of Main Mast at head: 0.31 feet
Boom Above Sheerline: 2.50 feet	Mainsail Girth (Mid): 8.75 feet
Tapered Length from mast: 0.00 feet	Mainsail Girth (Upper): 6.75 feet
Headboard of Mainsail: 2.00 feet	

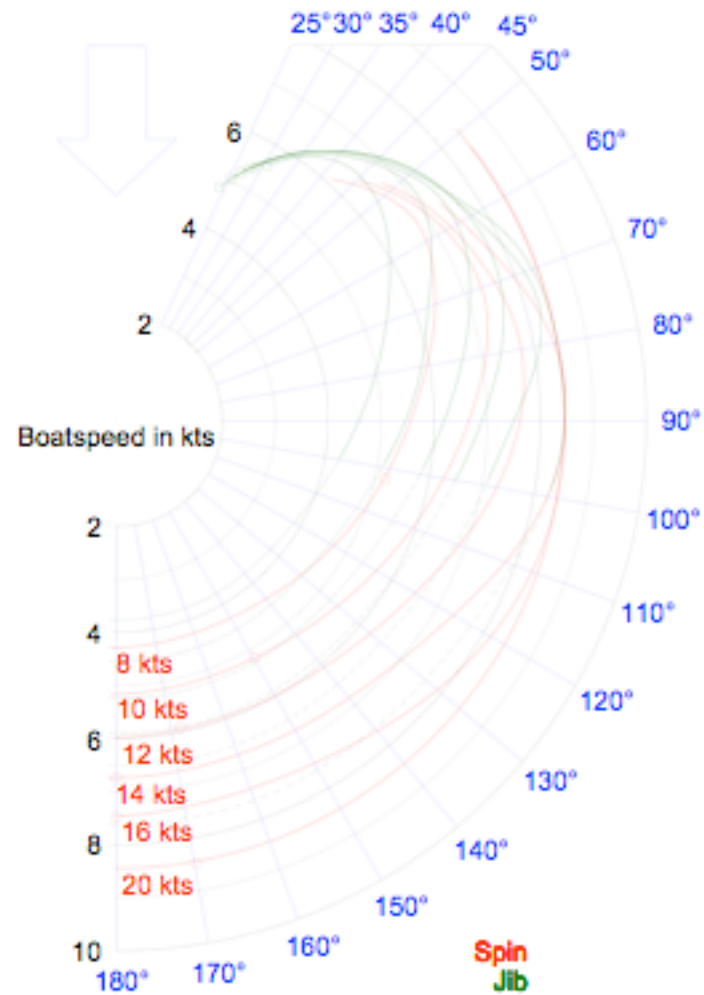
True Wind

i550 Performance Package



Wind	Opt Beat	Opt VMG Beat	Opt Run	Opt VMG Run
8 kts	41.4	3.81	146.9	-4.35
10 kts	41.4	3.79	166.6	-5.04
12 kts	41.6	3.92	174.6	-5.89
14 kts	42.0	4.00	180.0	-6.74
16 kts	41.8	4.07	180.0	-7.46
20 kts	42.6	4.11	174.5	-8.45

Apparent Wind



Wind	Opt Beat	Opt VMG Beat	Opt Run	Opt VMG Run
8 kts	23.8	3.61	102.3	-4.35
10 kts	25.3	3.79	149.8	-5.04
12 kts	26.6	3.92	168.3	-5.89
14 kts	27.9	4.00	180.0	-6.74
16 kts	28.7	4.07	180.0	-7.46
20 kts	30.6	4.11	169.7	-8.45

Velocities at 6 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
8.0	180	2.9	180	4.2832	-4.2832	-0.1
8.0	135	5.2	81	5.8923	-4.1665	2.8
8.0	110	7.8	56	6.7966	-2.3246	17.2
8.0	80	9.8	42	6.1057	1.0603	17.6
OptDwn						
8.0	147	4.0	102	5.1903	-4.3466	1.6
No Spinn						
8.0	180	3.5	180	3.7215	-3.7215	-0.2
8.0	135	5.2	99	4.2808	-3.0270	1.2
8.0	110	7.5	64	5.7052	-1.9513	2.6
8.0	80	10.3	42	6.4673	1.1230	15.1
OptDwn						
8.0	174	3.5	167	3.7333	-3.7101	0.1
OptUp						
8.0	41	11.1	24	4.8114	3.6107	17.5

Velocities at 8 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
8.0	180	2.9	180	4.2832	-4.2832	-0.1
8.0	135	5.2	81	5.8923	-4.1665	2.8
8.0	110	7.8	56	6.7966	-2.3246	17.2
8.0	80	9.8	42	6.1057	1.0603	17.6
OptDwn						
8.0	147	4.0	102	5.1903	-4.3466	1.6
No Spinn						
8.0	180	3.5	180	3.7215	-3.7215	-0.2
8.0	135	5.2	99	4.2808	-3.0270	1.2
8.0	110	7.5	64	5.7052	-1.9513	2.6
8.0	80	10.3	42	6.4673	1.1230	15.1
OptDwn						
8.0	174	3.5	167	3.7333	-3.7101	0.1
OptUp						
8.0	41	11.1	24	4.8114	3.6107	17.5

Velocities at 10 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
10.0	180	3.9	180	5.1633	-5.1633	-0.2
10.0	135	6.4	86	6.8144	-4.8185	3.6
10.0	110	8.9	62	7.2207	-2.4696	18.5
10.0	80	11.3	45	6.4340	1.1173	17.9
OptDwn						
10.0	167	4.2	150	5.1806	-5.0388	0.8
No Spinn						
10.0	180	4.5	180	4.4969	-4.4969	-0.3
10.0	135	6.5	102	5.0247	-3.5530	1.6
10.0	110	9.1	69	6.2870	-2.1503	3.2
10.0	80	11.8	45	6.8396	1.1877	18.4
OptDwn						
10.0	178	4.5	177	4.4985	-4.4966	-0.1
OptUp						
10.0	41	12.8	25	5.0500	3.7857	17.9

Velocities at 12 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
12.0	180	4.9	180	5.9735	-5.9735	-0.3
12.0	135	7.6	90	7.6051	-5.3776	4.6
12.0	110	10.1	67	7.5124	-2.5694	18.8
12.0	80	12.8	48	6.7201	1.1669	18.3
OptDwn						
12.0	175	5.0	168	5.9130	-5.8872	0.6
No Spinn						
12.0	180	5.6	180	5.2043	-5.2043	-0.4
12.0	135	7.9	104	5.6843	-4.0194	1.9
12.0	110	10.7	72	7.0098	-2.3975	3.9
12.0	80	13.3	48	7.0889	1.2310	18.7
OptDwn						
12.0	178	5.6	177	5.2065	-5.2047	-0.2
OptUp						
12.0	42	14.5	27	5.2374	3.9179	18.4

Key: VTW-Velocity True Wind BTW-Bearing True Wind VAW-Velocity Apparent Wind BAW-Bearing Apparent Wind V-Boatspeed
 VMG-Velocity Made Good Heel-Optimum Heel Angle

Velocities at 14 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
14.0	180	5.9	180	6.7353	-6.7353	-0.4
14.0	135	8.9	93	8.4459	-5.9722	5.6
14.0	110	12.5	71	8.4459	-2.8887	5.6
14.0	80	16.3	49	8.4459	1.4666	5.6
OptDwn						
14.0	180	5.9	180	6.7354	-6.7354	-0.2
No Spinn						
14.0	180	6.8	180	5.8590	-5.8590	-0.6
14.0	135	9.3	107	6.2862	-4.4450	2.4
14.0	110	12.3	75	7.5851	-2.5943	4.9
14.0	80	14.7	50	7.3062	1.2687	19.0
OptDwn						
14.0	178	6.8	177	5.8611	-5.8587	-0.3
OptUp						
14.0	42	16.1	28	5.3784	3.9999	18.7

Velocities at 16 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
16.0	180	7.0	180	7.4636	-7.4636	-0.5
16.0	135	10.3	100	8.4459	-5.9722	3.8
16.0	110	14.0	75	8.4459	-2.8887	3.8
16.0	80	17.9	52	8.4459	1.4666	3.8
OptDwn						
16.0	180	7.0	180	7.4636	-7.4636	0.5
No Spinn						
16.0	180	8.0	180	6.4758	-6.4758	-0.7
16.0	135	10.7	108	6.8471	-4.8416	2.9
16.0	110	13.7	76	8.2728	-2.8295	10.7
16.0	80	16.2	52	7.4761	1.2982	19.3
OptDwn						
16.0	178	8.0	177	6.4783	-6.4756	-0.5
OptUp						
16.0	42	17.7	29	5.4532	4.0669	19.2

Velocities at 20 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
20.0	180	9.6	180	8.4459	-8.4459	-0.7
20.0	135	13.5	109	8.4459	-5.9722	-0.7
20.0	110	17.1	82	8.4459	-2.8887	-0.7
20.0	80	18.4	56	7.3574	1.2776	20.0
OptDwn						
20.0	175	9.6	170	8.4847	-8.4459	-0.7
No Spinn						
20.0	180	10.5	180	7.5939	-7.5939	-1.0
20.0	135	13.6	111	7.9321	-5.6089	4.1
20.0	110	16.7	82	8.4459	-2.8887	5.8
20.0	80	18.9	56	7.6020	1.3201	20.2
OptDwn						
20.0	175	10.5	172	7.5817	-7.5562	1.5
OptUp						
20.0	43	20.7	31	5.5890	4.1127	20.4

Key: VTW-Velocity True Wind BTW-Bearing True Wind VAW-Velocity Apparent Wind BAW-Bearing Apparent Wind V-Boatspeed
 VMG-Velocity Made Good Heel-Optimum Heel Angle

Forces

JIB ONLY, NO SPINNAKER

ANGLE	LIFT	DRAG	EFFICIENCY	CE HEIGHT
180.	-.0977	1.1054	.001	10.9348
170.	-.0083	1.1194	.	10.9036
160.	.08	1.1152	.0008	10.8881
150.	.1653	1.076	.0032	10.8818
140.	.2479	.9913	.0069	10.8901
130.	.3352	.8751	.0125	10.9505
120.	.437	.7492	.0211	11.1079
110.	.5597	.6308	.0343	11.3238
100.	.6953	.5228	.0525	11.4256
90.	.8309	.4252	.0744	11.3394
80.	.9552	.3496	.0966	11.1208
70.	1.0855	.2733	.1207	10.9811
60.	1.2467	.2047	.1531	10.9159
50.	1.4409	.1458	.1969	10.9346
40.	1.592	.094	.2339	11.0152
30.	1.6536	.0524	.2498	11.0768
20.	1.5541	.0387	.2207	11.0922
10.	.9714	.0413	.0889	11.7009

SPINNAKER WITHOUT JIB

ANGLE	LIFT	DRAG	EFFICIENCY	CE HEIGHT
0	0	.1482	0	10.9191
10.	.863	.1303	.0848	13.1186
20.	1.1365	.1304	.1471	12.8438
30.	1.4411	.1403	.2228	12.005
40.	2.3837	.1935	.5734	11.9159
50.	2.6828	.3125	.7277	11.9279
60.	2.5928	.4935	.6819	11.9418
70.	2.4949	.7323	.6329	11.9599
80.	2.3927	.9608	.5828	11.9718
90.	2.2313	1.1357	.507	11.9885
100.	2.0001	1.2921	.4076	11.9651
110.	1.7223	1.4311	.3025	11.9368
120.	1.4314	1.561	.2091	11.9301
130.	1.1581	1.6855	.137	11.9504
140.	.9158	1.7999	.0857	11.9734
150.	.6999	1.9234	.05	11.9784
160.	.4768	2.0526	.0232	11.9648
170.	.2261	2.1972	.0053	11.9457
180.	-.0685	2.371	.0005	11.9316

VELOCITY	RESIDA
0	.0292
.5	.0052
1.	.0144
1.5	.0251
2.	.0379
2.5	.0535
3.	.0727
3.5	.0962
4.	.1244
4.5	.1579
5.	.1966
5.5	.24
6.	.2874
6.5	.3374
7.	.3891
7.5	.4418

Jib LIFT

0	0	0	0	.1427	.4103
.6638	.8939	1.0913	1.2486	1.3604	1.4245
1.4528	1.4605	1.4623	1.4656	1.4699	1.4744
1.4784	1.4811	1.4818	1.4798	1.4742	1.4643
1.4494	1.4287	1.4017	1.3693	1.3326	1.2927
1.2507	1.2076	1.1637	1.1191	1.074	1.0285
.9827	.9369	.8912	.8457	.8005	.7558
.7118	.6685	.6262	.585	.545	.5063
.4692	.4338	.4002	.3684	.3386	.3106
.2843	.2596	.2366	.215	.1949	.1762
.1587	.1424	.1273	.1132	.1002	.088
.0767	.0661	.0562	.0469	.0382	.0299
.022	.0145	.0071	.	-.0071	-.0141
-.021	-.0278	-.0346	-.0413	-.048	-.0546
-.0612	-.0677	-.0742	-.0807	-.0871	-.0936
-.1	-.1	-.1	0	0	0

Jib DRAG

.05	.05	.05	.05	.0451	.0371
.0304	.0261	.0249	.0264	.0286	.0303
.0321	.0355	.0419	.0516	.0643	.0797
.0973	.1168	.1377	.1596	.1821	.2049
.2275	.2496	.2707	.2911	.311	.3306
.3502	.3698	.3896	.4095	.4295	.4495
.4695	.4894	.5093	.529	.5487	.5681
.5874	.6064	.6251	.6436	.6617	.6794
.6967	.7136	.73	.7459	.7613	.7761
.7904	.8042	.8174	.8301	.8422	.8537
.8645	.8748	.8845	.8936	.902	.9098
.9169	.9233	.9291	.9342	.9386	.9423
.9453	.9476	.9492	.95	.95	.9494
.9481	.9462	.9437	.9408	.9374	.9336
.9295	.925	.9203	.9154	.9104	.9052
.9	.9	.9	0	0	0

Spinnaker LIFT

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	.2348	.4618	.6797
.8839	1.0698	1.2329	1.3689	1.4769	1.5599
1.6213	1.664	1.6915	1.7068	1.7133	1.7142
1.7126	1.7113	1.7103	1.7092	1.7074	1.7046
1.7002	1.6937	1.6847	1.6731	1.6588	1.642
1.6229	1.6016	1.5782	1.5527	1.5254	1.4964
1.4657	1.4335	1.4	1.3652	1.3292	1.2923
1.2546	1.2163	1.1774	1.1382	1.0988	1.0593
1.02	.9809	.9422	.9041	.8667	.8302
.7947	.76	.7261	.6929	.6602	.6278
.5958	.5638	.5319	.4999	.4677	.4352
.4025	.3696	.3366	.3034	.2701	.2366
.203	.1693	.1355	.1017	.0678	.0339
0	0	0	0	0	0

Spinnaker DRAG

.1	.1	.1	.1	.1	.1
.1	.1	.1	.1	.1	.1
.1	.1	.1	.1037	.1084	.1141
.1215	.1312	.1436	.1593	.1781	.1993
.2223	.2469	.2734	.3018	.3324	.3653
.4006	.4383	.4779	.5187	.5601	.6013
.6417	.6807	.7176	.752	.7842	.8141
.8419	.8676	.8915	.9135	.9339	.9526
.9698	.9856	1.	1.0133	1.0254	1.0364
1.0463	1.0552	1.0632	1.0702	1.0764	1.0818
1.0864	1.0904	1.0936	1.0963	1.0984	1.1
1.1011	1.1019	1.1023	1.1024	1.1023	1.102
1.1016	1.1011	1.1005	1.1	1.0996	1.0993
1.0991	1.0989	1.0988	1.0987	1.0987	1.0988
1.0989	1.099	1.0992	1.0994	1.0996	1.0998
1.1	1.1	1.1	0	0	0

Main LIFT

0	.3215	.6167	.8814	1.1001	1.2605
1.3732	1.4654	1.5434	1.608	1.6599	1.7
1.7289	1.7475	1.7567	1.7571	1.7495	1.7348
1.7138	1.6871	1.6557	1.6203	1.5816	1.5405
1.4978	1.4542	1.4105	1.3676	1.3261	1.2869
1.2508	1.2184	1.1894	1.1636	1.1405	1.1198
1.101	1.0839	1.068	1.0529	1.0383	1.0239
1.0091	.9938	.9774	.9596	.9402	.9191
.8966	.8729	.8482	.8225	.7961	.7692
.7419	.7144	.6869	.6595	.6325	.606
.5802	.5552	.5309	.5074	.4844	.462
.4401	.4185	.3973	.3762	.3553	.3344
.3135	.2925	.2714	.2499	.2282	.2061
.1837	.161	.1381	.1149	.0916	.068
.0443	.0205	-.0035	-.0275	-.0516	-.0758
-.1	-.1	-.1	0	0	0

Main DRAG

.05	.0432	.0373	.0323	.0288	.027
.0263	.0261	.0262	.0265	.0272	.0281
.0293	.0309	.0328	.035	.0376	.0405
.0438	.0474	.0514	.0558	.0606	.0658
.0714	.0774	.0838	.0907	.098	.1058
.114	.1227	.1319	.1415	.1518	.1626
.1739	.1859	.1985	.2117	.2256	.2402
.2555	.2716	.2884	.306	.3244	.3436
.3637	.3845	.4062	.4288	.4522	.4765
.5016	.5276	.5545	.5823	.611	.6406
.6712	.7026	.7347	.7673	.8001	.8329
.8654	.8975	.9289	.9594	.9887	1.0166
1.0429	1.0673	1.0897	1.1097	1.1273	1.1424
1.1554	1.1663	1.1753	1.1826	1.1884	1.1929
1.1961	1.1983	1.1997	1.2004	1.2006	1.2004
1.2	1.2	1.2	0	0	0