FARR®

PERFORMANCE PREDICTION

DESIGN #492
Farr 36 One Design
for
Carroll Marine Ltd.

Farr Yacht Design, Ltd.

November 4, 2002

P.O. Box 4964, Annapolis, MD 21403 USA
Tel: (410) 267-0780 Fax: (410) 268-0553
E-mail: info@farrdesign.com

DESCRIPTION OF SYMBOLS IN VPP OUTPUT

The accompanying document contains a large amount information about the predicted performance of your boat. To allow this document to be used as a valuable racing tool we have prepared the following explanation of the important terms it contains.

General Terms:

Vt or TWS	True Wind Speed
Bt or TWA	True Wind Angle
V or Vs	Boat Speed
VMG	Boat Velocity Made Good
HEEL	Heel Angle
REEF	Measure of Reduction in Sail Area
FLAT	Measure of Reduction in Sail Lift
Va, AWS	Apparent Wind Speed
Ba, AWA	Apparent Wind Angle
Lee	Leeway Angle
Sail	Sail Combination Designator (Upwind or Downwind)
Flot	Flotation Designator (Varies Only For Water Ballasted Boats)

VPP Polar diagram

This is a graphical representation of the boats performance across a range of windspeeds and true wind directions. Optimal upwind and downwind conditions are marked as small rectangles on the boat speed contours for each windspeed.

Best Boatspeeds

The upper portion of this page gives a numerical representation of the polar diagram. Boatspeeds in knots are given for a series of true windspeeds at masthead height, across a range of true wind angles. All boatspeeds and windspeeds are given in knots. The shaded cells lie beyond the upwind and downwind optimum points. The two tables on the lower portion of the page provide a ready reference of useful details about the optimum upwind and downwind sailing conditions as a function of the true windspeeds (Vt's) across the top of the page. In addition to indicating the optimum upwind and downwind boat speeds in knots, they are also expressed in seconds/mile and in seconds/boat length. VMG is also expressed in seconds/mile.

Course Times

This page shows the predicted boat performance over a series of 1.0 nautical mile courses in various windspeeds. Times around the course are expressed as seconds. The courses reflect five different course conditions:- LEEWARD, LINEAR RANDOM (LR), WINDWARD-LEEWARD (WL), WINDWARD and CIRCULAR-RANDOM (CR).

Times for 1 nm (secs)

This page is similar to the Best Boatspeeds page in that it represents the boatspeeds for a series of true windspeeds and true wind angles. Boatspeeds are expressed as seconds/nautical mile. Shaded areas again depict the off optimum conditions. Optimum upwind and downwind values, in terms of VMG, are presented underneath the table.

Best Performance

This page is a detailed representation of the polar diagram showing a list of predicted performance variables for each windspeed over the range of true wind angles. All of those items listed in the "General Terms" section are listed and optimum upwind and downwind settings are included in bold type.

613 Third Street, Suite 20 • P. O. Box 4964 • Annapolis, MD 21403-0964 • U.S.A.
T. 410 267 0780 • F. 410 268 0553 • info@farrdesign.com • www.farrdesign.com

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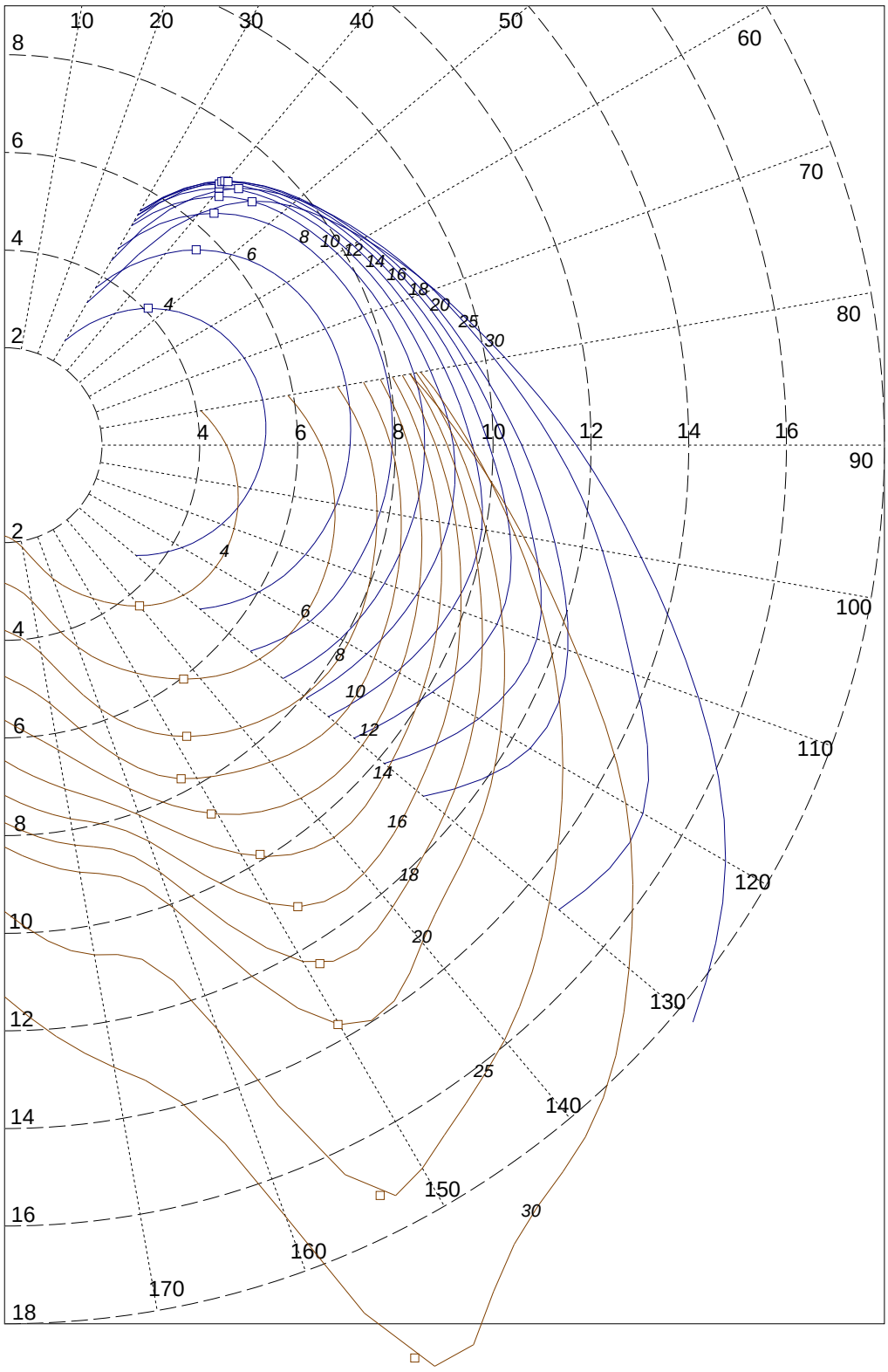

Best Boatspeeds (kt)

	4	6	8	10	12	14	16	18	20	25	30
30.0	2.47	3.72	4.64	5.19	5.44	5.54	5.53	5.45	5.29	4.37	3.37
33.0	2.82	4.20	5.21	5.73	5.98	6.09	6.11	6.08	5.98	5.41	4.03
36.0	3.15	4.62	5.68	6.17	6.41	6.52	6.57	6.57	6.51	6.11	5.15
39.0	3.44	5.01	6.07	6.54	6.78	6.89	6.95	6.97	6.94	6.66	5.98
42.0	3.71	5.36	6.40	6.85	7.06	7.17	7.23	7.26	7.26	7.09	6.59
45.0	3.96	5.66	6.68	7.09	7.28	7.39	7.46	7.50	7.51	7.40	7.08
50.0	4.32	6.08	7.06	7.40	7.58	7.70	7.79	7.85	7.88	7.84	7.63
60.0	4.88	6.67	7.53	7.86	8.06	8.22	8.34	8.44	8.51	8.57	8.49
70.0	5.22	6.98	7.82	8.22	8.47	8.67	8.86	9.02	9.14	9.33	9.35
80.0	5.36	7.10	7.94	8.50	8.85	9.13	9.39	9.60	9.80	10.18	10.39
90.0	5.32	7.07	7.93	8.60	9.18	9.57	9.91	10.26	10.58	11.25	11.70
100.0	5.10	6.90	7.81	8.50	9.22	9.91	10.50	10.98	11.43	12.42	13.23
110.0	5.00	7.05	7.97	8.51	9.01	9.76	10.72	11.59	12.26	13.70	15.11
120.0	4.99	7.05	8.12	8.73	9.33	9.90	10.51	11.20	12.42	15.08	17.03
130.0	4.78	6.81	7.99	8.84	9.56	10.26	11.00	11.75	12.51	14.80	18.38
140.0	4.30	6.23	7.55	8.47	9.44	10.48	11.44	12.35	13.29	15.91	18.49
150.0	3.62	5.39	6.87	7.87	8.72	9.66	10.84	12.21	13.70	17.10	20.01
160.0	2.90	4.40	5.74	6.79	7.48	8.06	8.63	9.30	10.07	12.73	16.80
170.0	2.12	3.24	4.32	5.37	6.33	7.15	7.76	8.31	8.87	10.60	12.93
180.0	1.85	2.82	3.79	4.73	5.63	6.46	7.17	7.73	8.23	9.55	11.29
Up.Vs(kts)	4.07	5.61	6.40	6.72	6.86	6.93	7.00	7.04	7.08	7.11	7.11
Up.Vs(s/m)	885.3	642.3	562.5	535.4	525.1	519.6	514.5	511.2	508.8	506.3	506.5
Up.Vs(s/L)	5.3	3.8	3.3	3.2	3.1	3.1	3.1	3.0	3.0	3.0	3.0
Up.Bt	46.4	44.4	42.0	40.8	39.8	39.4	39.5	39.8	40.3	42.4	45.5
Up.Vmg(kts)	2.81	4.00	4.75	5.09	5.27	5.35	5.40	5.41	5.40	5.25	4.99
Up.Vmg(s/m)	1283.2	899.7	757.4	706.8	683.6	672.6	666.8	665.1	667.1	685.4	722.0
Up.Heel	4.0	9.0	16.8	20.0	22.1	23.0	23.2	23.6	23.8	24.4	25.0
Up.Reef	1.00	1.00	1.00	1.00	1.00	0.96	0.89	0.83	0.78	0.67	0.58
Up.Flat	1.00	1.00	0.99	0.80	0.67	0.63	0.64	0.64	0.66	0.72	0.79
Up.Va	7.41	10.72	13.36	15.56	17.58	19.54	21.49	23.39	25.27	29.83	34.17
Up.Ba	22.9	22.8	22.6	23.2	23.9	24.7	25.8	26.8	27.9	31.0	34.5
Up.Leewy	2.69	2.92	3.53	3.60	3.74	3.93	4.10	4.29	4.49	5.04	5.65
Dn.Vs(kts)	4.30	6.04	7.03	7.73	8.66	9.88	11.20	12.43	13.69	17.18	20.50
Dn.Vs(s/m)	837.3	596.4	511.7	465.7	415.7	364.2	321.4	289.7	263.0	209.5	175.6
Dn.Vs(s/L)	5.0	3.5	3.0	2.8	2.5	2.2	1.9	1.7	1.6	1.2	1.0
Dn.Bt	140.0	142.5	148.0	152.1	150.7	148.0	147.6	148.7	150.1	153.4	155.8
Dn.Vmg(kts)	3.29	4.79	5.96	6.83	7.55	8.39	9.45	10.62	11.87	15.37	18.70
Dn.Vmg(s/m)	1093.0	751.3	603.6	526.9	476.5	429.3	380.8	339.0	303.4	234.3	192.5
Dn.Heel	1.8	3.1	3.3	3.2	4.8	8.2	11.6	14.1	16.2	20.0	22.3
Dn.Reef	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Va	2.85	3.86	4.24	4.80	6.12	7.60	8.71	9.54	10.25	11.71	13.29
Dn.Ba	64.3	70.7	86.6	103.3	107.2	105.2	105.3	108.1	110.9	116.2	121.1
Dn.Leewy	0.85	0.73	0.54	0.43	0.48	0.56	0.54	0.45	0.37	0.19	0.10

Shaded cells lie outside upwind and downwind optimum sailing angles.

Times for 1 nm (secs)

	4	6	8	10	12	14	16	18	20	25	30
30.0	1457.1	968.5	775.1	694.0	661.3	649.3	650.5	660.8	680.7	824.7	1068.1
33.0	1275.5	857.8	691.0	628.2	602.0	591.4	589.4	592.5	601.7	665.6	893.7
36.0	1144.5	778.5	633.8	583.4	561.4	551.7	547.6	547.6	552.7	589.2	699.3
39.0	1045.9	718.6	593.4	550.7	531.3	522.3	517.8	516.6	518.7	540.8	602.4
42.0	969.5	672.2	562.7	525.6	509.8	502.2	497.6	495.7	496.1	508.1	546.3
45.0	908.8	636.1	538.7	507.4	494.5	487.2	482.3	479.8	479.3	486.4	508.7
50.0	832.4	592.1	510.0	486.4	475.1	467.5	462.2	458.8	457.0	459.4	471.6
60.0	738.0	539.8	478.0	458.1	446.7	438.1	431.6	426.7	423.3	420.1	424.1
70.0	689.8	515.4	460.5	437.8	425.3	415.1	406.4	399.3	393.8	385.9	384.9
80.0	671.4	507.1	453.2	423.4	406.9	394.1	383.6	374.9	367.5	353.5	346.5
90.0	676.5	509.3	453.8	418.8	392.1	376.2	363.2	351.0	340.3	319.9	307.8
100.0	705.5	521.8	461.1	423.7	390.3	363.2	342.8	327.9	315.0	289.8	272.1
110.0	720.2	510.7	451.9	422.9	399.5	369.0	335.9	310.6	293.6	262.7	238.3
120.0	721.9	510.5	443.5	412.2	385.8	363.6	342.5	321.3	289.9	238.7	211.4
130.0	753.8	528.4	450.5	407.1	376.7	350.9	327.2	306.4	287.7	243.3	195.9
140.0	837.3	577.5	476.7	425.2	381.5	343.4	314.6	291.6	270.8	226.3	194.7
150.0	993.7	668.3	523.8	457.2	412.8	372.6	332.2	294.8	262.8	210.6	179.9
160.0	1239.8	818.2	626.9	529.9	481.0	446.7	417.1	387.0	357.5	282.8	214.3
170.0	1696.3	1112.7	832.4	670.3	568.7	503.8	463.6	433.0	405.7	339.8	278.3
180.0	1943.3	1274.8	949.6	761.1	639.2	557.2	502.0	465.8	437.5	377.1	318.8
Up	1283.2	899.7	757.4	706.8	683.6	672.6	666.8	665.1	667.1	685.4	722.0
Dn	1093.0	751.3	603.6	526.9	476.5	429.3	380.8	339.0	303.4	234.3	192.5

Equivalent ILC Average (using IMS formula): 592.20

Shaded cells lie outside upwind and downwind optimum sailing angles.

Best Performance

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	4.0	30.0	2.471	2.140	2.6	1.000	1.000	6.26	18.6	4.88	Up	49AL
	4.0	33.0	2.822	2.367	2.9	1.000	1.000	6.55	19.4	4.16	Up	49AL
	4.0	36.0	3.146	2.545	3.2	1.000	1.000	6.80	20.2	3.67	Up	49AL
	4.0	39.0	3.442	2.675	3.5	1.000	1.000	7.02	21.0	3.30	Up	49AL
	4.0	42.0	3.713	2.760	3.7	1.000	1.000	7.20	21.8	3.02	Up	49AL
	4.0	45.0	3.961	2.801	3.9	1.000	1.000	7.35	22.6	2.79	Up	49AL
OptUp >	***4.0***	***46.4***	***4.066***	***2.805***	***4.0***	***1.000***	***1.000***	***7.41***	***22.9***	***2.69***	***Up***	***49AL***
	4.0	50.0	4.325	2.780	4.2	1.000	1.000	7.54	23.9	2.48	Up	49AL
	4.0	60.0	4.878	2.439	4.5	1.000	1.000	7.70	26.7	2.05	Up	49AL
	4.0	70.0	5.219	1.785	4.3	1.000	1.000	7.58	29.6	1.73	Up	49AL
	4.0	80.0	5.362	0.931	3.9	1.000	1.000	7.22	33.0	1.47	Up	49AL
	4.0	90.0	5.321	-0.000	3.2	1.000	1.000	6.65	36.9	1.25	Up	49AL
	4.0	100.0	5.103	-0.886	2.5	1.000	1.000	5.91	41.8	1.05	Up	49AL
	4.0	110.0	4.998	-1.710	4.5	1.000	1.000	5.22	45.9	1.59	Dn	49AL
	4.0	120.0	4.987	-2.493	3.9	1.000	1.000	4.57	49.2	1.37	Dn	49AL
	4.0	130.0	4.776	-3.070	3.0	1.000	1.000	3.77	54.2	1.15	Dn	49AL
	4.0	140.0	4.300	-3.294	1.8	1.000	1.000	2.85	64.3	0.85	Dn	49AL
OptDn >	***4.0***	***140.0***	***4.300***	***3.294***	***1.8***	***1.000***	***1.000***	***2.85***	***64.3***	***0.85***	***Dn***	***49AL***
	4.0	150.0	3.623	-3.137	0.7	1.000	1.000	2.01	85.5	0.51	Dn	49AL
	4.0	160.0	2.904	-2.728	0.2	1.000	1.000	1.61	122.0	0.22	Dn	49AL
	4.0	170.0	2.122	-2.090	0.0	1.000	1.000	1.95	159.1	0.07	Dn	49AL
	4.0	180.0	1.853	-1.853	-0.0	1.000	1.000	2.15	180.0	-0.00	Dn	49AL
	6.0	30.0	3.717	3.219	6.1	1.000	1.000	9.40	18.5	4.84	Up	49AL
	6.0	33.0	4.197	3.520	6.8	1.000	1.000	9.78	19.4	4.18	Up	49AL
	6.0	36.0	4.624	3.741	7.5	1.000	1.000	10.10	20.2	3.72	Up	49AL
	6.0	39.0	5.010	3.893	8.1	1.000	1.000	10.37	21.1	3.38	Up	49AL
	6.0	42.0	5.355	3.980	8.6	1.000	1.000	10.59	22.0	3.10	Up	49AL
OptUp >	***6.0***	***44.4***	***5.605***	***4.002***	***9.0***	***1.000***	***1.000***	***10.72***	***22.8***	***2.92***	***Up***	***49AL***
	6.0	45.0	5.659	4.002	9.0	1.000	1.000	10.75	22.9	2.88	Up	49AL
	6.0	50.0	6.080	3.908	9.6	1.000	1.000	10.92	24.5	2.58	Up	49AL
	6.0	60.0	6.669	3.334	9.7	1.000	1.000	10.94	27.9	2.14	Up	49AL
	6.0	70.0	6.985	2.389	9.0	1.000	1.000	10.62	31.6	1.80	Up	49AL
	6.0	80.0	7.099	1.233	7.7	1.000	1.000	10.03	35.7	1.52	Up	49AL
	6.0	90.0	7.069	-0.000	6.2	1.000	1.000	9.25	40.2	1.27	Up	49AL
	6.0	100.0	6.899	-1.198	4.8	1.000	1.000	8.31	45.2	1.04	Up	49AL
	6.0	110.0	7.049	-2.411	11.2	1.000	1.000	7.45	47.9	1.71	Dn	49AL
	6.0	120.0	7.052	-3.526	9.2	1.000	1.000	6.54	51.7	1.44	Dn	49AL
	6.0	130.0	6.813	-4.380	6.6	1.000	1.000	5.44	57.1	1.15	Dn	49AL
	6.0	140.0	6.234	-4.775	3.8	1.000	1.000	4.18	66.9	0.82	Dn	49AL
OptDn >	***6.0***	***142.5***	***6.037***	***4.792***	***3.1***	***1.000***	***1.000***	***3.86***	***70.7***	***0.73***	***Dn***	***49AL***
	6.0	150.0	5.387	-4.665	1.6	1.000	1.000	3.00	86.4	0.49	Dn	49AL
	6.0	160.0	4.400	-4.135	0.4	1.000	1.000	2.40	121.1	0.21	Dn	49AL
	6.0	170.0	3.235	-3.186	0.1	1.000	1.000	2.87	158.7	0.06	Dn	49AL
	6.0	180.0	2.824	-2.824	-0.0	1.000	1.000	3.18	180.0	-0.00	Dn	49AL

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	8.0	30.0	4.644	4.022	11.5	1.000	1.000	12.22	18.7	5.33	Up	49AL
	8.0	33.0	5.210	4.369	13.1	1.000	1.000	12.65	19.6	4.64	Up	49AL
	8.0	36.0	5.680	4.595	14.7	1.000	1.000	12.97	20.5	4.18	Up	49AL
	8.0	39.0	6.067	4.715	15.9	1.000	0.991	13.20	21.5	3.82	Up	49AL
	8.0	42.0	6.397	4.754	16.8	1.000	0.986	13.36	22.5	3.54	Up	49AL
OptUp >	***8.0***	***42.0***	***6.400***	***4.753***	***16.8***	***1.000***	***0.986***	***13.36***	***22.6***	***3.53***	***Up***	***49AL***
	8.0	45.0	6.683	4.726	17.5	1.000	0.984	13.47	23.6	3.31	Up	49AL
	8.0	50.0	7.059	4.537	18.5	1.000	0.993	13.52	25.5	3.04	Up	49AL
	8.0	60.0	7.532	3.766	17.7	1.000	1.000	13.29	29.8	2.54	Up	49AL
	8.0	70.0	7.817	2.674	14.9	1.000	1.000	12.81	34.5	2.07	Up	49AL
	8.0	80.0	7.943	1.379	11.8	1.000	1.000	12.11	39.6	1.68	Up	49AL
	8.0	90.0	7.933	-0.000	9.1	1.000	1.000	11.19	44.9	1.37	Up	49AL
	8.0	100.0	7.807	-1.356	6.8	1.000	1.000	10.12	50.6	1.10	Up	49AL
	8.0	110.0	7.966	-2.724	19.2	0.953	0.957	8.82	53.6	1.96	Dn	49AL
	8.0	120.0	8.117	-4.058	18.2	1.000	1.000	7.76	58.0	1.73	Dn	49AL
	8.0	130.0	7.991	-5.136	10.7	1.000	1.000	6.66	64.7	1.21	Dn	49AL
	8.0	140.0	7.552	-5.785	5.9	1.000	1.000	5.31	74.4	0.81	Dn	49AL
OptDn >	***8.0***	***148.0***	***7.035***	***5.965***	***3.3***	***1.000***	***1.000***	***4.24***	***86.6***	***0.54***	***Dn***	***49AL***
	8.0	150.0	6.872	-5.952	2.7	1.000	1.000	4.00	90.8	0.48	Dn	49AL
	8.0	160.0	5.743	-5.396	0.7	1.000	1.000	3.26	123.0	0.21	Dn	49AL
	8.0	170.0	4.325	-4.259	0.1	1.000	1.000	3.82	158.6	0.06	Dn	49AL
	8.0	180.0	3.791	-3.791	-0.0	1.000	1.000	4.21	180.0	-0.00	Dn	49AL
	10.0	30.0	5.188	4.493	16.0	1.000	0.850	14.66	19.1	5.38	Up	49AL
	10.0	33.0	5.731	4.806	17.6	1.000	0.832	15.04	20.2	4.64	Up	49AL
	10.0	36.0	6.170	4.992	18.7	1.000	0.818	15.31	21.3	4.14	Up	49AL
	10.0	39.0	6.537	5.080	19.6	1.000	0.808	15.49	22.5	3.77	Up	49AL
OptUp >	***10.0***	***40.8***	***6.724***	***5.093***	***20.0***	***1.000***	***0.804***	***15.56***	***23.2***	***3.60***	***Up***	***49AL***
	10.0	42.0	6.849	5.090	20.2	1.000	0.802	15.60	23.7	3.49	Up	49AL
	10.0	45.0	7.095	5.017	20.7	1.000	0.804	15.63	25.0	3.29	Up	49AL
	10.0	50.0	7.401	4.757	21.2	1.000	0.816	15.56	27.3	3.04	Up	49AL
	10.0	60.0	7.859	3.930	21.7	1.000	0.875	15.17	32.0	2.70	Up	49AL
	10.0	70.0	8.223	2.812	21.8	1.000	0.969	14.55	36.8	2.43	Up	49AL
	10.0	80.0	8.502	1.476	17.9	1.000	1.000	13.88	42.5	1.94	Up	49AL
	10.0	90.0	8.597	-0.000	12.8	1.000	1.000	13.00	48.6	1.50	Up	49AL
	10.0	100.0	8.496	-1.475	9.1	1.000	1.000	11.84	55.2	1.17	Up	49AL
	10.0	110.0	8.512	-2.911	19.7	0.845	0.970	10.21	60.1	1.87	Dn	49AL
	10.0	120.0	8.733	-4.367	20.0	0.921	1.000	8.95	65.4	1.65	Dn	49AL
	10.0	130.0	8.843	-5.684	16.4	1.000	1.000	7.74	71.8	1.30	Dn	49AL
	10.0	140.0	8.467	-6.486	8.2	1.000	1.000	6.41	82.8	0.84	Dn	49AL
	10.0	150.0	7.875	-6.820	3.9	1.000	1.000	5.05	99.0	0.49	Dn	49AL
OptDn >	***10.0***	***152.1***	***7.731***	***6.832***	***3.2***	***1.000***	***1.000***	***4.80***	***103.3***	***0.43***	***Dn***	***49AL***
	10.0	160.0	6.793	-6.383	0.9	1.000	1.000	4.30	127.3	0.19	Dn	49AL
	10.0	170.0	5.371	-5.289	0.2	1.000	1.000	4.80	158.8	0.06	Dn	49AL
	10.0	180.0	4.730	-4.730	-0.0	1.000	1.000	5.27	180.0	-0.00	Dn	49AL

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	12.0	30.0	5.444	4.714	19.1	1.000	0.708	16.82	19.7	5.52	Up	49AL
	12.0	33.0	5.980	5.015	20.4	1.000	0.690	17.17	20.9	4.74	Up	49AL
	12.0	36.0	6.413	5.188	21.3	1.000	0.677	17.41	22.2	4.21	Up	49AL
	12.0	39.0	6.776	5.266	21.9	1.000	0.669	17.56	23.5	3.82	Up	49AL
OptUp >	***12.0***	***39.8***	***6.856***	***5.266***	***22.1***	***1.000***	***0.668***	***17.58***	***23.9***	***3.74***	***Up***	***49AL***
	12.0	42.0	7.062	5.248	22.5	1.000	0.668	17.62	24.9	3.55	Up	49AL
	12.0	45.0	7.280	5.148	22.7	0.995	0.678	17.60	26.4	3.36	Up	49AL
	12.0	50.0	7.577	4.870	22.5	0.964	0.746	17.49	29.0	3.12	Up	49AL
	12.0	60.0	8.059	4.030	22.1	0.919	0.896	17.04	34.4	2.76	Up	49AL
	12.0	70.0	8.465	2.895	21.9	0.917	1.000	16.35	39.8	2.44	Up	49AL
	12.0	80.0	8.846	1.536	22.1	0.970	1.000	15.47	45.0	2.12	Up	49AL
	12.0	90.0	9.181	-0.000	18.7	1.000	1.000	14.61	51.1	1.66	Up	49AL
	12.0	100.0	9.224	-1.602	12.4	1.000	1.000	13.57	58.3	1.23	Up	49AL
	12.0	110.0	9.012	-3.082	20.3	0.764	1.000	11.66	65.1	1.80	Dn	49AL
	12.0	120.0	9.330	-4.665	20.6	0.847	1.000	10.28	71.1	1.53	Dn	49AL
	12.0	130.0	9.556	-6.143	21.0	0.967	1.000	8.78	77.9	1.31	Dn	49AL
	12.0	140.0	9.436	-7.228	11.6	1.000	1.000	7.56	88.2	0.85	Dn	49AL
	12.0	150.0	8.722	-7.553	5.1	1.000	1.000	6.20	105.6	0.51	Dn	49AL
OptDn >	***12.0***	***150.7***	***8.660***	***7.555***	***4.8***	***1.000***	***1.000***	***6.12***	***107.2***	***0.48***	***Dn***	***49AL***
	12.0	160.0	7.485	-7.033	1.2	1.000	1.000	5.59	132.7	0.20	Dn	49AL
	12.0	170.0	6.330	-6.234	0.2	1.000	1.000	5.87	159.2	0.06	Dn	49AL
	12.0	180.0	5.632	-5.632	-0.0	1.000	1.000	6.37	180.0	-0.00	Dn	49AL
	14.0	30.0	5.545	4.802	21.2	1.000	0.596	18.84	20.3	5.77	Up	49AL
	14.0	33.0	6.087	5.105	22.3	0.999	0.581	19.17	21.6	4.92	Up	49AL
	14.0	36.0	6.525	5.279	22.8	0.984	0.591	19.40	23.0	4.35	Up	49AL
	14.0	39.0	6.892	5.356	22.9	0.957	0.624	19.54	24.5	3.95	Up	49AL
OptUp >	***14.0***	***39.4***	***6.928***	***5.352***	***23.0***	***0.956***	***0.628***	***19.54***	***24.7***	***3.93***	***Up***	***49AL***
	14.0	42.0	7.168	5.327	22.9	0.934	0.661	19.58	26.1	3.69	Up	49AL
	14.0	45.0	7.389	5.225	22.8	0.912	0.703	19.55	27.8	3.49	Up	49AL
	14.0	50.0	7.700	4.949	22.6	0.882	0.779	19.41	30.7	3.23	Up	49AL
	14.0	60.0	8.217	4.108	22.3	0.844	0.933	18.90	36.4	2.82	Up	49AL
	14.0	70.0	8.674	2.967	22.3	0.858	1.000	18.15	42.1	2.45	Up	49AL
	14.0	80.0	9.135	1.586	22.4	0.908	1.000	17.21	47.8	2.09	Up	49AL
	14.0	90.0	9.569	-0.000	22.5	0.974	1.000	16.09	53.5	1.77	Up	49AL
	14.0	100.0	9.912	-1.721	17.3	1.000	1.000	15.14	60.4	1.29	Up	49AL
	14.0	110.0	9.756	-3.337	10.5	1.000	1.000	13.86	69.0	0.94	Up	49AL
	14.0	120.0	9.901	-4.950	21.2	0.784	1.000	11.67	75.6	1.43	Dn	49AL
	14.0	130.0	10.260	-6.595	21.7	0.896	1.000	10.04	82.8	1.19	Dn	49AL
	14.0	140.0	10.485	-8.032	17.3	1.000	1.000	8.60	91.6	0.86	Dn	49AL
OptDn >	***14.0***	***148.0***	***9.884***	***8.386***	***8.2***	***1.000***	***1.000***	***7.60***	***105.2***	***0.56***	***Dn***	***49AL***
	14.0	150.0	9.663	-8.368	6.7	1.000	1.000	7.38	109.5	0.50	Dn	49AL
	14.0	160.0	8.059	-7.573	1.7	1.000	1.000	6.99	136.8	0.21	Dn	49AL
	14.0	170.0	7.146	-7.037	0.3	1.000	1.000	7.07	159.9	0.06	Dn	49AL
	14.0	180.0	6.460	-6.460	-0.0	1.000	1.000	7.54	180.0	-0.00	Dn	49AL

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	16.0	30.0	5.534	4.792	22.4	0.977	0.535	20.75	20.9	6.17	Up	49AL
	16.0	33.0	6.108	5.122	22.8	0.943	0.566	21.11	22.4	5.20	Up	49AL
	16.0	36.0	6.574	5.319	23.0	0.914	0.598	21.35	23.9	4.57	Up	49AL
	16.0	39.0	6.953	5.403	23.2	0.889	0.635	21.48	25.5	4.15	Up	49AL
OptUp >	***16.0***	***39.5***	***6.997***	***5.399***	***23.2***	***0.885***	***0.642***	***21.49***	***25.8***	***4.10***	***Up***	***49AL***
	16.0	42.0	7.235	5.377	23.1	0.865	0.678	21.51	27.2	3.85	Up	49AL
	16.0	45.0	7.463	5.277	23.1	0.849	0.714	21.47	29.0	3.63	Up	49AL
	16.0	50.0	7.789	5.007	22.9	0.819	0.797	21.31	32.0	3.35	Up	49AL
	16.0	60.0	8.341	4.170	22.5	0.780	0.967	20.76	38.1	2.90	Up	49AL
	16.0	70.0	8.858	3.030	22.6	0.807	1.000	19.95	44.1	2.47	Up	49AL
	16.0	80.0	9.386	1.630	22.7	0.855	1.000	18.95	50.1	2.06	Up	49AL
	16.0	90.0	9.911	-0.000	22.9	0.918	1.000	17.76	56.1	1.72	Up	49AL
	16.0	100.0	10.502	-1.824	23.1	1.000	1.000	16.43	62.0	1.39	Up	49AL
	16.0	110.0	10.717	-3.665	14.3	1.000	1.000	15.49	70.2	0.92	Up	49AL
	16.0	120.0	10.511	-5.255	21.9	0.729	1.000	13.10	79.0	1.32	Dn	49AL
	16.0	130.0	11.004	-7.073	22.4	0.832	1.000	11.36	86.4	1.07	Dn	49AL
	16.0	140.0	11.443	-8.766	23.1	0.986	1.000	9.50	94.9	0.85	Dn	49AL
OptDn >	***16.0***	***147.6***	***11.201***	***9.455***	***11.6***	***1.000***	***1.000***	***8.71***	***105.3***	***0.54***	***Dn***	***49AL***
	16.0	150.0	10.837	-9.385	8.8	1.000	1.000	8.46	110.9	0.47	Dn	49AL
	16.0	160.0	8.632	-8.111	2.2	1.000	1.000	8.42	139.5	0.23	Dn	49AL
	16.0	170.0	7.765	-7.647	0.4	1.000	1.000	8.46	160.8	0.07	Dn	49AL
	16.0	180.0	7.171	-7.171	-0.0	1.000	1.000	8.83	180.0	-0.00	Dn	49AL
	18.0	30.0	5.448	4.718	22.5	0.917	0.535	22.62	21.6	6.73	Up	49AL
	18.0	33.0	6.076	5.095	23.0	0.884	0.569	23.02	23.1	5.57	Up	49AL
	18.0	36.0	6.574	5.319	23.4	0.860	0.599	23.26	24.7	4.86	Up	49AL
	18.0	39.0	6.969	5.416	23.6	0.838	0.633	23.39	26.4	4.37	Up	49AL
OptUp >	***18.0***	***39.8***	***7.043***	***5.413***	***23.6***	***0.832***	***0.645***	***23.39***	***26.8***	***4.29***	***Up***	***49AL***
	18.0	42.0	7.263	5.397	23.4	0.814	0.680	23.41	28.2	4.04	Up	49AL
	18.0	45.0	7.503	5.305	23.3	0.793	0.730	23.36	30.0	3.80	Up	49AL
	18.0	50.0	7.847	5.044	23.1	0.763	0.819	23.19	33.2	3.49	Up	49AL
	18.0	60.0	8.436	4.218	22.7	0.729	0.990	22.60	39.5	2.99	Up	49AL
	18.0	70.0	9.015	3.083	23.0	0.761	1.000	21.74	45.8	2.50	Up	49AL
	18.0	80.0	9.603	1.667	23.1	0.808	1.000	20.69	52.0	2.06	Up	49AL
	18.0	90.0	10.255	-0.000	23.2	0.867	1.000	19.46	58.2	1.66	Up	49AL
	18.0	100.0	10.978	-1.906	23.4	0.945	1.000	18.06	64.2	1.30	Up	49AL
	18.0	110.0	11.590	-3.964	19.4	1.000	1.000	16.85	71.2	0.92	Up	49AL
	18.0	120.0	11.203	-5.602	10.6	1.000	1.000	15.48	81.8	0.65	Up	49AL
	18.0	130.0	11.751	-7.553	23.0	0.777	1.000	12.70	89.2	0.95	Dn	49AL
	18.0	140.0	12.347	-9.458	23.8	0.923	1.000	10.69	97.8	0.73	Dn	49AL
OptDn >	***18.0***	***148.7***	***12.426***	***10.619***	***14.1***	***1.000***	***1.000***	***9.54***	***108.1***	***0.45***	***Dn***	***49AL***
	18.0	150.0	12.212	-10.576	11.8	1.000	1.000	9.44	111.0	0.42	Dn	49AL
	18.0	160.0	9.303	-8.742	2.7	1.000	1.000	9.78	141.1	0.24	Dn	49AL
	18.0	170.0	8.314	-8.188	0.5	1.000	1.000	9.92	161.6	0.07	Dn	49AL
	18.0	180.0	7.728	-7.728	-0.0	1.000	1.000	10.27	180.0	-0.00	Dn	49AL

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	20.0	30.0	5.288	4.580	22.6	0.867	0.534	24.42	22.2	7.51	Up	49AL
	20.0	33.0	5.983	5.018	23.3	0.843	0.558	24.86	23.7	6.05	Up	49AL
	20.0	36.0	6.513	5.269	23.8	0.816	0.595	25.11	25.4	5.23	Up	49AL
	20.0	39.0	6.940	5.393	23.8	0.789	0.640	25.26	27.1	4.65	Up	49AL
OptUp >	***20.0***	***40.3***	***7.075***	***5.397***	***23.8***	***0.779***	***0.662***	***25.27***	***27.9***	***4.49***	***Up***	***49AL***
	20.0	42.0	7.256	5.392	23.7	0.765	0.691	25.29	29.0	4.27	Up	49AL
	20.0	45.0	7.511	5.311	23.5	0.744	0.744	25.24	30.9	4.00	Up	49AL
	20.0	50.0	7.877	5.063	23.3	0.716	0.836	25.06	34.2	3.64	Up	49AL
	20.0	60.0	8.505	4.253	23.0	0.687	1.000	24.43	40.8	3.08	Up	49AL
	20.0	70.0	9.142	3.127	23.3	0.721	1.000	23.53	47.2	2.54	Up	49AL
	20.0	80.0	9.796	1.701	23.5	0.766	1.000	22.41	53.7	2.07	Up	49AL
	20.0	90.0	10.579	-0.000	23.7	0.823	1.000	21.15	60.0	1.62	Up	49AL
	20.0	100.0	11.427	-1.984	23.9	0.898	1.000	19.69	66.2	1.23	Up	49AL
	20.0	110.0	12.263	-4.194	24.1	0.996	1.000	17.99	72.5	0.94	Up	49AL
	20.0	120.0	12.418	-6.209	14.0	1.000	1.000	16.98	81.8	0.60	Up	49AL
	20.0	130.0	12.512	-8.042	23.6	0.730	1.000	14.04	91.4	0.84	Dn	49AL
	20.0	140.0	13.294	-10.184	24.4	0.868	1.000	11.88	99.8	0.63	Dn	49AL
	20.0	150.0	13.701	-11.865	16.4	1.000	1.000	10.25	110.7	0.37	Dn	49AL
OptDn >	***20.0***	***150.1***	***13.688***	***11.866***	***16.2***	***1.000***	***1.000***	***10.25***	***110.9***	***0.37***	***Dn***	***49AL***
	20.0	160.0	10.070	-9.463	3.3	1.000	1.000	11.08	141.9	0.24	Dn	49AL
	20.0	170.0	8.874	-8.739	0.6	1.000	1.000	11.37	162.2	0.07	Dn	49AL
	20.0	180.0	8.228	-8.228	-0.0	1.000	1.000	11.77	180.0	-0.00	Dn	49AL
	25.0	30.0	4.365	3.780	22.3	0.784	0.508	28.47	24.0	12.01	Up	49AL
	25.0	33.0	5.408	4.536	23.8	0.750	0.556	29.17	25.3	8.33	Up	49AL
	25.0	36.0	6.110	4.943	24.2	0.720	0.604	29.55	27.0	6.69	Up	49AL
	25.0	39.0	6.657	5.173	24.4	0.695	0.653	29.76	28.8	5.71	Up	49AL
	25.0	42.0	7.085	5.265	24.4	0.671	0.708	29.85	30.7	5.07	Up	49AL
OptUp >	***25.0***	***42.4***	***7.110***	***5.253***	***24.4***	***0.669***	***0.716***	***29.83***	***31.0***	***5.04***	***Up***	***49AL***
	25.0	45.0	7.402	5.234	24.2	0.651	0.767	29.82	32.7	4.64	Up	49AL
	25.0	50.0	7.836	5.037	23.9	0.625	0.863	29.63	36.2	4.13	Up	49AL
	25.0	60.0	8.569	4.284	23.8	0.608	1.000	28.92	43.2	3.39	Up	49AL
	25.0	70.0	9.330	3.191	24.2	0.638	1.000	27.91	50.2	2.71	Up	49AL
	25.0	80.0	10.182	1.768	24.5	0.679	1.000	26.69	57.0	2.11	Up	49AL
	25.0	90.0	11.252	-0.000	24.9	0.731	1.000	25.32	63.6	1.55	Up	49AL
	25.0	100.0	12.421	-2.157	25.3	0.800	1.000	23.68	70.1	1.11	Up	49AL
	25.0	110.0	13.701	-4.686	25.5	0.886	1.000	21.81	76.3	0.76	Up	49AL
	25.0	120.0	15.081	-7.541	25.9	0.999	1.000	19.65	82.5	0.51	Up	49AL
	25.0	130.0	14.797	-9.511	13.5	1.000	1.000	18.66	93.9	0.33	Up	49AL
	25.0	140.0	15.909	-12.187	26.1	0.756	1.000	14.80	102.7	0.40	Dn	49AL
	25.0	150.0	17.097	-14.807	27.5	0.973	1.000	11.99	112.3	0.26	Dn	49AL
OptDn >	***25.0***	***153.4***	***17.183***	***15.367***	***20.0***	***1.000***	***1.000***	***11.71***	***116.2***	***0.19***	***Dn***	***49AL***
	25.0	160.0	12.729	-11.962	5.3	1.000	1.000	13.72	141.7	0.19	Dn	49AL
	25.0	170.0	10.596	-10.435	1.0	1.000	1.000	14.68	162.8	0.07	Dn	49AL
	25.0	180.0	9.546	-9.546	-0.0	1.000	1.000	15.45	180.0	-0.00	Dn	49AL

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	30.0	30.0	3.371	2.919	22.3	0.640	0.450	32.47	25.3	15.00	Up	49AL
	30.0	33.0	4.028	3.378	30.7	0.986	0.987	32.40	25.7	15.00	Up	49AL
	30.0	36.0	5.148	4.165	24.2	0.651	0.608	33.53	28.7	10.36	Up	49AL
	30.0	39.0	5.976	4.644	24.8	0.626	0.662	33.93	30.3	7.89	Up	49AL
	30.0	42.0	6.590	4.897	25.0	0.604	0.717	34.13	32.2	6.55	Up	49AL
	30.0	45.0	7.077	5.004	25.0	0.585	0.777	34.20	34.2	5.69	Up	49AL
OptUp >	***30.0***	***45.5***	***7.108***	***4.986***	***25.0***	***0.583***	***0.786***	***34.17***	***34.5***	***5.65***	***Up***	***49AL***
	30.0	50.0	7.633	4.906	24.8	0.561	0.872	34.05	37.8	4.86	Up	49AL
	30.0	60.0	8.488	4.244	24.8	0.546	1.000	33.29	45.1	3.84	Up	49AL
	30.0	70.0	9.352	3.199	25.3	0.574	1.000	32.17	52.4	3.01	Up	49AL
	30.0	80.0	10.388	1.804	25.8	0.611	1.000	30.84	59.6	2.25	Up	49AL
	30.0	90.0	11.697	-0.000	26.4	0.661	1.000	29.32	66.5	1.58	Up	49AL
	30.0	100.0	13.228	-2.297	26.9	0.723	1.000	27.55	73.1	1.04	Up	49AL
	30.0	110.0	15.105	-5.166	27.3	0.800	1.000	25.51	79.1	0.64	Up	49AL
	30.0	120.0	17.029	-8.514	27.4	0.898	1.000	23.16	85.0	0.38	Up	49AL
	30.0	130.0	18.381	-11.815	24.0	1.000	1.000	21.01	92.5	0.23	Up	49AL
	30.0	140.0	18.491	-14.165	27.5	0.674	1.000	17.68	104.7	0.26	Dn	49AL
	30.0	150.0	20.010	-17.329	29.0	0.878	1.000	14.41	114.5	0.16	Dn	49AL
OptDn >	***30.0***	***155.8***	***20.499***	***18.701***	***22.3***	***1.000***	***1.000***	***13.29***	***121.1***	***0.10***	***Dn***	***49AL***
	30.0	160.0	16.802	-15.789	8.0	1.000	1.000	15.26	138.3	0.11	Dn	49AL
	30.0	170.0	12.935	-12.738	1.4	1.000	1.000	17.41	162.6	0.06	Dn	49AL
	30.0	180.0	11.291	-11.291	-0.0	1.000	1.000	18.71	180.0	-0.00	Dn	49AL