
FAST YACHT Performance Prediction

MUMM 36 - ONE-DESIGN

FOR
FARR INTERNATIONAL, INC.

MUMM 36 - ONE-DESIGN
for FARR INTERNATIONAL, INC.

3 Nov 1993

PERFORMANCE Pg 1

	TWA	AWS	AWA	VB	VMG	HL	LWY	FLT	RF
	kts			kts	kts			$\frac{1}{2}>1$	hgt
-----	-----								
	4.0 knots True Wind Speed -----								
	33.0	6.1	19.5	2.376	1.992	1.4	4.32	1.00	1.00
	36.0	6.3	21.2	2.604	2.107	1.5	3.85	1.00	1.00
	39.0	6.4	22.6	2.818	2.190	1.5	3.48	1.00	1.00
	42.0	6.6	24.0	3.021	2.245	1.6	3.17	1.00	1.00
OPT Tack	46.7	6.7	26.0	3.318	2.277	1.7	2.78	1.00	1.00
	50.0	6.8	27.3	3.517	2.261	1.8	2.55	1.00	1.00
	60.0	6.9	31.0	4.016	2.008	1.9	2.04	1.00	1.00
	70.0	6.8	34.8	4.326	1.480	1.8	1.69	1.00	1.00
	80.0	6.5	39.1	4.441	.771	1.6	1.43	1.00	1.00
	90.0	5.9	44.2	4.374	0.000	1.3	1.22	1.00	1.00
-----	-----								
	90.9	-----	^	Genoa	/	Spinnaker	v	-----	-----
	105.0	5.1	51.4	4.372	-1.132	1.2	.98	1.00	1.00
	120.0	3.9	65.0	3.782	-1.891	.6	.68	1.00	1.00
	135.0	2.8	87.8	3.022	-2.137	.2	.38	1.00	1.00
OPT Gybe	139.4	2.6	96.0	2.827	-2.145	.1	.30	1.00	1.00
	150.0	2.3	118.3	2.417	-2.093	.1	.16	1.00	1.00
	165.0	2.1	149.9	2.077	-2.006	0.0	.09	1.00	1.00
	180.0	2.1	179.9	1.917	-1.917	0.0	.05	1.00	1.00
-----	-----								
	Handicaps:			(seconds/mile) -----					
	Optimum Tack: 1580.7			Gybe: 1678.2		60deg: 896.5		~100: -0.0 135: 1356.4	
	Linear-random: 1083.3			Circ: 1148.5		Olymp: 1497.0		W/L: 1629.5 AC92: -0.0	
	BELL Versions: 1154.3			: 1196.8		: 1593.3		: 1727.9 GPH: 603.5	
-----	-----								
	6.0 knots True Wind Speed -----								
	33.0	9.2	19.6	3.520	2.952	3.4	4.39	1.00	1.00
	36.0	9.5	21.1	3.917	3.169	3.7	3.84	1.00	1.00
	39.0	9.7	22.5	4.283	3.329	4.1	3.42	1.00	1.00
	42.0	9.9	23.8	4.607	3.424	4.4	3.11	1.00	1.00
OPT Tack	45.3	10.1	25.2	4.921	3.459	4.8	2.84	1.00	1.00
	50.0	10.2	27.2	5.284	3.397	5.1	2.54	1.00	1.00
	60.0	10.2	31.4	5.827	2.913	5.2	2.10	1.00	1.00
	70.0	9.9	35.9	6.105	2.088	4.6	1.78	1.00	1.00
	80.0	9.3	40.7	6.187	1.074	3.8	1.52	1.00	1.00
-----	-----								
	87.5	-----	^	Genoa	/	Spinnaker	v	-----	-----
	90.0	8.6	45.6	6.232	0.000	3.8	1.30	1.00	1.00
	105.0	7.4	53.6	6.162	-1.595	2.8	1.03	1.00	1.00
	120.0	5.8	65.6	5.597	-2.798	1.4	.69	1.00	1.00
	135.0	4.3	86.7	4.619	-3.266	.5	.38	1.00	1.00
OPT Gybe	136.8	4.1	90.1	4.485	-3.271	.4	.34	1.00	1.00
	150.0	3.4	118.6	3.606	-3.123	.1	.16	1.00	1.00
	165.0	3.1	150.3	3.073	-2.968	.1	.10	1.00	1.00
	180.0	3.2	179.9	2.834	-2.834	0.0	.06	1.00	1.00
-----	-----								
	Handicaps:			(seconds/mile) -----					
	Optimum Tack: 1040.7			Gybe: 1100.7		60deg: 617.8		~100: -0.0 135: 896.0	
	Linear-random: 752.7			Circ: 798.4		Olymp: 983.5		W/L: 1070.7 AC92: -0.0	
	BELL Versions: 816.2			: 844.5		: 1110.8		: 1221.8 GPH: 603.5	

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MUMM 36 - ONE-DESIGN for FARR INTERNATIONAL, INC.

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PERFORMANCE Pg2

	TWA°	AWS	AWA°	VB	VMG	HL°	LWY°	FLT	RF
	kts			kts	kts			$\frac{1}{2}>1$	hgt
----- 8.0 knots True Wind Speed -----									
	33.0	12.2	19.3	4.699	3.941	10.1	4.34	1.00	1.00
	36.0	12.5	20.9	5.135	4.154	11.7	3.87	1.00	1.00
	39.0	12.7	22.3	5.506	4.279	13.0	3.53	1.00	1.00
	42.0	12.9	23.7	5.820	4.325	14.0	3.26	1.00	1.00
OPT Tack	42.6	12.9	23.9	5.874	4.326	14.2	3.21	1.00	1.00
	50.0	13.0	27.5	6.401	4.114	15.1	2.76	1.00	1.00
	60.0	12.7	32.7	6.776	3.388	13.9	2.36	1.00	1.00
	70.0	12.2	38.3	6.949	2.377	11.4	2.03	1.00	1.00
	80.0	11.5	44.1	7.005	1.216	8.4	1.74	1.00	1.00
----- 80.0 ----- ^ Genoa / Spinnaker v -----									
	90.0	10.6	49.4	7.154	0.000	10.2	1.56	1.00	1.00
	105.0	9.2	59.1	7.032	-1.820	4.6	1.14	1.00	1.00
	120.0	7.4	70.9	6.668	-3.334	2.2	.72	1.00	1.00
	135.0	5.7	88.9	5.933	-4.195	.9	.38	1.00	1.00
OPT Gybe	142.6	5.0	102.5	5.391	-4.283	.5	.24	1.00	1.00
	150.0	4.5	118.2	4.851	-4.201	.2	.16	1.00	1.00
	165.0	4.1	150.1	4.134	-3.993	.1	.10	1.00	1.00
	180.0	4.2	179.9	3.792	-3.792	.1	.05	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack:	832.1		Gybe:	840.4	60deg:	531.3	~100:	-0.0	135: 676.9
Linear-random:	621.0		Circ:	645.0	Olymp:	774.8	W/L:	836.3	AC92: -0.0
BELL Versions:	656.4		:	673.4	:	859.6	:	926.6	GPH: 603.5
----- 10.0 knots True Wind Speed -----									
	33.0	14.7	18.6	5.433	4.557	21.1	4.58	.98	1.00
	36.0	14.9	20.1	5.828	4.715	23.3	4.14	.98	1.00
	39.0	15.1	21.6	6.151	4.781	24.3	3.77	.97	1.00
OPT Tack	39.5	15.1	21.9	6.200	4.782	24.4	3.72	.97	1.00
	42.0	15.1	23.2	6.399	4.756	24.7	3.50	.96	1.00
	50.0	15.0	27.5	6.850	4.403	25.3	3.06	.97	1.00
	60.0	14.6	33.3	7.224	3.612	24.1	2.67	1.00	1.00
	70.0	14.0	39.8	7.454	2.549	20.0	2.30	1.00	1.00
----- 79.1 ----- ^ Genoa / Spinnaker v -----									
	80.0	13.0	45.6	7.579	1.316	22.0	1.98	1.00	1.00
	90.0	12.3	52.3	7.743	0.000	18.2	1.73	1.00	1.00
	105.0	10.8	63.7	7.673	-1.986	8.7	1.25	1.00	1.00
	120.0	8.9	76.8	7.305	-3.653	3.0	.78	1.00	1.00
	135.0	7.1	94.0	6.753	-4.775	1.2	.40	1.00	1.00
OPT Gybe	147.6	5.9	114.7	6.072	-5.127	.4	.18	1.00	1.00
	150.0	5.7	119.5	5.908	-5.117	.4	.16	1.00	1.00
	165.0	5.2	150.1	5.156	-4.980	.2	.10	1.00	1.00
	180.0	5.2	179.9	4.762	-4.762	.1	.05	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack:	752.8		Gybe:	702.2	60deg:	498.3	~100:	-0.0	135: 574.7
Linear-random:	556.1		Circ:	570.5	Olymp:	686.1	W/L:	727.5	AC92: -0.0
BELL Versions:	573.4		:	585.4	:	728.1	:	775.5	GPH: 603.5

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PERFORMANCE Pg3

	TWA°	AWS	AWA°	VB	VMG	HL°	LWY°	FLT	RF
	kts			kts	kts			$\frac{1}{2}>1$	hgt
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PERFORMANCE Pg 4

	TWA°	AWS	AWA°	VB	VMG	HL°	LWY°	FLT	RF
	kts			kts	kts			$\frac{1}{2}>1$	hgt
----- 16.0 knots True Wind Speed -----									
	33.0	21.0	19.5	6.011	5.041	25.2	4.43	.76	.88
	36.0	21.1	21.6	6.369	5.152	25.2	3.99	.79	.85
OPT Tack	37.6	21.1	22.7	6.523	5.166	25.3	3.82	.81	.84
	39.0	21.1	23.6	6.636	5.157	25.3	3.71	.82	.84
	42.0	21.1	25.6	6.844	5.086	25.4	3.51	.86	.82
	50.0	20.8	31.0	7.278	4.678	25.5	3.15	.97	.80
	60.0	20.1	37.7	7.704	3.852	25.6	2.76	1.00	.81
	70.0	19.2	44.7	8.070	2.760	25.6	2.43	1.00	.84
	80.0	18.1	51.8	8.426	1.463	25.5	2.14	1.00	.89
	90.0	16.9	59.2	8.762	0.000	25.4	1.87	1.00	.95
----- 94.0 ----- ^ Genoa / Spinnaker v -----									
	105.0	14.9	71.3	9.202	-2.382	25.3	1.39	1.00	.99
	120.0	13.7	86.3	9.175	-4.588	10.6	.93	1.00	1.00
	135.0	11.6	104.8	8.517	-6.022	2.5	.48	1.00	1.00
	150.0	10.1	127.7	7.727	-6.691	1.0	.25	1.00	1.00
	165.0	9.2	153.1	7.252	-7.005	.5	.14	1.00	1.00
OPT Gybe	169.4	9.1	161.0	7.141	-7.020	.4	.12	1.00	1.00
	180.0	9.0	179.9	6.952	-6.952	.3	.08	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack:	696.9		Gybe:	512.8	60deg:	467.3	~100:	-0.0	135: 464.0
Linear-random:	469.4		Circ:	480.4	Olymp:	591.3	W/L:	604.9	AC92: -0.0
BELL Versions:	471.8		:	482.5	:	592.1	:	603.2	GPH: 603.5
----- 20.0 knots True Wind Speed -----									
	33.0	24.9	20.0	6.083	5.102	25.3	4.73	.78	.77
	36.0	25.0	22.3	6.468	5.233	25.4	4.23	.82	.75
OPT Tack	37.8	25.0	23.7	6.646	5.250	25.4	4.02	.84	.74
	39.0	25.0	24.5	6.748	5.244	25.5	3.91	.86	.73
	42.0	24.9	26.7	6.963	5.175	25.6	3.70	.90	.72
	50.0	24.5	32.5	7.427	4.774	25.7	3.28	1.00	.70
	60.0	23.7	39.8	7.895	3.947	25.7	2.83	1.00	.72
	70.0	22.7	47.3	8.321	2.846	25.7	2.46	1.00	.75
	80.0	21.6	55.0	8.736	1.517	25.6	2.13	1.00	.79
	90.0	20.2	63.1	9.093	0.000	25.6	1.86	1.00	.84
----- 92.4 ----- ^ Genoa / Spinnaker v -----									
	105.0	18.0	76.2	9.667	-2.502	25.4	1.35	1.00	.89
	120.0	16.4	90.1	10.251	-5.125	19.2	.96	1.00	1.00
	135.0	14.8	108.4	9.641	-6.817	4.0	.54	1.00	1.00
	150.0	13.1	130.4	8.848	-7.662	1.6	.31	1.00	1.00
	165.0	12.2	154.7	8.281	-7.999	.9	.19	1.00	1.00
OPT Gybe	167.9	12.1	159.6	8.189	-8.006	.8	.17	1.00	1.00
	180.0	12.1	179.9	7.909	-7.909	.5	.11	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack:	685.7		Gybe:	449.6	60deg:	456.0	~100:	-0.0	135: 410.8
Linear-random:	435.1		Circ:	449.1	Olymp:	560.5	W/L:	567.7	AC92: -0.0
BELL Versions:	434.2		:	448.7	:	553.0	:	553.5	GPH: 603.5

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PERFORMANCE Pg5

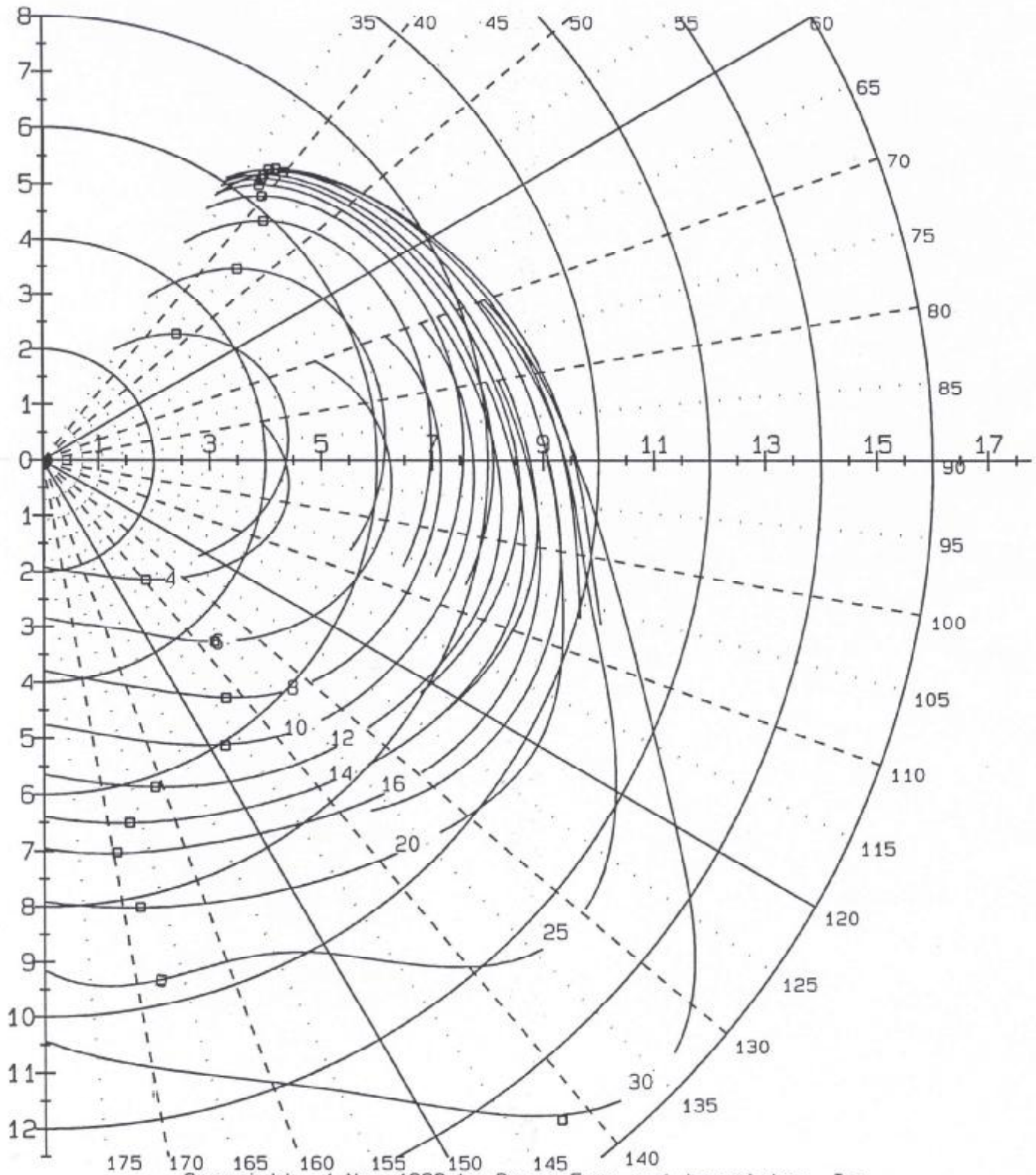
	TWA	AWS	AWA	VB	VMG	HL	LWY	FLT	RF
	kts			kts	kts			$\frac{1}{2}>1$	hgt
----- 25.0 knots True Wind Speed -----									
OPT Tack	33.0	29.6	20.3	6.004	5.035	25.5	5.31	.80	.67
	36.0	29.8	22.9	6.461	5.227	25.7	4.62	.84	.65
	38.6	29.8	25.0	6.735	5.267	25.7	4.27	.88	.64
	39.0	29.8	25.3	6.776	5.266	25.7	4.23	.89	.64
	42.0	29.7	27.6	7.013	5.212	25.8	3.97	.94	.62
	50.0	29.2	33.9	7.518	4.832	25.9	3.44	1.00	.61
	60.0	28.3	41.7	8.026	4.013	26.0	2.93	1.00	.63
	70.0	27.2	49.8	8.531	2.918	25.9	2.50	1.00	.65
	80.0	25.9	58.1	8.990	1.561	25.8	2.15	1.00	.69
----- 87.5 ----- ^ Genoa / Spinnaker v -----									
OPT Gybe	90.0	24.4	66.9	9.401	0.000	25.8	1.72	1.00	.68
	105.0	22.1	80.4	10.201	-2.640	25.7	1.31	1.00	.79
	120.0	19.5	92.6	11.882	-5.941	25.7	.82	1.00	.93
	135.0	18.1	107.5	12.482	-8.826	11.7	.49	1.00	1.00
	137.1	17.9	110.8	12.116	-8.871	8.7	.47	1.00	1.00
	150.0	16.9	132.5	10.206	-8.839	2.9	.38	1.00	1.00
	165.0	16.0	155.9	9.540	-9.215	1.5	.24	1.00	1.00
	180.0	15.9	179.9	9.147	-9.147	1.0	.14	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack: 683.5		Gybe: 405.8		60deg: 448.5		-100: -0.0		135: 364.0	
Linear-random: 393.5		Circ: 417.8		Olymp: 529.0		W/L: 544.7		AC92: -0.0	
BELL Versions: 393.9		: 418.3		: 531.1		: 549.4		GPH: 603.5	
----- 30.0 knots True Wind Speed -----									
OPT Tack	33.0	34.2	20.1	5.721	4.798	25.8	6.27	.82	.60
	36.0	34.5	23.1	6.314	5.108	25.9	5.18	.86	.58
	39.0	34.5	25.8	6.693	5.201	26.0	4.63	.91	.56
	39.7	34.5	26.4	6.775	5.212	26.0	4.53	.92	.56
	42.0	34.4	28.3	6.965	5.176	26.1	4.30	.96	.55
	50.0	33.8	34.8	7.517	4.832	26.2	3.64	1.00	.55
	60.0	32.8	43.1	8.087	4.044	26.2	3.05	1.00	.56
	70.0	31.6	51.6	8.641	2.955	26.1	2.57	1.00	.58
	80.0	30.2	60.4	9.128	1.585	26.0	2.20	1.00	.61
----- 86.6 ----- ^ Genoa / Spinnaker v -----									
OPT Gybe	90.0	28.6	69.6	9.603	0.000	26.1	1.73	1.00	.60
	105.0	26.2	83.2	10.816	-2.799	26.0	1.23	1.00	.70
	120.0	23.5	95.1	13.120	-6.560	25.9	.71	1.00	.82
	135.0	20.2	107.1	15.599	-11.030	24.0	.40	1.00	1.00
	141.9	20.0	115.9	15.044	-11.834	12.6	.33	1.00	1.00
	150.0	19.6	130.4	13.308	-11.525	4.8	.31	1.00	1.00
	165.0	19.2	156.0	11.422	-11.033	2.3	.24	1.00	1.00
	180.0	19.6	179.8	10.435	-10.435	1.5	.17	1.00	1.00
----- Handicaps: ----- (seconds/mile) -----									
Optimum Tack: 690.7		Gybe: 304.2		60deg: 445.2		-100: -0.0		135: 302.8	
Linear-random: 351.2		Circ: 391.2		Olymp: 499.2		W/L: 497.4		AC92: -0.0	
BELL Versions: 351.4		: 391.4		: 499.9		: 498.7		GPH: 603.5	

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POLAR PLOT

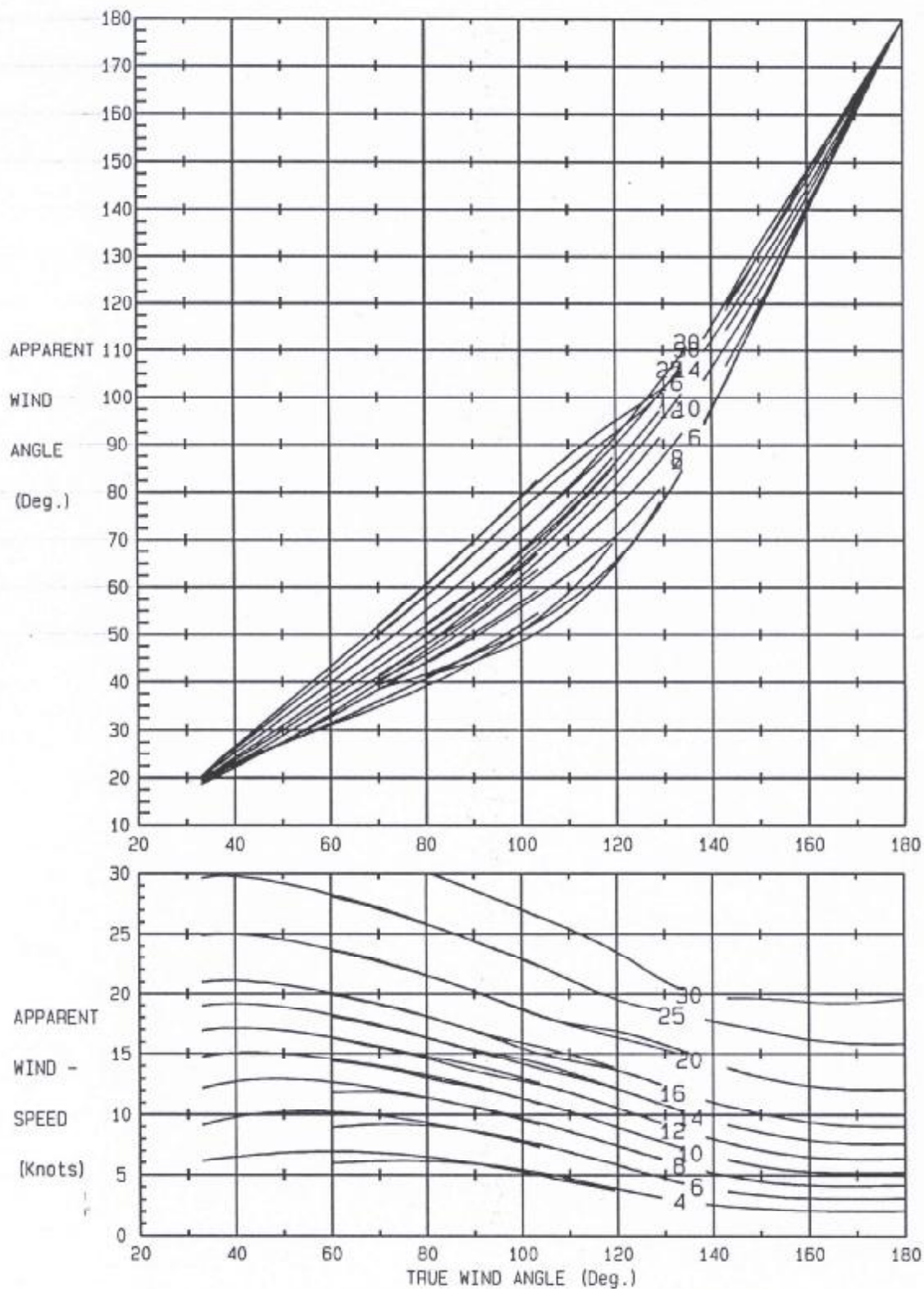


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WIND PLOT

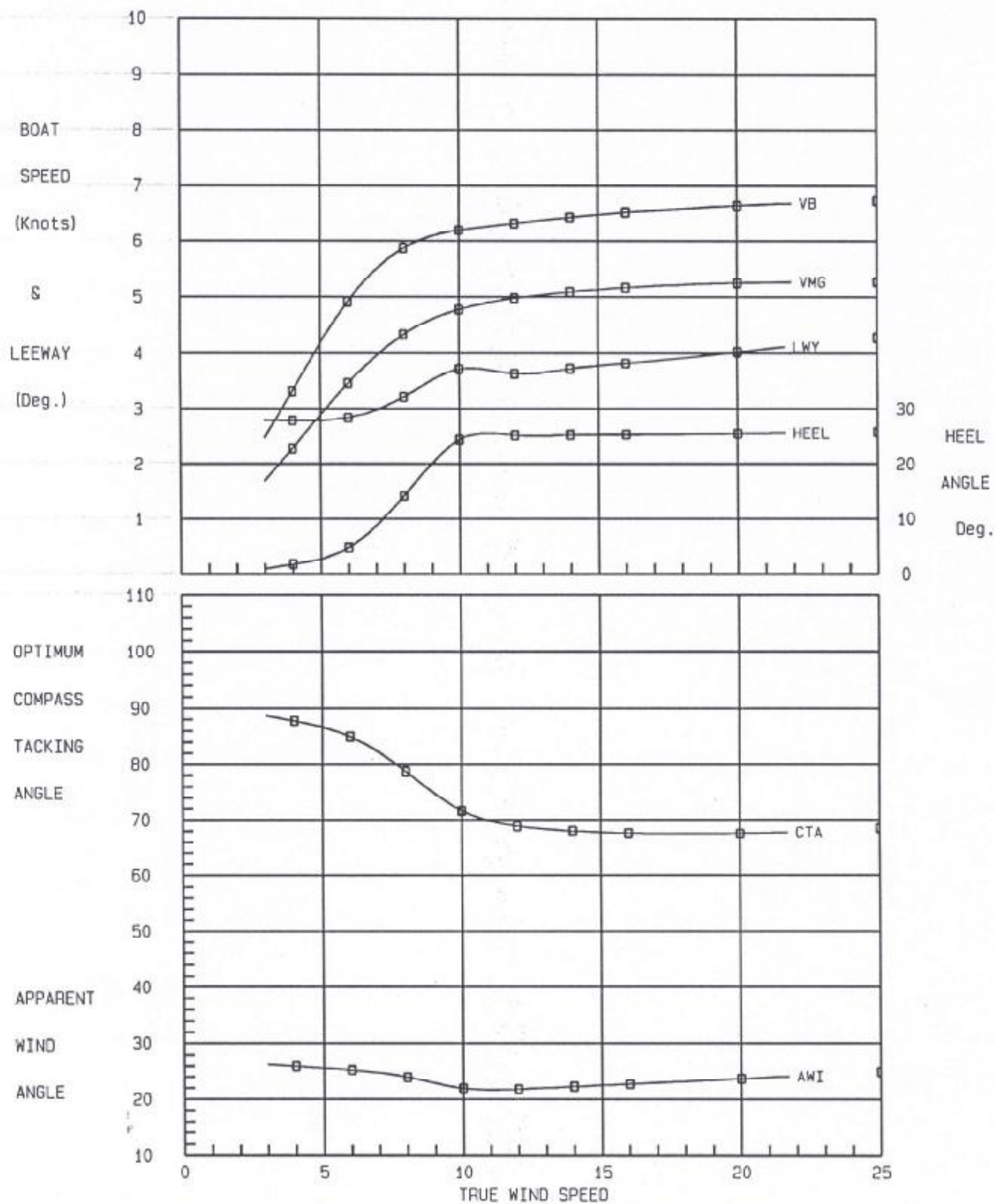


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UPWIND

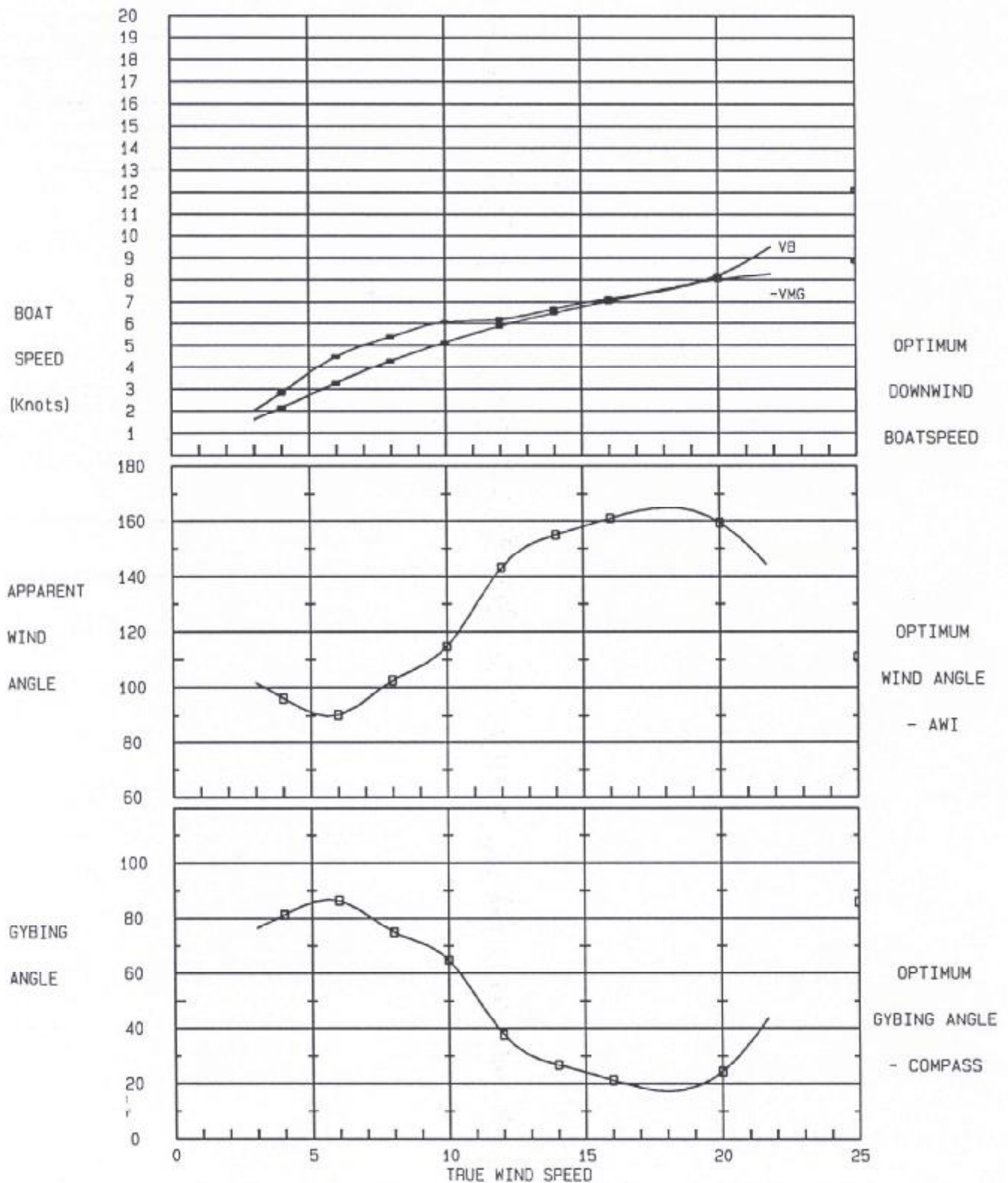


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DOWNWIND



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