SAILFISH YACHT ANALYZER

World Leader in Theoretic Yacht Analysis

Performance Package for

Aiki

Type: Sloop

Designer: Bruce King
Created by: kjuku2

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Printed by Sailfish Yacht Analyzer
http://www.techsail.com

Dimensions

Hull

Length over all: 45.78 feet
Sailing Length: 37.55 feet
Second Moment Length measured in Trim floating upright.: 39.85 feet
Second Moment Length in various conditions measured in Trim floating with 25 degrees heel: 39.85 feet
Effective Beam: 13.16 feet
Wetted Surface: 380.93 square feet
Area Maximum Section: 36.38 square feet
Forward Freeboard: 4.50 feet
Freeboard Aft: 3.88 feet
Effective Draft: 7.16 feet
Draft of Keel and Hull Adjusted: 7.16 feet
Weight of Yacht in Sailing Trim: 31500.00 lbs
The ballast or keel weight: 16500.00 lbs
Righting Moment per degree in Sailing trim at 2 degrees heel: 1001.73
Righting Moment per degree in Sailing trim at 20 degrees heel: 932.21
Righting Moment per degree in Sailing trim at 40 degrees heel: 797.74
Propeller Installation Projected Area: 0.00 square feet

Rig

Jib

Foretriangle Height: 63.09 feet
Base of Foretriangle: 20.00 feet
Longest perpendicular of jib: 33.00 feet

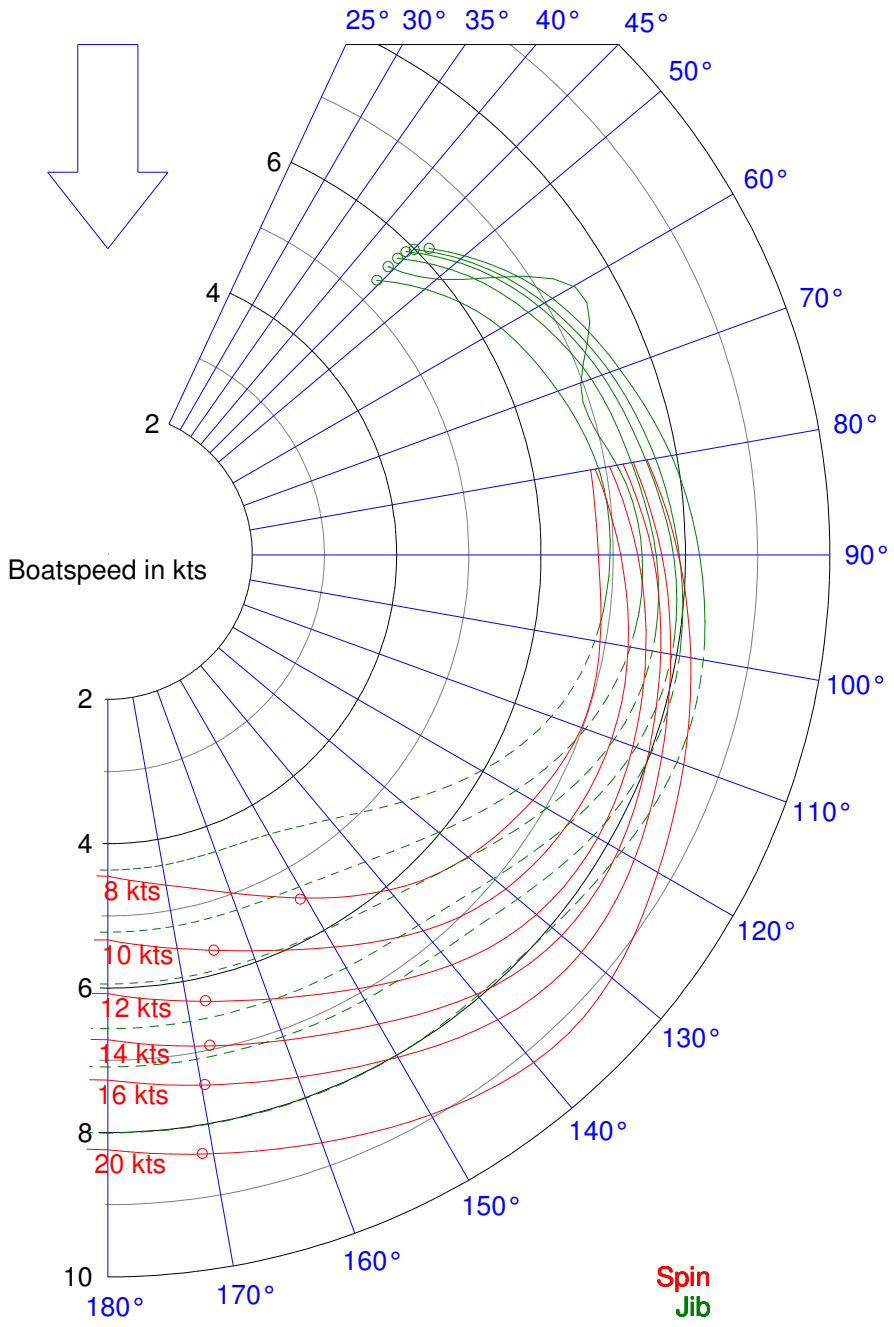
Spinnaker

Spinnaker Pole Length: 20.00 feet
Spinnaker Luff/leech Length: 62.88 feet
Spinnaker Maximum Width: 36.00 feet
Vertical Center of Gravity of Sail Weight.: 36.00 feet
Height of Base of I: 4.84 feet

Mainsail

Mainsail hoist: 53.90 feet
Mainsail Hoist Corrected (IOR): 64.12 feet
Foot of Mainsail: 16.13 feet
Foot of mainsail Corrected (IOR): 16.13 feet
Boom Above Sheerline: 6.57 feet
Tapered Length from mast: 11.78 feet
Headboard of Mainsail: 0.22 feet
Maximum Transverse Dimension of Main Mast: 0.71 feet
Maximum Longitudinal Dimension of Main Mast: 1.27 feet
Transverse Dimension of Main Mast at head: 0.62 feet
Longitudinal Dimension of Main Mast at head: 0.99 feet
Mainsail Girth (Mid): 10.45 feet
Mainsail Girth (Upper): 6.23 feet

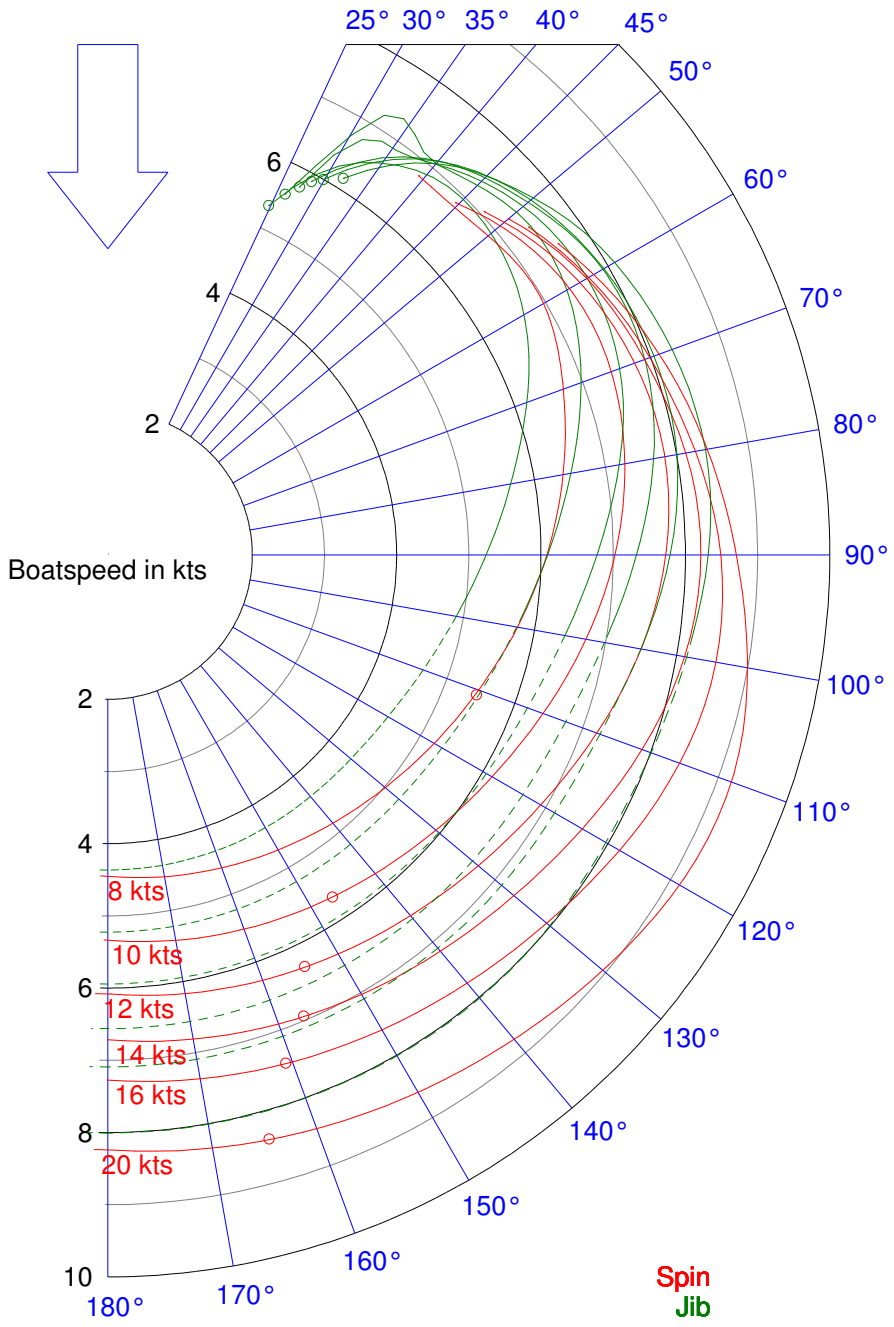
Polar Diagram - True Wind



Aiki

Wind	Opt Beat	Opt VMG Beat	Opt Run	Opt VMG Run
8 kts	44.4	3.81	150.8	-4.77
10 kts	44.2	3.99	165.0	-5.47
12 kts	44.3	4.11	167.7	-6.17
14 kts	44.5	4.20	168.2	-6.79
16 kts	45.1	4.23	169.6	-7.33
20 kts	46.3	4.25	171.0	-8.29

Polar Diagram - Apparent Wind



Aiki

Wind	Opt Beat	Opt VMG Beat	Opt Run	Opt VMG Run
8 kts	24.7	3.81	110.8	-4.77
10 kts	26.2	3.99	146.7	-5.47
12 kts	27.5	4.11	154.4	-6.17
14 kts	28.6	4.20	157.0	-6.79
16 kts	29.8	4.23	160.7	-7.33
20 kts	32.0	4.25	164.6	-8.29

Velocities at 8 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
8.0	180	3.5	180	4.4489	-4.4489	-0.1
8.0	135	5.6	83	6.3114	-4.4628	3.5
8.0	110	8.3	59	6.9867	-2.3896	16.7
8.0	80	10.5	39	6.7928	1.1796	29.5
OptDwn						
8.0	151	4.1	111	5.4613	-4.7668	1.5
No Spinn						
8.0	180	3.8	180	4.0972	-4.0972	-0.2
8.0	135	5.6	96	5.0263	-3.5541	1.8
8.0	110	8.4	63	6.5408	-2.2371	4.4
8.0	80	10.9	41	6.9053	1.1991	23.5
OptDwn						
8.0	170	3.8	159	4.3070	-4.2439	0.6
OptUp						
8.0	44	12.0	25	5.3270	3.8059	22.7

Velocities at 10 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
10.0	180	4.6	180	5.3341	-5.3341	-0.1
10.0	135	7.0	90	7.0288	-4.9701	4.8
10.0	110	9.3	64	7.4310	-2.5415	24.6
10.0	80	12.0	45	6.8533	1.1901	26.8
OptDwn						
10.0	165	4.7	147	5.6678	-5.4740	0.9
No Spinn						
10.0	180	5.0	180	4.9460	-4.9460	-0.3
10.0	135	7.1	100	5.7406	-4.0592	2.4
10.0	110	10.0	68	7.0423	-2.4086	6.4
10.0	80	11.9	42	7.1772	1.2463	32.5
OptDwn						
10.0	170	4.9	161	5.1593	-5.0885	0.9
OptUp						
10.0	44	13.8	26	5.5695	3.9931	23.6

Velocities at 12 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
12.0	180	5.8	180	6.0781	-6.0781	-0.2
12.0	135	8.4	95	7.6152	-5.3847	7.9
12.0	110	10.2	68	7.7397	-2.6471	29.9
12.0	80	13.4	48	7.0583	1.2257	27.5
OptDwn						
12.0	168	5.9	154	6.3198	-6.1740	0.9
No Spinn						
12.0	180	6.2	180	5.6642	-5.6642	-0.4
12.0	135	8.7	104	6.3168	-4.4666	3.2
12.0	110	11.5	73	7.4694	-2.5547	10.5
12.0	80	10.8	31	7.3628	1.2785	57.3
OptDwn						
12.0	172	6.2	164	5.8534	-5.7941	1.1
OptUp						
12.0	44	15.6	28	5.7465	4.1100	24.4

Velocities at 14 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
14.0	180	7.2	180	6.7138	-6.7138	-0.3
14.0	135	9.7	100	8.1150	-5.7381	12.2
14.0	110	11.4	73	7.9729	-2.7269	30.8
14.0	80	14.8	50	7.2459	1.2582	28.3
OptDwn						
14.0	168	7.2	157	6.9374	-6.7915	1.1
No Spinn						
14.0	180	7.6	180	6.2759	-6.2759	0.8
14.0	135	10.3	107	6.8021	-4.8098	4.2
14.0	110	12.9	76	7.7872	-2.6634	14.9
14.0	80	15.2	49	7.5656	1.3137	28.8
OptDwn						
14.0	173	7.5	166	6.4532	-6.3989	1.3
OptUp						
14.0	45	17.4	29	5.8913	4.2012	25.3

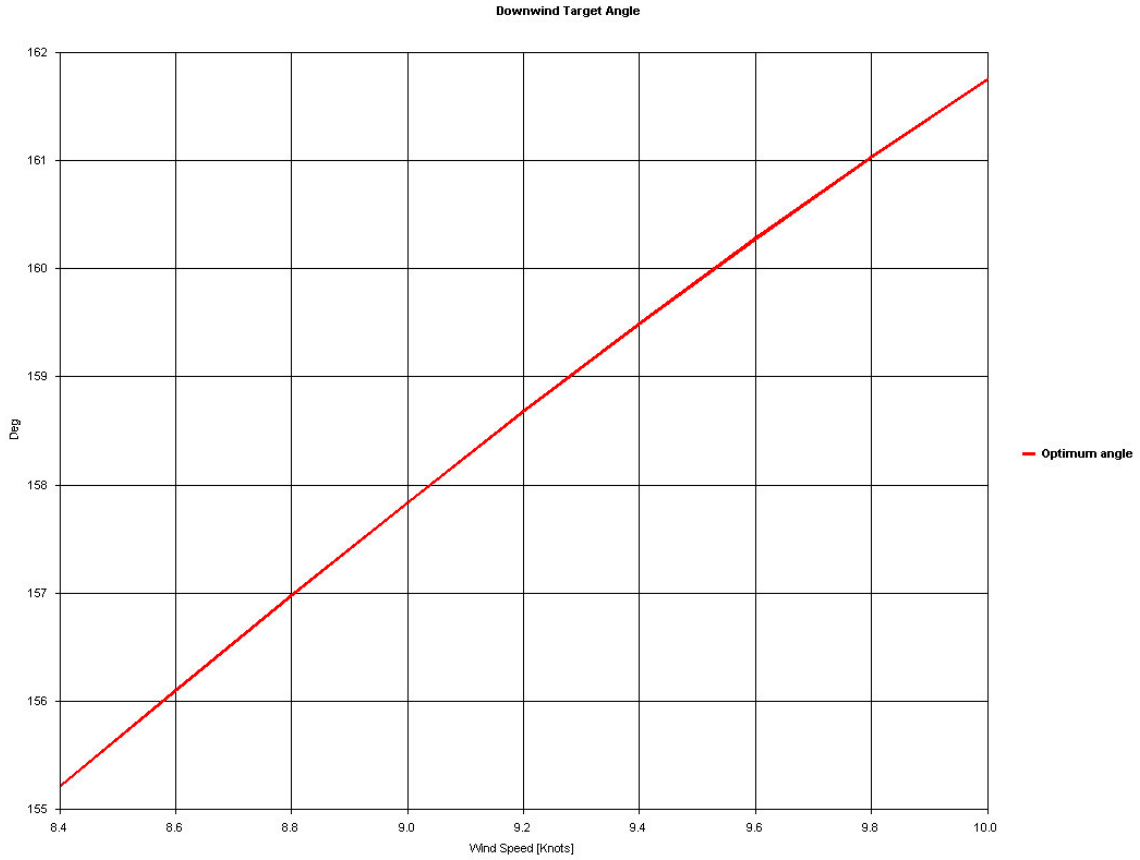
Velocities at 16 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
16.0	180	8.6	180	7.2726	-7.2726	-0.4
16.0	135	11.0	104	8.5292	-6.0311	16.6
16.0	110	12.6	76	8.1635	-2.7921	31.6
16.0	80	16.2	52	7.3909	1.2834	29.1
OptDwn						
16.0	170	8.7	161	7.4566	-7.3347	1.3
No Spinn						
16.0	180	9.1	180	6.8088	-6.8088	-0.7
16.0	135	11.8	110	7.2613	-5.1345	6.2
16.0	110	14.2	79	8.0117	-2.7402	19.6
16.0	80	16.6	51	7.7017	1.3374	29.7
OptDwn						
16.0	171	9.0	164	7.0130	-6.9283	1.8
OptUp						
16.0	45	19.0	30	5.9948	4.2334	26.0

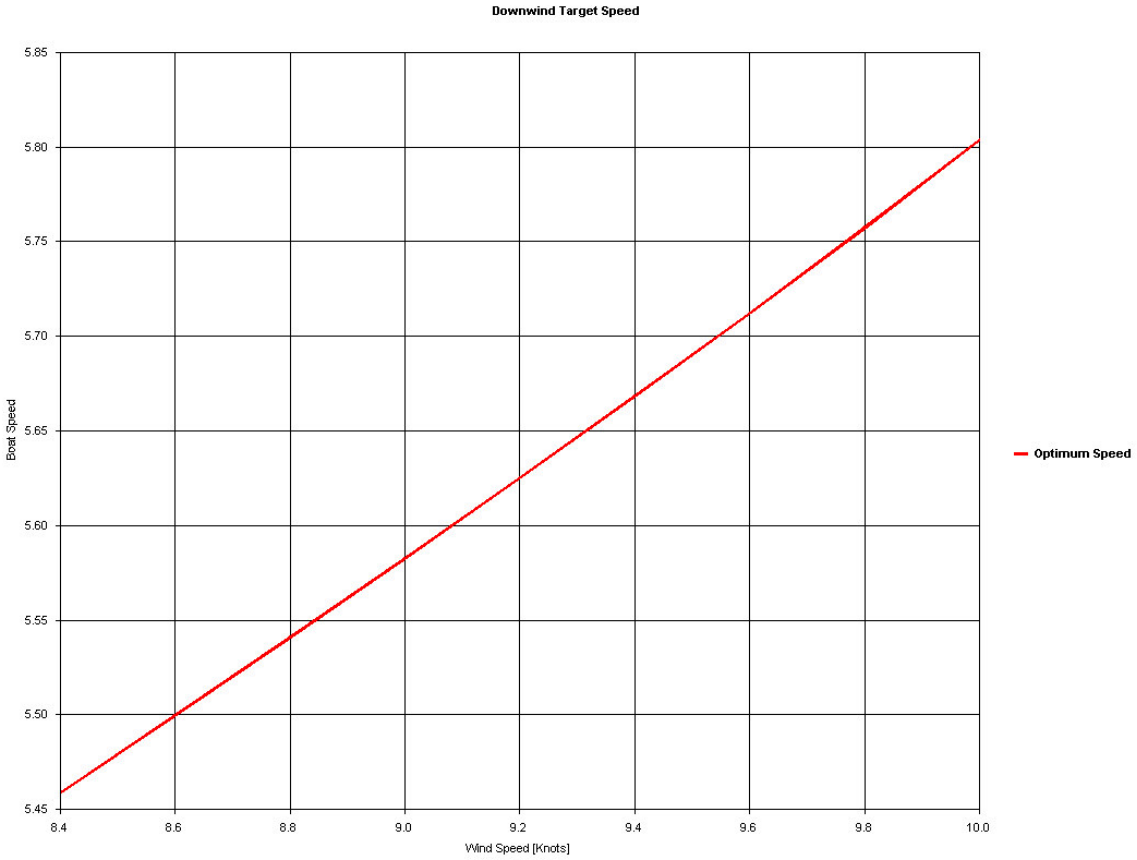
Velocities at 20 kts

VTW	BTW	VAW	BAW	V	VMG	Heel
With Spinn						
20.0	180	11.6	180	8.2391	-8.2391	-0.7
20.0	135	13.4	110	9.1978	-6.5039	25.0
20.0	110	14.9	82	8.4896	-2.9036	33.3
20.0	80	18.9	55	7.5845	1.3170	30.6
OptDwn						
20.0	171	11.6	165	8.3926	-8.2897	1.7
No Spinn						
20.0	180	12.1	180	7.7169	-7.7169	-1.1
20.0	135	14.7	114	7.9786	-5.6417	15.6
20.0	110	16.2	84	8.3934	-2.8707	28.6
20.0	80	19.3	55	7.9282	1.3767	31.0
OptDwn						
20.0	180	12.1	180	7.7169	-7.7169	1.1
OptUp						
20.0	46	22.2	32	6.1508	4.2465	27.6

Downwind Target Angle



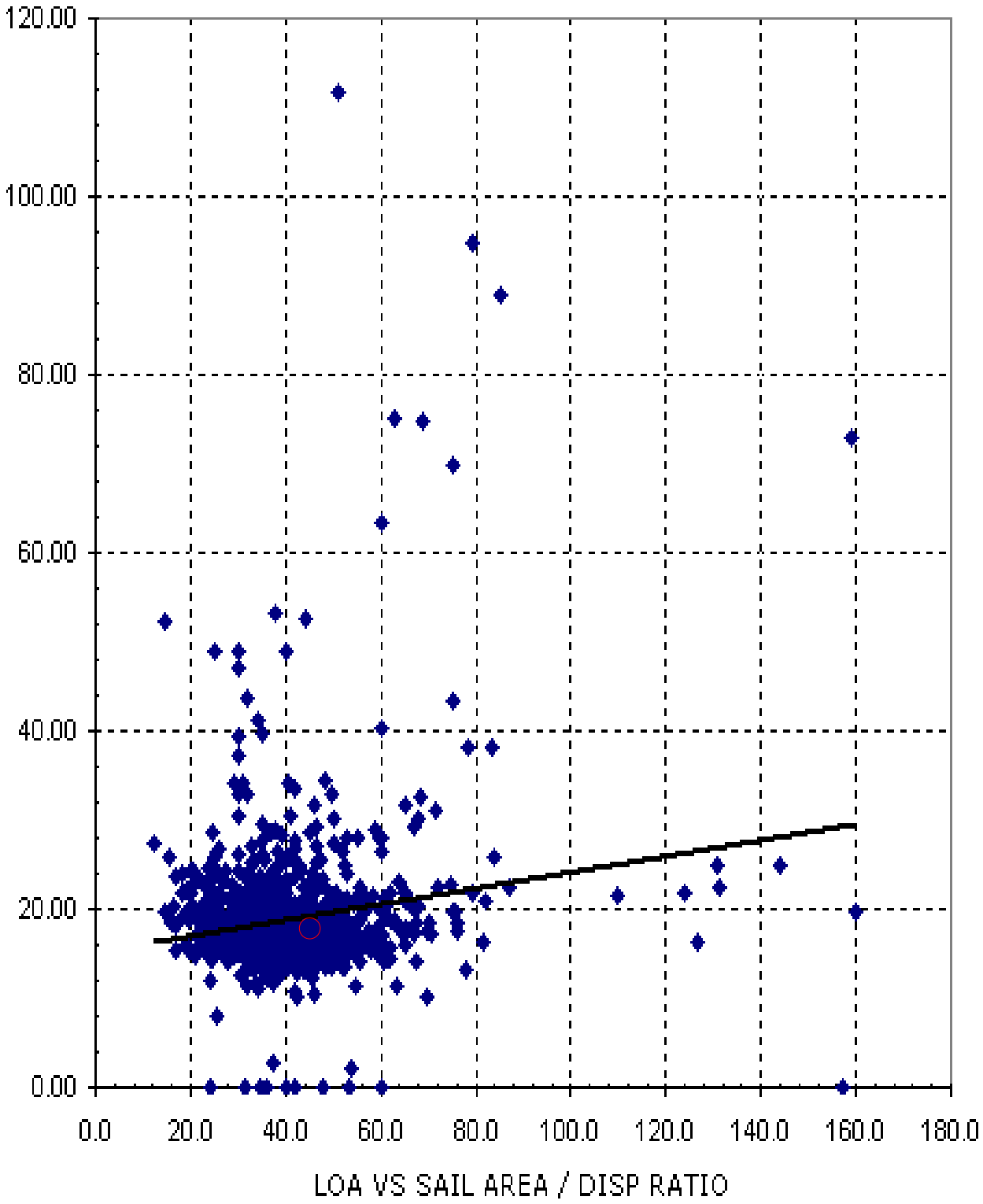
Downwind Target Speed



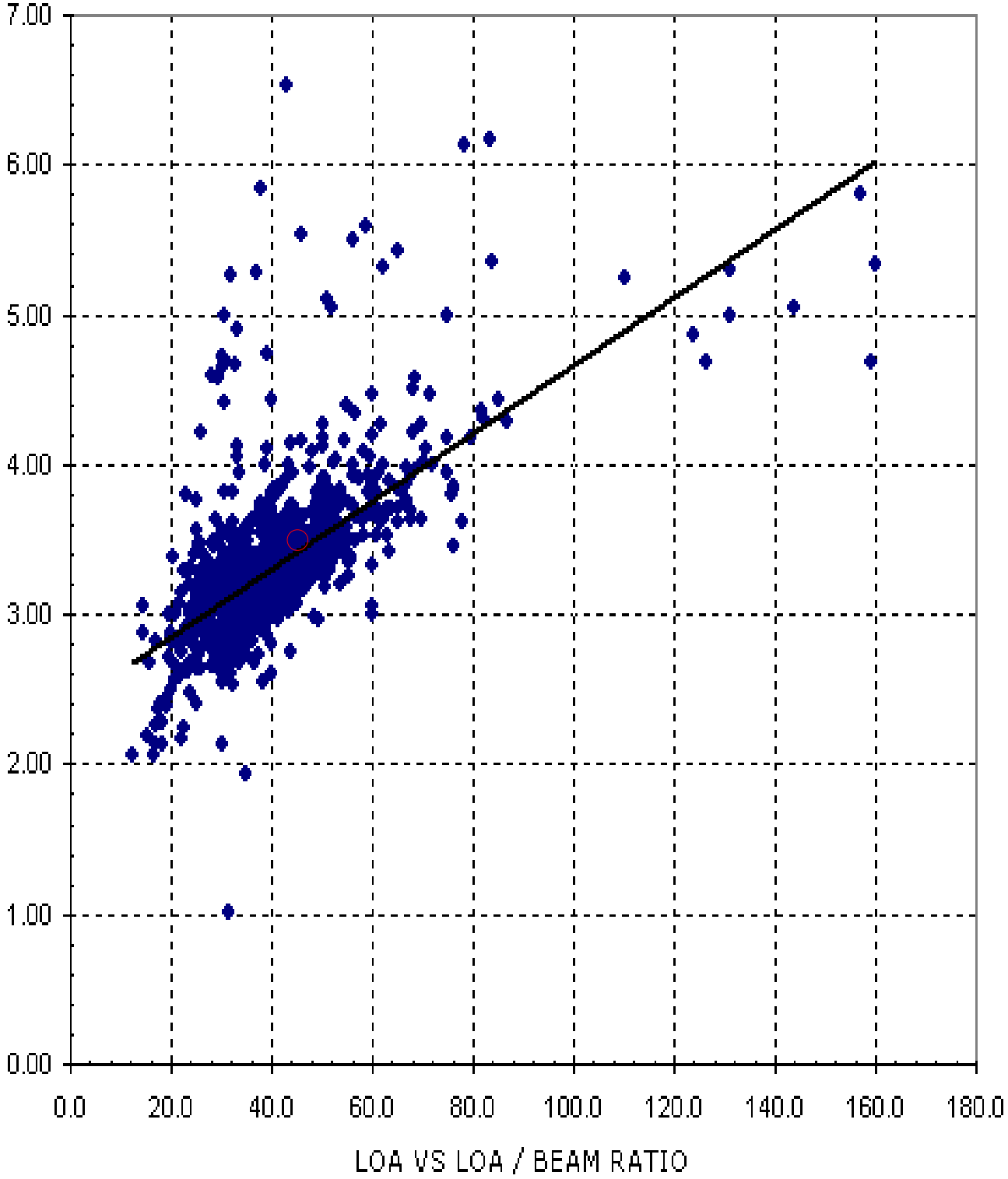
Ratios

Displacement / Length:	265.6 Typical values for "Light Medium Heavy" Is 0.0 - 500.0
Sail Area / Displacement:	17.2 Typical values for "Low Good High" Is 0.0 - 30.0
Sail Area / Wetted Surface:	2.8 Typical values for "Low Good High" Is 2.0 - 2.5
Ballast / Disp:	0.5 Typical values for "Low Average Stiff" Is 0.3 - 0.5
LOA /Beam Ratio:	3.5 Typical values for "Low Good High" Is 0.0 - 7.0
Velocity Ratio:	1.1 Typical values for "Low Good High" Is 0.0 - 2.0
Hull Speed:	8.2 Typical values for "" Is 5.0 - 10.0
Motion comfort:	59.8 Typical values for "Low Good High" Is 0.0 - 70.0
Capsize Risk:	1.6 Typical values for "Low High" Is 0.0 - 4.0
Roll Period:	4.5 Typical values for "Low High" Is 0.0 - 4.0
Overhang Ratio:	0.2 Typical values for "Low High" Is 0.0 - 1.0

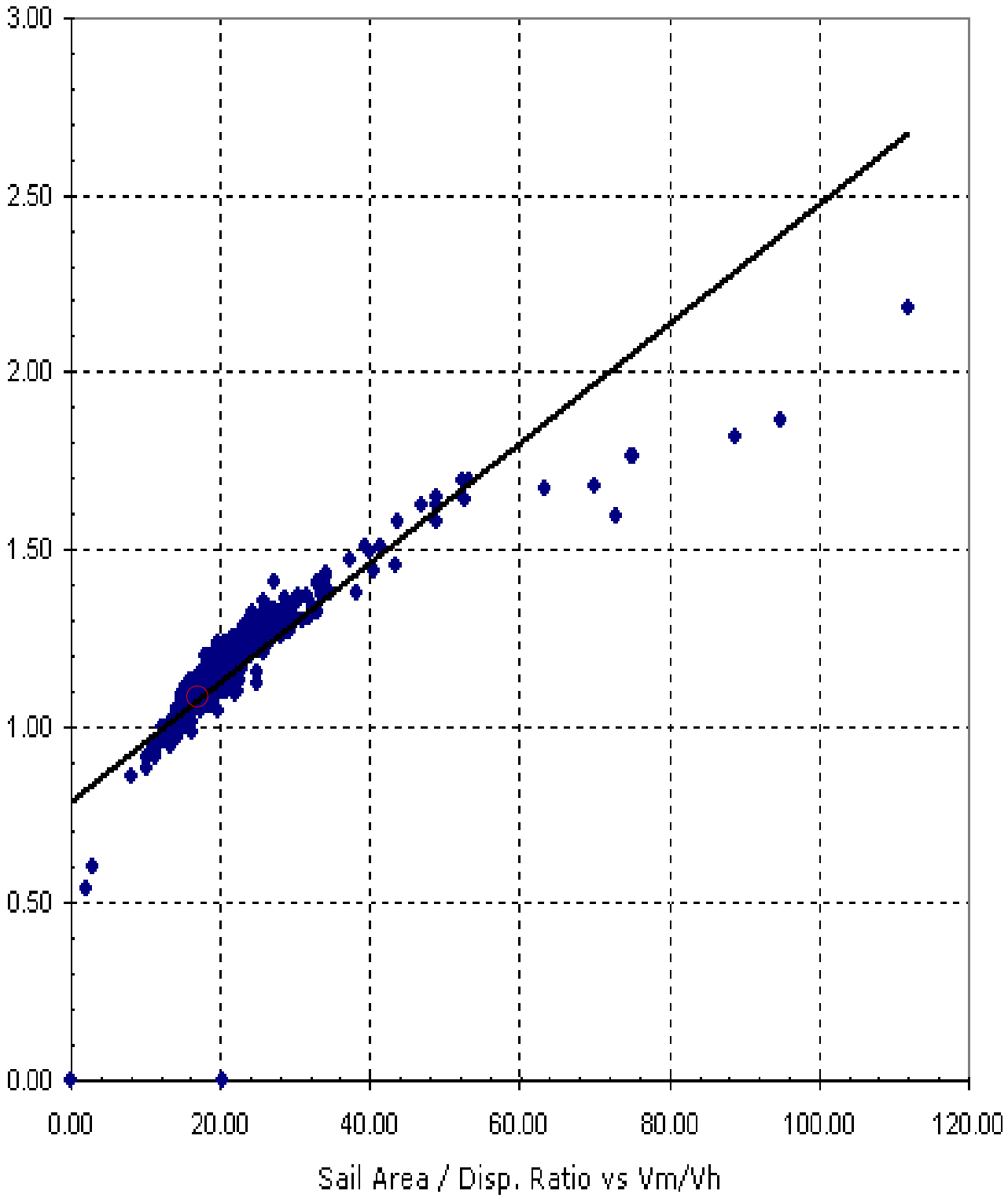
LOA vs Sail Area / DISP Ratio



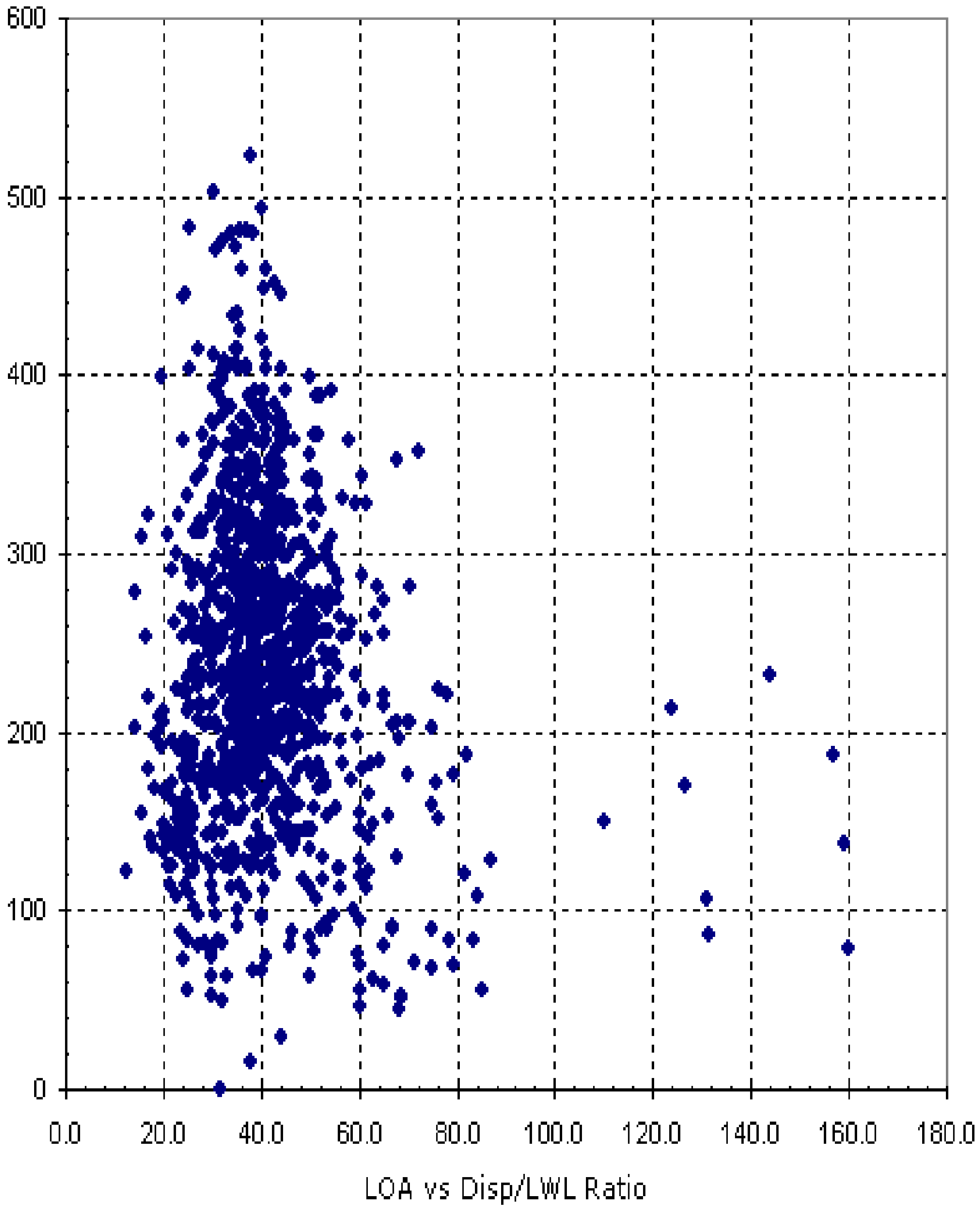
LOA vs LOA / Beam Ratio



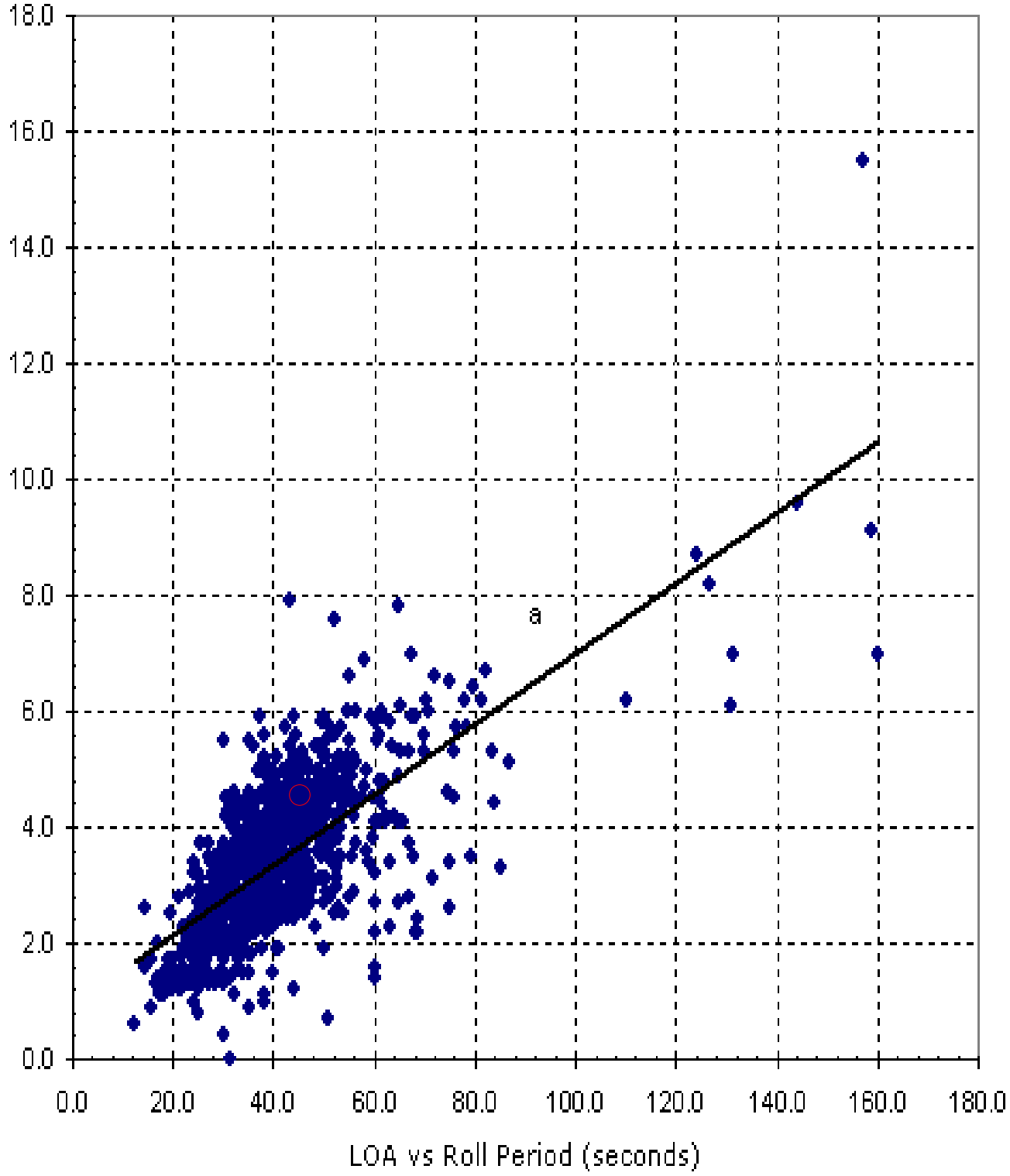
Sail Area / Disp. Ratio vs Vm/Vh



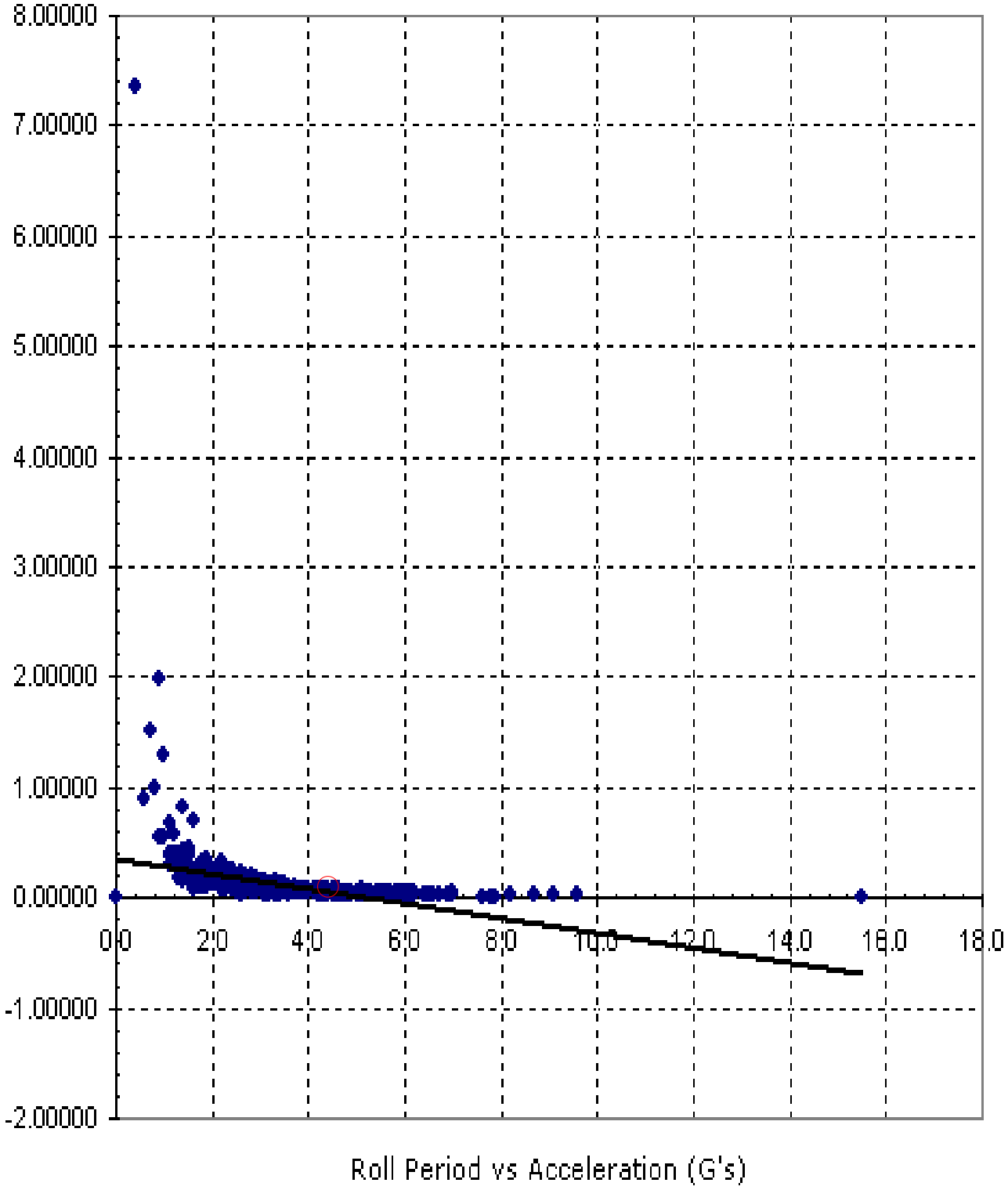
LOA vs Disp/LWL Ratio



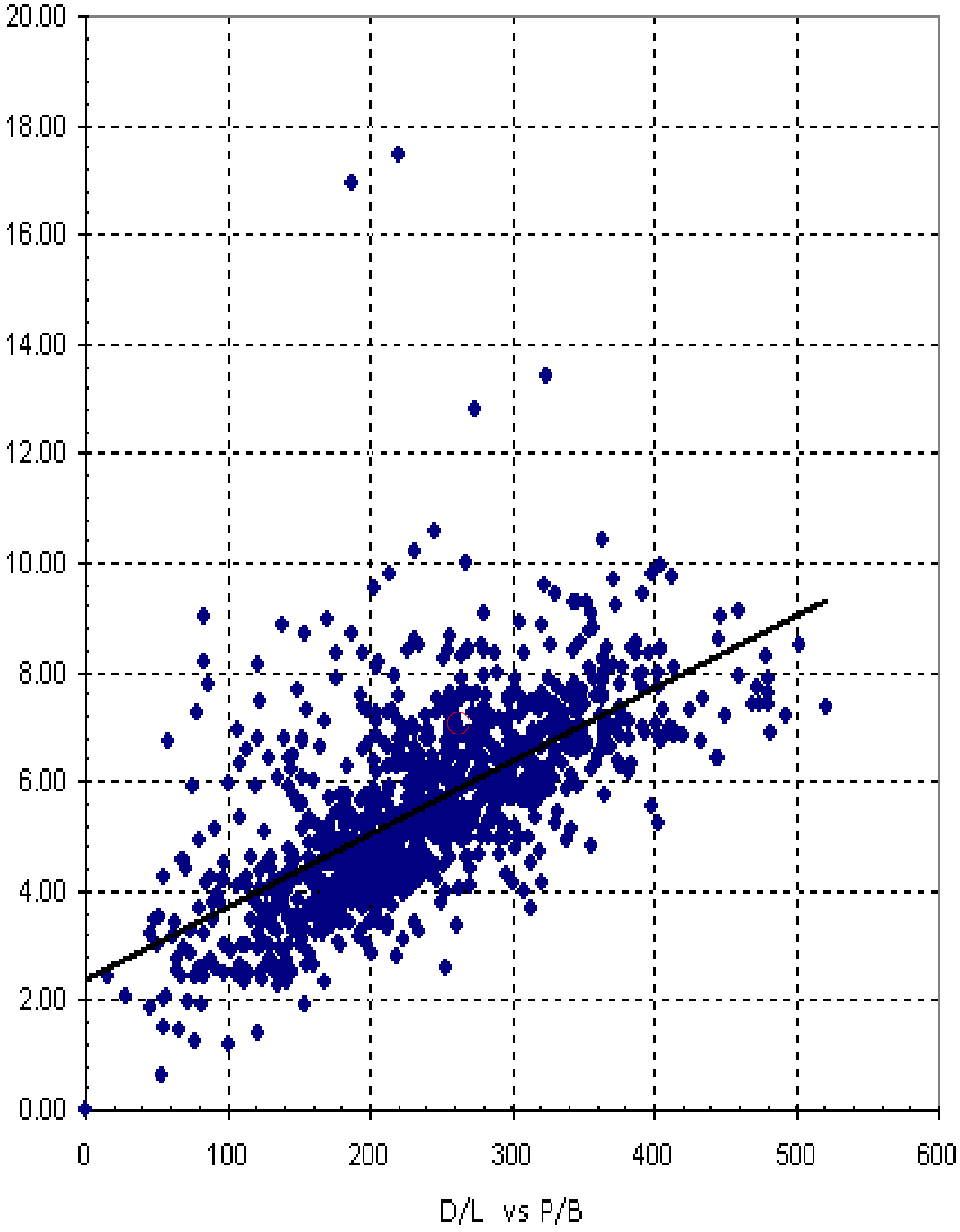
LOA vs Roll Period (seconds)



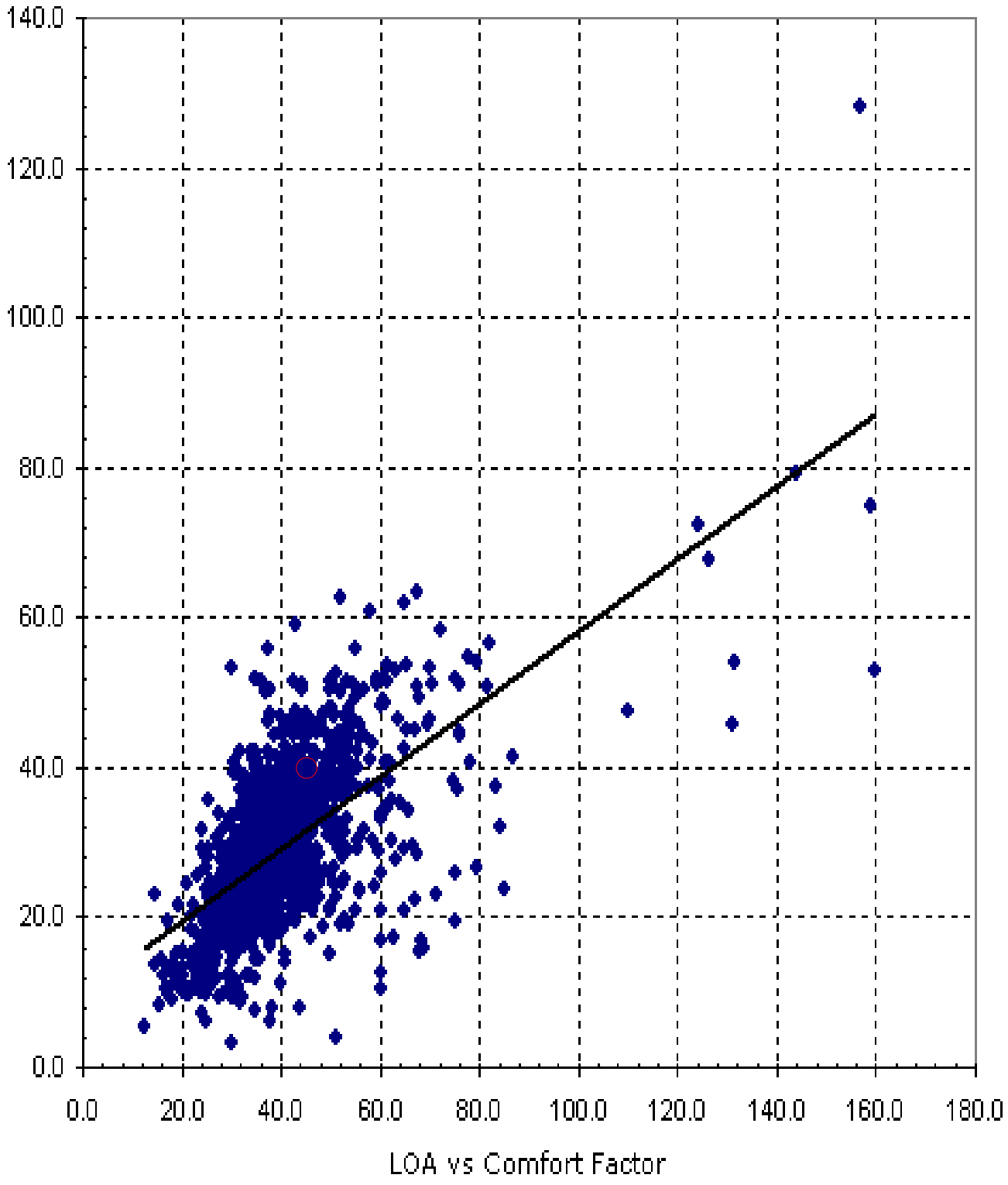
Roll Period vs Acceleration (G's)



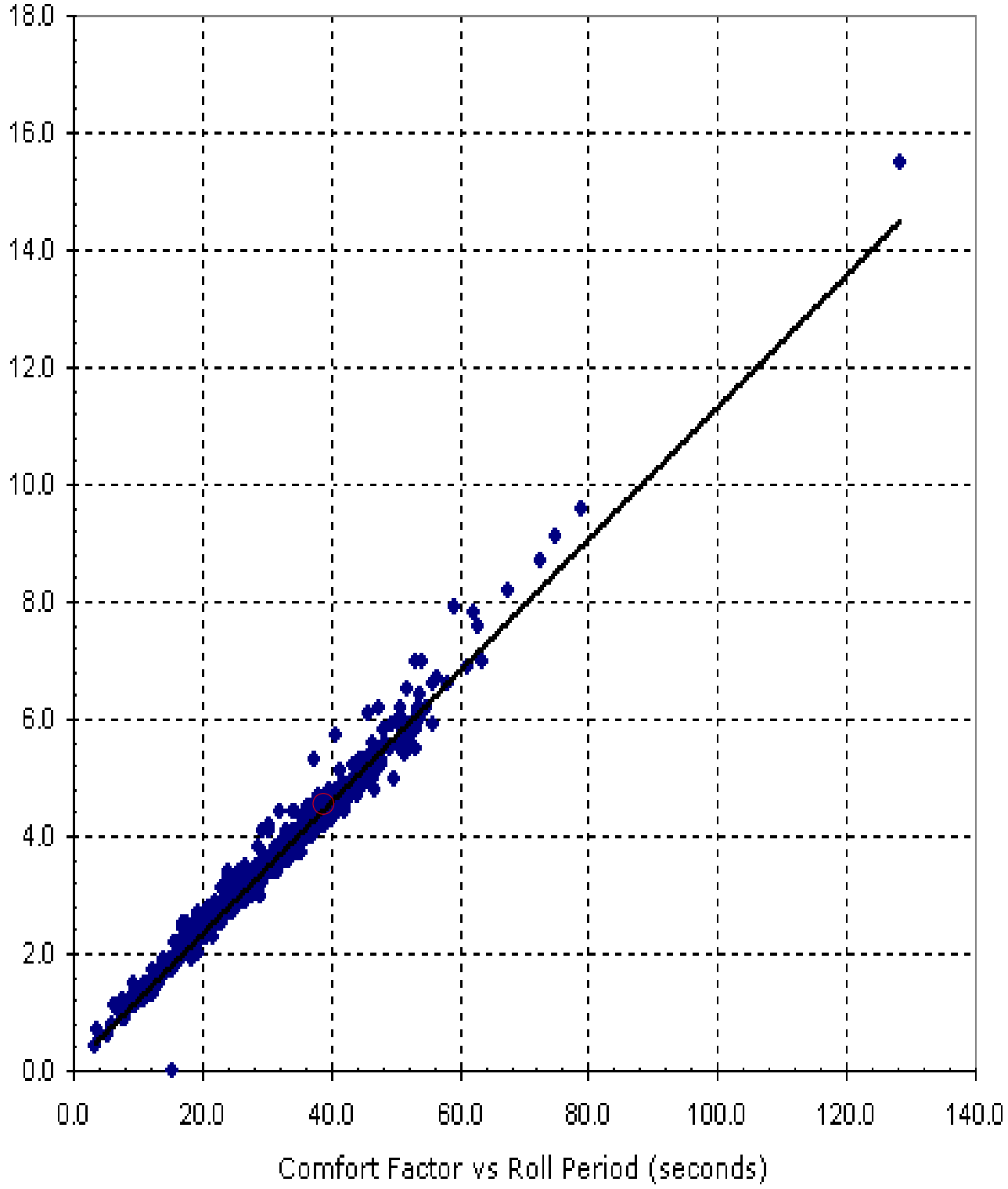
D/L vs P/B


20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0
100
200
300
400
500
600
D/L vs P/B

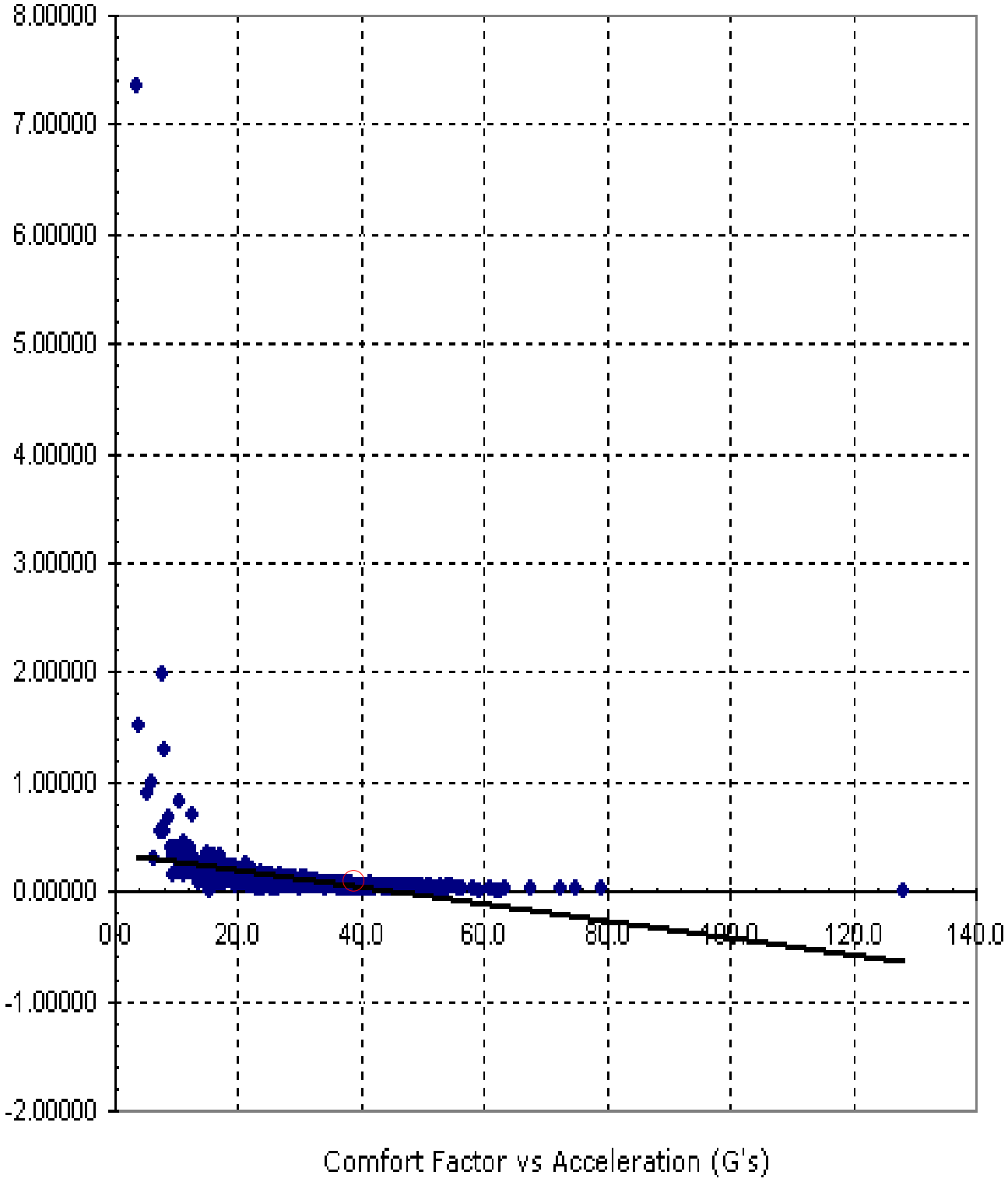
LOA vs Comfort Factor



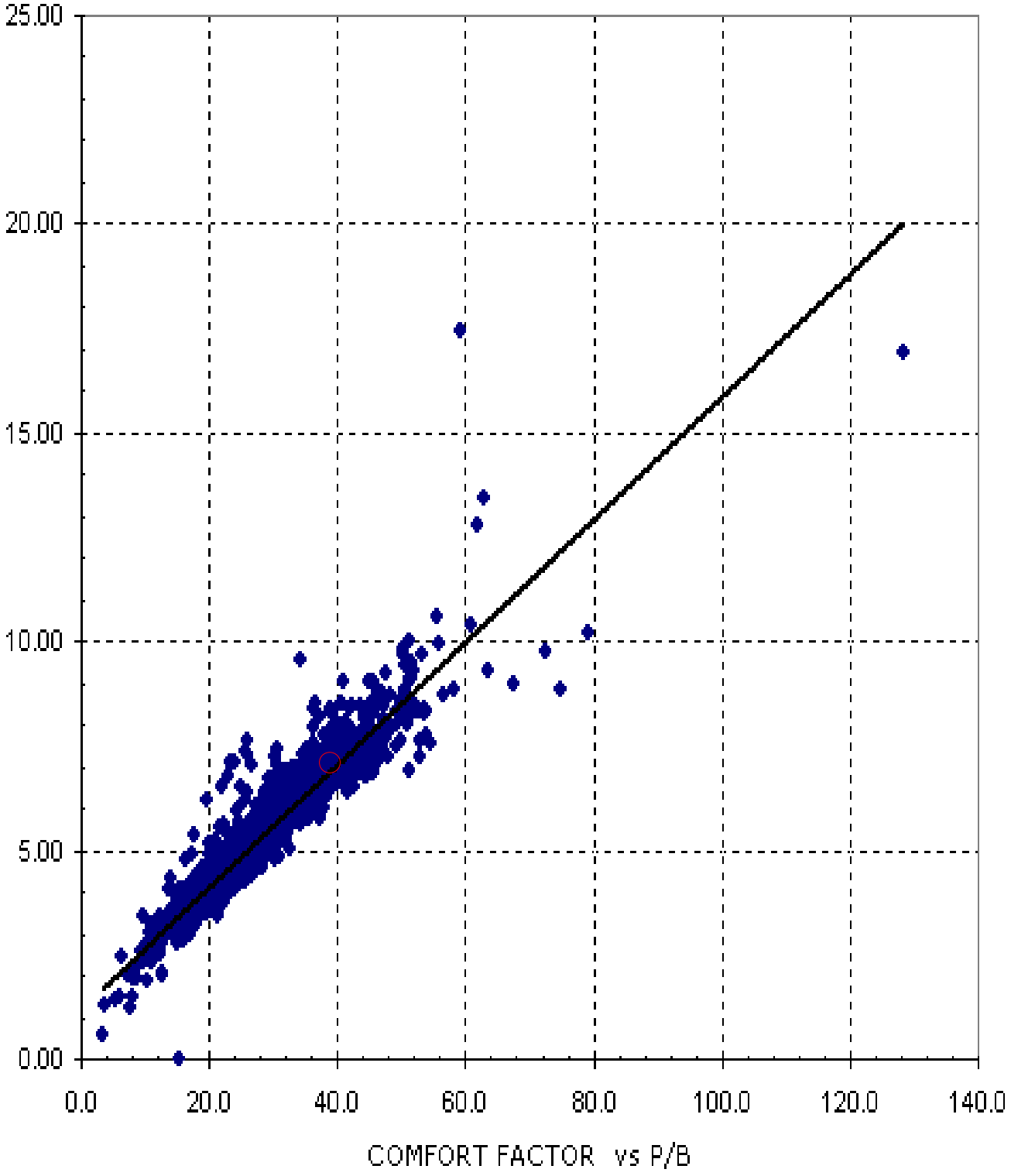
Comfort Factor vs Roll Period (seconds)



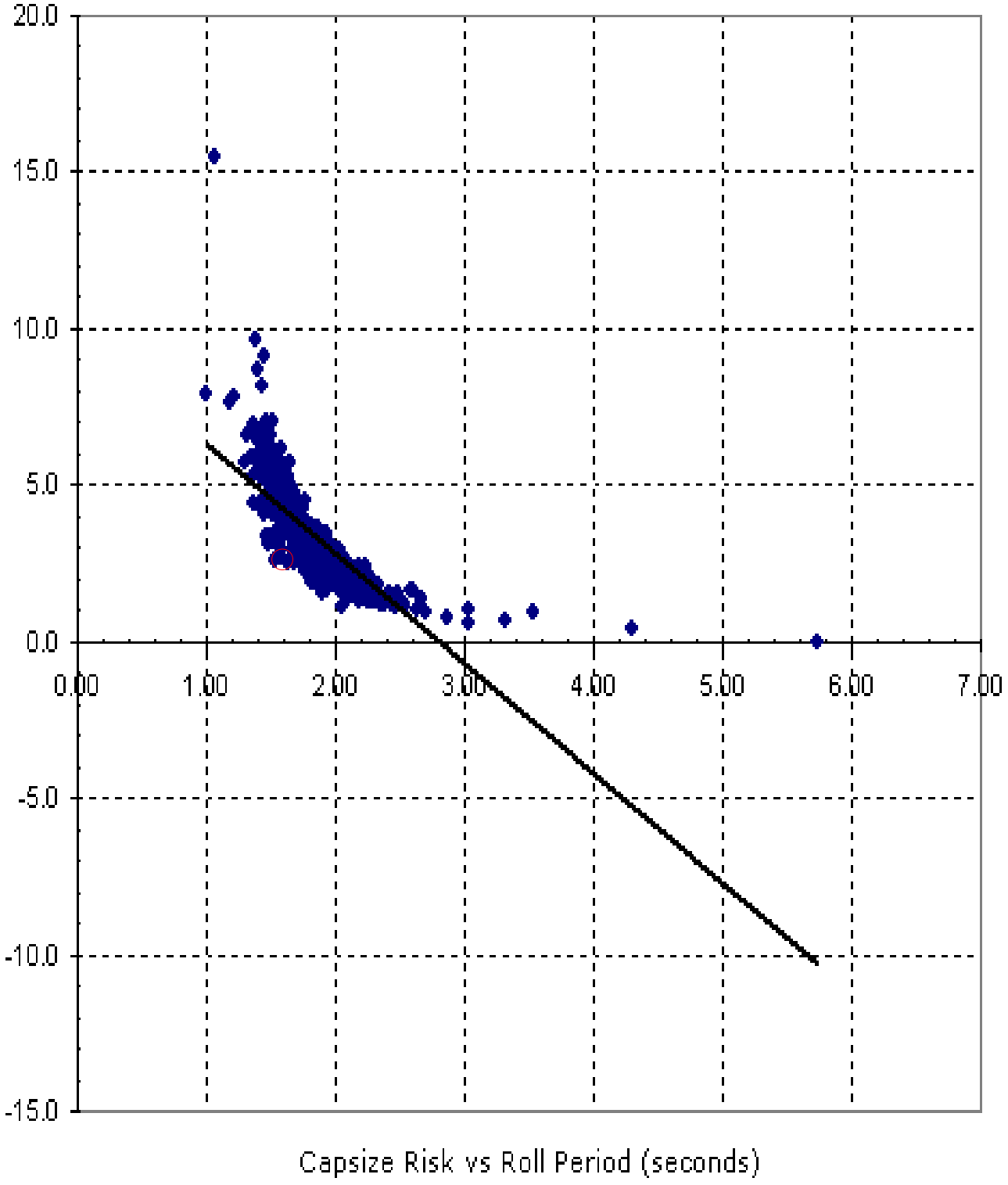
Comfort Factor vs Acceleration (G's)



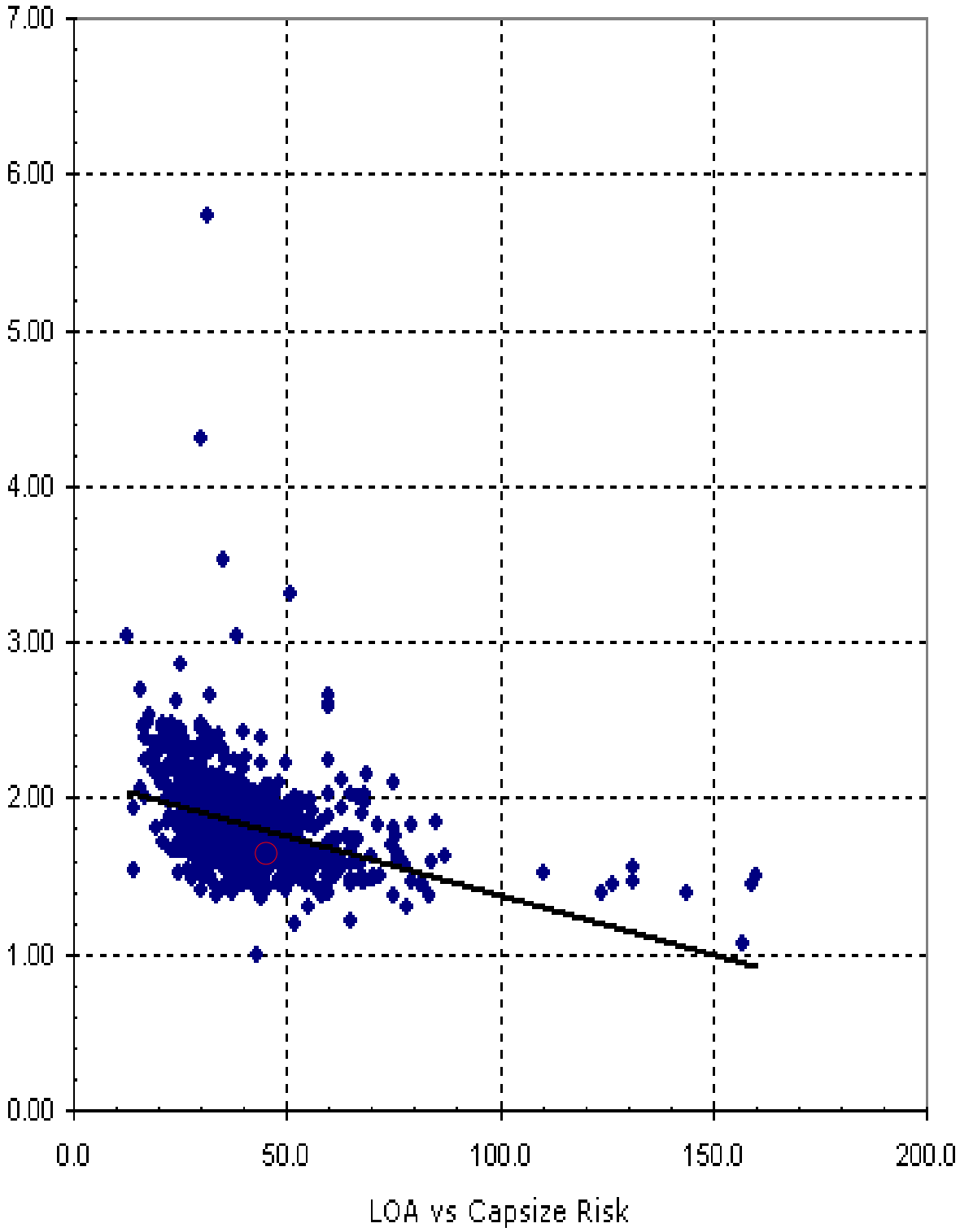
Comfort Factor vs P/B



Capsize Risk vs Roll Period (seconds)



LOA vs Capsize Risk



Forces

JIB ONLY, NO SPINNAKER

ANGLE	LIFT	DRAG	EFFICIENCY	CE HEIGHT
180.	-.0997	1.0366	.001	26.1798
170.	-.0383	1.195	.0002	25.9924
160.	.034	1.309	.0002	25.904
150.	.1129	1.3589	.0015	25.8827
140.	.1964	1.3306	.004	25.9318
130.	.2918	1.237	.0085	26.0975
120.	.4119	1.1208	.0164	26.4114
110.	.5678	.9986	.0305	26.7809
100.	.7607	.8733	.0539	26.8759
90.	.9854	.7462	.0894	26.5604
80.	1.2242	.6241	.1355	26.0995
70.	1.476	.5025	.1904	25.8174
60.	1.7448	.3865	.2556	25.6901
50.	2.0046	.2755	.3244	25.6701
40.	2.1458	.1611	.3612	25.7159
30.	2.1763	.0722	.3675	25.7635
20.	2.0331	.0469	.3209	25.7769
10.	.9566	.0548	.0745	26.5005

Forces

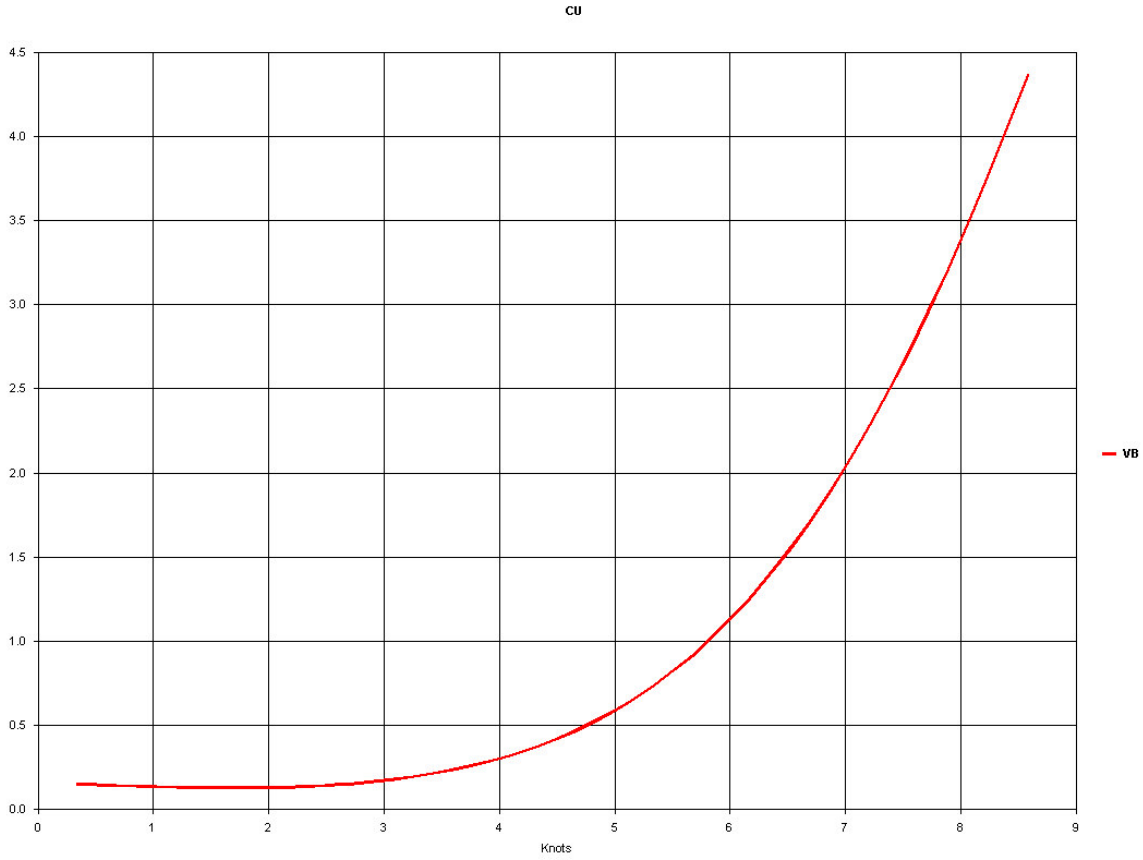
SPINNAKER WITHOUT JIB

ANGLE	LIFT	DRAG	EFFICIENCY	CE HEIGHT
0	0	.1479	0	32.5164
10.	.5737	.1371	.0379	33.9285
20.	.7556	.1372	.0657	32.5946
30.	1.0752	.1452	.1161	30.2344
40.	2.1996	.1996	.4403	32.9136
50.	2.6135	.3298	.6227	33.6403
60.	2.5779	.526	.6076	33.9422
70.	2.5088	.7838	.5766	34.1555
80.	2.418	1.0263	.5362	34.2803
90.	2.2578	1.2107	.4676	34.3345
100.	2.0279	1.3577	.3774	34.3106
110.	1.7516	1.4777	.2817	34.2409
120.	1.4603	1.5797	.196	34.1384
130.	1.184	1.6692	.1289	33.9977
140.	.9343	1.74	.0803	33.8193
150.	.6887	1.7704	.0438	33.5989
160.	.4365	1.7547	.0177	33.3675
170.	.1871	1.6992	.0034	33.1467
180.	-.0455	1.6127	.0002	32.9369

Velocity, Residuary Drag with wetted surface

VELOCITY	RESIDA
0	.2993
.5	.1477
1.	.1345
1.5	.1272
2.	.1289
2.5	.1425
3.	.1719
3.5	.223
4.	.3026
4.5	.4206
5.	.5889
5.5	.8205
6.	1.1301
6.5	1.532
7.	2.0373
7.5	2.6547
8.	3.3862
8.5	4.2216
9.	5.1486
9.5	6.1471
10.	7.194
10.5	8.27
11.	9.3608

Resida



Jib LIFT

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

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

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

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

Main LIFT

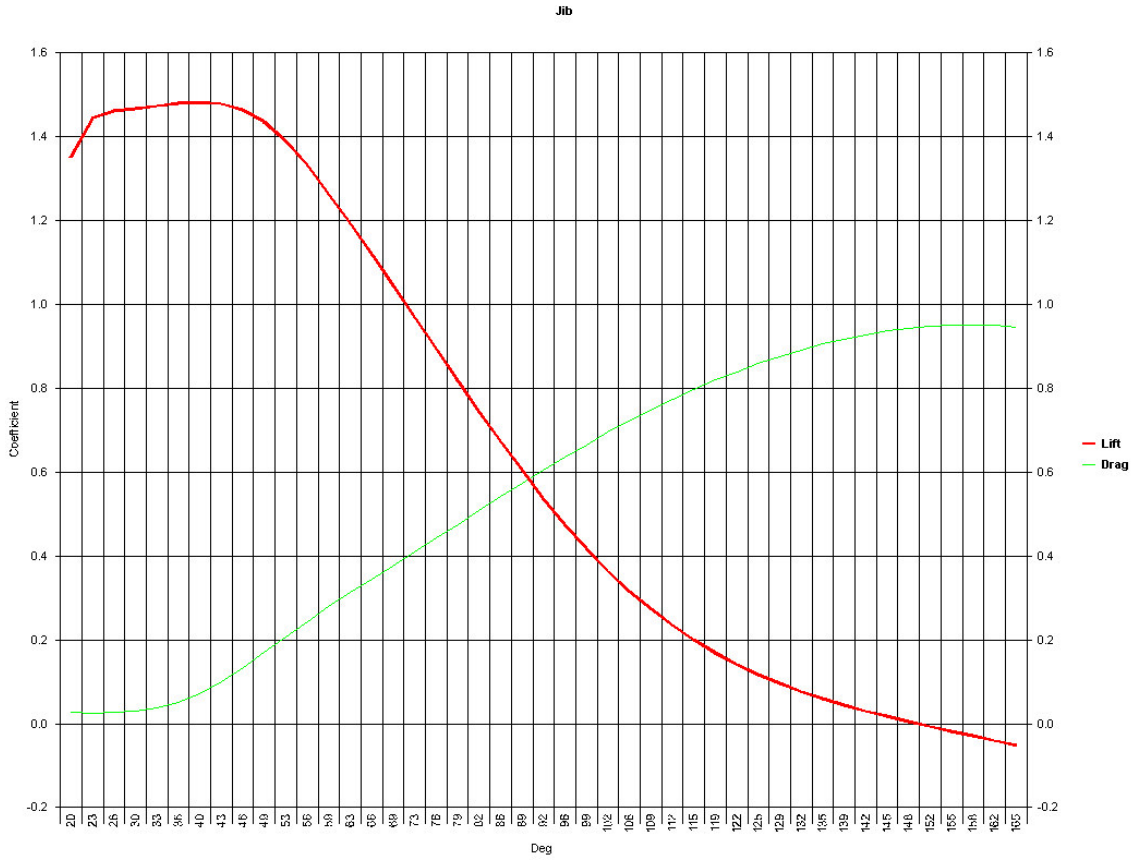
0	.3215	.6167	.8814	1.1001	1.2605
1.3732	1.4654	1.5434	1.608	1.6599	1.7
1.7289	1.7475	1.7567	1.7571	1.7495	1.7348
1.7138	1.6871	1.6557	1.6203	1.5816	1.5405
1.4978	1.4542	1.4105	1.3676	1.3261	1.2869
1.2508	1.2184	1.1894	1.1636	1.1405	1.1198
1.101	1.0839	1.068	1.0529	1.0383	1.0239
1.0091	.9938	.9774	.9596	.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

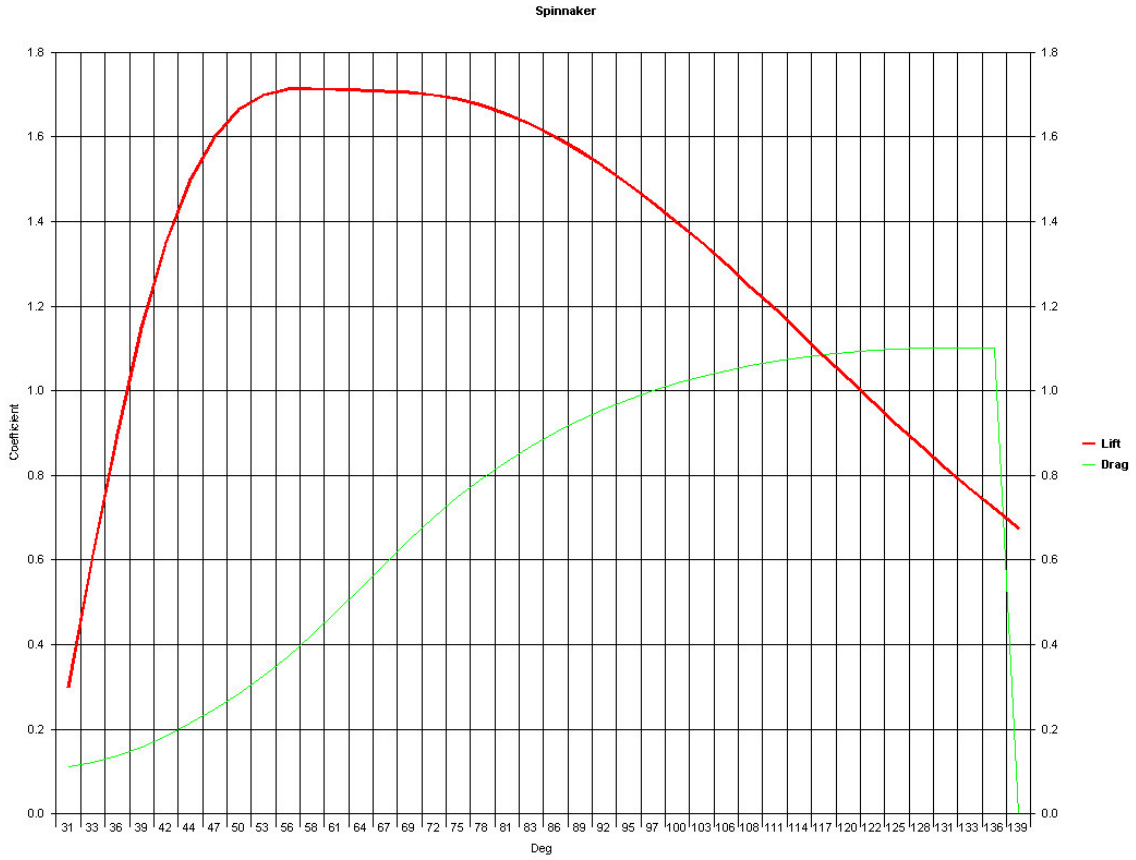
Main DRAG

.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

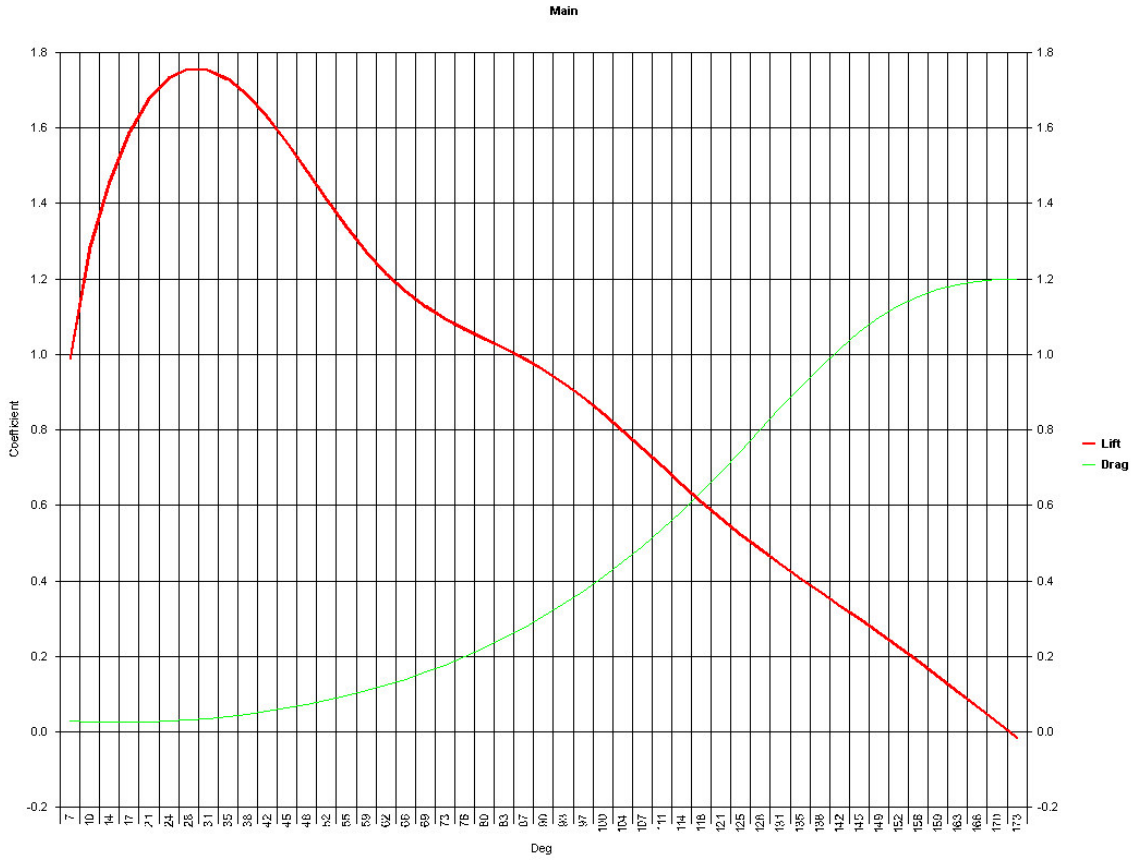
LiftJib



LiftSpinnaker



LiftMain



Index