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PRELIMINARY STABILITY REPORT

K8500

8.50 Meter Sailboat

30 November 2010



FOR REFERENCE ONLY

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OVERVIEW

- References: [1] ISO 12217-2 Stability and buoyancy assessment and categorization -- Part 2: Sailing boats of hull length greater than or equal to 6 m
 [2] Maritime and Coastguard Agency Large Yacht Code 11.3 Damaged Stability

Principle Dimensions:

LOA	8.280 m
LWL	7.000 m
Beam	2.140 m
Draft	1.520 m at Min Sailing Cond
Displacement	1289 kg
Sail Area	19.43 m ²

Load Conditions:

Load conditions are based on calculated light ship characteristics from the weight estimate. A 25 mm VCG margin was added to the calculated VCG to account for possible deviation from the calculated VCG after construction. The data contained in this report is preliminary until a deadweight survey and inclining experiment can be conducted to determine the actual light ship weight and center of gravity. The preliminary light ship weight and center of gravity is:

Light Ship Weight	1205 kg
LCG	3.70 m aft of Station 0
VCG	0.02 m below 300 DWL

Intact Stability:

Intact stability is evaluated against the requirements of reference [1].

Design Category	A	B	C	D
	Ocean	Offshore	Inshore	Sheltered
Wave Height (significant)	7m	4m	2m	0.5m max
Wind (Beaufort)	10	8	6	4
Minimum STIX Value	32	23	14	5
Minimum Mass	3000 kg	1500 kg	-	-
Minimum AVS	130-0.002*m (>100 deg)	130-0.005*m (>95 deg)	90 deg	75 deg

The significant wave height is the mean height of the highest one third of the waves, which approximately corresponds to the wave height estimated by an experienced observer. Some waves will be double this height.

The results of the intact stability calculations are:

Load Condition	Min Sailing Cond	Full Load Cond
GM	0.76	0.65 m
Dellenbaugh Angle	26.1 deg	26.2 deg
Righting Arm at 90°	0.30 m	0.19 m
AVS	124 deg	114 deg
Righting Area at AVS	33.8 m*deg	25.2 m*deg
STIX	22.9	18.2
Category	C	C

Damage Stability:

The subject vessel is divided into 4 watertight compartments with bulkheads located at stations 1, 9, and 13. Although the vessel is not required to comply with damage stability criteria, it was evaluated against the criteria of reference 2:

"The watertight bulkheads of the vessel should be so arranged that minor hull damage that results in the free flooding of any one compartment, will cause the vessel to float at a waterline which, at any point, is not less than 75mm below the weather deck, or bulkhead deck if not concurrent."

"... the residual stability should be such that any angle of equilibrium does not exceed 7 degrees from the upright, the resulting righting lever curve has a range to the downflooding angle of at least 15 degrees beyond any angle of equilibrium, the maximum righting lever within that range is not less than 100 mm and the area under the curve is not less than 0.015 metre radians."

The results of damage stability calculations are:

Load Condition	Full Load Cond	
	1	2
Damage Pattern		
Angle at Equil	0 deg	0 deg
Angle to AVS	106 deg	114 deg
Max Righting Arm	0.254 m	0.316 m
Righting Area	0.289 m*rad	0.403 m*rad
Freebd to Margin Line	-0.010 m	0.381 m

WEIGHT ESTIMATE

Vessel: K8500						Rev:	-	
MIN SAILING COND			Kg	Tonnes	LCG	TCG	VCG	
		Subtotal	1289	1.29	3.76	0.00	0.04	
	Margin =	0.0%	0	0.00				
		Total	1289	1.29	3.76	0.00	0.044	
Item	%	Weight	LCG	L.MOM	TCG	T.MOM	VCG	V.MOM
LIGHT SHIP		1205	3.70	4453	0.00	0	-0.02	-18
FUEL:								
WATER:								
SEWAGE:								
LUBE OIL:								
Crew and effects	33	84	4.63	389	0.00	0	0.90	76
Galley stores	0	0	3.13	0	0.00	0	0.10	0
MISSION LOADS:								
Autopilot		0.00	6.25	0	0.00	0	0.74	0
Mini Galley		0.00	2.56	0	0.00	0	0.40	0
Misc Stores		0.00	4.25	0	0.00	0	0.15	0
EPIRB		0.00	4.00	0	0.00	0	0.30	0
Liferaft		0.00	4.25	0	0.00	0	0.13	0

WEIGHT ESTIMATE

Vessel: K8500						Rev: -		
FULL LOAD			Kg	Tonnes	LCG	TCG	VCG	
		Subtotal	1490	1.49	3.86	0.00	0.14	
	Margin =	0.0%	0	0.00				
		Total	1490	1.49	3.86	0.00	0.144	
Item	%	Weight	LCG	L.MOM	TCG	T.MOM	VCG	V.MOM
LIGHT SHIP		1205	3.70	4453	0.00		-0.02	-18
FUEL:								
WATER:								
SEWAGE:								
LUBE OIL:								
Crew and effects	100	252	4.63	1167	0.00	0	0.90	227
Galley stores	100	12	3.13	38	0.00	0	0.10	1
MISSION LOADS:								
Autopilot		2.27	6.25	14	0.00	0	0.74	2
Mini Galley		0.68	2.56	2	0.00	0	0.40	0
Misc Stores		10.00	4.25	43	0.00	0	0.15	2
EPIRB		0.70	4.00	3	0.00	0	0.30	0
Liferaft		7.70	4.25	33	0.00	0	0.13	1

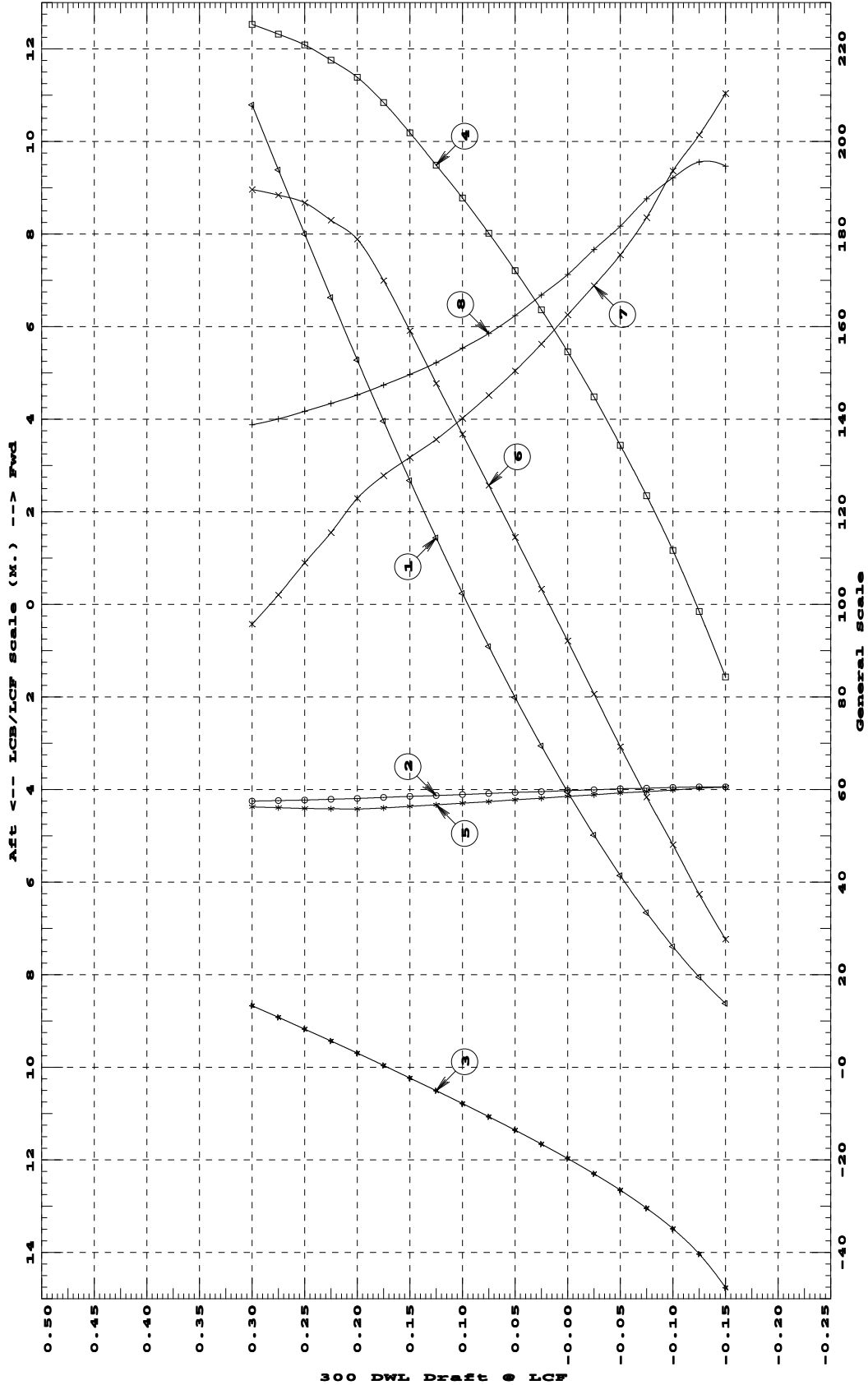
HYDROSTATIC PROPERTIES
 No Trim, No Heel, VCG = 0.000

LCF Draft	Displacement Weight(KG)	Buoyancy-Ctr.		Weight/ CM	Moment/ LCF		CM trim	KML	KMT
		LCB	VCB						
-0.150	276	3.941a	-0.286	42	3.948a	8.30	21.04	0.973	
-0.125	390	3.944a	-0.242	49	3.973a	11.22	20.14	0.978	
-0.100	521	3.955a	-0.209	56	4.010a	14.41	19.36	0.961	
-0.075	668	3.969a	-0.183	62	4.043a	17.51	18.36	0.938	
-0.050	829	3.985a	-0.159	67	4.077a	20.78	17.55	0.909	
-0.025	1,003	4.003a	-0.138	72	4.113a	24.20	16.89	0.883	
0.000	1,190	4.022a	-0.118	77	4.150a	27.64	16.26	0.856	
0.025	1,389	4.043a	-0.100	82	4.187a	30.99	15.62	0.834	
0.050	1,598	4.064a	-0.082	86	4.224a	34.35	15.04	0.812	
0.075	1,818	4.085a	-0.064	90	4.260a	37.70	14.52	0.793	
0.100	2,048	4.107a	-0.047	94	4.295a	41.04	14.02	0.777	
0.125	2,288	4.128a	-0.030	97	4.329a	44.32	13.56	0.761	
0.150	2,536	4.150a	-0.014	101	4.365a	47.72	13.17	0.748	
0.175	2,792	4.171a	0.002	104	4.398a	50.99	12.78	0.737	
0.200	3,056	4.192a	0.018	107	4.419a	53.66	12.29	0.726	
0.225	3,326	4.210a	0.034	109	4.414a	54.89	11.55	0.717	
0.250	3,600	4.225a	0.050	110	4.408a	56.03	10.90	0.708	
0.275	3,878	4.238a	0.065	112	4.392a	56.52	10.20	0.700	
0.300	4,158	4.248a	0.080	113	4.375a	56.88	9.58	0.694	

Distances in METERS.-----Specific Gravity = 1.025.-----Moment in M.-KG.
 Trim is per 7.00M.

Draft is from 300 DWL.

HYDROSTATIC PROPERTIES at LEVEL TRIM



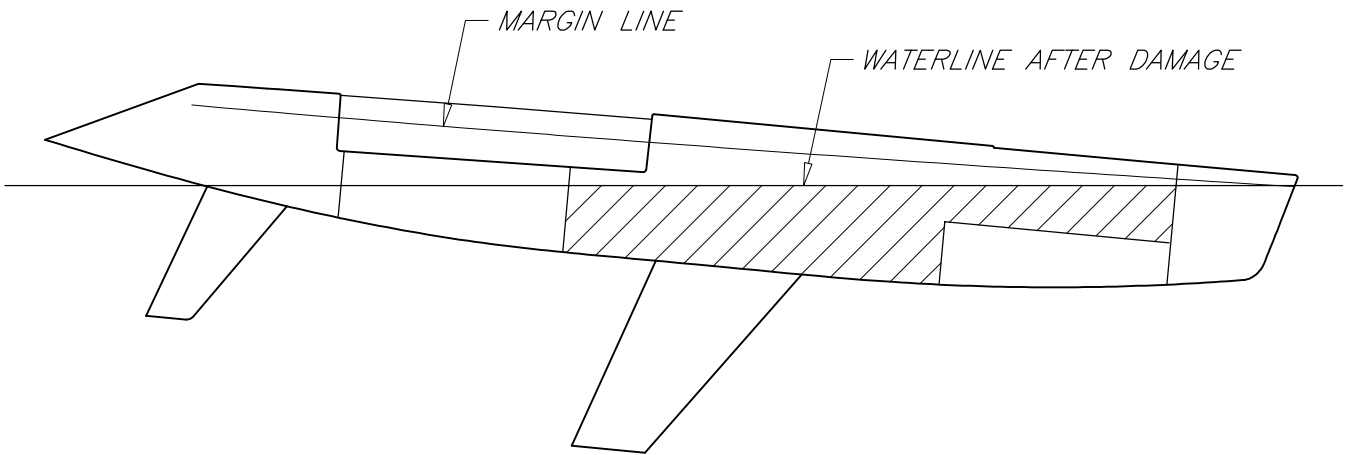
- ① Displacement 1=20 KG
- ② LCB (use top scale)
- ③ VCB (KB) 1=.006 M.
- ④ Immersion 1=.5 KG/CM
- ④ WPA 1=.0488 Sq.M.
- ⑤ LCF (use top scale)
- ⑥ Moment/Trim 1=.3 M.-KG/CM
- ⑦ KML 1=.1 M.
- ⑧ KMT 1=.005 M.

Specific Gravity = 1.025 Assumed KG = 0.00 M.
Trim is per 7 M. "K" = BPL

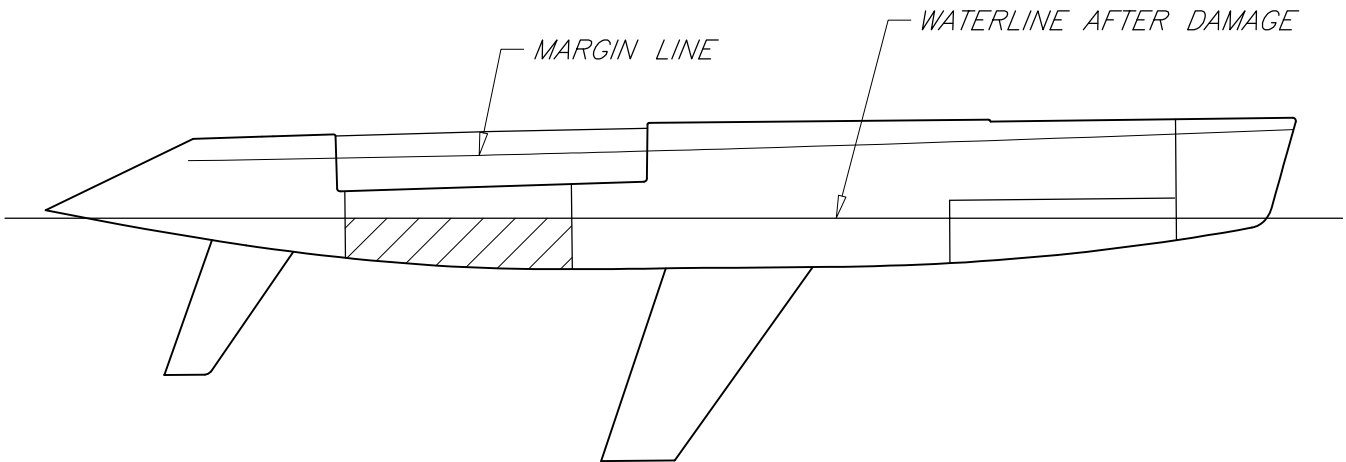
ISO STIX CALCULATION

Project:	K8500		Date:	11/27/10	
STIX =	22.9		18.2	Category:	C
Del ang =	26.1		26.2		
Input:	mMSC		mMAX		
Lh =	8.282 m		8.282 m		
Lwl =	6.892 m		7.110 m		
Bh =	2.140 m		2.140 m		
Bwl =	1.610 m		1.659 m		
mass =	1289 kg		1490 kg		
hce =	4.003 m		3.979 m		
hlp =	0.689 m		0.713 m		
As =	19.43 m ²		19.43 m ²		
GZ 90 =	0.301 m		0.194 m		
AVS =	123.66 deg		113.62 deg		
DFL =	123.66 deg		113.62 deg		
Agz =	33.82 m*deg		25.18 m*deg		
GM =	0.755 m		0.651 m		
Output:					
Lbs =	7.355		7.501		
F1 =	0.923		0.926		
FDL =	0.874		0.883		
Fb =	2.088		1.990		
FBD =	0.970		0.984		
Fr =	2.494		1.869		
FKR =	1.095		1.040		
FIR =	0.996		0.916		
FDS =	0.743		0.553		
FWM =	1.000		1.000		
FDF =	1.374		1.262		

K8500 DAMAGE PATTERNS
FULL LOAD CONDITION



CABIN COMPARTMENT FLOODED



MID COMPARTMENT FLOODED

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INTACT STABILITY

MINIMUM SAILING CONDITION

WEIGHT STATUS

Part-----	Weight(KG)----	LCG-----	TCG-----	VCG-----
WEIGHT	1,289	3.760a	0.000	0.044
Distances in METERS.-----				

No downflood points with hatches closed.

HYDROSTATIC PROPERTIES

Trim: Fwd 0.125/7.000, Heel: Port 0.00 deg., VCG = 0.044

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/
Draft----	Weight(KG)----	LCB-----	VCB-----	CM-----
0.014	1,289	3.757a	-0.106	77
				3.964a
				27.29
				14.82
				0.755
Distances in METERS.-----Specific Gravity = 1.025.-----Moment in M.-KG.				
Trim is per 7.00M.				

Draft is from DWL.

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INTACT STABILITY

RIGHTING ARMS vs HEEL ANGLE

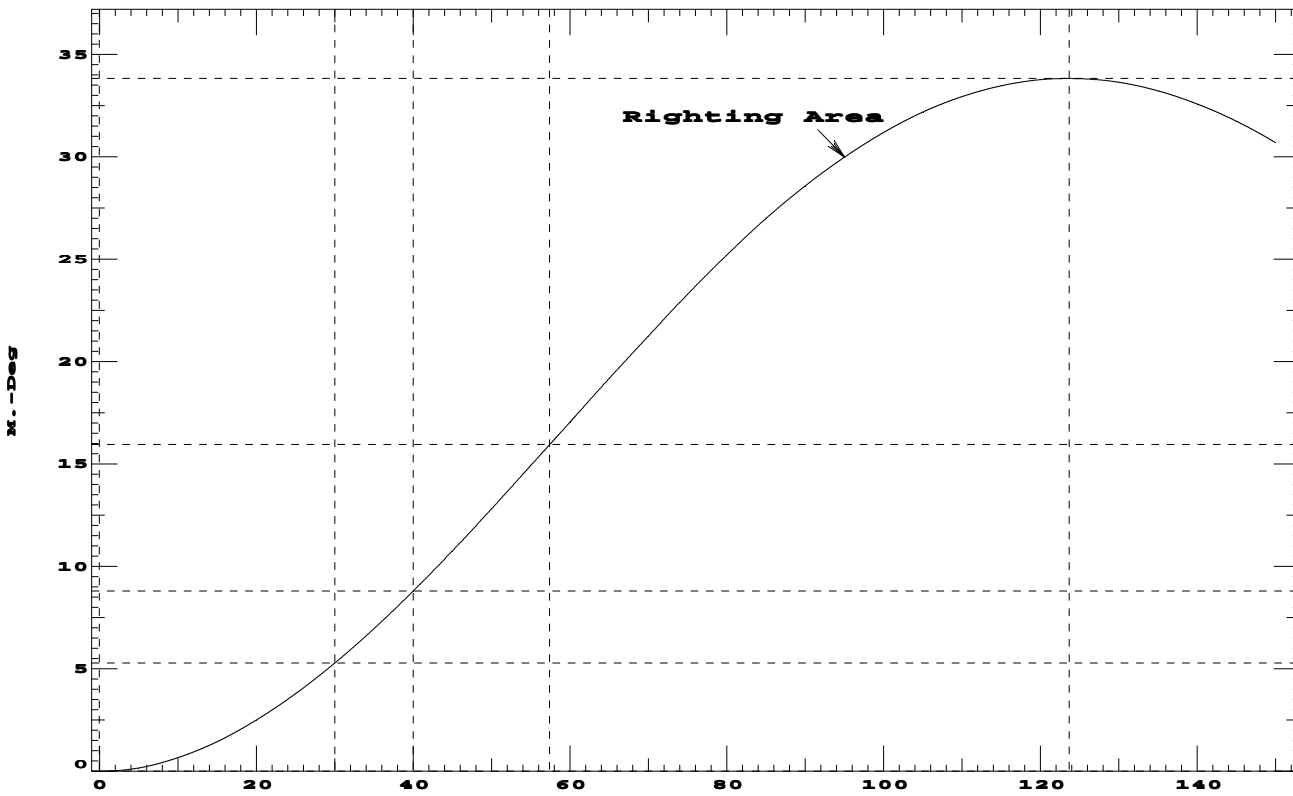
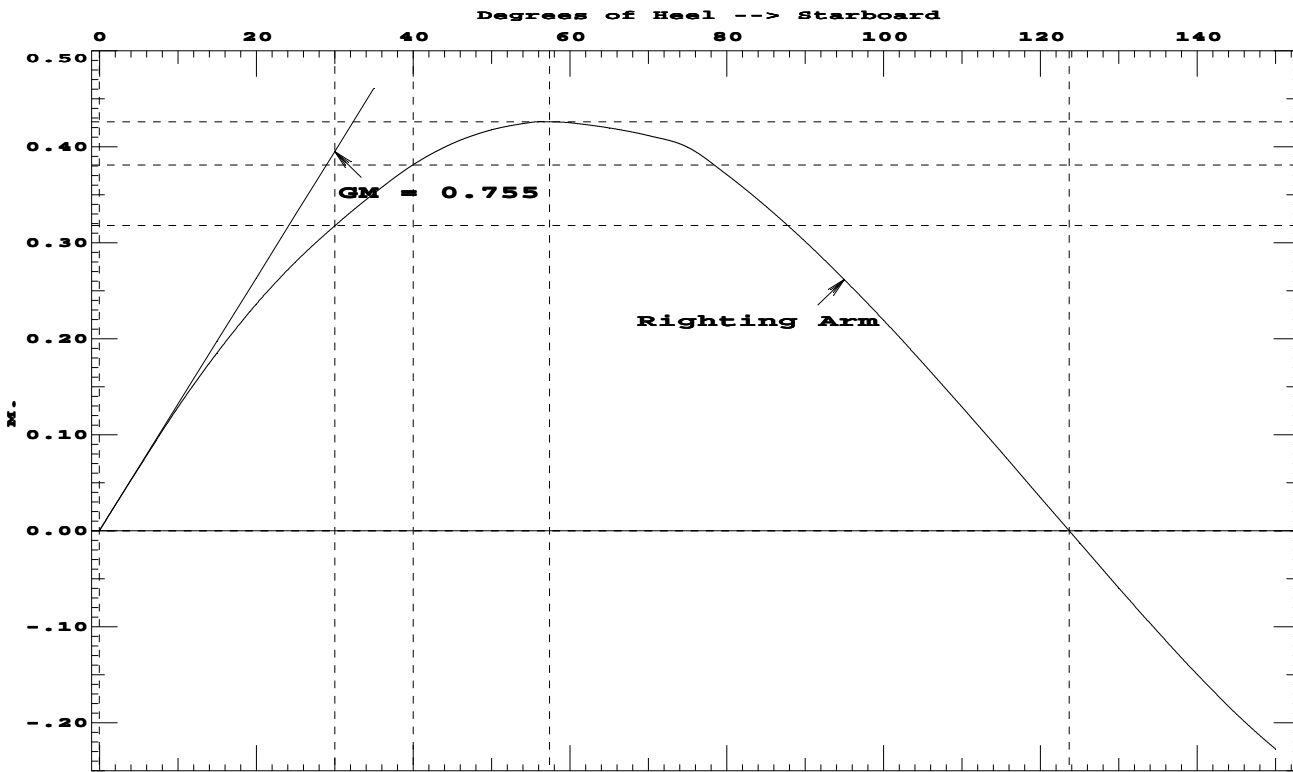
LCG = 3.760a TCG = 0.000 VCG = 0.044

Origin	Degrees of	Displacement	Righting Arms			
Depth	Trim	Heel	Weight(KG)	in Trim	in Heel	Area
0.085	1.02f	0.00p	1,289	0.000	0.000	0.000
0.085	1.06f	5.00s	1,289	0.000	0.066s	0.164
0.085	1.17f	10.00s	1,289	0.000	0.128s	0.649
0.084	1.36f	15.00s	1,289	0.000	0.186s	1.436
0.082	1.60f	20.00s	1,289	0.000	0.236s	2.493
0.079	1.90f	25.00s	1,289	0.000	0.280s	3.786
0.073	2.24f	30.00s	1,289	0.000	0.318s	5.283
0.065	2.61f	35.00s	1,289	0.000	0.351s	6.958
0.055	3.01f	40.00s	1,289	0.000	0.381s	8.791
0.042	3.39f	45.00s	1,289	0.000	0.404s	10.756
0.028	3.76f	50.00s	1,289	0.000	0.418s	12.813
0.013	4.09f	55.00s	1,289	0.000	0.425s	14.923
0.005	4.24f	57.33s	1,289	0.000	0.426s	15.919
-0.004	4.41f	60.00s	1,288	0.000	0.425s	17.052
-0.021	4.67f	65.00s	1,289	0.000	0.420s	19.166
-0.041	4.88f	70.00s	1,289	0.000	0.412s	21.246
-0.063	5.02f	75.00s	1,289	0.000	0.399s	23.275
-0.089	5.12f	80.00s	1,289	0.000	0.371s	25.208
-0.116	5.16f	85.00s	1,289	0.000	0.338s	26.982
-0.144	5.14f	90.00s	1,289	0.000	0.301s	28.581
-0.174	5.07f	95.00s	1,289	0.000	0.262s	29.990
-0.204	4.95f	100.00s	1,288	0.000	0.219s	31.192
-0.235	4.77f	105.00s	1,289	0.000	0.175s	32.178
-0.266	4.55f	110.00s	1,289	0.000	0.129s	32.938
-0.297	4.28f	115.00s	1,289	0.000	0.082s	33.466
-0.327	3.97f	120.00s	1,290	0.000	0.035s	33.758
-0.349	3.73f	123.66s	1,288	0.000	0.000s	33.822
-0.357	3.63f	125.00s	1,288	0.000	-0.013s	33.813
-0.385	3.26f	130.00s	1,289	0.000	-0.060s	33.632
-0.412	2.86f	135.00s	1,289	0.000	-0.106s	33.218
-0.437	2.43f	140.00s	1,289	0.000	-0.150s	32.579
-0.461	1.98f	145.00s	1,290	0.000	-0.191s	31.726
-0.484	1.52f	150.00s	1,289	0.000	-0.227s	30.679

Distances in METERS.---Specific Gravity = 1.025.---Area in M.-Deg.

LIM	"ISO 12217-2 DATA" CRITERION	Min/Max	Attained
(1)	Righting Arm at 90 deg	> 0.100 M.	0.301 P
(2)	Absolute Angle at RAZero	> 5.00 deg	123.66 P
(3)	Area from 0 deg to RAZero	> 5.000 M.-deg	33.822 P
(4)	GM at Equilibrium	> 0.100 M.	0.755 P

-----Relative angles measured from 0.005 -----



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INTACT STABILITY

FULL LOAD CONDITION

WEIGHT STATUS

Part-----	Weight(KG)----	LCG-----	TCG-----	VCG-----
WEIGHT	1,490	3.860a	0.000	0.144
Distances in METERS.-----				

No downflood points with hatches closed.

HYDROSTATIC PROPERTIES

Trim: Fwd 0.091/7.000, No Heel, VCG = 0.144

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft----	Weight(KG)----	LCB-----	VCB-----	CM-----	LCF----	CM trim----	GML-----	GMT-----
0.038	1,490	3.857a	-0.089	82	4.064a	30.82	14.48	0.651
Distances in METERS.-----Specific Gravity = 1.025.-----Moment in M.-KG.								
Trim is per 7.00M.								

Draft is from DWL.

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INTACT STABILITY

RIGHTING ARMS vs HEEL ANGLE

LCG = 3.860a TCG = 0.000 VCG = 0.144

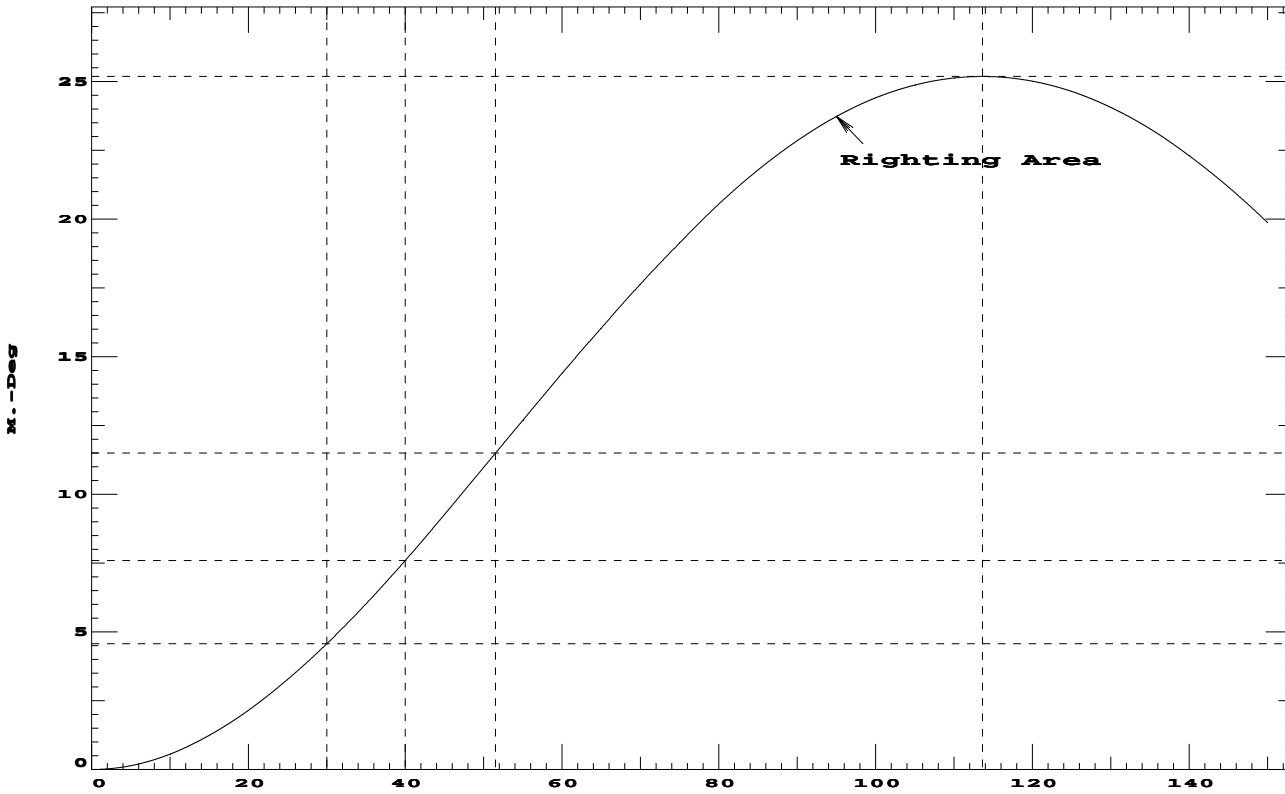
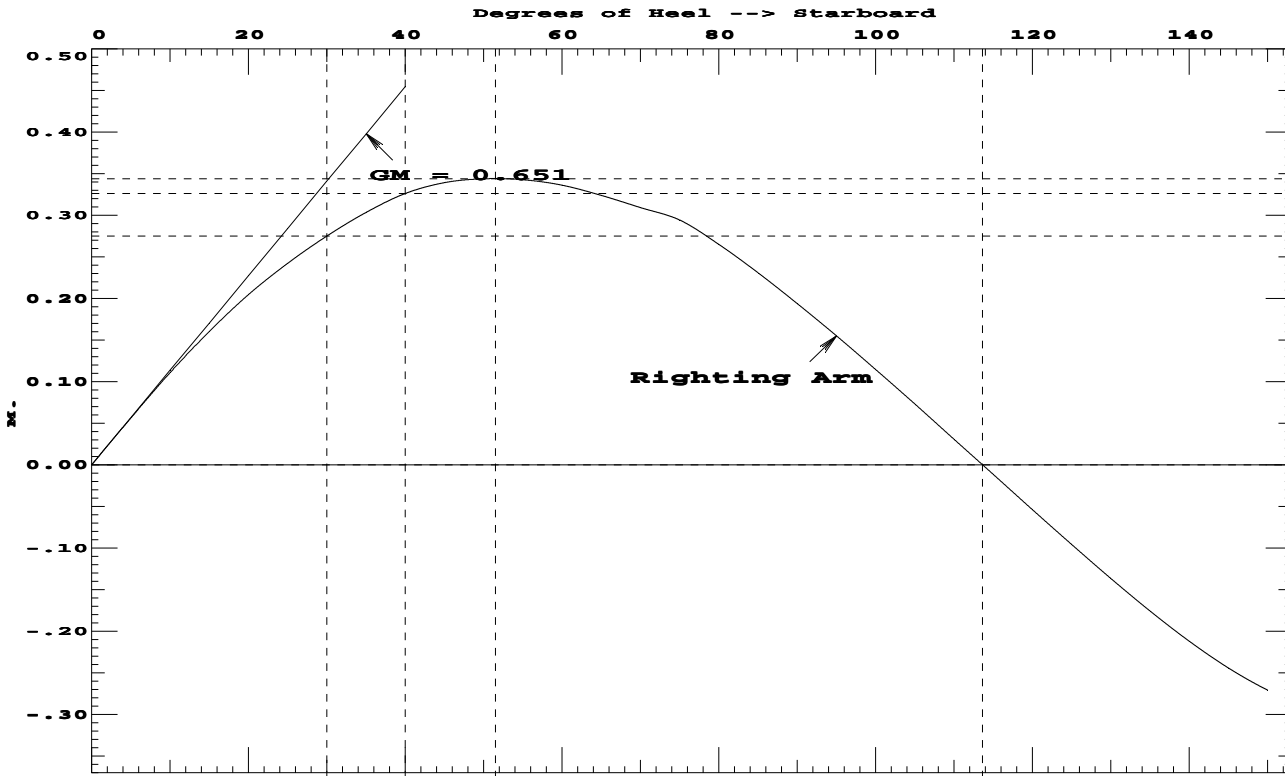
Origin	Degrees of	Displacement	Righting Arms			
Depth	Trim	Heel	Weight(KG)	in Trim	in Heel	Area
0.091	0.75f	0.00	1,490	0.000	0.000	0.000
0.091	0.78f	5.00s	1,490	0.000	0.057s	0.141
0.090	0.88f	10.00s	1,490	0.000	0.111s	0.560
0.089	1.05f	15.00s	1,490	0.000	0.160s	1.240
0.086	1.27f	20.00s	1,491	0.000	0.205s	2.155
0.082	1.55f	25.00s	1,490	0.000	0.242s	3.275
0.076	1.87f	30.00s	1,490	0.000	0.275s	4.571
0.067	2.22f	35.00s	1,490	0.000	0.304s	6.019
0.055	2.58f	40.00s	1,490	0.000	0.326s	7.596
0.041	2.93f	45.00s	1,490	0.000	0.339s	9.264
0.026	3.26f	50.00s	1,490	0.000	0.344s	10.975
0.022	3.35f	51.46s	1,490	0.000	0.344s	11.478
0.010	3.56f	55.00s	1,490	0.000	0.343s	12.695
-0.007	3.84f	60.00s	1,491	0.000	0.336s	14.394
-0.024	4.09f	65.00s	1,490	0.000	0.324s	16.046
-0.044	4.27f	70.00s	1,491	0.000	0.309s	17.629
-0.066	4.41f	75.00s	1,490	0.000	0.294s	19.138
-0.091	4.49f	80.00s	1,490	0.000	0.265s	20.542
-0.118	4.52f	85.00s	1,490	0.000	0.231s	21.784
-0.146	4.50f	90.00s	1,490	0.000	0.194s	22.847
-0.175	4.43f	95.00s	1,490	0.000	0.155s	23.721
-0.205	4.30f	100.00s	1,489	0.000	0.115s	24.395
-0.235	4.13f	105.00s	1,490	0.000	0.073s	24.864
-0.266	3.92f	110.00s	1,490	0.000	0.031s	25.123
-0.288	3.74f	113.62s	1,490	0.000	0.000s	25.179
-0.297	3.66f	115.00s	1,490	0.000	-0.012s	25.171
-0.326	3.38f	120.00s	1,490	0.000	-0.054s	25.006
-0.355	3.05f	125.00s	1,490	0.000	-0.096s	24.631
-0.383	2.69f	130.00s	1,490	0.000	-0.137s	24.050
-0.409	2.31f	135.00s	1,490	0.000	-0.176s	23.268
-0.434	1.90f	140.00s	1,491	0.000	-0.212s	22.297
-0.457	1.49f	145.00s	1,490	0.000	-0.244s	21.155
-0.479	1.07f	150.00s	1,489	0.000	-0.271s	19.865

Distances in METERS.---Specific Gravity = 1.025.---Area in M.-Deg.

LIM	ISO 12217-2 DATA	CRITERION	Min/Max	Attained
(1)	Righting Arm at 90 deg	>	0.100 M.	0.194 P
(2)	Absolute Angle at RAZero	>	5.00 deg	113.62 P
(3)	Area from 0 deg to RAZero	>	5.000 M.-deg	25.179 P
(4)	GM at Equilibrium	>	0.100 M.	0.651 P

-----Relative angles measured from 0.000 -----

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INTACT STABILITY



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DAMAGE STABILITY

FULL LOAD CONDITION

WEIGHT STATUS

Part-----	Weight(KG)----	LCG-----	TCG-----	VCG-----
WEIGHT	1,490	3.860a	0.000	0.144
Distances in METERS.-----				

No downflood points with hatches closed.

HYDROSTATIC PROPERTIES

Trim: Fwd 0.091/7.000, No Heel, VCG = 0.144

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/
Draft----	Weight(KG)----	LCB-----	VCB-----	CM-----
0.038	1,490	3.857a	-0.089	82
				4.064a
				30.82
				14.48
				0.651
Distances in METERS.-----Specific Gravity = 1.025.-----Moment in M.-KG.				
Trim is per 7.00M.				

Draft is from DWL.

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GHS 9.26D

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DAMAGE STABILITY

DAMAGE PATTERN 1

FWD COMPARTMENT FLOODED

DISPLACEMENT and FREEBOARD STATUS

DWL draft: 0.628 @ 0.00, -0.025 @ 7.00a

Trim: Fwd 0.653/7.000, Heel: zero

Part	SpGr	Displ(KG)	LCB	TCB	VCB	RefHt
HULL	1.025	3,509	3.307a	0.000	0.085	-0.626
FWDCOMP	Flooded 1.025	-2,019	2.908a	0.000	0.139	-0.626
Total Displacement-->		1.025	1,490	3.847a	0.000	0.011

Distances in METERS.

Least freeboard is 0.065 M. located at 0.303f

Least extra freeboard (to margin line) is -0.010 M. located at 0.303f

RIGHTING ARMS vs HEEL ANGLE with FLOODING

LCG = 3.860a TCG = 0.000 VCG = 0.144

Origin	Degrees of	Displacement	Righting Arms	Area
Depth	Trim	Heel	Weight(KG)	in Trim--in Heel -->
0.624	5.32f	0.00	1,490	0.000 0.000 0.0000
0.624	5.34f	5.00s	1,490	0.000 0.045s 0.0020
0.619	5.40f	10.00s	1,490	0.000 0.089s 0.0078
0.612	5.48f	15.00s	1,489	0.000 0.131s 0.0174
0.601	5.60f	20.00s	1,490	0.000 0.170s 0.0306
0.593	5.80f	25.00s	1,490	0.000 0.203s 0.0469
0.584	6.04f	30.00s	1,490	0.000 0.229s 0.0658
0.581	6.37f	35.00s	1,489	0.000 0.245s 0.0865
0.584	6.77f	40.00s	1,490	0.000 0.253s 0.1083
0.590	7.11f	43.75s	1,490	0.000 0.254s 0.1249
0.593	7.23f	45.00s	1,490	0.000 0.254s 0.1305
0.605	7.74f	50.00s	1,490	0.000 0.249s 0.1524
0.624	8.31f	55.00s	1,490	0.000 0.239s 0.1738
0.646	8.91f	60.00s	1,490	0.000 0.225s 0.1940
0.673	9.54f	65.00s	1,490	0.000 0.206s 0.2128
0.698	10.15f	70.00s	1,489	0.000 0.184s 0.2298
0.724	10.74f	75.00s	1,490	0.000 0.159s 0.2448
0.749	11.29f	80.00s	1,490	0.000 0.133s 0.2575
0.770	11.77f	85.00s	1,490	0.000 0.105s 0.2680
0.832	12.58f	90.00s	1,490	0.000 0.085s 0.2762
0.899	13.43f	95.00s	1,490	0.000 0.063s 0.2827
0.955	14.14f	100.00s	1,490	0.000 0.036s 0.2871
1.000	14.70f	105.00s	1,490	0.000 0.007s 0.2889
1.012	14.85f	106.19s	1,490	0.000 0.000s 0.2890
1.028	15.06f	110.00s	1,490	0.000 -0.022s 0.2883
1.048	15.30f	115.00s	1,490	0.000 -0.052s 0.2850
1.041	15.23f	120.00s	1,490	0.000 -0.081s 0.2792
1.017	14.96f	125.00s	1,490	0.000 -0.108s 0.2710
0.977	14.49f	130.00s	1,490	0.000 -0.135s 0.2603
0.931	13.95f	135.00s	1,490	0.000 -0.160s 0.2474
0.870	13.23f	140.00s	1,490	0.000 -0.182s 0.2325
0.804	12.47f	145.00s	1,490	0.000 -0.200s 0.2158
0.729	11.62f	150.00s	1,490	0.000 -0.211s 0.1978

Distances in METERS.---Specific Gravity = 1.025.---Area in M.-Rad.

10-11-27 05:35:51

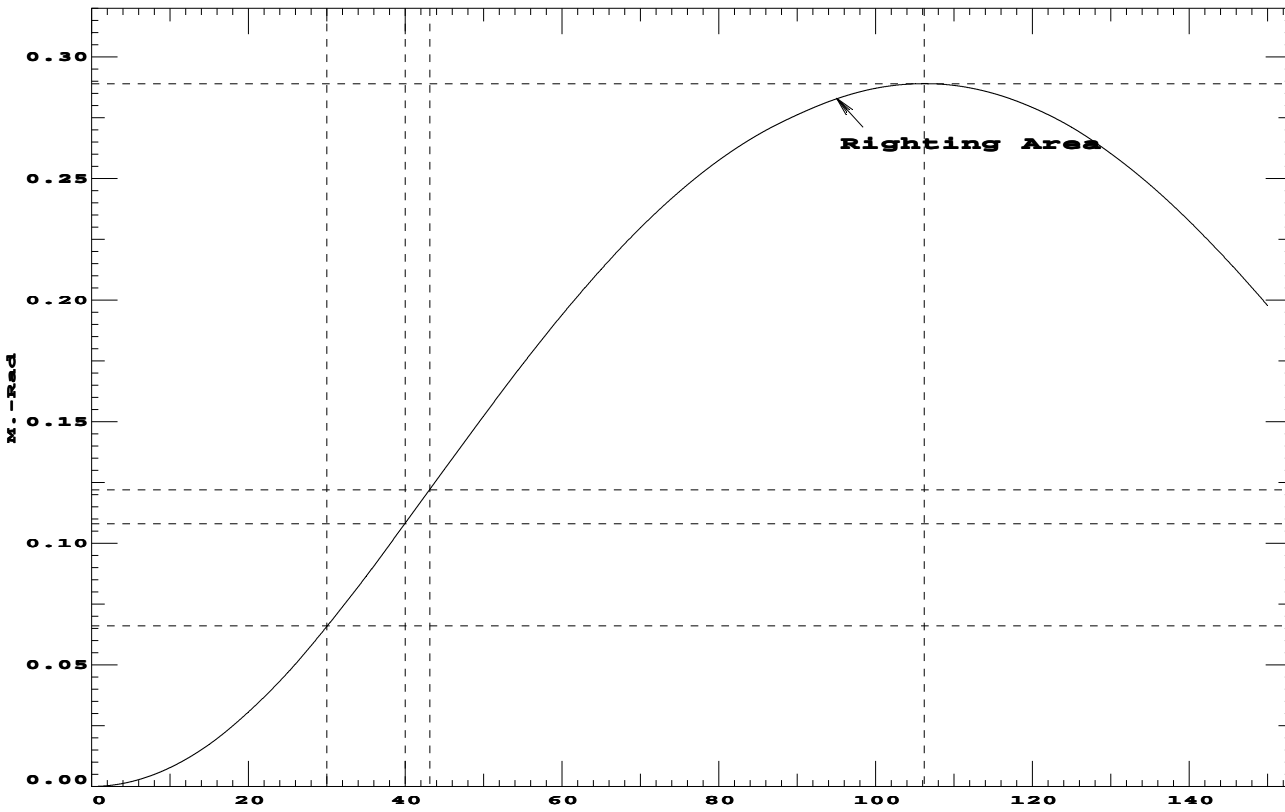
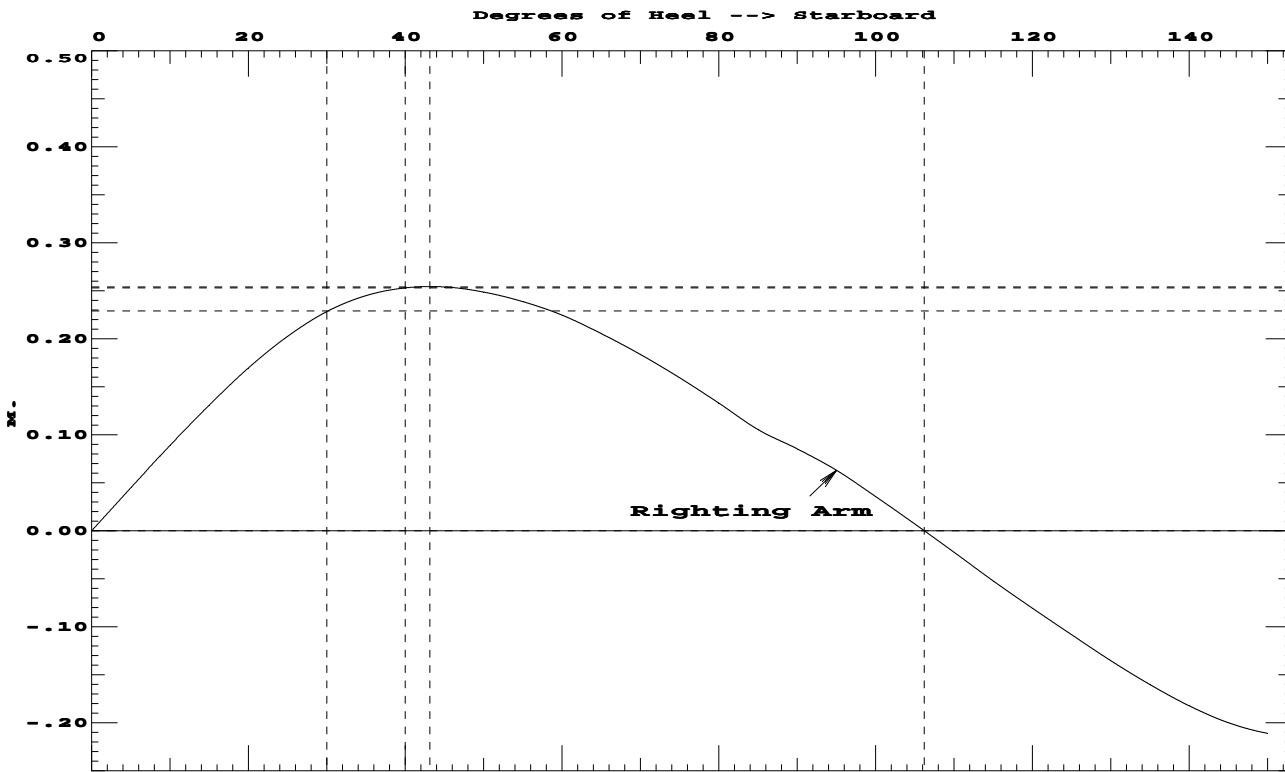
GHS 9.26D

K8500 07HULL01.GF

DAMAGE STABILITY

LIM-----	MCA 11.3.4 CRITERION-----	Min/Max-----	Attained
(1)	Absolute Angle at Equilibrium	< 7.00 deg	0.00 P
(2)	Angle from Equilibrium to RZero	> 15.00 deg	106.19 P
(3)	Righting Arm at MaxRA	> 0.100 M.	0.254 P
(4)	Area from Equilibrium to RZero	> 0.0150 M.-Rad	0.2890 P

K8500 07HULL01.GF
DAMAGE STABILITY



10-11-27 05:35:51

GHS 9.26D

K8500 07HULL01.GF

DAMAGE STABILITY

DAMAGE PATTERN 2

MID COMPARTMENT FLOODED

DISPLACEMENT and FREEBOARD STATUS

DWL draft: 0.063 @ 0.00, 0.125 @ 7.00a

Trim: Aft 0.063/7.000, Heel: zero

Part	SpGr	Displ(KG)	LCB	TCB	VCB	RefHt
HULL	1.025	2,063	4.236a	0.000	-0.045	-0.063
MIDCOMP	Flooded 1.025	-573	5.207a	0.000	-0.021	-0.063
Total Displacement-->		1.025	1,490	3.862a	0.000	-0.055

Distances in METERS.

Least freeboard is 0.456 M. located at 7.023a

Least extra freeboard (to margin line) is 0.381 M. located at 7.023a

RIGHTING ARMS vs HEEL ANGLE with FLOODING

LCG = 3.860a TCG = 0.000 VCG = 0.144

Origin	Degrees of	Displacement	Righting Arms	Area
Depth	Trim	Heel	Weight(KG)	in Trim--in Heel -->
0.063	0.51a	0.00	1,490	0.000 0.000 0.0000
0.062	0.49a	5.00s	1,490	0.000 0.049s 0.0021
0.060	0.42a	10.00s	1,490	0.000 0.097s 0.0085
0.056	0.31a	15.00s	1,490	0.000 0.142s 0.0189
0.051	0.15a	20.00s	1,490	0.000 0.184s 0.0332
0.043	0.06f	25.00s	1,490	0.000 0.223s 0.0510
0.034	0.30f	30.00s	1,491	0.000 0.258s 0.0720
0.022	0.57f	35.00s	1,490	0.000 0.286s 0.0958
0.008	0.83f	40.00s	1,490	0.000 0.304s 0.1216
-0.008	1.07f	45.00s	1,490	0.000 0.314s 0.1487
-0.022	1.23f	48.80s	1,490	0.000 0.316s 0.1696
-0.027	1.28f	50.00s	1,490	0.000 0.316s 0.1762
-0.047	1.47f	55.00s	1,490	0.000 0.311s 0.2036
-0.067	1.62f	60.00s	1,490	0.000 0.303s 0.2305
-0.090	1.74f	65.00s	1,490	0.000 0.291s 0.2564
-0.113	1.82f	70.00s	1,490	0.000 0.277s 0.2812
-0.136	1.88f	75.00s	1,490	0.000 0.261s 0.3047
-0.161	1.90f	80.00s	1,490	0.000 0.245s 0.3268
-0.189	1.90f	85.00s	1,490	0.000 0.214s 0.3469
-0.217	1.86f	90.00s	1,490	0.000 0.180s 0.3641
-0.245	1.79f	95.00s	1,490	0.000 0.145s 0.3784
-0.274	1.69f	100.00s	1,489	0.000 0.109s 0.3895
-0.302	1.55f	105.00s	1,490	0.000 0.071s 0.3973
-0.329	1.39f	110.00s	1,490	0.000 0.033s 0.4019
-0.353	1.23f	114.42s	1,490	0.000 0.000s 0.4032
-0.356	1.21f	115.00s	1,490	0.000 -0.004s 0.4031
-0.382	1.01f	120.00s	1,490	0.000 -0.041s 0.4011
-0.406	0.79f	125.00s	1,490	0.000 -0.077s 0.3960
-0.430	0.56f	130.00s	1,490	0.000 -0.111s 0.3877
-0.451	0.32f	135.00s	1,490	0.000 -0.142s 0.3767
-0.471	0.09f	140.00s	1,490	0.000 -0.170s 0.3630
-0.489	0.15a	145.00s	1,490	0.000 -0.194s 0.3471
-0.506	0.37a	150.00s	1,490	0.000 -0.211s 0.3294

Distances in METERS.---Specific Gravity = 1.025.---Area in M.-Rad.

10-11-27 05:35:51

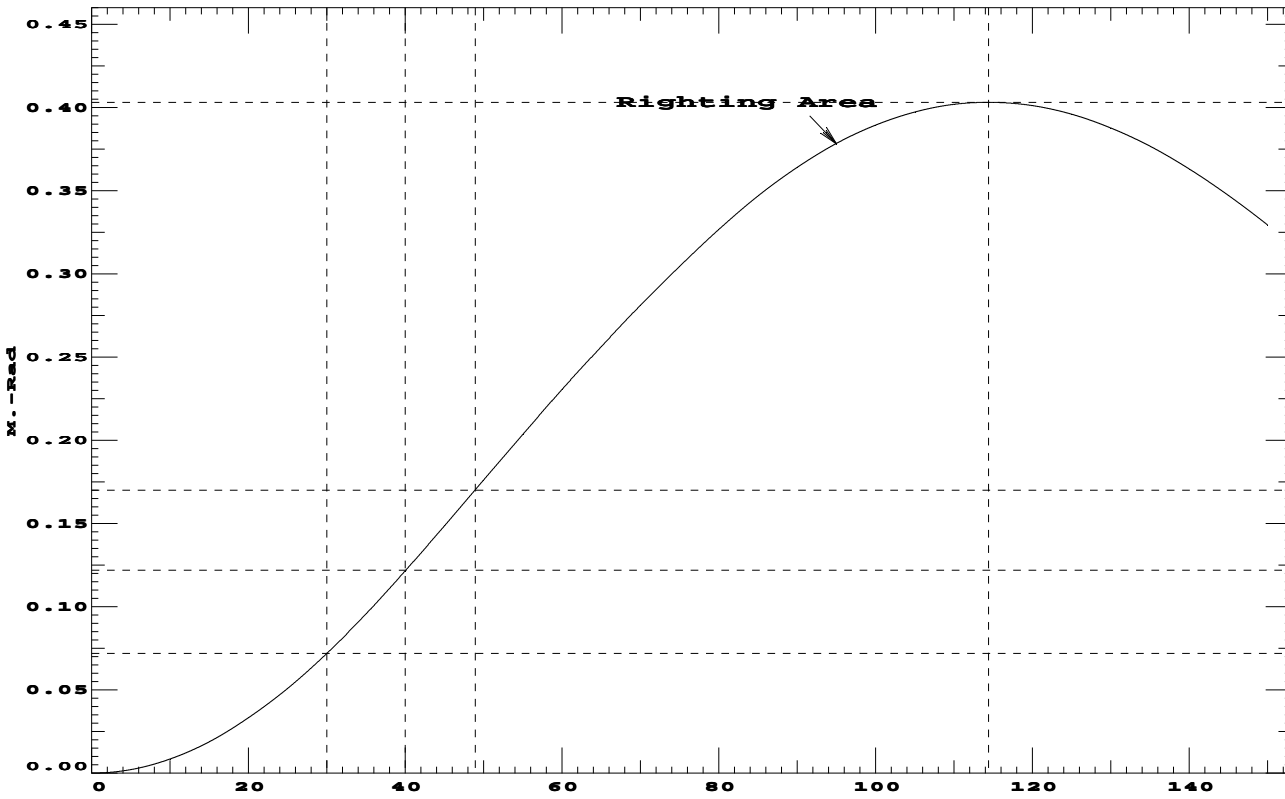
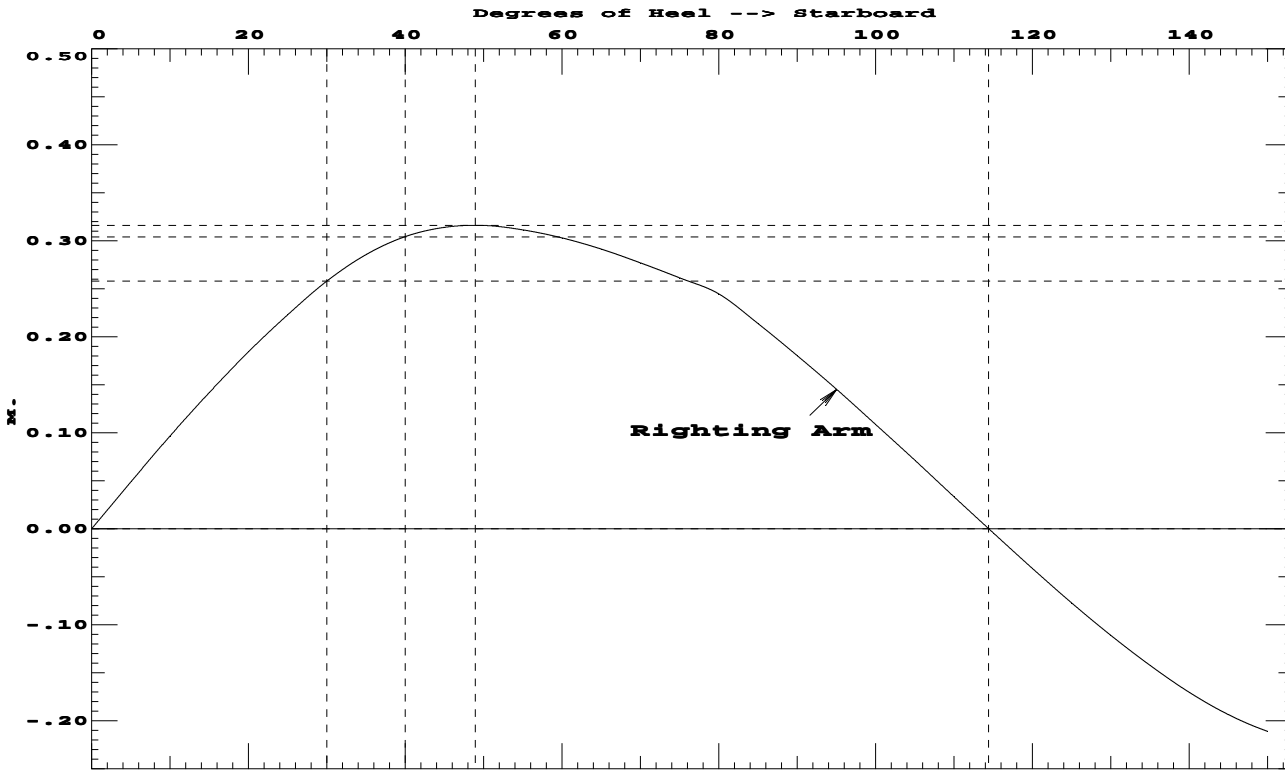
GHS 9.26D

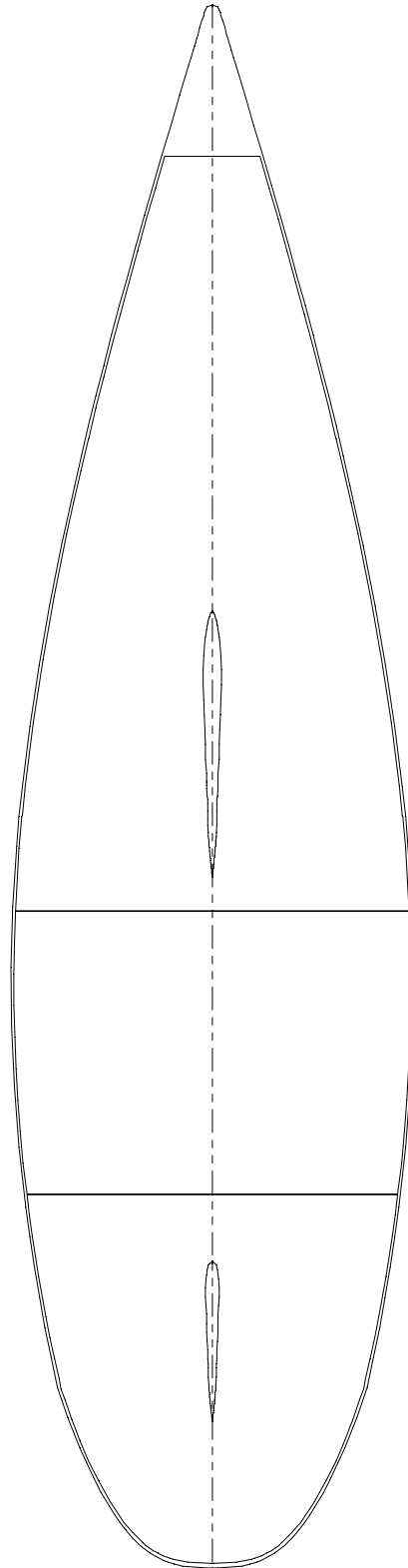
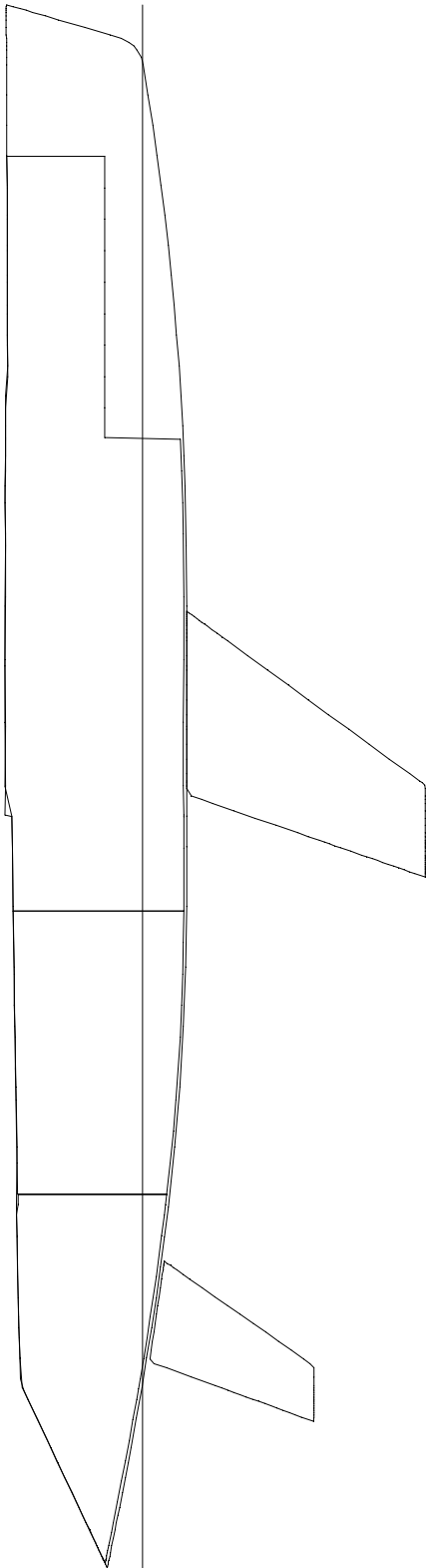
K8500 07HULL01.GF

DAMAGE STABILITY

LIM-----	MCA 11.3.4 CRITERION-----	Min/Max-----	Attained
(1)	Absolute Angle at Equilibrium	< 7.00 deg	0.00 P
(2)	Angle from Equilibrium to RZero	> 15.00 deg	114.42 P
(3)	Righting Arm at MaxRA	> 0.100 M.	0.316 P
(4)	Area from Equilibrium to RZero	> 0.0150 M.-Rad	0.4032 P

K8500 07HULL01.GF
DAMAGE STABILITY





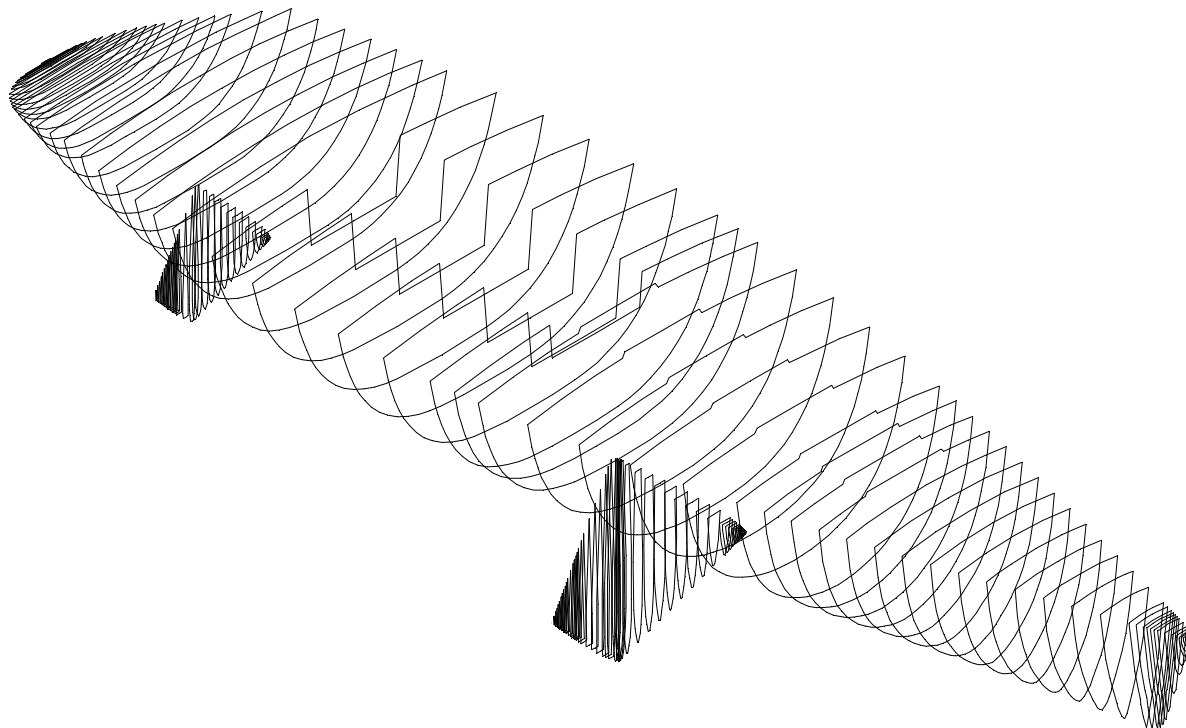
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10-10-24 06:43
GHS-GHS/PM 2.84

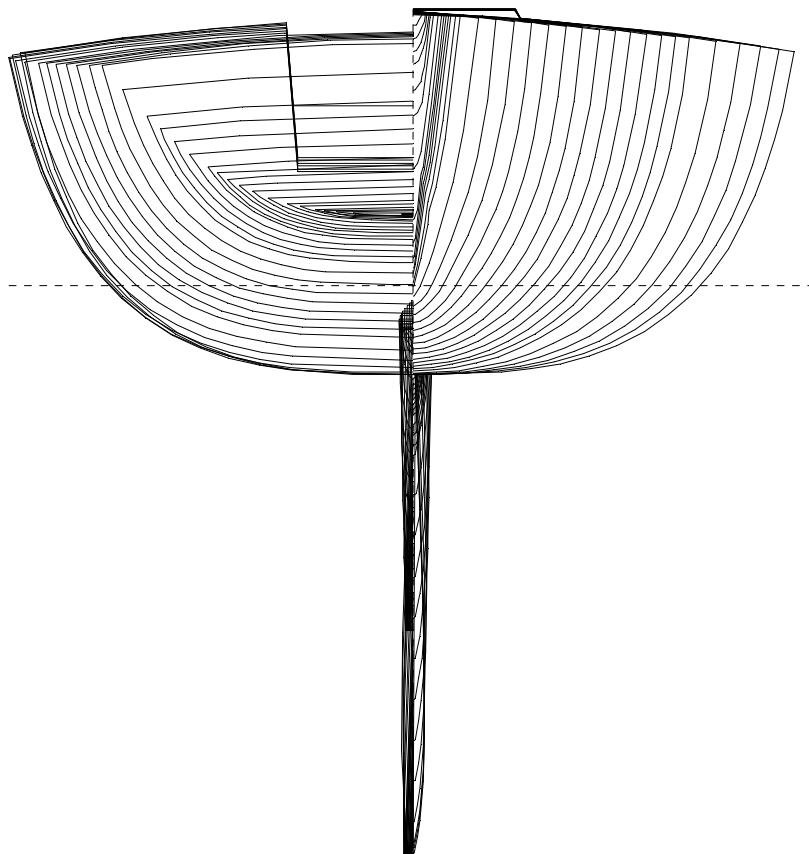
K8500 07HULL01.GF

Part Name	Class	Description	Location		Volume
HULL	HULL		0.303f to	7.979a	
FWDCOMP	TANK		0.500a to	4.500a	3.647
MIDCOMP	TANK		4.500a to	6.000a	1.727
AFTCOMP	TANK		6.000a to	7.955a	1.300

Locations in Meters fwd/aft of the origin. Volumes in cubic Meters.



HULL Isometric Projection



Stbd

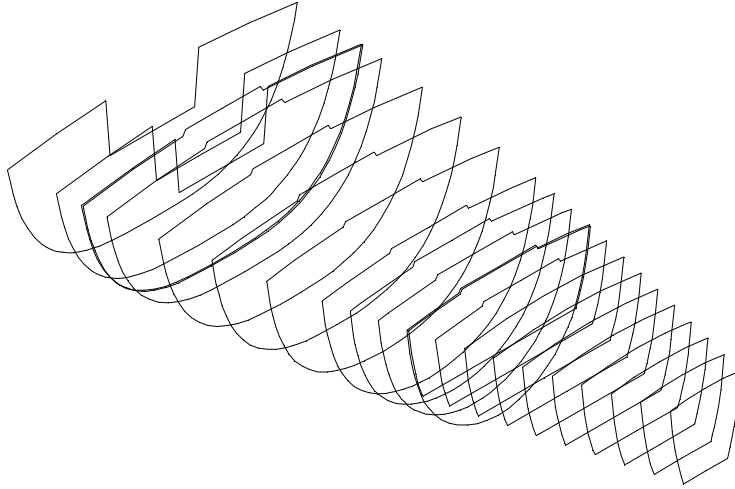
Stbd

HULL Body Plan (3 components)
Scale = 1:20

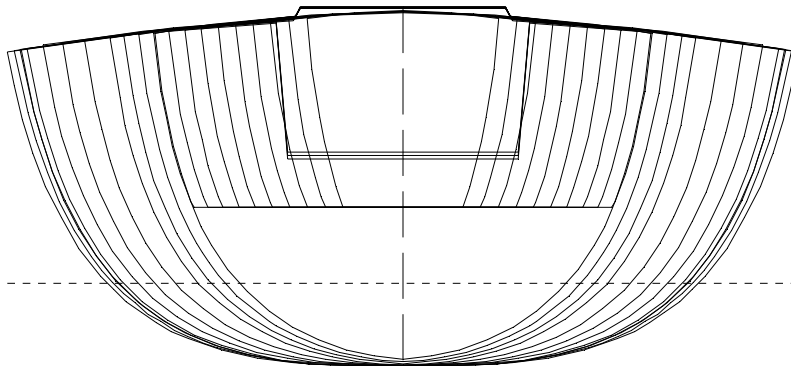
Component 1: HULL.C

Component 2: KEEL.C

Component 3: RDDR.C

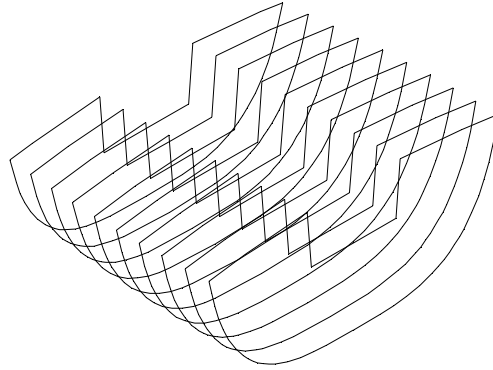


FWDCOMP Isometric Projection

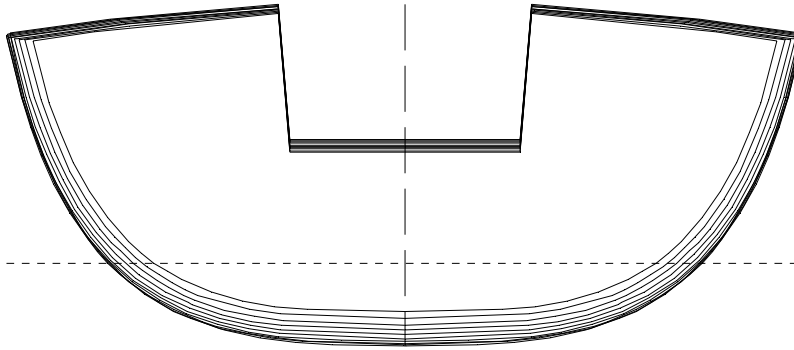


FWDCOMP Body Plan (1 component)
Scale = 1:20

Component 1: FWDCOMP.C 95.00% permeability

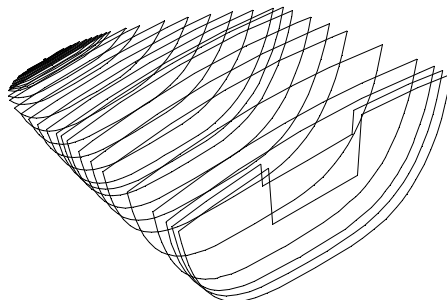


MIDCOMP Isometric Projection

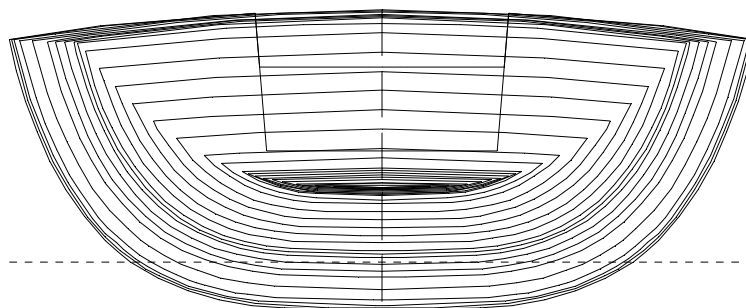


MIDCOMP Body Plan (1 component)
Scale = 1:20

Component 1: MIDCOMP.C 95.00% permeability



AFTCOMP Isometric Projection



AFTCOMP Body Plan (1 component)
Scale = 1:20

Component 1: AFTCOMP.C 95.00% permeability

```
`Project: K8500
`Date: 24 October 2010
`Author: Paul Kotzebue
`Purpose: ISO 12217-2 Stability and MCA 11.3.4 Damage Stability
`Geometry: 07HULL01.GF
```

```
CLEAR VARIABLES
CLEAR MACROS
CLEAR REPORT
```

```
MACRO MSC
```

```
DELETE ALL WEIGHT
WEIGHT 1289 3.76 0.00 0.044 `set msc cond
SOLVE
\MINIMUM SAILING CONDITION\
STATUS FI
\
\No downflood points with hatches closed.
\
GHS
/
```

```
MACRO FULLLOAD
```

```
DELETE ALL WEIGHT
WEIGHT 1490 3.86 0.00 0.144 `set full load cond
SOLVE
\FULL LOAD CONDITION\
STATUS FI
\
\No downflood points with hatches closed.
\
GHS
/
```

```
MACRO DAMPAT01
```

```
\DAMAGE PATTERN 1\
\FWD COMPARTMENT FLOODED\
TYPE (*) INTACT `all compartments intact
TYPE (FWDCOMP) FLOODED
/
```

```
MACRO DAMPAT02
```

```
\DAMAGE PATTERN 2\
\MID COMPARTMENT FLOODED\
TYPE (*) INTACT `all compartments intact
TYPE (MIDCOMP) FLOODED
/
```

```
MACRO RUNCASE
```

```
.%1 `set damage condition
SOLVE `solve for damage equil
STATUS DI FREEBD
ANGLES *
RA 0 5 ... 150 /LIMIT:ATTAINED
TYPE (*) INTACT
SOLVE
/
```

```
MACRO RUNDAM
```

```
.%1 `set intact condition
PAGE
```

.RUNCASE DAMPAT01
PAGE
.RUNCASE DAMPAT02
/

`*****START OF PROGRAM*****`

UNITS KG
WATER 1.025
LBP 0.00 7.00
DRAFT "DWL" = 0.00@0.00 0.00@7.00

SUBTITLE OFF
SUBTITLE INTACT STABILITY\

REPORT 07_STAB.PF /P:0

LIMIT OFF
LIMIT AREA:DEGREES

CRTPT OFF

LIMIT TITLE "ISO 12217-2 DATA"
LIMIT RA AT 90 > 0.10
LIMIT ANGLE AT RA0 > 5
`LIMIT AREA FROM 0 TO FLD > 5
LIMIT AREA FROM 0 TO RA0 > 5
LIMIT GM > 0.10

.MSC
PAGE
RA 0 5 ... 150 /LIMIT:ATTAINED
PAGE
.FULLLOAD
PAGE
RA 0 5 ... 150 /LIMIT:ATTAINED

SUBTITLE OFF
SUBTITLE DAMAGE STABILITY\
PAGE

LIMIT OFF

LIMIT TITLE MCA 11.3.4
LIMIT ANGLE AT EQUIL < 7
LIMIT ANGLE FROM EQUIL TO RA0 > 15
LIMIT RA AT MAX > 0.100
LIMIT AREA FROM EQUIL TO RA0 > 0.015

.RUNDAM FULLLOAD
`PAGE
`.RUNDAM MSC

REPORT OFF