



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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LENGTH OVERALL \_\_\_\_\_ 83.0 m  
LENGTH B.P. \_\_\_\_\_ 75.0 m  
BREADTH \_\_\_\_\_ 16.2 m  
DEPTH \_\_\_\_\_ 7.75 m  
DESIGN DRAUGHT \_\_\_\_\_ 5.75 m  
SCANTLING DRAUGHT \_\_\_\_\_ 6.00 m  
LIGHTSHIP \_\_\_\_\_ 3305.4 t  
OFFICIAL NO. \_\_\_\_\_ 807037  
GROSS TONNAGE \_\_\_\_\_ 3728.01 t.  
REGISTER TONNAGE \_\_\_\_\_ 1503.24 t.  
NET TONNAGE \_\_\_\_\_ 1503.24 t

MAIN ENGINE:

- \* Main Power Generators sets: 3 Bombardier/Alco Model 251 Diesel Engine  
each rated at 2100 kW 600 V. 3 phases 60 Hz.  
at 900 R.P.M.
- \* Propulsion Motor: 2 C.G.E. Proposal No. 7-9286-6605, rating 3500 H.P.  
at 1900 V., 3 phase, 144/180 R.P.M.
- \* Auxiliary Generator set: 1 Caterpillar Marine Diesel Engine Model 3508 TA,  
rating 806 H.P. @ 1800 R.P.M.
- \* Emergency Generator set: 1 Caterpillar Marine Diesel Model 3306 T engine,  
rating 165 H.P. @ 1800 R.P.M.

Propellers Particulars : 2 working propellers : 4 blades  
Dia = 3600 mm  
Pitch (mean) = 2825 mm  
Material: Superton 70  
Survey: Arctic Class 2/Lloyd's  
I.A. Super

Classification: Lloyd's Register of Shipping - Class  $\clubsuit$  100A1, Ice Class

1A Super,  $\clubsuit$  LMC with description notation:

" NAVAIDS TENDER/LIGHT ICEBREAKER "



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INCLINING EXPERIMENT REPORT



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DATE: 86-06-13  
EXPERIMENT HELD AT: M.I.L.  
WIND: NONE  
SPECIFIC GRAVITY OF WATER: 1.00  
WAS VESSEL FREE TO INCLINE: YES  
WEATHER: FAIR

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PRINCIPAL DIMENSIONS OF SHIP

- LENGTH B.P.....75.0 M
  - BEAM MLD. AMIDSHIPS AT MAIN DK.....16.2 M
  - DEPTH MLD. AMIDSHIPS TO MAIN DK. AT SIDE..... 7.75 M
- 

REPRESENTATIVE:

CCG : PAUL LACROIX  
OSI .: CAMILien TREMBLAY  
I & TS : GEORGE SPILIOPOULOUS  
SSB : JAMES WILLIAMSON  
MIL : ANDRÉ TASCHEREAU



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# DRAFTS READ AT SHIP

1) AFT: DRAFT AT MARKS PORT.....5.53 m  
STBD.....5.65 m  
MEAN.....5.59 m

2) FWD: DRAFT AT MARKS PORT.....4.18 m  
STBD.....4.20 m  
MEAN.....4.19 m

FREEBOARD AT MIDSHIP PORT.....3.683 m  
STBD.....3.454 m

LIST = 0.2286 m ON 16.2 m BREADTH  
= 0.8°

TRIM OVER DISTANCE BETWEEN MARKS.....5.59 - 4.19 = 1.4

DISTANCE BETWEEN MARKS = 75.0 - (1.20 + 4.362) = 69.438 m

- A) L.B.P. = 75.0 m
- B) AFT DRAFT IS 1.200 m FWD. A.P.
- C) FWD DRAFT IS 4.362 m AFT F.P. (BY TABLE AT DRAFT MARK SECTION)

DRAFT AT F.P. =  $A - \frac{(B \times C)}{D}$  = 4.19 -  $\frac{(4.362 \times 1.4)}{69.438}$  = 4.102 m

- A) FWD MEAN DRAFT AT HANDS = 4.19 m
- B) DISTANCE BETWEEN MEAN FWD DRAFT AT MARKS AND F.P. = 4.362 m
- C) TRIM BETWEEN MARKS = 1.4 m
- D) DISTANCE BETWEEN MARKS = 69.438 m

DRAFT AT A.P. =  $A - \frac{(B \times C)}{D}$  = 5.59 -  $\frac{(1.2 \times 1.4)}{69.438}$  = 5.614 m

- A) AFT MEAN DRAFT MARKS = 5.59 m
- B) DISTANCE BETWEEN MEAN AFT DRAFT AT MARKS AND A.P. = 1.2 m
- C) TRIM BETWEEN MARKS = 1.4 m
- D) DISTANCE BETWEEN MARKS = 69.438 m



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DRAFT AMIDSHIPS = (DRAFT AT A.P. + DRAFT AT F.P.)  $\div$  2 =  
(5.614 + 4.102)  $\div$  2 = 4.858

TRIM OVER PERPENDICULARS = 5.614 - 4.102 = 1.512

FROM HYDROSTATICS AT MEAN DRAFT AMIDSHIPS.....4.858 m  
WITH TRIM.....-1.512 m

. . DISPLACEMENT.....3696.66 t  
L.C.B..... 34.854 m  
KMT..... 7.742 m

---

IF KMT.....= 7.742 m

GM (AS INCLINED) = 1.205 m

KG = KMT - GM = 7.742 - 1.205 = 6.537 m

FREE SURFACE CORRECTION = .0228 m  $\therefore$  kg (AS INCLINED) = 6.514 m

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# MOVEMENT OF INCLINING

SHIFT	WEIGHT NO.	DIRECTION	DISTANCE (METERS)	WEIGHT (TONNES)	MOMENT (t.m.)	PENDULUM DEVIATION (METER)	
						AFTER	FORWARD
1	1 - 10	P. to S.	10.8	10.287	111.100	.0650	.0605
2	7 - 19	P. to S.	10.8	10.215	110.322	.0665	.0600
3	7 - 19	S. to P.	10.8	10.215	110.322	.0665	.0600
4	1 - 10	S. to P.	10.8	10.287	111.100	.0645	.0605
5	3 - 4	S. to P.	10.8	10.251	110.711	.0675	.0615
6	9 - 17	S. to P.	10.8	10.233	110.516	.0650	.0605
7	9 - 17	P. to S.	10.8	10.233	110.516	.0650	.0605
8	3 - 4	P. to S.	10.8	10.251	110.711	.0655	.0605

TOTAL.....885.298 .5255 .4840

MEAN PENDULUM DEVIATION : (.5255 + .4840) ÷ 2 = .50475 m

DISPLACEMENT (AS INCLINED) : 3696.66 t

LENGTH OF AFT PENDULUM : .2.642 m

« « FWD « : .2.438 m

MEAN.....: (2.642 + 2.438) ÷ 2 = 2.54 m

GM (AS INCLINED) =  $\frac{\text{TOTAL MOMENT} \times \text{MEAN LENGTH}}{\text{DISPLACEMENT} \times \text{MEAN PENDULUM DEVIATION}}$

GM (AS INCLINED) =  $\frac{885.298 \times 2.54}{3696.66 \times .50475} = 1.205 \text{ m}$

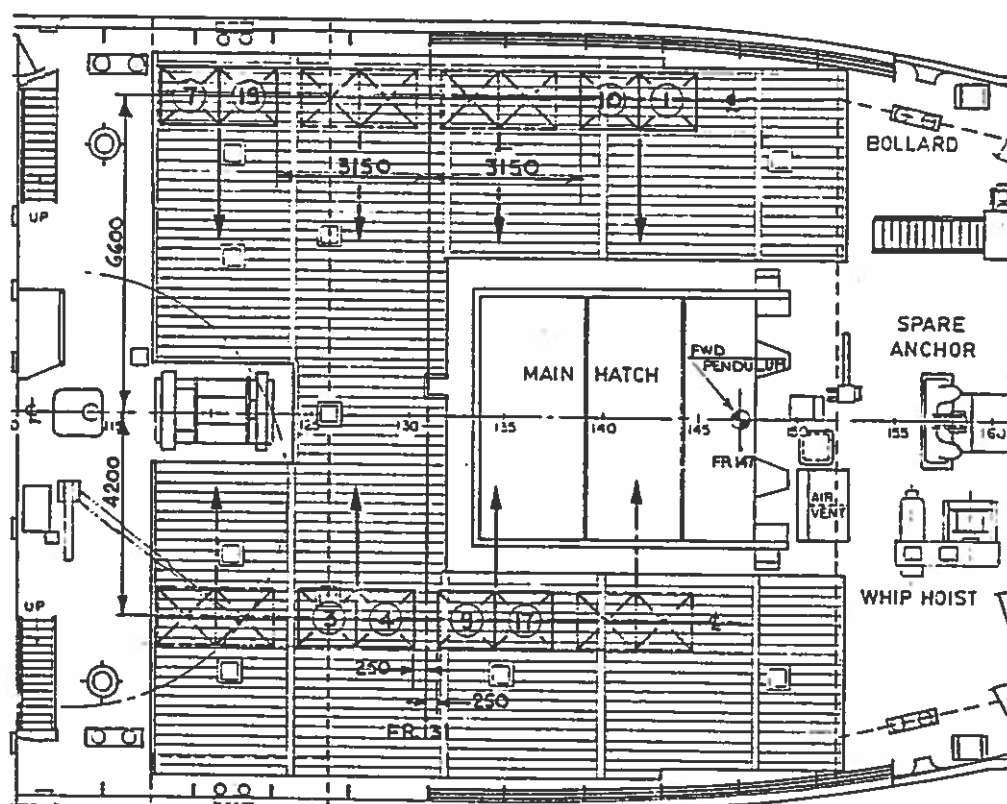
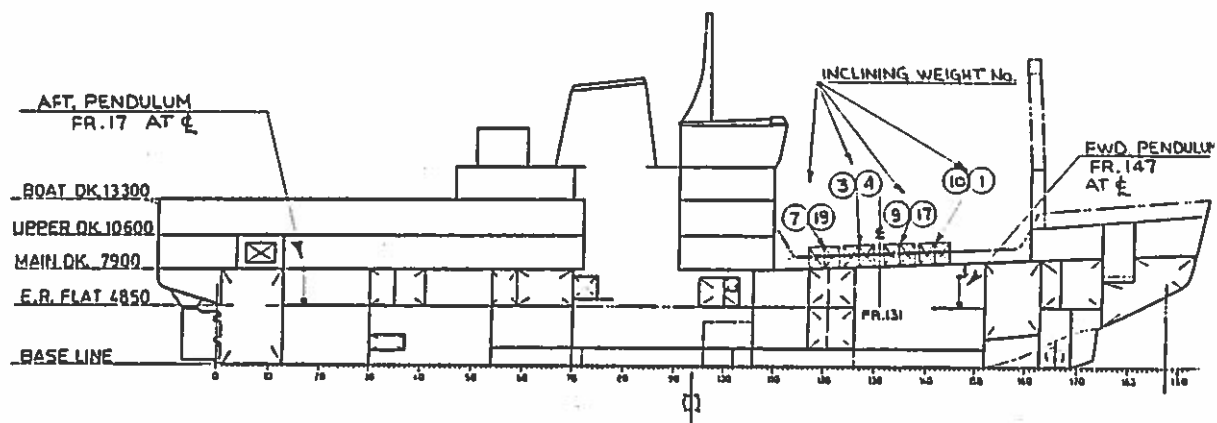


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## WEIGHT AND PENDULUM LOCATIONS



(MAIN DECK)

TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 99

### INCLINING EXPERIMENT

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT HEIGHT	HEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON-M	TCG FROM CL M
F. O. SETTLING TK	0.8800	22.6	6.161	22.600	18.33	4.600
F. O. DAY TK	0.8800	13.9	5.843	23.731	2.07	3.024
OVER FLOW FLUME TK	0.8800	2.2	0.277	43.200	15.56	3.067
L. O. SETTLING TK	0.9000	0.6	3.490	29.000	0.26	-4.200
L. O. STORAGE TK	0.9000	7.2	3.301	39.883	9.39	-2.521
L. O. BEARING TK	0.9000	1.3	6.438	40.600	0.83	-1.050
BOILER FEED TK	1.0000	1.0	7.940	4.000	2.76	4.937
CHAIN LOCKER	1.0000	3.4	7.000	71.200	9.33	0.000
SEWAGE CON'T.	1.0000	4.0	0.341	9.330	2.73	-0.000
AFT D. B. WATER BALLAST TK P.	1.0000	2.0	0.106	24.820	17.72	-1.206
AFT D. B. WATER BALLAST TK S.	1.0000	0.8	0.057	24.807	3.22	0.864
FWD WING WATER BALLAST TK P.	1.0000	50.5	4.640	62.859		-4.410
FWD WING WATER BALLAST TK S.	1.0000	50.5	4.640	62.859		4.410
FORE PEAK TK	1.0000	85.8	7.073	72.572		0.000
FWD D. B. WATER BALLAST TK P.	1.0000	31.6	0.883	34.955		-3.105
FWD D. B. WATER BALLAST TK S.	1.0000	31.6	0.883	34.955		3.105
INCLINING WEIGHTS	1.0000	41.1	8.920	32.407		0.000
AFT PENDULUM EQUIP.	1.0000	0.1	4.975	6.800		0.000
FWD PENDULUM EQUIP.	1.0000	0.1	4.975	58.800		0.000
PERSONS ON BOARD	1.0000	1.0	7.725	44.060		0.000
ITEMS TO COME OFF	1.0000	4.5	9.447	31.157		0.000
ITEMS TO GO ON	1.0000	-4.6	11.875	37.670		0.000
TOTAL DEADWEIGHT		391.2	4.687	56.474	84.42	0.340
LIGHT SHIP		3305.4	6.730	32.295		0.000
TOTAL DISPLACEMENT		3696.7	6.514	34.854	84.42	0.036
SALT WATER DENSITY					1.00000	
CONDITION NO	99					
INCLINING EXPERIMENT						
DRAFT AMIDSHIPS				4.8430 M		
MEAN DRAFT (L. C. F.)				4.8899 M		
DRAFT AFT				5.5991 M		
DRAFT FWD				4.0968 M		
TRIM				-1.5123 M		
DISPLACEMENT				3696.7 TONNES		
LCG				34.854 M		
CCG				0.03627 M		
KG				6.5138 M		
CORRECTION FOR FREE SURFACE EFFECT				0.0228 M		
KMT				7.7425 M		
GM				22.7 M		
GM CORRECTED FOR FREE SURF.				2059 M		
ANGLE OF HEEL	0.100 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000					
K1 CURVES	0.013 0.476 1.355 2.038 2.723 3.397 4.037 4.622 5.132 5.530 6.201					
GZ CURVES	0.002 0.108 0.224 0.352 0.476 0.646 0.780 0.886 0.945 0.924 0.559					
GZ CURVES CORREC	0.002 0.106 0.220 0.346 0.488 0.636 0.768 0.872 0.930 0.908 0.540					
AREA UNDER GZ CU	0.0000 0.0047 0.0191 0.0441 0.0811 0.1309 0.1933 0.2662 0.3465 0.4287 0.6286					
AREA UNDER CORRE	0.0000 0.0046 0.0188 0.0434 0.0797 0.1288 0.1902 0.2620 0.3412 0.4220 0.6172					





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INCLINING EXPERIMENT REPORT  
CONTRACT NUMBER 450  
C. 450 LIGHTSHIP & CENTER OF GRAVITY

DESCRIPTION	WEIGHT	VCG	VM	LCG	LM
VESSEL AS AT BERTH	3696.660	6.514	24080.0	34.854	128843.4
LIQUIDS TO BE DEDUCTED	-349.027	4.213	-1470.5	57.083	-19923.5
ITEMS TO COME OFF	-46.828	8.930	-418.2	50.083	-2345.3
ITEMS TO GO ON	4.618	11.875	54.8	37.670	174.0

** NUMBER OF ITEMS	=	4
** TOTAL WEIGHT	=	3305.423
** TOTAL VM	=	22246.257
** TOTAL LM	=	106748.553
** VCG. CUM	=	6.730
** LCG. CUM	=	32.295



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INCLINING EXPERIMENT REPORT  
CONTRACT NUMBER 450  
C450 INCLINING: LIQUID TO BE DEDUCTED

DESCRIPTION	WEIGHT	VCG	VM	LCG	LM
F.O. SETTLING FR. 54-59 STBD	22.600	6.130	139.0	22.600	510.8
F.O. DAY FR. 59-70 STBD	13.900	5.850	81.3	25.730	357.6
OVERFLOW FLUME FR. 106-110 STBD	2.240	0.428	1.0	43.200	96.8
BOILER FEED	0.984	7.938	7.8	4.000	3.9
AFT. D.B. W.B. FR. 54-70 PORT	2.041	0.105	0.2	24.820	50.7
AFT. D.B. W.B. FR. 54-70 STBD	0.773	0.050	0.0	24.807	19.2
FWD. WING FR. 163-175 PORT	50.519	4.640	234.4	62.859	3175.6
FWD. WING FR. 163-175 STBD	50.519	4.640	234.4	62.859	3175.6
FWD. D.B. W.B. FR. 126-152 PORT	51.625	0.883	45.6	54.955	2837.1
FWD. D.B. W.B. FR. 126-152 STBD	51.625	0.883	45.6	54.955	2837.1
FORE PEAK	85.756	7.073	606.6	72.572	6223.5
L.O. SETTLING FR. 70-75 PORT	0.576	5.475	3.2	29.000	16.7
L.O. STORAGE FR. 95-106 PORT	7.170	5.280	37.9	39.633	286.0
L.O. BEARING FR. 100-103 PORT	1.287	6.430	8.3	40.600	52.3
CHAIN LOCKER	3.421	7.000	23.9	71.200	243.6
SEWAGE COMPT. FR. 13-30	3.991	0.341	1.4	9.330	37.2

\*\* NUMBER OF ITEMS = 16  
\*\* TOTAL WEIGHT = 349.027  
\*\* TOTAL VM = 1470.460  
\*\* TOTAL LM = 19923.409  
\*\* VCG.CUM = 4.213  
\*\* LCG.CUM = 57.083



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INCLINING EXPERIMENT REPORT  
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C.450 INCLINING : ITEMS TO COME OFF

DESCRIPTION	WEIGHT	VCG	VM	LCG	LM
##TANK TOP##					
TOOL BOX	50.000	1.700	85.0	34.800	1740.0
GARBAGE	15.000	1.700	25.5	32.800	492.0
GARBAGE	15.000	1.700	25.5	36.800	552.0
##E. R. FLAT##					
TOOL BOX	35.000	5.000	175.0	33.600	1176.0
TOOL BOX	35.000	5.000	175.0	36.000	1260.0
VACUUM	15.000	5.250	78.8	38.400	576.0
FIRE EXT.	5.000	5.150	25.7	38.400	192.0
FIRE EXT.	5.000	5.150	25.7	42.000	210.0
TOOL BOX	40.000	5.000	200.0	40.000	1600.0
TOOL BOX	40.000	5.000	200.0	41.600	1664.0
(25) 5 GAL. WATER BOTTLE)	570.000	5.150	2935.5	45.600	25992.0
##MAIN DECK##					
DOUBLE BUNK	50.000	8.100	405.0	23.600	1160.0
DOUBLE BUNK	50.000	8.100	405.0	18.000	900.0
(2) CABLES	120.000	8.800	1056.0	61.600	7392.0
(2) OIL (5 GAL.)	45.000	8.750	393.8	62.400	2808.0
(1) WOODEN STOOL	10.000	9.200	92.0	70.000	700.0
MASONITE (PROTECTION)	1132.500	7.870	8912.8	25.200	28539.0
##UPPER DECK##					
(1) PHOTOCOPY UNIT	40.000	11.550	462.0	25.600	1024.0
TABLE	15.000	10.900	163.5	41.200	618.0
TABLE	15.000	10.900	163.5	41.900	628.5
WOODEN STOOL	10.000	10.900	109.0	42.400	424.0
MASONITE (PROTECTION)	1335.500	10.970	14650.4	23.400	31250.7
##BOAT DECK##					
(4 GAL. ) OIL	15.000	13.500	202.5	26.800	402.0
WOOD STOOL	10.000	13.600	136.0	9.600	96.0
WOOD STOOL	10.000	13.600	136.0	26.000	260.0
WOOD STOOL	10.000	13.600	136.0	42.000	420.0
WOOD STOOL	10.000	13.500	135.0	36.200	362.0
LADDER	15.000	15.500	232.5	13.300	199.5
BOXES	20.000	13.500	270.0	25.900	518.0
OIL (5 GAL.)	19.000	13.600	258.4	27.200	516.8
DOUBLE BUNK	50.000	13.550	677.5	42.800	2140.0
DOUBLE BUNK	50.000	13.400	670.0	42.800	2140.0
CEILING	50.000	13.500	675.0	39.200	1960.0
(2)FOAM EXT.	20.000	13.600	272.0	34.000	680.0
(10) CHAIRS	25.000	13.700	342.5	43.200	1080.0
STEEL (SCRAP)	50.000	13.350	667.5	10.000	500.0
MASONITE (PROTECTION)	352.700	13.360	4712.1	38.770	13674.2
##BRIDGE DECK##					
(3) PAINT. (5 GAL.)	70.000	16.200	1134.0	23.600	1652.0
FIREMAN OUTFIT TRIAL	25.000	16.200	405.0	22.800	570.0
##STAIR WELL##					
MASONITE (PROTECTION)	88.000	11.900	1047.2	37.400	3291.2
##INCLINING##					
(8) INCLINING WEIGHTS	41070.0	8.920	366344.4	52.400	2152068.0
AFT. PENDULUM EQUIPMENT	85.000	4.975	422.9	6.800	578.0
FWD. PENDULUM EQUIPMENT	85.000	4.975	422.9	58.800	4998.0
(14) PERSONS ON BOARD	1050.000	7.725	8111.2	44.060	46263.0

\*\* NUMBER OF ITEMS = 44  
 \*\* TOTAL WEIGHT = 46827.700  
 \*\* TOTAL VM = 418175.282  
 \*\* TOTAL LM = 2345286.879  
 \*\* VCG. CUM = 8.930  
 \*\* LCG. CUM = 50.083



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C. 450 INCLINING: ITEMS-TO-GO-ON

DESCRIPTION	WEIGHT	VCG	VM	LCG	LM
##MAIN DECK##					
TOWING ROPE	680.000	9.500	6460.0	75.000	51000.0
(3) BOTTLES ACETYLENE	150.000	9.100	1365.0	64.200	9630.0
BOATSWAIN CABIN (SETTEE)	25.000	8.300	207.5	34.400	860.0
CHIEF COOK CABIN (SETTEE)	25.000	8.300	207.5	33.800	845.0
I.E.R. SUPER. CABIN (SETTEE)	25.000	8.300	207.5	28.900	722.5
WINCH. & QUARTER. CABIN (SETTEE)	25.000	8.300	207.5	28.300	707.5
QUARTERMASTERS CABIN (SETTEE)	25.000	8.300	207.5	22.500	562.5
LEADING MEN CABIN (SETTEE)	25.000	8.300	207.5	21.900	547.5
SEAMAN CABIN (SETTEE)	25.000	8.300	207.5	16.600	415.0
SEAMAN CABIN (SETTEE)	25.000	8.300	207.5	16.000	400.0
STEWARDS CABIN (SETTEE)	25.000	8.300	207.5	12.200	305.0
STEWARDS CABIN (SETTEE)	25.000	8.300	207.5	12.200	305.0
OILERS CABIN (SETTEE)	25.000	8.300	207.5	16.000	400.0
OILERS CABIN (SETTEE)	25.000	8.300	207.5	16.600	415.0
OILERS CABIN (SETTEE)	25.000	8.300	207.5	21.900	547.5
2E COOK & CLERK CABIN (SETTEE)	25.000	8.300	207.5	22.500	562.5
SEAMEN CABIN (SETTEE)	25.000	8.300	207.5	28.300	707.5
CREWS LOUNGE					
COFFEE TABLE	5.000	8.300	41.5	19.750	98.8
SETTEE	25.000	8.300	207.5	18.600	463.0
SETTEE	25.000	8.300	207.5	20.000	500.0
LAUNDRY					
IRONING MACH.	30.000	8.400	252.0	25.300	759.0
##UPPER DECK##					
QUARTERMASTER STATION	68.000	11.030	750.0	41.600	2828.8
OFFICER'S LOUNGE					
(2) SETTEE	70.000	11.000	770.0	43.500	3045.0
COFFEE TABLE	5.000	11.000	55.0	42.400	212.0
(2) STACKING ARM CHAIR	10.000	11.000	110.0	43.300	433.0
(2) STACKING ARM CHAIR	10.000	11.000	110.0	42.250	422.5
COFFEE TABLE	5.000	11.000	55.0	42.600	213.0
(2) SETTEE	70.000	11.000	770.0	42.200	2954.0
MEDICAL OFF. CABIN (SETTEE)	25.000	11.000	275.0	38.600	965.0
1E OFF. CABIN (SETTEE) TEE	25.000	11.000	275.0	30.800	770.0
ICE OBSERV. OFF. CABIN (SETTEE)	25.000	11.000	275.0	30.200	755.0
LOGIST. OFF. CABIN (SETTEE) TEE	25.000	11.000	275.0	22.200	555.0
2E OFF. CABIN (SETTEE) EE) TEE	25.000	11.000	275.0	21.600	540.0
HELICOP. PILOT CABIN (SETTEE) E)	25.000	11.000	275.0	13.900	347.5
FLIGHT ENG. CABIN (SETTEE)	15.000	11.000	165.0	13.300	199.5
3E OFF. CABIN (SETTEE)	15.000	11.000	165.0	6.200	93.0
CADETS CABIN (SETTEE)	25.000	11.000	275.0	8.700	217.5
CADETS CABIN (SETTEE)	25.000	11.000	275.0	15.300	382.5
PASSENGERS CABIN (SETTEE)	25.000	11.000	275.0	16.300	407.5
PASSENGERS CABIN (SETTEE)	25.000	11.000	275.0	21.200	530.0
3E ENG. CABIN (SETTEE)	15.000	11.000	165.0	6.200	93.0
ELECT. ENG. CABIN (SETTEE)	15.000	11.000	165.0	13.300	199.5
2E ENG. CABIN (SETTEE)	25.000	11.000	275.0	21.600	540.0
1E ENG. CABIN (SETTEE)	25.000	11.000	275.0	22.200	555.0
SENIOR ENG. DAYROOM					
CLUB ARM CHAIR	15.000	11.000	165.0	22.200	333.0
CLUB ARM CHAIR	15.000	11.000	165.0	24.800	372.0
SETTEE	25.000	11.000	275.0	23.400	585.0
LAMP TABLE	4.000	11.000	44.0	24.800	99.2
CHEIF ENG. DAYROOM					
CLUB ARM CHAIR	15.000	11.000	165.0	30.000	450.0
SETTEE	35.000	11.000	385.0	31.600	1106.0



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INCLINING EXPERIMENT REPORT  
CONTRACT NUMBER 450  
C. 450 INCLINING: ITEMS-TO-GO-CN

##BOAT DECK##					
EMERG. RESCUE BOAT	1800.000	13.750	24750.0	22.800	41040.0
HELICOP. RECTODYNE	120.000	13.800	1656.0	18.400	2208.0
CHIEF OFF. DAYROOM					
CLUB ARM CHAIR	15.000	13.725	205.9	43.200	648.0
COCKTAIL CABINET & T. V.	50.000	14.200	710.0	43.600	2180.0
CHAIR	10.000	13.700	137.0	43.000	430.0
COFFEE TABLE	5.000	13.700	68.5	41.400	207.0
LAMP TABLE	4.000	14.325	57.3	40.300	161.2
SETTEE	35.000	13.700	479.5	40.700	1424.5
COMM. OFF. DAYROOM					
CLUB ARM CHAIR	15.000	13.725	205.9	41.800	627.0
CLUB ARM CHAIR	15.000	13.725	205.9	43.200	648.0
COFFEE TABLE	5.000	13.700	68.5	42.600	213.0
SETTEE	35.000	13.700	479.5	42.200	1477.0
SETTEE	35.000	13.700	479.5	43.500	1522.5
LAMP TABLE	4.000	14.325	57.3	43.500	174.0
EASY CHAIR	25.000	13.800	345.0	40.500	1012.5
COMM. OFF. CABIN					
CHAIR	10.000	13.700	137.0	39.600	396.0
SETTEE	35.000	13.700	479.5	37.900	1326.5
ELECT. EQUIP. ROOM (CHAIR)	10.000	13.700	137.0	34.800	348.0
##FORECASTLE DECK##					
WIRE ROPE (MOORING)	393.000	12.100	4755.3	68.600	26959.8

** NUMBER OF ITEMS	=	69
** TOTAL WEIGHT	=	4618.000
** TOTAL VM	=	54839.565
** TOTAL LM	=	173961.750
** VCG. CUM	=	11.875
** LCG. CUM	=	37.670



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SUMMARY OF TANK CAPACITIES

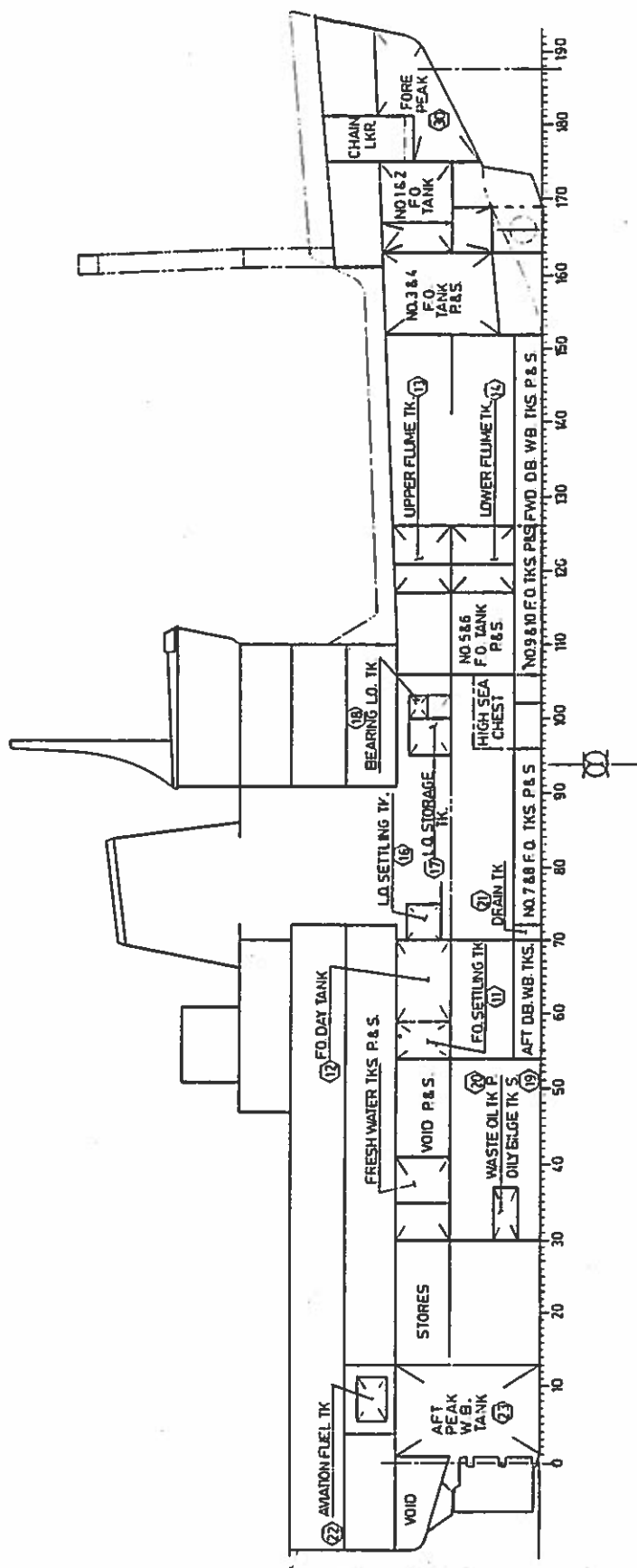


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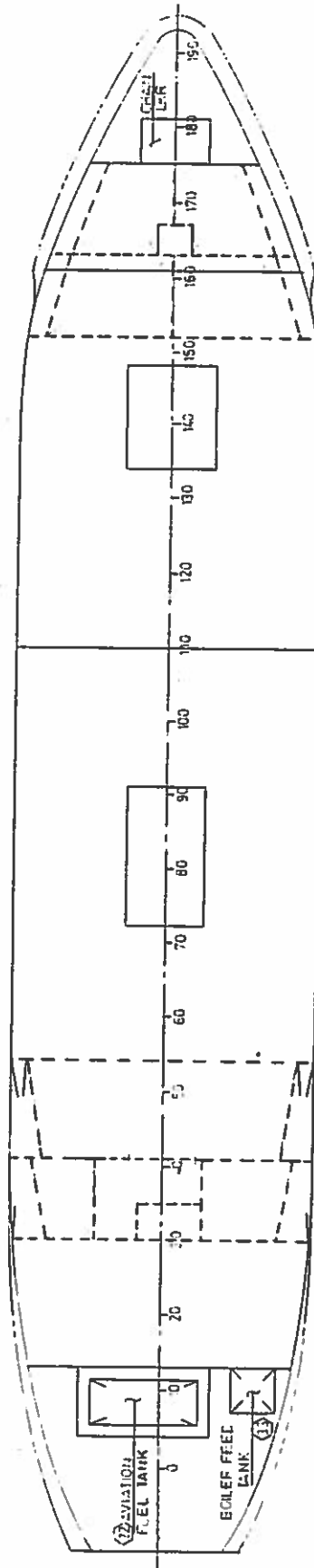


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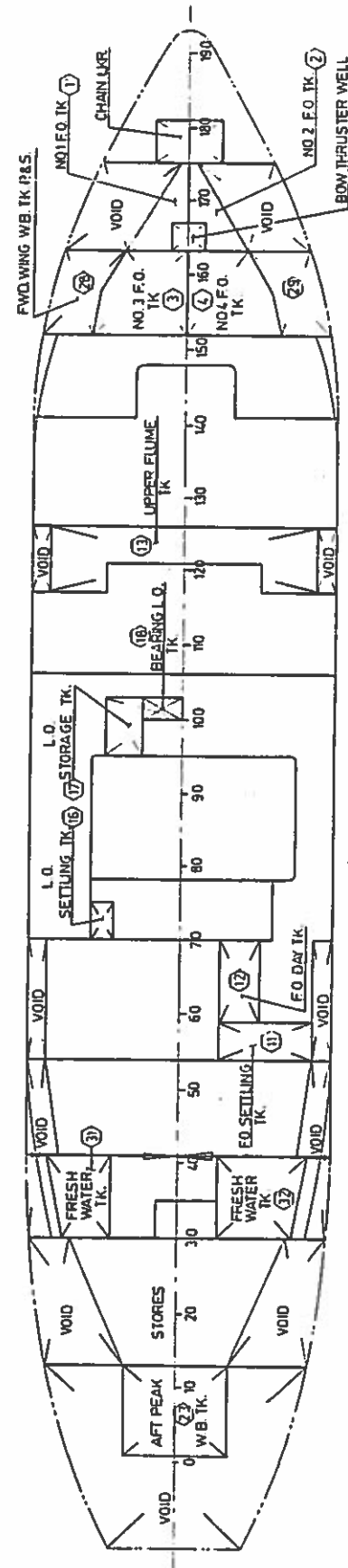
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PLAN ON MAIN DECK



PLAN ON FLAT 4850AB



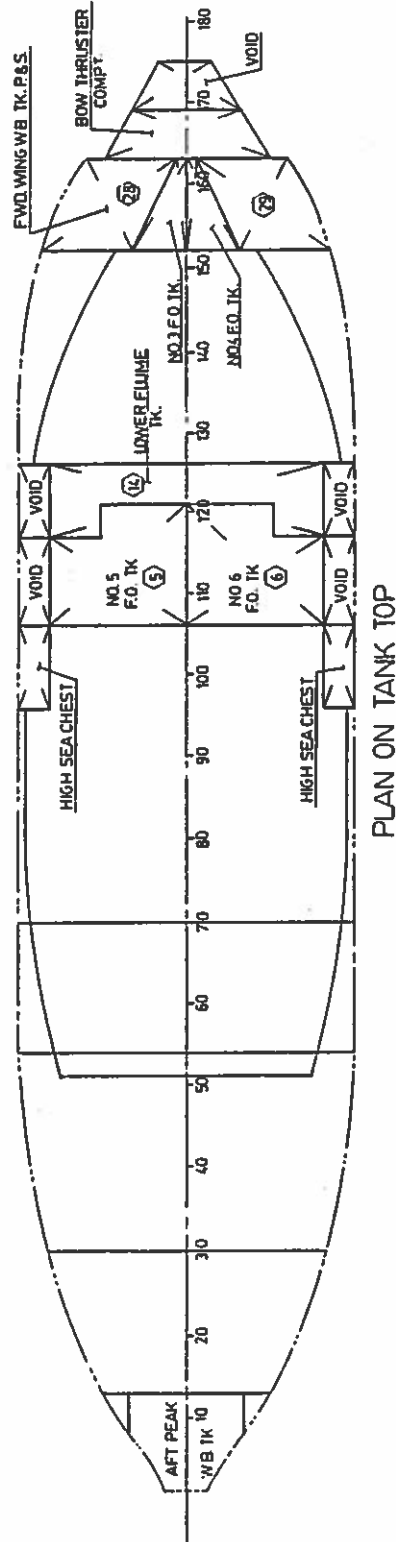


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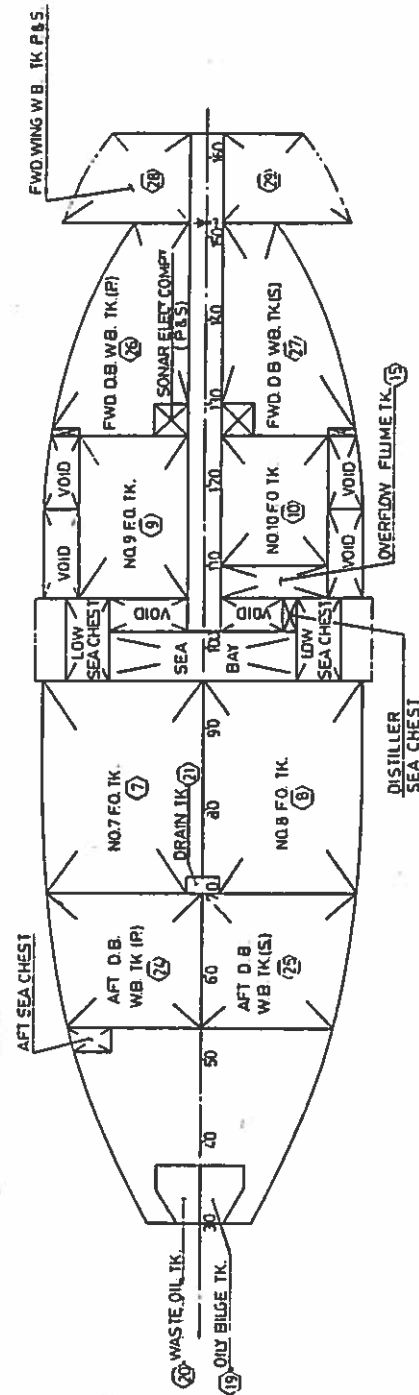
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PLAN ON TANK TOP



PLAN BELOW TANK TOP



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## SUMMARY OF TANKS CAPACITIES

### FUEL OIL AT SPECIFIC GRAVITY 0.88

TANK NO.	DESCRIPTION OF COMPARTMENT	LOCATION FRAMES	CAPACITIES		V.C.G. FROM $\bar{B}$	L.C.G. FROM $\bar{O}$	FREE SURFACE INERTIA MOMENT
			100 % $m^3$	98 % tonnes			
①	NO.1 F.O. TANK	163 TO 175 (P)	56,152	48,425	7,032	29,997	33,16
②	NO.2 F.O. TANK	" " " (S)	56,152	48,425	7,032	29,997	33,16
③	NO.3 F.O. TANK	152 TO 163 (P)	112,467	96,991	5,999	25,349	79,24
④	NO.4 F.O. TANK	" " " (S)	112,467	96,991	5,999	25,349	79,24
⑤	NO.5 F.O. TANK	106 TO 121 (P)	120,629	104,03	3,205	7,654	152,15
⑥	NO.6 F.O. TANK	" " " (S)	120,629	104,03	3,205	7,654	152,15
⑦	NO.7 F.O. TANK	70 TO 96 (P)	95,903	82,707	0,845	-4,167	388,61
⑧	NO.8 F.O. TANK	" " " (S)	95,903	82,707	0,845	-4,167	388,61
⑨	NO.9 F.O. TANK	106 TO 126 (P)	53,275	45,944	0,830	8,87	88,44
⑩	NO.10 F.O. TANK	110 TO 126 (S)	42,345	36,518	0,834	9,697	70,75
⑪	F.O. SETTLING TANK	54 TO 59 (S)	29,462	25,408	6,353	-14,9	20,83
⑫	F.O. DAY TANK	59 TO 70 (S)	24,19	20,861	6,374	-11,769	2,35
			919,574	793,037			

### FLUME TK AT SP. GR. 0.88

TANK NO.	DESCRIPTION OF COMPARTMENT	LOCATION FRAMES	CAPACITIES		V.C.G. FROM $\bar{B}$	L.C.G. FROM $\bar{O}$	FREE SURFACE INERTIA MOMENT
			100 % $m^3$	98 % tonnes			
⑬	UPPER FLUME TANK	117 TO 126	115,42	99,538	6,445	11,47	780,0
⑭	LOWER FLUME TANK	117 TO 126	112,64	97,141	3,209	11,48	729,8
⑮	OVERFLOW FLUME TANK	106 TO 110 (S)	11,022	9,505	0,809	5,70	17,7
			239,082	206,184			

Chief/Officer

TYPE 1100 NAVARDS TENDER/LIGHT ICEBREAKER

TRIM & STABILITY BOOKLET

EDWARD CORNWALLIS

OWNERS: MINISTER OF TRANSPORT

OPERATOR: CANADIAN COAST GUARD

SHIPBUILDER: MARINE INDUSTRIE LIMITÉE  
SOREL (TRACY) QUÉBEC

CONTRACT NO: 450

DATE OF DELIVERY: JULY 10TH, 1986

NOTE: CAPTAIN HAS  
ORIGINAL IN BOTTOM  
DRAWER OF FILING CABINET

PRÉLIMINAIRE



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- 1) INDEX
- 2) GENERAL INFORMATION
- 3) INCLINING EXPERIMENT REPORT
- 4) SUMMARY OF TANK CAPACITIES
- 5) HYDROSTATIC TABLE
- 6) CROSS CURVES TABLE
- 7) FREEBOARD & DRAFT MARKS
- 8) LOADING CONDITIONS (INTACT)
  - 8a) In Fresh Water
  - 8b) In Salt Water
  - 8c) Arctic
  - 8d) Iced-up



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• FRESH WATER TK. SP. GR. 1.0 •

TANK NO	DESCRIPTION OF COMPARTMENT	LOCATION FRAMES	CAPACITIES		V C G FROM ⊕	L C G FROM ⊗	FREE SURFACE INERTIA MOMENT
			100 % m <sup>3</sup>	100 % tonnes			
(31)	FRESH WATER TANK (P)	30 TO 41	38.504	38.504	6.348	-23.19	9.85
(32)	FRESH WATER TANK (S)	30 TO 41	58.43	58.43	6.357	-23.227	32.97
(33)	BOILER FEED TANK	7 TO 13	15.401	15.401	9.203	-33.5	2.76
			112.335	112.335			

• S.W. BALLAST SP. GR. 1.025 •

TANK NO	DESCRIPTION OF COMPARTMENT	LOCATION FRAMES	CAPACITIES		V C G FROM ⊕	L C G FROM ⊗	FREE SURFACE INERTIA MOMENT
			100 % m <sup>3</sup>	100 % tonnes			
(23)	AFT PEAK W.B. TANK	1 TO 13	109.448	112.184	5.583	-34.509	70.25
(24)	AFT D.B. W.B. TANK (P)	54 TO 70	51.875	53.172	0.955	-12.582	188.36
(25)	AFT D.B. W.B. TANK (S)	54 TO 70	51.875	53.172	0.855	-12.582	188.36
(26)	FWD D.B. W.B. TANK (P)	126 TO 152	51.625	52.915	0.883	17.455	130.25
(27)	FWD D.B. W.B. TANK (S)	126 TO 152	51.625	52.915	0.883	17.455	130.25
(28)	FWD WING W.B. TANK (P)	152 TO 163	50.519	51.782	4.64	25.359	6.36
(29)	FWD WING W.B. TANK (S)	152 TO 163	50.519	51.782	4.64	25.359	6.36
(30)	FORE PEAK TANK	175 TO FWD	85.756	87.9	7.073	35.072	131.886
			503.242	515.822			

• MISCELLANEOUS TANKS •

TANK NO.	DESCRIPTION OF COMPARTMENT	LOCATION FRAMES	SPECIFIC GRAVITY	CAPACITIES		V C G FROM ⊕	L C G FROM ⊗	FREE SURFACE INERTIA MOMENT
				100 % m <sup>3</sup>	98 % tonnes			
(16)	L.O. SETTLING TANK	70 TO 75 (P)	0.90	4.234	3.734	6.25	-8.5	0.3
(17)	L.O. STORAGE TANK	95 TO 106 (P)	0.90	17.816	15.714	5.909	2.28	10.66
(18)	BEARING L.O. TANK	100 TO 103 (P)	0.90	2.495	2.2	6.65	3.1	0.93
(19)	OILY BILGE TANK	30 TO 37 (S)	1.0	5.628	5.515	1.926	-23.985	1.57
(20)	WASTE OIL TANK	30 TO 37 (P)	0.90	5.628	4.964	1.926	-23.985	1.57
(21)	DRAIN TANK	70 TO 72		1.882		0.75	-9.1	0.27
(22)	AVIATION FUEL TANK	5.5 TO 11.5	0.79	22.85	17.69	9.242	-34.1	39.02



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HYDROSTATIC TABLE



Procedure to calculate hydrostatic particulars from draft read at ship.

- a) Read drafts forward and aft, port and starboard, and calculate

DFM = mean draft forward

DAM = mean draft aft

- b) Calculate trim over distance between marks:  $TRIM = DAM - DFM$

- c) Calculate distance between marks DBM using:

Length between perpendiculars =  $L_{BP} = 75.0 \text{ m}$

D.F. = distance between forward draft marks and F.P.  
(see section for draft marks)

D.A. = distance between aft draft marks and A.P.  
(see section for draft marks)

D.A. = 1.200 m (TYP.)

$\therefore DBM = 75.0 - (D.A + D.F.)$

- d) Calculate draft at perpendiculars

$D.F.P. = D.F.M. \pm \frac{(TRIM \times D.F.)}{D.B.M.} = \text{draft fwd.}$

sign is + if trim is by head

$D.A.P. = D.A.M. \pm \frac{(TRIM \times D.A.)}{D.B.M.} = \text{draft aft}$

sign is + if trim is by head

- e) Calculate draft at midship = D.M.

$D.M. = (D.F.P. + D.A.P.) \div 2$

- f) Calculate trim between perpendiculars = TRIMP

$TRIMP = D.A.P. - D.F.P.$

- g) At draft D.M. read from hydrostatic table corresponding L.C.F.

- h) Calculate draft at L.C.F. = D.L.C.F.

$DLCF = D.A.P. \pm \frac{(TRIMP \times L.C.F.)}{LBP}$

sign is + if trim is by head



- j) From hydrostatic table read hydrostatic particulars at draft at L.C.F.  
These are actual ship particulars for the draft read.

Example:

- a) draft at marks

$$\begin{array}{lcl} \text{aft} & \text{port} & = 5.19 \\ & \text{stbd} & = 5.21 \end{array}$$

$$\begin{array}{lcl} \text{fwd} & \text{port} & = 3.6 \\ & \text{stbd} & = 3.6 \end{array}$$

WITH TRIM AFTERN,  
DAP MUST BE  
GREATER THAN DAM.

$$\text{D.A.M.} = (5.19 + 5.21) \div 2 = 5.20$$

$$\text{D.F.M.} = 3.60$$

$$\text{b) TRIM} = 5.2 - 3.6 = 1.6$$

$$\text{c) D.A.} = 1.200$$

$$\text{D.F.} = 2.301 \quad (\text{see draft table, section draft marks})$$

$$\text{D.B.M.} = 75.0 + (1.20 + 2.301) = 71.499$$

$$\text{d) D.F.P.} = 3.6 - \frac{(1.6 \times 2.301)}{71.499} = 3.548 \quad 3.473$$

$$\text{D.A.P.} = 5.2 - \frac{(1.6 \times 1.2)}{71.499} = 5.173 \quad 5.228$$

$$\text{e) DM} = (3.548 + 5.173) \div 2 = 4.361 \quad 4.323$$

$$\text{f) TRIMP} = 5.173 - 3.548 = 1.625$$

$$\text{g) at } 4.361 \therefore \text{LCF} = 36.323 \quad (\text{from hydrostatic table})$$

$$\text{h) D.L.C.F.} = 5.173 - \frac{(1.625 \times 36.323)}{75.0} = 4.386$$

- j) hydrostatic particulars at 4.386 m are :

Displacement (F.W.)	: 3210.0 t.
T.P.C.	: 9.56 t./cm
M.C.T. ICM	: 38.2 t.m./cm
V.C.B.	: 2.45 m
L.C.B.	: 36.685 m fwd. A.P.
L.C.F.	: 36.32 m fwd. A.P.
KMt	: 7.865 m





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0	3.685	3.785	3.885	3.985	4.085	4.185	4.285	4.385	0	MOULDED DRAFT
0	3.700	3.800	3.900	4.000	4.100	4.200	4.300	4.400	0	EXTREME DRAFT
1	2644.0	2734.9	2826.5	2919.2	3011.9	3106.3	3200.8	3296.0	1	DISPL. TOT. S.W.
2	2579.5	2668.1	2757.6	2848.0	2938.4	3030.5	3122.8	3215.6	2	DISPL. TOT. F.W.
3	2541.2	2629.3	2718.2	2808.1	2898.0	2989.5	3081.3	3173.7	3	DISPL. MLD.
4	-1.148	-1.144	-1.150	-1.166	-1.182	-1.184	-1.185	-1.194	4	L.C.F. FROM MID. SHIP
5	-0.725	-0.739	-0.752	-0.765	-0.777	-0.790	-0.802	-0.814	5	L.C.B. FROM MID. SHIP
6	2.065	2.120	2.176	2.232	2.286	2.344	2.400	2.455	6	V.C.B. ABOVE BL
7	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	7	T.P.I (TONNES/0.01 M)
8	32.380	33.016	33.696	34.431	35.166	35.860	36.548	37.285	8	M.C.T. 0.01 M
1	2756.7	2850.9	2946.5	3043.0	3139.9	3238.9	3337.9	3437.8	1	DISPL. TRIM = -3.500
2	2731.1	2824.8	2919.2	3015.2	3110.9	3208.6	3306.9	3405.7	2	DISPL. TRIM = -3.000
3	2709.3	2802.0	2895.8	2990.7	3085.6	3182.6	3279.8	3377.8	3	DISPL. TRIM = -2.500
4	2690.8	2783.0	2875.8	2970.2	3064.2	3160.3	3257.0	3354.1	4	DISPL. TRIM = -2.000
5	2675.6	2767.0	2859.4	2952.9	3046.3	3141.8	3237.6	3334.1	5	DISPL. TRIM = -1.500
6	2662.9	2754.1	2846.1	2939.1	3032.2	3127.1	3222.1	3318.0	6	DISPL. TRIM = -1.000
7	2652.5	2743.5	2835.3	2928.2	3021.1	3115.5	3210.3	3305.6	7	DISPL. TRIM = -0.500
8	2644.2	2735.0	2826.7	2919.4	3012.1	3106.5	3201.0	3296.2	8	DISPL. TRIM = 0.000
9	2638.6	2729.5	2821.1	2913.7	3006.3	3100.5	3194.9	3289.9	9	DISPL. TRIM = 0.500
1	-5.182	-5.152	-5.132	-5.113	-5.101	-5.096	-5.089	-5.088	1	L.C.B. TRIM = -3.500
2	-4.517	-4.498	-4.477	-4.468	-4.453	-4.446	-4.447	-4.444	2	L.C.B. TRIM = -3.000
3	-3.870	-3.850	-3.836	-3.826	-3.817	-3.816	-3.813	-3.815	3	L.C.B. TRIM = -2.500
4	-3.230	-3.219	-3.204	-3.203	-3.194	-3.190	-3.196	-3.195	4	L.C.B. TRIM = -2.000
5	-2.605	-2.595	-2.587	-2.583	-2.578	-2.580	-2.583	-2.586	5	L.C.B. TRIM = -1.500
6	-1.981	-1.976	-1.977	-1.973	-1.974	-1.980	-1.980	-1.987	6	L.C.B. TRIM = -1.000
7	-1.351	-1.359	-1.363	-1.372	-1.377	-1.382	-1.391	-1.396	7	L.C.B. TRIM = -0.500
8	-0.726	-0.738	-0.752	-0.764	-0.777	-0.791	-0.802	-0.814	8	L.C.B. TRIM = 0.000
9	-0.092	-0.119	-0.139	-0.162	-0.178	-0.195	-0.215	-0.230	9	L.C.B. TRIM = 0.500
1	8.483	8.404	8.334	8.270	8.210	8.158	8.109	8.064	1	KMT TRIM = -3.500
2	8.444	8.363	8.290	8.225	8.163	8.110	8.062	8.017	2	KMT TRIM = -3.000
3	8.414	8.330	8.254	8.186	8.122	8.068	8.018	7.972	3	KMT TRIM = -2.500
4	8.390	8.304	8.225	8.156	8.089	8.032	7.981	7.933	4	KMT TRIM = -2.000
5	8.372	8.284	8.204	8.131	8.063	8.004	7.950	7.901	5	KMT TRIM = -1.500
6	8.358	8.268	8.187	8.113	8.044	7.983	7.927	7.876	6	KMT TRIM = -1.000
7	8.345	8.256	8.173	8.099	8.028	7.967	7.910	7.857	7	KMT TRIM = -0.500
8	8.339	8.248	8.165	8.089	8.018	7.956	7.897	7.844	8	KMT TRIM = 0.000
9	8.336	8.244	8.159	8.083	8.011	7.948	7.889	7.835	9	KMT TRIM = 0.500

3305.4  
1660  
4965.4



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0	4.385	4.485	4.585	4.685	4.785	4.885	4.985	5.085	0	MOULDED DRAFT
0	4.400	4.500	4.600	4.700	4.800	4.900	5.000	5.100	0	EXTREME DRAFT
1	3296.0	3392.3	3488.7	3586.6	3685.0	3783.9	3884.6	3985.3	1	DISPL. TOT. S.W.
2	3215.6	3309.6	3403.6	3499.1	3595.2	3691.6	3789.9	3888.1	2	DISPL. TOT. F.W.
3	3173.7	3267.3	3361.0	3456.0	3551.6	3647.6	3745.3	3843.0	3	DISPL. MLD.
4	-1.194	-1.222	-1.249	-1.313	-1.387	-1.462	-1.541	-1.619	4	L.C.F. FROM MID. SHIP
5	-0.814	-0.825	-0.836	-0.849	-0.862	-0.876	-0.894	-0.911	5	L.C.B. FROM MID. SHIP
6	2.455	2.512	2.567	2.624	2.681	2.736	2.794	2.850	6	V.C.B. ABOVE BL
7	9.6	9.6	9.7	9.8	9.9	10.0	10.1	10.1	7	T.P.I (TONNES/0.01 M)
8	37.285	38.129	38.974	39.987	41.057	42.133	43.237	44.341	8	M.C.T. 0.01 M
1	3437.8	3538.9	3640.3	3743.0	3846.1	3949.6	4054.6	4159.5	1	DISPL. TRIM = -3.500
2	3405.7	3506.3	3606.7	3708.7	3811.5	3914.5	4019.0	4123.6	2	DISPL. TRIM = -3.000
3	3377.8	3477.3	3576.9	3678.3	3780.2	3882.6	3986.7	4090.8	3	DISPL. TRIM = -2.500
4	3354.1	3453.1	3551.7	3652.0	3753.4	3854.7	3958.0	4061.7	4	DISPL. TRIM = -2.000
5	3334.1	3432.2	3530.3	3630.0	3730.4	3831.1	3933.7	4036.4	5	DISPL. TRIM = -1.500
6	3318.0	3415.3	3512.8	3612.0	3711.6	3811.8	3913.8	4015.6	6	DISPL. TRIM = -1.000
7	3305.6	3402.4	3499.2	3597.6	3696.8	3796.2	3897.4	3998.8	7	DISPL. TRIM = -0.500
8	3296.2	3392.6	3488.9	3586.9	3685.3	3784.2	3884.9	3985.6	8	DISPL. TRIM = 0.000
9	3289.9	3386.2	3482.5	3580.1	3678.2	3776.6	3876.6	3976.8	9	DISPL. TRIM = 0.500
1	-5.088	-5.087	-5.090	-5.095	-5.097	-5.103	-5.110	-5.113	1	L.C.B. TRIM = -3.500
2	-4.444	-4.452	-4.455	-4.461	-4.473	-4.480	-4.489	-4.501	2	L.C.B. TRIM = -3.000
3	-3.815	-3.819	-3.825	-3.835	-3.846	-3.858	-3.873	-3.886	3	L.C.B. TRIM = -2.500
4	-3.195	-3.207	-3.209	-3.216	-3.233	-3.241	-3.254	-3.274	4	L.C.B. TRIM = -2.000
5	-2.586	-2.595	-2.602	-2.612	-2.625	-2.637	-2.652	-2.668	5	L.C.B. TRIM = -1.500
6	-1.987	-1.992	-2.003	-2.017	-2.027	-2.042	-2.061	-2.073	6	L.C.B. TRIM = -1.000
7	-1.396	-1.408	-1.416	-1.427	-1.443	-1.455	-1.470	-1.489	7	L.C.B. TRIM = -0.500
8	-0.814	-0.825	-0.836	-0.851	-0.862	-0.877	-0.896	-0.911	8	L.C.B. TRIM = 0.000
9	-0.230	-0.250	-0.264	-0.278	-0.297	-0.310	-0.325	-0.345	9	L.C.B. TRIM = 0.500
1	8.064	8.024	7.986	7.952	7.921	7.892	7.866	7.842	1	KMT TRIM = -3.500
2	8.017	7.978	7.941	7.908	7.879	7.851	7.827	7.804	2	KMT TRIM = -3.000
3	7.972	7.933	7.896	7.865	7.836	7.809	7.787	7.765	3	KMT TRIM = -2.500
4	7.933	7.894	7.855	7.823	7.795	7.768	7.747	7.726	4	KMT TRIM = -2.000
5	7.901	7.859	7.819	7.787	7.757	7.731	7.709	7.689	5	KMT TRIM = -1.500
6	7.876	7.832	7.791	7.757	7.725	7.698	7.676	7.654	6	KMT TRIM = -1.000
7	7.857	7.812	7.769	7.732	7.700	7.670	7.646	7.625	7	KMT TRIM = -0.500
8	7.844	7.797	7.753	7.715	7.681	7.649	7.624	7.600	8	KMT TRIM = 0.000
9	7.835	7.787	7.742	7.703	7.668	7.635	7.608	7.583	9	KMT TRIM = 0.500



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0	5.085	5.185	5.285	5.385	5.485	5.585	5.685	5.785	0	MOULDED DRAFT
0	5.100	5.200	5.300	5.400	5.500	5.600	5.700	5.800	0	EXTREME DRAFT
1	3985.3	4087.4	4190.3	4293.3	4398.3	4503.4	4609.5	4716.6	1	DISPL. TOT. S.W.
2	3888.1	3987.7	4088.1	4188.6	4291.1	4393.6	4497.1	4601.6	2	DISPL. TOT. F.W.
3	3843.0	3942.0	4041.8	4141.7	4243.7	4343.7	4448.7	4552.8	3	DISPL. MLD.
4	-1.619	-1.696	-1.771	-1.845	-1.903	-1.959	-2.032	-2.122	4	L.C.B. FROM MID. SHIP
5	-0.911	-0.930	-0.950	-0.969	-0.992	-1.014	-1.037	-1.061	5	L.C.B. FROM MID. SHIP
6	2.850	2.907	2.965	3.020	3.080	3.136	3.194	3.252	6	V.C.B. ABOVE BL
7	10.1	10.2	10.3	10.4	10.5	10.6	10.6	10.7	7	T.P.I (TONNES/0.01 M)
8	44.341	45.463	46.596	47.725	48.764	49.803	50.934	52.163	8	M.C.T. 0.01 M
1	4159.5	4265.5	4372.2	4478.9	4587.0	4695.1	4803.8	4913.3	1	DISPL. TRIM = -3.500
2	4123.6	4229.2	4335.7	4442.1	4550.1	4658.1	4766.9	4876.3	2	DISPL. TRIM = -3.000
3	4090.8	4196.1	4302.1	4408.2	4516.0	4623.7	4732.3	4841.7	3	DISPL. TRIM = -2.500
4	4061.7	4166.3	4272.1	4377.7	4485.1	4592.6	4700.8	4810.1	4	DISPL. TRIM = -2.000
5	4036.4	4140.4	4245.3	4350.4	4457.4	4564.5	4672.5	4781.4	5	DISPL. TRIM = -1.500
6	4015.6	4119.0	4223.0	4327.3	4433.8	4540.1	4647.6	4756.0	6	DISPL. TRIM = -1.000
7	3998.8	4101.4	4205.0	4308.5	4414.1	4519.9	4626.5	4734.5	7	DISPL. TRIM = -0.500
8	3985.6	4087.7	4190.5	4293.5	4398.6	4503.6	4609.8	4716.9	8	DISPL. TRIM = 0.000
9	3976.8	4078.2	4180.6	4283.0	4387.3	4492.0	4597.3	4704.0	9	DISPL. TRIM = 0.500
1	-5.113	-5.119	-5.123	-5.129	-5.134	-5.137	-5.140	-5.141	1	L.C.B. TRIM = -3.500
2	-4.501	-4.510	-4.522	-4.531	-4.540	-4.551	-4.559	-4.568	2	L.C.B. TRIM = -3.000
3	-3.886	-3.901	-3.915	-3.929	-3.944	-3.957	-3.971	-3.984	3	L.C.B. TRIM = -2.500
4	-3.274	-3.289	-3.311	-3.326	-3.343	-3.364	-3.379	-3.400	4	L.C.B. TRIM = -2.000
5	-2.668	-2.685	-2.706	-2.724	-2.746	-2.767	-2.788	-2.810	5	L.C.B. TRIM = -1.500
6	-2.073	-2.093	-2.109	-2.130	-2.155	-2.174	-2.198	-2.220	6	L.C.B. TRIM = -1.000
7	-1.489	-1.506	-1.528	-1.546	-1.567	-1.590	-1.612	-1.639	7	L.C.B. TRIM = -0.500
8	-0.911	-0.931	-0.950	-0.970	-0.994	-1.014	-1.038	-1.061	8	L.C.B. TRIM = 0.000
9	-0.345	-0.361	-0.385	-0.402	-0.423	-0.449	-0.470	-0.498	9	L.C.B. TRIM = 0.500
1	7.842	7.821	7.802	7.784	7.769	7.755	7.742	7.732	1	KMT TRIM = -3.500
2	7.804	7.784	7.766	7.749	7.736	7.723	7.712	7.702	2	KMT TRIM = -3.000
3	7.765	7.747	7.730	7.714	7.702	7.690	7.680	7.672	3	KMT TRIM = -2.500
4	7.726	7.709	7.694	7.679	7.668	7.657	7.648	7.641	4	KMT TRIM = -2.000
5	7.689	7.672	7.658	7.644	7.634	7.625	7.617	7.611	5	KMT TRIM = -1.500
6	7.654	7.638	7.623	7.610	7.601	7.592	7.585	7.581	6	KMT TRIM = -1.000
7	7.625	7.607	7.592	7.578	7.570	7.561	7.555	7.551	7	KMT TRIM = -0.500
8	7.600	7.581	7.565	7.551	7.542	7.533	7.527	7.523	8	KMT TRIM = 0.000
9	7.583	7.562	7.545	7.528	7.518	7.509	7.502	7.498	9	KMT TRIM = 0.500



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0	5.785	5.885	5.985	6.085	6.185	6.285	6.385	6.485	0	MOULDED DRAFT
0	5.800	5.900	6.000	6.100	6.200	6.300	6.400	6.500	0	EXTREME DRAFT
1	4716	4823	4932	5042	5152	5263	5374	5487	1	DISPL. TOT. S.W.
2	4601	4706	4812	4919	5026	5135	5243	5353	2	DISPL. TOT. F.W.
3	4552	4656	4762	4869	4975	5084	5192	5301	3	DISPL. MLD.
4	-2.122	-2.210	-2.297	-2.383	-2.460	-2.523	-2.584	-2.627	4	L.C.B. FROM MID. SHIP
5	-1.061	-1.084	-1.111	-1.137	-1.164	-1.193	-1.221	-1.249	5	L.C.B. FROM MID. SHIP
6	3.252	3.308	3.368	3.425	3.483	3.542	3.598	3.657	6	V.C.B. ABOVE BL
7	10.7	10.8	10.9	11.0	11.1	11.1	11.2	11.3	7	T.P.I (TONNES/0.01 M)
8	52.16	53.39	54.57	55.75	56.88	57.93	58.98	59.82	8	M.C.T. 0.01 M
1	4913.3	5022.7	5133.3	5244.0	5355.0	5466.9	5578.7	5691.3	1	DISPL. TRIM = -3.500
2	4875.3	4985.8	5096.5	5207.3	5318.5	5430.5	5542.5	5655.4	2	DISPL. TRIM = -3.000
3	4841.7	4951.2	5061.9	5172.8	5284.1	5396.2	5508.3	5621.4	3	DISPL. TRIM = -2.500
4	4810.1	4919.2	5029.8	5140.6	5251.9	5364.1	5476.3	5589.5	4	DISPL. TRIM = -2.000
5	4781.4	4890.2	5000.6	5111.2	5222.3	5334.5	5446.6	5559.8	5	DISPL. TRIM = -1.500
6	4756.0	4864.6	4974.8	5085.0	5195.9	5307.7	5419.7	5532.8	6	DISPL. TRIM = -1.000
7	4734.5	4842.3	4952.1	5062.1	5172.5	5284.2	5395.8	5508.6	7	DISPL. TRIM = -0.500
8	4716.9	4824.1	4933.2	5042.4	5152.4	5263.6	5374.8	5487.4	8	DISPL. TRIM = 0.000
9	4704.0	4810.5	4918.7	5027.4	5136.5	5247.2	5357.6	5469.3	9	DISPL. TRIM = 0.500
1	-5.141	-5.143	-5.144	-5.142	-5.141	-5.138	-5.136	-5.132	1	L.C.B. TRIM = -3.500
2	-4.568	-4.575	-4.579	-4.586	-4.590	-4.594	-4.596	-4.596	2	L.C.B. TRIM = -3.000
3	-3.984	-3.997	-4.009	-4.020	-4.030	-4.038	-4.047	-4.054	3	L.C.B. TRIM = -2.500
4	-3.400	-3.414	-3.429	-3.448	-3.461	-3.478	-3.490	-3.501	4	L.C.B. TRIM = -2.000
5	-2.810	-2.830	-2.850	-2.869	-2.888	-2.907	-2.925	-2.942	5	L.C.B. TRIM = -1.500
6	-2.220	-2.244	-2.270	-2.291	-2.314	-2.334	-2.357	-2.379	6	L.C.B. TRIM = -1.000
7	-1.639	-1.661	-1.686	-1.714	-1.738	-1.765	-1.789	-1.813	7	L.C.B. TRIM = -0.500
8	-1.061	-1.085	-1.113	-1.138	-1.165	-1.193	-1.221	-1.250	8	L.C.B. TRIM = 0.000
9	-0.498	-0.520	-0.545	-0.574	-0.599	-0.632	-0.658	-0.688	9	L.C.B. TRIM = 0.500
1	7.732	7.722	7.715	7.708	7.703	7.699	7.696	7.696	1	KMT TRIM = -3.500
2	7.702	7.693	7.687	7.681	7.676	7.674	7.671	7.671	2	KMT TRIM = -3.000
3	7.672	7.664	7.659	7.654	7.650	7.649	7.647	7.648	3	KMT TRIM = -2.500
4	7.641	7.634	7.631	7.627	7.625	7.624	7.623	7.624	4	KMT TRIM = -2.000
5	7.611	7.605	7.602	7.599	7.598	7.599	7.599	7.601	5	KMT TRIM = -1.500
6	7.581	7.576	7.574	7.573	7.572	7.573	7.574	7.577	6	KMT TRIM = -1.000
7	7.551	7.547	7.546	7.546	7.546	7.548	7.550	7.554	7	KMT TRIM = -0.500
8	7.523	7.520	7.519	7.519	7.520	7.523	7.526	7.531	8	KMT TRIM = 0.000
9	7.498	7.494	7.494	7.494	7.496	7.499	7.503	7.508	9	KMT TRIM = 0.500



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0	6.485	6.585	6.685	6.785	6.885	6.985	6.985	6.985	0	MOULDED DRAFT
0	6.500	6.600	6.700	6.800	6.900	7.000	7.000	7.000	0	EXTREME DRAFT
1	5487	5599	5713	5827	5941	6056	6056	6056	1	DISPL. TOT. S.W.
2	5353	5463	5573	5685	5796	5908	5908	5908	2	DISPL. TOT. F.W.
3	5301	5411	5521	5632	5743	5855	5855	5855	3	DISPL. MLD.
4	-2.627	-2.663	-2.698	-2.727	-2.755	-2.803	-2.803	-2.803	4	L.C.B. FROM MID. SHIP
5	-1.249	-1.277	-1.305	-1.333	-1.360	-1.387	-1.387	-1.387	5	L.C.B. FROM MID. SHIP
6	3.657	3.715	3.772	3.831	3.888	3.947	3.947	3.947	6	V.C.D. ABOVE BL
7	11.3	11.3	11.4	11.4	11.5	11.5	11.5	11.5	7	T.P. I (TONNES/O. 01 M)
8	59.82	60.61	61.37	62.02	62.67	63.44	63.44	63.44	8	M.C.T. 0.01 M
1	5691.3	5804.2	5917.3	6031.1	6145.0	6259.5	6259.5	6259.5	1	DISPL. TRIM = -3.500
2	5655.4	5768.5	5881.9	5996.1	6110.2	6225.0	6225.0	6225.0	2	DISPL. TRIM = -3.000
3	5621.4	5734.7	5848.3	5962.6	6077.1	6192.1	6192.1	6192.1	3	DISPL. TRIM = -2.500
4	5589.5	5703.0	5816.7	5931.3	6045.8	6161.1	6161.1	6161.1	4	DISPL. TRIM = -2.000
5	5559.9	5673.4	5787.2	5901.8	6016.5	6131.9	6131.9	6131.9	5	DISPL. TRIM = -1.500
6	5532.8	5646.2	5759.9	5874.6	5989.3	6104.7	6104.7	6104.7	6	DISPL. TRIM = -1.000
7	5508.6	5621.8	5735.1	5849.7	5964.2	6079.5	6079.5	6079.5	7	DISPL. TRIM = -0.500
8	5487.4	5600.1	5713.3	5827.4	5941.5	6056.5	6056.5	6056.5	8	DISPL. TRIM = 0.000
9	5469.4	5581.8	5694.3	5807.9	5921.8	6036.2	6036.2	6036.2	9	DISPL. TRIM = 0.500
1	-5.132	-5.126	-5.121	-5.114	-5.107	-5.099	-5.099	-5.099	1	L.C.B. TRIM = -3.500
2	-4.596	-4.598	-4.597	-4.595	-4.594	-4.590	-4.590	-4.590	2	L.C.B. TRIM = -3.000
3	-4.054	-4.059	-4.065	-4.068	-4.071	-4.074	-4.074	-4.074	3	L.C.B. TRIM = -2.500
4	-3.501	-3.514	-3.523	-3.531	-3.541	-3.547	-3.547	-3.547	4	L.C.B. TRIM = -2.000
5	-2.942	-2.959	-2.974	-2.988	-3.002	-3.015	-3.015	-3.015	5	L.C.B. TRIM = -1.500
6	-2.379	-2.399	-2.420	-2.440	-2.457	-2.476	-2.476	-2.476	6	L.C.B. TRIM = -1.000
7	-1.813	-1.838	-1.861	-1.885	-1.909	-1.932	-1.932	-1.932	7	L.C.B. TRIM = -0.500
8	-1.250	-1.277	-1.305	-1.334	-1.360	-1.388	-1.388	-1.388	8	L.C.B. TRIM = 0.000
9	-0.688	-0.722	-0.751	-0.782	-0.815	-0.846	-0.846	-0.846	9	L.C.B. TRIM = 0.500
1	7.696	7.696	7.696	7.699	7.702	7.707	7.707	7.707	1	KMT TRIM = -3.500
2	7.671	7.672	7.673	7.676	7.680	7.685	7.685	7.685	2	KMT TRIM = -3.000
3	7.648	7.649	7.650	7.654	7.658	7.663	7.663	7.663	3	KMT TRIM = -2.500
4	7.624	7.626	7.629	7.633	7.637	7.643	7.643	7.643	4	KMT TRIM = -2.000
5	7.601	7.604	7.607	7.612	7.617	7.623	7.623	7.623	5	KMT TRIM = -1.500
6	7.577	7.581	7.585	7.591	7.597	7.604	7.604	7.604	6	KMT TRIM = -1.000
7	7.554	7.558	7.563	7.570	7.577	7.585	7.585	7.585	7	KMT TRIM = -0.500
8	7.531	7.536	7.542	7.549	7.556	7.565	7.565	7.565	8	KMT TRIM = 0.000
9	7.508	7.515	7.521	7.530	7.538	7.548	7.548	7.548	9	KMT TRIM = 0.500



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CROSS CURVES TABLE

- A) In Fresh Water
- B) In Salt Water



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A) IN FRESH WATER

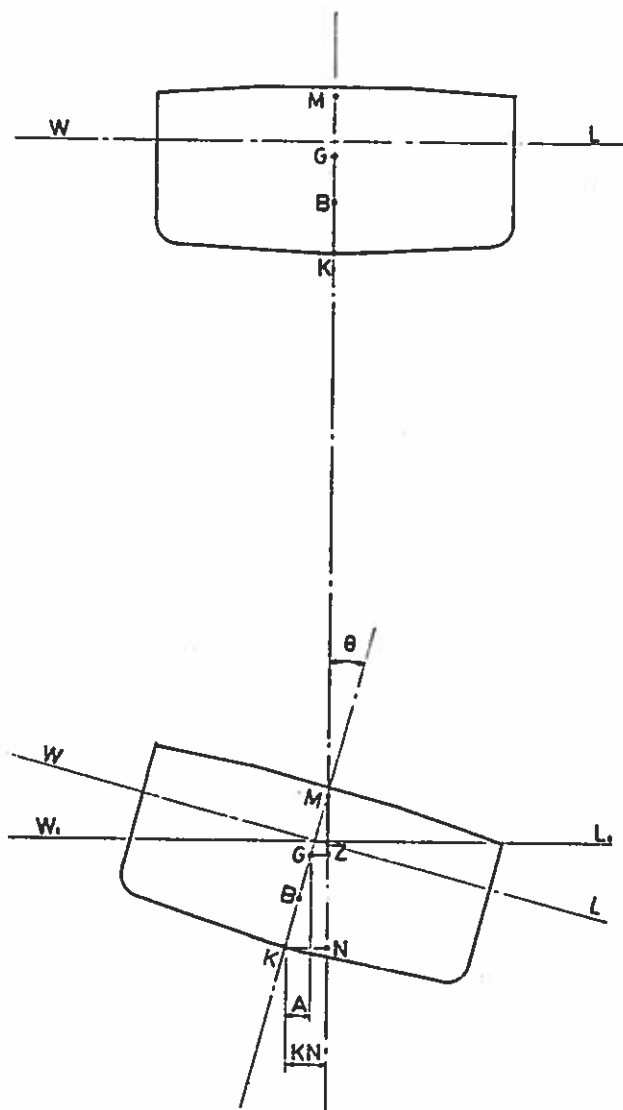


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K = Keel

M = Metacentre

G = Vertical Centre of Gravity

B = Vertical Centre Buoyancy

$\theta$  = Angle of Heel

KN = Righting Lever Given at Keel Level from Cross Curves

A =  $KG \times \sin \theta$

GZ = Righting Lever (True) =  $KN - A$





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TYPE 1100 NAVAIDS - ICEBREAKER

STABILITY CALCULATION FOR INTACT SHIP

=====

THE FREE TRIM DUE TO HEEL IS CORRECTED TO MAINTAIN CONSTANT LCB

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UNITS ARE METRES AND TONNES  
SALT WATER DENSITY = 1.00000

V	ANGLE OF HEEL
DRAFT	PERPENDICULAR DISTANCE TO THE WL AT AMIDSHIPS FROM UNDERSIDE KEEL, KEELTHICKNESS = 0.015
TRIM	DIFFERENCE IN DRAFT AT FP AND AP TRIM FORWARD IS STATED POSITIVE
D	DISPLACEMENT INCLUDING SHELLPLATE, MEANTHICKNESS = 0.021
KM	TRANSVERSE METACENTRE FROM BL
GM	TRANSVERSE METACENTRIC HEIGHT
KN	DISPLACEMENT LEVER ABOUT BASE LINE AT CENTRE
MS	DISPLACEMENT LEVER ABOUT M
GZ	RIGHTING ARM
SKN	THE INTEGRAL OF KN
SMS	THE INTEGRAL OF MS
SGZ	THE INTEGRAL OF GZ
COR	CORRECTION OF GZ DUE TO FREE SURFACES
GZC	RIGHTING ARM CORRECTED FOR FREE SURFACES

CALCULATION FORMULAS FOR GZ AND SGZ

=====

WHEN KG IS GIVEN

$$GZ = KN - KG \cdot \sin V$$

$$SGZ = SKN - KG \cdot (1 - \cos V)$$

WHEN GM IS GIVEN

$$GZ = MS + GM \cdot \sin V$$

$$SGZ = SMS + GM \cdot (1 - \cos V)$$

N. B. FOLLOWING INCLUDED IN THE CALCULATION

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DECKEDGES



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.

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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

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THE TABLE APPLIES FOR TRIM= 0.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.677	1.357	2.043	2.729	3.404	4.037	4.606	5.108	5.523	6.233
3500	0.013	0.674	1.351	2.033	2.717	3.389	4.019	4.590	5.093	5.507	6.211
3600	0.013	0.671	1.345	2.024	2.706	3.375	4.001	4.574	5.081	5.490	6.190
3700	0.013	0.668	1.339	2.015	2.696	3.362	3.984	4.558	5.066	5.473	6.169
3800	0.013	0.666	1.335	2.009	2.687	3.348	3.967	4.543	5.051	5.455	6.148
3900	0.013	0.664	1.330	2.002	2.679	3.336	3.951	4.527	5.035	5.436	6.128
4000	0.013	0.662	1.327	1.997	2.670	3.323	3.936	4.512	5.018	5.417	6.107
4100	0.013	0.661	1.324	1.992	2.663	3.311	3.921	4.497	5.000	5.398	6.087
4200	0.013	0.659	1.321	1.987	2.656	3.299	3.907	4.482	4.981	5.378	6.067
4300	0.013	0.659	1.319	1.984	2.649	3.287	3.893	4.466	4.962	5.357	6.047
4400	0.013	0.658	1.318	1.981	2.642	3.276	3.880	4.451	4.942	5.336	6.027
4500	0.013	0.657	1.316	1.979	2.635	3.264	3.868	4.435	4.922	5.315	6.007
4600	0.013	0.657	1.315	1.976	2.628	3.253	3.856	4.419	4.900	5.293	5.987
4700	0.013	0.656	1.314	1.975	2.621	3.243	3.845	4.403	4.879	5.270	5.968
4800	0.013	0.656	1.314	1.972	2.614	3.233	3.834	4.386	4.858	5.247	5.948
4900	0.013	0.656	1.314	1.970	2.607	3.223	3.822	4.369	4.836	5.224	5.928
5000	0.013	0.656	1.314	1.968	2.601	3.213	3.811	4.352	4.815	5.200	5.908
5100	0.013	0.657	1.314	1.966	2.594	3.204	3.799	4.334	4.793	5.176	5.888
5200	0.013	0.657	1.314	1.963	2.587	3.196	3.788	4.316	4.771	5.152	5.868
5300	0.013	0.657	1.315	1.960	2.581	3.187	3.775	4.298	4.749	5.128	5.847
5400	0.013	0.657	1.315	1.957	2.574	3.179	3.762	4.280	4.726	5.103	5.826
5500	0.013	0.658	1.315	1.953	2.568	3.172	3.749	4.261	4.704	5.079	5.805
5600	0.013	0.658	1.315	1.950	2.562	3.164	3.735	4.242	4.682	5.054	5.784

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

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THE TABLE APPLIES FOR TRIM= -0.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.679	1.361	2.049	2.737	3.413	4.050	4.625	5.129	5.542	6.243
3500	0.013	0.676	1.355	2.039	2.724	3.399	4.033	4.610	5.117	5.525	6.222
3600	0.013	0.673	1.349	2.030	2.714	3.386	4.016	4.594	5.103	5.509	6.200
3700	0.013	0.670	1.343	2.021	2.704	3.373	4.000	4.578	5.088	5.491	6.179
3800	0.013	0.668	1.337	2.015	2.695	3.361	3.985	4.563	5.073	5.473	6.158
3900	0.013	0.666	1.335	2.009	2.687	3.349	3.969	4.548	5.055	5.455	6.137
4000	0.013	0.665	1.331	2.003	2.679	3.338	3.956	4.534	5.038	5.435	6.116
4100	0.013	0.663	1.329	1.998	2.672	3.326	3.941	4.519	5.020	5.416	6.096
4200	0.013	0.662	1.326	1.994	2.665	3.315	3.928	4.504	5.000	5.395	6.076
4300	0.013	0.661	1.324	1.991	2.658	3.304	3.915	4.489	4.981	5.374	6.055
4400	0.013	0.660	1.322	1.988	2.652	3.293	3.903	4.474	4.960	5.353	6.035
4500	0.013	0.660	1.321	1.985	2.646	3.283	3.891	4.458	4.940	5.331	6.015
4600	0.013	0.659	1.320	1.983	2.640	3.272	3.880	4.442	4.919	5.308	5.995
4700	0.013	0.659	1.319	1.981	2.634	3.262	3.868	4.425	4.897	5.285	5.975
4800	0.013	0.659	1.318	1.979	2.628	3.253	3.857	4.408	4.876	5.262	5.955
4900	0.013	0.659	1.318	1.978	2.622	3.243	3.846	4.391	4.854	5.238	5.935
5000	0.013	0.659	1.318	1.976	2.616	3.235	3.835	4.373	4.832	5.214	5.915
5100	0.013	0.659	1.318	1.974	2.610	3.226	3.823	4.355	4.810	5.190	5.894
5200	0.013	0.659	1.318	1.972	2.604	3.217	3.811	4.337	4.788	5.165	5.874
5300	0.013	0.659	1.318	1.970	2.598	3.209	3.797	4.318	4.765	5.141	5.853
5400	0.013	0.659	1.319	1.967	2.592	3.202	3.784	4.299	4.743	5.116	5.832
5500	0.013	0.660	1.319	1.964	2.586	3.194	3.770	4.279	4.720	5.092	5.811
5600	0.013	0.660	1.319	1.961	2.580	3.187	3.756	4.259	4.696	5.067	5.789



MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

=====

THE TABLE APPLIES FOR TRIM= -1.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.682	1.366	2.056	2.746	3.423	4.064	4.644	5.152	5.561	6.254
3500	0.014	0.678	1.360	2.046	2.733	3.410	4.048	4.629	5.137	5.545	6.232
3600	0.013	0.675	1.354	2.038	2.723	3.397	4.032	4.614	5.126	5.527	6.211
3700	0.013	0.673	1.348	2.029	2.713	3.385	4.018	4.599	5.110	5.510	6.189
3800	0.013	0.671	1.344	2.022	2.704	3.374	4.003	4.585	5.094	5.492	6.168
3900	0.013	0.669	1.340	2.016	2.696	3.363	3.989	4.570	5.076	5.473	6.147
4000	0.013	0.667	1.337	2.010	2.688	3.352	3.976	4.556	5.058	5.453	6.126
4100	0.013	0.666	1.334	2.006	2.681	3.341	3.963	4.542	5.039	5.433	6.105
4200	0.013	0.665	1.331	2.001	2.675	3.331	3.950	4.528	5.019	5.412	6.085
4300	0.013	0.664	1.329	1.998	2.668	3.320	3.938	4.513	4.999	5.391	6.064
4400	0.013	0.663	1.327	1.995	2.663	3.310	3.926	4.497	4.979	5.369	6.044
4500	0.013	0.662	1.326	1.992	2.657	3.301	3.914	4.481	4.958	5.346	6.023
4600	0.013	0.662	1.325	1.990	2.652	3.291	3.904	4.465	4.937	5.323	6.003
4700	0.013	0.661	1.324	1.988	2.646	3.282	3.893	4.447	4.915	5.299	5.982
4800	0.013	0.661	1.323	1.986	2.641	3.273	3.881	4.430	4.894	5.275	5.962
4900	0.013	0.661	1.323	1.985	2.636	3.264	3.870	4.412	4.872	5.251	5.942
5000	0.013	0.661	1.322	1.984	2.630	3.256	3.859	4.394	4.849	5.227	5.921
5100	0.013	0.661	1.322	1.982	2.625	3.247	3.846	4.375	4.827	5.202	5.900
5200	0.013	0.661	1.322	1.980	2.620	3.239	3.833	4.356	4.804	5.178	5.879
5300	0.013	0.661	1.322	1.979	2.614	3.231	3.820	4.336	4.781	5.153	5.858
5400	0.013	0.661	1.323	1.977	2.609	3.224	3.805	4.316	4.757	5.128	5.836
5500	0.013	0.662	1.323	1.974	2.603	3.216	3.791	4.296	4.733	5.103	5.814
5600	0.013	0.662	1.323	1.972	2.598	3.208	3.779	4.275	4.709	5.077	5.792

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

=====

THE TABLE APPLIES FOR TRIM= -1.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.685	1.372	2.065	2.756	3.435	4.078	4.663	5.175	5.581	6.266
3500	0.014	0.681	1.366	2.055	2.743	3.422	4.064	4.649	5.162	5.565	6.243
3600	0.014	0.679	1.360	2.046	2.733	3.409	4.050	4.634	5.148	5.547	6.221
3700	0.013	0.676	1.354	2.038	2.723	3.398	4.036	4.621	5.131	5.529	6.200
3800	0.013	0.674	1.350	2.031	2.713	3.387	4.022	4.607	5.114	5.510	6.178
3900	0.013	0.672	1.346	2.024	2.706	3.377	4.009	4.594	5.097	5.491	6.157
4000	0.013	0.670	1.343	2.018	2.698	3.366	3.997	4.580	5.078	5.470	6.135
4100	0.013	0.669	1.340	2.014	2.691	3.356	3.985	4.566	5.059	5.450	6.114
4200	0.013	0.668	1.337	2.009	2.685	3.347	3.972	4.552	5.039	5.428	6.093
4300	0.013	0.667	1.335	2.006	2.679	3.337	3.961	4.537	5.018	5.406	6.072
4400	0.013	0.666	1.333	2.003	2.674	3.328	3.949	4.521	4.998	5.384	6.052
4500	0.013	0.665	1.331	2.000	2.669	3.319	3.938	4.504	4.976	5.360	6.031
4600	0.013	0.665	1.330	1.997	2.663	3.310	3.927	4.487	4.955	5.337	6.010
4700	0.013	0.664	1.329	1.996	2.658	3.301	3.917	4.469	4.933	5.313	5.989
4800	0.013	0.664	1.328	1.994	2.654	3.293	3.905	4.452	4.911	5.288	5.968
4900	0.013	0.663	1.327	1.992	2.649	3.285	3.894	4.433	4.889	5.264	5.947
5000	0.013	0.663	1.327	1.991	2.644	3.276	3.882	4.413	4.865	5.239	5.926
5100	0.013	0.663	1.326	1.989	2.639	3.268	3.868	4.394	4.842	5.214	5.904
5200	0.013	0.663	1.327	1.988	2.634	3.261	3.855	4.374	4.818	5.189	5.883
5300	0.013	0.663	1.326	1.987	2.629	3.253	3.841	4.353	4.794	5.164	5.861
5400	0.013	0.663	1.327	1.985	2.624	3.245	3.825	4.332	4.770	5.138	5.838
5500	0.013	0.663	1.327	1.983	2.620	3.238	3.810	4.311	4.745	5.112	5.816
5600	0.013	0.664	1.327	1.981	2.615	3.229	3.794	4.290	4.720	5.086	5.794



MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES  
=====

THE TABLE APPLIES FOR TRIM= -2.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.688	1.380	2.074	2.767	3.447	4.094	4.683	5.198	5.602	6.277
3500	0.014	0.685	1.373	2.064	2.755	3.435	4.081	4.669	5.184	5.585	6.255
3600	0.014	0.682	1.367	2.056	2.744	3.423	4.068	4.656	5.169	5.567	6.232
3700	0.014	0.680	1.361	2.047	2.734	3.412	4.055	4.643	5.152	5.548	6.210
3800	0.014	0.678	1.357	2.040	2.725	3.401	4.042	4.630	5.135	5.529	6.188
3900	0.013	0.676	1.353	2.034	2.717	3.391	4.030	4.617	5.117	5.508	6.166
4000	0.013	0.674	1.349	2.028	2.709	3.381	4.018	4.604	5.098	5.488	6.145
4100	0.013	0.672	1.346	2.023	2.702	3.372	4.006	4.590	5.078	5.465	6.123
4200	0.013	0.671	1.343	2.018	2.697	3.363	3.995	4.576	5.058	5.444	6.102
4300	0.013	0.670	1.341	2.014	2.691	3.354	3.984	4.561	5.038	5.421	6.080
4400	0.013	0.667	1.339	2.011	2.685	3.345	3.973	4.544	5.017	5.397	6.059
4500	0.013	0.668	1.337	2.008	2.680	3.337	3.962	4.527	4.995	5.374	6.038
4600	0.013	0.667	1.335	2.005	2.675	3.328	3.951	4.509	4.973	5.349	6.017
4700	0.013	0.667	1.334	2.003	2.671	3.320	3.940	4.491	4.950	5.329	5.996
4800	0.013	0.666	1.333	2.001	2.666	3.312	3.928	4.472	4.927	5.301	5.974
4900	0.013	0.666	1.332	1.999	2.661	3.304	3.915	4.452	4.904	5.276	5.952
5000	0.013	0.666	1.332	1.998	2.657	3.296	3.903	4.432	4.880	5.250	5.930
5100	0.013	0.665	1.331	1.997	2.653	3.289	3.889	4.412	4.856	5.225	5.908
5200	0.013	0.665	1.331	1.996	2.648	3.281	3.875	4.390	4.831	5.199	5.885
5300	0.013	0.665	1.331	1.994	2.644	3.273	3.860	4.369	4.806	5.173	5.863
5400	0.013	0.665	1.331	1.993	2.639	3.266	3.844	4.347	4.781	5.146	5.840
5500	0.013	0.665	1.331	1.992	2.635	3.257	3.828	4.325	4.756	5.119	5.818
5600	0.013	0.665	1.331	1.990	2.630	3.249	3.811	4.303	4.730	5.093	5.796

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES  
=====

THE TABLE APPLIES FOR TRIM= -2.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.692	1.387	2.085	2.780	3.461	4.112	4.703	5.220	5.623	6.290
3500	0.014	0.689	1.380	2.075	2.768	3.449	4.099	4.690	5.205	5.605	6.266
3600	0.014	0.685	1.375	2.066	2.757	3.437	4.087	4.678	5.189	5.586	6.243
3700	0.014	0.684	1.369	2.058	2.747	3.426	4.074	4.666	5.173	5.567	6.221
3800	0.014	0.681	1.364	2.050	2.737	3.416	4.062	4.655	5.155	5.547	6.198
3900	0.014	0.679	1.360	2.044	2.729	3.406	4.051	4.641	5.137	5.525	6.176
4000	0.014	0.677	1.356	2.038	2.722	3.397	4.039	4.628	5.118	5.503	6.154
4100	0.014	0.676	1.353	2.033	2.714	3.388	4.028	4.614	5.098	5.481	6.132
4200	0.013	0.675	1.350	2.028	2.708	3.379	4.017	4.599	5.078	5.458	6.110
4300	0.013	0.673	1.347	2.023	2.702	3.371	4.006	4.583	5.057	5.434	6.089
4400	0.013	0.672	1.345	2.020	2.697	3.362	3.996	4.566	5.035	5.410	6.067
4500	0.013	0.671	1.343	2.016	2.692	3.354	3.985	4.548	5.013	5.386	6.045
4600	0.013	0.670	1.341	2.013	2.687	3.346	3.973	4.530	4.990	5.362	6.023
4700	0.013	0.670	1.340	2.011	2.682	3.339	3.962	4.510	4.967	5.337	6.001
4800	0.013	0.669	1.338	2.009	2.678	3.331	3.950	4.491	4.942	5.312	5.979
4900	0.013	0.668	1.337	2.007	2.674	3.323	3.936	4.470	4.918	5.287	5.956
5000	0.013	0.668	1.336	2.006	2.670	3.316	3.923	4.449	4.893	5.261	5.933
5100	0.013	0.668	1.336	2.004	2.666	3.308	3.909	4.428	4.868	5.234	5.911
5200	0.013	0.667	1.335	2.003	2.661	3.300	3.893	4.406	4.843	5.208	5.888
5300	0.013	0.667	1.335	2.002	2.657	3.293	3.878	4.383	4.817	5.180	5.865
5400	0.013	0.667	1.335	2.000	2.653	3.284	3.861	4.360	4.791	5.153	5.842
5500	0.013	0.667	1.335	1.999	2.649	3.275	3.844	4.337	4.764	5.126	5.819
5600	0.013	0.667	1.335	1.998	2.645	3.266	3.826	4.314	4.737	5.098	5.797



MARINE  
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LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES  
=====

THE TABLE APPLIES FOR TRIM= -3.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.697	1.396	2.097	2.794	3.477	4.130	4.724	5.240	5.643	6.302
3500	0.014	0.694	1.389	2.087	2.782	3.465	4.118	4.713	5.225	5.625	6.279
3600	0.014	0.691	1.383	2.078	2.770	3.453	4.106	4.702	5.209	5.605	6.255
3700	0.014	0.688	1.377	2.069	2.760	3.442	4.094	4.690	5.193	5.584	6.232
3800	0.014	0.686	1.372	2.061	2.751	3.432	4.083	4.678	5.179	5.563	6.209
3900	0.014	0.683	1.368	2.055	2.742	3.422	4.072	4.665	5.157	5.541	6.186
4000	0.014	0.681	1.364	2.048	2.733	3.413	4.061	4.650	5.137	5.518	6.164
4100	0.014	0.680	1.360	2.043	2.727	3.404	4.050	4.637	5.118	5.495	6.141
4200	0.014	0.678	1.357	2.038	2.721	3.395	4.039	4.620	5.097	5.471	6.119
4300	0.014	0.677	1.354	2.033	2.713	3.387	4.029	4.604	5.075	5.447	6.096
4400	0.013	0.675	1.351	2.029	2.709	3.379	4.018	4.587	5.053	5.423	6.074
4500	0.013	0.674	1.349	2.025	2.704	3.371	4.006	4.568	5.029	5.399	6.051
4600	0.013	0.673	1.347	2.022	2.699	3.364	3.994	4.549	5.006	5.373	6.028
4700	0.013	0.672	1.345	2.019	2.694	3.356	3.981	4.529	4.981	5.348	6.005
4800	0.013	0.672	1.344	2.017	2.690	3.349	3.969	4.508	4.956	5.322	5.982
4900	0.013	0.671	1.342	2.013	2.686	3.342	3.955	4.487	4.931	5.296	5.959
5000	0.013	0.670	1.341	2.013	2.682	3.334	3.941	4.464	4.905	5.269	5.935
5100	0.013	0.670	1.340	2.012	2.678	3.326	3.926	4.442	4.879	5.242	5.912
5200	0.013	0.670	1.340	2.010	2.674	3.318	3.909	4.419	4.852	5.215	5.889
5300	0.013	0.669	1.339	2.009	2.670	3.309	3.893	4.395	4.826	5.186	5.866
5400	0.013	0.669	1.339	2.008	2.666	3.300	3.875	4.372	4.798	5.158	5.843
5500	0.013	0.669	1.339	2.007	2.663	3.290	3.857	4.347	4.771	5.130	5.821
5600	0.013	0.669	1.339	2.005	2.659	3.281	3.838	4.323	4.743	5.101	5.797



MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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B) IN SALT WATER



MARINE  
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TYPE 1100 NAVAIDS - ICEBREAKER

STABILITY CALCULATION FOR INTACT SHIP  
=====

THE FREE TRIM DUE TO HEEL IS CORRECTED TO MAINTAIN CONSTANT LCB  
-----

UNITS ARE METRES AND TONNES  
SALT WATER DENSITY = 1.02500

V	ANGLE OF HEEL
DRAFT	PERPENDICULAR DISTANCE TO THE WL AT AMIDSHIPS FROM UNDERSIDE KEEL. KEELTHICKNESS = 0.015
TRIM	DIFFERENCE IN DRAFT AT FP AND AP TRIM FORWARD IS STATED POSITIVE
D	DISPLACEMENT INCLUDING SHELLPLATE, MEANTHICKNESS = 0.021
KM	TRANSVERSE METACENTRE FROM BL
GM	TRANSVERSE METACENTRIC HEIGHT
KN	DISPLACEMENT LEVER ABOUT BASE LINE AT CENTRE
MS	DISPLACEMENT LEVER ABOUT M
GZ	RIGHTING ARM
SKN	THE INTEGRAL OF KN
SMS	THE INTEGRAL OF MS
SGZ	THE INTEGRAL OF GZ
COR	CORRECTION OF GZ DUE TO FREE SURFACES
GZC	RIGHTING ARM CORRECTED FOR FREE SURFACES

CALCULATION FORMULAS FOR GZ AND SGZ  
=====

WHEN KG IS GIVEN	WHEN GM IS GIVEN
$GZ = KN - KG \cdot \sin V$	$GZ = MS + GM \cdot \sin V$
$SGZ = SKN - KG \cdot (1 - \cos V)$	$SGZ = SMS + GM \cdot (1 - \cos V)$

N.B. FOLLOWING INCLUDED IN THE CALCULATION  
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DECKEDGES



MARINE  
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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

THE TABLE APPLIES FOR TRIM= 0.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.681	1.365	2.053	2.740	3.416	4.053	4.620	5.118	5.535	6.251
3500	0.014	0.677	1.356	2.041	2.727	3.402	4.035	4.604	5.106	5.521	6.230
3600	0.013	0.674	1.350	2.032	2.715	3.387	4.017	4.588	5.093	5.504	6.209
3700	0.013	0.670	1.344	2.023	2.705	3.374	3.999	4.573	5.079	5.488	6.188
3800	0.013	0.668	1.339	2.015	2.695	3.361	3.983	4.557	5.065	5.471	6.168
3900	0.013	0.666	1.334	2.008	2.686	3.348	3.966	4.542	5.050	5.454	6.147
4000	0.013	0.664	1.330	2.002	2.678	3.336	3.951	4.527	5.034	5.436	6.127
4100	0.013	0.662	1.327	1.997	2.670	3.323	3.936	4.512	5.018	5.417	6.107
4200	0.013	0.661	1.324	1.992	2.663	3.311	3.921	4.498	5.000	5.398	6.087
4300	0.013	0.659	1.321	1.988	2.656	3.299	3.908	4.483	4.982	5.379	6.068
4400	0.013	0.659	1.320	1.985	2.649	3.288	3.894	4.468	4.964	5.359	6.048
4500	0.013	0.658	1.318	1.982	2.642	3.277	3.881	4.452	4.944	5.338	6.029
4600	0.013	0.657	1.316	1.979	2.636	3.266	3.870	4.437	4.924	5.317	6.010
4700	0.013	0.657	1.315	1.977	2.629	3.255	3.858	4.421	4.904	5.296	5.990
4800	0.013	0.657	1.314	1.975	2.622	3.245	3.847	4.406	4.883	5.274	5.971
4900	0.013	0.656	1.314	1.973	2.616	3.235	3.836	4.390	4.862	5.252	5.952
5000	0.013	0.656	1.314	1.971	2.609	3.225	3.825	4.373	4.841	5.229	5.932
5100	0.013	0.656	1.314	1.969	2.602	3.216	3.814	4.357	4.820	5.206	5.913
5200	0.013	0.657	1.314	1.967	2.596	3.207	3.802	4.339	4.799	5.183	5.893
5300	0.013	0.657	1.314	1.964	2.589	3.199	3.791	4.322	4.777	5.159	5.874
5400	0.013	0.657	1.314	1.961	2.583	3.190	3.779	4.304	4.756	5.136	5.853
5500	0.013	0.657	1.313	1.958	2.576	3.182	3.766	4.286	4.734	5.112	5.834
5600	0.013	0.658	1.315	1.955	2.570	3.175	3.754	4.268	4.712	5.088	5.813

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

THE TABLE APPLIES FOR TRIM= -0.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.683	1.368	2.058	2.747	3.424	4.063	4.638	5.140	5.554	6.262
3500	0.014	0.679	1.360	2.047	2.735	3.410	4.048	4.623	5.128	5.540	6.240
3600	0.013	0.676	1.354	2.038	2.723	3.397	4.031	4.608	5.115	5.523	6.219
3700	0.013	0.673	1.348	2.029	2.713	3.385	4.014	4.592	5.102	5.507	6.198
3800	0.013	0.670	1.343	2.021	2.703	3.372	3.999	4.577	5.087	5.490	6.178
3900	0.013	0.668	1.339	2.015	2.694	3.360	3.984	4.563	5.072	5.472	6.157
4000	0.013	0.666	1.335	2.008	2.686	3.349	3.969	4.548	5.055	5.454	6.137
4100	0.013	0.665	1.331	2.003	2.679	3.338	3.956	4.534	5.038	5.435	6.116
4200	0.013	0.663	1.329	1.998	2.672	3.326	3.942	4.519	5.020	5.416	6.096
4300	0.013	0.662	1.326	1.994	2.665	3.315	3.929	4.505	5.001	5.396	6.077
4400	0.013	0.661	1.324	1.991	2.659	3.304	3.916	4.490	4.982	5.376	6.057
4500	0.013	0.660	1.322	1.988	2.653	3.294	3.904	4.475	4.962	5.355	6.037
4600	0.013	0.660	1.321	1.985	2.647	3.284	3.893	4.460	4.942	5.334	6.018
4700	0.013	0.659	1.320	1.983	2.641	3.274	3.881	4.444	4.922	5.312	5.998
4800	0.013	0.659	1.319	1.981	2.635	3.264	3.870	4.428	4.901	5.289	5.978
4900	0.013	0.659	1.318	1.980	2.629	3.255	3.860	4.412	4.880	5.266	5.959
5000	0.013	0.659	1.318	1.978	2.623	3.245	3.849	4.394	4.859	5.243	5.939
5100	0.013	0.659	1.318	1.977	2.617	3.237	3.838	4.378	4.838	5.220	5.920
5200	0.013	0.659	1.318	1.975	2.611	3.228	3.826	4.360	4.816	5.196	5.900
5300	0.013	0.659	1.318	1.973	2.605	3.220	3.814	4.342	4.794	5.172	5.880
5400	0.013	0.659	1.318	1.971	2.600	3.212	3.802	4.324	4.772	5.149	5.860
5500	0.013	0.659	1.319	1.968	2.594	3.204	3.789	4.305	4.750	5.125	5.839
5600	0.013	0.660	1.319	1.965	2.588	3.197	3.776	4.286	4.728	5.101	5.819





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TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

THE TABLE APPLIES FOR TRIM= -1.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.685	1.373	2.063	2.756	3.434	4.078	4.657	5.163	5.575	6.273
3500	0.014	0.681	1.365	2.054	2.744	3.421	4.061	4.642	5.150	5.559	6.251
3600	0.014	0.678	1.359	2.045	2.732	3.408	4.046	4.627	5.137	5.543	6.230
3700	0.013	0.675	1.353	2.037	2.722	3.396	4.031	4.613	5.124	5.526	6.209
3800	0.013	0.673	1.348	2.028	2.712	3.385	4.017	4.598	5.109	5.509	6.188
3900	0.013	0.671	1.344	2.022	2.703	3.373	4.003	4.584	5.093	5.491	6.167
4000	0.013	0.669	1.340	2.016	2.696	3.362	3.989	4.570	5.076	5.472	6.146
4100	0.013	0.667	1.337	2.010	2.688	3.352	3.976	4.556	5.058	5.453	6.126
4200	0.013	0.666	1.334	2.006	2.681	3.341	3.963	4.543	5.040	5.434	6.106
4300	0.013	0.665	1.331	2.001	2.675	3.331	3.950	4.528	5.020	5.413	6.086
4400	0.013	0.664	1.329	1.998	2.669	3.321	3.939	4.514	5.001	5.392	6.065
4500	0.013	0.663	1.328	1.995	2.664	3.311	3.927	4.498	4.981	5.371	6.046
4600	0.013	0.662	1.326	1.992	2.658	3.302	3.916	4.483	4.960	5.348	6.026
4700	0.013	0.662	1.325	1.990	2.653	3.293	3.905	4.467	4.940	5.326	6.006
4800	0.013	0.662	1.324	1.988	2.647	3.284	3.894	4.450	4.919	5.303	5.986
4900	0.013	0.661	1.323	1.987	2.642	3.275	3.883	4.434	4.898	5.280	5.966
5000	0.013	0.661	1.323	1.985	2.637	3.266	3.873	4.416	4.877	5.257	5.946
5100	0.013	0.661	1.322	1.984	2.632	3.258	3.862	4.398	4.855	5.233	5.926
5200	0.013	0.661	1.322	1.983	2.626	3.249	3.849	4.380	4.833	5.209	5.905
5300	0.013	0.661	1.322	1.981	2.621	3.241	3.837	4.361	4.811	5.185	5.885
5400	0.013	0.661	1.322	1.979	2.616	3.234	3.824	4.343	4.789	5.161	5.864
5500	0.013	0.661	1.323	1.978	2.610	3.226	3.810	4.323	4.765	5.137	5.843
5600	0.013	0.661	1.323	1.975	2.605	3.219	3.796	4.304	4.742	5.112	5.822

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

THE TABLE APPLIES FOR TRIM= -1.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.688	1.379	2.074	2.766	3.445	4.092	4.675	5.186	5.595	6.285
3500	0.014	0.684	1.371	2.063	2.754	3.433	4.076	4.661	5.173	5.579	6.263
3600	0.014	0.681	1.365	2.053	2.742	3.420	4.062	4.647	5.160	5.562	6.241
3700	0.014	0.678	1.360	2.045	2.732	3.408	4.048	4.633	5.146	5.545	6.219
3800	0.013	0.676	1.354	2.037	2.722	3.397	4.035	4.620	5.129	5.528	6.198
3900	0.013	0.674	1.350	2.030	2.713	3.387	4.022	4.606	5.114	5.509	6.177
4000	0.013	0.672	1.346	2.024	2.706	3.376	4.009	4.593	5.096	5.491	6.156
4100	0.013	0.670	1.343	2.018	2.698	3.366	3.997	4.580	5.078	5.470	6.135
4200	0.013	0.669	1.340	2.014	2.692	3.357	3.985	4.566	5.059	5.451	6.115
4300	0.013	0.668	1.337	2.010	2.686	3.347	3.973	4.552	5.040	5.430	6.094
4400	0.013	0.667	1.335	2.006	2.680	3.338	3.962	4.538	5.020	5.408	6.074
4500	0.013	0.666	1.333	2.003	2.674	3.329	3.951	4.522	5.000	5.386	6.054
4600	0.013	0.665	1.331	2.000	2.667	3.320	3.940	4.506	4.979	5.363	6.033
4700	0.013	0.665	1.330	1.998	2.664	3.311	3.929	4.490	4.958	5.340	6.013
4800	0.013	0.664	1.329	1.996	2.659	3.303	3.919	4.472	4.937	5.317	5.993
4900	0.013	0.664	1.328	1.994	2.655	3.295	3.908	4.455	4.915	5.293	5.973
5000	0.013	0.663	1.327	1.992	2.650	3.286	3.896	4.437	4.894	5.269	5.952
5100	0.013	0.663	1.327	1.991	2.645	3.278	3.885	4.418	4.871	5.245	5.931
5200	0.013	0.663	1.326	1.990	2.640	3.271	3.872	4.399	4.848	5.221	5.910
5300	0.013	0.663	1.327	1.989	2.636	3.263	3.859	4.380	4.825	5.196	5.889
5400	0.013	0.663	1.326	1.987	2.631	3.255	3.846	4.360	4.802	5.172	5.868
5500	0.013	0.663	1.326	1.986	2.626	3.248	3.831	4.340	4.778	5.147	5.846
5600	0.013	0.663	1.327	1.984	2.621	3.241	3.816	4.319	4.754	5.122	5.825



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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS -- ICEBREAKER  
TABLE OF KN VALUES

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THE TABLE APPLIES FOR TRIM= -2.000 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.671	1.386	2.083	2.778	3.458	4.106	4.694	5.208	5.616	6.297
3500	0.014	0.688	1.378	2.073	2.765	3.445	4.092	4.681	5.196	5.600	6.274
3600	0.014	0.685	1.372	2.063	2.753	3.433	4.079	4.668	5.181	5.583	6.252
3700	0.014	0.682	1.367	2.055	2.743	3.422	4.067	4.655	5.168	5.565	6.230
3800	0.014	0.679	1.361	2.047	2.734	3.411	4.054	4.642	5.151	5.547	6.209
3900	0.014	0.677	1.357	2.040	2.724	3.401	4.042	4.630	5.134	5.528	6.187
4000	0.013	0.676	1.353	2.034	2.717	3.391	4.030	4.617	5.117	5.508	6.166
4100	0.013	0.674	1.349	2.028	2.709	3.381	4.018	4.604	5.098	5.488	6.145
4200	0.013	0.672	1.346	2.023	2.703	3.372	4.007	4.591	5.079	5.466	6.124
4300	0.013	0.671	1.343	2.019	2.697	3.363	3.995	4.576	5.059	5.445	6.103
4400	0.013	0.670	1.341	2.014	2.691	3.355	3.985	4.562	5.039	5.422	6.082
4500	0.013	0.669	1.339	2.011	2.686	3.346	3.974	4.545	5.019	5.399	6.061
4600	0.013	0.668	1.337	2.008	2.681	3.338	3.963	4.529	4.998	5.376	6.041
4700	0.013	0.667	1.336	2.005	2.676	3.330	3.952	4.512	4.976	5.353	6.020
4800	0.013	0.667	1.334	2.003	2.671	3.321	3.942	4.494	4.954	5.330	5.999
4900	0.013	0.666	1.333	2.002	2.667	3.314	3.931	4.475	4.932	5.303	5.978
5000	0.013	0.666	1.332	2.000	2.662	3.306	3.918	4.456	4.909	5.281	5.957
5100	0.013	0.666	1.332	1.998	2.658	3.298	3.906	4.437	4.886	5.257	5.936
5200	0.013	0.665	1.331	1.997	2.654	3.291	3.893	4.417	4.862	5.232	5.914
5300	0.013	0.665	1.331	1.996	2.650	3.283	3.879	4.397	4.839	5.207	5.892
5400	0.013	0.665	1.331	1.995	2.645	3.276	3.865	4.376	4.814	5.181	5.870
5500	0.013	0.665	1.330	1.993	2.641	3.268	3.850	4.355	4.790	5.155	5.848
5600	0.013	0.665	1.331	1.992	2.637	3.260	3.834	4.333	4.765	5.129	5.826

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES

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THE TABLE APPLIES FOR TRIM= -2.500 IN UPRIGHT CONDITION  
ANGLES OF HEEL

DISPL	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.676	1.394	2.094	2.790	3.472	4.123	4.713	5.229	5.637	6.309
3500	0.014	0.692	1.386	2.084	2.778	3.460	4.110	4.701	5.218	5.620	6.286
3600	0.014	0.689	1.380	2.073	2.766	3.448	4.098	4.689	5.203	5.603	6.264
3700	0.014	0.686	1.374	2.065	2.756	3.436	4.085	4.677	5.188	5.585	6.241
3800	0.014	0.683	1.369	2.057	2.746	3.426	4.073	4.666	5.172	5.565	6.219
3900	0.014	0.681	1.364	2.050	2.737	3.416	4.062	4.654	5.154	5.546	6.197
4000	0.014	0.679	1.360	2.044	2.729	3.406	4.050	4.641	5.137	5.524	6.176
4100	0.014	0.677	1.356	2.038	2.722	3.397	4.039	4.628	5.119	5.503	6.154
4200	0.014	0.676	1.353	2.033	2.714	3.388	4.029	4.614	5.099	5.481	6.133
4300	0.013	0.675	1.350	2.028	2.709	3.379	4.018	4.599	5.079	5.459	6.111
4400	0.013	0.673	1.347	2.024	2.703	3.371	4.007	4.584	5.058	5.436	6.090
4500	0.013	0.672	1.345	2.020	2.697	3.363	3.997	4.568	5.037	5.413	6.069
4600	0.013	0.671	1.343	2.017	2.692	3.355	3.986	4.550	5.015	5.389	6.048
4700	0.013	0.670	1.341	2.014	2.688	3.347	3.975	4.533	4.993	5.365	6.026
4800	0.013	0.670	1.340	2.012	2.683	3.340	3.964	4.514	4.971	5.342	6.004
4900	0.013	0.669	1.338	2.009	2.679	3.332	3.952	4.495	4.947	5.317	5.983
5000	0.013	0.668	1.337	2.007	2.675	3.325	3.939	4.475	4.924	5.292	5.961
5100	0.013	0.668	1.336	2.006	2.671	3.318	3.926	4.454	4.900	5.267	5.939
5200	0.013	0.668	1.336	2.005	2.667	3.310	3.913	4.434	4.875	5.241	5.917
5300	0.013	0.667	1.335	2.003	2.663	3.303	3.897	4.412	4.850	5.215	5.894
5400	0.013	0.667	1.335	2.002	2.659	3.295	3.883	4.390	4.825	5.189	5.872
5500	0.013	0.667	1.335	2.001	2.655	3.287	3.867	4.368	4.800	5.162	5.850
5600	0.013	0.667	1.335	2.000	2.651	3.278	3.850	4.346	4.774	5.136	5.828



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.

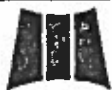
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Page

TYPE 1100 NAVAIDS - ICEBREAKER  
TABLE OF KN VALUES  
=====

THE TABLE APPLIES FOR TRIM= -3.000 IN UPRIGHT CONDITION

DISPL	ANGLES OF HEEL										
	0.1	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	60.0
3400	0.014	0.700	1.402	2.106	2.804	3.488	4.141	4.733	5.251	5.659	6.322
3500	0.014	0.697	1.395	2.096	2.792	3.475	4.128	4.722	5.238	5.641	6.299
3600	0.014	0.693	1.388	2.085	2.780	3.463	4.116	4.712	5.223	5.623	6.276
3700	0.014	0.690	1.383	2.077	2.769	3.452	4.105	4.701	5.208	5.603	6.253
3800	0.014	0.688	1.377	2.069	2.760	3.441	4.093	4.688	5.192	5.583	6.230
3900	0.014	0.685	1.372	2.061	2.751	3.431	4.082	4.677	5.174	5.562	6.209
4000	0.014	0.683	1.368	2.055	2.742	3.422	4.071	4.664	5.156	5.540	6.186
4100	0.014	0.681	1.364	2.048	2.735	3.413	4.061	4.650	5.137	5.518	6.164
4200	0.014	0.680	1.360	2.043	2.727	3.404	4.050	4.637	5.118	5.495	6.142
4300	0.014	0.678	1.357	2.038	2.721	3.396	4.040	4.621	5.098	5.472	6.120
4400	0.014	0.677	1.354	2.033	2.715	3.388	4.029	4.605	5.076	5.449	6.098
4500	0.013	0.675	1.352	2.029	2.709	3.380	4.019	4.588	5.055	5.426	6.076
4600	0.013	0.674	1.349	2.026	2.704	3.372	4.007	4.570	5.032	5.402	6.054
4700	0.013	0.673	1.347	2.023	2.700	3.365	3.996	4.552	5.009	5.378	6.032
4800	0.013	0.672	1.345	2.020	2.695	3.358	3.984	4.532	4.986	5.353	6.009
4900	0.013	0.672	1.344	2.017	2.691	3.350	3.971	4.512	4.961	5.327	5.986
5000	0.013	0.671	1.342	2.015	2.687	3.343	3.958	4.492	4.937	5.302	5.964
5100	0.013	0.671	1.341	2.013	2.683	3.336	3.944	4.470	4.912	5.276	5.941
5200	0.013	0.670	1.341	2.012	2.679	3.328	3.930	4.448	4.886	5.249	5.919
5300	0.013	0.670	1.340	2.010	2.675	3.320	3.914	4.426	4.860	5.223	5.896
5400	0.013	0.670	1.339	2.009	2.671	3.312	3.898	4.403	4.834	5.196	5.874
5500	0.013	0.669	1.339	2.008	2.668	3.304	3.882	4.380	4.808	5.168	5.851
5600	0.013	0.669	1.339	2.007	2.664	3.294	3.863	4.356	4.781	5.140	5.829



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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B) IN SALT WATER



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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FREEBOARD AND DRAFT MARKS



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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Page

TABLE FOR LENGTH BETWEEN DRAFT MARKS

LBP. = 75.0 m

DRAFT (METER)	DISTANCE BETWEEN F.P. AND DRAFT MARK (METER)	DISTANCE BETWEEN A.P. AND DRAFT MARK (METER)	LENGTH BETWEEN DRAFT MARKS (METER)
2.0	- 5.92	- 1.200	67.880
.2	- 5.886	"	67.914
.4	- 5.852	"	67.948
.6	- 5.818	"	67.982
.8	- 5.784	"	68.016
3.0	- 5.750	"	68.050
.2	- 5.675	"	68.125
.4	- 5.560	"	68.240
.6	- 5.410	"	68.390
.8	- 5.158	"	68.642
4.0	- 4.750	"	69.050
.2	- 4.342	"	69.458
.4	- 3.934	"	69.866
.6	- 3.525	"	70.275
.8	- 3.117	"	70.683
5.0	- 2.709	"	71.091
.2	- 2.301	"	71.499
.4	- 1.809	"	71.991
.6	- 1.484	"	72.316
.8	- 1.076	"	72.724
6.0	- 0.668	"	73.132
.2	- 0.259	"	73.541
.4	+ 0.149	"	73.949
.6	+ 0.557	"	74.357
.8	+ 0.965	"	74.765
7.0	+ 1.250	"	75.05

SIGN IS - IF DISTANCE IS INSIDE THE PERPENDICULARS.

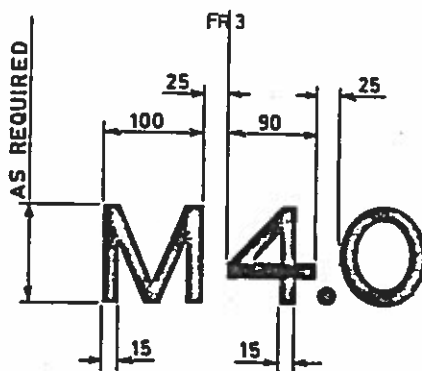
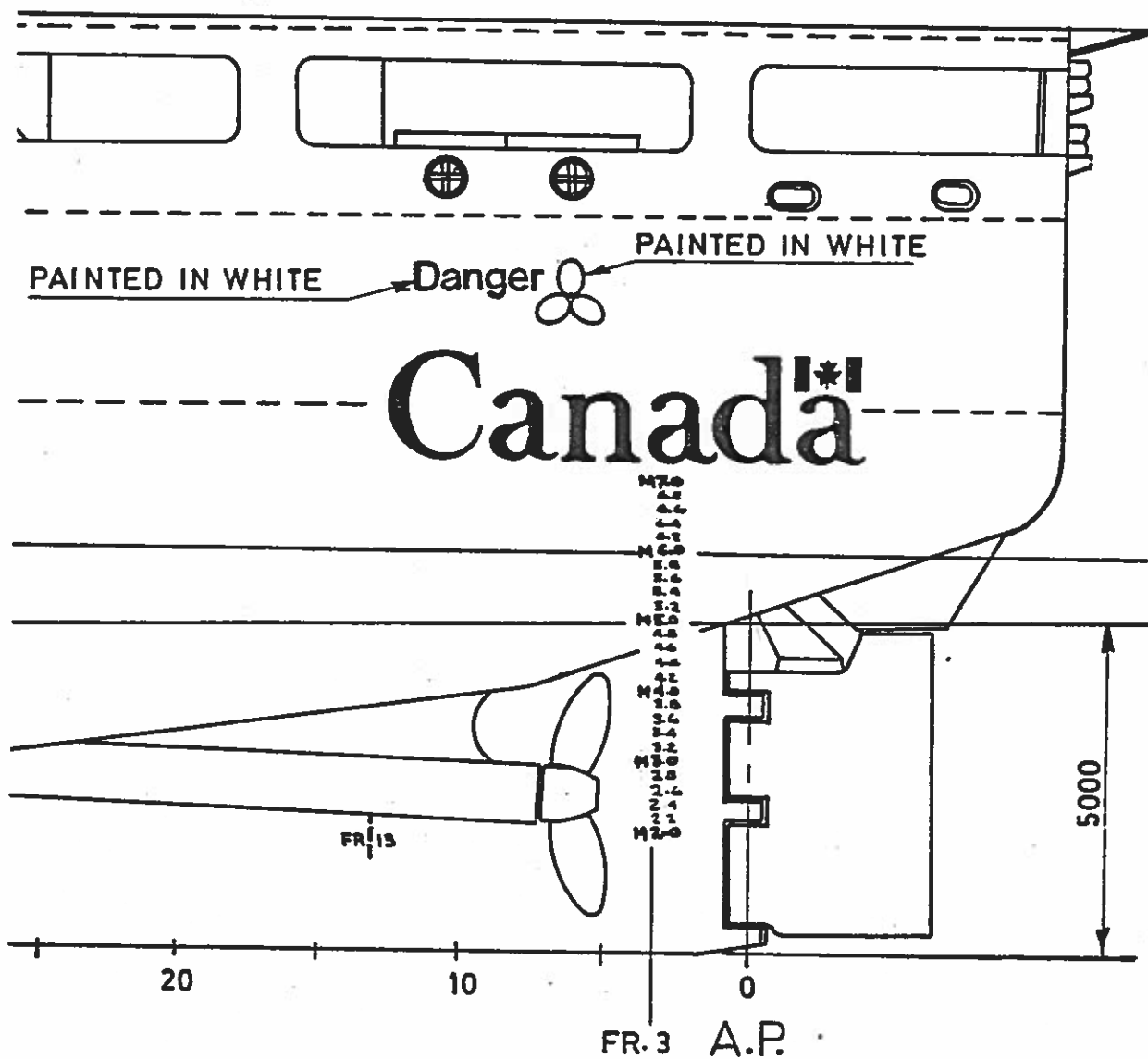


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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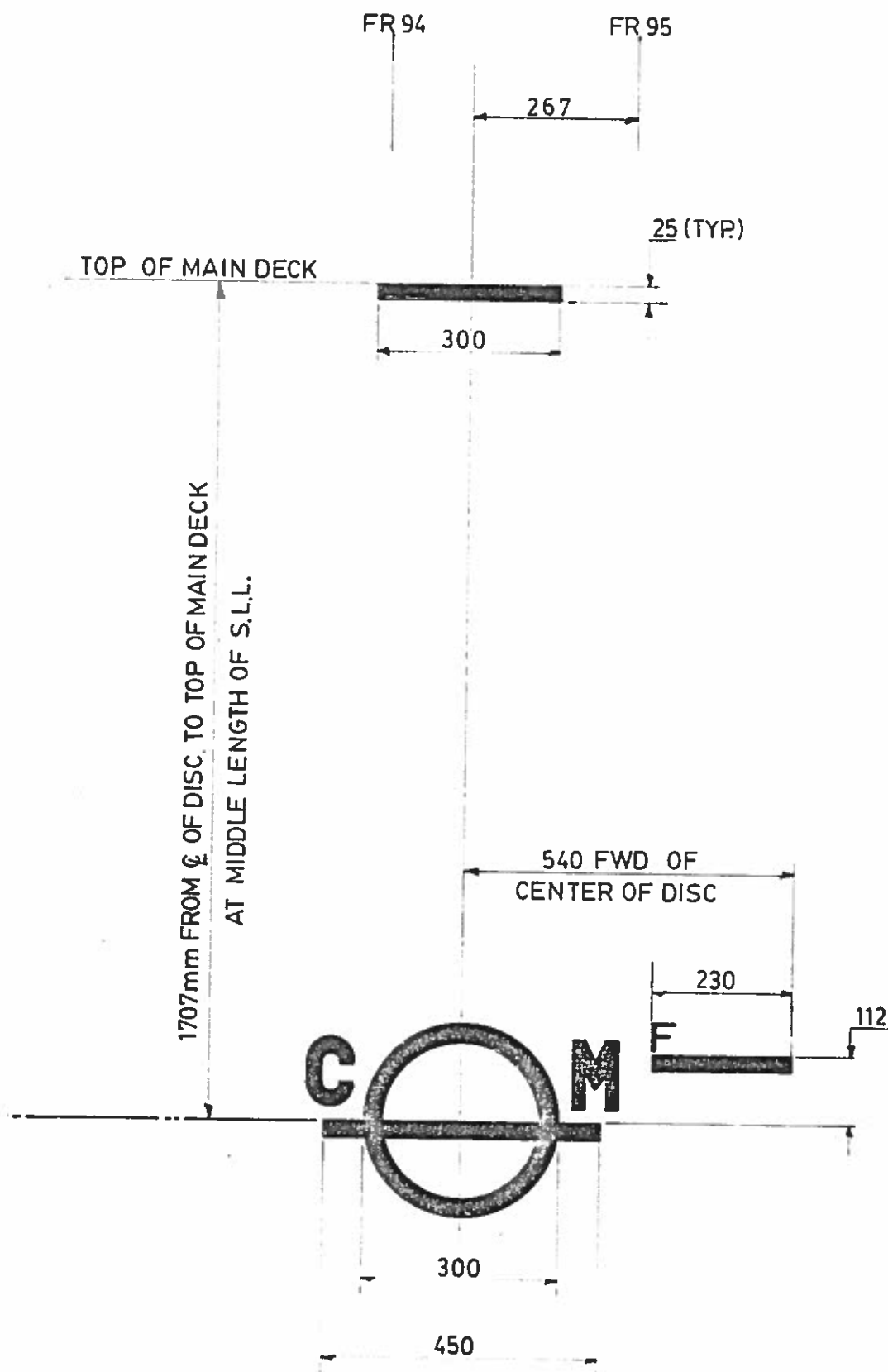


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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Page

LOADING CONDITIONS (INTACT)

- A) In Fresh Water
- B) In Salt Water
- C) Arctic
- D) Iced-up



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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Page

A) IN FRESH WATER



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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LOADING CONDITION

LIGHTSHIP

CONTRACT NUMBER 450  
C. 450 LIGHTSHIP & CENTER OF GRAVITY

DESCRIPTION	WEIGHT	VCG	VM	LCG	LM
VESSEL AS AT BERTH	3696.660	6.514	24080.0	34.854	128843.4
LIQUIDS TO BE DEDUCTED	-349.027	4.213	-1470.5	57.083	-19923.5
ITEMS TO COME OFF	-46.828	8.930	-418.2	50.083	-2345.3
ITEMS TO GO ON	4.618	11.875	54.8	37.670	174.0
HELCOF. HANGAR (RETRACTED)	11.000	16.500	181.5	13.168	166.8
HELCOF. HANGAR (AS INCLINED)	-11.000	16.500	-181.5	12.000	-132.0

** NUMBER OF ITEMS	=	6
** TOTAL WEIGHT	=	3305.423
** TOTAL VM	=	22246.257
** TOTAL LM	=	106783.401
** VCG. CUM	=	6.730
** LCG. CUM	=	32.306



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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## STORES & PROVISIONS

### STORES & PROVISIONS 100 % CONSUMMABLES

ITEM NO.	DESCRIPTION	WEIGHT (Kg.)	V. C. G. (Meter)	L. C. G. (Meter)
1	dry provisions & refrig. stores	32000.	6.00	44.8
2	central stores	20000.	6.00	8.8
3	stores in tween deck cargo hold	10000.	9.25	7.6
4	fwd rope store	5000.	10.25	74.0
5	aft rope store	5000.	9.2	1.6
6	stores in steering gear compt.	5000.	9.25	0.0
7	paint store	3000.	10.	66.
8	stores in propulsion motor room	3000.	6.	19.
9	miscellaenous stores & lockers	2000.	10.6	28.

### STORES & PROVISIONS 50 % CONSUMMABLES

ITEM NO.	DESCRIPTION	WEIGHT (Kg.)	V. C. G. (Meter)	L. C. G. (Meter)
1	dry provisions & refrig. stores	16000.	6.00	44.8
2	central stores	20000.	6.00	8.8
3	stores in tween deck cargo hold	5000.	9.25	7.6
4	fwd rope store	5000.	10.25	74.0
5	aft rope store	5000.	9.2	1.6
6	stores in steering gear compt.	5000.	9.25	0.0
7	paint store	3000.	10.	66.
8	stores in propulsion motor room	3000.	6.	19.
9	miscellaenous stores & lockers	2000.	10.6	28.

### STORES & PROVISIONS 10 % CONSUMMABLES

ITEM NO.	DESCRIPTION	WEIGHT (Kg.)	V. C. G. (Meter)	L. C. G. (Meter)
1	dry provisions & refrig. stores	3200.	6.00	44.8
2	central stores	20000.	6.00	8.8
3	stores in tween deck cargo hold	1000.	9.25	7.6
4	fwd rope store	5000.	10.25	74.0
5	aft rope store	5000.	9.2	1.6
6	stores in steering gear compt.	5000.	9.25	0.0
7	paint store	3000.	10.	66.
8	stores in propulsion motor room	3000.	6.	19.
9	miscellaenous stores & lockers	2000.	10.6	28.



MARINE  
INDUSTRIES  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 1  
\*\*\*\*\*

LIGHTSHIP

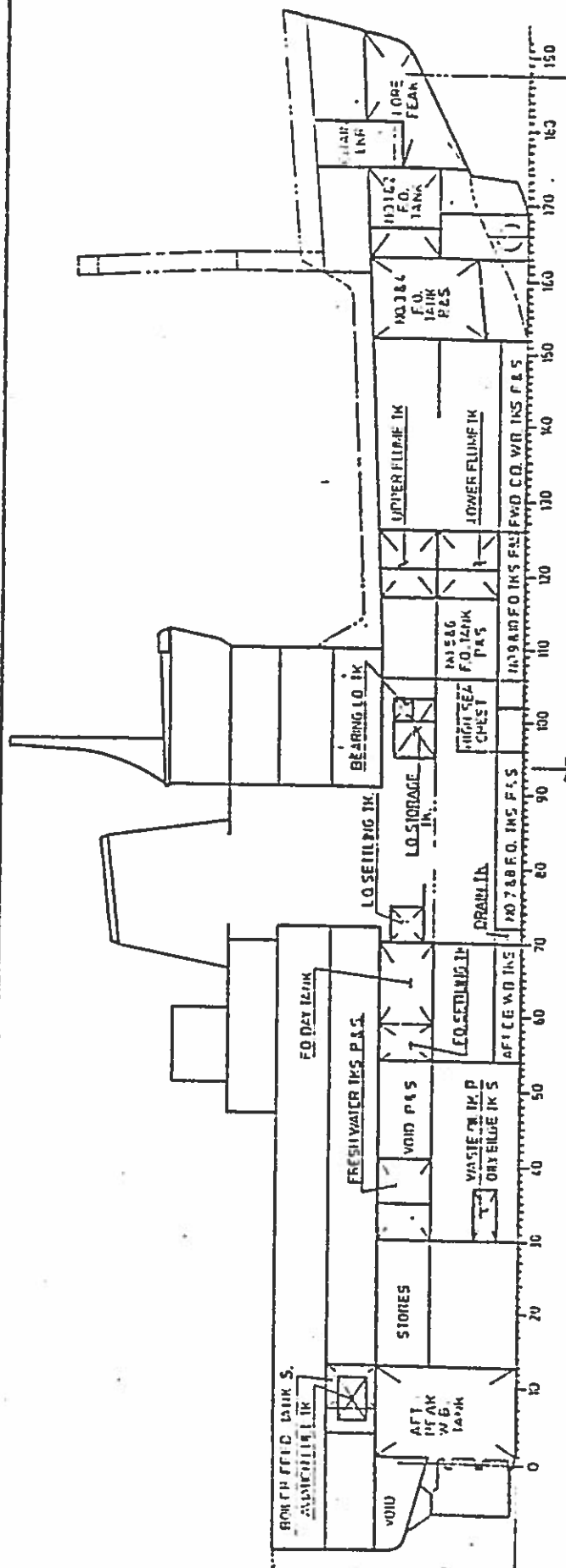
WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M
NO DEADWEIGHT	1.0000	0.0	0.000	-0.000		0.000
TOTAL DEADWEIGHT		0.0	0.000	-0.000	0.00	0.000
LIGHT SHIP		3305.4	6.730	32.306		0.000
TOTAL DISPLACEMENT		3305.4	6.730	32.306	0.00	0.000

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CONDITION NO 1  
\*\*\*\*\*

LIGHTSHIP

WATER DENSITY	=	1.00000
DRAFT AMIDSHIPS	=	4.3300 M
MEAN DRAFT (L.C.F.)	=	4.4803 M
DRAFT AFT	=	6.1207 M
DRAFT FWD	=	2.5393 M
TRIM	=	-3.5813 M
DISPLACEMENT	=	3305.4 TONNES
LCG	=	32.306 M
CCG	=	0.00000 M
KG	=	6.7300 M
CORRECTION FOR FREE SURFACE EFFECT	=	0.00000 M
KMT	=	8.0969 M
GM	=	1.3669 M
GM CORRECTED FOR FREE SURF	=	1.3669 M
ANGLE OF HEEL	0.100	5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000 60.000
KN CURVES	0.014	0.706 1.414 2.122 2.824 3.510 4.164 4.760 5.275 5.684 6.340
GZ CURVES	0.002	0.120 0.245 0.380 0.522 0.666 0.799 0.899 0.949 0.925 0.511
GZ CURVES CORREC	0.002	0.120 0.245 0.380 0.522 0.666 0.799 0.899 0.949 0.925 0.511
AREA UNDER GZ CU	0.0000	0.0052 0.0211 0.0483 0.0877 0.1396 0.2036 0.2780 0.3591 0.4414 0.6383
AREA UNDER CORRE	0.0000	0.0052 0.0211 0.0483 0.0877 0.1396 0.2036 0.2780 0.3591 0.4414 0.6383



F.O. TK.

 FLUME TK. FEED & FRESH WATER TK.

 S.W. BALLAST TK.

☐ L.O. TK.



OILY BILGE TK.

 WASTE OIL TK. DRAIN TK.

AVIATION FUEL TK.



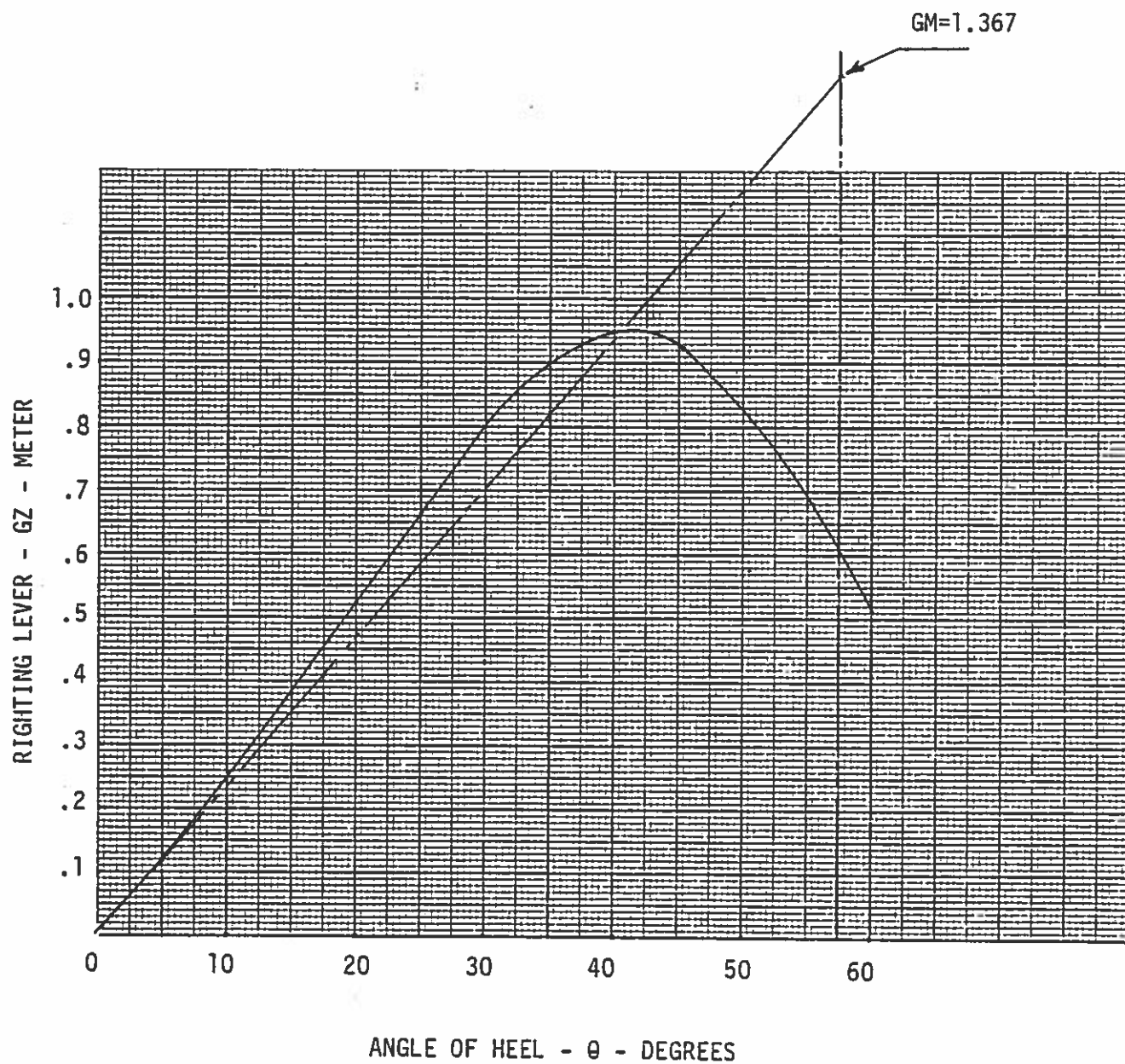
MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.

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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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Page

TYPE 1100 NAVALDS - ICEBREAKER  
CONDITION NO 22  
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OPERATING LIGHTSHIP 100 % CONSUMABLES

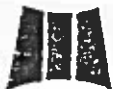
WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON-M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8900	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8900	194.0	5.948	62.836	103.38	0.000	223
F.O. TK NO. 5 P.	0.8900	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8900	104.0	3.172	45.155	133.75	3.136	207
F.U. TK NO. 7 P.	0.8900	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8900	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8900	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8900	35.3	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8900	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8900	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8900	32.4	5.681	48.952	486.36	0.000	214
LOWER FLUME TK	0.8900	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-3.079	37
FRESH WATER TK STBD	1.0000	38.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	13.4	9.203	4.000		4.850	42
FORE PEAK TK	1.0000	65.8	7.073	72.372		0.000	234
CREW & EFFECTS	1.0000	5.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
TOTAL DEADWEIGHT		1227.9	4.735	44.543	2533.78	0.166	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4533.3	6.193	35.621	2533.78	0.043	

CONDITION NO 22  
UNCLASSIFIED//FOR OFFICIAL USE ONLY

OPERATING LIGHTSHIP 103 % CONSUMABLES

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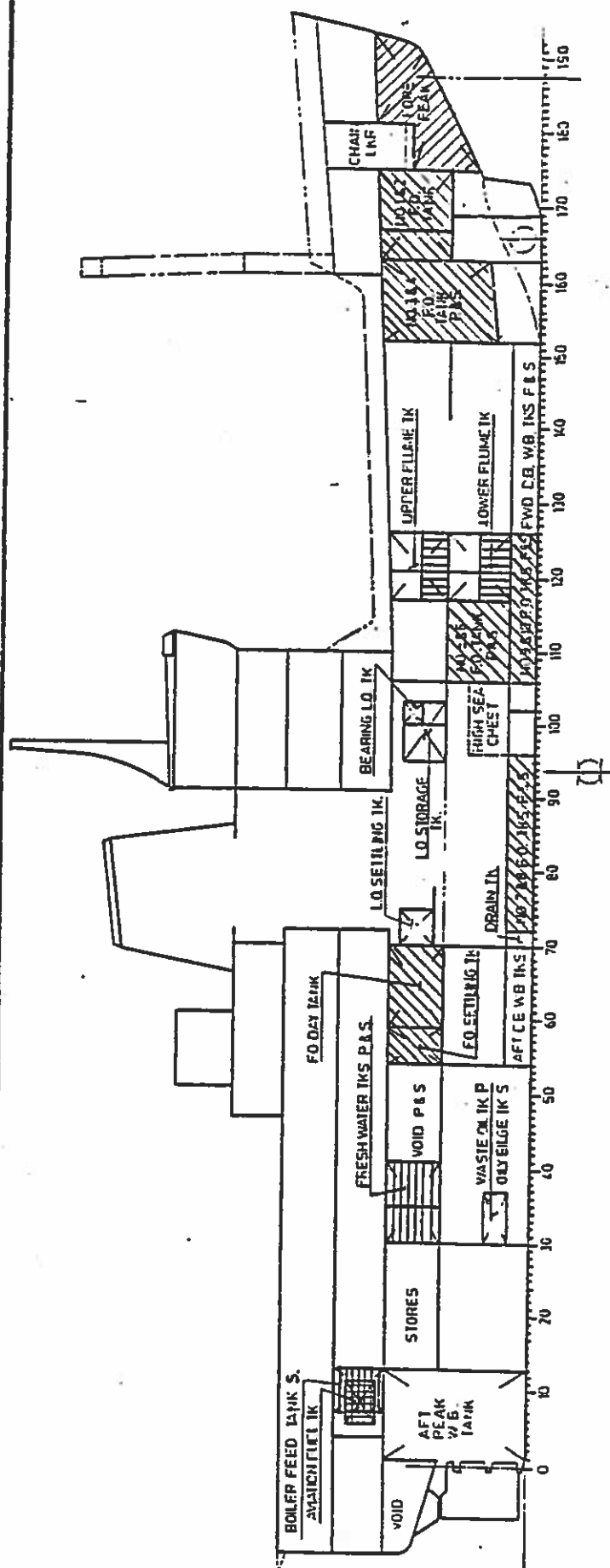


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

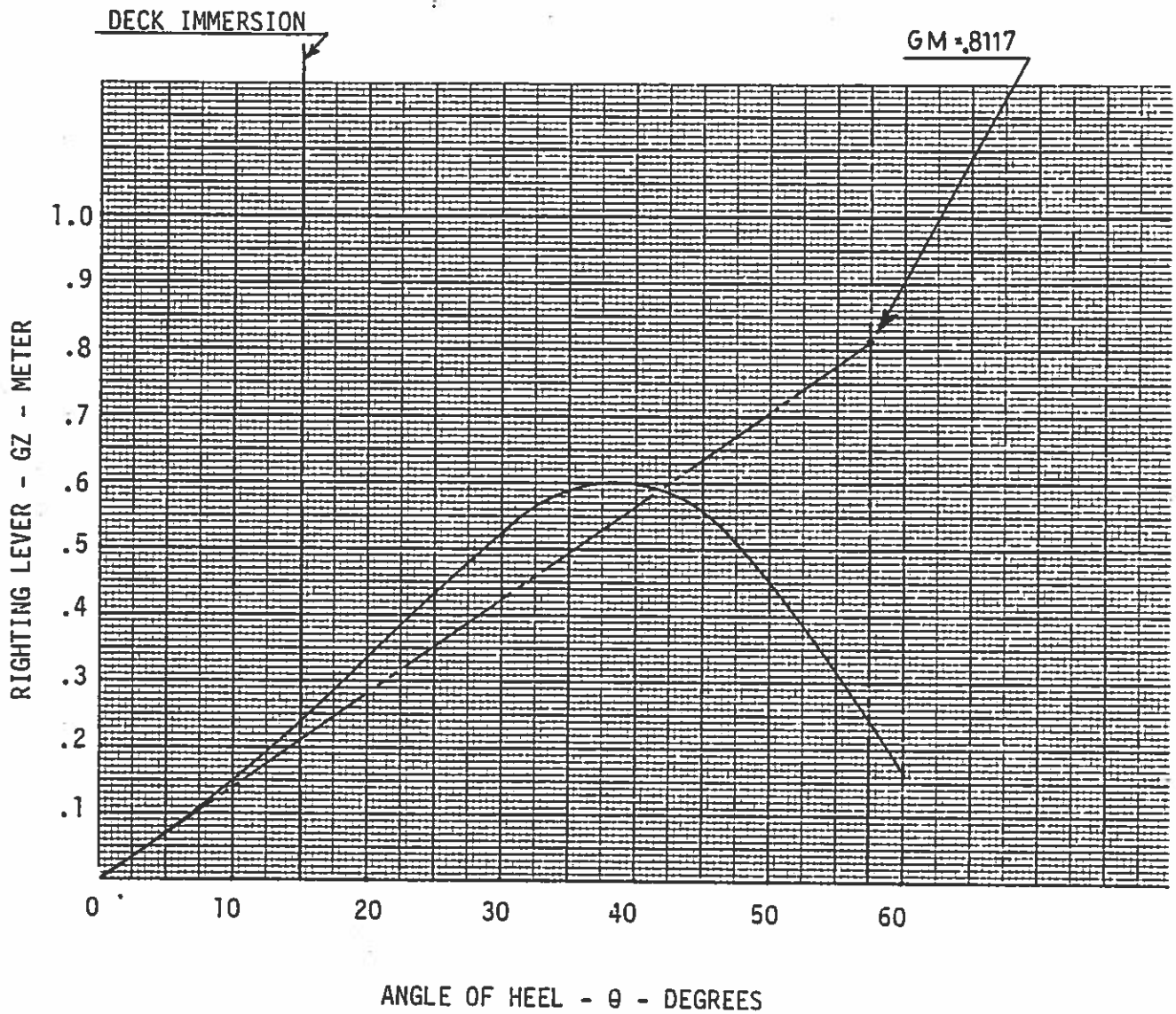


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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Page

TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 23

LOADED DEPARTURE 100 % CONSUMMABLES

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	207
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	43.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	587.22	0.002	212
AVIATION FUEL TK	0.7700	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-3.079	37
FRESH WATER TK STBD	1.0000	58.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.0000	25.0	3.195	3.463	33.72	-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.444		0.600	303
DECK CARGO	1.0000	90.0	9.200	52.800		0.000	311
TOTAL DEADWEIGHT		1957.1	4.914	44.923	2567.50	0.131	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4862.5	6.148	36.346	2567.50	0.042	

CONDITION NO 23

LOADED DEPARTURE 100 % CONSUMMABLES

WATER DENSITY	=	1.00000
DRAFT AMIDSHIPS	=	6.0309 M
MEAN DRAFT (L.C.F.)	=	6.0317 M
DRAFT AFT	=	6.0441 M
DRAFT FWD	=	6.0176 M
TRIM	=	-0.02654 M
DISPLACEMENT	=	4862.5 TONNES
LCG	=	36.346 M
CCG	=	0.04204 M
KG	=	6.1485 M
CORRECTION FOR FREE SURFACE EFFECT	=	0.52802 M
KMT	=	7.5205 M
GM	=	1.3720 M
GM CORRECTED FOR FREE SURF.	=	0.84401 M
ANGLE OF HEEL	0.100	5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000
KN CURVES	0.013	0.656 1.314 1.972 2.611 3.227 3.828 4.376 4.845 5.233 5.536
GZ CURVES	0.002	0.121 0.246 0.380 0.508 0.629 0.734 0.830 0.893 0.886 0.611
GZ CURVES CORREC	0.001	0.075 0.155 0.244 0.327 0.406 0.490 0.547 0.554 0.512 0.154
AREA UNDER GZ CU	0.0000	0.0053 0.0212 0.0483 0.0874 0.1370 0.1973 0.2676 0.3440 0.4220 0.6253
AREA UNDER CORRE	0.0000	0.0033 0.0132 0.0305 0.0555 0.0875 0.1266 0.1721 0.2205 0.2673 0.3613

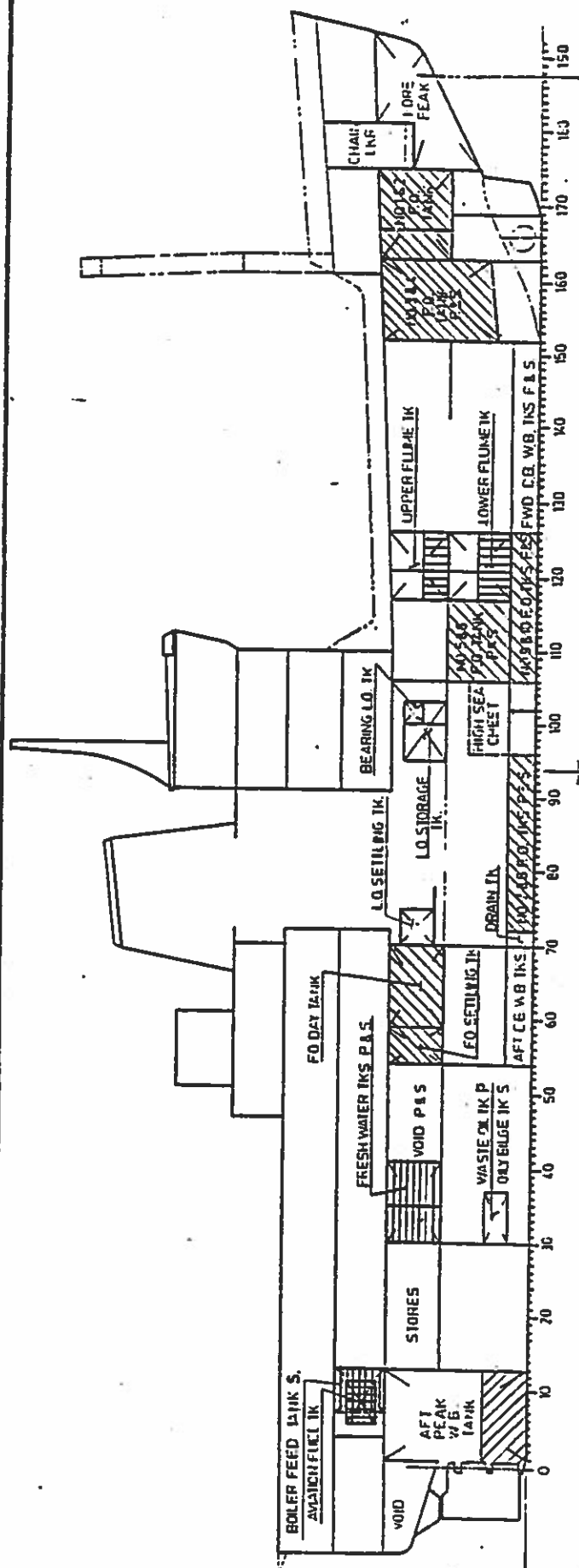


MARINE  
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LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
  -  FLUME TK.
  -  FEED & FRESH WATER TK.
  -  S.W. BALLAST TK.
  -  L.O. TK.
  -  OILY BILGE TK.
  -  WASTE OIL TK.
  -  DRAIN TK.
  -  AVIATION FUEL TK.

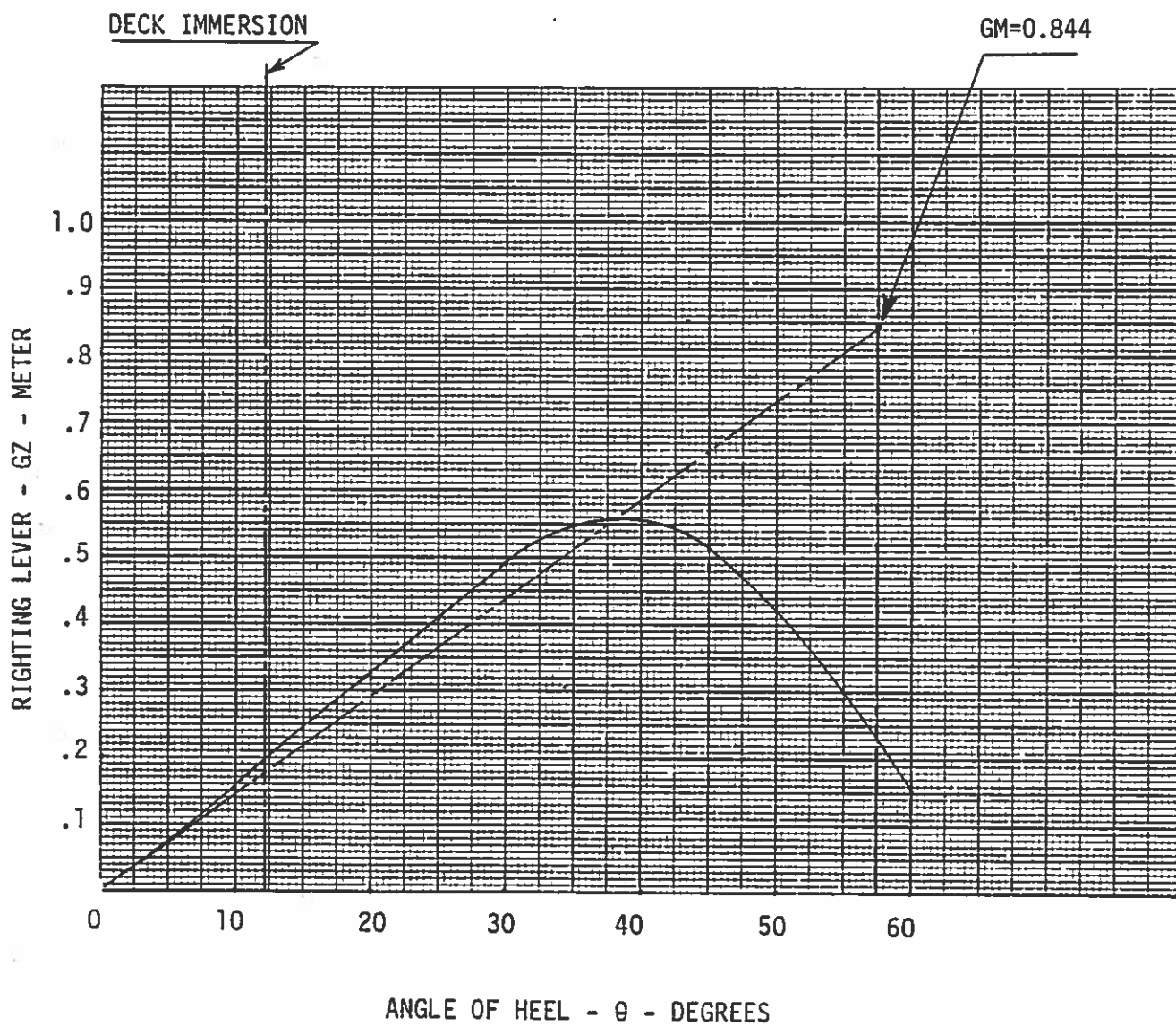


MARINE  
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LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVARDS - ICEBREAKER  
CONDITION NO 24  
\*\*\*\*\*

LOADED ARRIVAL 10% CONSUMMABLES

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE: MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO 2 P/S	0.8800	32.2	5.786	67.390	30.16	0.000	226
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	7
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	1.8	8.501	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	9.7	5.228	14.312	9.85	-5.087	37
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.0000	85.8	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	47.2	7.651	21.525		0.000	309
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	90.0	9.200	52.800		0.000	311
TOTAL DEADWEIGHT		762.3	6.163	49.993	1361.80	0.188	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4067.7	6.624	35.621	1361.80	0.035	

CONDITION NO 24

LOADED ARRIVAL 10% CONSUMMABLES

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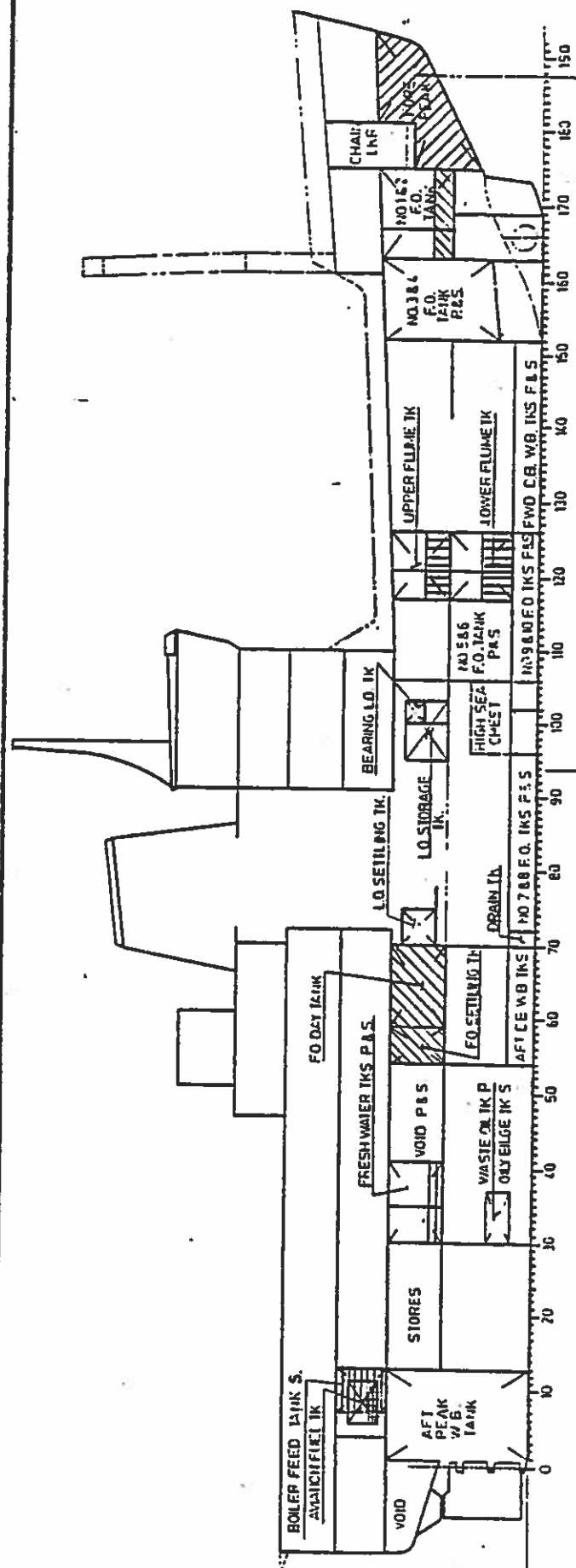


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

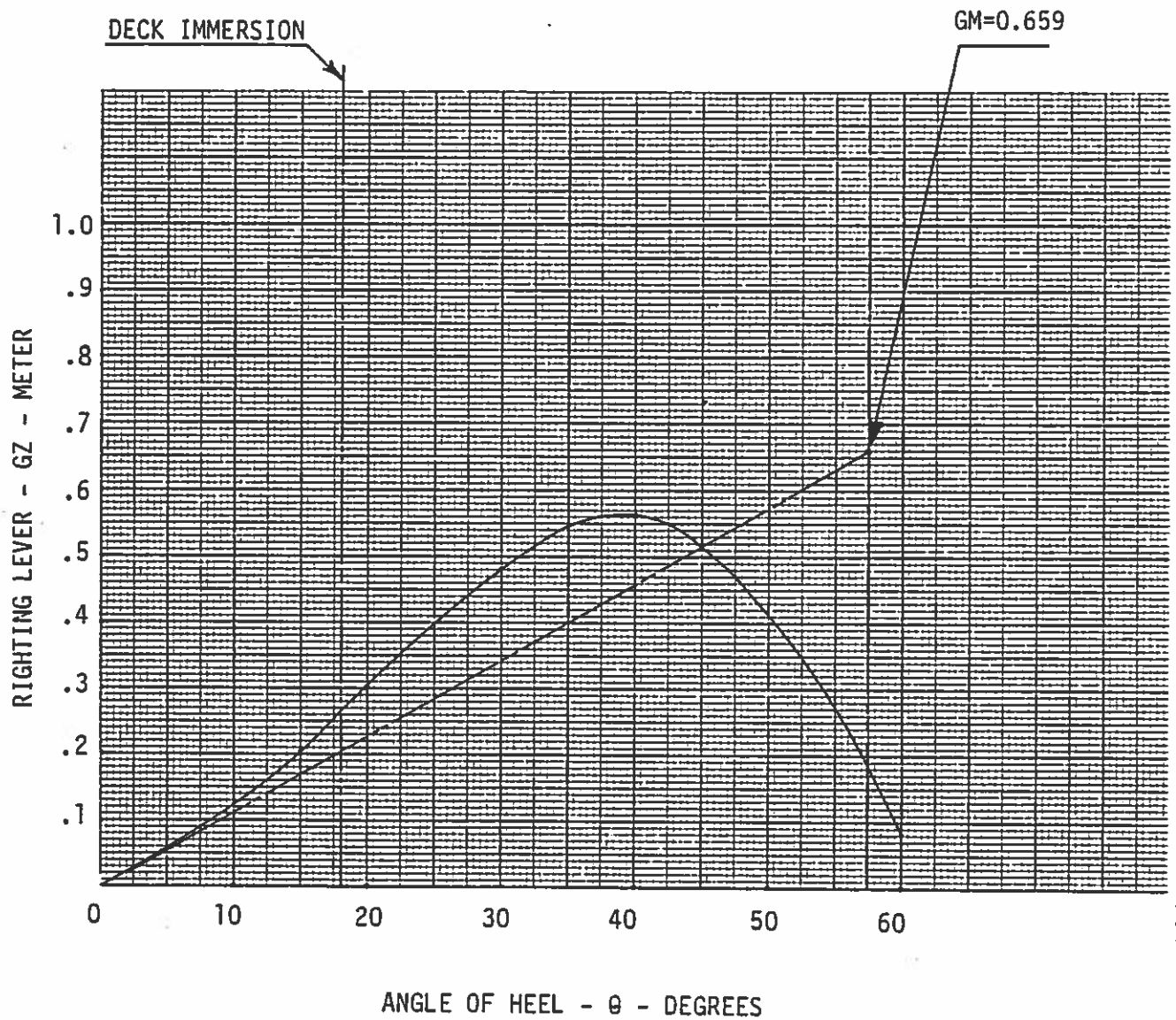


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 25

**BUDY HANDLING CONDITION 50% CONSUMMABLES**

WEIGHT ITEM	SPECIF	WEIGHT	VCO	LCO	FREE	TCO	
	WEIGHT		FROM	FROM	SURFACE	FROM	
	OR		BL	AP	MOMENT	CL	
	UNIT	TON	M	M	TON*M	M	
	WEIGHT						
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	3.948	62.836	105.39	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 3 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.711	2.07	3.024	9
F.O. SETTLING TK	0.8800	23.4	6.323	22.600	10.29	4.593	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	9.8	9.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PURT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	5.203	4.000		4.850	42
FORE PEAK TK	1.0000	85.8	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
DECK CARGO	1.0000	15.0	9.200	52.000		0.000	305
BUOY ON BOOM	1.0000	15.0	28.000	58.000		0.000	306
TOTAL DEADWEIGHT		787.3	6.479	49.514	1731.93	0.273	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4092.7	6.682	35.616	1731.93	0.053	

CONDITION NO 25

### BODY HANDLING CONDITION 50% CONSUMABLES

WATER DENSITY	=	1.00000	
DRAFT AMIDSHIPS	=	5.2651 M	
MEAN DRAFT (L.C.F.)	=	5.2894 M	
DRAFT AFT	=	5.6704 M	
DRAFT FWD	=	4.8598 M	
TRIM	=	-0.81058 M	
DISPLACEMENT	=	4092.7 TONNES	
LCO	=	35.616 M	
CCG	=	0.05254 M	
KG	=	6.6818 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.42318 M	
KMT	=	7.6145 M	
GM	=	0.93268 M	
GM CORRECTED FOR FREE SURF.	=	0.50950 M	
ANGLE OF HEEL		0.100	3.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES		0.013	0.663 1.332 2.003 2.678 3.336 3.955 4.534 5.033 5.428 6.103
GZ CURVES		0.002	0.083 0.172 0.274 0.393 0.512 0.615 0.702 0.738 0.703 0.317
GZ CURVES CORREC		0.001	0.046 0.099 0.164 0.248 0.333 0.403 0.459 0.466 0.404 -0.050
AREA UNDER GZ CU		0.0000	0.0036 0.0146 0.0339 0.0629 0.1025 0.1517 0.2094 0.2727 0.3361 0.4736
AREA UNDER CORRE		0.0000	0.0020 0.0082 0.0195 0.0374 0.0628 0.0950 0.1328 0.1737 0.2121 0.2646

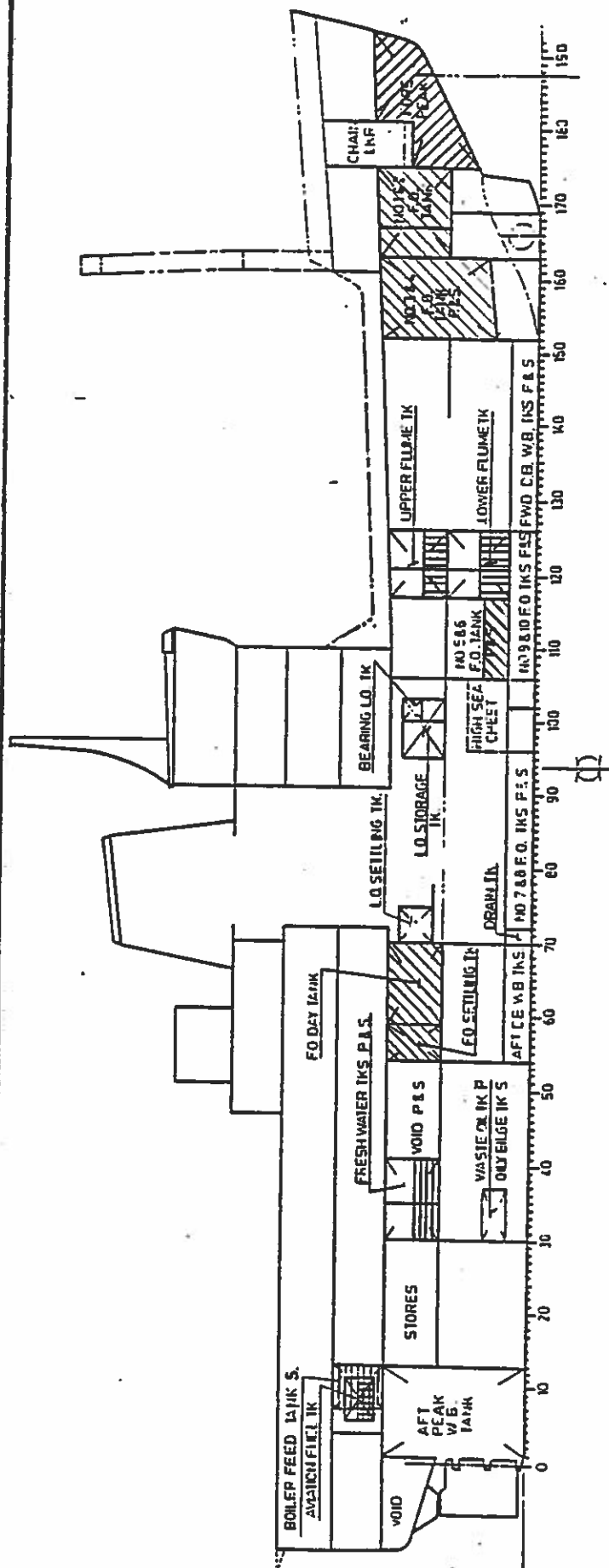


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

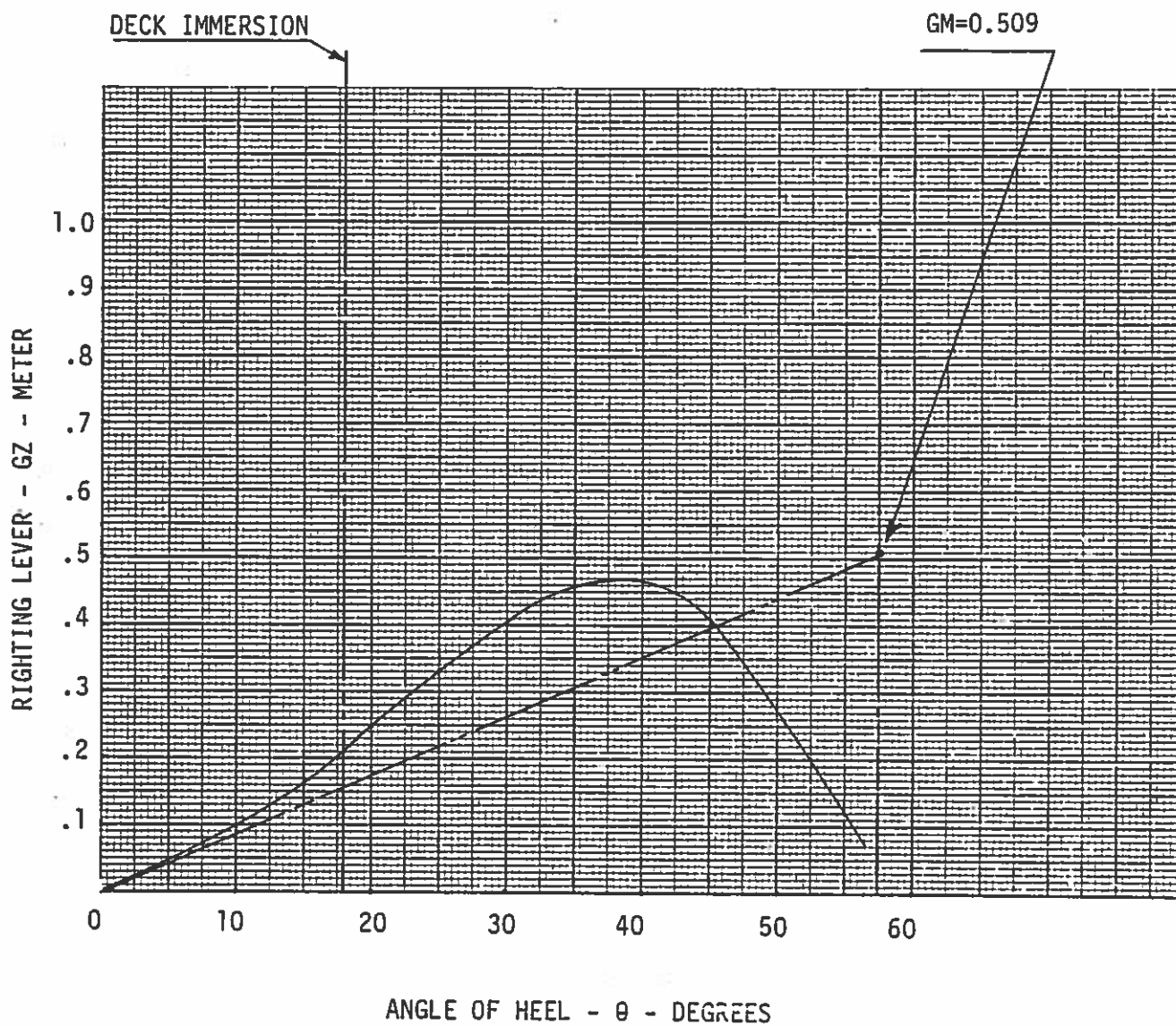


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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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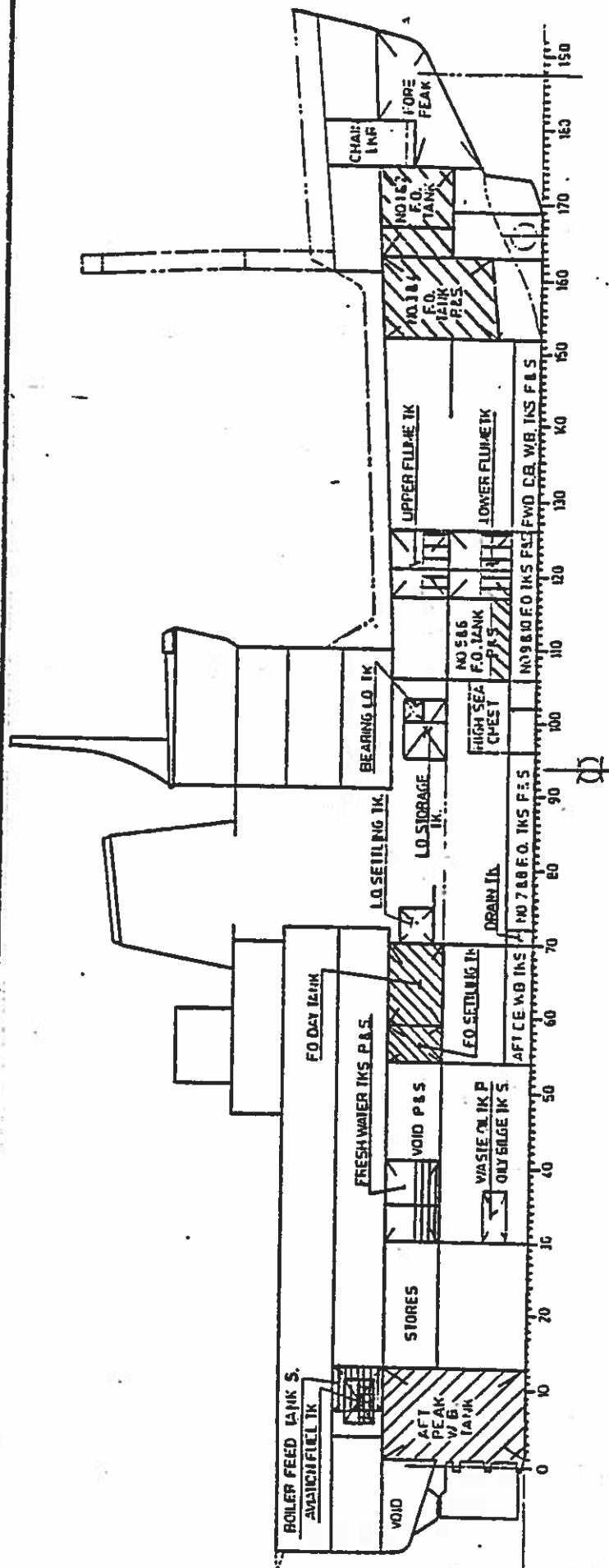











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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.



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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 26  
\*\*\*\*\*

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM -AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	19.3	5.999	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.0000	109.4	5.583	2.991		-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	90.0	9.200	52.800		0.000	311
TOTAL DEADWEIGHT		1171.0	5.872	45.113	1731.93	0.184	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4476.4	6.505	35.656	1731.93	0.048	

CONDITION NO 26  
\*\*\*\*\*

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES

WATER DENSITY	=	1.00000	
DRAFT AMIDSHIPS	=	5.6420 M	
MEAN DRAFT (L.C.F.)	=	5.6650 M	
DRAFT AFT	=	5.9958 M	
DRAFT FWD	=	5.2883 M	
TRIM	=	-0.70741 M	
DISPLACEMENT	=	4476.4 TONNES	
LCG	=	35.656 M	
CCG	=	0.04804 M	
KC	=	6.5055 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.38670 M	
KMT	=	7.5695 M	
GM	=	1.0641 M	
GM CORRECTED FOR FREE SURF.	=	0.67717 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.661	1.323 1.988 2.652 3.293 3.903 4.471 4.952 5.342 6.023
GZ CURVES	0.002	0.094	0.193 0.305 0.427 0.543 0.651 0.740 0.770 0.742 0.389
GZ CURVES CORREC	0.001	0.060	0.126 0.204 0.295 0.380 0.457 0.518 0.522 0.469 0.054
AREA UNDER GZ CU	0.0060	0.0041	0.0166 0.0382 0.0701 0.1125 0.1646 0.2256 0.2920 0.3583 0.5140
AREA UNDER CORRE	0.0000	0.0026	0.0107 0.0250 0.0467 0.0762 0.1128 0.1556 0.2014 0.2450 0.3205

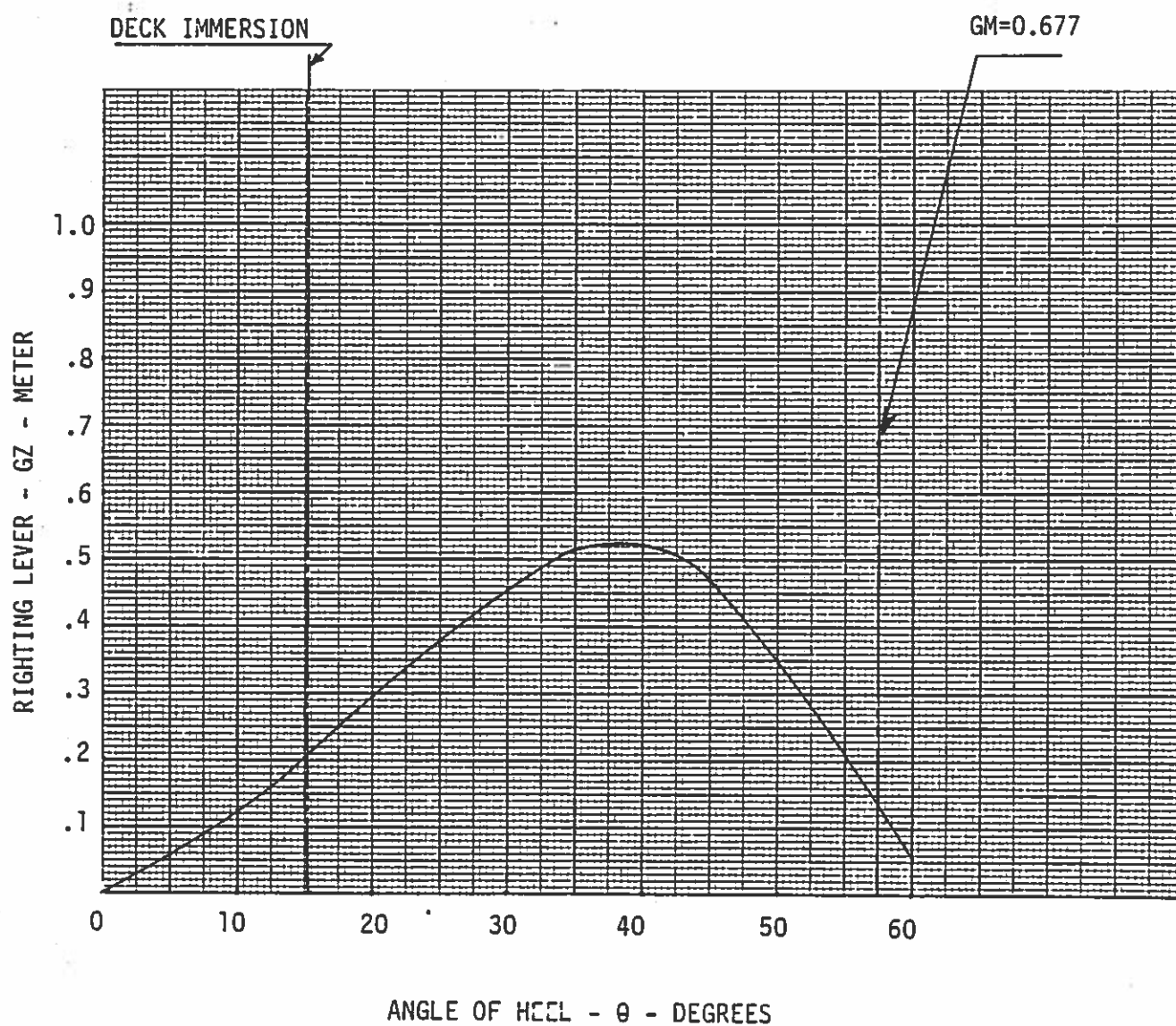


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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 27  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*MM	TCG FROM CL M	
F.O. TK NO 3 & NO. 4 P/S	0.8800	174.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.23	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.030	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.0000	85.8	7.073	72.572		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.0000	103.3	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
TOTAL DEADWEIGHT		860.5	5.385	49.976	1731.93	0.250	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4166.0	6.452	35.956	1731.93	0.052	

CONDITION NO 27  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES

WATER DENSITY	=	1.00000	
DRAFT AMIDSHIPS	=	5.3478 M	
MEAN DRAFT (L.C.F.)	=	5.3623 M	
DRAFT AFT	=	5.5999 M	
DRAFT FWD	=	5.0957 M	
TRIM	=	-0.50421 M	
DISPLACEMENT	=	4166.0 TONNES	
LCG	=	35.956 M	
CCG	=	0.05162 M	
KG	=	6.4522 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.41573 M	
KMT	=	7.5837 M	
GM	=	1.1315 M	
GM CORRECTED FOR FREE SURF	=	0.71575 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.662	1.327 1.995 2.667 3.318 3.933 4.509 5.007 5.402 6.083
GZ CURVES	0.002	0.100	0.206 0.326 0.461 0.592 0.707 0.809 0.860 0.840 0.495
GZ CURVES CORREC	0.001	0.064	0.134 0.218 0.318 0.416 0.499 0.570 0.592 0.546 0.135
AREA UNDER GZ CU	0.0000	0.0043	0.0176 0.0407 0.0750 0.1210 0.1777 0.2440 0.3173 0.3919 0.5732
AREA UNDER CORRE	0.0000	0.0028	0.0113 0.0265 0.0499 0.0820 0.1220 0.1688 0.2200 0.2702 0.3654

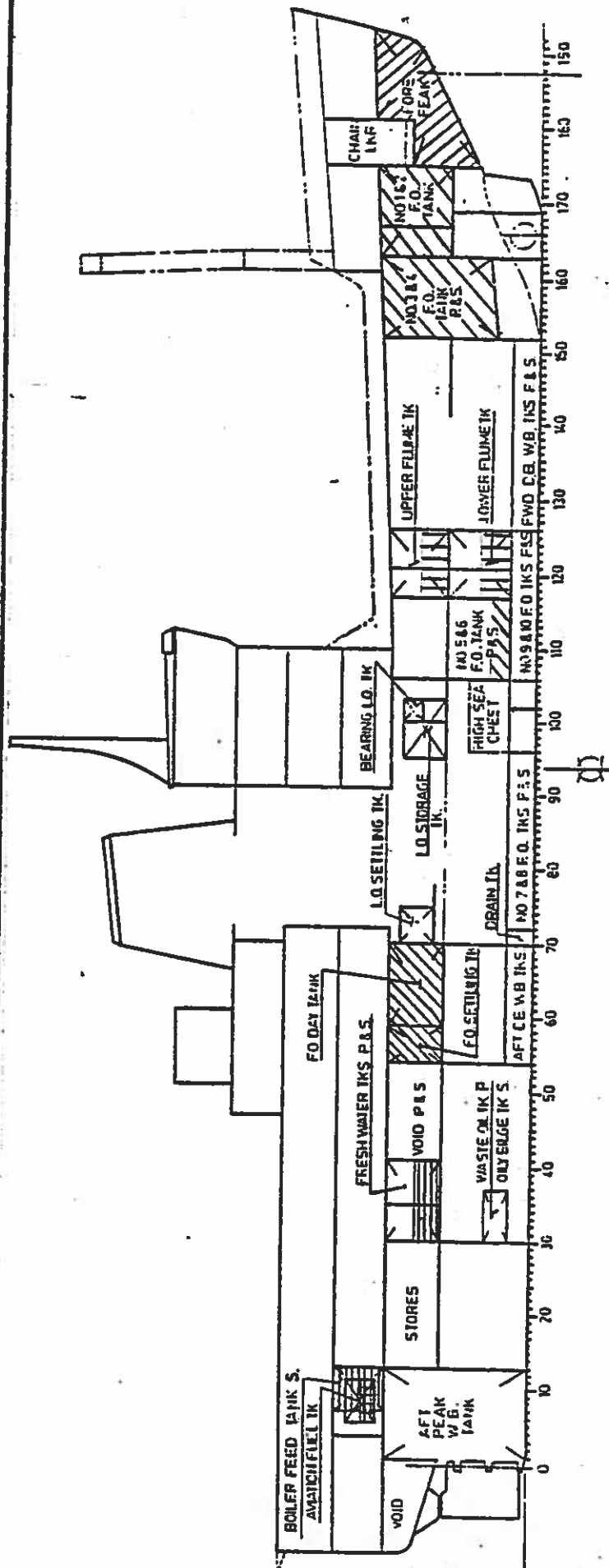











MARINE  
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LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.



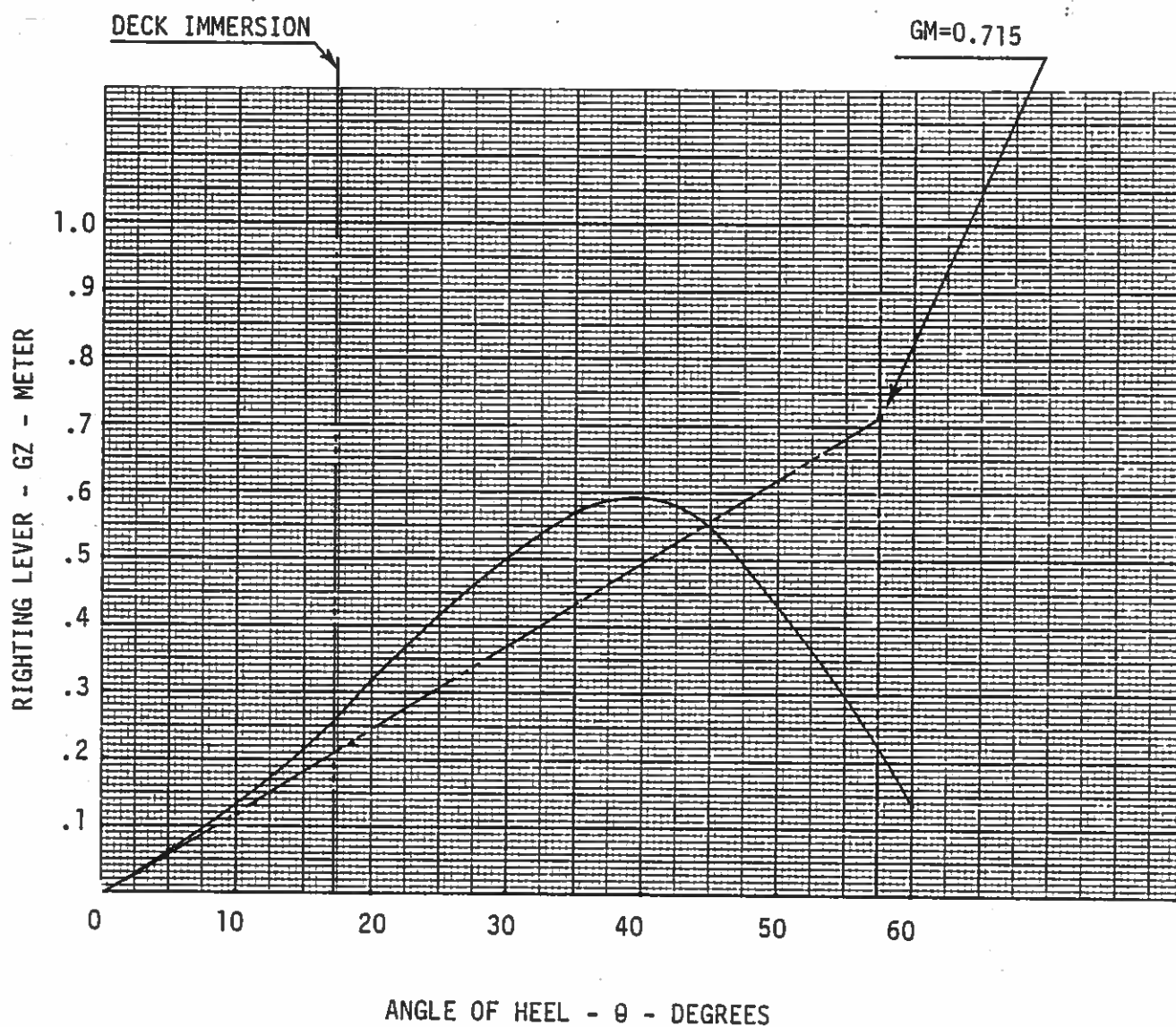


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 2  
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OPERATING LIGHTSHIP 100 % CONSUMABLES

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	62.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	4.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	92.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD	1.0000	38.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
TOTAL DEADWEIGHT		1230.0	4.769	44.594	2533.78	0.166	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4535.4	6.198	35.638	2533.78	0.045	

CONDITION NO 2

OPERATING LIGHTSHIP 100 % CONSUMABLES

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	5.5913 M	
MEAN DRAFT (L.C.F.)	=	5.6152 M	
DRAFT AFT	=	5.9368 M	
DRAFT FWD	=	5.2258 M	
TRIM	=	-0.73093 M	
DISPLACEMENT	=	4535.4 TONNES	
LCG	=	35.638 M	
CCG	=	0.04507 M	
KG	=	6.1981 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.55866 M	
KMT	=	7.5730 M	
GM	=	1.3769 M	
GM CORRECTED FOR FREE SURF.	=	0.81821 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000
KN CURVES	0.013	0.661	1.324 1.990 2.656 3.299 3.910 4.400 4.964 5.355 6.034
GZ CURVES	0.002	0.121	0.248 0.386 0.536 0.679 0.811 0.925 0.980 0.972 0.667
GZ CURVES CORREC	0.001	0.072	0.151 0.241 0.345 0.443 0.532 0.605 0.621 0.577 0.183
AREA UNDER GZ CU	0.0000	0.0053	0.0213 0.0480 0.0891 0.1422 0.2072 0.2833 0.3669 0.4525 0.6748
AREA UNDER CORRE	0.0000	0.0031	0.0128 0.0298 0.0554 0.0898 0.1324 0.1823 0.2362 0.2889 0.3955

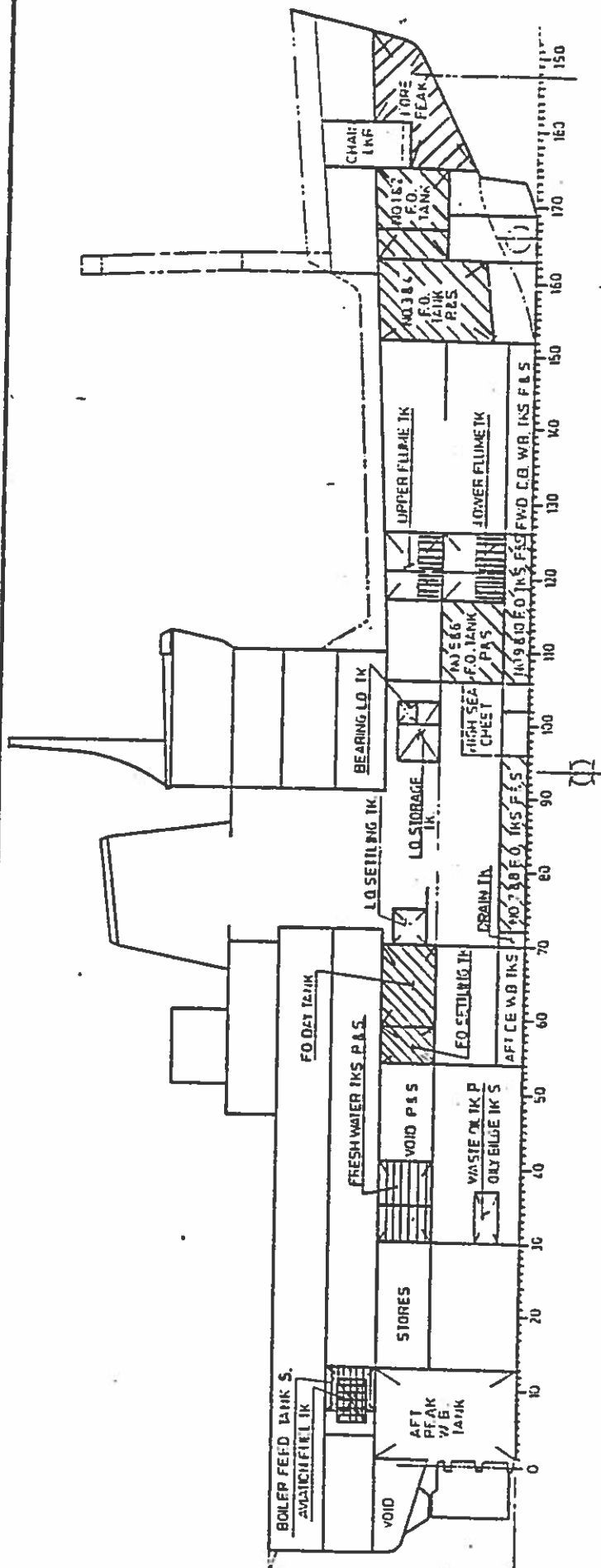


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

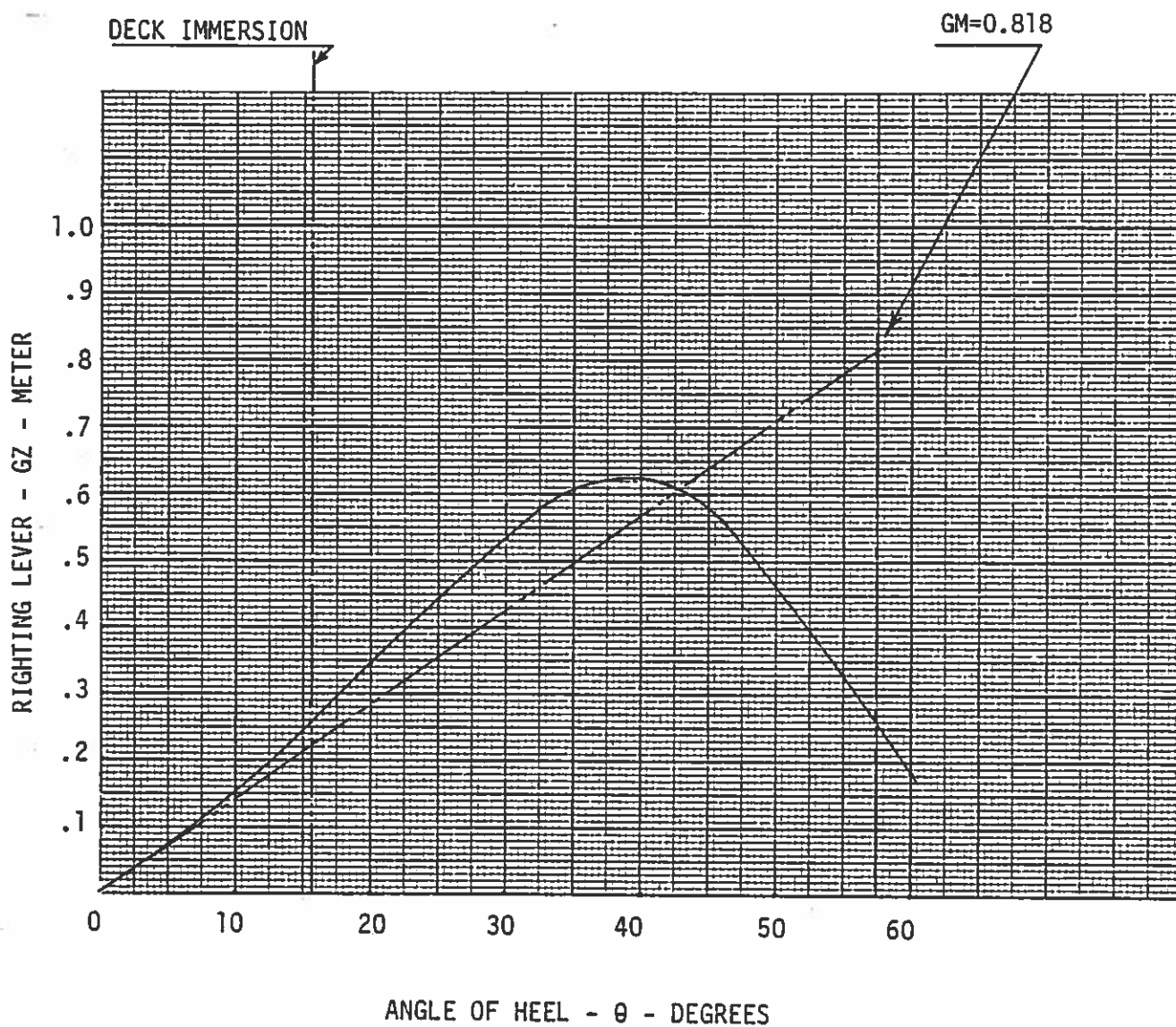


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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Page

TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 3  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	103.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.153	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.153	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8000	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8600	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.300	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD	1.0000	58.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.025	112.2	5.583	2.991		-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	52.800		0.000	304
TOTAL DEADWEIGHT		1654.3	5.011	42.753	2533.78	0.124	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4959.7	6.157	35.791	2533.78	0.041	

CONDITION NO 3  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES

WATER DENSITY = 1.0250  
DRAFT AMIDSHIPS = 5.9913 M  
MEAN DRAFT (L.C.F.) = 6.0092 M  
DRAFT AFT = 6.2507 M  
DRAFT FWD = 5.7318 M  
TRIM = -0.51887 M  
DISPLACEMENT = 4959.7 TONNES  
LCG = 35.791 M  
CCG = 0.04121 M  
KG = 6.1568 M  
CORRECTION FOR FREE SURFACE EFFECT = 0.51087 M  
KMT = 7.5474 M  
GM = 1.3907 M  
GM CORRECTED FOR FREE SURF. = 0.87982 M  
ANGLE OF HEEL 0.100 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000  
KN CURVES 0.013 0.639 1.318 1.977 2.626 3.250 3.854 4.402 4.868 5.253 5.947  
QZ CURVES 0.002 0.122 0.249 0.386 0.520 0.648 0.775 0.871 0.911 0.899 0.615  
QZ CURVES CORREC 0.002 0.078 0.161 0.253 0.345 0.432 0.520 0.578 0.582 0.538 0.173  
AREA UNDER QZ CU 0.0000 0.0033 0.0215 0.0491 0.0887 0.1397 0.2019 0.2741 0.3522 0.4315 0.6372  
AREA UNDER CORRE 0.0000 0.0034 0.0137 0.0317 0.0579 0.0918 0.1334 0.1817 0.2327 0.2819 0.3918

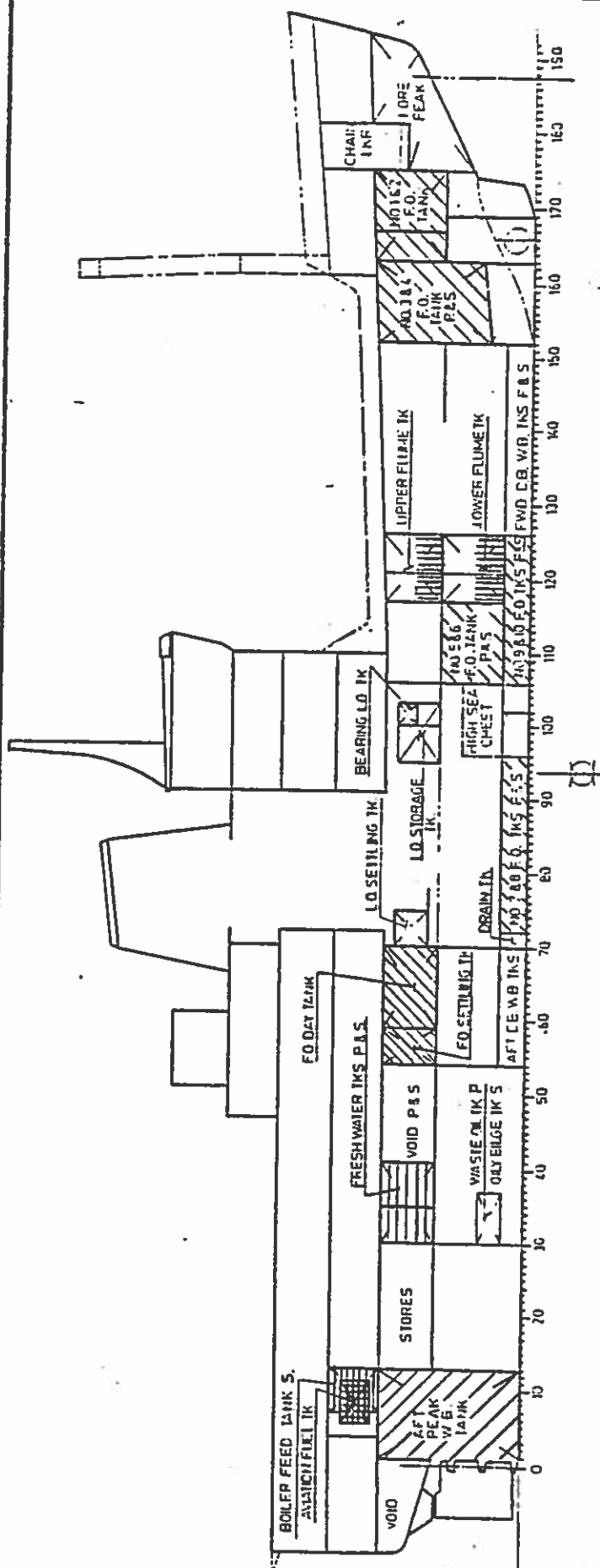


MARINE  
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LIMITED

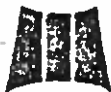
Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

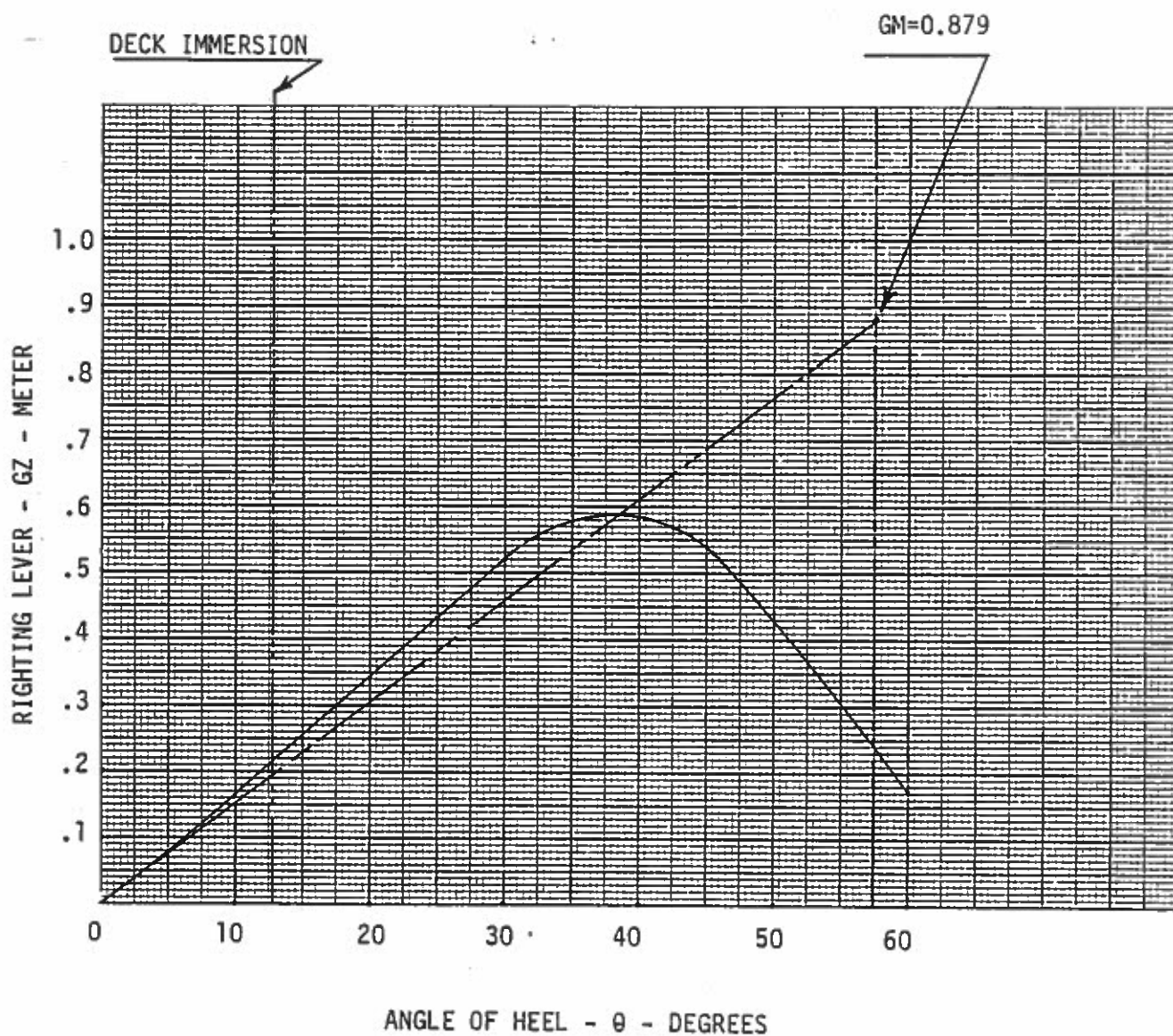


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 4

LOADED ARRIVAL 10% CONSUMABLES

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	32.2	5.786	67.350	30.16	0.000	226
F.O. DAY TK	0.8800	20.9	6.343	23.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.555	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	45.9	2.343	49.012	587.22	0.002	212
AVIATION FUEL TK	0.7900	1.8	8.501	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.25	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	9.7	5.228	14.312	9.85	-5.087	37
BOILER FEED TK	1.0000	13.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	97.9	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	47.2	7.631	21.323		0.000	309
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	35.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	52.800		0.000	304
TOTAL DEADWEIGHT		774.5	6.205	30.091	1361.80	0.185	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4079.9	6.630	33.682	1361.80	0.035	

CONDITION NC 4

LOADED ARRIVAL 10% CONSUMMABLES

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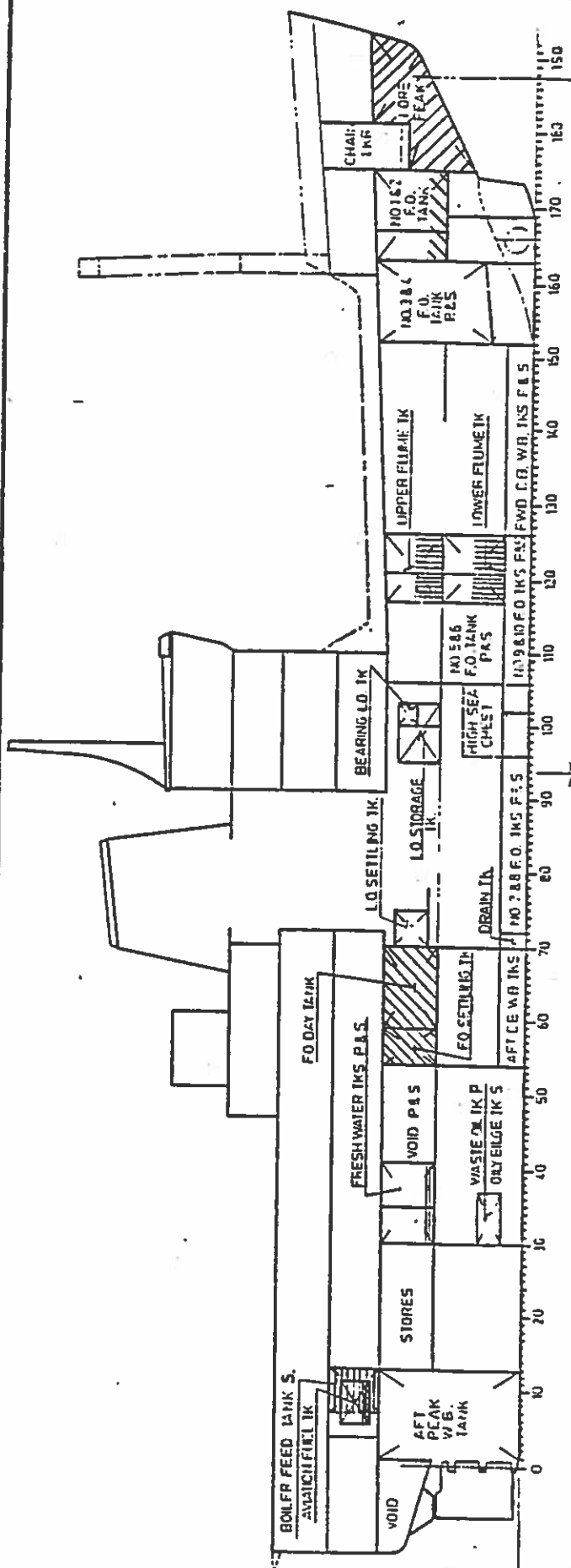


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

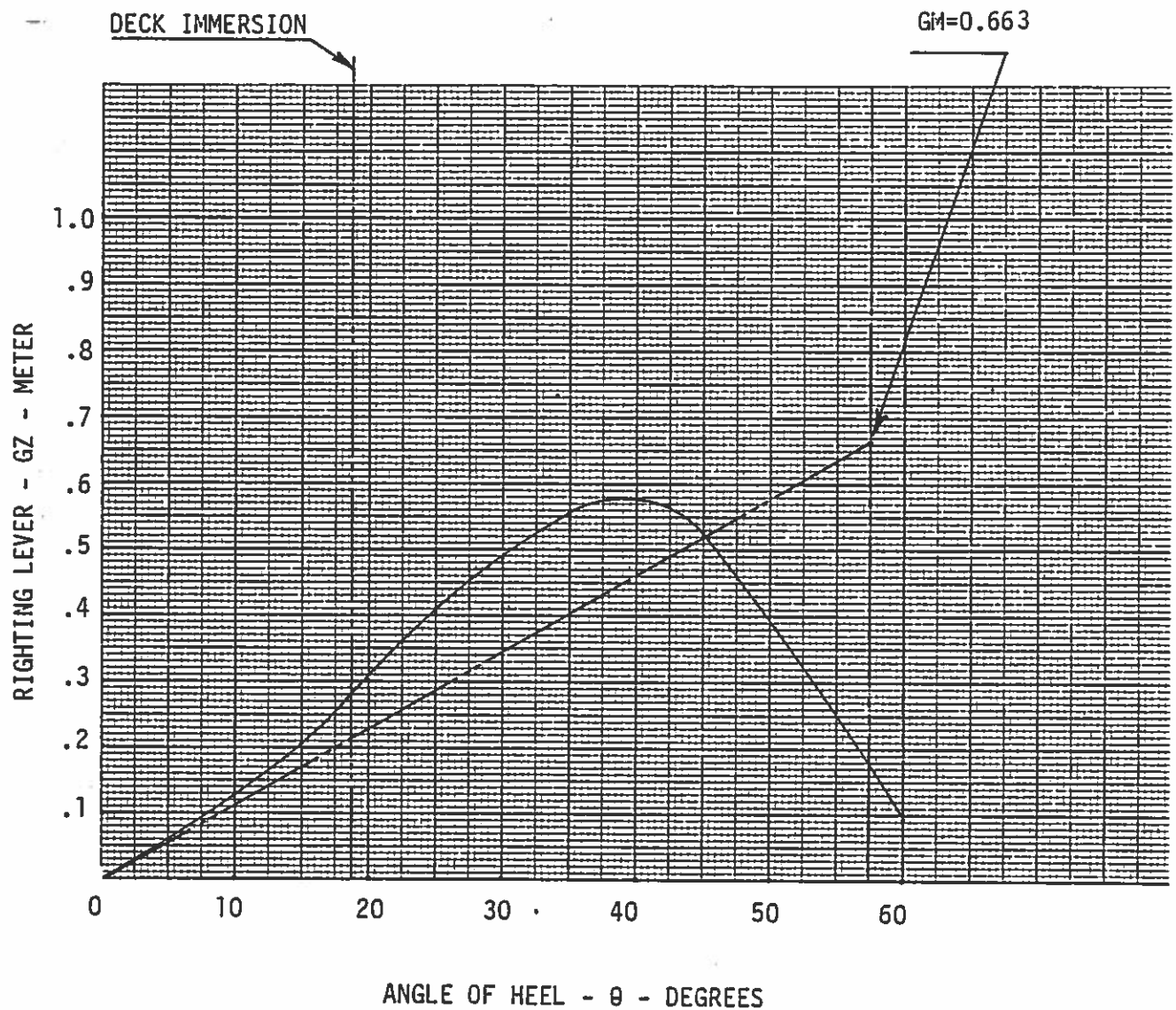


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 5

**RUDY HANDLING CONDITION 50% CONSUMIBLES**

WEIGHT ITEM	SPECIF.	WEIGHT	VOL	LCG	FREE	TCG
	WEIGHT		FROM	FROM	SURFACE	FROM
	OR		BL	AP	MOMENT	CL
	UNIT					
	WEIGHT	TON	M	M	TON*M	M
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	3.948	62.836	105.38	0.000
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000
F.O. TK NO. 4 S.	0.8800	31.8	2.035	45.177	111.74	2.997
F.O. TK NO. 3 P.	0.8800	31.8	2.035	45.177	111.74	-2.997
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595
UPPER FLUME TK	0.8800	52.4	5.681	48.932	686.36	0.000
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200
L.O. STORAGE TK	0.9000	13.7	5.885	39.786	1.92	-2.719
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850
FORE PEAK TK	1.023	87.9	7.073	72.572		0.000
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000
HELICOPTER	1.0000	5.1	14.500	11.000		0.000
DECK CARGO	1.0000	15.0	9.200	32.000		0.000
BUGY ON BOOM	1.0000	15.0	28.000	58.000		0.000
TOTAL DEADWEIGHT		789.1	6.481	49.576	1731.93	0.272
LIGHT SHIP		3305.4	6.730	32.306		0.000
TOTAL DISPLACEMENT		4094.8	6.682	35.633	1731.93	0.053

CONDITION NO 5

### BODY HANDLING CONDITION 50% CONSUMABLES

BODY HANDLING CONDITIONS/CONSIDERABLES	=	1.0250									
WATER DENSITY	=	3.1687 M									
DRAFT AMIDSHIPS	=	3.1920 M									
MEAN DRAFT (L.C.F.)	=	3.3727 M									
DRAFT AFT	=	4.7647 M									
DRAFT FWD	=	-0.80803 M									
TRIM	=	4074.8 TONNES									
DISPLACEMENT	=	33.635 M									
LCG	=	0.05252 M									
CCG	=	6.6820 M									
KG	=	0.42275 M									
CORRECTION FOR FREE SURFACE EFFECT	=	7.6281 M									
KMT	=	0.74617 M									
GM	=	0.52322 M									
GM CORRECTED FOR FREE SURF.	=										
ANGLE OF HEEL	0.100	3.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	60.000
KN CURVES	0.013	0.666	1.335	2.008	2.685	3.347	3.969	4.548	5.091	5.447	6.123
GZ CURVES	0.002	0.084	0.174	0.278	0.399	0.523	0.628	0.716	0.756	0.722	0.336
GZ CURVES CORREC	0.001	0.047	0.101	0.149	0.235	0.344	0.416	0.473	0.484	0.433	-0.030
AREA UNDER GZ CU	0.0000	0.0036	0.0148	0.0345	0.0639	0.1042	0.1546	0.2134	0.2781	0.3421	0.4875
AREA UNDER CORRE	0.0000	0.0020	0.0084	0.0200	0.0384	0.0646	0.0977	0.1369	0.1791	0.2192	0.2762

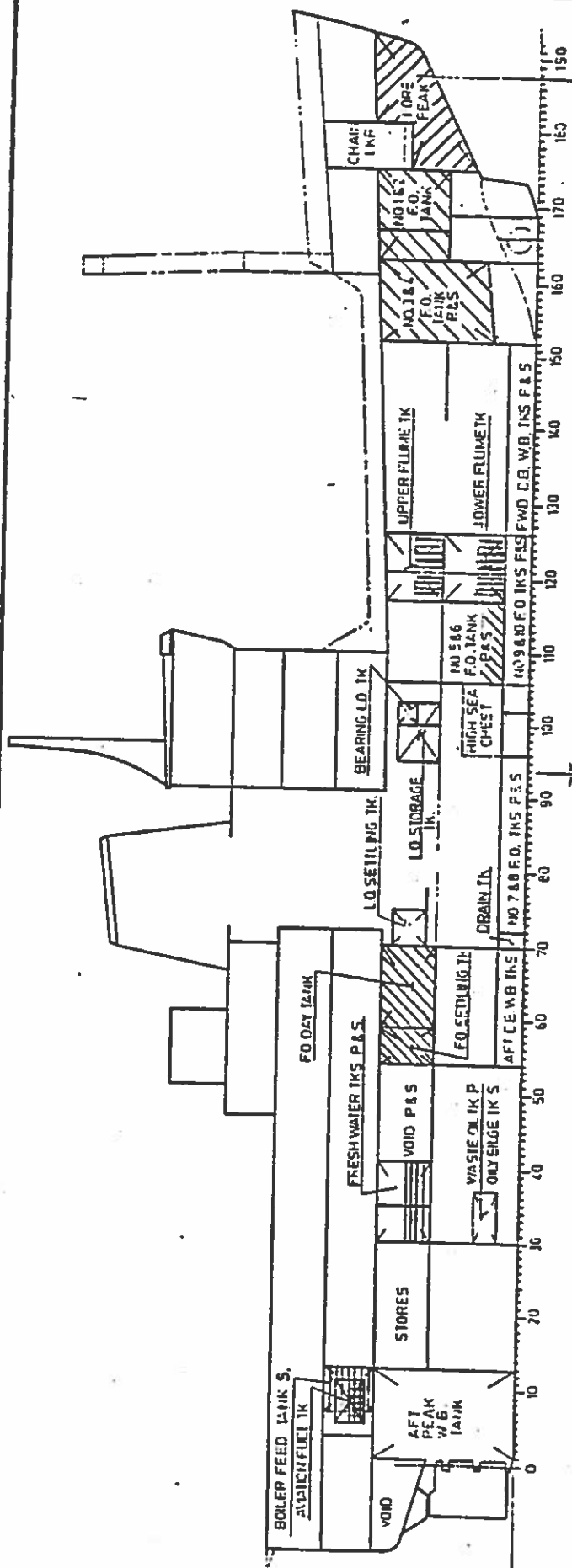


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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F.O. TK.

FLUME TK.

FEED & FRESH WATER TK.

S.W. BALLAST TK.

L.O. TK.

OILY BILGE TK.

WASTE OIL TK.

DRAIN TK.

AVIATION FUEL TK.



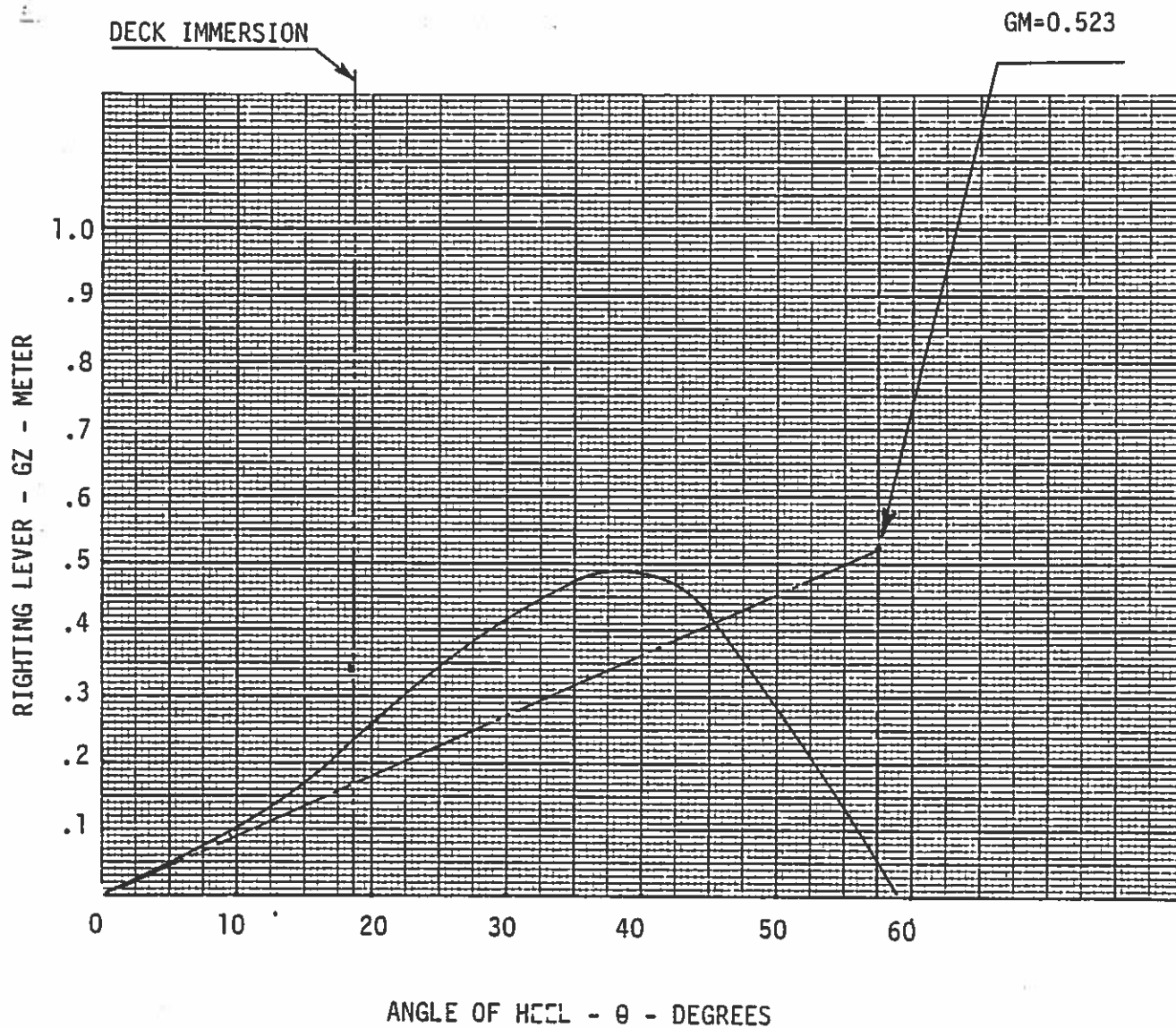


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 6  
\*\*\*\*\*

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCO FROM BL M	LCC FROM AP M	FREE SURFACE MOMENT TON*M	TCO FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	32.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.025	112.2	5.583	2.991		-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	52.800		0.000	304
TOTAL DEADWEIGHT		1183.7	5.899	45.081	1731.93	0.182	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4489.1	6.511	35.674	1731.93	0.048	

CONDITION NO 6  
\*\*\*\*\*

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES

WATER DENSITY	"	1.0250	
DRAFT AMIDSHIPS	"	5.5485 M	
MEAN DRAFT (L.C.F.)	"	5.5712 M	
DRAFT AFT	"	5.9023 M	
DRAFT FWD	"	5.1947 M	
TRIM	"	-0.70762 M	
DISPLACEMENT	"	4489.1 TONNES	
LCC	"	35.674 M	
CCG	"	0.04790 M	
KO	"	6.5109 M	
CORRECTION FOR FREE SURFACE EFFECT	"	0.38581 M	
KMT	"	7.5772 M	
GM	"	1.0663 M	
GM CORRECTED FOR FREE SURF.	"	0.68053 M	
ANGLE OF HEEL	0.100	3.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.662	1.325 1.991 2.658 3.302 3.915 4.486 4.972 5.365 6.043
OZ CURVES	0.002	0.094	0.194 0.306 0.431 0.551 0.659 0.752 0.787 0.761 0.404
OZ CURVES CORREC	0.001	0.060	0.127 0.206 0.299 0.388 0.467 0.530 0.539 0.408 0.070
AREA UNDER OZ CU	0.0000	0.0041	0.0146 0.0363 0.0704 0.1133 0.1662 0.2290 0.2957 0.3636 0.5235
AREA UNDER CORRE	0.0000	0.0026	0.0107 0.0291 0.0472 0.0772 0.1145 0.1583 0.2054 0.2506 0.3306

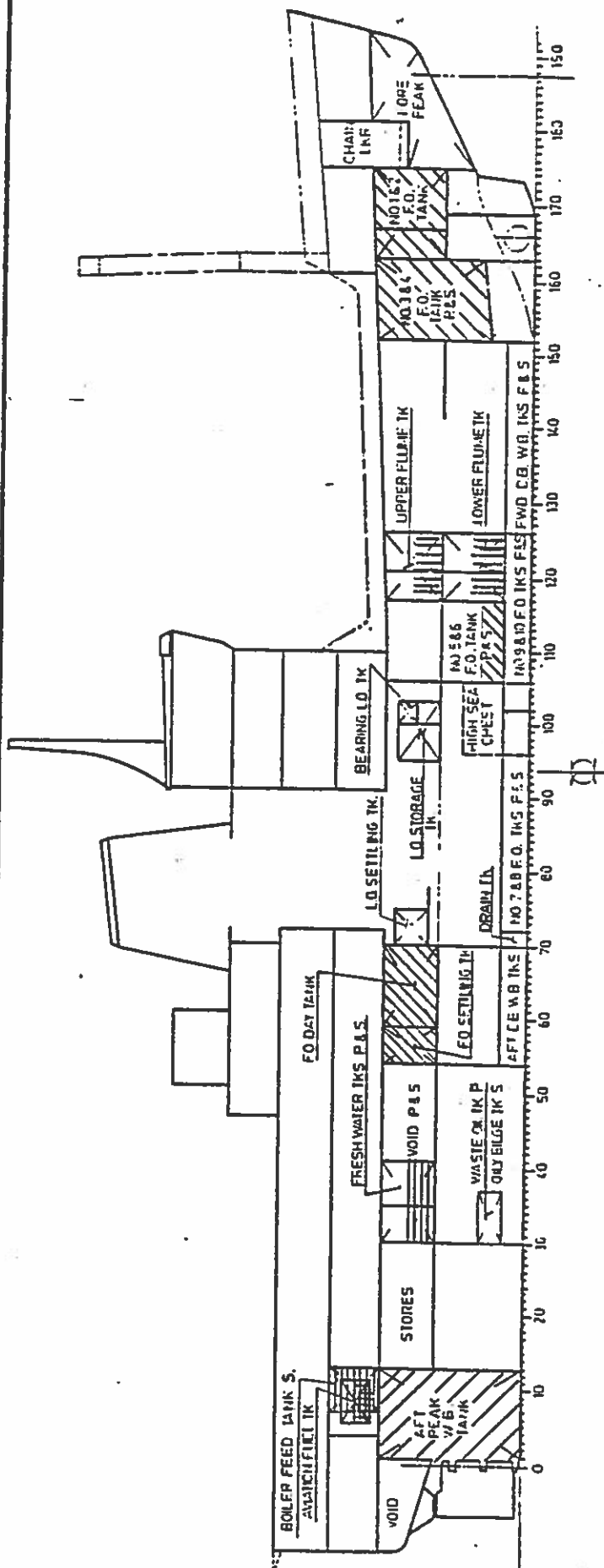







MARINE  
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LIMITED

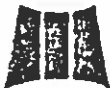
Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

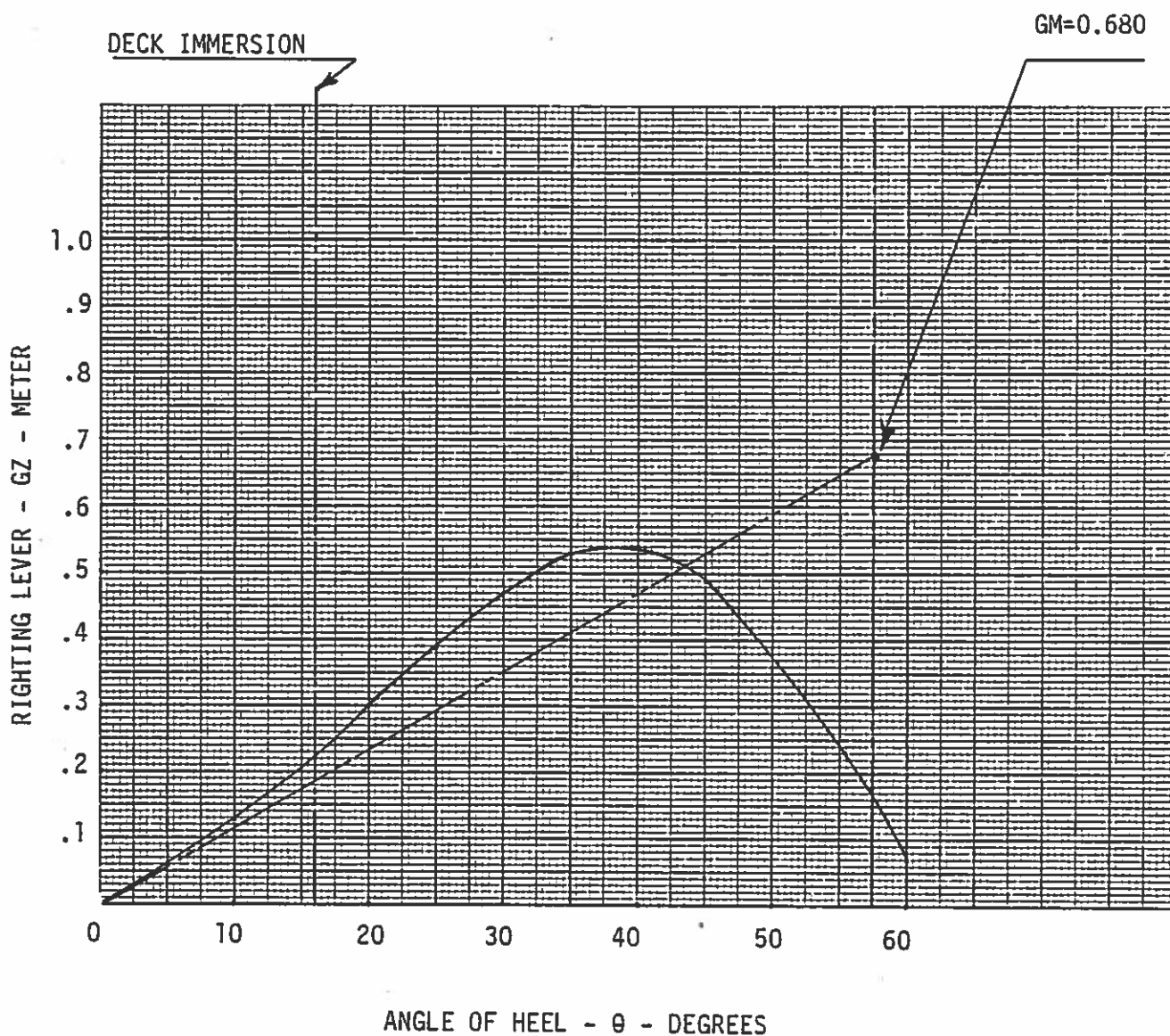


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVALDIS - ICEBREAKER  
CONDITION NO 7

### WINTER ICE BREAKING CONDITION 50% CONSUMMABLES

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. 1K NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. 1K NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	45.9	2.343	49.012	389.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.805	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	67.9	7.073	72.572		0.000	234
FWD D.B. WATER/ BALLAST TK P/S	1.025	105.8	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.307		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
TOTAL DEADWEIGHT		865.3	5.376	50.046	1731.93	0.249	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4170.7	6.449	35.986	1731.93	0.052	

CONDITION NO 7

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES

WINTER ICE BREAKING CONDITION 50% CONSUMABLES		=	1.0250								
WATER DENSITY		=	5.2521 M								
DRAFT AMIDSHIPS		=	5.2657 M								
MEAN DRAFT (L.C.F.)		=	5.4984 M								
DRAFT AFT		=	5.0057 M								
DRAFT FWD		=	-0.49265 M								
TRIM		=	4170.7 TONNES								
DISPLACEMENT		=	35.986 M								
LCC		=	0.05156 M								
CCG		=	6.4491 M								
KO		=	0.41326 M								
CORRECTION FOR FREE SURFACE EFFECT		=	7.5971 M								
KMT		=	1.1480 M								
GM		=	0.73276 M								
GM CORRECTED FOR FREE SURF.		=									
ANGLE OF HEEL	0.100	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	60.000
KN CURVES	0.013	0.663	1.329	2.000	2.674	3.329	3.945	4.523	5.026	5.421	6.102
GZ CURVES	0.002	0.101	0.210	0.331	0.458	0.604	0.721	0.824	0.880	0.861	0.517
GZ CURVES CORREC	0.001	0.065	0.137	0.223	0.326	0.428	0.513	0.586	0.613	0.568	0.157
AREA UNDER GZ CU	0.0000	0.0044	0.0179	0.0413	0.0761	0.1230	0.1809	0.2485	0.3233	0.3998	0.5860
AREA UNDER CORRE	0.0000	0.0028	0.0116	0.0272	0.0511	0.0841	0.1252	0.1734	0.2262	0.2782	0.3784

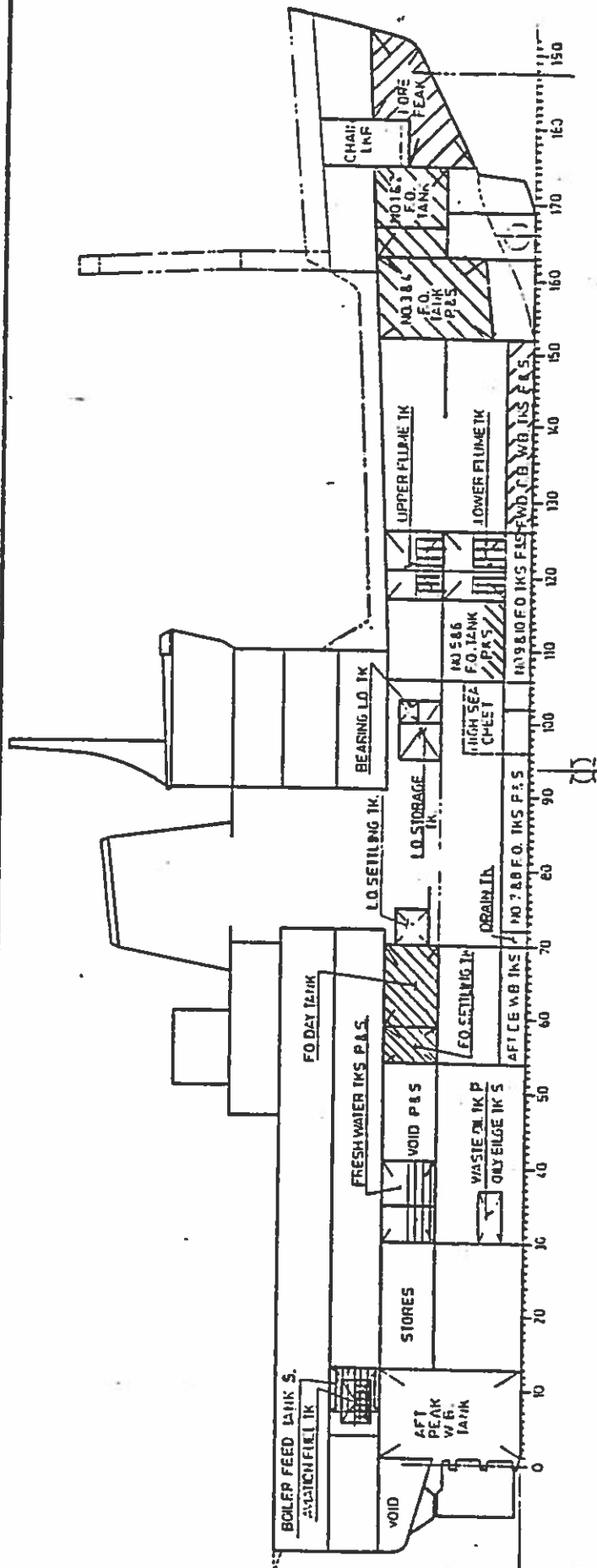


MARINE  
INDUSTRIES  
LIMITED

Nome TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

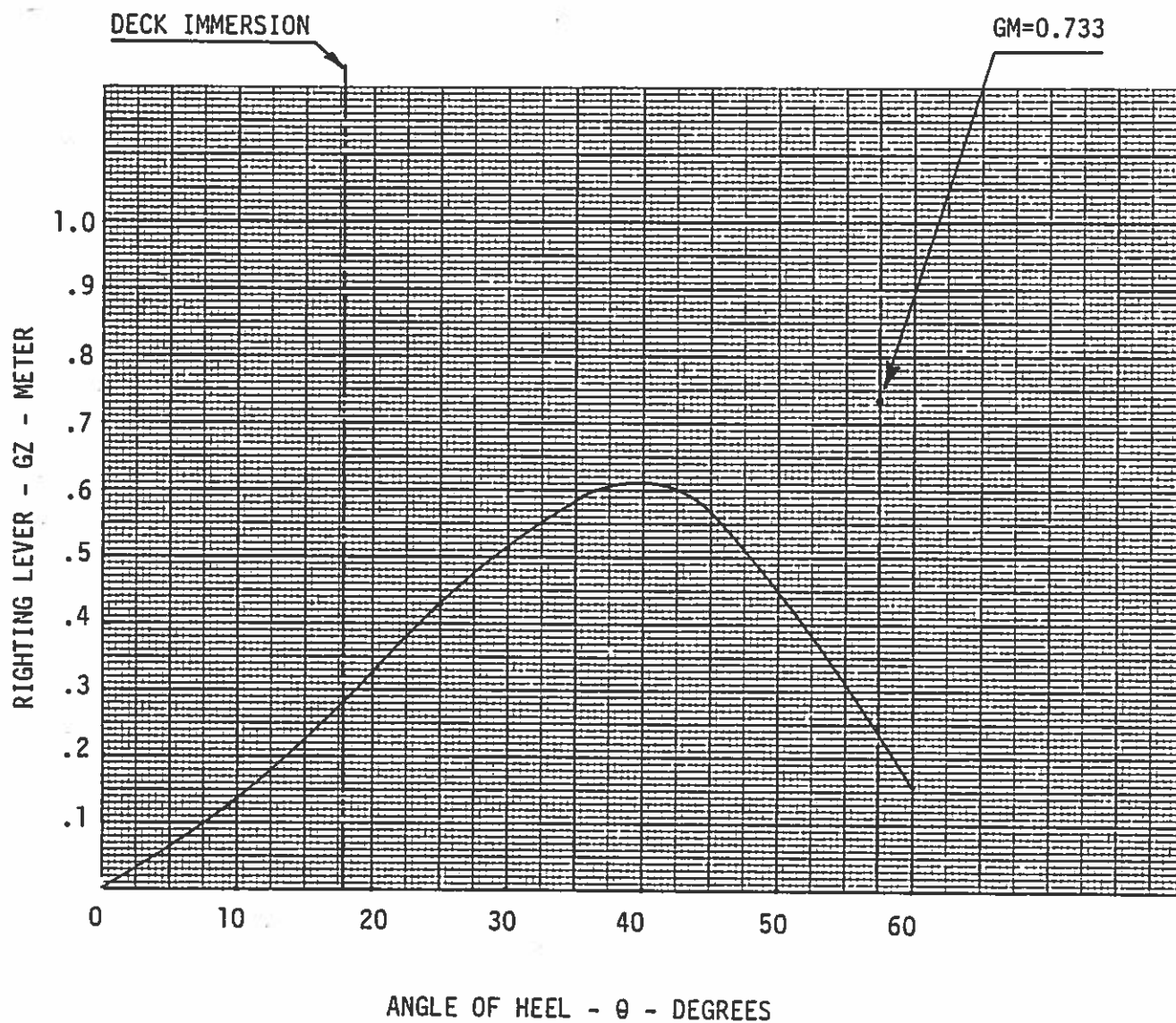


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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C) ARCTIC



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 8  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES (ARTIC)

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	3.948	62.836	105.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK. NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	29.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.593	10
UPPER FLUME TK.	0.8800	99.5	6.413	48.963	420.15	0.000	214
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001	212
OVER FLOW FLUME TK	0.8800	9.5	0.796	43.200	15.56	3.322	199
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD.	1.0000	58.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.025	55.0	4.276	3.189	72.00	-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	75.0	9.200	52.800		0.000	311
TOTAL DEADWEIGHT		1679.0	4.893	44.327	2407.22	0.141	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4984.4	6.111	36.355	2407.22	0.047	

CONDITION NO 8  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES (ARTIC)

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	6.0314 M	
MEAN DRAFT (L.C.F.)	=	6.0320 M	
DRAFT AFT	=	6.0407 M	
DRAFT FWD	=	6.0221 M	
TRIM	=	-0.01859 M	
DISPLACEMENT	=	4984.4 TONNES	
LCG	=	36.355 M	
CCG	=	0.04735 M	
KG	=	6.1114 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.48295 M	
KMT	=	7.5201 M	
GM	=	1.4087 M	
GM CORRECTED FOR FREE SURF.	=	0.92579 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.656	1.314 1.972 2.610 3.227 3.827 4.376 4.845 5.233 5.936
GZ CURVES	0.002	0.124	0.253 0.390 0.520 0.644 0.772 0.871 0.917 0.912 0.643
GZ CURVES CORREC	0.002	0.082	0.169 0.265 0.355 0.440 0.530 0.594 0.606 0.570 0.225
AREA UNDER GZ CU	0.0000	0.0054	0.0218 0.0498 0.0896 0.1404 0.2022 0.2742 0.3526 0.4327 0.6437
AREA UNDER CORRE	0.0000	0.0036	0.0144 0.0333 0.0605 0.0951 0.1375 0.1869 0.2396 0.2912 0.4022

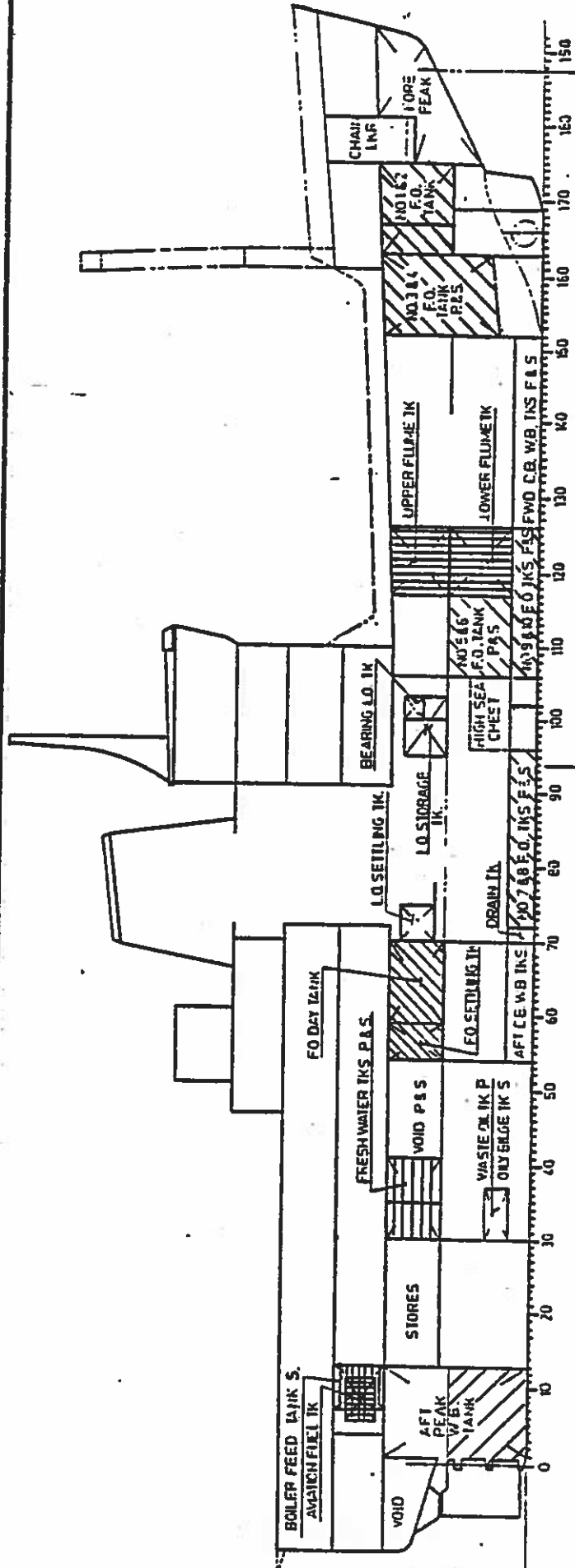











MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

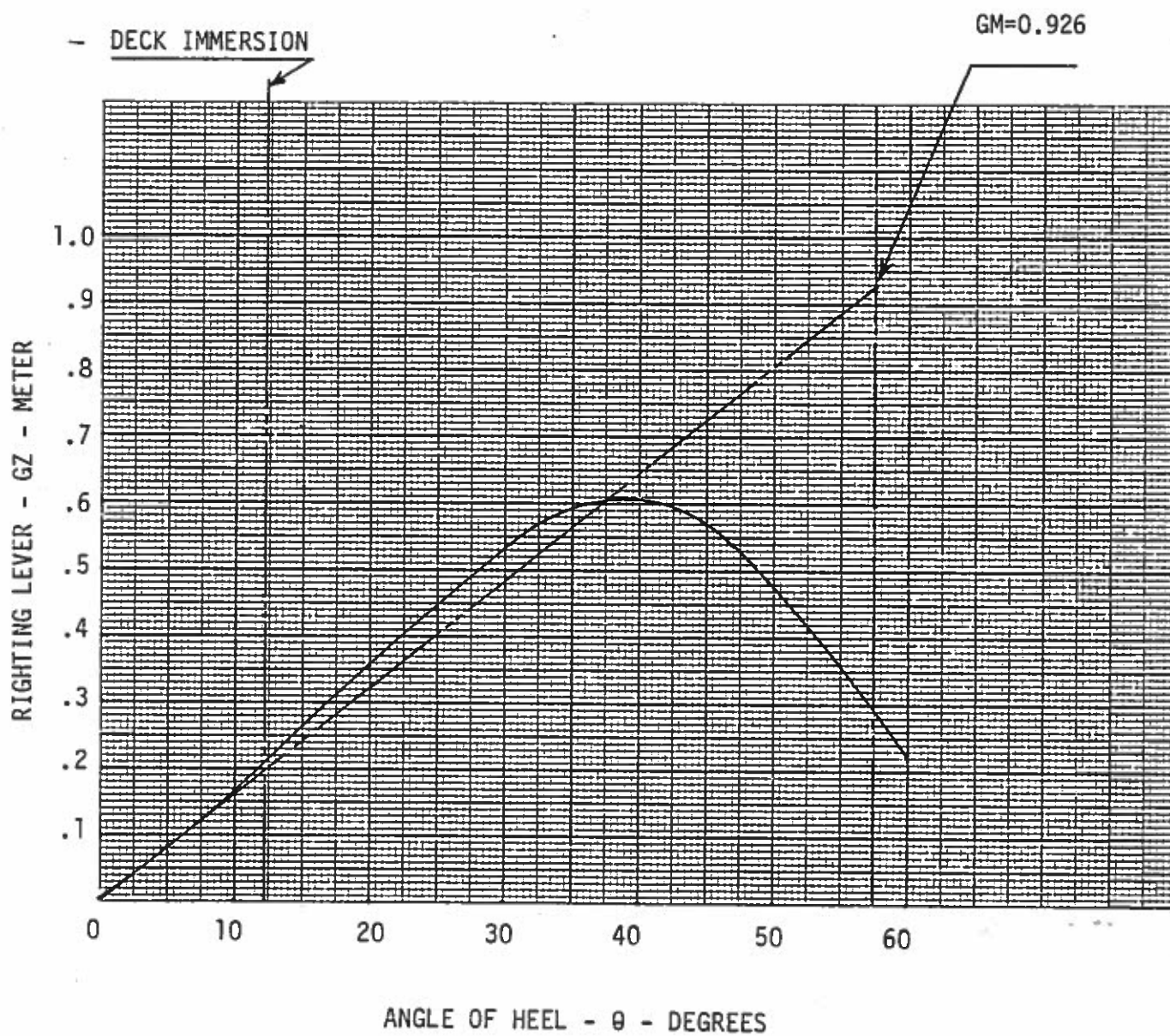


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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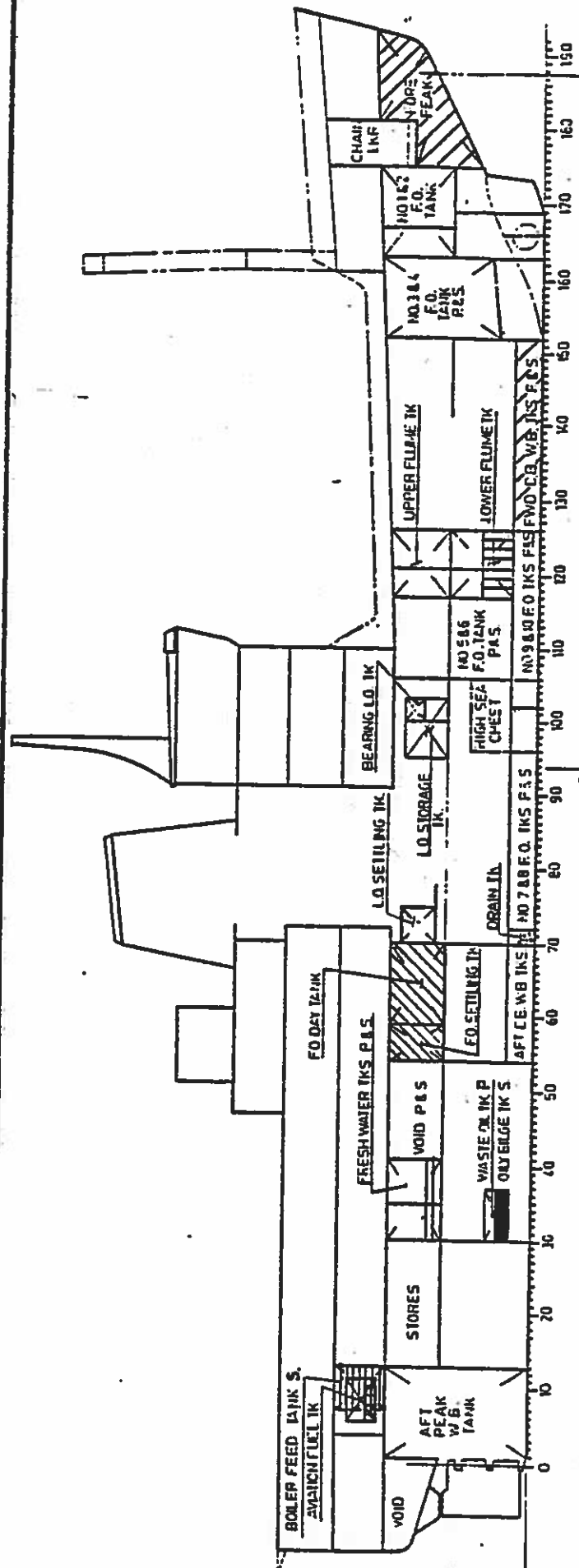











INDUSTRIE  
LIMITEE

NAME TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

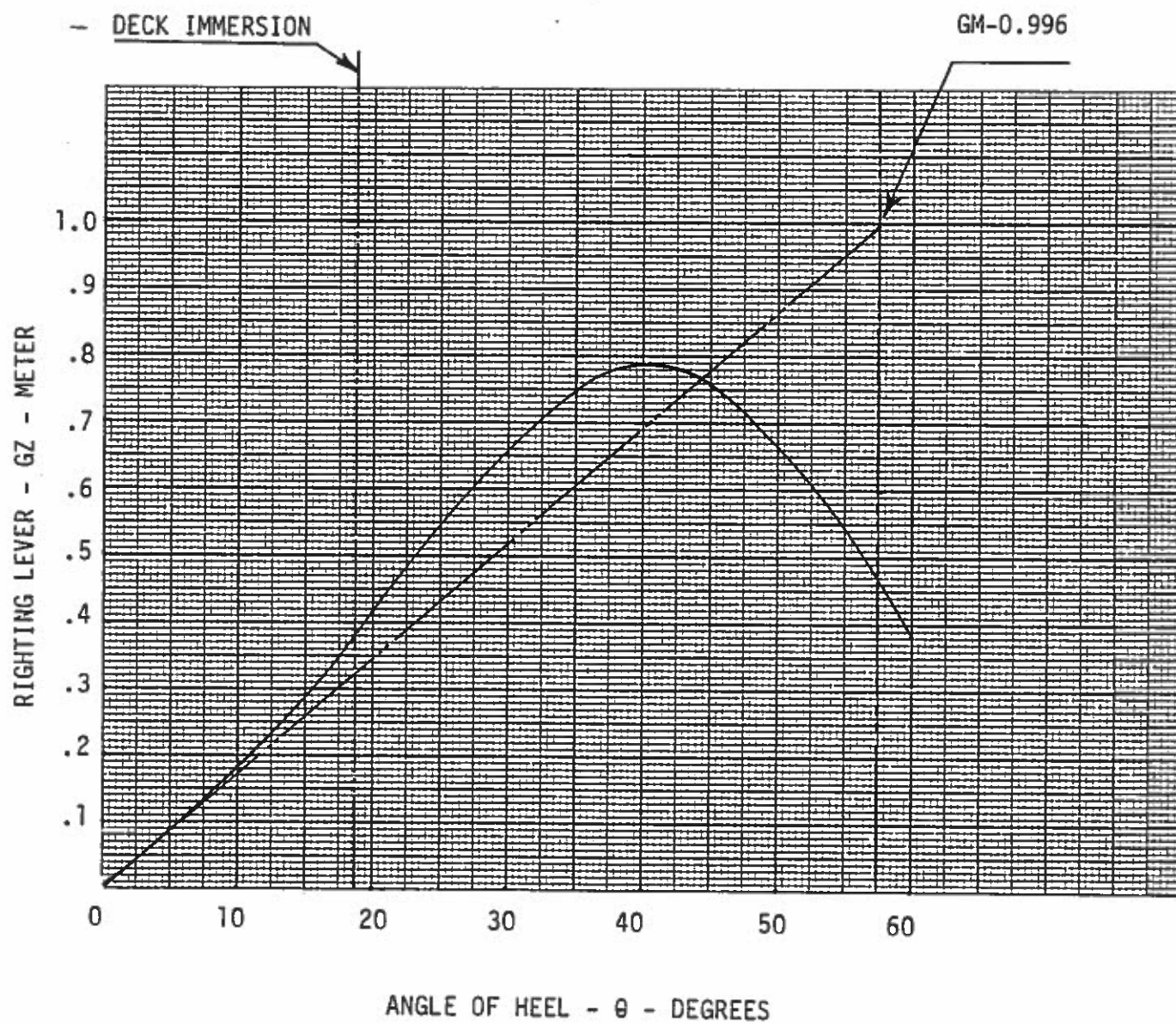


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 10

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES (ARTIC)

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE: MOMENT TON*M	TCG FROM CL M
F.O. TK NO. 3 & NO. 4 P/S	0.8800	174.0	5.948	62.836	105.38	0.000
F.O. TK NO. 1 & NO. 2 P/S	0.8800	63.0	6.404	67.421	44.03	0.000
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595
UPPER FLUME TK	0.8800	99.5	6.413	48.963	420.15	0.000
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050
OILY BILGE TK	1.0000	1.5	1.500	13.472	1.57	0.748
WASTE OIL TK	1.0000	1.5	1.500	13.472	1.57	-0.748
DRAIN TK	1.0000	0.5	0.199	28.400	0.27	0.000
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000
HELICOPTER	1.0000	5.1	14.500	11.000		0.000
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000
DECK CARGO	1.0000	75.0	9.200	52.800		0.000
TOTAL DEADWEIGHT		1049.9	5.969	48.927	1303.29	0.205
LIGHT SHIP		3305.4	6.730	32.306		0.000
TOTAL DISPLACEMENT		4355.3	6.546	36.313	1303.29	0.049

CONDITION NO 10

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES (ARTIC)

	=	1.0250	
WATER DENSITY	=	5.4388 M	
DRAFT AMIDSHIPS	=	5.4438 M	
MEAN DRAFT (L.C.F.)	=	5.5276 M	
DRAFT AFT	=	5.3900 M	
DRAFT FWD.	=	-0.17763 M	
TRIM	=	4355.3 TONNES	
DISPLACEMENT	=	'36.313 M	
LCO	=	0.04938 M	
CCG	=	6.5465 M	
KQ	=	0.29924 M	
CORRECTION FOR FREE SURFACE EFFECT	=	7.5551 M	
KMT	=	1.0086 M	
GM	=	0.70935 M	
GM CORRECTED FOR FREE SURF.			
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.660	1.322 1.988 2.656 3.299 3.908 4.482 4.979 5.374 6.060
GZ CURVES	0.002	0.089	0.185 0.294 0.417 0.532 0.635 0.727 0.771 0.745 0.391
GZ CURVES CORREC	0.001	0.063	0.133 0.216 0.314 0.406 0.485 0.556 0.579 0.533 0.132
AREA UNDER GZ CU	0.0000	0.0039	0.0158 0.0365 0.0675 0.1090 0.1600 0.2196 0.2854 0.3521 0.5068
AREA UNDER CORRE	0.0000	0.0027	0.0112 0.0263 0.0495 0.0810 0.1199 0.1655 0.2154 0.2644 0.3572

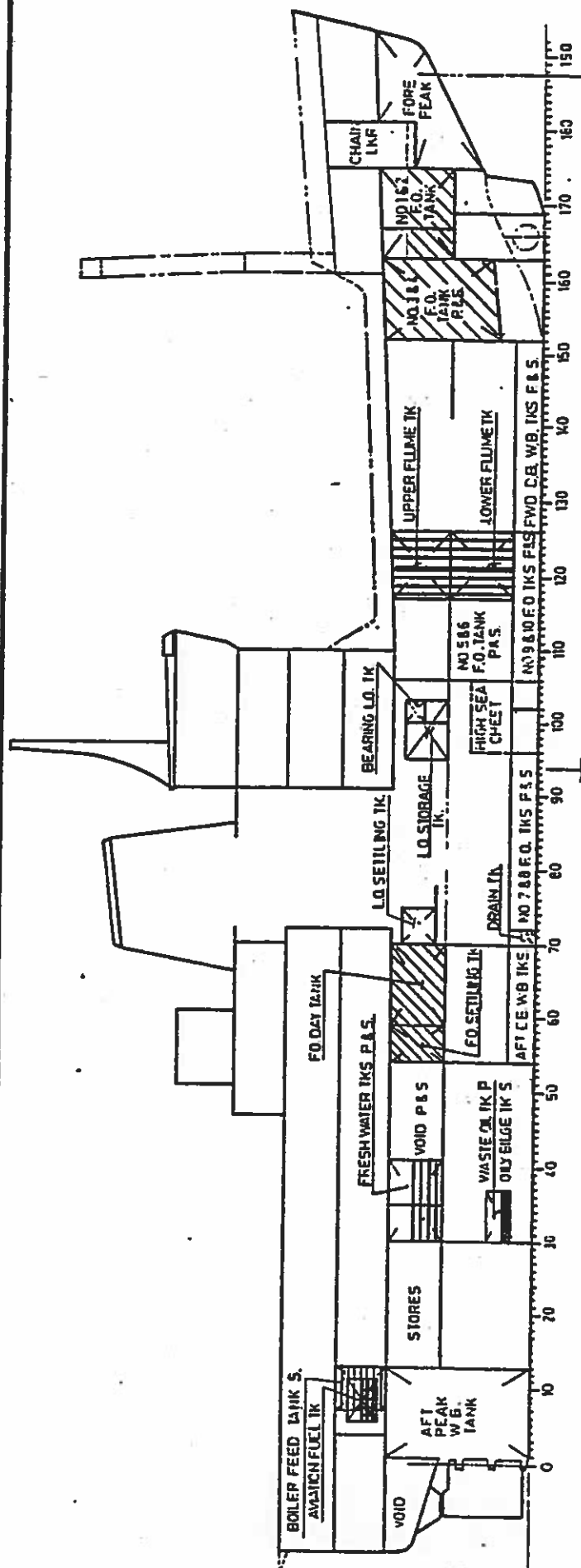











MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

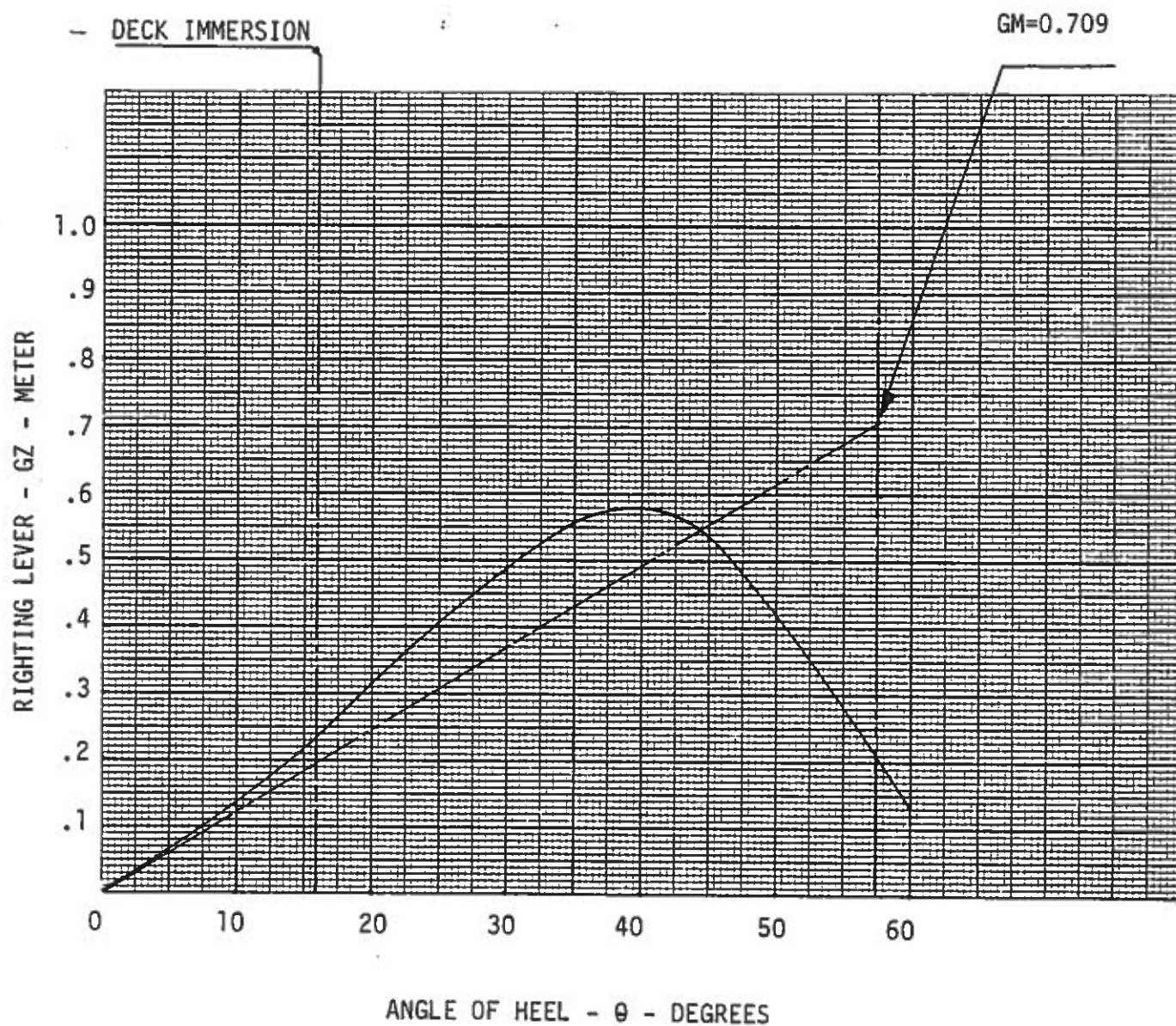


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 11  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES (ARTIC)

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	63.0	6.404	67.421	44.03	0.000	226
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	99.5	6.413	48.963	420.15	0.000	214
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
OILY BILGE TK	1.0000	1.5	1.500	13.472	1.57	0.748	19
WASTE OIL TK	1.0000	1.5	1.500	13.472	1.57	-0.748	20
DRAIN TK	1.0000	0.5	0.199	28.400	0.27	0.000	94
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.025	105.8	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
TOTAL DEADWEIGHT		868.6	5.516	49.462	1303.29	0.248	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4174.1	6.477	35.876	1303.29	0.052	

CONDITION NO 11  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES (ARTIC)

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	5.2525 M	
MEAN DRAFT (L.C.F.)	=	5.2690 M	
DRAFT AFT	=	5.5477 M	
DRAFT FWD	=	4.9572 M	
TRIM	=	-0.59053 M	
DISPLACEMENT	=	4174.1 TONNES	
LCG	=	35.876 M	
CCG	=	0.05153 M	
KG	=	6.4774 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.31224 M	
KMT	=	7.6028 M	
GM	=	1.1254 M	
GM CORRECTED FOR FREE SURF.	=	0.81315 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000
KN CURVES	0.013	0.664	1.330 2.001 2.675 3.332 3.949 4.527 5.029 5.424 6.103
GZ CURVES	0.002	0.099	0.205 0.324 0.460 0.594 0.710 0.812 0.865 0.844 0.494
GZ CURVES CORREC	0.001	0.072	0.151 0.244 0.353 0.462 0.554 0.633 0.664 0.623 0.223
AREA UNDER GZ CU	0.0000	0.0043	0.0176 0.0405 0.0747 0.1208 0.1778 0.2444 0.3180 0.3931 0.5740
AREA UNDER CORRE	0.0000	0.0031	0.0128 0.0299 0.0559 0.0915 0.1359 0.1879 0.2450 0.3017 0.4179

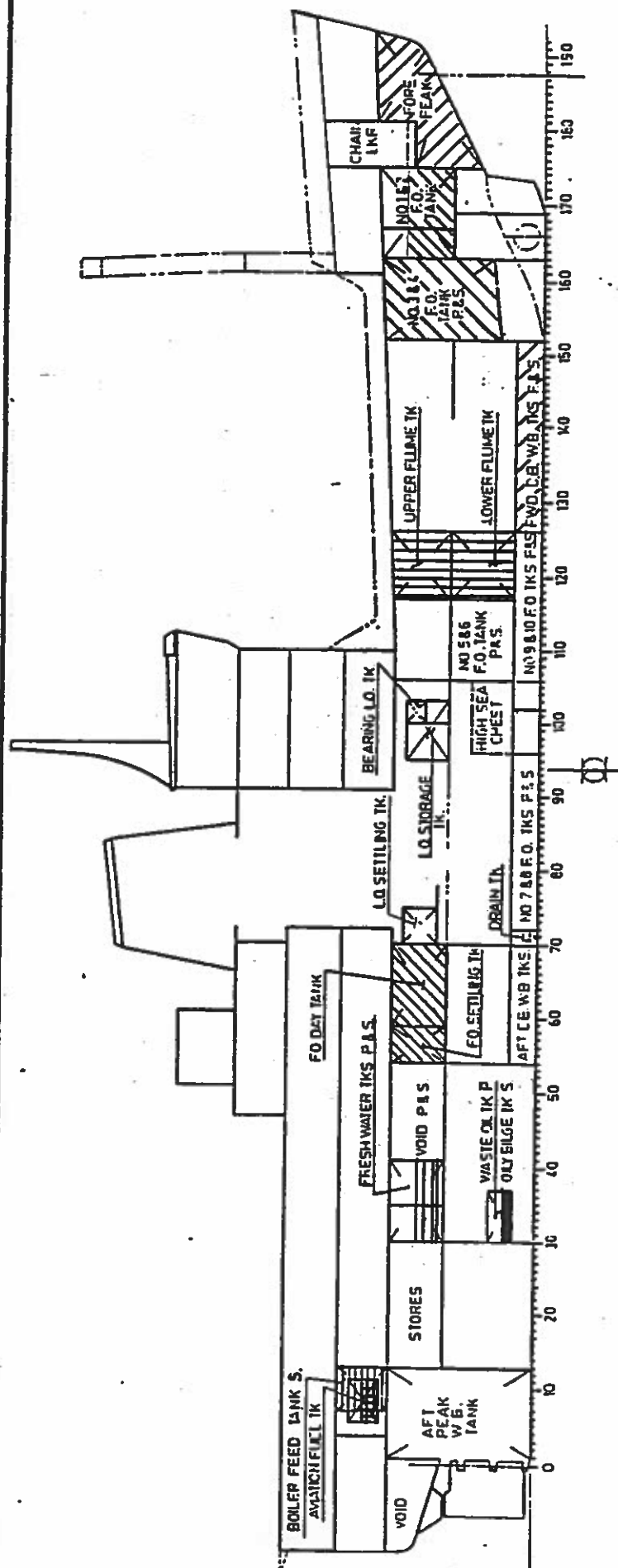


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

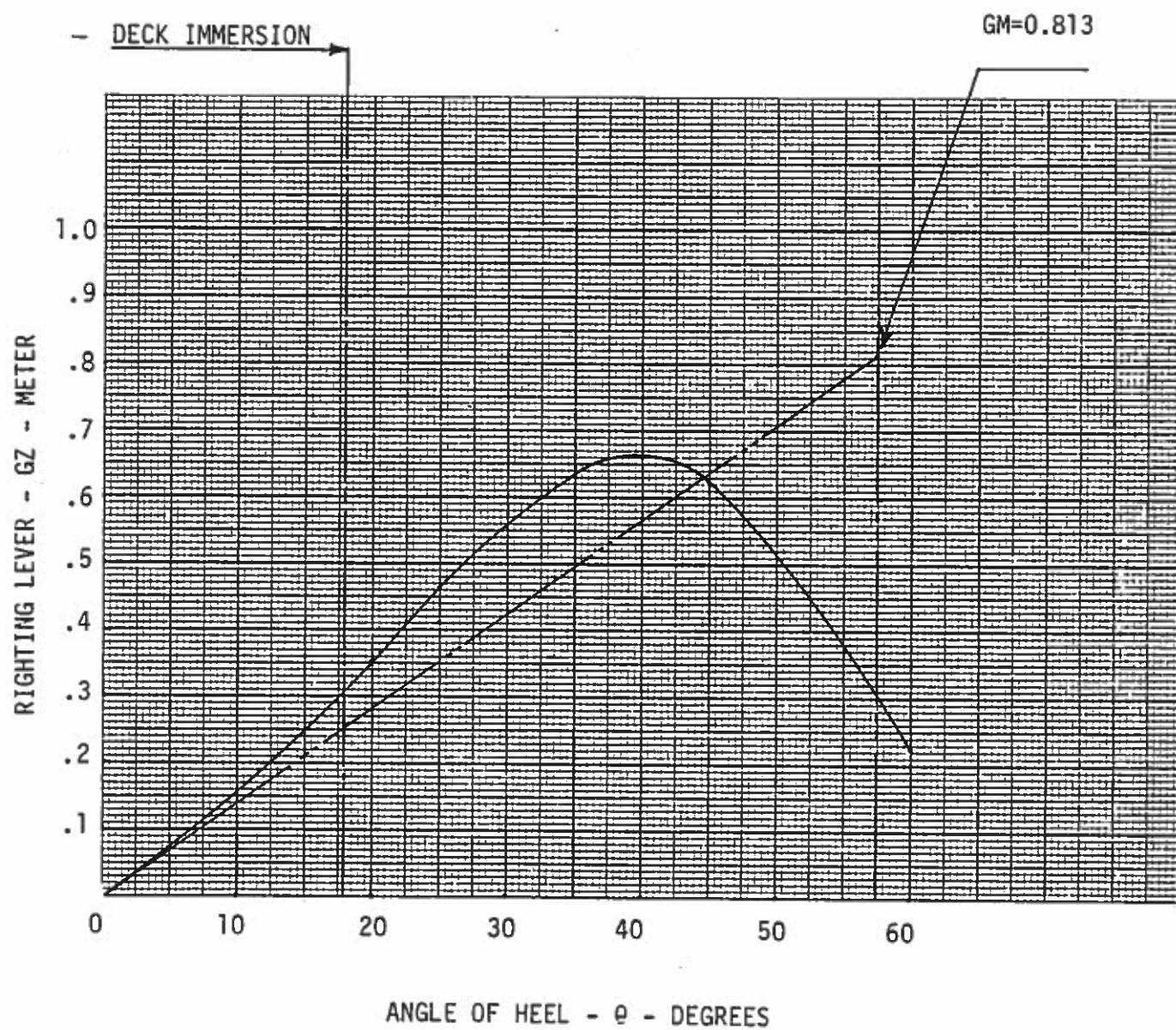


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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D) ICED-UP

- 1) In Fresh Water
- 2) In Salt Water
- 3) Arctic



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.

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1) IN FRESH WATER



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 28  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	103.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD	1.0000	38.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.0000	25.0	3.195	3.463	33.72	-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	35.464		0.000	303
DECK CARGO	1.0000	90.0	9.200	52.800		0.000	311
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1764.0	5.892	43.431	2567.50	0.116	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		5069.4	6.438	36.177	2567.50	0.040	

CONDITION NO 28  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP

WATER DENSITY	=	1.00000	
DRAFT AMIDSHIPS	=	6.2198 M	
MEAN DRAFT (L.C.F.)	=	6.2243 M	
DRAFT AFT	=	6.2851 M	
DRAFT FWD	=	6.1545 M	
TRIM	=	-0.13056 M	
DISPLACEMENT	=	5069.4 TONNES	
LCG	=	36.177 M	
CCG	=	0.04032 M	
KG	=	6.4383 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.50647 M	
KMT	=	7.5277 M	
GM	=	1.0894 M	
GM CORRECTED FOR FREE SURF.	=	0.58289 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.637	1.315 1.969 2.600 3.213 3.809 4.345 4.804 5.187 5.896
GZ CURVES	0.002	0.056	0.197 0.303 0.398 0.492 0.590 0.652 0.666 0.634 0.320
GZ CURVES CORREC	0.001	0.032	0.109 0.172 0.225 0.278 0.337 0.362 0.340 0.276 -0.119
AREA UNDER GZ CU	0.0000	0.0042	0.0169 0.0387 0.0694 0.1081 0.1554 0.2100 0.2678 0.3248 0.4563
AREA UNDER CORRE	0.0000	0.0020	0.0092 0.0215 0.0388 0.0607 0.0875 0.1184 0.1493 0.1765 0.2067

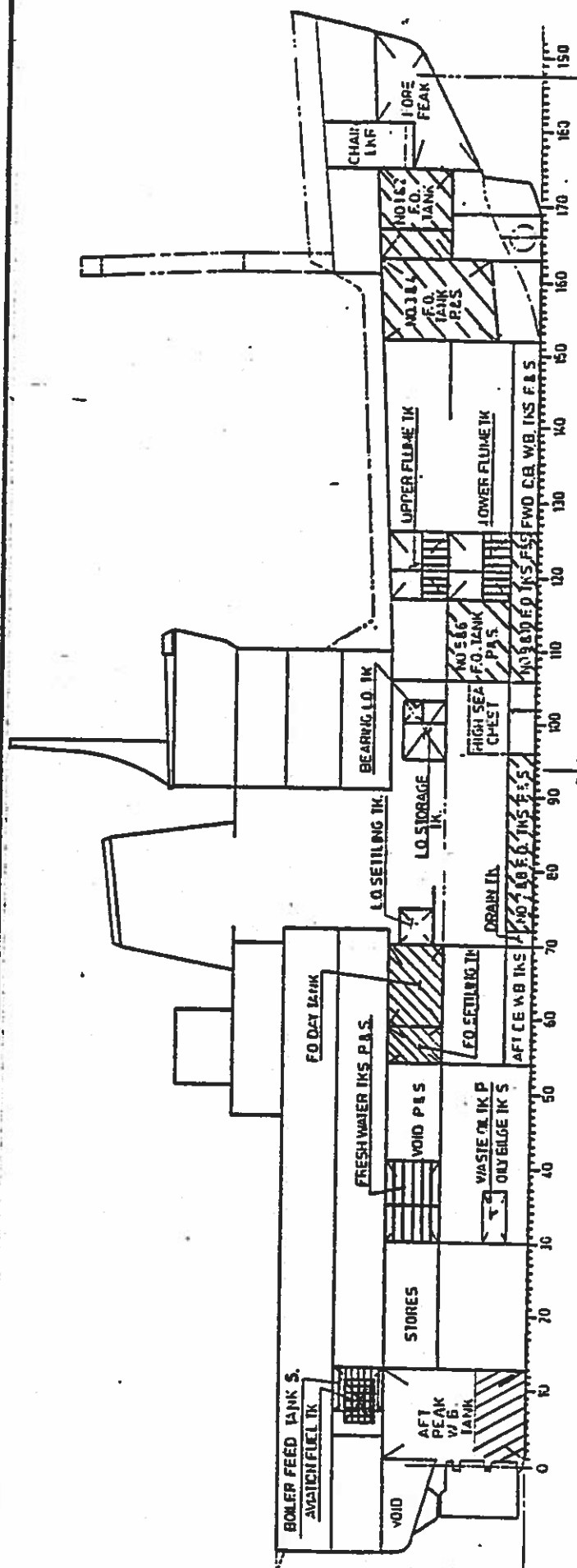


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- F.O. TK.  
 FLUME TK.  
 FEED & FRESH WATER TK.  
 S.W. BALLAST TK.  
 L.O. TK.  
 OILY BILGE TK.  
 WASTE OIL TK.  
 DRAIN TK.  
 AVIATION FUEL TK.

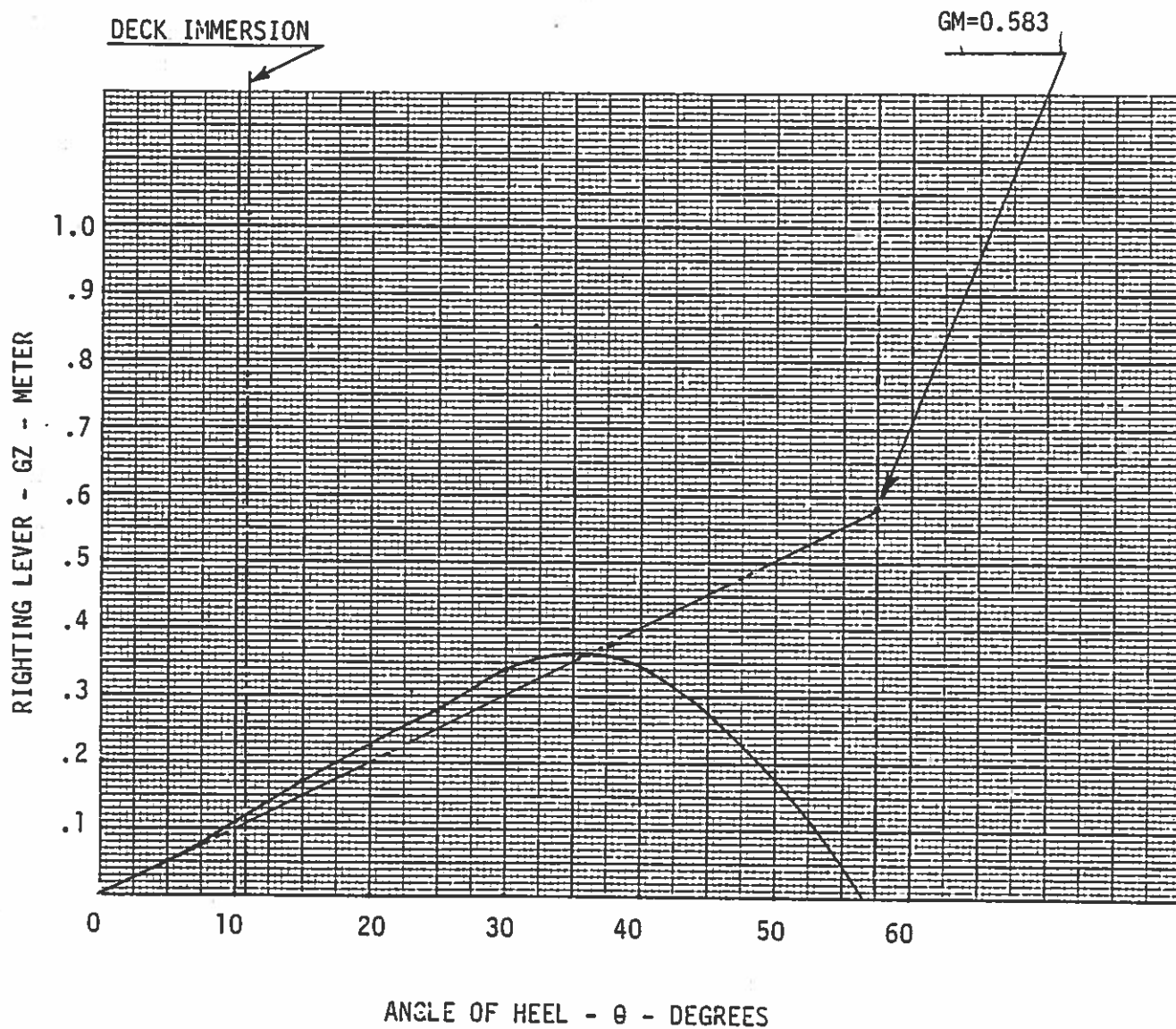


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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**MARINE  
INDUSTRIE  
LIMITEE**

Cont. no.

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 29

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON#M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	32.2	5.786	67.350	30.16	0.000	226
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.973	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	1.8	8.501	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	13.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	9.7	5.228	14.312	9.85	-5.087	37
BOILER FEED TK	1.0000	13.4	9.203	4.000		4.850	42
FORE PEAK TK	1.0000	85.8	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	6.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	47.2	7.651	21.525		0.000	309
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	90.0	9.200	52.800		0.000	311
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		969.2	7.676	46.194	1361.80	0.148	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4274.6	6.944	35.455	1361.80	0.033	

CONDITION NO 29

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP

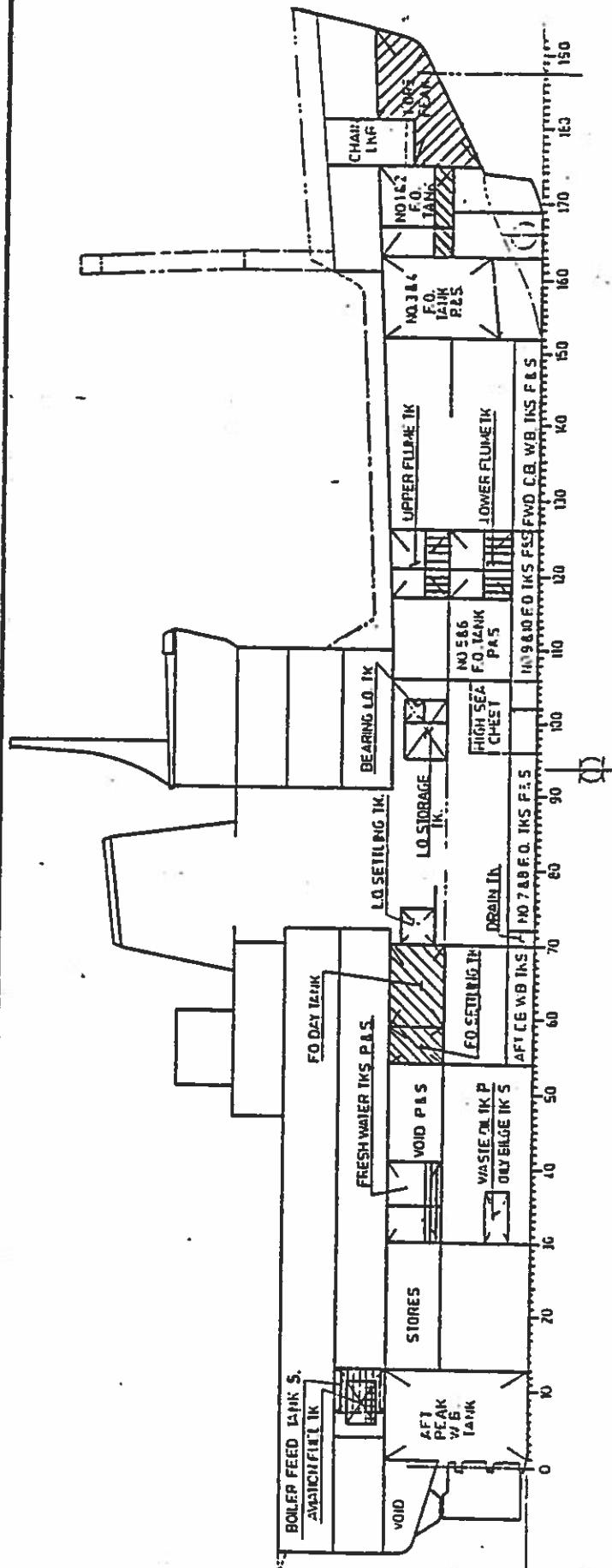
WATER DENSITY	=	1.00000									
DRAFT AMIDSHIPS	=	3.4392 M									
MEAN DRAFT (L. C. F. )	=	3.4687 M									
DRAFT AFT	=	3.8981 M									
DRAFT FWD	=	4.9802 M									
TRIM	=	-0.91795 M									
DISPLACEMENT	=	4274.6 TONNES									
LCG	=	35.455 M									
CCG	=	0.03348 M									
KG	=	6.9443 M									
CORRECTION FOR FREE SURFACE EFFECT	=	0.31858 M									
KMT	=	7.5999 M									
GM	=	0.65348 M									
GM CORRECTED FOR FREE SURF.	=	0.33691 M									
ANGLE OF HEEL	0.100	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	60.000
KN CURVES	0.013	0.664	1.329	1.997	2.668	3.320	3.937	4.513	5.001	5.393	6.068
GZ CURVES	0.001	0.058	0.123	0.200	0.293	0.385	0.465	0.530	0.538	0.483	0.054
GZ CURVES CORREC	0.001	0.031	0.067	0.117	0.184	0.251	0.306	0.347	0.333	0.257	-0.222
AREA UNDER GZ CU	0.0000	0.0025	0.0104	0.0243	0.0458	0.0755	0.1126	0.1563	0.2033	0.2482	0.3251
AREA UNDER CORRE	0.0000	0.0013	0.0055	0.0135	0.0266	0.0436	0.0699	0.0786	0.1288	0.1547	0.1777



Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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F.O. TK.

**FLUME TK.**

FEED & FRESH WATER TK.

**S.W. BALLAST TK.**

L.O. TK.

**OILY BILGE TK.**

WASTE OIL TK.

**DRAIN TK.**

AVIATION FUEL TK.



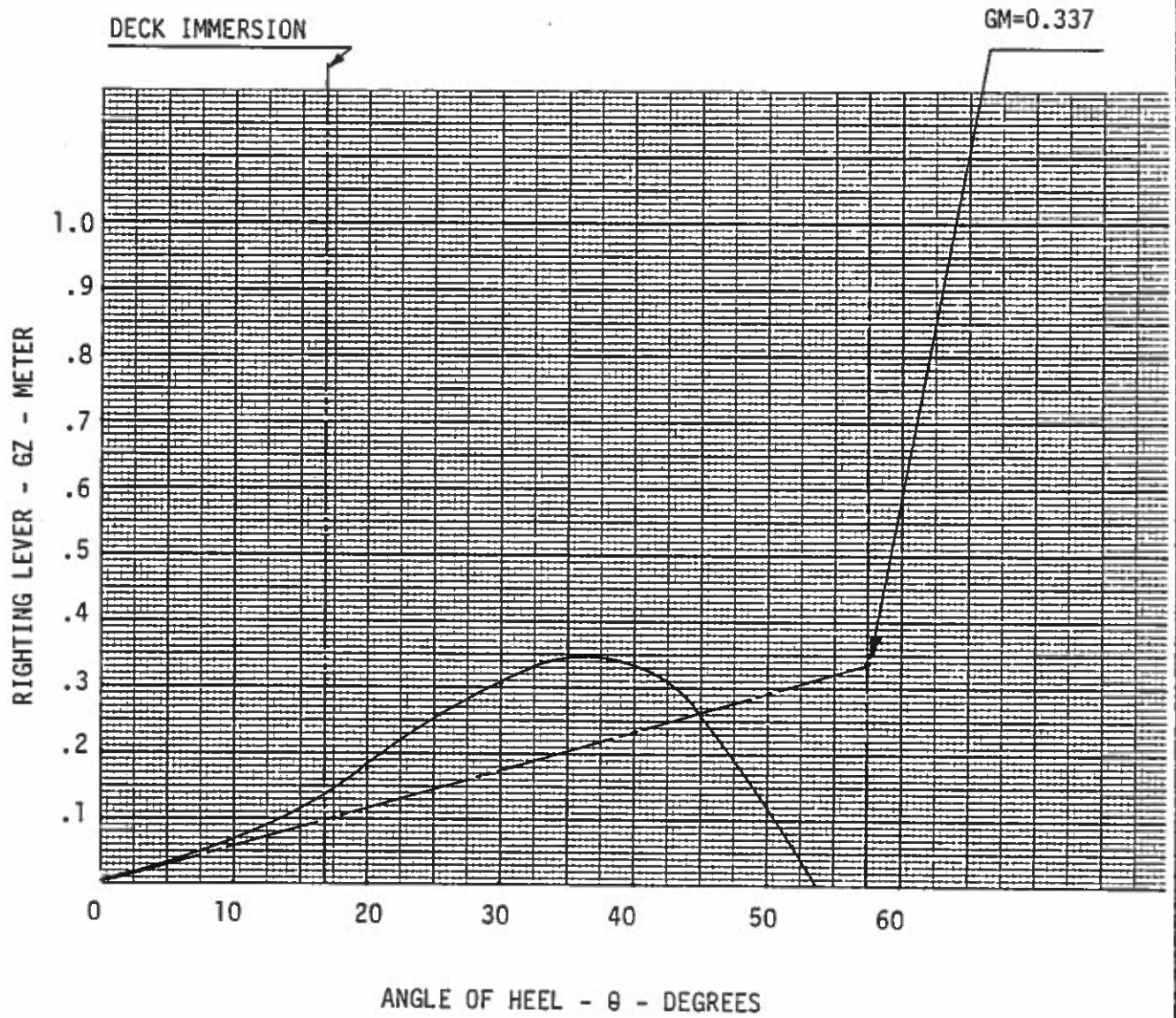


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 30  
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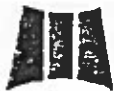
WINTER ICE BREAKING CONDITION 90% CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE: MOMENT TON#M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.438	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	43.177	111.94	2.997	207
F.O. TK NO. 3 P.	0.8800	31.8	2.035	43.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	13.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.030	40
FRESH WATER TK PORT	1.0000	17.3	5.599	14.312	9.85	-3.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.0000	83.8	7.073	72.372		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.0000	103.3	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1067.4	6.910	46.330	1731.93	0.201	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4372.9	6.774	35.778	1731.93	0.049	

CONDITION NO 30

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP

WATER DENSITY	=	1.00000
DRAFT AMIDSHIPS	=	5.5452 M
MEAN DRAFT (L.C.F.)	=	5.5646 M
DRAFT AFT	=	5.8959 M
DRAFT FWD	=	5.2346 M
TRIM	=	-0.62133 M
DISPLACEMENT	=	4372.9 TONNES
LCO	=	35.778 M
CCO	=	0.04918 M
KG	=	6.7739 M
CORRECTION FOR FREE SURFACE EFFECT	=	0.39606 M
KMT	=	7.5724 M
GM	=	0.79852 M
GM CORRECTED FOR FREE SURF.	=	0.40246 M
ANGLE OF HEEL	0.100 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000	
KN CURVES	0.013 0.661 1.324 1.970 2.656 3.300 3.912 4.483 4.970 5.363 6.013	
GZ CURVES	0.001 0.071 0.148 0.237 0.340 0.437 0.525 0.598 0.616 0.573 0.177	
GZ CURVES CORREC	0.001 0.036 0.079 0.134 0.204 0.270 0.327 0.371 0.362 0.293 -0.166	
AREA UNDER GZ CU	0.0000 0.0031 0.0125 0.0292 0.0543 0.0883 0.1303 0.1795 0.2330 0.2853 0.3903	
AREA UNDER CORRE	0.0000 0.0016 0.0065 0.0157 0.0304 0.0512 0.0772 0.1079 0.1403 0.1693 0.1988	

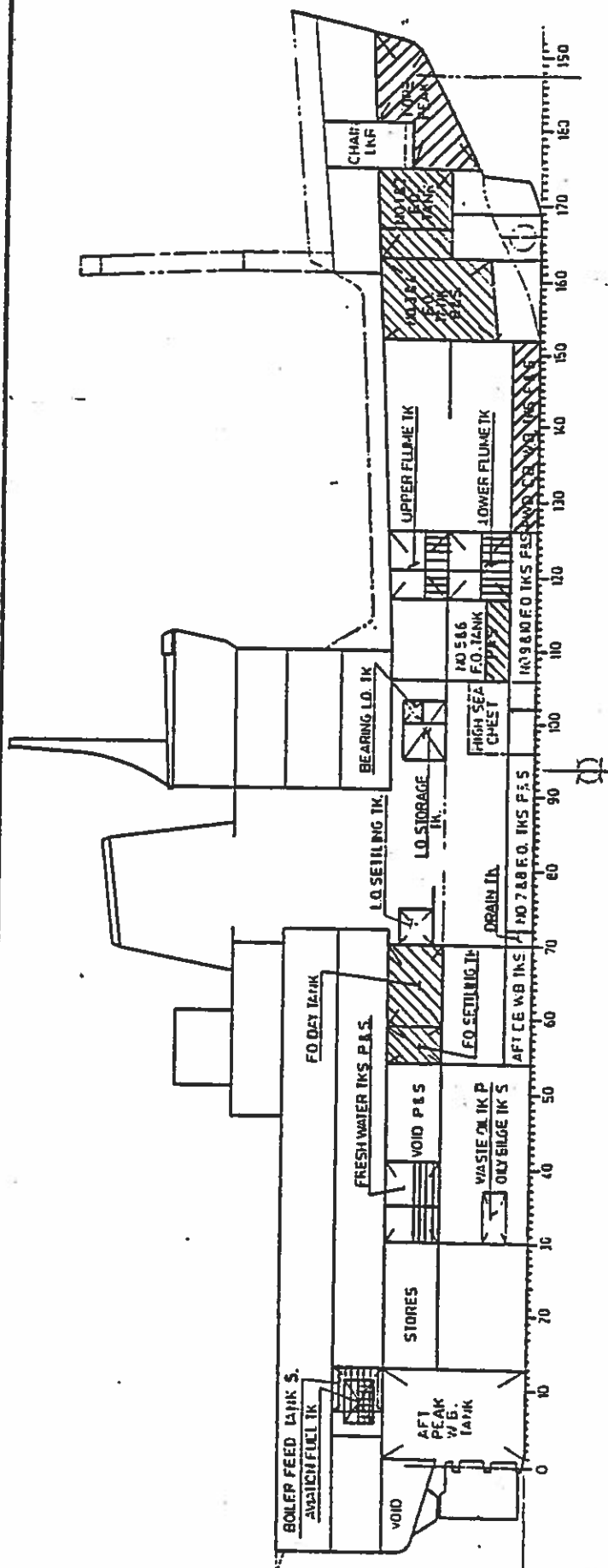


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

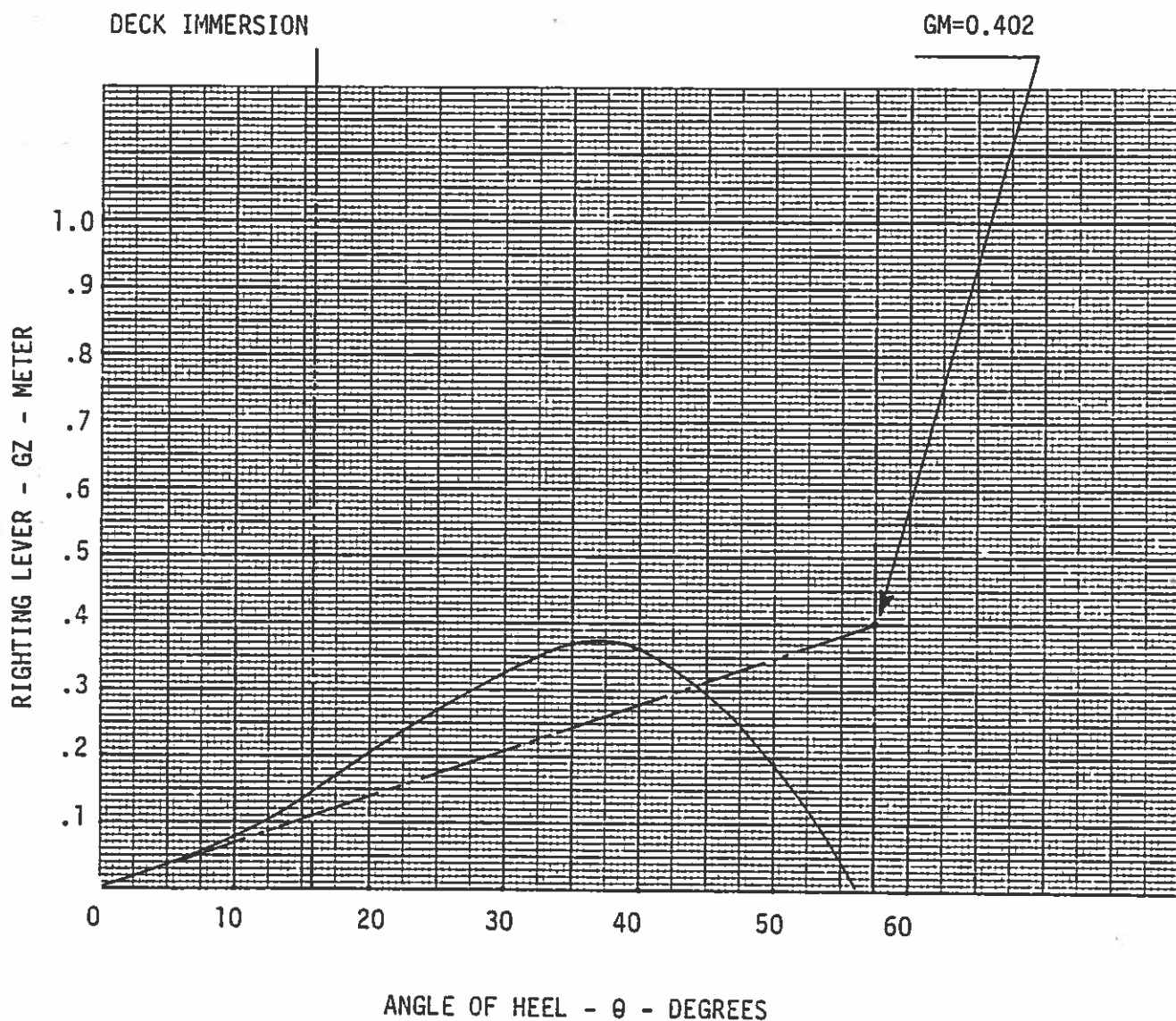


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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2) IN SALT WATER



MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 12  
\*\*\*\*\*

OPERATING LIGHTSHIP 100 % CONSUMABLES ICED-UP

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F. O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.997	67.458	38.06	0.000	226
F. O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F. O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F. O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F. O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F. O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F. O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F. O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F. O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F. O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L. O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L. O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L. O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.030	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-3.079	37
FRESH WATER TK STBD	1.0000	58.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	7.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1436.9	5.990	42.809	2533.78	0.142	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4742.3	6.506	35.488	2533.78	0.043	

CONDITION NO 12  
\*\*\*\*\*

OPERATING LIGHTSHIP 100 % CONSUMABLES ICED-UP

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	5.7798 M	
MEAN DRAFT (L. C. F.)	=	5.8088 M	
DRAFT AFT	=	6.1912 M	
DRAFT FWD	=	5.3684 M	
TRIM	=	-0.82274 M	
DISPLACEMENT	=	4742.3 TONNES	
LCG	=	35.488 M	
CCG	=	0.04310 M	
KG	=	6.5038 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.53429 M	
KM1	=	7.5703 M	
GM	=	1.0645 M	
GM CORRECTED FOR FREE SURF	=	0.53023 M	
ANGLE OF HEEL	0.100	5.000	10.000
XN CURVES	0.013	0.661	1.323
OZ CURVES	0.002	0.094	0.193
OZ CURVES CORREC	0.001	0.047	0.100
AREA UNDER OZ CU	0.0000	0.0041	0.0165
AREA UNDER CORRE	0.0000	0.0021	0.0084

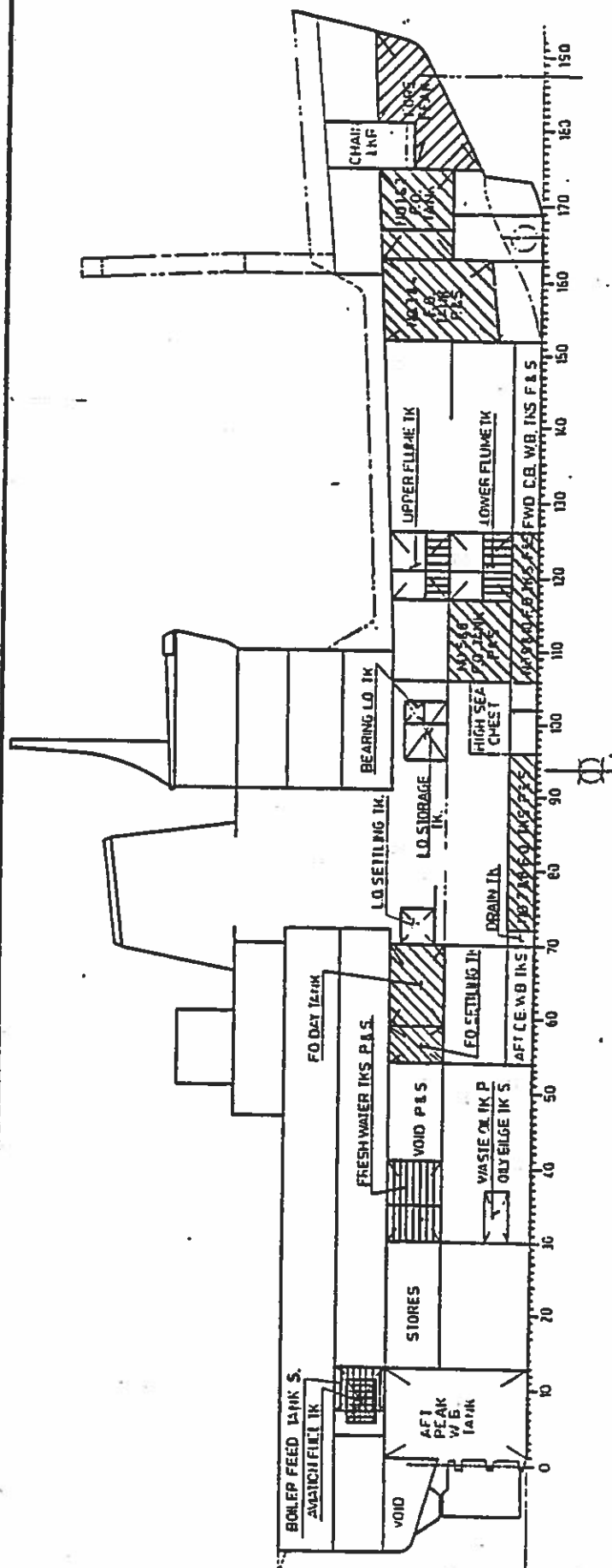


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- 72.
-  F.O. TK.
  -  FLUME TK..
  -  FEED & FRESH WATER TK.
  -  S.W. BALLAST TK.
  -  L.O. TK.
  -  OILY BILGE TK.
  -  WASTE OIL TK.
  -  DRAIN TK.
  -  AVIATION FUEL TK.

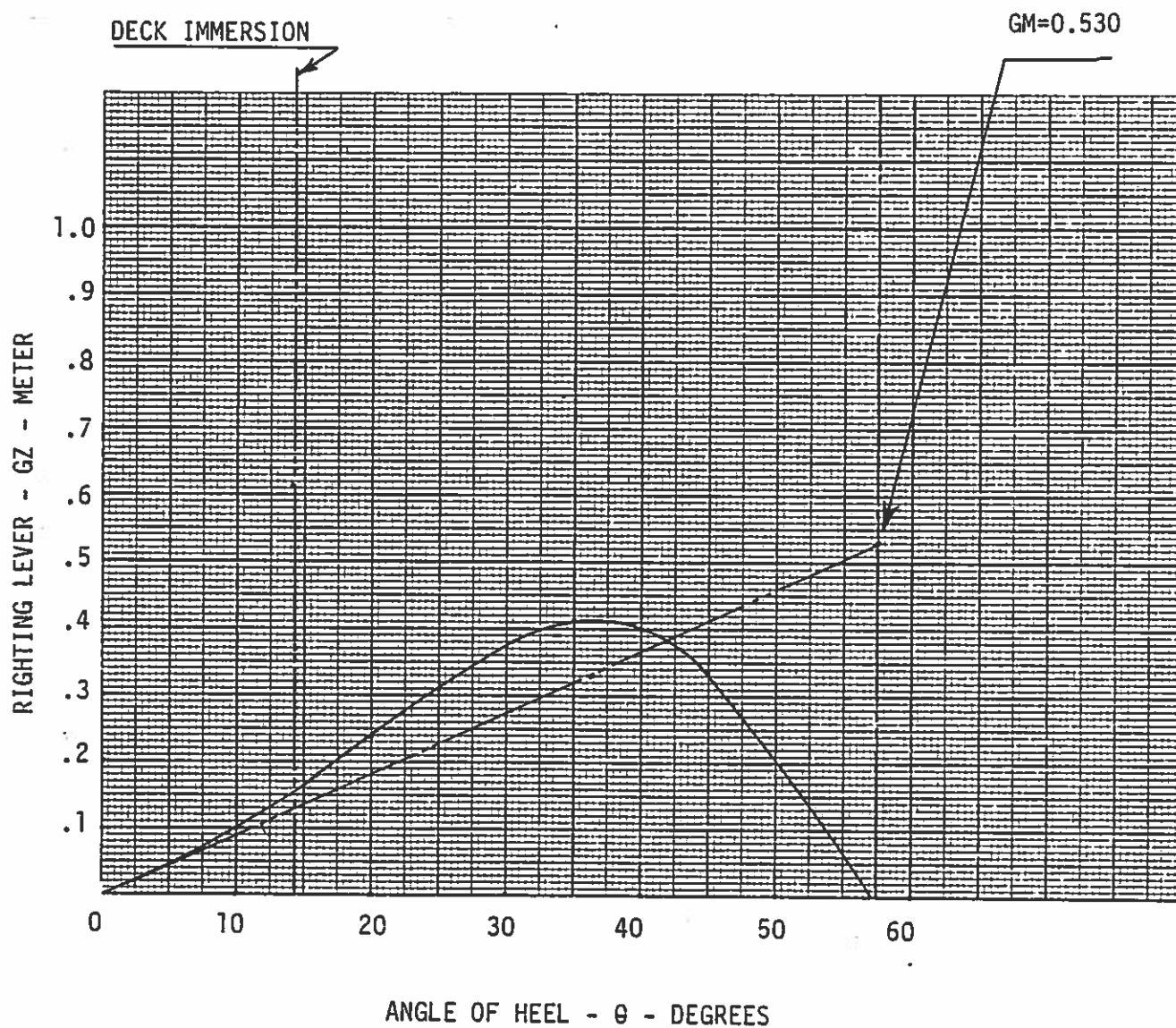


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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**MARINE  
INDUSTRIE  
LIMITEE**

Cont. no.

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Page

TYPE 110C, NAVAIDS - ICEBREAKER  
CONDITION NO 13

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON-M	TCC FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	5.999	67.458	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	103.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.0800	20.9	5.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	49.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.500	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD	1.0000	38.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.025	112.2	5.583	2.991		-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.500	55.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	52.800		0.000	304
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1861.2	5.427	41.580	2533.78	0.110	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		5166.6	6.441	35.647	2533.78	0.040	

CONDITION NO 13  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP

LOADED DEPARTURE 100 A CONSUMABLES USED OF											
WATER DENSITY	=	1.0250 M									
DRAFT AMIDSHIPS	=	6.1757 M									
MEAN DRAFT (L.C.F.)	=	6.1978 M									
DRAFT AFT	=	6.4764 M									
DRAFT FWD	=	5.8750 M									
TRIM	=	-0.60142 M									
DISPLACEMENT	=	5166.6 TONNES									
LCG	=	35.647 M									
CCG	=	0.03956 M									
KC	=	6.4408 M									
CORRECTION FOR FREE SURFACE EFFECT	=	0.49041 M									
KMT	=	7.5516 M									
GK	=	1.1108 M									
GK CORRECTED FOR FREE SURF.	=	0.62041 M									
ANGLE OF HEEL	0.100	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	60.000
NN CURVES	0.013	0.659	1.319	1.977	2.616	3.235	3.835	4.370	4.827	5.207	5.708
GZ CURVES	0.002	0.098	0.200	0.310	0.414	0.513	0.615	0.676	0.687	0.672	0.330
GZ CURVES CORREC	0.001	0.055	0.115	0.183	0.246	0.304	0.369	0.394	0.372	0.306	-0.095
AREA UNDER GZ CU	0.0000	0.0043	0.0172	0.0393	0.0711	0.1115	0.1608	0.2175	0.2773	0.3361	0.4709
AREA UNDER CORRE	0.0000	0.0024	0.0098	0.0227	0.0415	0.0656	0.0951	0.1288	0.1626	0.1924	0.2280

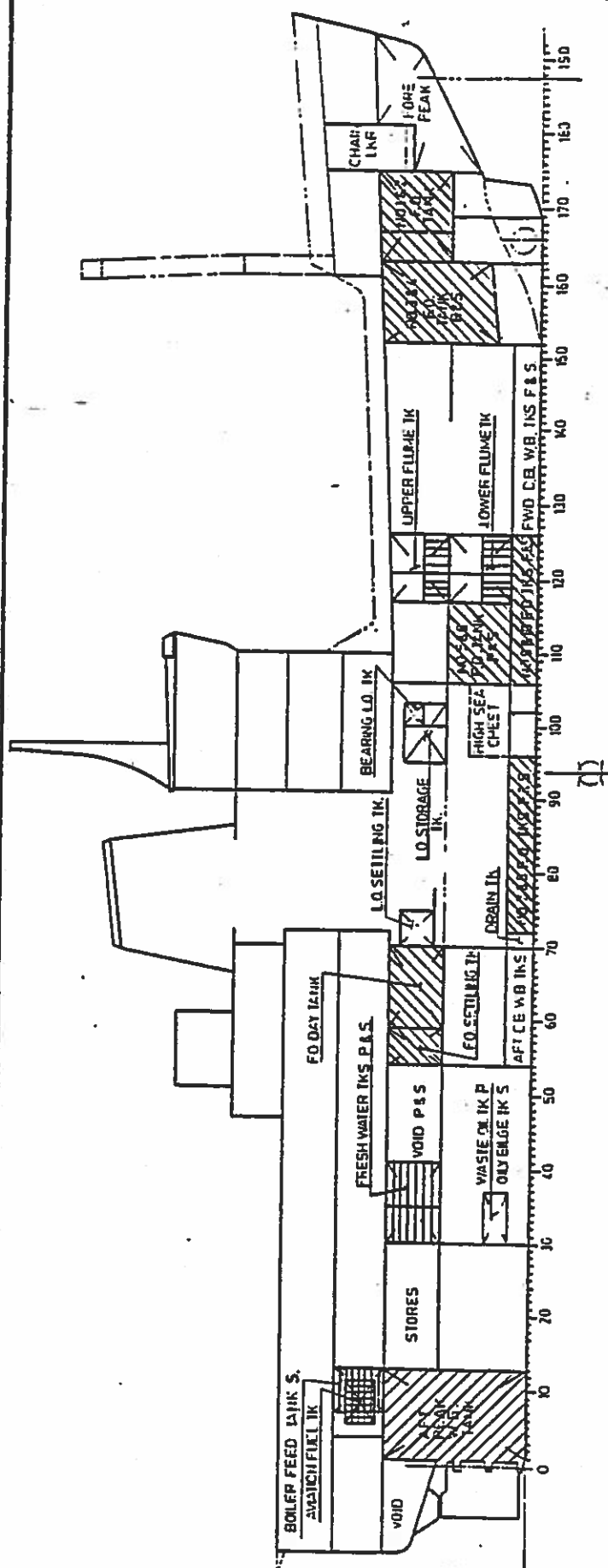




Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.	450
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	F.O. TK.
	FLUME TK.
	FEED & FRESH WATER TK.
	S.W. BALLAST TK.
	L.O. TK.
	OILY BILGE TK.
	WASTE OIL TK.
	DRAIN TK.
	AVIATION FUEL TK.

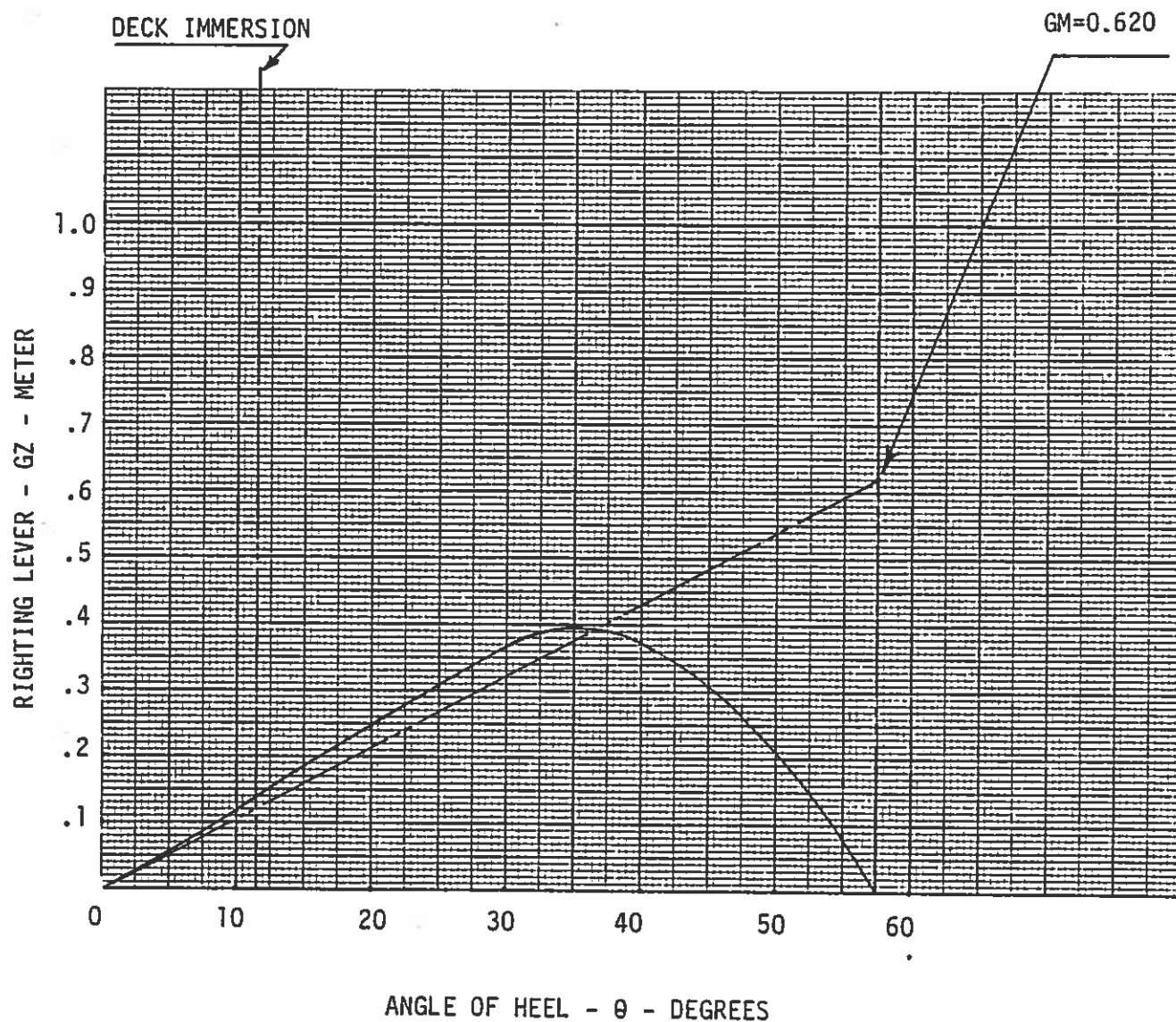


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 14  
\*\*\*\*\*

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIF WEIGHT CR UNIT WEIGHT	WEIGHT TON	VCO FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F. O. TK NO. 1 & NO. 2 P/B	0.8800	32.2	3.786	67.350	30.16	0.000	226
F. O. DAY TK	0.8800	20.9	6.343	23.731	2.07	3.024	9
F. O. SETTling TK	0.8800	23.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	32.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	389.22	0.002	212
AVIATION FUEL TK	0.7900	1.8	8.501	3.400	30.83	-0.850	16
L. O. SETTling TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L. O. STORAGE TK	0.9000	13.7	5.885	39.786	1.92	-2.719	18
L. O. BEARING TK	0.9000	2.2	6.441	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	9.7	5.228	14.312	9.85	-3.087	37
BOILER FEED TK	1.0000	13.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	47.2	7.651	21.525		0.000	309
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	35.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	32.800		0.000	304
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		981.4	7.690	46.319	1361.80	0.146	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4286.8	6.950	35.514	1361.80	0.033	

CONDITION NO 14  
\*\*\*\*\*

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	5.3507 M	
MEAN DRAFT (L. C. F.)	=	5.3785 M	
DRAFT AFT	=	5.7921 M	
DRAFT FWD	=	4.9093 M	
TRIM	=	-0.88288 M	
DISPLACEMENT	=	4286.8 TONNES	
LCG	=	35.514 M	
CCG	=	0.03339 M	
KG	=	6.9498 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.31767 M	
KMT	=	7.6069 M	
GM	=	0.65716 M	
GM CORRECTED FOR FREE SURF.	=	0.33949 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000
KN CURVES	0.013	0.664	1.330 2.000 2.674 3.329 3.947 4.525 5.018 5.412 6.086
GZ CURVES	0.001	0.058	0.123 0.202 0.277 0.392 0.472 0.538 0.551 0.498 0.067
GZ CURVES CORREC	0.001	0.031	0.068 0.119 0.188 0.257 0.313 0.356 0.347 0.273 -0.208
AREA UNDER GZ CU	0.0000	0.0025	0.0104 0.0244 0.0461 0.0762 0.1140 0.1583 0.2063 0.2526 0.3330
AREA UNDER CORRE	0.0000	0.0013	0.0056 0.0136 0.0269 0.0465 0.0714 0.1008 0.1320 0.1595 0.1840

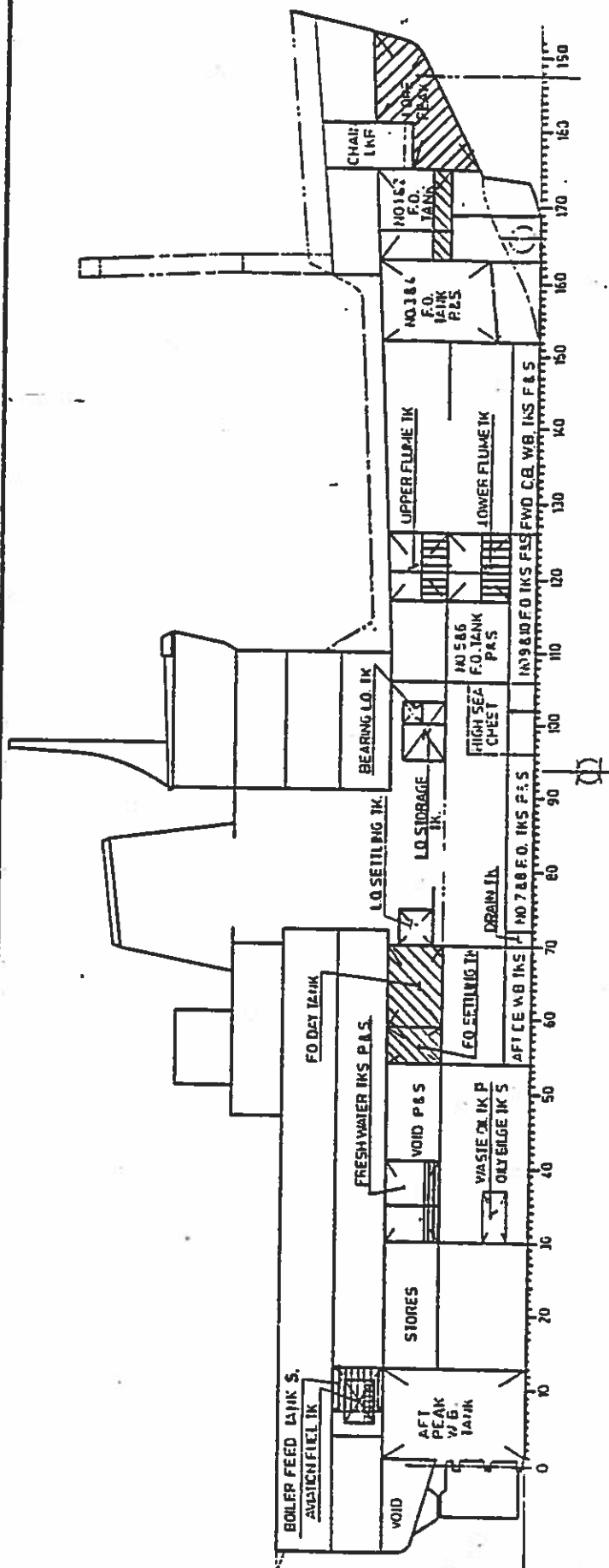


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

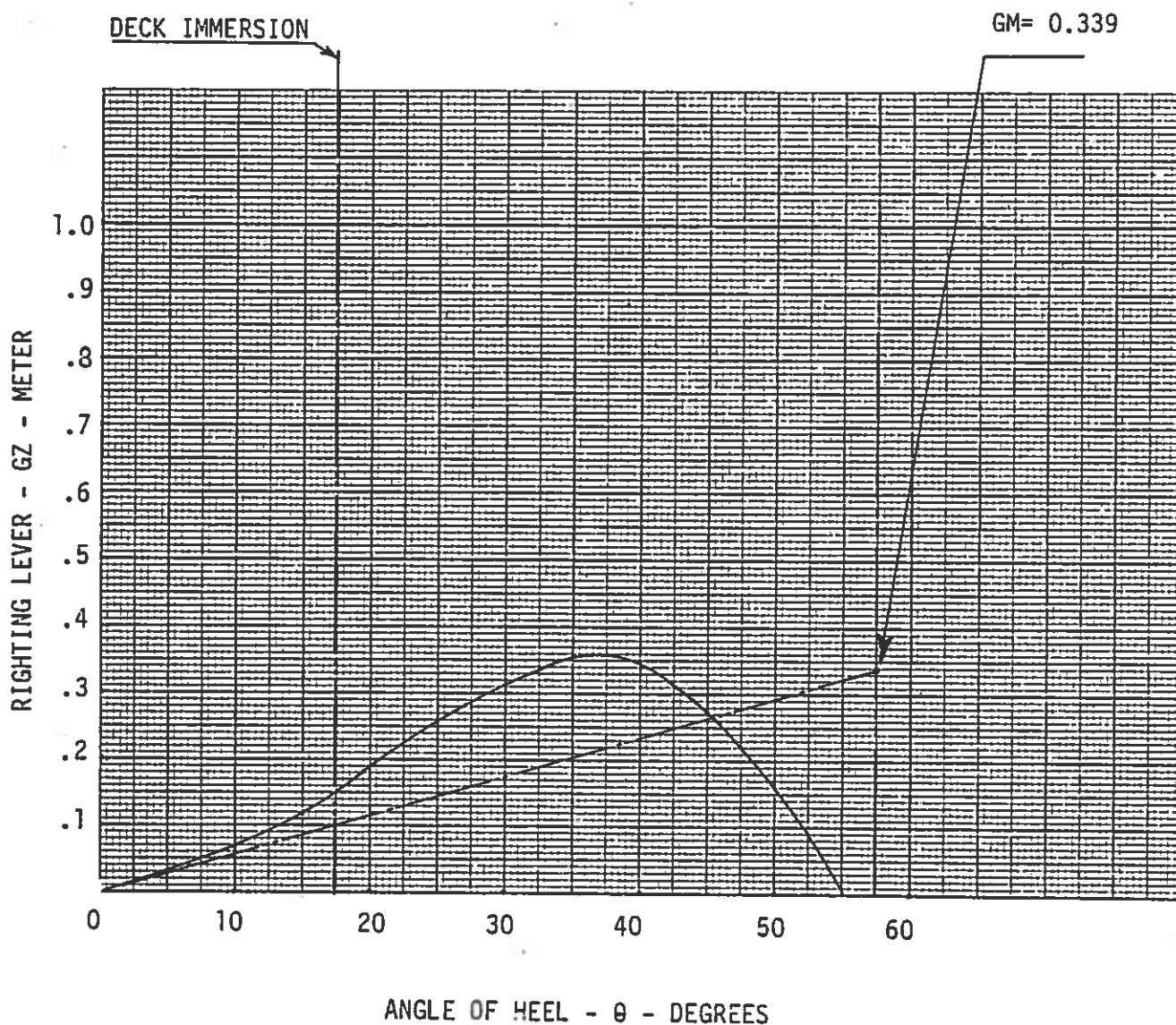


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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**MARINE  
INDUSTRIE  
LIMITEE**

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 15

BUOY HANDLING CONDITION 50% CONSUMABLES ICED-UP

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	389.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	13.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.030	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000	4.850		42
FORE PEAK TK	1.025	87.9	7.073	72.572	0.000		234
CREW & EFFECTS	1.0000	8.0	13.000	31.500	0.000		300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309	0.000		308
HELICOPTER	1.0000	5.1	14.500	11.000	0.000		302
DECK CARGO	1.0000	15.0	9.200	52.000	0.000		305
BUOY ON BOOM	1.0000	15.0	28.000	58.000	0.000		306
ICE ACCUMULATION	1.0000	206.9	13.250	32.200	0.000		307
TOTAL DEADWEIGHT		996.3	7.887	45.968	1731.93	0.216	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4301.7	6.998	35.470	1731.93	0.030	

CONDITION NO 15

BUOY HANDLING CONDITION 50% CONSUMMABLES ICED-UP

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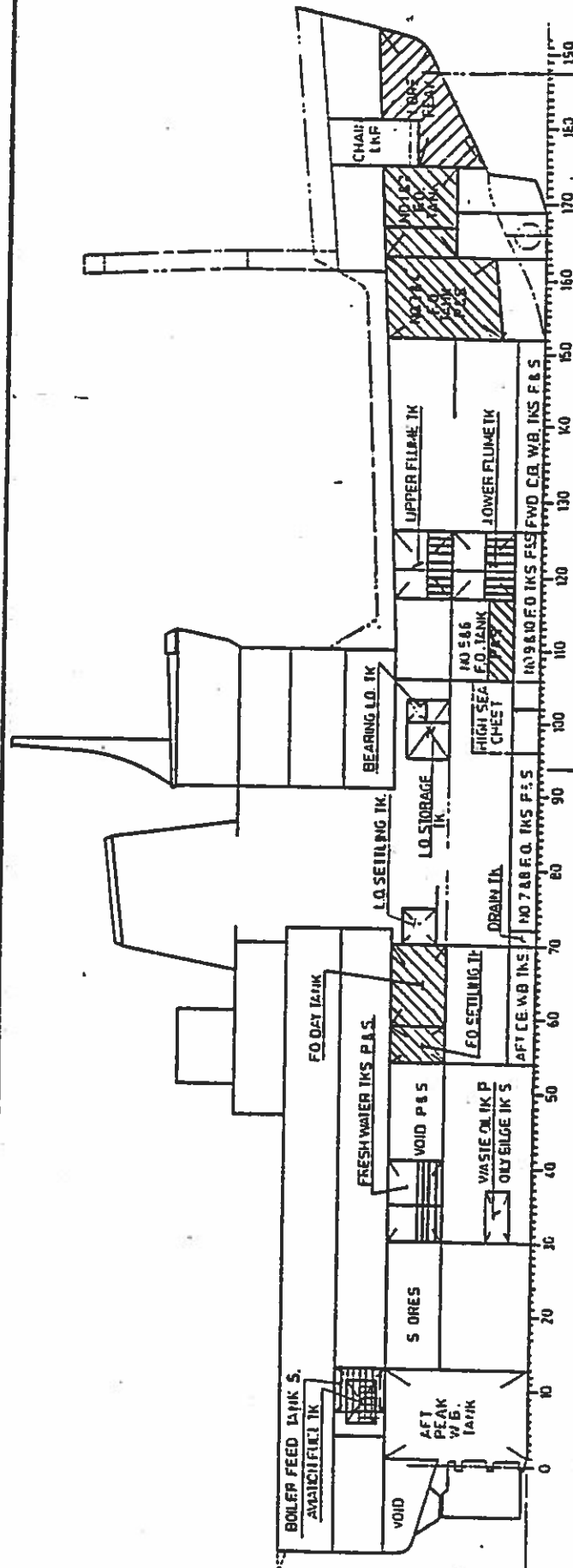


MARINE  
INDUSTRIES  
LIMITED

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

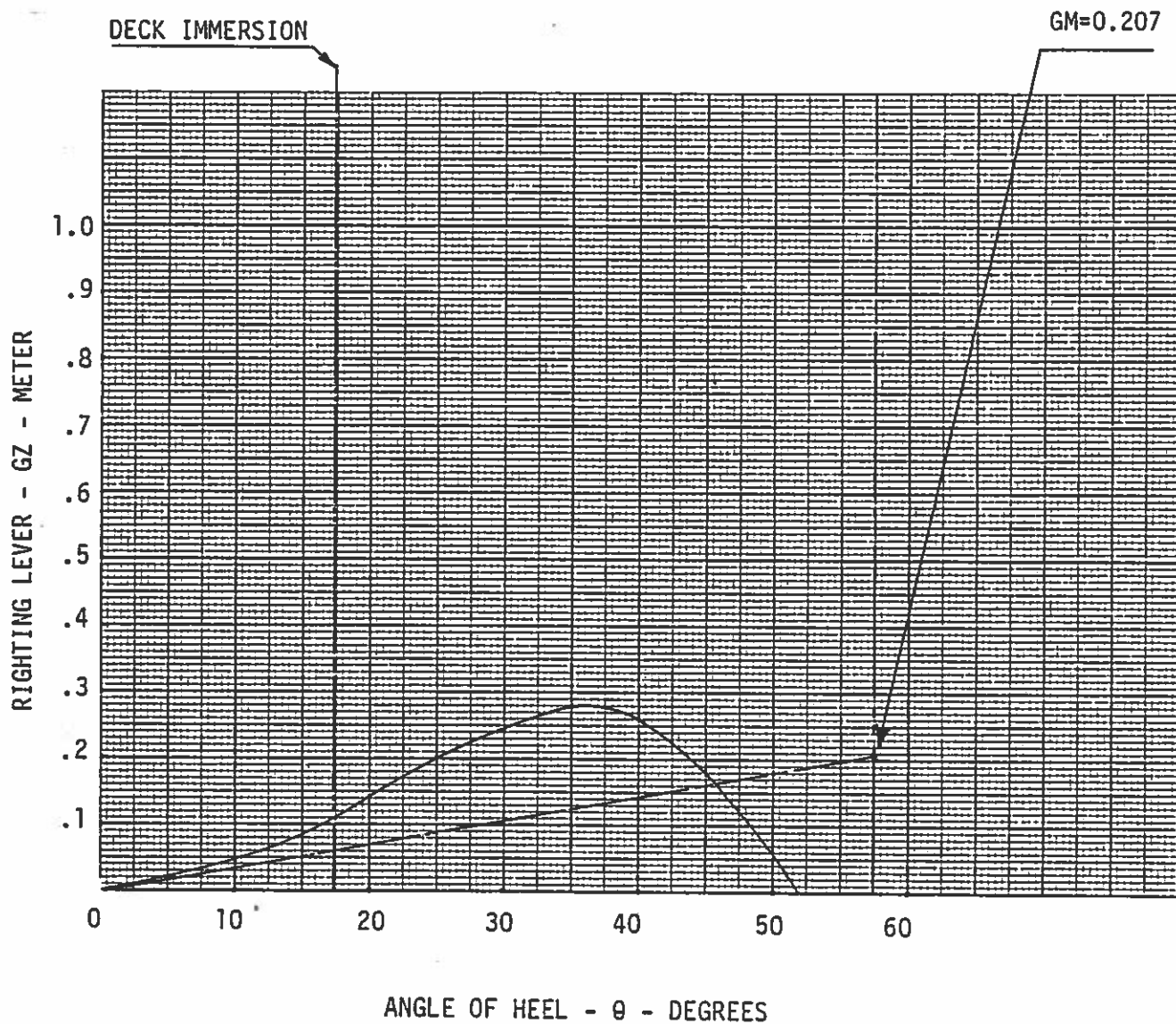


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 16

SUMMER ICE BREAKING CONDITION 50% CONSUMABLES ICED-UP

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE: MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	3.948	62.831	103.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	76.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	43.177	111.94	-2.997	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	32.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000	4.850	0.000	42
AFTER PEAK TK	1.025	112.2	5.383	2.991		-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	100.0	9.200	52.800		0.000	304
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1390.6	6.993	43.164	1731.93	0.155	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4696.0	6.808	35.521	1731.93	0.046	

CONDITION NO 16

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP

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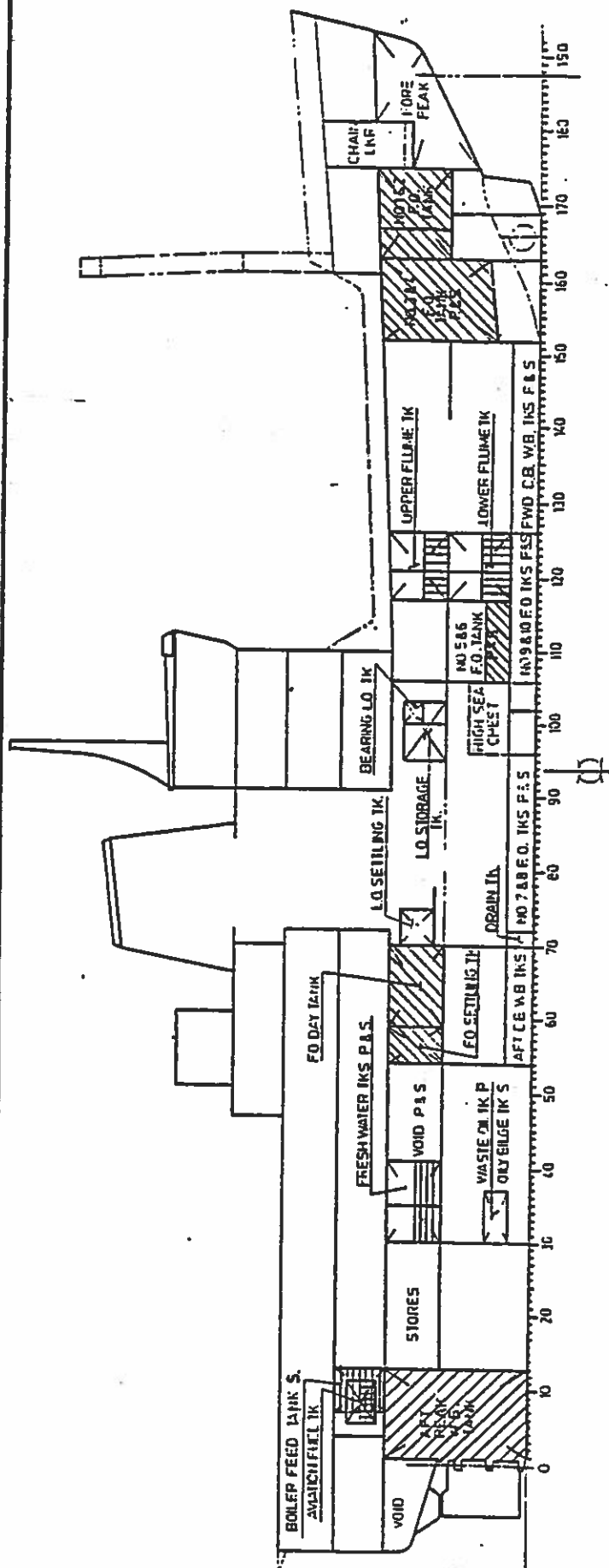


MARINE  
INDUSTRIE  
LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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Page



- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

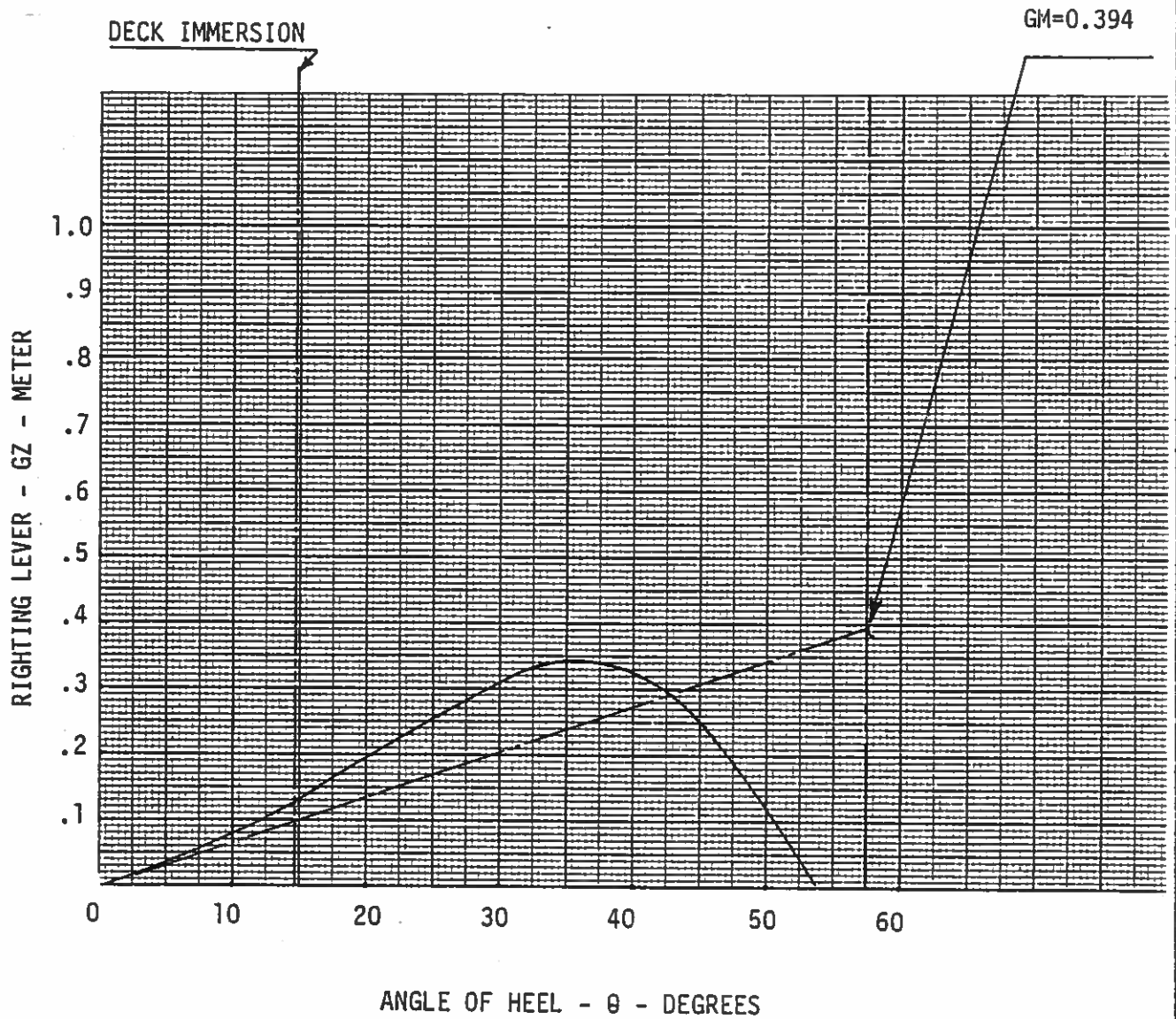


MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.  
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MARINE  
INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

Cont. no.

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Page

TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 17  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP

WEIGHT ITEM	SPECIF WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.458	38.06	0.000	226
F.O. TK NO. 6 S.	0.8800	31.8	2.035	45.177	111.94	2.997	207
F.O. TK NO. 5 P.	0.8800	31.8	2.035	45.177	111.94	-2.777	209
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.545	10
UPPER FLUME TK	0.8800	52.4	5.681	48.952	686.36	0.000	214
LOWER FLUME TK	0.8800	46.9	2.343	49.012	589.22	0.002	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.025	105.8	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1072.2	6.895	46.602	1731.93	0.201	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4377.6	6.771	35.807	1731.93	0.049	

CONDITION NO 17  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	3.4466 M	
MEAN DRAFT (L.C.F.)	=	3.4649 M	
DRAFT AFT	=	3.7932 M	
DRAFT FWD	=	3.1400 M	
TRIM	=	-0.61323 M	
DISPLACEMENT	=	4377.6 TONNES	
LCG	=	35.807 M	
CCG	=	0.04912 M	
KG	=	6.7705 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.39564 M	
KMT	=	7.5802 M	
GM	=	0.80964 M	
GM CORRECTED FOR FREE SURF.	=	0.41400 M	
ANGLE OF HEEL	0.100 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000		
KN CURVES	0.013 0.662 1.326 1.973 2.663 3.311 3.924 4.499 4.991 5.384 6.063		
GZ CURVES	0.001 0.072 0.150 0.241 0.347 0.449 0.537 0.615 0.639 0.597 0.200		
GZ CURVES CORREC	0.001 0.037 0.081 0.138 0.212 0.282 0.341 0.388 0.385 0.317 -0.143		
AREA UNDER GZ CU	0.0000 0.0031 0.0127 0.0296 0.0552 0.0901 0.1332 0.1838 0.2370 0.2934 0.4040		
AREA UNDER CORRE	0.0000 0.0016 0.0067 0.0162 0.0314 0.0530 0.0802 0.1123 0.1464 0.1775 0.2110		

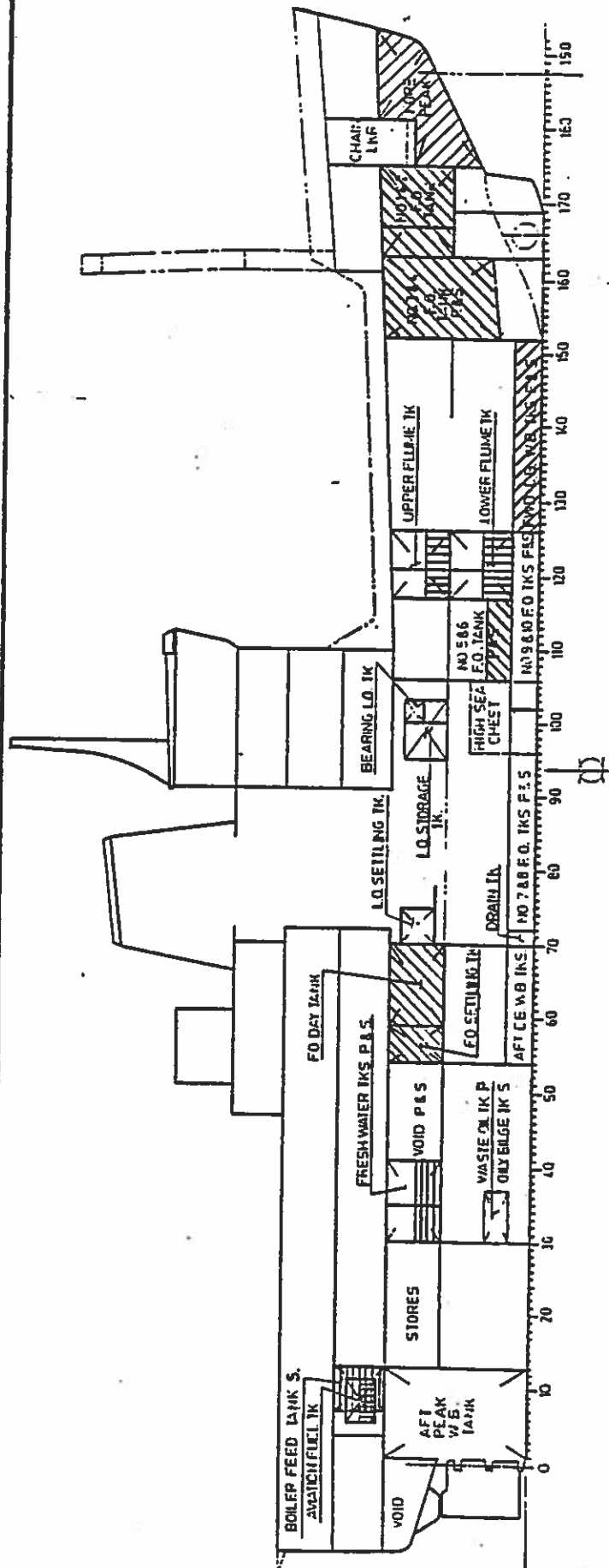


MARINE  
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LIMITES

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.

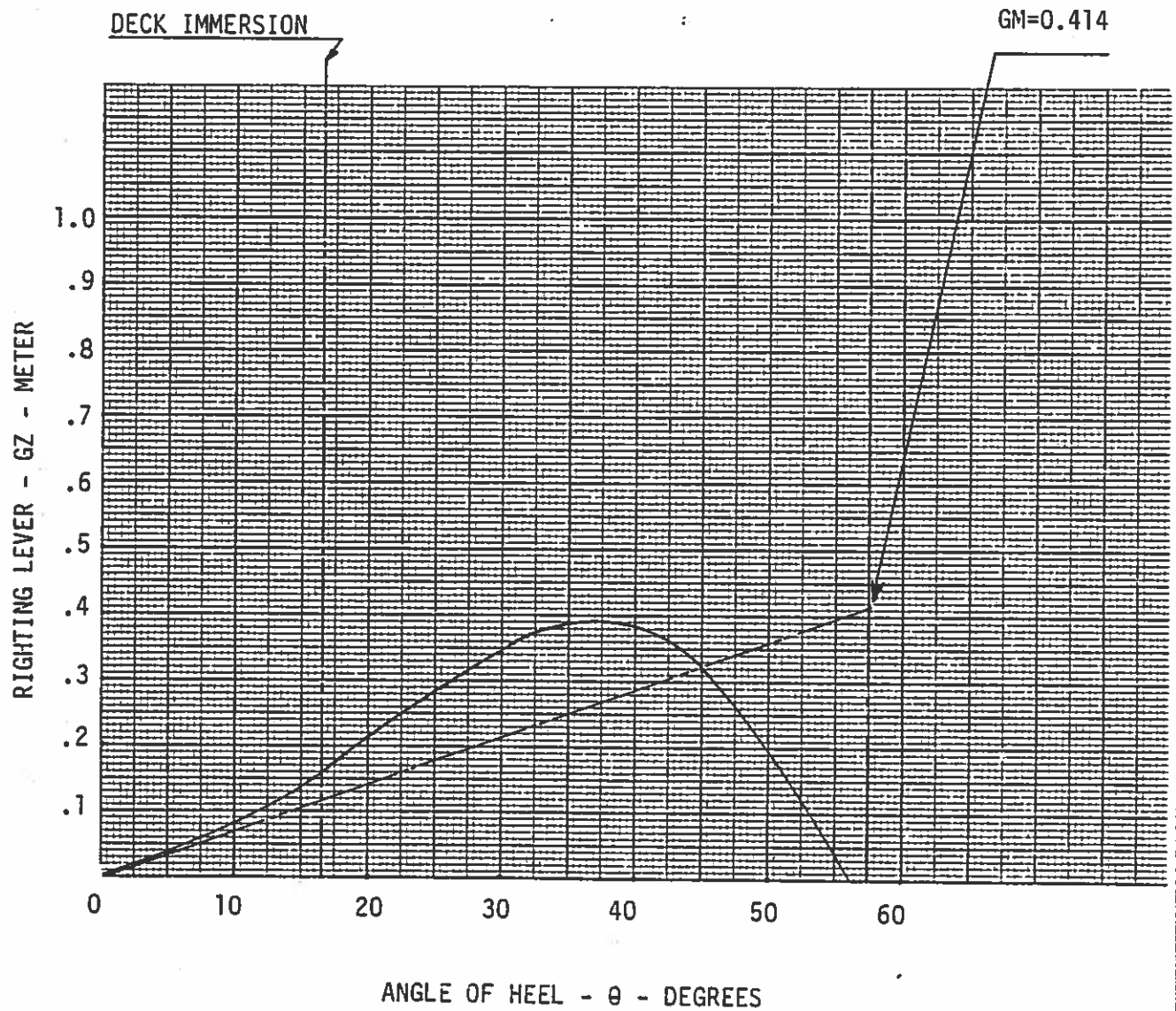


MARINE  
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LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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3) ARCTIC



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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 18  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP (ARTIC)

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO. 1 & NO. 2 P/S	0.8800	96.9	6.999	67.498	38.06	0.000	226
F.O. TK NO. 3 & NO. 4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO. 5 P.	0.8800	104.0	3.172	45.155	133.75	-3.136	209
F.O. TK NO. 6 S.	0.8800	104.0	3.172	45.155	133.75	3.136	207
F.O. TK NO. 7 P.	0.8800	82.7	0.833	33.334	339.81	-3.409	7
F.O. TK NO. 8 S.	0.8800	82.7	0.833	33.334	339.81	3.409	8
F.O. TK NO. 9	0.8800	45.9	0.817	46.369	77.82	-3.287	200
F.O. TK NO. 10	0.8800	36.5	0.821	47.197	62.26	3.280	201
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	99.5	6.413	48.963	420.15	0.000	214
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001	212
OVER FLOW FLUME TK	0.8800	9.5	0.796	43.200	15.56	3.322	199
AVIATION FUEL TK	0.7900	17.7	9.226	3.400	12.19	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	13.7	3.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
FRESH WATER TK PORT	1.0000	38.5	6.348	14.310		-5.079	37
FRESH WATER TK STBD	1.0000	58.4	6.357	14.273		4.318	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
AFTER PEAK TK	1.025	55.0	4.276	3.189	72.00	-0.000	22
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	85.0	7.260	27.936		0.000	301
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	53.464		0.000	303
DECK CARGO	1.0000	75.0	9.200	52.800		0.000	311
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1885.9	5.810	42.997	2407.22	0.125	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		5191.3	6.396	36.190	2407.22	0.045	

CONDITION NO 18  
\*\*\*\*\*

LOADED DEPARTURE 100 % CONSUMMABLES ICED-UP (ARTIC)

WATER DENSITY	=	1.0250
DRAFT AMIDSHIPS	=	6.2158 M
MEAN DRAFT (L.C.F.)	=	6.2199 M
DRAFT AFT	=	6.2760 M
DRAFT FWD	=	6.1557 M
TRIM	=	-0.12030 M
DISPLACEMENT	=	5191.3 TONNES
LCG	=	36.190 M
CCG	=	0.04546 M
KG	=	6.3959 M
CORRECTION FOR FREE SURFACE EFFECT	=	0.46370 M
KMT	=	7.5271 M
GM	=	1.1312 M
GM CORRECTED FOR FREE SURF.	=	0.66748 M
ANGLE OF HEEL	0.100 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 60.000	
KN CURVES	0.013 0.657 1.315 1.969 2.600 3.213 3.809 4.346 4.809 5.188 5.897	
GZ CURVES	0.002 0.100 0.204 0.314 0.413 0.510 0.611 0.677 0.694 0.665 0.358	
GZ CURVES CORREC	0.001 0.059 0.124 0.194 0.254 0.314 0.379 0.411 0.395 0.337 -0.044	
AREA UNDER GZ CU	0.0000 0.0043 0.0175 0.0401 0.0719 0.1121 0.1611 0.2176 0.2778 0.3374 0.4779	
AREA UNDER CORRE	0.0000 0.0026 0.0105 0.0243 0.0439 0.0686 0.0990 0.1338 0.1693 0.2016 0.2465	



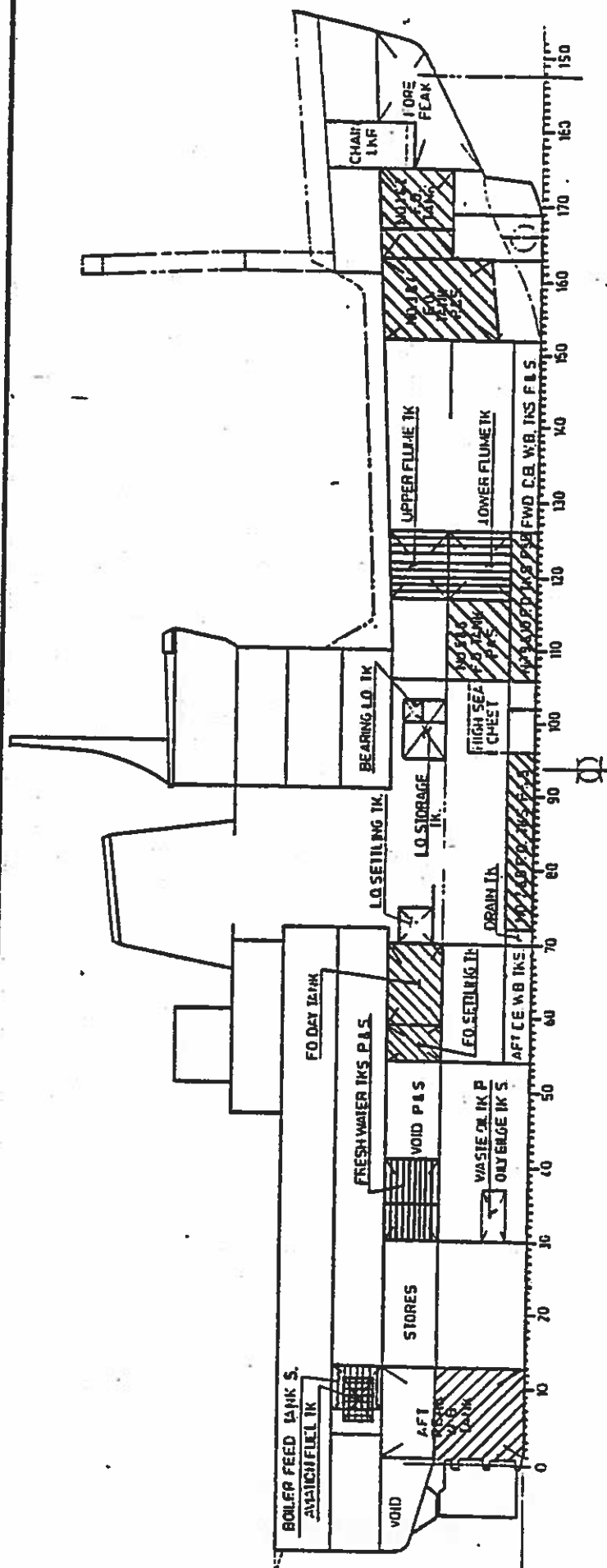











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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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-  F.O. TK.
-  FLUME TK.
-  FEED & FRESH WATER TK.
-  S.W. BALLAST TK.
-  L.O. TK.
-  OILY BILGE TK.
-  WASTE OIL TK.
-  DRAIN TK.
-  AVIATION FUEL TK.

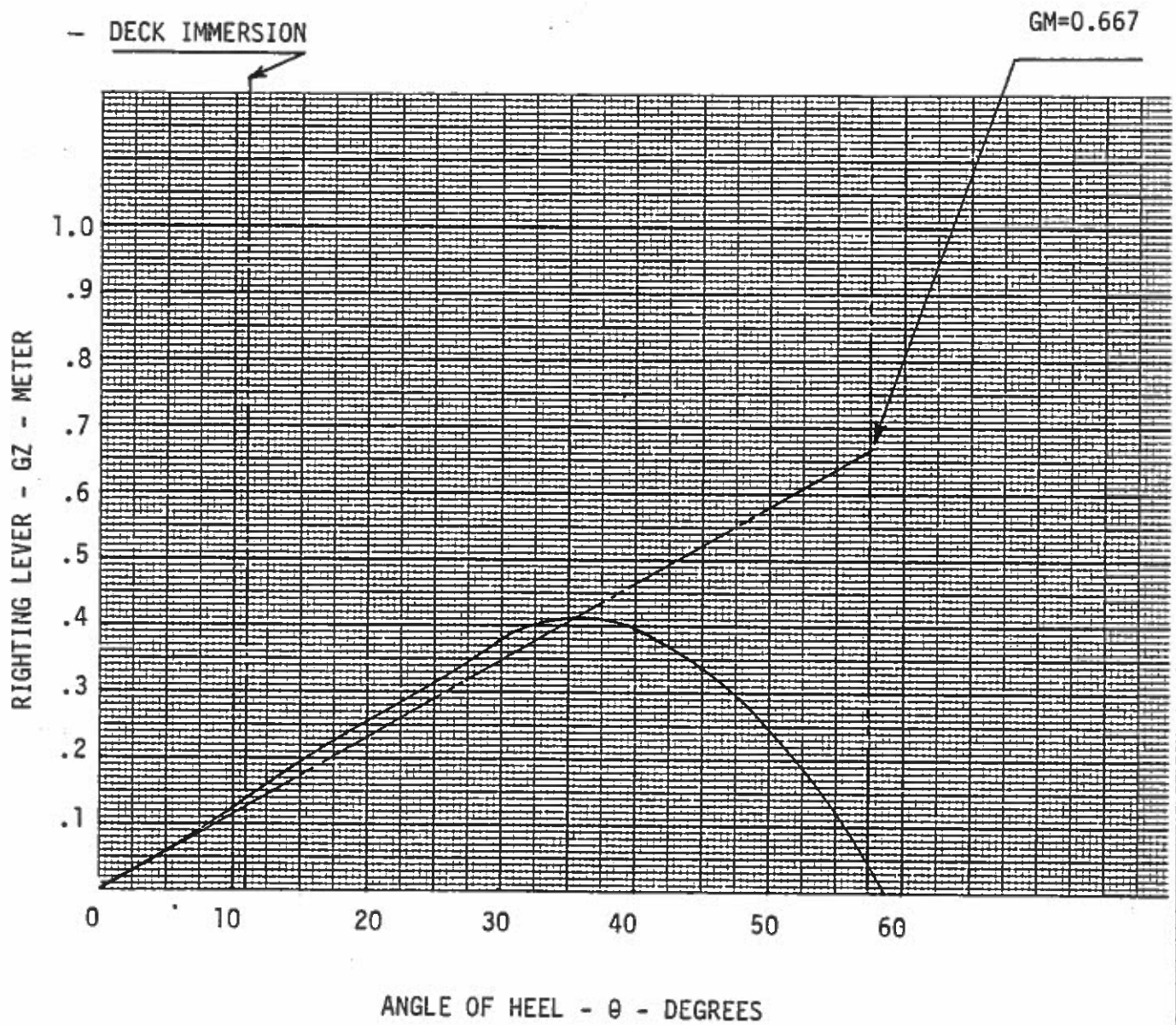


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LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 19

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP (ARTIC)

WEIGHT ITEM	SPECIFIC WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE: MOMENT TON*M	TCG FROM CL M	
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
LOWER FLUME TK	0.8800	53.6	2.455	49.009	601.21	0.002	212
AVIATION FUEL TK	0.7900	1.8	8.901	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
OILY BILGE TK	1.0000	3.0	1.657	13.501	1.57	0.836	19
WASTE OIL TK	1.0000	3.0	1.657	13.501	1.57	-0.836	20
DRAIN TK	1.0000	1.0	0.399	28.400	0.27	-0.000	94
FRESH WATER TK PORT	1.0000	9.7	5.228	14.312	9.85	-5.087	37
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.025	105.8	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	47.2	7.651	21.525		0.000	309
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000	303
DECK CARGO	1.0000	75.0	9.200	52.800		0.000	311
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		991.3	7.019	46.057	660.66	0.144	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4296.7	6.797	35.479	660.66	0.033	

CONDITION NO 19

LOADED ARRIVAL 10% CONSUMMABLES ICED-UP (ARTIC)

WATER DENSITY	=	1.0250									
DRAFT AMIDSHIPS	=	5.3591 M									
MEAN DRAFT (L.C.F.)	=	5.3880 M									
DRAFT AFT	=	5.8150 M									
DRAFT FWD	=	4.9033 M									
TRIM	=	-0.91163 M									
DISPLACEMENT	=	4296.7 TONNES									
LCO	=	35.479 M									
CCG	=	0.03331 M									
KG	=	6.7968 M									
CORRECTION FOR FREE SURFACE EFFECT	=	0.15376 M									
KMT	=	7.6077 M									
GM	=	0.81093 M									
GM CORRECTED FOR FREE SURF.	=	0.65717 M									
ANGLE OF HEEL	0.100	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	60.000
KN CURVES	0.013	0.664	1.330	2.000	2.674	3.329	3.947	4.525	5.018	5.411	6.085
GZ CURVES	0.001	0.072	0.150	0.241	0.349	0.456	0.549	0.626	0.649	0.605	0.198
GZ CURVES CORREC	0.001	0.058	0.123	0.201	0.296	0.391	0.472	0.538	0.550	0.496	0.065
AREA UNDER GZ CU	0.0000	0.0031	0.0127	0.0297	0.0553	0.0906	0.1345	0.1860	0.2421	0.2973	0.4092
AREA UNDER CORRE	0.0000	0.0025	0.0104	0.0244	0.0461	0.0762	0.1139	0.1582	0.2061	0.2522	0.3322

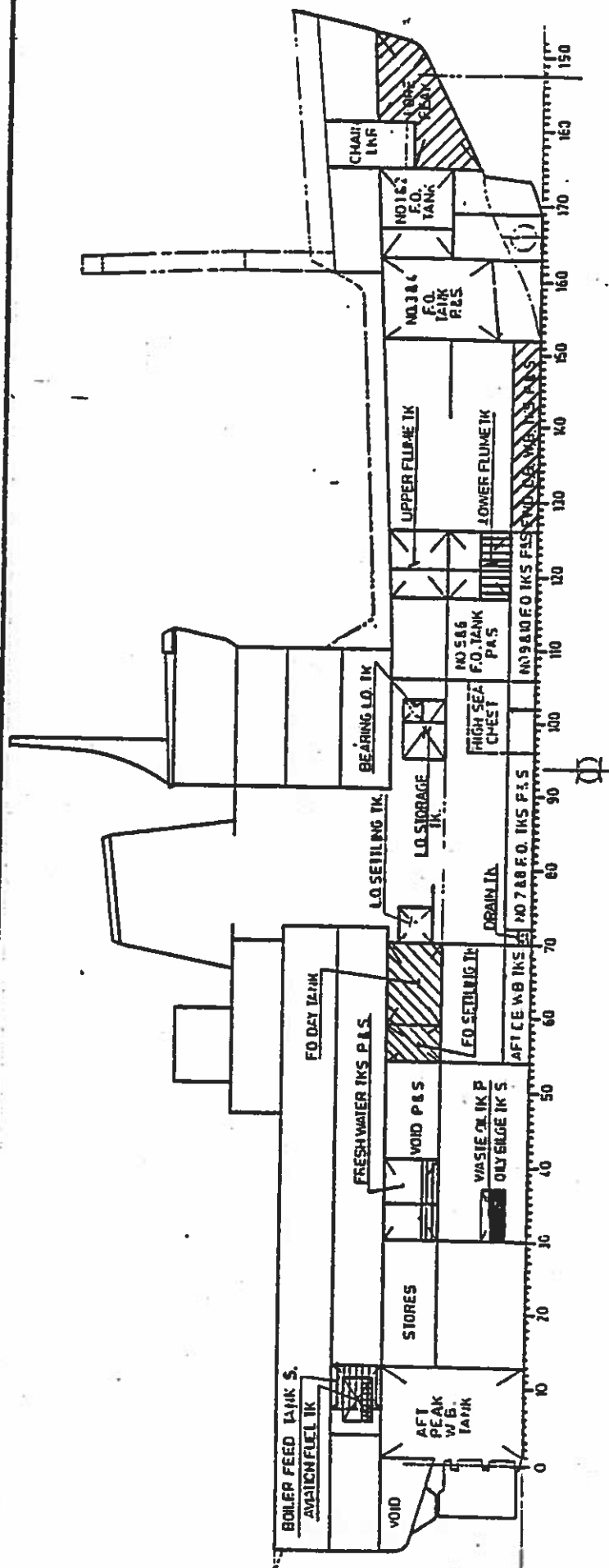


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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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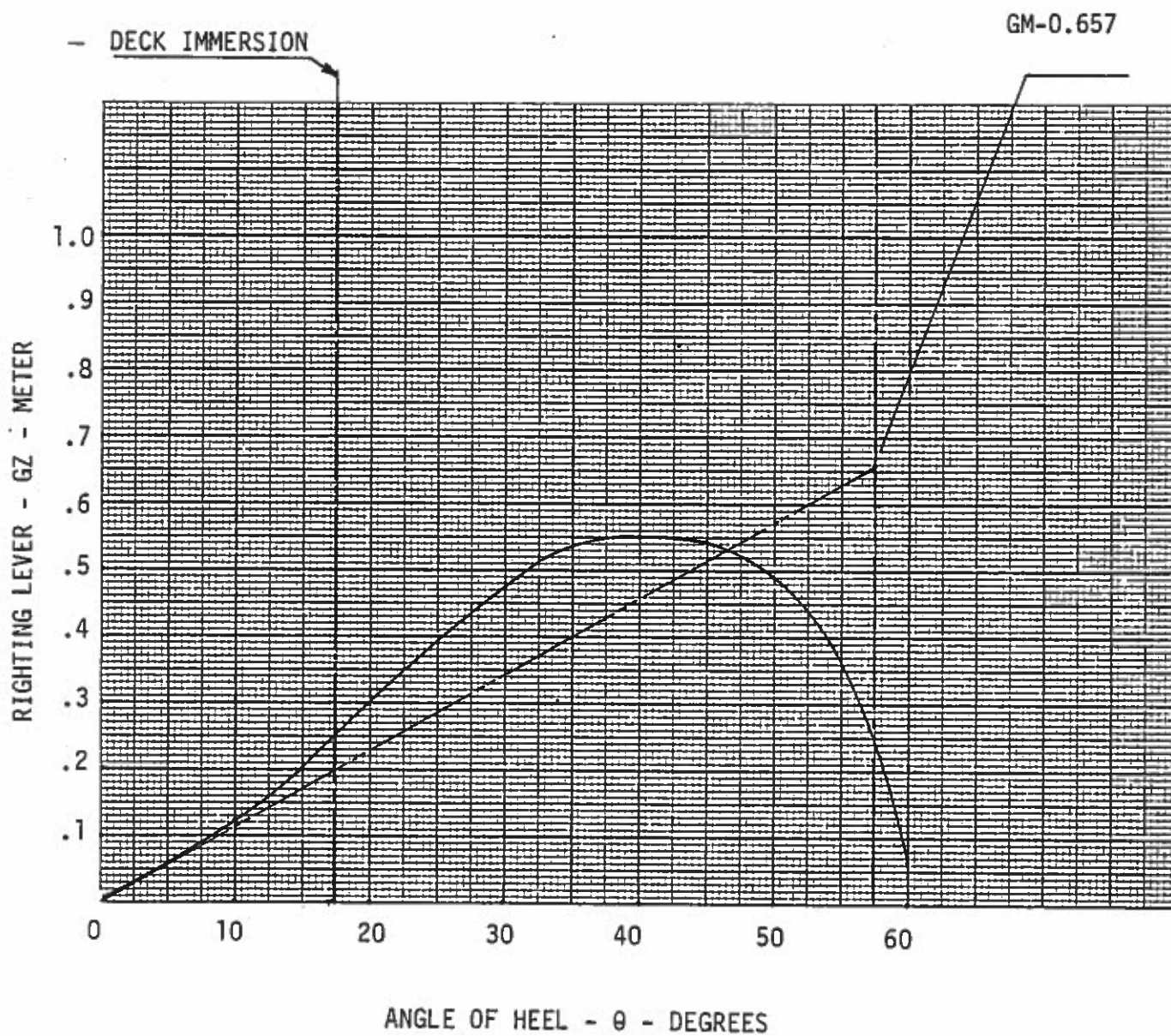
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INDUSTRIE  
LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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**MARINE  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 20

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP (ARTIC)

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT WEIGHT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M
F.O. TK NO. 3 & NO. 4 P/S	0.8800	174.0	5.948	62.836	105.38	0.000
F.O. TK NO. 1 & NO. 2 P/S	0.8800	63.0	6.404	67.421	44.03	0.000
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595
UPPER FLUME TK	0.8800	99.5	6.413	48.963	420.15	0.000
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050
OILY BILGE TK	1.0000	1.5	1.500	13.472	1.57	0.748
WASTE OIL TK	1.0000	1.5	1.500	13.472	1.57	-0.748
DRAIN TK	1.0000	0.5	0.199	28.400	0.27	0.000
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000
HELICOPTER	1.0000	5.1	14.500	11.000		0.000
FWD CARGO HOLD	1.0000	300.0	5.000	55.464		0.000
DECK CARGO	1.0000	75.0	9.200	52.800		0.000
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000
TOTAL DEADWEIGHT		1256.8	7.167	46.173	1303.29	0.171
LIGHT SHIP		3305.4	6.730	32.306		0.000
TOTAL DISPLACEMENT		4562.2	6.850	36.126	1303.29	0.047

CONDITION NO 20

SUMMER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP (ARTIC)

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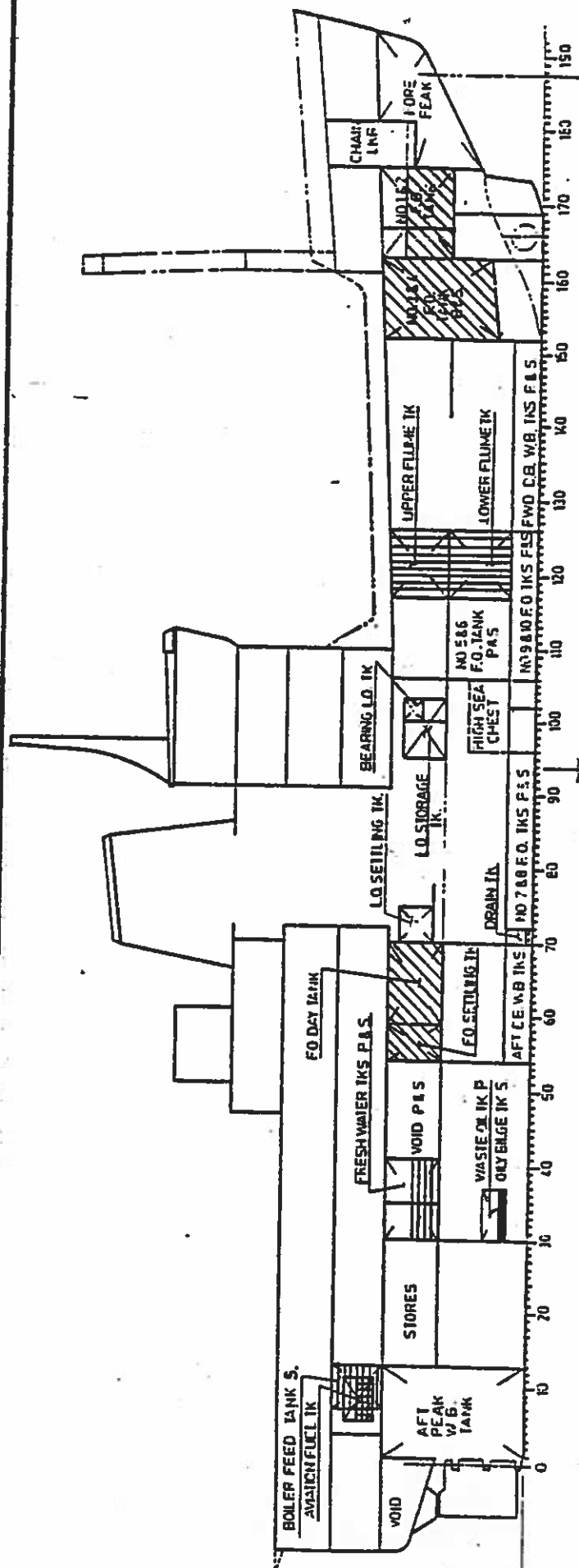











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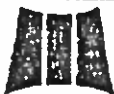
Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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- Φ.
-  F.O. TK.
  -  FLUME TK.
  -  FEED & FRESH WATER TK.
  -  S.W. BALLAST TK.
  -  L.O. TK.
  -  OILY BILGE TK.
  -  WASTE OIL TK.
  -  DRAIN TK.
  -  AVIATION FUEL TK.



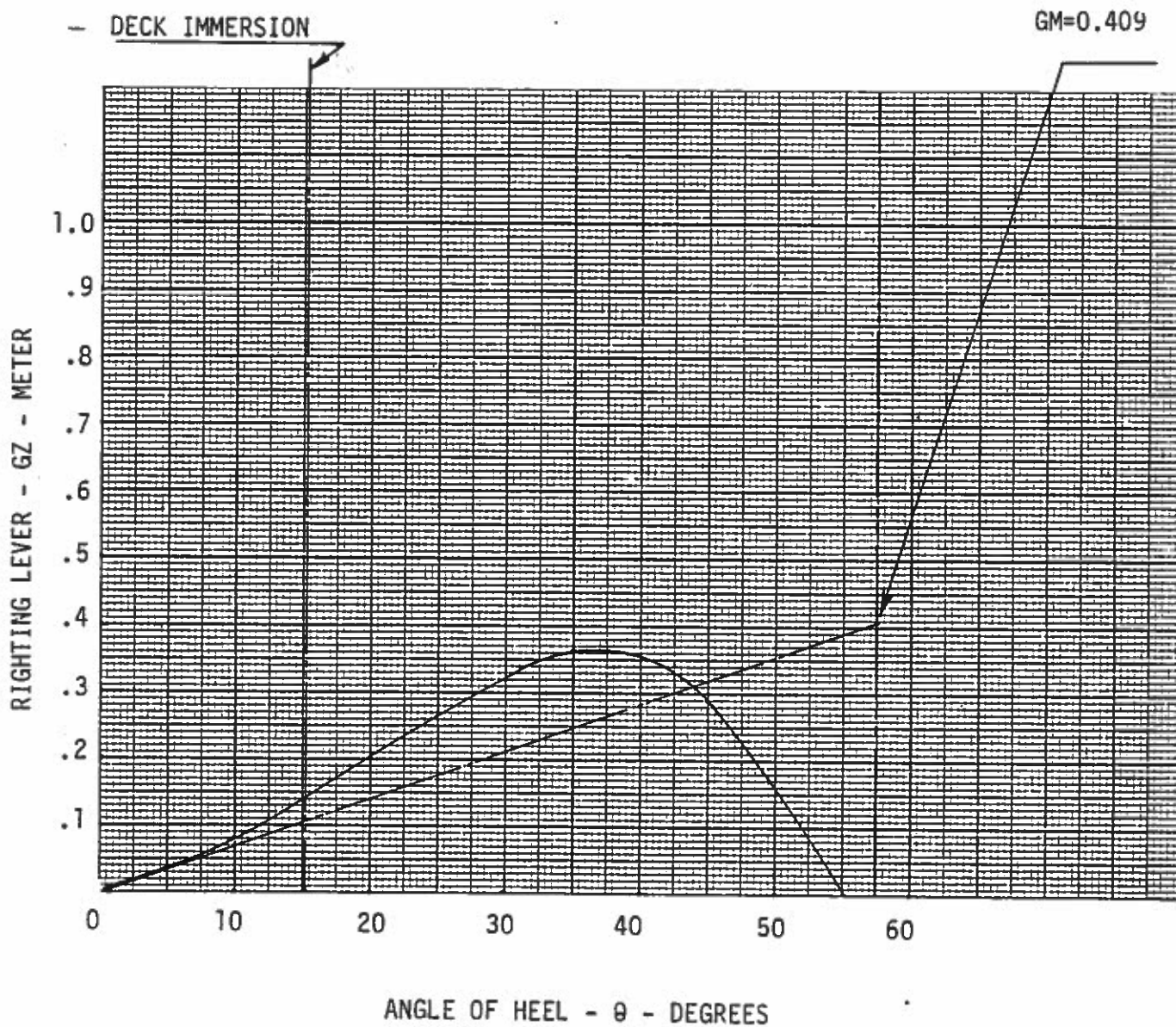
MARINE  
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LIMITEE

Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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TYPE 1100 NAVAIDS - ICEBREAKER  
CONDITION NO 21  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP (ARTIC)

WEIGHT ITEM	SPECIF. WEIGHT OR UNIT	WEIGHT TON	VCG FROM BL M	LCG FROM AP M	FREE SURFACE MOMENT TON*M	TCG FROM CL M	
F.O. TK NO.3 & NO.4 P/S	0.8800	194.0	5.948	62.836	105.38	0.000	223
F.O. TK NO.1 & NO.2 P/S	0.8800	63.0	6.404	67.421	44.03	0.000	226
F.O. DAY TK	0.8800	20.9	6.343	25.731	2.07	3.024	9
F.O. SETTLING TK	0.8800	25.4	6.323	22.600	10.29	4.595	10
UPPER FLUME TK	0.8800	99.5	6.413	48.963	420.15	0.000	214
LOWER FLUME TK	0.8800	97.1	3.177	48.981	641.31	0.001	212
AVIATION FUEL TK	0.7900	8.8	8.825	3.400	30.83	-0.850	16
L.O. SETTLING TK	0.9000	3.7	6.233	29.000	0.26	-4.200	17
L.O. STORAGE TK	0.9000	15.7	5.885	39.786	1.92	-2.719	18
L.O. BEARING TK	0.9000	2.2	6.641	40.600	0.83	-1.050	40
OILY BILGE TK	1.0000	1.5	1.500	13.472	1.57	0.748	19
WASTE OIL TK	1.0000	1.5	1.500	13.472	1.57	-0.748	20
DRAIN TK	1.0000	0.5	0.199	28.400	0.27	0.000	94
FRESH WATER TK PORT	1.0000	19.3	5.599	14.312	9.85	-5.087	37
FRESH WATER TK STBD	1.0000	29.2	5.604	14.274	32.97	4.333	38
BOILER FEED TK	1.0000	15.4	9.203	4.000		4.850	42
FORE PEAK TK	1.025	87.9	7.073	72.572		0.000	234
FWD D.B. WATER BALLAST TK P/S	1.025	105.8	0.883	54.955		0.000	235
CREW & EFFECTS	1.0000	8.0	13.000	31.500		0.000	300
STORES & PROVISIONS	1.0000	64.0	7.421	25.309		0.000	308
HELICOPTER	1.0000	5.1	14.500	11.000		0.000	302
ICE ACCUMULATION	1.0000	206.9	13.250	32.200		0.000	307
TOTAL DEADWEIGHT		1075.5	7.004	46.141	1303.29	0.200	
LIGHT SHIP		3305.4	6.730	32.306		0.000	
TOTAL DISPLACEMENT		4381.0	6.797	35.703	1303.29	0.049	

CONDITION NO 21  
\*\*\*\*\*

WINTER ICE BREAKING CONDITION 50% CONSUMMABLES ICED-UP (ARTIC)

WATER DENSITY	=	1.0250	
DRAFT AMIDSHIPS	=	5.4467 M	
MEAN DRAFT (L.C.F.)	=	5.4682 M	
DRAFT AFT	=	5.7990 M	
DRAFT FWD	=	5.0943 M	
TRIM	=	-0.70474 M	
DISPLACEMENT	=	4381.0 TONNES	
LCG	=	35.703 M	
CCG	=	0.04909 M	
KG	=	6.7973 M	
CORRECTION FOR FREE SURFACE EFFECT	=	0.29749 M	
KMT	=	7.5859 M	
GM	=	0.78863 M	
GM CORRECTED FOR FREE SURF.	=	0.49114 M	
ANGLE OF HEEL	0.100	5.000	10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000
KN CURVES	0.013	0.662	1.326 1.994 2.664 3.313 3.928 4.503 4.994 5.387 6.064
GZ CURVES	0.001	0.070	0.146 0.235 0.339 0.441 0.529 0.604 0.624 0.580 0.178
GZ CURVES CORREC	0.001	0.044	0.094 0.158 0.238 0.315 0.380 0.433 0.433 0.370 -0.080
AREA UNDER GZ CU	0.0000	0.0030	0.0124 0.0289 0.0539 0.0880 0.1304 0.1800 0.2341 0.2871 0.3931
AREA UNDER CORRE	0.0000	0.0019	0.0079 0.0188 0.0360 0.0601 0.0905 0.1262 0.1645 0.2000 0.2458

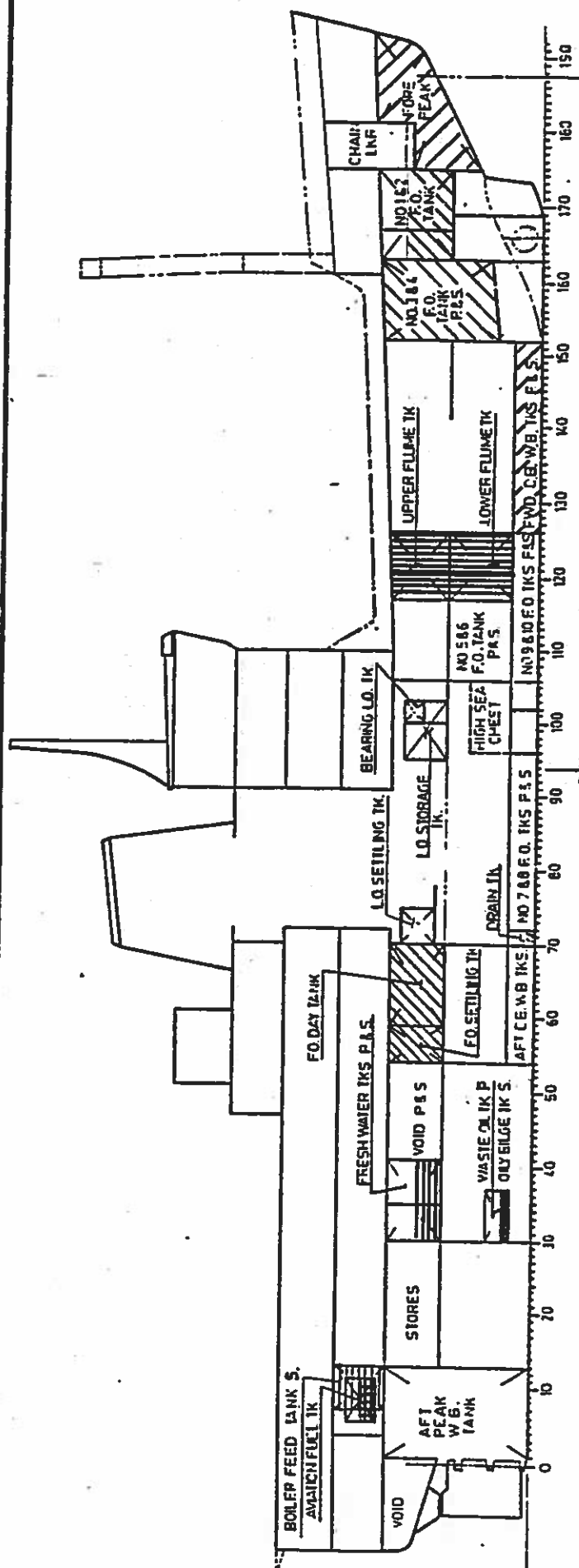


MARINE  
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Nom TYPE 1100 NAVALS TENDER/LIGHT ICEBREAKER  
Name EDWARD CORNWALLIS

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- Legend:
- F.O. TK.
  - FLUME TK.
  - FEED & FRESH WATER TK.
  - S.W. BALLAST TK.
  - L.O. TK.
  - OILY BILGE TK.
  - WASTE OIL TK.
  - DRAIN TK.
  - AVIATION FUEL TK.



MARINE  
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Nom TYPE 1100 NAVAIDS TENDER/LIGHT ICEBREAKER  
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