

CONDITION OF CALACULATION

INTENT

This Calculation has been prepared to ascertain the subject ship to have the sufficient stability to apply to the SOLAS Chapt. XII, Regulation 4.1 for B type bulk carrier.

PRINCIPAL DIMENSION

LENGTH	(P.P.)	173.600 m
LENGTH	(Lf)	168.150 m
BREADTH	(MLD)	26.000 m
DEPTH	(MLD)	13.200 m
DRAFT	(EXT)	10.120 m

DAMAGE CONDITION

FULL LOAD CONDITION (HOMOGENEOUS LOADING)

DAMAGED HOLD & PERMIABILITY

	CASE-1	CASE-2	CASE-3	CASE-4	CASE-5
No. 1 HOLD	90%	0	0	0	0
No. 2 HOLD	0	90%	0	0	0
No. 3 HOLD	0	0	90%	0	0
No. 4 HOLD	0	0	0	90%	0
No. 5 HOLD	0	0	0	0	90%

FULL LOAD CONDITION (ALTERNATE LOAD)

DAMAGED HOLD & PERMIABILITY

	CASE-1	CASE-2	CASE-3	CASE-4	CASE-5
No. 1 HOLD	90%	0	0	0	0
No. 2 HOLD	0	95%	0	0	0
No. 3 HOLD	0	0	90%	0	0
No. 4 HOLD	0	0	0	95%	0
No. 5 HOLD	0	0	0	0	90%

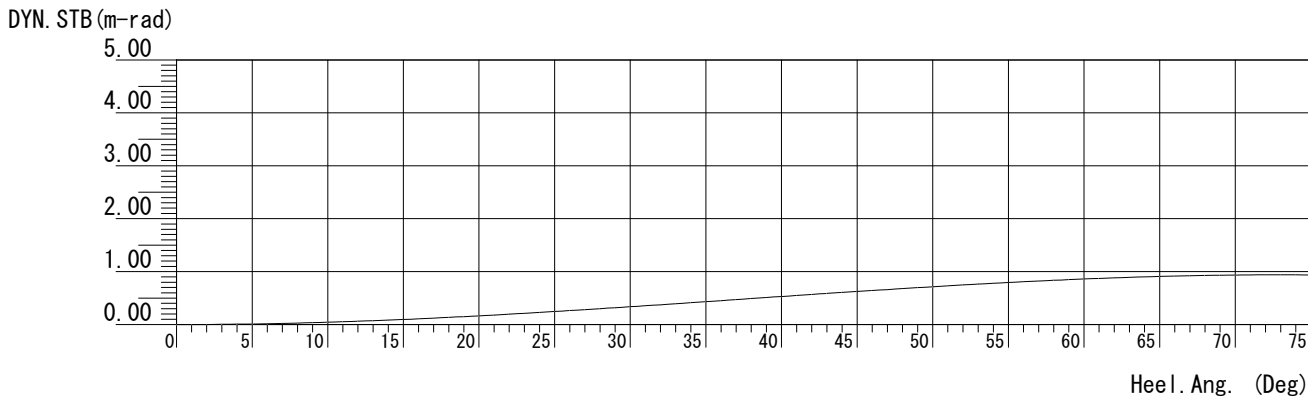
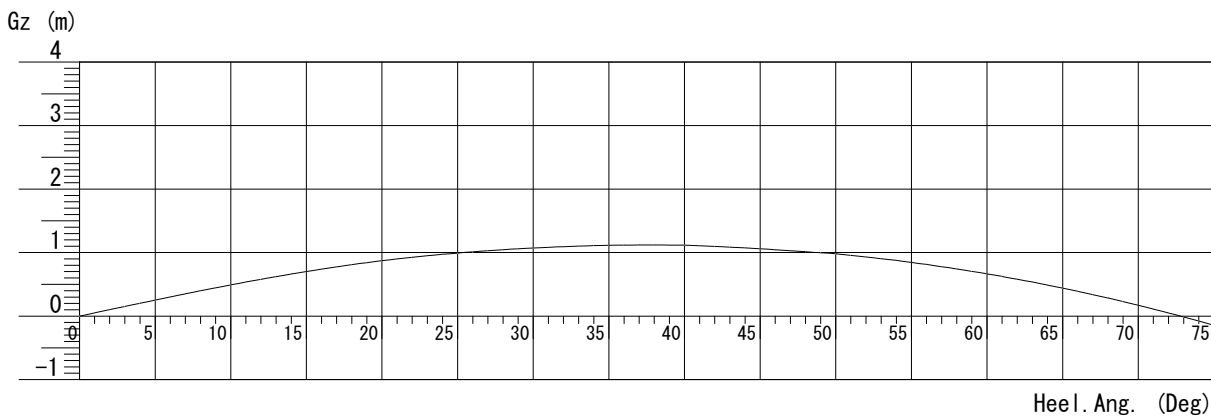
DAMAGE STABILITY SUMMARY							
INTACT CONDITION : FULL LOAD COND. (HOMO) 50% BUNK							
DRAFT (FORE 9.51 m AFT 10.12 m MEAN 9.82 m) KGo 8.62 m							
DAMAGE CASE		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	
E Q	DRAFT (m)	FORE	13.16	14.36	12.22	10.17	8.32
		AFT	8.39	8.72	10.73	12.55	14.19
		MEAN	10.78	11.54	11.47	11.36	11.25
U	TRIM (m)	-4.77	-5.63	-1.49	2.37	5.86	
I	HEEL. ANGLE (deg)	0.00	0.00	0.00	0.00	0.00	
L	MAX GZ (m)	0.87	0.78	0.84	0.86	0.79	
I	DYN. STAB. (m-rad)	0.1649	0.1604	0.1683	0.1731	0.1656	
B	RANGE OF STAB. (deg)	72.71	71.29	74.93	74.82	71.85	
	ALLOWANCE (m) (No.)	1.93 (27)	0.79 (27)	2.66 (27)	2.69 (32)	1.12 (43)	
JUDGEMENT		OK	OK	OK	OK	OK	
INTACT CONDITION : FULL LOAD COND. (ALT) 50% BUNK							
DRAFT (FORE 9.59 m AFT 10.05 m MEAN 9.82 m) KGo 5.82 m							
DAMAGE CASE		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	
E Q	DRAFT (m)	FORE	4.89	14.73	6.61	10.31	11.82
		AFT	12.13	8.59	9.33	12.61	3.81
		MEAN	8.51	11.66	7.97	11.46	7.82
U	TRIM (m)	7.24	-6.14	2.72	2.30	-8.01	
I	HEEL. ANGLE (deg)	0.00	0.00	0.00	0.00	0.00	
L	MAX GZ (m)	2.11	1.70	1.80	1.80	1.71	
I	DYN. STAB. (m-rad)	0.3666	0.3239	0.2990	0.3418	0.2871	
B	RANGE OF STAB. (deg)	89.21	90.00	85.22	90.00	86.24	
	ALLOWANCE (m) (No.)	3.17 (43)	0.45 (27)	5.93 (32)	2.62 (32)	3.48 (27)	
JUDGEMENT		OK	OK	OK	OK	OK	
INTACT CONDITION :							
DRAFT (FORE m AFT m MEAN m) KGo m							
DAMAGE CASE							
E Q	DRAFT (m)	FORE					
		AFT					
		MEAN					
U	TRIM (m)						
I	HEEL. ANGLE (deg)						
L	MAX GZ (m)						
I	DYN. STAB. (m-rad)						
B	RANGE OF STAB. (deg)						
	ALLOWANCE (m) (No.)						
JUDGEMENT							
INTACT CONDITION :							
DRAFT (FORE m AFT m MEAN m) KGo m							
DAMAGE CASE							
E Q	DRAFT (m)	FORE					
		AFT					
		MEAN					
U	TRIM (m)						
I	HEEL. ANGLE (deg)						
L	MAX GZ (m)						
I	DYN. STAB. (m-rad)						
B	RANGE OF STAB. (deg)						
	ALLOWANCE (m) (No.)						
JUDGEMENT							

ITEM	(%)	WEIGHT (t)	MID. G (m)	MOMENT (t-m)	(K G) (m)	MOMENT (t-m)	G*I (t-m)
LIGHT WEIGHT		7700	6.60	50820	9.80	75460	0
CONSTANTS		175	46.31	8104	10.06	1761	
PROVISIONS		6	71.80	431	15.70	94	0
F. W. T. (P)	50	60	49.69	2981	11.72	703	69
F. W. T. (S)	50	60	49.69	2981	11.72	703	69
DRINK W. T. (S)	50	24	55.39	1329	11.79	283	29
DIST. W. T. (P)	50	24	55.39	1329	11.79	283	29
FRESH WATER TOTAL		168	51.31	8620	11.74	1972	196
NO. 3 U. W. F. O. T. (P)		0	0.00	0	0.00	0	0
NO. 3 U. W. F. O. T. (S)		0	0.00	0	0.00	0	0
NO. 4 U. W. F. O. T. (P)	40	97	15.53	1506	11.97	1161	75
NO. 4 U. W. F. O. T. (S)	40	97	15.53	1506	11.97	1161	75
NO. 4 F. O. T. (C)	96	275	15.53	4271	0.81	223	584
NO. 5 F. O. T. (C)	96	234	42.04	9837	0.82	192	438
FUEL OIL TOTAL		703	24.35	17120	3.89	2737	1172
NO. 1 D. O. T. (P)	43	21	61.64	1294	0.59	12	43
NO. 1 D. O. T. (S)	48	22	61.69	1357	0.65	14	44
NO. 2 D. O. T. (C)	48	13	74.79	972	11.66	152	35
DIESEL OIL		56	64.70	3623	3.18	178	122
NO. 1 CARGO HOLD	100	3337	-63.28	-211165	8.56	28565	
NO. 2 CARGO HOLD	100	5880	-40.71	-239375	8.29	48745	
NO. 3 CARGO HOLD	100	6241	-12.61	-78699	8.21	51239	
NO. 4 CARGO HOLD	100	6076	15.90	96608	8.24	50066	
NO. 5 CARGO HOLD	100	5565	43.22	240519	8.48	47191	
CARGO TOTAL		27099	-7.09	-192112	8.33	225806	
NO. 1 HATCH & DECK		0	0.00	0	0.00	0	0
NO. 2 HATCH & DECK		0	0.00	0	0.00	0	0
NO. 3 HATCH & DECK		0	0.00	0	0.00	0	0
NO. 4 HATCH & DECK		0	0.00	0	0.00	0	0
NO. 5 HATCH & DECK		0	0.00	0	0.00	0	0
LUMBER TOTAL		0	0.00	0	0.00	0	0
F. P. T.		0	0.00	0	0.00	0	0
NO. 1 UPP. W. T. (P)		0	0.00	0	0.00	0	0
NO. 1 UPP. W. T. (S)		0	0.00	0	0.00	0	0
NO. 2 UPP. W. T. (P)		0	0.00	0	0.00	0	0
NO. 2 UPP. W. T. (S)		0	0.00	0	0.00	0	0
NO. 3 UPP. W. T. (P)		0	0.00	0	0.00	0	0
NO. 3 UPP. W. T. (S)		0	0.00	0	0.00	0	0
NO. 4 UPP. W. T. (P)		0	0.00	0	0.00	0	0
NO. 4 UPP. W. T. (S)		0	0.00	0	0.00	0	0
NO. 5 UPP. W. T. (P)		0	0.00	0	0.00	0	0
NO. 5 UPP. W. T. (S)		0	0.00	0	0.00	0	0
NO. 1 W. B. T. (P)		0	0.00	0	0.00	0	0
NO. 1 W. B. T. (S)		0	0.00	0	0.00	0	0
NO. 2 W. B. T. (P)		0	0.00	0	0.00	0	0
NO. 2 W. B. T. (S)		0	0.00	0	0.00	0	0
NO. 3 W. B. T. (P)		0	0.00	0	0.00	0	0
NO. 3 W. B. T. (S)		0	0.00	0	0.00	0	0
NO. 4 W. B. T. (P)		0	0.00	0	0.00	0	0
NO. 4 W. B. T. (S)		0	0.00	0	0.00	0	0
NO. 5 W. B. T. (P)		0	0.00	0	0.00	0	0
NO. 5 W. B. T. (S)		0	0.00	0	0.00	0	0
A. P. T.		0	0.00	0	0.00	0	0
NO. 3 CARGO HOLD (W. B)		0	0.00	0	0.00	0	0
WATER BALLAST TOTAL		0	0.00	0	0.00	0	0
T O T A L		35907	-2.88	-103394	8.58	308008	1490

***** S U M M A R Y *****					
DISPT (t)	35907	MID. G (m)	-2.88	T. KM (m)	11.31
DRAFT (EQ) (m)	9.82	MID. B (m)	-3.66	K G (m)	8.58
DRAFT (F) (m)	9.51	B G (m)	0.78	G M (m)	2.73
DRAFT (A) (m)	10.12	MID. F (m)	1.71	GoG (m)	0.04
DRAFT (M) (m)	9.82	M. T. C. (t-m)	457.56	GoM (m)	2.69
TRIM (m)	0.61	T. P. C. (t)	40.50	I/D (%)	116.00

DAMAGE STABILITY (SUMMARY)			
INTACT CONDITION		FULL LOAD COND. (HOMO) 50% BUNK DAMAGE CASE NO. 1 CARGO HOLD DAMAGE	
INTACT CONDITION		DAMAGE CASE	
Displacement (t)	35907	NO. 1 CARGO HOLD	
Draft Fore (m)	9.51		
Draft Aft (m)	10.12		
Draft Mean (m)	9.82		
Trim (m)	0.61		
Mid. G (m)	-2.88		
K G (m)	8.58		
G G o (m)	0.04		
K G o (m)	8.62		
EQUILIBRIUM CONDITION			
CHECK OF STABILITY		CHECK OF FLOODING POINT	
Draft Fore (m)	13.16	No. Flooding Point	K *Allow.
Draft Aft (m)	8.39	1 DOOR (BOSUN) P.	0 1.93
Draft Mean (m)	10.78	2 DOOR (BOSUN) S.	0 2.09
Trim (m)	-4.77	3 A. P. (NO. 1 U. WBT)	0 2.24
GoM (m)	2.86	4 A. P. (NO. 1 WBT)	0 2.32
Heeling Angle (deg)	0.00 (25.00)	5 A. P. (NO. 1 U. WBT)	0 2.60
Max. GoZ (m)	0.87 (0.10)	6 A. P. (NO. 2 U. WBT)	0 2.61
" Angle (deg)	20.00	7 A. P. (NO. 1 WBT)	0 2.82
Range of Stab. (deg)	72.71 (20.00)	8 A. P. (NO. 2 WBT)	0 2.88
Dyn. Stab. (m-rad)	0.1649 (0.0175)	9 VENT. (NO. 2 C. H.) FORE	0 3.22
" Range	0.00° - 20.00°	10 A. P. (NO. 3 WBT)	0 3.52
* Flood. Point (m)	1.93	11 A. P. (NO. 3 U. WBT)	0 3.56
< DOOR (BOSUN) P. >		12 HATCH (NO. 2 ACC. H.)	0 3.57
		13 A. P. (NO. 3 U. W. FOT)	0 3.59
		14 HATCH (NO. 2 C. H.) FORE	0 3.68
		15 A. P. (NO. 3 C. HOLD)	0 3.76
		16 VENT. (NO. 2 C. H.) AFT	0 3.85
		17 VENT. (NO. 3 C. H.) FORE	0 4.08
		18 HATCH (NO. 3 ACC. H.)	0 4.42
		19 HATCH (NO. 3 C. H.) FORE	0 4.50
		20 VENT. (NO. 3 C. H.) AFT	0 4.69
		21 VENT. (NO. 4 C. H.) FORE	0 4.87
		22 HATCH (ROPE H.) FORE	0 4.97
		23 A. P. (FPT) F	0 4.97
		24 A. P. (NO. 4 WBT)	0 5.00
		25 A. P. (NO. 4 U. WBT)	0 5.01
		26 A. P. (FPT) A	0 5.02
		27 VENT. (BOSUN)	0 5.11
		28 A. P. (NO. 4 U. W. FOT)	0 5.19
		29 HATCH (NO. 4 ACC. H.)	0 5.24
		30 A. P. (NO. 4 FOT)	0 5.49
		31 VENT. (NO. 4 C. H.) AFT	0 5.53
		32 A. P. (NO. 5 WBT)	0 5.65
		33 A. P. (NO. 5 U. WBT)	0 5.69
		34 VENT. (NO. 5 C. H.) FORE	0 5.69
		35 A. P. (FWT)	0 5.75
		36 HATCH (NO. 4 C. H.) AFT	0 5.91
		37 DOOR (ENGINE RM.)	0 5.95
		38 A. P. (NO. 5 FOT)	0 5.97
		39 A. P. (DRINK W. T.)	0 6.03
		40 A. P. (DIST. W. T.)	0 6.04
K...Kind (0 : Weather Tight 1 : Opening)			

* : Distance from the Flood. Point to the water line.
(Minus sign means under the water line.)



DAMAGE STABILITY (DETAIL)

INTACT CONDITION FULL LOAD COND. (HOMO) 50% BUNK
DAMAGE CASE NO. 1 CARGO HOLD DAMAGE

THE INCLUDED BUOYANCY

F' CLE SPACE NO. 1 HATCH SPACE NO. 2 HATCH SPACE NO. 3 HATCH SPACE NO. 4 HATCH SPACE	NO. 5 HATCH SPACE			
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THE WEIGHT AND CENTER OF GRAVITY

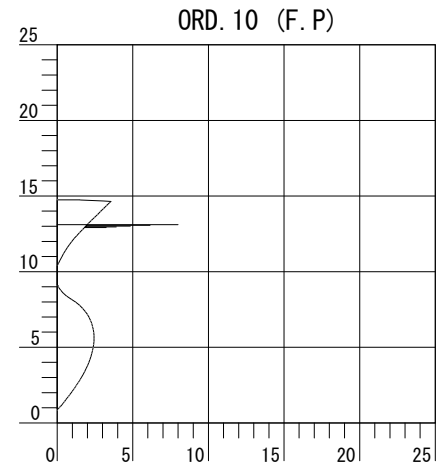
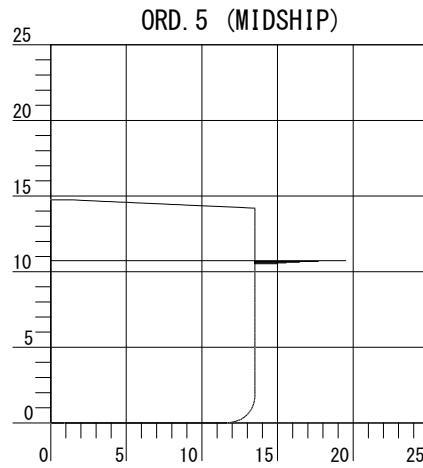
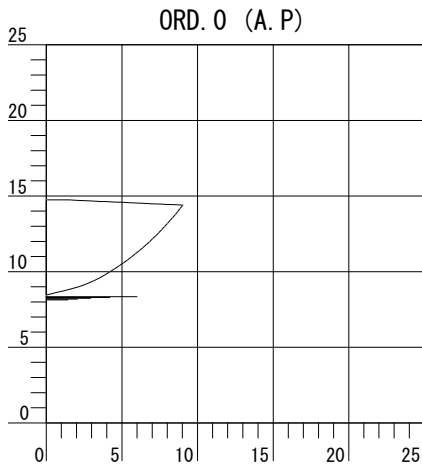
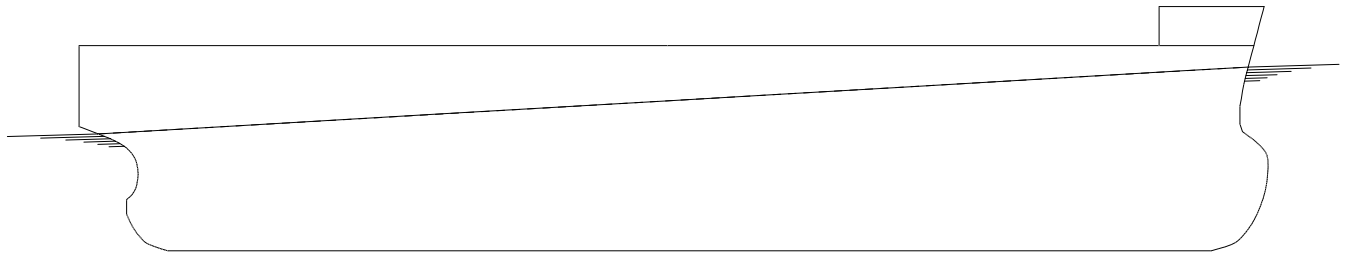
Flooding Compartment	FLOW OUT					INFLOW AT EQUILIBRIUM				
	Weight (t)	Mid. G (m)	K G (m)	C G (m)	I (t-m)	Perme- ability	Weight (t)	Mid. G (m)	K G (m)	C G (m)
NO. 1 CARGO HOLD	0					0.9000	3780	-63.28	7.40	0.00
TOTAL	0						3780	-63.28	7.40	0.00

THE SUMMARY OF DAMAGE STABILITY

Heel. Angle	* Draft (m)			Trim (m)	Stability	
	F. P.	A. P.	Mean		GoZ(m)	Dyn. (m-rad)
0	13.16	8.39	10.78	-4.77	0.000	0.0000
5	13.12	8.39	10.75	-4.73	0.253	0.0111
10	13.13	8.35	10.74	-4.79	0.492	0.0437
15	13.29	8.21	10.75	-5.08	0.701	0.0960
20	13.57	8.05	10.81	-5.52	0.873	0.1649
25	13.97	7.91	10.94	-6.06	0.993	0.2466
30	14.53	7.78	11.15	-6.76	1.071	0.3370
35	15.30	7.67	11.48	-7.63	1.115	0.4326
40	16.32	7.56	11.94	-8.76	1.116	0.5303
45	17.73	7.45	12.59	-10.2	1.060	0.6254
50	19.29	7.35	13.32	-11.9	0.981	0.7145

* The Draft means the value of height at the center line on each position.

《 EQUILIBRIUM CONDITION & FLOOD. POINT 》



INTACT CONDITION DAMAGE CASE	FULL LOAD COND. (HOMO) NO. 1 CARGO HOLD DAMAGE	50% BUNK				
Flooding Point	Kind	Frame	Distance (m)	Height (m)	Breadth (m)	Allowance (m)
A. P. (APT)	0	11	0.250	15.160	9.100	6.566
A. P. (CWT)	0	7	0.400	15.500	0.900	6.973
A. P. (DIST. W. T.)	0	34	0.150	15.160	9.350	6.043
A. P. (NO. 1 DOT)	0	23	0.700	15.020	12.450	6.144
A. P. (DRINK W. T.)	0	34	0.150	15.150	9.450	6.033
A. P. (FPT) A	0	233	0.300	18.020	7.820	5.022
A. P. (FPT) F	0	245	0.200	18.200	3.740	4.970
A. P. (FWT)	0	48	0.300	15.150	9.350	5.755
A. P. (NO. 1 U. WBT)	0	201	0.150	14.980	13.100	2.598
A. P. (NO. 1 U. WBT)	0	227	0.600	15.130	8.060	2.241
A. P. (NO. 1 WBT)	0	201	0.250	15.200	8.200	2.815
A. P. (NO. 1 WBT)	0	227	0.600	15.210	7.860	2.321
A. P. (NO. 2 DOT)	0	7	0.400	15.500	0.150	6.973
A. P. (NO. 2 U. WBT)	0	201	-0.300	14.980	13.100	2.611
A. P. (NO. 2 WBT)	0	195	0.400	15.150	9.320	2.878
A. P. (NO. 3 C. HOLD)	0	153	0.450	15.210	7.900	3.758
A. P. (NO. 3 U. W. FOT)	0	159	0.150	15.150	9.250	3.589
A. P. (NO. 3 U. WBT)	0	159	-0.350	15.110	13.300	3.564
A. P. (NO. 3 WBT)	0	153	0.400	14.970	13.300	3.519
A. P. (NO. 4 FOT)	0	74	0.050	15.390	4.000	5.494
A. P. (NO. 4 U. W. FOT)	0	77	0.150	15.150	9.350	5.192
A. P. (NO. 4 U. WBT)	0	77	0.350	14.970	13.300	5.007
A. P. (NO. 4 WBT)	0	78	-0.200	14.970	13.300	5.003
A. P. (NO. 5 FOT)	0	33	0.500	15.070	11.050	5.966
A. P. (NO. 5 U. WBT)	0	51	0.200	15.140	9.450	5.689
A. P. (NO. 5 WBT)	0	53	0.300	15.140	9.450	5.647
DOOR (BOSUN) P.	0	226	0.000	14.780	8.700	1.928
DOOR (BOSUN) S.	0	226	0.000	14.940	5.000	2.088
DOOR (ENGINE RM.)	0	33	0.000	15.040	8.360	5.951
DOOR (ENGINE RM.)	0	8	0.000	15.320	2.160	6.787
DOOR (ENGINE RM.)	0	28	0.400	15.040	8.360	6.056
DOOR (ENGINE RM.)	0	18	0.660	15.050	3.200	6.292
HATCH (NO. 1 ACC. H.)	0	201	0.000	15.180	5.270	
HATCH (NO. 1 C. H.) FORE	0	221	0.000	15.940	8.000	
HATCH (NO. 2 ACC. H.)	0	159	0.630	15.140	6.180	3.565
HATCH (NO. 2 C. H.) FORE	0	195	0.000	15.940	8.800	3.680
HATCH (NO. 3 ACC. H.)	0	117	-0.630	15.140	6.180	4.423
HATCH (NO. 3 C. H.) FORE	0	153	0.000	15.940	8.800	4.501
HATCH (NO. 4 ACC. H.)	0	75	-0.630	15.140	6.180	5.244
HATCH (NO. 4 C. H.) AFT	0	81	0.000	15.940	8.800	5.909

Kind (0 : Weather Tight, 1 : Opening) Height.. above B. L., Breadth.. from C. L.