Vedlegg D: Stabilitetsberegninger

1. Antatt lastkondisjon ulykkesdagen med trål i sjøen
2. Antatt lastkondisjon ulykkesdagen før trål settes
3. Babord tråldør kjøres fast Carina dreier 15 grader
4. Babord tråldør kjøres fast Carina dreier 30 grader
5. Styrbord tråldør kjøres fast Carina dreier 15 grader
6. Styrbord tråldør kjøres fast Carina dreier 30 grader
7. Vann på dekk Carina krenger til babord
8. Vann på dekk Carina krenger til styrbord
9. Utgangsscenario for å vurdere forbedringer
10. Utgangsscenario med senket galge
11. Utgangsscenario med lukket bakk
12. Utgangsscenario med senket galge og lukket bakk

Loading Condition no. : 11

Ulykkesdagen tråd i sjøen, lik belastn. s/b

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.676 m
Trim over Lpp (aft +)	:	0.699 m
List (starboard +) ...	:	0.599 °
Draught, AP (moulded)	:	2.025 m
Draught, LCF (moulded)	:	1.730 m
Draught, FP (moulded)	:	1.326 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.508 m

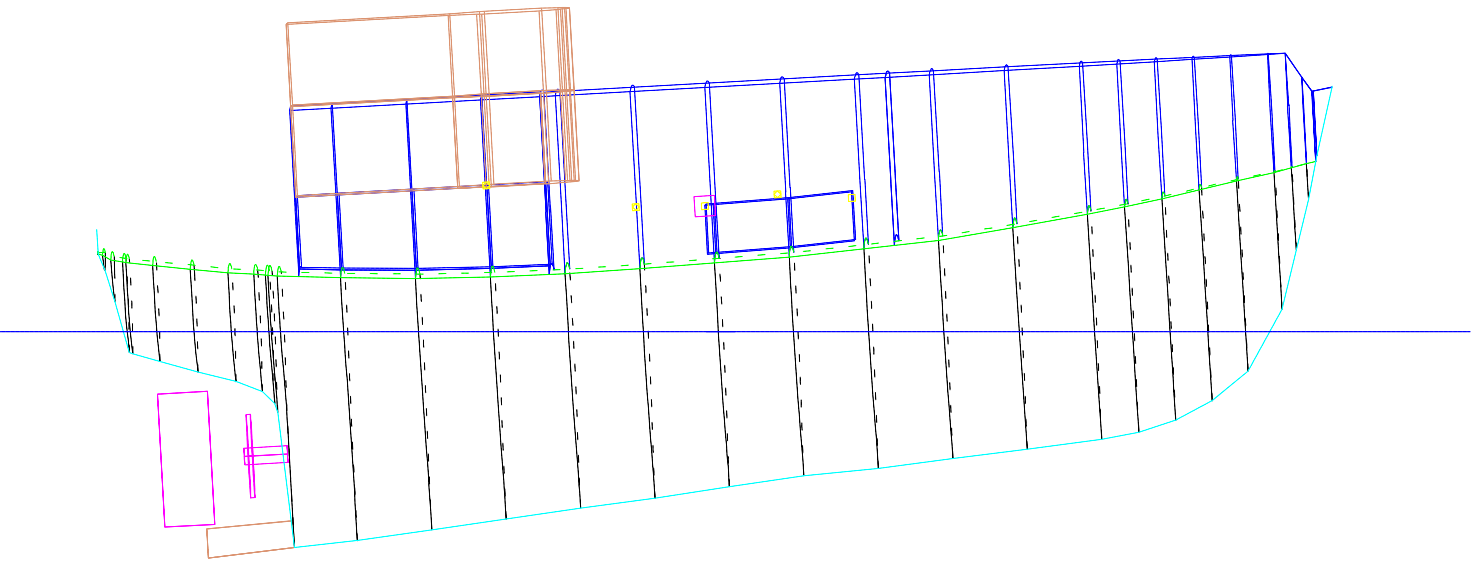
Displacement	:	49.836 MT
LCB (rel. AP)	:	5.408 m
VCB (rel. BL)	:	1.118 m
LCF (rel. AP)	:	5.316 m
TPC - Immersion	:	0.555 MT/cm
Trim Moment	:	0.491 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	0.909 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Tråd i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.6 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

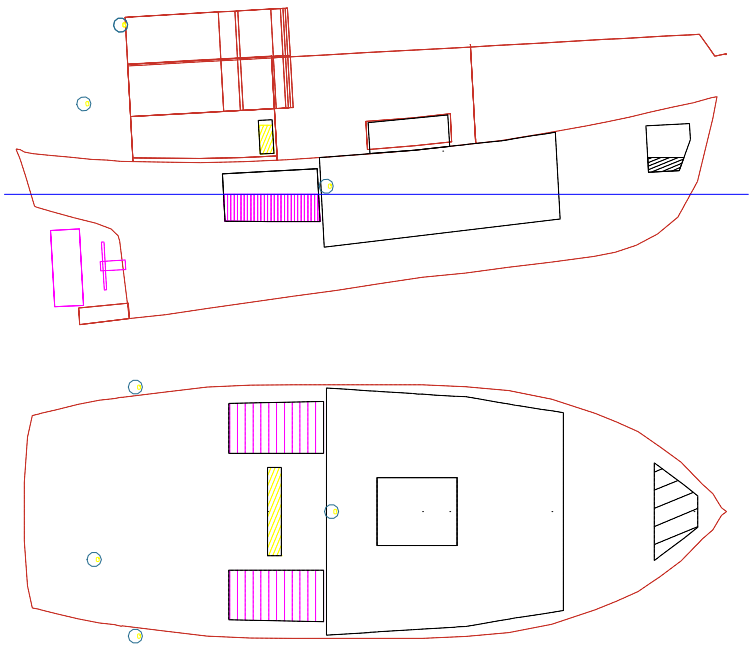


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

1. Antatt lastkondisjon ulykkesdagen med tråd i sjøen (C11 (styrbord))

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen trål i sjøen, lik belastn. s/b



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trål i sjøen										
-	En trål på stb. trommel	0.450					0.340	1.000	3.900		
3	Vertikalbelastning i trålgalge (lik s/b)										
-	vert. belastn. styrbord	0.825					1.200	2.600	5.500		
-	vert. belastn. babord	0.825					1.200	-2.600	5.500		
		1.650					1.200	0.000	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.147	1.579	1.552	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.147	-1.575	1.552	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.005	2.948	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.004	1.976	0.05	¤
		1.757					4.903	0.003	1.821		
	DEAD WEIGHT	4.857					3.304	0.094	3.280		

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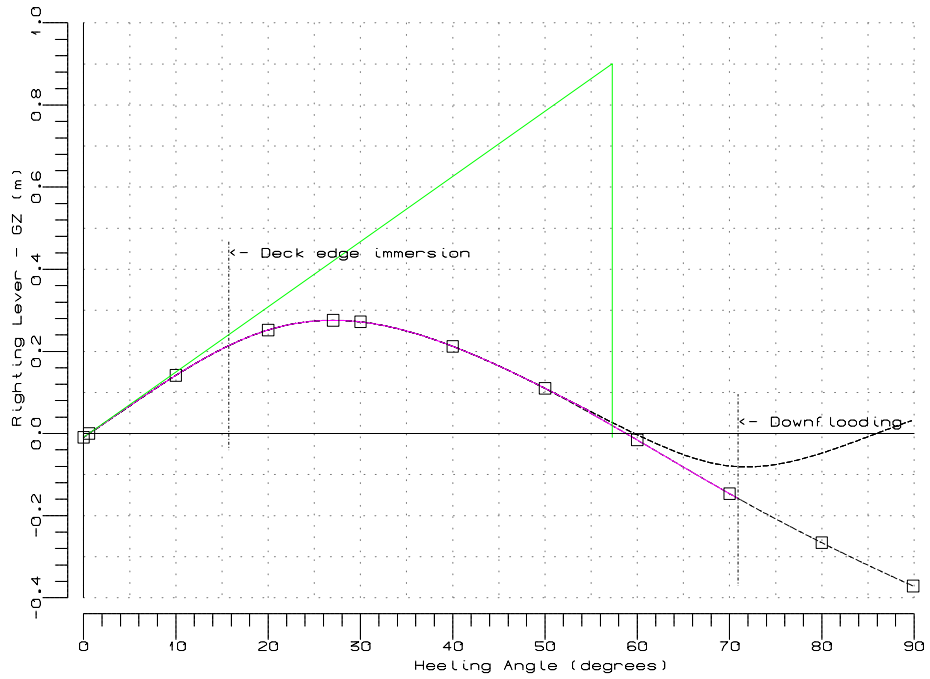
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007	
	TOTAL WEIGHT	49.836					5.464	0.009	2.131	

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen trål i sjøen, lik belastn. s/b

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.009	0.0000
0.599	0.000	0.0000
10.000	0.142	0.0117
20.000	0.252	0.0472
27.050	0.276	0.0801
30.000	0.272	0.0942
40.000	0.212	0.1374
50.000	0.110	0.1659
60.000	-0.016	0.1745
70.000	-0.146	0.1602
80.000	-0.266	0.1240
89.900	-0.371	0.0688

Downflooding : 70.937 °
Deck immersion : 15.742 °
Maximum GZ at : 27.050 °
Equilibrium at : 0.599 °
Area, 0 - 30 : 0.0943 m*rad
Area, 0 - 40 : 0.1374 m*rad
Area,30 - 40 : 0.0431 m*rad
Area, 0 - maxGZ: 0.0802 m*rad
GM : 0.909 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.009 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°		: 0.20 m	0.272	OK
GZAng	Angle at which max. GZ occur, ð		: 25.00 °	27.050	OK
GMMin	Minimum GM		: 0.35 m	0.909	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*)	: 0.030 m·rad	0.043	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than		: 0.10 m	-0.051	NOT OK
GZPos	Positive GZ-curve up to		: 70.00 °	59.713	NOT OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium-and-2nd intercept

Intact Stability conclusion ..... : NOT OK

Please note !
The calculations of KGmax are based on upright vessel (TCG=0.0 m). If the actual calculations are based on TCG <> 0.0, the stability conclusion may not correspond with the presented stability margin. The conclusion will anyway be correct as it reflects the actual loading condition.

The calculations of KGmax includes the use of flood openings of type "local flooding". This may cause one or more steps in the KY and GZ curves.
Control of stability for the "GZMi2", "GZPos" and "GZAng" criteria are not influenced by "local flooding" effects.

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant "Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.009	-0.009
10.000	0.142	0.143
20.000	0.252	0.255
30.000	0.272	0.276
40.000	0.212	0.218
50.000	0.110	0.118
60.000	-0.016	-0.007
70.000	-0.146	-0.137
80.000	-0.266	-0.256
89.900	-0.371	-0.362

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.006
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.156	1.715	1.594
40.000	0.653	0.870	4.154	1.784	1.643
50.000	0.653	0.870	4.153	1.860	1.719
60.000	0.653	0.870	4.151	1.907	1.786
70.000	0.652	0.870	4.148	1.933	1.841
80.000	0.653	0.870	4.144	1.945	1.888
89.900	0.653	0.870	4.137	1.948	1.924
Equilibrium:					
0.599	0.653	0.870	4.147	1.579	1.552

Vertical dist. betw. sea and comp. level at equilibrium : 0.019m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.150	-1.500	1.572
40.000	0.653	0.870	4.146	-1.477	1.589
50.000	0.653	0.870	4.140	-1.452	1.615
60.000	0.653	0.870	4.137	-1.429	1.647
70.000	0.653	0.870	4.133	-1.414	1.681
80.000	0.653	0.870	4.127	-1.404	1.716
89.900	0.653	0.870	4.116	-1.401	1.756
Equilibrium:					
0.599	0.653	0.870	4.147	-1.575	1.552

Vertical dist. betw. sea and comp. level at equilibrium : -0.016m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
0.599	0.288	0.900	4.104	0.005	2.948

Vertical dist. betw. sea and comp. level at equilibrium : -1.446m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.319	0.206	2.038
40.000	0.164	1.000	12.304	0.304	2.108
50.000	0.164	1.000	12.289	0.385	2.188
60.000	0.164	1.000	12.281	0.436	2.261
70.000	0.164	1.000	12.278	0.467	2.328
80.000	0.164	1.000	12.283	0.484	2.390
89.900	0.164	1.000	12.291	0.489	2.410
Equilibrium:					
0.599	0.164	1.000	12.330	0.004	1.976

Vertical dist. betw. sea and comp. level at equilibrium : -0.771m

Flood Opening Results

Loading Condition no. : 11 ,Ulykkesdagen trål i sjøen, lik belastn. s/b

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	70.94	1.51
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.40	1.61
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	54.80	1.76
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	34.49	1.50
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	36.99	1.65

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 11 ,Ulykkesdagen trål i sjøen, lik belastn. s/b

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Freeboard Port (m)
1	-1.120	0.000	3.030	0.941	0.941
2	-1.120	0.610	3.030	0.935	0.947
3	-1.050	1.550	3.020	0.919	0.951
4	-0.950	2.010	2.960	0.860	0.902
5	-0.810	2.040	2.930	0.837	0.880
6	-0.770	2.050	2.920	0.829	0.872
7	-0.450	2.130	2.870	0.796	0.841
8	0.000	2.240	2.800	0.750	0.797
9	0.450	2.325	2.730	0.704	0.753
10	0.760	2.360	2.700	0.691	0.740
11	0.900	2.390	2.680	0.679	0.728
12	0.930	2.389	2.676	0.676	0.726
13	1.040	2.400	2.660	0.666	0.716
14	1.800	2.495	2.600	0.647	0.700
15	2.700	2.600	2.540	0.636	0.691
16	3.600	2.640	2.510	0.656	0.711
17	4.500	2.650	2.500	0.696	0.751
18	5.400	2.650	2.510	0.755	0.811
19	6.300	2.650	2.530	0.825	0.881
20	7.200	2.650	2.550	0.895	0.950
21	8.100	2.610	2.600	0.995	1.050
22	9.000	2.530	2.650	1.096	1.149
23	9.900	2.350	2.750	1.247	1.296
24	10.800	2.050	2.860	1.410	1.453
25	11.250	1.870	2.920	1.497	1.536
26	11.700	1.670	2.990	1.594	1.629
27	12.150	1.360	3.070	1.702	1.730
28	12.600	1.030	3.150	1.810	1.832
29	13.050	0.570	3.220	1.910	1.922
30	13.260	0.378	3.263	1.966	1.974
31	13.440	0.080	3.300	2.016	2.018
32	13.553	0.000	3.320	2.043	2.043

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 10

Ulykkesdagen før tråL settes

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.678 m
Trim over Lpp (aft +)	:	0.727 m
List (starboard +) ...	:	0.000 °
Draught, AP (moulded)	:	2.041 m
Draught, LCF (moulded)	:	1.737 m
Draught, FP (moulded)	:	1.314 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.514 m

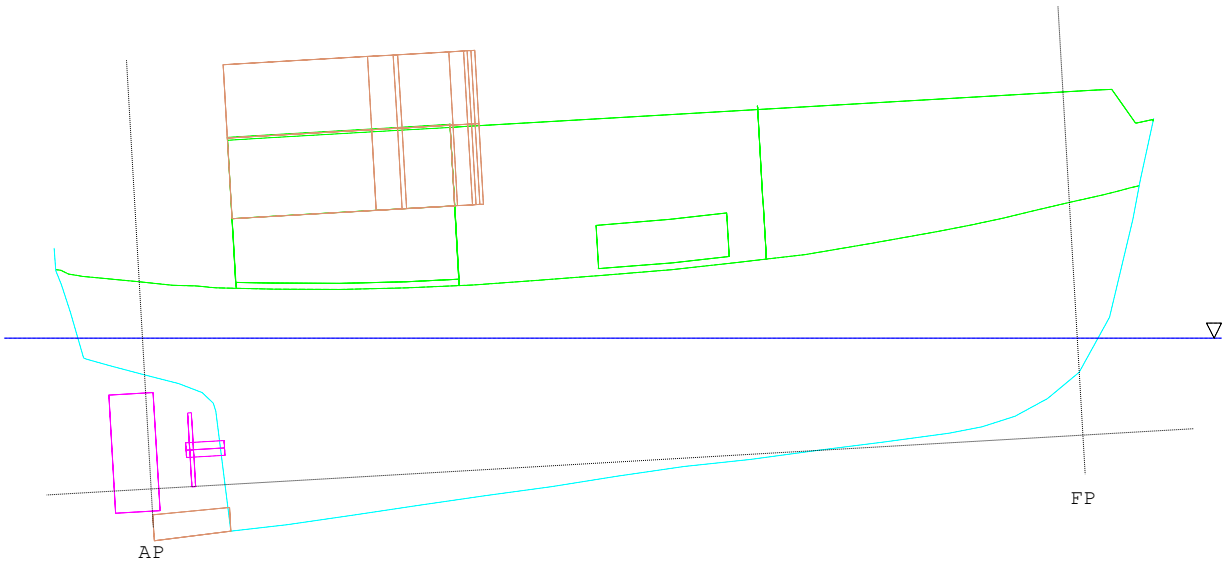
Displacement	:	50.034 MT
LCB (rel. AP)	:	5.380 m
VCB (rel. BL)	:	1.123 m
LCF (rel. AP)	:	5.268 m
TPC - Immersion	:	0.560 MT/cm
Trim Moment	:	0.499 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.097 m
Free Surface Correction:		0.009 m
KM (metacentre)	:	3.055 m
GM (incl. FSC)	:	0.958 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trålutstyr ulykkesdagen	:	2.3 MT
Forråd_ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	5.1 MT

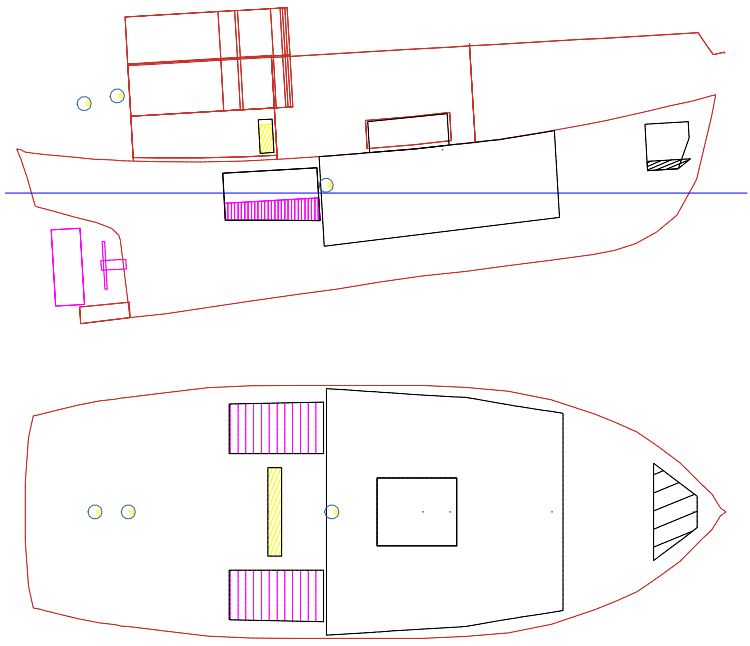


Water Density = 1.025 t/m3

Please note !
-Floating data are based on hydrostatic for upright vessel (zero heel). List is found by use of GM.

2. Antatt lastkondisjon ulykkesdagen før tråL settes (C10 (styrbord))

Loading Condition no. : 10
Condition Id. text : Ulykkesdagen før tråL settes



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

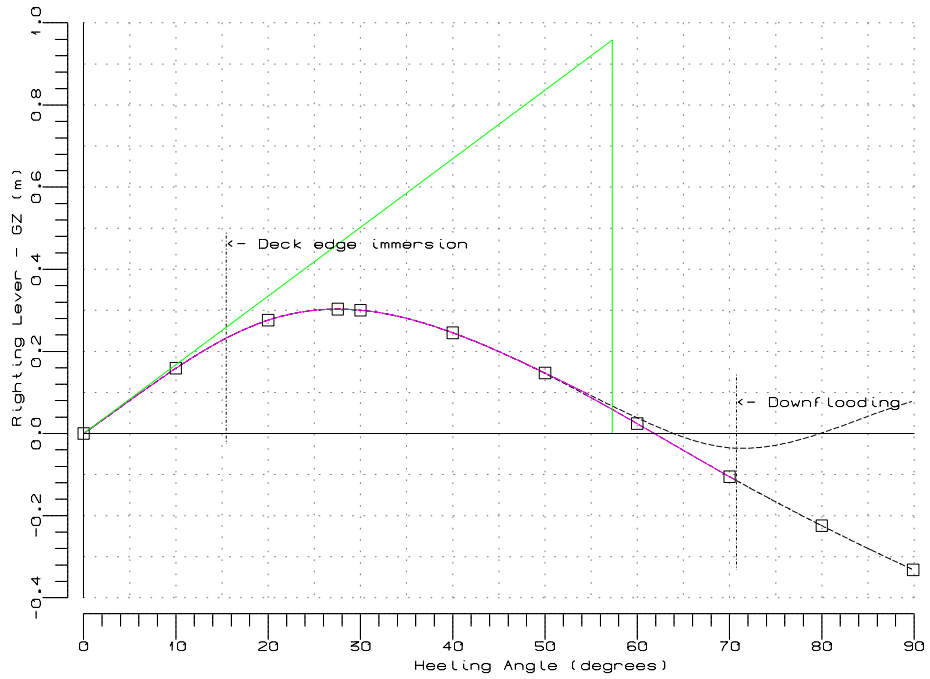
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trålutstyr ulykkesdagen										
-	To tråler	0.900					0.340	0.000	3.900		
-	Tråldører	1.400					1.040	0.000	4.020		
		2.300					0.766	0.000	3.973		
3	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.192	1.577	1.551	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.192	-1.577	1.551	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.105	0.000	2.948	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.339	0.000	1.975	0.05	¤
		1.757					4.937	0.000	1.819		
	DEAD WEIGHT	5.057					3.112	0.000	2.815		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	50.036					5.436	0.000	2.089		

.... to be continued on next page

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 10
Condition Id. text : Ulykkesdagen før tråL settes

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	0.000	0.0000
10.000	0.159	0.0140
20.000	0.276	0.0530
27.550	0.303	0.0918
30.000	0.300	0.1047
40.000	0.245	0.1532
50.000	0.147	0.1878
60.000	0.024	0.2031
70.000	-0.105	0.1960
80.000	-0.224	0.1670
89.900	-0.332	0.1188

Downflooding : 70.742 °
Deck immersion : 15.469 °
Maximum GZ at : 27.550 °
Equilibrium at : 0.000 °
Area, 0 - 30 : 0.1047 m*rad
Area, 0 - 40 : 0.1532 m*rad
Area,30 - 40 : 0.0485 m*rad
Area, 0 - maxGZ: 0.0918 m*rad
GM : 0.958 m

Heel to starboard side
Applied VCG : 2.089 m
TCG : 0.000 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°	:	0.20 m	0.300	OK
GZAng	Angle at which max. GZ occur, ð	:	25.00 °	27.550	OK
GMMin	Minimum GM	:	0.35 m	0.958	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*) :	0.030 m·rad	0.049	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than	:	0.10 m	-0.009	NOT OK
GZPos	Positive GZ-curve up to	:	70.00 °	63.929	NOT OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium and 2nd intercept

Intact Stability conclusion ..... : NOT OK

The calculations of KGmax includes the use of flood openings of type "local flooding". This may cause one or more steps in the KY and GZ curves.
Control of stability for the "GZMi2", "GZPos" and "GZAng" criteria are not influenced by "local flooding" effects.

Please note !

-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	0.000	0.000
10.000	0.159	0.160
20.000	0.276	0.279
30.000	0.300	0.305
40.000	0.245	0.251
50.000	0.147	0.155
60.000	0.024	0.033
70.000	-0.105	-0.096
80.000	-0.224	-0.215
89.900	-0.332	-0.322

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.145	1.577	1.553
10.000	0.653	0.870	4.147	1.612	1.556
20.000	0.653	0.870	4.151	1.659	1.568
30.000	0.653	0.870	4.153	1.715	1.594
40.000	0.653	0.870	4.150	1.784	1.643
50.000	0.652	0.870	4.149	1.860	1.719
60.000	0.653	0.870	4.147	1.907	1.786
70.000	0.653	0.870	4.144	1.933	1.841
80.000	0.653	0.870	4.140	1.945	1.888
89.900	0.653	0.870	4.134	1.948	1.924
Equilibrium:					
0.000	0.653	0.870	4.153	1.622	1.557

Vertical dist. betw. sea and comp. level at equilibrium : 0.382m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.145	-1.577	1.553
10.000	0.653	0.870	4.147	-1.549	1.555
20.000	0.653	0.870	4.149	-1.524	1.561
30.000	0.653	0.870	4.148	-1.500	1.573
40.000	0.653	0.870	4.143	-1.477	1.589
50.000	0.653	0.870	4.136	-1.452	1.615
60.000	0.653	0.870	4.133	-1.429	1.648
70.000	0.653	0.870	4.130	-1.414	1.681
80.000	0.653	0.870	4.124	-1.404	1.716
89.900	0.653	0.870	4.112	-1.402	1.756
Equilibrium:					
0.000	0.653	0.870	4.152	-1.543	1.556

Vertical dist. betw. sea and comp. level at equilibrium : -0.340m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.104	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
0.000	0.288	0.900	4.105	0.084	2.956

Vertical dist. betw. sea and comp. level at equilibrium : -1.414m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.329	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	2.000
30.000	0.164	1.000	12.318	0.206	2.038
40.000	0.164	1.000	12.303	0.305	2.108
50.000	0.164	1.000	12.288	0.385	2.189
60.000	0.164	1.000	12.281	0.436	2.262
70.000	0.164	1.000	12.278	0.467	2.328
80.000	0.164	1.000	12.282	0.484	2.390
89.900	0.164	1.000	12.291	0.489	2.413
Equilibrium:					
0.000	0.164	1.000	12.329	0.075	1.985

Vertical dist. betw. sea and comp. level at equilibrium : -0.679m

Flood Opening Results

Loading Condition no. : 10 ,Ulykkesdagen før tråL settes

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	70.74	1.51
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.44	1.62
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	54.45	1.76

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 10 ,Ulykkesdagen før tråL settes

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.922	0.922
2	-1.120	0.610	3.030	0.922	0.922
3	-1.050	1.550	3.020	0.916	0.916
4	-0.950	2.010	2.960	0.862	0.862
5	-0.810	2.040	2.930	0.840	0.840
6	-0.770	2.050	2.920	0.833	0.833
7	-0.450	2.130	2.870	0.801	0.801
8	0.000	2.240	2.800	0.757	0.757
9	0.450	2.325	2.730	0.713	0.713
10	0.760	2.360	2.700	0.701	0.701
11	0.900	2.390	2.680	0.689	0.689
12	0.930	2.389	2.676	0.687	0.687
13	1.040	2.400	2.660	0.678	0.678
14	1.800	2.495	2.600	0.661	0.661
15	2.700	2.600	2.540	0.653	0.653
16	3.600	2.640	2.510	0.675	0.675
17	4.500	2.650	2.500	0.717	0.717
18	5.400	2.650	2.510	0.779	0.779
19	6.300	2.650	2.530	0.851	0.851
20	7.200	2.650	2.550	0.923	0.923
21	8.100	2.610	2.600	1.024	1.024
22	9.000	2.530	2.650	1.126	1.126
23	9.900	2.350	2.750	1.278	1.278
24	10.800	2.050	2.860	1.440	1.440
25	11.250	1.870	2.920	1.525	1.525
26	11.700	1.670	2.990	1.621	1.621
27	12.150	1.360	3.070	1.727	1.727
28	12.600	1.030	3.150	1.833	1.833
29	13.050	0.570	3.220	1.929	1.929
30	13.260	0.378	3.263	1.984	1.984
31	13.440	0.080	3.300	2.031	2.031
32	13.553	0.000	3.320	2.058	2.058

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.665 m
Trim over Lpp (aft +)	:	0.688 m
List (starboard +) ...	:	4.920 °
Draught, AP (moulded)	:	2.009 m
Draught, LCF (moulded)	:	1.719 m
Draught, FP (moulded)	:	1.321 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.450 m

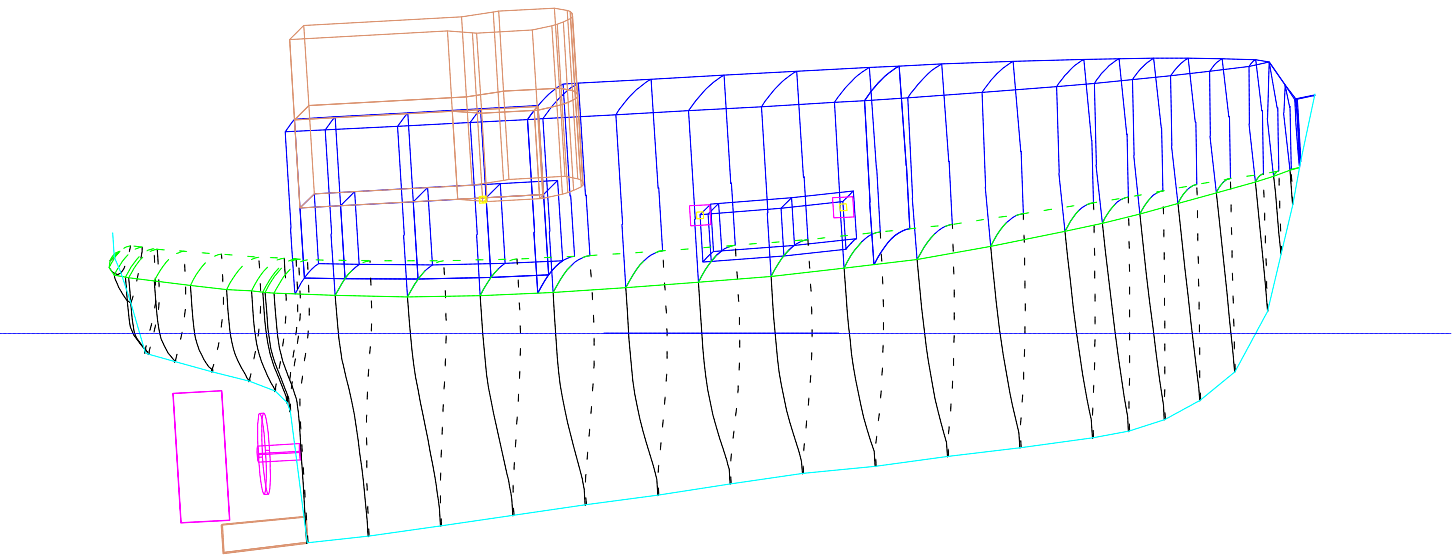
Displacement	:	49.836 MT
LCB (rel. AP)	:	5.408 m
VCB (rel. BL)	:	1.107 m
LCF (rel. AP)	:	5.325 m
TPC - Immersion	:	0.553 MT/cm
Trim Moment	:	0.489 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	0.909 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

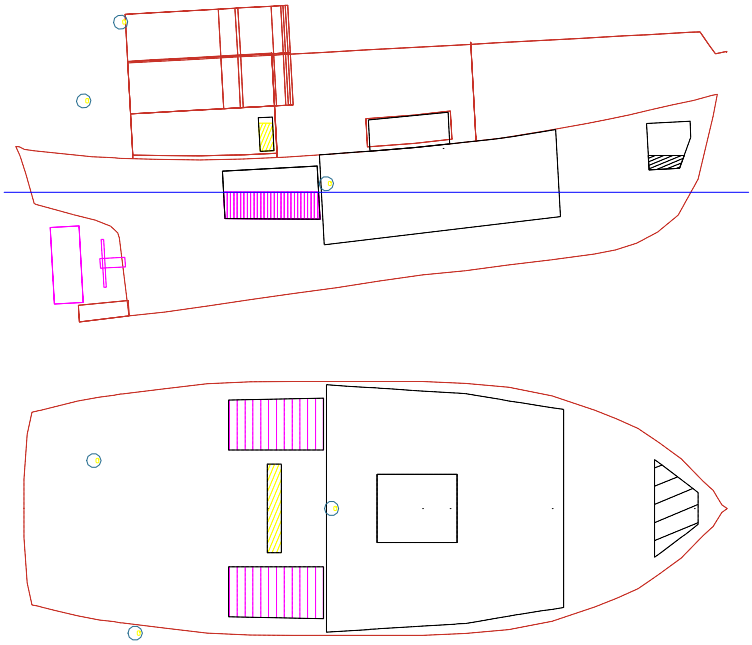


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trål i sjøen										
-	En trål på stb. trommel	0.450					0.340	-1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.148	1.593	1.553	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.147	-1.563	1.553	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.041	2.950	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.029	1.978	0.05	¤
		1.757					4.903	0.021	1.821		
	DEAD WEIGHT	4.858					3.304	0.799	3.280		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.078	2.131		

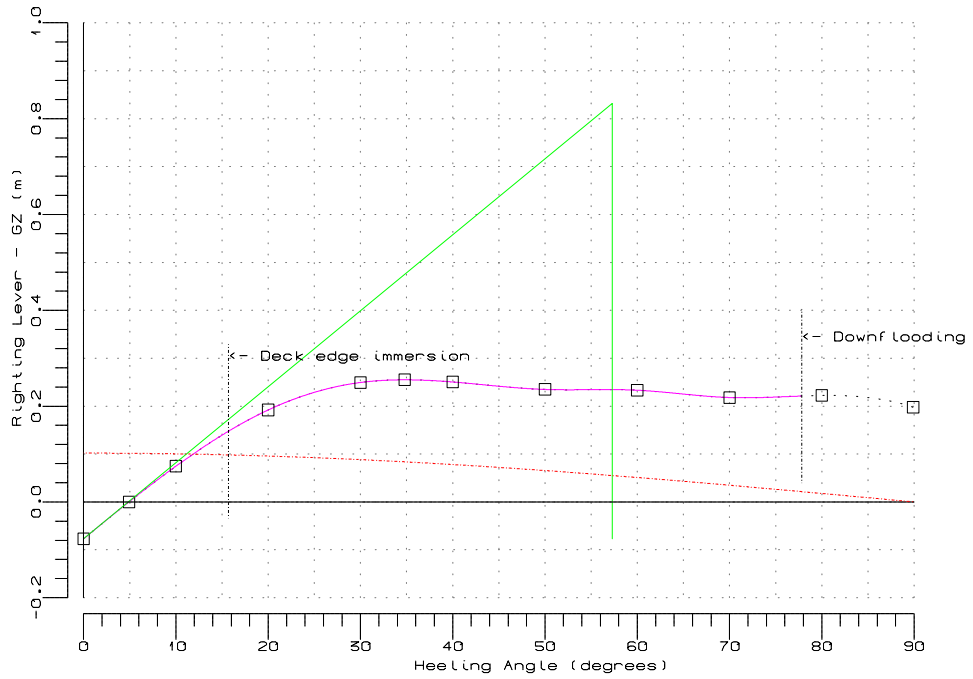
.... to be continued on next page

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.077	-0.0033
4.920	0.000	0.0000
10.000	0.075	0.0034
20.000	0.192	0.0273
30.000	0.249	0.0668
34.800	0.255	0.0880
40.000	0.250	0.1110
50.000	0.235	0.1532
60.000	0.233	0.1941
70.000	0.218	0.2334
80.000	0.222	0.2717
89.900	0.198	0.3089

Downflooding : 77.812 °
Deck immersion : 15.703 °
Maximum GZ at : 34.800 °
Equilibrium at : 4.920 °
Area, 0 - 30 : 0.0701 m*rad
Area, 0 - 40 : 0.1143 m*rad
Area,30 - 40 : 0.0442 m*rad
Area, 0 - maxGZ: 0.0913 m*rad
GM : 0.909 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.077 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°	:	0.20 m	0.249	OK
GZAng	Angle at which max. GZ occur, ð	:	25.00 °	34.800	OK
GMMin	Minimum GM	:	0.35 m	0.909	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*) :	0.030 m·rad	0.044	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than	:	0.10 m	0.225	OK
GZPos	Positive GZ-curve up to	:	70.00 °	89.900	OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium-and-2nd intercept

Intact Stability conclusion ..... : OK

Please note !
The calculations of KGmax are based on upright vessel (TCG=0.0 m). If the actual calculations are based on TCG <> 0.0, the stability conclusion may not correspond with the presented stability margin. The conclusion will anyway be correct as it reflects the actual loading condition.

Please note !
-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant "Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.077	-0.077
10.000	0.075	0.076
20.000	0.192	0.195
30.000	0.249	0.254
40.000	0.250	0.256
50.000	0.235	0.243
60.000	0.233	0.242
70.000	0.218	0.228
80.000	0.222	0.232
89.900	0.198	0.207

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.162	1.715	1.594
40.000	0.653	0.870	4.172	1.784	1.642
50.000	0.653	0.870	4.187	1.860	1.718
60.000	0.653	0.870	4.202	1.907	1.785
70.000	0.653	0.870	4.211	1.933	1.839
80.000	0.653	0.870	4.217	1.945	1.885
89.900	0.653	0.870	4.227	1.948	1.921
Equilibrium:					
4.920	0.653	0.870	4.148	1.593	1.553

Vertical dist. betw. sea and comp. level at equilibrium : 0.141m

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.154	-1.500	1.572
40.000	0.653	0.870	4.158	-1.477	1.589
50.000	0.653	0.870	4.165	-1.452	1.614
60.000	0.653	0.870	4.178	-1.429	1.646
70.000	0.653	0.870	4.188	-1.414	1.679
80.000	0.653	0.870	4.198	-1.405	1.714
89.900	0.653	0.870	4.215	-1.402	1.753
Equilibrium:					
4.920	0.653	0.870	4.147	-1.563	1.553

Vertical dist. betw. sea and comp. level at equilibrium : -0.148m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
4.920	0.288	0.900	4.104	0.041	2.950

Vertical dist. betw. sea and comp. level at equilibrium : -1.446m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.320	0.206	2.038
40.000	0.164	1.000	12.306	0.303	2.107
50.000	0.164	1.000	12.294	0.384	2.187
60.000	0.164	1.000	12.290	0.435	2.261
70.000	0.164	1.000	12.292	0.467	2.328
80.000	0.164	1.000	12.299	0.485	2.393
89.900	0.164	1.000	12.315	0.489	2.452
Equilibrium:					
4.920	0.164	1.000	12.330	0.029	1.978

Vertical dist. betw. sea and comp. level at equilibrium : -0.768m

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	80.62	1.45
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	77.81	1.55
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	62.42	1.64

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.947	0.947
2	-1.120	0.610	3.030	0.895	0.999
3	-1.050	1.550	3.020	0.808	1.074
4	-0.950	2.010	2.960	0.715	1.059
5	-0.810	2.040	2.930	0.690	1.039
6	-0.770	2.050	2.920	0.681	1.032
7	-0.450	2.130	2.870	0.642	1.007
8	0.000	2.240	2.800	0.587	0.971
9	0.450	2.325	2.730	0.535	0.933
10	0.760	2.360	2.700	0.519	0.923
11	0.900	2.390	2.680	0.504	0.914
12	0.930	2.389	2.676	0.502	0.911
13	1.040	2.400	2.660	0.491	0.902
14	1.800	2.495	2.600	0.465	0.892
15	2.700	2.600	2.540	0.445	0.890
16	3.600	2.640	2.510	0.461	0.913
17	4.500	2.650	2.500	0.499	0.953
18	5.400	2.650	2.510	0.558	1.012
19	6.300	2.650	2.530	0.627	1.081
20	7.200	2.650	2.550	0.696	1.150
21	8.100	2.610	2.600	0.798	1.245
22	9.000	2.530	2.650	0.904	1.337
23	9.900	2.350	2.750	1.068	1.470
24	10.800	2.050	2.860	1.252	1.603
25	11.250	1.870	2.920	1.352	1.672
26	11.700	1.670	2.990	1.463	1.749
27	12.150	1.360	3.070	1.594	1.827
28	12.600	1.030	3.150	1.726	1.903
29	13.050	0.570	3.220	1.860	1.957
30	13.260	0.378	3.263	1.931	1.995
31	13.440	0.080	3.300	2.003	2.016
32	13.553	0.000	3.320	2.035	2.035

Freeboard is vertical distance from deck point to sea at equilibrium.

3. Babord tråldør kjøres fast Carina dreier 15 grader (C13 babord 15 gr. giring, GZ til 90 gr).

Loading Condition no. : 14

Som 12, 30 gr. giring, 9,82 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.665 m
Trim over Lpp (aft +)	:	0.688 m
List (starboard +) ...	:	4.920 °
Draught, AP (moulded)	:	2.009 m
Draught, LCF (moulded)	:	1.719 m
Draught, FP (moulded)	:	1.321 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.450 m

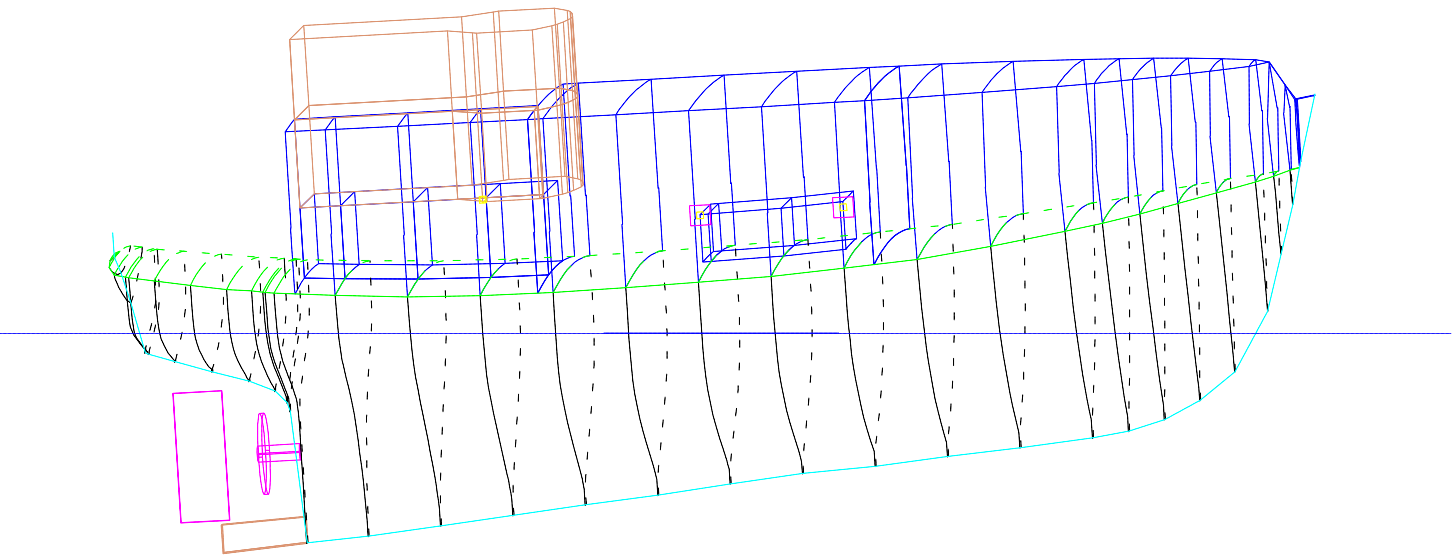
Displacement	:	49.836 MT
LCB (rel. AP)	:	5.408 m
VCB (rel. BL)	:	1.107 m
LCF (rel. AP)	:	5.325 m
TPC - Immersion	:	0.553 MT/cm
Trim Moment	:	0.489 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	0.909 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

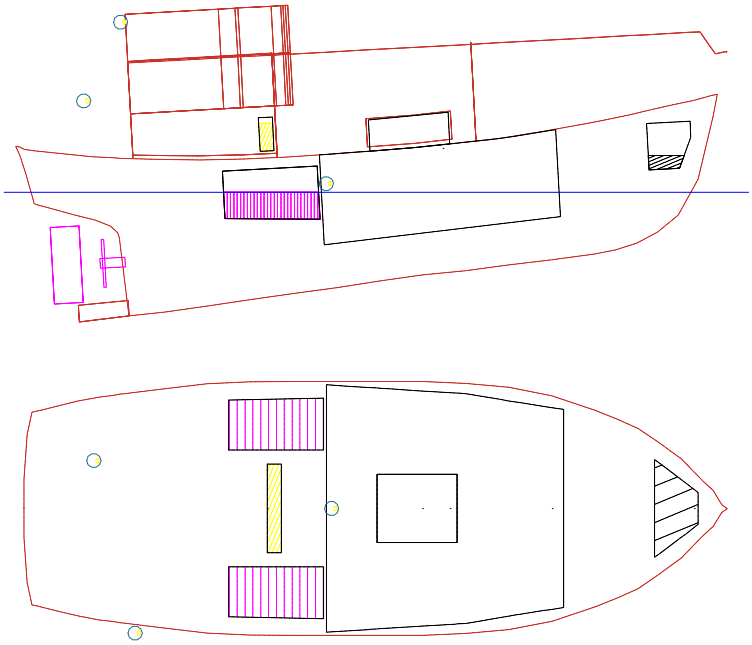


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

Loading Condition no. : 14
Condition Id. text : Som 12, 30 gr. giring, 9,82 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trål i sjøen										
-	En trål på stb. trommel	0.450					0.340	-1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.148	1.593	1.553	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.147	-1.563	1.553	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.041	2.950	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.029	1.978	0.05	¤
		1.757					4.903	0.021	1.821		
	DEAD WEIGHT	4.858					3.304	0.799	3.280		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.078	2.131		

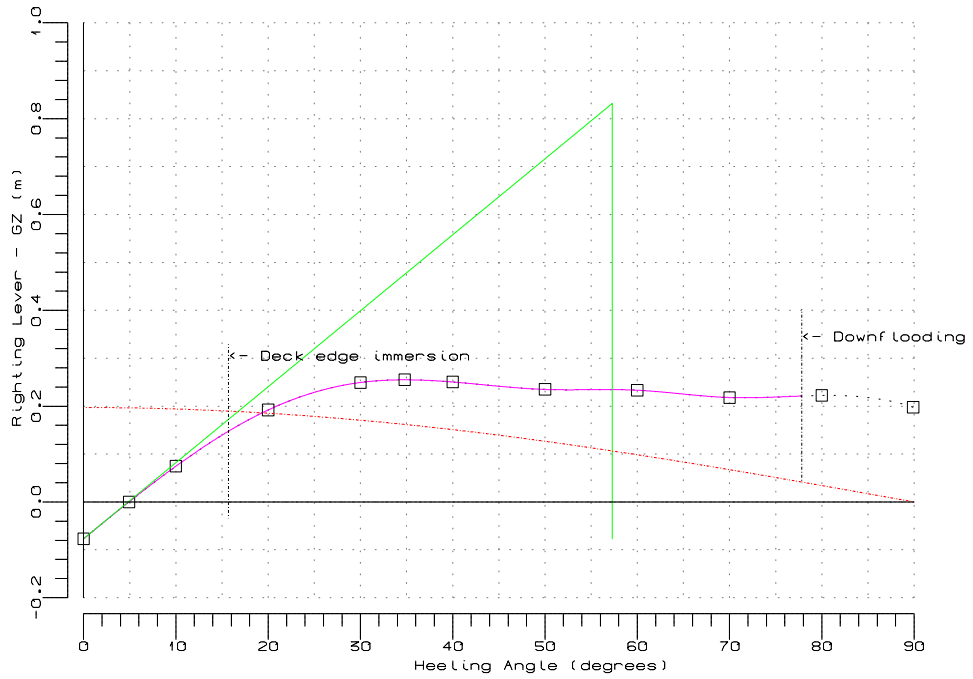
.... to be continued on next page

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 14
Condition Id. text : Som 12, 30 gr. giring, 9,82 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.077	-0.0033
4.920	0.000	0.0000
10.000	0.075	0.0034
20.000	0.192	0.0273
30.000	0.249	0.0668
34.800	0.255	0.0880
40.000	0.250	0.1110
50.000	0.235	0.1532
60.000	0.233	0.1941
70.000	0.218	0.2334
80.000	0.222	0.2717
89.900	0.198	0.3089

Downflooding : 77.812 °
Deck immersion : 15.703 °
Maximum GZ at : 34.800 °
Equilibrium at : 4.920 °
Area, 0 - 30 : 0.0701 m*rad
Area, 0 - 40 : 0.1143 m*rad
Area,30 - 40 : 0.0442 m*rad
Area, 0 - maxGZ: 0.0913 m*rad
GM : 0.909 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.077 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°	:	0.20 m	0.249	OK
GZAng	Angle at which max. GZ occur, ð	:	25.00 °	34.800	OK
GMMin	Minimum GM	:	0.35 m	0.909	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*) :	0.030 m·rad	0.044	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than	:	0.10 m	0.225	OK
GZPos	Positive GZ-curve up to	:	70.00 °	89.900	OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium-and-2nd intercept

Intact Stability conclusion ..... : OK

Please note !
The calculations of KGmax are based on upright vessel (TCG=0.0 m). If the actual calculations are based on TCG <> 0.0, the stability conclusion may not correspond with the presented stability margin. The conclusion will anyway be correct as it reflects the actual loading condition.

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant "Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.077	-0.077
10.000	0.075	0.076
20.000	0.192	0.195
30.000	0.249	0.254
40.000	0.250	0.256
50.000	0.235	0.243
60.000	0.233	0.242
70.000	0.218	0.228
80.000	0.222	0.232
89.900	0.198	0.207

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.162	1.715	1.594
40.000	0.653	0.870	4.172	1.784	1.642
50.000	0.653	0.870	4.187	1.860	1.718
60.000	0.653	0.870	4.202	1.907	1.785
70.000	0.653	0.870	4.211	1.933	1.839
80.000	0.653	0.870	4.217	1.945	1.885
89.900	0.653	0.870	4.227	1.948	1.921
Equilibrium:					
4.920	0.653	0.870	4.148	1.593	1.553

Vertical dist. betw. sea and comp. level at equilibrium : 0.141m

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.154	-1.500	1.572
40.000	0.653	0.870	4.158	-1.477	1.589
50.000	0.653	0.870	4.165	-1.452	1.614
60.000	0.653	0.870	4.178	-1.429	1.646
70.000	0.653	0.870	4.188	-1.414	1.679
80.000	0.653	0.870	4.198	-1.405	1.714
89.900	0.653	0.870	4.215	-1.402	1.753
Equilibrium:					
4.920	0.653	0.870	4.147	-1.563	1.553

Vertical dist. betw. sea and comp. level at equilibrium : -0.148m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
4.920	0.288	0.900	4.104	0.041	2.950

Vertical dist. betw. sea and comp. level at equilibrium : -1.446m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.320	0.206	2.038
40.000	0.164	1.000	12.306	0.303	2.107
50.000	0.164	1.000	12.294	0.384	2.187
60.000	0.164	1.000	12.290	0.435	2.261
70.000	0.164	1.000	12.292	0.467	2.328
80.000	0.164	1.000	12.299	0.485	2.393
89.900	0.164	1.000	12.315	0.489	2.452
Equilibrium:					
4.920	0.164	1.000	12.330	0.029	1.978

Vertical dist. betw. sea and comp. level at equilibrium : -0.768m

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

Flood Opening Results

Loading Condition no. : 14 ,Som 12, 30 gr. giring, 9,82 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	80.62	1.45
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	77.81	1.55
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	62.42	1.64

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

Freeboard to Deck

Loading Condition no. : 14 ,Som 12, 30 gr. giring, 9,82 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.947	0.947
2	-1.120	0.610	3.030	0.895	0.999
3	-1.050	1.550	3.020	0.808	1.074
4	-0.950	2.010	2.960	0.715	1.059
5	-0.810	2.040	2.930	0.690	1.039
6	-0.770	2.050	2.920	0.681	1.032
7	-0.450	2.130	2.870	0.642	1.007
8	0.000	2.240	2.800	0.587	0.971
9	0.450	2.325	2.730	0.535	0.933
10	0.760	2.360	2.700	0.519	0.923
11	0.900	2.390	2.680	0.504	0.914
12	0.930	2.389	2.676	0.502	0.911
13	1.040	2.400	2.660	0.491	0.902
14	1.800	2.495	2.600	0.465	0.892
15	2.700	2.600	2.540	0.445	0.890
16	3.600	2.640	2.510	0.461	0.913
17	4.500	2.650	2.500	0.499	0.953
18	5.400	2.650	2.510	0.558	1.012
19	6.300	2.650	2.530	0.627	1.081
20	7.200	2.650	2.550	0.696	1.150
21	8.100	2.610	2.600	0.798	1.245
22	9.000	2.530	2.650	0.904	1.337
23	9.900	2.350	2.750	1.068	1.470
24	10.800	2.050	2.860	1.252	1.603
25	11.250	1.870	2.920	1.352	1.672
26	11.700	1.670	2.990	1.463	1.749
27	12.150	1.360	3.070	1.594	1.827
28	12.600	1.030	3.150	1.726	1.903
29	13.050	0.570	3.220	1.860	1.957
30	13.260	0.378	3.263	1.931	1.995
31	13.440	0.080	3.300	2.003	2.016
32	13.553	0.000	3.320	2.035	2.035

Freeboard is vertical distance from deck point to sea at equilibrium.

4. Babord tråldør kjøres fast Carina dreier 30 grader (C14 babord 30 gr. giring, GZ til 90 gr).

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.660 m
Trim over Lpp (aft +)	:	0.682 m
List (starboard +) ...	:	6.102 °
Draught, AP (moulded)	:	2.001 m
Draught, LCF (moulded)	:	1.713 m
Draught, FP (moulded)	:	1.319 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.434 m

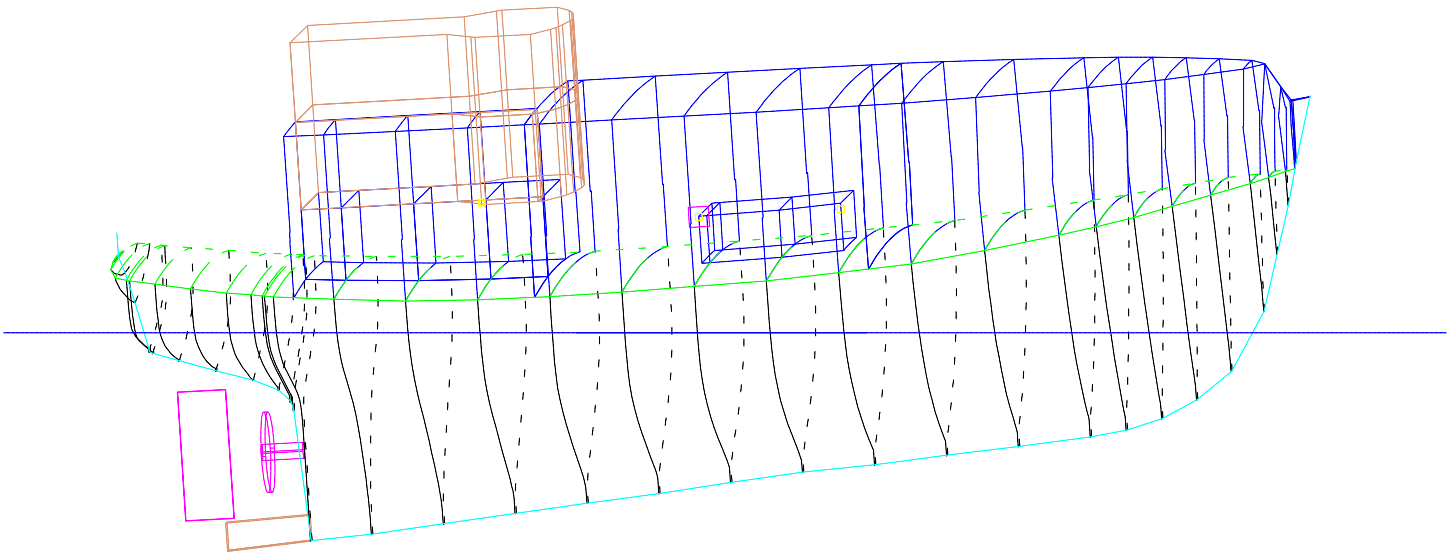
Displacement	:	49.837 MT
LCB (rel. AP)	:	5.409 m
VCB (rel. BL)	:	1.101 m
LCF (rel. AP)	:	5.322 m
TPC - Immersion	:	0.551 MT/cm
Trim Moment	:	0.489 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	0.909 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

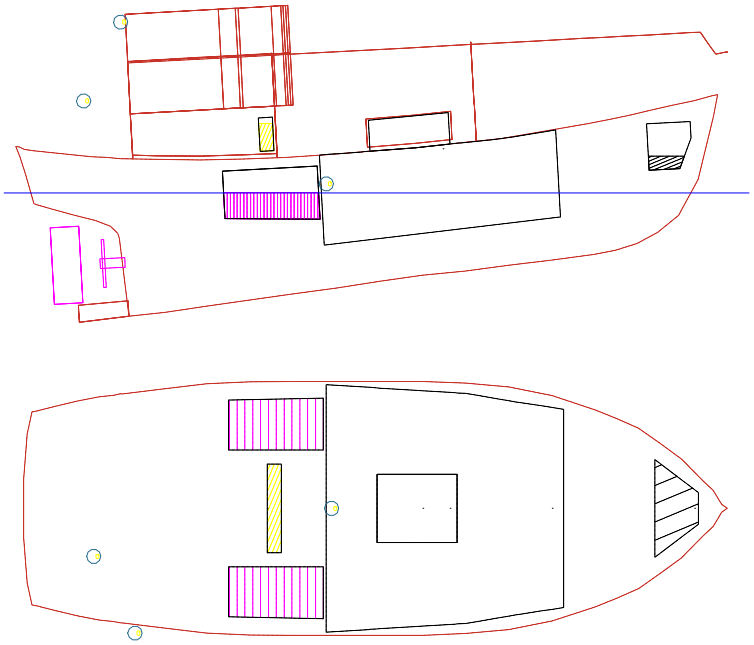


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

5. Styrbord tråldør kjøres fast Carina dreier 15 grader (C13 styrbord 15 gr. giring)

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråd i sjøen										
-	En tråd på stb. trommel	0.450					0.340	1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.148	1.598	1.554	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.148	-1.559	1.553	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.051	2.951	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.329	0.036	1.978	0.05	¤
		1.757					4.904	0.026	1.822		
	DEAD WEIGHT	4.858					3.304	0.986	3.281		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.096	2.131		

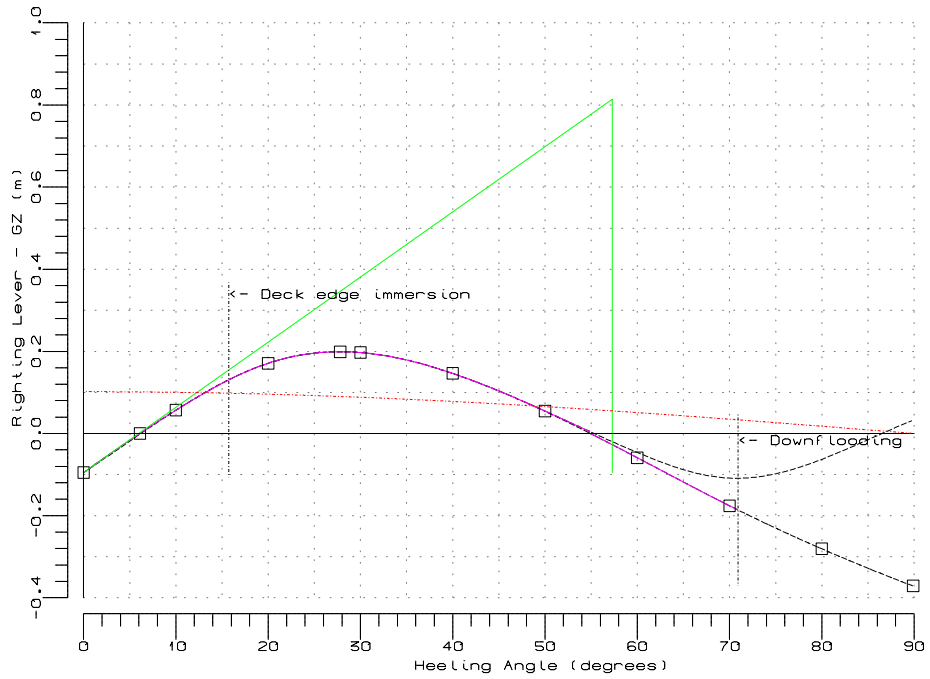
.... to be continued on next page

5. Styrbord tråldør kjøres fast Carina dreier 15 grader (C13 styrbord 15 gr. giring)

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.095	-0.0050
6.102	0.000	0.0000
10.000	0.057	0.0020
20.000	0.171	0.0228
27.800	0.199	0.0487
30.000	0.197	0.0563
40.000	0.146	0.0871
50.000	0.055	0.1050
60.000	-0.059	0.1049
70.000	-0.176	0.0844
80.000	-0.281	0.0443
89.900	-0.371	-0.0123

Downflooding : 70.937 °
Deck immersion : 15.742 °
Maximum GZ at : 27.800 °
Equilibrium at : 6.102 °
Area, 0 - 30 : 0.0613 m*rad
Area, 0 - 40 : 0.0921 m*rad
Area,30 - 40 : 0.0308 m*rad
Area, 0 - maxGZ: 0.0537 m*rad
GM : 0.909 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.095 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°		: 0.20 m	0.197	NOT OK
GZAng	Angle at which max. GZ occur, ð		: 25.00 °	27.850	OK
GMMin	Minimum GM		: 0.35 m	0.909	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*)	: 0.030 m·rad	0.031	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than		: 0.10 m	-0.088	NOT OK
GZPos	Positive GZ-curve up to		: 70.00 °	----	NOT OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium-and-2nd intercept

Intact Stability conclusion ..... : NOT OK

Please note !
The calculations of KGmax are based on upright vessel (TCG=0.0 m). If the actual calculations are based on TCG <> 0.0, the stability conclusion may not correspond with the presented stability margin. The conclusion will anyway be correct as it reflects the actual loading condition.

The calculations of KGmax includes the use of flood openings of type "local flooding". This may cause one or more steps in the KY and GZ curves.
Control of stability for the "GZMi2", "GZPos" and "GZAng" criteria are not influenced by "local flooding" effects.

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant "Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES
- - - - - - - - - - - - - - - - - - - -

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.095	-0.095
10.000	0.057	0.058
20.000	0.171	0.174
30.000	0.197	0.201
40.000	0.146	0.152
50.000	0.055	0.062
60.000	-0.059	-0.050
70.000	-0.176	-0.166
80.000	-0.281	-0.271
89.900	-0.371	-0.362

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL
- - - - - - - - - - - - - - - - - - - -
Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.006
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb
- -

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.156	1.715	1.594
40.000	0.653	0.870	4.155	1.784	1.643
50.000	0.653	0.870	4.153	1.860	1.719
60.000	0.653	0.870	4.151	1.907	1.786
70.000	0.653	0.870	4.148	1.933	1.841
80.000	0.653	0.870	4.144	1.945	1.888
89.900	0.653	0.870	4.138	1.948	1.924
Equilibrium:					
6.102	0.653	0.870	4.148	1.598	1.554

- -
Vertical dist. betw. sea and comp. level at equilibrium : 0.173m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.151	-1.500	1.572
40.000	0.653	0.870	4.146	-1.477	1.589
50.000	0.653	0.870	4.140	-1.452	1.615
60.000	0.653	0.870	4.137	-1.429	1.647
70.000	0.653	0.870	4.133	-1.414	1.681
80.000	0.653	0.870	4.128	-1.404	1.716
89.900	0.653	0.870	4.116	-1.401	1.756
Equilibrium:					
6.102	0.653	0.870	4.148	-1.559	1.553

Vertical dist. betw. sea and comp. level at equilibrium : -0.185m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
6.102	0.288	0.900	4.104	0.051	2.951

Vertical dist. betw. sea and comp. level at equilibrium : -1.447m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.319	0.206	2.038
40.000	0.164	1.000	12.304	0.304	2.108
50.000	0.164	1.000	12.289	0.385	2.188
60.000	0.164	1.000	12.281	0.436	2.261
70.000	0.164	1.000	12.278	0.467	2.328
80.000	0.164	1.000	12.283	0.484	2.390
89.900	0.164	1.000	12.291	0.489	2.410
Equilibrium:					
6.102	0.164	1.000	12.329	0.036	1.978

Vertical dist. betw. sea and comp. level at equilibrium : -0.766m

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	70.94	1.43
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.36	1.53
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	54.84	1.61

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Freeboard Port (m)
1	-1.120	0.000	3.030	0.950	0.950
2	-1.120	0.610	3.030	0.885	1.015
3	-1.050	1.550	3.020	0.780	1.109
4	-0.950	2.010	2.960	0.677	1.103
5	-0.810	2.040	2.930	0.651	1.084
6	-0.770	2.050	2.920	0.642	1.077
7	-0.450	2.130	2.870	0.601	1.054
8	0.000	2.240	2.800	0.545	1.020
9	0.450	2.325	2.730	0.490	0.984
10	0.760	2.360	2.700	0.474	0.975
11	0.900	2.390	2.680	0.458	0.966
12	0.930	2.389	2.676	0.456	0.963
13	1.040	2.400	2.660	0.445	0.954
14	1.800	2.495	2.600	0.416	0.946
15	2.700	2.600	2.540	0.394	0.946
16	3.600	2.640	2.510	0.409	0.969
17	4.500	2.650	2.500	0.446	1.009
18	5.400	2.650	2.510	0.505	1.068
19	6.300	2.650	2.530	0.574	1.136
20	7.200	2.650	2.550	0.642	1.205
21	8.100	2.610	2.600	0.745	1.299
22	9.000	2.530	2.650	0.851	1.388
23	9.900	2.350	2.750	1.018	1.517
24	10.800	2.050	2.860	1.208	1.643
25	11.250	1.870	2.920	1.311	1.708
26	11.700	1.670	2.990	1.426	1.781
27	12.150	1.360	3.070	1.563	1.852
28	12.600	1.030	3.150	1.702	1.920
29	13.050	0.570	3.220	1.844	1.965
30	13.260	0.378	3.263	1.919	1.999
31	13.440	0.080	3.300	1.997	2.014
32	13.553	0.000	3.320	2.031	2.031

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 14

Som 12, 30 gr. giring, 9,82 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.660 m
Trim over Lpp (aft +)	:	0.682 m
List (starboard +) ...	:	6.102 °
Draught, AP (moulded)	:	2.001 m
Draught, LCF (moulded)	:	1.713 m
Draught, FP (moulded)	:	1.319 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.434 m

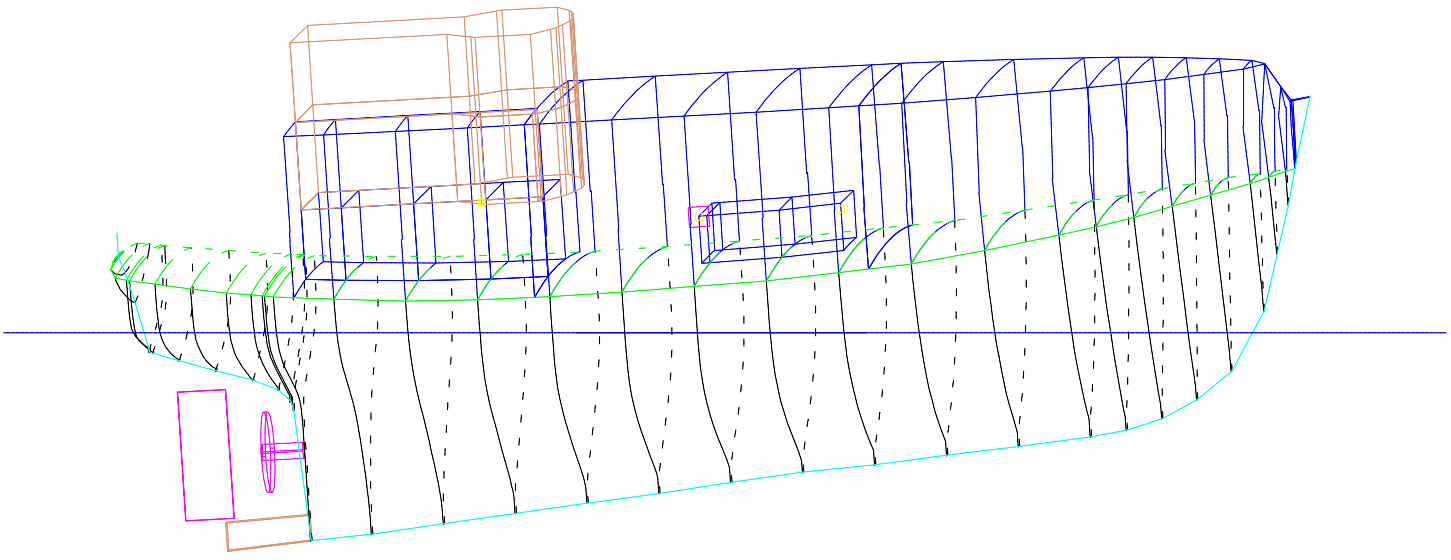
Displacement	:	49.837 MT
LCB (rel. AP)	:	5.409 m
VCB (rel. BL)	:	1.101 m
LCF (rel. AP)	:	5.322 m
TPC - Immersion	:	0.551 MT/cm
Trim Moment	:	0.489 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	0.909 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

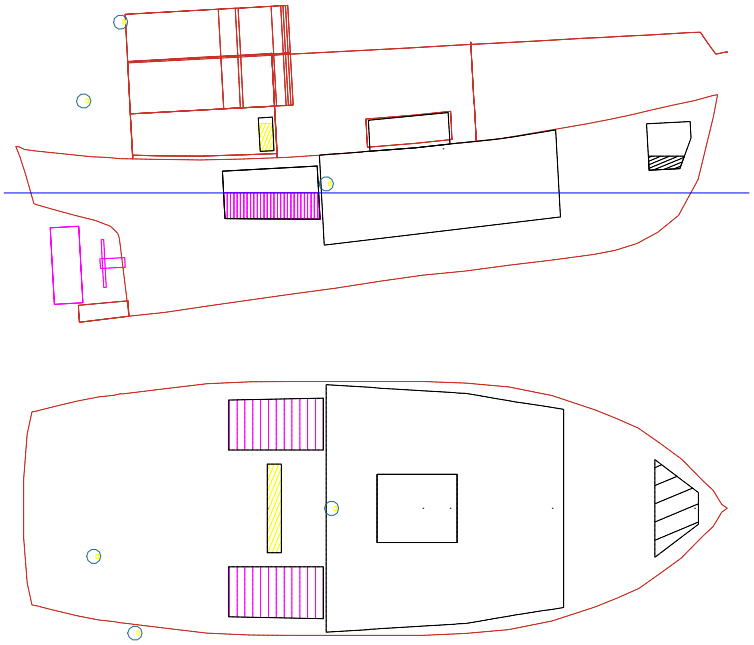


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-GM is calculated based on metacentric height (KMT) for upright vessel (zero heel)
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

6. Styrbord tråldør kjøres fast Carina dreier 30 grader (C14 styrbord 30 gr. giring)

Loading Condition no. : 14
Condition Id. text : Som 12, 30 gr. giring, 9,82 tm



○ - UNIT LOADS

Cargo Diesel Oil Lubr. Oil Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråll i sjøen										
-	En tråll på stb. trommel	0.450					0.340	1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.148	1.598	1.554	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.148	-1.559	1.553	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.051	2.951	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.329	0.036	1.978	0.05	¤
		1.757					4.904	0.026	1.822		
	DEAD WEIGHT	4.858					3.304	0.986	3.281		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.096	2.131		

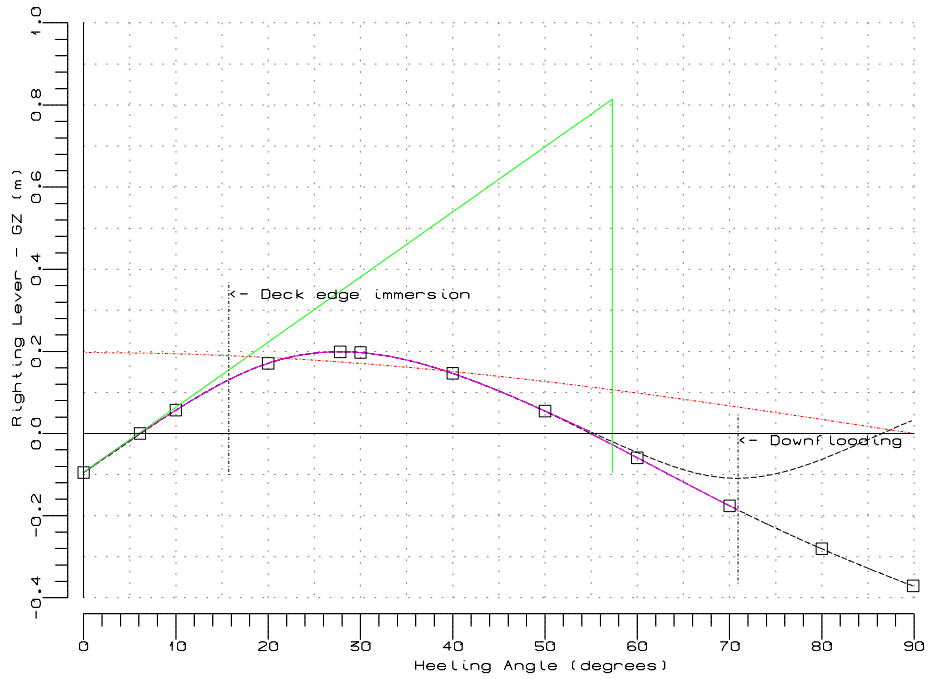
.... to be continued on next page

6. Styrbord tråldør kjøres fast Carina dreier 30 grader (C14 styrbord 30 gr. giring)

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 14
Condition Id. text : Som 12, 30 gr. giring, 9,82 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.095	-0.0050
6.102	0.000	0.0000
10.000	0.057	0.0020
20.000	0.171	0.0228
27.800	0.199	0.0487
30.000	0.197	0.0563
40.000	0.146	0.0871
50.000	0.055	0.1050
60.000	-0.059	0.1049
70.000	-0.176	0.0844
80.000	-0.281	0.0443
89.900	-0.371	-0.0123

Downflooding : 70.937 °
Deck immersion : 15.742 °
Maximum GZ at : 27.800 °
Equilibrium at : 6.102 °
Area, 0 - 30 : 0.0613 m*rad
Area, 0 - 40 : 0.0921 m*rad
Area,30 - 40 : 0.0308 m*rad
Area, 0 - maxGZ: 0.0537 m*rad
GM : 0.909 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.095 m

Table of intact stability criteria

TYPE : DnV NB Fishing Vessel < 15 m

Code	Id. text		Req.	Actual value	Concl-usion
GZMi3	Minimum GZ at 30.0°		: 0.20 m	0.197	NOT OK
GZAng	Angle at which max. GZ occur, ð		: 25.00 °	27.850	OK
GMMin	Minimum GM		: 0.35 m	0.909	OK
GZAr1	Area, GZ curve (30.0-40.0)°	*)	: 0.030 m·rad	0.031	OK
GZMi2	GZ in heel range (40.0-65.0)° must be greater than		: 0.10 m	-0.088	NOT OK
GZPos	Positive GZ-curve up to		: 70.00 °	----	NOT OK

ð : angle for maximum GZ
GZarea : area of righting lever
*) : area will also be limited by angles for equilibrium-and-2nd intercept

Intact Stability conclusion ..... : NOT OK

Please note !
The calculations of KGmax are based on upright vessel (TCG=0.0 m). If the actual calculations are based on TCG <> 0.0, the stability conclusion may not correspond with the presented stability margin. The conclusion will anyway be correct as it reflects the actual loading condition.

The calculations of KGmax includes the use of flood openings of type "local flooding". This may cause one or more steps in the KY and GZ curves.
Control of stability for the "GZMi2", "GZPos" and "GZAng" criteria are not influenced by "local flooding" effects.

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant "Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES
- - - - - - - - - - - - - - - - - - - -

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.095	-0.095
10.000	0.057	0.058
20.000	0.171	0.174
30.000	0.197	0.201
40.000	0.146	0.152
50.000	0.055	0.062
60.000	-0.059	-0.050
70.000	-0.176	-0.166
80.000	-0.281	-0.271
89.900	-0.371	-0.362

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL
- - - - - - - - - - - - - - - - - - - -
Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.006
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb
- -

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.156	1.715	1.594
40.000	0.653	0.870	4.155	1.784	1.643
50.000	0.653	0.870	4.153	1.860	1.719
60.000	0.653	0.870	4.151	1.907	1.786
70.000	0.653	0.870	4.148	1.933	1.841
80.000	0.653	0.870	4.144	1.945	1.888
89.900	0.653	0.870	4.138	1.948	1.924
Equilibrium:					
6.102	0.653	0.870	4.148	1.598	1.554

- -
Vertical dist. betw. sea and comp. level at equilibrium : 0.173m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.151	-1.500	1.572
40.000	0.653	0.870	4.146	-1.477	1.589
50.000	0.653	0.870	4.140	-1.452	1.615
60.000	0.653	0.870	4.137	-1.429	1.647
70.000	0.653	0.870	4.133	-1.414	1.681
80.000	0.653	0.870	4.128	-1.404	1.716
89.900	0.653	0.870	4.116	-1.401	1.756
Equilibrium:					
6.102	0.653	0.870	4.148	-1.559	1.553

Vertical dist. betw. sea and comp. level at equilibrium : -0.185m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
6.102	0.288	0.900	4.104	0.051	2.951

Vertical dist. betw. sea and comp. level at equilibrium : -1.447m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.319	0.206	2.038
40.000	0.164	1.000	12.304	0.304	2.108
50.000	0.164	1.000	12.289	0.385	2.188
60.000	0.164	1.000	12.281	0.436	2.261
70.000	0.164	1.000	12.278	0.467	2.328
80.000	0.164	1.000	12.283	0.484	2.390
89.900	0.164	1.000	12.291	0.489	2.410
Equilibrium:					
6.102	0.164	1.000	12.329	0.036	1.978

Vertical dist. betw. sea and comp. level at equilibrium : -0.766m

Flood Opening Results

Loading Condition no. : 14 ,Som 12, 30 gr. giring, 9,82 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	70.94	1.43
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.36	1.53
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	54.84	1.61

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 14 ,Som 12, 30 gr. giring, 9,82 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.950	0.950
2	-1.120	0.610	3.030	0.885	1.015
3	-1.050	1.550	3.020	0.780	1.109
4	-0.950	2.010	2.960	0.677	1.103
5	-0.810	2.040	2.930	0.651	1.084
6	-0.770	2.050	2.920	0.642	1.077
7	-0.450	2.130	2.870	0.601	1.054
8	0.000	2.240	2.800	0.545	1.020
9	0.450	2.325	2.730	0.490	0.984
10	0.760	2.360	2.700	0.474	0.975
11	0.900	2.390	2.680	0.458	0.966
12	0.930	2.389	2.676	0.456	0.963
13	1.040	2.400	2.660	0.445	0.954
14	1.800	2.495	2.600	0.416	0.946
15	2.700	2.600	2.540	0.394	0.946
16	3.600	2.640	2.510	0.409	0.969
17	4.500	2.650	2.500	0.446	1.009
18	5.400	2.650	2.510	0.505	1.068
19	6.300	2.650	2.530	0.574	1.136
20	7.200	2.650	2.550	0.642	1.205
21	8.100	2.610	2.600	0.745	1.299
22	9.000	2.530	2.650	0.851	1.388
23	9.900	2.350	2.750	1.018	1.517
24	10.800	2.050	2.860	1.208	1.643
25	11.250	1.870	2.920	1.311	1.708
26	11.700	1.670	2.990	1.426	1.781
27	12.150	1.360	3.070	1.563	1.852
28	12.600	1.030	3.150	1.702	1.920
29	13.050	0.570	3.220	1.844	1.965
30	13.260	0.378	3.263	1.919	1.999
31	13.440	0.080	3.300	1.997	2.014
32	13.553	0.000	3.320	2.031	2.031

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 11

Ulykkesdagen tråL i sjøen, lik belastn. s/b

FLOATING CONDITION DATA

Mean Draught (moulded) :	1.730 m
Trim over Lpp (aft +) :	-0.435 m
List (starboard +) ... :	24.099 °
Draught, AP (moulded) :	1.513 m
Draught, LCF (moulded) :	1.696 m
Draught, FP (moulded) :	1.948 m

Min. vertical distance to Flood Openings:
- downflooding type .. : 0.822 m

Displacement ..... :	56.134 MT
LCB (rel. AP) ..... :	11.755 m
VCB (rel. BL) ..... :	1.168 m
LCF (rel. AP) ..... :	5.315 m
TPC - Immersion ..... :	0.555 MT/cm
Trim Moment ..... :	0.491 MT*m/cm

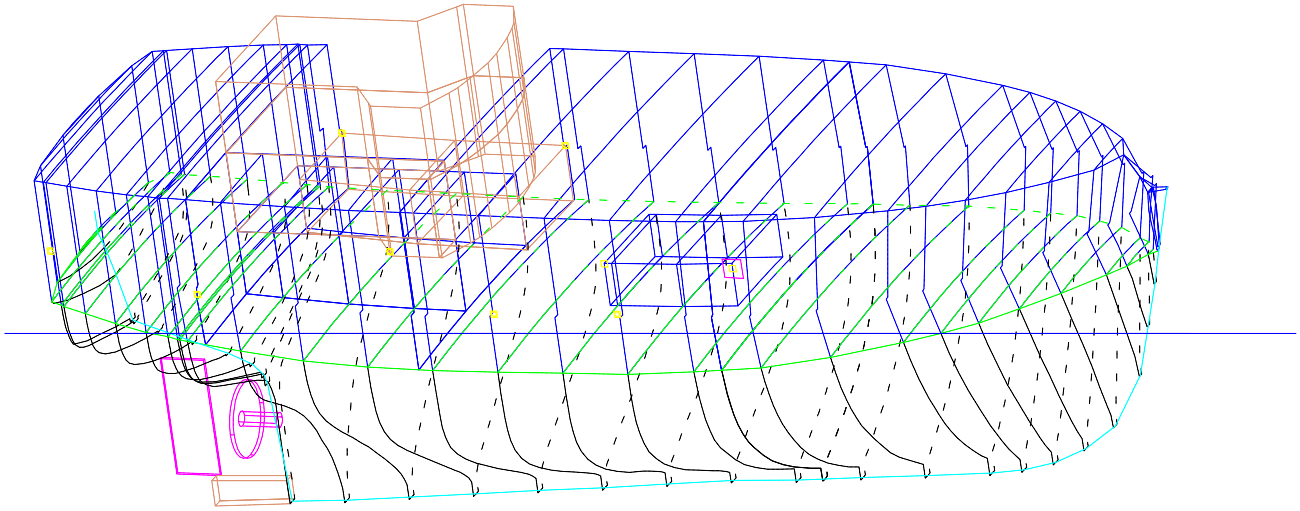
STABILITY DATA/CONTROL

KG (incl. FSC) ..... :	2.140 m
Free Surface Correction:	0.009 m
GM (GZ derived) ..... :	-1.344 m

WEIGHT SUMMARY

Mannskap og Proviant :	1.0 MT
Trål i sjøen :	0.4 MT
Vertikalbelastning i trålgalge:	1.6 MT
Forråd_ulykkesdagen :	1.8 MT
Total DEADWEIGHT :	4.9 MT

Water on deck effect is included.
- Amount of water ..... : 6.300 MT
(see separate page for details.)

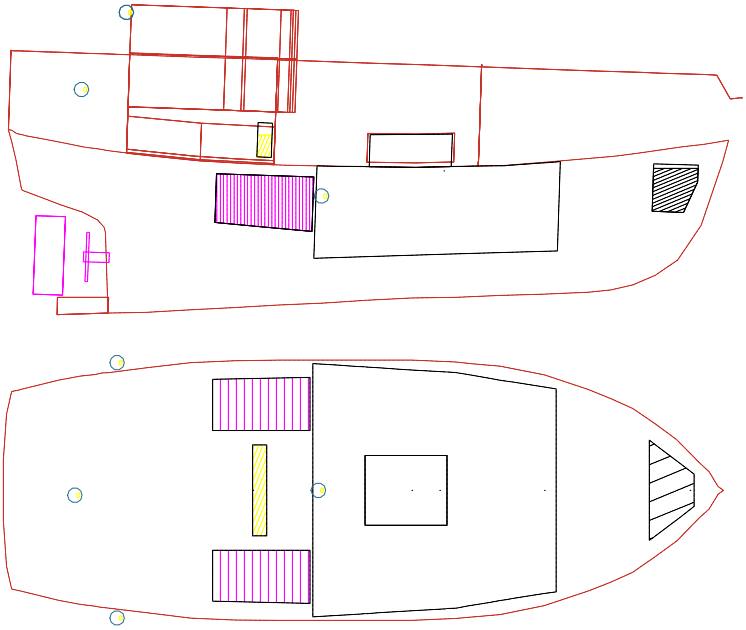


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics.
The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

7. Vann på dekk Carina krenger til babord (C11 babord, 6,3 t VPD i bakk og leveggrom, tett levegg)

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen trål i sjøen, lik belastn. s/b



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trål i sjøen										
-	En trål på stb. trommel	0.450					0.340	0.100	3.900		
3	Vertikalbelastning i trålgalge (lik s/b)										
-	vert. belastn. styrbord	0.825					1.200	2.600	5.500		
-	vert. belastn. babord	0.825					1.200	-2.600	5.500		
		1.650					1.200	0.000	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.147	1.577	1.552	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.147	-1.577	1.552	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.001	2.948	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.000	1.976	0.05	¤
		1.757					4.903	0.000	1.821		
	DEAD WEIGHT	4.857					3.304	0.009	3.280		

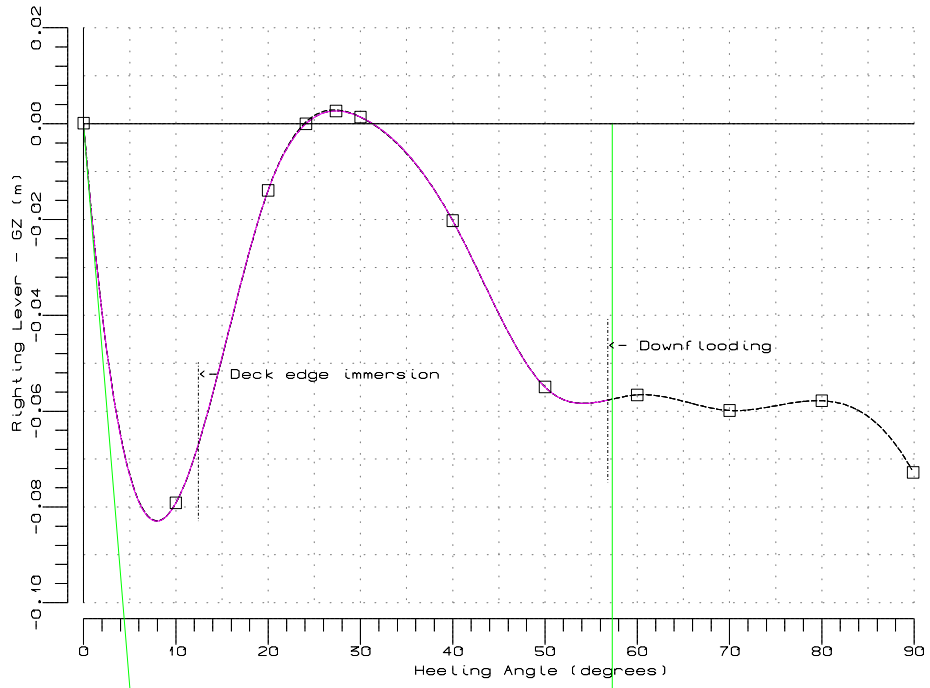
.... to be continued on next page

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007	
	TOTAL WEIGHT	49.836					5.464	0.001	2.131	

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen tråd i sjøen, lik belastn. s/b

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	0.000	-0.0196
10.000	-0.079	-0.0088
20.000	-0.014	-0.0004
24.099	0.000	0.0000
27.350	0.003	0.0001
30.000	0.001	0.0002
40.000	-0.020	-0.0011
50.000	-0.055	-0.0079
60.000	-0.057	-0.0179
70.000	-0.060	-0.0280
80.000	-0.058	-0.0383
89.900	-0.073	-0.0491

Downflooding : 56.797 °
Deck immersion : 12.422 °
Maximum GZ at : 27.350 °
Equilibrium at : 24.099 °
Area, 0 - 30 : 0.0198 m*rad
Area, 0 - 40 : 0.0186 m*rad
Area,30 - 40 : -0.0013 m*rad
Area, 0 - maxGZ: 0.0197 m*rad
GM : -1.344 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.001 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - -
FiE = 24.099
FiD = 36.914
FiF = 56.797

Area A = 0.0000
Area B = 0.0011

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	0.000	0.000
10.000	-0.079	-0.069
20.000	-0.014	-0.010
30.000	0.001	0.005
40.000	-0.020	-0.012
50.000	-0.055	-0.041
60.000	-0.057	-0.041
70.000	-0.060	-0.044
80.000	-0.058	-0.042
89.900	-0.073	-0.055

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.002	0.000
30.000	0.004	0.001
40.000	0.005	0.002
50.000	0.006	0.003
60.000	0.007	0.005
70.000	0.008	0.006
80.000	0.008	0.007
89.900	0.008	0.008

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.202	1.578	1.551
10.000	0.653	0.870	4.216	1.613	1.555
20.000	0.653	0.870	4.226	1.660	1.568
30.000	0.653	0.870	4.246	1.716	1.595
40.000	0.653	0.870	4.272	1.785	1.645
50.000	0.653	0.870	4.305	1.853	1.716
60.000	0.653	0.870	4.312	1.898	1.781
70.000	0.652	0.870	4.314	1.923	1.835
80.000	0.653	0.870	4.320	1.933	1.878
89.900	0.653	0.870	4.333	1.934	1.912
Equilibrium:					
24.099	0.653	0.870	4.147	1.577	1.552

Vertical dist. betw. sea and comp. level at equilibrium : 0.004m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.202	-1.578	1.551
10.000	0.653	0.870	4.206	-1.550	1.554
20.000	0.653	0.870	4.207	-1.525	1.560
30.000	0.653	0.870	4.215	-1.502	1.572
40.000	0.653	0.870	4.226	-1.478	1.589
50.000	0.653	0.870	4.253	-1.455	1.615
60.000	0.653	0.870	4.269	-1.435	1.646
70.000	0.653	0.870	4.280	-1.421	1.679
80.000	0.653	0.870	4.300	-1.415	1.714
89.900	0.653	0.870	4.330	-1.417	1.752
Equilibrium:					
24.099	0.653	0.870	4.147	-1.577	1.552

Vertical dist. betw. sea and comp. level at equilibrium : 0.000m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.105	0.000	2.948
10.000	0.288	0.900	4.105	0.076	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.106	0.129	2.978
60.000	0.288	0.900	4.106	0.133	2.985
70.000	0.288	0.900	4.106	0.136	2.991
80.000	0.288	0.900	4.106	0.137	2.995
89.900	0.288	0.900	4.106	0.138	3.000
Equilibrium:					
24.099	0.288	0.900	4.104	0.001	2.948

Vertical dist. betw. sea and comp. level at equilibrium : -1.446m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.342	0.000	1.976
10.000	0.164	1.000	12.343	0.059	1.981
20.000	0.164	1.000	12.341	0.124	1.999
30.000	0.164	1.000	12.339	0.201	2.035
40.000	0.164	1.000	12.325	0.296	2.101
50.000	0.164	1.000	12.316	0.378	2.182
60.000	0.164	1.000	12.313	0.433	2.259
70.000	0.164	1.000	12.317	0.466	2.330
80.000	0.164	1.000	12.329	0.482	2.399
89.900	0.164	1.000	12.349	0.484	2.463
Equilibrium:					
24.099	0.164	1.000	12.330	0.000	1.976

Vertical dist. betw. sea and comp. level at equilibrium : -0.771m

WATER ON DECK DATA

Amount of water (t) : 6.300

The water is connected to the following superstructures :

Id. text	Location
Bakk	Upper
"Leveggrom"	Upper

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	6.299	6.832	-0.008	2.732
10.000	6.296	7.302	1.587	2.853
20.000	6.298	7.454	1.873	2.929
30.000	6.297	7.622	2.000	2.993
40.000	6.295	7.769	2.078	3.057
50.000	6.298	8.057	2.125	3.134
60.000	6.298	8.281	2.160	3.224
70.000	6.298	8.504	2.185	3.343
80.000	6.298	8.836	2.171	3.483
89.900	6.296	9.281	2.106	3.633

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel. .

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 11 ,Ulykkesdagen trål i sjøen, lik belastn. s/b

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	65.31	0.88
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	56.80	0.82
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	59.30	1.04
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	29.61	0.25
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	29.18	0.24
6	Rekketopp langs dekkshus	Local flood.		1.3	-2.5	3.39	**	2.54
7	Rekketopp langs dekkshus	Local flood.		4.3	-2.6	3.27	**	2.38
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	59.61	1.05
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	36.91	0.50

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 11 ,Ulykkesdagen tråd i sjøen, lik belastn. s/b

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Freeboard Port (m)
1	-1.120	0.000	3.030	1.291	1.291
2	-1.120	0.610	3.030	1.042	1.540
3	-1.050	1.550	3.020	0.647	1.912
4	-0.950	2.010	2.960	0.401	2.041
5	-0.810	2.040	2.930	0.357	2.021
6	-0.770	2.050	2.920	0.342	2.015
7	-0.450	2.130	2.870	0.253	1.991
8	0.000	2.240	2.800	0.128	1.957
9	0.450	2.325	2.730	0.014	1.912
10	0.760	2.360	2.700	-0.038	1.888
11	0.900	2.390	2.680	-0.073	1.877
12	0.930	2.389	2.676	-0.078	1.872
13	1.040	2.400	2.660	-0.100	1.858
14	1.800	2.495	2.600	-0.220	1.816
15	2.700	2.600	2.540	-0.349	1.773
16	3.600	2.640	2.510	-0.424	1.731
17	4.500	2.650	2.500	-0.468	1.695
18	5.400	2.650	2.510	-0.490	1.673
19	6.300	2.650	2.530	-0.503	1.660
20	7.200	2.650	2.550	-0.515	1.647
21	8.100	2.610	2.600	-0.484	1.646
22	8.470	2.577	2.621	-0.465	1.638
23	8.471	2.576	2.621	-0.465	1.638
24	9.000	2.530	2.650	-0.437	1.628
25	9.900	2.350	2.750	-0.304	1.614
26	10.800	2.050	2.860	-0.112	1.561
27	11.250	1.870	2.920	0.001	1.527
28	11.700	1.670	2.990	0.131	1.494
29	12.150	1.360	3.070	0.315	1.425
30	12.600	1.030	3.150	0.507	1.347
31	13.050	0.570	3.220	0.743	1.208
32	13.260	0.378	3.263	0.853	1.162
33	13.440	0.080	3.300	1.002	1.068
34	13.553	0.000	3.320	1.049	1.049

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 11

Ulykkesdagen tråL i sjøen, lik belastn. s/b

FLOATING CONDITION DATA

Mean Draught (moulded) :	1.669 m
Trim over Lpp (aft +) :	0.912 m
List (starboard +) ... :	14.133 °
Draught, AP (moulded) :	2.125 m
Draught, LCF (moulded) :	1.740 m
Draught, FP (moulded) :	1.212 m

Min. vertical distance to Flood Openings:

- downflooding type .. :	1.239 m

Displacement ..... :	55.452 MT
LCB (rel. AP) ..... :	5.154 m
VCB (rel. BL) ..... :	1.114 m
LCF (rel. AP) ..... :	5.310 m
TPC - Immersion ..... :	0.549 MT/cm
Trim Moment ..... :	0.491 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC) ..... :	2.140 m
Free Surface Correction:	0.009 m
GM (GZ derived) ..... :	-10.969 m

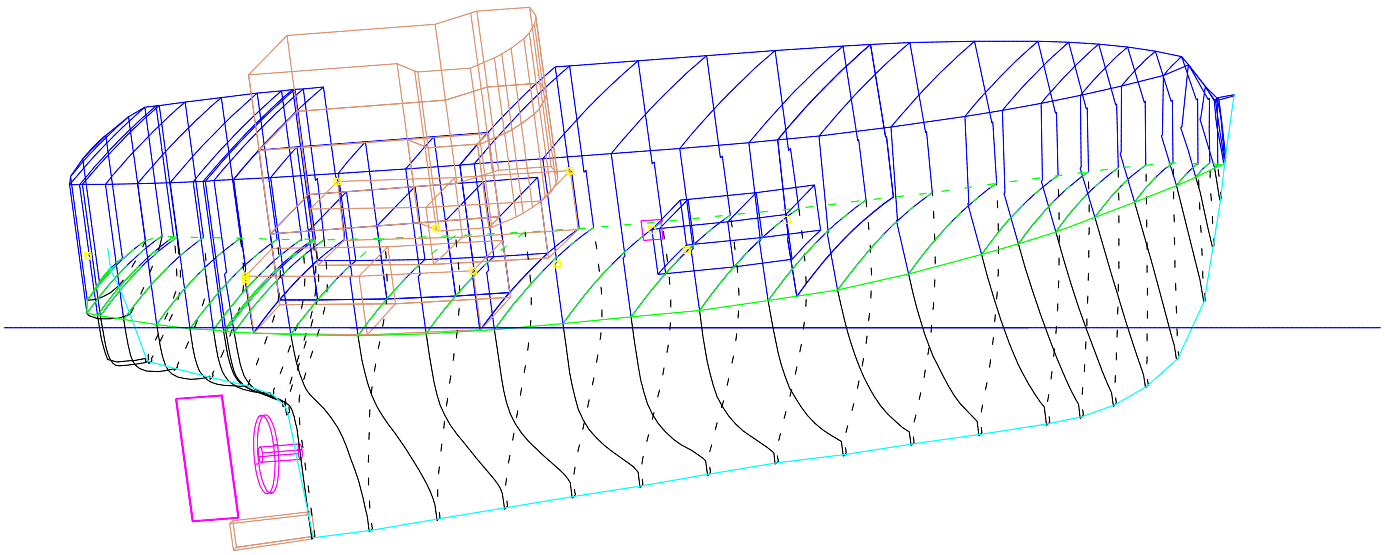
WEIGHT SUMMARY

Mannskap og Proviant :	1.0 MT
TråL i sjøen :	0.4 MT
Vertikalbelastning i trålgalge:	1.6 MT
Forråd_ulykkesdagen :	1.8 MT
Total DEADWEIGHT :	4.9 MT

Water on deck effect is included.

- Amount of water ..... :	6.300 MT

(see separate page for details.)

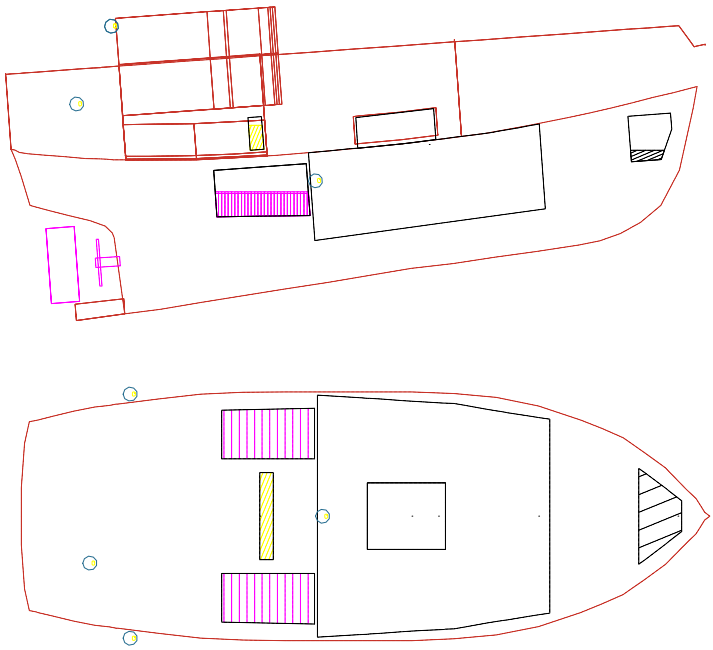


Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics. The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

8. Vann på dekk Carina krenger til styrbord (C11 styrbord 6,3 t VPD på hele dekket)

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen tråd i sjøen, lik belastn. s/b



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråd i sjøen										
-	En tråd på stb. trommel	0.450					0.340	1.000	3.900		
3	Vertikalbelastning i trålgalge (lik s/b)										
-	vert. belastn. styrbord	0.825					1.200	2.600	5.500		
-	vert. belastn. babord	0.825					1.200	-2.600	5.500		
		1.650					1.200	0.000	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.130	1.629	1.560	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.133	-1.539	1.558	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.104	0.089	2.957	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.325	0.084	1.987	0.05	¤
		1.757					4.891	0.056	1.828		
	DEAD WEIGHT	4.857					3.299	0.113	3.282		

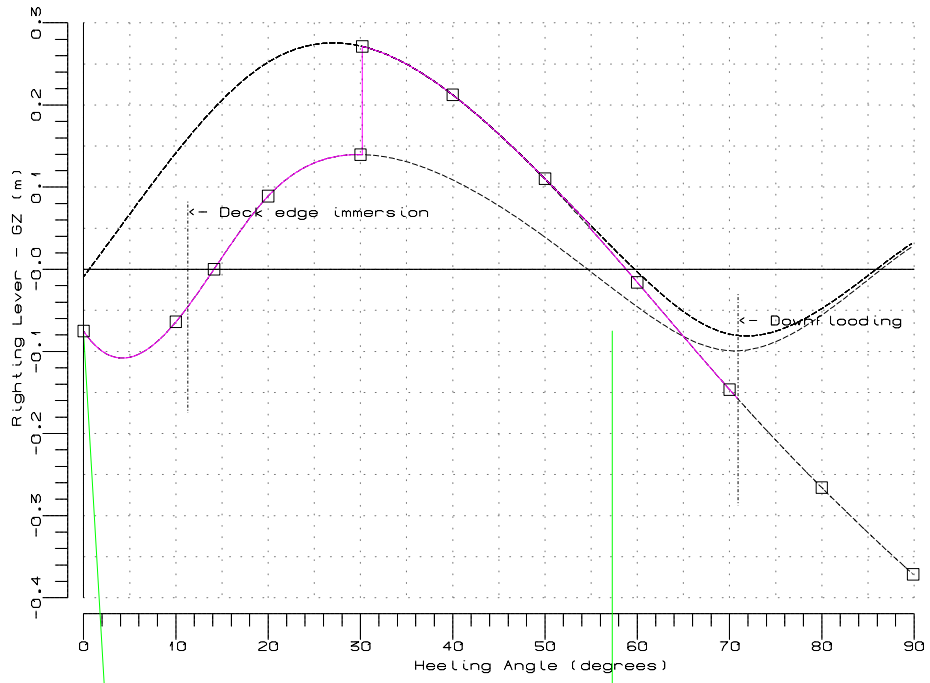
.... to be continued on next page

Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007	
	TOTAL WEIGHT	49.836					5.463	0.011	2.131	

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 11
Condition Id. text : Ulykkesdagen tråd i sjøen, lik belastn. s/b

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.075	-0.0189
10.000	-0.064	-0.0024
14.133	0.000	0.0000
20.000	0.089	0.0048
30.000	0.140	0.0265
30.195	0.271	0.0270
40.000	0.212	0.0692
50.000	0.110	0.0977
60.000	-0.016	0.1063
70.000	-0.146	0.0921
80.000	-0.266	0.0559
89.900	-0.371	0.0006

Downflooding : 70.937 °
Deck immersion : 11.289 °
Maximum GZ at : 30.195 °
Equilibrium at : 14.133 °
Area, 0 - 30 : 0.0454 m*rad
Area, 0 - 40 : 0.0881 m*rad
Area,30 - 40 : 0.0427 m*rad
Area, 0 - maxGZ: 0.0459 m*rad
GM : -10.969 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.009 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - -
FiE = 14.133
FiD = 30.195
FiF = 70.937

Area A = 0.0000
Area B = 0.0692

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.075	-0.067
10.000	-0.064	-0.055
20.000	0.089	0.084
30.000	0.140	0.135
40.000	0.212	0.218
50.000	0.110	0.118
60.000	-0.016	-0.007
70.000	-0.146	-0.137
80.000	-0.266	-0.256
89.900	-0.371	-0.362

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.001
30.000	0.004	0.001
40.000	0.006	0.002
50.000	0.007	0.004
60.000	0.008	0.006
70.000	0.009	0.007
80.000	0.009	0.008
89.900	0.010	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	1.577	1.552
10.000	0.653	0.870	4.149	1.612	1.556
20.000	0.653	0.870	4.154	1.659	1.568
30.000	0.653	0.870	4.156	1.715	1.594
40.000	0.653	0.870	4.154	1.784	1.643
50.000	0.653	0.870	4.153	1.860	1.719
60.000	0.653	0.870	4.151	1.907	1.786
70.000	0.652	0.870	4.148	1.933	1.841
80.000	0.653	0.870	4.144	1.945	1.888
89.900	0.653	0.870	4.137	1.948	1.924
Equilibrium:					
14.133	0.653	0.870	4.130	1.629	1.560

Vertical dist. betw. sea and comp. level at equilibrium : 0.492m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.147	-1.577	1.552
10.000	0.653	0.870	4.149	-1.549	1.555
20.000	0.653	0.870	4.151	-1.524	1.561
30.000	0.653	0.870	4.150	-1.500	1.572
40.000	0.653	0.870	4.146	-1.477	1.589
50.000	0.653	0.870	4.140	-1.452	1.615
60.000	0.653	0.870	4.137	-1.429	1.647
70.000	0.653	0.870	4.133	-1.414	1.681
80.000	0.653	0.870	4.127	-1.404	1.716
89.900	0.653	0.870	4.116	-1.401	1.756
Equilibrium:					
14.133	0.653	0.870	4.133	-1.539	1.558

Vertical dist. betw. sea and comp. level at equilibrium : -0.308m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.075	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
14.133	0.288	0.900	4.104	0.089	2.957

Vertical dist. betw. sea and comp. level at equilibrium : -1.340m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.329	0.060	1.982
20.000	0.164	1.000	12.327	0.126	1.999
30.000	0.164	1.000	12.319	0.206	2.038
40.000	0.164	1.000	12.304	0.304	2.108
50.000	0.164	1.000	12.289	0.385	2.188
60.000	0.164	1.000	12.281	0.436	2.261
70.000	0.164	1.000	12.278	0.467	2.328
80.000	0.164	1.000	12.283	0.484	2.390
89.900	0.164	1.000	12.291	0.489	2.410
Equilibrium:					
14.133	0.164	1.000	12.325	0.084	1.987

Vertical dist. betw. sea and comp. level at equilibrium : -0.807m

8. Vann på dekk Carina krenger til styrbord (C11 styrbord 6,3 t VPD på hele dekket)

WATER ON DECK DATA

Amount of water (t) : 6.300

The water is connected to the following superstructures :

Id. text	Location
Bakk	Upper
"Leveggrom"	Upper
Dekksbrønn akter	Upper
Dekksbrø stb langs dekksh	Epiped

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	6.298	1.783	0.458	2.860
10.000	6.296	2.815	1.688	2.861
20.000	4.528	3.409	2.004	2.824
30.000	3.239	3.715	2.179	2.811
40.000	2.357	3.895	2.292	2.807
50.000	1.614	4.023	2.378	2.797
60.000	1.055	4.199	2.448	2.786
70.000	0.626	4.620	2.515	2.775
80.000	0.329	5.487	2.582	2.798
89.900	0.230	6.763	2.613	2.983

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel.

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 11 ,Ulykkesdagen trål i sjøen, lik belastn. s/b

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	70.94	1.24
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.40	1.37
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	54.80	1.26
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	34.49	0.80
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	36.99	0.99
6	Rekket. bb langs dekksh	Local flood.		1.3	-2.5	3.39	**	1.85
7	Rekket. bb langs dekksh	Local flood.		4.3	-2.6	3.27	**	1.99
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	41.91	0.91
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	30.20	0.62
10	Rekket. stb langs dekksh	Local flood.		1.3	2.5	3.39	33.91	0.65
11	Rekket. stb langs dekksh	Local flood.		4.3	2.6	3.27	32.73	0.72

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 11 ,Ulykkesdagen tråd i sjøen, lik belastn. s/b

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Freeboard Port (m)
1	-1.120	0.000	3.030	0.730	0.730
2	-1.120	0.610	3.030	0.582	0.879
3	-1.050	1.550	3.020	0.348	1.103
4	-0.950	2.010	2.960	0.186	1.165
5	-0.810	2.040	2.930	0.159	1.153
6	-0.770	2.050	2.920	0.150	1.149
7	-0.450	2.130	2.870	0.105	1.143
8	0.000	2.240	2.800	0.043	1.134
9	0.450	2.325	2.730	-0.013	1.120
10	0.760	2.360	2.700	-0.028	1.122
11	0.900	2.390	2.680	-0.044	1.120
12	0.930	2.389	2.676	-0.046	1.118
13	1.040	2.400	2.660	-0.056	1.113
14	1.800	2.495	2.600	-0.082	1.133
15	2.700	2.600	2.540	-0.101	1.166
16	3.600	2.640	2.510	-0.074	1.211
17	4.500	2.650	2.500	-0.022	1.269
18	5.400	2.650	2.510	0.053	1.344
19	6.300	2.650	2.530	0.137	1.428
20	7.200	2.650	2.550	0.222	1.512
21	8.100	2.610	2.600	0.345	1.616
22	9.000	2.530	2.650	0.478	1.710
23	9.900	2.350	2.750	0.683	1.828
24	10.800	2.050	2.860	0.928	1.926
25	11.250	1.870	2.920	1.062	1.973
26	11.700	1.670	2.990	1.211	2.024
27	12.150	1.360	3.070	1.396	2.059
28	12.600	1.030	3.150	1.587	2.088
29	13.050	0.570	3.220	1.799	2.076
30	13.260	0.378	3.263	1.903	2.086
31	13.440	0.080	3.300	2.024	2.063
32	13.553	0.000	3.320	2.071	2.071

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.654 m
Trim over Lpp (aft +)	:	0.549 m
List (starboard +) ...	:	14.332 °
Draught, AP (moulded)	:	1.929 m
Draught, LCF (moulded)	:	1.691 m
Draught, FP (moulded)	:	1.380 m

Min. vertical distance to Flood Openings:
- downflooding type .. : 1.253 m

Displacement	:	53.335 MT
LCB (rel. AP)	:	5.482 m
VCB (rel. BL)	:	1.066 m
LCF (rel. AP)	:	5.456 m
TPC - Immersion	:	0.551 MT/cm
Trim Moment	:	0.498 MT*m/cm

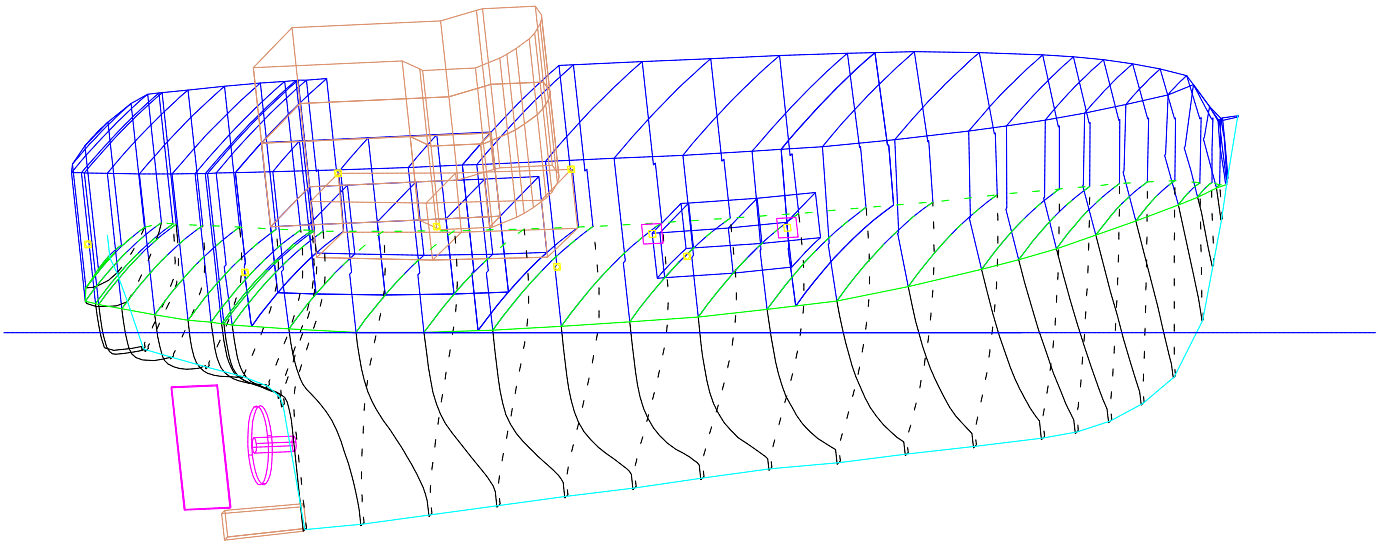
STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	-11.342 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

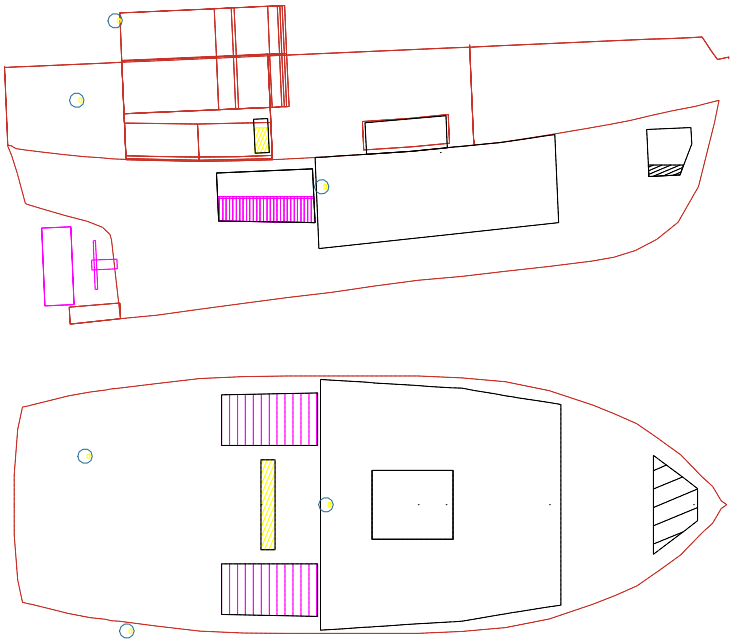
Water on deck effect is included.
- Amount of water ..... : 3.500 MT
(see separate page for details.)



Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics. The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

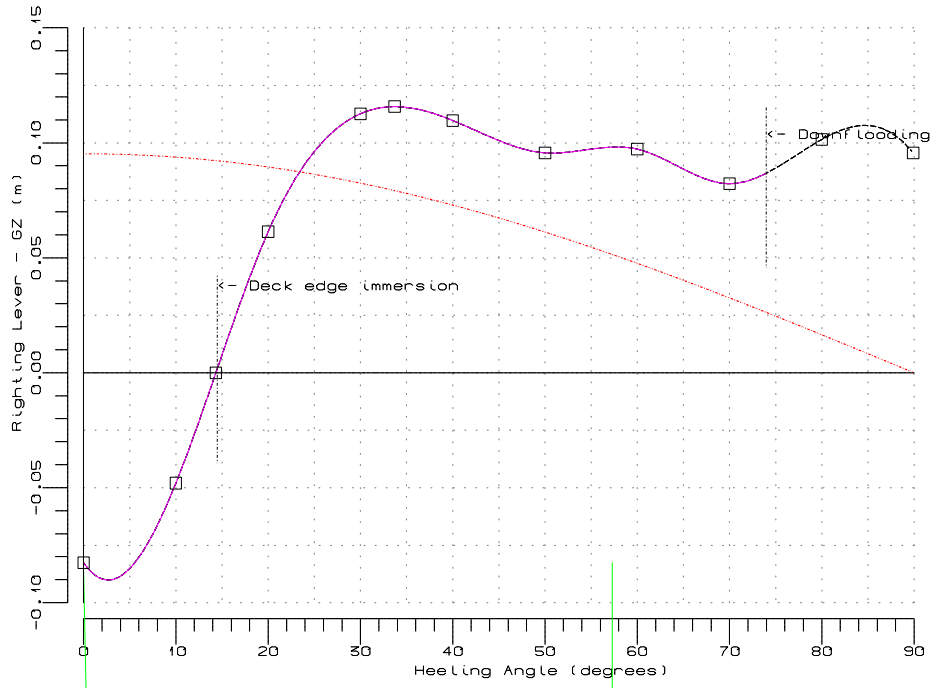
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråd i sjøen										
-	En tråd på stb. trommel	0.450					0.340	-1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.156	1.630	1.559	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.154	-1.538	1.557	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.105	0.090	2.957	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.086	1.987	0.05	¤
		1.757					4.909	0.057	1.827		
	DEAD WEIGHT	4.858					3.306	0.812	3.282		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.079	2.131		

.... to be continued on next page

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.083	-0.0156
10.000	-0.048	-0.0019
14.332	0.000	0.0000
20.000	0.061	0.0032
30.000	0.113	0.0194
33.700	0.116	0.0268
40.000	0.110	0.0393
50.000	0.096	0.0570
60.000	0.097	0.0740
70.000	0.082	0.0895
80.000	0.101	0.1052
89.900	0.096	0.1233

Downflooding : 73.984 °
Deck immersion : 14.492 °
Maximum GZ at : 33.700 °
Equilibrium at : 14.332 °
Area, 0 - 30 : 0.0350 m*rad
Area, 0 - 40 : 0.0549 m*rad
Area,30 - 40 : 0.0199 m*rad
Area, 0 - maxGZ: 0.0424 m*rad
GM : -11.342 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.077 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - - -
FiE = 14.332
FiD = 33.750
FiF = 73.984

Area A = 0.0000
Area B = 0.0393

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.083	-0.077
10.000	-0.048	-0.043
20.000	0.061	0.060
30.000	0.113	0.109
40.000	0.110	0.108
50.000	0.096	0.097
60.000	0.097	0.100
70.000	0.082	0.086
80.000	0.101	0.105
89.900	0.096	0.099

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.000
30.000	0.004	0.001
40.000	0.005	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.006
80.000	0.009	0.008
89.900	0.009	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	1.577	1.552
10.000	0.653	0.870	4.154	1.612	1.555
20.000	0.653	0.870	4.160	1.659	1.568
30.000	0.653	0.870	4.169	1.715	1.594
40.000	0.653	0.870	4.182	1.784	1.642
50.000	0.653	0.870	4.199	1.860	1.718
60.000	0.653	0.870	4.213	1.907	1.784
70.000	0.653	0.870	4.222	1.932	1.839
80.000	0.653	0.870	4.227	1.945	1.884
89.900	0.653	0.870	4.239	1.947	1.920
Equilibrium:					
14.332	0.653	0.870	4.156	1.630	1.559

Vertical dist. betw. sea and comp. level at equilibrium : 0.429m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	-1.577	1.552
10.000	0.653	0.870	4.153	-1.549	1.555
20.000	0.653	0.870	4.156	-1.524	1.561
30.000	0.653	0.870	4.160	-1.500	1.572
40.000	0.653	0.870	4.165	-1.477	1.588
50.000	0.653	0.870	4.174	-1.452	1.614
60.000	0.653	0.870	4.188	-1.429	1.646
70.000	0.653	0.870	4.198	-1.414	1.679
80.000	0.653	0.870	4.207	-1.405	1.714
89.900	0.653	0.870	4.227	-1.403	1.753
Equilibrium:					
14.332	0.653	0.870	4.154	-1.538	1.557

Vertical dist. betw. sea and comp. level at equilibrium : -0.394m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.076	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
14.332	0.288	0.900	4.105	0.090	2.957

Vertical dist. betw. sea and comp. level at equilibrium : -1.418m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.330	0.060	1.982
20.000	0.164	1.000	12.328	0.125	1.999
30.000	0.164	1.000	12.321	0.206	2.038
40.000	0.164	1.000	12.308	0.303	2.106
50.000	0.164	1.000	12.296	0.383	2.187
60.000	0.164	1.000	12.293	0.435	2.260
70.000	0.164	1.000	12.294	0.467	2.328
80.000	0.164	1.000	12.302	0.484	2.394
89.900	0.164	1.000	12.318	0.489	2.453
Equilibrium:					
14.332	0.164	1.000	12.330	0.086	1.987

Vertical dist. betw. sea and comp. level at equilibrium : -0.647m

WATER ON DECK DATA

Amount of water (t) : 3.500

The water is connected to the following superstructures :

Id. text	Location
Bakk	Upper
"Leveggrom"	Upper

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	3.498	5.668	0.000	2.689
10.000	3.498	6.247	1.751	2.777
20.000	3.499	6.536	2.031	2.834
30.000	3.498	6.722	2.148	2.881
40.000	3.497	6.876	2.222	2.928
50.000	3.499	7.042	2.276	2.980
60.000	3.499	7.257	2.320	3.046
70.000	3.498	7.447	2.359	3.143
80.000	3.497	7.656	2.393	3.309
89.900	3.500	8.056	2.386	3.535

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel. .

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	77.03	1.25
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.98	1.33
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	60.47	1.34
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	33.67	0.84
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	35.66	0.97
6	Rekketopp langs dekkshus	Local flood.		1.3	-2.5	3.39	**	2.02
7	Rekketopp langs dekkshus	Local flood.		4.3	-2.6	3.27	**	2.07
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	46.48	1.12
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	33.75	0.76

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.957	0.957
2	-1.120	0.610	3.030	0.807	1.108
3	-1.050	1.550	3.020	0.568	1.334
4	-0.950	2.010	2.960	0.400	1.394
5	-0.810	2.040	2.930	0.370	1.379
6	-0.770	2.050	2.920	0.359	1.373
7	-0.450	2.130	2.870	0.305	1.359
8	0.000	2.240	2.800	0.230	1.338
9	0.450	2.325	2.730	0.160	1.310
10	0.760	2.360	2.700	0.136	1.304
11	0.900	2.390	2.680	0.116	1.298
12	0.930	2.389	2.676	0.113	1.295
13	1.040	2.400	2.660	0.100	1.287
14	1.800	2.495	2.600	0.051	1.285
15	2.700	2.600	2.540	0.006	1.292
16	3.600	2.640	2.510	0.007	1.312
17	4.500	2.650	2.500	0.034	1.344
18	5.400	2.650	2.510	0.083	1.393
19	6.300	2.650	2.530	0.141	1.452
20	7.200	2.650	2.550	0.200	1.510
21	8.100	2.610	2.600	0.297	1.588
22	9.000	2.530	2.650	0.404	1.656
23	9.900	2.350	2.750	0.585	1.747
24	10.800	2.050	2.860	0.805	1.819
25	11.250	1.870	2.920	0.927	1.852
26	11.700	1.670	2.990	1.064	1.890
27	12.150	1.360	3.070	1.237	1.910
28	12.600	1.030	3.150	1.416	1.925
29	13.050	0.570	3.220	1.617	1.899
30	13.260	0.378	3.263	1.715	1.902
31	13.440	0.080	3.300	1.833	1.872
32	13.553	0.000	3.320	1.877	1.877

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.668 m
Trim over Lpp (aft +)	:	0.558 m
List (starboard +) ...	:	13.151 °
Draught, AP (moulded)	:	1.948 m
Draught, LCF (moulded)	:	1.706 m
Draught, FP (moulded)	:	1.389 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.269 m

Displacement	:	53.335 MT
LCB (rel. AP)	:	5.481 m
VCB (rel. BL)	:	1.080 m
LCF (rel. AP)	:	5.441 m
TPC - Immersion	:	0.554 MT/cm
Trim Moment	:	0.499 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.083 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	-11.268 m

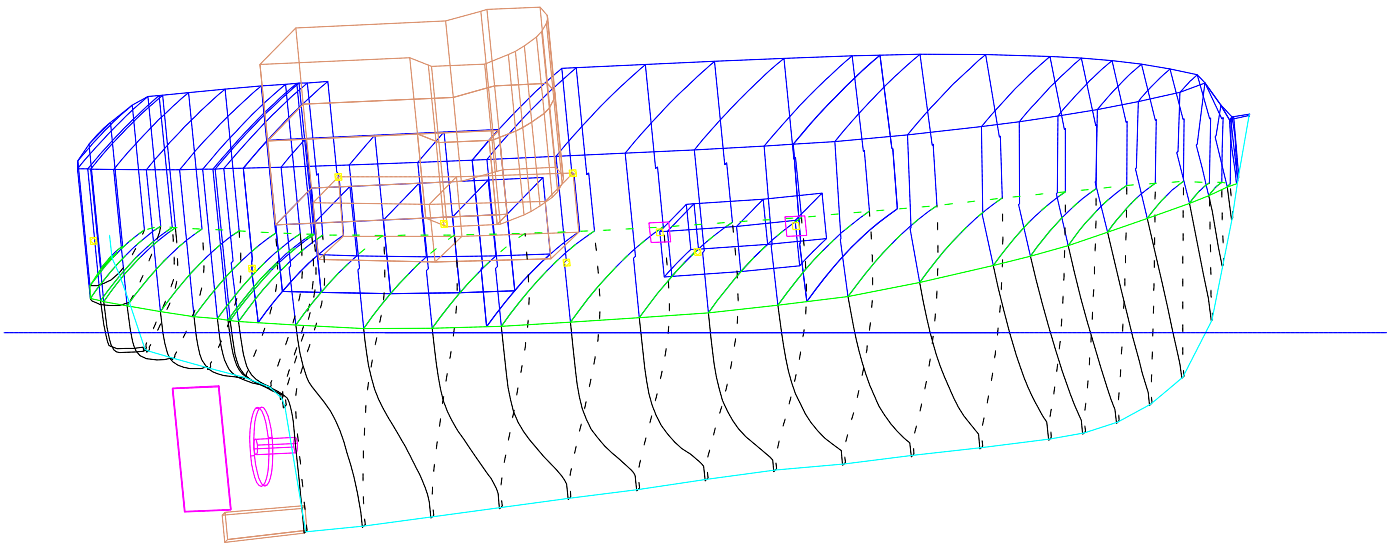
WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Senket trålgalge (ulik s/b)	:	1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

Water on deck effect is included.

- Amount of water	:	3.500 MT

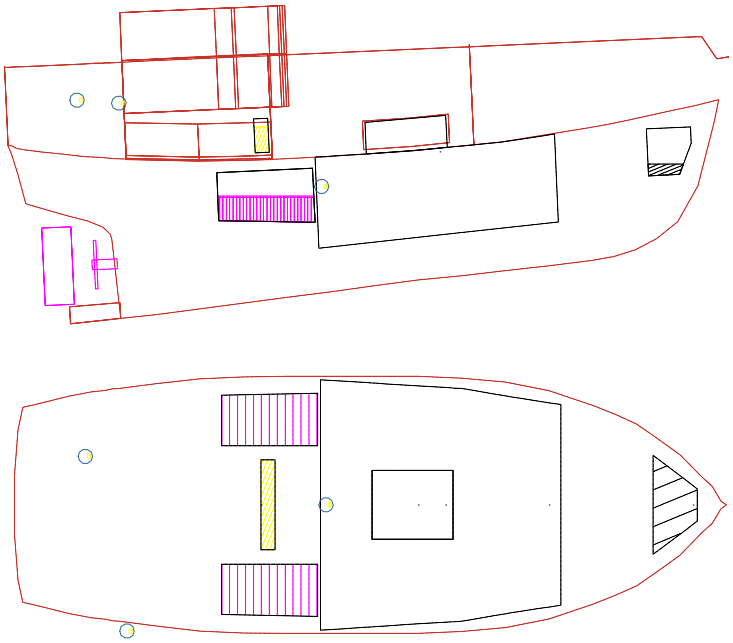
(see separate page for details.)



Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics. The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

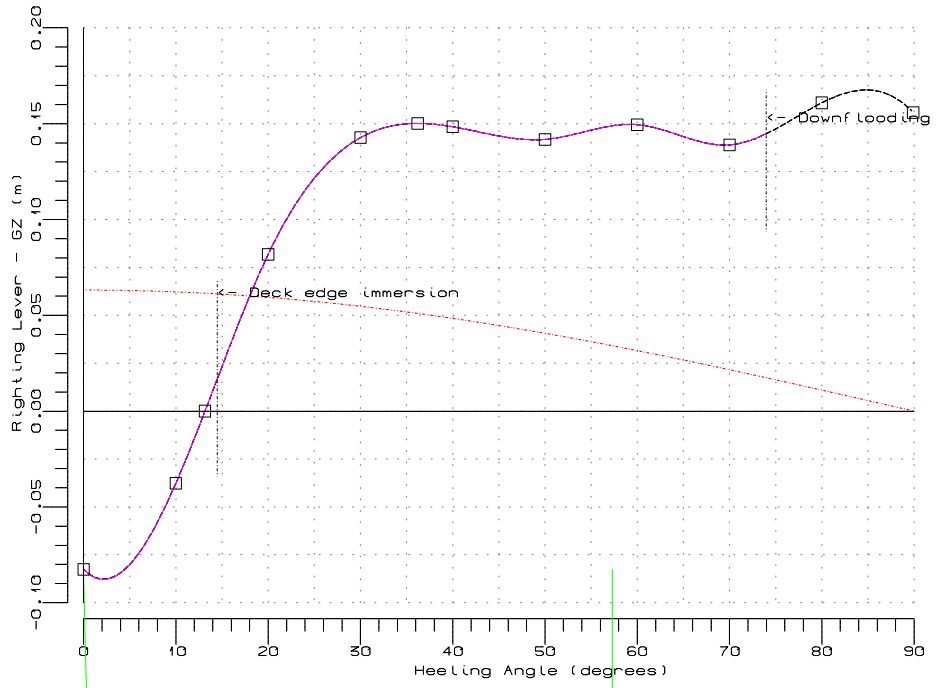
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråd i sjøen										
-	En tråd på stb. trommel	0.450					0.340	-1.000	3.900		
3	Senket trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	3.800		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.156	1.625	1.558	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.154	-1.541	1.556	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.105	0.086	2.956	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.079	1.985	0.05	¤
		1.757					4.909	0.053	1.826		
	DEAD WEIGHT	4.858					3.306	0.810	2.704		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.079	2.075		

.... to be continued on next page

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.083	-0.0139
10.000	-0.038	-0.0011
13.151	0.000	0.0000
20.000	0.082	0.0051
30.000	0.143	0.0257
36.200	0.150	0.0417
40.000	0.148	0.0516
50.000	0.142	0.0768
60.000	0.150	0.1023
70.000	0.139	0.1274
80.000	0.161	0.1533
89.900	0.156	0.1817

Downflooding : 73.984 °
Deck immersion : 14.492 °
Maximum GZ at : 36.200 °
Equilibrium at : 13.151 °
Area, 0 - 30 : 0.0396 m*rad
Area, 0 - 40 : 0.0655 m*rad
Area,30 - 40 : 0.0259 m*rad
Area, 0 - maxGZ: 0.0556 m*rad
GM : -11.268 m

Heel to starboard side
Applied VCG : 2.075 m
TCG : 0.077 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - -
FiE = 13.151
FiD = 33.750
FiF = 73.984

Area A = 0.0000
Area B = 0.0516

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.083	-0.077
10.000	-0.038	-0.034
20.000	0.082	0.079
30.000	0.143	0.138
40.000	0.148	0.145
50.000	0.142	0.140
60.000	0.150	0.149
70.000	0.139	0.139
80.000	0.161	0.160
89.900	0.156	0.155

The corrected GZ-values are calculated according to the movement of the liquid centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.000
30.000	0.004	0.001
40.000	0.005	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.006
80.000	0.009	0.008
89.900	0.009	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	1.577	1.552
10.000	0.653	0.870	4.154	1.612	1.555
20.000	0.653	0.870	4.161	1.659	1.568
30.000	0.653	0.870	4.170	1.715	1.594
40.000	0.653	0.870	4.182	1.784	1.642
50.000	0.653	0.870	4.199	1.860	1.718
60.000	0.653	0.870	4.213	1.907	1.784
70.000	0.653	0.870	4.222	1.932	1.839
80.000	0.653	0.870	4.227	1.945	1.884
89.900	0.653	0.870	4.239	1.947	1.920
Equilibrium:					
13.151	0.653	0.870	4.156	1.625	1.558

Vertical dist. betw. sea and comp. level at equilibrium : 0.402m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	-1.577	1.552
10.000	0.653	0.870	4.153	-1.549	1.555
20.000	0.653	0.870	4.156	-1.524	1.561
30.000	0.653	0.870	4.160	-1.500	1.572
40.000	0.653	0.870	4.165	-1.477	1.588
50.000	0.653	0.870	4.174	-1.452	1.614
60.000	0.653	0.870	4.188	-1.429	1.646
70.000	0.653	0.870	4.198	-1.414	1.679
80.000	0.653	0.870	4.207	-1.405	1.714
89.900	0.653	0.870	4.227	-1.403	1.753
Equilibrium:					
13.151	0.653	0.870	4.154	-1.541	1.556

Vertical dist. betw. sea and comp. level at equilibrium : -0.355m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.076	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
13.151	0.288	0.900	4.105	0.086	2.956

Vertical dist. betw. sea and comp. level at equilibrium : -1.412m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.330	0.060	1.982
20.000	0.164	1.000	12.328	0.125	1.999
30.000	0.164	1.000	12.321	0.206	2.038
40.000	0.164	1.000	12.308	0.303	2.106
50.000	0.164	1.000	12.296	0.383	2.187
60.000	0.164	1.000	12.293	0.435	2.260
70.000	0.164	1.000	12.294	0.467	2.328
80.000	0.164	1.000	12.301	0.484	2.394
89.900	0.164	1.000	12.318	0.489	2.453
Equilibrium:					
13.151	0.164	1.000	12.330	0.079	1.985

Vertical dist. betw. sea and comp. level at equilibrium : -0.649m

WATER ON DECK DATA

Amount of water (t) : 3.500

The water is connected to the following superstructures :

Id. text	Location
Bakk	Upper
"Leveggrom"	Upper

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	3.498	5.670	0.000	2.689
10.000	3.498	6.249	1.751	2.777
20.000	3.499	6.537	2.031	2.834
30.000	3.498	6.723	2.149	2.881
40.000	3.497	6.877	2.222	2.928
50.000	3.499	7.042	2.276	2.980
60.000	3.499	7.256	2.320	3.046
70.000	3.498	7.446	2.359	3.143
80.000	3.497	7.655	2.393	3.309
89.900	3.500	8.056	2.386	3.535

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel. .

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	77.03	1.27
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	73.98	1.35
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	60.47	1.38
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	33.67	0.89
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	35.66	1.02
6	Rekketopp langs dekkshus	Local flood.		1.3	-2.5	3.39	**	1.97
7	Rekketopp langs dekkshus	Local flood.		4.3	-2.6	3.27	**	2.02
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	46.48	1.16
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	33.75	0.81

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.952	0.952
2	-1.120	0.610	3.030	0.814	1.091
3	-1.050	1.550	3.020	0.593	1.298
4	-0.950	2.010	2.960	0.435	1.349
5	-0.810	2.040	2.930	0.405	1.333
6	-0.770	2.050	2.920	0.395	1.327
7	-0.450	2.130	2.870	0.342	1.311
8	0.000	2.240	2.800	0.269	1.287
9	0.450	2.325	2.730	0.202	1.259
10	0.760	2.360	2.700	0.178	1.251
11	0.900	2.390	2.680	0.158	1.245
12	0.930	2.389	2.676	0.155	1.242
13	1.040	2.400	2.660	0.143	1.234
14	1.800	2.495	2.600	0.096	1.231
15	2.700	2.600	2.540	0.054	1.236
16	3.600	2.640	2.510	0.055	1.256
17	4.500	2.650	2.500	0.083	1.288
18	5.400	2.650	2.510	0.133	1.338
19	6.300	2.650	2.530	0.192	1.397
20	7.200	2.650	2.550	0.251	1.456
21	8.100	2.610	2.600	0.349	1.536
22	9.000	2.530	2.650	0.456	1.606
23	9.900	2.350	2.750	0.634	1.702
24	10.800	2.050	2.860	0.849	1.781
25	11.250	1.870	2.920	0.968	1.818
26	11.700	1.670	2.990	1.102	1.861
27	12.150	1.360	3.070	1.270	1.888
28	12.600	1.030	3.150	1.443	1.911
29	13.050	0.570	3.220	1.635	1.894
30	13.260	0.378	3.263	1.730	1.902
31	13.440	0.080	3.300	1.842	1.878
32	13.553	0.000	3.320	1.884	1.884

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.659 m
Trim over Lpp (aft +)	:	0.577 m
List (starboard +) ...	:	13.797 °
Draught, AP (moulded)	:	1.948 m
Draught, LCF (moulded)	:	1.702 m
Draught, FP (moulded)	:	1.371 m

Min. vertical distance to Flood Openings:

- downflooding type ..	:	1.261 m

Displacement	:	53.335 MT
LCB (rel. AP)	:	5.458 m
VCB (rel. BL)	:	1.074 m
LCF (rel. AP)	:	5.363 m
TPC - Immersion	:	0.546 MT/cm
Trim Moment	:	0.496 MT*m/cm

STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.140 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	-11.279 m

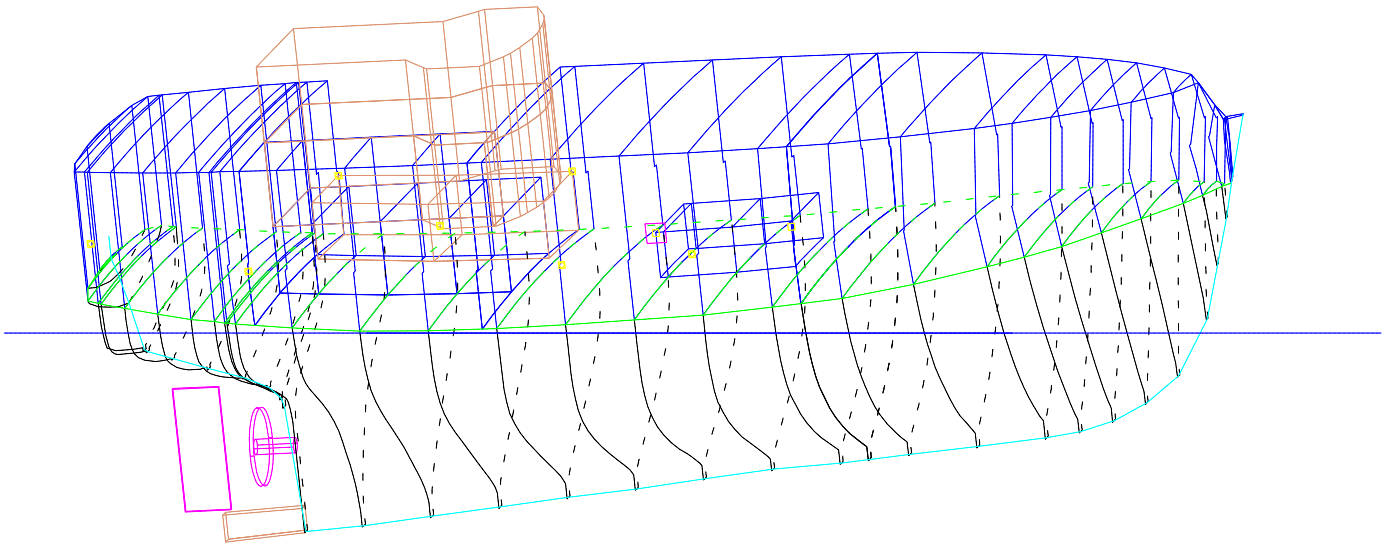
WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Vertikalbelastning i trålgalge:		1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

Water on deck effect is included.

- Amount of water	:	3.500 MT

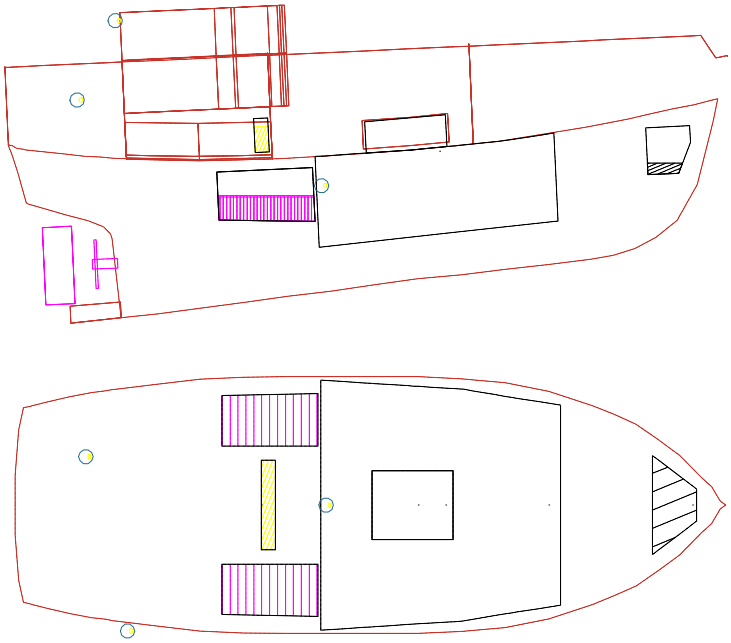
(see separate page for details.)



Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics. The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

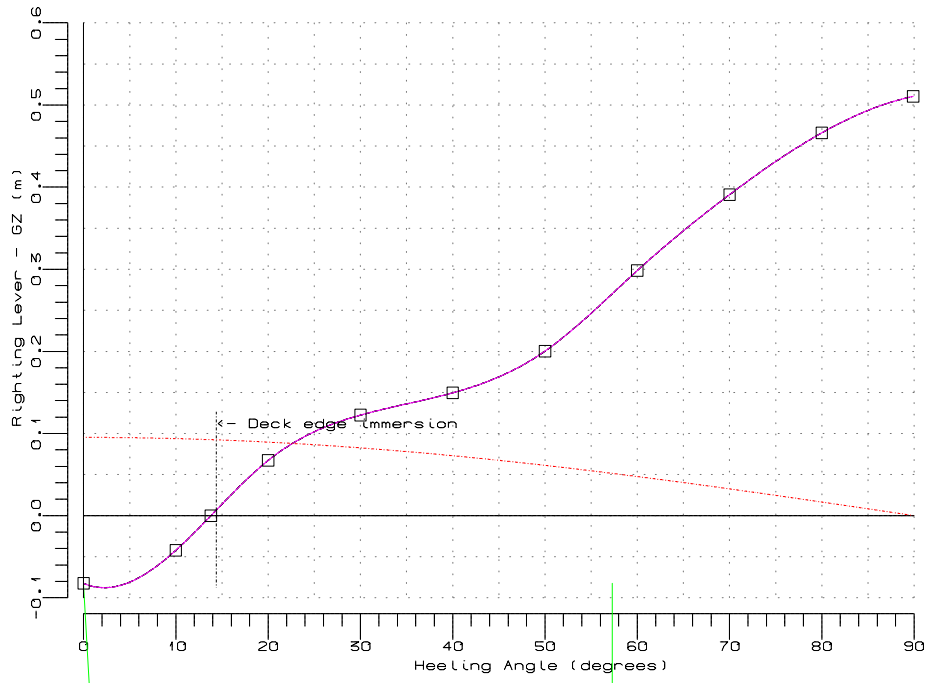
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Tråd i sjøen										
-	En tråd på stb. trommel	0.450					0.340	-1.000	3.900		
3	Vertikalbelastning i trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	5.500		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.154	1.628	1.559	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.153	-1.540	1.557	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.105	0.088	2.957	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.329	0.083	1.986	0.05	¤
		1.757					4.908	0.055	1.827		
	DEAD WEIGHT	4.858					3.305	0.811	3.282		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.079	2.131		

.... to be continued on next page

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.083	-0.0145
10.000	-0.042	-0.0014
13.797	0.000	0.0000
20.000	0.067	0.0038
30.000	0.122	0.0212
40.000	0.149	0.0449
50.000	0.200	0.0747
60.000	0.298	0.1179
70.000	0.391	0.1783
80.000	0.466	0.2534
89.900	0.510	0.3384

Deck immersion : 14.375 °
Maximum GZ at : 89.900 °
Equilibrium at : 13.797 °
Area, 0 - 30 : 0.0357 m*rad
Area, 0 - 40 : 0.0594 m*rad
Area,30 - 40 : 0.0237 m*rad
Area, 0 - maxGZ: 0.3528 m*rad
GM : -11.279 m

Heel to starboard side
Applied VCG : 2.131 m
TCG : 0.077 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - -
FiE = 13.797
FiD = 33.281
FiF = 99.999

Area A = 0.0000
Area B = 0.0449

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.083	-0.077
10.000	-0.042	-0.038
20.000	0.067	0.066
30.000	0.122	0.119
40.000	0.149	0.146
50.000	0.200	0.195
60.000	0.298	0.288
70.000	0.391	0.375
80.000	0.466	0.445
89.900	0.510	0.486

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.000
30.000	0.004	0.001
40.000	0.005	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.006
80.000	0.009	0.008
89.900	0.009	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	1.577	1.552
10.000	0.653	0.870	4.152	1.612	1.555
20.000	0.653	0.870	4.158	1.659	1.568
30.000	0.653	0.870	4.165	1.715	1.594
40.000	0.653	0.870	4.171	1.784	1.642
50.000	0.653	0.870	4.174	1.860	1.719
60.000	0.653	0.870	4.174	1.908	1.786
70.000	0.653	0.870	4.165	1.933	1.840
80.000	0.653	0.870	4.150	1.946	1.888
89.900	0.653	0.870	4.146	1.949	1.924
Equilibrium:					
13.797	0.653	0.870	4.154	1.628	1.559

Vertical dist. betw. sea and comp. level at equilibrium : 0.420m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	-1.577	1.552
10.000	0.653	0.870	4.151	-1.549	1.555
20.000	0.653	0.870	4.155	-1.524	1.561
30.000	0.653	0.870	4.157	-1.500	1.572
40.000	0.653	0.870	4.157	-1.477	1.589
50.000	0.653	0.870	4.155	-1.452	1.614
60.000	0.653	0.870	4.155	-1.429	1.647
70.000	0.653	0.870	4.148	-1.413	1.680
80.000	0.653	0.870	4.133	-1.404	1.716
89.900	0.653	0.870	4.125	-1.401	1.755
Equilibrium:					
13.797	0.653	0.870	4.153	-1.540	1.557

Vertical dist. betw. sea and comp. level at equilibrium : -0.374m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.076	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
13.797	0.288	0.900	4.105	0.088	2.957

Vertical dist. betw. sea and comp. level at equilibrium : -1.412m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.330	0.060	1.982
20.000	0.164	1.000	12.328	0.126	1.999
30.000	0.164	1.000	12.321	0.206	2.038
40.000	0.164	1.000	12.306	0.303	2.107
50.000	0.164	1.000	12.292	0.384	2.188
60.000	0.164	1.000	12.285	0.436	2.261
70.000	0.164	1.000	12.281	0.467	2.328
80.000	0.164	1.000	12.284	0.484	2.390
89.900	0.164	1.000	12.293	0.489	2.401
Equilibrium:					
13.797	0.164	1.000	12.329	0.083	1.986

Vertical dist. betw. sea and comp. level at equilibrium : -0.662m

WATER ON DECK DATA

Amount of water (t) : 3.500

The water is connected to the following superstructures :

Id. text	Location
"Leveggrom"	Upper

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	3.498	5.667	0.000	2.689
10.000	3.498	6.008	1.677	2.784
20.000	3.499	6.143	1.962	2.849
30.000	3.497	6.211	2.083	2.902
40.000	3.498	6.249	2.162	2.955
50.000	3.498	6.272	2.224	3.016
60.000	3.499	6.287	2.279	3.095
70.000	3.499	6.268	2.333	3.215
80.000	3.503	6.230	2.376	3.378
89.900	3.501	6.229	2.390	3.536

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel. .

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	**	1.26
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	**	1.34
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	60.86	1.35
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	33.75	0.86
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	36.05	0.99
6	Rekketopp langs dekkshus	Local flood.		1.3	-2.5	3.39	**	1.99
7	Rekketopp langs dekkshus	Local flood.		4.3	-2.6	3.27	**	2.04
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	44.57	1.13
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	33.28	0.78

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Freeboard Port (m)
1	-1.120	0.000	3.030	0.942	0.942
2	-1.120	0.610	3.030	0.797	1.088
3	-1.050	1.550	3.020	0.567	1.305
4	-0.950	2.010	2.960	0.403	1.361
5	-0.810	2.040	2.930	0.374	1.346
6	-0.770	2.050	2.920	0.363	1.340
7	-0.450	2.130	2.870	0.310	1.325
8	0.000	2.240	2.800	0.237	1.304
9	0.450	2.325	2.730	0.169	1.277
10	0.760	2.360	2.700	0.146	1.271
11	0.900	2.390	2.680	0.126	1.265
12	0.930	2.389	2.676	0.123	1.262
13	1.040	2.400	2.660	0.111	1.254
14	1.800	2.495	2.600	0.064	1.253
15	2.700	2.600	2.540	0.022	1.261
16	3.600	2.640	2.510	0.025	1.283
17	4.500	2.650	2.500	0.054	1.317
18	5.400	2.650	2.510	0.105	1.368
19	6.300	2.650	2.530	0.166	1.428
20	7.200	2.650	2.550	0.226	1.489
21	8.100	2.610	2.600	0.325	1.569
22	8.470	2.577	2.621	0.370	1.598
23	8.471	2.477	4.640	2.353	3.533
24	9.000	2.430	4.640	2.389	3.546
25	9.900	2.230	4.640	2.477	3.540
26	10.800	1.950	4.640	2.585	3.515
27	11.250	1.770	4.640	2.649	3.492
28	11.700	1.540	4.640	2.724	3.458
29	12.150	1.261	4.640	2.811	3.412
30	12.600	0.906	4.640	2.917	3.348
31	13.050	0.491	4.640	3.036	3.270
32	13.260	0.002	4.640	3.162	3.163
33	13.440	0.001	4.345	2.884	2.885
34	13.570	0.080	4.168	2.700	2.738
35	13.790	0.040	4.200	2.750	2.769
36	13.796	0.000	4.200	2.760	2.760

Freeboard is vertical distance from deck point to sea at equilibrium.

Loading Condition no. : 13

Som 12, 15 gr. giring, 5,08 tm

FLOATING CONDITION DATA

Mean Draught (moulded)	:	1.672 m
Trim over Lpp (aft +)	:	0.585 m
List (starboard +) ...	:	12.660 °
Draught, AP (moulded)	:	1.965 m
Draught, LCF (moulded)	:	1.714 m
Draught, FP (moulded)	:	1.380 m

Min. vertical distance to Flood Openings:
- downflooding type .. : 1.277 m

Displacement	:	53.335 MT
LCB (rel. AP)	:	5.459 m
VCB (rel. BL)	:	1.087 m
LCF (rel. AP)	:	5.414 m
TPC - Immersion	:	0.555 MT/cm
Trim Moment	:	0.497 MT*m/cm

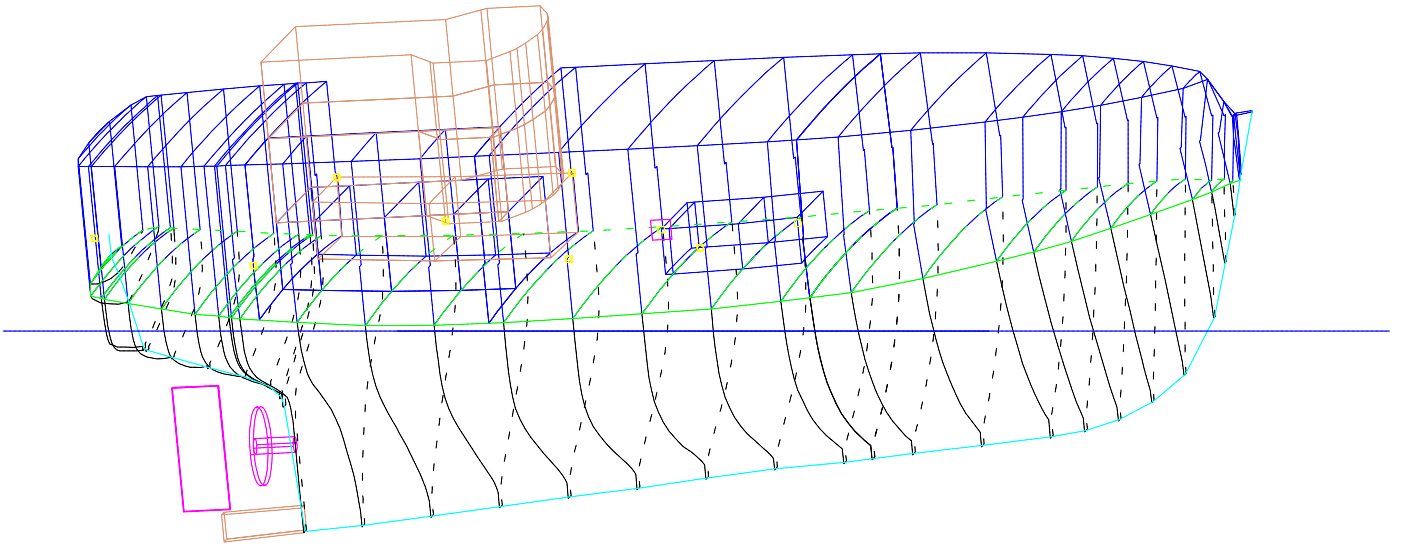
STABILITY DATA/CONTROL

KG (incl. FSC)	:	2.083 m
Free Surface Correction:		0.009 m
GM (GZ derived)	:	-11.215 m

WEIGHT SUMMARY

Mannskap og Proviant	:	1.0 MT
Trål i sjøen	:	0.4 MT
Senket trålgalge (ulik s/b)	:	1.7 MT
Forråd ulykkesdagen	:	1.8 MT
Total DEADWEIGHT	:	4.9 MT

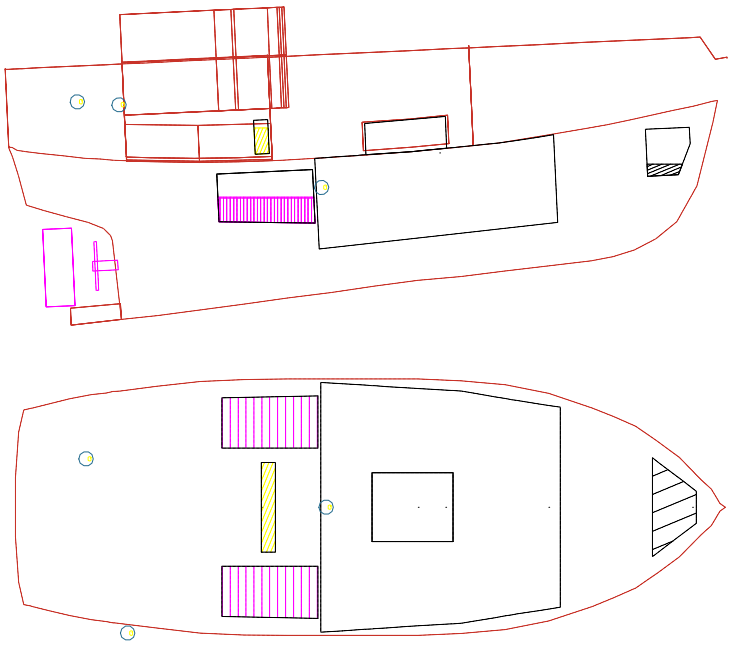
Water on deck effect is included.
- Amount of water ..... : 3.500 MT
(see separate page for details.)



Water Density = 1.025 t/m3

Please note !
-Floating data are based on iterations incorporating calculation of exact list (heel giving zero righting lever).
-The GM value is NOT calculated by use of KG (or VCG) ,incl. free surface moment effect, and KMT from the hydrostatics. The calculation of GM is made by finding the tangency line of the GZ-curve at upright vessel.
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated in the equilibrium calculation.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm



○ - UNIT LOADS

Cargo | Diesel Oil | Lubr. Oil | Fresh Water

WEIGHT LOADS

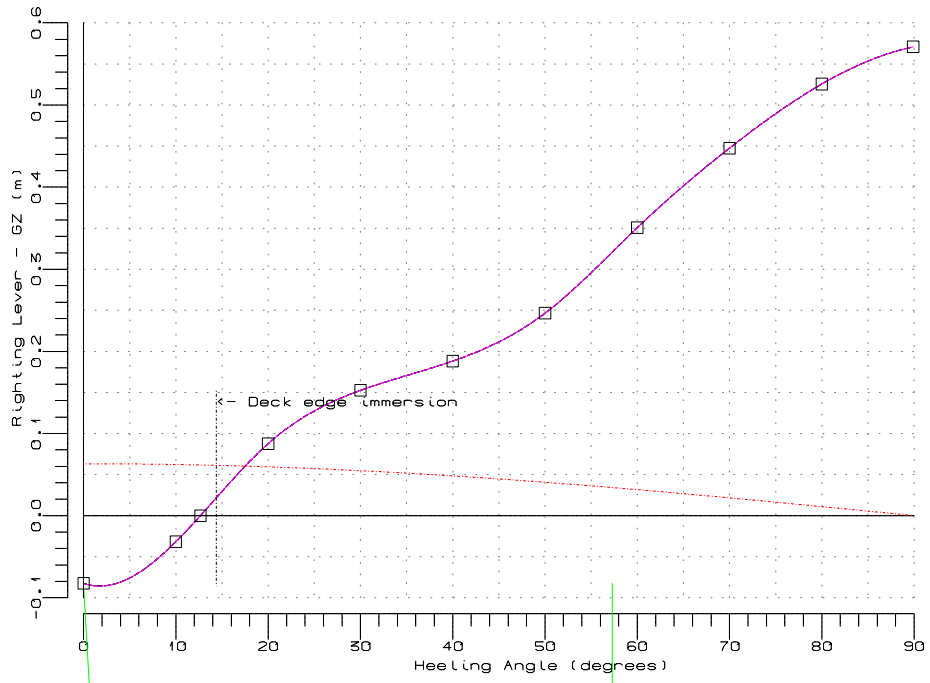
Part no.	Id.text	Weight (MT)	Load (%)	Density (MT/m3)	Distribution Aft (m)	Distribution Fore (m)	LCG (m)	TCG (m)	VCG (m)	FSCT Moment (MT*m)	
1	Mannskap og Proviant										
-	CPS	1.000					5.300	0.000	1.900		
2	Trål i sjøen										
-	En trål på stb. trommel	0.450					0.340	-1.000	3.900		
3	Senket trålgalge (ulik s/b)										
-	vert. belastn. styrbord	1.651					1.200	2.600	3.800		
4	Forråd ulykkesdagen										
-	Brennolje Stb	0.653	42.9	0.8700	3.15	5.13	4.154	1.623	1.557	0.12	¤
-	Brennolje Bab	0.653	42.9	0.8700	3.15	5.13	4.152	-1.542	1.556	0.12	¤
-	Smøreolje	0.288	85.0	0.9000	3.96	4.25	4.105	0.085	2.956	0.14	¤
-	Ferskvann	0.164	20.0	1.0000	12.04	12.95	12.330	0.076	1.985	0.05	¤
		1.757					4.908	0.051	1.826		
	DEAD WEIGHT	4.858					3.305	0.809	2.704		
	LIGHT WEIGHT, 05June2014	44.979					5.697	0.000	2.007		
	TOTAL WEIGHT	49.837					5.464	0.079	2.075		

.... to be continued on next page

¤) The centre of the liquid in these tanks are allowed to shift with heel. The effect from this is incorporated in the calculated GZ-values. The moment of inertia from these tanks are not used to calculate a constant Free Surface Moment applied to artificially raise the VCG applied in the calculations of GZ-values.

Loading Condition no. : 13
Condition Id. text : Som 12, 15 gr. giring, 5,08 tm

INTACT STABILITY DATA (GZ-curve, Areas, Particulars & Criteria Control)



Angle (degr.)	GZ (m)	Area (m*rad)
0.000	-0.083	-0.0129
10.000	-0.032	-0.0008
12.660	0.000	0.0000
20.000	0.088	0.0058
30.000	0.152	0.0276
40.000	0.188	0.0574
50.000	0.246	0.0946
60.000	0.351	0.1464
70.000	0.448	0.2163
80.000	0.526	0.3016
89.900	0.571	0.3969

Deck immersion : 14.375 °
Maximum GZ at : 89.900 °
Equilibrium at : 12.660 °
Area, 0 - 30 : 0.0405 m*rad
Area, 0 - 40 : 0.0703 m*rad
Area,30 - 40 : 0.0298 m*rad
Area, 0 - maxGZ: 0.4098 m*rad
GM : -11.215 m

Heel to starboard side
Applied VCG : 2.075 m
TCG : 0.077 m

Stability control with Water on Deck

Applied stability control is made in accordance with NMD requirements.

The calculated GZ-curve is a residual righting lever curve summarized from
the righting and heeling levers. When the points of the residual curve
is less than zero, the heeling levers are greater than the righting levers.

The stability criteria may be defined as follows:
- -
The area between the heeling and righting moment curves in the heeling
angle range <0.0,min(FiE,FiD> must be less or equal to the residual lever area
in the heeling range <min(FiE,FiD>,min(40.0,FiF>. (Area A less or equal to Area B)

FiE = heeling angle for equilibrium.
FiD = heeling angle for flooding of deck.
FiF = heeling angle for downflooding of vessel.

Actual values:
- - - - - - -
FiE = 12.660
FiD = 33.320
FiF = 99.999

Area A = 0.0000
Area B = 0.0574

Stability is OK

Please note !

-The calculation of GM is made by finding the tangency line of the GZ-curve for upright vessel (zero heel).
-The centre of the liquid in some or all tanks are allowed to shift with heel. The effect from this is incorporated
in the calculation of GZ-values. The moment of inertia from these tanks are not contributing to the constant
"Free Surface Moment" applied to artificially raise the VCG applied in the calculation of GZ-values

FREE SURFACE EFFECTS ON GZ-VALUES

Angle of heel (degrees)	GZ-values with corr. (m)	GZ-values without corr. (m)
0.000	-0.083	-0.077
10.000	-0.032	-0.028
20.000	0.088	0.085
30.000	0.152	0.147
40.000	0.188	0.182
50.000	0.246	0.238
60.000	0.351	0.337
70.000	0.448	0.428
80.000	0.526	0.501
89.900	0.571	0.543

The corrected GZ-values are calculated
according to the movement of the liquid
centers of the compartments listed below.

MOVEMENT OF C.O.G. FOR THE SHIP TOTAL

Movement of center of gravity compared
to zero heel and initial trim.

Angle of heel (degrees)	Transversal movement (m)	Vertical movement (m)
0.000	0.000	0.000
10.000	0.001	0.000
20.000	0.003	0.000
30.000	0.004	0.001
40.000	0.005	0.002
50.000	0.007	0.004
60.000	0.008	0.005
70.000	0.009	0.006
80.000	0.009	0.008
89.900	0.009	0.009

Compartment no. 2 Id. text : Brennolje Stb

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	1.577	1.552
10.000	0.653	0.870	4.153	1.612	1.555
20.000	0.653	0.870	4.158	1.659	1.568
30.000	0.653	0.870	4.165	1.715	1.594
40.000	0.653	0.870	4.171	1.784	1.642
50.000	0.653	0.870	4.174	1.860	1.719
60.000	0.653	0.870	4.174	1.908	1.786
70.000	0.653	0.870	4.165	1.933	1.840
80.000	0.653	0.870	4.150	1.946	1.888
89.900	0.653	0.870	4.146	1.949	1.924
Equilibrium:					
12.660	0.653	0.870	4.154	1.623	1.557

Vertical dist. betw. sea and comp. level at equilibrium : 0.393m

Compartment no. 3 Id. text : Brennolje Bab

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.653	0.870	4.149	-1.577	1.552
10.000	0.653	0.870	4.152	-1.549	1.555
20.000	0.653	0.870	4.155	-1.524	1.561
30.000	0.653	0.870	4.157	-1.500	1.572
40.000	0.653	0.870	4.157	-1.477	1.589
50.000	0.653	0.870	4.156	-1.452	1.614
60.000	0.653	0.870	4.155	-1.429	1.647
70.000	0.653	0.870	4.148	-1.413	1.680
80.000	0.653	0.870	4.134	-1.404	1.716
89.900	0.653	0.870	4.125	-1.401	1.755
Equilibrium:					
12.660	0.653	0.870	4.152	-1.542	1.556

Vertical dist. betw. sea and comp. level at equilibrium : -0.336m

Compartment no. 5 Id. text : Smøreolje

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.288	0.900	4.104	0.000	2.948
10.000	0.288	0.900	4.105	0.076	2.954
20.000	0.288	0.900	4.105	0.102	2.961
30.000	0.288	0.900	4.105	0.114	2.966
40.000	0.288	0.900	4.105	0.122	2.972
50.000	0.288	0.900	4.105	0.129	2.978
60.000	0.288	0.900	4.105	0.133	2.985
70.000	0.288	0.900	4.105	0.136	2.991
80.000	0.288	0.900	4.105	0.137	2.995
89.900	0.288	0.900	4.105	0.138	3.000
Equilibrium:					
12.660	0.288	0.900	4.105	0.085	2.956

Vertical dist. betw. sea and comp. level at equilibrium : -1.407m

Compartment no. 4 Id. text : Ferskvann

Angle of heel (degrees)	Weight in tank (tonnes)	Specific weight (t/m**3)	Gravity coordinates X (m)	Y (m)	Z (m)
0.000	0.164	1.000	12.330	0.000	1.976
10.000	0.164	1.000	12.330	0.060	1.982
20.000	0.164	1.000	12.328	0.126	1.999
30.000	0.164	1.000	12.321	0.206	2.038
40.000	0.164	1.000	12.306	0.303	2.107
50.000	0.164	1.000	12.292	0.384	2.188
60.000	0.164	1.000	12.285	0.436	2.261
70.000	0.164	1.000	12.281	0.467	2.328
80.000	0.164	1.000	12.284	0.484	2.390
89.900	0.164	1.000	12.293	0.489	2.401
Equilibrium:					
12.660	0.164	1.000	12.330	0.076	1.985

Vertical dist. betw. sea and comp. level at equilibrium : -0.663m

WATER ON DECK DATA

Amount of water (t) : 3.500

The water is connected to the following superstructures :

Id. text	Location
"Leveggrom"	Upper

Results from calculations (total) :

Angle of heel (degrees)	Weight of water (tonnes)	Gravity coordinates LCG (m)	TCG (m)	VCG (m)
0.000	3.498	5.669	0.000	2.689
10.000	3.498	6.009	1.677	2.784
20.000	3.499	6.144	1.962	2.849
30.000	3.497	6.211	2.083	2.902
40.000	3.498	6.249	2.162	2.955
50.000	3.498	6.272	2.224	3.016
60.000	3.499	6.287	2.279	3.095
70.000	3.499	6.268	2.333	3.215
80.000	3.503	6.230	2.376	3.378
89.900	3.501	6.229	2.390	3.536

Please note that calc. results for angles greater than flooding angle may not be correct if the actual flood opening is of type "local flooding".

If any of the mentioned superstructures are connected to a "local flooding" flood opening, the "water on deck effect" will be removed in the calculations once this opening is underneath water. Furthermore, water on deck may flood out of the same opening during heel. .

Please note that if equilibrium is found at an angle where the GZ-curve makes a leap upwards due to the loss of "water on deck" effect, the data representing equilibrium is found without the weight of water on deck inlcuded.

Flood Opening Results

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	Identification text	Type	OvFl Syst	X (m)	Y (m)	Z (m)	Flooding Angle (degr)	Above Sea (m)
1	Lasteluke akterkant	Downflooding		6.2	0.8	3.20	**	1.28
2	Lasteluke forkant	Downflooding		8.0	0.8	3.20	**	1.36
3	Styrehusdør stb.	Local flood.		3.6	1.5	3.60	60.86	1.38
4	Utkapp i levegg	Local flood.		5.4	2.5	3.25	33.75	0.91
5	Utkapp i levegg	Local flood.		7.1	2.5	3.31	36.05	1.05
6	Rekketopp langs dekkshus	Local flood.		1.3	-2.5	3.39	**	1.94
7	Rekketopp langs dekkshus	Local flood.		4.3	-2.6	3.27	**	1.99
8	Rekketopp dekksbr. akter	Local flood.		-0.8	2.1	3.73	44.61	1.17
9	Rekketopp dekksbr. akter	Local flood.		1.3	2.5	3.35	33.32	0.82

Above Sea is vertical distance from opening to sea at equilibrium.
**) Flooding angle is outside of specified heel range.

Freeboard to Deck

Loading Condition no. : 13 ,Som 12, 15 gr. giring, 5,08 tm

No.	X (m)	Y (m)	Z (m)	Freeboard Starboard (m)	Port (m)
1	-1.120	0.000	3.030	0.939	0.939
2	-1.120	0.610	3.030	0.805	1.072
3	-1.050	1.550	3.020	0.593	1.271
4	-0.950	2.010	2.960	0.438	1.318
5	-0.810	2.040	2.930	0.409	1.302
6	-0.770	2.050	2.920	0.399	1.296
7	-0.450	2.130	2.870	0.347	1.280
8	0.000	2.240	2.800	0.276	1.257
9	0.450	2.325	2.730	0.210	1.228
10	0.760	2.360	2.700	0.187	1.221
11	0.900	2.390	2.680	0.168	1.214
12	0.930	2.389	2.676	0.165	1.211
13	1.040	2.400	2.660	0.153	1.203
14	1.800	2.495	2.600	0.109	1.201
15	2.700	2.600	2.540	0.069	1.207
16	3.600	2.640	2.510	0.073	1.228
17	4.500	2.650	2.500	0.102	1.263
18	5.400	2.650	2.510	0.154	1.314
19	6.300	2.650	2.530	0.215	1.375
20	7.200	2.650	2.550	0.276	1.437
21	8.100	2.610	2.600	0.375	1.518
22	8.470	2.577	2.621	0.420	1.548
23	8.471	2.477	4.640	2.410	3.495
24	9.000	2.430	4.640	2.445	3.509
25	9.900	2.230	4.640	2.530	3.507
26	10.800	1.950	4.640	2.633	3.487
27	11.250	1.770	4.640	2.694	3.469
28	11.700	1.540	4.640	2.765	3.439
29	12.150	1.261	4.640	2.847	3.399
30	12.600	0.906	4.640	2.946	3.342
31	13.050	0.491	4.640	3.057	3.272
32	13.260	0.002	4.640	3.174	3.175
33	13.440	0.001	4.345	2.895	2.895
34	13.570	0.080	4.168	2.711	2.746
35	13.790	0.040	4.200	2.761	2.779
36	13.796	0.000	4.200	2.770	2.770

Freeboard is vertical distance from deck point to sea at equilibrium.