JENJOSH MARINE DESIGN PTE LTD
No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

JENJOSH MARINE DESIGN PTE LTD
Co. Reg. No: 200714035Z
7030 Ang Mo Kio Avenue 5
#03-14 NorthStar@AMK
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816

30/10/2013

PROFESSIONAL ENGINEER
MECHANICAL
TENG CHIN SENG
3455
SINGAPORE

30/10/2013

Rev.	Description	By	Date

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Client:	ULTRATREX MACHINERY SDN. BHD.
Builder:	
Hull No.:	
Project:	**20 TON AMPHIBIOUS EXCAVATOR MODEL AT200ER**
Title:	INTACT STABILITY BOOKLET

Drawn:	Liu	Checked:	SJ	Approved:	SJ	Date:	23//10/2013
Project No.:	JJ0396	DWG No.:	JJ0395-01	Sheet:	1 OF 50	Rev No.:	A

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1. NOTES TO THE MASTER

1.1 Although the report indicated that this machine is safe to work and able to float, it is the operation team's responsibility to exercise the safety procedures to ensure their safety as well as the safety of the machine.

1.1 Appropriate action as to speed and course warranted by the prevailing circumstances.

1.2 Care should be taken to ensure that the slewing frame keep limit 45 degree with longitudinal center line of excavator under operation condition in water. Spuds should be put on sea bed (ground) in case of operation when depth of water is more than 1.5 m.

1.3 Before an operation commences, care should be taken to ensure that all equipment is under good working condition.

1.4 In case that dredge pump is hold by mud, Driver should try to reduce outreach of slewing frame and then to raise up dredge pump.

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2. GENERAL PARTICULARS

Ship's Name	:	AT200ER
Official Number	:	
Signal Letters	:	
Kind of Vessel	:	
Classification Id	:	
Port of Registry	:	
Owner	:	ULTRATREX MACHINERY SDN. BHD.
Length Overall	:	9.520 m
Breadth Moulded	:	7.620 m
Depth Moulded	:	2.135 m
Draft (Full Load)	:	1.400 m

LCG:	All Longitudinal dimensions are about AE (Aft End) Forward of A.E. – Minus (- or f) Aft of A.E. – Positive (+ or a)
TCG	All transverse dimensions are about the excavator centre line. Starboard side – Positive (+ or s) Port side – Minus (- or p)
VCG	All vertical dimensions are about the base line.

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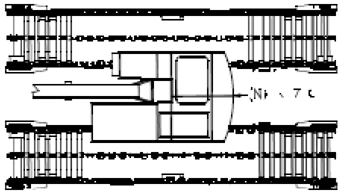

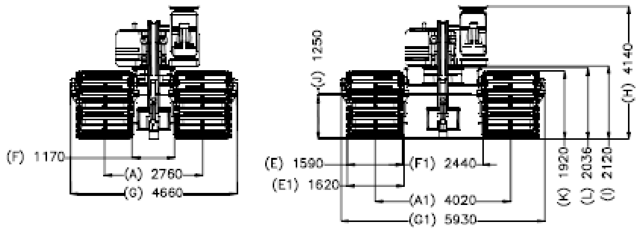

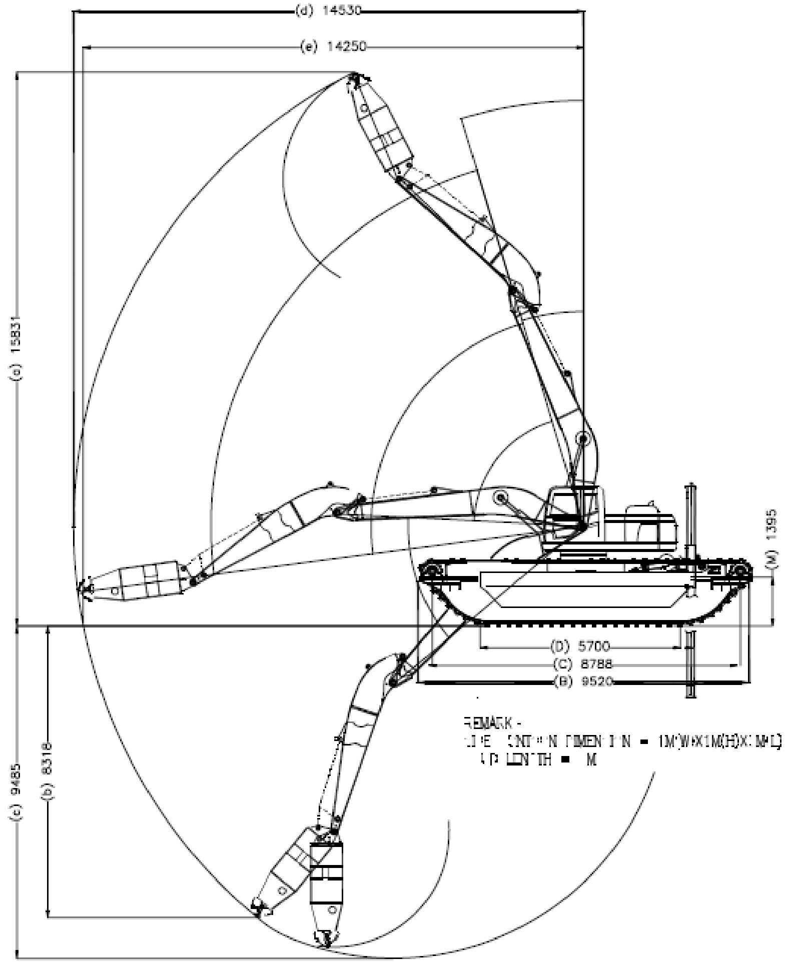

SPECIFICATION

ITEM		UNIT	VALUE
BASE MACHINE		20TON EXCAVATOR	
TOTAL WEIGHT		KG	32000
FLOAT CAPACITY		[illegible]	40
FLOAT CAPACITY/TOTAL WEIGHT		[illegible]	1.25
MAXIMUM TRACTIVE FORCE		[illegible]	2616
[illegible]		K / [illegible]	0.17
TRAVEL SPEED	HI	KM/H	3.6
	L	KM/H	2.3
MAXIMUM GRADIENT		°	30
WORK EQUIPMENT	BOOM LENGTH	mm	7[illegible]
	ARM LENGTH	mm	[illegible]
	BUCKET CAPACITY	[illegible]	[illegible]
WORKING RANGE	(a) MAX DIGGING HEIGHT	mm	[illegible]
	(b) MAX VERTICAL WALL	mm	[illegible]
	(c) MAX DIGGING DEPTH	mm	[illegible]
	(d) MAX DIGGING REACH	mm	14[illegible]
	(e) MAX DIGGING REACH ON GROUND	mm	[illegible]
DIMENSION	A TRACK GAUGE (FULLY RETRACTED)	mm	[illegible]
	A1 TRACK GAUGE (FULLY EXTENDED)	mm	[illegible]
	B TRACK LENGTH	mm	[illegible]
	C DISTANCE BETWEEN [illegible]	mm	[illegible]
	D TRACK LENGTH ON HARD GROUND	mm	[illegible]
	D1 TRACK LENGTH ON SOFT GROUND	mm	[illegible]
	E WIDTH TRACK SHOE	mm	[illegible]
	E1 WIDTH FLOAT	mm	[illegible]
	F DISTANCE BETWEEN [illegible] (FULLY RETRACTED)	mm	[illegible]
	F1 DISTANCE BETWEEN [illegible] (FULLY EXTENDED)	mm	[illegible]
	G OVERALL MACHINE WIDTH (FULLY RETRACTED)	mm	[illegible]
	G1 OVERALL MACHINE WIDTH (FULLY EXTENDED)	mm	[illegible]
	H OVERALL MACHINE HEIGHT	mm	414[illegible]
	I [illegible] CLEARANCE [illegible]	mm	[illegible]
	J MIN [illegible] CLEARANCE	mm	[illegible]
	K [illegible] HEIGHT	mm	[illegible]
	L [illegible] HEIGHT	mm	[illegible]
	M WATER LINE HEIGHT	mm	[illegible]
	N MIN SWING RADIUS	mm	[illegible]

** DIMENSION ARE BASED ON [illegible] LONG REACH ARM [illegible]
**SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICED

DRAWN BY :	DATE :	CHECK :	DATE :	TITLE :	[illegible] GA DRAWING [illegible]
HELMI	[illegible]	AF CHONG	05/05/13		
DRAWING NO. :	[illegible]			[illegible]	
[illegible]	-				
	SCALE NOT TO SCALE			KAWASAN [illegible], MALAYSIA.	

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3. METRIC CONVERSION TABLES

MULTIPLY BY	TO CONVERT FROM	TO OBTAIN	
0.03937	MILLIMETERS	INCHES	25.400
0.3937	CENTIMETERS	INCHES	2.5400
3.2808	METRES	FEET	0.3048
2.2046	KILOGRAMMES	POUNDS	0.45359
0.0009842	KILOGRAMMES	TONS (2240 lbs.)	1016.047
0.9842	METRIC TONS (i.e. TONNES OF 1000 KILOS)	TONS (2240 lbs.)	1.016
2.4998	METRIC TONS PER CENTIMETER (OF IMMERSION)	TONS PER INCH (OF IMMERSION)	0.4000
8.2014	MOMENT TO CHANGE TRIM ONE CENTIMETER (M/T METRE UNITS)	MOMENT TO CHANGE TRIM ONE INCH (TON FOOT UNITS)	0.122
187.9767	METRE RADIANS	FEET DEGREES	0.0053
	TO OBTAIN	**TO CONVERT FROM**	MULTIPLY BY

Relationship between Weight and Volume

10 mm cubed	=	1 cubic centimeter
1 cubic centimeter of fresh water (S.G. 1.0)	=	1 gram
1000 cubic centimeter of fresh water (S.G. 1.0)	=	1 kilogram (1000 grams)
1 cubic meter of fresh water (S.G. 1.0)	=	1 MT (1000 kilograms)
1 cubic meter of salt water (S.G. 1.025)	=	1.025 MT
1 metric ton of salt water (S.G. 1.025)	=	0.9756 Cubic Meters
1 cubic meter	=	35.315 cubic feet
1 cubic foot	=	0.0283 cubic meters

4. NOTES REGARDING THE STABILITY AND LOADING

The important factors in stability calculations are the relative heights above the keel of the:

VERTICAL CENTRE OF GRAVITY — KG or VCG

And the

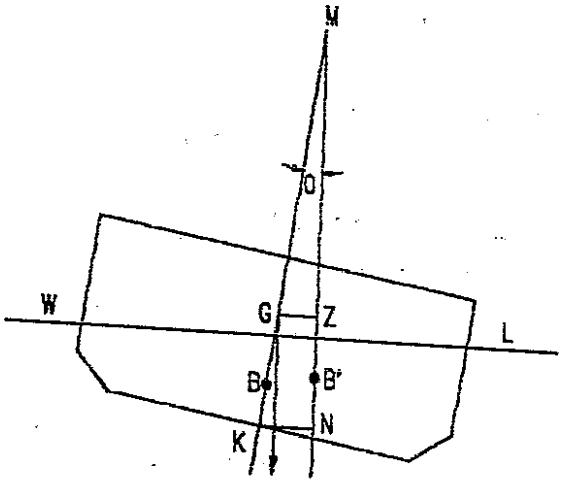
TRANSVERSE METACENTE — KM or KMT

The difference between those two position is the

METACENTRIC HEIGHT — GM

At any angle of heel, the horizontal distant between the forces of gravity (**G**)
And buoyancy (**B**) – see diagram below- is the:

RIGHTING LEVER — GZ



For any given draft, the height **KM** (or **KMT**) does not alter, whereas **KG** (or **VCG**) depends entirely on the vertical disposition and character of the loading.
Given the height **KG** (or **VCG**) for absolutely light condition, if the weights and vertical centers of gravity of various items comprising the loading are known, the **KG** (or **VCG**) of the particular condition can be calculated.

KM (or **KMT**) can be read off from hydrostatic particulars (see pages 15 – 16) corresponding to the mean draft (moulded) of the vessel.
For positive stability **KG** must be less than **KM** (or **KMT**) and to this end the ship should be loaded in such a manner to ensure this.

Liquids carried in the ship's tanks which are not fully "pressed" are free to move with the ship's heeling and other motions. Such "**FREE SURFACE**" of the liquids has an adverse effect on the ship's transverse stability, and is to be accounted for as an increase in **KG** (or **VCG**).
The **GM** as a measure of ship stability is reliable only for small angles of heel of less than 10 degrees. At larger angles of heel, the **GZ** at various angles of heel must be examined to determine adequacy of stability in any proposed loading condition. The curve of **GZ** versus heel angle θ is called the **CURVES OF STATICAL STABILITY** and is derived for any load condition by first determining the **KN** values at several heel angles corresponding to the displacement of the vessel in the particular loading condition; the **CROSS CURVES OF STABILITY** (**KN**) data are on pages 21 to 22

The ship's **KG** (or **VCG**) as loaded, corrected for free surface effects, is multiplied by the sine of the angle of heel for which a **KN** value has been determined. Then the **RIGHTING LEVERS** are determined from the relationship:

$$\mathbf{GZ = KN - KG \times Sin\ \theta}$$

5. NOTE ON USE OF FREE SURFACE MOMENTS

Provided that tank is completely filled with liquid no movement of the liquid is possible and the effect on the ship stability is precisely the same as if the tank contained solid material.

Immediately when a quantity of liquid is withdrawn from the tank, or when the tank is not completely filled, the situation changes completely and the stability of the ship is adversely affected by what is known as the free surface effect.

This adverse effect on the stability is referred to as a loss in GM or as a virtual rise in V.C.G. and is calculated as follows:

$$\text{Loss in GM due to Free Surface Effects} = \frac{\text{Free surface moment (Tonne - Metres)}}{\text{Displacement (Tonnes)}}$$

In case the tank is filled with a new liquid other than that it was originally meant for, the Loss in GM due to Free Surface Effects is calculated as follows:

$$\text{Loss in GM due to Free Surface Effects} = \frac{\text{Free surface moment (Tonne - Metres)}}{\text{Displacement (Tonnes)}} x \frac{Density\_of\_New\_Liquid}{Density\_of\_original\_Liquid}$$

The specific gravity of liquids assumed in the calculations in this manual is as follows:

Fresh Water	- 1.000
Sea Water	- 1.025

Notes:

1) The free surface effects of a proportion of all fresh water and ballast tanks should be taken into account in both the Arrival and Departure Conditions.

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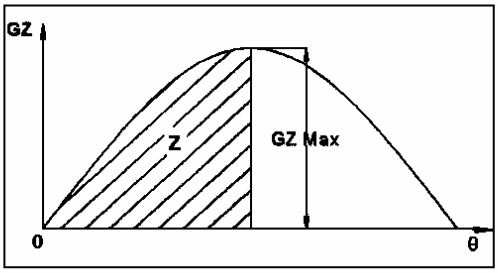
6. STABILITY CRITERIA

Stability selected are based on International Mraine Organization Regulation A 18/Res. 749 and German Lloyd's Crane Operation Creteria.

1) Intact Stability Criteria (IMO A18/Res. 749)

PONTOON CRIETERIA :



1) The area (Z) under righting lever curve up to the angle of maximum righting lever should not less than 0.080 metre-radians.

2) The minimum range of stability should be
For L ≤ 100m > 20 degrees
For L ≥ 150m > 15 degrees
For intermediate lengths by interpolation.

3) The static angle of heel due to a uniformly distributed wind load of 0.54 kPa (Wind sped 30m/sec)shall not exceed an angle corresponding to half the freeboard for the relevant loading condition, where the lever of wind heeling moment is measured from the centroid of the windage area to half the draught.

Formula :

$$\tan\theta = \frac{D-d}{2} \cdot \frac{B}{2}$$

$$\tan\theta = \frac{D-d}{B} \quad \text{.....[1]}$$

$$\Delta KG = \Delta_L KG + (\Delta - \Delta_L)(VCG + D) \quad \text{.....[2]}$$

$$\text{Heeling moment} = 0.0551\, A \left(VCG + \frac{D}{2}\right) \quad \text{.....[3]}$$

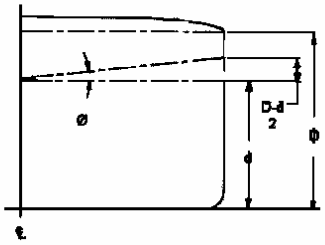
$$A = (D-d)L + 2L \times VCG \quad \text{.....[4]}$$

$$\tan\theta = \frac{\text{Heeling Moment}}{\Delta \times GM} \quad \text{.....[5]}$$

$$GM = KMT - KG \quad \text{.....[6]}$$

Where :

L	.....	Ship's length (m)
B	.....	Moulded breadth (m)
D	.....	Moulded depth (m)
d	.....	Moulded draught (m)
Δ	.....	Moulded displacement (t)
Δ_L	.....	Lightship (t)
$\Delta - \Delta_L$	.....	Deadweight (t)
KG	.....	Vessel's KG (m)
KG_L	.....	Lightship KG (m)
VCG	.....	Deck cargo VCG above deck (m)
VCG + D	.....	Deadweight KG (m)
A	.....	Lateral projected windage area including Cargo windage area (m^2)



2) Crane Stability Criteria (Germa Lloyd's Regulation)

1. The stability is to be calculated taking into account the maximum permissible heeling and trimming moments resulting from the equipment on board the pontoon.
2. The smallest residual freeboard in working condition should not be less than:
   - 0.30 m in harboour areas;
   - 0.50 m in open, protected areas;
   - 1.0 m in open sea
3. The stability criteria for pontoon are to be complied with
4. A heeling angle of 5 degrees should not be exceeded in case of unsecured equipment (e.g. full track crane) and 10 degrees in case of working equipment which cannot shift. Permissible heeling angles from strength of the equipment are to be observed.
5. The maximum distance between the curve at the righting levers and the curve of the heeling levers should not less than 0.10 m.

   Calculation of heeling lever

   The heeling moment due to the hook load can be calculated according to expression:

$$M_{LOAD} = W * (y * \cos(heel) + z * \sin(heel))$$

   For load with weight "W" suspend at (y,z). These caused the total heeling moment (arms) to increase with the heel of the vessel.

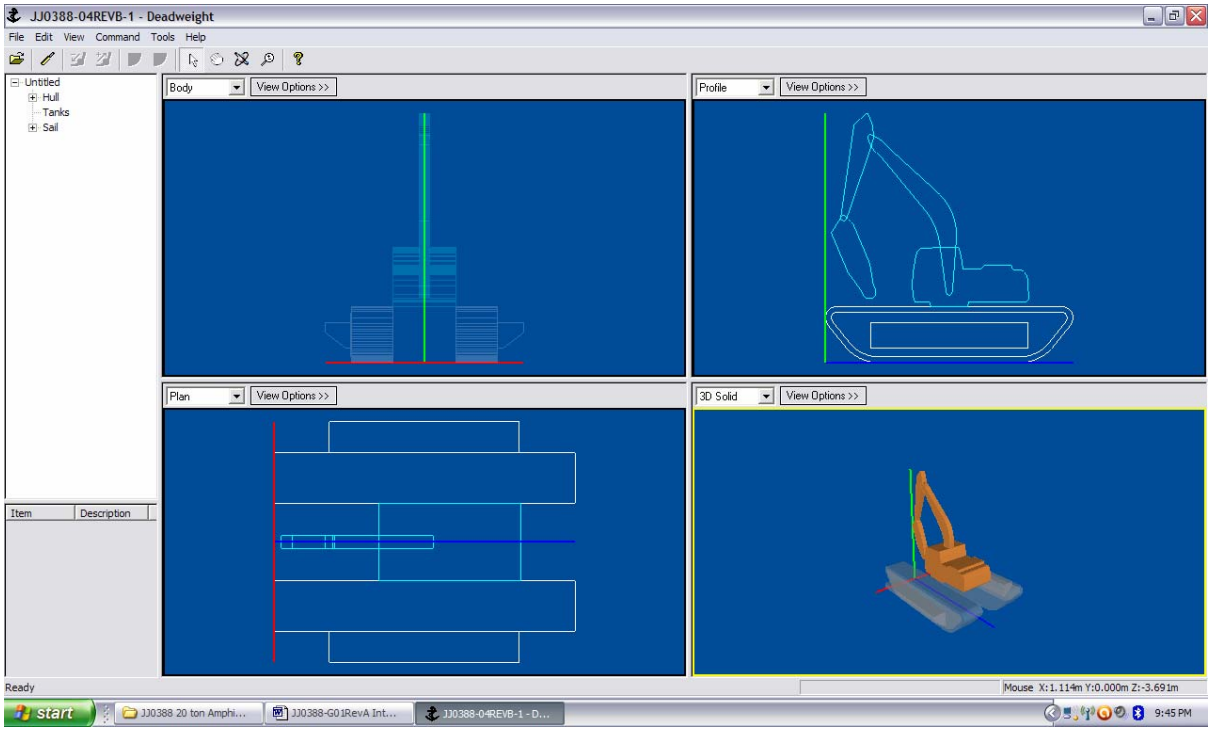
7. LIGHTSHIP & VCG VERIFICATION

The lightship & VCG of the pontoon are estimated as follows. Calculation report of lightship weight refers to document JJ0395-02RevA.

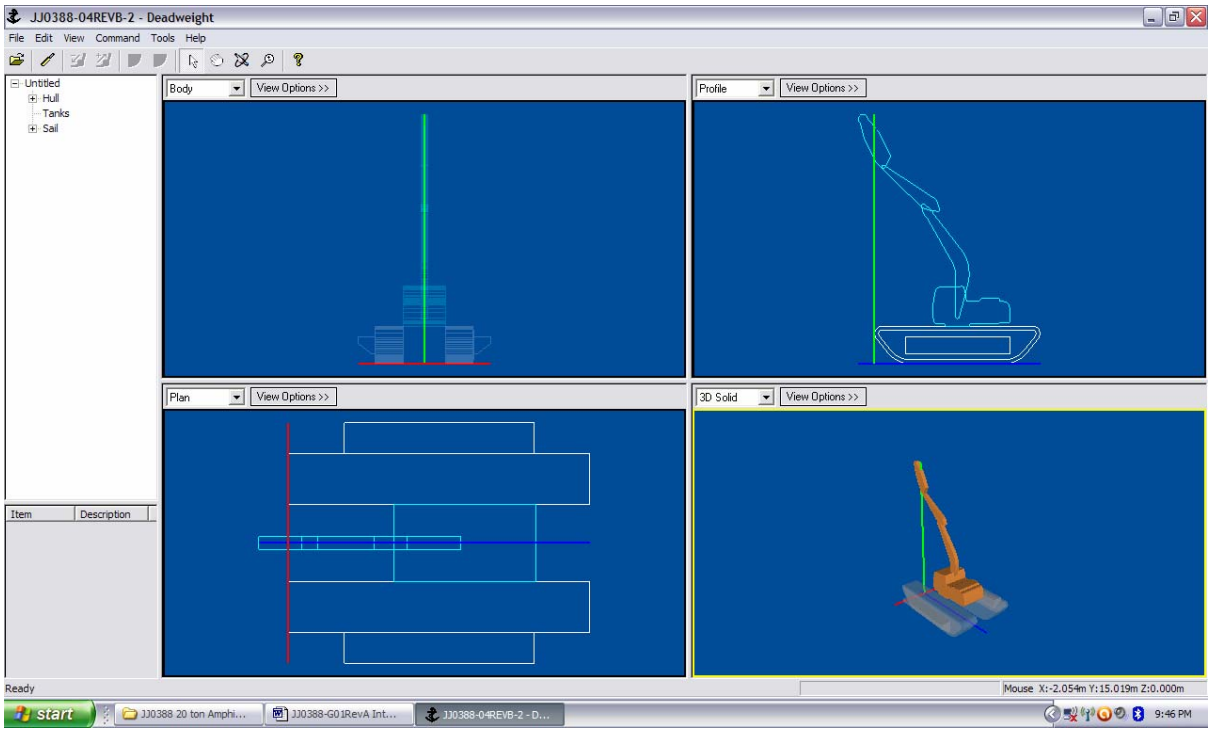
Lightship	**=**	**33.615**	**tons**	
LCG	**=**	**-5.008**	**m**	**Fwd of A.E.**
TCG	**=**	**0.000**	**m**	**at Center Line**
VCG	**=**	**2.174**	**m**	**above Baseline**

8. CALCULATION MODULE

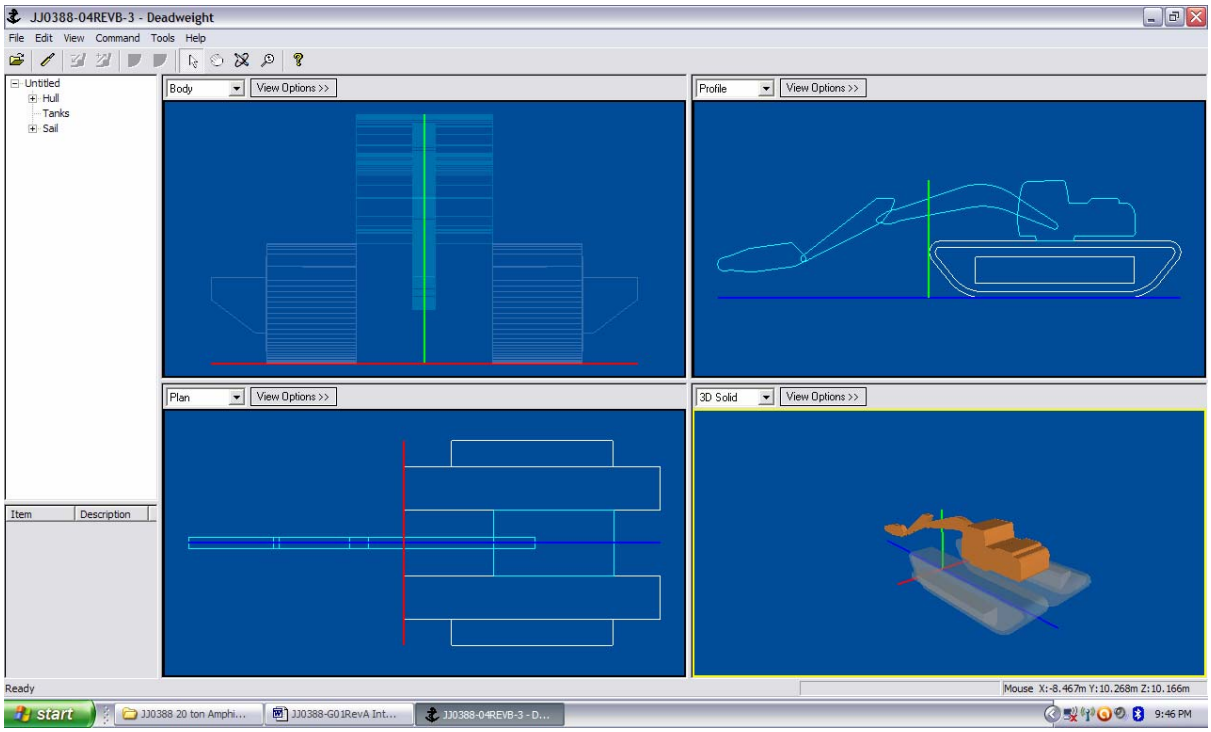
a. Condition No.1



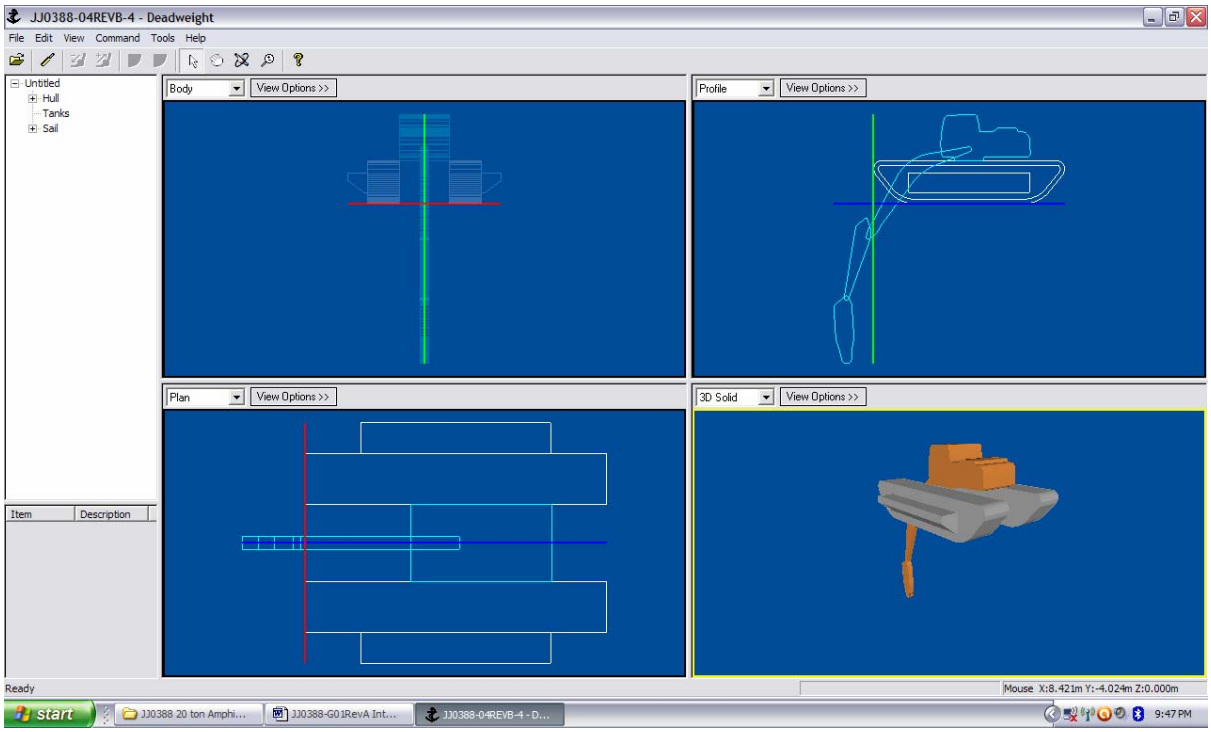
b. Condition No.2



c. Condition 3 & 6



d. Condition 4 & 5



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9. HYDROSTATICS PROPERTIES

Notes:
1. All heights given relative to mould base line
2. LCF and LCB given relative to Aft End (Dredge Pump Working End): Fwd: - or f; Aft: + or a
3. MTC given for trim change at perpendiculars.

Hydrostatic Properties

Draft is from Baseline.
No Trim, No heel, VCG = 0.000

LCF Draft (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /deg)	KML (m)	KMT (m)
0.500	8.544	4.760f	0.263	4.760f	0.190	1.717	11.509	9.730
0.520	8.926	4.760f	0.274	4.760f	0.191	1.747	11.211	9.363
0.540	9.310	4.760f	0.284	4.760f	0.192	1.773	10.909	9.102
0.560	9.744	4.760f	0.296	4.760f	0.219	1.935	11.377	11.021
0.580	10.187	4.760f	0.308	4.760f	0.223	1.978	11.127	10.882
0.600	10.637	4.760f	0.320	4.760f	0.227	2.022	10.892	10.752
0.620	11.096	4.760f	0.332	4.760f	0.231	2.067	10.670	10.699
0.640	11.563	4.760f	0.344	4.760f	0.235	2.111	10.460	10.583
0.660	12.038	4.760f	0.356	4.760f	0.240	2.156	10.261	10.475
0.680	12.521	4.760f	0.368	4.760f	0.244	2.201	10.072	10.374
0.700	13.012	4.760f	0.380	4.760f	0.248	2.247	9.894	10.279
0.720	13.511	4.760f	0.392	4.760f	0.252	2.293	9.724	10.246
0.740	14.019	4.760f	0.405	4.760f	0.256	2.340	9.563	10.161
0.760	14.535	4.760f	0.417	4.760f	0.260	2.387	9.409	10.081
0.780	15.058	4.760f	0.429	4.760f	0.264	2.435	9.263	10.006
0.800	15.590	4.760f	0.441	4.760f	0.268	2.483	9.124	9.936
0.820	16.130	4.760f	0.454	4.760f	0.272	2.531	8.991	9.917
0.840	16.678	4.760f	0.466	4.760f	0.276	2.580	8.863	9.853
0.860	17.235	4.760f	0.479	4.760f	0.280	2.630	8.742	9.793
0.880	17.799	4.760f	0.491	4.760f	0.284	2.680	8.626	9.737
0.900	18.372	4.760f	0.503	4.760f	0.288	2.731	8.515	9.685
0.920	18.952	4.760f	0.516	4.760f	0.292	2.782	8.408	9.675
0.940	19.541	4.760f	0.528	4.760f	0.296	2.833	8.306	9.627
0.960	20.138	4.760f	0.541	4.760f	0.300	2.885	8.208	9.583
0.980	20.743	4.760f	0.553	4.760f	0.305	2.938	8.114	9.541
1.000	21.356	4.760f	0.566	4.760f	0.309	2.991	8.024	9.536
1.020	21.977	4.760f	0.578	4.760f	0.313	3.045	7.937	9.499
1.040	22.606	4.760f	0.591	4.760f	0.317	3.099	7.854	9.463
1.060	23.244	4.760f	0.604	4.760f	0.321	3.154	7.774	9.430
1.080	23.890	4.760f	0.616	4.760f	0.325	3.210	7.697	9.399
1.100	24.543	4.760f	0.629	4.760f	0.329	3.266	7.623	9.400
1.120	25.205	4.760f	0.642	4.760f	0.333	3.322	7.551	9.372
1.140	25.875	4.760f	0.654	4.760f	0.337	3.379	7.481	9.337
1.160	26.549	4.760f	0.667	4.760f	0.338	3.419	7.378	9.136
1.180	27.225	4.760f	0.679	4.760f	0.338	3.460	7.282	8.945
1.200	27.903	4.760f	0.692	4.760f	0.339	3.502	7.190	8.791
1.220	28.582	4.760f	0.704	4.760f	0.340	3.544	7.103	8.617
1.240	29.263	4.760f	0.716	4.760f	0.341	3.587	7.021	8.452
1.260	29.946	4.760f	0.728	4.760f	0.342	3.629	6.944	8.294
1.280	30.630	4.760f	0.740	4.760f	0.342	3.673	6.870	8.143
1.300	31.315	4.760f	0.753	4.760f	0.343	3.717	6.800	8.023
1.320	32.003	4.760f	0.764	4.760f	0.344	3.761	6.733	7.884
1.340	32.691	4.760f	0.776	4.760f	0.345	3.806	6.670	7.752
1.360	33.382	4.760f	0.788	4.760f	0.346	3.851	6.610	7.625
1.380	34.074	4.760f	0.800	4.760f	0.346	3.897	6.552	7.526
1.400	34.767	4.760f	0.812	4.760f	0.347	3.943	6.497	7.408
1.420	35.463	4.760f	0.824	4.760f	0.348	3.988	6.443	7.296
1.440	36.159	4.760f	0.835	4.760f	0.349	4.035	6.393	7.188
1.460	36.857	4.760f	0.847	4.760f	0.349	4.082	6.344	7.084

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Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

LCF Draft (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /deg)	KML (m)	KMT (m)
1.480	37.557	4.760f	0.859	4.760f	0.350	4.125	6.292	7.003
1.500	38.258	4.760f	0.870	4.760f	0.350	4.155	6.222	6.904
1.520	38.959	4.760f	0.882	4.760f	0.351	4.185	6.154	6.809
1.540	39.659	4.760f	0.893	4.760f	0.231	3.585	5.179	3.381
1.560	40.121	4.760f	0.901	4.760f	0.231	3.610	5.155	3.361
1.580	40.583	4.760f	0.908	4.760f	0.231	3.635	5.131	3.343
1.600	41.046	4.760f	0.916	4.760f	0.232	3.659	5.107	3.325
1.620	41.510	4.760f	0.924	4.760f	0.232	3.684	5.085	3.308
1.640	41.974	4.760f	0.931	4.760f	0.232	3.710	5.063	3.291
1.660	42.439	4.760f	0.939	4.760f	0.233	3.735	5.042	3.275
1.680	42.905	4.760f	0.947	4.760f	0.233	3.761	5.022	3.259
1.700	43.371	4.760f	0.955	4.760f	0.233	3.787	5.002	3.244
1.720	43.838	4.760f	0.963	4.760f	0.234	3.813	4.983	3.229
1.740	44.304	4.760f	0.971	4.760f	0.233	3.821	4.940	3.213
1.760	44.771	4.760f	0.980	4.760f	0.233	3.822	4.891	3.196
1.780	45.237	4.760f	0.988	4.760f	0.233	3.824	4.842	3.180
1.800	45.702	4.760f	0.996	4.760f	0.232	3.825	4.795	3.164

Water Specific Gravity = 1.025.

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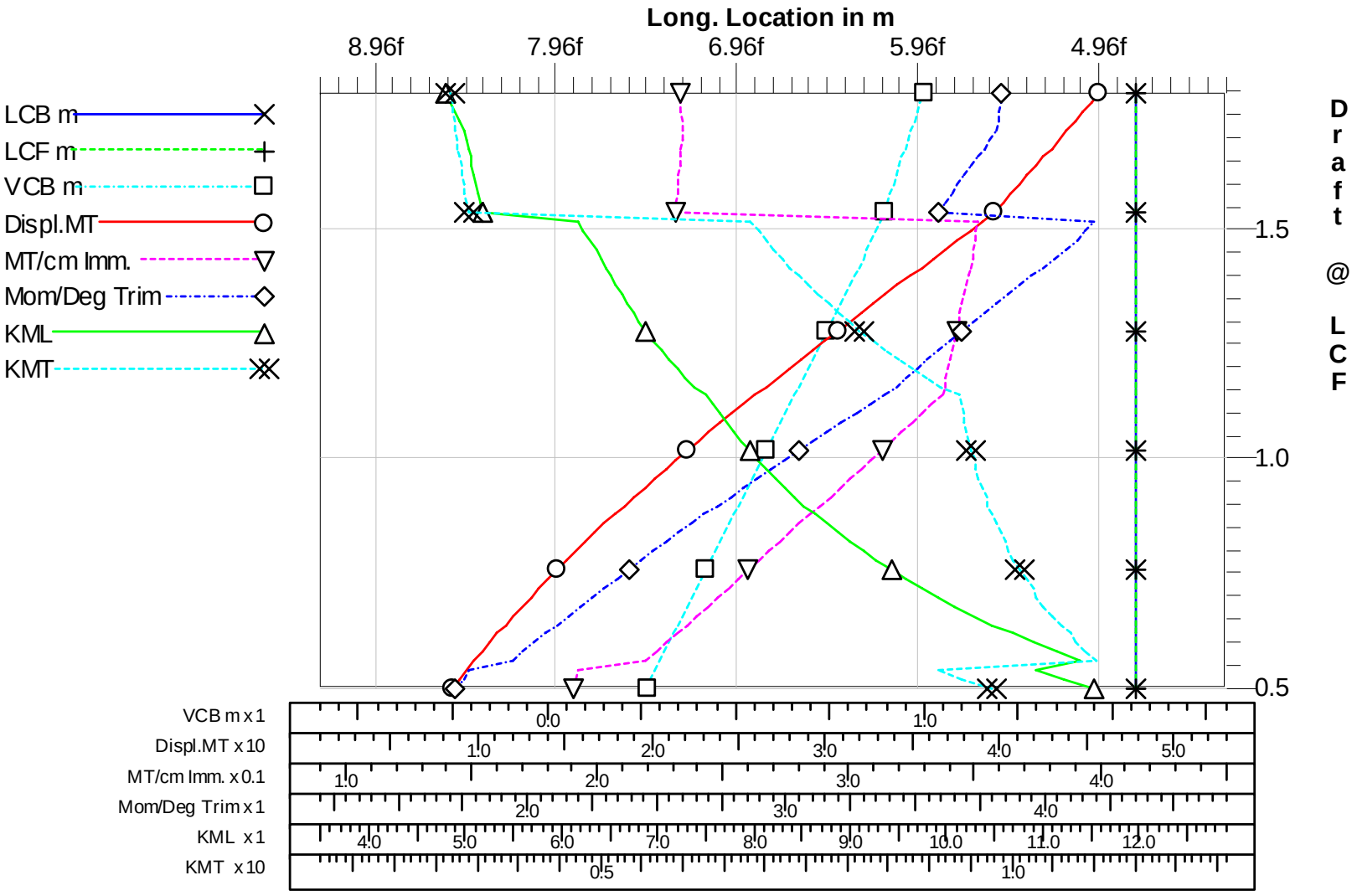
Hydrostatic Properties at Trim = 0.00, Heel = 0.00



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Hull Form Coefficients (with appendages)

Baseline Draft: 1.800
Trim: zero, Heel: zero

Draft	Volume	Coefficients						WS Area
m	m³	Cp	Cb	Cms	Cwp	Cvp	Cws	m²
0.500	8.34	0.741	0.230	0.310	0.256	0.897	4.374	38.96
0.520	8.71	0.744	0.231	0.310	0.258	0.896	4.348	39.59
0.540	9.08	0.747	0.232	0.310	0.259	0.896	4.325	40.22
0.560	9.51	0.753	0.234	0.311	0.295	0.794	4.294	40.85
0.580	9.94	0.760	0.236	0.311	0.300	0.787	4.264	41.48
0.600	10.38	0.767	0.238	0.311	0.306	0.780	4.236	42.11
0.620	10.83	0.774	0.241	0.311	0.311	0.773	4.254	43.19
0.640	11.28	0.782	0.243	0.311	0.317	0.767	4.229	43.83
0.660	11.74	0.789	0.245	0.311	0.322	0.761	4.206	44.47
0.680	12.22	0.796	0.248	0.311	0.328	0.756	4.183	45.11
0.700	12.69	0.804	0.250	0.311	0.333	0.751	4.161	45.75
0.720	13.18	0.811	0.252	0.311	0.339	0.745	4.237	47.46
0.740	13.68	0.819	0.255	0.311	0.344	0.741	4.218	48.13
0.760	14.18	0.826	0.257	0.311	0.349	0.736	4.199	48.79
0.780	14.69	0.834	0.260	0.311	0.355	0.732	4.182	49.46
0.800	15.21	0.842	0.262	0.311	0.360	0.727	4.165	50.12
0.820	15.74	0.850	0.265	0.311	0.366	0.723	4.150	50.79
0.840	16.27	0.858	0.267	0.311	0.371	0.719	4.134	51.46
0.860	16.81	0.865	0.270	0.311	0.377	0.715	4.120	52.12
0.880	17.36	0.873	0.272	0.311	0.382	0.712	4.106	52.79
0.900	17.92	0.881	0.275	0.311	0.388	0.708	4.092	53.46
0.920	18.49	0.889	0.277	0.312	0.393	0.705	4.103	54.43
0.940	19.06	0.897	0.280	0.312	0.399	0.701	4.090	55.10
0.960	19.65	0.905	0.282	0.312	0.404	0.698	4.079	55.78
0.980	20.24	0.914	0.285	0.312	0.410	0.695	4.067	56.45
1.000	20.83	0.922	0.287	0.312	0.415	0.692	4.143	58.34
1.020	21.44	0.930	0.290	0.312	0.420	0.689	4.133	59.05
1.040	22.05	0.938	0.292	0.312	0.426	0.686	4.124	59.75
1.060	22.68	0.946	0.295	0.312	0.431	0.684	4.115	60.46
1.080	23.31	0.954	0.297	0.312	0.437	0.681	4.106	61.16
1.100	23.94	0.963	0.300	0.312	0.442	0.678	4.098	61.87
1.120	24.59	0.971	0.303	0.312	0.448	0.676	4.090	62.57
1.140	25.24	0.979	0.305	0.312	0.453	0.674	4.082	63.27
1.160	25.90	0.987	0.308	0.312	0.454	0.678	4.074	63.98
1.180	26.56	0.995	0.310	0.312	0.455	0.682	4.068	64.68
1.200	27.22	1.003	0.313	0.312	0.456	0.685	4.071	65.54
1.220	27.89	1.010	0.315	0.312	0.457	0.689	4.066	66.25
1.240	28.55	1.018	0.317	0.312	0.458	0.692	4.062	66.96
1.260	29.22	1.025	0.320	0.312	0.459	0.696	4.057	67.67
1.280	29.88	1.032	0.322	0.312	0.461	0.699	4.054	68.38
1.300	30.55	1.039	0.324	0.312	0.462	0.702	4.132	70.48
1.320	31.22	1.045	0.326	0.312	0.463	0.705	4.131	71.22
1.340	31.89	1.052	0.328	0.312	0.464	0.708	4.130	71.96
1.360	32.57	1.058	0.330	0.312	0.465	0.710	4.129	72.70
1.380	33.24	1.064	0.332	0.312	0.466	0.713	4.129	73.45
1.400	33.92	1.070	0.334	0.312	0.467	0.715	4.129	74.19
1.420	34.60	1.076	0.336	0.312	0.468	0.718	4.129	74.93
1.440	35.28	1.082	0.338	0.312	0.469	0.720	4.129	75.67
1.460	35.96	1.088	0.340	0.312	0.470	0.722	4.130	76.42
1.480	36.64	1.094	0.341	0.312	0.471	0.725	4.131	77.16
1.500	37.32	1.099	0.343	0.312	0.471	0.728	4.133	77.90
1.520	38.01	1.105	0.345	0.312	0.472	0.731	4.134	78.64
1.540	38.69	1.110	0.346	0.312	0.310	1.116	4.136	79.39
1.560	39.14	1.108	0.346	0.312	0.311	1.113	4.151	80.13
1.580	39.59	1.107	0.345	0.312	0.311	1.110	4.166	80.87
1.600	40.05	1.105	0.345	0.312	0.312	1.107	4.180	81.61
1.620	40.50	1.104	0.345	0.312	0.312	1.105	4.194	82.36
1.640	40.95	1.103	0.344	0.312	0.312	1.102	4.209	83.10
1.660	41.40	1.101	0.344	0.312	0.313	1.099	4.223	83.84

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Draft	Volume	Coefficients			WS Area			
m	m^3	Cp	Cb	Cms	Cwp	Cvp	Cws	m^2
1.680	41.86	1.100	0.343	0.312	0.313	1.096	4.237	84.58
1.700	42.31	1.099	0.343	0.312	0.314	1.094	4.251	85.33
1.720	42.77	1.098	0.343	0.312	0.314	1.091	4.266	86.07
1.740	43.22	1.097	0.342	0.312	0.314	1.091	4.354	88.33
1.760	43.68	1.096	0.342	0.312	0.313	1.091	4.368	89.07
1.780	44.13	1.095	0.342	0.312	0.313	1.092	4.382	89.81
1.800	44.59	1.094	0.341	0.312	0.313	1.092	4.395	90.55

NOTE: Coefficients are based on L: 9.520 m B: 7.620 m

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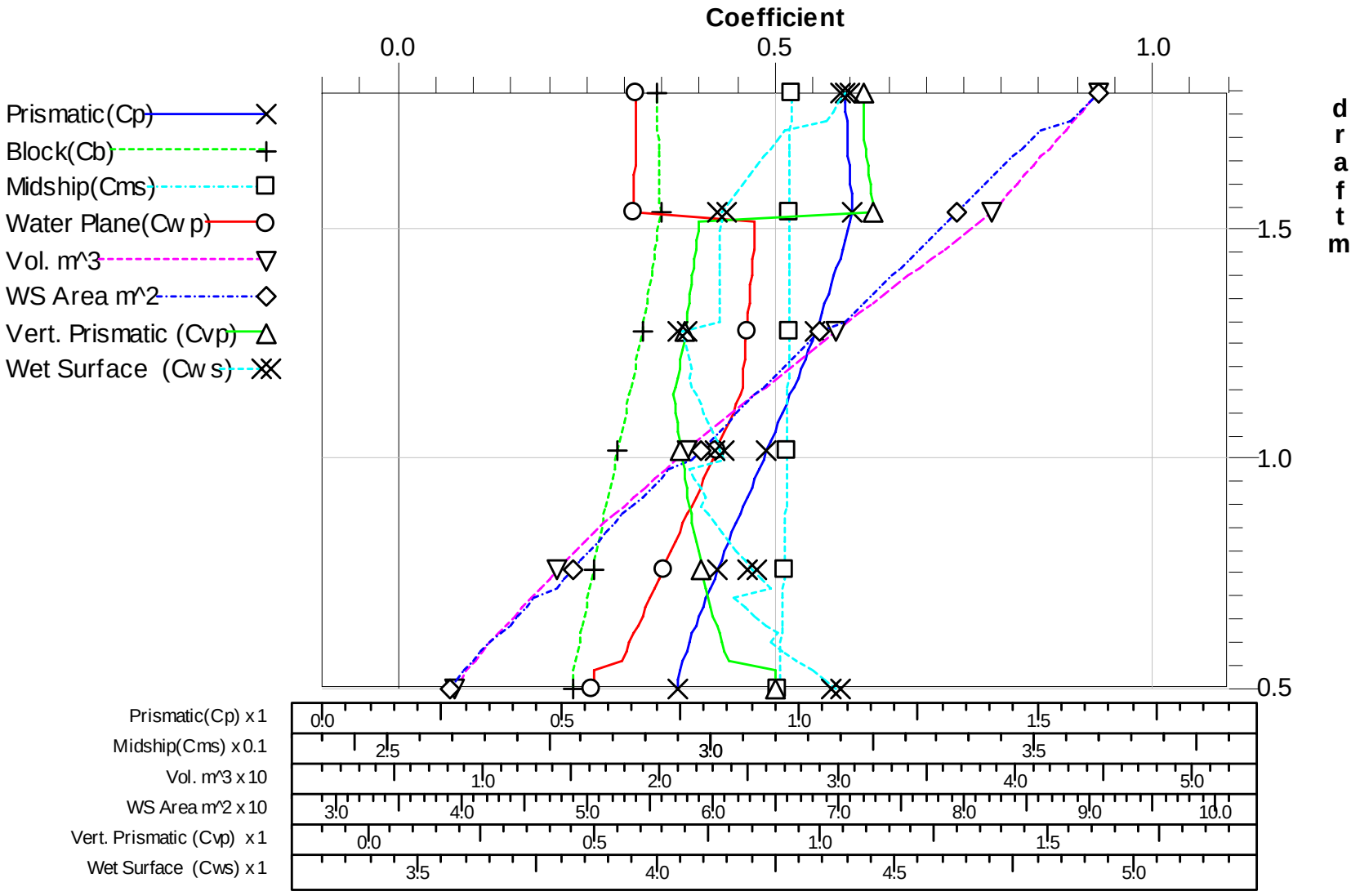
Curves of Form (with appendages)



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10. CROSS CURVES OF STABILITY (KN)

Cross Curves of Stability

Righting Arms(heel) for VCG = 0.00
Trim zero at heel = 0 (RA Trim = 0)

Draft (m)	5.000s	10.000 s	15.000 s	20.000 s	25.000 s	30.000 s	35.000 s	40.000 s	45.000 s	50.000 s
0.500	0.987s	2.073s	2.390s	2.474s	2.547s	2.608s	2.634s	2.615s	2.555s	2.463s
0.520	0.969s	2.046s	2.402s	2.482s	2.552s	2.605s	2.623s	2.602s	2.542s	2.449s
0.540	0.953s	2.018s	2.412s	2.490s	2.557s	2.603s	2.613s	2.590s	2.528s	2.436s
0.560	0.937s	1.987s	2.423s	2.498s	2.562s	2.599s	2.602s	2.575s	2.513s	2.420s
0.580	0.923s	1.955s	2.434s	2.506s	2.566s	2.595s	2.591s	2.560s	2.497s	2.405s
0.600	0.911s	1.921s	2.444s	2.514s	2.569s	2.590s	2.580s	2.545s	2.482s	2.390s
0.620	0.900s	1.887s	2.451s	2.522s	2.571s	2.585s	2.569s	2.530s	2.466s	2.377s
0.640	0.891s	1.855s	2.453s	2.529s	2.571s	2.579s	2.559s	2.515s	2.450s	2.364s
0.660	0.883s	1.824s	2.451s	2.536s	2.571s	2.573s	2.549s	2.501s	2.435s	2.353s
0.680	0.877s	1.795s	2.445s	2.542s	2.569s	2.567s	2.538s	2.488s	2.421s	2.343s
0.700	0.871s	1.768s	2.437s	2.545s	2.567s	2.560s	2.528s	2.476s	2.409s	2.333s
0.720	0.867s	1.742s	2.425s	2.547s	2.564s	2.553s	2.519s	2.465s	2.399s	2.325s
0.740	0.864s	1.717s	2.410s	2.548s	2.560s	2.546s	2.509s	2.456s	2.391s	2.317s
0.760	0.861s	1.693s	2.393s	2.547s	2.555s	2.538s	2.501s	2.449s	2.384s	2.311s
0.780	0.860s	1.671s	2.371s	2.545s	2.549s	2.530s	2.494s	2.443s	2.379s	2.306s
0.800	0.859s	1.649s	2.345s	2.542s	2.543s	2.524s	2.489s	2.438s	2.375s	2.303s
0.820	0.859s	1.629s	2.316s	2.536s	2.537s	2.519s	2.484s	2.435s	2.373s	2.301s
0.840	0.856s	1.610s	2.282s	2.523s	2.531s	2.514s	2.481s	2.433s	2.371s	2.299s
0.860	0.851s	1.591s	2.245s	2.506s	2.527s	2.511s	2.479s	2.431s	2.371s	2.298s
0.880	0.846s	1.574s	2.205s	2.485s	2.523s	2.508s	2.478s	2.431s	2.372s	2.297s
0.900	0.841s	1.557s	2.161s	2.460s	2.520s	2.507s	2.477s	2.432s	2.372s	2.296s
0.920	0.835s	1.541s	2.114s	2.433s	2.518s	2.506s	2.477s	2.433s	2.373s	2.295s
0.940	0.829s	1.525s	2.066s	2.404s	2.516s	2.506s	2.479s	2.436s	2.374s	2.294s
0.960	0.823s	1.511s	2.019s	2.373s	2.513s	2.506s	2.481s	2.437s	2.375s	2.294s
0.980	0.816s	1.496s	1.974s	2.340s	2.506s	2.508s	2.483s	2.439s	2.375s	2.293s
1.000	0.809s	1.479s	1.932s	2.306s	2.496s	2.509s	2.485s	2.440s	2.375s	2.293s
1.020	0.802s	1.460s	1.891s	2.271s	2.483s	2.511s	2.486s	2.440s	2.376s	2.293s
1.040	0.795s	1.439s	1.852s	2.235s	2.467s	2.512s	2.486s	2.440s	2.376s	2.293s
1.060	0.788s	1.416s	1.814s	2.198s	2.448s	2.512s	2.486s	2.440s	2.376s	2.293s
1.080	0.780s	1.390s	1.778s	2.160s	2.424s	2.509s	2.485s	2.440s	2.376s	2.293s
1.100	0.772s	1.362s	1.744s	2.122s	2.397s	2.499s	2.483s	2.439s	2.376s	2.294s
1.120	0.764s	1.331s	1.711s	2.084s	2.364s	2.481s	2.481s	2.438s	2.375s	2.295s
1.140	0.756s	1.301s	1.679s	2.047s	2.327s	2.453s	2.478s	2.436s	2.375s	2.296s
1.160	0.748s	1.271s	1.649s	2.011s	2.286s	2.415s	2.457s	2.393s	2.245s	2.082s
1.180	0.739s	1.242s	1.620s	1.976s	2.241s	2.367s	2.400s	2.363s	2.211s	2.060s
1.200	0.731s	1.214s	1.592s	1.940s	2.192s	2.308s	2.315s	2.282s	2.232s	2.165s
1.220	0.723s	1.187s	1.566s	1.903s	2.139s	2.238s	2.232s	2.204s	2.159s	2.098s
1.240	0.712s	1.160s	1.540s	1.865s	2.082s	2.158s	2.152s	2.129s	2.090s	2.035s
1.260	0.697s	1.134s	1.516s	1.827s	2.022s	2.077s	2.075s	2.057s	2.023s	1.974s
1.280	0.678s	1.109s	1.492s	1.788s	1.960s	1.998s	2.001s	1.989s	1.960s	1.917s
1.300	0.655s	1.084s	1.467s	1.747s	1.895s	1.923s	1.930s	1.922s	1.899s	1.862s
1.320	0.632s	1.059s	1.442s	1.705s	1.827s	1.851s	1.862s	1.858s	1.841s	1.810s
1.340	0.610s	1.036s	1.416s	1.661s	1.757s	1.782s	1.796s	1.797s	1.786s	1.761s
1.360	0.588s	1.012s	1.389s	1.615s	1.689s	1.718s	1.734s	1.739s	1.732s	1.713s
1.380	0.566s	0.989s	1.360s	1.567s	1.625s	1.656s	1.675s	1.683s	1.681s	1.668s
1.400	0.545s	0.967s	1.328s	1.514s	1.563s	1.597s	1.619s	1.631s	1.632s	1.624s
1.420	0.525s	0.945s	1.295s	1.456s	1.505s	1.541s	1.566s	1.581s	1.586s	1.583s
1.440	0.505s	0.923s	1.260s	1.396s	1.448s	1.487s	1.515s	1.534s	1.542s	1.543s
1.460	0.485s	0.902s	1.223s	1.338s	1.392s	1.436s	1.467s	1.489s	1.501s	1.505s
1.480	0.466s	0.881s	1.183s	1.282s	1.338s	1.386s	1.421s	1.446s	1.462s	1.470s
1.500	0.448s	0.860s	1.141s	1.227s	1.287s	1.337s	1.377s	1.406s	1.425s	1.437s
1.520	0.430s	0.840s	1.096s	1.175s	1.237s	1.290s	1.334s	1.367s	1.390s	1.405s
1.540	0.413s	0.820s	1.049s	1.124s	1.189s	1.246s	1.292s	1.330s	1.357s	1.374s
1.560	0.402s	0.805s	1.016s	1.091s	1.158s	1.217s	1.266s	1.306s	1.336s	1.355s
1.580	0.391s	0.790s	0.982s	1.060s	1.128s	1.189s	1.240s	1.282s	1.315s	1.335s
1.600	0.381s	0.774s	0.949s	1.028s	1.099s	1.161s	1.215s	1.260s	1.295s	1.317s

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Draft (m)	5.000s	10.000s	15.000s	20.000s	25.000s	30.000s	35.000s	40.000s	45.000s	50.000s
1.620	0.371s	0.757s	0.917s	0.998s	1.070s	1.134s	1.190s	1.237s	1.274s	1.298s
1.640	0.361s	0.739s	0.886s	0.968s	1.042s	1.108s	1.166s	1.215s	1.254s	1.280s
1.660	0.351s	0.719s	0.855s	0.938s	1.014s	1.082s	1.142s	1.194s	1.234s	1.262s
1.680	0.341s	0.699s	0.824s	0.910s	0.987s	1.057s	1.119s	1.172s	1.214s	1.244s
1.700	0.332s	0.678s	0.795s	0.881s	0.960s	1.033s	1.097s	1.151s	1.194s	1.226s
1.720	0.323s	0.655s	0.765s	0.853s	0.934s	1.008s	1.075s	1.130s	1.174s	1.208s
1.740	0.313s	0.632s	0.736s	0.826s	0.909s	0.985s	1.053s	1.109s	1.155s	1.190s
1.760	0.305s	0.607s	0.708s	0.799s	0.884s	0.962s	1.031s	1.088s	1.136s	1.173s
1.780	0.296s	0.581s	0.680s	0.773s	0.860s	0.939s	1.009s	1.068s	1.117s	1.156s
1.800	0.288s	0.554s	0.653s	0.747s	0.836s	0.917s	0.988s	1.048s	1.098s	1.139s

Water Specific Gravity = 1.025.

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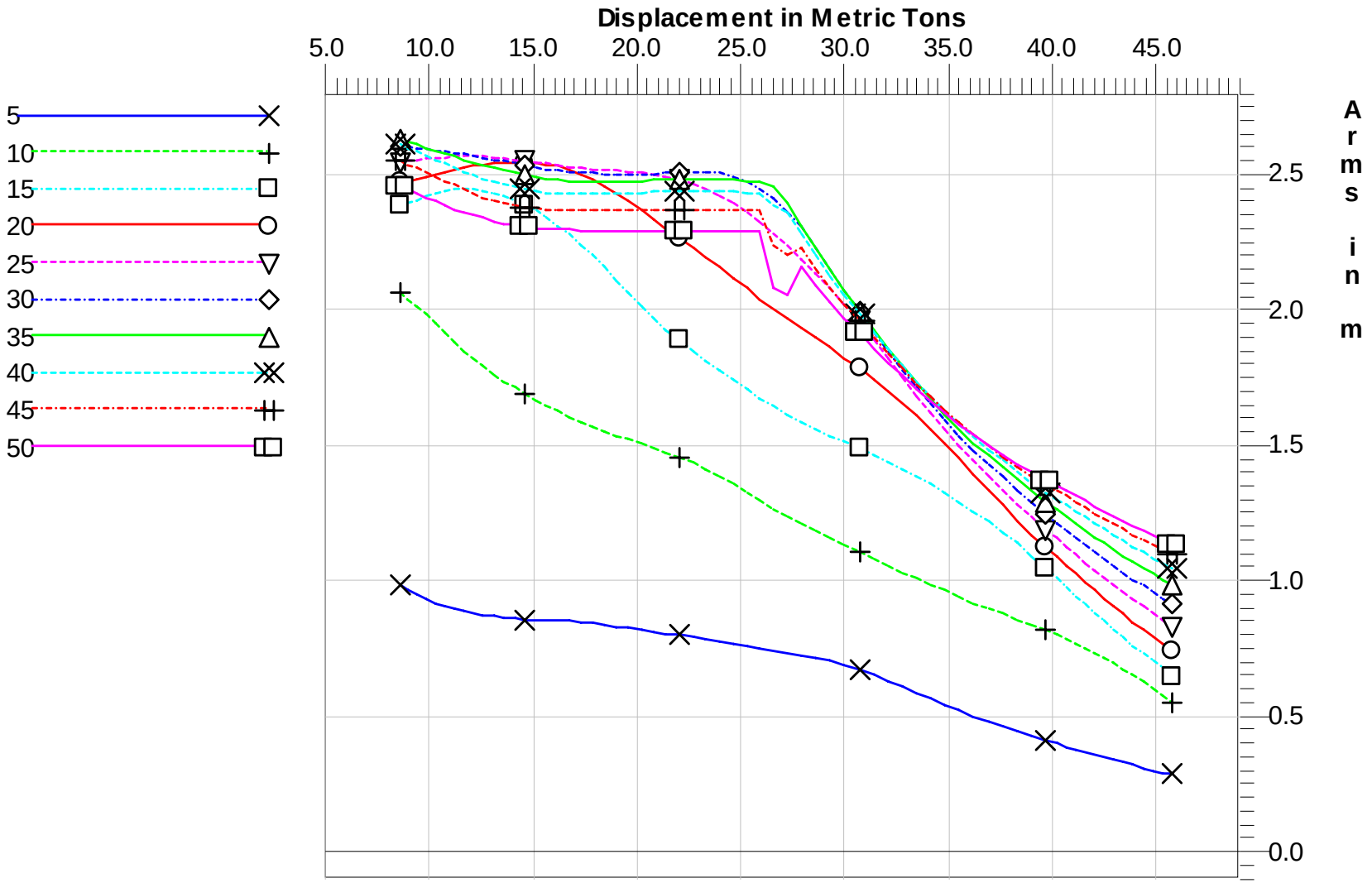
Cross Curves



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Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

11. SUMMARY OF STBILITY RESULTS

C/N	Description	Hook Load	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7
1	Dredge Pump Point Aft - Slewing Frame Folded in Sailing Condition	0.0 T	0.122	30	1.31	-	-	-	-
2	Dredge Pump Point Aft – Slewing Frame in Upright Position	0.0 T	-	-	-	0	12.60	0.942	25.746
3	Dredge Pump Point Aft – Slewing Frame in Max Outreach Position, Spuds Supported on Sea Bed	0.0 T	-	-	-	0	11.40	0.915	30.010
4	Dredge Pump Point Aft – Slewing Frame in Lowest Position, Spuds Supported on Sea Bed	0.0 T	-	-	-	0	12.59	1.209	52.427
5	Dredge Pump Point Aft – Slewing Frame in Lowest Position Hold by Sea Bed, Spuds Balanced on Deck	1.00 T	-	-	-	0	12.59	0.937	34.427
6	Dredge Pump Point Aft – Slewing Frame in Max Outreach Position & 25 Deg with Center Line, Spuds Supported on Sea Bed	0.00 T	-	-	-	0.54	11.62	0.862	21.731
		Limit	**>0.08**	**>20**	**< 5.79**	**<10**	**>4.50**	**> 0.1m**	**> 4.584**
			Safe	**Safe**	**Safe**	**Safe**	**Safe**	**Safe**	**Safe**

S/N	Criteria/Limit	Min/Max	
1	Area from 0.00 deg to MaxRA	>0.0800 m-R	
2	Angle from 0.00 deg to RAzero	>20.00 deg	
3	Absolute Angle at Equilibrium	<5.79 deg	Static Angle of Heel < Arc tan (D-d)/B
4	Absolute Angle at Equilibrium	<10.00 deg	A heeling angle of 10 degrees should not be exceeded in case of working equipment which cannot shift
5	Absolute Angle at Deck Immersion	>4.500 deg	Minimum freeboard not less than 0.3 m in Harbour Areas
6	Residual Righting arm at Max	>0.1 m	The maximum distance between the curve at the righting levers and the curve of the heeling levers should not less than 0.10 m
7	Area from equi to Ra0, (IMO Criteria)	>4.584 m-D	IMO-The area between righting arm curve and heeling lever curve from 0 to the lesser of 40 deg or the angle of downfooding

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12. CONDITION 1: DREDGE PUMP POINT AFT (SLEWING FRAME FOLDED IN SAILING CONDITION)

Floating Status

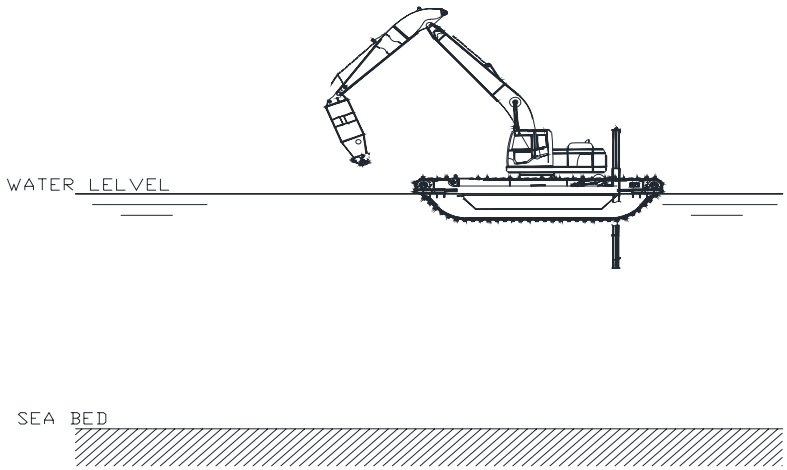
Draft FP	1.631 m	Heel	zero	GM(Solid)	5.416 m
Draft MS	1.363 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.096 m	Wind	0.0 kn	GM(Fluid)	5.416 m
Trim	fwd 0.536/9.520	Wave	No	KMT	7.581 m
LCG	5.008f m	VCG	2.174 m	TPcm	0.34

Hydrostatic Properties

Draft is from Baseline.
Trim: fwd 0.536/9.520, No heel, VCG = 2.174

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m/cm)	GML (m)	GM(Solid) (m)
1.363	33.615	5.084f	0.801	4.869f	0.345	0.154	4.351	5.416

Water Specific Gravity = 1.025.
Trim is per 9.52m



DREDGE PUMP POINT AFT – SLEWING FRAME FOLDED IN SAILING CONDITION /SPUD BALANCE ON DECK

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
Total Weight:	**33.62**	**5.008f**	**0.000**	**2.174u**

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Singapore 569880
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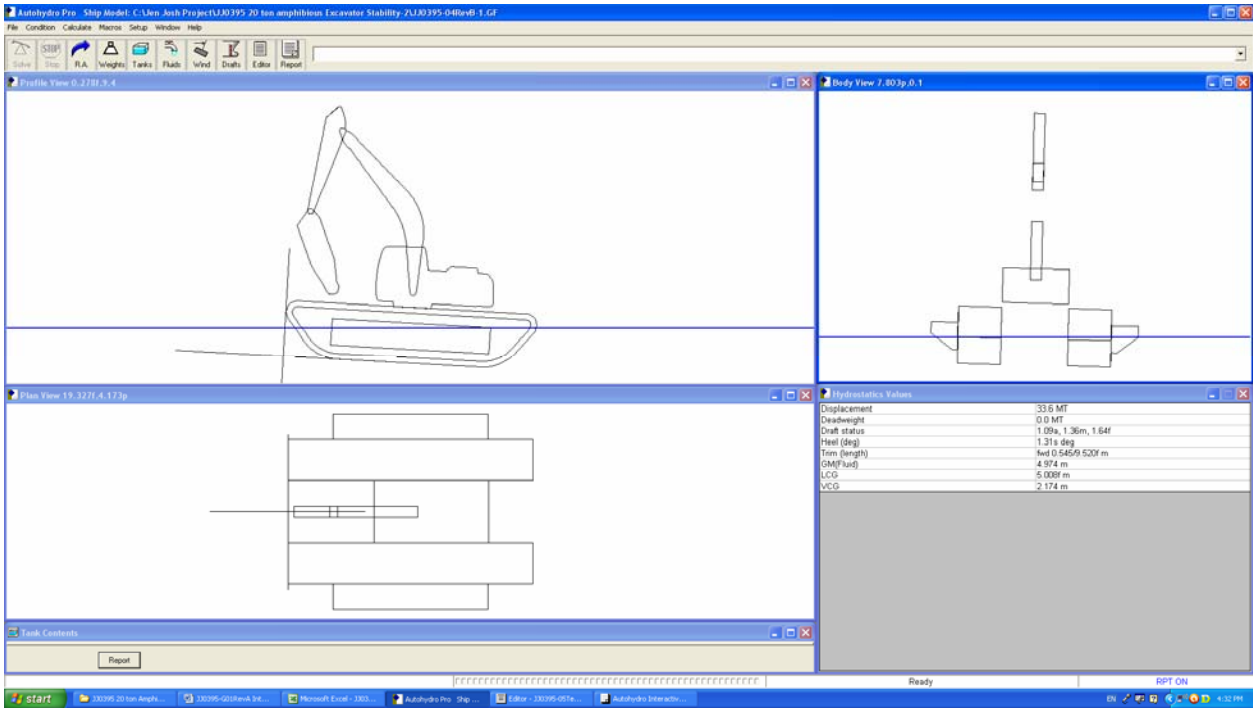
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Displacement	33.62	5.008f	0.000	2.174

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	26.58	5.093f	0.000	0.736
HULL2	Intact	1.025	0.05	5.124f	0.000	0.989
HULL3	Intact	1.025	6.99	5.051f	0.000	1.049
SubTotals:			**33.62**	**5.084f**	**0.000**	**0.801**



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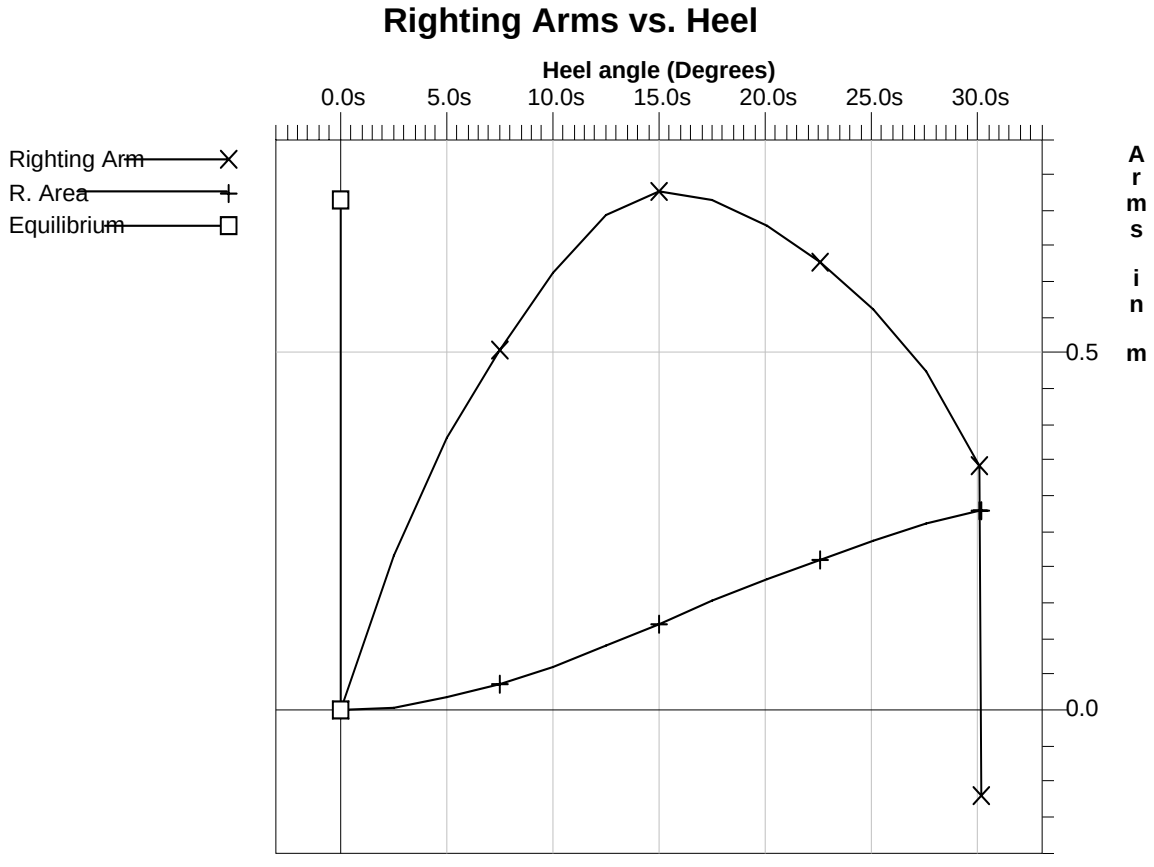
Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Righting Arm (m)	Area (m-Rad)
0.00	3.22f	1.094	0.000	0.000
2.50s	3.40f	1.082	0.217	0.005
5.00s	3.73f	1.066	0.382	0.018
7.50s	3.89f	1.067	0.506	0.038
10.00s	4.12f	1.058	0.614	0.062
12.50s	4.71f	1.016	0.695	0.091
15.00s	6.05f	0.919	0.728	0.122
17.50s	7.96f	0.783	0.714	0.153
20.00s	9.98f	0.639	0.679	0.184
22.50s	12.11f	0.483	0.630	0.212
25.00s	14.50f	0.297	0.564	0.239
27.50s	17.53f	0.052	0.477	0.261
30.00s	22.43f	-0.356	0.342	0.279
30.12s	124.02a	5.325	-0.118	0.279

Weight and C.G. used above include tank loads.
The tank load centers were not allowed to shift with heel and trim changes.

"GL BARGE INTACT STABILITY CRITERIA"

Limit	Min/Max	Actual	Margin	Pass
(1) Area from 0.00 deg to MaxRA	>0.0800 m-R	0.122	0.042	Yes
(2) Angle from 0.00 deg to RAzero	>20.00 deg	30.00	10.00	Yes



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Singapore 569880
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IMO SEVERE WIND AND ROLLING CRITERION (WEATHER CRITERION) - A562

Heeling Moment Derivation

Part	LPA (m^2)	HCP (m)	Arm (m)	Pressure (MT/m^2)	Moment (m-MT)
HULL	5.4	0.383	0.933	0.056	0.282
HULL2	4.9	0.276	0.825	0.056	0.226
HULL3	1.0	0.087	0.636	0.056	0.037
SAIL1	7.4	1.769	2.318	0.056	0.962
SAIL2	4.2	4.606	5.155	0.056	1.212
SAIL3	2.2	6.383	6.932	0.056	0.864
SAIL4	2.5	2.711	3.261	0.056	0.454

Total wind heeling moment 4.038 to starboard

Floating Status

Draft FP	1.637 m	Heel	stbd 1.31 deg.	GM(Solid)	4.976 m
Draft MS	1.364 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.091 m	Wind	0.0 kn	GM(Fluid)	4.976 m
Trim	fwd 0.545/9.520	Wave	No	KMT	7.141 m
LCG	5.008f m	VCG	2.174 m	TPcm	0.33

Hydrostatic Properties

Draft is from Baseline.
Trim: fwd 0.545/9.520, heel: stbd 1.31 deg., VCG = 2.174

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.364	33.610	5.087f	0.803	4.787f	0.331	0.145	4.095	4.976

Water Specific Gravity = 1.025.
Trim is per 9.52m

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Singapore 569880
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Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Notes
1.31s	3.28f	1.090	0.000	
1.31s	3.27f	1.090	0.000	Equil
3.81s	3.58f	1.072	0.190	
6.31s	3.82f	1.066	0.330	
8.81s	3.99f	1.065	0.445	
11.31s	4.36f	1.041	0.541	
13.81s	5.33f	0.971	0.599	
15.37s	6.32f	0.899	0.607	MaxRa
16.31s	7.02f	0.849	0.604	
18.81s	9.01f	0.708	0.578	
21.31s	11.08f	0.559	0.535	
23.81s	13.32f	0.390	0.477	
26.31s	15.98f	0.179	0.401	
28.81s	19.73f	-0.131	0.294	
31.31s	29.11f	-0.896	0.067	
31.34s	29.39f	-0.918	0.061	
33.81s	55.39a	5.278	-0.256	RaZero
36.31s	125.04a	5.243	-0.270	
38.81s	125.53a	5.205	-0.284	
41.31s	126.08a	5.160	-0.299	
43.81s	126.73a	5.110	-0.314	
46.31s	127.47a	5.052	-0.331	
48.81s	128.23a	4.994	-0.350	
51.31s	128.83a	4.946	-0.371	
53.81s	129.27a	4.905	-0.396	
56.31s	129.55a	4.872	-0.422	
58.81s	129.55a	4.853	-0.449	
61.31s	129.39a	4.840	-0.477	
63.81s	128.64a	4.856	-0.503	
66.31s	127.49a	4.889	-0.526	
68.81s	125.60a	4.956	-0.542	
71.31s	122.79a	5.063	-0.545	

Note:
Residual Righting Arms shown above are in excess of the wind heeling arms derived from this moment (in m-MT):
Stbd heeling moment = 4.04

"GL BARGE STABILITY WEATHER CRITERIA"

title Static Angle of Heel < tan (D-d) /B

Limit	Min/Max	Actual	Margin	Pass
(3) Absolute Angle at Equilibrium	<5.79 deg	1.31	4.48	Yes

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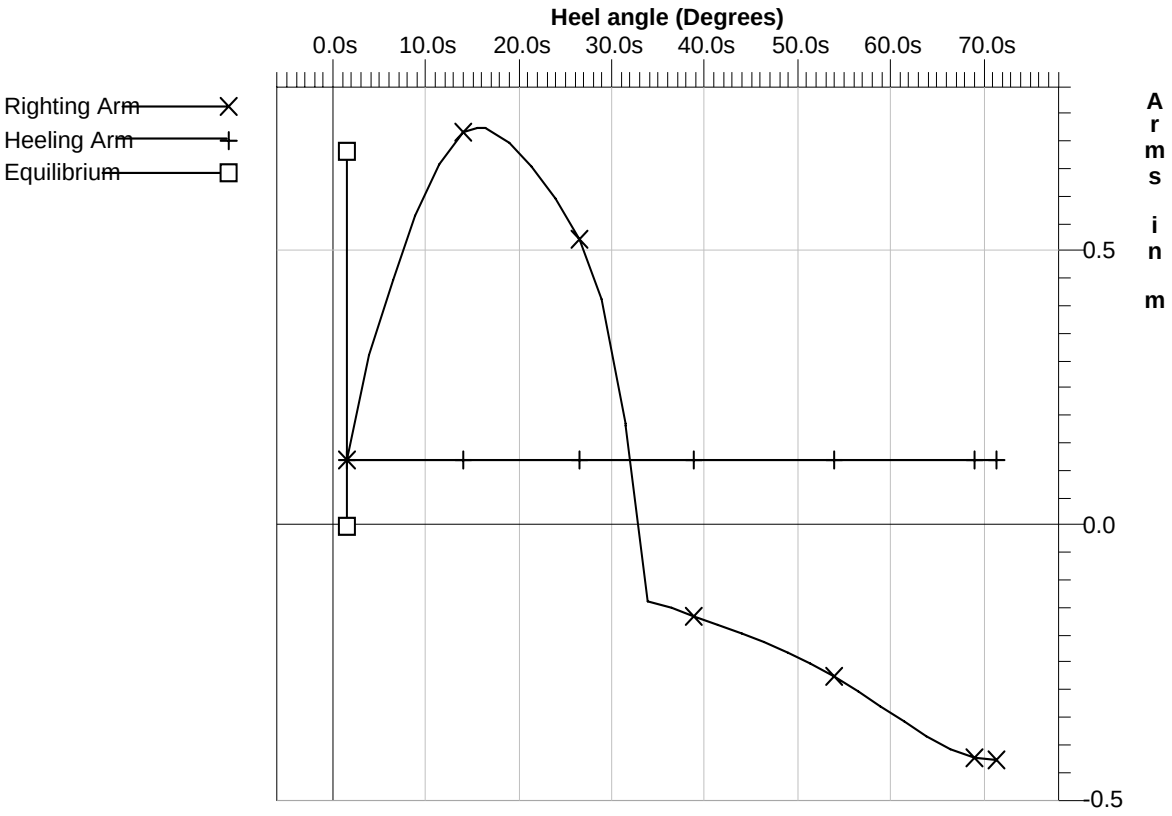
Righting Arms vs. Heel



13. CONDITION 2: DREDGE PUMP POINT AFT – SLEWING FRAME IN UPRIGHT POSITION

Floating Status

Draft FP	1.380 m	Heel	zero	GM(Solid)	5.757 m
Draft MS	1.283 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.187 m	Wind	0.0 kn	GM(Fluid)	5.757 m
Trim	fwd 0.193/9.520	Wave	No	KMT	8.130 m
LCG	4.851f m	VCG	2.374 m	TPcm	0.34

Hydrostatic Properties

Draft is from Baseline.
Trim: fwd 0.193/9.520, No heel, VCG = 2.374

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.283	30.755	4.884f	0.744	4.808f	0.343	0.145	4.492	5.757

Water Specific Gravity = 1.025.
Trim is per 9.52m

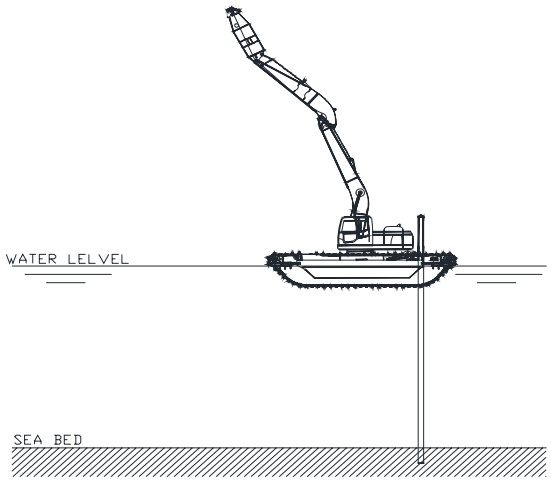


Figure: DREDGE PUMP POINT AFT – SLEWING FRAME IN UPRIGHT POSITION / SPUD SUPPORTED ON SEA BED

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
DREDGE PUMP IN ORIGINAL POSITION	-0.62	2.650a	0.000	4.000u
DREDGE PUMP IN UPRIGHT POSITION	0.62	1.200a	0.000	14.200u
SLEWING FRAME IN ORIGINAL POSITION	-1.50	0.750f	0.000	6.500u
SLEWING FRAME IN UPRIGHT POSITION	1.50	2.100f	0.000	7.800u
SPUDS SUPPORTED ON SEA BEAD	-2.86	7.720f	0.000	2.900u
Total Weight:	**30.76**	**4.851f**	**0.000**	**2.374u**

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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

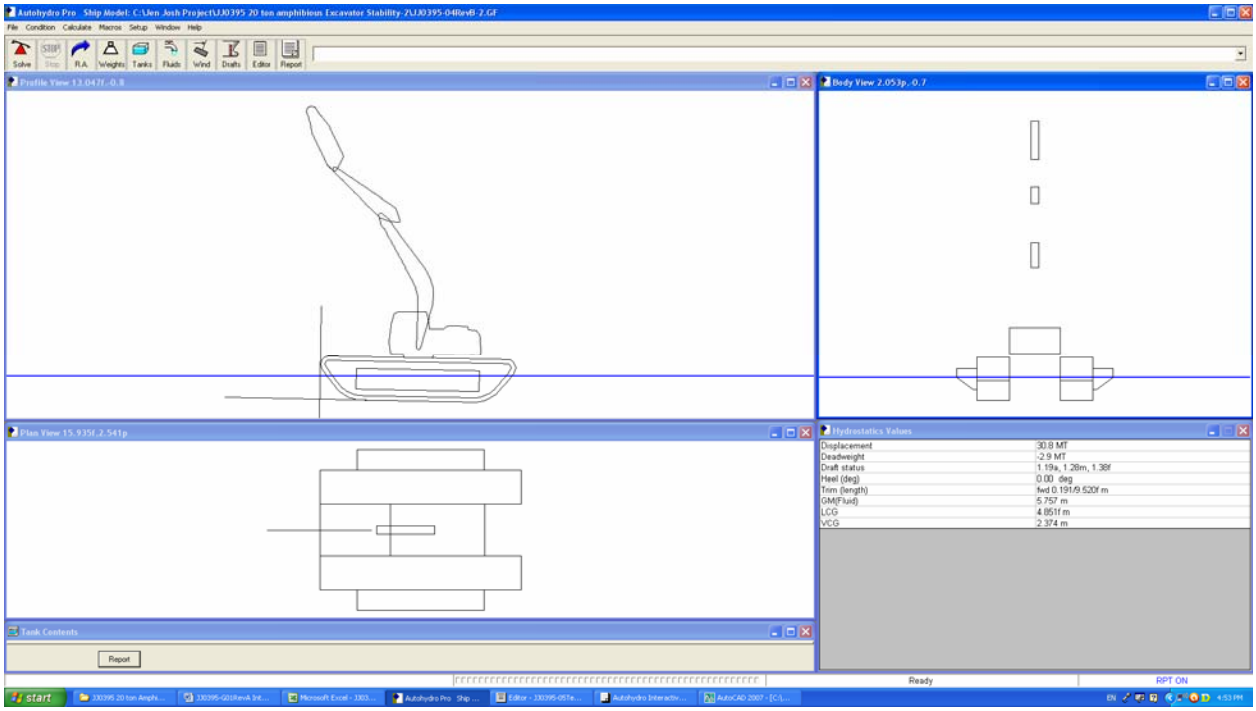
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Displacement	30.76	4.851f	0.000	2.374

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	24.69	4.883f	0.000	0.682
HULL2	Intact	1.025	0.04	4.826f	0.000	0.926
HULL3	Intact	1.025	6.02	4.881f	0.000	0.996
SubTotals:			**30.75**	**4.883f**	**0.000**	**0.744**

Least freeboard is 0.349 m at 9.520f
Least freeboard (to margin line) is 0.349 m at 9.520f



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Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Area (m-Deg)	Freeboard Height (m)	Notes
0.00	1.15f	1.187	0.000	0.000	0.349	Equil
2.50s	1.16f	1.184	0.252	0.315	0.225	
5.00s	1.34f	1.168	0.462	1.215	0.085	
6.44s	1.40f	1.170	0.536	1.936	-0.001	Deck Imm.
7.50s	1.42f	1.172	0.584	2.527	-0.062	
10.00s	1.48f	1.172	0.691	4.130	-0.205	
12.50s	1.56f	1.162	0.786	5.975	-0.344	
15.00s	1.72f	1.138	0.869	8.044	-0.483	
17.50s	2.18f	1.087	0.923	10.289	-0.646	
20.00s	3.20f	1.001	0.942	12.627	-0.871	
22.50s	5.53f	0.831	0.903	14.943	-1.230	
25.00s	8.60f	0.603	0.817	17.094	-1.652	
27.50s	11.74f	0.350	0.712	19.006	-2.058	
30.00s	15.00f	0.069	0.595	20.642	-2.445	
32.50s	18.63f	-0.257	0.462	21.965	-2.833	
35.00s	23.29f	-0.675	0.304	22.927	-3.270	
37.50s	9.29a	2.227	0.534	23.975	-2.562	
40.00s	20.24a	2.879	0.303	25.020	-3.332	
42.50s	24.60a	3.144	0.155	25.575	-3.712	
44.53s	29.69a	3.457	0.015	25.746	-4.099	
45.00s	31.73a	3.582	-0.030	25.742	-4.233	RaZero
47.50s	170.77a	2.370	0.186	25.895	-3.262	
Vessel lost stability in direction transverse to righting arm						

Note:
Residual Righting Arms shown above are in excess of the heel moments from tabular input.

"THE MAXIMUM DISTANCE BETWEEN THE CURVE AT THE RIGHTING LEVERS AND THE CURVE OF THE HEELING LEVERS SHOULD NOT LESS THAN 0.10 M."

Limit	Min/Max	Actual	Margin	Pass
(4) Absolute Angle at Equilibrium	<10.00 deg	0.00	10.00	Yes
(5) Absolute Angle at Deck Immersion	>4.5 deg	12.6	8.10	Yes
(6) Righting Arm at MaxRA	>0.100 m	0.942	0.842	Yes
(7) Area from 0.00 deg to RAzero	>4.584 m-D	25.746	21.162	Yes

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Singapore 569880
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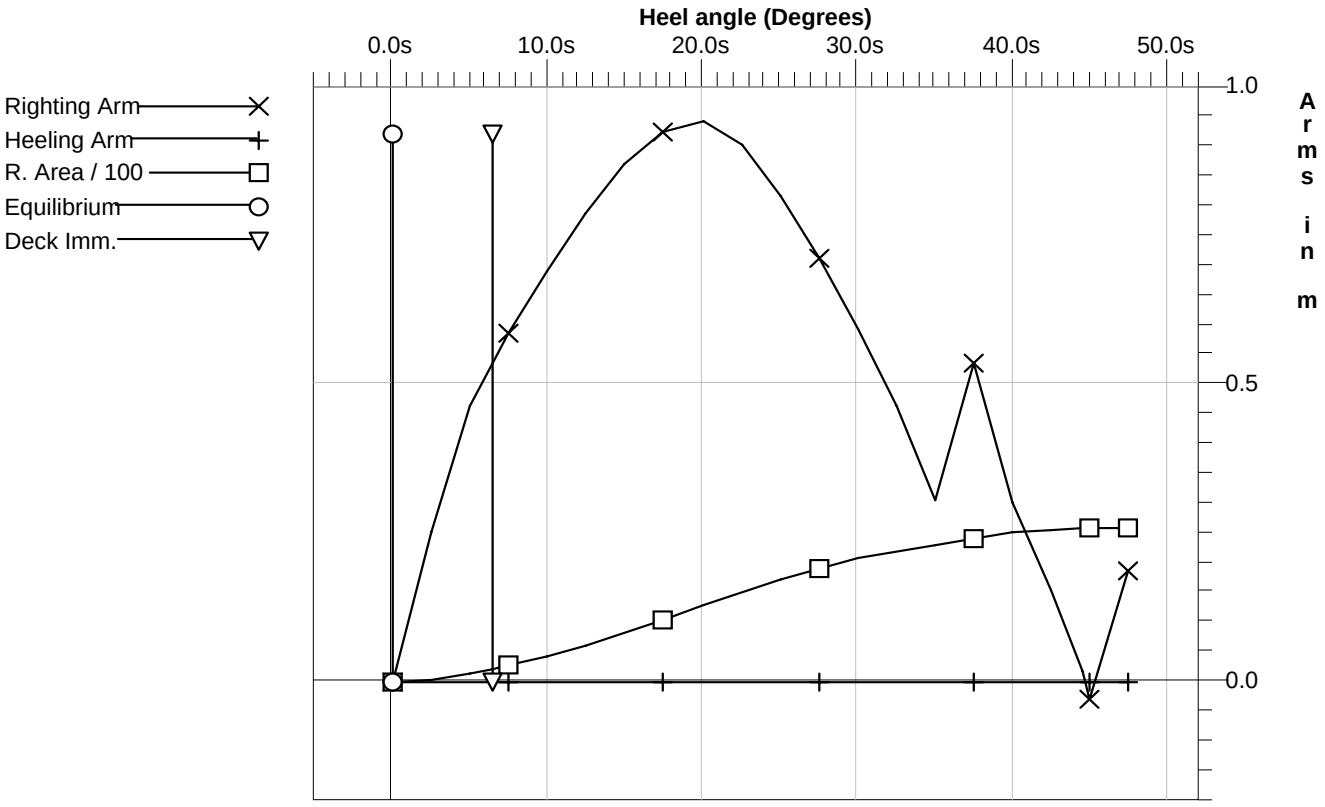
Righting Arms vs. Heel



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Singapore 569880
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14. CONDITION 3: DREDGE PUMP POINT AFT- SLEWING FRAME IN MAX. OUTREACH POSITION

Floating Status

Draft FP	1.419 m	Heel	zero	GM(Solid)	5.620 m
Draft MS	1.367 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.314 m	Wind	0.0 kn	GM(Fluid)	5.620 m
Trim	fwd 0.104/9.520	Wave	No	KMT	7.595 m
LCG	4.811f m	VCG	1.975 m	TPcm	0.35

Hydrostatic Properties

Draft is from Baseline.
Trim: fwd 0.104/9.520, No heel, VCG = 1.975

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.367	33.615	4.823f	0.793	4.786f	0.346	0.163	4.616	5.620

Water Specific Gravity = 1.025.
Trim is per 9.52m

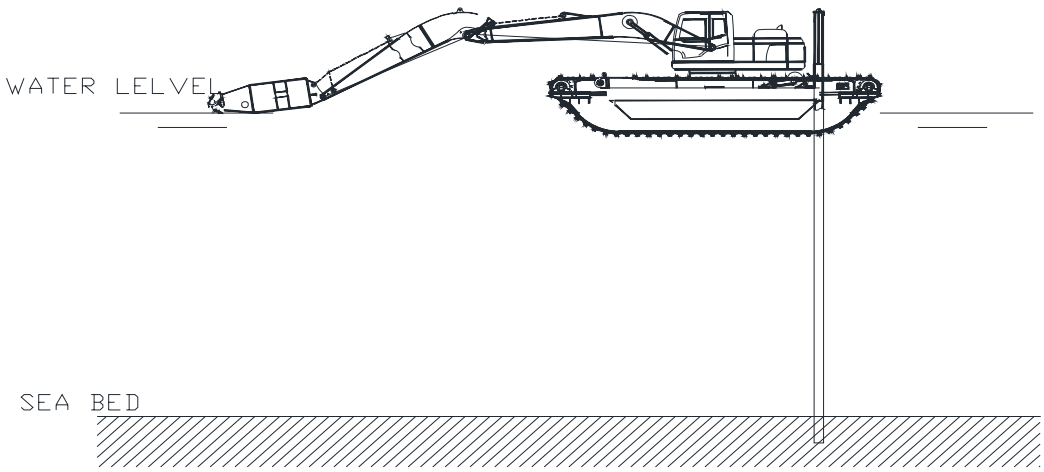

Figure: DREDGE PUMP POINT AFT – SLEWING FRAME IN MAX. OUTREACH POSITION / SPUDS SUPPORTED ON SEA BED

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
DREDGE PUMP IN MAX OUTREACH AFT POSITION	0.62	8.100a	0.000	1.140u
DREDGE PUMP IN ORIGINAL POSITION	-0.62	2.650a	0.000	4.000u
SLEWING FRAME IN MAX OUTREACH AFT POSITION	1.50	1.440a	0.000	3.220u
SLEWING FRAME IN ORIGINAL POSITION	-1.50	0.750f	0.000	6.500u
SPUDS SUPPORTED ON SEA BEAD	0.00	0.000	0.000	0.000
Total Weight:	**33.62**	**4.811f**	**0.000**	**1.975u**

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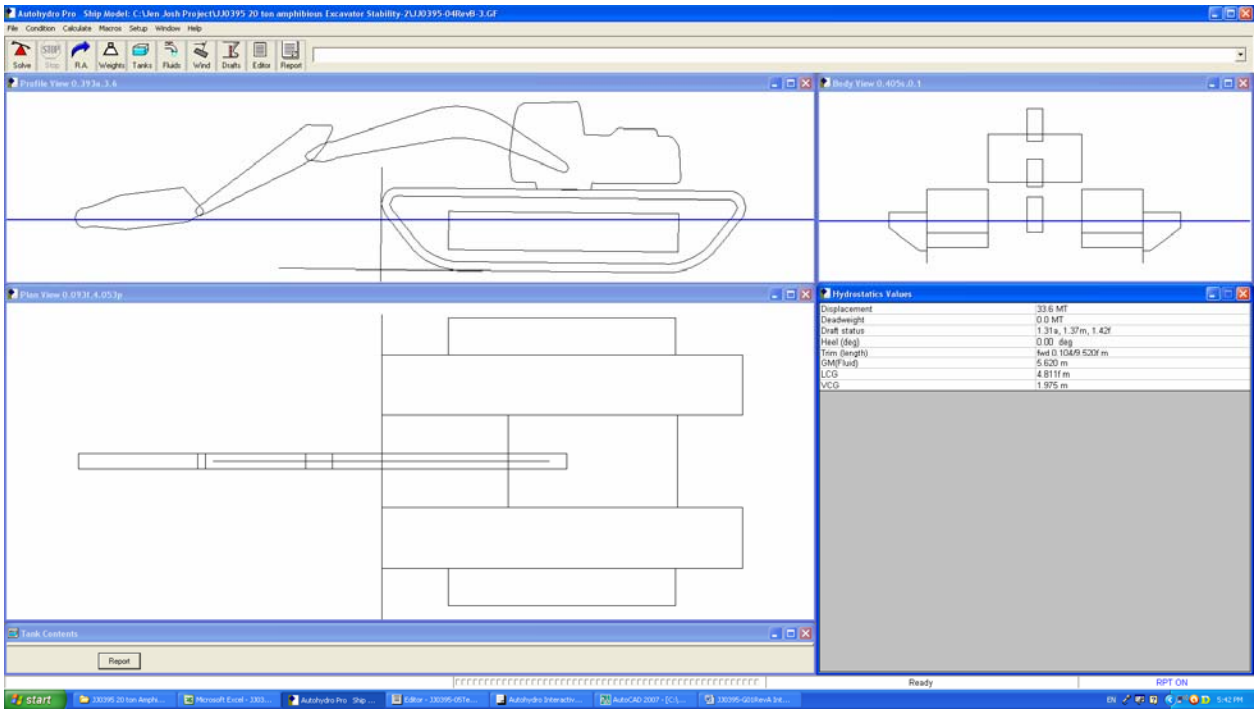
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Displacement	33.62	4.811f	0.000	1.975

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	26.54	4.825f	0.000	0.726
HULL2	Intact	1.025	0.05	4.733f	0.000	0.977
HULL3	Intact	1.025	7.02	4.816f	0.000	1.042
SubTotals:			**33.61**	**4.823f**	**0.000**	**0.793**

Least freeboard is 0.309 m at 9.520f
Least freeboard (to margin line) is 0.309 m at 9.520f



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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Area (m-Deg)	Freeboard Height (m)	Notes
0.00	0.63f	1.314	0.000	0.000	0.309	Equil
2.50s	0.63f	1.313	0.246	0.307	0.186	
5.00s	0.72f	1.322	0.408	1.141	0.034	
5.57s	0.72f	1.327	0.439	1.381	0.000	Deck Imm.
7.50s	0.75f	1.336	0.540	2.332	-0.115	
10.00s	0.78f	1.342	0.661	3.840	-0.259	
12.50s	0.83f	1.339	0.772	5.631	-0.399	
15.00s	1.02f	1.322	0.864	7.676	-0.549	
17.50s	1.50f	1.291	0.911	9.904	-0.738	
18.60s	1.86f	1.270	0.915	10.907	-0.838	MaxRa
20.00s	2.53f	1.233	0.908	12.185	-0.991	
22.50s	4.00f	1.155	0.869	14.416	-1.300	
25.00s	5.32f	1.091	0.821	16.529	-1.598	
27.50s	6.38f	1.049	0.767	18.514	-1.874	
30.00s	7.18f	1.029	0.709	20.360	-2.128	
32.50s	7.37f	1.063	0.648	22.056	-2.337	
35.00s	7.14f	1.137	0.585	23.598	-2.515	
37.50s	6.69f	1.227	0.520	24.978	-2.674	
40.00s	6.22f	1.315	0.454	26.196	-2.826	
42.50s	5.73f	1.402	0.388	27.249	-2.973	
45.00s	5.27f	1.481	0.321	28.136	-3.116	
47.50s	4.85f	1.550	0.255	28.855	-3.256	
50.00s	4.47f	1.612	0.188	29.408	-3.392	
52.50s	4.13f	1.664	0.120	29.793	-3.524	
55.00s	3.80f	1.709	0.053	30.010	-3.647	
56.97s	3.48f	1.745	0.000	30.062	-3.736	RaZero
57.50s	3.48f	1.746	-0.014	30.058	-3.764	
60.00s	3.22f	1.774	-0.081	29.939	-3.876	
62.50s	3.02f	1.789	-0.148	29.652	-3.983	
65.00s	2.89f	1.793	-0.214	29.199	-4.086	
67.50s	2.82f	1.786	-0.280	28.580	-4.186	
70.00s	2.82f	1.768	-0.346	27.798	-4.283	

Note:
Residual Righting Arms shown above are in excess of the heel moments from tabular input.

"THE MAXIMUM DISTANCE BETWEEN THE CURVE AT THE RIGHTING LEVERS AND THE CURVE OF THE HEELING LEVERS SHOULD NOT LESS THAN 0.10 M."

Limit	Min/Max	Actual	Margin	Pass
(4) Absolute Angle at Equilibrium	<10.00 deg	0.00	10.00	Yes
(5) Absolute Angle at Deck Immersion	>4.50 deg	11.40	6.90	Yes
(6) Righting Arm at MaxRA	>0.100 m	0.915	0.815	Yes
(7) Area from 0.00 deg to RAzero	>4.584 m-D	30.010	25.426	Yes

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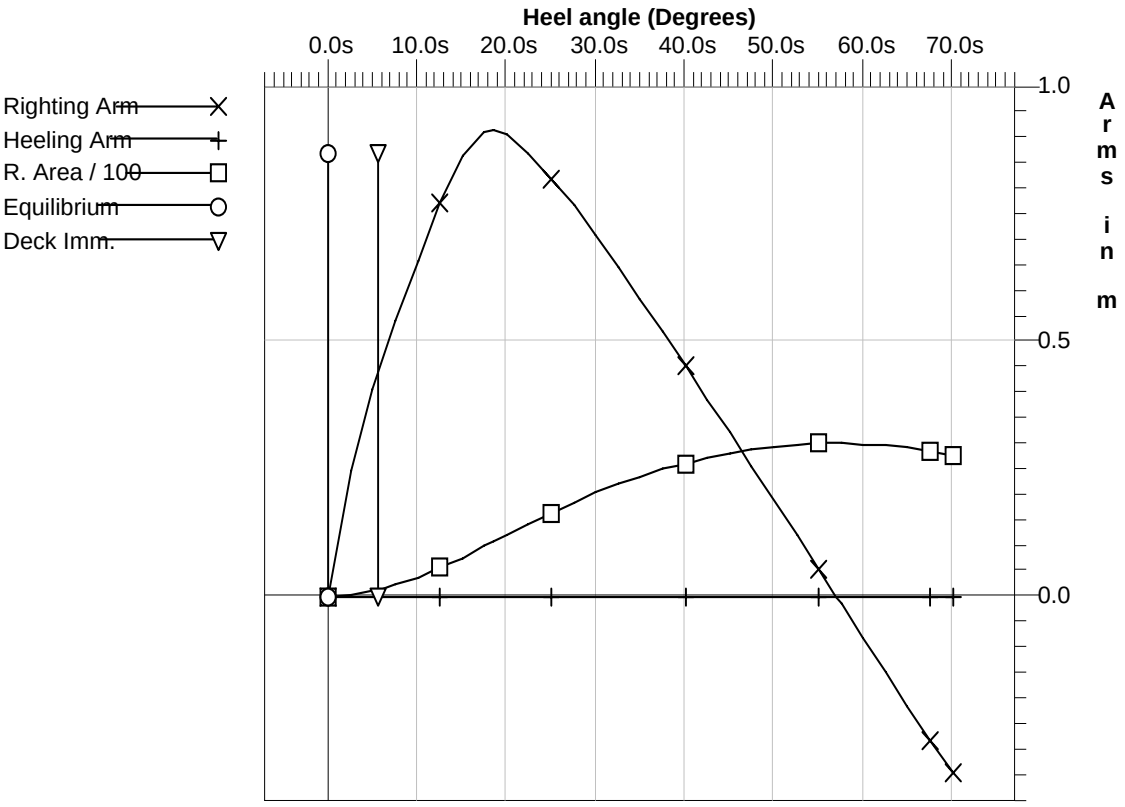
No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Righting Arms vs. Heel



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Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

15. CONDITION 4: DREDGE PUMP POINT AFT – SLEWING FRAME IN LOWEST POSITION

Floating Status

Draft FP	1.265 m	Heel	zero	GM(Solid)	6.617 m
Draft MS	1.284 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.302 m	Wind	0.0 kn	GM(Fluid)	6.617 m
Trim	aft 0.038/9.520	Wave	No	KMT	8.128 m
LCG	4.739f m	VCG	1.511 m	TPcm	0.34

Hydrostatic Properties

Draft is from Baseline.
Trim: aft 0.038/9.520, No heel, VCG = 1.511

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.284	30.755	4.736f	0.743	4.750f	0.343	0.173	5.346	6.617

Water Specific Gravity = 1.025.
Trim is per 9.52m

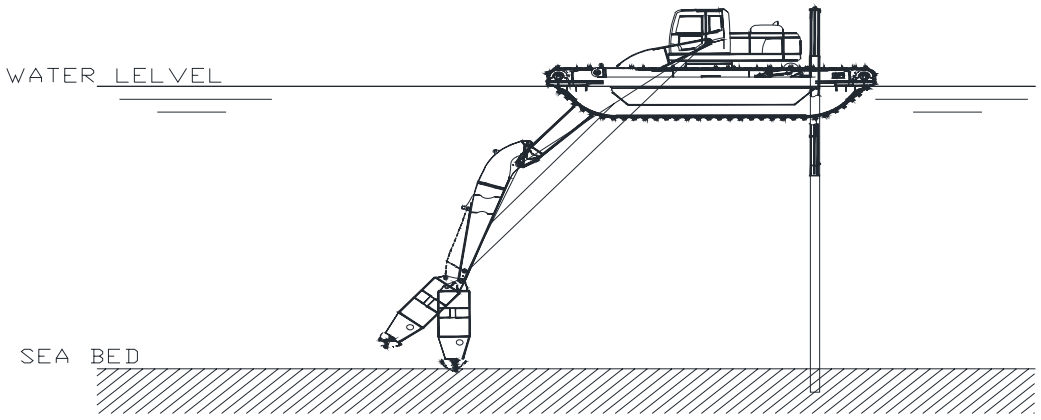

Figure: DREDGE PUMP POINT AFT – SLEWING FRAME IN LOWEST POSITION / SPUDS SUPPORTED ON SEA BED

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
DREDGE PUMP IN MAX OUTREACH LOWEST POSITION	0.62	2.650a	0.000	7.200d
DREDGE PUMP IN ORIGINAL POSITION	-0.62	2.650a	0.000	4.000u
SLEWING FRAME IN MAX OUTREACH LOWEST POSITION	1.50	0.400f	0.000	1.120d
SLEWING FRAME IN ORIGINAL POSITION	-1.50	0.750f	0.000	6.500u
SPUDS SUPPORTED ON SEA BEAD	-2.86	7.720f	0.000	2.900u
Total Weight:	**30.76**	**4.739f**	**0.000**	**1.511u**

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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

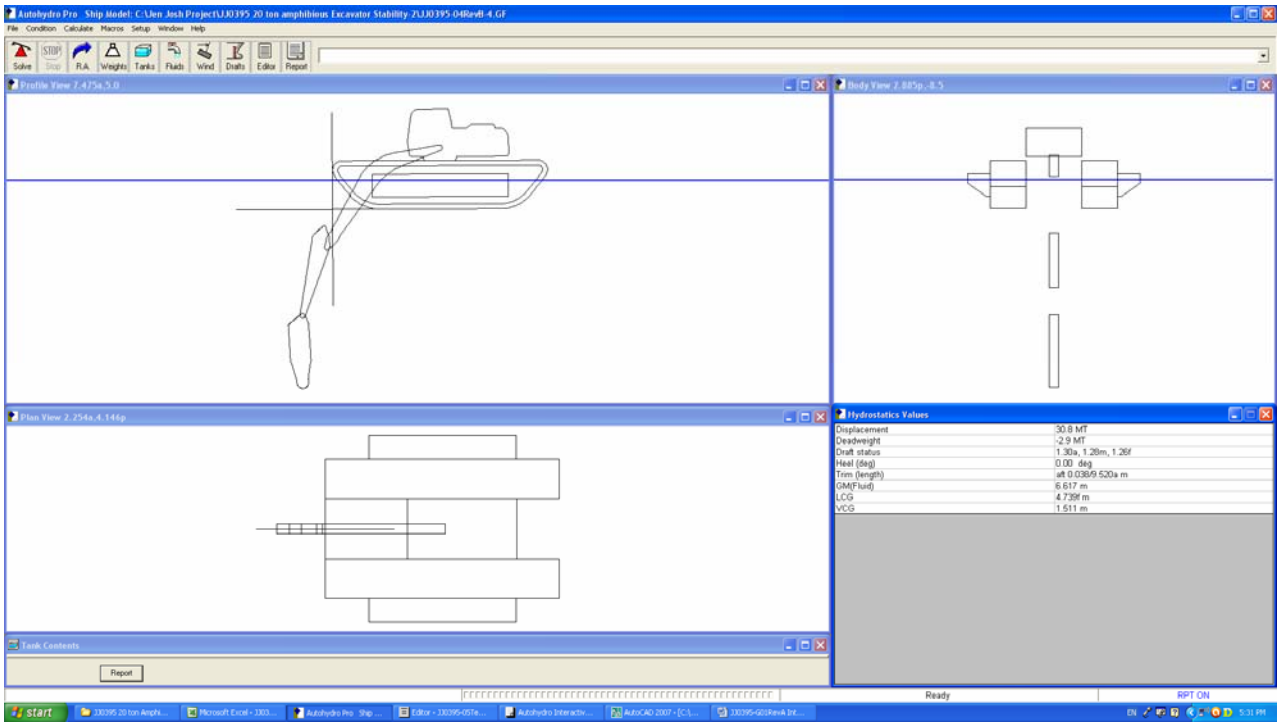
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Displacement	30.76	4.739f	0.000	1.511

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	24.69	4.736f	0.000	0.681
HULL2	Intact	1.025	0.04	4.609f	0.000	0.926
HULL3	Intact	1.025	6.03	4.736f	0.000	0.995
SubTotals:			**30.75**	**4.736f**	**0.000**	**0.743**

Least freeboard is 0.425 m at 0.000
Least freeboard (to margin line) is 0.425 m at 0.000



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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Area (m-Deg)	Freeboard Height (m)	Notes
0.00	0.23a	1.302	0.000	0.000	0.425	Equil
2.50s	0.23a	1.301	0.290	0.362	0.303	
5.00s	0.26a	1.300	0.542	1.410	0.176	
7.50s	0.26a	1.313	0.698	2.975	0.033	
8.09s	0.28a	1.316	0.733	3.400	-0.002	Deck Imm.
10.00s	0.28a	1.319	0.842	4.900	-0.106	
12.50s	0.29a	1.317	0.974	7.170	-0.239	
15.00s	0.31a	1.308	1.096	9.759	-0.367	
17.50s	0.37a	1.295	1.195	12.628	-0.492	
20.00s	0.49a	1.298	1.263	15.706	-0.636	
22.50s	0.70a	1.325	1.301	18.917	-0.804	
24.38s	1.01a	1.371	1.309	21.364	-0.957	MaxRa
25.00s	1.17a	1.394	1.306	22.181	-1.016	
27.50s	2.23a	1.533	1.274	25.407	-1.298	
30.00s	3.05a	1.657	1.227	28.538	-1.566	
32.50s	3.56a	1.755	1.174	31.541	-1.807	
35.00s	4.23a	1.858	1.119	34.407	-2.054	
37.50s	5.19a	1.976	1.061	37.131	-2.314	
40.00s	14.09a	2.519	0.960	39.666	-2.988	
42.50s	17.41a	2.711	0.864	41.947	-3.307	
45.00s	20.29a	2.871	0.767	43.987	-3.589	
47.50s	22.97a	3.016	0.672	45.787	-3.849	
50.00s	25.57a	3.157	0.578	47.349	-4.097	
52.50s	28.12a	3.293	0.487	48.680	-4.331	
55.00s	30.86a	3.441	0.396	49.784	-4.566	
57.50s	33.59a	3.588	0.310	50.666	-4.789	
60.00s	36.22a	3.724	0.232	51.345	-4.990	
62.50s	38.61a	3.841	0.163	51.840	-5.165	
65.00s	40.75a	3.938	0.103	52.170	-5.314	
67.50s	42.62a	4.016	0.050	52.360	-5.439	
70.00s	44.21a	4.074	0.004	52.427	-5.543	
70.28s	44.37a	4.079	0.000	52.427	-5.553	RaZero
72.50s	45.44a	4.112	-0.035	52.388	-5.627	

Note:
Residual Righting Arms shown above are in excess of the heel moments from tabular input.

"THE MAXIMUM DISTANCE BETWEEN THE CURVE AT THE RIGHTING LEVERS AND THE CURVE OF THE HEELING LEVERS SHOULD NOT LESS THAN 0.10 M."

Limit	Min/Max	Actual	Margin	Pass
(4) Absolute Angle at Equilibrium	<10.00 deg	0.00	10.00	Yes
(5) Absolute Angle at Deck Immersion	>4.50 deg	12.59	8.09	Yes
(6) Righting Arm at MaxRA	>0.100 m	1.309	1.209	Yes
(7) Area from 0.00 deg to RAzero	>4.584 m-D	52.427	47.843	Yes

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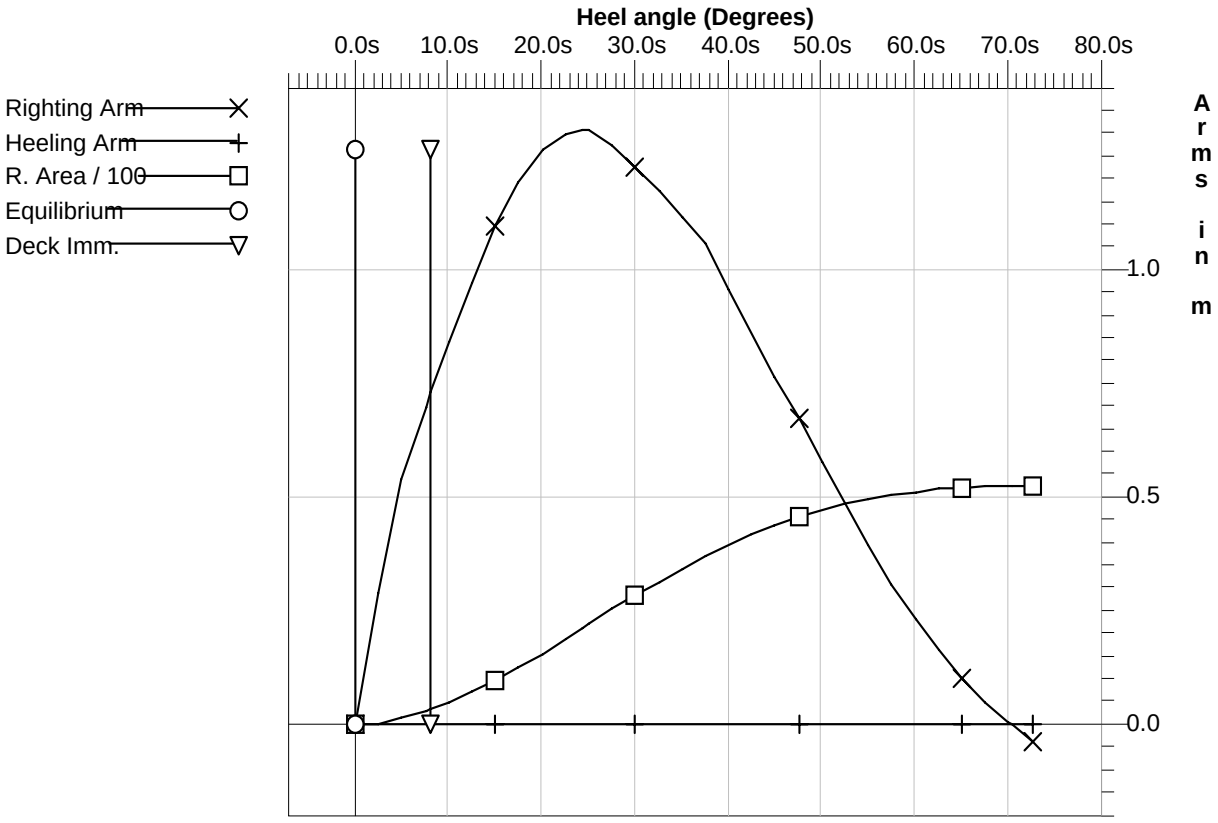
No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Righting Arms vs. Heel



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Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

16. CONDITION 5: DREDGE PUMP POINT AFT- SLEWING FRAME IN LOWEST POSITION / SPUDS ON BALANCE ON THE DECK

Floating Status

Draft FP	1.371 m	Heel	stbd 0.14 deg.	GM(Solid)	5.706 m
Draft MS	1.401 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.432 m	Wind	0.0 kn	GM(Fluid)	5.706 m
Trim	aft 0.061/9.520	Wave	No	KMT	7.388 m
LCG	4.729f m	VCG	1.683 m	TPcm	0.35

Hydrostatic Properties

Draft is from Baseline.
Trim: aft 0.061/9.520, heel: stbd 0.14 deg., VCG = 1.683

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.401	34.815	4.723f	0.813	4.742f	0.346	0.174	4.745	5.706

Water Specific Gravity = 1.025.
Trim is per 9.52m

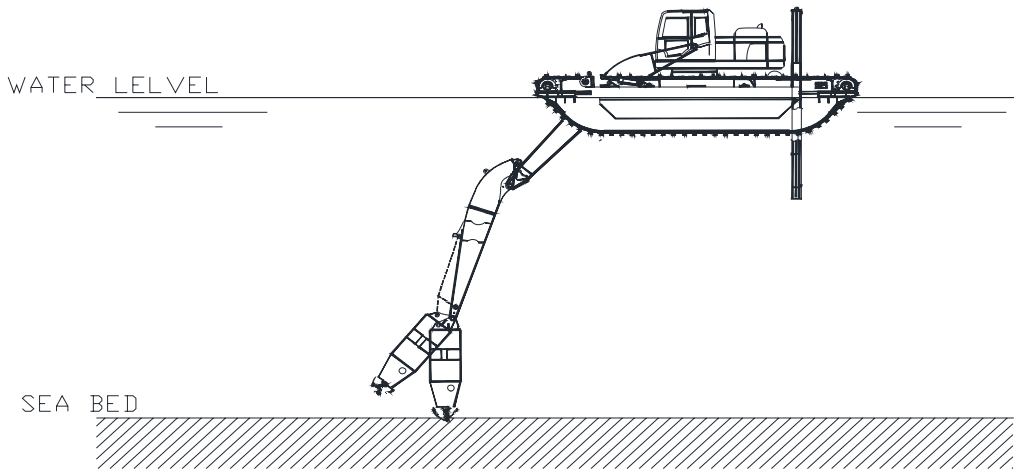

Figure: DREDGE PUMP POINT AFT – SLEWING FRAME IN LOWEST POSITION /SPUDS BALANCE ON THE DECK.

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
DREDGE PUMP IN MAX OUTREACH LOWEST POSITION	0.62	2.650a	0.000	7.200d
DREDGE PUMP IN MAX OUTREACH LOWEST POSITION HOLDING FORCES	1.20	2.650a	0.000	3.180u
DREDGE PUMP IN ORIGINAL POSITION	-0.62	2.650a	0.000	4.000u
SLEWING FRAME IN MAX OUTREACH LOWEST POSITION	1.50	0.400f	0.000	1.120d
SLEWING FRAME IN ORIGINAL POSITION	-1.50	0.750f	0.000	6.500u
Total Weight:	**34.82**	**4.729f**	**0.000**	**1.683u**

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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

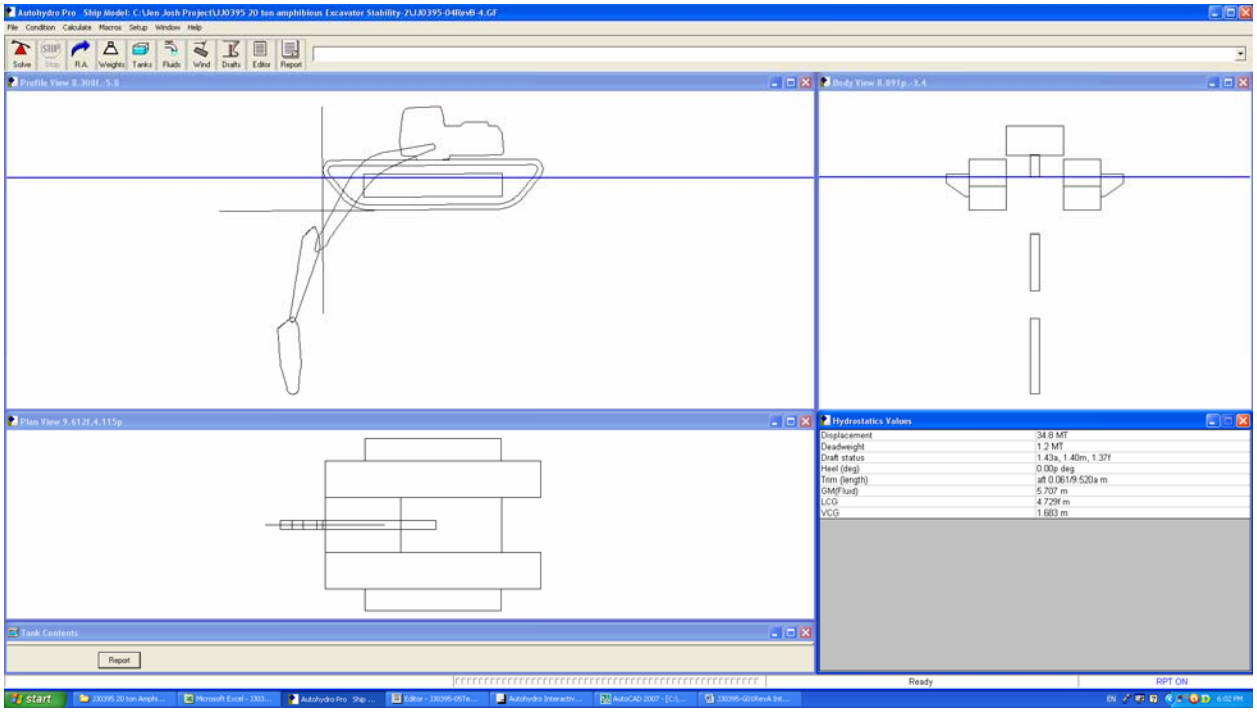
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Deadweight	1.20	3.088a	0.000	-12.085
Displacement	34.82	4.729f	0.000	1.683

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	27.32	4.722f	0.009s	0.745
HULL2	Intact	1.025	0.05	4.583f	0.030s	1.000
HULL3	Intact	1.025	7.44	4.729f	0.044s	1.062
SubTotals:			**34.81**	**4.723f**	**0.017s**	**0.813**

Least freeboard is 0.289 m at 0.000
Least freeboard (to margin line) is 0.289 m at 0.000



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No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Area (m-Deg)	Freeboard Height (m)	Notes
0.00p	0.37a	1.432	0.000	0.000	0.296	Equil
2.50p	0.40a	1.434	0.244	0.305	0.169	
5.00p	0.42a	1.460	0.397	1.125	0.016	
5.27p	0.42a	1.462	0.413	1.235	0.000	Deck Imm.
7.50p	0.43a	1.479	0.541	2.303	-0.133	
10.00p	0.45a	1.491	0.673	3.826	-0.277	
12.50p	0.48a	1.496	0.796	5.662	-0.417	
15.00p	0.64a	1.514	0.889	7.768	-0.573	
17.50p	0.93a	1.560	0.932	10.056	-0.758	
18.56p	1.13a	1.592	0.937	11.041	-0.849	MaxRa
20.00p	1.55a	1.655	0.929	12.390	-0.993	
22.50p	2.13a	1.763	0.894	14.676	-1.244	
25.00p	2.24a	1.836	0.848	16.854	-1.461	
27.50p	2.24a	1.898	0.801	18.915	-1.665	
30.00p	2.24a	1.955	0.752	20.857	-1.866	
32.50p	2.17a	2.003	0.702	22.674	-2.058	
35.00p	2.09a	2.047	0.651	24.365	-2.246	
37.50p	2.00a	2.086	0.599	25.927	-2.428	
40.00p	1.90a	2.121	0.546	27.358	-2.605	
42.50p	1.79a	2.151	0.493	28.658	-2.777	
45.00p	1.69a	2.177	0.440	29.824	-2.944	
47.50p	1.60a	2.200	0.387	30.857	-3.106	
50.00p	1.53a	2.220	0.333	31.756	-3.263	
52.50p	1.47a	2.233	0.279	32.521	-3.412	
55.00p	1.41a	2.241	0.225	33.151	-3.553	
57.50p	1.35a	2.242	0.170	33.644	-3.685	
60.00p	1.35a	2.243	0.116	34.002	-3.813	
62.50p	1.35a	2.238	0.061	34.223	-3.934	
65.00p	1.41a	2.234	0.006	34.306	-4.051	
65.25p	1.42a	2.233	0.000	34.307	-4.063	RaZero
67.50p	1.47a	2.225	-0.050	34.250	-4.161	
70.00p	1.52a	2.212	-0.107	34.054	-4.263	

Note:
Residual Righting Arms shown above are in excess of the heel moments from tabular input.

"THE MAXIMUM DISTANCE BETWEEN THE CURVE AT THE RIGHTING LEVERS AND THE CURVE OF THE HEELING LEVERS SHOULD NOT LESS THAN 0.10 M."

Limit	Min/Max	Actual	Margin	Pass
(4) Absolute Angle at Equilibrium	<10.00 deg	0.00	10.00	Yes
(5) Absolute Angle at Deck Immersion	>4.50 deg	10.90	6.40	Yes
(6) Righting Arm at MaxRA	>0.100 m	0.937	0.837	Yes
(7) Area from 0.00 deg to RAzero	>4.584 m-D	34.306	29.722	Yes

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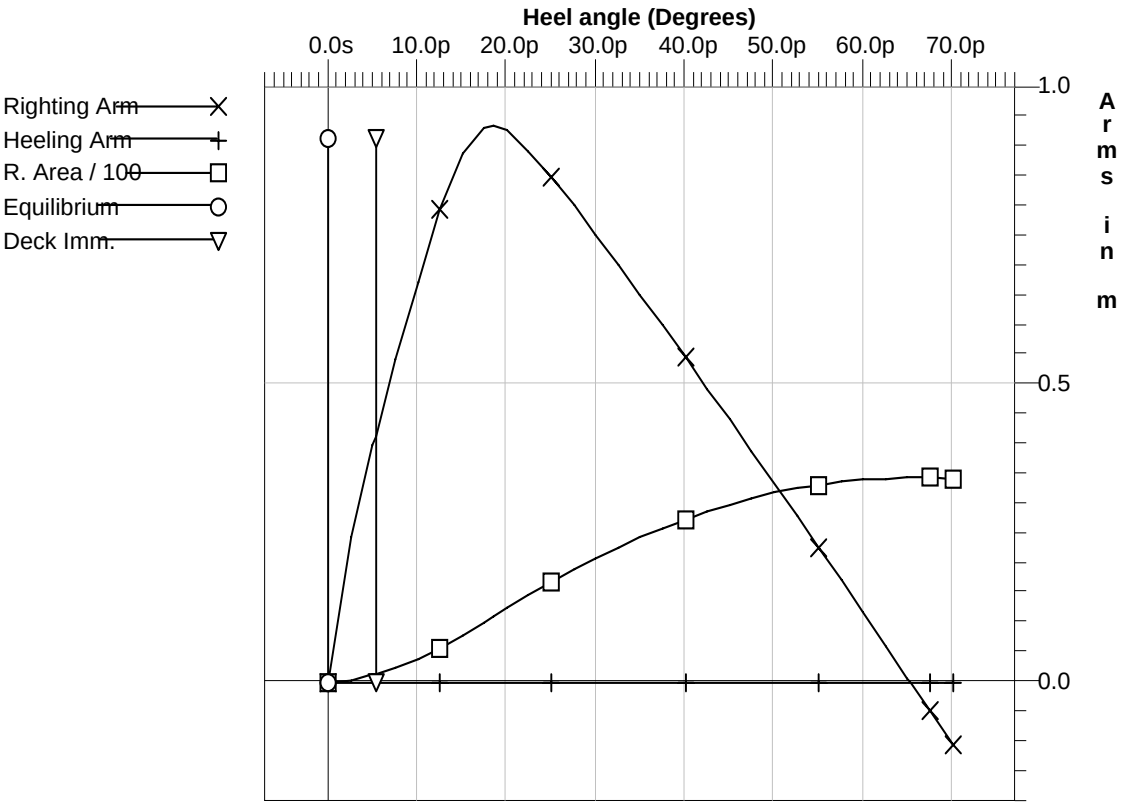
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

Righting Arms vs. Heel



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Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

17. CONDITION 6: DREDGE PUMP POINT AFT- SLEWING FRAME IN MAX. OUTREACH POSITION & 45 DEG. WITH CENTRE LINE / SPUDS SUPPORTED ON SEA BED

Floating Status

Draft FP	0.894 m	Heel	stbd 0.54 deg.	GM(Solid)	6.119 m
Draft MS	1.276 m	Equil	Yes	F/S Corr.	0.000 m
Draft AP	1.658 m	Wind	0.0 kn	GM(Fluid)	6.119 m
Trim	aft 0.763/9.520	Wave	No	KMT	7.989 m
LCG	4.362f m	VCG	1.889 m	TPcm	0.34

Hydrostatic Properties

Draft is from Baseline.
Trim: aft 0.763/9.520, heel: stbd 0.54 deg., VCG = 1.889

Draft at 4.760f (m)	Displ (MT)	LCB (m)	VCB (m)	LCF (m)	TPcm (MT/cm)	MTcm (MT-m /cm)	GML (m)	GM(Solid) (m)
1.276	30.750	4.272f	0.762	4.601f	0.338	0.156	4.820	6.119

Water Specific Gravity = 1.025.
Trim is per 9.52m

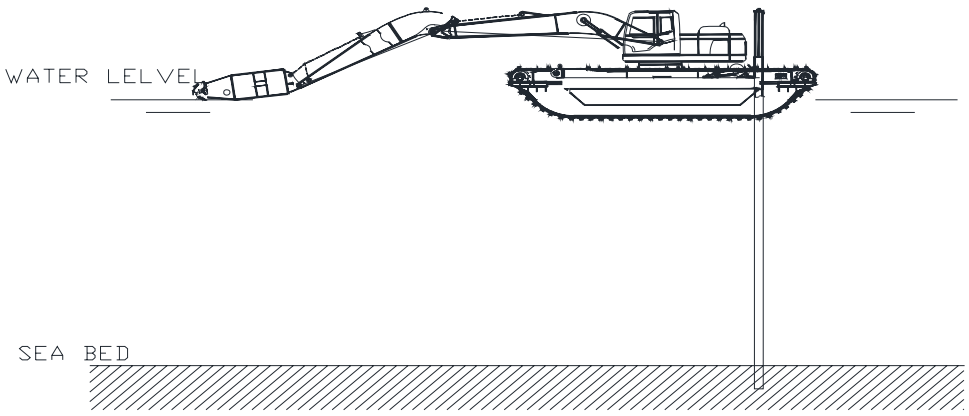


Figure: DREDGE PUMP POINT AFT- SLEWING FRAME IN MAX. OUTREACH POSITION & 45 DEG. WITH CENTRE LINE / SPUDS SUPPORTED ON SEA BED

Fixed Weight Status

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
LIGHT SHIP	33.62	5.008f	0.000	2.174u
DREDGE PUMP IN MAX OUTREACH AFT POSITION	0.62	4.333a	9.093s	1.140u
DREDGE PUMP IN ORIGINAL POSITION	-0.62	2.650a	0.000	4.000u
EXCAVATOR UPPER BODY IN ORIGINAL POSITION	-12.00	6.000f	0.000	3.120u
EXCAVATOR UPPER BODY IN PORT SIDE POSITION	12.00	5.125f	0.875p	3.120u
SLEWING FRAME IN MAX OUTREACH AFT POSITION	1.50	0.375f	4.484s	3.220u
SLEWING FRAME IN ORIGINAL POSITION	-1.50	0.750f	0.000	6.500u
SPUDS SUPPORTED ON SEA BEAD	-2.86	7.720f	0.000	2.900u
Total Weight:	**30.76**	**4.362f**	**0.059s**	**1.889u**

JENJOSH MARINE DESIGN PTE LTD
No. 7030 Northstar@AMK, #03-14, Ang Mo Kio Ave 5
Singapore 569880
Tel: +65 6848 4508 Fax: +65 6848 4816 Email: info@jenjoshgroup.com

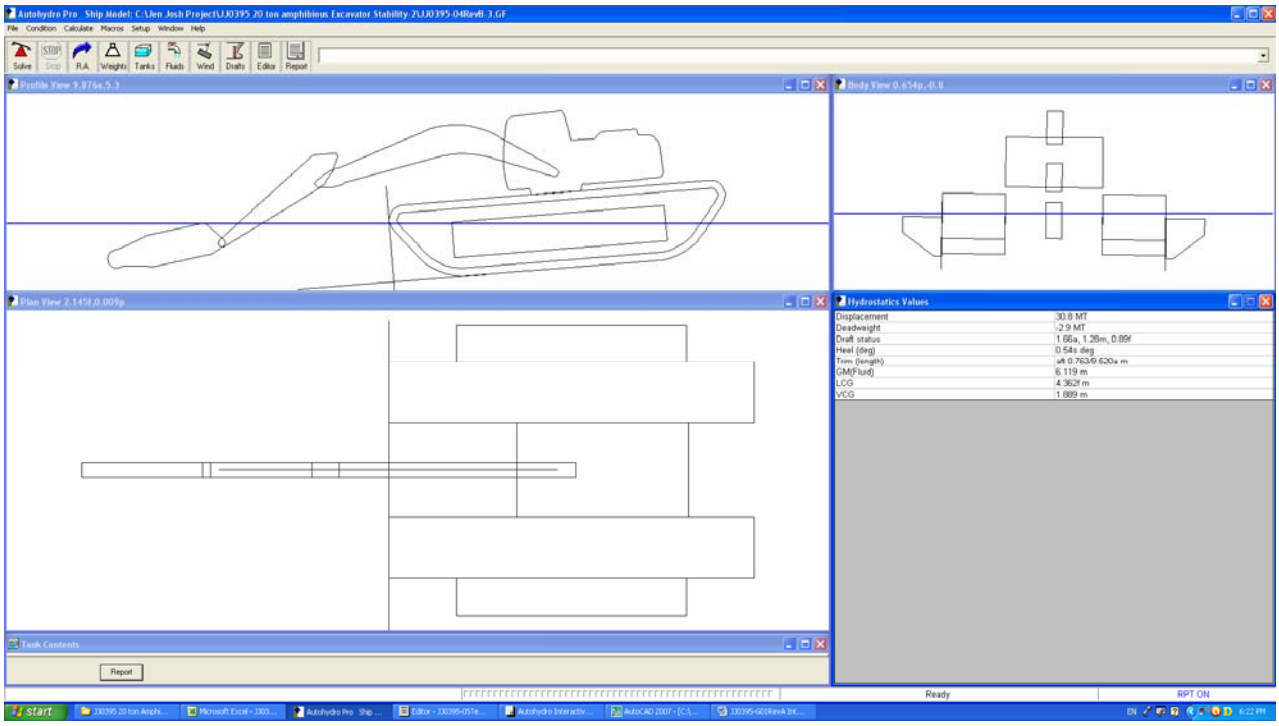
Loading Summary

Item	Weight (MT)	LCG (m)	TCG (m)	VCG (m)
Light Ship	33.62	5.008f	0.000	2.174
Displacement	30.76	4.362f	0.059s	1.889

Displacer Status

Item	Status	Spgr	Displ (MT)	LCB (m)	TCB (m)	VCB (m)
HULL	Intact	1.025	24.76	4.271f	0.037s	0.702
HULL2	Intact	1.025	0.04	3.954f	0.127s	0.969
HULL3	Intact	1.025	5.94	4.277f	0.207s	1.012
SubTotals:			**30.75**	**4.272f**	**0.070s**	**0.762**

Least freeboard is 0.043 m at 0.000
Least freeboard (to margin line) is 0.043 m at 0.000



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Residual Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (m)	Residual Arm (m)	Area (m-Deg)	Freeboard Height (m)	Notes
0.54s	4.58a	1.653	0.000	0.000	0.043	Equil
1.38s	4.61a	1.654	0.087	0.036	0.000	Deck Imm.
3.04s	4.79a	1.669	0.245	0.316	-0.099	
5.54s	5.19a	1.704	0.444	1.186	-0.262	
8.04s	5.59a	1.739	0.600	2.500	-0.428	
10.54s	5.96a	1.772	0.718	4.156	-0.594	
13.04s	6.65a	1.829	0.805	6.059	-0.787	
15.54s	7.89a	1.934	0.852	8.130	-1.032	
17.58s	9.27a	2.053	0.862	9.880	-1.266	MaxRa
18.04s	9.61a	2.083	0.862	10.280	-1.321	
20.54s	11.62a	2.253	0.842	12.416	-1.634	
23.04s	13.87a	2.434	0.798	14.473	-1.958	
25.54s	16.37a	2.622	0.734	16.388	-2.289	
28.04s	19.23a	2.825	0.652	18.120	-2.632	
30.54s	22.66a	3.056	0.550	19.626	-3.001	
33.04s	27.06a	3.342	0.425	20.849	-3.417	
35.54s	32.87a	3.700	0.277	21.731	-3.891	
35.66s	109.83f	-3.608	-0.098	21.741	-5.427	RaZero
Vessel lost stability in direction transverse to righting arm						

Note:
Residual Righting Arms shown above are in excess of the heel moments from tabular input.

"THE MAXIMUM DISTANCE BETWEEN THE CURVE AT THE RIGHTING LEVERS AND THE CURVE OF THE HEELING LEVERS SHOULD NOT LESS THAN 0.10 M."

Limit	Min/Max	Actual	Margin	Pass
(4) Absolute Angle at Equilibrium	<10.00 deg	0.54	9.46	Yes
(5) Absolute Angle at Deck Immersion	>4.50 deg	11.62	7.12	Yes
(6) Righting Arm at MaxRA	>0.100 m	0.862	0.762	Yes
(7) Area from 0.00 deg to RAzero	>4.584 m-D	21.731	17.147	Yes

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Righting Arms vs. Heel