

EMCsq Vessel Wrytha
202 Alyce Pl.
Long Beach, MS 39560
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Stability Test Report

Vessel: JASON & DANIELLE
O. N.: 1183113
DATE: 7/15/2006 of Test
New Vessel Incline

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Witness Attesting

The Representative signing this Stability Test at Test Time is only attesting to the inputted Data as being correct, and NOT to any of the calculations put forth herein as being true & correct.

Pages to be printed for signing at incline test = cover, 4, 5, 6, 12, 13, 14, 17, 20, 21.

Representative: Dale Willams

Print

Signature:

DATE:

Representing:

Tester: Ed Carlsen

Calculations

All calculations herein are not final until submitted for review by EMCsq.

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Observations Findings

**EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS**

Stability Test Observations & Findings Report

Observations;

NONE

Date written:

By:

Findings;

Picture of vessel as inclined on "Wind Area Drawing" page

Submittal Data or Calculations Corrections;

NONE

**EMCsq Vessel Wrytha
202 Alyce Pl.
Long Beach, MS
228-863-1772**

STABILITY TEST REPORT

FOR

VESSEL

JASON & DANIELLE

OFFICIAL No.

1183113

Gross Tons **160**

Description of Vessel:

Type:	F/V			
Builder:	Wm Fabraction			
Hull #:	115			
Hull Material:	Steel			
Machinery:	SINGLE DIESEL			
Classed By:	USCG	Inspected	Safety Cert.	Load Line
Route:	Open	Coastwise	Great Lakes	Bays Rivers
Specify limited	F/V with Icing calculations in Stability Booklet			
	Safety inspection by USCG			
Owner				
Owner's Address				
Inclined At:	Wm Fabrication, Coden, AL			
Date:	7/15/2006	Time:	10:00 AM	start
Test Requested By:	Wm Fab			
Plans By:	Wm Fab			
Offsets By:	EMCsq. Vessel Wrytha			
Curves computed by:	EMCsq. Vessel Wrytha			
Test conducted by:	Ed Carlsen of EMCsq. Vessel Wrytha			
Stability Calculations by:	EMCsq. Vessel Wrytha			
Duplicate Vessel:	NONE			

LOA:	See Drawings	Length Molded:	90.4	Feet
LBP: Extremities of:		Waterline		Feet
L b Draft M:		Locations:		
Breath Extreme Feet:		At Above base:	DECK	Feet
Breath Molded M/S Ft.:	30	At Above base:	DECK	Feet
Breath at LWL:		At Above base:		Feet
Depth M/S	15	Deck To:	Molded Base	
Apparent full-load mean draft for stability				
Molded Base:		Feet		
Keel Bottom:		Feet		
Displacement in Sea Water at full-load Draft:		Lton		
Freeboard M/S at full-load draft:		Feet		
Freeboard at low point of sheer:		Feet		
Location of above:		Feet	Fwd/Aft	Midship
Location of ports in hull which may affect stability: See Down-flood Drawing				

Witness: _____

Stability Test Procedures

PREDATE INCLINE EQUIPMENT CHECK

- A: Check equipment for condition & battery charge.
- B: Check and/or Calibrate Disto Laser Measuring devices on Standard Deviation calibration jig.
- C: Check and/or Calibrate Pendulums on Incline jig at 0.5°, 1°, 2.5° & 4°.
- D: Complete information in this workbook as necessary

INCLINE SETUP

- 1: Review Vessel's condition and worthiness for Incline Test.
- 2: Follow Incline Data Explanation & Instruction sheet.
- 3: Review all test equipment operation & procedures with USCG or Classing Society Personnel.
- 4: Review Vessel for items to be removed, that need securing, and general hazards.
- 5: Secure vessel for test, Place Test weights Onboard at "Start" locations, if needed.
- 6: Take Freeboard readings and Depth Soundings to ascertain enough bottom clearance for test.
- 7: Take Environmental Readings and Record.
- 8: Review & Record vessel's Tanks, Stowage & Equipment. Note Items to be added or removed.
- 9: Review & Record any Items to be Relocated.
- 10: Review Incline Sheet, Vessel Cal's, Aggregate Wt. To correct for Pass or Fail for MSC PN T1-4 allowable.
- 11: Set up Pendulums, level & test.
- 12: Mark locations with chalk or tape, on deck where personnel are to stand.
- 13: Make final inspection for Incline.

INCLINE TEST

- 1: Ready all personnel, zero all pendulums and confirm on computer screen.
- 2: Set up Disto at first weight to be moved, record distance to weight. (skip if Wt. Placement pre-determined)
- 3: Make first movement with weight(s) measuring distance with Disto to new location. (or pre-placed)
- 4: Check Electronic Trim indicator, Heel indicator & Wind speed & Direction, record.
- 5: Let pendulums settle and take readings & record, print out sheet at every movement, have witness sign.
- 6: Repeat steps 2,3,4 for remaining movements to STBD.
- 7: Relocate weights back to "Start position", confirm pendulum readings back to zero.
- 8: Repeat steps 1,2,3,4,5 & 6 for movements to PORT.
- 9: Review all spread sheets, plots and calculations, save & print copies for signatures.
- 10: Test Completed.

INCORPORATED BY REFERENCE

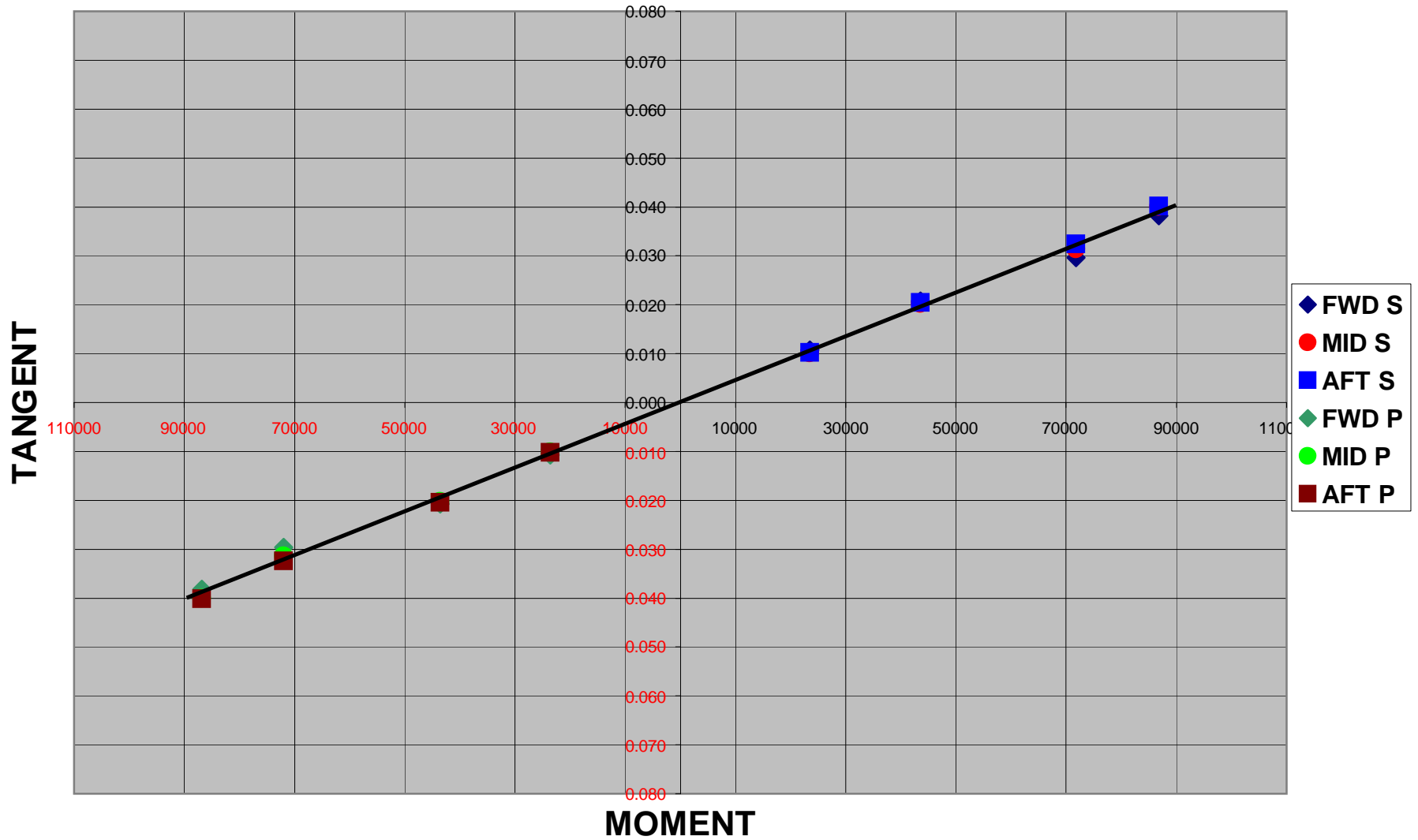
- 1: ASTM ~ F 1321 - 92 Conducting a Stability Test
- 2: MSC GUIDELINES, PROCEDURE NUMBER: T1-2,3,4,6,10,34; H1-01,04,05,06,14; H2-1,3,4,06,8,18,27.
- 3: If a problem should arise during the test, the above guides should be consulted to correct any disputes or procedures.

MASTER INCLINE DATA SHEET															
VESSEL:		JASON & DANIELLE					O.N.:		1183113		DATE:		7/15/06		
Location:		Wm Fabrication, Coden, AL													
Environment		At Start of Test (Recorded here)													
Weather Conditions:		Water Temp °F:		Wind Kt/ to:		PORT		STBD		Bow/Stern		Ambient °F			
		90		0		0		0		0		97			
		Water SG:		Gust to:		G-Direction		0		0		0			
		1.012		0		0		0		0		0			
Water Depth Soundings & Bottom Clearance in feet (Recorded Here)															
LOCATION	CLEARANCE	PORT	STBD	MEAN	Molded Draft	Keel (+)	Soundings Taken With & Notes								
FWD	0.616	9	9	9	8.384	0	Sonar Unit SN: 000021840 Read 1/10 Ft								
F1	0.000	0	0	0	0.000	0	Hand Held Unit, on float, taken at FB locations								
MIDSHIP	1.685	10	10	10	8.315	0									
A1	0.000	0	0	0	0.000	0									
AFT	1.351	10	10	10	8.649	0									
Vessel Data:		FREEBOARD MEASUREMENTS in Inches Recorded page 22)													
LOCATION	MOLDED	PORT	STBD	MEAN	FB. FT	DRAFT	TRIM Ft.	Lg. Mes.	Lg. Disp	cof.Ton/in					
FWD	24.9447	198.90625	198.56250	198.734375	16.561	8.384	-0.266	8.5161	317.05	0					
F1	0	0.00000	0.00000	0	0.000	0.000	0.000	8.516	317.05	0					
MIDSHIP	23.0355	177.21875	176.06250	176.640625	14.720	8.315		Sm. Mes	Sm. Disp	cof.Ton/in					
A1	0	0.00000	0.00000	0	0.000	0.000	B/A mean	CDTrim	0.418	Cb					
AFT	15.664	83.12500	85.23077	84.17788462	7.015	8.649	8.516	Disp Static	317.05	0.4603					
Vessel LOD		LBM		25		Design Trim:		9.281		ton/in		-1.332621781		Cm	
USCG Reg. Length		Beam		29.67		Molded		15.38		Trim		-0.266		Disp Adj.	
Measurements by		Disto Laser		P. Serial #		258949		Com Port #		7		S. Serial #		309480	
												Com Port #		8	
CONDITION REVIEW of TANKAGE page 13 ~ STOWAGE & EQUIPMENT page 15 ~ WEIGHTS page 18															
TANKAGE	GAL	Wt. L TON	LCG	VCG	TCG	Other Weight		LBS	L TON	TCG					
FUEL from sheet	600	1.76	2	6.7	0	TestWeights from sheet		0	0	0					
WATER from sheet	3200	11.90	34.42	8.18	0	Trim Weights		0	0	0					
Ballast from sheet	0	0.00	#DIV/0!	#DIV/0!	0			0	0	0					
HYD. Oil from sheet	600	1.76	2	3.5	0			0	0	0					
LUBE Oil from sheet	0	0.00	#DIV/0!	#DIV/0!	0			0	0	0					
BRINE from sheet	0	0.00	#DIV/0!	#DIV/0!	0			0	0	0					
WASTE from sheet	0	0.00	#DIV/0!	#DIV/0!	0			0	0	0					
Stowage from sheet	NONE	0.00	#DIV/0!	#DIV/0!	0			0	0	0					
Equipment from sheet	NONE	0.03	110.3333333	-552.519742	0			0	0	0					
Sub Total	4400	15.452						0	0	0					
TOTAL	15.452	Deduction Weight				3		Personnel onboard	0.241						
INCLINE EXPERIMENT RESULTS															
FIXED WEIGHT totals from page 18 or LOADCELL READINGS page 20															
Movement	Fixed weight lb.	Wt. MOMENT	Loadcell MT	Movement	Fixed weight lb.	MOMENT	Loadcell MT	Loadcell Com Port #		1					
STBD	START	PORT		START	Model:50K SN:130540										
M1	0.0000	23540	M5	0.0000	23567	Total Test Weight Lb.		0							
M2	0.0000	43561	M6	0.0000	43573	Total Test Weight Lton		0							
M3	0.0000	71822	M7	0.0000	72015	Loadcell STBD feet		14.835							
M4	0.0000	86847	M8	0.0000	86862	Loadcell PORT feet		14.835							
Wind Moment	See "WIND" page for calculations of moments. Wind force automatic ± in Total Moments below.						Was Wind correction used		NO						
TOTAL MOMENTS ELECTRONIC PENDULUM READINGS in Inches from page 21															
MOVEMENT / Target °	Wind Corrected MOMENT	Forward Pendulum			Midship Pendulum			AFT Pendulum							
		Reading	° Angle	Tangent	Reading	° Angle	Tangent	Reading	° Angle	Tangent					
Heeled to STBD	START	0.00000													
M1 / 0.5°	23540	0.05304	0.61	0.011	0.04396	0.58	0.010	0.04385	0.58	0.010					
M2 / 1°	43561	0.10287	1.19	0.021	0.08801	1.16	0.020	0.08778	1.17	0.020					
M3 / 2.5°	71822	0.14675	1.70	0.030	0.13695	1.80	0.031	0.13937	1.86	0.032					
M4 / 4°	86847	0.18902	2.19	0.038	0.17448	2.29	0.040	0.17262	2.30	0.040					
Heeled to PORT	START	0.00000													
M5 / 0.5°	23567	0.05304	0.61	0.011	0.04399	0.58	0.010	0.04393	0.58	0.010					
M6 / 1°	43573	0.10287	1.19	0.021	0.08801	1.16	0.020	0.08778	1.17	0.020					
M7 / 2.5°	72015	0.14675	1.70	0.030	0.13695	1.80	0.031	0.13937	1.86	0.032					
M8 / 4°	86862	0.18902	2.19	0.038	0.17448	2.29	0.040	0.17262	2.30	0.040					
VESSELS CALCULATIONS															
Incline calculated on base-line Hydrostatics.															
DISPLACEMENT at INCLINE:	317.050	L. ton	START of Incline												
DISPLACEMENT Corrected for Trim:	315.717	L. ton	HEEL °:		-0.01										
DEDUCTION Wt.:	15.452	L. ton	TRIM °:		-0.609										
Lt. SHIP @ INCLINE:	300.265	L. ton	SG/F Cor.:		1.0084										
Lt. Ship Corrected for Salt Water:	305.208	L. ton	Trim Wt's		Ballast										
Allowable Aggregate Wt. To correct Trim & Heel:	6.00530435	0													
PENDULUM DATA															
Reading length in inches	4.953000	4.359300	4.303500	Total Agg.	0										
Standard Deviation Allowed ±	0.001935	0.001703	0.001681	Pass Test	M5										
Serial Number	C316-01	B323-02	B323-05	TRUE	M6										
Long't Pl' ment in Ft.	0	0	0	FALSE	M7										
ComPort #	3	4	5		M8										
Equipment Wt. Deduction in Lton	0.08125	80	0.03125	0.000391	Avg.	3.15		0.0024	0.0799						
Incline Calculated at Avg. Tangent Readings															
This section for during incline reference only.															
	Mean Virtual Metacenter	GM Above CG	GZ	Avg.Deg											
STBD	START														
M1	3.22	0.0003	0.0333	0.592											
M2	3.01	0.0013	0.0616	1.172											
M3	3.26	0.0032	0.1016	1.784											
M4	3.11	0.0048	0.1228	2.259											
PORT	START														
M5	3.22	0.0003	0.0333	0.592											
M6	3.01	0.0013	0.0616	1.172											
M7	3.27	0.0032	0.1018	1.784											
M8	3.11	0.0048	0.1228	2.259											
Avg.	3.15	0.0024	0.0799												

ANGLE Moment Plot



TANGENT Moment Plot



VESSEL CALCULATIONS Review as per USCG form CG-993-8										
Vessel at time of Stability Test - Condition 0 as Calculated										
Corrected Displacement		315.71738 L tons		Midship =		48.265 Ft. aft of bow				
Mean virtual metacentric height obtained from plot of inclining moments verses tangents of angles of heel		3.15 Feet		From Mean of Incline sheet		WATER SG & Denisty				
Correction for Free Surface		0 Feet				SG as Inclined:		1.0084		
Mean Metacentric Height		GM = 3.15 Feet				Denisty:		62.94 Lb. Cu. Ft.		
From Hydrostatics Page from X=0 station (bow, main deck to stem intersection):										
LCB =	48.27	LKM Ft.=	91.57	Moment to Trim 1 Inch	22.09	Ft. ton				
LCF =	54.52	LGM Ft.=	78.64	MT 1 Ft. =	265.08	calculated				
VCB =	5.51	TKM Ft.=	16.44	Trim Ft. =	-0.27					
TCG =	0	TGM Ft. =	2.52	T Lever =	-0.223063					
LWL =	93.65			V.C.G. ft ^ base line	13.29	calculated				
BWL =	28.02	Locations to Midship:		L.C.G. =	-0.01	Neg. = AFT of Midship				
LCB =	-0.005	Neg. = AFT								
LCF =	-6.255	Neg. = AFT		See Hydrostatics Pages 8, 8a, for all other data						
Vessel Lightship - Condition 1 as Calculated										
ITEMS	Displ.	V. C. G. Above Base		L. C. G. From Midship				List of Major Equip. etc. included in condition		
	& Weight	Lever	Vertical Moment	Feet AFT	AFT Moment	Feet FWD	FWD Moment			
Ship Condition "0"	315.71738	13.286081	4194.6467	0.005	1.5785869			See Above		
Weights to ADD	0	64	18.914286	#DIV/0!	0	#DIV/0!	2.9553571	page 15 Stow & Equip. list		
Weights to Subtract	0.3223214	12.765672	4.1146498	24.1325	3.8892109	-6.9496096	3.8892109	page 15 Stow & Equip. list		
Weights to Subtract	15.425375	7.4760849	115.32141	#DIV/0!	0	27.010608	416.64875	page 13 Tankage		
Weights to Subtract	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	page 18 Test Weights		
Weights to Subtract	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	page 18 Trim Weights		
Weights to Relocate			0		0		0	page 12 Relocate list		
Ship Condition "I"	299.96968	13.648462	4094.1249	-0.007703	-2.310624	1.4117871	423.49332			
Calculated LCG =					1.4040842	421.18269	Total Moment			
Hydrostatics LCG =					n/a	from hydrostatics page 9a at 0° Trim				
Molded draft at LCF at Lightship Displacement in Salt Water @ 1.025					304.908	Lton	13.43	V.C.G. ft ^ base line		
See Hydrostatics Pages 9, 9a, for all other data										
Vessel Lightship Out Riggers UP plus ICING										
ITEMS	Displ.	V. C. G. Above Base		L. C. G. From Midship				List of Major Equip. etc. included in condition		
	& Weight	Lever	Vertical Moment	Feet AFT	AFT Moment	Feet FWD	FWD Moment			
Ship Condition "I"	299.96968	13.65	4094.1249	0	-2.310624	1.4117871	423.49332	See Above		
Icing from page 25	12.57	24.59	309.14	55.38	89.40	0	0	Page 25 Icing		
Ship Condition "Icing"	312.54	14.09	4403.27	-0.293451	-91.715122	1.3550064	423.49332			
Calculated LCG =					1.06	331.7782	Total Moment			
Molded draft at LCF at Lightship Displacement in Salt Water @ 1.025					317.685	Lton	13.86	V.C.G. ft ^ base line		
Vessel Lightship Out Riggers DN plus ICING										
ITEMS	Displ.	V. C. G. Above Base		L. C. G. From Midship				List of Major Equip. etc. included in condition		
	& Weight	Lever	Vertical Moment	Feet AFT	AFT Moment	Feet FWD	FWD Moment			
Ship Condition "I"	299.96968	13.65	4094.1249	423.49332	-2.310624	1.4117871	423.49332	See Above		
Icing from page 25	12.57	25.27	317.68	55.38	89.40	0	0	Page 25 Icing		
Ship Condition "Icing"	312.54	14.12	4411.80	-0.293451	-91.715122	1.3550064	423.49332			
Calculated LCG =					1.06	331.7782	Total Moment			
Molded draft at LCF at Lightship Displacement in Salt Water @ 1.025					317.685	Lton	13.89	V.C.G. ft ^ base line		

HYDROSTATICS

Tue Aug 08 13:34:55 2006

Input Parameters

Length Overall	100.0000	ft
Beam Overall	29.6943	ft
Depth Overall	16.6128	ft
Draft (WL - BL)	8.5160	ft
LCG (From X=0)	54.5200	ft
Heel Angle	0.0000	Deg
Distance to Amidships (From X=0)	48.0000	ft
VCG (From BL)	13.4500	ft
TCG (From CL)	0.0000	ft
Density	62.9400	lb/ft ³
Hog/Sag Distance at Amidships (+Hog)	0.0000	ft
Wave Type	None	
Wave Start (From X=0)	0.0000	ft
Wave Height	1.0000	ft
Wave Length	1.0000	ft

Upright Condition

Draft (BL - WL)	8.5160	ft
Trim Angle	1.1855	Deg
Displacement	738074.7886	lb
LCG (From X=0)	54.5198	ft
A-Plane Equation Value	-0.0207	
B-Plane Equation Value	0.0000	
C-Plane Equation Value	0.9998	
D-Plane Equation Value	-7.5211	

Volumetric Properties

Volume	11726.6411	ft ³
Displacement	738074.7886	lb
Wetted Surface	2939.2399	ft ²
LCB (Center of Buoyancy from X=0)	54.5198	ft
TCB (from centerline)	0.0000	ft

Volumetric Properties

Volume	11726.6411	ft^3
Displacement	738074.7886	lb
Wetted Surface	2939.2399	ft^2
LCB (Center of Buoyancy from X=0)	54.5198	ft
TCB (from centerline)	0.0000	ft
VCB (from baseline)	5.6049	ft
Calculated Draft	8.8525	ft

Waterplane Properties

Waterplane Area	2226.9535	ft^2
LCF (Center of Flotation from X=0)	57.9552	ft
TCF (from centerline)	0.0000	ft
VCF (from baseline)	8.7220	ft
Moment to Trim One Inch	64994.9100	ft-lb
Moment to Trim One Inch (F.S. Corr.)	64994.9100	ft-lb
Pounds per Inch Immersion	11680.3713	lb/in
Change in Displ per Inch Trim Aft	1162.7990	lb/in
I _l (Longitudinal Inertia about LCF)	1331175.4911	ft^4
I _t (Transverse Inertia about TCF)	124491.8395	ft^4
LWL (Length on the Waterline)	100.0000	ft
BWL (Beam on the Waterline)	28.0554	ft

Metacentric Heights

Longitudinal KM	119.1221	ft
Longitudinal GM	105.6721	ft
Longitudinal GM (FS Corr.)	105.6721	ft
Transverse KM	16.2210	ft
Transverse GM	2.7710	ft
Transverse GM (FS Corr.)	2.7710	ft

Form Coefficients

LWL / BWL	3.5644
LWL / Draft	11.2962
BWL / Draft	3.1692
C _b (Block)	0.4722
C _m (Midship)	0.7712
C _p (Prismatic)	0.6123
C _{vp} (Vertical Prismatic)	0.5948
C _{wp} (Waterplane)	0.7938

Righting Arm Properties

Righting Arm	0.0000	ft
Righting Arm (FS Corr.)	0.0000	ft
Righting Moment	0.0000	ft-lb
Righting Moment (FS Corr.)	0.0000	ft-lb
Righting Moment/Degree Heel	0.0000	ft-ton
Righting Moment/Degree Heel (FS Corr.)	0.0000	ft-ton

Resistance Calculations

Resistance Type	Delft3	
Velocity of Vessel	0.0000	ft/sec
Frictional Resistance	0.0000	lb
Residual Resistance	0.0000	lb
Total Resistance	0.0000	lb

HYDROSTATICS

Wed Jul 26 13:39:58 2006

Input Parameters

Length Overall	100.0000	ft
Beam Overall	29.6943	ft
Depth Overall	16.6128	ft
Displacement	676264.9600	lb
LCG (From X=0)	53.0600	ft
Heel Angle	0.0000	Deg
Distance to Amidships (From X=0)	48.2700	ft
VCG (From BL)	13.1000	ft
TCG (From CL)	0.0000	ft
Density	64.0000	lb/ft^3
Hog/Sag Distance at Amidships (+Hog)	0.0000	ft
Wave Type	None	
Wave Start (From X=0)	0.0000	ft
Wave Height	1.0000	ft
Wave Length	1.0000	ft

Upright Condition

Draft (BL - WL)	8.0806	ft
Trim Angle	0.6815	Deg
Displacement	676267.9455	lb
LCG (From X=0)	53.0602	ft
A-Plane Equation Value	-0.0119	
B-Plane Equation Value	0.0000	
C-Plane Equation Value	0.9999	
D-Plane Equation Value	-7.5059	

Volumetric Properties

Volume	10566.6866	ft^3
Displacement	676267.9455	lb
Wetted Surface	2828.4337	ft^2
LCB (Center of Buoyancy from X=0)	53.0602	ft
TCB (from centerline)	0.0000	ft
VCB (from baseline)	5.2739	ft
Calculated Draft	8.2655	ft

Waterplane Properties

Waterplane Area	2189.0163	ft^2
LCF (Center of Flotation from X=0)	57.4951	ft
TCF (from centerline)	0.0000	ft
VCF (from baseline)	8.1903	ft
Moment to Trim One Inch	64172.1864	ft-lb
Moment to Trim One Inch (F.S. Corr.)	64172.1864	ft-lb
Pounds per Inch Immersion	11674.7535	lb/in
Change in Displ per Inch Trim Aft	1077.0032	lb/in
I _l (Longitudinal Inertia about LCF)	1285924.4033	ft^4
I _t (Transverse Inertia about TCF)	119068.7280	ft^4
LWL (Length on the Waterline)	100.0000	ft
BWL (Beam on the Waterline)	27.9230	ft

Metacentric Heights

Longitudinal KM	126.9700	ft
Longitudinal GM	113.8700	ft
Longitudinal GM (FS Corr.)	113.8700	ft
Transverse KM	16.5422	ft
Transverse GM	3.4422	ft
Transverse GM (FS Corr.)	3.4422	ft

Form Coefficients

LWL / BWL	3.5813
LWL / Draft	12.0985
BWL / Draft	3.3783
C _b (Block)	0.4578
C _m (Midship)	0.7619
C _p (Prismatic)	0.6009
C _{vp} (Vertical Prismatic)	0.5840
C _{wp} (Waterplane)	0.7839

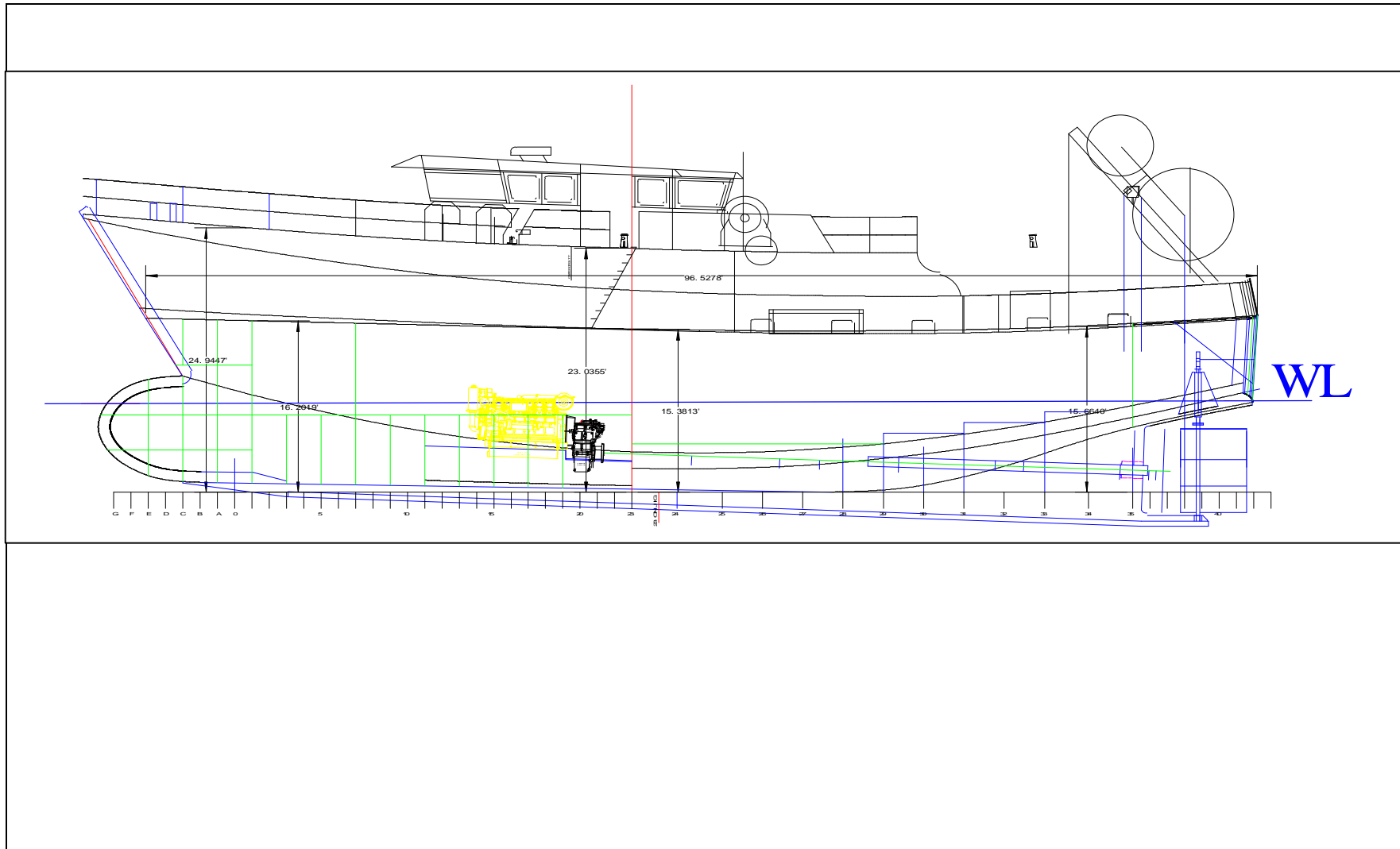
Righting Arm Properties

Righting Arm	0.0000	ft
Righting Arm (FS Corr.)	0.0000	ft
Righting Moment	0.0000	ft-lb
Righting Moment (FS Corr.)	0.0000	ft-lb
Righting Moment/Degree Heel	0.0000	ft-ton
Righting Moment/Degree Heel (FS Corr.)	0.0000	ft-ton

Resistance Calculations

Resistance Type	Delft3	
Velocity of Vessel	0.0000	ft/sec
Frictional Resistance	0.0000	lb
Residual Resistance	0.0000	lb
Total Resistance	0.0000	lb

See Stability Booklet



Vessel Weights to Relocate									
ITEM	WEIGHT LBs	Distance Ft. Moved				MOMENT			
		LCG AFT	LCG FWD	VCG	TCG	LCG AFT	LCG FWD	VCG	TCG
None						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
						0	0	0	0
TOTAL MOMENTS Ft. LBs						0	0	0	0
TOTAL MOMENTS Ft. L tons						0	0	0	0
Total Ltons.	0								

TANKAGE				Weight per gallon of liquid stated					0.79 SG of FUEL test		Site INPUTS =				SEE NOTES AT BOTTOM OF PAGE							
F = FWD - A = AFT of MIDSHIP		Fuel/Oil =		6.5807	F. Water =		8.33	S. Water =		MOMENTS				Tank Measurements			Tank Cal for Vol.		TANK Calculations for Freesurface			
FUEL	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
PORT	600	1.7626875	FALSE	2	0	6.7	0	0	3.525375	0	11.8100063	0	0	0	0	0	16.58	0	20	54.96	FALSE	FALSE
STBD	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	16.58	0	20	54.96	FALSE	FALSE
AFT	0	FALSE	FALSE	0	0	3	0	0	0	0	0	0	0	0	0	0	20.26	0	26.28	200.16	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	600	1.7626875	0	0.25	0	1.2125	0	0	3.525375	0	11.8100063	0	0	Vessels volume of displacement = 11181.75								
WATER	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
PORT	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	40	40	5.018	200.72	20	60	FALSE	FALSE
STBD	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	40	40	5.018	200.72	20	60	FALSE	FALSE
FWD	3200	11.9	FALSE	34.42	0	8.18	0	0	409.598	0	97.342	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	3200	11.9	0	8.605	0	2.045	0	0	409.598	0	97.342	0	0									
BALLAST	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0									
HYD. Oil	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
ENG. RM	600	1.7626875	FALSE	2	0	3.5	0	0	3.525375	0	6.16940625	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	600	1.7626875	0	0.5	0	0.875	0	0	3.525375	0	6.16940625	0	0									
Lube Oil	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
ENG. RM.	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0									
Brine	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0									
Waste	Gallons	Wt.Lton F	Wt.Lton A	LCG F	LCG A	VCG	TCG P	TCG S	LCG F	LCG A	VCG	TCG P	TCG S	Depth	Molded	Net	Gal. Inch	Gallons	Length	Breath	Inertia	FS
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
NONE	0	FALSE	FALSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0									

TANKAGE CALCULATIONS													NOTES		
ITEM	WEIGHT F	WEIGHT A	MOMENT	LCG F	MOMENT	LCG A	MOMENT	VCG	MOMENT	TCG P	MOMENT	TCG S	FS Cor.		
Fuel	1.7626875	0	3.525375	2	0	#DIV/0!	11.8100063	6.7	0	0	0	0	0	Depth = Measurement from Top of Tank to Top of Liquid	
Water	11.9	0	409.598	34.42	0	#DIV/0!	97.342	8.18	0	0	0	0	0	Molded = Overall depth of tank taken from tables in Inches	
Ballast	0	0	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	0	0	0	0	Net = amount of depth of liquid	
HYD. Oil	1.7626875	0	3.525375	2	0	#DIV/0!	6.16940625	3.5	0	0	0	0	0	Gal. Inch = gallons of liquid per inch of depth	
Lube Oil	0	0	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	0	0	0	0	Gallons = Net x Gal. Inch	
Brine	0	0	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	0	0	0	0		
Waste	0	0	0	#DIV/0!	0	#DIV/0!	0	#DIV/0!	0	0	0	0	0		
Totals	15.425375	0	416.64875	27.0106	0	#DIV/0!	115.321413	7.47608486	0	0	0	0	0		

See Stability Booklet

EMCsq Vessel Wrytha
Weights to Add (+) or Subtract (-)
LCG measurement is ± of Midship

STOWAGE table with columns: AFT, FWD, LCG AFT, LCG FWD, VCG above Baseline, TCG off C/L. Rows include STOWAGE Remove, STOWAGE ADD, and Total Remove/ADD with numerical values.

ADD is GREATER than Remove FALSE

Summary table with columns: Page Totals, L ton, Lton, LCG A, MOMENT +, LCG F, MOMENT +, VCG, MOMENT +, TCG ±, MOMENT +. Contains totals for Stowage and Equipment.

EQUIPMENT table with columns: AFT, FWD, LCG AFT, LCG FWD, VCG above Baseline, TCG off C/L. Rows include EQUIPMENT Remove, EQUIPMENT ADD, and Total Remove/ADD with numerical values.

ADD is GREATER than Remove TRUE

Note = * = Skiff is boat motor and 2 plastic portable fuel tanks empty.



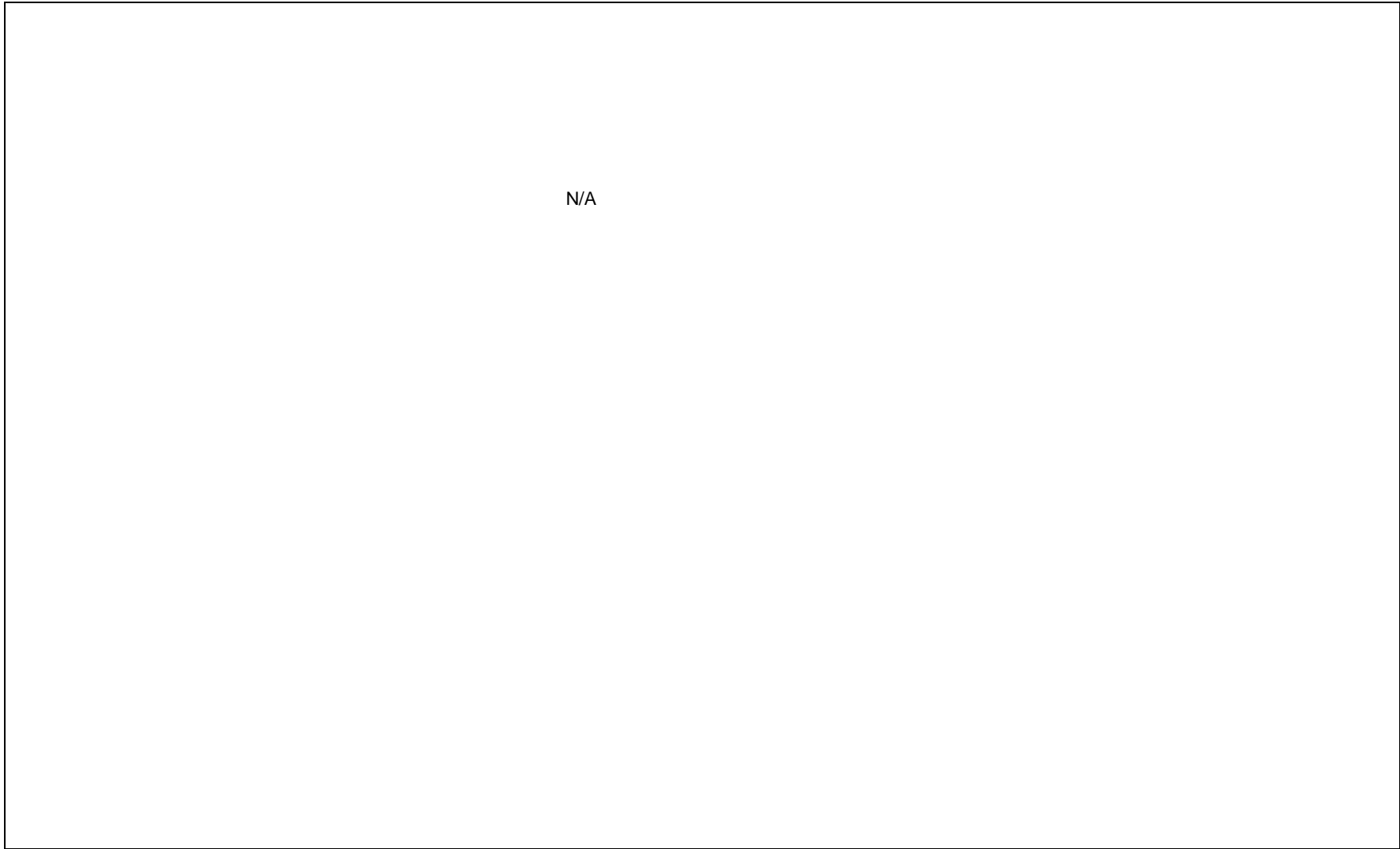
TEST WEIGHTS WEIGHT DATA WEIGHT MOVEMENTS
Weight ID, Weight in LB, Weight LCG, Weight TCG, Weight VCG, On Vessel Start Location, Transverse Location, LCG AFT, LCG FWD, VCG, MOVEMENT, Wt. ID, Total Wt., Hoz. Dist. Ft., Moment, etc.

TRIM WEIGHT DATA TRIM WEIGHT DATA TRIM WEIGHT DATA
Weight ID, Weight in LB, Weight LCG, Weight TCG, Weight VCG, On Vessel Location, Transverse Location, LCG AFT, LCG FWD, VCG, TCG

Test Weights by Group
Group Wt ID, Amount of Wt's, Weight in LB, Weight LCG, Weight TCG, Weight VCG, Group Wt. in LB, Location from M/S, Transverse Location

PAGE INSTRUCTIONS:
TEST WEIGHTS DATA:
WEIGHT MOVEMENTS:
DISTANCE WEIGHT MOVED:
CALCULATIONS THIS PAGE:

This section is to be used when small certified wt's of the same size are used and moved as a unit, record results above.



N/A

EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS

Loadcell Readings					
Movement	Reading	Avg.	Movement	Reading	Avg.
Start	1625		Start	1630	
M1	1584		M5	1586	
	1554			1558	
	1587			1584	
Stop	1584	1587	Stop	1585	1589
Start	2889		Start	2890	
M2	2911		M6	2915	
	2935			2940	
	2972			2968	
Stop	2975	2936	Stop	2973	2937
Start	4889		Start	4894	
M3	4864		M7	4884	
	4828			4838	
	4818			4808	
Stop	4808	4841	Stop	4848	4854
Start	5829		Start	5815	
M4	5913		M8	5924	
	5977			5966	
	5846			5855	
Stop	5706	5854	Stop	5716	5855

Pendulum Readings

EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS

FWD Pendulum			Electronic level reference	Midship Pendulum			Electronic level reference	AFT Pendulum			
Movement	Reading	Avg. Heel°		Movement	Reading	Avg. Heel°		Movement	Reading	Avg. Heel°	
Start	0.05303		TRIM° 0	Start	0.04393		HEEL° 0	Start	0.04374		Recorded Measurements match repeater readout. Witness: _____
M1	0.05305			M1	0.04393			M1	0.04380		
	0.05303				0.04394				0.04385		
	0.05303	0.61			0.04398	0.58			0.04393	0.58	
Stop	0.05305	0.05304	0	Stop	0.04400	0.04396	0	Stop	0.04393	0.04385	
Start	0.10286		0	Start	0.08799		0	Start	0.08779		Recorded Measurements match repeater readout. Witness: _____
M2	0.10286			M2	0.08802			M2	0.08778		
	0.10290				0.08801				0.08775		
	0.10287	1.19			0.08802	1.16			0.08779	1.17	
Stop	0.10288	0.10287	0	Stop	0.08801	0.08801	0	Stop	0.08780	0.08778	
Start	0.14676		0	Start	0.13696		0	Start	0.13939		Recorded Measurements match repeater readout. Witness: _____
M3	0.14673			M3	0.13695			M3	0.13936		
	0.14676				0.13697				0.13936		
	0.14676	1.70			0.13692	1.80			0.13937	1.86	
Stop	0.14674	0.14675	0	Stop	0.13694	0.13695	0	Stop	0.13935	0.13937	
Start	0.18902		0	Start	0.17449		0	Start	0.17302		Recorded Measurements match repeater readout. Witness: _____
M4	0.18902			M4	0.17449			M4	0.17303		
	0.18903				0.17447				0.17251		
	0.18900	2.19			0.17447	2.29			0.17211	2.30	
Stop	0.18904	0.18902	0	Stop	0.17448	0.17448	0	Stop	0.17243	0.17262	
Start	0.05303		0	Start	0.04393		0	Start	0.04374		Recorded Measurements match repeater readout. Witness: _____
M5	0.05305			M5	0.04393			M5	0.04380		
	0.05303				0.04394				0.04385		
	0.05303	-0.61			0.04398	-0.58			0.04393	-0.58	
Stop	0.05305	0.05304	0	Stop	0.04400	0.04399	0	Stop	0.04393	0.04393	
Start	0.10286		0	Start	0.08799		0	Start	0.08779		Recorded Measurements match repeater readout. Witness: _____
M6	0.10286			M6	0.08802			M6	0.08778		
	0.10290				0.08801				0.08775		
	0.10287	-1.19			0.08802	-1.16			0.08779	-1.17	
Stop	0.10288	0.10287	0	Stop	0.08801	0.08801	0	Stop	0.08780	0.08778	
Start	0.14676		0	Start	0.13696		0	Start	0.13939		Recorded Measurements match repeater readout. Witness: _____
M7	0.14673			M7	0.13695			M7	0.13936		
	0.14676				0.13697				0.13936		
	0.14676	-1.70			0.13692	-1.80			0.13937	-1.86	
Stop	0.14674	0.14675	0	Stop	0.13694	0.13695	0	Stop	0.13935	0.13937	
Start	0.18902		0	Start	0.17449		0	Start	0.17302		Recorded Measurements match repeater readout. Witness: _____
M8	0.18902			M8	0.17449			M8	0.17303		
	0.18903				0.17447				0.17251		
	0.18900	-2.19			0.17447	-2.29			0.17211	-2.30	
Stop	0.18904	0.18902	0	Stop	0.17448	0.17448	0	Stop	0.17243	0.17262	

Witness: _____

Free Board Measurements

EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS

Free Board Measurements				
M0 to M8 Movements at Midship				
PORT	Location	STBD	AVG.	
198.90625	FWD	198.56250	198.73438	This Section is the FB measure
0.00000	F1	0.00000	0.00000	
177.21875	Midship	176.06250	176.64063	
0.00000	A1	0.00000	0.00000	
83.12500	AFT	85.23077	84.17789	This Section is to verify rotation around VCF if used
0.00000	M0	0.00000	0.00000	
0.00000	M1	0.00000	0.00000	
0.00000	M2	0.00000	0.00000	
0.00000	M3	0.00000	0.00000	
0.00000	M4	0.00000	0.00000	
0.00000	M0	0.00000	0.00000	
0.00000	M5	0.00000	0.00000	
0.00000	M6	0.00000	0.00000	
0.00000	M7	0.00000	0.00000	
0.00000	M8	0.00000	0.00000	
Standard Deviation M0 - M4			0.00000	
Standard Deviation M0 - M8			0.00000	
Standard Deviation Total Test			0.00000	

All Inputs are automatic from Disto measuring device, triggered by operator when measurement is taken

Witness: _____

**EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS**

EMCsq Vessel Wrytha Incline Equipment List									
Loadcell		SN:	Model	F. S.	Linearity	Accuracy	ASTM Required 1%	Last Cal.	
Omega		130541	50k	50000	0.001	50	500	TRUE	7/22/03
Omega		94222	200k	200000	0.001	200	2000	TRUE	1/21/97
Lasers	Freeboard Measurements			STDEV	Linearity	Accuracy	ASTM Required		
Leica : Disto		258949	Pro 4a	0	± 0	0.031250	0.125000	TRUE	7/10/03
Leica : Disto		309480	Pro 4a	0	± 0	0.031250	0.125000	TRUE	7/10/03
Leica : Disto		309663	Pro 4a	0	± 0	0.031250	0.125000	TRUE	7/10/03
Liner Displacement	Pendulum			Travel	Linearity	Accuracy	ASTM Required		
Omega	FWD	M922084B323-05	LD600-15	0.68	0.0015	0.001020	0.001935	TRUE	1/15/04
Omega	Midship	I7922084C316-01	LD600-15	0.68	0.0021	0.001428	0.001703	TRUE	1/15/04
Omega	AFT	M922084B323-02	LD600-15	0.68	0.002	0.001360	0.001681	TRUE	1/15/04
Environment					N.I.S.T. Calibrated				
Omega	Air Flow	9007651	CFM	200 kt	YES				
Chase	Temp &	Hydrometers	SG	0.7 to 2	YES				
F. S. = Full Scale: Linearity = Accuracy over F.S.						True = Pass		False = Fail	
Travel = Distance of travel of pendulum ± to achieve 4° heel is less then 0.34" from "0" in one direction, Full calibrated stroke is 0.68"									

EQUIPMENT WEIGHTS WITH CASE					
ITEM	WEIGHT Lb's		ITEM	WEIGHT Lb's	
AFT PENDULUM	15		LAPTOP	23	
MID PENDULUM	15		FB STANDS	17	
FWD PENDULUM	15		SONAR	10	onboard
DISTO's	15		WIND METER	8	Y=1/N=0
SUPPLY BAG	15		Loadcell	0	14
Hydrometer	5		Pivot Adaptor	44	44
Printer	0		Portable Table	0	7
TOTAL EQUIP WT.	182	LB's	0.08125	Lton	

Pendulum Calibration								
Target	FWD	4.953	MID	4.3593	AFT	4.3035	STDV	STDV
Step Deg.	Reading	Degrees	Reading	Degrees	Reading	Degrees	Reading	Degrees
0.5	-0.03950	-0.45693	-0.03389	-0.445428	-0.03322	-0.44228	0.00344866	0.007712
1	-0.08231	-0.95215	-0.07228	-0.950001	-0.07145	-0.95127	0.00604469	0.001082
2.5	-0.20766	-2.40219	-0.18344	-2.411015	-0.18113	-2.41152	0.01469572	0.005248
4	-0.33451	-3.86958	-0.29529	-3.881098	-0.29171	-3.88376	0.0237447	0.007538
TREND	-0.01444	-0.16702	-0.01192	-0.156682	-0.01161	-0.15451	0.00155247	0.006684
							Per single Reading ASTM allowed STDV =	0.022381
Date	7/17/2004						Per 12 Readings above Total Test Average =	0.005395
By;	Ed Carlsen						12 against 1 reading PASSED by	0.016986
							12 Reading TREND =	0.004848
ASTM F1321 Standard "Allowable" nearest 1/16" (± 1/32")								
Pendulum Reading Length		80	Inches	using standard plumbob/batten				
Pendulums	reading	degree	per 4 movements				STDV	
FWD	per 1	0.03125	0.02238116	0.125	0.08952466	Total Test		
MID	per 1	0.03125	0.02238116	0.125	0.08952466	0.375	Inch	
AFT	per 1	0.03125	0.02238116	0.125	0.08952466	0.268574	Degree	
The above shows the ASTM allowable "Cumulative" deviations per test.								
ASTM F1321 Standard for above Pendulums								
Pendulums	reading	degree	per 4 movements				STDV	
FWD	per 1	0.00193	0.02238116	0.0077391	0.08952466	Total Test		
MID	per 1	0.0017	0.02238116	0.0068114	0.08952466	0.0212747	Inch	
AFT	per 1	0.00168	0.02238116	0.0067242	0.08952466	0.268574	Degree	
The above shows the ASTM allowable "Cumulative" deviations per test.								

Avg allow = 0.02238116 ASTM allowable deviation in Degrees

How to Read:

Pendulum Calibration

This section contains the automatic inputs from the pendulums when set on the incline jig. The jig is inclined to the approximate target degree and the readings are taken. The standard deviation is calculated between the units to show the allowable STDV. Using the STDV for the "Degree" column for the four inclines the value should be = to or less then the allowed in the ASTM F1321 Standard for above Pendulums.

ASTM F1321 Standard "Allowable" nearest 1/16" (± 1/32")

This section shows the allowable deviations using the standard plumbob string & batten read by a ruler. The total test STDV is shown as to how much the readings could be off for the total test.

ASTM F1321 Standard for above Pendulums

This is the allowable deviations, as calculated against the ASTM standard set by the 80" pendulum using a ruler at ± 1/32".

Icing Calculations

EMCsq Vessel Wrytha
202 Alyce Pl. Long Beach, MS

Item / Area	Amount	Vert. Surface Len	Vert. Surface Width	Hoz. Surface Len	Hoz. Surface Width	Vert. Total Surface	Hoz. Total Surface	Vert. VCG	Vert. LCG (-) FWD of M	Vert. TCG	Hoz. VCG	Hoz. LCG (-) FWD of M	Hoz. TCG	Vert. Wt at 3.07 lb Sq'	Hoz. Wt at 6.14 lb Sq'	Vert. VCG Moment	Hoz. VCG Moment	Vert. LCG Moment	Hoz. LCG Moment	Vert. TCG Moment	Hoz. TCG Moment
Main FWD Deck	1					0	462.76				24.56	-26.5		0	2841.346	0	69783.47	0	-75295.68	0	0
Main AFT Deck	1					0	827.57				15.5	35.77		0	5081.28	0	78759.84	0	181757.4	0	0
House Deck / Side Shell	1					1089	373.6	19.86	-22.63		24.25	15.7		3343.23	2293.904	66396.548	55627.17	-75657.29	36014.29	0	0
Pilot Deck / Side Shell	1					592.76	444.26	27.12	-4.38		30.57	-4.38		1819.773	2727.756	49352.249	83387.51	-7970.607	-11947.57	0	0
Mast / Rigging Structure	4	20	2	25	2	160	200	38.24	1		49.43	1		491.2	1228	18783.488	60700.04	491.2	1228	0	0
Out Riggers: UP/DN	2	40	3	40	3	240	240	42.93	1		34.44	1		736.8	1473.6	31630.824	50750.78	736.8	1473.6	0	0
Aft Rigging Structure	1					426.84	50	37.5	43.25		49.68	43.25		1310.399	307	49139.955	15251.76	56674.75	13277.75	0	0
Reels	2					28.27	36	32.6	42.53		33.6	42.5		86.7889	221.04	2829.3181	7426.944	3691.132	9394.2	0	0
Reels	2					63.62	72	26.28	48.11		27.28	48.11		195.3134	442.08	5132.8362	12059.94	9396.528	21268.47	0	0
Hull Side Shell	2					462.3	0	13.24	1					1419.261	0	18791.016	0	1419.261	0	0	0
AFT BWK (in & out side)	4					86.72	80	17.45	42		43.5	42		266.2304	491.2	4645.7205	21367.2	11181.68	20630.4	0	0
Wire Stays	2	52	0.2617			27.2168	0	42.42	-23					83.55558	0	3544.4275	0	-1921.778	0	0	0
Wire Stays	4	20	0.2617			20.936	0	41.33	1					64.27352	0	2656.4246	0	64.27352	0	0	0
Wire Stays	2	45	0.2617			23.553	0	41.86	21.79					72.30771	0	3026.8007	0	1575.585	0	0	0
Wire Stays	2	33	0.2617			17.2722	0	38.9	13.62					53.02565	0	2062.6979	0	722.2094	0	0	0
Wire Stays	2	32	0.2617			16.7488	0	34.31	23.75					51.41882	0	1764.1796	0	1221.197	0	0	0
Wire Stays	2			32	0.2617	0	16.7488				28.63	26.71		0	102.8376	0	2944.241	0	2746.793	0	0
Hand Rails (per section)	16	3.66	1.04	7.5	1.04	60.9024	124.8	25.9	-2		26.85	-2		186.9704	766.272	4842.5325	20574.4	-373.9407	-1532.544	0	0
						0	0							0	0	0	0	0	0	0	0
						0	0							0	0	0	0	0	0	0	0
						0	0							0	0	0	0	0	0	0	0
						0	0							0	0	0	0	0	0	0	0
Total Weight to Add	Total Vert. & Hoz.		28156.86 LB		12.57002838 L. ton						10180.55	17976.32			0	0	0	0	0	0	
Total Vert & Hoz. Mom																264599.02	427882.5	1250.99	199015.1	0	0
Total Vert & Hoz. Mom																232968.19	478633.3	1250.99	199015.1	0	0
Out Riggers: UP	VCG	L. ton	Moment	LCG	L. ton	Moment															
Vert. Overall Cal's	25.99	4.54	118.12	0.12	4.54	0.56															
Hoz. Overall Cal's	23.80	8.03	191.02	11.07	8.03	88.85															
Total VCG & Moments	24.59	12.57	309.14	7.11	12.57	89.40															
Out Riggers: DN	VCG	L. ton	Moment	LCG	L. ton	Moment															
Vert. Overall Cal's	22.88	4.54	104.00	0.12	4.54	0.56															
Hoz. Overall Cal's	26.63	8.03	213.68	11.07	8.03	88.85															
Total VCG & Moments	25.27	12.57	317.68	7.11	12.57	89.40															