

## BRYMAR MARINE, LLC

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Bush, Louisiana 70431-4680  
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**To:** Kent Hoffmeister                      C/O Global Marine Technologies                      **Date:** 16 July 2020  
**From:** Michael Hassett  
**Subject:** Rigid Contractors 195'0"x70'0"x10'6" Deck Barge Corps of Engineers Lift Plan (Rev 0)

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Pursuant to your request, for the account of Global Marine Technologies, and based on the information as provided, the 195'0"x70'0"x10'6" Crane Barge was reviewed pursuant to the Corps of Engineers Manual EM 385-1-1 Dated 30 Nov 2014.

The purpose of this review was to determine, to the extent possible the maximum lift capacity of the installed crane.

The further purpose of this review was to determine, to the extent possible, the operational requirements with due regard to environmental and structural considerations.

**Vessel:**

The Crane Barge is a 195'0"x70'0"x10'6" all welded steel single rake deck barge, fitted with spuds, is designed from two (2) 195'0"x35'0"x10'6" deck barges, each fitted with one (1) longitudinal watertight bulkhead, located +/- 17'6" off the Vessel's centerline that runs from the collision bulkhead to the stern log, and five (5) transverse watertight tight bulkheads.

The Crane Barge is outfitted with an E-Crane Series 2000, Type 1845GA-E hydraulic crane fitted with an articulated boom, and a clam shell type bucket.

The Crane Barge is fitted with spud wells, but is not fitted with spuds.

**Operating Load Chart:**

The E-Crane is allowed to operate at the rated loads, and full revolving operation is permitted.

Maximum E-Crane List shall not exceed 3 Deg. Maximum Trim shall not exceed 4 Deg

**Structural:**

Structural Deck Loading Calculations were performed by others.

**Environmental Conditions:**

The following environmental conditions were considered in reviewing the E-Crane 3 Deg Load Chart:

- 1) Maximum Crane List: 3 Deg.
- 2) Maximum Crane Trim: 4 Deg.
- 3) Maximum Sea State: 2'0" Maximum.
- 4) Maximum Current: 5.0 MPH.
- 5) Maximum Wind Velocity: 20.0 MPH. See Operational Consideration Note No 4.
- 6) Minimum Operating Draft: 4'0".
- 7) Maximum Operating Draft: 6'0".

**Load Chart:**

See attached sheet for Duty Cycle and Lift Crane.

**Crane General Notes:**

- 1) Full revolving operation on the barge lifts are allowed using onboard ratings.
- 2) Full revolving operation off the barge lifts are allowed using offboard ratings.
- 3) The rated load includes the weight of all rigging.

**Stability:**

GHS Software was used to model the Crane Barge and the E-Crane.

The following USCG Rules were applied, and the E-Crane 3 Deg Load Chart adjusted as required:

- 1) 46 CFR 174.015 Intact Stability for Deck Cargo Barges Operating on Protected and Partially Protected waters.
- 2) 46 CFR 173.020 Intact Stability While Lifting on Protected and Partially Protected Waters.
  - a) An artificial Heeling Moment was applied equivalent to 20 Knots on the stbd side.
- 3) The E-Crane was analyzed in the following positions (0 Deg is Aft, 180 Deg is Fwd):
  - a) 0 Deg aft over the Stern.
  - b) 14 Deg off Centerline.
  - c) 90 Deg over the Side.
  - d) 148 Deg off Centerline.
  - e) 180 Deg over the Bow.

In all conditions of loading, the following conclusions were found for the E-Crane 3 Deg Load Chart:

- 1) In no condition of loading was the bilge or hull bottom exposed.
- 2) In no condition of loading was the freeboard less than 1'0".
- 3) In no condition of loading was the List greater the 3 Deg.
- 4) In no condition of loading was the Trim greater than 4 Deg.

**Operational Considerations:**

The following operational considerations shall be adhered to at all times:

- 1) All hull compartments shall be pumped dry and secured at all times. The No 4 Outboard Ballast Tanks shall be maintained FULL.
- 2) The E-Crane shall be secured to the deck of the Crane Barge during operation.
- 3) The Crane Barge operation shall be limited to operation on Partially Protected and Protected Waters only.
- 4) Maximum wind speed shall not exceed 20 MPH without written authorization from the E-Crane operator and shall not exceed the E-Crane limit of 35 MPH.
- 5) Maximum deck cargo shall not exceed 50 Ston, and the VCG shall not exceed 4'0" above the deck.

**Conclusion:**

The NAA meets or exceeds the requirements of Section 16.L.03, 16.L.04, and 16.L.05 of the EMM 385-1-1.

The above review is submitted by the undersigned Independent Marine Engineer/Surveyor without prejudice to the rights of all parties concerned.

**BRYMAR MARINE, LLC**  
***By Michael G Hassett; PE - Manager***

Revisions:

- 1) None.

Cc: Bryan Hassett: BC Engineering, LLC  
MGH/mgh

This report was produced by a Professional Engineer, licensed by the State of Louisiana, Registration No. 37747, and is submitted by the undersigned Independent Naval Architect and Marine Engineer without prejudice to the rights of all parties concerned. All analysis, calculations, and other Professional Engineering work was performed in the state of Louisiana.

Signed: Brymar Marine, LLC

By: [REDACTED]

Michael G. Hassett, P.E., Manager




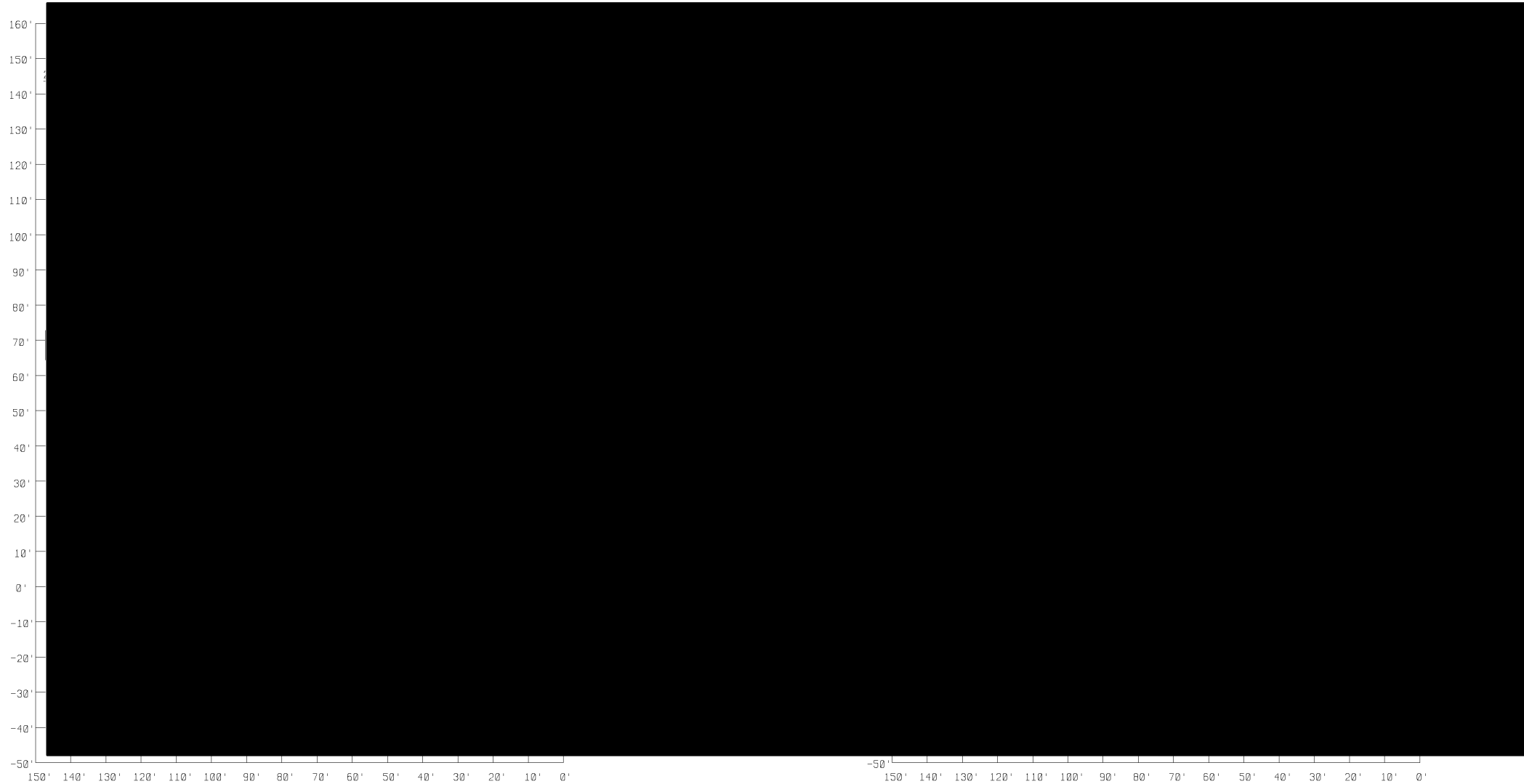
**NOTES**

E-CRANE® (2000 SERIES)  
Type 18450GA-E

**Duty Cycle**



**Lift Crane**





Capacities according to NBN-E53/NEN2018: 5b DIN15018:B5H3 - FEM.1.001: A8

Capacities according to NBN-E53/NEN2018: 5b DIN15018:B5H3 - FEM.1.001: A8

F	
E	
D	
C	
B	
A	

REV.	DATE	DESCRIPTION
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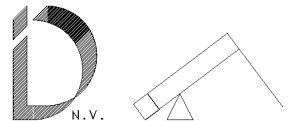
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SCALE: 1/350	ISO-SYMBOL: 

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**E-Crane® 18450GA-E**  
(2000 Series)

LOAD CAPACITY CHARTS

**PROJECT**  
 SHEERWIN ALUMINA COMPANY, LLC  
CORPUS CHRISTI, TEXAS, USA



**INDUSIGN**

E-CRANE WORLDWIDE / INDUSIGN  
KOEKOEKLAAN 53  
89991 ADEGEM  
<http://www.e-crane.eu>  
[info@ecrane.eu](mailto:info@ecrane.eu)

Job No. SACEK1-004  
SHEET 1 OF 1

REV.	0
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STATUS, continued

Part	Load	SpGr	WPA	LCF	TCF	BML	BMT
HULL		1.000	13114	101.33a	0.00	655.1	91.45
			ST/Inch	Ft	ST/In	GML	GMT
			34.11		498.50	638.2	74.61
Part	LPA	LCP	HCP	LPA	LCP	HCP	
Displacers	836.6	104.40a	-2.27	1143.5	97.88a	3.03	
Sails				3571.0	78.62a	42.57	
Total Lateral Plane->	836.6	104.40a	-2.27	4714.5	83.29a	32.98	

Distances in FEET.

Critical Points	LCP	TCP	VCP	Height
(1) Bow Draft	25.00a	35.00s	0.00	-4.61
(1) Bow Draft	25.00a	35.00p	0.00	-4.61
(2) Stern Draft	195.00a	35.00s	0.00	-4.62
(2) Stern Draft	195.00a	35.00p	0.00	-4.62
(3) Bow Freeboard	25.00a	35.00s	10.50	5.89
(3) Bow Freeboard	25.00a	35.00p	10.50	5.89
(4) Stern Freeboard	195.00a	35.00s	10.50	5.88
(4) Stern Freeboard	195.00a	35.00p	10.50	5.88

Distances in FEET.

RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 84.50a TCG = 0.00 VCG = 23.75

Origin Depth	Degrees of Trim	Degrees of Heel	Displacement Weight (ST)	Righting Arms in Trim	Righting Arms in Heel	Marg Imm. Area	Marg Imm. (Extra)
4.611	0.00a	0.00	1,827.7	0.00	0.000	0.00	4.88
4.481	0.05a	5.00s	1,827.7	0.00	6.524	16.31	1.75
4.345	0.10a	7.75s	1,827.6	0.00	10.103	39.18	-0.00
4.067	0.16a	10.00s	1,827.7	0.00	12.230	64.30	-1.35
3.229	0.34a	14.72s	1,827.7	0.00	13.494	126.08	-4.12
3.176	0.35a	15.00s	1,827.7	0.00	13.491	129.92	-4.29
2.221	0.56a	20.00s	1,827.7	0.00	12.810	196.48	-7.22
1.232	0.77a	25.00s	1,827.7	0.00	11.487	257.49	-10.12
0.216	0.98a	30.00s	1,827.7	0.00	9.860	310.99	-12.97
-0.818	1.20a	35.00s	1,827.7	0.00	8.055	355.85	-15.75
-1.862	1.42a	40.00s	1,827.7	0.00	6.134	391.37	-18.43
-2.904	1.63a	45.00s	1,827.7	0.00	4.134	417.07	-20.98
-3.932	1.84a	50.00s	1,827.7	0.00	2.084	432.64	-23.39
-4.932	2.03a	55.00s	1,827.7	0.00	0.005	437.87	-25.64
-5.891	2.21a	60.00s	1,827.7	0.00	-2.081	432.69	-27.69

Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.

Note: The Center of Gravity shown above is for the Fixed Weight of 1375.70 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

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LIM-----STABILITY CRITERION-----Min/Max-----Attained  
(1) Area from abs 0.001 deg to MaxRA > 10.00 Ft-deg 126.08 P  
(2) Angle from Equilibrium to Dk/margin Immersion > 0.00 deg 7.75 P  
-----Relative angles measured from 0.001 -----

DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
BOOM STOWED WITH 17.5 KNOT WIND FROM STBD SIDE

HYDROSTATIC PROPERTIES

Trim: 0.00/195.00, Heel: Port 0.03 deg.

Origin Displacement	Center of Buoyancy							
Depth----	Weight (ST)----	LCB-----	TCB-----	VCB-----	WPA-----	LCF-----	BML-----	BMT
4.611	1,827.67	104.41a	0.07p	2.33	13115	101.32a	655.2	91.45
Distances in FEET.-----		Specific Gravity = 1.000.-----						

HYDROSTATIC PROPERTIES

Trim: 0.00/195.00, Heel: Port 0.03 deg., VCG = 19.18

LCF Displacement	Buoyancy-Ctr.	Weight/	Moment/		
Draft----	Weight (ST)----	LCB-----	VCB-----	Inch-----	
4.617	1,827.67	104.41a	2.33	34.11	
				LCF--In trim----	
				498.60	
				GML-----	
				638.4	
				GMT	
				74.61	
Distances in FEET.-----		Specific Gravity = 1.000.-----			Moment in Ft-ST.
Trim is per 195.00Ft					

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
512.91 ST E-CRANE: 2000 SERIES-

COMBINED STATUS

Baseline draft: 4.611 @ 0.00, 4.623 @ 195.00a

Trim: 0.00/195.00, Heel: Port 0.03 deg.

Part-----	Weight (ST)	LCG	TCG	VCG	
LIGHT SHIP	813.93	99.94a	0.00	6.50	
GENERATOR CONEX	5.52	80.00a	19.00p	15.00	
STORAGE CONEX	5.00	25.00a	19.00p	15.00	
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00	
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00	
BOTTLE RACK	5.00	102.50a	6.00p	15.00	
BUCKETS	10.00	180.00a	6.00s	15.00	
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00	
E-CRANE: 2000 SERIES-1845	512.91	58.08a	0.00	52.03	
Total Fixed----->	1,375.70	84.50a	0.00	23.75	
	Gals.-----	SpGr-----	Weight (ST)	LCG	TCG
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s
Total Tanks----->			451.96	165.00a	0.00
Total Weight----->			1,827.66	104.41a	0.00
			Displ (ST)	LCB	TCB
HULL	1.000		1,827.67	104.41a	0.07p
				VCB	
				2.33	-4.61
-----					
	Righting Arms:		0.00	-0.07s	
	External Arms:		0.00	-0.07p	
	Residual Righting Arms:		0.00	0.00	



STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----
HULL		1.000	13115	101.32a	0.00	655.2	91.45
ST/Inch							
34.11							
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	839.8	104.38a	-2.28	1146.9	97.87a	3.04	
Sails				3571.8	78.62a	42.57	
Total Lateral Plane->	839.8	104.38a	-2.28	4718.6	83.30a	32.96	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.60
(1) Bow Draft	25.00a	35.00p	0.00	-4.63
(2) Stern Draft	195.00a	35.00s	0.00	-4.61
(2) Stern Draft	195.00a	35.00p	0.00	-4.64
(3) Bow Freeboard	25.00a	35.00s	10.50	5.90
(3) Bow Freeboard	25.00a	35.00p	10.50	5.87
(4) Stern Freeboard	195.00a	35.00s	10.50	5.89
(4) Stern Freeboard	195.00a	35.00p	10.50	5.86
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 84.50a TCG = 0.00 VCG = 23.75

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area--(Extra)
			in Trim--in Heel-->	
4.611	0.00a	0.03p	1,827.7	0.00
4.482	0.05a	4.97s	1,827.7	0.00
4.345	0.10a	7.75s	1,827.6	0.00
4.072	0.16a	9.97s	1,827.7	0.00
3.226	0.34a	14.73s	1,827.7	0.00
3.181	0.35a	14.97s	1,827.7	0.00
2.227	0.56a	19.97s	1,827.7	0.00
1.238	0.77a	24.97s	1,827.7	0.00
0.222	0.98a	29.97s	1,827.7	0.00
-0.812	1.20a	34.97s	1,827.7	0.00
-1.856	1.42a	39.97s	1,827.7	0.00
-2.898	1.63a	44.97s	1,827.7	0.00
-3.926	1.84a	49.97s	1,827.7	0.00
-4.927	2.03a	54.97s	1,827.7	0.00
-4.989	2.05a	55.29s	1,827.7	0.00
-5.886	2.21a	59.97s	1,827.7	0.00
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1375.70 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

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Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.028 deg to MaxRA	> 10.00 Ft-deg	127.29 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.78 P
-----Relative angles measured from 0.028 -----			

DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER STERN - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER STERN w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Aft 0.24/195.00, Heel: 0.00 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
4.542	1,848.76	105.14a	0.08p	2.36	12806	103.51a	603.7	88.73
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Aft 0.24/195.00, Heel: 0.00 deg., VCG = 19.07

LCF	Displacement	Buoyancy-Ctr.		Weight/	Moment/			
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.671	1,848.76	105.14a	2.36	33.31	103.51a	463.74	587.0	72.02
Distances in FEET.		Specific Gravity = 1.000.				Moment in Ft-ST.		
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
534.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.542 @ 0.00, 4.785 @ 195.00a  
Trim: Aft 0.24/195.00, Heel: 0.00 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	534.10	62.32a	0.00	50.35			
Total Fixed	1,396.89	85.72a	0.00	23.54			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,848.86	105.10a	0.00	19.07	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,848.76	105.14a	0.08p	2.36	-4.54

Righting Arms:	0.02a	-0.08s
External Arms:	0.00	-0.07p
Residual Righting Arms:	0.02a	-0.01s

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----
HULL		1.000	12806	103.51a	0.41p	603.7	88.73
ST/Inch 33.31							
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	846.4	105.12a	-2.32	1133.8	97.29a	3.01	
Sails				3571.0	78.68a	42.55	
Total Lateral Plane->	846.4	105.12a	-2.32	4704.8	83.16a	33.02	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.57
(1) Bow Draft	25.00a	35.00p	0.00	-4.57
(2) Stern Draft	195.00a	35.00s	0.00	-4.78
(2) Stern Draft	195.00a	35.00p	0.00	-4.79
(3) Bow Freeboard	25.00a	35.00s	10.50	5.93
(3) Bow Freeboard	25.00a	35.00p	10.50	5.93
(4) Stern Freeboard	195.00a	35.00s	10.50	5.72
(4) Stern Freeboard	195.00a	35.00p	10.50	5.71
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 85.72a TCG = 0.00 VCG = 23.54

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area-- (Extra)
4.545	0.07a	0.00	1,848.9	0.00
4.545	0.07a	0.00	1,848.9	0.00
4.415	0.12a	5.00s	1,848.9	0.00
4.298	0.16a	7.50s	1,848.8	0.00
3.992	0.24a	10.00s	1,848.9	0.00
3.118	0.45a	14.71s	1,848.9	0.00
3.061	0.47a	15.00s	1,848.9	0.00
2.064	0.71a	20.00s	1,848.9	0.00
1.031	0.97a	25.00s	1,848.9	0.00
-0.032	1.22a	30.00s	1,848.9	0.00
-1.115	1.48a	35.00s	1,848.8	0.00
-2.208	1.74a	40.00s	1,848.8	0.00
-3.298	2.00a	45.00s	1,848.8	0.00
-4.372	2.24a	50.00s	1,848.8	0.00
-5.415	2.47a	55.00s	1,848.9	0.00
-5.456	2.48a	55.20s	1,848.9	0.00
-6.411	2.68a	60.00s	1,848.9	0.00
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1396.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: Discontinuity at 0.00 may be due to too few stations near vessel ends.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.001 deg to MaxRA	> 10.00 Ft-deg	125.64 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.50 P
-----Relative angles measured from 0.001 -----			

DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER STERN CORNER - MAXIMIM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER STERN CORNER w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Aft 0.23/195.00, Heel: Stbd 0.31 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
4.548	1,848.85	105.06a	0.54s	2.36	12935	102.58a	622.3	88.69
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Aft 0.23/195.00, Heel: Stbd 0.31 deg., VCG = 19.07

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.669	1,848.85	105.06a	2.36	33.65	102.58a	478.52	605.6	71.98
Distances in FEET.		Specific Gravity = 1.000.					Moment in Ft-ST.	
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
534.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.549 @ 0.00, 4.777 @ 195.00a  
Trim: Aft 0.23/195.00, Heel: Stbd 0.31 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	534.10	62.10a	1.77s	50.35			
Total Fixed	1,396.89	85.64a	0.68s	23.54			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,848.85	105.04a	0.51s	19.07	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,848.85	105.06a	0.54s	2.36	-4.55

Righting Arms:	0.00	-0.07s
External Arms:	0.00	-0.07p
Residual Righting Arms:	0.00	0.00s

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCF-----	TCF-----	BML-----	BMT-----
HULL		1.000	12935	102.58a	0.36s	622.3	88.69
			ST/Inch				
			33.65				
Part-----		LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----
Displacers		881.7	104.88a	-2.39	1171.7	97.25a	3.10
Sails					3579.4	78.67a	42.54
Total Lateral Plane->		881.7	104.88a	-2.39	4751.1	83.25a	32.81
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.77
(1) Bow Draft	25.00a	35.00p	0.00	-4.39
(2) Stern Draft	195.00a	35.00s	0.00	-4.97
(2) Stern Draft	195.00a	35.00p	0.00	-4.59
(3) Bow Freeboard	25.00a	35.00s	10.50	5.73
(3) Bow Freeboard	25.00a	35.00p	10.50	6.11
(4) Stern Freeboard	195.00a	35.00s	10.50	5.53
(4) Stern Freeboard	195.00a	35.00p	10.50	5.91
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 85.64a TCG = 0.68s VCG = 23.54

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth	Trim	Heel	Weight (ST)	Area
-----	-----	-----	-----	-----
4.549	0.07a	0.31s	1,848.8	0.00
4.414	0.12a	5.31s	1,848.9	0.00
4.307	0.15a	7.52s	1,848.8	0.00
3.950	0.24a	10.31s	1,848.9	0.00
3.126	0.45a	14.75s	1,848.9	0.00
3.019	0.47a	15.31s	1,848.9	0.00
2.026	0.71a	20.31s	1,848.9	0.00
0.997	0.96a	25.31s	1,848.9	0.00
-0.059	1.22a	30.31s	1,848.9	0.00
-1.135	1.47a	35.31s	1,848.8	0.00
-2.219	1.73a	40.31s	1,848.8	0.00
-3.299	1.97a	45.31s	1,848.8	0.00
-4.363	2.21a	50.31s	1,848.8	0.00
-5.228	2.40a	54.49s	1,848.9	0.00
-5.395	2.44a	55.31s	1,848.9	0.00
-6.379	2.64a	60.31s	1,848.9	0.00
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1396.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 0.308 deg to MaxRA	> 10.00 Ft-deg	119.06 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.21 P
-----Relative angles measured from 0.308s-----			



DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER SIDE - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E w/MAX MOMENT @ 90 DEG w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 0.39/195.00, Heel: Stbd 1.55 deg.

Origin	Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT	
4.864	1,848.88	102.95a	2.50s	2.39	13068	101.66a	641.4	89.38	
Distances in FEET.		Specific Gravity = 1.000.							

HYDROSTATIC PROPERTIES

Trim: Fwd 0.39/195.00, Heel: Stbd 1.55 deg., VCG = 19.07

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.664	1,848.88	102.95a	2.39	33.99	101.66a	493.61	624.7	72.70
Distances in FEET.		Specific Gravity = 1.000.				Moment in Ft-ST.		
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
534.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.866 @ 0.00, 4.478 @ 195.00a  
Trim: Fwd 0.39/195.00, Heel: Stbd 1.55 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	534.10	55.00a	7.32s	50.35			
Total Fixed	1,396.89	82.92a	2.80s	23.54			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,848.86	102.99a	2.12s	19.07	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,848.88	102.95a	2.50s	2.39	-4.86
Righting Arms:				0.00	-0.07s		
External Arms:				0.00	-0.07p		
Residual Righting Arms:				0.00	0.00s		

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCF-----	TCF-----	BML-----	BMT-----	
HULL		1.000	13068	101.66a	0.32s	641.4	89.38	
			ST/Inch					
			33.99					
Part-----			LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----
Displacers			1027.5	102.31a	-2.75	1322.1	98.44a	3.47
Sails						3612.4	78.51a	42.39
Total Lateral Plane->			1027.5	102.31a	-2.75	4934.5	83.85a	31.97
Distances in FEET.-----								

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-5.76
(1) Bow Draft	25.00a	35.00p	0.00	-3.86
(2) Stern Draft	195.00a	35.00s	0.00	-5.43
(2) Stern Draft	195.00a	35.00p	0.00	-3.53
(3) Bow Freeboard	25.00a	35.00s	10.50	4.73
(3) Bow Freeboard	25.00a	35.00p	10.50	6.63
(4) Stern Freeboard	195.00a	35.00s	10.50	5.07
(4) Stern Freeboard	195.00a	35.00p	10.50	6.97
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 82.92a TCG = 2.80s VCG = 23.54

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area-- (Extra)
4.863	0.11f	1.55s	1,848.9	0.00 0.000 0.00 3.73
4.692	0.05f	6.55s	1,848.8	0.00 6.454 16.14 0.77
4.618	0.03f	7.88s	1,848.8	0.00 8.156 25.78 -0.00
4.169	0.05a	11.55s	1,848.9	0.00 10.968 61.40 -2.06
3.628	0.14a	15.11s	1,848.9	0.00 11.467 101.81 -4.08
3.402	0.17a	16.55s	1,848.9	0.00 11.384 118.32 -4.91
2.598	0.31a	21.55s	1,848.9	0.00 10.510 173.05 -7.73
1.765	0.44a	26.55s	1,848.9	0.00 9.163 222.43 -10.52
0.909	0.58a	31.55s	1,848.9	0.00 7.580 264.39 -13.24
0.035	0.72a	36.55s	1,848.9	0.00 5.856 298.04 -15.89
-0.847	0.85a	41.55s	1,848.9	0.00 4.042 322.82 -18.42
-1.729	0.99a	46.55s	1,848.9	0.00 2.170 338.37 -20.83
-2.602	1.12a	51.55s	1,848.9	0.00 0.264 344.47 -23.09
-2.721	1.14a	52.24s	1,848.9	0.00 0.000 344.56 -23.39
-3.455	1.24a	56.55s	1,848.9	0.00 -1.655 341.00 -25.18
-4.278	1.35a	61.55s	1,848.9	0.00 -3.568 327.94 -27.09
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1396.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 1.555 deg to MaxRA	> 10.00 Ft-deg	101.81 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	6.32 P
-----Relative angles measured from 1.555s-----			

DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER BOW CORNER - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER BOW CORNER w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 0.96/195.00, Heel: Stbd 0.79 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
5.164	1,848.85	101.11a	1.29s	2.38	13199	100.73a	660.1	90.93
Distances in FEET.-----Specific Gravity = 1.000.-----								

HYDROSTATIC PROPERTIES

Trim: Fwd 0.96/195.00, Heel: Stbd 0.79 deg., VCG = 19.07

LCF Draft	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
4.670	1,848.85	101.11a	2.38	Inch	LCF	In trim	GML	GMT
				34.33	100.73a	508.36	643.4	74.24
Distances in FEET.-----Specific Gravity = 1.000.-----Moment in Ft-ST.								
Trim is per 195.00Ft								

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
534.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 5.165 @ 0.00, 4.207 @ 195.00a  
Trim: Fwd 0.96/195.00, Heel: Stbd 0.79 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	534.10	48.79a	3.88s	50.35			
Total Fixed	1,396.89	80.55a	1.48s	23.54			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,848.86	101.20a	1.12s	19.07	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,848.85	101.11a	1.29s	2.38	-5.16

Righting Arms:	0.00	-0.07s
External Arms:	0.00	-0.07p
Residual Righting Arms:	0.00	0.00s

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----
HULL		1.000	13199	100.73a	0.02s	660.1	90.93
ST/Inch							
34.33							
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	940.0	100.76a	-2.52	1228.0	100.01a	3.23	
Sails				3592.4	78.38a	42.37	
Total Lateral Plane->	940.0	100.76a	-2.52	4820.3	83.89a	32.40	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-5.52
(1) Bow Draft	25.00a	35.00p	0.00	-4.56
(2) Stern Draft	195.00a	35.00s	0.00	-4.69
(2) Stern Draft	195.00a	35.00p	0.00	-3.72
(3) Bow Freeboard	25.00a	35.00s	10.50	4.97
(3) Bow Freeboard	25.00a	35.00p	10.50	5.94
(4) Stern Freeboard	195.00a	35.00s	10.50	5.81
(4) Stern Freeboard	195.00a	35.00p	10.50	6.78
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 80.55a TCG = 1.48s VCG = 23.54

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area-- (Extra)
			in Trim--in Heel-->	
5.165	0.28f	0.79s	1,848.8	0.00 0.000 0.00 3.97
5.013	0.23f	5.79s	1,848.8	0.00 6.475 16.19 1.00
4.929	0.20f	7.50s	1,848.9	0.00 8.699 29.14 -0.00
4.634	0.17f	10.79s	1,848.9	0.00 11.642 62.87 -1.80
4.196	0.15f	14.54s	1,849.1	0.00 12.456 108.66 -3.75
4.042	0.14f	15.79s	1,848.9	0.00 12.428 124.21 -4.40
3.416	0.11f	20.79s	1,848.9	0.00 11.644 184.39 -6.98
2.762	0.07f	25.79s	1,848.9	0.00 10.315 239.51 -9.50
2.084	0.04f	30.79s	1,848.9	0.00 8.719 287.21 -11.96
1.387	0.00	35.79s	1,848.9	0.00 6.966 326.49 -14.35
0.676	0.04a	40.79s	1,848.9	0.00 5.109 356.72 -16.74
-0.043	0.09a	45.79s	1,848.9	0.00 3.184 377.48 -19.01
-0.764	0.13a	50.79s	1,848.9	0.00 1.217 388.50 -21.15
-1.204	0.15a	53.85s	1,848.9	0.00 0.000 390.36 -22.39
-1.481	0.17a	55.79s	1,848.9	0.00 -0.773 389.61 -23.14
-2.187	0.21a	60.79s	1,848.9	0.00 -2.764 380.78 -24.96
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1396.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 0.790 deg to MaxRA	> 10.00 Ft-deg	108.66 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	6.71 P
-----Relative angles measured from 0.790s-----			

DUTY CYCLE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER BOW - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E w/MAX MOMENT OVER BOW w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 1.06/195.00, Heel: Port 0.05 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
5.219	1,848.64	100.78a	0.08p	2.37	13166	100.96a	655.4	90.74
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Fwd 1.06/195.00, Heel: Port 0.05 deg., VCG = 19.07

LCF Draft	Displacement	Buoyancy-Ctr.	Weight/	Moment/
4.669	1,848.64	100.78a	2.37	34.25
Distances in FEET.		LCB	VCB	Inch
		100.78a	2.37	34.25
		LCF		In trim
		100.96a		504.55
		GML		638.7
		GMT		74.04
		Specific Gravity = 1.000.		
		Moment in Ft-ST.		
		Trim is per 195.00Ft		

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
534.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 5.219 @ 0.00, 4.157 @ 195.00a  
Trim: Fwd 1.06/195.00, Heel: Port 0.05 deg.

Part	Weight (ST)	LCG	TCG	VCG
LIGHT SHIP	813.93	99.94a	0.00	6.50
GENERATOR CONEX	5.52	80.00a	19.00p	15.00
STORAGE CONEX	5.00	25.00a	19.00p	15.00
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00
BOTTLE RACK	5.00	102.50a	6.00p	15.00
BUCKETS	10.00	180.00a	6.00s	15.00
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00
E-CRANE: MAX MOMENT	534.10	47.68a	0.00	50.35
Total Fixed	1,396.89	80.13a	0.00	23.54
	Gals.	SpGr	Weight (ST)	LCG
NO4-OUT.P	54157	1.000	225.98	165.00a
NO4-OUT.S	54157	1.000	225.98	165.00a
Total Tanks			451.96	165.00a
Total Weight			1,848.86	100.87a
			Displ (ST)	LCB
HULL	1.000		1,848.64	100.78a
				TCB
				0.08p
				VCB
				2.37
				RefHt
				-5.22

Righting Arms:	0.00	-0.07s
External Arms:	0.00	-0.07p
Residual Righting Arms:	0.00	0.00

STATUS, continued

Part	Load	SpGr	WPA	LCF	TCF	BML	BMT
HULL		1.000	13166	100.96a	0.01p	655.4	90.74
			ST/Inch				
			34.25				
Part		LPA	LCP	HCP	LPA	LCP	HCP
Displacers		853.7	100.53a	-2.30	1137.7	100.62a	3.01
Sails					3572.3	78.36a	42.40
Total Lateral Plane->		853.7	100.53a	-2.30	4710.0	83.74a	32.88
Distances in FEET.							

Critical Points	LCP	TCP	VCP	Height
(1) Bow Draft	25.00a	35.00s	0.00	-5.05
(1) Bow Draft	25.00a	35.00p	0.00	-5.11
(2) Stern Draft	195.00a	35.00s	0.00	-4.13
(2) Stern Draft	195.00a	35.00p	0.00	-4.19
(3) Bow Freeboard	25.00a	35.00s	10.50	5.45
(3) Bow Freeboard	25.00a	35.00p	10.50	5.39
(4) Stern Freeboard	195.00a	35.00s	10.50	6.37
(4) Stern Freeboard	195.00a	35.00p	10.50	6.31
Distances in FEET.				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 80.13a TCG = 0.00 VCG = 23.54

Origin Depth	Degrees of Trim	Degrees of Heel	Displacement Weight (ST)	Residual Arms in Trim	Residual Arms in Heel	Res. Marg Imm. Area	Res. Marg Imm. (Extra)
5.218	0.31f	0.05p	1,848.6	0.00	0.000	0.00	
5.098	0.27f	4.95s	1,848.8	0.00	6.507	16.27	1.46
4.984	0.23f	7.43s	1,848.9	0.00	9.731	36.40	-0.00
4.783	0.21f	9.95s	1,848.8	0.00	12.237	64.16	-1.40
4.253	0.20f	14.78s	1,848.9	0.00	13.545	127.64	-3.94
4.234	0.20f	14.95s	1,848.9	0.00	13.543	129.94	-4.03
3.643	0.18f	19.95s	1,848.9	0.00	12.881	196.82	-6.64
3.025	0.17f	24.95s	1,848.9	0.00	11.578	258.23	-9.20
2.382	0.15f	29.95s	1,848.9	0.00	9.972	312.23	-11.69
1.720	0.13f	34.95s	1,848.9	0.00	8.188	357.70	-14.11
1.042	0.10f	39.95s	1,848.9	0.00	6.287	393.94	-16.42
0.354	0.08f	44.95s	1,848.9	0.00	4.306	420.46	-18.62
-0.339	0.05f	49.95s	1,848.9	0.00	2.273	436.92	-20.68
-1.031	0.02f	54.95s	1,848.9	0.00	0.207	443.14	-22.58
-1.100	0.02f	55.45s	1,848.9	0.00	0.000	443.19	-22.76
-1.717	0.01a	59.95s	1,848.9	0.00	-1.868	438.99	-24.34
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.							

Note: The Center of Gravity shown above is for the Fixed Weight of 1396.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.



Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.048 deg to MaxRA	> 10.00 Ft-deg	127.64 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.48 P
-----Relative angles measured from 0.048 -----			

RIGID CONTRACTORS: 195'0"X70'0"X10'6" DECK BARGE

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - LIGHTSHIP  
HYDROSTATIC PROPERTIES  
Trim: Fwd 0.03/195.00, Heel: 0.00 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
4.622	1,823.86	104.28a	0.00	2.33	13115	101.32a	656.6	91.65
Distances in FEET.-----Specific Gravity = 1.000.-----								

HYDROSTATIC PROPERTIES

Trim: Fwd 0.03/195.00, Heel: 0.00 deg., VCG = 19.20

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.608	1,823.86	104.28a	2.33	34.11	101.32a	498.61	639.7	74.78
Distances in FEET.-----Specific Gravity = 1.000.-----Moment in Ft-ST.								
Trim is per 195.00Ft								

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER                      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights                                      19.14 ST DIESEL FUEL  
509.10 ST E-CRANE: 2000 SERIES-

COMBINED STATUS

Baseline draft: 4.622 @ 0.00, 4.594 @ 195.00a  
Trim: Fwd 0.03/195.00, Heel: 0.00 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: 2000 SERIES-1845	509.10	57.28a	0.00	52.35			
Total Fixed----->	1,371.89	84.28a	0.00	23.79			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks----->			451.96	165.00a	0.00	5.25	
Total Weight----->			1,823.86	104.28a	0.00	19.20	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,823.86	104.28a	0.00	2.33	-4.62

Righting Arms:                                      0.00      0.00

STATUS, continued

Part	Load	SpGr	WPA	LCF	TCF	BML	BMT
HULL		1.000	13115	101.32a	0.00	656.6	91.65
			ST/Inch	Ft	ST/In	GML	GMT
			34.11		498.61	639.7	74.78
Part	LPA	LCP	HCP	LPA	LCP	HCP	
Displacers	834.9	104.27a	-2.27	1145.2	97.98a	3.03	
Sails				3571.0	78.61a	42.58	
Total Lateral Plane->	834.9	104.27a	-2.27	4716.2	83.31a	32.98	

Distances in FEET.

Critical Points	LCP	TCP	VCP	Height
(1) Bow Draft	25.00a	35.00s	0.00	-4.62
(1) Bow Draft	25.00a	35.00p	0.00	-4.62
(2) Stern Draft	195.00a	35.00s	0.00	-4.59
(2) Stern Draft	195.00a	35.00p	0.00	-4.59
(3) Bow Freeboard	25.00a	35.00s	10.50	5.88
(3) Bow Freeboard	25.00a	35.00p	10.50	5.88
(4) Stern Freeboard	195.00a	35.00s	10.50	5.91
(4) Stern Freeboard	195.00a	35.00p	10.50	5.91

Distances in FEET.

RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 84.28a TCG = 0.00 VCG = 23.79

Origin Depth	Degrees of Trim	Degrees of Heel	Displacement Weight (ST)	Righting Arms in Trim	Righting Arms in Heel	Marg Imm. Area	Marg Imm. (Extra)
4.623	0.01f	0.00	1,823.9	0.00	0.000	0.00	4.88
4.493	0.04a	5.00s	1,823.9	0.00	6.540	16.35	1.78
4.353	0.09a	7.80s	1,823.8	0.00	10.181	39.73	-0.00
4.081	0.15a	10.00s	1,823.9	0.00	12.251	64.45	-1.32
3.249	0.32a	14.72s	1,823.9	0.00	13.518	126.37	-4.07
3.196	0.33a	15.00s	1,823.9	0.00	13.515	130.19	-4.24
2.249	0.53a	20.00s	1,823.9	0.00	12.835	196.87	-7.15
1.269	0.73a	25.00s	1,823.9	0.00	11.510	258.00	-10.04
0.261	0.94a	30.00s	1,823.9	0.00	9.881	311.60	-12.87
-0.765	1.15a	35.00s	1,823.9	0.00	8.073	356.56	-15.63
-1.800	1.36a	40.00s	1,823.9	0.00	6.149	392.17	-18.29
-2.833	1.57a	45.00s	1,823.9	0.00	4.146	417.94	-20.83
-3.853	1.77a	50.00s	1,823.9	0.00	2.092	433.55	-23.23
-4.845	1.96a	55.00s	1,823.9	0.00	0.010	438.82	-25.46
-4.851	1.96a	55.02s	1,823.9	0.00	0.000	438.82	-25.47
-5.798	2.13a	60.00s	1,823.9	0.00	-2.080	433.65	-27.50

Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.

Note: The Center of Gravity shown above is for the Fixed Weight of 1371.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

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GHS 17.08

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LIM-----STABILITY CRITERION-----Min/Max-----Attained  
(1) Area from abs 0.001 deg to MaxRA > 10.00 Ft-deg 126.37 P  
(2) Angle from Equilibrium to Dk/margin Immersion > 0.00 deg 7.80 P  
-----Relative angles measured from 0.001 -----

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
BOOM STOWED WITH 17.5 KNOT WIND FROM STBD SIDE

HYDROSTATIC PROPERTIES

Trim: Fwd 0.03/195.00, Heel: Port 0.03 deg.

Origin Displacement	Center of Buoyancy							
Depth----	Weight (ST)----	LCB-----	TCB-----	VCB-----	WPA-----	LCF-----	BML-----	BMT
4.622	1,823.86	104.28a	0.07p	2.33	13117	101.31a	656.9	91.66
Distances in FEET.-----Specific Gravity = 1.000.-----								

HYDROSTATIC PROPERTIES

Trim: Fwd 0.03/195.00, Heel: Port 0.03 deg., VCG = 19.20

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft----	Weight (ST)----	LCB-----	VCB-----	Inch-----	LCF---	In trim---	GML-----	GMT
4.608	1,823.86	104.28a	2.33	34.12	101.31a	498.82	640.0	74.79
Distances in FEET.-----Specific Gravity = 1.000.-----Moment in Ft-ST.								
Trim is per 195.00Ft								

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER                      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights                                      19.14 ST DIESEL FUEL  
509.10 ST E-CRANE: 2000 SERIES-

COMBINED STATUS

Baseline draft: 4.622 @ 0.00, 4.594 @ 195.00a

Trim: Fwd 0.03/195.00, Heel: Port 0.03 deg.

Part-----	Weight (ST)			LCG----	TCG----	VCG	
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: 2000 SERIES-1845	509.10	57.28a	0.00	52.35			
Total Fixed----->	1,371.89	84.28a	0.00	23.79			
	Gals.----	SpGr----	Weight (ST)	LCG----	TCG----	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks----->			451.96	165.00a	0.00	5.25	
Total Weight----->			1,823.86	104.28a	0.00	19.20	
			Displ (ST)	LCB-----	TCB-----	VCB	
HULL	1.000		1,823.86	104.28a	0.07p	2.33	-4.62
-----							
	Righting Arms:		0.00	-0.06s			
	External Arms:		0.00	-0.07p			
	Residual Righting Arms:		0.00	0.00s			

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----	
HULL		1.000	13117	101.31a	0.00	656.9	91.66	
			ST/Inch					
			34.12					
Part-----			LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----
Displacers			838.7	104.25a	-2.28	1149.2	97.97a	3.04
Sails						3571.9	78.61a	42.58
Total Lateral Plane->			838.7	104.25a	-2.28	4721.1	83.32a	32.96
Distances in FEET.-----								

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.60
(1) Bow Draft	25.00a	35.00p	0.00	-4.64
(2) Stern Draft	195.00a	35.00s	0.00	-4.57
(2) Stern Draft	195.00a	35.00p	0.00	-4.61
(3) Bow Freeboard	25.00a	35.00s	10.50	5.90
(3) Bow Freeboard	25.00a	35.00p	10.50	5.86
(4) Stern Freeboard	195.00a	35.00s	10.50	5.93
(4) Stern Freeboard	195.00a	35.00p	10.50	5.89
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 84.28a TCG = 0.00 VCG = 23.79

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area-- (Extra)
			in Trim--in Heel-->	
4.622	0.01f	0.03p	1,823.9	0.00
4.494	0.04a	4.97s	1,823.9	0.00
4.353	0.09a	7.80s	1,823.8	0.00
4.086	0.15a	9.97s	1,823.9	0.00
3.247	0.32a	14.73s	1,823.9	0.00
3.203	0.33a	14.97s	1,823.9	0.00
2.256	0.53a	19.97s	1,823.9	0.00
1.275	0.73a	24.97s	1,823.9	0.00
0.268	0.94a	29.97s	1,823.9	0.00
-0.758	1.15a	34.97s	1,823.9	0.00
-1.793	1.36a	39.97s	1,823.9	0.00
-2.827	1.57a	44.97s	1,823.9	0.00
-3.846	1.77a	49.97s	1,823.9	0.00
-4.839	1.95a	54.97s	1,823.9	0.00
-4.904	1.97a	55.30s	1,823.9	0.00
-5.791	2.13a	59.97s	1,823.9	0.00
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1371.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.033 deg to MaxRA	> 10.00 Ft-deg	127.55 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.83 P
-----Relative angles measured from 0.033 -----			

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
 INTACT STABILITY - MAX MOMENT OVER STERN - MAXIMUM MOMENT: 3,256 STON  
 E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER STERN w/BALLAST  
 HYDROSTATIC PROPERTIES  
 Trim: Aft 0.25/195.00, Heel: 0.00 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
4.539	1,849.76	105.18a	0.08p	2.36	12806	103.51a	603.3	88.68
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Aft 0.25/195.00, Heel: 0.00 deg., VCG = 19.06

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.674	1,849.76	105.18a	2.36	33.31	103.51a	463.74	586.6	71.97
Distances in FEET.		Specific Gravity = 1.000.					Moment in Ft-ST.	
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
 535.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.539 @ 0.00, 4.793 @ 195.00a  
 Trim: Aft 0.25/195.00, Heel: 0.00 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	535.10	62.52a	0.00	50.27			
Total Fixed	1,397.89	85.78a	0.00	23.53			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,849.86	105.14a	0.00	19.06	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,849.76	105.18a	0.08p	2.36	-4.54
				Righting Arms:	0.02a	-0.08s	
				External Arms:	0.00	-0.07p	
				Residual Righting Arms:	0.02a	-0.01s	



STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----
HULL		1.000	12806	103.51a	0.41p	603.3	88.68
			ST/Inch				
			33.31				
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	846.9	105.16a	-2.32	1133.3	97.26a	3.01	
Sails				3571.0	78.68a	42.55	
Total Lateral Plane->	846.9	105.16a	-2.32	4704.3	83.16a	33.02	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.57
(1) Bow Draft	25.00a	35.00p	0.00	-4.57
(2) Stern Draft	195.00a	35.00s	0.00	-4.79
(2) Stern Draft	195.00a	35.00p	0.00	-4.79
(3) Bow Freeboard	25.00a	35.00s	10.50	5.93
(3) Bow Freeboard	25.00a	35.00p	10.50	5.93
(4) Stern Freeboard	195.00a	35.00s	10.50	5.71
(4) Stern Freeboard	195.00a	35.00p	10.50	5.71
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 85.78a TCG = 0.00 VCG = 23.53

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth---Trim---	Heel---	Weight (ST)---	in Trim--in Heel---	Area--(Extra)
4.542 0.07a	0.00	1,849.9	0.00 -0.014	0.00
4.542 0.07a	0.00	1,849.9	0.00 0.064	0.00 4.71
4.411 0.12a	5.00s	1,849.9	0.00 6.504	16.40 1.58
4.295 0.16a	7.49s	1,849.8	0.00 9.715	36.59 0.00
3.988 0.24a	10.00s	1,849.9	0.00 12.181	64.15 -1.55
3.113 0.46a	14.70s	1,849.9	0.00 13.426	125.50 -4.40
3.055 0.47a	15.00s	1,849.9	0.00 13.423	129.47 -4.58
2.056 0.72a	20.00s	1,849.9	0.00 12.750	195.71 -7.61
1.020 0.98a	25.00s	1,849.9	0.00 11.441	256.45 -10.62
-0.045 1.24a	30.00s	1,849.9	0.00 9.831	309.76 -13.57
-1.131 1.50a	35.00s	1,849.8	0.00 8.046	354.52 -16.44
-2.226 1.76a	40.00s	1,849.8	0.00 6.145	390.05 -19.21
-3.318 2.01a	45.00s	1,849.8	0.00 4.166	415.86 -21.86
-4.395 2.26a	50.00s	1,849.8	0.00 2.137	431.63 -24.36
-5.440 2.49a	55.00s	1,849.8	0.00 0.081	437.19 -26.68
-5.481 2.50a	55.19s	1,849.9	0.00 0.000	437.20 -26.77
-6.439 2.70a	60.00s	1,849.9	0.00 -1.984	432.43 -28.81
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1397.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: Discontinuity at 0.00 may be due to too few stations near vessel ends.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.001 deg to MaxRA	> 10.00 Ft-deg	125.50 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.49 P
-----Relative angles measured from 0.001 -----			

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER STERN CORNER - MAXIMIM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER STERN CORNER w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Aft 0.24/195.00, Heel: Stbd 0.32 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
4.545	1,849.85	105.10a	0.56s	2.36	12934	102.59a	621.8	88.64
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Aft 0.24/195.00, Heel: Stbd 0.32 deg., VCG = 19.06

LCF	Displacement	Buoyancy-Ctr.		Weight/	Moment/			
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.671	1,849.85	105.10a	2.36	33.64	102.59a	478.38	605.1	71.94
Distances in FEET.		Specific Gravity = 1.000.				Moment in Ft-ST.		
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
535.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.545 @ 0.00, 4.785 @ 195.00a  
Trim: Aft 0.24/195.00, Heel: Stbd 0.32 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	535.10	62.30a	1.82s	50.27			
Total Fixed	1,397.89	85.70a	0.70s	23.53			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,849.86	105.07a	0.53s	19.06	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,849.85	105.10a	0.56s	2.36	-4.54
				Righting Arms:	0.00	-0.07s	
				External Arms:	0.00	-0.07p	
				Residual Righting Arms:	0.00	0.00s	

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCF-----	TCF-----	BML-----	BMT-----
HULL		1.000	12934	102.59a	0.36s	621.8	88.64
			ST/Inch				
			33.64				
Part-----		LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----
Displacers		883.5	104.91a	-2.40	1172.7	97.22a	3.10
Sails					3579.7	78.67a	42.53
Total Lateral Plane->		883.5	104.91a	-2.40	4752.4	83.25a	32.80

Distances in FEET.-----

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-4.77
(1) Bow Draft	25.00a	35.00p	0.00	-4.38
(2) Stern Draft	195.00a	35.00s	0.00	-4.98
(2) Stern Draft	195.00a	35.00p	0.00	-4.59
(3) Bow Freeboard	25.00a	35.00s	10.50	5.73
(3) Bow Freeboard	25.00a	35.00p	10.50	6.12
(4) Stern Freeboard	195.00a	35.00s	10.50	5.52
(4) Stern Freeboard	195.00a	35.00p	10.50	5.91

Distances in FEET.-----

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 85.70a TCG = 0.70s VCG = 23.53

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth	Trim	Heel	Weight (ST)	Area
-----	-----	-----	-----	-----
4.545	0.07a	0.32s	1,849.8	0.00
4.410	0.12a	5.32s	1,849.9	0.00
4.304	0.16a	7.50s	1,849.8	0.00
3.944	0.25a	10.32s	1,849.9	0.00
3.121	0.45a	14.76s	1,849.9	0.00
3.011	0.48a	15.32s	1,849.9	0.00
2.016	0.72a	20.32s	1,849.9	0.00
0.985	0.97a	25.32s	1,849.9	0.00
-0.074	1.23a	30.32s	1,849.9	0.00
-1.152	1.49a	35.32s	1,849.9	0.00
-2.238	1.74a	40.32s	1,849.8	0.00
-3.321	1.99a	45.32s	1,849.8	0.00
-4.386	2.23a	50.32s	1,849.9	0.00
-5.246	2.42a	54.46s	1,849.9	0.00
-5.420	2.46a	55.32s	1,849.9	0.00
-6.406	2.66a	60.32s	1,849.9	0.00

Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.

Note: The Center of Gravity shown above is for the Fixed Weight of 1397.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 0.320 deg to MaxRA	> 10.00 Ft-deg	118.79 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.18 P
-----Relative angles measured from 0.320s-----			

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER SIDE - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E w/MAX MOMENT @ 90 DEG w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 0.39/195.00, Heel: Stbd 1.60 deg.

Origin	Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT	
4.870	1,849.88	102.93a	2.58s	2.40	13069	101.66a	641.3	89.34	
Distances in FEET.		Specific Gravity = 1.000.							

HYDROSTATIC PROPERTIES

Trim: Fwd 0.39/195.00, Heel: Stbd 1.60 deg., VCG = 19.06

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.666	1,849.88	102.93a	2.40	34.00	101.66a	493.76	624.6	72.67
Distances in FEET.		Specific Gravity = 1.000.			Moment in Ft-ST.			
		Trim is per 195.00Ft						

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
535.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 4.872 @ 0.00, 4.477 @ 195.00a  
Trim: Fwd 0.39/195.00, Heel: Stbd 1.60 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	535.10	55.00a	7.52s	50.27			
Total Fixed	1,397.89	82.90a	2.88s	23.53			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,849.86	102.96a	2.18s	19.06	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,849.88	102.93a	2.58s	2.40	-4.87
-----							
Righting Arms:			0.00	-0.07s			
External Arms:			0.00	-0.07p			
Residual Righting Arms:			0.00	0.00s			

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCF-----	TCF-----	BML-----	BMT-----
HULL		1.000	13069	101.66a	0.32s	641.3	89.34
			ST/Inch				
			34.00				
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	1033.5	102.27a	-2.77	1327.4	98.44a	3.48	
Sails				3613.6	78.51a	42.39	
Total Lateral Plane->	1033.5	102.27a	-2.77	4941.0	83.86a	31.94	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-5.80
(1) Bow Draft	25.00a	35.00p	0.00	-3.84
(2) Stern Draft	195.00a	35.00s	0.00	-5.45
(2) Stern Draft	195.00a	35.00p	0.00	-3.50
(3) Bow Freeboard	25.00a	35.00s	10.50	4.70
(3) Bow Freeboard	25.00a	35.00p	10.50	6.66
(4) Stern Freeboard	195.00a	35.00s	10.50	5.04
(4) Stern Freeboard	195.00a	35.00p	10.50	7.00
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 82.90a TCG = 2.88s VCG = 23.53

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area--(Extra)
			in Trim--in Heel-->	
4.869	0.12f	1.60s	1,849.9	0.00 0.000 0.00 3.70
4.697	0.05f	6.60s	1,849.8	0.00 6.452 16.13 0.73
4.625	0.03f	7.87s	1,849.8	0.00 8.079 25.31 -0.00
4.170	0.05a	11.60s	1,849.9	0.00 10.921 61.27 -2.08
3.638	0.13a	15.12s	1,849.9	0.00 11.404 101.00 -4.08
3.406	0.17a	16.60s	1,849.9	0.00 11.317 117.89 -4.93
2.606	0.30a	21.60s	1,849.9	0.00 10.439 172.28 -7.76
1.777	0.44a	26.60s	1,849.9	0.00 9.091 221.30 -10.54
0.924	0.57a	31.60s	1,849.9	0.00 7.509 262.90 -13.27
0.054	0.71a	36.60s	1,849.9	0.00 5.789 296.20 -15.90
-0.825	0.84a	41.60s	1,849.9	0.00 3.978 320.66 -18.44
-1.704	0.98a	46.60s	1,849.9	0.00 2.110 335.90 -20.84
-2.573	1.11a	51.60s	1,849.9	0.00 0.209 341.71 -23.10
-2.667	1.12a	52.15s	1,849.9	0.00 0.000 341.77 -23.34
-3.422	1.23a	56.60s	1,849.9	0.00 -1.705 337.97 -25.19
-4.243	1.33a	61.60s	1,849.9	0.00 -3.613 324.68 -27.09
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1397.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 1.603 deg to MaxRA	> 10.00 Ft-deg	101.00 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	6.26 P
-----Relative angles measured from 1.603s-----			



LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER BOW CORNER - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E W/MAX MOMENT OVER BOW CORNER w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 0.98/195.00, Heel: Stbd 0.82 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
5.179	1,849.85	101.03a	1.33s	2.38	13201	100.72a	660.1	90.89
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Fwd 0.98/195.00, Heel: Stbd 0.82 deg., VCG = 19.06

LCF	Displacement	Buoyancy-Ctr.		Weight/	Moment/			
Draft	Weight (ST)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.672	1,849.85	101.03a	2.38	34.34	100.72a	508.63	643.4	74.21
Distances in FEET.		Specific Gravity = 1.000.				Moment in Ft-ST.		
					Trim is per 195.00Ft			

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
535.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 5.179 @ 0.00, 4.198 @ 195.00a  
Trim: Fwd 0.98/195.00, Heel: Stbd 0.82 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	535.10	48.62a	3.98s	50.27			
Total Fixed	1,397.89	80.46a	1.53s	23.53			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,849.86	101.12a	1.15s	19.06	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,849.85	101.03a	1.33s	2.38	-5.18

Righting Arms:	0.00	-0.07s
External Arms:	0.00	-0.07p
Residual Righting Arms:	0.00	0.00s

STATUS, continued

Part-----	Load-----	SpGr-----	WPA-----	LCP-----	TCF-----	BML-----	BMT-----
HULL		1.000	13201	100.72a	0.02s	660.1	90.89
ST/Inch							
34.34							
Part-----	LPA-----	LCP-----	HCP-----	LPA-----	LCP-----	HCP-----	
Displacers	943.4	100.68a	-2.53	1230.5	100.05a	3.24	
Sails				3593.0	78.37a	42.36	
Total Lateral Plane->	943.4	100.68a	-2.53	4823.5	83.90a	32.38	
Distances in FEET.-----							

Critical Points-----	LCP-----	TCP-----	VCP-----	Height-----
(1) Bow Draft	25.00a	35.00s	0.00	-5.55
(1) Bow Draft	25.00a	35.00p	0.00	-4.56
(2) Stern Draft	195.00a	35.00s	0.00	-4.70
(2) Stern Draft	195.00a	35.00p	0.00	-3.70
(3) Bow Freeboard	25.00a	35.00s	10.50	4.95
(3) Bow Freeboard	25.00a	35.00p	10.50	5.94
(4) Stern Freeboard	195.00a	35.00s	10.50	5.80
(4) Stern Freeboard	195.00a	35.00p	10.50	6.80
Distances in FEET.-----				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 80.46a TCG = 1.53s VCG = 23.53

Origin	Degrees of	Displacement	Residual Arms	Res. Marg Imm.
Depth-----	Trim-----	Heel-----	Weight (ST)-----	Area-- (Extra)
			in Trim--in Heel-->	
5.180	0.29f	0.82s	1,849.8	0.00 0.000 0.00 3.95
5.026	0.23f	5.82s	1,849.8	0.00 6.473 16.18 0.97
4.945	0.20f	7.48s	1,849.9	0.00 8.638 28.74 -0.00
4.650	0.18f	10.82s	1,849.9	0.00 11.619 62.79 -1.83
4.217	0.16f	14.57s	1,850.1	0.00 12.421 108.47 -3.79
4.066	0.15f	15.82s	1,849.9	0.00 12.391 123.98 -4.44
3.449	0.13f	20.82s	1,849.9	0.00 11.604 183.97 -7.02
2.803	0.09f	25.82s	1,849.9	0.00 10.274 238.89 -9.55
2.134	0.06f	30.82s	1,849.9	0.00 8.680 286.39 -12.02
1.445	0.03f	35.82s	1,849.9	0.00 6.929 325.48 -14.40
0.743	0.01a	40.82s	1,849.9	0.00 5.074 355.53 -16.71
0.033	0.05a	45.82s	1,849.9	0.00 3.152 376.12 -18.97
-0.681	0.09a	50.82s	1,849.9	0.00 1.187 386.98 -21.11
-1.106	0.11a	53.81s	1,849.9	0.00 0.000 388.76 -22.31
-1.391	0.13a	55.82s	1,849.9	0.00 -0.799 387.96 -23.09
-2.091	0.17a	60.82s	1,849.9	0.00 -2.788 379.00 -24.91
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.				

Note: The Center of Gravity shown above is for the Fixed Weight of 1397.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs 0.815 deg to MaxRA	> 10.00 Ft-deg	108.47 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	6.66 P
-----Relative angles measured from 0.815s-----			

LIFT CRANE

STABILITY: PARTIALLY PROTECTED & PROTECTED WATERS  
INTACT STABILITY - MAX MOMENT OVER BOW - MAXIMUM MOMENT: 3,256 STON  
E-CRANE: 2000 SERIES-1845GA-E w/MAX MOMENT OVER BOW w/BALLAST

HYDROSTATIC PROPERTIES

Trim: Fwd 1.09/195.00, Heel: Port 0.05 deg.

Origin Displacement	Center of Buoyancy							
Depth	Weight (ST)	LCB	TCB	VCB	WPA	LCF	BML	BMT
5.235	1,849.64	100.69a	0.08p	2.37	13167	100.95a	655.2	90.70
Distances in FEET.		Specific Gravity = 1.000.						

HYDROSTATIC PROPERTIES

Trim: Fwd 1.09/195.00, Heel: Port 0.05 deg., VCG = 19.06

LCF Draft	Displacement	Buoyancy-Ctr.	Weight/	Moment/				
4.672	1,849.64	100.69a	2.37	Inch	LCF	In trim	GML	GMT
				34.25	100.95a	504.70	638.5	74.01
Distances in FEET.		Specific Gravity = 1.000.				Moment in Ft-ST.		
				Trim is per 195.00Ft				

Draft is from Baseline.

SUMMARY OF LOADING

108,314.1 Gals. (11%) FRESH WATER      0.0 Gals. (0%) unknown

29.72 ST Misc. Weights      19.14 ST DIESEL FUEL  
535.10 ST E-CRANE: MAX MOMENT

COMBINED STATUS

Baseline draft: 5.235 @ 0.00, 4.147 @ 195.00a  
Trim: Fwd 1.09/195.00, Heel: Port 0.05 deg.

Part	Weight (ST)	LCG	TCG	VCG			
LIGHT SHIP	813.93	99.94a	0.00	6.50			
GENERATOR CONEX	5.52	80.00a	19.00p	15.00			
STORAGE CONEX	5.00	25.00a	19.00p	15.00			
DIESEL FUEL 1	9.57	85.00a	6.00s	14.00			
DIESEL FUEL 2	9.57	85.00a	12.00s	14.00			
BOTTLE RACK	5.00	102.50a	6.00p	15.00			
BUCKETS	10.00	180.00a	6.00s	15.00			
GRAB MATT & FRAME	4.20	145.00a	0.00	11.00			
E-CRANE: MAX MOMENT	535.10	47.48a	0.00	50.27			
Total Fixed	1,397.89	80.03a	0.00	23.53			
	Gals.	SpGr	Weight (ST)	LCG	TCG	VCG	RefHt
NO4-OUT.P	54157	1.000	225.98	165.00a	26.25p	5.25	
NO4-OUT.S	54157	1.000	225.98	165.00a	26.25s	5.25	
Total Tanks			451.96	165.00a	0.00	5.25	
Total Weight			1,849.86	100.79a	0.00	19.06	
			Displ (ST)	LCB	TCB	VCB	
HULL	1.000		1,849.64	100.69a	0.08p	2.37	-5.24
Righting Arms:				0.00	-0.06s		
External Arms:				0.00	-0.06p		
Residual Righting Arms:				0.00	0.00		

STATUS, continued

Part	Load	SpGr	WPA	LCF	TCF	BML	BMT
HULL		1.000	13167	100.95a	0.01p	655.2	90.70
			ST/Inch				
			34.25				
Part	LPA	LCP	HCP	LPA	LCP	HCP	
Displacers	854.2	100.44a	-2.30	1137.2	100.69a	3.00	
Sails				3572.3	78.35a	42.39	
Total Lateral Plane->	854.2	100.44a	-2.30	4709.5	83.75a	32.88	
Distances in FEET.							

Critical Points	LCP	TCP	VCP	Height
(1) Bow Draft	25.00a	35.00s	0.00	-5.07
(1) Bow Draft	25.00a	35.00p	0.00	-5.12
(2) Stern Draft	195.00a	35.00s	0.00	-4.12
(2) Stern Draft	195.00a	35.00p	0.00	-4.18
(3) Bow Freeboard	25.00a	35.00s	10.50	5.43
(3) Bow Freeboard	25.00a	35.00p	10.50	5.38
(4) Stern Freeboard	195.00a	35.00s	10.50	6.38
(4) Stern Freeboard	195.00a	35.00p	10.50	6.32
Distances in FEET.				

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 80.03a TCG = 0.00 VCG = 23.53

Origin Depth	Degrees of Trim	Degrees of Heel	Displacement Weight (ST)	Residual Arms in Trim	Residual Arms in Heel	Res. Marg Imm. Area	Res. Marg Imm. (Extra)
5.234	0.32f	0.05p	1,849.6	0.00	0.000	0.00	
5.114	0.27f	4.95s	1,849.8	0.00	6.505	16.26	1.44
5.001	0.24f	7.41s	1,849.9	0.00	9.699	36.17	-0.00
4.802	0.22f	9.95s	1,849.8	0.00	12.233	64.14	-1.41
4.280	0.21f	14.79s	1,849.9	0.00	13.540	127.65	-3.97
4.262	0.21f	14.95s	1,849.9	0.00	13.538	129.89	-4.06
3.681	0.20f	19.95s	1,849.9	0.00	12.876	196.74	-6.67
3.072	0.19f	24.95s	1,849.9	0.00	11.574	258.13	-9.24
2.439	0.17f	29.95s	1,849.9	0.00	9.969	312.12	-11.74
1.787	0.16f	34.95s	1,849.9	0.00	8.185	357.58	-14.16
1.119	0.14f	39.95s	1,849.9	0.00	6.285	393.80	-16.48
0.440	0.12f	44.95s	1,849.9	0.00	4.305	420.31	-18.68
-0.244	0.10f	49.95s	1,849.9	0.00	2.272	436.77	-20.75
-0.928	0.07f	54.95s	1,849.9	0.00	0.208	442.99	-22.66
-0.997	0.07f	55.46s	1,849.9	0.00	0.000	443.04	-22.85
-1.607	0.05f	59.95s	1,849.9	0.00	-1.866	438.85	-24.41
Distances in FEET.-----Specific Gravity = 1.000.-----Area in Ft-Deg.							

Note: The Center of Gravity shown above is for the Fixed Weight of 1397.89 ST. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from the projected wind plane at each heel angle, assuming a wind from starboard at 17.5 knots.

LIM-----	STABILITY CRITERION-----	Min/Max-----	Attained
(1)	Residual Area from abs -0.048 deg to MaxRA	> 10.00 Ft-deg	127.65 P
(2)	Angle from Equilibrium to Dk/margin Immersion	> 0.00 deg	7.46 P
-----Relative angles measured from 0.048 -----			