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OCEAN CONSTRUCTION PLATFORM SEACON TRIM & STABILITY

1/2

MANUAL (U) NAVAL FACILITIES ENGINEERING COMMAND

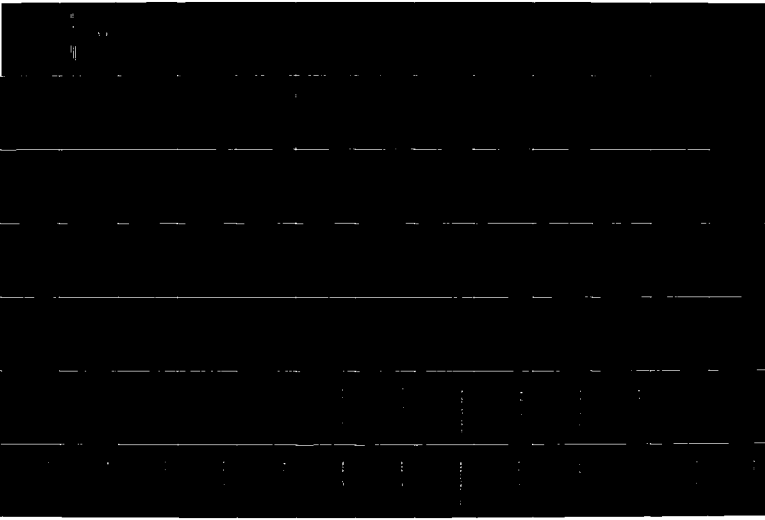
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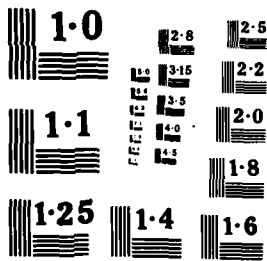
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FPO-1-80(5)

OCEAN CONSTRUCTION

PLATFORM

"SEACON"

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ELECTE  
MAY 01 1986  
S D

TRIM & STABILITY

MANUAL

AD-A167 226

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PREPARED BY:

GIANNOTTI & ASSOCIATES, INC.

3/28/80

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AND CONSTRUCTION PROJECT OFFICE  
CHESAPEAKE DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
WASHINGTON, D.C. 20374

86 4 22 114

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION  
Unclassified

1b. RESTRICTIVE MARKINGS

2a. SECURITY CLASSIFICATION AUTHORITY

3. DISTRIBUTION AVAILABILITY OF REP.  
Approved for public release;  
distribution is unlimited

2b. DECLASSIFICATION/DOWNGRADING SCHEDULE

4. PERFORMING ORGANIZATION REPORT NUMBER  
FPO-1-80(5)

5. MONITORING ORGANIZATION REPORT #

6a. NAME OF PERFORM. ORG. 6b. OFFICE SYM  
Giannotti & Associates, Inc.

7a. NAME OF MONITORING ORGANIZATION  
Ocean Engineering  
& Construction  
Project Office  
CHESNAVFACENGCOM

6c. ADDRESS (City, State, and Zip Code)

7b. ADDRESS (City, State, and Zip )  
BLDG. 212, Washington Navy Yard  
Washington, D.C. 20374-2121

8a. NAME OF FUNDING ORG. 8b. OFFICE SYM

9. PROCUREMENT INSTRUMENT INDENT #

8c. ADDRESS (City, State & Zip)

10. SOURCE OF FUNDING NUMBERS  
PROGRAM PROJECT TASK WORK UNIT  
ELEMENT # # # ACCESS #

11. TITLE (Including Security Classification)  
Ocean Construction Platforms "Seacon" Trim & Stability Manual

12. PERSONAL AUTHOR(S)

13a. TYPE OF REPORT 13b. TIME COVERED 14. DATE OF REP. (YYMMDD) 15. PAGES  
FROM TO 80-03-28 138

16. SUPPLEMENTARY NOTATION

17. COSATI CODES  
FIELD GROUP SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if nec.)  
Ocean construction, Platforms, Seacon

19. ABSTRACT (Continue on reverse if necessary & identify by block number)  
The Ocean Construction Barge SEACON was originally constructed as a U.S Navy YFNB barge of World War II vintage, then later acquired by the National Aero-nautics and Space Administration and converted to a special purpose barge. At that time it was operated under the name PROMISE. The Navy reacquired (Con't)

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT 21. ABSTRACT SECURITY CLASSIFICATION  
SAME AS R.T.

22a. NAME OF RESPONSIBLE INDIVIDUAL  
Jacqueline B. Riley  
DD FORM 1473, 84MAR

22b. TELEPHONE 22c. OFFICE SYMBOL  
202-433-3881  
SECURITY CLASSIFICATION OF THIS PAGE

BLOCK 19 (Con't)

the barge and converted it once again for its present functional purpose of supporting the Naval Facilities Engineering Command in ocean construction projects. This conversion which was effected in 1976 by the Norfolk Shipbuilding and Dry Dock Company involved the addition of diesel propulsion engines, Voith-Schneider cycloidal propulsors, and extensive redesign of the interior arrangements and superstructure. The barge was renamed SEACON. Subsequent shipyard availabilities in 1979 at Jacksonville Shipyards, Bellinger Division and Tracor Marine, Ft. Lauderdale involved the addition of a gantry crane and deck winches and the alteration of anchor handling arrangements.

The predecessor Trim and Stability Study was done in march 1975 by J.J. Henry Company, Inc., the naval architecture firm which developed the plans for the 1976 conversion. The study was premised on the reported weight and Center of Gravity of the PROMISE and updated by the estimated effects of the weight changes involved in the conversion. There are no records to indicate whether the PROMISE Center of Gravity was based on an inclining experiment or simply a design weight estimate. Subsequent to the J.J. Henry study there were some minor design changes with weight implications which occurred in the 1976 conversion and additional changes which resulted from the 1979 shipyard availabilities. Giannotti and Associates, Inc. had been contracted to perform an inclining experiment to measure the Center of Gravity of the barge following the Bellinger availability in July 1979; however, scheduling difficulties force deferment of the experiment until November 2, 1979. In the pre-experiment survey the presence of loose liquids was detected in several of the inner bottom tanks previously presumed dry. Again, tight scheduling constraints prevented hand removal of the liquids. The experiment was conducted but failed to produce reliable information because of the presence of these liquids. A second attempt to conduct the experiment in Portsmouth, VA had to be aborted, again because of schedule commitments. In order to provide the SEACON with current trim and stability information, Giannotti and Associates, Inc. was instructed to update the previous study using the best information available.

from 3d sheet

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Codes	
Dist	Avail and/or Special
A-1	

### INTRODUCTION

The Ocean Construction Barge SEACON was originally constructed as a U. S. Navy YFNB barge of World War II vintage, then later acquired by the National Aeronautics and Space Administration and converted to a special purpose barge. At that time it was operated under the name PROMISE. The Navy reacquired the barge and converted it once again for its present functional purpose of supporting the Naval Facilities Engineering Command in ocean construction projects. This conversion which was effected in 1976 by the Norfolk Shipbuilding and Dry Dock Company involved the addition of diesel propulsion engines, Voith-Schneider cycloidal propulsors, and extensive redesign of the interior arrangements and superstructure. The barge was renamed SEACON. Subsequent shipyard availabilities in 1979 at Jacksonville Shipyards, Bellinger Division and Tracor Marine, Ft. Lauderdale involved the addition of a gantry crane and deck winches and the alteration of anchor handling arrangements.

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to measure the Center of Gravity of the barge following the Bellinger availability in July of 1979; however, scheduling difficulties forced deferment of the experiment until November 2, 1979. In the pre-experiment survey the presence of loose liquids was detected in several of the inner bottom tanks previously presumed dry. Again, tight scheduling constraints prevented hand removal of the liquids. The experiment was conducted but failed to produce reliable information because of the presence of these liquids. A second attempt to conduct the experiment in Portsmouth, VA had to be aborted, again because of schedule commitments. In order to provide the SEACON with current trim and stability information, Giannotti and Associates, Inc. was instructed to update the previous study using the best information available.

The approach to the problem has been to use the J. J. Henry study as a basis and correct for weight changes resulting from change orders which were placed during the 1976 conversion and for the weight changes which resulted from the 1979 shipyard availabilities. A summary of these weight changes is included in Appendix D. The original Hydrostatic Curves and Cross Curves of Stability from the J. J. Henry report have been replotted and reproduced in this manual; however, curves of Statical Stability for the various loading conditions have been corrected to reflect the weight and center changes. A description of the procedure followed is contained in Appendix B. The original loading conditions used in the J. J. Henry study have been used in this manual with one condition added. In the original work the Light Ship Condition included the anti-roll tanks filled to 50% of capacity. A new condition has been added with these tanks empty. A summary of the nine loading conditions and the barge characteristics at these conditions appears on page 21. Details for each



loading condition follow on pages 22 through 48. For each loading condition a summary sheet is presented followed by a tabulation of the individual compartment loadings and a plot of the curve of Statical Stability for that condition.

Several new features have been added in this manual as compared to the previous Trim and Stability Study. First, an example loading calculation is presented on pages 3 through 10 with detailed step-by-step instructions for calculation of the displacement, drafts and GM at any loading condition which may not be approximated by one of the standard loading conditions. Next, a fold-out diagram of the tank arrangement has been furnished on page 13 following the fold-outs of the Hydrostatic Curves and Cross Curves of Stability, pages 11 and 12. Existing Tank Capacity Tables have been reproduced and bound in this volume as Appendix A for convenience of reference. A curve of minimum required GM to meet Coast Guard wind-heel stability requirements is shown on page 14. Comparison of values from this curve with GM values shown for the actual loading conditions shown on page 21 reveals the truly excessive amount of stability which the SEACON possesses. Actual and required GM values are also shown in the loading condition summary sheets. A further feature of the manual is the analysis of the effect of gantry crane position and loading on trim and stability which is presented with a step-by-step explanation on pages 17 through 20.

In general the format of the J. J. Henry study has been followed in developing the manual and some information has been reproduced directly. This includes the Compartment Capacity Table, (page 15), the Loading Condition forms, the Compartment Loading forms, Curves of Form, (page 11),

Cross Curves of Stability, (page 12), the Tank Tables (Appendix A), the Tabular Curves of Intact Stability (Appendix B), the Wind Heeling Arm Tables (Appendix C), and the original SEACON Light Ship Weight Estimate (Appendix D).

One final comment should be made about the accuracy of the vertical centers estimated in this manual. To place error bounds on the estimated vertical centers is quite difficult since there is no information available on the quality of the Vertical Center of Gravity figure for the barge PROMISE, a number which forms the basis for both the J. J. Henry estimate and this further update. However, accepting the PROMISE VCG as a given and making estimates of the maximum likely error in both Henry and G&A estimates leads to the observation that the vertical centers reported herein should be within  $\pm 6$  inches of the true value.

### EXAMPLE LOADING CONDITION CALCULATION

It may be noted that at the end of this manual are included blank loading condition forms. This includes a Trim and Stability Summary form and a Compartment Loading form. This section explains how to use these forms in the case of a new loading condition.

An example loading condition, Operating X, is included in this section and should be used in conjunction with this example. The first step is to determine the deadweight of the ship. All the items in 1, page 8, must be estimated. The weights, vertical and horizontal centers of gravity, and vertical moment of free surface, if any, are required. The weights and centers of gravity for liquid in any of the tanks can be found in the tank tables in Appendix A. The vertical moment of the free surface is found by:

$$V.M. = \frac{i_T}{\delta}$$

where,

$i_T$  = the transverse moment of inertia of the free surface and  $\delta$  = density of the liquid in the tank.

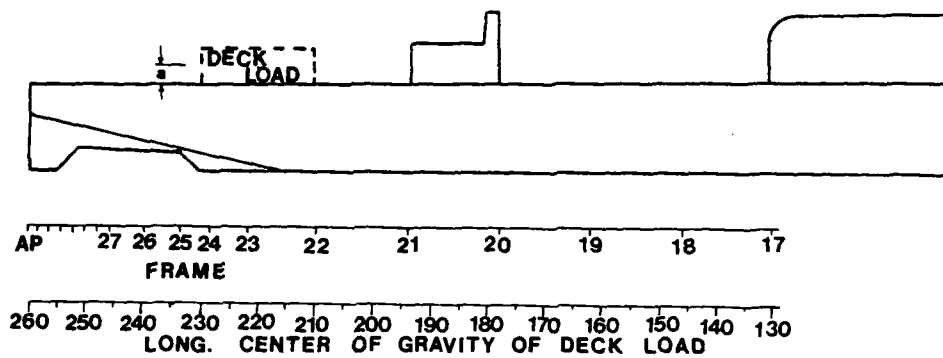
The Compartment Loading form may then be used to figure the total weight, center of gravity and vertical moment of the free surface. For each section of Fuel Oil, Fresh Water, Sludge and S.W. Ballast, the subtotal Horizontal and Vertical Moment is divided by the subtotal weight to obtain a horizontal and vertical center of gravity. The vertical moment of the free surface can be added in each section and shown in the subtotal line. It is important to note the references for the centers of gravity: the base line for the VCG and the forward

perpendicular for the LCG.

The items in 1 may then be appropriately filled in. The values under Crew & Effects, and Stores are constants which probably fit most conditions other than light ship. These values, if used, may be found on any form except light ship condition. Deck load and Cable stores are variables which may be included on the forms. The figure on page 5 gives a convenient way of determining the center of gravity for each of these loads. Locate on the figure the position of the deck load and/or cable load longitudinal center of gravity directly on the scale below the figure.

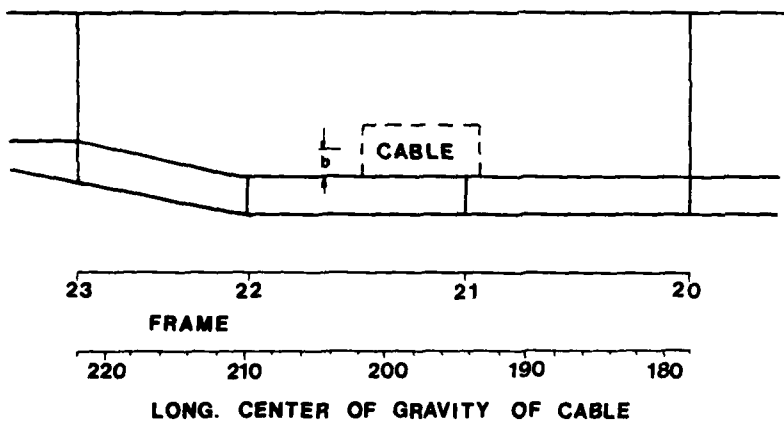
The computational steps to complete each of the numbered items on the Loading Condition Summary Sheet, page 8, are outlined in tabular form on pages 6 and 7.

DETERMINING THE CENTER OF GRAVITY  
OF DECK LOAD AND CABLE IN CABLE STORES



$$V.C.G. = 15 + a$$

$a$  = HALF HEIGHT OF DECK LOAD



$$V.C.G. = 3 + b$$

$b$  = HALF HEIGHT OF CABLE

Item	Source
①	Given
②	Constant
③	Summation of all values in above column
④	Summation of all values in above column
⑤	Summation of ③ and light ship vertical moment.
⑥	Summation of ④ & light ship weight
⑦	⑤ ÷ ⑥
⑧	Summation of all values in above column
⑨	Summation of ⑧ and light ship horizontal moment
⑩	⑨ ÷ ⑥
⑪	Summation of all values in above column
⑫	Curves of form using displacement, ⑥
⑬	Curves of form using draft, ⑫
⑭	Curves of form using draft, ⑫
⑮	⑨ ÷ ⑥
⑯	Absolute value of ( ⑮ - ⑭ )
⑰	$\frac{⑬ \times ⑥}{⑬ \times 12.0}$ If LCG is greater than LCB, the trim is by stern otherwise trim by head.
⑱	Curves of form using draft ⑫
⑲	If trim by head: $⑫ + ⑰ \times \left(\frac{⑱}{260.0}\right)$ If trim by stern: $⑫ - ⑰ \times \left(\frac{⑱}{260.0}\right)$
⑳	If trim by head: $⑫ - ⑰ \times \left(1.0 - \frac{⑱}{260.0}\right)$ If trim by stern: $⑫ + ⑰ \times \left(1.0 - \frac{⑱}{260.0}\right)$

②①*	If trim by head: $\textcircled{12} + \textcircled{17} \times \left( \frac{\textcircled{19}}{260.0} \right) \times \left[ \frac{250.0}{\textcircled{18}} - 1.0 \right]$ If trim by stern: $\textcircled{12} - \textcircled{17} \times \left( \frac{\textcircled{18}}{260} \right) \times \left[ \frac{250.0}{\textcircled{18}} - 1.0 \right]$
②②*	If trim by head: $\textcircled{12} - \textcircled{17} \times \left( 1.0 - \frac{\textcircled{18}}{260.0} \right) \times \left[ \frac{210.0 - \textcircled{18}}{260.0 - \textcircled{18}} \right]$ If trim by stern: $\textcircled{12} + \textcircled{17} \times \left( 1.0 - \frac{\textcircled{18}}{260.0} \right) \times \left[ \frac{210.0 - \textcircled{18}}{260.0 - \textcircled{18}} \right]$
②③	Curves of form using draft ①②
②④	$\textcircled{5} \div \textcircled{6}$
②⑤	$\textcircled{23} - \textcircled{24}$
②⑥	$\textcircled{11} \div \textcircled{6}$
②⑦	$\textcircled{25} - \textcircled{26}$
②⑧	Page 14
②⑨	$\textcircled{6} \times \textcircled{27} \times 0.01745$

\*Draft marks are located as follows:

Fwd mark is 10 ft. aft of F.P.  
 Aft mark is 50 ft. fwd of A.P.





OPERATING X SAMPLE  
**COMPARTMENT LOADING**  
 Ref. Line for L.C.G. F.P.  
 Ref. Line for V.C.G. D.L.

**GIANNOTTI & ASSOCIATES, INC.**  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

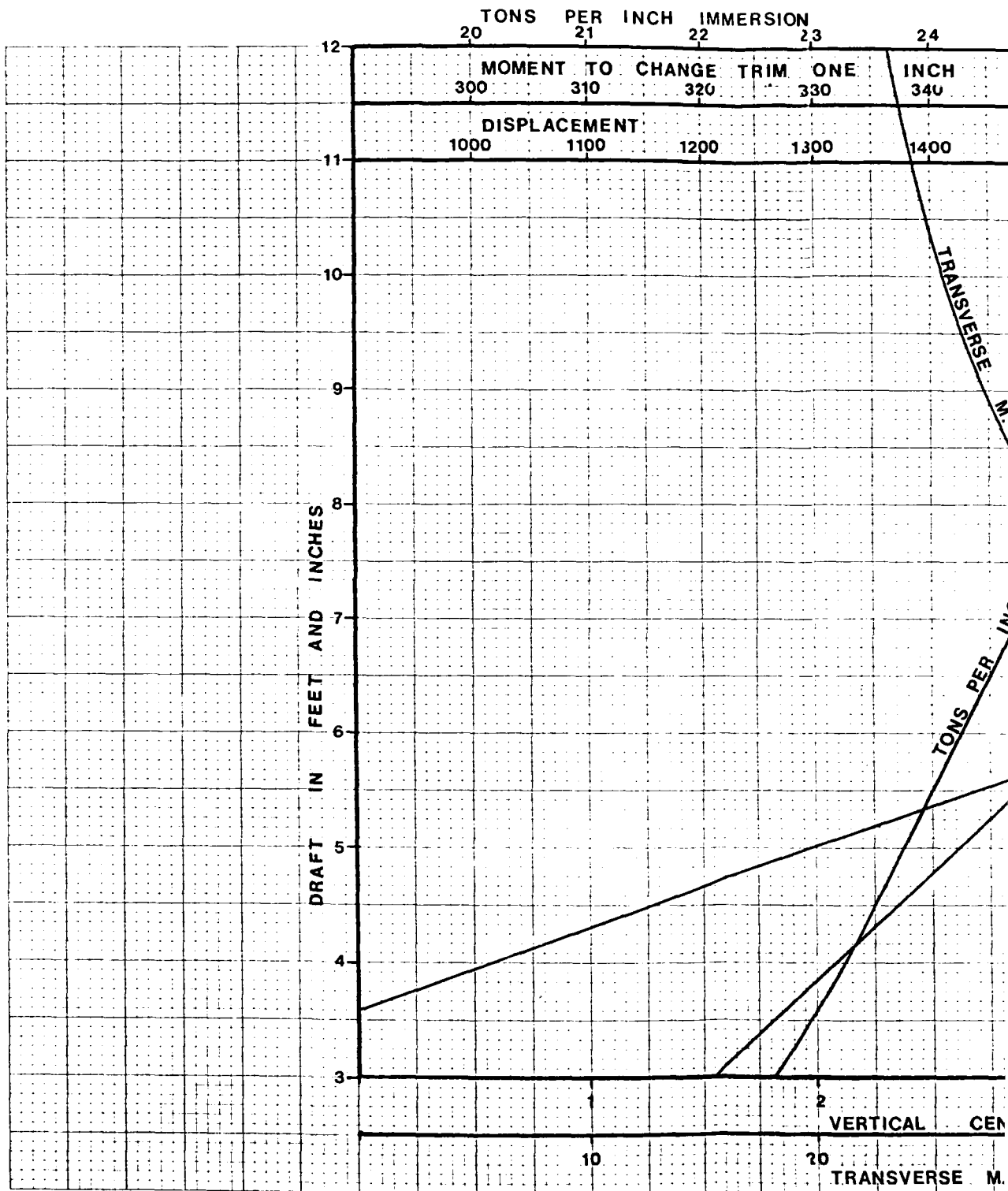
PAGE  
9

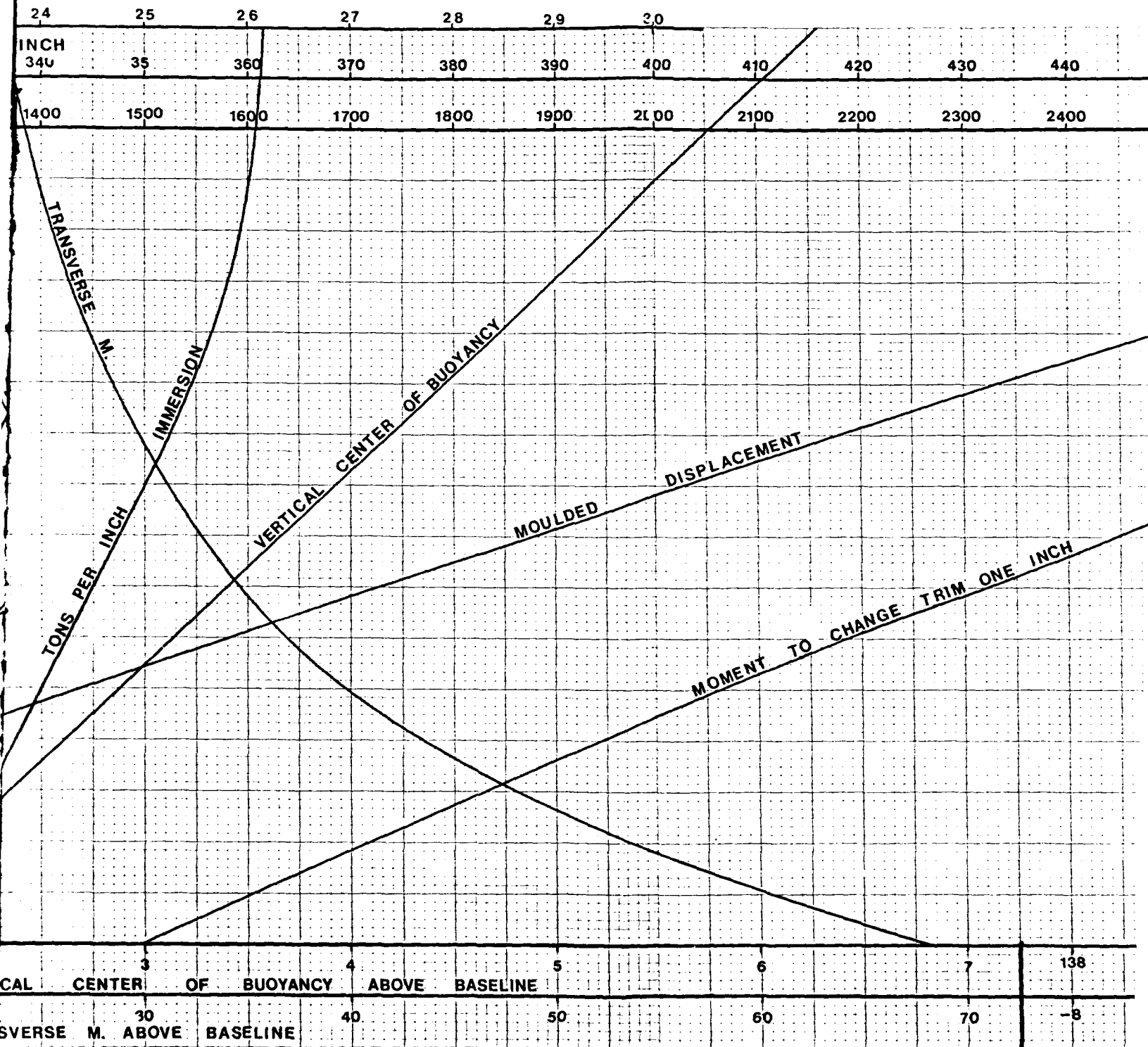
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM. OF F. S. FT. TONS
Fuel Oil								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14							
#6 (P)	13-14							
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			105.2	7.45	784	201.0	21154	11
Fresh water								
F.W. Tank (S)	15		56.3	8.25	464	94.0	5292	141
F.W. Tank (P)	15		56.3	8.25	464	94.0	5292	141
SUBTOTAL			112.6	8.25	928	94.0	10584	282
Lub. Oil								
Sludge Tank	14-15½		19.3	4.35	84	94.0	1814	4
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)	14-15½							
#9 (S)	16-18							
#10 (P)	16-18							
#11 (S)	18½-20							

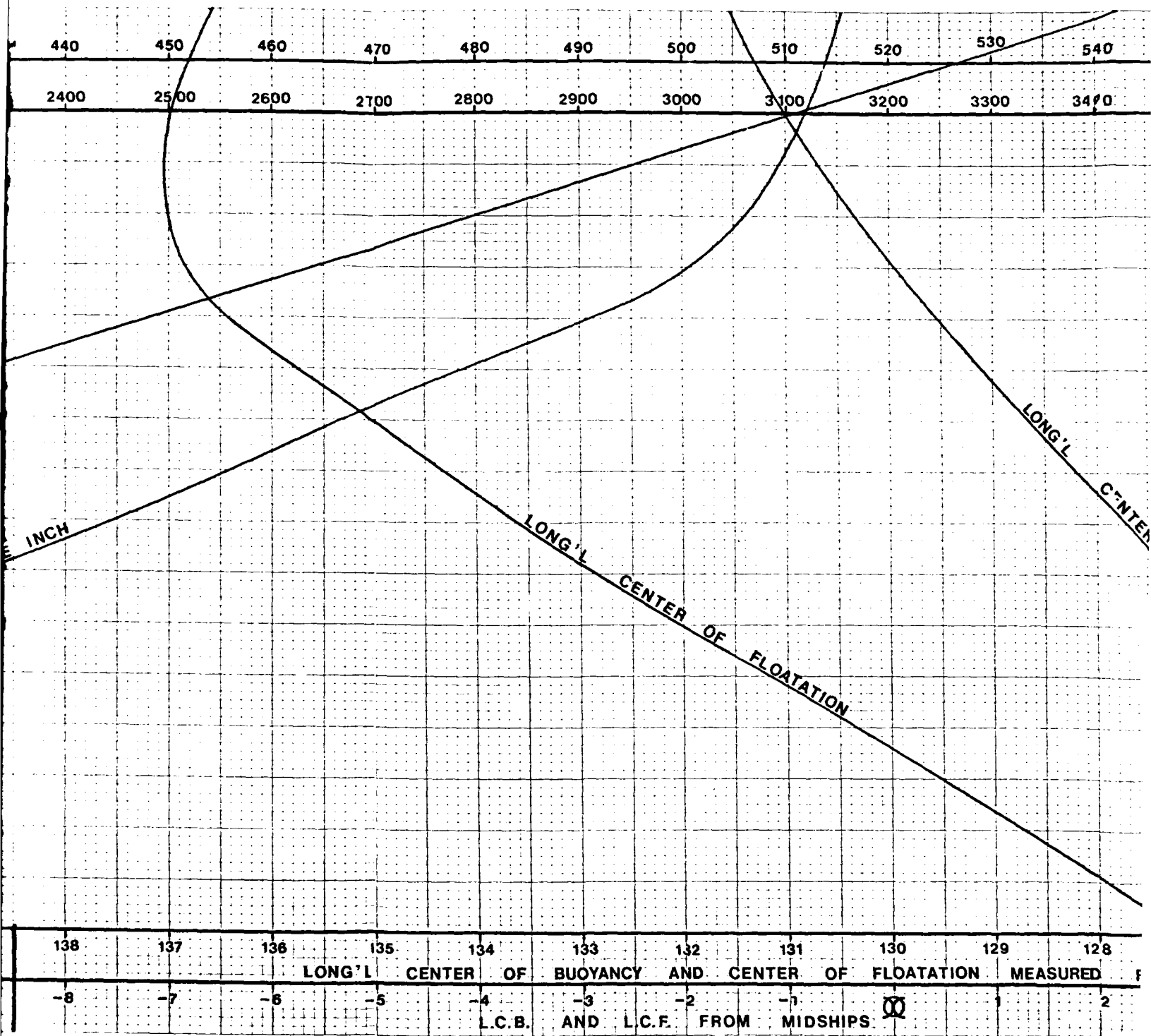


46 1930

K&E  
10 X 12 TO THE INCH  
KUFFEL & ESSER CO.







520 530 540 550  
 3200 3300 3400 3500

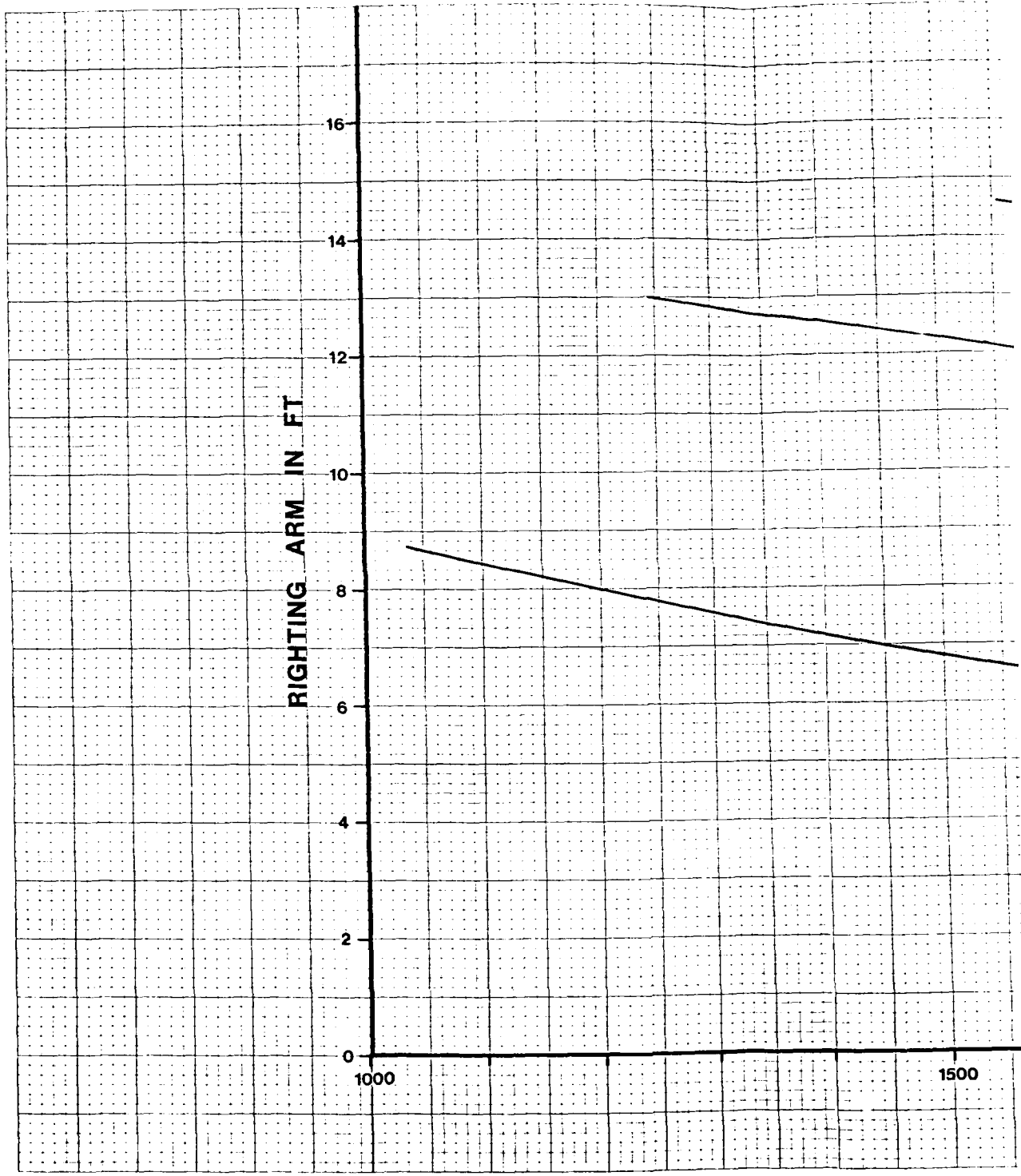
**HYDROSTATIC CURVES  
 FOR  
 OCEAN CONSTRUCTION PLATFORM  
 "SEACON"**

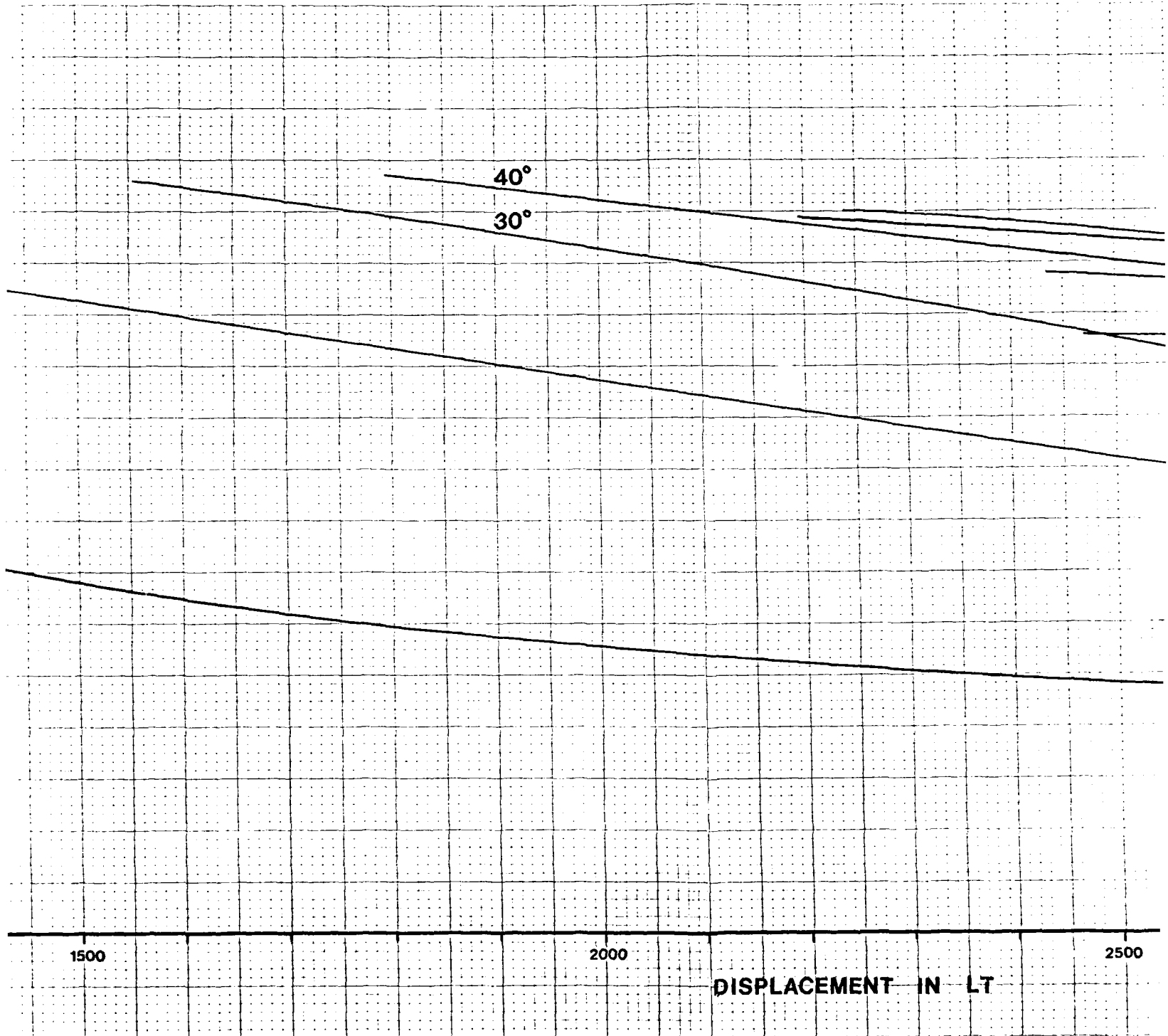
L.B.P. 260' 0"  
 BREADTH 48' 0"  
 DEPTH TO MAIN DK. 15' 0"

LONG. CENTER OF BUOYANCY

130 129 128 127 126 125 124 123 122  
 FLOATATION MEASURED FROM F.P.

IPS. 0 1 2 3 4 5 6 7 8

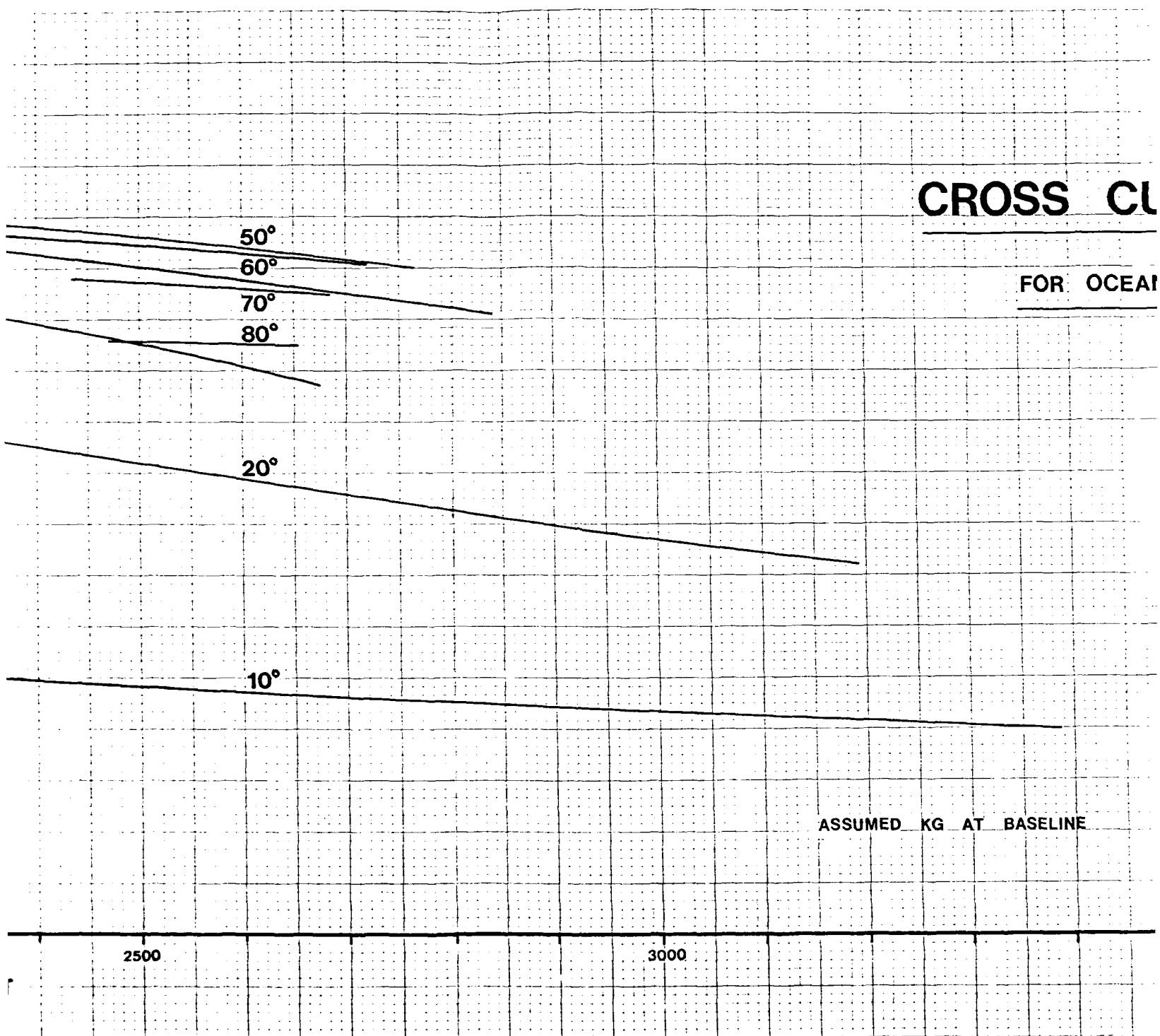






# CROSS CL

FOR OCEAN



2500

3000

ASSUMED KG AT BASELINE

# CROSS CURVES OF STABILITY

FOR OCEAN CONSTRUCTION PLATFORM

"SEACON"

## PRINCIPAL DIMENSIONS :

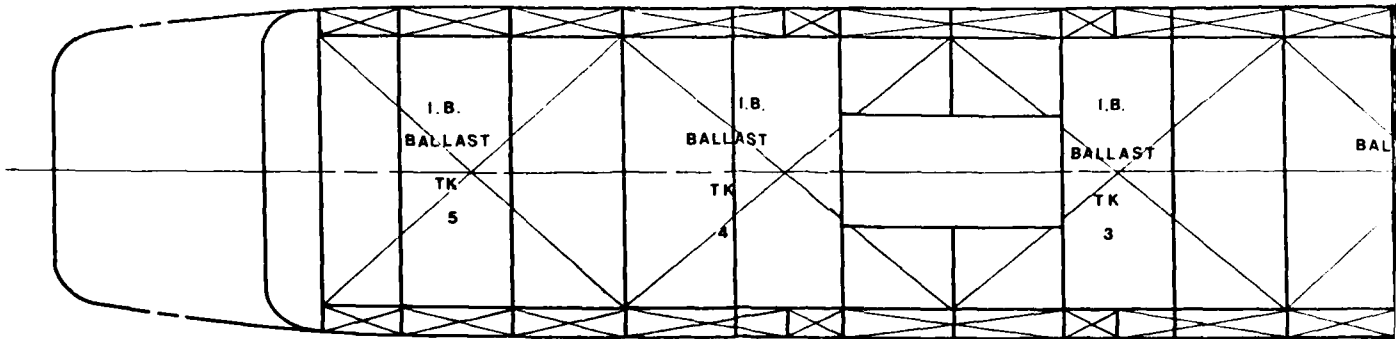
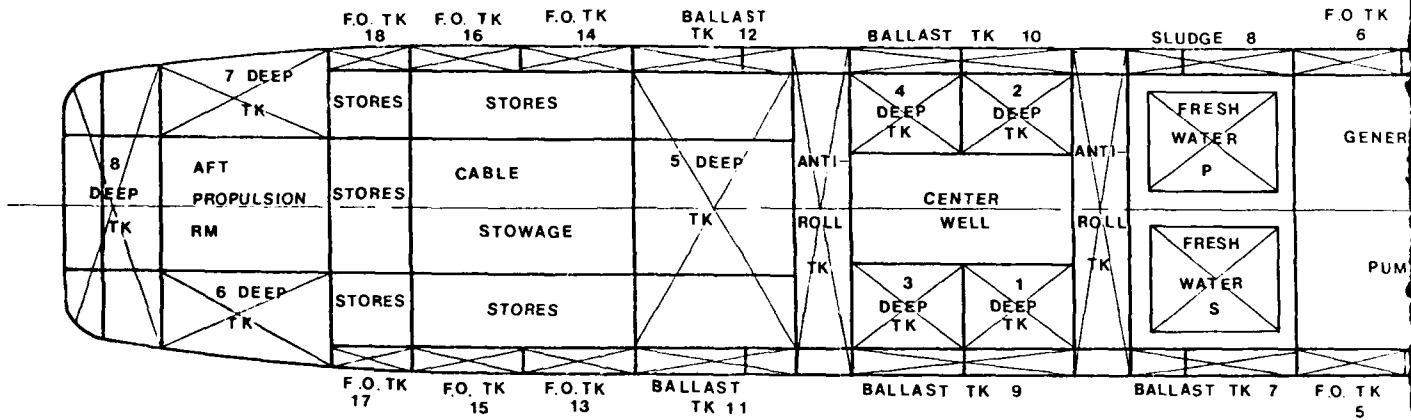
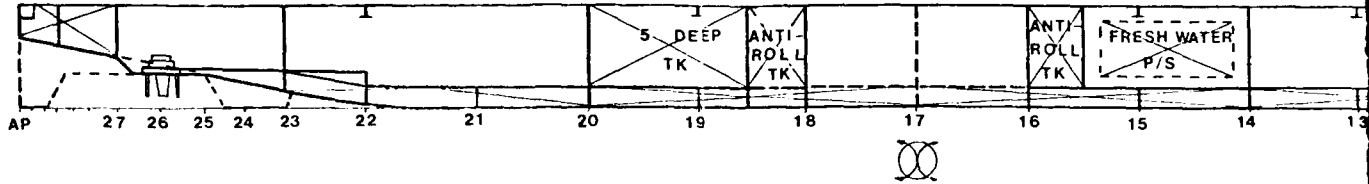
LENGTH 260' - 0"  
BREADTH 48' - 0"  
DEPTH TO MAIN DK 15' - 0"

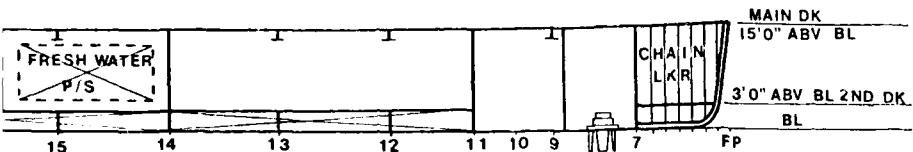
<u>HEELING ANGLE <math>\theta</math></u> <u>(DEG)</u>	<u>SIN <math>\theta</math></u>
--	--------------------------------

10	0.17365
20	0.34202
30	0.50000
40	0.64279
50	0.76604
60	0.86603
70	0.93969
80	0.98481

BASELINE

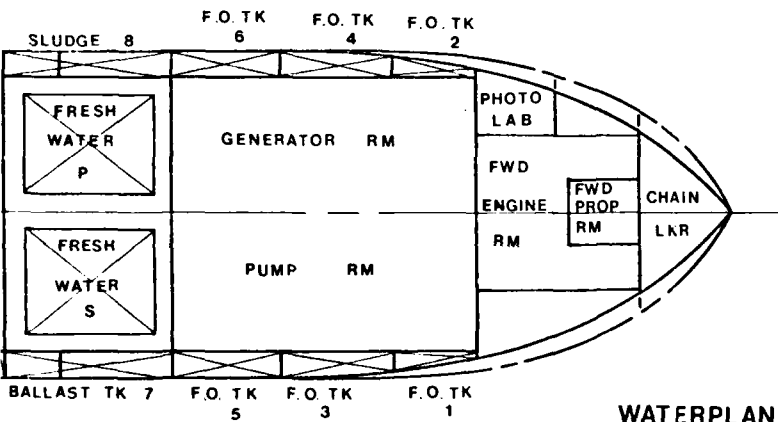
3500





INBOARD PROFILE

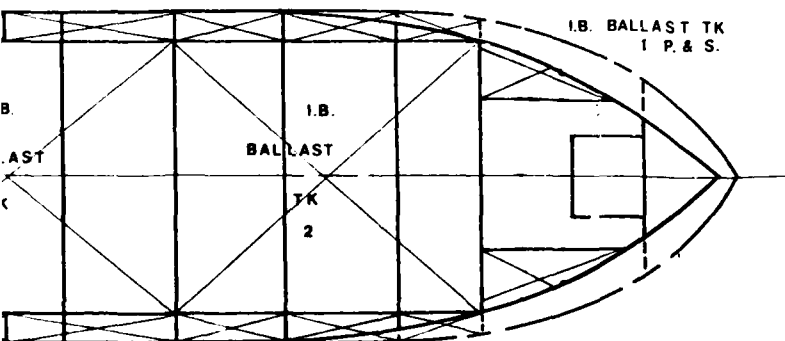
OCEAN CONSTRUCTION PLAN  
"SEACON"



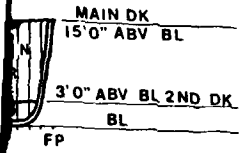
WATERPLANE  
ABV 2ND DK

L.B.P.  
BREADTH  
DEPTH TO MAIN DECK

26



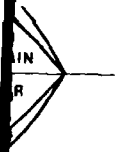
WATERPLANE  
BELOW 2ND DK



WARD PROFILE

OCEAN CONSTRUCTION PLATFORM  
"SEACON"

L.B.P.	260' 0"
BREADTH	48' 0"
DEPTH TO MAIN DECK	15' 0"



ERPLANE  
2ND DK

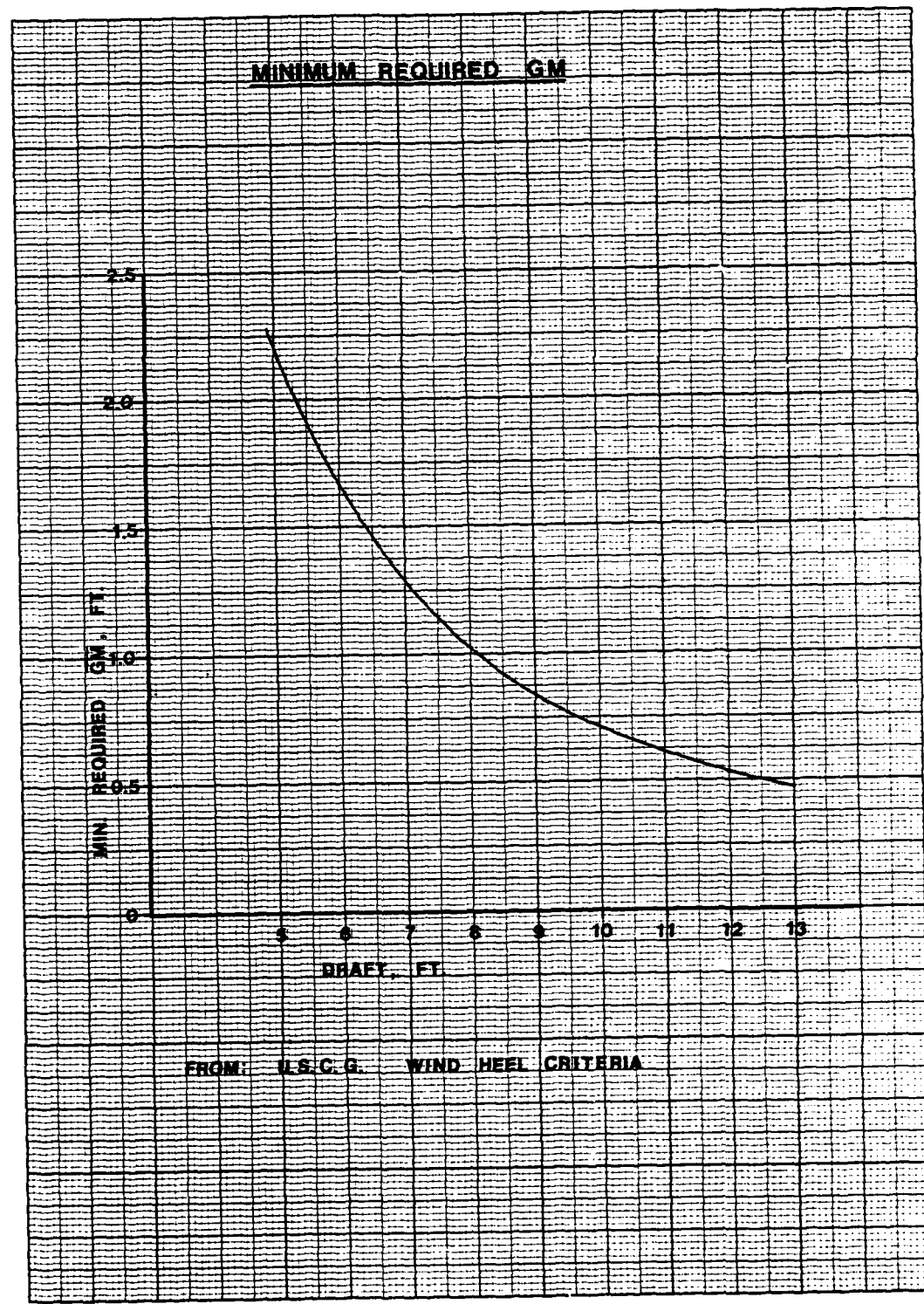
T TK  
& S.



ERPLANE  
OW 2ND DK

40 1-40

TO: CHS. FILE  
NAVFAC & ESSEX CO. MIN. IN U.S.A.



FROM: U.S.C.G. WIND HEEL CRITERIA

**COMPARTMENT CAPACITIES**

Ref. Line for L.C.G. F.P.  
Ref. Line for V.C.G. B.L.

**GIANNOTTI & ASSOCIATES, INC.**

NAVAL ARCHITECTS  
OCEAN ENGINEERS  
MARINE ENGINEERS

PAGE  
15

COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil (98%)								
#1 Wing Tank (S)	11-12		11.3	9.80	111	44.0	497	1
#2 (P)	11-12		11.3	9.80	111	44.0	497	1
#3 (S)	12-13		19.3	7.64	147	58.0	1119	2
#4 (P)	12-13		19.3	7.64	147	58.0	1119	2
#5 (S)	13-14		21.0	7.64	160	74.0	1554	2
#6 (P)	13-14		21.0	7.64	160	74.0	1554	2
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			208.4	7.78	1622	131.9	27496	21
Fresh water (100%)								
F.W. Tank (S)	15		56.3	8.25	464	94.0	5292	141
F.W. Tank (P)	15		56.3	8.25	464	94.0	5292	141
SUBTOTAL			112.6	8.25	928	94.0	10584	282
Lub. Oil								
Sludge Tank (100%)	14-15½		38.6	7.80	301	94.0	3628	4
S.W. Ballast (100%)								
#1 D.B. Tank	7-11		45.2	2.48	112	29.8	1347	1571
#2	11-14		118.0	1.55	229	60.0	8880	6150
#3	14-17		136.6	1.50	205	103.4	14124	7144
#4	17-20		136.6	1.50	205	156.6	21392	7144
#5	20-23		99.4	2.51	250	201.4	20019	6576
#7 Wing Tank (S)	14-15½		38.6	7.80	301	94.0	3623	4
#9 (S)	16-18		48.1	7.80	375	130.0	6253	5
#10 (P)	16-18		48.1	7.80	375	130.0	6253	5
#11 (S)	18½-20		38.6	7.80	301	166.0	6408	4





TRIM & STABILITY DUE TO CRANE LOADING AND POSITION

Trim as a function of for-and-aft position of the gantry crane can be read conveniently off the graphs on page 19. Please note that the forward draft mark is 10' aft of the F.P. and the aft draft mark is 50' forward of the A.P. The trim has been determined for 2 drafts, 8 and 11 feet. Trim at any other draft may be determined by interpolation. Following is an example:

The trim is desired at a 10 ft. draft with the crane at 50 feet aft of its stowed position.

From the 11 ft. mean draft graph:

$$\Delta \text{ Draft Aft} = .15 \text{ ft.}$$

$$\Delta \text{ Draft Fwd} = - .22 \text{ ft.}$$

From the 8 ft. mean draft graph:

$$\Delta \text{ Draft Aft} = .13 \text{ ft.}$$

$$\Delta \text{ Draft Fwd} = - .20 \text{ ft.}$$

Interpolating for 10 ft. draft:

$$\frac{11 - 8}{10 - 8} = \frac{.15 - .13}{(\Delta \text{ Draft Aft}) - .13}$$

$$\Delta \text{ Draft Aft} = .143 \text{ ft.}$$

$$\frac{11 - 8}{10 - 8} = \frac{- .22 - (- .20)}{(\Delta \text{ Draft Fwd}) - .20}$$

$$\Delta \text{ Draft Fwd} = -.213 \text{ ft.}$$

Therefore, the draft forward is:

$$10 + (- .213) = 9.787$$

and the draft aft is:

$$10 + .143 = 10.143 \text{ ft.}$$

The effect on heel of a 10 ton load hanging from the crane over the side has been determined and can be viewed in the figure on page 20. The graph on the same page can be used to determine the heel angle if displacement and GM are known.

For example, for capacity condition:

Displacement = 3462 tons

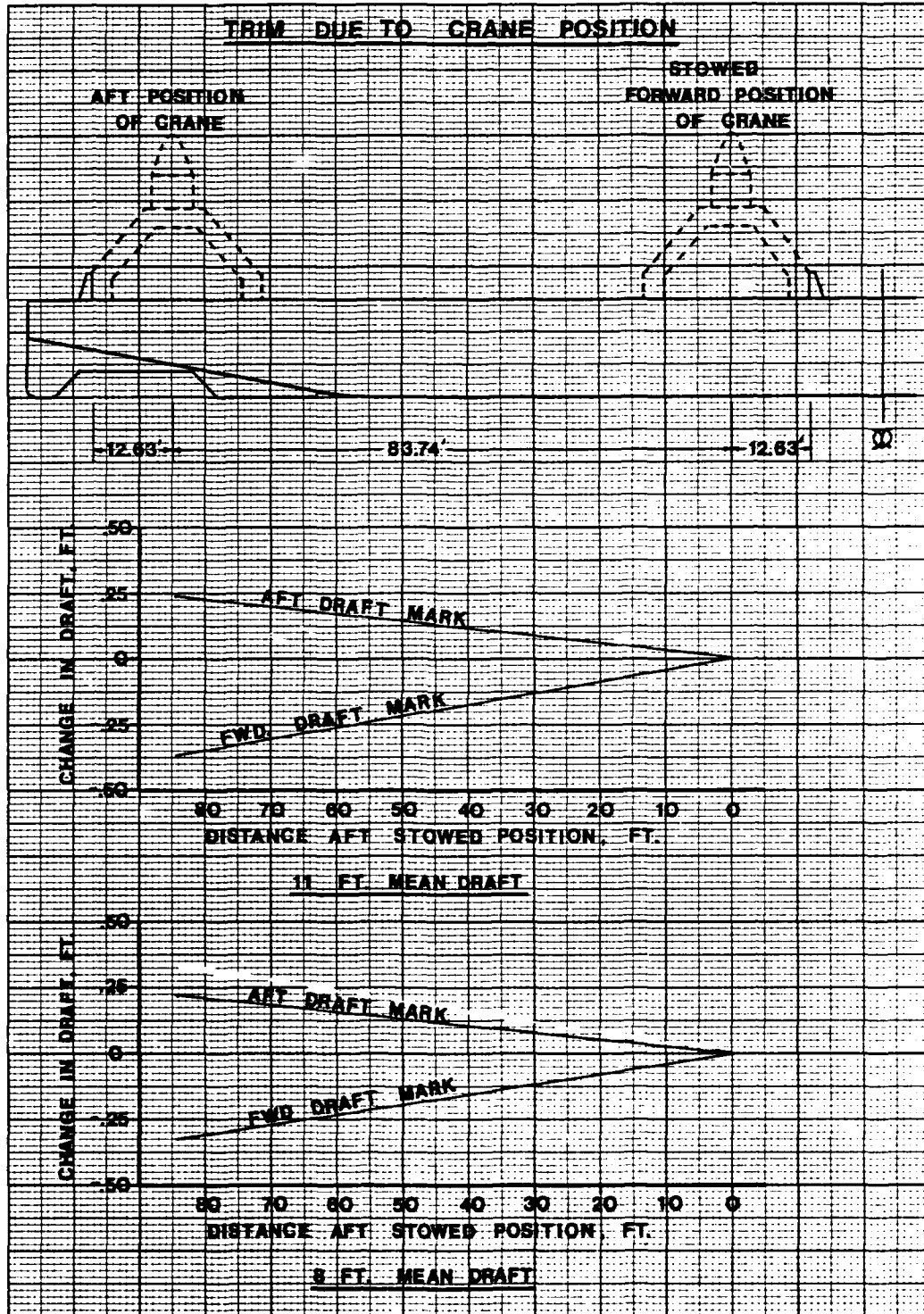
GM = 11.15 ft.

GM x Displacement = 38,601 ft. tons

and the corresponding angle of heel is 0.62 degrees.

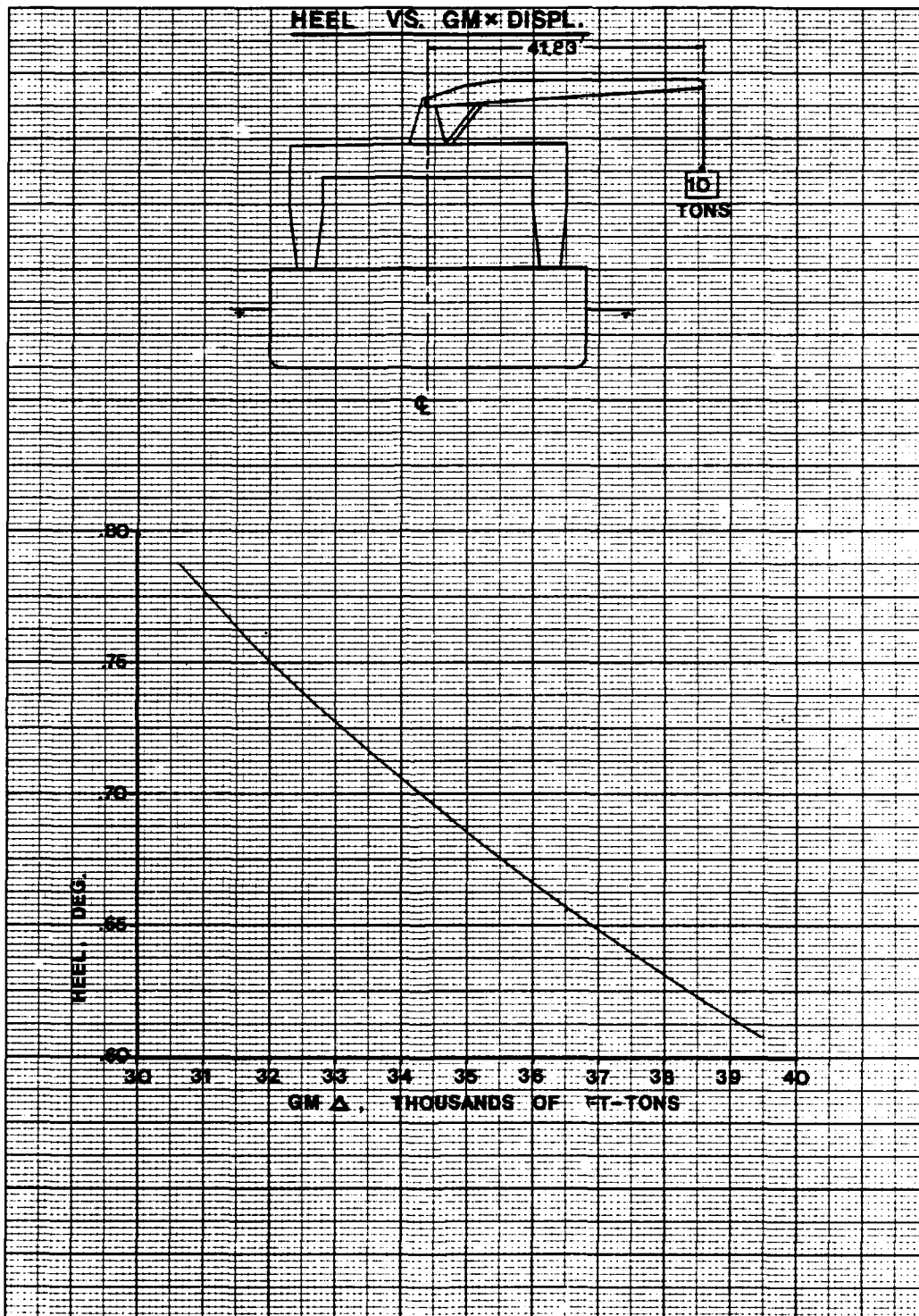
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 REUFEL & ESSER CO. NEW YORK



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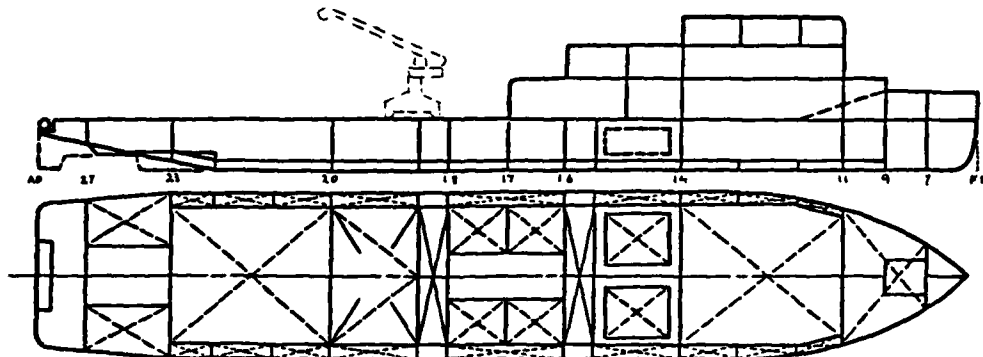
SUMMARY OF CONDITIONS

CONDITION	DISPL.		DRAFT		GM		TRIM		S.W. BALLAST		FUEL OIL		FRESH WATER		SLUDGE		DECK LOAD		CRANE LOCATION
	TONS	FT.	FT.	FT.	FT.	TONS	%	TONS	%	TONS	%	TONS	%	TONS	%	TONS	FR.		
LIGHT SHIP I	1338	5.15	26.80	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	18.5	
LIGHT SHIP II	1459	5.57	21.90	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	18.5	
CAPACITY	3462	12.16	11.15	1.30	1532	100	208	100	113	100	19	100	100	18.5					
FULL LOAD	2414	8.78	13.24	0.11	464	30	208	100	113	100	19	100	100	18.5					
OPERATING IA	2153	7.93	14.59	2.40	301	20	147	71	75	67	19	100	18.5						
OPERATING IIA	2790	9.98	13.09	5.25	1080	71	105	50	75	67	19	200	18.5						
OPERATING IIIA	2990	10.63	11.63	7.48	1080	71	105	50	75	67	19	100	18.5						
OPERATING IB	2817	10.08	12.72	2.00	966	63	147	71	75	67	19	100	18.5						
OPERATING IC	2650	9.54	12.38	1.33	799	52	147	71	75	67	19	100	18.5						

NOTE: LIGHT SHIP II INCLUDES ANTI-ROLL TANKS 50 % FULL.  
TANKS ARE EMPTY IN LIGHT SHIP I.

TRIM & STABILITY SUMMARY

CONDITION OF VESSEL: LIGHT SHIP 1 DATE: 3/23/80 PAGE: 22  
 CARGO % CONSUMABLES % BALLAST BY: JOB NO.



REF LINE FOR V.C.G. B.L. REF LINE FOR L.C.G. F.P.

SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G. ADV. B.L. FT.	MOMENT ADV. BL FT TONS	LCG ABT. FP FT	MOMENT ABT. EP FT TONS	VERT. MOM OF F.S. FT TONS
	Crew & Effects							
	Stores							
	Fuel Oil							
	Fresh Water							
	Sludge							
	S.W. Ballast							
	Anti Roll Tks							
	Cable Stowage							
	Deck Load							
DEADWEIGHT								
LIGHT SHIP			1338.2	15.5	20771	125.03	167313	
DISPLACEMENT								

TRIM			STABILITY		
DRAFT AT LCF	=	5.15 FT	METACENTRE ABOVE BL	$\overline{KM} =$	42.3 FT
MOMENT TO ALTER TRIM 1"	=	398.0 FT-TS	CENTRE OF GRAVITY ABV BL	$\overline{KG} =$	15.5 FT
LCB AFT OF FP	=	125.9 FT	METACENTRIC HEIGHT	$\overline{GM} =$	26.8 FT
LCG AFT OF FP	=	125.03 FT	ALLOWANCE FOR FREE SURFACE	=	0.0 FT
TRIMMING LEVER	=	0.87 FT	$\overline{GM}$ CORRECTED	=	26.8 FT
TRIM (BY <del>3000</del> HEAD)	=	0.24 FT	$\overline{GM}$ REQUIRED	=	2.11 FT
LCF AFT OF FP	=	130.56 FT	MOMENT TO HEEL 1°	=	625.9 FT-TS
DRAFT AT FP =	5.59 FT	AP = 4.72 FT	GIANNOTTI & ASSOCIATES, INC. NAVAL ARCHITECTS OCEAN ENGINEERS MARINE ENGINEERS		
DRAFTS AT DRAFT MARKS					
FWD	5.55 FT	AFT 4.83 FT			

LIGHT SHIP I			GIANNOTTI & ASSOCIATES, INC.					PAGE
COMPARTMENT LOADING			NAVAL ARCHITECTS					23 A
Ref. Line for L.C.G. E.P.			OCEAN ENGINEERS					
Ref. Line for V.C.G. B.L.			MARINE ENGINEERS					
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM. OF F. S. FT. TONS
Fuel Oil								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14							
#6 (P)	13-14							
#13 (S)	20-21							
#14 (P)	20-21							
#15 (S)	21-22							
#16 (P)	21-22							
#17 (S)	22-23							
#18 (P)	22-23							
SUBTOTAL								
Fresh water								
F.W. Tank (S)	15							
F.W. Tank (P)	15							
SUBTOTAL								
Lub. Oil								
Sludge Tank								
	14-15½							
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)								
	14-15½							
#9 (S)								
	16-18							
#10 (P)								
	16-18							
#11 (S)								
	18½-20							







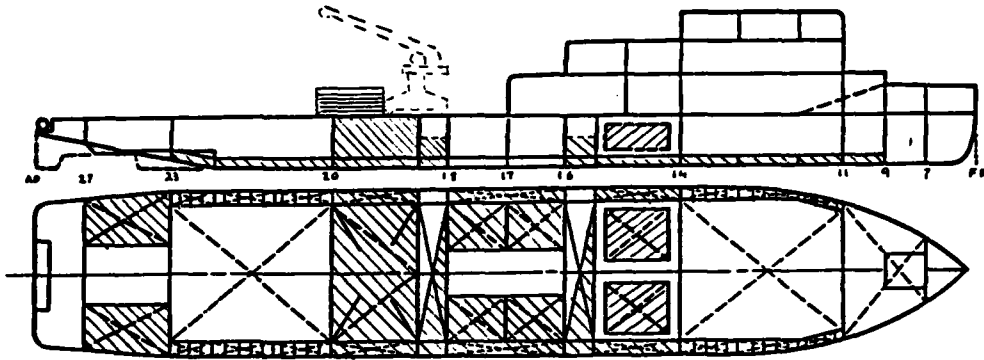
LIGHT SHIP II			GIANNOTTI & ASSOCIATES, INC.					PAGE
COMPARTMENT LOADING			NAVAL ARCHITECTS					25A
Ref. Line for L.C.G. <u>F.P.</u>			OCEAN ENGINEERS					
Ref. Line for V.C.G. <u>D.L.</u>			MARINE ENGINEERS					
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14							
#6 (P)	13-14							
#13 (S)	20-21							
#14 (P)	20-21							
#15 (S)	21-22							
#16 (P)	21-22							
#17 (S)	22-23							
#18 (P)	22-23							
SUBTOTAL								
Fresh water								
F.W. Tank (S)	15							
F.W. Tank (P)	15							
SUBTOTAL								
Lub. Oil								
Sludge Tank	14-15½							
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)	14-15½							
#9 (S)	16-18							
#10 (P)	16-18							
#11 (S)	18½-20							



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TRIM & STABILITY SUMMARY

CONDITION OF VESSEL: CAPACITY COND. DATE: 3/28/90 PAGE: 26  
 CARGO: 2 CONSUMABLES 100 2 BALLAST BY: JOB NO.



REF LINE FOR V.C.G. B.L. REF LINE FOR L.C.G. F.P.

SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G. ADV. BL FT.	MOMENT ADV. BL FT TONS	LCG ABT. FP FT	MOMENT ABT. EP FT TONS	VERT. MOM OF F.S. FT TONS
	Crew & Effects		6.0	24.00	144	62.0	372	
	Stores		45.0	20.00	900	26.0	1170	
	Fuel Oil		208.4	7.78	1622	131.9	27496	21
	Fresh Water		112.6	8.25	928	94.0	10584	282
	Sludge		19.3	4.35	84	94.0	1814	4
	S.W. Ballast		1531.5	6.27	9606	144.7	221551	
	Anti Roll Tks		120.8	5.60	677	130.0	15704	4096
	Cable Stowage							
	Deck Load		100.0	19.00	1900	176.5	17650	
	DEADWEIGHT		2143.6		15861		296341	7403
	LIGHT SHIP		1338.2	15.5	20771	125.03	167313	
	DISPLACEMENT		3461.8	10.57	36632	133.94	463654	4403

TRIM	
DRAFT AT LCF	= <u>12.16</u> FT
MOMENT TO ALTER TRIM 1"	= <u>516.4</u> FT-TS
LCB AFT OF FP	= <u>131.61</u> FT
LCG AFT OF FP	= <u>133.94</u> FT
TRIMMING LEVER	= <u>2.33</u> FT
TRIM (BY STERN. MARK)	= <u>1.30</u> FT
LCF AFT OF FP	= <u>136.52</u> FT
DRAFT AT FP	= <u>11.48</u> FT AP <u>12.78</u> FT

STABILITY	
METACENTRE ABOVE BL	$\overline{KM}$ = <u>23.0</u> FT
CENTRE OF GRAVITY ABV BL	$\overline{KG}$ = <u>10.57</u> FT
METACENTRIC HEIGHT	$\overline{GM}$ = <u>12.43</u> FT
ALLOWANCE FOR FREE SURFACE	= <u>1.28</u> FT
$\overline{GM}$ CORRECTED	= <u>11.15</u> FT
$\overline{GM}$ REQUIRED	= <u>0.53</u> FT
MOMENT TO HEEL 1°	= <u>673.6</u> FT-TS

DRAFTS AT DRAFT MARKS  
 FWD 11.59 FT AFT 12.53 FT

GIANNOTTI & ASSOCIATES, INC.  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

CAPACITY COND.				GIANNOTTI & ASSOCIATES, INC.				PAGE
COMPARTMENT LOADING				NAVAL ARCHITECTS				27 A
Ref. Line for L.C.G. F.P.				OCEAN ENGINEERS				
Ref. Line for V.C.G. B.L.				MARINE ENGINEERS				
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil (98%)								
#1 Wing Tank (S)	11-12		11.3	7.80	111	44.0	497	1
#2 (P)	11-12		11.3	7.80	111	44.0	497	1
#3 (S)	12-13		19.3	7.64	147	58.0	1119	2
#4 (P)	12-13		19.3	7.64	147	58.0	1119	2
#5 (S)	13-14		21.0	7.64	160	74.0	1554	2
#6 (P)	13-14		21.0	7.64	160	74.0	1554	2
#13 (S)	20-21		21.0	7.64	160	186.0	3006	2
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			208.4	7.78	1622	131.9	27496	21
Fresh water (100%)								
F.W. Tank (S)	15		56.3	8.25	464	94.0	5292	141
F.W. Tank (P)	15		56.3	8.25	464	94.0	5292	141
SUBTOTAL			112.6	8.25	928	94.0	10584	282
Lub. Oil (98%)								
Sludge Tank (50%)								
	14-15½		19.3	4.35	84	94.0	1814	4
S.W. Ballast (100%)								
#1 D.B. Tank	7-11		45.2	2.48	112	29.8	1347	
#2	11-14		148.0	1.55	229	60.0	8880	
#3	14-17		136.6	1.50	205	103.4	14124	
#4	17-20		136.6	1.50	205	156.6	21392	
#5	20-23		99.4	2.51	250	201.4	20019	
#7 Wing Tank (S)	14-15½		38.6	7.80	301	94.0	3628	
#9 (S)	16-18		48.1	7.80	375	130.0	6253	
#10 (P)	16-18		48.1	7.80	375	130.0	6253	
#11 (S)	18½-20		38.6	7.80	301	166.0	6408	



OCEAN CONSTRUCTION PLATFORM

"SEACON"

TRIM & STABILITY CONDITION:  
CAPACITY

DISPLACEMENT: 3640 LT  
(INCLUDING 178 LT OF WELL)  
KG CORRECTED: 11.64 FT.

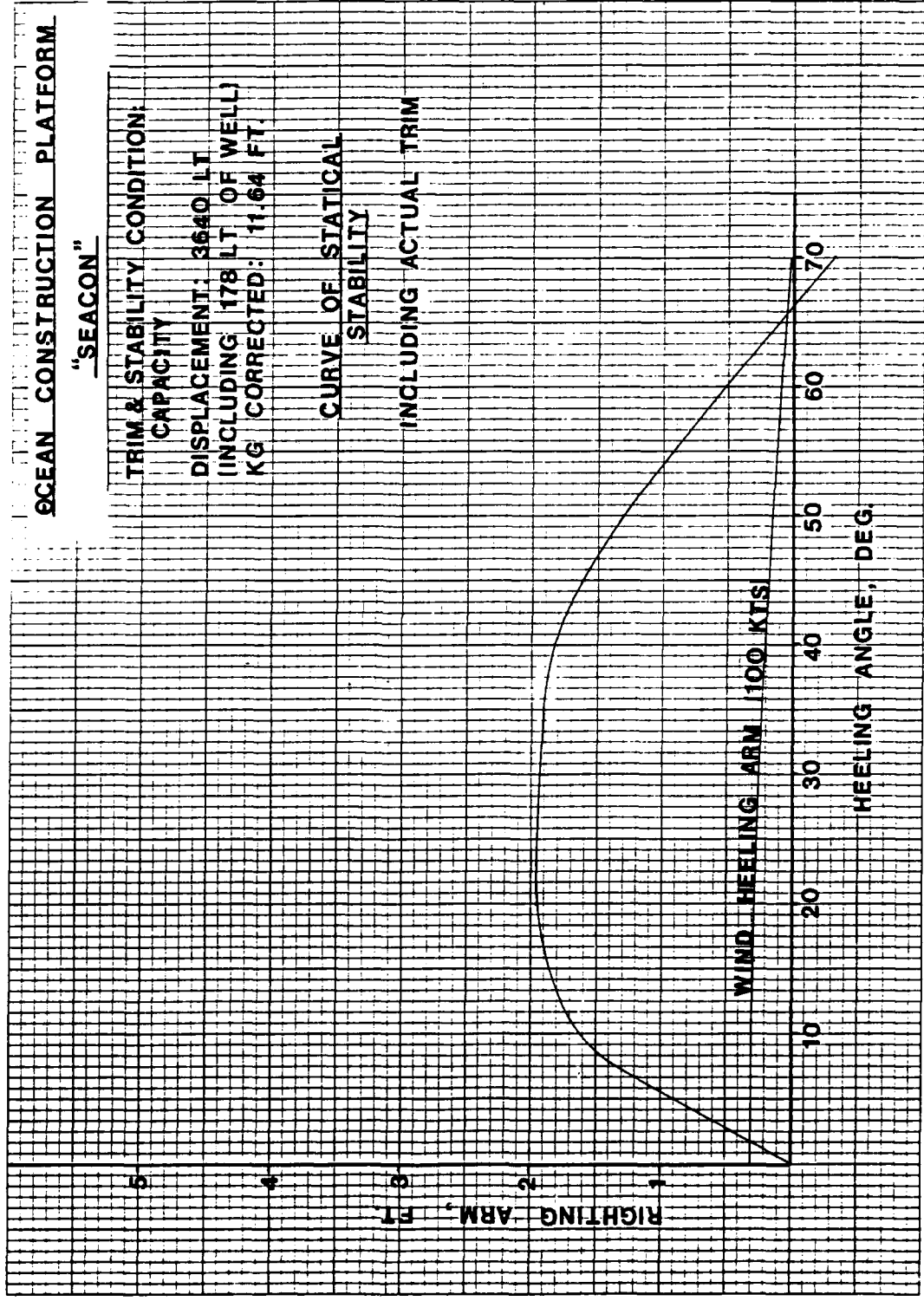
CURVE OF STATICAL  
STABILITY

INCLUDING ACTUAL TRIM

RIGHTING ARM, FT.

WIND HEELING ARM 100 KTS

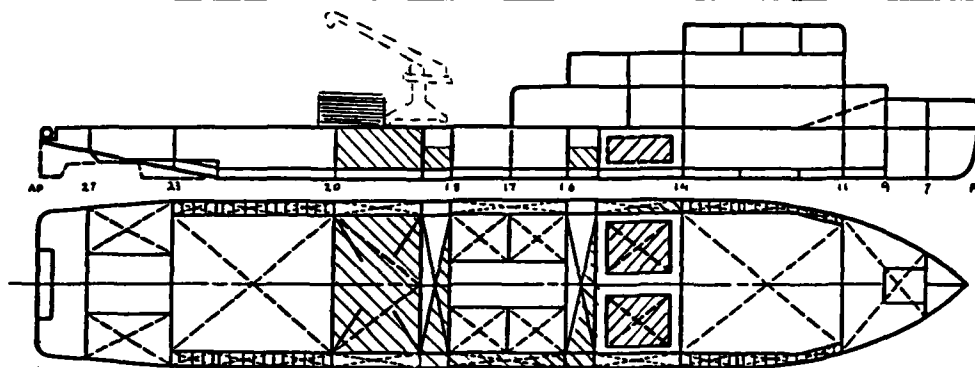
HEELING ANGLE, DEG.



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TRIM & STABILITY SUMMARY

CONDITION OF VESSEL: <u>FULL LOAD</u>	DATE: <u>3/28/80</u>	PAGE: <u>29</u>
CARGO <u>      </u> % CONSUMABLES <u>100</u> % BALLAST <u>30</u>	BY: <u>      </u>	JOB NO. <u>      </u>



REF LINE FOR V.C.G.          B.L.          REF LINE FOR L.C.G.          F.P.

SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G. ADV. BL FT.	MOMENT ADV. BL FT TONS	LCG ABT. FP FT	MOMENT ABT. EP FT TONS	VERT. MOM OF F.S. FT TONS
	Crew & Effects		60	24.00	144	62.0	372	
	Stores		450	20.00	900	26.0	1170	
	Fuel Oil		208.4	7.78	1622	131.9	27496	21
	Fresh Water		112.6	8.25	928	94.0	10584	282
	Sludge		19.3	4.35	84	94.0	1814	4
	S.W. Ballast		464	8.65	4013	152.5	70765	
	Anti Roll Tks		120.8	5.60	677	130.0	15704	4096
	Cable Stowage							
	Deck Load		100.0	19.00	1900	176.5	17650	
DEADWEIGHT			1076.1		10268		145555	4403
LIGHT SHIP			1338.2	15.5	20771	125.03	167313	
DISPLACEMENT			2414.3	12.84	31039	129.59	312868	4403

TRIM

DRAFT AT LCF = 8.78 FT

MOMENT TO ALTER TRIM 1" = 485.7 FT-TS

LCB AFT OF FP = 129.33 FT

LCG AFT OF FP = 129.59 FT

TRIMMING LEVER = 0.26 FT

TRIM (BY STERN, ~~HEAD~~) = 0.11 FT

LCF AFT OF FP = 136.16 FT

DRAFT AT FP = 8.72 FT AP = 8.83 FT

STABILITY

METACENTRE ABOVE BL  $\overline{KM}$  = 27.90 FT

CENTRE OF GRAVITY ABV BL  $\overline{KG}$  = 12.84 FT

METACENTRIC HEIGHT  $\overline{GM}$  = 15.06 FT

ALLOWANCE FOR FREE SURFACE = 1.82 FT

$\overline{GM}$  CORRECTED = 13.24 FT

$\overline{GM}$  REQUIRED = 0.88 FT

MOMENT TO HEEL 1° = 557.9 FT-TS

DRAFTS AT DRAFT MARKS

FWD 8.73 FT AFT 8.81 FT

**GIANNOTTI & ASSOCIATES, INC.**  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS



FULL LOAD COMPARTMENT LOADING Ref. Line for L.C.G. <u>F.P.</u> Ref. Line for V.C.G. <u>B.L.</u>				GIANNOTTI & ASSOCIATES, INC. NAVAL ARCHITECTS OCEAN ENGINEERS MARINE ENGINEERS				PAGE 30A
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM. OF F. S. FT. TONS
Fuel Oil (98%)								
#1 Wing Tank (S)	11-12		11.3	9.80	111	44.0	497	1
#2 (P)	11-12		11.3	9.80	111	44.0	497	1
#3 (S)	12-13		19.3	7.64	147	58.0	1119	2
#4 (P)	12-13		19.3	7.64	147	58.0	1119	2
#5 (S)	13-14		21.0	7.64	160	74.0	1554	2
#6 (P)	13-14		21.0	7.64	160	74.0	1554	2
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			208.4	7.78	1622	131.9	27496	21
Fresh water (100%)								
F.W. Tank (S)	15		56.3	8.25	464	94.0	5292	171
F.W. Tank (P)	15		56.3	8.25	464	94.0	5292	171
SUBTOTAL			112.6	8.25	928	94.0	10584	282
Lub. Oil								
Sludge Tank (50%)								
	14-15½		19.3	4.35	84	94.0	1814	4
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)	14-15½		38.6	7.80	301	94.0	3628	
#9 (S)	16-18		48.1	7.80	375	130.0	6253	
#10 (P)	16-18		48.1	7.80	375	130.0	6253	
#11 (S)	18½-20							



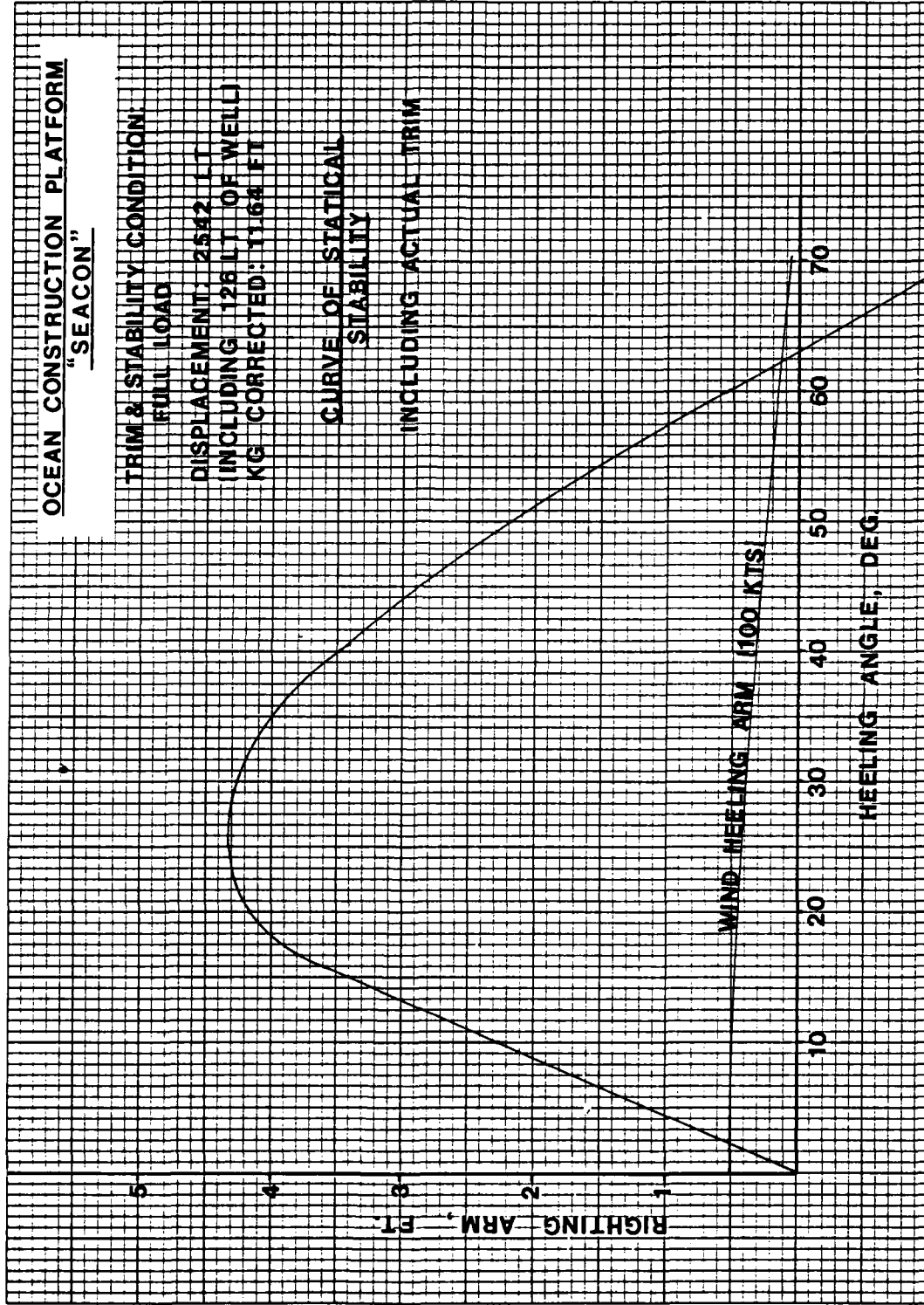
**OCEAN CONSTRUCTION PLATFORM  
"SEACON"**

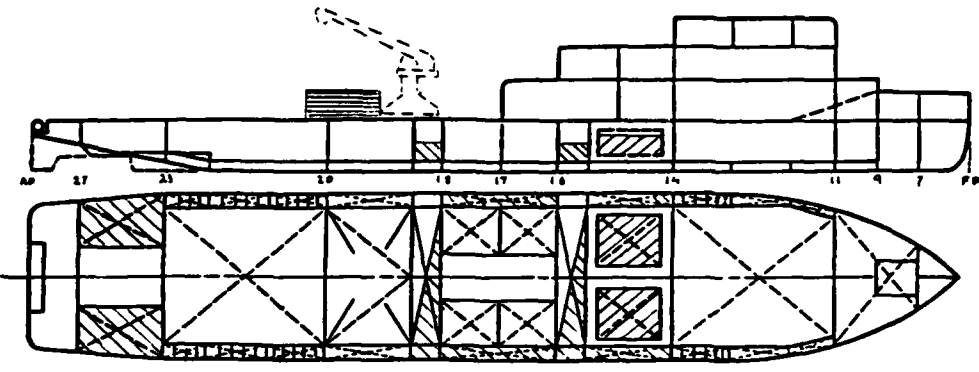
**TRIM & STABILITY CONDITION:  
FULL LOAD**

**DISPLACEMENT: 2542 LT  
(INCLUDING 128 LT OF WELL)  
KG CORRECTED: 11164 FT**

**CURVE OF STATICAL  
STABILITY**

**INCLUDING ACTUAL TRIM**





SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G.		L.C.G.		VERT. MOM OF F.S. FT TONS
				ADV. BL FT.	MOMENT ADV. BL FT TONS	ABT. FP FT	MOMENT ABT. EP FT TONS	
	Crew & Effects		6.0	24.00	144	62.0	372	
	Stores		45.0	20.00	900	26.0	1170	
	Fuel Oil		147.2	7.51	1104	164.3	24262	15
	Fresh Water		75.0	7.00	526	94.0	7050	282
	Sludge		19.3	4.35	84	94.0	1814	4
	S.W. Ballast		301.4	9.01	2717	181.8	54802	
	Anti Roll Tks		120.8	5.6	677	130.0	15704	41096
	Cable Stowage							
	Deck Load		100.0	19.0	1900	176.5	17650	
DEADWEIGHT			814.7		8052		122824	4397
LIGHT SHIP			1338.2	15.5	20771	125.03	167313	
DISPLACEMENT			2152.9	13.37	24823	134.77	290137	4397

**TRIM**

DRAFT AT LCF = 7.93 FT

MOMENT TO ALTER TRIM 1" = 464.9 FT-TS

LCB AFT OF FP = 128.56 FT

LCG AFT OF FP = 134.77 FT

TRIMMING LEVER = 6.21 FT

TRIM (BY STERN, ~~HEAD~~) = 2.40 FT

LCF AFT OF FP = 134.91 FT

DRAFT AT FP = 6.68 FT AP = 9.09 FT

DRAFTS AT DRAFT MARKS

FWD 6.87 FT AFT 8.62 FT

**STABILITY**

METACENTRE ABOVE BL  $\bar{KM}$  = 30.0 FT

CENTRE OF GRAVITY ABV BL  $\bar{KG}$  = 13.37 FT

METACENTRIC HEIGHT  $\bar{GM}$  = 16.63 FT

ALLOWANCE FOR FREE SURFACE = 2.04 FT

$\bar{GM}$  CORRECTED = 14.59 FT

$\bar{GM}$  REQUIRED = 1.04 FT

MOMENT TO HEEL 1° = 548.2 FT-TS

**GIANNOTTI & ASSOCIATES, INC.**  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

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OPERATING 1A				GIANNOTTI & ASSOCIATES, INC.				PAGE
COMPARTMENT LOADING				NAVAL ARCHITECTS				33A
Ref. Line for L.C.G. <u>F.P.</u>				OCEAN ENGINEERS				
Ref. Line for V.C.G. <u>B.L.</u>				MARINE ENGINEERS				
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV.BL FT.	MOMENT ABV.BL FT. TONS	L.C.G. ABT.F.P. FT.	MOMENT ABT.F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil (65%)								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14		21.0	7.64	160	74.0	1554	2
#6 (P)	13-14		21.0	7.64	160	74.0	1554	2
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2
#14 (P)	20-21		12.8	6.82	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			147.2	7.51	1104	164.8	24262	15
Fresh water (66%)								
F.W. Tank (S)	15		37.5	7.00	263	94.0	3525	141
F.W. Tank (P)	15		37.5	7.00	263	94.0	3525	141
SUBTOTAL			75.0	7.00	526	94.0	7050	282
Lub. Oil								
Sludge Tank (50%)								
	14-15½		19.3	4.35	84	94.0	1814	4
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)	14-15½		38.6	7.81	301	94.0	3628	
#9 (S)	16-18		48.1	7.81	375	130.0	6253	
#10 (P)	16-18		48.1	7.81	375	130.0	6253	
#11 (S)	18½-20							



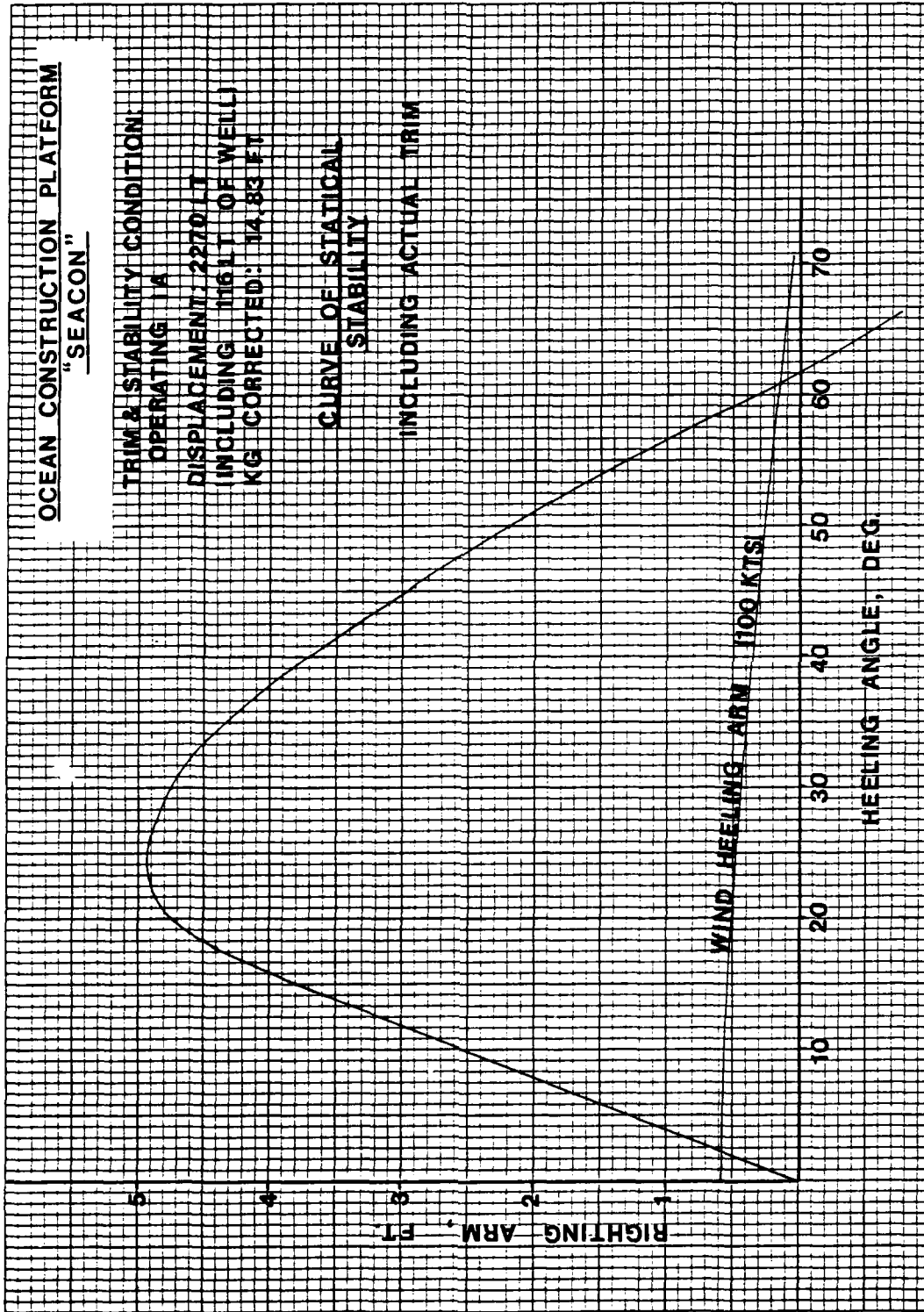
**OCEAN CONSTRUCTION PLATFORM  
"SEACON"**

**TRIM & STABILITY CONDITION  
OPERATING 1A**

**DISPLACEMENT: 2270 LT  
(INCLUDING 116 LT OF WELL)  
KG CORRECTED: 14,833 FT**

**CURVE OF STATIC  
STABILITY**

**INCLUDING ACTUAL TRIM**







OPERATING IIA, IIIA

## COMPARTMENT LOADING

Ref. Line for L.C.G. F.P.Ref. Line for V.C.G. B.L.

GIANNOTTI &amp; ASSOCIATES, INC.

NAVAL ARCHITECTS

OCEAN ENGINEERS

MARINE ENGINEERS

PAGE

36A

COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM. OF F. S. FT. TONS
Fuel Oil (98%)								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14							
#6 (P)	13-14							
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2
SUBTOTAL			105.2	7.45	784	201.1	21154	11
Fresh water (66%)								
F.W. Tank (S)	15		37.5	7.00	263	94.0	3525	141
F.W. Tank (P)	15		37.5	7.00	263	94.0	3525	141
SUBTOTAL			75.0	7.00	526	94.0	7050	282
Lub. Oil								
Sludge Tank (50%)	14-15½		19.3	4.35	84	94.0	1814	4
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17		136.6	1.50	205	103.4	14124	
#4	17-20		136.6	1.50	205	156.6	21392	
#5	20-23		99.4	2.51	250	201.4	20019	
#7 Wing Tank (S)	14-15½		38.6	7.80	301	94.0	3628	
#9 (S)	16-18		48.1	7.80	375	130.0	6253	
#10 (P)	16-18		48.1	7.80	375	130.0	6253	
#11 (S)	18½-20		38.6	7.80	301	166.0	6408	



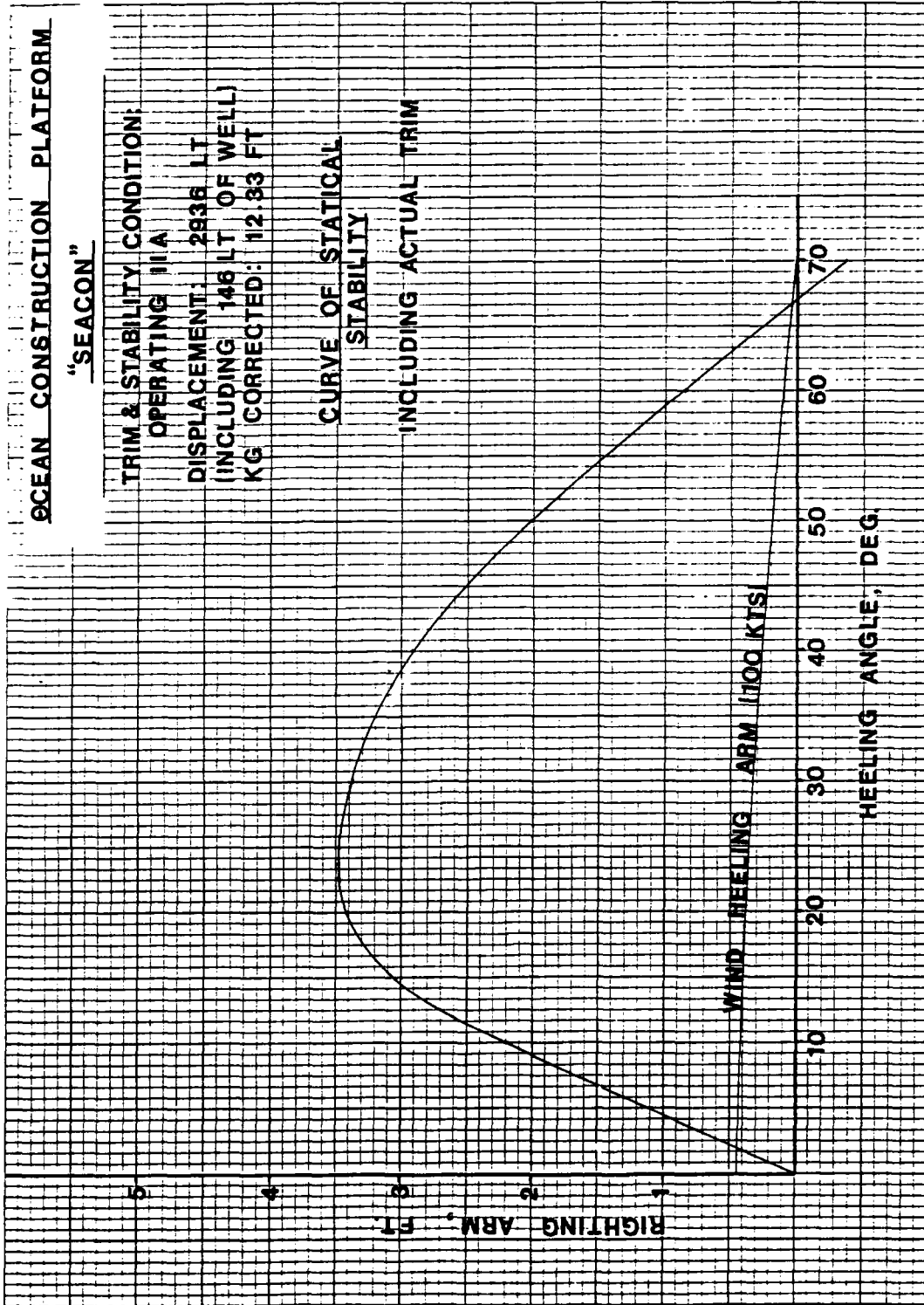
**OCEAN CONSTRUCTION PLATFORM**

**"SEACON"**

TRIM & STABILITY CONDITION:  
OPERATING IIIA

DISPLACEMENT: 2936 LT  
(INCLUDING 146 LT OF WELL)  
KG CORRECTED: 112.83 FT

**CURVE OF STATICAL STABILITY INCLUDING ACTUAL TRIM**





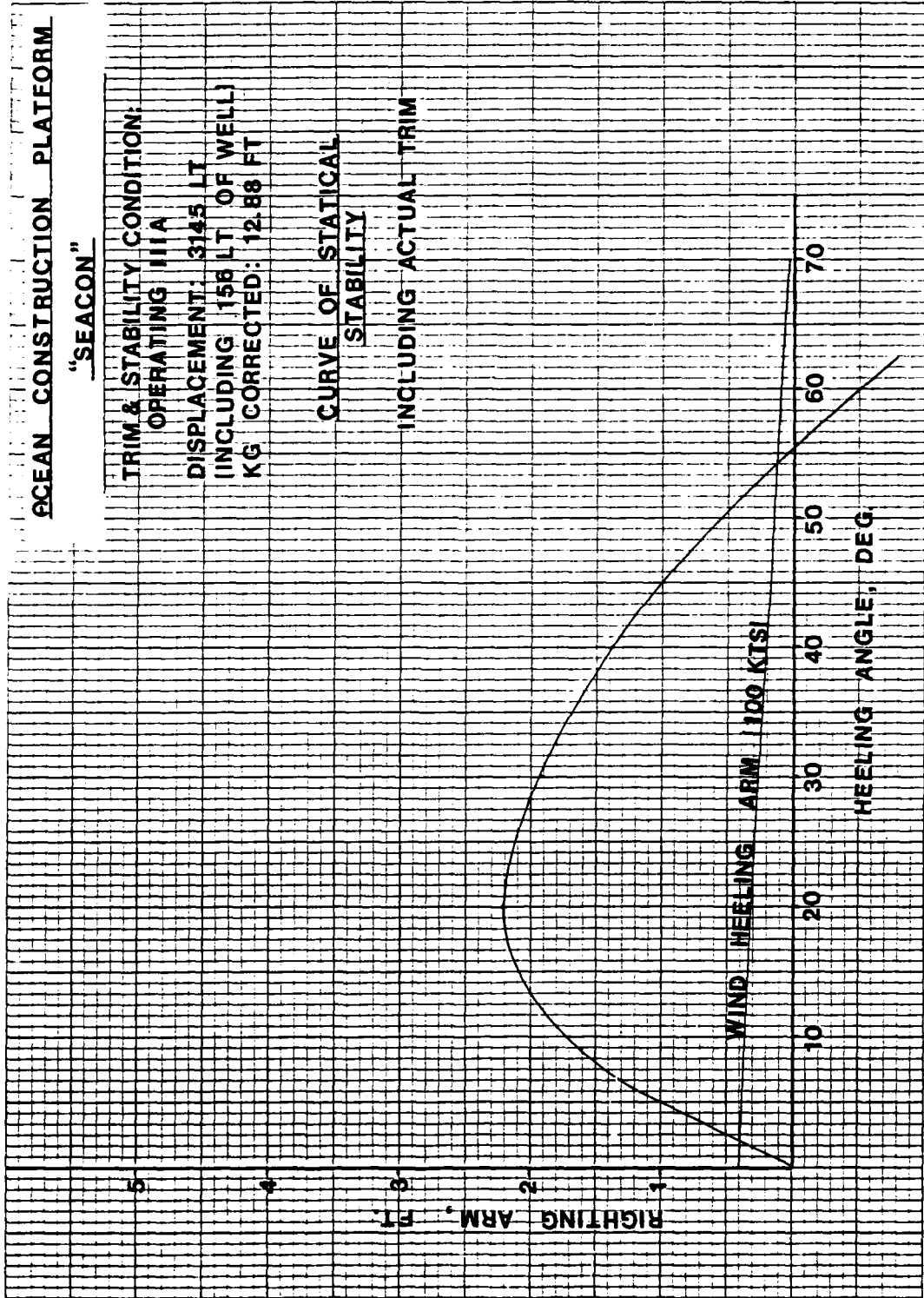
OCEAN CONSTRUCTION PLATFORM

"SEACON"

TRIM & STABILITY CONDITION:  
OPERATING IIIA

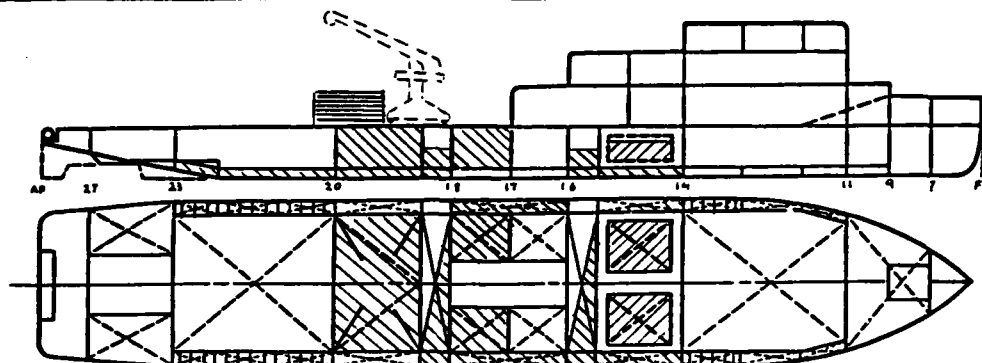
DISPLACEMENT: 3145 LT  
(INCLUDING 156 LT OF WELL)  
KG CORRECTED: 12.88 FT

CURVE OF STATICAL  
STABILITY  
INCLUDING ACTUAL TRIM



TRIM & STABILITY SUMMARY

CONDITION OF VESSEL: OPERATING I B DATE: 3/23/80 PAGE: 40  
 CARGO 2 CONSUMABLES 66 BALLAST BY: \_\_\_\_\_ JOB NO. \_\_\_\_\_



REF LINE FOR V.C.G. B.L. REF LINE FOR L.C.G. F.P.

SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G. ADV. BL FT.	MOMENT ADV. BL FT TONS	LCG ABT. FP FT	MOMENT ABT. EP FT TONS	VERT. MOM OF F.S. FT TONS
	Crew & Effects		6.0	24.00	144	62.0	372	
	Stores		450	20.00	900	26.0	1170	
	Fuel Oil		1470	7.51	1104	164.8	24262	15
	Fresh Water		750	7.00	526	94.0	7050	282
	Sludge		19.3	4.35	84	94.0	1814	4
	S.W. Ballast		966	6.04	5835	149.3	144102	
	Anti Roll Tks		1203	5.6	677	130.0	15704	4096
	Cable Stowage							
	Deck Load		100.0	19.00	1900	176.5	17650	
	DEADWEIGHT		1479.1		11170		212124	4397
	LIGHT SHIP		1338.2	15.5	20771	125.03	167313	
	DISPLACEMENT		2817.3	11.32	31941	134.71	379437	4397

TRIM	
DRAFT AT LCF	= <u>10.08</u> FT
MOMENT TO ALTER TRIM 1"	= <u>507.1</u> FT-TS
LCB AFT OF FP	= <u>130.4</u> FT
LCG AFT OF FP	= <u>134.71</u> FT
TRIMMING LEVER	= <u>4.31</u> FT
TRIM (BY STERN. $\theta$ )	= <u>2.00</u> FT
LCF AFT OF FP	= <u>137.03</u> FT
DRAFT AT FP	= <u>9.03</u> FT AP = <u>11.03</u> FT

STABILITY	
METACENTRE ABOVE BL	$\overline{KM}$ = <u>25.6</u> FT
CENTRE OF GRAVITY ABV BL	$\overline{KG}$ = <u>11.32</u> FT
METACENTRIC HEIGHT	$\overline{GM}$ = <u>14.28</u> FT
ALLOWANCE FOR FREE SURFACE	= <u>1.56</u> FT
$\overline{GM}$ CORRECTED	= <u>12.72</u> FT
$\overline{GM}$ REQUIRED	= <u>0.70</u> FT
MOMENT TO HEEL 1°	= <u>625.4</u> FT-TS

DRAFTS AT DRAFT MARKS  
 FWD 9.21 FT AFT 10.64 FT

**GIANNOTTI & ASSOCIATES, INC.**  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

OPERATING IB COMPARTMENT LOADING Ref. Line for L.C.G. <u>F.P.</u> Ref. Line for V.C.G. <u>R.L.</u>				GIANNOTTI & ASSOCIATES, INC. NAVAL ARCHITECTS OCEAN ENGINEERS MARINE ENGINEERS				PAGE 41 A
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil (65%)								
#1 Wing Tank	(S)	11-12						
#2	(P)	11-12						
#3	(S)	12-13						
#4	(P)	12-13						
#5	(S)	13-14	21.0	7.64	160	74.0	1554	2
#6	(P)	13-14	21.0	7.64	160	74.0	1554	2
#13	(S)	20-21	21.0	7.64	160	186.0	3906	2
#14	(P)	20-21	12.8	6.28	80	188.6	2414	1
#15	(S)	21-22	21.0	7.60	160	202.0	4242	2
#16	(P)	21-22	21.0	7.60	160	202.0	4242	2
#17	(S)	22-23	14.7	7.64	112	216.0	3175	2
#18	(P)	22-23	14.7	7.64	112	216.0	3175	2
SUBTOTAL			147.2	7.51	1104	164.8	24262	15
Fresh water (66%)								
F.W. Tank	(S)	15	37.5	7.00	263	94.0	3525	141
F.W. Tank	(P)	15	37.5	7.00	263	94.0	3525	141
SUBTOTAL			75.0	7.00	526	94.0	7050	282
Lub. Oil								
Sludge Tank								
		14-15½	19.3	4.35	84	94.0	1814	4
S.W. Ballast								
#1 D.B. Tank		7-11						
#2		11-14						
#3		14-17	136.6	1.50	205	103.4	14124	
#4		17-20	136.6	1.50	205	156.6	21392	
#5		20-23	99.4	2.51	250	201.4	20019	
#7 Wing Tank	(S)	14-15½	38.6	7.80	301	94.0	3628	
#9	(S)	16-18	48.1	7.80	375	130.0	6253	
#10	(P)	16-18	48.1	7.80	375	130.0	6253	
#11	(S)	18½-20						





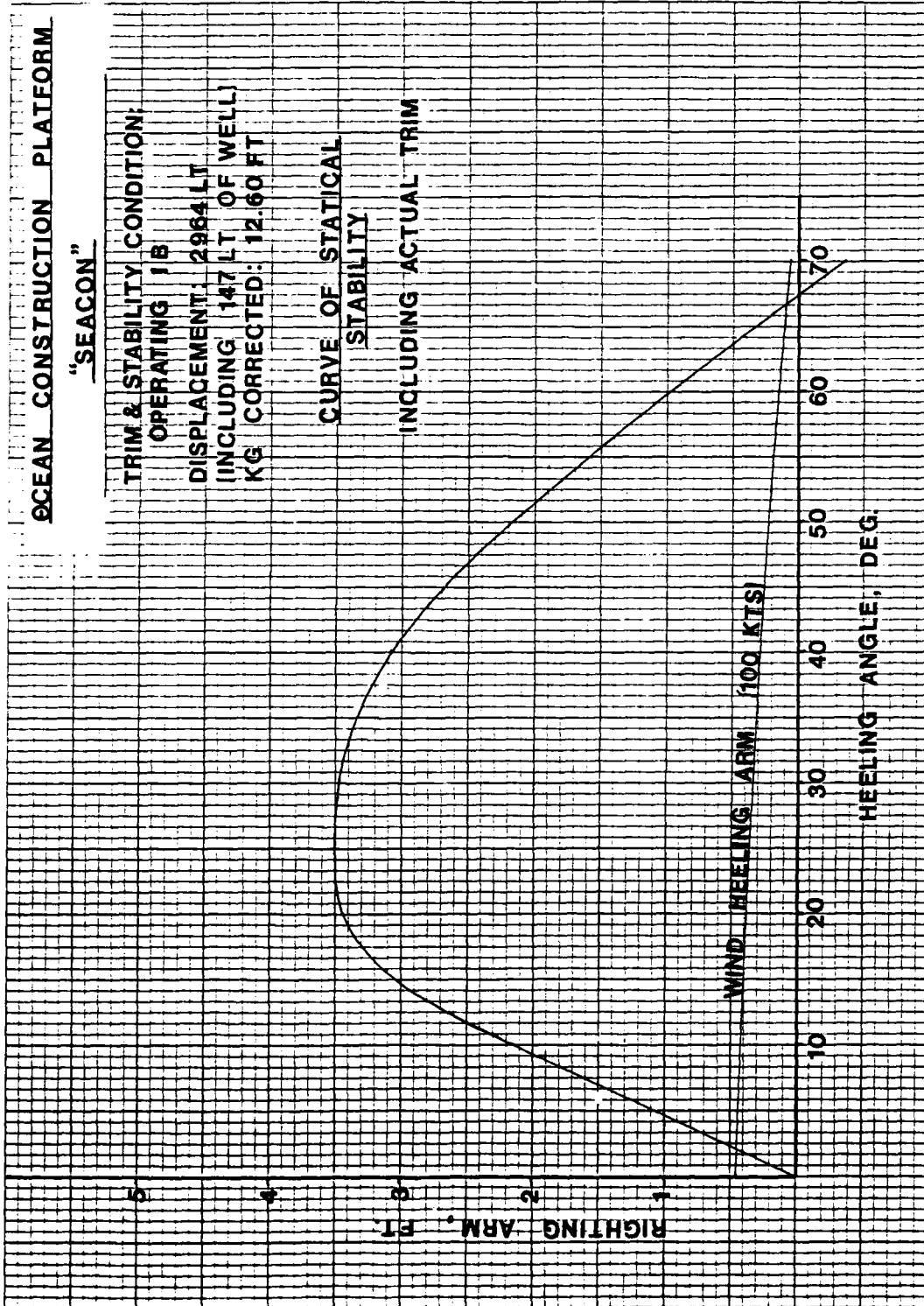
### OCEAN CONSTRUCTION PLATFORM

#### "SEACON"

TRIM & STABILITY CONDITION:  
OPERATING 1B

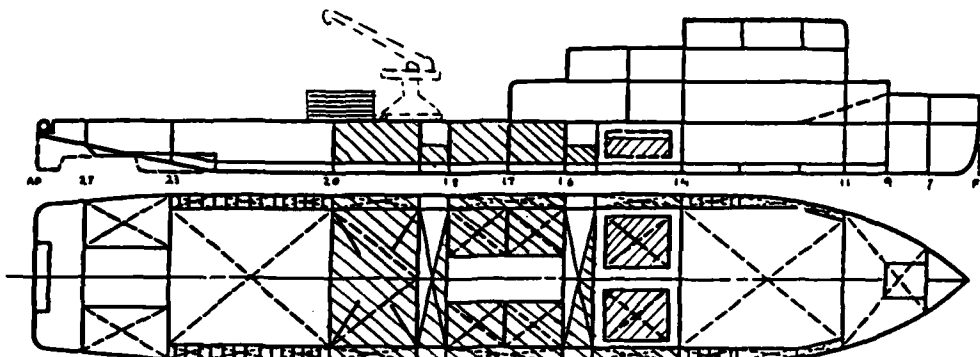
DISPLACEMENT: 2984 LT  
(INCLUDING 147 LT OF WELL)  
KG CORRECTED: 12.60 FT

CURVE OF STATICAL  
STABILITY  
INCLUDING ACTUAL TRIM



TRIM & STABILITY SUMMARY

CONDITION OF VESSEL: OPERATING TC DATE: 3/28/80 PAGE: 43  
 CARGO        % CONSUMABLES 66 % BALLAST BY:        JOB NO.       



REF LINE FOR V.C.G. B.L. REF LINE FOR L.C.G. F.P.

SYMBOL	COMPARTMENT	CU FT TON	WEIGHT TONS	V.C.G. ADV. BL FT.	MOMENT ADV. BL FT TONS	LCG ABT. FP FT	MOMENT ABT. EP FT TONS	VERT. MOM OF F.S. FT TONS
	Crew & Effects		60	24.00	144	62.0	372	
	Stores		450	20.00	900	26.0	1170	
	Fuel Oil		1470	7.51	1104	164.8	24262	15
	Fresh Water		750	7.00	526	94.0	7050	232
	Sludge		19.3	4.35	84	94.0	1814	4
	S.W. Ballast		799.0	8.68	6939	146.6	11712	
	Anti Roll Tks		120.8	5.60	677	130.0	15704	4096
	Cable Stowage							
	Deck Load		100.0	19.00	1900	176.5	17650	

DEADWEIGHT		1312.1			12274		185143	4397
LIGHT SHIP		1338.2	15.5	20771	125.03	167313		
DISPLACEMENT		2650.3	12.46	33045	133.01	352456	4397	

TRIM

DRAFT AT LCF	=	9.54	FT
MOMENT TO ALTER TRIM 1"	=	501.6	FT-TS
LCB AFT OF FP	=	130.00	FT
LCG AFT OF FP	=	133.01	FT
TRIMMING LEVER	=	3.01	FT
TRIM (BY STERN, HEAD)	=	1.33	FT
LCF AFT OF FP	=	136.86	FT
DRAFT AT FP	=	8.84 FT	AP = 10.17 FT

STABILITY

METACENTRE ABOVE BL	$\overline{KM}$ =	26.5	FT
CENTRE OF GRAVITY ABV BL	$\overline{KG}$ =	12.46	FT
METACENTRIC HEIGHT	$\overline{GM}$ =	14.04	FT
ALLOWANCE FOR FREE SURFACE	=	1.66	FT
$\overline{GM}$ CORRECTED	=	12.38	FT
$\overline{GM}$ REQUIRED	=	0.76	FT
MOMENT TO KEEL 1°	=	572.6	FT-TS

DRAFTS AT DRAFT MARKS  
 FWD 8.96 FT AFT 9.91 FT

**GIANNOTTI & ASSOCIATES, INC.**  
 NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

OPERATING IC COMPARTMENT LOADING Ref. Line for L.C.G. <u>F.P.</u> Ref. Line for V.C.G. <u>B.L.</u>				GIANNOTTI & ASSOCIATES, INC. NAVAL ARCHITECTS OCEAN ENGINEERS MARINE ENGINEERS				PAGE 44 A	
COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS	
Fuel Oil (65%)									
#1 Wing Tank (S)	11-12								
#2 (P)	11-12								
#3 (S)	12-13								
#4 (P)	12-13								
#5 (S)	13-14		21.0	7.64	160	74.0	1554	2	
#6 (P)	13-14		21.0	7.64	160	74.0	1554	2	
#13 (S)	20-21		21.0	7.64	160	186.0	3906	2	
#14 (P)	20-21		12.8	6.28	80	188.6	2414	1	
#15 (S)	21-22		21.0	7.60	160	202.0	4242	2	
#16 (P)	21-22		21.0	7.60	160	202.0	4242	2	
#17 (S)	22-23		14.7	7.64	112	216.0	3175	2	
#18 (P)	22-23		14.7	7.64	112	216.0	3175	2	
SUBTOTAL			147.2	7.51	1104	164.8	24262	15	
Fresh water (66%)									
F.W. Tank (S)	15		37.5	7.00	263	94.0	3525	141	
F.W. Tank (P)	15		37.5	7.00	263	94.0	3525	141	
SUBTOTAL			75.0	7.00	526	94.0	7050	282	
Lub. Oil									
Sludge Tank									
	14-15½		19.3	4.35	84	94.0	1314	4	
S.W. Ballast									
#1 D.B. Tank	7-11								
#2	11-14								
#3	14-17								
#4	17-20								
#5	20-23								
#7 Wing Tank (S)	14-15½		38.6	7.80	301	94.0	3628		
#9 (S)	16-18		48.1	7.80	375	130.0	6253		
#10 (P)	16-18		48.1	7.80	375	130.0	6253		
#11 (S)	18½-20		38.6	7.80	301	166.0	6408		



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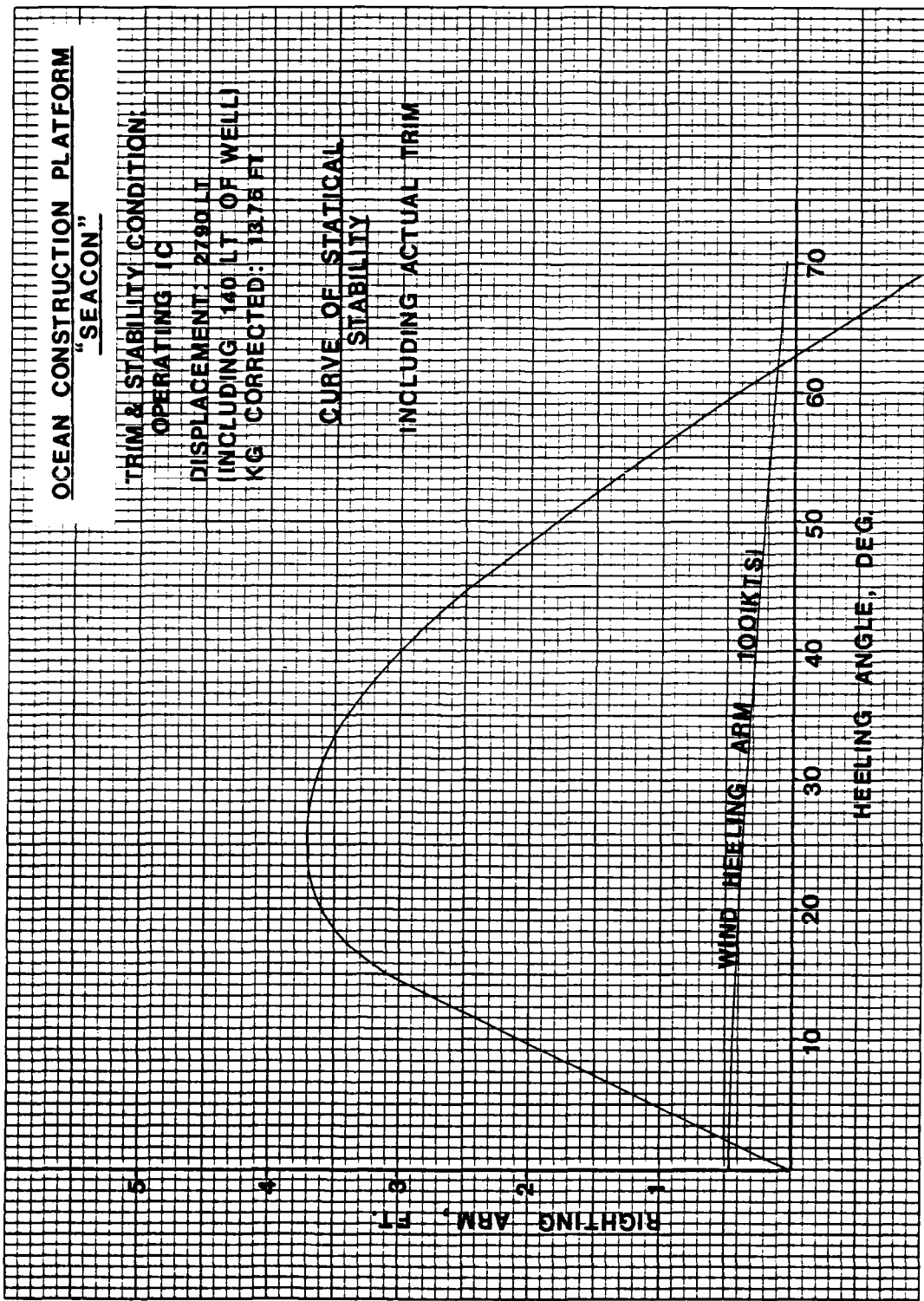
**OCEAN CONSTRUCTION PLATFORM  
"SEACON"**

**TRIM & STABILITY CONDITION:  
OPERATING IC**

**DISPLACEMENT: 2790 LT  
(INCLUDING 140 LT OF WELL)  
KG CORRECTED: 13,78 FT**

**CURVE OF STATICAL  
STABILITY**

**INCLUDING ACTUAL TRIM**





**COMPARTMENT LOADING**

Ref. Line for L.C.G. \_\_\_\_\_  
 Ref. Line for V.C.G. \_\_\_\_\_

**GIANNOTTI & ASSOCIATES, INC.**

NAVAL ARCHITECTS  
 OCEAN ENGINEERS  
 MARINE ENGINEERS

PAGE  
 47

COMPARTMENT	FR.	CAP CU. FT.	WEIGHT TONS	V.C.G. ABV. BL FT.	MOMENT ABV. BL FT. TONS	L.C.G. ABT. F.P. FT.	MOMENT ABT. F.P. FT. TONS	VERT. MOM OF F. S. FT. TONS
Fuel Oil								
#1 Wing Tank (S)	11-12							
#2 (P)	11-12							
#3 (S)	12-13							
#4 (P)	12-13							
#5 (S)	13-14							
#6 (P)	13-14							
#13 (S)	20-21							
#14 (P)	20-21							
#15 (S)	21-22							
#16 (P)	21-22							
#17 (S)	22-23							
#18 (P)	22-23							
SUBTOTAL								
Fresh water								
F.W. Tank (S)	15							
F.W. Tank (P)	15							
SUBTOTAL								
Lub. Oil								
Sludge Tank								
	14-15½							
S.W. Ballast								
#1 D.B. Tank	7-11							
#2	11-14							
#3	14-17							
#4	17-20							
#5	20-23							
#7 Wing Tank (S)	14-15½							
#9 (S)	16-18							
#10 (P)	16-18							
#11 (S)	18½-20							





# **APPENDIX**

## **A**

**TANK TABLES**

EQUIVALENTS

1 TON	=	2240 LBS.
1 CU. FT.	=	7.481 GALLONS
1 TON F.O.	=	38.00 CU. FT.
1 TON S.M.	=	35.00 CU. FT.
1 TON F.M.	=	36.00 CU. FT.

CONVERSION FACTORS

Multiply Tons F.O. by 0.883 = Tons D.O. (@ 43.00 CU.FT./TON)  
Divide Gallons F.O. by 322.00 = Tons D.O. " " " "

SUMMARY

F.O. TANKS

<u>TANK</u>	<u>FRS.</u>	<u>VCG AT</u>		<u>F.O. CAP. IN GAL.</u>		<u>F.O. CAP. IN TONS</u>	
		<u>100% FULL</u>	<u>95%</u>	<u>100%</u>	<u>95%</u>	<u>100%</u>	<u>95%</u>
F.O. MING TANK NO. 1 STBD	11-12	9.13	3821	3630	13.4	12.7	
F.O. MING TANK NO. 2 PORT	11-12	9.13	3821	3630	13.4	12.7	
F.O. MING TANK NO. 3 STBD	12-13	8.24	5818	5528	20.4	19.4	
F.O. MING TANK NO. 4 PORT	12-13	8.24	5818	5528	20.4	19.4	
F.O. MING TANK NO. 5 STBD	13-14	8.98	5489	5215	19.3	18.3	
F.O. MING TANK NO. 6 PORT	13-14	8.01	6544	6217	23.0	21.8	
F.O. MING TANK NO. 13 STBD	20-21	7.82	6335	6018	22.2	21.1	
F.O. MING TANK NO. 14 PORT	20-21	7.80	6312	5997	22.2	21.0	
F.O. MING TANK NO. 15 STBD	21-22	8.01	6529	6203	22.9	21.8	
F.O. MING TANK NO. 16 PORT	21-22	8.01	6529	6203	22.9	21.8	
F.O. MING TANK NO. 17 STBD	22-23	8.33	4345	4128	15.2	14.5	
F.O. MING TANK NO. 18 PORT	22-23	8.33	4345	4128	15.2	14.5	

S.W. BALLAST TANKS

<u>TANK</u>	<u>FRS.</u>	<u>VCG AT</u>		<u>S.W. CAP. IN TONS</u>	
		<u>100% FULL</u>	<u>95%</u>	<u>100%</u>	<u>95%</u>
S.W. BALLAST TK. NO. 1 PORT	7-11	1.68	6.9	6.6	6.6
S.W. BALLAST TK. NO. 1 STBD	7-11	1.68	6.9	6.6	6.6
S.W. BALLAST D.B. TK. NO. 2	11-14	1.50	144.9	137.6	130.9
S.W. BALLAST D.B. TK. NO. 3	14-17	1.50	137.8	130.9	130.9
S.W. BALLAST D.B. TK. NO. 4	17-20	1.50	139.3	132.3	132.3
S.W. BALLAST D.B. TK. NO. 5	20-23	1.71	147.0	139.6	139.6

S.W. BALLAST TANKS (CONTINUED)

<u>TANK</u>	<u>FRS.</u>	<u>VCG AT 100% FULL</u>	<u>S.W. CAP. IN TONS 100% 95%</u>
S.W. BALLAST WING TK. NO. 7	14-15	8.01	37.4 35.6
S.W. BALLAST WING TK. NO. 9	16-18	8.01	49.9 47.4
S.W. BALLAST WING TK. NO. 10	16-18	8.01	49.9 47.4
S.W. BALLAST WING TK. NO. 11	18-20	8.01	37.4 35.6
S.W. BALLAST WING TK. NO. 12	18-20	8.01	37.4 35.6
S.W. BALLAST DEEP NO. 1	16-17	9.00	64.5 61.2
S.W. BALLAST DEEP NO. 2	16-17	9.00	64.5 61.2
S.W. BALLAST DEEP NO. 3	17-18	9.00	64.5 61.2
S.W. BALLAST DEEP NO. 4	17-18	9.00	64.5 61.2
S.W. BALLAST DEEP NO. 5	18-20	9.00	325.8 309.5
S.W. BALLAST DEEP NO. 6	18-20	9.25	88.9 84.4
S.W. BALLAST DEEP NO. 7	23-27	9.35	92.7 88.1
S.W. BALLAST DEEP NO. 8	27-34	11.26	104.3 99.0
SLUDGE TANK (NO. 8)	14-15	8.01	25.0 23.7
ANTI-ROLLING TANK FWD	15 $\frac{1}{2}$ -16	8.81	120.8 114.7
ANTI-ROLLING TANK AFT	18-18 $\frac{1}{2}$	"	" "

SHIP NO.

DWG. NO. 100-121

GALLONS

DATE 07-30-76

PAGE 1

CENTER OF GRAVITY	SDG FT.	E.O. WING TANK NO. 1 STD										FINI 011				DND FT TAIN				FR. NO.
		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	
0.86	0	13	19	27	35	43	51	59	67	75	83	91	100	108	117	126	135	144	153	
1.46	1	108	119	132	146	160	173	137	201	215	228	242	256	269	282	295	308	321	334	
2.08	2	269	284	299	314	329	344	359	373	388	403	418	433	448	463	478	493	508	523	
2.59	3	448	463	478	493	508	523	538	553	568	583	598	613	628	643	658	673	688	703	
3.09	4	628	643	658	673	688	703	718	733	748	763	778	793	808	823	838	853	868	883	
3.80	5	915	938	960	981	1003	1025	1047	1069	1091	1112	1134	1156	1178	1200	1221	1243	1265	1287	
4.38	6	1178	1200	1221	1243	1265	1287	1309	1331	1352	1374	1396	1418	1440	1463	1487	1512	1537	1561	
4.95	7	1440	1463	1487	1512	1537	1561	1586	1611	1635	1660	1684	1709	1734	1758	1783	1807	1832	1857	
5.53	8	1734	1758	1783	1807	1832	1857	1881	1906	1931	1955	1980	2004	2029	2054	2080	2106	2132	2157	
6.11	9	2029	2054	2080	2106	2132	2157	2183	2209	2235	2260	2286	2312	2338	2363	2389	2415	2441	2466	
6.66	10	2338	2363	2389	2415	2441	2466	2492	2518	2544	2570	2595	2621	2647	2673	2698	2725	2750	2776	
7.20	11	2647	2673	2698	2725	2750	2776	2801	2827	2853	2879	2904	2930	2956	2982	3008	3033	3059	3084	
7.75	12	2956	2982	3008	3033	3059	3084	3110	3135	3161	3186	3212	3237	3263	3288	3313	3339	3364	3390	
8.46	13	3420	3456	3488	3519	3551	3583	3615	3647	3678	3710	3742	3774	3806	3821	3821	3821	3821	3821	3821
9.10	14	3806	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK

GALLONS	FEET	INCHES	8TH	ABV. Bal.
3821	14	0	4	SOUNDING
3630	13	6	3	SOUNDING
63	0	5	4	
	0	6	0	

CENTER OF GRAVITY	SDG FT.	F.O. WING TANK NO. 2 PORT										FUEL OIL										0.0 FT TRIM										FR. NO. 11-12																	
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	0'	1'	2'	3'	4'	5'	6'	7'		8'	9'	10'														
0.74	0	100	13	17	26	34	42	50	58	66	74	82	90	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
1.41	1	99	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
2.02	2	253	267	281	296	311	326	341	356	371	385	400	415	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
2.54	3	430	445	460	475	490	505	520	535	549	564	579	594	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
3.04	4	609	624	641	665	690	714	738	762	787	811	835	859	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
3.72	5	884	908	932	953	975	997	1019	1040	1062	1084	1106	1127	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
4.31	6	1149	1171	1193	1214	1236	1258	1280	1302	1323	1345	1367	1389	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
4.88	7	1410	1432	1454	1479	1503	1528	1552	1577	1602	1626	1651	1675	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
5.46	8	1700	1724	1749	1773	1798	1823	1847	1872	1896	1921	1945	1970	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
6.04	9	1994	2019	2044	2069	2095	2121	2146	2172	2198	2224	2249	2275	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
6.59	10	2301	2326	2352	2378	2403	2429	2455	2480	2506	2532	2558	2583	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
7.13	11	2609	2635	2660	2686	2712	2737	2763	2789	2815	2840	2866	2892	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
7.68	12	2917	2943	2969	3008	3047	3087	3126	3165	3204	3244	3283	3322	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
8.37	13	3361	3401	3440	3472	3504	3535	3567	3599	3631	3663	3694	3726	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240
9.02	14	3758	3790	3821	3821	3821	3821	3821	3821	3821	3821	3821	3821	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240	100	107	117	130	144	158	171	185	199	212	226	240

TANK CAPACITY AT 100% FULL. . . . .  
 TANK CAPACITY AT 0.95 FULL. . . . .  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BITH	SOUNDING
3821	14	2	0	
3630	13	7	7	
108	0	4	3	
	0	6	0	ABV. B.L.



CENTER OF GRAVITY	STDG. FT.	F.O. WING TANK NO. 4 PORT										FUEL OIL SOUNDING - INCHES										0.0 FT TRIM				FR. NO. 12-13																			
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24	25	26	27															
0.20	0	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
0.45	1	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
1.05	2	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
0.80	3	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
0.55	4	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
2.12	5	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
3.16	6	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
3.68	7	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
4.21	8	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
4.73	9	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
5.25	10	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
5.77	11	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
6.29	12	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
6.81	13	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
7.34	14	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0
7.86	15	0.0	34.0	46.0	57.0	68.0	79.0	92.0	113.0	135.0	156.0	178.0	199.0	221.0	243.0	262.0	281.0	299.0	318.0	337.0	356.0	379.0	406.0	433.0	460.0	487.0	514.0	541.0	568.0	595.0	622.0	649.0	676.0	703.0	730.0	757.0	784.0	811.0	838.0	865.0	892.0	919.0	946.0	973.0	1000.0

TANK CAPACITY AT 100% FULL. . . . .  
 TANK CAPACITY AT 0.95 FULL. . . . .  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS . . . . . 5818.0  
 FEET . . . . . 15  
 INCHES BTH . . . . . 8  
 0 0 0 3  
 SOUNDING  
 SOUNDING  
 ABV. Gals.



CENTER OF GRAVITY	ST/DG FT.	FUEL OIL SOUNDING										DAD FT TRIM				FR. NO.
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.63	1	484	564	664	774	894	1014	1124	1244	1364	1484	1594	1714	1834	1954	2074
1.16	2	1834	1954	2074	2204	2334	2464	2594	2724	2854	2984	3114	3244	3374	3504	3634
1.67	3	3594	3764	3924	4094	4264	4434	4604	4774	4944	5114	5284	5454	5624	5794	5964
2.19	4	5644	5814	5984	6164	6334	6514	6684	6854	7034	7204	7374	7554	7724	7894	8064
2.71	5	7724	7904	8084	8334	8634	8924	9224	9514	9814	10104	10404	10704	11004	11304	11604
3.49	6	10994	11284	11584	11874	12164	12464	12784	13114	13554	13994	14324	14704	15024	15414	15704
4.23	7	15094	15484	15874	16274	16664	17054	17454	17844	18234	18624	19024	19414	19824	20174	20524
4.89	8	19804	20204	20604	21004	21404	21804	22194	22594	22984	23384	23784	24174	24574	24924	25274
5.51	9	24574	24964	25364	25754	26154	26554	26944	27344	27734	28134	28524	28924	29324	29724	30064
6.09	10	29314	29714	30114	30504	30904	31294	31694	32094	32494	32884	33284	33684	34064	34464	34864
6.64	11	34084	34484	34884	35274	35674	36074	36474	36874	37274	37654	38064	38464	38864	39264	39664
7.18	12	38864	39254	39644	40034	40424	40814	41204	41594	41984	42374	42764	43154	43544	43934	44324
7.71	13	43544	43924	44314	44714	45104	45494	45884	46274	46664	47064	47454	47844	48234	48624	49014
8.26	14	48234	48624	49014	49404	49804	50194	50574	50964	51344	51734	52114	52494	52884	53264	53654
8.76	15	52884	53264	53654	54034	54414	54804	54894	54894	54894	54894	54894	54894	54894	54894	54894

TANK CAPACITY AT 100% FULL. ....  
 TANK CAPACITY AT 0.95 FULL. ....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BTH	SOUNDING
5489	15	5	2	SOUNDING
5215	14	10	0	SOUNDING
4	0	0	4	ABV. B.L.
0	0	0	0	

CENTER OF GRAVITY	STDG FT.	F.O.O. WING TANKS NO. 6 PORT SOUNDING INCHES										0.0 FT TRIM				FR. NO. 13-14
		0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	62	79	95	111	
0.02	0	1	5	9	13	16	20	30	46	62	79	95	111			
0.73	1	184	165	196	226	257	287	318	348	379	409	440	470			
1.53	2	504	540	576	612	648	685	721	757	793	829	865	901			
1.89	3	939	978	1017	1055	1094	1133	1172	1211	1249	1288	1327	1366			
2.43	4	1405	1444	1482	1521	1560	1599	1638	1677	1715	1754	1793	1832			
2.96	5	1871	1910	1949	1988	2026	2065	2104	2143	2182	2221	2260	2299			
3.48	6	2338	2377	2416	2454	2493	2532	2571	2610	2649	2688	2727	2766			
3.99	7	2805	2844	2883	2922	2961	3000	3039	3078	3117	3156	3195	3234			
4.50	8	3273	3312	3351	3391	3430	3469	3508	3548	3587	3626	3665	3705			
5.00	9	3744	3783	3822	3862	3901	3940	3980	4019	4058	4097	4137	4176			
5.51	10	4215	4254	4293	4332	4371	4410	4449	4488	4527	4566	4605	4644			
6.01	11	4683	4722	4761	4800	4839	4878	4917	4956	4995	5034	5073	5112			
6.51	12	5151	5190	5229	5268	5307	5345	5384	5423	5462	5502	5541	5580			
7.02	13	5620	5659	5699	5738	5777	5817	5856	5896	5935	5974	6014	6053			
7.53	14	6092	6132	6171	6210	6250	6289	6328	6367	6407	6446	6485	6524			

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BTU	SOUNDING
6544	14	11	3	SOUNDING
6217	14	3	1	
14	0	0	4	ABV. B.L.





CENTER OF GRAVITY	SVG FT.	FUEL OIL SOUNDING - INCHES										0.0 FT TRIM			FR. NO. 21-22	
		1	2	3	4	5	6	7	8	9	10	11	12	13		14
0.02	0	1.0	4.0	7.0	10.0	13.0	16.0	19.0	22.0	35.0	48.0	61.0	74.0			
0.59	1	87.0	101.0	114.0	136.0	162.0	187.0	213.0	238.0	264.0	289.0	315.0	340.0			
1.13	2	366.0	393.0	420.0	446.0	473.0	505.0	537.0	569.0	602.0	634.0	666.0	699.0			
1.65	3	731.0	766.0	800.0	835.0	869.0	904.0	940.0	977.0	1014.0	1051.0	1088.0	1125.0			
2.17	4	1162.0	1200.0	1237.0	1274.0	1312.0	1349.0	1387.0	1424.0	1461.0	1499.0	1536.0	1573.0			
2.68	5	1611.0	1648.0	1685.0	1722.0	1760.0	1797.0	1834.0	1871.0	1909.0	1946.0	1983.0	2021.0			
3.18	6	2058.0	2098.0	2139.0	2179.0	2220.0	2260.0	2301.0	2342.0	2383.0	2424.0	2464.0	2505.0			
3.72	7	2546.0	2586.0	2625.0	2664.0	2703.0	2743.0	2782.0	2821.0	2860.0	2900.0	2939.0	2978.0			
4.23	8	3017.0	3057.0	3096.0	3135.0	3175.0	3214.0	3253.0	3292.0	3331.0	3370.0	3409.0	3448.0			
4.73	9	3487.0	3526.0	3565.0	3604.0	3643.0	3682.0	3721.0	3759.0	3798.0	3837.0	3876.0	3915.0			
5.24	10	3954.0	3993.0	4032.0	4071.0	4110.0	4149.0	4188.0	4227.0	4266.0	4305.0	4344.0	4383.0			
5.74	11	4422.0	4461.0	4500.0	4539.0	4578.0	4617.0	4656.0	4695.0	4734.0	4773.0	4812.0	4851.0			
6.25	12	4890.0	4929.0	4968.0	5007.0	5046.0	5085.0	5124.0	5163.0	5202.0	5241.0	5280.0	5319.0			
6.75	13	5359.0	5398.0	5437.0	5476.0	5515.0	5554.0	5593.0	5632.0	5671.0	5710.0	5749.0	5788.0			
7.25	14	5827.0	5866.0	5905.0	5944.0	5983.0	6022.0	6061.0	6100.0	6139.0	6178.0	6217.0	6256.0			
7.75	15	6295.0	6334.0	6373.0	6412.0	6451.0	6490.0	6529.0	6529.0	6529.0	6529.0	6529.0	6529.0			

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BTH	SOUNDING
6529.0	15	6	0	
6203.0	14	9	5	
14.0	0	0	3	ABV. B.L.



CENTER OF GRAVITY	F.O. WING TANK NO. 17 STRD.										FUEL OIL SOUNDING INCHES										0.0 FT TRIM				FR. NO. 22-23			
	SDG. FT.	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2		3	FR. NO.	
0.12	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	15
0.74	1	20	23	35	47	59	70	82	94	106	117	129	141	153	165	177	189	201	213	225	237	249	261	273	285	297	141.	
1.44	2	153	165	177	195	214	234	253	273	292	311	330	350	370	391	411	431	451	471	491	511	531	551	571	591	615	350.	
2.03	3	370	389	409	428	450	474	497	521	544	568	591	615	638	661	685	708	731	755	778	801	825	848	871	895	918	615.	
2.53	4	638	668	698	728	758	788	818	848	878	908	938	968	998	1028	1058	1088	1118	1148	1178	1208	1238	1268	1298	1328	1358	968.	
3.16	5	1000	1018	1037	1056	1074	1093	1111	1130	1149	1167	1186	1205	1223	1242	1261	1280	1299	1318	1337	1356	1375	1394	1413	1432	1451	1205.	
3.51	6	1223	1249	1274	1300	1326	1351	1377	1404	1432	1459	1487	1514	1541	1568	1595	1622	1649	1676	1703	1730	1757	1784	1811	1838	1865	1514.	
4.01	7	1541	1569	1596	1624	1651	1679	1706	1733	1761	1788	1816	1843	1871	1898	1925	1952	1979	2006	2033	2060	2087	2114	2141	2168	2195	1843.	
4.52	8	1871	1898	1925	1953	1980	2008	2035	2062	2090	2117	2144	2171	2198	2225	2252	2279	2306	2333	2360	2387	2414	2441	2468	2495	2522	2171.	
5.03	9	2198	2225	2252	2279	2306	2334	2361	2388	2415	2442	2469	2496	2523	2550	2577	2604	2631	2658	2685	2712	2739	2766	2793	2820	2847	2496.	
5.54	10	2523	2550	2578	2605	2632	2659	2686	2713	2741	2768	2796	2823	2850	2877	2904	2931	2958	2985	3012	3039	3066	3093	3120	3147	3174	2823.	
6.04	11	2850	2878	2905	2933	2960	2988	3015	3042	3070	3097	3125	3152	3179	3206	3234	3261	3288	3315	3342	3369	3396	3423	3450	3477	3504	3152.	
6.55	12	3179	3207	3234	3262	3289	3317	3344	3371	3399	3426	3454	3481	3508	3535	3562	3589	3616	3643	3670	3697	3724	3751	3778	3805	3832	3481.	
7.05	13	3509	3536	3563	3591	3618	3646	3673	3701	3728	3755	3783	3810	3837	3864	3891	3918	3945	3972	3999	4026	4053	4080	4107	4134	4161	3810.	
7.55	14	3838	3865	3893	3920	3947	3975	4002	4030	4057	4085	4112	4139	4166	4193	4220	4247	4274	4301	4328	4355	4382	4409	4436	4463	4490	4139.	
8.06	15	4167	4194	4222	4249	4276	4304	4331	4358	4385	4412	4439	4466	4493	4520	4547	4574	4601	4628	4655	4682	4709	4736	4763	4790	4817	4463.	

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BYH	SOUNDING
4345	15	6	4	ABV. B.L.
4128	14	10	4	SOUNDING
2	0	0	0	
	0	1	4	

CENTER OF GRAVITY	S/D/G FT.	F.O. WING TANK NO. 18 PORT								FUEL OIL SOUNDING INCHES								0.0 FT TRIM			FR. NO. 22- 23																				
		0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4																			
0.12	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											
0.72	1	19	22	34	46	59	72	84	97	109	122	134	147	159	172	184	196	209	221	233	245	257	269	282	294	306	318	330	342	354	366	378	390	402	414	426	438				
1.49	2	159	171	186	205	225	244	264	283	303	322	341	361	380	400	419	439	458	477	497	516	535	554	573	592	611	630	649	668	687	706	725	744	763	782	801	820				
2.05	3	380	400	419	439	462	486	509	532	556	579	602	625	649	673	697	721	746	770	794	818	843	867	891	916	940	964	989	1015	1042	1068	1094	1120	1146	1173	1199	1225				
3.06	4	649	673	697	721	746	770	794	818	843	867	891	916	940	964	989	1015	1042	1068	1094	1120	1146	1173	1199	1225	1251	1279	1307	1335	1363	1391	1418	1446	1473	1494	1514	1535	1555			
4.03	5	940	964	989	1015	1042	1068	1094	1120	1146	1173	1199	1225	1251	1279	1307	1335	1363	1391	1418	1446	1473	1494	1514	1535	1555	1583	1610	1637	1665	1692	1720	1747	1775	1802	1829	1857	1884			
4.84	6	1251	1279	1307	1335	1363	1391	1418	1446	1473	1494	1514	1535	1555	1583	1610	1637	1665	1692	1720	1747	1775	1802	1829	1857	1884	1912	1939	1967	1994	2021	2049	2076	2103	2130	2157	2184	2212			
5.05	7	1555	1583	1610	1637	1665	1692	1720	1747	1775	1802	1829	1857	1884	1912	1939	1967	1994	2021	2049	2076	2103	2130	2157	2184	2212	2239	2266	2293	2320	2347	2374	2401	2428	2456	2483	2510	2537			
6.07	8	1884	1912	1939	1967	1994	2021	2049	2076	2103	2130	2157	2184	2212	2239	2266	2293	2320	2347	2374	2401	2428	2456	2483	2510	2537	2564	2591	2618	2645	2672	2700	2727	2754	2782	2809	2837	2864			
6.57	9	2212	2239	2266	2293	2320	2347	2374	2401	2428	2456	2483	2510	2537	2564	2591	2618	2645	2672	2700	2727	2754	2782	2809	2837	2864	2892	2919	2946	2974	3001	3029	3056	3084	3111	3138	3166	3193			
7.07	10	2537	2564	2591	2618	2645	2672	2700	2727	2754	2782	2809	2837	2864	2892	2919	2946	2974	3001	3029	3056	3084	3111	3138	3166	3193	3221	3248	3275	3303	3330	3358	3385	3413	3440	3467	3495	3522			
7.57	11	2864	2892	2919	2946	2974	3001	3029	3056	3084	3111	3138	3166	3193	3221	3248	3275	3303	3330	3358	3385	3413	3440	3467	3495	3522	3550	3577	3605	3633	3661	3690	3718	3747	3775	3804	3832	3860			
7.84	12	3193	3221	3248	3275	3303	3330	3358	3385	3413	3440	3467	3495	3522	3550	3577	3605	3633	3661	3690	3718	3747	3775	3804	3832	3860	3889	3917	3946	3974	4002	4031	4060	4088	4117	4145	4174	4202			
	13	3522	3550	3577	3605	3633	3661	3690	3718	3747	3775	3804	3832	3860	3889	3917	3946	3974	4002	4031	4060	4088	4117	4145	4174	4202	4230	4258	4287	4315	4344	4372	4401	4429	4458	4486	4515	4543			
	14	3860	3889	3917	3946	3974	4002	4031	4060	4088	4117	4145	4174	4202	4230	4258	4287	4315	4344	4372	4401	4429	4458	4486	4515	4543	4572	4600	4629	4657	4686	4714	4743	4771	4800	4828	4857	4885	4914		
	15	4188	4214	4240	4267	4293	4319	4345	4371	4397	4423	4449	4475	4501	4527	4553	4579	4605	4631	4657	4683	4709	4735	4761	4787	4813	4839	4865	4891	4917	4943	4969	4995	5021	5047	5073	5099	5125	5151		

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	BTH
4345	12	0	0
4128	14	9	5
2	0	0	0

SOUNDING  
 SOUNDING  
 ABV. B.L.



CENTER OF GRAVITY	ANTI-ROLLING TANK (STBD SOUNDING) FUEL OIL												
	SDG	SOUNDING INCHES											
FT.	0	1	2	3	4	5	6	7	8	9	10	11	12
0.002	109	126	153	181	209	237	265	293	321	349	377	405	433
0.664	433	461	490	524	558	592	626	660	694	727	761	795	829
1.222	829	863	896	985	1200	1415	1630	1845	2060	2275	2490	2704	2919
2.596	2919	3137	3354	3572	3789	4006	4224	4441	4658	4876	5093	5310	5528
3.446	5528	5745	5963	6180	6397	6615	6832	7049	7267	7484	7701	7919	8136
4.01	8136	8368	8600	8832	9063	9295	9528	9760	9992	10224	10456	10688	10921
4.54	10921	11153	11385	11617	11849	12081	12314	12546	12778	13010	13242	13475	13707
5.06	13707	13939	14171	14403	14635	14868	15100	15332	15564	15796	16028	16261	16493
5.57	16493	16725	16957	17189	17421	17654	17886	18118	18350	18582	18815	19047	19279
6.08	19279	19511	19743	19975	20208	20440	20672	20904	21137	21369	21501	21834	22066
6.59	22066	22298	22531	22763	22995	23228	23460	23692	23925	24157	24389	24621	24854
7.09	24854	25086	25318	25551	25783	26015	26248	26480	26712	26945	27177	27409	27642
7.60	27642	27874	28106	28339	28571	28803	29036	29268	29500	29733	29965	30197	30430
8.11	30430	30662	30894	31127	31359	31592	31823	32055	32287	32519	32751	32983	33215
8.61	33215	33446	33678	33910	34142	34374	34605	34836	35067	35298	35529	35760	35991

TANK CAPACITY AT 100% FULL  
 TANK CAPACITY AT 0.95 FULL  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

GALLONS	FEET	INCHES	B/H	SOUNDING
34375	15	9	3	SOUNDING
32628	14	9	3	SOUNDING
5	0	0	0	ABV. B.L.
0	0	0	0	ABV. B.L.



CENTER OF GRAVITY	STDG FT.	FUEL TANK NO. 1 STBD				FUEL TANK NO. 1 SOUNDRING				0.0 FT TRIM				FR. NO. 11-12
		0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	
0.886	0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
1.446	1	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9
2.008	2	0.9	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.5
2.555	3	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1
3.009	4	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.8	2.9	2.9	3.0	3.1
3.800	5	3.2	3.3	3.3	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	3.9	4.0
4.388	6	4.1	4.2	4.2	4.4	4.4	4.5	4.6	4.7	4.7	4.8	4.8	4.9	4.9
4.995	7	5.0	5.1	5.2	5.3	5.4	5.4	5.6	5.7	5.7	5.8	5.8	5.9	6.0
5.593	8	6.1	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.7	6.8	6.8	6.9	7.0
6.111	9	7.1	7.2	7.3	7.4	7.5	7.5	7.6	7.8	7.8	7.9	7.9	8.0	8.1
6.666	10	8.2	8.3	8.4	8.4	8.5	8.6	8.7	8.9	8.9	9.0	9.0	9.1	9.2
7.200	11	9.3	9.4	9.4	9.5	9.6	9.7	9.8	10.0	10.0	10.1	10.1	10.2	10.3
7.755	12	10.4	10.5	10.6	10.7	10.9	11.0	11.2	11.4	11.4	11.6	11.6	11.7	11.8
8.466	13	12.0	12.1	12.2	12.3	12.4	12.6	12.7	12.9	12.9	13.0	13.0	13.1	13.2
9.100	14	13.3	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
13.4	14	0	4	SOUNDING
12.7	13	6	3	
0.2	0	5	4	ABV. B.L.
	0	6	0	

SHIP NO.

DWG. NO. 100-121

LONG TONS DATE 07-30-76

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CENTER OF STBG	F.O. WING TANK NO. 2 PORT	FUEL OIL		0.0 FT TRIM			FR. NO.	11- 12	
		SOUNDING	INCHES						
0.74	0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	
1.41	1	0.3	0.3	0.5	0.7	0.7	0.7	0.8	
2.02	2	0.8	0.9	1.0	1.3	1.3	1.4	1.4	
2.54	3	1.5	1.5	1.7	1.9	1.9	2.0	2.0	
3.04	4	2.1	2.2	2.5	2.7	2.8	2.9	3.0	
3.72	5	3.1	3.2	3.5	3.7	3.8	3.9	3.9	
4.31	6	4.0	4.1	4.4	4.6	4.7	4.8	4.8	
4.88	7	4.9	5.0	5.3	5.6	5.7	5.8	5.8	
5.46	8	5.9	6.0	6.4	6.6	6.7	6.8	6.9	
6.04	9	7.0	7.1	7.4	7.7	7.8	7.9	8.0	
6.59	10	8.0	8.1	8.5	8.8	8.9	9.0	9.0	
7.13	11	9.1	9.2	9.6	9.9	10.0	10.1	10.1	
7.68	12	10.2	10.4	10.8	11.2	11.4	11.5	11.6	
8.37	13	11.8	12.1	12.4	12.7	12.8	12.9	13.1	
9.02	14	13.2	13.4	13.4	13.4	13.4	13.4	13.4	
		TANK CAPACITY AT 100% FULL	TANK CAPACITY AT 0.95 FULL	TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION	LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK	LOW POINT OF TANK			
		13.4	12.7	0.3	0	6	0	ABV. B.L.	
		TONS				FEET		INCHES	
		13.4		14		2		0	
		12.7		13		7		7	
		0.3		0		4		3	

CENTER OF GRAVITY	F.O. WING TANK NO. 3 STBD										FUEL OIL SOUNDING					0.0 FT TRIM			FR. NO. 12-13			
	SPCG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
FL.	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	
0.00	1	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
0.25	2	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
0.57	3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
1.09	4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1.68	5	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
2.24	6	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4
2.79	7	4.7	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
3.32	8	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2
3.84	9	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6
4.37	10	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0	11.1
4.89	11	10.6	10.7	10.8	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6
5.41	12	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1
5.93	13	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6
6.45	14	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1
6.97	15	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7
7.50	16	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2
8.02	16	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 LOWEST POINT OF TANK

TONS	FEET	NICHES	BTH	SOUNDING
20.4	16	4	5	SOUNDING
19.4	15	8	7	
0.0	0	1	0	ABV. B.L.
0	0	0	0	

CENTER OF GRAVITY	F.O.O. WING TANK NO. 4 PORT				FUEL OIL SOUNDING - INCHES				0.0 FT TRIM			FR. NO. 12-13	
	SD/G	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.		FT.
0.20	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
0.45	1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.7
1.05	2	0.8	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7
0.80	3	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.7	2.9	2.9
0.55	4	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.9	4.0	4.1	4.2	4.2
2.12	5	4.3	4.4	4.5	4.7	4.8	4.9	5.0	5.2	5.4	5.5	5.6	5.6
3.16	6	5.7	5.8	6.0	6.1	6.2	6.3	6.4	6.7	6.8	6.9	7.0	7.0
3.68	7	7.2	7.3	7.4	7.5	7.7	7.8	7.9	8.2	8.3	8.4	8.5	8.5
4.21	8	8.6	8.8	8.9	9.0	9.1	9.3	9.4	9.6	9.7	9.9	10.0	10.0
4.73	9	10.1	10.2	10.4	10.5	10.6	10.7	10.9	11.1	11.2	11.4	11.5	11.5
5.25	10	11.6	11.7	11.9	12.0	12.1	12.2	12.4	12.6	12.7	12.9	13.0	13.0
5.77	11	13.1	13.2	13.4	13.5	13.6	13.8	13.9	14.1	14.3	14.4	14.5	14.5
6.29	12	14.6	14.8	14.9	15.0	15.2	15.3	15.4	15.7	15.8	15.9	16.1	16.1
6.81	13	16.2	16.3	16.4	16.6	16.7	16.8	17.0	17.2	17.4	17.5	17.6	17.6
7.34	14	17.7	17.9	18.0	18.1	18.3	18.4	18.5	18.8	18.9	19.1	19.2	19.2
7.86	15	19.3	19.4	19.6	19.7	19.8	20.0	20.1	20.4	20.4	20.4	20.4	20.4
	TANK CAPACITY AT 100% FULL.....												
	TANK CAPACITY AT 0.95 FULL.....												
	TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION												
	LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK												
	LOW POINT OF TANK												
	TONS	FEET	INCHES	BY									
	20.4	15	8	3									
	19.4	15	0	5									
	0.0	0	0	3									
	ABV. B.L.												

CENTER OF GRAVITY	F.O. WING TANK NO. 5 STBD FUEL OIL SOUNDING - INCHES											0.0 FT TRIM				FR. NO. 13-14			
	SPCG FT.	0.2	1.2	2.2	3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	11.2	12.2	13.2		14.2		
0.02	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	0.1	0.1	
0.63	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6	
1.16	2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.2	
1.67	3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.9	
2.19	4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.6	
2.71	5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.6	3.7	
3.49	6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	5.0	5.1	
4.23	7	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.6	6.8	
4.89	8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	8.3	8.5	
5.51	9	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	10.0	10.1	
6.09	10	10.3	10.4	10.5	10.7	11.0	11.1	11.4	11.4	11.4	11.5	11.7	11.8	11.8	11.8	11.8	13.3	13.5	
6.64	11	11.9	12.1	12.5	12.9	13.0	13.1	13.2	13.2	13.2	13.2	13.3	13.5	13.5	13.5	13.5	15.0	15.1	
7.18	12	13.6	13.8	14.2	14.6	14.7	14.8	14.9	14.9	14.9	14.9	15.0	15.1	15.1	15.1	15.1	16.6	16.8	
7.71	13	15.3	15.4	15.7	16.0	16.0	16.1	16.2	16.2	16.2	16.2	16.3	16.4	16.4	16.4	16.4	18.3	18.4	
8.26	14	16.9	17.1	17.3	17.6	17.6	17.7	17.9	17.9	17.9	17.9	18.0	18.0	18.0	18.0	18.0	19.3	19.3	
8.76	15	18.6	18.7	19.1	19.2	19.2	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3			
		TANK CAPACITY AT 100% FULL		19.3		FEET		15		INCHES		5		2		SOUNDING		SOUNDING	
		TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION		18.3				14				10		0					
		LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK		0.0				0				0		4					
		LOW POINT OF TANK						0				0		0					

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK

CENTER OF GRAVITY	F.O.O. WING TANKS NO. 6 PORT	FUEL OIL SOUNDING INCHES										0.0 FT TRIM				FR. NO. 13-14					
		0	1	2	3	4	5	6	7	8	9	10	11	12	13		14				
0.02	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
0.73	1	0.4	0.5	0.6	0.7	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.6
1.33	2	1.7	1.9	2.0	2.1	2.2	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.9	2.9	3.0	3.0	3.1	3.1	3.1
1.89	3	3.3	3.4	3.5	3.7	3.8	3.9	3.9	4.1	4.1	4.2	4.2	4.3	4.5	4.5	4.6	4.6	4.8	4.8	4.8	4.8
2.43	4	4.9	5.0	5.2	5.3	5.4	5.6	5.6	5.7	5.7	5.9	5.9	6.0	6.1	6.1	6.3	6.3	6.4	6.4	6.4	6.4
2.96	5	6.5	6.7	6.8	6.9	7.1	7.2	7.4	7.4	7.5	7.5	7.6	7.6	7.8	7.8	7.9	7.9	8.0	8.0	8.0	8.0
3.48	6	8.2	8.3	8.5	8.6	8.7	8.9	8.9	9.0	9.0	9.1	9.1	9.3	9.4	9.4	9.5	9.5	9.7	9.7	9.7	9.7
3.99	7	9.8	10.0	10.1	10.2	10.4	10.5	10.6	10.6	10.8	10.8	10.9	10.9	11.1	11.1	11.2	11.2	11.3	11.3	11.3	11.3
4.50	8	11.5	11.6	11.7	11.9	12.0	12.2	12.3	12.3	12.4	12.4	12.6	12.6	12.7	12.7	12.8	12.8	13.0	13.0	13.0	13.0
5.00	9	13.1	13.3	13.4	13.5	13.7	13.8	14.0	14.0	14.1	14.1	14.2	14.2	14.4	14.4	14.5	14.5	14.6	14.6	14.6	14.6
5.51	10	14.8	14.9	15.1	15.2	15.3	15.5	15.5	15.6	15.7	15.7	15.9	15.9	16.0	16.0	16.2	16.2	16.3	16.3	16.3	16.3
6.01	11	16.4	16.6	16.7	16.8	17.0	17.1	17.3	17.3	17.4	17.4	17.5	17.5	17.7	17.7	17.8	17.8	17.9	17.9	17.9	17.9
6.51	12	18.1	18.2	18.3	18.5	18.6	18.8	18.8	18.9	19.0	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.6	19.6	19.6	19.6
7.02	13	19.7	19.9	20.0	20.1	20.3	20.4	20.4	20.6	20.7	20.7	20.8	20.8	21.0	21.0	21.1	21.1	21.2	21.2	21.2	21.2
7.53	14	21.4	21.5	21.7	21.8	21.9	22.1	22.1	22.2	22.4	22.4	22.5	22.5	22.6	22.6	22.8	22.8	22.9	22.9	22.9	22.9

TANK CAPACITY AT 100% FULL. . . . . TONS  
 TANK CAPACITY AT 0.95 FULL. . . . . TONS  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK

23.0	14	11	3	SOUNDING
21.8	14	3	1	SOUNDING
0.0	0	0	4	ABV. B.L.





CENTER OF GRAVITY	F.O. WING TANK NO. 14 PORT										FUEL OIL SOUNDING - INCHES										0.0 FT TRIM	FR. NO. 20-21					
	SP/CG Ft.	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75			5.00	5.25	5.50	5.75	6.00
0.00	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
0.56	1	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1
1.07	2	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3
1.57	3	2.4	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7
2.09	4	3.6	4.0	4.1	4.2	4.3	4.4	4.4	4.5	4.5	4.6	4.7	4.7	4.8	4.9	4.9	5.1	5.1	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3
2.62	5	5.5	5.6	5.8	5.8	5.9	6.0	6.2	6.2	6.3	6.3	6.4	6.4	6.6	6.6	6.7	6.7	6.8	6.8	6.8	6.8	7.0	7.0	7.0	7.0	7.0	7.0
3.15	6	7.1	7.3	7.4	7.4	7.5	7.7	7.8	7.8	7.9	7.9	8.1	8.1	8.2	8.2	8.4	8.4	8.5	8.5	8.5	8.5	8.6	8.6	8.6	8.6	8.6	8.6
3.66	7	8.8	8.9	9.0	9.0	9.2	9.3	9.5	9.5	9.6	9.6	9.7	9.7	9.9	9.9	10.0	10.0	10.1	10.1	10.1	10.1	10.3	10.3	10.3	10.3	10.3	10.3
4.17	8	10.4	10.5	10.7	10.7	10.8	11.0	11.1	11.1	11.2	11.2	11.4	11.4	11.5	11.5	11.6	11.6	11.8	11.8	11.8	11.8	11.9	11.9	11.9	11.9	11.9	11.9
4.68	9	12.1	12.2	12.3	12.3	12.5	12.6	12.7	12.7	12.9	12.9	13.0	13.0	13.1	13.1	13.3	13.3	13.4	13.4	13.4	13.4	13.5	13.5	13.5	13.5	13.5	13.5
5.18	10	13.7	13.8	14.0	14.0	14.1	14.2	14.4	14.4	14.5	14.5	14.6	14.6	14.8	14.8	14.9	14.9	15.0	15.0	15.0	15.0	15.2	15.2	15.2	15.2	15.2	15.2
5.67	11	15.3	15.5	15.6	15.6	15.7	15.9	16.0	16.0	16.1	16.1	16.3	16.3	16.4	16.4	16.5	16.5	16.7	16.7	16.7	16.7	16.8	16.8	16.8	16.8	16.8	16.8
6.17	12	17.0	17.1	17.2	17.2	17.4	17.5	17.6	17.6	17.8	17.8	17.9	17.9	18.0	18.0	18.2	18.2	18.3	18.3	18.3	18.3	18.5	18.5	18.5	18.5	18.5	18.5
6.67	13	18.6	18.7	18.9	18.9	19.0	19.1	19.2	19.2	19.4	19.4	19.5	19.5	19.6	19.6	19.7	19.7	19.8	19.8	19.8	19.8	19.9	19.9	19.9	19.9	19.9	19.9
7.12	14	20.0	20.1	20.2	20.2	20.4	20.5	20.6	20.6	20.7	20.7	20.8	20.8	20.9	20.9	21.0	21.0	21.1	21.1	21.1	21.1	21.2	21.2	21.2	21.2	21.2	21.2
7.54	15	21.4	21.5	21.6	21.6	21.7	21.8	21.9	21.9	22.0	22.0	22.1	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2

..... TANK CAPACITY AT 100% FULL.....

..... TANK CAPACITY AT 0.95 FULL.....

..... TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION.....

..... LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK.....

..... LOW POINT OF TANK.....

TONS		FEET	INCHES	GTH	SOUNDING
XXXXXX	XXXXXX				
22.2	21.0	15	7	1	SOUNDING
0.0	0.0	0	0	0	SOUNDING

ABV. B.L.

AD-A167-226

OCEAN CONSTRUCTION PLATFORM SEACON TRIM & STABILITY

2/2

MANUAL (U) NAVAL FACILITIES ENGINEERING COMMAND

WASHINGTON DC CHESAPEAKE DIV 28 MAR 88

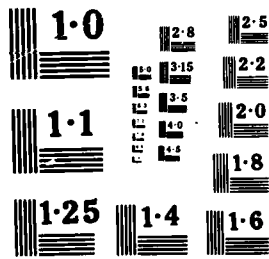
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CHES/NAUFAC-FPO-1-88(5)

F/G 13/10

NL

END  
DATE  
SERIAL  
6-88  
BY





CENTER OF GRAVITY	S/D/G FT.	F.O. WING TANKS NO. 16 PORT										FUEL OIL SOUNDING - INCHES										FR NO. 21-22
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	
0.00	0	0.0	0.3	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	0.2	0.2
0.59	1	0.3	1.3	0.4	0.4	1.5	0.6	1.7	1.9	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
1.14	2	1.3	2.6	1.4	1.5	2.9	3.0	3.1	3.2	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
1.65	3	2.5	4.1	2.8	2.9	4.4	4.5	4.6	4.8	3.2	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5
2.15	4	4.0	5.7	4.2	4.4	6.0	6.1	6.2	6.4	4.8	4.9	5.0	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1
2.66	5	5.6	7.3	5.8	6.0	7.6	7.7	7.9	8.0	6.4	6.5	6.6	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7
3.18	6	7.2	9.0	7.5	7.6	9.3	9.4	9.5	9.7	8.0	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3
3.70	7	8.8	10.6	9.1	9.3	10.9	11.1	11.2	11.3	9.7	9.8	9.9	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0
4.21	8	10.5	12.3	10.8	10.9	12.6	12.7	12.8	13.0	11.3	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6
4.71	9	12.2	13.9	12.4	12.6	14.2	14.3	14.5	14.6	13.0	13.1	13.2	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3
5.22	10	13.8	15.6	14.1	14.2	15.9	16.0	16.1	16.3	14.6	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9
5.72	11	15.4	17.2	15.7	15.9	17.5	17.6	17.8	17.9	16.3	16.4	16.5	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6
6.22	12	17.1	18.9	17.4	17.5	19.2	19.3	19.5	19.6	17.9	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2
6.74	13	18.8	20.6	19.0	19.2	20.9	21.0	21.1	21.3	19.6	19.7	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9
7.25	14	20.4	22.3	20.7	20.9	22.5	22.7	22.8	22.9	21.3	21.4	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6
7.76	15	22.1	22.3	22.4	22.5	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
22.9	15	5	6	
21.8	14	9	4	
0.0	0	0	0	

ABV. B.L.

CENTER OF GRAVITY	SDG FT.	F.O. WING TANK NO. 17 STRD.										FUEL OIL SOUNDING - INCHES										0.0 FT TRIM				FR. NO. 22-23			
		0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	0.0	0.5	1.0	1.5				
0.12	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
0.74	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
1.45	2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.1
2.03	3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1
2.53	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4
3.16	5	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.2
3.91	6	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3
4.01	7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.4
4.52	8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6
5.03	9	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.7
5.54	10	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.9
6.04	11	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.0
6.55	12	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.2
7.05	13	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.4
7.55	14	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.5
8.06	15	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.2

..... TANK CAPACITY AT 100% FULL .....  
 ..... TANK CAPACITY AT 0.95 FULL .....  
 ..... TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 ..... LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 ..... LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
15.2	15	6	4	SOUNDING
14.5	14	10	4	SOUNDING
0.0	0	0	0	ABV. B.L.
0	0	1	4	

SHIP NO. DWG. NO. 100-121

LONG TONS DATE 07-30-76 PAGE 26

CENTER OF GRAVITY	F.O.O. WING TANK NO. 18 PORT				FUEL OIL SOUNDING - INCHES				0.0 FT TRIM				FR. NO. 22- 23		
	SD/G	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'			
FT.	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0			
0.712	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
1.49	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
2.09	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
2.55	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
3.06	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
3.56	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
4.03	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
4.54	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
5.05	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
5.56	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
6.07	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
6.57	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
7.07	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
7.57	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
7.84	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

TANK CAPACITY AT 100% FULL	TANK CAPACITY AT 0.95 FULL		TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION	LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK
	TONS	FEET		
14.5	14	9	14.5	0.0
0.0	0	0	0.0	0.0





CENTER OF GRAVITY	ANTI-ROLLING TANK (PORT SOUNDING)												FUEL OIL												0.0 FT TRIM						FR. NO. 18-19
	SVG	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0						
FL.	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0					
0.00	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			
0.65	1	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7			
1.23	2	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.2	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.2			
1.76	3	2.9	3.0	3.1	3.5	4.3	5.0	5.8	6.5	7.3	8.1	8.9	9.7	5.8	7.3	7.3	8.1	8.1	8.2	8.5	8.8	9.1	9.4	9.7	9.9	10.1	10.3	10.5			
2.57	4	10.3	11.1	11.9	12.6	13.4	14.2	14.9	15.7	16.4	17.2	18.0	18.7	14.9	16.4	16.4	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2			
3.47	5	19.8	20.3	21.0	21.8	22.6	23.4	24.2	25.0	25.8	26.6	27.5	28.3	25.8	25.8	25.8	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6			
4.04	6	29.1	29.9	30.7	31.5	32.4	33.2	34.0	34.8	35.6	36.4	37.3	38.1	34.8	35.6	35.6	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4			
4.57	7	38.9	39.7	40.5	41.3	42.2	43.0	43.8	44.6	45.4	46.2	47.1	47.9	43.8	45.4	45.4	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2			
5.09	8	48.7	49.5	50.3	51.1	52.0	52.8	53.6	54.4	55.2	56.0	56.9	57.7	53.6	55.2	55.2	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0			
5.60	9	58.5	59.3	60.1	60.9	61.8	62.6	63.4	64.2	65.0	65.8	66.7	67.5	63.4	65.0	65.0	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8			
6.11	10	68.3	69.1	69.9	70.7	71.6	72.4	73.2	74.0	74.8	75.6	76.5	77.3	73.2	74.8	74.8	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6			
6.61	11	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6	85.5	86.3	87.1	83.0	84.6	84.6	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5			
7.12	12	87.9	88.7	89.5	90.4	91.2	92.0	92.8	93.6	94.4	95.3	96.1	96.9	92.8	94.4	94.4	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3			
7.62	13	97.7	98.5	99.4	100.2	101.0	101.8	102.6	103.4	104.3	105.1	105.9	106.7	102.6	104.3	104.3	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1			
8.14	14	107.5	108.3	109.2	110.0	110.8	111.6	112.4	113.2	114.1	114.9	115.7	116.5	112.4	114.1	114.1	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9			
8.64	15	117.3	118.1	119.0	119.8	120.6	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8			

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	120.8
FEET	15
INCHES	4
8TH	2
SOUNDING	114.7
ABV. B.L.	0.0

CENTER OF GRAVITY	SD/G FT.	S.W. BALLAST TK. NO. 1 PORT										SALT WATER SOUNDING - INCHES										0.0 FT TRIM					FR. NO.														
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'															
0.01	0	0.0	0.1	0.2	0.4	0.5	0.6	0.6	0.8	0.9	1.1	1.3	1.4	1.6	0.0	0.1	0.2	0.4	0.5	0.6	0.6	0.8	0.9	1.1	1.3	1.4	1.6	0.0	0.1	0.2	0.4	0.5	0.6	0.6	0.8	0.9	1.1	1.3	1.4	1.6	7-11
0.57	1	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.6	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.7	5.1	5.4	5.6	5.8	6.1	6.3	6.5	6.8	4.0	4.2	4.4	4.7	5.1	5.4	5.6	5.8	6.1	6.3	6.5	6.8	4.0	4.0		
1.12	2	4.2	4.4	4.7	4.9	5.1	5.4	5.6	6.3	5.8	6.1	6.3	6.5	6.8	7.0	7.2	7.5	7.9	8.1	8.3	8.5	8.8	9.0	9.3	9.5	9.8	10.0	10.2	10.5	10.9	11.1	11.3	11.5	11.8	12.0	12.3	12.5	12.8	9.8		
1.67	3	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	4	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	5	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	6	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	7	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	10	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	11	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	12	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	13	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	14	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	15	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	16	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	17	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	18	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
1.67	19	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOWEST POINT OF TANK

TONS		FEET		INCHES		BTH		SOUNDING
KXKXKX	KXKXKX	0	2	0	11	0	4	
6.9	6.9	0	2	0 <td>10</td> <td>0</td> <td>1</td> <td>SOUNDING</td>	10	0	1	SOUNDING
0.1	0.1	0	0	0	3	0	3	ABV. B.L.



CENTER OF GRAVITY	SD/G FT.	S.W. BALLAST P.B.R. TANK NO. 2					SALT WATER SOUNDING INCHES					0.0 FT TRIM			FR. NO. 11-14	
		0	1	2	3	4	5	6	7	8	9	10	11	12		13
0.00	0	0.0	3.9	7.9	11.9	15.8	19.8	23.8	27.8	31.8	35.9	39.9	43.9			
0.50	1	48.0	52.0	56.0	60.1	64.1	68.2	72.2	76.2	80.3	84.3	88.3	92.4			
1.00	2	96.4	100.4	104.5	108.5	112.6	116.6	120.6	124.7	128.7	132.8	136.8	140.8			
1.50	3	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	4	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	5	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	6	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	7	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	8	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	10	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	11	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	12	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	13	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	14	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
1.50	15	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9			
		<p>TANK CAPACITY AT 100% FULL.....</p> <p>TANK CAPACITY AT 0.95 FULL.....</p> <p>LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF SUCTION</p> <p>LOW POINT OF TANK</p>														
		TONS			FEET			INCHES			BTH			SOUNDING		
		144.9			3			0			0			SOUNDING		
		137.6			2			10			1			SOUNDING		
		1.9			0			0			0			ABV. B.L.		
		0			0			0			0			ABV. B.L.		

CENTER OF GRAVITY	S/P/G Ft.	S.W. BALLAST D.B. TKS. NO. 3										SALT WATER SOUNDING INCHES				0.0 FT TRIM				FR. NO. 14-17									
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		18	19	20						
0.01	0	1.4	5.2	9.0	12.9	16.7	20.5	24.4	28.2	32.0	35.8	39.7	43.5	0.51	1	47.3	51.2	55.0	58.8	62.6	66.5	70.3	74.1	77.9	81.8	85.6	89.4		
1.01	2	93.2	97.1	100.9	104.7	108.6	112.4	116.2	120.0	123.9	127.7	131.5	135.4	1.49	3	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	4	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	5	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	6	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	7	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	9	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	10	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	11	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	12	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	13	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	14	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	15	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
1.49	15	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	1.49	15	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	137.8	
		TANK CAPACITY AT 100% FULL.....																				TONS		FEET		INCHES BTH		SOUNDING	
		TANK CAPACITY AT 0.95 FULL.....																				137.8		2		11		4	
		LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK																				130.9		0		9		6	
		LOWEST POINT OF TANK																				5.7		0		3		ABV. B.L.	

CENTER OF GRAVITY	SD/G FT.	SALT WATER SOUNDING - INCHES										0.0 FT TRIM			FR. NO. 17-20		
		0	1	2	3	4	5	6	7	8	9	10	11	12		13	14
0.00	0	0.0	3.8	7.7	11.6	15.4	19.3	23.2	27.0	30.9	34.8	38.7	42.5	0.0	0.0	0.0	0.0
0.49	1	46.4	50.3	54.1	58.0	61.9	65.8	69.6	73.5	77.4	81.2	85.1	89.0	0.0	0.0	0.0	0.0
0.99	2	92.8	96.7	100.6	104.5	108.3	112.2	116.1	119.9	123.8	127.7	131.5	135.4	0.0	0.0	0.0	0.0
1.49	3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	4	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	5	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	6	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	7	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	8	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	9	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	10	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	11	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	12	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	13	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	14	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0
1.49	15	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	0.0	0.0	0.0	0.0

TANK CAPACITY AT 100% FULL. ....  
 TANK CAPACITY AT 0.99 FULL. ....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
139.3	3	0	0	SOUNDING
132.3	2	10	1	SOUNDING
2.4	0	0	0	ABV. B.L.L.

CENTER OF GRAVITY	STDG FT.	S.W. BALLAST D.B. TK. NO. 5		SOUNDING INCHES		SALT WATER		0.0 FT TRIM		FR. NO. 20-23			
		WT OF	CG	WT OF	CG	WT OF	CG	WT OF	CG	WT OF	CG		
0.00	0	0.0	3.0	6.1	9.2	12.3	15.4	18.4	22.0	25.6	29.2	32.8	36.3
0.52	1	39.9	44.0	48.0	52.1	56.1	60.2	64.2	68.3	72.3	76.4	80.4	84.5
1.06	2	88.6	92.6	96.7	100.8	104.9	108.9	113.0	117.1	121.2	125.3	129.3	133.4
1.58	3	137.5	138.3	139.1	139.9	140.7	141.5	142.4	143.2	144.0	144.8	145.0	145.3
1.68	4	145.5	145.7	146.0	146.2	146.5	146.7	147.0	147.0	147.0	147.0	147.0	147.0
1.70	5	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	6	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	7	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	8	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	9	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	10	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	11	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	12	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	13	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	14	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
1.70	15	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
		TANK CAPACITY AT 100% FULL.....		TANK CAPACITY AT 0.95 FULL.....		TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION		LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK		LOW POINT OF TANK			
		TONS		FEET		INCHES		BTU		SOUNDING		SOUNDING	
		147.0		4		6		0					
		139.6		3		2		4					
		5.3		0		0		0					
		0		0		0		0					
										ABV. B.L.L.			



SHIP NO. DWG. NO. 100-121

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CENTER OF GRAVITY	S.W. BALLAST WING TK. NO. 7													SOUNDING INCHES					0.0 FT TRIM				FR. NO. 14-15		
	STDG. FT.	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50		
0.02	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
0.56	1	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
1.08	2	1.9	2.1	2.2	2.4	2.5	2.6	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5
1.59	3	4.0	4.2	4.3	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5
2.09	4	6.3	6.5	6.7	6.9	7.0	7.2	7.4	7.5	7.6	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2
2.61	5	8.9	9.1	9.3	9.5	9.8	10.0	10.2	10.4	10.5	10.7	10.8	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1
3.14	6	11.6	11.8	12.0	12.2	12.4	12.7	12.9	13.1	13.3	13.5	13.7	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1
3.65	7	14.4	14.5	14.7	14.9	15.1	15.4	15.6	15.8	16.0	16.2	16.4	16.5	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8
4.16	8	16.9	17.2	17.4	17.6	17.8	18.0	18.3	18.5	18.7	18.9	19.1	19.2	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5
4.67	9	19.6	19.8	20.1	20.3	20.5	20.7	20.9	21.2	21.4	21.6	21.8	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2
5.17	10	22.3	22.5	22.8	23.0	23.2	23.4	23.6	23.8	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5
5.67	11	25.0	25.2	25.4	25.7	25.9	26.1	26.3	26.5	26.8	26.9	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	28.0	28.1	28.2	28.3
6.18	12	27.7	27.9	28.1	28.4	28.6	28.8	29.0	29.2	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9
6.68	13	30.4	30.6	30.8	31.0	31.3	31.5	31.7	31.9	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	33.0	33.1	33.2	33.3	33.4	33.5
7.18	14	33.1	33.3	33.5	33.7	34.0	34.2	34.4	34.6	34.8	34.9	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3
7.69	15	35.8	36.0	36.2	36.4	36.7	36.9	37.1	37.3	37.4	37.5	37.6	37.7	37.8	37.9	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9

..... TANK CAPACITY AT 100% FULL .....  
 ..... TANK CAPACITY AT 0.95 FULL .....  
 ..... TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET		INCHES		SOUNDING
	92MMX55	BTH	92MMX55	BTH	
37.4	15	14	7	4	ABV. B.L.
35.6	14	11	1	1	SOUNDING
0.0	0	0	0	4	

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CENTER OF GRAVITY	S.W. BALLAST WING TK. NO. 8	SALT WATER SOUNDING INCHES										0.0 FT TRIM				FR. NO. 16-19
		0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	
0.05	0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.8	0.9
0.75	1	1.1	1.4	1.6	1.8	2.0	2.3	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.3
1.36	2	3.9	4.2	4.5	4.8	5.0	5.3	5.6	5.9	6.1	6.4	6.7	7.0	7.3	7.6	7.9
1.92	3	7.3	7.6	7.9	8.2	8.5	8.7	9.0	9.3	9.6	9.9	10.2	10.5	10.8	11.1	11.4
2.45	4	10.8	11.1	11.4	11.7	12.0	12.3	12.6	12.9	13.2	13.5	13.8	14.1	14.4	14.7	15.0
2.99	5	14.4	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6
3.50	6	18.0	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.2	21.5	21.8	22.1
4.01	7	21.5	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1	25.4	25.7
4.52	8	25.1	25.4	25.7	26.0	26.3	26.6	26.9	27.2	27.5	27.8	28.1	28.4	28.7	29.0	29.3
5.02	9	28.7	29.0	29.3	29.6	29.9	30.2	30.5	30.8	31.1	31.4	31.7	32.0	32.3	32.6	32.9
5.53	10	32.3	32.6	32.9	33.2	33.5	33.8	34.1	34.4	34.7	35.0	35.3	35.6	35.9	36.2	36.5
6.03	11	35.9	36.2	36.5	36.8	37.1	37.4	37.7	38.0	38.3	38.6	38.9	39.2	39.5	39.8	40.1
6.54	12	39.5	39.8	40.1	40.4	40.7	41.0	41.3	41.6	41.9	42.2	42.5	42.8	43.1	43.4	43.7
7.04	13	43.1	43.4	43.7	44.0	44.3	44.5	44.8	45.1	45.4	45.7	46.0	46.3	46.6	46.9	47.2
7.54	14	46.6	46.9	47.2	47.5	47.8	48.1	48.4	48.7	49.0	49.3	49.6	49.9	50.2	50.5	50.8

TANK CAPACITY AT 100% FULL. ....

TANK CAPACITY AT 0.95 FULL. ....

TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION

LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK

LOW POINT OF TANK

TONS		FEET		INCHES		BTU	
MARKS							
49.9	14	11	0	0	0	0	0
47.4	14	2	5	1	0	0	0
0.0	0	0	0	0	0	0	0

SOUNDING

SOUNDING

ABV. 8.L.

CENTER OF GRAVITY	STVG	S.W. BALLAST WING TK. NO. 9										SALT WATER SOUNDING - INCHES										0.0 FT TRIM				FR. NO. 16-1A																																																																																																																																																																																																																				
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3																																																																																																																																																																																																																					
0.11	0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.5	0.6	0.8	0.9	1.1	0.80	1	1.4	1.6	1.8	2.0	2.3	2.5	2.7	3.0	3.2	3.4	3.7	3.9	1.40	2	4.2	4.5	4.8	5.0	5.3	5.6	5.9	6.2	6.4	6.7	7.0	7.3	7.5	7.8	1.96	3	7.6	7.9	8.2	8.5	8.8	9.0	9.3	9.6	9.9	10.2	10.5	10.8	11.1	11.4	2.50	4	11.1	11.4	11.7	12.0	12.3	12.6	12.9	13.2	13.5	13.8	14.1	14.4	14.7	15.0	3.03	5	14.7	15.0	15.3	15.6	15.9	16.2	16.5	16.8	17.1	17.4	17.7	18.0	18.3	18.6	3.54	6	18.3	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	21.0	21.3	21.5	21.8	22.1	4.05	7	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1	25.4	25.7	4.56	8	25.4	25.7	26.0	26.3	26.6	26.9	27.2	27.5	27.8	28.1	28.4	28.7	29.0	29.3	5.07	9	29.0	29.3	29.6	29.9	30.2	30.5	30.8	31.1	31.4	31.7	32.0	32.3	32.6	32.9	5.57	10	32.6	32.9	33.2	33.5	33.8	34.1	34.4	34.7	35.0	35.3	35.6	35.9	36.2	36.5	6.07	11	36.2	36.5	36.8	37.1	37.4	37.7	38.0	38.3	38.6	38.9	39.2	39.5	39.8	40.1	6.58	12	39.8	40.1	40.4	40.7	41.0	41.3	41.6	41.9	42.2	42.5	42.8	43.1	43.4	43.7	7.08	13	43.4	43.7	44.0	44.3	44.6	44.9	45.1	45.4	45.7	46.0	46.3	46.6	46.9	47.2	7.58	14	46.9	47.2	47.5	47.8	48.1	48.4	48.7	49.0	49.3	49.6	49.9	50.2	50.5	50.8

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 LOW POINT OF TANK

TONS	FEET	INCHES	FTM	SOUNDING
49.9	14	9	7	SOUNDING
47.4	14	1	5	SOUNDING
0.1	0	2	0	ABV. B.L.

S.W. BALLAST WING TK. NO. 10

SALT WATER SOUNDING - INCHES

0.0 FT TRIM

FR. NO. 189 20

CENTER OF GRAVITY	ST/D. FT.	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0
0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5			
0.63	1	0.5	0.6	0.8	0.9	1.1	1.1	1.2	1.4	1.2	1.4	1.5	1.7	1.8	1.7	1.7	1.8	1.8	2.0	2.1			
1.18	2	2.3	2.4	2.6	2.8	2.9	3.1	3.1	3.3	3.4	3.5	3.7	3.7	3.9	3.9	4.0	4.1	4.2	4.3	4.3			
1.70	3	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	5.9	6.0	6.2	6.4	6.4	6.6	6.7	6.8	7.0	7.1	7.1			
2.19	4	6.8	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.3	8.4	8.6	8.7	8.9	9.0	9.0	9.2	9.4	9.5	9.5			
2.67	5	9.2	9.4	9.6	9.8	10.0	10.2	10.4	10.6	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	12.0	12.1	12.1			
3.14	6	11.6	11.8	12.0	12.2	12.4	12.7	12.9	13.1	13.2	13.3	13.6	13.7	13.9	14.0	14.3	14.4	14.8	14.9	14.9			
3.65	7	14.2	14.5	14.7	14.9	15.1	15.4	15.6	15.8	16.0	16.1	16.3	16.5	16.7	16.9	17.1	17.2	17.6	17.7	17.7			
4.16	8	16.9	17.2	17.4	17.6	17.8	18.0	18.3	18.5	18.7	18.9	19.1	19.2	19.4	19.6	19.8	20.0	20.4	20.5	20.5			
4.67	9	19.6	19.8	20.1	20.3	20.5	20.7	21.0	21.2	21.4	21.6	21.7	21.9	22.1	22.2	22.4	22.6	23.0	23.1	23.1			
5.17	10	22.3	22.5	22.8	23.0	23.2	23.4	23.6	23.9	24.1	24.3	24.4	24.6	24.8	25.0	25.1	25.3	25.8	25.9	25.9			
5.67	11	25.0	25.2	25.4	25.7	25.9	26.1	26.3	26.6	26.8	26.9	27.1	27.2	27.4	27.5	27.6	27.8	28.3	28.4	28.4			
6.18	12	27.7	27.9	28.1	28.4	28.6	28.8	29.0	29.2	29.4	29.5	29.7	29.9	30.1	30.2	30.3	30.4	30.9	31.0	31.0			
6.68	13	30.4	30.6	30.8	31.0	31.3	31.5	31.7	31.9	32.0	32.1	32.3	32.4	32.5	32.6	32.7	32.8	33.3	33.4	33.4			
7.18	14	33.1	33.3	33.5	33.7	34.0	34.2	34.4	34.6	34.7	34.9	35.1	35.2	35.3	35.4	35.5	35.6	36.1	36.2	36.2			
7.69	15	35.8	36.0	36.2	36.4	36.7	37.1	37.1	37.3	37.4	37.4	37.6	37.6	37.8	37.9	38.0	38.2	38.7	38.8	38.8			

..... TANK CAPACITY AT 100% FULL.....

..... TANK CAPACITY AT 0.95 FULL.....

..... TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION.....

..... LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK.....

..... LOWEST POINT OF TANK.....

TONS X 1000 LBS	FEET	INCHES	BTU	SOUNDING
37.4	15	7	4	ABV. B.L.
35.6	14	11	1	SOUNDING
0.0	0	0	0	SOUNDING
0	0	0	0	SOUNDING

CENTER OF GRAVITY	STDG FT.	S.W. BALLAST WING TK. NO. 11										SALT WATER SOUNDING INCHES										0.0 FT TRIM				FR. NO. 18-20
		0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	0.0	0.5	1.0	1.5	
0.02	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4		
0.56	1	0.4	0.5	0.6	0.7	0.8	0.8	0.9	0.9	1.1	1.2	1.2	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.8		
1.07	2	1.9	2.1	2.2	2.4	2.5	2.5	2.7	2.7	2.8	3.0	3.0	3.2	3.4	3.6	3.6	3.6	3.6	3.6	3.6	3.4	3.4	3.6	3.7		
1.58	3	3.9	4.1	4.3	4.5	4.7	4.7	4.9	4.9	5.0	5.2	5.4	5.4	5.6	5.8	5.8	5.8	5.8	5.8	5.8	5.6	5.6	5.8	6.0		
2.08	4	6.2	6.5	6.7	6.9	7.1	7.1	7.3	7.3	7.5	7.7	7.9	7.9	8.2	8.4	8.4	8.4	8.4	8.4	8.4	8.2	8.2	8.4	8.6		
2.60	5	8.8	9.0	9.2	9.5	9.7	9.7	9.9	9.9	10.1	10.3	10.6	10.6	10.8	11.0	11.0	11.0	11.0	11.0	11.0	10.8	10.8	11.0	11.2		
3.12	6	11.5	11.7	11.9	12.1	12.3	12.3	12.6	12.6	12.8	13.0	13.2	13.2	13.5	13.7	13.7	13.7	13.7	13.7	13.7	13.5	13.5	13.7	13.9		
3.63	7	14.1	14.4	14.6	14.8	15.0	15.0	15.2	15.2	15.5	15.7	15.9	16.1	16.1	16.4	16.4	16.4	16.4	16.4	16.4	16.1	16.1	16.4	16.6		
4.14	8	16.8	17.0	17.3	17.5	17.7	17.7	17.9	17.9	18.2	18.4	18.6	18.6	18.8	19.1	19.1	19.1	19.1	19.1	19.1	18.8	18.8	19.1	19.3		
4.65	9	19.5	19.7	20.0	20.2	20.4	20.4	20.6	20.6	20.8	21.1	21.3	21.3	21.5	21.7	21.7	21.7	21.7	21.7	21.7	21.5	21.5	21.7	22.0		
5.15	10	22.2	22.4	22.6	22.9	23.1	23.1	23.3	23.3	23.5	23.8	24.0	24.0	24.2	24.4	24.4	24.4	24.4	24.4	24.4	24.2	24.2	24.4	24.7		
5.65	11	24.9	25.1	25.3	25.6	25.8	25.8	26.0	26.0	26.2	26.4	26.7	26.7	26.9	27.1	27.1	27.1	27.1	27.1	27.1	26.9	26.9	27.1	27.3		
6.16	12	27.6	27.8	28.0	28.2	28.5	28.5	28.7	28.7	28.9	29.1	29.4	29.4	29.6	29.8	29.8	29.8	29.8	29.8	29.8	29.6	29.6	29.8	30.0		
6.66	13	30.3	30.5	30.7	30.9	31.2	31.2	31.4	31.4	31.6	31.8	32.1	32.1	32.3	32.5	32.5	32.5	32.5	32.5	32.5	32.3	32.3	32.5	32.7		
7.16	14	32.9	33.2	33.4	33.6	33.8	33.8	34.1	34.1	34.3	34.5	34.7	34.7	35.0	35.2	35.2	35.2	35.2	35.2	35.2	35.0	35.0	35.2	35.4		
7.67	15	35.6	35.9	36.1	36.3	36.5	36.5	36.8	36.8	37.0	37.2	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4		
		TANK CAPACITY AT 100% FULL										TANK CAPACITY AT 0.95 FULL										LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK				
		37.4										35.6										0				
		15										14										0				
		8										11										0				
		0										5										4				
		TONS										FEET										INCHES				BITH
		SOUNDING										SOUNDING										SOUNDING				ABV. BALL

CENTER OF GRAVITY	SVCG	S.W. BALLAST TANK - STBD						SALT WATER SOUNDING - INCHES						0.0 FT TRIM			FR. NO.
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
3.01	0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0	5.5	6.0	6.5	7.0
3.51	1	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4	10.9	11.4	11.9	12.4
4.01	2	10.9	11.3	11.8	12.2	12.7	13.1	13.5	14.0	14.4	14.9	15.3	15.8	16.2	16.7	17.1	17.6
4.51	3	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	21.6	22.1	22.5	23.0
5.01	4	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6	27.0	27.5	27.9	28.4
5.51	5	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9	32.4	32.8	33.3	33.7
6.01	6	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3	37.8	38.2	38.6	39.1
6.51	7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7	43.1	43.6	44.0	44.5
7.01	8	43.1	43.6	44.0	44.5	44.9	45.4	45.8	46.2	46.7	47.1	47.6	48.0	48.5	48.9	49.4	49.8
7.51	9	48.5	48.9	49.4	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4	53.8	54.2	54.7	55.1
8.00	10	53.8	54.2	54.7	55.1	55.6	56.0	56.5	56.9	57.4	57.8	58.2	58.7	59.1	59.6	60.0	60.5
8.50	11	59.1	59.6	60.0	60.5	60.9	61.4	61.8	62.2	62.7	63.1	63.6	64.0	64.5	64.9	65.4	65.8
8.99	12	64.5	64.9	65.4	65.8	66.3	66.7	67.1	67.6	68.0	68.5	68.9	69.4	69.8	70.3	70.7	71.1

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
64.5	12	0	0	SOUNDING
61.2	11	4	5	
0.8	0	0	3	ABV. B.L.

CENTER OF GRAVITY	SIDO FT.	S.W. BALLAST TANK - PORT										SALT WATER SOUNDING INCHES										0.0 FT TRIM				FR. NO. 16-17																									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4		2.5	2.6	2.7	2.8	2.9	3.0																			
3.01	0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0	10.0	10.4
3.51	1	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4	15.8	15.8
4.01	2	10.9	11.3	11.8	12.2	12.6	13.0	13.5	14.0	14.4	14.9	15.3	15.8	10.9	11.3	11.8	12.2	12.6	13.0	13.5	14.0	14.4	14.9	15.3	15.8	10.9	11.3	11.8	12.2	12.6	13.0	13.5	14.0	14.4	14.9	15.3	15.8	10.9	11.3	11.8	12.2	12.6	13.0	13.5	14.0	14.4	14.9	15.3	15.8	21.2	21.2
4.51	3	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2	26.6	26.6
5.01	4	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6	31.9	31.9
5.51	5	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9	37.3	37.3
6.01	6	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3	42.7	42.7
6.51	7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7	48.1	48.1
7.01	8	43.1	43.6	44.0	44.5	44.9	45.4	45.9	46.3	46.8	47.2	47.7	48.1	43.1	43.6	44.0	44.5	44.9	45.4	45.9	46.3	46.8	47.2	47.7	48.1	43.1	43.6	44.0	44.5	44.9	45.4	45.9	46.3	46.8	47.2	47.7	48.1	43.1	43.6	44.0	44.5	44.9	45.4	45.9	46.3	46.8	47.2	47.7	48.1	53.6	53.6
7.52	9	48.6	49.0	49.5	49.9	50.4	50.9	51.3	51.8	52.2	52.7	53.1	53.6	48.6	49.0	49.5	49.9	50.4	50.9	51.3	51.8	52.2	52.7	53.1	53.6	48.6	49.0	49.5	49.9	50.4	50.9	51.3	51.8	52.2	52.7	53.1	53.6	48.6	49.0	49.5	49.9	50.4	50.9	51.3	51.8	52.2	52.7	53.1	53.6	59.0	59.0
8.02	10	54.0	54.5	54.9	55.4	55.8	56.3	56.8	57.2	57.7	58.1	58.6	59.0	54.0	54.5	54.9	55.4	55.8	56.3	56.8	57.2	57.7	58.1	58.6	59.0	54.0	54.5	54.9	55.4	55.8	56.3	56.8	57.2	57.7	58.1	58.6	59.0	54.0	54.5	54.9	55.4	55.8	56.3	56.8	57.2	57.7	58.1	58.6	59.0	64.0	64.0
8.53	11	59.5	59.9	60.4	60.8	61.3	61.7	62.2	62.6	63.1	63.6	64.0	64.5	59.5	59.9	60.4	60.8	61.3	61.7	62.2	62.6	63.1	63.6	64.0	64.5	59.5	59.9	60.4	60.8	61.3	61.7	62.2	62.6	63.1	63.6	64.0	64.5	59.5	59.9	60.4	60.8	61.3	61.7	62.2	62.6	63.1	63.6	64.0	64.5	69.5	69.5

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION.....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK.....  
 LOW POINT OF TANK.....

TONS X 1000 LBS	FEET	INCHES	BTU	SOUNDING
64.5	11	11	0	SOUNDING
61.2	11	3	7	SOUNDING
1.1	0	0	9	ABV. Ball

CENTER OF GRAVITY	SUBG FT.	S.W. BALLAST TANK - STBD								SALT WATER SOUNDING INCHES								0.0 FT TRIM	FR. NO. 17-18																																																																																																																																																																																																																
		0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0			16.0	17.0																																																																																																																																																																																																														
3.00	0	0.0	0.4	0.8	1.3	1.7	2.2	2.6	3.1	3.5	4.0	4.4	4.9						3.49	1	5.3	5.8	6.2	6.7	7.1	7.6	8.0	8.5	8.9	9.4	9.8	10.2						3.99	2	10.7	11.1	11.6	12.0	12.5	12.9	13.4	13.8	14.3	14.7	15.2	15.6						4.49	3	16.1	16.5	17.0	17.4	17.9	18.3	18.8	19.2	19.7	20.1	20.6	21.0						4.99	4	21.5	21.9	22.3	22.8	23.2	23.7	24.1	24.6	25.0	25.5	25.9	26.4						5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2					
3.49	1	5.3	5.8	6.2	6.7	7.1	7.6	8.0	8.5	8.9	9.4	9.8	10.2						3.99	2	10.7	11.1	11.6	12.0	12.5	12.9	13.4	13.8	14.3	14.7	15.2	15.6						4.49	3	16.1	16.5	17.0	17.4	17.9	18.3	18.8	19.2	19.7	20.1	20.6	21.0						4.99	4	21.5	21.9	22.3	22.8	23.2	23.7	24.1	24.6	25.0	25.5	25.9	26.4						5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																								
3.99	2	10.7	11.1	11.6	12.0	12.5	12.9	13.4	13.8	14.3	14.7	15.2	15.6						4.49	3	16.1	16.5	17.0	17.4	17.9	18.3	18.8	19.2	19.7	20.1	20.6	21.0						4.99	4	21.5	21.9	22.3	22.8	23.2	23.7	24.1	24.6	25.0	25.5	25.9	26.4						5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																											
4.49	3	16.1	16.5	17.0	17.4	17.9	18.3	18.8	19.2	19.7	20.1	20.6	21.0						4.99	4	21.5	21.9	22.3	22.8	23.2	23.7	24.1	24.6	25.0	25.5	25.9	26.4						5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																														
4.99	4	21.5	21.9	22.3	22.8	23.2	23.7	24.1	24.6	25.0	25.5	25.9	26.4						5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																	
5.49	5	26.8	27.3	27.7	28.2	28.6	29.1	29.5	30.0	30.4	30.9	31.3	31.8						5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																				
5.99	6	32.0	32.7	33.1	33.6	34.0	34.4	34.9	35.3	35.8	36.2	36.7	37.1						6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																							
6.49	7	37.6	38.0	38.5	38.9	39.4	39.8	40.3	40.7	41.2	41.6	42.1	42.5						6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																																										
6.99	8	43.0	43.4	43.9	44.3	44.8	45.2	45.7	46.1	46.6	47.0	47.5	47.9						7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																																																													
7.50	9	48.4	48.9	49.3	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4						8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																																																																																
8.00	10	53.8	54.3	54.7	55.2	55.6	56.1	56.5	57.0	57.5	57.9	58.4	58.8						8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																																																																																																			
8.51	11	59.3	59.7	60.2	60.6	61.1	61.5	62.0	62.4	62.9	63.3	63.8	64.2																																																																																																																																																																																																																						

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	INCHES	BTU	SOUNDING
64.5	11	11	3		
61.2	11	4	2		
0.3	0	0	0		
	3	0	0		ABV. B.L.



CENTER OF GRAVITY	SD/G	S.W. BALLAST TANK - PORT					SALT WATER SOUNDING - INCHES					0.0 FT TRIM			FR. NO. 17-18
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	
3.01	0	0.1	0.6	1.0	1.5	1.9	2.4	2.8	3.3	3.7	4.1	4.6	5.0		
3.51	1	5.5	5.9	6.4	6.8	7.3	7.7	8.2	8.6	9.1	9.5	10.0	10.4		
4.01	2	10.9	11.3	11.8	12.2	12.7	13.1	13.5	14.0	14.4	14.9	15.3	15.8		
4.51	3	16.2	16.7	17.1	17.6	18.0	18.5	18.9	19.4	19.8	20.3	20.7	21.2		
5.01	4	21.6	22.1	22.5	23.0	23.4	23.9	24.3	24.8	25.2	25.7	26.1	26.6		
5.51	5	27.0	27.5	27.9	28.3	28.8	29.2	29.7	30.1	30.6	31.0	31.5	31.9		
6.01	6	32.4	32.8	33.3	33.7	34.2	34.6	35.1	35.5	36.0	36.4	36.9	37.3		
6.51	7	37.7	38.2	38.6	39.1	39.5	40.0	40.4	40.9	41.3	41.8	42.2	42.7		
7.01	8	43.1	43.6	44.0	44.5	44.9	45.4	45.8	46.2	46.7	47.1	47.6	48.0		
7.51	9	48.5	48.9	49.4	49.8	50.2	50.7	51.1	51.6	52.0	52.5	52.9	53.4		
8.00	10	53.8	54.2	54.7	55.1	55.6	56.0	56.5	56.9	57.4	57.8	58.2	58.7		
8.50	11	59.1	59.6	60.0	60.5	60.9	61.4	61.8	62.2	62.7	63.1	63.6	64.0		
8.99	12	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5		

TANK CAPACITY AT 100% FULL.....

TANK CAPACITY AT 0.95 FULL.....

TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION.....

LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK.....

LOW POINT OF TANK.....

TONS	FEET	INCHES	BTU	SOUNDING
64.5	12	0	0	SOUNDING
61.2	11	4	5	
1.3	0	0	3	

ABV. Ball.

CENTER OF GRAVITY	S.W. BALLAST HOLD TK.	SALT WATER SOUNDING INCHES										0.0 FT TRIM			FR. NO. 18-20	
		0	1	2	3	4	5	6	7	8	9	10	11	12		13
3.00	0.0	2.2	4.5	6.7	9.0	11.3	13.5	15.8	18.1	20.3	22.6	24.8	27.1	29.4	31.7	34.0
3.49	1	29.4	31.6	33.9	36.2	38.4	40.7	42.9	45.2	47.5	49.7	52.0	54.3	56.6	58.8	61.0
3.99	2	54.3	58.8	61.0	63.3	65.6	67.8	70.1	72.4	74.6	76.9	79.1	81.4	83.7	85.9	88.2
4.49	3	83.7	85.9	88.2	90.5	92.7	95.0	97.2	99.5	101.8	104.0	106.3	108.6	110.8	113.1	115.4
4.99	4	108.6	110.8	113.1	115.4	117.6	119.9	122.1	124.4	126.7	128.9	131.2	133.5	135.7	138.0	140.2
5.49	5	135.7	138.0	140.2	142.5	144.8	147.0	149.3	151.6	153.8	156.1	158.4	160.6	162.9	165.1	167.4
5.99	6	162.9	165.1	167.4	171.9	174.2	176.5	178.7	181.0	183.2	185.5	187.8	190.0	192.3	194.6	196.8
6.49	7	190.0	192.3	194.6	199.1	201.3	203.6	205.9	208.1	210.4	212.7	214.9	217.2	219.4	221.7	224.0
6.99	8	217.2	219.4	221.7	226.2	228.5	230.8	233.0	235.3	237.5	239.8	242.1	244.3	246.6	248.9	251.1
7.49	9	244.3	246.6	248.9	253.4	255.6	257.9	260.2	262.4	264.7	267.0	269.2	271.5	273.7	276.0	278.3
7.99	10	271.5	273.7	276.0	280.5	282.8	285.1	287.3	289.6	291.9	294.1	296.4	298.6	300.9	303.2	305.4
8.49	11	298.6	300.9	303.2	307.7	310.0	312.2	314.5	316.8	319.0	321.3	323.5	325.8	328.0	330.2	332.5
8.99	12	325.8	328.0	330.2	334.7	337.0	339.2	341.5	343.7	346.0	348.2	350.5	352.7	355.0	357.2	359.5

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOWEST POINT OF TANK

TONS		INCHES			SOUNDING
X	XXX	FEET	INCHES	BTU	
325.8	12	0	0	0	SOUNDING SOUNDING ABV. B.L.
309.5	11	4	5	0	
3.6	0	0	0	0	

CENTER OF GRAVITY	S/DG FT.	S.W. BALLAST TANK PORT										SALT WATER										FR. NO. 23-27					
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0						
1.59	0	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.7	0.9	1.1	1.3	1.4	1.6	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.7	0.9	1.1	1.3	1.4	1.6
2.35	1	1.8	2.0	2.1	2.3	2.6	3.0	3.3	3.6	4.0	4.3	4.7	5.0	1.8	2.0	2.1	2.3	2.6	3.0	3.3	3.6	4.0	4.3	4.7	5.0		
3.08	2	5.4	5.7	6.0	6.4	6.7	7.1	7.4	7.8	8.1	8.4	8.8	9.1	5.4	5.7	6.0	6.4	6.7	7.1	7.4	7.8	8.1	8.4	8.8	9.1		
3.74	3	9.5	10.0	10.5	11.1	11.6	12.2	12.7	13.3	13.8	14.4	14.9	15.5	9.5	10.0	10.5	11.1	11.6	12.2	12.7	13.3	13.8	14.4	14.9	15.5		
4.35	4	16.0	16.6	17.1	17.7	18.3	19.0	19.7	20.4	21.1	21.7	22.4	23.1	16.0	16.6	17.1	17.7	18.3	19.0	19.7	20.4	21.1	21.7	22.4	23.1		
4.96	5	23.8	24.5	25.2	25.9	26.5	27.2	27.9	28.6	29.3	29.9	30.6	31.3	23.8	24.5	25.2	25.9	26.5	27.2	27.9	28.6	29.3	29.9	30.6	31.3		
5.55	6	32.0	32.7	33.4	34.0	34.7	35.4	36.0	36.7	37.4	38.0	38.7	39.3	32.0	32.7	33.4	34.0	34.7	35.4	36.0	36.7	37.4	38.0	38.7	39.3		
6.08	7	40.0	40.7	41.3	42.0	42.7	43.3	44.0	44.7	45.3	46.0	46.6	47.3	40.0	40.7	41.3	42.0	42.7	43.3	44.0	44.7	45.3	46.0	46.6	47.3		
6.59	8	48.0	48.6	49.3	50.0	50.6	51.3	51.9	52.5	53.2	53.8	54.5	55.1	48.0	48.6	49.3	50.0	50.6	51.3	51.9	52.5	53.2	53.8	54.5	55.1		
7.09	9	55.8	56.4	57.1	57.7	58.4	59.0	59.7	60.3	61.0	61.6	62.2	62.9	55.8	56.4	57.1	57.7	58.4	59.0	59.7	60.3	61.0	61.6	62.2	62.9		
7.60	10	63.5	64.2	64.8	65.5	66.1	66.8	67.4	68.1	68.7	69.4	70.0	70.7	63.5	64.2	64.8	65.5	66.1	66.8	67.4	68.1	68.7	69.4	70.0	70.7		
8.10	11	71.3	71.9	72.6	73.2	73.9	74.5	75.2	75.8	76.5	77.1	77.8	78.4	71.3	71.9	72.6	73.2	73.9	74.5	75.2	75.8	76.5	77.1	77.8	78.4		
8.60	12	79.0	79.7	80.3	81.0	81.6	82.3	82.9	83.6	84.2	84.9	85.5	86.1	79.0	79.7	80.3	81.0	81.6	82.3	82.9	83.6	84.2	84.9	85.5	86.1		
9.10	13	86.8	87.4	88.1	88.7	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	86.8	87.4	88.1	88.7	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9		

TANK CAPACITY AT 100% FULL.....  
 TANK CAPACITY AT 0.95 FULL.....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOWEST POINT OF TANK

TONS	FEET	INCHES	BTM	SOUNDING
88.9	13	3	1	SOUNDING
84.4	12	8	2	SOUNDING
0.1	0	2	3	ABV. B.L.
	1	6	4	

CENTER OF GRAVITY	S.W. BALLAST TANK STBD.					SALT WATER SOUNDING INCHES					0.0 FT TRIM			FR. NO. 23-27
	SVCG FT.	0.95	2.0	3.1	4.2	5.3	6.4	7.5	8.6	9.7	10.8	11.9	13.0	
1.59	0	0.1	0.2	0.2	0.3	0.3	0.5	0.7	0.9	1.0	1.2	1.4	1.6	
2.93	1	1.7	2.1	2.2	2.5	2.8	3.1	3.4	3.7	4.1	4.4	4.7		
3.03	2	5.0	5.7	6.0	6.3	6.6	7.0	7.3	7.7	8.1	8.5	8.8		
4.34	3	9.2	10.3	10.9	11.5	12.1	12.6	13.2	13.7	14.2	14.8	15.3		
4.94	4	15.8	16.9	17.5	18.1	18.8	19.5	20.1	20.8	21.5	22.2	22.8		
5.54	5	23.5	24.7	25.4	26.1	26.8	27.5	28.2	28.9	29.6	30.3	31.0		
6.09	6	31.8	32.4	33.8	34.5	35.2	35.9	36.6	37.3	38.0	38.7	39.4		
7.14	7	40.1	41.5	42.2	42.9	43.6	44.3	45.0	45.7	46.4	47.1	47.8		
7.66	8	48.5	49.9	50.6	51.3	52.0	52.7	53.4	54.1	54.8	55.5	56.2		
8.19	9	56.9	58.3	59.0	59.7	60.4	61.1	61.8	62.5	63.2	63.9	64.6		
8.70	10	65.4	66.8	67.5	68.2	68.9	69.6	70.3	71.0	71.7	72.4	73.1		
9.22	11	73.8	74.5	75.9	76.6	77.3	78.0	78.7	79.4	80.1	80.8	81.5		
	12	82.2	83.6	84.3	85.0	85.7	86.4	87.1	87.8	88.5	89.2	89.9		
	13	90.6	92.0	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7		

TANK CAPACITY AT 100% FULL  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK  
 LOW POINT OF TANK

TONS	FEET	INCHES	BTH	SOUNDING
92.7	13	3	0	
88.1	12	8	3	SOUNDING
0.1	0	2	1	
	1	6	4	ABV. B.L.

CENTER OF GRAVITY	S.W. BALLAST STERN TANK					SALT WATER					0.0 FT TRIM				FR. NO. 27- 34
	FT.	0.1	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.4	1.9	2.5	3.0		
6.32	0	0.1	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.4	1.9	2.5	3.0		
6.93	1	3.5	4.0	4.6	5.1	5.6	6.1	6.7	7.2	8.1	9.2	10.3	11.4		
7.68	2	12.4	13.5	14.6	15.7	16.7	17.8	18.9	20.0	21.0	22.1	23.2	24.3		
8.34	3	23.3	26.4	27.5	28.6	29.7	30.7	31.8	32.9	34.1	35.5	36.8	38.1		
8.96	4	39.5	40.8	42.1	43.5	44.8	46.1	47.4	48.8	50.1	51.4	52.8	53.9		
9.50	5	55.1	56.2	57.3	58.5	59.6	60.7	61.9	63.0	64.1	65.2	66.4	67.5		
9.99	6	68.6	69.8	70.9	72.0	73.2	74.3	75.4	76.6	77.7	78.9	80.0	81.1		
10.47	7	82.3	83.4	84.6	85.7	86.9	88.0	89.1	90.3	91.4	92.6	93.7	94.8		
10.96	8	96.0	97.1	98.3	99.4	100.6	101.7	102.8	104.0	104.3	104.3	104.3	104.3		

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 LOW POINT OF TANK

TONS	FEET	INCHES	LETH	SOUNDING
104.3	8	7	2	SOUNDING
99.0	8	2	5	SOUNDING
0.2	0	1	4	
	6	3	2	ABVA. B.L.S.

CENTER OF GRAVITY	STPG FT.	SLUDGE TANK										SALT WATER SOUNDING - INCHES										0.0 FT TRIM				FR. NO. 14-15	
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	1	2
0.02	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	0.1	0.2	0.2	0.3	0.3	0.3	0.3
0.70	1	0.4	0.5	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.2	1.3	1.4	1.5	1.6	1.5	1.6
1.27	2	1.7	1.8	1.9	1.9	2.1	2.1	2.1	2.2	2.2	2.3	2.5	2.5	2.6	2.7	2.7	2.9	2.9	3.0	3.1	2.6	2.7	2.9	3.0	3.1	3.0	3.1
1.80	3	3.3	3.4	3.5	3.5	3.7	3.7	3.8	3.8	3.9	4.1	4.2	4.2	4.2	4.4	4.5	4.5	4.6	4.6	4.8	4.2	4.4	4.5	4.6	4.8	4.6	4.8
2.31	4	4.9	5.0	5.2	5.2	5.2	5.2	5.5	5.5	5.6	5.7	5.9	5.9	5.9	6.0	6.2	6.2	6.3	6.3	6.4	5.9	6.0	6.2	6.3	6.4	6.3	6.4
2.81	5	6.6	6.7	6.9	6.9	7.0	7.0	7.1	7.1	7.3	7.4	7.6	7.6	7.6	7.7	7.8	7.8	8.0	8.0	8.1	7.6	7.7	7.8	8.0	8.1	8.0	8.1
3.30	6	8.3	8.4	8.5	8.5	8.7	8.7	8.8	8.8	8.9	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.6	9.6	9.8	9.2	9.4	9.5	9.6	9.8	9.6	9.8
3.78	7	9.9	10.1	10.2	10.2	10.4	10.4	10.5	10.5	10.7	10.8	11.0	11.0	11.0	11.1	11.3	11.3	11.4	11.4	11.6	11.0	11.1	11.3	11.4	11.6	11.4	11.6
4.29	8	11.7	11.9	12.0	12.0	12.2	12.2	12.3	12.3	12.5	12.6	12.8	12.8	12.8	12.9	13.1	13.1	13.2	13.2	13.3	12.8	12.9	13.1	13.2	13.3	13.2	13.3
4.79	9	13.5	13.6	13.8	13.8	13.9	13.9	14.1	14.1	14.2	14.4	14.5	14.5	14.5	14.7	14.8	14.8	15.0	15.0	15.1	14.5	14.7	14.8	15.0	15.1	15.0	15.1
5.30	10	15.3	15.4	15.6	15.6	15.7	15.7	15.9	15.9	16.0	16.2	16.3	16.3	16.3	16.5	16.6	16.6	16.8	16.8	16.9	16.3	16.5	16.6	16.8	16.9	16.8	16.9
5.80	11	17.1	17.2	17.4	17.4	17.5	17.5	17.7	17.7	17.8	18.0	18.1	18.1	18.1	18.3	18.4	18.4	18.6	18.6	18.7	18.1	18.3	18.4	18.6	18.7	18.6	18.7
6.30	12	18.9	19.0	19.2	19.2	19.3	19.3	19.5	19.5	19.6	19.8	19.9	19.9	19.9	20.1	20.2	20.2	20.4	20.4	20.5	19.9	20.1	20.2	20.4	20.5	20.4	20.5
6.81	13	20.7	20.8	21.0	21.0	21.1	21.1	21.3	21.3	21.4	21.6	21.7	21.7	21.7	21.9	22.0	22.0	22.2	22.2	22.3	21.7	21.9	22.0	22.2	22.3	22.2	22.3
7.31	14	22.5	22.6	22.8	22.8	22.9	22.9	23.1	23.1	23.2	23.4	23.5	23.5	23.5	23.7	23.8	23.8	24.0	24.0	24.1	23.5	23.7	23.8	24.0	24.1	24.0	24.1
7.81	15	24.3	24.4	24.6	24.6	24.7	24.7	24.9	24.9	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

TANK CAPACITY AT 100% FULL .....  
 TANK CAPACITY AT 0.95 FULL .....  
 TANK CAPACITY REMAINING AT LOWEST POINT OF SUCTION .....  
 LOWEST POINT OF SOUNDING ABOVE LOWEST POINT OF TANK .....  
 LOWEST POINT OF TANK .....

TONS	FEET	INCHES	BTH
25.0	15	4	4
23.7	14	8	1
0.1	0	0	3

SOUNDING  
 SOUNDING  
 ABV. B.L.

**APPENDIX  
B**

**CURVES OF STATICAL STABILITY CALCULATION**

## APPENDIX B

### INTACT CURVES OF STATICAL STABILITY

The original Curves of Intact Statical Stability drawn up by J. J. Henry, Co., Inc. have been modified in accordance with the change in GM due to the weight changes. The new values for the righting arm follow in this appendix, along with the original values produced by J. J. Henry, Co., Inc. The original values were obtained from the "Ship Hull Characteristics Program, (SHCP)". The center well was included in these calculations.

The weight changes which took place affect the righting arm in two ways. The first is the change in GM. The second is the change in displacement due to the weight changes, which will have the effect of changing the righting arm as can be seen in the cross curves of stability. Both these factors were taken into account in calculating the new righting arms, however, an additional factor was included, which is not caused by the weight changes. The change in draft due to heel affects the amount of water in the center well. Treating this water as an added weight in effect changes the displacement of the ship.

The method by which the new values were obtained is as follows. The change in GM is multiplied by the sine of the angle of heel, to get the change in righting arm. A rise in the center of gravity (decrease in GM) will result in a shorter righting arm. The change in weight is constant for all conditions (38 T) and the corresponding change in righting arm was taken off the cross curves of stability. The amount of water in the center well was figured graphically using the drafts



in the original T&S book and this change in weight was used to figure the change in righting arm as above.

As an example, take Capacity Condition at 40° heel:

KG original = 11.458 ft.

KG new = 11.64 ft.

Sin 30° = 0.643 ft.

$\Delta RA = (11.64 - 11.458) (.643) = .12 \text{ ft. (KG effect)}$

The added 38 tons decreases the right arm by .1 ft., from Cross Curves of Stability (Displacement effect).

Graphically it was determined that an additional 32 tons enter the center well decreasing the righting arm by .1 ft. (change in draft effect).

Finally, the total change in righting arm is:

$$.12 + .1 + .1 = .32$$

Note that all contributions cause a decrease in righting arm. The original righting arm was 2.161 ft. The new righting arm will be  $2.161 - .32 = 1.841 \text{ ft.}$

### REVISED RIGHTING ARMS

CONDITION	HEEL	RA
CAPACITY	0	0.0
	5	.921
	10	1.636
	15	1.870
	20	1.963
	30	1.91
	40	1.841
	50	1.302
	60	.509
	70	-3.05
FULL LOAD	0	0.0
	5	1.150
	10	2.273
	15	3.400
	20	4.176
	30	4.274
	40	3.490
	50	2.218
	60	0.589
	70	-1.19
IA	0	0.0
	5	1.280
	10	2.565
	15	3.800

CONDITION	HEEL	RA
IA	20	4.779
	30	4.744
	40	3.680
	50	2.201
	60	0.356
	70	-1.343
IIA	0	0.0
	5	1.101
	10	2.210
	15	3.054
	20	3.419
	30	3.381
	40	2.920
	50	2.018
	60	.860
70	- .369	
IIIA	0	0.0
	5	.984
	10	1.714
	15	2.092
	20	2.216
	30	1.928
	40	1.396
50	1.542	

CONDITION	HEEL	RA
IIIA	60	-0.505
	70	-1.627
IB	0	0.0
	5	1.066
	10	2.158
	15	3.075
	20	3.448
	30	3.481
	40	3.093
	50	2.142
	60	0.949
	70	-0.357
IC	0	0.0
	5	1.050
	10	2.109
	15	3.100
	20	3.598
	30	3.643
	40	3.004
	50	1.793
	60	0.434
	70	-1.154

INTACT CURVES OF STATICAL STABILITY

DISPL	LCG	HEEL	RA	TCB	VCB	DRAFT	TRIM
3104.800	-15.750	0.000	0.000	0.000	5.818	10.350	8.147
		5.000	0.984	1.582	5.887	10.358	8.238
	OPERATING	10.000	1.777	2.972	6.068	10.463	8.913
		15.000	2.272	4.063	6.307	10.752	10.216
		20.000	2.462	4.853	6.555	11.249	11.933
		30.000	2.515	5.929	7.050	12.599	16.977
		40.000	1.730	6.601	7.514	14.242	24.788
		50.000	*****	*****	*****	*****	*****
		60.000	-0.108	7.319	8.332	19.312	56.207
		70.000	-1.246	7.462	8.647	25.019	92.961
2923.000	-4.820	0.000	0.000	0.000	5.303	9.953	2.588
		5.000	1.099	1.716	5.378	9.949	2.600
	OPERATING	10.000	2.224	3.454	5.607	9.936	2.622
		15.000	3.169	5.007	5.948	10.001	2.911
		20.000	3.649	6.102	6.291	10.291	3.589
		30.000	3.864	7.590	6.972	11.182	6.186
		40.000	3.406	8.477	7.586	12.160	10.666
		50.000	*****	*****	*****	*****	*****
		60.000	1.328	9.318	8.544	14.955	28.214
		70.000	-0.043	9.481	8.892	18.083	48.501
2748.000	-3.210	0.000	0.000	0.000	5.007	9.433	1.929
		5.000	1.075	1.821	5.087	9.429	1.931
	OPERATING	10.000	2.175	3.659	5.329	9.412	1.926
		15.000	3.235	5.448	5.724	9.410	1.991
		20.000	3.798	6.746	6.130	9.595	2.377
		30.000	3.926	8.390	6.980	10.209	4.300
		40.000	3.237	9.302	7.510	10.784	7.807
		50.000	*****	*****	*****	*****	*****
		60.000	0.733	10.190	8.522	12.130	22.237
		70.000	-0.840	10.364	8.892	13.602	39.024

INTACT CURVES OF STATICAL STABILITY

DISPL	LCG	HEEL	RA	ICB	VCB	DRAFT	TRIM
3599.000	-4.010	0.000	0.000	0.000	6.374	12.042	1.877
		5.000	0.956	1.409	6.435	12.039	1.894
		10.000	1.716	2.601	6.588	12.150	2.273
		15.000	2.012	3.345	6.751	12.572	3.236
		20.000	2.163	3.947	6.941	13.181	4.657
		30.000	*****	*****	*****	15.068	7.318
		40.000	2.161	5.756	7.961	17.073	14.916
		50.000	1.642	6.201	8.401	20.134	23.769
		60.000	0.869	6.443	8.743	24.873	37.445
		70.000	-0.035	6.577	9.027	33.809	63.186
2501.000	0.040	0.000	0.000	0.000	4.588	8.704	0.733
		5.000	1.158	1.983	4.674	8.694	0.692
		10.000	2.340	3.984	4.938	8.671	0.640
		15.000	3.550	6.000	5.385	8.622	0.515
		20.000	4.372	7.632	5.895	8.649	0.464
		30.000	4.560	9.492	6.740	8.820	1.254
		40.000	3.726	10.451	7.401	8.805	3.250
		50.000	*****	*****	*****	*****	*****
		60.000	0.893	11.413	8.501	8.069	12.755
		70.000	-0.871	11.604	8.909	7.159	23.983
2228.000	-4.980	0.000	0.000	0.000	4.175	7.797	2.962
		5.000	1.293	2.214	4.271	7.788	2.924
		10.000	2.611	4.445	4.565	7.766	2.875
		15.000	3.931	6.665	5.057	7.709	2.764
		20.000	4.940	8.965	5.651	7.625	2.821
		30.000	4.969	10.485	6.519	7.443	3.862
		40.000	3.838	11.388	7.140	6.999	6.088
		50.000	*****	*****	*****	6.343	8.815
		60.000	0.554	12.347	8.251	4.589	17.435
		70.000	-1.389	12.552	8.692	1.645	31.371
2865.000	-11.740	0.000	0.000	0.000	5.340	9.791	5.217
		5.000	1.139	1.726	5.416	9.788	5.232
		10.000	2.286	3.454	5.643	9.786	5.325
		15.000	3.174	4.922	5.965	9.901	5.942
		20.000	3.639	5.974	6.294	10.225	6.994
		30.000	3.793	7.351	6.925	11.185	10.521
		40.000	3.290	8.149	7.476	12.275	16.224
		50.000	*****	*****	*****	13.744	23.527
		60.000	1.309	8.962	8.407	15.292	39.140
		70.000	-0.001	9.122	8.748	18.622	65.794

DISPLACEMENTS AND CENTERS CORRECTED FOR WELL

	DISPL.	VCG	V.M.T.	L.C.G.	L.M.T.	F.S
CAPACITY COND.						
	3461.8	10.57	36588	133.94	483633	4403
WELL	<u>178</u>	6.08	1082	130.00	23140	312
	3639.8		37670		486773	4715
			<u>4715</u>			
		11.64	42385			

FULL LOAD COND.						
	2414	12.84	30996	129.59	312830	4403
WELL	<u>128</u>	4.39	562	130.00	16640	312
	2542		31558			4715
			<u>4715</u>			
		14.27	36273			

OPERATING COND IA						
	2152.8	13.37	28780	134.77	290106	4096
WELL	<u>116</u>	3.97	460	130.00	15080	312
	2270		29240			4408
			<u>4408</u>			
		14.83	33648			

OPERATING IIA

	2789.8	11.03	30771	141.78	395538	4393
WELL	146	4.99	729	130.00	18980	312
	<u>2935.8</u>		<u>31500</u>			<u>4705</u>
		<u>12.33</u>	<u>36205</u>			

OPERATING III A

	2989.5	11.70	34977	146.09	436736	4393
WELL	156	5.32	830	130.00	20280	312
	<u>3145.5</u>		<u>35807</u>			<u>4703</u>
		<u>12.88</u>	<u>40510</u>			

OPERATING IB

	2817	11.32	31888	134.71	379478	4397
WELL	147	5.04	741	130.00	19110	312
	<u>2964</u>		<u>32629</u>			<u>4709</u>
		<u>12.60</u>	<u>37338</u>			

OPERATING IC

	2650	12.46	33019	133.01	352477	4397
	140	4.77	668	130.00	18200	312
	<u>2790</u>		<u>33687</u>			<u>4709</u>
		<u>13.76</u>	<u>38396</u>			



# **APPENDIX C**

**WIND HEELING ARM TABLES**

APPENDIX C

WIND HEELING ARM TABLES

The Tables in this appendix are from the original Trim & Stability Study by J. J. Henry Company, Inc. No numbers have been changed. The wind heeling arms are assumed to be the same due to a negligible change in draft.

J. J. HENRI CO., INC.  
 Naval Architects and Marine Engineers

NAME OF COMPANY \_\_\_\_\_

J.O. No. 1736  
 SHEET No. A-1 OF \_\_\_\_\_  
 DATE 4-3-75  
 COMP. BY PAO C'K'D BY \_\_\_\_\_

PROJECT \_\_\_\_\_

WIND HEELING ARM

$$HA = \frac{0.004 V^2 AL \cos^2 \theta}{2240 \Delta}$$

$$= HA_0 \cos^2 \theta$$

WHERE V WIND SPEED IN KTS  
 A PROJECTED SAIL AREA  
 L LEVER ARM FROM HALF DRAFT TO CENTER OF SAIL AREA  
 $\theta$  HEEL ANGLE  
 HA<sub>0</sub> HEELING ARM AT 0°

HA COND.	HEELING ANGLES							
	HA <sub>0</sub>	10°	20°	30°	40°	50°	60°	70°
CAPACITY COND	0.303	0.294	0.268	0.227	0.178	0.125	0.076	0.035
FULL LOAD	0.519	0.503	0.458	0.389	0.305	0.214	0.130	0.061
IA	0.584	0.566	0.516	0.438	0.343	0.241	0.126	0.048
IIA	0.431	0.418	0.381	0.323	0.253	0.178	0.108	0.050
IIIA	0.389	0.377	0.343	0.292	0.228	0.161	0.097	0.046
IB	0.425	0.412	0.375	0.319	0.249	0.176	0.106	0.050
IC	0.462	0.448	0.408	0.347	0.271	0.191	0.116	0.054

BASED ON V=100 KTS

**APPENDIX  
D**

**LIGHT SHIP WEIGHT ESTIMATE**

APPENDIX D

LIGHT SHIP WEIGHT ESTIMATE

Following is a list of all the weight changes since the last Trim and Stability Study of 3/11/75. In summary a total of 38.67 tons were added at 28.43 feet above the base line and 107.94 feet aft of the F.P.

In addition, calculations for light ship originally performed by J. J. Henry Company, Inc. are included.

SHIP SEACON

REF. LINE FOR VERTICAL CENTERS IS 0 FEET ABOVE MOLDED BASELINE REF. LINE FOR LONGITUDINAL CENTERS IS F.P.

WEIGHT REMOVED AS OF 3-11-75

ITEM	WEIGHT Tons	VERTICAL LEVER Feet	VERTICAL MOMENT Ft. ton	FWD LEVER Feet	FWD MOMENT Ft. ton	AFT LEVER Feet	AFT MOMENT Ft. ton
Tank bp engine plating	.14	3.0	.42	32.0	4.48		
Cleats	.074	15.5	1.147	138.25	10.23		
Bullwark in way of Cleats	.14	15.83	2.22	141.15	10.76		
Bins	.25	7.0	1.75	2.06	5.15		
Pipe	.03	1.0	.03	36.7	1.1		
Platform	.23	9.0	2.07	23.0	5.29		
Door	.10	13.0	1.3	22.2	2.22		
Day tank	.10	9.0	.90	29.0	2.9		
Door	.10	30.5	3.05	110.0	11.0		
Door	.10	19.0	1.9	127.0	12.7		
Engine Floor	.57	28.0	15.96	106.0	60.42		
Scuttle	.04	15.0	.6	256.0	10.0		
Posts	.33	32.0	10.6	41.0	13.53		
Engines	4.82	4.5	21.69	228	1018.96		
Chain	8.93	7.0	62.51	9.0	86.37		
Total	16.024	7.94	127.2	8737	1400.0		

SHIP SEACON

REF. LINE FOR VERTICAL CENTERS IS 0 FEET ABOVE MOLDED BASELINE REF. LINE FOR LONGITUDINAL CENTERS IS F.P.

WEIGHT ADDED AS OF 3-11-75

ITEM	WEIGHT Tons	VERTICAL LEVER Feet	VERTICAL MOMENT Ft. tons	FWD LEVER Feet	FWD MOMENT Ft. tons	AFT LEVER Feet	AFT MOMENT Ft. tons
Rails	.52	25.8	13.416	32.0	16.64		
Winch plate & supports	5.60	259.4	145.3	44.04	246.6		
Cable trough	.53	30.3	16.1	26.75	14.18		
Fairleads	.44	27.0	11.88	14.0	6.16		
Frame for anchor	2.25	18	40.5	12.0	27.0		
Fairlead foundation (bow)	1.8	25.13	45.23	14.0	25.2		
Fairlead & foundation (stern)	2.12	16.0	33.92	260.0	551.2		
Doubler Plating	8.91	15.0	133.65	222.5	198.2.5		
Winches	20.54	29.83	612.7	41.0	842.14		
Wire	2.76	30.5	84.18	44	121.44		
Engines 12 V-71	4.40	4.5	19.8	228	1003.2		
Diesel Exhaust trunk	.30	47.0	14.1	66.0	19.8		
Clents	.20	15.5	3.1	141.5	28.2		
Platform	.23	9.0	2.07	17.0	3.91		
Door	.10	13.0	1.3	15.2	1.52		
Day tank	.26	10.4	2.70	29.0	7.54		
False floor	.11	28.0	3.08	112.0	12.32		
Door	.10	31.5	3.15	110.0	11.0		

SHIP SEACUN

REF. LINE FOR VERTICAL CENTERS IS 0 FEET ABOVE MOLDED BASELINE REF. LINE FOR LONGITUDINAL CENTERS IS F.P.

WEIGHT ADDED AS OF 3-11-75

ITEM	WEIGHT Tons	VERTICAL LEVER Feet	VERTICAL MOMENT Ft. tons	FWD LEVER Feet	FWD MOMENT Ft. tons	AFT LEVER Feet	AFT MOMENT Ft. tons
Relorus Stands	.07	38.0	2.66	44.0	3.08		
Vent	.10	9.0	.9	194.0	19.4		
Spill boxes	.47	16.5	7.76	130.0	161.1		
Walkway	.051	3.0	.12	28.0	1.12		
Misc. Structure	2.84	10.2	28.97	200.2	568.7		
Total	54.69	22.43	122.67	101.92	5574.0		



SHIP SEACON

REF. LINE FOR VERTICAL CENTERS IS 0 FEET ABOVE MOLDED BASELINE  
0 FEET BELOW

REF. LINE FOR LONGITUDINAL CENTERS IS F.P.

TOTAL WEIGHT CHANGES AS OF 3-11-75

ITEM	WEIGHT Tons	VERTICAL LEVER Feet	VERTICAL MOMENT Ft. Tons	FWD LEVER Feet	FWD MOMENT Ft. Tons	AFT LEVER Feet	AFT MOMENT Ft. Tons
TOTAL WEIGHT TO REMOVE	16.024	794	127.2	87.37	1400.0		
TOTAL WEIGHT TO ADD	54.69	22.43	122.67	101.92	5574.0		
TOTAL	38.67	28.43	1097.4	107.94	4174.0		

DATE 4-1-75

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

"PROMISE"

DESCRIPTION	WEIGHT (Pounds) (Tons)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY			REFERRED TO		REFERRED TO MOMENTS	PART	MOMENTS	BT" OF	COMMENTS
				FWD	AWT	HEIGHT	MOMENTS	HEIGHT					
EXISTING LIGHTSHIP	831	11.46	14,509		0.5	416							
TOTAL REMOVALS	-168	22.66	-4410		8.6	-1448							
TOTAL ADDITIONS	614	14.49	8,879				1596						
WEIGHT MARGIN K.G.	15	10.83	232				67						
SUB TOTAL	1292	15.10	19535	4.49			5800						
PASSIVE ANTI-ROLL TANKS	128	6.0	768	-	-								
TOTALS, POUNDS	1420	14.27	20263	4.09			5800						
TONS													

COMPUTED BY

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

DATE

USS PROMISE

DESCRIPTION	WEIGHT (Pounds) ± 5%	ABOVE BASE	MOMENTS	CENTER OF GRAVITY				REFERRED TO MONTHS	PART	REFERRED TO MONTHS	51' 00"
				FT	INCHES	FT	INCHES				
<b>REMOVALS</b>											
<b>GROUP 100</b>											
SHELL PLATING											
PROPELLER END 28xN3	428	-									
PROPELLER AFT 2x28xN3	87	5.00	4285								
WELL ORBITAL 16x12xN3	7834	-									
SEAS 17x4x4xN3	4162	2.00	8323								
" 20x2x2xN3	1530	-									
<b>GROUP 101</b>											
LOUIS 4x32x12.8	1638	.5	819								
" 2x5' x12.8	128	5.0	640								
GVK 10'3' x16.3	459	1.5	689								
" 32x3' x16.3	1469	1.5	2204								
Flood FR 17 16x3' x16.3	734	1.5	1101								
Flood SPEC 4'x2.5' x 2x16.3	918	2.0	1836								
	5256	1.38	7388								
<b>GROUP 102</b>											
I.S. 2 32x16' x12.7	6120	3.0	18360								
LOUIS 32x9' x11	1408	2.75	3872								
I.S. 4 2x21' x12.7	714	5.00	3570								
	8242	3.75	25056								
<b>GROUP 107</b>											
MAIN DECK 32x16' x12.7	6528	15.0	97920								
STIFFS 32x7' x2.5	5600	14.71	82600								
	12128	14.88	180520								
<b>GROUP 111</b>											
OIL CLOSET HOUSE											
SILL 18x8x12.5	3456	32.0	112800								
FRONT 8x8x10	640	32.0	20480								
BACK 8x8x10	640	32.0	20480								
PLATE TOP 21x8x11	1848	32.0	59536								
MISC.	416	34.12	14213								
	1000	34.12	33840								
			6,000,000								
<b>TOTALS, POUNDS</b>											

COMPUTED BY

DATE

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

USS PROMISE

DATE

DESCRIPTION	WEIGHT (Pounds) (Tons)	ABOVE BASIC MOMENTS	CENTER OF GRAVITY				REFERRED TO	MOMENTS	ST' NO	MOMENTS
			NO	MOMENTS	MT	MOMENTS				
<b>REMOVALS</b>										
<b>GROUP 114</b>										
BHD 17										
PLG + STIFF 17 1/2 x 20 7/8	4800	7.5								
LOUIS' 20' GIRT 8' 9" x 12 7/8" x 4	3672	7.5								
LOUIS' STIFF 8' 3 1/4 x 11 1/2	1956									
LOUIS' BHD 14' x 4 1/2"	8640	9.0	31104.0							
	18168	8.21	149220	1712	31104.0					
<b>GROUP 115</b>										
SHIP COVER	5700	41.4			32.0					
FRAME	145200	11.4								
BHD (PLT + STIFF)	56830	20.70								
WEBS	18000	20.10								
VIAIC WAY + RAILS	6400	27.50								
T&A CIGS	8000	21.00								
MISC.	5000	27.00								
	243780	82.8840				180736.0				
<b>SUMMARY of REMOVALS</b>										
<b>GROUP 100</b>	14811	0.85					69814			
101	5346	1.30					64570			
102	8292	3.13					78540			
107	12122	14.88								
111	7000	34.12				602000				
114	18168					311040				
115	243980									
	309675	29.72	8692498			2498	7807360			
							1125544			
<b>TOTALS, POUNDS</b>										
<b>TONS</b>										

COMPUTED BY

DATE



ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

U.S.S. PROHISE

BUCKET SYMBOL NO. 95-4251  
REPORT-SHIPSP-0301-3

PAGE 5-20

DESCRIPTION	WEIGHT (Pounds) (Tons)	CENTER OF GRAVITY				REFERRED TO FRAM NO. 17				REFERRED TO			
		ABOVE BASE	MOMENTS	FB	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS	DMOMENTS
REMOVALS													
GROUP 400 NAV. EQUIP	500	30.0		92.0									
RADIO	300	20.0		88.0									
TOTALS, POUNDS	800	50.0		180.0									
TONS	0.36												

COMPUTING BY

READING CHECKS

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
NAVSHIPS 94164-2 (11-47)

PAGE 4-20

U.S.S. PROHISC

REPORT BUREAU NO. 48-2321  
REPORT-NAVSHIPS-3091-4

DATE

DESCRIPTION	WEIGHT (Pounds) (Tons)	CENTER OF GRAVITY														
		ABOVE BASE	MOMENTS	REFERRED TO FRAME NO. 17		PORT		STARBOARD		TOTAL	REFLECTED TO					
<u>REMOVAL</u>																
<u>GROUP FOR</u>																
<u>PERMUTATED MACH. (2)</u>	2240	17.0	38080			56.0	125440									
<u>AIR CONDITIONING UNITS</u>	1500	6.0	9000													
<u>505 PLUMBING UNITS</u>	2240	17.0	38080													
<u>516 MISC FILING SYST.</u>	10000	13.0	120000													
<u>520 HOOKING TOWING ANCHORS</u>	3500	14.0	49000													
<b>TOTALS, POUNDS</b>	<b>19480</b>		<b>264160</b>				<b>1245760</b>									
<b>TOTALS, TONS</b>	<b>8.70</b>	<b>12.16</b>	<b>117.93</b>			<b>63.93</b>								<b>556.14</b>		

COMPUTING BY

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
NAVSHPG W10A-3 (11-57)

U.S.S. PROHISE

BUDGET BUREAU NO. 16-4201  
REPORT-10SHIPS-3301-A

DATE

DESCRIPTION	WEIGHT (Pounds) (Tons)	CENTER OF GRAVITY					REFERRED TO					
		ABOVE BASE	MOMENTS	FT	INCHES	INCHES	PART	INCHES	INCHES			
<u>REMOVALS</u>												
GROUP 600												
LIFE RAFT (HMG)	200	28.0	640									
INCL. CARRIERS	1000	21.5	47.0									
	1000	9.0	98.0									
	1000	9.0	53.0									
	600	11.0			93.0	55800						
DECIC COVERINGS	3000	15.0	80.0									
"	200	27.0	86.0		285000							
INSULATION	3000	24.0	80.0									
NONSTRUCTURAL BUDS / BONES	20000	21.0	72.0									
REPAIRS AND COUNS SPACES	5000	18.0	12.0									
SCULLY, WR & MISS	2500	18.0	110.0									
TOTALS, POUNDS	38500		747100						2799200			
TONS	17.19		333.53						1249.54			
		17.19			72.71							

COMPUTED BY



ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

USS PROMISE

DATE

DESCRIPTION	WEIGHT (Pounds) (Tons)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY				REFERRED TO		ST' NO	COMMENTS
				FOR	MOMENTS	HEIGHT	MOMENTS	HEIGHT	MOMENTS		
<i>SUMMARY OF REMOVALS</i>											
GROUP 100	138.25		3969.87					345537			
200											
300	3.17		38.04		16741						
400	0.36		10.71		3232						
500	8.70		117.93		53614						
600	17.19		333.53		124964						
TOTALS, POUNDS	167.67		2666				864				1497.85
TOTALS, TONS			1770.08								

REMOVING WEIGHTS

ESTIMATE OF WEIGHT FOR SHIPS, VORN SHEET

USS PROMISE

DESCRIPTION	WEIGHT (Pounds) (Tons)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY							
				FWD	REFERRED TO FRAME NO. 17		REFERRED TO		MOMENTS		
					MOMENTS	FT	MOMENTS	PART			
<b>ADDITIONS</b>											
<b>GROUP 100</b>											
SKES											
PORT PLG 14' x 22" x 1 1/2"	1071	2.50	26.77				112.0	119.952			
" " (12' x 14' x 2 x 5/8) 1/2"	2876	4.00	113.24				111.0	317.236			
FLONGS 7'0" x 7' x 1 1/2"	750	6.00	45.00				112.0	84.000			
DOUBLES AT PORT 128' x 12' x 2 1/2"	29376										
" " 16' x 2 1/2' x 2 1/2"	2040										
BULKHEADS 1/4 2 x 3 1/2' x 20' x 3 1/2"	42210	16.75	7070.18				20.5	865.304			
	18323	9.27	7256.99								
	3497		523.97				17.13	1388.493			
								679.86			
<b>GROUP 102</b>											
INNER BOTT. FR 7-9 10' x 12' x 1 1/2"	1836	5.00					110.0				
DEK END FR 9 10' x 2' x 1 1/2"	306	4.00					104.0				
SIDE RIBS FR 7-9 2' x 12' x 1 1/2"	734	4.00					110.0				
LOWER BOTT STIFF 3' x 12' x 1 1/2"	396	5.00					110.0				
VERT. BHD STIFF 3' x 2' x 1 1/2"	66	4.00					104.0				
	3338	4.67	155.84				109.33	364.948			
	1.49		6.96					162.92			
<b>GROUP 107</b>											
DOUBLES AT HEAD 64' x 3' x 2 1/2"	7834	15.0	11750.4								
	3.50		52.86								
TOTALS, POUNDS											
TONS											

COMPUTING OFFICER

"PROMISE"

DESCRIPTION	WEIGHT (Pounds)	MOMENTS ABOVE BASE	CENTER OF GRAVITY			MOMENTS REFERRED TO	MOMENTS REFERRED TO	MOMENTS
			MT	CONCRETE	POST			
GROUP III								
BETWEEN MAIN DECK & O1 LEVEL								
TRANS SHD FR. 12 11.5' x 11.5' x 12"	1944	26.00						13.35
FR. 13 13.5' x 11.5' x 12"	1944	21.00						13.35
FR. 14 8.5' x 11.5' x 12"	1224	21.00			3.50			
FR. 15 40' x 12' x 12"	5760	21.00						
O1 LEVEL DECK								
FR. 16 40' x 32' x 12"	15360	27.00						
FR. 17 35' x 16' x 13.5"	1776	27.00			18.00			13.25
FR. 18 11.5' x 16' x 13.5"	2484	21.00						
SIDE PLATING FR. 19-21 (1/2")								
2x48' x 12' x 13.5"	15552	21.00						
BETWEEN O1 & O2 LEVEL								
FOR END BHD 48' x 9' x 17"	7344	31.5						
AFT END BHD 48' x 9' x 17"	4320	31.5						
TRANS BHD FR. 12 22' x 9' x 12"	3024	31.5						
FR. 13 22' x 9' x 12"	3024	31.5						
FR. 14 22' x 9' x 12"	3456	31.5						
FR. 15 22' x 9' x 12"	3456	31.5						
O2 LEVEL DECK								
FR. 16 22' x 49' x 12.5"	1908	36.0						
FR. 17 22' x 22' x 12.5"	13224	36.0						
SIDE PLATING FR. 18-21 (1/2")								
2x76' x 9' x 12.5"	18068	31.5						
BETWEEN O2 LEVEL & TOP OF HULL								
FOR END BHD 74' x 21' x 17"	3264	40.0						
AFT END BHD 74' x 21' x 17"	1176	40.0						
TRANS BHD FR. 12 24' x 9' x 12"	7304	40.0						
SIDE PLATING (1/2") 2x32' x 8' x 12.5"	1176	40.0						
TOP OF HULL								
672' x 12' x 12.5"	143632	44.0						
PAGE TOTALS, POUNDS	64,13	31.61						
TOTALS	64,13	31.61						
						7271744		69021
						3246		31

COMPUTED BY

DESCRIPTION	WEIGHT (Pounds)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY				REFFERED TO MOMENTS	BT' MO	COMMENTS
				FT	MOMENTS	MOMENTS	MOMENTS			
<b>GROUP III</b>										
LONG <sup>2</sup> WT RHD 24'x15'x15" (P)	7344	7.50								
RHD LONG <sup>2</sup> STIFF 58'x2'x11" (P)	1760	7.50								
LONG <sup>2</sup> WT RHD 32'x15'x15" (S)	7344	7.50								
RHD LONG <sup>2</sup> STIFF 58'x3'x11" (S)	1760	7.50								
TRANS RHD FR. 12 20'x15'x15"	4570	7.50								
RHD VERT. STIFF 4'x15'x11"	660	7.50								
MOZELLE (S) 12'x24'x26" FT	7438	9.00	61342							
TRANS RHD FR. 16 40'x15'x15"	9180	7.50								
RHD VERT. STIFF 12'x15'x11"	1480	7.50								
TRANS. INT RHD 50 24'x15'x15"	1295	7.50								
TRANS. INT RHD 18 24'x12'x11"	4306	9.00								
STIFF. 2'x12'x11"	1056	2.00								
F.W. TANK TRANS. RHD 48'x15'x15"	5760	8.20								
F.W. TANK LONG. RHD 48'x15'x15"	6912	8.20								
F.W. TANK VERT. RHD 24'x15'x15"	6912	12.00								
F.W. TANK INT. RHD 24'x15'x15"	6912	4.50								
TRANS. RHD VERT. STIFF 48'x15'x11"	1650	8.20								
TRANS. RHD VERT. STIFF 48'x15'x11"	1950	8.20								
TANK INT. LONG. RHD 24'x15'x15"	1980	12.00								
TANK INT. LONG. STIFF 24'x15'x11"	1980	4.00								
<b>TOTALS</b>										
PAGE TOTALS, POUNDS	93849	8.04	674522							
TOTALS	37.43		301.13							

COMPUTED BY: 1474 1530687  
531.73

REFFERED TO MOMENTS: 1474 1530687  
531.73

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

PAGE 12.2c  
DATE 2-26-75

"PROMISE"

DESCRIPTION	WEIGHT (Pounds) EQUATED	ABOVE BASE	MOMENTS	CENTER OF GRAVITY			REFERRED TO MOMENTS	REFERRED TO MOMENTS	MOMENTS	MOMENTS
				INCH	FEET	INCHES				
GROUP ADDITIONS										
GROUP 122										
CENTER WELL KNOT PEEKS	16800	0.6								
15' x 32' x 3.5"										
CENTER WELLS AND HATCH	12000	14.3								
15' x 32' x 3.5"										
CALL-UP DECK FRAMES 17	2800	27.0								
16' x 16' x 7"										
CALL-UP DECK FRAMES 17	2100	21.0								
12' x 15' x 7"										
GROUP 122	33700		301380			22400			19600	
GROUP	1500	8.91	135	0.66	10				6.58	9
110	3743	8.04	301	14.74	652					
111	6413	31.61	2027	50.61	3246					31
102	149	4.67	7	109.33	163					
109	3497	9.27	324					17.73	620	
107	350	15.00	52							
WELD (1/2" x 1/2" ST.)	2100	13.02	2846	14.33	50					
150	328		43							
TOTALS-POUNDS	22185	1302	2889	1533	3401					0.10
GROUP TOTAL - TONS										22

COMPUTED BY

PAGE 13-20

DATE 4-1-75

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

BARGE "PROMISE"

DESCRIPTION	WEIGHT (Pounds) (Gross)	CENTER OF GRAVITY				REFERRED TO FRAME NO.		REFERRED TO MOMENTS		31" MO	MOMENTS
		ABOVE BASE	MOMENTS	7" MO	NO. 2	MOMENTS	NO. 2				
<b>ADDITIONS</b>											
GROUP 200											
GEN-DIESEL PROP UNIT (61.2) - 300 HP	19000	5.5		98							
VS UNITS (2 UNITS) (6-2) (GPM)	58000	3		110							
VS VERT. AXIS PROP 4'-5" DIA	50000	-									
2 VS VERT. AXIS PROP 4 H-6 DIA (2)	100000	4									
LINE SHAFTS 7'-3" DIA (IND)	5000	1		104							
COUSINGS 9" DIA (")	200	1		104							
PELLINGS 12" DIA (")	200	1		104							
2-LINE SHAFTS 16'-0" DIA (MT)	9624	6									
COUSINGS 9" DIA (")	400	6									
GEARINGS 12" DIA (")	400	6									
TOTALS: POUNDS	230824	1.18									
TONS	10305	4.6									
		96464									
		43065									
		3956									
		913020									
		3756									
		1016.30									

COMPUTED BY

17/20

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

FILE 14-20

BARGE "PROMISE"

DATE 2-26-75

DESCRIPTION	WEIGHT (Pounds)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY			REFERRED TO	MOMENTS	MOMENTS
				FT	MOMENTS	MOMENTS			
<b>ADDITIONS</b>									
<b>GROUP 300</b>									
2-2000W BERTON DIESEL GEN	190000	6	864000	67	4216000		11511000		
EXH. PUMPING (5) 6" ID L.F.	350	5.5	1897.5	67	230800		379100		
PLAIN SWITCH BOARD 75-422-7	67200	2.5	168000	22	147840				
50/300 TRANSFORMER 100A	105	4	420	64	6720		1150		
<b>CABLE:</b>									
T-52 20'	190	9	1710	33	6060				
T-15A 10'	300		2700		9600				
T-6 17'	76		734		282				
T-2 26'	80		720		2520				
T-20 180'	60		540		1950				
T-20 66'	260		2340		810				
D-9 900'	10		1800		55104				
D-9 80'	10		90		340				
D-9 350'	70		630		2240				
T-20 180'	430		3570		13760				
T-20 180'	646		5814		20472				
T-20 60'	370		2430		3640				
T-20 90'	288		2592		9216				
T-20 90'	10		90		310				
<b>SHORE</b>									
SHORE 1500'	1500	18.5	42750	22	33000				
LIGHTING 25 20' 1000'	1500	18.5	42750	22	33000				
WIRE 1000'	2000	9	18000	32	64000				
<b>TOTALS, POUNDS</b>	<b>224907</b>	<b>12.98</b>	<b>1797.70</b>	<b>4774</b>	<b>118900</b>		<b>168700</b>		
<b>TOTALS</b>	<b>1000</b>			<b>4774</b>	<b>4975</b>		<b>725</b>		

CREATING SHEET

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
NAVSHIPS W104-3 (11-57)

PAGE 15-20

U.S.S. PROMISE

REPORT SHEET NO. 15-2281  
REPORT NUMBER 2281-4

DATE

DESCRIPTION	WEIGHT (Pounds) (TONS)	CENTER OF GRAVITY				REFERENCED TO PORT	REFERENCED TO STARBOARD	ST No	UNITS
		ABOVE BASE	MOMENTS	FT	MOMENTS				
ADDITIONS									
GROUP 400									
WIRELESS HOUSE DECKLET # 2410 2H	4.0	37.5	86.0						
CENTRAL 2H	5.0	29.5	24.0						
TOTALS, POUNDS		33.0	297.5	51.5	464.0				
TONS	9.0								

COMPUTED BY



ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

FIG 16-20

BARGE "PROMISE"

DATE 6-26-75

DESCRIPTION	WEIGHT (Pounds)	ABOVE BASE	CENTER OF GRAVITY				REFERRED TO	MOMENTS	MOMENTS	MOMENTS
			FT	IN	FT	IN				
ADDITIONS										
CRANK 500										
Fire Pump	6000	5.0	30000	5.2	31200					66000
FRESH PUMP	2000		10000		10000					22000
F.O. TRANSFER PUMP	1000		5000		5000					11000
SANITARY PUMP	900		2000		2000					9900
STRIPPING PUMP	3750		18450		18450					42225
SANITARY PRESS. TA	1000	6	6000	9.5	9500					11000
FRESH WATER	1000	9	9000	32	28800					22000
STARTING AIR COMPRESSOR	2000	15.0	10000	64	128000					
SUPPLY FANS 2500 CFM (MT)	1200	47.0	56400	50	60000					
" " 4500 CFM (TWD)	3000	29.5	88500	7.6	28800					
MUSHROOM VENT	800	29.3	23440	9.6	7680					
VENT TRUNKS	400	22	8800	9.5	3800					38500
HOT WATER	3500	7	24500	64	224000					
2 - 30 TON A/C	1600	18	28800	62	99200					
1 - 5 TON A/C	800	29	31200	73	184000					
SANITARY UNIT	800	4.5	3600	4.12	4000					
VENTING	800		3600		3600					
TOTALS, POUNDS	1297	12.94	16147	6.084	78834					
TOTALS, TONS										

COMPUTED BY

DATE

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
 DIVISIONS (11-97)

PAGE 17-20

U.S.S. PROANE

BUREAU OFFICE NO. 95-2281  
 REPORT-SHIP-2281-4

DATE \_\_\_\_\_

DESCRIPTION	WEIGHT (Pounds) Franchise	CENTER OF GRAVITY					REREFERRED TO MOMENTS	PART	REREFERRED TO MOMENTS	BT' IN	COMMENTS
		ABOVE BASE	MOMENTS	FT	INCHES	INCHES					
<b>ADDITIONS</b>											
<b>GROUP 600</b>											
LADDERS (INCL) (3) 01 LVL.	2200	32.0								46.0	
" " 3 HD. DK.	2900	21.0								32.0	
" " 2 HOLD	1950	7.0									
VEGT. LADDERS	100	40.0								80.0	
MEJ. TRUNK. BND. 02 LVL.	3500	40.0								59.0	
820025 / 01 LVL.	24000	31.5								64.0	
HD. DK.	12000	21.0								64.0	
PRINTING	5000	26.0								60.0	
DECK COVERING											
MAIN DECK 100'40" X 1.3"	5400	15.00								52.00	
01 LEVEL 76'3" X 1.3"	5162	27.00								54.00	
02 LEVEL 67'2" X 1.3"	874	36.00								73.03	
HULL INSULATION											
MIN DECK LEVEL 277'12" X 1.7"	2327	21.00								51.00	
01 202 249'9" X 1.7"	1380	21.50								54.50	
01 150'8" X 1.7"	840	20.00								73.43	
01 DK 150'4 FT X 0.7"	1953	27.00								64.0	
02 DK 176'0 X 0.7"	1232	36.00								44.58	
TOP OF HSE 672 FT X 0.7"	470	44.00								73.43	
WORK SHIP EQUIPMENT	100000	18.00								16.00	
EQUIPMENT FOR GALLERY	1800	18.00								110.0	
FURNISHINGS FOR MESSROOM	3000	18.00								78.0	
EQUIPMENT FOR LIVING SPACES	13500	17.50								62.00	
01 LEVEL	11000	24.50								74.00	
TOTALS, POUNDS	147696										
TONS	65.94										
COMPUTING BY											

8795281  
 3936  
 COMPUTING OFFICE

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
 SHIPBOARD W114-3 (11-57)

DATE

U.S.S. PROMLISE

REPORT NUMBER NO. 15-2381  
 REPORT-303173-2301-4

FIGURE 1A-20

DESCRIPTION	WEIGHT (Pounds) (To nearest 100)	ABOVE BASE	MOMENTS	REFERRED TO FRAME NO. 17 (M)		PART	REFERRED TO MOMENTS	ST'NS	MOMENTS
				NO.	MOMENTS				
GROUP 603 (CONT'D)									
FURNISHINGS FOR OFFICE, ETC.									
PROJECT OFFICE	1800	20.0		38.5				9.00	
CHART & RADIO RM	500	39.0		14.0				-	
RANGE OFFICE	500	32.0		62.5		1.75		-	
COX'S RM	1000	30.00		24.0				-	
MISCELLANEOUS	600	39.0		86.0				-	
FALSE FLOOR - COX'S RM	9216	24.00		24.0				-	
PAGE TOTALS, POUNDS	15616	74.70	9049018	3190	434334			15315	
TONS	6.08		181		194			1.13	

COMPUTING CHECK

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET  
NAVSUP FORM 416A-3 (11-57)

PAGE 19-20

URGENT DIRECTOR NO. 45-4281  
REPORT-903178-9301-4

U.S.S. PROHISG

DATE

DESCRIPTION	WEIGHT (POUNDS) (GROSS)	CENTER OF GRAVITY			MOMENTS	REFERRED TO FRAME NO. 17		REFERRED TO PART	REFERRED TO NUMBER	STOW	MARKS
		ABOVE BASE	MOMENTS	FT		MOMENTS					
ADDITIONS											
GROUP 600 (CONT'D)											
CRANE RAIL 600 x 108"	64800	16.0									
CRANE	123200	29.0				10.0					
						28.0					
STERN ROUWER	35000	13.3				128.3					
PAGE TOTAL, POUNDS	213000			4642850			11193100				
	75.09	24.80		2072.70		53.55	6997				
PAGE 6-3	95.09	24.80		2073		52.55	4917				
6-2	6.08	29.74		181		194					
6-1	65.74	23.20		1569		3926		0.06	4		1.12
TOTALS, POUNDS	167.11	27.39		3823		6.35	877				
GROUP TOTALS											

GROUPING BY

COMPUTING OFFICE

ESTIMATE OF WEIGHT FOR SHIPS, WORK SHEET

DESCRIPTION	WEIGHT (Pounds) (Tons)	ABOVE BASE	MOMENTS	CENTER OF GRAVITY			REFERRED TO			
				FRM	MOMENTS	MT	MOMENTS	MT	MOMENTS	
<i>SUMMARY OF ADDITIONS</i>										
GROUP	100	13.02	2889	15.33	3401				0.1	22
	200	4.18	430.65		3936	4016.3				
	300	12.98	1297.20	4994	4995		7.35	725		
	400	33.05	2972.50	5755	464					
	500	12.97	1674.1	6486	780.38				7.45	96.5
	600	23.82	3823		575	877				3
TOTAL, POUNDS	61399	1349	38926	765	4626.08		0.98	603.5		
TONS										

COMPUTED BY

REFERENCES

1. J. J. Henry Company, Inc., "Trim & Stability Study, Ocean Engineering Platform", March 11, 1975.
2. Drawing No. 1736-100-1, General Arrangement.
3. Drawing No. 1736-100-2, General Arrangement.
4. YF 614-50500-480780, ALT-5, Lines & corrected offsets.
5. Todd Shipyards Corporation, "Trim & Stability Booklet, Special Purpose Barge 'Compromise'".
6. "Barge Promise, Specifications for Work to be accomplished", Specification No. SND-018-76.
7. Drawing No. 3203-102, Main Deck Doubles Plating, NAVFACENGCOM.
8. Drawing No. 3203-101, Fairleader Foundation and Anchor Fender, NAVFACENGCOM.
9. Drawing No. 3017625, Deep Sea Anchor Installation, NAVFACENGCOM.
10. "Wind Heel Criteria", United States Coast Guard.

END

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