

DEPARTMENT OF TRANSPORTATION  
U. S. COAST GUARD  
CG-998 (Rev. 7-87)

## UNITED STATES COAST GUARD

# STABILITY TEST DATA

SCANDIES ROSE

OFFICIAL No. \_\_\_\_\_

Gross tons \_\_\_\_\_

Description of vessel RAKED STEM, SQUARE STERN

Type FISHING (CRABBER)

Builder BENDER SHIPBUILDING MOBILE, ALABAMA

Hull No. \_\_\_\_\_ Date Built \_\_\_\_\_

Hull STEEL, MACHINERY AFT, SHORT FOCLE,  
SINGLE CHINE

Machinery (2) GENERAL MOTORS 12V149 DIESELS

Owner LEIF NORDBO

Owner's address \_\_\_\_\_

Vessel inclined at DUWAMISH SHIPYARD SEATTLE, WASHINGTON

Date AUG. 28, 1988 Time 10:30 AM

Test requested by OWNER

Plans furnished by OWNER

Offsets measured by B. CULVER / R. MERRILL

Curves of form computed by B. CULVER / R. MERRILL

Test conducted by B. CULVER / R. MERRILL

Stability calculations made by B. CULVER / R. MERRILL

Duplicate vessels \_\_\_\_\_

Classed by \_\_\_\_\_ Inspected ☐ Safety certificate ☐ Load line ☐

Route: Ocean ☒ Coastwise ☐ Great Lakes ☐ Bays ☐ Rivers ☐

Specify route, if limited \_\_\_\_\_

Previous Edition May Be Used

U. S. GOVERNMENT PRINTING OFFICE 16-35871-4

GPO 951-381

SCANDIES ROSE

Page \_ \_ of \_ \_ \_

Ship complete in every respect, with water in boilers at steaming level and liquids in machinery and piping, but with all tanks and bunkers empty and no passengers, crew, cargo, stores, or baggage on board

GPO 471 26

ALBUQUERQUE DEPARTMENT  
U. S. COAST GUARD  
CG-993-7 (Rev. 12-59)

STABILITY TEST SCANDIES ROSE

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DATA FOR TANKS				WEIGHTS TO DEDUCT							
LIQUID	SOUND'G	Net Inertia of Free Surface	INERTIA FEET <sup>3</sup> /TON	ITEMS (Include list of tanks completely empty)	WEIGHT Tons	C. G. ABOVE BASE		C. G. FROM M. P.			
						LEVER	VERTICAL MOMENTS Ft.-tons	FEET AFT	AFTER MOMENTS Ft.-tons	FEET FOR'D	FORWARD MOMENTS Ft.-tons
				FUEL - FWD DOUBLE BOTTOM	7.02	2.01	14.11			25.15	176.55
				FUEL - FWD WINGS P/S	24.98	5.98	149.38			25.19	629.25
				FUEL - MIDSHIPS WINGS P/S	42.46	5.69	241.60			7.86	333.74
				FUEL - AFT WINGS P/S	39.07	5.63	219.96	11.00	429.77		
				FUEL - AFT STORAGE TANK(S)	18.64	10.40	193.86	49.60	924.54		
		399.30	11.12	WATER (12750 GAL.)	47.47	8.50	403.49	33.00	1566.51		
				LUBE OIL	4.02	12.90	51.86	47.75	191.96		
				MISC. TOOLS & EQUIPMENT	.22	12.50	2.75	20.00	4.40		
				INCLINING WEIGHTS	2.07	16.70	34.57			1.00	2.07
				PERSONNEL	1.07	12.50	13.37	10.00	10.70		
		4436.46	105.63	FUEL - MIDSHIPS DOUBLE BOTTOM	5.20	.50	13.52			7.86	40.87
		3992.81	95.07	FUEL - AFT DOUBLE BOTTOM	4.68	.50	2.34	11.00	51.48		
		857.22	20.41	FUEL - AFT STORAGE TANK (P)	11.24	9.20	103.41	48.50	545.14		
			232.23		208.14	6.94	1444.22		3724.50		1182.48
									(1182.48)		
								12.21	2542.02		

NOTE: Furnish tank sounding tables and plan of sounding tube locations unless previously submitted.)

GPO 938024



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CG-993-6 (Rev. 8-67)

# STABILITY TEST SCANDIES ROSE

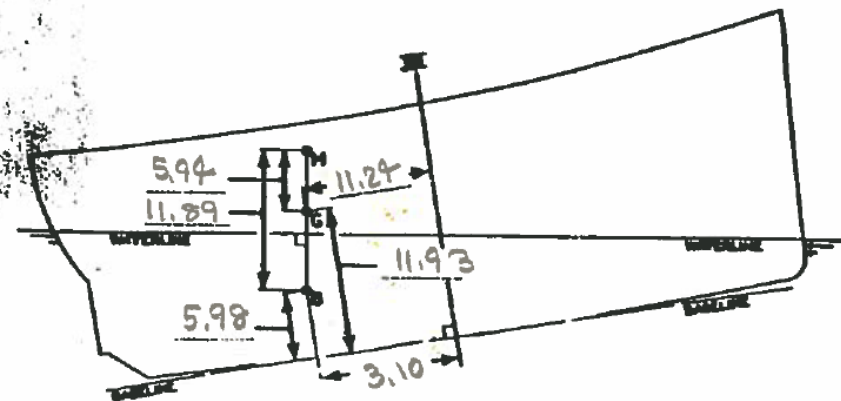
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## SHIP AT TIME OF STABILITY TEST—CONDITION 0

	FROM HYDROSTATIC CURVES	FROM INDEPENDENT CALCULATION
Corrected displacement	690.49 tons	tons
Mean virtual metacentric height obtained from plot of inclining moments versus tangents of angles of heel	5.60 feet	feet
Correction for free surface	.34 feet	feet
Mean metacentric height G. M. =	5.94 feet	feet
Transverse metacenter above base line corresponding to draft at L. C. F. (corrected for hog or sag)	17.67 feet	feet
Transverse metacenter above base line corrected (for trim, and hog or sag)	17.87 feet	feet
C. G. above base line	11.93 feet	feet. (From Figure)
Longitudinal metacenter above C. G.	141.01 feet (NO TRIM)	
Moment to alter trim 1 foot, $\frac{\text{Longl. GM} \times \Delta}{L}$	748.96 ft-tons	
Trim by <del>1.00</del> bow	7.50 feet	
Trimming lever = $\frac{\text{Trim} \times \text{moment to trim}}{\text{displacement}}$	8.135 feet	
L. C. B., <del>1.00</del> ft aft of M, which is	3.102 feet	
C. G. <del>1.00</del> ft aft of M	11.24 feet	feet. (From Figure)
Period of complete roll		seconds
Apparent radius of gyration of vessel	$r = \frac{T\sqrt{GM}}{1.108}$	feet
Rolling constant	$C = \frac{T\sqrt{GM}}{B}$	

\* Water in bilges. The bilges should be entirely free of water; but should this be impossible, correction should be made in the derived G. M. The details of this correction should form part of this report.  
† If the trim is excessive, independent calculations should be made to obtain the positions of center of buoyancy and transverse metacenter and the position of the center of gravity determined therefrom. These calculations should be incorporated in this booklet. (See Page 2a)

PREVIOUS EDITION MAY BE USED



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GPO 964-663



# PLOT OF TANGENTS

SHIP SCANDIES ROSE

PAGE \_\_\_\_\_ OF \_\_\_\_\_

## PERIOD OF ROLL CONSTANT

COMPLETE ROLL (T) \_\_\_\_\_ SECONDS

ROLL CONSTANT (C) =  $\frac{T}{B}$   $\sqrt{GM \text{ "AS INCLINED" (FT)}}$

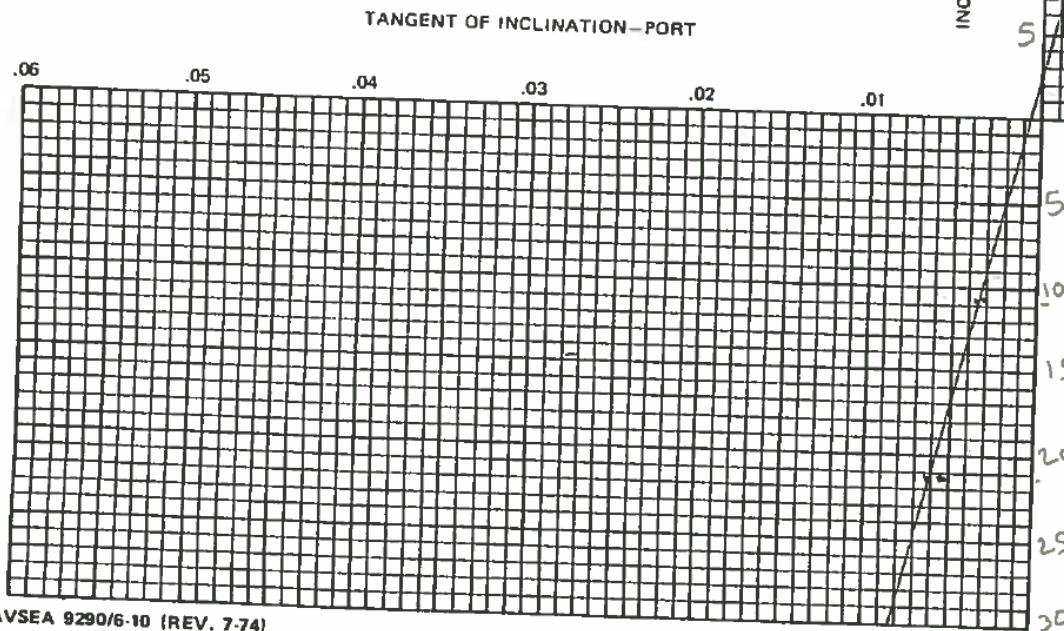
C = \_\_\_\_\_

C = \_\_\_\_\_

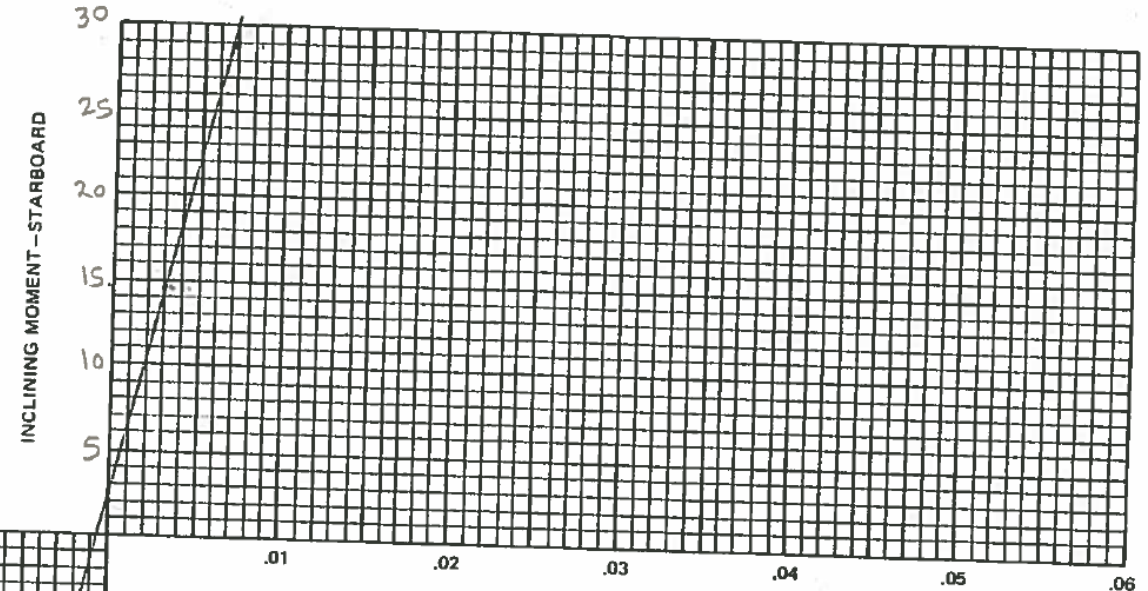
T = AVERAGE TIME OF COMPLETE ROLL (PORT TO STARBOARD TO PORT) IN SECONDS

B = MAXIMUM BEAM TO OUTSIDE OF PLATING ON D.W.L. FOR SURFACE SHIPS (FT)

B = MAXIMUM BEAM OF SHIP'S HULL FOR SUBMARINES (FT)



NAVSEA 9290/6-10 (REV. 7-74)  
(Formerly NAVSHIPS 263-3)



SLOPE =  $\frac{\text{INCLINING MOMENT}}{\text{TANGENT}}$

= 3866.55 FOOT TONS

BY LINEAR REGRESSION

The ratio "inclining moment ÷ tangent" above is the slope of the line which best represents the points plotted.

U. S. COAST GUARD  
CG-993-4 (Rev. 7-67)

# STABILITY TEST

SCANDIES ROSE

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## SHIP AT TIME OF STABILITY TEST—CONDITION 0

PENDULUMS			WEIGHT		DISTANCE FROM INITIAL POSITION		MOMENT	TOTAL INCLINING MOMENT		PENDULUM DEFLECTIONS		TANGENT	
No.	LOCATION	LENGTH TO BATTEN Feet	No.	Tons	PORT Feet	STARBOARD Feet		PORT ft.-tons	STARBOARD ft.-tons	No.	PORT Inches	STARBOARD Inches	PORT
1st	INSIDE FORECASTLE	84.5	1st trial	1 12.40		168.5	7.72						
		A		2 11.20	148.5	165.5	6.90			14.62			
2d	FWD OF DECKHOUSE	88.38	2d trial	1 .55		14.04	7.72						
		AA		2 .50		13.79	6.90			28.92			
				3 .53		14.46	7.66						
				4 .48		13.83	6.64						
3d			3d trial	1 —						0			
				2 —									
			4th trial	1 —									
				2 —									
				3 .53	9.31		4.93						
				4 .48	11.96		5.74		10.67				
			5th trial	1 .55	8.96		4.93						
				2 .50	11.48		5.74						
				3 .53	9.31		4.93						
				4 .48	11.96		5.74		21.34				
			6th trial										
			7th trial										
			8th trial										

INCLINING WEIGHTS			INITIAL POSITION	
Location	WEIGHT	V.C.G.	PORT	STARBOARD
	Tons		Feet	Feet
Description	STEEL DRUMS FILLED WITH CONCRETE			
1	.55			
2	.50			
3	.53			
4	.48			

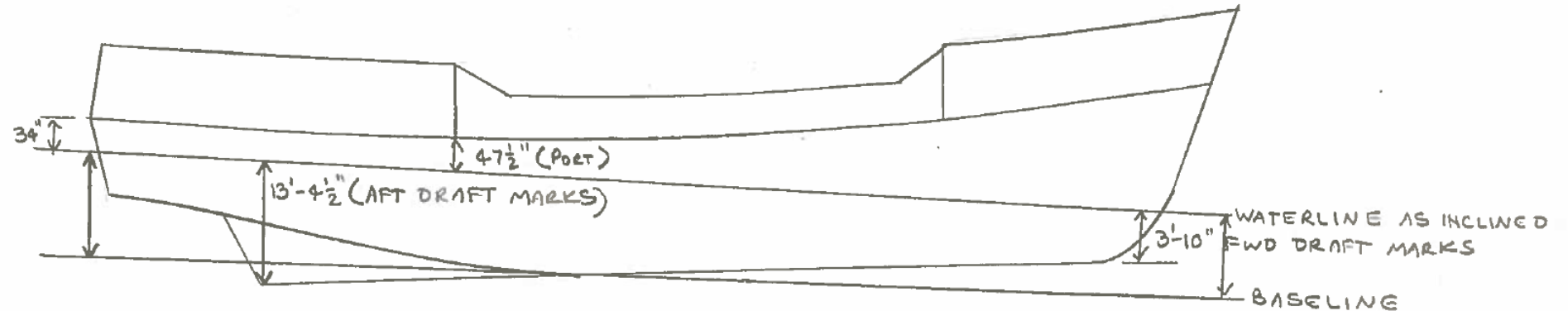
CG-993-2 (Rev. 12-59)

# STABILITY TEST SCANDIES ROSE

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All tons used in this calculation are of 2240 pounds

SHIP AT TIME OF STABILITY TEST—CONDITION O



SKETCH SHOWING HOG, SAG, TRIM, DRAG, AND LOCATION OF DRAFT MARKS, FREEBOARDS, AND PERPENDICULARS  
(Except where accuracy of draft marks have been verified by U. S. C. G., freeboards must be furnished)

Draft when inclined (check) <input checked="" type="checkbox"/> (From draft marks) <input type="checkbox"/> (From freeboards)	Forward	3 feet 10 inches	Mean of forward and after drafts	8.58 feet
	Aft	13 feet 4 1/2 inches	Hog or sag	— feet
Distance between "curves of form" perpendiculars	Amidships Port	— feet — inches	Trim <del>1.00</del> aft	7.50 feet
	Amidships Starboard	— feet — inches	Longitudinal center of flotation <del>1.00</del> aft	9.80 feet
Bottom of keel below base line	24 inches	Molded Keel draft at center of flotation	9.15 feet	
Molded Keel drafts corrected to "curves of form" perpendiculars for use in calculations	Forward	4.83 feet	Molded Keel draft at L. C. F. corrected for hog or sag	9.15 feet
	Aft	12.33 feet	Total displacement at above draft F. W., S. W.	— tons
	Mean of amidships P and S	— feet	Specific gravity of water	1.014 equals — cubic feet per ton.
			Total displacement corrected for density	690.49 tons

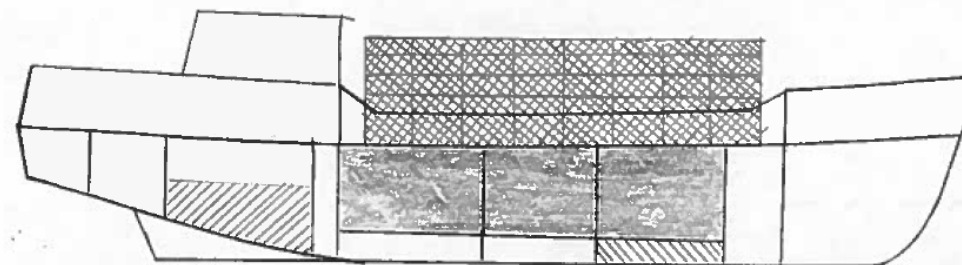
GPO 956-177



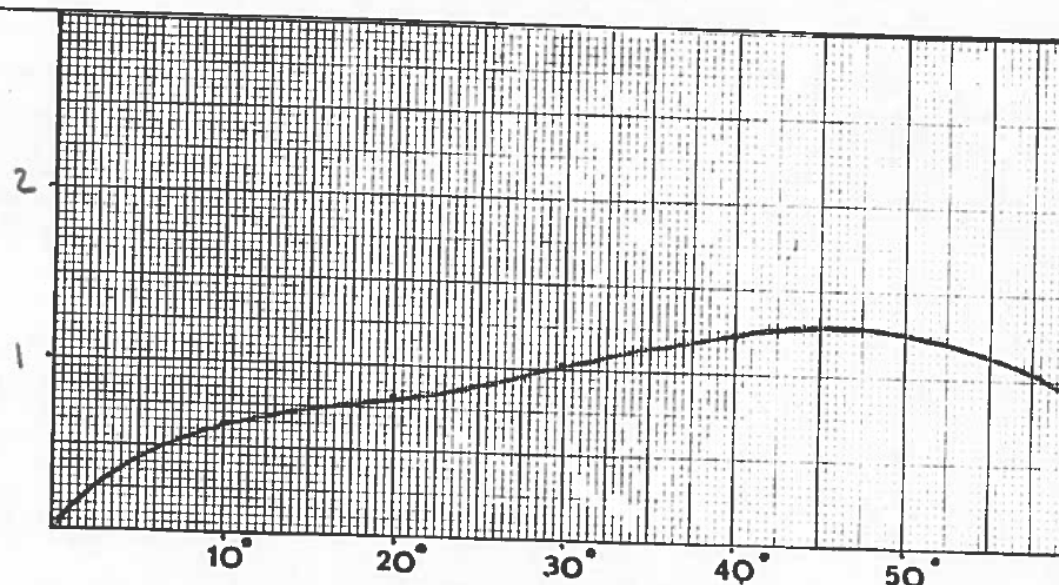
# SCANDIES ROSE

CONDITION #3 FISHING, MOVING POTS, 3 HOLDS FULL  
50% FUEL, 212 POTS

ITEM	F.S.	WEIGHT	VCG	V. MOM.	LCG	L. MOM.
LIGHT SHIP		485.35	14.09	6839.83	-10.74	- 5213.09
CREW & STORES		3.00	16.00	48.00	-33.00	- 99.00
FRESH WATER	11.12	23.74	6.75		-33.00	
LUBE OIL		2.01	10.80		-47.75	
FUEL-FWD DBL BTM		7.02	2.01		+25.15	
FUEL-MIDSHIP WINGS	17.14	27.49	3.92		+7.83	
FUEL-AFT WINGS		39.07	5.63		-11.00	
CENTER HOLD		138.28	8.00		+8.00	
AFT HOLD		129.45	8.00		-11.00	
FWD HOLD		110.63	8.00		+26.00	
1 <sup>ST</sup> TIER (80 POTS)		28.57	19.00		+3.00	
2 <sup>ND</sup> TIER (44 POTS)		19.11	23.83		+3.00	
3 <sup>RD</sup> TIER (44 POTS)		12.77	26.50		+3.00	
4 <sup>TH</sup> TIER (44 POTS)		12.77	29.17		+3.00	
	28.26	1029.26	11.65	11987.23	-3.31	-3410.70



RIGHTING ARM (GZ), FT.



HEEL ANGLE (Deg)

13.000 -1.891		IMO, NVIC 5-86	YES	NO
KM Trans.	16.25	AREA TO 30° > 10.34 Ft-Deg.	20.39	✓
VCG	11.65	AREA TO 40° > 16.92 Ft-Deg.	31.57	✓
GM-Uncorr.	4.60	AREA 30 to 40° > 5.64 Ft-Deg.	11.18	✓
F.S. Corr.	.03	Max. GZ > 25°	40°	✓
GM - Corr.	4.57	Max GZ > .66 Ft.	1.22	✓
TRIM 23" BY BOW		GM > 1.18 Ft.	4.57	✓

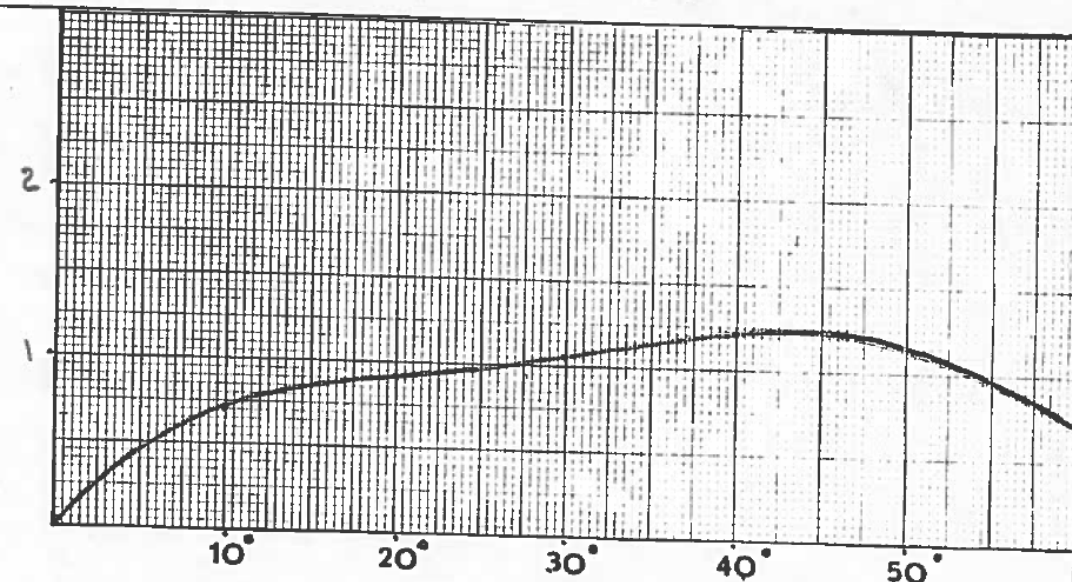
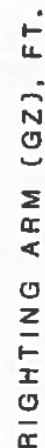
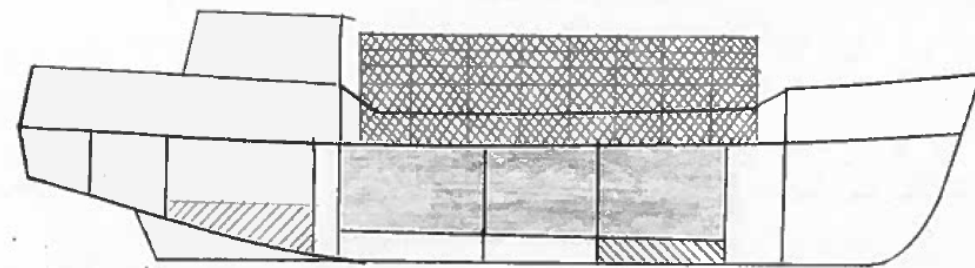
HEEL	10°	20°	30°	40°	60°
GZ'	.639	.841	1.026	1.241	.901
Free Surface	.005	.009	.014	.018	.024
GZ	.634	.832	1.012	1.223	.877

SCANDIES ROSE

ITEM	F.S.	WEIGHT	VCG	V. MOM.	LCG	L. MOM.
LIGHT SHIP		485.35	14.09	6839.83	-10.74	-5213.09
CREW & STORES		3.00	16.00	48.00	-33.00	-99.00
FRESH WATER	11.12	11.87	5.90		-33.00	
LUBE OIL		1.00	9.50		-47.75	
FUEL- FWD DBL STM		7.02	2.01		+25.15	
FUEL- AFT WINGS	15.42	11.61	2.04		-11.00	
CENTER HOLD		138.28	8.00		+8.00	
AFT HOLD		124.45	8.00		-11.00	
FWD. HOLD		110.63	8.00		+26.00	
1 <sup>ST</sup> TIER (80 POTS)		28.57	19.00		+3.00	
2 <sup>ND</sup> TIER (44 POTS)		14.11	23.83		+3.00	
3 <sup>RD</sup> TIER (44 POTS)		12.77	26.50		+3.00	
4 <sup>TH</sup> TIER (44 POTS)		12.77	29.17		+3.00	
	26.54	961.43	12.05	11580.77	-3.00	-2883.95
12.354 -1.893				IMO <sub>2</sub> NVIC 5-86		YES NO
KM Trans.	16.38		AREA TO 30° > 10.34 Ft-Deg.	22.31	✓	
VCG	12.05		AREA TO 40° > 16.92 Ft-Deg.	33.57	✓	
GM-Uncorr.	4.33		AREA 30° to 40° > 5.64 Ft-Deg.	11.26	✓	
F.S. Corr.	.03 FT		Max. GZ > 25°	40°	✓	
GM - Corr.	4.30		Max GZ > .66 Ft.	1.20	✓	
TRIM 23" BY 80W			GM > 1.18 Ft.	4.30	✓	

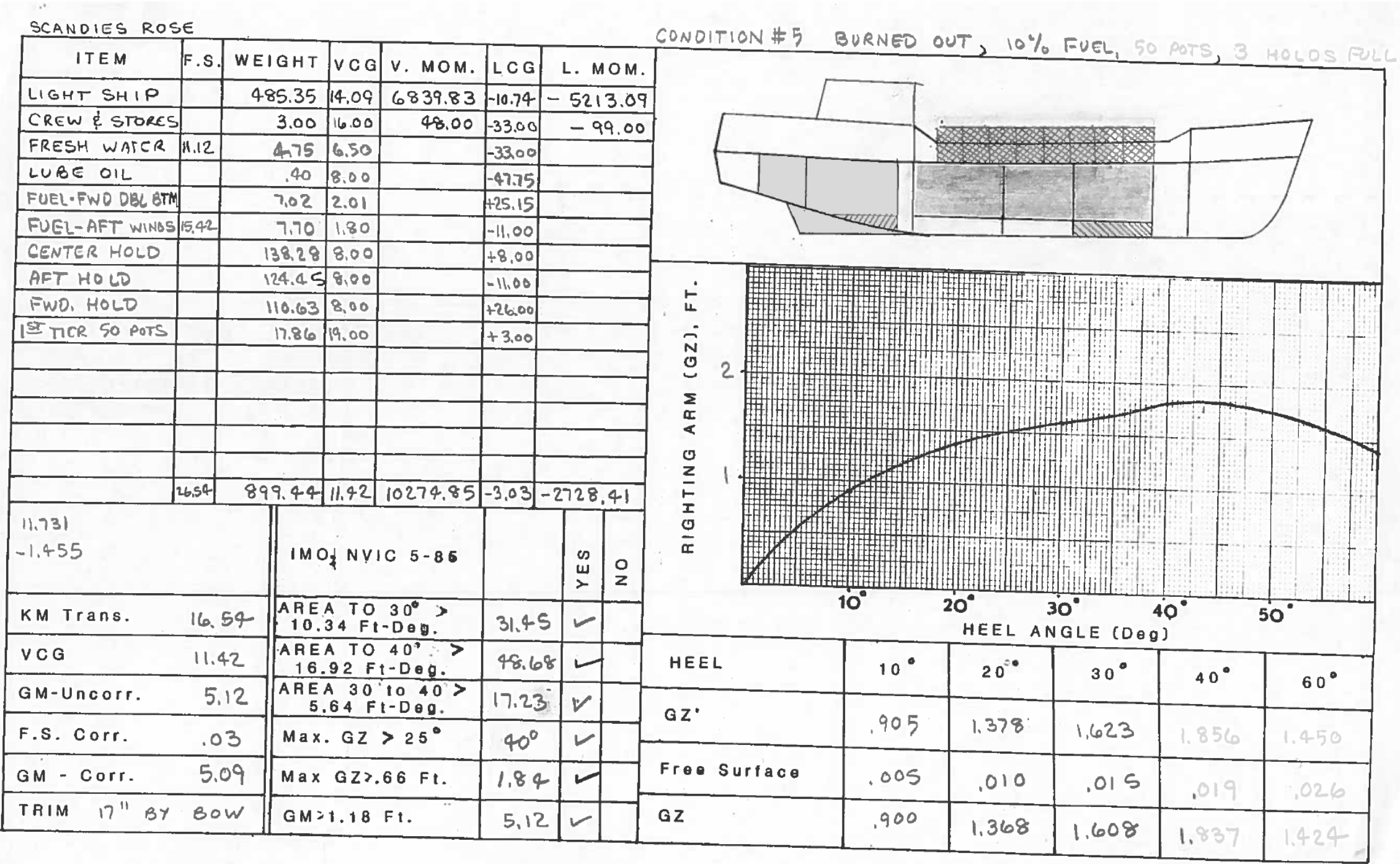
CONDITION #4

FISHING, 25% FUEL, 212 POTS, 3 HOLDS FULL



HEEL	10°	20°	30°	40°	60°
GZ'	.707	.941	1.063	1.221	0.736
Free Surface	.005	.009	.014	.018	.024
GZ	.702	.932	1.049	1.203	.712



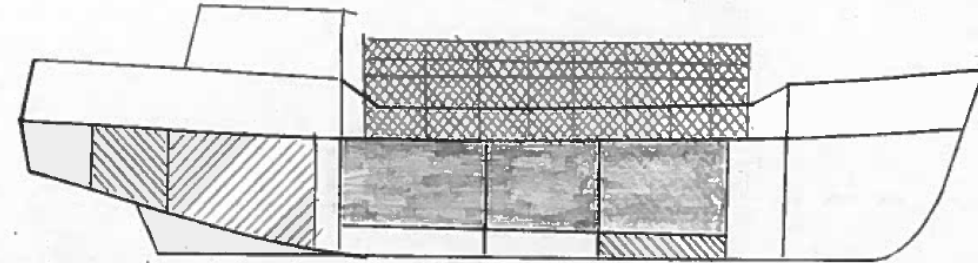




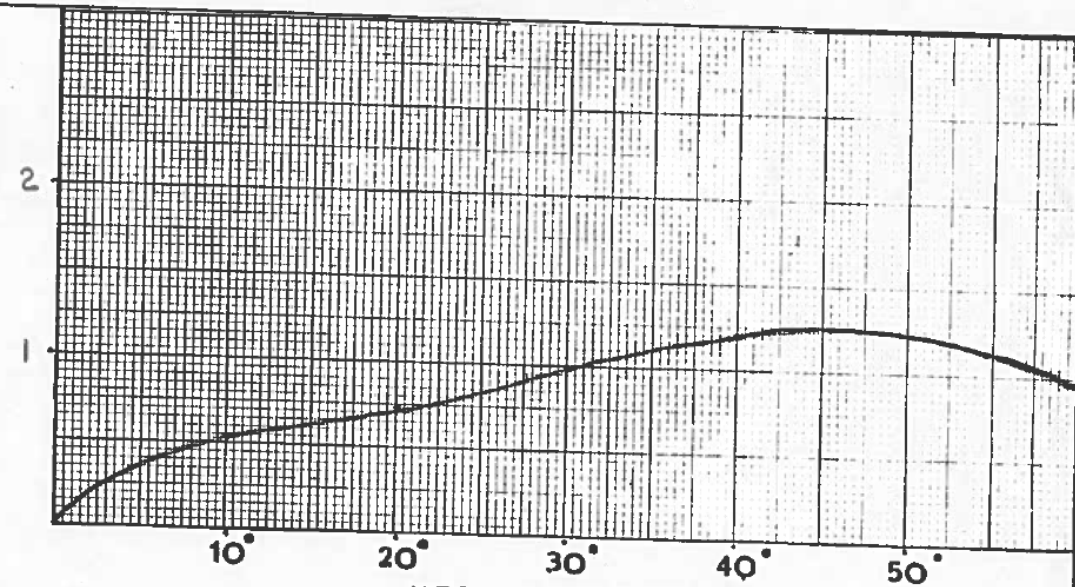
# SCANDIES ROSE

CONDITION #6 DEPARTURE FULL FUEL 3 HOLDS FULL, 168 POTS

ITEM	F.S.	WEIGHT	VCG	V. MOM.	LCG	L. MOM.
LIGHT SHIP		485.35	14.09	6839.83	-10.74	-5213.09
CREW & STORES		3.00	16.00	48.00	-33.00	-99.00
FRESH WATER	11.12	47.47	8.50		-33.00	
LUBE OIL		4.02	12.90		-47.75	
FUEL-FWD DBL BTM		7.02	2.01		+25.15	
FUEL- FWD WINGTKS	12.28	24.98	5.98		+25.19	
FUEL- MIDSHIP WING		42.46	5.69		+7.86	
FUEL- AFT WINGS		39.07	5.63		-11.00	
FUEL- AFT STORAGE		18.64	10.40		-49.60	
CENTER HOLD		138.28	8.00		+8.00	
FWD HOLD		110.63	8.00		+26.00	
AFT HOLD		124.45	8.00		-11.00	
1 <sup>ST</sup> TIER (80 POTS)		28.57	19.00		+3.00	
2 <sup>ND</sup> TIER (44 POTS)		14.11	26.50		+3.00	
3 <sup>RD</sup> TIER (44 POTS)		12.77	29.17		+3.00	
TOTAL	23.90	1100.82	11.30	12436.97	-4.09	-4509.88



RIGHTING ARM (GZ), FT.



13.638 -1.219		IMO 1 NYIC 5-86		YES	NO
KM Trans.	16.16	AREA TO 30° > 10.34 Ft-Deg.	18.19	✓	
VCG	11.30	AREA TO 40° > 16.92 Ft-Deg.	29.29	✓	
GM-Uncorr.	4.86	AREA 30 to 40° > 5.64 Ft-Deg.	11.09	✓	
F.S. Corr.	.02	Max. GZ > 25°	40°	✓	
GM - Corr.	4.84	Max GZ > 66 Ft.	1.22	✓	
TRIM 15" BY 80W		GM > 1.18 Ft.	4.84	✓	

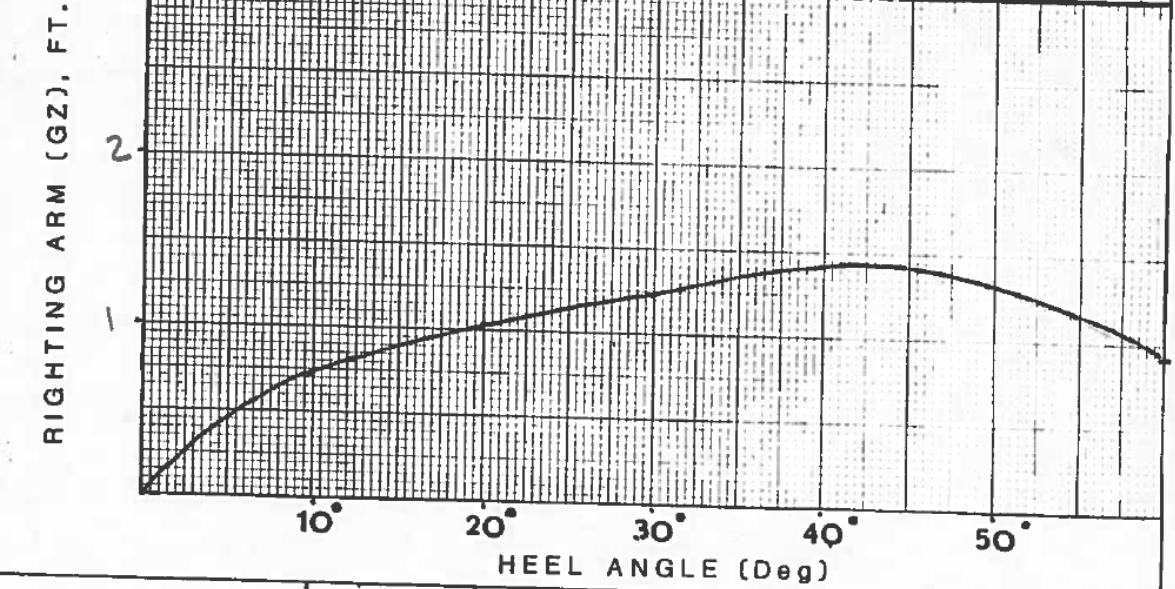
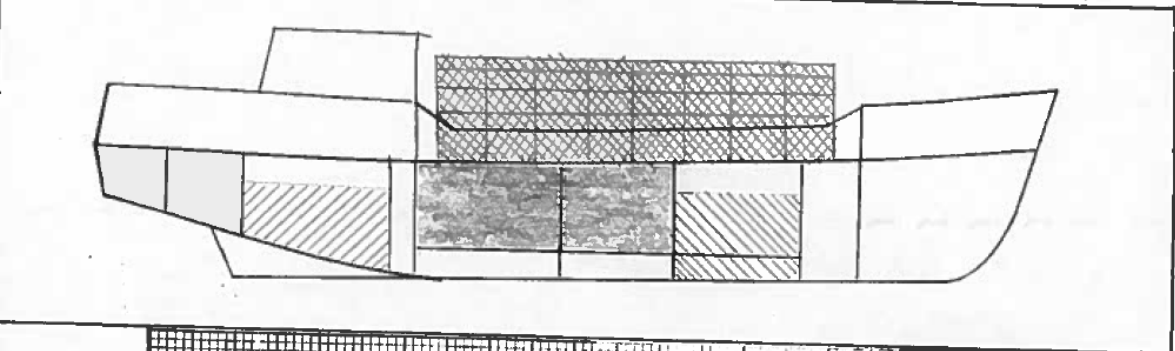
HEEL	10°	20°	30°	40°	60°
GZ'	.528	.745	1.009	1.234	1.012
Free Surface	.004	.007	.011	.014	.018
GZ	.524	.738	.998	1.220	.994

SCANDIES ROSE

ITEM	F.S.	WEIGHT	VCG	V. MOM.	LCG	L. MOM.
LIGHT SHIP		485.35	14.09	6839.83	-10.74	- 5213.09
CREW & STORES		3.00	16.00	48.00	-33.00	- 99.00
FRESH WATER	11.12	35.60	7.50		-33.00	
LUBE OIL		4.02	12.90		-47.75	
FUEL-FWD DBLSTM		7.02	2.01		+25.15	
FUEL-FWD WINGS	12.28	24.98	5.98		+25.19	
FUEL-MID WINGS		42.46	5.69		+7.86	
FUEL-AFT WINGS		39.07	5.63		-11.00	
CENTER HOLD		138.28	8.00		+8.00	
AFT HOLD		124.45	8.00		-11.00	
1 <sup>ST</sup> TIER (80 POTS)		28.57	19.00		+3.00	
2 <sup>ND</sup> TIER (44 POTS)		14.11	23.83		+3.00	
3 <sup>RD</sup> TIER (44 POTS)		12.77	26.50		+3.00	
4 <sup>TH</sup> TIER (44 POTS)		12.77	29.17		+3.00	
	23.90	972.45	11.85	11522.31	-6.20	-6026.70

12.216 1.967		IMO: NVIC 5-86		YES	NO
KM Trans.	16.32	AREA TO 30° > 10.34 Ft-Deg.	24.64	✓	
VCG	11.85	AREA TO 40° > 16.92 Ft-Deg.	37.99	✓	
GM-Uncorr.	4.47	AREA 30° to 40° > 5.64 Ft-Deg.	13.35	✓	
F.S. Corr.	.02	Max. GZ > 25°	40°	✓	
GM - Corr.	4.45	Max GZ > .66 Ft.	1.43	✓	
TRIM 24" BY STERN		GM > 1.18 Ft.	4.45	✓	

CONDITION #2 ARRIVAL ON FISHING GROUNDS, 75% FUEL & WATER



HEEL	10°	20°	30°	40°	60°
GZ'	.732	1.054	1.254	1.444	0.912
Free Surface	.004	.008	.012	.015	.021
GZ	.728	1.046	1.242	1.429	.891



SCANDIES ROSE						
ITEM	F.S.	WEIGHT	VCG	V. MOM.	LCG	L. MOM.
LIGHT SHIP		485.35	14.09	6839.83	-10.74	- 5213.09
CREW & STORES		3.00	16.00	48.00	-33.00	- 99.00
FRESH WATER	11.12	47.47	8.50	403.49	-33.00	- 1566.51
LUBE OIL		4.02	12.90	51.86	-47.75	- 191.96
FUEL- FWD DBL BTM		7.02	2.01	14.11	+25.15	+ 176.55
FUEL- FWD WINGTKS		24.98	5.98	149.38	+25.19	+ 629.25
FUEL-MIDSHIP WING		42.46	5.69	241.60	+7.86	+ 333.79
FUEL- AFT WINGS		39.07	5.63	219.96	-11.00	- 429.77
FUEL- AFT STORAGE	49.32	18.64	10.40	193.86	-49.60	- 924.54
CENTER HOLD		138.28	8.00	1106.24	+8.00	+ 1106.24
1 <sup>ST</sup> TIER (80 POTS)		28.57	19.00	542.83	+3.00	+ 85.71
2 <sup>ND</sup> TIER (44 POTS)		14.11	23.83	336.24	+3.00	+ 42.33
3 <sup>RD</sup> TIER (44 POTS)		12.77	26.50	338.40	+3.00	+ 38.31
4 <sup>TH</sup> TIER (44 POTS)		12.77	29.17	372.50	+3.00	+ 38.31
TOTAL	64.44	878.51	12.36	10857.06	-6.80	-5974.00
11.249 2.947						
		IMO, NVIC 5-86			YES	NO
KM Trans.	16.61	AREA TO 30° > 10.34 Ft-Deg.			27.08	✓
VCG	12.36	AREA TO 40° > 16.92 Ft-Deg.			41.43	✓
GM-Uncorr.	4.25	AREA 30° to 40° > 5.64 Ft-Deg.			14.35	✓
F.S. Corr.	.07	Max. GZ > 25°			40°	✓
GM - Corr.	4.18	Max GZ > .66 Ft.			1.48	✓
TRIM 35" BY STERN		GM > 1.18 Ft.			4.18	✓

CONDITION #1 DEPARTURE, FULL FUEL, 212 POTS

