

“Where will our knowledge take you?”

M/V MATANUSKA Repowering TRIM & STABILITY BOOKLET

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U.S. COAST GUARD



APPROVED



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1. Revisions

REV	Page	DESCRIPTION	DATE	DESIGNER
-		Initial Release	5/10/2019	R. Nancoz
A		Added aft limiting draft of 17'-7" per Ref [1]	7/3/2019	R. Nancoz
A1	--	Rev A of this document was stamped and signed by Raymond P Nancoz, P.E., Virginia Registration Number 055842 on 3 July 2019. This partial revision by Glostén updates the DO Storage Tank (9-10IND.C) Sounding Table per current sounding tube location on the vessel. The stamp and signature below applies only to content on the revised pages.	11/23/2022	JMW
	3	Updated Ref [4].		
	38	Updated 9-10IND.C Sounding Table per Ref [4].		



Digitally Signed 01-Dec-2022



2. Nomenclature, Coordinate System, and References

Nomenclature

ABL	Above baseline
AMHS	Alaska Marine Highway System
A.P.	Aft Perpendicular
BMT D&P	BMT Designers & Planners
CFR	Code of Federal Regulations
Disp.	Displacement of Vessel in Long Tons
F.P.	Forward Perpendicular
FSC	Correction to VCG due to Free Surface Effect of slack tanks (Ft)
FSM	Free surface Moment (Ft-LT)
GHS	General Hydrostatics
GM	Transverse Metacentric Height (Ft), can be either required (req), corrected for free surface moment, or margin.
IMO	International Maritime Organization
LCB	Longitudinal Center of Buoyancy (Ft), (+) aft of F.P., (-) fwd of F.P.
LCF	Longitudinal Center of Flotation (Ft), (+) aft of F.P., (-) fwd of F.P.
LCG	Longitudinal Center of Gravity (Ft), (+) aft of F.P., (-) fwd of F.P.
LT	Long Tons (2240 lbs)
MTI	Moment required to trim 1" on LWL (382 feet)
OCMI	Officer in Charge, Marine Inspection
P/S	Port/Starboard
RA	Righting Arm (Ft)
STBD	Starboard
T&S	Trim and Stability
USCG	United States Coast Guard
VCG	Vertical Center of Gravity, height above baseline (Ft)

Coordinate System

The table below displays the origin and positive orientation of the longitudinal, transverse, and vertical directions.

Coordinate System		
Direction	Origin	Positive Orientation
Longitudinal	Frame 0	+ Aft
Transverse	Centerline	+ Starboard
Vertical	Baseline	+ Upward

Heel is positive to starboard.

The trim, when expressed in feet, is the difference between the forward and aft draft marks, see Section 8.4 for more information. Aft trim (trim down by the stern) is positive.

References

- [1] USCG Letter H2-1901976, Structures, Lightship Characteristics and Stability, June 19, 2019.
- [2] M/V MATANUSKA Trim & Stability Booklet, 02-IR-001-001 Rev C. EBDG, July 18, 2014.
- [3] BMT D&P Report: 835-1009014-812, Rev A, Inclining Experiment and Lightweight Survey Report, 30 April 2019.
- [4] GHS Geometry File: MATANUSK_NOV22.GF1, AMHS, Modified by Glosten, November 23, 2022.
- [5] BMT D&P Drawing: 120-1009012-002, Rev C, Service Tank Structural Mods, October 03, 2017.
- [6] M/V MATANUSKA Intact and Damage Stability Analysis, Rev A, Glosten, March 09, 2018.



3. General Notes

1. This booklet replaces Reference [1].
2. The light ship weight and centers are per Reference [2].
3. This booklet has been prepared to enable operating personnel to determine draft, trim, and intact stability for any normal loading condition. Representative sample loading conditions are also included.
4. It is required that the minimum GM values given in this document be met for the service intended. In no case shall the available GM (corrected for liquid free surface) be less than these values.
5. AMHS provided the GHS geometry file, Reference [3] to BMT D&P. BMT D&P modified this file per the new service tank arrangement and application of appropriate specific gravities for the new tanks, see Reference [4]. The No. 6DB Ballast Tank Port & Stbd (8DB-BAL.P/S) was modified to remove the engine sumps. The No 4 Ballast (11DP-BAL.C) was modified to correct the cross-over trunk volume. The GHS file has no other modifications.
6. This booklet has been prepared in accordance with 46 CFR 170.110 to demonstrate that the MV MATANUSKA has sufficient subdivision, intact, and damage stability to comply with USCG rules for passenger vessels in service on exposed waters.
7. All tons used in these calculations are long tons, equivalent to 2240 pounds.
8. The vessel is assumed to be floating in salt water of 1.025 specific gravity (35.0 ft³ per LT).
9. Liquid specific gravities used:

• Fuel Oil: 0.870	• Fresh Water: 1.000
• Lube Oil: 0.880	• Sewage: 1.000
• Gear Oil: 0.927	• Some tanks have different specific gravities. Refer to Section 7.3 for details
• GST-68: 0.867	
10. Coordinate system origin is at baseline, F.P. (Fr 0) and centerline.
11. Longitudinal centers of gravity and buoyancy are measured from F.P. (positive AFT).
12. Vertical centers of gravity and buoyancy are measured above baseline (positive UP)
13. Transverse centers of gravity and buoyancy are measured from centerline (positive STBD).
14. The forward draft marks are located at the F.P. The aft draft marks are located at the A.P. The length between perpendiculars is 370 feet.
15. The #3 Wing Void (10WG-BAL.C) and #4 Wing Void (11WG-BAL.C) shall not be filled without consulting a naval architect first. Both of these tanks have dangerously high free surface moments if they have liquid inside them.

4. Vessel Information

General	
Ship's name	M/V MATANUSKA
Owner	Alaska Marine Highway System
Certification	IMO/SOLAS and USCG Sub H/
Type of Vessel	Passenger/Car Ferry
Official Number	291533
IMO	5228827
Class	ABS +A1, Ferry Service, Circle E, +AMS
Builder/Year Built	Puget Sound Bridge & Drydock Company/1963
Lengthened By/Year Lengthened	Williamette Iron & Steel Co/1978

Admeasurement Data	
Port of Registry:	Haines, AK
Registered Length:	COI - 375.1'
Registered Breadth:	73' 7-1/2"
Registered Depth:	23' 6"
Domestic Gross Tons/Net Tons	3029 / 1235
International Tonnage Gross Tons/Net Tons	9214 / 3824

Principal Particulars	
Length Overall, LOA (molded)	408'-0"
Length on Waterline, LWL	382'-0"
Length between Perpendiculars, LBP	370'-0"
Depth to Main Deck (molded)	23'-6"
Draft to Design Waterline	17'-2"
Subdivision Load Line	17'-2" max mean draft 17'-7" max aft draft mark
Midships	185'-0" Aft of FP
Fuel Capacity (gallons, approx.)	106,000 gallons
Fresh Water Capacity (gallons, approx.)	79,000 gallons
Car Deck	Total Lanes: 1,600 linear feet
Crew Size	58

Lightship Data	
Lightship (LT)	3,910.08
LCG (ft, aft of F.P.)	200.62
TCG (ft, Stbd +)	0.10
VCG (ft, ABL)	29.25

The lightship data is per Reference [2].

Naval Architectural Data	
Stability:	Exposed Waters; 499 passengers + 375 LT, 10,800 ft-LT Vehicles, or 750 Passengers only
Operation Route:	Prince Rupert, B.C. or Bellingham, WA to Ketchikan, Wrangell, Petersburg, Juneau, Sitka, Haines, and Skagway, AK (Sheltered waters of the West Coast of N. America)

5. Operating Instructions

5.1. Introduction

The purpose of this Trim & Stability Booklet is to provide general operating information for maintaining satisfactory stability of the M/V MATANUSKA.

The M/V MATANUSKA is a 408'-0" vehicle/passenger Alaska State ferry operating regularly scheduled interstate and intrastate service between Washington and numerous Alaskan ports.

Loading conditions covering the extreme operating range of the vessel are evaluated against the required GM values per Table 9 "Values of Maximum Allowable VCG Composite Curve" in Reference [5].

The maximum liquid free surface moments (FSM), not the actual FSM, is used in the calculations as required by the USCG.

5.2. Operating Instructions, Assumptions, and Limitations

5.2.1. General

The stability characteristics of this vessel are in accordance with the stability criteria required by the USCG for passenger vessels in 46 CFR Subchapter S. It has been determined that the vessel should be operated under loading conditions which do not exceed those recommended below.

The vessel is approved to operate in exposed waters.

This booklet supersedes all previous booklets and covers the full range of normal operating conditions. Section 7 includes stability worksheets to allow the Master to calculate a custom loading condition. The condition must be calculated using a stability worksheet if the loading of the vessel does not comply in any way with the operating instructions listed here.

5.2.2. Lightship Weight, Center of Gravity, and Watertight Integrity

Any changes made to the vessel that alters the vessel's weight, center of gravity, or watertight integrity void these instructions. No fixed weights shall be added, removed, or relocated without the prior approval and supervision of the load line assigning authority or the USCG. This vessel is equipped with solid ballast as shown in Section 6.

The watertight integrity of the subdivision bulkheads shall be maintained at all times.

Penetrations through the subdivision bulkheads shall be maintained watertight: bolted plates, door and other openings are not permitted in these bulkheads unless authorized in writing by the load line assigning authority.

The vessel's bilges and voids shall be kept pumped to minimum contents at all times consistent with pollution prevention requirements.

5.2.3. Freeboard & Trim:

This booklet has been prepared for operating of the vessel at the 1966 freeboard draft as authorized by the International Convention on Load Lines, 1966. The 1966 load line has been assigned because the vessel complies with the pertinent requirements regarding subdivision. The load line draft (from baseline) is 17'-2".

Under no conditions is the vessel to be loaded or ballasted beyond its subdivision draft of 17'-2" at mean draft. Additionally, per Reference [1], under no conditions is the vessel to be loaded or ballasted beyond 17'-7" at the aft draft marks.

Under no condition is the vessel is loaded or ballasted beyond the trim range of 0.5 feet fwd and 3.2 feet aft.

This vessel should be operated with a minimum load line freeboard of at least 6'- 4" at all times, measured from the top of the main deck steel at amidships down to the water. This load line freeboard corresponds to a total even keel displacement of 5,664 long tons in salt water.

5.2.4. Ballast Tanks

Observe the following limits on ballast tankage:

- a. The following tanks shall remain pressed full at all times:
 - No. 1 DB Ballast (2DB-BAL.C)
 - No. 2 DB Ballast (3DB-BAL.C)
 - No. 3 DB Ballast, Port & Stbd (4DB-BAL.P & 4DB-BAL.S)
 - No. 6 DB Ballast Port & Stbd (8DB-BAL.P/S).
 - No. 2 WG Bal (9WG-BAL.C)
 - No. 7 DB Ballast (9DB-BAL.C)
- b. The Forepeak Ballast tank (FPK-BAL.C) must remain empty at all times.
- c. Reduce the number of slack tanks to the minimum possible.
- d. All tank cross flooding valves shall be kept closed at all times.
- e. No more than one ballast tank, or one P/S ballast tank pair, shall be filled, emptied, or left partially full at a time.
- f. Empty ballast tanks shall be checked on a regular basis to ensure that water does not enter.
- g. Full ballast tanks shall be checked on a regular basis to ensure that the water level does not drop.

5.2.5. Consumable Tanks

Observe the following limits on consumable tankage:

- a. No. 3 and No. 4 Potable Water (5IND-FW.P & 5IND-FW.S) tanks shall be empty at all times.
- b. For ballast purposes, either the #4 DB FO Tanks (6DB-FO.P/6DB-FO.S) or the #5 DB FO Tanks (7DB-FO.P/7DB-FO.S) shall be filled to 95% and no fuel is to be consumed or transferred from that pair of tanks for the duration of the voyage.
- c. One pair of storage tanks and the centerline DO Storage Tank (9-10IND.C) may be burned down to 10%.
- d. For each consumable liquid, only one pair of P/S storage tanks (except settling tanks), or one centerline storage tank may be slack at any time.

5.2.6. Permanent Ballast

The vessel carries a significant amount of permanent ballast (liquid and fixed), as depicted in Section 6. Under no conditions is this ballast to be removed or in any way altered without authorization of the cognizant OCMI.

5.2.7. Loading Condition Assumptions

Operational loads, gear and supplies assumed to be on board are shown below. Do not exceed these loads at any time. Loadings shall be kept symmetric about the ship's midship and centerline to minimize the trim and heel of the vessel.

No more than 499 passengers may be carried with vehicles on the car deck and no more than 750 passengers are to be carried when there are no vehicles on the car deck. 58 registered crew members are assumed onboard, however, since the personnel capacity is based upon other considerations in addition to stability, the number of persons carried may be further limited to that specified on the Certificate of Inspection.

Crew

58 crew and effects @ 350 lbs each = 20,300 lbs or 9.06 LT

LCG = 122.28 ft aft of F.P., VCG = 39.21 ft ABL

Passengers

499 passengers @ 185 lbs each + 50 lbs effects each = 117,265 lbs or 52.35 LT.

With no vehicles, passenger count may be increased to 750.

750 passengers @ 185 lbs each + 50 lbs effects each = 176,250 lbs or 78.68 LT.

For stability purposes, for no vertical restriction on the vertical distribution, the passengers are distributed on the highest public space deck; the Solarium. LCG = 207.10 ft aft of F.P., VCG = 55.40 ft ABL

Provisions

4.81 LT

LCG = 278.12 ft aft of F.P., VCG = 27.70 ft ABL

Consumable Stores

3.51 LT

LCG = 237.19 ft aft of F.P., VCG = 34.12 ft ABL

Standard Outfit

54.15 LT

LCG = 167.91 ft aft of F.P., VCG = 24.73 ft ABL

Free Surface Correction

46 CFR 170.285 and Marine Safety Manual Volume 4, Chapter 6 were used as guidelines for calculating the free surface correction in the sample load cases. For all miscellaneous tanks, the maximum FSM is used. For the main fuel tanks, the maximum FSM between the two possible burnout sequences is applied at the departure condition. Both possible arrival conditions are calculated separately.

Freeboard & Draft Restrictions

The minimum freeboard for this vessel was calculated to be 6'-4" at midships for the fully loaded condition. This corresponds to a full loaded draft of 17'-2" at mean draft. Additionally, per Reference [1], under no conditions is the vessel to be loaded or ballasted beyond 17'-7" at the aft draft marks.

Vehicle Cargo – with maximum of 18 Vans

Vehicle cargo shall not exceed 337.5 LT and a vertical moment of 10,800 LT-ft. This is equivalent to eighteen (18) vans or trailers at 42,000 lb (18.75 LT) each, respectively. If the weight or moment are to be exceeded, calculations must be performed to verify compliance with stability requirements.

Vehicle Cargo – with 17 Vans or fewer

Vehicle cargo shall not exceed 375 LT and a vertical moment of 10,800 LT-ft. This is roughly equivalent to forty-five (45) cars at 6,000 lb (2.68 LT) each and forty-seven (47) campers 12,000 lb (5.36 LT) each. If the weight or moment are to be exceeded, calculations must be performed to verify compliance with stability requirements.

In calculating vehicle weight, the following values should be assumed:

(1) Automobile	2.7 LT	VCG = 3.5 ft above deck, Length = 20 ft
(1) Trailer (Van)	18.75 LT	VCG = 8.5 ft above deck, Length = 30 ft
(1) Camper	5.4 LT	VCG = 6.0 ft above deck, Length = 20 ft

The vessel's net available lane feet for vehicles is 1600 ft.

5.2.8. List

Make every effort to determine the cause of any list of the vessel before taking corrective action. Pumping from full tanks or to empty tanks to correct list will cause an increase in free surface, which will decrease the stability of the vessel.

5.2.9. Weather Tightness and Seaworthiness

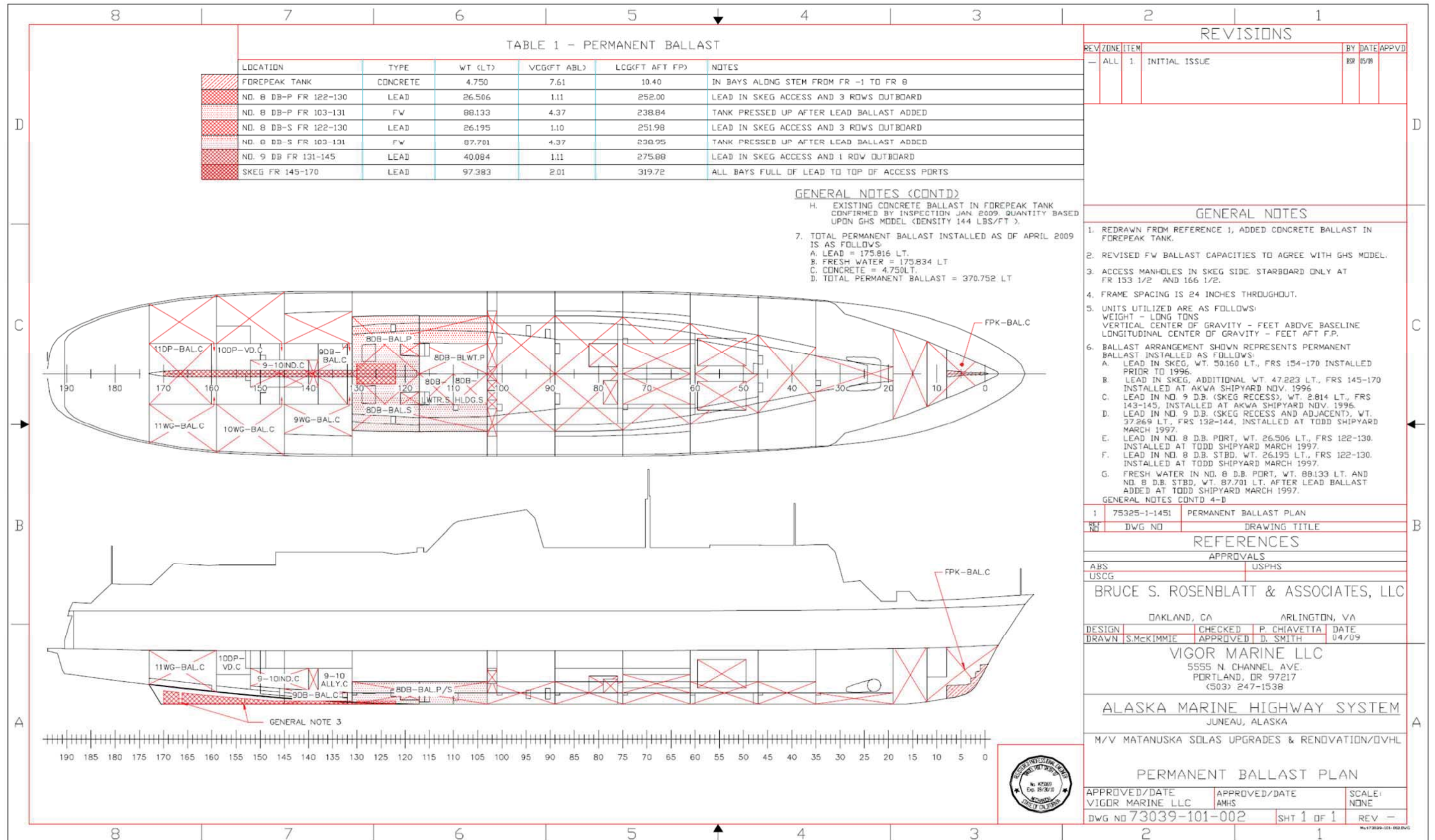
All weather deck doors, air ports, and vents shall be closed and securely dogged when operating in heavy weather conditions. All watertight doors shall be kept closed except when used for passage. The vessel's bilges shall be kept pumped dry at all times. Freeing ports shall be kept clear and operable at all times. All voids shall be kept pumped to minimum content at all times, and checked on a regular basis to ensure that water does not enter, causing free surface to develop. All doors to the center casing on the Vehicle Deck leading below the Main Deck must be weathertight. Chock closures within the Vehicle Space must be installed throughout the voyage.

The valves to piping systems such as bilge, ballast, fuel oil, etc., serving all spaces bounded by the subdivision bulkheads shall be kept closed at all times except when actually being used to drain or fill a compartment. This is in order to prevent progressive flooding through a piping system from a damaged compartment into an intact compartment.

5.2.10. Responsibility and Obligations of the Master:

The limits of loading and instructions should ensure adequate stability under normal conditions. However, they are not intended to replace the judgment of the Master, who must use every means at his disposal to ensure that the stability of the vessel is adequate to meet the sea and weather conditions encountered.

6. Permanent Ballast Plan



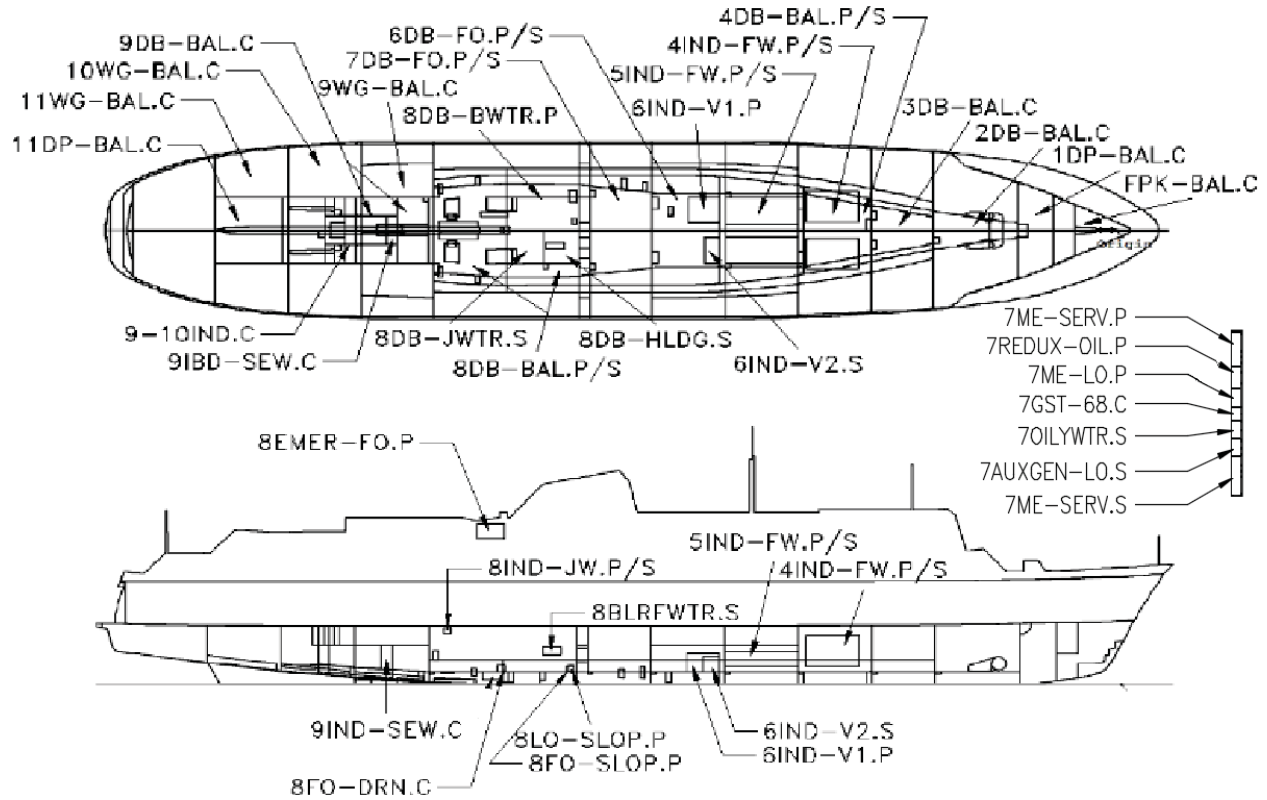
7. Tank Names, Arrangement, Capacities, and Sounding Tables

7.1. Tank Names

<u>TYPE OF TANK</u>	<u>GHS NAME</u>	<u>COMMON NAME</u>	<u>SOUNDING TABLE PAGE</u>
BALLAST TANKS:	FPK-BAL.C	Forepeak Ballast	15
	1DP-BAL.C	#1 Deep Ballast	16
	2DB-BAL.C	#1 DB Ballast	17
	3DB-BAL.C	#2 DB Ballast	18
	4DB-BAL.P	#3 DB Ballast P	19
	4DB-BAL.S	#3 DB Ballast S	20
	8DB-BAL.P	#6 DB Ballast P	21
	8DB-BAL.S	#6 DB Ballast S	22
	9WG-BAL.C	#2 Wing Ballast	23
	9DB-BAL.C	#7 DB Ballast	24
	11DP-BAL.C	#4 Ballast	25
	10WG-BAL.C *	#3 Wing Void	26
	11WG-BAL.C *	#4 Wing Void	27
	FRESH WATER TANKS:	4IND-FW.P/S	#1 & #2 Fresh Water
5IND-FW.P/S		#3 & #4 Fresh Water	29
SEWAGE TANKS	6IND-V1.P	V1 Sewage Tank	30
	6IND-V2.S	V2 Sewage Tank	31
	9IND-SEW.C	Sewage Holding Tank	32
FUEL OIL TANKS:	6DB-FO.P	#4 DB Fuel Oil Tank P	33
	6DB-FO.S	#4 DB Fuel Oil Tank S	34
	7DB-FO.P	#5 DB Fuel Oil Tank P	35
	7DB-FO.S	#5 DB Fuel Oil Tank S	36
	7ME-SERV.P	ME Service Tank P	37
	7ME-SERV.S	ME Service Tank S	37
	9-10IND.C	DO Storage Tank	38
LUBE OIL TANKS:	7GST-68.C	GST 68 Tank	39
	7REDUX-OIL.P	Reduction Gear LO Tank	39
	7ME-LO.P	ME LO Tank	40
	7AUXGEN-LO.S	Aux. Generator LO Tank	40
	STEER GR LO.S	See Section 9.1	
MISC. TANKS:	7OILYWTR.S	Oily Water Process Tank	41
	8DB-BWTR.P	Bilge Water	42
	8DB-HLDG.S	Holding Tank	42
	8DB-JWTR.S	Jacket Water	43
	8LO-SLOP.P	LO Slop	44
	8FO-SLOP.P	FO Slop	44
	8BLRFWTR.S	Feed Water	44
	8EMER-FO.P	E Gen FO	45
	8FO-DRN.C	Drain Tank	45

* Note: see Gen Note 15, Section 3

7.2. Tank Arrangement and Capacities



FUEL OIL TANKS (95%)				MISC. TANKS (95%)				BALLAST TANKS (100%)			
6DB-FO	P	20,564	Gal	7OILYWTR	S	1274	Gal	FPK-BAL	C	11,385	Gal
6DB-FO	S	20,720	Gal	8DB-BWTR	P	10821	Gal	1DP-BAL	C	28,332	Gal
7DB-FO	P	19,759	Gal	8DB-HLDG	S	5693	Gal	2DB-BAL	C	7,970	Gal
7DB-FO	S	20,291	Gal	8DB-JWTR	S	5126	Gal	3DB-BAL	C	15,947	Gal
7ME-SERV	P/S	3,745	Gal Ea.	8LO-SLOP	P	70	Gal	4DB-BAL	P	12,572	Gal
9-10IND	C	17,159	Gal	8FO-SLOP	P	210	Gal	4DB-BAL	S	12,891	Gal
TOTAL Fuel		105,983	Gal	8BLRFWTR	S	467	Gal	8DB-BAL	P	24,283	Gal
				8EMER-FO	P	840	Gal	8DB-BAL	S	24,167	Gal
				8FO-DRN	C	157.5	Gal	9WG-BAL	C	50,100	Gal
LUBE OIL TANKS (95%)								9DB-BAL	C	12,605	Gal
7GST-68	C	924	Gal					11DP-BAL	C	85,479	Gal
7REDUX-OIL	P	1,226	Gal					10WG-BAL *	C	88,007	Gal
7ME-LO	P	1,274	Gal					11WG-BAL *	C	62,316	Gal
7AUXGEN-LO	S	1,226	Gal					TOTAL Ballast		436,054	Gal
				SEWAGE TANKS (95%)							
				6IND-V1	P	6,468	Gal				
				6IND-V2	S	2,646	Gal				
				9IND-SEW	C	3,190	Gal				
				TOTAL Sewage		12,304	Gal				
FW TANKS (100%)											
4IND-FW	P/S	18,084	Gal Ea.								
5IND-FW	P/S	21,250	Gal Ea.								
TOTAL Water		78,668	Gal								

* Note: see Gen Note 15, Section 3

7.3. Sounding Tables

7.3.1. Ballast Tanks

Tank: FPK-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity		
Forepeak Ballast		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.080	916	3.41	20.33a	0.00	5.62	1.3	1.2
0 ft. 6 in.	0.094	1069	3.98	20.12a	0.00	6.02	6.7	1.6
1 ft. 0 in.	0.111	1267	4.72	19.69a	0.00	6.46	7.3	1.9
1 ft. 6 in.	0.130	1481	5.52	19.32a	0.00	6.88	6.7	2.2
2 ft. 0 in.	0.150	1707	6.36	19.02a	0.00	7.27	6.2	2.6
2 ft. 6 in.	0.171	1942	7.24	18.78a	0.00	7.64	5.7	2.8
3 ft. 0 in.	0.192	2187	8.15	18.57a	0.00	8.00	5.2	3.1
3 ft. 6 in.	0.215	2442	9.10	18.39a	0.00	8.35	5.4	3.4
4 ft. 0 in.	0.237	2694	10.04	18.19a	0.00	8.67	0.9	0.7
4 ft. 6 in.	0.247	2812	10.48	17.90a	0.00	8.83	0.9	0.8
5 ft. 0 in.	0.258	2935	10.94	17.61a	0.00	9.00	0.9	0.8
5 ft. 6 in.	0.269	3063	11.41	17.34a	0.00	9.18	0.9	0.9
6 ft. 0 in.	0.281	3197	11.91	17.07a	0.00	9.37	0.8	1.0
6 ft. 6 in.	0.293	3339	12.44	16.80a	0.00	9.59	1.1	1.1
7 ft. 0 in.	0.307	3490	13.00	16.54a	0.00	9.81	1.1	1.3
7 ft. 6 in.	0.320	3642	13.57	16.30a	0.00	10.04	1.1	1.4
8 ft. 0 in.	0.334	3800	14.16	16.07a	0.00	10.29	1.2	1.6
8 ft. 6 in.	0.349	3968	14.78	15.84a	0.00	10.55	1.2	1.8
9 ft. 0 in.	0.364	4147	15.45	15.61a	0.00	10.82	1.3	2.1
9 ft. 6 in.	0.381	4342	16.18	15.37a	0.00	11.12	1.8	2.5
10 ft. 0 in.	0.400	4555	16.97	15.12a	0.00	11.43	1.8	2.9
10 ft. 6 in.	0.420	4784	17.82	14.87a	0.00	11.77	2.0	3.6
11 ft. 0 in.	0.442	5033	18.75	14.61a	0.00	12.12	2.1	4.4
11 ft. 6 in.	0.466	5301	19.75	14.36a	0.00	12.49	2.2	5.3
12 ft. 0 in.	0.491	5590	20.83	14.11a	0.00	12.87	2.3	6.5
12 ft. 6 in.	0.519	5906	22.00	13.86a	0.00	13.27	2.5	8.5
13 ft. 0 in.	0.549	6253	23.30	13.61a	0.00	13.69	2.6	10.9
13 ft. 6 in.	0.583	6633	24.71	13.36a	0.00	14.13	2.7	14.0
14 ft. 0 in.	0.619	7050	26.27	13.11a	0.00	14.59	2.9	18.8
14 ft. 6 in.	0.661	7524	28.03	12.86a	0.00	15.08	3.4	28.9
15 ft. 0 in.	0.709	8070	30.07	12.61a	0.00	15.60	3.8	43.2
15 ft. 6 in.	0.764	8698	32.41	12.35a	0.00	16.16	4.1	63.2
16 ft. 0 in.	0.827	9414	35.07	12.08a	0.00	16.74	4.5	89.9
16 ft. 6 in.	0.899	10231	38.12	11.82a	0.00	17.35	4.5	126.3
17 ft. 0 in.	0.975	11095	41.33	11.55a	0.00	17.94	2.5	78.5
17 ft. 6 in.	1.000	11381	42.40	11.34a	0.00	18.13		

Soundings in feet & inches.

Other distances in feet.

Tank: 1DP-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity		
#1 Deep Ballast		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.007	207	0.77	32.75a	0.00	0.95	15.1	0.3
0 ft. 6 in.	0.011	323	1.20	32.50a	0.00	1.27	12.1	0.6
1 ft. 0 in.	0.016	459	1.71	32.34a	0.00	1.59	9.9	0.9
1 ft. 6 in.	0.022	616	2.30	32.23a	0.00	1.91	8.5	1.2
2 ft. 0 in.	0.028	794	2.96	32.15a	0.00	2.23	7.4	1.7
2 ft. 6 in.	0.035	992	3.69	32.08a	0.00	2.55	6.6	2.3
3 ft. 0 in.	0.043	1208	4.50	32.03a	0.00	2.87	5.9	3.0
3 ft. 6 in.	0.051	1443	5.38	31.98a	0.00	3.19	5.4	3.7
4 ft. 0 in.	0.060	1696	6.32	31.95a	0.00	3.51	4.9	4.6
4 ft. 6 in.	0.069	1968	7.33	31.91a	0.00	3.83	4.5	5.6
5 ft. 0 in.	0.080	2257	8.41	31.89a	0.00	4.15	4.2	6.8
5 ft. 6 in.	0.091	2566	9.56	31.87a	0.00	4.47	4.0	8.2
6 ft. 0 in.	0.102	2893	10.78	31.85a	0.00	4.79	3.7	9.7
6 ft. 6 in.	0.114	3240	12.07	31.83a	0.00	5.12	3.5	11.4
7 ft. 0 in.	0.127	3603	13.42	31.82a	0.00	5.44	3.3	13.0
7 ft. 6 in.	0.141	3982	14.84	31.81a	0.00	5.76	3.1	14.7
8 ft. 0 in.	0.155	4377	16.31	31.79a	0.00	6.08	2.9	16.5
8 ft. 6 in.	0.169	4788	17.84	31.78a	0.00	6.40	2.8	18.5
9 ft. 0 in.	0.184	5215	19.43	31.77a	0.00	6.73	2.7	20.6
9 ft. 6 in.	0.200	5657	21.07	31.77a	0.00	7.05	2.5	22.9
10 ft. 0 in.	0.216	6114	22.78	31.76a	0.00	7.36	2.4	25.4
10 ft. 6 in.	0.232	6586	24.54	31.76a	0.00	7.68	2.3	28.2
11 ft. 0 in.	0.250	7076	26.36	31.75a	0.00	8.01	2.2	31.3
11 ft. 6 in.	0.268	7583	28.25	31.75a	0.00	8.33	2.2	34.7
12 ft. 0 in.	0.286	8109	30.21	31.74a	0.00	8.65	2.1	38.4
12 ft. 6 in.	0.305	8653	32.24	31.73a	0.00	8.98	2.0	42.3
13 ft. 0 in.	0.325	9213	34.33	31.73a	0.00	9.30	2.0	46.1
13 ft. 6 in.	0.346	9790	36.47	31.73a	0.00	9.63	1.9	50.3
14 ft. 0 in.	0.367	10385	38.69	31.72a	0.00	9.95	1.9	55.7
14 ft. 6 in.	0.388	11001	40.99	31.72a	0.00	10.28	1.8	62.0
15 ft. 0 in.	0.411	11643	43.38	31.71a	0.00	10.62	1.8	70.4
15 ft. 6 in.	0.435	12312	45.87	31.71a	0.00	10.95	1.8	79.5
16 ft. 0 in.	0.459	13009	48.47	31.70a	0.00	11.29	1.7	89.9
16 ft. 6 in.	0.485	13736	51.17	31.70a	0.00	11.64	1.7	102.1
17 ft. 0 in.	0.512	14497	54.01	31.70a	0.00	11.99	1.7	118.3
17 ft. 6 in.	0.540	15297	56.99	31.69a	0.00	12.35	1.7	136.1
18 ft. 0 in.	0.569	16135	60.11	31.69a	0.00	12.71	1.7	157.5
18 ft. 6 in.	0.600	17012	63.38	31.68a	0.00	13.08	1.6	184.7
19 ft. 0 in.	0.632	17919	66.76	31.67a	0.00	13.44	1.6	229.2
19 ft. 6 in.	0.667	18889	70.37	31.65a	0.00	13.82	1.6	280.4
20 ft. 0 in.	0.703	19921	74.22	31.63a	0.00	14.21	1.7	347.4
20 ft. 6 in.	0.742	21029	78.35	31.62a	0.00	14.61	1.7	446.2
21 ft. 0 in.	0.786	22261	82.94	31.60a	0.00	15.04	1.8	642.0
21 ft. 6 in.	0.835	23649	88.11	31.58a	0.00	15.50	2.0	889.4
22 ft. 0 in.	0.889	25193	93.86	31.56a	0.00	15.98	2.0	1170.2
22 ft. 6 in.	0.948	26862	100.08	31.54a	0.00	16.47	2.0	1332.2
23 ft. 0 in.	0.998	28270	105.33	31.49a	0.00	16.86	0.1	310.1
23 ft. 6 in.	1.000	28332	105.56	31.47a	0.00	16.88		

Soundings in feet & inches.

Other distances in feet.

Tank: 2DB-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity			
Sounding		Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
					LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.002	18	0.07	55.72a	0.00	0.02	2009.3	0.5	
0 ft. 3 in.	0.018	144	0.54	55.89a	0.00	0.15	323.7	1.2	
0 ft. 6 in.	0.038	303	1.13	56.02a	0.00	0.29	188.4	2.3	
0 ft. 9 in.	0.062	496	1.85	56.12a	0.00	0.44	136.4	3.9	
1 ft. 0 in.	0.091	722	2.69	56.21a	0.00	0.59	108.2	6.2	
1 ft. 3 in.	0.123	982	3.66	56.27a	0.00	0.74	90.3	9.2	
1 ft. 6 in.	0.160	1275	4.75	56.33a	0.00	0.90	77.8	13.1	
1 ft. 9 in.	0.201	1602	5.97	56.38a	0.00	1.06	68.3	17.8	
2 ft. 0 in.	0.246	1961	7.30	56.41a	0.00	1.21	60.6	23.0	
2 ft. 3 in.	0.294	2346	8.74	56.44a	0.00	1.37	54.0	27.7	
2 ft. 6 in.	0.346	2756	10.27	56.46a	0.00	1.53	48.8	33.0	
2 ft. 9 in.	0.400	3189	11.88	56.47a	0.00	1.68	44.7	38.9	
3 ft. 0 in.	0.458	3646	13.59	56.48a	0.00	1.84	41.2	45.5	
3 ft. 3 in.	0.518	4128	15.38	56.49a	0.00	1.99	38.3	52.7	
3 ft. 6 in.	0.581	4633	17.26	56.50a	0.00	2.15	35.8	60.8	
3 ft. 9 in.	0.648	5161	19.23	56.50a	0.00	2.30	33.6	69.3	
4 ft. 0 in.	0.717	5712	21.28	56.50a	0.00	2.46	30.7	75.5	
4 ft. 3 in.	0.787	6275	23.38	56.48a	0.01p	2.61	28.9	83.2	
4 ft. 6 in.	0.860	6856	25.54	56.47a	0.01p	2.77	27.3	91.4	
4 ft. 9 in.	0.936	7456	27.78	56.45a	0.02p	2.92	26.0	100.1	
5 ft. 0 in.	1.000	7970	29.69	56.44a	0.02p	3.05			

Soundings in feet & inches. Other distances in feet.

Tank: 3DB-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity		
#2 DB Ballast		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.001	21	0.08	82.48a	0.00	0.02	1178.8	1.4
0 ft. 3 in.	0.011	183	0.68	82.72a	0.00	0.16	201.0	5.0
0 ft. 6 in.	0.026	413	1.54	82.87a	0.00	0.31	118.9	12.6
0 ft. 9 in.	0.045	710	2.65	82.95a	0.00	0.46	84.9	23.9
1 ft. 0 in.	0.067	1066	3.97	82.98a	0.00	0.61	65.9	37.2
1 ft. 3 in.	0.092	1471	5.48	82.99a	0.00	0.77	54.3	53.8
1 ft. 6 in.	0.121	1926	7.18	83.00a	0.00	0.92	46.5	74.6
1 ft. 9 in.	0.152	2430	9.05	83.01a	0.00	1.08	40.6	99.7
2 ft. 0 in.	0.187	2982	11.11	83.02a	0.00	1.23	35.8	127.3
2 ft. 3 in.	0.224	3572	13.31	83.02a	0.00	1.39	31.8	152.2
2 ft. 6 in.	0.263	4199	15.64	83.02a	0.00	1.54	28.6	180.3
2 ft. 9 in.	0.305	4861	18.11	83.02a	0.00	1.69	26.1	211.6
3 ft. 0 in.	0.349	5559	20.71	83.01a	0.00	1.85	24.0	244.2
3 ft. 3 in.	0.394	6289	23.43	83.01a	0.00	2.00	22.2	276.9
3 ft. 6 in.	0.442	7049	26.26	83.00a	0.00	2.15	20.7	312.3
3 ft. 9 in.	0.492	7840	29.21	82.99a	0.00	2.31	19.3	349.8
4 ft. 0 in.	0.543	8656	32.25	82.98a	0.00	2.46	16.8	372.8
4 ft. 3 in.	0.594	9475	35.30	82.95a	0.00	2.61	15.9	409.7
4 ft. 6 in.	0.647	10319	38.44	82.93a	0.00	2.75	15.0	446.3
4 ft. 9 in.	0.701	11186	41.67	82.91a	0.00	2.90	14.2	482.3
5 ft. 0 in.	0.750	11963	44.57	82.89a	0.00	3.03	3.6	294.6
5 ft. 3 in.	0.764	12189	45.41	82.88a	0.00	3.07	3.6	313.1
5 ft. 6 in.	0.779	12416	46.26	82.87a	0.00	3.12	3.5	332.3
5 ft. 9 in.	0.793	12644	47.11	82.86a	0.00	3.16	3.5	352.0
6 ft. 0 in.	0.807	12873	47.96	82.85a	0.00	3.21	3.4	371.1
6 ft. 3 in.	0.822	13101	48.81	82.84a	0.00	3.26	3.3	387.7
6 ft. 6 in.	0.836	13329	49.66	82.84a	0.00	3.32	3.2	403.3
6 ft. 9 in.	0.850	13554	50.50	82.83a	0.00	3.37	3.2	416.2
7 ft. 0 in.	0.864	13777	51.33	82.83a	0.00	3.43	3.1	429.1
7 ft. 3 in.	0.878	13997	52.15	82.82a	0.00	3.49	3.0	442.0
7 ft. 6 in.	0.891	14214	52.96	82.82a	0.00	3.55	2.9	454.2
7 ft. 9 in.	0.905	14429	53.76	82.82a	0.00	3.61	2.8	465.6
8 ft. 0 in.	0.918	14640	54.54	82.81a	0.00	3.67	2.7	475.6
8 ft. 3 in.	0.931	14847	55.32	82.81a	0.00	3.73	2.6	482.1
8 ft. 6 in.	0.944	15049	56.07	82.81a	0.00	3.80	2.5	487.3
8 ft. 9 in.	0.956	15246	56.80	82.81a	0.00	3.86	2.4	490.1
9 ft. 0 in.	0.968	15437	57.51	82.81a	0.00	3.92	2.3	492.3
9 ft. 3 in.	0.980	15622	58.20	82.81a	0.00	3.98	2.2	493.7
9 ft. 6 in.	0.991	15802	58.87	82.81a	0.00	4.05	2.1	494.3
9 ft. 9 in.	1.000	15947	59.41	82.81a	0.00	4.10		

Soundings in feet & inches. Other distances in feet.

Tank: 4DB-BAL.P		Contents: FW Ballast		at 1.000		Specific Gravity			
Sounding		Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
					LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.010	128	0.48	108.34a	1.25p	0.17	213.5	2.0	
0 ft. 3 in.	0.024	304	1.13	108.43a	1.69p	0.32	127.3	5.5	
0 ft. 6 in.	0.042	534	1.99	108.50a	2.09p	0.48	91.4	11.1	
0 ft. 9 in.	0.065	817	3.04	108.54a	2.49p	0.64	74.0	19.4	
1 ft. 0 in.	0.092	1150	4.29	108.54a	2.87p	0.80	61.5	28.9	
1 ft. 3 in.	0.122	1529	5.70	108.51a	3.21p	0.95	52.9	40.3	
1 ft. 6 in.	0.155	1951	7.27	108.48a	3.54p	1.11	46.2	53.5	
1 ft. 9 in.	0.192	2411	8.98	108.45a	3.85p	1.27	40.8	68.4	
2 ft. 0 in.	0.231	2907	10.83	108.44a	4.14p	1.42	36.1	81.6	
2 ft. 3 in.	0.273	3429	12.77	108.42a	4.39p	1.58	32.3	93.6	
2 ft. 6 in.	0.316	3976	14.81	108.40a	4.63p	1.73	29.3	106.8	
2 ft. 9 in.	0.362	4549	16.95	108.38a	4.84p	1.88	26.9	121.3	
3 ft. 0 in.	0.409	5148	19.18	108.36a	5.05p	2.03	24.9	136.9	
3 ft. 3 in.	0.459	5772	21.50	108.34a	5.25p	2.18	23.2	153.6	
3 ft. 6 in.	0.511	6419	23.91	108.32a	5.44p	2.33	21.6	169.0	
3 ft. 9 in.	0.564	7087	26.41	108.29a	5.62p	2.48	20.1	184.3	
4 ft. 0 in.	0.618	7773	28.96	108.28a	5.79p	2.63	18.8	196.0	
4 ft. 3 in.	0.674	8473	31.57	108.26a	5.95p	2.78	17.7	208.0	
4 ft. 6 in.	0.731	9188	34.23	108.24a	6.09p	2.93	16.7	220.5	
4 ft. 9 in.	0.779	9788	36.47	108.23a	6.23p	3.05	4.0	6.9	
5 ft. 0 in.	0.791	9942	37.04	108.23a	6.36p	3.08	4.0	7.1	
5 ft. 3 in.	0.803	10098	37.62	108.23a	6.49p	3.12	4.0	7.2	
5 ft. 6 in.	0.816	10255	38.21	108.22a	6.62p	3.16	4.0	7.3	
5 ft. 9 in.	0.828	10414	38.80	108.22a	6.76p	3.20	4.0	7.3	
6 ft. 0 in.	0.841	10572	39.39	108.22a	6.89p	3.25	3.9	7.2	
6 ft. 3 in.	0.854	10731	39.98	108.22a	7.02p	3.29	3.8	7.2	
6 ft. 6 in.	0.866	10888	40.57	108.22a	7.16p	3.34	3.7	7.1	
6 ft. 9 in.	0.879	11045	41.15	108.22a	7.29p	3.39	3.6	7.0	
7 ft. 0 in.	0.891	11199	41.72	108.21a	7.42p	3.45	3.5	6.8	
7 ft. 3 in.	0.903	11352	42.29	108.21a	7.54p	3.50	3.4	6.7	
7 ft. 6 in.	0.915	11503	42.85	108.21a	7.67p	3.55	3.4	6.5	
7 ft. 9 in.	0.927	11651	43.41	108.21a	7.79p	3.61	3.3	6.3	
8 ft. 0 in.	0.938	11797	43.95	108.20a	7.91p	3.67	3.1	6.1	
8 ft. 3 in.	0.950	11939	44.48	108.20a	8.02p	3.72	3.0	5.8	
8 ft. 6 in.	0.961	12078	45.00	108.20a	8.14p	3.78	2.9	5.6	
8 ft. 9 in.	0.972	12214	45.51	108.19a	8.25p	3.84	2.8	5.4	
9 ft. 0 in.	0.982	12346	46.00	108.19a	8.36p	3.89	2.7	5.1	
9 ft. 3 in.	0.992	12474	46.47	108.18a	8.46p	3.95	2.6	4.9	
9 ft. 6 in.	1.000	12572	46.84	108.18a	8.54p	4.00			

Soundings in feet & inches.

Other distances in feet.

Tank: 4DB-BAL.S		Contents: FW Ballast		at 1.000		Specific Gravity			
Sounding		Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
					LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.011	138	0.51	107.42a	1.24s	0.17	249.1	2.1	
0 ft. 3 in.	0.025	326	1.21	107.54a	1.67s	0.32	148.7	5.8	
0 ft. 6 in.	0.044	571	2.13	107.61a	2.07s	0.48	105.9	11.6	
0 ft. 9 in.	0.068	871	3.24	107.69a	2.45s	0.64	83.0	20.2	
1 ft. 0 in.	0.095	1221	4.55	107.75a	2.82s	0.79	67.5	30.0	
1 ft. 3 in.	0.125	1617	6.02	107.78a	3.15s	0.95	57.2	41.9	
1 ft. 6 in.	0.159	2055	7.66	107.79a	3.47s	1.11	49.5	55.6	
1 ft. 9 in.	0.196	2533	9.44	107.81a	3.77s	1.26	43.5	71.1	
2 ft. 0 in.	0.236	3045	11.34	107.83a	4.05s	1.42	38.3	84.8	
2 ft. 3 in.	0.278	3584	13.35	107.84a	4.30s	1.57	34.1	97.3	
2 ft. 6 in.	0.322	4148	15.45	107.85a	4.53s	1.72	30.8	111.0	
2 ft. 9 in.	0.368	4738	17.65	107.85a	4.74s	1.87	28.2	125.9	
3 ft. 0 in.	0.415	5353	19.94	107.85a	4.94s	2.02	26.0	142.2	
3 ft. 3 in.	0.465	5994	22.33	107.84a	5.14s	2.17	24.2	159.5	
3 ft. 6 in.	0.516	6658	24.80	107.84a	5.32s	2.32	22.5	175.4	
3 ft. 9 in.	0.570	7343	27.36	107.83a	5.50s	2.47	21.0	191.2	
4 ft. 0 in.	0.624	8045	29.97	107.83a	5.67s	2.62	19.6	203.3	
4 ft. 3 in.	0.680	8763	32.65	107.82a	5.82s	2.77	18.4	215.8	
4 ft. 6 in.	0.737	9494	35.37	107.81a	5.97s	2.92	17.3	228.7	
4 ft. 9 in.	0.784	10108	37.66	107.81a	6.10s	3.04	3.9	6.9	
5 ft. 0 in.	0.796	10261	38.23	107.81a	6.23s	3.07	3.9	7.1	
5 ft. 3 in.	0.808	10417	38.81	107.82a	6.36s	3.11	3.9	7.2	
5 ft. 6 in.	0.820	10574	39.39	107.83a	6.49s	3.14	3.9	7.3	
5 ft. 9 in.	0.833	10733	39.99	107.83a	6.62s	3.18	3.8	7.3	
6 ft. 0 in.	0.845	10891	40.58	107.83a	6.75s	3.23	3.8	7.2	
6 ft. 3 in.	0.857	11050	41.17	107.84a	6.89s	3.27	3.7	7.2	
6 ft. 6 in.	0.869	11207	41.75	107.84a	7.02s	3.32	3.6	7.1	
6 ft. 9 in.	0.882	11364	42.34	107.84a	7.14s	3.37	3.5	7.0	
7 ft. 0 in.	0.894	11519	42.91	107.85a	7.27s	3.42	3.5	6.8	
7 ft. 3 in.	0.905	11671	43.48	107.85a	7.40s	3.48	3.4	6.7	
7 ft. 6 in.	0.917	11822	44.04	107.85a	7.52s	3.53	3.3	6.5	
7 ft. 9 in.	0.929	11970	44.60	107.85a	7.64s	3.58	3.2	6.3	
8 ft. 0 in.	0.940	12116	45.14	107.85a	7.76s	3.64	3.1	6.1	
8 ft. 3 in.	0.951	12258	45.67	107.86a	7.87s	3.69	3.0	5.8	
8 ft. 6 in.	0.962	12398	46.19	107.86a	7.99s	3.75	2.8	5.6	
8 ft. 9 in.	0.972	12533	46.69	107.86a	8.10s	3.81	2.7	5.4	
9 ft. 0 in.	0.983	12665	47.19	107.86a	8.20s	3.86	2.6	5.1	
9 ft. 3 in.	0.992	12793	47.66	107.86a	8.31s	3.92	2.5	4.9	
9 ft. 6 in.	1.000	12891	48.03	107.86a	8.39s	3.96			

Soundings in feet & inches.

Other distances in feet.

Tank: 8DB-BAL.P		Contents: FW Ballast		at 1.000		Specific Gravity		
#6 DB Ballast P		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.022	530	1.97	241.74a	3.02p	0.74	91.0	20.2
0 ft. 3 in.	0.034	827	3.08	242.48a	3.75p	0.93	92.8	36.1
0 ft. 6 in.	0.050	1217	4.54	243.13a	4.45p	1.12	142.3	79.6
0 ft. 9 in.	0.074	1785	6.65	242.88a	5.37p	1.33	257.5	226.0
1 ft. 0 in.	0.106	2585	9.63	242.30a	6.31p	1.54	255.9	340.8
1 ft. 3 in.	0.146	3541	13.19	241.89a	7.11p	1.74	226.9	435.0
1 ft. 6 in.	0.190	4626	17.23	241.57a	7.80p	1.92	200.7	522.6
1 ft. 9 in.	0.239	5815	21.66	241.27a	8.39p	2.09	179.7	610.9
2 ft. 0 in.	0.292	7089	26.41	241.04a	8.90p	2.26	157.4	667.5
2 ft. 3 in.	0.347	8428	31.40	240.88a	9.33p	2.42	140.2	723.6
2 ft. 6 in.	0.405	9825	36.60	240.75a	9.70p	2.58	126.4	777.3
2 ft. 9 in.	0.464	11270	41.99	240.64a	10.02p	2.73	115.2	826.6
3 ft. 0 in.	0.525	12749	47.50	240.53a	10.30p	2.88	103.1	867.1
3 ft. 3 in.	0.587	14255	53.11	240.42a	10.54p	3.02	95.0	906.0
3 ft. 6 in.	0.650	15793	58.84	240.33a	10.76p	3.17	88.0	943.1
3 ft. 9 in.	0.712	17301	64.46	240.20a	10.97p	3.31	78.0	962.4
4 ft. 0 in.	0.749	18194	67.78	240.07a	11.16p	3.39	21.7	7.1
4 ft. 3 in.	0.765	18565	69.16	239.95a	11.36p	3.43	21.7	7.3
4 ft. 6 in.	0.780	18942	70.57	239.83a	11.56p	3.47	21.7	7.5
4 ft. 9 in.	0.796	19326	72.00	239.72a	11.76p	3.51	21.7	7.7
5 ft. 0 in.	0.812	19715	73.45	239.62a	11.96p	3.56	21.2	7.6
5 ft. 3 in.	0.828	20098	74.88	239.53a	12.15p	3.61	20.5	7.2
5 ft. 6 in.	0.843	20474	76.28	239.45a	12.33p	3.67	19.7	6.7
5 ft. 9 in.	0.858	20841	77.65	239.37a	12.51p	3.72	19.0	6.3
6 ft. 0 in.	0.873	21200	78.98	239.29a	12.68p	3.78	18.3	5.9
6 ft. 3 in.	0.888	21551	80.29	239.23a	12.85p	3.83	17.7	5.5
6 ft. 6 in.	0.902	21894	81.57	239.16a	13.01p	3.89	17.0	5.2
6 ft. 9 in.	0.915	22229	82.82	239.11a	13.17p	3.95	16.4	4.8
7 ft. 0 in.	0.929	22554	84.03	239.05a	13.31p	4.01	15.6	4.4
7 ft. 3 in.	0.942	22865	85.19	239.00a	13.46p	4.07	14.7	3.8
7 ft. 6 in.	0.954	23160	86.28	238.96a	13.59p	4.12	13.8	3.3
7 ft. 9 in.	0.965	23439	87.32	238.92a	13.71p	4.18	12.9	2.8
8 ft. 0 in.	0.976	23702	88.30	238.89a	13.83p	4.23	12.0	2.4
8 ft. 3 in.	0.986	23949	89.23	238.86a	13.94p	4.28	11.2	2.1
8 ft. 6 in.	0.996	24181	90.09	238.83a	14.04p	4.33	10.4	1.7
8 ft. 9 in.	1.000	24283	90.47	238.82a	14.08p	4.36		

Soundings in feet & inches. Other distances in feet.

Tank: 8DB-BAL.S		Contents: FW Ballast		at 1.000		Specific Gravity		
#6 DB Ballast S		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.022	531	1.98	241.78a	3.02s	0.74	90.7	20.2
0 ft. 3 in.	0.034	828	3.09	242.51a	3.74s	0.93	92.6	36.1
0 ft. 6 in.	0.050	1219	4.54	243.15a	4.44s	1.12	139.0	78.5
0 ft. 9 in.	0.074	1782	6.64	242.97a	5.34s	1.33	247.7	218.6
1 ft. 0 in.	0.107	2577	9.60	242.47a	6.25s	1.54	249.5	335.4
1 ft. 3 in.	0.146	3525	13.13	242.08a	7.05s	1.74	222.8	431.0
1 ft. 6 in.	0.190	4600	17.14	241.76a	7.74s	1.92	198.1	519.6
1 ft. 9 in.	0.239	5780	21.53	241.46a	8.34s	2.09	177.9	608.7
2 ft. 0 in.	0.291	7044	26.24	241.22a	8.85s	2.26	156.0	665.7
2 ft. 3 in.	0.347	8374	31.20	241.05a	9.28s	2.42	139.1	722.1
2 ft. 6 in.	0.404	9761	36.37	240.92a	9.65s	2.57	125.5	776.1
2 ft. 9 in.	0.463	11197	41.71	240.81a	9.98s	2.73	114.4	825.6
3 ft. 0 in.	0.524	12666	47.19	240.69a	10.26s	2.88	102.5	866.2
3 ft. 3 in.	0.586	14163	52.77	240.58a	10.51s	3.02	94.5	905.2
3 ft. 6 in.	0.649	15691	58.46	240.49a	10.73s	3.17	87.5	942.5
3 ft. 9 in.	0.711	17190	64.04	240.35a	10.94s	3.31	77.6	962.0
4 ft. 0 in.	0.748	18078	67.35	240.22a	11.13s	3.39	21.9	7.1
4 ft. 3 in.	0.763	18449	68.73	240.09a	11.33s	3.43	21.9	7.3
4 ft. 6 in.	0.779	18826	70.14	239.97a	11.53s	3.47	21.8	7.5
4 ft. 9 in.	0.795	19211	71.57	239.86a	11.73s	3.51	21.8	7.7
5 ft. 0 in.	0.811	19599	73.02	239.76a	11.93s	3.56	21.3	7.6
5 ft. 3 in.	0.827	19983	74.45	239.66a	12.13s	3.61	20.6	7.2
5 ft. 6 in.	0.842	20358	75.85	239.58a	12.31s	3.67	19.8	6.7
5 ft. 9 in.	0.858	20725	77.21	239.49a	12.49s	3.72	19.1	6.3
6 ft. 0 in.	0.872	21085	78.55	239.42a	12.67s	3.78	18.4	5.9
6 ft. 3 in.	0.887	21436	79.86	239.35a	12.83s	3.84	17.7	5.5
6 ft. 6 in.	0.901	21778	81.14	239.28a	13.00s	3.89	17.1	5.2
6 ft. 9 in.	0.915	22113	82.39	239.22a	13.15s	3.95	16.5	4.8
7 ft. 0 in.	0.929	22439	83.60	239.17a	13.30s	4.01	15.7	4.4
7 ft. 3 in.	0.941	22749	84.76	239.12a	13.44s	4.07	14.8	3.8
7 ft. 6 in.	0.954	23044	85.85	239.07a	13.58s	4.13	13.8	3.3
7 ft. 9 in.	0.965	23323	86.89	239.03a	13.70s	4.18	13.0	2.8
8 ft. 0 in.	0.976	23586	87.87	239.00a	13.82s	4.24	12.1	2.4
8 ft. 3 in.	0.986	23834	88.80	238.97a	13.93s	4.29	11.3	2.1
8 ft. 6 in.	0.996	24065	89.66	238.94a	14.03s	4.34	10.5	1.7
8 ft. 9 in.	1.000	24167	90.04	238.93a	14.07s	4.36		

Soundings in feet & inches. Other distances in feet.

Tank: 9WG-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity			
Sounding		Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
					LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.001	55	0.21	262.99a	0.00	0.62	0.5	0.8	
0 ft. 6 in.	0.002	121	0.45	262.98a	0.00	1.06	0.5	8.4	
1 ft. 0 in.	0.005	235	0.88	262.99a	0.00	1.48	0.4	29.8	
1 ft. 6 in.	0.008	396	1.48	262.99a	0.00	1.86	0.3	69.9	
2 ft. 0 in.	0.012	605	2.25	263.01a	0.00	2.23	0.6	144.0	
2 ft. 6 in.	0.019	931	3.47	263.38a	0.00	2.65	8.4	391.2	
3 ft. 0 in.	0.030	1496	5.57	264.57a	0.00	3.12	21.0	721.5	
3 ft. 6 in.	0.047	2351	8.76	266.09a	0.00	3.59	25.4	1339.1	
4 ft. 0 in.	0.067	3363	12.53	267.29a	0.00	4.00	27.7	1951.7	
4 ft. 6 in.	0.089	4473	16.67	268.66a	0.00	4.37	31.2	2637.9	
5 ft. 0 in.	0.116	5834	21.74	269.85a	0.00	4.74	30.2	3317.0	
5 ft. 6 in.	0.148	7397	27.56	270.80a	0.00	5.10	27.7	3894.5	
6 ft. 0 in.	0.182	9123	33.99	271.55a	0.00	5.45	24.9	4413.0	
6 ft. 6 in.	0.219	10992	40.95	272.13a	0.00	5.79	22.4	4940.0	
7 ft. 0 in.	0.259	13000	48.43	272.60a	0.00	6.12	20.3	5421.2	
7 ft. 6 in.	0.301	15102	56.26	272.98a	0.00	6.44	18.3	5746.6	
8 ft. 0 in.	0.345	17280	64.38	273.28a	0.00	6.75	16.5	6053.1	
8 ft. 6 in.	0.390	19529	72.76	273.54a	0.00	7.06	15.1	6364.7	
9 ft. 0 in.	0.436	21848	81.40	273.75a	0.00	7.36	13.9	6673.4	
9 ft. 6 in.	0.484	24233	90.28	273.93a	0.00	7.66	12.9	6963.5	
10 ft. 0 in.	0.533	26680	99.40	274.09a	0.00	7.96	12.0	7261.1	
10 ft. 6 in.	0.583	29190	108.75	274.23a	0.00	8.26	11.3	7566.3	
11 ft. 0 in.	0.634	31761	118.33	274.35a	0.00	8.55	10.6	7849.0	
11 ft. 6 in.	0.686	34381	128.09	274.46a	0.00	8.85	10.0	8069.2	
12 ft. 0 in.	0.739	37043	138.01	274.56a	0.00	9.14	9.4	8292.9	
12 ft. 6 in.	0.793	39749	148.09	274.64a	0.00	9.43	8.9	8520.1	
13 ft. 0 in.	0.848	42498	158.33	274.72a	0.00	9.72	8.5	8751.0	
13 ft. 6 in.	0.904	45290	168.73	274.79a	0.00	10.01	8.1	8985.5	
14 ft. 0 in.	0.961	48124	179.29	274.85a	0.00	10.30	7.7	9211.6	
14 ft. 6 in.	1.000	50100	186.65	274.89a	0.00	10.50			

Soundings in feet & inches. Other distances in feet.

Tank: 9DB-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity			
Sounding		Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
					LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.009	114	0.43	277.81a	0.00	0.53	17.5	0.6	
0 ft. 3 in.	0.012	157	0.58	276.77a	0.00	0.72	83.0	4.2	
0 ft. 6 in.	0.019	236	0.88	274.85a	0.00	0.99	79.8	13.9	
0 ft. 9 in.	0.034	426	1.59	273.14a	0.00	1.36	104.6	38.5	
1 ft. 0 in.	0.059	739	2.75	272.42a	0.00	1.65	58.8	78.2	
1 ft. 3 in.	0.094	1182	4.40	272.40a	0.00	1.89	71.0	143.7	
1 ft. 6 in.	0.140	1759	6.55	272.68a	0.00	2.11	61.9	235.1	
1 ft. 9 in.	0.194	2439	9.09	272.91a	0.01s	2.30	57.3	344.4	
2 ft. 0 in.	0.256	3222	12.00	273.18a	0.03s	2.48	51.0	453.1	
2 ft. 3 in.	0.322	4062	15.13	273.41a	0.04s	2.65	43.2	501.7	
2 ft. 6 in.	0.392	4938	18.40	273.59a	0.05s	2.81	37.4	551.3	
2 ft. 9 in.	0.463	5834	21.74	273.73a	0.05s	2.96	31.7	582.4	
3 ft. 0 in.	0.534	6735	25.09	273.83a	0.05s	3.10	27.4	582.4	
3 ft. 3 in.	0.606	7636	28.45	273.91a	0.06s	3.24	24.2	582.4	
3 ft. 6 in.	0.677	8537	31.81	273.97a	0.06s	3.38	21.6	582.4	
3 ft. 9 in.	0.749	9438	35.16	274.02a	0.06s	3.51	19.6	582.4	
4 ft. 0 in.	0.820	10338	38.52	274.07a	0.06s	3.64	17.0	569.2	
4 ft. 3 in.	0.882	11121	41.43	274.19a	0.06s	3.76	9.5	394.5	
4 ft. 6 in.	0.929	11706	43.61	274.40a	0.06s	3.85	4.8	215.4	
4 ft. 9 in.	0.959	12094	45.06	274.62a	0.05s	3.91	1.5	53.6	
5 ft. 0 in.	0.980	12350	46.01	274.82a	0.05s	3.95	0.5	37.9	
5 ft. 3 in.	0.993	12518	46.64	274.97a	0.05s	3.98	0.0	5.5	
5 ft. 6 in.	0.999	12598	46.93	275.05a	0.05s	4.00	0.0	1.6	
5 ft. 9 in.	1.000	12605	46.96	275.06a	0.05s	4.00			

Soundings in feet & inches.

Other distances in feet.

Tank: 11DP-BAL.C		Contents: FW Ballast		at 1.000		Specific Gravity		
#4 Ballast		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	15	0.06	319.29a	0	5.55	3.8	0.2
0 ft. 6 in.	0.002	138	0.51	320.74a	0	5.90	7.6	3.9
1 ft. 0 in.	0.006	486	1.81	322.18a	0	6.26	12.0	22.2
1 ft. 6 in.	0.012	1068	3.98	323.10a	0	6.61	17.8	70.0
2 ft. 0 in.	0.022	1844	6.87	323.75a	0	7.01	26.4	168.9
2 ft. 6 in.	0.036	3037	11.32	324.84a	0	7.41	36.0	319.2
3 ft. 0 in.	0.055	4660	17.36	326.12a	0	7.79	33.1	440.3
3 ft. 6 in.	0.076	6500	24.22	326.92a	0	8.14	33.6	617.1
4 ft. 0 in.	0.102	8692	32.38	327.71a	0	8.49	31.3	867.1
4 ft. 6 in.	0.131	11161	41.58	328.39a	0	8.82	27.6	1005.9
5 ft. 0 in.	0.161	13758	51.26	328.94a	0	9.13	24.4	1108.0
5 ft. 6 in.	0.193	16467	61.35	329.40a	0	9.44	21.7	1222.3
6 ft. 0 in.	0.225	19247	71.71	329.77a	0	9.73	18.9	1260.8
6 ft. 6 in.	0.258	22032	82.08	330.05a	0	10.01	16.5	1260.8
7 ft. 0 in.	0.29	24817	92.46	330.27a	0	10.28	14.7	1260.8
7 ft. 6 in.	0.323	27603	102.84	330.45a	0	10.55	13.2	1260.8
8 ft. 0 in.	0.356	30388	113.21	330.59a	0	10.81	12.0	1260.8
8 ft. 6 in.	0.388	33173	123.59	330.71a	0	11.07	11.0	1260.8
9 ft. 0 in.	0.421	35958	133.97	330.81a	0	11.33	10.1	1260.8
9 ft. 6 in.	0.453	38743	144.34	330.89a	0	11.59	9.4	1260.8
10 ft. 0 in.	0.486	41529	154.72	330.97a	0	11.85	8.8	1260.8
10 ft. 6 in.	0.518	44314	165.1	331.03a	0	12.11	8.2	1260.8
11 ft. 0 in.	0.551	47099	175.47	331.09a	0	12.36	7.7	1260.8
11 ft. 6 in.	0.584	49884	185.85	331.14a	0	12.62	7.3	1260.8
12 ft. 0 in.	0.616	52670	196.23	331.19a	0	12.87	6.9	1260.8
12 ft. 6 in.	0.649	55455	206.6	331.23a	0	13.13	6.6	1260.8
13 ft. 0 in.	0.681	58240	216.98	331.26a	0	13.38	6.3	1260.8
13 ft. 6 in.	0.714	61025	227.36	331.30a	0	13.63	6.0	1260.8
14 ft. 0 in.	0.747	63810	237.73	331.33a	0	13.89	5.7	1260.8
14 ft. 6 in.	0.779	66596	248.11	331.36a	0	14.14	5.5	1260.8
15 ft. 0 in.	0.812	69381	258.49	331.38a	0	14.39	5.3	1260.8
15 ft. 6 in.	0.844	72166	268.86	331.41a	0	14.64	5.0	1260.8
16 ft. 0 in.	0.877	74951	279.24	331.43a	0	14.90	4.9	1260.8
16 ft. 6 in.	0.909	77737	289.62	331.45a	0	15.15	4.7	1260.8
17 ft. 0 in.	0.942	80522	299.99	331.47a	0	15.40	4.5	1260.8
17 ft. 6 in.	0.975	83307	310.37	331.48a	0	15.65	4.4	1260.8
18 ft. 0 in.	1.000	85479	318.46	331.52a	0	15.85		

Soundings in feet & inches. Other distances in feet.

Note: see Gen Note 15, Section 3

Tank: 10WG-BAL.C		Contents: Fresh Water		at 1.000		Specific Gravity		
#3 Wing Void								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	1	0.00	290.61a	0.00	2.62	2.2	0.0
0 ft. 6 in.	0.000	27	0.10	290.90a	0.00	2.97	1.1	1.2
1 ft. 0 in.	0.001	94	0.35	290.95a	0.00	3.31	0.6	7.3
1 ft. 6 in.	0.002	199	0.74	290.96a	0.00	3.64	0.4	22.1
2 ft. 0 in.	0.004	343	1.28	290.97a	0.00	3.97	0.3	49.9
2 ft. 6 in.	0.006	526	1.96	290.98a	0.00	4.30	0.3	87.9
3 ft. 0 in.	0.008	744	2.77	291.00a	0.00	4.63	0.9	146.8
3 ft. 6 in.	0.012	1061	3.95	291.29a	0.00	5.02	7.7	284.1
4 ft. 0 in.	0.017	1481	5.52	291.74a	0.00	5.43	8.4	570.5
4 ft. 6 in.	0.022	1972	7.35	292.78a	0.00	5.80	12.0	815.2
5 ft. 0 in.	0.030	2643	9.85	294.34a	0.00	6.21	22.6	1179.9
5 ft. 6 in.	0.040	3536	13.17	295.83a	0.00	6.64	24.4	1779.8
6 ft. 0 in.	0.052	4573	17.04	296.90a	0.00	7.06	28.0	2375.9
6 ft. 6 in.	0.066	5825	21.70	297.88a	0.00	7.48	27.8	2945.4
7 ft. 0 in.	0.083	7270	27.08	298.73a	0.00	7.88	26.4	3525.2
7 ft. 6 in.	0.101	8901	33.16	299.45a	0.00	8.26	24.3	4071.0
8 ft. 0 in.	0.121	10661	39.72	300.01a	0.00	8.62	21.7	4467.4
8 ft. 6 in.	0.142	12531	46.69	300.46a	0.00	8.97	19.7	4883.2
9 ft. 0 in.	0.165	14512	54.07	300.82a	0.00	9.31	18.0	5318.9
9 ft. 6 in.	0.189	16601	61.85	301.12a	0.00	9.64	16.6	5719.2
10 ft. 0 in.	0.213	18769	69.93	301.38a	0.00	9.96	15.2	6019.3
10 ft. 6 in.	0.239	21009	78.27	301.59a	0.00	10.28	14.0	6328.4
11 ft. 0 in.	0.265	23319	86.88	301.77a	0.00	10.59	13.1	6646.5
11 ft. 6 in.	0.292	25699	95.75	301.94a	0.00	10.90	12.2	6954.1
12 ft. 0 in.	0.320	28140	104.84	302.08a	0.00	11.21	11.4	7226.3
12 ft. 6 in.	0.348	30637	114.14	302.20a	0.00	11.51	10.7	7476.4
13 ft. 0 in.	0.377	33177	123.61	302.30a	0.00	11.81	10.0	7674.3
13 ft. 6 in.	0.406	35757	133.22	302.39a	0.00	12.11	9.5	7875.1
14 ft. 0 in.	0.436	38378	142.98	302.48a	0.00	12.40	8.9	8078.9
14 ft. 6 in.	0.466	41038	152.89	302.55a	0.00	12.70	8.5	8285.8
15 ft. 0 in.	0.497	43738	162.95	302.62a	0.00	12.99	8.1	8495.6
15 ft. 6 in.	0.528	46484	173.18	302.68a	0.00	13.28	7.8	8918.2
16 ft. 0 in.	0.561	49386	183.99	302.73a	0.00	13.58	7.9	10115.5
16 ft. 6 in.	0.597	52501	195.60	302.79a	0.00	13.90	8.0	11411.5
17 ft. 0 in.	0.634	55829	208.00	302.84a	0.00	14.23	8.0	12802.7
17 ft. 6 in.	0.675	59370	221.19	302.89a	0.00	14.57	8.0	14292.3
18 ft. 0 in.	0.717	63123	235.17	302.94a	0.00	14.92	8.0	15883.8
18 ft. 6 in.	0.762	67089	249.95	302.99a	0.00	15.27	7.9	17580.5
19 ft. 0 in.	0.810	71269	265.52	303.04a	0.00	15.63	7.8	19385.9
19 ft. 6 in.	0.860	75660	281.88	303.09a	0.00	16.00	7.8	21303.3
20 ft. 0 in.	0.912	80253	298.99	303.13a	0.00	16.37	7.5	22656.2
20 ft. 6 in.	0.965	84895	316.29	303.17a	0.00	16.72	7.1	22656.2
21 ft. 0 in.	1.000	88007	327.88	303.20a	0.00	16.96		

Soundings in feet & inches.

Other distances in feet.

Note: see Gen Note 15, Section 3

Tank: 11WG-BAL.C		Contents: Fresh Water		at 1.000		Specific Gravity		
#4 Wing Void		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	2	0.01	318.67a	0.00	5.41	2.1	0.0
0 ft. 6 in.	0.000	31	0.12	318.88a	0.00	5.76	1.0	1.3
1 ft. 0 in.	0.002	96	0.36	318.94a	0.00	6.10	0.6	6.6
1 ft. 6 in.	0.003	198	0.74	318.96a	0.00	6.43	0.4	19.9
2 ft. 0 in.	0.005	335	1.25	318.97a	0.00	6.76	0.3	42.0
2 ft. 6 in.	0.008	507	1.89	318.98a	0.00	7.09	0.3	74.1
3 ft. 0 in.	0.011	708	2.64	318.98a	0.00	7.42	0.2	111.9
3 ft. 6 in.	0.015	962	3.58	319.08a	0.00	7.77	2.7	193.4
4 ft. 0 in.	0.021	1336	4.98	319.51a	0.00	8.18	10.7	346.6
4 ft. 6 in.	0.029	1801	6.71	320.23a	0.00	8.57	7.8	620.5
5 ft. 0 in.	0.037	2290	8.53	321.08a	0.00	8.94	12.7	941.2
5 ft. 6 in.	0.047	2946	10.97	322.33a	0.00	9.35	19.8	1256.7
6 ft. 0 in.	0.061	3811	14.20	323.71a	0.00	9.79	22.5	1720.3
6 ft. 6 in.	0.077	4826	17.98	324.76a	0.00	10.21	26.3	2306.6
7 ft. 0 in.	0.097	6039	22.50	325.74a	0.00	10.63	25.5	2765.1
7 ft. 6 in.	0.119	7402	27.58	326.54a	0.00	11.03	23.8	3190.5
8 ft. 0 in.	0.143	8908	33.19	327.19a	0.00	11.41	22.2	3645.1
8 ft. 6 in.	0.169	10553	39.32	327.74a	0.00	11.77	20.4	4087.3
9 ft. 0 in.	0.198	12309	45.86	328.18a	0.00	12.13	18.6	4412.7
9 ft. 6 in.	0.227	14147	52.71	328.54a	0.00	12.47	17.0	4693.3
10 ft. 0 in.	0.258	16057	59.82	328.84a	0.00	12.80	15.5	4948.8
10 ft. 6 in.	0.289	18032	67.18	329.09a	0.00	13.12	14.3	5203.6
11 ft. 0 in.	0.322	20064	74.75	329.30a	0.00	13.44	13.2	5401.0
11 ft. 6 in.	0.355	22145	82.50	329.49a	0.00	13.75	12.3	5599.5
12 ft. 0 in.	0.390	24274	90.44	329.64a	0.00	14.06	11.5	5802.1
12 ft. 6 in.	0.424	26452	98.55	329.78a	0.00	14.36	10.8	6008.8
13 ft. 0 in.	0.460	28683	106.86	329.90a	0.00	14.66	10.4	6335.0
13 ft. 6 in.	0.498	31026	115.59	330.00a	0.00	14.97	10.2	7099.8
14 ft. 0 in.	0.539	33560	125.03	330.09a	0.00	15.29	10.1	8117.9
14 ft. 6 in.	0.583	36301	135.24	330.17a	0.00	15.63	10.1	9317.4
15 ft. 0 in.	0.630	39272	146.31	330.24a	0.00	15.98	10.0	10662.0
15 ft. 6 in.	0.682	42472	158.24	330.32a	0.00	16.34	10.0	12113.4
16 ft. 0 in.	0.737	45902	171.01	330.38a	0.00	16.70	9.9	13678.2
16 ft. 6 in.	0.795	49561	184.65	330.45a	0.00	17.08	9.7	15360.7
17 ft. 0 in.	0.858	53450	199.14	330.51a	0.00	17.45	9.5	17165.1
17 ft. 6 in.	0.923	57497	214.21	330.57a	0.00	17.82	9.1	17672.7
18 ft. 0 in.	0.988	61586	229.45	330.63a	0.00	18.18	8.6	17730.0
18 ft. 6 in.	1.000	62316	232.17	330.69a	0.00	18.25		

Soundings in feet & inches. Other distances in feet.

7.3.2. Freshwater Tanks

Tank: 4IND-FW.P		Contents: Fresh Water		at 1.000		Specific Gravity			
#1 & #2 Fresh Water		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)	
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)			
0 ft. 0 in.	0.000	0	0.00						
0 ft. 6 in.	0.013	228	0.85	109.00a	9.75p	7.29	105.0	5.3	
1 ft. 0 in.	0.036	657	2.45	109.00a	9.75p	7.59	50.5	14.1	
1 ft. 6 in.	0.067	1205	4.49	109.00a	9.75p	7.88	32.8	23.8	
2 ft. 0 in.	0.102	1841	6.86	109.00a	9.75p	8.18	24.4	34.9	
2 ft. 3 in.	0.121	2185	8.14	109.00a	9.75p	8.32	21.5	39.8	
2 ft. 6 in.	0.141	2545	9.48	109.00a	9.75p	8.47	19.2	45.2	
2 ft. 9 in.	0.161	2919	10.87	109.00a	9.75p	8.61	17.4	51.0	
3 ft. 0 in.	0.183	3307	12.32	109.00a	9.75p	8.76	15.8	55.4	
3 ft. 3 in.	0.205	3704	13.80	109.00a	9.75p	8.90	14.5	59.6	
3 ft. 6 in.	0.227	4111	15.32	109.00a	9.75p	9.05	13.4	64.1	
3 ft. 9 in.	0.250	4528	16.87	109.00a	9.75p	9.19	12.4	68.8	
4 ft. 0 in.	0.274	4955	18.46	109.00a	9.75p	9.33	11.6	72.6	
4 ft. 3 in.	0.298	5387	20.07	109.00a	9.75p	9.48	10.8	75.5	
4 ft. 6 in.	0.322	5825	21.70	109.00a	9.75p	9.62	10.1	78.4	
4 ft. 9 in.	0.347	6269	23.36	109.00a	9.75p	9.76	9.5	81.4	
5 ft. 0 in.	0.372	6718	25.03	109.00a	9.75p	9.90	9.0	84.5	
5 ft. 3 in.	0.397	7172	26.72	109.00a	9.75p	10.04	8.5	86.0	
5 ft. 6 in.	0.422	7628	28.42	109.00a	9.75p	10.18	8.0	87.0	
5 ft. 9 in.	0.447	8085	30.12	109.00a	9.75p	10.31	7.6	88.0	
6 ft. 0 in.	0.472	8544	31.83	109.00a	9.75p	10.45	7.2	89.1	
6 ft. 3 in.	0.498	9005	33.55	109.00a	9.75p	10.59	6.8	90.1	
6 ft. 6 in.	0.523	9466	35.27	109.00a	9.75p	10.72	6.5	89.3	
6 ft. 9 in.	0.549	9926	36.98	109.00a	9.75p	10.85	6.2	88.2	
7 ft. 0 in.	0.574	10383	38.68	109.00a	9.75p	10.99	5.9	87.2	
7 ft. 3 in.	0.599	10839	40.38	109.00a	9.75p	11.12	5.6	86.1	
7 ft. 6 in.	0.624	11293	42.07	109.00a	9.75p	11.25	5.4	85.1	
7 ft. 9 in.	0.649	11743	43.75	109.00a	9.75p	11.38	5.1	81.9	
8 ft. 0 in.	0.674	12188	45.41	109.00a	9.75p	11.50	4.8	78.9	
8 ft. 3 in.	0.698	12627	47.04	109.00a	9.75p	11.63	4.6	75.9	
8 ft. 6 in.	0.722	13060	48.66	109.00a	9.75p	11.75	4.4	73.1	
8 ft. 9 in.	0.746	13488	50.25	109.00a	9.75p	11.87	4.2	69.6	
9 ft. 0 in.	0.769	13907	51.81	109.00a	9.75p	11.99	4.0	64.8	
9 ft. 3 in.	0.792	14315	53.33	109.00a	9.75p	12.11	3.8	60.3	
9 ft. 6 in.	0.814	14714	54.82	109.00a	9.75p	12.23	3.6	56.0	
9 ft. 9 in.	0.835	15104	56.27	109.00a	9.75p	12.34	3.4	51.9	
10 ft. 0 in.	0.856	15480	57.67	109.00a	9.75p	12.45	3.2	46.1	
10 ft. 3 in.	0.876	15842	59.02	109.00a	9.75p	12.56	3.0	40.6	
10 ft. 6 in.	0.895	16189	60.31	109.00a	9.75p	12.66	2.8	35.6	
10 ft. 9 in.	0.914	16520	61.55	109.00a	9.75p	12.76	2.6	30.7	
11 ft. 0 in.	0.931	16831	62.71	109.00a	9.75p	12.85	2.4	24.7	
11 ft. 3 in.	0.947	17120	63.78	109.00a	9.75p	12.94	2.2	19.6	
11 ft. 6 in.	0.961	17386	64.78	109.00a	9.75p	13.02	2.0	15.1	
11 ft. 9 in.	0.975	17624	65.66	109.00a	9.75p	13.10	1.7	9.7	
12 ft. 0 in.	0.986	17826	66.41	109.00a	9.75p	13.16	1.4	5.8	
12 ft. 3 in.	0.995	17987	67.01	109.00a	9.75p	13.22	1.0	2.1	
12 ft. 6 in.	1.000	18082	67.37	109.00a	9.75p	13.25	0.2	0.0	
4IND-FW.P		** Reference Point		Long. =	109.00a	Trans. =	9.75p	Vert. =	6.98
4IND-FW.S is similar to 4IND-FW.P				(Zero Sounding is at the Reference Point.)					

Tank: 5IND-FW.P		Contents: Fresh Water		at 1.000		Specific Gravity		
		#3 & #4 Fresh Water						
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00					
0 ft. 3 in.	0.027	567	2.11	136.00a	8.00p	5.13	261.3	85.3
0 ft. 6 in.	0.053	1135	4.23	136.00a	8.00p	5.25	130.7	85.3
0 ft. 9 in.	0.080	1702	6.34	136.00a	8.00p	5.38	87.1	85.3
1 ft. 0 in.	0.107	2269	8.46	136.00a	8.00p	5.50	65.3	85.3
1 ft. 3 in.	0.133	2837	10.57	136.00a	8.00p	5.63	52.3	85.3
1 ft. 6 in.	0.160	3404	12.68	136.00a	8.00p	5.75	43.6	85.3
1 ft. 9 in.	0.187	3972	14.80	136.00a	8.00p	5.87	37.3	85.3
2 ft. 0 in.	0.214	4539	16.91	136.00a	8.00p	6.00	40.1	157.6
2 ft. 3 in.	0.246	5235	19.50	136.00a	7.83p	6.15	34.8	157.6
2 ft. 6 in.	0.279	5931	22.10	136.00a	7.71p	6.29	30.7	157.6
2 ft. 9 in.	0.312	6628	24.69	136.00a	7.61p	6.43	27.5	157.6
3 ft. 0 in.	0.345	7324	27.29	136.00a	7.52p	6.57	24.9	157.6
3 ft. 3 in.	0.377	8020	29.88	136.00a	7.46p	6.71	22.7	157.6
3 ft. 6 in.	0.410	8717	32.48	136.00a	7.40p	6.84	20.9	157.6
3 ft. 9 in.	0.443	9413	35.07	136.00a	7.35p	6.97	19.3	157.6
4 ft. 0 in.	0.476	10109	37.66	136.00a	7.31p	7.10	18.0	157.6
4 ft. 3 in.	0.508	10806	40.26	136.00a	7.28p	7.23	16.8	157.6
4 ft. 6 in.	0.541	11502	42.85	136.00a	7.24p	7.36	15.8	157.6
4 ft. 9 in.	0.574	12198	45.45	136.00a	7.22p	7.49	14.9	157.6
5 ft. 0 in.	0.607	12895	48.04	136.00a	7.19p	7.62	14.1	157.6
5 ft. 3 in.	0.640	13591	50.63	136.00a	7.17p	7.75	13.4	157.6
5 ft. 6 in.	0.672	14287	53.23	136.00a	7.15p	7.88	12.7	157.6
5 ft. 9 in.	0.705	14983	55.82	136.00a	7.13p	8.00	12.2	157.6
6 ft. 0 in.	0.738	15680	58.42	136.00a	7.11p	8.13	11.6	157.6
6 ft. 3 in.	0.771	16376	61.01	136.00a	7.10p	8.26	11.1	157.6
6 ft. 6 in.	0.803	17072	63.61	136.00a	7.08p	8.39	10.7	157.6
6 ft. 9 in.	0.836	17769	66.20	136.00a	7.07p	8.51	10.2	157.6
7 ft. 0 in.	0.869	18465	68.79	136.00a	7.06p	8.64	9.9	157.6
7 ft. 3 in.	0.902	19161	71.39	136.00a	7.05p	8.77	9.5	157.6
7 ft. 6 in.	0.934	19858	73.98	136.00a	7.04p	8.89	9.2	157.6
7 ft. 9 in.	0.967	20554	76.58	136.00a	7.03p	9.02	8.9	157.6
8 ft. 0 in.	1.000	21250	79.17	136.00a	7.02p	9.15		
5IND-FW.P	** Reference Point		Long. =	136.00a	Trans. =	6.75p	Vert. =	5
5IND-FW.S is similar to 5IND-FW.P				(Zero Sounding is at the Reference Point.)				

7.3.3. Sewage Tanks

Tank: 6IND-V1.P Contents: Sewage at 1.000 Specific Gravity								
V1 Sewage Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.034	232	0.86	158.00a	8.25p	5.13	48.0	31.8
0 ft. 6 in.	0.068	464	1.73	158.00a	8.25p	5.25	24.0	31.8
0 ft. 9 in.	0.102	696	2.59	158.00a	8.25p	5.38	16.0	31.8
1 ft. 0 in.	0.136	928	3.46	158.00a	8.25p	5.50	12.0	31.8
1 ft. 3 in.	0.170	1161	4.32	158.00a	8.25p	5.63	9.6	31.8
1 ft. 6 in.	0.205	1393	5.19	158.00a	8.25p	5.75	8.0	31.8
1 ft. 9 in.	0.239	1625	6.05	158.00a	8.25p	5.88	6.9	31.8
2 ft. 0 in.	0.273	1857	6.92	158.00a	8.25p	6.00	6.0	31.8
2 ft. 3 in.	0.307	2089	7.78	158.00a	8.25p	6.13	5.3	31.8
2 ft. 6 in.	0.341	2321	8.65	158.00a	8.25p	6.25	4.8	31.8
2 ft. 9 in.	0.375	2553	9.51	158.00a	8.25p	6.38	4.4	31.8
3 ft. 0 in.	0.409	2785	10.38	158.00a	8.25p	6.50	4.0	31.8
3 ft. 3 in.	0.443	3017	11.24	158.00a	8.25p	6.63	3.7	31.8
3 ft. 6 in.	0.477	3249	12.11	158.00a	8.25p	6.75	3.4	31.8
3 ft. 9 in.	0.511	3482	12.97	158.00a	8.25p	6.88	3.2	31.8
4 ft. 0 in.	0.545	3714	13.84	158.00a	8.25p	7.00	3.0	31.8
4 ft. 3 in.	0.580	3946	14.70	158.00a	8.25p	7.13	2.8	31.8
4 ft. 6 in.	0.614	4178	15.57	158.00a	8.25p	7.25	2.7	31.8
4 ft. 9 in.	0.648	4410	16.43	158.00a	8.25p	7.38	2.5	31.8
5 ft. 0 in.	0.682	4642	17.29	158.00a	8.25p	7.50	2.4	31.8
5 ft. 3 in.	0.716	4874	18.16	158.00a	8.25p	7.63	2.3	31.8
5 ft. 6 in.	0.750	5106	19.02	158.00a	8.25p	7.75	2.2	31.8
5 ft. 9 in.	0.784	5338	19.89	158.00a	8.25p	7.88	2.1	31.8
6 ft. 0 in.	0.818	5570	20.75	158.00a	8.25p	8.00	2.0	31.8
6 ft. 3 in.	0.852	5803	21.62	158.00a	8.25p	8.13	1.9	31.8
6 ft. 6 in.	0.886	6035	22.48	158.00a	8.25p	8.25	1.9	31.8
6 ft. 9 in.	0.920	6267	23.35	158.00a	8.25p	8.38	1.8	31.8
7 ft. 0 in.	0.955	6499	24.21	158.00a	8.25p	8.50	1.7	31.8
7 ft. 3 in.	0.989	6731	25.08	158.00a	8.25p	8.63	1.7	31.8
7 ft. 6 in.	1.000	6808	25.36	158.00a	8.25p	8.67	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 6IND-V2.S		Contents: Sewage		at 1.000		Specific Gravity		
V2 Sewage Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.042	116	0.43	155.00a	8.25s	5.13	12.0	15.9
0 ft. 6 in.	0.083	232	0.86	155.00a	8.25s	5.25	6.0	15.9
0 ft. 9 in.	0.125	348	1.30	155.00a	8.25s	5.38	4.0	15.9
1 ft. 0 in.	0.167	464	1.73	155.00a	8.25s	5.50	3.0	15.9
1 ft. 3 in.	0.208	580	2.16	155.00a	8.25s	5.63	2.4	15.9
1 ft. 6 in.	0.250	696	2.59	155.00a	8.25s	5.75	2.0	15.9
1 ft. 9 in.	0.292	812	3.03	155.00a	8.25s	5.88	1.7	15.9
2 ft. 0 in.	0.333	928	3.46	155.00a	8.25s	6.00	1.5	15.9
2 ft. 3 in.	0.375	1044	3.89	155.00a	8.25s	6.13	1.3	15.9
2 ft. 6 in.	0.417	1161	4.32	155.00a	8.25s	6.25	1.2	15.9
2 ft. 9 in.	0.458	1277	4.76	155.00a	8.25s	6.38	1.1	15.9
3 ft. 0 in.	0.500	1393	5.19	155.00a	8.25s	6.50	1.0	15.9
3 ft. 3 in.	0.542	1509	5.62	155.00a	8.25s	6.63	0.9	15.9
3 ft. 6 in.	0.583	1625	6.05	155.00a	8.25s	6.75	0.9	15.9
3 ft. 9 in.	0.625	1741	6.49	155.00a	8.25s	6.88	0.8	15.9
4 ft. 0 in.	0.667	1857	6.92	155.00a	8.25s	7.00	0.8	15.9
4 ft. 3 in.	0.708	1973	7.35	155.00a	8.25s	7.13	0.7	15.9
4 ft. 6 in.	0.750	2089	7.78	155.00a	8.25s	7.25	0.7	15.9
4 ft. 9 in.	0.792	2205	8.21	155.00a	8.25s	7.38	0.6	15.9
5 ft. 0 in.	0.833	2321	8.65	155.00a	8.25s	7.50	0.6	15.9
5 ft. 3 in.	0.875	2437	9.08	155.00a	8.25s	7.63	0.6	15.9
5 ft. 6 in.	0.917	2553	9.51	155.00a	8.25s	7.75	0.6	15.9
5 ft. 9 in.	0.958	2669	9.94	155.00a	8.25s	7.88	0.5	15.9
6 ft. 0 in.	1.000	2785	10.38	155.00a	8.25s	8.00	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 9IND-SEW.C Contents: Sewage at 1.000 Specific Gravity								
Sewage Holding Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.013	44	0.16	277.33a	0.00	6.02	3.5	4.0
0 ft. 6 in.	0.039	132	0.49	277.78a	0.00	6.18	3.6	15.8
0 ft. 9 in.	0.066	221	0.82	277.87a	0.00	6.31	2.1	15.8
1 ft. 0 in.	0.092	309	1.15	277.90a	0.00	6.44	1.5	15.8
1 ft. 3 in.	0.118	398	1.48	277.93a	0.00	6.56	1.2	15.8
1 ft. 6 in.	0.145	486	1.81	277.94a	0.00	6.69	1.0	15.8
1 ft. 9 in.	0.171	575	2.14	277.95a	0.00	6.82	0.8	15.8
2 ft. 0 in.	0.197	663	2.47	277.96a	0.00	6.94	0.7	15.8
2 ft. 3 in.	0.224	751	2.80	277.96a	0.00	7.07	0.6	15.8
2 ft. 6 in.	0.250	840	3.13	277.96a	0.00	7.19	0.6	15.8
2 ft. 9 in.	0.276	928	3.46	277.97a	0.00	7.32	0.5	15.8
3 ft. 0 in.	0.303	1017	3.79	277.97a	0.00	7.44	0.5	15.8
3 ft. 3 in.	0.329	1105	4.12	277.97a	0.00	7.57	0.4	15.8
3 ft. 6 in.	0.355	1193	4.45	277.98a	0.00	7.69	0.4	15.8
3 ft. 9 in.	0.382	1282	4.78	277.98a	0.00	7.82	0.4	15.8
4 ft. 0 in.	0.408	1370	5.11	277.98a	0.00	7.94	0.3	15.8
4 ft. 3 in.	0.434	1459	5.43	277.98a	0.00	8.07	0.3	15.8
4 ft. 6 in.	0.461	1547	5.76	277.98a	0.00	8.19	0.3	15.8
4 ft. 9 in.	0.487	1636	6.09	277.98a	0.00	8.32	0.3	15.8
5 ft. 0 in.	0.513	1724	6.42	277.98a	0.00	8.44	0.3	15.8
5 ft. 3 in.	0.540	1812	6.75	277.98a	0.00	8.57	0.3	15.8
5 ft. 6 in.	0.566	1901	7.08	277.98a	0.00	8.69	0.3	15.8
5 ft. 9 in.	0.592	1989	7.41	277.99a	0.00	8.82	0.2	15.8
6 ft. 0 in.	0.619	2078	7.74	277.99a	0.00	8.94	0.2	15.8
6 ft. 3 in.	0.645	2166	8.07	277.99a	0.00	9.07	0.2	15.8
6 ft. 6 in.	0.671	2255	8.40	277.99a	0.00	9.19	0.2	15.8
6 ft. 9 in.	0.698	2343	8.73	277.99a	0.00	9.32	0.2	15.8
7 ft. 0 in.	0.724	2431	9.06	277.99a	0.00	9.44	0.2	15.8
7 ft. 3 in.	0.750	2520	9.39	277.99a	0.00	9.57	0.2	15.8
7 ft. 6 in.	0.777	2608	9.72	277.99a	0.00	9.69	0.2	15.8
7 ft. 9 in.	0.803	2697	10.05	277.99a	0.00	9.82	0.2	15.8
8 ft. 0 in.	0.829	2785	10.38	277.99a	0.00	9.94	0.2	15.8
8 ft. 3 in.	0.856	2873	10.71	277.99a	0.00	10.07	0.2	15.8
8 ft. 6 in.	0.882	2962	11.03	277.99a	0.00	10.19	0.2	15.8
8 ft. 9 in.	0.908	3050	11.36	277.99a	0.00	10.32	0.2	15.8
9 ft. 0 in.	0.935	3139	11.69	277.99a	0.00	10.44	0.2	15.8
9 ft. 3 in.	0.961	3227	12.02	277.99a	0.00	10.57	0.2	15.8
9 ft. 6 in.	0.987	3316	12.35	277.99a	0.00	10.69	0.1	15.8
9 ft. 9 in.	1.000	3358	12.51	277.99a	0.00	10.75		
Soundings in feet & inches.							Other distances in feet.	

7.3.4. Fuel Oil Tanks

Tank: 6DB-FO.P Contents: Fuel Oil at 0.870 Specific Gravity								
#4 DB Fuel Oil Tank P								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.015	320	1.04	165.00a	1.83p	0.30	179.8	7.7
0 ft. 3 in.	0.029	625	2.03	164.94a	2.51p	0.46	129.5	21.4
0 ft. 6 in.	0.047	1021	3.31	164.88a	3.16p	0.63	97.5	40.9
0 ft. 9 in.	0.069	1499	4.86	164.85a	3.76p	0.79	78.9	70.3
1 ft. 0 in.	0.095	2062	6.68	164.85a	4.37p	0.95	66.9	113.0
1 ft. 3 in.	0.125	2716	8.80	164.86a	5.00p	1.11	58.4	171.9
1 ft. 6 in.	0.160	3463	11.23	164.88a	5.64p	1.28	51.6	247.1
1 ft. 9 in.	0.197	4276	13.86	164.90a	6.21p	1.44	43.8	284.7
2 ft. 0 in.	0.237	5127	16.62	164.92a	6.68p	1.60	38.2	326.0
2 ft. 3 in.	0.278	6017	19.50	164.94a	7.09p	1.75	33.9	371.1
2 ft. 6 in.	0.321	6943	22.51	164.95a	7.46p	1.90	30.3	408.0
2 ft. 9 in.	0.365	7893	25.58	164.96a	7.78p	2.05	27.3	435.4
3 ft. 0 in.	0.409	8864	28.73	164.97a	8.06p	2.19	24.9	464.0
3 ft. 3 in.	0.455	9856	31.95	164.97a	8.31p	2.34	22.9	493.9
3 ft. 6 in.	0.502	10870	35.23	164.97a	8.54p	2.48	21.2	524.9
3 ft. 9 in.	0.550	11899	38.57	164.97a	8.75p	2.62	19.6	543.7
4 ft. 0 in.	0.598	12942	41.95	164.97a	8.93p	2.77	18.3	562.9
4 ft. 3 in.	0.647	13996	45.37	164.97a	9.10p	2.91	17.1	582.5
4 ft. 6 in.	0.695	15050	48.78	164.97a	9.26p	3.04	6.5	22.0
4 ft. 9 in.	0.713	15428	50.01	164.96a	9.50p	3.10	6.3	22.0
5 ft. 0 in.	0.730	15806	51.23	164.94a	9.74p	3.15	6.2	22.1
5 ft. 3 in.	0.748	16185	52.46	164.92a	9.97p	3.21	6.0	22.2
5 ft. 6 in.	0.765	16564	53.69	164.90a	10.20p	3.27	5.9	22.2
5 ft. 9 in.	0.783	16940	54.91	164.89a	10.42p	3.33	5.7	21.4
6 ft. 0 in.	0.800	17313	56.12	164.87a	10.63p	3.40	5.5	20.6
6 ft. 3 in.	0.817	17680	57.31	164.86a	10.84p	3.47	5.3	19.9
6 ft. 6 in.	0.833	18043	58.48	164.85a	11.04p	3.53	5.1	19.1
6 ft. 9 in.	0.850	18401	59.64	164.83a	11.23p	3.60	5.0	18.4
7 ft. 0 in.	0.866	18755	60.79	164.82a	11.42p	3.68	4.8	17.7
7 ft. 3 in.	0.882	19105	61.92	164.81a	11.60p	3.75	4.7	17.0
7 ft. 6 in.	0.898	19449	63.04	164.80a	11.77p	3.82	4.5	16.4
7 ft. 9 in.	0.914	19788	64.14	164.79a	11.94p	3.89	4.4	15.3
8 ft. 0 in.	0.929	20118	65.21	164.78a	12.11p	3.97	4.2	14.2
8 ft. 3 in.	0.944	20441	66.25	164.77a	12.27p	4.04	4.0	13.2
8 ft. 6 in.	0.959	20756	67.28	164.76a	12.42p	4.12	3.9	12.3
8 ft. 9 in.	0.973	21063	68.27	164.75a	12.56p	4.19	3.7	11.4
9 ft. 0 in.	0.987	21362	69.24	164.75a	12.70p	4.26	3.6	10.5
9 ft. 3 in.	1.000	21649	70.17	164.74a	12.84p	4.33		

Soundings in feet & inches.

Other distances in feet.

Tank: 6DB-FO.S Contents: Fuel Oil at 0.870 Specific Gravity								
#4 DB Fuel Oil Tank S								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.015	320	1.04	165.00a	1.83s	0.30	179.8	7.7
0 ft. 3 in.	0.029	627	2.03	164.96a	2.52s	0.46	130.4	22.0
0 ft. 6 in.	0.047	1032	3.35	164.94a	3.20s	0.63	98.3	42.5
0 ft. 9 in.	0.070	1523	4.94	164.95a	3.82s	0.79	79.0	71.6
1 ft. 0 in.	0.096	2100	6.81	164.97a	4.43s	0.95	66.7	113.6
1 ft. 3 in.	0.127	2769	8.97	164.98a	5.05s	1.12	58.0	172.2
1 ft. 6 in.	0.162	3530	11.44	165.00a	5.68s	1.28	51.2	247.4
1 ft. 9 in.	0.200	4356	14.12	165.01a	6.24s	1.44	43.4	285.1
2 ft. 0 in.	0.239	5222	16.92	165.03a	6.70s	1.60	37.8	326.5
2 ft. 3 in.	0.281	6126	19.86	165.04a	7.11s	1.75	33.6	371.9
2 ft. 6 in.	0.324	7066	22.90	165.06a	7.47s	1.90	30.1	409.0
2 ft. 9 in.	0.368	8030	26.03	165.07a	7.78s	2.05	27.1	436.5
3 ft. 0 in.	0.413	9015	29.22	165.07a	8.05s	2.19	24.7	465.4
3 ft. 3 in.	0.459	10022	32.48	165.07a	8.30s	2.34	22.7	495.5
3 ft. 6 in.	0.507	11049	35.81	165.07a	8.53s	2.48	20.1	526.2
3 ft. 9 in.	0.554	12075	39.14	165.05a	8.73s	2.62	18.7	545.1
4 ft. 0 in.	0.601	13114	42.50	165.04a	8.91s	2.76	17.4	564.5
4 ft. 3 in.	0.649	14164	45.91	165.02a	9.08s	2.90	16.3	584.3
4 ft. 6 in.	0.697	15215	49.32	165.01a	9.23s	3.04	6.4	22.0
4 ft. 9 in.	0.715	15593	50.54	164.99a	9.47s	3.09	6.2	22.0
5 ft. 0 in.	0.732	15971	51.77	164.97a	9.71s	3.14	6.1	22.1
5 ft. 3 in.	0.750	16349	52.99	164.96a	9.94s	3.20	6.0	22.2
5 ft. 6 in.	0.767	16728	54.22	164.94a	10.16s	3.26	5.8	22.2
5 ft. 9 in.	0.784	17105	55.44	164.92a	10.38s	3.32	5.6	21.4
6 ft. 0 in.	0.801	17477	56.65	164.91a	10.59s	3.39	5.4	20.6
6 ft. 3 in.	0.818	17845	57.84	164.89a	10.80s	3.45	5.3	19.9
6 ft. 6 in.	0.835	18208	59.02	164.88a	10.99s	3.52	5.1	19.1
6 ft. 9 in.	0.851	18566	60.18	164.87a	11.19s	3.59	4.9	18.4
7 ft. 0 in.	0.867	18920	61.32	164.85a	11.37s	3.66	4.8	17.7
7 ft. 3 in.	0.883	19269	62.46	164.84a	11.55s	3.73	4.6	17.0
7 ft. 6 in.	0.899	19614	63.57	164.83a	11.73s	3.81	4.5	16.4
7 ft. 9 in.	0.915	19952	64.67	164.82a	11.90s	3.88	4.3	15.3
8 ft. 0 in.	0.930	20283	65.74	164.81a	12.06s	3.95	4.1	14.2
8 ft. 3 in.	0.945	20605	66.79	164.80a	12.22s	4.03	4.0	13.2
8 ft. 6 in.	0.959	20920	67.81	164.79a	12.37s	4.10	3.8	12.3
8 ft. 9 in.	0.973	21227	68.80	164.78a	12.52s	4.17	3.7	11.4
9 ft. 0 in.	0.987	21527	69.77	164.77a	12.66s	4.25	3.5	10.5
9 ft. 3 in.	1.000	21813	70.70	164.77a	12.79s	4.32		

Soundings in feet & inches.

Other distances in feet.

Tank: 7DB-FO.P Contents: Fuel Oil at 0.870 Specific Gravity								
#5 DB Fuel Oil Tank P								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.007	147	0.48	192.00a	1.32p	0.16	321.3	2.4
0 ft. 3 in.	0.018	379	1.23	192.00a	1.91p	0.32	197.2	9.5
0 ft. 6 in.	0.035	720	2.33	192.00a	2.58p	0.48	143.7	25.2
0 ft. 9 in.	0.056	1165	3.78	192.00a	3.25p	0.65	110.4	48.3
1 ft. 0 in.	0.082	1703	5.52	192.00a	3.88p	0.81	89.8	81.4
1 ft. 3 in.	0.112	2337	7.58	192.00a	4.50p	0.97	76.5	130.1
1 ft. 6 in.	0.148	3073	9.96	192.00a	5.13p	1.14	66.9	197.5
1 ft. 9 in.	0.188	3909	12.67	192.00a	5.77p	1.3	58.9	277.2
2 ft. 0 in.	0.231	4812	15.6	192.00a	6.33p	1.47	50.1	320.6
2 ft. 3 in.	0.277	5756	18.66	192.01a	6.79p	1.62	43.6	364.3
2 ft. 6 in.	0.324	6739	21.84	192.02a	7.19p	1.77	38.7	410.6
2 ft. 9 in.	0.373	7755	25.14	192.03a	7.54p	1.92	34.5	444.8
3 ft. 0 in.	0.423	8791	28.49	192.05a	7.84p	2.07	31.1	471.5
3 ft. 3 in.	0.473	9845	31.91	192.06a	8.10p	2.21	28.3	499.3
3 ft. 6 in.	0.525	10918	35.39	192.06a	8.33p	2.35	26.0	528.2
3 ft. 9 in.	0.577	12009	38.92	192.07a	8.54p	2.49	23.8	556.6
4 ft. 0 in.	0.63	13106	42.48	192.07a	8.73p	2.63	22.0	580.1
4 ft. 3 in.	0.684	14218	46.09	192.07a	8.90p	2.77	20.6	603.9
4 ft. 6 in.	0.738	15344	49.74	192.07a	9.06p	2.91	19.3	627.8
4 ft. 9 in.	0.787	16360	53.03	192.06a	9.21p	3.04	4.2	9.4
5 ft. 0 in.	0.799	16627	53.89	192.04a	9.39p	3.07	4.2	9.5
5 ft. 3 in.	0.812	16898	54.77	192.03a	9.57p	3.11	4.1	9.7
5 ft. 6 in.	0.826	17174	55.67	192.01a	9.75p	3.15	4.1	9.9
5 ft. 9 in.	0.839	17453	56.57	191.99a	9.93p	3.19	4.1	10.3
6 ft. 0 in.	0.853	17733	57.48	191.97a	10.10p	3.24	4.0	10.0
6 ft. 3 in.	0.866	18009	58.37	191.95a	10.28p	3.29	3.9	9.7
6 ft. 6 in.	0.879	18282	59.26	191.93a	10.44p	3.34	3.8	9.5
6 ft. 9 in.	0.892	18551	60.13	191.91a	10.61p	3.39	3.6	9.1
7 ft. 0 in.	0.905	18816	60.99	191.89a	10.77p	3.44	3.5	8.7
7 ft. 3 in.	0.917	19076	61.83	191.87a	10.92p	3.5	3.4	8.3
7 ft. 6 in.	0.929	19331	62.66	191.85a	11.07p	3.55	3.3	7.9
7 ft. 9 in.	0.94	19562	63.41	191.84a	11.21p	3.6	2.4	5.9
8 ft. 0 in.	0.95	19763	64.06	191.85a	11.33p	3.65	2.3	5.2
8 ft. 3 in.	0.959	19957	64.69	191.85a	11.44p	3.7	2.2	4.7
8 ft. 6 in.	0.968	20144	65.29	191.85a	11.55p	3.74	2.1	4.2
8 ft. 9 in.	0.977	20324	65.87	191.85a	11.65p	3.79	2.0	3.8
9 ft. 0 in.	0.985	20496	66.43	191.86a	11.75p	3.83	1.9	3.5
9 ft. 3 in.	0.993	20662	66.97	191.86a	11.85p	3.88	1.8	3.1
9 ft. 6 in.	1.000	20800	67.42	191.86a	11.93p	3.91		

Soundings in feet & inches. Other distances in feet.

Tank: 7DB-FO.S Contents: Fuel Oil at 0.870 Specific Gravity								
#5 DB Fuel Oil Tank S								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.008	166	0.54	192.00a	1.37s	0.18	299.6	2.8
0 ft. 3 in.	0.019	408	1.32	192.00a	1.98s	0.34	190.1	10.6
0 ft. 6 in.	0.036	760	2.46	192.00a	2.65s	0.50	139.9	27.4
0 ft. 9 in.	0.057	1215	3.94	192.00a	3.31s	0.66	107.8	51.1
1 ft. 0 in.	0.083	1762	5.71	192.00a	3.94s	0.83	88.2	85.4
1 ft. 3 in.	0.113	2406	7.80	192.00a	4.56s	0.99	75.4	136.0
1 ft. 6 in.	0.148	3152	10.22	192.00a	5.19s	1.16	66.1	205.3
1 ft. 9 in.	0.187	3998	12.96	192.00a	5.83s	1.32	57.9	281.5
2 ft. 0 in.	0.230	4905	15.90	192.00a	6.38s	1.48	49.5	326.6
2 ft. 3 in.	0.274	5858	18.99	192.00a	6.84s	1.64	43.5	376.3
2 ft. 6 in.	0.321	6855	22.22	192.00a	7.26s	1.79	38.9	430.8
2 ft. 9 in.	0.369	7891	25.58	192.00a	7.62s	1.94	34.7	465.9
3 ft. 0 in.	0.419	8948	29.00	192.00a	7.93s	2.09	31.2	494.0
3 ft. 3 in.	0.469	10026	32.50	192.00a	8.20s	2.23	28.4	523.2
3 ft. 6 in.	0.521	11124	36.06	192.00a	8.44s	2.38	26.0	553.6
3 ft. 9 in.	0.573	12240	39.67	192.00a	8.66s	2.52	23.8	579.8
4 ft. 0 in.	0.626	13363	43.31	191.99a	8.85s	2.66	22.0	600.6
4 ft. 3 in.	0.679	14500	47.00	191.98a	9.03s	2.80	20.6	621.8
4 ft. 6 in.	0.733	15649	50.72	191.98a	9.19s	2.94	19.3	643.6
4 ft. 9 in.	0.777	16599	53.80	191.97a	9.35s	3.05	4.4	10.9
5 ft. 0 in.	0.790	16884	54.73	191.95a	9.53s	3.08	4.3	10.9
5 ft. 3 in.	0.804	17170	55.65	191.93a	9.71s	3.12	4.2	11.0
5 ft. 6 in.	0.817	17455	56.58	191.90a	9.89s	3.17	4.2	11.0
5 ft. 9 in.	0.831	17741	57.50	191.88a	10.07s	3.21	4.1	10.9
6 ft. 0 in.	0.844	18024	58.42	191.86a	10.24s	3.26	3.9	10.4
6 ft. 3 in.	0.857	18302	59.32	191.84a	10.41s	3.31	3.8	10.0
6 ft. 6 in.	0.870	18575	60.21	191.83a	10.57s	3.36	3.7	9.5
6 ft. 9 in.	0.882	18844	61.08	191.81a	10.73s	3.41	3.6	9.1
7 ft. 0 in.	0.895	19108	61.93	191.79a	10.89s	3.46	3.5	8.7
7 ft. 3 in.	0.907	19368	62.78	191.77a	11.04s	3.51	3.4	8.3
7 ft. 6 in.	0.919	19622	63.60	191.76a	11.19s	3.57	3.2	7.9
7 ft. 9 in.	0.930	19873	64.41	191.74a	11.33s	3.62	3.1	7.4
8 ft. 0 in.	0.942	20116	65.20	191.72a	11.47s	3.68	3.0	6.8
8 ft. 3 in.	0.953	20351	65.96	191.71a	11.60s	3.73	2.8	6.2
8 ft. 6 in.	0.963	20578	66.70	191.69a	11.73s	3.79	2.7	5.7
8 ft. 9 in.	0.974	20797	67.41	191.68a	11.85s	3.84	2.6	5.1
9 ft. 0 in.	0.984	21007	68.09	191.66a	11.96s	3.89	2.4	4.7
9 ft. 3 in.	0.993	21210	68.75	191.64a	12.08s	3.95	2.3	4.2
9 ft. 6 in.	1.000	21359	69.23	191.63a	12.16s	3.99		

Soundings in feet & inches. Other distances in feet.

Tank: 7ME-SERV.P Contents: Fuel Oil at 0.870 Specific Gravity ME Service Tank P								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.002	9	0.03	204.02a	15.18p	5.02	31.9	3.0
0 ft. 6 in.	0.030	119	0.39	204.02a	15.24p	5.27	2.6	3.7
1 ft. 0 in.	0.060	237	0.77	204.02a	15.37p	5.53	1.4	4.5
1 ft. 6 in.	0.092	362	1.17	204.02a	15.50p	5.80	0.9	5.3
2 ft. 0 in.	0.125	494	1.60	204.02a	15.63p	6.06	0.7	6.3
2 ft. 6 in.	0.161	634	2.06	204.02a	15.76p	6.33	0.6	7.3
3 ft. 0 in.	0.198	781	2.53	204.02a	15.90p	6.61	0.5	8.5
3 ft. 6 in.	0.237	936	3.03	204.02a	16.04p	6.89	0.5	9.8
4 ft. 0 in.	0.278	1097	3.56	204.02a	16.18p	7.17	0.4	11.3
4 ft. 6 in.	0.321	1267	4.11	204.02a	16.32p	7.45	0.4	12.9
5 ft. 0 in.	0.371	1463	4.74	204.01a	16.58p	7.77	0.4	23.7
5 ft. 6 in.	0.425	1676	5.43	204.01a	16.85p	8.09	0.3	24.7
6 ft. 0 in.	0.480	1892	6.13	204.01a	17.08p	8.40	0.3	25.6
6 ft. 6 in.	0.536	2111	6.84	204.01a	17.27p	8.70	0.3	26.6
7 ft. 0 in.	0.592	2333	7.56	204.01a	17.44p	8.99	0.3	27.6
7 ft. 6 in.	0.649	2557	8.29	204.01a	17.58p	9.28	0.2	28.7
8 ft. 0 in.	0.706	2785	9.03	204.01a	17.72p	9.57	0.2	29.7
8 ft. 6 in.	0.765	3015	9.77	204.01a	17.84p	9.85	0.2	30.8
9 ft. 0 in.	0.824	3247	10.53	204.01a	17.95p	10.13	0.2	31.9
9 ft. 6 in.	0.884	3483	11.29	204.01a	18.05p	10.42	0.2	33.0
10 ft. 0 in.	0.944	3721	12.06	204.01a	18.15p	10.70	0.2	34.2
10 ft. 6 in.	1.000	3942	12.78	204.01a	18.24p	10.95		

Soundings in feet & inches. Other distances in feet.

Tank: 7ME-SERV.S Contents: Fuel Oil at 0.870 Specific Gravity ME Service Tank S								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.002	9	0.03	204.02a	15.18s	5.02	31.9	3.0
0 ft. 6 in.	0.030	119	0.39	204.02a	15.24s	5.27	2.6	3.7
1 ft. 0 in.	0.060	237	0.77	204.02a	15.37s	5.53	1.4	4.5
1 ft. 6 in.	0.092	362	1.17	204.02a	15.50s	5.80	0.9	5.3
2 ft. 0 in.	0.125	494	1.60	204.02a	15.63s	6.06	0.7	6.3
2 ft. 6 in.	0.161	634	2.06	204.02a	15.76s	6.33	0.6	7.3
3 ft. 0 in.	0.198	781	2.53	204.02a	15.90s	6.61	0.5	8.5
3 ft. 6 in.	0.237	936	3.03	204.02a	16.04s	6.89	0.5	9.8
4 ft. 0 in.	0.278	1097	3.56	204.02a	16.18s	7.17	0.4	11.3
4 ft. 6 in.	0.321	1267	4.11	204.02a	16.32s	7.45	0.4	12.9
5 ft. 0 in.	0.371	1463	4.74	204.01a	16.58s	7.77	0.4	23.7
5 ft. 6 in.	0.425	1676	5.43	204.01a	16.85s	8.09	0.3	24.7
6 ft. 0 in.	0.480	1892	6.13	204.01a	17.08s	8.40	0.3	25.6
6 ft. 6 in.	0.536	2111	6.84	204.01a	17.27s	8.70	0.3	26.6
7 ft. 0 in.	0.592	2333	7.56	204.01a	17.44s	8.99	0.3	27.6
7 ft. 6 in.	0.649	2557	8.29	204.01a	17.58s	9.28	0.2	28.7
8 ft. 0 in.	0.706	2785	9.03	204.01a	17.72s	9.57	0.2	29.7
8 ft. 6 in.	0.765	3015	9.77	204.01a	17.84s	9.85	0.2	30.8
9 ft. 0 in.	0.824	3247	10.53	204.01a	17.95s	10.13	0.2	31.9
9 ft. 6 in.	0.884	3483	11.29	204.01a	18.05s	10.42	0.2	33.0
10 ft. 0 in.	0.944	3721	12.06	204.01a	18.15s	10.70	0.2	34.2
10 ft. 6 in.	1.000	3942	12.78	204.01a	18.24s	10.95		

Soundings in feet & inches. Other distances in feet.

Tank: 9-10IND.C		Contents: Fuel Oil		at 0.87		Specific Gravity		
DO Storage Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.030	545	1.77	284.53a	0.00	6.71	29.5	44.6
0 ft. 3 in.	0.048	863	2.80	285.52a	0.00	6.87	33.7	54.3
0 ft. 6 in.	0.069	1243	4.03	286.47a	0.00	7.02	38.3	64.1
0 ft. 9 in.	0.093	1686	5.47	287.41a	0.00	7.17	43.2	73.8
1 ft. 0 in.	0.121	2192	7.10	288.34a	0.00	7.32	46.5	82.5
1 ft. 3 in.	0.151	2722	8.82	289.05a	0.00	7.50	37.4	82.5
1 ft. 6 in.	0.180	3253	10.54	289.53a	0.00	7.65	31.3	82.5
1 ft. 9 in.	0.209	3783	12.26	289.88a	0.00	7.79	26.9	82.5
2 ft. 0 in.	0.239	4314	13.98	290.14a	0.00	7.93	23.6	82.5
2 ft. 3 in.	0.268	4844	15.70	290.34a	0.00	8.06	21.0	82.5
2 ft. 6 in.	0.298	5375	17.42	290.51a	0.00	8.20	19.0	82.5
2 ft. 9 in.	0.327	5905	19.14	290.64a	0.00	8.33	17.2	82.5
3 ft. 0 in.	0.356	6436	20.86	290.75a	0.00	8.46	15.8	82.5
3 ft. 3 in.	0.386	6966	22.58	290.85a	0.00	8.58	14.6	82.5
3 ft. 6 in.	0.415	7497	24.30	290.93a	0.00	8.71	13.6	82.5
3 ft. 9 in.	0.444	8027	26.02	291.00a	0.00	8.84	12.7	82.5
4 ft. 0 in.	0.474	8558	27.74	291.06a	0.00	8.97	11.9	82.5
4 ft. 3 in.	0.503	9088	29.46	291.12a	0.00	9.09	11.2	82.5
4 ft. 6 in.	0.533	9619	31.18	291.17a	0.00	9.22	10.6	82.5
4 ft. 9 in.	0.562	10149	32.90	291.21a	0.00	9.35	10.0	82.5
5 ft. 0 in.	0.591	10680	34.62	291.25a	0.00	9.47	9.5	82.5
5 ft. 3 in.	0.621	11210	36.34	291.28a	0.00	9.60	9.1	82.5
5 ft. 6 in.	0.650	11741	38.06	291.32a	0.00	9.73	8.7	82.5
5 ft. 9 in.	0.679	12271	39.78	291.35a	0.00	9.85	8.3	82.5
6 ft. 0 in.	0.709	12802	41.49	291.37a	0.00	9.98	8.0	82.5
6 ft. 3 in.	0.738	13332	43.21	291.40a	0.00	10.11	7.6	82.5
6 ft. 6 in.	0.767	13863	44.93	291.42a	0.00	10.23	7.4	82.5
6 ft. 9 in.	0.797	14393	46.65	291.44a	0.00	10.36	7.1	82.5
7 ft. 0 in.	0.826	14924	48.37	291.46a	0.00	10.48	6.8	82.5
7 ft. 3 in.	0.856	15455	50.09	291.48a	0.00	10.61	6.6	82.5
7 ft. 6 in.	0.885	15985	51.81	291.50a	0.00	10.73	6.4	82.5
7 ft. 9 in.	0.914	16516	53.53	291.51a	0.00	10.86	6.2	82.5
8 ft. 0 in.	0.944	17046	55.25	291.53a	0.00	10.99	6.0	82.5
8 ft. 3 in.	0.973	17577	56.97	291.54a	0.00	11.11	5.8	82.5
8 ft. 6 in.	1.000	18063	58.55	291.56a	0.00	11.23		

Soundings in feet & inches. Other distances in feet.



7.3.5. Lube Oil Tanks

Tank: 7GST-68.C		Contents: GST-68 Oil		at 0.867		Specific Gravity		
GST 68 Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.008	7	0.02	204.00a	0.00	9.02	31.6	1.7
0 ft. 6 in.	0.099	96	0.31	204.00a	0.00	9.27	2.5	1.7
1 ft. 0 in.	0.189	184	0.60	204.00a	0.00	9.52	1.3	1.7
1 ft. 6 in.	0.280	273	0.88	204.00a	0.00	9.77	0.9	1.7
2 ft. 0 in.	0.371	361	1.17	204.00a	0.00	10.02	0.7	1.7
2 ft. 6 in.	0.462	450	1.45	204.00a	0.00	10.27	0.5	1.7
3 ft. 0 in.	0.553	538	1.74	204.00a	0.00	10.52	0.4	1.7
3 ft. 6 in.	0.644	626	2.02	204.00a	0.00	10.77	0.4	1.7
4 ft. 0 in.	0.735	715	2.31	204.00a	0.00	11.02	0.3	1.7
4 ft. 6 in.	0.826	803	2.59	204.00a	0.00	11.27	0.3	1.7
5 ft. 0 in.	0.917	892	2.88	204.00a	0.00	11.52	0.3	1.7
5 ft. 6 in.	1.000	973	3.14	204.00a	0.00	11.75	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 7REDUX-OIL.P		Contents: Gear Oil		at 0.927		Specific Gravity		
Reduction Gear LO Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.004	5	0.02	204.00a	9.41p	5.02	31.8	0.6
0 ft. 6 in.	0.052	67	0.22	204.00a	9.41p	5.27	2.5	0.6
1 ft. 0 in.	0.099	128	0.41	204.00a	9.41p	5.52	1.3	0.6
1 ft. 6 in.	0.147	190	0.62	204.00a	9.41p	5.77	0.9	0.6
2 ft. 0 in.	0.194	251	0.81	204.00a	9.41p	6.02	0.7	0.6
2 ft. 6 in.	0.242	312	1.01	204.00a	9.41p	6.27	0.5	0.6
3 ft. 0 in.	0.290	374	1.21	204.00a	9.42p	6.52	0.4	0.6
3 ft. 6 in.	0.337	435	1.41	204.00a	9.41p	6.77	0.4	0.6
4 ft. 0 in.	0.385	497	1.61	204.00a	9.42p	7.02	0.3	0.6
4 ft. 6 in.	0.433	558	1.81	204.00a	9.41p	7.27	0.3	0.6
5 ft. 0 in.	0.480	620	2.01	204.00a	9.41p	7.52	0.3	0.6
5 ft. 6 in.	0.528	681	2.21	204.00a	9.42p	7.77	0.2	0.6
6 ft. 0 in.	0.575	743	2.41	204.00a	9.41p	8.02	0.2	0.6
6 ft. 6 in.	0.623	804	2.61	204.00a	9.41p	8.27	0.2	0.6
7 ft. 0 in.	0.671	865	2.80	204.00a	9.42p	8.52	0.2	0.6
7 ft. 6 in.	0.718	927	3.00	204.00a	9.41p	8.77	0.2	0.6
8 ft. 0 in.	0.766	988	3.20	204.00a	9.41p	9.02	0.2	0.6
8 ft. 6 in.	0.814	1050	3.40	204.00a	9.41p	9.27	0.2	0.6
9 ft. 0 in.	0.861	1111	3.60	204.00a	9.41p	9.52	0.2	0.6
9 ft. 6 in.	0.909	1173	3.80	204.00a	9.41p	9.77	0.1	0.6
10 ft. 0 in.	0.956	1234	4.00	204.00a	9.41p	10.02	0.1	0.6
10 ft. 6 in.	1.000	1290	4.18	204.00a	9.41p	10.25	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 7ME-LO.P		Contents: Lube Oil		at 0.880		Specific Gravity		
ME LO Tank		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.004	5	0.02	204.00a	5.17p	5.02	31.8	0.7
0 ft. 6 in.	0.052	69	0.23	204.00a	5.17p	5.27	2.5	0.7
1 ft. 0 in.	0.099	133	0.44	204.00a	5.17p	5.52	1.3	0.7
1 ft. 6 in.	0.147	197	0.65	204.00a	5.17p	5.77	0.9	0.7
2 ft. 0 in.	0.194	261	0.85	204.00a	5.17p	6.02	0.7	0.7
2 ft. 6 in.	0.242	325	1.06	204.00a	5.17p	6.27	0.5	0.7
3 ft. 0 in.	0.290	388	1.27	204.00a	5.17p	6.52	0.4	0.7
3 ft. 6 in.	0.337	452	1.48	204.00a	5.17p	6.77	0.4	0.7
4 ft. 0 in.	0.385	516	1.69	204.00a	5.17p	7.02	0.3	0.7
4 ft. 6 in.	0.433	580	1.90	204.00a	5.17p	7.27	0.3	0.7
5 ft. 0 in.	0.480	644	2.11	204.00a	5.17p	7.52	0.3	0.7
5 ft. 6 in.	0.528	708	2.32	204.00a	5.17p	7.77	0.2	0.7
6 ft. 0 in.	0.575	772	2.53	204.00a	5.17p	8.02	0.2	0.7
6 ft. 6 in.	0.623	835	2.74	204.00a	5.17p	8.27	0.2	0.7
7 ft. 0 in.	0.671	899	2.95	204.00a	5.17p	8.52	0.2	0.7
7 ft. 6 in.	0.718	963	3.16	204.00a	5.17p	8.77	0.2	0.7
8 ft. 0 in.	0.766	1027	3.37	204.00a	5.17p	9.02	0.2	0.7
8 ft. 6 in.	0.814	1091	3.58	204.00a	5.17p	9.27	0.2	0.7
9 ft. 0 in.	0.861	1155	3.79	204.00a	5.17p	9.52	0.2	0.7
9 ft. 6 in.	0.909	1219	4.00	204.00a	5.17p	9.77	0.1	0.7
10 ft. 0 in.	0.956	1282	4.20	204.00a	5.17p	10.02	0.1	0.7
10 ft. 6 in.	1.000	1341	4.40	204.00a	5.17p	10.25	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 7AUXGEN-LO.S		Contents: Lube Oil		at 0.880		Specific Gravity		
Aux. Generator LO Tank		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.004	5	0.02	204.00a	9.42s	5.02	31.9	0.6
0 ft. 6 in.	0.052	67	0.22	204.00a	9.42s	5.27	2.5	0.6
1 ft. 0 in.	0.099	128	0.42	204.00a	9.42s	5.52	1.3	0.6
1 ft. 6 in.	0.147	189	0.62	204.00a	9.42s	5.77	0.9	0.6
2 ft. 0 in.	0.194	251	0.82	204.00a	9.42s	6.02	0.7	0.6
2 ft. 6 in.	0.242	312	1.02	204.00a	9.42s	6.27	0.5	0.6
3 ft. 0 in.	0.290	374	1.22	204.00a	9.42s	6.52	0.4	0.6
3 ft. 6 in.	0.337	435	1.43	204.00a	9.42s	6.77	0.4	0.6
4 ft. 0 in.	0.385	496	1.63	204.00a	9.42s	7.02	0.3	0.6
4 ft. 6 in.	0.433	558	1.83	204.00a	9.42s	7.27	0.3	0.6
5 ft. 0 in.	0.480	619	2.03	204.00a	9.42s	7.52	0.3	0.6
5 ft. 6 in.	0.528	681	2.23	204.00a	9.42s	7.77	0.2	0.6
6 ft. 0 in.	0.575	742	2.43	204.00a	9.42s	8.02	0.2	0.6
6 ft. 6 in.	0.623	803	2.63	204.00a	9.42s	8.27	0.2	0.6
7 ft. 0 in.	0.671	865	2.84	204.00a	9.42s	8.52	0.2	0.6
7 ft. 6 in.	0.718	926	3.04	204.00a	9.42s	8.77	0.2	0.6
8 ft. 0 in.	0.766	988	3.24	204.00a	9.42s	9.02	0.2	0.6
8 ft. 6 in.	0.814	1049	3.44	204.00a	9.42s	9.27	0.2	0.6
9 ft. 0 in.	0.861	1110	3.64	204.00a	9.42s	9.52	0.2	0.6
9 ft. 6 in.	0.909	1172	3.84	204.00a	9.42s	9.77	0.1	0.6
10 ft. 0 in.	0.956	1233	4.04	204.00a	9.42s	10.02	0.1	0.6
10 ft. 6 in.	1.000	1290	4.23	204.00a	9.42s	10.25		

Soundings in feet & inches. Other distances in feet.

7.3.6. Misc. Tanks

Tank: 7OILYWTR.S Contents: Oily Water at 1.000 Specific Gravity								
Oily Water Process Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.004	5	0.02	204.00a	5.17s	5.02	31.8	0.7
0 ft. 6 in.	0.052	69	0.26	204.00a	5.17s	5.27	2.5	0.7
1 ft. 0 in.	0.099	133	0.50	204.00a	5.17s	5.52	1.3	0.7
1 ft. 6 in.	0.147	197	0.73	204.00a	5.17s	5.77	0.9	0.7
2 ft. 0 in.	0.194	261	0.97	204.00a	5.17s	6.02	0.7	0.7
2 ft. 6 in.	0.242	325	1.21	204.00a	5.17s	6.27	0.5	0.7
3 ft. 0 in.	0.290	388	1.45	204.00a	5.17s	6.52	0.4	0.7
3 ft. 6 in.	0.337	452	1.69	204.00a	5.17s	6.77	0.4	0.7
4 ft. 0 in.	0.385	516	1.92	204.00a	5.17s	7.02	0.3	0.7
4 ft. 6 in.	0.433	580	2.16	204.00a	5.17s	7.27	0.3	0.7
5 ft. 0 in.	0.480	644	2.40	204.00a	5.17s	7.52	0.3	0.7
5 ft. 6 in.	0.528	708	2.64	204.00a	5.17s	7.77	0.2	0.7
6 ft. 0 in.	0.575	772	2.87	204.00a	5.17s	8.02	0.2	0.7
6 ft. 6 in.	0.623	835	3.11	204.00a	5.17s	8.27	0.2	0.7
7 ft. 0 in.	0.671	899	3.35	204.00a	5.17s	8.52	0.2	0.7
7 ft. 6 in.	0.718	963	3.59	204.00a	5.17s	8.77	0.2	0.7
8 ft. 0 in.	0.766	1027	3.83	204.00a	5.17s	9.02	0.2	0.7
8 ft. 6 in.	0.814	1091	4.06	204.00a	5.17s	9.27	0.2	0.7
9 ft. 0 in.	0.861	1155	4.30	204.00a	5.17s	9.52	0.2	0.7
9 ft. 6 in.	0.909	1219	4.54	204.00a	5.17s	9.77	0.1	0.7
10 ft. 0 in.	0.956	1282	4.78	204.00a	5.17s	10.02	0.1	0.7
10 ft. 6 in.	1.000	1341	5.00	204.00a	5.17s	10.25		

Soundings in feet & inches. Other distances in feet.

Tank: 8DB-BWTR.P		Contents: Bilge Water		at 1.025		Specific Gravity		
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.001	14	0.05	219.98a	0.82p	0.02	1688.9	0.4
0 ft. 3 in.	0.013	151	0.58	219.90a	1.32p	0.17	311.2	2.8
0 ft. 6 in.	0.033	381	1.45	219.85a	1.89p	0.32	192.4	10.9
0 ft. 9 in.	0.063	718	2.74	219.83a	2.55p	0.49	141.0	28.7
1 ft. 0 in.	0.101	1155	4.41	219.81a	3.20p	0.65	104.9	53.5
1 ft. 3 in.	0.147	1674	6.39	219.72a	3.78p	0.81	82.0	88.9
1 ft. 6 in.	0.200	2274	8.69	219.61a	4.35p	0.97	67.7	140.4
1 ft. 9 in.	0.257	2930	11.19	219.53a	4.83p	1.13	54.0	152.6
2 ft. 0 in.	0.315	3589	13.71	219.49a	5.15p	1.27	44.1	152.6
2 ft. 3 in.	0.373	4248	16.22	219.46a	5.36p	1.41	37.3	152.6
2 ft. 6 in.	0.431	4908	18.74	219.44a	5.52p	1.55	32.3	152.6
2 ft. 9 in.	0.489	5567	21.26	219.43a	5.64p	1.68	28.4	152.6
3 ft. 0 in.	0.547	6226	23.78	219.41a	5.74p	1.81	25.4	152.6
3 ft. 3 in.	0.605	6886	26.29	219.40a	5.82p	1.94	23.0	152.6
3 ft. 6 in.	0.662	7545	28.81	219.40a	5.88p	2.07	21.0	152.6
3 ft. 9 in.	0.720	8204	31.33	219.39a	5.93p	2.20	19.3	152.6
4 ft. 0 in.	0.778	8864	33.85	219.38a	5.98p	2.33	17.9	152.6
4 ft. 3 in.	0.836	9523	36.37	219.38a	6.02p	2.45	16.6	152.6
4 ft. 6 in.	0.894	10182	38.88	219.37a	6.05p	2.58	15.6	152.6
4 ft. 9 in.	0.952	10842	41.40	219.37a	6.08p	2.71	14.6	152.6
5 ft. 0 in.	1.000	11390	43.50	219.37a	6.11p	2.81		

Soundings in feet & inches. Other distances in feet.

Tank: 8DB-HLDG.S		Contents: Oily Waste		at 0.880		Specific Gravity		
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.001	7	0.02	213.00a	0.83s	0.02	423.9	0.2
0 ft. 3 in.	0.013	76	0.25	213.00a	1.34s	0.17	78.6	1.2
0 ft. 6 in.	0.032	194	0.64	213.00a	1.93s	0.32	48.8	5.0
0 ft. 9 in.	0.061	365	1.20	213.00a	2.60s	0.49	35.6	13.0
1 ft. 0 in.	0.098	589	1.93	213.00a	3.27s	0.65	27.4	24.9
1 ft. 3 in.	0.143	860	2.82	213.00a	3.89s	0.82	22.3	41.7
1 ft. 6 in.	0.197	1178	3.86	213.00a	4.51s	0.98	19.1	66.6
1 ft. 9 in.	0.255	1526	5.00	213.00a	5.02s	1.14	14.9	69.3
2 ft. 0 in.	0.313	1874	6.14	213.00a	5.34s	1.28	12.1	69.3
2 ft. 3 in.	0.371	2222	7.29	213.00a	5.56s	1.42	10.2	69.3
2 ft. 6 in.	0.429	2570	8.43	213.00a	5.72s	1.55	8.8	69.3
2 ft. 9 in.	0.487	2918	9.57	213.00a	5.85s	1.69	7.8	69.3
3 ft. 0 in.	0.545	3267	10.71	213.00a	5.94s	1.82	7.0	69.3
3 ft. 3 in.	0.603	3615	11.85	213.00a	6.02s	1.95	6.3	69.3
3 ft. 6 in.	0.661	3963	12.99	213.00a	6.08s	2.08	5.7	69.3
3 ft. 9 in.	0.719	4311	14.13	213.00a	6.14s	2.21	5.3	69.3
4 ft. 0 in.	0.777	4659	15.28	213.00a	6.18s	2.33	4.9	69.3
4 ft. 3 in.	0.835	5007	16.42	213.00a	6.22s	2.46	4.5	69.3
4 ft. 6 in.	0.894	5355	17.56	213.00a	6.26s	2.59	4.2	69.3
4 ft. 9 in.	0.952	5703	18.70	213.00a	6.29s	2.72	4.0	69.3
5 ft. 0 in.	1.000	5993	19.65	213.00a	6.31s	2.82		

Soundings in feet & inches. Other distances in feet.

Tank: 8DB-JWTR.S		Contents: Fresh Water		at 1.000		Specific Gravity		
Jacket Water		Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
Sounding	Load			LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.001	7	0.03	226.99a	0.82s	0.02	422.3	0.2
0 ft. 3 in.	0.014	75	0.28	226.96a	1.30s	0.17	78.0	1.3
0 ft. 6 in.	0.035	187	0.70	226.93a	1.86s	0.32	48.3	5.0
0 ft. 9 in.	0.065	352	1.31	226.93a	2.50s	0.49	35.5	13.1
1 ft. 0 in.	0.105	565	2.11	226.90a	3.12s	0.65	26.0	23.7
1 ft. 3 in.	0.151	813	3.03	226.82a	3.65s	0.81	19.9	38.3
1 ft. 6 in.	0.203	1094	4.08	226.72a	4.16s	0.97	16.1	60.3
1 ft. 9 in.	0.260	1402	5.22	226.63a	4.62s	1.12	13.0	69.7
2 ft. 0 in.	0.317	1713	6.38	226.59a	4.93s	1.26	10.6	69.7
2 ft. 3 in.	0.375	2024	7.54	226.55a	5.14s	1.40	9.0	69.7
2 ft. 6 in.	0.433	2336	8.70	226.53a	5.30s	1.54	7.8	69.7
2 ft. 9 in.	0.491	2647	9.86	226.51a	5.42s	1.67	6.9	69.7
3 ft. 0 in.	0.548	2958	11.02	226.49a	5.51s	1.80	6.1	69.7
3 ft. 3 in.	0.606	3269	12.18	226.48a	5.59s	1.93	5.6	69.7
3 ft. 6 in.	0.664	3580	13.34	226.47a	5.65s	2.06	5.1	69.7
3 ft. 9 in.	0.721	3892	14.50	226.46a	5.71s	2.19	4.7	69.7
4 ft. 0 in.	0.779	4203	15.66	226.46a	5.75s	2.32	4.3	69.7
4 ft. 3 in.	0.837	4514	16.82	226.45a	5.79s	2.45	4.0	69.7
4 ft. 6 in.	0.894	4825	17.98	226.44a	5.83s	2.57	3.8	69.7
4 ft. 9 in.	0.952	5137	19.14	226.44a	5.86s	2.70	3.5	69.7
5 ft. 0 in.	1.000	5396	20.10	226.44a	5.88s	2.80		

Soundings in feet & inches. Other distances in feet.

Tank: 8LO-SLOP.P		Contents: Cent Slop		at 1.000		Specific Gravity		
LO Slop								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.125	9	0.03	208.00a	3.75p	5.54	1.3	0.1
0 ft. 6 in.	0.250	18	0.07	208.00a	3.75p	5.67	0.7	0.1
0 ft. 9 in.	0.375	28	0.10	208.00a	3.75p	5.79	0.4	0.1
1 ft. 0 in.	0.500	37	0.14	208.00a	3.75p	5.92	0.3	0.1
1 ft. 3 in.	0.625	46	0.17	208.00a	3.75p	6.04	0.3	0.1
1 ft. 6 in.	0.750	55	0.21	208.00a	3.75p	6.17	0.2	0.1
1 ft. 9 in.	0.875	64	0.24	208.00a	3.75p	6.29	0.2	0.1
2 ft. 0 in.	1.000	74	0.27	208.00a	3.75p	6.42	0.0	0.0

Soundings in feet & inches. Other distances in feet.

Tank: 8FO-SLOP.P		Contents: Cent Slop		at 1.000		Specific Gravity		
FO Slop								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.021	5	0.02	208.50a	14.25p	5.02	17.8	0.9
0 ft. 3 in.	0.146	32	0.12	208.50a	14.25p	5.15	2.6	0.9
0 ft. 6 in.	0.271	60	0.22	208.50a	14.25p	5.27	1.4	0.9
0 ft. 9 in.	0.396	88	0.33	208.50a	14.25p	5.40	0.9	0.9
1 ft. 0 in.	0.521	115	0.43	208.50a	14.25p	5.52	0.7	0.9
1 ft. 3 in.	0.646	143	0.53	208.50a	14.25p	5.65	0.6	0.9
1 ft. 6 in.	0.771	170	0.63	208.50a	14.25p	5.77	0.5	0.9
1 ft. 9 in.	0.896	198	0.74	208.50a	14.25p	5.90	0.4	0.9
2 ft. 0 in.	1.000	221	0.82	208.50a	14.25p	6.00		

Soundings in feet & inches. Other distances in feet.

Tank: 8BLRFWTR.S		Contents: Feed Water		at 1.000		Specific Gravity		
Feed Water								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.073	36	0.13	215.33a	6.38s	11.71	16.3	0.3
0 ft. 6 in.	0.146	72	0.27	215.33a	6.38s	11.83	8.2	0.3
0 ft. 9 in.	0.219	108	0.40	215.33a	6.38s	11.96	5.5	0.3
1 ft. 0 in.	0.293	144	0.54	215.33a	6.38s	12.08	4.1	0.3
1 ft. 3 in.	0.366	180	0.67	215.33a	6.38s	12.21	3.3	0.3
1 ft. 6 in.	0.439	216	0.80	215.33a	6.38s	12.33	2.7	0.3
1 ft. 9 in.	0.512	252	0.94	215.33a	6.38s	12.46	2.3	0.3
2 ft. 0 in.	0.585	288	1.07	215.33a	6.38s	12.58	2.0	0.3
2 ft. 3 in.	0.658	324	1.21	215.33a	6.38s	12.71	1.8	0.3
2 ft. 6 in.	0.732	360	1.34	215.33a	6.38s	12.83	1.6	0.3
2 ft. 9 in.	0.805	396	1.48	215.33a	6.38s	12.96	1.5	0.3
3 ft. 0 in.	0.878	432	1.61	215.33a	6.38s	13.08	1.4	0.3
3 ft. 3 in.	0.951	468	1.74	215.33a	6.38s	13.21	1.3	0.3
3 ft. 6 in.	1.000	492	1.83	215.33a	6.38s	13.29		

Soundings in feet & inches. Other distances in feet.

Tank: 8EMER-FO.P		Contents: Fuel Oil		at 0.870		Specific Gravity		
E Gen FO								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.000	0	0.00	0.00	0.00	0.00	0.0	0.0
0 ft. 3 in.	0.042	37	0.12	238.67a	6.58p	59.16	33.4	0.2
0 ft. 6 in.	0.083	74	0.24	238.67a	6.58p	59.28	16.7	0.2
0 ft. 9 in.	0.125	111	0.36	238.67a	6.58p	59.40	11.1	0.2
1 ft. 0 in.	0.167	147	0.48	238.67a	6.58p	59.53	8.3	0.2
1 ft. 3 in.	0.208	184	0.60	238.67a	6.58p	59.66	6.7	0.2
1 ft. 6 in.	0.250	221	0.72	238.67a	6.58p	59.78	5.6	0.2
1 ft. 9 in.	0.292	258	0.84	238.67a	6.58p	59.91	4.8	0.2
2 ft. 0 in.	0.333	295	0.96	238.67a	6.58p	60.03	4.2	0.2
2 ft. 3 in.	0.375	332	1.07	238.67a	6.58p	60.15	3.7	0.2
2 ft. 6 in.	0.417	368	1.19	238.67a	6.58p	60.28	3.3	0.2
2 ft. 9 in.	0.458	405	1.31	238.67a	6.58p	60.40	3.0	0.2
3 ft. 0 in.	0.500	442	1.43	238.67a	6.58p	60.53	2.8	0.2
3 ft. 3 in.	0.542	479	1.55	238.67a	6.58p	60.66	2.6	0.2
3 ft. 6 in.	0.583	516	1.67	238.67a	6.58p	60.78	2.4	0.2
3 ft. 9 in.	0.625	553	1.79	238.67a	6.58p	60.90	2.2	0.2
4 ft. 0 in.	0.667	589	1.91	238.67a	6.58p	61.03	2.1	0.2
4 ft. 3 in.	0.708	626	2.03	238.67a	6.58p	61.15	2.0	0.2
4 ft. 6 in.	0.750	663	2.15	238.67a	6.58p	61.28	1.9	0.2
4 ft. 9 in.	0.792	700	2.27	238.67a	6.58p	61.41	1.8	0.2
5 ft. 0 in.	0.833	737	2.39	238.67a	6.58p	61.53	1.7	0.2
5 ft. 3 in.	0.875	774	2.51	238.67a	6.58p	61.65	1.6	0.2
5 ft. 6 in.	0.917	811	2.63	238.67a	6.58p	61.78	1.5	0.2
5 ft. 9 in.	0.958	847	2.75	238.67a	6.58p	61.90	1.5	0.2
6 ft. 0 in.	1.000	884	2.87	238.67a	6.58p	62.03		

Soundings in feet & inches. Other distances in feet.

Tank: 8FO-DRN.C		Contents: Fuel Oil		at 0.870		Specific Gravity		
Drain Tank								
Sounding	Load	Volume (Gallons)	Weight (Long Tons)	Center of Gravity			GML (Ft)	FSM (Ft-LT)
				LCG (Ft)	TCG (Ft)	VCG (Ft)		
0 ft. 0 in.	0.017	3	0.01	234.50a	0.00	5.02	17.7	0.2
0 ft. 3 in.	0.117	19	0.06	234.50a	0.00	5.15	2.6	0.2
0 ft. 6 in.	0.217	36	0.12	234.50a	0.00	5.27	1.4	0.2
0 ft. 9 in.	0.317	53	0.17	234.50a	0.00	5.40	0.9	0.2
1 ft. 0 in.	0.417	69	0.22	234.50a	0.00	5.52	0.7	0.2
1 ft. 3 in.	0.517	86	0.28	234.50a	0.00	5.65	0.6	0.2
1 ft. 6 in.	0.617	102	0.33	234.50a	0.00	5.77	0.5	0.2
1 ft. 9 in.	0.717	119	0.39	234.50a	0.00	5.90	0.4	0.2
2 ft. 0 in.	0.817	135	0.44	234.50a	0.00	6.02	0.4	0.2
2 ft. 3 in.	0.917	152	0.49	234.50a	0.00	6.15	0.3	0.2
2 ft. 6 in.	1.000	166	0.54	234.50a	0.00	6.25		

Soundings in feet & inches. Other distances in feet.

8. Hydrostatics, Frame Table, and Draft Diagrams

8.1. Hydrostatics Table

DRAFT @ LCF	DISP.	LCB (+AFT)	VCB (+ABL)	TPI	LCF (+AFT)	MT1"	KML	KMT	
FT	LT	FT	FT	LT-FT	FT	LT-FT	FT	FT	
10.00	2,511	189.75	6.04	31.28	200.63	539	949.5	32.52	
10.25	2,606	190.16	6.19	31.64	201.07	553	939.6	32.21	
10.50	2,701	190.55	6.34	32.05	201.64	570	934.4	31.94	
10.75	2,798	190.95	6.49	32.46	202.19	588	930.1	31.69	
11.00	2,896	191.34	6.64	32.92	202.57	609	931	31.48	
11.25	2,996	191.73	6.79	33.34	203.31	627	926.5	31.29	
11.50	3,096	192.11	6.94	33.71	203.9	642	917.9	31.12	
11.75	3,198	192.5	7.09	34.1	204.62	659	912.4	30.98	
12.00	3,301	192.89	7.24	34.51	205.39	677	908.3	30.86	
12.25	3,405	193.29	7.38	34.91	206.14	696	904.7	30.71	
12.50	3,510	193.69	7.54	35.28	206.72	712	897.9	30.57	
12.75	3,617	194.08	7.69	35.66	207.38	730	893.3	30.44	
13.00	3,724	194.47	7.84	36.05	208.1	749	890.1	30.34	
13.25	3,833	194.87	7.99	36.45	208.8	768	886.6	30.25	
13.50	3,943	195.27	8.14	36.84	209.49	786	883.1	30.18	
13.75	4,054	195.67	8.29	37.22	210.14	805	879.3	30.12	
14.00	4,167	196.07	8.44	37.61	210.79	824	875.6	30.08	
14.25	4,280	196.46	8.59	37.95	211.24	840	869.1	30.01	
14.50	4,394	196.85	8.74	38.28	211.63	855	861.7	29.95	
14.75	4,510	197.23	8.89	38.58	211.9	869	852.8	29.89	
15.00	4,626	197.6	9.04	38.84	212	879	841.6	29.84	
15.25	4,743	197.96	9.19	39.1	212.03	890	831	29.79	
15.50	4,860	198.3	9.34	39.36	212.06	901	820.7	29.74	
15.75	4,979	198.63	9.49	39.62	212.06	911	810.5	29.7	
16.00	5,098	198.94	9.64	39.87	212.04	921	800.3	29.67	
16.25	5,218	199.24	9.79	40.1	211.86	931	789.8	29.63	
16.50	5,339	199.52	9.94	40.34	211.68	940	779.8	29.6	
16.75	5,460	199.79	10.09	40.57	211.5	950	770.1	29.58	
17.00	5,582	200.04	10.23	40.81	211.3	959	760.6	29.56	
17.167	5,664	200.21	10.33	40.97	211.17	965	754.5	29.56	
17.25	5,705	200.28	10.38	41.04	211.11	968	751.5	29.55	
17.50	5,828	200.51	10.53	41.28	210.9	978	742.8	29.56	
17.75	5,953	200.73	10.68	41.53	210.69	987	734.5	29.57	
18.00	6,078	200.93	10.83	41.84	210.47	998	726.9	29.7	
18.25	6,204	201.12	10.98	42.43	210.24	1012	722.1	30.25	
18.50	6,332	201.3	11.13	43.07	209.98	1027	718.4	30.88	
18.75	6,462	201.47	11.28	43.74	209.75	1044	715.3	31.54	
19.00	6,595	201.64	11.43	44.45	209.54	1062	713.3	32.25	
Distances in FEET				Specific Gravity =		1.025		Moment in Ft-LT.	
Trim is per		369.00 Ft.		Subdivison Loadline =		17'-2"		Draft is from Baseline.	

8.3. Frame Table

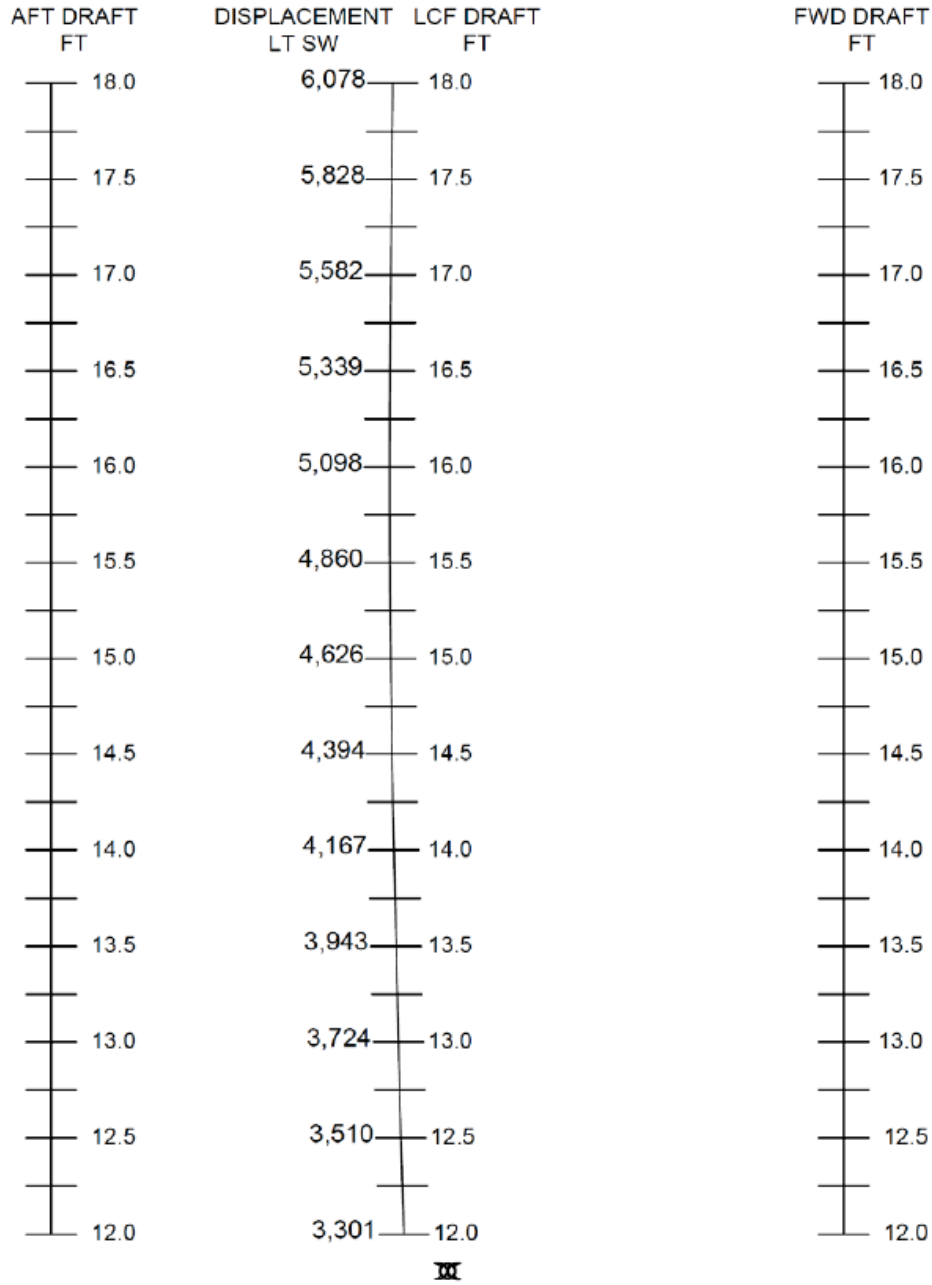
Frame Number	Feet from Frame 0	Frame Number	Feet from Frame 0	Frame Number	Feet from Frame 0	Frame Number	Feet from Frame 0	Frame Number	Feet from Frame 0
L	-24.00	29	58.00	70	140.00	111	222.00	152	304.00
K	-22.00	30	60.00	71	142.00	112	224.00	153	306.00
J	-20.00	31	62.00	72	144.00	113	226.00	154	308.00
I	-18.00	32	64.00	73	146.00	114	228.00	155	310.00
H	-16.00	33	66.00	74	148.00	115	230.00	156	312.00
G	-14.00	34	68.00	75	150.00	116	232.00	157	314.00
F	-12.00	35	70.00	76	152.00	117	234.00	158	316.00
E	-10.00	36	72.00	77	154.00	118	236.00	159	318.00
D	-8.00	37	74.00	78	156.00	119	238.00	160	320.00
C	-6.00	38	76.00	79	158.00	120	240.00	161	322.00
B	-4.00	39	78.00	80	160.00	121	242.00	162	324.00
A	-2.00	40	80.00	81	162.00	122	244.00	163	326.00
0	0.00	41	82.00	82	164.00	123	246.00	164	328.00
1	2.00	42	84.00	83	166.00	124	248.00	165	330.00
2	4.00	43	86.00	84	168.00	125	250.00	166	332.00
3	6.00	44	88.00	85	170.00	126	252.00	167	334.00
4	8.00	45	90.00	86	172.00	127	254.00	168	336.00
5	10.00	46	92.00	87	174.00	128	256.00	169	338.00
6	12.00	47	94.00	88	176.00	129	258.00	170	340.00
7	14.00	48	96.00	89	178.00	130	260.00	171	342.00
8	16.00	49	98.00	90	180.00	131	262.00	172	344.00
9	18.00	50	100.00	91	182.00	132	264.00	173	346.00
10	20.00	51	102.00	92	184.00	133	266.00	174	348.00
11	22.00	52	104.00	93	186.00	134	268.00	175	350.00
12	24.00	53	106.00	94	188.00	135	270.00	176	352.00
13	26.00	54	108.00	95	190.00	136	272.00	177	354.00
14	28.00	55	110.00	96	192.00	137	274.00	178	356.00
15	30.00	56	112.00	97	194.00	138	276.00	179	358.00
16	32.00	57	114.00	98	196.00	139	278.00	180	360.00
17	34.00	58	116.00	99	198.00	140	280.00	181	362.00
18	36.00	59	118.00	100	200.00	141	282.00	182	364.00
19	38.00	60	120.00	101	202.00	142	284.00	183	366.00
20	40.00	61	122.00	102	204.00	143	286.00	184	368.00
21	42.00	62	124.00	103	206.00	144	288.00	185	370.00
22	44.00	63	126.00	104	208.00	145	290.00	186	372.00
23	46.00	64	128.00	105	210.00	146	292.00	187	374.00
24	48.00	65	130.00	106	212.00	147	294.00	188	376.00
25	50.00	66	132.00	107	214.00	148	296.00	189	378.00
26	52.00	67	134.00	108	216.00	149	298.00	190	380.00
27	54.00	68	136.00	109	218.00	150	300.00		
28	56.00	69	138.00	110	220.00	151	302.00		

8.4. Draft Diagram

To obtain LCF draft readings, determine both the forward and aft draft readings and both of the draft marks.

Draw a line between the two on the diagram below. The intersection of this line with the middle line gives the vessel displacement and LCF Draft.

IMPORTANT: To obtain the correct LCF draft for use in this T&S booklet, subtract 5/8" (0.52 feet) from the value obtained below. This is because the values below include the thickness of the shell plating while values used in T&S calculations use the draft to the baseline.



9. Miscellaneous Weight Data

9.1. Minimum Operational Weight

For all loading conditions, the minimum operational weight and center is used. This consists of the lightship weight plus standard outfit and the following tankage weights:

“STEER GR LO.S” has no GHS data and the load given here is taken from Reference [1].

Tank Name	Load	Weight (LT)	LCG (ft from FP)	VCG (ft ABL)	MAXFSM (LT-FT)
2DB-BAL.C	100%	29.69	56.44 a	3.05	pressed
3DB-BAL.C	100%	59.41	82.81 a	4.10	pressed
4DB-BAL.P	100%	46.84	108.18 a	4.00	pressed
4DB-BAL.S	100%	48.03	107.86 a	3.96	pressed
8DB-BAL.P	100%	90.47	238.82 a	4.36	pressed
8DB-BAL.S	100%	90.04	238.93 a	4.36	pressed
9WG-BAL.C	100%	186.65	274.89 a	10.50	pressed
9DB-BAL.C	100%	46.96	275.06 a	4.00	pressed
6IND-V2.S	95%	9.86	155.00 a	7.85	15.9
7ME-SERV.P	50%	6.39	204.01 a	10.75	34.2
7ME-SERV.S	50%	6.39	204.01 a	10.75	34.2
7GST-68.C	50%	2.09	204.00 a	11.63	1.7
7REDUX-OIL.P	50%	2.09	204.00 a	10.02	0.6
7ME-LO.P	50%	2.20	204.00 a	10.02	0.7
7AUXGEN-LO.S	50%	2.12	204.00 a	10.02	0.6
7OILYWTR.S	50%	2.50	204.00 a	10.02	0.7
8LO-SLOP.P	0%	0.00			0.1
8FO-SLOP.P	0%	0.00			0.9
8BLRFWTR.S	95%	1.74	215.33 a	13.21	0.3
8EMER-FO.P	95%	2.73	238.67 a	61.88	0.2
8FO-DRN.C	0%	0.00			0.2
9IND-SEW.C	50%	6.26	277.98 a	10.52	15.8
STEER GR LO.S	95%	0.46	356.00 a	27.50	0.0
Standard Outfit	-	54.15	167.91 a	24.73	-
Subtotal - Tanks & Outfit		697.06	204.55 a	8.01	106.0
Vessel Lightship		3910.08	200.62 a	29.25	
Minimum Operational Weight		4607.14	201.22 a	26.04	106.0

9.2. Provisions

Provisions are not included in the Minimum Operating Weight.

ITEMS	WEIGHT	C.G. ABOVE B.L.		C.G. AFT F.P.	
	(lb)	(ft)	Vertical Moments	(ft)	Longitudinal Moments
PROVISIONS (ON 2ND DECK):					
(14-1/2) PALLETS x 0.75	5,311	18.5	98,254	294.00	1,561,434
FISH x 0.75	375	18.5	6,938	294.00	110,250
SOFT DRINKS x 0.75	1,575	18.5	29,138	294.00	463,050
CANDY x 0.75	413	18.5	7,641	294.00	121,422
PROVISIONS (IN GALLEY):					
(14) PALLETS x 0.25	1,690	53	89,570	258.00	436,020
(14) PALLETS/10 - (1) PALLET	435	53	23,055	258.00	112,230
FISH/10	50	53	2,650	258.00	12,900
VENDING MACHINES:					
SOFT DRINKS x 0.25	525	44.5	23,363	194.00	101,850
SOFT DRINKS/10	210	44.5	9,345	194.00	40,740
CANDY x 0.25	138	44.5	6,141	194.00	26,772
CANDY/10	55	44.5	2,448	194.00	10,670
TOTAL PROVISIONS @ DEPARTURE	10,777	27.70	298,540	278.12	2,997,338
(4.81 LT)					

9.3. Stores

Stores are not included in the Minimum Operating Weight.

ITEMS	WEIGHT	C.G. ABOVE B.L.		C.G. AFT F.P.	
	(lb)	(ft)	Vertical Moments	(ft)	(lb)
DRY GOODS & STORES AFT, PORT					
ON SHELVES, FWD, TOP	233	20.5	4,777	282.00	65,706
ON SHELVES, LOWER	321	18	5,778	282.00	90,522
ON FLOOR	441	16.2	7,144	282.00	124,362
ON SHELVES, PORT, TOP	525	20.8	10,920	286.00	150,150
ON SHELVES MIDDLE	279	18.8	5,245	286.00	79,794
ON SHELVES LOWER & FLOOR	256	16.8	4,301	286.00	73,216
ON BOXES & PALLETS	330	16.2	5,346	288.00	95,040
FLOORS, VAC BAGS, BOXES, NAP. HOLDERS	101	20	2,020	288.00	29,088
BOXES, FULL CANS, PALLETS, CART	358	18.8	6,730	288.00	103,104
GALLON CANS, BOXES	244	16.2	3,953	288.00	70,272
ON SHELVES, STBD	182	18.8	3,422	286.00	52,052
CABIN DECK PAPER SUPPLIES & MISC:					
(4) CASES LETTER SIZE PAPER	200	43	8,600	194.00	38,800
(4) CASES LEGAL SIZE PAPER	256	43	11,008	194.00	49,664
(4) CASES FORMS	200	43	8,600	194.00	38,800
(1) CASE SCHEDULES	50	43	2,150	116.00	5,800
COINS FOR CHANGE	226	43	9,718	116.00	26,216
LINEN SUPPLIES:					
SHEETS	260	41.5	10,790	200.00	52,000
PILLOW CASES	100	41.5	4,150	200.00	20,000
PILLOWS	130	41.5	5,395	200.00	26,000
BLANKETS	200	41.5	8,300	200.00	40,000
BLANKETS	200	41.5	8,300	200.00	40,000
TOWELS	150	41.5	6,225	200.00	30,000
HAND TOWELS	150	41.5	6,225	200.00	30,000
TO BOXES, FULL CANS, PALLETS, CART	394	25.83	10,178	254.50	100,272
LAUNDRY BAGS	(0.18 LT)	41.5		194.00	
BOAT DECK STORES:					
STORES IN LOUNGE AREA	1,000	52	52,000	158.00	158,000
GIFT SHOP	500	52	26,000	194.00	97,000
GIFT SHOP STORES (LINEN LKR ON CABIN DK)	500	44	22,000	300.00	150,000
GIFT SHOP STORES (CG LKR ON CABIN DK)	200	44	8,800	356.00	71,200
TOTAL STORES:					
	7,986	33.57	268,074	238.80	1,907,058
	(3.57 LT)				

9.4. Standard Outfit

Standard Outfit is included in the Minimum Operating Weight.

ITEMS 1 of 9	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
BRIDGE DECK - PILOT HOUSE					
Life Jacket Lkrs (P)	50	58.65	2,933	80.00	4,000
Life Jackets (P)	20	58.65	1,173	80.00	1,600
Cleaning Supplies	26	58.17	1,512	64.00	1,664
Speaker	15	60.99	915	76.00	1,140
Printer & Rack	30	61.17	1,835	79.00	2,370
Chart Drawer #1 Misc.	10	60.18	602	72.00	720
Chart Cabinet Safety Gear & Supplies	150	58.68	8,802	74.00	11,100
Chart Drawer #2 Misc. Elect. Supplies	20	60.21	1,204	77.00	1,540
Chart Cabinet #2 Navigation Supplies	110	59.21	6,513	77.00	8,470
Chart Drawings	30	59.45	1,783	73.00	2,190
Books	50	60.23	3,011	73.00	3,650
BRIDGE DECK - 1ST ENGR S.R.:					
Misc. Electronics	45	58.99	2,655	90.00	4,050
Paperwork	180	59.21	10,657	88.00	15,840
Computer	110	61.68	6,784	88.00	9,680
Manuals	1	58.18	38	80.00	53
BRIDGE DECK - 1ST OFFICER'S S.R.:					
Books	150	58.85	8,827	88.00	13,200
Filing Cabinet Paper Work	35	59.73	2,091	88.00	3,080
Ships Electronics & Wheelhouse Supplies	170	60.67	10,314	76.00	12,920
Computer	110	60.67	6,674	86.00	9,460
BRIDGE DECK - CAPT'S S.R.:					
Books & Manuals	50	61.06	3,053	120.00	6,000
Paperwork	400	62.72	25,087	124.00	49,600
TO Chart Cabinet #2 Navigation Supplies	80	60.45	4,836	102.38	8,190
Computers (2)	(0.04 LT)	60.65		122.00	
Misc. Tools & Charts	60	60.08	3,605	118.00	7,080
Paperwork	1,500	61.71	92,561	120.00	180,000
Books & Manuals	400	61.74	24,698	127.00	50,800
BRIDGE DECK - GUEST S.R.:					
Misc. Electronics	20	61.12	1,222	142.00	2,840
BRIDGE DECK - WOMEN'S HEAD:					
Cleaning Supplies	30	62.12	1,864	216.00	6,480
BRIDGE DECK - C.G. LKR:					
Cleaning Supplies	15	62.1	931	218.00	3,270
BRIDGE DECK - DK LKR:					
Hose	20	59.43	1,189	218.00	4,360
BRIDGE DECK - FIDLEY:					
Motor & Parts	350	59.72	20,901	224.00	78,400

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
2 of 9					
BRIDGE DECK - EMERG GEN RM:					
Misc. Stores	75	60.43	4,532	236.00	17,700
Lifeboat Spare Parts	135	59.99	8,099	231.50	31,253
Emergency Gen. Spare Parts	40	60.25	2,410	234.00	9,360
BRIDGE DECK - MEN'S HEAD:					
Power Cables	15	59.48	892	253.00	3,795
BRIDGE DECK - SOLARIUM:					
Hoses	40	63.15	2,526	254.00	10,160
Batteries & Supplies	180	59.78	10,761	246.00	44,280
BOAT DECK - CAFETERIA:					
Misc. Stores	75	51.5	3,863	312.00	23,400
BOAT DECK - BUSSING AREA:					
Bussing Supplies	350	55	19,250	284.00	99,400
Cleaning Supplies	35	53	1,855	282.00	9,870
BOAT DECK - GALLEY:					
Misc. Galley Supplies	30	52.06	1,562	270.00	8,100
Misc. Cleaning Supplies	40	51.99	2,080	260.00	10,400
Misc. Cleaning Supplies	25	52.48	1,312	240.00	6,000
Misc. Galley Supplies	20	52.99	1,060	222.00	4,440
BOAT DECK - DRY STORES:					
Misc. Galley Stores	65	53.43	3,473	250.00	16,250
BOAT DECK - WALK-IN REFER:					
Tableware	1,200	53.93	64,720	258.00	309,600
BOAT DECK - CREW'S MESS:					
Misc. Cleaning Supplies	15	52.1	781	216.00	3,240
First Aid Kit	15	51.87	778	206.00	3,090
Misc. Stores & Supplies	60	52.9	3,174	220.00	13,200
BOAT DECK - FAN RM #7:					
Refrigerant	60	52	3,120	236.00	14,160
BOAT DECK - OFFICER'S MESS:					
Cleaning Supplies	10	52.17	522	214.00	2,140
BOAT DECK - GIFT SHOP:					
Misc. Supplies	200	54.9	10,981	198.00	39,600
BOAT DECK - LIQUOR LKR.:					
Bar Stores	2,100	54.31	114,043	176.00	369,600
BOAT DECK - BAR:					
Glasses	125	52.46	6,557	172.00	21,500

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
3 of 9					
BOAT DECK - WOMEN'S HEAD:					
Misc. Supplies	15	51.78	777	116.00	1,740
BOAT DECK - MEN'S HEAD:					
Misc. Supplies	15	53.68	805	124.00	1,860
BOAT DECK - FWD OBSERVATION LOUNGE:					
Misc. Elect. Parts	25	51.18	1,280	110.00	2,750
BOAT DECK - FAN RM # 2:					
Misc. Electronics	45	51.49	2,317	120.00	5,400
CABIN DECK - FWD PASSAGE WAY:					
Office Supplies	350	44.73	15,654	82.00	28,700
CABIN DECK - S.R. 6A:					
Copy Machine	300	43.87	13,161	92.00	27,600
CABIN DECK - CHIEF STEWARDS:					
Paper	250	44.11	11,028	100.00	25,000
Misc. Stores	225	44.59	10,032	106.00	23,850
CABIN DECK - SECURE OFFICE:					
Paper	100	43.55	4,355	112.00	11,200
CABIN DECK - PURSERS OFFICE:					
Paper	40	43.06	1,722	110.00	4,400
Office Supplies	20	43.56	871	110.00	2,200
Desk/Filing Cab./Safe	add			0.00	
Computer	80	44.55	3,564	104.00	8,320
CABIN DECK - PASSAGEWAY:					
Cart	30	44	1,320	132.00	3,960
Table	50	42.76	2,138	124.00	6,200
CABIN DECK - FIRST AID RM:					
Cleaning Supplies	75	44.38	3,329	130.00	9,750
Medical Supplies	600	44.75	26,849	130.00	78,000
CABIN DECK - SOILED LINEN LKR:					
Cleaning Supplies	160	45	7,200	282.00	45,120
GALLERY DECK - ELEC DIST & FAN RM:					
Mechanical Parts	350	43.99	15,398	168.00	58,800
CABIN DECK - LKR:					
Office Supplies	300	41.98	12,595	140.00	42,000
Cleaning Supplies	250	42.48	10,621	140.00	35,000

ITEMS 4 of 9	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
CABIN DECK - JR ENGR. STORES:					
Tools & Spares	200	44.93	8,987	358.00	71,600
CABIN DECK - WEATHER DECK:					
Mooring Line	800	44.5	35,600	360.00	288,000
GALLERY DECK - C.G. LKR:					
Cleaning Supplies	45	38.37	1,726	46.00	2,070
GALLERY DECK - S.R. # 6:					
Chair	80	36.68	2,934	34.00	2,720
Misc. Supplies	60	38.71	2,323	33.00	1,980
GALLERY DECK - S.R. # 2:					
Hardware	80	37.25	2,980	18.00	1,440
GALLERY DECK - CREWS TOILET:					
Cleaning Supplies	25	36.18	904	34.00	850
GALLERY DECK - BOSUN'S STORES:					
Rope	900	39.08	35,175	-2.00	-1,800
Cleaning Gear	700	38.08	26,658	-2.00	-1,400
Safety Supplies (spares)	500	36.78	18,390	1.00	500
Rubber/Canvas Tarps	350	36.58	12,804	-7.00	-2,450
Thresholds	50	39.08	1,954	-6.00	-300
Mattress	50	39.58	1,979	-8.00	-400
Books	50	37.08	1,854	0.00	0
Fendering	20	37.03	741	1.00	20
Haz.Mat Gear (spares)	75	36.78	2,758	1.00	75
Misc. Hardware	100	38.08	3,808	-2.00	-200
GALLERY DECK - BOSUN'S MESS:					
Misc. Hardware	575	40.48	23,278	12.00	6,900
Bos'n Tools	250	38.86	9,716	15.00	3,750
Misc. Stores	20	37.16	743	10.00	200
GALLERY DECK - S.R. # 8:					
Misc. Hardware	100	34.97	3,497	42.00	4,200
Electronic	200	38.02	7,604	40.00	8,000
Chairs	110	36.55	4,020	39.00	4,290
Filing Cab.	85	35.47	3,015	42.00	3,570
Refrig.	45	35.97	1,619	42.00	1,890
MAIN DECK - ENGR STORES:					
Hose	1,200	32.52	39,024	0.00	0
Wire For Welding	210	30.44	6,393	2.00	420
Plastic	50	30.44	1,522	2.00	100
Fire Hose (spare)	120	32.37	3,884	4.00	480
Oil Absorbents/Rags	250	28.29	7,073	6.00	1,500
Office Records	450	33.21	14,946	8.00	3,600

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
5 of 9					
MAIN DECK - ENGR STORES (CONT):					
Paint	150	30.21	4,532	8.00	1,200
Misc. Tools	100	26.21	2,621	8.00	800
Light Fixtures/Bulbs	600	30.15	18,088	10.00	6,000
Lubricants	780	27.15	21,174	10.00	7,800
Batteries	80	25.55	2,044	13.00	1,040
Misc. Hardware	1,000	28.02	28,022	14.00	14,000
MAIN DECK - PAINT LKR:					
Paint/Supplies	4,100	28.15	115,400	10.00	41,000
Misc. Supplies	500	28.15	14,073	10.00	5,000
Rags	500	28.44	14,222	2.00	1,000
Pike Poles	80	31.15	2,492	10.00	800
Welding Machine	300	26.87	8,060	4.00	1,200
MAIN DECK - CAR DECK:					
Misc. Deck Tools	300	30.73	9,220	24.00	7,200
Misc. Hardware, Cleaning Tools, Salt	1,100	29.13	32,038	28.00	30,800
Crate	300	26.07	7,822	30.00	9,000
Misc. Hardware & Materials	200	30.02	6,004	32.00	6,400
Pressure Washer	50	25.52	1,276	32.00	1,600
Ladder	20	30.09	602	56.00	1,120
Refrigerant & Misc. Pumps	70	24.81	1,737	58.00	4,060
Bookshelf & Dunnage & Ladders	75	26.08	1,956	108.00	8,100
Shelves & Misc.	40	24.08	963	110.00	4,400
Fan	30	24.58	737	110.00	3,300
Distilled Water & Misc. Hardware	300	25.58	7,674	110.00	33,000
Ladder	25	24.3	608	122.00	3,050
Misc. Hardware	275	24.55	6,750	126.00	34,650
Misc. Liquids	350	24.52	8,583	144.00	50,400
Ship's Lockers	150	25	3,750	210.00	31,500
Dunnage & Cart	20	24	480	224.00	4,480
Spreader	150	23.75	3,563	242.00	36,300
Misc. Liq. & Engine Parts	320	24.5	7,840	258.00	82,560
Pipe & Hose	300	23.7	7,110	262.00	78,600
Ramp & Dunnage	95	26.5	2,518	294.00	27,930
Chain Ties	300	25.8	7,740	226.00	67,800
Chain Ties	23	25.8	593	296.00	6,808
Chain Ties	300	25.8	7,740	158.00	47,400
Chain Ties	50	25.8	1,290	170.00	8,500
Binders	36	25.8	929	226.00	8,136
Binders	250	25.8	6,450	154.00	38,500
Binders	570	25.8	14,706	142.00	80,940
Binders	520	25.8	13,416	154.00	80,080
Binders	230	25.8	5,934	138.00	31,740
Hydraulic Jack	200	24.5	4,900	44.00	8,800
Van Jacks	330	25	8,250	50.00	16,500
Fork Lift Dolly	300	24	7,200	50.00	15,000
Chain Spares	120	23.9	2,868	40.00	4,800
Tractor for Baggage Wagon	8,019	28	224,532	100.24	803,825

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
6 of 9					
MAIN DECK - CAR DECK (CONT):					
Baggage Wagons (2)	3,405	27	91,926	61.56	209,591
Handicap Van	9,206	28	257,768	115.08	1,059,426
Trash Bins (3)	1,053	26.5	27,905	12.46	13,120
MAIN DECK - DK. LKR.:					
Misc. Hardware, Shackles, Etc.	300	28.52	8,556	32.00	9,600
MAIN DECK - UPPER PLATFORM (P):					
Exercise Equipment	900	33.92	30,532	362.00	325,800
MAIN DECK - UPPER PLATFORM (S):					
Exercise Equipment	900	33.92	30,532	362.00	325,800
2ND DECK - PASSAGEWAY:					
Coat Lk	100	19	1,900	123.00	12,300
2ND DECK - S.R. # 8:					
Cleaning Supplies/Books	12	19	228	148.00	1,776
2ND DECK - SOILED LINEN LKR.:					
Cleaning Supplies	125	17	2,125	123.00	15,375
2ND DECK - S.R. # 1A:					
Cleaning Supplies	15	15.5	233	164.00	2,460
2ND DECK - SOILED LINEN LKR.:					
Uniforms	200	19.5	3,900	156.00	31,200
2ND DECK - C.G. LKR.:					
Uniforms	100	20	2,000	176.00	17,600
2ND DECK - FAN RM # 4:					
Steam Heater	120	16	1,920	156.00	18,720
2ND DECK - CREWS MESS:					
Cleaning Supplies	25	18	450	152.00	3,800
T.V.	45	18	810	160.00	7,200
Compressed Nitrogen	150	17.5	2,625	154.00	23,100
CO2 Bottles (2)	100	16	1,600	154.00	15,400
2ND DECK - UPPER AUX. ENG. RM.:					
Misc. Spare Parts	60	17	1,020	180.00	10,800
Spare Parts	400	17	6,800	183.00	73,200
Electric Motors	1,100	16.5	18,150	185.00	203,500
Spare Parts	150	16	2,400	186.00	27,900
Spare Parts	225	18	4,050	186.00	41,850
Cart	50	15.5	775	186.00	9,300
Spare Refer Compressor	450	16.5	7,425	188.00	84,600
Spare Parts	160	16	2,560	188.00	30,080

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
7 of 9					
2ND DECK - UPPER AUX. ENG. RM. (CONT):					
Lubricants	35	15.5	543	190.00	6,650
Filters	125	19	2,375	190.00	23,750
Misc. Pipe Fittings	160	17	2,720	190.00	30,400
Misc. Supplies	50	16	800	190.00	9,500
Misc. Caterpillar Parts	270	18	4,860	190.00	51,300
Bulbs	20	19	380	194.00	3,880
Misc. Air Starter Parts	130	18.5	2,405	196.00	25,480
Filters	100	18	1,800	202.00	20,200
Spare Pump	75	15.5	1,163	204.00	15,300
2ND DECK - WORKSHOP:					
Rags & Elect. Supplies	45	17	765	208.00	9,360
Welding Rod & Equipment	575	18.5	10,638	209.00	120,175
Electrical Tools	100	19	1,900	210.00	21,000
Stores	85	20	1,700	210.00	17,850
Valves	250	15.5	3,875	212.00	53,000
Misc. Hardware	400	17	6,800	214.00	85,600
Tools	1,800	17	30,600	214.00	385,200
Chemicals	100	16	1,600	216.00	21,600
Misc. Tools	40	17.5	700	216.00	8,640
Misc. Pipe Fittings & Valves	450	18.5	8,325	217.00	97,650
Wrenches	175	18	3,150	217.00	37,975
Misc. Pump Spares	100	15.5	1,550	218.00	21,800
Misc. Supplies	85	17	1,445	222.00	18,870
Paperwork	75	18.5	1,388	225.00	16,875
Tools	700	18.5	12,950	225.00	157,500
2ND DECK - E.O.S.:					
Paperwork & Manuals	65	20	1,300	222.00	14,430
Misc. Supplies	20	15.5	310	225.00	4,500
2ND DECK - STOREROOM:					
Hardware	1,110	20	22,200	210.00	233,100
Wire	230	21	4,830	210.00	48,300
Anti-freeze	45	15.5	698	212.00	9,540
Elect. Stores	710	20	14,200	212.00	150,520
Books & Manuals	400	20.5	8,200	214.00	85,600
Office Equipment	250	18	4,500	218.00	54,500
Office Supplies	25	17	425	216.00	5,400
2ND DECK - ENGINE RM.:					
Paperwork & Archives	300	17	5,100	230.00	69,000
Misc. Insulation, Weld Leads, Etc.	500	18.5	9,250	232.00	116,000
Misc. Hardware & Pipe Fittings	3,400	18.5	62,900	242.00	822,800
Chain Falls	255	15.5	3,953	242.00	61,710
Engine Parts & Misc. Hardware	160	21.5	3,440	250.00	40,000
Manuals & Office Supplies	70	17.5	1,225	250.00	17,500
Misc. Liquids In Portable Containers	1,680	15.5	26,040	252.00	423,360
Plastic Sheet On Rolls	220	19	4,180	252.00	55,440

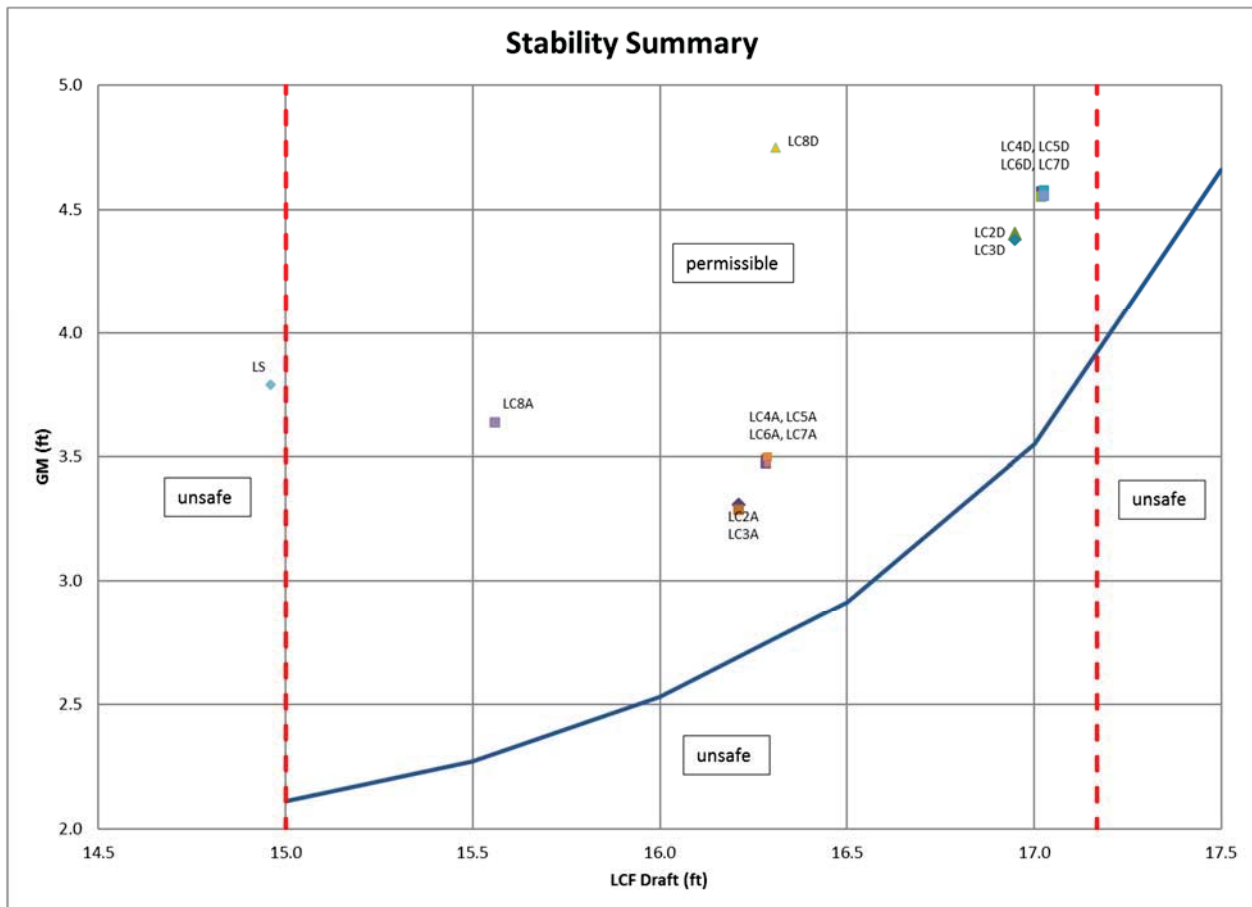
ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
8 of 9					
2ND DECK - ENGINE RM. (CONT):					
Misc. Supplies Paint Rolls, Light Bulbs	150	18	2,700	252.00	37,800
Rags	200	17	3,400	254.00	50,800
Misc. Food & Coffee	30	18	540	254.00	7,620
Misc. Safety Supplies (spares)	30	17.5	525	254.00	7,620
Misc. Cupric Scrap	400	16.5	6,600	254.00	101,600
Misc. Spare Parts	5,100	19.5	99,450	254.00	1,295,400
Misc. Eng. Parts	350	15.25	5,338	254.00	88,900
Misc. Engine Parts	1,800	17	30,600	256.00	460,800
Oil Absorbents	60	16.75	1,005	256.00	15,360
Misc. Sheet Metal	500	17	8,500	258.00	129,000
Misc. Tools	4,700	18.5	86,950	258.00	1,212,600
Misc. Gaskets & Packing	700	19.5	13,650	258.00	180,600
Misc. Engine Parts	125	17	2,125	258.00	32,250
Misc. Hose	50	19.5	975	258.00	12,900
Misc. Tools	200	18	3,600	258.00	51,600
Misc. Cleaning Supplies	115	17.5	2,013	259.00	29,785
Misc. Valves, Fittings, Hardware	1,800	22.5	40,500	260.00	468,000
Misc. Spare Parts	700	20	14,000	260.00	182,000
2ND DECK - REFER FLAT:					
Misc. Papers	180	17.5	3,150	276.00	49,680
Misc. Yard Tools	120	15.75	1,890	276.00	33,120
Paper	150	16	2,400	282.00	42,300
Portable Containers, Refrigerant	120	15.5	1,860	286.00	34,320
Misc. Cylinders w/Compressed Gases	320	16.5	5,280	286.00	91,520
Cleaning Products	800	19	15,200	286.00	228,800
Refer. Spares & Tools	2,500	19	47,500	294.00	735,000
HOLD DECK - MSD RM.:					
Electrical Cables	150	10	1,500	152.00	22,800
Cable	300	11	3,300	152.00	45,600
Cleaning Supplies	100	9	900	154.00	15,400
Pipe (sch 80)	550	12.5	6,875	154.00	84,700
Blind Flanges	300	10	3,000	154.00	46,200
PVC Pipe Fittings	240	11.5	2,760	156.00	37,440
Chemicals	70	12	840	156.00	10,920
Hoses	60	12	720	156.00	9,360
Pipe Fittings	2,600	10	26,000	158.00	410,800
Misc. PVC Piping	200	13	2,600	158.00	31,600
Electrical Parts	1,200	10.5	12,600	162.00	194,400
Electrical	400	10	4,000	162.00	64,800
Freon Bottles	90	7.5	675	164.00	14,760
Pumps Parts	100	11	1,100	164.00	16,400
Electrical Spares	100	10	1,000	166.00	16,600
Filing Cabinet	70	8	560	168.00	11,760
Spare Plumbing Parts	800	11	8,800	170.00	136,000
Pump Parts	250	10	2,500	170.00	42,500
Compressor Pumps	400	7.5	3,000	172.00	68,800
Fan Belts & Rubber Hoses	250	12.5	3,125	174.00	43,500

ITEMS	WEIGHT (lb)	C.G. ABOVE B.L.		C.G. AFT F.P.	
		(ft)	Vertical Moments	(ft)	Longitudinal Moments
9 of 9					
HOLD DECK - MSD RM. (CONT):					
Hardware	30	8.75	263	176.00	5,280
Misc. Pipe Fittings	700	9	6,300	176.00	123,200
Rags	50	8	400	178.00	8,900
Tools	125	11	1,375	178.00	22,250
Acids	60	11	660	178.00	10,680
Motor	100	11	1,100	178.00	17,800
HOLD DECK - LOWER AUX. ENG. RM.:					
Acid	50	7.5	375	180.00	9,000
Shelf	75	7	525	180.00	13,500
Motor Spare	200	7.25	1,450	182.00	36,400
Misc. Pipe Fittings	350	10	3,500	182.00	63,700
Filing Cabinet	40	10	400	184.00	7,360
Pipe Fittings	525	12	6,300	186.00	97,650
Oil	40	8	320	186.00	7,440
Engine Parts (CAT)	450	11.5	5,175	186.00	83,700
Gaskets & Seal Rings	60	12	720	190.00	11,400
Tools	30	10.5	315	190.00	5,700
Pipe Fittings	175	11	1,925	196.00	34,300
Misc. Fittings	500	12	6,000	196.00	98,000
Dunnage	75	9	675	196.00	14,700
Engine Parts (CAT)	400	11	4,400	196.00	78,400
Pencil Zincs	125	9	1,125	198.00	24,750
Misc. Tools	50	9	450	199.00	9,950
Tools	440	9	3,960	201.00	88,440
HOLD DECK - ENGINE ROOM:					
Pressure Washer	80	5.5	440	210.00	16,800
Misc. Portable Containers w/Liquids	2,500	6	15,000	218.00	545,000
Slop Oil	200	6.5	1,300	220.00	44,000
Wrenches	100	9	900	232.00	23,200
Portable Pumps & Misc. Tools	400	7	2,800	252.00	100,800
HOLD DECK - SHAFT ALLEY:					
Hoses & Pumps - Portable	400	9	3,600	284.00	113,600
Misc. Lubricants & Packing	500	5.5	2,750	266.00	133,000
Pipe, Flatbar, Etc In Rack	3,000	8.5	25,500	288.00	864,000
HOLD DECK - STEERING GEAR RM:					
Toilets & Sinks	250	12.5	3,125	350.00	87,500
Storage Boxes (Oil Absorb.)	40	9	360	352.00	14,080
Dunnage	150	9	1,350	354.00	53,100
Spare Hardware	400	15	6,000	356.00	142,400
Urinals	150	12.5	1,875	364.00	54,600
Hyd Hoses (Spares)	50	12.5	625	366.00	18,300
Misc. Trash	40	12	480	366.00	14,640
Car Door Spares	375	16.5	6,188	376.00	141,000
Spares	70	12.5	875	384.00	26,880
TOTAL STANDARD OUTFIT:	121,305	24.73	2,999,906	167.91	20,368,727
	(54.15 LT)				

10. Loading Conditions

10.1. Loading Condition Summary

Load Condition	Cargo Description				Ballast Tank	DRAFT		TRIM (FT/382FT)	GM _{CORR} (FT)	GM _{REQ} (FT)	GM _{MARGIN} (FT)
						MEAN (FT)	AFT (FT)				
1 LS + MinOp + StanOutfit	Min. Operational Weight				-	14.96	15.88	1.61	3.79	Fail	Fail
	Cars	Vans	Campers	Passengers							
2 Depature	0	18	0	499	7 DB FO	16.95	17.14	0.44	4.40	3.48	0.92
2 Arrival	0	18	0	499	7 DB FO	16.21	16.90	1.63	3.31	2.69	0.62
3 Depature	0	18	0	499	6 DB FO	16.95	17.14	0.44	4.38	3.48	0.90
3 Arrival	0	18	0	499	6 DB FO	16.21	16.90	1.63	3.29	2.69	0.60
4 Depature	45	0	47	499	7 DB FO	17.02	17.23	0.50	4.57	3.59	0.98
4 Arrival	45	0	47	499	7 DB FO	16.28	17.00	1.68	3.50	2.74	0.75
5 Depature	45	0	47	499	6 DB FO	17.02	17.23	0.50	4.55	3.59	0.96
5 Arrival	45	0	47	499	6 DB FO	16.28	17.00	1.68	3.47	2.74	0.73
6 Depature	83	5	11	499	7 DB FO	17.03	17.24	0.50	4.58	3.61	0.97
6 Arrival	83	5	11	499	7 DB FO	16.29	17.01	1.69	3.50	2.75	0.75
7 Depature	83	5	11	499	6 DB FO	17.03	17.24	0.50	4.56	3.61	0.95
7 Arrival	83	5	11	499	6 DB FO	16.29	17.01	1.69	3.47	2.75	0.73
8 Depature	0	0	0	750	7 DB FO	16.31	16.38	-0.18	4.75	2.76	1.98
8 Arrival	0	0	0	750	7 DB FO	15.56	16.00	1.04	3.64	2.30	1.34



10.2. LC1- Lightship

Condition 1								
Lightship + Min Op Weights + Standard Outfit - Non-Operating Condition								
NOTE: This is not a safe operating condition for carrying passengers								
Load Summary			WEIGHT	VCG	V-MOM	LCG	L-MOM	MAX FSM
TANKAGE	DESCRIPTION	% FULL	(LT)	(ft)	(LT-ft)	(ft)	(LT-ft)	(LT-ft)
6DB-FO.P	#4 DB FO P	0%						
6DB-FO.S	#4 DB FO S	0%						
7DB-FO.P	#5 DB FO P	0%						
7DB-FO.S	#5 DB FO S	0%						
9-10IND.C	DO Storage Tk	0%						
8DB-BWTR.P	Oily Bilge Tk	0%						
8DB-HLDG.S	Waste Oil Tk	0%						
8DB-JWTR.S	Jacket Wtr Tk	0%						
4IND-FW.S	No 1 Pot Wtr	0%						
4IND-FW.P	No 2 Pot Wtr	0%						
6IND-V1.P	MSD V1	0%						
TANKAGE TOTAL			0.00	0.00	0	0.00	0	0.0
OTHER LOADS								
Crew & Effects								
Provisions								
Stores								
Passengers & Effects:								
Vehicle Cargo:								
OTHER LOADS TOTAL			0.00	0.00	0	0.00	0	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			4607.14	26.04	119,954	201.22 a	927,026	106.0
Condition 1								
Lightship + Min Op Weights + Standard Outfit - Non-Operating Condition								
HYDROSTATICS								
DISP. = 4607.14 LT		TPI = 38.80 LT/in		LCF= 211.98 ft a				
KM _T = 29.85 ft		MCT 1" = 877.5 LT-ft		LCB = 197.54 ft a				
TRIM & DRAFTS								
Trim (+aft) = 1.61 ft a		Draft Fwd at FP = 14.27 ft		Limiting Trim = 0.5 ft fwd / 3.2 ft aft				
LCF Draft = 14.96 ft		Midship Draft = 15.08 ft		Limiting LCF Draft = 17.17 ft				
		Draft Aft at AP = 15.88 ft		Limiting Aft Draft = 17.58 ft				
STABILITY								
GM 3.81 ft								
FSC 0.02 ft								
GM _{CORR} 3.79 ft								
GM _{REQ} FAIL								
GM _{MARGIN} FAIL								

10.3. LC2D: Departure

Condition 2								
Departure - 18 Vans + 499 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	582.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	82.5
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	69.3
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.1
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.1
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1764.2
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passengers & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
18 Vans @ 42,000 lbs/ea			337.50	32.00	10,800	232.00 a	78,300	
OTHER LOADS TOTAL			407.29	35.14	14,311	226.94 a	92,432	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5556.99	24.83	137,955	200.89 a	1,116,349	1870.2
Condition 2								
Departure - 18 Vans + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5556.99 LT			TPI = 40.76 LT/in			LCF = 211.34 ft a		
KM _T = 29.56 ft			MCT 1" = 956.9 LT-ft			LCB = 199.99 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.44 ft a			Draft Fwd at FP = 16.70 ft			Limiting Trim = 0.5 ft fwd / 3.2 ft aft		
LCF Draft = 16.95 ft			Midship Draft = 16.92 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.14 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.74 ft								
FSC 0.34 ft								
GM _{CORR} 4.40 ft								
GM _{REQ} 3.48 ft								
GM _{MARGIN} 0.92 ft								

10.4. LC2A: Arrival

Condition 2								
Arrival - 18 Vans + 499 Passengers (7 DB FO as Ballast)								
Load Summary			WEIGHT	VCG	V-MOM	LCG	L-MOM	MAX FSM
TANKAGE	DESCRIPTION	%	(LT)	(ft)	(LT-ft)	(ft)	(LT-ft)	(LT-ft)
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	582.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	10%	5.96	7.20	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:			0.00	0.00				
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:			0.00	0.00				
18 Vans @ 42,000 lbs/ea			337.50	32.00	10,800	232.00 a	78,300	
OTHER LOADS TOTAL			407.29	35.14	14,311	226.94 a	92,432	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5198.90	25.97	135,002	202.68 a	1,053,724	1875.4
Condition 2								
Arrival - 18 Vans + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5198.90 LT			TPI = 40.06 LT/in			LCF = 211.89 ft a		
KM _T = 29.64 ft			MCT 1" = 929.3 LT-ft			LCB = 199.19 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.63 ft a			Draft Fw d at FP = 15.28 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.21 ft			Midship Draft = 16.09 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 16.90 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.67 ft								
FSC 0.36 ft								
GM _{CORR} 3.31 ft								
GM _{REQ} 2.69 ft								
GM _{MARGIN} 0.62 ft								

10.5. LC3D: Departure

Condition 3								
Departure - 18 Vans + 499 Passengers (6 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	12.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
18 Vans @ 42,000 lbs/ea			337.50	32.00	10,800	232.00 a	78,300	
OTHER LOADS TOTAL			407.29	35.14	14,311	226.94 a	92,432	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5556.99	24.83	137,955	200.89 a	1,116,349	1993.6
Condition 3								
Departure - 18 Vans + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5556.99 LT			TPI = 40.76 LT/in			LCF = 211.34 ft a		
KM _T = 29.56 ft			MCT 1" = 956.9 LT-ft			LCB = 199.99 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.44 ft a			Draft Fwd at FP = 16.70 ft			Limiting Trim = 0.5 ft fwd / 3.2 ft aft		
LCF Draft = 16.95 ft			Midship Draft = 16.92 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.14 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.74 ft FSC 0.36 ft GM _{CORR} 4.38 ft GM _{REQ} 3.48 ft GM _{MARGIN} 0.90 ft								

10.6. LC3A: Arrival

Condition 3								
Arrival - 18 Vans + 499 Passengers (6 DB FO as Ballast)								
Load Summary			WEIGHT	VCG	V-MOM	LCG	L-MOM	MAX FSM
TANKAGE	DESCRIPTION	%	(LT)	(ft)	(LT-ft)	(ft)	(LT-ft)	(LT-ft)
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	12.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	10%	5.96	7.28	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:			0.00	0.00				
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:			0.00	0.00				
18 Vans @ 42,000 lbs/ea			337.50	32.00	10,800	232.00 a	78,300	
OTHER LOADS TOTAL			407.29	35.14	14,311	226.94 a	92,432	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5198.90	25.97	135,002	202.68 a	1,053,724	1993.6
Condition 3								
Arrival - 18 Vans + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5198.90 LT			TPI = 40.06 LT/in			LCF= 211.89 ft a		
KM _T = 29.64 ft			MCT 1" = 929.3 LT-ft			LCB = 199.19 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.63 ft a			Draft Fw d at FP = 15.28 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.21 ft			Midship Draft = 16.09 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 16.90 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.67 ft								
FSC 0.38 ft								
GM _{CORR} 3.29 ft								
GM _{REQ} 2.69 ft								
GM _{MARGIN} 0.60 ft								

10.7. LC4D: Departure

Condition 4								
Departure - 45 Cars & 47 Campers + 499 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	582.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
0 Vans @ 42,000 lbs/ea			0.00	32.00	0	232.00 a	0	
45 Cars @ 6,000 lbs/ea			120.54	27.00	3,254	232.00 a	27,964	
47 Campers @ 12,000 lbs/ea			251.79	29.50	7,428	232.00 a	58,414	
OTHER LOADS TOTAL			442.12	32.10	14,193	227.34 a	100,511	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5591.82	24.65	137,837	201.08 a	1,124,428	1875.4
Condition 4								
Departure - 45 Cars & 47 Campers + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5591.82 LT			TPI = 40.83 LT/in			LCF = 211.28 ft a		
KM _T = 29.56 ft			MCT 1" = 959.6 LT-ft			LCB = 200.06 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.50 ft a			Draft Fwd at FP = 16.73 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 17.02 ft			Midship Draft = 16.98 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.23 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.91 ft FSC 0.34 ft GM _{CORR} 4.57 ft GM _{REQ} 3.59 ft GM _{MARGIN} 0.98 ft								

10.8. LC4A: Arrival

Condition 4								
Arrival - 45 Cars & 47 Campers + 499 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	582.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	10%	5.96	7.28	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:			0.00	0.00				
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:			0.00	0.00				
0 Vans @ 42,000 lbs/ea			0.00	32.00	0	232.00 a	0	
45 Cars @ 6,000 lbs/ea			120.54	27.00	3,254	232.00 a	27,964	
47 Campers @ 12,000 lbs/ea			251.79	29.50	7,428	232.00 a	58,414	
OTHER LOADS TOTAL			442.12	32.10	14,193	227.34 a	100,511	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5233.73	25.77	134,884	202.88 a	1,061,803	1875.4
Condition 4								
Arrival - 45 Cars & 47 Campers + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5233.73 LT			TPI = 40.13 LT/in			LCF= 211.84 ft a		
KM _T = 29.63 ft			MCT 1" = 932.0 LT-ft			LCB = 199.28 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.68 ft a			Draft Fwd at FP = 15.32 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.28 ft			Midship Draft = 16.16 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.00 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.85 ft								
FSC 0.36 ft								
GM _{CORR} 3.50 ft								
GM _{REQ} 2.74 ft								
GM _{MARGIN} 0.75 ft								

10.9. LC5D: Departure

Condition 5								
Departure - 45 Cars & 47 Campers + 499 Passengers (6 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	12.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
0 Vans @ 42,000 lbs/ea			0.00	32.00	0	232.00 a	0	
45 Cars @ 6,000 lbs/ea			120.54	27.00	3,254	232.00 a	27,964	
47 Campers @ 12,000 lbs/ea			251.79	29.50	7,428	232.00 a	58,414	
OTHER LOADS TOTAL			442.12	32.10	14,193	227.34 a	100,511	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5591.82	24.65	137,837	201.08 a	1,124,428	1993.6
Condition 5								
Departure - 45 Cars & 47 Campers + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5591.82 LT			TPI = 40.83 LT/in			LCF = 211.28 ft a		
KM _T = 29.56 ft			MCT 1" = 959.6 LT-ft			LCB = 200.06 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.50 ft a			Draft Fwd at FP = 16.73 ft			Limiting Trim = 0.5 ft fwd / 3.2 ft aft		
LCF Draft = 17.02 ft			Midship Draft = 16.98 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.23 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.91 ft FSC 0.36 ft GM _{CORR} 4.55 ft GM _{REQ} 3.59 ft GM _{MARGIN} 0.96 ft								

10.10. LC5A: Arrival

Condition 5								
Arrival - 45 Cars & 47 Campers + 499 Passengers (6 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	12.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	10%	5.96	7.28	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:			0.00	0.00				
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:			0.00	0.00				
0 Vans @ 42,000 lbs/ea			0.00	32.00	0	232.00 a	0	
45 Cars @ 6,000 lbs/ea			120.54	27.00	3,254	232.00 a	27,964	
47 Campers @ 12,000 lbs/ea			251.79	29.50	7,428	232.00 a	58,414	
OTHER LOADS TOTAL			442.12	32.10	14,193	227.34 a	100,511	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5233.73	25.77	134,884	202.88 a	1,061,803	1993.6
Condition 5								
Arrival - 45 Cars & 47 Campers + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5233.73 LT			TPI = 40.13 LT/in			LCF= 211.84 ft a		
KM _T = 29.63 ft			MCT 1" = 932.0 LT-ft			LCB = 199.28 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.68 ft a			Draft Fw d at FP = 15.32 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.28 ft			Midship Draft = 16.16 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.00 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.85 ft								
FSC 0.38 ft								
GM _{CORR} 3.47 ft								
GM _{REQ} 2.74 ft								
GM _{MARGIN} 0.73 ft								

10.11. LC6D: Departure

Condition 6								
Departure - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	582.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
5 Vans @ 42,000 lbs/ea			93.75	32.00	3,000	232.00 a	21,750	
83 Cars @ 6,000 lbs/ea			222.32	27.00	6,003	232.00 a	51,579	
11 Campers @ 12,000 lbs/ea			58.93	29.50	1,738	232.00 a	13,671	
OTHER LOADS TOTAL			444.79	32.04	14,252	227.37 a	101,132	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5594.49	24.65	137,896	201.10 a	1,125,049	1875.4
Condition 6								
Departure - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5594.49 LT			TPI = 40.83 LT/in			LCF = 211.28 ft a		
KM _T = 29.56 ft			MCT 1" = 959.8 LT-ft			LCB = 200.07 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.50 ft a			Draft Fw d at FP = 16.74 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 17.03 ft			Midship Draft = 16.99 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.24 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.91 ft								
FSC 0.34 ft								
GM _{CORR} 4.58 ft								
GM _{REQ} 3.61 ft								
GM _{MARGIN} 0.97 ft								

10.12. LC6A: Arrival

Condition 6								
Arrival - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	582.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	10%	5.96	7.28	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:			0.00	0.00				
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:			0.00	0.00				
5 Vans @ 42,000 lbs/ea			93.75	32.00	3,000	232.00 a	21,750	
83 Cars @ 6,000 lbs/ea			222.32	27.00	6,003	232.00 a	51,579	
11 Campers @ 12,000 lbs/ea			58.93	29.50	1,738	232.00 a	13,671	
OTHER LOADS TOTAL			444.79	32.04	14,252	227.37 a	101,132	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5236.40	25.77	134,943	202.89 a	1,062,424	1875.4
Condition 6								
Arrival - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5236.40 LT			TPI = 40.14 LT/in			LCF= 211.83 ft a		
KM _T = 29.63 ft			MCT 1" = 932.2 LT-ft			LCB = 199.28 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.69 ft a			Draft Fw d at FP = 15.32 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.29 ft			Midship Draft = 16.16 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.01 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.86 ft								
FSC 0.36 ft								
GM _{CORR} 3.50 ft								
GM _{REQ} 2.75 ft								
GM _{MARGIN} 0.75 ft								

10.13. LC7D: Departure

Condition 7								
Departure - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (6 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	12.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
5 Vans @ 42,000 lbs/ea			93.75	32.00	3,000	232.00 a	21,750	
83 Cars @ 6,000 lbs/ea			222.32	27.00	6,003	232.00 a	51,579	
11 Campers @ 12,000 lbs/ea			58.93	29.50	1,738	232.00 a	13,671	
OTHER LOADS TOTAL			444.79	32.04	14,252	227.37 a	101,132	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5594.49	24.65	137,896	201.10 a	1,125,049	1993.6
Condition 7								
Departure - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5594.49 LT			TPI = 40.83 LT/in			LCF = 211.28 ft a		
KM _T = 29.56 ft			MCT 1" = 959.8 LT-ft			LCB = 200.07 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.50 ft a			Draft Fw d at FP = 16.74 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 17.03 ft			Midship Draft = 16.99 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.24 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 4.91 ft								
FSC 0.36 ft								
GM _{CORR} 4.56 ft								
GM _{REQ} 3.61 ft								
GM _{MARGIN} 0.95 ft								
			<p>— GMreq ♦ Cond - - - Loadline Draft — Min Draft</p>					

10.14. LC7A: Arrival

Condition 7								
Arrival - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (6 DB FO as Ballast)								
Load Summary			WEIGHT	VCG	V-MOM	LCG	L-MOM	MAX FSM
TANKAGE	DESCRIPTION	%	(LT)	(ft)	(LT-ft)	(ft)	(LT-ft)	(LT-ft)
6DB-FO.P	#4 DB FO P	10%	7.04	0.98	7	164.85 a	1,161	12.5
6DB-FO.S	#4 DB FO S	10%	7.09	0.97	7	164.97 a	1,170	12.5
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	627.8
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	643.6
9-10IND.C	DO Storage Tk	10%	5.96	7.28	43	287.64 a	1,714	84.0
8DB-BWTR.P	Oily Bilge Tk	10%	4.37	0.65	3	219.81 a	961	152.6
8DB-HLDG.S	Waste Oil Tk	10%	2.07	0.66	1	213.00 a	441	72.8
8DB-JWTR.S	Jacket Wtr Tk	10%	2.01	0.63	1	226.90 a	456	69.7
4IND-FW.S	No 1 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
4IND-FW.P	No 2 Pot Wtr	10%	6.72	8.16	55	109.00 a	732	90.2
6IND-V1.P	MSD V1	50%	12.68	6.84	87	158.00 a	2,003	31.8
TANKAGE TOTAL			184.47	4.00	737	185.75 a	34,265	1887.6
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
499 @ 185 lbs/ea + 50 lbs effects			52.35	55.40	2,900	207.10 a	10,842	
Vehicle Cargo:								
5 Vans @ 42,000 lbs/ea			93.75	32.00	3,000	232.00 a	21,750	
83 Cars @ 6,000 lbs/ea			222.32	27.00	6,003	232.00 a	51,579	
11 Campers @ 12,000 lbs/ea			58.93	29.50	1,738	232.00 a	13,671	
OTHER LOADS TOTAL			444.79	32.04	14,252	227.37 a	101,132	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5236.40	25.77	134,943	202.89 a	1,062,424	1993.6
Condition 7								
Arrival - 5 Vans, 83 Cars & 11 Campers + 499 Passengers (6 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5236.40 LT			TPI = 40.14 LT/in			LCF= 211.83 ft a		
KM _T = 29.63 ft			MCT 1" = 932.2 LT-ft			LCB = 199.28 ft a		
TRIM & DRAFTS								
Trim (+aft) = 1.69 ft a			Draft Fwd at FP = 15.32 ft			Limiting Trim = 0.5 ft fwd / 3.2 ft aft		
LCF Draft = 16.29 ft			Midship Draft = 16.16 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 17.01 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 3.86 ft								
FSC 0.38 ft								
GM _{CORR} 3.47 ft								
GM _{REQ} 2.75 ft								
GM _{MARGIN} 0.73 ft								

10.15. LC8D: Departure

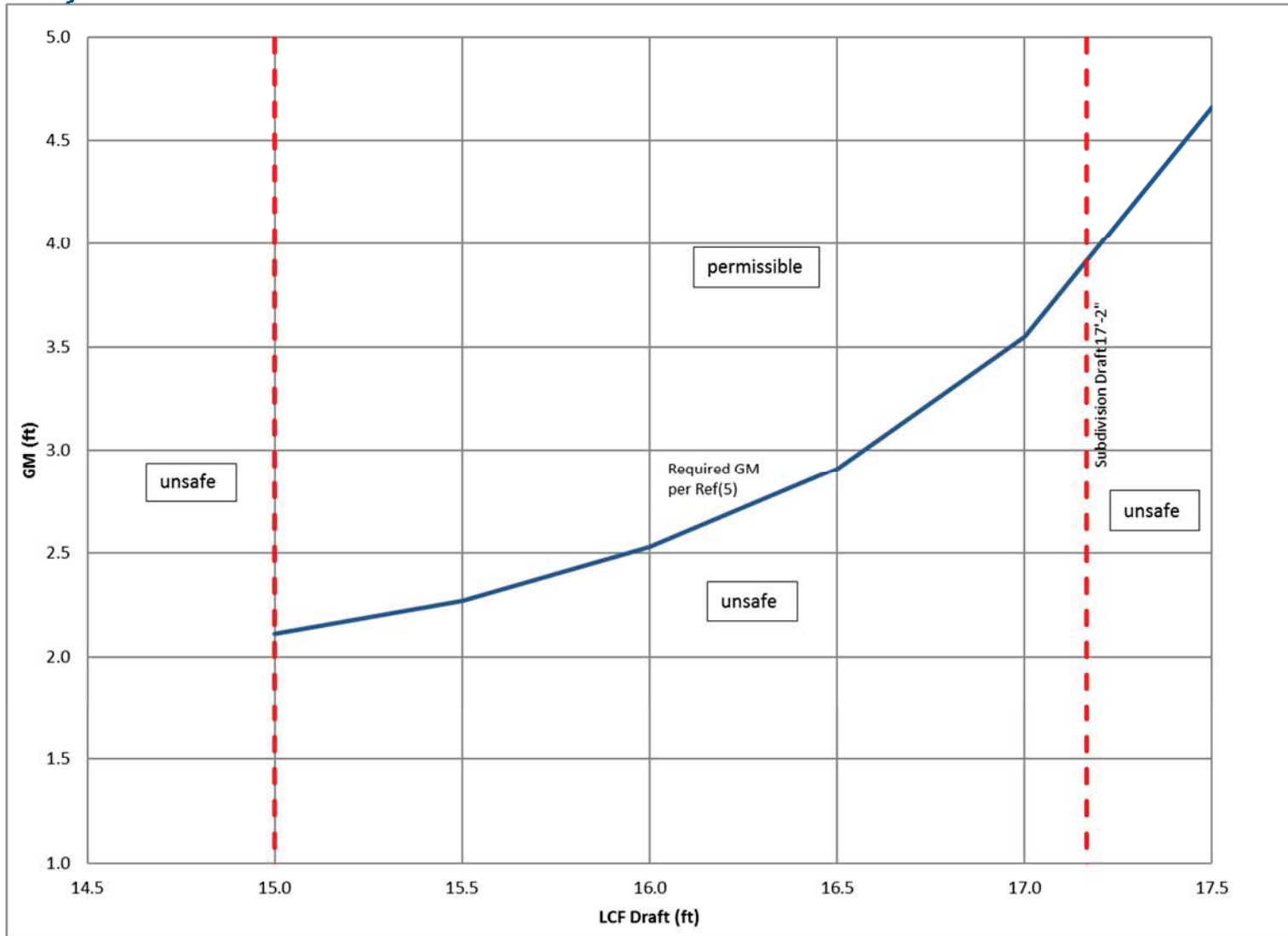
Condition 8								
Departure - 750 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	582.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects:								
750 @ 185 lbs/ea + 50 lbs effects			78.68	55.40	4,359	207.10 a	16,295	
Vehicle Cargo:								
OTHER LOADS TOTAL			96.12	51.70	4,970	203.76 a	19,585	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5245.82	24.52	128,614	198.92 a	1,043,502	1875.4
Condition 8								
Departure - 750 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5245.82 LT			TPI = 40.16 LT/in			LCF = 211.82 ft a		
KM _T = 29.62 ft			MCT 1" = 932.9 LT-ft			LCB = 199.30 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.18 ft f			Draft Fw d at FP = 16.20 ft			Limiting Trim = 0.5 ft fw d / 3.2 ft aft		
LCF Draft = 16.31 ft			Midship Draft = 16.29 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 16.38 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 5.11 ft FSC 0.36 ft GM _{CORR} 4.75 ft GM _{REQ} 2.76 ft GM _{MARGIN} 1.98 ft								

10.16. LC8A: Arrival

Condition 8								
Departure - 750 Passengers (7 DB FO as Ballast)								
Load Summary		%	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P	95%	66.66	4.07	271	164.77 a	10,984	582.5
6DB-FO.S	#4 DB FO S	95%	67.15	4.00	269	164.80 a	11,066	584.3
7DB-FO.P	#5 DB FO P	95%	64.05	3.65	234	191.85 a	12,288	5.2
7DB-FO.S	#5 DB FO S	95%	65.76	3.72	245	191.71 a	12,607	6.2
9-10IND.C	DO Storage Tk	95%	56.58	11.02	624	291.53 a	16,495	84.0
8DB-BWTR.P	Oily Bilge Tk	95%	41.32	2.71	112	219.37 a	9,064	152.6
8DB-HLDG.S	Waste Oil Tk	95%	19.59	2.72	53	213.00 a	4,173	72.8
8DB-JWTR.S	Jacket Wtr Tk	95%	19.10	2.70	52	226.44 a	4,325	69.7
4IND-FW.S	No 1 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
4IND-FW.P	No 2 Pot Wtr	100%	67.37	13.25	893	109.00 a	7,343	90.2
6IND-V1.P	MSD V1	30%	7.61	6.10	46	158.00 a	1,202	31.8
TANKAGE TOTAL			542.56	6.80	3,690	178.58 a	96,891	1769.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passenger & Effects: 750 @ 185 lbs/ea + 50 lbs effects			78.68	55.40	4,359	207.10 a	16,295	
Vehicle Cargo:								
OTHER LOADS TOTAL			96.12	51.70	4,970	203.76 a	19,585	
MINIMUM OPERATIONAL WEIGHT			4607.14	26.04	119,954	201.22 a	927,026	106.0
CONDITION TOTAL			5245.82	24.52	128,614	198.92 a	1,043,502	1875.4
Condition 8								
Departure - 750 Passengers (7 DB FO as Ballast)								
HYDROSTATICS								
DISP. = 5245.82 LT			TPI = 40.16 LT/in			LCF = 211.82 ft a		
KM _T = 29.62 ft			MCT 1" = 932.9 LT-ft			LCB = 199.30 ft a		
TRIM & DRAFTS								
Trim (+aft) = 0.18 ft f			Draft Fwd at FP = 16.20 ft			Limiting Trim = 0.5 ft fwd / 3.2 ft aft		
LCF Draft = 16.31 ft			Midship Draft = 16.29 ft			Limiting LCF Draft = 17.17 ft		
			Draft Aft at AP = 16.38 ft			Limiting Aft Draft = 17.58 ft		
STABILITY								
GM 5.11 ft FSC 0.36 ft GM _{CORR} 4.75 ft GM _{REQ} 2.76 ft GM _{MARGIN} 1.98 ft								

11. Stability Criteria

11.1. Stability Criteria Curve



12. Instructions to the Master and Stability Worksheets

12.1. Instructions to the Master

A Stability Worksheet provided in the next Section (12.2) should be used to calculate the condition of the vessel upon departure **and** the anticipated condition upon arrival. **A calculation that verifies a safe departure condition does not guarantee a safe arrival condition. The arrival condition in any loadout is always the governing stability condition for this vessel.**

1. The minimum GM curve in this booklet is from Reference [5] using a trim range of 3.2 ft aft and 0.5 ft forward. Verify that the initial trim is within this range or the results will not be valid. If it is not, adjust cargo and/or tankage until the trim is within this range.
2. The maximum subdivision load line mean draft is 17'-2" and the maximum aft draft is 17'-7". Verify that the initial vessel is within this range or the results will not be valid. If it is not, adjust cargo and/or tankage until the draft is within this range.
3. Either the #4 Double Bottom Fuel Oil Tanks (6DB-FO.P/S) or the #5 Double Bottom Fuel Oil Tanks (7DB-FO.P/S) shall be used as ballast, meaning one pair shall be kept at 95% while the other pair may be consumed. Select the proper condition calculation Stability Worksheet, depending on which fuel tanks, 6DB-FO P/S or 7DB-FO P/S, are used as ballast.
4. Determine the levels (or proposed levels) of all tanks and record.
5. Enter the detailed weights, VCGs, and FSMs (in the case of slack tanks) in each category such as fuel, fresh water, sewage, personnel and vehicles in the appropriate columns on the blank condition Stability Worksheet. Obtain tank weight and center values from the Tank Sounding Tables in Section 7.3. Consider fuel storage tanks slack at all times except when empty. For any tanks which may be consumed during the voyage, use the maximum FSM that appears in the FSM column of the tank tables.
6. Enter standard vehicle information in the appropriate columns on the Stability Worksheet. The Vehicle Loading Worksheet in Section 0 may be used to calculate a custom vehicle load. Weights and VCGs of non-standard vehicles must be conservatively estimated.
 - a. **For Loads with Vans:**
Vehicle cargo shall not exceed 337.5 LT and a vertical moment of 10,800 LT-ft. This is equivalent to eighteen (18) vans or trailers at 42,000 lb (18.75 LT) each, respectively.
 - b. **For Loads without Vans:**
Vehicle cargo shall not exceed 375.0 LT and a vertical moment of 10,800 LT-ft. This is roughly equivalent to forty-five (45) cars at 6,000 lb (2.68 LT) each and forty-seven (47) campers 12,000 lb (5.36 LT) each.
7. Calculate the vertical moments for each weight item as follows:

$$\text{VMOM} = \text{WEIGHT} \times \text{VCG}$$

8. Calculate the sum of each of the items in the WEIGHT, VMOM, and MAX FSM columns. Summarize the columns in the Tankage section on the TANKAGE TOTAL line. Summarize the columns of the Other Loads section on the OTHER LOADS TOTAL line.
9. Calculate the CONDITION TOTAL WEIGHT by adding the WEIGHT on the TANKAGE TOTAL line and the OTHER LOADS TOTAL line and the MINIMUM OPERATIONAL WEIGHT line. The total weight must be less than 5663.96 LT. Copy the CONDITION TOTAL WEIGHT to the stability section.
10. Calculate the CONDITION TOTAL VMOM by adding the VMOM on the TANKAGE TOTAL line and the OTHER LOADS TOTAL line and the MINIMUM OPERATIONAL WEIGHT line.
11. Calculate the CONDITION TOTAL MAX FSM by adding together the MAX FSM on the TANKAGE TOTAL line and the OTHER LOADS TOTAL line and the MINIMUM OPERATIONAL WEIGHT line.
12. Calculate the CONDITION TOTAL VCG as follows:

$$\text{VCG} = \text{CONDITION TOTAL VMOM} / \text{CONDITION TOTAL WEIGHT}$$
 Copy the CONDITION TOTAL VCG to the stability section.
13. From the vessel Hydrostatics in Section 8, find the KM_T and LCF Draft for the calculated Displacement (CONDITION TOTAL WEIGHT). Input them in the STABILITY section of the Worksheet.
14. Calculate the GM and enter in the STABILITY section as follows:

$$\text{GM} = KM_T - \text{VCG (Total)}$$
15. Calculate the free surface correction (FSC), and enter in the stability section, as follows:

$$\text{FSC} = \text{CONDITION TOTAL FSM} / \text{CONDITION TOTAL WEIGHT}$$
16. Calculate the corrected GM (GM_{Corr}) and enter in the STABILITY section as follows:

$$GM_{\text{Corr}} = \text{GM} - \text{FSC}$$
17. Plot the loading condition on the Required GM graph on the Loading Condition Worksheet, using the draft found in Step 12, and the GM_{corr} found in Step 15. Determine if the vessel's GM_{Corr} is located in the "SAFE" region.
18. Once the condition is modeled properly, check that GM_{corr} is above the GM_{required} line, indicated by the curve on the graph. Ensure that the loading condition is not to the right of the limiting draft line. If the loading condition is below the GM_{required} line or to the right of the limiting draft line, then the loading condition is unacceptable and must be modified.
19. If trim prediction is desired, follow the remainder of this procedure. Calculate the longitudinal moments for each weight item as follows:

$$\text{LMOM} = \text{WEIGHT} \times \text{LCG}$$
20. Calculate the sum of each of the items in the LMOM column. The column in the Tankage section should be summarized on the TANKAGE TOTAL line, and the column in the Other Loads section should be summarized on the OTHER LOADS TOTAL line.
21. Add the LMOM totals from the TANKAGE TOTAL, OTHER LOADS TOTAL, and MINIMUM OPERATIONAL WEIGHT lines. Enter the sum on the CONDITION TOTAL line in the LMOM column.

22. Calculate the longitudinal center of gravity (LCG) and enter in the TRIM section as follows:
$$\text{LCG} = \text{CONDITION TOTAL LMOM} / \text{CONDITION TOTAL WEIGHT}$$
23. From the vessel Hydrostatics in Section 8, determine the longitudinal center of buoyancy (LCB). Calculate the trimming lever and enter in the TRIM section as follows:
$$\text{Trimming Lever} = \text{LCG} - \text{LCB}$$
24. Determine the trimming moment, and enter in the TRIM section as follows:
$$\text{Trimming Moment} = \text{Trimming Lever} \times \text{CONDITION TOTAL WEIGHT}$$
25. From the vessel Hydrostatics in Section 8, determine the moment required to trim 1 inch (Moment/IN Trim). Calculate the trim, in inches, as follows:
$$\text{Trim} = \text{Trimming Moment} / \text{Moment/IN Trim}$$
26. To calculate the trim in feet divide the trim in inches by 12.
$$\text{Trim (ft)} = \text{Trim (in)} / 12$$

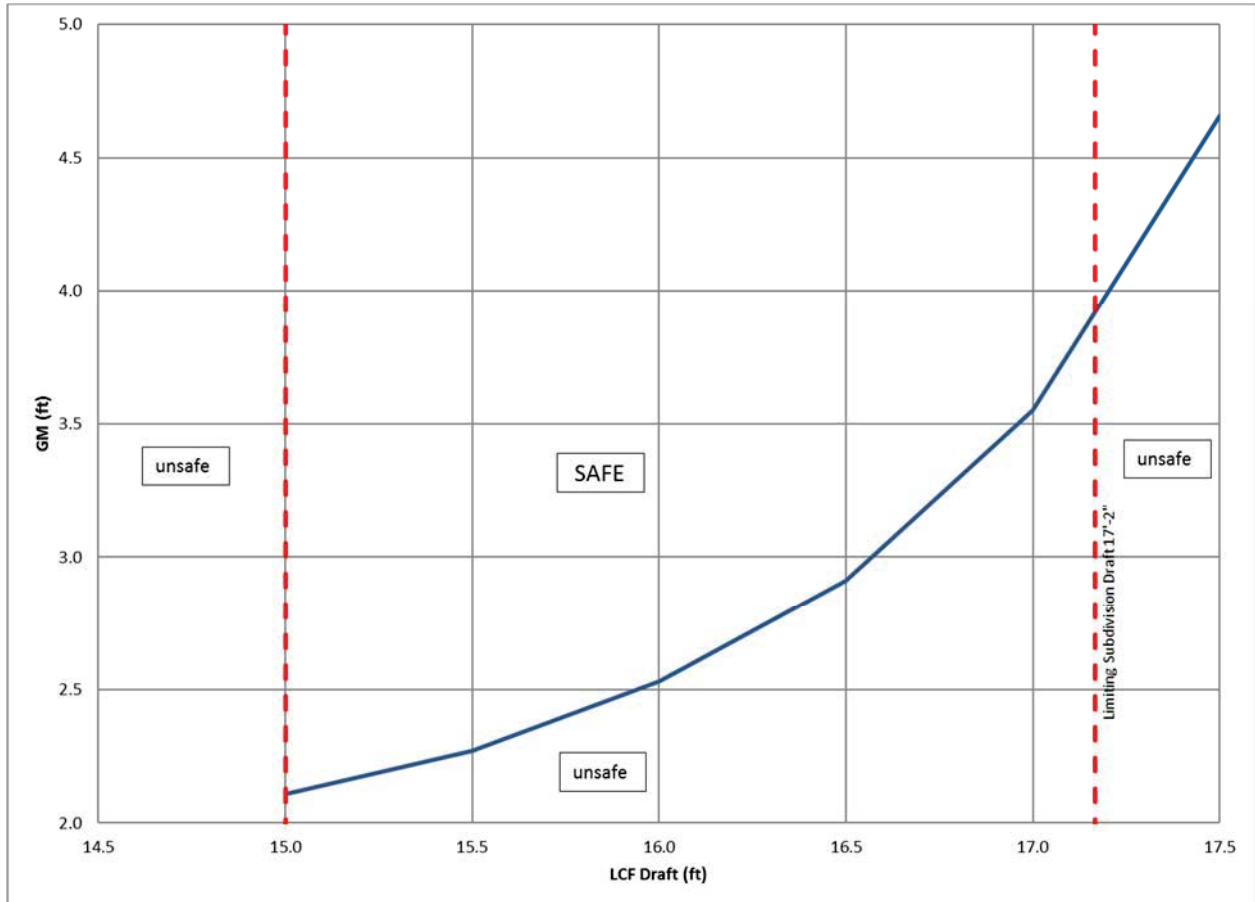
If the LCG is aft of the LCB, trim will be aft (the stern will be lower than the bow).
If the LCG is forward of the LCB, trim will be forward (the stern will be higher than the bow).
27. Confirm that the trim does not exceed the limits stated in steps (1) and (2).

12.2. Stability Worksheets

12.2.1. Stability Worksheet A - 7DB FO Tanks as Ballast

Stability Worksheet A - 7DB F.O. Tanks as Ballast								
Description:								
Load Summary		% FULL	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P							582.5
6DB-FO.S	#4 DB FO S							584.3
7DB-FO.P	#5 DB FO P							5.2
7DB-FO.S	#5 DB FO S							6.2
9-10IND.C	DO Storage Tk							82.5
8DB-BWTR.P	Oily Bilge Tk							152.6
8DB-HLDG.S	Waste Oil Tk							69.3
8DB-JWTR.S	Jacket Wtr Tk							69.7
4IND-FW.S	No 1 Pot Wtr							90.1
4IND-FW.P	No 2 Pot Wtr							90.1
6IND-V1.P	MSD V1							31.8
TANKAGE TOTAL								1765.5
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passengers @235 lb ea				55.40				
Vans @ 42000 lbs (18.75 LT) ea								
Cars @ 6000 lbs (2.68 LT) ea								
Campers @ 12000 lbs (5.40 LT) ea								
Custom Vehicle Load:								
Custom Vehicle Load:								
OTHER LOADS TOTAL								
MINIMUM OPERATIONAL WEIGHT			4606.92	26.01	119,830	200.97 a	925,848	106.0
CONDITION TOTAL								

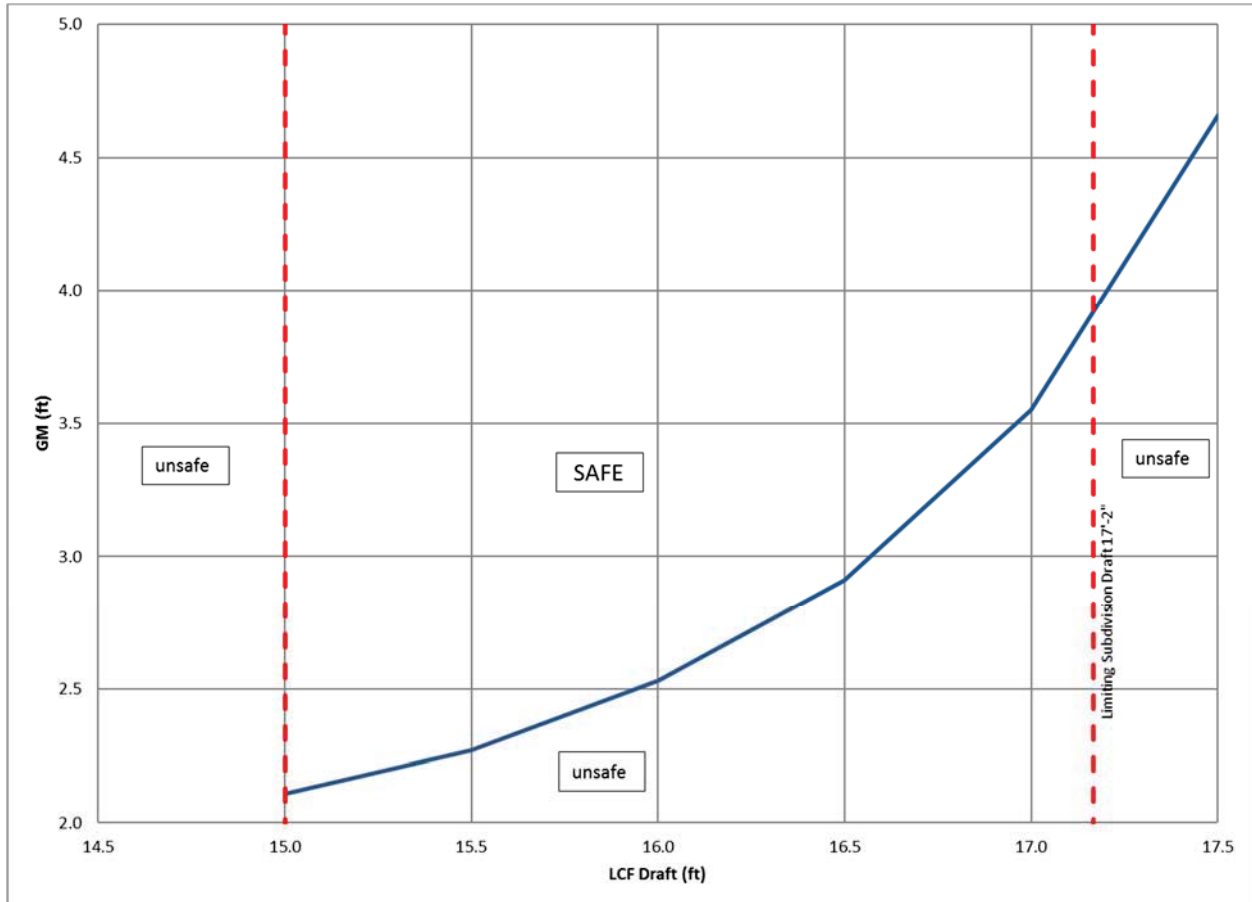
Condition Calculation A - 7DB F.O. Tanks as Ballast (continued)		
Description: _____		
HYDROSTATICS		
Displacement = _____	Weight/IN (LT/In) = _____	LCF (ft) = _____
KM _T (ft) = _____	Moment/IN Trim = _____	LCB (ft) = _____
DRAFT AND TRIM		
LCF Draft (ft) = _____	LCG (ft) = _____	Trim Moment (LT-ft) = _____
	Trim lever (ft) = _____	Trim (ft) = _____
STABILITY		
VCG (ft) = _____	FSC (ft) = _____	GM _{req} (ft) = _____
GM (ft) = _____	GM _{corr} (ft) = _____	GM _{margin} (ft) = _____



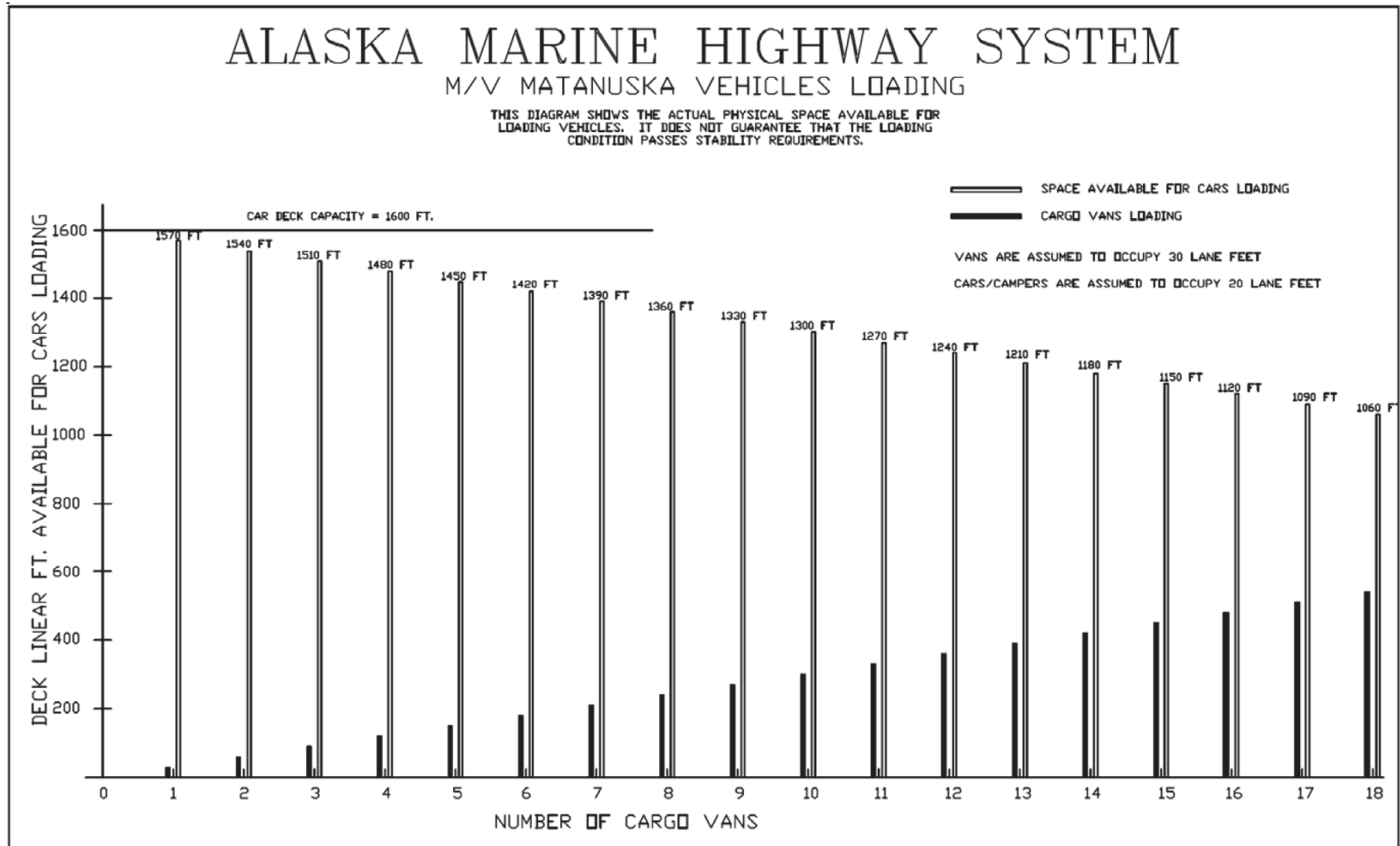
12.2.2. Stability Worksheet B - 6DB FO Tanks as Ballast

Stability Worksheet B - 6DB F.O. Tanks as Ballast								
Description:								
Load Summary		% FULL	WEIGHT (LT)	VCG (ft)	V-MOM (LT-ft)	LCG (ft)	L-MOM (LT-ft)	MAX FSM (LT-ft)
TANKAGE	DESCRIPTION							
6DB-FO.P	#4 DB FO P							12.5
6DB-FO.S	#4 DB FO S							12.5
7DB-FO.P	#5 DB FO P							627.8
7DB-FO.S	#5 DB FO S							643.6
9-10IND.C	DO Storage Tk							82.5
8DB-BWTR.P	Oily Bilge Tk							152.6
8DB-HLDG.S	Waste Oil Tk							69.3
8DB-JWTR.S	Jacket Wtr Tk							69.7
4IND-FW.S	No 1 Pot Wtr							90.1
4IND-FW.P	No 2 Pot Wtr							90.1
6IND-V1.P	MSD V1							31.8
TANKAGE TOTAL								1882.4
OTHER LOADS								
Crew & Effects			9.06	39.21	355	122.28 a	1,108	
Provisions			4.81	27.70	133	278.12 a	1,338	
Stores			3.57	34.24	122	236.58 a	845	
Passengers @235 lb ea				55.40				
Vans @ 42000 lbs (18.75 LT) ea								
Cars @ 6000 lbs (2.68 LT) ea								
Campers @ 12000 lbs (5.40 LT) ea								
Custom Vehicle Load:								
Custom Vehicle Load:								
OTHER LOADS TOTAL								
MINIMUM OPERATIONAL WEIGHT			4606.92	26.01	119,830	200.97 a	925,848	106.0
CONDITION TOTAL								

Condition Calculation B - 6DB F.O. Tanks as Ballast (continued) Description: _____		
HYDROSTATICS		
Displacement = _____	Weight/IN (LT/In) = _____	LCF (ft) = _____
KM _T (ft) = _____	Moment/IN Trim = _____	LCB (ft) = _____
DRAFT AND TRIM		
LCF Draft (ft) = _____	LCG (ft) = _____	Trim Moment (LT-ft) = _____
	Trim lever (ft) = _____	Trim (ft) = _____
STABILITY		
VCG (ft) = _____	FSC (ft) = _____	GM _{req} (ft) = _____
GM (ft) = _____	GM _{corr} (ft) = _____	GM _{margin} (ft) = _____



13.2. Vehicle Loading Diagram



13.3. Vehicle Data

MAKE	MODEL MOTOR HOMES	GVWR (Lbs)	VCG (Ft) abv. deck
AIRSTREAM	350 MH	18,000	
	LAND YACHT	18,000	
BLUE BIRD	LAND YACHT DIESEL	19,000	
	WANDERLODGE	44,700	
COACHMAN	CATALINA	17,000	
	ROYAL	18,500	
FLEETWOOD	ROYAL DIESEL	24,000	
	AMERICAN EAGLE	29,400	
	BOUNDER	16,500	
	BOUNDER DIESEL	18,000	
	CORONADO	16,000	
GULF STREAM	PACE ARROW	16,000	
	SOUTHWIND	23,000	
	FRIENDSHIP	25,750	
	GULF STREAM 2000	17,000	
	SUNSPORT	14,000	
HOLIDAY RAMBLER	SUN VOYAGER	16,500	
	ALUMA LITE	17,500	
ITASCA	NAVIGATOR	29,000	
	SUNCRUISER	17,000	
TIFFIN MOTOR HM	SUNFLYER	16,500	
	ALLEGRO BAY	17,000	
WINNEBAGO IND	ALLEGRO BAY PUSHER	18,400	
	ADVENTURER	18,000	
Average Values	RV	18,000	
	5TH WHEEL TRAILER	35,000	
	TRAILER	7,500	
	MINI-MOTOR HOME	12,000	
	SLIDE IN CAMPER	3,000	
FAMILY, UTILITY & PUBLIC TRANSPORTATION			
Autos	COMPACT	3,500	
	LARGE	5,300	
Trucks	PICKUPS - EMPTY	6,500	
	PICKUPS - LOADED	10,300	
	VANS - EMPTY	6,500	
	VANS - LOADED	8,500	
	PICKUPS/CAMPER STD	5,200	
	PICKUPS/CAMPER LRG	10,200	
Utility	BOAT & TRAILER	3,000	
Public	SCHOOL BUS - EMPTY	15,800	
Public	TOUR BUS	30,700	
Utility	AMBULANCE - LOADED	8,200	
Utility	FIRE TRUCK, 500 GAL PUMPER, EMPTY	31,570	
Utility	FIRE TRUCK, 500 GAL PUMPER, LOADED	35,740	
Utility	FIRE TRUCK, LADDER	32,260	

MAKE	MODEL	GVWR (Lbs)	VCG (Ft)
ROAD & INDUSTRIAL EQUIPMENT, CONT.			
Skidders	ARTICULATED DUMP - EMPTY	41,000	
	ARTICULATED DUMP - LOADED	92,000	
	CAT 518	21,200	
	CAT 528	33,000	
Snow Vehicles	SNOWFLOW	27,000	
	SWEEPER	14,400	
Wheel Loaders	STANDARD (CAT 910-950, 988D, DEERE JD-644B)	32,300	
	EK LARGE (CAT 960, 988E)	99,700	
MILITARY VEHICLES			
JEEPS	1/4 TON M-151	5,200	
	3/4 TON M-8-80, M-47, COMMAND CAR EMPTY	5,100	
Trucks	3/4 TON M-8-80, M-47, COMMAND CAR LOADED	8,380	
	2.5 TON M-35-AR - EMPTY	14,800	
	2.5 TON M-35-AR - LOADED	24,200	
	5 TON M-9-25, M-54-A2 EMPTY	22,300	
	5 TON M-9-25, M-54-A2 LOADED	39,800	
	6 TON CARGO TRACKED CARRIER M548 EMPTY	15,500	
	6 TON CARGO TRACKED CARRIER M548 LOADED	29,800	
	ARTICULATED CARRIER M-973 EMPTY	10,300	
	ARTICULATED CARRIER M-973 LOADED	15,100	
	3/4 TON TRAILER M-101-A-1 EMPTY	1,600	
	3/4 TON TRAILER M-101-A-1 LOADED	4,800	
	1/5 TON TRAILER XM-105, E-3 EMPTY	3,350	
	1/5 TON TRAILER XM-105, E-3 LOADED	6,500	
	SEMI TRAILER M-172-A-1 EMPTY	15,500	
	SEMI TRAILER M-172-A-1 LOADED	45,200	
	LOWBOY M-123 A-1-C	30,400	
	LOWBOY D-7-F, CAT DOZER & WINCH	79,800	
	DUMP TRUCK W/ WINCH M-317 EMPTY	25,500	
DUMP TRUCK W/ WINCH M-317 LOADED	45,400		
FRONT END LOADER W/ SCOOP M-G-10	25,900		
Wreckers	5 TON M-5-43 W/ PICKUP TOW CRANE EMPTY	34,500	
	5 TON M-5-43 W/ PICKUP TOW CRANE LOADED	46,600	
Ambulance	1/4 TON M-M-86	8,200	