

# SHIP EQUIPMENT

## HOSE HANDLING CRANES (NORLIFT)

- Two (2) Hydraulic type, each capacity of S.W.L. 15 tonnes max. Working radius 16.8 m and max outreach 6.4 m from the ship's side.

## BOW MOORING/LOADING EQUIPMENT (PUSNES)

- Chain Stopper : One (1) Hydraulic self-locking type, Max. tension force 500 tonnes, chain dim. 83 mm
- Mooring Winch : One (1) Twin drum traction type. Pulling capacity of 70 tonnes at 7 m/min
- Storage Unit : Storage Capacity of 500 m 100 mm dia. Rope
- Loading Manifold : One (1) Single Probe type 20"
- Hose Handling winch : One (1) Double Drum, Pulling capacity of 25 tonnes
- Service Crane : One (1) Hydraulic jib type, Capacity of 5.0 tonnes, Working radius 9 m

## STEERING GEARS (PORSGRUND - AKER)

- Two (2) Electro – Hydraulic, Rotary Vane type

## RUDDERS

- Two (2) sets Becker Flap type

## BOW THRUSTER (ULSTEIN)

- Two (2) sets C.P.P. type, Capacity of 2,100 kW each

## WINDLASSES (PUSNES)

- Two (2) Hydraulic high pressure type, Combined with 2 Mooring Drums, Capacity of 45 tonnes 9 m/min

## WINCHES (PUSNES)

- Eight (8) Hydraulic high pressure type, Capacity of 20 tonnes, 15 m/min. each 2 drums

## HELICOPTER DECK

- One (1) Designed for a "EH101" type Helicopter

## PROVISION CRANES (NORLIFT)

- One (1) Electro – Hydraulic, Capacity of 5 tonnes \* 10 m radius
- One (1) Electro – Hydraulic, Capacity of 2 tonnes \* 10 m radius

# PUMPS

## CARGO PUMPS (SHINKO)

- Two (2) Two speed electric motor driven and one(1) steam driven vertical centrifugal type, Capacity of 4,000 m<sup>3</sup>/h x 150 MLC(S.G.: 0.82)

## BALLAST PUMPS (SHINKO)

- Two (2) Electric motor driven vertical centrifugal type, Capacity of 2,500 m<sup>3</sup>/h x 25 mWC

## CRUDE OIL WASHING PUMP (SHINKO)

- One (1) Electric motor driven vertical centrifugal type, Capacity of 1,000 m<sup>3</sup>/h x 150 mLC(S.G.:0.82)

## CARGO STRIPPING PUMP (SHINKO)

- One (1) Steam driven vertical reciprocating type, Capacity of 300 m<sup>3</sup>/h x 135 mLC(S.G.:0.82)

# MACHINERY

## MAIN ENGINES

- Two(2) SAMSUNG MAN B&W, Type 7S50MC
- MCR: 12,700 BHP \* 118.8 RPM (Each)
- CSR: 11,430 BHP, 90 % of MCR (Each)
- 7 cylinders, 2 stroke, single acting, non-reversible, crosshead, turbo-charged

### **AUX. ENGINE**

- Two (2) Ulstein Bergen, Type BRG-8, 4,389 PS \* 720 RPM, 3,000 kW Alternator - ABB
- Two (2) Ulstein Bergen, Type KRG-9, 2,169 PS \* 720 RPM, 1,500 kW Alternator - ABB

### **EMERGENCY DIESEL ENGINE**

- One (1) MAN-DEMP type D2842LE, 544 BHP \* 1,800 RPM, 400 kW Alternator

### **PROPELLERS**

- Two (2) sets, Ulstein Controllable Pitch Propeller, four (4) blades
- Diameter, 6,000 mm
- Direction of rotation : Outboard
- Material : Ni-Al-Bronze

### **OIL FIRED BOILER**

- Two(2) MITSUBISHI type MAC-258
- Each capacity of 25,000 kg/h \* 16 kg/cm<sup>2</sup>

### **EXHAUST GAS ECONOMIZER**

- Not provided

### **INERT GAS PLANT**

- One (1) set Aalborg Sunrod, Boiler flue gas type with (2) inert gas fans, each capacity 16,250 Nm<sup>3</sup>/h

### **FRESH WATER GENERATOR**

- Two (2) sets Nirex, Plate type, Each capacity of 30 tonnes/day

## **NAVIGATION AND COMMUNICATION EQUIPMENT**

### **RADAR PLANT**

- One (1) set, S-Band with ARPA, Sperry VT340 CDA314P
- One (1) set, X-Band with ARPA, Sperry VT340 CDA027P
- One (1) X-Band scanner on foremast, Sperry

### **MARINE NAVIGATION SYSTEM**

- Two (2) sets, GPS, Trimble NT 200D
- One (1) set, LORAN-C, North Star, 800X
- One (1) set, Integrated Navigation System, Sperry

### **GYRO COMPASS**

- Two (2) sets, Sperry, MK37VT

### **ECHO SOUNDER**

- One (1) set, Sperry, LSE 135
- One (1) set, Sperry, LSE 297

### **AUTO PILOT**

- One (1) set, Sperry, ADG 6000

### **DYNAMIC POSITIONING SYSTEM**

- One (1) set, dual (redundant) Cegelec DPS 902

*The DP system is interfaced to the following environmental sensors:*

- Two (2) Gyrocompasses, Sperry MK37VT
- Two (2) Vertical reference units
- Two (2) Aneometers
- Four (4) Draft sensors

*DP Position Reference Systems available for use are:*

- One (1) Artemis MK IV (Antenna located in top of fore mast)
- One (1) Simrad OLS 410 HPR System
- Two (2) Seatex DGPS/DRAPS units (DGPS = Differential Global Positioning System) (DARPS = Differential Absolute and Relative Positioning System)

*The DP system controls the following propellers/rudders*

- Two (2) CPP tunnel thrusters in bow (ULSTEIN)
- Two (2) CPP Main propellers aft. (ULSTEIN)
- Two (2) High Lift Rudders (BECKER)

### **SPEED LOG**

- One (1) set, Doppler speed log (dual axis), Sperry, SRD 421S
- One (1) set, Doppler speed log (single axis), Sperry, SRD 331

### **WEATHER FACSIMILE RECORDER**

- One (1) set, Furuno, Fax 214

### **NAVTEX RECEIVER**

- One (1) set, Sperry, NAV-5

### **RADIO STATION (SPERRY MARINE INC.)**

- In accordance with requirements for GMDSS - Radio station

## MAIN DIMENSIONS

Length overall	:	271.8	M	–	891'	8 3/4"
Length between perpendicular	:	258.0	M	–	846'	5 1/2"
Breadth moulded	:	46.0	M	–	150'	11 0"
Depth moulded	:	22.6	M	–	74'	1 3/4"
Designed draft (moulded)	:	14.8	M	–	48'	6 3/4"
Draft on summer freeboard (moulded)	:	15.3	M	–	50'	2 1/4"
Height from keel to top of highest mast/antenna	:	50.9	M	–	167'	0"
Lightship displacement	:	27,381	Tonnes			
Deadweight at summer draft	:	126,360	Tonnes			
Service speed	:	14.8	Knots			
Cruising range	:	12,000	S.M.			

## TONNAGE

	International	Suez
<b>Gross Tonnage</b>	76,216	77,492
<b>Net Tonnage</b>	34,631	68,413

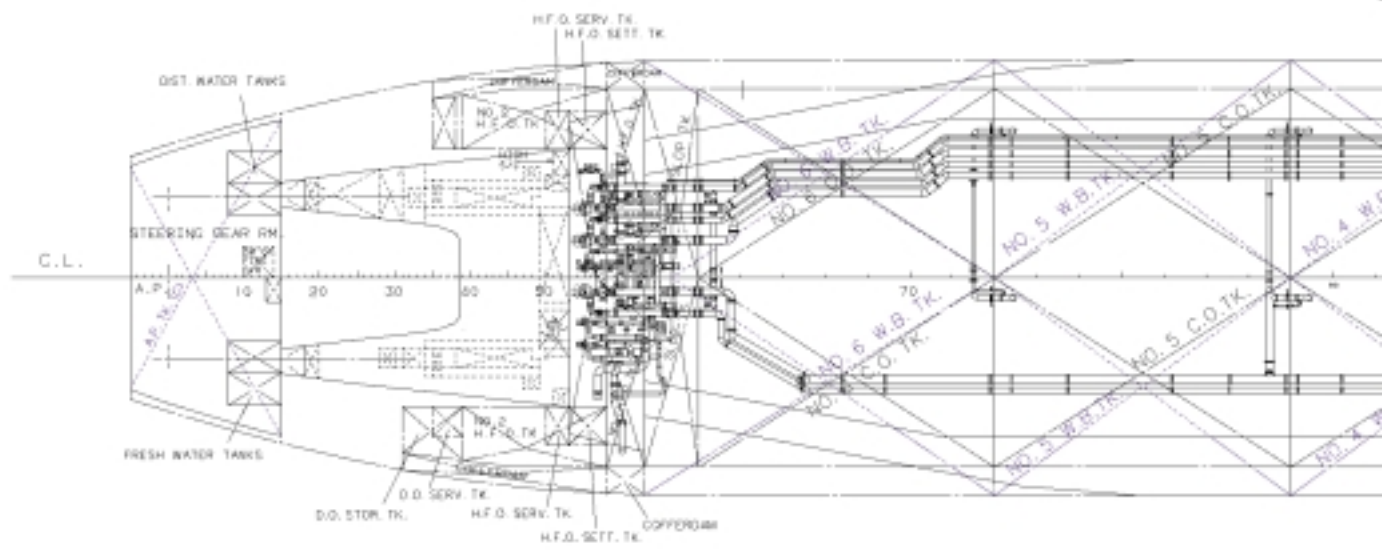
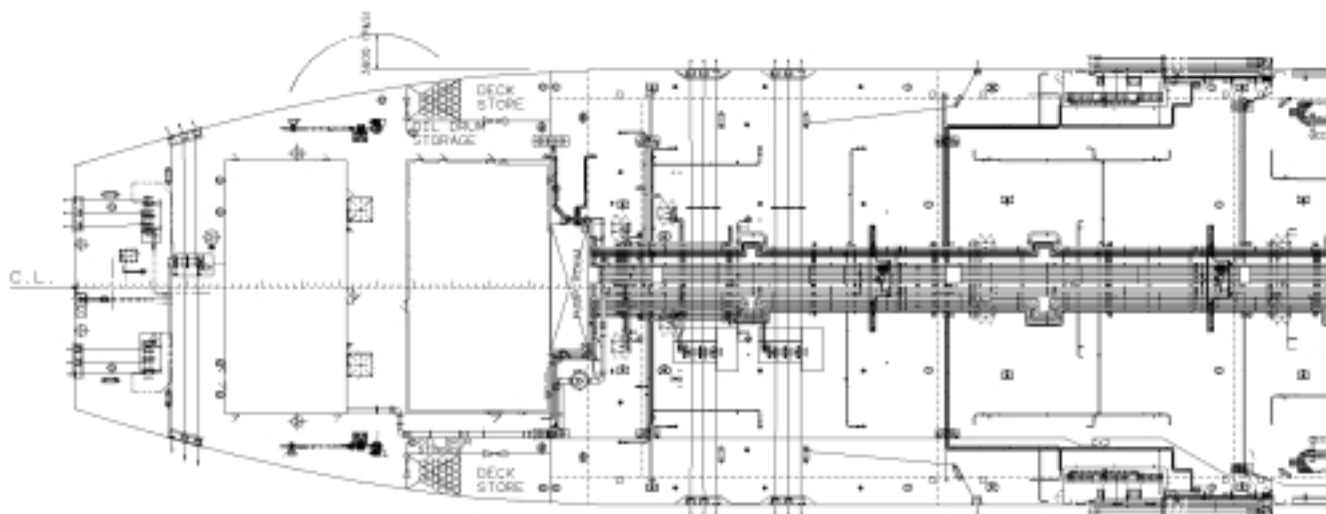
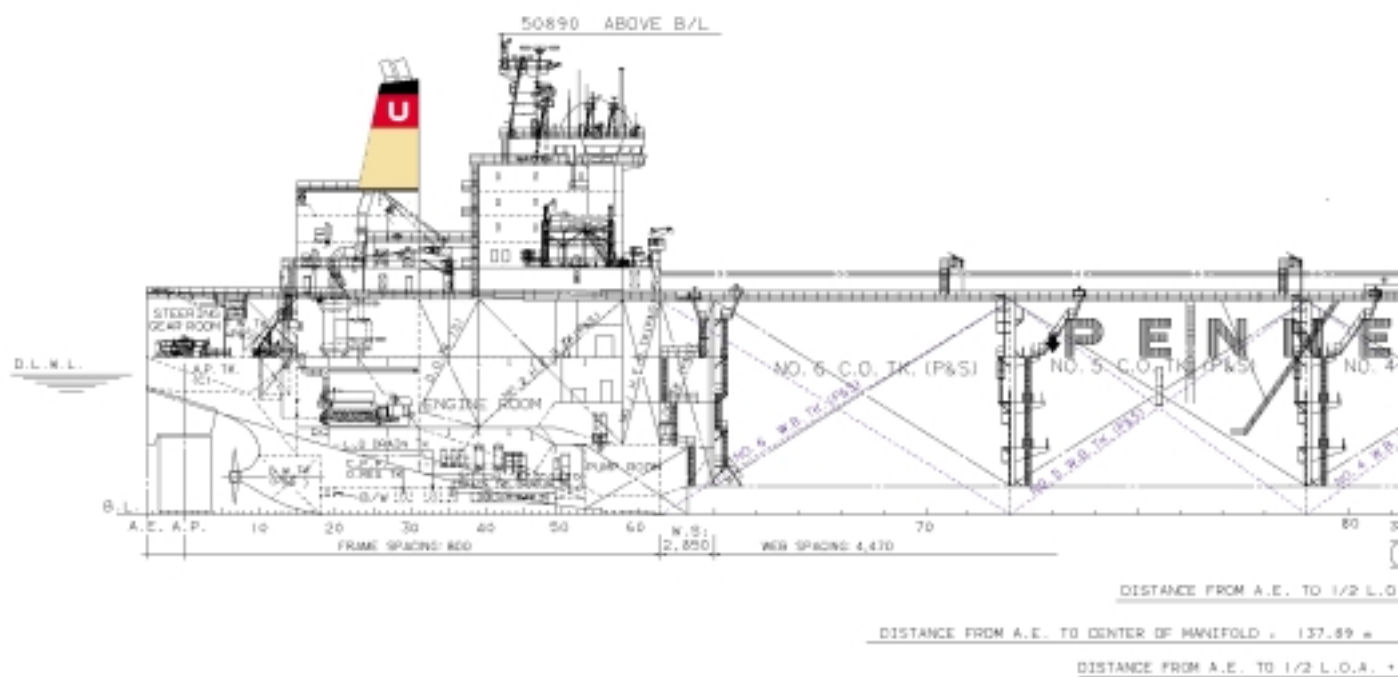
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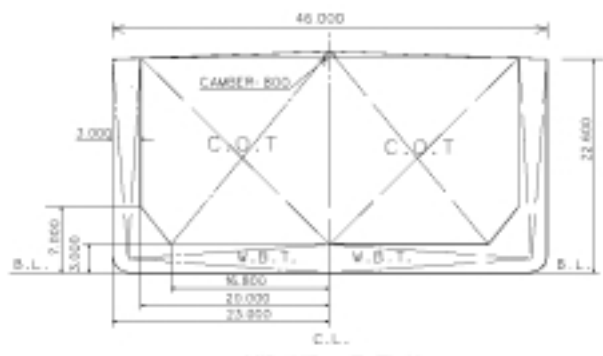
American Bureau Shipping  
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## MANIFOLD

Distance from bow to centre of manifold	:	133.91 M – (439' 4")
Distance from stern to centre of manifold	:	137.89 M
Distance from cargo manifold to side of vessel	:	4.60 M
Centre height of cargo manifold above deck	:	2.10 M
Number and diameter of manifold connections	:	Three (3) – ANSI 16"
Cargo reducers	:	16" x 16" – 6 pieces
		16" x 12" – 3 pieces
		16" x 10" – 3 pieces
		16" x 8" – 3 pieces

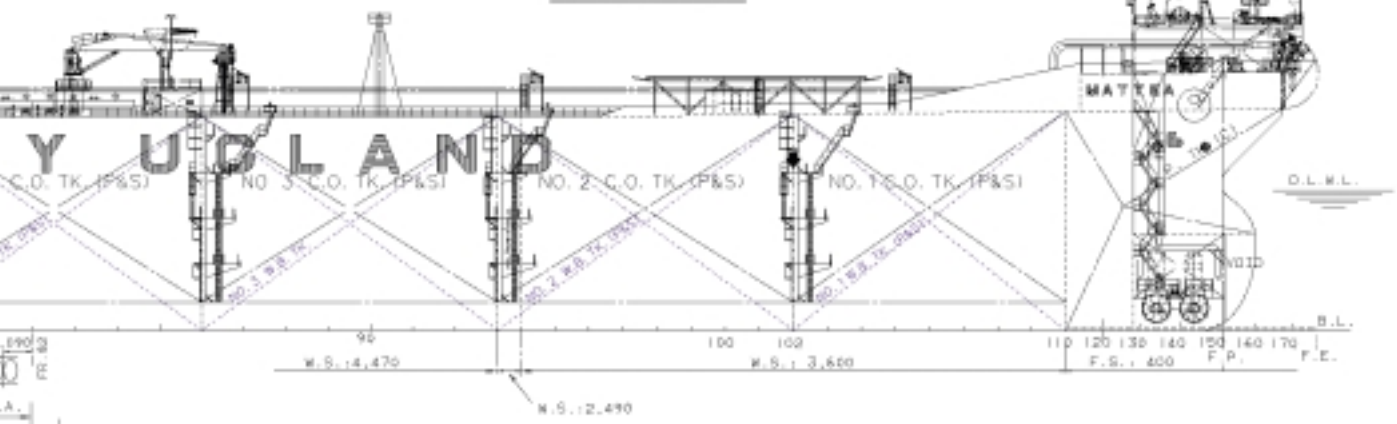




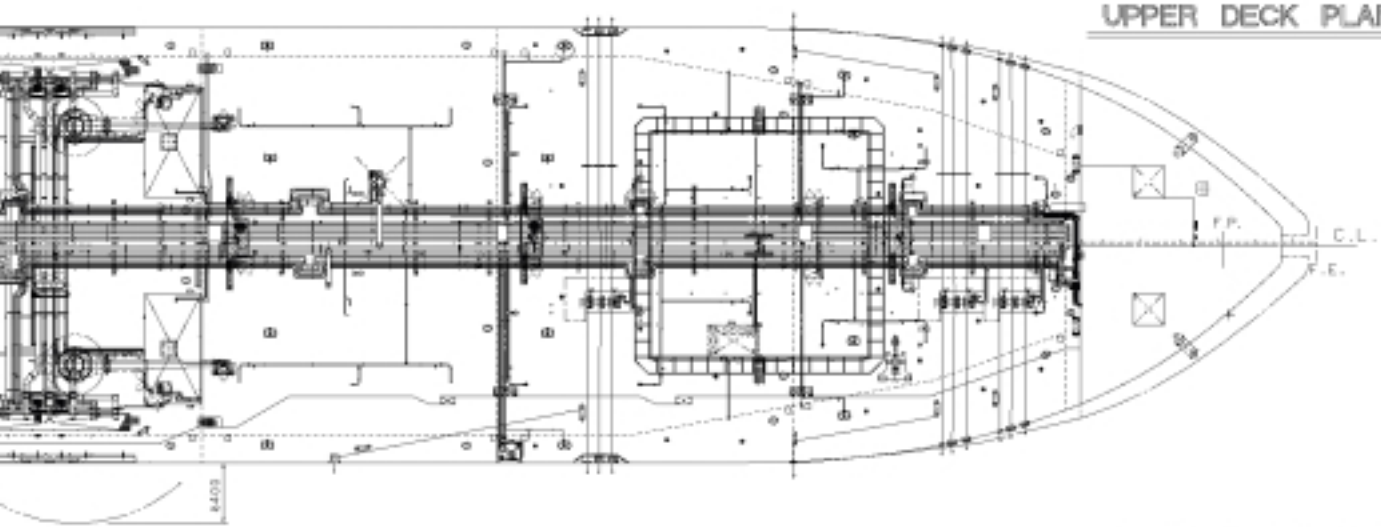


MIDSHIP SECTION

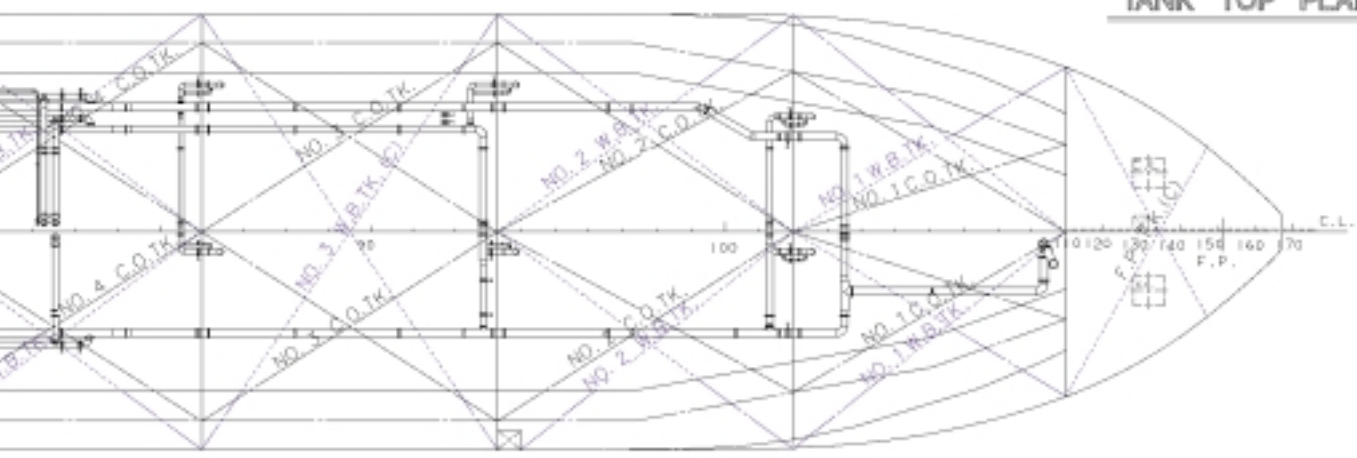
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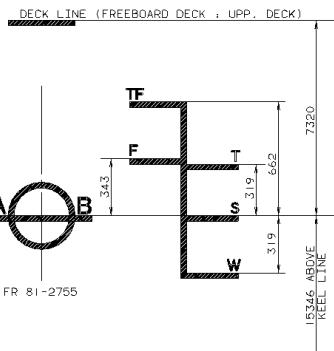
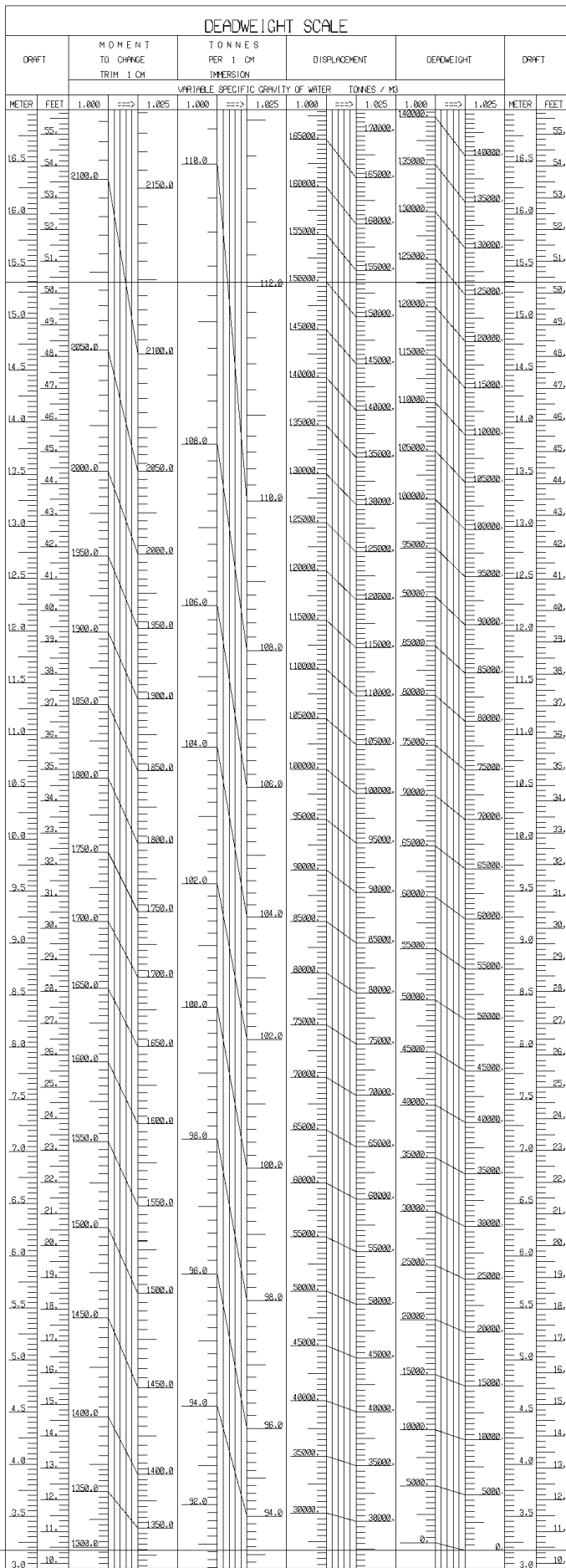


UPPER DECK PLAN



TANK TOP PLAN





**FREEBOARD, DRAFT & DEADWEIGHT TABLE**

F R E E B O A R D	FREEBOARD (MM)	DRAFT EXT. (MM)	FULL DISPLACEMENT (Tonnes)	DEADWEIGHT (Tonnes)
TROPICAL FRESH WATER TF	6,658.0	16,008.5	157,257.3	129,876.3
FRESH WATER F	6,977.0	15,689.5	153,756.1	126,375.1
TROPICAL T	7,001.0	15,665.5	157,330.0	129,949.0
SUMMER S	7,320.0	15,346.5	153,741.1	126,360.1
WINTER W	7,639.0	15,027.5	150,180.4	122,799.4

**MISCELLANEOUS OIL TANKS**

COMPARTMENT	LOCATION (FR. NO)	CAPACITIES		100% FULL		MAX. MOM. OF INERTIA (M <sup>4</sup> )	
		VOLUME 100% FULL (M <sup>3</sup> )	WEIGHT 100% FULL (Tonnes)	L. C. G. FROM A.P (M)	V. C. G. ABOVE B.L (M)		
S/T C. W.	TK.(P)	7-18	65.4	-	11.783	3.452	8
S/T C. W.	TK.(S)	7-18	65.4	-	11.783	3.452	8
L.O. PURIF. SLUDGE	TK.(P)	17-22	2.7	-	15.600	9.926	0
L.O. PURIF. SLUDGE	TK.(S)	22-27	2.7	-	15.150	9.926	0
HFO PURIF. SLUDGE	TK.(P)	17-21	3.6	-	19.350	9.926	1
HFO PURIF. SLUDGE	TK.(S)	21-27	3.8	-	19.000	9.926	1
C.C.P. OIL RES	TK.(P)	32-34	4.9	-	26.400	2.070	1
C.C.P. OIL RES	TK.(S)	28-30	4.9	-	23.200	2.070	1
BILGE HOLDING	TK.(P)	18-28	71.8	-	18.929	1.545	49
SEP. BILGE OIL	TK.(P)	28-31	29.4	-	23.619	1.576	34
F.O. OVERF.	TK.(C)	49-53	35.0	-	40.798	2.270	275
F.O. DRAIN	TK.(P)	47-49	2.2	-	38.400	2.320	0
F.O. DRAIN	TK.(S)	47-49	2.2	-	38.400	2.320	0
S/T L.O. DRAIN	TK.(P)	35-36	4.0	-	28.400	1.945	2
S/T L.O. DRAIN	TK.(S)	35-36	4.0	-	28.400	1.945	2
G/E L.O. OVERF.	TK.(P)	17-19	2.1	-	14.400	8.780	1
G/E L.O. OVERF.	TK.(S)	17-19	2.1	-	14.400	8.780	1
GRAY W.HOLD.	TK.(P)	35-38	49.0	-	29.215	18.560	30
L.O. DRAIN	TK.(S)	31-34	7.3	-	26.000	2.070	2
B/W (E/R AFT)	(P)	18-20	4.4	-	15.215	2.423	6
B/W (E/R AFT)	(S)	18-20	4.4	-	15.215	2.423	6
B/W (E/R FORE)	(P)	50-53	3.9	-	41.214	2.320	1
B/W (E/R FORE)	(S)	51-53	2.3	-	41.614	2.347	1
<b>T O T A L</b>			<b>377.6</b>	<b>-</b>			

**LUBRICATING OIL TANKS**

S.G.: 0.900

M/E L.O. SUMP.	TK. (P)	38-49	19.3	17.0	34.926	1.819	6
M/E L.O. SUMP.	TK. (S)	38-49	19.3	17.0	34.926	1.819	6
G/E L.O. STOR.	TK. (P)	19-23	18.0	15.9	16.800	19.163	1
G/E L.O. SETT.	TK. (P)	23-27	18.0	15.9	20.000	19.163	1
M/E L.O. STOR.	TK. (P)	19-23	34.7	30.6	16.800	19.223	10
M/E L.O. SETT.	TK. (P)	23-27	34.7	30.6	20.000	19.223	10
NO.1 CYL. O. STOR.	TK.(S)	46-50	31.8	28.0	38.400	19.270	10
NO.2 CYL. O. STOR.	TK.(S)	46-50	31.8	28.0	38.400	19.270	10
<b>T O T A L</b>			<b>207.6</b>	<b>183.0</b>			

**LIGHTSHIP DATA**

LIGHTWEIGHT : 27381.0 T.  
 DEQ : 3.171 M.  
 L.C.G. : 121.971 M. ( FROM A.P )  
 V.C.G : 13.074 M. ( ABOVE B.L )

## CARGO OIL TANKS

COMPARTMENT	LOCATION (FR. NO.)	CAPACITIES		98% FULL		MAX. MOMENT OF INERITA (M <sup>4</sup> )	
		VOLUME 100% FULL (M <sup>3</sup> )	VOLUME 98% FULL (M <sup>3</sup> )	L . C . G . FROM AP (M)	V . C . G . ABOVE B.L. (M)		
NO. 1	C. O. TK. (P)	102 - 110	7,746.6	7,591.7	225.585	13.095	7,137
NO. 1	C. O. TK. (S)	102 - 110	7,746.6	7,591.7	225.585	13.095	7,137
NO. 2	C. O. TK. (P)	93 - 102	11,769.8	11,534.4	196.460	12.991	18,624
NO. 2	C. O. TK. (S)	93 - 102	11,769.8	11,534.4	196.460	12.991	18,624
NO. 3	C. O. TK. (P)	86 - 93	12,289.5	12,043.7	165.615	12.977	20,860
NO. 3	C. O. TK. (S)	86 - 93	12,289.5	12,043.7	165.615	12.977	20,860
NO. 4	C. O. TK. (P)	79 - 86	12,289.5	12,043.7	134.325	12.977	20,860
NO. 4	C. O. TK. (S)	79 - 86	12,289.5	12,043.7	134.325	12.977	20,860
NO. 5	C. O. TK. (P)	72 - 79	12,289.5	12,043.7	103.035	12.977	20,860
NO. 5	C. O. TK. (S)	72 - 79	12,289.5	12,043.7	103.035	12.977	20,860
NO. 6	C. O. TK. (P)	65 - 72	11,916.2	11,677.9	71.992	13.201	20,860
NO. 6	C. O. TK. (S)	65 - 72	11,916.2	11,677.9	71.992	13.201	20,860
S L O P	TK. (P)	63 - 65	1,858.8	1,821.6	53.390	14.421	3,800
S L O P	TK. (S)	63 - 65	1,858.8	1,821.6	53.390	14.421	3,800
T O T A L			140,319.8	137,513.4			

## WATER BALLAST TANKS

S.G.: 1.025

COMPARTMENT	LOCATION (FR. NO.)	CAPACITIES		100% FULL		MAX. MOMENT OF INERITA (M <sup>4</sup> )	
		VOLUME 100% FULL (M <sup>3</sup> )	WEIGHT 100% FULL (Tonnes)	L . C . G . FROM AP (M)	V . C . G . ABOVE B.L. (M)		
FORE PEAK	TK. (C)	110 - F.E	6,149.0	6,302.7	247.497	14.018	26,791
NO.1	W. B. TK. (P)	102 - 110	5,127.5	5,255.7	226.691	9.932	14,709
NO.1	W. B. TK. (S)	102 - 110	5,127.5	5,255.7	226.691	9.932	14,709
NO.2	W. B. TK. (P)	93 - 102	4,580.7	4,695.2	197.898	7.383	31,009
NO.2	W. B. TK. (S)	93 - 102	4,431.5	4,542.3	198.416	7.328	29,938
NO.3	W. B. TK. (C)	86 - 93	8,229.0	8,434.7	165.615	6.645	253,804
NO.4	W. B. TK. (P)	79 - 86	4,114.5	4,217.4	134.325	6.645	31,725
NO.4	W. B. TK. (S)	79 - 86	4,114.5	4,217.4	134.325	6.645	31,725
NO.5	W. B. TK. (P)	72 - 79	4,041.0	4,142.0	103.226	6.738	30,231
NO.5	W. B. TK. (S)	72 - 79	4,041.0	4,142.0	103.226	6.738	30,231
NO.6	W. B. TK. (P)	63 - 72	3,905.8	4,003.4	69.859	7.809	17,196
NO.6	W. B. TK. (S)	63 - 72	3,905.8	4,003.4	69.859	7.809	17,196
AFTER PEAK	TK. (C)	A.E - 15	2,184.1	2,238.7	5.152	13.652	31,929
T O T A L			59,951.9	61,450.6			

## FRESH WATER TANKS

S.G.: 1.000

DIST.	W. TK. (OUT = P)	8 - 15	103.6	103.6	9.200	20.196	18
DIST.	W. TK. (IN = P)	8 - 15	105.8	105.8	9.200	20.254	18
POTABLE	W. TK. (OUT = S)	8 - 15	103.6	103.6	9.200	20.196	18
POTABLE	W. TK. (IN = S)	8 - 15	105.8	105.8	9.200	20.254	18
T O T A L			418.8	418.8			

## HEAVY FUEL OIL TANKS

S.G.: 0.980

COMPARTMENT	LOCATION (FR. NO.)	CAPACITIES		98% FULL		MAX. MOMENT OF INERITA (M <sup>4</sup> )	
		VOLUME 100% FULL (M <sup>3</sup> )	WEIGHT 98% FULL (Tonnes)	L . C . G . FROM AP (M)	V . C . G . ABOVE B.L. (M)		
NO. 1	H.F.O. STOR. TK. (P)	58 - 63	725.2	696.5	48.410	15.665	781
NO. 1	H.F.O. STOR. TK. (S)	58 - 63	725.2	696.5	48.410	15.665	781
NO. 2	H.F.O. STOR. TK. (P)	39 - 58	917.5	881.2	38.750	17.372	334
NO. 2	H.F.O. STOR. TK. (S)	39 - 58	917.5	881.2	38.750	17.372	334
H. F. O.	SERV. TK. (P)	49 - 53	54.2	52.1	40.800	14.571	33
H. F. O.	SERV. TK. (S)	49 - 53	54.2	52.1	40.800	14.571	33
H. F. O.	SETT. TK. (P)	53 - 58	67.8	65.1	44.400	14.571	41
H. F. O.	SETT. TK. (S)	53 - 58	67.8	65.1	44.400	14.571	41
T O T A L			3,529.5	3,389.8			

## DIESEL OIL TANKS

S.G.: 0.900

D. O.	STOR. TK. (S)	31 - 39	203.3	179.3	27.434	16.985	37
D. O.	SERV. TK. (S)	35 - 39	105.2	92.8	29.627	19.664	41
T O T A L			308.5	272.1			