

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

N^o 101414.

25 NOV 1932

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having

Poop and Forecastle Decks.

Port of Survey Liverpool (Birkenhead)Date of Survey NOVEMBER 1932.Name of Surveyor J. Stillman
I. Richardson

Ship's Name

"SAN DARIO"

(Type of Superstructures.)

Nationality and Port of Registry

British
London.

Official Number

142290.

Gross Tonnage

1137.

Date of Build

1918.1.

Moulded Dimensions: Length 210.0 ✓ Breadth 34.0 Depth 16'6" ✓
 Moulded displacement at moulded draught = 85 per cent. of moulded depth 2200 tons
 Coefficient of fineness for use with Tables .769

Particulars of Classification 100.A.1. with freeboard
Carrying petroleum in bulk
S.S. Shl. No 3 - 4.30.

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	16.5	(a) Where D is greater than Table depth (D - Table depth) R =		Moulded Breadth (B)	34.0
Stringer plate	.04	(16.54 - 14.00) 1.615 =	4.10	Standard Round of Beam = $\frac{B \times 12}{50}$	8.16
Sheathing on exposed deck		(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	9"
$T \left(\frac{L-S}{L} \right) =$	✓			Difference	.84
Depth for Freeboard (D) =	16.54	If restricted by superstructures		Restricted to	
				Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right)$	$\frac{.84}{4} \times .2703 = -.06$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed <u>Side</u>	53'-6"	53.5	7'-0"	✓	53.5
" <u>overhang Centre</u>	67'-0"				
R.Q.D. enclosed					
" <u>overhang</u>					
Bridge enclosed					
" <u>overhang aft</u>					
" <u>overhang forward</u>					
Fore enclosed <u>Side</u>	40'-6"	40.5	7'-0"	-	40.5
" <u>overhang Centre</u>	55'-0"				
Trunk aft					
" <u>forward</u>	88'-0"	59.25	7'-0"	-	59.25
Tonnage opening aft					
" <u>forward</u>					
Total	94.0	153.25			153.25

Standard Height of Superstructure	6.0
" " R.Q.D.	
Deduction for complete superstructure	27.00
Percentage covered $\frac{S}{L} =$	44.76
" " $\frac{S_1}{L} =$	72.97
" " $\frac{E}{L} =$	72.97
Percentage from Table, Line A. (corrected for absence of fore-castle (if required))	
Percentage from Table, <u>Line B. Tanker</u>	66.65
(corrected for absence of fore-castle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction =	- 18.00

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Actual Ordinate	Effective Ordinate	S	Product
A.P. ...	31.00	1	31.00	18	18.00	1	18.00
1/4 L from A.P. ...	13.79	4	55.16	9 1/2	9.48	4	37.92
3/4 L " ...	3.41	2	6.82	2 1/2	2.37	2	4.74
Amidships ...		4				4	
3/4 L from F.P. ...	6.82	2	13.64	5	4.74	2	9.48
1/4 L " ...	27.59	4	110.36	17	18.96	4	75.84
F.P. ...	62.00	1	62.00	36	36.00	1	36.00
Total			278.98				181.98

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{97}{18} (.75 - .2238) = +2.84$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft.

Deduction for Tropical Freeboard.
 Addition for Winter and Winter North Atlantic Freeboard.

Ft.
 Depth to Freeboard Deck = 16.54
 Summer freeboard = 1.27
 Moulded draught (d) = 15.27

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 3.82 3 3/4"
 Addition for Winter North Atlantic Freeboard (if required) = 2.1 2"

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 2433$

Tons per inch immersion at summer load water line

 $T = 14.93$ Deduction = $\frac{\Delta}{40T}$ inches $= 4.07$

4"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

Depth Correction	4.10	-
Deduction for superstructures	-	18.00
Sheer correction	2.84	-
Round of Beam correction	-	.06
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc.	-	-
	6.94	18.06
Summer Freeboard =		15.20

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc	7 3/4
Fresh Water Line	4
Tropical Line	3 3/4
Winter Line below	3 3/4
Winter North Atlantic Line	5 3/4

Tropical Fresh Water Freeboard	0 - 7 1/2
Fresh Water	0 - 11 1/4
Tropical	0 - 11 1/2
Winter	1 - 7
Winter North Atlantic	1 - 9

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway		10 HATCHES to CARGO TANKS.	(A)	2 HATCHES to FWD COFFER DAM.	(B)	2 HATCHES to BUNKER TANK.	(C)	2 HATCHES to STORES.	(D)
Dimensions of Hatchway		3'-0" x 2'-8 1/2"		2'-1" x 1'-4"		2'-6" x 2'-6"		3'-2" x 3'-2"	
COAMINGS	Height above Deck	8 x 3 1/2 x 3 1/8" Lin.		do.		do.		do.	
	Thickness								
	Sides								
	Ends								
Stiffeners									
Brackets, Stays									
HATCH BEAMS	Number								
	Spacing								
	Scantling and Sketch								
	Bearing Surface								
FORE AND AFTERS	Number								
	Spacing								
	Unsupported Lengths								
	Scantling* and Sketch								
Bearing Surface									
HATCH COVERS	Material	5/16" plate.		5/16" plate.		5/16" plate.		5/16" plate.	
	Thickness								
	How fitted								
	Bearing Surface								
Spacing of Cleats		12 wing nuts.		6 hinged bolts.		8 hinged bolts.		10 hinged bolts.	
Number of Tarpaulins		4 hinged bolts.		4 wing nuts.		4 wing nuts.		2 hinges.	
*Are wood fore and afters steel shod at all bearing surfaces? Are battens and wedges efficient and in good condition? Are tarpaulins in good condition and in accordance with rule requirements? Are lashings provided in accordance with rule requirements?									

Particulars of fiddle, funnel and ventilator coamings:—

Fiddle gratings covered with *hinged steel covers*
 Funnel & ventilator coamings are in good condition.
 Engine room skylight is of steel & is good.

Particulars of Flush Bunker Scuttles:—

NONE.

Particulars of Companionways:—

5'-9" head of 3/16" steel plating closed by 4'-0" x 1'-11" steel door 18" sill.
 Situated abaft. Bridge house.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

1" 15; 1'-10" Coaming. 11" DIA. 1/4" T. to Fore Hold.
 1" 15; 1'-10" 6" 1/4" T. to Paint Locker. *wood plug fitted canvas cover*
 6" 6 1/2; 1'-2" 6" to Fwd. Accommodation. (Pake R. N. cowls). 7" 7 1/2; 1'-2" h. 6" D. Ap. Accom. R.N.
 1" 15; 1'-2" 10" DIA. do. do. 1" 15; 1'-2" 8" do. Type
 1" 15; 1'-6" 13" DIA. do. do. 1" 15; 1'-6" 8" 1/4" T. to Ap. accom
 1" 15; 7" 4" to Fwd Accommodation. do. ALL Ventilators have wood plugs & canvas covers except R.N. pattern Ventil.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

Bunker & Cargo tank air pipes in hatch lids, 12" above trunk deck; fitted with gauge covers.
2 made

Particulars of Gangway Cargo and Coaling Ports:—

NONE.



© 2020

Lloyd's Register
Foundation

Particulars of Scuppers and Sanitary Discharge Pipes :-

All Sanitary Discharge Pipes are fitted with nonreturn valves.

Particulars of Side Scuttles :-

Side Scuttles in Poop & Forecastle are fitted with efficient deadlights.

Particulars of Guard Rails :-

3'-4" high spaced 6'-0" with 2 wire ropes on Poop, Trunk & Forecastle

3'-4 1/2" high spaced 6'-0" with 2 wire ropes on foreboard deck.

Particulars of Gangways, Lifelines, etc. :-

Poop & Forecastle are joined by trunk top at same level, with efficient rails & stanchions surrounding trunk top.

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well ...	✓					
Forward Well ...	✓					

State position of each freeing port (F. and A. position and height above deck edge) } After Well :-
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :- } Forward Well :-
 Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...		1/2"	6" x 3" x 38 BA	2'-5"	16" x 16" x 38 knees.	✓	✓	7'-0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...								
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead ...		1/2"	6" x 3" x 38 BA	2'-5"	16" x 16" x 38 knees.	✓	✓	7'-0"
Trunk, Aft ...								
Trunk, Forward ...		1/2"	6" x 3" x 38 BA	2'-5"	16" x 16" x 38 knees.	✓	✓	7'-0"
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...								
Exposed Machinery Casings on Super-structure Decks ...	5/16"	1/4"	4" x 3" x 3/8"	2'-6"	None.	4'-3" x 2'-0" 4'-6" x 2'-0"	18"	7'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	✓	1/4"	4" x 3" x 3/8"	2'-6"	None.	4'-7" x 2'-0"	18"	7'-0"
Deckhouses on Flush Deck Ships ...	Vert. plating	1/4"	✓	✓	✓	5'-0" x 2'-0"	14"	6'-10"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

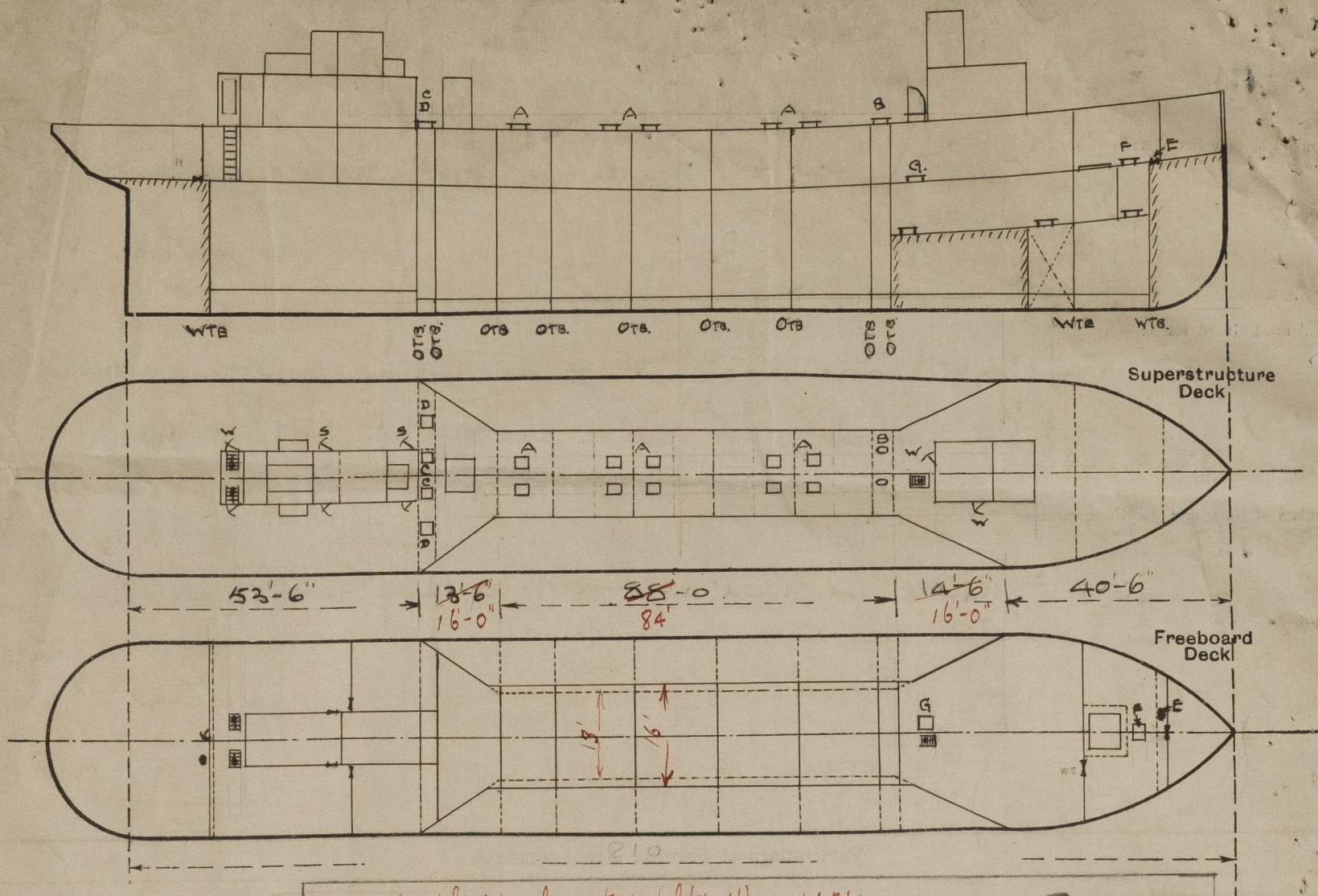
Poop Bulkhead ...	✓ None
Raised Quarter Deck Bulkhead ...	✓
Bridge, After Bulkhead ...	✓
Bridge, Forward Bulkhead ...	✓
Forecastle Bulkhead ...	✓ None
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	2 P. 2 S. 10 Eng. abt. sp. Steel doors operated both sides.
Exposed Machinery Casings on Super-structure Decks ...	1 P. 1 S. 10 Acc. accommodation strongly constructed wood doors operated both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	1 P. 1 S. steel door operated both sides.
Trunk	
Deckhouses on Flush Deck Ships ...	1 P. 1 A. Strongly constructed sliding wood doors



© 2020

Lloyd's Register Foundation

Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



mean breadth of trunk @ standard lat (= 6') = 14.71'
 " " " " tapered ends = $\frac{34 + 14.71}{2} = 24.35$

Trunk aft $16 \times 24.35 = 389.6$

Fwd $16 \times 24.35 = 389.6$

Parallel part $84 \times 14.71 = 1235.6$

$\frac{1235.6}{20.48} = 59.25$

State any special features in the construction of the ship:—

E 1'-5" x 2'-0" door 7 x 3 x 3/8" B.A. coaming 1/2" plate cover 6 hinged bolts to Fore Peak Tank.

F 2'-5" x 2'-5" hatch 7 x 3 x 3/8" B.A. coaming 5/16" plate cover 6 hinged bolts to Hold.

G 4'-0" x 3'-0" hatch 7 x 3 x 3/8" B.A. coaming 5/16" plate cover 8 hinged bolts to Fwd. Pump Room.

H as E, to aft. peak tank.

S. Steel Doors.

W. Wood. Doors.

Builder's name and yard number

Short Bros. Ltd. Sunderland.

Yard number 412.

Names of sister ships

Owners

Eagle Oil and Shipping Co. Ltd.

Fee £

8 : 10 : 0.

Received by me



© 2020

Lloyd's Register Foundation