

MAY 10 1937

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(For London Office only.)

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Poop, Bridge and Forecastle

Port of Survey Alco

Date of Survey 3rd May 1937

Name of Surveyor Oliver Tybrian

Particulars of Classification 100 A1  
Rated for carrying whole grain or other oil in bulk

Ship's Name MERCATOR (Type of Superstructures.)

Nationality and Port of Registry Finnish Helsingfors 51.75

Gross Tonnage 44661 Date of Build 1920

Moulded Dimensions: Length 117.35 Breadth 15.77 Depth 8.92 met

Moulded displacement at moulded draught = 85 per cent. of moulded depth 11069 tons

Coefficient of fineness for use with Tables .482

Depth for Freeboard (D) 29.25

Moulded depth ... 8.92

Stringer plate ... 16.7

Sheathing on exposed deck .04

$T \left( \frac{L-S}{L} \right) =$

Depth for Freeboard (D) = 29.29

Depth correction

(a) Where D is greater than Table depth  
(Table depth) R =  $(29.29 - 25.67) 2.962 = + 10.72$

(b) Where D is less than Table depth (if allowed)  
(Table depth - D) R =  $3.62$

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) 15.77

Standard Round of Beam =  $\frac{B \times 12}{50} = 12.42$

Ship's Round of Beam = 330.2

Difference 13.00

Restricted to .58" excess

Correction =  $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.58}{4} \times .4978 = -.07$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>33.50</u>	<u>33.50</u>	<u>8.0</u>	<u>2.44</u>	<u>33.50</u>
" overhang ...	<u>10.21</u>				
R.Q.D. enclosed ...					
" overhang ...	<u>114.83</u>	<u>114.83</u>	<u>8.0</u>	<u>2.44</u>	<u>114.83</u>
Bridge enclosed ...	<u>38.00</u>	<u>38.00</u>	<u>8.0</u>	<u>2.44</u>	<u>38.00</u>
" overhang aft ...					
" overhang forward ...	<u>45.00</u>	<u>45.00</u>	<u>8.0</u>	<u>2.44</u>	<u>45.00</u>
File enclosed ...	<u>13.72</u>	<u>13.72</u>	<u>8.0</u>	<u>2.44</u>	<u>13.72</u>
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" " forward ...					
Total ...	<u>193.33</u>	<u>193.33</u>			<u>193.33</u>

Standard Height of Superstructure 7.35'

" " R.Q.D.

Deduction for complete superstructure 41.00"Percentage covered  $\frac{S}{L} = 50.22$ " "  $\frac{S_1}{L} = 50.22$ " "  $\frac{E}{L} = 50.22$ Percentage from Table, Line A.  
(corrected for absence of forecastle (if required))Percentage from Table, Line B. 36.22  
(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required)

Deduction =  $41 \times .3622 = - 14.85$ 

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>48.50</u>	1		<u>48.50</u>	<u>62.00</u>	<u>62.00</u>	1		<u>62.00</u>
L from A.P. ...	<u>21.58</u>	4		<u>86.32</u>	<u>25.50</u>	<u>25.50</u>	4		<u>102.00</u>
$\frac{3}{8}$ L " ...	<u>5.34</u>	2		<u>10.68</u>	<u>3.50</u>	<u>3.50</u>	2		<u>7.00</u>
Amidships ...		4					4		
$\frac{3}{8}$ L from F.P. ...	<u>10.68</u>	2		<u>21.36</u>	<u>4.00</u>	<u>4.00</u>	2		<u>8.00</u>
$\frac{1}{8}$ L " ...	<u>43.16</u>	4		<u>172.64</u>	<u>45.50</u>	<u>45.50</u>	4		<u>182.00</u>
F.P. ...	<u>97.00</u>	1		<u>97.00</u>	<u>125.00</u>	<u>125.00</u>	1		<u>125.00</u>
Total ...				<u>436.50</u>					<u>486.00</u>

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{49.50}{18} \left( .75 - \frac{.2511}{.4984} \right) = - 1.37$ 

If limited on account of midship superstructure.

If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

## Deduction for Tropical Freeboard.

## Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 29.29 Ft.

Summer freeboard = 5.52

Moulded draught (d) = 23.77

## Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = 5.94Addition for Winter North Atlantic Freeboard (if required) = ✓

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$ 

Tons per inch immersion at summer load water line

T =

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

=

## TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient  $\frac{.782 + .68}{1.36} = \frac{1.462}{1.36}$ 

+ -

Depth Correction ... 10.72Deduction for superstructures ... 14.85Sheer correction ... 1.37Round of Beam correction ... .07

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, etc. ...

10.72 16.29 - 5.57

Summer Freeboard = 66.35

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

Existing freeboards have been reassigned, being more favourable than those computed under Convention Regulations.

Tropical Fresh Water Line above Centre of Disc ... 292 mmFresh Water Line " " ... 152Tropical Line " " ... 140Winter Line below " " ... 127Winter North Atlantic Line " " ... ✓Tropical Fresh Water Freeboard ... 1397Fresh Water " " ... 1537Tropical " " ... 1549Winter " " ... 1816

Winter North Atlantic " " ...



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS.												
Coal shoot												
Description of Hatchway	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions of Hatchway	...	...	...	...	...	...	...	...	...	...	...	...
COAMINGS	Height above Deck	...	...	...	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...	...	...	...
	Sides	...	...	...	...	...	...	...	...	...	...	...
	Ends	...	...	...	...	...	...	...	...	...	...	...
	Stiffeners	...	...	...	...	...	...	...	...	...	...	...
HATCH BEAMS	Brackets, Stays	...	...	...	...	...	...	...	...	...	...	...
	Number	...	...	...	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...	...	...	...
FORE AND AFTERS	Number	...	...	...	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...	...	...	...
	Scantling* and Sketch	...	...	...	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...	...	...	...
HATCH COVERS	Material	...	...	...	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...	...	...	...
	How fitted	...	...	...	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...	...	...	...
	Spacing of Cleats	...	...	...	...	...	...	...	...	...	...	...
Number of Tarpaulins		...	...	...	...	...	...	...	...	...	...	...
*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 fiddley, funnel and ventilator coamings:— The fiddley openings closed by hinged steel covers. Funnel + vent. Coamings on the top of casing in good condition

Particulars of Flush Bunker Scuttles:— None

Particulars of Companionways:— Deckhouse on the poop deck. Doors of teak and the sides 430 mm

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— On forecabin one vent.  $\phi = 1.04$   $\phi = 210$  + one  $\phi = 0.21$   $\phi = 180$  Z. In the fore. well 8 vent.  $\phi = 950$  -  $\phi = 440$  Z. On the bridge dk. 3 vent.  $\phi = 770$  -  $\phi = 450$  Z. In the after well 2 "  $\phi = 5000$  -  $\phi = 450$  Z (Berth ports) On the poop deck 2 "  $\phi = 920$  -  $\phi = 250$  Z + 4 vent.  $\phi = 950$  -  $\phi = 440$  Z. " " "  $\phi = 400$  -  $\phi = 150$  Z. " " "  $\phi = 180$  -  $\phi = 150$  Z.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:— On forecabin dk. One  $\phi = 60$  Z,  $\phi = 240$  Z. In fore. well 4  $\phi = 60$  Z,  $\phi = 940$  Z. On bridge dk 2  $\phi = 60$  Z,  $\phi = 600$  Z. In after well 4  $\phi = 55$  Z,  $\phi = 800$  Z. " " " One  $\phi = 55$  Z,  $\phi = 620$  Z.

Particulars of Gangway Cargo and Coaling Ports:— None.



	11	12	13	14
1060-1630	1520-800	1230-920	1050-907	
820	750	250	410	16
10	9	12	9	
10	9	12	9	
-	-	-	-	
-	-	-	-	
wood	wood	wood	wood	
75	65	65	60	
F&A	other	other	F&A	
35	80	75	70	
630	530		720	
2	2	2	2	

0198 <sup>2</sup>/<sub>3</sub>



Angra.

3 x 150 x 80 Z in forward and after well on each side.

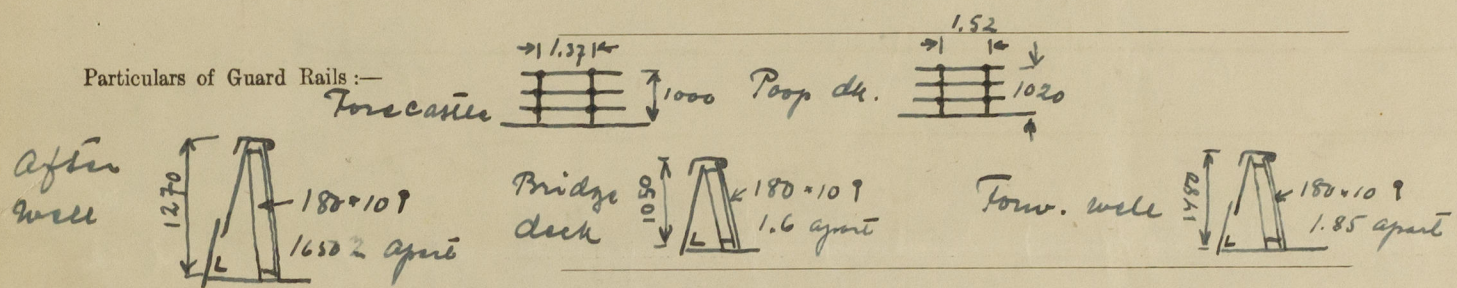
Particulars of Scuppers and Sanitary Discharge Pipes :-

2 Sanitary Discharge pipes outside of the poop with outlets above upper deck not fitted with non-return valves but all discharge pipes from the accommodations on the bridge deck, outlets above the upper deck, provided with non-return valves.

Particulars of Side Scuttles :-

Side scuttles fitted only in the poop and all provided with hinged deadlights

Particulars of Guard Rails :-



Particulars of Gangways, Lifelines, etc. :-

Lifelines can be fitted to the rails on the Forecastle, bridge and poop. Eyeballs fitted on poop bridge & forecastle bulkheads.

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 ... ..	29.19 m	1270	710 x 465 Z	6	1.99 m <sup>2</sup>	1.77 m <sup>2</sup>
Forward Well ... ..	27.92	1480	710 x 465 Z	6	1.99 m <sup>2</sup>	1.70 m <sup>2</sup>
State position of each freeing port ... .. (F. and A. position and height above deck edge) } After Well: Poop B. 2400, Midg. B. 3402 above deck, Fore. B. 440 Z " "						
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :- } In after well one bar but in forward well none fitted.						
Additional area where sheer is less than standard.						

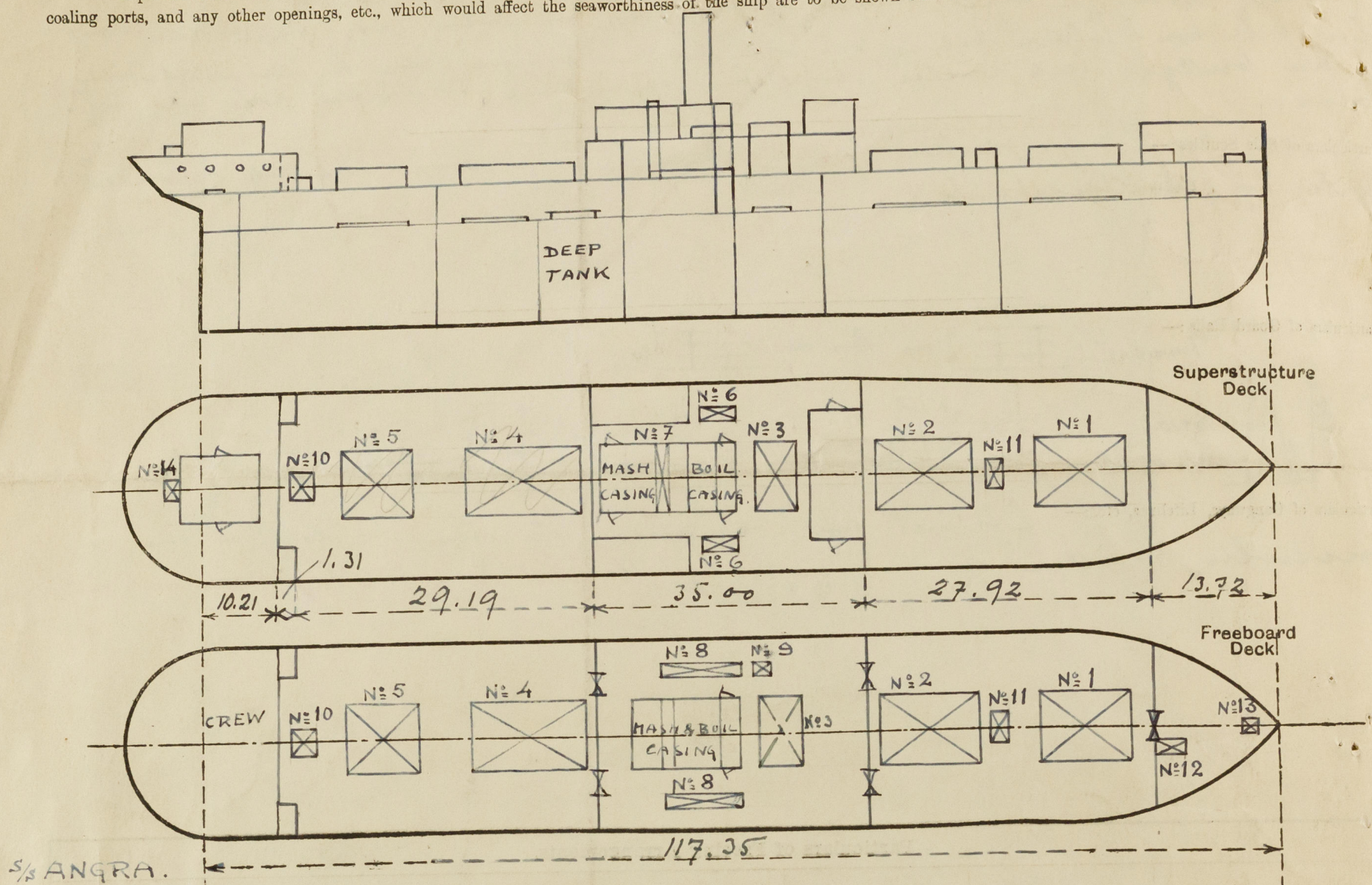
Particulars of Superstructures, Trunks, Casings, Deckhouses.								
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ... ..	780 Z	10 Z	150 x 80 x 11 L	750 Z	—	—	—	2440
Raised Quarter Deck Bulkhead ...	—	10	80 x 80 x 10 L	700 Z	—	2 x 2280 x 1220	—	2440
Bridge, After Bulkhead ... ..	810 Z	10	200 x 75 x 15 L	760 Z	400 x 400 x 11	2 x 1490 x 760	490	2440
Bridge, Forward Bulkhead ... ..	—	8	80 x 80 x 8 L	750 Z	—	2300 x 1200	—	2440
Forecastle Bulkhead ... ..	—	—	—	—	—	—	—	—
Trunk, Aft ... ..	—	—	—	—	—	—	—	—
Trunk, Forward ... ..	—	—	—	—	—	—	—	—
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	—	—	—	—	—	—	—	—
Exposed Machinery Casings on Superstructure Decks ... ..	1100	8	80 x 80 x 9 L	740 Z	300 x 300 Z	4 x 1400 x 630	460	2200
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	860	8	80 x 80 x 9 L	740 Z	Continued	2 x 1500 x 630	440	2440
Deckhouses on Flush Deck Ships ...	—	—	—	—	—	—	—	—

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

Poop Bulkhead ... ..	None No openings
Raised Quarter Deck Bulkhead ...	—
Bridge, After Bulkhead ... ..	Closed by steel plates and hook-bolts 7/8" spaced 330 Zm.
Bridge, Forward Bulkhead ... ..	Closed by hinged steel doors and 3/4" bolts spaced 412 Zm.
Forecastle Bulkhead ... ..	Closed by steel plate and hook-bolts 7/8" spaced 330 Zm.
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	—
Exposed Machinery Casings on Superstructure Decks ... ..	Closed by hinged teak-doors operated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	Closed by hinged steel-doors operated from both sides.
Deckhouses on Flush Deck Ships ...	—



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 shewn on the following sketches:—



State any special features in the construction of the ship:— The deep tank hatchways closed by w.c. steel covers. The special survey no. 1 will be completed next week.

Builder's name and yard number

Litgows Ltd, Port Glasgow

Names of sister ships

Owners

Rederi A/S Atlanta

Fee £

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