

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

 M. 21461.
-1 OCT 1932

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *Poop Bridge and forecastle full scantling*

(Type of Superstructures.)

Ship's Name "KOTA BAROE"	Nationality and Port of Registry <i>Dutch Rotterdam</i>	Official Number <i>7214</i>	Gross Tonnage <i>7214</i>	Date of Build <i>2/1929</i>
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Moulded Dimensions: Length $448'4" = 136.64^m$ Breadth $60'8" = 18.44^m$ Depth $33'6" = 10.210^m$

Moulded displacement at moulded draught = 85 per cent. of moulded depth 16328 tons

Coefficient of fineness for use with Tables $.440$

Port of Survey *Rotterdam*

Date of Survey *29/9/32*

Name of Surveyor *P. Kemmerling*

Particulars of Classification *+100 A1-*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth 10.210^m	(a) Where D is greater than Table depth (D - Table depth) R = $8.33 (10.245 - 9.109) 30 = + 284 \frac{1}{4}$	Moulded Breadth (B) 18.44
Stringer plate $.011$	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times R}{50} = \frac{18.44 \times 369}{50} = 136.9$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = .054 \times 1154 = .024$	If restricted by superstructures	Ship's Round of Beam = 0.381
Depth for Freeboard (D) = 10.245		Difference 12
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{12}{4} \times \left(1 - \frac{.381}{18.44} \right) = 2.29$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	15.392	15.392	2.210	2.264	15.238
" overhang			4.057	2.290	
R.Q.D. enclosed					
" overhang					
Bridge enclosed	45.420	45.420	2.362		45.420
" overhang aft	2.18	2.18	4.057		2.18
" overhang forward	15.768	15.768	2.286		15.548
F'cle enclosed	15.768	15.548	2.286		15.548
" overhang	2.440	1.220	4.057		1.220
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	99.852	98.149			98.025

Standard Height of Superstructure	2.29
" " R.Q.D.	
Deduction for complete superstructure	1064
Percentage covered $\frac{S}{L} = 58.43$	
" " $\frac{S_1}{L} = 54.21$	57.21
" " $\frac{E}{L} = 54.10$	57.10
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. 43.10 (corrected for absence of forecastle (if required))	
Interpolation for bridge less than $2L$ (if required)	
Deduction = $1064 \times .4310 = - 460 \frac{1}{4}$	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	1392	1		1392	840	840	1		840
$\frac{1}{2}L$ from A.P.	620	4		2480	365	365	4		1460
$\frac{2}{3}L$ "	153	2		306	90	90	2		180
Amidships		4			0		4		
$\frac{2}{3}L$ from F.P.	306	2		612	375	332	2		664
$\frac{1}{2}L$ "	1239	4		4956	1495	1335	4		5340
F.P.	2784	1		2784	3350	2994	1		2994
Total				12530					11481

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{1049(.75 - .2921)}{18} = .4579$

If limited on account of midship superstructure.

Mean actual sheer aft = 3411
Mean standard sheer aft = 2705
% of diff. allowed a for. sum = $\frac{742}{25} = 29.68$

Mean actual sheer forward = 1460
Mean standard sheer forward = 180

Length of enclosed superstructure forward of amidships = L

Actual sheer aft	3350	1495	375
Standard	2784	1239	306
Diff	566	256	69
375 - diff	213	96	26
Standard	2784	1239	306
Allowed	2994	1335	332

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 =	10.221
Summer freeboard =	2.120
Moulded draught (d) =	8.101

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{48}$ inches = $.17$ in.

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 15200$
Tons per inch immersion at summer load water line

T = 53.4

Deduction = $\frac{\Delta}{40T}$ inches= $\frac{15200}{40 \times 53.4} = 18 \frac{1}{4}$ in.

from Builders at present

Summer draught 15/60 tons

per inch $T = 53.41$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

$.44 + .68 = 1.12$
 1.36

Depth Correction

Deduction for superstructures

Sheer correction

Round of Beam correction

Correction for Thickness of Deck amidships

Other corrections, scantlings, etc.

284
- 460
24
- 24
- 144

Summer Freeboard = 2123

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

Tropical Fresh Water Line above Centre of Disc ...	35.0
Fresh Water Line " " ...	18.0
Tropical Line " " ...	14.0
Winter Line below " " ...	14.0
Winter North Atlantic Line " " ...	14.0

Tropical Fresh Water Freeboard

Fresh Water " "

Tropical " "

Winter " "

Winter North Atlantic " "

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway	...	...	No. I	No. II	No. III	No. IV			
Dimensions of Hatchway	...	...	22'6" x 18'	30' x 18'	35' x 18'	22'6" x 18'			
COAMINGS	Height above Deck	...	30"						
	Thickness	Sides	44"						
	Stiffeners	...	44"						
	Brackets, Stays	...	2' x 3' x 40'						
HATCH BEAMS	Number	...	4	5	6	4			
	Spacing	...	equal						
	Scantling and Sketch	...	2' x 3' x 40'						
	Bearing Surface	...	3 1/2"						
FORE AND AFTERS	Number	...							
	Spacing	...							
	Unsupported Lengths	...							
	Scantling and Sketch	...							
HATCH COVERS	Material	...	Pine						
	Thickness	...	2 1/2"						
	How fitted	...	longitudinal						
	Bearing Surface	...	3 1/2"						
Spacing of Cleats	...	...	24"						
Number of Tarpaulins	...	...	two						

Particulars of fiddle, funnel and ventilator coamings:— All parts efficiently constructed and good.

Particulars of Flush Bunker Scuttles:— None fitted.

Particulars of Companionways:— One for forward deck entrance under forecabin, under bridge aft. and under poop. See sketch. 4'9" x 24" to 29" steel doors on hinges manipulated from both sides and in addition cleats fitted for permanent closing door sills 18".

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— On forecabin deck 4. No. 16 1/2 x 18" diam C. 36" x 36" all parts efficiently constructed and closed by steel caps and canvas covers. On forewell 9. No. 16 1/2 x 20" to 24" diam C. 36" x 40". On poop 1. No. 20" diam C. 36" x 40". On fore deck 2. No. 14" x 24" diam C. 36" x 36".

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:— Four masts for peaks, masts and deck tanks on forecabin in well and bridge and poop 132" x 36" x 30" can be closed by ringed lids & covers.

Particulars of Gangway Cargo and Coaling Ports:— None.

Particulars of Scuppers and Sanitary Discharge Pipes:— Scuppers and sanitary discharge pipes all fitted of steel and none return valves as per rules - substantial construction.

Particulars of Side Scuttles:— Substantial construction ringed deadlights under poop and forecabin portable deadlights.

Particulars of Guard Rails:— Prop. 4 Rods 4" 48" distance 4'6" strongly constructed. Forecabin 4" 48" 4'9" Forecabin 3" 42" 4'0". 9'4" distance 4'6" 4'0" in well.

Particulars of Gangways, Lifelines, etc.:— Ropes rigged up in bad weather.

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	95'	4'0"	3' x 1.5"	4	18 1/2	19 1/2
Forward Well	91'6"	4'0"	3' x 1.5"	4	18 1/2	18 1/2

State position of each freeing port equal divided. After Well:— 14" above fallway (F. and A. position and height above deck edge) Forward Well:— 14" above fallway. State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— 2 Rims and two strong rods. 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	10 1/2"	9 1/2"	2' x 3' x 38"	28"	Large top & bottom	5'5" free height	none	
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	9 1/2"	9 1/2"	2' x 3' x 38"	30"	none	42" x 62"	20"	
Bridge, Forward Bulkhead	11 1/2"	10 1/2"	2' x 3' x 50"	27" to 30"	Large top & bottom	42" x 48"	24"	
Forecabin Bulkhead	9 1/2"	9 1/2"	2' x 3' x 38"	30"	none	sea shelf		
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	20"	28"	2' x 3' x 20"	30"	Top & bottom	24" x 5'5"	18"	
Exposed Machinery Casings on Superstructure Decks	20"	28"	2' x 3' x 20"	30"	Top & bottom	24" x 5'5"	18"	8'6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	Wood boards 3" in riveted channels - centre support.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Steel portable plates fastened with hook bolts not through bulkhead plates.
Bridge, Forward Bulkhead	Steel W.T. Doors manipulated from outside.
Forecabin Bulkhead	Open see sketch.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	Steel doors manipulated from both sides.
Exposed Machinery Casings on Superstructure Decks	Do. Do. Do.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	

[illegible]

Overhang: $18668 - (.690 + 16.548)$
 $= 2.440$

$$\begin{array}{r} 26.58 \\ 26.52 \\ \hline .06! \end{array} = \begin{array}{r} 15160 \text{ Corn} \\ 100 \\ \hline 151700 \end{array}$$

Received by me *B. Levensburg*