

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

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

Port of Survey Antwerp

Date of Survey 16/11 September 1936

Name of Surveyor A. G. Setac

Particulars of Classification 100A1.
Ant-3-3124
Ant-201-29

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<u>FLANDRES</u>	<u>Belgian</u> <u>Antwerp</u>	<u>5827</u>	<u>5827</u>	<u>1914-3</u>

Moulded Dimensions: Length 422.5 Breadth 56 Depth 32.6

Moulded displacement at moulded draught = 85 per cent. of moulded depth 14218 tons

Coefficient of fineness for use with Tables .761

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	<u>32.50</u>	(a) Where D is greater than Table depth (D-Table depth) R = <u>32.65 - 28.16</u> = <u>4.49</u>		Moulded Breadth (B)	<u>56</u>
Stringer plate	<u>04</u>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <u>✓</u>		Standard Round of Beam = $\frac{B \times 12}{50}$	<u>13.44</u>
Sheathing on exposed deck	<u>11</u>			Ship's Round of Beam	<u>13.75</u>
$T \left(\frac{L-S}{L} \right) = 25 \times \frac{182.25}{422.5}$	<u>11</u>			Difference	<u>+ .31</u>
Depth for Freeboard (D) =	<u>32.65</u>	If restricted by superstructures <u>✓</u>		Restricted to	
				Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right)$	<u>= $\frac{.31}{4} \times .4409 = .03$</u>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>59.50</u>	<u>59.50</u>	<u>8'0"</u>	<u>✓</u>	<u>59.50</u>
" overhang ...					
R.Q.D. enclosed ...	<u>114.83</u>	<u>114.83</u>			
" overhang ...					
Bridge enclosed ...	<u>126.00</u>	<u>123.80</u>	<u>9'0"</u>	<u>✓</u>	<u>114.83</u>
" overhang aft ...	<u>11.17</u>	<u>8.38</u>		<u>✓</u>	<u>8.38</u>
" overhang forward ...	<u>52.30</u>	<u>52.30</u>			
F'cle enclosed ...	<u>54.75</u>	<u>54.75</u>	<u>7'6"</u>	<u>✓</u>	<u>52.30</u>
" overhang ...		<u>1.22</u>			<u>1.22</u>
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	<u>240.25</u>	<u>236.23</u>			<u>236.23</u>

Standard Height of Superstructure	<u>7.50</u>
" " R.Q.D.	<u>✓</u>
Deduction for complete superstructure	<u>42.00</u>
Percentage covered $\frac{S}{L} =$	<u>56.87</u>
" " $\frac{S_1}{L} =$	<u>55.91</u>
" " $\frac{E}{L} =$	<u>55.91</u>
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	<u>✓</u>
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	<u>41.91</u>
Interpolation for bridge less than 2L (if required)	<u>✓</u>
Deduction = $42 \times .4191 =$	<u>-17.60</u>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>52.25</u>	<u>1</u>		<u>52.25</u>	<u>34"</u>	<u>34.00</u>	<u>1</u>		<u>34.00</u>
$\frac{1}{2}$ L from A.P. ...	<u>23.25</u>	<u>4</u>		<u>93.00</u>	<u>9"</u>	<u>7.50</u>	<u>4</u>		<u>30.00</u>
$\frac{3}{8}$ L " ...	<u>5.75</u>	<u>2</u>		<u>11.50</u>	<u>1"</u>	<u>1.00</u>	<u>2</u>		<u>2.00</u>
Amidships ...		<u>4</u>			<u>0</u>		<u>4</u>		
$\frac{3}{8}$ L from F.P. ...	<u>11.50</u>	<u>2</u>		<u>23.00</u>	<u>15"</u>	<u>11.50</u>	<u>2</u>		<u>23.00</u>
$\frac{1}{2}$ L " ...	<u>46.50</u>	<u>4</u>		<u>186.00</u>	<u>53"</u>	<u>46.50</u>	<u>4</u>		<u>186.00</u>
F.P. ...	<u>104.50</u>	<u>1</u>		<u>104.50</u>	<u>114"</u>	<u>104.50</u>	<u>1</u>		<u>104.50</u>
Total ...				<u>470.25</u>					<u>379.50</u>

Mean actual sheer aft = Deficient < 50% Standard.

Mean standard sheer aft

Mean actual sheer forward = Excess.

Mean standard sheer forward

Length of enclosed superstructure forward of amidships = $\frac{64.25}{422.5} = .152$

aft of " = $\frac{61.95}{422.5} = .146$ Deficient sheer.

Standard	Actual
<u>52.25</u> 1	<u>34.00</u> 1
<u>23.25</u> 4	<u>7.50</u> 4
<u>5.75</u> 2	<u>1.00</u> 2
<u>11.50</u> 2	<u>11.50</u> 2
<u>46.50</u> 4	<u>53.00</u> 4
<u>104.50</u> 1	<u>114.00</u> 1
<u>139.25</u>	<u>59.50</u>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{90.75}{18} \left(.75 - \frac{284.3}{422.5} \right) = + 2.35$

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 = 32.54

Summer freeboard = 6.67

Moulded draught (d) = 25.87

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 6.47 = 6.5

Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 13,348$

Tons per inch immersion at summer load water line

$T = 47.5$

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

$= \frac{13,348}{40 \times 47.5} = 7.02 = 7"$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.761 + .68}{1.36} = \frac{1.441}{1.36}$

	+	-
Depth Correction	<u>13.47</u>	
Deduction for superstructures		<u>17.60</u>
Sheer correction	<u>2.35</u>	
Round of Beam correction		<u>.03</u>
Correction for Thickness of Deck amidships		<u>1.32</u>
Other corrections, scantlings, etc.		
	<u>15.82</u>	<u>18.95</u>

Summer Freeboard = 80.12 = 6'8"

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck: 5'7 3/4" = 2026 m/m

The existing freeboards, being more favourable than those computed under the Convention, have been reassigned.

Tropical Fresh Water Line above Centre of Disc	<u>330 m/m</u>	Tropical Fresh Water Freeboard	<u>1696</u>
Fresh Water Line	<u>178</u>	" Fresh Water	<u>1848</u>
Tropical Line	<u>152</u>	" Tropical	<u>1874</u>
Winter Line below	<u>152</u>	" Winter	<u>2178</u>
Winter North Atlantic Line	<u>✓</u>	" Winter North Atlantic	

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9
Dimensions of Hatchway	20'3" x 14'	29'2" x 16'	15'9" x 14'	22'5" x 14'	15'9" x 14'	15'9" x 12'			
COAMINGS									
Height above Deck	46"	50"	38"	44"	38"	38"			
Thickness	40"	40"	38"	40"	38"	38"			
Stiffeners									
Brackets, Stays									
HATCH BEAMS									
Number	3	5	2	3	2	2			
Spacing	5'0"	5'10"	5'3"	5'7"	5'3"	5'3"			
Scantling and Sketch	2 1/2" x 3 1/2"	3 1/2" x 3 1/2"	2 1/2" x 3 1/2"	2 1/2" x 3 1/2"	2 1/2" x 3 1/2"	2 1/2" x 3 1/2"			
Bearing Surface	1 1/2"	2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"			
FORE AND AFTERS									
Number									
Spacing									
Unstayed 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? *yes.*
 Are battens and wedges efficient and in good condition? *yes, new.*
 Are tarpaulins in good condition and in accordance with rule requirements? *yes.*
 Are lashings provided in accordance with rule requirements? *yes.*

Particulars of fiddle, funnel and ventilator coamings:—
 2 ventilators 36" dia. to boiler room.
 16" dia. to engine room.

Fiddle gratings are provided with hinged steel covers.
 Engine room skylight steel with hinged steel covers and bull's eyes.

Particulars of Flush Bunker Scuttles:—

Particulars of Companionways:—

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

On Fore Deck. 4 off. 15" dia x 33" casing x .32"
 2 off. 18" dia x 33" casing x .32"
 8 off. 9" x 34" x .36"
 4 off. 18" x 33" x .36"
 2 off. 18" on top of derricks table
 2 off. 18" x 17"0" lower part riveted to bridge post, attached to Fore Deck.

On Poop Deck. 2 off. 18" dia x 33" casing x .36"
 1 off. 16" dia x 33" x .36"
 2 off. 18" x 33" x .36"
 2 off. 11" x 33" x .24"

All ventilators provided with steel covers and canvas covers.

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

On Upper Deck and Superstructure Decks. 1/2" steel pipes x 18" high. Opening 9" above deck. Provided with wood plugs.

Particulars of Gangway Cargo and Coaling Ports:—

Cargo doors in Bridge Spaces. 60" x 48". Set of opening 15" above Upper Deck.
 Hinged steel doors with angle frames. 2 strongbacks with each 2 wing bolts 1 1/4" diam.

Flanores

Particulars of Scuppers and Sanitary Discharge Pipes. In Bridge Spaces: abast fiddle, 1 scupper each side draining to lower hold.
 In Bridge Spaces aft. 2 scupper each side, draining overboard. No storm valves fitted. Screwed plugs fitted on inboard opening.
 In Poop Spaces at fore end, 1 scupper each side draining to lower hold, is now being made to drain overboard with storm valve on the ship's side.

Particulars of Side Scuttles: 9" scuttles in F.C. spaces provided with strong steel covers permanently attached.

Particulars of Guard Rails:—
 On Poop & F.C. Decks. 1" bar.
 On Bridge Deck. Bulwark 39" high, full length of bridge. No peening joints.
 Stanchion 1 1/2" dia. 4 1/2" x 16".

Particulars of Gangways, Lifelines, etc.:—
 Lifelines provided in forward & after holds on both sides of ship.

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	90'0"	45"	Open rails 24" long, 17" from bridge after end. 16" from Poop end.	4	45" x 30" bulk bar. x 30" 7/8 bar.	
Forward Well	92'3"	45"	Open rails 24" long, 16" from bridge forward end.	4	45" x 30" bulk bar. x 30" 7/8 bar.	

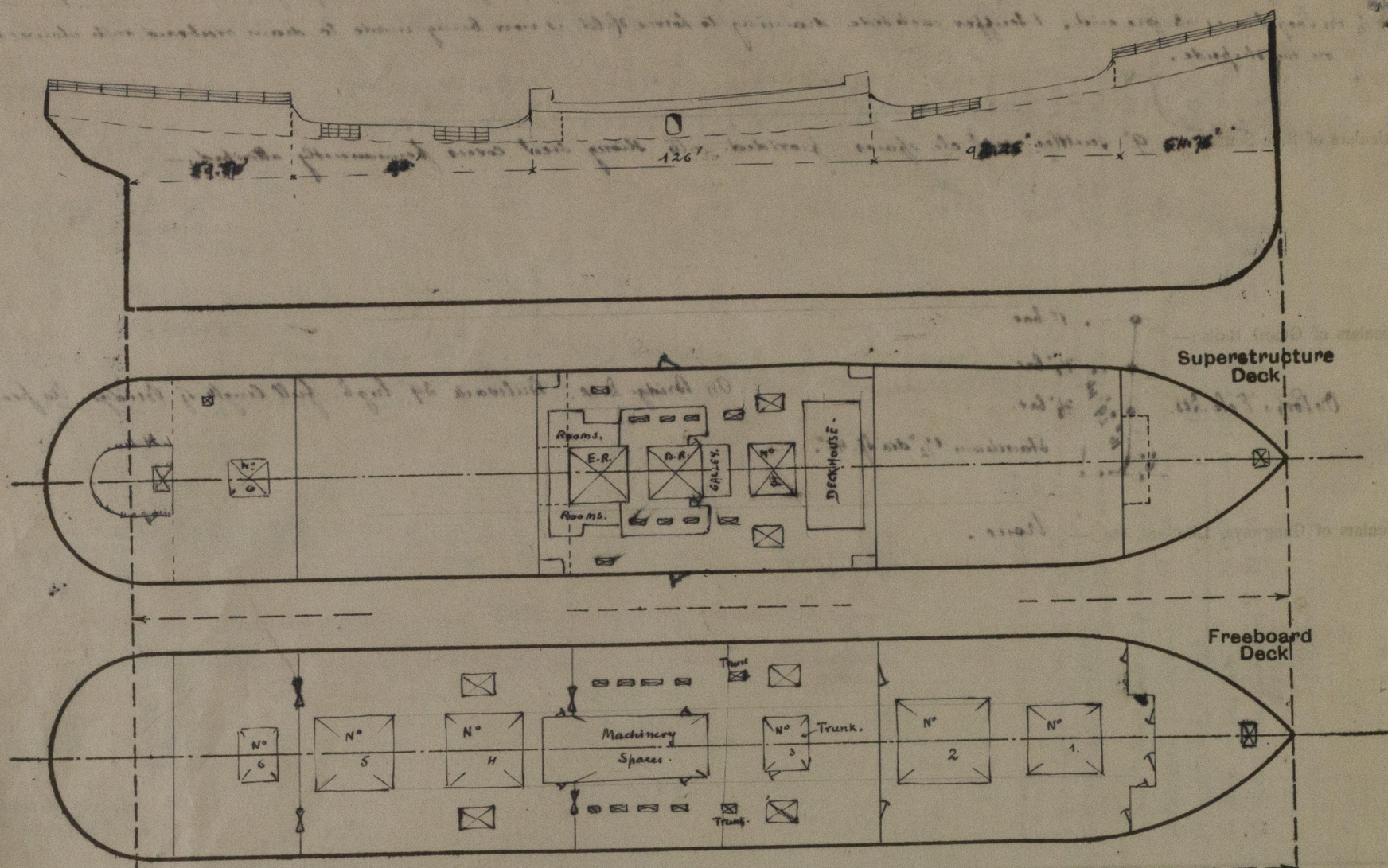
State position of each freeing port (F. and A. position and height above deck edge) After Well:—
 Forward Well:—
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—
 Additional area where sheer is less than standard.

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	9" x .36"	.32"	1 1/2" x 5" x .50"	28"	Backs, Top, Butt.	54" x 36"	18"	8'
Raised Quarter Deck Bulkhead		.32"	1 1/2" x 2 1/2" x .32"	30"		63" x 48"	13"	9'
Bridge, After Bulkhead		.40"	1 1/2" x 3" x .50"	28"	Backs, Top, Butt.	60" x 42"	13"	9'
Bridge, Forward Bulkhead	9" x .44"	.32"	1 1/2" x 3" x .50"	28"		60" x 24"	12"	7'6"
Forecastle Bulkhead	9" x .44"	.32"	1 1/2" x 3" x .50"	28"				
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	Externally laid	.32"	4" flange	26"		63" x 24"	12"	9'
Exposed Machinery Casings on Superstructure Decks	.36"	.36"	5 1/2" x 2 1/2" x .32"	27"		60" x 24"	6"	9'6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	.36"	.36"	5 1/2" x 2 1/2" x .32"	27"		60" x 24"	16"	9'
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	Shifting boards 3" thick, in riveted channels, full height of openings.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Shifting boards 3" thick, in riveted channels, full height of openings.
Bridge, Forward Bulkhead	Hinged steel doors, weather-tight, with 2 chairs at sides, 2 top bottom, manipulated from outside.
Forecastle Bulkhead	1 1/4" hard wood doors (1" panels), or hinged steel doors, with ordinary locks, manipulated from both sides.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	Hinged steel doors with ordinary locks manipulated from both sides.
Exposed Machinery Casings on Superstructure Decks	Hinged steel doors
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors
Deckhouses on Flush Deck Ships	

W425-0243 (2/2)

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:—



$$\text{Bridge and equiv. bhd.} = \frac{11.17 \times 120}{56.0} = 2.39$$

$$\text{enclosed length} = 126 - 0.17 + 2.39 = 128.22$$

$$\text{overhang aft} = 11.17 - 2.39 = 8.78$$

$$\frac{8.78}{126.00}$$

$$\text{Fore and equiv. bhd} = \frac{20.5 \times 5.58}{46.7} = 2.45$$

$$\text{enclosed length} = 54.75 - 2.45 = 52.30$$

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

N° 3 hatch is hinged in Bridge spaces. Plating 40". Stiffeners $3\frac{1}{2} \times 3\frac{1}{2} \times .44$ " spaced 20".
Hinged steel door in trunk 1st side. 66" x 30". Sill 15" above deck. Cleats manipulated from Bridge spaces.

Bunker hatchways abreast galley, hinged in Bridge spaces.

Opening in fore side 30" x 22". Sill 15" above deck. Steel plate secured by bolts spaced 5".

Opening in after side 32" x 20". Sill 12" above deck. Steel plate secured by bolts spaced $3\frac{1}{2}$ ".

3" sheathing (oak) on weather decks. — ✓

Chel S.S. W 3 has been commenced and will be completed before the vessel leaves this port.

H. L. Tai

Builder's name and yard number *A. G. Norder, Bremen.*

Names of sister ships *LUXEMBOURG*

Owners *C^o Royale Belge Argentine (Armement Deppe, Mager).*

Fee £ *Feb. 3.000.*

Received by me

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