

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker
Having POOP, BRIDGE AND FORECASTLE.

Port of Survey Shull

BHARATJAL

(Type of Superstructures.)

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

EMPIRE STOUT
HARPENDEN

British
London

162474

4678

1930-9.

Date of Survey 6th June 1932

Name of Surveyor R. L. Latham

Particulars of Classification +100 A1

Moulded Dimensions: Length 400 Breadth 54.25 Depth 27.08
Moulded displacement at moulded draught = 85 per cent. of moulded depth 10,835 tons
Coefficient of fineness for use with Tables .759

Depth for Freeboard (D)

Moulded depth 27.08

Stringer plate04

Sheathing on exposed deck

$T \left(\frac{L-S}{L} \right) = \text{none.}$

Depth for Freeboard (D) = 27.12

Depth correction

(a) Where D is greater than Table depth

(D-Table depth) R =

$(27.12 - 26.67) 3 = +1.35$

(b) Where D is less than Table depth (if allowed)

(Table depth-D) R =

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) 54.25

Standard Round of Beam = $\frac{B \times 12}{50} = 13.02$

Ship's Round of Beam = 13.5

Difference .48

Restricted to

Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.48^2}{4} (.1925) = .02$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>33.0</u>	<u>33.00</u>	<u>8-0</u>		<u>33.00</u>
„ overhang ...	✓				
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed ...	<u>256.5</u>	<u>256.50</u>	<u>8-6</u>		<u>256.50</u>
„ overhang aft ...	✓				
„ overhang forward ...	✓				
Fore enclosed ...	<u>33.5</u>	<u>33.50</u>	<u>8-0</u>		<u>33.50</u>
„ overhang ...	✓				
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ forward ...					
Total ...	<u>323.0</u>	<u>323.00</u>			<u>323.00</u>

Standard Height of Superstructure 7.50

„ „ R.Q.D. ✓

Deduction for complete superstructure +2.00

Percentage covered $\frac{S}{L} = 80.75$

„ „ $\frac{S_1}{L} = 80.75$

„ „ $\frac{E}{L} = 80.75$

Percentage from Table, Line A.

(corrected for absence of forecastle (if required))

Percentage from Table, Line B.

(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required)

Deduction = 32.02

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	<u>50.00</u>	1	<u>50.00</u>	<u>61.</u>	<u>61.00</u>	1	<u>61.00</u>
$\frac{1}{4}$ L from A.P. ...	<u>22.25</u>	4	<u>89.00</u>	<u>27.8</u>	<u>27.625</u>	4	<u>110.60</u>
$\frac{2}{4}$ L „ ...	<u>5.50</u>	2	<u>11.00</u>	<u>8.6</u>	<u>6.90</u>	2	<u>13.80</u>
Amidships ...		4		<u>0</u>		4	
$\frac{3}{4}$ L from F.P. ...	<u>11.00</u>	2	<u>22.00</u>	<u>18.2</u>	<u>13.40</u>	2	<u>26.80</u>
$\frac{1}{4}$ L „ ...	<u>44.50</u>	4	<u>178.00</u>	<u>56.5</u>	<u>53.725</u>	4	<u>214.88</u>
F.P. ...	<u>100.00</u>	1	<u>100.00</u>	<u>120.</u>	<u>120.00</u>	1	<u>120.00</u>
Total ...			<u>450.00</u>				<u>547.08</u>

Mean actual sheer aft = Green
Mean standard sheer aft

Mean actual sheer forward = Green
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = .33

„ „ aft of „ = .31.

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{97.08}{18} (.75 - .4038) = 1.87$

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 = 27.12

Summer freeboard = 3.58

Moulded draught (d) = 23.54

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.88

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 11,164$

Tons per inch immersion at summer load water line

$T = 43.5$

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

6.42 6.5

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

45.9 + .68
1.36

Depth Correction 1.35

Deduction for superstructures 32.02

Sheer correction 1.87

Round of Beam correction02

Correction for Thickness of Deck amidships

Other corrections, scantlings, etc.

1.35 33.91 32.56

Summer Freeboard = 43.10

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

Tropical Fresh Water Line above Centre of Disc ...	<u>12 1/2</u>
Fresh Water Line „ „ ...	<u>6 1/2</u>
Tropical Line „ „ ...	<u>6</u>
Winter Line below „ „ ...	<u>6</u>
Winter North Atlantic Line „ „ ...	✓

Tropical Fresh Water Freeboard ...	<u>3'-7"</u>
Fresh Water „ „ ...	<u>2'-6 1/2"</u>
Tropical „ „ ...	<u>3'-0 1/2"</u>
Winter „ „ ...	<u>3'-1"</u>
Winter North Atlantic „ „ ...	<u>4'-1"</u>

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS													
Description of Hatchway	11. 11.1	11. 11.2	11. 11.3	11. 11.4	11. 11.5	11. 11.6	11. 11.7	11. 11.8	11. 11.9	11. 11.10	11. 11.11	11. 11.12	11. 11.13
Dimensions of Hatchway	27'0" x 20'0"	29'0" x 20'0"	22'6" x 20'0"	33'9" x 20'0"	29'0" x 20'0"	11'0" x 3'6"	8'8" x 2'6"	8'7" x 2'11"	2'6" x 2'3"	2'6" x 2'0"	10'0"	12'0"	3'6"
COAMINGS													
Height above Deck	11.2	12' 36"	12' 36"	12' 36"	11.2	30"	15"	12"	9"	10"	10"	12"	36"
Thickness Sides	11.4	11.4	11.4	11.4	11.4	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Stiffeners	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA	9" BA
Brackets, Stays	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia	2 1/2" dia
HATCH BEAMS													
Number	5	5	5	5	5	5	5	5	5	5	5	5	5
Spacing	16 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"
Scantling and Sketch	16 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"	15 1/2" x 36"
Bearing Surface	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
FORE AND AFTERS													
Number	2708												
Spacing													
Unsupported Lengths													
Scantling and Sketch													
Bearing Surface													
HATCH COVERS													
Material													
Thickness													
How fitted													
Bearing Surface													
Spacing of Cleats													
Number of Tarpaulins													

Particulars of fiddle, funnel and ventilator coamings:—
 Stakehold gratings covered by strong hinged covers.
 Fiddle funnel & ventilators in efficient condition.
 Engine room sky light of steel, strongly constructed.

Particulars of Flush Bunker Scuttles:—
 none

Particulars of Companionways:—
 Hospital on Poop Deck (access to crew accommodation aft)
 plating 3/16", stiffeners 4 x 3 1/2 x .42, 5 ft. apart
 opening to companionway 4'10" x 2'0" sill 18"
 closed by leak door 2" thick, hinged, spring lock,
 manipulated from both sides.

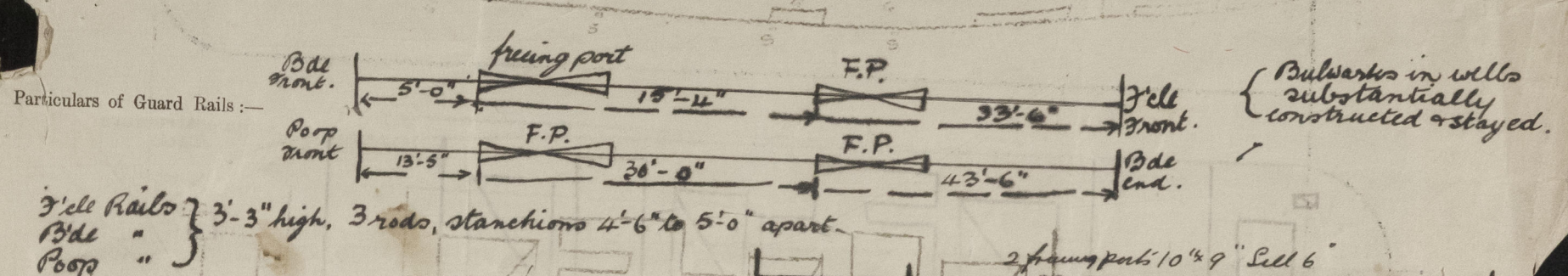
Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—
 Fore deck 5' 6" to 21" dia. coamings 36" high x 3 to 35
 Bde. deck 14' 9" to 24" " " 36" " x 25 to 36
 Poop deck 9' 5" to 6" " " 12" x 34
 Bridge deck 1' 9" dia " " 33" x 3.
 4' 5" dia. C.I. G. Neck. Height 9", to bunkers, no means of closing provided

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
 Fore Deck: 2, 4" dia. 12" high to F.P. Tank. Yoo-neck
 Poop Deck 1, 4" " " A.P. " " "
 Bridge Deck 6, 3 to 32" dia. G. Neck 11" x 12" high to DB tankers.
 No air pipes in wells.

Particulars of Gangway Cargo and Coaling Ports:—
 none

Particulars of Scuppers and Sanitary Discharge Pipes:—
 Upper deck scuppers in Bde & Side Tween decks, lead below fld deck with non-return valve at ship's side and have wood plugs at outer ends.
 Bridge deck scuppers: of pressed steel-plate type: no valve at shell.
 Sanitary discharge pipes from bridge deck lead to shell in Tween decks, with storm valve at ship's side.

Particulars of Side Scuttles:—
 In poop accommodation provided with hinged deadlights
 all scuttles of substantial construction.



Particulars of Gangways, Lifelines, etc.:—
 Gangway fitted from poop to bridge, apparently supported, having stanchions and 2 steel wires each side. The crew are not bulked in the fore-castle.

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	42'-10"	4'-0"	7'-6" x 8 1/2"	2	10.63	10.78
Forward Well	34'-2"	4'-0"	7'-6" x 8 1/2"	2	10.63	9.92

State position of each freeing port (F. and A. position and height above deck edge)
 After Well: 14" above deck edge.
 Forward Well: 15" " " "
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—bulwark flanged, no shutters or rails
 Additional area where sheer is less than standard.

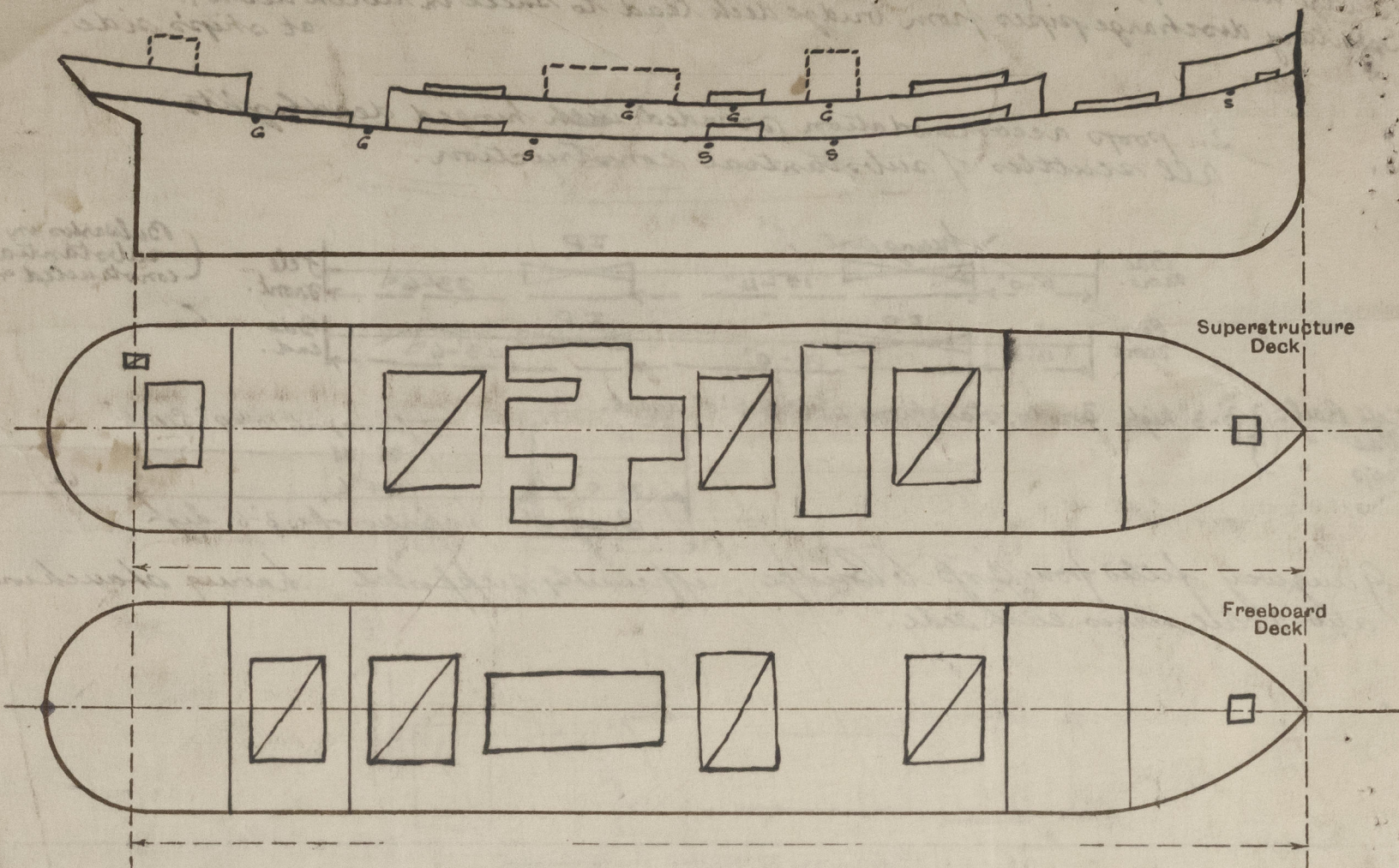
Particulars of Superstructures, Trunks, Casings, Deckhouses.								
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	4	4	6 x 3 x 1/2	30" x 33"	At top & bottom	4'-6" x 2'-0"	18"	8'-0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	4	4	3 1/2 x 3 1/2 x 4	3'-10"	none	4'-6" x 3'-0"	18"	8'-6"
Bridge, Forward Bulkhead	4 1/2	4	9 B.A.	3'-0"	At top & bottom	4'-6" x 3'-0"	18"	8'-6"
Forecastle Bulkhead	4	4	4 x 3 x 4	4'-8"	none	(A) 5' x 4' (B) 4'-6" x 2'-0"	18"	8'
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Fore-board or Raised Quarter Deck ...								
Exposed Machinery Casings on Super-structure Decks (Bde.)	32	3	4 x 3 x 38	3'-6" x 2'-3"	At top	4'-3" x 2'-1"	18"	8'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... (Bde.)	3	3	4 1/2 x 3 x 4	2'-3"	none	4'-6" x 2'-0"	23"	8'-6"
Deckhouses on Flush Deck Ships ...								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).
 Poop Bulkhead: hinged steel door, spring lock capable of being manipulated from either side, also two screwed clamps not
 Raised Quarter Deck Bulkhead: hinged steel door, spring lock, yes
 Bridge, After Bulkhead: Stormboards 2 1/2" thick in riveted channels, also portable steel plate with hook bolts 15" apart
 Bridge, Forward Bulkhead: hinged steel plate with hook bolts, now fitting clips capable of being manipulated from both sides
 Fore-castle Bulkhead: (A) portable steel plate, hook bolts 15" apart, containing hinged steel door 4'-3" x 2'-6", sill 22", spring lock, yes
 Exposed Machinery Casings on Free-board or Raised Quarter Deck: hinged steel door, spring lock, yes
 Exposed Machinery Casings on Super-structure Decks: hinged steel door, spring lock, yes
 Machinery Casings within Super-structures not fitted with Class I Closing Appliances: hinged steel door, spring lock, yes
 Deckhouses on Flush Deck Ships: Steel, hinged, door, bolt and latch, yes.

Survey held afloat

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:—

gunwale sec
7" x 5"
S - Scupper with
Storm valve



Ash shoots. S. Side, 18' dia.
of substantial steel plating leads
to shell below freeboard deck.

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

It is understood that this vessel will call here on Thursday 9th inst
for condition survey + will afterwards load and sail at the week end.

Dec 11

Builder's name and yard number Bartram & Sons Ltd.

Names of sister ships - Harpashian

Owners National S.S. Co. Ltd.

Fee £ 12 : 15 : - Received by me



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Foundation