

Lloyd's Register of Shipping. SURVEYS FOR FREEBOARD.

GRK REPORT N° 19494

and Rpt. C.11.

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Prop, Bridge & Focle (Disconnected)  
Port of Survey Greenock  
(Type of Superstructures.)  
Date of Survey While building  
Ship's Name "HARDINGHAM" Nationality and Port of Registry BRITISH LONDON Official Number 163310 Gross Tonnage 5414.71 Date of Build  
Moulded Dimensions: Length 426.0 Breadth 56.0 Depth 28.75  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 124.84 tons  
Coefficient of fineness for use with Tables .750  
Name of Surveyor R. Dundas  
Particulars of Classification 100A1 (Contemplated)

Depth for Freeboard (D) Moulded depth ... .. 28' 9"  
Stringer plate ... .. 0.55  
Sheathing on exposed deck .04  
 $T \left( \frac{L-S}{L} \right) = Nil$   
Depth for Freeboard (D) = 28.79  
Depth correction (a) Where D is greater than Table depth (D-Table depth) R = (28.79 - 28.40) 3 = + 1.17  
(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) 56'  
Standard Round of Beam =  $\frac{B \times 12}{50} = \frac{672}{50} = 13.44$   
Ship's Round of Beam = 14  
Difference .56  
Restricted to  
Correction =  $\frac{Diff}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.56}{4} \times (1 - .8186) = .03$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	40.66	40.66	8'-6"		40.66
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed...	270.2	270.20	9'-0"		270.20
" overhang aft ...					
" overhang forward					
F'cle enclosed ...	37.88	37.88	8'-6"		37.88
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft					
" forward					
Total ...	348.74	348.74			348.74

Standard Height of Superstructure 7.50  
" " R.Q.D.  
Deduction for complete superstructure 42'  
Percentage covered  $\frac{S}{L} = \frac{348.74}{420} = .8303$   
"  $\frac{S_1}{L} = \frac{348.74}{420} = .8303$   
"  $\frac{E}{L} = \frac{348.74}{420} = .8303$   
Percentage from Table, Line A. ✓  
(corrected for absence of forecastle (if required))  
Percentage from Table, Line B. 77.61  
(corrected for absence of forecastle (if required))  
Interpolation for bridge less than 2L (if required)  
Deduction =  $42 \times .7761 = 32.59$

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	52.60	1	52.60	66.0	66.00	1	66.00
$\frac{1}{4}$ L from A.P. ...	23.41	4	93.64	29.25	29.25	4	117.00
$\frac{3}{4}$ L " ...	5.79	2	11.58	7.25	7.25	2	14.50
Amidships ...	✓	4	✓	0	✓	4	✓
$\frac{3}{4}$ L from F.P. ...	11.57	2	23.14	14.5	14.50	2	29.00
$\frac{1}{4}$ L " ...	46.81	4	187.24	58.0	58.00	4	232.00
F.P. ...	105.20	1	105.20	132.0	132.00	1	132.00
Total ...			473.40				590.50

Mean actual sheer aft = Less  
Mean standard sheer aft =  
Mean actual sheer forward = Less  
Mean standard sheer forward =  
Length of enclosed superstructure forward of amidships = .327  
" " aft of " = .308

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{117.10}{18} \left( .75 - .4093 \right) = -2.22$

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.  
Depth to Freeboard Deck = 28.79  
Summer freeboard = 4.17  
Moulded draught (d) = 24.62  
Deduction for Tropical freeboard and addition for Winter freeboard =  $\frac{d}{4}$  inches =  $\frac{24.62}{4} = 6.15 = 6\frac{3}{4}$   
Addition for Winter North Atlantic Freeboard (if required) =  
Deduction for Fresh Water.  
Displacement in salt water at summer load water line  
 $\Delta = 12719$   
Tons per inch immersion at summer load water line  
 $T = 47.37$   
Deduction =  $\frac{\Delta}{40T}$  inches =  $\frac{12719}{40 \times 47.37} = 6.71 = 6\frac{3}{4}$   
Full Displacement (S.W.) T.P.1  
24 FT DRAUGHT 12257 47.17  
25 " 12826 47.42  
TABULAR FREEBOARD corrected for Flush Deck (if required)  
Correction for coefficient  $\frac{750 + 680}{1.36} = \frac{1.430}{1.36}$   
+ -  
Depth Correction ... .. 1.17 -  
Deduction for superstructures ... .. - 32.59  
Sheer correction ... .. - 2.22  
Round of Beam correction ... .. - .03  
Correction for Thickness of Deck amidships ... .. -  
Other corrections, scantlings, etc. ... .. -  
1.17 34.84 - 33.67  
Summer Freeboard = 50.09

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

Tropical Fresh Water Line above Centre of Disc ... .. <u>13</u>	Tropical Fresh Water Freeboard ... .. <u>3</u>
Fresh Water Line " " ... .. <u>6 3/4</u>	Fresh Water " " ... .. <u>3-7/4</u>
Tropical Line " " ... .. <u>6 1/4</u>	Tropical " " ... .. <u>3-7/4</u>
Winter Line below " " ... .. <u>6 1/4</u>	Winter " " ... .. <u>4-8 1/4</u>
Winter North Atlantic Line " " ... ..	Winter North Atlantic " " ... ..



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
UPPER DECK										
Description of Hatchway	No 1 HATCH	No 2 HATCH	(DIVIDED) No 3 HATCH	No 4 HATCH	No 5 HATCH	No 6 HATCH	(DIVIDED) No 7 HATCH	No 8 HATCH	COAL HATCH AT FORE END OF B. CASING	HATCH ON FOCLE
Dimensions of Hatchway	29'-3" x 24'-0"	32'-1" x 24'-0"	12'-10" x 24'-0" 12'-9" x 24'-0"	36'-8" x 24'-0"	32'-1" x 24'-0"	32'-1" x 20'-0"	12'-11" x 24'-0" 12'-11" x 24'-0"	36'-8" x 20'-0"	4'-0" x 18'-0"	4'-0" x 5'-0"
COAMINGS	Height above Deck	4'-6"	B.A.	B.A.	4'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-0"
	Thickness	4'-4"	12'-3 1/2" x 5'-8"	12'-3 1/2" x 5'-8"	4'-4"	4'-4"	4'-4"	4'-4"	4'-4"	3'-6"
	Stiffeners	4'-4"	4'-4"	4'-4"	4'-4"	4'-4"	4'-4"	4'-4"	4'-4"	3'-6"
	Brackets, Stays	9'-3 1/2" x 4'-0"	2'-2 1/2" Dia	✓	9'-3 1/2" x 4'-0"	9'-3 1/2" x 4'-0"	9'-3 1/2" x 4'-0"	9'-3 1/2" x 4'-0"	3'-2 1/2" Dia	3'-HATCH COVER
HATCH BEAMS	Number	6	6	1 in EACH	7	6	1 in EACH	7	COAL HATCHES ABERTON BOILER CASING	HATCH UNDER IN FOCLE
	Spacing	4'-2" x 4'-3"	4'-7"	5'-1 1/2" x 4'-7"	4'-7"	4'-7"	5'-8 1/4"	4'-7"	18'-4" x 5'-0"	4'-0" x 3'-0"
	Scantling and Sketch	PLATE 17'-2" x 3'-6"	19'-2" x 3'-8"	12'-2 1/2" x 3'-9"	19'-2" x 3'-8"	18'-4" x 3'-7"	13'-3" x 3'-2"	15'-4" x 3'-4"	13'-3" x 3'-2"	COMING 30'-2" x 4'-0"
	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'-COVER
FORE AND AFTERS	Number	...	...	...	...	...	...	...	COAL HATCHES ABERTON BOILER CASING IN BRIDGE SPACE	TRANSFORMING HATCHES
	Spacing	...	...	...	...	...	...	...	24'-11 1/2" x 5'-0"	12 in BRIDGE
	Unsupported Lengths	...	...	...	...	...	...	...	COMING 12'-3 1/2" x 4'-5 1/2"	1 - FOCLE
	Scantling and Sketch	...	...	...	...	...	...	...	3'-COVERS	3'-COVERS
HATCH COVERS	Material	...	...	...	...	...	...	...	3'-BEARING SURFACE	3'-BEARING SURFACE
	Thickness	...	...	...	...	...	...	...	...	...
	How fitted	...	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...	...
Spacing of Cleats	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"
Number of Tarpaulins	2	2	2	2	2	2	2	2	2	2

Particulars of fiddle, funnel and ventilator coamings:-

Engine Room Skylight of Steel, strongly constructed  
Lidley gratings with hinged steel covers.  
Lidley, Funnel & Ventilators in efficient condition.

Particulars of Flush Bunker Scuttles:-

None

Particulars of Companionways:-

Steel House on Poop Deck with 1 3/4" Solid wood door P.S. & Laving Sill. Door workable from both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:-  
Fore Deck 1 Vent 10" Dia, bearing 36" high x 32" to fore peak stow.  
Well Forward & also Well aft 2 Vents 21" Dia, bearing 36" high x 40" to hold; Bridge Deck 2 Vents 27" Dia & 2 Vents 21" Dia, bearing 36" high x 40" to hold; also 3 Vents 27" Dia & 2 Vents 21" Dia, bearing 36" high x 46" to hold; 4 Vents 12" Dia, bearing 36" high x 34" to lower & tween deck bunkers.  
4 Boreneck Vents 6" Dia, 17.1. 36" high to lower bunkers. Poop Deck 2 Vents 12" Dia, bearing 36" high x 34" to tunnel escape & to poop; 4 Vents 9" Dia, bearing 36" high x 32" to crew's quarters.  
All Ventilators constructed in accordance with the Rules, coamings closed with wood plugs & canvas covers.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:-  
Fore Deck 1 1/2" Air Pipe 18" x 3 1/2" Dia to fore peak tank; 1 1/2" Air Pipe 18" x 6" Dia to Double Bottom; Bridge Deck 1 1/2" Air Pipe 18" x 5" Dia to O.B. Tank P.S.; 1 1/2" Air Pipe 18" x 3 1/2" Dia to O.B. Tank P.S.; Poop Deck 1 1/2" Air Pipe 18" x 3 1/2" Dia to After Peak Tank P.S.; 1 1/2" Air Pipe 36" x 3 1/2" Dia (P) in after well to O.B. Tank; 1 1/2" Air Pipe in forward well.  
All air pipes fitted with wood plugs.

Particulars of Gangway Cargo and Coaling Ports:-

None.

HARDINGHAM

Particulars of Scuppers and Sanitary Discharge Pipes:-

Scuppers from Poop, Bridge & Fore Decks fitted with storm valves & wood plugs on inner ends.  
Discharges from Batts, H.C. & black Basins in Kidslip House & in Poop Space fitted with storm valves & having traps on inner ends. Scupper from insulated store in Bridge Space fitted with storm valve & having screw cap on inner end.

Particulars of Side Scuttles:-

No side scuttles below Freeboard Deck.  
No side scuttles in Bridge Space.  
Side Scuttles in Poop & in Fore strongly constructed & fitted with deadlights.

Particulars of Guard Rails:-

Fore Deck 3'-3" high with 2 rods & stanchions spaced 5'-0" apart.  
Bridge Deck 4'-0" high with 3 rods & stanchions spaced 5'-0" apart at fore-end & after end, with bulwark amidships 4'-0" high, having 3 freeing ports each side 3'-6" x 1'-6" (15 ft) with bars fitted. (Rule 4 ft).  
Poop Deck 3'-3" high with 2 rods & stanchions spaced 5'-0" apart.

Particulars of Gangways, Lifelines, etc.:-

Gangway fitted aft from Bridge Deck to Poop Deck.  
Stanchions spaced 5'-0" apart. Platform 5' x 2 1/2" P.P.  
4' x 2 1/2" x 2 1/2" x 50 Channel.  
3' x 3' x 40 Angle spaced 5'-0" with diagonal bracing.  
Suitable provision made for rigging lifelines in any part of the ship used by the crew in the regular working of the 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	41'-3"	4'-0"	4'-0" x 9" 4'-0" x 9"	4	12'0 ft	10'63 ft
Forward Well	36'-0"	4'-0"	4'-6" x 9" 4'-6" x 9"	3	10'12 ft	10'1 ft

State position of each freeing port ... After Well:- 12'-4", 14'-10", 24'-0", 30'-0" from Bridge-end to fore end of opening (F. and A. position and height above deck edge) Forward Well:- 9'-0", 14'-8", 20'-8" from Bridge-end to aft end of opening } 15" above deck.  
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	38	38	B.A. 7 x 3 x 38	2'-5"	LUGGED 4 - 3/4 R.	5'-0" x 2'-0"	18"	8'-6"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	30	30	ANGLE 4 x 3 x 32	2'-6"	NONE	5'-0" x 4'-0"	18"	9'-0"
Bridge, Forward Bulkhead	44	44	B.A. 9 1/2 x 3 1/2 x 46	2'-6"	LUGGED 5 - 3/4 R.	4'-6" x 3'-3"	18"	9'-0"
Forecastle Bulkhead	30	30	ANGLE 4 x 3 x 32	2'-3" to 3'-0"	NONE	5'-0" x 2'-0"	18"	8'-6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	34	30	3 x 3 x 30	2'-6"	BRACKETED AT TOP	5'-0" x 2'-0"	18"	8'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	30	26	3 x 3 x 30	2'-6"	NONE	5'-0" x 2'-0"	18"	9'-0"
Deckhouses on Flush Deck Ships								

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

Poop Bulkhead	4 Hinged steel doors, workable from both sides.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	3 shifting boards full height of opening, fitted in channels pivoted to bulkhead.
Bridge, Forward Bulkhead	Hinged steel doors, secured with clips & workable from both sides.
Forecastle Bulkhead	3 shifting boards full height of opening, fitted in channels pivoted to bulkhead; at Centre line.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	2 Solid wood hinged doors, & 1 Steel hinged door, workable from both sides.
Exposed Machinery Casings on Superstructure Decks	Hinged steel doors, workable from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors, workable from both sides.
Deckhouses on Flush Deck Ships	

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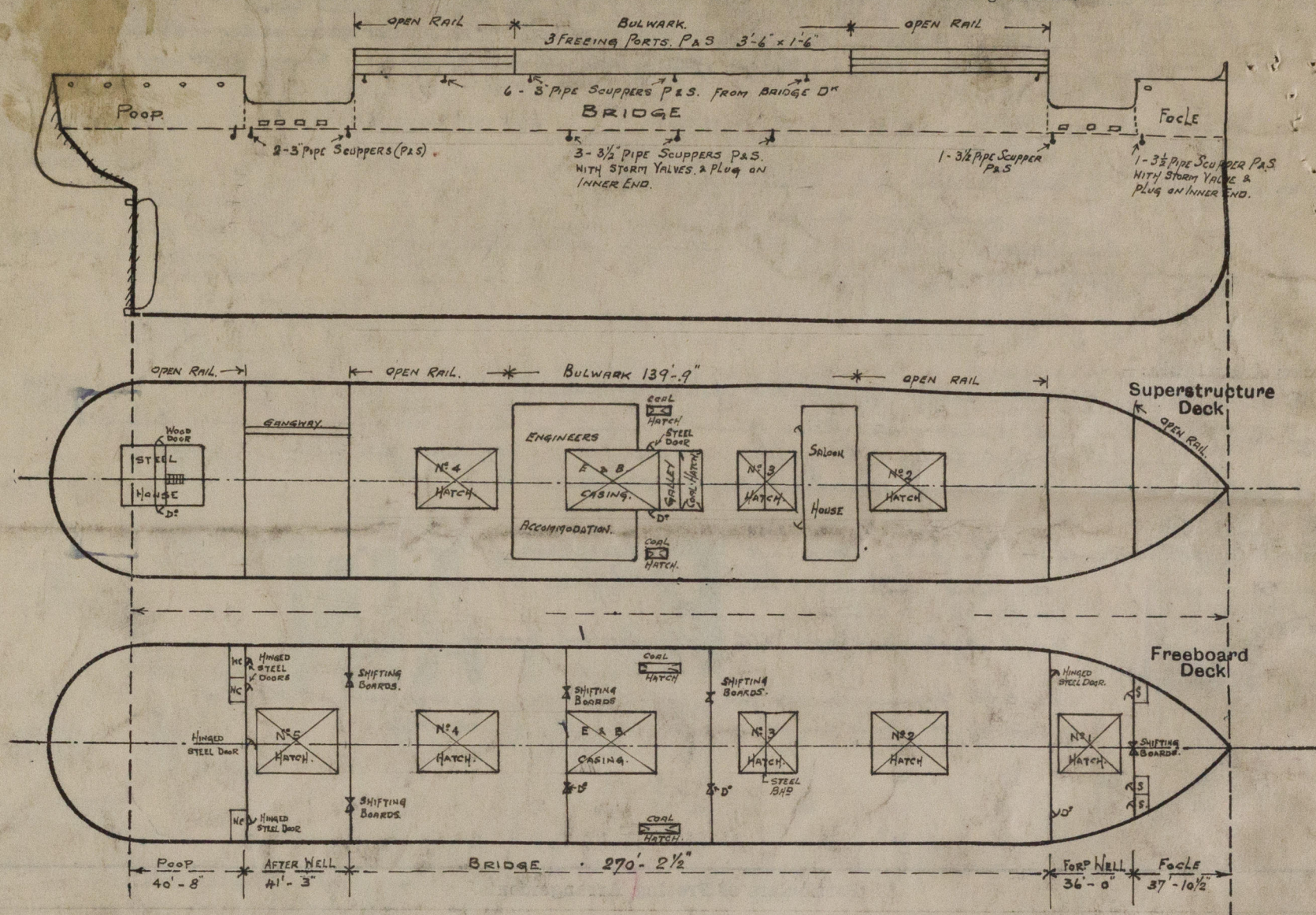
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*Harlingham*

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:—



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

This vessel has been built in accordance with the approved Plans & in general conformity with the Society's Rules for the class contemplated. The keel of this vessel was laid on 9<sup>th</sup> May 1932. The approved Plans of Midship Section, Profile & Becks, & Hatches are forwarded for reference. Freeboard Request attached.

Builder's name and yard number.

*Lithgows Limited No 858*

Names of sister ships.

*"HARMATRIS" "HARMANTEH" "HARBOROUGH" "HARLINGEN"*

Owners

*J & P. Harrison Ltd.*

Est. Fee £

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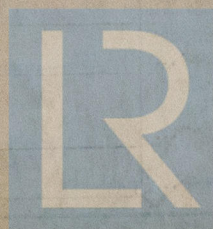
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