

Rpt. C.11.

Index. No. **29001**
(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

GRN REPORT No. 19390

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Raised Quarter Deck, Bridge & Forecastle.
ORKNEY COASTPort of Survey Port Glasgow**FIRE QUEEN**

(Type of Superstructures.)

Date of Survey 2/14 March 1932.

Ship's Name

"ARCLIGHT"

Nationality and Port of Registry

BRITISH
Greenock

Official Number

145595

Gross Tonnage

652

Date of Build

1921
10.Name of Surveyor H. L. Swinton.Moulded Dimensions: Length 174.75' Breadth 28.0' Depth 13.5'Moulded displacement at moulded draught = 85 per cent. of moulded depth 1139 tonsCoefficient of fineness for use with Tables .710Particulars of Classification ± 100 A1.CARGO RATTENS NOT FITTED.

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	13.5'	(a) Where D is greater than Table depth (D - Table depth) R = (13.53 - 11.65) 1.344 = +2.53"		Moulded Breadth (B)	28'
Stringer plate	up. dk. .38			Standard Round of Beam = $\frac{B \times 12}{50}$	6.72"
Sheathing on exposed deck	down. dk. .46	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	7"
T $\left(\frac{L-S}{L}\right) =$		If restricted by superstructures		Difference	.28"
Depth for Freeboard (D) =	13.53'			Restricted to	
				Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L}\right)$	$\frac{.28}{4} (1 - .7806) = -.02$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed					
" overhang					
R.Q.D. enclosed	100.0	100.0	4.0		100.0
" overhang					
Bridge enclosed	9.16	9.16	7.0		9.16
" overhang aft					
" overhang forward					
Fore enclosed	24.53	24.53	7.0		24.53
" overhang	20.25	20.25			20.25
Trunk aft	5.18	5.18			5.18
" forward	7.46	7.46			7.46
Tonnage opening aft					
" forward					
Total	138.87	136.28			136.28

Standard Height of Superstructure 72"" " R.Q.D. 42"Deduction for complete superstructure 23.48"Percentage covered $\frac{S}{L} = 79.45\%$ " $\frac{S_1}{L} = 78.00\%$ " $\frac{E}{L} = 78.00\%$ Percentage from Table, Line A. 72.84%
(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 = $23.48 \times .7284 = -17.10"$

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	27.48	1		27.48	30	30.00	1		36.00
$\frac{1}{2}$ L from A.P.	12.23	4		48.92	12.5	13.43	4		64.08
$\frac{2}{3}$ L " "	3.02	2		6.04	3.5	3.35	2		7.92
Amidships		4			0		4		
$\frac{2}{3}$ L from F.P.	6.04	2		12.08	6.25	6.12	2		12.24
$\frac{1}{2}$ L " "	24.46	4		97.84	24.5	24.50	4		98.00
F.P.	54.96	1		54.96	56	56.00	1		56.00
Total				247.32					274.24

Mean actual sheer aft = Excess
Mean standard sheer aft = ExcessMean actual sheer forward = Excess
Mean standard sheer forward = ExcessLength of enclosed superstructure forward of amidships = .125" " aft of " = .50Sheer Aft increased by virtue of intact R.Q.D. having a height in excess of standard.Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{26.92}{18} \left(.75 - .3972 \right) = -.53"$

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 = 17.53'
 Summer freeboard = 4.35'
 Moulded draught (d) = 13.18'

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 3.29" = 3 $\frac{1}{4}$ "Addition for Winter North Atlantic Freeboard (if required) = 2"

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 1341$

Tons per inch immersion at summer load water line

T = 9.6Deduction = $\frac{\Delta}{40 T}$ inches= 3.49 = 3 $\frac{1}{2}$ "

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

 $\frac{684.710}{1.36} =$ 19.0119.43

Depth Correction

2.53

Deduction for superstructures

17.10

Sheer correction

.53

Round of Beam correction

.02

Correction for Thickness of Deck amidships

48.00

Other corrections, scantlings, etc.

50.5317.65+ 52.88"Summer Freeboard = 52.31"SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck

Tropical Fresh Water Line above Centre of Disc

52.64

Fresh Water Line

3.2

Tropical Line

2.2

Winter Line below

3.4

Winter North Atlantic Line

5.4

Tropical Fresh Water Freeboard

3.102

Fresh Water

4.04Tropical Limited4.2

Winter

4.72

Winter North Atlantic

4.94

29 MAR 1932

002038-002050-02841/2

RECEIVED 15 APR 1932
Amended 21 APR 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway			N:1.		N:2					
Dimensions of Hatchway			UPPER DECK.		RAISED Q. DECK.					
COAMINGS	{	Height above Deck	30' x 18'		30' x 18'					
		Thickness	Sides	42"	36"					
			Ends	44"	44"					
		Stiffeners	7" HORIZ. B.A.	7" HORIZ. B.A.						
		Brackets, Stays	2"	3"						
HATCH BEAMS	{	Number	2		3					
		Spacing	10'-0"		7'-6"					
		Scantling and Sketch	8 1/2" x 50 RIDER.		21" x 38"					
			25" x 40" 4 x 3 x 44" T. B.A.							
		Bearing Surface	3"		3"					
FORE AND AFTERS	{	Number	3		3					
		Spacing	4'-6"		4'-6"					
		Unsupported Lengths	10'-0" CENTRES		7'-6" CENTRES					
		Scantling* and Sketch	2 1/2" x 9" CENTRE		2 1/2" x 9" CENTRE					
			8 1/2" x 9" SIDE		8 1/2" x 9" SIDE					
Bearing Surface	1 3/8"		1 3/8"							
HATCH COVERS	{	Material	W.P.		W.P.					
		Thickness	2 1/2"		2 1/2"					
		How fitted	TINWARTSHIP		TINWARTSHIP					
		Bearing Surface	3 SIDE & CENTRE		3 SIDE, 2 1/2" CENTRE					
Spacing of Cleats			24"		24"					
Number of Tarpaulins			2		2					

*Are wood fore and afters steel shod at all bearing surfaces? YES.

Are battens and wedges efficient and in good condition? YES.

Are tarpaulins in good condition and in accordance with rule requirements? YES.

Are lashings provided in accordance with rule requirements? YES.

Particulars of fiddley, funnel and ventilator coamings :—

Stokehot gratings covered by strong steel hinged covers. ✓
 Fiddley funnel & ventilators in efficient condition ✓
 Engine skylight of teak strongly constructed. ✓

Particulars of Flush Bunker Scuttles:—

None. ✓

Particulars of Companionways :—

None.

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

1 Vent. on Bridge	6" dia.	Coam 30" x 25"	to accomm.
1 Vent. on Side dk.	10" dia.	Coam 36" x 30"	Trunked to cargo hold.
1 " " Upper	10 " "	34" x 34"	on hatch extension 27" above dk. to cargo hold.
1 " " R. & S.	18 " "	36" x 40"	to cargo hold.
1 " " "	10 " "	36" x 34"	" " "

All vents. constructed in accord. with Rules & coverings closed with wood plugs & canvas covers. ✓

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

1.	C.I. air pipe on side d.k.	8" high	x 4	dia.	from fore peak.
1.	"	Upper -	2 3/4	" 4	" D.B. tank.
2	"	L. Q. -	13	" 3	" " with snifting hole
2	"	"	10	" 2 1/2	" aft peak tank. - - -

Satisfactory means of closing provided for all air pipes

Particulars of Gangway Cargo and Coaling Ports:—

None.

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Lloyd's Register
Foundation

Particulars of Scuppers and Sanitary Discharge Pipes —

Scuppers from hull dk. led through stringer bar.
Scuppers from P. & Q. dk. Collinson type, of substantial construction.
Discharge from crew W.C. fitted with storm valve at ship's side.

Particulars of Side Scuttles:

Side scuttles to crew op. in gile. fitted with hinged deadlights, & side scuttles in bridge op. provided with portable deadlights, all of substantial construction.

Particulars of Guard Rails:—

Steel bulwarks on quarter dk. in well 4'-3" high, on raised P. & Q. dk. 3'-3" high, & on bridge dk. 3'-0" high, efficiently constructed & supported.
Guard rails on side dk. 3'-0" high with 2 rods, & stanchions spaced 4'-3" aft.

Particulars of Gangways, Lifelines, etc.:—

Gangway, provided in the forward well for the protection of the crew.

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
Well	100'-0"	3'-3"	2'-8 1/2" x 1'-3" 3'-0" x 1'-8"	3. } 2 }	20 1/4 10.425	20.0 1/4
Forward Well	33'-0"	4'-3"	2'-8 1/2" x 1'-8"	3.	13.446 ✓	9.8 1/4

Position of each freeing port { After Well:— 11'-3", 40'-9", 67'-3", FROM R. & Q. D.K. AHEAD TO FORE END OF PORT. 6" ABOVE D.K.
and A. position and height above deck edge) { Forward Well:— 0'-6", 7'-9", 22'-9", " A. FRONT " " AFT " " 10 1/2"
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— FITTED WITH HINGED DOORS.

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

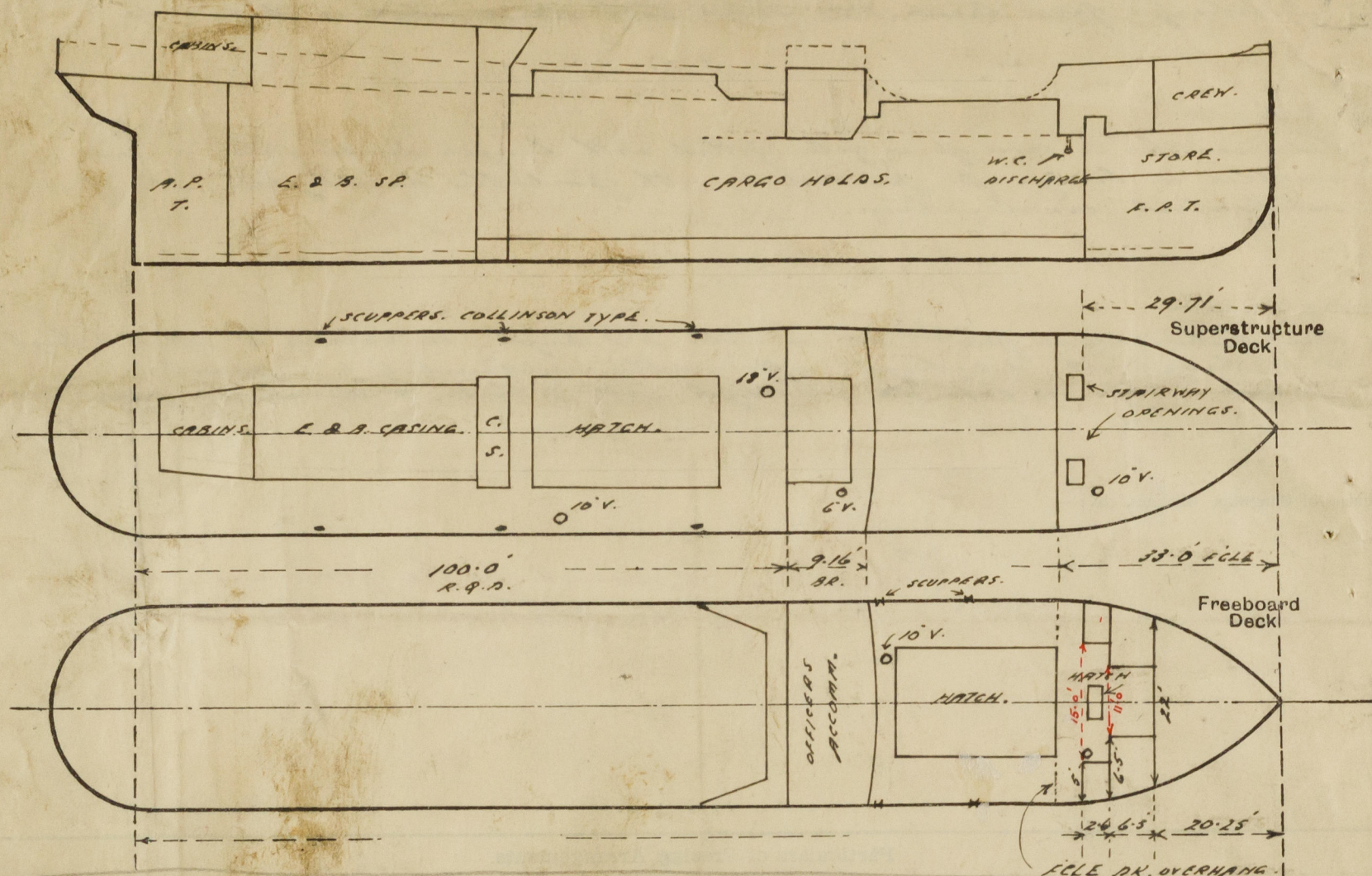
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Port Bulkhead								
Forward Quarter Deck Bulkhead25	5 1/2" x 3" x .36 L 3 x 2 1/2" x .30 L			None		
Bridge, After Bulkhead								
Bridge, Forward Bulkhead26	5 1/2" x 3" x .36 L	30"		None		
Castell Bulkhead25	.25	2 1/2" x 2 1/2" x .25	27"	None	4'-11" x 2'-0" 2 in N.	16"	
Trunk, Aft								
Trunk, Forward								
Forward Machinery Casings on Forward or Raised Quarter Decks35	.25	3 x 2 1/2" x .32	27 1/2"	None @ top	4'-11" x 2'-0" 4 in N.	16"	7'-0"
Forward Machinery Casings on Superstructure Decks								
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).

Port Bulkhead	
Forward Quarter Deck Bulkhead	
Bridge, After Bulkhead	
Bridge, Forward Bulkhead	
Castell Bulkhead	Parallel teak doors hinged, manipulated from both sides.
Forward Machinery Casings on Forward or Raised Quarter Decks	Steel doors, hinged, do. do.
Forward Machinery Casings on Superstructure Decks	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	

Five Queen

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:—



Particulars of displacement as received from Gls. Surveyors.

External Displ. @ 13 ft extreme draught	1251 tons.	Tons per inch	9.52
do. do 14 do.	1366 "	do.	9.61

Do. 20. 14 Do. 1366 Do. 53 9.61
 omit
 Foucault. $20.26 + \frac{6.3 \times 6.5}{12.5} + \frac{25 \times 5}{12.5} = 24.71$. Overhang = $29.71 - 24.71 = 5.00$
 special features in the construction of the ship.

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

Vessel Surveyed afloat.

The following recommendations have been made in order to comply with the regulations for assignment of subboards:

Stanchions & wire rail to be fitted at port hatch between Bridge & tile,
(utilising hatch top as platform).
Freeing port doors to be made workable, ring bolt (for closing) to be removed,
& protecting rod fitted across opening.

Additional greasing port area to be arranged in R. & D. bulwarks. (2)

air pipes to be provided with wood plugs or canvas covers, & to have
air hole drilled in top.

Steel shods on hatch fore & afters to be repaired, & steel bearing plates fitted on lower side where crossing hatch beams.

Builder's name and yard number.....✓

Names of sister ships.....✓

Owners *Light Shipping Co. Ltd., (Ross & Marshall Ltd. Mgrs.)*

Fee £ 6 : 16 : 0 Received by me