

Rpt. C.11.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Shelter deck.

Port of Survey Liverpool

Date of Survey Oct 1932.

Name of Surveyor R.K. Ruthven

Particulars of Classification 100.17.1.
S.S. Mch. No. 2-30

Ship's Name BIRCHBANK (Type of Superstructures.)

Ship's Name BENVANNOCH Nationality and Port of Registry British Liverpool Official Number 145891 Gross Tonnage 6426 Date of Build 1921-11M.

Moulded Dimensions: Length L.W.L. 399'5" Breadth 52'16" Depth 24'6" upper deck.

Moulded displacement at moulded draught = 85 per cent. of moulded depth 15093 tons

Coefficient of fineness for use with Tables .793

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <u>24'6"</u>	(a) Where D is greater than Table depth (D-Table depth) R = <u>(34.66 - 26.63)/3 = 33.09</u>	Moulded Breadth (B) <u>52'16"</u>
Stringer plate ... <u>144'4"</u>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{12.52}{50} = 12.52$
Sheathing on exposed deck		Ship's Round of Beam = <u>13</u>
$T \left(\frac{L-S}{L} \right) =$		Difference <u>.48</u>
Depth for Freeboard (D) = <u>34'66"</u>	If restricted by superstructures	Restricted to
		Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.48}{4} \times 1.732 = 1.09$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...						Standard Height of Superstructure <u>7'49"</u>
" overhang ...						" " R.Q.D. <u>"</u>
R.Q.D. enclosed ...						Deduction for complete superstructure <u>41.96</u>
" overhang ...						Percentage covered $\frac{S}{L} = \frac{35.8}{52.16} = .68$
Bridge enclosed ...	<u>143'0"</u>	<u>107.25</u>	<u>7'9"</u>		<u>107.25</u>	" " $\frac{S_1}{L} = \frac{26.84}{52.16} = .51$
" overhang aft ...						" " $\frac{E}{L} = \frac{26.84}{52.16} = .51$
" overhang forward						Percentage from Table, Line A.
" cle enclosed ...						(corrected for absence of forecastle (if required))
" overhang ...						Percentage from Table, Line B. <u>(17.01 - 5) = 12.01</u>
Trunk aft ...						(corrected for absence of forecastle (if required))
" forward ...						Interpolation for bridge less than 2L (if required)
Tonnage opening aft ...						Deduction = <u>41.96 x .1201 = 5.04</u>
" forward						
Total ...	<u>143.0</u>	<u>107.25</u>			<u>107.25</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<u>49.95</u>	1		<u>49.95</u>	<u>46.0</u>	<u>46.15</u>	1		<u>46.15</u>	Mean actual sheer aft = <u>deficient</u>
$\frac{1}{2}$ L from A.P. ...	<u>22.23</u>	4		<u>88.92</u>	<u>20.0</u>	<u>19.15</u>	4		<u>76.60</u>	Mean actual sheer forward = <u>deficient</u>
$\frac{3}{4}$ L " ...	<u>5.49</u>	2		<u>10.98</u>	<u>5.0</u>	<u>4.19</u>	2		<u>9.58</u>	Mean standard sheer forward
Amidships ...		4					4			Length of enclosed superstructure forward of amidships = <u>nil</u>
$\frac{3}{4}$ L from F.P. ...	<u>10.98</u>	2		<u>21.96</u>	<u>10.0</u>	<u>10.02</u>	2		<u>20.04</u>	" " aft of " = <u>nil</u>
$\frac{1}{2}$ L " ...	<u>44.46</u>	4		<u>177.84</u>	<u>41.0</u>	<u>40.09</u>	4		<u>160.36</u>	
F.P. ...	<u>99.90</u>	1		<u>99.90</u>	<u>91.0</u>	<u>90.00</u>	1		<u>90.00</u>	
Total ...				<u>449.95</u>					<u>403.33</u>	

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{46.62}{18} \left(.75 - \frac{.179}{2} \right) = 1.48$$

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.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.793 + .68}{1.36} = \frac{1.473}{1.36}$
Depth to Freeboard Deck =	$\Delta =$	Depth Correction ... <u>33.09</u>
Summer freeboard =	Tons per inch immersion at summer load water line	Deduction for superstructures ... <u>5.04</u>
Moulded draught (d) =	T =	Sheer correction ... <u>1.48</u>
Correction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches =	Deduction = $\frac{\Delta}{40T}$ inches =	Round of Beam correction ... <u>.0</u>
Addition for Winter North Atlantic Freeboard (if required) =		Correction for Thickness of Deck amidships ...
		Other corrections, scantlings, etc. ... <u>in inside of lower half.</u>

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line.

Tropical Fresh Water Line above Centre of Disc ...		Tropic
Fresh Water Line " " ...		F
Tropical Line " " ...		
Winter Line below " " ...		
Winter North Atlantic Line " " ...		

sides along Bridge alleyway.

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Shelter SK → Port DK ← Shelter SK									
Description of Hatchway		1	2	3	4	5			
Dimensions of Hatchway		19-6x14-0	28-2x16-0	13-0x17-6	26-0x16-0	19-6x16-0			
COAMINGS	Height above Deck	30"							
	Thickness	.444							
	Sides								
	Ends								
Stiffeners		7x3.8.4							
Brackets, Stays		as no 1.							
HATCH BEAMS	Number	3	5	2	5	3			
	Spacing	4-10 1/2	4-8 1/2	4-4	4-4	4-10 1/2			
	Scantling and Sketch	13x.34 Angles	14x.34 Angles	14x.34 Angles	12x.34 Angles	as no 1.			
	Bearing Surface	3x3x.42 6x4x.48 3 1/2	3 1/2x3x.42 6x4 1/2x.54 3 1/2	4x3x.44 6x4x.54 3 1/2	as no 2				
FORE AND AFTERS	Number								
	Spacing								
	Unsupported Lengths								
	Scantling* and Sketch								
Bearing Surface									
HATCH COVERS	Material	WW.							
	Thickness	2 3/4							
	How fitted	7x2.							
	Bearing Surface	3							
Spacing of Cleats		22							
Number of Tarpaulins		3							
*Are wood fore and afters steel shod at all bearing surfaces? <input checked="" type="checkbox"/> Are battens and wedges efficient and in good condition? <input checked="" type="checkbox"/> Are tarpaulins in good condition and in accordance with rule requirements? <input checked="" type="checkbox"/> Are lashings provided in accordance with rule requirements? <input checked="" type="checkbox"/>									

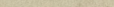
Particulars of fiddley, funnel and ventilator coamings:—

Engine Room skylight, Steel, strong construction.
Funnel & ventilator coverings are efficient.
Briged steel covers over fidelly gratings.
Coal hatches on casing tops 4'-2" x 18'-0". Coaming 11" x 34". W.W. covers 2 3/4" x 4".
Bearing 3" cleats 24" apart. 2. Tarpaulins

Particulars of Flush Bunker Scuttles :—

Zone.

Particulars of Companionways :—

1 P45 on Boat Deck at side of casing steel 4'-6" x 3'-0" x 6'-0" 
Solid hinged wood doors, operated from both sides
Sill 9 1/2" above wood deck.

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

In exposed position in freeboard and superstructure decks:—			
2 S.N. Vents, shells OK in bow	5" dia Casting 8" high To Store Canvas cover.	1 Vent. Steering gear & house top	Pt. 18" dia, beaming 30x40 To Hold
3 Vents shells OK first	Pt. 18" dia beaming 38x40. To Hold &c.	1 " " " "	2 1/2 " " 30x40 To Tunnel
4 " Boat "	" 18 " " 33x40 " " "	1 " " " "	5 12 " " 30x34 To ^{escape} tank &c.
1 Vent shells OK aft	" 12 " " 36x34 " " "	2 S.N. Vents. Boat deck	Pt. 5 1/2 " " 23x30 To Bunker
1 " & house top	" 18 " " 28x40 " " "	2 " " shells OK aft	" 5 1/2 " " 64x30 " Refig
2 Vents " "	9 " " 28x32 " gun	wood plugs & Canvas covers to " spades.	

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

[illegible]

wood plugs provided.

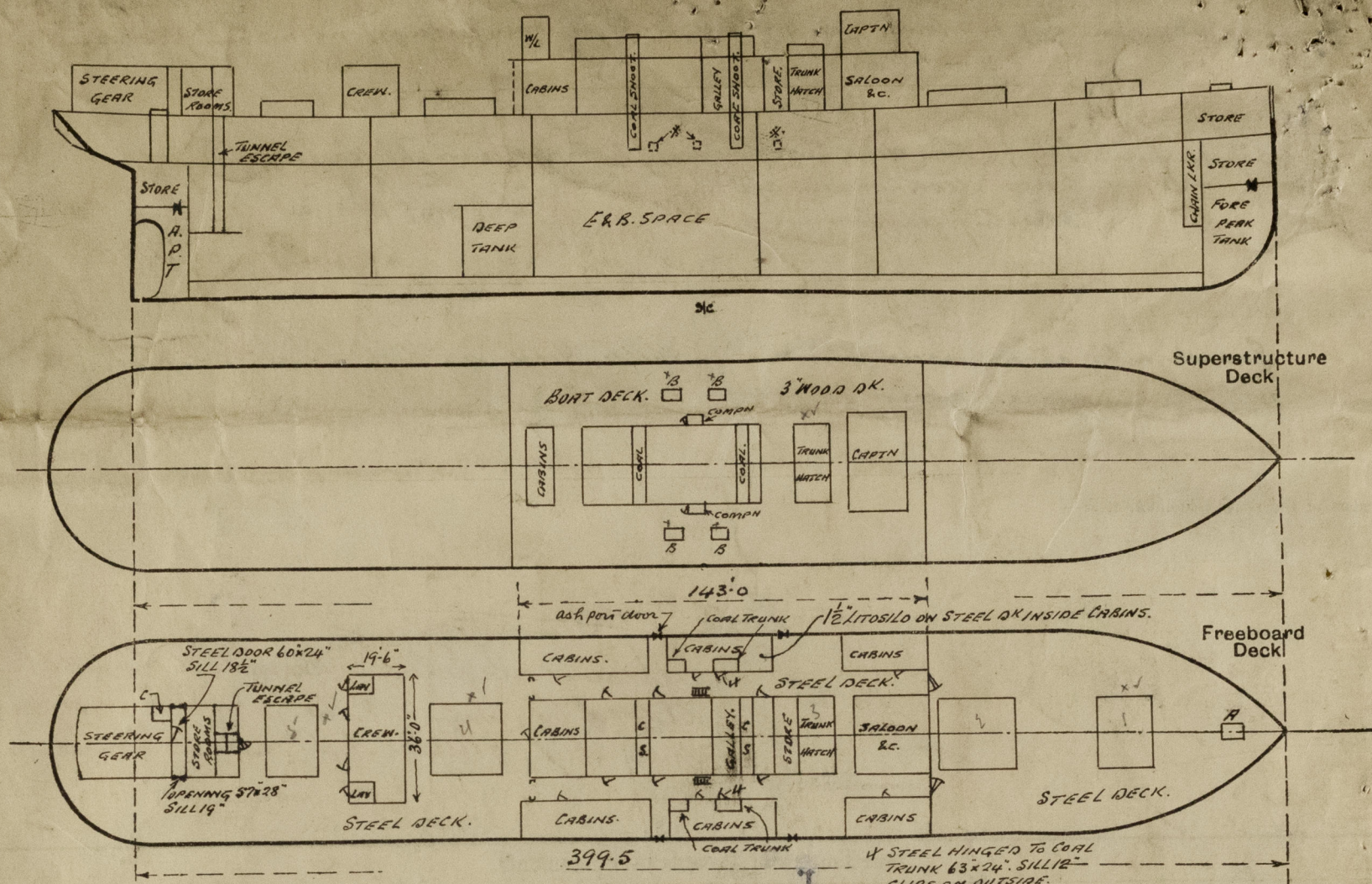
Shipping Ports :—

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22.

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:—



Ai. Hatch on shelter dk fwd 4'0" x 2'10"
 Coaming 9" x 36"
 w. w. hinged steel cover .30
 Hinged toggles with butterfly nuts

Tunnel escape at fore end of
 steering gear house, steel trunk
 hinged steel doors 60" x 24"
 operated from both sides
 Sill 20"

Manhole to fore & after peak
 tank. fitted with bolted &
 jointed steel plate cover

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

B. Coal Hatches on Boat deck 4'0" x 3'0"
 Coaming 15" x 36" above wood deck
 w. w. Grating covers 2 1/2" x 4".
 Bearing 2 1/2"
 Cleats 20" apart
 2 Tarpsaulins

Channels 3/4 height at after
 end of Bridge Twn & alleyways

C. Hatch inside steering gear house 4'0" x 3'0"
 Coaming 12" x 34"
 w. w. covers 2 1/2" x 4".
 Bearing 2 1/2"
 Locking Bar.

Survey when vessel afloat for
 Freeboard assignment only.

Builder's name and yard number. D & W. Henderson & Co Ltd. Glasgow No 505

Names of sister ships DAKOTIAN, DARIAN, DAYTONIAN, DAVISIAN, DELILIAN

Owners F. LEYLAND & CO LTD

Fee £ 14 : 9 : 0

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