

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD. No. 12706.

Index No. **23711**  
**163** (For London Office only.)  
 Section 1

Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~  
 having *complete Superstructure with Tonnage Opening*

Port of Survey *Bristol*

Date of Survey *6<sup>th</sup> June 1932*

Name of Surveyor *J. Anderson*

Particulars of Classification *+100 A.I.*  
*Shelter Deck with Freeboard.*

(Type of Superstructures.)

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<i>S. S. "CATO"</i>	<i>British Bristol</i>	<i>134,403</i>	<i>410</i>	<i>1914-6</i>

Moulded Dimensions: Length *230.42* Breadth *30.75* Depth *14.0*  
 Moulded displacement at moulded draught = 85 per cent. of moulded depth *1590* tons  
 Coefficient of fineness for use with Tables *.66* *.68 lowest allowed.*

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	<i>14.00</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>✓</i>		Moulded Breadth (B)	<i>30.75</i>
Stringer plate	<i>.03</i>			Standard Round of Beam = $\frac{B \times 12}{50}$	<i>7.38</i>
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$	<i>✓</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>(15.36-14.03) 1.772</i>		Ship's Round of Beam	<i>7.5/8</i>
		<i>= -2.36</i>		Difference	
Depth for Freeboard (D) =	<i>14.03</i>	If restricted by superstructures <i>✓</i>		Restricted to	
				Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right)$	<i>= \frac{24}{4} \times 0.119 = .286</i>

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<i>18.92</i>	<i>18.92</i>	<i>7.00</i>		<i>18.92</i>
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	<i>206.00</i>	<i>206.00</i>	<i>7.00</i>		<i>206.00</i>
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	<i>5.50</i>	<i>2.75</i>	<i>7.00</i>		<i>2.75</i>
" " forward ...					
Total ...	<i>230.42</i>	<i>227.67</i>			<i>227.67</i>

Standard Height of Superstructure *6.00*  
 " " R.Q.D. *✓*  
 Deduction for complete superstructure *29.04*  
 Percentage covered  $\frac{S}{L} = 100\%$   
 "  $\frac{S_1}{L} = 98.81\%$   
 "  $\frac{E}{L} = 98.81\%$   
 Percentage from Table, Line A. *98.53%*  
 (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 = *29.04*  $\times$  *98.53* = *-28.61*

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>33.04</i>	1		<i>33.04</i>	<i>22.00</i>	<i>22.00</i>	1		<i>33.04</i>
$\frac{1}{4}$ L from A.P. ...	<i>14.70</i>	4		<i>58.80</i>	<i>9.56</i>	<i>9.56</i>	4		<i>58.80</i>
$\frac{1}{2}$ L " ...	<i>3.63</i>	2		<i>7.26</i>	<i>2.38</i>	<i>2.38</i>	2		<i>7.26</i>
Amidships ...	<i>✓</i>	4		<i>✓</i>	<i>.00</i>	<i>✓</i>	4		<i>✓</i>
$\frac{3}{4}$ L from F.P. ...	<i>7.26</i>	2		<i>14.52</i>	<i>4.79</i>	<i>4.79</i>	2		<i>12.32</i>
$\frac{1}{4}$ L " ...	<i>29.40</i>	4		<i>117.60</i>	<i>19.20</i>	<i>19.20</i>	4		<i>99.68</i>
F.P. ...	<i>66.08</i>	1		<i>66.08</i>	<i>44.00</i>	<i>44.00</i>	1		<i>56.00</i>
Total ...	<i>297.36</i>			<i>297.30</i>					<i>267.10</i>

Mean actual sheer aft = *Excess*  
 Mean standard sheer aft = *Excess*  
 Mean actual sheer forward = *Deficient*  
 Mean standard sheer forward = *Deficient*  
 Length of enclosed superstructure forward of amidships = *6.55*  
 " " aft of " = *12.00*

Correction = Difference between sums of products  $\left( \frac{75-S}{2L} \right) = \frac{30.20}{18} (.75-.50) = +.42$

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 = *14.03*  
 Summer freeboard = *.17*  
 Moulded draught (d) = *13.86*

## Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = *3.46* = *3\frac{1}{2}*Addition for Winter North Atlantic Freeboard (if required) = *2"*

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$ 

Tons per inch immersion at summer load water line

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

## TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient *No correction*

Depth Correction ...

Deduction for superstructures ...

Sheer correction ...

Round of Beam correction ...

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, etc. ...

Summer Freeboard = *-1.97*

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

Tropical Fresh Water Line above Centre of Disc ... *5\frac{1}{2}"*  
 Fresh Water Line " " ... *3\frac{1}{2}"*  
 Tropical Line " " ... *1\frac{1}{2}"*  
 Winter Line below " " ... *3\frac{1}{2}"*  
 Winter North Atlantic Line " " ... *5\frac{1}{2}"*

Tropical Fresh Water Freeboard ... *MIN. 0' 1\frac{1}{2}"*  
 Fresh Water " ... *MIN. 0' 1\frac{1}{2}"*  
 Tropical " ... *0' 2" (LIMITED)*  
 Winter " ... *0' 5\frac{1}{2}"*  
 Winter North Atlantic " ... *0' 7\frac{1}{2}"*

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Existing freeboards re-assigned at owners request

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## PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS													
← SUPERSTRUCTURE DECK →							← FREEBOARD DECK →						
Description of Hatchway	...	...	N°1	N°2	N°3	N°4	TONNAGE OPENING	N°1	N°2	N°3	N°4	COAL HATCH	
Dimensions of Hatchway	...	...	20'-1" x 11'-11"	20'-1" x 11'-11"	20'-1" x 11'-11"	14'-8" x 11'-11"	5'-6" x 12'-0"	20'-1" x 11'-11"	20'-1" x 11'-11"	20'-1" x 11'-11"	14'-8" x 11'-11"	3'-8" x 3'-0"	
COAMINGS	{	Height above Deck	...	30"	30"	30"	30"	12"	7 1/2"	7 1/2"	7 1/2"	7 1/2"	7 1/2"
		Thickness	Sides	...	44"	44"	44"	40"	30"	50"	50"	50"	40"
			Ends	...	40"	40"	40"	36"	30"	42"	42"	42"	40"
		Stiffeners	...	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Brackets, Stays	...	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	
HATCH BEAMS	{	Number	...	3	3	3	2	3	3	3	2		
		Spacing	...	5'-0"	5'-0"	5'-0"	4'-9"	5'-0"	5'-0"	5'-0"	4'-9"		
		Scantling and Sketch	...	1 AT N°1	SAME AS N°1		1 AT N°1	NONE	ONE OFF EACH		NONE		
		Bearing Surface	...	5 1/2"	5 1/2"	5 1/2"	5 1/2"		3 1/2"	3 1/2"	3 1/2"	3 1/2"	
FORE AND AFTERS	{	Number	...	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	
		Spacing	...										
		Unsupported Lengths	...										
Scantling* and Sketch	...												
Bearing Surface	...												
HATCH COVERS	{	Material	...	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	
		Thickness	...	3"	3"	3"	3"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	
		How fitted	...	F. & A.	F. & A.	F. & A.	F. & A.	F. & A.	F. & A.	F. & A.	F. & A.	F. & A.	
		Bearing Surface	...	3"	3"	3"	3"	3"	3"	3"	3"	3"	
Spacing of Cleats	...	...	24"	24"	24"	24"	48"	30"	30"	30"	30"		
Number of Tarpaulins	...	...	3	3	3	3	2	1	1	1	1		

\*Are wood fore and afters steel shod at all bearing surfaces? NONE

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

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

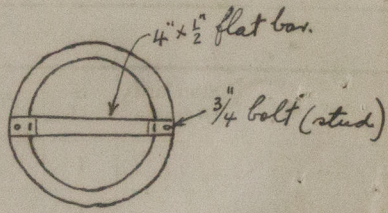
Are lashings provided in accordance with rule requirements? Yes.

Particulars of fiddley, funnel and ventilator coamings :—

Stokehold gratings covered by strong steel hinged covers.  
 Tidley and funnel ventilators in efficient condition.  
 Engine skylight of steel, strongly constructed.

Particulars of Flush Bunker Scuttles:—

Four scuttles on superstructure deck of cast iron fitted with bayonet joints. No means of attachment. Scuttles are additionally secured by  $4 \times \frac{1}{2}$ " flat bar on top with two  $\frac{3}{4}$ " bolts as per sketch.



Particulars of Companionways :—

One steel companion on poop deck, 4'-0" x 3'-0" x 5'-0" high, leading to enclosed crew's fore-castle. 1 3/8" solid wood door with 16" sill, door operated from both sides.

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

3 ventilators on superstructure deck 12" dia., boaming 30"x.25" led to hold.

1	"	"	"	"	12"	"	"	"	30"x.20"	"	"	"
1	"	"	"	"	8"	"	"	"	22"x.25"	"	"	tunnel.
1	"	"	"	"	8"	"	"	"	24"x.25"	"	"	A.P. store.

All ventilators constructed in accordance with the rules and coamings closed with wood plugs and canvas covers.

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

One W.L. air pipe on superstructure deck 15" high x 2" dia from D.B. tank  
 " " " " " " 24" " x 1 1/2" " " F.W. "  
 " " " " " " 12" " x 1 1/2" " " aft peak.  
~~Efficient closing appliances provided~~  
~~No sniffling holes, plugs, or covers.~~

Particulars of Gangway Cargo and Coaling Ports :—

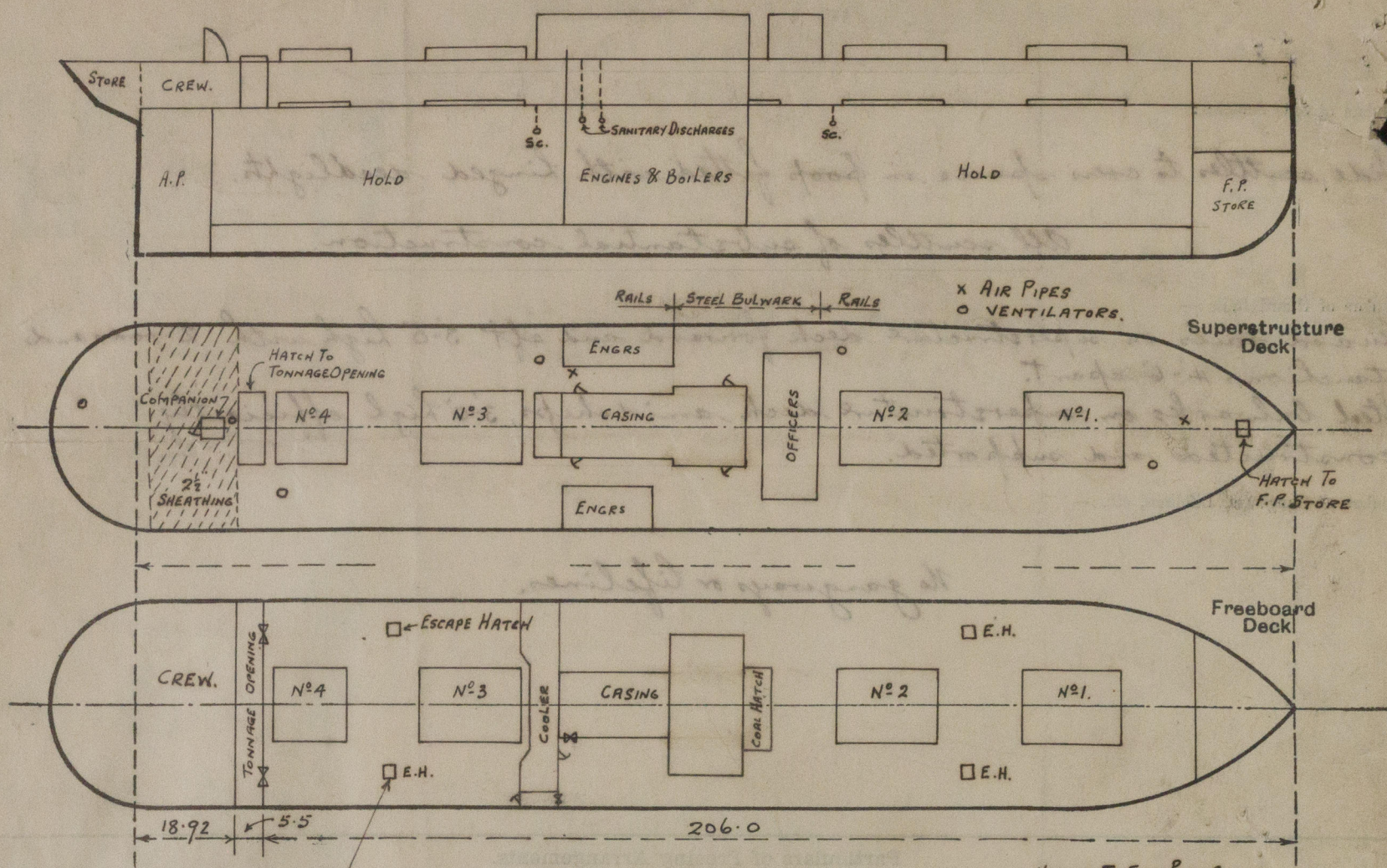
NONE.







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:—



4 ESCAPE HATCHES 2'-2" x 2'-2" ✓  
 COAMING 8" x 30" ✓  
 COVERS 2 1/2" W.P. ✓ REST BARS 2 1/2" ✓  
 ONE CLEAT ON EACH SIDE ✓  
 BATTENS & ONE TARPAULIN ✓

HATCH TO FORE PEAK STORE.  
 2'-2" x 2'-0" ✓  
 COAMING 9" x 30" ✓  
 COVERS 2 1/2" W.P. ✓  
 REST BARS 2 1/2" ✓  
 ONE CLEAT ON EACH SIDE ✓  
 BATTENS & TWO TARPAULINS ✓

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

This survey has been held afloat and is therefore confined to an examination of the means for closing the openings in the decks and sides of the vessel.

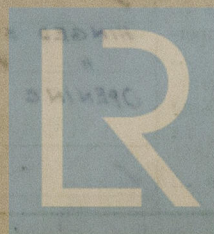
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Builder's name and yard number Campbeltown Shipbuilding Co. L<sup>d</sup>, Campbeltown Yard N<sup>o</sup> 99

Names of sister ships

Owners Bristol Steam Navigation Co. L<sup>d</sup>

No 6 : 16 : 0 Received by me



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