

10 NOV 1933

BT. COPY

Index. No. 34331
(For London Office only.)

Rpt. C.11.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Nº 31312

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Poop, Bridge & Forecastle

Port of Survey Sunderland

(Type of Superstructures.)

Date of Survey While building

Ship's Name

"ARC WEAR"

Nationality and Port of Registry

British
London

Official Number

163432

Gross Tonnage

4157

Date of Build

1934

Name of Surveyor Colin Bartlett

Moulded Dimensions: Length 360.0 Breadth 57.25 Depth 26.75

Moulded displacement at moulded draught = 85 per cent. of moulded depth 9401 tons

Coefficient of fineness for use with Tables .702

Particulars of Classification +100A1

class contemplated
"Arcform"

Depth for Freeboard (D)

Moulded depth 26.75

Stringer plate 39.

Sheathing on exposed deck None.

$T \left(\frac{L-S}{L} \right) =$

Depth for Freeboard (D) = 26.78

Depth correction

(a) Where D is greater than Table depth

(D - Table depth) R =

(26.78 - 24.00) 2.78 = + 7.70"

(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) 57.25

Standard Round of Beam = $\frac{B \times 12}{50} = 13.74'$

Ship's Round of Beam = 14.

Difference 26"

Restricted to

Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{26^2}{4} \times .4863 = - .03$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>33.08</u>	<u>33.08</u>	<u>7.50</u>	<u>7.50</u>	<u>33.08</u>
" overhang ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
R.Q.D. enclosed ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" overhang ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Bridge enclosed ...	<u>119.00</u>	<u>119.00</u>	<u>7.75</u>	<u>7.75</u>	<u>119.00</u>
" overhang aft ...	<u>3.00</u>	<u>2.25</u>	<u>7.75</u>	<u>7.75</u>	<u>2.25</u>
" overhang forward ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Fore enclosed ...	<u>30.58</u>	<u>30.58</u>	<u>7.50</u>	<u>7.50</u>	<u>30.58</u>
" overhang ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Trunk aft ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" forward ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Tonnage opening aft ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" " forward ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Total ...	<u>185.66</u>	<u>184.91</u>	<u>✓</u>	<u>✓</u>	<u>114.91</u>

Standard Height of Superstructure 7.10

" " R.Q.D. ✓

Deduction for complete superstructure 39.33

Percentage covered $\frac{S}{L} = 51.57\%$

" " $\frac{S_1}{L} = 51.37\%$

" " $\frac{E}{L} = 51.37\%$

Percentage from Table, Line A.

(corrected for absence of forecastle (if required))

Percentage from Table, Line B. 37.37%

(corrected for absence of forecastle (if required))

Interpolation for bridge less than .2L (if required)

Deduction = 39.33 x 37.37 = 14.70

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>46.00</u>	<u>1</u>	<u>✓</u>	<u>46.00</u>	<u>51.00</u>	<u>51.00</u>	<u>1</u>	<u>✓</u>	<u>51.00</u>
$\frac{1}{2}$ L from A.P. ...	<u>20.47</u>	<u>4</u>	<u>✓</u>	<u>81.88</u>	<u>23.00</u>	<u>23.00</u>	<u>4</u>	<u>✓</u>	<u>92.00</u>
$\frac{3}{8}$ L " ...	<u>5.06</u>	<u>2</u>	<u>✓</u>	<u>10.12</u>	<u>5.75</u>	<u>5.75</u>	<u>2</u>	<u>✓</u>	<u>11.50</u>
Amidships ...	<u>✓</u>	<u>4</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>4</u>	<u>✓</u>	<u>✓</u>
$\frac{3}{8}$ L from F.P. ...	<u>10.12</u>	<u>2</u>	<u>✓</u>	<u>20.24</u>	<u>11.50</u>	<u>11.50</u>	<u>2</u>	<u>✓</u>	<u>23.00</u>
$\frac{1}{2}$ L " ...	<u>40.94</u>	<u>4</u>	<u>✓</u>	<u>163.76</u>	<u>46.00</u>	<u>46.00</u>	<u>4</u>	<u>✓</u>	<u>184.00</u>
F.P. ...	<u>92.00</u>	<u>1</u>	<u>✓</u>	<u>92.00</u>	<u>102.00</u>	<u>102.00</u>	<u>1</u>	<u>✓</u>	<u>102.00</u>
Total ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>414.00</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>463.50</u>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{49.50}{18} \left(.75 - .2579 \right) = -1.35$

If limited on account of midship superstructure.

Mean actual sheer aft = Excess

Mean actual sheer forward = Excess

Mean standard sheer forward = Excess

Length of enclosed superstructure forward of amidships = > .10

" " aft of " = > .10

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 26.78

Summer freeboard = 4.33

Moulded draught (d) = 22.45

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.61

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ 9274

Tons per inch immersion at summer load water line

T = 40.4

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

= 5.34

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.68 + .702}{1.36} = \frac{1.382}{1.36}$

Depth Correction 7.70

Deduction for superstructures 14.70

Sheer correction 1.35

Round of Beam correction03

Correction for Thickness of Deck amidships ✓

Other corrections, scantlings, etc. ✓

7.70 16.08 -8.38

Summer Freeboard = 51.99

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

Tropical Fresh Water Line above Centre of Disc ...	<u>11 1/2"</u>
Fresh Water Line " " ...	<u>5 3/4"</u>
Tropical Line " " ...	<u>5 1/2"</u>
Winter Line below " " ...	<u>5 1/2"</u>
Winter North Atlantic Line " " ...	<u>✓</u>

Tropical Fresh Water Freeboard ...

Fresh Water " ...

Tropical " ...

Winter " ...

Winter North Atlantic " ...

14 NOV 1933

RECEIVED 16 SEP 1938

RECEIVED 10 JUN 1938

RECEIVED 1 JAN 1938

10 NOV 1933

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS											
		UPPER DECK					Bridge Deck	Bridge 45 Bunker Hatches	under Bridge 2 Bunker Hatches	under Bridge 2 Bunker Hatches	under Br. 47 Bunker Hatches
Description of Hatchway		N ^o 1	N ^o 2	N ^o 3	N ^o 4	N ^o 5					
Dimensions of Hatchway		28'x20'	28'x20'	21'x20'	28'x20'	28'x20'	21'x20'	7'0"x3'32"	11'10"x3'6"	9'4"x3'6"	2'0"x2'0"
COAMINGS	Height above Deck	34"	41"	9" B.A.	34"	30"	30"	30"	9x3x44 B.A.	9x3x44 B.A.	11"x32"x40 B.A.
	Thickness	44"	40"	44"	44"	44"	44"	40"			
	Stiffeners	7x3x40 B.A.	No. 1								
	Brackets, Stays	3-2 1/2" Rds.									
HATCH BEAMS	Number	3	3	2	3	3	2				
	Spacing	7'0"	As	As	As	As	As				
	Scantling and Sketch	4x20x38 4 1/2 x 3 x 48	No. 1	No. 1	No. 1	No. 1	4-16x36 4 1/2 x 3 x 46				
	Bearing Surface	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"				
FORE AND AFTERS	Number										
	Spacing										
	Unsupported Lengths										
	Scantling* and Sketch										
Bearing Surface		Shearwood Patent Hatch Covers									
HATCH COVERS	Material	Steel 3/20"	Steel 3/20"	Steel 3/20"	Steel 3/20"	Steel 3/20"	Steel 3/20"	Wood 2 1/2"	Wood 2 1/2"	Wood 2 1/2"	Steel 1/4"
	Thickness	3/20"	3/20"	3/20"	3/20"	3/20"	3/20"	2 1/2"	2 1/2"	2 1/2"	1/4"
	How fitted	Fore & aft	Fore & aft	Fore & aft	Fore & aft	Fore & aft	Fore & aft	Fore & aft	Fore & aft	Fore & aft	8 toggles fitted
	Bearing Surface	3"	3"	3"	3"	3"	3"	24"	24"	24"	
Spacing of Cleats		24"	24"	24"	24"	24"	24"	24"	24"	24"	
Number of Tarpaulins		2	2	2	2	2	2	2	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 fiddle, funnel and ventilator coamings:—

Stokehold gratings covered by strong steel sprung covers.
Fiddle and engine room ventilator efficient.
Engine room skylight of steel, strongly constructed.

Particulars of Flush Bunker Scuttles:—

None

Particulars of Companionways:—

One steel companion on Poop. 4'3"x3'4"x6'0" of 30" steel fitted with 1 1/2" solid wood doors. Sill 18 ins.

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

On Fore. One, 13" dia. to No. 1 hold. Coaming 36"x40"
On Forward Well. Four, 13" dia. to holds. Coaming 36"x34"
On Bridge Deck. Two, 18" " " " " 30"x40"
Two, 10" " " " " 30"x32"
Two, 18" " " " " 30"x40"

after Well. Seven, 13" diam. Coaming 36"x34" to holds. One, 9" " " 36"x32" funnel
Poop. Twelve, 5" dia. to accom. Coaming 30"x24"
One 7" " " " 30"x24"
Wood plugs & canvas covers supplied for all ventilators

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

On Forecastle. One 3" A.P. to Fore Peak 36" high.
On Forward Well. One 3 1/2" A.P. to No. 1 B. Tank 36" high.
Two 3 1/2" A.P.'s " No. 2 " " 36" "
On Bridge Deck. Two 3 1/2" A.P.'s to Dry Tank 18" high.
Two 5" A.P.'s to E. B. Tank 18" high.
Two 3" A.P.'s to after Main B. Tank 18" high

On after Well. Two 2 1/2" A.P.'s to after D.B. Tank 36" high
On Poop. Two 2 1/2" A.P.'s to after Peak. 18" high

All valves fitted to all air pipes.

Particulars of Gangway Cargo and Coaling Ports:—

None



© 2020

Lloyd's Register Foundation

Particulars of Scuppers and Sanitary Discharge Pipes :-

Two - 3 1/2" Scuppers in Bridge with brass storm valves.
 One - 1 1/2" " from Ice House with brass storm valve.
 Two - 2 1/2" Discharges in Poop from Crews Wash Houses with brass storm valves.
 Two - 3 1/2" Soil Pipes with brass storm valves and traps, in Poop.

Particulars of Side Scuttles :-

In Poop. 9" side scuttles of substantial construction and fitted with sprung deadlights.

Particulars of Guard Rails :-

On Poop, Bridge Deck and Forecastle - 2 Rails, 40" high with Stanchions 5' 4" apart.

Bulwarks in wells. 130 plate 6x3x30 B.A bar.
 10" Bulk Plate slay 6ft apart

Particulars of Gangways, Lifelines, etc. :-

Two steel wire lifelines in stanchions rigged in forward well and in after well, one port side and one on the starboard side.

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	85'-8"	42"	23'-10" x 9" 24'-0" x 9"	1. 1.	35.85	17.13.
Forward Well	88'-8"	42"	24'-0" x 9" 22'-9" x 9"	1. 1.	35.06.	17.73.

State position of each freeing port } After Well :- 1'-8'-6" 24'-0" 17'-10" 23'-10" 19'-0" 1'-0".
 P. and A. position and height above deck edge } Forward Well :- 1'-10'-0" 24'-0" 16'-6" 24'-0" 16'-0" 1'-0".
 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	40	40	6x3x33 B.A	40"	Plat at top 6x6 lug at bottom	None		
Raised Quarter Deck Bulkhead ...	-	-						
Bridge, After Bulkhead	33	33	5x3x30	40"	Plat at top lugs at bottom	4'-6"x3'-0 1/2"	18"	
Bridge, Forward Bulkhead	48	48	10x3 1/2x40 B.A	40"	Plat at top lugs at bottom	None		
Forecastle Bulkhead	36	36	5x3 1/2x34	45"	Plat at top only	4'-6"x3'-1"	18"	
Trunk, Aft	-	-						
Trunk, Forward	-	-						
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	-	-						
Exposed Machinery Casings on Super-structure Decks	34	30	3 1/2x3x30	37"	None	4'-6"x2'-3"	18"	7' 9 1/2.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	30	26	3 1/2x3x30	28"	None	-	-	-
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead	None.
Raised Quarter Deck Bulkhead ...	-
Bridge, After Bulkhead	3" full height shifting boards in riveted channels
Bridge, Forward Bulkhead	None
Forecastle Bulkhead	3" full height shifting boards in riveted channels
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	-
Exposed Machinery Casings on Super-structure Decks	26" steel door
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	None.
Deckhouses on Flush Deck Ships ...	-

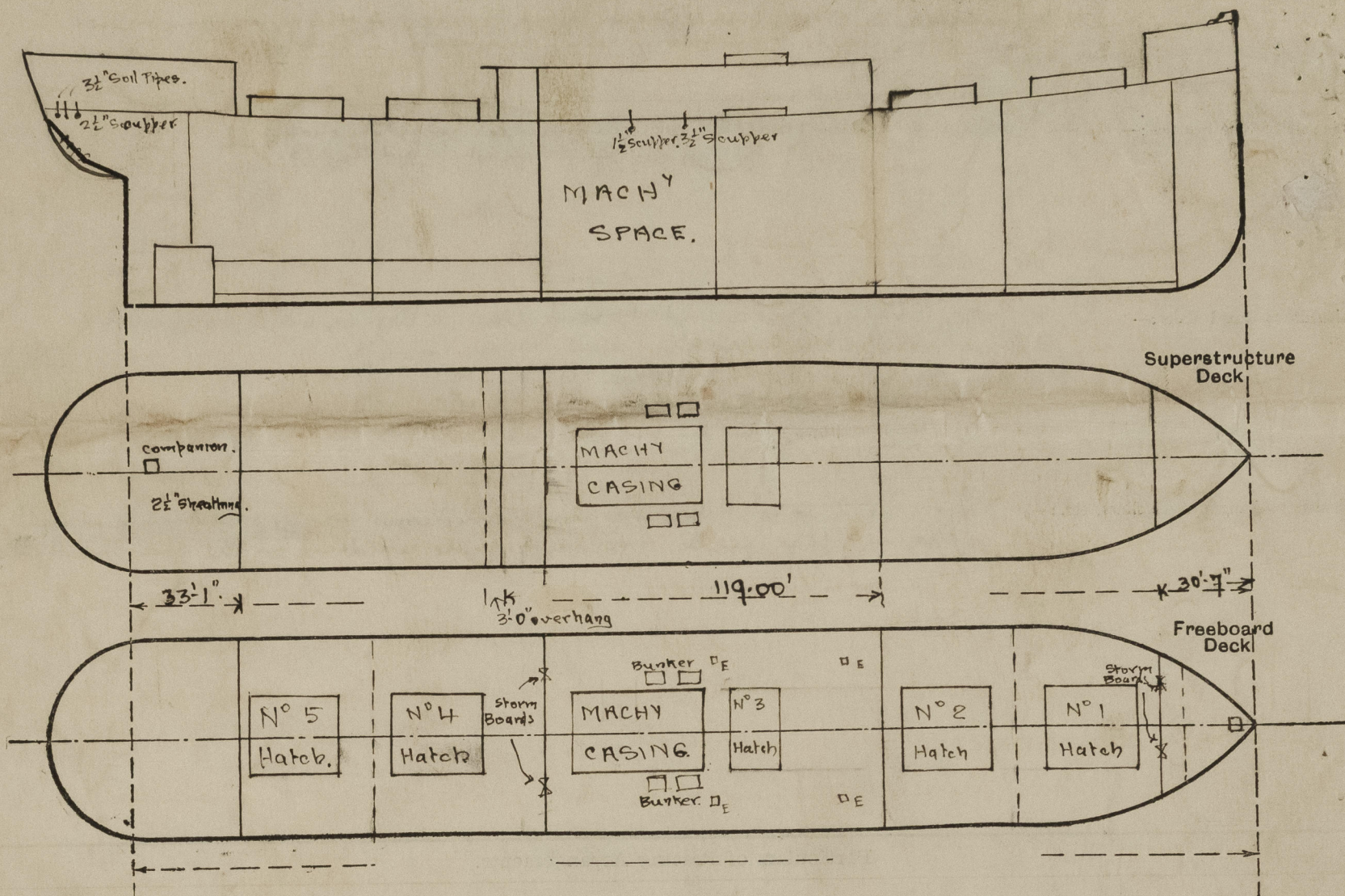


© 2020

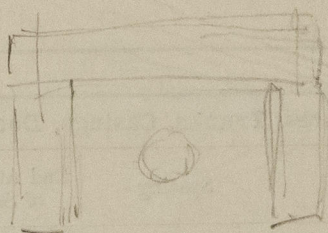
Lloyd's Register Foundation

Lord Cockrane

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:—



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



over 17

Builder's name and yard number *Messrs Short Bros: No. 443.*

Names of sister ships

Owners *"Arcwear" Shipping Co.*

Fee £ *15*

Received by me

Will be charged on completion

over 17



© 2020

Lloyd's Register Foundation