

B.T. COPY WRITTEN.

Rpt. C.11.

Reg 9 attached.
CARDIFF. 49845.
7 OCT 1932
Index. No. 29908
(For London Office only.)
Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tugboat
having Prop, Bridge & Forecastle
(Type of Superstructures.)
Port of Survey Cardiff
Date of Survey 4th & 5th Oct., 1932
Name of Surveyor E. Brimblecombe
Particulars of Classification 100 A1
S.S. 9/No. 2-30

Ship's Name <u>S.S. "PENCARROW"</u> <u>AVON</u>	Nationality and Port of Official Number <u>British Panama</u> <u>137213</u>	Gross Tonnage <u>4841</u>	Date of Build <u>1921, 7 mo.</u>
Moulded Dimensions: Length <u>389.63</u> Breadth <u>51.75</u> Depth <u>29.5</u>			
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>11430</u> tons			
Coefficient of fineness for use with Tables <u>791</u>			

Depth for Freeboard (D) Moulded depth <u>29.5</u> Stringer plate <u>48</u> <u>04</u> Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ Depth for Freeboard (D) = <u>29.54</u>	Depth correction (a) Where D is greater than Table depth (D - Table depth) R = <u>3.57</u> <u>(29.54 - 25.97) 2.997</u> <u>10.7</u> (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) <u>51.75</u> Standard Round of Beam = $\frac{B \times 12}{50} =$ <u>12.42</u> Ship's Round of Beam = <u>12.4</u> Difference <u>.8</u> Restricted to Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) =$ <u>0.8 x 894</u> <u>4 - 21</u>
---	--	---

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed	<u>40.0</u>	<u>40.00</u>	<u>7'-6"</u>		<u>40.00</u>	Standard Height of Superstructure <u>7.396</u>
" overhang						" " R.Q.D.
R.Q.D. enclosed						Deduction for complete superstructure <u>41.31</u>
" overhang						Percentage covered $\frac{S}{L} =$ <u>51.06</u>
Bridge enclosed	<u>121.33</u>	<u>121.33</u>	<u>7'-6"</u>		<u>121.33</u>	" " $\frac{S_1}{L} =$ <u>51.06</u>
" overhang aft						" " $\frac{E}{L} =$ <u>51.06</u>
" overhang forward						Percentage from Table, Line A. (corrected for absence of forecastle (if required)) <u>37.06</u>
Fore enclosed	<u>35.59</u>	<u>35.59</u>	<u>7'-6"</u>		<u>35.59</u>	Percentage from Table, Line B. (corrected for absence of forecastle (if required)) <u>37.06</u>
" overhang	<u>2.04</u>	<u>2.04</u>			<u>2.04</u>	Interpolation for bridge less than 2L (if required)
Trunk aft						Deduction = <u>41.31 x 37.06 = 15.31</u>
" forward						
Tonnage opening aft						
" " forward						
Total	<u>198.96</u>	<u>198.96</u>			<u>198.96</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.	<u>48.96</u>	1		<u>48.96</u>	<u>60.0</u>	<u>60.00</u>	1		<u>60.00</u>	Mean actual sheer aft = <u>Excess</u> Mean standard sheer aft
$\frac{1}{8}$ L from A.P.	<u>21.79</u>	4		<u>87.16</u>	<u>26.07</u>	<u>26.07</u>	4		<u>104.28</u>	Mean actual sheer forward = <u>Excess</u> Mean standard sheer forward
$\frac{2}{8}$ L "	<u>5.38</u>	2		<u>10.76</u>	<u>6.52</u>	<u>6.52</u>	2		<u>13.04</u>	Length of enclosed superstructure forward of amidships = $\frac{64.015}{389.63} = .164$
Amidships		4					4			" " aft of " = $\frac{57.315}{389.63} = .147$
$\frac{3}{8}$ L from F.P.	<u>10.76</u>	2		<u>21.52</u>	<u>13.23</u>	<u>13.23</u>	2		<u>26.46</u>	
$\frac{1}{8}$ L "	<u>43.58</u>	4		<u>174.32</u>	<u>52.93</u>	<u>52.93</u>	4		<u>211.72</u>	
F.P.	<u>97.92</u>	1		<u>97.92</u>	<u>120.0</u>	<u>120.00</u>	1		<u>120.00</u>	
Total				<u>440.64</u>					<u>535.50</u>	
Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) =$ <u>$\frac{94.86}{18} (.75 - .2553) = -2.61$</u>										
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. Ft. Depth to Freeboard Deck = Summer freeboard = Moulded draught (d) = Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = Addition for Winter North Atlantic Freeboard (if required) =	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 =	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient <u>$\frac{791+68}{136}$</u> Depth Correction <u>10.7</u> Deduction for superstructures <u>15.31</u> Sheer correction <u>2.61</u> Round of Beam correction <u>.01</u> Correction for Thickness of Deck amidships Other corrections, scantlings, etc. <u>10.7 1793 - 7.23</u> Summer Freeboard = <u>66.43</u>
---	---	---

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

Tropical Fresh Water Line above Centre of Disc	Tropical Fresh Water Freeboard
Fresh Water Line " "	Fresh Water " "
Tropical Line " "	Tropical " "
Winter Line below " "	Winter " "
Winter North Atlantic Line " "	Winter North Atlantic " "

© 2020

Lloyd's Register
Foundation

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

		HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS							
		Freeboard deck		Bridge deck		Superstructure deck			
Description of Hatchway		Nº 1	Nº 2	Nº 3	Nº 4	Cross bunker	Cross bunker		
Dimensions of Hatchway		26'-0" x 18'-0"	28'-3" x 18'-0"	28'-0" x 18'-0"	25'-9" x 18'-0"	12'-9" x 16'-0"	13'-0" x 16'-0"		
COAMINGS	Height above Deck	47"	52"	49"	38 1/2"	31"	20"		
	Thickness Sides	.44	.44	.44	.44	.44	.40		
	Thickness Ends	.44	.44	.44	.44	.44	.40		
	Stiffeners Sides & ends	8 x 3 1/2 x 47 B.A. to Nº 1	As Nº 1	As Nº 1	As Nº 1	As Nº 1	As Nº 1		
HATCH BEAMS	Bracket Stays	3 stays sides 4 stays ends 2 bolts A.E.	4 stays sides 4 stays ends 2 bolts F.E.	2 bolts A.E.	2 bolts F.E.	2 bolts A.E.	2 bolts F.E.		
	Num	4	5	5	5	2	2		
	Spacing	5'-2 1/2"	4'-8 1/2"	4'-8"	5'-2"	4'-3"	4'-4"		
	Scantling and Sketch	16 1/2 x 36	16 x 34	16 x 34	16 1/2 x 36	16 x 36	15 x 40		
FORE AND AFTS	Bearing Surface	3"	3"	3"	3"	3"	3"		
	Number								
	Spacing								
	Unsupported Lengths								
HATCH COVERS	Scantling and Sketch								
	Bearing Surface								
	Material	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.		
	Thickness	3"	3"	3"	3"	3"	3"		
HATCH COVERS	How fitted	F.A.A.	F.A.A.	F.A.A.	F.A.A.	F.A.A.	F.A.A.		
	Bearing Surface	3"	3"	3"	3"	3"	3"		
	Spacing of Cleats	24"	24"	24"	24"	24"	24"		
	Number of Tarpaulins	4	3	3	3	2	1		

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

Looking bars fitted to No. 1 Hatchway. 8/11/41 (Kure)

Particulars of fiddle, funnel and ventilator coamings:—

All in good condition.
 R. skylight of steel strongly constructed
 Fiddle gratings covered by hinged steel storm covers. ☒

Particulars of Flush Bunker Scuttles:—

none

Particulars of Companionways:—

None. Entrances (one each side) to crew's quarters in poop space through steel deckhouse on poop deck, doors 5'-0" x 2'-0", 1 1/2" hardwood, sills 13" above wood sheathing on poop deck.

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

Fore Well. One to hold 17 1/2" dia x 9'-6" x 40 (against A.E. of fore dk but not stayed to it).
Bridge dk. Two to hold 17 1/2" dia x 36 x 44
 Two to hold 17 1/2" dia x 9'-6" x 44, stayed to A.E. of saloon house.
After Well. Two to hold 11 1/2" dia x 32 x 30
 Two to hold 8 1/2" dia x 31 x 28
Fore Well. Three to hold 17 1/2" dia x 36 x 40
Poop dk. One to hold 9" dia x 30 x 30
Fore dk. One to F.P. 6" dia x 34 x 27

Wood plugs & canvas covers provided for closing. ☒

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

Fore dk. One C.I. from F.P. tank 2 1/2" dia x 16" (under breastplate on stem).
Bridge dk. Two W.I. " D.B. tanks 2 1/4" x 17" high
Fore Well. Two W.I. " " 2" x 17"
Poop dk. One C.I. " A.P. tank 3" x 3"

Heights given to mouths.
 No snifting holes or means of closing provided. Canvas covers.

Particulars of Gangway Cargo and Coaling Ports:—

none.

Pencarrow

Particulars of Scuppers and Sanitary Discharge Pipes:—

Two scuppers each side from bridge space, led through sides below freeboard deck, no storm valves; closed by bolted & jointed plates on deck.
 Five sanitary discharges port side & three starboard side, all discharging above freeboard dk & fitted with storm valves at outer ends.

Particulars of Side Scuttles:—

In poop, bridge & forecastle spaces of substantial construction & fitted with hinged deadlights.

Particulars of Guard Rails:—

Poop, bridge & forecastle dks, 3'-3" high, 3 rails, stanchions 4'-0" apart.

Particulars of Gangways, Lifelines, etc.:—

Substantial well constructed gangway connecting poop & bridge dks on port side.
 No lifelines provided for fore well.

Substantial provision made for pressing lifelines for use in the wells.

+ Increased at hurr 8/11/41 for deeper loading

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	97.5 ft	3'-4"	2'-9" x 1'-3" 2'-4" x 1'-3"	4 } 6 2 } 6	19.5 13.75 sq ft	19.5
Forward Well	93.17 ft	3'-7"	2'-9" x 1'-3" 2'-0" x 1'-3"	4 } 6 2 } 6	18.75 12.75 sq ft	18.6

State position of each freeing port ... After Well — Centres 2'-4", 33'-0", 56'-10" & 76'-6" from bridge bulkhead
 (F. and A. position and height above deck edge) Forward Well — Centres 11'-9", 41'-6", 66'-3" & 86'-3"
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— All fitted with hinged shutters, also one bar fitted F.A.A. across the centre of each port.
 Additional area where sheer is less than standard.

Freeing port area increased to 19.5 & 18.6 sq ft respectively at hurr. 8/11/41

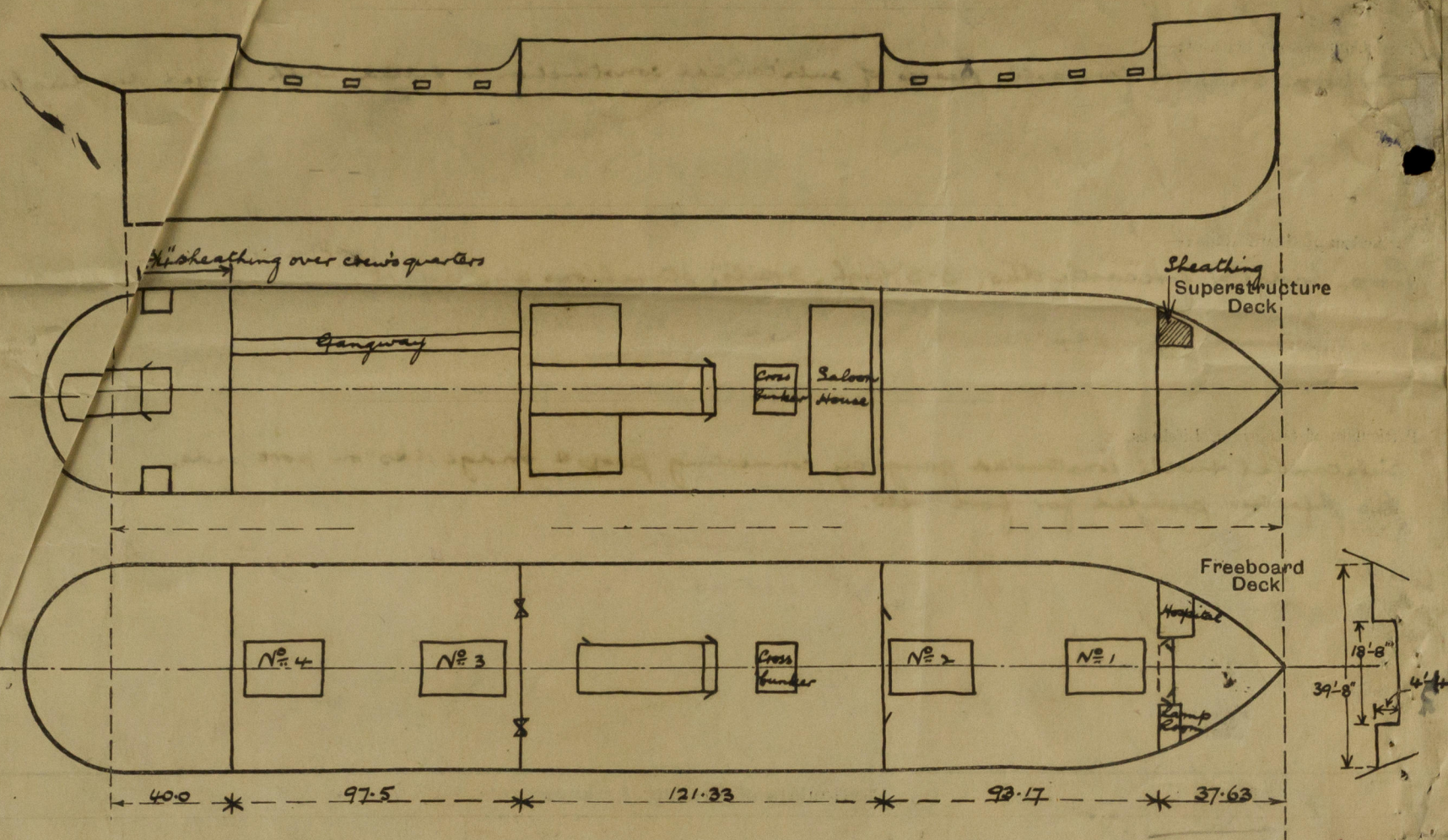
Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	21" x 42	.42	6 x 3 1/2 x 40	2'-4"	Bolts lower ends only	none	✓	
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	none	.25	4 x 3 x 40	4'-0"	Bolts lower ends only	(A) 5'-0" x 3'-6"	18"	
Bridge, Forward Bulkhead	18" x 42	.42	8 x 3 1/2 x 62 BA	2'-6"	Bolts top & bottom	(A) 5'-0" x 2'-6" (B) 2'-0" x 2'-0"	18" 4'-2"	
Forecastle Bulkhead	none	.25	3 x 3 x 36	3'-3"	none	(A) 5'-0" x 3'-7" (B) 5'-0" x 3'-7"	19" 19"	
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	30" x 40	.35	3 x 3 x 40	4'-4"	none	(A) 4'-5" x 2'-0"	18"	7'-6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	19" x 36	.30	3 x 3 x 40	4'-4"	none	(A) 4'-5" x 2'-0" (B) 4'-5" x 2'-0"	18" 19"	
Deckhouses on Flush Deck Ships								

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

Poop Bulkhead	none / no openings
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Riveted channels fitted but no storm boards. Closed by portable steel plates secured by four hook bolts (2 top & 2 bottom) & six bolts with plate clips inside (3 each side).
Bridge, Forward Bulkhead	Hinged steel doors secured by top bolts & manipulated from outside only.
Forecastle Bulkhead	Riveted channels fitted but no storm boards. Closed by hinged wood doors (white wood) with frame 2 1/2" thick & panels 1" thick. Hinged hardwood door to hospital port side. Hinged steel door to lamp room starboard side.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	Hinged steel doors worked both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors worked both sides.
Deckhouses on Flush Deck Ships	

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 clc
3763
18.67 x 4.33
37.07
7.04
3525

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

Small hatches

F. & B. casing top. One 6'-3" x 16'-6", coaming 10" x 33, 3" covers F&A. on 2" rests, cleats 24".

Bridge dk. Two coaling 6'-3" x 3'-4", " 31" x 32, 3" " athwart. " 2 1/2" " , " 24".

Two " 8'-4" x 3'-6", " 31" x 32, 3" " " 2 1/2" " , " 24".

Bridge space. Two " 3'-5" x 3'-5", " 9 1/2 x 3 1/2 x 40 BA, 2 1/2" covers athwart on 3" rests, cleats 24".

Two " 13'-0" x 3'-5", " 9 1/2 x 3 1/2 x 40 BA, 2 1/2" " " 3" " , " 24".

Two trimming 4'-0" x 3'-6", " 9 1/2 x 3 1/2 x 40 BA, 2 1/2" " F&A " 3" " , " 24".

Two escapes 1'-6" x 2'-5", " 9 1/2 x 3 1/2 x 40 BA, 2 1/2" " athwart " 3" " , " 20" x 12", also

covered with ringed steel flanged lid secured with hasp.
All the above hatches in bridge space provided with one tarpaulin, & remainder with two tarpaulins.

Information from Deadweight Scale:—

Staight	T.P.I.	Draught	D.W.
24'-0"	40.61	24'-3 1/4" (LWL)	8000
23'-0"	40.53	23'-2 3/4"	7500
22'-0"	40.45	22'-2 1/4"	7000

The vessel has been measured afloat while laid up.

Builder's name and yard number

Names of sister ships

Owners Shellew Nav. Co. Ltd (F. C. Perman, Mgr).

Fee £ 12 15 0

Received by me



© 2020
Lloyd's Register
Foundation