

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

7 MAY 1932

Computation of Freeboard for Steamer, Sailing Ship, Tanker

Having Raised Q Deck - Bridge - ForecastlePort of Survey Newcastle

(Type of Superstructures.)

Date of Survey 5th May, 1932

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

TORCH BEARERBritish
London16132412671929.11.Name of Surveyor P. H. BroadacreMoulded Dimensions: Length 224.70 Breadth 35.75 Depth 17.32Moulded displacement at moulded draught = 85 per cent. of moulded depth (14.70) 2585 tonsCoefficient of fineness for use with Tables .7647Particulars of Classification +100A1.

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	14.29	(a) Where D is greater than Table depth (D - Table depth) R =		Moulded Breadth (B)	35.75
Stringer plate	.05	(14.34 - 14.98) 1.429 =	+ 4.08	Standard Round of Beam = $\frac{B \times 12}{50}$	8.58
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$		(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	8 3/4 8.75
Depth for Freeboard (D) =	14.34	If restricted by superstructures		Difference	.17
				Restricted to	
				Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right)$	$\frac{.17^2}{4} (1 - .7509) = -.01$

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	126.875	126.75	3.5" AT CENTRE	3.42	113.18
" overhang			3.5" AT SIDE	3.42	
Bridge enclosed	15.975	15.75	7.0"		15.75
" overhang aft					
" overhang forward					
F'cle enclosed	26.32	26.20	3.0"	3/16	13.10
" overhang	+ 6.4" SEE SKETCH				
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	168.70	168.70			142.03

Standard Height of Superstructure	6.0'
" " R.Q.D.	3.83'
Deduction for complete superstructure	28.44
Percentage covered $\frac{S}{L} =$	45.09%
" " $\frac{S_1}{L} =$	45.09%
" " $\frac{E}{L} =$	63.22%
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	51.44%
Interpolation for bridge less than .2L (if required)	
Deduction =	28.44 x 51.44 = 14.65

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	32.47	1		32.47	21.00	21.00	1		21.00
1/4 L from A.P.	14.45	4		57.80	9.50	9.28	4		37.12
1/2 L	3.57	2		7.14	3.12	2.31	2		4.62
Amidships	-	4		-	-	-	4		-
3/4 L from F.P.	4.14	2		14.28	5.62	4.97	2		9.94
1/4 L	28.89	4		115.66	20.00	19.44	4		77.76
F.P.	64.94	1		64.94	45.00	45.00	1		45.00
Total	292.23			292.23					194.44

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{94.79}{18} (.75 - .3755) = +1.94$$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck	=	Ft.	20.76
Summer freeboard	=	5.13	
Moulded draught (d)	=	15.63	

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 3.91 = 4"

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 2573$

Tons per inch immersion at summer load water line

T = 16.12

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

= 3.99

= 4"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

$$\frac{.7647 \cdot 68}{1.36} \frac{1.446}{1.36} \times 24.34$$


	+	-
Depth Correction	4.08	
Deduction for superstructures		14.65
Sheer correction	1.97	
Round of Beam correction		.01
Correction for Thickness of Deck amidships		
Other corrections, scantlings, etc.	41.00	
	47.05	14.66
Summer Freeboard =	61.49	64

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

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

Tropical Fresh Water Freeboard	...
Fresh Water	"
Tropical	"
Winter	"
Winter North Atlantic	"

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS											
Upper Deck → Raised Q. Decks → Joyle. Upper Deck.											
Description of Hatchway	No. 1.	No. 2.	No. 3.	No. 4.	Coal Hatch.	Locabe Hatch.	2. Hatch.	Locabe Hatch.	
Dimensions of Hatchway	23'9" x 23'0"	23'9" x 23'6"	28'3" x 23'6"	26'0" x 23'6"	4'6" x 22'9"	2'3" x 2'4"	2'0" x 1'8"	2'4" x 2'5"	
COAMINGS	{	Height above Deck	...	5'4"	5'4"	5'4"	5'4"	5'4"	27"	28" (23)	28"
		Thickness { Sides	...	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	36"	34"	32"
		Ends	...	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	36"	34"	32"
		Stiffeners 8" x 3" x 4 1/2" BA	...	S. & F.E.	S.	S.	S.	S.	-	-	-
Brackets, Stays 2 1/2" dia	...	35"	35"	45"	35"	-	-	-	-	-	
HATCH BEAMS	{	Number	...	3	3	4	3				
		Spacing	...	5'-11 1/4"	5'-11 1/4"	5'-7 3/4"	6'-6"				
		Scantling and Sketch	...	22" x 38"	23" x 38"	23" x 38"	25" x 38"				
											
Bearing Surface	...	3 1/2"	3 1/2"	3 1/2"	3 1/2"						
FORE AND AFTERS	{	Number	...								
		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.
		Thickness	...	3"	3"	3"	3"	3"	3"	3"	3"
		How fitted	...	F.A.	F.A.	F.A.	F.A.	F.A.	T.	F.A.	T.
		Bearing Surface	...	2 1/2" x 5"	2 1/2" x 5"	2 1/2" x 5"	2 1/2" x 5"	3"	1 3/4"	1 3/4"	1 3/4"
Spacing of Cleats	...	24"	24"	24"	24"	24"	17"	12"	18"		
Number of Tarpaulins	...	Two sets to each hatch.									
*Are wood fore and afters steel shod at all bearing surfaces? Are battens and wedges efficient and in good condition? Are tarpaulins in good condition and in accordance with rule requirements? Are lashings provided in accordance with rule requirements?											
Yes. Yes. Yes. Yes.											

Particulars of fiddle, funnel and ventilator coamings:—

Fiddle gratings are fitted with hinged steel covers.
 R. Q. skylight is steel.
 Fiddle & funnel vents good.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways:—

Bridge deck:— Entrance to bridge accommodation in teak house with hinged teak doors. Sill 12"
 stairway is also covered with teak companion with 8" sill.
 R. Q. Deck:— Entrance to crew's quarters aft in steel house with hinged teak door operating both sides
 sill 18".

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

Fore well:— 1 @ 15" dia to hold. Coaming 3'7" x 40" #
 1 @ 15" " " " 4'9" x 40" #
 Bridge deck:— 5 @ 6" " " " 30" x 34"
 R. Q. Deck:— 1 @ 15" x 8 1/2" dia led to hold. Coaming 36" x 40"
 1 @ 15" " " " 4'9" x 40" #
 2 @ 7" " " " 36" x 38"
 4 @ 6" " " " 36" x 36"
 Ventilators are in accordance with Rule requirements.
 Closing - wood plugs & canvas covers.
 & specially supported

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

Joyle deck:— 1 @ 4" dia led to fore peak x 27" to mouth
 1 @ 1 1/2" " " " x 25"
 Fore well:— 2 @ 3 1/2" " " D.B. tanks x 32" to top
 1 @ 6" " " " x 6" to mouth (above raised decks)
 Bridge:— 2 @ 3" " " " x 6"
 R. Q. Deck:— 4 @ 3 3/4" " " D.B. tanks x 35" to top
 1 @ 2" " " " aft peak x 31" to mouth

Particulars of Gangway Cargo and Coaling Ports:—

None.



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Torchbearer

Particulars of Scuppers and Sanitary Discharge Pipes —

W.C. discharges lead to M.I. Storm valves fitted. ✓

REMAIN

Particulars of Side Scuttles:

Hinged dead lights fitted in crews quarters aft also bridge space. ✓

Particulars of Guard Rails:—

Yockle decks:— bulwarks 3'-6" high. Stans. 7"x40" B.P. spaced. 6'-6" apart. ✓
Bridge:— " 3'-6" " " 1 3/4" dia. " 5'-6" " ✓
Fore well " 3'-11" " " 7"x40" B.P. " 6'-0" " ✓
R.Q. Decks " 3'-0" " " 7"x40" B.P. " 6'-0" " ✓

Particulars of Gangways, Lifelines, etc.:—

Wire life line set up with screw fitted on port side of No 102 hatches.

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	126'-9"	3'-0"	6'-00" x 66" 8" above decks.	7.	27.72 28 p	25.35 ✓
Forward Well ...	51'-8"	3'-11"	6'-00" x 70" 11" above decks.	3.	12.6 p ✓	11.66 ✓
State position of each freeing port ... } After Well:— 10'-0"-22'-0"-35'-0"-47'-0"-59'-0"-85'-0"-103'-0" from bridge end. (F. and A. position and height above deck edge) } Forward Well:— 12'-0"-24'-0"-36'-0" from side-house end. 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 ...	✓							
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...	—	34" ✓	3 1/2" x 3" x 30" ✓	36" ✓	None ✓	None ✓	—	
Bridge, Forward Bulkhead ...	—	32" x 36" ✓	7 1/2" x 3" x 36 BA ✓	30" ✓	Lugs ✓	None ✓	—	
Forecastle Bulkhead ...	—	30" ✓	3 1/2" x 3" x 34" ✓	24" ✓	None ✓	None ✓	—	
Trunk, Aft ...	✓							
Trunk, Forward ...	✓							
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...		40" x 46" ✓	4" x 3" x 32" ✓	29" ✓	Blts top ✓	14'-6" x 24" ✓	18" ✓	3'-6" x 6'-10" ✓
Exposed 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).

Poop Bulkhead ...	✓
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead ...	Intact ✓
Bridge, Forward Bulkhead ...	Intact ✓
Forecastle Bulkhead ...	Intact ✓
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	1 hinged teak door operating both sides (giving access to E.R. thro mess room). ✓
Exposed Machinery Casings on Superstructure Decks ...	✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	✓
Deckhouses on Flush Deck Ships ...	✓

W433-0133

The diagram is a hand-drawn plan view of the USS Nautilus (SSN-576), showing the layout of the Superstructure Deck and the Freeboard Deck. The ship's overall length is 224'-10 1/2".

Superstructure Deck:

- At the bow (left), there is a "W.C.S. ONLY. S.V." (Water Closet, Sinking Vehicle) and a "W.E. S.O.M.Y. S.V." (Water Ejector, Sinking Vehicle).
- The deck is divided into sections with dimensions: 126'-9" (main hull length), 15'-9" (mid-section), 51'-8" (stern section), 6'-10" (bow section), and 23'-8 1/2" (bow section).
- Labels include "COMP" (Compass) and "2 1/2" WOOD".
- At the stern (right), there is a "HATCH" and a "W.T. HATCH" (Water Tight Hatch).

Freeboard Deck:

- The deck is divided into sections with dimensions: 20'-0" (main hull length), 5'-0" (bow section), and 5'-6" (bow section).
- Labels include "LIFELINE", "S.H." (Stowage Hatch), "EH" (Emergency Hatch), "Acc MN" (Access Manhole), "No 4", "No 3", "No 2", and "No 1".
- At the bow (left), there is a "W.T. HATCH", "TEAK DOOR", and "ENTRANCE TO CREW".
- At the stern (right), there is a "COAL HATCH" and "ENTRANCE TO E.R. VIA MESS ROOM".

No timber assignment required.

$$\begin{array}{r}
 23.71 \\
 + \frac{5.75 \times 6.83 \times 2}{21.5} \\
 \hline
 26.20
 \end{array}$$

Sec. Draft.	Sec. Draft.	T. P. I.	
14'	2432	16.00	✓
15'	2625	16.17	
16'	2820	16.30	

OMIT

Request form

Builder's name and yard number J. Crown & Sons, Ltd.

Names of sister ships

Owners Gas Light & Coke Co.

Fee £ 8 : 10 : 0 ✓ Received by me

by me *omit*