

Rpt. C.11 (Comp.).
 Eria 36241 (Similar)
 Empire Light 36349

Index No. 36398
 (For London Office only)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

OCT 25 1940

Ship's Name EMPIRE VOICE.	Official Number 165990	Nationality and Port of Registry British Glasgow Liverpool	Gross Tonnage 6827⁸⁵/₁₀₀ 6902	Date of Build 1940	Port of Survey Glasgow.
Moulded Dimensions: Length 420 Breadth 57'-3" Depth 34'-6" L.C. Line of Rudder Stock 420'-7" 57'-29"					Date of Survey Whilst building
Moulded displacement at moulded draught = 85 per cent. of moulded depth 15358 tons					Surveyor's Signature T.R. McIlvenna
Coefficient of fineness for use with Tables .761.					Particulars of Classification +100 A.1. with freeboard. corresponding to a summer load. Draft of 25'-5"

Depth for Freeboard (D). Moulded depth ... 34'-6" Stringer plate ... 39" Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ ✓ Depth for Freeboard (D) = 34'-53"	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(34'-53" - 28'-04") \times 3 = +19'-47"$ 6'-49" (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'-3" Standard Round of Beam = $\frac{B \times 12}{50} =$ 13'-75" Ship's Round of Beam = 14" Difference Excess 25" Restricted to Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S}{L}) =$ $\frac{25}{4} \times 4835 = -.03"$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S _i)	Height	Height Correction	Effective Length (E)	
Poop enclosed Equip.	40'-70"	40'-70"	7'-6"	✓	40'-70"	Standard Height of Superstructure 7'-5"
" overhang ...						" " R.Q.D. ✓
R.Q.D. enclosed						Deduction for complete superstructure 42'-00"
" overhang						Percentage covered $\frac{S}{L} =$
Bridge enclosed Equip.	142'-67"	142'-67"	7'-6"	✓	142'-67"	" $\frac{S_i}{L} =$ 51.65
" overhang aft						" $\frac{E}{L} =$
" overhang forward						Percentage from Table, Line A. ✓
Fore enclosed Equip.	33'-83"	33'-83"	7'-6"	✓	33'-83"	(corrected for absence of forecastle (if required)) ✓
" overhang						Percentage from Table, Line B. 37.65
Trunk aft						(corrected for absence of forecastle (if required)) ✓
forward						Interpolation for bridge less than 2L (if required) ✓
Tonnage opening aft						Deduction = 42 x 37.65 = -15.81"
" forward						
Total	217'-20"	217'-20"			217'-20"	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	52.06	1		52.06	57.25	57.25	1		57.25
1/4 L from A.P. ...	23.165	4		92.66	24.13	24.13	4		96.52
1/2 L " ...	5.73	2		11.46	6.00	6.00	2		12.00
Amidships	-	4		-	-	-	4		-
3/4 L from F.P. ...	11.45	2		22.90	12.00	12.00	2		24.00
1/4 L " ...	46.33	4		185.32	47.88	47.88	4		191.52
F.P. ...	104.12	1		104.12	108.00	108.00	1		108.00
Total				468.52					489.29

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{20.77(75-.2582)}{18} = -.57"$
 If limited on account of midship superstructure. **4918**

Mean actual sheer aft = **Excess**
 Mean standard sheer aft

Mean actual sheer forward = **Excess.**
 Mean standard sheer forward

Length of enclosed superstructure forward of amidships = **7.1L**
 " " aft of " = **7.1L**

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

Depth to Freeboard Deck = **34'-53"**
 Summer freeboard = **9'-12"**
 Moulded draught (d) = **25'-41"**

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = **6'-35" = 6'-4"**

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 = **6'-3/4"**

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{761 + .68}{1.36} = 1.441/1.36$

Depth Correction ... **19.47**

Deduction for superstructures ... **15.81**

Sheer correction ... **.57**

Round of Beam correction ... **.03**

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, ... **to correspond 23.82**

Summer Freeboard = **109.50**

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

Tropical Fresh Water Line above Centre of Disc ... **13"**
 Fresh Water Line " " " " **6'-3/4"**
 Tropical Line " " " " **6'-4"**
 Winter Line below " " " " **6'-4"**
 Winter North Atlantic Line " " " " **✓**

Tropical Fresh Water Freeboard ... **8'-1 1/2"**
 Fresh Water " " " " **8'-0 1/2"**
 Tropical " " " " **8'-6 3/4"**
 Winter " " " " **8'-7 1/4"**
 Winter North Atlantic " " " " **9'-7 3/4"**

29 OCT 1940

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Empire Voice.

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.

Equivalent Lengths.

Poop. 37.92'
 + $\frac{2}{3} \times 4.17$ 2.78'
 40.70'

Bridge 136.80'
 + $\frac{2}{3} \times 10'$ 6.67'
 142.67'

Forecastle 30.5'
 + $\frac{2}{3} \times 5'$ 3.33'
 33.83'

Trade of ship International
 Names of sister ships EMPIRE LIGHT. (Messrs Barclay Curle & Co Yard No 677.
 Builder's name and yard number Messrs Barclay Curle & Co Ltd No 678
 Owners Ministry of Shipping
 Fee £ 17 : 0 : 0.



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