

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

-5 OCT 1944

Ship's Name EMPIRE SUSAN.	Official Number 169185	Nationality and Port of Registry British Newcastle.	Gross Tonnage 599.	Date of Build 1944.	Port of Survey NEWCASTLE-ON-TYNE
Moulded Dimensions: Length 135'-0" Breadth 33'-0" Depth 16'-0 3/8"					Date of Survey During Construction
Moulded displacement at moulded draught = 85 per cent. of moulded depth 882 tons					Surveyor's Signature Stephen P. Cooke
Coefficient of fineness for use with Tables .68 (508 actual)					Particulars of Classification +100A1 "For Towing Services" (Class Contemplated)

Depth for Freeboard (D).		Depth correction.		Round of Beam correction.	
Moulded depth	16.03	(a) Where D is greater than Table depth (D - Table depth) R = (16.06 - 9.00) 1.038 = + 7.33		Moulded Breadth (B)	33'-0"
Stringer plate	.03	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$	7.92
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$		If restricted by superstructures		Ship's Round of Beam	8 1/4"
Depth for Freeboard (D) =	16.06			Difference	.33
				Restricted to	
				Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right)$	$= \frac{.33}{4} \times .4905 = -.04$

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 ...	✓				
" overhang ...	✓				
Bridge enclosed ...	✓				
" overhang aft ...	✓				
" overhang forward ...	✓				
F'cle enclosed <i>Equiv</i> ...	68.78	68.78	7.0	✓	68.78
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	68.78	68.78			68.78

Standard Height of Superstructure **6.0**

" " R.Q.D. **✓**

Deduction for complete superstructure **19.5**

Percentage covered $\frac{S}{L} =$ **50.95**

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

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

Percentage from Table, Line A. **33.33**

(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 = **19.5 x .3333 = -6.5**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	23.50	1		23.50	24 1/2	24.50	1		24.50
1/4 L from A.P. ...	10.455	4		41.82	9 1/16	9.69	4		38.76
1/2 L " ...	2.585	2		5.17	1 1/8	1.12	2		2.24
Amidships ...	-	4		-	✓	✓	4		-
3/4 L from F.P. ...	5.17	2		10.34	12 1/2	12.50	2		25.0
3/4 L " ...	20.91	4		83.64	35 1/2	35.50	4		142.0
F.P. ...	47.00	1		47.00	60 3/4	60.75	1		60.75
Total ...				211.47					293.25

Mean actual sheer aft = **Deficient 91%**

Mean standard sheer aft

Mean actual sheer forward = **Excess**

Mean standard sheer forward

Length of enclosed superstructure forward of amidships = **.1**

" " aft of " = **.009**

Sheer aft

23.50 - 1 23.50 - 1 24.50 - 1 24.50 - 1 56.93 - 1

10.455 - 3 31.365 - 3 9.69 - 3 29.07 - 3 62.62 - 3

2.585 - 2 7.755 - 2 1.12 - 2 3.36 - 2 62.62 - 2

62.62 - 1 56.93 - 1

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{81.78 - (75 - 25.49)}{18} = \frac{49.27}{18} = 2.73$

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 = **16.06**

Summer freeboard = **1.10**

Moulded draught (d) = **14.96**

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = **3.74 = 3 3/4**

Addition for Winter North Atlantic Freeboard (if required) = **2 + 3 3/4 = 5 3/4**

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 1096$

Tons per inch immersion at summer load water line

$T = 8.58$

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

$= \frac{1096}{40 \times 8.58} = 3.19 = 3 1/4$

Draft Est. Dup. T.P.I.

14.46 994 8.35

15.0 1044 8.47

15.6 1092 8.58

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient **NIL**

	+	-
Depth Correction ...	7.33	-
Deduction for superstructures ...	-	6.50
Sheer correction ...	-	1.23
Round of Beam correction ...	-	.04
Correction for Thickness of Deck amidships ...	-	-
Other corrections, scantlings, etc. ...	-	-
	7.33	7.77

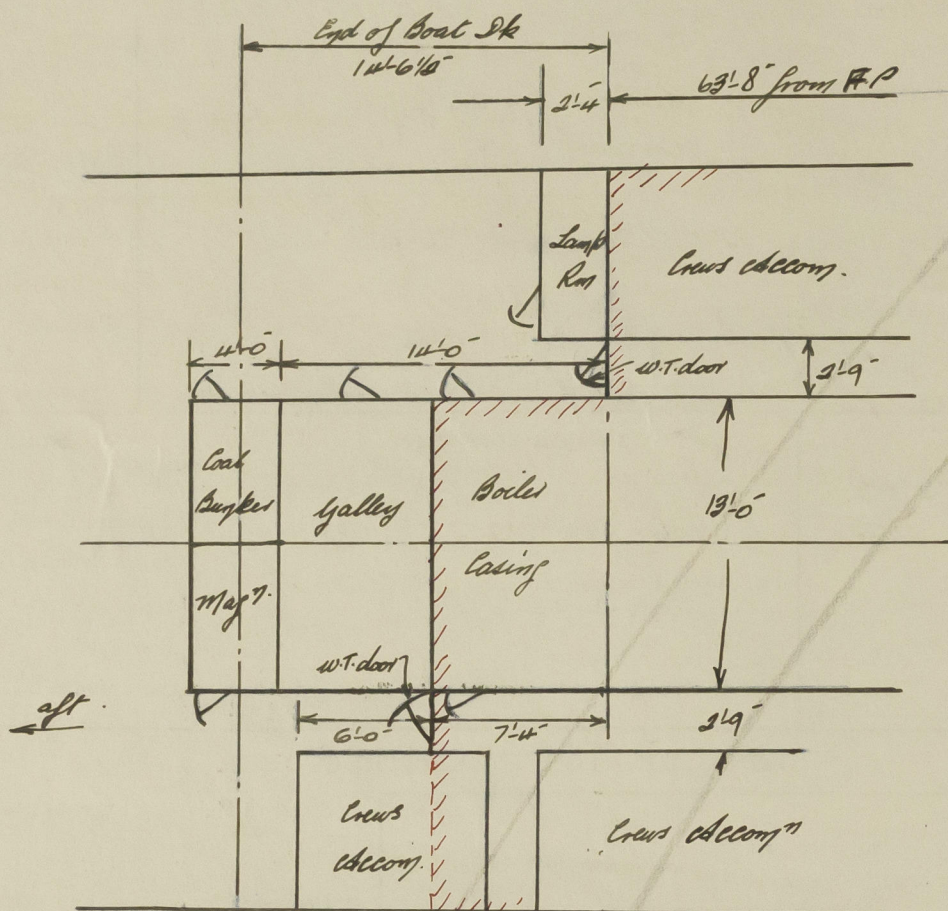
Summer Freeboard = **13.16**

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

Tropical Fresh Water Line above Centre of Disc ...	7"	Tropical Fresh Water Freeboard ...	6 1/4"
Fresh Water Line " " ...	3 1/4"	Fresh Water " " ...	6"
Tropical Line " " ...	3 3/4"	Tropical " " ...	0 - 9 1/2"
Winter Line below " " ...	3 3/4"	Winter " " ...	11 - 5"
Winter North Atlantic Line " " ...	5 3/4"	Winter North Atlantic " " ...	11 - 7"

26 OCT 1944

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.



Part Plan of Upper Deck.

Forecastle

7.33×23 ✓	63.67 ✓
33	$= 5.11$ ✓
	68.78 ✓

Open part of forecastle aft not allowed.
in view of scantlings & freeing ports ✓

Trade of ship Towing Services.

Names of sister ships Empire Julia.

Builder's name and yard number Clearys (Successors) Ltd. Yard No 71.

Owners Ministry of War Transport.

Fee £ Charge with First Entry.



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Foundation