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(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER, (TUG))

Ship's Name "EMPIRE HELEN" NEREIDIA	Official Number 180889	Nationality and Port of Registry BRITISH LONDON HULL	Gross Tonnage 275	Date of Build 1946	Port of Survey Hull
Moulded Dimensions: Length 105'-0" Breadth 26'-6" Depth 13'-0"					Date of Survey During construction
Moulded displacement at moulded draught = 85 per cent. of moulded depth 504 tons					Surveyor's Signature M. M. M. M. M.
Coefficient of fineness for use with Tables .68 (.574 actual) $T = 5.2$					Particulars of Classification *100 A1. "FOR TOWING SERVICES" (CONTEMPLATED)

DEPTH FOR FREEBOARD (D). Moulded depth ... 13'-0" Stringer plate029 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = \text{SEE SKETCH.}$ $2\frac{1}{2}'' \text{ Thick party sheathing } \frac{2.5 \times 24.5}{105} = .583 = .049$ Depth for Freeboard (D) = .13029	DEPTH CORRECTION. (a) Where D is greater than Table depth (D-Table depth) R = (13-08-70) .868 = +4.91 (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) 26'-5" Standard Round of Beam = $\frac{B \times 12}{50} = \frac{318}{50} = 6.36$ Ship's Round of Beam = 7 1/2 Difference = -1.14 Restricted to Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{1.14}{4} = .285$
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13.078

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					
" overhang					
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total					

Standard Height of Superstructure
" " R.Q.D.
Deduction for complete superstructure
Percentage covered $\frac{S}{L} =$
" " $\frac{S_1}{L} =$
" " $\frac{E}{L} =$
Percentage from Table, Line A.
(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 = **Nil**

SHEERS MEASURED FROM TOP OF KEEL TO DECK AT SIDE

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	20.5	1		20.50	16-0' 36.0	36.00	1		36.00
1/4 L from A.P.	9.12	4		36.48	14-6' 17.52	17.52	4		70.08
1/2 L	2.255	2		4.51	13-5' 6.0	6.00	2		12.00
Amidships	-	4		61.48	13-0'	-	4		-
3/4 L from F.P.	4.51	2		9.02	13-35' 4.25	4.25	2		8.50
3/4 L	18.25	4		73.00	15-0' 24.0	24.00	4		96.00
F.P.	41.0	1		41.00	18-0' 60.0	60.00	1		60.00
Total				184.51					282.58

Mean actual sheer aft =
Mean standard sheer aft =
Mean actual sheer forward =
Mean standard sheer forward =
Length of enclosed superstructure forward of amidships =
" " aft of " =

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{98.07 \times .75}{18} = 4.08$
If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft. **Yes = 1.58**

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = 13.03 Summer freeboard = 1.21 Moulded draught (d) = 11.82 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 2.95 = 3 Addition for Winter North Atlantic Freeboard (if required) = + 2 = 5	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta = 555$ Tons per inch immersion at summer load water line $T = 5.29$ Deduction = $\frac{\Delta}{40 T}$ inches = 2.62 = 2 1/2 MEAN DRAUGHT EXT. DISP. T. 12'-0" 532 5.22 11'-0" 468 5.03 10'-0" 408 4.84	TABULAR FREEBOARD 10.50 + 1.58 corrected for Flush Deck (if required) 12.08 Correction for coefficient Nil. Depth Correction ... 4.91 Deduction for superstructures ... Sheer correction ... 1.58 Round of Beam correction ... 0.29 Correction for Thickness of Deck amidships58 Other corrections, scantlings, etc. ... 4.91 2.45 + 2.46 Summer Freeboard = 14.54
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck :-

Tropical Fresh Water Line above Centre of Disc	13.9	5 1/2	Tropical Fresh Water Freeboard	368	1 1/2
Fresh Water Line	6.3	2 1/2	Fresh Water	229	0 1/2
Tropical Line	7.6	3	Tropical	305	1-0"
Winter Line below	7.6	3	Winter	292	0-11 1/2"
Winter North Atlantic Line	12.7	5	Winter North Atlantic	444	1-5 1/2"
				495	1-7 1/2"

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.

Trade of ship FOR TOWING SERVICES.

Names of sister ships "EMPIRE BARBARA" "EMPIRE JENNY"

Builder's name and yard number COCHRANE & SONS LTD. YARD NO 1307.

Owners OVERSEAS TOWAGE & SALVAGE CO. LD.

Fee £ To BE CHARGED WITH FIRST ENTRY.



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Foundation