

18 FEB 1944

Rpt. C.11 (Comp.).

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(For London Office only).

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR ~~STEEL~~ TANKER.)

Mdb. 14592.

Ship's Name FURNESS YARD N° 357. 5/8" EMPIRE LAW.	Official Number 169132	Nationality and Port of Registry BRITISH MIDDLESBROUGH	Gross Tonnage 8128 (Approx)	Date of Build 1943.	Port of Survey MIDDLESBROUGH.
Moulded Dimensions: Length 465'-0" Breadth 64'-0" Depth 35'-6" 96 to centre of middle stow MOULDED DRAFT = 28'-3 1/4" = 16300 TONS. Moulded displacement at moulded draught = 85 per cent. of moulded depth 30.175' = 17605 tons DEPTH OF KEEL = 2.77" BELOW BASELINE. Coefficient of fineness for use with Tables .685.				Date of Survey WHILE BUILDING.	
Surveyor's Signature H. B. Young.				Particulars of Classification 100 A1 CARRYING PETROLEUM IN BULK. LONGITUDINAL FRAMING AT BOTTOM & AT DECK. CLASS CONTEMPLATED.	

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 35.50'	(a) Where D is greater than Table depth (D - Table depth) R = (35.57 - 31.07) x 3 = +13.50 4.50	Moulded Breadth (B) 64' Standard Round of Beam = $\frac{B \times 12}{50} = \frac{1536}{50} = 15.36$ Ship's Round of Beam 16.13 Difference UPPER DECK AT CENTRE IS HORIZONTAL FROM AFT. PERP. TO 126'-1" FROM FORE PERP.
Stringer plate ... 80" ... 0.06'	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Restricted to Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.77^2}{4} \times \frac{5131}{10} = .10$
Sheathing on exposed deck NIL $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	
Depth for Freeboard (D) = 35.56'		

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed Equival	125.79	125.79	7'-6"	✓	125.79	Standard Height of Superstructure 7.5'
" overhang ...	NIL					" " R.Q.D. ✓
R.Q.D. enclosed						Deduction for complete superstructure 42"
" overhang	47.00					Percentage covered $\frac{S}{L} = \frac{125.79}{257.79} = 48.83$
Bridge enclosed Equival	47.00	47.00	7'-6"	✓	47.00	" " $\frac{S_1}{L} = \frac{47.00}{257.79} = 18.2$
" overhang aft	1.87				1.87	" " $\frac{E}{L} = \frac{1.87}{257.79} = .007$
" overhang forward	52.19				52.19	Percentage from Table, Line A. Tanker. 39.69.
F'cle enclosed Equival	52.19	52.19	7'-6"	✓	52.19	(corrected for absence of forecastle (if required))
" overhang	2.3					Percentage from Table, Line B.
Trunk aft						(corrected for absence of forecastle (if required))
" forward						Interpolation for bridge less than 2L (if required)
Tonnage opening aft						Deduction = 42 x 39.69 = - 16.67.
" forward						
Total	228.77	226.85			226.85	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	Mean actual sheer aft =	Mean standard sheer aft =	
A.P. ...	56.60	1		56.60	13"	13.00	1		13.00	} Deficient		
$\frac{1}{8}$ L from A.P. ...	257.185	4		100.74	2.25"	2.25	4		9.00		Mean actual sheer forward =	Mean standard sheer forward =
$\frac{2}{8}$ L ..	6.225	2		12.45	0	-	2		-			
Amidships ...	-	4		-	0	-	4		-	Length of enclosed superstructure forward of amidships =		
$\frac{3}{8}$ L from F.P. ...	12.45	2		24.90	0	-	2		-	L		
$\frac{1}{2}$ L ..	50.37	4		201.48	11.625"	11.625	4		46.50 aft of .. =	
F.P. ...	113.19	1		113.19	84"	84.00	1		84.00			
Total ...				509.36					152.50			

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{356.86}{18} \left(\frac{75-.2441}{5059} \right) = + 10.03$

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.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Depth to Freeboard Deck = 35.57 Summer freeboard = 7.19 Moulded draught (d) = 28.38	Displacement in salt water at summer load water line $\Delta =$ 16378 Tons per inch immersion at summer load water line $T =$ 57 Deduction = $\frac{\Delta}{40T}$ inches $= \frac{16378}{40 \times 57} = 7.18$ 7 1/4"	Correction for coefficient $\frac{685+68}{1.36} = \frac{1.365}{1.36}$ Depth Correction ... 13.50 Deduction for superstructures ... 16.67 Sheer correction ... 10.03 Round of Beam correction10 Correction for Thickness of Deck amidships ... Other corrections, scantlings, etc. ... 23.53 16.77 +6.76 Summer Freeboard = 86.24

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

Tropical Fresh Water Line above Centre of Disc ...	14 1/4"	Tropical Fresh Water Freeboard ...	6'-2 1/4"
Fresh Water Line " " ...	7 1/4"	Fresh Water " " ...	6'-7 1/4"
Tropical Line " " ...	7"	Tropical " " ...	7'-2 1/4"
Winter Line below " " ...	11 3/4"	Winter " " ...	8'-2"
Winter North Atlantic Line " " ...		Winter North Atlantic " " ...	

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.

Poop.

$$122 + .96 = 122.96$$

$$4.25 \times \frac{2}{3} = \frac{2.83}{125.79}$$

Bridge

$$44.00$$

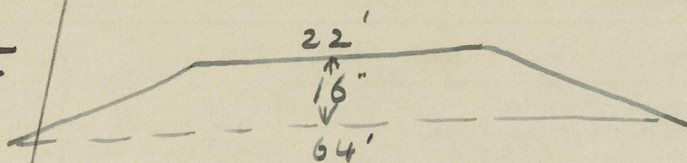
$$4.5 \times \frac{2}{3} = \frac{3.00}{47.00}$$

File.

$$62.25$$

$$\text{Run } \frac{18 \times 26}{46.5} = \frac{10.06}{52.19}$$

Round of Beam



$$\text{Area } (22 + 64) \times \frac{16}{12} \text{ sq. ft.}$$

$$\text{Mean height} = \frac{(22 + 64) \times 16}{64 \times 12} \text{ ft.}$$

$$= \frac{43 \times 16}{64} \text{ inches}$$

$$\therefore \text{equivalent camber} = \frac{3}{2} \times \frac{43 \times 16}{64} = 16.13''$$

Trade of ship TANKER

Names of sister ships S/S EMPIRE BOUNTY (N° 356.)

Builder's name and yard number FURNESS S.B.C. LTD YARD N° 357.

Owners MINISTRY OF WAR TRANSPORT.

Fee WILL BE CHARGED ON FIRST ENTRY REPORT.



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Foundation