

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name EMPIRE SHETLAND	Official Number 169436	Nationality and Port of Registry BRITISH. GLASGOW.	Gross Tonnage 813	Date of Build 1945.	Port of Survey GLASGOW.
Moulded Dimensions: Length 190.0' Breadth 30.5' Depth 14.0'					Date of Survey WHILST BUILDING
Moulded displacement at moulded draught = 85 per cent. of moulded depth 1386 tons					Surveyor's Signature <i>J. W. Robwell.</i>
Coefficient of fineness for use with Tables .703					Particulars of Classification + 100A1 "CARRYING PETROLEUM IN BULK (CONTEMPLATED)"

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth 14.0'	(a) Where D is greater than Table depth (D - Table depth) R = $(14.03 - 12.67) \times 1.461 = +1.99$	Moulded Breadth (B) 30.5'
Stringer plate .40'033	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = \checkmark	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{30.5 \times 12}{50} = 7.32$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = \text{NIL}$	If restricted by superstructures \checkmark	Ship's Round of Beam = $7\frac{1}{2}$
Depth for Freeboard (D) = 14.033		Difference .18
		Restricted to \checkmark
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.18^2}{4} \times .2867 = -.01$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed <i>equivalent</i>	65.82 67.69	67.36	7.5	-	67.36	Standard Height of Superstructure 6.0
" overhang...						" " R.Q.D. -
R.Q.D. enclosed						Deduction for complete superstructure 25.00
" overhang						Percentage covered $\frac{S}{L} = \frac{46.35}{71.33} = 60.93$
Bridge enclosed...						" " $\frac{S_1}{L} = \frac{71.33}{60.93} = 60.93$
" overhang aft						Percentage from Table, Line A. Tanker 53.02
" overhang forward						(corrected for absence of forecastle (if required))
F'cle enclosed ...	20.71	20.71	7.0 AT BHP	-	20.71	Percentage from Table, Line B.
" overhang						(corrected for absence of forecastle (if required))
Trunk aft ...	10.16 47.46	47.46	3.5	3.5/6	27.69	Interpolation for bridge less than .2L (if required)
" forward...						Deduction = $25 \times .5302 = -13.25$
Tonnage opening aft						
" " forward						
Total ...	88.07	135.53			115.76	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	29.00	1		29.00	28.62	28.62	1		28.62
$\frac{1}{4}$ L from A.P. ...	12.905	4		51.62	10.5	10.50	4		42.00
$\frac{3}{8}$ L " ...	3.19	2		6.38	0	-	2		-
Amidships ...	-	4		-	0	-	4		-
$\frac{3}{8}$ L from F.P. ...	6.38	2		12.76	0	-	2		-
$\frac{1}{4}$ L " ...	25.81	4		103.24	23.44	23.44	4		93.76
F.P. ...	58.00	1		58.00	57.5	57.50	1		57.50
Total ...				261.00					221.88

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{39.12}{18} \left(.75 - \frac{23.18}{51.82} \right) = +1.13$

If limited on account of midship superstructure.

Mean actual sheer aft =
Mean standard sheer aft = } *Deficient*

Mean actual sheer forward =
Mean standard sheer forward = }

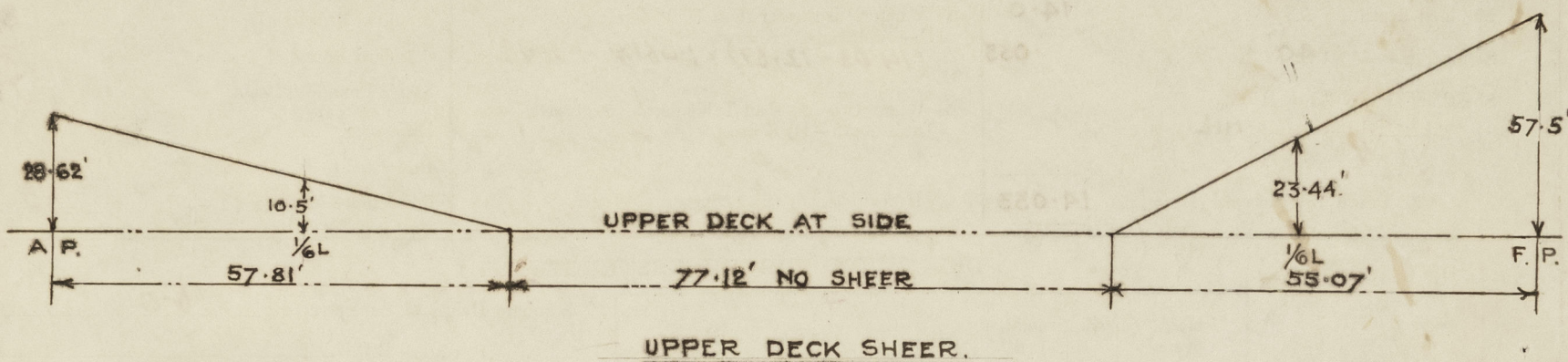
Length of enclosed superstructure forward of amidships =
" " aft of " = } *Does not apply.*

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)	21.50
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.703 + .68}{1.36} = \frac{1.383}{1.36} = 1.017$	21.86
Depth to Freeboard Deck = 14.03	$\Delta = 1555$	Depth Correction 1.99	
Summer freeboard = .98	Tons per inch immersion at summer load water line	Deduction for superstructures 13.25	
Moulded draught (d) = 13.05	T = 11.37	Sheer correction 1.13	
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 3.26 = 3 1/4	Deduction = $\frac{\Delta}{40T}$ inches = 3.42 = 3 1/2	Round of Beam correction01	
Addition for Winter North Atlantic Freeboard (if required) = 5 1/4	DRAFT MLD TOTAL DISP ^T T.P.I.	Correction for Thickness of Deck amidships -	
	11.0 1278 11.05.	Other corrections, scantlings, etc. -	
	13.0 1548 11.37.		
		Summer Freeboard = 11.72	

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

Tropical Fresh Water Line above Centre of Disc ...	6 3/4"	Tropical Fresh Water Freeboard ...	0.5 11 3/4"
Fresh Water Line " " ...	3 1/2"	Fresh Water " " ...	0.5 8 1/4"
Tropical Line " " ...	3 1/4"	Tropical " " ...	0.5 8 1/2"
Winter Line below " " ...	3 1/4"	Winter " " ...	1.5 3.0"
Winter North Atlantic Line " " ...	5 1/4"	Winter North Atlantic " " ...	1.5 5.0"

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

$$\begin{aligned}
 &\text{Straight portion } 1.87 \times 14.25 = 26.65 \\
 &\text{Curved } \dots \frac{7}{3} \times 2 \times 1.87 \times 8.125 = 20.26 \\
 &\quad \quad \quad 46.91 \\
 &\quad \quad \quad \div 30.5 = 1.54 \\
 &\quad \quad \quad 65.82 \\
 &\quad \quad \quad \hline
 &\quad \quad \quad 67.36
 \end{aligned}$$

TRUNK

$$\begin{aligned}
 &1.87 - 1.54 = 0.33 \\
 &\quad \quad \quad \frac{101.60}{5.60} = 18.14 \\
 &\quad \quad \quad \frac{26.00}{4.33} = 6.00 \\
 &\quad \quad \quad 96.33 \times \frac{14.25}{30.5} = 45.00 \\
 &\quad \quad \quad 5.60 \times \frac{13.375}{30.5} = 2.46 \\
 &\quad \quad \quad \hline
 &\quad \quad \quad 47.46
 \end{aligned}$$

Trade of ship International

Names of sister ships EMPIRE ORKNEY (A+J. INGLIS LTD NO 1287P) SEE GLASGOW REPORT NO 69222.

Builder's name and yard number MESSRS A+J. INGLIS LTD NO 1288 P.

Owners The Ministry of War Transport.

Fee £ 8-0-0.

Freeboard Request Form 9 attached.



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Foundation