

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name EMPIRE PYM.	Official Number 169104	Nationality and Port of Registry BRITISH. GRANGEMOUTH. LONDON	Gross Tonnage 2370.49	Date of Build 1944.	Port of Survey GRANGEMOUTH.
Moulded Dimensions: Length 287'-6" Breadth 44'-0" Depth 19'-6" <small>[CR. OF RUDDER STOCK TO FORE PERP.]</small>				Date of Survey WHILST BUILDING	
Moulded displacement at moulded draught = 85 per cent. of moulded depth 4350 tons				Surveyor's Signature James M. Winders	
Coefficient of fineness for use with Tables 726				Particulars of Classification +100 A.I. CARRYING PETROLEUM IN BULK. [CONTEMPLATED]	

Depth for Freeboard (D).		Depth correction.		Round of Beam correction.	
Moulded depth ...	19'-6" ... 19.50	(a) Where D is greater than Table depth (D - Table depth) R = (19.54 - 19.17) × 2.22 = + 8.18 .82 ✓		Moulded Breadth (B)	44'-0"
Stringer plate ...	0.4604	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$ =	10.56 ✓
Sheathing on exposed deck	NONE			Ship's Round of Beam 6" =	6.00 ✓
$T \left(\frac{L-S}{L} \right) =$				Difference	4.56 ✓
Depth for Freeboard (D) =	19.54	If restricted by superstructures		Restricted to	
				Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right)$ =	$\frac{4.56}{4} \times .2942 = +.33$ ✓

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ... <i>Equi.</i>	75'-21"	75'-21"	7'-6"	-	75'-21"
.. overhang ... <i>AT SIDE</i>	75'-21"				
.. overhang ... <i>AT CENTRE</i>	75'-21"				
R.Q.D. enclosed ...					
.. overhang ...					
Bridge enclosed ...					
.. overhang aft ...					
.. overhang forward ...					
F'cle enclosed ...	37'-0"	37'-00"	6'-6"	-	37'-00"
.. overhang ... <i>Equi.</i>					
Trunk ... <i>AT SIDE</i>	90'-74"	90'-74"	6'-6"	-	90'-74"
.. forward ... <i>AT CENTRE</i>	90'-74"				
Tonnage opening aft ...					
.. forward ...					
Total ...	112'-21"	202'-95"			202'-95"

Standard Height of Superstructure **6.375 ✓**
 " " R.Q.D. **✓**
 Deduction for complete superstructure **34.50 ✓**
 Percentage covered $\frac{S}{L} = 39.02$
 " " $\frac{S_1}{L} = 70.58$
 " " $\frac{E}{L} = 70.58$
 Percentage from Table, Line A. **63.71 ✓**
 (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 = **34.50 × 63.71 = 21.98 ✓**

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Actual Ordinate	Effective Ordinate	S	Product
A.P. ...	38.75	1	38.75	39"	39.00	1	39.00
1/4 L from A.P. ...	17.245	4	68.98	14"	14.00	4	56.00
1/2 L " ...	4.265	2	8.53	0	-	2	-
Amidships ...	-	4	-	0	-	4	-
3/4 L from F.P. ...	8.53	2	17.06	4 1/8"	4.19	2	8.38
1/4 L " ...	34.49	4	137.96	40 3/8"	40.87	4	163.48
F.P. ...	77.50	1	77.50	81 5/8"	81.31	1	81.31
Total ...			348.78				348.17

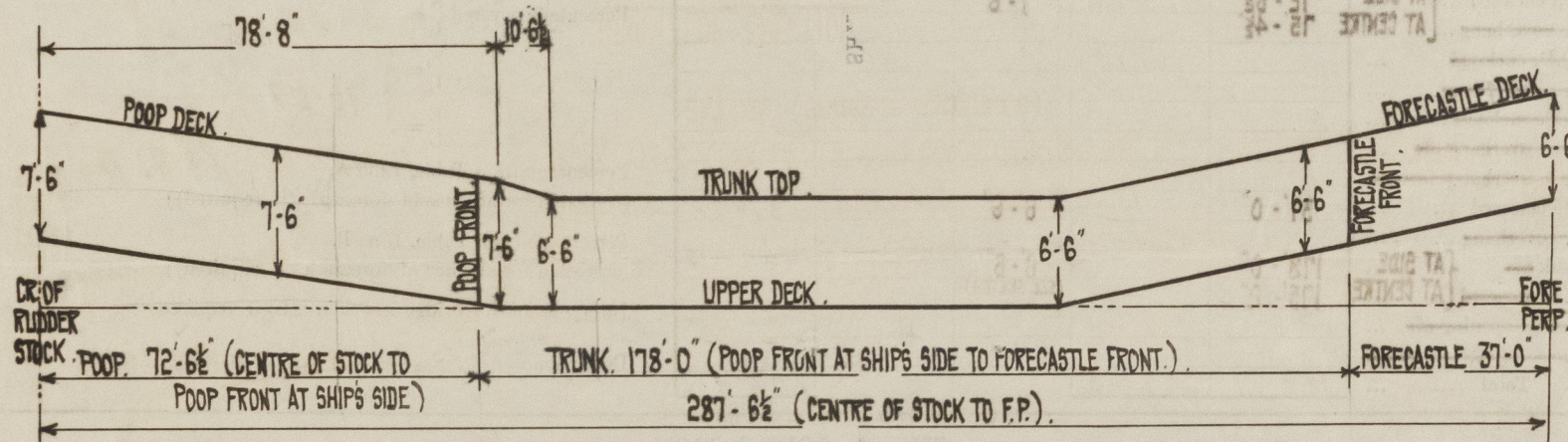
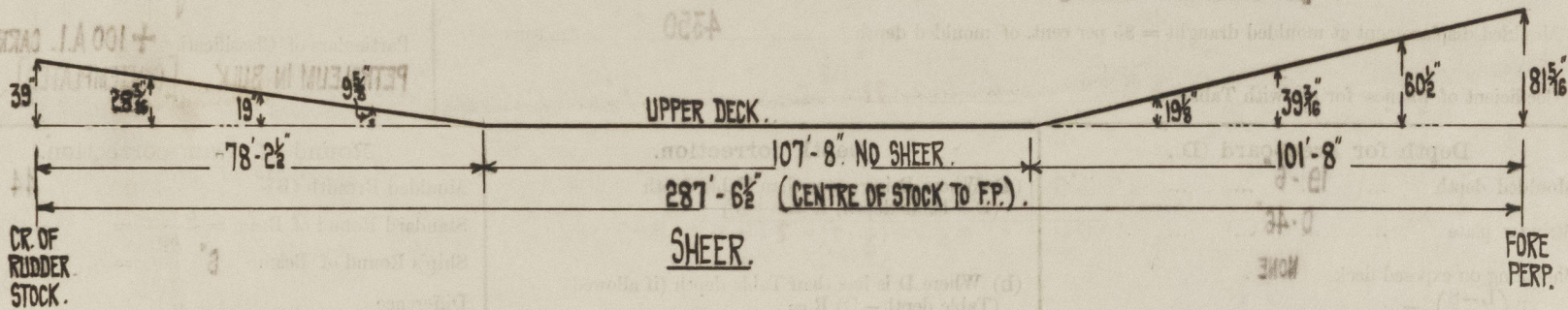
Mean actual sheer aft = **.784 ✓**
 Mean standard sheer aft = **✓**
 Mean actual sheer forward = **✓**
 Mean standard sheer forward = **✓**
 Length of enclosed superstructure forward of amidships = **✓**
 " aft of " = **✓**
 Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{.61}{18} \left(\frac{.75 - .1951}{.5549} \right) = +.02$
 If limited on account of midship superstructure. **✓**
 If limited to maximum allowance of 1 1/2 ins. per 100 ft. **✓**

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Fresh Water (if required)	38.60 ✓
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.726 + .68}{1.30} = \frac{1.406}{1.30}$	39.91 ✓
Depth to Freeboard Deck = 19.54	$\Delta = 4810$	Depth Correction ... 8.18	
Summer freeboard = 1.58	Tons per inch immersion at summer load water line	Deduction for superstructures ... 21.98	
Moulded draught (d) = 17.96	T = 25.08	Sheer correction02	
Deduction for Tropical freeboard and addition for Winter freeboard = 4.49 = 4 1/2	Deduction = $\frac{\Delta}{40T}$ inches 4.79	Round of Beam correction33	
Addition for Winter North Atlantic Freeboard (if required) = 4.49 + 2.88 = 7.37 = 7 1/4	DRAGHT. EXT. DISP. (TONS S.W.). T.P.I.	Correction for Thickness of Deck amidships ... -	
	14'-0" 3623 24.05	Other corrections, scantlings, etc. ... 0	
	16'-0" 4207 24.47		
	18'-0" 4804 25.08		
		Summer Freeboard = 19.10 ✓	

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

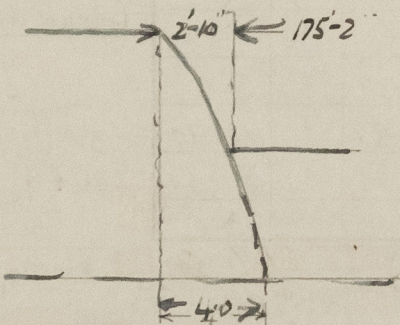
Tropical Fresh Water Line above Centre of Disc ...	9 1/4"	Tropical Fresh Water Freeboard ...	0'-7 1/4"
Fresh Water Line " " ...	4 3/4"	Fresh Water " " ...	0'-2 3/4"
Tropical Line " " ...	4 1/2"	Tropical " " ...	1'-2 1/2"
Winter Line below " " ...	4 1/2"	Winter " " ...	1'-11 1/2"
Winter North Atlantic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



HEIGHT OF ERECTIONS.

Poop: $4 \times \frac{2}{3} = 2.687$
 $\frac{72.54}{75.21}$



Trunk 4.00
 $- 2.83$
 $\frac{1.17}{175.17}$
 $\frac{1}{3} \times 1.17 = \frac{174.00}{39}$
 $\frac{174.39}{32.67}$
 $\frac{141.72}{32.67 \times \frac{23.33 + 18.67}{2 \times 43} = 15.95}$
 $\frac{141.72 \times \frac{23.33}{44} = 75.64}{141.72 \times \frac{23.33}{44} = 75.15}$
 $\frac{141.72 \times \frac{23.33}{44} = 75.15}{141.72 \times \frac{23.33}{44} = 75.15}$

Trade of ship INTERNATIONAL

Names of sister ships

Builder's name and yard number MESSRS THE GRANGEMOUTH DOCKYARD CO. LD.

N° 448

Owners THE MINISTRY OF WAR TRANSPORT

Est. Fee £ 12 0 0

Freeboard Request Form 9 attached.
 Plans of Midship Section and Profile and Decks enclosed for reference.



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 Foundation