

Ref. C.11 (Comp.).

Empire Lass 36655.
Empire Cadet 36673

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name EMPIRE BARN	Official Number 168702	Nationality and Port of Registry British Glasgow	Gross Tonnage 813	Date of Build 1941	Port of Survey Glasgow
Moulded Dimensions: Length 190.0' ✓ Breadth 30.5' ✓ Depth 14.0' ✓					Date of Survey While building
Moulded displacement at moulded draught = 85 per cent. of moulded depth 1386 ✓ tons					Surveyor's Signature A. Dickerson + 100-A-1 Carrying Petroleum in Bulk (Contemplated)
Coefficient of fineness for use with Tables .703					Particulars of Classification

Depth for Freeboard (D). Moulded depth ... 14.0' Stringer plate03303 Sheathing on exposed deck None $T \left(\frac{L-S}{L} \right) =$... Depth for Freeboard (D) = 14.03	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(14.03 - 12.6) \times 1.461 = +1.99"$ (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R =$... If restricted by superstructures ...	Round of Beam correction. Moulded Breadth (B) 30.5' Standard Round of Beam = $\frac{B \times 12}{50} =$ 7.32 Ship's Round of Beam = 7.5" ✓ Difference Excess .18" Restricted to Correction = $\frac{\text{Diff} \times (1 - \frac{S_1}{L})}{4} = \frac{.18 \times 286}{4} = -.01"$
---	--	--

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed <i>Side</i> ...	67.69	67.36	7.5'	✓	67.36
overhang ...					
R.Q.D. enclosed ...					
overhang ...					
Bridge enclosed ...					
overhang aft ...					
overhang forward ...					
F'cle enclosed ...	20.71	10.71	7.0' at Bld	✓	10.71
overhang ...					
Trunk aft <i>See</i> ...	10.6'	47.46	3.5'	3.5/60	27.64
forward ...					
Tonnage opening aft ...					
forward ...					
Total ...	88.07	135.53			115.76

Standard Height of Superstructure **6.00'**
 " " R.Q.D. **25.0"**
 Deduction for complete superstructure
 Percentage covered $\frac{S}{L} =$ **46.35**
 " " $\frac{S_1}{L} =$ **71.33**
 " " $\frac{E}{L} =$ **60.93**
 Percentage from Table, Line A. **Tanker 53.02**
 (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 = **25.0 x 53.02 = -13.25"**

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		
$\frac{2}{4}$ L " ...	3.19	2	6.38	0	-	2	-		
Amidships ...	-	4	-	0	-	4	-		
$\frac{3}{4}$ 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						

SEE SKETCH ON BACK OF REPORT

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

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{39.12}{18} \times (.75 - \frac{23.18}{51.82}) = +1.13"$
 If limited on account of midship superstructure.

Deduction for Tropical Freeboard.
 Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = **14.03**
 Summer freeboard = **.98**
 Moulded draught (d) = **13.05**

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = **3.26 = 3 1/4"**

Addition for Winter North Atlantic Freeboard (if required) = **3.26 + 1.40 = 5.16 = 5 1/4"**

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ **1555.**

Tons per inch immersion at summer load water line

$T =$ **11.3**

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

= $\frac{1555}{40 \times 11.3} = 3.42 = 3 1/2"$

TRAFFIC MLD TOTAL DISP. T.P.I.
11.0" 1278 11.05
13.0" 1548 11.37

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient **.703 + .68 = 1.383 / 1.36**

Depth Correction ... **1.99** ... **13.25**

Deduction for superstructures ... **1.13** ... **.01**

Sheer correction ... **1.13** ... **.01**

Round of Beam correction ... **1.13** ... **.01**

Correction for Thickness of Deck amidships ... **1.13** ... **.01**

Other corrections, scantlings, etc. ... **1.13** ... **.01**

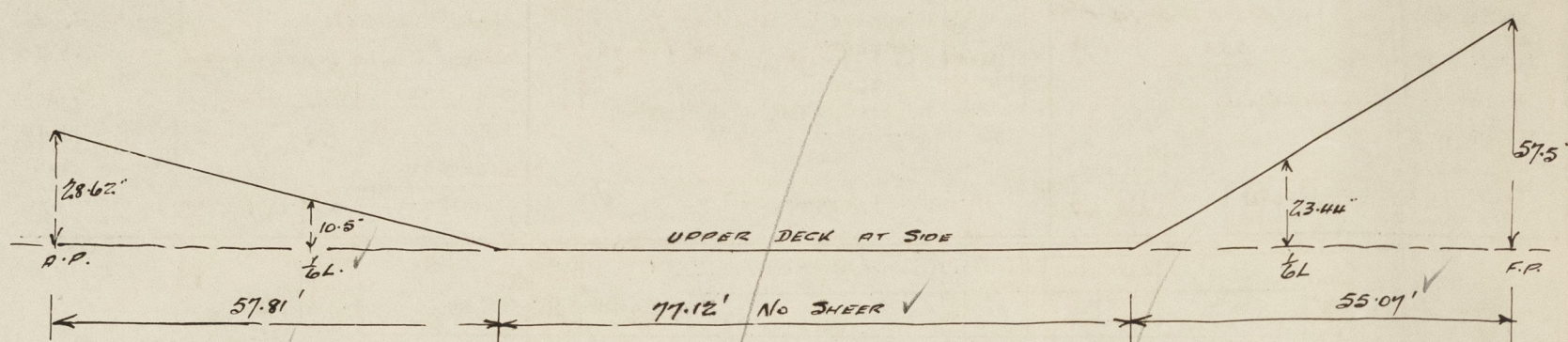
Summer Freeboard = **11.72**

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

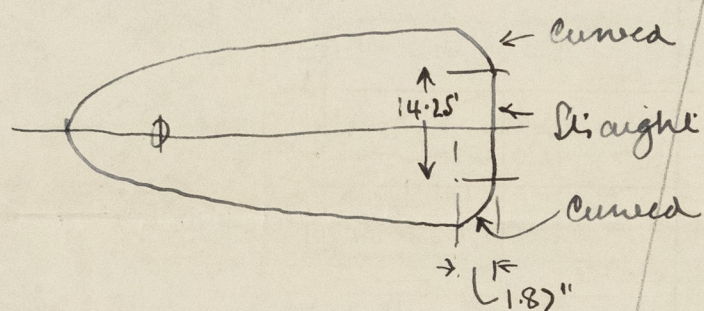
Tropical Fresh Water Line above Centre of Disc	6 3/4"
Fresh Water Line	3 1/2"
Tropical Line	3 1/4"
Winter Line below	3 1/4"
Winter North Atlantic Line	5 1/4"

Tropical Fresh Water Freeboard	0' - 11 3/4"
Fresh Water	0' - 8 1/4"
Tropical	0' - 8 1/2"
Winter	1' - 3"
Winter North Atlantic	1' - 5"

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.



Equivalent Bulkheads.



Proof
 $1.87' \times 14.25' =$
 $\frac{2}{3} \times 2 \times 1.87 \times 8.125 =$

26.65'
 20.26
 46.91
 30.5

1.54
 65.8
 67.30 = equiv
 and mid

Trunk

101.6

-5.6

96.00

1.87 1.54

+ .33

$96.33 \times 14.25/30.5 =$

45.00

$5.6 \times 13.375/30.5 =$

2.46

47.46

equiv length

Application for Freeboard Assignment attached

Plan of Midship Section and Profile Decks
 enclosed for reference.

Trade of ship

International

Names of sister ships

EMPIRE LASS

EMPIRE CADET

Grangemouth Dockyard N° 435 & 436

Builder's name and yard number

Messrs The Blythwood S. B. Co Ltd

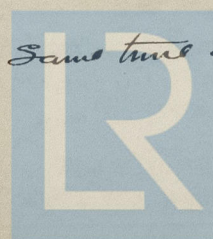
N° 67

Owners

The Ministry of War Transport

Est Fee £ 8 : 0 : 0

Forwarded at same time as
 this report



© 2021

Lloyd's Register
 Foundation