

Rpt. C.11 (Comp.).

Empire Cadet 36673
Empire Lass 36655Index. No. 36731
(For London Office only).

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

| | | | | | |
|--|----------------------------------|--|-----------------------------|------------------------------|---|
| Ship's Name "EMPIRE MAIDEN" | Official Number 168705 | Nationality and Port of Registry BRITISH GLASGOW | Gross Tonnage 813 | Date of Build 1942 | 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>S.W. Bolwell</i> |
| Coefficient of fineness for use with Tables .703 | | | | | Particulars of Classification + 100A1 CARRYING PETROLEUM IN BULK (CONTEMPLATED) |

| | | |
|--|---|---|
| Depth for Freeboard (D). Moulded depth ... 14'0" Stringer plate 40"033 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ NIL Depth for Freeboard (D) = 14'033" | Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R = (14'03 - 12'67) \times 1.461 = +1.99"$ 1.36 (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) 30'5" Standard Round of Beam = $\frac{B \times 12}{50} =$ 7'32" Ship's Round of Beam = 7'2" Difference Excess .18" Restricted to ✓ Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.18}{4} \times .2867 = -.01"$ |
|--|---|---|

DEDUCTION FOR SUPERSTRUCTURES.

| | Mean Covered Length (S) | Equivalent Enclosed Length (S ₁) | Height | Height Correction | Effective Length (E) |
|--|-------------------------|--|----------------|-------------------|----------------------|
| Poop enclosed Equiv AT SIDE ✓ 65'82" | 67'36" | 7.5 | ✓ | 67'36" | |
| " overhang ... 36 | | | | | |
| R.Q.D. enclosed | | | | | |
| " overhang | | | | | |
| Bridge enclosed | | | | | |
| " overhang aft | | | | | |
| " overhang forward | | | | | |
| F'cle enclosed ... ✓ 20'71" | 20'71" | 7.0 AT BHD. | | 20'71" | |
| " overhang ... 6.5 AT STEM | | | | | |
| Trunk aft See 10'16" | 47'46" | 3.5 | 3.5/6.0 | 27'69" | |
| " forward back | | | | | |
| Tonnage opening aft | | | | | |
| forward | | | | | |
| Total ... | 88'07" | 135'53" | | 115'76" | |

Standard Height of Superstructure **6'00"**
 " " R.Q.D. **✓**
 Deduction for complete superstructure **25'00"**
 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 = **25'00" × .5302 = -13'25"**

SHEER CORRECTION.

| Station | Standard Ordinate | S | M | Product | Actual Ordinate | Effective Ordinate | S | M | Product |
|---------------------|-------------------|---|---|---------|-----------------|--------------------|---|---|---------|
| A.P. ... | 19.00 | 1 | | 19.00 | ✓ 28.62 | 28.62 | 1 | | 18.62 |
| 1/2 L from A.P. ... | 12.905 | 4 | | 51.62 | ✓ 10.5 | 10.50 | 4 | | 42.00 |
| 2/3 L " ... | 3.19 | 2 | | 6.38 | 0 | - | 2 | | - |
| Amidships ... | 0 | 4 | | - | 0 | - | 4 | | - |
| 2/3 L from F.P. ... | 6.38 | 2 | | 12.76 | 0 | - | 2 | | - |
| 1/2 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 = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{39.12 - (.75 - .2318)}{18} = +1.13"$
 If limited on account of midship superstructure. **✓**

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 " =

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" + 1'90" = 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
 $T =$ **11.37**

Deduction = $\frac{\Delta}{40 T}$ inches
 $= \frac{1555}{40 \times 11.37} = 3.42 = 3 1/2"$

DRAFT 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 | |
| Deduction for superstructures ... | | 13.25 |
| Sheer correction ... | 1.13 | |
| Round of Beam correction ... | | .01 |
| Correction for Thickness of Deck amidships ... | | |
| Other corrections, scantlings, etc. ... | | |
| | 3.12 | 13.26 |

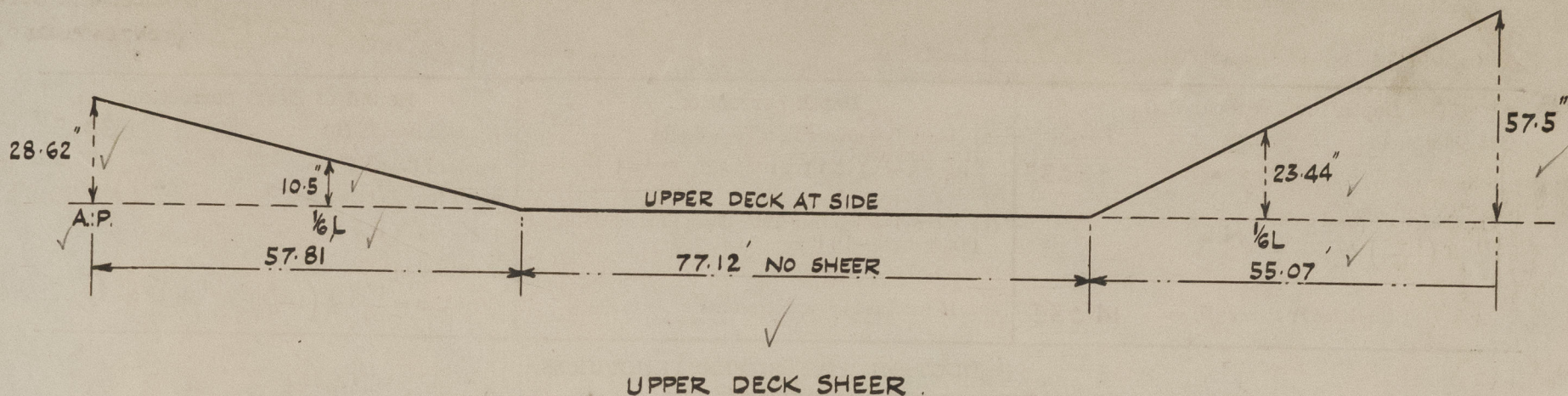
Summer Freeboard = **11'72"**

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

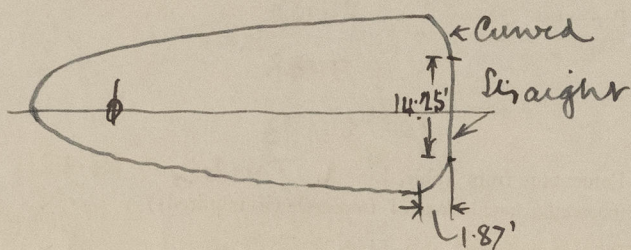
Tropical Fresh Water Line above Centre of Disc ... **6 3/4"**
 Fresh Water Line " ... **3 1/2"**
 Tropical Line " ... **3 1/4"**
 Winter Line below " ... **3 1/4"**
 Winter North Atlantic Line " ... **5 1/4"**

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



Peop.

$$1.87' \times 14.25' = 26.65'$$

$$\frac{2}{3} \times 2 \times 1.87 \times 8.125 = 20.26$$

$$\frac{46.91}{30.5} = 1.54$$

$$+ 65.82$$

$$67.36 = \text{equiv}$$

Trunk.

$$\begin{array}{r} 101.60 \\ - 5.60 \\ \hline 96.00 \end{array}$$

1.87 - 1.54

$$\begin{array}{r} + .33 \\ \hline 96.33 \end{array}$$

$$\times 14.25 / 30.5 = 45.00$$

$$5.6 \times 13.375 / 30.5 = 2.46$$

$$47.46 = \text{equiv length}$$

Trade of ship

International

Names of sister ships

"EMPIRE LASS", "EMPIRE CADET" (GRANGEMOUTH DOCKYARD N^o 435 & 436)
"EMPIRE BAIRN" (BLYTHSWOOD S.B. Co's N^o 67)

Builder's name and yard number

Messrs. A. & J. Inglis, Ltd. N^o 1151 P.

Owners

The Ministry of War Transport

Est. Fee £ 8.0-0

Freeboard Request Form 9 attached

Plans of Midship Section & Profile & Lines enclosed for reference.



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