

28 DEC 1943

Index. No. 37479
(For London Office only).

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

BP ENGINEER

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

| | | | | | |
|--|----------------------------------|--|--|------------------------------|---|
| Ship's Name <i>Shellbrit V</i> "EMPIRE HARVEST" | Official Number <i>169403</i> | Nationality and Port of Registry BRITISH GLASGOW | Gross Tonnage 814 <i>813.64</i> | Date of Build 1943 | Port of Survey GLASGOW |
| Moulded Dimensions: Length <i>190.0'</i> Breadth <i>30.5'</i> Depth <i>14.0'</i> | | | | | Date of Survey WHILST BUILDING |
| Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>1386</i> tons | | | | | Surveyor's Signature <i>S.W. Bowell</i> |
| Coefficient of fineness for use with Tables <i>.703</i> | | | | | Particulars of Classification + 100A1 "CARRYING PETROLEUM IN BULK" (CONTEMPLATED) |

| Depth for Freeboard (D). | Depth correction. | Round of Beam correction. |
|--|---|---|
| Moulded depth <i>14.0</i> | (a) Where D is greater than Table depth (D-Table depth) R = <i>(14.03 - 12.67) × 1.461 = + 1.99</i> | Moulded Breadth (B) <i>30.5</i> |
| Stringer plate <i>.40"</i> <i>.033</i> | (b) Where D is less than Table depth (if allowed) (Table depth-D) R = | Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>7.32</i> |
| Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <i>NIL</i> | If restricted by superstructures | Ship's Round of Beam = <i>7 1/2</i> |
| Depth for Freeboard (D) = <i>14.033'</i> | | Difference <i>.18</i> |
| | | Restricted to |
| | | Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) =$ <i>.18 × .04 = .01</i> |

DEDUCTION FOR SUPERSTRUCTURES.

| | Mean Covered Length (S) | Equivalent Enclosed Length (S ₁) | Height | Height Correction | Effective Length (E) | |
|----------------------------------|-------------------------|--|-----------------------------------|-------------------|----------------------|---|
| Poop enclosed <i>(AT CENTRE)</i> | <i>65.82</i> | <i>67.36</i> | <i>7.5</i> | <i>-</i> | <i>67.36</i> | Standard Height of Superstructure <i>6.00'</i> |
| " overhang ... | | | | | | " " R.Q.D. <i>✓</i> |
| R.Q.D. enclosed | | | | | | Deduction for complete superstructure <i>25"</i> |
| " overhang | | | | | | Percentage covered $\frac{S}{L} =$ <i>46.35</i> |
| Bridge enclosed | | | | | | " $\frac{S_1}{L} =$ <i>71.25</i> |
| " overhang aft | | | | | | " $\frac{E}{L} =$ <i>60.87</i> |
| " overhang forward | | | | | | Percentage from Table, Line A <i>52.96</i> |
| F'cle enclosed ... | <i>20.71</i> | <i>20.71</i> | <i>7.0 AT BHD 6.5 AT STEM</i> | <i>✓</i> | <i>20.71</i> | (corrected for absence of forecastle (if required)) |
| " overhang | | | | | | Percentage from Table, Line B <i>✓</i> |
| Trunk aft ... | <i>40.16</i> | <i>47.31</i> | <i>3.5</i> | <i>× 3.5/6.0</i> | <i>27.59</i> | (corrected for absence of forecastle (if required)) |
| " forward | | | | | | Interpolation for bridge less than 2L (if required) |
| Tonnage opening aft | | | | | | Deduction = <i>25 × 52.96 = - 13.24</i> |
| " forward | | | | | | |
| Total ... | <i>88.07</i> | <i>135.38</i> | | | <i>115.66</i> | |

SHEER CORRECTION.

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

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{39.12}{18} (.75 - .2318) = + 1.13$

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 " = }

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
DRAFT MLD. TOTAL DISP. T.P.I.
11'-0" 1278 11.05
13'-0" 1548 11.37

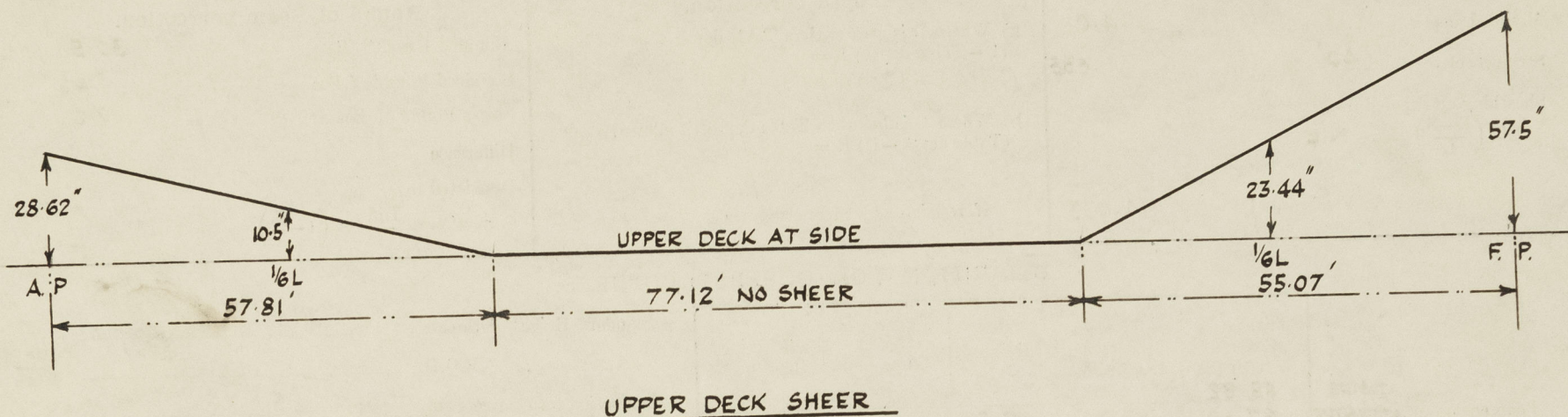
TABULAR FREEBOARD corrected for Flush Deck (if required)
Correction for coefficient $\frac{.703 + .68}{1.30} = 1.383/1.36$

| | + | - |
|--|--------------|--------------|
| Depth Correction ... | <i>1.99</i> | <i>-</i> |
| Deduction for superstructures ... | <i>-</i> | <i>13.24</i> |
| Sheer correction ... | <i>1.13</i> | <i>-</i> |
| Round of Beam correction ... | <i>-</i> | <i>.01</i> |
| Correction for Thickness of Deck amidships | <i>-</i> | <i>-</i> |
| Other corrections, scantlings, etc. ... | <i>-</i> | <i>-</i> |
| | <i>3.12</i> | <i>13.25</i> |
| Summer Freeboard = | <i>11.73</i> | |

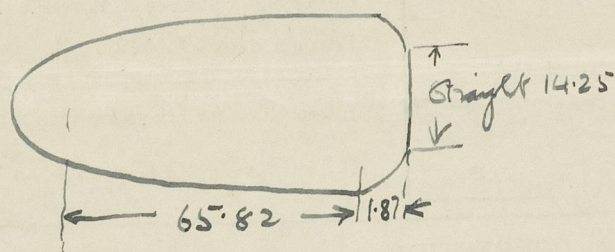
SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

| | | | |
|--|---------------|------------------------------------|-------------------|
| Tropical Fresh Water Line above Centre of Disc ... | <i>6 3/4"</i> | Tropical Fresh Water Freeboard ... | <i>0'-11 3/4"</i> |
| Fresh Water Line " " ... | <i>3 1/2"</i> | Fresh Water " " ... | <i>0'-5"</i> |
| Tropical Line " " ... | <i>3 1/4"</i> | Tropical " " ... | <i>0'-8 1/4"</i> |
| Winter Line below " " ... | <i>3 1/4"</i> | Winter " " ... | <i>0'-8 1/2"</i> |
| Winter North Atlantic Line " " ... | <i>5 1/4"</i> | Winter North Atlantic " " ... | <i>1'-5"</i> |

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.



Post.



$$\begin{aligned} \text{Straight Portion } 1.87 \times 14.25 &= 26.65 \\ \text{Curved Portion } 2 \times \frac{7}{8} \times 1.87 \times 8.125 &= 20.26 \\ &46.91 \\ \div 30.5 &= 1.54 \\ &65.82 \\ &\underline{67.36} \end{aligned}$$

Trunk.

$$\begin{aligned} &101.6 \\ &- 5.6 \\ &\hline &96.0 \times \frac{14.25}{30.50} = 44.85 \\ &5.6 \times \frac{13.375}{30.50} = 2.46 \\ &\hline &47.31 \end{aligned}$$

Trade of ship International
 "EMPIRE FAY" (A. & J. INGLIS, LD. N° 1184 P) SEE GLASGOW REPORT N° 66873
 Names of sister ships "EMPIRE COPPICE" (A. & J. INGLIS, LD. N° 1190 P) " " " " 67210
 Builder's name and yard number Messrs. A. & J. Inglis, Ltd. N° 1225 P.
 Owners The Ministry of War Transport.

Est. Fee £ 8-0-0

Freeboard Request Form 9 attached.

Plan of Midship Section and Profile & Decks enclosed for reference.



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