

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR ~~STEAMER, SAILING SHIP, TANKER.~~)

 Index. No. 37951
 (For London Office only).
GLASGOW REPORT No. 69560

30 APR 1945

Ship's Name "EMPIRE BELGRAVE"	Official Number <u>169440</u>	Nationality and Port of Registry <u>British</u> <u>Glasgow</u>	Gross Tonnage <u>890.45</u> 900 (ESTD)	Date of Build <u>1945</u>	Port of Survey <u>Glasgow</u>
Moulded Dimensions: Length <u>190' 8.5"</u> Breadth <u>32.0'</u> Depth <u>14.75'</u> <i>to centre of middle deck.</i>					Date of Survey <u>Whilst building.</u>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>1543</u> tons					Surveyor's Signature <u>J. W. Bolwell.</u>
Coefficient of fineness for use with Tables <u>.707</u>					Particulars of Classification <u>+100 A1 with</u> <u>freeboard corresponding</u> <u>to a summer moulded draft of 13' 0 1/2"</u> <u>carrying petroleum in bulk (contemplated)</u>

Depth for Freeboard (D). Moulded depth ... <u>14.75'</u> Stringer plate <u>40"</u> ... <u>.033'</u> Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <u>NIL</u> Depth for Freeboard (D) = <u>14.783'</u>	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(14.78 - 12.70) \times 1.465 = +3.05'$ $2.08'$ (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R =$ <u>✓</u> If restricted by superstructures <u>✓</u>	Round of Beam correction. Moulded Breadth (B) <u>32.0'</u> Standard Round of Beam $= \frac{B \times 12}{50} =$ <u>7.68</u> Ship's Round of Beam $=$ <u>7 1/2" = 7.50</u> Difference <u>.18</u> Restricted to Correction $= \frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.18^2 \times 2607}{4} = +.01'$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed <u>AT SIDE</u> ... <u>60.99</u>	<u>58.39</u>	<u>60.99</u>	<u>7.5</u>	<u>-</u>	<u>60.99</u>
" <u>overhang AT CENTRE</u> ... <u>61.26</u>	<u>58.39</u>		<u>2.75</u>		
R.Q.D. enclosed <u>AT SIDE</u> ... <u>58.39</u>	<u>61.26</u>		<u>2.75</u>		
" <u>overhang AT CENTRE</u> ... <u>61.26</u>	<u>36.74</u>	<u>16.13</u>	<u>2.75</u>	$\times \frac{2.75}{6}$	<u>7.39</u>
Bridge enclosed <u>AT SIDE</u> ... <u>16.13</u>	<u>20.61</u>	<u>20.61</u>	<u>7.0</u>	<u>-</u>	<u>20.61</u>
" <u>overhang</u> ... <u>20.61</u>	<u>43.12</u>		<u>2.75</u>	$\times \frac{2.75}{6}$	<u>19.76</u>
Trunk at <u>92 x 32</u> ... <u>92.0</u>					
" <u>forward</u> ... <u>92.0</u>					
Tonnage opening aft ... <u>92.0</u>					
" <u>forward</u> ... <u>92.0</u>					
Total ...	<u>47.73</u>	<u>140.85</u>			<u>108.75</u>

Standard Height of Superstructure	<u>6.0'</u>
" " R.Q.D.	<u>3.603</u>
Deduction for complete superstructure	<u>25.05</u>
Percentage covered $\frac{S}{L} =$	<u>51.30</u>
" " $\frac{S_1}{L} =$	<u>73.93</u>
" " $\frac{E}{L} =$	<u>57.08</u>
Percentage from Table, Line A. Tanker	<u>48.79</u>
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	<u>✓</u>
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	<u>✓</u>
Deduction =	<u>25.05 × .4879 = -12.22</u>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>29.05</u>	<u>1</u>	<u>29.05</u>	<u>4.87</u>	<u>4.87</u>	<u>1</u>	<u>29.05</u>	<u>1</u>	<u>4.87</u>
1/4 L from A.P. ...	<u>12.925</u>	<u>4</u>	<u>51.70</u>	<u>0.12</u>	<u>0.12</u>	<u>4</u>	<u>12.925</u>	<u>4</u>	<u>.48</u>
1/2 L " ...	<u>3.195</u>	<u>2</u>	<u>6.39</u>	<u>-</u>	<u>-</u>	<u>2</u>	<u>3.195</u>	<u>2</u>	<u>-</u>
Amidships ...	<u>-</u>	<u>4</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>4</u>	<u>-</u>	<u>4</u>	<u>-</u>
3/4 L from F.P. ...	<u>6.39</u>	<u>2</u>	<u>12.78</u>	<u>0.63</u>	<u>0.63</u>	<u>2</u>	<u>6.39</u>	<u>2</u>	<u>-</u>
1/4 L " ...	<u>25.85</u>	<u>4</u>	<u>103.40</u>	<u>0.63</u>	<u>0.63</u>	<u>4</u>	<u>25.85</u>	<u>4</u>	<u>2.52</u>
F.P. ...	<u>58.10</u>	<u>1</u>	<u>58.10</u>	<u>5.88</u>	<u>5.88</u>	<u>1</u>	<u>58.10</u>	<u>1</u>	<u>5.88</u>
Total ...			<u>261.42</u>						<u>13.75</u>

 Mean actual sheer aft =
 Mean standard sheer aft =

 Mean actual sheer forward =
 Mean standard sheer forward =

Length of enclosed superstructure forward of amidships =

" " aft of " =

 Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{247.67}{18} \left(.75 - \frac{25.65}{190.85} \right) = +6.79'$
 If limited on account of midship superstructure. ✓
If limited to maximum allowance of 1 1/2 ins. per 100 ft. ✓

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = <u>14.78</u> Summer freeboard = <u>1.73</u> Moulded draught (d) = <u>13.05</u> Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <u>3.26 = 3 1/4"</u> Addition for Winter North Atlantic Freeboard (if required) = <u>5 1/4"</u>	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta =$ <u>1632</u> Tons per inch immersion at summer load water line $T =$ <u>12.0</u> Deduction = $\frac{\Delta}{40T}$ inches = <u>3.40</u> DRAFT MLD. TOTAL DISP. T.P.I. <u>12' 6"</u> <u>1548</u> <u>11.9</u> <u>13' 0"</u> <u>1625</u> <u>12.0</u> <u>13' 6"</u> <u>1700</u> <u>12.1</u>	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{.707 + .68}{1.36} = \frac{1.387}{1.36}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction ...</td> <td><u>3.05</u></td> <td><u>-</u></td> </tr> <tr> <td>Deduction for superstructures ...</td> <td><u>-</u></td> <td><u>12.22</u></td> </tr> <tr> <td>Sheer correction ...</td> <td><u>6.79</u></td> <td><u>-</u></td> </tr> <tr> <td>Round of Beam correction ...</td> <td><u>.01</u></td> <td><u>-</u></td> </tr> <tr> <td>Correction for Thickness of Deck amidships ...</td> <td><u>-</u></td> <td><u>-</u></td> </tr> <tr> <td>Other corrections, scantlings, etc. <u>to a summer moulded draught of 13' 0 1/2" (13' 0 5/8" actual)</u></td> <td><u>1.11</u></td> <td><u>-</u></td> </tr> <tr> <td>Summer Freeboard =</td> <td><u>10.96</u></td> <td><u>12.22</u></td> </tr> <tr> <td></td> <td><u>-1.26</u></td> <td></td> </tr> <tr> <td></td> <td><u>20.75</u></td> <td></td> </tr> </table>		+	-	Depth Correction ...	<u>3.05</u>	<u>-</u>	Deduction for superstructures ...	<u>-</u>	<u>12.22</u>	Sheer correction ...	<u>6.79</u>	<u>-</u>	Round of Beam correction ...	<u>.01</u>	<u>-</u>	Correction for Thickness of Deck amidships ...	<u>-</u>	<u>-</u>	Other corrections, scantlings, etc. <u>to a summer moulded draught of 13' 0 1/2" (13' 0 5/8" actual)</u>	<u>1.11</u>	<u>-</u>	Summer Freeboard =	<u>10.96</u>	<u>12.22</u>		<u>-1.26</u>			<u>20.75</u>	
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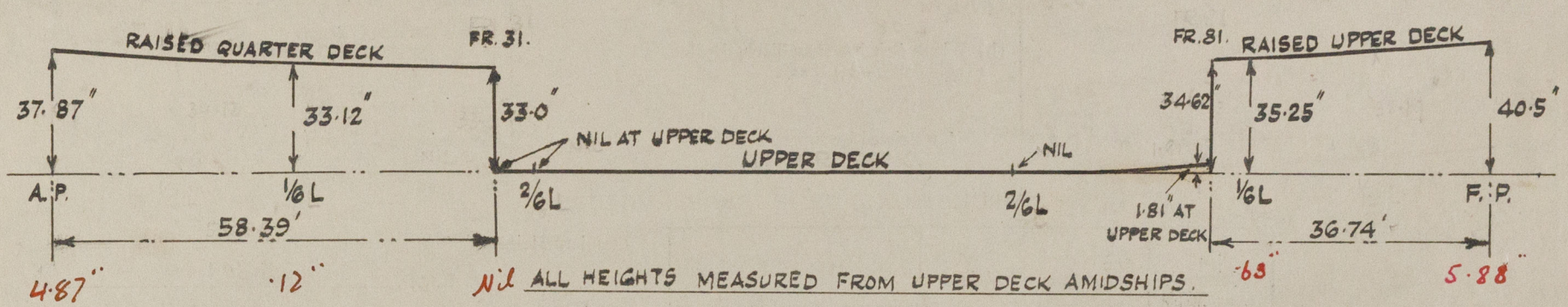
SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

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

Tropical Fresh Water Freeboard ...	<u>1' 8 3/4"</u>
Fresh Water " " ...	<u>1' 5 1/4"</u>
Tropical " " ...	<u>1' 5 1/2"</u>
Winter " " ...	<u>2' 0"</u>
Winter North Atlantic " " ...	<u>2' 2"</u>

"EMPIRE BELGRADE"

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.



SKETCH OF SHEER.

Podn
 $58.39 + .5 = 58.89$
 $15 \times 2.87 \div 32 = 1.34$
 $8.5 \times 2.87 \div 32 = .76$
 $\underline{60.99}$ equivalent

$32 - 15 = 17 ; \div 2 = 8.5$

omit

Trade of ship International
 Names of sister ships ✓
 Builder's name and yard number A. & J. Inglis, Ltd. N° 1299 P.
 Owners Ministry of War Transport.

Est 4 Fee £ 8-0-0

Plans of Approved Midship Section, Profile & Decks, & General Arrangement are forwarded herewith.
 Freeboard Request Form 9 attached