

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

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

Nº 33692

Ship's Name <b>M.V. EMPIRE ALLIANCE.</b>	Official Number <b>169117.</b>	Nationality and Port of Registry <b>BRITISH SUNDERLAND.</b>	Gross Tonnage <b>9999</b>	Date of Build <b>1943.</b>	Port of Survey <b>Sunderland.</b>
Moulded Dimensions: Length <b>476.125</b> Breadth <b>68.00</b> Depth <b>36.00</b>					Date of Survey <b>During Construction</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <b>21467</b> tons					Surveyor's Signature <b>Lt. J. G. Miller</b>
Coefficient of fineness for use with Tables <b>76</b> <sup>758</sup>					Particulars of Classification <b>+100 A.1. Carrying petroleum in bulk. Contemplated.</b>

<b>Depth for Freeboard (D).</b>	<b>Depth correction.</b>	<b>Round of Beam correction.</b>
Moulded depth ... .. <b>36.00</b>	(a) Where D is greater than Table depth (D-Table depth) R = <b>(36.07 - 31.74) 3 = +12.99</b>	Moulded Breadth (B) <b>68.00</b>
Stringer plate ... .. <b>82.. .07</b>	<b>4.33</b>	Standard Round of Beam = $\frac{B \times 12}{50} = 16.32$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = $\checkmark$	Ship's Round of Beam = <b>17</b>
Depth for Freeboard (D) = <b>36.07</b>	If restricted by superstructures $\checkmark$	Difference <b>.68</b>
		Restricted to
		Correction = $\frac{\text{Diff}^o}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.68}{4} \times .7003 = -.12''$

### DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ... ..	<b>108.20</b>	<b>108.20</b>	<b>7.5</b>	$\checkmark$	<b>108.20</b>
.. overhang ... ..					
R.Q.D. enclosed ... ..					
.. overhang ... ..					
Bridge enclosed ... ..					
.. overhang aft ... ..					
.. overhang forward ... ..					
F'cle enclosed ... ..	<b>34.5</b>	<b>34.50</b>	<b>7.5</b>	$\checkmark$	<b>34.50</b>
.. overhang ... ..					
Trunk aft ... ..					
.. forward ... ..					
Tonnage opening aft ... ..					
.. forward ... ..					
Total ... ..	<b>142.70</b>	<b>142.70</b>			<b>142.70</b>

Standard Height of Superstructure **7.5'**  
" " R.Q.D.  $\checkmark$   
Deduction for complete superstructure **42.00"**  
Percentage covered  $\frac{S}{L} =$   
" "  $\frac{S_1}{L} =$  } **29.97**  
" "  $\frac{E}{L} =$   
Percentage from Table, Line **A. tanker 20.98**  
(corrected for absence of forecastle (if required))  $\checkmark$   
Percentage from Table, Line **B.**  $\checkmark$   
(corrected for absence of forecastle (if required))  $\checkmark$   
Interpolation for bridge less than 2L (if required)  $\checkmark$   
Deduction = **42 x .2098 = -8.81"**

### SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ... ..	<b>57.61</b>	<b>1</b>	<b>57.61</b>	<b>45.75</b>	<b>45.75</b>	<b>1</b>	<b>45.75</b>		
$\frac{1}{4}$ L from A.P. ... ..	<b>25.635</b>	<b>4</b>	<b>102.54</b>	<b>20.5</b>	<b>20.50</b>	<b>4</b>	<b>82.00</b>		
$\frac{3}{8}$ L " ... ..	<b>6.34</b>	<b>2</b>	<b>12.68</b>	<b>5.375</b>	<b>5.375</b>	<b>2</b>	<b>10.75</b>		
Amidships ... ..	<b>-</b>	<b>4</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>4</b>	<b>-</b>		
$\frac{5}{8}$ L from F.P. ... ..	<b>12.675</b>	<b>2</b>	<b>25.35</b>	<b>6.75</b>	<b>6.75</b>	<b>2</b>	<b>13.50</b>		
$\frac{3}{4}$ L " ... ..	<b>51.27</b>	<b>4</b>	<b>205.08</b>	<b>26.75</b>	<b>26.75</b>	<b>4</b>	<b>107.00</b>		
F.P. ... ..	<b>115.23</b>	<b>1</b>	<b>115.23</b>	<b>62.</b>	<b>62.00</b>	<b>1</b>	<b>62.00</b>		
Total ... ..			<b>518.49</b>				<b>321.00</b>		

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 " = } **Deficient Sheer**

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75-S}{2L} \right) = \frac{197.49}{18} \left( \frac{.75-.1499}{.6001} \right) = +6.58''$   
If limited on account of midship superstructure.  $\checkmark$  If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.  $\checkmark$

<b>Deduction for Tropical Freeboard.</b> <b>Addition for Winter and Winter North Atlantic Freeboard.</b>	<b>Deduction for Fresh Water.</b> Displacement in salt water at summer load water line $\Delta = 19524$ Tons per inch immersion at summer load water line $T = 65.2$ Deduction = $\frac{\Delta}{40T}$ inches $= 7.49$ $= 7\frac{1}{2}''$	<b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required) Correction for coefficient $\frac{.758 + .68}{1.36} = 1.438 / 1.36$ <table><tr><td></td><td>+</td><td>-</td></tr><tr><td>Depth Correction ... ..</td><td><b>12.99</b></td><td><b>-</b></td></tr><tr><td>Deduction for superstructures ... ..</td><td><b>-</b></td><td><b>8.81</b></td></tr><tr><td>Sheer correction ... ..</td><td><b>6.58</b></td><td><b>-</b></td></tr><tr><td>Round of Beam correction ... ..</td><td><b>-</b></td><td><b>.12</b></td></tr><tr><td>Correction for Thickness of Deck amidships ... ..</td><td><b>-</b></td><td><b>-</b></td></tr><tr><td>Other corrections, scantlings, etc. ... ..</td><td><b>-</b></td><td><b>-</b></td></tr><tr><td></td><td><b>19.57</b></td><td><b>8.93</b></td></tr></table> <b>Summer Freeboard = 97.05</b>		+	-	Depth Correction ... ..	<b>12.99</b>	<b>-</b>	Deduction for superstructures ... ..	<b>-</b>	<b>8.81</b>	Sheer correction ... ..	<b>6.58</b>	<b>-</b>	Round of Beam correction ... ..	<b>-</b>	<b>.12</b>	Correction for Thickness of Deck amidships ... ..	<b>-</b>	<b>-</b>	Other corrections, scantlings, etc. ... ..	<b>-</b>	<b>-</b>		<b>19.57</b>	<b>8.93</b>
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Depth to Freeboard Deck = <b>36.07</b> Summer freeboard = <b>8.08</b> Moulded draught (d) = <b>27.99</b> Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <b>7"</b> Addition for Winter North Atlantic Freeboard (if required) = <b>7.0 + 4.76 = +11.76"</b>		<b>81.73</b> <b>86.41</b> <b>87.8</b> <b>17.5.43</b>																								

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

Tropical Fresh Water Line above Centre of Disc ...	<b>14.12"</b>	Tropical Fresh Water Freeboard ...	<b>6'-10.12"</b>
Fresh Water Line " " ...	<b>7.12"</b>	Fresh Water " " ...	<b>7'-5.12"</b>
Tropical Line " " ...	<b>7"</b>	Tropical " " ...	<b>7'-6"</b>
Winter Line below " " ...	<b>7"</b>	Winter " " ...	<b>8'-8"</b>
Winter North Atlantic Line " " ...	<b>11.34"</b>	Winter North Atlantic " " ...	<b>9'-0.34"</b>

© 8'-10.12"  
6'-10.12"  
7'-5.12"  
7'-6"  
8'-8"  
9'-0.34"  
Lloyd's Register  
Foundation  
23.6.43



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.

Displacement at 28'3" draft = 19547 tons ✓  
Tons Per Inch = 65.2. ✓

Trade of ship..... ✓

Names of sister ships *M.V. Empire Cavalier* *Std. Rpt. N° 33501*

Builder's name and yard number *Messrs. Sir James Laing & Son Ltd* *Yard No. 747*

Owners *Ministry of War Transport*

Fee £ *20* :  
*will be charged on completion*



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