

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name EMPIRE RIVAL	Official Number <i>not</i> 168961	Nationality and Port of Registry BRITISH WEST HARTLEPOOL	Gross Tonnage <i>not</i> 7044.81	Date of Build AUG. 1943	Port of Survey <i>West Hartlepool.</i>
Moulded Dimensions: Length 425'-0" Breadth 56'-0" Depth 37'-8" TO CR OF RUDDER STOCK 425'-11 1/4"					Date of Survey <i>July 1943.</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth 17138 tons					Surveyor's Signature <i>E. Lee.</i>
Coefficient of fineness for use with Tables .786					Particulars of Classification + 100 A1. with freeboard.

DEPTH FOR FREEBOARD (D). Moulded depth ... 37.66 Stringer plate6505 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <input checked="" type="checkbox"/> Depth for Freeboard (D) = 37.72	DEPTH CORRECTION. (a) Where D is greater than Table depth (D-Table depth) R = $(37.72-28.38)3 = +28.02$ (b) Where D is less than Table depth (if allowed) (Table depth-D) R = <input checked="" type="checkbox"/> If restricted by superstructures	ROUND OF BEAM CORRECTION. Moulded Breadth (B) 56'-0" Standard Round of Beam = $\frac{B \times 12}{50} = 13.44$ Ship's Round of Beam = 14 Difference .56 Restricted to Correction = $\frac{\text{Diff}^\circ}{4} \times \left(1 - \frac{S_1}{L}\right) = \frac{.56}{4} \times .9162 = .128$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...					
„ overhang ...					
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed ...					
„ overhang aft ...					
„ overhang forward ...					
F'cle enclosed ...	35'-8"	35.67	6'-9"	675/75	32.10
„ overhang ...					
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward ...					
Total ...	35.67	35.67			32.10

Standard Height of Superstructure	7.5'
„ „ R.Q.D.	<input checked="" type="checkbox"/>
Deduction for complete superstructure	42
Percentage covered $\frac{S}{L} =$	8.38
„ „ $\frac{S_1}{L} =$	
„ „ $\frac{E}{L} =$	7.54
Percentage from Table, Line A.	3.77
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	<input checked="" type="checkbox"/>
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than .2L (if required)	
Deduction =	42 x .0377 = -1.58

SHEER CORRECTION.

No sheer between frames 29 & 129.

Station	Standard Ordinate	S	M	Product	Actual Ordinate INCHES	Effective Ordinate	S	M	Product
A.P. ...	52.57	1		52.57	31.0	31.0	1		31.0
1/2 L from A.P. ...	23.39	4		93.56	-	-	4		-
3/8 L „ ...	5.78	2		11.56	-	-	2		-
Amidships ...	-	4		-	-	-	4		-
3/8 L from F.P. ...	11.57	2		23.14	-	-	2		-
1/2 L „ ...	46.78	4		187.12	6.0	6.0	4		24.0
F.P. ...	105.13	1		105.13	81.0	81.0	1		81.0
Total ...				473.08					136.0

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{337.08}{18} (.75 - .0419) = +13.26$
 If limited on account of midship superstructure. ☒ **7081** 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 = **37.72**
 Summer freeboard = **11.08**
 Moulded draught (d) = **26.64**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **6.66 = 6 3/4**

Addition for Winter North Atlantic Freeboard (if required)=

Deduction for Fresh Water.

Displacement in salt water at summer load water line **26.9**
FULL DRAUGHT 14006 TONS
 Tons per inch immersion at summer load water line **26.9**
FULL DRAUGHT 49.23 TONS

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

$\frac{14006}{40 \times 49.23} = 7.11$
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TABULAR FREEBOARD

Corrected for Flush Deck (if required) **79.55 + 1.57**
 Correction for coefficient **7864.08 = 1.466/1.36**

	+	-	
Depth Correction	28.02		
Deduction for superstructures		1.58	
Sheer correction	13.26		
Round of Beam correction		.13	
Correction for Thickness of Deck amidships			
Other corrections, scantlings, etc.	5.99		
79.55	47.27	1.71	+45.56
Summer Freeboard = 133.00			

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

Tropical Fresh Water Line above Centre of Disc	...	13 3/4	Tropical Fresh Water Freeboard	...	9-11 1/4
Fresh Water Line	...	7	Fresh Water	...	10-6
Tropical Line	...	6 3/4	Tropical	...	10-6 1/4
Winter Line below	...	6 3/4	Winter	...	11-7 3/4
Winter North Atlantic Line	...	<input checked="" type="checkbox"/>	Winter North Atlantic	...	<input checked="" type="checkbox"/>

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.

Trade of ship Ocean going.

Names of sister ships "Empire Peak", "Empire Stalwart" & previous vessels.

Builder's name and yard number William Gray & Co Ltd. Yard No 1151.

Owners Ministry of War Transport.

Fee £ 18 . 0 . 0



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Foundation