

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name EMPIRE RIVAL	Official Number 168961	Nationality and Port of Registry British West Hartlepool	Gross Tonnage 7045	Date of Build Aug. 1943	Port of Survey _____
Moulded Dimensions: Length 425.94' Breadth 56.00' Depth 28.67' to CL of rudder stock					Date of Survey 7.10.48
Moulded displacement at moulded draught = 85 per cent. of moulded depth 12585 tons					Surveyor's Signature C. Kishlop
Coefficient of fineness for use with Tables .758					Particulars of Classification +100 A1 with Freeboard

DEPTH FOR FREEBOARD (D).	DEPTH CORRECTION.	ROUND OF BEAM CORRECTION.
Moulded depth 28.67	(a) Where D is greater than Table depth (D-Table depth) R = (28.70-28.38)3 = +.96"	Moulded Breadth (B) 56.00'
Stringer plate .38"03	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = .90	Standard Round of Beam = $\frac{B \times 12}{50} = \mathbf{13.44"}'$
Sheathing on exposed deck ✓		Ship's Round of Beam = 14.00"
$T \left(\frac{L-S}{L} \right) =$		Difference .56"
Depth for Freeboard (D) = 28.70	If restricted by superstructures ✓	Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \mathbf{\frac{.56}{4} \times .0057 = Nil.}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	33.93	33.93	9.0	✓	33.93
" overhang67	.33			.33
R.Q.D. enclosed					
" overhang					
Bridge enclosed	386.84	386.84	9.0	✓	386.84
" overhang aft					
" overhang forward					
Fore enclosed					
" overhang					
Trunk aft					
" forward					
Tonnage opening aft	4.50	2.42			2.42
" " forward					
Total	425.94	423.52			423.52

Standard Height of Superstructure 7.50'
" " R.Q.D. ✓
Deduction for complete superstructure 42.00"
Percentage covered $\frac{S}{L} = \mathbf{100.00}$
" " $\frac{S_1}{L} = \mathbf{99.43}$
" " $\frac{E}{L} = \mathbf{99.30}$
Percentage from Table, Line A. ✓
(corrected for absence of forecastle (if required)) ✓
Percentage from Table, Line B. 99.30
(corrected for absence of forecastle (if required))
Interpolation for bridge less than .2L (if required)
Deduction = 42.00 × .9930 = 41.71"

SHEER CORRECTION.

Actual Tween deck height = **9.00'**
Standard " " " = **7.50'**
" " " = **1.50' = 18"**

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	52.57	1		52.57	+18.0	49.00	1		49.00
$\frac{1}{2}$ L from A.P.	23.39	4		93.56	-	18.00	4		72.00
$\frac{1}{4}$ L "	5.78	2		11.56	-	5.39	2		10.78
Amidships	-	4		-	-	-	4		-
$\frac{1}{4}$ L from F.P.	11.57	2		23.14	-	10.89	2		21.78
$\frac{1}{2}$ L "	46.78	4		187.12	6.0	24.00	4		96.00
F.P.	105.13	1		105.13	81.0	99.00	1		99.00
Total				473.08	+18.0				348.56

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75-S}{.2L} \right) = \frac{124.52}{18} \times .25 = \mathbf{+1.73"}'$

If limited on account of midship superstructure. **✓**

Mean actual sheer aft =
Mean standard sheer aft =
Mean actual sheer forward =
Mean standard sheer forward =
Deficient

Length of enclosed superstructure forward of amidships =
L
aft of " =
C.S.S.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = **28.70**
Summer freeboard = **3.77**
Moulded draught (d) = **24.93**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **6.23.64"**

Addition for Winter North Atlantic Freeboard (if required)= **✓**

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta = \mathbf{13315}$
Tons per inch immersion at summer load water line
 $T = \mathbf{49.0}$

Deduction = $\frac{\Delta}{40T}$ inches
= **6.79**
= **6 $\frac{3}{4}$ "**

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.758 + .68}{1.36} = \mathbf{1.438}$

Depth Correction

Deduction for superstructures

Sheer correction

Round of Beam correction

Correction for Thickness of Deck amidships

Other corrections, scantlings, etc.

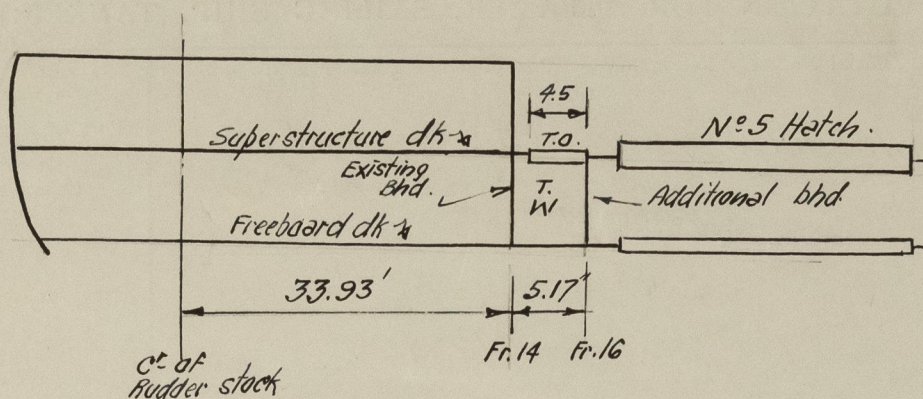
	79.64"
	84.22"
	41.71
	1.73
	2.63
	2.69
	41.71
	39.02"
	45.20"
	3' 9$\frac{1}{4}$"
	2' 8$\frac{1}{4}$"
	3' 2$\frac{1}{2}$"
	3' 3"
	4' 3$\frac{1}{2}$"

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

Tropical Fresh Water Line above Centre of Disc **13"**
Fresh Water Line " " **6 $\frac{3}{4}$ "**
Tropical Line " " **6 $\frac{3}{4}$ "**
Winter Line below " " **6 $\frac{3}{4}$ "**
Winter North Atlantic Line " **Not assigned**

Tropical Fresh Water Freeboard
Fresh Water " "
Tropical " "
Winter " "
Winter North Atlantic " "

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.



For Δ
 "Empire Newton" 24.36' 12585 tons mld
 Mld. draught 24.93
 .57
 Assume T.P.I. 49.
 Add .57 x 12 x 49 333
 12918
 397
 Shell and append. 3%.
 Full Δ at load draught. 13315 tons.

Trade of ship

Names of sister ships

Builder's name and yard number

Owners

Fee £



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