

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.
(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

8 NOV 1948

Ship's Name "EMPIRE GAELIC" Ex L.S.T. 3507.	Official Number 182919	Nationality and Port of Registry BRITISH.	Gross Tonnage 4291	Date of Build 1945	Port of Survey GLASGOW.
Moulded Dimensions: Length 321.75' Breadth 54.0' Depth 27.0' <i>To Centre of Rudder Stock.</i>					Date of Survey NOVEMBER 1948.
Moulded displacement at moulded draught = 85 per cent. of moulded depth (estimated) 9500 tons					Surveyor's Signature <i>James R. Brown.</i>
Coefficient of fineness for use with Tables .834					Particulars of Classification A - WITH FREEBOARD Transport Ferry.

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 27.00'	(a) Where D is greater than Table depth (D - Table depth) R = (27.03 - 21.45) 2.475 = +13.81"	Moulded Breadth (B) 54.00'
Stringer plate03'	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = 5.58	Standard Round of Beam = $\frac{B \times 12}{50} =$ 12.96"
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ none	If restricted by superstructures	Ship's Round of Beam = none.
Depth for Freeboard (D) = 27.03'		Difference 12.96
		Restricted to
		Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{12.96}{4} = +3.24"$

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 ...					
„ overhang ...					
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward ...					
Total ...					

Standard Height of Superstructure **6.78'**
„ „ R.Q.D. **✓**
Deduction for complete superstructure **36.78"**
Percentage covered $\frac{S}{L} =$ **Nil.**
„ $\frac{S_1}{L} =$ **Nil.**
„ $\frac{E}{L} =$ **Nil.**
Percentage from Table, Line A.
(corrected for absence of forecastle (if required))
Percentage from Table, Line B.
(corrected for absence of forecastle (if required))
Interpolation for bridge less than 2L (if required)
Deduction = **Nil.**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	42.175	1		42.18	24.0"	24.00	1		24.00
$\frac{1}{2}$ L from A.P. ...	18.77	4		75.08	12.0"	12.00	4		48.00
$\frac{3}{8}$ L „ ...	4.64	2		9.28	-	-	2		-
Amidships ...	-	4		-	-	-	4		-
$\frac{3}{8}$ L from F.P. ...	9.28	2		18.56	-	-	2		-
$\frac{1}{2}$ L „ ...	37.54	4		150.16	-	-	4		-
F.P. ...	84.35	1		84.35	32.0"	32.00	1		32.00
Total ...				379.61					104.00

Mean actual sheer aft =
Mean standard sheer aft = } **Deficient.**
Mean actual sheer forward =
Mean standard sheer forward = }
Length of enclosed superstructure forward of amidships = } **Deficient**
„ „ aft of „ = } **Sheers.**

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{275.61}{18} \times \frac{75}{2 \times 321.75} = +11.48"$
If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard.	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta =$ 4170 tons Tons per inch immersion at summer load water line $T =$ 35.5 tons. Deduction = $\frac{\Delta}{40T}$ inches $\frac{d}{4} =$ 2$\frac{3}{4}$"	TABULAR FREEBOARD $\frac{48.86 + 4.83}{1.36} = \frac{53.69}{1.36} =$ 53.69 Correction for coefficient $\frac{.834 + .68}{1.36} = \frac{1.514}{1.36}$ Depth Correction ... 13.81 ✓ Deduction for superstructures ... ✓ Sheer correction ... 11.48 ✓ Round of Beam correction ... 3.24 ✓ Correction for Thickness of Deck amidships ... ✓ Other corrections, scantlings, etc. corresponding to a summer moulded draught of 10'-6 $\frac{1}{2}$ " actual. 109.95 ✓ 138.48 ✓ Summer Freeboard = 198.25
Depth to Freeboard Deck = 27.03 Summer freeboard = 16.52 Moulded draught (d) = 10.51		
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 2.63" = 2$\frac{3}{4}$" Addition for Winter North Atlantic Freeboard (if required) = Not assigned.		

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

Tropical Fresh Water Line above Centre of Disc ... Not assigned.	Tropical Fresh Water Freeboard ... Not assigned.
Fresh Water Line „ „ 2$\frac{3}{4}$"	Fresh Water „ „ 16'-3$\frac{1}{2}$"
Tropical Line „ „ Not assigned.	Tropical „ „ Not assigned.
Winter Line below „ „ 2$\frac{3}{4}$"	Winter „ „ 16'-9"
Winter North Atlantic Line „ „ Not assigned.	Winter North Atlantic „ „ Not assigned.

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 Transport Ferry "For Service U.K. and Eire (excluding the West Coast of Ireland) also to and in the Baltic and Mediterranean" Passenger Certificate to be issued by the M.O.T.

Names of sister ships Similar to "Empire Doris" and "Empire Redie"

Builder's name and yard number Davie Shipbuilding & Repairing Co. Ltd. Quebec, Yard No. 562.

Owners Ministry of Transport (Frank Bustard & Sons Ltd. Mgrs.)

Fee £ 26 : 0 : 0.

112



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