

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

9 JAN 1942

Ship's Name SINGLE SCREW TUG. "EMPIRE LINDEN"	Official Number 167112	Nationality and Port of Registry BRITISH HULL	Gross Tonnage 145	Date of Build 1941	Port of Survey HULL
Moulded Dimensions: Length 105.0' Breadth 26.5' Depth 13.5'					Date of Survey WHILE BUILDING
Moulded displacement at moulded draught = 85 per cent. of moulded depth 523 tons T.P.I. 5.35					Surveyor's Signature W. McDonald
Coefficient of fineness for use with Tables .68 .573 (actual)					Particulars of Classification * 100 A.1. "FOR TOWING SERVICES". (CONTEMPLATED)

Depth for Freeboard (D). Moulded depth ... 13.5' Stringer plate30" Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$.03 Depth for Freeboard (D) = 13.53	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(13.53 - 7.00) \times .808 = +5.28$ 6.53 (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R =$ ✓ If restricted by superstructures ✓	Round of Beam correction. Moulded Breadth (B) 26.5' Standard Round of Beam = $\frac{B \times 12}{50} =$ 6.36 Ship's Round of Beam = 4 1/2" Difference 1.14 Restricted to ✓ Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{1.14}{4} = -.28$
---	---	---

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 ...					

Flush Deck

Standard Height of Superstructure _____

„ „ R.Q.D. _____

Deduction for complete superstructure _____

Percentage covered $\frac{S}{L} =$ **N.A.**

„ $\frac{S_1}{L} =$ **N.A.**

„ $\frac{E}{L} =$ **N.A.**

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 = **N.A.**

Sheer is not in that measured from a line parallel to the sheer at the ends

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	20.50	1		20.50	18"	18	1		18.0
1/2 L from A.P. ...	9.12	4		36.48	8"	8	4		32.0
3/4 L „ ...	22.55	2		45.1	1 3/4"	1.75	2		3.5
Amidships ...	-	4		-	NIL	-	4		-
3/4 L from F.P. ...	4.51	2		9.02	9 3/4"	9.75	2		19.5
1/2 L „ ...	18.24	4		72.96	35 1/2"	35.5	4		142.0
F.P. ...	41.00	1		41.00	81 1/2"	81.5	1		81.5
Total ...				184.47					296.5

Mean actual sheer aft = **Definit but > .75"**
 Mean standard sheer aft = **75"**

Mean actual sheer forward = **68"**
 Mean standard sheer forward = **68"**

Length of enclosed superstructure forward of amidships = **N.A.**
 „ „ aft of „ = **N.A.**

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{112.03 \times .75}{18} = -4.67$
 If limited on account of midship superstructure. **✓**

If limited to maximum allowance of 1 1/2 ins. per 100 ft. **1.58**

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = **13.53**
 Summer freeboard = **1.29**
 Moulded draught (d) = **12.24**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **3.06**
= 3"

Addition for Winter North Atlantic Freeboard (if required) = **5"**

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 580$

Tons per inch immersion at summer load water line

$T = 5.47$

Deduction = $\frac{\Delta}{40T}$ inches
= 2.65 = 2 3/4"

MLO DRAFT	EXT. DISPL.	T.P.I.
12'-6"	595	5.50
11'-6"	529.4	5.35
9'-6"	407	4.90

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient **N.A.**

Depth Correction ... **5.28**
 Deduction for superstructures ... **-**
 Sheer correction ... **- 1.58**
 Round of Beam correction ... **- .28**
 Correction for Thickness of Deck amidships ... **-**
 Other corrections, scantlings, etc. ... **-**

	+	-
Depth Correction	5.28	-
Deduction for superstructures	-	1.58
Sheer correction	-	.28
Round of Beam correction	-	-
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc.	-	-
Summer Freeboard	5.28	1.86
		+ 3.42
		12.08

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

Tropical Fresh Water Line above Centre of Disc ... **5 3/4"**
 Fresh Water Line „ „ ... **2 3/4"**
 Tropical Line „ „ ... **3"**
 Winter Line below „ „ ... **3"**
 Winter North Atlantic Line „ „ ... **5"**

Tropical Fresh Water Freeboard ... **1'-8 1/2"**
 Fresh Water „ „ ... **0-9 3/4"**
 Tropical „ „ ... **1-0 3/4"**
 Winter „ „ ... **1-0 1/2"**
 Winter „ „ ... **1-6 1/2"**
 Winter North Atlantic „ „ ... **1-8 1/2"**

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..... *TUG FOR TOWING SERVICES*

Names of sister ships..... *"EMPIRE BIRCH."*

Builder's name and yard number..... *MESSRS HENRY SCARR LTD., N^o 419.*

Owners..... *MINISTRY OF SHIPPING.*

Fee £..... *TO BE CHARGED WITH FIRST ENTRY REPORT.*



© 2021

Lloyd's Register
Foundation