

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

Ship's Name <i>LANCASHIRE.</i>	Official Number <i>140529</i>	Nationality and Port of Registry <i>British Liverpool</i>	Gross Tonnage <i>9557.</i>	Date of Build <i>1917-7</i>	Port of Survey
Moulded Dimensions: Length <i>481.5</i> Breadth <i>57.0</i> Depth <i>35.37.</i>					Date of Survey <i>16. 2. 45.</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>17746.</i> tons					Surveyor's Signature
Coefficient of fineness for use with Tables <i>.753</i>					Particulars of Classification <i>+100A1</i>
Depth for Freeboard (D).		Depth correction.		Round of Beam correction.	
Moulded depth ... ..	<i>35.37</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>(35.50 - 32.10) × 3 = +10.20</i>		Moulded Breadth (B)	<i>57.0</i>
Stringer plate ... ..	<i>.06</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>✓</i>		Standard Round of Beam = $\frac{B \times 12}{50}$	<i>13.68</i>
Sheathing on exposed deck <i>8½"</i>				Ship's Round of Beam	<i>9.00</i>
$T \left( \frac{L-S}{L} \right) =$	<i>.29 × .2293</i>			Difference	<i>4.68</i>
Depth for Freeboard (D) =	<i>35.50</i>	If restricted by superstructures <i>✓</i>		Restricted to	
				Correction = $\frac{\text{Diff}^n}{4} \times \left( 1 - \frac{S_1}{L} \right)$	<i>= \frac{4.68}{4} × .3144 = +1.37</i>

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	48.00	48.00	8.25	✓	48.00
„ overhang ...	3.08	1.54			1.54
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed ...	193.00	193.00	8.25	✓	193.00
„ overhang aft ...	✓	✓			
„ overhang forward	42.00	21.00			21.00
Fore enclosed <i>open</i> ...	85.00	48.15	8.0	✓	48.15
„ overhang ...		18.42			18.42
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward					
Total ...	371.08	330.11			330.11

Standard Height of Superstructure 7.50

„ „ R.Q.D. ✓

Deduction for complete superstructure 42.00

Percentage covered  $\frac{S}{L} = 77.07$

„ „  $\frac{S_1}{L} = 68.56$

„ „  $\frac{E}{L} = 68.56$

Percentage from Table, Line A. ✓

(corrected for absence of forecastle (if required)) ✓

Percentage from Table, Line B. 60.55

(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required) ✓

Deduction = 42 × 60.55 = -25.43

SHEER CORRECTION.

Station	Standard Ordnate	S M	Product	Actual Ordnate	Effective Ordnate	S M	Product
A.P. ... ..	58.15	1	58.15	42.00	42.00	1	42.00
$\frac{1}{8}$ L from A.P. ...	25.88	4	103.52	9.00	9.00	4	36.00
$\frac{3}{8}$ L .. ...	6.39	2	12.78	-3.00	-3.00	2	-6.00
Amidships ...	-	4	-	-	-	4	-
$\frac{3}{8}$ L from F.P. ...	12.79	2	25.58	16.50	12.79	2	25.58
$\frac{1}{8}$ L .. ...	51.76	4	207.04	51.00	51.76	4	207.04
F.P. ... ..	116.30	1	116.30	114.00	116.30	1	116.30
Total ...			523.37				420.92

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{8}{2L} \right) = \frac{102.45}{18} (.75 - .3853) = +2.07$$

If limited on account of midship superstructure. If limited

		<u>Sheers aft.</u>					
		58.15	1	58.15	42.00	1	42.00
		25.88	3	77.64	9.00	3	27.00
Mean actual sheer aft		6.89	3	19.17	-3.00	3	-9.00
Mean standard sheer aft	<sup>def.</sup> = 88.7% stand.			154.96			60.00
						= 38.7%	

$$\frac{\text{Mean actual sheer forward}}{\text{Mean standard sheer forward}} = \text{Excess.}$$

Length of enclosed superstructure forward of amidships =

		alt of	"	=
		<u>Sheen Forward.</u>		
12-79	3	38.37	16.50	49.50
51-76	3	155.28	51.00	163.00
116-30	1	116.30	114.00	114.00
		<u>309.95</u>		<u>316.50</u>
+2.07				

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

<p><b>Deduction for Tropical Freeboard.</b></p> <p><b>Addition for Winter and Winter North Atlantic Freeboard.</b></p> <p>Depth to Freeboard Deck = <u>35.72</u> Ft.</p> <p>Summer freeboard = <u>7.65</u></p> <p>Moulded draught (d) = <u>28.07</u></p> <p><b>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <u>7.0</u></b></p> <p><b>n for Winter North Atlantic Freeboard (if D) =</b></p>	<p><b>Deduction for Fresh Water.</b></p> <p>Displacement in salt water at summer load water line</p> <p><math>\Delta = 16650</math> (estimated)</p> <p>Tons per inch immersion at summer load water line</p> <p>T = <u>55 (est.)</u></p> <p>Deduction = <math>\frac{\Delta}{40 T}</math> inches</p> <p>= <u>7.57 = 7 <math>\frac{1}{2}</math></u></p>	<p><b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required)</p> <p>Correction for coefficient <math>\frac{7531.68}{1.36} = \frac{1.433}{1.26}</math></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>+</th> <th>-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction ... ..</td> <td>10.20</td> <td>-</td> </tr> <tr> <td>Deduction for superstructures ... ..</td> <td>-</td> <td>25.43</td> </tr> <tr> <td>Sheer correction ... ..</td> <td>2.07</td> <td>-</td> </tr> <tr> <td>Round of Beam correction ... ..</td> <td>.37</td> <td>-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships ... ..</td> <td>2.66</td> <td>-</td> </tr> <tr> <td>Other corrections, scantlings, etc. ... ..</td> <td>-</td> <td>-</td> </tr> <tr> <td></td> <td><b>15.30</b></td> <td><b>25.43</b></td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 10px;">Summer Freeboard = <u>91.82</u></p>		+	-	Depth Correction ... ..	10.20	-	Deduction for superstructures ... ..	-	25.43	Sheer correction ... ..	2.07	-	Round of Beam correction ... ..	.37	-	Correction for Thickness of Deck amidships ... ..	2.66	-	Other corrections, scantlings, etc. ... ..	-	-		<b>15.30</b>	<b>25.43</b>
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line/Wood/Steel Deck:-

Tropical Fresh Water Line above Centre of Disc ...	7 1/2" 142	Tropical Fresh Water Freeboard ...	✓
Fresh Water Line " " ...	7 1/2"	Fresh Water " " ...	✓
Tropical Line " " ...	nil 7	Tropical " " ...	✓
Winter Line below " " ...	nil 7	Winter " " ...	✓
Winter North Atlantic Line " " ...	nil ✓	Winter North Atlantic " " ...	✓

max. permissible draught per m. salt = 28.7

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