

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <b>LOCH DEE.</b>	Official Number <b>164122</b>	Nationality and Port of Registry <b>British, Glasgow</b>	Gross Tonnage	Date of Build <b>1937</b>	Port of Survey
Moulded Dimensions: Length <b>409.87</b> Breadth <b>58.5</b> Depth <b>38.78'</b>					Date of Survey <b>26.5.41</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth tons					Surveyor's Signature
Coefficient of fineness for use with Tables <b>.745 (estimated)</b>					Particulars of Classification <b>+100 A1 with freeboard</b>

<b>Depth for Freeboard (D).</b> Moulded depth ... <b>38.78</b> Stringer plate ... <b>58"</b> ... <b>.05'</b> Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ <b>✓</b> Depth for Freeboard (D) = <b>38.83</b>	<b>Depth correction.</b> (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(38.83 - 37.32) \times 30 = +34.53"$ (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R =$ If restricted by superstructures ✓	<b>Round of Beam correction.</b> Moulded Breadth (B) <b>58.5</b> Standard Round of Beam = $\frac{B \times 12}{50} = 14.04$ Ship's Round of Beam = <b>14.50</b> Difference <b>Excess .46"</b> Restricted to Correction = $\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.46^2}{4} \times .935 = -.11$
--	---	--

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ...						Standard Height of Superstructure <b>7.50</b>
.. overhang ...						.. R.Q.D. <b>✓</b>
R.Q.D. enclosed ...						Deduction for complete superstructure <b>42.00</b>
.. overhang ...						Percentage covered $\frac{S}{L} = 7.65$
Bridge enclosed ...						.. $\frac{S_1}{L} = 7.65$
.. overhang aft ...						.. $\frac{E}{L} = 7.65$
.. overhang forward						Percentage from Table, Line A. <b>3.83</b>
Fore enclosed ...	<b>31.37</b>	<b>31.37</b>	<b>7.5'</b>	<b>✓</b>	<b>31.37</b>	(corrected for absence of forecastle (if required)) <b>✓</b>
.. overhang ...						Percentage from Table, Line B. <b>✓</b>
Trunk aft ...						(corrected for absence of forecastle (if required)) <b>✓</b>
.. forward ...						Interpolation for bridge less than .2L (if required) <b>✓</b>
Tonnage opening aft ...						Deduction = <b>42 x .0383 = 7.61</b>
.. forward						
Total ...	<b>31.37</b>	<b>31.37</b>			<b>31.37</b>	

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<b>50.99</b>	1		<b>50.99</b>	<b>79 1/4</b>	<b>50.99</b>	1		<b>50.99</b>	Mean actual sheer aft = <b>Excess</b>
1/4 L from A.P. ...	<b>22.69</b>	4		<b>90.76</b>	<b>29 3/8</b>	<b>22.69</b>	4		<b>90.76</b>	Mean actual sheer forward = <b>Defic</b>
1/2 L ..	<b>5.61</b>	2		<b>11.22</b>	<b>6</b>	<b>5.61</b>	2		<b>11.22</b>	Mean standard sheer forward
Amidships ...		4					4			Length of enclosed superstructure forward of amidships =
3/4 L from F.P. ...	<b>11.22</b>	2		<b>22.44</b>	<b>7 5/8</b>	<b>7.63</b>	2		<b>15.26</b>	.. aft of .. = <b>Deficient</b>
1/4 L ..	<b>45.37</b>	4		<b>181.48</b>	<b>34 3/8</b>	<b>34.38</b>	4		<b>137.52</b>	<b>Deficient</b>
F.P. ...	<b>101.97</b>	1		<b>101.97</b>	<b>79 3/8</b>	<b>79.88</b>	1		<b>79.88</b>	<b>Deficient</b>
Total ...				<b>458.86</b>					<b>385.63</b>	

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{75-S}{21L} \right) = \frac{73.23 \times (.75 - .0383)}{18 \times 211.7} = +2.90"$   
 If limited on account of midship superstructure. **✓** If limited to maximum allowance of 1 1/2 ins. per 100 ft. **✓**

<b>Deduction for Tropical Freeboard.</b> <b>Addition for Winter and Winter North Atlantic Freeboard.</b> Depth to Freeboard Deck = <b>38.83'</b> Summer freeboard = <b>12.02'</b> Moulded draught (d) = <b>26.81'</b> Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <b>6.70 = 6 3/4"</b> Addition for Winter North Atlantic Freeboard (if required) =	<b>Deduction for Fresh Water.</b> Displacement in salt water at summer load water line $\Delta =$ Tons per inch immersion at summer load water line $T =$ Deduction = $\frac{\Delta}{40T}$ inches = <b>7"</b>	<b>TABULAR FREEBOARD corrected for Flush Deck (if required)</b> Correction for coefficient $\frac{.745 + .68}{1.36} = 1.425 / 1.36$ <table border="1"> <tr> <td>Depth Correction</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td><b>34.53</b></td> <td>-</td> </tr> <tr> <td>Deduction for superstructures</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td>-</td> <td><b>1.61</b></td> </tr> <tr> <td>Sheer correction</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td><b>2.90</b></td> <td>-</td> </tr> <tr> <td>Round of Beam correction</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td>-</td> <td><b>.11</b></td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td>-</td> <td>-</td> </tr> <tr> <td>Other corrections, scantlings, etc.</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td><b>28.89</b></td> <td>-</td> </tr> <tr> <td>Summer Freeboard</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td><b>144.25</b></td> <td></td> </tr> </table>	Depth Correction	...	...	...	...	<b>34.53</b>	-	Deduction for superstructures	...	...	...	...	-	<b>1.61</b>	Sheer correction	...	...	...	...	<b>2.90</b>	-	Round of Beam correction	...	...	...	...	-	<b>.11</b>	Correction for Thickness of Deck amidships	...	...	...	...	-	-	Other corrections, scantlings, etc.	...	...	...	...	<b>28.89</b>	-	Summer Freeboard	...	...	...	...	<b>144.25</b>	
Depth Correction	...	...	...	...	<b>34.53</b>	-																																													
Deduction for superstructures	...	...	...	...	-	<b>1.61</b>																																													
Sheer correction	...	...	...	...	<b>2.90</b>	-																																													
Round of Beam correction	...	...	...	...	-	<b>.11</b>																																													
Correction for Thickness of Deck amidships	...	...	...	...	-	-																																													
Other corrections, scantlings, etc.	...	...	...	...	<b>28.89</b>	-																																													
Summer Freeboard	...	...	...	...	<b>144.25</b>																																														

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

Tropical Fresh Water Line above Centre of Disc	...	<b>13 3/4"</b>
Fresh Water Line	..	<b>7"</b>
Tropical Line	..	<b>6 3/4"</b>
Winter Line	below	<b>6 3/4"</b>
Winter North Atlantic Line	..	<b>✓</b>

Tropical Fresh Water Freeboard	...	<b>10'-10 1/2"</b>
Fresh Water	..	<b>11'-5 1/4"</b>
Tropical	..	<b>11'-5 1/2"</b>
Winter	..	<b>12'-7"</b>
Winter North Atlantic	..	<b>✓</b>