

## Preliminary Computation.

[Including bridge, (also closing up beams on poop bulkhead openings)]

## Lloyd's Register of Shipping.

Index. No.  
(For London Office only).

## SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <i>USSR Swan Hunter's Yara No 1708 [For the African Eastern Co.]</i>	Official Number	Nationality and Port of Registry	Gross Tonnage	Date of Build	Port of Survey
Moulded Dimensions: Length <i>410.67'</i> Breadth <i>56.5'</i> Depth <i>29.5'</i>					Date of Survey <i>18.3.41</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>12330</i> tons					Surveyor's Signature
Coefficient of fineness for use with Tables <i>.742</i>					Particulars of Classification <i>+100 A1 carrying petroleum in bulk (uninsulated)</i>

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... <i>29.50</i>	(a) Where D is greater than Table depth (D - Table depth) R = <i>(29.55 - 27.38) × 3 = +6.51"</i>	Moulded Breadth (B) <i>56.5'</i>
Stringer plate <i>.65</i>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <i>2.17</i>	Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>13.56"</i>
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <i>13.50"</i>
Depth for Freeboard (D) = <i>29.55</i>		Difference <i>Deficiency .06"</i>
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) =$ <i>.06 × 2.176 = Nil</i>

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	<i>151.62</i>	<i>151.62</i>	<i>7.5</i>	<i>✓</i>	<i>151.62</i>	Standard Height of Superstructure <i>7.5</i>
" overhang ...						" " R.Q.D.
R.Q.D. enclosed ...						Deduction for complete superstructure <i>42.00"</i>
" overhang ...						Percentage covered $\frac{S}{L} =$ <i>58.42</i>
Bridge enclosed <i>Span</i> ...	<i>39.50</i>	<i>19.75</i>	<i>7.5</i>	<i>✓</i>	<i>19.75</i>	" " $\frac{S_1}{L} =$ <i>78.24</i>
" overhang aft ...						" " $\frac{E}{L} =$ <i>75.78</i>
" overhang forward ...						Percentage from Table, Line A <i>Tanker 70.11</i>
F'cle enclosed ...	<i>48.79</i>	<i>48.79</i>	<i>7.5</i>	<i>✓</i>	<i>48.79</i>	(corrected for absence of forecastle (if required)) <i>✓</i>
" overhang ...						Percentage from Table, Line B.
Trunk aft <i>(210.25 - 19.75) × 30/56.5</i>		<i>101.15</i>	<i>7.5</i>	<i>✗ .9</i>	<i>91.04</i>	(corrected for absence of forecastle (if required)) <i>✓</i>
" forward ...						Interpolation for bridge less than 2L (if required) <i>✓</i>
Tonnage opening aft ...						Deduction = <i>42 × 70.11 = -29.45"</i>
" " forward						
Total ...	<i>239.91</i>	<i>321.31</i>			<i>311.40</i>	

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<i>51.07</i>	1		<i>51.07</i>	<i>51.0</i>	<i>51.00</i>	1		<i>51.00</i>	Mean actual sheer aft = <i>Deficiency but &gt; .75</i>
$\frac{1}{2}L$ from A.P. ...	<i>22.725</i>	4		<i>90.90</i>	<i>22.5</i>	<i>22.50</i>	4		<i>90.00</i>	Mean actual sheer forward = <i>Excess.</i>
$\frac{2}{3}L$ " ...	<i>5.62</i>	2		<i>11.24</i>	<i>5.5</i>	<i>5.50</i>	2		<i>11.00</i>	Mean standard sheer forward
Amidships ...		4					4			Length of enclosed superstructure forward of amidships =
$\frac{2}{3}L$ from F.P. ...	<i>11.235</i>	2		<i>22.47</i>	<i>13.00</i>	<i>13.00</i>	2		<i>26.00</i>	" " aft of " = <i>Tanker.</i>
$\frac{1}{2}L$ " ...	<i>45.45</i>	4		<i>181.80</i>	<i>45.00</i>	<i>45.00</i>	4		<i>180.00</i>	
F.P. ...	<i>102.13</i>	1		<i>102.13</i>	<i>102.00</i>	<i>102.00</i>	1		<i>102.00</i>	
Total ...				<i>459.61</i>					<i>460.00</i>	

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75 - S}{2L} \right) =$  *.39 × (.75 - 29.11) = -.01"*  
If limited on account of midship superstructure. *45.79* If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient <i>.742 + .68 = 1.422 / 1.36</i>
Depth to Freeboard Deck = <i>29.55</i>	$\Delta =$	Depth Correction ... <i>6.51</i>
Summer freeboard = <i>3.75</i>	Tons per inch immersion at summer load water line	Deduction for superstructures ... <i>29.45</i>
Moulded draught (d) = <i>25.80</i>	T =	Sheer correction ... <i>.01</i>
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <i>6.45 = 6.5</i>	Deduction = $\frac{\Delta}{40T}$ inches	Round of Beam correction ...
Addition for Winter North Atlantic Freeboard (if required) = <i>6.45 + 4.11 = 10.56 = 10.5</i>	$\frac{d}{4} =$ <i>6.5</i>	Correction for Thickness of Deck amidships ...
		Other corrections, scantlings, etc. ...
		Summer Freeboard = <i>45.09</i>

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

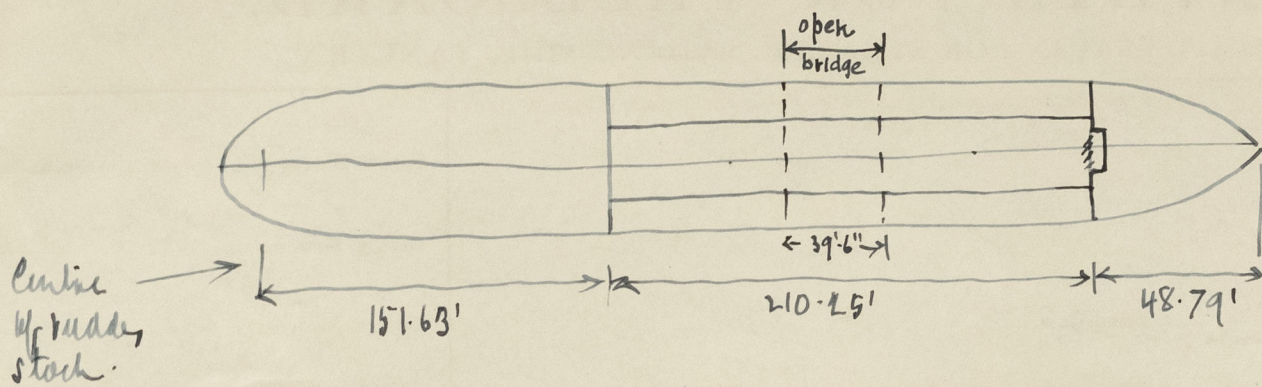
Tropical Fresh Water Line above Centre of Disc	<i>13"</i>
Fresh Water Line	<i>6.5"</i>
Tropical Line	<i>6.5"</i>
Winter Line below	<i>6.5"</i>
Winter North Atlantic Line	<i>10.5"</i>

Tropical Fresh Water Freeboard	<i>31.21"</i>
Fresh Water	<i>21.8"</i>
Tropical	<i>31.21"</i>
Winter	<i>41.3"</i>
Winter North Atlantic	<i>41.7"</i>

© 31.21" 20.20"  
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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.



$$\begin{aligned}
 \text{Tonnage} &= 210.25 \\
 &- 19.75 \\
 \hline
 &190.50 \times \frac{30}{56.5} = 101.15
 \end{aligned}$$

151.63  
210.25  
48.79  
410.67

Trade of ship.....

Names of sister ships.....

Builder's name and yard number.....

Owners.....

Fee £.....



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