

*Provisional*Index. No. 37610.
(For London Office only).

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <i>Mess. Fisher 88 Co</i> <i>Yard No. 388</i>	Official Number	Nationality and Port of Registry	Gross Tonnage	Date of Build	Port of Survey
Moulded Dimensions: Length <i>535.75</i> Breadth <i>74.00</i> Depth <i>49.00 To upper flat</i>					Date of Survey <i>10.7.44</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth					Surveyor's Signature
Coefficient of fineness for use with Tables <i>.843 (estimated)</i>					Particulars of Classification <i>1000 AT</i> <i>Carrying petroleum in bulk</i> <i>(contaminated)</i>

Depth for Freeboard (D). Moulded depth ... <i>Virtual</i> ... <i>49.00</i> Stringer plate ... <i>.06</i> Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ Depth for Freeboard (D) = <i>49.06</i>	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(49.06 - 35.71) \times 3 = +4.005$ 13.35 (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) <i>74</i> Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>17.76</i> Ship's Round of Beam = <i>6.69 Equivalent</i> Difference <i>11.07</i> Restricted to Correction = $\frac{\text{Diff}^0}{4} \times \left(1 - \frac{S_1}{L} \right) =$ $\frac{11.07}{4} \times .0344 =$ <i>0.344</i> $= +.10$
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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 <i>equivalent</i> ...	<i>517.35</i>	<i>517.35</i>	<i>8.0</i>	<i>-</i>	<i>517.35</i>
„ overhang ...					
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward ...					
Total ...	<i>517.35</i>	<i>517.35</i>			<i>517.35</i>

Standard Height of Superstructure *7.5*
 „ „ R.Q.D.
 Deduction for complete superstructure *42*
 Percentage covered $\frac{S}{L} =$
 $\frac{S_1}{L} =$ *96.56*
 $\frac{E}{L} =$
 Percentage from Table, Line A. *95.77*
 (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 = $42 \times .9577 =$ *40.22*

SHEER CORRECTION.

Actual height of Main Deck *8.00*
Standard *7.50*
Diff *.50 = 6*

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>63.57</i>	<i>1</i>		<i>63.57</i>	<i>3.62</i>	<i>3.62</i>	<i>1</i>		<i>3.62</i>
$\frac{1}{4}$ L from A.P. ...	<i>28.29</i>	<i>4</i>		<i>113.16</i>	<i>-</i>	<i>-</i>	<i>4</i>		<i>-</i>
$\frac{2}{8}$ L „ ...	<i>6.995</i>	<i>2</i>		<i>13.99</i>	<i>-</i>	<i>-</i>	<i>2</i>		<i>-</i>
Amidships ...	<i>-</i>	<i>4</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>4</i>		<i>-</i>
$\frac{2}{8}$ L from F.P. ...	<i>13.99</i>	<i>2</i>		<i>27.98</i>	<i>-</i>	<i>4.62</i>	<i>2</i>		<i>9.24</i>
$\frac{1}{4}$ L „ ...	<i>56.58</i>	<i>4</i>		<i>226.32</i>	<i>2.50</i>	<i>8.50</i>	<i>4</i>		<i>34.00</i>
F.P. ...	<i>127.15</i>	<i>1</i>		<i>127.15</i>	<i>36.00</i>	<i>42.00</i>	<i>1</i>		<i>42.00</i>
Total ...				<i>572.17</i>	<i>+6</i>				<i>88.86</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) =$ $\frac{483.31 - 482.8}{18} =$ *7.17*
 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.

Flushing
 Depth to Freeboard Deck = *57.06*
 Summer freeboard = *22.73*
 Moulded draught (d) = *34.33*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *8.58 = 8\frac{1}{2}*
 Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta =$ *32250*
 Tons per inch immersion at summer load water line
 $T =$ *87*

Deduction = $\frac{\Delta}{40T}$ inches
 $=$ *9.27 = 9\frac{1}{4}*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.843 + .68}{1.36} = \frac{1.523}{1.36}$

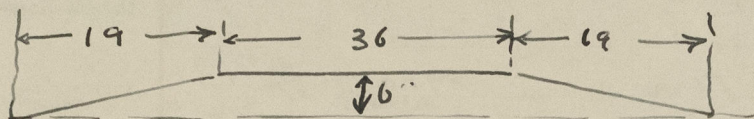
	+	-
Depth Correction ...	<i>40.06</i>	<i>-</i>
Deduction for superstructures ...	<i>-</i>	<i>40.22</i>
Sheer correction ...	<i>7.17</i>	<i>-</i>
Round of Beam correction ...	<i>10</i>	<i>-</i>
Correction for Thickness of Deck amidships ...	<i>96.00</i>	<i>-</i>
Other corrections, scantlings, etc. ...	<i>42.85</i>	<i>-</i>
Summer Freeboard =	<i>186.97</i>	<i>40.22</i>
	<i>+ 146.75</i>	
	<i>272.75</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>17\frac{3}{4}</i>	Tropical Fresh Water Freeboard ...	<i>22' - 8\frac{3}{4}</i>
Fresh Water Line „ „ ...	<i>9\frac{1}{4}</i>	Fresh Water „ „ ...	<i>21' - 11\frac{1}{2}</i>
Tropical Line „ „ ...	<i>8\frac{1}{2}</i>	Tropical „ „ ...	<i>22' - 0\frac{1}{4}</i>
Winter Line below „ „ ...	<i>8\frac{1}{2}</i>	Winter „ „ ...	<i>23' - 5\frac{1}{4}</i>
Winter North Atlantic Line „ „ ...		Winter North Atlantic „ „ ...	

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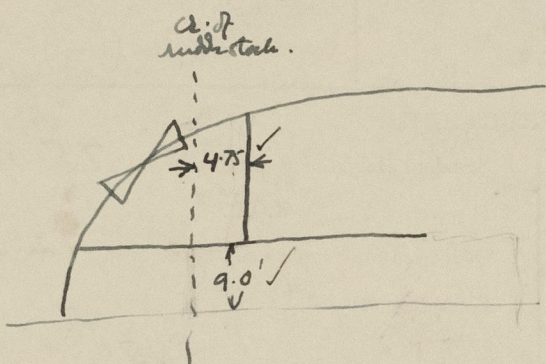
A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.



$$(36 \times .5) + (19 \times .5) = .5(36 + 19) = .5 \times 55 = 27.5 \text{ s.f.} \checkmark$$

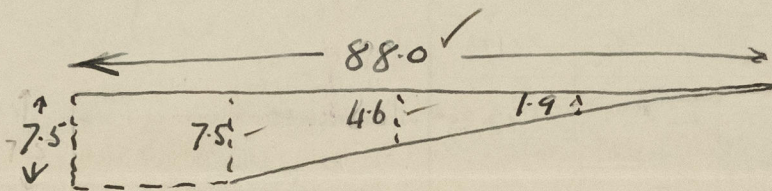
$$\text{Mean height} = \frac{27.5}{74} = .372' = 4.46'' \checkmark$$

$$\therefore \text{equivalent camber} = 4.46 + 2.23 = 6.69'' \checkmark$$



$$\begin{aligned} \text{length of superstructure at side} &= 535.75 - 4.75 \checkmark \\ &= 531 \text{ feet} \checkmark \end{aligned}$$

Reduction in length of superstructure due to skidway.



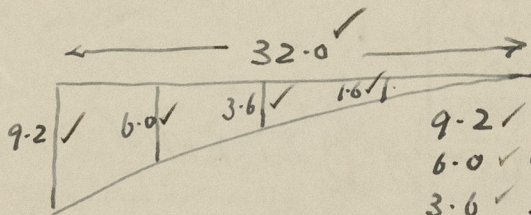
$$\begin{array}{r} 7.5 - 1 - 7.5 - \\ 7.5 - 4 - 30.0 - \\ 4.6 - 2 - 9.2 - \\ 1.9 - 4 - 7.6 - \\ - 1 - - \end{array}$$

$$\begin{aligned} &54.3 \checkmark \\ &\times \frac{1}{3} \times \frac{88}{4} = 398 \text{ s.f.} \checkmark \\ &\times 18 \checkmark \\ &7168 \text{ c.f.} = \text{Vol skidway} \end{aligned}$$

$$\text{Trans. area skidway} = 70.0 \times 7.5 = 525 \text{ s.f.} \checkmark$$

$$\begin{aligned} \text{Virtual reduction in length} &= 7168 \div 525 = 13.65 \text{ feet} \checkmark \\ \therefore \text{Virtual length of forecastle} &= 531 - 13.65 = 517.35 \text{ feet} \checkmark \end{aligned}$$

Loss of buoyancy due to skidway



$$\begin{array}{r} 9.2 - 1 - 9.2 \checkmark \\ 6.0 - 4 - 24.0 \checkmark \\ 3.6 - 2 - 7.2 \checkmark \\ 1.6 - 4 - 6.4 \checkmark \\ - - - \end{array}$$

$$\begin{aligned} &46.8 \checkmark \\ &\times \frac{1}{3} \times \frac{32}{4} = 125 \text{ s.f.} \checkmark \\ \text{Vol.} &= 125 \times 18 = 2246 \text{ c.f.} \checkmark \end{aligned}$$

$$\text{Area of Deck} = 535.75 \times 74 \times .85 = 33690 \text{ s.f.}$$

$$\therefore \text{Correction for loss of buoyancy} = \frac{2246}{33690} = .067' = .80'' \checkmark$$

Trade of ship

Names of sister ships

Builder's name and yard number

Owner

Fee £



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