

# SURVEYS FOR FREEBOARD.

19 NOV 1941

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <b>FJORDAAS</b>	Official Number	Nationality and Port of Registry <b>NORWEGIAN. ARENDAL</b>	Gross Tonnage <b>7361</b>	Date of Build <b>1931. 5</b>	Port of Survey <b>Hull</b>
Moulded Dimensions: Length <b>423'-3"</b> Breadth <b>60 ft-</b> Depth <b>34 ft. 08'</b>					Date of Survey <b>10<sup>th</sup> - 12<sup>th</sup> October 1941.</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth _____ tons					Surveyor's Signature <b>John Douglas</b>
Coefficient of fineness for use with Tables <b>.815 (assumed) ✓</b>					Particulars of Classification <b>* 100 A.1.</b>

Depth for Freeboard (D).		Depth correction.	Round of Beam correction.
Moulded depth	... .. 34'-08"	(a) Where D is greater than Table depth (D - Table depth) R = 5.91 $(34.13 - 28.22) \times 3 = +17.73$ ✓	Moulded Breadth (B) 60'
Stringer plate	... .. <del>15'-05"</del>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = 14.40$ ✓
Sheathing on exposed deck	none		Ship's Round of Beam = 14.8 ✓
T $\left( \frac{L-S}{L} \right) =$			Difference = .28 ✓
Depth for Freeboard (D) =	✓ 34.13	If restricted by superstructures	Restricted to
			Correction = $\frac{\text{Diff}^*}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.28}{4} \times .6288 = +.04$ ✓

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	✓ 92.25	✓ 92.25	7'-6½" ✓	-	✓ 92.25
" overhang ...	✓				
R.Q.D. enclosed ...	✓				
" overhang ...	✓				
Bridge enclosed ...	✓ 27.50	✓ 27.50	7'-6½" ✓	-	✓ 27.50
" overhang aft ...	✓ 5.4	✓ 3.75	"	-	✓ 3.75
" overhang forward ...	✓ 30.49	✓ 30.49	7'-6½" ✓	-	✓ 30.49
F'cle enclosed <i>equivalent</i> ...	✓ 31.08	✓ 31.11	7'-6½" ✓	-	✓ 31.11
" overhang ...	✓				
Trunk aft ...	✓				
" forward ...	✓				
Tonnage opening aft ...	✓				
" " forward ...	✓				
Total ...	✓ 159.32	✓ 157.10			✓ 157.10

Standard Height of Superstructure..... 7.5 ✓  
 " " R.Q.D. ....  
 Deduction for complete superstructure..... 42 ✓  
 Percentage covered  $\frac{S}{L} = 37.64$  ✓  
 " "  $\frac{S_1}{L} = 37.12$  ✓  
 " "  $\frac{E}{L} = 37.12$  ✓  
 Percentage from Table, Line A. ✓  
 (corrected for absence of forecastle (if required))  
 Percentage from Table, ~~Line B~~ Tanker 28.12 ✓  
 (corrected for absence of forecastle (if required))  
 Interpolation for bridge less than 2L (if required)  
 Deduction =  $42 \times .2812 = -11.8411$

SHEER CORRECTION.

Station	Standard Ordnate	S M	Product	Actual Ordnate	Effective Ordnate	S M	Product
A.P. ...	<del>52.32</del> <del>40.37</del> 40.37	1	52.32	40.37	40.37	1	40.37
1/2 L from A.P. ...	<del>23.875</del> <del>16</del> 16	4	93.14	16.00	16.00	4	64.00
2/2 L ..	<del>57.5</del> <del>4</del> 4	2	11.5	4.00	4.00	2	8.00
Midships ...	nil	4	-	-	-	4	-
from F.P. ...	<del>115.6</del> <del>8.875</del> 8.875	2	23.02	8.875	8.875	2	17.75
" ..	<del>46.57</del> <del>35.5</del> 35.5	4	186.28	35.50	35.50	4	142.00
F.P. ...	<del>79.62</del> <del>79.62</del> 79.62	1	104.65	79.62	79.62	1	79.62
Total ...	104.65	✓	470.92		✓	✓	351.74

Mean actual sheer aft =  
Mean standard sheer aft

Mean actual sheer forward =  
Mean standard sheer forward

Length of enclosed superstructure forward of amidships =  
" " " " aft of " "

Sheer forward

11.51	3	34.53	✓	18.875	3	26.62	✓
46.57	3	139.71	✓	35.50	3	106.50	✓
104.65	1	104.65	✓	79.62	1	79.62	✓
		278.89	✓			212.74	✓
						278.89	✓

(1882) = + 3.72 ✓

If limited to maximum allowance of 1½ ins. per 100 ft.

Correction =  $\frac{\text{Difference between sums of products}}{18} = \frac{119.18}{18} = 6.62$

If limited on account of midship superstructure.

<p><b>Deduction for Tropical Freeboard.</b></p> <p><b>Addition for Winter and Winter North Atlantic Freeboard.</b></p> <p style="text-align: right;">Ft.</p> <p>Depth to Freeboard Deck = <u>34.13</u></p> <p>Summer freeboard = <u>7.06</u></p> <p>Moulded draught (d) = <u>27.07</u></p> <p><b>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <u>6.77 = 6 <sup>3</sup>/<sub>4</sub></u></b></p> <p><b>Addition for Winter North Atlantic Freeboard (if required) = <u>4.23 + 6.77 = 11.00 = 11</u></b></p>	<p><b>Deduction for Fresh Water.</b></p> <p>Displacement in salt water at summer load water line</p> <p><math>\Delta =</math></p> <p>Tons per inch immersion at summer load water line</p> <p>T =</p> <p>Deduction = <math>\frac{\Delta}{40T}</math> inches</p>	<p><b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required)</p> <p>Correction for coefficient <math>\frac{.815 + .68}{1.36} = \frac{1.495}{1.36}</math></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">+</th> <th style="text-align: center;">-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction ... ..</td> <td style="text-align: center;">17.73</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Deduction for superstructures ... ..</td> <td style="text-align: center;">-</td> <td style="text-align: center;">11.84</td> </tr> <tr> <td>Sheer correction ... ..</td> <td style="text-align: center;">3.72</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Round of Beam correction ... ..</td> <td style="text-align: center;">.04</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Other corrections, scantlings, etc. ... ..</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td></td> <td style="text-align: center;">21.49</td> <td style="text-align: center;">11.84</td> </tr> </tbody> </table> <p style="text-align: right;">Summer Freeboard = <u>84.63</u></p>		+	-	Depth Correction ... ..	17.73	-	Deduction for superstructures ... ..	-	11.84	Sheer correction ... ..	3.72	-	Round of Beam correction ... ..	.04	-	Correction for Thickness of Deck amidships	-	-	Other corrections, scantlings, etc. ... ..	-	-		21.49	11.84
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DISPLACEMENT		SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—		Tropical Fresh Water Line above Centre of Disc		Tropical Fresh Water Freeboard ...	
1	0 27 1/4	1	349 1/4 = 13 3/4	1	5' 11"	1	2153 m/m
2	0 26 1/4	2	178 1/4 = 7 1/4	2	6' 5 3/4"	2	1804 "
3	0 25 1/4	3	171 1/4 = 6 3/4	3	6' 6"	3	1975 "
4	0 28 1/4	4	171 1/4 = 6 3/4	4	7' 7 1/2"	4	1982 "
48.5	0 26 1/4	48.5	279 1/4 = 11"	48.5	7' 11 3/4"	48.5	2324 "
48	0 25 1/4	48		48		48	2432 "
10m 3.37 T.	0 23' 5 3/4"						



the Surveyor should endorse the form on this side with his signature and the date.

230.

1880

1894

1944