

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

 26 JUL 1935  
 Index. No. 34701  
 (For London Office only.)

Computation of Freeboard for ~~Steamer, Sailing Ship, Tanker~~  
 having *Poop, Bridge and Forecastle.*

(Type of Superstructures.)

Ship's Name <i>M/S. THORHILD</i>	Nationality and Port of Registry <i>Norwegian Grimstad</i>	Official Number <i>L.I.Z.K.</i>	Gross Tonnage <i>appr. 10500 10316</i>	Date of Build <i>1935 8 mo.</i>
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Moulded Dimensions: Length *487'-6"* Breadth *64'-0"* Depth *38'-2"* *33286 tons*  
 Moulded displacement at moulded draught = 85 per cent. of moulded depth *23080 tons*  
 Coefficient of fineness for use with Tables *.805*

Port of Survey *Gothenburg*  
 Date of Survey *24<sup>th</sup> July 1935*  
 Name of Surveyor *G. Hjeringst.*  
 Particulars of Classification *\*100 A1  
Carrying petroleum in bulk.  
(Class contemplated.)*

<b>Depth for Freeboard (D)</b> Moulded depth ... <i>38'17"</i> Stringer plate ... <i>22<sup>mm</sup></i> Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ Depth for Freeboard (D) = <i>38'24"</i>	<b>Depth correction</b> (a) Where D is greater than Table depth (D - Table depth) R = <i>(38.24 - 32.50) * 3 = +17.22</i> <i>5.74</i> (b) Where D is less than Table depth (if allowed) (Table depth - D) R = If restricted by superstructures	<b>Round of Beam correction</b> Moulded Breadth (B) <i>64'-0"</i> Standard Round of Beam = $\frac{B \times 12}{50} = 15.36$ Ship's Round of Beam = <i>400<sup>mm</sup> = 15.75</i> Difference <i>.39</i> Restricted to Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.39}{4} \times \frac{56.81}{100} = .06$
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## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed <i>for ship's equipment</i>	<i>99.93</i>	<i>99.93</i>	<i>8.0</i>	<i>✓</i>	<i>2440</i>	Standard Height of Superstructure <i>7.5</i>
" overhang ...					<i>99.93</i>	" " R.Q.D. <i>✓</i>
R.Q.D. enclosed						Deduction for complete superstructure <i>42</i>
" overhang						Percentage covered $\frac{S}{L} = 43.19$
Bridge enclosed <i>for ship's equipment</i>	<i>42.89</i>	<i>42.89</i>	<i>8.0</i>	<i>✓</i>	<i>2440</i>	" " $\frac{S_1}{L} = 43.19$
" overhang aft					<i>42.89</i>	" " $\frac{E}{L} = 43.19$
" overhang forward	<i>67.71</i>					Percentage from Table, Line A. <i>Tanker</i>
F'cle enclosed	<i>20440</i>	<i>67.71</i>	<i>8.0</i>	<i>✓</i>	<i>2440</i>	(corrected for absence of forecastle (if required)) <i>32.37</i>
" overhang					<i>67.71</i>	Percentage from Table, Line B. <i>34.19</i>
Trunk aft						(corrected for absence of forecastle (if required))
" forward						Interpolation for bridge less than 2L (if required)
Tonnage opening aft						Deduction = <i>42 * 32.37 = -13.60</i>
" " forward						<i>34.19</i>
Total	<i>210.53</i>	<i>210.53</i>			<i>210.53</i>	<i>14.36</i>

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<i>58.75</i>	1		<i>58.75</i>	<i>38.46</i>	<i>38.46</i>	1		<i>38.46</i>	Mean actual sheer aft = <i>Deficient</i>
$\frac{1}{2}$ L from A.P. ...	<i>26.145</i>	4		<i>104.58</i>	<i>4.61</i>	<i>4.61</i>	4		<i>18.44</i>	Mean actual sheer forward = <i>Deficient</i>
$\frac{3}{8}$ L " ...	<i>6.46</i>	2		<i>12.92</i>	<i>0</i>	<i>0</i>	2		<i>0</i>	Mean standard sheer forward
Amidships ...	<i>0</i>	4		<i>0</i>	<i>0</i>	<i>0</i>	4		<i>0</i>	Length of enclosed superstructure forward of amidships = <i>Nil</i>
$\frac{3}{8}$ L from F.P. ...	<i>12.92</i>	2		<i>25.84</i>	<i>0</i>	<i>0</i>	2		<i>0</i>	" " aft of " = <i>Nil</i>
$\frac{1}{2}$ L " ...	<i>52.29</i>	4		<i>209.16</i>	<i>18.54</i>	<i>18.54</i>	4		<i>74.16</i>	
F.P. ...	<i>117.50</i>	1		<i>117.50</i>	<i>75.98</i>	<i>75.98</i>	1		<i>75.98</i>	
Total ...				<i>528.75</i>					<i>207.04</i>	

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{321.71}{18} \left( .75 - \frac{215.9}{534.1} \right) = +9.54$$

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. Depth to Freeboard Deck = <i>38'24"</i> Summer freeboard = <i>8'71"</i> Moulded draught (d) = <i>29'53"</i> Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <i>7'38" = 7\frac{1}{2}"</i> Addition for Winter North Atlantic Freeboard (if required) = <i>7'38" + 4'87" = 12'25" = 12\frac{1}{4}"</i>	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta = 21100$ Tons per inch immersion at summer load water line $T = 65.09$ Deduction = $\frac{\Delta}{40 T}$ inches = <i>8.11" = 8"</i> <i>See back of report.</i>	TABULAR FREEBOARD corrected for Fresh Deck (if required) Correction for coefficient $\frac{.805 + .68}{1.36} = \frac{1.485}{1.36}$ <table border="1"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction</td> <td><i>17.22</i></td> <td><i>14.36</i></td> </tr> <tr> <td>Deduction for superstructures</td> <td><i>15.60</i></td> <td></td> </tr> <tr> <td>Sheer correction</td> <td><i>9.54</i></td> <td></td> </tr> <tr> <td>Round of Beam correction</td> <td></td> <td><i>0.06</i></td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td></td> <td></td> </tr> <tr> <td>Other corrections, scantlings, etc.</td> <td></td> <td></td> </tr> <tr> <td></td> <td><i>26.78</i></td> <td><i>14.42</i></td> </tr> </table> Summer Freeboard = <i>105.37</i> <i>104.61</i>		+	-	Depth Correction	<i>17.22</i>	<i>14.36</i>	Deduction for superstructures	<i>15.60</i>		Sheer correction	<i>9.54</i>		Round of Beam correction		<i>0.06</i>	Correction for Thickness of Deck amidships			Other corrections, scantlings, etc.				<i>26.78</i>	<i>14.42</i>
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~W~~ Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	<i>15\frac{1}{2} = 393</i>	Tropical Fresh Water Freeboard ...	<i>7'-5" = 2261</i>
Fresh Water Line " " ...	<i>8" = 203</i>	" " " " ...	<i>8'-0\frac{1}{2} = 2451</i>
Tropical Line " " ...	<i>7\frac{1}{2} = 190</i>	" " " " ...	<i>8'-1" = 2464</i>
Winter Line below " " ...	<i>7\frac{1}{2} = 190</i>	" " " " ...	<i>9'-4" = 2844</i>
Winter North Atlantic Line " " ...	<i>12\frac{1}{4} = 311</i>	" " " " ...	<i>9'-8\frac{1}{4} = 2965</i>

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# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

Description of Hatchway		HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS							
		Fore deck	Fore hold	Peak	Upper deck	Lower deck	Fore hold	Fore deck	Fore hold
Dimensions of Hatchway		790x1550	4060x3130	1240x1240	710x1660	600x450	890x1060	610x750	
COAMINGS	Height above Deck	620	890	730	840	240	560	170	
	Thickness	9	10	230x90x12	10	240x85x13	9	230x90x12	
	Sides	9	10	2	10	2	9	2	
	Stiffeners	9	10	2	10	2	9	2	
HATCH BEAMS									
Number									
Spacing									
Scantling and Sketch									
Bearing Surface									
FORE AND AFTERS									
Number									
Spacing									
Unsupported Lengths									
Scantling* and Sketch									
Bearing Surface									
HATCH COVERS									
Material		Steel W.T.	Steel W.T.	Steel W.T.	Steel W.T.	Steel W.T.	Wood 65	Steel W.T.	
Thickness		cover	cover	cover	cover	cover	Planking	cover	
How fitted							2 1/2		
Bearing Surface							4802		
Spacing of Cleats							2		
Number of Tarpaulins									

Particulars of fiddle, funnel and ventilator coamings:—  
*Fiddleys funnel and ventilators on top of steel casing 2380mm above poop deck.  
 Fiddleys fitted with substantial hinged steel covers  
 Funnel and ventilators efficiently constructed and supported  
 Engine room skylight of steel.*

Particulars of Flush Bunker Scuttles:—

Particulars of Companionways:—

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

*All ventilators on freeboard and superstructure decks are efficiently constructed with coamings 36" high or above those higher than 36" are efficiently supported.  
 All ventilators are supplied with steel plugs and canvas covers.*

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

*Air pipes on Upper deck are 36" high or above  
 Air pipes on Forecastle deck and Poop deck are 19" high or above  
 All air pipes are of steel of goose neck type and are supplied with means of closing.*

Particulars of Gangway Cargo and Coaling Ports:—

Particulars of Scuppers and Sanitary Discharge Pipes:—

*Sanitary discharges from spaces in the Poop are led overboard below the Upper deck about 4 feet above the load waterline and are fitted with non-return valves.  
 Scuppers from spaces in the Poop are led to the bilges.  
 Scuppers and sanitary discharges from spaces on bridge are led overboard above upper deck and fitted with non-return valves.*

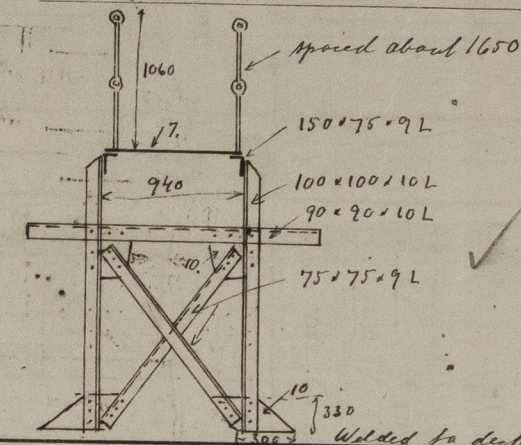
Particulars of Side Scuttles:—

*Side scuttles in Forecastle and Poop are fitted with hinged deadlights.*

Particulars of Guard Rails:—

*Open rails all fore and aft on Upper deck and on Poop and Forecastle decks 1080mm high with three rods and with stanchions spaced about 1650mm. and stay on every second stanchion.*

Particulars of Gangways, Lifelines, etc.:—



*Steel gangway fitted in both wells 8'0" high above Upper deck of mainmast, as shown support spaced about 3300mm.*

## Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well			Open rails			
Forward Well			Open rails			

State position of each freeing port ... After Well:—  
 (P. and A. position and height above deck edge) Forward Well:—  
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—  
 Additional area where sheer is less than standard.

## Particulars of Superstructures, Trunks, Casings, Deckhouses.

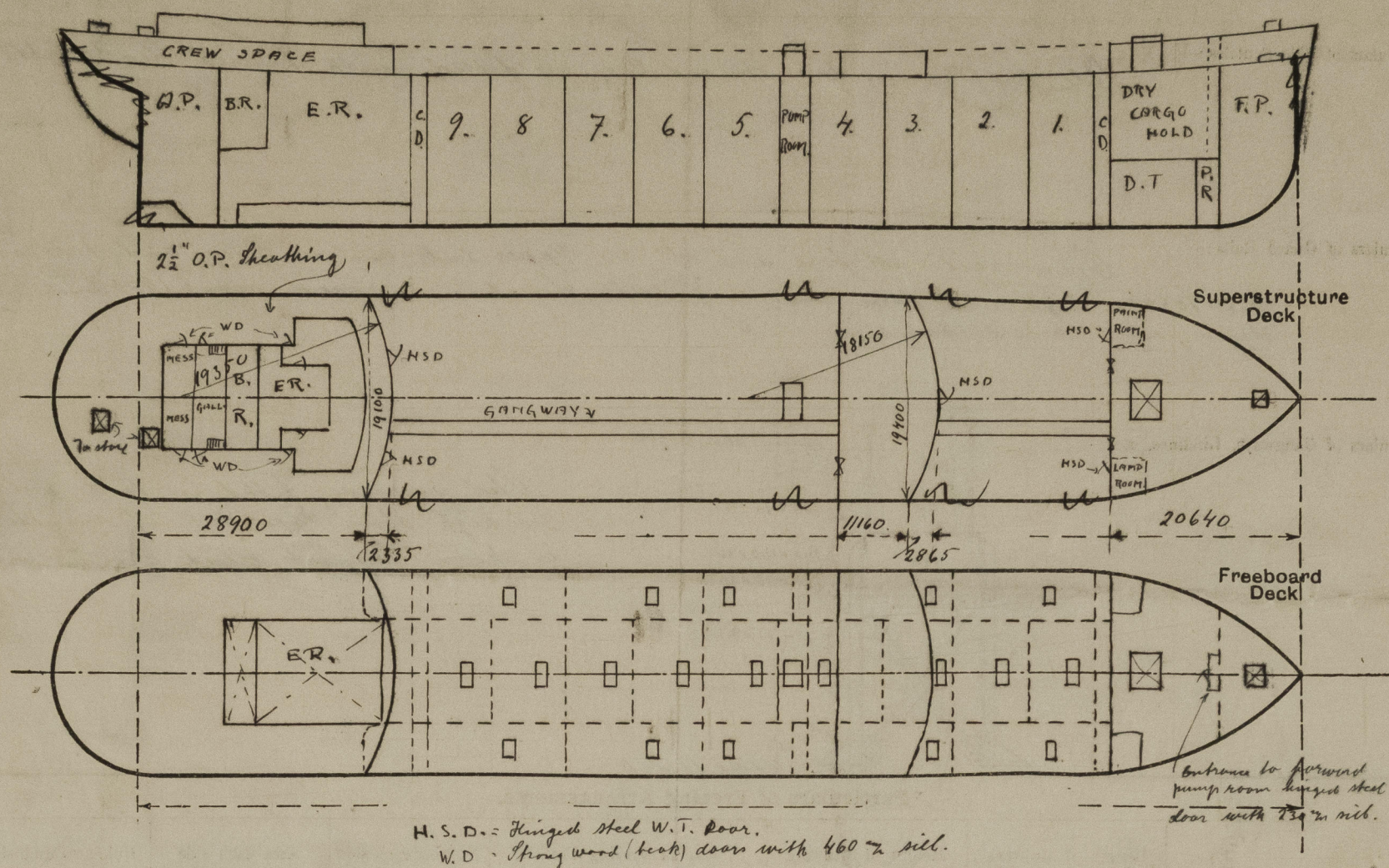
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	✓	6. 12.5 side 11.5	250x70x12 L 250x70x12 L and 2 bdd's.	~ 820	Large top and bottom	1300x600	780	2440
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	✓	8.8	150x75x8 L 230x90x11 L and 2 bdd's.	800-816	None	1570x950	560	2440
Bridge, Forward Bulkhead	✓	11.0	150x75x9 L 230x90x11 L and 2 bdd's.	710	Large top and bottom	1570x675	390	2440
Forecastle Bulkhead	✓	7.5	150x75x9 L 230x90x11 L and 2 bdd's.	~ 770	None	1550x950	560	2440
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	✓	10.0	120x75x9 L	820	Bracket top and bottom	None		2380
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Entrance to pump room Deckhouses on Flush Deck Ships		9.0	130x75x9 L	825	None top to beam bottom	1650x610	2440	2410.

## Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	Two hinged steel doors operated from both sides
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Two portable steel plates secured by hookbolts spaced ~16" apart
Bridge, Forward Bulkhead	One hinged steel door operated from both sides
Forecastle Bulkhead	Two portable steel plates secured by hookbolts spaced ~16" apart
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	No opening
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Entrance to pump room Deckhouses on Flush Deck Ships	One hinged steel door operated from both sides



Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shewn on the following sketches:—



State any special features in the construction of the ship:—

$$\begin{aligned} \text{Poop } 28900 \text{ m} &= 94.82' \\ 2335 \text{ m} &= 7.66; \frac{2}{3} = 5.11' \\ &= 99.93' \end{aligned}$$

$$\begin{aligned} \text{Bridge } 11.160 &= 36.62' \\ 2865 \text{ m} &= 9.40; \frac{2}{3} = 6.27' \\ &= 42.89' \end{aligned}$$

75% Moulded depth.	Displacement	20380 tons	Tons per inch	64.8
85 "	"	23380 "	"	66.0
95 "	"	26430 "	"	67.2

Builder's name and yard number *A. B. Götaverken No 490*

Names of sister ships

Owners *Tönnervalds Rederi A.B.*

Appr.

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