

ALEXANDRA HÖEGH 34497
KOLLGRIM. 34927
INNERØY 35103.
JOTUNFJELL. 35176.
Rpt. C.11. 35275
KOLLBJØRG. 35718.
SOLØR. 35833.
GARD. 36120
PONTFIELD
VARDEFJELL

12177
Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Index. No. 35883.
(For London Office only.)

JAN 14 1939

Computation of Freeboard for ~~Steamer, Sailing Ship, Tanker~~
having *Poop, bridge and forecastle.*

Port of Survey *Göteborg*

Date of Survey *9th January 1939*

Name of Surveyor *T. Widén*

Particulars of Classification *100 A.1.
Carrying Petroleum in Bulk.
(Class contemplated).*

(Type of Superstructures.)

Ship's Name <i>M/S "TRONDHEIM"</i>	Nationality and Port of Registry <i>Norwegian Oslo</i>	Official Number <i>Sigvald L.K.C.Q</i>	Gross Tonnage <i>8258</i>	Date of Build <i>1939</i>
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Moulded Dimensions: Length *465'-2"* Breadth *60'-9"* Depth *34'-0"*
Moulded displacement at moulded draught = 85 per cent. of moulded depth *18430 cub. metres = 18600 tons*
Coefficient of fineness for use with Tables *.797*

Depth for Freeboard (D) Moulded depth <i>34'-0"</i> ... <i>34'-00"</i> Stringer plate <i>0.85"</i> ... <i>.07'</i> Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <i>✓</i> Depth for Freeboard (D) = <i>34'-07'</i>	Depth correction (a) Where D is greater than Table depth (D - Table depth) R = <i>(34'-07" - 31'-01") 3 = + 9'-18" ✓</i> <i>3'-06"</i> (b) Where D is less than Table depth (if allowed) (Table depth - D) R = <i>✓</i> If restricted by superstructures <i>✓</i>	Round of Beam correction Moulded Breadth (B) <i>60'-75"</i> Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>14'-58"</i> Ship's Round of Beam = <i>15'-2"</i> Difference <i>excess = .62"</i> Restricted to Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) =$ <i>$\frac{.62}{4} (.6444) = -.10"$</i>
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed EQUIV...	<i>94.73</i> ✓	<i>94.73</i> ✓	<i>7'-6"</i>	<i>✓</i>	<i>94.73</i>
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed EQUIV...	<i>32.60</i> ✓	<i>32.60</i> ✓	<i>7'-6"</i>	<i>✓</i>	<i>32.60</i>
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	<i>37.90</i> ✓	<i>37.90</i> ✓	<i>7'-6"</i>	<i>✓</i>	<i>37.90</i>
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" " forward ...					
Total ...	<i>165.23</i>	<i>165.23</i>			<i>165.23</i>

Standard Height of Superstructure *7'-50"*
" " R.Q.D. *✓*
Deduction for complete superstructure *42'-00"*
Percentage covered $\frac{S}{L} =$ *35.53* ✓
" " $\frac{S_1}{L} =$ *35.53* ✓
" " $\frac{E}{L} =$ *35.53* ✓
Percentage from Table, Line A. TANKER = *26.53*
(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'-00" × .2653 = 11'-14"* ✓

See sketch.

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>56.52</i>	1		<i>56.52</i>	<i>40.0"</i>	<i>40.00</i>	1		<i>40.00</i>
$\frac{1}{2}$ L from A.P. ...	<i>25.15</i>	4		<i>100.60</i>	<i>14.6"</i>	<i>14.60</i>	4		<i>58.40</i>
$\frac{2}{8}$ L " ...	<i>6.22</i>	2		<i>12.44</i>	<i>2.5"</i>	<i>2.50</i>	2		<i>5.00</i>
Amidships ...	<i>✓</i>	4		<i>✓</i>	<i>0</i>	<i>✓</i>	4		<i>✓</i>
$\frac{2}{8}$ L from F.P. ...	<i>12.43</i>	2		<i>24.86</i>	<i>7.6"</i>	<i>7.60</i>	2		<i>15.20</i>
$\frac{1}{2}$ L " ...	<i>50.30</i>	4		<i>201.20</i>	<i>34.9"</i>	<i>34.90</i>	4		<i>139.60</i>
F.P. ...	<i>113.03</i>	1		<i>113.03</i>	<i>80.0"</i>	<i>80.00</i>	1		<i>80.00</i>
Total ...				<i>508.65</i>					<i>338.20</i>

Mean actual sheer aft = *Deficient.*
Mean standard sheer aft
Mean actual sheer forward = *Deficient.*
Mean standard sheer forward
Length of enclosed superstructure forward of amidships = *Deficient*
" " aft of " = *Sheers.*

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{170.45}{18} (.75 - .1777) = +5.42"$
5723

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.

Ft.
Depth to Freeboard Deck = *34.07*
Summer freeboard = *7.42*
Moulded draught (d) = *26.65*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = $6.66 = 6\frac{3}{4}"$
Addition for Winter North Atlantic Freeboard (if required) = $6.66 + 4.65 = 11.31 = 11\frac{1}{4}"$

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta = 17120$
Tons per inch immersion at summer load water line
 $T = 58.54$
Deduction = $\frac{\Delta}{40T}$ inches = $7.31" = 7\frac{1}{4}"$

See end of report.

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{68 + .494}{1.36} = \frac{1.474}{1.36}$

Depth Correction ...
Deduction for superstructures ...
Sheer correction ...
Round of Beam correction ...
Correction for Thickness of Deck amidships ...
Other corrections, scantlings, etc. ...

+	-
<i>9.18</i>	<i>-</i>
<i>-</i>	<i>11.14</i>
<i>5.42</i>	<i>-</i>
<i>-</i>	<i>.10</i>
<i>-</i>	<i>-</i>
<i>-</i>	<i>-</i>
<i>14.60</i>	<i>11.24</i>

Summer Freeboard = *89.14* ✓

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

Tropical Fresh Water Line above Centre of Disc ... $14" = 355 \frac{3}{4}"$
Fresh Water Line " " ... $7\frac{1}{4}" = 184 "$
Tropical Line " " ... $6\frac{3}{4}" = 171 "$
Winter Line below " " ... $6\frac{3}{4}" = 171 "$
Winter North Atlantic Line " " ... $11\frac{1}{4}" = 286 "$

Tropical Fresh Water Freeboard ... $6'-3" = 1906 "$
Fresh Water " " ... $6'-9\frac{1}{4}" = 2077 "$
Tropical " " ... $6'-10\frac{1}{4}" = 2090 "$
Winter " " ... $4'-11\frac{3}{4}" = 2432 "$
Winter North Atlantic " " ... $8'-4\frac{1}{4}" = 2547 "$

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M^s Trondheim:

Particulars of fiddle, funnel and ventilator coamings:— Motor Ship. Fiddle, funnel and ventilator on top of engine casing, about 16 ft above poop deck, efficiently constructed and supported. Fiddle fitted with hinged steel covers.

Particulars of Companionways:— *None fitted.*

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :— All ventilators with coamings 3 ft. high or above, efficiently constructed and supported. All ventilators provided with means of closing.

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

Steel pipes, goose neck type, 19"-22" high, on poop deck, from double bottom compartments and after peak.
" " " " " " 36" high, on freeboard deck, from cofferdams and deep tank,
All air pipes provided with means of closing.

Particulars of Gangway Cargo and Coaling Ports;— *None fitted.*

Particulars of Scuppers and Sanitary Discharge Pipes:—Sanitary discharge pipes from deck house on bridge led overboard above the foreboard deck. Scuppers from steering gear compartment led to the engine room bilges. Scuppers from accommodation in poop and sanitary discharges from same space (except from W.C.'s below) and from deck house on poop deck led overboard about 2' 00" in below the foreboard deck (in the engine room) and fitted with storm valves at the ship's side. Discharge pipes (copper) from 3 W.C.'s in poop (W.C.'s fitted with automatic non-return valves) led overboard in the engine room about 2' 50" in below the foreboard deck without storm valves at the ship's side.

Particulars of Side Scuttles:— Side scuttles in poop, bridge and fore-castle are of substantial construction and filled with winged dead-lights.

Particulars of Guard Rails:— Open rails on foreboard deck, aft part of fore-castle deck and on poop deck with 2 rods and top tube, of substantial construction. Handrails spaced 4'-10"-5'-3" apart with stays at every 2nd handrail. Height of rail on upper deck and fore-castle deck 3'-6" and on poop deck 3'-8".

Particulars of Gangways, Lifelines, etc. :-

The drawing consists of two views of a bridge structure. The left view is a side elevation showing a truss-like structure with a horizontal top beam and two diagonal bracing members. Dimensions include a top beam width of 36" fl, a height of 12 ft, a total height of 5 ft 6", a base width of 5 ft 11", and various internal dimensions like 28" fl, 3" fl, 5' x 2 1/2' x .36", 6' x 4' x .44", 3' x 4' x .48", 3' x 4' x .40", and 3' x 3' x .40". The right view is a front elevation showing a rectangular frame with a top beam and a base beam. Dimensions include a top beam width of 28" fl, a height of 3" fl, and a base width of 36" fl. Below the right view is the text "Forward of bridge. (Lower part same! as at aft of bridge.)".

36" fl

28" fl

3" fl

5' x 2 1/2' x .36"

6' x 4' x .44"

3' x 4' x .48"

3' x 4' x .40"

3' x 3' x .40"

12 ft

5 ft 6"

5 ft 11"

Forward of bridge.
(Lower part same!
as at aft of bridge.)

aft of bridge

gangway between poop, bridge and foreccastle with open rails with two rods. Gangway supports spaced about $10\frac{1}{2}$ ft. apart. All electrically welded, except side plates to top angle bars (riveted). Ends of side plates land on the $4" \times 4" \times .48"$ supports with welding to same giving continuity of the strength of the side plating.

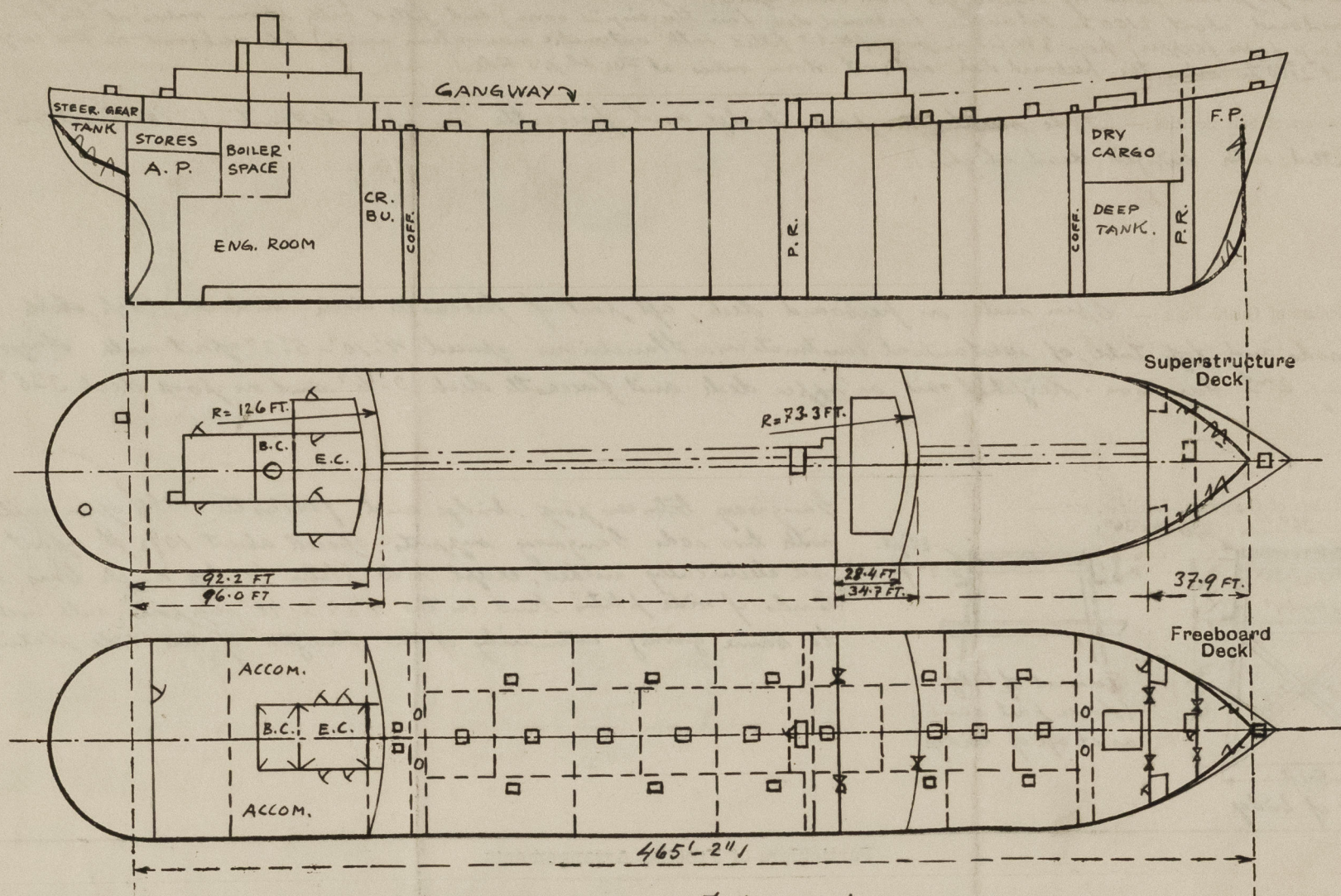
Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	} <i>Open rails fore and aft.</i>					
Forward Well						
State position of each freeing port { After Well :— (F. and A. position and height 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	✓	44" ✓	2 Bulkheads and 10x3 1/2 x 48" ✓	30" - 31 1/2" ✓	Welded to deck, top and bottom.	No openings ✓	✓	7'-6" ✓
Raised Quarter Deck Bulkhead ...	✓							
Bridge, After Bulkhead	✓	40" ✓	1 76 x 3 x 32" ✓	30" ✓	None	4' x 5' ✓	23" ✓	7'-6" ✓
Bridge, Forward Bulkhead	✓	44" ✓	1 79 x 3 1/2 x 42" ✓	30 1/2" ✓	Welded to deck top and bottom	3' x 4' ✓	23 1/2" ✓	7'-6" ✓
Forecastle Bulkhead	✓	30" ✓	1 4 1/2 x 2 1/2 x 32" ✓	31 1/2" ✓	None	3' x 5' ✓	23 ✓	7'-6" ✓
Trunk, Aft	✓							
Trunk, Forward	✓							
Exposed Machinery Casings on Free-board or Raised Quarter Deck ...	✓	part of poop pld. 44" ✓	1 10x3 1/2 x 48" 2 stiff's min./panel ✓	30 1/2" ✓	Welded to deck, top and bottom.	No openings ✓	✓	7'-6" ✓
Exposed Machinery Casings on Super-structure Deck	✓	34" ✓	1 75 x 2 1/2 x 32" ✓	31 1/2" ✓	None	2'-6" hole	✓	7'-6" ✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	✓	34" ✓	1 4 1/2 x 2 1/2 x 32" ✓	31 1/2" ✓	None top, cont. bott.	Amidships front	✓	Not 16" ✓
Entrance to pump room								
Deckhouses on Flush Deck Ships ...	✓	34" ✓	1 4 x 48" flat bar welded. ✓	26" ✓	Welded to top, none at bottom.	2.3' x 5' ✓	18" ✓	7'-6" ✓

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

Poop Bulkhead	...	...	No openings. (Only 3 side scuttles with hinged dead lights)
Raised Quarter Deck Bulkhead	...	...	"
Bridge, After Bulkhead	...	...	Portable steel plate, .30", stiffened, secured by hook bolts, spaced 12" apart and not passing through bulkhead
Bridge, Forward Bulkhead	...	...	Hinged steel door, .44", secured by 6 min bolts, manipulated from outside and closed W.T.
Forecastle Bulkhead	...	...	Portable steel plate, .30", secured by hook bolts, spaced 12" apart and not passing through bulkhead
Exposed Machinery Casings on Free-board or Raised Quarter Decks	...	...	No openings
Exposed Machinery Casings on Superstructure Decks	...	...	Two 16" wide scuttles at front.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...	...
Cabinets to pump room	...	...
Belonging to Flush Deck Ships	...	...	Hinged steel door, .28", hinged, closed W.T., 4 handles, manipulated 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 shown on the following sketches:—



Hatches to cofferdams and cross trunks closed W.T. by steel covers.
 Entrance to forward pump room: 1'-8" x 4'-10" opening, 16 1/2" sill; flanged steel door, .20" thick, closed W.T. (2 hinges, 2 handles), manipulated from both sides.

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

Displacement in salt water at 75%, 85% and 95% of the moulded depth and tons per inch at same (moulded) draught:

Displacement.	Tons per inch.
16295 tons	58.2
18720 "	59.2
21200 "	60.3

$$\text{Poop.} = 92.2 + (\frac{2}{3} \times 3.8) = 94.73'$$

$$\text{Bridge} = 28.4 + (\frac{2}{3} \times 6.3) = 32.60'$$

Builder's name and yard number Ericksbergs Mek. Verkstads A.B., No. 287.

Names of sister ships M/s "Alexandra Hoegh", "Kollgrin", "Jannerøy", "Jettunfjell", "Kollbjörg", "Solør", "Gard" (Nos 258, 262, 263, 271, 264, 277 and 283 resp.)

Owners A/S Tank (Olsem & Høydal), Oslo.

Fee Kr. 420:- approx.

Received by me



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