

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for ~~Steamer~~ ^{motor} Sailing Ship, Tanker
having poop, bridge & forecastle
(Type of Superstructures.)

Port of Survey Oslo
Date of Survey 18th May - 4th June 1935
Name of Surveyor P. Sævi
Particulars of Classification 100 A1
Carrying petroleum in bulk

Ship's Name "HAAKON HAAVAN"
Nationality and Port of Registry Nor. Oslo
Official Number approx. 6582
Gross Tonnage 6400
Date of Build 1935

Moulded Dimensions: Length 409.1 Breadth 56.3 Depth 33.8
Moulded displacement at moulded draught = 85 per cent. of moulded depth 14525 tons
Coefficient of fineness for use with Tables 783

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	33.50	(a) Where D is greater than Table depth 6.43 (D-Table depth) R = (33.56 - 27.13) 3.00 = +19.29"		Moulded Breadth (B)	56.00
Stringer plate	.06	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$	13.44"
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$				Ship's Round of Beam	13.00"
Depth for Freeboard (D) =	33.56	If restricted by superstructures	✓	Difference	Deficient .44"
				Restricted to	
				Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right)$	$\frac{.44^2}{4} \times .5836 = +.06"$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	95.5	95.50	7.5	✓	95.50
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed...	40.0	40.00	7.5	✓	40.00
" overhang aft ...					
" overhang forward					
Fore enclosed <u>upward</u> ...	34.0	34.00	7.5	✓	34.00
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward					
Total ...	169.50	169.50			169.50

Standard Height of Superstructure 7'-6"
" " R.Q.D. ✓
Deduction for complete superstructure 42.00"
Percentage covered $\frac{S}{L} = 41.64\%$
" " $\frac{S_1}{L} = 41.64\%$
" " $\frac{E}{L} = 41.64\%$
Percentage from Table, Line A. Tanker
(corrected for absence of forecastle (if required)) 32.64%
Percentage from Table, Line B:
(corrected for absence of forecastle (if required))
Interpolation for bridge less than 2L (if required)
Deduction = 42.00 \times 32.64 = -13.71"

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	50.70	1		50.70	50.625	50.625	1		50.62
$\frac{1}{2}$ L from A.P. ...	22.56	4		90.24	22.125	22.125	4		88.50
$\frac{3}{8}$ L " ...	5.58	2		11.16	5.375	5.375	2		10.75
Amidships ...	✓	4		✓	-	✓	4		✓
$\frac{3}{8}$ L from F.P. ...	11.16	2		22.32	11.375	11.375	2		22.75
$\frac{1}{2}$ L " ...	45.12	4		180.48	44.0	44.00	4		176.00
F.P. ...	101.40	1		101.40	107.75	107.75	1		107.75
Total ...		✓		456.30					456.37

Mean actual sheer aft = Deficient > 75% standard
Mean standard sheer aft =
Mean actual sheer forward = Excess
Mean standard sheer forward =
Length of enclosed superstructure forward of amidships =
" " aft of " = } Tanker

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{.07}{18} (.75 - .2082) = \text{Nil.}$
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 = 33.56
Summer freeboard = 6.23
Moulded draught (d) = 27.33

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 6.83 = $6\frac{3}{4}$ "

Addition for Winter North Atlantic Freeboard (if required) $6.83 + 4.07 = 10.90 = 11"$

See back of Report
Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 13910$

Tons per inch immersion at summer load water line

$T = 47.53$

Deduction = $\frac{\Delta}{40T}$ inches

$= 7.32 = 7\frac{1}{4}"$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction ...	19.29	-
Deduction for superstructures ...	-	13.71
Sheer correction ...	-	-
Round of Beam correction06	-
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc. ...	-	-
	19.35	13.71

Summer Freeboard = 74.68

SUMMER FREEBOARD amidships from Centre of Disc to

Tropical Fresh Water Line above Centre of Disc ...	14" = 365"
Fresh Water Line " " ...	7 1/2" = 184"
Tropical Line " " ...	6 3/4" = 171"
Winter Line " " ...	6 1/4" = 164"
Winter North Atlantic Line " " ...	11" = 279"

of Deck Line, Wood, Steel, Deck:-

Tropical Fresh Water Freeboard ...	6'-2 3/4" = 1899"
Fresh Water " " ...	5'-0 3/4" = 1544"
Tropical " " ...	5'-7 1/2" = 1715"
Winter " " ...	5'-8" = 1728"
Winter North Atlantic " " ...	6'-9 1/2" = 2070"
	7'-1 3/4" = 2178"

RECEIVED 18 JUL 1940

RECEIVED 8 JUL 1940

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS											
Description of Hatchway	To fore hold	Main oil tank	Fore hold	Fore hold	Fore hold	Fore hold	Fore hold	Fore hold	Fore hold	Fore hold	Fore hold
Dimensions of Hatchway	8'3" x 15'0"	6'6" x 4'0"	6'6" x 4'0"	2'3" x 4'0"	3'11" x 4'0"	2'3" x 2'0"	2'3" x 2'0"	2'3" x 2'0"	2'3" x 2'0"	2'3" x 2'0"	2'3" x 2'0"
COAMINGS											
Height above Deck	32"	32"	32"	32"	32"	32"	32"	32"	32"	32"	32"
Thickness	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"
Stiffeners	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"	6 x 3 x 3/8"
Brackets, Stays	one at each end										
HATCH BEAMS											
Number	1	1	1	1	1	1	1	1	1	1	1
Spacing											
Scantling and Sketch											
Bearing Surface											
FORE AND AFTERS											
Number	1	1	1	1	1	1	1	1	1	1	1
Spacing											
Unsupported Lengths											
Scantling and Sketch											
Bearing Surface											
HATCH COVERS											
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Thickness	.50	.50	.50	.375	.375	.375	.375	.375	.375	.375	.375
How fitted	Bolted W.T.	Welded O.T.	Welded O.T.	Bolted O.T.	Bolted W.T.	Bolted W.T.	Bolted O.T.	Bolted W.T.	Bolted W.T.	Bolted W.T.	Bolted W.T.
Bearing Surface											
Spacing of Cleats											
Number of Tarpaulins	1	1	1	1	1	1	1	1	1	1	1

*Are wood fore and afters steel shod at all bearing surfaces?
 Are battens and wedges efficient and in good condition?
 Are tarpaulins in good condition and in accordance with rule requirements?
 Are lashings provided in accordance with rule requirements?

Particulars of fiddle, funnel and ventilator coamings:—
 Fiddles, funnel and ventilators on top of steel casings, 8'0" above poop deck.
 Fiddles fitted with strong hinged steel covers.
 Funnel and ventilators efficiently constructed.
 E.R. skylight of steel.

Particulars of Flush Bunker Scuttles:—

Particulars of Companionways:—
 Pump room entrance casing, see next page.
 Skylight on top of same, strongly constructed of steel.

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

Forecastle: one 16" x 5'6" x 30" Two 16" x 5'6" x 38" one 16" x 5'6" x 25"
 Upper deck: one 16" x 13'1/2" x 36 supported at gangway These ventilator coamings are specially supported by means of brackets.
 Upper deck: one P.S. to pump room 24" x 11'0" x 40", supported.
 Poop deck: one 9" x 5'0" x 25" one P.S. 8' x 9" mushroom. all have means of closing.

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

Forecastle: one 4" x 24"
 Upper deck: one P.S. 4" x 36" gooseneck Two P.S. 7 1/2" x 36" gooseneck.
 Poop deck: Two P.S. 4" x 36" two P.S. 2 1/2" x 36" three P.S. 3" x 36", all goosenecks.
 All have means of closing.

Particulars of Gangway Cargo and Coaling Ports:—

Particulars of Scuppers and Sanitary Discharge Pipes

Scuppers from both N.C. and ship, two port cone 18" led overboard 15" above upper deck.
 aft. Two P.S. led overboard 2'3" below upper deck with storm valve.
 Sanitary discharges from bridge led overboard 15" above upper deck.
 poop sp.: one P.S. led overboard 2 1/2" below upper deck, S.V.
 two P.S. 4'0" S.V.

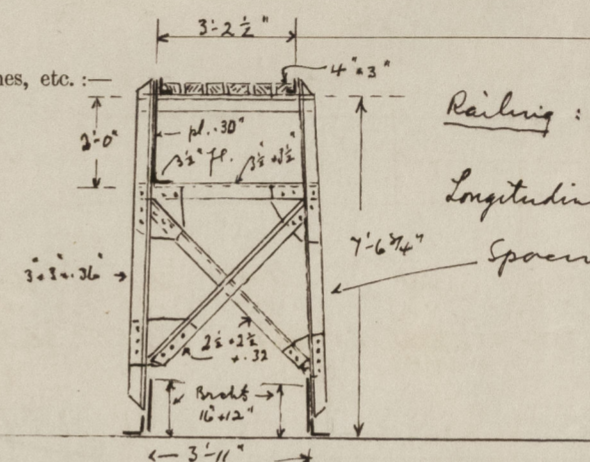
Particulars of Side Scuttles:

All have deadlight, permanently attached.

Particulars of Guard Rails:—

Open rails all fore and aft on upper deck, and on poop and fore-castle decks.
 Stanchions 3'7 1/2" high, spaced 4'6" to 5'0" apart, with 3 rails, substantially constructed.

Particulars of Gangways, Lifelines, etc.:



Railing: Stanchions 3'9", spaced 4'8", 2 rails.
 Longitudinal bracing, single angle alternately P. & S. side.
 Spacing 9'2" to 10'3".

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 Rail					
Forward Well	Open Rail					

State position of each freeing port. (F. and A. position and height above deck edge) After Well:—
 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"	9'3 1/2" x 44"	24"	Bracket top & bottom	5'1" x 28"	18"	7'6"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	✓	30"	6'3" x 36"	30"-31"	none	4'10" x 31"	18"	7'6"
Bridge, Forward Bulkhead	✓	44"	8'3" x 42"	30"-31"	Brackets top & bottom	5'1 1/4" x 31 1/2"	18"	
Forecastle Bulkhead	✓	26"	6'3" x 36"	30" clay driving	none			7'6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	✓	25"	3'2 1/2" x 28"	30"	continuous	5'2" x 28"	16"	
Exposed Machinery Casings on Superstructure Decks	✓	25"	3'2 1/2" x 29"	30"	bracket at top continuous at bottom	5'0" x 24"	18"	8'0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Pump Room Deckhouses on Flush Deck Ships	✓	30"	4'3" x 30"	30"	none	4'7" x 2'0"	24"	7'9"

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

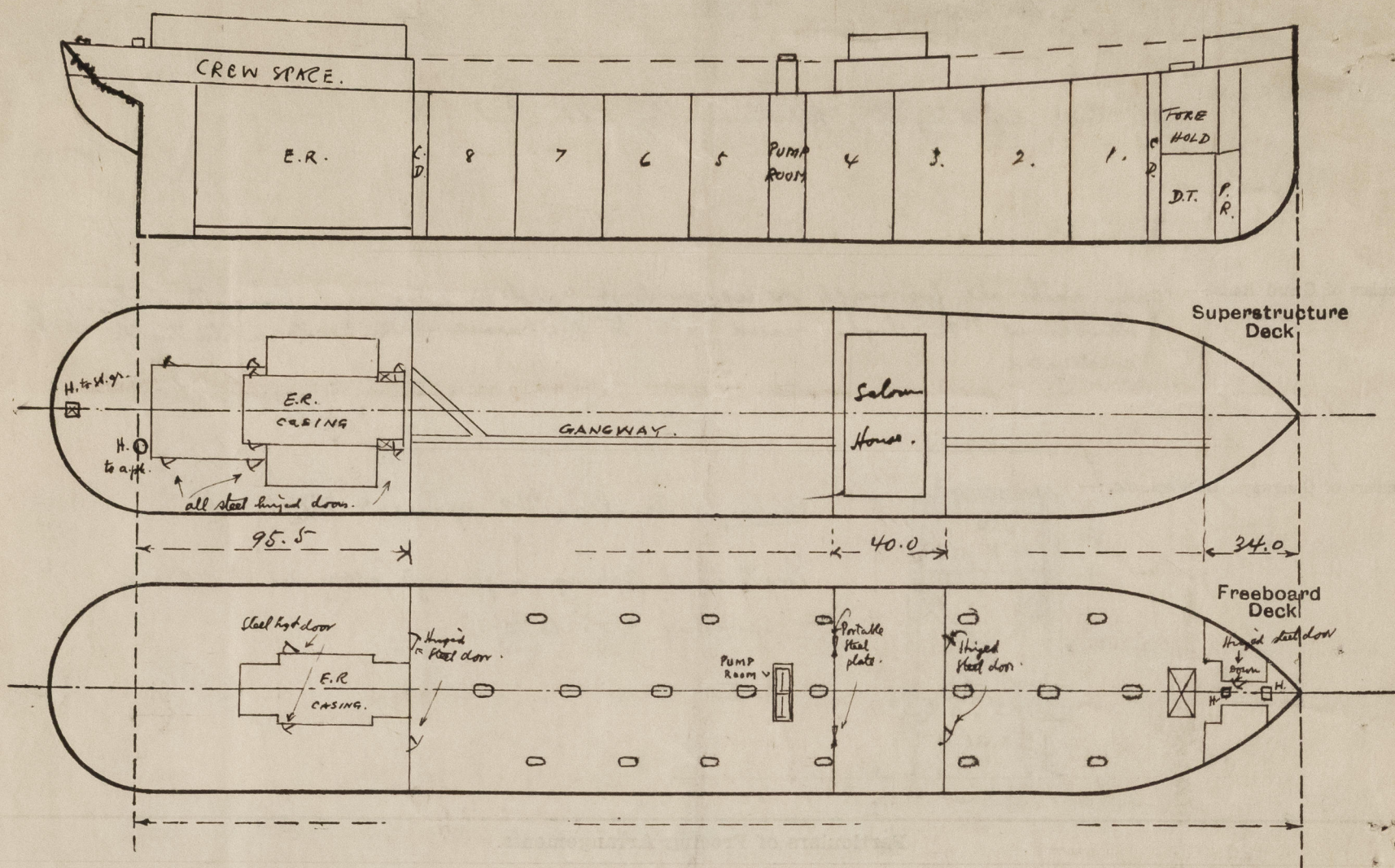
Poop Bulkhead	Steel hinged doors, stiffened, P.S., operated from both sides.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Portable steel plate, P.S., with lock bolt, 12 1/8".
Bridge, Forward Bulkhead	Steel hinged W.T. doors, P.S., operated from both sides.
Forecastle Bulkhead	open end.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	Steel hinged doors, operated from both sides.
Exposed Machinery Casings on Superstructure Decks	Steel hinged doors, stiffened, operated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Steel hinged doors, P.S., operated from both sides.
Pump room and house Deckhouses on Flush Deck Ships	Steel hinged doors, stiffened, operated from both sides.

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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:—

The following particulars were obtained from the builders:—

95% mld. depth	Displacement	16560 tons	
85% " " "	" "	14635 "	tons per inch 47.53
75% " " "	" "	12750 "	

85%	14635
75%	12750
	1885 x 1.616
81.6%	12750
	1161
	13911

Builder's name and yard number Akers Mch. Verkeed, No 465

Names of sister ships ✓

Owners Skandinavisk Petroleum Compagni, Oslo

Fee Kr. 264.-

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