

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

15 FEB 1954

Ship's Name M/T "H A V J A R L"	Official Number	Nationality and Port of Registry Norwegian Oslo.	Gross Tonnage About 10.800	Date of Build 1954.	Port of Survey Malmö.
Moulded Dimensions: Length 500.83' Breadth 66.50' Depth 38.83'					Date of Survey Whilst Building.
Moulded displacement at moulded draught = 85 per cent. of moulded depth 24560 English tons					Surveyor's Signature <i>[Signature]</i>
Coefficient of fineness for use with Tables .782					Particulars of Classification *100A1 carrying Petroleum in Bulk.

DEPTH FOR FREEBOARD (D).				
Moulded depth	38.83'
Stringer plate	26 mm
Sheathing on exposed deck	$T \frac{(L-S)}{L} =$			
Depth for Freeboard (D) =	38.91'			

DEPTH CORRECTION.	
(a) Where D is greater than Table depth (D-Table depth) R = $(38.91 - 33.39) 3.00 = 16.56"$ 5.52'	
(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	
If restricted by superstructures	✓

ROUND OF BEAM CORRECTION.	
Moulded Breadth (B)	66.50'
Standard Round of Beam = $\frac{B \times 12}{50}$	15.96'
Ship's Round of Beam	475 mm. 18.70'
Difference	2.74'
Restricted to	
Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S_1}{L})$	2.74' x .587 = 1.61'

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed EQUIV...	103.03'	103.03'	7'-10.9"	✓	103.03'
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed EQUIV...	44.07'	44.07'	7'-11"	✓	44.07'
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	59.76'	59.76'	9'-0"	✓	59.76'
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" " forward ...	256.79				
Total ...	206.86'	206.86'			206.86'

Standard Height of Superstructure	7.50'
" " R.Q.D.	
Deduction for complete superstructure	42.00'
Percentage covered $\frac{S}{L} =$	
" " $\frac{S_1}{L} =$	41.30'
" " $\frac{E}{L} =$	32.09'
Percentage from Table, Line A. TANKER	32.30'
(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 = $.3230 \times 42.00'$	= 13.57'
	32.09'

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	60.08'	1		60.08'	910mm.	35.83'	1		35.83'
$\frac{1}{2}$ L from A.P. ...	26.735'	4		106.94'	113 mm.	4.45'	4		17.80'
$\frac{3}{8}$ L " ...	6.61'	2		13.22'	0	✓	2		✓
Amidships ...	✓	4		✓	0	✓	4		✓
$\frac{3}{8}$ L from F.P. ...	13.22'	2		26.44'	0	✓	2		✓
$\frac{1}{2}$ L " ...	53.47'	4		213.88'	0	✓	4		✓
F.P. ...	120.14'	1		120.14'	1639mm.	64.53'	1		64.53'
Total ...				540.43'					118.16'

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

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{422.54}{18} \times \frac{(.75 - .2065)}{.5435} = + 12.76"$
If limited on account of midship superstructure.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Line 915mm BELOW
Depth to Freeboard Deck. **35.91'**
Summer freeboard **6.13'**
Moulded draught (d) **29.78'**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **7.45' 7 1/2"**Addition for Winter North Atlantic Freeboard (if required) = **7.45' + 5.00' = 12.45' = 12 1/2"**

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta = 21892$
Tons per inch immersion at summer load water line
 $T = 69.93$
Deduction = $\frac{\Delta}{40 T}$ inches
= 7.83'
= 7 3/4'

TABULAR FREEBOARD corrected for Elush Deck (if required)

Correction for coefficient	$\frac{.782 + .68}{1.36} = \frac{1.462}{1.36}$	1.075
Depth Correction	16.56'	
Deduction for superstructures	13.57'	
Sheer correction	12.76'	
Round of Beam correction	.40'	
Correction for Thickness of Deck amidships	✓	
Other corrections, scantlings, etc. TO CORRECTED	36.02'	
TO DECK LINE 915mm BELOW CONTINUATION OF DECK LINE TO SHIP SIDE.	29.32'	49.99'
Summer Freeboard	13.48'	13.48'

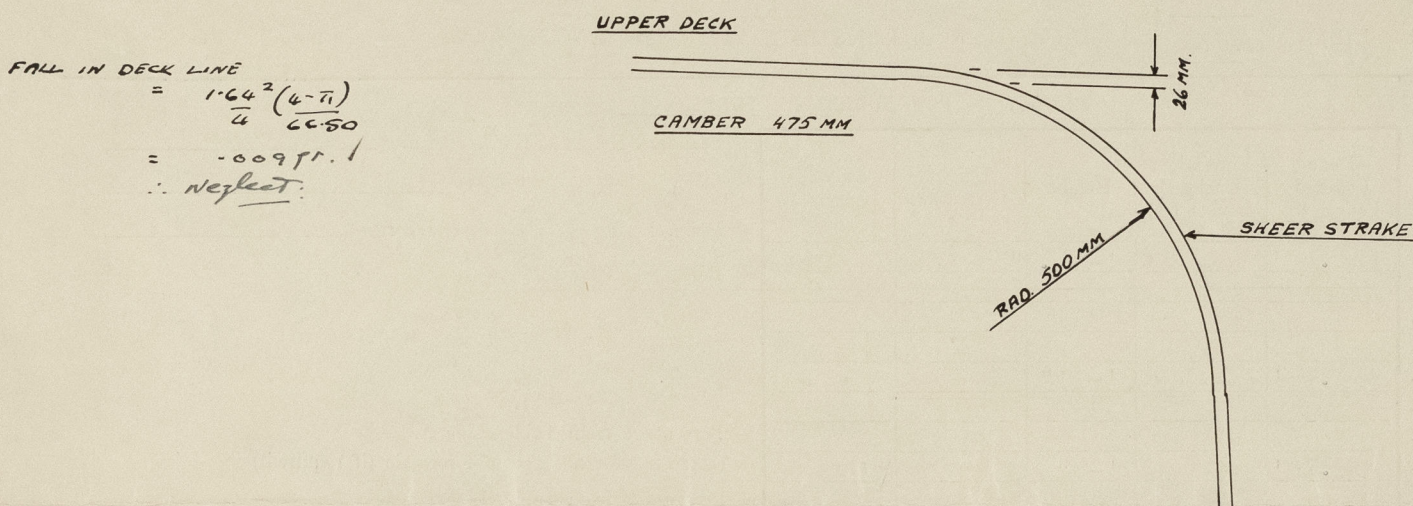
SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck :-

Tropical Fresh Water Line above Centre of Disc	15 1/4'	387 mm	Tropical Fresh Water Freeboard	14.80'
Fresh Water Line " "	7 3/4'	197 mm	Fresh Water	16.70'
Tropical Line " "	7 1/2'	190 mm	Tropical	16.77'
Winter Line below " "	7 1/2'	190 mm	Winter	20.84'
Winter North Atlantic Line " "	12 1/2'	317 mm	Winter North Atlantic	21.84'

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.

DISPLACEMENT, TONS PER INCH.

Moulded Draft		Total Disp.	Tons/inch
% of mould. depth.	mm.	Tons. = 1,025	Immersion. = 1,025
85	10061	24650	71,53
80	9469	22990	70,57
75	8877	21340	69,60
70	8285	19750	68,56



Note:-

Deckline to be placed 915 mm. from top of steel deck produced.

POOP.
LENGTN. TO. FR. 36 = 26530 mm ✓
+ 4875 ✓
31405 mm ✓
= 103.03 ft. ✓

ROUND. OF POOP. FRONT.
2600 ✓ 1/4 525 ✓
2990 ✓ 1 2990 ✓
3493 ✓ 1/2 1747 ✓
3827 ✓ 1 3827 ✓
4072 ✓ 1/4 5090 ✓
4895 ✓ 4 19580 ✓
6460 ✓ 2 10920 ✓
5797 ✓ 4 23188 ✓
5900 ✓ 1 5900 ✓
15 73767 ✓

mean = $\frac{73767}{15} \times \frac{10000}{10135} = 4.852 \checkmark$

$\frac{7.135 \times 1.700}{10.125} = \frac{23}{4.875} \checkmark$

BRIDGE.
FR. 57-59 = 6750 mm ✓
+ 3538 ✓
+ 3147 ✓
13435 ✓
44073 ✓
13435 x 9885
10135
= 13105
= 43.00 ft. ✓

AFT. ROUND.
0 ✓ 1/4 30 ✓
2000 ✓ 1 2000 ✓
2663 ✓ 1/2 1332 ✓
3050 ✓ 1 3050 ✓
3308 ✓ 1/4 4135 ✓
3694 ✓ 4 14776 ✓
3875 ✓ 2 7750 ✓
3995 ✓ 4 15980 ✓
4035 ✓ 1 4035 ✓
15 53058 ✓

mean = $\frac{53058}{15}$
= 3538 ✓

FOWD. ROUND.
0 ✓ 1/4 0 ✓
1320 ✓ 1 1320 ✓
1976 ✓ 1/2 988 ✓
1380 ✓ 1 1380 ✓
2640 ✓ 1/4 3300 ✓
3249 ✓ 4 12996 ✓
3694 ✓ 2 7388 ✓
3950 ✓ 4 15800 ✓
4035 ✓ 1 4035 ✓
15 47207 ✓

mean = $\frac{47207}{15}$
= 3147 ✓

Trade of ship All seas.

Names of sister ships M/T 363 "AMPHION".

Builder's name and yard number Kockums Mek. Verkstads A.-B., Malmö, Yard No. 366.

Owners P. Meyer, Oslo.

For



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