

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

18 FEB 1935

Index. No. **34637**
(For London Office only.)

SINGLE SCREW MOTOR Computation of Freeboard for Steamer, Sailing Ship, Tanker					Port of Survey <u>Odense Denmark</u>	
having <u>Poop, Bridge, Forecastle</u> <u>Single deck</u>					Date of Survey <u>9-2-1935</u>	
(Type of Superstructures.)						
Ship's Name <u>M/T "PERNA"</u> <u>Yard No 54</u>		Nationality and Port of Registry <u>Dutch</u> <u>'s Gravenhage</u>		Official Number <u>about</u> <u>8000</u>	Date of Build <u>1935</u>	
Moulded Dimensions: Length <u>460'-0"</u> <u>140.206 MET.</u>		Breadth <u>59'-0"</u> <u>17.982 MET.</u>		Depth <u>34'-0"</u> <u>10.363 MET.</u>		Name of Surveyor <u>S. Sanderson</u> Particulars of Classification <u>+ 100 A. 1.</u> <u>carrying petroleum in bulk.</u>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>17620 CUB. MET.</u>						
Coefficient of fineness for use with Tables <u>.793</u> ✓						

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <u>10,363 M</u>	(a) Where D is greater than Table depth (D-Table depth) R = <u>8.33 (10.363 - 9.347) x 30 = +259.</u> 1.036	Moulded Breadth (B) <u>59'-0" = 17.982 M</u>
Stringer plate <u>14.75</u>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	Standard Round of Beam = $\frac{B \times 12}{50} =$ <u>360</u>
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <u>0</u>	If restricted by superstructures ✓	Ship's Round of Beam = <u>360 M</u>
Depth for Freeboard (D) = <u>10383</u> <u>10382.75 M</u>		Difference ✓
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) =$ <u>Nil.</u>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	<u>28.272</u>	<u>28.272</u>	<u>2.286</u>		<u>28.286</u>
" overhang	<u>0</u>		<u>+ sheathing</u> ✓		
R.Q.D. enclosed	<u>0</u>				
" overhang	<u>0</u>				
Bridge enclosed	<u>14.326</u>	<u>14.326</u>	<u>2.286</u>	$\times \frac{2.286}{2.290}$	<u>14.300</u>
" overhang aft	<u>0</u>				
" overhang forward	<u>0</u>				
F'cle enclosed	<u>14.722</u>	<u>14.722</u>	<u>2.286</u>	<u>+ sheathing</u> ✓	<u>14.722</u>
" overhang	<u>0</u>				
Trunk aft	<u>0</u>				
" forward	<u>0</u>				
Tonnage opening aft	<u>0</u>				
" forward	<u>0</u>				
Total	<u>57.320</u>	<u>57.320</u>			<u>57.308</u>

Standard Height of Superstructure	<u>2290</u>
" R.Q.D.	✓
Deduction for complete superstructure	<u>1067</u>
Percentage covered $\frac{S}{L} =$	<u>40.88</u>
" $\frac{S_1}{L} =$	<u>40.88</u>
" $\frac{E}{L} =$	<u>40.87</u>
Percentage from Table, Line A. Tanker	<u>31.87</u>
(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 =	<u>1067 x 31.87 = - 340</u>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	<u>1422</u>	1		<u>1422</u>	<u>1423</u>	<u>1423</u>	1		<u>1423</u>
$\frac{1}{6}L$ from A.P.	<u>632</u>	4		<u>2528</u>	<u>632</u>	<u>632</u>	4		<u>2528</u>
$\frac{2}{6}L$ "	<u>158</u>	2		<u>316</u>	<u>156</u>	<u>156</u>	2		<u>312</u>
Amidships	-	4		-	<u>0</u>	-	4		-
$\frac{3}{6}L$ from F.P.	<u>316</u>	2		<u>632</u>	<u>311</u>	<u>311</u>	2		<u>622</u>
$\frac{4}{6}L$ "	<u>1263</u>	4		<u>5052</u>	<u>1266</u>	<u>1266</u>	4		<u>5064</u>
F.P.	<u>2844</u>	1		<u>2844</u>	<u>2846</u>	<u>2846</u>	1		<u>2846</u>
Total				<u>12794</u>					<u>12795</u>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{1}{18} (.75 - .2044) = \text{Nil}$

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.

Depth to Freeboard Deck =	<u>10383</u>
Summer freeboard =	<u>2060</u>
Moulded draught (d) =	<u>8323</u>

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{48}$ inches = 173
 $= 17a$

Addition for Winter North Atlantic Freeboard (if required) = 173 + 115 = 288 = 29a

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ 16890

Tons per inch immersion at summer load water line

$T =$ 56.28

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

$=$ 7.5

$=$ 19a

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	<u>773 + 65 = 1473</u>	
	<u>1.36</u>	<u>1.36</u>
Depth Correction	<u>259</u>	-
Deduction for superstructures	-	<u>340</u>
Sheer correction	-	-
Round of Beam correction	-	-
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc.	-	-
	<u>259</u>	<u>340</u>

Summer Freeboard = 2056

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

Tropical Fresh Water Line above Centre of Disc	<u>36</u>
Fresh Water Line " "	<u>19</u>
Tropical Line " "	<u>17</u>
Winter Line below " "	<u>17</u>
Winter North Atlantic Line " "	<u>29</u>

Tropical Fresh Water Freeboard	<u>170</u>
Fresh Water " "	<u>187</u>
Tropical " "	<u>189</u>
Winter " "	<u>223</u>
Winter North Atlantic " "	<u>235</u>

8 MAR 1935

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS			
UPPER DECK.		FORECASTLE DECK.	
Description of Hatchway	OIL TIGHT HATCHWAYS TO CENTRE TANKS.	HATCHWAYS TO SIDE TANKS.	GASTIGHT HATCH TO CARGO TRUNK.
Dimensions of Hatchway	1,525 x 1,075 M.	1,525 x 1,060 M.	2,744 x 3,050 M.
COAMINGS	Height above Deck ... 760 ¹ / ₄ " MINIMUM Thickness ... 10 ¹ / ₄ " Stiffeners ... none Brackets, Stays ... none	760 ¹ / ₄ " MINIMUM 10 ¹ / ₄ " none	760 ¹ / ₄ " 10 ¹ / ₄ " 100 x 75 x 10 in every pane none
HATCH BEAMS	Number ... Spacing ... Scantling and Sketch ... Bearing Surface ...	none	none
FORE AND AFTERS	Number ... Spacing ... Unsupported Lengths ... Scantling* and Sketch ... Bearing Surface ...	none	none
HATCH COVERS	Material ... Thickness ... How fitted ... Bearing Surface ...	Hinged steel plate cover 12.5 ¹ / ₄ " thick with stiffeners 100 x 75 x 10 angle	Hinged steel plate cover 12.5 ¹ / ₄ " stiffeners 150 x 75 x 9 angle
Spacing of Cleats	...	none	none
Number of Tarpaulins	...	none	none
*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: Protected by poop and deckhouse
 4 Ventilators 480¹/₄" dia. } with steel coamings riveted to casingtop and fitted with steel caps
 2 " 630 " }
 2 " 322 " }
 2 R. Skylight of steel riveted to casingtop, lined steel flaps Fiddle gratings covered by
 tunnel coaming of 8¹/₄" steel plates riveted to casingtop w. hinged steel covers

Particulars of Flush Bunker Scuttles:— none

Particulars of Companionways:— Two pump room casings of 8.5¹/₄" steel plates, riveted to steel deck. W.T. steel skylight on top riveted to pump room casingtop. One hinged steel w.d. door on each (760 x 1520 openings) capable of being manipulated from both sides, height of sill of doorways 460¹/₄"
 Two companionways to spaces below forecastle built in with the forecastle made of 8¹/₄" steel plates and fitted with hinged w.d. steel doors capable of being manipulated from both sides, height of sill 610¹/₄".

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

Ventilator coamings on forecastle deck 915-985¹/₄" high 7.5-8¹/₄" thick
 --- upper deck 6000¹/₄" 10¹/₄" (derrick posts)
 --- bridge deck 760¹/₄" 7.5¹/₄"
 --- poop deck 830-760¹/₄" 10-8.75¹/₄"
 all ventilator coamings properly stiffened where necessary, properly riveted to steel deck and fitted with steel screwing down plugs with packing.

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

Steel pipes 150¹/₄" high on freeboard deck, 650¹/₄" high on poop deck, 550-750¹/₄" high on forecastle deck. with run neck, were gauge in air pipes from oil tanks, fitted with hinged steel covers in way of cofferdam and o.f. bunkers and portable steel covers for the rest.



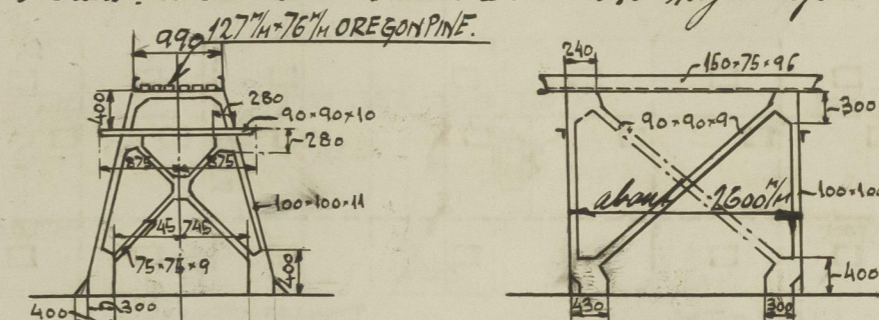
Particulars of Gangway Cargo and Coaling Ports:— none

Particulars of Scuppers and Sanitary Discharge Pipes — Sanitary discharge pipes from forecastle and poop acc. discharge below freeboard deck; from messkip acc. above freeboard deck.
 all sanitary discharge pipes of steel with cast steel storm valves on ship's side

Particulars of Side Scuttles: No side scuttles below freeboard deck.
 Forecastle 200¹/₄" dia. sidelights with 25¹/₄" thick glass with steel plug and cast steel hinged deadlight.
 Bridge 200¹/₄" " " " 25¹/₄"
 Poop 250 x 200¹/₄" " " " 25¹/₄"

Particulars of Guard Rails:— Open rails on port of freeboard deck 1080¹/₄" high steel stanchions spaced about 1300¹/₄" 3 steel rods equally spaced. Steel bulwark on rest of freeboard deck of 8¹/₄" plates 1060¹/₄" high with 180¹/₄" 6 Rail bar and 180¹/₄" 5 stanchions spaced about 1300¹/₄". Open rails on forecastle deck 1130 high above steel deck. Steel stanchions spaced about 1300 apart 3 steel rods equally spaced.
 bridge deck 1130 " " " " 1300 apart 3 steel rods
 poop deck 1130 " " " " equally spaced.

Particulars of Gangways, Lifelines, etc.:— Gangway between poop and bridge and bridge and forecastle, scantlings as per sketch below. Steel rail stanchions 1040 high spaced about 1300; 2 steel rods.

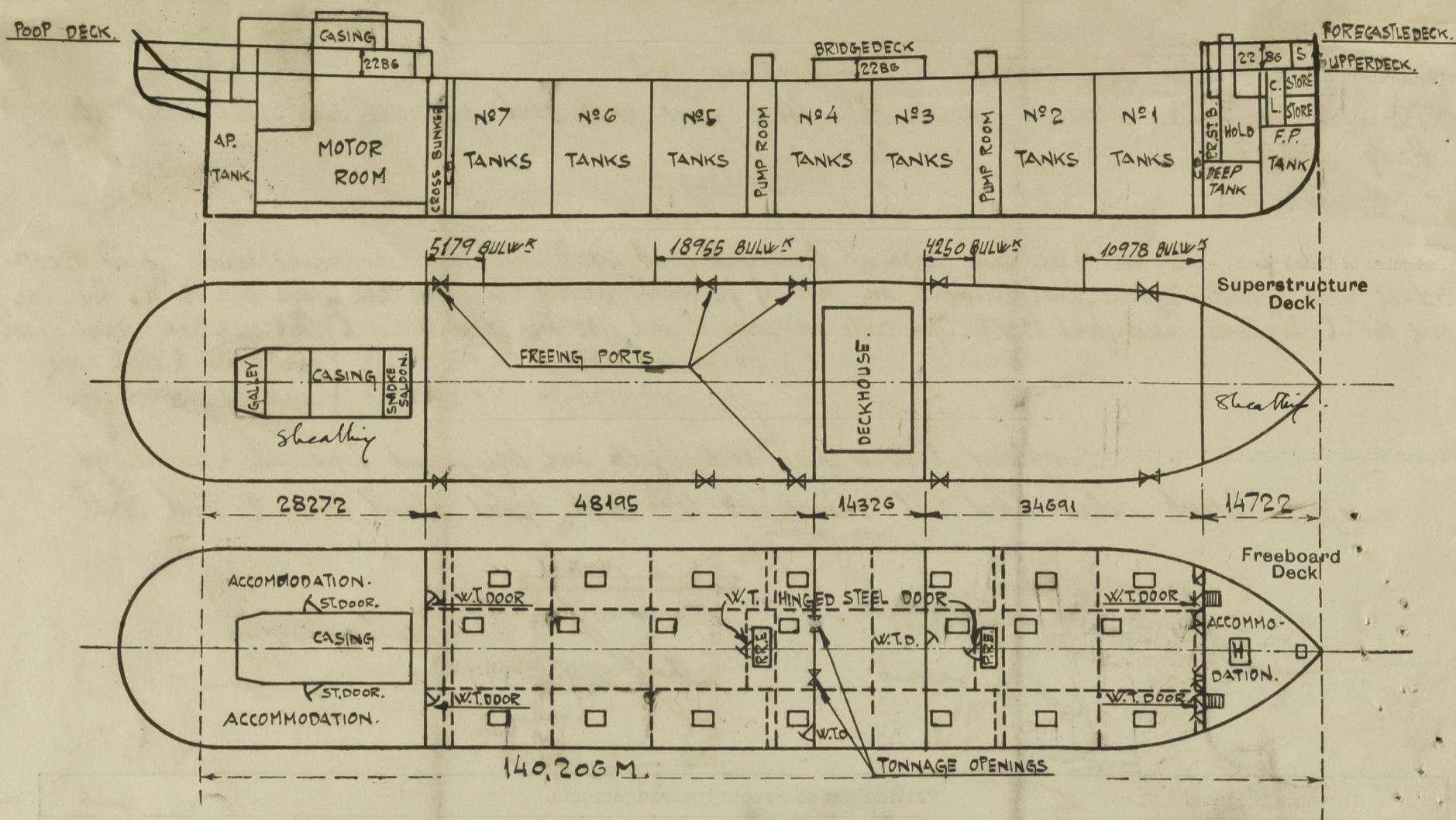


Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	24,130 M.	1,100 M.	990 ¹ / ₄ " 480 ¹ / ₄ "	three	1,277 M ²	+ 502 sq. m. + 502 sq. m. rails
Forward Well	15,230 M.	1,100 M.	100	two	0.852 M ²	
State position of each freeing port ... After Well:— at frame 40, 84 } height above deck 330 ¹ / ₄ " (F. and A. position and height above deck edge) } Forward Well:— 120, 157 } State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— 3 vertical steel bars 25 ¹ / ₄ " dia. equally spaced. 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	11 ¹ / ₄ "	10.5 ¹ / ₄ "	950 x 90 x 11 1/2 970 x 90 x 11 1/2 (with runways 150 x 90 x 10)	760 ¹ / ₄ " 710 ¹ / ₄ "	Lugs	Two openings 1290 x 970 M.	610 ¹ / ₄ "	
Raised Quarter Deck Bulkhead						2 openings 130 x 94 one w.d. door 130 x 94	600 ¹ / ₄ "	
Bridge, After Bulkhead	10 ¹ / ₄ "	9 ¹ / ₄ "	180 x 75 x 9 1/2	710-760 ¹ / ₄ "	Lugs	one w.d. door 130 x 94	590 ¹ / ₄ "	
Bridge, Forward Bulkhead	11 ¹ / ₄ "	10.5 ¹ / ₄ "	230 x 90 x 11 1/2	700-760 ¹ / ₄ "	Brackets	one w.d. door 152 x 97 1/2	480 ¹ / ₄ "	
Forecastle Bulkhead	10 ¹ / ₄ "	9 ¹ / ₄ "	180 x 75 x 9 1/2	730-800 ¹ / ₄ "	none	2 w.d. doors 157 x 97 1/2 6 w.d. doors 139 x 96 1/2	610 ¹ / ₄ "	
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	8.5 ¹ / ₄ "	8.5 ¹ / ₄ "	115 x 65 x 7 1/2	705 ¹ / ₄ "	Bracket top Lugs bottom	w.d. doors 157 x 97 1/2	460 ¹ / ₄ "	2,13 M.
Exposed Machinery Casings on Superstructure Decks	9.5 ¹ / ₄ "	8.5 ¹ / ₄ "	80 x 65 x 8 1/2	781 ¹ / ₄ "	Brackets top	none		2,918 M.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	Two w.d. steel doors capable of being manipulated from both sides.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Two tonnage openings closed by steel plate with 10 lock bolts and one w.d. door capable of being manipulated from both sides.
Bridge, Forward Bulkhead	One w.d. steel door capable of being manipulated from both sides.
Forecastle Bulkhead	6 plumb doors Two w.d. steel doors capable of being manipulated from both sides to spaces below upper deck.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	no openings
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	

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:—



760 x 760¹/₄ hatchway on forecabin with 230¹/₄ coaming 12¹/₄ gaslight steel cover.

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

Combined longitudinal and transverse framing system 2 longitudinal bulkheads

Load displacement about 16890 Tons at 35 cub. feet.
and Tons per inch = 56.28 (at 35 cub. feet) on

Draft of 27'-5¹/₂" (8370)

Builder's name and yard number

Odense Skibtskibsbyggeri and A.P. Møller

Yard No 54

Names of sister ships

Owners

Petroleum Maatschappij La Corona's Gravenhage, Holland

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