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Index No. 34035
(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Convention
Freeboard
No 20913

Computation of Freeboard for Steamer, Sailing Ship, Tanker *motor*
having *Poop, bridge and Forecastle*
Port of Survey *Rotterdam*
Date of Survey *Building 15-16/12/32*
Name of Surveyor *J. H. H. H. H.*
Particulars of Classification *+100 A1*
Carrying Petroleum in bulk
Longitudinal bottom and deck.

Ship's Name <i>MACUBA</i>	Nationality and Port of Registry <i>Dutch The Hague</i>	Official Number <i>8268</i>	Gross Tonnage <i>18190</i>	Date of Build <i>1930/1931</i>
Moulded Dimensions: Length <i>450</i> Breadth <i>61'9"</i> Depth <i>34'0"</i> Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>18050 cubic ft.</i> Coefficient of fineness for use with Tables <i>793</i>				

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <i>34'0"</i>	(a) Where D is greater than Table depth (D - Table depth) R = <i>(34.06 - 30.00) x 3.0 = +12.18</i>	Moulded Breadth (B) <i>61'9"</i> Standard Round of Beam = $\frac{B \times 12}{50} = 14.82$ Ship's Round of Beam = <i>15.50</i> Difference = <i>.68</i> Restricted to Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.68^2}{4} \times .60 = -.10$
Stringer plate ... <i>0.06</i>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	
Depth for Freeboard (D) = <i>34.06</i>		

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<i>102.50</i>	<i>102.50</i>	<i>7.25</i>	<i>102.5 x 7.25 / 7.50</i>	<i>99.06</i>
„ overhang ...					
R.Q.D. enclosed					
„ overhang					
Bridge enclosed...	<i>34.89</i>	<i>34.89</i>	<i>7.25</i>	<i>34.89 x 7.25 / 7.50</i>	<i>33.72</i>
„ overhang aft ...					
„ overhang forward					
F'cle enclosed ...	<i>42.58</i>	<i>42.58</i>	<i>7.50</i>		<i>42.58</i>
„ overhang ...					
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward					
Total ...	<i>179.97</i>	<i>179.97</i>			<i>175.36</i>

Standard Height of Superstructure	<i>7.50</i>
„ „ R.Q.D.	
Deduction for complete superstructure	<i>42.0</i>
Percentage covered $\frac{S}{L} =$	<i>39.99</i>
„ „ $\frac{S_1}{L} =$	<i>39.99</i>
„ „ $\frac{E}{L} =$	<i>38.97</i>
Percentage from Table, Line A.	
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	<i>29.97</i>
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	<i>-TANKER.</i>
Deduction = $42.0 \times .2997 =$	<i>-12.59</i>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>55.00</i>	<i>1</i>		<i>55.00</i>	<i>60.12</i>	<i>60.12</i>	<i>1</i>		<i>60.12</i>
1/4 L from A.P. ...	<i>24.47</i>	<i>4</i>		<i>97.88</i>	<i>26.78</i>	<i>26.88</i>	<i>4</i>		<i>107.52</i>
1/2 L „ ...	<i>6.05</i>	<i>2</i>		<i>12.10</i>	<i>7.38</i>	<i>7.37</i>	<i>2</i>		<i>14.74</i>
Amidships ...	<i>-</i>	<i>4</i>		<i>-</i>	<i>0</i>	<i>-</i>	<i>4</i>		<i>-</i>
3/4 L from F.P. ...	<i>12.10</i>	<i>2</i>		<i>24.20</i>	<i>14.2</i>	<i>14.50</i>	<i>2</i>		<i>29.00</i>
1/4 L „ ...	<i>48.95</i>	<i>4</i>		<i>195.80</i>	<i>51.78</i>	<i>51.62</i>	<i>4</i>		<i>206.48</i>
F.P. ...	<i>110.00</i>	<i>1</i>		<i>110.00</i>	<i>120</i>	<i>120.00</i>	<i>1</i>		<i>120.00</i>
Total ...				<i>494.98</i>					<i>537.86</i>

Mean actual sheer aft = <i>Excess.</i>
Mean standard sheer aft
Mean actual sheer forward = <i>Excess.</i>
Mean standard sheer forward
Length of enclosed superstructure forward of amidships = <i>Tanker.</i>
„ „ aft of „ = <i>Does not apply.</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{42.88}{18} \times \left(.75 - \frac{20}{55} \right) = -1.31$

If limited on account of midship superstructure. ☒

If limited to maximum allowance of 1 1/2 ins. per 100 ft. ☒

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = *34.06*
Summer freeboard = *6.63*
Moulded draught (d) = *27.43*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *6.86*
Addition for Winter North Atlantic Freeboard (if required) = *4.50*

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta = 17,400$
Tons per inch immersion at summer load water line
 $T = 56.6$
Deduction = $\frac{\Delta}{40T}$ inches = *7.69*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{793 + .68}{1.36} = 1.473$

Depth Correction	<i>12.18</i>
Deduction for superstructures	<i>12.59</i>
Sheer correction	<i>1.31</i>
Round of Beam correction	<i>.10</i>
Correction for Thickness of Deck amidships	
Other corrections, scantlings, etc.	

Summer Freeboard = *79.53*

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

Tropical Fresh Water Line above Centre of Disc	<i>14.55</i>	<i>37 cms</i>	Tropical Fresh Water Freeboard	<i>64.98</i>	<i>21.65</i>
Fresh Water Line	<i>7.69</i>	<i>20</i>	Fresh Water	<i>71.84</i>	<i>1.82</i>
Tropical Line	<i>6.86</i>	<i>17</i>	Tropical	<i>72.67</i>	<i>1.85</i>
Winter Line below	<i>6.86</i>	<i>17</i>	Winter	<i>86.39</i>	<i>2.19</i>
Winter North Atlantic Line	<i>11.36</i>	<i>29</i>	Winter North Atlantic	<i>90.89</i>	<i>2.31</i>

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway	...	...	...	...	...	...	...	...	...
Dimensions of Hatchway	...	...	...	...	...	...	...	...	...
COAMINGS	Height above Deck	...	30"	...	...	...	...	...	...
	Thickness	...	40"	...	...	...	...	...	...
	Sides	...	44"	...	...	...	...	...	...
	Stiffeners	...	40"	...	...	...	...	...	...
HATCH BEAMS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
FORE AND AFTERS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...
	Scantling* and Sketch	...	...	...	...	...	...	...	...
HATCH COVERS	Material	...	Steel	...	...	...	...	...	...
	Thickness	...	50"	...	...	...	...	...	...
	How fitted	...	hinged	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
Spacing of Cleats	...	...	...	...	...	...	...	...	...
Number of Tarpaulins	...	...	...	...	...	...	...	...	...

*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:— Fiddle top .32 well supported.
motor space - Ventilators strong coamings 4'0" height. 40 thickness. Riveting to
Donkey boiler - Gratings angle iron. Steel covers hinged battens steel 4 d.

Particulars of Flush Bunker Scuttles:— None fitted.

Particulars of Companionways:— Strong pump room companion with steel watertight door
on each side - manipulated from both sides. height of sill 18"

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— Three on fore deck for spaces below freeboard deck.
Coamings 12'x.36" thickness. 34" fluted to deck pitch 4 d. closed by wood plugs & canvas covers.
An upper deck vent to fore hatch for deep tank and fore hold - three 36" coamings - pitch riveting to
deck. 34" covers steel airtight cover further wood plugs & canvas.
Two ventilators for pump room 14" height 24'x.40" well stayed riveted to deck pitch of rivets 4 d.
steel lid for closing. On poop deck fore of deckhouse Coaming 6'x.30" height 30" one 12'x.34" height
off deckhouse two 6'x.30" height 30" five 12'x.34" height 30"
all riveted to deck pitch 4 d -
wood plugs canvas covers for closing.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
Gorse necks deep tank two 36" / Cofferdam fore two 36"
Cofferdam aft and oil fuel compartments gorse necks carried up along poop front
On poop deck abaft deckhouse 18" / 18"
They can all be closed by canvas covers.

Particulars of Gangway Cargo and Coaling Ports:— None fitted.

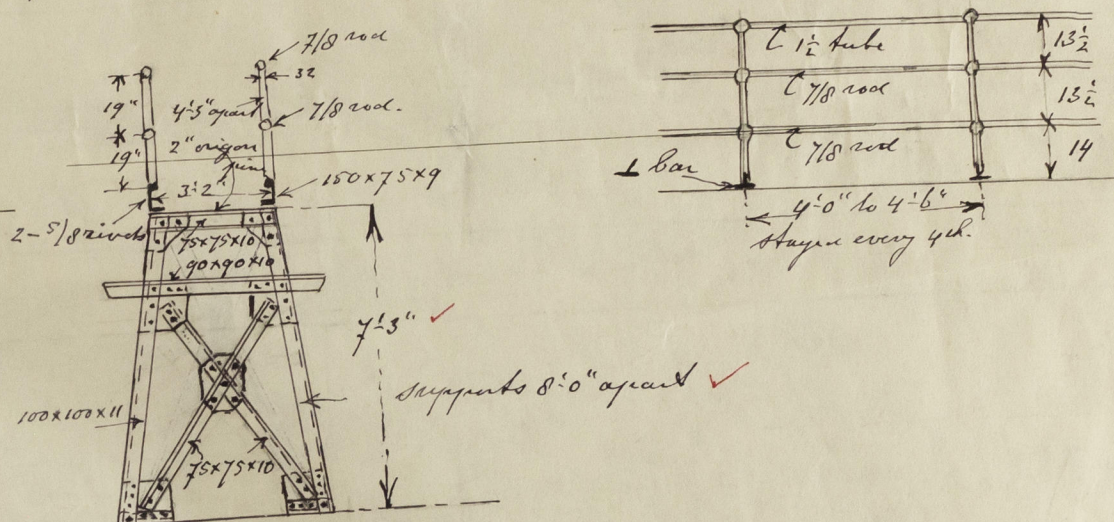
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Particulars of Scuppers and Sanitary Discharge Pipes — Ordinary scuppers through gunwale angles. Cast steel
6" bends at front. aftercare bridge and front of poop. Sanitary
discharge pipes all from spaces above freeboard deck, one steam valve fitted
in cast steel chest for each discharge. — for position see sketch.

Particulars of Side Scuttles:— None fitted below upper deck, all within superstructures
and fitted with permanent attached deadlights.

Particulars of Guard Rails:— Strong guard rails at open bulwark stanchions 12" in board
riveted to 1" on deck.

Particulars of Gangways, Lifelines, etc.:



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	150'9 3/8	42"	2x37"x19" + 75'0" open rail	two	9 square feet	open rail 50% of length of well
Forward Well	119'3	42"	2x37"x19" + 59'2" open rail	two	9 square feet	open rail 50% of length of well
State position of each freeing port (F. and A. position and height above deck edge) After Well: — at break of sections 18" above deck 18" " " fitted with bars 9" apart						
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	18x.44 ✓	.40 .44 ✓	L 9 1/2 x 3 1/2 x .50 ✓	30 ✓	brackets ✓	2 x 4' 3" x 5' 0" ✓	24 ✓	7' 5" ✓
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	24x.40 ✓	.36 ✓	L 7 x 5 x .40 ✓	30 ✓	brackets ✓	2 x 4' 3" x 37' ✓	24 ✓	7' 3" ✓
Bridge, Forward Bulkhead	24x.40 ✓	.40 ✓	L 9 x 3 1/2 x .40 ✓	30 ✓	brackets ✓	1 x 5' 0" x 5' 0" ✓	18 ✓	7' 3" ✓
Forecastle Bulkhead	24x.36 ✓	.30 ✓	L 100 x 65 x 9 on machine bulkhead L 65 x 65 x 7 mm ✓	man. 30 ✓	brackets ✓	4' 6" x 27" ✓	24 ✓	7' 6" to wood deck ✓
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	See paragraph							
Exposed Machinery Casings on Superstructure Decks								
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	...	...	...	W.t. doors capable of being manipulated from both sides
Raised Quarter Deck Bulkhead	...	...	...	Portable steel plates fastened with hook bolts 1" distance 14" not passing through bulkhead plating
Bridge, After Bulkhead	...	...	...	W.t. doors capable of being manipulated from both sides
Bridge, Forward Bulkhead	...	...	...	W.t. doors capable of being manipulated from both sides
Forecastle Bulkhead	...	...	...	Steel doors capable of being manipulated from both sides
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...	...	No openings
Exposed Machinery Casings on Superstructure Decks	...	...	...
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	

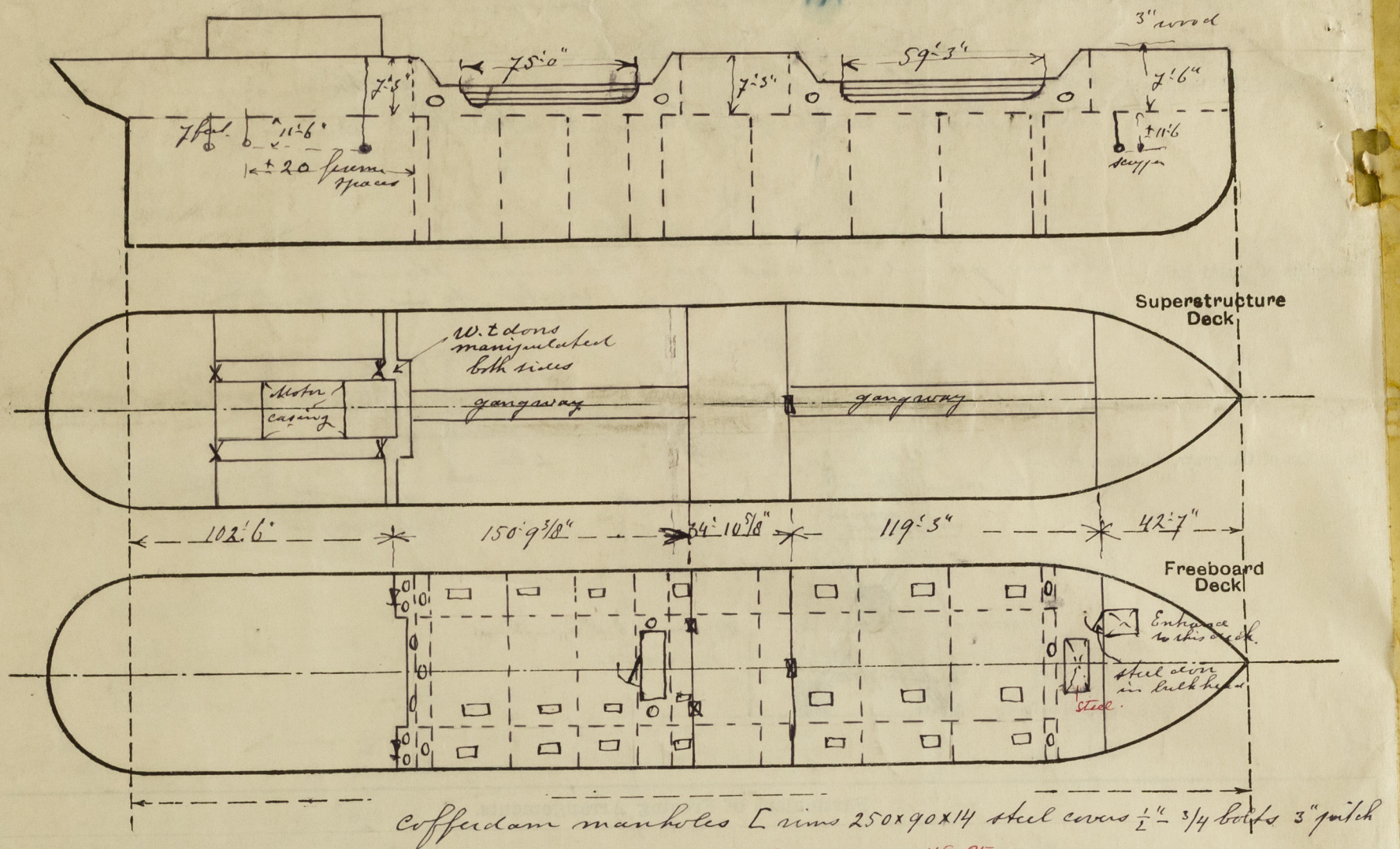
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Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the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



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

Fore well 119.25
 6 pan rails equal to 118.33
 $.92 \times 3.5 \times 25\% = .8 \text{ ft.}$
 Freeing ports 9.0 ft.
 Excess = 8.2 ft.
 Aft well = 150.80
 6 pan rails equal to 150.00
 $.80 \times 3.5 \times 25\% = .7 \text{ ft.}$
 Freeing ports 9.0 ft.
 Excess 8.3 ft.

This vessel has been made complete in details as approved for the sister vessels "Malvina" "Mamora" for which freeboard have been assigned.

Builder's name and yard number *N.V. Machinefabriek & Scheepswerf van P. Smit Jr.*

Names of sister ships *Malvina; Mamora; Murena;*

Owners *N.V. Petroleum Maatschappij "La Corona" & Gravenhage.*

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