

DISCLOSED SECTION

Rpt. C.11.

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

Index. No. 33689

(For London Office only.)

No. 457.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *upper deck steel P.P.s Long port deck P.P.s Forecastle deck P.P.s*

Port of Survey *LOURENCO MARQUES*

Date of Survey *6<sup>th</sup> Nov 1942* to *9<sup>th</sup> Nov 1942*

Name of Surveyor *William D. Johnston*

Particulars of Classification *+100A1*

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
S.S. LIMPOPO	PORTUGUESE LOURENCO MARQUES	162104	<del>647</del> 646.89	1930.8M.
Moulded Dimensions: Length 170-0 Breadth 30-0 Depth 11-6				
Moulded displacement at moulded draught = 85 per cent. of moulded depth 9.775 997.05 tons				
Coefficient of fineness for use with Tables .700				

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <i>11-6</i> ... .. <i>11.50</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>(11.59 - 11.33) x 1.307 = +.34.</i>	Moulded Breadth (B) <i>30-0</i>
Stringer plate ... <i>40</i> ... .. <i>.03</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>.26</i>	Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>7.20</i>
Sheathing on exposed deck <i>2 1/2 P.P.</i>		Ship's Round of Beam = <i>7.50</i>
$T \left( \frac{L-S}{L} \right) = .21 \times 2977 =$ <i>.06</i>		Difference <i>.30 Excess</i>
Depth for Freeboard (D) = <i>11.59</i>	If restricted by superstructures <input checked="" type="checkbox"/>	Restricted to <i>.3383</i>
		Correction = $\frac{\text{Diff}^e}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.30}{4} \times .075 = -.03$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
<i>LONG</i> Poop enclosed ... ..	<i>18.83</i>	<i>18.83</i>	<i>8.0</i>	-	<i>18.83</i>
„ overhang ... ..	<i>12.00</i>	<i>12.00</i>	<i>7.10</i>	-	<i>12.00</i>
R.Q.D. enclosed ... ..	<i>3.50</i>	<i>1.75</i>	-	-	<i>1.75</i>
„ overhang ... ..	-	-	-	-	-
Bridge enclosed... <i>equivalent</i>	<i>60.84</i>	<i>60.84</i>	<i>8.0</i>	-	<i>60.84</i>
„ overhang aft ... ..	<i>4.83</i>	<i>3.62</i>	-	-	<i>3.62</i>
„ overhang forward ... ..	<i>7.87</i>	<i>3.93</i>	-	-	<i>3.93</i>
„ enclosed ... ..	<i>23.53</i>	<i>23.53</i>	<i>7.10</i>	-	<i>23.53</i>
„ overhang ... ..	<i>13.00</i>	<i>13.00</i>	<i>7.10</i>	-	<i>13.00</i>
Trunk aft <i>MATCH.</i> ... ..	-	-	-	-	-
„ forward ... ..	-	-	-	-	-
Tonnage opening aft ... ..	-	-	-	-	-
„ „ forward ... ..	-	-	-	-	-
Total ... ..	<i>119.40</i>	<i>112.50</i>	-	-	<i>112.50</i>

Standard Height of Superstructure <i>6-0</i>	R.Q.D.
Deduction for complete superstructure	<i>23.00</i>
Percentage covered $\frac{S}{L} =$	<i>70.23</i>
„ „ $\frac{S_1}{L} =$	<i>66.17</i>
Percentage from Table, Line A. <i>8.8</i>	<i>56.49</i>
(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 = $23 \times 56.49 =$	<i>- 12.99</i>

## SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate <i>Plotting</i>	Effective Ordinate	S M	Product
A.P. ... ..	<i>27</i>	1	<i>27</i>	<i>27</i>	<i>27.00</i>	1	<i>27.00</i>
$\frac{1}{4}$ L from A.P. ... ..	<i>12.02</i> <i>13</i>	4	<i>48.08</i> <i>52</i>	<i>13.17</i>	<i>11.70</i> <i>13.00</i>	4	<i>46.80</i> <i>52</i>
$\frac{2}{4}$ L " ... ..	<i>2.97</i> <i>44</i>	2	<i>5.94</i> <i>9</i>	<i>44.3</i>	<i>3.90</i> <i>4.50</i>	2	<i>6.00</i> <i>9</i>
Amidships ... ..	<i>0</i>	4	<i>0</i>	<i>0</i>	<i>-</i>	4	<i>0</i>
$\frac{3}{4}$ L from F.P. ... ..	<i>5.94</i> <i>9</i>	2	<i>11.88</i> <i>18</i>	<i>9.6</i>	<i>6.00</i> <i>9.00</i>	2	<i>12.00</i> <i>18</i>
$\frac{1}{4}$ L " ... ..	<i>24.03</i> <i>30</i>	4	<i>96.12</i> <i>120</i>	<i>23.4</i> <i>30</i>	<i>23.40</i> <i>30.00</i>	4	<i>93.60</i> <i>120</i>
F.P. ... ..	<i>54</i>	1	<i>54</i>	<i>54</i>	<i>54.00</i>	1	<i>54.00</i>
Total ... ..			<i>243.02</i> <i>280</i>				<i>239.40</i> <i>280</i>

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 =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75 - S}{2L} \right) = \frac{3.62}{18} \left( \frac{.75 - .3512}{.3988} \right) = +.08$

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 =	<i>11.55</i>
Summer freeboard =	<i>.48</i>
Moulded draught (d) =	<i>11.07</i>

Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = *2.77*

Addition for Winter North Atlantic Freeboard (if required) =

*120.7*

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$

Tons per inch immersion at summer load water line

T =

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

*d/u = 70*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient  $\frac{.70 + .68}{1.36} = \frac{1.38}{1.36} =$

	+	-
Depth Correction ... ..	<i>.34</i>	-
Deduction for superstructures ... ..	-	<i>12.99</i>
Sheer correction ... ..	<i>.08</i>	-
Round of Beam correction ... ..	-	<i>.03</i>
Correction for Thickness of Deck amidships ... ..	-	<i>.12</i>
Other corrections, scantlings, etc. ... ..	-	-
	<i>.42</i>	<i>13.14</i>

Summer Freeboard = *5.85*

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

Tropical Fresh Water Line above Centre of Disc ...	<i>.140</i> metres
Fresh Water Line „ „ ...	<i>.070</i> „
Tropical Line „ „ ...	<i>.070</i> „
Winter Line below „ „ ...	<i>.070</i> „
Winter North Atlantic Line „ „ ...	<i>.120</i> „

Tropical Fresh Water Freeboard ...	<i>0.149</i> metres
Fresh Water „ „ ...	<i>0.009</i>
Tropical „ „ ...	<i>0.079</i>
Winter „ „ ...	<i>0.079</i>
Winter North Atlantic „ „ ...	<i>0.219</i>

SS Limpopo

Particulars of Flush Bunker Scuttles:— Flush scuttles to bunkers on Superstructure deck 24" D/I and trunk as to lower bunker with steel casings. (screw joint) ✓

Particulars of Companionways:— *Guard rails fitters. (NOT ENCLOSED)*

<u>Forecastle deck</u>	Vents to crew space	7" dia	coaming	33" x 30	} Wood plugs & canvass produced. ✓
"	"	"	hold	12" " "	
<u>Treehouse</u>	"	"	"	12" " "	
<u>LONG POOR</u>	"	"	"	12" " "	
"	"	"	"	33" x 30	
"	to accomadation	muskrum type	"	8" x 7" dia	

<u>Fore castle deck</u>	2 1/2"	Governor's pipe	16"	high	F.P. TANK.
Long poop deck	2 1/2"	"	"	16"	D.B. TANK & AFT PEAK.

— none —

Particulars of Side Scuttles: *Open type Side Scuttles in tween deck, fitted with hinged dead lights and locking nuts* ✓

Particulars of Guard Rails:—

*Open rails on FORECASTLE D<sup>o</sup>*

1" SOLID 9'-0" 1 1/2"

1" " 1 1/2"

1" " 1 1/2"

STANCHION 12'

*Open rails on long poop deck all 4' draft*

1" TUBE 5'-0" 1 1/2"

1" SOLID 1 1/2"

1" " 1 1/2"

STANCHION 19 1/2'

NON E

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.

Bulkhead <sup>24</sup> <del>No 18</del> FRAME ...	25"	25"	3" x 2 1/2" x 30"	35"	NONE	4'-9" x 24"	16"	7'-10"
Raised Quarter Deck Bulkhead <sup>ON</sup> <del>No 3</del> FRAME	25"	25"	3" x 2 1/2" x 30"	35"	NONE	4'-9" x 24"	4"	7'-10"
Bridge, After Bulkhead ...	✓							
Bridge, Forward Bulkhead ...	38"	30"	4 x 3" x 34"	30"	BRACKET T-8 18" x 15" x 38	4'-11" x 24"	16"	7'-10"
Forecastle Bulkhead ...	30"	25"	3" x 2 1/2" x 30"	17"	NONE	4'-9" x 24"	16"	7'-10"
Trunk, <sup>HATCH</sup> <del>No 2</del> CASING ...	25"	25"	2 1/2" x 2 1/2" x 30"	36"	NONE	6'-0" x 5'-6"	6"	7'-10"
Trunk, Forward ...	✓							
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	✓							
Exposed Machinery Casings on Superstructure Decks ...	38"	30"	3 1/2" x 3" x 30"	25"	T-6 BRACKETS 12" x 12" x 30	5'-0" x 24"	12"	ER 3'-0" BR 7'-6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	30"	25"	3 1/2" x 3" x 30"	3-8"	T-6'S RIVETED TO BEAMS 2 R	5'-0" x 24"	12"	7'-10"

Poop Bulkhead	N <sup>o</sup> 10	...	...	Hinged steel doors .25. Spring locks (YES)	✓
Raised Quarter Deck Bulkhead	N <sup>o</sup> 3	...	...	" " " .25. " " "	✓
Bridge, After Bulkhead	...	...	...	✓	
Bridge, Forward Bulkhead	...	...	...	Hinged W.T. Doors, ANGLE FRAMES FLANGED DOOR .50 Butterfly bolts riveted to 8" plate plating. (YES)	✓
Forecastle Bulkhead	...	...	...	Hinged steel doors .25. Spring locks (YES)	✓
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...	...	✓	
Exposed Machinery Casings on Superstructure Decks	...	...	...	Hinged " " " " " "	✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...	...	...	" " " " " "	✓
Deckhouses on Flush Deck Ships	...	...	...	✓	

12-8 x 3-3"

WT WT WT WT

Superstructure Deck

CV AP AP AP AP AP AP OM OM

TRUNK HATCH

COMPANIONWAYS NOT ENCLOSED

ENGINE CASING

BOILER CASING

CV

OV

WOOD SHEATHING 2 1/2" P.P.

18'-10" 3'-6" 12'-6" 7'-10 1/2" 4'-0" 23'-6" 42'-2" 23'-0" 22'-10" 1'-10"

Freeboard Deck

HATCH 12-6 x 10-1

ENGINE ROOM

BOILER ROOM

SALOON

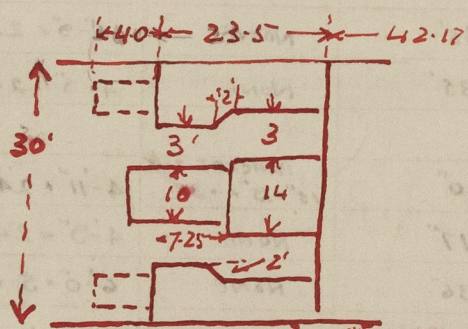
HATCH 15-8 x 10-1

WOOD SHEATHING 2 1/2" P.P.

SIDE opening P.S. fitted with hinged shutters of more strength than surrounding structure.

Summary held afloat and therefore confined to an examination of the means of closing the openings in deck and ship sides.

Forecastle:  
Enclosed = 22.83  
Houses =  $\frac{1.83 \times 8}{21} = \frac{.70}{23.53}$



Bridge passages

$$\begin{array}{r} 16.25 \times 3 = 48.75 \\ 7.25 \times 3 = 21.75 \\ \hline \frac{2 \times 2}{2} = \frac{2.00}{72.50} \end{array}$$

$$\frac{72.5}{15} = \frac{23.50}{4.83} \text{ equivalent O.H.}$$

$$\frac{18.67}{42.17} = \frac{60.84}{\text{equivalent endow}}$$

Fee £ 16 : 0 : 0  
Exps 10 : 10 : 0

Received by me.