

# Lloyd's Register of Shipping

## SURVEYS FOR FREEBOARD.

15 MAY 1933

Index No. \_\_\_\_\_  
(for London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *Complete superstructure with side openings & superimposed fire castle & long steel deckhouse amidships & steel deckhouse aft.*  
(Type of Superstructures.)

Port of Survey *Bilbao*

Date of Survey *7th & 17th November 1932*

Name of Surveyor *R. Crawford*

Particulars of Classification *+100 A1 Shade Dec.*

Ship's Name <i>HABANA</i>	Nationality and Port of Registry <i>Spanish Barcelona</i>	Official Number <i>10551</i>	Gross Tonnage <i>1923</i>	Date of Build <i>1923</i>
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Moulded Dimensions: Length *146.301* Breadth *18.592* Depth *10.897*

Moulded displacement at moulded draught = 85 per cent. of moulded depth *17515 tonnes*

Coefficient of fineness for use with Tables *678 = 68 lowest.*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <i>10.897</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>8.33 (10.897 - 9.750) 30</i> <i>= + 292 m</i> ✓	Moulded Breadth (B) <i>18.592</i>
Stringer plate ... <i>12</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>✓</i>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{223.104}{50} = 4.462$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) = 76 \times \frac{15.395}{146.301}$	If restricted by superstructures <i>✓</i>	Ship's Round of Beam = <i>306</i>
Depth for Freeboard (D) = <i>10.917</i>		Difference <i>66 deficient</i>
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{66^2}{4} \times 0.178 = + 37 \frac{1}{2}$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	<i>17.931</i>	<i>17.931</i>	<i>2.515</i>	<i>✓</i>	<i>17.931</i>	Standard Height of Superstructure <i>2290</i>
" overhang ...	<i>6.160</i>	<i>3.080</i>			<i>3.080</i>	" " R.Q.D. <i>✓</i>
R.Q.D. enclosed ...						Deduction for complete superstructure <i>1067</i> ✓
" overhang ...						Percentage covered $\frac{S}{L} = 89.48\%$
Bridge enclosed ...	<i>72.889</i>	<i>72.889</i>	<i>2.515</i>	<i>✓</i>	<i>72.889</i>	" " $\frac{S_1}{L} = 82.20\%$
" overhang aft ...	<i>3.246</i>	<i>2.434</i>			<i>2.434</i>	" " $\frac{E}{L} = 82.20\%$ ✓
" overhang forward ...	<i>1.219</i>	<i>.609</i>			<i>.609</i>	Percentage from Table, Line A.
Fore-castle enclosed ...	<i>17.172</i>	<i>17.172</i>	<i>2.515</i>	<i>✓</i>	<i>17.172</i>	(corrected for absence of forecastle (if required))
" overhang ...	<i>2.042</i>	<i>1.021</i>			<i>1.021</i>	Percentage from Table, Line B.
Fore-castle Bridge open ...	<i>10.247</i>	<i>5.123</i>			<i>5.123</i>	(corrected for absence of forecastle (if required))
" forward ...						Interpolation for bridge less than 2L (if required)
Tonnage opening aft ...						Deduction = <i>1067</i> × <i>.7803</i> = <i>- 833 m</i>
" forward ...						
Total ...	<i>130.906</i>	<i>120.259</i>			<i>120.259</i>	

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<i>1473</i>	<i>1</i>	<i>1473</i>	<i>876</i>	<i>876</i>	<i>1</i>	<i>876</i>			Mean actual sheer aft = <i>Deficient</i>
$\frac{1}{4}$ L from A.P. ...	<i>654</i>	<i>4</i>	<i>2616</i>	<i>229</i>	<i>229</i>	<i>4</i>	<i>916</i>			Mean actual sheer forward = <i>Deficient</i>
$\frac{2}{4}$ L " ...	<i>164</i>	<i>2</i>	<i>328</i>	<i>-57</i>	<i>-57</i>	<i>2</i>	<i>-102</i>			Length of enclosed superstructure forward of amidships = <i>✓</i>
Amidships ...	<i>✓</i>	<i>4</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>4</i>	<i>✓</i>			" " aft of " = <i>✓</i>
$\frac{3}{4}$ L from F.P. ...	<i>327</i>	<i>2</i>	<i>654</i>	<i>437</i>	<i>437</i>	<i>2</i>	<i>874</i>			} Sheers deficient
$\frac{1}{4}$ L " ...	<i>1308</i>	<i>4</i>	<i>5232</i>	<i>1280</i>	<i>1280</i>	<i>4</i>	<i>5120</i>			
F.P. ...	<i>2946</i>	<i>1</i>	<i>2946</i>	<i>2556</i>	<i>2556</i>	<i>1</i>	<i>2556</i>			
Total ...			<i>13249</i>				<i>10240</i>			

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{3009}{18} (.75 - .4474) = + 51 \frac{1}{2}$  ✓

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 = *10.917* ✓  
Summer freeboard = *2027* ✓  
Moulded draught (d) = *8.890* ✓

Deduction for Tropical freeboard and addition for Winter freeboard =  $\frac{d}{4}$  inches = *185* ✓  
Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 16800$  tonnes

Tonnage in immersion at summer load water line

T = *22.76*

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

= *184*

$\frac{d}{48} = 185$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient *NIL*

	+	-
Depth Correction ...	<i>292</i>	<i>✓</i>
Deduction for superstructures ...	<i>- 833</i>	
Sheer correction ...	<i>51</i>	<i>✓</i>
Round of Beam correction ...	<i>3</i>	<i>✓</i>
Correction for Thickness of Deck amidships ...	<i>68</i>	<i>✓</i>
Other corrections, scantlings, etc. ...	<i>✓</i>	
	<i>414</i>	<i>833 - 419</i>

Summer Freeboard = *2027*

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

<i>11 - AUG 1933</i>	Tropical Fresh Water Line above Centre of Disc	<i>14.56" = 370 m</i>	Tropical Fresh Water Freeboard ...	<i>1657</i>	= <i>79.80"</i>
<i>1 - AUG 1933</i>	Fresh Water Line	<i>7.28" = 185 "</i>	Fresh Water	<i>1842</i>	= <i>72.52"</i>
	Tropical Line	<i>7.28" = 185 "</i>	Tropical	<i>1842</i>	= <i>72.52"</i>
	Winter Line below	<i>7.28" = 185 "</i>	Winter	<i>2212</i>	= <i>87.08"</i>
	Winter North Atlantic Line		Winter North Atlantic		