

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

23141

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Poop, Bridge & Forecastle

(Type of Superstructures.)

Ship's Name <b>'HERVAL'</b> (ex Alvarado)	Nationality and Port of Registry Brazilian	Official Number ✓	Gross Tonnage 2478	Date of Build 1920-10
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Port of Survey **NEWPORT, MON**

Date of Survey **6<sup>th</sup> March 1933**

Name of Surveyor **Macfarlane**

Particulars of Classification **85.100A1**  
**65. NY 2 No. 2-28**

Moulded Dimensions: Length **302.62'** Breadth **42.75'** Depth **23.0'**  
Moulded displacement at moulded draught = 85 per cent. of moulded depth **571.4** tons  
Coefficient of fineness for use with Tables **.791**

<b>Depth for Freeboard (D)</b> Moulded depth ... <b>23.0</b> Stringer plate ... <b>7/16"</b> Sheathing on exposed deck <b>Poop fully sheathed 2 1/2" thick</b> $T \left( \frac{L-S}{L} \right) = \checkmark$ Depth for Freeboard (D) = <b>23.04</b>	<b>Depth correction</b> (a) Where D is greater than Table depth $(D - \text{Table depth}) R = (23.04 - 20.17) 2.327 = + 6.68"$ (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R = \checkmark$ If restricted by superstructures <b>✓</b>	<b>Round of Beam correction</b> Moulded Breadth (B) <b>42.75'</b> Standard Round of Beam = $\frac{B \times 12}{50} = 10.26"$ Ship's Round of Beam = <b>10 3/4"</b> Difference <b>49" excess</b> Restricted to $\text{Correction} = \frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{49}{4} \times .5301 = - .06"$
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## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	32.8'	32.66	7.6 + 2.5'	✓	32.66
" overhang ...	3 1/2'				
R.Q.D. enclosed ...	✓				
" overhang ...	80.00				
Bridge enclosed ...	81.3'	80.00	7.6'	✓	80.00
" overhang aft ...	3'	.19			.19
" overhang forward ...	15'	.62			.62
F'cle enclosed (31.112) ...	31.112	28.72	7.6'		28.72
" overhang ...	3 1/2'				
Trunk aft ...	✓				
" forward ...	✓				
Tonnage opening aft ...	✓				
" " forward ...	✓				
Total ...	146.42	142.19			142.19

Standard Height of Superstructure	6.526'
" " R.Q.D.	✓
Deduction for complete superstructure	35.51"
Percentage covered $\frac{S}{L} =$	48.39%
" " $\frac{S_1}{L} =$	46.99%
" " $\frac{E}{L} =$	46.99%
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	33.44%
Interpolation for bridge less than 2L (if required)	
Deduction =	35.51 x .3344 = - 11.86"

## SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	40.26	1	40.26	62.0	40.26	1	40.26
1/4 L from A.P. ...	17.91	4	71.64	48.9	17.91	4	71.64
3/8 L " ...	4.43	2	8.86	12.2	4.43	2	8.86
Amidships ...	✓	4	✓	✓	✓	4	✓
3/8 L from F.P. ...	8.86	2	17.72	14.38	8.24	2	16.48
1/4 L " ...	35.83	4	143.32	57.67	32.98	4	131.92
F.P. ...	80.52	1	80.52	73.0	73.00	1	73.00
Total ...	362.34		362.32				342.16

Mean actual sheer aft = **Excess**  
Mean standard sheer aft

Mean actual sheer forward = **Deficient**  
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = } **sheer deficient**  
" " aft of " = }

Forward sheer	Standard	Actual
26.58	24.72	24.72
107.49	98.94	98.94
80.52	73.00	73.00
214.59	196.66	196.66
		91.64% standard

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{20.16}{18} (.75 - .2426) = + .57"$

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 = **23.04** Ft.  
Summer freeboard =  
Moulded draught (d) =

Deduction for Tropical freeboard and addition for

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

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ =

Tons per inch immersion at summer load water line

T =

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

TABULAR FREEBOARD corrected for Fresh Deck (if required)

Correction for coefficient

Depth Correction ...  
Deduction for superstructures ...  
Sheer correction ...  
Round of Beam correction ...  
Correction for Thickness of Deck amidships ...  
Other corrections, scantlings, etc. ...

+	-
6.68	
	11.86
57	
	106
7.25	11.92

Summer Freeboard = **42.97**

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

Tropical Fresh Water Line above Centre of Disc ...	...
Fresh Water Line " " ...	...
Tropical Line " " ...	...
Winter Line below " " ...	...
Winter North Atlantic Line " " ...	...

Tropical Fresh Water Freeboard ...	...
Fresh Water " " ...	...
Tropical " " ...	...
Winter " " ...	...
Winter North Atlantic " " ...	...



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway	N <sup>o</sup> 1.	N <sup>o</sup> 2.	N <sup>o</sup> 3.	N <sup>o</sup> 4.	N <sup>o</sup> 5.	N <sup>o</sup> 3.	on (Cargo Top)		
Dimensions of Hatchway	26'0" x 16'0"	26'0" x 18'0"	6'3" x 17'0"	26'0" x 18'0"	26'0" x 16'0"	11'6" x 17'0"	4'10" x 16'0"		
COAMINGS	Height above Deck	30"	30"	12"	30"	30"	7'3" x 5'3"		
	Thickness	44"	44"	40"	44"	44"	44"		
	Stiffeners	7'3" x 3'3"	7'3" x 3'3"	4'0"	4'4"	4'4"	4'4"		
	Brackets, Stays	2P. 25.	2P. 25.	✓	7'3" x 3'3"	7'3" x 3'3"	✓		
HATCH BEAMS	Number	5.	5.	✓	5.	5.	TRUNK PLATE		
	Spacing	4'4"	4'4"	✓	4'4"	4'4"	4'8" x 3'10"		
	Scantling and Sketch	13' x 30'	15' x 34'	✓	15' x 34'	15' x 34'	14' x 34'		
	Bearing Surface	3'	3'	✓	3'	3'	3' x 3' x 4'0"		
FORE AND AFTERS	Number								
	Spacing								
	Unsupported Lengths								
	Scantling and Sketch								
HATCH COVERS	Material	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.		
	Thickness	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"		
	How fitted	F.A.	F.A.	F.A.	F.A.	F.A.	F.A.		
	Bearing Surface	3' 7 1/2" x 3' 7 1/2"	3' 7 1/2" x 3' 7 1/2"	3' 3"	3' 7 1/2" x 3' 7 1/2"	3' 7 1/2" x 3' 7 1/2"	3' 6 1/2" x 3' 3"		
Spacing of Cleats	24"	24"	24"	24"	24"	24"	24"		
Number of Tarpaulins	2	2	2	2	2	2	2		

\*Are wood fore and afters steel shod at all bearing surfaces? ☒ Yes.  
 Are battens and wedges efficient and in good condition? ☒ Yes.  
 Are tarpaulins in good condition and in accordance with rule requirements? ☒ Yes.  
 Are lashings provided in accordance with rule requirements? ☒ Yes.

Particulars of fiddle, funnel and ventilator coamings:— *Stokehold gratings covered by strong steel hinged cover. Liddle funnel, ventilator coamings in good condition. Engine Room skylight of steel strongly constructed.*

Particulars of Flush Bunker Scuttles:— *None*

Particulars of Companionways:— *None*

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— *On Poop 0" 7 Vent 6" dia Coaming 36" x 30" 10 Aero spars ventilation in accordance with the rules on aft 0" 8 " 24" " 36" x 30" 10 Holds etc. Coamings fitted with wood plating Bids 4 " 12" " 36" x 34" 10 Brink spars Canvas Covers. Ins. 8 " 24" " 36" x 40" 10 Holds etc. Lock 4 " 6" " 36" x 34" 10 Upper Lock.*

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:— *On Poop 1 C.I. air pipe 3" dia 11" above deck 10 A.P.T. On aft 0" 2 W.I. " 2 1/2" 15" " 10 O.B.T. Bids 4 W.I. " 2 1/2" 14" " 10 " Ins. 0" 2 W.I. " 2 1/2" 16" " 10 " Lock 1 C.I. " 4" 10" " 10 F.P.T. all air pipe fitted with wood plating.*

Particulars of Gangway Cargo and Coaling Ports:— *None*

*Herrel.*

Particulars of Scuppers and Sanitary Discharge Pipes — *Scuppers in forward & aft wells through string angles from Bridge deck fitted with storm valves at ship side. Soil pipe fitted with storm valve at ship side.*

Particulars of Side Scuttles: *Side scuttles to Poop fitted with hinged deadlights all scuttles strongly constructed.*

Particulars of Guard Rails:— *Poop Rails 3'6" high standard 4'6" apart. 2 Rails. Bids 3'6" 4'6" 3 Rails. Lock 3'6" 4'6" 2 Rails.*

Particulars of Gangways, Lifelines, etc.:— *None*  
*Provision made for lifelines available for use of the crew in the regular working of the ship*

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	81'0"	4'0"	3'0" x 1'6"	4	18 1/4	16.2 1/4
Forward Well	75'9"	4'0"	3'0" x 1'6"	4	18 1/4	15.1 1/4

State position of each freeing port (P. and A. position and height above deck edge) } After Well: *from B.D.B. 3'9" 20'9" 43'0" 70'6"*  
 } Forward Well: *4'0" 15'1" 29'7" 48'1"*  
 State whether the freeing ports are fitted with shutters, doors, or rails, and give particulars of such:— *16' above deck, 2 Rails.*

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	40"	30"	6 1/2" x 3' x 4 B.A.	30"	Exp. T. & B.	5'3" x 2'0"	16"	7'6"
Raised Quarter Deck Bulkhead	✓							
Bridge, After Bulkhead		35"	3 1/2" x 3' x 4 B.A.	24/33	✓	5'2" x 3'6"	24"	7'6"
Bridge, Forward Bulkhead	48"	40"	7 1/2" x 3' x 4 B.A.	30"	B.K.T.S. T. & B.	5'3" x 1'6"	18"	7'6"
Forecastle Bulkhead		35"	3 1/2" x 3' x 4 B.A.	27"	✓	6'2" x 4'0"	13"	7'6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	45"	35"	3 1/2" x 3' x 35"	36"	B.K.T.S. TOP	4'6" x 2'0"	16"	7'6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	45"	30"	3 1/2" x 3' x 35"	36"	✓	4'6" x 2'0"	18"	7'6"
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	<i>Steel hinged doors operated from either side</i>
Raised Quarter Deck Bulkhead	<i>Steel hinged doors operated from either side</i>
Bridge, After Bulkhead	<i>Storm boards fitted for full height in rivetted channels</i>
Bridge, Forward Bulkhead	<i>Steel plates bolted through bulkhead, plate, bolt spaced 6"</i>
Forecastle Bulkhead	<i>Hinged wood double doors 2" thick, padlocked (open lock)</i>
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	<i>Steel hinged doors operated from either side</i>
Exposed Machinery Casings on Superstructure Decks	<i>Steel hinged doors operated from either side</i>
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	<i>Steel hinged doors operated from either side</i>
Deckhouses on Flush Deck Ships	

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