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(For London Office only.)

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~  
having *Complete superstructure deck with tonnage opening aft.*

(Type of Superstructures.)

Ship's Name *"INDIAN REEFER"* Nationality and Port of Registry *Danish Esbjerg* Official Number *✓ 204486* Gross Tonnage *1939* Date of Build *1939*

(*Esbjerg Yard No 259*)

Moulded Dimensions: Length *352.625'* Breadth *51.5'* Depth *20.0'*

Moulded displacement at moulded draught = 85 per cent. of moulded depth *5425* tons

Coefficient of fineness for use with Tables *.615* *Lowest in tables .68*

Port of Survey *Copenhagen (Esbjerg).*

Date of Survey *25<sup>th</sup> Aug. 1939.*

Name of Surveyor *V. P. Lyderen.*

Particulars of Classification *100-A-1 with freeboard (Consultants).*

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	20.0'	(a) Where D is greater than Table depth (D-Table depth) R =		Moulded Breadth (B)	51.5'
Stringer plate (.34%)	.03	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$	12.36
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$		(23.51-20.03) 2.412 = - 9.44		Ship's Round of Beam	12.75
		3.48		Difference	.39
Depth for Freeboard (D) =	20.03	If restricted by superstructures		Restricted to	
				Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right)$	$\frac{.39}{4} \times .0064 = \text{Nil.}$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	27.875	27.875	9.125	-	27.875
" overhang ...	0				
R.Q.D. enclosed ...	✓				
" overhang ...	✓				
Bridge enclosed...	320.25	320.25	9.125	-	320.25
" overhang aft ...	0				
" overhang forward	0				
F'cle enclosed ...	✓				
" overhang ...	✓				
Trunk aft ...	✓				
" forward ...	✓				
Tonnage opening aft ...	4.5	2.25	9.125	✓	2.25
" " forward	0				
Total ...	352.625	350.375			350.375

Standard Height of Superstructure	4.026
" " R.Q.D.	✓
Deduction for complete superstructure	38.84
Percentage covered $\frac{S}{L} =$	100.00
" " $\frac{S_1}{L} =$	99.36
" " $\frac{E}{L} =$	99.36
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	99.21
Interpolation for bridge less than 2L (if required)	
Deduction = $38.84 \times 99.21 =$	- 38.54

## SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	45.26	1	45.26	+25.19	55.19	1	55.19
1/4 L from A.P. ...	20.14	4	80.56	12.25	24.56	4	98.24
2/4 L " ...	4.98	2	9.96	2.5	6.04	2	12.14
Amidships ...		4		0		4	
3/4 L from F.P. ...	9.96	2	19.92	10.5	10.69	2	21.38
1/4 L " ...	40.28	4	161.12	34	43.25	4	173.00
F.P. ...	90.52	1	90.52	72	94.19	1	94.19
Total ...			404.34	+25.19			454.14

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{49.80}{18} \times (.75 - .50) = - 0.69$

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 =	20.03
Summer freeboard =	0.72
Moulded draught (d) =	19.31

## Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = 4.83 = 123 mms.

Addition for Winter North Atlantic Freeboard (if required) =

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 6350$

Tons per inch immersion at summer load water line

$T = 35.0$

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

$= 4.53$

$= 115 \text{ mms.}$

## TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction	9.44	
Deduction for superstructures	38.54	
Sheer correction	0.69	
Round of Beam correction		
Correction for Thickness of Deck amidships		
Other corrections, scantlings, etc.		

Summer Freeboard = 8.59

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

Tropical Fresh Water Line above Centre of Disc ...	238 mms	Tropical Fresh Water Freeboard ...	MINUS 20 mms.
Fresh Water Line " " ...	115	Fresh Water " " ...	103 mms.
Tropical Line " " ...	123	Tropical " " ...	95 mms.
Winter Line below " " ...	123	Winter " " ...	341 mms.
Winter North Atlantic Line " " ...	✓	Winter North Atlantic " " ...	✓

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5m, 3, 32.

In this case, the midship section shows a wood deck on the second deck.

These freeboards are calculated from the steel deck without any increase for "set-up". To be checked on receipt of verification of marking form.

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# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway		...	...	...	...	...	...	...	...
Dimensions of Hatchway		...	...	...	...	...	...	...	...
COAMINGS	Height above Deck	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...
	Sides	...	...	...	...	...	...	...	...
	Stiffeners	...	...	...	...	...	...	...	...
	Brackets, Stays	...	...	...	...	...	...	...	...
HATCH BEAMS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
FORE AND AFTERS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...
	Scantling* and Sketch	...	...	...	...	...	...	...	...
HATCH COVERS	Material	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...
	How fitted	...	...	...	...	...	...	...	...
	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 :—

Particulars of Flush Bunker Scuttles :—

Particulars of Companionways :—

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

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

Particulars of Gangway Cargo and Coaling Ports :—

Particulars of Scuppers and Sanitary Discharge Pipes :—

Particulars of Side Scuttles :—

Particulars of Guard Rails :—

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	...	...	...	...	...	...
Forward Well	...	...	...	...	...	...

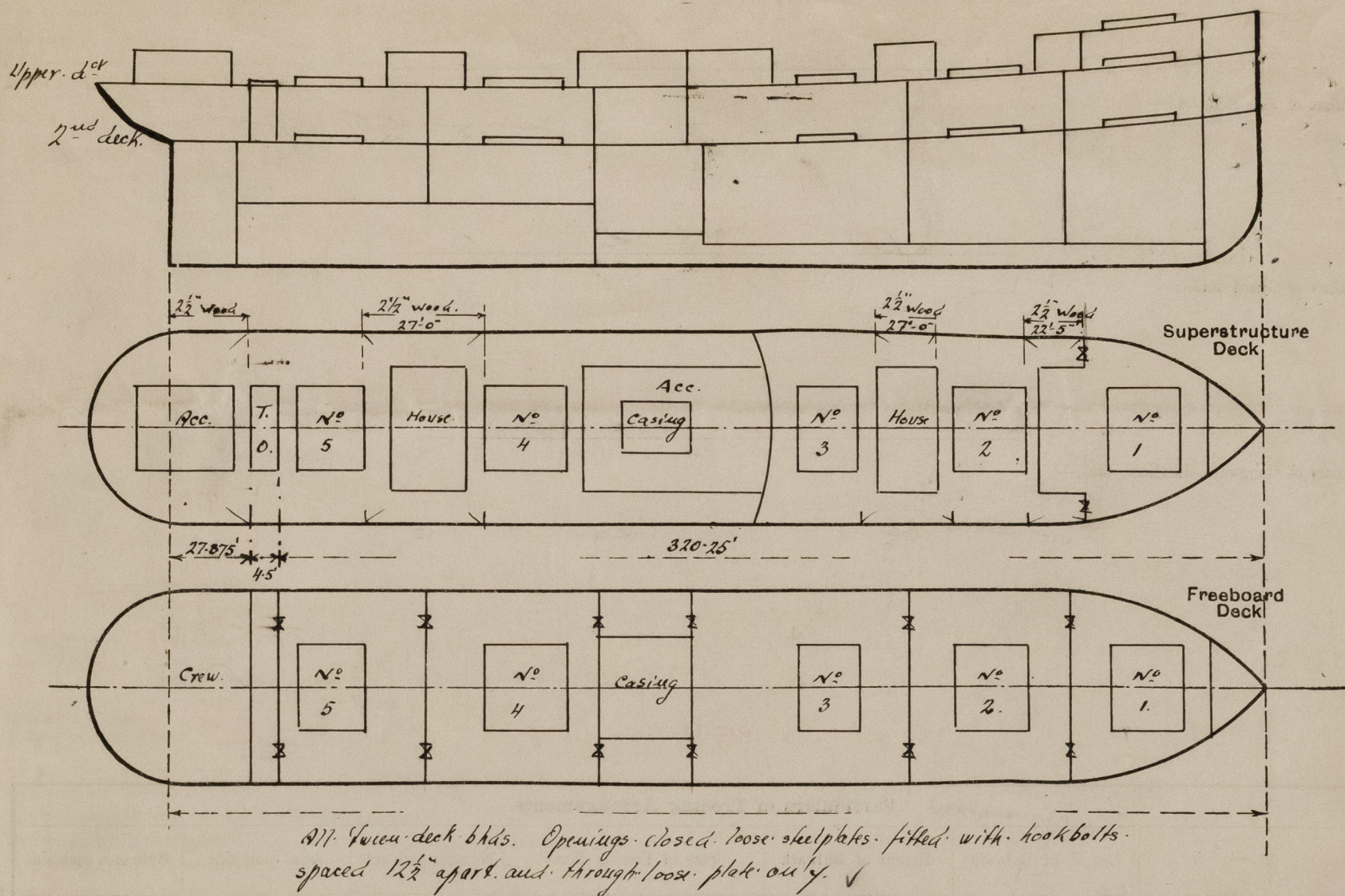
State position of each freeing port. (F. and A. position and height above deck edge)  
 After Well :—  
 Forward Well :—  
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :—  
 Additional area where sheer is less than standard.

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	...	...	...	...	...	...	...	...
Raised Quarter Deck Bulkhead	...	...	...	...	...	...	...	...
Bridge, After Bulkhead	...	...	...	...	...	...	...	...
Bridge, Forward Bulkhead	...	...	...	...	...	...	...	...
Forecastle Bulkhead	...	...	...	...	...	...	...	...
Trunk, Aft	...	...	...	...	...	...	...	...
Trunk, Forward	...	...	...	...	...	...	...	...
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...	...	...	...	...	...	...
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	No openings.
Raised Quarter Deck Bulkhead	✓
Bridge, After Bulkhead	Steel plates fitted with hook bolts spaced 12" apart and through loose plate only.
Bridge, Forward Bulkhead	✓
Forecastle Bulkhead	✓
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	✓
Exposed Machinery Casings on Superstructure Decks	Hinged skylights capable of being manipulated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	No openings.
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:—



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

The vessel is classed "with freeboard".

Vessel has cruiser screw, length measured to  $\frac{1}{2}$  of rudderstock. ✓

2 1/2" woodsheathing on 2<sup>nd</sup> deck. 2 1/2" woodsheathing on upper deck when indicated on plan.

Breadth of Upper deck at forefoot 42'-4", at Bridge end 43'-8"  
" " 2<sup>nd</sup> " " 34'-10", " " 37'-0"

Scuppers from 2<sup>nd</sup> deck led to bilges except within binnacle well when a 5" positively controlled valve is fitted, controlled from Upper deck. ✓

The freeboards will be assigned by the Danish Authorities.

Draught	Displacement incl. bosons.	Ts per l.
17' (85% of M.D.)	5425 Tons. eng.	16.5 33.6
18'	5830 " "	16.8 34.2
19'	6240 " "	17.1 35.0
20'	6660 " "	17.4

Builder's name and yard number *A/S Helsingørsk Snekkeri- & Maskinbyggeri, Elsinore.* Yard No. 259.

Names of sister ships *A/S Aalborg Skibsværft.* Yard No. 67.

Owners *A/S Dampskibsselskabet "Vesterhavet."* Havnervægsvej 1. Copenhagen.

Fee £ *No.* : fee. : Received by me ✓



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