

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

17 AUG 1932

Index. No. **31358**
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Loop, Bridge and Forecastle Port of Survey Stockholm

(Type of Superstructures)

Date of Survey 21 + 22 / 7 / 32

Name of Surveyor E. Knowles

Particulars of Classification + 100 A1

S.S. Sol. No. 1-29

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
"FRYKEN"	Swedish Kristinehamn	7139	1467	1924-8

Moulded Dimensions: Length 255' 9" Breadth 38' 2" Depth 18' 9 3/4"

Moulded displacement at moulded draught = 85 per cent. of moulded depth 3479 tons

Coefficient of fineness for use with Tables .780

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <u>18' 8 1/4"</u>	(a) Where D is greater than Table depth (D - Table depth) R = <u>(18.85 - 17.07) 1.969 = + 3.50</u>	Moulded Breadth (B) <u>38' 1/4"</u>
Stringer plate <u>.031</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>1</u>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{38.125 \times 12}{50} = 9.16$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures <input checked="" type="checkbox"/>	Ship's Round of Beam = <u>10</u>
Depth for Freeboard (D) = <u>18' 8 1/4"</u>		Difference <u>.84</u>
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.84^2}{4} \times \left(1 - \frac{.5812}{1} \right) = -.12$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>19' 2"</u>	<u>19.17</u>	<u>7' 0"</u>	-	<u>19.17</u>
„ overhang ...					
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed ...	<u>57' 6"</u>	<u>57.50</u>	<u>7' 0"</u>	-	<u>57.50</u>
„ overhang aft ...	<u>6' 0"</u>	<u>4.50</u>			<u>4.50</u>
„ overhang forward					
F'cle enclosed <u>open</u> ...	<u>26' 6"</u>	<u>26.05</u>	<u>7' 0"</u>	-	<u>26.05</u>
„ overhang ...					
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward					
Total ...	<u>109.17</u>	<u>107.22</u>			<u>107.22</u>

Standard Height of Superstructure 6.06

„ „ R.Q.D. 31.60

Deduction for complete superstructure 31.60

Percentage covered $\frac{S}{L} = \frac{107.22}{255.9} = 42.65\%$

„ „ $\frac{S_1}{L} = \frac{107.22}{255.9} = 41.88\%$

„ „ $\frac{E}{L} = \frac{107.22}{255.9} = 41.88\%$

Percentage from Table, Line A.
(corrected for absence of forecastle (if required))

Percentage from Table, Line B. 29.09%
(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required)

Deduction = 31.60 × 29.09% = 9.19

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>35.60</u>	1		<u>35.60</u>	<u>37 1/4</u>	<u>29.00</u>	1		<u>29.00</u>
1/2 L from A.P. ...	<u>15.84</u>	4		<u>63.36</u>	<u>15 3/4</u>	<u>16.00</u>	4		<u>64.00</u>
3/4 L „ ...	<u>3.92</u>	2		<u>7.84</u>	<u>3 3/4</u>	<u>4.00</u>	2		<u>8.00</u>
Amidships ...		4		<u>0</u>	<u>1</u>	<u>1</u>	4		<u>1</u>
3/4 L from F.P. ...	<u>7.83</u>	2		<u>15.66</u>	<u>5 3/4</u>	<u>8.14</u>	2		<u>16.28</u>
1/2 L „ ...	<u>31.68</u>	4		<u>126.72</u>	<u>28 3/4</u>	<u>32.58</u>	4		<u>130.32</u>
F.P. ...	<u>71.20</u>	1		<u>71.20</u>	<u>83 1/4</u>	<u>83.50</u>	1		<u>83.50</u>
Total ...				<u>320.40</u>					<u>331.10</u>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{10.70}{18} \left(.75 - \frac{2132}{531.8} \right) = -.32$

If limited on account of midship superstructure.

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

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD	Correction for coefficient
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	corrected for Flush Deck (if required)	$\frac{.68 \times .78}{1.36} = \frac{1.46}{1.36}$
Depth to Freeboard Deck = <u>18.85</u> Ft.	$\Delta =$	Depth Correction	<u>3.50</u>
Summer freeboard = <u>2.49</u>	Tons per inch immersion at summer load water line	Deduction for superstructures	<u>9.19</u>
Moulded draught (d) = <u>16.36</u>	$T = 19.8 @ 16' 6"$	Sheer correction	<u>.32</u>
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <u>4.09</u> = <u>104 1/4</u>	Deduction = $\frac{\Delta}{40 T}$ inches =	Round of Beam correction	<u>.12</u>
Addition for Winter North Atlantic Freeboard (if required) =		Correction for Thickness of Deck amidships	<u>-</u>
		Other corrections, scantlings, etc.	<u>-</u>
		Summer Freeboard = <u>29.89</u> = <u>759 1/2</u>	

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

Tropical Fresh Water Line above Centre of Disc	Tropical Fresh Water Freeboard
Fresh Water Line „ „	Fresh Water „ „
Tropical Line „ „	Tropical „ „
Winter Line below „ „	Winter „ „
Winter North Atlantic Line „ „	Winter North Atlantic „ „

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS														
Main Deck					Upper BR. Bridge BR.		Poop							
Description of Hatchway	N ^o 104	N ^o 2	N ^o 3	1st Main Locker.	Bridge Space Fore Hold	Bunker.	Bunker.	Store						
Dimensions of Hatchway	23' x 18'	23' x 18'	26' 10" x 18'	29 1/2' x 30'	18' x 7' 8"	39' x 17' 0"	12' 6" x 49"	26 1/2' x 23 1/2'						
COAMINGS	Height above Deck	3 1/4"	3 3/4"	3 3/4"	18"	3"	26 1/2"	12"	15"					
	Thickness	7/16"	7/16"	7/16"	1/4"	3/8" 2 1/2" Angl. Coaming.	3/8"	3/32"	1/4"					
	Stiffeners all round	7 x 3 B.A.	7 x 3 B.A.	10 x 4 B.A. Side 7 x 3 B.A. End.	—	—	—	—	—					
	Brackets, Stays	2	2	2	—	—	—	—	—					
STEEL HATCH BEAMS	Number	3	3	4	1 deck beam Thrustships "1" ditto F. & A. carried continuously across opening									
	Spacing	69"	69"	70"										
	Scantling and Sketch	10" 2 1/2" x 1/4" Angl.	Same as N ^o 1.	Same as N ^o 1.										
	Bearing Surface	3"	3"	3"										
FORE AND AFTERS	Number													
	Spacing													
	Unsupported Lengths													
	Scantling* and Sketch													
	Bearing Surface													
HATCH COVERS	Material	Wood			Wood	Wood	Wood	Wood	Steel lings door and pallets.					
	Thickness	2 1/2"			2 1/2"	2 1/2"	2 1/2"	2 1/2"						
	How fitted	F. & A.			F. & A.	F. & A.	F. & A.	F. & A.						
	Bearing Surface	3"			2"	2 1/2"	2"	1 1/2"						
Spacing of Cleats		24"			21"	25 1/2"	25"	22 1/2"						
Number of Tarpaulins		3			2	—	3	3						

*Are wood fore and afters steel shod at all bearing surfaces? —

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 fiddley, funnel and ventilator coamings :—

Fidley covered by strong steel hinged covers. } All on top of a casing 7'-0" high.
Funnel & vents in good condition. } standing on upper deck.

Particulars of Flush Bunker Scuttles:—

On Upper Deck. 1 each (p. & s.) 17" ϕ . Strong C. I. cover.
Owners have arranged for efficient bayonet fastenings to be fitted.

Particulars of Companionways :—

Particulars of Companionways:—
Doop House. Steel + 1 steel hinged door at aft end, 23" x 59". Sill 9 $\frac{1}{2}$ ".
 Handle both sides. - to crew space.

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

1 @ $15' \phi \times 37' \times \frac{1}{4}"$.
4 @ $15' \phi \times 12'-0" \times \frac{1}{4}"$.
1 @ $8\frac{1}{2}' \phi \times 7'-0"$ over deck, on poop house-top.
Wood plugs & tarpaulins provided.

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

12 @ $2\frac{1}{2} \phi \times 36" - 39" \text{ high} \times \frac{1}{4}"$
~~Auto pipes are provided with means of closing~~
~~Wood plugs & tarpaulins will be provided when required.~~

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

Particulars of Scuppers and Sanitary Discharge Pipes

Sanitary discharge pipes led overboard above freeboard deck.
Storm valves fitted.

Particulars of Side Scuttles :

All over freeboard deck, & having efficient deadlights.

Particulars of Guard Rails :—

Loop + Fale. Stanchions 44" high, + spaced 57' apart.
3 rails thro' stanchions.

Particulars of Gangways, Lifelines, etc. :—

~~Lifelines will be suged as comments along aft deck to crew quarters.~~
Lifelines are fitted on after deck

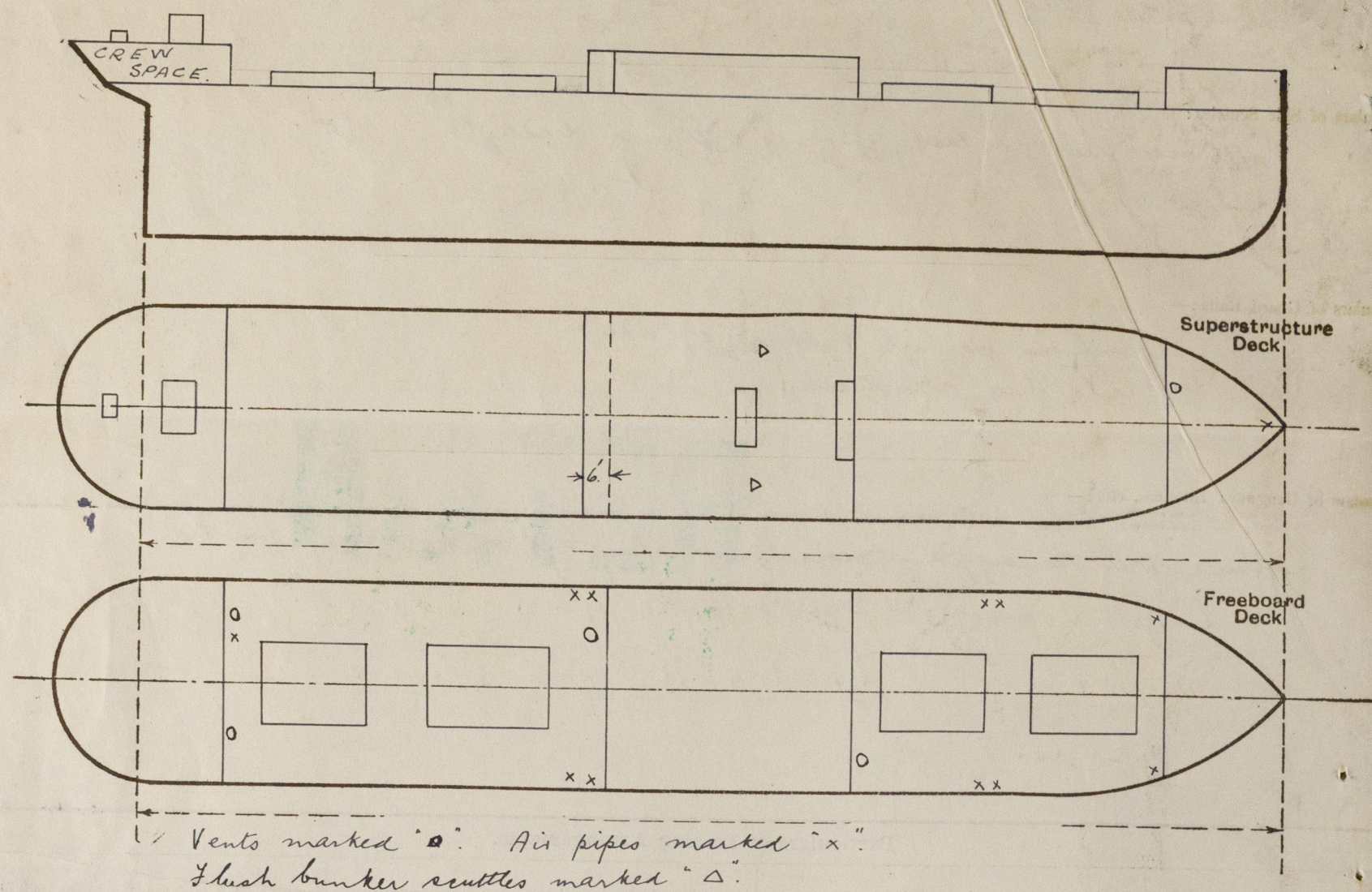
Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	79'-0"	48"	41' x 20 1/2"	5	5.84 sqft.	
Forward Well	69'-0"	48"	41' x 20 1/2"	5	5.84 sqft.	
<p>State position of each freeing port. { After Well :— 11'-6", 26', 42'-6", 56'-0", 67', from Bridge Aft Bkhd. 12" over deck edge.</p> <p>(F. and A. position and height above deck edge) { Forward Well :— 8', 19'-6", 31', 42'-6", 58', " " Front " 11" " " "</p> <p>State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :— 1 bar only</p> <p>Additional area where sheer is less than standard. 2 mooring pipes (P. & S.)</p>						

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	Vert. plates.	$\frac{1}{4}$ "	Unobtainable Wood lining.	30"	Unobtainable Wood lining.	—	—	7'-0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	Vert. plates.	$\frac{1}{4}$ "	3" x 2 $\frac{1}{2}$ " angles	34"	—	2 [@] 36" x 80"	—	7'-0"
Bridge, Forward Bulkhead	14"	$\frac{1}{4}$ "	8" x 3" B.A.	28 $\frac{1}{2}$ "	—	2 [@] 36" x 59 $\frac{1}{2}$ "	15"	7'-0"
Forecastle Bulkhead	Open.							
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks ... B.R. ...	12 $\frac{1}{2}$ "	$\frac{1}{4}$ "	3" x 2 $\frac{1}{2}$ " angles	29"	—	2 [@] 21" x 56"	16 $\frac{1}{2}$ "	7'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Poop Deckhouse	Vert. plates.	$\frac{1}{4}$ "	2" x 2" angles	27"	—	1 [@] 23" x 59"	9 $\frac{1}{2}$ "	6'-6"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	...	...	None
Raised Quarter Deck Bulkhead	...		
Bridge, After Bulkhead	...	...	2 portable steel doors in 2 halves for full height of casing - Hook bolts about 11" apart, not passing thro' stiles.
Bridge, Forward Bulkhead	...	...	2 hinged steel doors, with studs screwed tight into bulkhead & spaced 14" apart.
Forecastle Bulkhead	...	...	Open.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...
Exposed Machinery Casings on Superstructure Decks	...	D.R.	1 steel hinged door (h.v.s.) Handle both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...	...
Deckhouses on ^{Poop} Fore Deck Stairs	...	...	1 steel hinged door at aft end - to crew space. Handle both sides.

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:—

Timber Freeboard not required.

Vessel examined in drydock.

Builder's name and yard number *Kockums M. V. A/B. Malmö. N^o 143.*

Names of sister ships

Owners *Ångb. Arkhéb. Förm. (S. S. Janson, Ingv.) Kristinehamn.*

Fee *# Kr. 170:—*

Received by me

Rpt. 9a.

Part of

"Toro"

Continuation of Report No.

dated

31.3.36

on the

S.S. "FRYKEN" now "TORO"

EXTRACT FROM Got. RPT. NO.10580, DATED 20.2.36.

ALTERATIONS:— The coamings of the hatchways inside bridge space now altered to 9" Bulb angle coamings.

RETAIN

RETAIN