

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

*now British & registered at London.*

Index. No. **35014**  
(For London Office only.)

12 AUG 1936

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Computation of Freeboard for **MOTOR** Steamer, Sailing Ship, Tanker  
having **POOP, BRIDGE AND FORECASTLE**

(Type of Superstructures.)

Ship's Name **"TORNUS"** Nationality and Port of Registry **BRITISH LONDON SARAWAK** Official Number **165349** Gross Tonnage **8054** Date of Build **1936**

Moulded Dimensions: Length **460'** Breadth **59'** Depth **34'**

Moulded displacement at moulded draught = 85 per cent. of moulded depth **17713** tons

Coefficient of fineness for use with Tables **.790**

Port of Survey **VEGESACK**

Date of Survey **AUGUST 1936**

Name of Surveyor **A. Holtz**

Particulars of Classification **\* 100 A1 CARRYING PETROLEUM IN BULK**

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	34.0'	(a) Where D is greater than Table depth (D - Table depth) R =		Moulded Breadth (B)	59.0'
Stringer plate	0.05'	(34.07 - 30.67) 3 = +10.20		Standard Round of Beam = $\frac{B \times 12}{50}$	14.16
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$		(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	14"
Depth for Freeboard (D) =	34.07	If restricted by superstructures		Difference	.16
				Restricted to	
				Correction = $\frac{\text{Diff}^*}{4} \times \left( 1 - \frac{S_1}{L} \right)$	$\frac{.16}{4} \times 59.11 = +.02$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed <i>equivalent</i>	92.24	92.24	7.5'		92.24	
" overhang ...	91.71	91.71			91.71	
R.Q.D. enclosed						
" overhang	56	56			56	
Bridge enclosed <i>equivalent</i>	47.44	47.44	7.5'		47.44	
" overhang aft						
" overhang forward						
F'cle enclosed	48.28	48.28	7.5'		48.28	
" overhang						
Trunk aft						
" forward						
Tonnage opening aft						
" forward	188.08	188.08			188.08	
Total	187.7	187.7			187.7	

Standard Height of Superstructure **7.5'**

" " R.Q.D. **42.0'**

Deduction for complete superstructure **42.0'**

Percentage covered  $\frac{S}{L} =$

" "  $\frac{S_1}{L} =$  **40.89**

" "  $\frac{E}{L} =$

Percentage from Table, **Tanker** **31.89**  
(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 = **42 x 31.89 = - 13.39.**

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
P. ...	56.00	1		56.00	56.0"	56.00	1		56.0
from A.P. ...	24.92	4		99.68	24.9"	24.90	4		99.6
" " ...	6.16	2		12.32	6.2"	6.20	2		12.4
Amidships ...	-	4		-	-	-	4		-
$\frac{3}{4}$ L from F.P. ...	12.32	2		24.64	12.3"	12.30	2		24.6
$\frac{1}{4}$ L " ...	49.84	4		199.36	49.8"	49.80	4		199.2
F.P. ...	112.00	1		112.00	112.0"	112.00	1		112.0
Total				504.00					503.8

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

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 = **34.07** Ft.

Summer freeboard = **6.73**

Moulded draught (d) = **27.34**

## Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = **6.83 = 6 $\frac{3}{4}$** Addition for Winter North Atlantic Freeboard (if required) = **6.83 + 4.60 = 11.43 = 11 $\frac{1}{2}$** 

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$  **16790 tons.**

Tons per inch immersion at summer load water line

 $T =$  **56.3**Deduction =  $\frac{\Delta}{40T}$  inches**= 7.46.****7 $\frac{1}{2}$** 

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

Correction for coefficient

 $\frac{79.68}{1.36} = \frac{1.47}{1.36} =$ 

Depth Correction ...

Deduction for superstructures ...

Sheer correction ...

Round of Beam correction ...

Correction for Thickness of Deck amidships

Other corrections, scantlings, etc. ...

**77.70****83.99**

+ -

10.20 -

- 13.39

- -

.02 -

- -

- -

10.22 13.39

- 3.17

Summer Freeboard = **80.82**SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, **Wood, Steel, Deck**:-

Tropical Fresh Water Line above Centre of Disc ... **14 $\frac{1}{4}$ "**

Fresh Water Line " " ... **7 $\frac{1}{2}$ "**

Tropical Line " " ... **6 $\frac{3}{4}$ "**

Winter Line below " " ... **6 $\frac{3}{4}$ "**

Winter North Atlantic Line " " ... **11 $\frac{1}{2}$ "**

Tropical Fresh Water Freeboard ...

Fresh Water " " ...

Tropical " " ...

Winter " " ...

Winter North Atlantic " " ...

**6'-8 $\frac{3}{4}$ "****5'-6 $\frac{1}{2}$ "****6'-1 $\frac{1}{4}$ "****6'-2"****7'-3 $\frac{1}{2}$ "****7'-8 $\frac{1}{4}$ "**



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS					
Description of Hatchway	ONE HATCHWAY TO FORE-CASTLE DECK	ONE HATCHWAY TO DRY CARGO HOLD ON FORE-CASTLE DECK	27 HATCHWAYS TO THE MAIN CARGO TANKS	ONE HATCHWAY TO PROVISION SPACE ON POOP DECK	
Dimensions of Hatchway	2.5' x 2.5'	9.0' x 10.0'	4.0' x 3.0'	2.8' x 3.4'	
COAMINGS INCHES	Height above Deck	6"	8"	6"	
	Thickness Sides	.4"	.4"	.4"	
	Thickness Ends	.4"	.4"	.4"	
	Stiffeners	NONE	2 6" x 3" x .36"	NONE	
HATCH BEAMS	Brackets, Stays	NONE	NONE	NONE	
	Number	NONE	NONE	NONE	
	Spacing	NONE	NONE	NONE	
	Scantling and Sketch	NONE	NONE	NONE	
FORE AND AFTERS	Bearing Surface	NONE	NONE	NONE	
	Number	NONE	NONE	NONE	
	Spacing	NONE	NONE	NONE	
	Unsupported Lengths	NONE	NONE	NONE	
HATCH COVERS INCHES	Scantling* and Sketch	NONE	NONE	NONE	
	Bearing Surface	NONE	NONE	NONE	
	Material	STEEL	STEEL	STEEL	
	Thickness	.5"	.5"	.5"	
HATCH COVERS INCHES	How fitted	HINGED WITH HAMP PACKING, SKEW DOWN BOLTS.	HINGED WITH HAMP PACKING, SKEW DOWN BOLTS, ANGLE STIFFENERS 6" x 3" x .36" 28" SPACED.	HINGED WITH HAMP PACKING, SKEW DOWN BOLTS.	
	Bearing Surface	NONE	NONE	NONE	
	Spacing of Cleats	NONE	NONE	NONE	
	Number of Tarpaulins	NONE	NONE	NONE	
<p>*Are wood fore and afters steel shod at all bearing surfaces? ✓</p> <p>Are battens and wedges efficient and in good condition? ✓</p> <p>Are tarpaulins in good condition and in accordance with rule requirements? ✓</p> <p>Are lashings provided in accordance with rule requirements? ✓</p>					

Particulars of fiddle, funnel and ventilator coamings:— FIDDLEY TOP 8' ABOVE POOPDECK, ENGINE CASING TOP 9.5' ABOVE POOPDECK. FUNNEL- AND VENTILATOR COAMINGS ARE RIVETED AND WELDED TO THE TOP PLATING, ALL OF SUBSTANTIAL CONSTRUCTION. ALL OPENINGS ARE FITTED WITH HINGED STEEL COVERS.

Particulars of Flush Bunker Scuttles:—

NONE.

Particulars of Companionways:— ALL COMPANIONWAYS SITUATED INSIDE SUPERSTRUCTURE.

ENTRANCES TO PUMPROOMS AND DRY CARGO HOLD 54" x 30" ON FREEBOARD DECK HAVING SILLS 24" HIGH AND STRONGLY BUILT HAMP PACKED STEEL DOOR, CAPABLE OF BEING MANIPULATED FROM BOTH SIDES.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— NO VENTILATORS IN EXPOSED POSITION ON FREEBOARD DECK. ALL VENTILATOR COAMINGS ON SUPERSTRUCTURE DECKS ARE 30-36" ABOVE DECK AND ARE OF SUBSTANTIAL CONSTRUCTION AS PER RULES. ALL VENTILATOR COAMINGS ARE FITTED WITH STEEL SKEW DOWN COVERS.

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

ALL AIR PIPES ARE OF SUBSTANTIAL CONSTRUCTION; THE HEIGHT FROM THE DECK TO THE OPENINGS IS 36" ON FREEBOARD-AND FORECASTLE DECK, OTHERWISE 30". THE OPENINGS OF ALL AIR PIPES ARE CLOSED BY STEEL HINGED COVERS AND BY PERFORATED PLATE WITH CANVAS COVER.

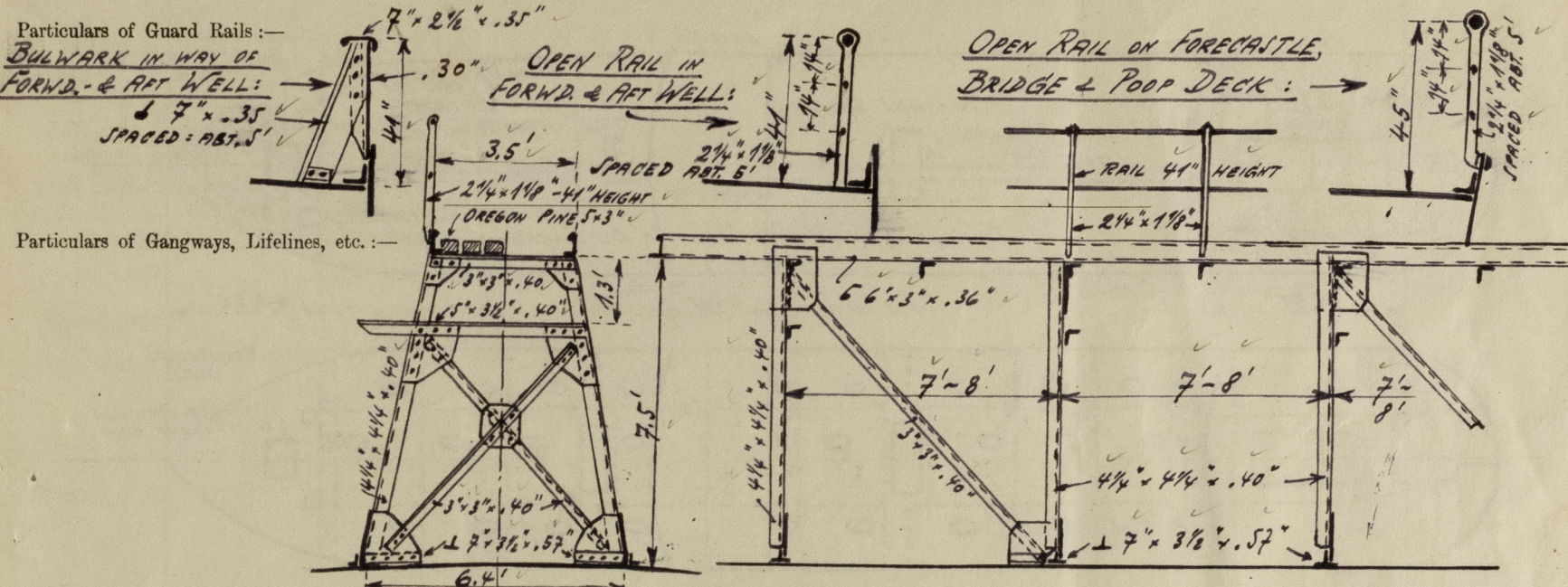
Particulars of Gangway Cargo and Coaling Ports:—

NONE.

Particulars of Scuppers and Sanitary Discharge Pipes — 7 SCUPPER OPENINGS OF 80T. 7 1/2" x 3 1/4" AND 3 SCUPPER PIPES OF 6" DIAM. ARE PROVIDED ON THE OPEN FREEBOARD DECK, EACH SIDE. ALL SANITARY DISCHARGE PIPES ARE FITTED WITH AUTOMATIC NON-RETURN VALVES.

Particulars of Side Scuttles:

NO SIDE SCUTTLES BELOW FREEBOARD DECK. ALL SIDE SCUTTLES ABOVE FREEBOARD DECK HAVE DEADLIGHTS OF SUBSTANTIAL CONSTRUCTION.



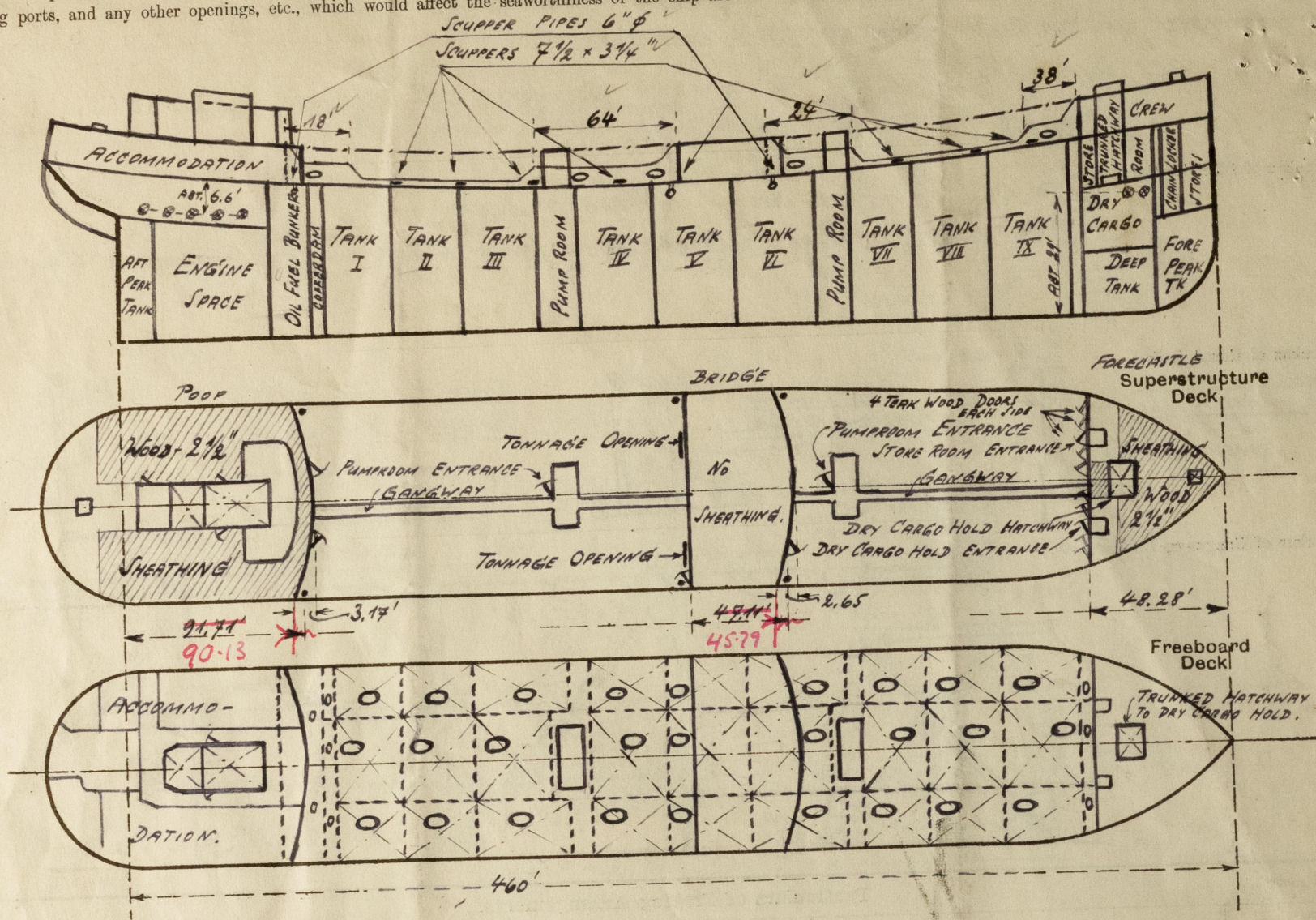
Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side SQUARE INCH.	Rule area each side
After Well	82'	41"	3 FREEING PORTS OF 37" x 20"	3	1920 sq. in.	Open rails
Forward Well	62'	41"	2 FREEING PORTS OF 37" x 20"	2	1280 sq. in.	2 Length well
<p>State position of each freeing port SEE SKETCH. After Well: 3 BEHIND BRIDGE } BULWARK IN CONNECTION WITH OPEN RAIL (F. and A. position and height above deck edge) } Forward Well: 2 FORECASTLE } FITTED ON FREEBOARD DECK.</p> <p>State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— ALL FREEING PORTS FITTED WITH 3 VERTICAL ROUND BARS. WITHOUT SHUTTERS.</p> <p>Additional area where sheer is less than standard.</p>						

Particulars of Superstructures, Trunks, Casings, Deckhouses.								
	Coaming INCHES	Plating INCHES	Stiffeners INCHES	Spacing INCHES	End Attachments of Stiffeners	Size of Openings INCHES	Height of Sills INCHES	Height of Casings FEET
Poop Bulkhead	16 1/2 x 6 1/2 x .56	.47"	5 10 x 3 1/2 x .48	27"	BRACKETS AT TOP AND BOTTOM	59" x 30"	18"	7.5'
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	16 1/2 x 6 1/2 x .56	.30"	2 6 x 3 x .40	25-33"	NONE	51" x 37"	22"	7.5'
Bridge, Forward Bulkhead	16 1/2 x 6 1/2 x .56	.47"	6 9 x 3 1/2 x .48	28-33"	BRACKETS AT TOP AND BOTTOM	59" x 30"	19"	7.5'
Forecastle Bulkhead	16 1/2 x 6 1/2 x .56	.30"	2 6 x 3 x .40	28"	NONE	51" x 37"	22"	7.5'
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	20" x .38"	.30"	6 5 x 2 1/2 x .36	31"	NONE	59" x 24"	18"	8' AND 9.5'
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	2 HINGED W.T. STEEL DOORS, HAMP PACKED, TO BE OPERATED FROM BOTH SIDES. SILLS: 18"
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	1 HINGED W.T. STEEL DOOR, HAMP PACKED, TO BE OPERATED FROM BOTH SIDES. SILL: 19"
Bridge, Forward Bulkhead	2 TONNAGE OPENINGS, CLOSED BY STEEL PLATES WITH HOOK BOLTS. SILLS: 22"
Forecastle Bulkhead	1 HINGED W.T. STEEL DOOR, HAMP PACKED, TO BE OPERATED FROM BOTH SIDES. SILL: 19"
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	2 HINGED W.T. STEEL DOORS, HAMP PACKED, TO BE OPERATED FROM BOTH SIDES. SILLS: 24"
Exposed Machinery Casings on Superstructure Decks	2 HINGED TEAK WOOD DOORS, TO BE OPERATED FROM BOTH SIDES, FITTED WITH LOCKS AND KEYS. SILLS 24"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	1 HINGED W.T. STEEL DOOR, HAMP PACKING, TO BE OPERATED FROM BOTH SIDES. SILL: 18"
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:—



NOTES: X = POSITION OF SANITARY DISCHARGE PIPES HAVING N.R. VALVES AS PER RULES.

State any special features in the construction of the ship:— NONE

$$\begin{array}{r} \text{Poop. } 90.13 \\ \frac{2}{3} \times 3.17 = 2.11 \\ \hline 92.24 \end{array}$$

$$\begin{array}{r} \text{Bridge. } 45.79 \\ \frac{2}{3} \times 2.65 = 1.77 \\ \hline 47.56 \end{array}$$

Builder's name and yard number BREMER VULKAN YARD No 722.

Names of sister ships DEUTSCHE WERFT'S YARD No 169

Owners SARAWAK OILFIELDS, LTD., MIRI.

Fee £ WILL BE CHARGED WITH FIRST ENTRY FEE.

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