

LLOYD'S REGISTER OF SHIPPING

UNITED WITH THE BRITISH CORPORATION REGISTER

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name "KIRISHIMA MARU"	Official Number 69438	Nationality and Port of Registry JAPAN - TOKYO	Gross Tonnage 11900	Date of Build 11-1952	Port of Survey AIOI, JAPAN
Moulded Dimensions: Length 163.380 Breadth 21.400 Depth 11.800					Date of Survey Whilst Building
Moulded displacement at moulded draught = 85 per cent. of moulded depth (excluding bossing) 27,570 METRIC tons					Surveyor's Signature <i>G. Young</i>
Coefficient of fineness for use with Tables 0.763					Particulars of Classification +100A1 "Carrying Petroleum in Bulk" (Contemplated)

DEPTH FOR FREEBOARD (D).	DEPTH CORRECTION.	ROUND OF BEAM CORRECTION.
Moulded depth 11.800	(a) Where D is greater than Table depth (D - Table depth) R = 8.33 (11.825 - 10.892) 30 = +233%	Moulded Breadth (B) 21.400
Stringer plate 0.025	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = 933	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{21.4 \times 12}{50} = 428$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures -	Ship's Round of Beam = 430
Depth for Freeboard (D) = 11.825		Difference 2
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{2^2}{4} \times 0.5243 = 0.5243$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed EQUIV ...	40.460	40.460	2.350		40.460	Standard Height of Superstructure 2.290 m
" overhang						" " R.Q.D. -
R.Q.D. enclosed						Deduction for complete superstructure 1067%
" overhang						Percentage covered $\frac{S}{L} =$
Bridge enclosed EQUIV ...	14.758	14.758	2.300		14.758	" " $\frac{S_1}{L} =$
" overhang aft						" " $\frac{E}{L} =$
" overhang forward ...						Percentage from Table, TANKER 38.57
F'cle enclosed	22.500	22.500	2.310		22.500	(corrected for absence of forecastle (if required))
" overhang						Percentage from Table, Line B.
Trunk aft						(corrected for absence of forecastle (if required))
" forward						Interpolation for bridge less than .2L (if required) -
Tonnage opening aft ...						Deduction = 1067% \times 38.57 = -412%
" " forward						
Total	77.718	77.718			77.718	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.	1615	1	1615	1.559	1559	1	1559			Mean actual sheer aft
$\frac{1}{4}$ L from A.P. ...	718	4	2872	388	388	4	1552			Mean standard sheer aft =
$\frac{3}{8}$ L "	180	2	360	0	-	2	-			Mean actual sheer forward
Amidships	-	4	-	0	-	4	-			Mean standard sheer forward =
$\frac{3}{8}$ L from F.P. ...	359	2	718	0	-	2	-			Length of enclosed superstructure forward of amidships =
$\frac{1}{4}$ L "	1435	4	5740	580	580	4	2320			" " aft of " =
F.P.	3230	1	3230	3.000	3000	1	3000			
Total			14835				8431			

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{6104}{18} \left(.75 - \frac{2328}{2 \times 1615} \right) = +174\%$

If limited on account of midship superstructure. **-**

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft. **-**

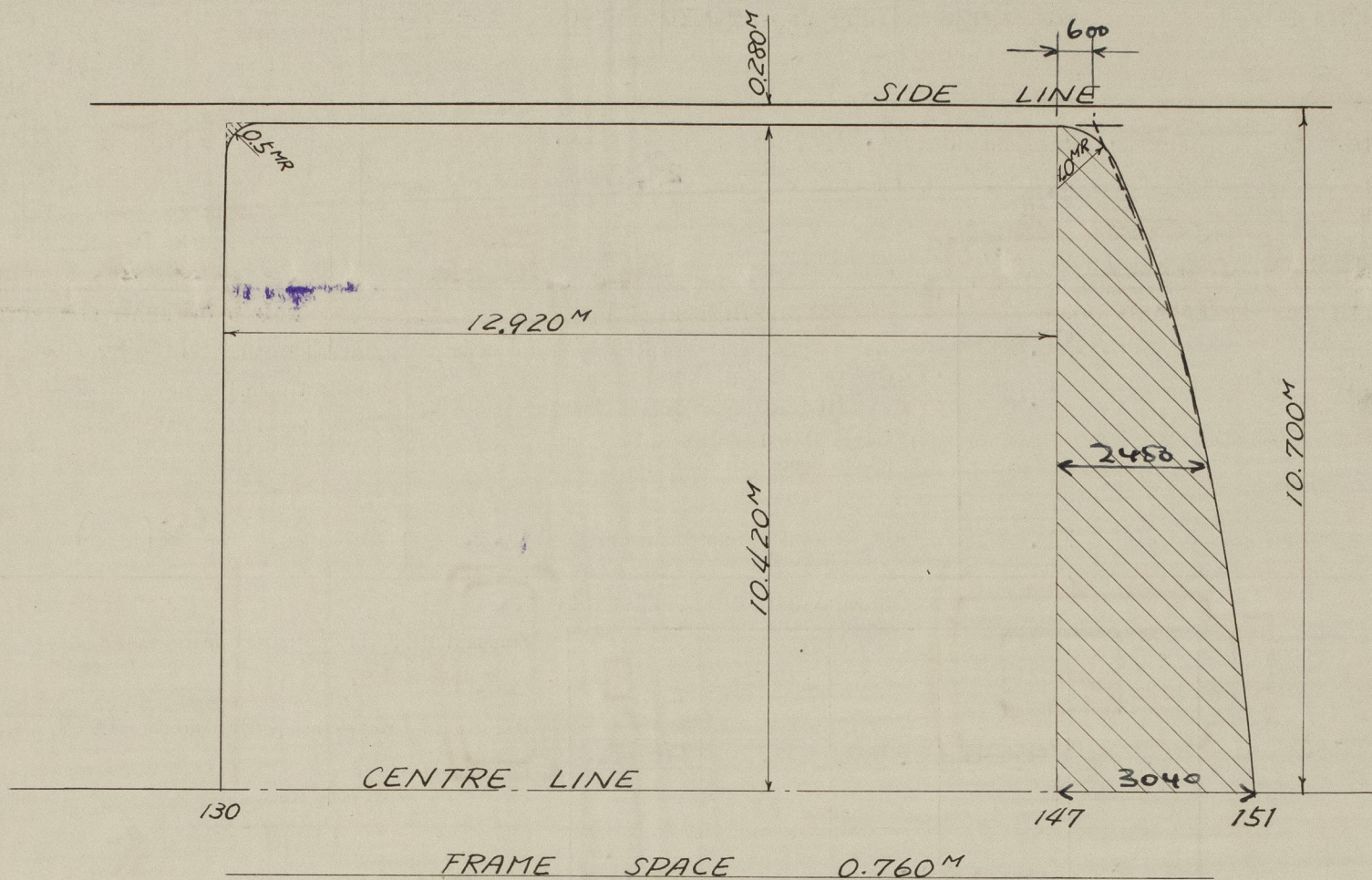
Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = 11.825 Summer freeboard = 2.580 Moulded draught (d) = 9.245 Keel allowance = - Extreme draught = - Deduction for Tropical freeboard and addition for Winter freeboard = 193% Addition for Winter North Atlantic Freeboard (if required) = 193 + 134 = 327%	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta = 25,280 \text{ K.T.}$ Tons per inch immersion at summer load water line $K.T. = 26.31$ Deduction = $\frac{\Delta}{40 T} \text{ inches} = 208\%$	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{767 + .68}{1.36} = \frac{1.442}{1.36}$ Depth Correction 233 Deduction for superstructures 412 Sheer correction 174 Round of Beam correction - Correction for Thickness of Deck amidships - Other corrections, scantlings, etc. - Summer Freeboard = 2580
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Steel, Deck :-

Tropical Fresh Water Line above Centre of Disc	401%	Tropical Fresh Water Freeboard	2580%
Fresh Water Line	208%	Fresh Water	2372%
Tropical Line	193%	Tropical	2387%
Winter Line below	193%	Winter	2723%
Winter North Atlantic Line	327%	Winter North Atlantic	2907%

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.

BRIDGE ENCLOSED



Bridge 3.040 1 3040
 2.450 4 9800
 600 1 600
 6) 13.440
 2.240 ✓

In 130-147 12.920 ✓
 In 147-151 2.240 ✓
 15.160

- $\frac{2 \times 0.054}{20.84}$

- 0.005

15.155 $\times \frac{20.840}{21.400} = 14.758$ ✓

Port

Length of side = 38.940
 + $\frac{2}{3} \times 2.280 = 1.520$
 Equivalent length = 40.460 ✓

Trade of ship International

Names of sister ships "TOEI MARU" No.475

Builder's name and yard number Harima Shipbuilding Co., Ltd., No.476

Owners Nitto Shosen Co., Ltd.

Fee £



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Foundation