

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.
(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Index. No.
(For London Office only).

Ship's Name NICHIEI MARU (HARIMA No. 453)	Official Number 67000	Nationality and Port of Registry JAPAN TOKYO	Gross Tonnage 12000 Tons 11806	Date of Build 12/1950	Port of Survey At OI
Moulded Dimensions: Length 163.350 Breadth 21.400 Depth 11.800					Date of Survey Whist Building
Moulded displacement at moulded draught=85 per cent. of moulded depth 27.550 K. tons					Surveyor's Signature G. Young
Coefficient of fineness for use with Tables .767					Particulars of Classification +100 A1. "Carrying Petroleum in Bulk"

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(11.825-10.891)30 = +233 m/m	Moulded Breadth (B) 21.400
Stringer plate025	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = .934	Standard Round of Beam = $\frac{B \times 12}{50} =$ 428
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures <input checked="" type="checkbox"/>	Ship's Round of Beam = 430
Depth for Freeboard (D) = 11.825		Difference + 2
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{2}{4} \times .5276 = \text{NIL}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed	40.430	40.430	2.350	✓	40.430	Standard Height of Superstructure 2290 m/m
" overhang	✓	✓	✓	✓	✓	" " R.Q.D. ✓
R.Q.D. enclosed	✓	✓	✓	✓	✓	Deduction for complete superstructure 1067 m/m
" overhang	14.235	✓	✓	✓	✓	Percentage covered $\frac{S}{L} =$
Bridge enclosed	14.592	14.235	2.300	✓	14.235	" " $\frac{S_1}{L} =$ 47.24
" overhang aft	✓	✓	✓	✓	✓	" " $\frac{E}{L} =$
" overhang forward	✓	✓	✓	✓	✓	Percentage from Table, Line A. TANKER 38.24
Fore enclosed	22.500	22.500	2.300	✓	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 x .3824 = -408
" " forward	✓	✓	✓	✓	✓	
Total	77.165	77.165	✓	✓	77.165	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.	1615	1	✓	1615	1559	1559	1	✓	1559	Mean actual sheer aft
1/2 L from A.P.	717	4	✓	2868	388	388	4	✓	1552	Mean standard sheer aft =
2/2 L "	179	2	✓	358	0	✓	2	✓	✓	Mean actual sheer forward
Amidships	✓	4	✓	✓	0	✓	4	✓	✓	Mean standard sheer forward =
3/2 L from F.P.	359	2	✓	718	0	✓	2	✓	✓	Length of enclosed superstructure
1/2 L "	1435	4	✓	5740	577	577	4	✓	2308	L forward of amidships =
F.P.	3230	1	✓	3230	3000	3000	1	✓	3000	" " aft of " =
Total	✓	✓	✓	14529	✓	✓	✓	✓	8419	(Tanker).
Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{6110}{18} (.75 - .2362) = +174 \text{ m/m}$										
If limited on account of midship superstructure. .5138 If limited to maximum allowance of 1 1/2 ins. per 100 ft.										

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.767 + .63}{1.36} = \frac{1.447}{1.36}$
Depth to Freeboard Deck = 11.825	$\Delta = 25300 \text{ K/TONS}$	
Summer freeboard = 2.584	Tons per inch immersion at summer load water line	Depth Correction 233
Moulded draught (d) = 9.241	$T = 30.3 \frac{\text{K/TONS}}{\text{CUBIC FEET}}$	Deduction for superstructures 408
Deduction for Tropical freeboard and addition for	Deduction = $\frac{\Delta}{401}$ inches	Sheer correction 174
Winter freeboard = $\frac{d}{48} \text{ inches} = 193 \text{ m/m}$	209 m/m	Round of Beam correction ✓
Addition for Winter North Atlantic Freeboard (if required) = 193 m/m + 134 = 327		Correction for Thickness of Deck amidships ✓
		Other corrections, scantlings, etc. ✓
		407 408 - 1
		Summer Freeboard = 2584

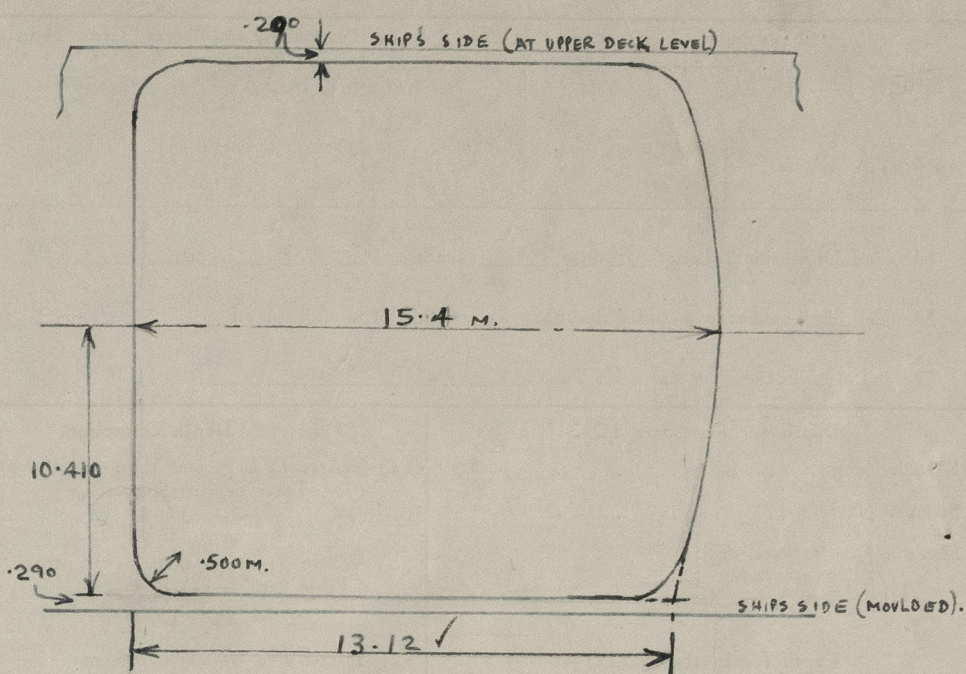
SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc	402 m/m	Tropical Fresh Water Freeboard	2182
Fresh Water Line " "	209 " "	Fresh Water " "	2375
Tropical Line " "	193 " "	Tropical " "	2391
Winter Line below " "	193 " "	Winter " "	2777
Winter North Atlantic Line " "	327 " "	Winter North Atlantic " "	2911

Michiel Maru.

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.

$$\begin{aligned}
 &\text{Bridge at side} = 13.12 \checkmark \\
 &+ \frac{2}{3} \times 2.28 \checkmark = 1.52 \checkmark \\
 &\quad \quad \quad 14.64 \checkmark \\
 &\text{less } 1 - \frac{(3.14 \times 1^2)}{4} \checkmark = .01 \checkmark \\
 &\quad \quad \quad 20.820 \checkmark \\
 &\quad \quad \quad 14.63 \checkmark \\
 &\text{Equiv. length} = \frac{14.63 \times 20.82}{21.4} \checkmark \\
 &\quad \quad \quad = 14.235 \checkmark
 \end{aligned}$$



$$\begin{aligned}
 &\text{Poop at side} = 38.910 \checkmark \\
 &+ \frac{2}{3} \times 2.28 = 1.520 \checkmark \\
 &\quad \quad \quad 40.430 \checkmark = \text{Equiv length.}
 \end{aligned}$$

Trade of ship.....

Names of sister ships.....

Builder's name and yard number.....

Owners.....

Fee £.....



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