

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name HIKAWA MARU	Official Number 35370	Nationality and Port of Registry JAPAN TOKYO	Gross Tonnage 11,621	Date of Build 5/1930	Port of Survey YOKOHAMA
Moulded Dimensions: Length 510'-0" Breadth 66'-0" Depth 41'-0"					Date of Survey AUGUST 1950
Moulded displacement at moulded draught = 85 per cent. of moulded depth 23750 tons					Surveyor's Signature <i>Reynold [Signature]</i>
Coefficient of fineness for use with Tables 75.709					Particulars of Classification 100 A1 (WITH FREEBOARD) CONTEMPLATED RECLASS

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 41'-0"	(a) Where D is greater than Table depth (D - Table depth) R = (41.17 - 34.00) 3 = + 21.51	Moulded Breadth (B) 66.00'
Stringer plate .56"	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = 7.17	Standard Round of Beam = $\frac{B \times 12}{50} = \mathbf{15.84}$
Sheathing on exposed deck (PARTIAL) $T \left(\frac{L-S}{L} \right) = \frac{3.5}{12} \times .4029 = \mathbf{3.17}$	If restricted by superstructures <input checked="" type="checkbox"/>	Ship's Round of Beam = 12"
41'-3.73" Depth for Freeboard (D) = 41'-3.1"		Difference = - 3.84
		Restricted to <input checked="" type="checkbox"/>
		Correction = $\frac{\text{Diff}^a}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{3.84}{4} \times .4029 = \mathbf{+.39}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...						Standard Height of Superstructure 7.50
„ overhang ...						„ „ R.Q.D. <input checked="" type="checkbox"/>
R.Q.D. enclosed ...						Deduction for complete superstructure 42.00
„ overhang 230.79	230.79	230.79	9'-0"	<input checked="" type="checkbox"/>	230.79	Percentage covered $\frac{S}{L} = \left\{ \begin{array}{l} \frac{S_1}{L} = \mathbf{59.71} \\ \frac{E}{L} = \end{array} \right.$
Bridge enclosed 227.15	227.15	230.79	9'-0"	<input checked="" type="checkbox"/>	230.79	Percentage from Table, Line A. 6 B. 45.71
„ overhang aft ...						(corrected for absence of forecastle (if required))
„ overhang forward						Percentage from Table, Line B. <input checked="" type="checkbox"/>
F'cle enclosed ...	73.75	73.75	7'-9"	<input checked="" type="checkbox"/>	73.75	(corrected for absence of forecastle (if required))
„ overhang ...						Interpolation for bridge less than 2L (if required) <input checked="" type="checkbox"/>
Trunk aft ...						Deduction = 42.00 × .4571 = 19.20
„ forward ...						
Tonnage opening aft ...						
„ „ forward						
Total ...	304.54	304.54			304.54	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	61.00	<input checked="" type="checkbox"/>	1	61.00	48	48.00	<input checked="" type="checkbox"/>	1	48.00	Mean actual sheer aft = Mean standard sheer aft = } Deficient
$\frac{1}{4}$ L from A.P. ...	27.145	<input checked="" type="checkbox"/>	4	108.58	21.0	21.00	<input checked="" type="checkbox"/>	4	84.00	
$\frac{3}{8}$ L „ ...	6.71	<input checked="" type="checkbox"/>	2	13.42	5.25	5.25	<input checked="" type="checkbox"/>	2	10.50	
Amidships ...	-	<input checked="" type="checkbox"/>	4	0	0	-	<input checked="" type="checkbox"/>	4	-	Length of enclosed superstructure forward of amidships = } Deficient aft of „ = } Sheers.
$\frac{3}{8}$ L from F.P. ...	13.42	<input checked="" type="checkbox"/>	2	26.84	12.625	12.625	<input checked="" type="checkbox"/>	2	25.25	
$\frac{1}{4}$ L „ ...	54.29	<input checked="" type="checkbox"/>	4	217.16	48.25	48.25	<input checked="" type="checkbox"/>	4	193.00	
F.P. ...	122.00	<input checked="" type="checkbox"/>	1	122.00	108.0	108.00	<input checked="" type="checkbox"/>	1	108.00	
Total ...				549.00					468.75	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{80.25}{18} \left(\frac{.75 - .2986}{.4514} \right) = \mathbf{+ 2.01}$

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 = 44.05 Summer freeboard = 10.98 Moulded draught (d) = 30.07 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 7.52 = 7½" Addition for Winter North Atlantic Freeboard (if required) =	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta = \mathbf{20060}$ Tons per inch immersion at summer load water line $T = \mathbf{63.75}$ Deduction = $\frac{\Delta}{40T}$ inches = 7.87" = 201 m/ins.	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{709 + .68}{1.36} = \mathbf{1.389}$ Depth Correction ... 21.51 Deduction for superstructures ... - 19.20 Sheer correction ... 2.01 Round of Beam correction39 Correction for Thickness of Deck amidships ... - 1.44 Other corrections, scantlings, ... 21.10 Summer Freeboard = 131.80 + 24.37 = 156.17
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

Tropical Fresh Water Line above Centre of Disc ... 201 m/ins Fresh Water Line „ „ ... 201 Tropical Line „ „ ... NIL Winter Line below „ „ ... NIL Winter North Atlantic Line „ „ ... NIL	Tropical Fresh Water Freeboard ... 3348 m/ins. Fresh Water „ „ ... 3147 Tropical „ „ ... 3147 Winter „ „ ... 3348 Winter North Atlantic „ „ ... 3348
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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.

$$\begin{aligned}
 \text{Length of Bridge at side} &= 228.25' \\
 + \quad 2/3 \times \frac{5.5}{1} &= 3.67' \\
 \hline
 &= 231.92' \\
 \text{Less } \frac{2700 \times 2.75}{66.0} &= 1.13' \\
 \hline
 &= 230.79' = \text{equivalent length.}
 \end{aligned}$$

Depth for Freeboard D	Depth correction	Round of beam correction
Model depth	A) When D is greater than Table depth	Model depth
Model depth	D - Table depth	Model depth
Model depth	B) When D is less than Table depth	Model depth
Model depth	Table depth - D	Model depth
Model depth	It remains in operation	Model depth

DEDUCTION FOR SUPERSTRUCTURES

Item	Height	Length	Volume	Weight
1. Superstructure				
2. Mast				
3. Funnel				
4. Chimney				
5. Lifeboat				
6. Lifeboat				
7. Lifeboat				
8. Lifeboat				
9. Lifeboat				
10. Lifeboat				
11. Lifeboat				
12. Lifeboat				
13. Lifeboat				
14. Lifeboat				
15. Lifeboat				
16. Lifeboat				
17. Lifeboat				
18. Lifeboat				
19. Lifeboat				
20. Lifeboat				

SHEER CORRECTION

Item	Height	Length	Volume	Weight
1. Superstructure				
2. Mast				
3. Funnel				
4. Chimney				
5. Lifeboat				
6. Lifeboat				
7. Lifeboat				
8. Lifeboat				
9. Lifeboat				
10. Lifeboat				
11. Lifeboat				
12. Lifeboat				
13. Lifeboat				
14. Lifeboat				
15. Lifeboat				
16. Lifeboat				
17. Lifeboat				
18. Lifeboat				
19. Lifeboat				
20. Lifeboat				

Trade of ship **INTERNATIONAL**

Names of sister ships

Builder's name and yard number **(EX MITUBISHI) YOKOHAMA DOCKYARD. EAST JAPAN H.I. LTD.**

Owners **N.Y.K.**

Fee £



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