321

LLOYD'S REGISTER OF SHIPPING.
(CLASSIFICATION SOCIETY RECOGNISED BY THE JAPANESE GOVERNMENT)
SURVEY FOR FREEBOARD.

Ship's Name	Port of Registry	Official No.	No. in R.B.	Gross Tonnage	Tonnage under Fbd. Deck = V	Date of Launch	Date when Built	Report Number
V. "HAKUBASAN MARU"	--	--	--	about 6500	5921.94	29th Sept. 1928	--	53

Owners	Builders	Yard No.	
sui Bussan Kaisha.	Mitsui Bussan Kaisha.	150	Port of Survey Kobe.

Date of Survey While Building

Type of vessel	Particulars of Classification	Position of Freeboard Deck	W. Kimber and
decks with p,Bridge & Fo'cle	✠ 100 A.1. Full Scantling.	Upper deck	Name of Surveyor H.J.Cox.

PRINCIPAL DIMENSIONS.

ngth between perpendiculars	435 ft.	Breadth Moulded = B₀ ... 56.5 ft.	Depth Moulded to Fbd. deck = D₀ 33.0 ft.
ngth on Load Line	435 ft.	Thickness of Side plating in ins. × $^3/_{12}$° .68 +.17 ft.	Round of Beam 1.17 ft.
		*(2/12 if plating is joggled)	Depth from base line to top of inner bottom plating or ordinary floors 34.17 3.79 ft.
ngth for Freeboard = L	435 ft.	Breadth for Freeboard = B 56.67 ft.	Depth for Tonnage Coef. (Art. 39) = 30.38 ft.

CORRECTION TO TONNAGE (Art. 39)

nnage between top of ceiling on double bottom
or ordinary floors as fitted and standard level of
top of ceiling (v) = − 3.73 tons.

DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom (including plating) or Ordinary Floors	45.52	ins.
Depth of Standard Double Bottom (including plating) or Ordinary Floors	45.52	ins.
Difference	0	
× $^1/_{12}$ =	0	= d.

SHEER (Arts. 39 and 60—63)

Ordinate	Height of Sheer in inches	S.M.	Products
1 A.P.	60.00	1	60.00
2	29.52	4	118.08
3	7.98	2	15.96
4	0.00	4	0.00
5	15.00	2	30.00
6	55.70	4	222.80
7	114.00	1	114.00
	Sum of Products =		560.84

n Height of Sheer = S = $\frac{\text{Sum of Products}}{18}$ = 31.16 ins.

andard Mean Height = S₀ = $\frac{1}{3}$(L/10 + 10) = 17.83 ins.

Difference 13.33 × $^1/_{12}$ = 1.11 ft. = d₁

rrection (Arts. 60-63) = $\frac{3}{4}$ (1 − e) (S₀ − S) = $\frac{3}{4}$ × .725 × 13.3 = −7.25 ins.

FRAMING (Art. 39)

Between Frames	Length in ft.	Depth of Frame in ins.	Thickness of Sparring in inches	Total depth in inches	Products ft. × inches
0 − 10	20.00	6.5	-	6.5	130
10 − 33	63.25	9.0	2	11.0	695.75
33 − 66	90.75	12	2	14.0	1270.50
66 − 95	79.75	12	-	12	957.00
95 − 129	93.50	12	2	14.0	1309.00
129 − 139	22.50	11	2	13	292.50
139 − 158	42.75	12	2	14.0	598.50
158 − F.P.	22.50	8	0	8.0	180.00
				Sum of Products =	5433.25

$\frac{\text{Sum of Products}}{\text{Length of Ship}}$ = Actual Mean Depth of framing 12.49 ins.

Standard „ „ „ 8.50 ins.

Difference 3.99 × $^2/_{12}$ = .67 = 2b

COEFFICIENT OF FINENESS (Art. 39 or 43)

$$\frac{100 (V + v)}{L (B − 2b) (D + d + d_1)} + n \qquad \text{or} \qquad \frac{35 × \Delta}{L × B_0 × d_0} + 0.04$$

$$= \frac{591821}{435 × 56 × (30.38 × 0 × 1.11)†} = .77 \qquad = \underline{\hspace{3cm}} + 0.04 =$$

See plans.

Sketch showing arrangement and height of double bottom or ordinary floors and of superstructures (unless complete plans are submitted).

2½" Ceiling on Battens throughout except in Machy. Space and Deep Tank.
Standard depth of C.d.b. = 45.52 + 2.5 = 48.02
Actual „ „ „ = 45.52 + 3.0 = 48.52
     +.50 = .04

No Ceiling in Machy. Space & D. Tank.

$\frac{13800 × .04}{100}$ = + 5.52 $\frac{3700 × .25}{100}$ = − 9.25

Net Correction − 3.73.

Sketch of deck erections showing openings in end bulkheads and position and arrangement of closing appliances. Hatchways, and Engine and Boiler openings also to be shown. Extent and thickness of wood deck or composition to be shown in red ink, and extent and thickness of ceiling (and battens) on tank top to be given.

本
證
明
書
發
行
條
件

WOOD DECK (Arts. 5 and 6)

	Mean Length in ft.	Thickness in ins.	Products
Forecastle	33.75	)	
Bridge	121.00	) 3.5 − .40	575.83
Poop or R.Q.D.	31.00	) 3.1	
Open Deck, ford.			
„ „ aft.			
Total length = l =		Sum of Products =	575.83

Sum of Products / l = t = ins. ; Sum of Products / L = t_1 = 1.32 ins.

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.

If no sheathing fitted amidships = t, = ± ° 1.32 ins. (Arts. 6 and 57 p. 1)

If sheathing is fitted amidships = $(t − t_1)$ = ∓ ° ins. (Arts. 6 and 57 p. 2)

*Note : Use the upper sign in correction for depth and the lower sign in correction for freeboard.

DEPTH TO USE IN FREEBOARD TABLE.

Depth moulded 33 ft. 0

Thickness of Stringer Plate .40 „

Thickness of Wood Deck Amidships 33. 0.40"

Correction for partial wood deck ± 1.32

Depth to use in Freeboard Tables 33 ft. 1.72 ins. = D, 33.14 ft.

SUPERSTRUCTURES.

HEIGHT (Arts. 46—48)

Standard Height = (0.018 L + 1.2) ft. = 7.5 feet.

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual	=	7.39 .99	7.65 1.0	7.39 .99
Standard		7.5	7.5	7.5

CLOSING APPLIANCES (Arts. 50 and 54)

	Forecastle	Bridge Forward End.	Bridge After End.	Poop or Raised Quarter Deck
Means of Closing openings in bulkhead	Hinged Doors	Intact	Hinged Doors	Hinged W.T. steel Doors.
Corresponding Class	II	I	II	I

EFFECTIVE LENGTH (Arts. 55 and 56)

	Mean Length	Coef. An. 56	Height Coef.	Products
Forecastle closed part	33.75	1	.99	33.41
„ open part				
Bridge closed part	121.00	1	1.00	121.00
„ open part ford.				
„ „ aft.				
Poop closed part	31.00	1	.99	30.69
„ open part				
			Total Effective Length =	185.10

Total Effective Length / Length of Vessel = r = .43

Corresponding Coef. in Table (Art. 49) = e = .275

Reduction for Complete Superstructure 39.00 ins.

Product 10.73 ins.

Correction for Superstructures 10.73 ins.

EFFECTIVE LENGTH (Shelter Deck Vessels Arts. 87—92)

$l + \frac{1}{2}(1 − p)(L − l) =$ ft.

(* See Art. 90)

CORRECTION FOR PROPORTIONS L/D (Art. 58)

When D_1 is less than 35 ft. = $\frac{D_1 + 16}{300}(1 − e/2)(L − 12 D_1)$

„ „ „ greater than 35 ft. = 0.17 $(1 − e/2)(L − 12 D_1)$

[Note e = 1.0 if more than 9/10 covered] = $\frac{49.14}{300}$ x .86 2 x 37.32 = 5.27

Are the Engine and Boiler openings covered by a Bridge, Poop, Raised Quarter Deck or enclosed by a strong steel deck house ? **Bridge**

If openings are not so protected give thickness of plating and scantlings and spacing of stiffeners of Casings --

Are suitable means provided for closing all openings in them in bad weather ? **Yes**

Above freeboard deck.

State the vertical distance from base line at top of keel to lower edge of lowest side scuttle **No.**

State if there are any cargo ports or scuppers through sides of vessel below upper deck --

State any special features in the construction of the vessel --

Sister vessels --

Fee. Yen. Depth of Keel ins. ; Draught (btm. keel) ft. ins.

CORRECTION FOR ROUND OF BEAM (Art. 59)

Standard Round of Beam = $\frac{\text{Length of Beam in ins.}}{50}$ = 13.34 ins.

Correction = $\frac{1}{4}$ (Standard Round of Beam—Actual Round of Beam)

= $\frac{1}{4}(13.34 − 14.00) = −.17$ ins.

CORRECTION FOR FREEING PORTS

(in vessels less than 15 ft. Depth Art. 64)

Length of bulwark in feet each side -- ft.

Area of Freeing ports each side -- sq. ft.

Area of Freeing ports required by Table -- sq. ft.

Correction 1.2 $(r − 0.5) D_1$ = + ins.

CORRECTION FOR ACCESS TO CREW'S QUARTERS (Arts. 65—67)

Are Crew berthed in Bridge House or Forecastle ? --

Height and breadth of gangway --

Correction = .012 $(80 − l) D_1$ or 1.2 $(r − 0.5) D_1$ = + -- ins.

SUMMARY.

Freeboard by Tables 99.04 ins.

+

Correction for Sheer 7.25

„ „ Partial Wood Deck 1.32

„ „ Superstructures 10.73

„ „ Proportions L/D 5.27

„ „ Round of Beam .17

„ „ Freeing Ports --

„ „ Access to Crew's Quarters --

Totals 5.27 19.47

Net Correction 14.20

Geometric Freeboard 84.84 ins.

Corresponding Geometric Draught (mid.) 25.97 ft.

Moulded Draught limited by {form stiffness or strength longitudinal strength position of side scuttle} to 25.97 ft.

Corresponding Freeboard (Summer) 84.8 ins.

Winter Freeboard (Art. 22) = $\frac{1}{4}(D_1 − 10) + \frac{r}{45} \times (59 − D_1)$

= $\frac{1}{4}$ x 23.14 − .43/45 x 25.86 = + 6.03 ins.

Tropical Freeboard (Art. 24) do. do. = − 6.03 ins.

Winter North Atlantic Fbd. (Art. 23) Vessels 330 ft. and below.

Ratio of effective length of superstructures to length of vessel

Additional Freeboard + -- ins.

Fresh Water Freeboard (Art. 27)

$\frac{1}{4}$" per foot of Summer Draught = − 6.49 ins.

FREEBOARD TO BE ASSIGNED.

Vertical distance from upper edge of horizontal line indicating the freeboard deck to the centre of the disc. (Summer Line) 84.8 ins.

Fresh Water Load Line above centre of disc. 6.5 ins.

Tropical Load Line above „ „ „ 6.0 ins.

Winter Load Line below „ „ „ 6.0 ins.

Winter N.A. Load Line below „ „ „ -- ins.

Vertical distance from the point of intersection of the extended line of the upper surface of **Stl.Str.** of the **upper** deck at mid length of the vessel with the outside of shell plating to the upper edge of the horizontal line indicating the freeboard deck 0.00 ins.

	No. 1	No. 2 & 6	No. 3, 5 & 7.	No. 4 Bridge	No. 5	No. 6
Length and Breadth	31'6" x 22'	27'6" x 22'	30'3" x 22'	16'0" x 22'		
Height above deck and thickness of side and end coaming	37" x .44	37" x .44	37" x .44	24" x .44		
Shifting Beams {Number and Material	5 Steel 20 x .38	4 Steel 20.5 x .38	5 Steel 19 x .36	2 Steel 15 x .34		
Shifting Beams {Scantlings	5x3½x.44	5x3½x.44	5x3½x.44	5x3½x.44		
*Fore and Afters {Number and Material	None	None	None	None		
*Fore and Afters {Scantlings						
Thickness of hatches	All 3"					
Remarks						

* When the fore and afters are of wood the depth should be stated from the underside of hatches.

LONGITUDINAL MODULUS.

Height of Assumed Axis above base = Section at

BELOW ASSUMED AXIS.						ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia	Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel						Top Deck Str.					
Centre Girder						„ „ „					
C.G. btm. ang.						„ „ Plating					
C.G. top angles						„ „ „					
T.T. Cr. Strake						„ „ Str. Ang.					
T.T. plating						2nd Deck Str.					
						„ „ Plating					
Margin Plate						„ „ Str. Ang.					
„ Angle						3rd Deck Str.					
Shell Strake A						„ „ Plating					
„ „ B						„ „ Str. Ang.					
„ „ C						Sheerstrake					
„ „ D						Strake below					
„ „ E						Shell Strake					
„ „ F						„ „					
„ „ G						„ „					
Totals below assumed axis						Totals above assumed axis					
„ above assumed axis											
Sum or Difference						Neutral Axis above/below assumed axis (x) =					

Moment of Inertia about assumed axis ___2___

Correction = (Total Area x x^2 x 2) =

Moment of Inertia about Neutral Axis =

Distance from Neutral Axis to top of Strength deck beam at side / Keel ___ ft.

MODULUS OF SECTION =

DRAUGHT PERMITTED BY LONGITUDINAL STRENGTH (Arts. 81-86) = $\frac{\text{Actual Modulus}}{f. B_0}$ =

TRANSVERSE MODULUS.

Minimum Side Plating (Art. 77) $\frac{0.105 \times + 17}{100}$ = ; Standard Frame Spacing (Art. 78) = .025 x + 17 =

Actual Side Plating = ; Actual Frame Spacing =

If actual frame spacing exceeds the standard $\sqrt{\left(\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}\right)}$ t =

Moulded Geometric Draught (d) = H =

t = K = **FULL SCANTLING VESSEL**

d − t = $f_1 + f_2$

Standard I/y = $\frac{s(d − t)(f_1 + f_2)}{1000}$ =

Frame in ship = at spacing, I/y =

DRAUGHT PERMITTED BY TRANSVERSE STRENGTH = $\frac{\text{I/y} \times 1000}{s(f_1 + f_2)}$ + t =

0434 2/2