

DISCLOSED SECTION

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

| | | | | | | | | |
|--|-----------------------------------|--|-----------------------------|---|--|--|--------------------------------|----------------------------|
| Ship's Name S/S "RYUJIN MARU" ex "Culina" | Port of Registry Dairen | Official No. | No. in R.B. 57460 | Gross Tonnage 6152 | Tonnage under Fbd. Deck = V 5879.13 | Date of Launch | Date when Built 1907 | Report Number 16 |
| Owners Ryu-oh Kisen Kaisha. | | Builders W. Denny Bros. | | Yard No. | | Port of Survey Kobe | | |
| Type of vessel Full Scantling vessel with poop Bridge No. 1. | | Particulars of Classification * 100 A.1. | | Position of Freeboard Deck Upper Deck | | Date of Survey September, 1923. | | |
| | | | | | | Name of Surveyor S.I. Preston | | |

PRINCIPAL DIMENSIONS.

| | | |
|---|---|---|
| Length between perpendiculars..... 430.0 ft. | Breadth Moulded = B ₀ 54.0 ft. | Depth Moulded to Fbd. deck = D ₀ 34'.83 ft. |
| Length on Load Line..... 429.5 ft. | Thickness of Side plating in ins. x 3/12 * .675 x 3/12 +.17 ft. | Round of Beam..... 12 1/2 1.04 ft. |
| | * (2/12 if plating is joggled) | Depth from base line to top of inner bottom plating or ordinary floors..... 35.87 ft. |
| Length for Freeboard = L..... 429.5 ft. | Breadth for Freeboard = B..... 54.17 ft. | Depth for Tonnage Coef. (Art. 39) = D..... 32.12 ft. |

CORRECTION TO TONNAGE (Art. 39)

Tonnage between top of ceiling on double bottom
or ordinary floors as fitted and standard level of
top of ceiling (v) = **- 4.85** tons.

DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom
(including plating) or Ordinary Floors **47 1/2 - 2 1/2 = 45.0** ins.
Depth of Standard Double Bottom
(including plating) or Ordinary Floors.....**45.52** ins.
Difference.....**.52**
x 1/12 = **.04 = d.**

SHEER (Arts. 39 and 60-63)

| Ordinate | Height of Sheer in inches. | S.M. | Products |
|--|-------------------------------|------|----------------|
| 1 | 67.125 | 1 | 67.125 |
| 2 | 18.125 | 4 | 72.500 |
| 3 | 3.00 | 2 | 6.000 |
| 4 | 0 | 4 | |
| 5 | 15.00 | 2 | 30.000 |
| 6 | 51.125 | 4 | 204.500 |
| 7 | 116.125 | 1 | 116.125 |
| Sum of Products = | | | 496.250 |
| Mean Height of Sheer = S = $\frac{\text{Sum of Products}}{18} = \frac{496.250}{18} = 27.57$ ins. | | | |
| Standard Mean Height = S ₀ = $\frac{1}{2}(L/10 + 10) = \frac{1}{2}(429.5/10 + 10) = 17.65$ ins. | | | |
| Difference..... 9.92 x 1/12 =83 ft. = d ₁ | | | |
| Correction (Arts. 60-63) = $\frac{3}{4}(1 - e)(S_0 - S) = \frac{3}{4}(1 - 0)(17.65 - 27.57) = -5.82$ 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. x inches |
|--|---------------|---------------------------|------------------------------------|--------------------------|--------------------------|
| AP - 80. | 173.33 | 10" | 2" | 12" | 2079.96 |
| 80 - 112 | 69.33 | 10" | - | 10 | 693.30 |
| 112 - TP | 186.83 | 10" | 2" | 12 | 2241.96 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Sum of Products = | | | | | 5015.22 |
| Sum of Products = Actual Mean Depth of framing 11.68 ins. | | | | | |
| Length of Ship..... 429.5 ft. | | | | | |
| Standard " " " "..... 8.50 ins. | | | | | |
| Difference..... 3.18 x 2/12 =53 = 2b | | | | | |

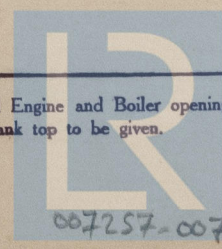
COEFFICIENT OF FINENESS (Art. 39 or 43)

$$\frac{100(V + v)}{L(B - 2b)(D + d + d_1) + n} \quad \text{or} \quad \frac{35 \times \Delta}{L \times B_0 \times d_0} + 0.04$$
$$\frac{100(5879.13 - 4.85)}{429.5(54.17 - .53)(32.12 - .04 + .83)} + 0 = .77 \quad = \quad \frac{35 \times \Delta}{L \times B_0 \times d_0} + 0.04 =$$

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

See plans.

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.



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Lloyd's Register
Foundation

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WOOD DECK (Arts. 5 and 6)

| | Mean Length in ft. | Thickness in ins. | Products |
|-----------------|--------------------|-------------------|----------|
| Forecastle | 39.00 | (3.5-4.50) | |
| Bridge | 82.33 | 3.00 | 454.98 |
| Poop or R.Q.D. | 30.23 | | |
| Open Deck, fwd. | | | |
| " " aft. | | | |

Total length = $l =$ Sum of Products = **454.98**

Sum of Products = $t =$ ins.; Sum of Products = $t_1 =$ **1.06** ins.

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.

If no sheathing fitted amidships = $t_1 = \pm 1.06$ ins. (Arts. 6 and 57 p. 1)

If sheathing is fitted amidships = $(t - t_1) = \pm$ 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 = **34** ft. **10** ins.

Thickness of Stringer Plate = **0.5** "

Thickness of Wood Deck Amidships = **34** ft. **10.5** "

Correction for partial wood deck = \pm **1.06** "

Depth to use in Freeboard Tables = **34** ft. **11.56** ins. = $D_1 =$ **34.96** ft.

SUPERSTRUCTURES.

HEIGHT (Arts. 46-48)

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

| | Complete Superstructure | wood Forecastle | wood Bridge | wood Poop or R.Q.D. |
|----------|-------------------------|-----------------|-------------|---------------------|
| Actual | | 7.15 = .95 | 7.65 = 1.00 | 7.15 = .95 |
| Standard | | 7.5 | 7.5 | 7.5 |

CLOSING APPLIANCES (Arts. 50 and 54)

| | Forecastle | Bridge Forward End. | After End. | Poop or Raised Quarter Deck |
|---------------------------------------|-------------|---------------------|---------------------|-----------------------------|
| Means of Closing openings in bulkhead | Wood doors. | Steel W. T. doors. | Shifting board in C | Wood doors. |
| Corresponding Class | 2 | 1 | 2 | 2 |

EFFECTIVE LENGTH (Arts. 55 and 56)

| | Mean Length | Coef. Art. 56 | Height Coef. | Products. |
|------------------------|-------------|---------------|--------------|-----------|
| Forecastle closed part | 23.07 | 1.00 | .95 | 21.92 |
| " open part | 15.93 | .75 | .95 | 11.35 |
| Bridge closed part | 82.33 | 1.00 | 1.00 | 82.33 |
| " open part fwd. | | | | |
| " " aft. | | | | |
| Poop closed part | 30.33 | 1.00 | .95 | 28.81 |
| " open part | | | | |

Total Effective Length = **144.41**

Length of Vessel = $r =$ **.34**

Corresponding Coef. in Table (Art. 49) = $e =$ **.218**

Reduction for Complete Superstructure = **39.0** ins.

Product = **8.50** ins.

Correction for Superstructures = **- 8.50** 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 $e = 1/10$ if more than 5/10 covered] = **1.51** ins.

CORRECTION FOR ROUND OF BEAM (Art. 59) **16" Tumble Home**

Standard Round of Beam = $\frac{\text{Length of Beam in ins.}}{50} =$ **12.32** ins.

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

= **-.05** 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 = $-0.12 (80 - l) D_1$ or $1.2 (r - 0.5) D_1 = +$ ins.

SUMMARY.

Freeboard by Tables = **107.32** ins.

Correction for Sheer = **5.82** ins.

" " Partial Wood Deck = **1.06** ins.

" " Superstructures = **8.50** ins.

" " Proportions L/D = **1.51** ins.

" " Round of Beam = **.05** ins.

" " Freeing Ports =

" " Access to Crew's Quarters =

Totals = **1.51** ins. **15.43** ins.

Net Correction = **13.92** ins.

Geometric Freeboard = **93.40** ins.

Corresponding Geometric Draught (mld.) = **27.09** ft.

Moulded Draught limited by $\left\{ \begin{array}{l} \text{form} \\ \text{transverse strength} \\ \text{longitudinal strength} \\ \text{position of side scuttles} \end{array} \right\}$ to = **27.09** ft.

Corresponding Freeboard (Summer) = **93.4** ins.

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

$\frac{1}{4} (34.96 - 10) + \frac{1}{45} \times (59 - 34.96) = +$ **6.42** ins.

Tropical Freeboard (Art. 24) do. do. = **- 6.42** ins.

Winter North Atlantic Fwd. (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 = **- 6.77** 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) = **93.4** ins.

Fresh Water Load Line above centre of disc. = **6.8** ins.

Tropical Load Line above " " " = **6.4** ins.

Winter Load Line below " " " = **6.4** ins.

Winter N.A. Load Line below " " " = ins.

Vertical distance from the point of intersection of the extended line of the upper surface of **stringer plate** 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.

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**

State the vertical distance from base line at top of keel to lower edge of lowest side scuttle **40'-0"**

State if there are any cargo ports or scuppers through sides of vessel below upper deck **yes, cargo ports, lowest sill 28'4" above base (see plan)**

State any special features in the construction of the vessel

Sister vessels

Fee. Yen. **180⁰⁰**; Depth of Keel ins.; Draught (btm. keel) ft. ins.

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

| | No. 1 Ford. | No. 2 | No. 3 | No. 4 | No. 5 | No. 6 |
|---|---|----------------------------------|----------------------------------|----------------------------------|-------|-------|
| Length and Breadth | 21'6"x22'3" | 26'3"x22'3" | 25'6"x22'0" | 21'6"x22'0" | | |
| Height above deck and thickness of side and end coaming | 27" x $\frac{1}{2}$ " | Same | as | No. 1. | | |
| Shifting Beams | two. steel. 2'8" x $\frac{1}{2}$ " 3"x3"x $\frac{1}{2}$ " | Same | as | No. 1. | | |
| * Fore and Afters | 5 wood 3 5x6 2 7x6 $\frac{1}{2}$ | 5 wood 3 6x7 $\frac{1}{2}$ 2 7x8 | 5 wood 3 6x6 $\frac{1}{2}$ 2 8x7 | 5 wood 3 5x5 $\frac{1}{2}$ 2 6x6 | | |
| Thickness of hatches | 2 $\frac{3}{4}$ " | Same | as | No. 1. | | |
| 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. | | | | | |
| " " | | | | | | " " " vessel. | | | | | |
| Centre Girder | | | | | | " " " plating | | | | | |
| C.G. btm. ang. | | | | | | " " " | | | | | |
| C.G. top angles | | | | | | " " " | | | | | |
| T.T. Cr. Strake | | | | | | " " " Str. Ang. | | | | | |
| T.T. plating | | | | | | 2nd Deck Str. | | | | | |
| " " | | | | | | " " " Plating | | | | | |
| " " | | | | | | " " " | | | | | |
| " " | | | | | | " " " " | | | | | |
| " " | | | | | | " " " Str. Ang. | | | | | |
| Margin Plate | | | | | | 3rd Deck Str. | | | | | |
| " " | | | | | | " " " Plating | | | | | |
| " Angle | | | | | | " " " | | | | | |
| Shell Strake A | | | | | | " " " | | | | | |
| " " 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 assumed axis (x) =

Correction = $(\text{Total Area} \times x^2 \times 2) =$ -

Moment of Inertia about Neutral Axis

Distance from Neutral Axis to top of Strength deck beam at side = 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) $\frac{0.105 \times}{100} + 17 =$; Standard Frame Spacing (Art. 78) = $-0.25 \times + 17 =$

Actual Side Plating =; Actual Frame Spacing =

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

Moulded Geometric Draught (d) = $H =$ **full Scantling vessel.**

$t =$ $K =$

$d - t =$ $f_1 + f_2 =$

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

Frame in ship = at spacing, $I/y =$

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

