

LONDON OFFICE  
COPY

No. 481 SHIP, "RHINE MARU."

LIGHT DISPLACEMENT

AND

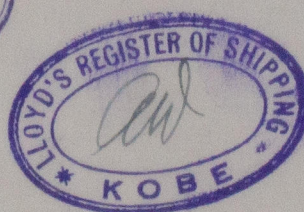
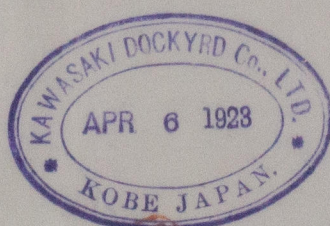
DEADWEIGHT CARRYING CAPACITY.

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KAWASAKI DOCKYARD COMPANY, LTD. ,

KOBE, JAPAN.

1923.





No. 481 Ship, "Rhine Maru."

LIGHT DISPLACEMENT

AND

DEADWEIGHT CARRYING CAPACITY.

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1. Draught and Displacement at 11.30 A.M., April 5th, 1923.:-

Specific gravity of sea water ... .. 1.017  
Weight of sea water per cub.ft. 62.373 x 1.017 = 63.433 lbs.

Where 62.373 is the weight of 1 cub.ft. of fresh water  
at 59° F. (Water with unit specific gravity) in lbs.

Draught at ends:- Forward ... .. 7'-4 $\frac{1}{4}$ "  
Aft ... .. 12'-2 $\frac{5}{8}$ "  
Mean ... .. 9'-9 $\frac{7}{16}$ "  
Trim by the stern ... .. 4'-10 $\frac{3}{8}$ " = 4.87 ft.

Draught amidships Port ... .. 10'-0"  
Starboard ... .. 9'-8 $\frac{1}{2}$ "  
Mean ... .. 9'-9 $\frac{1}{4}$ "

Hogging  $h = 9'-9\frac{7}{16}" - 9'-9\frac{1}{4}"$  ... .. 3/16"

Change in displacement by 1 ft. trim ... .. 7.62 tons.

Tons per inch immersion  $T =$  ... .. 39.40

Longitudinal I about midship  $I$  ... .. 145,110,000 Sq.ft.  
x Sq.ft.

Displacement at 9'-9 $\frac{7}{16}"$ , even keel (35 cub.ft. per ton) 4,249.8 tons.

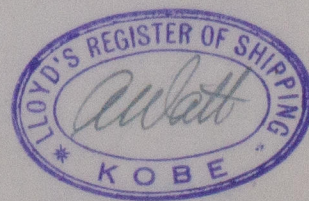
Correction for the trim -  $7.62 \times 4.87 =$  -37.1 "

$$\begin{aligned} \text{" " " hogging} &= -h \times (T - \frac{I}{105L^2}) \\ &= -3/16 \times (39.40 - \frac{145,110,000}{105 \times 405^2}) \\ &= -3/16 \times (39.40 - 8.43) = -3/16 \times 30.97 = -5.8 \end{aligned}$$

Displacement corrected for the trim & hogging (35 cub.ft. per ton) 4,206.9 tons.

" further corrected for the density of sea water

$$4,206.9 \times \frac{63.433}{64.000} = 4,169.6 \text{ tons.}$$





Weight to Come Out of Ship:-

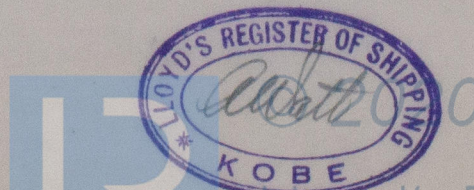
Item.				Respective Wt. in Tons.	Gross Wt. in Tons.
No.1 Ballast tank	(P & S)	Empty		0	
No.2 " "	( " )	"		0	
No.3 " "	( " )	"		0	
No.4 " "	( " )	"		0	
No.5 " "	( " )	"		0	
Feed water tank	P	F.W. 3'-4 $\frac{1}{2}$ "		87.3	
" " "	S	" 3'-4"		86.2	
Fore peak tank		F.W. Full		104.7	
After " "		" "		36.4	
Deep tank	(P & S)	Empty		0	
Settling tanks	( " )	"		0	
Fresh water tanks	( " )	"		0	
Sanitary tank		"		0	
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Water in tanks, Total	...	...	...	...	314.6
Water in three boilers	...	...	...	...	89.4
Coal	...	...	...	...	0.5
Temporary weight	...	...	...	...	12.3
Brine and water in refrigerating plant	...	...	...	...	0.7
Bilge water	...	...	...	...	4.6
Men on board (138)	...	...	...	...	8.0
<u>Weight to come out of ship, total</u>	...	...	...	...	<u>430.1</u>

Weight to Go On Board after the Date:-

Sofas, beds, tarpaulins, &c. ... .. 1.5 tons.

Light Displacement and Draught:-

Displacement on April 5th, 1923 corrected for the trim,					
hogging and density of sea water	...	...	...	...	4,169.6 tons.
Weight to come out of ship	...	...	...	...	430.1 "
Weight to go on board after the date	...	...	...	...	1.5 "
Equipped Weight	...	...	...	...	3,741.0 tons.
Boiler water	...	...	...	...	89.4 "
Light displacement	...	...	...	...	3,830.4 tons.
Corresponding mean draught	...	...	...	...	8'-10 $\frac{3}{4}$ ".





Deadweight Carrying Capacity:-

Displacement at 28'-5.2" draught(summer load draught)	...	13,650.0 tons.
Light displacement	... ..	<u>3,830.4 "</u>
Deadweight carrying capacity	... ..	9,819.6 tons.

