

REPORT ON BOILERS.

No. 8656

Received at London Office 23 JUL 1934

Date of writing Report 192 When handed in at Local Office 192 Port of

No. in Survey held at 7. Book. KOBE. Date, First Survey 31-7-33 Last Survey 22-6-1934.

on the MOTOR VESSEL "TOR MARU." (Number of Visits) Gross 10052. Net 9038.

Builder Built at KOBE By whom built KAWASAKI DOCKYARD Co. Yard No. 572 When built 1934.

Engines made at KOBE By whom made KAWASAKI DOCKYARD Co. Engine No. 205 When made 1934.

Boilers made at KOBE By whom made KAWASAKI DOCKYARD Co. Boiler No. When made 1934.

Indicated Horse Power 2115. Owners IINO SHOJI KABUSHIKI KAISHA. Port belonging to NAKAMAIZURU.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel KAWASAKI DOCKYARD Co LTD FUKUI PLATE & SHEET MILLS. (Letter for Record S.)

Total Heating Surface of Boilers OIL BURNING 57.2 M² WASTE GAS 286.8 M². Is forced draught fitted. Coal or Oil fired OIL & WASTE GAS.

Number and Description of Boilers ONE: WASTE GAS AND OIL FIRED SINGLE ENDED MULTITUBULAR. Working Pressure 12.5 kg/cm².

Tested by hydraulic pressure to 22.5 kg/cm² Date of test 10-4-34 No. of Certificate 3988C. Can each boiler be worked separately YES.

Area of Firegrate in each Boiler OIL FUEL. No. and Description of safety valves to each boiler 2 - SPRING LOADED.

Area of each set of valves per boiler { per Rule 83.7 cm² as fitted 100.4 cm². Pressure to which they are adjusted 12.5 kg/cm². Are they fitted with easing gear YES.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler.

Smallest distance between boilers or uptakes and bunkers or woodwork IN VICINITY OF BOILERS. Is oil fuel carried in the double bottom under boilers.

Smallest distance between shell of boiler and tank top plating. Is the bottom of the boiler insulated YES.

Largest internal dia. of boilers 4050 mm. Length 3600 mm. Shell plates: Material STEEL. Tensile strength 28-32.

Thickness 28 mm. Are the shell plates welded or flanged NO. Description of riveting: circ. seams { end DOUBLE RIVETED LAP inter. DOUBLE RIVETED LAP.

Seams TREBLE RIVETED DOUBLE BUTT STRAP. Diameter of rivet holes in { circ. seams 30 mm. Pitch of rivets { 80 mm. long. seams 30 mm. 200 mm.

Percentage of strength of circ. end seams { plate 62.5. rivets 51.5. Percentage of strength of circ. intermediate seam { plate 61. rivets 61.

Percentage of strength of longitudinal joint { plate 85. rivets 97. combined 89.4. Working pressure of shell by Rules 12.7 kg/cm².

Thickness of butt straps { outer 22 mm. inner 26 mm. No. and Description of Furnaces in each Boiler ONE MORRISON TYPE CORRUGATED.

Material STEEL. Tensile strength 26-30. Smallest outside diameter 942.38 mm.

Length of plain part { top 220 mm. bottom 220 mm. Thickness of plates { crown 14 mm. bottom 14 mm. Description of longitudinal joint WELDED.

Dimensions of stiffening rings on furnace or c.c. bottom. Working pressure of furnace by Rules 15.1 kg/cm².

End plates in steam space: Material STEEL. Tensile strength 28-32. Thickness 28 mm. Pitch of stays 400 mm.

How are stays secured DOUBLE NUTS & WASHERS. Working pressure by Rules 14.27 kg/cm².

End plates: Material { front STEEL. back STEEL. Tensile strength { 28-32. Thickness { 22 mm. 20 mm.

Minimum pitch of stay tubes in nests 250 mm. Pitch across wide water spaces 340 mm. Working pressure { front 17.2 kg/cm². back 16.15 kg/cm².

Ends to combustion chamber tops: Material STEEL. Tensile strength 28-32. Depth and thickness of girder

centre 200 mm x 22 mm x 2. Length as per Rule 680 mm. Distance apart 230 mm. No. and pitch of stays

each 2 x 240 mm. Working pressure by Rules 21.3 kg/cm². Combustion chamber plates: Material STEEL.

Tensile strength 28-32. Thickness: Sides 20 mm. Back 20 mm. Top 20 mm. Bottom 20 mm.

Pitch of stays to ditto: Sides 280 x 240 mm. Back 190 x 230 mm. Top 240 x 230 mm. Are stays fitted with nuts or riveted over NUTS.

Working pressure by Rules 14.7 kg/cm². Front plate at bottom: Material STEEL. Tensile strength 28-32.

Thickness 25 mm. Lower back plate: Material STEEL. Tensile strength 28-32. Thickness 25 mm.

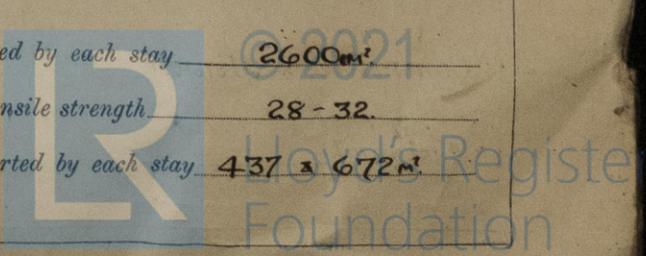
Pitch of stays at wide water space 230 x 370 mm. Are stays fitted with nuts or riveted over NUTS.

Working Pressure 14.7 kg/cm². Main stays: Material STEEL. Tensile strength 28-32.

Working pressure by Rules 13 kg/cm². Screw stays: Material STEEL. Tensile strength 28-32.

Working pressure by Rules 13 kg/cm². At body of stay, or Over threads 80 mm. No. of threads per inch 6. Area supported by each stay 2600 cm².

Working pressure by Rules 13 kg/cm². At turned off part, or Over threads 40 x 46 mm. No. of threads per inch 11. Area supported by each stay 437 x 672 cm².



Working pressure by Rules 14.6 kg/cm² Are the stays drilled at the outer ends YES Margin stays: Diameter 46 mm (At turned off part, or Over threads)

No. of threads per inch 11 Area supported by each stay 672 cm² Working pressure by Rules 13.2 kg/cm²

Tubes; Material STEEL External diameter 69.85 mm (Plain Stay) Thickness N° 9 L.S.G. 7.94 x 6.35 mm No. of threads per inch 9

Pitch of tubes 100 x 100 mm Working pressure by Rules 12.5 kg/cm² Manhole compensation: Size of opening 30 mm

shell plate 500 x 600 mm Section of compensating ring 540 x 28 mm No. of rivets and diameter of rivet holes 42 30 mm

Outer row rivet pitch at ends 200 mm Depth of flange if manhole flanged 95 mm Steam Dome: Material ✓

Tensile strength ✓ Thickness of shell ✓ Description of longitudinal joint ✓

Diameter of rivet holes ✓ Pitch of rivets ✓ Percentage of strength of joint ✓ (Plate Rivets)

Internal diameter ✓ Working pressure by Rules ✓ Thickness of crown ✓ No. and diameter of stays ✓

Inner radius of crown ✓ Working pressure by Rules ✓

How connected to shell ✓ Size of doubling plate under dome ✓ Diameter of rivet holes and of rivets in outer row in dome connection to shell ✓

Type of Superheater ✓ Manufacturers of ✓ (Tubes Steel castings)

Number of elements ✓ Material of tubes ✓ Internal diameter and thickness of tubes ✓

Material of headers ✓ Tensile strength ✓ Thickness ✓ Can the superheater be shut off the boiler be worked separately ✓ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler ✓

Area of each safety valve ✓ Are the safety valves fitted with easing gear ✓ Working pressure ✓

Rules ✓ Pressure to which the safety valves are adjusted ✓ Hydraulic test pressure ✓

tubes ✓, castings ✓ and after assembly in place ✓ Are drain cocks or valves to free the superheater from water where necessary ✓

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with YES.

The foregoing is a correct description,

E. Munro Chief Designer, Manufacturer

Dates of Survey (During progress of work in shops - -) JAN/24. 11. FEB/24. 7. 20. 27. MAR/24. 15. 27. Are the approved plans of boiler and superheater forwarded herewith 28. 7. 24. (If not state date of approval.)

(During erection on board vessel - - -) MAY/24. 16. 24. JUN/24. 1. 12. 22. Total No. of visits 15.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

This boiler has been constructed under Special Survey in accordance with the Rules and approved plans.

The materials and workmanship are good.

The boiler was tested by hydraulic pressure to 22.5 kg/cm², and found sound and tight; afterwards efficiently installed in the vessel, and the safety valves adjusted under steam to 12.5 kg/cm² (178 lbs/sq in).

This boiler in my opinion is eligible to have the record of $\Pi B 178 \text{ lbs/sq in}$.

Survey Fee £ 37 : 1 : 0. When applied for, 192

Travelling Expenses (if any) £ / : / : - When received, 192

E. Munro
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE. 31 JUL 1924

Assigned See other 7 E. Rpt Nov. 86. 56 TUE. 23 OCT 1924

