

REPORT ON BOILERS.

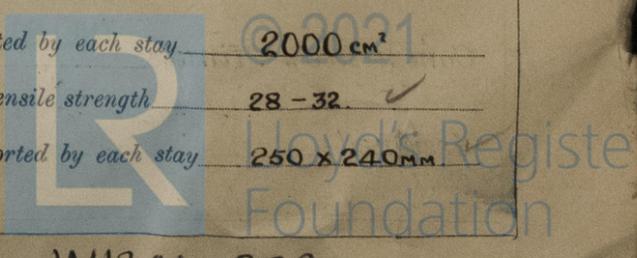
No. 8650.

Received at London Office 23 JUL 1934.

Date of writing Report 1934 When handed in at Local Office 1934 Port of
 Survey held at KOBE Date, First Survey 31-7-33 Last Survey 22-6-1934
 on the MOTOR VESSEL "TOA MARU" (Number of Visits 16) Gross 10052 Tons Net 9038
 Built at KOBE By whom built KAWASAKI DOCKYARD CO Yard No. 572 When built 1934
 Lines 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
 and nominal Horse Power 2115 Owners IINO SHOJI KABUSHIKI KAISHA Port belonging to NAKAMAIZURU

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel KAWASAKI DOCKYARD CO LD. FUKIJI PLATE & SHEET MILLS (Letter for Record S)
 Total Heating Surface of Boilers 256.2 m² EACH Is forced draught fitted YES Coal or Oil fired OIL
 and Description of Boilers TWO— OIL FIRED SINGLE ENDED MULTITUBULAR Working Pressure 12.5 kg/cm²
 tested by hydraulic pressure to 22.5 kg/cm² Date of test 27.3.34 No. of Certificate 3988 B Can each boiler be worked separately YES
 Kind 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 63.6 cm² as fitted 78.5 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 NO 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 4200 mm Length 3854 mm Shell plates: Material STEEL Tensile strength 28-32
 Thickness 30 mm Are the shell plates welded or flanged NO Description of riveting: circ. seams { end DOUBLE RIVETED LAP inter. DOUBLE RIVETED LAP
 Longitudinal seams TREBLE RIVETED DOUBLE BUTT STRAP Diameter of rivet holes in { circ. seams ENDS 34 mm INTER 38 mm Pitch of rivets { ENDS 95 mm INTER 100 mm long seams 34 mm 220 mm
 Percentage of strength of circ. end seams { plate 64.2 rivets 52.2 Percentage of strength of circ. intermediate seam { plate 62 rivets 61.7
 Percentage of strength of longitudinal joint { plate 84.6 rivets 105.5 Working pressure of shell by Rules 13.1 kg/cm² combined 90.5
 Thickness of butt straps { outer 23 mm inner 28 mm No. and Description of Furnaces in each Boiler TWO— MORISON TYPE CORRUGATED
 Material STEEL Tensile strength 28-32 Smallest outside diameter 1203.3 mm
 Length of plain part { top 160 mm bottom 160 mm Thickness of plates { crown 17.46 mm bottom 17.46 mm Description of longitudinal joint WELDED
 Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 14.9 kg/cm²
 Plates in steam space: Material STEEL Tensile strength 28-32 Thickness 28 mm Pitch of stays 400 x 500
 How are stays secured EXT: NUTS & WASHERS. INT: NUTS Working pressure by Rules 14.9 kg/cm²
 Front plates: Material { front STEEL back STEEL Tensile strength { 28-32 Thickness { 23 mm 20 mm
 Pitch of stay tubes in nests 210 mm Pitch across wide water spaces 350 x 210 mm Working pressure { front 17.6 kg/cm² back 14.4 kg/cm²
 Girders to combustion chamber tops: Material STEEL Tensile strength 28-32 Depth and thickness of girder
 Centre 275 x 22 x 2 mm Length as per Rule 960 mm Distance apart 270 mm No. and pitch of stays
 Each 3 x 250 mm Working pressure by Rules 15.1 kg/cm² Combustion chamber plates: Material STEEL
 Tensile strength 28-32 Thickness: Sides 20 mm Back 20 mm Top 20 mm Bottom 22 mm
 Pitch of stays to ditto: Sides 250 x 240 mm Back 230 x 210 mm Top 250 x 270 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 23 mm Lower back plate: Material STEEL Tensile strength 28-32 Thickness 23 mm
 Pitch of stays at wide water space 360 x 210 mm Are stays fitted with nuts or riveted over NUTS
 Shipping Pressure 17.6 kg/cm² Main stays: Material STEEL Tensile strength 28-32
 Diameter { At body of stay 75 mm No. of threads per inch 6 Area supported by each stay 2000 cm² Over threads
 Working pressure by Rules 14.7 kg/cm² Screw stays: Material STEEL Tensile strength 28-32
 Diameter { At turned off part 42 & 46 mm No. of threads per inch 11 Area supported by each stay 250 x 240 mm Over threads



Working pressure by Rules 14.8 kg/cm² Are the stays drilled at the outer ends YES ✓ Margin stays: Diameter { At turned off part, 40mm or Over threads. }
 No. of threads per inch 11 ✓ Area supported by each stay 619.5 cm² Working pressure by Rules 14.1 kg/cm²
 Tubes; Material STEEL ✓ External diameter { Plain 76.2 mm Thickness { Nº 8 LSG No. of threads per inch 9 } Stay 76.2 mm }
 Pitch of tubes 105 x 105 mm ✓ Working pressure by Rules 15.25 kg/cm² ✓ Manhole compensation: Size of opening
 shell plate 600 x 500 mm ✓ Section of compensating ring 500 x 30 mm ✓ No. of rivets and diameter of rivet holes 42 - 34 mm ✓
 Outer row rivet pitch at ends 220 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 of 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 a govern 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,
El Munnio Chief Designer Manufacturer
R. D. 7.0.00

Dates of Survey { During progress of work in shops - - } JAN/34. 16. 17. 24. MAR/34. 13. 22. 29. JUN/34. 13. Are the approved plans of boiler and superheater forwarded herewith 4-9- (If not state date of approval.)
 { During erection on board vessel - - - } MAY/34. 16. 25. JUN/34. 1. 12. 22. Total No. of visits 20

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 IB. 178 lbs/sq. in.

Survey Fee £ 54 : 18 : 0. } When applied for, 192
 Travelling Expenses (if any) £ : : } When received, 192

El Munnio
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE. 31 JUL 1934
 Assigned See other T.C.
Kob. 8656



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