

# REPORT ON BOILERS.

No. 225

Received at London Office

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Date of writing Report 3rd June 1937 When handed in at Local Office 3rd June 1937 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 8th Dec. 1936 Last Survey 14th May 1937

Reg. Book 88997 on the Single Screw Motor Vessel "KOTOKU MARU" (Number of Visits See Machy. rpt.) Gross 6701

Tons Net 4860

Built at Nagasaki By whom built Mitsubishi Jukogyo K.K. Yard No. 671 When built 1937

Engines made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Engine No. 671 When made 1937

Boilers made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Boiler No. 671 When made 1937

Owners Hiroumi Shoji Kabushiki Kaisha. Port belonging to Osaka.

## VERTICAL DONKEY BOILER.

Made at Nagasaki By whom made Mitsubishi Jukogyo KK Boiler No. 671 When made 1937 Where fixed E.R.Upper.

Manufacturers of Steel The Steel Company of Scotland, Ltd. Nippon Seitetsu K.K. Yawata.

Total Heating Surface of Boiler 31.614 sq.M. Is forced draught fitted Yes Coal or Oil fired Exhaust gas or oil.

No. and Description of Boilers One, vertical waste heat boiler (Clarkson type). Working pressure 8.5 Kg/cm<sup>2</sup>

Tested by hydraulic pressure to 16.25 Kg/cm<sup>2</sup> Date of test 6-2-1937 No. of Certificate 1623

Area of Firegrate in each Boiler / No. and Description of safety valves to each boiler Twin spring loaded.

Area of each set of valves per boiler per rule 2268 sq. m/m Pressure to which they are adjusted 8.6 Kg/cm<sup>2</sup> Are they fitted with easing gear Yes

State whether steam from main boilers can enter the donkey boiler / Smallest distance between boiler or uptake and bunkers or woodwork /

Is oil fuel carried in the double bottom under boiler / Smallest distance between base of boiler and tank top plating /

Boiler flat near 2nd deck of E.R. Is the base of the boiler insulated Yes Largest internal dia. of boiler 2000 m/m Height 4.950 m/m

Shell plates: Material Steel Tensile strength 44-55 Kg/cm<sup>2</sup> Thickness 13 m/m

Are the shell plates welded or flanged No Description of riveting: circ. seams S.R.L. long. seams D.R.D.B.S.

Dia. of rivet holes in circ. seams 20 m/m Pitch of rivets 45.5 m/m Percentage of strength of circ. seams plate 56% rivets 43.5% of Longitudinal joint plate 75.7% rivets 90%

Working pressure of shell by rules 9.86 Kg/cm<sup>2</sup> Thickness of butt straps outer 8.5 m/m inner 11.5 m/m

Shell Crown: Whether complete hemisphere, dished partial spherical, or flat Dished Material Steel

Tensile strength 41-48 Kg/cm<sup>2</sup> Thickness 22 m/m Radius 1800 m/m Working pressure by rules 8.87 Kg/cm<sup>2</sup>

Description of Furnace: Plain, spherical, or dished crown SEE Ogee Ring Material / Tensile strength /

Thickness / External diameter / Length as per rule / Working pressure by rules /

Pitch of support stays circumferentially / and vertically / Are stays fitted with nuts or riveted over /

Diameter of stays over thread / Radius of spherical or dished furnace crown / Working pressure by rule /

Thickness of Ogee Ring / Diameter as per rule / Working pressure by rule /

Ogee Ring:- Material Steel Tensile strength 41-48 Kg/cm<sup>2</sup> Thickness of top plate 20 m/m Bot. plate 21 m/m

Radius if dished 1500 m/m Working pressure by rule 8.7 Kg. Thickness of back plate / Diameter if circular /

Length as per rule / Pitch of stays / Are stays fitted with nuts or riveted over /

Diameter of stays over thread / Working pressure of back plate by rules /

Tube Plates: Material Steel Tensile strength 41-48 Kgs Thickness 28 m/m Mean pitch of thimble 206.3x177.9 m/m

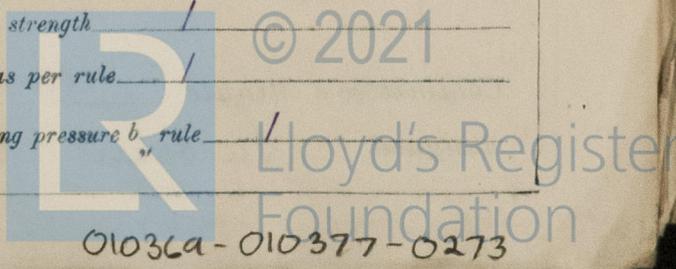
If comprising shell, Dia. as per rule / Pitch in outer vertical rows / Dia. of tube holes FRONT 83 m/m BACK /

Is each alternate tube in outer vertical rows a stay tube / Working pressure by rules 10.5 Kgs

Girders to combustion chamber tops: Material / Tensile strength /

Depth and thickness of girder at centre / Length as per rule /

Distance apart / No. and pitch of stays in each / Working pressure by rule /



Crown stays: Material / Tensile strength / Diameter { at body of stay, / or over threads, /

No. of threads per inch / Area supported by each stay / Working pressure by rules /

Screw stays: Material / Tensile strength / Diameter { at turned off part, / or over threads, / No. of threads per inch /

Area supported by each stay / Working pressure by rules / Are the stays drilled at the outer ends /

Tubes: Material Water circulating tube: M.S. Thimble tube: M.S. External diameter Circ. tube: 75 m/m Thickness 4.5 m/m Thimble: 83 m/m Thickness 5 m/m

No. of threads per inch / Pitch of tubes / Working pressure by rules Circ. tube: 14 Kg/cm2 Thimble: 15

Manhole Compensation: Size of opening in shell plate 280x380 m/m Section of compensating ring Flanged 16 m/m thick No. of rivets and diameter

of rivet holes 40 x 19 m/m Outer row rivet pitch at ends 90 m/m Depth of flange if manhole flanged 70 m/m

Uptake: External diameter 1210 x 772 m/m Thickness of uptake plate 28 m/m 16 m/m

Cross Tubes: No. / External diameters { / Thickness of plates /

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description, NAGASAKI WORKS, MITSUBISHI KAISHA, Ltd. J. Ogawa, Manufacturer, GENERAL MANAGER, Kobe.

Dates of Survey while building { During progress of work in shops - - See Machinery report. Is the approved plan of boiler forwarded herewith 27-8-1936 (If not state date of approval.) Total No. of visits /

Is this Boiler a duplicate of a previous case No If so, state Vessel's name and Report No. /

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 plan. The materials have been tested found efficient and the workmanship throughout is good. A water test of 16.25 Kg/cm2 applied to boiler and found sound and tight. This boiler has now been installed on board, and the safety valves adjusted under steam to 8.5 Kg/cm2 on the 21st April 1937, afterwards an accumulation test carried out and all found satisfactory result. Eligible in our opinion to have the record of DBS. 5-37 in the register Book. Fitted for oil fuel F.P. above 150° F.

The oil burning arrangement for Donkey boiler was made by Mitsubishi's Yokohama Dock, and consists of a fan & small electric heater for starting up and 1 small steam heaters. (HEATERS ENCLOSED TYPE) The oil is fed by gravity from an oil fuel tank to the burner where it is forced by steam through the nozzle and the whole carried up through the boiler c.c. by air from fan. All requirement of the rules for oil fuel have been complied with as far as they apply.

Survey Fee ... £ 5-5-0 : ) When applied for, 20. 5. 1937 Travelling Expenses (if any) £ : : ) When received, 10. 6. 1937

H. Buchanan / T. Kemisher, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned See other F.E. report

