

# REPORT ON BOILERS.

No. 6235.

Received at London Office NOV 19 1937

Date of writing Report 19<sup>th</sup> Oct 1937 When handed in at Local Office 19/10/37 Port of **YOKOHAMA**

No. in Survey held at **YOKOHAMA** Date, First Survey 17<sup>th</sup> April Last Survey 12<sup>th</sup> Oct 1937

on the **Steel Screw M.V. "KAJIO MARU"** (Number of Visits 2617) Tons {Gross 8637 Net 6368

Built at **Yokohama** By whom built **Mitsubishi Jukogyo K.K.** Yard No. 279 When built 1937

Engines made at **Yokohama** By whom made **Mitsubishi J. K. K. Yokohama Dock** Engine No. 279 When made 1937

Boilers made at **Yokohama** By whom made **Mitsubishi J. K. K. Yokohama Dock** Boiler No. 279 When made 1937

Indicated Horse Power 1166.8 Owners **Nippon Yusen K.K.** Port belonging to **Yokio**

## MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR DONKEY.~~

Manufacturers of Steel **The Steel Company of Scotland, Ltd.** (Letter for Record **S.**)

Total Heating Surface of Boilers **218 M<sup>2</sup>** each boiler Is forced draught fitted **Yes** Coal or Oil fired **Oil & Exhaust Gases**

Material and Description of Boilers **Two cylindrical marine with water tubes in dry combustion chamber** Working Pressure **11.5 kg/cm<sup>2</sup>**

Tested by hydraulic pressure to **20.75 kg/cm<sup>2</sup>** Date of test **18-8-37** No. of Certificate **63** Can each boiler be worked separately **Yes**

Area of Firegrate in each Boiler **19.5 M<sup>2</sup>** No. and Description of safety valves to each boiler **2 - spring loaded.**

Area of each set of valves per boiler **22.94 M<sup>2</sup>** Pressure to which they are adjusted **11.5 kg/cm<sup>2</sup>** Are they fitted with easing gear **Yes**

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

Smallest distance between boilers or uptakes and bunkers or woodwork **950 mm** Is oil fuel carried in the double bottom under boilers **Yes**

Smallest distance between shell of boiler and tank top plating **On 2nd platform** Is the bottom of the boiler insulated **Yes**

Largest internal dia. of boilers **3800 mm** Length **2550 mm** Shell plates: Material **Steel** Tensile strength **44-55 kg/cm<sup>2</sup>**

Thickness **25 mm** Are the shell plates welded or flanged **Yes** Description of riveting: circ. seams **end D.R. Lap.**

Long. seams **T.R.S.B.S.** Diameter of rivet holes in **circ. seams 29.5 mm** Pitch of rivets **90 mm**

Percentage of strength of circ. end seams **plate 67.2%** rivets **45.6%** Percentage of strength of circ. intermediate seam **plate 85.4%** rivets **93.3%**

Working pressure of shell by Rules **11.6 kg/cm<sup>2</sup>**

Thickness of butt straps **outer 19 mm** No. and Description of Furnaces in each Boiler **Two Deighton Corrugated Furnaces**

Material **Steel** Tensile strength **41-47 kg/cm<sup>2</sup>** Smallest outside diameter **1078 mm**

Length of plain part **top** Thickness of plates **bottom 14 mm** Description of longitudinal joint **Weld.**

Dimensions of stiffening rings on furnace or c.c. bottom **Working pressure of furnace by Rules 12.1 kg/cm<sup>2</sup>**

Stays in steam space: Material **Steel** Tensile strength **41-47 kg/cm<sup>2</sup>** Thickness **30 mm** Pitch of stays **400 mm**

Are stays secured **nuts & washers both sides** Working pressure by Rules **18.3 kg/cm<sup>2</sup>**

End plates: Material **Steel** Tensile strength **41/47 kg/cm<sup>2</sup>** Thickness **22 mm**

Pitch of stay tubes in nests **330 x 306 mm** Pitch across wide water spaces **330 mm** Working pressure **front 12.1 kg/cm<sup>2</sup> back 12.1 kg/cm<sup>2</sup>**

Stays to combustion chamber tops: Material **Steel** Tensile strength **44-55 kg/cm<sup>2</sup>**

Distance apart **Working pressure by Rules** Combustion chamber plates: Material **Steel**

Thickness: Sides **Back Top Bottom**

Are stays fitted with nuts or riveted over **Working pressure by Rules**

Front plate at bottom: Material **Steel** Tensile strength **41-47 kg/cm<sup>2</sup>**

Thickness **22 mm** Lower back plate: Material **Steel** Tensile strength **41-47 kg/cm<sup>2</sup>** Thickness **22 mm**

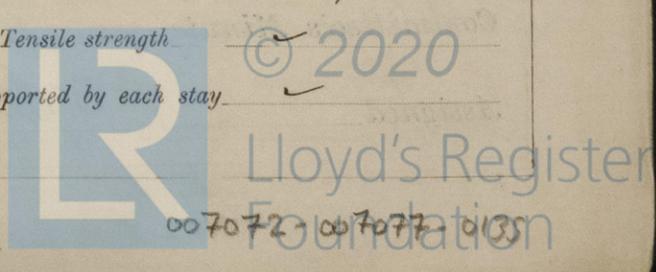
Are stays fitted with nuts or riveted over **Working Pressure**

Main stays: Material **Steel** Tensile strength **44-55 kg/cm<sup>2</sup>**

Shipping meter **At body of stay 63.5 mm** No. of threads per inch **6** Area supported by each stay **400 cm<sup>2</sup>**

Working pressure by Rules **15.5 kg/cm<sup>2</sup>** Screw stays: Material **Steel** Tensile strength **At turned off part**

Shipping meter **Over threads 70 mm** No. of threads per inch **Area supported by each stay**



Working pressure by Rules  Are the stays drilled at the outer ends  Margin stays: Diameter  At turned off part, or Over threads

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

Tubes: Material Steel External diameter  Plain 3"  Stay 3"  Thickness  9 L.S.G.  3/8" x 5/16" No. of threads per inch 9

Pitch of tubes 102 x 110 m/m Working pressure by Rules 13.5 kgs/cm<sup>2</sup> Manhole compensation: Size of opening in shell plate 305 x 406 m/m Section of compensating ring  No. of rivets and diameter of rivet holes

Outer row rivet pitch at ends  Depth of flange if manhole flanged  Steam Dome: Material Steel

Tensile strength 41-47 kgs/m<sup>2</sup> Thickness of shell 12 m/m Description of longitudinal joint D.R. Lap

Diameter of rivet holes 23 m/m Pitch of rivets 60 m/m Percentage of strength of joint  Plate 67.1% Rivets 74%

Internal diameter 1200 m/m Working pressure by Rules 12.6 kgs/cm<sup>2</sup> Thickness of crown 22 m/m No. and diameter of stays  Inner radius of crown 1200 m/m Working pressure by Rules 15.3 kgs/cm<sup>2</sup>

How connected to shell D.R. joint Size of doubling plate under dome 1635 x 25 m/m Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 23 @ 125 m/m

If not, state whether, and

Size of Manhole or Handhole  Water Drums:—Number in each boiler One  Inside Diameter 450 m/m

Material of plates Steel Thickness 20 m/m Range of tensile strength 41-47 kgs/m<sup>2</sup> Are drum shell plates welded or flanged no Description of riveting:—Cir. seams R long. seams Seamless Diameter of Rivet Holes in long. seams  Pitch of rivets  Lap of plates or width of butt straps  Thickness of straps

Percentage strength of long. joint:—Plate  Rivet  Diameter of tube holes in drum 45.5 m/m Pitch of tube holes 73 x 60 m/m

Percentage strength of drum shell in way of tubes 37.6% Water Drum Heads or Ends:—Material Steel Thickness 25 m/m

Radius or how stayed  Size of manhole or handhole End bolted on Headers or Sections:—Number \_\_\_\_\_

Material \_\_\_\_\_ Thickness \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_ Material of Stays \_\_\_\_\_

tubes \_\_\_\_\_ forgings and castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks or valves fitted to free the superheater from water where necessary \_\_\_\_\_

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

The foregoing is a correct description,  
F. Adachi Manufacturer.

Dates of Survey  During progress of work in shops - - - 14/4, 28/6, 3, 15, 17, 22, 26, 27/7, 2/8, 6/8 Are the approved plans of boiler and superheater forwarded herewith July 4/2/37  
(If not state date of approval.)

while building  During erection on board vessel - - - 24/8, 10, 14, 27/9, 7/10, 12/10/37 Total No. of visits 17

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

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

These boilers have been built under Special Survey in accordance with the Rules & approved plan. Materials & workmanship good.

These boilers have been securely fitted onboard vessel, examined under steam, safety valves adjusted to 11.5 kgs/cm<sup>2</sup> and accumulation tests carried out with satisfactory results.

These boilers in our opinions are eligible to be classed with the machinery of this vessel and to have the record of 1/2" LMC 10-37

Survey Fee Charged on Machinery Report. } When applied for, 19  
Travelling Expenses (if any) £ \_\_\_\_\_ } When received, 19

Nicholas Michizumi  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 23 NOV 1937

Assigned See Yka LC 6235-

