

# REPORT ON BOILERS.

Received at London Office 5 JUN 1936

Date of writing Report 9-4-1936 When handed in at Local Office 23-4-1936 Port of KOBE

No. in Survey held at TAMA Date, First Survey 14-8-1935 Last Survey 4-4-1936

on the STEEL SINGLE SCREW MOTORSHIP "OTOWASAN MARU" (Number of Visits 13) } Gross 9234  
Tons } Net 5338

Master  Built at TAMA By whom built mitsui BUSSAN KAISHA Yard No. 211 When built 1936

Engines made at TAMA By whom made mitsui BUSSAN KAISHA Engine No. 95 When made 1936

Boilers made at TAMA By whom made mitsui BUSSAN KAISHA Boiler No. 131 When made 1936

Nominal Horse Power 1231 Owners mitsui BUSSAN KAISHA Port belonging to KOBE

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

Manufacturers of Steel SHELL PLATES: GUTEHOFFNUNGSHUTTE OBERHAUSEN A.G. DUSSEL DORF CERTIFICATES. OTHER PLATES: NIPPON SEITETSU, YAWATA WORKS. (Letter for Record (S) ✓)

Total Heating Surface of Boilers { OIL BURNING :- 57.43 M<sup>2</sup> WASTE GAS :- 219.45 M<sup>2</sup> } Is forced draught fitted YES Coal or Oil fired OIL & WASTE GAS.

No. and Description of Boilers ONE - WASTE GAS AND OIL FITTED SINGLE ENDED MULTITUBULAR. Working Pressure 14 Kg/cm<sup>2</sup>

Tested by hydraulic pressure to 24.5 Kg/cm<sup>2</sup> Date of test 6-2-36 No. of Certificate 4908 Can each boiler be worked separately YES

Area of Firegrate in each Boiler 1.95 M<sup>2</sup> No. and Description of safety valves to each boiler 2 SPRING LOADED

Area of each set of valves per boiler { per Rule 11300 MM<sup>2</sup> as fitted 12400 MM<sup>2</sup> } Pressure to which they are adjusted 14 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 ✓

Smallest distance between boilers or uptakes and bunkers or woodwork ABOUT 6 FEET TO F.O. TANK. Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and tank top plating BOILER FITTED IN MID-TWEEN DECK Is the bottom of the boiler insulated YES

Largest internal dia. of boilers 4000 M.M. Length 3500 M.M. Shell plates: Material STEEL Tensile strength 28-32 T/a"

Thickness 32 M.M. Are the shell plates welded or flanged NO. Description of riveting: circ. seams { end DOUBLE RIVETED LAP inter. ✓

long. seams TRIPLE RIVETED DOUBLE BUTT STRAP Diameter of rivet holes in { circ. seams 36.5 M.M. long. seams 33.5 M.M. } Pitch of rivets { 100 M.M. 230 M.M.

Percentage of strength of circ. end seams { plate 63.5 rivets 53.8 } Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 85.5 rivets 92.0 combined 89.2 } Working pressure of shell by Rules 14.9 Kg/cm<sup>2</sup>

Thickness of butt straps { outer 25 M.M. inner 28 M.M. } No. and Description of Furnaces in each Boiler ONE - MORISON TYPE CORRUGATED

Material STEEL Tensile strength 26-30 T/a" Smallest outside diameter 945 M.M.

Length of plain part { top 157 M.M. bottom 157 M.M. } Thickness of plates { crown 15 M.M. bottom 15 M.M. } Description of longitudinal joint WELDED

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 16.25 Kg/cm<sup>2</sup>

End plates in steam space: Material STEEL Tensile strength 26-30 T/a" Thickness 30 M.M. Pitch of stays 400 M.M. X 450 M.M.

How are stays secured DOUBLE NUTS AND WASHER Working pressure by Rules 16.2 Kg/cm<sup>2</sup>

Tube plates: Material { front STEEL back STEEL } Tensile strength { 26-30 T/a" 26-30 T/a" } Thickness { 21 M.M. 21 M.M.

Mean pitch of stay tubes in nests 218 M.M. Pitch across wide water spaces 340 M.M. X 108 M.M. Working pressure { front 16.6 Kg/cm<sup>2</sup> back 23.5 Kg/cm<sup>2</sup>

Girders to combustion chamber tops: Material STEEL Tensile strength 28-32 T/a" Depth and thickness of girder

at centre 230 M.M. X 2-18 M.M. Length as per Rule 741 M.M. Distance apart 200 M.M. No. and pitch of stays

in each 2.- 240 M.M. Working pressure by Rules 20.4 Kg/cm<sup>2</sup> Combustion chamber plates: Material STEEL.

Tensile strength 26-30 T/a" Thickness: Sides 18 M.M. Back 18 M.M. Top 18 M.M. Bottom 21 M.M.

Pitch of stays to ditto: Sides 250 M.M. X 180 M.M. Back 230 M.M. X 210 M.M. Top 240 M.M. X 200 M.M. Are stays fitted with nuts or riveted over NUTS.

Working pressure by Rules 16.3 Kg/cm<sup>2</sup> Front plate at bottom: Material STEEL Tensile strength 26-30 T/a"

Thickness 21 M.M. Lower back plate: Material STEEL Tensile strength 26-30 T/a" Thickness 19 M.M.

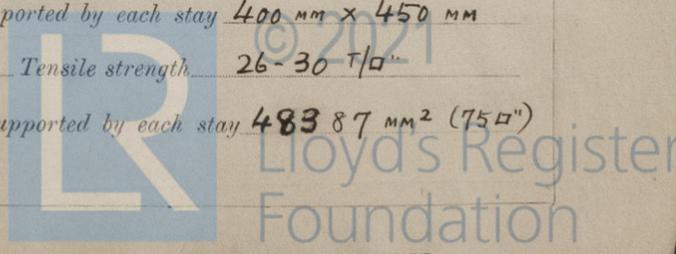
Pitch of stays at wide water space 210 M.M. X 340 M.M. Are stays fitted with nuts or riveted over NUTS.

Working Pressure 19 Kg/cm<sup>2</sup> Main stays: Material STEEL Tensile strength 28-32 T/a"

Diameter { At body of stay, 70 M.M. or Over threads 76 M.M. } No. of threads per inch 6 Area supported by each stay 400 M.M. X 450 M.M.

Working pressure by Rules 16.25 Kg/cm<sup>2</sup> Screw stays: Material STEEL Tensile strength 26-30 T/a"

Diameter { At turned off part, - or Over threads 44.5 M.M. } No. of threads per inch 9 Area supported by each stay 483.87 M.M.<sup>2</sup> (750")



Working pressure by Rules  $17.1 \text{ Kg/cm}^2$  Are the stays drilled at the outer ends **YES** Margin stays: Diameter <sup>At turned off part.</sup>  <sub>Over threads</sub>  $50.8 \text{ mm}, 47.6 \text{ mm}$

No. of threads per inch **6** Area supported by each stay  $57096 \text{ mm}^2 (88.5 \text{ in}^2)$  Working pressure by Rules  $16.8 \text{ Kg/cm}^2$

Tubes: Material **STEEL** External diameter <sup>Plain</sup>  $80 \text{ mm}$   <sub>Stay</sub>  $80 \text{ mm}$   Thickness <sup>4 mm</sup>  <sub>8 mm, 10 mm</sub> No. of threads per inch **9**

Pitch of tubes  $110 \text{ mm} \times 108 \text{ mm}$  Working pressure by Rules  $25.9 \text{ Kg/cm}^2$  Manhole compensation: Size of opening in shell plate  $550 \text{ mm} \times 450 \text{ mm}$  Section of compensating ring  $545 \text{ mm} \times 32 \text{ mm}$  No. of rivets and diameter of rivet holes **42: 36.5 mm**

Outer row rivet pitch at ends **210 mm** Depth of flange if manhole flanged **105 mm** Steam Dome: Material **NONE**

Tensile strength  Thickness of shell  Description of longitudinal joint

Diameter of rivet holes  Pitch of rivets  Percentage of strength of joint <sup>Plate</sup>  <sub>Rivets</sub>

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 pitch of rivets in outer row in dome connection to shell

Type of Superheater **NONE** Manufacturers of <sup>Tubes</sup>  <sub>Steel castings</sub>

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

Material of headers  Tensile strength  Thickness  Can the superheater be shut off and the boiler be worked separately

Area of each safety valve  Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Rules  Are the safety valves fitted with easing gear  Working pressure as per tubes  Pressure to which the safety valves are adjusted  Hydraulic test pressure  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 23 inclusive for boilers been complied with **YES**

The foregoing is a correct description  
**PERI MITSUBI BOSSAN KAISHA, LTD.**  
*Saito* Manufacturer.

Dates of Survey while building   
 During progress of work in shops - -   
 During erection on board vessel - - -

1935: AUG. 14, SEPT. 10, OCT. 14, NOV. 22, 25, 27, DEC. 11, 27.  
 1936: FEB. 6.  
 1936: FEB. 12, MAR. 23, 28, APR. 4

Are the approved plans of boiler and superheater forwarded herewith **26-3-35**.  
 (If not state date of approval.)  
 Total No. of visits **13**.

**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 and workmanship are good.

The boiler was tested by hydraulic pressure to  $24.5 \text{ Kg. per sq. cm}$  and found sound and tight, afterwards installed in accordance with the Rules in the vessel, and safety valves adjusted under steam to  $14 \text{ Kg. per sq. cm. (200 lbs./sq. in.)}$ .

The boiler, in my opinion, is eligible to have the record of D.B.  $14 \text{ Kg. per sq. cm. (200 lbs./sq. in.)}$ .

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

*M. Kanakura*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 12 JUN 1936**

Assigned *See minute on F.E. Rpt.*

