

# REPORT ON BOILERS.

No. 2176

-9 NOV 1936

Received at London Office

Writing Report 29th Sep 36 When handed in at Local Office 29th Sep 36 Port of NAGASAKI.

Survey held at NAGASAKI. Date, First Survey 4th March 36 Last Survey 18th Sep. 1936

on the Single Screw Motor Vessel "AKAGI MARU" See Machy. Rpt. 7386.83  
(Number of Visits) Gross Tons  
Net Tons 4329.02

Built at Nagasaki By whom built Mitsubishi Jukohyo K. Yard No. 627 When built 1936

Engines made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Engine No. 627 When made 1936

Boilers made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Boiler No. 627 When made 1936

Indicated Horse Power 2,248. Owners Nippon Yusen Kabushiki Kaisha. Port belonging to Tokio.

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

Manufacturers of Steel Nippon Seitetsu K.K. Yawata Steel Wks. Tokyo Kozaki K.K. (Letter for Record S)

Total Heating Surface of Boilers 258.82 sq.M. Is forced draught fitted No Coal or Oil fired Oil & Exhaust gas.

Number and Description of Boilers One cylindrical Multitubular. Working Pressure 7 Kg/cm<sup>2</sup>

Tested by hydraulic pressure to 14 Kg/cm<sup>2</sup> Date of test 30-5-36 No. of Certificate 1395 Can each boiler be worked separately /

Number of Firegrate in each Boiler / No. and Description of safety valves to each boiler 4 spring loaded

Weight of each set of valves per boiler {per Rule 1531 m/m<sup>2</sup> Pressure to which they are adjusted 7 Kg Are they fitted with easing gear Yes  
{as fitted 25446.8m/m

Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler /

Least distance between boilers or uptakes and ~~boilers~~ hold bulkhead 420 m/m Is oil fuel carried in the double bottom under boilers /

Least distance between shell of boiler and tank top plating Located in E.R. at 2nd deck level. Is the bottom of the boiler insulated Yes

Least internal dia. of boilers 3700 m/m Length 2650 m/m Shell plates: Material Steel Tensile strength 44-45 Kg

Thickness 19 m/m Are the shell plates welded or flanged No Description of riveting: circ. seams {end Double  
inter. /

Number of seams D.R. & D.B.S. Diameter of rivet holes in {circ. seams 26.5 m/m Pitch of rivets {100.7  
long. seams 26.5 m/m 104.4

Percentage of strength of circ. end seams {plate 76.2 Percentage of strength of circ. intermediate seam {plate /  
rivets 47 rivets /

Percentage of strength of longitudinal joint {plate 74.6 Working pressure of shell by Rules 8.08 sq/cm.  
rivets 85.6 combined /

Thickness of butt straps {outer 12 m/m No. and Description of Furnaces in each Boiler One  
inner 15 m/m

Material Steel Tensile strength 41-48 Kg/sq m/m Smallest outside diameter 1050 m/m

Thickness of plain part {top / Thickness of plates {crown 10 m/m Description of longitudinal joint Welded  
bottom / bottom /

Dimensions of stiffening rings on furnace or c.c. bottom / Working pressure of furnace by Rules 9.94 Kg

Material of plates in steam space: Material Steel Tensile strength 41-48 Kg Thickness 22 m/m Pitch of stays 400 m/m

How are stays secured Double nuts and riveted strip. Working pressure by Rules 16.1 Kg & 9.8 Kg.

Material of plates: Material {front Steel Tensile strength {41-48 Kg Thickness {22 m/m  
back Steel 4-48 Kg 22 m/m

Number and pitch of stay tubes in nests 228x222 m/m Pitch across wide water spaces 340 m/m Working pressure {front /  
back /

Material of girders to combustion chamber tops: Material / Tensile strength / Depth and thickness of girder /

Centre / Length as per Rule / Distance apart / No. and pitch of stays /

Working pressure by Rules / Combustion chamber plates: Material /

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 41-48 Kg

Thickness 22 m/m Lower back plate: Material Steel Tensile strength 41-48 Kg Thickness 22 m/m

Are stays fitted with nuts or riveted over /

Working Pressure / Main stays: Material Steel Tensile strength 44-55 Kg/sq m/m

At body of stay, 2 @ 65m/m & 4 @ 57 m/m No. of threads per inch 6 Area supported by each stay 270000 m/m

Over threads 72 m/m & 4 @ 64 m/m

Working pressure by Rules 7.9 Screw stays: Material / Tensile strength /

At turned off part, / No. of threads per inch / Area supported by each stay /

Over threads /



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

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

Tubes: Material **Steel** External diameter { Plain **83 m/m** / Stay **83 m/m** / Thickness { **3.25 m/m** / **6.5 & 8 m/m** / No. of threads per inch **9 per** /

Pitch of tubes **228 x 222 m/m** Working pressure by Rules **21.6 Kg** Manhole compensation: Size of open shell plate **405 x 305 m/m** Section of compensating ring **Flanged 19 m/m thick.** No. of rivets and diameter of rivet holes **36 @ 26.5 m/m**

Outer row rivet pitch at ends **128.5 m/m** Depth of flange if manhole flanged **90 m/m** Steam Dome: Material **Steel**

Tensile strength **41-48 Kg** Thickness of shell **12 m/m** Description of longitudinal joint **Seam E. welded and fitted butt strap.**

Diameter of rivet holes **23 m/m** Pitch of rivets **55.6 m/m** Percentage of strength of joint { Plate **58.6** / Rivets **50.2** /

Internal diameter **800 m/m** Working pressure by Rules **11.5 Kg** Thickness of crown **15 m/m** No. and diameter of stays / Inner radius of crown **750 m/m** Working pressure by Rules **16.6 Kg**

How connected to shell **Riveted: Single row** Size of doubling plate under dome **600 m/m dia x 22 m/m thick.** Diameter of rivet holes and of rivets in outer row in dome connection to shell **23 m/m x 104 m/m pitch.**

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 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 / 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 **Yes**

NAGASAKI WORKS, MITSUBISHI JUKOGYO KABUSHIKI KAISHA.

K. Shimidzu  
for GENERAL MANAGER

The foregoing is a correct description,

Dates of Survey { During progress of work in shops - - / while building { During erection on board vessel - - - / See Machy. rept. / Are the approved plans of boiler and superheater forwarded herewith **30-12** (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**

**The materials have been tested found efficient and the workmanship throughout is good.**

**A water test of 14 Kg/cm<sup>2</sup> applied to boiler and found sound and tight.**

**This boiler has now been installed on board and the safety valves adjusted under steam to 7 Kg/cm<sup>2</sup> on the 13th August 1936 afterwards an accumulation test carried and all found satisfactory.**

**Eligible in our opinion to have the record of **DBS. 9.-'36** in the Register Book.**

**Fitted for oil fuel F.P. above 150° F.**

**Note:- A pressure feed water heater has been fitted, constructed in accordance with plan approved 24-10-35 and tested by hydraulic pressure of 17 Kg/cm<sup>2</sup> and found sound and tight.**

**This exhaust gases from the Aux. engines are used for heating the feed water in this heater and a relief valves is fitted and adjusted release at 9 Kg/cm<sup>2</sup>.**

Survey Fee - ... £ **See Machinery report.** When applied for, 19  
Travelling Expenses (if any) £ : : When received, 19

For T. Kunishi - self H.D. Buchanan  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **FRI. 13 NOV 1936**

Assigned

See Nav. J.E 2176



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Foundation