

REPORT ON BOILERS.

No. 6879.

24 APR 1930

Received at London Office

Writing Report 25 March 1930 When handed in at Local Office

192 Port of Kobe

Survey held at Osaka Date, First Survey 2nd August 1929 Last Survey 18th December 1929

on the Twin Screw Motor Ship HEIYO MARU. (Number of Visits 17) Gross 9815.69 Net

Built at Osaka By whom built Osaka Iron Works Yard No. 1127. When built 1929

Machinery made at Nagasaki By whom made Mitsubishi Zosen Kaisha Engine No. 464 When made 1929.

Boiler made at Osaka By whom made Osaka Iron Works Boiler No. 1127 When made 1929.

Horse Power Owners Nippon Yusen Kabushiki Kaisha Port belonging to Tokyo.

TITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel James Dunlop & Co. Ltd. (Letter for Record S)

Heating Surface of Boilers 5843 sq ft 626 sq ft Is forced draught fitted No. Coal or Oil fired oil

Description of Boilers One single ended Working Pressure 100 lbs

Tested by hydraulic pressure to 200 Date of test 14.10.29. No. of Certificate Can each boiler be worked separately

Area of Firegrate in each Boiler 115.2 sq ft No. and Description of safety valves to each boiler Two Spring loaded.

Weight of each set of valves per boiler per Rule 8.75 as fitted 9.81 Pressure to which they are adjusted 100 lbs Are they fitted with easing gear Yes

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

Minimum distance between boilers or uptakes and bunkers or woodwork Is oil fuel carried in the double bottom under boilers

Minimum distance between shell of boiler and tank top plating Is the bottom of the boiler insulated Yes

Internal dia. of boilers 9'-0" Length 8'-3" Shell plates: Material Steel Tensile strength 28 to 32 double riveted

Thickness 5/8" Are the shell plates welded or flanged Description of riveting: circ. seams end 3/8" inter 3/4"

Seams D.R. D.B.S. Diameter of rivet holes in circ. seams 1 1/16" long. seams 15/16" Pitch of rivets 3 3/4"

Percentage of strength of circ. end seams plate 66 rivets 74.5 Percentage of strength of circ. intermediate seam plate 75 rivets 90.5 Working pressure of shell by Rules 127.5

Percentage of strength of longitudinal joint plate 75 rivets 90.5 combined 95.3

Thickness of butt straps outer 5/8" inner 5/8" No. and Description of Furnaces in each Boiler Two Doughton Type

Material steel Tensile strength 26 to 30 Smallest outside diameter 32 7/8"

Thickness of plain part top bottom Thickness of plates crown 7/16" bottom 7/16" Description of longitudinal joint

Positions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 189.5

Plates in steam space: Material steel Tensile strength 26 to 30 Thickness 3/4" Pitch of stays 13 3/4" x 12"

Are stays secured Double nuts & washers Working pressure by Rules 170

Plates: Material front steel back steel Tensile strength 26 to 30 Thickness 5/8" 5/8"

Pitch of stay tubes in nests 9.5625 Pitch across wide water spaces 13" Working pressure front 127 + III back 149.8

Stays to combustion chamber tops: Material steel Tensile strength 28 to 32 Depth and thickness of girder

Size 5 1/4" x 1 1/4" Length as per Rule 25.1875 Distance apart 6 1/2" x 7" No. and pitch of stays

Working pressure by Rules 135 Combustion chamber plates: Material steel Tensile strength 26 to 30 Thickness: Sides 1/2" Back 9/16" Top 1/2" Bottom 9/16"

Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 144 Front plate at bottom: Material steel Tensile strength 26 to 30 Thickness 5/8"

Lower back plate: Material steel Tensile strength 26 to 30 Thickness 5/8"

Are stays fitted with nuts or riveted over nuts

Working Pressure 130.5 Main stays: Material steel Tensile strength 28 to 32

At body of stay 2 1/4" No. of threads per inch 6 Area supported by each stay 133

Over threads Screw stays: Material steel Tensile strength 26 to 30

Working pressure by Rules 261 At turned off part 1 3/8" No. of threads per inch 9 Area supported by each stay 57.75



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Working pressure by Rules **175.8** Are the stays drilled at the outer ends Margin stays: Diameter ^(At turned off part or Over threads) $\frac{1.45}{1.58}$ "

No. of threads per inch **9** Area supported by each stay **78.75** Working pressure by Rules **193.5**

Tubes: Material **Iron** External diameter ^{Plain 3" / Stay 3"} Thickness **10 L.S.G.** $\frac{3}{8} \times \frac{5}{16}$ " No. of threads per inch **9**

Pitch of tubes **8 1/4" x 9 1/16"** Working pressure by Rules **347** Manhole compensation: Size of shell plate **12 x 16" + 20"** Section of compensating ring **9.125** No. of rivets and diameter of rivet holes **42 @ 1 1/4"**

Outer row rivet pitch at ends **8 1/2"** Depth of flange if manhole flanged **3 1/2"** 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 dia stays

How connected to shell Inner radius of crown Working pressure by Rules

Size of doubling plate under dome Diameter of rivet holes 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 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 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, No.

[Signature] Manu

Dates of Survey ^{During progress of work in shops - - -} **1929 Aug. 2, 9, 27, Sept. 4, 11, 19, 20, 30** ^{at 1.5, 10, 15, 18.} Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building ^{During erection on board vessel - - -} **Nov. 7, 11, Dec. 3, 11, 18.** Total No. of visits **17**

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

The boiler has been constructed under special survey in accordance with the requirements of the Rules and approved plan; the workmanship and materials are good and on completion the boiler was tested by hydraulic pressure to 200 lbs per sq. inch found tight and sound and afterwards efficiently installed in the vessel and the safety valves adjusted under steam to 100 lbs per sq. inch and is eligible in our opinion for the record of T.O.B. 3.20. 100 lbs

Survey Fee £ **63 7/8** : When applied for, **26/3/1929**

Travelling Expenses (if any) £ : : When received, **31/3/1929**

[Signature]
Engineer Surveyor to Lloyd's Register of Ships

Committee's Minute

TUE. 29 APR 1930

TUE. 13 MAY 1930

Assigned

See attached T.O. Report

TUE. 28 OCT 1930

WED. 8 APR 1931

FRI. 17 APR 1931

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