

Rpt. 4.

REPORT ON MACHINERY.

No. 603.

Port of

Nagasaki

Received at London Office

1908 26 MAY 1908

IN SUPPLY

No. in Survey held at

Nagasaki

Date, first Survey

29. 9. 06

Last Survey

26. 4

1908.

Reg. Book.

31

on the

TRIPLE TURBINE,

TENYO MARU.

(Number of Visits 209.)

Gross 13454

Tons Net 7265

When built 1908.

Master P. Going

Built at

Nagasaki

By whom built

Mitsui Bishi Dr. E. Works

When built

1908.

Engines made at

Newcastle

By whom made

Parsons No. 8. J. C. & Co. Ltd.

when made 1907-8.

Boilers made at

Nagasaki

By whom made

Mitsui Bishi Dr. E. Works.

when made 1907-8.

Registered Horse Power

Owners

Toyo Kisen Kaisha

Port belonging to

Tokio.

Nom. Horse Power as per Section 28

2970.

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

yes.

ENGINES, &c.—Description of Engines

Parsons Triple Turbine

No. of Cylinders

Three

No. of Cranks

✓

Dia. of Cylinders

Nwc No. 52996

Length of Stroke

✓

Revs. per minute

280

Dia. of Screw shaft

as per rule 12.65

Material of

Lockfast

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

yes

Is the after end of the liner made water tight

in the propeller boss

yes

If the liner is in more than one length are the joints burned

yes

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

✓

✓

If two

liners are fitted, is the shaft lapped or protected between the liners

✓

✓

Length of stern bush

7-6 3/4"

Dia. of Tunnel shaft

as per rule 11.81

as fitted 12.06

Dia. of Crank shaft journals

as per rule H.P. 15

as fitted 16"

Dia. of Crank pin

✓

Size of Crank webs

✓

Dia. of thrust shaft under

ollars

13 1/2"

Dia. of screw

9-7"

Pitch of Screw

8-9"

No. of Blades

3

State whether moveable

No

Total surface 39.3 ft each.

No. of Feed pumps

✓

Diameter of ditto 17x12 1/2"

Stroke

26"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

✓

Diameter of ditto 8x10"

Stroke

8"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

✓

Sizes of Pumps

16-20 8x10x8"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3 @ 3 1/2" and 6 @ 3 1/2" in Boiler Rooms In Holds, &c. Two @ 3 1/2" in each hold.

In each copper dam 3 @ 3 1/2" to oil pumps only, discharging to settling tanks & overboard.

No. of Bilge Injections

2

sizes 12"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room & size

yes. 9" is

Are all the bilge suction pipes fitted with roses

yes

Are the roses in Engine room always accessible

yes

Are the sluices on Engine room bulkheads always accessible

None.

Are all connections with the sea direct on the skin of the ship

yes

Are they Valves or Cocks

Both valves and cocks.

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates

yes

Are the Discharge Pipes above or below the deep water line

above + below.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate

yes.

That pipes are carried through the bunkers

Soil & Claytons Fire pipes.

How are they protected

Strong wood casings.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

yes.

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

yes.

Dates of examination of completion of fitting of Sea Connections

12. 9. 07

of Stern Tubes

13. 9. 07

Screw shafts and Propellers

13. 9. 07.

Is the Screw Shaft Tunnels watertight

yes

Is it fitted with a watertight doors

yes

worked from

Bridge or Engine Room.

MILERS, &c.—(Letter for record

S.)

Manufacturers of Steel

Hallside.

Palmer.

Farman Long.

Fry & Co.

Total Heating Surface of Boilers

37661

Is Forced Draft fitted

yes

No. and Description of Boilers

(13) Single ended Scotch.

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Dates of test

See over.

No. of Certificate

26.

Can each boiler be worked separately

yes

Area of fire grate in each boiler

75.5 sq

No. and Description of Safety Valves to

each boiler

2 @ 3 3/4" Spring.

Area of each valve

11.04 sq

Pressure to which they are adjusted

185 lbs

Smallest distance between boilers or uptakes and bunkers or woodwork

1-9"

Mean dia. of boilers

15.9"

Length

11.6"

Material of shell plates

Steel

Thickness

1 1/4"

Range of tensile strength

28-31

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

2R. Lap.

Long. seams

3R. 2 Sharp

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

10x5"

Lap of plates or width of butt straps

22"

Percentage of strength of longitudinal joint

90.5%

Working pressure of shell by rules

208 lbs

Size of manhole in shell

16x12"

Size of compensating ring

37x32x1 1/2"

No. and Description of Furnaces in each boiler

4

Material

Steel

Outside diameter

44 3/4"

Length of plain part

top

Thickness of plates

crown 19"

Description of longitudinal joint

Welded.

No. of strengthening rings

✓

Working pressure of furnace by the rules

210

Combustion chamber plates: Material

Steel

Thickness: Sides

64

Back

64

Top

64

Bottom

16.

Pitch of stays to ditto: Sides

9x7 3/4"

Back

9x8 3/8"

Top

8 3/8x8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

194

Material of stays

Steel

Diameter at smallest part

1 1/2"

Area supported by each stay

69.75

Working pressure by rules

192

End plates in steam space:

Material

Steel

Thickness

1 3/32"

Pitch of stays

20 1/2x17"

Diameter at smallest part

3 3/8"

Area supported by each stay

348.5

Working pressure by rules

215

Material of Front plates at bottom

Steel

Thickness

3/4"

Material of Lower back plate

Steel

Thickness

7/8"

Greatest pitch of stays

11" doubled

Working pressure of plate by rules

250

Diameter of tubes

2 1/2"

Pitch of tubes

3 3/4x3 5/8"

Material of tube plates

Steel

Thickness: Front

3/4"

Back

3/4"

Mean pitch of stays

7 3/8"

Pitch across wide water spaces

12 3/4"

Working pressures by rules

248 lbs

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

11 1/4x1 3/4"

Length as per rule

34 3/4"

Distance apart

8 3/4"

Number and pitch of stays in each

3 @ 8"

Working pressure by rules

276 lbs

Superheater or Steam chest; how connected to boiler

✓

Can the superheater be shut off and the boiler worked

separately

✓

Diameter

✓

Length

✓

Thickness of shell plates

✓

Material

✓

Description of longitudinal joint

✓

Diam. of rivet

holes

✓

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *NOT ANY*. Description

Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____
 Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *As per rule and in addition, two spare propeller shafts, one centre one wing. Two propellers, one right, one left. Two complete Main Bearing brasses, twelve rotor cover bolts and nuts. One set of valves for bilge pumps, for Main Feed Pumps, Air Pumps &c &c.*

The foregoing is a correct description,
J. M. M. General Manager
Arthur Barker Dockyard & Shipbuilders Manufacturer.

Dates of Survey while building { During progress of work in shops - - Continuous on Auxiliary Machinery & Boilers from 29.9.06 to 14.9.07
 { During erection on board vessel - - Continuous from 14.9.06 to 26 April 1908. 85 visits.
 Total No. of visits 209. Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders ☒ Slides ☒ Covers ☒ Pistons ☒ Rods ☒
 Connecting rods ☒ Crank shaft ☒ Thrust shaft ☒ Tunnel shafts 13.5.07 Screw shafts ☒ Propellers ☒
 Stern tube 13.9.07 Steam pipes tested 14.8.07. Engine and boiler seatings 13.8.07 Engines holding down bolts 12.11.07
 Completion of pumping arrangements 25 Jun 1908 Boilers fixed 30 Jun 1908 Engines tried under steam 10.15.19 + 27 Feb 1908
 Main boiler safety valves adjusted 20 April 1908 Thickness of adjusting washers *jam & nuts, no washers.*
 Material of Crank shaft ☒ Identification Mark on Do. ☒ Material of Thrust shaft ☒ Identification Mark on Do. ☒
 Material of Tunnel shafts *Mild Steel* Identification Marks on Do. *LLOYD'S N° 26 A.C.H. 07.* Material of Screw shafts *Lock fast* Identification Marks on Do. *LLOYD'S 1647 31.1.07 C.M.*
 Material of Steam Pipes *Wrought iron lap welded.* Test pressure *550 lbs per square inch.*

General Remarks (State quality of workmanship, opinions as to class, &c. *For Report on Turbines see Newcastle Report N° 52996. These Engines and Boilers have been built in accordance with the Rules, See London Letters E. 30.6.07 E. 25.10.06 + E 1.6.07. Materials used, and workmanship are good. They are securely and satisfactorily fitted on board, and have been seen working well under a good head of steam. 180 lbs. The arrangements for burning liquid fuel are in accordance with the Rules, with complete ventilating, fumigating, and fire extinguishing arrangements. For spraying oil from burners, compressed air is used. The machinery of this vessel is now in my opinion eligible for notation L.M.C. 4.08. Fitted for liquid fuel. Speed on trial light ship 20.608 knots.*

N° 1---2.5.07	N° 4---21.5.07	N° 7---10.6.07	N° 10---28.6.07	Dates of Tests Main Boiler
N° 2---2.5.07	N° 5---21.5.07	N° 8---10.6.07	N° 11---28.6.07	
N° 3---2.5.07	N° 6---21.5.07	N° 9---10.6.07	N° 12---28.6.07	
			N° 13---28.6.07	

The amount of Entry Fee. £ 3 : - : When applied for, £ 29.46
 Special £ 178 : - : 29.4.1908
 Donkey Boiler Fee £ 1748.14 : - :
 Travelling Expenses (if any) £ : - : When received, 30.4.08

Committee's Minute **WED. 10 JUN 1908**

Assigned *MACHINERY* *DATE*
 WRITTEN

A. C. Heron.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 It is submitted that this vessel is eligible for THE RECORD. L.M.C. 4.08. ELEC. LIGHT. F. II. FITTED FOR LIQUID FUEL 3-STEAM TURBINES.

FLAT (If B GARE State thick way in B)
 DOUB Length and thickness
 POOP BRIDGE FORE
 manu Plates
 Low
 Bows Top Rigg Sails
 EQU
 Number Certificate
 587
 587
 587
 Spa
 586
 586
 Num Cert
 405
 405
 Iron Str on Ste
 Boat Pump Wind Engin
 What Coal Num Ceilin Cargo
 State Num
 Bulw The a Build

Certificate (if required) to be sent to Nagasaki

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

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