

REPORT ON MACHINERY.

TUES MAR 2 1897

Port of

Glasgow

No. in Survey held at

Glasgow

Reg. Book.

Date, first Survey

4th May 1896

Last Survey

24th Feb^y 1897

on the

S. S. Hakata Maru

(Number of Visits)

Gross

5811

Net

3694

Master R. Ninison

Built at

Glasgow

By whom built

D & W Henderson & Co

When built

1897

Engines made at

Glasgow

By whom made

D & W Henderson & Co

when made

1897

Boilers made at

Glasgow

By whom made

D & W Henderson & Co

when made

1897

Registered Horse Power

Owners

Nippon Yusen Kaisha

Port belonging to

Tokio

Nom. Horse Power as per Section 28

550

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines *Four Screw, Triple Expansion* No. of Cylinders *6* No. of Cranks *6*

Diameter of Cylinders $\frac{20}{2}$ $\frac{33\frac{1}{2}}{2}$ $\frac{56}{2}$ Length of Stroke *48"* Revolutions per minute *75* Diameter of Screw shaft *as per rule 11.4"*

Diameter of Tunnel shaft *as fitted 10.8"* Diameter of Crank shaft journals *12.5"* Diameter of Crank pin *12.5"* Size of Crank webs *8.4" x 23.4"*

Diameter of screw *15.0"* Pitch of screw *18.3"* No. of blades *4* State whether moveable *yes* Total surface *684 ft. each*

No. of Feed pumps *2* Diameter of ditto *5"* Stroke *24"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* Diameter of ditto *5"* Stroke *24"* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *4 duplex* Sizes of Pumps *10" x 8" x 24" main; 7" x 5" x 6" carbureters* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *Three 3.5"* In Holds, &c. *Forward: via 3.5" aft*

No. of bilge injections *2* sizes *6.3/4"* Connected to condenser, or to circulating pump *no* Is a separate donkey suction fitted in Engine room & size *3.5"*

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 *both* Are they Valves or Cocks *yes*

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 *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*

What pipes are carried through the bunkers *forward bilge pipes* How are they protected *cased in*

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*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *17. 12. 96* Is the screw shaft tunnel watertight *apparently*

Is it fitted with a watertight door *yes* worked from *upper deck*.

BOILERS, &c.—

(Letter for record

S.)

Total Heating Surface of Boilers

9157 in 4 boilers

Is forced draft fitted

no

No. and Description of Boilers

2 Double ended, 2 Single ended

in attached Report

Working Pressure

200 lbs

Tested by hydraulic pressure to

400 lbs

Date of test

12. 11. 96

Can each boiler be worked separately

yes

Area of fire grate in each boiler

100 sq ft

No. and Description of safety valves to

Total grate 5 in 4 boilers 300 sq ft

each boiler

two spring loaded

Area of each valve

9.62 sq in

Pressure to which they are adjusted

205 lbs

Are they fitted

with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

21"

Mean diameter of boilers

159"

Length

17' 0"

Material of shell plates

Steel

Thickness

23/16"

Description of riveting: circum. seams *lap 2 x 3 knots long, seams Double Butt 5 kinds*

Diameter of rivet holes in long. seams

1 1/16"

Pitch of rivets

9 5/8"

Lap of plates or width of butt straps

21 3/4" x 1 1/16"

Per centages of strength of longitudinal joint

rivets 87.4

plate 85.06

Working pressure of shell by rules

225 lbs

Size of manhole in shell

12" x 16"

Size of compensating ring

McNeil's

No. and Description of Furnaces in each boiler

6 Morrison's

(total 18 furnaces)

Material

Steel

Outside diameter

Length of plain part

top 7' 1"

bottom 7' 1"

Thickness of plates

crown 9/16"

bottom 7/8"

Description of longitudinal joint

Weld

No. of strengthening rings

corrugated

Working pressure of furnace by the rules

213 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

45/16"

Back none

Top 1/16"

Bottom 7/8"

Pitch of stays to ditto: Sides

9"

Back none

Top 7 1/2" x 9"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

202 lbs

Material of stays

Steel

Diameter at smallest part

1.99 sq in

Area supported by each stay

81 sq in

Working pressure by rules

220 lbs

End plates in steam space:

Material

Steel

Thickness

7/16"

Pitch of stays

15 x 17 1/4"

How are stays secured

Double Nut

Working pressure by rules

214 lbs

Material of Front plates at bottom

Steel

Thickness

7/8"

Material of Lower back plate

none

Thickness

Greatest pitch of stays

Working pressure of plate by rules

—

Diameter of tubes

3 1/4"

Pitch of tubes

4 7/8" x 4 3/8"

Material of tube plates

Steel

Thickness: Front

1"

Back

2 1/32"

Mean pitch of stays

10' 2"

Pitch across wide water spaces

14"

Working pressures by rules

approved.

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

7" x 2 x 1

Length as per rule

36

Working pressure by rules

approved

Superheater or Steam chest; how connected to boiler

none

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

holes

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

If stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

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15019. gls.

SPARE GEAR. State the articles supplied:— As required by the rules, also one third crank, 2 tail shafts, 4 propeller blades & studs etc. One piston rod., 3 Valve rods, a set of main & connecting rod brasses, 4 Guide shoes, 2 Eccentric rods & straps & one set of Thrust shoes.

David W. Henderson *Manufacturer.*

General Remarks (State quality of workmanship, opinions as to class, &c. These engines & boilers have been built under the conditions of Special Survey. They have been securely fitted on board & satisfactorily tested under steam. The material & workmanship is good.)

It is submitted that this vessel is eligible for
the record + L.M.C. 297

It is submitted that
~~this vessel is eligible for~~
THE RECORD + L. H.

Spec. Light

R.S.
2. 3. 97

Travelling Expenses (if any) £ : :

9/10/01

.....184.....

MACHINERY

2

40

8

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

TUES MAR 2 1897

+ 2mc2, 90° Elec. light

C. G. Bromeyer

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Lloyd's Register
Foundation

certificate (if required) to be sent to