

REPORT ON MACHINERY.

No. 25147

Port of

Glasgow

Received at London Office TUES. APR 23 1907

No. in Survey held at
Reg. Book. on the

Glasgow

Date, first Survey 10th May 06 Last Survey 19 April 1907

(Number of Visits)

Master

Built at

Glasgow

By whom built

D. & W. Henderson & Co

Tons

Gross

Net

When built 1907

Engines made at

Glasgow

By whom made

D. & W. Henderson

when made

1907

Boilers made at

Glasgow

By whom made

D. & W. Henderson

when made

Registered Horse Power

386

Owners

Nippon Yusen Kaisha Port belonging to

Nom. Horse Power as per Section 28

386

Is Refrigerating Machinery fitted for cargo purposes

✓

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines

Triple expansion—Screw

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

35" 41" 68"

Length of Stroke

48"

Revs. per minute

76

Dia. of Screw shaft

as per rule 13.69
as fitted 14 3/8"

Material of

iron

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

✓

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

4" 10 3/4"

Dia. of Tunnel shaft

as per rule 12.8
as fitted 13 3/8"

Dia. of Crank shaft journals

as per rule 13.44
as fitted 13 3/4"

Dia. of Crank pin

13 3/4"

Size of Crank webs

9 1/4"

Dia. of thrust shaft under

collars

13 3/4"

Dia. of screw

15" 6"

Pitch of Screw

21" 0"

No. of Blades

4

State whether moveable

yes

Total surface

86 sq. ft.

No. of Feed pumps

2

Diameter of ditto

3 3/4"

Stroke

24"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4 1/2"

Stroke

24"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

5

Sizes of Pumps

{ 3 1/2" x 2 3/4" x 4" - 9 1/2" x 7" x 8" }
{ 7" x 5" x 6" - 10" x 12" x 10" - 11" centrifugal }

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

In Engine Room

4 - 3" dia.

In Holds, &c. 8 - 3" dia.

No. of Bilge Injections

1

sizes

7 1/2"

Connected to condenser, or to circulating pump

pump

Is a separate Donkey Suction fitted in Engine room & size

yes

3 1/2"

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

✓

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

yes

Are they Valves or Cocks

both

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

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

Bilge pipes

How are they protected

wooden boxing

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

16/2/07

of Stern Tube

16/2/07

Screw shaft and Propeller

16/2/07

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from Eng. room at Spar deck.

BOILERS, &c.—(Letter for record

(S.)

Manufacturers of Steel

Hess

as supplied to Calderbank

Total Heating Surface of Boilers

5130

Is Forced Draft fitted

yes

No. and Description of Boilers

2 Single ended

Working Pressure

185 lbs

Tested by hydraulic pressure to

370 lbs

Date of test

28/12/06

No. of Certificate

8672

Can each boiler be worked separately

yes

Area of fire grate in each boiler

61.875

ft.

No. and Description of Safety Valves to

each boiler

Shank spring

Area of each valve

9.6"

Pressure to which they are adjusted

185 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

7"

Mean dia. of boilers

15" 6"

Length

11" 6"

Material of shell plates

steel

Thickness

1 1/16"

Range of tensile strength

28 to 32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams d. lap

long. seams

treble

Diameter of rivet holes in long. seams

1 5/16"

Pitch of rivets

9"

Lap of plates on width of butt straps

19 1/2"

Per centages of strength of longitudinal joint

rivets 85.18
plate 85.4

Working pressure of shell by rules

194 lbs

Size of manhole in shell

16" x 12"

Size of compensating ring

32" x 28" x 1 1/2"

No. and Description of Furnaces in each boiler

3 Morrison

Material steel

Outside diameter

49 7/16"

Length of plain part

top }
bottom }

Thickness of plates

19 1/2"

Description of longitudinal joint

welded

No. of strengthening rings

✓

Working pressure of furnace by the rules

191 lbs

Combustion chamber plates: Material steel

Thickness: Sides

19"

Back

19"

Top

19"

Bottom

15"

Pitch of stays to ditto: Sides

8" x 8"

Back

8" x 8"

Top

8" x 8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

190 lbs

Material of stays

steel

Area at smallest part

1.69"

Area supported by each stay

64"

Working pressure by rules

210

End plates in steam space:

Material steel

Thickness

1"

Pitch of stays

16" x 16"

How are stays secured

nuts & w.

Working pressure by rules

185

Material of stays

steel

Area at smallest part

5.27"

Area supported by each stay

256"

Working pressure by rules

205

Material of Front plates at bottom

steel

Thickness

1"

Material of Lower back plate

steel

Thickness

3/2"

Greatest pitch of stays

13 1/4" x 8"

Working pressure of plate by rules

224

Diameter of tubes

3 1/2"

Pitch of tubes

3 3/4" x 3 3/4"

Material of tube plates

steel

Thickness: Front

1"

Back

3/4"

Mean pitch of stays

7 1/2"

Pitch across wide water spaces

14"

Working pressures by rules

194 lbs

Girders to Chamber tops: Material steel

Depth and

thickness of girder at centre

7 1/4" x 2 - 1"

Length as per rule

31 1/8"

Distance apart

8"

Number and pitch of stays in each

3 - 8"

Working pressure by rules

185 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

✓

Pitch of rivets

✓

Working pressure of shell by rules

✓

Diameter of flue

✓

Material of flue plates

✓

Thickness

VERTICAL DONKEY BOILER—Manufacturers of Steel

No. Description *See separate report.*

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 Safety

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 Plates

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:— *Two top end & two bottom end connecting rod bolts, two main bearing bolts, one set of coupling bolts, one set of feed & bilge pump valves. Etc. etc.*

The foregoing is a correct description,
For DAVID & WILLIAM HENDERSON & CO., LIMITED.
David Henderson Manufacturer.

Dates of Survey while building

During progress of work in shops— 1906: May 10, 14, 15, 18, 20, 25, 26, July 25, Aug 1, 8, 29, Sep 3, 10, Oct 15, Nov 2, 10, Dec 3, 15

During erection on board vessel— 18, 20, 27, 28, 1907, Jan 10, 24, 29, Feb 7, 9, 12, 15, 16, 18, 25, 26, Mar 1, 12, 16, 18, 19, 26, Apr 11, 19

Total No. of visits *44*

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders *3/12/06* Slides *3/12/06* Covers *3/12/06* Pistons *3/12/06* Rods *3/12/06*

Connecting rods *3/12/07* Crank shaft *10/11/06* Thrust shaft *10/11/06* Tunnel shafts *10/11/06* Screw shaft *18/2/07* Propeller *18/2/07*

Stern tube *18/2/07* Steam pipes tested *16/3/07* Engine and boiler seatings *18/2/07* Engines holding down bolts *12/3/07*

Completion of pumping arrangements *26/3/07* Boilers fixed *26/3/07* Engines tried under steam *11/4/07*

Main boiler safety valves adjusted *26/3/07* Thickness of adjusting washers *all 1/4" donkey boiler 3/8*

Material of Crank shaft *steel* Identification Mark on Do. *A.M.C.K.* Material of Thrust shaft *steel* Identification Mark on Do. *A.M.C.K.*

Material of Tunnel shafts *steel* Identification Marks on Do. *A.M.C.K.* Material of Screw shafts *iron* Identification Marks on Do. *J.M.*

Material of Steam Pipes *copper* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery of this vessel has been constructed under Special Survey, the materials & workmanship are of good quality, it has been securely fitted on board tried under steam & found satisfactory.*

In our opinion it is eligible to be classed in the Register Book, & to have the notation of L.M.C. 4.07.

It is submitted that
this vessel is eligible for
THE RECORD. L.M.C. 4.07

Elec light
J.D.

24/4/07
R.S.
24.4.07

The amount of Entry Fee.. £ *3* : : When applied for, *22 APR 1907*

Special £ *39* : *6* : : When received, *21 5/107*

Donkey Boiler Fee £ : : : *21*

Travelling Expenses (if any) £ : : : *21*

Committee's Minute *Glasgow 22 APR 1907*

Assigned *L.M.C. 4.07*

MACHINERY CERTIFICATE
WRITTEN. 23.4.07

A. McKend & James Hollison
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

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Foundation