

REPORT ON MACHINERY.

No. 22984

Port of

Sunderland.

Received at London Office

THUR. 18 OCT 1906

No. in Survey held at

Sunderland

Date, first Survey

22nd December

Last Survey

11th October

1906

Reg. Book.

on the

Steel Screw Steamer "KAIAPOI"

(Number of Visits 50)

Master

Irvine

Built at

Sunderland

By whom built

Osbourne, Gilmart & Co

Tons

Gross 2003.36

Net

1246.51

When built 1906

Engines made at

Sunderland

By whom made

N.E. Marine Engineering Co. (Lini)

when made

1906

Boilers made at

Sunderland

By whom made

N.E. Marine Engineering Co. (Lini)

when made

1906

Registered Horse Power

Owners

Union Steam Ship Co. of New Zealand Ltd

Port belonging to

Dunedin

Nom. Horse Power as per Section 28

194

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes.

ENGINES, &c.—Description of Engines

Triple Expansion (Inverted)

No. of Cylinders

Three

No. of Cranks

Three

Dia. of Cylinders

20 $\frac{1}{2}$ - 33 - 54

Length of Stroke

39

Revs. per minute

64

Dia. of Screw shaft

as per rule 12.4

Material of

Iron

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

no

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

Rubber solution

Length of stern bush

4-2 $\frac{1}{2}$

Dia. of Tunnel shaft

as per rule 10.31

as fitted 10.3

Dia. of Crank shaft journals

as per rule 10.83

as fitted 10.78

Dia. of Crank pin

10 $\frac{1}{8}$

Size of Crank webs

6 $\frac{3}{4}$ x 16 $\frac{1}{2}$

Dia. of thrust shaft under

collars

10 $\frac{1}{8}$

Dia. of screw

14-9

Pitch of Screw

14-6

No. of Blades

four

State whether moveable

no

Total surface

69 sq

No. of Feed pumps

Two

Diameter of ditto

3

Stroke

1-6

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

Two

Diameter of ditto

3 $\frac{1}{2}$

Stroke

1-6

Can one be overhauled while the other is at work

yes.

No. of Donkey Engines

Two

Duplex

Sizes of Pumps

7x9x9 in.

6x4x6 in.

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

In Engine Room

Two 3" mugs, one 3" Centre

In Holds, &c.

Main Hold two 3" mugs, After Hold

two 2 $\frac{1}{2}$ " mugs, one 3" CentreTunnel well 2 $\frac{1}{2}$ " Centre

No. of Bilge Injections

one size

4

Connected to condenser, or to circulating pump

pump

Is a separate Donkey Suction fitted in Engine room & size

yes 3"

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

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

What pipes are carried through the bunkers

none

How are they protected

—

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

17/8

22/8

of Stern Tube

25/8

Screw shaft and Propeller

25/8

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes.

worked from

top platform

BOILERS, &c.—(Letter for record

5)

Manufacturers of Steel

J. & C. Spencer & Sons Ltd.

The Light & Co. Ltd.

Total Heating Surface of Boilers

2940 sq

Is Forced Draft fitted

no

No. and Description of Boilers

Two, single ended, Cylindrical

No. of Certificate

2501

Working Pressure

180 lb.

Tested by hydraulic pressure to

360 lb.

Date of test

7/7/06

No. of Certificate

2501

Can each boiler be worked separately

yes.

Area of fire grate in each boiler

43 $\frac{1}{2}$ sq

No. and Description of Safety Valves to

each boiler

Two, direct spring

Area of each valve

4.91

Pressure to which they are adjusted

185 lb.

Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork

2-0

(Rule Mean dia. of boilers

12-9 $\frac{1}{2}$

Length

10-0

Material of shell plates

steel

Thickness

1 $\frac{1}{2}$

Range of tensile strength

28 $\frac{3}{4}$ - 32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

Lap. S.R.

long. seams

Lap. S.R.

Diameter of rivet holes in long. seams

1 $\frac{1}{8}$

Pitch of rivets

8

Lap of plates or width of butt straps

Per centages of strength of longitudinal joint

rivets 89.6

plate 85.93

Working pressure of shell by rules

180.9 lb.

Size of manhole in shell

end

16x12

Size of compensating ring

flanged

No. and Description of Furnaces in each boiler

Three plain

Material

steel

Outside diameter

35 $\frac{3}{4}$

Length of plain part

top 6-0

bottom

Thickness of plates

crown 4 $\frac{1}{8}$

bottom

Description of longitudinal joint

Weld

No. of strengthening rings

—

Working pressure of furnace by the rules

187 lb.

Combustion chamber plates: Material

steel

Thickness: Sides

4 $\frac{1}{8}$

Back

3 $\frac{1}{4}$

Top

4 $\frac{1}{8}$

Bottom

15 $\frac{1}{8}$

Pitch of stays to ditto: Sides

8 $\frac{3}{8}$ x 10 $\frac{1}{2}$

Back

11 $\frac{1}{8}$ x 8 $\frac{1}{2}$

Top

8 $\frac{3}{8}$ x 10 $\frac{1}{2}$

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

182 lb.

Material of stays

steel

Diameter at smallest part

5 $\frac{1}{8}$ - 17 $\frac{1}{8}$

Area supported by each stay

88, 101, 111

Working pressure by rules

184, 187, 199

End plates in steam space:

Material

steel

Thickness

1 $\frac{5}{8}$

Pitch of stays

18 $\frac{1}{2}$ x 23 $\frac{1}{2}$

How are stays secured

DN & W

Working pressure by rules

185 lb.

Material of stays

steel

Diameter at smallest part

3.28

Area supported by each stay

435

Working pressure by rules

157 lb.

Material of Front plates at bottom

steel

Thickness

1 $\frac{3}{8}$

Material of Lower back plate

steel

Thickness

2 $\frac{1}{8}$

Greatest pitch of stays

14 $\frac{1}{8}$ x 8 $\frac{1}{2}$

Working pressure of plate by rules

181 lb.

Diameter of tubes

3 $\frac{1}{4}$

Pitch of tubes

4 $\frac{1}{2}$ x 4 $\frac{1}{8}$

Material of tube plates

steel

Thickness: Front

1 $\frac{3}{8}$

Back

1 $\frac{3}{8}$

Mean pitch of stays

10 $\frac{5}{8}$

Pitch across wide water spaces

14 $\frac{1}{2}$

Working pressures by rules

215 lb.

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

8 x 1 $\frac{3}{4}$

Length as per rule

27 $\frac{1}{8}$

Distance apart

10 $\frac{1}{2}$

Number and pitch of stays in each

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No Donkey Boilers fitted

No. 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 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
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:— one set of coupling bolts & nuts, two each top and bottom end & main bearing bolts & nuts, top and bottom end frames, two sets of feed & bilge pump valves, two & orientating pump valves, one ecc. stop, two valve springs, pump link frames, one set each piston packing rings, 2 sets valve springs, one set eccentric straps, two sets R.R. one propeller & propeller shaft.

The foregoing is a correct description,

NORTH EASTERN MARINE ENGINEERING CO. LTD.

Manufacturer.

Dates During progress of work in shops— 1905. Dec. 22 - 06 - April 9, 20 May, 1, 3, 4, 7, 8, 11, 14, 17, 21, 22, 25, 29, 31 June, 1, 11, 12, 15, 14, 19, 21, 25
of Survey During erection on board vessel - 29 July, 2, 4, 6, 7, 12, 17, 24 Aug. 1, 3, 5, 14, 16, 17, 20, 23, 25, 27, 28 Sept. 1, 11, 19, 22, 25, Oct. 9, 10, 11
while building Total No. of visits 50

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

Dates of Examination of principal parts—Cylinders 17/22/25/31/22 Slides 6/7/12/7 Covers 21/22/25/29 Pistons 22/5-29/6 Rods 22/12/25
Connecting rods 3/5-4/5 Crank shaft 24/11/4/11/7/11 Thrust shaft 1/5-14/5 2/7 Tunnel shafts 1/4-21/15 Screw shaft 29/30/22/29 Propeller 22/5
Stern tube 3/5-50/8 Steam pipes tested 28/8 Engine and boiler seatings 17/8 Engines holding down bolts 27/8
Completion of pumping arrangements 9/10 Boilers fixed 11/9 Engines tried under steam 1/9

Main boiler safety valves adjusted 1/9 Thickness of adjusting washers all rings 1/2 thick.
Material of Crank shaft steel Identification Mark on Do. 12 H 06 Material of Thrust shaft steel Identification Mark on Do. 12 H 06
Material of Tunnel shafts iron Identification Marks on Do. 331 D Material of Screw shafts iron Identification Marks on Do. 316 D 343 D AB AB
Material of Steam Pipes Copper solid drawn 4 1/2 bore No. 6 wire 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 material and workmanship sound & good, the Boilers and steam pipes have been tested by hydraulic pressure & the machinery worked well at the moorings & the safety valves have been adjusted under steam to their working pressure & easing gear fitted

This vessel is eligible in my opinion to have the Notation
* LMC 1006 in the Register Book & Electric Light

It is submitted that
this vessel is eligible for
THE RECORD L.M.C. 10.06. ELEC. LIGHT.

The amount of Entry Fee £ 2 : : When applied for, 17.10.06
Special £ 29 : 2 : : 18.10.06
Donkey Boiler Fee £ : : : 19.10.06
Travelling Expenses (if any) £ : : : 20.10.06

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

Committee's Minute

FRI. 19 OCT 1906

Assigned

MACHINERY CERTIFICATE
WRITTEN.

+ LMC 1006
Elec. Light



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Foundation