

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office

25 MAR 92

18

No. in Survey held at
Reg. Book.

Date, first Survey

Last Survey

(Number of Visits)

22. on the

*S. S. "Wakapipi"*Gross 1747.
Tons Net 1158.Master *Wheeler*Built at *Dunbarton*By whom built *W. Denny & Bros*When built *1876*Engines made at *Dunbarton*By whom made *Denny & Co*when made *1876*Boilers made at *Do*By whom made *Do*when made *1891*Registered Horse Power *256*Owners *Union S. S. Co of New Zealand. Ltd.*Port belonging to *Dunedin*

Nom. Horse Power as per Section 28

No. **ENGINES, &c.**

Description of Engines

Indruple

No. of Cylinders

*Four*Diameter of Cylinders *19 1/2, 29, 39, 56 1/2* Length of Stroke *14 1/2* Revolutions per minute

Diameter of Screw shaft

as per rule

Diameter of Tunnel shaft

as per rule

Diameter of Crank shaft journals

Diameter of Crank pin

Size of Crank webs

Diameter of screw

Pitch of screw

No. of blades

State whether moveable

Total surface

No. of Feed pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Bilge pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Donkey Engines

Sizes of Pumps

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

In Engine Room

In Holds, &c.

No. of bilge injections

sizes

Connected to condenser, or to circulating pump

Is a separate donkey suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine room always accessible

Are the sluices on Engine room bulkheads always accessible

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

Are they Valves or Cocks

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

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

Are the blow off cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers

How are they protected

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

Is the screw shaft tunnel watertight

Is it fitted with a watertight door

worked from

No. **BOILERS, &c.**(Letter for record *S*)

Total Heating Surface of Boilers

3158 sq. feet

No. and Description of Boilers

*2 Single ended return tube boilers*Working Pressure *180 lbs*Tested by hydraulic pressure to *360 lbs*

Date of test

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

107 sq. ft.

each boiler

2 Spring loaded 2 1/8" diam.

Area of each valve

5.4

Pressure to which they are adjusted

182 lbs

Are they fitted

with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

Yes

Mean diameter of boilers

13' 6 1/8"

Length

10' 8 1/4"

Material of shell plates

steel

Thickness

1 3/8"

Description of riveting: circum. seams

mid treble riv lap ends double

long. seams

treble riveted double butt

Diameter of rivet holes in long. seams

1 3/8"

Pitch of rivets

8 1/2 x 3 3/8" & 4 1/4 x 2 3/8"

Lap of plates or width of butt straps

20" Butt straps

Per centages of strength of longitudinal joint

rivets

83.8

Working pressure of shell by rules

185 lbs

Size of manhole in shell

17" x 13"

Size of compensating ring

Doubling plate

No. and Description of Furnaces in each boiler

3 Boxcomb

Material

steel

Outside diameter

3' 4 1/4"

Length of plain part

top

19 3/4"

Thickness of plates

crown

19/32"

Description of longitudinal joint

welded

No. of strengthening rings

3

Working pressure of furnace by the rules

186 lbs

Combustion chamber plates: Material

steel

Thickness: Sides

9/16"

Back

9/16"

Top

9/16"

Bottom

7/16"

Pitch of stays to ditto: Sides

7 1/4 x 7 1/4"

Back

7 x 7"

Top

6 1/2 x 7 1/4"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

200 lbs

Material of stays

steel

Diameter at smallest part

1 3/8"

Area supported by each stay

52.5 sq. in.

Working pressure by rules

187 lbs

End plates in steam space:

Material

steel

Thickness

1 1/16"

Pitch of stays

14 x 15 1/4"

How are stays secured

double nuts

Working pressure by rules

211 lbs

Material of stays

steel

Diameter at smallest part

over screw 2 3/4"

Area supported by each stay

213 sq. in.

Working pressure by rules

190 lbs

Material of Front plates at bottom

steel

Thickness

7/8"

Material of Lower back plate

steel

Thickness

3/8"

Greatest pitch of stays

13 x 7 1/2"

Working pressure of plate by rules

✓

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4"

Material of tube plates

steel

Thickness: Front

3/4"

Back

1/2"

Mean pitch of stays

9 1/2 x 9 1/2"

Pitch across wide water spaces

15 1/2"

Working pressures by rules

✓

Girders to Chamber tops: Material

iron

Depth and

thickness of girder at centre

8 x 13 1/2"

Length as per rule

2' 9 1/2"

Distance apart

6 1/2"

Working pressure by rules

195 lbs

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

✓

Diam. of rivet

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

*✓**✓**✓**✓**✓**✓*

When a second test is applied, the result should be recorded in record of the original test. The number of plates or bars included in a rejection must be clearly stated.

11381 Gls

DONKEY BOILER— Description *Vertical cylindrical with cross tubes in fire box*
Made at *Dumbarton* By whom made *Denny & Co* When made *1890* Where fixed *✓*
Working pressure *80 lbs* Tested by hydraulic pressure to *160* No. of Certificate *✓* Fire grate area *26 sq ft* Description of safety valves *2 3/4" diam spring*
No. of safety valves *2 off* Area of each *5.94* Pressure to which they are adjusted *82 lbs* If fitted with easing gear *Yes* If steam from main boiler
enter the donkey boiler *No* Diameter of donkey boiler *6' 6"* Height *13' 0"* Material of shell plates *steel* Thickness *3/4"*
Description of riveting long. seams *Double riveted lap* Diameter of rivet holes *7/8"* Whether punched or drilled *drilled* Pitch of rivets
Lap of plating *4 1/8"* Per centage of strength of joint *86* Rivets *86* Thickness of shell crown plates *7/16"* Radius of do. *6' 6"* No. of Stays to do. *12*
Dia. of stays. *2 3/8"* Diameter of furnace Top *5' 0"* Bottom *5' 10"* Height *7' 11"* Thickness of furnace plates *1/2"* Descript
lap joint single riveted Thickness of furnace crown plates *1/2"* Stayed by *4 stays and uptake tube* Working pressure of shell by rules
Working pressure of furnace by rules *✓* Diameter of uptake *18"* Thickness of uptake plates *1/2" iron* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Denny & Co Manufacturers.

General Remarks (State quality of workmanship, opinions as to class, &c.)

*These boilers were not made under survey —
They have been shipped to New Zealand to be fitted on board the vessel —
The steel plates were tested by a Surveyor to this Society — a copy of the tests
are appended hereto.*

*The work in connection with the Quadrupling was not surveyed before
being shipped*

Certificate (if required) to be sent to

The amount of Entry Fee..	£	:	When applied for,
Special	£	:	18
Donkey Boiler Fee	£	:	When received,
Travelling Expenses (if any) £	:	:	18

W. E. Robinson

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

Committee's Minute

FRI 1 APL 1892

Assigned



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Foundation