

REPORT ON MACHINERY

No. 16490

Received at London Office

WED. JUN. 25. 1913

Date of writing Report

19

When handed in at Local Office

19/6/1913 Port of Greenock

No. in Survey held at
Reg. Book.

Greenock

Date, First Survey

30th July 1912

Last Survey

18th June 1913

(Number of Visits 68)

on the **SCREW STEAMER****'KAMO'**

Gross 1236

Net 725

When built 1913

Master

Built at Campbeltown

By whom built

Campbeltown S.B. Coy.

Engines made at

Greenock

By whom made

Rankin & Blackmore

when made

1913

Boilers made at

Greenock

By whom made

Rankin & Blackmore

when made

1913

Registered Horse Power

Owners

Union S.S. Co. of N.Z. Ltd

Port belonging to

Dunedin

Nom. Horse Power as per Section 28

159

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders Three

No. of Cranks Three

Dia. of Cylinders

18" x 24" - 45"

Length of Stroke

33"

Revs. per minute

98

Dia. of Screw shaft

10.0"

Material of screw shaft

Steel

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

3' 5"

Dia. of Tunnel shaft

as per rule 8.84

Dia. of Crank shaft journals

as per rule 9.29

Dia. of Crank pin

9"

Size of Crank webs

13 1/2 x 6 1/2

Dia. of thrust shaft under

collars

9 3/8"

Dia. of screw

12.4"

Pitch of Screw

12.0"

No. of Blades

4

State whether moveable

No

Total surface

50 sq. ft.

No. of Feed pumps

2

Diameter of ditto

2 3/4"

Stroke

18"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

3 1/2"

Stroke

18"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

Three

Sizes of Pumps 8" x 8" 6" x 4" 6" x 3" 6" x 2"

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

In Engine Room

Four: 2 1/4" dia.

In Holds, &c.

Forward Hold 2 - 2 1/4" dia.

No. of Bilge Injections

1 sizes 3"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room & size

Yes

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

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

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

5/5/13

of Stern Tube

5/5/13

Screw shaft and Propeller

20/5/13

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from upper platform

BOILERS, &c.—(Letter for record)

Manufacturers of Steel W. Beardmore & Co. Ltd

Total Heating Surface of Boilers

2324 sq. ft.

Is Forced Draft fitted

Yes

No. and Description of Boilers

Two Cylindrical mult. Single

Working Pressure

180 lb.

Tested by hydraulic pressure to

360 lb.

Date of test

1/5/13

No. of Certificate

1114

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

36 1/2 sq. ft.

No. and Description of Safety Valves to

each boiler

2 Direct Spring Loaded

Area of each valve

7.06 sq. in.

Pressure to which they are adjusted

185 lb.

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

About 8"

Mean dia. of boilers

11' 6"

Length

10' 6"

Material of shell plates

Steel

Thickness

1 5/16"

Range of tensile strength

28 to 32 tons

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

Lap Double

long. seams

V-Butt Straps

Diameter of rivet holes in long. seams

1 1/16"

Pitch of rivets

8 3/4"

Lap of plates or width of butt straps

1' 4 1/2"

Per centages of strength of longitudinal joint

rivets 87% plate 86.8%

Working pressure of shell by rules

180 lb.

Size of manhole in shell

16" x 12"

Size of compensating ring

20" x 26 1/4" x 1 1/2"

No. and Description of Furnaces in each boiler

2: Reighton's

Material

Steel

Outside diameter

40 1/4"

Length of plain part

top 6' 9" bottom 6' 9"

Thickness of plates

crown 1 1/2" bottom 3/2"

Description of longitudinal joint

Weld

No. of strengthening rings

None

Working pressure of furnace by the rules

189 lb.

Combustion chamber plates: Material

Steel

Thickness: Sides

5"

Back

5"

Top

5"

Bottom

4"

Pitch of stays to ditto: Sides

7 1/2" x 9 1/2"

Back

7 1/2" x 8"

Top

9 1/2" x 7 1/2"

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules

180 lb.

Material of stays

Steel

Diameter at smallest part

1 1/2"

Area supported by each stay

74 sq. in.

Working pressure by rules

210 lb.

End plates in steam space:

Material

Steel

Thickness

1 1/4"

Pitch of stays

16 3/4" x 15 1/4"

How are stays secured

V-Butt

Working pressure by rules

149 lb.

Material of stays

Steel

Diameter at smallest part

2 1/4"

Area supported by each stay

256 sq. in.

Working pressure by rules

193 lb.

Material of Front plates at bottom

Steel

Thickness

1 1/2"

Material of Lower back plate

Steel

Thickness

3/2"

Greatest pitch of stays

13"

Working pressure of plate by rules

180 lb.

Diameter of tubes

5 1/4"

Pitch of tubes

4 1/2" x 4 1/2"

Material of tube plates

Steel

Thickness: Front

1 1/2" with 1/2"

Back

4"

Mean pitch of stays

8 1/2"

Pitch across wide water spaces

13 1/2"

Working pressures by rules

22 1/2 lb. 25 1/2 lb.

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

8 1/2" x 1 1/2"

Length as per rule

31

Distance apart

9 1/2"

Number and pitch of stays in each

3: 7 1/2"

Working pressure by rules

183 lb.

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

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

Yes

Working pressure of end plates

Area of safety valves to superheater

Working pressure by rules

End plates: Thickness

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *None* 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 _____ 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 _____ Radius of do. _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *One Propeller and shaft, 1 Pair Crosshead brasses, 1 Pair Crank Pin brasses, 1 Feed Pump Plunger, 1 Pair Pump Link brasses, 1 Piston Rod Nut, 1 set Piston Ring for main & Auxiliary engines, 1 full set of valves & springs for each pump, 1 Air Pump Bucket Rod & Head valve Grating Complete, 2 set Air pump valves, 3 Boiler Stay tubes, 12 Main tubes, 5 Condenser tubes, 100 Gunmen frames, 1 Spring for each size, 7 escape valves, 1 Control Stay and Stops, 1 Piston Rod Head Stud Nut, 4 Valve spindle Studs Nuts, 1 spare valve for each Boiler mounting, several sizes of Bolts, Iron of various sizes and list of spare gear required by the Society's Rules. + 2 Safety valve springs*

The foregoing is a correct description, *Pantlin & Blackmore* Manufacturer.

Dates of Survey while building

During progress of work in shops	1912 July 30. Aug. 14. Sept. 10. 16. 19. 26. Oct. 1. 3. 10. 11. 16. 23. 29. Nov. 5. 8. 14. 18. 25. Dec. 4. 9. 15. 18. 25. 30. 1913 Jan. 9. 15. 16. 21.
During erection on board vessel	24. 25. 30. Feb. 5. 14. 18. 25. Mar. 4. 7. 8. 18. 20. 25. 26. Apr. 1. 10. 14. 21. 23. 30. May 1. 5. 6. 8. 14. 16. 17. 20. 22. 27. 29 Jun. 2. 4. 5. 9. 10. 12.
Total No. of visits	68

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

" " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders *5/2/13*. Slides *5/2/13*. Covers *12/6/13*. Pistons *1/4/13*. Rods *3/13*. Connecting rods *5/11/12*. Crank shaft *Surport*. Thrust shaft *18/5/13*. Tunnel shafts *25/7/13*. Screw shaft *1/5/13*. Propeller *17/5/13*. Stern tube *15/4/13*. Steam pipes tested *29/5/13*. Engine and boiler seatings *5/5/13*. Engines holding down bolts *5/6/13*. Completion of pumping arrangements *10/6/13*. Boilers fixed *10/6/13*. Engines tried under steam *12/6/13*. Main boiler safety valves adjusted *10/6/13*. Thickness of adjusting washers *last Boiler P.V. 4-6 5/16 7/32. Stand Boiler P.V. 6-4 5/16 1/2*. Material of Crank shaft *Steel*. Identification Mark on Do. *2966*. Material of Thrust shaft *Steel*. Identification Mark on Do. *1186*. Material of Tunnel shafts *Steel*. Identification Marks on Do. *1187*. Material of Screw shafts *Steel*. Identification Marks on Do. *1188*. Material of Steam Pipes *Copper 3 1/2 dia x 7 Wj.* Test pressure *450 lbs.*

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

The Engines & Boilers of this vessel were built under special survey and the materials and workmanship are good. When completed they underwent full power trials in the dock and were found to work satisfactorily.

*The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC. 6, 13.** marked in the Society's Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC. 6. 13.

F.D.

APR

JUN

26/6/13

The amount of Entry Fee £ *2* : : : When applied for, *19/6/13*

Special £ *23* : *17* : : : When received, *30/6/13*

Donkey Boiler Fee £ : : : *17*

Travelling Expenses (if any) £ *1* : *2/6* : : : *30/6/13*

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

Committee's Minute GLASGOW 24 JUN. 1913

Assigned + LMC 6. 13.

F.D.

MAINTENANCE CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to

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

23/6/13