

# REPORT ON MACHINERY.

No. 32646.

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Date of writing Report 19 When handed in at Local Office 28/4/13 Port of Glasgow

No. in Survey held at Dumbarton Date, First Survey 10-6-12 Last Survey 23.4.1913  
Reg. Book. 22 Supp on the Triple Turbine & Wahine (Number of Visits 53.)

Master Samuel Gint Built at Dumbarton By whom built Wm Denny & Bros  
Engines made at Dumbarton By whom made Denny & Co when made 1913  
Boilers made at do By whom made do when made 1913

Registered Horse Power Owners Union S S Co of New Zealand Ltd Port belonging to Dunedin  
Nom. Horse Power as per Section 28 1694 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Is Electric Light fitted yes

## ENGINES, &c.—Description of Engines Turbine 1HP 2LP 2 Astern

No. of Cylinders 3 No. of Cranks —  
Dia. of Rotors HP 39" LP 54" Ast 45" Length of Stroke — Revs. per minute 520 Dia. of Screw shaft as per rule 7.97 Material of steel  
as fitted 8.5/8 screw shaft

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'-0"

Dia. of Tunnel shaft as per rule 7.5 Dia. of Rotor as per rule — Dia. of Crank shaft journals as fitted 10" Dia. of Crank pin — Size of Crank webs — Dia. of thrust shaft under  
collars — Dia. of screw 6'-0" Pitch of Screw 5'-6" No. of Blades 3 State whether moveable no Total surface 18.6 sq ft

No. of Feed pumps 2 Weirs Diameter of ditto 19"-13" Stroke 24" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 duplex Diameter of ditto 9"-10" Stroke 10" Can one be overhauled while the other is at work yes

No. of Donkey Engines 4 Sizes of Pumps (2 duplex 10-6 1/2 x 10, 6-6 x 6, 6-3 1/2 x 6) No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 2 of 3" Stokehold 2 of 3" and 2 of 5" In Holds, &c. Forehold 2 of 3" aft Hold 2 of 3" Forward tunnel  
2 of 3" aft tunnel 1 of 3" - 1 of 2" to boss framing each side

No. of Bilge Injections 2 sizes 12" Connected to condenser, or to circulating pump circ ppals 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 yes  
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 22.11.12. of Stern Tube 22.11.12. Screw shaft and Propeller 22.11.12.  
Is the Screw Shaft after Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck.

## BOILERS, &c.—(Letter for record ) Manufacturers of Steel B Colville Sons, Stewarts & Lloyds Ltd

Total Heating Surface of Boilers 25480 sq ft Is Forced Draft fitted yes No. and Description of Boilers 8 Water Tube (Babcock & Wilcox Type)  
Working Pressure 200 lbs sq in Tested by hydraulic pressure to 400 lbs sq in Date of test 13.11.12 - 4.12.12 No. of Certificate 11873 - 11899

Can each boiler be worked separately yes Area of fire grate in each boiler 104 sq ft + 108 sq ft No. and Description of Safety Valves to  
each boiler 2 direct spring Area of each valve 9.62 sq in Pressure to which they are adjusted 200 lbs sq in Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2'-0" Mean dia. of boilers 3'-6" Length 14'-3" - 4' 11" Material of shell plates steel  
Thickness 17/32 + 1" Range of tensile strength 24/28 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR lap  
long. seams Half cheater + 1 butt Diameter of rivet holes in long. seams 27/32 Pitch of rivets 3 1/32 Lap of plates or width of butt straps 4"

Per centages of strength of longitudinal joint plate 75.2 Working pressure of shell by rules 206 Size of manhole in shell 20 x 13 1/4  
Size of compensating ring 29 x 20 x 7/8 flanged No. and Description of Furnaces in each boiler — Material — Outside diameter —

Length of plain part top — Thickness of plates crown — Description of longitudinal joint — No. of strengthening rings —  
bottom — Thickness of plates bottom —

Working pressure of furnace by the rules — Combustion chamber plates: Material — Thickness: Sides — Back — Top — Bottom —  
Pitch of stays to ditto: Sides — Back — Top — If stays are fitted with nuts or riveted heads — Working pressure by rules —

Material of stays — Diameter at smallest part — Area supported by each stay — Working pressure by rules — End plates in steam space:  
Material steel Thickness 13/16 Pitch of stays 0 How are stays secured — Working pressure by rules — Material of stays —

Diameter at smallest part — Area supported by each stay — Working pressure by rules — Material of Front plates at bottom —  
Thickness — Material of Lower back plate — Thickness — Greatest pitch of stays — Working pressure of plate by rules —

Diameter of tubes 1 1/8 Pitch of tubes — Material of tube plates steel Thickness: Front 17/32 Back 17/32 Mean pitch of stays —  
Pitch across wide water spaces — Working pressures by rules — Girders to Chamber tops: Material — Depth and  
thickness of girder at centre — Length as per rule — Distance apart — Number and pitch of stays in each —

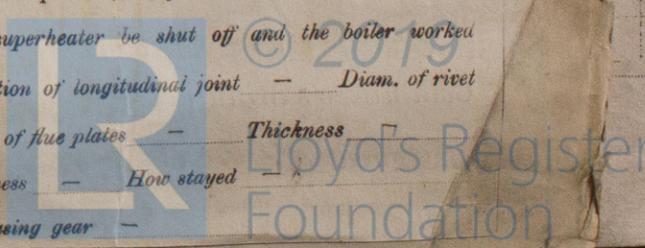
Working pressure by rules — Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked  
separately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet  
holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness

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 —

If not, state whether, and when, one will be sent

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

8210-9E01M



**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No.	Description			When made	Where fixed
Made at	By whom made				
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 casing 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:— 24 coupling bolts. Set of feed & bilge pump valves. Propeller shaft. 3 propellers. 6 half rotor shaft brasses. Air pump head valve, bucket, foot valve, piston & pump rods. Circulating pump impeller & shaft crosshead and crank pin bushes. 4 safety valve springs. 1 uptake & 1 downtake for boilers. Assorted iron, bolts & nuts.

The foregoing is a correct description,

*Deering* Manufacturer.

Dates of Survey while building: During progress of work in shops --- 1912. June 10-17. July 3-20. Aug. 2-7-14-21-23-28. Sept. 5-10-16-18-24-27. Oct. 2-7-11-14-23-29. Nov. 5-8-13-15-22-27. Dec. 2-3-4-5-17-24.  
During erection on board vessel --- 1913. Jan. 14-16-17-21-24-28-31. Feb. 7-14-21-26. Mar. 6-14-28. Apr. 8-9-11-23.  
Total No. of visits 63.

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

Dates of Examination of principal parts: Rotor Casings Cylinders 5-12-12 Slides — Covers — Pistons — Rods —  
Connecting rods — Rotor Crank shafts 5-9-12-15 Thrust shaft — Tunnel shafts 2-8-12-15 Screw shafts 2-3-10-12 Propellers 8-11-12  
Stern tubes 14-10-12 Steam pipes tested 29-10-12-15 Engine and boiler seatings 22-11-12 Engines holding down bolts 6-3-13  
Completion of pumping arrangements 14-3-13 Boilers fixed 21-1-13 Engines tried under steam 9-4-13  
Main boiler safety valves adjusted 8-4-13 Thickness of adjusting washers FPB PV  $\frac{25}{64}$  SV  $\frac{23}{64}$  FSB PV  $\frac{11}{32}$  SV  $\frac{21}{64}$  No 2 PB PV  $\frac{3}{8}$  SV  $\frac{23}{64}$  No 2 SB PV  $\frac{7}{16}$  SV  $\frac{13}{32}$   
Material of Rotor Crank shafts **steel** Identification Mark on Do. 74Y HC Material of Thrust shaft — Identification Mark on Do. —  
Material of Tunnel shafts **steel** Identification Marks on Do. 74Y HC Material of Screw shafts **steel** Identification Marks on Do. 74Y HC  
Material of Steam Pipes **Iron** Test pressure 600 lbs

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

The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans inclosed, and has been seen working satisfactorily under steam - materials and workmanship are good.

The bunkers have been constructed suitable for carrying oil fuel if required in the future, but no oil pumps or pipe connections have been fitted.

This machinery is eligible in my opinion to be classed +LMC 4-13. Water Tube Boilers - Subject to annual survey.

It is submitted that this vessel is eligible for **THE RECORD.** **L.M.C. 4. 13. F.D. ELEC. LIGHT. 3 STEAM TURBINES.**

**WATER TUBE BOILERS, SUBJECT TO ANNUAL SURVEY.**

*Paul*  
14.5.13.

*Harry Clarke*

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

The amount of Entry Fee .. £ 3 : 0 :  
Special .. £ 87 : 4 :  
Donkey Boiler Fee .. £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 9/5/13.  
When received, 12/5/13.

Committee's Minute **GLASGOW**

Assigned +LMC 4, 13 Water tube boilers - subject to annual survey.



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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.)

22/19/5/13