

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office **25 MAR 92**

No. in Survey held at Reg. Book. *22.* on the *S.S. Wakaripu.*
 Date, first Survey _____ Last Survey *18*
 (Number of Visits _____)
 Master *Wheeler.* Built at *Dunbarlon.* By whom built *W. Denny & Broe* Tons ^{Gross} *1767.* _{Net} *1158.*
 When built *1876.*
 Engines made at *Dunbarlon.* 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.C. of New Zealand. Limd.* Port belonging to *Dunedin.*
 Nom. Horse Power as per Section 28 _____

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 _____
 Diameter of Tunnel shaft _____ 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 _____

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.* No. and Description of safety valves to 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*
 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 1/8"* 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 *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" bottom 19 1/4"* Thickness of plates *top 19/32" bottom 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 *over screw 1 3/8"* *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 *over screw 2 3/4"* *smallest part 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 *7/8"* 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 1 1/4"* Length as per rule *2' 9 1/2"* Distance apart *6 1/2"* Number and pitch of Stays in each *4 off 7 1/4" pitch*
 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 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" over screw* 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*

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

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

Committee's Minute

FRI 1 APL 1892

Assigned



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