

REPORT ON MACHINERY.

No. 13956.

Port of Greenock.

JUN. 7 JUN 1904

Received at London Office

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No. in Survey held at Port Glasgow. Date, first Survey 19th Feb Last Survey 28th May 1904
 Reg. Book. 812 on the Screw Steamer "Priardene" (Number of Visits 29)
 Master Crowe Built at Greenock By whom built Scott & Co When built 1882
 Engines made at Greenock By whom made Scott & Co when made 1882
 Boilers made at Port Glasgow By whom made Clyde Ship & Engine Co when made 1904
 Registered Horse Power 305 Owners A. Dickie Port belonging to Newcastle
 Nom. Horse Power as per Section 28 305 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Compound No. of Cylinders 2 No. of Cranks 2
 Dia. of Cylinders 40" x 48" Length of Stroke 48" Revs. per minute 60 Dia. of Screw shaft as per rule Material of screw shaft as fitted
 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 Yes 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush as per rule
 Dia. of Tunnel shaft as per rule Dia. of Crank shaft journals as per rule Dia. of Crank pin as per rule Size of Crank webs as per rule Dia. of thrust shaft under collars as per rule
 Dia. of screw as per rule Pitch of screw as per rule No. of blades as per rule State whether moveable as per rule Total surface as per rule
 No. of Feed pumps 2 Diameter of ditto 12" Stroke 12" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 12" Stroke 12" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 12" No. and size of Suctions connected to both Bilge and Donkey pumps 2 x 12"
 In Engine Room Yes In Holds, &c. Yes
 No. of bilge injections 2 sizes 12" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 12"
 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 Yes
 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 Yes
 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 Yes How are they protected Yes
 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Yes Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 4572 sq. ft. Is forced draft fitted No
 No. and Description of Boilers Two, Cylindrical, Single Ended Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.
 Date of test 2/5/04 Can each boiler be worked separately Yes Area of fire grate in each boiler 56.4 sq. ft. No. and Description of safety valves to each boiler 2: Direct Spring Area of each valve 11.04 sq. ft. Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 15' 0" Length 10' 6" Material of shell plates Steel
 Thickness 1 1/4" Range of tensile strength 28-32 tons Are they welded or flanged No Descrip. of riveting: cir. seams submerged rivet long. seams Double Butt Strap
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates on width of butt straps 18 1/2"
 Per centages of strength of longitudinal joint 86.2 Working pressure of shell by rules 186 lbs. Size of manhole in shell 16" x 12"
 Size of compensating ring 27 x 33 x 1 1/4" No. and Description of Furnaces in each boiler 3: Doughton's Material Steel Outside diameter 45 1/4"
 Length of plain part top 7' 4" Thickness of plates bottom 3 1/2" Description of longitudinal joint Weld No. of strengthening rings None
 Working pressure of furnace by the rules 181 lbs. Combustion chamber plates: Material Steel Thickness: Sides 3/8" Back 3/8" Top 3/8" Bottom 3/4"
 Pitch of stays to ditto: Sides 7/8 x 7/8" Back 7/8 x 7/8" Top 7/8 x 7/8" If stays are fitted with nuts or riveted heads Auto Working pressure by rules 182 lbs.
 Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 60" Working pressure by rules 165 lbs. End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 15' x 15' How are stays secured Double nut Working pressure by rules 225 lbs. Material of stays Steel
 Diameter at smallest part 2 1/8" Area supported by each stay 225" Working pressure by rules 191 lbs. Material of Front plates at bottom Steel
 Thickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 14 1/4" Working pressure of plate by rules 315 lbs.
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2' x 4 1/2' Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10 1/8"
 Pitch across wide water spaces 14" Working pressures by rules 232 lbs. 196 lbs. 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 7 1/4' Number and pitch of Stays in each 3: 7 1/2'
 Working pressure by rules 193 lbs. Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Yes
 Diameter 12" Length 12" Thickness of shell plates 3/8" Material Steel Description of longitudinal joint Weld Diam. of rivet holes 1 1/4" Pitch of rivets 8 1/2" Working pressure of shell by rules 186 lbs. Diameter of flue 12" Material of flue plates Steel Thickness 3/8"
 If stiffened with rings Yes Distance between rings 12" Working pressure by rules 182 lbs. End plates: Thickness 3/8" How stayed Double nut
 Working pressure of end plates 182 lbs. Area of safety valves to superheater 11.04 sq. ft. Are they fitted with easing gear Yes

GRK 354-0181

DONKEY BOILER— No. *One* Description *Cylindrical, Single Ended.*
 Made at *Port Glasgow* By whom made *Clyde Shipbuilding Co. Ltd.* When made *1904* Where fixed *on main deck*
 Working pressure *120 lbs* tested by hydraulic pressure to *240 lbs* No. of Certificate *635* Fire grate area *20 sq ft* Description of safety valves *Direct Spring*
 No. of safety valves *2* Area of each *3 1/4 sq in* Pressure to which they are adjusted *120 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *8' 6"* Length *8' 6"* Material of shell plates *Steel* Thickness *3/8"* Range of tensile strength *29-32 tons* Descrip. of riveting long. seams *S.B. Seams* Dia. of rivet holes *7/8"* Whether punched or drilled *Drilled* Pitch of rivets *4 1/2"* 2 1/4"
 Lap of plating *1 1/2"* Per centage of strength of joint Rivets *82-5* Thickness of shell *end* plates *1 1/8"* Radius of do. *pitch* No. of Stays to do. *13 x 13 1/2"*
 Dia. of stays *1 1/8"* Diameter of furnace Top *31"* Bottom *32"* Length of furnace *5' 2"* Thickness of furnace plates *1/2"* Description of joint *S.B. Single rivet* Thickness of *bottom* plates *5"* Stayed by *1 1/2"* *Back* *12 1/2"* *4 1/2"* *4 1/2"* Working pressure of shell by rules *120 lbs*
 Working pressure of furnace by rules *140 lbs* Diameter of uptake *3"* Thickness of *tube* uptake plates *1 1/8"* Thickness of *stay* tubes *3/8"*

SPARE GEAR. State the articles supplied:— *12 plain Tubes for main Boilers 6 plain Tubes for donkey Boiler.*

The foregoing is a correct description,

THE CLYDE SHIPBUILDING & ENGINEERING CO. LIMITED,

Manufacturer.

Director.

Dates of Survey while building
 During progress of work in shops— *1904 Feb. 19. 22. 23. 26. 29. March 2. 7. 15. 17. 21. 23. 30 April 5. 7. 13. 14.*
 During erection on board vessel— *21. 25. 26. 27. 28. 29. 30 May 2. 3. 11. 19. 20. 28*
 Total No. of visits *29.* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *Yes*

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

The main and donkey boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined under hydraulic pressure and subsequently under steam pressure when their safety valves were adjusted to the working pressures above mentioned. The safety valves on the main steam between the Reducing valve and the High pressure Cylinder casing have been adjusted to carry 80 lbs per sq. in. The arrangement of steam pipes, and the Reducing and safety valves are fitted as nearly as possible in accordance with the approved plans. No alteration has been made in the engines which remain as originally fitted. As will be observed the main Boilers are intended to work at 160 lbs, while a Leslie reducing valve (9" dia.) gives an initial steam pressure of 80 lbs at the engines. The Reducing valve worked on the whole satisfactorily, and there was always maintained at the engines a pressure of 80 lbs, no matter how the pressure in the Boiler fluctuated above that point. It was however found on the trial when running with 160 lbs of steam in the main Boilers and the stop valve at the engines full open, that the Reducing valve rattled heavily, and this noise did not cease while the engine stop valve remained full open, until the Boiler pressure had been reduced to 125 lbs. With a Boiler pressure of 125 lbs the engines worked well and between 11 and 12 o'clock light the vessel attained a speed of 14 1/2 knots per hour.

For recon. see post sheet

The amount of Entry Fee. . . £ : : When applied for, *3/6*
 Special . . . £ *13 : 13* : *1904*
 Donkey Boiler Fee . . . £ *2 : 2* : *1904*
 Travelling Expenses (if any) £ : : *1904*

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

Committee's Minute *Glasgow - 6 JUN 1904*

Assigned *See accompanying report*