

REPORT ON MACHINERY.

JES-30 OCT 1900

Port of *Greenock*.

Received at London Office.

15

No. in Survey held at *Greenock*.Date, first Survey *24 March 1899*. Last Survey *19 Oct 1900*

Reg. Book.

(Number of Visits *181*.)308. on the *Screw Steamer "Persia"*.Tons { Gross *4950.96*
Net *4198.07*Master *W. C. Wheeler* Built at *Greenock* By whom built *Caird & Co. (Lim^d)* When built *1900*Engines made at *Greenock* By whom made *Caird & Co. (Lim^d)* when made *1900*Boilers made at *do* By whom made *do do* when made *1900*Registered Horse Power *2500* Owners *Peninsular & Oriental S N Coy.* Port belonging to *Greenock*Nom. Horse Power as per Section 28. *1355* Is Refrigerating Machinery fitted *yes for ship's use* Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Inverted Direct Acting Triple Expansion* of Cylinders *Four*. No. of Cranks *Four*.

Dia. of Cylinders *42.6 7 1/2 & 42.6 7 1/2* Length of Stroke *72*. Revs. per minute *70* Dia. of Screw shaft *as per rule 21 1/2* Lgh. of stern bush *8 1/4*.

Dia. of Tunnel shafts *as per rule 19 1/4* Dia. of Crank shaft journals *as per rule 20 1/4* Dia. of Crank pin *21 1/2* Size of Crank webs *30 x 1 1/2* Dia. of thrust shaft under collars *20 1/2* Dia. of screw *20 1/2* Pitch of screw *2 1/4* No. of blades *Four* State whether moceable *yes* Total surface *126 sq.*

No. of Feed pumps *Two* Diameter of ditto *5 3/4* Stroke *3 1/2* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *Two* Diameter of ditto *5* Stroke *3 1/2* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *Four*. Sizes of Pumps *9 1/2 x 15*. *One 10 x 21* *One 6 x 15* No. and size of Suctions connected to both Bilge and Donkey pumps *In Engine Room & Stokeholds Eight. 3 1/2*

In Engine Room *one 1 1/2 separate in No 2 fore hold.* In Holds, &c. *Four 3 1/2 in holds. one 3 in tunnel well &*

No. of bilge injections *Two* sizes *4 1/2* Connected to condenser, or to circulating pump *bottom of air pumps* Is a separate donkey suction fitted in Engine room *yes* size *Three 1 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 *above & 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 *Steam feed. bilge & other pipes* How are they protected *Iron trunk & wood & iron casings*

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 *on slip before launching.* Is the screw shaft tunnel watertight *yes*

Is it fitted with a watertight door *yes* worked from *Top of engine room.*

BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *20,864 sq. ft.* Is forced draft fitted *yes*

No. and Description of Boilers *3 double & 3 single ended Multitubular* Working Pressure *170 lbs* Tested by hydraulic pressure to *340 lbs*

Date of test *27.8.00* Can each boiler be worked separately *yes* Area of fire grate in each boiler *118 sq.* No. and Description of safety valves to each boiler *Two direct spring* Area of each valve *17.72 sq.* Pressure to which they are adjusted *174 lbs* Are they fitted with easing gear *yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *18*. Mean dia. of boilers *15.3* Length *20.0* Material of shell plates *Steel*

Thickness *1 1/2* Range of tensile strength *27 1/2 to 32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *Lap & butt* longitudinal seams *DBS tieble*

Diameter of rivet holes in long. seams *1 1/4* Pitch of rivets *8 3/4 & 4 3/8* Lap of plates or width of butt straps *20 straps.*

Per centages of strength of longitudinal joint *ribs 88.6* Working pressure of shell by rules *193 lbs* Size of manhole in shell *16 x 12*

Size of compensating ring *30 x 1 3/8* No. and Description of Furnaces in each boiler *See suspension* Material *Steel* Outside diameter *4 1/2*

Length of plain part *top 14* Thickness of plates *bottom 32* Description of longitudinal joint *Welded.* No. of strengthening rings *on bottom*

Working pressure of furnace by the rules *200 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *9/16* Back *2 1/2* Top *2 1/2* Bottom *1 1/2*

Pitch of stays to ditto: Sides *7 5/8 x 7 5/8* Back *Top 9 x 8 1/2* If stays are fitted with nuts or riveted heads *nut riveted* Working pressure by rules *188 lbs*

Material of stays *Steel* Diameter at smallest part *1 1/2* Area supported by each stay *52 1/2* Working pressure by rules *188 lbs* End plates in steam space: *no washers 3 3/4 x 1 1/2*

Material *Steel* Thickness *1* Pitch of stays *17 1/2 x 17 1/2* How are stays secured *Double nuts* Working pressure by rules *189 lbs* Material of stays *Steel*

Diameter at smallest part *2 3/4* Area supported by each stay *280 to 297* Working pressure by rules *204 lbs* Material of Front plates at bottom *Steel*

Thickness *1 1/2* Material of Lower back plate *Thickness* Greatest pitch of stays *Working pressure of plate by rules*

Diameter of tubes *2 1/2* Pitch of tubes *3 3/4 x 3 3/4* Material of tube plates *Steel* Thickness: Front *3/4* Back *3/4* Mean pitch of stays *7 1/2*

Pitch across wide water spaces *1 1/4* Working pressures by rules *231 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *3/4 double 8* Length as per rule *49* with *a steel 2 3/4 x 1 1/2 hanging stay in centre* Distance apart *8 1/2* Number and pitch of Stays in each *Four 9*

Working pressure by rules *225 lbs* 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 *yes*

DONKEY BOILER—

No.

Description

Made at

By whom made

When made

Where fixed

Working pressure

tested by hydraulic pressure to

No. of Certificate

Fire grate area

Description of safety valves

No. of safety valves

Area of each

Pressure to which they are adjusted

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

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

joint

Thickness of furnace crown plates

Stayed by

Working pressure of shell by rules

Working pressure of furnace by rules

Diameter of uptake

Thickness of uptake plates

Thickness of water tubes

SPARE GEAR. State the articles supplied:— 2 propeller blades, manganese bronze, 1 propeller shaft, $\frac{1}{4}$ crank shaft, 1 HP cylinder cover, 1 HP, 1 IP & 1 LP piston complete, with 3 additional sets of packing rings for pistons, 1 HP piston valve & casing, 1 IP do, 1 LP slide valve, 1 HP, 1 IP & 1 LP valve spindle, 1 rolling block for valve link, 3 gun metal liners for same, 1 eccentric sheave, 1 gland for each cylinder stuffing box.

The foregoing is a correct description,

FOR CAIRD AND COMPANY, LIMITED,

Manufacturers.

During progress of

Dates

of Survey

while

building

work in shops—

During erection on

board vessel—

Total No. of visits

1899 March 24 April 21 May 15 20 22 23 24 25 26 29 30 June 12 19 21 26 30 July 3 17 19 21 22 25 27 Aug 2 3 7 11 14 21 23 25 30 Sept 4 7 13 18 20 22 25 26 27 29 30 Oct 3 7 10 14 17 19 24 27 28 31 Nov 2 7 10 13 16 20 23 25 28 30 Dec 1 5 8 12 15 21 23 26 28 30 1900 Jan 8 9 10 11 12 15 16 19 22 26 30 Feb 1 6 7 9 12 14 15 16 20 22 26 March 5 7 8 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 April 3 6 10 12 13 16 17 20 27 30 May 2 3 5 7 8 10 14 17 21 22 23 24 26 28 30 31 June 1 4 5 8 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 July 2 5 17 18 20 23 25 27 28 29 30 Aug 2 4 13 15 17 19 22 23 24 25 26 27 28 29 30 Sept 1 3 4 5 8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 Oct 1 3 4 5 8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 Nov 1 3 4 5 8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 Dec 1 3 4 5 8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

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

These Engines & Boilers have been specially surveyed during construction. workmanship good. Main steam pipes tested by hydraulic pressure to 4.25 lbs. tests satisfactory. Thrust intermediate & screw shafts examined when being turned to finished size and found apparently sound.

The Engines & Boilers are satisfactorily fitted in vessel and have been tested under full steam. they are now in good order & safe working condition and are in our opinion eligible to be noted in Register book. **L.M.C. 10.00.**

Howden system of forced draught for main boilers fitted.

Spare gear continued.

1 HP piston rod, $\frac{1}{2}$ set of HP & $\frac{1}{2}$ set of LP piston rod crosshead brasses with bolts, 1 set crank pin bushes with bolts for either engine, 1 air pump bucket, valve guards foot valve seat & valve guards, discharge valve seat & guards & pump rod, 1 set gun metal feed & bilge pump valves & seats, 1 set do for sanitary pump, 75 Condenser tubes & 225 packing ferrules, 3 escape valves for cylinders, 2 do for feed pump, 24 studs for junk rings, 2 main bearing bolts & nuts, 25 do for shaft couplings, 1 set HP cylinder cover studs & 12, 1 set LP cylinder covers, 6 do for cylinder stuffing boxes, 4 do for slide rod stuffing boxes, 4 do for feed pump stuffing boxes, 6 do for air pump covers, 24 do for air pump bucket & foot valves, 20 do for head valves & safety valve springs, a quantity of bolts nuts & wire assorted.

It is submitted that this vessel is eligible for THE RECORD.

L.M.C. 10.00.

F.D. See L.C. Reg.

The amount of Entry Fee..

£ 3

When applied for.

Special

£ 87

When received.

Donkey Boiler Fee

£

Traveling Expenses (if any) £

£

Committee's Minute

Glasgow.

29 OCT. 1900

Assigned

L.M.C. 10.00

MACHINERY CERTIFICATE

WRITTEN

F.D.

David

A. B. Heron R. Elliott
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.
Greenock District.