

REPORT ON MACHINERY.

No. 25670.

Port of Glasgow

Received at London Office WED. 4 SEP 1907

No. in Survey held at Glasgow

Date, first Survey 4th October Last Survey 17th Aug 1907

Reg. Book.

938 on the S S Huanchaco.

(Number of Visits 34)

Master Built at Dalmuir By whom built M^r Beardmore & Co Ltd When built 1907

Engines made at Dalmuir By whom made M^r Beardmore & Co Ltd when made 1907

Boilers made at do By whom made do when made 1907

Registered Horse Power Owners Pacific Steam Navigation Co Port belonging to Liverpool

Nom. Horse Power as per Section 28 463. 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 3

Dia. of Cylinders 25 1/2, 42 & 70 Length of Stroke 51 Revs. per minute 70 Dia. of Screw shaft as per rule 1 1/2 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 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 60 1/2

Dia. of Tunnel shaft as per rule 13 3/8 Dia. of Crank shaft journals as per rule 1 1/2 Dia. of Crank pin 1 1/8 Size of Crank webs 26 1/2 x 10 Dia. of thrust shaft under collars 1 1/8 Dia. of screw 17-6 Pitch of Screw 18-0 No. of Blades 4 State whether moveable Yes Total surface 88 sq

No. of Feed pumps Double Headers 10 1/2 x 18 Stroke 25 1/2 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 10 1/2 x 18 Stroke 25 1/2 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Four Sizes of Pumps one duplex 8 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3 1/2" diam " 9 1/2 x 5 In Holds, &c Two 3 1/2" in Nos 1, 2, 3 & 4

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes, 6"

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

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 Fireman holds How are they protected Hard boxing

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 7/6-11/6 of Stern Tube 7/6-11/6 Screw shaft and Propeller 11/6 & 10/8

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room top platform

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel M^r Beardmore & Co Ltd

Total Heating Surface of Boilers 8021 sq Forced Draft fitted No No. and Description of Boilers Three, Single Ended.

Working Pressure 190 lbs Tested by hydraulic pressure to 380 lbs Date of test 15/2/07 No. of Certificate 8463

Can each boiler be worked separately Yes Area of fire grate in each boiler 93 1/2 sq No. and Description of Safety Valves to each boiler Two, direct spring Area of each valve 7.07 sq Pressure to which they are adjusted 195 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 16-6" Length 11-3" Material of shell plates Steel

Thickness 1 3/8" Range of tensile strength 29/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR Lap

long. seams Double Strap Diameter of rivet holes in long. seams 8 9/16" Pitch of rivets 10" Lap of plates or width of butt straps 22 1/2"

Per centages of strength of longitudinal joint rivets 89.5 Working pressure of shell by rules 225 lbs Size of manhole in shell 16" x 12"

Size of compensating ring M^r nuts No. and Description of Furnaces in each boiler Two, Johnsons Material Steel Outside diameter 46"

Length of plain part top 19 1/32" Thickness of plates crown 19 1/32" Description of longitudinal joint Welded No. of strengthening rings 1

Working pressure of furnace by the rules 205 Combustion chamber plates: Material Steel Thickness: Sides 19 1/32" Back 9 1/16" Top 19 1/32" Bottom 15 1/16"

Pitch of stays to ditto: Sides 8 x 8 Back 7 1/8 x 7 1/2 Top 8 x 8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 190

Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 8 1/4 sq Working pressure by rules 198 End plates in steam space:

Material Steel Thickness 7 1/2" Pitch of stay 16 1/2 x 16 1/2 How are stays secured DR nuts Working pressure by rules 268 Material of stays Steel

Diameter at smallest part 6 1/4" Area supported by each stay 265 sq Working pressure by rules 242 Material of Front plates at bottom Steel

Thickness 7 1/8" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 15 3/4" Working pressure of plate by rules 202

Diameter of tubes 3 1/2" Pitch of tubes 1 1/2" Material of tube plates Steel Thickness: Front 7 1/8" Back 7 1/8" Mean pitch of stays 10"

Pitch across wide water spaces 1 1/2" Working pressures by rules 270 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 3/8 x 1 1/2 Length as per rule 30 1/10 Distance apart 8" Number and pitch of stays in each Three, 8"

Working pressure by rules 203 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

W346-0007

VERTICAL DONKEY BOILER— Manufacturers of Steel *None*

No. _____ 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 _____ Stayed by _____

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

SPARE GEAR. State the articles supplied: *Two top + 2 bottom end bolts + nuts, 2 main bearing + one set of coupling bolts + nuts. one set of feed + bilge pump valves, assorted bolts + nuts, a few bars of iron, propeller shaft, propeller blades, bottom end brasses, eccentric strap + pulley, valve spindle, piston rod rings + springs for each cylinder, shaft for centrifugal pump*

The foregoing is a correct description, _____

Manufacturer. *C. F. Jones*

Dates of Survey while building

| | |
|------------------------------------|---|
| During progress of work in shops - | 1906. Oct. 4. 17. 22. 1907. 5. 8. Dec. 1. 13. 1907. Jan. 8. 17. Feb. 15. 20. 28. |
| During erection on board vessel - | March 1. 14. 22. 26. 28. April 5. 8. 15. 23. May 15. June 11. 20. 27. July 3. 4. 25. Aug. 4. 5. |
| Total No. of visits | 34. |

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

" " " donkey " " " *None*

Dates of Examination of principal parts—

| | | | | | | | | | |
|------------------------------------|----------|--------------------------------|--------------------|----------------------------|----------|-----------------------------|------------|-------------|-----------|
| Cylinders | 24/3-23 | Slides | 27/3 etc | Covers | 27/3 etc | Pistons | 24/3 etc | Rods | 27/3 etc |
| Connecting rods | 24/3 etc | Crank shaft | 24/3-29/3 | Thrust shaft | 29/3 | Tunnel shafts | 23/4 etc | Screw shaft | 29/3-15/5 |
| Stern tube | 15/5 etc | Steam pipes tested | 23/5 4/16 | Engine and boiler seatings | 27/6 etc | Engines holding down bolts | 27/6 etc | | |
| Completion of pumping arrangements | 5/8/07 | Boilers fixed | 27/6/07 | Engines tried under steam | 17/8/07 | | | | |
| Main boiler safety valves adjusted | 4/7/07 | Thickness of adjusting washers | 14.97 | | | | | | |
| Material of Crank shaft | Steel | Identification Mark on Do. | 15/5/07 6M | Material of Thrust shaft | Steel | Identification Mark on Do. | 15/5/07 6M | | |
| Material of Tunnel shafts | Steel | Identification Marks on Do. | do | Material of Screw shafts | Steel | Identification Marks on Do. | do | | |
| Material of Steam Pipes | Copper | Test pressure | 475 lb per sq. in. | | | | | | |

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been built under special survey. The materials and workmanship are of good quality. It has been securely fitted on board and satisfactorily tested under full steam. (Sped on trial about 15 3/4 knots). In my opinion the machinery of this vessel is now eligible for record of L.M.C. 8-07 (in red) in register book.*

Approved + amended boiler plans, forging report, and copies of reports on Filter, Compressor + Heater now attached.

There are no feed pumps on the main engines. The double doors have automatic gear and two other donkey pumps have connections for feeding the boilers.

The amount of Entry Fee. . . £ 3 : : When applied for, SER. 307

Special £ 43 : 3 : When received, 7.9.07

Donkey Boiler Fee £ : : : 9.9.07

Travelling Expenses (if any) £ : : : 19

Committee's Minute *Glasgow - 3 SEP 1907*

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 8-07. ELEC. LIGHT.

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

Write "Sheer Stroke" opposite its corresponding letter.
 Do L thi Po BR FO m PI
 The Surveys are requested not to write on or below the space for Committee's Minute.
 Form No. 1B

