

REPORT ON MACHINERY.

No. 55990.

Port of *Quebec in Type*Received at London Office **14 JAN 1909**No. in Survey held at *S. Shields*
Reg. Book. on the *S.S. HARFORD*Date, first Survey *25th April 1908* Last Survey *8th Jan 1909*
(Number of Visits *48*)

Master *W. E. Pope* Built at *S. Shields* By whom built *J. Redhead and Sons* Tons { Gross *4412*
Engines made at *S. Shields* By whom made *J. Redhead and Sons* Net *2716*
Boilers made at *ditto* By whom made *ditto* When built *1909.1*
Registered Horse Power *✓* Owners *J. & C. Harrison Ltd.* Port belonging to *London*
Nom. Horse Power as per Section 28 *399.1* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Triple Compound.*No. of Cylinders *3* No. of Cranks *3*

Dia. of Cylinders *26.25 43.75* Length of Stroke *48* Revs. per minute *60* Dia. of Screw shaft *as per rule 14.82* Material of *Iron*
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 *One length* 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'-11"*

Dia. of Tunnel shaft *as per rule 13.25* Dia. of Crank shaft journals *as per rule 13.75* Dia. of Crank pin *13.34* Size of Crank webs *18x9 1/4* Dia. of thrust shaft under
collars *14 1/2* Dia. of screw *17-9* Pitch of Screw *13-0* No. of Blades *4* State whether moveable *no* Total surface *98 sq. ft.*

No. of Feed pumps *2* Diameter of ditto *4 1/2* Stroke *30* Can one be overhauled while the other is at work *yes*
No. of Bilge pumps *2* Diameter of ditto *4 1/2* Stroke *30* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *4* Sizes of Pumps *4 1/2, 10, 5 1/4, 5 1/2, 5* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *3 - 3 1/2" Bore* In Holds, &c. *1 Hold. 2 - 3 1/2" Bore*

No. of Bilge Injections *1* size *6 3/4* Connected to condenser, or to circulating pump *C.P.* Is 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 *✓*

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 *line* 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 *5.11.08* of Stern Tube *5.11.08* Screw shaft and Propeller *17.11.08*

Is the Screw Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *Top E.R. Platform*

BOILERS, &c.—(Letter for record *(r)*) Manufacturers of Steel *Spencer. Hawthorn.*

Total Heating Surface of Boilers *6417 sq. ft.* Is Forced Draft fitted *no* No. and Description of Boilers *3. G.L. built. S. End*

Working Pressure *180 lbs.* Tested by hydraulic pressure to *360 lbs.* Date of test *30.9.08* No. of Certificate *7766*

Can each boiler be worked separately *yes* Area of fire grate in each boiler *57.75 sq. ft.* No. and Description of Safety Valves to

each boiler *2. Spring* Area of each valve *7.86 sq. in.* Pressure to which they are adjusted *185 lbs.* Are they fitted with easing gear *yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *21"* Mean dia. of boilers *14-9"* Length *10-11 1/2"* Material of shell plates *S.*

Thickness *1 3/16"* Range of tensile strength *28/32 T* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *L.O.R.*

long. seams *D.B. T.R.* Diameter of rivet holes in long. seams *1 3/16"* Pitch of rivets *8/8* Lap of plates or width of butt straps *19 1/2"*

Per centages of strength of longitudinal joint *85.5* Working pressure of shell by rules *181 lbs.* Size of manhole in shell *16 x 12"*

Size of compensating ring *7 x 1 3/16"* No. and Description of Furnaces in each boiler *3. Bunn.* Material *S.* Outside diameter *44"*

Length of plain part *top 1* Thickness of plates *bottom 19/32* Description of longitudinal joint *Weld.* No. of strengthening rings *✓*

Working pressure of furnace by the rules *218 lbs.* Combustion chamber plates: Material *S.* Thickness: Sides *7/8"* Back *7/8"* Top *3/32"* Bottom *7/8"*

Pitch of stays to ditto: Sides *8 1/2"* Back *8 1/2"* Top *8 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *193 lbs.*

Material of stays *I.* Diameter at smallest part *1.99"* Area supported by each stay *70"* Working pressure by rules *200"* End plates in steam space:

Material *S.* Thickness *1 1/4"* Pitch of stays *17 1/2"* How are stays secured *nuts* Working pressure by rules *185 lbs.* Material of stays *S.*

Diameter at smallest part *5.05"* Area supported by each stay *289"* Working pressure by rules *182 lbs.* Material of Front plates at bottom *S.*

Thickness *3/4"* Material of Lower back plate *S.* Thickness *13/16"* Greatest pitch of stays *11 1/2"* Working pressure of plate by rules *232 lbs.*

Diameter of tubes *3 1/2"* Pitch of tubes *4 3/4"* Material of tube plates *S.* Thickness: Front *3/4 + 1/2"* Back *3/4"* Mean pitch of stays *11 7/8"*

Pitch across wide water spaces *14"* Working pressures by rules *183 lbs.* Girders to Chamber tops: Material *S.* Depth and

thickness of girder at centre *7 1/2"* Length as per rule *25"* Distance apart *8 1/2"* Number and pitch of stays in each *2 - 8"*

Working pressure by rules *218 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 *2021* 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 *✓*

VERTICAL DONKEY BOILER—

Manufacturers of Steel

Particulars given in the attached Form.

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 end bolts & nuts. Two bottom end bolts.
 Two main bearing bolts. One set coupling bolts. One set each. Air, circulating.
 Feed and Bilge pump valves. One propeller shaft. One propeller. A small
 bolts and iron.

The foregoing is a correct description,

John Keachhead Hons Manufacturer.

Dates of Survey while building
 During progress of work in shops—
 During erection on board vessel—
 Total No. of visits

Is the approved plan of main boiler forwarded herewith
 " " " donkey " "
 Dates of Examination of principal parts—Cylinders 4.9.08 Slides 27.8.08 Covers 1.9.08 Pistons 27.8.08 Rods 22.6.08
 Connecting rods 27.7.08 Crank shaft 1.6.08 Thrust shaft 28.10.08 Tunnel shafts 28.10.08 Screw shaft 28.10.08 Propeller 28.10.08
 Stern tube 14.10.08 Steam pipes tested 24.11.08 Engine and boiler seatings 20.11.08 Engines holding down bolts 7.12.08
 Completion of pumping arrangements 18.12.08 Boilers fixed 14.12.08 Engines tried under steam 15.12.08
 Main boiler safety valves adjusted 15.12.08 Thickness of adjusting washers 7/8 5/16 7/16 5/16 5/16 5/16
 Material of Crank shaft Identification Mark on Do. 6.08 Material of Thrust shaft Identification Mark on Do. 28.10.08
 Material of Tunnel shafts Identification Marks on Do. 28.10.08 Material of Screw shafts Identification Marks on Do. 28.10.08
 Material of Steam Pipes Copper Test pressure 400 lb.

General Remarks (State quality of workmanship, opinions as to class, &c. The above machinery and Boilers
 have been constructed under Special Survey. The workmanship
 and materials are sound and good. They have been fitted on
 board the above Vessel in a satisfactory manner.
 The Vessel is eligible, in my opinion for record + L.C. 1.09.

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

+ LMC. 1.09
 Class Light.

14.1.09

The amount of Entry Fee.. £ 3 : 0 : 0 When applied for,
 Special £ 39 : 19 : 0 13 JAN 1909
 Donkey Boiler Fee £ 2 : 2 : 0 When received,
 Travelling Expenses (if any) £ : : 16/1/09

Committee's Minute

FRI. 15 JAN 1909

Assigned

+ LMC. 1.09
 Class Light.

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

MACHINERY CERTIFICATE
 WRITTEN.



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