

REPORT ON MACHINERY.

No. 12219

Port of *Glasgow*

Received at London Office 18 MAY 1893

No. in Survey held at *Paisley* Date, first Survey *2nd October 1892* Last Survey *15th May 1893*
 Reg. Book. *S.S. Harrier* (Number of Visits *31*)
 on the *S.S. Harrier* Tons { Gross *209* Net *95*
 Master *[check]* Built at *Bowling* By whom built *Scott & Co* When built *1892*
 Engines made at *Paisley* By whom made *Fisher & Co* when made *1892-3*
 Boilers made at *Paisley* By whom made *Hanna, Donald Wilson* when made *1892-3*
 Registered Horse Power *50* Owners *Charles H. Pile* Port belonging to *London*
 Nom. Horse Power as per Section 28 *42*

ENGINES, &c.— Description of Engines *Triple Expansion* No. of Cylinders *Three*
 Diameter of Cylinders *11, 17 & 28"* Length of Stroke *21"* Revolutions per minute *95* Diameter of Screw shaft *as per rule 5.27*
 Diameter of Tunnel shaft *as per rule 5.27* Diameter of Crank shaft journals *5 3/8"* Diameter of Crank pin *5 3/4"* Size of Crank webs *built*
 Diameter of screw *8'-0"* Pitch of screw *12'-0"* No. of blades *4* State whether moveable *not* Total surface *18 sq. ft*
 No. of Feed pumps *One* Diameter of ditto *2"* Stroke *10 1/2"* Can one be overhauled while the other is at work *—*
 No. of Bilge pumps *One* Diameter of ditto *2"* Stroke *10 1/2"* Can one be overhauled while the other is at work *—*
 No. of Donkey Engines *One* Sizes of Pumps *9" x 7" x 4"* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *Five 2"* In Holds, &c. *Two bilge 2" & one bal.*
 No. of bilge injections *One* sizes *2"* Connected to condenser, or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *yes 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*
 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 *none* 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*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *on stocks* Is the screw shaft tunnel watertight *none*
 Is it fitted with a watertight door *—* worked from *—*

BOILERS, &c.— (Letter for record *(5)*) Total Heating Surface of Boilers *722*
 No. and Description of Boilers *One Multitubular* Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs*
 Date of test *26.2.92* Can each boiler be worked separately *—* Area of fire grate in each boiler *30* No. and Description of safety valves to
 each boiler *d. Acting Spring* Area of each valve *7"* Pressure to which they are adjusted *160 lbs* Are they fitted
 with easing gear *yes* Smallest distance between boilers or uptakes and bunkers or *roadwork* *9"* Mean diameter of boilers *10'-3"*
 Length *9'-0"* Material of shell plates *Steel* Thickness *1"* Description of riveting: circum. seams *d. riv. lap* long. seams *d. butt str.*
 Diameter of rivet holes in long. seams *1 5/8"* Pitch of rivets *5 1/4"* Lap of plates or width of butt straps *15"*
 Per centages of strength of longitudinal joint *rievts. 84* Working pressure of shell by rules *165 lbs* Size of manhole in shell *12 x 16"*
 Size of compensating ring *1' x 24 x 28"* No. and Description of Furnaces in each boiler *two plain* Material *Steel* Outside diameter *37 3/8"*
 Length of plain part *top 36'-3"* Thickness of plates *bottom 3 1/16"* Description of longitudinal joint *d. butt str.* No. of strengthening rings *one*
 Working pressure of furnace by the rules *160 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *1/2"* Back *1/2"* Top *1/2"* Bottom *1/16"*
 Pitch of stays to ditto: Sides *6 3/4"* Back *6 1/2 x 6 3/4"* Top *6 3/4"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *160 lbs*
 Material of stays *Steel* Diameter at smallest part *1 1/8"* Area supported by each stay *45.50 sq. in* Working pressure by rules *175 lbs* End plates in steam space:
 Material *Steel* Thickness *1 3/16"* Pitch of stays *15 x 11"* How are stays secured *d. nuts* Working pressure by rules *160 lbs* Material of stays *Steel*
 Diameter at smallest part *2"* Area supported by each stay *165.09 sq. in* Working pressure by rules *162 lbs* Material of Front plates at bottom *Steel*
 Thickness *1 3/16"* Material of Lower back plate *Steel* Thickness *1 3/16"* Greatest pitch of stays *13"* Working pressure of plate by rules *160 lbs*
 Diameter of tubes *3 1/2"* Pitch of tubes *4 1/2"* Material of tube plates *Steel* Thickness: Front *1 3/16"* Back *1 3/16"* Mean pitch of stays *9"*
 Pitch across wide water spaces *14' 8"* Working pressures by rules *160 lbs* Girders to Chamber tops: Material *Steel* Depth and
 thickness of girder at centre *7" x 1"* Length as per rule *23"* Distance apart *6 3/4"* Number and pitch of Stays in each *two 6 3/4"*
 Working pressure by rules *370 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 *—*

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Lloyd's Register Foundation

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DONKEY BOILER— Description *Vertical with four tubes*
 Made at *Barrhead* By whom made *J. Wallace & Co* When made *1891* Where fixed *Stokehold*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *5074* Fire grate area *90 sq ft* Description of safety valves *d. spring*
 No. of safety valves *one* Area of each *5"* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *4'-0"* Length *8'-0"* Material of shell plates *steel* Thickness *3/8"*
 Description of riveting *long seams double single* Diameter of rivet holes *3/4"* Whether punched or drilled *rim* Pitch of rivets *2 3/4"*
 Lap of plating *3 7/8"* Per centage of strength of joint Rivets *72 1/2* Plates *72 7* Thickness of shell crown plates *1/2"* Radius of do. *5'-0"* No. of Stays to do. *3*
 Dia. of stays *1 1/2"* Diameter of furnace Top *38"* Bottom *42"* Length of furnace *4'-6"* Thickness of furnace plates *7/16"* Description of joint *lap* Thickness of furnace crown plates *7/16"* Stayed by *as shell crown* Working pressure of shell by rules *113 1/2*
 Working pressure of furnace by rules *83 1/2* Diameter of uptake *11"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *Top and bottom end bolts, main-bearing & coupling bolts. Feed and bilge pump-valves. Bolts, nuts iron assorted.*

The foregoing is a correct description,
J. Wallace & Co Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above mentioned engines and boilers have been built under special survey and are of good workmanship and material. The machinery has been well fitted onboard and tried under steam with satisfactory results and is now in my opinion eligible to the notation of: T.L.M.C. 5.93.*

If is submitted that this vessel is eligible for THE RECORD T.L.M.C. 5.93

Dupl written 25/10/93

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 1 : " :	When applied for, 3/8/92
Special	£ 8 : " :	
Donkey Boiler Fee	£ " : " :	When received, 5/8/92
Travelling Expenses (if any) £	" : " :	

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

Committee's Minute **FRI 19 MAY 1893**
 Assigned *T.L.M.C. 5.93*

