

REPORT ON MACHINERY.

No. 4099

Received at London Office

THURS 10 SEPT 1885

No. in Survey held at

Glasgow

Date, first Survey 24th Feb^y

Last Survey 5th Sept^r 1885

Reg. Book.

(Number of Visits 29)

430.58

on the

S. S. Pearl

Tons 198.54

Master Duncan M^r Ingle

Built at Paisley

By whom built

J. Fullerton & Co

When built

1885

Engines made at

Glasgow

By whom made

W. King & Co

when made

1885

Boilers made at

Glasgow

By whom made

Do

when made

1885

Registered Horse Power

70

Owners

W. Robertson

Port belonging to

Glasgow

ENGINES, &c.—

Description of Engines *Improved Direct acting. Compound. Surface Condensing*
 Diameter of Cylinders *22 & 42* Length of Stroke *30* No. of Rev. per minute *95* Point of Cut off, High Pressure *18 1/2* Low Pressure *17 1/2*
 Diameter of Screw shaft *8* Diam. of Tunnel shaft *7 3/4* Diam. of Crank shaft journals *8* Diam. of Crank pin *8* size of Crank webs *5 1/4 x 11 1/4*
 Diameter of screw *9-9* Pitch of screw *15 1/4* No. of blades *Four* state whether moveable *Fixed* total surface *31 sq ft*
 No. of Feed pumps *One* diameter of ditto *3 1/4* Stroke *17* Can one be overhauled while the other is at work *—*
 No. of Bilge pumps *One* diameter of ditto *3 1/4* Stroke *17* Can one be overhauled while the other is at work *—*
 Where do they pump from *Bilges, Hold, Fore & Aft Peak Tanks.*
 No. of Donkey Engines *one pump* Size of Pumps *6 inch 3 1/2 pump 6 inch* Where do they pump from *Bilges, Sea, Holdwell, Fore & Aft Peak Tanks & Hold. Submersible from Main Tank. Fore Peak Tank & sea.*
 Are all the bilge suction pipes fitted with roses *Yes* Are the roses always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*
 No. of bilge injections *One* and sizes *2 1/2* Are they connected to condenser, or to circulating pump *Circulating*
 How are the pumps worked *By levers from Low Pressure engine.*
 Are all connections with the sea direct on the skin of the ship *To united block.* 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 accessible at all times *Yes*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *Yes*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *Before launching.*
 Is the screw shaft tunnel watertight *No tunnel* and fitted with a sluice door *—* worked from *—*

BOILERS, &c.—

Number of Boilers *One* Description *Cylindrical. Mult^{ple}* Whether Steel or Iron *Steel.*
 Working Pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* Date of test *July 3rd 1885.*
 Description of superheating apparatus or steam chest *Vertical.*
 Can each boiler be worked separately *—* Can the superheater be shut off and the boiler worked separately *—*
 No. of square feet of fire grate surface in each boiler *51 1/4 sq ft* Description of safety valves *Direct spring* No. to each boiler *Two*
 Area of each valve *9.6 sq ins* Are they fitted with easing gear *Yes* No. of safety valves to superheater *—* area of each valve *—*
 Are they fitted with easing gear *—* Smallest distance between boilers and bunkers or woodwork *9"* Diameter of boilers *12-6"*
 Length of boilers *9-10 1/2"* description of riveting of shell long. seams *Double butt* circum. seams *ends simple. other double* Thickness of shell plates *3/4"*
 Diameter of rivet holes *1/16"* whether punched or drilled *Pierced* pitch of rivets *5 1/8"* Lap of plating *13 3/4 x 9/16 butt*
 Per centage of strength of longitudinal joint *79* working pressure of shell by rules *99 lbs* size of manholes in shell *16 x 12"*
 Size of compensating rings *6 x 3/4 double riveted.* No. of Furnaces in each boiler *Three*
 Outside diameter *37"* length, top *6-9"* bottom *9-0"* thickness of plates *1/2"* description of joint *Butt.* if rings are fitted *Yes*
 Greatest length between rings *6-6"* working pressure of furnace by the rules *90 lbs* combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*
 Pitch of stays to ditto, sides *9 x 7"* back *9 x 9"* top *8 x 7 1/2"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *95 lbs*
 Diameter of stays at smallest part *1 1/2 x 1 1/2 in* working pressure of ditto by rules *95 lbs* end plates in steam space, thickness *3/4"*
 Pitch of stays to ditto *15 x 15"* how stays are secured *Nuts & washers* working pressure by rules *90 lbs* diameter of stays at smallest part *2 1/2 screw* working pressure by rules *120 lbs* Front plates at bottom, thickness *5/8"* Back plates, thickness *5/8"*
 Greatest pitch of stays *12 1/2 x 9"* working pressure by rules *90 lbs* Diameter of tubes *3 1/2"* pitch of tubes *4 1/2"* thickness of tube plates, front *5/8"* back *5/8"* how stayed *Tubes* pitch of stays *15 1/2 x 9"* width of water spaces *6"*
 Diameter of Superheater or Steam chest *3-0"* length *4-10"* thickness of plates *7/16"* description of longitudinal joint *Lap, double* diam. of rivet holes *3/4"*
 Pitch of rivets *3 1/2"* working pressure of shell by rules *150 lbs* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*
 Distance between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *1/2"* how stayed *Three stays*
1 1/4 dia. Superheater or steam chest; how connected to boiler *Double riveted to shell*

7099 g.s.

DONKEY BOILER— Description *Vertical All iron*
Made at *Glasgow* by whom made *W. King & Co* commenced when made *1881* where fixed *In stokehold*
Working pressure *50 lb* tested by hydraulic pressure to *100 lb* No. of Certificate *1603* fire grate area *8.7 sq ft* description of safety valves *Direct spring* No. of safety valves *One* area of each *4 sq in* if fitted with easing gear *yes* if steam from main boilers can enter the donkey boiler *No* diameter of donkey boiler *4-0* length *9-0* description of riveting *Lap single*
Thickness of shell plates *3/8* diameter of rivet holes *13/16* whether punched or drilled *Punched* pitch of rivets *2 1/8* lap of plating *2 1/2*
per centage of strength of joint *56* thickness of crown plates *7/16* stayed by *Four stays*
Diameter of furnace, top *3-2* bottom *3-4 1/2* length of furnace *4-9* thickness of plates *3/8* description of joint *Lap*
Thickness of furnace crown plates *7/16* stayed by *As above* working pressure of shell by rules *66 lb*
Working pressure of furnace by rules *65 lb* diameter of uptake *11* thickness of plates *7/16* thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *Two connecting rod top + bottom end bolts + nuts*
Two main bearing bolts. One set of coupling bolts. Two feed + bilge pump
valves. also one propeller complete with moveable blades.

The foregoing is a correct description,
McCaum & Co W. King & Co. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
These Engines & Boilers have been constructed under special survey - they are of good material & workmanship - they have been well fitted on board - satisfactorily tested under steam & I am of opinion they are eligible to be classed "A" in the Register Book.
Crank shaft & shafting finished in Engineers works.
Hereto are appended the Reports on Steel Tests.

ALLOYD'S L.L.
9-85

It is submitted that this vessel is eligible to have the notification of L.M.C. recorded M 10/9/85

The amount of Entry Fee .. £ *1* : : : received by me,
Special £ *10* : *10* :
Donkey Boiler Fee £ : : :
Certificate (if required) .. £ : : : *8/9* 1885
To be sent as per margin.
(Travelling Expenses, if any, £)

Committee's Minute *FRIDAY 11 SEPT 1885*
+ [Signature]

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