

REPORT ON MACHINERY. 13

WED 19 MARCH 1890

No. 7943

Port of West Hartlepool

Received at London Office

No. in Survey held at Hartlepool & Huddlesb. Date, first Survey 18th Dec 1889 Last Survey 8th March 1890

Reg. Book. on the S.S. Steamer "Bona" (Number of Visits 32) 1567.38

Master P. H. Leach Built at Huddlesb. By whom built Messrs. W. Dixon & Co. When built 1890

Engines made at Hartlepool By whom made Messrs. J. Richardson & Sons when made 1890

Boilers made at Hartlepool By whom made Messrs. J. Richardson & Sons when made 1890

Registered Horse Power 250 Owners C. F. Bowring Port belonging to London.

ENGINES, &c.—

Description of Engines Inverted, Triple Expansion, 3 Cylinders & 3 Cranks

Diameter of Cylinders 22", 35", 59" Length of Stroke 39" No. of Rev. per minute 65 Point of Cut off, High Pressure 50% Low Pressure 60%

Diameter of Screw shaft 10 1/2" Diam. of Tunnel shaft 10 1/2" Diam. of Crank shaft journals 10 1/2" Diam. of Crank pin 10 1/2" size of Crank webs 16 1/4" x 7 1/4"

Diameter of screw 16.0" Pitch of screw 15.3" No. of blades 4 state whether moveable no total surface 70 sq. ft.

No. of Feed pumps 2 diameter of ditto 2 3/4" Stroke 23" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 3 3/4" Stroke 23" Can one be overhauled while the other is at work yes.

Where do they pump from For holds, Engine room, After well & sea.

No. of Donkey Engines 2 Size of Pumps (8 1/2" x 7") (3 1/2" x 7") Where do they pump from (Ballast tanks, sea, & engine room bilges) (sea, hotwell, main bilges & all bilges)

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 to be made

No. of bilge injections one and sizes 4 1/2" dia Are they connected to condenser, or to circulating pump Circulating pump

How are the pumps worked By levers from the after piston rod crosshead.

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 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 none How are they protected

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times all except sluice valves in stokehold to be made accessible at Hartlepool

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 18th Dec. 1889.

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Pop platform engine room

BOILERS, &c.—

Number of Boilers Two Description Cyl. Mart. Single Ended Whether Steel or Iron Steel

Working Pressure 160 lb. Tested by hydraulic pressure to 320 lb. Date of test 27th Feb 1890.

Description of superheating apparatus or steam chest none Heating surface 3670 sq. ft.

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately No superheater

No. of square feet of fire grate surface in each boiler 53.5 Description of safety valves Spring No. to each boiler 2

Area of each valve 7.07 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 12" Diameter of boilers 14.0"

Length of boilers 10.0" description of riveting of shell long. seams double butt steps circum. seams double riv lap Thickness of shell plates 1 1/2"

Diameter of rivet. holes 1 3/32" whether punched or drilled drilled pitch of rivets 1 1/2" 8 1/2" 2 1/2" 4 1/2" Lap of plating 9 3/4"

Per centage of strength of longitudinal joint 84.8 working pressure of shell by rules 160 lb. size of manholes in shell none

Size of compensating rings No. of Furnaces in each boiler 3

Outside diameter 3.5" length, top 6.0" bottom 6.6" thickness of plates 9/16" description of joint welded if rings are fitted no

Greatest length between rings — working pressure of furnace by the rules 170 lb. combustion chamber plating, thickness, sides 5/8" back 5/8" top 5/8"

Pitch of stays to ditto, sides 8 1/2" x 8 1/4" back 8 5/8" x 8 1/2" top 8 1/4" x 8 If stays are fitted with nuts or riveted heads nuts working pressure of plating by

rules 161 lb. Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 160 lb. end plates in steam space, thickness 1 1/4"

Pitch of stays to ditto 18 1/4" x 16 1/4" how stays are secured double nuts working pressure by rules 168 lb. diameter of stays at

smallest part 2 5/8" working pressure by rules 164 lb. Front plates at bottom, thickness 1 1/2" Back plates, thickness 7/8"

Greatest pitch of stays 12" working pressure by rules 163 lb. Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/2" thickness of tube

plates, front 1" back 1 1/2" how stayed stay tubes pitch of stays 13 1/2" x 8 1/4" width of water spaces 1 1/4"

Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint diam. of rivet holes

Pitch of rivets — working pressure of shell by rules — 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 — how stayed

Superheater or steam chest; how connected to boiler

DONKEY BOILER— Description *Vertical Cylindrical, 6 Cross tubes*
Made at *Cateshead* by whom made *Clarke Chapman & Co.* when made *27.7.89* where fixed *In stokehole*
Working pressure *90 lb.* tested by hydraulic pressure to *180 lb.* No. of Certificate *2924* fire grate area *32 sq. ft.* description of safety
valves *Spring* No. of safety valves *2* area of each *7.97* if fitted with easing gear *yes* if steam from main boilers can
enter the donkey boiler *no* diameter of donkey boiler *6.6"* length *13.0"* description of riveting *double in lap*
Thickness of shell plates *15/32* diameter of rivet holes *7/8"* whether punched or drilled *drilled* pitch of rivets *3 7/16"* lap of plating *14 1/4"*
per centage of strength of joint *71* thickness of crown plates *19/32* stayed by *6 stays 1 3/4" dia.*
Diameter of furnace, top *5.2"* bottom *5.6 3/4"* length of furnace *6.9"* thickness of plates *5/8"* description of joint *single in lap*
Thickness of furnace crown plates *9/16"* stayed by *6 stays 1 3/4" dia.* working pressure of shell by rules *91 lb.*
Working pressure of furnace by rules *83 lb.* diameter of uptake *15"* thickness of plates *7/16"* thickness of water tubes *3/8"*
cross of stays. as reported by *R. H. D.*

SPARE GEAR. State the articles supplied:— *One propeller, A set of bolts & nuts for a con-*
necting rod, main bearing & shaft coupling. A set of valves for the feed &
edge pumps, A set of springs for the H. & L. P. pistons. Bolts, nuts,
& iron assorted

The foregoing is a correct description,

T. Richardson Manufacturer. of Engines & Steam Boilers.

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

Main steam pipes tested by hydraulic pressure to 320 lb. per square
inch and found tight.

The engines and boilers of this vessel have been constructed
under Special Survey and of a good quality of workmanship.
The engines and main boilers have been examined under steam
and found to work well and will, in my opinion, be eligible
for L.M.C. 3. 90 recorded in the Register of this Society
when the following work has been executed to the satisfaction
of a Surveyor of this Society.

The pressure gauge pipe, main steam pipe, and waste steam pipe
to be jointed to the donkey boiler. Funnel to be erected on
the donkey boiler. Donkey boiler to be examined under steam
and the safety valves adjusted for a working pressure of 90 lb per
square inch. Thrice valves at the forward end of stokehole to
be made accessible at all times. The vessel has proceeded
to Hamburg, and the Surveyors of that port have been informed
of this matter.

It is submitted that this vessel will
be eligible to have L.M.C. 3. 90 recorded,
when the work as above enumerated be
completed, and satisfactorily reported upon

The amount of Entry Fee £ 2 : 0 : 0 received by me,

Special .. £ 31 : 10 : 0

Donkey Boiler Fee .. £ : : :

Certificate (if required) .. £ : : : 18. 3 1890

(Travelling Expenses, if any, £)

Committee's Minute FRIDAY 21 MARCH 1890

Laconery Certificate
Written.

See Completing refd

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



Lloyd's Register
Foundation