

# REPORT ON MACHINERY.

No. 7818

Port of *West Hartlepool*

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No. in Survey held at *Stockton*

Date, first Survey *20<sup>th</sup> Sept*

Last Survey *20<sup>th</sup> Dec 1889*

Reg. Book.

on the

*Screw Steamer "Aeon"*

(Number of Visits *26*)

Tons *1429.08*

Master *Sate*

Built at *Stockton*

By whom built

*Messrs. Wopner & Sons*

When built *1889*

Engines made at *Stockton*

By whom made

*Messrs. Blair & Co. Ltd.*

when made *1889*

Boilers made at *Stockton*

By whom made

*Messrs. Blair & Co. Ltd.*

when made *1889*

Registered Horse Power *200*

Owners

*Aeon Steamship Co. Ltd.*

Port belonging to *Newcastle*

## ENGINES, &c.—

Description of Engines *Inverted, Triple Expansion, 3 Cylinders & 3 Cranks.*  
 Diameter of Cylinders *21, 35, 57* Length of Stroke *39* No. of Rev. per minute *60* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*  
 Diameter of Screw shaft *11 1/2* Diam. of Tunnel shaft *11* Diam. of Crank shaft journals *11 1/2* Diam. of Crank pin *12* size of Crank webs *19 x 7 1/2*  
 Diameter of screw *15.0* Pitch of screw *15.0* No. of blades *4* state whether moveable *no* total surface *61 sq. ft.*  
 No. of Feed pumps *2* diameter of ditto *2 3/4* Stroke *28* Can one be overhauled while the other is at work *yes.*  
 No. of Bilge pumps *2* diameter of ditto *4* Stroke *28* Can one be overhauled while the other is at work *yes.*  
 Where do they pump from *For holds, Engine room, after well, sea, & tanks.*  
 No. of Donkey Engines *2* Size of Pumps *(7 1/2 x 9) (4 x 8)* Where do they pump from *(Ballast tanks, sea, & all bilges) (Sea, holdwell, & ballast tanks)*  
 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 *6 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 *3 above 1 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 *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 *21<sup>st</sup> November 1889.*  
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Top platform of engine room.*

## BOILERS, &c.—

Number of Boilers *Two* Description *Cyl. mult. Single Ended* Whether Steel or Iron *Steel.*  
 Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *14<sup>th</sup> Nov. 1889.*  
 Description of superheating apparatus or steam chest *none.* Heating surface *2990 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 *31.5* Description of safety valves *Spring* No. to each boiler *2*  
 Area of each valve *4.91* 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* *8"* Diameter of boilers *12.9 3/4"*  
 Length of boilers *10.0* description of riveting of shell long. seams *double butt strap circum. seams double riv lap* Thickness of shell plates *1 3/16"*  
 Diameter of rivet holes *1 1/16"* whether punched or drilled *drilled* pitch of rivets *1 1/4" 2 in 3 1/2"* Lap of plating *8 7/16"*  
 Per centage of strength of longitudinal joint *83.6* working pressure of shell by rules *167 lbs.* size of manholes in shell *16" x 12"*  
 Size of compensating rings *28" x 24" x 1 1/16"* No. of Furnaces in each boiler *2*  
 Outside diameter *3.7* length, top *6.3* bottom *6.3* thickness of plates *1 1/2"* description of joint *welded* if rings are fitted *no.*  
 Greatest length between rings working pressure of furnace by the rules *174 lbs.* combustion chamber plating, thickness, sides *9/16"* back *9/16"* top *9/16"*  
 Pitch of stays to ditto, sides *1 1/2" x 1 1/4"* back *1 1/2" x 1 1/4"* top *1 1/2" x 1 1/4"* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *172 lbs.* Diameter of stays at smallest part *1 1/16"* working pressure of ditto by rules *172 lbs.* end plates in steam space, thickness *1 1/32"*  
 Pitch of stays to ditto *1 1/4" x 1 1/4"* how stays are secured *double nuts & washers* working pressure by rules *161 lbs.* diameter of stays at smallest part *2 5/8"* working pressure by rules *166 lbs.* Front plates at bottom, thickness *1"* Back plates, thickness *1"*  
 Greatest pitch of stays *12 1/2"* working pressure by rules *163 lbs.* Diameter of tubes *3 1/4"* pitch of tubes *4 1/8" x 4 1/8"* thickness of tube plates, front *1"* back *1 1/8"* how stayed *stay tube* pitch of stays *9 1/4" x 9 1/4"* width of water spaces *1 3/8"*  
 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, 5 Cross tubes, Steel.*  
 Made at *Stockton* by whom made *Messrs. Riley Bros.* when made *26.11.89* where fixed *In stockhole*  
 Working pressure *80 lbs.* tested by hydraulic pressure to *160 lbs.* No. of Certificate *2005* fire grate area *23.5 sq. ft* description of safety  
 valves *Spring* No. of safety valves *one* area of each *14.19* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *6.5 1/2"* length *13.6"* description of riveting *double riv lap*  
 Thickness of shell plates *13/32"* diameter of rivet holes *1 1/16"* whether punched or drilled *punched* pitch of rivets *2 1/8"* lap of plating *4 1/4"*  
 per centage of strength of joint *71.8* thickness of crown plates *13/32"* stayed by *6 stays 1 1/2" dia.*  
 Diameter of furnace, top *4.10 1/8"* bottom *5.7 3/4"* length of furnace *5.5"* thickness of plates *5/8"* description of joint *single riv lap.*  
 Thickness of furnace crown plates *1/2"* stayed by *6 stays 1 1/2" dia.* working pressure of shell by rules *81 lbs.*  
 Working pressure of furnace by rules *87 lbs.* diameter of uptake *16"* thickness of plates *7/16"* thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *One propeller, A set of bolts & nuts for a  
 connecting rod, main bearing, & shaft coupling. A set of valves  
 for a feed, bilge, & donkey pump, One set of L.P. piston springs  
 Bolts & nuts as? 6 Bars of iron as?*

The foregoing is a correct description.

*Pro Blair & Co Ltd  
 J. B. Blair.*

Manufacturer of Engines & main boilers

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

*Main steam pipes tested by hydraulic pressure to 320 lbs.  
 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,  
 they have been tried under steam and found to work  
 well and are now in safe and efficient working condition,  
 and eligible, in my opinion, to have **L.M.C. 12. 89.**  
 recorded in the Register of this Society.*

*It is submitted that this  
 vessel is eligible to have  
 + LMC 12. 89 recorded*

*Ad.  
 30.12.89*

*[Large handwritten signature]*

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

Special ... £ 30 : 0 : 0

Donkey Boiler Fee ... £ : :

Certificate (if required) ... £ : : 28.12.1889

(Transferring charges, if any, £ )

*Machine  
 written.*  
 Committee's Minute

**TUES 31, DEC 1889**

*+ Lmb 12/89*

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