

# REPORT ON MACHINERY.

No. 5333

(Received in London Office 3/3/81)

No. in Survey held at Dunbarton  
Reg. Book.

Date, first Survey 18<sup>th</sup> Aug 80 Last Survey 29<sup>th</sup> March 1881

on the S.S. "Pertusola"

Tons 590.04  
342.90

Master Romanelli Built at Dunbarton When built 1880-1

Engines made at Dunbarton By whom made M Paul & Co when made 1880-1

Boilers made at " By whom made " when made "

Registered Horse Power 90 Owners Rubatina & Co Port belonging to Genoa

**ENGINES, &c.—**

Description of Engines Compound Inverted Direct acting

Diameter of Cylinders 23" x 45" Length of Stroke 30" No. of Rev. per minute 90 Point of Cut off, High Pressure .6 Low Pressure .7

Diameter of Screw shaft 7 1/2" Diameter of Tunnel shaft 7 1/4" Diameter of Crank shaft journals 7 1/2" Diameter of Crank pin 4 1/2" size of Crank webs 5 1/2" x 9"

Diameter of screw 11 ft Pitch of screw 11'-6 No. of blades 4 state whether moveable not total surface 39 sq-ft.

No. of Feed pumps two diameter of ditto 3 1/4" Stroke 20" Can one be overhauled while the other is at work yes

No. of Bilge pumps two diameter of ditto 4 1/2" Stroke 12" Can one be overhauled while the other is at work yes

Where do they pump from Engine Room & gutterways in fore and aft holds.

No. of Donkey Engines one double pump Size of Pumps 8" Cyl. 4" pump Where do they pump from Engine donkey from

Engine Room Sea & hotwell & holds. Ballast pump from 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

No. of bilge injections one and sizes 3" dia Are they connected to condenser, or to circulating pump on suction of circulating pump

How are the pumps worked feed pumps by levers also air & circulating, bilge pumps by ecc. on end of shaft.

Are all connections with the sea direct on the skin of the ship Stool for injection 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 End.

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 Bilge pipes How are they protected cased in

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 stiffing box on and fitted with a sluice door yes worked from top platform.

**BOILERS, &c.—**

Number of Boilers Two Description Cylindrical Single ended.

Working Pressure 70 lbs Tested by hydraulic pressure to 140 lbs Date of test 18<sup>th</sup> December 1880.

Description of superheating apparatus or steam chest None

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately yes

No. of square feet of fire grate surface in each boiler 18.7 Description of safety valves Direct Spring (Alley & Mc Lellan)

No. to each boiler two area of each valve 4.9 sq" 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 4 ft to side of ship.

Diameter of boilers 9'-0" Length of boilers 8'-6 3/4" description of riveting of shell long. seams lap, treble circum. seams lap, single,

Thickness of shell plates 7/8" diameter of rivet holes 7/8" whether punched or drilled punched pitch of rivets 3 1/2"

Lap of plating 6" per centage of strength of longitudinal joint 75% working pressure of shell by rules 76 lbs

size of manholes in shell 15" x 11 1/2" size of compensating rings 7/8" doubling plate.

No. of Furnaces in each boiler two outside diameter 2'-6 3/4" length, top 5'-3" bottom 7'-6"

Thickness of plates 7/16" description of joint butt double if rings are fitted at bottom greatest length unsupported 5'-6"

Working pressure of furnace by the rules 100 lbs

combustion chamber plating, thickness, sides 7/16" steel back 7/16" steel top 7/16" steel

pitch of stays to ditto sides 8 3/4" x 8 3/4" back 8 3/4" x 8 3/4" top 8 3/4" x 8 3/4"

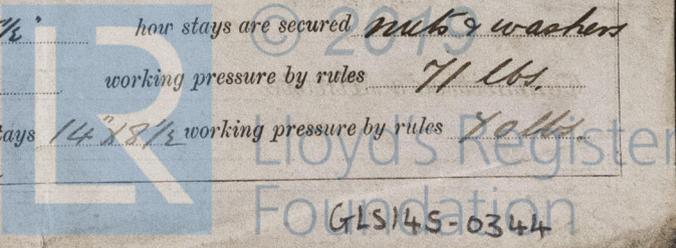
If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 70 lbs

Diameter of stays at smallest part 1 7/8" screwed working pressure of ditto by rules 100 lbs.

End plates in steam space, thickness 7/16" pitch of stays to ditto 15 1/2" x 15 1/2" how stays are secured nuts & washers

Working pressure by rules 72 lbs diameter of stays at smallest part 1 7/8" working pressure by rules 71 lbs.

Front plates at bottom, thickness 7/8" steel Back plates, thickness 7/16" greatest pitch of stays 14" x 8 1/2" working pressure by rules 70 lbs.



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Diameter of tubes 3" ext. pitch of tubes 4 1/4" thickness of tube plates, front 3/8" back 3/8"  
 How stayed Stay tubes pitch of stays 17" x 8 1/2" width of water spaces 1 1/4"  
 Diameter of Superheater or Steam chest          length           
 Thickness of plates          description of longitudinal joint          diameter 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 Erect, with two water tubes  
 Made at Dunbarton By whom made M. Paul & Co when made 1880  
 Where fixed Stakehold working pressure 70 lbs Tested by hydraulic pressure to 140 lbs No. of Certificate 440  
 Fire grate area 12 sq. ft. Description of safety valves Direct spring No. of safety valves one area of each 70"  
 If fitted with easing gear yes If steam from main boilers can enter the donkey boiler non return pt.  
 Diameter of donkey boiler 4' 6" length 9' 0" description of riveting lap, double,  
 thickness of shell plates 3/8" diameter of rivet holes 13/16" whether punched or drilled punched  
 pitch of rivets 3" lap of plating 3 3/4" per centage of strength of joint 73  
 thickness of crown plates 7/16" stayed by uptake & 4-1 3/4" rods.  
 Diameter of furnace, top 3' 6" bottom 4' 0" length of furnace 4 ft.  
 thickness of plates 3/8" description of joint lap single,  
 thickness of furnace crown plates 7/16" stayed by 4-1 3/4" rods.  
 Working pressure of shell by rules 78 lbs working pressure of furnace by rules 70 lbs  
 diameter of uptake 11" man thickness of plates 7/16" thickness of water tubes 7/16"

The foregoing is a correct description,  
 Matthew Paul & Co Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. The Engines and Boilers are now in good order and safe working condition, and eligible in my opinion to be noted + Lloyds M.C. 381

*It is submitted that this vessel is eligible to have the notification of Lloyd's M.C. recorded  
 M 31/3/81*

Testing Steel £2-2-0  
 The amount of Entry Fee £2-0-0 received by me, [Signature]  
 Special £13-10-0  
 Certificate (if required) £1-0-0 30th Dec 1881  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ 1-11-6)

Committee's Minute Friday, April 1st 1881  
+ Lloyd's M.C.  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping  
 Glasgow

