

# REPORT ON MACHINERY.

4039

No. 4039. Port of Belfast  
 No. in Survey held at Belfast Date, first Survey Aug 27 1891 Last Survey Jan 28 1892  
 Reg. Book. (Number of Visits 19)  
 on the Steel screw steamer Mahratta Gross 5679 Tons Net 3688  
 Master A. Mackenzie Built at Belfast By whom built Harland & Wolff Ltd When built 1892  
 Engines made at Belfast By whom made Harland & Wolff Ltd when made 1892  
 Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1892  
 Registered Horse Power 375 Owners J. & J. Brocklebank Port belonging to Liverpool

ENGINES, &c.—  
 Description of Engines Triple expansion. Twin screws No. of Cylinders six  
 Diam. of Cylinders 19" 31" 52" Length of Stroke 42" Rev. per minute 80 Point of Cut off, High Pressure .66 Low Pressure .55  
 Diameter of Screw shaft 11 1/4" Diam. of Tunnel shaft 10 1/2" Diam. of Crank shaft journals 11" Diam. of Crank pin 11" size of Crank webs 8 x 14 1/2 shaped  
 Diameter of screw 13.9" Pitch of screw 17.6" No. of blades 3 state whether moveable yes total surface 50 sq ft. each screw  
 No. of Feed pumps two diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps two diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes  
 Where do they pump from All bilges & sea. Other pumps: - 2 x 8" x 21" from hot well into boiler  
 No. of Donkey Engines two Size of Pumps 4 1/2" x 5" 6" Where do they pump from Duplex feed donkey & discharging into boiler & overboard.  
Westminster Ballast pump 10" x 10" x 10". Cartridge which donkey 4" x 2 1/2" x 5" pumping from sea or exhaust tank  
 Are all the bilge suction pipes fitted with roses yes, except the bilge injection Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes  
 No. of bilge injections two and sizes 5 ins. Are they connected to condenser, or to circulating pump circulating pump  
 How are the pumps worked Air, feed & bilge by side levers off middle engines. Centrifugal cir. pump  
 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 Bilge pipes How are they protected 2" wood casing  
 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 examined before launching  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from level of upper deck.

BOILERS, &c.—  
 No. of Boilers Three Description 2 double ended & 1 single ended Material Steel Letter (for record) S  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 29th October 1891  
 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 98 1/2 d. end. 32 3/8 s. end. Description of safety valves Cockburn's No. to each boiler two  
 Diam. of each valve 3 3/4 d. end. 2 1/4 s. end. Are they fitted with easing gear yes No. of safety valves to superheater — area of each valve —  
 Are they fitted with easing gear yes Smallest distance between boilers and bunkers or woodwork 11 feet Diameter of boilers 18.0 d. end. 11.0 s. end.  
 Length of boilers 17.0 d. end. 10.0 s. end. description of riveting of shell long. seams doub. butt, treble circum. seams treble: ends doub. Thickness of shell plates 1 3/32 d. e. 1 1/16 s. e.  
 Diameter of rivet holes 1 3/4 d. end. 1 1/4 s. end. whether punched or drilled drilled pitch of rivets 9" & 4 1/2" Lap of plating Straps 20 1/2" x 1" d. end. 19" x 7/8 s. end.  
 Percentage of strength of longitudinal joint 84.75 d. end. 86.1 s. end. working pressure of shell by rules 180 lbs size of manholes in shell 16" x 12"  
 Size of compensating rings 31 x 27 x 1 9/32 d. end. 31 x 27 x 1 1/16 s. end. No. of Furnaces in each boiler 6 d. end. 2 s. end. Description of Furnaces Patent ribbed flues  
 Outside diameter 38 1/2 d. end. 38 s. end. length 7' 0" d. end. 7' 5" s. end. thickness of plates 1/2" description of joint welded if rings are fitted Yes  
 Greatest length between rings 9" working pressure of furnace by the rules 180 d. e. 183 s. e. combustion chamber plating, thickness, sides 19/32 back 19/32 top 5/8  
 Pitch of stays to ditto, sides 7 3/4 back 7 3/4 top 7 3/4 If stays are fitted with nuts or riveted heads twice outside working pressure of plating by rules 182 d. e. 180 s. e. diameter of stays at smallest part 1 3/8 ins working pressure of ditto by rules 180 lbs end plates in steam space, thickness 1 1/16 in. doub. ended. 1 5/16 in. sing. ended.  
 Pitch of stays to ditto 18 1/2 greatest in d. end. 16 1/4 " s. " how stays are secured doub. nuts & top washers working pressure by rules 182 lbs d. e. 182 lbs s. e. diameter of stays at smallest part 2 1/8 in. doub. ended. 2 1/2 in. sing. ended. Front plates at bottom, thickness 13/16 Back plates, thickness 3/32  
 Greatest pitch of stays as approx. working pressure by rules 180 lbs Diameter of tubes 3 1/4 ins pitch of tubes 4 1/2 ins thickness of tube plates, front 7/8 in back 3/4 in how stayed stay tubes pitch of stays 9" width of water spaces 1 1/2 in. d. e. 1 1/2 in. s. e. diam. of rivet holes —  
 Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint —  
 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 —

BE 51-0217

**DONKEY BOILER**— Description *Single ended auxiliary boiler to be used as donkey boiler.*

Made at \_\_\_\_\_ by whom made \_\_\_\_\_ when made \_\_\_\_\_ where fixed \_\_\_\_\_  
Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ fire grate area \_\_\_\_\_ description of safety  
valves \_\_\_\_\_ No. of safety valves \_\_\_\_\_ area of each \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boilers can  
enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_  
Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_  
per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_  
Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of plates \_\_\_\_\_ description of joint \_\_\_\_\_  
Thickness of furnace crown plates \_\_\_\_\_ stayed by \_\_\_\_\_ working pressure of shell by rules \_\_\_\_\_  
Working pressure of furnace by rules \_\_\_\_\_ diameter of uptake \_\_\_\_\_ thickness of plates \_\_\_\_\_ thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— 2 propeller blades. Air pump rod, bucket, foot head valve  
with guards. HP & I.P. valve spindles. Centrif. pump spindle; set air, feed & bilge pump valves  
12 punking bolts, 2 main bearing bolts; 1 set con. rod bolts bottom end; 2 ditto top end; 1 set coupling bolts  
8 propeller studs & nuts; Piston rings 4 H.P., 2 I.P. & 1 L.P.; 2 brass valves for feed checks; 10 condenser tubes;  
The foregoing is a correct description, Hay set furnace bars. Iron of various sizes, assorted bolts etc

*Horland & Co. Manufacturer.*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines & boilers in this vessel*)  
*have been constructed under special survey, & in accordance with the approved plans of boilers forwarded with the report on the sister ship "Pindari".*  
*The steel has been tested as required by the Rules, & the workmanship is throughout good.*

*Each of the boilers & each separate length of the main & auxiliary steam pipes have been tested by water pressure to double the working pressure.*  
*The safety valves are adjusted to blow off at 185 lbs per sq in & the engines worked satisfactorily under full steam.*

*The electric lighting is by Messrs W.H. Allen & Co. The currents are generated by two engines & dynamos. 250 revs per min. 90 amperes. 62 volts. The installation is in every respect a duplicate of that reported as fitted in the S.S. "Pindari"*

*The machinery in my opinion renders the vessel eligible for the record of + LMC 1.92 in the Register Book.*

*It is submitted that this vessel is eligible for THE RECORD + LMC 1-92*

*N.A.  
2-2-92*

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,  
Special .. .. £ 40 : 18 : 0  
Donkey Boiler Fee .. .. £ : :  
Certificate (if required) .. £ : :  
To be sent as per margin.

(Travelling Expenses, if any, £ .. ..)

Committee's Minute **TUES. 2 FEB 1892**

*+ LMC 1/92*

*A. L. Jones*

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



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