

# REPORT ON MACHINERY.

No. 5445 (Received at London Office 22nd June 82)  
 No. in Survey held at Dumbarton Date, first Survey 25/8/81 Last Survey 19.6.1882  
 Reg. Book. on the Screw Steamer "Onapari" Tons 541  
 Master J. Orkney Built at Dumbarton When built 1882  
 Engines made at Dumbarton By whom made Denny & Co. when made 1882  
 Boilers made at " By whom made " when made 1892  
 Registered Horse Power 80 Owners Union Co. New Zealand Port belonging to Dumbarton

**ENGINES, &c.—**

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 24" & 42" Length of Stroke 30" No. of Rev. per minute 98 Point of Cut off, High Pressure 1/10" Low Pressure 1/10"  
 Diameter of Screw shaft 8" Diameter of Tunnel shaft 4" Diameter of Crank shaft journals 8" Diameter of Crank pin 8" size of Crank webs 5" x 10"  
 Diameter of screw 10'6" Pitch of screw 12'6" No. of blades 4 state whether moveable yes total surface 28'8" to 2'6"  
 No. of Feed pumps 2 diameter of ditto 2 1/4" Stroke 15 3/16" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 diameter of ditto 2 1/2" Stroke 15 3/16" Can one be overhauled while the other is at work yes  
 Where do they pump from All Compartments  
 No. of Donkey Engines One Size of Pumps 8 C.H.P. 9" dia Where do they pump from All Compart. Hotwell  
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 5" Are they connected to condenser, or to circulating pump Circulating Pump  
 How are the pumps worked Eccentrics on Crankshaft  
 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 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 Bilge pump discharges How are they protected Close up to deck  
 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 yes and fitted with a sluice door yes worked from Upper deck

**BOILERS, &c.—**

Number of Boilers One Description Cylindrical Single Ended Prismatic Steel Internals  
 Working Pressure 40 lbs. Tested by hydraulic pressure to 140 lbs. Date of test 8th of April 1892  
 Description of superheating apparatus or steam chest None  
 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 62 Description of safety valves Direct Spring  
 No. to each boiler two area of each valve 15.9" 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 6"  
 Diameter of boilers 14'0 1/4" Length of boilers 9'1" description of riveting of shell long. seams triple circum. seams double  
 Thickness of shell plates 1" fore diameter of rivet holes 1 3/16" whether punched or drilled drilled pitch of rivets 4 1/2" & 2 1/2"  
 Lap of plating 7 3/8" long per centage of strength of longitudinal joint 43.8 working pressure of shell by rules 82 lbs.  
 Size of manholes in shell 13" x 14" size of compensating rings 32" x 30" x 1"  
 No. of Furnaces in each boiler 3 Compound outside diameter 3' 6" diam length, top 6'0" bottom 8'5"  
 Thickness of plates 7/16" description of joint Welded if rings are fitted no greatest length between rings "  
 Working pressure of furnace by the rules 74 lbs.  
 Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto " sides 9" x 7 1/2" back 9" x 7 1/2" top Round  
 If stays are fitted with nuts or riveted heads riveted working pressure of plating by rules 49 lbs.  
 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 49 lbs.  
 End plates in steam space, thickness 3/4" pitch of stays to ditto 14 1/2" x 14" how stays are secured Nuts & Washers  
 Working pressure by rules 93 lbs. diameter of stays at smallest part 2 1/4" working pressure by rules 94 lbs.  
 Front plates at bottom, thickness 3/4" Back plates, thickness 5/8" greatest pitch of stays 12 1/2" x 7 1/2" working pressure by rules 103 lbs.  
with belms on round of frames

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Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{3}{4}$ " thickness of tube plates, front  $\frac{1}{16}$ " back  $\frac{1}{16}$ "  
 How stayed Stay tubes pitch of stays  $14" \times 14"$  width of water spaces 6"  
 Diameter of Superheater or Steam chest None 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 *Vertical, Insulated Cone & Cross-tubes of Steel*  
 Made at *Dumbarton* By whom made *Denny & Co.* when made *1882*  
 Where fixed *Workshop* working pressure *40 lbs.* Tested by hydraulic pressure to *140 lbs.* No. of Certificate *446*  
 Fire grate area *13'5"* Description of safety valves *direct spring* No. of safety valves *one* area of each *4'0"*  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes*  
 Diameter of donkey boiler *5'6 1/4"* length *Height 8'9 1/4"* description of riveting *double*  
 thickness of shell plates *3/8"* diameter of rivet holes *13/16"* whether punched or drilled *drilled*  
 pitch of rivets *3 3/4" x 1 5/8"* lap of plating *4 1/4"* per centage of strength of joint *75*  
 thickness of crown plates *1/2"* stayed by *4 rod stay 2 5/8" dia.*  
 Diameter of furnace, top *4'2 1/2"* bottom *4'6 1/2"* length of furnace "  
 thickness of plates *7/16"* description of joint *drilled*  
 thickness of furnace crown plates *7/16"* stayed by *4 rod stay 2 5/8" dia.*  
 Working pressure of shell by rules *42 lbs.* working pressure of furnace by rules *45 lbs.*  
 diameter of uptake *16"* thickness of plates *3/8"* thickness of water tubes *3/8"*

The foregoing is a correct description,  
*Denny & Co.* Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The above Engine & Boiler have been built under special survey. The workmanship is good and are now in good and safe working condition and in my opinion eligible to be noted in the Register.*  
 "ALLOYD'S M.C." 6.82.

*It is submitted that this vessel is suitable to be classed as Lloyd's M.C. 6/82, and recommended.*  
 M 23.6.82

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,  
 Special .. £ 12 : 0 : 0  
 Certificate (if required) .. £ 0 : 0 : 0 2/6 1882  
 To be sent as per margin. £ 14 : 0 : 0  
 (Travelling Expenses, if any, £

Committee's Minute *Friday, 23rd June, 1882.*

*Comp. M*

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

*Clyde District*  
 Lloyd's Register Foundation