

# REPORT ON MACHINERY.

No. 84101 (Received at London Office 22/5/83)  
 No. in Survey held at Glasgow Date, first Survey 17-2-82 Last Survey April 28-1883  
 Reg. Book. "Bonnington" (Number of Visits 2125.30)  
 on the Screw Steamer Tons 1385.23  
 Master Burkill Built at Port Glasgow When built 1882-3  
 Engines made at Glasgow By whom made James & Jackson when made 1882-3  
 Boilers made at Do By whom made Do when made 1882-3  
 Registered Horse Power 200 Owners Newton & Co Port belonging to Glasgow

## ENGINES, &c.—

Description of Engines Inverted Direct acting Compound Surface Condensing  
 Diameter of Cylinders 36 & 68" Length of Stroke 45" No. of Rev. per minute 70 Point of Cut off, High Pressure 32 1/2" Low Pressure 25 1/2"  
 Diameter of Screw shaft 12" Diameter of Tunnel shaft 11 3/4" Diameter of Crank shaft journals 12" Diameter of Crank pin 12" size of Crank webs 7 1/2 & 4 1/2"  
 Diameter of screw 17 1/2" Pitch of screw 22 ft No. of blades Four state whether moveable Yes total surface 75 sq ft  
 No. of Feed pumps Two diameter of ditto 3 3/4" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two diameter of ditto 3 3/4" Stroke 26" Can one be overhauled while the other is at work Yes  
 Where do they pump from Bilges, Holds & Yanks  
 No. of Donkey Engines Two Size of Pumps 9 & 8 1/2 x 12 & 8 1/2 x 9" Where do they pump from 4 pump from sea, holocle & Bilges. 8 ballast pump from Yanks, Bilges & 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 —  
 No. of bilge injections One and sizes 3 1/2" Are they connected to condenser, or to circulating pump Circulating pump.  
 How are the pumps worked By levers from cross-head of L. Engine.  
 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 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 Before vessel was launched.  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Engine room at deck.

## BOILERS, &c.—

Number of Boilers One Description Cylindrical. Fired from each end. Multitubular  
 Working Pressure 85 lb Tested by hydraulic pressure to 170 lb Date of test February 10-1883  
 Description of ~~superheating apparatus~~ or steam chest Cylindrical. Horizontal.  
 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 107 sq ft Description of safety valves Direct acting springs.  
 No. to each boiler Two area of each valve 28.27 sq ins 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 10"  
 Diameter of boilers 14-6" Length of boilers 17-6" description of riveting of shell long. seams Double lap circum. seams Lap double  
 Thickness of shell plates 3 3/2" diameter of rivet holes 1 1/4" whether punched or drilled Drilled pitch of rivets 5"  
 Lap of plating 8" per centage of strength of longitudinal joint 75 working pressure of shell by rules 87 lbs  
 Size of manholes in shell 15 x 12" size of compensating rings 4 1/2 x 3/4"  
 No. of Furnaces in each boiler Six outside diameter 3-5" length, top 6-4" bottom 17-0"  
 Thickness of plates 1/2" description of joint Butt if rings are fitted Yes greatest length between rings 5-3"  
 Working pressure of furnace by the rules 87 lb  
 Combustion chamber plating, thickness, sides 7/16" back — top 7/16"  
 Pitch of stays to ditto, sides 7 3/4" back — top 7 3/4"  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 90 lbs  
 Diameter of stays at smallest part 1/4" screw working pressure of ditto by rules 90 lbs  
 End plates in steam space, thickness 1/16" pitch of stays to ditto 13 3/4" how stays are secured Nuts  
 Working pressure by rules 88 lb diameter of stays at smallest part 2 1/4" screw working pressure by rules 90 lbs  
 Front plates at bottom, thickness — Back plates, thickness — greatest pitch of stays — working pressure by rules —



Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $5 \times 5$ " thickness of tube plates, front  $\frac{1}{16}$ " back  $\frac{7}{8}$ "  
 How stayed *Stay tubes* pitch of stays  $15$ " width of water spaces  $6$ "  
 Diameter of ~~Superheater~~ Steam chest  $4'-6"$  length  $7'-0"$   
 Thickness of plates  $\frac{1}{2}$ " description of longitudinal joint *Lap. double* diameter of rivet holes  $\frac{15}{16}$ " pitch of rivets  $3\frac{1}{2}$ "  
 Working pressure of shell by rules  $1140$  lbs. Diameter of flue  $—$  thickness of plates  $—$   
 If stiffened with rings  $—$  distance between rings  $—$  Working pressure by rules  $—$   
 End plates of ~~superheater~~ steam chest; thickness  $9/16$ " How stayed *Three stays*  
~~Superheater~~ or steam chest; how connected to boiler *By neck 16" dia  $\frac{3}{4}$ " thick.*

**DONKEY BOILER—** Description *Vertical. Cylindrical.*  
 Made at *Gateshead.* By whom made *Clarke, Chapman & Co.* when made *1883*  
 Where fixed *In Stockhold.* working pressure  $80$  lbs. Tested by hydraulic pressure to  $160$  lbs. No. of Certificate *1077*  
 Fire grate area  $20$  sq. ft. Description of safety valves *Five springs* No. of safety valves *One* area of each *11 sq. ins*  
 If fitted with casing gear *Yes* If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler  $5'-0"$  length  $10'-6"$  description of riveting *Lap. double riveted*  
 thickness of shell plates  $7/16$ " diameter of rivet holes  $13/16$ " whether punched or drilled *Punched.*  
 pitch of rivets  $3\frac{1}{8}$ " lap of plating  $4'$  per centage of strength of joint  $72$   
 thickness of crown plates  $\frac{1}{2}$ " stayed by *Pine crown stays*  
 Diameter of furnace, top  $3'-3\frac{1}{4}"$  bottom  $4'-2\frac{1}{2}"$  length of furnace  $4'-7"$   
 thickness of plates  $9/16$ " description of joint *Lap. single riveted*  
 thickness of furnace crown plates  $9/16$ " stayed by *As above*  
 Working pressure of shell by rules  $80$  lbs. working pressure of furnace by rules  $80$  lbs.  
 diameter of uptake  $12"$  thickness of plates  $3/8$  thickness of water tubes  $3/8$

The foregoing is a correct description,  
*Musson & Jackson* Manufacturer.

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

These Engines & Boilers have been constructed under special survey - they are of good material & workmanship. They have been well fitted on board & satisfactorily tested under steam. I am therefore of opinion that they are eligible to be classed "**ALLOYD'S M.C.**" in the Register Book.

4-83.

The amount of Entry Fee £ 3 : 0 : 0 received by me,

Special £ 30 : 0 : 0

Certificate (if required) £ *Gratis* : 30/4/1883

To be sent as per margin.

(Travelling Expenses, if any, £ 14 2.6.)

Committee's Minute

Friday, 4th May 1883.

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

Glasgow

Lloyd's Register  
 Foundation