

REPORT ON MACHINERY.

No. 650 (NWC.)

No. in Survey held at Newcastle & Sunderland Date, first Survey 20th June Last Survey 13th Dec 1881

Reg. Book. on the Steamer "Clan Monroe" Tons 2194.24
1436.91

Master Robbitt Built at Sunderland When built 1881

Engines made at Newcastle By whom made R. W. Hawthorn when made 1881

Boilers made at Do By whom made Do when made 1881

Registered Horse Power 300 Owners Barry & Irvine & Co. Port belonging to Glasgow

ENGINES, &c.—

Description of Engines Inverted compound Surface condensing
Diameter of Cylinders 36 & 68 Length of Stroke 43" No. of Rev. per minute 60 Point of Cut off, High Pressure half Low Pressure half
Diameter of Screw shaft 12 1/2" Diameter of Tunnel shaft 12" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 12 1/2" size of Crank webs 15 x 8"
Diameter of screw 16 - 4 Pitch of screw 14 to 16 ft No. of blades 4 state whether moveable yes total surface 68 Sq ft
No. of Feed pumps 2 diameter of ditto 3 3/4" Stroke 22 1/2" Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 diameter of ditto 3 3/4" Stroke 22 1/2" Can one be overhauled while the other is at work yes
Where do they pump from Engine space, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
No. of Donkey Engines Two Size of Pumps 8" x 14 & 3 1/2 x 8 Where do they pump from Engine space
Main hold, aft hold well, Main tank, aft tank & 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 1 and sizes 4 1/2" Are they connected to condenser, or to circulating pump no

How are the pumps worked Lower over condenser

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves & Cocks

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 — 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 new

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 Steel, Cylindrical return tubes
Working Pressure 90 lb Tested by hydraulic pressure to 180 lb Date of test 13th September 1881

Description of ~~superheating apparatus~~ or steam chest Horizontal cylinder on each boiler connects

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

No. of square feet of fire grate surface in each boiler 53.5 Sq ft Description of safety valves Spring

No. to each boiler 2 area of each valve 14.5" 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 18 inches

Diameter of boilers 14 - 4 1/2" length of boilers 10 - 6" description of riveting of shell long. seams Triple Lap circum. seams Double Lap

Thickness of shell plates 1 1/8" diameter of rivet holes 1 1/4" whether punched or drilled Drilled pitch of rivets 5 inches

Lap of plating 10 1/2" per centage of strength of longitudinal joint 75% working pressure of shell by rules 90 lb

Size of manholes in shell 16" x 12" size of compensating rings 6" x 1"

No. of Furnaces in each boiler 3 outside diameter 4 1/2" length, top 7 - 3" bottom 9 - 10"

Thickness of plates 1/2" & 5/8" description of joint Single Strap if rings are fitted no greatest length between rings —

Working pressure of furnace by the rules 90 lb

Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"

Pitch of stays to ditto — sides 9 3/16 x 8 1/2 back 9 3/16 x 9 3/16 top Curved

If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 90 lb

Diameter of stays at smallest part 1 3/16" working pressure of ditto by rules 90 lb

End plates in steam space, thickness 1/2" pitch of stays to ditto 16" x 16" how stays are secured Nuts & Rivets

Working pressure by rules 90 lb diameter of stays at smallest part 2 1/8" diam working pressure by rules 102 lb

Front plates at bottom, thickness 7/8" Back plates, thickness 7/8" greatest pitch of stays 11 1/2" working pressure by rules 90 lb

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Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{4}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{1}{16}$ "
How stayed *Tubes* pitch of stays $14\frac{1}{4}$ " width of water spaces 12 "
Diameter of Superheater or Steam chest $21-6$ length $7-0$
Thickness of plates $\frac{3}{8}$ " description of longitudinal joint *Double Lap* diameter of rivet holes $\frac{3}{4}$ " pitch of rivets $2\frac{1}{2}$ "
Working pressure of shell by rules $97\frac{1}{2}$ lb 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 $\frac{5}{8}$ " How stayed *Desired to 4 ft radius* $\frac{5}{8} \times 13784 = 9$
Superheater or steam chest; how connected to boiler *contracted neck* 96

DONKEY BOILER— Description *Cochran's Patent*
Made at *Bateshead* By whom made *Clark Chapman & Co* When made *Tested October 1881*
Where fixed *Stokehold* working pressure 80 lb Tested by hydraulic pressure to 160 lb No. of Certificate *707*
Fire grate area 25.5 sq ft Description of safety valves *Spring* No. of safety valves 2 area of each $6\frac{1}{2}$ " $2\frac{1}{2}$ "
If fitted with easing gear $9\frac{1}{2}$ " If steam from main boilers can enter the donkey boiler *no*
Diameter of donkey boiler $6-3$ length $13-0$ description of riveting *Double Lap*
thickness of shell plates $\frac{9}{16}$ " diameter of rivet holes $\frac{15}{16}$ " whether punched or drilled *punched*
pitch of rivets $3\frac{3}{8}$ lap of plating $2\frac{1}{2}$ per centage of strength of joint 72%
thickness of crown plates $\frac{5}{8}$ " stayed by *5 Burst Stays* $12" \times \frac{1}{2}"$
Radius Diameter of furnace, top 27 inches bottom 67 " diam length of furnace $-$
thickness of plates $\frac{5}{8}$ " description of joint *Single Lap*
thickness of furnace crown plates $\frac{5}{8}$ " stayed by $-$
Working pressure of shell by rules $89\frac{1}{2}$ lb working pressure of furnace by rules 80 lb
diameter of uptake $-$ thickness of plates $-$ thickness of water tubes $-$

The foregoing is a correct description,

R. W. Hawthorn Manufacturers of main *Engines & Boilers.*

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

The machinery of this vessel has been specially surveyed during construction. The materials and workmanship are sound and satisfactory and eligible in my opinion to have the notation
✱ Lloyd's M & C 12-81 in the Society's Register Books,

It is submitted that this vessel is eligible to have the notation M & C 12-81 in the Society's Register Books.
17/12/81

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

Special *Dec. 1881* .. £ 35 : 0 : 0 and remitted

Certificate (if required) .. £ : : *14 Dec 1881*

To be sent as per margin.

(Travelling Expenses, if any, £ 2 : 2 : 0)

Committee's Minute

Friday, December, 23rd, 1881.

+ Lloyd's

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

North Shields

Lloyd's Register
Foundation