

REPORT ON MACHINERY.

No. 434 (New)

(Received in London Office 9/11/81)

No. in Survey held at Newcastle & Sunderland Date, first Survey 16 August 1880 Last Survey 17th Jan'y 1881

✓ on the S.S. "Biolet" Tons 1509.61
981.10

Master A. Ross Built at Sunderland When built 1881

Engines made at Newcastle By whom made Black Hawthorn when made 1881

Boilers made at do By whom made do when made 1881

Registered Horse Power 160 Owners Gordon & Stamp Port belonging to London

ENGINES, &c.—

Description of Engines Inverted compound surface condensing

Diameter of Cylinders 33 & 62 Length of Stroke 42 No. of Rev. per minute 60 Point of Cut off, High Pressure 1/2 Low Pressure 1/2

Diameter of Screw shaft 1 1/4 Diameter of Tunnel shaft 10 3/4 Diameter of Crank shaft journals 1 1/4 Diameter of Crank pin 1 1/2 size of Crank webs 1 1/2 x 7 1/4

Diameter of screw 13-0 Pitch of screw 18-0 No. of blades 4 state whether moveable no total surface 66 Sq ft

No. of Feed pumps 2 diameter of ditto 4 Stroke 21 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4 Stroke 21 Can one be overhauled while the other is at work yes

Where do they pump from Fore hold (1), Engine space (4), well in tunnel (1), Fore tank (3), after tank (3), aftermost tank (1)

No. of Donkey Engines Two Size of Pumps 9" x 12" x 4" x 6" Where do they pump from Fore hold (1), Engine space (4), well in tunnel (1), Fore tank (3), after tank (3), aftermost tank (1), Sea, Hotwell

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 5" Are they connected to condenser, or to circulating pump no

How are the pumps worked Lever 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 all 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

How are the pipes protected none

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 recent

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Engine room platform

BOILERS, &c.—

No. of Boilers Two Description Cylindrical return tubes

Working Pressure 80 lb Tested by hydraulic pressure to 160 lb Date of test 17th December 1880

Description of superheating apparatus or steam chest None partially in uptake

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no

Area of square feet of fire grate surface in each boiler 43 Description of safety valves Spring, Corliss patent

No. of safety valves to each boiler 2 area of each valve 12 1/2 sq in Are they fitted with easing gear yes

Are they fitted with easing gear yes

Smallest distance between boilers and bunkers or woodwork 9 inches

Diameter of boilers 13-6 Length of boilers 10.5 description of riveting of shell long. seams Triple Lap circum. seams Double Lap

Thickness of shell plates 15/16 diameter of rivet holes 1 1/4 whether punched or drilled drilled pitch of rivets 1 1/2

No. of plating 8 3/4 per centage of strength of longitudinal joint 74 working pressure of shell by rules 82 lb

No. of manholes in shell 16 x 12 size of compensating rings 6 x 3 1/4

No. of Furnaces in each boiler 3 outside diameter 3.3 length, top 4-3 bottom 9-10

Thickness of plates 7/8 & 9/16 description of joint Welded if rings are fitted half greatest length between rings —

Working pressure of furnace by the rules 82 lb

Combustion chamber plating, thickness, sides 1/2 back 7/16 top 7/16

Thickness of stays to ditto — sides 8 1/2 x 8 1/2 back 7 3/8 x 7 3/8 top Curved

Are stays fitted with nuts or riveted heads partially working pressure of plating by rules 87 lb

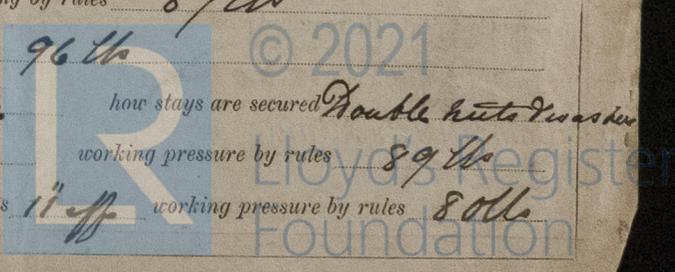
Diameter of stays at smallest part 9 1/4 working pressure of ditto by rules 96 lb

Thickness of plates in steam space, thickness 13/16 pitch of stays to ditto 16 1/2 x 16 1/2 how stays are secured Double nuts & washers

Working pressure by rules 80 lb diameter of stays at smallest part 2 1/4 working pressure by rules 89 lb

Thickness of plates at bottom, thickness 9/16 Back plates, thickness 9/16 & 3/4 greatest pitch of stays 11" off working pressure by rules 80 lb

Report recd. 19/11/81 sent to Serv.



Diameter of tubes $3\frac{1}{2}$ pitch of tubes $5\frac{1}{4} \times 4\frac{3}{4}$ thickness of tube plates, front $\frac{3}{16}$ back $\frac{3}{16}$
 How stayed *Tubes* pitch of stays $15\frac{3}{4} \times 9\frac{1}{2}$ width of water spaces $11\frac{1}{2}$
 Diameter of Superheater or Steam chest $3\frac{1}{2}$ length $6\frac{1}{2}$
 Thickness of plates $\frac{7}{16}$ description of longitudinal joint *Double Lap* diameter of rivet holes $\frac{7}{8}$ pitch of rivets $3\frac{1}{2}$
 Working pressure of shell by rules 120 lbs Diameter of flue $\frac{1}{2}$ thickness of plates $\frac{1}{2}$
 If stiffened with rings $\frac{1}{2}$ distance between rings $\frac{1}{2}$ Working pressure by rules $\frac{1}{2}$
 End plates of superheater, or steam chest; thickness $\frac{7}{8}$ How stayed *one $2\frac{1}{2}$ of diameter*
 Superheater or steam chest; how connected to boiler *Contracted neck $18 \times 12 \times \frac{1}{2}$*

DONKEY BOILER— Description *Vertical Water tube in furnace*
 Made at *Middlesbrough* By whom made *D. Robinson* when made *1880* Tested *9.12.80*
 Where fixed *Sittinghall* working pressure *Centrifugal 80 lbs* Tested by hydraulic pressure to *100 lbs* No. of Certificate *451*
 Fire grate area *28 Sq ft* Description of safety valves *1 Dead weight* No. of safety valves *2* area of each *9.6"*
 If fitted with casing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *4'-0"* length *14'-0"* description of riveting *Vertical seams Lap Double seam*
 thickness of shell plates $\frac{5}{8}$ diameter of rivet holes $1\frac{1}{16}$ whether punched or drilled *Punched*
 pitch of rivets $3\frac{1}{8}$ lap of plating $4\frac{3}{4}$ per centage of strength of joint 70
 thickness of crown plates $\frac{5}{8}$ stayed by *Eight stays $1\frac{1}{16}$ dia*
 Diameter of furnace, top $5-6\frac{1}{2}$ bottom $6-0\frac{1}{2}$ length of furnace $7-2$ *Furnace plating supported by four per
scribed stay pitched $1\frac{1}{4}$ "*
 thickness of plates $\frac{9}{16}$ description of joint *Lap Single pointed*
 thickness of furnace crown plates $\frac{9}{16}$ stayed by *Eight stays $1\frac{1}{16}$*
 Working pressure of shell by rules 86 lbs working pressure of furnace by rules 98 lbs
 diameter of uptake 18 thickness of plates $\frac{7}{16}$ thickness of water tubes $\frac{3}{8}$

The foregoing is a correct description,
 for *Black Hawthorn & Co* Manufacturer of main engines & boilers only
Jacob Ballou

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

The Machinery of this vessel has been constructed under special survey. The materials and workmanship are sound and satisfactory, and eligible in my opinion to have the notation + & Lloyd's M.C. in the Society's Register Books.

It is submitted that this vessel is eligible to have the notations of Lloyd's M.C. recorded in the Register Books.
AM 3/1/8

Sunderland account—Advising on specification previous to contract £3-3-0 Expenses to Gateshead 15/-
Received H. Wardropper

Shields account
 Examination of specification & comparing same with work in progress £3-3-0
Received and permitted to Shields H. Wardropper

The amount of Entry Fee £ 3 : - : - received by me,
 Special £ 24 : - : - and remitted to Shields office
 Certificate (if required) £ - : - : - 28th Aug 1881
 To be sent as per margin.

(Travelling Expenses, if any, £2-2-0 now)
 Committee's Minute
 Tuesday February, 1st 1881
+ Lloyd's M.C.

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

