

REPORT ON MACHINERY.

No. 434 (New)

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

✓ on the *S.S. Violet*

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 *11 1/4* Diameter of Tunnel shaft *10 3/4* Diameter of Crank shaft journals *11 1/4* Diameter of Crank pin *11 1/2* size of Crank webs *16 x 7 1/2*

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), Sea, Hotwell*

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 *at & 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 *recent*

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

BOILERS, &c.—

Number of Boilers *Two* Description *Cylindrical return tubes*

Working Pressure *80 lb* Tested by hydraulic pressure to *160 lb* Date of test *14th 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, Cornhill patent*

No. to each boiler *2* area of each valve *12 1/2 sq"* 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 *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 *4 1/3*

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 *1/2 & 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*

Plating 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*

Bottom 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*

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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 $3' 6"$ length $6' 6"$
 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 $-$ thickness of plates $-$
 If stiffened with rings $-$ distance between rings $-$ Working pressure by rules $-$
 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 $18 \times 12 \times \frac{1}{8}$*

DONKEY BOILER— Description *Vertical Water tubes in furnace*
 Made at *Middlesbrough* By whom made *J. Robinson* when made *1880* Tested *9.12.80*
 Where fixed *Sittingbourne* working pressure *Calculated 80 lbs* Tested by hydraulic pressure to *160 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 sq in*
 If fitted with easing 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 punch*
 thickness of shell plates $\frac{3}{8}$ diameter of rivet holes $15/16$ 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 $\frac{3}{8}$ stayed by *Eight stays $1\frac{1}{16}$ dia*
 Diameter of furnace, top *5-6 1/2* bottom *6-0 1/2* length of furnace *7' 2"* Furnace plating supported by four *scrubbed stays pitched $11\frac{1}{4}$ in*
 thickness of plates $\frac{9}{16}$ description of joint *Lap Single punched*
 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's 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 & Book.

It is submitted that this vessel is eligible to have the notation + & Lloyd's M.C. recorded in the Register & Book.
Am 31/1/8

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

The amount of Entry Fee £ 3 : - : - received by me,
 Special £ 24 : - : - and remitted to Shields office
 Certificate (if required) £ - : - : - 28 January 1881
 To be sent as per margin.
 (Travelling Expenses, if any, £2.2.0 have)

Committee's Minute
 Tuesday February 1st 1881
+ Lloyd's M.C.

Received and permitted to Shields
H. Wardropper
John Brockat
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.