

REPORT ON MACHINERY.

3438.

No. 193

(Received at London Office 6th NOV. 82)

No. in Survey held at
Reg. Book.

Aberdeen

Date, first Survey 13/12/81

Last Survey 31st October 1882

on the *L.S.S. "Lady Cathcart"*

Tons 418.1

Master *Alexander Ross* Built at *Aberdeen*

When built 1882

Engines made at *Aberdeen*

By whom made *Blair & Bros* when made 1882

Boilers made at *Do*

By whom made *Do* when made 1882

Registered Horse Power 70

Owners *Aberdeen Line Co*

Port belonging to *Aberdeen*

ENGINES, &c.—

Description of Engines *Direct Acting Compound Int. Cyls Surface Condensing*

Diameter of Cylinders *24" & 42"* Length of Stroke *30"* No. of Rev. per minute *80* Point of Cut off, High Pressure *2/3* Low Pressure *2/3*

Diameter of Screw shaft *8"* Diameter of Tunnel shaft *7 1/2"* Diameter of Crank shaft journals *8"* Diameter of Crank pin *8"* size of Crank webs *9 1/2" x 5 1/2"*

Diameter of screw *11" 0"* Pitch of screw *15" 9"* No. of blades *4* state whether moveable *Sol* total surface *33.74 feet*

No. of Feed pumps *one* diameter of ditto *3 1/2"* Stroke *15"* Can one be overhauled while the other is at work *—*

No. of Bilge pumps *one* diameter of ditto *3 1/2"* Stroke *15"* Can one be overhauled while the other is at work *—*

Where do they pump from *all compartments*

No. of Donkey Engines *two* Size of Pumps *6" x 6" x 3 1/2"* Where do they pump from *sea, Mallock, compartments*

to boilers and on Deck (Ballast) from tanks all compartments - the ship side

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 *3 1/2"* Are they connected to condenser, or to circulating pump *circulating*

How are the pumps worked *by levers from piston of after 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 launch 25th Sept 1882*

Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top of cylinders*

BOILERS, &c.—

Number of Boilers *one* Description *Circular Tubular*

Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *14th September 1882*

Description of ~~superheating apparatus~~ steam chest *Horizontal Dumb*

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 *49.5 feet* Description of safety valves *Direct Spring Load (Cockburns)*

No. to each boiler *two* area of each valve *12.56"* 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 *11"*

Diameter of boilers *2' 6"* Length of boilers *10' 0"* description of riveting of shell long. seams *Butt D. 12* circum. seams *2 lap D. 12*

Thickness of shell plates *7/8"* diameter of rivet holes *1"* whether punched or drilled *punched* pitch of rivets *4 1/2"*

Lap of plating *12" & 4 3/4"* per centage of strength of longitudinal joint *76 & 76 %* working pressure of shell by rules *83 lbs*

Size of manholes in shell *16" x 12"* size of compensating rings *4" x 3 1/4"*

No. of Furnaces in each boiler *3* outside diameter *35 7/8"* length, top *7' 1"* bottom *9' 3"*

Thickness of plates *1/2"* description of joint *butt S. 12* if rings are fitted *1/2 angle* greatest length between rings *4' 0"*

Working pressure of furnace by the rules *88 lbs*

Combustion chamber plating, thickness, sides *7/8"* back *7/8"* top *7/8"*

Pitch of stays to ditto sides *8" x 8"* back *8" x 8"* top *round*

If stays are fitted with nuts or riveted heads *nuts both ends* working pressure of plating by rules *84 lbs*

Diameter of stays at smallest part *1 1/2" round ends 1 1/2"* working pressure of ditto by rules *5/20 lbs*

End plates in steam space, thickness *3/4"* pitch of stays to ditto *15" x 15"* how stays are secured *two ends nuts*

Working pressure by rules *89 lbs* diameter of stays at smallest part *2"* working pressure by rules *58.06 lbs*

Front plates at bottom, thickness *4 1/2"* Back plates, thickness *7/8"* greatest pitch of stays *3" x 8"* working pressure by rules *59.42 lbs*

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Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $3\frac{1}{4}$ " back $3\frac{1}{4}$ "
 How stayed *tubes Anti* pitch of stays $9 \times 13\frac{1}{2}$ " width of water spaces 1 "
 Diameter of ~~Superheater~~ Steam chest $3\frac{1}{2}$ " length $7\frac{1}{2}$ "
 Thickness of plates $7\frac{1}{2}$ " description of longitudinal joint *lap D.R.* diameter of rivet holes $3\frac{1}{4}$ " pitch of rivets $2\frac{1}{2}$ "
 Working pressure of shell by rules 111 lbs Diameter of flue \leftarrow thickness of plates \leftarrow
 If stiffened with rings \leftarrow distance between rings \leftarrow Working pressure by rules \leftarrow
 End plates of ~~superheater~~ steam chest; thickness $5\frac{7}{8}$ " How stayed *Dished*
~~Superheater~~ steam chest; how connected to boiler *by two malleable necks riveted to shells*

DONKEY BOILER—

Description *one Mound Vertical*
 Made at *Aberdeen* By whom made *Blairie Bros* when made *1882*
 Where fixed *Stokehall* working pressure 50 lbs Tested by hydraulic pressure to 100 lbs No. of Certificate *2*
 Fire grate area 14 feet Description of safety valves *D.S. Load* No. of safety valves *one* area of each $7\frac{1}{4}$ "
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $5\frac{1}{2}$ " length $9\frac{1}{2}$ " description of riveting *lap double rivet*
 thickness of shell plates $3\frac{3}{8}$ " diameter of rivet holes $3\frac{1}{4}$ " whether punched or drilled *punched*
 pitch of rivets $2\frac{1}{2}$ " lap of plating $4\frac{1}{2}$ " in $2\frac{1}{2}$ " per centage of strength of joint 70.95%
 thickness of crown plates $4\frac{1}{2}$ " stayed by *Dished*
 Diameter of furnace, top $4\frac{1}{2}$ " bottom $4\frac{1}{2}$ " length of furnace $5\frac{1}{2}$ "
 thickness of plates $7\frac{1}{2}$ " description of joint *lap S.R.*
 thickness of furnace crown plates $7\frac{1}{2}$ " stayed by *Dished*
 Working pressure of shell by rules 66 lbs working pressure of furnace by rules 65 lbs
 diameter of uptake 11 " thickness of plates $5\frac{7}{8}$ " thickness of water tubes $5\frac{7}{8}$ "

The foregoing is a correct description,

Manufacturer.

Blairie Brothers

General Remarks (State quality of workmanship, opinions as to class, &c. *The Boilers and Engine of this vessel have been built under special Survey and agreeable to the requirements of the Rules. The material and workmanship are of the best description. The safety valves have been tested by steam and to a working pressure of 80 lbs per square inch and the machinery seen at work and found satisfactory and in my opinion are eligible to be entered into the Register Book with the distinctive mark*
✱ Lloyd's M.C. 31.10.82 in red.

The amount of Entry Fee $\pounds 2 : 0 : 0$ received by me, *this day and forwarded to Dundee.*Special $\pounds 10 : 10 : 0$ Certificate (if required) $\pounds - : 2 : 6$ *for 14 1882*

To be sent as per margin.

(Travelling Expenses, if any, $\pounds 3-14-0$)

Committee's Minute

Tuesday, 7th November, 1882

John Murray
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Dundee District