

REPORT ON MACHINERY.

No. 200

(Received at London Office 22/9/82)

No. in Survey held at *Dundee*
Reg. Book.

Date, first Survey *25/3/82*

Last Survey *28 Nov 1882*

on the *S. S. "Cormorant"*

Tons

Master *CH* Built at *Deptford* When built *1882*

Engines made at *Dundee* By whom made *Lourlay Bros. Co* when made *1882*

Boilers made at *Do* By whom made *Do Do* when made *1882*

Registered Horse Power *100* Owners *General Steam Nav Co* Port belonging to *London*

ENGINES, &c.—

Description of Engines *Compound direct acting 2nd Lyr Surface Condensing*

Diameter of Cylinders *27" 48"* Length of Stroke *30"* No. of Rev. per minute *75* Point of Cut off, High Pressure *2/3* Low Pressure *2/3*

Diameter of Screw shaft *8 3/4"* Diameter of Tunnel shaft *8 1/2"* Diameter of Crank shaft journals *9"* Diameter of Crank pin *9"* size of Crank webs *10 1/2" x 6"*

Diameter of screw *13" 0"* Pitch of screw *13" 3"* No. of blades *4* state whether moveable *not* total surface *41 feet*

No. of Feed pumps *two* diameter of ditto *3 1/2"* Stroke *17"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *two* diameter of ditto *3 1/2"* Stroke *17"* Can one be overhauled while the other is at work *yes*

Where do they pump from *all compartments*

No. of Donkey Engines *one* Size of Pumps *5" x 5" x 3"* Where do they pump from *sea Hot Wells - 6 boilers*

and on Deck

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 *4"* Are they connected to condenser, or to circulating pump *Circulating*

How are the pumps worked *by levers from low pressure piston crosshead*

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

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

BOILERS, &c.—

Number of Boilers *one* Description *Steel Circular Tubular*

Working Pressure *75 lbs* Tested by hydraulic pressure to *150 lbs* Date of test *11th August 1882*

Description of ~~superheating apparatus~~ steam chest *horizontal dome*

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 *51.75 feet* Description of safety valves *direct: Spring Load (Cockburn)*

No. to each boiler *two* area of each valve *13.3"* 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 *12"*

Diameter of boilers *3' 0"* Length of boilers *10' 0"* description of riveting of shell long. seams *Lap Double R* circum. seams *Lap D.R.*

Thickness of shell plates *3 3/8"* diameter of rivet holes *1 7/8"* whether punched or drilled *drilled* pitch of rivets *4"*

Lap of plating *7 1/2" x 5"* per centage of strength of longitudinal joint *74 %* working pressure of shell by rules *78 lbs*

Size of manholes in shell *17" x 13"* size of compensating rings *4" x 4" x 3 1/4"*

No. of Furnaces in each boiler *three* outside diameter *35 1/2" mean* length, top *7' 3"* bottom *7' 3"*

Thickness of plates *7/8"* description of joint *welded* if rings are fitted *flanged* in centre *—* greatest length between rings *5' 4"*

Working pressure of furnace by the rules *138 lbs half length*

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

Pitch of stays to ditto sides *8 1/2" x 8 1/2"* back *8 1/2" x 8 1/2"* top *round*

If stays are fitted with nuts or riveted heads *nuts both ends* working pressure of plating by rules *75 lbs*

Diameter of stays at smallest part *sides 1 1/2" rest 1 3/4"* working pressure of ditto by rules *46.93 lbs*

End plates in steam space, thickness *3 5/8"* pitch of stays to ditto *16 1/2" x 16 1/2"* how stays are secured *this end nuts*

Working pressure by rules *82 lbs* diameter of stays at smallest part *2 3/8"* working pressure by rules *45.00 lbs*

Front plates at bottom, thickness *9/16"* Back plates, thickness *9/16"* greatest pitch of stays *14" x 8 1/2"* working pressure by rules *52.50 lbs*

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $\frac{1}{16}$ " back $\frac{1}{16}$ "
 How stayed *like main* pitch of stays $14\frac{1}{2}" \times 14\frac{1}{2}"$ width of water spaces $1\frac{1}{2}"$
 Diameter of ~~Superheater~~ Steam chest $3\frac{1}{2}"$ length $8\frac{1}{2}"$
 Thickness of plates $\frac{7}{16}"$ description of longitudinal joint *Lap S.R.* diameter of rivet holes $\frac{3}{4}"$ pitch of rivets $2\frac{1}{2}"$
 Working pressure of shell by rules 133 lbs Diameter of flue $\frac{1}{2}"$ thickness of plates $\frac{1}{16}"$
 If stiffened with rings $\frac{1}{2}"$ distance between rings $\frac{1}{2}"$ Working pressure by rules $\frac{1}{2}"$
 End plates of ~~superheater~~ steam chest; thickness $\frac{5}{8}"$ How stayed *by L = 14" both stays then ends rivets*
~~Superheater~~ steam chest; how connected to boiler *by two malleable necks riveted to shells*

DONKEY BOILER— Description *Vertical with cross tubes*
 Made at *Clark C. & Co.* By whom made *Gateshead* when made *1882*
 Where fixed *Over Stoked* working pressure *80 lbs* Tested by hydraulic pressure to *160* No. of Certificate *979*
 Fire grate area *12.56* Description of safety valves *Spring* No. of safety valves *one* area of each *7 inches*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $4\frac{9}{16}"$ length $10' 6"$ description of riveting *d. riv. lap.*
 thickness of shell plates $\frac{7}{16}"$ diameter of rivet holes $\frac{13}{16}"$ whether punched or drilled *punched*
 pitch of rivets $3\frac{1}{8}"$ lap of plating $4"$ per centage of strength of joint $\frac{7}{8}$
 thickness of crown plates $\frac{1}{2}"$ stayed by *4 Stays* $1\frac{5}{8}"$ diam.
 Diameter of furnace, top $3\frac{5}{8}"$ bottom $4\frac{1}{2}"$ length of furnace $4\frac{1}{2}"$
 thickness of plates $\frac{1}{2}"$ description of joint *lap single rivet*
 thickness of furnace crown plates $\frac{1}{2}"$ stayed by *upstroke & stays*
 Working pressure of shell by rules 88 lbs working pressure of furnace by rules 82 lbs
 diameter of uptake $12"$ thickness of plates $\frac{3}{8}"$ thickness of water tubes $\frac{3}{8}"$

The foregoing is a correct description,

Overlaid Brothers Manufacturer. of main engines & boiler.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Boilers and Engines*)
of this vessel have been built under special survey. The material and workmanship are of the best description and in our opinion are eligible to be entered into the Register Book with the distinctive mark —
** Z.M.C. 11.82. in red.*
The machinery has been securely fitted on board.

It is submitted that this vessel is eligible to be entered in the Register Book.
M.C. 11.82
MD 4.12.82

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,
 Special at *15/0/0*
 Certificate (if required) .. £ : : :
 To be sent as per margin.
 (Travelling Expenses, if any, £)

Committee's Minute

Tuesday, 5th December, 1882

John Sturrock & Co. Surveyors
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
Overlaid Brothers