

REPORT ON MACHINERY.

Port of *Sunderland*

Received at London Office *THURS. 29 DEC 1892*

Date, first Survey *21st Sept* Last Survey *19th Dec 1892*

No. in Survey held at *Sunderland*

Reg. Book. *"Ratcliff"*

on the *S.S. "Ratcliff"*

Master *Skelton* Built at *Sunderland* By whom built *Short Brothers*

Tons { Gross *802*
Net *508*
When built *1892*

Engines made at *Sunderland* By whom made *John Dickinson* when made *1892*

Boilers made at *Sunderland* By whom made *John Dickinson* when made *1892*

Registered Horse Power *120* Owners *HC Pelly* Port belonging to *London*

Nom. Horse Power as per Section 28 *130*

ENGINES, &c.— Description of Engines *Triple three cranks* No. of Cylinders *3*
Diameter of Cylinders *18" 29" 44"* Length of Stroke *33"* Revolutions per minute *75* Diameter of Screw shaft *8 1/2"*
Diameter of Tunnel shaft *8 1/2"* Diameter of Crank shaft journals *9"* Diameter of Crank pin *9"* Size of Crank webs *patent*
Diameter of screw *12-0"* Pitch of screw *14-9"* No. of blades *4* State whether moveable *not* Total surface *50 sq ft*
No. of Feed pumps *2* Diameter of ditto *2 3/4"* Stroke *16 1/2"* Can one be overhauled while the other is at work *yes*
No. of Bilge pumps *2* Diameter of ditto *3 1/2"* Stroke *16 1/2"* Can one be overhauled while the other is at work *yes*
No. of Donkey Engines *2* Sizes of Pumps *5 1/4 x 3 1/2 x 5 + 8" x 9" x 10"* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *Three 2 1/2"* In Holds, &c. *Fore hold two 2 1/2" after well 2 1/2"*
No. of bilge injections *1* sizes *4"* Connected to condenser, or to circulating pump *C.P.* Is a separate donkey suction fitted in Engine room & size *yes, 4"*
Are the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*
Are they connected with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both*
Are they fitted 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 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 they protected
Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*
Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*
When were stern tube, propeller, screw shaft, and all connections examined in dry dock *New Vessel* Is the screw shaft tunnel watertight *yes*
Is it fitted with a watertight door *yes* worked from *top platform*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *2900 sq ft*
No. and Description of Boilers *One ordinary marine type* Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs*
Date of test *5-11-92* Can each boiler be worked separately *only one* Area of fire grate in each boiler *50 sq ft* No. and Description of safety valves to
each boiler *2 direct spring* Area of each valve *8.29 sq ft* Pressure to which they are adjusted *160 lbs* Are they fitted
with easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *2 feet* Mean diameter of boilers *14-6"*
Length *10-6"* Material of shell plates *Steel* Thickness *1 1/2"* Description of riveting: circum. seams *double rivet lap* long. seams *triple rivet double*
Diameter of rivet holes in long. seams *1 3/8"* Pitch of rivets *8 1/2" + 4 1/4"* Lap of plates or width of butt straps *19 1/2"*
Per centages of strength of longitudinal joint *83.8%* Working pressure of shell by rules *148 lbs* Size of manhole in shell *16" x 12"*
Size of compensating ring *19 1/2" x 8 3/4"* No. and Description of Furnaces in each boiler *3 plain* Material *Steel* Outside diameter *41 1/4"*
Length of plain part *6 feet* Thickness of plates *3 1/4"* Description of longitudinal joint *welded* No. of strengthening rings *none*
Working pressure of furnace by the rules *160 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *9/16"* Back *9/16"* Top *9/16"* Bottom *7/8"*
Pitch of stays to ditto: Sides *8 1/4" x 8 1/4"* Back *8 1/4" x 8 1/4"* Top *4 1/4" x 8 1/4"* stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *160 lbs*
Material of stays *Steel* Diameter at smallest part *1.45"* Area supported by each stay *68 sq ft* Working pressure by rules *140 lbs* End plates in steam space:
Material *Steel* Thickness *1"* Pitch of stays *15" x 14 1/4"* How are stays secured *nuts* Working pressure by rules *174 lbs* Material of stays *Steel*
Diameter at smallest part *2.5"* Area supported by each stay *258 sq ft* Working pressure by rules *144 lbs* Material of Front plates at bottom *Steel*
Thickness *1 1/16"* Material of Lower back plate *Steel* Thickness *1 1/16"* Greatest pitch of stays *11 3/4"* Working pressure of plate by rules *160 lbs*
Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *23/32"* Back *11/16"* Mean pitch of stays *9" x 9"*
Pitch across wide water spaces *14 1/4"* Working pressures by rules *160 lbs* (used all rings) Orders to Chamber tops: Material *Steel* Depth and
thickness of girder at centre *6 1/4" x 13" x 2* Length as per rule *33"* Distance apart *4 1/2"* Number and pitch of Stays in each *3 stays 8 1/4" x 7 1/2"*
Working pressure by rules *160 lbs* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked
separately
Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

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DONKEY BOILER— Description *Vertical with two crosswater tubes.*
 Made at *Stockton* By whom made *J. Surron & Coy* When made *16-11-92* Where fixed *Stokehold*
 Working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *557* Fire grate area *11 ft* Description of safety valves *direct spring*
 No. of safety valves *2* Area of each *8 sq* Pressure to which they are adjusted *80 lbs* If fitted with casing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *4'-6"* Length *9'-0"* Material of shell plates *steel* Thickness *11/32"*
 Description of riveting long. seams *lapable rivet* Diameter of rivet holes *13/16"* Whether punched or drilled *punched* Pitch of rivets *2 3/4"*
 Lap of plating *4 1/4"* Per centage of strength of joint *93.5* Thickness of shell crown plates *1/16"* Radius of do. *5'-9"* No. of Stays to do. *4*
 Dia. of stays *1 1/2"* Diameter of furnace Top *3'-5"* Bottom *3'-10"* Length of furnace *3'-3"* Thickness of furnace plates *15/32"* Description of joint *lap single*
 Thickness of furnace crown plates *1/16"* Stayed by *same as shell crown* Working pressure of shell by rules *84 1/4 lbs*
 Working pressure of furnace by rules *80 lbs* Diameter of uptake *11"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:—*Top and bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts, feed and bilge pump valves, propeller bolts nuts & iron assorted.*

The foregoing is a correct description,

J. W. Allen Manufacturer of main engines & boiler.

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

The machinery of this Vessel has been constructed under special survey. The material and workmanship are good and efficient and the engines when tried under steam worked satisfactorily. In my opinion the machinery of this Vessel is in good order and safe working condition and eligible for the notification in the Register Book of +LMC 12

It is submitted that this vessel is eligible for THE RECORD. +LMC 12-92

W. A. 29-12-92

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 :	When applied for,
Special	£ 19 : 10 :	28 Dec 1892
Donkey Boiler Fee	£ :	When received,
Travelling Expenses (if any) £	:	30/12/92

W. A. Salmon

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

Committee's Minute

MACHINERY TESTED DEC 1892 WRITTEN.

Assigned

+LMC 12, 92



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