

REPORT ON MACHINERY.

WED 21 MAY 1890

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Intro 69
No. 8021
Survey held at *Hartlepool & Middlesbrough* Date, first Survey *14th Jan 1889* Last Survey *11th April 1890*
Reg. Book. on the *Screw Steamer "Storm King"*
Master *Crosby* Built at *Middlesbrough* By whom built *Messrs. R. Dixon & Co.* When built *1890*
Engines made at *Hartlepool* By whom made *Messrs. S. Richardson & Sons* when made *1890*
Boilers made at *Hartlepool* By whom made *Messrs. S. Richardson & Sons* when made *1890*
Registered Horse Power *450* Owners *H. Ross & Co.* Port belonging to *London*
419

ENGINES, &c.—

Description of Engines *Inverted, Triple Expansion, 3 Cylinders & 3 Cranks*
Diameter of Cylinders *28, 44, 72* Length of Stroke *48* No. of Rev. per minute *60* Point of Cut off, High Pressure *5th stroke* Low Pressure *6th stroke*
Diameter of Screw shaft *13 1/4* Diam. of Tunnel shaft *12 3/4* Diam. of Crank shaft journals *13 1/4* Diam. of Crank pin *14* size of Crank webs *21 x 9*
Diameter of screw *17.9* Pitch of screw *18.6* No. of blades *4* state whether moveable *yes* total surface *91.5 sq. ft.*
No. of Feed pumps *2* diameter of ditto *3 1/2* Stroke *26* Can one be overhauled while the other is at work *yes*
No. of Bilge pumps *2* diameter of ditto *4* Stroke *26* Can one be overhauled while the other is at work *yes*
Where do they pump from *Sea, hold, Engine room, After well & Sea.*
No. of Donkey Engines *2* Size of Pumps *(10 x 9) (4 1/2 x 10)* Where do they pump from *(Ballast tanks, sea, & all bilges) (Sea, hotwell, main boilers, & ballast tanks)*
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 *6" dia* Are they connected to condenser, or to circulating pump *Circulating pump*
How are the pumps worked *By levers from the After piston rod 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 *New vessel*
Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Top platform in Engine room*

BOILERS, &c.—

Number of Boilers *Two* Description *Cyl. built double ended* Whether Steel or Iron *Steel*
Working Pressure *160 lb.* Tested by hydraulic pressure to *320 lb.* Date of test *27th March 1890*
Description of superheating apparatus or steam chest *none* Heating surface *7190*
Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *no* superheater
No. of square feet of fire grate surface in each boiler *108* Description of safety valves *Spring* No. to each boiler *2*
Area of each valve *12.5* 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 *5"* Diameter of boilers *14.6"*
Length of boilers *15.9"* description of riveting of shell long. seams *double butt chap* circum. seams *treble rivet* Thickness of shell plates *1 3/32"*
Diameter of rivet holes *1 9/32"* whether punched or drilled *punched* pitch of rivets *12 in 8 3/8", 2 in 4 1/2"* Lap of plating *9 3/4"*
Per centage of strength of longitudinal joint *84.7* working pressure of shell by rules *162 lb.* size of manholes in shell *16 3/4" x 13"*
Size of compensating rings *2.6" x 2.3" x 1 9/32"* No. of Furnaces in each boiler *6*
Outside diameter *3.5 1/2"* length, top *5.6"* bottom *6.2"* thickness of plates *7/16"* description of joint *welded* if rings are fitted *no*
Greatest length between rings — working pressure of furnace by the rules *168 lb.* combustion chamber plating, thickness, sides *5/8"* back — top *5/8"*
Pitch of stays to ditto, sides *8 1/2" x 8 1/2"* back — top *8 1/2" x 8 1/2"* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *166 lb.* Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *164 lb.* end plates in steam space, thickness *1 1/16"*
Pitch of stays to ditto *15 3/4" x 15 3/4"* how stays are secured *double nut & washer* working pressure by rules *163 lb.* diameter of stays at smallest part *2 3/8"* working pressure by rules *160 lb.* Front plates at bottom, thickness *3/4"* Back plates, thickness —
Greatest pitch of stays — working pressure by rules — Diameter of tubes *3 1/4" dia* pitch of tubes *4 1/2" x 4 3/8"* thickness of tube plates, front *15/16"* back *7/8"* how stayed *stay tubes* pitch of stays *13 1/2" x 8 3/4"* width of water spaces *1 1/4"*
Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint — diam. of rivet holes —
Pitch of rivets — working pressure of shell by rules — 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 — how stayed —
Superheater or steam chest; how connected to boiler —

DONKEY BOILER— Description *Single End byld^g, built up^d with 2 furnaces.*
Made at *Gateshead* by whom made *Clarke, Chapman & Co* when made *4.2.90* where fixed on *even of Deck*.
Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *3120* fire grate area *30 sq. feet* description of safety
valves *Spring* No. of safety valves *2* area of each *4.06 sq. ins* if fitted with easing gear *Yes* if steam from main boilers can
enter the donkey boiler *No* diameter of donkey boiler *9' 0"* length *9' 0"* description of riveting *Lap Treble*.
Thickness of shell plates *2 1/16"* diameter of rivet holes *5 1/16"* whether punched or drilled *Drilled* pitch of rivets *3 1/8"* lap of plating *6 9/16"*
per centage of strength of joint *78 3/8%* thickness of ~~main~~ plates *5 3/8"* stayed by *8 Steel Stays 1 1/8" diameter*.
Diameter of furnace, top *2' 8 1/8"* bottom *2' 8 1/8"* length of furnace *6' 0"* thickness of plates *2 1/16"* description of joint *Lap Single*
Thickness of ~~furnace crown~~ plates *2 1/16"* stayed by *Stay 1 3/8" dia x 8 1/4" pitch* working pressure of shell by rules *84 1/2 lbs*
Working pressure of furnace by rules *86 lbs* diameter of uptake *—* thickness of ^{side} plates *5 3/8"* thickness of water tubes *—*


SPARE GEAR. State the articles supplied:— *2 Propeller blades, A set of bolts & nuts for
a connecting rod and main bearing, 2 crosshead bolts & nuts, 1 set
Coupling Bolts, 1 set Feed pump valves, 1 set Bilge pump valves, 1 set
H.C. pressure piston springs. Lion ass^t sizes Bolt nuts ass^t sizes.*

The foregoing is a correct description,

T. Richardson & Sons Manufacturer of Engines & main boilers

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

*Main steam pipes tested by hydraulic pressure to 320 lbs
per square inch and found tight*

*The engines and main boilers of this vessel have been constructed
under Special Survey and of a good quality of workman-
they have been tried under steam, the safety valves adj.
and found to work well and will, in my opinion, be
eligible to have  L.M.C. 4.90. recorded in the Register
of this Society when the following work has been executed
to the satisfaction of a Surveyor of this Society.*

*Bilge suction pipes in forward hold to be connected
the engine pumps, sea-cocks and sluice valves in the
stokehold to be made accessible at all times. Donkey
boiler to be fitted on board and examined under steam.
Screw tunnel to be fitted with a sluice door and made
watertight. Spare gear to be supplied in accordance with
the Rules. The vessel has proceeded on to midstream
for completion.*

*The above mentioned work has been
Satisfactorily completed.*

Wm. R. Austin 20th May 1890

*It is submitted that this vessel is eligible
to have + L.M.C. 4.90 recorded.*

N.A.

21.5.90

The amount of Entry Fee .. £ 3 : 0 : 0 ^{not paid} received by me,

Special .. £ 40 : 19 : 0

Donkey Boiler Fee .. £ : : :

Certificate (if required) .. £ : : : 20.5.1890

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute **FRI 23 MAY 1890**

+ L.M.C. 4/90

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



Lloyd's Register
Foundation