

REPORT ON MACHINERY.

No. 10810

Port of Glasgow

TUES. 14

Received at London Office

No. in Survey held at Reg. Book.

Glasgow

Date, first Survey 2nd Sept 1890 Last Survey 14th July 1891.

(Number of Visits 14)

Gross 4380 Tons Net 2556

on the

S S Hewarden Castle

Master R. Duncan

Built at Glasgow

By whom built J. Elder & Co

When built 1883

Engines made at Glasgow

By whom made The Fairfield Ship & Engine Co Ltd

when made 1891

Boilers made at Glasgow

By whom made Do

when made 1891

Registered Horse Power

850

Owners

D. Irvine & Co

Port belonging to

London

ENGINES, &c.

Description of Engines *Inverted Direct Acting - Triple Expansion.* No. of Cylinders *Three*
 Diam. of Cylinders *37", 60", 46"* Length of Stroke *60"* Rev. per minute *75* Point of Cut off, High Pressure *Low Pressure*
 Diameter of Screw shaft *18"* Diam. of Tunnel shaft *17"* Diam. of Crank shaft journals *18"* Diam. of Crank pin *18 1/2"* size of Crank webs *13 1/2"*
 Diameter of screw *18-6* Pitch of screw *23-0* No. of blades *Four* state whether moveable *yes* total surface *100 sq ft*
 No. of Feed pumps *Two* diameter of ditto *6"* Stroke *25"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *Two* diameter of ditto *6"* Stroke *25"* Can one be overhauled while the other is at work *yes*
 Where do they pump from *Three suction in Engine Room, Two in Off press bunker, Three in Hold, One in Fore cross bunker +*
 No. of Donkey Engines *Three* Size of Pumps *110 pump & 24 stroke - 8 gals* Where do they pump from *Wells from heater, bottom of condenser*
and hotwell. Feed donkey from engine & boiler space & holds, sea, tanks & condenser. Bilge donkey from sea, bilge
 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 *Two* and sizes *15 dia* Are they connected to condenser, or to circulating pump *Circulating*
 How are the pumps worked *Two centrifugal circulating pumps. The others from cross heads of Low & M. Engines*
 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 *For suction* How are they protected *Wood casing*
 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 *Examined in Dry Dock*
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Deck*

BOILERS, &c.

No. of Boilers *Three* Description *Cylindrical - metal* Material *Steel* Letter (for record)
 Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *14th + 22nd May + 4th June*
 Description of superheating apparatus or steam chest *None*
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *yes*
 No. of square feet of fire grate surface in each boiler *132 1/2* Description of safety valves *Direct spring* No. to each boiler *Two*
 Area of each valve *14.19 sq ins* Are they fitted with easing gear *yes* No. of safety valves to superheater *yes* area of each valve *yes*
 Are they fitted with easing gear *yes* Smallest distance between boilers and bunkers or woodwork *No side bunkers* Diameter of boilers *14-9"*
 Length of boilers *19-2"* description of riveting of shell long. seams *Butt three rows* circum. seams *Laps ends double* Thickness of shell plates *1 9/32*
 Diameter of rivet holes *1 5/16"* whether punched or drilled *Drilled* pitch of rivets *8 7/8", 6 1/8" & 4 1/8"* Lap of plating *19 1/2" butt & lap*
 Per centage of strength of longitudinal joint *85.2* working pressure of shell by rules *160* size of manholes in shell
 Size of compensating rings No. of Furnaces in each boiler *Three* Description of Furnaces *Purvis' patent ribbed*
 Outside diameter *44"* length *7-0 inches* thickness of plates *1/2"* description of joint *Weld* if rings are fitted *yes*
 Greatest length between rings *9"* working pressure of furnace by the rules *158 lbs* combustion chamber plating, thickness, sides *9/16"* back *9/16"* top *19/16"*
 Pitch of stays to ditto, sides *7 1/4" x 7 3/4"* back *7 3/4"* top *7 1/4" x 7 3/4"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by
 rules *162 lbs* Diameter of stays at smallest part *1 3/8 inches* working pressure of ditto by rules *164 lbs* end plates in steam space, thickness *1 1/16"*
 Pitch of stays to ditto *15" x 15"* how stays are secured *Nuts* working pressure by rules *179 lbs* diameter of stays at
 smallest part *2 3/8 inches* working pressure by rules *175 lbs* Front plates at bottom, thickness *3/4"* Back plates, thickness *yes*
 Greatest pitch of stays *yes* working pressure by rules *yes* Diameter of tubes *3 1/4"* pitch of tubes *4 1/2"* thickness of tube
 plates, front *3/4"* back *3/4"* how stayed *Tubes* pitch of stays *14 1/2" x 9"* width of water spaces *4 to 6*
 Diameter of Superheater or Steam chest *None* length *yes* thickness of plates *yes* description of longitudinal joint *yes* diam. of rivet holes *yes*
 Pitch of rivets *yes* working pressure of shell by rules *yes* diameter of flue *yes* thickness of plates *yes* If stiffened with rings *yes*
 Distance between rings *yes* working pressure by rules *yes* end plates of superheater, or steam chest; thickness *yes* how stayed *yes*
 Superheater or steam chest; how connected to boiler *yes*

GLS162-0258

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DONKEY BOILER— Description *Cylindrical - Mult*
Made at *Glasgow* by whom made *L. Burnett & Co* when made *1891* where fixed *In Hold*
Working pressure *80 lb* tested by hydraulic pressure to *160* No. of Certificate *2976* fire grate area *28 sq ft* description of safety
valves *Direct spring* No. of safety valves *4* area of each *7 sq in* if fitted with easing gear *Yes* if steam from *other* boilers can
enter the donkey boiler *No* diameter of donkey boiler *10-6* length *8-0* description of riveting *Lap three runs*
Thickness of shell plates *19/32* diameter of rivet holes *15/16* whether punched or drilled *Drilled* pitch of rivets *1 1/4* lap of plating *6 1/2*
per centage of strength of joint thickness of plates *3* stayed by *Iron stay 2" dia. 15 1/2* pitch *15*
Diameter of furnace *34 3/4* bottom *✓* length of furnace *5-9* thickness of plates *1 3/8* description of joint *Unrivetted*
Thickness of *crank cham* furnace crown plates *1 1/2* stayed by *1 1/2 inch stay 7 3/4 - 7 3/4* working pressure of shell by rules *84 lb*
Working pressure of furnace by rules *130 lb* diameter of *water tubes* *3 1/4* thickness of plates *5/8* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Two top & two bottom end connecting rod bolts - Four main bearing bolts - One dozen coupling bolts - Two feed & two bilge pump valves - One guide shoe - One propeller shaft complete - One propeller boss & blades - One stem bush with wood complete - One third part crank shaft - Piston rings for H.P. & M.P. pistons - Air pump rod, bucket & head & foot valves - The foregoing is a correct description, Three feed & bilge pump plungers -*
Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
The boilers have been constructed under special survey - they are of good material & workmanship - they have been well fitted on board, satisfactorily tested under steam at 160 lb per square inch to which the safety valves have been adjusted -
The engines were entirely removed from the vessel to the shops where they were re-erected - Among the old parts overhauled and again fitted on board are the tunnel blocks, which were refilled with white metal - The low pressure crank shaft - The air pumps - The main engine bilge pumps - The bilge donkey - The centrifugal pumps for circulating - The bilge injection chests, pipes & roses - Main injection valves - Discharge valves -
Among the new parts are the H. Percolator & coil plate - The thrust block - main feed pumps - Water pump & a duplex pump - New tunnel & propeller shafts -
All the steam pipes & connections to the boilers are new -
When the vessel was in Dry Dock all the sea cocks & valves were overhauled and new donkey suction & blow off cocks fitted - new anchors for duplex donkey - new ash cock at Fore end of Hold - new Demlops governor - and new freezing machine suction and discharge -
All the work in connection with the overhaul of the engines has been well carried out and the engines have been satisfactorily tried under steam -
*We are of opinion the machinery is now in good & safe working condition and eligible to be classed **L.M.C. 7-91** in the Register Book with the notification **+NB 91.***

It is submitted that this vessel is eligible to have +NB.91 +L.M.C 7.91. and tripled 91 recorded

*W.A.
20.7-91*

The amount of Entry Fee .. £ : received by me,
Special .. £ *2* :
Main Donkey Boiler Fee .. £ *21* :
Certificate (if required) .. £ :
To be sent as per margin.
(Travelling Expenses, if any, £)

*M.P.H.
26.8.91
30.7-91
J.R. Robson - J.M. Sanderson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.*

Committee's Minute **TUES. 21 JUL 1891**

+NB91 +Lmb 7/91 Triples 91

Letter to Glasgow 15/7/91