

REPORT ON MACHINERY.

11164

No. 11164 Port of Glasgow Received at London Office MON. 14 DEC 1891

No. in Survey held at Glasgow Date, first Survey 10th July 1891 Last Survey Dec 9th 1891

Reg. Book. 44 on the Screw Steamer Warwick Castle (Number of Visits 28) 3056

Master J. Breagh Built at Glasgow By whom built R. Napier & Son When built 1874-8

Engines made at Glasgow By whom made The Laird & Co when made 1874

Boilers made at " By whom made " when made 1891

Registered Horse Power 370 Owners J. Currie & Co Port belonging to London

GINES, &c. — Triple Expansion (3 Cylinders)

Description of Engine Triple Expansion

Diameter of Cylinders 50" 49 1/2" 48" Length of Stroke 48" No. of Rev. per minute 65 Point of Cut off, High Pressure 1/2 Low Pressure 1/2

Diameter of Screw shaft 16 1/2" Diam. of Tunnel shaft 16 1/2" Diam. of Crank shaft journals 16 1/2" Diam. of Crank pin 16 1/2" size of Crank webs 3 1/2"

Diameter of screw 18 1/2" Pitch of screw 23 1/2" mean No. of blades 4 state whether moveable yes total surface 8 1/2

No. of Feed pumps two diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes

No. of Bilge pumps two diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes

Where do they pump from All Compartments

No. of Donkey Engines three Size of Pumps 10" x 8" x 21" Weir Where do they pump from Sea Bilge Hotwell & 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

Are the injection two and sizes 5" & 6 1/2" Are they connected to condenser, or to circulating pump one to each

Are the pumps worked by levers

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 near the line

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

Are the pipes carried through the bunkers Bilge pipes to stokehold 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 October 20th 1891

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

OILERS, &c. Simple ended

Number of Boiler two Description Long draught Whether Steel or Iron Steel

Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 19th Oct 1891

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 60 sq ft Description of safety valves Direct Spring No. to each boiler two

Area of each valve 9.62" Are they fitted with easing gear yes No. of safety valves to superheater one area of each valve 4"

Are they fitted with easing gear yes Smallest distance between boilers and bunkers or woodwork 15" Diameter of boilers 15.6"

Length of boilers 10' 9" description of riveting of shell long. seams Double riveted circum. seams Double Thickness of shell plates 1 3/8"

Diameter of rivet holes 1 3/8" whether punched or drilled Drilled pitch of rivets 9" 4 1/2" - 2 3/4" Lap of plating Double shape 1 1/2" x 18 1/2"

Percentage of strength of longitudinal joint 81.42% working pressure of shell by rules 160 lbs size of manholes in shell 16"

No. of compensating rings by doubling piece No. of Furnaces in each boiler three

Outside diameter 31.9" length, top 4 1/2" bottom 4 1/2" thickness of plates 1 1/2" description of joint Purvis if rings are fitted filled

Greatest length between rings working pressure of furnace by the rules 16 1/2 lbs combustion chamber plating, thickness, sides 9/16" back 9/16" top 9/16"

Pitch of stays to ditto, sides 7/8" x 7/8" back 7/8" x 7/8" top 7/8" x 7/8" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 188 lbs

Diameter of stays at smallest part 1 1/2" working pressure of ditto by rules 204 lbs and plates in steam space, thickness 1 1/8"

Pitch of stays to ditto 16" x 16" how stays are secured by single nuts working pressure by rules 200 lbs diameter of stays at smallest part 3" = 6 effects working pressure by rules 216 lbs Front plates at bottom, thickness 1 1/16" Back plates, thickness 1 1/16" & 9/16"

Greatest pitch of stays 11" x 3/4" working pressure by rules working pressure by rules Diameter of tubes 2 1/2" pitch of tubes 3 3/4" x 3 3/8" thickness of tube plates, front 1 1/16" back 1 1/16" how stayed by tubes pitch of stays 7 1/2" x 11 7/8" width of water spaces about 6"

Diameter of Superheater or Steam chest none length working pressure of shell by rules thickness of plates description of longitudinal joint diam. of rivet holes working pressure of shell by rules diameter of flue thickness of plates If stiffened with rings working pressure by rules end plates of superheater, or steam chest; thickness how stayed

Superheater or steam chest; how connected to boiler working pressure by rules

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DONKEY BOILER— Description *Round Multitubular*
Made at *Glasgow* by whom made *The Fairfield Coy* when made *1891* where fixed *In the ship*
Working pressure *185 lbs* tested by hydraulic pressure to *140 lbs* No. of Certificate *3051* fire grate area *about 25 1/2* description of
valves *Direct Spring* No. of safety valves *Two* area of each *14 9/16* if fitted with easing gear *Yes* if steam from main boilers
enter the donkey boiler *sub* diameter of donkey boiler *10 1/2* length *7 1/2* description of riveting *Double riveted to*
Thickness of shell plates *1 3/32* diameter of rivet holes *1 1/16* whether punched or drilled *Drilled* pitch of rivets *1 1/4* lap of plating *6 3/4*
per centage of strength of joint *80 3/4* thickness of *end* plates *1 3/16* stayed by *Bar Stays 2" dia*
Diameter of furnace *2 1/2* bottom *—* length of furnace *5 1/2* thickness of plates *1 1/16* description of joint *Burrois' ribs*
Thickness of *Combustion* plates *1 3/16* stayed by *1 1/4" Stays 8 1/2" x 8 1/2"* working pressure of shell by rules *88 1/2*
Working pressure of furnace by rules *146 lbs* diameter of uptake *—* thickness of plates *—* thickness of water tubes *—*

SPARE GEAR. State the articles supplied: *13 length Crank shaft pit to & bottom end & connect*
rod bolts, 2 Holding down, set Coupling bolts, Balve Spindles, set of Balve
for all the pumps, Propeller, Shaft & blade, Connect rod brasses, assort
ment of bolts, nuts, Springs & other gear
The foregoing is a correct description,
Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c) *These Engines have*
been Trippld by fitting New cylinders, Front Column
piece of Sole plate, and overhauling & refitting all the other
portions of the machinery, Propeller, Shaft drawn, as
much refitted, Sea Cocks & valves overhauled & refitted, New
Sella metal Propeller blades fitted.

The above work and fitting of the new boiler
has been satisfactorily carried out by The Fairfield
E. Coy, also the fitting of force draught, the arrangement
the fans placed in the hold and the air discharged dir
into the Ash pits & furnace mouths.

The Electric lighting has been fitted by Messrs
Siemens & Co London.

The whole of the machinery has been tried under
full power and is now in good order & safe working
condition & eligible in our opinion to be noted in
the Register book N 12/91 (New Boilers)

It is noted for this vessel, Trippld
to have L.M.C. 12/91, recorded
and + IV.B.91 recorded
97d
14/12/91

The amount of Entry Fee . . . £ . . . : received by me,
Special *JA* . . . £ *12:12:-*
Donkey Boiler Fee . . . £ . . . :
Certificate (if required) . . . £ . . . : *12/1/892*
To be sent as per margin.
(Travelling Expenses, if any, £ . . .)

FRI 18 MAR 1892

James Morrison *John Sanderson*
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Clyde District
Lloyd's Register
Foundation

Committee's Minute *TUES, 15 DEC 1891* *TUES, 24 DEC 1891*
Tpd. 91 *Lmc 12.91* *+ N.B. 91*