

REPORT ON MACHINERY.

9441

No. 9441

No. in Survey held at
Reg. Book.

Glasgow

Port of Glasgow

Date, first Survey 15th May

Received at London Office SAT 22 OCT 1889

Last Survey Oct 24th 1889

(Number of Visits 18)

Tons 1588

on the

S. S. Strathleven

Master L. Pearson

Built at Port Glasgow

By whom built Blackwood & Gordon

When built 1875

Engines made at Port Glasgow

By whom made Triple by A & J. Inglis

When made 1889

Boilers made at Glasgow

By whom made A & J. Inglis

When made 1889

Registered Horse Power 220

Owners Burrell & Low

Port belonging to Glasgow

ENGINES, &c.

Description of Engines Inverted Direct Acting Triple Expansion

Diameter of Cylinders 23, 37, 62 Length of Stroke 42 No. of Rev. per minute 65 Point of Cut off, High Pressure Low Pressure

Diameter of Screw shaft 12 Diam. of Tunnel shaft 11 1/2 Diam. of Crank shaft journals 12 Diam. of Crank pin 12 size of Crank webs 8

Diameter of screw 17-0 Pitch of screw 17-6 No. of blades Four state whether moveable Yes total surface 56 sq ft

No. of Feed pumps Two diameter of ditto 3 7/8 Stroke 21 Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two diameter of ditto 4 1/2 Stroke 21 Can one be overhauled while the other is at work Yes

Where do they pump from Engine room & holds

No. of Donkey Engines One & Mairs Size of Pumps 6 1/2 5 pump x 12 1/2 Where do they pump from All holds & bilges also sea

Mairs from holwell, boilers & sea

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 dia Are they connected to condenser, or to circulating pump Circulating

How are the pumps worked By levers from crosshead - Bilge & circulating off Mengine - Feed & Air off Int

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 Below

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 Bilge pipes For & 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 From Dry Dock - Oct 5th 1889

Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from engine room platform

BOILERS, &c.

Number of Boilers Two Description Cylindrical - Mult

Whether Steel or Iron Steel

Working Pressure 160 lb Tested by hydraulic pressure to 320 lb

Date of test August 27th 1889

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

No. of square feet of fire grate surface in each boiler Description of safety valves Direct opening No. to each boiler Two

Area of each valve Are they fitted with easing gear Yes No. of safety valves to superheater area of each valve

Are they fitted with easing gear Yes Smallest distance between boilers and bunkers or woodwork No side bunkers Diameter of boilers 13-10

Length of boilers 11-0 description of riveting of shell long. seams Butt. & square seams circum. seams Lap. & square seams Thickness of shell plates 1 1/4

Diameter of rivet holes 1 3/32 whether punched or drilled Drilled pitch of rivets 8 1/2 x 4 1/2 Lap of plating 1-9 1/2 + 1 1/2

Percentage of strength of longitudinal joint 82 working pressure of shell by rules 160 lb size of manholes in shell 16 x 12

Size of compensating rings Double riveted plate - (M. & Neils) No. of Furnaces in each boiler Three

Outside diameter 41 length, top 7-0 bottom thickness of plates 9/16 description of joint Weld if rings are fitted Annular

Greatest length between rings 9 working pressure of furnace by the rules 170 lb combustion chamber plating, thickness, sides 9/16 back 7/16 top 7/16

Pitch of stays to ditto, sides 7 3/4 x 7 1/2 back 8 x 7 3/8 top 7 3/4 x 7 1/2 If stays are fitted with nuts or riveted heads nuts working pressure of plating by

rules 162 lb Diameter of stays at smallest part 1 1/2 inch working pressure of ditto by rules 185 lb end plates in steam space, thickness 13/16 with doubling 10 x 13

Pitch of stays to ditto 15 x 15 how stays are secured nuts working pressure by rules 198 lb diameter of stays at

smallest part 2 1/2 inch working pressure by rules 160 lb Front plates at bottom, thickness 7/8 Back plates, thickness 3/4

Greatest pitch of stays 12 x 7 3/8 working pressure by rules Diameter of tubes 3 1/2 pitch of tubes 4 7/8 x 4 5/8 thickness of tube

plates, front 7/8 with doubling 1/16 back 27/32 how stayed Tubes pitch of stays 14 1/4 x 9 1/4 width of water spaces 3 1/2 to 6

Diameter of Superheater or Steam chest None 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

LR-FAP-SAA-61

LR-FAP-SAA-60 2/2

DONKEY BOILER— Description *Vertical - Mult^{le} (Blakes.)*
 Made at *Manchester* by whom made *J. Blake* when made *1884* where fixed *In Workshop*
 Working pressure *55 lbs.* tested by hydraulic pressure to No. of Certificate fire grate area description of safety
 valves No. of safety valves area of each if fitted with easing gear if steam from main boilers can
 enter the donkey boiler diameter of donkey boiler length description of riveting
 Thickness of shell plates diameter of rivet holes whether punched or drilled pitch of rivets lap of plating
 per centage of strength of joint thickness of crown plates stayed by
 Diameter of furnace, top bottom length of furnace thickness of plates description of joint
 Thickness of furnace crown plates stayed by working pressure of shell by rules
 Working pressure of furnace by rules diameter of uptake thickness of plates thickness of water tubes

SPARE GEAR. State the articles supplied:— *This spare gear in good working condition but not new. One Int^l slide valve spindle. One air & one circulating pump rod. Also one bucket & one ram. One set of connecting rod top & bottom end bolts & nuts. One set of bilge pump valves. One propeller & shaft complete. One part crank shaft (for Aft engine) One set of coupling bolts.*
The foregoing is a correct description.

Manufacturer.

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

These new main boilers have been built under special survey - they are of good material & workmanship and in accordance with the approved tracing appended hereto - They have been satisfactorily fitted on board and tested under steam and I am of opinion they are eligible to be noted + N.B. 10-89 in the Register Book.

The engines have been converted into the Triple expansion type by the addition of a new high pressure engine. A new intermediate cylinder has also been fitted and a new link to the Low pressure. The crank shafts are all new. New propeller shaft fitted. New starting & reversing gear. (Brown's patent). New Weirs donkey for feeding boilers. The old parts of the machinery have all been opened out for survey and examined. The front main columns taken to shop & repaired on account of a fracture across the face of each. Connecting rods fitted with white metal. Bilge pumps rebrushed & plungers turned up. All bilge connections thoroughly overhauled & pipes repaired or renewed. New feed pumps & chests. Condenser tubes removed and about 1350 new ones fitted. All new bottom brasses fitted in soleplate. Thrust block & shaft overhauled. New rings fitted.

Donkey boiler & safety valves examined. Plate stays internally are reduced in thickness through corrosion but yet of sufficient strength for the pressure now carried. 55 lbs. Vessel placed in Dry Dock. All sea connections overhauled. New blow off cocks fitted. Old ones plugged up. The above mentioned new work & repairs have been satisfactorily carried out. I am of opinion the machinery of this vessel is now in good & safe working condition and eligible to be noted L.M.C. 10-89 in the Register Book.

The amount of Entry Fee *£ 12 : 12* : received by me, *Walter E. Robson*
 Special *£ 12 : 12* :
 Donkey Boiler Fee *£* :
 Certificate (if required) *£* :
 To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

TUES 29 OCT 1889

+ NB 89 Lm 10/89

It is submitted that this vessel is eligible to have + NB 89 & L.M.C. 10-89 recorded (Triple) 89 N.A. 28-10-89

Walter E. Robson

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



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