

Bw 866 No. 16860

REPORT ON MACHINERY.

Port of Glasgow

SAT. 25 MAR 1899

Received at London Office

Survey held at Glasgow

Date, first Survey 13 June 1898 Last Survey 20 March 1899

(Number of Visits 36)

Book. on the Screw Steamer "Fred"

Tons ^{Gross} _{Net}

Built at Annkington By whom built R. Williamson & Sons When built 1899

Engines made at Glasgow By whom made Ross & Dunearn when made 1899

Boilers made at Glasgow By whom made Ross & Dunearn when made 1899

Indicated Horse Power Owners T.G. Best Port belonging to Liverpool

Horse Power as per Section 28 72 Is Electric Light fitted No

ENGINES, &c.—Description of Engines Compound surface condensing No. of Cylinders Two No. of Cranks Two

Diameter of Cylinders 18" 36" Length of Stroke 24" Revolutions per minute 100 Diameter of Screw shaft as per rule 4.5"

Diameter of Crank shaft journals 7 1/4" Diameter of Crank pin 7 1/4" Size of Crank webs 10" x 4 1/2"

Diameter of screw 8.3" Pitch of screw 11.4 1/2" No. of blades 4 State whether moveable no Total surface 26 Sq feet

Feed pumps 1 Diameter of ditto 2 3/4" Stroke 12" Can one be overhauled while the other is at work ✓

Bilge pumps 1 Diameter of ditto 3" Stroke 12" Can one be overhauled while the other is at work ✓

Donkey Engines one Sizes of Pumps 5 1/2" x 2 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps In Holds, &c. one 2" dia"

Engine Room Two: 2" dia"

Water injections 1 sizes 3" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 2"

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 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 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 pipes carried through the bunkers ✓ How are they protected ✓

Are pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Are bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes

Are the stern tube, propeller, screw shaft, and all connections examined in dry dock See vessel Is the screw shaft tunnel watertight ✓

Is the door worked from

BOILERS, &c.—(Letter for record £) Total Heating Surface of Boilers 136559 ft² Is forced draft fitted No

Description of Boilers One cylinder Muller English Working Pressure 130 lbs Tested by hydraulic pressure to 260 lbs

Can each boiler be worked separately ✓ Area of fire grate in each boiler 40 1/2 ft² No. and Description of safety valves to Two: direct spring

Area of each valve 5.4 ft² Pressure to which they are adjusted 135 lbs Are they fitted Yes

Smallest distance between boilers or uptakes and bunkers or woodwork about 6 feet Mean diameter of boilers 12' 0"

Material of shell plates Steel Thickness 1 3/16" Description of riveting: circum. seams Lap double long. seams Butt straps

Pitch of rivets 5 1/4" Lap of plates or width of butt straps 1 1/2"

Working pressure of shell by rules 136 lbs Size of manhole in shell 16" x 12"

No. and Description of Furnaces in each boiler 2: plain Material Steel Outside diameter 45"

Thickness of plates 1 3/16" Description of longitudinal joint Welded No. of strengthening rings parted at bottom

Material of combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 1/2"

Working pressure by rules 135 lbs If stays are fitted with nuts or riveted heads None Working pressure by rules 135 lbs

Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 64 ft² Working pressure by rules 154 lbs End plates in steam space:

Material Steel Thickness 7/8" Pitch of stays 16" x 16" How are stays secured Double nuts & washers Working pressure by rules 137 lbs Material of stays Steel

Area supported by each stay 264 ft² Working pressure by rules 142 lbs Material of Front plates at bottom Steel

Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 12" Working pressure of plate by rules 255 lbs

Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 7/16" Back 3/16" Mean pitch of stays 10.6"

Working pressures by rules 137 lbs Girders to Chamber tops: Material Steel Depth and

girders at centre 6 1/2" x 1 1/2" Length as per rule 28' Distance apart 8' Number, and pitch of Stays in each 2: 8"

Working pressure by rules 137 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivets

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



DONKEY BOILER— Description *None fitted.*
 Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
 No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boiler _____
 enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
 Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
 Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____
 Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____
 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 uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *2 main Bearing Bolts & nuts, 2 crank pin Bolts & nuts, 2 crosshead Bolts & nuts, 1 set Coupling Bolts & nuts, 1 set Feed & Bilge pump valves, a quantity of Bolts & nuts of various sizes also Bars of iron of various sizes.*

The foregoing is a correct description,
J. G. Duncan Manufacturer.

Dates of Survey while building } During progress of work in shops - 1898: - June 13. 16. 29. July 4. 26. 28. Aug 3. 13. 20. 26. Sep. 2. 16. 23. Oct. 3. 6. 13. 18. 24. 31. Nov. 1. 15.
 } During erection on board vessel - 14. 16. 25. Feb. 4. 6. 24. 27. Mar. 9. 14. 15. 17. 18. 20.
 Total No. of visits 36

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

ENGINES—Length of stern bush *2' 7"* Diameter of crank shaft journals *4 1/4"* as per rule *4 1/4"* as fitted *7 1/4"* Diameter of thrust shaft under collars *7 1/4"*

BOILERS—Range of tensile strength *27-32 tons* Are they welded or flanged *No.* **DONKEY BOILERS**—No. _____ Range of tensile strength _____

Is the approved plan of main boiler forwarded herewith *Yes.* Is the approved plan of donkey boiler forwarded herewith _____

The Engines and Boiler of this vessel have been under Special Survey and the materials and workmanship are good. When completed they were examined and worked satisfactorily.

The machinery of this vessel is now in good and efficient condition and reliable in my opinion to the notation **L.M.C. 3.99.** marked in the Society's Report Book.

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 3.99.**

A.C.H.
J.S. 27.3.99.
 27.3.99

Certificate (if required) to be sent to Barrow

The amount of Entry Fee £ 1 : : : When applied for, 24/31.18.99
 Special .. £ 10 : 16 : : :
 Donkey Boiler Fee .. £ : : :
 Travelling Expenses (if any) £ 1 : : : When received, 1.4.99 4.4.99
 (for Barrow)

Committee's Minute
 Assigned

TUES. 28 MAR 1899

+ L.M.C. 3.99

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

