

REPORT ON MACHINERY.

No. 13968

JUL 21 JUN 1904

Port of *Greenock.*

Received at London Office

19

No. in Survey held at *Greenock.*Date, first Survey *11th Aug 03* Last Survey *7th June 1904*

Reg. Book.

(Number of Visits)

on the *Screw Steamer Highland Heather.*

Tons { Gross

Net

When built *1904*Master *Alford* Built at *Port Glasgow.* By whom built *Russell & Co.*Engines made at *Greenock.* By whom made *Rankin & Blackmore.* when made *1904*Boilers made at *Greenock.* By whom made *Rankin & Blackmore.* when made *1904*Registered Horse Power Owners *The Nelson Line (Liverpool) Ltd.* Port belonging to *London.*

Nom. Horse Power as per Section 28

Is Refrigerating Machinery fitted *Yes.*Is Electric Light fitted *Yes.*

ENGINES, &c.—Description of Engines

No. of Cylinders

No. of Cranks

Dia. of Cylinders Length of Stroke Revs. per minute Dia. of Screw shaft as per rule as fitted Material of screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner made water tight in the propeller boss If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush

Dia. of Tunnel shaft as per rule as fitted Dia. of Crank shaft journals as per rule as fitted Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under collars Dia. of screw Pitch of screws No. of blades State whether moveable Total surface

No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &c.

No. of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the discharge pipes above or below the deep water line

Are they each fitted with a discharge valve always accessible on the plating of the vessel Are the blow off cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

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

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight

Is it fitted with a watertight door worked from

Particulars of Auxiliary BOILERS, &c.— (Letter for record *S.*) Total Heating Surface of Boilers *See first sheet* Is forced draft fitted *No.*No. and Description of Boilers *One Cylindrical built by Clyde Works Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs.*Date of test *18/4/04* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *56 sq. ft.* No. and Description of safety valves to each boiler *2: Direct Spring* Area of each valve *5.94 sq. in.* Pressure to which they are adjusted *200 lbs.* Are they fitted with easing gear *Yes.*Smallest distance between boilers or uptakes and bunkers or woodwork *About 21"* Mean dia. of boilers *14' 0"* Length *10' 0"* Material of shell plates *Steel*Thickness *1 3/32"* Range of tensile strength *29,32 tons* Are they welded or flanged *No.* Descrip. of riveting: cir. seams *Lap double long. seams D'la Butt Straps*Diameter of rivet holes in long. seams *1 1/16"* Pitch of rivets *9 1/2"* *4 3/4"* *Top of plates or width of butt straps 20 1/8"*Per centages of strength of longitudinal joint rivets *90.5* Working pressure of shell by rules *222 lbs.* Size of manhole in shell *16" x 12"*Size of compensating ring *33" x 27" x 1 1/2"* No. and Description of Furnaces in each boiler *3: Brown's* Material *Steel* Outside diameter *45 1/4"*Length of plain part top *8 1/4"* bottom *8 1/4"* Thickness of plates crown *5 1/8"* bottom *5 1/8"* Description of longitudinal joint *Weld.* No. of strengthening rings *None.*Working pressure of furnace by the rules *223 lbs.* Combustion chamber plates: Material *Steel* Thickness: Sides *3/32"* Back *1/32"* Top *5"* Bottom *1/16"*Pitch of stays to ditto: Sides *7/16" x 7/16"* Back *7/16" x 7/16"* Top *8" x 8"* If stays are fitted with nuts or riveted heads *None.* Working pressure by rules *207 lbs.*Material of stays *Steel* Diameter at smallest part *1 3/8"* Area supported by each stay *59 sq. in.* Working pressure by rules *200 lbs.* End plates in steam space:Material *Steel* Thickness *1 1/16"* Pitch of stays *15" x 15 3/8"* How are stays secured *D'la Nut* Working pressure by rules *274 lbs.* Material of stays *Steel*Diameter at smallest part *2 3/32"* Area supported by each stay *231 sq. in.* Working pressure by rules *231 lbs.* Material of Front plates at bottom *Steel*Thickness *7/8"* Material of Lower back plate *Steel* Thickness *7/8"* Greatest pitch of stays *12 1/2"* Working pressure of plate by rules *212 lbs.*Diameter of tubes *3 1/4"* Pitch of tubes *4 3/8" x 4 3/8"* Material of tube plates *Steel* Thickness: Front *15"* Back *3/4"* Mean pitch of stays *8 3/4"*Pitch across wide water spaces *13 3/4"* Working pressures by rules *327 lbs.* *263 lbs.* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *9 1/2" x 7 1/2"* Length as per rule *31 1/2"* Distance apart *8"* Number and pitch of Stays in each *3" x 8"*Working pressure by rules *224 lbs.* Superheater or Steam chest; how connected to boiler *None.* Can the superheater be shut off and the boiler worked

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

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

If stiffened with rings 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

W593-006p

DONKEY BOILER—

No. Description

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 boilers can
 enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____ Range of tensile
 strength _____ Descrip. of riveting long. seams _____ Dia. 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 _____ 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 uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Ransom Macmurray Manufacturer.

Dates { During progress of }
 of Survey { work in shops - - }
 while { During erection on }
 building { board vessel - - }
 Total No. of visits _____

(See accompanying report)

Is the approved plan of main boiler forwarded herewith _____

“ “ “ donkey “ “ “

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

For recommendations see front sheet.

Certificate (if required) to be sent to _____

The amount of Entry Fee.. £ : : When applied for, _____
 Special £ : :19....
 Donkey Boiler Fee £ : : _____
 Travelling Expenses (if any) £ : :19....

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

Committee's Minute

See accompanying report
 Glasgow 20 JUN 1904

Assigned



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 Foundation