

REPORT ON MACHINERY.

Port of Glasgow.Received at London Office TUES. 3 JUL 1900No. in Survey held at Glasgow.
Reg. Book.Date, first Survey 10 March 99 Last Survey 23 June 1900.(Number of Visits 66)on the Screw Steamer KotukuTons { Gross
Net

Master

Built at GreenockBy whom built Russell 1604When built 1900.Engines made at Glasgow.By whom made Ross & Duncanwhen made 1900.Boilers made at Glasgow.By whom made Ross & Duncanwhen made 1900.

Registered Horse Power

Owners

Port belonging to DunedinNom. Horse Power as per Section 28 112Is Refrigerating Machinery fitted NoIs Electric Light fitted NoENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks ThreeDia. of Cylinders 14"-24"-44" Length of Stroke 33" Revs. per minute 85 Dia. of Screw shaft 8.6" Lgth. of stern bush 38"Dia. of Tunnel shaft 8.8" Dia. of Crank shaft journals 8.4" Dia. of Crank pin 8.2" Size of Crank webs 10.5" Dia. of thrust shaft undercollars 8.2" Dia. of screw 11.6" Pitch of screw 13.0" to 14.0" No. of blades 4 State whether moveable No Total surface 44 sq. ft.No. of Feed pumps 2 Diameter of ditto 3" Stroke 16.2" Can one be overhauled while the other is at work YesNo. of Bilge pumps 2 Diameter of ditto 3.2" Stroke 16.2" Can one be overhauled while the other is at work YesNo. of Donkey Engines Three Sizes of Pumps 6x8x6 (15 in 2 1/2) (4x2x4) No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room Three: two 2 1/2 dia and one 2 1/2 dia In Holds, &c. Toward Head: two 2 1/2 dia. After Head and Tunnel Well: one 2 1/2 dia.No. of bilge injections 1 sizes 4 1/2" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 3"Are all 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 YesAre all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks BothAre 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 AboveAre 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 YesWhat pipes are carried through the bunkers Hold suction How are they protected Hood casingAre all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times YesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges YesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight YesIs it fitted with a watertight door Yes worked from Top platform in Engine RoomBOILERS, &c.—(Letter for record B.) Total Heating Surface of Boilers 1692 sq. ft. Is forced draft fitted NoNo. and Description of Boilers One: Cylindrical: Hull: Single ended Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.Date of test 1/5/00 Can each boiler be worked separately Yes Area of fire grate in each boiler 59 sq. ft. No. and Description of safety valves toeach boiler Two: Direct Spring Area of each valve 6.49" Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork About 12" Mean dia. of boilers 14.5" Length 10.3" Material of shell plates SteelThickness 1 1/8" Range of tensile strength 27-32 tons Are they welded or flanged No Descrip. of riveting: cir. seams Lap Double long. seams Double Butt StrapsDiameter of rivet holes in long. seams 1 1/8" Pitch of rivets 8" 4" Lap of plates or width of butt straps 14"Per centages of strength of longitudinal joint 86.5% Working pressure of shell by rules 146 lbs. Size of manhole in shell 16" x 12"Size of compensating ring 6 1/2" x 1 1/8" No. and Description of Furnaces in each boiler 3: Deighton's Material Steel Outside diameter 47"Length of plain part 6.7 1/2" Thickness of plates 1 1/8" Description of longitudinal joint Weld No. of strengthening rings YesWorking pressure of furnace by the rules 160 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 5/8"Pitch of stays to ditto: Sides 8 1/4" x 8 1/4" Back 7 1/4" x 7 1/4" Top 7 1/4" x 7 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 160 lbs.Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 60" Working pressure by rules 165 lbs. End plates in steam space:Material Steel Thickness 1 1/8" Pitch of stays 16" x 16" How are stays secured Double Nuts Working pressure by rules 163 lbs. Material of stays SteelDiameter at smallest part 2 1/8" Area supported by each stay 256" Working pressure by rules 184 lbs. Material of Front plates at bottom SteelThickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 12" Working pressure of plate by rules 338 lbs.Diameter of tubes 3 1/2" Pitch of tubes 4 5/8" x 4 5/8" Material of tube plates Steel Thickness: Front 7/8" x 3/4" Back 3/4" Mean pitch of stays 10.6"Pitch across wide water spaces 14" Working pressures by rules 232 lbs. 179 lbs. Girders to Chamber tops: Material Iron Depth andthickness of girder at centre 6 1/2" x 2 1/4" Length as per rule 27 1/2" Distance apart 7 1/2" Number and pitch of Stays in each 2: 7 1/4"Working pressure by rules 202 lbs. Superheater or Steam chest; 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

DONKEY BOILER— No. *One* Description *Vertical with 4 cross water tubes.*
 Made at *Gateshead* By whom made *Clarke, Chapman & Co. Ltd.* When made *14/10/99* Where fixed *In Stokehoed.*
 Working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *5625* Fire grate area *20 sq ft* Description of safety valves *Direct Spring.*
 No. of safety valves *2* Area of each *3.98* Pressure to which they are adjusted *82 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No.* Dia. of donkey boiler *6' 0"* Length *12' 0"* Material of shell plates *Steel* Thickness *1 1/2"* Range of tensile strength *27-32 tons* Descrip. of riveting long. seams *Lap double rivetted* Dia. of rivet holes *1 1/8"* Whether punched or drilled *Drilled* Pitch of rivets *3"*
 Lap of plating *4' 8"* Per centage of strength of joint *72.3* Rivets *72.3* Thickness of shell crown plates *9/16"* Radius of do. *5 feet* No. of Stays to do. *6*
 Dia. of stays. *1 1/8"* Diameter of furnace Top *4' 8"* Bottom *5' 1 1/2"* Length of furnace *5 feet* Thickness of furnace plates *9/16"* Description of joint *Lap Single* Thickness of furnace crown plates *1/2"* Stayed by *As above.* Working pressure of shell by rules *88 lbs*
 Working pressure of furnace by rules *80 lbs* Diameter of uptake *15"* Thickness of uptake plates *9/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *The list of spare gear required by the Rules, also 26 plain Boiler tubes, 1/2 crank pin bush, 1 set Cross head Brasses, 1 valve spindle, 1 set Air pump delivery valves, 1 set Air pump Bucket valves, 1/2 set Air pump foot valves, 1 set Feed Bilge pump valves, 3 main H.D.K. Check*
The foregoing is a correct description,
Loss & Duncan Manufacturers.

Dates of Survey while building
 During progress of work in shops—
 During erection on board vessel—
 Total No. of visits
1899: Mar. 10, 15, 28, 30. Apr. 1, 10, 14, 19, 24. May 1, 5, 9, 15, 19, 25, 31. Jun. 5, 20, 26. July 4. Aug. 1, 3, 14, 22, 28. Sep. 22, 28. Oct. 6, 13, 26.
Nov. 3, 7, 10, 14, 24, 27. Dec. 1, 7, 8, 12, 19, 21, 28. 1900: Jan. 10, 19. Feb. 2. Mar. 7, 20, 26, 29. Apr. 3, 6, 7, 23, 25, 30. May 1, 7, 22, 24, 30, 31. Jun. 5, 8.
66.
 Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined under full steam and found to work satisfactorily.
The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of £ L. M. C. 6, 00 marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L M C. 6.00

1/8
£ 4.00

Glasgow

Certificate (if required) to be sent to

The amount of Entry Fee. £ *2* : :
 Special " " £ *16* : *16* :
 Donkey Boiler Fee " " £ : :
 Travelling Expenses (if any) £ : :
 When applied for. *25/6/99*
 When received. *27/6/99*

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

Committee's Minute *Glasgow.* 2 JUL 1900

Assigned *+ L.M.C. 6.00*

MACHINERY CERTIFICATE
 WRITTEN 3-7

