

REPORT ON MACHINERY.

Port of Glasgow

FRI. 25 NOV 1893

Received at London Office

Survey held at Glasgow Date, first Survey 31 January Last Survey 22 November 1898
Book. Supp. (Number of Visits 49)

on the Steel Screw Steamer "Luddick" Tons ^{Gross} _{Net}
er Clark. Built at Warrington By whom built R. Williamson & Son. When built 1898-10.

Engines made at Glasgow. By whom made Ross & Dunearn. when made 1898.
Boilers made at Glasgow. By whom made Ross & Dunearn. when made 1898.

Registered Horse Power Owners Aberdeen, Newcastle & Hull Steam Co. Port belonging to Aberdeen.
Horse Power as per Section 28 94. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Compound. No. of Cylinders Two No. of Cranks Two.
Diameter of Cylinders 21"-42". Length of Stroke 30" Revolutions per minute 100 Diameter of Screw shaft 8.56 as per rule 8.56 as fitted 8.5"
Diameter of Tunnel shaft 8.5" Diameter of Crank shaft journals 8.5" Diameter of Crank pin 8.5" Size of Crank webs 15.5" x 5.5"
Diameter of screw 9.9" Pitch of screw 12.9" No. of blades 4 State whether moveable No. Total surface 25.9 sq ft.
No. of Feed pumps 2 Diameter of ditto 3.5" Stroke 15" Can one be overhauled while the other is at work Yes.
No. of Bilge pumps 2 Diameter of ditto 3.5" Stroke 15" Can one be overhauled while the other is at work Yes.
No. of Donkey Engines Two. Sizes of Pumps (6x4x6) (5.5x4.5x5) No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room Two: 2" dia. In Holds, &c. Two: 2" dia.

No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 2.5"
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 ✓
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 Above.
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.
How are the pipes carried through the bunkers None. How are they protected ✓
Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes.
Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes.
Were stern tube, propeller, screw shaft, and all connections examined in dry dock Now vessel. Is the screw shaft tunnel watertight None.
Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.— (Letter for record \$.) Total Heating Surface of Boilers 1725 sq ft. Is forced draft fitted No.
No. and Description of Boilers one: by 10" Multi Single Ended. Working Pressure 115 lbs. Tested by hydraulic pressure to 230 lbs.
Date of test 5/10/98. Can each boiler be worked separately ✓ Area of fire grate in each boiler 56 sq ft. No. and Description of safety valves to
each boiler Two: Direct Spring. Area of each valve 8.29 sq in. Pressure to which they are adjusted 120 lbs. Are they fitted
with casing gear Yes. Smallest distance between ^{boilers} or ^{uptakes} and bunkers or woodwork About 9" Mean diameter of boilers 13.6"
Material of shell plates Steel Thickness 7/16" Description of riveting: circum. seams Lap double. long. seams Double Butt Sharp.
Diameter of rivet holes in long. seams 15/16" Pitch of rivets 3" ^{2 Row} 6" ^{1 Row} 6" Lap of plates or width of butt straps 14.5" x 13/16".
Percentage of strength of longitudinal joint 84 Working pressure of shell by rules 120 lbs. Size of manhole in shell 15" x 11.5"
Diameter of compensating ring 6" x 13/16" No. and Description of Furnaces in each boiler 3: plain. Material Steel Outside diameter 42"
Diameter of plain part ^{top} 6.8" ^{bottom} 9.2" Thickness of plates ^{crowns} 5/8" Description of longitudinal joint Welded. No. of strengthening rings partial at bottom.
Working pressure of furnace by the rules 120 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1/2" Back 1/2" Top 1/2" Bottom 1/2".
Diameter of stays to ditto: Sides 8" x 8" Back 8" x 8" Top 8" x 8". If stays are fitted with nuts or riveted heads None. Working pressure by rules 120 lbs.
Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 64 sq in. Working pressure by rules 125 lbs. End plates in steam space:
Material Steel Thickness 1/8" Pitch of stays 14.5" x 14.5" How are stays secured Double nut & washers. Working pressure by rules 118 lbs. Material of stays Steel
Diameter at smallest part 2 1/8" Area supported by each stay 305 sq in. Working pressure by rules 137 lbs. Material of Front plates at bottom Steel
Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 15" Working pressure of plate by rules 180 lbs.
Diameter of tubes 3.5" Pitch of tubes 4.5" x 4.5" Material of tube plates Steel Thickness: Front 11/16" Back 11/16" Mean pitch of stays 12.6"
Distance across wide water spaces 14.5" Working pressures by rules 150 lbs. approx. Girders to Chamber tops: Material Iron. Depth and
Pitch of girder at centre 6.5" x 12" Length as per rule 28.5" Distance apart 8" Number and pitch of Stays in each 2: 8"
Working pressure by rules 122 lbs. Superheater or Steam chest; None 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
Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
Strengthened 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 casing gear

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



DONKEY BOILER— Description *Vertical with 2 cross water tubes.*
 Made at *Momerwell.* By whom made *J Marshall 167* When made *20/1898* Where fixed *In Stoke Newington*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *449* Fire grate area *10* Description of safety valves *One*
 No. of safety valves *1* Area of each *4.9* Pressure to which they are adjusted *80 lbs.* If fitted with easing gear *Yes.* If steam from main boiler
 enter the donkey boiler *No.* Diameter of donkey boiler *4.6* Length *9.0* Material of shell plates *Steel* Thickness *1/2*
 Description of riveting long. seams *Lap double* Diameter of rivet holes *1 1/16* Whether punched or drilled *punched* Pitch of rivets *2*
 Lap of plating *3/4* Per centage of strength of joint Rivets *85.8* Thickness of shell crown plates *1/2* Radius of do. *4.6* No. of Stays to do. *15*
 Dia. of stays. *1 1/8* Diameter of furnace Top *3.10* Bottom *4.0* Length of furnace *4.2* Thickness of furnace plates *15/32* Descrip
 joint *Lap* Thickness of furnace crown plates *1/2* Stayed by *Same as shell crown* Working pressure of shell by rules *10*
 Working pressure of furnace by rules *96 lbs.* Diameter of uptake *10* Thickness of uptake plates *1/16* Thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *Propeller, 2 Main Bearing Bolts, 2 Crank Bolts, 2 Crosshead Bolts, 1 set Coupling Bolts, 1 set piston Springs, 1 set of Belts pump valves, Bolts, nuts & Iron spacers sizes.*

The foregoing is a correct description,
 Manufacturer. *Ross & Duncanson 177 Buchanan*

Dates of Survey while building
 During progress of work in shops— *1898: Jan. 31 Feb. 4, 21, 28. Mar. 15, 25, 31. Apr. 6, 8, 19, 20, 27. May. 4, 11, 20, 24, 27. June. 13, 16, 23. July. 11, 18, 25. Aug. 1, 8, 15, 22, 29. Sept. 5, 12, 19, 26. Oct. 3, 10, 17, 24, 31. Nov. 7, 14, 21, 28. Dec. 5, 12, 19, 26.*
 Total No. of visits *49*

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *34 1/2* Diameter of crank shaft journals *8.15* as per rule. *8.4* as fitted. Diameter of thrust shaft under collars *8 1/4*
BOILERS—Range of tensile strength *27-32 tons* Are they welded or flanged *No.* **DONKEY BOILERS**—No. *1* Range of tensile strength *27-32*
 Is the approved plan of main boiler forwarded herewith *Yes.* Is the approved plan of donkey boiler forwarded herewith *Yes.*

The Engines and Boilers of this vessel have been built under Special Survey and the materials and workmanship are good. When completed they were reamined under steam on a full speed trial in the Firth and worked satisfactorily.

The Machinery is now in good and efficient condition and eligible in my opinion to have the record *L.M.C. 11,98.* inserted in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 11.98.*

A.C.H.
25. 11. 98.

Certificate (if required) to be sent to the Surveyors and requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee. . . £ 1 :
 Special £ 14 : 11 :
 Donkey Boiler Fee £ : : : :
 Travelling Expenses (if any) £ 1 :
(Due to Barrow)

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

FRI. 25 NOV 1898

Committee's Minute
 Assigned



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