

REPORT ON MACHINERY.

MUN 24 JUL 1898

Port of Belfast

Received at London Office 18

No. in Survey held at Belfast Date, first Survey July 1897 Last Survey 19 Oct 1898
 Reg. Book. Belfast (Number of Visits 28)
 on the "Norkman" Tons } Gross 6115
 Master Jackson Built at Belfast By whom built Norkman Clark & Coys Net 3981 When built 1898
 Engines made at Belfast By whom made Norkman Clark & Coys when made 1898
 Boilers made at " By whom made " when made 1898
 Registered Horse Power 600 Owners J. F. Harrison Port belonging to Liverpool
 Nom. Horse Power as per Section 28 585

ENGINES, &c. — Description of Engines Triple Expansion No. of Cylinders Three
 Diameter of Cylinders 31 1/2 - 45 1/2 - 75 Length of Stroke 60 Revolutions per minute 69 Diameter of Screw shaft 15 3/4
 Diameter of Tunnel shaft 14 Diameter of Crank shaft journals 15 1/2 Diameter of Crank pin 16 Size of Crank webs 10 1/2 x 28 3/4 dia
 Diameter of screw 19-0 Pitch of screw 11-6 No. of blades Four State whether moveable Yes Total surface 942 sq ft
 No. of Feed pumps Two Diameter of ditto 4 1/2 Stroke 30 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Two Diameter of ditto 4 1/2 Stroke 80 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Three Sizes of Pumps Three 8 x 10 1/2 5 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Three - 3 1/2 In Holds, &c. Two 3 1/2 to holds One 3 1/2 to aft
 No. of bilge injections One sizes 9 Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes - 3 1/2
 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 Yes
 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 Yes
 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 Forward Suctions & Holds How are they protected Wood casings
 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock 5 Oct 1898 Is the screw shaft tunnel watertight Stated to be
 Is it fitted with a watertight door Yes worked from Engine Room Upper Platform

BOILERS, &c. — (Letter for record 3) Total Heating Surface of Boilers 8471 sq ft
 No. and Description of Boilers Two - Double Ended Cylind Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs
 Date of test 23-8-98 Can each boiler be worked separately Yes Area of fire grate in each boiler 105 sq ft No. and Description of safety valves to
 each boiler Three - Direct Spring Area of each valve 11.04 sq Pressure to which they are adjusted 180 lbs Are they fitted
 with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork About 3 ft Mean diameter of boilers 14'-6"
 Length 19'-6" Material of shell plates Steel Thickness 1 3/8 Description of riveting: circum. seams Triple & Double Lap seams Butt Triple
 Diameter of rivet holes in long. seams 1 7/16 Pitch of rivets 9 1/8 Lap of plates or width of butt straps 2 1/16
 Per centages of strength of longitudinal joint rivets 88.7 Working pressure of shell by rules 196 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring M. Nails No. and Description of Furnaces in each boiler Three - Thomson Material Steel Outside diameter
 Length of plain part top Thickness of plates bottom 5 1/8 Description of longitudinal joint Welded No. of strengthening rings on C. L. 19 1/2
 Working pressure of furnace by the rules 235 lbs Combustion chamber plates: Material Steel Thickness: Sides 9" Back 9" Top 9" Bottom 7 1/2"
 Pitch of stays to ditto: Sides 4 3/4 x 4 3/4 Back ✓ Top 4 1/2 x 7 If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 182 lbs
 Material of stays Steel Diameter at smallest part 1 3/8 Area supported by each stay 60 sq Working pressure by rules 197 lbs End plates in steam space:
 Material Steel Thickness 1 1/2 Pitch of stays 15 x 15 How are stays secured Nuts & Washers Working pressure by rules 237 lbs Material of stays Steel
 Diameter at smallest part 1 1/2 Area supported by one stay 225 sq Working pressure by rules 182 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 5/8 Material of tube plates Steel Thickness: Front 1 3/16 Back 1 3/16 Mean pitch of stays 7 3/8
 Pitch across wide water spaces 13 1/2 Working pressures by rules 290 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 1 1/2 x (3/4 + 2) Length as per rule 52 3/8 Distance apart 4 1/2 Number and pitch of Stays in each 6 at 7"
 Working pressure by rules As approved Superheater or Steam chest; how connected to boiler ✓ 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— Description *Cylindrical, Single End.*
 Made at *Belfast* By whom made *Workman Clark & Co. Ltd.* When made *1898* Where fixed *Stokehold*
 Working pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* No. of Certificate *246* Fire grate area *5 sq ft* Description of safety valves *Direct Spring*
 No. of safety valves *Two* Area of each *5 sq ft* Pressure to which they are adjusted *180 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *Yes*
 Diameter of donkey boiler *13'-0"* Length *10'-0"* Material of shell plates *Steel* Thickness *1 3/8"*
 Description of riveting long seams *Butt, Double Rivet* Diameter of rivet holes *1 1/2"* Whether punched or drilled *Riveted* Pitch of rivets *9 to 11"*
 Rivets *208* Thickness of shell plates *1"* Radius of do. *1 1/2"* Dia. of Stays to do *1 1/2"*
 Dia. of stays *2 1/2"* Diameter of furnace Top *4 1/4"* Bottom *4"* Length of furnace *6'-4"* Thickness of furnace plates *9/16"* Description of joint *Weld* Thickness of furnace crown plates *9/16"* Stayed by *1 1/2" Square Stay, Cleared* Working pressure of shell by rules *211*
 Working pressure of furnace by rules *205 lbs* Diameter of uptake *V* Thickness of uptake plates *V* Thickness of water tubes *Plates 2 1/2" x 3/4"*

SPARE GEAR. State the articles supplied:— *one third Crank Shaft: one propeller shaft: one propeller boss: one propeller blade: one set connecting rod brasses: air pump bucket & rod: air pump lead valve setting: set packing rings for H.P. piston: sets springs for each piston: one slide valve rod, complete: one eccentric sheave: sets of valves for Main & other donkey pumps: condenser valves, first last set, and all gear to our requirements additional.*
 The foregoing is a correct description,
WORKMAN, CLARK & CO., LIMITED Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 Dates of Survey while building } During progress of work in shops }
 } During erection on board vessel }
 Total No. of visits }
The machinery of this vessel has been constructed under Special Survey, and is of good material and workmanship. It has been securely fitted on board, and on trial worked satisfactorily under steam. The main boilers have been fitted with Howden's Forced Draft: an electric light installation by Messrs. Allen & Co., has been fitted, a report on which will be forwarded shortly. In my opinion this vessel is eligible to have record + L.M.C. 10-98 F.D and "Electric Light" in the Register Book. The approved photo prints of main & donkey boilers are appended, also one Forge Report.

Dates of Survey while building } July 1-2, 1897. Aug 11, 13. Sept 22, 29. Nov. 4, 24. Jan 1898. 6. Feb 24, 28. March 23, 28, 31. Apr 4, 15, 28. May 3, 5, 24, 26. June 21, 24, 30. July 27. Aug 5, 17, 24, 29, 31. Sep 14, 16, 19, 29. Oct 3, 12, 18, 19. Total 38.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10,98 F.D Electric Light.

24/10/98

Certificate (if required) to be sent to
 The amount of Entry Fee. £ 3 : - :
 Special £ 49 : 5 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 21-10-1898
 When received, 25-10-1898

R. J. P. Bennett
 Engineer, Surveyor to Lloyd's Register of British & Foreign Shipping.
 (No. A. L. Jones & Co.)

Committee's Minute **TUES. 25 OCT 1898**
 Assigned *+ L.M.C. 10,98*

