

REPORT ON MACHINERY.

3940

MO 7 SEP 1891
MS 6 SEP 1891

Port of Belfast

No. 3940
 No. in Survey held at Belfast Date, first Survey Nov 5th 1890 Last Survey 3rd Sept 1891
 Reg. Book. (Number of Visits 35)
 1 3 4 on the Steel Twin screw steamer Cheshire Tons Gross 5655.11
 Master George Harris Built at Belfast By whom built Harland & Wolff Lim. Net 3626.88 When built 1891
 Engines made at Belfast By whom made Harland & Wolff Lim when made 1891
 Boilers made at Belfast By whom made Harland & Wolff Lim when made 1891
 Registered Horse Power 630 Owners Bibby Bros & Co Port belonging to Liverpool

ENGINES, &c.—
 Description of Engines Triple Expansion Twin screws No. of Cylinders Six
 Diam. of Cylinders 23 x 34 x 64 Length of Stroke 48 Rev. per minute abt 75 Point of Cut off, High Pressure .66 Low Pressure .532
 Diameter of Screw shaft 13 1/2 Diam. of Tunnel shaft 12 1/2 Diam. of Crank shaft journals 13 1/2 Diam. of Crank pin 13 1/2 size of Crank webs 10" shaped
 Diameter of screw 15" 6" Pitch of screw 20" 0" No. of blades 3 state whether moveable yes total surface 63 each screw
 No. of Feed pumps two diameter of ditto 4 1/2" Stroke 28" Can one be overhauled while the other is at work Weir & Worthington pumps
 No. of Bilge pumps two diameter of ditto 5" Stroke 28" Can one be overhauled while the other is at work Weir & Worthington pumps
 Where do they pump from. Weir's pump (10 x 8 x 24). Westminster Ballast pump (10 x 10 x 10). Worthington pump (9 x 6 x 6)
 No. of Donkey Engines Five Size of Pumps Where do they pump from Camson fire pump (8 1/2 x 6 x 6)
Caruthers duplex pump. (6 x 6 x 6) drawing from fresh water tanks &c, discharging on deck.
 Are all the bilge suction pipes fitted with roses yes, except bilge injection Are the roses always accessible yes Are the cocks on Engine room bulkheads always accessible yes, for clearing purposes
 No. of bilge injections two and sizes 5/2 ins Are they connected to condenser, or to circulating pump at main injection
 Are the pumps worked side levers on middle engines. Centrifugal circulating pump.
 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 below
 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
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes How are they protected 2 inch wood casing
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock before launching; vessel not afterwards docked.
 Is the screw shaft tunnel watertight yes and fitted with sluice doors yes worked from main deck

BOILERS, &c.—
 Boilers Four Description 2 double ended & 2 sing. end. Material Steel Letter (for record) S
 Working Pressure 176 lbs Tested by hydraulic pressure to 352 lbs Date of test Double ended 6.6.91 Sing. ended 29.5.91
 Description of superheating apparatus or steam chest None
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately ✓
 Square feet of fire grate surface in each boiler 112 double end. 56 sing. end Description of safety valves Cockburn's No. to each boiler two
 Area of each valve 5" diam. 3 1/2" Are they fitted with easing gear yes No. of safety valves to superheater ✓ area of each valve ✓
 Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 20" from ship's skin Diameter of boilers 14" 0"
 Length of boilers 17' 6" double end. 10' 0" sing. end. description of riveting of shell long. seams lob. riv. doub. but. circum. seams Thickness of shell plates 1 1/32"
 Diameter of rivet holes 1 3/8" whether punched or drilled drilled pitch of rivets 9" 9 1/2" Lap of plating strips 2 1/2" x 1/16"
 Percentage of strength of longitudinal joint 84.72 working pressure of shell by rules 176 lbs size of manholes in shell 16" x 12"
 Size of compensating rings McNeil's 2.7 x 2.3 No. of Furnaces in each boiler 6 & 3 Description of Furnaces Patent Ribbed Flues
 Outside diameter 3' 6" length 7' 0" over tube plates thickness of plates 17/32 description of joint welded if rings are fitted grubs
 Greatest length between rivets 9" working pressure of furnace by the rules 179 combustion chamber plating, thickness, sides 19/32 back 19/32 top 21/32
 Pitch of stays to ditto, sides 7 3/4" back 7 3/4" top 8 1/4" 8 1/4" If stays are fitted with nuts or riveted heads nuts inside c.e. working pressure of plating by rules 202 lbs Diameter of stays at smallest part 1.35 working pressure of ditto by rules 190 end plates in steam space, thickness 1 3/32
 Pitch of stays to ditto 1" 8 1/2" how stays are secured double nuts & washers working pressure by rules 176 lbs diameter of stays at smallest part 2 7/8" working pressure by rules 178 Front plates at bottom, thickness 13/16 Back plates, thickness 29/32
 Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/2" 2 1/2" pitch of tubes 4 1/2 ins thickness of tube plates, front 7/8 back 3/4 how stayed 79 stays like pitch of stay tubes 9" width of water spaces 1 1/2 diam. of rivet holes ✓
 Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓
 Pitch of rivets ✓ working pressure of shell by rules ✓ diameter of flue ✓ thickness of plates ✓ If stiffened with rings ✓
 Distance between rings ✓ working pressure by rules ✓ end plates of superheater, or steam chest; thickness ✓ how stayed ✓
 Superheater or steam chest; how connected to boiler ✓



9200-55753

DONKEY BOILER— Description *Single ended main boiler to be used as donkey boiler.*

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 _____ if fitted with easing gear _____ if steam from main boilers can
enter the donkey boiler _____ diameter of donkey boiler _____ length _____ description of riveting _____
Thickness of shell plates _____ diameter of rivet holes _____ whether punched or drilled _____ pitch of rivets _____ lap of plating _____
per centage of strength of joint _____ thickness of crown plates _____ stayed by _____
Diameter of furnace, top _____ bottom _____ length of furnace _____ thickness of 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 plates _____ thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *2 cast iron blades. 1 set crank pin brasses. 3 safety valve springs
8 coupling bolts & nuts for crank shaft. 1 set of 9 propeller blade studs. 1 eccentric strap & sheave. 1 valve spindle
18 water tubes. 50 condenser tubes. 2 main bearing bolts. 2 top & 2 bottom end connecting rod bolts. 12 bolts &
nuts for pistons. 6 doz. assorted bolts & nuts. 100 furnace bars. 2 brass guards for air pump. 1 air pump rod.
24 studs for cyl. 1 easing covers. 5 escape valve springs. 4 feed pump valves & seats. 2 bilge ditto. 1 main bearing bush
1 centrif. pump spindle. 4 white metal strips for guides. 9 patent tube stopps.*

The foregoing is a correct description,
Harland & Wolff Ltd Manufacturer.
per [Signature]

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engines & boilers have been
constructed under special survey & in accordance with the approved plans of boiler
herewith returned. The material & workmanship are good throughout. The boiler
steel has been tested as the Rules require & each of the boilers tested by hydraulic
pressure to 352 lbs per sq in. The safety valves have been adjusted under
steam to blow off at 176 lbs per sq in, & the engines & boilers worked under full
steam for several hours in the Belfast Lough with satisfactory result, each
engine developing about nineteen hundred horse power at 77 revolutions.*

*The vessel is lighted by electricity the installment being fitted by W. H. Allen
of London, & the currents generated by two Kapps No 132 dynamos (245 revs per
145 Amperes; 62 volts at the terminals)*

*All the main steam pipes have been tested to twice the working pressure
as the Rules require*

*The machinery & boilers in my opinion render the vessel eligible
for the record + L.M.C. 9.91 in the Society's Register Book.*

[Large blue handwritten signature]

*It is submitted that
this vessel is eligible for
the record + L.M.C. 9.91
[Signature]*

The amount of Entry Fee .. £ 3 : 0 : 0 ^{not} received by me,
Special .. £ ~~26.16.0~~
Donkey Boiler Fee .. £ 51.16.0
Certificate (if required) .. £ (per bel attached 8/9/91) 1891
To be sent as per margin.

Committee's Minute **TUES. 8 SEP 1891**
+ Lmb 9/91

A. Newlyn Jones 2019
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

