

REPORT ON MACHINERY.

3984

No. 3984

Port of Belfast

Received at London Office 16 Oct 91

No. in Survey held at Belfast

Date, first Survey November 5th 1890 Last Survey October 3rd 1891

Reg. Book.

(Number of Visits 39

on the Steel twin screw steamer 'Shropshire'

Tons } Gross 5660
Net 3633

Master J. Henry Built at Belfast By whom built Harland & Wolff Ltd When built 1891-10

Engines made at Belfast By whom made Harland & Wolff Ltd when made 1891

Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1891

Registered Horse Power 630 Owners Bibby Bros & Co Port belonging to Liverpool

ENGINES, &c.—

Description of Engines Triple Expansion - Twin Screw No. of Cylinders six

Diam. of Cylinders 23 - 37 - 64 Length of Stroke 48 Rev. per minute 6075 Point of Cut off, High Pressure .66 Low Pressure .55

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 21 - 0 No. of blades 3 state whether moveable yes total surface 63 each screw

To. of Feed pumps two diameter of ditto 4 1/2 Stroke 28" Can one be overhauled while the other is at work Yes

To. of Bilge pumps two diameter of ditto 5" Stroke 28" Can one be overhauled while the other is at work Yes

Where do they pump from Ballast donkey (10 x 10 x 10) from tanks or bilges to overboard or deck. Camels or fire pump (8 1/2 x 6 x 6)

No. of Donkey Engines five Size of Pumps Where do they pump from from sea to deck.

Are all the bilge suction pipes fitted with roses yes except the bilge injection Are the roses always accessible yes Are the cocks on Engine room bulkheads always accessible yes

To. of bilge injections two and sizes 3 1/2 Are they connected to condenser, or to circulating pump at main injection for clearing

How are the pumps worked Slide 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

What pipes are carried through the bunkers Lead bilge pipes to fore hold How are they protected 2 inch wood casing

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

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 vessel not docked after launching

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from main deck level

BOILERS, &c.—

To. of Boilers Four Description 2 double ended & 2 single ended Material Steel Letter (for record) S

Working Pressure 176 lbs Tested by hydraulic pressure to 352 lbs Date of test single ended 1.7.91 Double 10.7.91

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 ✓

No. of square feet of fire grate surface in each boiler 112 double 56 single Description of safety valves Cockburn's No. to each boiler two

Area of each valve 3 1/2" diam 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 10' 0" single description of riveting of shell long. seams treb riv. doub. butt circum. seams treb riv. lap Thickness of shell plates 1 1/2"

Diameter of rivet holes 1 3/8 whether punched or drilled drilled pitch of rivets 9" & 4 1/2" Lay of plating stays 20 1/2 x 1 1/2

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 11" No. 1 1/2 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 7/32 description of joint welded if rings are fitted 9 ribs

Greatest length between ribs 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 If stays are fitted with nuts or riveted heads nuts inside c.c. working pressure of plating by rules 202 lbs Diameter of stays at smallest part 1 - 35 working pressure of ditto by rules 190 lbs end plates in steam space, thickness 1 3/32

Pitch of stays to ditto 1" 8 1/2" how stays are secured doub. nuts & large riv. washers working pressure by rules 176 lbs diameter of stays at smallest part 2 7/8 working pressure by rules 175 lbs Front plates at bottom, thickness 13/16 Back plates, thickness 29/32

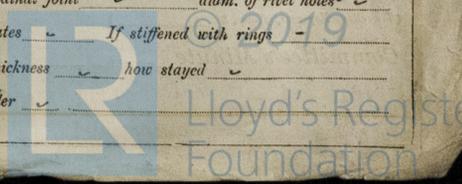
Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/4 pitch of tubes 4 1/2 thickness of tube plates, front 7/8 back 3/4 how stayed 79 stay tubes 9" width of water spaces 14 1/2 Cen. 6 Cen. of tubes

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 19

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 ✓



BE59-0057

DONKEY BOILER— Description *Single ended main boiler to be utilised as donkey boiler when required.*

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 braces. 3 safety v. springs. 8 coupling bolts & nuts for crank shaft. 1 set of 9 propeller blade studs. 1 eccentric strap & shawl. 1 valve spindle. 11 boiler tubes. 50 condenser tubes. 2 main bearing bolts. 2 top & 2 bottom end con. rod. 12 bolts & nuts for pistons. 6 doz assorted bolts & nuts. 100 furnace bars. 2 brass guards for air bl. 1 air pump rod. 24 studs for cyl. & bearing covers. 5 escape valve springs. 4 feed pump valves & seats. 2 bilge dolls. 1 main bearing bush. 1 cent of pump spindle. 4 white metal strips for guides. 9 piston tube stoppers.*

The foregoing is a correct description,

Harland & Wolff Ltd. Manufacturer.

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 boilers returned with the first entry machinery report on the S.S. Chestise on the 3rd Sept, the machinery & boilers in this vessel being exact duplicates of those in the sister vessel. 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. All the main steam pipes have been tested by water pressure to double the working pressure. The vessel is lighted by electricity; the installment being fitted by W.N. Allen & Co of London on the single wire system. The currents are generated by two Kapp's Patent Dynamos, 245 revs per min. 145 Amperes. 62 volts at the terminals. Total number of lamps about 260. The whole of the machinery worked well under full steam.*

The vessel is eligible in my opinion for the record of *+LMC 10,9* & E.L. in the Society's Register Book.

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,
 Special .. £ 51 : 16 : 0
 Donkey Boiler Fee .. £ : :
 Certificate (if required) .. £ : :
To be sent as per margin.
 (Travelling Expenses, if any, £)

It is noted that this vessel is not recorded + LMC 10,9

12/10/91

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

Committee's Minute **FRI 9 OCT 1891**
+ LMC 10,91

