

REPORT ON MACHINERY.

Received at London Office FRI. JUL. 24. 1914

Date of writing Report 18-7-1914 When handed in at Local Office 21-7-1914 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 23-1-14 Last Survey 21-7-1914

Reg. Book: 541 on the New Steel S. S. Benrines (Number of Visits 1) Gross 4791 Tons Net 3067

Master A. Wallace Built at Sunderland By whom built Bartram & Sons Ltd. When built 1911

Engines made at Sunderland By whom made North Eastern Marine Eng Co Ltd when made 1911

Boilers made at Sunderland By whom made North Eastern Marine Eng Co Ltd when made 1911

Registered Horse Power _____ Owners W. Thomson & Co. Port belonging to Leith

Nom. Horse Power as per Section 28 435 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 25" x 43" x 42" Length of Stroke 48" Revs. per minute 63 Dia. of Screw shaft 15 1/2" Material of screw shaft as per rule

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight in the propeller boss yes If the liner is in more than one length are the joints burned yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive yes If two liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-2 1/2"

Dia. of Tunnel shaft 13.06" Dia. of Crank shaft journals 13 1/2" Dia. of Crank pin 14 1/4" Size of Crank webs 22 1/2" x 8" Dia. of thrust shaft under collars 14 1/2" Dia. of screw 14 1/2" Pitch of Screw 18-6 No. of Blades 4 State whether moveable yes Total surface 93 sq ft

No. of Feed pumps Two Diameter of ditto 3 3/4" Stroke 2'-3" Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4" Stroke 2'-3" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 1 1/2" x 3 1/2", 1 1/2" x 4 1/2", 1 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps Two @ 3 1/2" diameter in

In Engine Room Two @ 3 1/2" diameter. In Holds, &c. Two @ 3 1/2" diameter in

No. of Bilge Injections One sizes 8" Connected to condenser, or to circulating pump in sp Is a separate Donkey Suction fitted in Engine room & size yes, 2 1/2" dia

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 no

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

What pipes are carried through the bunkers none How are they protected yes

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

Dates of examination of completion of fitting of Sea Connections 10-6-14 of Stern Tube 19-6-14 Screw shaft and Propeller 19-6-14

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record) Manufacturers of Steel Spencers & Sons Ltd. Newburn Steel Works

Total Heating Surface of Boilers 152 sq ft Is Forced Draft fitted no No. and Description of Boilers Three single

Working Pressure 190 lbs Tested by hydraulic pressure to 380 lbs Date of test 2-5-14 No. of Certificate 3219

Can each boiler be worked separately yes Area of fire grate in each boiler 66.6 sq ft No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 1.068 sq in Pressure to which they are adjusted 195 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 15'-6" Length 11-8 1/4" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 28 x 532 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.

long. seams T.R.D.D. Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 9 1/4" Lap of plates or width of butt straps 19 1/2"

Per centages of strength of longitudinal joint rivets 84.91 Working pressure of shell by rules 190.6 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 9 1/8" x 19 1/8" No. and Description of Furnaces in each boiler 3 daylight Material Steel Outside diameter 4 1/2"

Length of plain part top 3 1/2" bottom 6 1/4" Thickness of plates crown 3 1/2" Description of longitudinal joint weld No. of strengthening rings yes

Working pressure of furnace by the rules 192 lbs Combustion chamber plates: Material Steel Thickness: Sides 13/16" Back 13/16" Top 13/16" Bottom 13/16"

Pitch of stays to ditto: Sides 11 5/16" x 10 3/8" Back 11" x 10 3/8" Top 11 1/16" x 10 3/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 191 lbs

Material of stays Steel Diameter at smallest part 1 1/16" Area supported by each stay 114 sq in Working pressure by rules 190 lbs End plates in steam space: Material Steel Thickness 1 3/8" Pitch of stays 22 3/4" x 20 3/4" How are stays secured D.N. Woods Working pressure by rules 192 lbs Material of stays Steel

Diameter at smallest part 3.20" Area supported by each stay 463 sq in Working pressure by rules 190 lbs Material of Front plates at bottom Steel

Thickness 13/16" Material of Lower back plate Steel Thickness 15/16" Greatest pitch of stays 14 1/2" x 10 3/8" Working pressure of plate by rules 191 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/8" x 4 1/8" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 10 6/16"

Pitch across wide water spaces 14 1/2" Working pressures by rules 195 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/4" x 2 1/4" Length as per rule 35 7/8" Distance apart 11 1/16" Number and pitch of stays in each 2 @ 10 3/8"

Working pressure by rules 190 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately yes Diameter yes Length yes Thickness of shell plates yes Material yes Description of longitudinal joint yes Diam. of rivet holes yes Pitch of rivets yes Working pressure of shell by rules yes Diameter of flue yes Material of flue plates yes Thickness yes

If stiffened with rings yes Distance between rings yes Working pressure by rules yes End plates: Thickness yes How stayed yes

Working pressure of end plates yes Area of safety valves to superheater yes Are they fitted with easing gear yes

If not, state whether, and when, one will be sent?

Is a Report also sent on the Hull of the Ship?

MS10-0292

IS A DONKEY BOILER FITTED?

yes

If so, is a report now forwarded?

yes

SPARE GEAR. State the articles supplied:-

Two each bolts + nuts for top + bottom ends + main bearings, one set coupling bolts. One set each valves for all pumps. One propeller shaft gear cast steel propeller blades. One set pumps for all cylinders. 1/2 Crank shaft. One bottom end bush. One air pump rod. Two piston valve springs. Assorted bolts nuts + iron etc.

The foregoing is a correct description,

NORTH EASTERN MARINE ENGINEERING CO LTD

S.T. Harrison Secy. Manufacturer.

Dates of Survey while building: During progress of work in shops - 1914 Jan 23 Feb 4 13 23 Mar 6 10 13 18 20 24 26 Apr 2 3 8 9 17 21 23 29 May 5. During erection on board vessel - 13 14 19 20 21 27 28 29 Jun 4 10 11 12 13 17 19 29 30 Jul 1 2 4 6 8 10 14 17 21. Total No. of visits 47

Is the approved plan of main boiler forwarded herewith yes. " " " donkey " " " yes.

Dates of Examination of principal parts - Cylinders 30-4-14 Slides 4-6-14 Covers 2-5-14 Pistons 4-6-14 Rods 2-5-14 Connecting rods 20-5-14 Crank shaft 20-5-14 Thrust shaft 29-4-14 Tunnel shafts 12-6-14 Screw shaft 12-6-14 Propeller 4-6-14 Stern tube 4-6-14 Steam pipes tested 11-4-14, 1-4-14 Engine and boiler seatings 14-6-14 Engines holding down bolts 6-4-14 Completion of pumping arrangements 6-4-14 Boilers fixed 29-6-14 Engines tried under steam 8-4-14 Main boiler safety valves adjusted 8-4-14 Thickness of adjusting washers P.Bh 3/16 3/8; C.Bh 1/16 1/8; B.H. 3/16 3/8. Material of Crank shaft I Steel Identification Mark on Do. 3KH6 M.B. Material of Thrust shaft I Steel Identification Mark on Do. 3KH5 M.B. Material of Tunnel shafts I Steel Identification Marks on Do. 4KH2-3-4KH Material of Screw shafts W. Iron Identification Marks on Do. 16H2 D.F.C. Material of Steam Pipes Lap welded wrought iron 5 3/4" x 5/16" thick Test pressure 600 lbs. Is an installation fitted for burning oil fuel No Is the flash point of the oil to be used over 150°F. ✓

Have the requirements of Section 49 of the Rules been complied with ✓. Is this machinery duplicate of a previous case yes. If so, state name of vessel S.S. Barlownd.

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been built under special survey, the materials and workmanship are of good quality & the hydraulic tests of the boilers proved satisfactory. The whole of the machinery has been securely fixed in place & tried under steam & is in good safe working condition & eligible in my opinion to be classed & have record. L.M.C. 7-14 in the Register Books.

It is submitted that this vessel is eligible for THE RECORD. + LMC 7.14.

Signature: William Butler, Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee ... £ 3 : 0 : 0 When applied for, Special ... £ 41 : 15 : 0 21/7/14 Donkey Boiler Fee ... £ : : : When received, Travelling Expenses (if any) £ ✓ : : 24/7/14

Committee's Minute TUE JUL 28 1914 Assigned + L.M.C. 7/14



MACHINERY CERTIFICATE WRITTEN

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