

Rpt. 4.

REPORT ON MACHINERY.

SUNDERLAND RPT. No. 26237

No. 8548.

FRI. JUL. 17. 1914

Received at London Office

Date of writing Report 15.7.14 When handed in at Local Office 16.7.14 Port of MIDDLESBRO'
 No. in Survey held at Stockton-on-Tees Date, First Survey 17th April Last Survey 10th July 1914
 Reg. Book. on the Steel Screw Steamer "NORDIC" (Number of Visits 42) (S.S. No. 504) Tons Gross 4136 Net 2597
 Master Huldberg Built at Sunderland By whom built J. L. Thompson & Sons When built 1914
 Engines made at Stockton By whom made James Blair & Co. Ltd (No. 1804) when made 1914
 Boilers made at Stockton By whom made James Blair & Co. Ltd when made 1914
 Registered Horse Power Owners W. R. Lundgren Port belonging to Gottenburg
 Nom. Horse Power as per Section 28 465 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 27-45-74 Length of Stroke 48 Revs. per minute 63 Dia. of Screw shaft as per rule 14.22 as fitted 16 1/2 Material of screw shaft Ingot steel
 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 in one 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 tight fit If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5'-6"
 Dia. of Tunnel shaft as per rule 13.4 as fitted 14 Dia. of Crank shaft journals as per rule 14.06 as fitted 14 1/2 Dia. of Crank pin 15 Size of Crank webs 28 1/2 x 9 1/2 Dia. of thrust shaft under collars 15 Dia. of screw 18'-0" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable yes Total surface 100 sq ft
 No. of Feed pumps 2 Diameter of ditto 7" Stroke 24 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 5" Stroke 34 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps B = 10" x 10"; 2nd 5" x 8" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 @ 3 1/2" In Holds, &c. 2 @ 3 1/2" each hold: Tunnel well one @ 2 1/2"
 No. of Bilge Injections 1 sizes 8" Connected to condenser or circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes-4"
 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 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 Suctions to fore holds How are they protected wood ceiling
 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 26-5-14 of Stern Tube 10-6-14 Screw shaft and Propeller 23-6-14
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel Messrs John Hume & Sons Ltd.
 Total Heating Surface of Boilers 7906 Is Forced Draft fitted no No. and Description of Boilers 3 single ended
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 4.7.14 No. of Certificate 5333-
 Can each boiler be worked separately yes Area of fire grate in each boiler 65 3/4 No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 8.22 Pressure to which they are adjusted 185 Are they fitted with easing gear yes
 Smallest distance between boilers on uptakes and bunkers or woodwork 4'-0" Mean dia. of boilers 16'-0" Length 11'-6" Material of shell plates steel
 Thickness 1 1/2 Range of tensile strength 29 1/2 - 33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2-R. lap long. seams 2B-3 Riv Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets 8 5/8 Lap of plates width of butt straps 18 1/2 x 1 1/2
 Per centages of strength of longitudinal joint rivets 86.8 plate 85.5 Working pressure of shell by rules 182 Size of manhole in end 16" x 12"
 Size of compensating ring Flanged in No. and Description of Furnaces in each boiler 3 Dighton Material steel Outside diameter 47.4"
 Length of plain part top 37 bottom 24 Thickness of plates crown 37 bottom 24 Description of longitudinal joint Weld No. of strengthening rings
 Working pressure of furnace by the rules 192 Combustion chamber plates: Material steel Thickness: Sides 3 1/2 Back 1 1/2 Top 3 1/2 Bottom 7/8
 Pitch of stays to ditto: Sides 9 1/2 x 8 1/2 Back 9 1/2 x 8 1/2 Top 10 x 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 186
 Material of stays steel Diameter at smallest part 1.99 Area supported by each stay 86.5 Working pressure by rules 207 End plates in steam space
 Material steel Thickness 1 1/2 Pitch of stays 21 1/2 How are stays secured nuts + 9 x 1 washer Working pressure by rules 185 Material of stays steel
 Diameter at smallest part 7.88 Area supported by each stay 420 Working pressure by rules 195 Material of Front plates at bottom steel
 Thickness 1 Material of Lower back plate steel Thickness 1 3/4 Greatest pitch of stays 14 1/2 x 8 1/2 Working pressure of plate by rules 250
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 3/4 Material of tube plates steel Thickness: Front 1 1/2 Back 1 1/2 Mean pitch of stays 11"
 Pitch across wide water spaces 14 1/2 Working pressures by rules 192 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 1/2 x 2 Length as per rule 33 Distance apart 10 Number and pitch of stays in each 30 x 7 1/2
 Working pressure by rules 184 Superheater or Steam chest; how 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 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

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VERTICAL DONKEY BOILER—

Manufacturers of Steel

None

No. Description
 Made at By whom made When made Where fixed
 Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety
 Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment
 If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length
 Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams
 Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets
 Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays
 Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint
 Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by
 Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— $\frac{1}{3}$ " crank shaft: Tail end shaft. two propeller blades
 two connecting rod top & bottom end bolts & nuts. two main bearing bolts one set of coupling
 bolts one set of feed. helge and air pump valves. iron and bolts of various sizes.

The foregoing is a correct description,

For BLAIR & CO., LIMITED.

Manufacturer.

Dates of Survey while building
 During progress of work in shops --
 During erection on board vessel --
 Total No. of visits 42. 50
 Is the approved plan of main boiler forwarded herewith
 Return for duplicate millwork

Dates of Examination of principal parts—Cylinders 13.5.14 Slides 13.5.14 Covers 13.5.14 Pistons 16.5.14 Rods 16.5.14
 Connecting rods 16.5.14 Crank shaft 21.5.14 Thrust shaft 1.5.14 Tunnel shafts 23.4.14 Screw shaft 15.6.14 Propeller 11.6.14
 Stern tube 28.5.14 Steam pipes tested 9.7.14 Engine and boiler seatings 26.5.14 Engines holding down bolts 30.6.14
 Completion of pumping arrangements 10.7.14 Boilers fixed 10.7.14 Engines tried under steam 23.9.14
 Main boiler safety valves adjusted 10.7.14 Thickness of adjusting washers PB 5-1/4 : CB 5-7/32 : SB 5-1/4
 Material of Crank shaft Dry Steel Identification Mark on Do. 6897 Material of Thrust shaft Dry Steel Identification Mark on Do. 380-N
 Material of Tunnel shafts Dry Steel Identification Marks on Do. 380-N Material of Screw shafts Dry Steel Identification Marks on Do. 6897
 Material of Steam Pipes Solid drawn copper (5 x 1/4) Test pressure 405 lb.

General Remarks (State quality of workmanship, opinions as to class, &c. To complete the survey the following requires
 to be done:— Suctions fitted in holds and tunnel: W.T door and chain valve rod to fit at
 tunnel: covers fitted to fidley gratings; spare gear examined, and engines & donkey pumps
 examined under steam. The survey is to be completed at Sunderland. Surveyors advised
 The machinery of this vessel has been built under special survey: is of good
 material and workmanship and eligible in my opinion to have the notation of
 * LMC 9.14 with a date, when the survey has been completed

Sunderland 23-9-14: Survey complete

How done:— The hold & tunnel suction, the tunnel watertight door and a drain
 cock from tunnel to engine room (workable from top platform) and the covers to fidley gratings
 all satisfactory, fitted. The spare gear examined and found in order. The main engines
 and donkey pumps tried under steam and found to work well.

It is submitted that
 this vessel is eligible for
 THE RECORD. + LMC 9.14

The amount of Entry Fee .. £ 3 - 0 - 0 When applied for.
 Special .. £ 43 - 5 - 0 16.7.1914
 Donkey Boiler Fee .. £ : : When received,
 Travelling Expenses (if any) £ : : 29.8.1914

Committee's Minute

TUE. SEP. 29. 1914

Assigned

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



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