

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" (S.S. No. 504) (Number of Visits 42)
 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. (No. 1804) when made 1914
 Boilers made at Stockton By whom made James Blair & Co. when made 1914
 Registered Horse Power Owners W.R. Lundgren Port belonging to Gothenburg
 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 14.92 as fitted 16 1/2 Material of screw shaft Iny 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
 No. of Feed pumps 2 Weir's Automatic 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 15" x 10"; 7 1/2" 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 to 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 Spencer & 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 5335
 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 8.29 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 Working pressure of shell by rules 182 Size of manhole in end 16" x 12"
 plate 85.5
 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 Thickness of plates crown 37 Description of longitudinal joint Weld No. of strengthening rings
 bottom 29 bottom 29
 Working pressure of furnace by the rules 192 Combustion chamber plates: Material steel Thickness: Sides 3/32 Back 1/16 Top 3/32 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 19 How are stays secured nuts + 9 x 1 washers 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 3/8 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 1/2 Back 1/8 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 @ 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

005674-005686-0028

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 Plates
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:— *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. ledge 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 --	<i>Apr. 17-20-21-22-24-27-29-30</i>	<i>May 1-4-5-9-11-13-16-19-21-22-25-27-28-29</i>	<i>Jun 3-5-8-9-11-15-17-22-23-24</i>
During erection on board vessel ---	<i>25-26-29-30 Jul 1-2-3-4-7-10</i>	<i>11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30</i>	<i>Aug 1-11-13</i>
Total No. of visits	<i>42</i>	<i>50</i>	

Is the approved plan of main boiler forwarded herewith *yes*
~~Return for duplicate millwork~~
~~Donkey~~

Dates of Examination of principal parts—

Cylinders	<i>13-5-14</i>	Slides	<i>13-5-14</i>	Covers	<i>13-5-14</i>	Pistons	<i>16-5-14</i>	Rods	<i>16-5-14</i>
Connecting rods	<i>16-5-14</i>	Crank shaft	<i>21-5-14</i>	Thrust shaft	<i>1-5-14</i>	Tunnel shafts	<i>17-4-14</i>	Screw shaft	<i>15-6-14</i>
Propeller	<i>11-6-14</i>	Engines holding down bolts	<i>30-6-14</i>	Engines tried under steam	<i>23-9-14</i>	Material of Crank shaft	<i>Dry Steel</i>	Identification Mark on Do.	<i>6897</i>
Material of Thrust shaft	<i>Dry Steel</i>	Identification Mark on Do.	<i>380-N</i>	Material of Tunnel shafts	<i>Dry Steel</i>	Identification Marks on Do.	<i>380-N</i>	Material of Screw shafts	<i>Dry Steel</i>
Identification Marks on Do.	<i>6897</i>	Material of Steam Pipes	<i>Solid drawn copper (5 x 1/2)</i>	Test pressure	<i>405 lbs.</i>				

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 drain valve rod to fit at tunnel: covers fitted to fiddley 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 fiddley 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	<i>16.7.14</i>
Donkey Boiler Fee	£ :	When received,
Travelling Expenses (if any)	£ :	<i>29.8.14</i>

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

Committee's Minute TUE. SEP. 29. 1914
 Assigned + LMC 9.14

MINUTE CERTIFICATE WRITTEN



Sunderland

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