

Rpt. 4a.

REPORT ON MACHINERY

No. 10665

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Date of writing Report 3. 5. 1920 When handed in at Local Office 3. 6. 1920 Port of Middlesbrough  
No. in Survey held at Reg. Book. S.S. Pollenigo on War Relief Date, First Survey 1919-20 Last Survey 1st May 1920. (Number of Visits 35)  
Master V. Dicora Built at Hariton Hill By whom built Furness S.B. Co. Ltd. When built 1920.  
Engines made at West Hartlepool By whom made Richardsons Westgarth & Co. Ltd. when made 1920.  
Boilers made at Glasgow By whom made Parsons Marine Steam Turbine Co. when made 1920.  
Registered Horse Power Owners Lloyd Sabando Port belonging to Glusca.  
Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Ys

See West Hartlepool Report No. 15618  
TUBINE ENGINES, &c. Description of Engines Double geared Impulse Turbines No. of Turbines Two  
Diameter of Rotor Shaft Journals, H.P. 4 1/2 L.P. 5 3/4 Diameter of Pinion Shaft 2 1/2 Pinion 5 1/4 between helices  
Diameter of Journals 2 1/2 Distance between Centres of Bearings 3 1/2 Pinion 12 1/2 between helices  
Diameter of Wheel Shaft 2 1/2 Distance between Centres of Bearings 3 1/2 Pinion 13 3/4  
Width of Face 2 1/2 Diameter of Thrust Shaft under Collars 1 1/2 Diameter of Pitch Circle of Wheel 2 1/2  
No. of Screw Shafts One Diameter of same as per rule 1 1/2 Diameter of Propeller 17 9/16 Pitch of Propeller 16 6/16  
No. of Blades 4 State whether Moveable No. Total Surface 100 sq ft Diameter of Rotor Drum, H.P. 20 1/2 L.P. 27 1/2  
Thickness at Bottom of Groove, H.P. Solid L.P. Solid Astern Dies Revs. per Minute at Full Power, Turbine 3184 Propeller 71  
At sea fuel used about 3/4 propeller immersion " " 3703 " 82.5

| H.P. (P.C.D. = 24") |                   |                   |              | L.P. (P.C.D. = 36") |                   |                  |              | ASTERN (P.C.D. = 30") HP |   |                   |              |
|---------------------|-------------------|-------------------|--------------|---------------------|-------------------|------------------|--------------|--------------------------|---|-------------------|--------------|
|                     | HEIGHT OF BLADES. | DIAMETER AT TIP.  | NO. OF ROWS. |                     | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. |                          | HEIGHT OF BLADES.                               | DIAMETER AT TIP.  | NO. OF ROWS. |
| 1ST EXPANSION       | 3 1/4 x 1 1/4     | 24 1/16 x 25 1/16 | 2            |                     | 2 3/4             | 38 3/4           | 1            |                          | 1 1/2 x 1 1/2                                   | 24 1/16 x 25 1/16 | 2            |
| 2ND                 | 7/8 x 1 1/2       | 24 1/16 x 25 1/16 | 2            |                     | 3                 | 39               | 1            |                          | (i.e. fan rows of buckets on motor) in HP shaft |                   |              |
| 3RD                 | 1 1/2             | 25 1/2            | 1            |                     | 3 1/8             | 39 1/8           | 1            |                          |   |                   |              |
| 4TH                 | 1 3/4             | 25 3/4            | 1            |                     | 4 3/4             | 40 3/4           | 1            |                          |   |                   |              |
| 5TH                 | 2                 | 26                | 1            |                     | 6 1/8             | 42 1/8           | 1            |                          |   |                   |              |
| 6TH                 | 2 5/16            | 26 5/16           | 1            |                     | 7 1/4             | 43 1/4           | 1            |                          |   |                   |              |
| 7TH                 | 2 1/16            | 26 1/16           | 1            |                     | 7 1/2             | 43 1/2           | 1            |                          |   |                   |              |
| 8TH                 |                   |                   |              |                     | 7 3/4             | 43 3/4           | 1            |                          |   |                   |              |

No. and size of Feed pumps 2 @ 1 1/2 x 8 x 24  
No. and size of Bilge pumps 1 @ 4 x 8 x 12 and 1 @ 10 1/2 x 14 x 24  
No. and size of Bilge suction in Engine Room 1 @ 3 1/2 and 2 @ 2 1/2 in engine room well.  
In Holds, &c. 4 @ 3 1/2 in hold 1 @ 2 1/2 centrifugal  
No. of Bilge Injections 1 sizes 1 1/4 Connected to condenser, or to circulating pump Ys Is a separate Donkey Suction fitted in Engine Room & size 1 @ 8 x 2 @ 3 1/2  
Are all the bilge suction pipes fitted with roses Ys Are the roses in Engine room always accessible Ys  
Are all connections with the sea direct on the skin of the ship Ys Are they Valves or Cocks Both  
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Ys 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 Ys Are the Blow Off Cocks fitted with a spigot and brass covering plate Ys  
What pipes are carried through the bunkers Suctions to forward holds How are they protected below casing Ys  
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Ys  
Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Ys  
Is the Screw Shaft Tunnel watertight Ys Is it fitted with a watertight door Ys worked from Shell deck level  
See Glasgow Report No. 39126

BOILERS, &c. (Letter for record S) Manufacturers of Steel D. Colville Sons & Steel Co. of Scotland  
Total Heating Surface of Boilers 9636 Is Forced Draft fitted Ys No. and Description of Boilers Three Babcock & Wilcox  
Working Pressure 200 at main steam drum 400 mud drum 700 Date of test 10 March 1920 No. of Certificate 6103  
Can each boiler be worked separately Ys Area of fire grate in each boiler 85 3/4 sq ft No. and Description of Safety Valves to each boiler 2 direct spring Ys Area of each valve 9.62 sq ft Pressure to which they are adjusted 205 Ys Are they fitted with easing gear Ys  
Smallest distance between boilers or uptakes and bunkers or woodwork 5 1/2 3 1/2 Mean dia. of boilers 4 0 Length 15 1/4 Material of shell plates steel  
Thickness 9/16 Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR lap  
Long. seams T.R.S.B. Diameter of rivet holes in long. seams 29/32 Pitch of rivets 3.534 Lap of plates or width of butt straps 4 1/4  
Per centages of strength of longitudinal joint rivets 76.7 plates 74.4 Working pressure of shell by rules 238 Size of manhole in shell 15 x 11  
Size of compensating ring 28 3/4 x 22 1/4 x 1/8 No. and Description of Furnaces in each Boiler Material Outside diameter  
Length of plain part top crown Thickness of plates Description of longitudinal joint No. of strengthening rings  
Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules drum  
Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space  
Material S Thickness 13/16 Pitch of stays How are stays secured Working pressure by rules 240 Material of stays  
Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom  
Thickness Material of lower back plate steel Thickness 1 1/2 Greatest pitch of stays Working pressure of plate by rules  
Diameter of tubes 1 1/2 Pitch of tubes 2 3/8 x 2 5/8 Material of tube plates steel Thickness: Front 1 1/6 Back Mean pitch of stays  
Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and  
Thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each  
Working pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter  
Thickness of shell plates 3/4 Material steel Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
Working pressure of shell by rules Crown plates: Thickness How stayed

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*SUPERHEATER.* Type No. Date of Approval of Plan                      Tested by Hydraulic Pressure to                       
Date of Test                      Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler                       
Diameter of Safety Valve                      Pressure to which each is adjusted                      Is Easing Gear fitted                     

IS A DONKEY BOILER FITTED? ..... If so, is a report now forwarded? .....

SPARE GEAR. State the articles supplied:— 2 bolts & nuts (or studs & nuts) for each size of rotor, pinion, and gear wheel bearings. 1 set of coupling bolts of each size used  $\frac{1}{2}$  no of total number of bolts & nuts (or studs & nuts) for turbine & gear case joints. Two thermometers for oil circulating system. 1 set of bearing bushes for rotor, pinion & wheel shafts. 1 set of labyrinth packing for each gland. Sufficient pads for Mitchell thrust blocks. 1 set of turbine thrust & adjusting bushes with rings.  $\frac{1}{4}$  set feed pump valves.  $\frac{1}{2}$  set lubricating pump valves. A quantity of assorted bolts & nuts, studs, bars, plates, spare propellers secured aboard in position.

1 set of liners for adjusting block & escape valve springs of each size fitted. 2 lubricating oil pumps complete and fitted.

The foregoing is a correct description, See Mach. Str. 10.5.20

Dates of Survey while building { During progress of work in shops -- } 1914 Feb. 26 Sep. 25-26 Oct. 1-9 21-30 Nov. 4-6 10-13 19-25-28 Dec. 2-10 16-18 Jan. 7-29 Feb. 19-24 Mar. 15-28 31-31  
 { During erection on board vessel -- } Apr. 9-14-15-19-20-23-30 May 1  
 Total No. of visits 35

Is the approved plan of main boiler forwarded herewith

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Dates of Examination of principal parts—Casing 27/6/18 + 16/12/18 Rotors 26/8/18 + 16/12/18 Blading 16/9/18 to 16/12/18 Gearing 19/9/19 + 2/10/19 Rotor shaft 16/8/18 to 9/12/18 Thrust shaft 25-9-18 Tunnel shafts 19/9/19 + 2/10/19 Screw shaft 23/7/19 Propeller 11/9 Stern tube 30/10/19 Steam pipes tested 16/12/19 Engine and boiler seatings 1/10/19 Engines holding down bolts 18/12/19 Completion of pumping arrangements 19/2/20 Boilers fixed 29/1/20 Engines tried under steam 1/5/20 Main boiler safety valves adjusted 15/3/20 Thickness of adjusting washers P<sup>1</sup> B<sup>2</sup> P<sup>1</sup>/<sub>32</sub> S<sup>9</sup>/<sub>32</sub> C B<sup>2</sup> P<sup>1</sup>/<sub>16</sub> S<sup>9</sup>/<sub>32</sub> St B<sup>2</sup> P<sup>1</sup>/<sub>32</sub> Material and tensile strength of Rotor shaft S. M. Steel 33.8 tons 34% E<sub>17</sub> Identification Mark on Do. 187 (A<sup>1</sup>) Material and tensile strength of Pinion shaft Nickel-chrome Steel Identification Mark on Do. 187 (A<sup>1</sup>) Material of Wheel shaft Eng. steel Identification Mark on Do. No. 102 11-1918 AC Material of Thrust shaft Eng. steel Identification Mark on Do. (25-9-18) 91 Material of Tunnel shafts S Identification Marks on Do. 6134-48 2/10/19. Q.O. 65 Material of Screw shafts S Identification Marks on Do. 3870-5 JH Material of Steam Pipes Lap. Welded Steel 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. 1