

## REPORT ON MACHINERY.

No. 41586

WED. DEC. 14 1921

Date of writing Report 13 12 21 When handed in at Local Office 13 12 21 Port of Glasgow  
 No. in Survey held at Glasgow Date, First Survey 24th Dec 1919 Last Survey 9th Dec 1921  
 Reg. Book. S.S. "HOGARTH" (Number of Visits 53)  
 on the  
 Master Built at Glasgow By whom built W & W Henderson & Co Ltd When built 1921  
 Engines made at Belfast By whom made Harland & Wolff Ltd when made 1921  
 Boilers made at Glasgow By whom made W & W Henderson & Co Ltd when made 1921  
 Registered Horse Power Owners Lamport & Holt Port belonging to Liverpool  
 Shaft Horse Power at Full Power 3200 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 RULE H.P. 758

URBINE ENGINES, &c.—Description of Engines See Belfast Rpt No 8468 attached hereto  
 No. of Turbines

Diameter of Rotor Shaft Journals, H.P. L.P. Diameter of Pinion Shaft  
 Diameter of Journals Distance between Centres of Bearings Diameter of Pitch Circle  
 Diameter of Wheel Shaft Distance between Centres of Bearings Diameter of Pitch Circle of Wheel  
 Width of Face Diameter of Thrust Shaft under Collars Diameter of Tunnel Shaft as per rule 14.47"  
 as fitted 14.47"  
 No. of Screw Shafts with continuous liner Diameter of same as per rule 15.79"  
 as fitted 16.5" Diameter of Propeller 18-6 Pitch of Propeller 18-0  
 No. of Blades 4 State whether Movable Yes Total Surface 102.4 ft Diameter of Rotor Drum, H.P. L.P. Astern  
 Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine Propeller 75-80

## PARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	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									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									

No. and size of Feed pumps (2 main) 9" x 12" x 21" (1 aux) 4 1/4" x 6" x 6" General Service 8" x 6" x 8"  
 No. and size of Bilge pumps (2 main) 8 1/4" x 12" (1) 7" x 7" x 8" (1 Ballast) 10" x 9" x 10" Lubricating oil Pumps 1 working 12 spare 7" x 7" x 15"  
 No. and size of Bilge suction in Engine Room (3) 3 1/2" (1) 5" (1) 4" (1) 3 1/2" In Holds, &c. No 1-2-3-4 & deep tank (2) 3 1/2" each No 5 (1) 3 1/2"

Tunnel well (1) 3 1/2"  
 No. of Bilge Injections 1 sizes 12" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine Room & size 3 1/2"  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room 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 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 4 suction How are they protected Carried through tube  
 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  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel W Colville & Sons Ltd & Spencer & Sons Ltd  
 Total Heating Surface of Boilers 13197.2 Is Forced Draft fitted No No. and Description of Boilers No. 1 & 2 S auxiliary  
 Working Pressure 215 lb Tested by hydraulic pressure to 378 Date of test 6.8.20. 30.8.20 No. of Certificate 15414, 15451  
 Can each boiler be worked separately Yes Area of fire grate in each boiler SE 49.95 ft No. and Description of Safety Valves to each boiler DE 12.56 ft DE 18.6 ft Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers SE 14.0 Length SE 10.6 Material of shell plates Steel  
 Thickness SE 1 1/2" Range of tensile strength 29 to 33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L & D B  
 long, seams TRDBS Diameter of rivet holes in long. seams DE 12.56 ft Pitch of rivets SE 9.8" Lap of plates or width of butt straps SE 19.71  
 Per centages of strength of longitudinal joint rivets SE 85.59 plates SE 85.27 Working pressure of shell by rules DE 227 SE 225 Size of manhole in shell 16 x 12  
 Size of compensating ring 21 x 12 No. and Description of Furnaces in each Boiler SE 3 6 Material Steel Outside diameter 3-8 1/2"  
 Length of plain part top 5.31 crown 8.32 Description of longitudinal joint welded No. of strengthening rings 1  
 bottom 8.32  
 Working pressure of furnace by the rules 226 Combustion chamber plates: Material Steel Thickness: Sides 3/16" Back 3/16" Top 3/16" Bottom 3/16"  
 Pitch of stays to ditto: Sides SE 7 1/2 x 8 1/2 Back 9 x 7 1/4 Top SE 7 1/2 x 8 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 221  
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay SE 65.8 Working pressure by rules SE 240 End plates in steam space  
 Material Steel Thickness SE 1 1/2" Pitch of stays SE 18 x 7 1/4 How are stays secured W & W Working pressure by rules SE 217 Material of stays Steel  
 Diameter at smallest part 7.06 Area supported by each stay SE 306.7 Working pressure by rules SE 240 Material of Front plates at bottom Steel  
 Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 221  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/4" Material of tube plates Steel Thickness: Front 7/8" Back 1 1/2" Mean pitch of stays 10  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 308 Girders to Chamber tops: Material Steel DE 8 x 7 1/2 (2) DE 4 1/2 x 7 1/2 (2) DE 7 1/2 x 7 1/2 (2)  
 thickness of girder at centre SE 7 1/2 x 7 1/2 (2) Length as per rule SE 265 Distance apart SE 8 Number and pitch of stays in each SE (2) 2020  
 Working pressure by rules SE 263 Steam dome: description of joint to shell None % of strength of joint Diameter of rivet holes Pitch of  
 Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of  
 Working pressure of shell by rules Crown plates: Thickness How stayed

Separate forms are attached giving particulars of double ended & single ended



Tested by Hydraulic Pressure to 660 lb. 4a.

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

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*Pressure to which each is adjusted*

*Is Easing Gear fitted*

No

*If so, is a report now forwarded?*

State the articles supplied:—

**SPARE GEAR.** State the articles supplied:— 1 Set Feed Pump Valves. 1 Set Budge Pump Valves.  
1 Set Valves for lubricating oil Pump a quantity of assorted Bolts, Studs  
& Nuts, Bars and Plates of mild Steel. 2 Lubricating oil Pumps complete  
fifteen Coupling bolts and nuts. 1 bucket & rod for Lubricating oil  
Pump and a number of other articles: and as per list attached to  
Belfast Report

*The foregoing is a correct description,*

FOR DAVID & WM HENDERSON & CO., LTD

*Manufacturer*

DIRECTOR

Dates of Survey while building	During progress of work in shops --	1919 Dec 24 1920 Jan 6 Feb 4 10 19 27 Mar 9 12 26 30 Apr 8 18 23 May 10 16 Jun 16 July 7 15 Aug 6 11 26 30
	During erection on board vessel --	8.9.14.20 Oct 8.22 Nov 1 Dec 23 28 1921 Jan 11 14 27 Feb 3.7 12 14 23 27 Mar 1.2 Apr 18.29 May 17 Oct 28 11
	Total No. of visits	29 Dec 7.9 - 53.

Is the approved plan of main boiler forwarded herewith. *Yes*

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Casings 1-10-20 (Bel) Rotors 4-11-20 (Bel) Blading 4-11-20 (Bel) Gearing 21-11-20 (

Rotor shaft 23.8.20 (Bal) Thrust shaft 21.12.20 (Bal) Tunnel shafts 11.8.20 Screw shaft 11.8.20 Propeller 30.8.20

Stern tube 30.8.20 Steam pipes tested 2/2/21 1/4/21 Engine and boiler seatings 28.12.20 Engines holding down bolts 14.2.21

Completion of pumping arrangements 2-11-21 Boilers fixed 3.2.21 Engines tried under steam 28-10-21

Main boiler safety valves adjusted 28-10-21 Thickness of adjusting washers  $P \frac{11}{32}$  :  $I \frac{5}{16}$  S :  $C \frac{3}{4}$  P :  $\frac{3}{32}$  S :  $S \frac{3}{32}$  P :  $\frac{3}{32}$  S : SINGLE ENDED  $P \frac{3}{32}$  : S.Y

Material and tensile strength of Rotor shaft	Identification Mark on Do.

Material and tensile strength of Pinion shaft	Identification Mark on Do.

Material of Wheel shaft — Identification Mark on Do. — Material of Thrust shaft — Identification Mark on Do. —

Material of Tunnel shafts Steel Identification Marks on Do. X See below Material of Screw shafts Steel Identification Marks on Do. ⊗ See 6

Material of Steam Pipes Seamless Steel Test pressure 645 lbs.

Is an installation fitted for burning oil fuel Yes Is the flash point of the oil to be used over 150°F. Yes

Have the requirements of Section 49 of the Rules been complied with Yes ✓

Is this machinery a duplicate of a previous case No If so, state name of vessel —

*General Remarks* (State quality of workmanship, opinions as to class, etc.) X:- 11-6-3 11-8-20 J.E. 11-8-20 J.E. 11-9-1 11-8-20 J.E. 11-9-2

Lloyd's  
 No 7  
 11-8-20 J.E.  
 share  
 Lloyd's  
 No 6  
 11-8-20 J.E.  
 Materials and workmanship are good.

The machinery has been constructed under special survey in accordance with the Rules and approved Plans. The machinery and boilers have been fitted on board in a satisfactory manner; the hull of the secondary engine and wheels of both turbines have been filed and scraped up in place to correct alignment and were examined after running dock and official and were found satisfactory. The machinery and boilers have been tried under working conditions and found satisfactory and are eligible in our opinion to be classed with record of \*L.M. 12-21; and the notation of fitted for Oil Fuel 12-21. F.P. above 150° F.

The amount of Entry Fee ... £ 6 : 0 : ) When applied for,

Special ... £76 : 14.6

Donkey Boiler Fee £ : : When received,

Travelling Expenses (if any) £ : : 16.12.19

Committee's Minute

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~~nder of Spans~~

...folds

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GLASGOW 13 DEC 1921

+ LMC 1221

Fitted for oil fuel 12.21 F.P. above 150° F.

MACHINERY OERD  
WRITTEN 17.12.2

Lloyd's Register  
Foundation