

# REPORT ON MACHINERY.

No. 15,876.

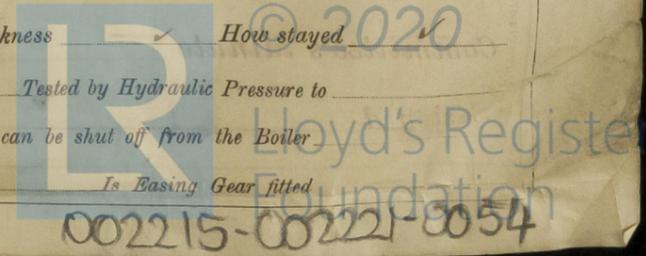
Received at London Office MON. DEC. 13 1920

of writing Report 3<sup>rd</sup> Dec 1920 When handed in at Local Office 3<sup>rd</sup> Dec 1920 Port of Leith  
 in Survey held at Leith Date, First Survey 29<sup>th</sup> Sept, 1919 Last Survey 2<sup>nd</sup> Dec 1920  
 7. Book. on the SS Ardenza (Number of Visits 33)  
 ster Built at Leith By whom built Hawthornes & Co. When built 1920  
 ines made at Leith By whom made Hawthornes & Co. (No 180) when made 1920  
 ilers made at do. By whom made do. (Do.) when made 1920  
 gistered Horse Power Owners Jhs. C. Steven & Co. Port belonging to  
 m. Horse Power as per Section 28 169 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

GINES, &c.—Description of Engines Triples Inverted No. of Cylinders 3 No. of Cranks 3  
 No. of Cylinders 17-28-46 Length of Stroke 33 Revs. per minute 100 Dia. of Screw shaft as per rule 10-21 Material of screw shaft I  
 the screw shaft fitted with a continuous liner the whole length of the stern tube no liners Is the after end of the liner made water tight  
 the propeller boss ✓ If the liner is in more than one length are the joints burned ✓ 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 ✓ If two  
 shafts are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 43"  
 No. of Tunnel shaft 2 as per rule 8-538 Dia. of Crank shaft journals as per rule 8-67 as fitted 8-3/4 Dia. of Crank pin 9-1/4 Size of Crank webs 17x6 1/2 Dia. of thrust shaft under  
 bars 9-1/4 Dia. of screw 12-0 Pitch of Screw 13-0 No. of Blades 4 State whether moceable no Total surface 45-0  
 No. of Feed pumps 2 Diameter of ditto 3 Stroke 16 1/2 Can one be overhauled while the other is at work yes ✓  
 No. of Bilge pumps 2 Diameter of ditto 3 Stroke 16 1/2 Can one be overhauled while the other is at work yes ✓  
 No. of Donkey Engines 2 Sizes of Pumps 8x9x8 6x4 1/2x6 No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room 2-2" engine bilge : 1-2 1/4 92-2" In Holds, &c. 2 each 2" from fore taffer holds + 2 1/2 tunnel well  
in Blk Room space : 1-2 1/4 Special.  
 No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size yes. 2 1/4  
 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 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  
 Are all pipes carried through the bunkers none How are they protected ✓  
 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.

MANUFACTURERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Co.  
 Total Heating Surface of Boilers 3138 Is Forced Draft fitted no No. and Description of Boilers 2 SE. return tube  
 Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 28-6-20 No. of Certificate 769  
 Can each boiler be worked separately yes Area of fire grate in each boiler 47.5 No. and Description of Safety Valves to  
 boiler two-diezel spring Area of each valve 4.9 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear yes  
 Closest distance between boilers or uptakes and bunkers or woodwork no side Mean dia. of boilers 13-0 Length 10-6 Material of shell plates S  
 Thickness 1 3/32 Range of tensile strength 28/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double  
 seams Tr. butt Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 8 1/4 Lap of plates or width of butt straps 17 7/8  
 Percentages of strength of longitudinal joint rivets 91% Working pressure of shell by rules 187 Size of manhole in shell 12x16  
 plate 85.6  
 No. of compensating ring no No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 42 1/16  
 Thickness of plain part top ✓ bottom ✓ Thickness of plates crown 3 17/32 Description of longitudinal joint welded No. of strengthening rings none  
 Working pressure of furnace by the rules 193 Combustion chamber plates: Material S Thickness: Sides 2 1/32 Back 2 1/32 Top 2 1/32 Bottom 7/8  
 No. of stays to ditto: Sides 8 1/2 x 8 1/2 Back 8 1/2 x 8 1/2 Top 8 1/2 x 9 1/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180  
 Material of stays S Area at smallest part 1.73 Area supported by each stay 72.5 Working pressure by rules 191 End plates in steam space:  
 Material S Thickness 1 3/16 Pitch of stays 19 x 16 1/2 How are stays secured nut & washer Working pressure by rules 212 Material of stays S  
 Area at smallest part 6.40 Area supported by each stay 314.0 Working pressure by rules 212 Material of Front plates at bottom S  
 Material of Lower back plate S Thickness 1 1/2 Greatest pitch of stays (15) 1/4 Working pressure of plate by rules 190  
 Diameter of tubes 3 1/4 Pitch of tubes 4 3/8 Material of tube plates S Thickness: Front 1 Back 2 3/32 Mean pitch of stays 9.85  
 Distance across wide water spaces 14 1/4 Working pressures by rules 189 Girders to Chamber tops: Material S Depth and  
 Thickness of girder at centre 7 1/4 x 2 Length as per rule 31 Distance apart 8 1/2 Number and pitch of stays in each 2-9 3/4  
 Working pressure by rules 199 Steam dome: description of joint to shell ✓ % of strength of joint ✓  
 Material ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓  
 No. of rivets ✓ Working pressure of shell by rules ✓ Crown plates ✓ Thickness ✓ How stayed 2020

SUPERHEATER. Type none 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? *no*

If so, is a report now forwarded? *no*

SPARE GEAR. State the articles supplied:— Two connecting rods top and bottom end bolts nuts, a set of coupling bolts, two main bearing bolts nuts, one set of air circulating feed and bilge pump valves; one main and auxiliary check valve; 6 junk ring bolts, one safety valve, one propeller, one top and bottom packing ring for H.P. piston valve; 1 set escape springs, and assorted bolts and nuts and iron of different sizes.

The foregoing is a correct description,

HAWTHORNS & CO., LIMITED

*H. Sutherland* Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1919 Sept. 29 Oct. 24-28 Nov. 6-13-27 Dec. 22 June 28-29 Feb. 21 March 2-20-31  
During erection on board vessel --- 1920 May 11-20 June 1-5-28 July 16-19 Aug. 30-31 Sept. 6-11-21-27 Oct. 12-19 Nov. 2-3 Dec. 2  
Total No. of visits 33

Is the approved plan of main boiler forwarded herewith *✓*

Dates of Examination of principal parts—Cylinders 31-3-20 Slides 28-6-20 Covers 28-6-20 Pistons 28-6-20 Rods 22-12-19  
Connecting rods 22-12-19 Crank shaft 22-12-19 Thrust shaft 31-3-20 Tunnel shafts 31-3-20 Screw shaft 31-3-20 Propeller 28-6-20  
Stern tube 28-6-20 Steam pipes tested 19-10-20 Engine and boiler seatings 16-7-20 Engines holding down bolts 2-11-20  
Completion of pumping arrangements 3-11-20 Boilers fixed 11-9-20 Engines tried under steam 2-12-20  
Completion of fitting sea connections 16-7-20 Stern tube 16-7-20 Screw shaft and propeller 16-7-20  
Main boiler safety valves adjusted 3-11-20 Thickness of adjusting washers Port Bl: F 5/16 A 11/32 Plate Bl: F 5/16  
Material of Crank shaft S Identification Mark on Do. LLOYDS 5115 OM Material of Thrust shaft S Identification Mark on Do. LLOYDS 5115 CM  
Material of Tunnel shafts S Identification Marks on Do. LLOYDS 5115 C.M. Material of Screw shafts I Identification Marks on Do. LLOYDS 5115 CM  
Material of Steam Pipes Solid drawn Copper. Test pressure 360 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 *no* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c.)

This vessel's machinery has been built under special survey, and materials and workmanship are good.

It has been efficiently fitted on board the vessel, and in our opinion is eligible for record of + LMC 12.20. Elec. light.

The machinery was tried under steam & found satisfactory

It is submitted that this vessel is eligible for THE RECORD. + LMC 12.20

*Roll 16/12/20 JTM*

Certificate (if required) to be sent to

The amount of Entry Fee ... £ 2 : : : When applied for,  
Special ... £ 25 : 7 : : 10-12-1920  
Donkey Boiler Fee ... £ : : : When received,  
Travelling Expenses (if any) £ : : : 4-1-20

Committee's Minute FRI. 17 DEC. 1920

Assigned + LMC 12.20

*Chambers & A. T. Thomas*  
Engineer Surveyor to Lloyd's Register of Shipping

