

## REPORT ON MACHINERY.

No. 17406.

Received at London Office

JAN. 1919

Date of writing Report 24<sup>th</sup> Jan., 1919. When handed in at Local Office 24<sup>th</sup> Jan., 1919. Port of Greenock.  
No. in Survey held at Port Glasgow & Greenock. Date, First Survey 14<sup>th</sup> August, 1914. Last Survey 22<sup>nd</sup> Jan., 1919.  
Reg. Book. on the steel screw steamship "Crosshill" ex "Crosshill" (Number of Visits 107.)  
Master Thos. Stewart Built at Port Glasgow By whom built Russell & Co. Tons { Gross 4580.71  
Net 2805.38  
Engines made at Greenock By whom made Rankin & Blackmore Limited when made 1919.  
Boilers made at Greenock By whom made Rankin & Blackmore Limited when made 1919.  
Registered Horse Power 517 Owners Macbeth & Co., Ltd. Port belonging to London.  
Nom. Horse Power as per Section 28 517 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple, surface condensing No. of Cylinders 3 No. of Cranks 3  
Dia. of Cylinders 27" 44" + 73" Length of Stroke 48" Revs. per minute 82 Dia. of Screw shaft as per rule 14.65" Material of 1. 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 — 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  
liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 61 1/2"  
Dia. of Tunnel shaft as per rule 13.35" Dia. of Crank shaft journals as per rule 13.99" Dia. of Crank pin 14 1/2" Size of Crank webs 28.9" Dia. of thrust shaft under  
collars 14 3/4" Dia. of screw 17.6" Pitch of Screw 18.6" No. of Blades 4 State whether moveable No Total surface 100 sq ft  
No. of Feed pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes.  
No. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes.  
No. of Donkey Engines 3 1/2 Sizes of Pumps General 7 1/2" 18" Duplex 3 1/2" 4" No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 4-3 1/2" one 2 1/2" in tunnel In Holds, &c. 10-3 1/2"  
No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes, 3 1/2"  
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 mini alone  
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 other 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 Forward hold bilge pipes 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.  
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 Steel Co. of Scotland & Glasgow Iron & Steel Co.  
Total Heating Surface of Boilers 7668 sq ft Forced Draft fitted yes No. and Description of Boilers Three single ended.  
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 4.9.18 No. of Certificate 1259.  
Can each boiler be worked separately yes Area of fire grate in each boiler 683 sq ft No. and Description of Safety Valves to  
each boiler Two, Spring Area of each valve 9.62 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 2 1/2" Mean dia. of boilers 14.6" Length 11.6" Material of shell plates Steel  
Thickness 1 1/4" Range of tensile strength 28/32 tons Are the shell plates welded or flanged — Descrip. of riveting: cir. seams D.R.  
long. seams T.A.D.S. Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9 1/8" Lap of plates or width of butt straps 19 1/2"  
Per centages of strength of longitudinal joint rivets 88.3% Working pressure of shell by rules 182 lbs Size of manhole in shell 16" x 12"  
plate 88.6% No. and Description of Furnaces in each boiler 3 Brighton Material Steel Outside diameter 57 3/4"  
Size of compensating ring Flanged No. of strengthening rings —  
Length of plain part top — Thickness of plates crown 1 1/2" Description of longitudinal joint Welded No. of strengthening rings —  
bottom — Working pressure of furnace by the rules 188 lbs Combustion chamber plates: Material Steel Thickness: Sides 3 1/2" Back 4 1/2" Top 3 1/2" Bottom 3 1/2"  
Pitch of stays to ditto: Sides 10 1/2" x 9 1/2" Back 10 1/2" x 8 1/2" Top 10 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs  
Material of stays Steel Area at smallest part 2.395 sq in Area supported by each stay 98.3 sq in Working pressure by rules 220 lbs End plates in steam space:  
Material Steel Thickness 1 1/2" Pitch of stays 21 3/4" How are stays secured With nuts & washers. Working pressure by rules 181 lbs Material of stays Steel  
Area at smallest part 84836 sq in Area supported by each stay 478 sq in Working pressure by rules 86 lbs Material of Front plates at bottom Steel  
Thickness 3/8" Material of Lower back plate Steel Thickness 3/32" Greatest pitch of stays 13 5/8" Working pressure of plate by rules 188 lbs  
Diameter of tubes 2 1/4" Pitch of tubes 4" x 3 1/2" Material of tube plates Steel Thickness: Front 3 1/2" Back 3 1/2" Mean pitch of stays 9 1/4"  
Pitch across wide water spaces 13 7/8" Working pressures by rules 181 lbs Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 10" x 1 1/2" Length as per rule 35 3/4" Distance apart 10 7/8" Number and pitch of stays in each 3-9 1/4"  
Working pressure by rules 188 lbs Steam dome: description of joint to shell — % of strength of joint —  
Diameter — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes —  
Pitch of rivets — Working pressure of shell by rules — Crown plates — Thickness — How stayed —  
SUPERHEATER. Type — 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?

SPARE GEAR. State the articles supplied:—

Two top and bottom flange nuts, two bottom end flange nuts; two main bearing bolts nuts. One set coupling bolts, one set feed pump valves, one set bridge pump valves, one set check valves, one propeller, one H.F. piston valve, a quantity of assorted bolts nuts, and iron of various sizes.

The foregoing is a correct description,

RANKIN & BLACKMORE, LTD.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1917. Aug. 14-16. Oct. 2-8-23-29-31. Nov. 5-12-14-16-21-27-29. Dec. 3-6-10-18-20. (1918). Jan. 8-16-18-24-29. Feb. 1-5-7-13-15. 19. 21-25-27. Mar. 5-7-11-14-19-25-27. Apr. 1-4-9-12-16-18-22-25-29. May. 2-3-6-9-16-22-28-30. June 3-6-12-13-17-19-26. July. 17-22-24-25-30. Aug. 1-2-8-19-27. Sept. 2-4-12-16-20-24-27. Oct. 1-4-9-14-16-17-21-24-31. Nov. 6-11-15-21-22-25. Dec. 13-18-23-26-27. (1919). Jan. 9-10-17-20-21-22:—  
Total No. of visits 107.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " " "

Dates of Examination of principal parts—Cylinders 24/9/18 Slides 9/10/18 Covers 24/9/18 Pistons 9/10/18 Rods 1/10/18  
Connecting rods 9/10/18 Crank shaft 2/9/18 Thrust shaft 24/9/18 Tunnel shafts 27/9/18 Screw shaft 14/10/18 Propeller 14/10/18  
Stern tube 17/10/18 Steam pipes tested 30/1/18 Engine and boiler seatings 21/11/18 Engines holding down bolts 18/12/18  
Completion of pumping arrangements 27/12/18 Boilers fixed 27/12/18 Engines tried under steam 28/12/18.  
Completion of fitting sea connections 21/11/18 Stern tube 11/11/18 Screw shaft and propeller 18/12/18.  
Main boiler safety valves adjusted 27/12/18 Thickness of adjusting washers P 32. 5 32. Centre 5 32. 8 32.  
Material of Crank shaft 2. Steel Identification Mark on Do. 297 Material of Thrust shaft 1. Steel Identification Mark on Do. 297  
Material of Tunnel shafts 1. Steel Identification Marks on Do. 297 Material of Screw shafts 1. Steel Identification Marks on Do. 297.  
Material of Steam Pipes Lapwelded steel Test pressure 540 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 yes If so, state name of vessel "Lea Bank". G.R. Reg. No. 17343.  
General Remarks (State quality of workmanship, opinions as to class, &c. Workmanship good.)

The machinery & boilers of this steamship have been constructed under special survey and placed on board in accordance with the Society's Rules. They are now in <sup>our</sup> opinion in safe and efficient condition, and the case is respectfully submitted for the notification F.D. and + L.M.C. 1-1919 being entered for it in the Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD + LMC 1-19 FD

The amount of Entry Fee ... £ 101 16 :  
Special ... £ :  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ :  
When applied for, 21st Jan. 1919.  
When received, 25th Jan. 1919.

Committee's Minute GLASGOW 28 JAN 1919

Assigned + LMC 1, 19

FD.

MACHINERY CERTIFICATE  
WRITTEN 29.1.19



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