

REPORT ON MACHINERY

No. 41328
WED. AUG. 31 1921

Received at London Office

Date of writing Report 29. 8. 1921 When handed in at Local Office 29. 8. 1921 Port of Glasgow
 No. in Survey held at Reg. Book. on the SS "Eta" Glasgow Date, First Survey 19th April 1920 Last Survey 23rd Aug 1921
 (Number of Visits 38)
 Master Built at Glasgow By whom built W. Hamilton & Co No 381 Tons Gross Net When built 1921.
 Engines made at Glasgow By whom made D. Rowan & Co. Nos No 754 when made 1921
 Boilers made at Glasgow By whom made D. Rowan & Co. Btrs No 754 when made 1921
 Registered Horse Power Owners Howard Smith Ltd Port belonging to Melbourne
 Nom. Horse Power as per Section 28 323 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 24" x 40" x 65" Length of Stroke 45 Revs. per minute 77 Dia. of Screw shaft as per rule 13.56 Material of screw shaft Iron
 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
 Is the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 56"
 Dia. of Tunnel shaft as per rule 12.1" as fitted 12.1/2" Dia. of Crank shaft journals as per rule 12.7" as fitted 13" Dia. of Crank pin 13" Size of Crank webs 27 1/2 x 8 1/2 Dia. of thrust shaft under
 collars 13 1/4" Dia. of screw 16-6" Pitch of Screw 17-0" No. of Blades 4 State whether moveable No Total surface 82.5 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 1/4 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 six Sizes of Pumps 1-4 x 2 1/2 x 5-1-6 x 4 1/2 x 6-2-8 x 10 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2 @ 3 1/2": Stokehold 2 @ 3 1/2" In Holds, &c. No 1 hold 2 @ 3 1/2": No 2-2 @ 3 1/2"
 No 3-2 @ 3 1/2" Tunnel well 1 @ 3"
 No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. 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 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
 What pipes are 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.

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel D. Colville & Sons.
 Total Heating Surface of Boilers 5205 sq ft Is Forced Draft fitted No No. and Description of Boilers 3 Single ended multitubular
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 Date of test 26-1-21 No. of Certificate 15687
 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.14 sq ft No. and Description of Safety Valves to
 each boiler Two spring loaded Area of each valve 5.9 sq in Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 2'-9" Mean dia. of boilers 13'-9" Length 10'-6" Material of shell plates S
 Thickness 1 1/4" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D.R.
 Long. seams T.R. All Strap Diameter of rivet holes in long. seams 8 3/16 Pitch of rivets 8 3/16 Top of plates or width of butt straps 18"
 Percentages of strength of longitudinal joint rivets 90.5 Working pressure of shell by rules 180 Size of manhole in shell 16" x 12"
 Size of compensating ring 33 1/2 x 29 1/2 x 1 1/4 No. and Description of Furnaces in each boiler 3 Corrugated Material S Outside diameter 42"
 Length of plain part top Thickness of plates crown 1 1/2" Description of longitudinal joint welded No. of strengthening rings None
 bottom Thickness of plates bottom 3/2"
 Working pressure of furnace by the rules 180 Combustion chamber plates: Material S Thickness: Sides 23/32" Back 5/8" Top 23/32" Bottom 23/32"
 Pitch of stays to ditto: Sides 10 1/4 x 9 1/2" Back 9 1/4 x 8" Top 10 1/4 x 9 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 180
 Material of stays S Area at smallest part 1.76 sq ft Area supported by each stay 74 sq in Working pressure by rules 190 End plates in steam space:
 Material S Thickness 13/16" Pitch of stays 19 x 18 1/2" How are stays secured S. nuts Working pressure by rules 180 Material of stays S
 Area at smallest part 7.06 sq ft Area supported by each stay 351 sq in Working pressure by rules 203 Material of Front plates at bottom S
 Thickness 29/32" Material of Lower back plate S Thickness 25/32" Greatest pitch of stays 13 x 8 Working pressure of plate by rules 181
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 3/8 Material of tube plates S Thickness: Front 29/32" Back 23/32" Mean pitch of stays 10"
 Pitch across wide water spaces 14" Working pressures by rules 182 Girders to Chamber tops: Material S Depth and
 Thickness of girder at centre 8 x 13 1/4" Length as per rule 29 3/32 Distance apart 10 1/4" Number and pitch of stays in each 2 @ 9 1/2"
 Working pressure by rules 194 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
 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

008288-008295-0010

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 1 set each of top & bottom end, main bearing & coupling bolts & nuts, 1-(3/4) crank shaft, 1 air pump head & valves complete, 1 eccentric strap, 1 bottom end & 2 top end braces, 1 air pump bucket & rod, 1 circulating pump bucket & rod, 1 main engine valve spindle, 1 screw shaft, 1-C.I. propeller, 1 set of bilge, feed & circulating pump valves, 3 main & 3 aux check valves, 1 set of safety valve springs, 1 set of cylinder escape valve springs, 12 junk ring studs & nuts, 6 cyl covers & studs, 36 plam tubes & 12 stay tubes, spare valves for donkey pumps, condensers tubes & ferrules, associated iron, bolts & nuts, etc.

The foregoing is a correct description.

David Rowan & Co. Ltd. Private Land Manufacturer.

Dates of Survey while building: During progress of work in shops - 1920 Apr 19, May 17-27, Jun 21, July 13, Aug 16, Oct 28, Nov 22, 30, Dec 8, 15 (1921), Jan 11, 13, 21, 25, 26, Feb 5, 11, 14, 16; During erection on board vessel - Mar 7, 25, 29, Apr 27, May 18, 25, Jun 7, 8, 16, 22, July 5, 6, 11, 13, Aug 5, 23; Total No. of visits 38

Is the approved plan of main boiler forwarded herewith? *Yes*
" " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders 5-2-21, Slides 11-1-21, Covers 5-2-21, Pistons 11-1-21, Rods 11-1-21, Connecting rods 11-1-21, Crank shaft 15-12-20, Thrust shaft 21-1-21, Tunnel shafts 8-12-20, Screw shaft 10-2-21, Propeller 7-6-21, Stern tube 7-3-21, Steam pipes tested 13-7-21, Engine and boiler seatings Greenock Rpt, Engines holding down bolts 6-7-21, Completion of pumping arrangements 23-8-21, Boilers fixed 6-7-21, Engines tried under steam 23-8-21, Completion of fitting sea connections Greenock Rpt, Stern tube Greenock Rpt, Screw shaft and propeller Greenock Rpt, Main boiler safety valves adjusted 5-8-21, Thickness of adjusting washers S.P. 3/32, S 3/16, C.P. 3/32, S 1/4, P.P. 1/4, S 3/32, LLOYD-7795, Material of Crank shaft S, Identification Mark on Do. see below, Material of Thrust shaft S, Identification Mark on Do. A.F.M. 21-2, they, Material of Tunnel shafts S, Identification Marks on Do. see below, Material of Screw shafts Iron, Identification Marks on Do. 10-2-21, they, Material of Steam Pipes Seamless Copper & Lap welded iron, Test pressure 360 and 540 lbs, Is an installation fitted for burning oil fuel *no*, 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 duplicate of a previous case? *Yes*, If so, state name of vessel: *"Manachu" Report N° 40824*

General Remarks (State quality of workmanship, opinions as to class, &c.)
Marks on tunnel shafts. N° *LLOYD* 7789-7790-7791-7792-7793: 5453. A.F.M. 8-12-20.
Marks on crank shaft journals. - N° 1-3 & 5 = *LLOYD* 5456, 5453, A.F. N° 2-4 & 6 = *LLOYD* 5457, 5453, A.F. Mark on crank pins *LLOYD* 3324, 1933, 1932, 738, 738, 738

The Engines and Boilers of this vessel have been built under Special Survey and in accordance with the Rules the materials and workmanship are sound and good: they have been fitted on board in an efficient manner, tried under working conditions and are eligible in my opinion to be classed with record of + L.M.C 8-21.

It is submitted that this vessel is eligible for THE RECORD. + LMC 8.21. C.L.

Recl
1/9/21
J.M.

The amount of Entry Fee ... £ 5 : 0 :
Special ... £ 73 : 9 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for. 30/8/21.
When received. 1.9.21

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW. 30 AUG 1921
Assigned + LMC 8, 21.
MACHINERY CERT
WRITTEN 3/9/21
dated 3/8/21