

REPORT ON MACHINERY.

Received at Office Glasgow W.F.O. 21 MAY 1924

Date of writing Report 10 When handed in at Local Office 12.5.24 Port of Glasgow

No. in Survey held at Dalmuir Date, First Survey 5th Oct. 1923 Last Survey 10th May 1924

Reg. Book. on the s/s "ARCOONA" No. 630 (Number of Visits 54)

Master Dalmuir Built at Dalmuir By whom built H. Beardmore & Co. Tons Gross 4212 Net 2593

Engines made at Dalmuir By whom made H. Beardmore & Co. when made 1924

Boilers made at Dalmuir By whom made H. Beardmore & Co. when made 1924

Registered Horse Power 441 Owners Adelaide Steamship Co Port belonging to Probably Sydney

Nom. Horse Power as per Section 28 441 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Steam, triple expansion, inverted No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 25", 41", 68" Length of Stroke 45" Revs. per minute 76/78 Dia. of Screw shaft as per rule 1.37" Material of screw shaft as fitted 1.4 7/16" wrought 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 in 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 Yes Length of stern bush 4' 11 1/2"

Dia. of Tunnel shaft as per rule 12.4" Dia. of Crank shaft journals as per rule 1.3" Dia. of Crank pin 1 3/4" Size of Crank webs 2' 0 3/4" wide Dia. of thrust shaft under collars 1 3/4" Dia. of screw 16' 4" Pitch of Screw 16' 6" No. of Blades 4 State whether moceable No Total surface 87 sq ft

No. of Feed pumps 2 Diameter of ditto 4 1/4" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Donkey Engines two Sizes of Pumps 9 1/2" cyl. 7" pump. 21" stroke. Simplex No. and size of Suctions connected to both Bilge and Donkey pumps 12" duplex

In Engine Room 3 at 2 1/2" tone in E.R. 3 at 2 1/2" in B.R. In Holds, &c. 7 at 2 1/2" tone, 2 at 2 3/4", 1 at 2 1/2" (drain well)

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 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 None

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 Yes

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 deck

BOILERS, &c.—(Letter for record) Manufacturers of Steel H. Beardmore & Co. & J. Colville & Son.

Total Heating Surface of Boilers 6600 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3, S.E. cylindrical marine

Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 10/11/24, 15/1/24 No. of Certificate 16392, 16396, 16401

Can each boiler be worked separately Yes Area of fire grate in each boiler 53.6 sq ft No. and Description of Safety Valves to each boiler two Spring loaded Area of each valve 7.06 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 well clear Mean dia. of boilers 14' 0" Length 11' 6" Material of shell plates Steel

Thickness 1 3/16" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams double long. seams triple Diameter of rivet holes in long. seams 1/4" Pitch of rivets 8 3/4" Lap of plates or width of butt straps 18"

Per centages of strength of longitudinal joint rivets 91.2 plate 85.7 Working pressure of shell by rules 187 lbs Size of manhole in shell 20" x 16"

Size of compensating ring 34" x 30 1/2" x 1 1/16" No. and Description of Furnaces in each boiler 3 horizontal Material Steel Outside diameter 40"

Length of plain part top 17 1/2" bottom 17 3/2" Thickness of plates crown 1 7/32" Description of longitudinal joint welded No. of strengthening rings Yes

Working pressure of furnace by the rules 192 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1/16"

Pitch of stays to ditto: Sides 10" x 9" Back 10 1/8" x 8 3/8" Top 9 1/4" x 9 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183 lbs

Material of stays Steel Diameter at smallest part 1 3/4" Area supported by each stay 90 sq in Working pressure by rules 201 lbs End plates in steam space: Material Steel Thickness 1 1/4" Pitch of stays 2 1/2" x 18 1/2" How are stays secured double nuts Working pressure by rules 181 lbs Material of stays Steel

Thickness 29/32" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 11 5/8" Working pressure of plate by rules 214 lbs

Diameter of tubes 2 3/4" Pitch of tubes 4" x 3 3/8" Material of tube plates Steel Thickness: Front 29/32" Back 27/32" Mean pitch of stays 11.8"

Pitch across wide water spaces 13 3/4" Working pressures by rules 184 lbs front 184 lbs back Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9" x 1 1/2" Length as per rule 30 1/2" Distance apart 9 1/4" Number and pitch of stays in each 2 of 9 1/4"

Working pressure by rules 228 lbs Steam dome: description of joint to shell None % of strength of joint Yes

Diameter Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes

Pitch of rivets Yes Working pressure of shell by rules Yes Crown plates Yes Thickness Yes How stayed Yes

SUPERHEATER. Type None Date of Approval of Plan None Tested by Hydraulic Pressure to None

Date of Test None Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler None

Diameter of Safety Valve None Pressure to which each is adjusted None Is Easing Gear fitted None

IS A DONKEY BOILER FITTED? No If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Bolts and nuts for connecting rod bottom end, ditto for top end, ditto for main bearings, one set of coupling bolts and nuts, valves and valve seats for feed and bilge pumps, Lockwood & Carlisle rings for H.P. I.P. and L.P. pistons, ditto for H.P. & I.P. piston valves, the propeller shaft, bushes for various parts of engines, cast iron propeller, Springs for replace where used, valves of various sizes, bolts, studs and nuts assorted, 100 condenser tubes, 300 spools, assorted sizes of iron or steel, various other articles.

The foregoing is a correct description,
For WILLIAM BEARDMORE & CO., LIMITED

W.D. Gray Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1923 Oct 5, 8, 16, 23, 26, 30, Nov 7, 9, 12, 15, 21, 26, 29, Dec 3, 6, 10, 13, 18, 20, 25, 27, 1924 Jan 7, 10, 15, 17, 25, 28, Feb 4, 7, 11, 15, 18. During erection on board vessel -- 20, 25, 28, Mar 4, 6, 7, 10, 13, 17, 20, 24, 27, 31, Apr 3, 7, 14, 17, 22, 29, May 7, 10. Total No. of visits 54. Is the approved plan of main boilers forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 10/1/24 Slides 25/12/23 Covers 25/12/23 Pistons 25/1/24 Rods 10/1/24 Connecting rods 10/1/24 Crank shaft 20/2/24 Thrust shaft 20/2/24 Tunnel shafts 20/2/24 Screw shaft 25/1/24 Propeller 20/2/24 Stern tube 20/2/24 Steam pipes tested 17/3/24, 7/4/24 Engine and boiler seatings 10/3/24. Engines holding down bolts 17/4/24. Completion of pumping arrangements 29/4/24 Boilers fixed 27/3/24. Engines tried under steam 10/5/24. Completion of fitting sea connections 4/3/24 Stern tube 25/2/24. Screw shaft and propeller 4/3/24 Main boiler safety valves adjusted 29/4/24 Thickness of adjusting washers F 7/16 A 9/32 F 9/32 A 5/16 F 3/8 A 3/8. Material of Crank shaft Steel Identification Mark on Do. LLOYD'S No 630 Material of Thrust shaft Steel Identification Mark on Do. 7909 Material of Tunnel shafts Steel Identification Marks on Do. 7904/5/6/7/8 Material of Screw shafts Steel Identification Marks on Do. 644 5 parts 1640 Material of Steam Pipes S.D. 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 No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)
These engines and boilers have been built under Special Survey and the materials tested in accordance with the Rules of this Society. The materials and workmanship, as far as can be seen are sound and good; the machinery has been properly fitted on board and tried under steam. The machinery of this vessel is eligible in my opinion to be classed with the notation of $\frac{1}{2}$ L.M.C. 5-1924 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5.24. FD. CL.

CERTIFICATE WRITTEN 21/5/24

W.D. Gray 21/5/24

The amount of Entry Fee ... £ 5 : 0 :
Special ... £ 91 : 3 : 15757 1924
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : : 21/5/24

A. Campbell
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 26 SEP 1924

Committee's Minute
Assigned + LMC 5.24
FD



Glasgow

Certificate (if required) to be sent to
The Surveyors are requested not to write on or below the space for Committee's Minute.