

# REPORT ON MACHINERY.

No. 39643

Received at London Office

WED. FEB. 18, 1920

Date of writing Report

19

When handed in at Local Office

16. 2

to

20

Port of Glasgow

No. in Survey held at Reg. Book.

Glasgow

Date, First Survey 4. 11. 18.

Last Survey 5 / 2 / 1920.

on the

S.S. "YAR BRAHMIN" (Z class)

(Number of Visits 34)

Tons } Gross  
Net

Master Built at Pt Glasgow By whom built Russell & Co When built 1919

Engines made at Glasgow By whom made W Rowan & Co Ltd (no 717) when made

Boilers made at do By whom made do (no 717) when made

Registered Horse Power Owners Port belonging to

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 Expansion No. of Cylinders 3 ✓ No. of Cranks 3 ✓

Dia. of Cylinders 27-44-73 ✓ Length of Stroke 48 ✓ Revs. per minute 77 ✓ Dia. of Screw shaft as per rule 14.7 ✓ Material of screw shaft as fitted 15.5 ✓ 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 yes ✓ If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 5-0 1/2 ✓

Dia. of Tunnel shaft as per rule 13.3 ✓ as fitted 13.5 ✓ Dia. of Crank shaft journals as per rule 14 ✓ as fitted 14.5 ✓ Dia. of Crank pin 4.2 ✓ Size of Crank webs 28x9 ✓ Dia. of thrust shaft under collars 14 3/4 ✓ Dia. of screw 17-6 ✓ Pitch of Screw 16-6 ✓ No. of Blades 4 ✓ State whether moveable no Total surface 98.2 ✓

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 ✓ Sizes of Pumps 1 Battant 10 1/2 x 14 x 24 ✓ 2 9 1/2 x 7 x 18 ✓ 4 9 1/2 x 7 x 18 ✓ No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room (3) 3 1/2" ✓ In Holds, &c. Cross Bunker (2) 3 1/2" ✓ aft hold (2) 3 1/2" ✓

Tunnel well (1) 3 1/2" ✓

No. of Bilge Injections 1 ✓ sizes 1 1/2" ✓ 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 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 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 7 a Suctions ✓ How are they protected wood casing ✓

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 no ✓ worked from bunkway escapes fitted

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel Steel 60 of Scotland Ltd 3.S.B.

Total Heating Surface of Boilers 766 8 1/4 ✓ Is Forced Draft fitted yes ✓ No. and Description of Boilers 3 Single ended ✓

Working Pressure 180 lb ✓ Tested by hydraulic pressure to 360 ✓ Date of test 29.8.19 No. of Certificate 14881 ✓

Can each boiler be worked separately yes ✓ Area of fire grate in each boiler 63.33 1/4 ✓ No. and Description of Safety Valves to each boiler 2 Spring loaded ✓ Area of each valve 9.60 ✓ Pressure to which they are adjusted 185 lb ✓ Are they fitted with easing gear yes ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 1-6 ✓ Mean dia. of boilers 15-6 ✓ Length 11-6 ✓ Material of shell plates Steel ✓

Thickness 1 1/4 ✓ Range of tensile strength 28 to 32 tons ✓ Are the shell plates welded or flanged no ✓ Descrip. of riveting: cir. seams Lap ✓

long. seams TR DBS ✓ Diameter of rivet holes in long. seams 1 5/8 ✓ Pitch of rivets 9/8 ✓ Lap of plates or width of butt straps 19 1/2 ✓

Per centages of strength of longitudinal joint rivets 88.3 ✓ plate 85.6 ✓ Working pressure of shell by rules 180 ✓ Size of manhole in shell 16x12 ✓

Size of compensating ring and flanged No. and Description of Furnaces in each boiler 3 Arranged Material Steel Outside diameter 4-2 3/4 ✓

Length of plain part top 19 ✓ bottom 32 ✓ Thickness of plates crown 19 ✓ bottom 32 ✓ Description of longitudinal joint welded ✓ No. of strengthening rings —

Working pressure of furnace by the rules 188 ✓ Combustion chamber plates: Material Steel Thickness: Sides 23 ✓ Back 16 ✓ Top 32 ✓ Bottom 32 ✓

Pitch of stays to ditto: Sides 10 5/8 x 9 1/4 ✓ Back 10 1/4 x 8 3/4 ✓ Top 10 5/8 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 2.395 ✓ Area supported by each stay 98 ✓ Working pressure by rules 19 ✓ End plates in steam space: Material Steel Thickness 1 3/8 ✓ Pitch of stays 2 1/4 x 20 1/2 ✓ How are stays secured do ✓ Working pressure by rules 181 ✓ Material of stays Steel ✓

Area at smallest part 8.290 ✓ Area supported by each stay 445 0 ✓ Working pressure by rules 198 ✓ Material of Front plates at bottom Steel ✓

Thickness 3/8 ✓ Material of Lower back plate Steel Thickness 27 ✓ Greatest pitch of stays 13 5/8 x 8 3/4 ✓ Working pressure of plate by rules 187

Diameter of tubes 2 3/4 ✓ Pitch of tubes 4 x 3 3/8 ✓ Material of tube plates Steel Thickness: Front 31 ✓ Back 3 ✓ Mean pitch of stays 9 7/8 ✓

Pitch across wide water spaces 13 5/8 ✓ Working pressures by rules 181 ✓ Girders to Chamber tops: Material Steel ✓ Depth and thickness of girder at centre 10 x 7 1/8 (2) ✓ Length as per rule 35 7/8 ✓ Distance apart 10-8 ✓ Number and pitch of stays in each (3) 9 1/4 ✓

Working pressure by rules 188 ✓ Steam dome: description of joint to shell none ✓ % of strength of joint

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

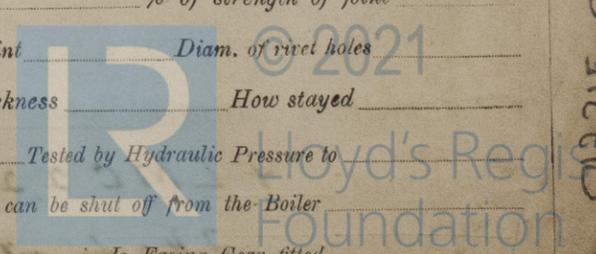
Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type 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

012315-012323-0232



IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? *-*

SPARE GEAR. State the articles supplied:— *2 top and bolts and nuts, 2 bottom end bolts and nuts, 2 main bearing bolts and nuts, 1 set coupling bolts and nuts, 2 feed and beer pump valves, assorted iron bolts and nuts and other articles as required by specification.*

The foregoing is a correct description,

*Dand Kowan & Co Ltd* Manufacturer.  
*for Alex Sand*

Dates of Survey while building: During progress of work in shops -- *1918 Nov 4 Dec 11 1919 Jan 22 Feb 6 11 Mar 11 Apr 16 May 4 16 June 3 16 18 20 23 24 30 July 1 1920 Aug 1 12 22 29 Sept 4 Oct 10 Dec 1 12 14 26 29 1920 Jan 6 8 Feb 5*  
Total No. of visits *3 ft.*

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

" " " donkey " " " *-*

Dates of Examination of principal parts—Cylinders *6.2.19* Slides *11.3.19* Covers *11.3.19* Pistons *16.4.19* Rods *3.6.19*  
Connecting rods *23.6.19* Crank shaft *30.6.19* Thrust shaft *12.8.19* Tunnel shafts *10.10.19* Screw shaft *4.9.19* Propeller *4.9.19*  
Stern tube *22.8.19* Steam pipes tested *14.7.19* Engine and boiler seatings *17.12.19* Engines holding down bolts *26.12.19*  
Completion of pumping arrangements *26.12.19* Boilers fixed *26.12.19* Engines tried under steam *26.12.19 5.2.20*

Completion of fitting sea connections *Cork* Stern tube *Cork* Screw shaft and propeller *Cork*

Main boiler safety valves adjusted *26.12.19* Thickness of adjusting washers *Port  $\frac{9}{32}$  "  $\frac{3}{16}$  " Centre  $\frac{5}{16}$  "  $\frac{3}{4}$  " Sta  $\frac{3}{8}$  "  $\frac{3}{8}$  "*

Material of Crank shaft *Steel* Identification Mark on Do. *1772 AF 717 TM* Material of Thrust shaft *Steel* Identification Mark on Do. *LR 2708 12.8.19*

Material of Tunnel shafts *Steel* Identification Marks on Do. *\** Material of Screw shafts *Steel* Identification Marks on Do. *C. 2 F 4649 4.9.19*

Material of Steam Pipes *Steel* Test pressure *540 lb.*

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 duplicate of a previous case *yes* If so, state name of vessel *Standard 2*

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

*\* LR 2297 T688 10.10.19 JE LR 2519 T617 16.10.19 JE LR 2160 T618 16.10.19 JE LR 2208 T644 16.10.19 JE LR 4649 C.M. 16.10.19 JE LR 2511 T817 10.10.19 JE*

The Machinery of this Vessel has been constructed under special Survey in accordance with the Rules and approved Plans and has been seen working satisfactorily under steam. Materials and workmanship are good

The Machinery is eligible in our opinion to be Classed + LMC 2-20 and to have record of fitted for oil fuel 2.20 F.P. above 150° F.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 2.20. F.D.

FITTED FOR OIL FUEL 2.20. F.P. ABOVE 150° F.

The amount of Entry Fee ... £ : :  
Special ... £ 146 : 11 :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for *17.2.19 20.*  
When received *18/2/19 20.*

*J.W.R.* *19/2/20* *A.P.R.*  
*James Easton, M.S. Murray*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW** 14 FEB 1920

FRI. AUG. 16 1920  
WED. MAY. 18 1921

Assigned + LMC 2.20 MACHINERY CERT. WRITTEN 18/2/20

Fitted for oil fuel 2.20 F.P. above 150° F.

GLASGOW

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

