

## REPORT ON MACHINERY

No. 42370

Received at London

20 1922

Date of writing Report 18. 12. 1922 When handed in at Local Office 18. 12. 1922 Port of Glasgow  
 No. in Survey held at Glasgow Date, First Survey 18. Aug 1921 Last Survey 11. Dec 1922  
 Reg. Book. s/s "Famakea" (Number of Visits 79.) Tons { Gross 5815  
 on the Net 3824  
 Master Built at Glasgow By whom built Alex Stephen & Son Ltd. 498 When built 1922  
 Engines made at Glasgow By whom made Alex Stephen & Son Ltd. (498) when made 1922  
 Boilers made at ditto By whom made ditto (498) when made 1922  
 Registered Horse Power 684 694 Owners The Khedival Mail Steamship Co. Port belonging to London  
 Shaft Horse Power at Full Power 3150 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

URBINE ENGINES, &c. Description of Engines Single Reduction Gear Turbine on Shaft No. of Turbines 2  
 Diameter of Rotor Shaft Journals, H.P. 5 1/2" L.P. 4" Diameter of Pinion Shaft 6"  
 Diameter of Journals 6" Distance between Centres of Bearings 4. 10 3/4" Diameter of Pitch Circle 7. 7. 92  
 Diameter of Wheel Shaft 14" Distance between Centres of Bearings 5. 10" Diameter of Pitch Circle of Wheel 128. 76  
 Width of Face 2 @ 4 1/2" Diameter of Thrust Shaft under Collars 13" Diameter of Tunnel Shaft as per rule 12 3/8" 12. 24"  
 as fitted 12 3/8"  
 No. of Screw Shafts one Diameter of same as per rule 14" 13. 1" Diameter of Propeller 15. 0" Pitch of Propeller 14. 0"  
 as fitted 14"  
 No. of Blades 4 State whether Moveable Yes Total Surface 684 Diameter of Rotor Drum, H.P. L.P. astern  
 Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine 1790 Propeller 110

## ARTICULARS OF BLADING.

Brown &amp; Butler

	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									
9TH									
10TH									

No. and size of Feed pumps 3 2. 12 x 9 x 24" one 7 1/2 x 5 1/2 x 15"  
 No. and size of Bilge pumps 3 6. 7 x 15 9 x 10 x 11 (10 x 6 x 24 in.) one Emergency 5"  
 No. and size of Bilge suction in Engine Room 2. 5" 3. 3 1/2" - 1. 2 1/2" Boiler Room 1. 5" - 2. 3 1/2" Tunnel Drill 1. 2 1/2"  
 In Holds, &c. 2. 3 1/2" in each.

No. of Bilge Injections 1. sizes 12" Connected to circulating pump pump Is a separate Donkey Suction fitted in Engine Room & size 1. 5"  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes  
 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  
 That pipes are carried through the bunkers Bilge Suction 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 Yes worked from U E R Platform

BOILERS, &c. (Letter for record S) Manufacturers of Steel Steel Co of Scotland  
 Total Heating Surface of Boilers 9191 ft<sup>2</sup> Is Forced Draft fitted Yes No. and Description of Boilers 4 Single Ended  
 Working Pressure 215 Tested by hydraulic pressure to 375 Date of test 3-8-22 10-8-22 No. of Certificate 16090-1 16094  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 57. 45 No. and Description of Safety Valves to  
 on each boiler Double Spring (2) Area of each valve 8. 29 Pressure to which they are adjusted 220 Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 4" dia. of boilers 14. 9 Length 11. 6 Material of shell plates S  
 Thickness 7/16" Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams LOR  
 Rivet seams TR. DBS Diameter of rivet holes in long. seams 17/16" Pitch of rivets 10 3/16" Lap of plates width of butt straps 23 5/16"  
 Percentages of strength of longitudinal joint rivets 85. 33 Working pressure of shell by rules 217 Size of manhole in shell 20 1/2 x 16 1/2"  
 plates 85. 88

Size of compensating ring 39 x 34 7/8" No. and Description of Furnaces in each Boiler 3 Corrugated Material S Outside diameter 46 1/4"  
 Length of plain part top Thickness of plates crown 4 1/16" Description of longitudinal joint weld No. of strengthening rings  
 bottom 4 1/16" bottom  
 Working pressure of furnace by the rules 216 Combustion chamber plates: Material S Thickness: Sides 43/64" Back 43/64" Top 43/64" Bottom 25/32"  
 Pitch of stays to ditto: Sides 8 3/16" Back 8 3/16" Top 8 3/16" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 216  
 Material of stays S Area at smallest part 14 3/4" - 2. 03 Area supported by each stay 75. 6 Working pressure by rules 216 End plates in steam space  
 Material S Thickness 1 1/4" Pitch of stays 20 1/2 x 15 1/2 How are stays secured DN Working pressure by rules 220 Material of stays S  
 Area at smallest part 6. 65 Area supported by each stay 317. 45 Working pressure by rules 229 Material of Front plates at bottom S  
 Thickness 7/8" Material of Lower back plate S Thickness 29/32" Greatest pitch of stays 130/4 x 8 Working pressure of plate by rules 260  
 Diameter of tubes 23 3/4" Pitch of tubes 4 x 3 5/16" Material of tube plates S Thickness: Front 7/8" Back 13/16" Mean pitch of stays 7. 9  
 Pitch across wide water spaces 13 3/4" Working pressures by rules 215 Girders to Chamber tops: Material S Depth and  
 Thickness of girder at centre 8 3/4" x 17/8" Length as per rule 33 1/2 Distance apart 8" Number and pitch of stays in each 3 at 8"  
 Working pressure by rules 214 Steam dome: description of joint to shell None % of strength of joint Diameter  
 Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
 Working pressure of shell by rules Crown plates: Thickness How stayed

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SUPERHEATER. Type *N° 1* *Cast Iron* Date of Approval of Plan *see Rpt. attached* Tested by Hydraulic Pressure to *see Rpt. attached*  
Date of Test *see Rpt. attached* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*  
Diameter of Safety Valve *2"* Pressure to which each is adjusted *220* Is Easing Gear fitted *yes*

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

SPARE GEAR. State the articles supplied:— *2 Bolted nuts for each side of Rotor Bearing, ditto main Gear Wheel Bearing, ditto for Pinion Bearing, 1 set of Coupling bolts for each end used, 1/2" of total number of bolts nuts for each Gear Joint, ditto for Turbine Coupling joint, 2 Thermometers for oil air system, 1 set of Bearing bushes for one gear wheel shaft, ditto for Rotor Pinion shafts one 1/2 set of packing rings for each gland of Rotor shaft, 1/2 number of Springs, Sufficient pads for one face, Mitchell main Thrust, Rotor one set of Pads Mitchell Type for Turbine, 1 set of Lamin for adjusting Block of different thickness, 1 set of End-Ridge Pump orater, 1 set of ocher for Lub. oil pump, 1 Buckel Rod for same, 1 Escape or air Spring of each one fitted a quantity of mottled lock studs, nuts Bars, plates of Solid Steel*

The foregoing is a correct description,

ALEXANDER STEPHEN & SONS, LIMITED. Manufacturer.

*Shirley H. Alston* Director.

Dates of Survey while building { During progress of work in shops --- *1921 Aug 18 Sep 27 Oct 6 Nov 30 Dec 6 1922 Jan 11 17 24 Feb 3 7 8 13 14 30 22 28 Mar 6 8 14 31 Apr 4 11 14 30 May 2 10 24 30 Jun 7 9*  
During erection on board vessel --- *Apr 4 11 26 May 3 9 14 17 18 21 23 27 30 Sep 4 12 18 27 28 29 30 Oct 2 6 10 17 24 30 Nov 7 13 16 17 20 21 23 27 30 Dec 1 11*  
Total No. of visits *79.*

Is the approved plan of main boiler forwarded herewith *yes*  
" " " donkey " " " *None*

Dates of Examination of principal parts—Casings *10. 10. 22* Rotors *30. 10. 22* Blading *30. 10. 22* Gearing *30. 11. 22*  
Rotor shaft *30. 11. 22* Thrust shaft *4. 9. 22* Tunnel shafts *4. 9. 22* Screw shaft *4. 9. 22* Propeller *25. 8. 22*  
Stern tube *25. 8. 22* Steam pipes tested *17. 11. 22* Engine and boiler seatings *17. 10. 22* Engines holding down bolts *16. 11. 22*  
Completion of pumping arrangements *27. 11. 22* Boilers fired *16. 11. 22* Engines tried under steam *11. 12. 22*  
Main boiler safety valves adjusted *30. 11. 22* Thickness of adjusting washers *F3/8 A 3/8 F1/2 A 5/16 F3/8 A 5/16 F3/8 A 1/2*

Material and tensile strength of Rotor shaft *Steel 34 5 38* Identification Mark on Do. *LLOYDS 1223 C. WGM*  
Material and tensile strength of Pinion shaft *Steel 40-45* Identification Mark on Do. *LLOYDS 9338 WGM*  
Material of Wheel shaft *S* Identification Mark on Do. *1223 B WGM* Material of Thrust shaft *S* Identification Mark on Do. *LLOYDS*  
Material of Tunnel shafts *S* Identification Marks on Do. *498 WGM* Material of Screw shafts *S* Identification Marks on Do. *498 WGM*  
Material of Steam Pipes *S* Test pressure *645*

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 a 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 & Boilers have been built under Special Survey in accordance with the approved plans. The workmanship & material are of good quality. They have been securely fitted on board & tried under steam & found satisfactory. The machinery is eligible in my opinion to be classed with the record of LMC 12-22. Notation of fitted for oil fuel 12-22 FP above 150°F*

The amount of Entry Fee ... £ *6* : -  
Special ... £ *109* : *4*.  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ :  
When applied for, *18/12/22*  
When received, *22/12/22*

*Wm Gordon-Munich & H. S. Sellar*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 19 DEC 1922*

Assigned *+ LMC 12,22 70.*

*Fitted for oil fuel 12,22 F.P. above 150°F.*



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