

REPORT ON MACHINERY.

No. 42484

Received at London Office FEB. 21 1923

Date of writing Report 10-2-23 When landed in at Local Office 19-2-23 Port of Glasgow
 No. in Survey held at Glasgow 518 Reg. Book. Date, First Survey 18th Aug 1921 Last Survey 8th Feb 1923.
 on the "Fezara" (Number of Visits 74) Gross 5809 Tons Net 3519
 Master Built at Glasgow By whom built Alex Stephens & Son Ltd (1909) When built 1923
 Engines made at Glasgow By whom made Alex Stephens & Son Ltd (1909) when made 1923
 Boilers made at ditto By whom made ditto (1909) when made 1923
 Registered Horse Power 684 694 Owners The Khedivial Mail S.S. Co. Ltd Port belonging to London
 Shaft Horse Power at Full Power 3150 Is Refrigerating Machinery fitted for cargo purposes No Electric Light fitted

TURBINE ENGINES, &c. Description of Engines Single Reduction geared turbine on shaft No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. 6 1/2" L.P. 7" Diameter of Pinion Shaft 6"
 Diameter of Journals 6" Distance between Centres of Bearings 4-10 3/4" Diameter of Pitch Circle 7.07 L.P. 7.92
 Diameter of Wheel Shaft 1 1/4" Distance between Centres of Bearings 5-10" Diameter of Pitch Circle of Wheel 128.76
 Width of Face 2 1/2" Diameter of Thrust Shaft under Collars 12" Diameter of Tunnel Shaft as per rule 12 3/8" as fitted 12 3/8"
 No. of Screw Shafts one Diameter of same as per rule 1 1/4" as fitted 1 1/4" Diameter of Propeller 15-0" Pitch of Propeller 14-0"
 No. of Blades 4 State whether Moveable yes Total Surface 68 ft 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 1900 Propeller 160

PARTICULARS OF BLADING. Brown Boveri

	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									

No. and size of Feed pumps 3. 2. 12.9 x 24 on 7 1/2 x 5 1/2 x 15"
 No. and size of Bilge pumps 3. 6 x 7 x 15. 9 x 10 x 11. (10 x 6 x 24 Gel Senna) on 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 well 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 yes
 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
 Are the pipes 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 UER Platform

BOILERS, &c. (Letter for record \$) Manufacturers of Steel Steel Co of Scotland
 Total Heating Surface of Boilers 9191 ft² Is Forced Draft fitted yes No. and Description of Boilers 4 Single ended
 Working Pressure 215 Tested by hydraulic pressure to 373 Date of test 13.9.22, 22.9.22 No. of Certificate 16111 = 257m
 Is each boiler worked separately yes Area of fire grate in each boiler 57.75 ft² No. and Description of Safety Valves to 161203
 Is boiler Double Drum (2) yes Area of each valve 8.29 ft² Pressure to which they are adjusted 220 Are they fitted with easing gear yes
 Is the distance between boilers or uptakes and bunkers or woodwork 4" dia. of boilers 14.9" Length 11-6" Material of shell plates S
 Thickness 1 1/16" Range of tensile strength 28-32 Are the shell plates welded or flanged No Description of riveting: cir. seams - LDR
 Seams T R D B S Diameter of rivet holes in long. seams 1 7/16" Pitch of rivets 10 3/16" Length of butt straps 23 5/16"
 Percentages of strength of longitudinal joint rivets 85-33, plates 85-88 Working pressure of shell by rules 217. Size of manhole in shell 20 1/2" x 16 1/2"
 Is compensating ring 29.34 7/8" No. and Description of Furnaces in each Boiler 3 Corrugated Material \$ Outside diameter 46 1/4"
 Thickness of plates top 1 1/16" bottom 1 1/16" Description of longitudinal joint weld No. of strengthening rings 4
 Working pressure of furnace by the rules 216 Combination chamber plates: Material \$ Thickness: Sides 43/64" Back 43/64" Top 43/64" Bottom 25/32"
 If stays are fitted with nuts or riveted heads yes Working pressure by rules 216 End plates in steam space
 Material of stays \$ Thickness 1 1/4" Pitch of stays 20 1/2" x 5 1/2" How are stays secured ON Working pressure by rules 220 Material of stays S
 Area supported by each stay 317.75 ft² Working pressure by rules 229 Material of Front plates at bottom S
 Material of Lower back plate S Thickness 29/32" Greatest pitch of stays 13 3/4" x 8" Working pressure of plate by rules 260
 Material of tube plates S Thickness: Front 7/8" Back 13/16" Mean pitch of stays 7.9
 Girders to Chamber tops: Material \$ Number and pitch of stays in each 3 at 7 3/8"
 Length as per rule 33 1/2" Distance apart 8" % of strength of joint -
 Diameter of rivet holes -
 Material - Description of longitudinal joint -
 Crown plates: Thickness - How stayed -

SUPERHEATER. Type *W. Gordon & Sons* Date of Approval of Plan *see Spt. attached* Tested by Hydraulic Pressure to *see Spt. attached*
Date of Test *see Spt. 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 bolts & nuts for each sign of rotor bearing, ditto main gear wheel bearing, ditto for pinion bearing, sign of coupling bolts for each sign used, 1/20" of total number of bolts & nuts for each gear case joint, ditto for turbine casing joint, 2 thermometers for oil air system, 1 set of bearing bushes for one gear wheel shaft, ditto for rotor & pinion shafts, one set of packing rings for each gland of rotor shaft, 1/2 number of springs, efficient pads for one pair of pinion thrust (main), one set for turbine, 1 set of liners for adjustment block of different turbines, 1 set of feed & bilge pump valves, 1 set of valves for feed oil pump, 1 bucket & rod for same, 1 escape valve spring of each one fitted, a quantity of assorted bolts & nuts. Ban & plates of mild steel.*

The foregoing is a correct description,
ALEXANDER STEPHEN & SONS, LIMITED.

W.D. Macdonald Secretary.

Manufacturer.

Dates of Survey while building
During progress of work in shops - *1921 Aug 18 Sep 27 Oct 6 Nov 30 Dec 6 1922 Jan 27 Feb 3 7 8 13 14 17 20 22 25 Mar 6 31 Apr 11 14 20 26 May 2 12 24 26 Jun 22*
During erection on board vessel - *Jan 18 16 18 22 24 25 Feb 8*
Total No. of visits *74*

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

Dates of Examination of principal parts—Casings *27. 9. 22* Rotors *17. 10. 22* Blading *23. 11. 22* Gearing *30. 10. 22*
Rotor shaft *17. 10. 22* Thrust shaft *7. 11. 22* Tunnel shafts *17. 10. 22* Screw shaft *30. 10. 22* Propeller *23. 11. 22*
Stern tube *23. 11. 22* Steam pipes tested *19. 1. 23* Engine and boiler fittings *23. 11. 22* Engines holding down bolts *23. 12. 22*
Completion of pumping arrangements *8. 2. 23* Boilers fixed *22. 12. 22* Engines tried under steam *8. 2. 23*
Main boiler safety valves adjusted *8. 2. 23* Thickness of adjusting washers *23. 12. 22*
Material and tensile strength of Rotor shaft *Steel 34-38* Identification Mark on Do. *4303-9316 WGM*
Material and tensile strength of Pinion shaft *Steel 40-45* Identification Mark on Do. *1223C1 1223 B3*
Material of Wheel shaft *S* Identification Mark on Do. *1223C WGM* Material of Thrust shaft *S* Identification Mark on Do. *LLOYDS*
Material of Tunnel shafts *S* Identification Marks on Do. *WGM 499* Material of Screw shafts *S* Identification Marks on Do. *WGM 499*
Material of Steam Pipes *Steel* Test pressure *645 lbs.*

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 *Yes* If so, state name of vessel *S/S Farnaka*

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engine & boiler 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 of 100 lb & satisfactory. The machinery is eligible in our opinion to be classed with a view of L.M.C. 2-23. Notation of fitted for oil fuel 2. 2 B FP also 150°F*

Provision is made in boiler lighting up boiler fitted in E.R. provision is made in stove for same, to intercept any escape of oil. Sd. 21. 11. 22.

The amount of Entry Fee ... £ *6*
Special ... £ *109. 4*
Donkey Boiler Fee ... £
Travelling Expenses (if any) £

When applied for.

20. 2. 23

When received.

28. 2. 23

W. Gordon & Sons
Engineer Surveyor to Lloyd's Register of Shipping.
Jas Cairns

Committee's Minute *GLASGOW 20 FEB 1923*

Assigned *+ L M C 2.23. 23*
Fitted for oil fuel 2.23 J.P. above 150°F.

MACHINERY DEPT.
WRITTEN
20/2/23