

REPORT ON STEAM TURBINE MACHINERY. No. 96297

t. 4a.

Received at London Office MAY 26 1938

Date of writing Report 24/5/38 Port of **NEWCASTLE-ON-TYNE**
 Date, First Survey 9 March 1937 Last Survey 23/5/1938
 on the **Sted Levin Se. "UMGENI"** (Number of Visits)
 Tons } Gross 8180
 Net 5082
 Built at **Newcastle** By whom built **Swan Hunter & Wigham Richardson & Co** Yard No. **1556** When built **1938-5**
 Engines made at **do** By whom made **do** Engine No. **1556** When made **1938**
 Boilers made at **do** By whom made **do** Boiler No. **1556** When made **1938**
 Shaft Horse Power at Full Power **6668** Owners **Bullard & King Co Ltd** Port belonging to **LONDON**
 Nom. Horse Power as per Rule **1118** Is Refrigerating Machinery fitted for cargo purposes **Yes** Is Electric Light fitted **Yes**
 Trade for which Vessel is intended **S. Africa - UK.**

STEAM TURBINE ENGINES, &c.—Description of Engines **Two L.P. Loh. Stan/Baner-wach Turbines, D.R. Geared and with Hydraulic Couplings.**
 No. of Turbines Ahead **2** Direct coupled, single reduction geared } to **2** propelling shafts. No. of primary pinions to each set of reduction gearing **One**
 Astern **none** double reduction geared }
 Direct coupled to } Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 Direct Current Generator }
 Supplying power for driving Propelling Motors, Type
 Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE LOADING.	H. P.			I. 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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1st EXPANSION							61	822	1			
2nd							79	858	1			
3rd							97	894	1			
4th							115	930	1			
5th							137	974	1			
6th							160	1020	1			
7th							185	1070	1			

Shaft Horse Power at each turbine { H.P. — }
 { I.P. — }
 { L.P. 1174 }
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. — }
 { I.P. — }
 { L.P. 3780 }
 Propeller Shaft diameter at journals { H.P. — }
 { I.P. — }
 { L.P. 125 }
 Pitch Circle Diameter { 1st pinion 271.5281 }
 { 2nd pinion 309.544 }
 Width of Face { 1st reduction wheel 1330.4877 }
 { main wheel 1911.5518 }
 { 1st reduction wheel 225 }
 { main wheel 530 }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 242.5 & 227.5 }
 { 2nd pinion 390 }
 { 1st reduction wheel 372.5 & 1447.5 }
 { main wheel 480 }
 Visible Pinion Shafts, diameter { 1st 1007 }
 { 2nd — }
 Pinion Shafts, diameter at bearings { External 1st 115 }
 { Internal 1st — }
 { 2nd 280 }
 { 2nd 230 }
 diameter at bottom of pinion teeth { 1st 256.883 }
 { 2nd 294.896 }
 Wheel Shafts, diameter at bearings { 1st 190 }
 { main 440 }
 diameter at wheel shroud, { 1st 1260 }
 { main 1820 }
 Generator Shaft, diameter at bearings —
 Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule —
 as fitted —
 Thrust Shaft, diameter at collars as per rule —
 as fitted —
 Propeller Shaft, diameter as per rule —
 as fitted —
 Screw Shaft, diameter as per rule —
 as fitted —
 Is the { tube } shaft fitted with a continuous liner { screw }

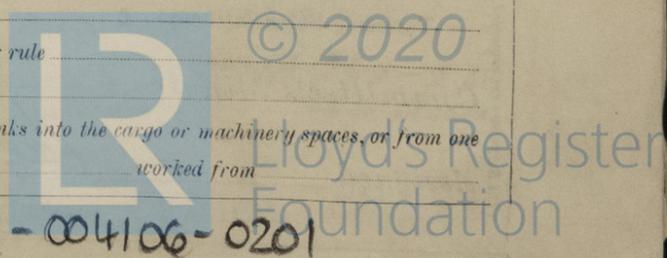
Bronze Liners, thickness in way of bushes as per rule —
 as fitted —
 Thickness between bushes as per rule —
 as fitted —
 Is the after end of the liner made watertight in the propeller boss —
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner —
 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 —
 If two liners are fitted, is the shaft lapped or protected between the liners —
 Is an approved Oil Gland or other appliance fitted at the after end of the tube —
 If so, state type —
 Length of Bearing in Stern Bush used to support propeller —

Propeller, diameter — Pitch — No. of Blades — State whether Movable — Total Developed Surface — square feet.
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine — Can the H.P. or I.P. Turbine exhaust direct to the condenser —
 No. of Turbines fitted with astern wheels —
 Feed Pumps { No. and size — }
 { How driven — }
 Pumps connected to the Main Bilge Line { No. and size — }
 { How driven — }
 Ballast Pumps, No. and size —
 Are two independent means arranged for circulating water through the Oil Cooler —
 Pumps, No. and size:—In Engine and Boiler Room —
 Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Pump Room —
 Holds, &c. —

Main Water Circulating Pump Direct Bilge Suctions, No. and size —
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes —
 Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges —
 Are all Sea Connections fitted direct on the skin of the ship —
 Are they fitted with Valves or Cocks —
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates —
 Are the Overboard Discharges above or below the deep water line —
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel —
 Are the Blow Off Cocks fitted with a spigot and brass covering plate —
 How are they protected —
 Have they been tested as per rule —

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times —
 Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another —
 Is the Shaft Tunnel watertight —
 Is it fitted with a watertight door —
 worked from —

SEE RECIPIENT'S REPORT FOR ENGINE



004101-004106-0201

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers

Is Forced Draft fitted No. and Description of Boilers Working Pressure

Is a Report on Main Boilers now forwarded?

Is { a Donkey } Boiler fitted? If so, is a report now forwarded?
 { an Auxiliary }

Is the donkey boiler intended to be used for domestic purposes only

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
 (If not state date of approval)

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied **Yes**

SPARE GEAR.

State the principal additional spare gear supplied

FOR SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

G. J. Jewdry
 DIRECTOR

The foregoing is a correct description.

Dates of Survey while building
 { During progress of work in shops -- }
 { During erection on board vessel --- }
 Total No. of visits

See Recip. Eng Report

Dates of Examination of principal parts—Casings *9th & 10th / 3/38* Rotors *17/2/38* Blading *21st & 22nd / 3/38* Gearing *17/3/38*

Wheel shaft *17/3/38* Thrust shaft *17/3/38* Intermediate shafts ✓ Tube shaft ✓ Screw shaft ✓

Propeller ✓ Stern tube ✓ Engine and boiler seatings ✓ Engine holding down bolts ✓

Completion of fitting sea connections ✓ Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Rotor shaft, Material and tensile strength *SM.F.Steel P 37.4 tons ; S. 38.8 tons* Identification Mark *P 56526 ; S. 56527 TWB.*

Flexible Pinion Shaft, Material and tensile strength *SM.F.Steel 32.0 tons* Identification Mark *S. 6246 TWB.*

1st Redn Pinion shaft, Material and tensile strength " *45.2 tons* Identification Mark *P 56340 ; S. 56341*

2nd Redn " " " " *44.0 tons* Identification Mark *56804 ; 56805*

1st Reduction Wheel Shaft, Material and tensile strength " *Pat 31.2 tons ; SHW 30.8 tons* Identification Mark *56171 ; 56172 TWB.*

Wheel shaft, Material *SM.F.Steel* Identification Mark *9912 ; 9913 / 561 AEG.* Thrust shaft, Material ✓ Identification Mark ✓

Intermediate shafts, Material ✓ Identification Marks *SEE RPT 4 FOR RECIP. ENGS.* Tube shaft, Material ✓ Identification Marks ✓

Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test ✓ Is an installation fitted for burning oil fuel ✓

Is the flash point of the oil to be used over 150°F. ✓ Have the requirements of the Rules for the use of oil as fuel been complied with

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo ✓ If so, have the requirements of the Rules been complied with

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with ✓

Is this machinery a duplicate of a previous case *Yes* If so, state name of vessel *UMTALI.*

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

The Machinery has been constructed under special Survey in accordance with the Rules & approved plan, examined under steam on test bed, afterwards satisfactorily installed on board and tried under full working conditions.

The materials and workmanship are good.

The amount of Entry Fee ... £	✓	When applied for,
Special £	✓	19
Donkey Boiler Fee £		When received,
Travelling Expenses (if any) £		19

A Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 3 JUN 1938

Assigned

See NWC. J.E. 96297



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