

ELECTRIC GENERATING REPORT ON STEAM TURBINE MACHINERY.

No. 104938

pt. 4a.

Date of writing Report 23rd Sept 1937 When handed in at Local Office -2 OCT 1937 Port of London
 No. in Survey held at Rugby Date, First Survey 23 Nov 1936 Last Survey 29 July 1937
 Reg. Book. (Number of Visits 20)

STRATHALLAN

Built at Barrow By whom built Vickers Armstrongs Ltd. Yard No. 723 When built 1937
 Engines made at Rugby By whom made B.T.H. Co. Ltd. Engine Nos. R1900, R1901 When made 1937
 Generators made at Rugby By whom made B.T.H. Co. Ltd. Generator Nos. GR 58193 When made 1937
 Shaft Horse Power at Full Power 2220 Owners _____ Port belonging to _____
 Nom. Horse Power as per Rule 370 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
 Trade for which Vessel is intended _____

TEAM TURBINE ENGINES, &c.—Description of Engines Three 500kW. Turbo electric generating sets
 No. of Turbines 3 (1 per set) Direct coupled, single reduction geared } to generator propelling shafts. No. of primary pinions to each set of reduction gearing 1
 direct coupled to Alternating Current Generator phase _____ periods per second } each 500 Kilowatts 220 Volts at 900 revolutions per minute;
 for supplying power for driving and lighting Propelling Motors, Type _____
 rated _____ Kilowatts _____ Volts at _____ revolutions per minute. Direct coupled, single or double reduction geared to _____ propelling shafts.

TURBINE BLADING	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	1.14"	26.46"	2									
2ND	.60"	26.60"	1									
3RD	.96"	27.32"	1									
4TH	2.12"	29.44"	1									
5TH	4.10"	33.39"	1									
6TH												
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. } 740 Revolutions per minute, at full power, of each Turbine Shaft { H.P. 6000 1st reduction wheel }
 { I.P. } { L.P. } { I.P. } { L.P. } { main shaft Generator 900

Rotor Shaft diameter at journals { H.P. ind. 3" } Pitch Circle Diameter { 1st pinion 4.5913" 1st reduction wheel } Width of Face { 1st reduction wheel }
 { I.P. } { L.P. ind. 3 1/2" } { 2nd pinion } main wheel 30.6699" { main wheel 4 1/2 x 2 = 9"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 9.250" 1st reduction wheel }
 { 2nd pinion } main wheel 9.250"

Flexible Pinion Shafts, diameter { 1st } Pinion Shafts, diameter at bearings External { 1st } 2nd { diameter at bottom of pinion teeth { 1st 4.1563" }
 { 2nd } Internal { 4" } { 2nd }

Wheel Shafts, diameter at bearings { 1st } diameter at wheel shroud, { 1st } Generator Shaft, diameter at bearings 5" { 2nd }
 { main 5" } { main 2'-3.75" } Propelling Motor Shaft, diameter at bearings _____

Intermediate shafts, diameter as per rule _____ Thrust Shaft, diameter at collars as per rule _____
 as fitted _____ as fitted _____

Tube Shaft, diameter as per rule _____ Screw Shaft, diameter as per rule _____ Is the { tube } shaft fitted with a continuous liner { screw }
 as fitted _____ as fitted _____

Bronze Liners, thickness in way of bushes as per rule _____ Thickness between bushes as per rule _____ Is the after end of the liner made watertight in the
 as fitted _____ as fitted _____ 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
 shaft _____ Length of Bearing in Stern Bush next to and supporting propeller _____

Propeller, diameter _____ Pitch _____ No. of Blades _____ State whether Moveable _____ Total Developed Surface _____ square feet.
 If 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 _____ Lubricating Oil Pumps, including Spare Pump, No. and size _____

Are two independent means arranged for circulating water through the Oil Cooler _____ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 Pumps, No. and size:—In Engine and Boiler Room _____ In Pump Room _____

In Holds, &c. _____

Main Water Circulating Pump Direct Bilge Suctions, No. and size _____ Independent Power Pump Direct Suctions to the Engine Room _____

Bilges, 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 _____

What pipes pass through the bunkers _____ How are they protected _____

What pipes pass through the deep tanks _____ 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 _____

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

Is Forced Draft fitted No. and Description of Boilers

Is a Report on Main Boilers now forwarded? If so, is a report now forwarded?

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

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

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 **Steam rotor, armature, 2 sets of all bearings, 3 sets of gland packings, 2 sets of brushes, 1 set of field coils.**

THE BRITISH THOMSON-HOUSTON CO., LTD. Manufacturer.

The foregoing is a correct description, **per H.R. Ganning**

Dates of Survey while building { During progress of work in shops -- } 1936: Nov 23. Dec 16 Feb 15. 22 Mar 12. Apr 5. 15. 21. 28. May 5. 19. 31. June 10. 15. 18. 22. 29
 { During erection on board vessel --- } **July 2. 12. 29**
 Total No. of visits

Dates of Examination of principal parts—Casings **19.5.37. 22.6.37** Rotors **21.4.37 to 29.6.37** Blading **21.4.37 to 29.7.37** Gearing **23.11.36 to 16.12.37**

Wheel shaft **16.12.36 to 29.7.37** Thrust shaft 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 fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength **Q.D. Steel 43/45 ton² 17/24.70.** Identification Mark **See list**

Pinion shaft, Material and tensile strength **Nickel Steel. 49.2/51.0 ton² 24/24.70.** Identification Mark **See list.**

1st Reduction Wheel Shaft, Material and tensile strength Identification Mark **See list.**

Wheel shaft, Material **Q.D. Steel** Identification Mark **See list.** Thrust shaft, Material Identification Mark

Intermediate shafts, Material Identification Marks 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 **Vickers Armstrong/4 N° 722.**

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

These turbo electric generating sets have been specially surveyed during construction. Materials used have been made at works approved by the Committee and tested by the Surveyors to the Society. Hydraulic pressure tests of 900 lb² on the valves, 900 lb² on the steam belts & 500 lb² on remainder of the turbine casing were witnessed, found satisfactory & the pieces stamped accordingly.

Each set was examined under full power, governing, suspended & trip gear tests in the presence of the Surveyors. They have now been dispatched to Barron for fitting on board.

Attached hereto—Logbook sheets 12. in n^o. Report form (76) on generator 3—n^o. 3 sets of drawings

370 SHP @ 21/2 = 37.0.0.

The amount of Entry Fee ... £ : : When applied for, **To be collected by Barron.**

Special ... £ **37.0.0.** : : When received,

Donkey Boiler Fee ... £ : : **26.3.19.38/283.**

Travelling Expenses (if any) £ **11.0.3** : : **FRI 18 MAR 1938**

Committee's Minute **Assigned Su Brew 2687**



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