

# ELECTRIC GENERATING REPORT ON STEAM TURBINE MACHINERY. No. 101,283

Received at London Office... 29 MAR 1935

Writing Report 20<sup>th</sup> March 1935 When handed in at Local Office 29 MAR 1935 Port of London  
 Survey held at Bedford Date, First Survey 5<sup>th</sup> November 1934 Last Survey 1<sup>st</sup> February 1935  
 (Number of Visits 12)

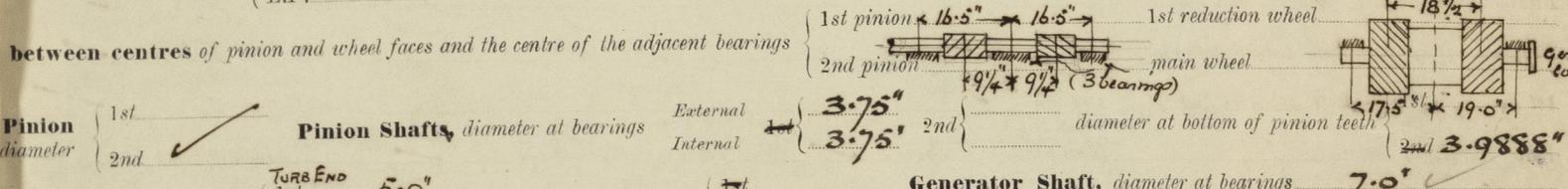
at Barrow By whom built Vickers-Armstrongs Ltd. Yard No. 697 When built 1935  
 es made at Bedford By whom made W.H. Allen & Sons Ltd. Engine No. T/44090 When made 1935  
 made at do By whom made do Boiler No. E/44093 When made 1935  
 rse Power at Full Power 2205 Owners Orient Steam Navigation Co. Ltd. Port belonging to do  
 rse Power as per Rule 367.5 Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted Yes  
 which Vessel is intended Panangu Ymel

## TURBINE ENGINES, &c.—Description of Engines 3-500KW. turbo-generating sets.

rbines Ahead Direct coupled, single reduction geared to Generator propelling shafts. No. of primary pinions to each set of reduction gearing 1  
 Astern double reduction geared  
 d to Alternating Current Generator phase 3 periods per second } rated 500 Kilowatts 220 Volts at 500 revolutions per minute;  
 g power for driving Lighting Propelling Motors, Type Direct Current Generator  
 Kilowatts 500 Volts at 220 revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

No.	V.E.	V.G.	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.
1	MOV.	Guine.	5/8"	22 3/4"	1									
2	MOV.		7/8"	23	1									
3	MOV.		1 1/8"	23 1/4"	1									
4			7/16"	22 9/16"	1									
5			3/16"	22 9/16"	1									
6			1/2"	22 5/8"	1									
7			5/8"	22 3/4"	1									

rse Power at each turbine { H.P. 735 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5000 } 1st reduction wheel  
 { I.P. 500 } { L.P. 500 } main shaft  
 shaft diameter at journals { H.P. 3 1/2" } Pitch Circle { 1st pinion 43.3478" } 1st reduction wheel { Width of Face { 1st reduction wheel 2 1/2" }  
 { I.P. 43.6448" } main wheel { 2nd pinion 43.6448" } main wheel { 2nd 2 1/2" }  
 { L.P. 43.6448" } main wheel { 2nd 2 1/2" } main wheel



Pinion diameter { 1st 3.75" } Pinion Shafts, diameter at bearings { External 3.75" } 2nd { Internal 3.75" } diameter at bottom of pinion teeth { 3.9888" }  
 shaft diameter at bearings { TURB END 5.0" } diameter at wheel shroud, { 1st 7.0" } Generator Shaft, diameter at bearings 7.0"  
 { GEN. END 8.0" } { main 7.0" } Propelling Motor Shaft, diameter at bearings 7.0"

Shafts, diameter as per rule 7.0" Thrust Shaft, diameter at collars as per rule 7.0"  
 as fitted 7.0" as fitted 7.0"  
 shaft, diameter as per rule 7.0" Screw Shaft, diameter as per rule 7.0"  
 as fitted 7.0" as fitted 7.0" Is the { tube } shaft fitted with a continuous liner { screw }

Liners, thickness in way of bushes as per rule 7.0" Thickness between bushes as per rule 7.0" Is the after end of the liner made watertight in the 8/4/35  
 as fitted 7.0" as fitted 7.0"  
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner  
 er 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  
 ners 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 next to and supporting propeller

er, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.  
 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

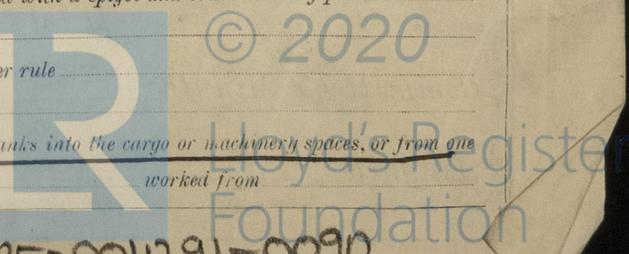
No. of Turbines fitted with astern wheels Feed Pumps { No. and size }  
 { How driven }  
 onected to the Main Bilge Line { No. and size }  
 { How driven }

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

ater Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room  
 No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes  
 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  
 sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

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  
 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  
 es pass through the bunkers How are they protected  
 pipes pass through the deep tanks Have they been tested as per rule

Water Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times  
 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  
 rtment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from



**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? \_\_\_\_\_  
 Is **an Auxiliary** Boiler fitted? \_\_\_\_\_

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 \_\_\_\_\_

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied \_\_\_\_\_

State the principal additional spare gear supplied \_\_\_\_\_

For W. H. Allen Sons & Co Ltd  
 A. J. H. Fitt

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops -- } 1934. Nov. 5, 8, 13, 15, 16, 21, Dec. 6, 12, 1934. Jan. 9, 22, 25, Feb. 1. = 12 visits  
 { During erection on board vessel --- }  
 Total No. of visits

Dates of Examination of principal parts—Casings 5-11-34 - 21-11-34 Rotors 12-12-34 Blading 12-12-34 Gearing 12-12-34

Wheel shaft 12-12-34 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 fixed — Engines tried under steam —

Main boiler safety valves adjusted — Thickness of adjusting washers —

Rotor shaft, Material and tensile strength — Identification Mark —

Flexible Pinion Shaft, Material and tensile strength — Identification Mark —

Pinion shaft, Material and tensile strength — Identification Mark —

1st Reduction Wheel Shaft, Material and tensile strength — Identification Mark —

Wheel shaft, Material — Identification Mark — 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 — If so, state name of vessel —

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

*These turbo-generator sets have been surveyed during construction. Hydraulic force of 700 lb on steam chests & belts, of 170 lb on high pressure ends and of 50 lb on low pressure ends of turbine casings were witnessed & stamped accordingly. So far as can be seen materials used are sound & free from defects. Each set was recommissioned and power governing & trip gear tests in the shop found satisfactory.*

*They have now been dispatched to Barran for fitting onboard & will in my opinion the notation of Electric Light in the Register Book when installed & required by the Rules. Attaches hereto: 3 reports from "76" on generator.*

The amount of Entry Fee ... £ 34-13-0  
 Turbines 12 Units @ £2-2-0 }  
 Special ... }  
 Generator 3 Units @ £3-3-0 }  
 Donkey Boiler Fee ... £  
 Travelling Expenses (if any) £ 4 : 18 : 10

When applied for,

29 MAR 1935

When received,

2nd May 1935

Geo. A. Lang Esq. O. Watson  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

FRI, 9 AUG 1935

Assigned

See Brw. 76 2576

TUE. 13 AUG 1935

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Lloyd's Register Foundation

Certificate (if required) to be sent to the Committee's Minute.