

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.)  
on the  
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  
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. 500 H.P. turbo-generating sets.

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 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 Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

VE 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.
SION	5/8"	22 3/4"	1									
Guine	7/8"	23	1									
Nov.	1 1/8"	23 1/4"	1									
	3/16"	22 9/16"	1									
	3/16"	22 9/16"	1									
	1/2"	22 5/8"	1									
	5/8"	22 3/4"	1									

rse Power at each turbine { H.P. 735  
I.P. 5000  
L.P. 500  
1st reduction wheel  
main shaft 500  
Pitch Circle { 1st pinion 1st reduction wheel  
Diameter { 2nd pinion 4.3478" main wheel 43.6448"  
Width of Face { 1st reduction wheel  
main wheel 2 1/2 7 1/2"

between centres of pinion and wheel faces and the centre of the adjacent bearings  
Pinion diameter { 1st  
2nd  
Pinion Shafts, diameter at bearings External 3.75"  
Internal 3.75"  
2nd  
1st reduction wheel  
main wheel  
diameter at bottom of pinion teeth 3.9888"

shaft diameter at bearings { TURB END 5.0"  
GEN. END 8.0"  
diameter at wheel shroud, { 1st  
main 7.0"  
Generator Shaft, diameter at bearings 7.0"  
Propelling Motor Shaft, diameter at bearings  
as per rule  
Thrust Shaft, diameter at collars as per rule  
as fitted

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 }  
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

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  
Length of Bearing in Stern Bush next to and supporting propeller  
If so, state type  
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  
connected 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  
In Pump Room  
No. and size:—In Engine and Boiler Room  
, &c.

Water 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  
How are they protected  
How are they protected  
Have they been tested as per rule

pipes pass through the deep tanks  
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  
partment to another  
Is the Shaft Tunnel watertight  
Is it fitted with a watertight door  
worked from

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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 the donkey boiler intended to be used for domestic purposes only

Plans, Are approved plans forwarded herewith for Shafting  
(If not state date of approval)

Main Boilers

Auxiliary Boilers

Donkey Boilers

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 tests 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. As 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  
Turbine 12 Visits @ £2-2-0  
Special ...  
Generator 3 Visits @ £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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