

REPORT ON STEAM TURBINE MACHINERY. No. 102827

ELECTRIC GENERATING

Date of writing Report 31st March 1936 when handed in at Local Office

15 APR 1936

Port of London

Received at London Office 15 APR 1936

No. in Survey held at Rugby.

Date, First Survey 19th July 1935. Last Survey 13th March, 1936.

Reg. Book.

(Number of Visits 15)

on the

Built at Barnaw

By whom built Vickers Armstrong Ltd

Yard No. 707

Tons } Gross
Net

Engines made at Rugby

By whom made British Thompson-Houston Co. Ltd

Engine No. R 1815

When built 1936

Boilers made at Rugby

By whom made B.T.H.

Boiler No. R 1816

When made 1936

Shaft Horse Power at Full Power 2010

Owners

Port belonging to

Nom. Horse Power as per Rule 335

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted Yes

Trade for which Vessel is intended

Total 1350 H.P.

STEAM TURBINE ENGINES, &c.—Description of Engines Three - 450 K.W. Turbo-electric generating sets.

No. of Turbines 1 per set (3) Direct coupled, single reduction geared } to generate, propelling shafts. No. of primary pinions to each set of reduction gearing 1.
 Direct coupled to Alternating Current Generator phase periods per second each 450 Kilowatts 220 Volts at 900 revolutions per minute;
 for supplying power for lighting & 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	0.61"	26.46"	2									
2ND	0.70"	26.60"	1									
3RD	1.06"	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. } 670 (each) Revolutions per minute, at full power, of each Turbine Shaft { H.P. 6000 1st reduction wheel —
 { I.P. } { L.P. } main shaft (Generator) 900

Rotor Shaft diameter at journals { H.P. Eng 3" Pitch Circle 1st pinion 4.5913" 1st reduction wheel — Width of 1st reduction wheel —
 { I.P. — Diameter 2nd pinion — main wheel 30.6699" Face { main wheel 2.4 1/2" each.
 { L.P. Eng 3 1/2" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 6" 1st reduction wheel —
 { 2nd pinion — main wheel 6 5/8"

Flexible Pinion Shafts, diameter { 1st — Pinion Shafts, diameter at bearings External 1st { 4" 2nd { — diameter at bottom of pinion teeth { 1st 3.7983"
 { 2nd — Internal 1st { — 2nd { —

Wheel Shafts, diameter at bearings { 1st — diameter at wheel shroud, { 1st — Generator Shaft, diameter at bearings 5"
 { main 5" { main 27 3/4" 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 {
 as fitted as fitted { screw }

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 If so, state type 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

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

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 or Auxiliary 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

Steam Turbine: 1 complete rotor, 2 sets Governor Spares, 2 sets (6) turbine bearings, 6 governor spindles, 3 oil pump rods, 1 block for oil cooler, 2 oil pump columns, 2 worm & worm wheels.

Gears: 2 sets (8) bearings for gear line. Circulating water pumps: 1 impeller, 1 spindle, 1 ball and 1 roller bearing. Extraction Pump: 1 impeller, 1 pump spindle, 1 armature, 2 sets brushes, 1 set brush holder.

1 set (2) motor bearings, 1 interior for motor, Air Ejector 2 sets (2) steam nozzles with holders.

2 N.R. valves complete with guards & nuts.

Main Generators: 1 complete armature, 1 brush arm complete, 2 sets (312) carbon brushes, 1 bearing for

1 set (6) motor & series field coils.

The foregoing is a correct description.

THE BRITISH THOMSON-HOUSTON CO. LTD.

per Lloyd's Register

Manufacturer.

Dates of Survey while building

During progress of work in shops

During erection on board vessel

Total No. of visits

1935. July 19. 20. Oct. 9. 14. 21. Dec. 17. 18. 23. 1936 Jan. 16. 29 Feb. 18. 20. 26. Mch. 10. 13 = 15 visits.

Dates of Examination of principal parts—Casings 23.12.35/13.3.36 Rotors 16.1.36/13.3.36 Blading 16.1.36/13.3.36 Gearing 14.10.35/13.3.36

Wheel shaft 14.10.35/13.3.36 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

TURBINE Rotor shaft. Material and tensile strength 4.2. Steel (Nickel) 42/45 Ton

Identification Mark 2 off. LLOYDS 241 CSP 17.12.35 SAL 16.1.36

Flexible Pinion-Shaft, Material and tensile strength

Identification Mark 2 off. do

Pinion shaft, Material and tensile strength 4. Nickel Steel 48/48.2 Ton

Identification Mark LLOYDS 147 CSP 27.9.35 SAL 14.10.36

1st Reduction Wheel Shaft, Material and tensile strength 4.2. Steel 40/41.2 Ton

Identification Mark per Longing Certificate

Wheel shaft, Material 4.2. Steel Identification Mark per Longing Certificate 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-electric generating sets have been specially surveyed during construction.

The materials used have been made at works approved by the Committee and tested by the Surveyor to this Society. Hydraulic pressure tests of 850 lb on the stop valves, 900 lb on the steam belts and of 50 lb on the remainder of the turbine casings were undertaken found satisfactory and the pieces stamped accordingly. Each set was examined under full power, governing and trip gear tests in the shop and found satisfactory.

They have now been dispatched to Barran. Turners for fitting onboard

Attached hereto: Longing Certificate 8 in N. Report form (76) on generators 4 in N.

The amount of Entry Fee ... £ 25.4.0
 1st 12 Mths £ 2.2.0
 Special ... £ 34.18.0
 Generator ... £ 29.4.0
 Donkey Boiler Fee ... £
 Travelling Expenses (if any) £ 16.17.5

When applied for

15 APR 1936

When received

31.7.36

Geo. A. Farrag

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

WED. 5 AUG 1936

Assigned

See Br. 26.2619

LR-FAF-TB14-248

4c.

of writing in in Surve Book.

on

uilt at

hners

oil Engines

generators

No. of Sets

IL ENG

Maximum pres

Span of bearing

Revolutions p

Crank Sha

Flywheel S

Is a governo

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Cooling V

Lubricati

Air Comp

Scavengi

AIR R.

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