

REPORT ON STEAM TURBINE MACHINERY.

ELECTRIC GENERATING

No. 104938

Date of writing Report 23rd Sept 1937 When handed in at Local Office

-2 OCT 1937

Port of London

Received at London Office

No. in Survey held at Rugby Reg. Book.

Date, First Survey 23 Nov 1936

Last Survey 29 July 1937

(Number of Visits 20)

on the

STRATHALLAN

Tons Gross Net

Built at Barrow
Engines made at Rugby
Boilers made at Rugby

By whom built Vickers Armstrong Ltd.
By whom made B.T.H. C. Ltd.
By whom made B.T.H. C. Ltd.

Yard No. 723 When built 1937
Turbine Engine Nos R1900, R1901
Generator Nos R58193, R58195
Boiler Nos R58193, R58195
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

STEAM TURBINE ENGINES, &c.—Description of Engines Three 500K.W. 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 { I.P. } { L.P. } 6000 1st reduction wheel
Revolutions per minute, at full power, of each Turbine Shaft { I.P. } { L.P. } main shaft Generator 900

Rotor Shaft diameter at journals { H.P. ind. 3" } Pitch Circle { 1st pinion 4.5913" } 1st reduction wheel
{ I.P. } { L.P. ind. 3 1/2" } Diameter { 2nd pinion } main wheel 30.6699" Width of Face { 1st reduction wheel }
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 { 4" } 2nd { } diameter at bottom of pinion teeth { 1st 4.1563" }
{ 2nd } Internal { } { 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

Tube Shaft, diameter as per rule Screw Shaft, diameter as per rule Is the { tube } shaft fitted with a continuous liner { 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 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 } 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 Shifting
(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 Yes

State the principal additional spare gear supplied Steam rotor, armature, 2 sets of all bearings, 3 sets of gland packings,
2 sets of bushings, 1 set of field coils.

THE BRITISH THOMSON-HOUSTON CO., LTD.

Manufacturers.

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 4.0 steel 43/45 ton 17/2470 Identification Mark See list

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength Nickel Steel 49.2/51.0 ton 24/2470 Identification Mark See list

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

Wheel shaft, Material 4.0 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 & Co. 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 lb on the valves, 900 lb on the steam belts & 50 lb 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 12. in 11.

Report form (76) on generator 3 - 11.

3 sets of drawings

370 SHP @ 21/2 = 37.0.0.

The amount of Entry Fee ... £ 37.0.0.

Special ... £ 37.0.0.

Donkey Boiler Fee ... £ 11.0.3

Travelling Expenses (if any) £ 11.0.3

Committee's Minute

Assigned Su Rev 2687

FRI 18 MAR 1938



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