

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY.

No. 104735

Date of writing Report 27th July 1937 When handed in at Local Office

5 AUG 1937

Port of London

Received at London Office 5 AUG 1937

No. in Survey held at Rugby

Date, First Survey 12th March 1937 Last Survey 2nd July 1937

Reg. Book.

on the Twin S.S. 'City of Cape Town'

(Number of Visits 9)

Tons } Gross
Net

Built at Birkenhead.

By whom built Cammell Laird & Co. Ltd.

Yard No. 1023 When built 1937.

Engines made at Rugby.

By whom made B.T.H. Co. Ltd.

TURBINE R 1932 R 1933

Engines made at Rugby.

By whom made B.T.H. Co. Ltd.

ENGINE Nos R 1934

Shaft Horse Power at Full Power 675

Owners The Ellerman Line Ltd

GENERATOR R 58331

Boiler Nos R 58332 R 58333 When made 1937.

Nom. Horse Power as per Rule 112.5

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines Three—150 kW. 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 150 Kilowatts 220 Volts at 800 revolutions per minute;

for supplying power for driving and lighting Propelling Motors, Type Direct Current Generator rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE BLADING.

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	Port. 1..		70"	19.54"	2										
2ND	" Inter....		92"	18.00"											
3RD	" Port. 2..		1.20"	18.98"											
4TH	2 nd Port... 1..		52"	19.32"	2										
5TH	" Inter....		72"	18.00"											
6TH	" Port. 2..		94"	19.76"											
7TH	3 rd Port. 1..		90"	20.08"	2										
8TH	" Inter....		1.18"	18.00"											
9TH	" Port. 2..		1.48"	20.84"											
10TH	"														
11TH	"														
12TH	"														

Shaft Horse Power at each turbine { H.P. 225 } I.P. 6500 1st reduction wheel
 { L.P. } I.P. main shaft Generator 800

Rotor Shaft diameter at journals { H.P. and 1.75" } Pitch Circle Diameter { 1st pinion 2.6245" 1st reduction wheel
 { I.P. } { 2nd pinion main wheel 21.3894" } Width of Face { 1st reduction wheel
 { L.P. and 1.75" } { main wheel 4" x 2 = 8" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 7" and 8" 1st reduction wheel
 { 2nd pinion main wheel 7" and 8" }

Flexible Pinion Shafts, diameter { 1st } Pinion Shafts, diameter at bearings { both } External { 2 1/4" } 2nd { diameter at bottom of pinion teeth { 1st 2.3429" }
 { 2nd } Internal { 2 1/4" } { 2nd } { 2nd }

Wheel Shafts, diameter at bearings { 1st 3 3/4" } diameter at wheel shroud, { 1st } Generator Shaft, diameter at bearings 4"
 { main } { main } 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

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004866-004872-0081

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}
^{an 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 5-1-37
(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 1 set of turbine, gears and generator bearings, 1 set of gland packings, 1 set of carbon brushes, 1 brush spindle, 1 set brush springs, 1 set governor springs

THE BRITISH THOMSON-HOUSTON CO., LTD.

Manufacturer.

The foregoing is a correct description,

per H.R. Manning

Dates of Survey while building
During progress of work in shops ---
During erection on board vessel ---
Total No. of visits

1937. Mch 12, May 19, 31, Jun. 10, 15, 18, 22, 24 July 2. = 9 visits

Dates of Examination of principal parts—Casings 31-5-37, 10-6-37 Rotors 5-5-37 1/2, Blading 10-6-37 1/2, 2-7-37 Gearing 5-5-37 1/2

Wheel shafts 12-3-37, 1/2 12-6-37 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 41.72 t² 23% - 42.52 t² 24% - 40.08 t² 26% Identification Mark 723 and 124, 125, 127

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength Nickel Steel 51.16 t² 23.5% 50.8 t² 23% 48.0 t² 24% Identification Mark 726/118, 179/143, 742/148

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

Wheel shaft, Material 4.0 Steel Identification Mark 672/111, 672/112 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 No If so, state name of vessel

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

These three turbo electric generating sets have been specially surveyed during construction and are in accordance with the approved plan and the rules. The materials used have been made at works approved by the Committee & tested by the Surveyors to this Society. Full power, over speed, governing & trip gear tests were witnessed in the shop & all worked satisfactorily. They have now been dispatched to Birmingham for fitting on board.

The above have been satisfactorily fitted on board and examined under full working conditions. Attached hereto: Report on generator 3 m H. List of Stampings Longing certificate being common to both vessels will be attached to report on vessel 10.

112 HPC 21.
The amount of Entry Fee ... £
Special ... £ 11.4-0
Donkey Boiler Fee ... £
Travelling Expenses (if any) £ 3.3-9.

When applied for,
5 AUG 1937

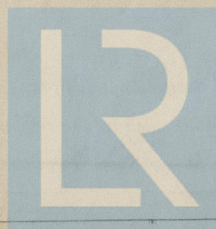
When received,
11/10/1937

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

J. B. Millon

Committee's Minute

Assigned



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