

REPORT ON STEAM TURBINE MACHINERY. No. 92273

Received at London Office FEB 1935

Date of writing Report 19 When handed in at Local Office 27.2.35 Port of NEWCASTLE-ON-TYNE
 No. in Survey held at Walker-on-Tyne Date, First Survey 3rd Dec/34 Last Survey 13th Feb 1935
 Reg. Book. on the Gas-pressure Bauer-Wach turbine for hull. (Number of Visits 15)
 Built at Wulms By whom built Charles S. Holmes & Co. Ltd. by Swan Hunter, W R Swanwick Yard No. 1440 Tons } Gross }
 Engines made at Walker By whom made Swan Hunter, W R Swanwick Engine No. 1440 When made 1935 Net }
 Boilers made at Walker By whom made Swan Hunter, W R Swanwick Boiler No. 1440 When made 1935
 Shaft Horse Power at Full Power 304 Owners Swan Hunter, W R Swanwick Port belonging to Swan Hunter, W R Swanwick
 Nom. Horse Power as per Rule 51 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No
 Trade for which Vessel is intended Coal

STEAM TURBINE ENGINES, &c.—Description of Engines One L.P. exhaust Bauer-Wach turbine

No. of Turbines Ahead one Direct coupled, single reduction geared } to one propelling shafts. No. of primary pinions to each set of reduction gearing one
 Astern one double reduction geared }
 direct/coupled to { Alternating Current Generator phase 3 periods per second } rated 304 Kilowatts Volts at 2300 revolutions per minute;
 for supplying power for driving { Direct Current Generator }
 Propelling Motors, Type Direct coupled, single or double reduction geared to propelling shafts.
 rated 304 Kilowatts Volts at 2300 revolutions per minute.

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							23 1/2"	396 1/4"	1			
2ND "							36 "	418 "	1			
3RD "							44 "	438 "	1			
4TH "							54 "	458 "	1			
5TH "							65 "	480 "	1			
6TH "							75 "	500 "	1			
7TH "							84 "	520 "	1			
8TH "							100 "	550 "	1			
9TH "												
10TH "												
11TH "												
12TH "												

Shaft Horse Power at each turbine { H.P. : } 1st reduction wheel 415
 { I.P. : } main shaft 116
 { L.P. 304 }
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. : }
 { I.P. : }
 { L.P. 4080 }
 Rotor Shaft diameter at journals { H.P. : }
 { I.P. : }
 { L.P. 99.9 1/2 }
 Pitch Circle Diameter { 1st pinion 111.985 1/2 } 1st reduction wheel 1101.185 1/2 Width of Face { 1st reduction wheel 110 1/2
 { 2nd pinion 201.342 } main wheel 1191.427 1/2 Face { main wheel 340 1/2

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 112 1/2 } 1st reduction wheel 196 1/2 8.4 1/2 aft.
 { 2nd pinion 268 1/2 } main wheel 245 1/2 8.250 1/2 aft.

Flexible Pinion Shafts, diameter { 1st : } Pinion Shafts, diameter at bearings External { 99.9 1/2 } 1st { 180 1/2 } diameter at bottom of pinion teeth { 1st 109.94 1/2
 { 2nd : } Internal { 20 1/2 } 2nd { } { 2nd 194.64 1/2

Wheel Shafts, diameter at bearings { 1st 200 1/2 } diameter at wheel shroud, { 1st 1080 1/2 } Generator Shaft, diameter at bearings
 { main 220 1/2 as approved } { main 1084 1/2 } Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule 220-205 1/2 Thrust Shaft, diameter at collars as per rule 220-205 1/2 Tube Shaft, diameter as per rule
 as fitted 220-205 1/2 as fitted 220-205 1/2 as fitted 220-205 1/2

Screw Shaft, diameter as per rule 220-205 1/2 Is the { tube } shaft fitted with a continuous liner { } Bronze Liners, thickness in way of bushes as per rule
 as fitted 220-205 1/2 { screw } { } as fitted 220-205 1/2 as fitted 220-205 1/2

Thickness between bushes as per rule 220-205 1/2 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
 as fitted 220-205 1/2 { } { } If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a
 made by fusion through the whole thickness of the liner { } 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 { } Length of Bearing in Stern Bush next to end supporting propeller { }

Propeller, diameter 220 1/2 Pitch 20 1/2 No. of Blades 12 State whether Moveable No Total Developed Surface 116 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 2 Lubricating Oil Pumps, including Spare Pump, No. and size 2
 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 { }

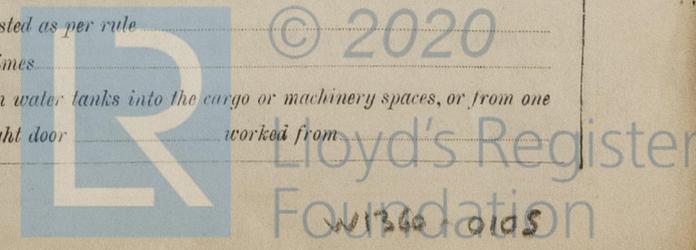
In Holds, &c. { } Main Water Circulating Pump Direct Bilge Suctions, No. and size 2 Independent Power Pump Direct Suctions to the Engine Room
 Bilges, No. and size 2 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes { }

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 fired 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? _____ If so, is a report now forwarded? _____
 { an Auxiliary }

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. State the articles supplied:— 2 studs + nuts each for turbine + pinion bearings. 2 Tap bolts for 2nd reduction wheel bearings. 2 bolts + nuts for gear case top joint 2 studs + nuts for gear case middle joint 14 kirkell pads for main thrust + 10 for turbine thrust also 2 rings for 2nd reduction pinion thrust. Spring + set-washers for governor

The foregoing is a correct description,

Geo H Wright, Manufacturer

Dates of Survey while building { During progress of work in shops -- } 1934 Dec. 3. 7. 10. 14. 20. 28. { During erection on board vessel --- } 1935 Jan. 3. 11. 14. 16. 22. 23. 28. Feb. 4. 13. Total No. of visits 15

Dates of Examination of principal parts—Casings _____ Rotors 16.1.35 Blading 16.1.35 Gearing 22.1.35
 Wheel shaft 14.1.35 Thrust shaft _____ Intermediate shafts _____ Tube shaft _____ Screw shaft _____
 Propeller _____ Stern tube _____ Engine and boiler seatings _____ Engine holding down bolts _____
 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 Steel 37.9 tons Identification Mark 463 AC
 Pinion Shaft, Material and tensile strength Steel 43.8 kirkell Identification Mark 470 AC
 2nd Red. Wheel shaft Steel 32.8 Pinion 44.9 Identification Mark 466 AC 4602 JG
 1st Reduction Wheel Shaft, Material and tensile strength Steel 34.8 Identification Mark 10864 MB
 Wheel shaft, Material and Identification Mark - Thrust shaft, Material Steel 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 _____
 Is this machinery a duplicate of a previous case for _____ If so, state name of vessel 1454 "Kingston Cornelian" also 1468

General Remarks (State quality of workmanship, opinions as to class, &c.)
 This machinery has been constructed under special survey in accordance with the rules + approved plans, examined under steam on test bed + found satisfactory. The materials + workmanship are good. The machinery is being forwarded to Hull to be installed in conjunction with reciprocating machinery.

The amount of Entry Fee ... £ : : When applied for, 27 FEB 1935 For J. A. Ferguson T. J. Stoddart
 Special 2/3 ... £ 3 : 8 : :
 Donkey Boiler Fee ... £ : : :
 Travelling Expenses (if any) £ : : :
 When received, 14.3.1935 to Hull L.R.

Committee's Minute TUE. 19 MAR 1935
 Assigned See Hull J.E. 45380



Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)